How we make Cathode Ray Tubes OF UNIFORM QUALITY AT WARTIME SPEED

This non-stop rotating oven enables North American Philips to produce cathode ray tubes in assembly line quantities despite the complex heat treatment required for uniformly high quality.

In baking out and rendering inert the binders in the "Aquadag" and fluorescent coating on the inner surfaces of the bulb, heat must be gradually raised and as gradually lowered to prevent damaging residual strains in the glass. The oven illustrated, product of North American Philips ingenuity, accomplishes this by rotating slowly racks of bulbs through zones of increasing and decreasing temperatures within the oven from room temperature to 450*C*, then down to 200*C*.

This is but one of the many innovations in engineering and production techniques which assure for NORELCO Cathode Ray Tubes a uniformly high level of performance.

Painstaking concern for perfection and constant striving for improvement characterize *all* the activities of North American Philips in the development and manufacture of NORELCO electronic products.

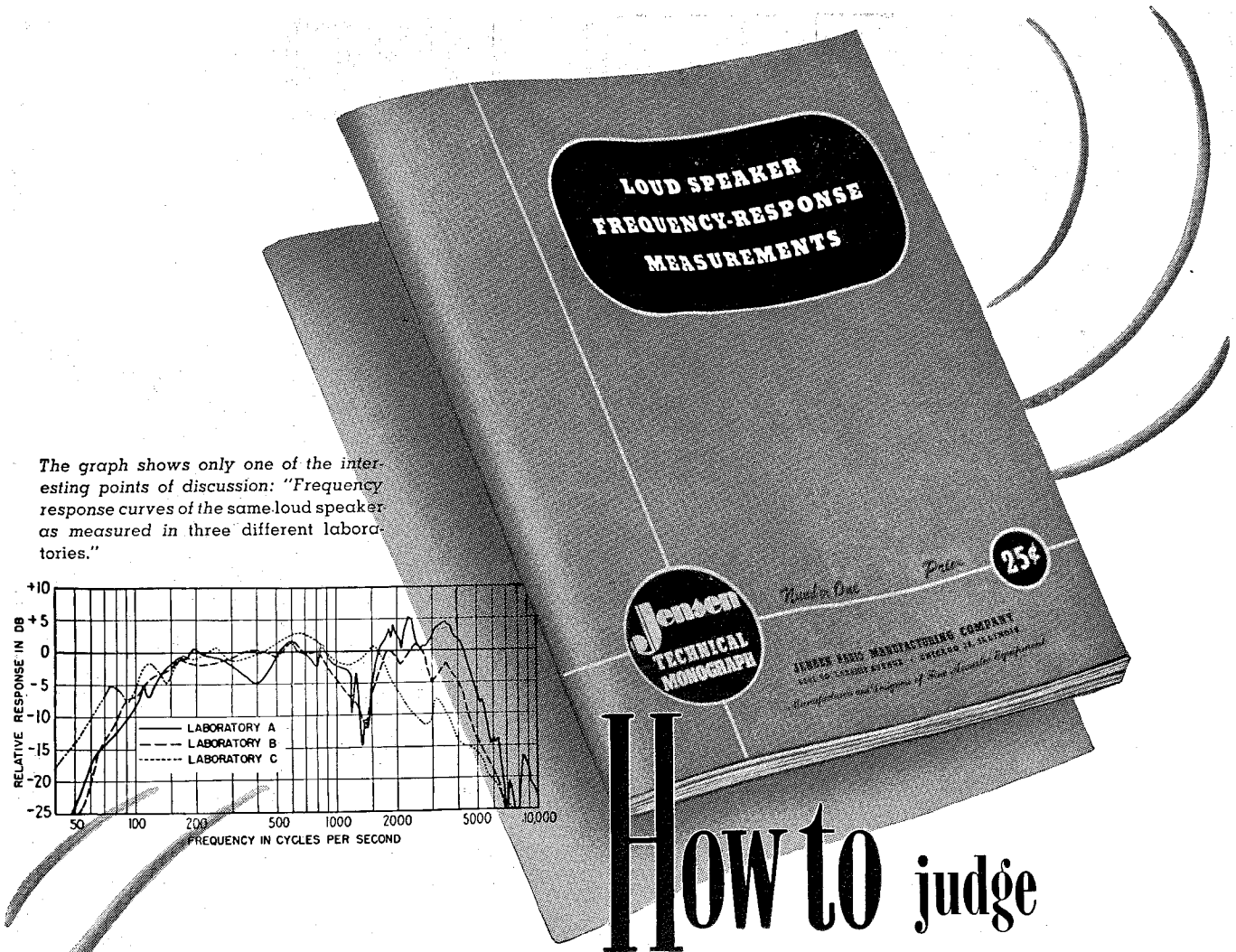
Various types of cathode ray, transmitting and amplifying tubes are now being produced for our armed forces, together with quartz crystals for land, sea and air-borne communication equipment.

For our war industries we make Searchray (X-Ray) Apparatus for industrial and research applications; X-Ray Diffraction Apparatus; Direct Reading Frequency Meters; Electronic Measuring Instruments; High Frequency Heating Equipment; Tungsten and Molybdenum in many forms; Fine Wire in many metals and various finishes; Diamond Dies.

And For Victory We Say: Buy More War Bonds

Norelco ELECTRONIC PRODUCTS by
NORTH AMERICAN PHILIPS COMPANY, INC.

Executive Offices: 100 East 42nd Street, New York 17, New York
Factories in Dobbs Ferry, New York; Mount Vernon, New York (Metalix Division); Lewiston, Maine (Elmet Division)



The graph shows only one of the interesting points of discussion: "Frequency response curves of the same loud speaker as measured in three different laboratories."

How to judge Loud Speakers from Frequency Response Curves

For years we at Jensen have keenly felt the need of dependable and useful information to guide both the professional and the layman in their selection, purchase, installation and use of loud speakers. Now we are going to meet that need by a series of informative technical Monographs prepared by the Jensen Technical Service Department. ¶ The first Monograph in the series deals with one of the most interesting and controversial subjects in the field of acoustics, "LOUD SPEAKER FREQUENCY RESPONSE MEASUREMENTS." It discusses thoroughly the practical aspects of this subject in such a way that the material is unhesitatingly recommended to the whole profession: the engineer, the trade, the student, and even the layman. The first Monograph is ready now. Copies are available from Jensen jobbers and dealers everywhere, or fill out the coupon below and send it with 25c to

Jensen

JENSEN RADIO MANUFACTURING COMPANY
6629 SO. LARAMIE AVENUE, CHICAGO 38, ILLINOIS

Gentlemen:
I am interested in the monograph, "Loud Speaker Frequency Response Measurement." Enclosed is 25c for my copy.

