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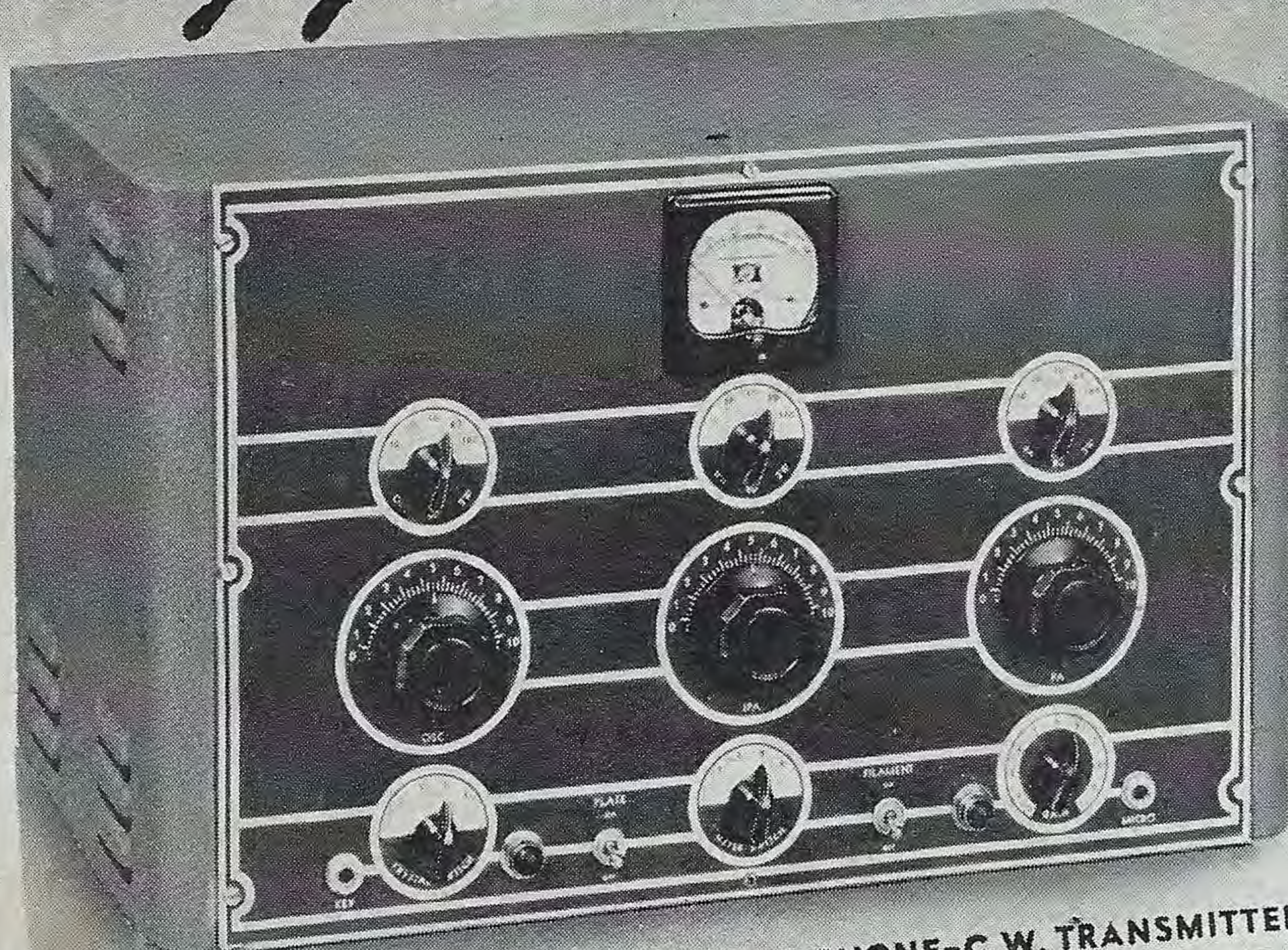
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SUN RADIO CO.
212 FULTON STREET
(BET. CHURCH & GREENWICH ST.)
NEW YORK CITY
PHONES BA 7-7647-8



BULLETIN PS-404

NEW 100 Watt Kits

Using Grid-Cathode Modulation



SC-100 BAND SWITCHING GCM PHONE-C.W. TRANSMITTER KIT

The UTC Type SC-100 transmitter kit is a complete 'phone and C.W. transmitter of modern design capable of a carrier output of 50* watts 'phone, 100* watts C.W. Operation on all bands (10-160 meters) is obtained by means of **BAND SWITCHING** coil assemblies (and crystal switch for four [4] crystals). Keying is accomplished in the oscillator cathode circuit, thus permitting break-in operation. A rugged power supply with multi-section filter system furnishes power to the RF and audio amplifiers. The entire transmitter including RF, speech amplifier, Cathode-Modulator, and power supply is mounted on a single chassis.

