





## *First... and still Foremost*

It is significant, that on the whole, difficult transformer jobs find their way to UTC — jobs requiring unusual engineering ingenuity; improved design methods; advanced production technique and equipment.

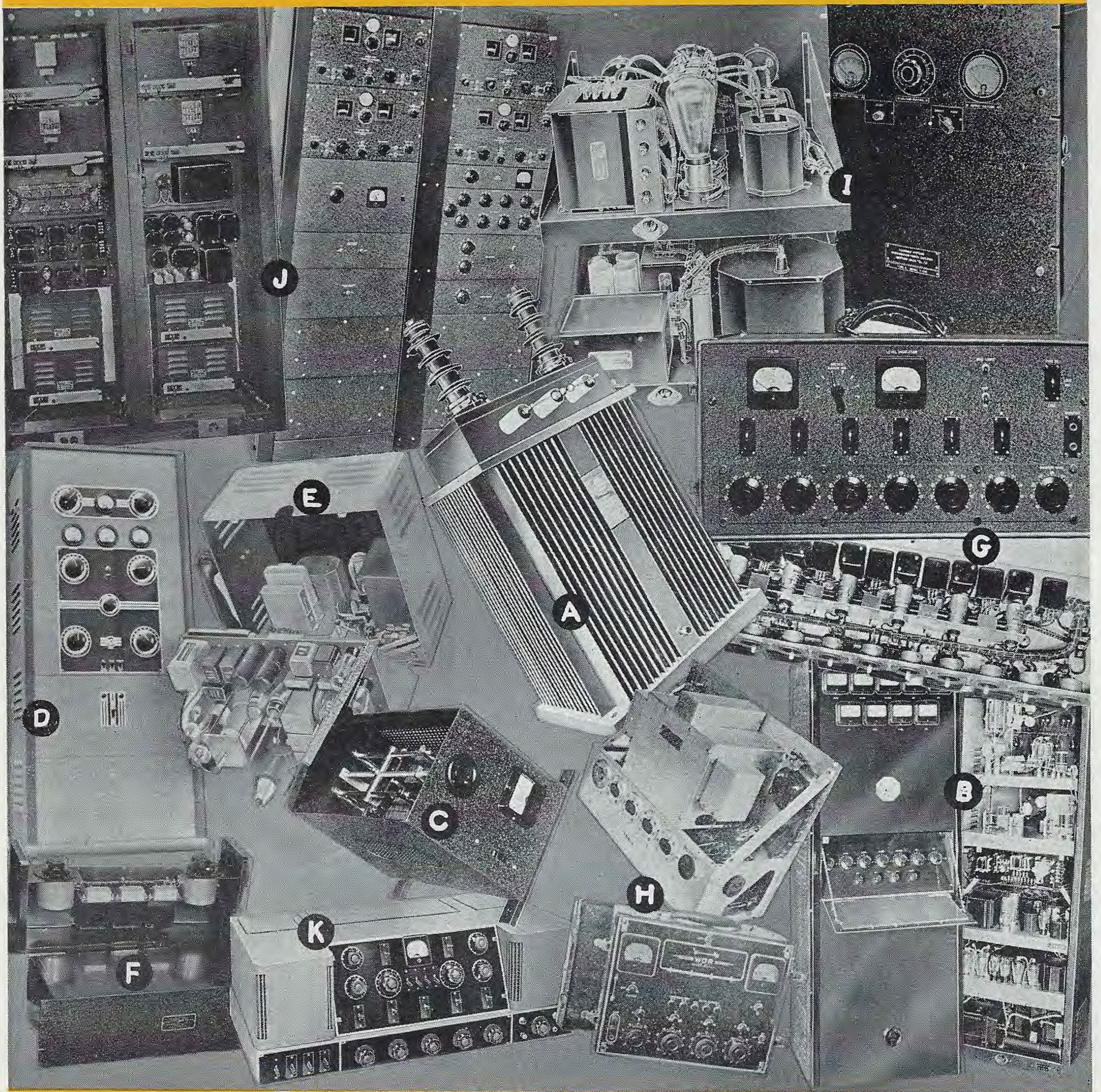
These typically UTC features, augmented by continuous research, are incorporated in the standard products described in this bulletin.

The scope of UTC activity ranges from one-third ounce hearing aid reactors to five ton power components. Special units of these types are produced quickly and economically to customers' specifications. What is your problem?

BULLETIN No. IB-1

*Nowhere in the World Can One Obtain Finer  
Transformers Than Those Produced by UTC...*

# KNOWN THE WORLD OVER



A—10 Henry-17 Amp. filter choke for 100 KW transmitter—Mexico.

B—250 Watt transmitter using UTC transformers in service in Philippine Telephone system.

C—25 KVA VARITRAN VOLTAGE Control in service in U.S.S.R.

D—RCA—150 Watt transmitter using UTC transformers.

E—Western Electric ship to shore transmitter using UTC transformers.

F—Line equalizer manufactured for Westinghouse for CAA service.

G—Columbia Broadcasting System 8 position mixer and voltage amplifier using UTC transformers.

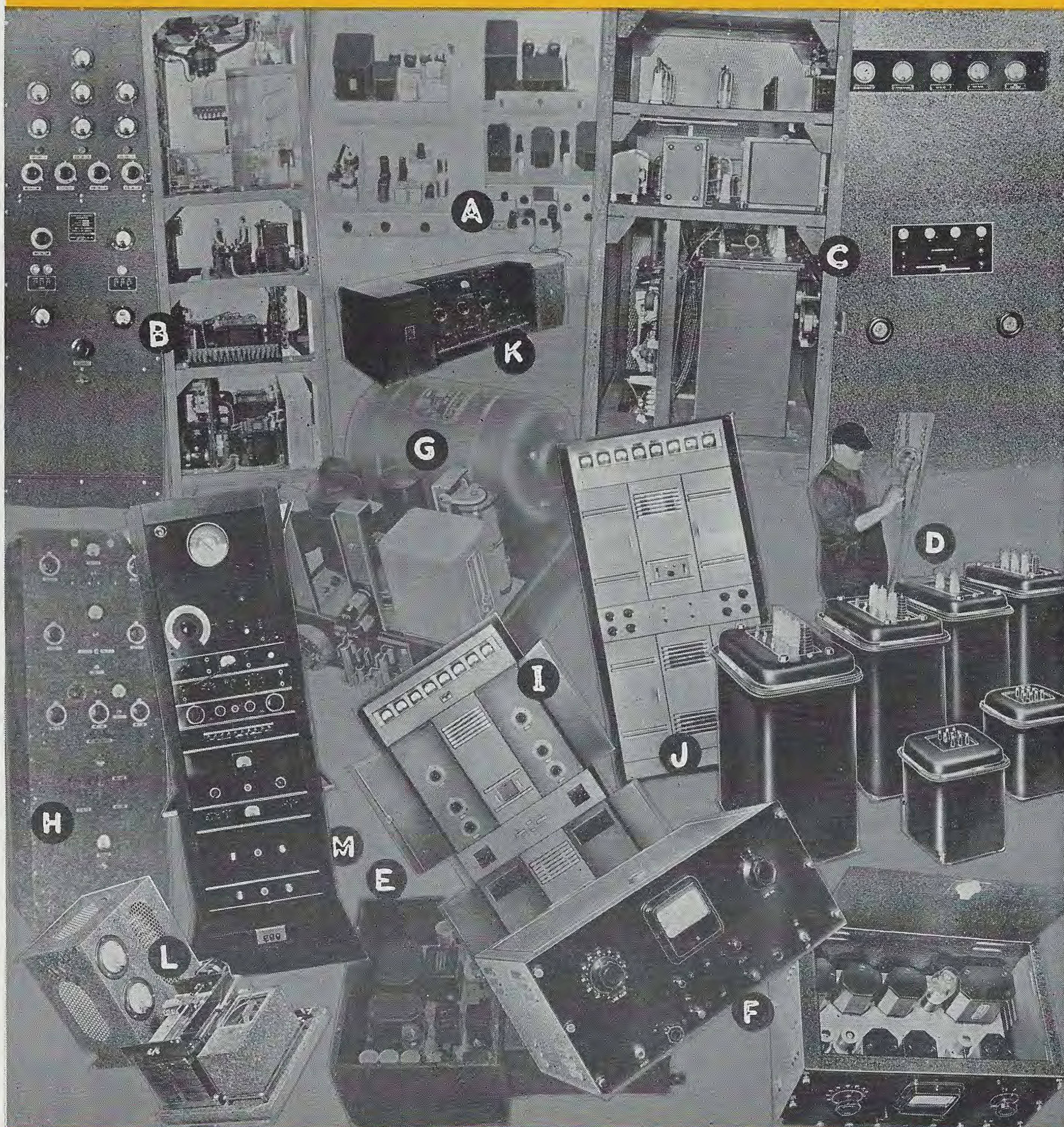
H—WOR nemo amplifier using UTC transformers.

I—Western Union facsimile amplifier using UTC transformers.

J—UTC transformers used in Diversity Receiver and monitoring amplifiers in service in All India Radio system.

K—High gain mixer and monitoring console used by Java East India Radio equipped with UTC Linear Standard components.

# KNOWN THE WORLD OVER



- A—General Electric equipment using UTC transformers.
- B—U. S. Dept of Commerce 100 Watt transmitter manufactured by Radio Receptor using UTC transformers.
- C—Plate and bias supply for 5 KW transmitter using UTC Linear Standard components.
- D—5 KW Power supply components.
- E—Galbraith ship docking amplifier using UTC transformers.
- F—remote control amplifier in service in Manila Communications using UTC transformers.

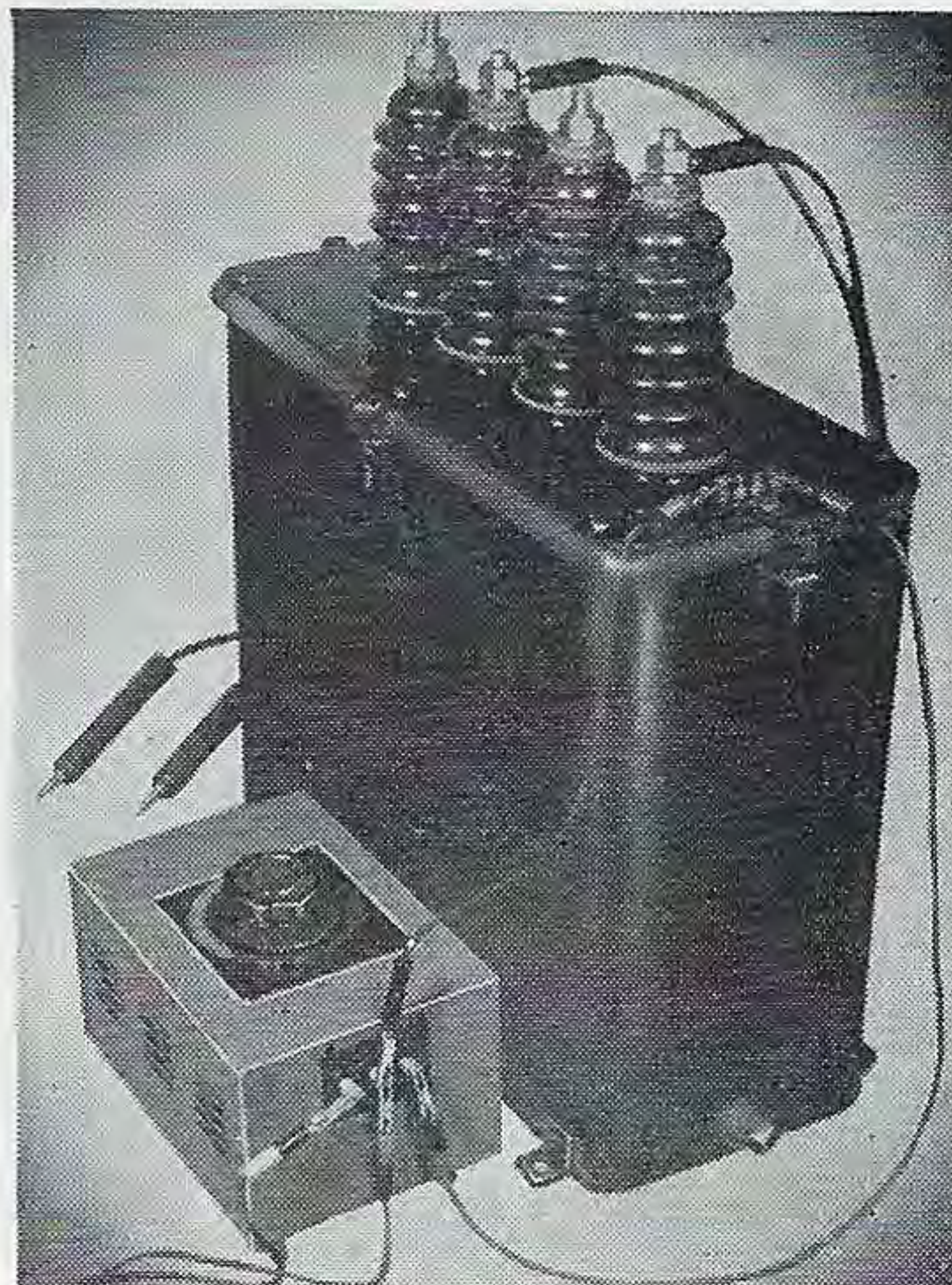
- G—Western Electric rectifier using UTC transformers.
- H—RCA 200 watt transmitter using UTC transformers.
- I—KRSE Broadcast transmitter using UTC transformers.
- J—KPQ Broadcast transmitter using UTC transformers.
- K—KGCY 4 position mixer console using UTC transformers.
- L—15 KVA-Voltage regulator in service in U.S.S.R.
- M—30 Watt amplifying system including UTC high and low pass filters used by Cinaudograph in measuring frequency response of High fidelity speaker systems.

# VARITRAN APPLICATIONS



## LINE VOLTAGE CONTROL

Varitran units are ideal for correcting or maintaining accurate line voltage. The output voltage is independent of load and can be set to a fine adjustment.