NAME_____

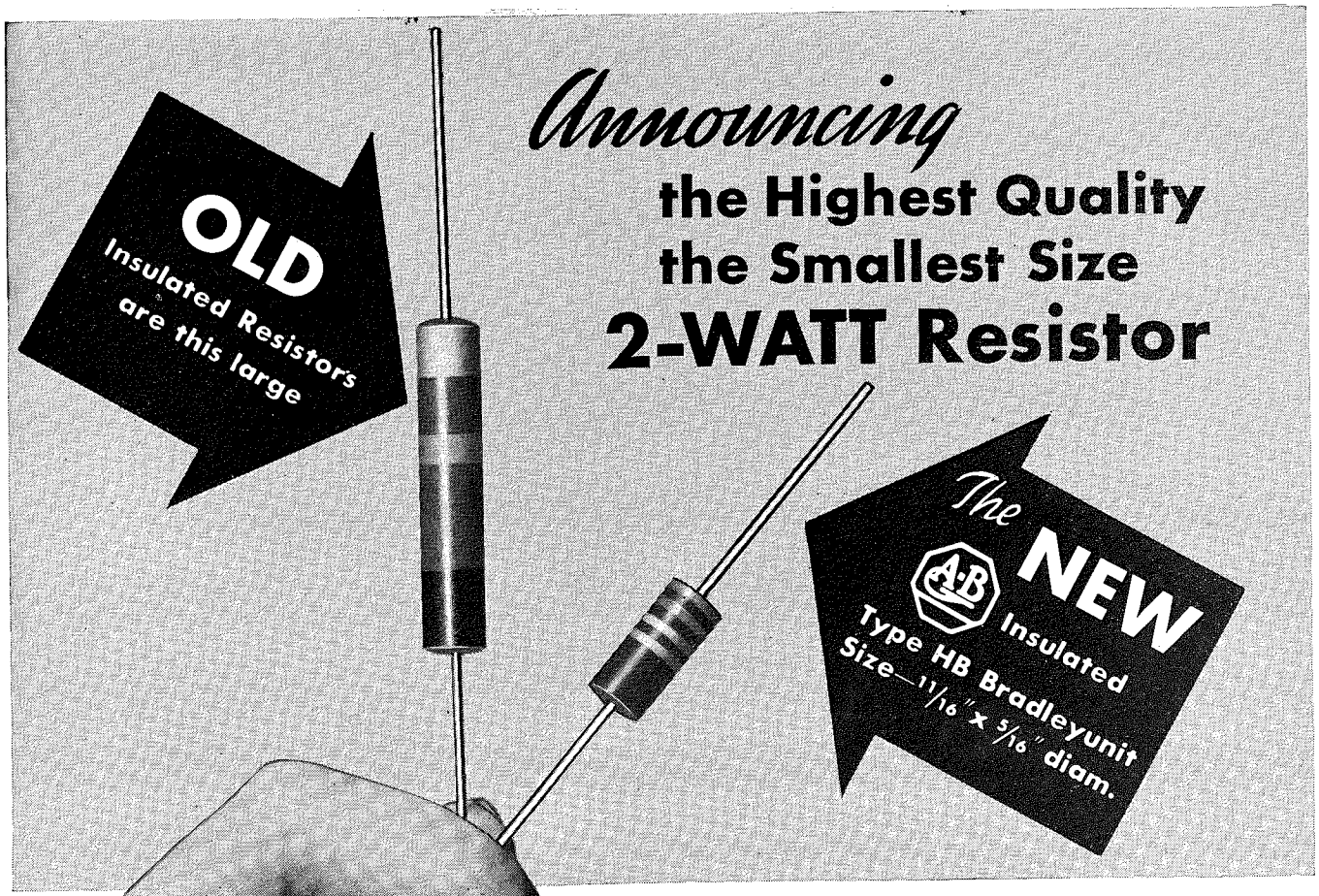
ADDRESS_____ STATE_____

CITY_____

Watch for the rest of the series to be announced later. Other Monographs will deal with equally important and interesting subjects.

FREE to men in the Military Services, to Military Technical Training Centers, and to Technical Schools and libraries. Just write and request a copy.


ML Tubes
The initials ML stand for Machlett Laboratories, the world's largest producers of X-ray tubes, now also making large quantities of special oscillator, amplifier and rectifier tubes for war purposes. Design and manufacture of efficient and long-lived high-voltage radio tubes require the same engineering knowledge and skilled precision workmanship that are essential in the X-ray field. We did not set out to be the biggest in X-ray tube output, but to make the best tubes we know how; growth came as a consequence of quality. That Machlett policy began with the first American-made X-ray tube, nearly 50 years ago, and it stands today as we apply our exceptional experience to the electronic field.
ML transmitting and high-power electronic tubes for industrial uses will be available for the post-war development of the industry. . . .
Machlett Laboratories, Inc., Springdale, Conn.
MACHLETT
X RAY TUBES SINCE 1898
TODAY THEIR LARGEST MAKER



The new Type HB Insulated Bradleyunit, just put into production, matches in dependability and appearance the Allen-Bradley Type EB ½-watt and the Type GB 1-watt fixed resistors, which are recognized by engineers as "tops" in quality for all radio and radar applications.

The new Allen-Bradley 2-watt insulated resistor can be safely used up to its listed rating . . . you do not have to derate this resistor, irrespective of its application. Note the test data given below.

The Type HB Bradleyunit is available for early delivery in R. M. A. standard values from 10 ohms to 0.47 megohms, in tolerances of 5, 10, and 20 per cent.

Substitute this new 2-watt resistor in your equipment, and gain space, improve dependability, and reduce rejections.

Allen-Bradley Co., 110 W. Greenfield Ave., Milwaukee 4, Wis.

TYPE HB BRADLEYUNIT PASSES ALL TESTS

Will meet American War Standard tests including salt water immersion test and Army and Navy 200-hour salt spray test AN-QQ-S-91. Under Continuous Load Test of 175% load for 100 hours, or 100% load for 1000 hours, resistance change will be less than 5%.