The output circuit of the SC-100 consists of a link terminated at two isolantite feed-through insulators at the rear of the chassis for connection to a low impedance feeder system.

The SC-100 kit includes chassis, cabinet, panel, condensers, coil assemblies, resistors, 3" METER, etc., all completely mounted ready to wire. Crystals and tubes not included. Tubes: 1-807, 1-812, 1-6SJ7, 1-6C5, 3-6F6, 1-5Z3, 2-866. Size: 12" x 12" x 20". Weight: 88 lbs. Amateur net price

SC-101 Same as above, but designed to use standard air wound plug-in coils such as Barker and Williamson or Bud. Less crystal, tubes and coils, net **\$57.00**

* ACTUAL CARRIER OUTPUT UTC ratings are conservative and based on antenna output, not the customary class C input. For example, on C.W., the class C input of these units is 160 watts.



\$96.00

UNITED TRANSFORMER CORP.

Write: COMMUNICATIONS DIV. ★ 150 VARICK ST. ★ NEW YORK, N. Y.
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I N D E

LINEAR STANDARD

Audio Components

Power Components

EQUALIZERS AND FILTERS

HIPERM ALLOY

ULTRA COMPACT

OUNCER

PLUG-IN

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LINEAR STANDARD TRANSFORMERS

UTC LINEAR STANDARD Components represent the closest approach to the ideal transformer from the standpoint of uniform response, low wave form distortion, high efficiency, thorough shielding and dependability.

The multiple tap windings used make possible a wide combination of impedance connections without impairing the audio range or efficiency.

UTC engineers have spent considerable time studying the many annoying hum pickup difficulties which are prevalent in high gain A.C. operated amplifying equipment. As a result, a special cast alloy has been developed to house all UTC Linear Standard units. In addition, low level input transformers use the new UTC dual and quadruple alloy shields thus making possible a transformer with the lowest hum pickup of any available commercially.

LINEAR STANDARD UNITS FEATURE:

- **True Hum Balancing Coil Structure . . .** maximum neutralization of stray fields.
- **Balanced Variable Impedance Line . . .** permits highest fidelity on every tap of a universal unit . . . no line reflections or transverse coupling.
- **Reversible Mounting . . .** permits above chassis or subchassis wiring.
- **Full Electrostatic Shielding . . .** brought out to separate terminal.
- **Alloy Shields . . .** maximum shielding from inductive pickup.
- **Multiple Coil, Semi-Toroidal Coil Structure . . .** minimum distributed capacity and leakage reactance.
- **Precision Winding . . .** accuracy of winding .1%, perfect balance of inductance and capacity; exact impedance reflection.
- **Hiperm-Alloy . . .** a Stable high permeability nickel-iron core material.
- **High Fidelity . . .** UTC Linear Standard transformers are the **only** audio units with a **guaranteed** uniform response, from 30 to 20,000 cycles ± 1 db.

OVERALL DIMENSIONS				Mtg.	Dim.	Weight Lbs.
Case	L	W	H			
LS-1	2 $\frac{9}{16}$	3 $\frac{3}{16}$	3 $\frac{11}{16}$	1 $\frac{15}{16}$	2 $\frac{7}{16}$	4
LS-2	3 $\frac{1}{2}$	4 $\frac{3}{8}$	4 $\frac{5}{8}$	2 $\frac{11}{16}$	3 $\frac{11}{16}$	8
LS-3	5	5 $\frac{3}{4}$	5 $\frac{5}{8}$	4 $\frac{3}{16}$	5 $\frac{1}{2}$	15
LS-4	6 $\frac{7}{16}$	6 $\frac{7}{16}$	5 $\frac{3}{8}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	23
CC-1	7 $\frac{3}{8}$	10 $\frac{1}{2}$	5 $\frac{1}{2}$	6 $\frac{1}{4}$	4 $\frac{1}{2}$	33
CC-2	11	11	9 $\frac{1}{4}$	9 $\frac{3}{8}$	4 $\frac{3}{4}$	83
LS-6	16	14	16	8	14 $\frac{1}{2}$	200
LS-7	21	18	21	11 $\frac{3}{4}$	19 $\frac{3}{4}$	500

