

EDITOR'S PROFILE of this issue

from a historical perspective ...

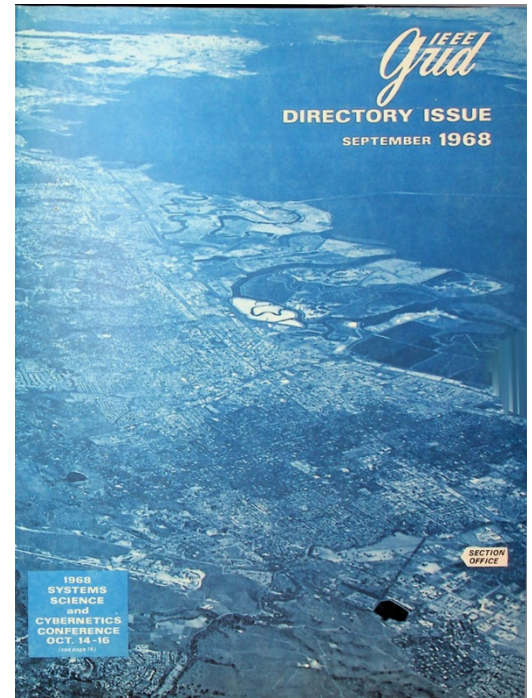
with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

September, 1968:

Cover: An aerial view above Palo Alto looking north, with Stanford University in the lower-right and an arrow pointing to our IEEE Section office at 701 Welch Road. The harbor at Redwood City is in the center, with San Francisco in the upper-left.

Page 2: The Communications Technology chapter holds a dinner at the Paul Masson Mountain Winery on one night, and the S.F. Section holds one on another evening, high above Saratoga. The patio there was a wonderful place for a meal and wine overlooking our Santa Clara Valley while the sun set and the lights came on. Details are on page 8.

Page 10ff: The roster of Section and chapter officers:



Archive of available SF Bay Area GRID Magazines is at this location:

https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History

At time of scanning, the bound volumes are held by Paul Wesling.

April, 2025

Contact p.wesling@ieee.org



IEEE
Grid

DIRECTORY ISSUE

SEPTEMBER 1968

**1968
SYSTEMS
SCIENCE
and
CYBERNETICS
CONFERENCE
OCT. 14-16**

(see page 14)

**SECTION
OFFICE**

missile engineers

Launch your new career at HUGHES Missile Systems Division

The Missile Systems Division combines the technical and business functions associated with missile analysis, design, engineering, fabrication and checkout. Located at Canoga Park in Southern California on an 85-acre, campus-like complex, the new Division is responsible for all phases of missile development—from advanced conceptual studies through systems analysis, systems engineering, hardware design, prototype construction and testing of a wide variety of air-to-air, air-to-ground and tactical missiles. Current programs include Walleye, TOW, Maverick and Phoenix.

The Missile Systems Division now employs more than 1400 engineers, scientists, technicians and administrative personnel. New and expanding programs have created hundreds of openings for additional experienced people. Now is the ideal time to launch your new career with a dynamically expanding new organization.



Some of our openings include:

- Stress Analysts
- Test Engineers
- Systems Engineers
- Preliminary Design Engineers
- Guidance Systems Engineers
- Circuit Design Engineers
- Mechanical Product Design Engineers
- Electronic Product Design Engineers
- Aerodynamic Engineers
- Servo Systems Design Engineers

Most assignments require accredited Engineering or Scientific degrees and applicable professional experience. Some openings are available for recent engineering graduates. U.S. citizenship is required.

For prompt consideration please airmail your resume to:

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Head of Employment
Dept. 32

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Now...Stop, Store,Vary Display Time of 100 MHz Traces — Without Capacitive Distortion

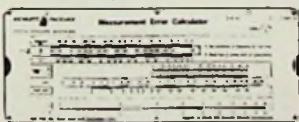
For the first time, you can use a real time scope—the hp 181A Variable Persistence and Storage Scope and the 1802A plug-in—to measure nanosecond rise times and high frequencies over a wide range of source impedances—and stop, store, or vary display time of your traces! You can observe your signal with 10 mV/cm sensitivity—without capacitive distortion and without capacitive disturbance of your circuit under test. You can capture and hold high frequency single shot phenomena—or look at low rep rate fast risetime pulses.

For still more input resistance, the new hp 1123A 100 k Ω Active Probe has only 3.5 pF capacitance. Combine the active probe and its set of X10 or X100 matched resistive dividers and you reduce the capacitance of the active probe system to 3 pF.

If you are making high frequency cw measurements, capacitance not only loads your circuit under test, it also causes phase shift.

Figure it out for yourself! Rise time is the square root of the sum of the squares of the rise times of your signal source, and probe, and scope. Or, use the new hp measurement error calculator.

Price: hp 180 (conventional display) Scope System with 100 MHz capability, \$2500; hp 181A (variable persistence and storage) with 100 MHz, \$3150; hp 1802A amplifier plug-in alone, \$1200; hp 1123A Active Probe, \$325.



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MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS

Story on
page 4

Tour of Fairchild and Raytheon Semiconductor facilities. Limited to 50 persons.

Sept. 26, Thurs. 6 PM. Meet in lobby at Fairchild Semiconductor, 313 Fairchild Drive, Mountain View. Reservations for tour: Judy Burns, 742-6773 or 742-1865 by Sept. 25. No dinner.

COMMUNICATION TECHNOLOGY

Story on
page 8

Wine tasting and dinner at Paul Masson Mountain Winery, Saratoga. Social event (Kick-off meeting). Limited to 120 persons. Ladies and non-members invited.

Sept. 18, Wednes. 7 PM for winetasting; 8 pm dinner on the patio (barbequed N.Y. steak) \$6.00 per person. Make reservations early—no later than Sept. 17—Ed Combs, (415) 461-2405 (Greenbrae); Milt Seymour (415) 593-8491 (San Carlos); Paul Ahern (408) 291-4415 (San Jose).

COMPUTER

Story on
page 6

Computer memories and peripheral equipment for the future. L. C. Hobbs, president, Hobbs Associates, Inc. Los Angeles.

Sept. 24, Tues. 8 PM, Room 134, McCullough Bldg., Stanford University. Dinner: 6:15 pm, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Chef's special steak \$4.15 incl. tax & tip. Reservations: Tom Whitney, 326-7000, ext. 3112 or 2707, by Sept. 23.

MAGNETICS

Story on
page 8

Optical memories—a review of basic principles and a look at the future. Leslie L. Burns, Memorex Corp.

Sept. 10, Tues. 8 PM, Memorex Corporation, Training Center Bldg., corner of Roland and Shulman Ave., Santa Clara. No dinner.

SAN FRANCISCO SECTION

Story on
page 8

Fall meeting. Inaugurating the new administrative year. Featuring: Wine tasting and barbecue steak dinner. Ladies welcome.

Sept. 13, Friday, 6 PM, Paul Masson Mountain Winery, Saratoga. \$5.50 per person. Reservations: San Francisco: Shirley Aman, (415) 397-3843; East Bay: Ruth Emerson, (415) 835-8500, ext. 328; Peninsula, Linda Jarrett, (408) 291-4567; Section office: Jean Helmke (415) 327-6622. Limited capacity—make reservations early—no later than Sept. 9.

SANTA CLARA VALLEY SUBSECTION

Story on
page 5

What about our next earthquake? Drs. R. E. Wallace, R. M. Hamilton and H. W. Olsen, all from USGS in Menlo Park, will talk about earthquakes and earth movement.

Sept. 26, Thurs. Private dining room at rear of Dinah's Restaurant, 4269 El Camino Real, Palo Alto. No-host cocktail hour at 6 pm; Smorgasbord supper at 7 pm. Meeting follows supper. Wives and guests welcome. Price for supper \$3.50 incl. tax & tip. Reservations: Chris Montez, 291-4014 by 4 pm Sept. 24th.

SYSTEMS SCIENCE & CYBERNETICS

Story on
page 9

Research in intelligent machines at SRI. Dr. Charles A. Rosen, head, artificial intelligence group, SRI.

October 10, Thurs. 8 PM, SRI Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner: 6 pm, Red Cottage, El Camino, Menlo Park. Order from menu. Reservations: Margie Hensley, 324-4701 by 5 pm, Oct. 9th.

VEHICULAR TECHNOLOGY

Story on
page 6

The new role of the radio common carrier. Robert C. Crabb, president, Mobilphone, Inc., Los Angeles.

Sept. 16, Monday, 8 PM, Di Maggio's restaurant, Fisherman's Wharf, San Francisco. Social hour at 6 pm; Dinner at 6:45. Order from menu. Reservations: 349-3111 or 526-1446 by Sept. 16th.

On the cover

Picture and color separations of the aerial view of The San Francisco Peninsula (facing north) were supplied through the courtesy of The Hal Lawrence, Incorporated Advertising Agency.