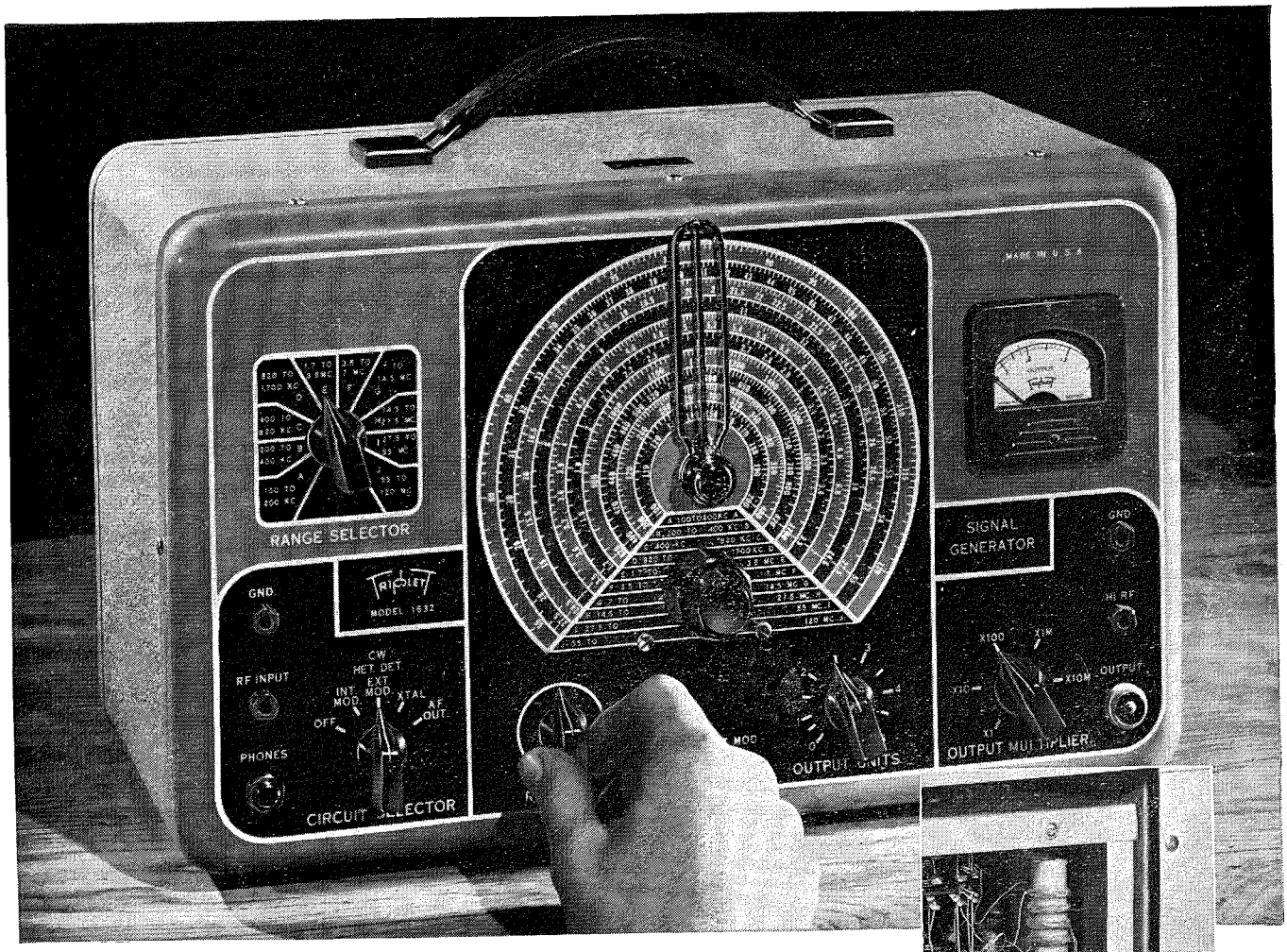
Maximum continuous load at 40°C. ambient temperature is 2 watts. Max. continuous RMS voltage drop -1000 v. Max. momentary peak voltage drop -2000 v.

A-B Quality

ALLEN-BRADLEY

FIXED & ADJUSTABLE RADIO RESISTORS

QUALITY



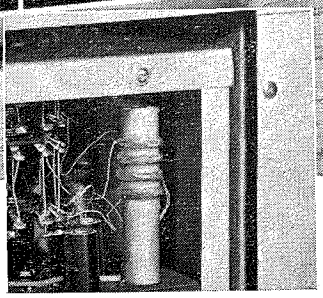
MODEL NO. 1632

Signal Generator

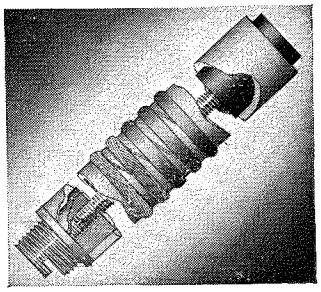
CONTINUOUS COVERAGE—100 KC. TO 120 MC. • ALL FREQUENCIES FUNDAMENTALS

A complete wide-range Signal Generator in keeping with the broader requirements of today's testing. Model 1632 offers accuracy and stability, beyond anything heretofore demanded in the test field, plus the new high frequencies for frequency modulated and television receivers, required for post-war servicing. Top-quality engineering and construction throughout in keeping with the pledge of satisfaction represented by the familiar Triplett trademark.

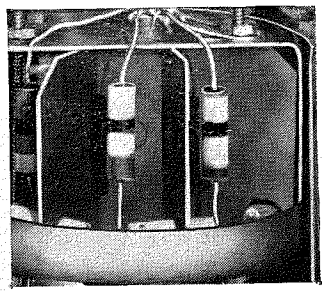
Of course today's production of this and other models go for war needs, but you will find the complete Triplett line the answer to your problems when you add to your post-war equipment.



• Triple shielding throughout, Steel outer case, steel inner case, plus copper plating.



• All coils permeability tuned. Litz wire wound impregnated against humidity with "high-Q" cement.



• Note sections individually shielded with pure copper. Entire unit encased in aluminum shield.

Triplett

ELECTRICAL INSTRUMENT CO.