LOW IMPEDANCE TO GRID TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Shielding and hum reduction	Case No. List Price
LS-10	Low impedance mike, pick-up, or multiple line to grid	50, 125, 200, 250, 333, 500 ohms	60,000 ohms in two sections	Dual Alloy shield -74DB	LS-1 \$15.00
LS-10X	As above	As above	50,000 ohms	Quadruple alloy shield -92DB	LS-1 20.00
LS-12	Low impedance mike, pick-up or multiple line to push pull grids	50, 125, 200, 250, 333, 500 ohms	120,000 ohms overall in two sections	Dual alloy shield -74DB	LS-1 20.00
LS-12X	As above	As above	80,000 ohms overall in two sections	Quadruple alloy shield -92DB	LS-1 25.00
LS-14	Low impedance mike, pick-up, or parallel mixer to grid	2.5, 5.5, 10, 15, 22, 30, 38, 60 ohms	60,000 ohms in two sections	Dual alloy shield -74DB	LS-1 20.00
LS-14X	As above	As above	50,000 ohms	Quadruple alloy shield -92DB	LS-1 25.00
LS-15	Three isolated lines or pads to one or two grids	30, 50, 200, 250 ohms each primary	60,000 ohms overall, in two sections	Dual Alloy shield -74DB	LS-1 20.00
LS-15X	As above	As above	As above	Quadruple alloy shield -92DB	LS-1 25.00
LS-18	High level multiple line to push pull grids	50, 125, 200, 250, 333, 500 ohms	50,000 ohms overall, in two sections	Alloy casting -50DB	LS-2 22.00



PLATE, CRYSTAL, PHOTOCELL AND BRIDGING TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Shielding and hum reduction	Case No. List Price
LS-50	Single plate to multiple line	8,000 to 15,000 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 \$15.00
LS-51	Push pull low level plates to multiple line	8,000 to 15,000 ohms each side	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 15.00
LS-37	Crystal microphone or pick-up to multiple line	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 15.00
LS-38	Crystal microphone or pick-up to multiple line, with internal equalizer	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 20.00
LS-39	Photocell, high-mu triode diode or over-biased detector to multiple line	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 15.00
LS-150	Bridging transformer from 50 to 500 ohm line to multiple line	4,000 ohms, bridging	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 15.00
LS-151	Bridging transformer from 50 to 500 ohm line to multiple line	16,000 ohms, bridging	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 15.00

MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Shielding and hum reduction	Case No. List Price
LS-30	Mixing, low impedance mike, pickup, or multiple line to multiple line	50, 125, 200, 250, 333, 500 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 \$15.00
LS-30X	As above	As above	As above	Quadruple alloy shield -92DB	LS-1 20.00
LS-31	Three isolated lines or pads to multiple line	30, 50, 200, 250 ohms each primary	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 20.00
LS-31X	As above	As above	As above	Quadruple alloy shield -92DB	LS-1 25.00
LS-32	Mixing, low impedance mike, pickup, or parallel mixer to multiple line	2.5, 5.5, 10, 15, 22, 30, 38, 60 ohms	50, 125, 200, 250, 333, 500 ohms	Dual alloy shield -74DB	LS-1 20.00

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Shielding and hum reduction	Case No. List Price
LS-19	Single plate to PP grids like 2A3, 59, 46, 6L6	8,000 to 15,000 ohms; split primary	95,000 ohms; turn ratio 1.25:1 each side; split secondary	Alloy casting -50 DB	LS-1 \$15.00
LS-20	Single plate to single grid	8,000 to 15,000 ohms. Also for bridging 50/500 ohm line	60,000 ohms; 2:1 turn ratio	Dual alloy shield -74DB	LS-1 10.00
LS-28	Single plate to single grid	As above, will carry 8 MA DC	60,000 ohms 2:1 turn ratio	Dual alloy shield -74DB	LS-1 13.00
LS-21	Single plate to push pull grids	8,000 to 15,000 ohms. Also for bridging 50/500 ohm line	135,000 ohms; turn ratio 1.5:1 each side. Primary and secondary each in two sections	Dual alloy shield -74DB	LS-1 13.00
LS-40	Single plate to push-pull grids	As above, will carry 8 MA DC	135,000 ohms 1.5:1 turn ratio each side	Dual alloy shield -74 DB	LS-1 16.00
LS-22	Push pull plates to push pull grids	8,000 to 15,000 ohms	38,000 ohms each secondary, turn ratio 1.6:1 each side of center. Primary and secondary each in two sections	Alloy casting -50DB	LS-2 22.00
LS-24	Single plate or multiple line to one or two grids	High impedance primary 8,000 to 15,000 ohms. Low impedance primary 50, 125, 200, 250, 333, 500 ohms	60,000 ohms; 2:1 turn ratio Secondary impedance 60,000 ohms overall	Dual alloy shield -74DB	LS-1 20.00
LS-25	P.P. plates to P. P. grids. Medium level	8,000 to 15,000 ohms; split primary	100,000 ohms overall; 25,000 ohms each side. Turn ratio 1.3:1, Split secondary	Alloy casting -50DB	LS-1 18.00
LS-26	Bridging line to 1 or 2 grids	5000	60,000 ohms in two sections	Dual alloy shield -74 DB	LS-1 15.00