New Members

The Section welcomes the following new members:

P. E. Banks	D. J. Larin
F. W. Brigham	B. Leskovar
G. C. Campbell	F. W. Mayhew
C. F. Coombs, Jr.	W. H. Mikel
W. C. Crockett	G. A. Miller
D. Doon	R. Morton
R. L. Earl	H. G. Paula
R. M. Gardner	W. T. Rutledge
P. J. Hardiman	M. Sadoff
R. Y. C. Ho	A. Schiffrin
C. L. Jackson	W. E. Swift
W. A. Johnson	N. Syed
H. M. Klein	P. P. Varaiya
A. S. Klemba	R. L. White
L. M. Knox	G. C. Ziman

Congratulations to these members who have recently advanced to the grade of Senior Member:

J. A. C. Bingham	A. J. MacKinnon
J. M. Bouldry	H. D. Olson
M. R. Gaddis	A. L. Rock

*IEEE
Grid*

volume 15
number 1

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Section Chairman's Message

Help Wanted

September marks the beginning of a new year of technical programs and meetings in the San Francisco Section. Since taking office in July, the officers of the Section and its Group Chapters and Subsections have been busily engaged in the formation of plans, committees and budgets to carry on our activities. This issue of the GRID carries a directory of our officers and committee chairmen for the coming year, and you will want to keep it for future reference.

The work carried on in our Section requires a large number of helping hands to achieve results—and more help is needed. We are extremely anxious to have new names and faces become active in Section affairs, particularly from our younger membership. Don't assume that there is no place for you. Contact the Section Office, and officer of the Section, a Subsection or a Group Chapter or Committee Chairman and ask to be assigned a job. If you would like to take on a specific kind of activity, such as Publicity and Public Relations or Membership or Student Activities contact that Chairman and volunteer. You'll enjoy the association and help the Section grow.

The Year Completed

We have just completed a significant year in our Section's history under the guidance of Fred MacKenzie. The annual meeting dinner-dance at the Palo Alto Hills Golf and Country Club was a fitting and successful climax to the program year. We were particularly proud and pleased to present Fellow Certificates to eleven members of the Section who have been elected to this honored grade of membership.

During the year, the twenty-four Group Chapters held 111 meetings; there were 13 Subsection and 5 Section meetings. The attendance totaled 6,370 and averaged almost 50 for each meeting. This demonstrates that the work that goes into organizing and planning these meetings is indeed worthwhile and that we have high quality meetings and a receptive audience.

The financial operations of the Section were equally successful last year. The operating year, which ended on June 30th, showed a satisfactory surplus, and we moved

closer to our goal of having a reserve fund equal to a year's operating expense. Because of a transitory two year change in the method of paying for production of the GRID-BULLETIN magazine in July and August, we anticipated a sizeable surplus during the year just closed, and we also expect the coming year to yield little or no surplus. Over the two year period, however, we will still show substantial growth in our reserve fund.

And Ahead

In addition to our continuing work in the Section, we have selected several specific areas for concentrated effort during the next year. Not all of these will be fully developed in that time to everyone's satisfaction, but we expect to move ahead.

Continuing professional education has been receiving a lot of attention by IEEE, other technical societies and the Colleges and Universities. Many Sections or Group Chapters of IEEE are sponsoring educational courses for their members, and the response has indicated clearly that a definite need exists. A new IEEE Educational Activities Board, having a status comparable to the Publications Board or to the Technical Activities Board, has been established to foster and to follow these activities. Part of EAB's interest will be toward development of effective programs for continuing education at the Section level. Also, the Sections Committee is preparing a "Section Manual on Continuing Education" which should be available shortly.

John Damonte, our Section Vice Chairman, is Coordinator of Professional Education for the Section, and will be working with the Group Chapters to develop a continuing education program. Thus far, the only effective program in the Section is that sponsored by the Power Group Chapter over the past two years. Three courses have been offered; Grounding Principles and Practices, Protective Relaying Principles and Practices, and Practical Computer Applications in the Power Industry. About 315 have paid a modest fee to attend and about 40 are already registered for the Grounding and Relaying courses for the coming year. Similar programs can and should be developed by other Group Chapters.

Closely allied to our continuing education activities are our efforts to develop an effective and continuing educational TV program. Time is available on local stations and this is an excellent opportunity to acquaint the general public with IEEE and the electrical engineering profession. Some of these programs could be of the counselling type designed to arouse the interest of young people of high school or pre-high school age in the challenges offered by electrical engineering. A great deal of work remains to be done to organize this program.

Another segment of our work education-oriented is the Student Activities Committee. We have a total of nine Student Branches in local Universities and Colleges with some 750 Student Grade members. Closer ties between the Student Branches and the Section and its Group Chapters appear to be essential to fulfillment of the needs of the Student members and to maintain a high level of interest on their part in IEEE. Closer liaison will be established with each Student Branch and Section meetings of special interest to students will be promoted.

A Section Long Range Planning Committee is planned to develop extensive plans for the future growth and development of the Section. This activity will be coordinated with work of the newly-formed IEEE Long Range Planning Committee responsible "for reviewing the trends of science and technology as they may concern the Institute, the profession, and the public, and for recommending such changes in the Institute's objectives, organization, and operations as may be indicated by these trends".

It all adds up to a busy year with plenty for all to do. So—if you want to be a working member of your Section, Subsection or Group Chapter, step forward and be welcomed.

Finally, to start this year's action, a Kick-Off Meeting is being held on Friday, September 13th at the Paul Masson Mountain Winery in Saratoga and will feature fine wines and a barbecue steak dinner. Attendance is limited so make your plans and reservations early.

John E. Barkle



LARRY FITZSIMMONS

DON PEDERSON

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MRS. PEDERSON

MRS. MAC KENZIE

Aerospace and Electronic Systems to Tour Fairchild, Raytheon Semiconductor Facilities

The tour of Fairchild Semiconductor's facilities in Mountain View will focus attention upon production capabilities for the aerospace and defense industry. Tour members will first see the crystal growing area, where silicon is carefully drawn into foot-long ingots measuring 2-1/4 inches in diameter. The electrical properties of the silicon are manipulated here by inclusion of such dopants as boron, phosphorus and arsenic.

Fairchild's wafer fabrication area will offer a view of various photo etching and diffusion steps involved in the creation of some 8,000 electronic circuits on a single wafer. The formation of epitaxial growths and silicon oxide passivating layers can be observed at this point. The high reliability testing and assembly procedures which take place following fabrication of completed devices will be seen in the last portion of the tour. Fairchild has invested \$20,000,000 in testing equipment to assure guaranteed performance in connection with its high reliability **UNIQUE** program. The equipment includes testers that conduct 60 elec-

trical tests per second on each device.

The Raytheon tour will highlight the methods of Beam Lead Fabrication. The advantages of beam lead technology for solid state devices will be explained in detail by Mr. Richard Greene, Raytheon Beam Lead Program Manager. Tour of a typical Integrated Circuits Production Module—including Epitaxial Growth areas, Photo resist, Diffusion and Evaporation areas, Wafer and Final Test area, will be given. Examples of this technology will be set up for microscope examination at key points.

Those interested in attending are asked to call Judy Burns at 742-6773 or 742-1865 since attendance will be limited to 50 people.

Meet at 6 pm in the lobby of Fairchild Semiconductor, 313 Fairchild Drive, Mountain View. The early starting time is due to scheduling difficulties in the facilities.

New Teaching Machine At Stanford

A new kind of teaching machine intended to develop "visual thinking" in students of engineering design has been built by a young Stanford University graduate, Larry Fabbro of Hibbing, Minn.

His machine also could be adapted to teaching other subjects at other levels of education, including elementary school. The simplicity of its design should make it more economical, yet comparable within limitations to some very costly teaching machines.

Fabbro's prototype machine is a three-sided booth with built-in frosted glass screen and glass-topped drawing table, plus a 35mm film slide projector mounted behind them.

A simple but ingenious split-mirror system divides instructions and drawings, both photographed on a single 35mm film slide, between the screen above and the drawing table below.

The student reads his instructions on the screen and carries them out on tracing paper lying over the glass table. The roll of tracing paper fits neatly into a slot on one side of the table, and fresh paper is unrolled across the glass surface as needed by a spindle on the other side.

The slides are changed by pressing the projector switch, as in ordinary home slide shows. Fabbro also has provided a slot for the student to insert a multiple slide card from the front of the machine, as well as for special "tachistoscopic" (split-second) projections sometimes required in visual training.

Power Group Offers Courses

The Power Group of the San Francisco Section will again offer its professional education program this year. The courses in Grounding Principles and in Protective Relaying again will be presented, starting in October. Each class will continue for eight Tuesday evenings. Preference in enrollment will be given to those who were not accommodated in the previous classes and to members of the Power Group. A fee of \$10.00 will be charged to cover expenses.

For information on the Grounding class Contact John Samter, Pacific Gas & Electric Co., 245 Market St., San Francisco 94106. Phone 781-4211, Extension 4275.