BLUFFTON STANDARDS ARE SET BY TRIPLETT OHIO ★ ★ ★

UTAH IS RADIO'S *Unsilent Partner*

For many years, Utah has been radio's unsilent partner . . . giving a good clear voice to your radio . . . by making loud speakers and other component parts.

Today, Utah is 100% in war work . . . an unsilent partner in the armed forces of our country.

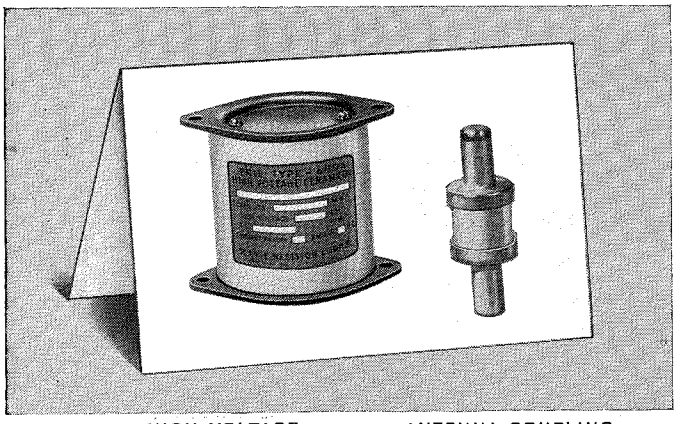
Tomorrow, when Victory comes, Utah will apply its new skills, new techniques—gained through its extraordinary war experience—to the *continued* manufacture of loud speakers and other component parts so vital to your radio enjoyment.

Right now little Utalins* are doing a constant improvement job on the components you will be needing as soon as civilian production is resumed.

ARMY E NAVY

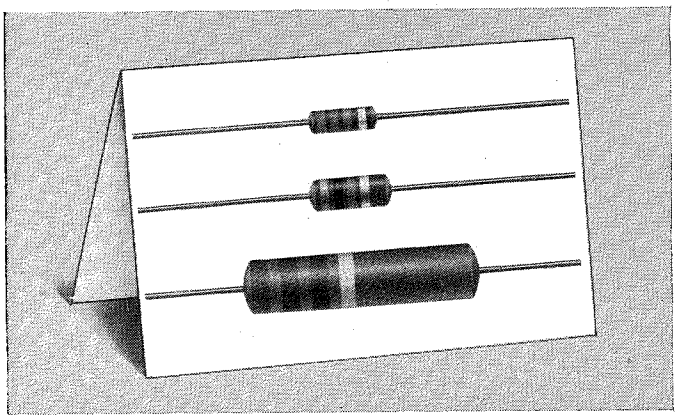
utah
RADIO PRODUCTS COMPANY
CHICAGO, ILLINOIS

**Utalins—Utah's helpers.*

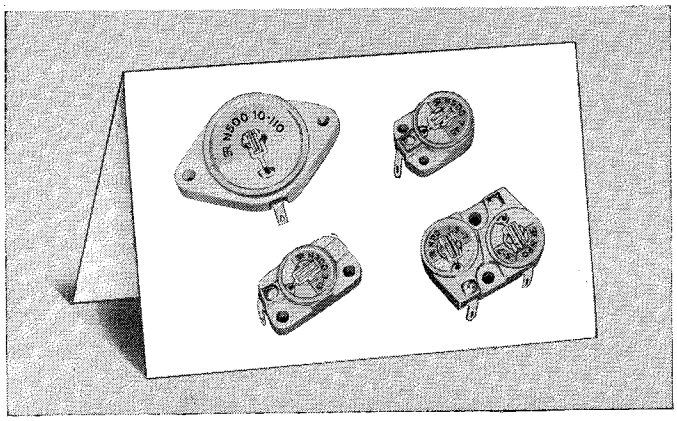


HIGH VOLTAGE TRANSMITTING CERAMICON

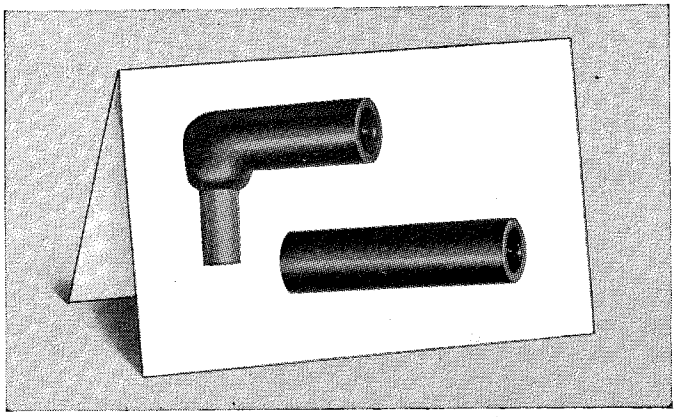
ANTENNA COUPLING CERAMICON



ERIE RESISTORS



CERAMICON TRIMMERS



ERIE SUPPRESSORS

ELECTRONIC

by Erie

Development . .

Engineering . . .

Production . . .