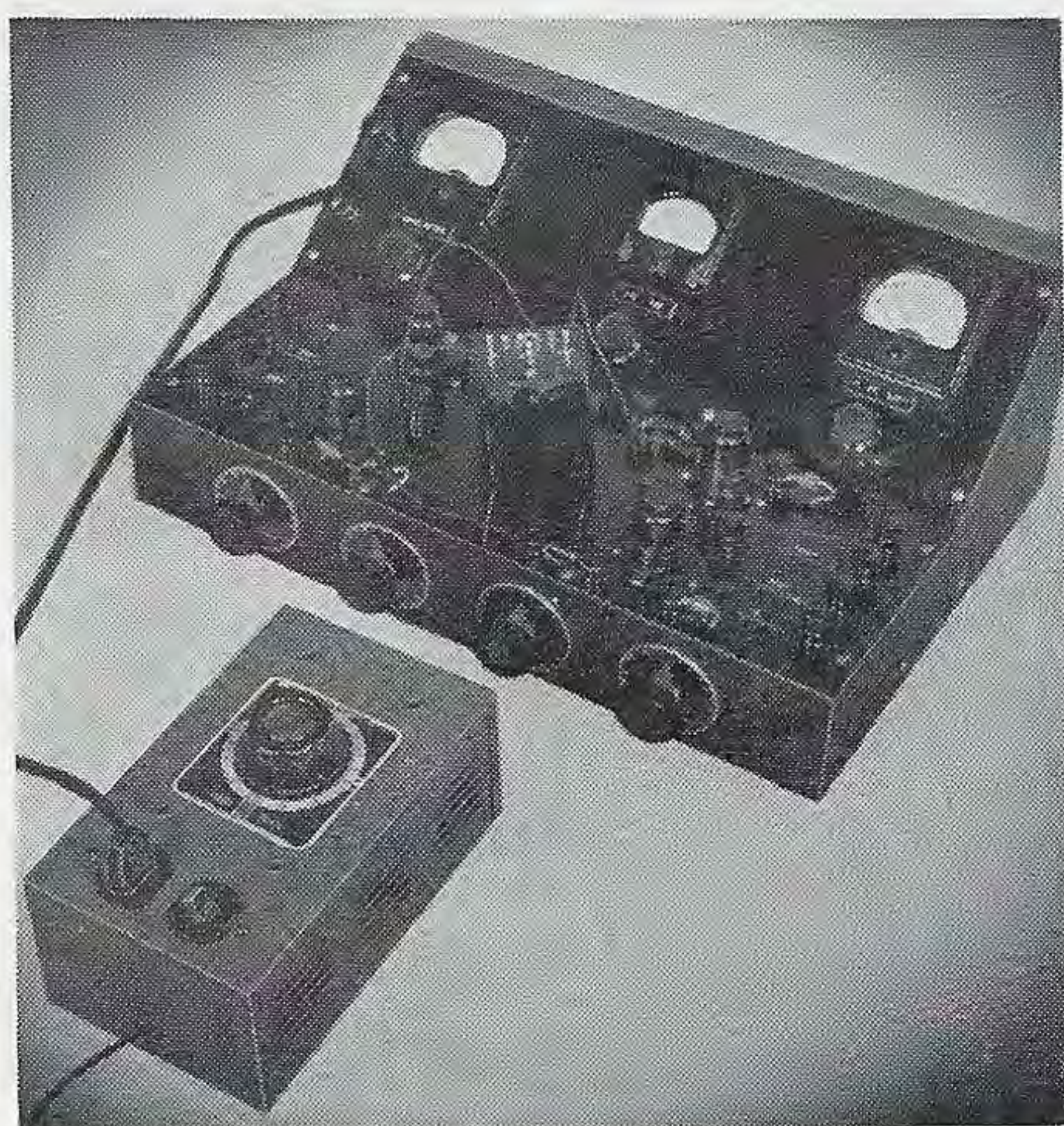
## BREAKDOWN TESTING

In adjusting the voltage to high potential transformers used for breakdown testing it is imperative that the change in voltage be effected without interrupting the circuit and that the source of variable voltage have no waveform distortion. This is an excellent Varitran application.



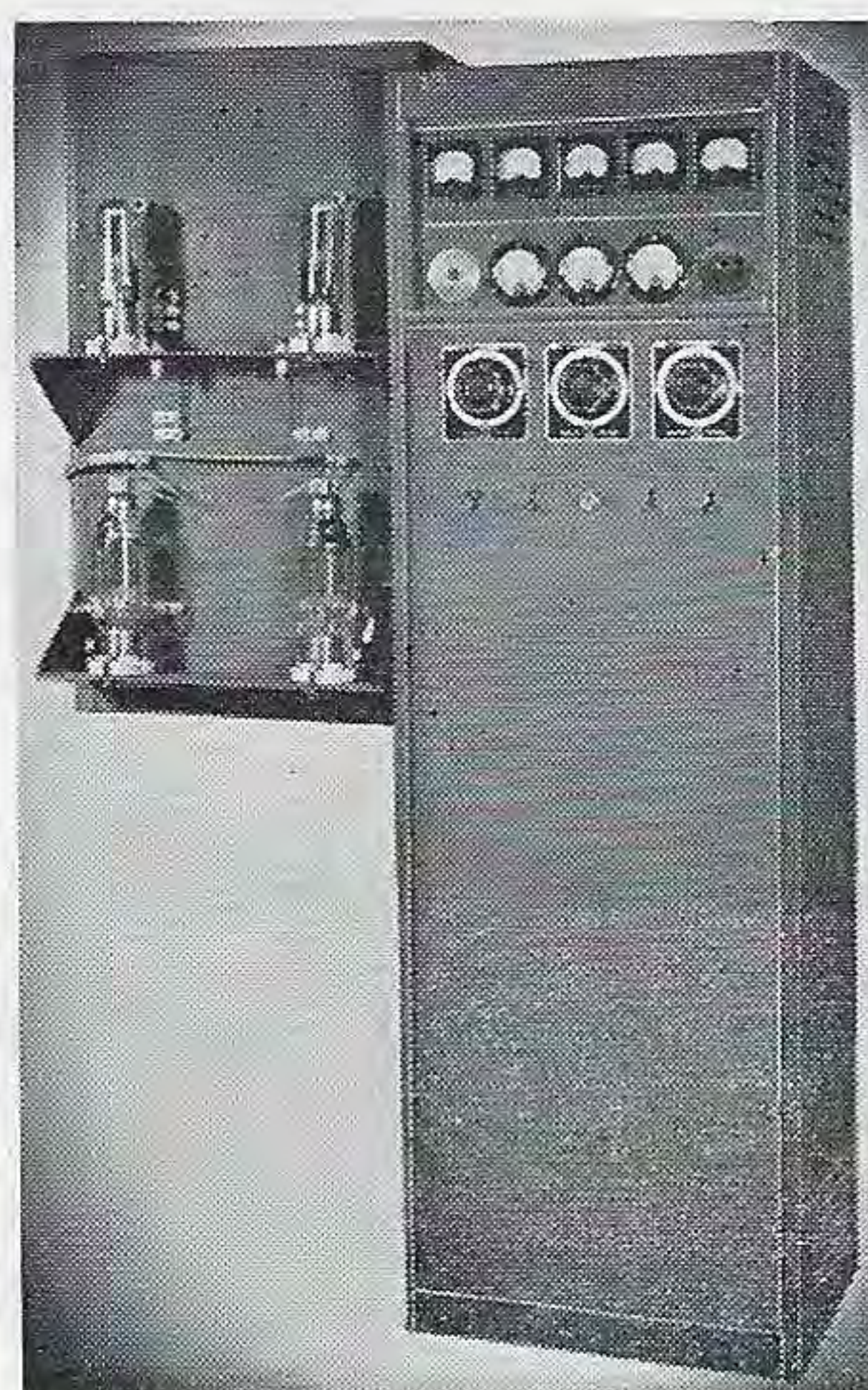
## METER CALIBRATION

The fine steps obtainable with a Varitran unit has made their use for meter calibration popular with many organizations.



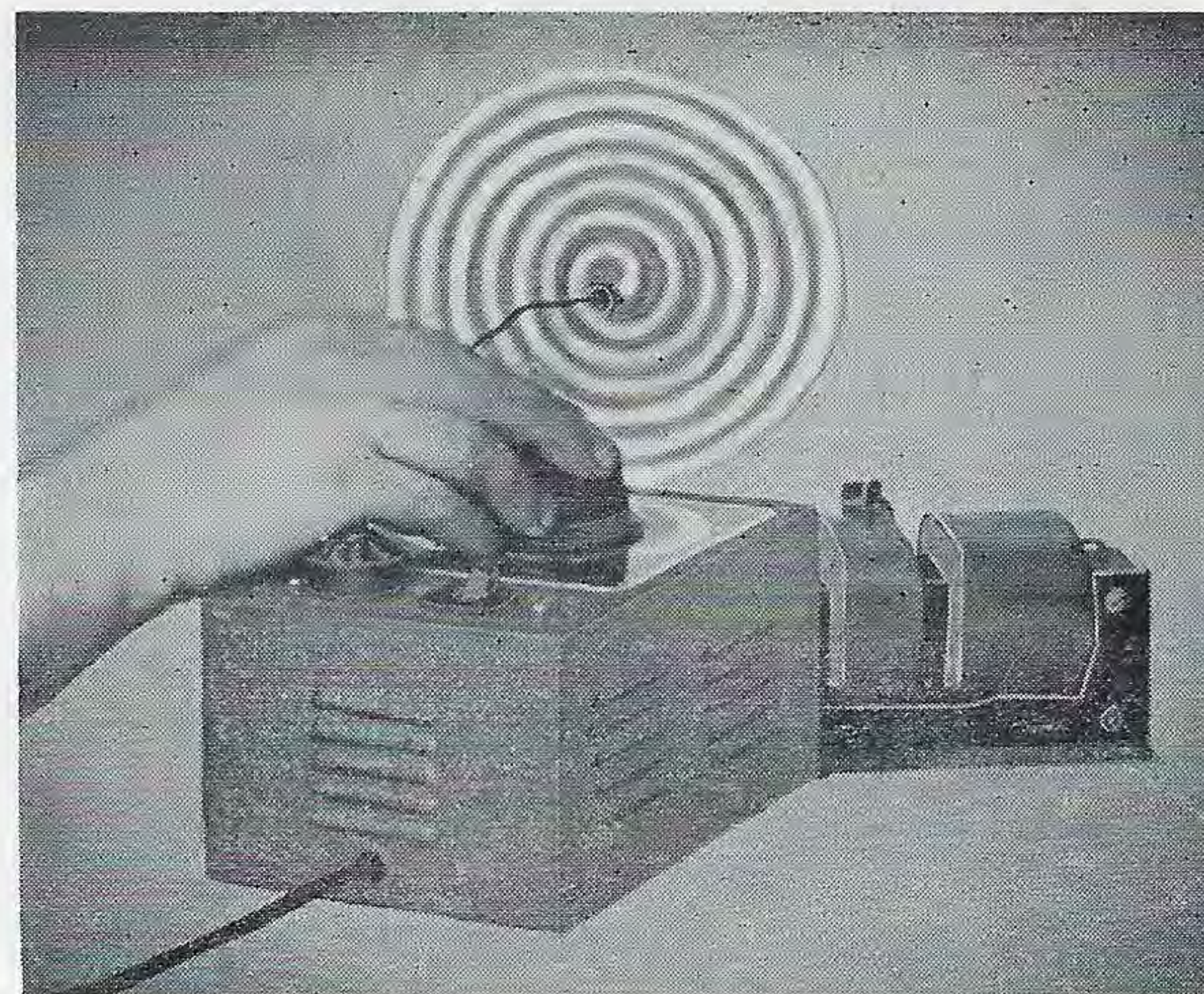
## VOLTAGE ADJUSTMENT IN TEST EQUIPMENT

Most industrial and radio test equipment units incorporate meters whose readings depend to some extent on the input voltage. Varitran units are ideal to maintain this voltage.



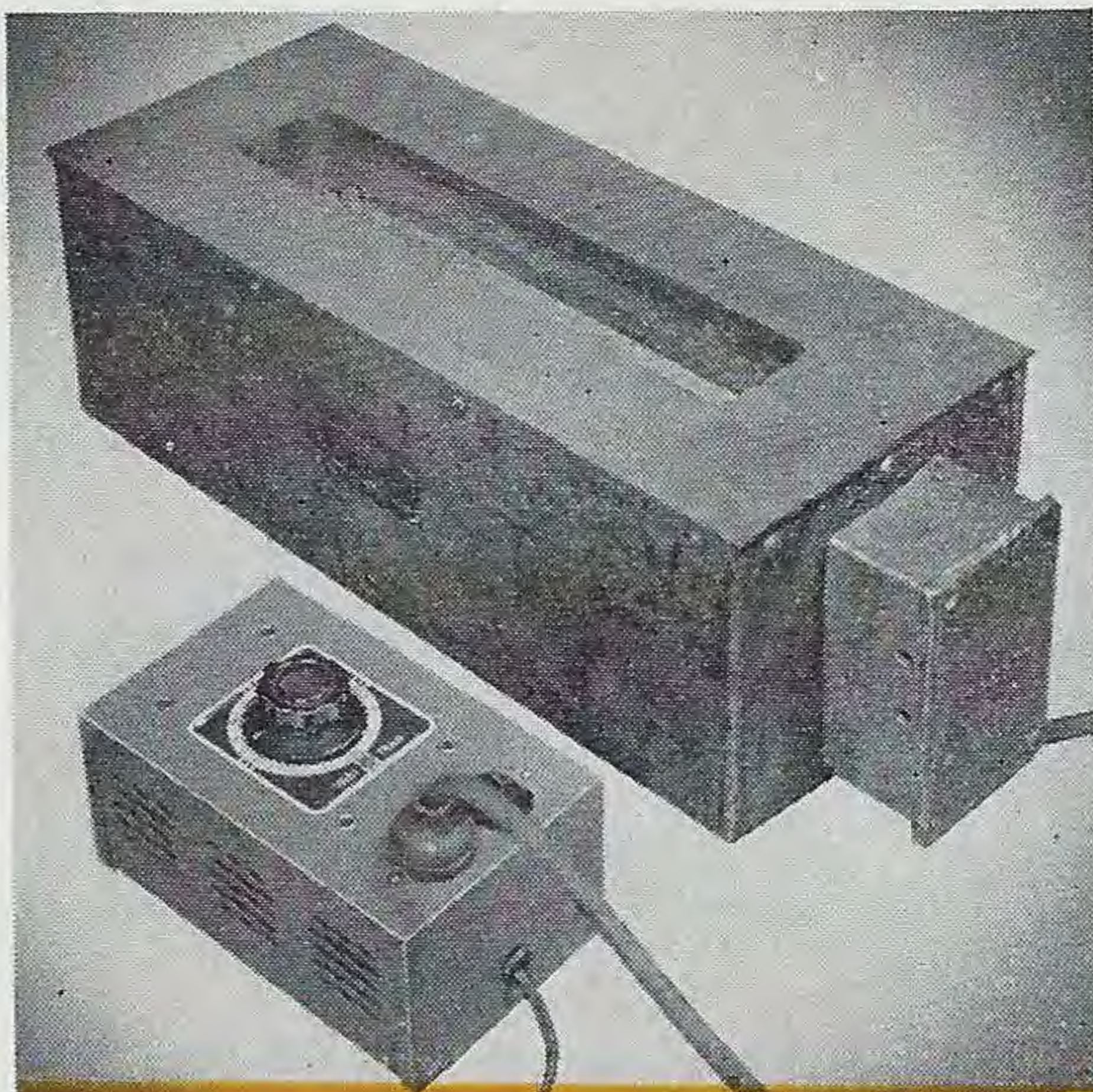
## RECTIFIER and FILAMENT VOLTAGE CONTROL

In all types of electronic apparatus accurate voltage conditions are desirable. Varitran units can be set for the exact filament voltage desired at the tube socket. They also permit adjustment of plate or bias voltage to desired operating value.