For information on the Protective Relaying class: Contact Jack Mac Lean, Westinghouse Electric Corp., 1 Maritime Plaza, San Francisco 94111, Phone 392-5353.

Electronic Manufacturers Oppose Quotas on Electronics Imports

The Western Electronic Manufacturers Association (WEMA), representing 450 companies in the West, has urged Congress to reject restrictions on imports of foreign-made electronic products.

A letter, written to all Senators and Representatives from the 13 Western States, affirmed the unanimous resolution of WEMA's board of directors, at its May 17 meeting, that import-restricting legislation should be opposed.

The board's action was aimed principally at S. 2539, introduced by Sen. Edward Brooke (R—Mass.) and nine other senators, which would restrict electronic imports by classifications to the number brought into the country in 1966.



JOHN B. DAMONTE

JEREMY SCHLOSS

STAN KAISEL

MRS. DAMONTE

MRS. SCHLOSS

MRS. KAISEL

What About Our Next Earthquake?

Santa Clara Valley Subsection's first meeting of the 1968-9 year will be held on Thursday, September 26th and will be concerned with earthquakes and earth movement. Dr. Robert E. Wallace, Research Geologist, Dr. Robert M. Hamilton, Research Geophysicist and Dr. Harold W. Olsen, Research Civil Engineer, all from the United States Geological Survey headquartered in Menlo Park will talk about some of their current investigations.

Their subject will deal with the San Andreas fault system and related fault systems including the Hayward and Calaveras faults. These fault systems are of extremely important significance to Californians, particularly those living in coastal areas.

Some of the points which the USGS people will cover include the nature of fault systems and patterns of earth movement both recently and long ago. They also will talk about geologic and geophysical investigations which are now in progress toward determining the nature

and frequency of earthquakes. They will use their investigations of the Parkfield-Cholame and Borego Mountain earthquakes as examples.

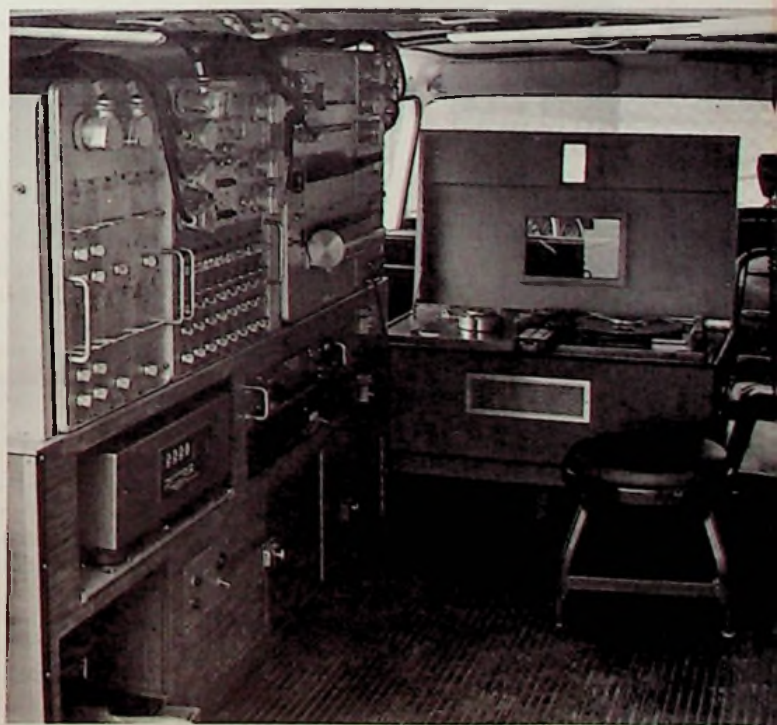
Instruments which are used in investigating earth movement include seismographs in permanent locations which utilize electronic techniques and telemetering to transmit data to Menlo Park. Portable equipment is used to supplement the permanent installations. Also used are geodimeters for surveying across parts of the faults to measure strain and creep.

An objective of USGS's earthquake research is predicting where earthquakes will occur and what will happen. Although it is not yet possible to predict precisely when an earthquake will occur, the experts can give indications of how intense earthquakes are apt to be and what types of damage will be apt to occur at varying distances from the epicenter depending on geology. They can forecast where the earth surface is most likely to rupture and where landslides are probable. Their research also helps engineers to design structures which will compensate for ground failures (landslides) as well as shaking. Their presentation will be illustrated with slides.

No-host cocktail hour at 6:00 pm, dinner at 7:00 pm, with meeting following, at Dinah's Restaurant. Reservations necessary. See Calendar.



Portable field Seismometer in use as a part of USGS investigations of earthquakes and earth movements.



Interior of a van containing seismic recording equipment used by USGS in investigating earthquakes and earth movements.

Linder C. Hobbs to Address Computer Chapter

"Computer Memories and Peripheral Equipment For the Future" is the topic of the September 24 meeting of the Computer Chapter with Linder C. Hobbs as featured speaker.

Improved versions of some present types of memories and peripheral equipment will continue to play a major role in the 1970's. However, new types of devices and technologies presently in the research, development, or prototype stage will share this market and, in some cases, replace present types of equipments. The advent of low-cost large scale integrated circuit arrays for logic will place increasing pressure on memory and peripheral equipments, if these latter devices are not to seriously limit the future of the computer field. Memories and peripherals anticipated for the early 1970's and their implications to systems design will be discussed.

Since January 1962 he has served as President and Senior Consultant of Hobbs Associates, Inc. In this



Hobbs

capacity he has worked on the design of military command and control systems, on the analysis and evaluation of many types of computers and digital equipment, and on a detailed evaluation of advanced technologies for use in 1970 and 1980 era tactical military systems. Since 1957 he has been a lecturer in Engineering at UCLA teaching "Digital Computer and Systems Design." Hobbs is a Senior Member of IEEE. He has served as Chairman of the IRE Computer Standards Committee, Chairman of the Philadelphia and Orange County Chapters of the Computer Group, Chairman of the Orange County Section of IEEE, Vice Chairman of the 1965 FJCC, Chairman of the 1967 FJCC, member of the Computer Group Administrative Committee, and on the Board of Directors of AFIPS.

Dinner will be at Rick's Swiss Chalet at 6:15 pm and the meeting at the McCullough Building, Stanford University, Room 134 at 8:00 pm. For dinner reservations see calendar.

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HELP THE SECTION GROW
BRING IN A NEW MEMBER.

Radio Common Carrier's New Role

Presented by Vehicular Technology

The meetings proposed this year for the Vehicular Technology Group will be devoted principally to systems considerations. The speaker for the September 16th meeting will be Mr. Robert C. Crabb, President and Chairman of the Board of Mobilphone Inc., Los Angeles, operator of the largest independent Radio Common Carrier system in the world. Mobilphone serves Los Angeles and Orange counties, as well as portions of adjacent counties, from nine transmitter sites and five receiving locations. It provides two way radio telephone service to approximately 600 subscribers through four radio channels, and serves approximately 2000 one way selective signaling paging receivers through two other channels.

Mr. Crabb will describe the Mobilphone systems and will also summarize his report to the President's Task Force on Communication Policy which describes the past 21 years growth of Radio Common Carriers in the Los Angeles region.

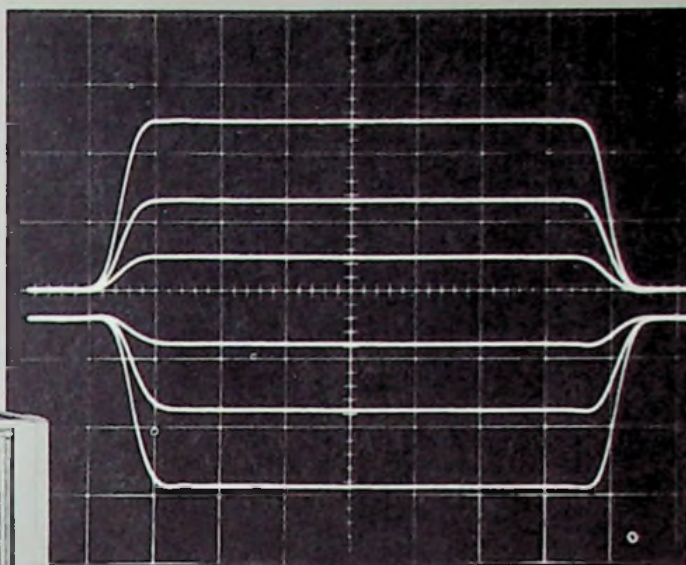
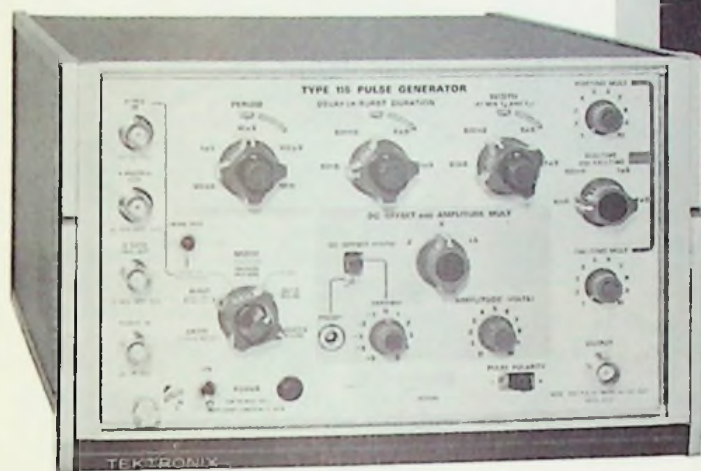
The independent Radio Common Carriers have been uniquely able to adapt and apply advanced technology to their systems and are generally regarded as pioneers in this field. The growth of these systems will be further stimulated by lighter weight and more sensitive personal receivers, selective calling, less restrictive tariffs, and additional radio spectrum space recently released by the Federal Government.