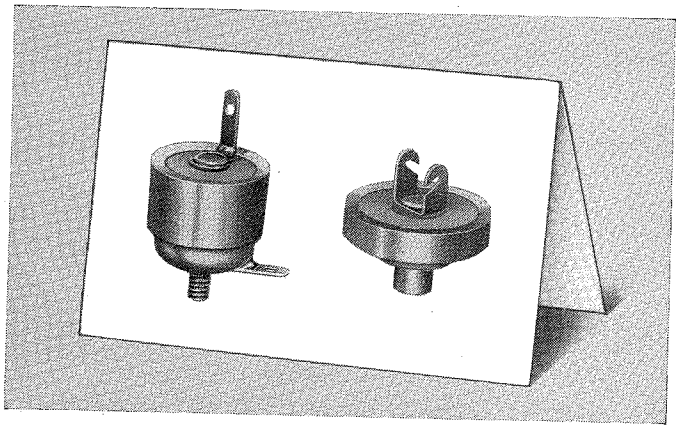
FOR HIGH ACHIEVEMENT IN WAR PRODUCTION

Erie Resistor Headquarters Sheraton Hotel

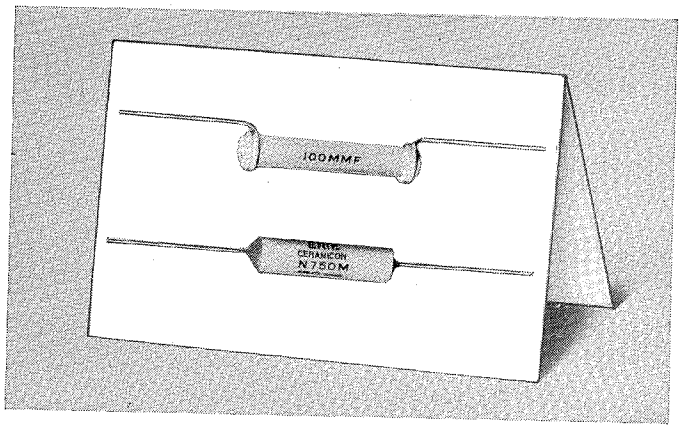
ERIE RESISTOR CORPORATION

COMPONENTS

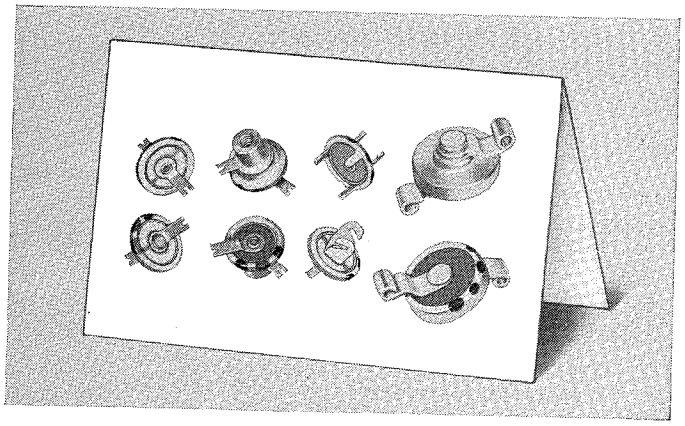
Resistor



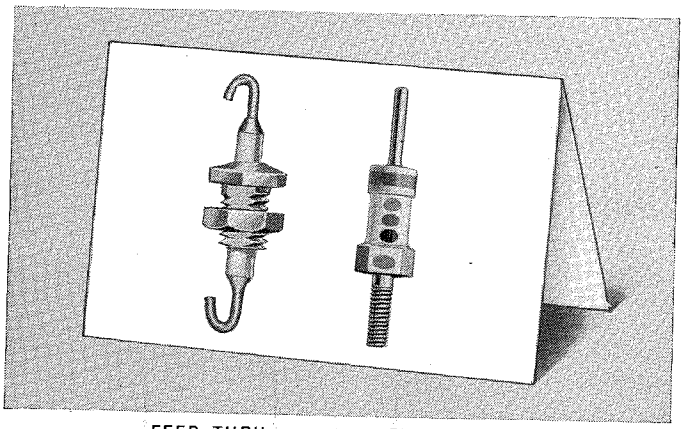
DISC CERAMICONS



CERAMICONS



ERIE BUTTON SILVER MICAS



FEED-THRU CERAMICON

STAND-OFF CERAMICON

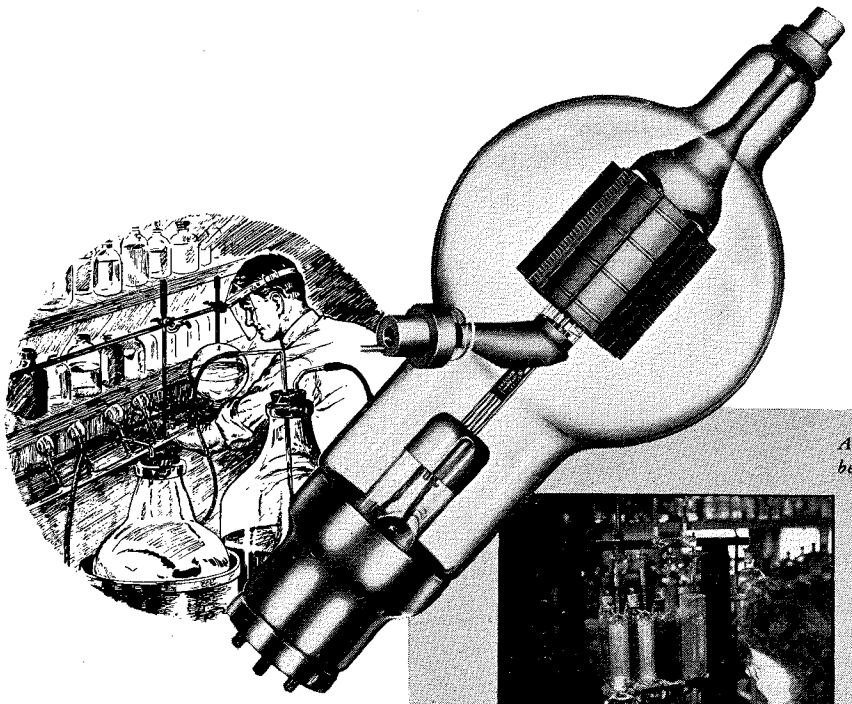
Erie Resistor has made many contributions to the progress of the Electronic Industry through the development of accurate, dependable components. In 1933, Erie Resistor introduced the first insulated ½ and 1 watt carbon resistors. Three years later, Erie Ceramicons, a new type of silvered ceramic condenser, with definite reproducable temperature characteristics, were made available for American radios. The continued development of this basic principal of construction has kept pace with industry's requirements, with Ceramicon Trimmers and high-voltage transmitting Ceramicons. For V.H.F. and U.H.F. applications, where low series inductance is essential, Erie Resistor developed Button Silver Mica Condensers and Disc Ceramicons.

Behind these developments are the Erie Resistor Engineers who have also designed most of the automatic machinery and other production equipment necessary for the economical manufacture of Erie components. These men have the theoretical knowledge and practical experience necessary for the design of new types of components for F.M. and Television. Electric equipment manufacturers are invited to consult with the Erie Resistor engineering department on their condenser and resistor design problems.

The facilities for producing Erie Resistors, Suppressors, and Condensers have been more than doubled to take care of wartime needs. The Army-Navy "E" Flag, which flies over the four Erie Resistor plants in Erie, is a tribute to Erie Resistor employees' all-out effort for war production.

Let's All Back The Attack
BUY WAR BONDS

· · · ERIE, PENNSYLVANIA · · ·



the *Science* behind the science of electronics

The pattern of progress in the science of electronics is determined by the achievements in creating and developing new and more efficient electron vacuum tubes. Therefore, the whole complex task of vacuum tube development – involving the intelligent application of many sciences – comprises the real science behind the science of electronics.