DRIVER TRANSFORMERS

Type No.	Application	Primary Impedance	Reflected Secondary Impedance	Case No. List Price
LS-5	Driver, multiple line to class B 838's, 805's, ZB-120's, 203A's and similar tubes	50, 125, 200, 250, 333, 500 ohms	2,000 ohms; 1:2 overall turns ratio	LS-2 \$30.00
LS-6	Driver, push pull 45's, 59's, 2A3's, 6A5's, etc. to push pull 845 or 211D grids	800 to 2,000 ohms	.6 primary impedance turns ratio 1.3:1 overall	LS-2 22.00
LS-7	Push pull 56, 6C5 or similar plates to A prime 45's, 42's, 6F6's, 2A3's	8,000 to 15,000 ohms	.45 primary impedance turn ratio 1.5:1 overall	LS-2 22.00
LS-47X	Driver from push pull 2A3's, 6A5G's, or 300A's to Class B 838's, 203A's 805's, or ZB120's	800 to 1,000 ohms	.1 pri. impedance turns ratio. Pri. 1/2 Sec. 3.2:1	LS-2 22.00
LS-48	Driver transformer push pull 845's, to 204 or 849 grids in class B	1,000 to 2,000 ohms	.038 pri. impedance turns ratio, Pri. 1/2 Sec. 5.1:1	LS-4 35.00
LS-49	Push pull parallel 2A3, 6A5G, or 300A tubes to four 838, 203A, 805, or ZB120 tubes	800 to 2,000 ohms	.028 pri. impedance turns ratio, Pri. 1/2 Sec. 6.0:1	LS-4 30.00

HIGH LEVEL MATCHING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary	Case No. List Price
LS-33	High level line matching. 15 watts	50, 125, 200, 250, 333, 500 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500 ohms	LS-2 \$15.00
LS-34	High level line matching. 30 watts	50, 125, 200, 250, 333, 500 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500 ohms	LS-3 20.00



OUTPUT TRANSFORMERS TO LINE AND VOICE COIL

Type No.	Primary will match following tubes	Primary Impedance	Secondary Impedance	Case No. List Price
LS-52	Push pull 245, 250, 6V6, 42 or 2A5 A prime	8,000 ohms	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 \$20.00
LS-54	Same as above	8,000 ohms	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 14.00
LS-55	Push pull 2A3's, 6A5G's, 300A's, 275A's, 6A3's	5,000 ohms plate to plate and 3,000 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 20.00
LS-57	Same as above	5,000 ohms plate to plate and 3,000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 14.00
LS-58	Push pull parallel 2A3's, 6A5G's, 300A's, 6A3's	2,500 ohms plate to plate and 1,500 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-4 30.00
LS-61	Push pull 6B5, 6A6, 53, 6F6, 71A, 59, 79, 89, Class B46, 59's	10,000 ohms plate to plate and 6,000 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 20.00
LS-63	Same as above	10,000 ohms plate to plate and 6,000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 14.00
LS-6L1	Push pull 6L6's self bias	6,600 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-3 30.00
LS-6L3	Same as above	6,600 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-3 20.00
LS-6L4	Push pull 6L6's fixed bias or push pull parallel 6L6's self bias	3,800 ohms plate to plate and 3,300 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-4 35.00
LS-845	845 tubes class AB	8,800 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	CC-1 50.00

OUTPUT TRANSFORMERS TO HIGH IMPEDANCE (RF) LOAD

Type No.	Primary will match the following tubes	Primary Impedance	Secondary Impedance	Case No. List Price
LS-56	Push pull 2A3's, 6A5G's, 300A's, 275A's, 6A3's. +36DB	5,000 ohms plate to plate and 3,000 ohms plate to plate	6,000, 5,000, 4,000, 1,800, 1,500, 1,000, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	LS-2 \$20.00
LS-66	Class B 203A, 838, ZB120, 805 +46DB	9,000 ohms plate to plate	5,000, 3,500, 2,500, 2,100, 1,250, 600	CC-1 70.00
LS-67	Class B 203A, 838, ZB 120, 805 +46DB	9,000 ohms plate to plate	10,000, 2,500	CC-1 70.00
LS-69	Class B 849, 204A +52DB	10,500 ohms plate to plate	6,000, 5,000, 4,000, 1,800, 1,500, 1,000	LS-6* 200.00
LS-169	Push pull parallel 849's Class B or six push pull parallel 204A's +55DB	5,250 ohms plate to plate	5,000, 4,200, 3,300, 1,500, 1,250, 830	LS-7* 400.00