Dinner and meeting at DiMaggio's. See Calendar.



Crabb

Pulse Performance



Multiple exposure showing typical waveform aberrations for positive and negative polarities at various amplitude settings. Notice the constant risetime and falltime with amplitude changes. 20 ns/cm sweep time and 4 V/cm deflection factor.

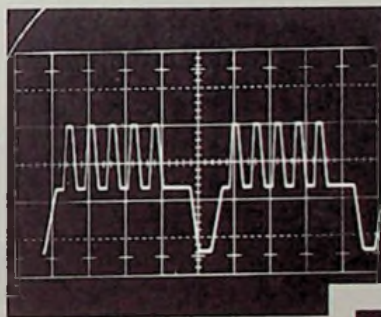
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NEW TEKTRONIX TYPE 115 PULSE GENERATOR

This multi-purpose, solid-state generator produces exceptionally clean pulses with aberrations less than 3% P-P at ± 10 V into 50 Ω . Pulse risetime, falltime, width, delay, period, amplitude and baseline offset are separately variable, permitting precise waveform simulation. Five operating modes offer a variety of output configurations — undelayed pulses, delayed pulses, paired pulses, burst of pulses and gated pulses. Risetimes and falltimes are continuously variable from 10 ns to 100 μ s and periods variable from 100 ns to 10 ms. Pulse widths are variable from 50 ns to 500 μ s with duty factors to 75% (50 ns minimum pulse separation). A continuously variable DC offset feature permits positioning pulse baseline through a range of +5 volts to -5 volts. Triggering is selectable, internally or externally. A manual pushbutton provides a means to produce a single undelayed pulse, delayed pulse, pulse pair, or burst of pulses.

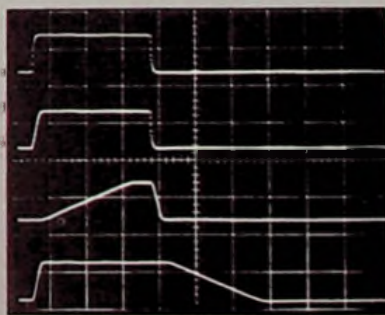
Your Tektronix Field Engineer will demonstrate the performance of the Type 115 in your application. Please call him.

TYPE 115 PULSE GENERATOR \$825
U.S. Sales Price FOB Beaverton, Oregon



Single exposure showing combined outputs of two Type 115's. The burst of pulses on top of the positive pedestal was triggered by the + delayed trigger from the instrument generating the pedestal. 10 μ s/cm sweep time and 2 V/cm deflection factor.

Multiple exposure showing variable risetime and falltime. 500 ns/cm sweep time and 10 V/cm deflection factor.



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ComTech Socializes at Saratoga Winery

The Communications Technology Group Chapter will launch their 1968-69 program with a wine tasting and barbecue steak dinner at Paul Masson's Mountain Winery on Pierce Road in Saratoga on Wednesday, September 18th.

The meeting is primarily a social event to bring together regular members, new members and prospective members of the Com-Tech group. Ladies are especially invited.

A visit to the Paul Masson Mountain Winery is a delightful experience, a glimpse of history and beauty and a magnificent view of the Bay Area and Santa Clara Valley.

Wine tasting at 7:00 pm will be followed by a catered New York Steak Barbecue on the patio. Following dinner, the 1968-69 officers will be introduced and the technical program of the year reviewed. Reservations are limited to 120 people. Price is \$6.00 per person, payable in advance or at the Winery. See Calendar.

Section Kickoff Meeting Features Wine Tasting and Barbeque

The first meeting under the new Section Administration will be held on Friday, September 13, 1968, at the Paul Masson Mountain Winery in Saratoga. The meeting will start at 6:00 pm with a wine tasting session followed by a barbecue steak dinner.

The formal program will be minimal; rather, emphasis will be on informal discussion and social activities. Members and wives are encouraged to attend to make and renew acquaintances with Section and Group officers and other members.

The cost for the complete affair will be \$5.50 per person. Dress is casual.

The facilities are excellent but capacity is limited, so please make reservations early by calling one of the following:



San Francisco — Shirley Aman, (415) 397-3843

East Bay — Ruth Emerson, (415) 835-8500, ext. 328

Peninsula — Linda Jarrett, (408) 291-4567

Section Office — Jean Helmke, (415) 327-6622

Optical Memories, Principles and Characteristics Reviewed

Leslie L. Burns of Memorex Corporation will review the principles and characteristics of optical memory systems for the Magnetics Chapter at their September 10th meeting.

A review of the basic concepts of optical memories for computer applications will be presented along with their advantages and disadvantages. Recent accomplishments in the field will be discussed and comparisons with alternative memory systems will be made. It will be shown that information packing densities of at least 100 times that of magnetic systems are possible. Also to be discussed is the read/write capabilities of optical memories and the associated problems.

A relatively new concept on an open code address memory will be presented and some of its possible implications examined. Optical memories involving moving media including both card and disc systems will be briefly reviewed. Various media, suitable for use in optical memories, will be reviewed and their particular applications discussed.

The meeting will be held at Memorex Training Center in Santa Clara at 8 pm. No dinner. See calendar.

Mr. Burns' initial work at the



Burns

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RCA Laboratories in 1946 was on solid state phenomena and integrated devices. From 1956 to 1968 he was Group Head at RCA in the Computer Research Laboratory. In April 1968 he joined Memorex as a member of their Research Division.

Mr. Burns holds over 40 U.S. patents and is the author of a number of technical papers. He is a Fellow of the IEEE and a member of APS and the Sigma Xi.

SSC Chapter to Hear Dr. Charles A. Rosen

Dr. Charles A. Rosen will discuss intelligent machine research at Stanford Research Institute at the October 10th meeting of the Systems Science & Cybernetics Chapter. The meeting will be held at SRI, preceded by a dinner at the Red Cottage. See calender.

A review will be made of the present status and future plans of research in intelligent machines at Stanford Research Institute. Work in progress includes the development of a computer-controlled mobile robot that can autonomously perform tasks normally requiring continuous human supervision. Although present performance is still relatively elementary, a number of important functions are operational and are serving as a basis for the development of considerably more sophisticated behavior. These functions include limited natural language communication, representations of the environment, planning, problem solving and visual pattern recognition. These functions have been combined into an integrated system of computer programs written in several languages which communicate with each other.

Dr. Rosen received his Ph.D. in 1956 at Syracuse University. He has been with Stanford Research Insti-



Rosen

tute since 1957. In 1959 he organized and has since developed the Applied Physics Laboratory which is engaged in major projects in artificial intelligence and physical electronics. His major fields of interest include pattern recognition, learning machines, solid state devices and computer science. He is presently head of the Artificial Intelligence Group at SRI.

Wescon Annual Product Design Competition

Of the twenty designs selected for excellency by the judges in the 1968 Wescon annual product design competition, three were the creations of a single design firm—Clement Laboratories, Mountain View, California. The winning examples of industrial design are an integrated circuit tester for Miracle-Hill Electronics, a metal detector for Fisher Research Laboratory, and a color television camera for International Video Corporation.

Shown with Carl J. Clement, President of Clement Laboratories, are: right, design mock-up of the Miracle-Hill Model 1740 integrated circuit tester, designed by Clement and Ronald D. Ropp; left, Fisher Model 40 "M-Scope" metal detector; center, IVC Model 100 industrial CCTV camera designed by Clement and Roger Fleck. All three of the pro-



ducts were on display at Wescon in Los Angeles, in August.

Mr. Clement's work has won awards at every Wescon convention since inception of the Industrial Design program, and he was recipient of the Alcoa award in 1961.

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Del Webb's Towne House, San Francisco, California October 14-16, 1968

MONDAY, OCTOBER 14, 1968

9:00 am — 12:00 noon

GOLDEN GATE ROOM

PLENARY SESSION
Chr: W.K. Linvill, Stanford Univ.