To create and produce the modern vacuum tube requires experience and skill of the highest order in these many sciences in addition to complete facilities for their application. The list includes everything from chemistry and metallurgy – the technology of glass fabrication and vacuum pumping – to physics, optics, thermo-dynamics and most important of all – Electronics.

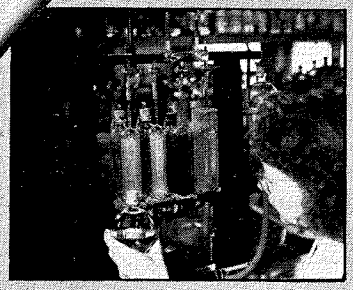
The resources and resourcefulness of Eimac laboratories have accounted for many outstanding contributions to the science of Electronics. A fact which is attested to by the leadership which Eimac tubes enjoy throughout the world. These comprehensive facilities are continuously being utilized to achieve better and better results for the users of Eimac tubes.

Eimac Engineering is devoted solely to the development and production of electron vacuum tubes. However, since the electron vacuum tube is the heart of all electronic devices it is advisable for users and prospective users of electronics to look first to the vacuum tubes required. A note outlining your problem will bring advice and assistance without cost or obligation.

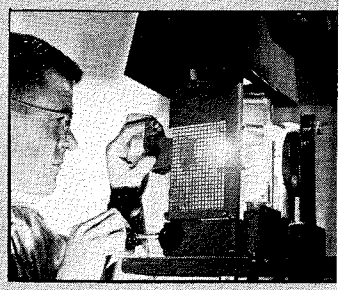
• • •

Write for your copy of Electronic Telesis – a 64 page booklet fully illustrated – covering fundamentals of Electronics and many of its important applications. Written in layman's language.

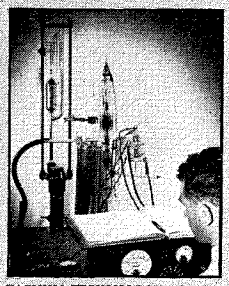
A few of the branches of the Science behind the Science of Electronics



CHEMISTRY—*Making Gas Analysis in the Eimac Laboratory*



METALLURGY—*Spectrographic Analysis of the Rare Metals Used in Vacuum Tubes*

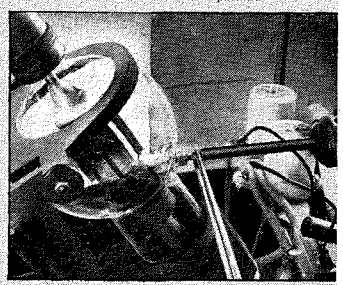


VACUUM TECHNOLOGY—*Constant Research to Develop Better Vacuum Techniques*

PHYSICS—*Actually Viewing Emission of Electrons with Electron Microscope*

ELECTRONICS—*Determining Facts about and Recording Data on Vacuum Tube Capabilities*

OPTICS—*Studying the Effect Processing has on the Structure of Materials Through Photomicrography*



GLASS TECHNOLOGY—*Special Equipment and Technique to Produce Complicated Glass Structures*

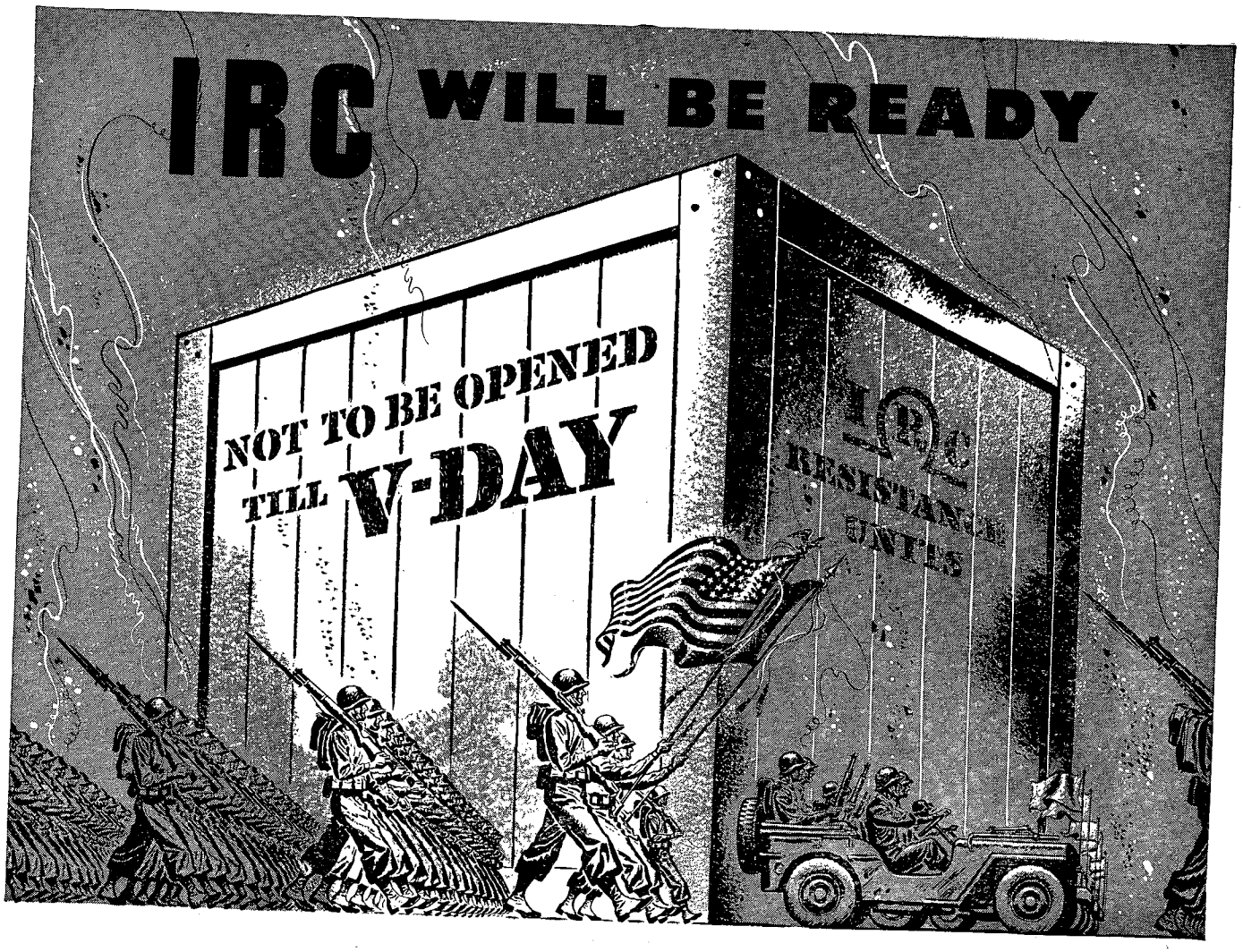
Follow the leaders to

Eimac REG. U. S. PAT. OFF. **TUBES**

EITEL-McCULLOUGH, INC., 869 San Mateo Ave., SAN BRUNO, CALIF.