## NEON LIGHTING TESTS

By reducing the applied voltage to neon sign equipment, the flicker point and other salient characteristics are easily determined.



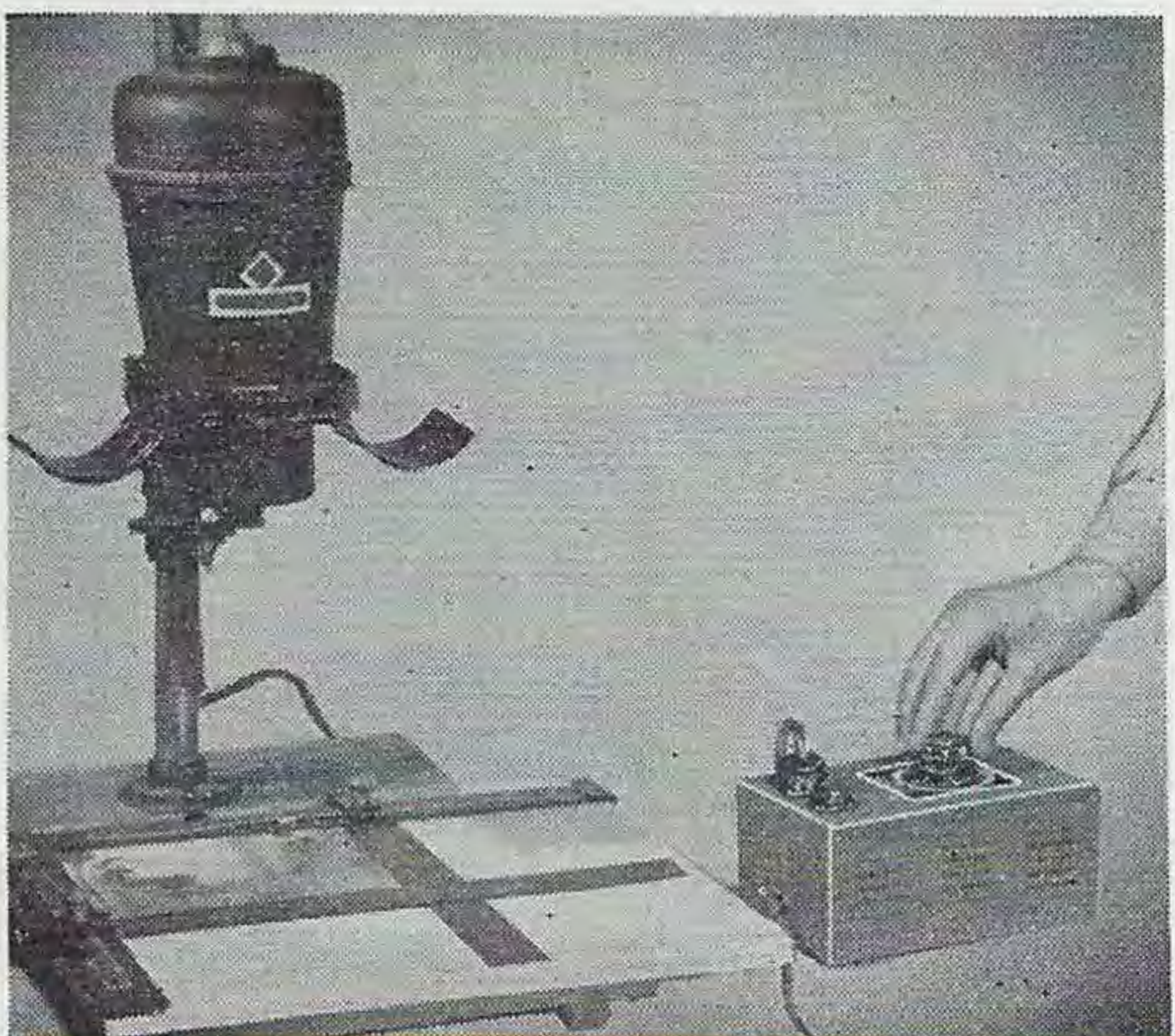
### **ELECTRIC HEAT CONTROL**

Electric furnaces, soldering irons, ovens, welders and all other electrothermal devices can be controlled excellently with a UTC Varitran.



### **MOTOR SPEED CONTROL**

Smooth and economical motor speed control can be effected using a Varitran and a motor whose speed is sensitive to voltage change. Care must be taken that the maximum motor current stays within the Varitran ratings.



### **PHOTO ENLARGING CONTROL**

Enlarging and printing operations are highly critical to light value. Varitran control can be used to assure correct line voltage, or to change light value to any degree desired.



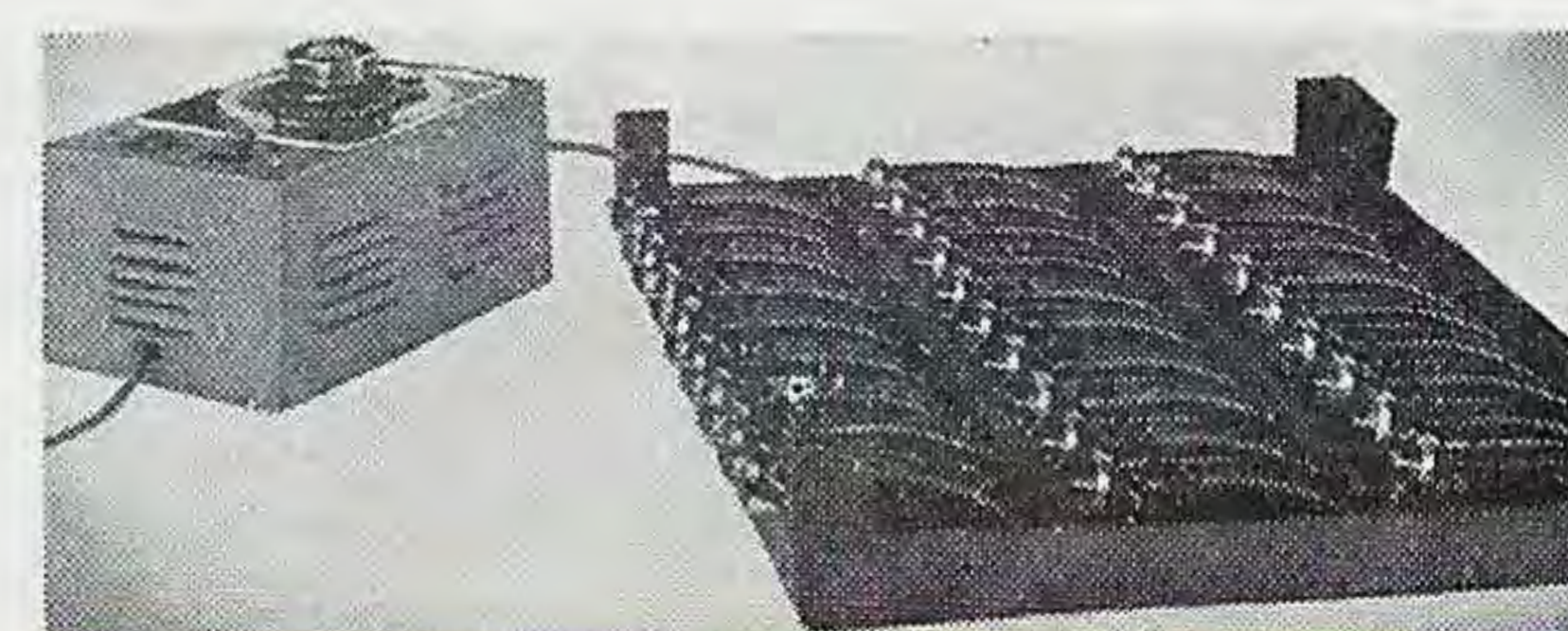
### **LIGHTING CONTROL FOR INDOOR PHOTOGRAPHY**

Varitran units are finding wide application for adjusting light value in photography. The ratio of light value in portrait work can be easily and accurately set. The voltage to photoflood bulbs can be reduced during "stand-in" greatly increasing their life. Variations in light value due to line voltage variations can be minimized.



### **LIFE TESTS FOR HOUSEHOLD APPLIANCES**

In life testing appliances such as heating irons, lamps, etc., the Varitran unit can be set to show operation under different line voltage conditions, or accelerated life service.



### **ELECTRICAL APPLIANCE TESTING**

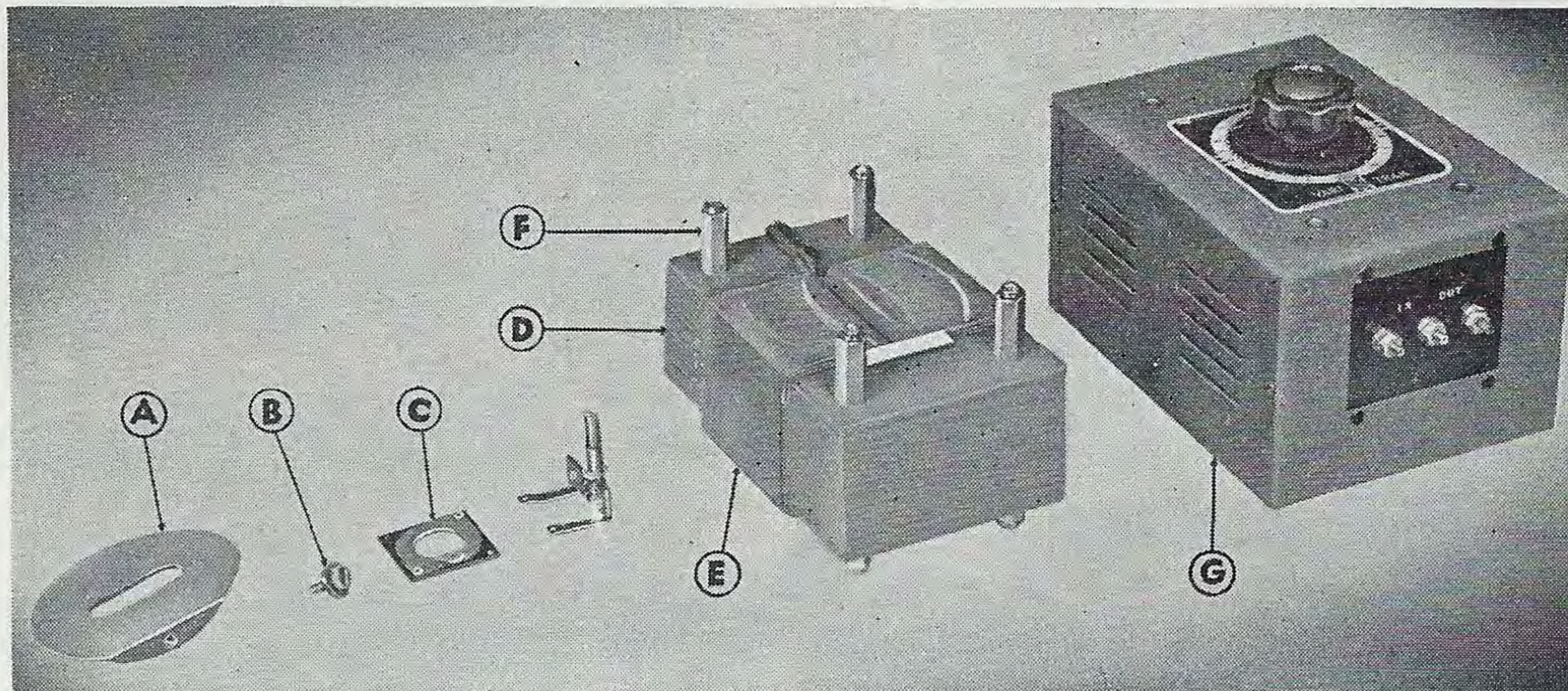
Appliances should be tested under varying line voltage conditions when installed or being serviced, as well as before shipment from the factory. Varitran control permits over, under, or normal voltage tests.

### **LIGHTING CONTROL FOR THE HOME**

Varitran light control is in keeping with the functional nature of the modern home. It permits the light value to be brought up to a brilliant peak for bridge or ping pong, a soft warm value for cocktails and conversations, or practically blackout for the ghost story or seance.

### **THEATRE DIMMING SERVICE**

Due to the very fine steps and non-interruption of current, Varitran units are well suited to stage and theatre lighting. A number of units can be grouped to form a complete control panel, or motor drive can be used for remote or ganged control.



## UTC VARITRAN CONTROLS

### METHOD OF OPERATION

The UTC Varitran is a simple autotransformer whose turns are arranged on one layer with the insulation removed so that every exposed turn may be used as a tap of the winding. A special non-fusing contact, having resistance to minimize circulating currents, is mechanically arranged so that it can be moved to any position on the winding, permitting the exact voltage desired to be obtained. The regulation and efficiency are excellent and no distortion of wave form occurs.

### DESIGN DETAILS

The new UTC Varitran has been designed with great care to assure dependability and high efficiency. A number of the new quality design features incorporated are shown in the illustration above and description below:

**"A" is the new, large, copper, heat conducting and radiating disc.** Ample dimensions assure rapid radiation of any heat generated in the moving contact. **Balanced weight** assures dependable operation in any position.

**"B" is the new contact,** perfected after months of research. This contact is of the **roller type** and has greatly superior characteristics to the customary brush type contact. **Wear is practically negligible,** units having been operated over 100,000 times without contact failure.