1. "The Application of Systems Planning to Regional Development," R. Widner, Executive Director of the Appalachia Regional Commission
2. "Information Requirements for Systems Understanding," H. Chestnut, General Electric
3. "Modeling Human Elements in System Performance," Thomas C. Thomas, Stanford Research Institute
4. "The Need for Change Agents in Urban Development," R.C. Amara and Ken Chen, Stanford Research Institute

12:15 — 1:45 pm

LUNCHEON

ALAMEDA ROOM

Speakers: Robert F. Shaw, Edward Churchill, Phillipe de Gaspe Beubien

Subject: "The Systems That Made Expo '67"

The 1967 SSCG award for outstanding system application will be presented to the "Canadian Corporation for the 1967 World Exhibition."

2:00 — 5:00 pm

GARDEN LOUNGE

PATTERN RECOGNITION

Chr: L. Kanal, Philco-Ford

1. "Efficient Feature Extraction for Pattern Recognition," T. W. Calvert and T.Y. Young, Carnegie-Mellon University
2. "The Evolution of Threshold Logic Networks Which Recognize Binary Patterns," T.A. Marsland, University of Wash.
3. "A Transposed Method of Feature Extraction for Binary Patterns," George Nagy, IBM
4. "Electrochemically Active, Field Trainable Pattern Classification Systems," Robert M. Stewart, Aerojet-General Corp.
5. "Computer Recognition of Images Through Decomposition," Theodosios Pavlidis, Princeton University
6. "Some Convergence Properties of a Nearest Neighbor Decision Rule," D.W. Peterson, Northwestern University

2:00 — 5:00 pm

GOLDEN GATE ROOM

TRANSP. SYSTEM AND ANALYSIS

Chr: R.C. Lind, Stanford Univ.

1. "The North East Corridor," Paul Shuldiner, U.S. Dept. of Transportation
2. "Application of Optimal Control Theory to the Crash Safety of a Passenger Vehicle," Howard Kaufman and Duane B. Larson, Cornell Aeronautical Laboratory
3. "Operation of a Rapid Transit System — A Dynamic Programming Approach to the Selection of Optimum Train Schedules," K.M. Dale, Westinghouse Electric Corporation
4. "Optimum Selection of a Progression for a Two Way Arterial Street," John M. Kreer and Wayne Panyan, Michigan State University
5. "System Study of Emission Control for Passenger Cars," Daniel DeHaven and Allan B. Platt, TRW, Inc.

TUESDAY, OCTOBER 15, 1968

9:00 am — 12:00 noon

GOLDEN GATE ROOM

OPTIMIZATION IN DECIS. MAKING
Chr: J.E. Matheson, SRI

1. "Monte Carlo Methods in the Selection of Alternative Model Forms," Richard Smallwood, Stanford University
2. "Decision Analysis of Complex Programs: A Space Project Case Study," James E. Matheson and A.B. Pollard, Stanford Research Institute
3. "Prior Probabilities," E.T. Jaynes, Washington University
4. "The Widget Problem Revisited," Myron Tribus, Dartmouth College
5. "Probabilistic Information Processing Systems: Design and Evaluation," Ward Edwards, University of Michigan
6. "The Consistent Assessment and Fairing of Preference Functions," R.F. Meyer and John W. Pratt, Harvard

9:00 am — 12:00 noon

GARDEN LOUNGE

BIO-CYBERNETICS
Chr: M. Kabrisky, AF Inst. of Tech., Wright-Patterson Air Force Base

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Vice-Chairman: Nelson Dorney, University of Pennsylvania

Program Chairman: C. Hugh Mays, Fairchild Semiconductor R&D Lab.

Publicity Chairman: Charles A. Rosen, Stanford Research Inst.

1. "A Learning Model of the Brain Stem Reticular Formation," W.L. Kilmer, Michigan State University

2. "Automatic Analysis of Sleep Electroencephalograms by Hybrid Computation," J.R. Smith and M. Negin, University of Florida

3. "On the Modeling and Hybrid Simulation of the Nerve-Muscle System," Chan F. Lam and Lyle C. Wilcox, Clemson University

4. "A Neuron-Network Model of the Central Nervous System of a Lower Vertebrate and its Simulation on a Time-Sharing Computer System," David Norton, University of California, Berkeley

5. "The Biocybernetic Aspects of Latency," W.J. Williams, University of Michigan

6. "EEG Classification Using Pattern Recognition Algorithms," Richard C. Dubes, Michigan State University

2:00 — 5:00 pm

GOLDEN GATE ROOM

SYSTEM TEST AND EVALUATION

Chr: Rudolph Habermann, Jr., GE

1. "The Systems Approach to Test Evaluation," David M. Bradley, Grumman Aircraft Engineering Group
2. "Flight Test Support Design," L.A. Wheeler, The Mitre Corp.
3. "Controlling the Functional Testing of an Operating System," W.R. Elmendorf, IBM
4. Planning for Test and Evaluation of a Simulator System," E.W. Burdette and P.T. Butler, General Electric

2:00 — 5:00 pm

GARDEN LOUNGE

SYSTEM ANALYSIS IN HEALTH SERVICES

Chr: George R. Murray, Jr., Stanford Medical Planning Group

1. "The Development of a Community Health Service System Simulation Model," F.D. Kennedy, Research Triangle Inst.
2. "Simulation of Emergency Medical Treatment," J.B. Hallan, Research Triangle Institute
3. "A Model of the Incidence of Venereal Disease in a Population of Associated Individuals," Edward A. Silver, Boston University
4. "Use of Automatic Repeat Back in Physiological Data Acquisition Systems," James R. Landoll, Terrence Iranl and Cesar A. Caceres, Dept. of Health Education and Welfare
5. "Systems Technology Applied to the Social Symbiosis of Mental Health," William F. Eicker, Adolf Meyer Center
6. "A Model of Environmental Requirements for Patient Care — The Encoding of Medical Opinion," G.R. Murray, Jr., R.D. Smallwood, L.M. Klainer, Fred Offensend and Edward Sondik, Stanford Medical Facilities Planning Group

2:00 — 5:00 pm

MARIN ROOM

PRINCIPLES OF CYBERNETICS

Chr: H.L. Oestreicher, Aero-Space Med. Res. Lab, Wright-Patterson Air Force Base

1. "Cybernetics and Fuzzy Predicates," M.S. Watanabe, University of Hawaii
2. "Learning Model Approach for Nonlinear System Identification," T.C. Hsia and A.L. Bailey, University of California, Davis
3. "Adaptation in Nonstationary Environment," J.H. Chang and F.B. Tuteur, Yale University
4. "Experiments in Machine Learning," Nicholas V. Findler, State University of New York at Buffalo
5. "A Practical Application of Machine Learning: Use of Learning in an Interpreter for a Tree Searching Language," E.W. Kozdrowicki, University of California, Davis

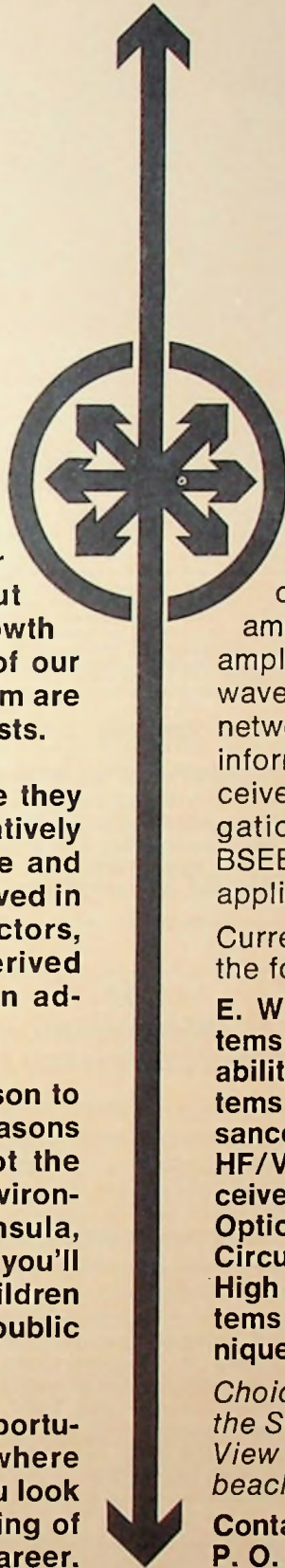
WEDNESDAY, OCTOBER 16, 1968

WORKSHOP AND TECHNICAL COMMITTEE MEETINGS
Room Assignments, times and additional meetings will be announced during the conference. The following workshops are presently planned:

1. Software Sub-Systems and Software-Hardware Integration
Chairman: Rudolph Habermann
2. Decomposition in Multilevel Optimization Techniques
Chairman: David A. Wisner
3. Optimization in Engineering Design
Chairman: Leon Lasdon

The Proceedings of this Conference will be available at registration time.