*Special oil filled construction



LINEAR STANDARD POWER COMPONENTS

(SEE PAGE 2 FOR DIMENSIONS)

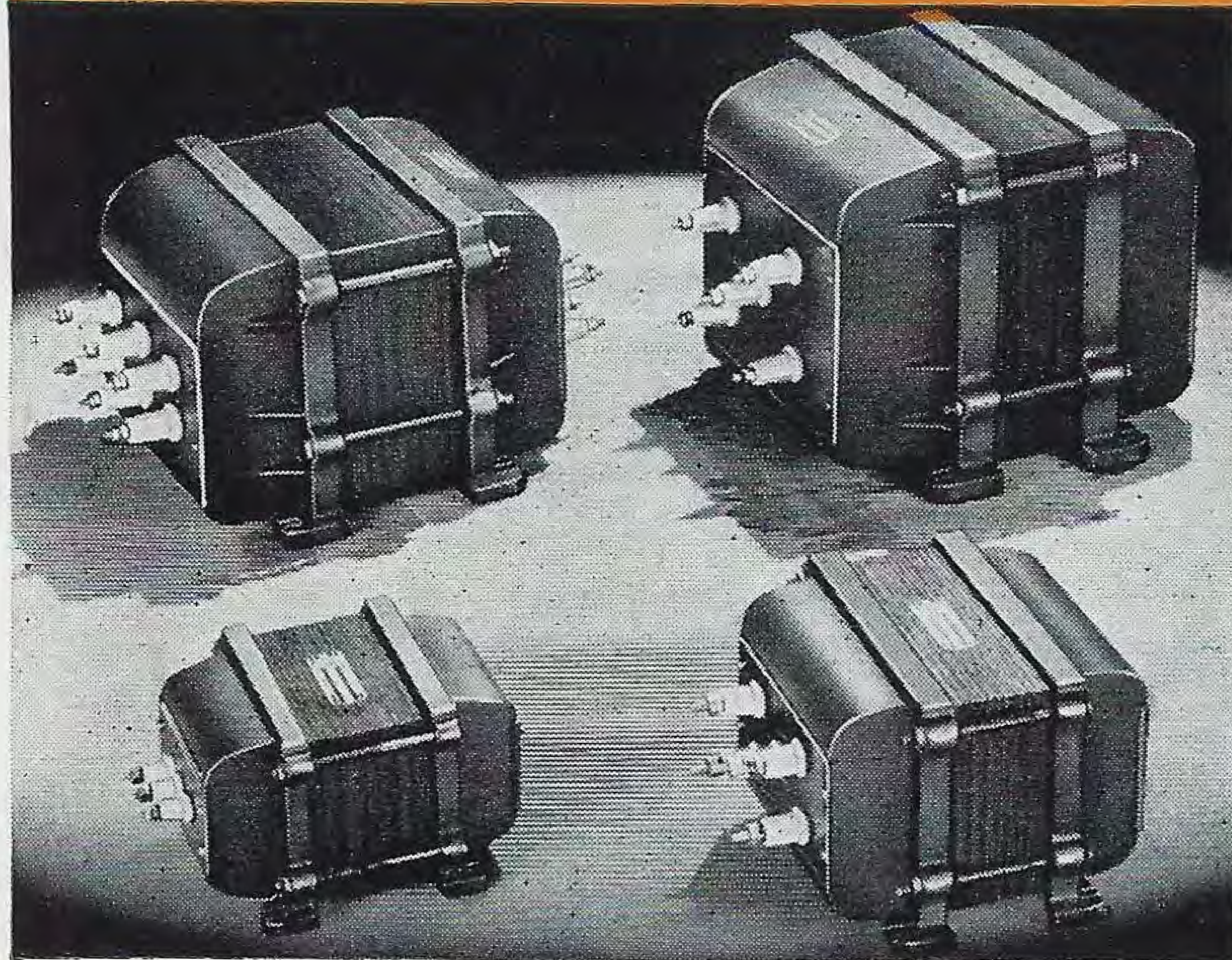


PLATE TRANSFORMERS

Type No.	Primary Voltage 50/60 Cycles	High Voltage	DC Current	List Price
LS-181	100, 110, 120, 220, 230, 240	1500-1250-0-1250-1500	200 MA	\$45.00
LS-182	100, 110, 120, 220, 230, 240	1500-1250-0-1250-1500	350 MA	60.00
LS-183	100, 110, 120, 220, 230, 240	1750-1500-0-1500-1750	400 MA	75.00
LS-184	100, 110, 120, 220, 230, 240	3500-3000-2500-0-2500-3000-3500	500 MA	110.00
LS-185	100, 110, 120, 220, 230, 240	3500-3000-2500-0-2500-3000-3500	1.2 amp.	250.00

FILAMENT TRANSFORMERS

Type No.	Application	Primary Voltage 50/60 Cycles	Secondary Voltage	Insulation Voltage	Case No. List Price
LS-80	866A rectifiers	100, 110, 120, 220, 230, 240	2.5 V.C.T.-10A	12,000	LS-3 \$15.00
LS-82	872 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-20A	12,000	LS-3 20.00