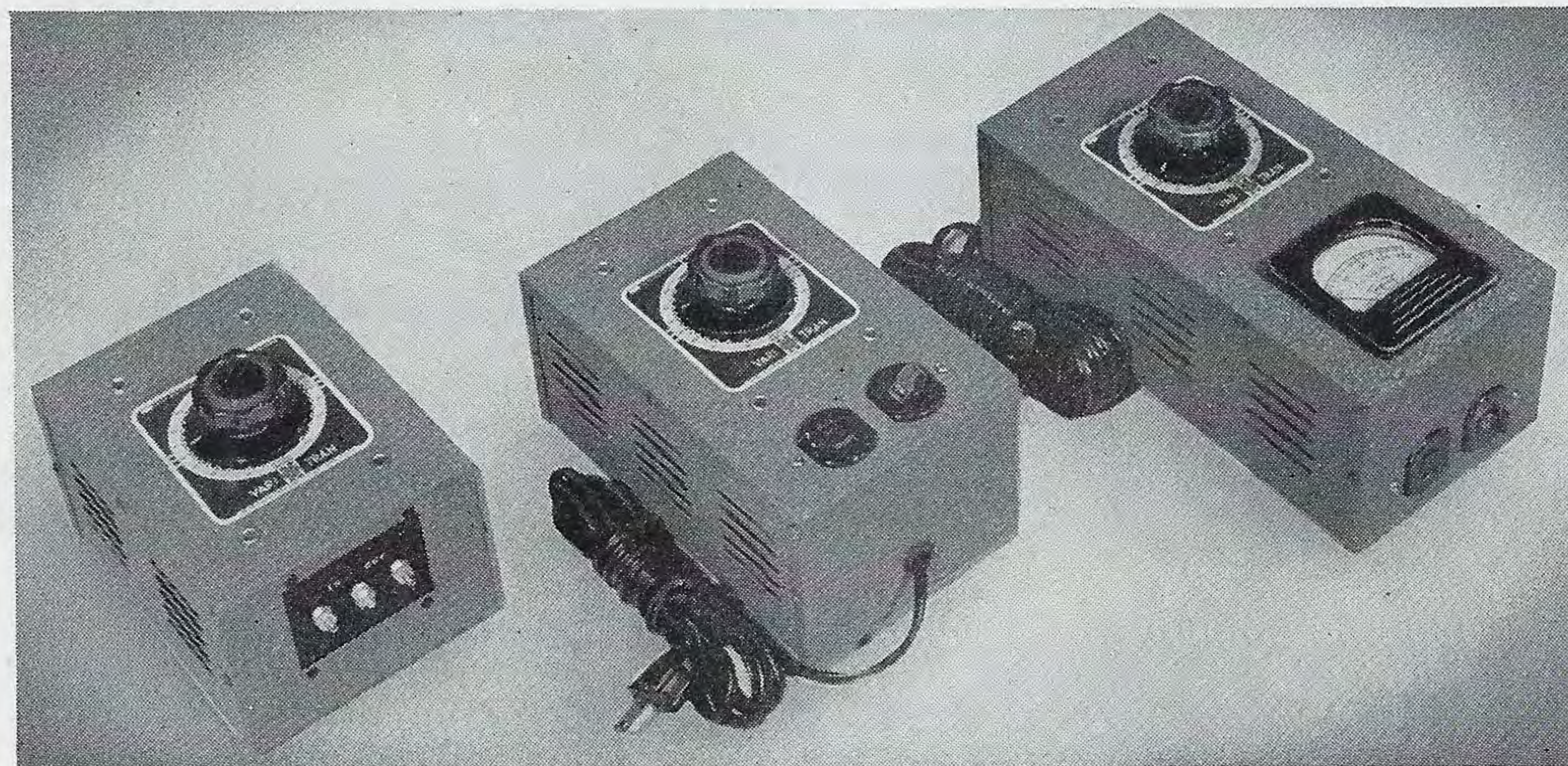
**"C" is the copper alloy collector ring.** Two **tempered phosphor-bronze leafs**, attached to the radiating disc, wipe against this ring to complete the circuit between the roller contact and external circuit. Flexible and spring pigtails are eliminated.

**"D" is the UTC core type lamination structure.** This lamination shape permits **rigid clamping** of the laminations and solid mounting arrangement. The **rectangular shape** resulting from this structure permits **space economy** in overall and mounting dimensions.

**"E" is the new UTC coil structure employing glass insulated wire.** One characteristic of variable transformer controls is the rapid increase in brush temperature under overload. With ordinary coils, this may cause permanent injury or burnout. Glass insulated wire eliminates this possibility. The bonded glass insulation permits this coil to be fabricated without vacuum impregnation, thus eliminating the possibility of future varnish softening interfering with the roller contact.

**"F" is the new threaded stud** used on the lamination clamping bolts. These studs provide mounting facilities at the top and bottom of the Varitran so that **any form of panel or chassis mounting can be made** with rugged strength.

**"G" is the UTC enclosing case.** The Varitran enclosing case is well ventilated and finished in attractive grey crinkle enamel. **The rounded bottom studs and rugged screw terminals** help make these units indispensable in laboratory service.



"A"

"B"

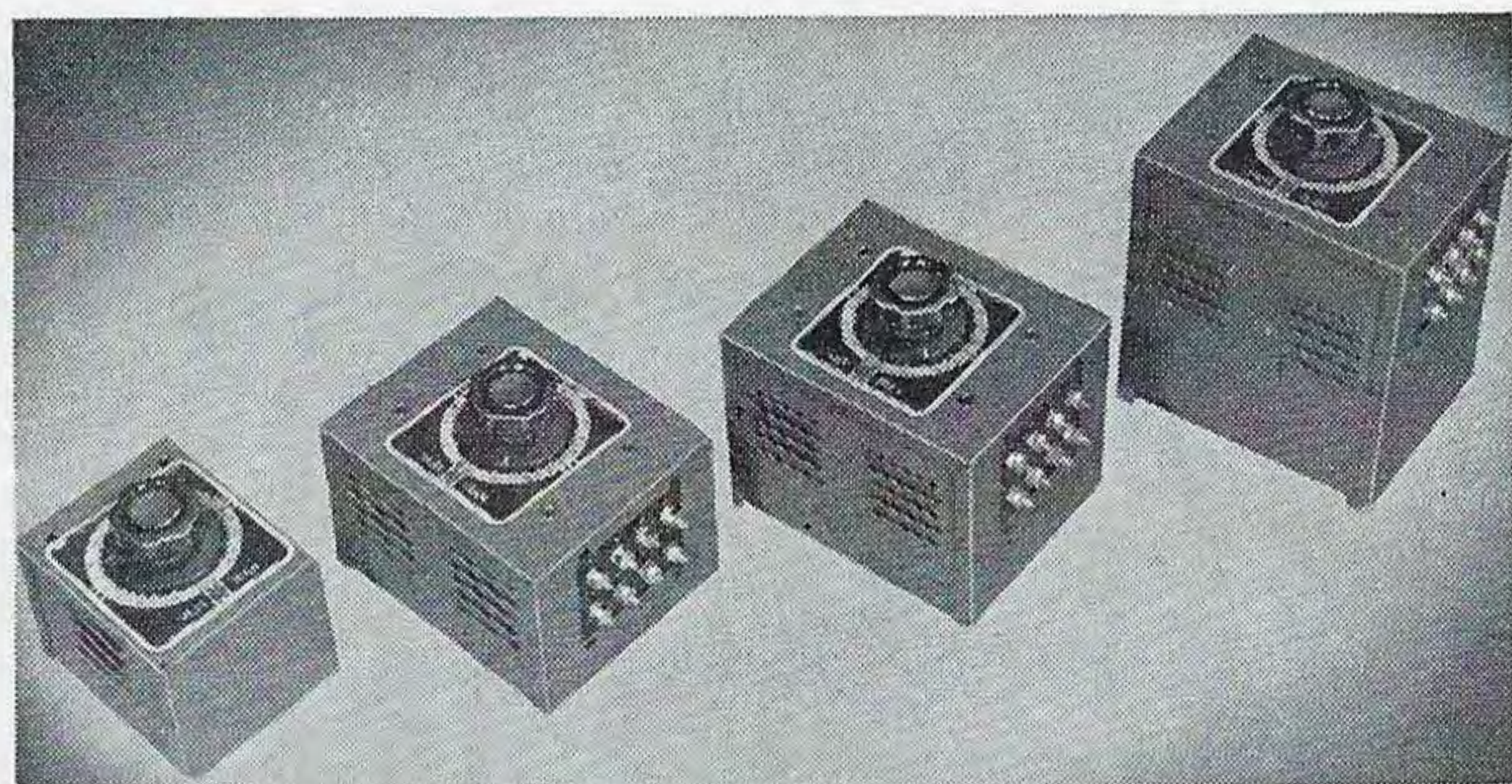
"C"

## VARITRAN RATINGS

Standard Varitrans are designed for 115 or 230 volt service. The respective output voltages are 0-130 and 0-260 volts. The Varitran autotransformer current and wattage rating is based at 115 volts. As the voltage is reduced, the wattage output is reduced correspondingly. The maximum current can be taken at any point 0 to 20 volts and from 95 to 130 volts. Between 20 and 95 volts the current capacity tapers off from the two ends to approximately 50% of the rated maximum current at the 65 volt point. The mounting facilities are at both top and bottom of each unit to assure ease of mounting on panel, chassis or for laboratory bench service.

| Type  | Input Voltage | Output Voltage | Watts | Maximum Amps. | Figure | Approx. Dimensions                                                                          | Approx. Wt., Lbs. | Net Price |
|-------|---------------|----------------|-------|---------------|--------|---------------------------------------------------------------------------------------------|-------------------|-----------|
| V-0   | 115 volts     | 0-130          | 230   | 2             | A      | 4 x6 x4 <sup>3</sup> / <sub>4</sub>                                                         | 8                 | \$7.50    |
| V-0-B | 230 volts     | 0-260          | 230   | 1             | A      | 4 x6 x5 <sup>3</sup> / <sub>8</sub>                                                         | 10                | 9.50      |
| V-1   | 115 volts     | 0-130          | 570   | 5             | B      | 5 x8 x4 <sup>1</sup> / <sub>2</sub>                                                         | 11                | 10.00     |
| V-1-M | 115 volts     | 0-130          | 570   | 5             | C      | 5 x10 x4 <sup>1</sup> / <sub>2</sub>                                                        | 12                | 15.00     |
| V-2   | 115 volts     | 0-130          | 570   | 5             | A      | 5 x7 x4 <sup>1</sup> / <sub>2</sub>                                                         | 11                | 9.00      |
| V-2-B | 230 volts     | 0-260          | 570   | 2.5           | A      | 5 x7 x5 <sup>1</sup> / <sub>4</sub>                                                         | 14                | 11.50     |
| V-3   | 115 volts     | 0-130          | 850   | 7.5           | A      | 5 x7 x5 <sup>1</sup> / <sub>8</sub>                                                         | 14                | 14.00     |
| V-3-B | 230 volts     | 0-260          | 850   | 3.75          | A      | 5 x7 x6 <sup>1</sup> / <sub>8</sub>                                                         | 18                | 18.00     |
| V-4   | 115 volts     | 0-130          | 1250  | 11            | A      | 6 <sup>3</sup> / <sub>8</sub> x9 <sup>3</sup> / <sub>4</sub> x6                             | 32                | 20.00     |
| V-4-B | 230 volts     | 0-260          | 1250  | 5.5           | A      | 6 <sup>3</sup> / <sub>8</sub> x9 <sup>3</sup> / <sub>4</sub> x7 <sup>1</sup> / <sub>4</sub> | 38                | 25.00     |
| V-5   | 115 volts     | 0-130          | 1950  | 17            | A      | 6 <sup>3</sup> / <sub>8</sub> x9 <sup>3</sup> / <sub>4</sub> x7                             | 45                | 32.00     |
| V-5-B | 230 volts     | 0-260          | 1950  | 8.5           | A      | 6 <sup>3</sup> / <sub>8</sub> x9 <sup>3</sup> / <sub>4</sub> x8 <sup>1</sup> / <sub>2</sub> | 56                | 37.00     |
| V-6   | 115 volts     | 0-130          | 3500  | 30            | A      | 6 <sup>1</sup> / <sub>2</sub> x10 x13                                                       | 90                | 60.00     |
| V-6-B | 230 volts     | 0-260          | 3500  | 15            | A      | 6 <sup>1</sup> / <sub>2</sub> x10 x13                                                       | 90                | 70.00     |
| V-7   | 115 volts     | 0-130          | 5000  | 44            | A      | 6 <sup>1</sup> / <sub>2</sub> x10 x18                                                       | 120               | 87.00     |
| V-7-B | 230 volts     | 0-260          | 5000  | 22            | A      | 6 <sup>1</sup> / <sub>2</sub> x10 x18                                                       | 120               | 95.00     |

# UNIVERSAL VARITRANS



The many applications of the new universal VARITRANS are illustrated in the figure below.

## LINE VOLTAGE CONTROL

The most popular application to which these units are applied is for line voltage control. Figures D, E, and F illustrate the wide range of control for 115 volt service, and Figures G, H, and I for 220 volt service.

## INSULATED LOW VOLTAGE OUTPUT CONTROL

The connections of Figure B and C are used where it is desired to obtain control voltages for such equipment as trains, lights, diagnostic lamps, cauteries, laboratory heaters, low voltage rectifiers, etc.

## 220 VOLT TO 115 VOLT STEPDOWN

In a large number of the applications where it is desired to use a standard 115 volt appliance on a 220 volt line, wide variations in line voltage are encountered. The circuit of Figure J takes care of this application admirably.