OUR GROWTH AND YOURS



You may not be particularly impressed by the fact that our staff has gone from less than 50 to over 3500 in the past fifteen years. But we'd like you to know about the growth behind that growth—the growth of our people, more than one-third of whom are professional engineers and scientists.

Our people have grown because they have found satisfying work in a relatively small segment of a relatively large and important company. They are involved in programs with high continuity factors, experiencing the satisfactions derived from doing significant work in an advanced area of electronics.

Perhaps you are the kind of person to grow with us. Here you'll find the reasons we've attracted good people. Not the least of these is the exceptional environment of the San Francisco Peninsula, where the climate is as good as any you'll find in the West, and where your children will benefit from the exceptional public schooling available in the area.

Check us out; compare the opportunity here with that available anywhere else. If we look good to you and you look good to us, it could be the beginning of the most important phase of your career.

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To design and evaluate receiver circuits such as low noise RF amplifiers and oscillators, IF and video amplifiers, parametric up-converters, and wave form generators. Work will involve network synthesis, control systems, and information theory, and will consist of receiver system design, technique investigation and equipment development. BSEE or MSEE required plus 1-6 years' applicable experience.

Current career opportunities also exist in the following areas:

E. W. Systems • Countermeasure Systems and Techniques • Systems Vulnerability • Intercept and Detections Systems • Operations Research • Reconnaissance Systems • Broadband Antennas • HF/VHF Receivers • Transmitters • Transceivers • Signal Processing • Microwave Optics • Microwave Devices • Solid State Circuits • Advanced Instrumentation • High Speed Digital Data Handling Systems • Broadband Millimeter Wave Techniques • Electronic Packaging.

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The Subordinate Officers of the San Francisco Chapter of the Reliability Group presented Chairman H. R. Caldwell (Sylvania) with a certificate of appreciation and a desk set. The certificate acknowledges the debt of gratitude for services rendered in furthering the objectives of the IEEE and the chapter. The chapter officers who served under Mr. Caldwell commended him for: the excellent group communications through the Reliability Newsletter; the letters of thanks to each speaker of the year; the early planning of the eight programs of the year; and the gentle prodding and consistent follow-up of each required action by the officers.

ADVERTISER/AGENCY INDEX

Ampex	16
Christie Electric (Len Woolf Company)	6
DCA (Hal Lawrence Inc.)	20
Electro Rents (Anderson-McConnell Advertising)	18
Englert and Company	9
Geo Space Corporation (Hal Jones Advertising)	19
Gripping Professional Personnel Agency	13
Hughes Aircraft Company (Foote, Cone & Belding)	7
Jet Electronics (Prince Advertising)	8
LectroMagnetics, Inc. (Van Der Boom, McCarron, Inc.)	18
Litton Industries (World Wide Agency)	17
Mar Monte Hotel	19
Neely Sales Div. HP Co. (Lennen & Lowell, Inc.)	1
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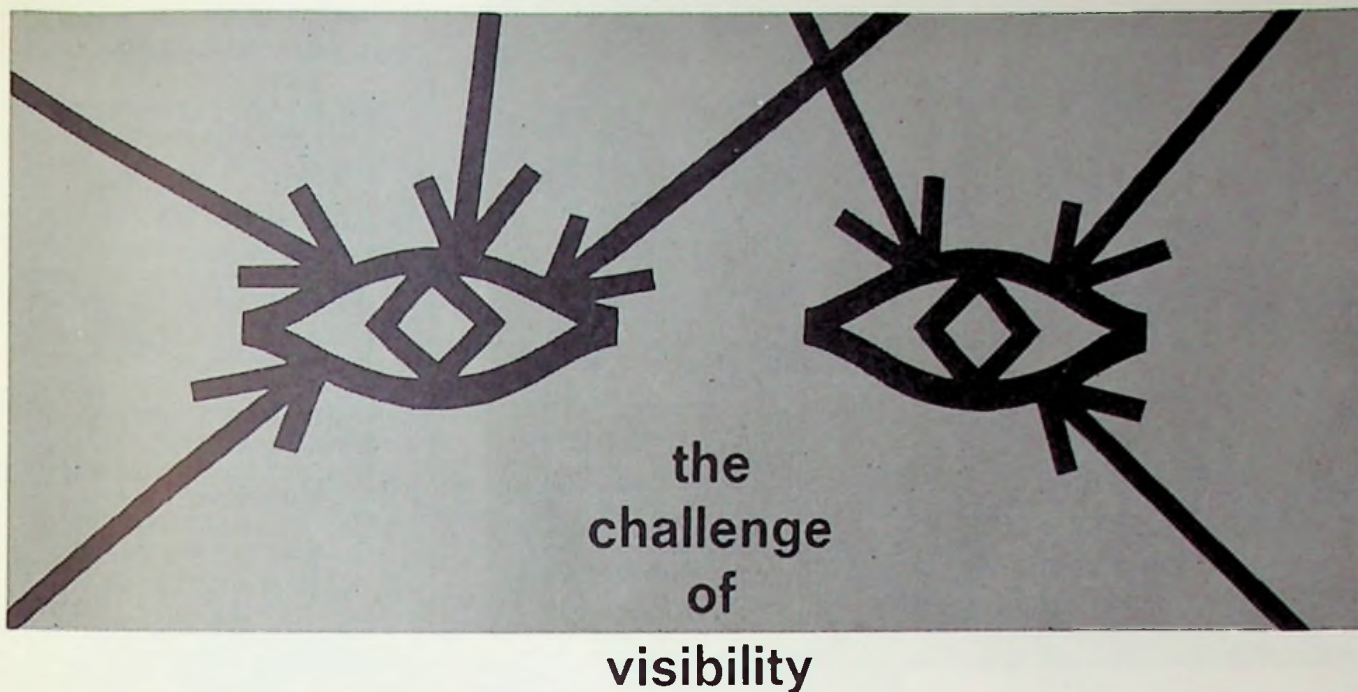
BS Engineering or Physical Sciences — Seven years in manufacture or product assurance of electro-mechanical products. A minimum of three years direct experience in quality control engineering. Responsibilities include establishing a total quality system, promoting application of new statistical and computer techniques, establishing system for measuring and controlling costs of quality.

Quality Control Engineer

BSEE — Five years experience in design, manufacture or product assurance of electro-mechanical products. Responsibilities include establishing quality plans and procedures which provide adequate control of quality and reliability at optimum cost on assigned products. Requires knowledge of inspection and test techniques and equipment along with quality control principles and practices.

To arrange an interview with a member of our Technical Staff please call Mr. Robert Gilliland at (415) 367-2282. All resumes to Mr. Gilliland will be held in complete confidence. Address them to: 2655 Bay Road, Redwood City, California 94063. Ampex is an equal opportunity employer.

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Let's face it, many engineers feel safe as the unknown, no-name, undiscovered, anonymous man. "Others" desire recognition and its attendant rewards. A portion of these "others" possess the talent and professional maturity to meet the challenge of visibility.

These "others" are the men we want.

MICROWAVE TUBE ENGINEERS

TWT Engineer

Our Challenge: Design and development of high-power Klystron, high and low power traveling wave tubes.

Our Man: Degree in Electrical Engineering or Physics with experience in microwave tubes and electro-magnetic theory.

Crossed Field Engineer

Our Challenge: Development and Production of Magnetrons and MBWO's. Customer liaison, product improvement and cost reduction are part of the challenge.

Our Man: BSEE. Prefer 2 years appropriate experience.

ELECTRICAL ENGINEERS

Solid State Circuitry

Our Challenge: Design of solid state circuitry for inverters, regulated power supplies, pulse modulator, video amplifiers, etc.

Our Man: BSEE with 3 years experience in the design of solid state circuitry. Must be able to work independently to develop prototype subsystems.

RESEARCH ENGINEERS

Solid State and Photocathode Research

Our Challenge: Work on novel low light level and infra red detection and imaging devices.

Our Man: BS-MS in EE or Physics. Experience in GaAs desirable, thin film deposition background advantages.

Crossed Field Tube

Our Challenge: Research and development of new and exciting microwave power generating devices. Emphasis on high power crossed field amplifiers.

Our Man: BSEE minimum. Experience in high power microwave tube.