LS-84	203A, 845, etc. HF200, HF300	100, 110, 120, 220, 230, 240	10 V.C.T.-8A	12,000	LS-3 15.00
LS-86	Combined filament transformer for 866 rectifiers and 845 or 203A audio tubes	100, 110, 120, 220, 230, 240	2.5 V.C.T.-10A 10 V.C.T.-8A	10,000	LS-3 25.00
LS-88	6.3 volt tubes	105, 115, 125	6.3 V.C.T.-2A	2,500	LS-1 7.50
LS-87A	7.5 volt tubes	105, 115, 125	7.5 V.C.T.-9A	2,500	LS-3 15.00
LS-118	849, 204A, HF300	100, 110, 120, 220, 230, 240	11 V.C.T.-10A	2,500	LS-3 20.00
LS-120	866 bridge rectifier	100, 110, 120, 220, 230, 240	2.5 V.C.T.-10A 2.5 V.C.T.-5A 2.5 V.C.T.-5A	12,000	LS-3 25.00
LS-121	872 bridge rectifier	100, 110, 120, 220, 230, 240	5 V.C.T.-20A 5 V.C.T.-10A 5 V.C.T.-10A	12,000	LS-4 35.00
LS-83	872A, 575 or 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-20A	35,000	LS-4 40.00
LS-89A	Three 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-60A	35,000	CC-1 60.00