Plants located at: San Bruno, California and Salt Lake City, Utah

Export Agents: FRAZAR & HANSEN, 301 Clay Street, San Francisco, California, U. S. A.



When that Great Day dawns you'll be in the market for new types of components for your electronic devices now in the planning stage. Among your needs will be resistors embodying those characteristics which the new applications demand.

For months, in the midst of war production, the IRC Engineering Staff has been looking ahead—designing, adapting, testing, perfecting—to incorporate in peacetime resistors special features developed for war uses and which will anticipate industry's future requirements.

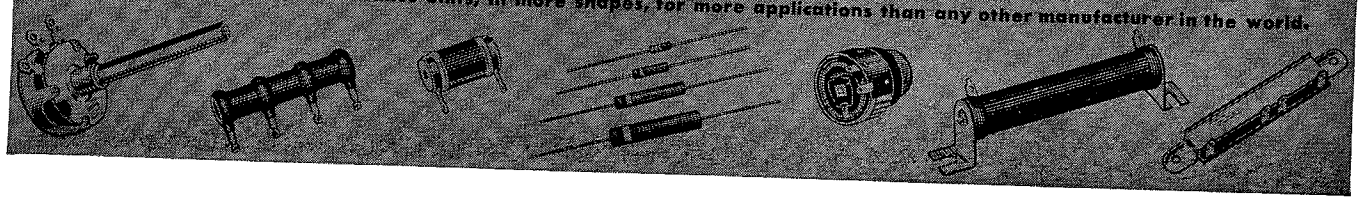
Yes, "IRC will be ready" to supply resistors of *all types* on a mass production basis. . . . In the meantime and without obligation, our Research Engineering Department invites you to discuss with them (confidentially, of course) any resistor problems connected with your peace-time production.

PREFERRED FOR PERFORMANCE
IRC
FIXED & VARIABLE RESISTORS

INTERNATIONAL RESISTANCE CO.

401 N. Broad St. Philadelphia 8, Pa.

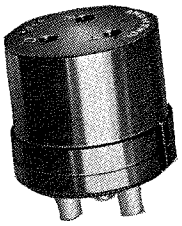
IRC makes more types of resistance units, in more shapes, for more applications than any other manufacturer in the world.



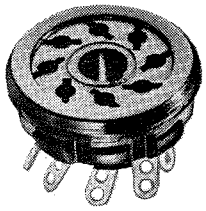
TOGETHER

Into the Future...

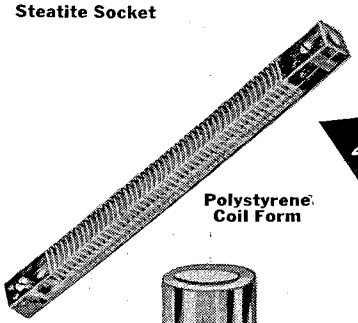
I. R. E. and AMPHENOL



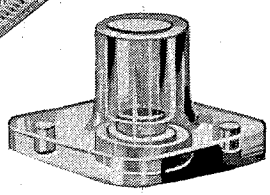
Bakelite Plug



Steatite Socket



Polystyrene Coil Form



Polystyrene Feed Through Bushing

Twenty-five years ago the heartiest optimist, the staunchest prophet, would not have *dared* predict the wonderful developments in radio, and its kindred fields, that have come about since that time! Radio engineers, instead of prophecying, set to work to create those developments. To these men goes the credit for progress in radio, as well as in all electronic processes!

Amphenol is proud of having a part in that progress. Its own engineers have kept pace with radio, have furnished radio and electronic engineers with equipment—both normal and high frequency—upon which they could always depend.

Amphenol, basing foresight on hindsight, sees unlimited developments ahead for the industry. It has expanded its production time and again knowing that the demand for radio parts—U.H.F. cable and connectors of the very best quality, as well as for connectors, cable assemblies, conduit, and fittings for lower frequencies—will justify the increased capacity.

Depend upon

AMPHENOL

Quality

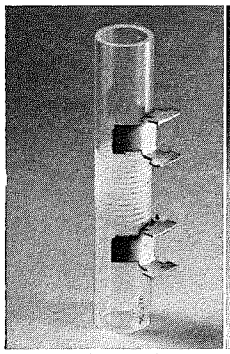
Radio Parts, U.H.F. Cable and Connectors, Conduit, Cable Assemblies, Fittings, Plastics for Electronics and Industry

AMERICAN PHENOLIC CORPORATION

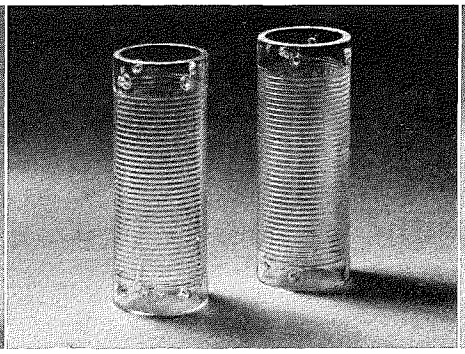
Chicago 50, Illinois

IN CANADA • AMPHENOL LIMITED • TORONTO

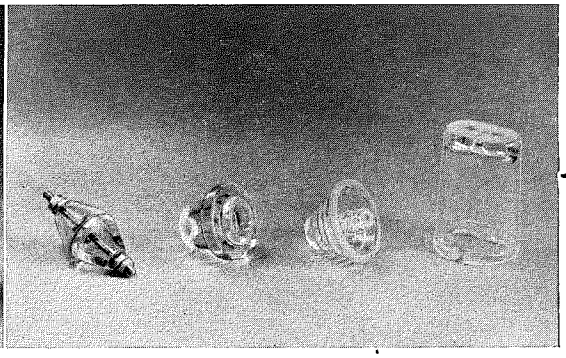
U.H.F. Cable and Connector



Coil form made from mechanically drawn tubing, with accurately ground threads.