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Electron Tube Division

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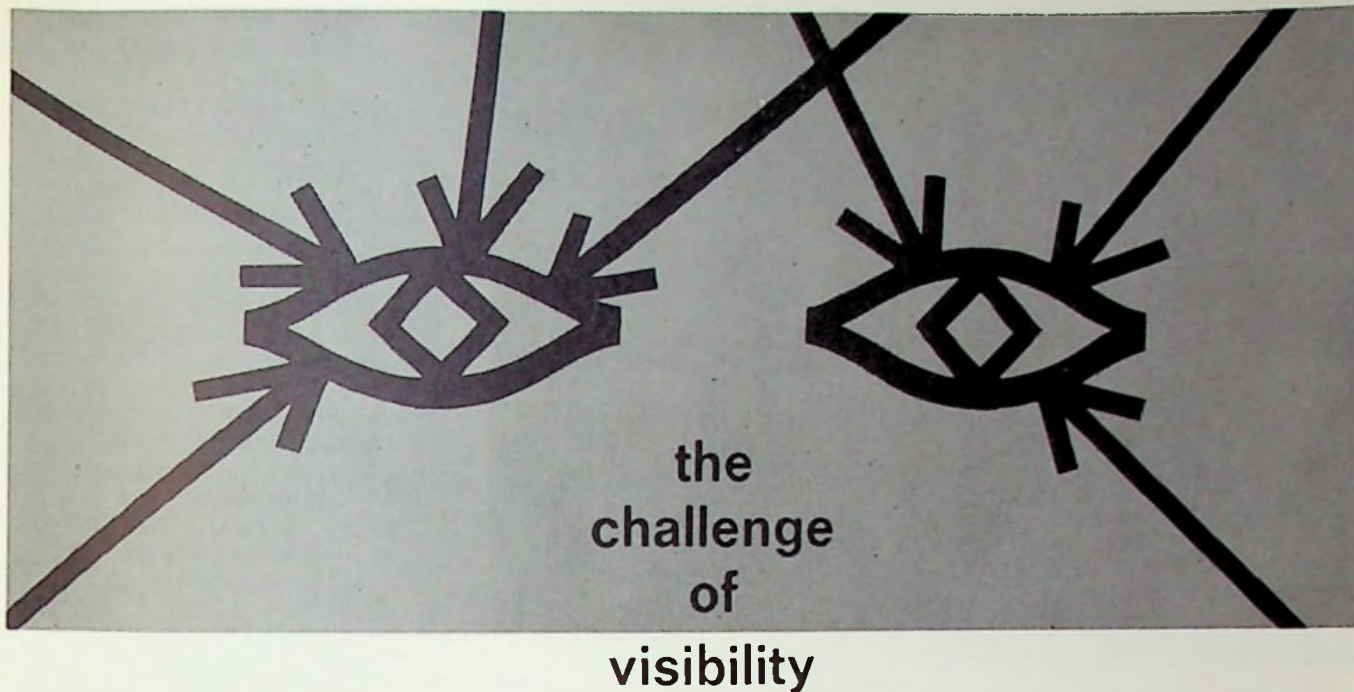
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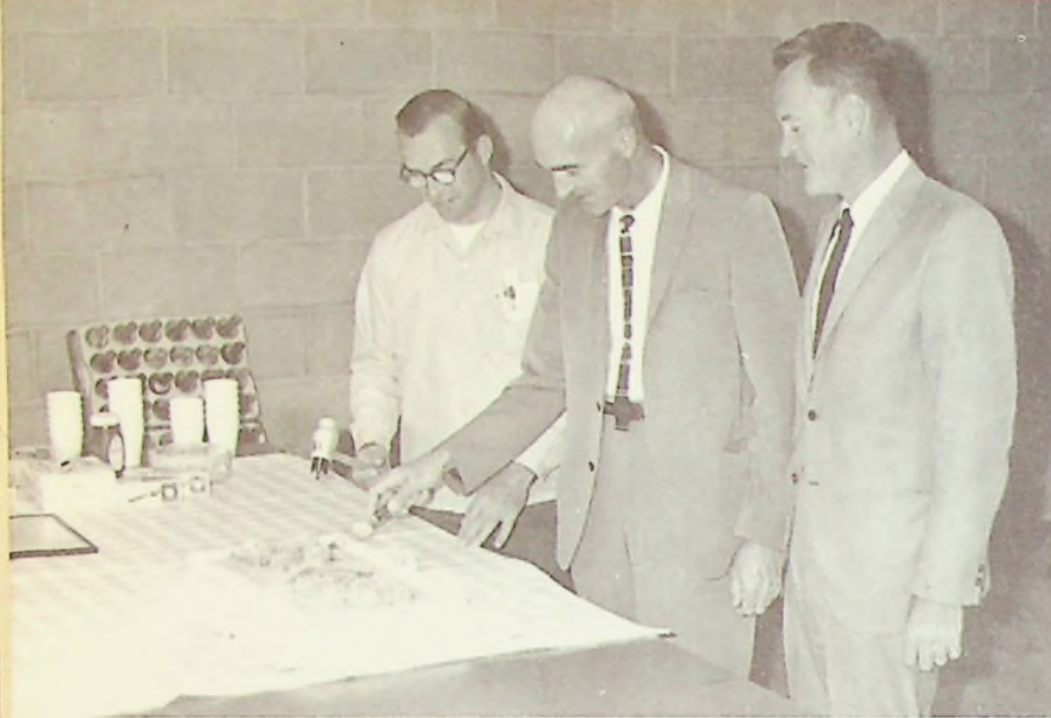
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Mr. Richard Miller (L), Student Chairman, (C) Mr. Harold Turner, Chairman of the Santa Clara Valley, Subsection of I.E.E.E., and (R) Mr. Lyle Patton, Graduate of Cogswell and a member of the Board of Trustees of the College cut the Charter Cake at the official recognition of Cogswell Polytechnical College's newly chartered Student Associate Branch of the Institute of Electrical and Electronics Engineers.

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CALL FOR PAPERS 1969 (9th) IEEE NATIONAL TELEMETERING CONFERENCE

**APRIL 22-24, 1969
WASHINGTON, D.C.**

The conference is jointly sponsored by the IEEE Groups on Aerospace and Electronic Systems and Communication Technology. Papers are especially solicited on the sub-heading topics listed below; however, good technical papers on other telemetry subjects will be fully considered.

AEROSPACE TELEMETRY

Stored-Program Flight Computers
Deep Space Convolutional Coding
S-Band Conversion Results
LSI Applications
Range Instrumentation

OCEANOGRAPHIC TELEMETRY

Sensors
Underwater Communications

INDUSTRIAL/ENVIRONMENTAL TELEMETRY

Urban Transportation Systems
Oil and Gas Telemetry
Product Measurement
Earth Resources Surveillance
Weather and Pollution Monitoring

BIOMEDICAL TELEMETRY

Personal and Animal Systems

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Data Compression
Recent Advances in FM Techniques
PCM Bit Synchronizers and
Signal Conditioners
Stored-Program Data Handling Systems

Please send two copies of your full paper (not necessarily in final format) and three copies of an abstract not exceeding 100 words to the Technical Program Chairman before December 20, 1968:

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ASME-IEEE Joint Power Generation Conference

September 15 - 19, 1968
San Francisco, California

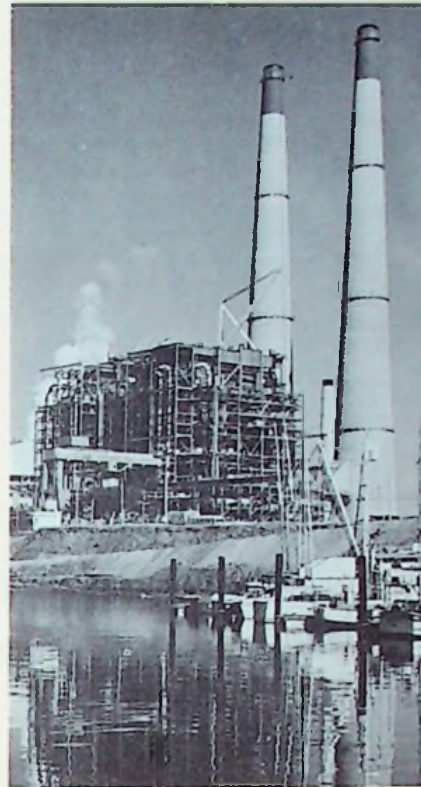
The subject of "The Power Future" will be the focal point for papers that will be presented this fall at the 12th annual Joint Power Generation Conference, being held at the Jack Tar Hotel, San Francisco, California, September 15 - 19, 1968.