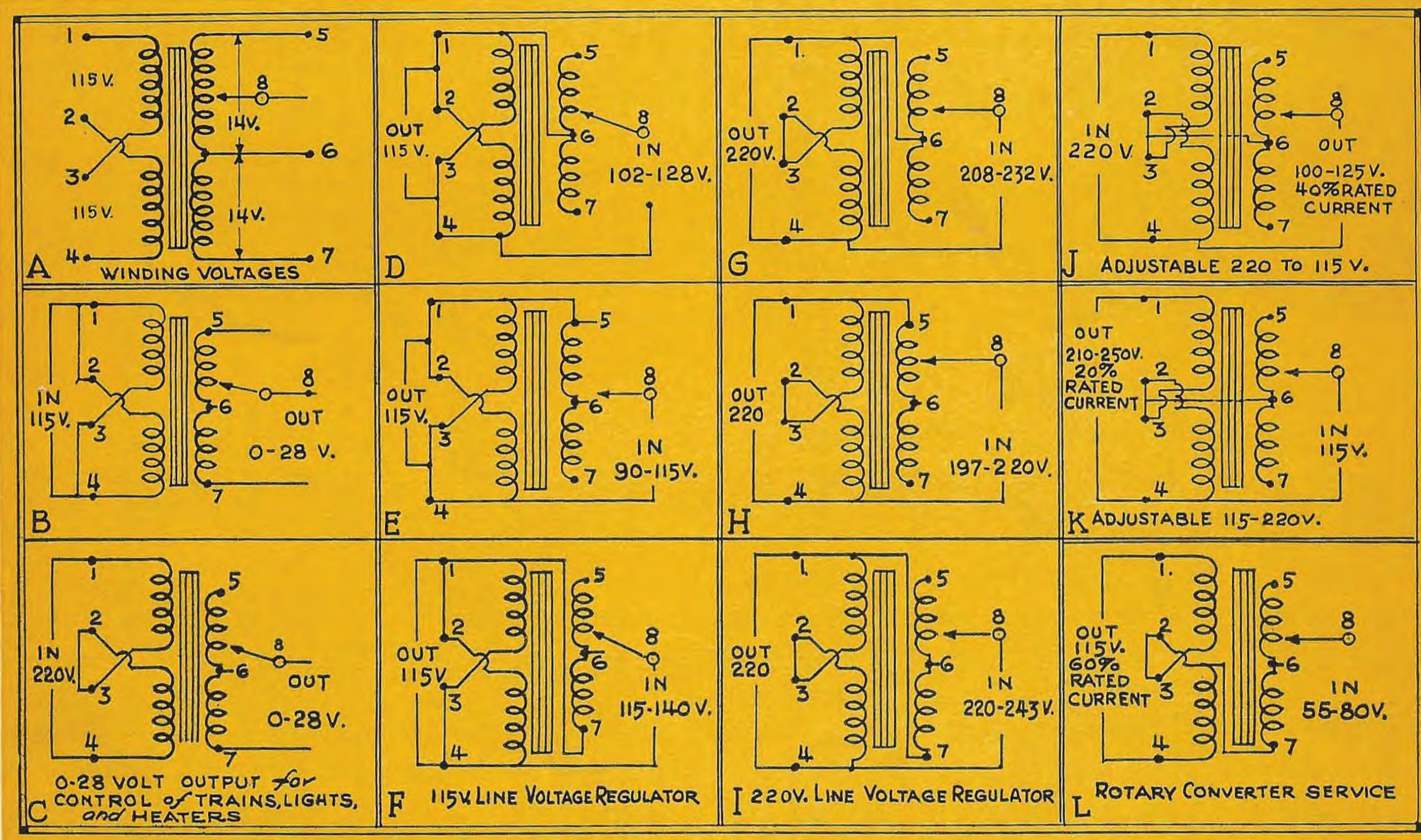
## 115 VOLT TO 220 VOLT STEPUP

In the testing of electrical appliances and in cases where it is desired to use a 220 volt appliance on 115 volts, the circuit of Figure K is well suited.

## ROTARY CONVERTER SERVICE

Rotary converters designed to convert 110 volts DC to 115 volts AC have a normal output voltage between 70 and 80 volts, which has to be brought up to the 115 volts desired with a stepup transformer. The circuit of Figure L performs this function simultaneous with accurate control of the output voltage, which is highly desirable because of the poor regulation characteristics of standard converters.

| Type | Max. Amps. Output | Approx. Dimensions                                | Approx. Weight, Lbs. | Net Price |
|------|-------------------|---------------------------------------------------|----------------------|-----------|
| VL-0 | 1.5               | 3 $\frac{3}{8}$ x4 $\frac{1}{4}$ x3 $\frac{7}{8}$ | 5                    | \$5.50    |
| VL-1 | 3.5               | 4 $\frac{3}{8}$ x6 x4 $\frac{3}{8}$               | 7                    | 6.50      |
| VL-2 | 6                 | 4 $\frac{3}{8}$ x6 x5 $\frac{1}{8}$               | 10                   | 8.00      |
| VL-3 | 11                | 4 $\frac{3}{8}$ x6 x6 $\frac{7}{8}$               | 15                   | 13.00     |

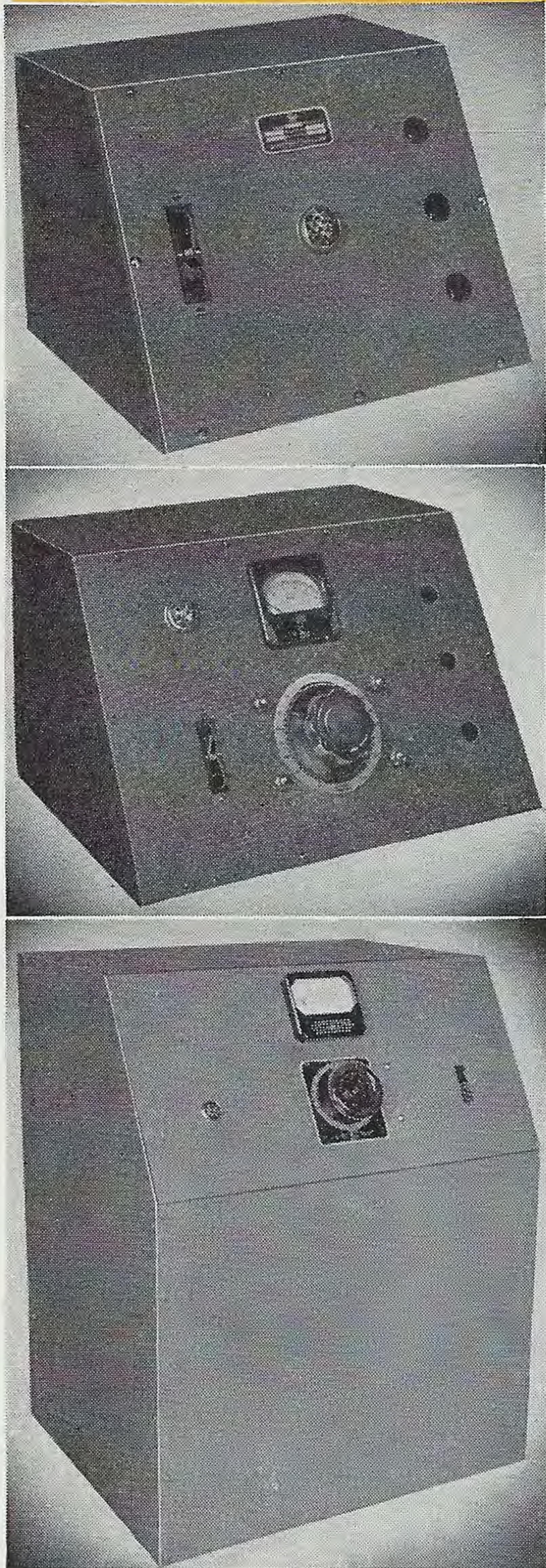


## AUTOMATIC VOLTAGE REGULATORS

UTC produces VARITRAN controls combined with a motor drive and a sensitive voltage control device which controls the motor drive to effect correction of line voltage. Automatic volt-

age regulators of this type can be supplied in any KVA rating up to 25 KVA and will maintain a constant output voltage  $\pm 2\%$  for a  $\pm 20\%$  variation in line voltage. Prices on application.

## BREAKDOWN TEST SETS



UTC breakdown test sets are available from simple units for appliance testing to high voltage sets up to 250,000 volts. The standard units described below take care of the three most common types of service.

### BT-1

The BT-1 breakdown test set is designed for 115 volts input, 500 watt capacity, and supplies three output voltages: 900, 1250, and 2500 volts.

Any of these voltages are immediately obtainable on the front panel by inserting the special test leads into the proper jacks. A pilot light on the panel indicates when the high voltage is on and a circuit breaker is provided to indicate breakdown, and also to be used as the on and off switch. Net price **\$25.00**

### BT-2

The BT-2 breakdown test unit is designed for 115 volts input, 500 watt capacity. Accurate control of the output voltage from 0 to 5,000 volts or 0 to 10,000 volts is obtainable through the use of a VARITRAN smooth voltage adjusting control. The 5,000 or 10,000 volt output ranges can be obtained immediately on the front panel by inserting the test cords into the correct jacks. A meter is provided to indicate the exact output voltage effective. A pilot lamp is provided to indicate when the equipment is in service, and a circuit breaker to indicate breakdown. This is also used as the on and off switch. The use of a 3 wire input cord assures positive grounding of the BT-2 case. Net price **\$60.00**

### BT-3

The BT-3 breakdown test set is ideal for any laboratory or industrial service where high voltages are required. This test unit can be supplied for either 220 or 115 volt service, and is of 2 KW capacity. The output voltage is 0 to 71,000 volts (100 KV peak) capable of accurate adjustment and uniform increase through the use of VARITRAN control. A large meter is provided to indicate the exact output voltage effective.

Incorporated in this unit is an **aural warning device** as well as a pilot lamp to indicate that the equipment is in service. Control is provided so that the aural (60 cycle) signal may be set at any desired value. A 3 wire input cord is used to assure positive grounding of the metal cabinet. The BT-3 is completely mounted in a rugged frame with anti-friction wheels for convenience and portability. 10 foot high voltage cables are brought out from the rear of this instrument to be connected to the apparatus under test. Net price **\$490.00**.

## DIORAMA AND COLORAMA VARITRAN CONTROLS

During the past few years great advances have been made in the use of variation of light and colour for display advertising and theatrical work. UTC motorized Varitran controls are used extensively for such service.

Practically any rate of change of one or simultaneous circuits can be provided through Varitran control. In one form of diorama three circuits are controlled simultaneously to effect change in colour as the brilliance is brought up, simulating the light of dawn, day, twilight, and night.

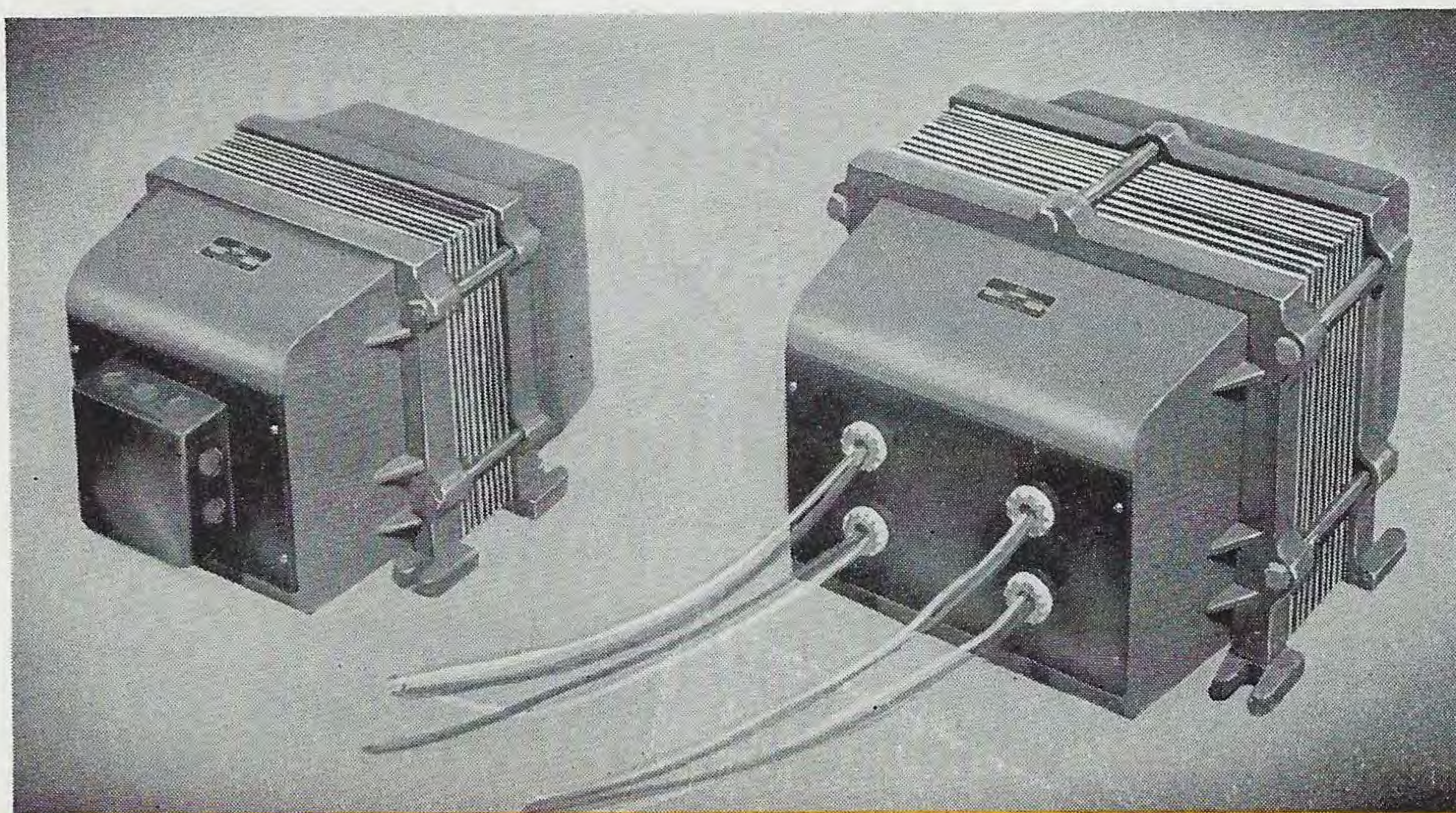
In another popular form of colorama control two colours of light are varied simultaneously, so that a smooth change of colour is effected with practically uniform intensity of illumination throughout the cycle.

In addition to the smooth variation in light of the Varitran control, the automatic motor drive can be arranged to switch on or off auxiliary circuits as required. These controls are designed and manufactured directly to customers' specifications. For quotations direct inquiries to the Varitran Division, United Transformer Corporation.

# UTC AIR COOLED INDUSTRIAL TRANSFORMERS

UTC industrial transformers are extensively used in lighting, power and other applications. Typical lighting uses are: Insulating circuits—Boosting or reducing line voltage—Operating low voltage lamps in sign, projector, or portable service—Obtaining three wire circuit from two wire system—use of power line for lighting service. Typical power uses are in low voltage for portable tools—High voltage power distribution with stepdown transformer at equipment—Balancing voltages—Boosting or bucking line voltage for best operation of equipment—Motor starting—Phase changing.

UTC air cooled transformers are amply designed and carefully constructed to assure dependability and high efficiency. When ordering, specify whether conduit box or lead type construction is desired. Unless specified, lead type will be furnished.