COMBINED PLATE AND FILAMENT TRANSFORMERS

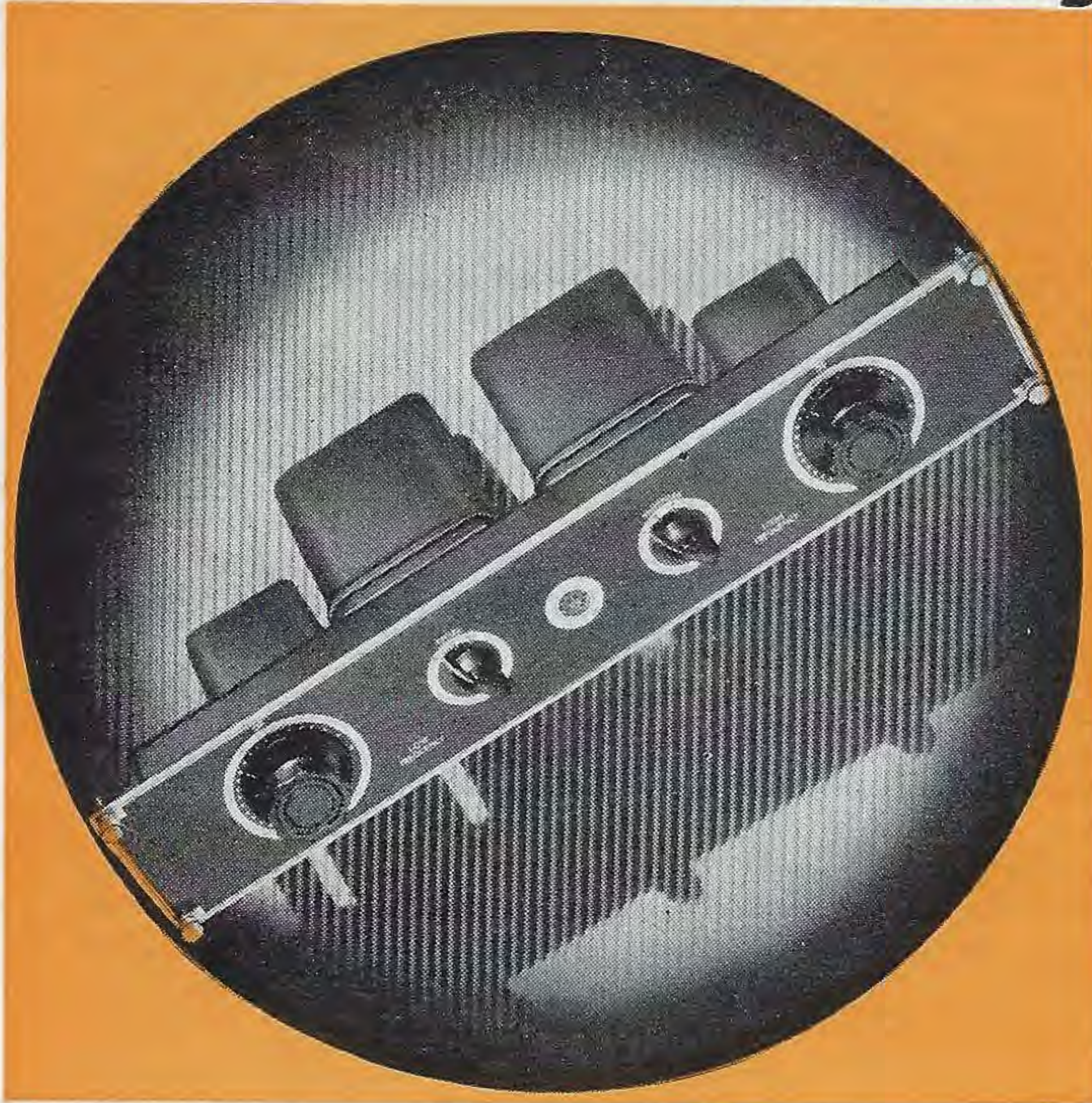
Type No.	Primary Voltage 50/60 cycles	High Voltage	Filament Windings	Case No. List Price
LS-180	115	225-0-225 15 MA	6.3 V.C.T.-2A 6.3 V.C.T.-5A	LS-1 \$10.00
LS-180H	Same as above but in hum-balanced construction (dual coils)			LS-1 13.00
LS-190	100, 105, 110, 115, 120, 125	350-300-0-300-350 125 MA	5 V.C.T.-3A 2.5 V.C.T.-6A 6.3 V.C.T.-3A	LS-3 18.00
LS-190H	Same as above but in hum-balanced construction (dual coils)			LS-3 25.00
LS-191	100, 105, 110, 115, 120, 125	325-250-0-250-325 35 MA	5 V.C.T.-3A 2.5 V.C.T.-2A 6.3 V.C.T.-2A	LS-2 16.00
LS-70	100, 105, 110, 115, 120, 125	425-375-0-375-425 200 MA 70-0-70 50 MA	5 V.C.T.-3A 5 V.C.T.-2A 2.5 V.C.T.-10A 6.3 V.C.T.-1A 6.3 V.C.T.-3A	LS-4 25.00
LS-72	100, 105, 110, 115, 120, 125	525-450-0-450-525 250 MA 70-0-70 50 MA	5 V.C.T.-3A 2.5 V.C.T.-3A 2.5 V.C.T.-3A 6.3 V.C.T.-1A 6.3 V.C.T.-3A tapped at 5 V.C.T.-6A	LS-4 25.00
LS-73	100, 105, 110, 115, 120, 125	500-400-0-400-500 500 MA 70-0-70 50 MA	5 V.C.T.-6A 2.5 V.C.T.-10A 2.5 V.C.T.-3A 6.3 V.C.T.-4A 6.3 V.C.T.-6A tapped at 5 V.C.T.-6A	CC-1 36.00