This conference will feature papers from mechanical, electrical, and civil engineers involved in planning and building future energy systems. Session titles are:

1. Future Designs for Power Plant Apparatus
2. Fast Breeder Reactors
3. Power Cycles
4. Fuels of the Future
5. Liquid Fuels of the Future
6. System Stability — Plant and System Influence
7. Four Corners
8. Nuclear Engineering
9. Civil Engineering for Power
10. Boiler Corrosion

An inspection trip to the Pacific Gas & Electric Company's Moss Landing Power Plant (2113 MW capacity) is scheduled for Thursday, September 19. While the men are inspecting the many features of this

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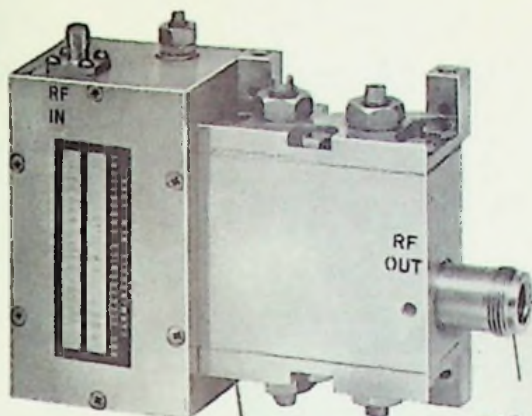
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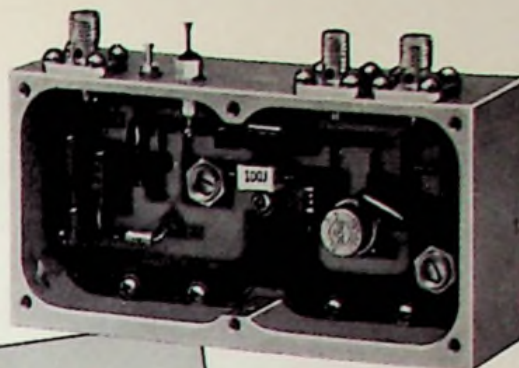


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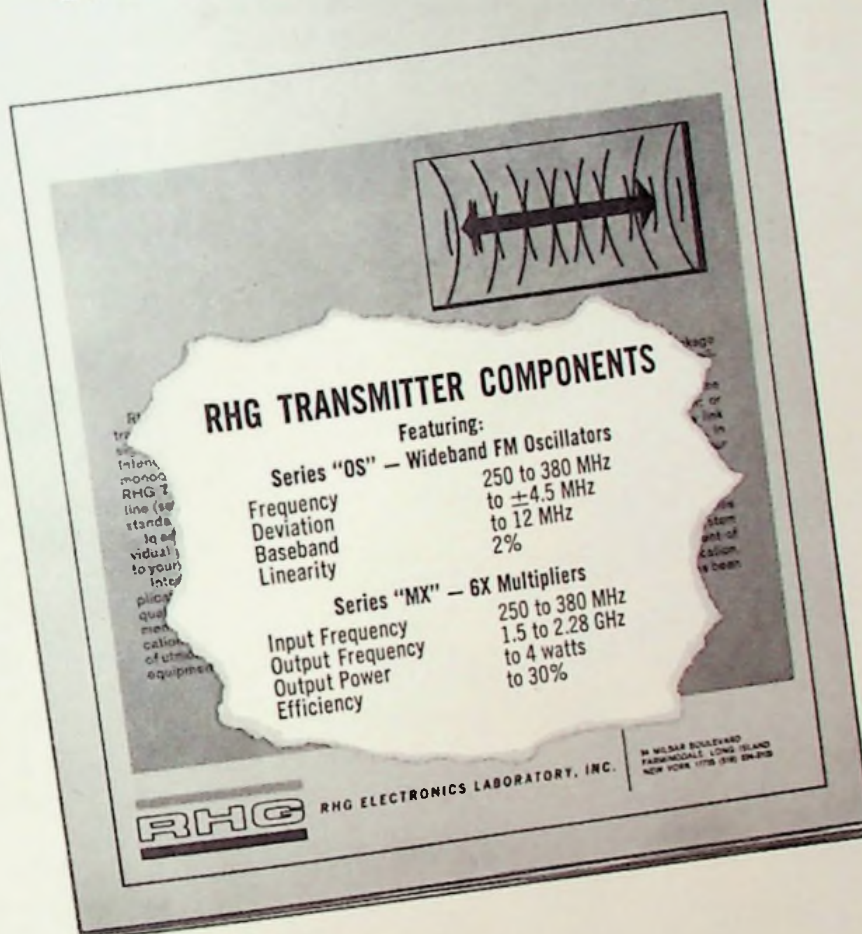
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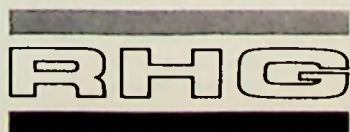
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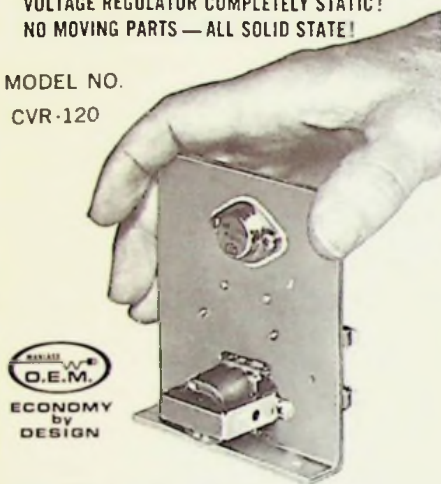
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MODEL NO.
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RMS: 105 VOLTS TYPICAL AT 130 VOLTS INPUT AND FULL LOAD

POWER CAPABILITY: 120 VA

TYPE OF VOLTAGE REGULATION:

REGULATION TECHNIQUE: PEAK REGULATING
LINE REGULATION (PEAK): PEAK CLIPPING
±1% FOR ±10% LINE CHANGE

LOAD REGULATION (PEAK): ±1% FOR NO LOAD TO FULL LOAD CHANGE

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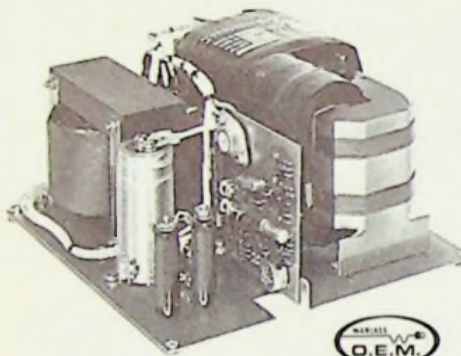
DIMENSIONS & WEIGHT: 4" W x 4 1/2" H x 2 1/2" D. — Approximately 10 Ounces

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A. C. OUTPUT: 120 Volts RMS — 1.5 KVA (Maximum)

REGULATION: LINE — ±1% for 105 to 130 V. line change

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PROTECTION: Inherent short circuit protection; Inherently suppresses 200 volt transients protecting both regulator and load being powered

OPERATING TEMPERATURE: 0°C to +55°C up to 85°C with 200 CFM of forced air cooling

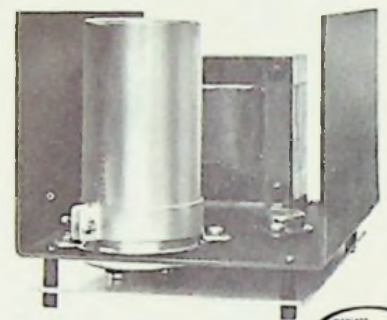
EFFICIENCY: Over 90% at full load

DIMENSIONS & WEIGHT: 10" W x 10" L x 4 5/8" H Maximum Approx. 32 lbs

PRICES	MODEL NO. VVR-1500
1 - 9	\$150.00
10 - 24	142.50
25 - 49	135.00
50 - 99	127.50
100 - 999	110.00
1,000 - 9,999	90.00
10,000 - up	75.00

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SPECIFICATIONS

A. C. INPUT: 105-125V, 67-63Hz, 1 phase

D. C. OUTPUT: 60 watts or 5 amperes maximum

REGULATION: ±1% for ±10% line change

±1% for no load to full load

RIPPLE: 0.1% ±10MV rms maximum

GROUNDING: Floating output; either positive or negative may be grounded.

PROTECTION: Automatic short circuit protection

DIMENSIONS & WEIGHTS: 30-OEM 5" H x 5" W x 5" L; 5" max.

60-OEM 7" H x 5" W x 7" L; 7" max.

120-OEM 7" H x 5" W x 10" L; 12" max.

CONSTRUCTION: Open Chassis type for OEM systems

TEMPERATURE: 0°C to 45°C

MFGR'S. TYPE	VOLTAGE RANGE	POWER RATING
30-OEM-1	3.6 - 9V	30 Watts or 2.5 Amperes Maximum
30-OEM-2	9 - 17V	
30-OEM-3	17 - 30V	
30-OEM-4	30 - 60V	
60-OEM-1	3.6 - 9V	60 Watts or 5 Amperes Maximum
60-OEM-2	9 - 17V	
60-OEM-3	17 - 30V	
60-OEM-4	30 - 60V	
120-OEM-1	3.6 - 9V	120 Watts or 10 Amperes Maximum
120-OEM-2	9 - 17V	
120-OEM-3	17 - 30V	
120-OEM-4	30 - 60V	

PRICES	MODEL NO. 60-OEM-3
1 - 9	\$50.00
10 - 24	47.50
25 - 49	45.00
50 - 99	42.50
100 - 999	36.00
1,000 - 9,999	31.00
10,000 - up	27.00

DISTRIBUTOR INQUIRIES ON THESE AND OTHER WANLASS OEM DISTRIBUTOR PRODUCTS ARE WELCOMED. ASK FOR OUR DISTRIBUTOR POLICY #DP668.

WANLASS ELECTRIC COMPANY

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