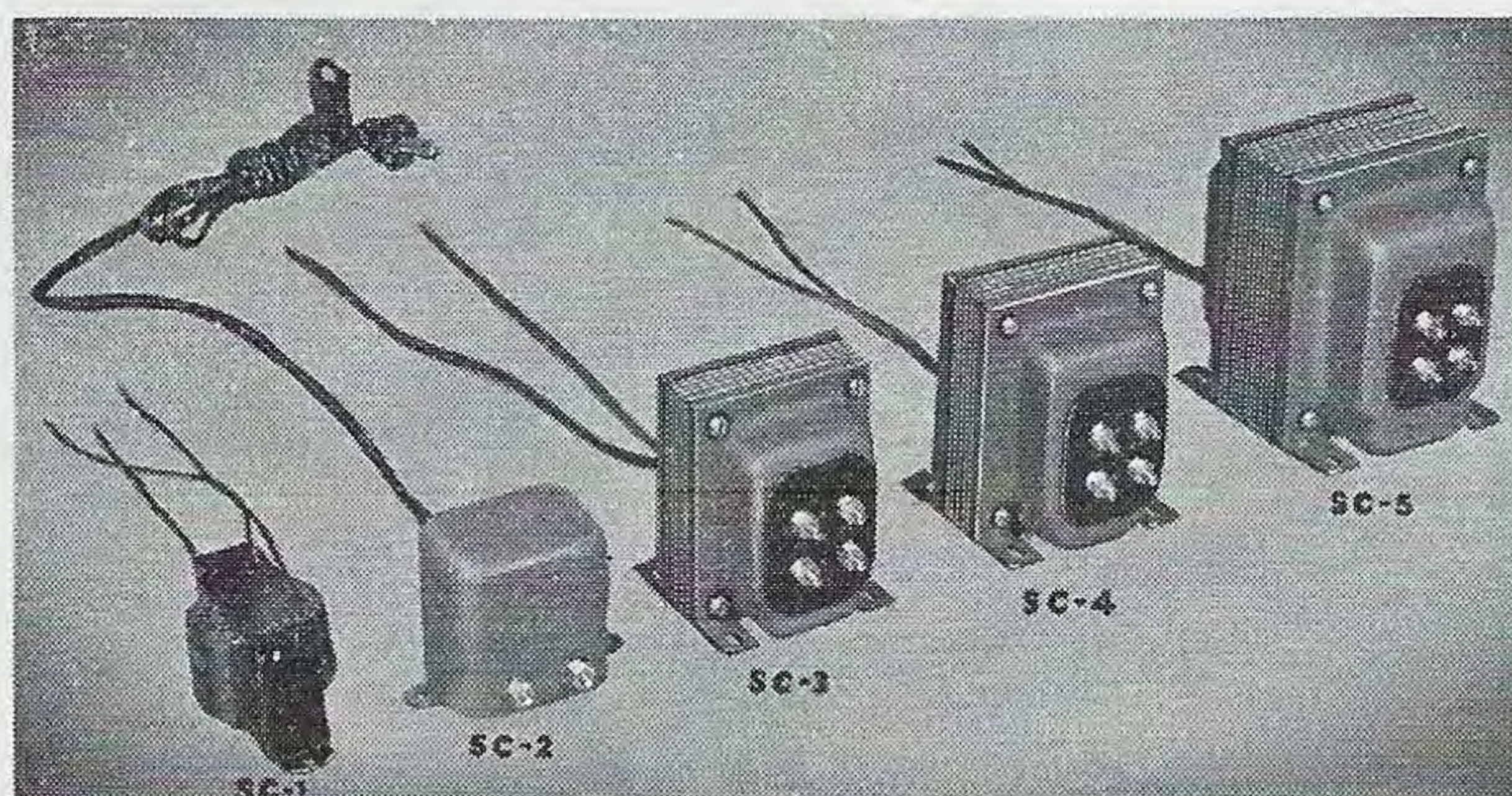


Isolation transformers are an ideal means of eliminating radio interference. However, for such service, and for RF isolation of shielded rooms and antennae tower lighting circuits, design modifications are entailed. Windings are arranged for low capacity between windings and full electrostatic shielding. For this service add 60% to the net prices shown for standard insulating transformers.

| TYPE | DESCRIPTION                                                                                                                    | PRI.<br>VOLTS | SEC.<br>VOLTS | KVA<br>RATING | APPROX.<br>WEIGHT | NET<br>PRICE |
|------|--------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|-------------------|--------------|
| IT   | Insulating transformer to isolate lighting, power, or single line circuits.                                                    | 230/115       | 230/115       | 1             | 40                | 20.00        |
|      |                                                                                                                                |               |               | 2½            | 90                | 36.00        |
|      |                                                                                                                                |               |               | 5             | 140               | 60.00        |
|      |                                                                                                                                |               |               | 7½            | 200               | 80.00        |
|      |                                                                                                                                |               |               | 10            | 360               | 100.00       |
| AT   | Autotransformer to reduce 230 or 460 volt power circuits to 115 or 230 volts <i>respectively</i> . Also used as balance coils. | 460/230       | 230/115       | 1             | 26                | 12.00        |
|      |                                                                                                                                |               |               | 2½            | 48                | 20.00        |
|      |                                                                                                                                |               |               | 5             | 85                | 33.00        |
|      |                                                                                                                                |               |               | 10            | 150               | 55.00        |
| SL   | For sign lighting, 32 volt service, or bucking and boosting.                                                                   | 230/115       | 32/           | 1             | 40                | 22.00        |
|      |                                                                                                                                |               | 23/16         | 2½            | 90                | 37.00        |
|      |                                                                                                                                |               | 11.5          | 5             | 140               | 64.00        |
| RC   | Rotary Converter Service auto-transformers.                                                                                    | 70/75         | 115           | 1             | 20                | 13.00        |
|      |                                                                                                                                |               |               | 2½            | 40                | 21.00        |
|      |                                                                                                                                |               |               | 5             | 65                | 34.00        |
| PC   | Phase changing autoformers. Specify whether 3 or 4 wire line.                                                                  | 230           | 230           | 1             | 20                | 19.00        |
|      |                                                                                                                                |               |               | 2½            | 40                | 29.00        |
|      |                                                                                                                                |               |               | 5             | 65                | 39.00        |

Write for prices on special voltages or higher capacities up to 100 KVA.

# UTC SIGNALLING AND CONTROL TRANSFORMERS

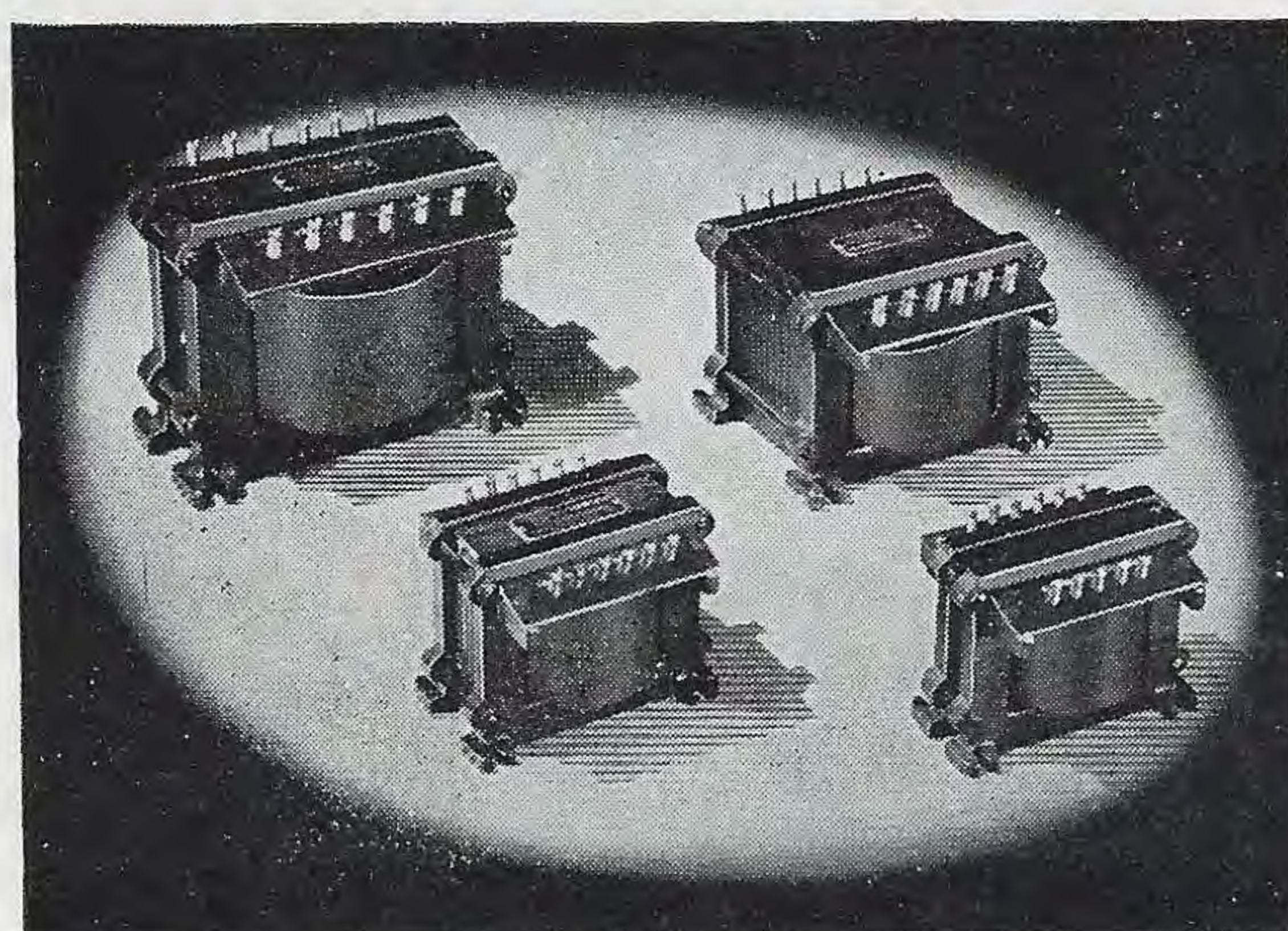


UTC manufactures many special transformers for relay and light operation to equipment manufacturers. A number of standard units (115V., 50-60 cycle input) are available as stock items as noted below. The type SC-1 transformer is of an open type construction, with insulated leads, suit-

able only for use in complete equipment. The output of this transformer is 6.1 volts at 3.25 Amps., suitable for continuous duty in lighting automobile type lamps or operating medium power signal devices. The type SC-2 transformer is similar to the SC-1, but is completely housed in a poured metal container with Underwriters' approved primary leads and secondary binding posts. Types SC-3, SC-4, and SC-5 are high power transformers suitable for operating relays, sirens, horns, gongs, etc. These units have four secondary terminals providing 4, 8, 12, 16, 20, and 24 volt output. The volt ampere rating is based on the 24 volt secondary tap with corresponding reduction at the lower voltages. Underwriters' approved primary leads are employed, and screw-type binding posts.

| TYPE | SECONDARY VOLTS      | WATTS | OVERALL DIMENSIONS                                | WEIGHT LBS.      | NET PRICE |
|------|----------------------|-------|---------------------------------------------------|------------------|-----------|
| SC-1 | 6.1                  | 20    | 1 $\frac{7}{8}$ x3 $\frac{1}{8}$ x2               | 1 $\frac{1}{2}$  | 1.00      |
| SC-2 | 6.1                  | 20    | 2 $\frac{1}{2}$ x3 $\frac{1}{4}$ x2 $\frac{1}{4}$ | 1 $\frac{1}{2}$  | 1.60      |
| SC-3 | 4, 8, 12, 16, 20, 24 | 50    | 3 x3 $\frac{3}{4}$ x3 $\frac{1}{2}$               | 4                | 2.00      |
| SC-4 | 4, 8, 12, 16, 20, 24 | 100   | 3 $\frac{1}{4}$ x4 $\frac{1}{2}$ x4               | 5 $\frac{1}{2}$  | 3.00      |
| SC-5 | 4, 8, 12, 16, 20, 24 | 250   | 4 x5 x4 $\frac{3}{4}$                             | 10 $\frac{1}{2}$ | 5.00      |

# VARIPOWER AUTO-FORMERS



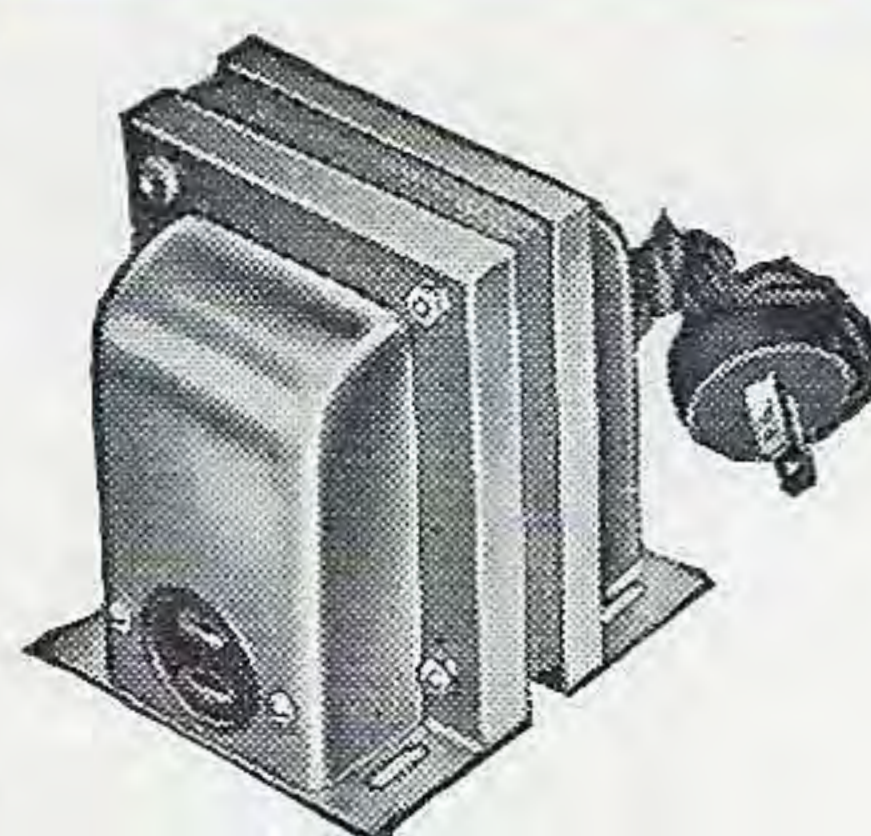
Designed for line voltage control, filament voltage control and reduced power operation. Output voltage from 0 to 130 volts, 50/60 cycles. Varipower units permit control of filament voltage at the **tube socket** to within 2 $\frac{1}{2}$ % of desired value simultaneously with line voltage control and plate voltage control. Can be used to reduce or increase voltages on filament transformers. Taps at 25, 55, 75, 95, 100, 105, 110, 115, 120, 125 and 130 volts permit output voltages from 0 to 130 volts in 5 volt steps.