Coil forms made by blowing hot glass in a mold on high speed automatic equipment. Holes are "punched" in subsequent operations.

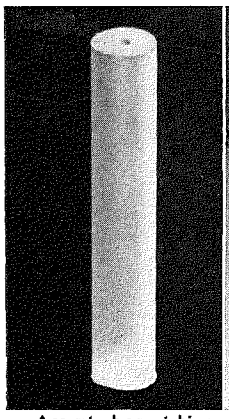


Entering insulator, insulator bushing, capacitor cover, and tube base insulator.

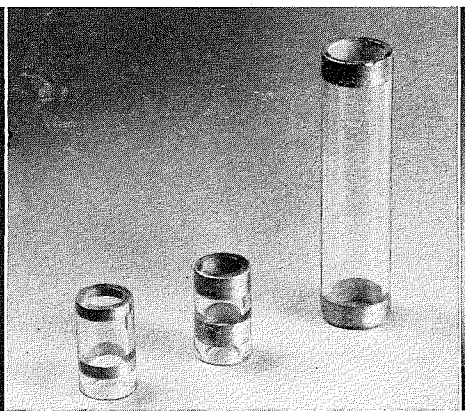
Electrical Products by CORNING

Here are just a few of the hundreds of electronic glassware products made by Corning. If you have a problem you think glass might be helpful in solving; call on Corning. Here you will find 75 years of pioneering in glass research—at your service. Electronic Sales Dept., FM10, Corning Glass Works, Corning, N. Y.

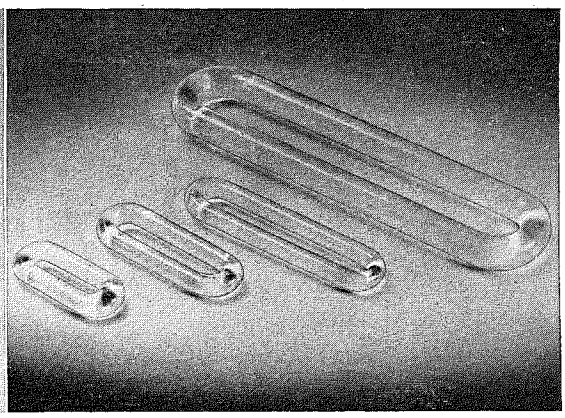
CORNING *Means Research in Glass*



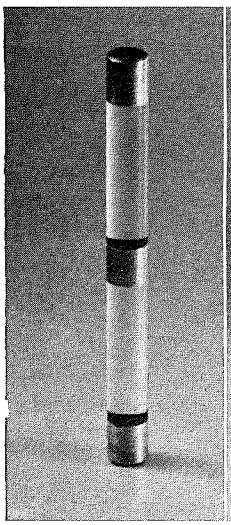
Accurate bore tubing with I.D. held to ±0.002" or closer when required, for terminal sleeves.



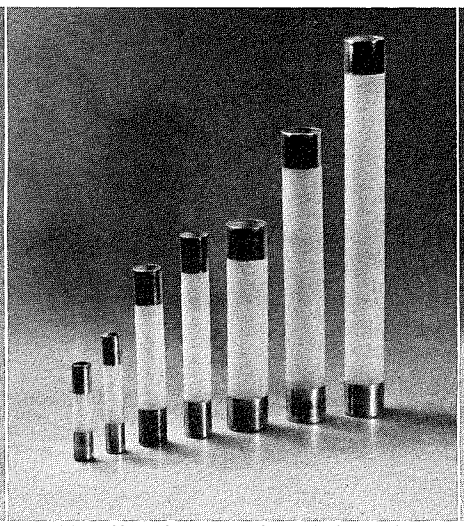
Metallized tubing for transformer bushings.



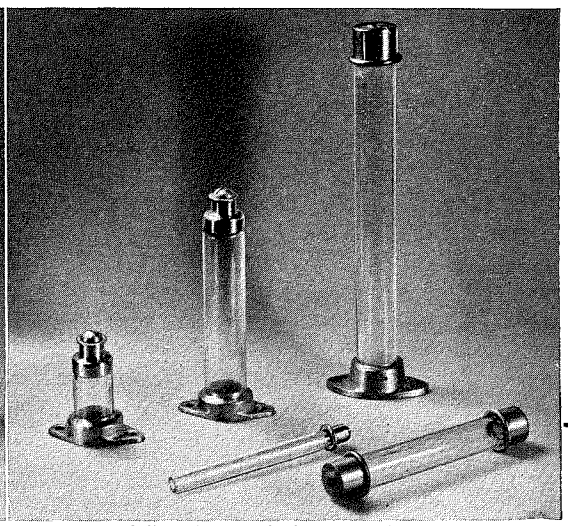
Link strain insulators for supporting loads of 500 to 1000 lbs., depending on insulator size.



Metallized precision ground solid rod for rotor shafts.



Metallized resistor tubes which can be directly solder-sealed to metal caps to make a thermally resistant, hermetically sealed joint.



Standoff insulators made from specially tempered, metallized tubing.

Electronic Sales Dept.

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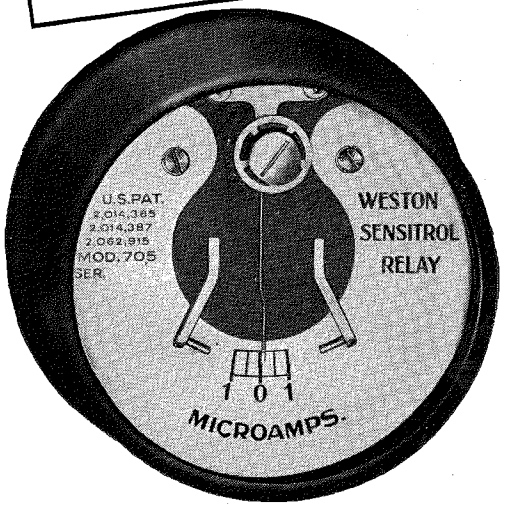

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