| Type No. | Watts Output | Dimensions                                          | Weight Lbs. | List Price |
|----------|--------------|-----------------------------------------------------|-------------|------------|
| VA-1     | 150          | 4 $\frac{3}{4}$ x 3 $\frac{1}{4}$ x 3 $\frac{1}{2}$ | 6           | \$6.00     |
| VA-2     | 250          | 4 $\frac{3}{4}$ x 4 $\frac{1}{2}$ x 3 $\frac{1}{2}$ | 9           | 7.50       |
| VA-3     | 500          | 5 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 4               | 11          | 10.00      |
| VA-4     | 1000         | 5 $\frac{1}{2}$ x 6 x 4                             | 19          | 15.00      |
| VA-5     | 2000         | 7 x 6 x 5 $\frac{1}{4}$                             | 25          | 20.00      |

## STEP DOWN AUTO-TRANSFORMERS

220-240 to 110-120 Volts—50/60 Cycles

| Type No. | Application         | Wgt. Lbs.       | List Price |
|----------|---------------------|-----------------|------------|
| R-41     | 85 watt capacity    | 4               | \$4.50     |
| R-42     | 125 watt capacity   | 5               | 5.00       |
| R-43     | 175 watt capacity   | 5 $\frac{1}{2}$ | 6.00       |
| R-44     | 250 watt capacity   | 6 $\frac{1}{2}$ | 7.00       |
| R-45     | 500 watt capacity   | 13              | 14.00      |
| R-46     | 1000 watts, no cord | 26              | 25.00      |

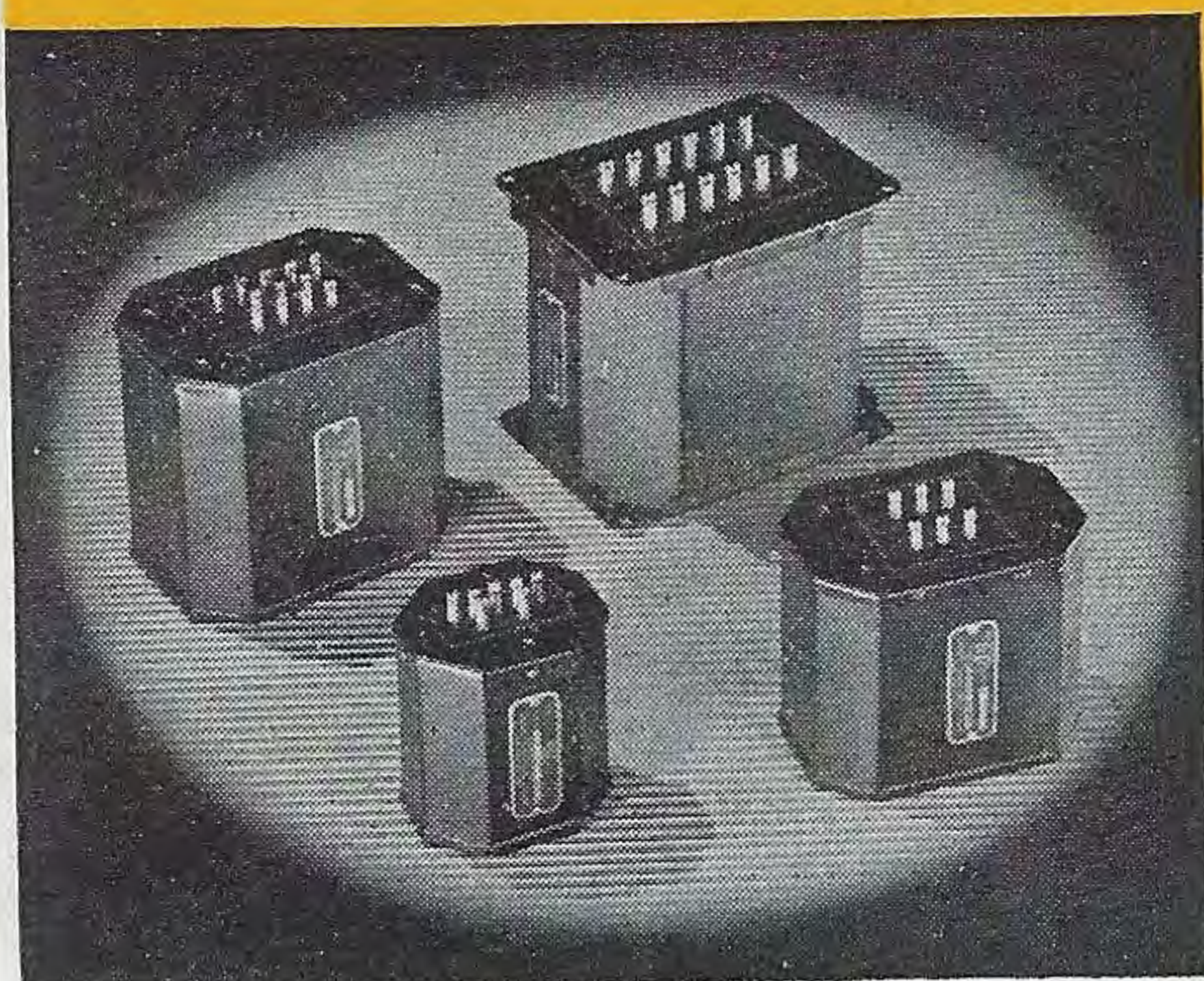


## EXPORT VOLTAGE ADAPTERS

Auto-transformers designed to accommodate receivers and appliances to the various line voltages encountered in export service. Complete with cord and plug and special locking switch providing for line voltages of 105, 115, 125, 135, 150, 210, 230, 250 volts; 42 to 60 cycles. Output voltage 115.

| Type No. | Rating    | Weight, Lbs.    | List Price |
|----------|-----------|-----------------|------------|
| R-47     | 85 watts  | 4 $\frac{1}{2}$ | \$6.50     |
| R-48     | 150 watts | 5 $\frac{1}{2}$ | 7.50       |
| R-49     | 250 watts | 7               | 8.50       |

# UTC PUBLIC ADDRESS AUDIO COMPONENTS



A quality line of popular-priced transformers incorporating conservative design and construction to assure dependability under the most adverse operative and climatic conditions. Uniform drawn cases finished in telephone black enamel with threaded inserts for top or bottom mounting. These units are professional in appearance and suited for continuous commercial service in amplifiers and transmitters. All items are poured with special moisture-proof sealing compound in addition to vacuum impregnation of coil structures. Items in same case size have approximately the same weights, as noted below.

PA-132, PA-134, 135 and 136 are of the hum-bucking type to assure low hum pick-up. All audio components are linear,  $\pm 1\frac{1}{2}$  DB from 60 to 8,500 cycles. 200 ohm windings on input transformers are balanced and may be used for 250 ohm circuits.

| OVERALL DIM., IN. |                 |                  |                 | Mtg. Dim.       |                 | Weight<br>Lbs. |
|-------------------|-----------------|------------------|-----------------|-----------------|-----------------|----------------|
| Case              | L               | W                | H               | L               | W               |                |
| PA-1              | 2 $\frac{1}{8}$ | 3                | 3               | 1 $\frac{1}{8}$ | ...             | 2              |
| PA-2              | 3 $\frac{1}{8}$ | 4 $\frac{1}{2}$  | 4 $\frac{1}{2}$ | 1 $\frac{5}{8}$ | 3 $\frac{1}{8}$ | 5              |
| PA-3              | 3 $\frac{3}{8}$ | 4 $\frac{7}{8}$  | 4 $\frac{1}{4}$ | 1 $\frac{1}{2}$ | 3 $\frac{3}{8}$ | 10             |
| PA-4              | 6               | 4 $\frac{9}{16}$ | 6               | 3 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 18             |
| CA-1              | 7 $\frac{3}{8}$ | 9                | 5 $\frac{1}{2}$ | ...             | ...             | 28             |
| CA-2              | 11              | 11               | 9               | ...             | ...             | 83             |

## INPUT TO GRID TRANSFORMERS

PA-1 CASE

| Type No. | Application                                                                    | Primary Impedance Ohms    | Secondary Impedance Ohms                 | List Price |
|----------|--------------------------------------------------------------------------------|---------------------------|------------------------------------------|------------|
| PA-131   | 1 plate to 1 grid                                                              | 8,000/15,000              | 90,000 3:1 ratio                         | \$4.50     |
| PA-132   | 1 plate to 2 grids hum-bucking                                                 | 8,000/15,000              | 160,000 centertapped 2:1 ratio each side | 5.00       |
| PA-133   | 2 plates to 2 grids                                                            | 8,000/15,000              | 30,000 each side 1.75:1 ratio each side  | 6.00       |
| PA-134   | Line to 1 grid hum-bucking                                                     | 50, 200, 500              | 100,000                                  | 6.50       |
| PA-135   | Line to 2 grids hum-bucking                                                    | 50, 200, 500              | 150,000 overall                          | 7.50       |
| PA-235   | Line to 1 or 2 grids, hum-bucking; multiple alloy shielded for low hum pick-up | 50, 200, 500 ohms         | 80,000 overall                           | 10.00      |
| PA-136   | Single plate and low impedance mike or line to 1 or 2 grids. Hum-bucking       | 8,000/15,000 50, 200, 500 | 120,000 overall                          | 7.50       |
| PA-233   | PP 6C5, 56, similar triodes to AB 45's, 2A3's, 6L6's, etc.                     | 8,000/15,000              | 8,000 .9:1 ratio                         | 6.00       |
| PA-333   | PP 6C5, 56, similar triodes to fixed bias 6L6's                                | 8,000/15,000              | 2,500 .5:1 ratio                         | 6.00       |
| PA-433   | PP 45, 2A3, similar tubes to fixed bias 2 or 4 6L6's                           | 5,000                     | 1,250 .5:1 ratio PA-2 case               | 6.50       |

## MIXING AND LOW LEVEL OUTPUT TRANSFORMERS

PA-1 CASE

| Type No. | Application              | Pri. Imp. Ohms | Sec. Imp. Ohms | List Price |
|----------|--------------------------|----------------|----------------|------------|
| PA-137   | Mixing                   | 50, 200, 500   | 50, 200, 500   | \$5.50     |
| PA-140   | Triode plate to line     | 8,000/15,000   | 50, 200, 500   | 6.50       |
| PA-141   | PP triode plates to line | 8,000/15,000   | 50, 200, 500   | 7.50       |

## VARITONE UNITS

The UTC VARITONE is a revolutionary audio device incorporating a transformer and frequency response corrective network. Using the VARITONE, tone correction can be effected for defects in acoustic conditions or overall audio response from microphones, pickups, loud speakers, etc. It is also possible to produce new tonal effects from phonograph recordings or radio reception, bringing back notes which would be practically lost otherwise. Due to the high equalization obtainable, an additional stage of amplification is sometimes necessary if the equalizer is to be used at maximum setting. The VT-1 and VT-2 require an external 50,000 ohm potentiometer as the control device.

| Type No. | Matching                                                                                                                                                                         | Equalization               | List Price |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------|
| VT-1     | Triode plate, low impedance mike or line—to 1 or 2 grids                                                                                                                         | High end, low end, or both | \$8.50     |
| VT-2     | Connects across triode plate or low impedance mike or line                                                                                                                       | High end, low end, or both | 6.00       |
| VT-4     | Connects across triode plate—built in potentiometer                                                                                                                              | High end, low end, or both | 6.00       |
| VT-10    | Band pass filter for amateur service removes unnecessary low and high frequencies, reducing QRM, increasing efficiency and intelligibility. Connects in plate circuit of triode. |                            | 10.00      |

## OUTPUT TRANSFORMERS

Secondary Impedances 500, 200, 50, 16, 8, 5, 3, 1.5 ohms

| Type No. | Imped. P.P. Ohms | Typical Tubes              | Case | List Price |
|----------|------------------|----------------------------|------|------------|
| PA-15    | 8,000            | 45's, 50's, 6F6 triodes    | PA-2 | \$7.00     |
| PA-16    | 3,000/5,000      | 2A3's, 6A5G's              | PA-2 | 7.00       |
| PA-19    | 6,000/10,000     | 6B5, 6A6, 6F6, 89, 46      | PA-2 | 7.00       |
| PA-710   | 14,000/20,000    | 10's, 47's, 2A5 pentodes   | PA-2 | 7.00       |
| PA-2L6   | 6,600            | 6L6's self bias            | PA-3 | 10.00      |
| PA-4L6   | 3,300/3,800      | 2-6L6's, AB2 or 4-6L6's AB | PA-4 | 15.00      |

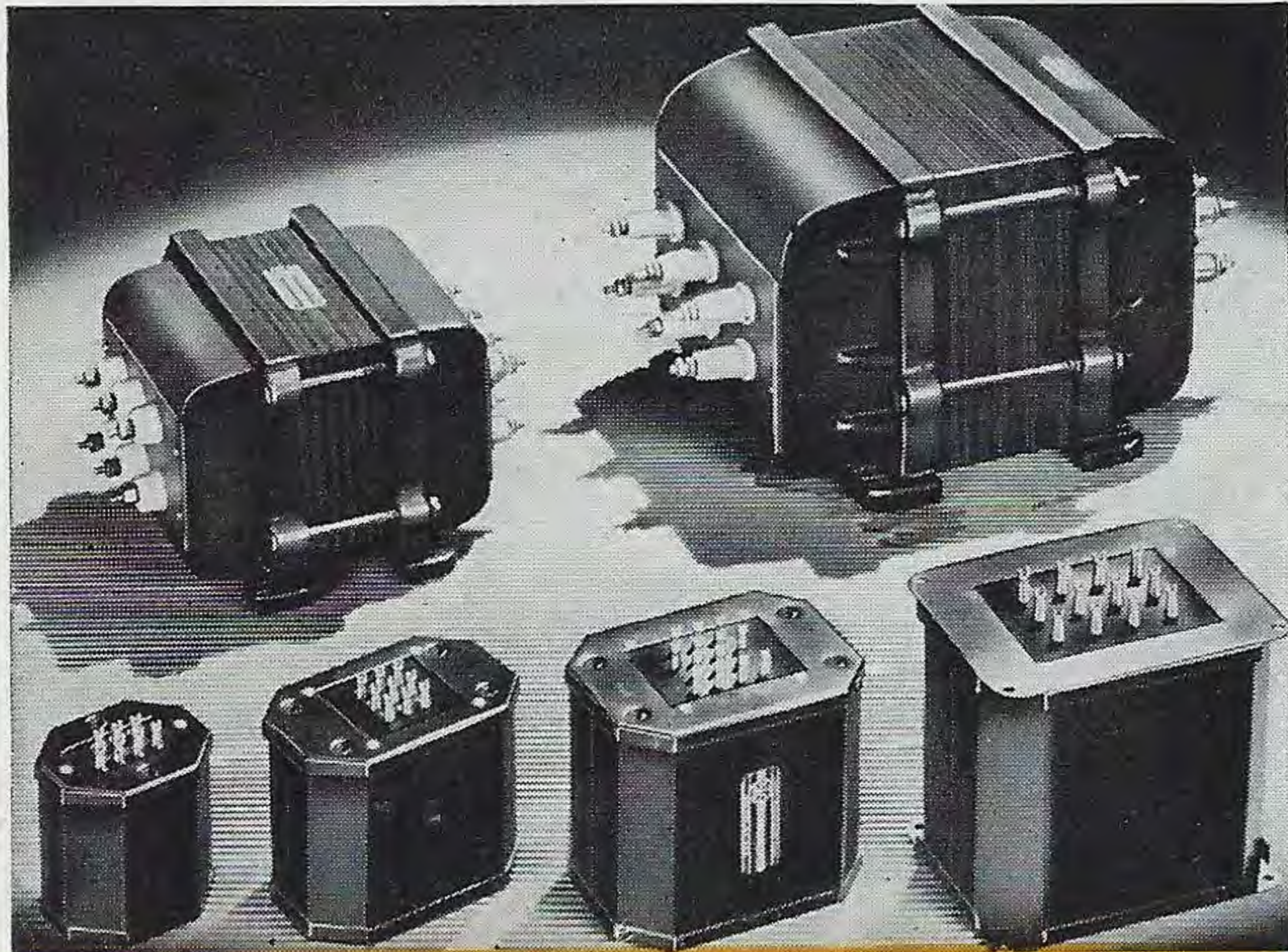
## COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 volts 50/60 cycles. \*Tapped for either voltage. † Replaces former transformer types PA-22, PA-425 and PA-426

| Type No. | High Voltage                   | DC. MA.    | Fil. 1 | Fil. 2     | Fil. 3                    | Fil. 4                    | Case No. List Price |
|----------|--------------------------------|------------|--------|------------|---------------------------|---------------------------|---------------------|
| † PA-422 | 435-365-0-365-435<br>125-0-125 | 125<br>25  | 5V-3A  | 5V-2A      | 6.3 VCT-3A                | 2.5 VCT-5A                | PA-3 \$10.00        |
| PA-428   | 500-0-500<br>80-0-80           | 250<br>100 | 5V-3A  | 5V-2A      | 6.3 VCT-4A                | *6.3 VCT-3A<br>2.5 VCT-3A | PA-4 14.00          |
| PA-429   | 600-525-0-525-600              | 250        | 5V-3A  | 6.3 VCT-3A | *7.5 VCT-3A<br>6.3 VCT-3A |                           | PA-4 15.00          |
| PA-431   | 500-400-0-400-500<br>80-0-80   | 500<br>100 | 5V-6A  | 5V-2A      | 6.3 VCT-5A                | 6.3 VCT-2A                | CA-1 22.50          |

# NEW COMMERCIAL TYPE POWER SUPPLY COMPONENTS

The new UTC PA power transformers and chokes have been designed to commercial standards. Temperature rise and insulation requirements are in accordance with the conservative specifications of the A.I.E.E. and Fire Underwriters. Ratings are conservative, for continuous duty, and suitable for all commercial and amateur applications. All items are vacuum impregnated in addition to sealing with special insulating compound. Rugged ceramic bushings are used for high voltage terminals.



## HIGH POWER PLATE TRANSFORMERS

Primaries for 105, 115, 220, 230 volts, 50/60 cycles. For reduced power secondary voltages can be reduced to half by using 220V. Pri. on 110 volts. These transformers may be used on 25 to 43 cycles if 220V. Pri. is used on 110 volts.

| Type No. | High Voltage              | D.C. Voltage | D.C. MA. | Case No. | List Price |
|----------|---------------------------|--------------|----------|----------|------------|
| PA-300   | 625-515-0-515-625         | 500/400      | 200      | PA-3     | \$10.00    |
| PA-301   | 580-530-300-0-300-530-580 | 475/425/250  | 500      | PA-4     | 14.00      |
| PA-302   | 950-750-0-750-950         | 760/610      | 325      | PA-4     | 17.00      |

| Type No. | High Voltage                    | D.C. Voltage   | D.C. MA. | L  | W     | H      | Wt. lbs. | List Price |
|----------|---------------------------------|----------------|----------|----|-------|--------|----------|------------|
| PA-303   | 1500-1235-400-0-400-1235-1500   | 1250/1000/300  | 300/175  | 8  | 7 1/2 | 5 1/2  | 32       | \$25.00    |
| PA-304   | 1500-1235-0-1235-1500           | 1250/1000      | 800      | 14 | 11    | 9 1/4  | 118      | 65.00      |
| PA-305   | 2400-1750-0-1750-2400           | 2000/1500      | 300      | 10 | 7 1/2 | 5 1/2  | 50       | 35.00      |
| PA-306   | 2400-1750-0-1750-2400           | 2000/1500      | 500      | 14 | 11    | 9 1/4  | 120      | 65.00      |
| PA-307   | 3500-3000-2400-0-2400-3000-3500 | 3000/2500/2000 | 300      | 13 | 11    | 9 1/4  | 110      | 60.00      |
| PA-308   | 3500-3000-2400-0-2400-3000-3500 | 3000/2500/2000 | 500      | 15 | 11    | 9 1/4  | 140      | 85.00      |
| PA-309   | 3500-3000-2400-0-2400-3000-3500 | 3000/2500/2000 | 1000     | 17 | 14    | 11 1/4 | 210      | 135.00     |
| PA-310   | 4600-4050-3500-0-3500-4050-4600 | 4000/3500/3000 | 600      | 15 | 14    | 11 1/4 | 168      | 105.00     |
| PA-311   | 1500-1235-0-1235-1500           | 1250/1000      | 500      | 10 | 7 1/2 | 5 1/2  | 50       | 35.00      |

## FILAMENT TRANSFORMERS

Primary for 105, 115, 220, 230 volts, 50/60 cycles. These transformers may be used on 25 to 43 cycles if 220 volt primary is used on 110 volts. Secondary voltage is simultaneously reduced to half.

\*Two Windings.

| Type No. | Sec. Volts C. T.      | Sec. Amps. | Working Voltage | Test Voltage | Case No. | List Price |
|----------|-----------------------|------------|-----------------|--------------|----------|------------|
| PA-34    | 2 1/2                 | 10         | 2500            | 6000         | PA-2     | \$7.50     |
| PA-120   | 2 1/2                 | 10         | 5000            | 11000        | PA-3     | 9.00       |
| PA-121   | 5                     | 22         | 5000            | 11000        | PA-3     | 14.00      |
| PA-122   | 7.5/6.3               | 8          | 1500            | 4000         | PA-3     | 11.00      |
| PA-124   | 10                    | 10         | 1500            | 4000         | PA-3     | 12.00      |
| PA-125   | 14/12/11              | 10         | 1500            | 4000         | PA-3     | 14.00      |
| PA-126   | *14/11/10<br>14/11/10 | 10<br>10   | 1500            | 4000         | PA-4     | 20.00      |

These transformers and reactors are designed for temperature rise less than 55 degrees C., and are tested for breakdown on all windings at twice working voltage plus 1,000 volts. In addition, plate transformers are given a surge test at 2 1/2 times normal applied voltage using a 500 cycle supply. In view of the conservative ratings and manufacturing procedure, these units are suitable for use on most types of government and standard commercial communication equipment. However, these same quality features make these units ideal for amateur transmitter equipment and also for quality PA units.

## LOW POWER FILTER CHOKES

| Type No. | Inductance Henrys | D.C. MA. | D.C. res. Ohms | Case No. | List Price |
|----------|-------------------|----------|----------------|----------|------------|
| PA-40    | 10                | 200      | 110            | PA-2     | \$4.50     |
| PA-41    | 5-25              | 200      | 100            | PA-2     | 4.50       |
| PA-44    | 30                | 100 max. | 375            | PA-2     | 4.00       |
| PA-45    | 250               | 15 max.  | 4500           | PA-1     | 4.50       |
| PA-48C   | 100               | 50 ma.   | 2500           | PA-1     | 4.50       |

## SMOOTHING CHOKES

Tapped for humbucking circuit. Commercial safety factors. Inductance rating at max. DC.

| Type No. | Inductance Henrys | D.C. M.A. | D.C. res. Ohms | Case No. | List Price |
|----------|-------------------|-----------|----------------|----------|------------|
| PA-100   | 12                | 150       | 115            | PA-2     | \$5.00     |
| PA-102   | 12                | 200       | 105            | PA-3     | 8.00       |
| PA-104   | 12                | 300       | 90             | PA-4     | 12.00      |
| PA-108   | 10                | 500       | 60             | CA-1     | 20.00      |
| PA-1S    | 10                | 1000      | 50             | CA-1     | 35.00      |

## SWINGING INPUT CHOKES

| Type No. | Inductance Henrys | D.C. M.A. | D.C. res. Ohms | Case No. | List Price |
|----------|-------------------|-----------|----------------|----------|------------|
| PA-101   | 5-25              | 150       | 115            | PA-2     | \$5.00     |
| PA-103   | 5-25              | 200       | 105            | PA-3     | 8.00       |
| PA-105   | 5-25              | 300       | 90             | PA-4     | 12.00      |
| PA-109   | 5-25              | 500       | 60             | CA-1     | 20.00      |
| PA-1C    | 5-25              | 1000      | 50             | CA-1     | 35.00      |

## UNIVERSAL BIAS TRANSFORMERS

Primary 115 V. 50/60 cycles. No filament windings.

| Type No. | D.C. Voltage                                       | D.C. Ma. | Case No. List Price |
|----------|----------------------------------------------------|----------|---------------------|
| PA-315   | Tapped for any voltage from 15 to 100 V. within 6% | 250      | PA-2 \$8.50         |
| PA-316   | Tapped for any voltage from 75 to 400 V. within 6% | 250      | PA-4 15.00          |

# INDUSTRIAL RECTIFIERS



Tube and disc type rectifiers are the ideal means for converting A.C. to D.C. They are noise and maintenance free and more efficient than rotating equipment. UTC rectifiers are designed to customers' specifications, and are inexpensive, whether in large quantities or single lots. Write for quotations on equipment to your needs.

UTC industrial rectifiers are available for 1 volt to 250,000 volts and from 1 watt to 250 Kw. Typical units are illustrated above.

A. For physiotherapy and medical equipment

B. For filament supply

C. 5 Kw. 220 V. supply

D. 3 phase 220 V. supply

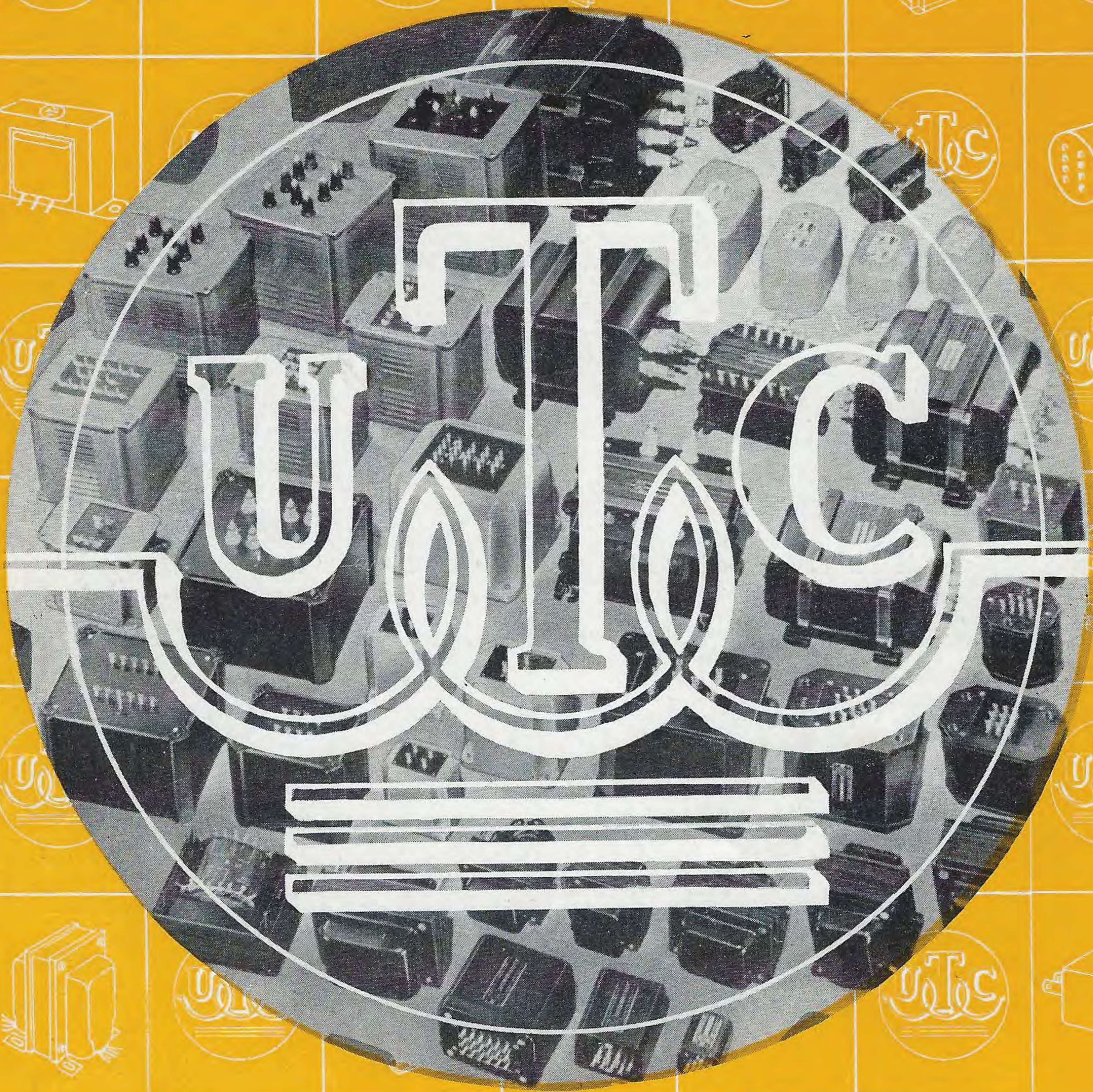
E. 5 Kw. high voltage supply

F. 20 Kw. high voltage supply

G. Variable voltage laboratory unit.



UTC industrial transformers are available for fluorescent tube, Neon and other service. Let us submit data to your specifications.



© U. T. C. Printed in United States of America

# UNITED TRANSFORMER CORP.

150 VARICK STREET



NEW YORK, N. Y.

EXPORT DIVISION: 100 VARICK STREET NEW YORK, N. Y. CABLES: "ARLAB"