FILTER, SWINGING, AND AUDIO CHOKES

Type No.	Application	Inductance	DC Current	DC Resistance	Case No. List Price
LS-90	Filter choke with hum bucking tap	Series-50 hy Parallel-12.5 hy	50 MA 100 MA	510 ohms 128 ohms	LS-2 \$8.50
LS-91	Filter choke with hum bucking tap	Series-14 hy Parallel-3.5 hy	125 MA 250 MA	200 ohms 50 ohms	LS-2 8.50
LS-92	Filter choke with hum bucking tap	Series-16 hy Parallel-4 hy	175 MA 350 MA	96 ohms 24 ohms	LS-3 15.00
LS-93	Filter choke with hum bucking tap	Series-26 hy Parallel-6.25 hy	200 MA 400 MA	112 ohms 28 ohms	LS-4 25.00
LS-94	Parallel feed and filter choke	Series-320 hy Parallel-80 hy	3 MA 6 MA	6400 ohms 1600 ohms	LS-1 10.00
LS-95	Parallel feed and filter choke	Series-720 hy Parallel-180 hy	5 MA 10 MA	3600 ohms 900 ohms	LS-2 20.00
LS-950	Filter choke with hum bucking tap	Series-100 hy Parallel-25 hy	35 MA 75 MA	1000 ohms 250 ohms	LS-2 10.00
LS-96	Filter choke with hum bucking tap	Series-20 hy Parallel-5 hy	500 MA 1 amp.	90 ohms 22.5 ohms	CC-1 40.00
LS-97	Swinging choke	8-40 hy	200 MA	100 ohms	LS-3 15.00
LS-980	Filter choke with hum bucking tap	Series-14 hy Parallel-3.5 hy	400 MA 800 MA	90 ohms 22.5 ohms	LS-4 25.00
LS-98	Swinging choke	8-40 hy	400 MA	90 ohms	LS-4 25.00
LS-99	Filter choke with hum bucking tap	Series-20 hy Parallel-5 hy	1 amp. 2 amp.	50 ohms 12.5 ohms	CC-2 60.00
LS-105	Swinging choke	8-40 hy	1 amp.	50 ohms	CC-2 60.00
LS-1110	Filter choke with hum bucking tap	Series-20 hy Parallel-5 hy	350 MA 700 MA	80 ohms 20 ohms	CC-1 32.00
LS-1120	Filter choke with hum bucking tap	Series-12 hy Parallel-3 hy	700 MA 1.4 amp	65 ohms 16 ohms	CC-1 40.00
LS-101	Modulation reactor	50 hy	175 MA	350 ohms	LS-4 25.00
LS-102	Modulation reactor	50 hy	350 MA	250 ohms	CC-1 40.00
LS-103	Modulation reactor	50 hy	500 MA	175 ohms	CC-2 60.00
LS-104A	Modulation reactor	50 hy	1.3 amp	75 ohms	Spec. 300.00

EQUALIZERS and FILTERS

For Higher Fidelity



MODEL 3A UNIVERSAL EQUALIZER

The universal characteristics of the UTC 3-A equalizer have made it the most popular item for broadcast and recording equalization. This unique unit, with which most communications engineers are already familiar is an accurately calibrated, quickly adjustable combined low and high frequency equalizer. Four controls are provided on the panel. The low frequency equalization frequency to 25, 50, or 100 cycles and a calibrated T-pad for exact adjustment of the amount of equalization. The high frequency portion of this unit includes a switch to obtain resonance at 4000, 6000, 8000 or 10,000 cycles, and a similar calibrated control reading directly in DB. It is ideal for equalizing lines, pickup and recording equipment, due to its flexible nature. Dimensions of panel 3½" x 19". Depth 7½". The new model 3-A is NOW THOROUGHLY SHIELDED AGAINST INDUCTIVE PICKUP WITH UTC TRIALLOY SHIELDING. Net price to broadcast stations or recording studios **\$85**

MODEL 3D UNIVERSAL ATTENUATOR

The UTC model 3D attenuator is similar to the 3A equalizer, but is designed to ATTENUATE the low or high frequencies. The low frequency control consists of a switch for adjusting the point at which cutoff starts to 100, 175 or 250 cycles, and a calibrated pad control to adjust the slope of the attenuation curve. The high frequency portion is tapped at 4000, 6000, 8000 and 10000 cycles with a similar attenuation control. This type of equalizer finds many applications in recording, dialogue equalization, and P.A.—theatre applications.

Net price to broadcast stations **\$75**

MODEL 4B SOUND EFFECTS FILTER

The UTC model 4B filter is an improved design based on the sound effects filter developed by UTC for the Columbia Broadcasting System. The low pass control has cutoff frequencies of 500, 1000, 2000, and 3000 cycles and incorporates a pad control to govern the rapidity of attenuation. The high pass section has a switch for cutoff frequencies of 500, 1000, 2000 and 4000 cycles, with a calibrated attenuator. Net price to broadcast stations **\$70**

PHONO AND RADIO FILTERS

(500 ohm impedance)

● 2E PLAYBACK EQUALIZER

In hill and dale recordings, as well as some lateral recordings, the high frequencies are brought up when recording to effect a high ratio of signal level to surface noise. Simultaneously, the low frequencies are attenuated so that the high amplitude will not overrun the track. The 2E equalizer compensates for both of these effects in playback. H-3 case, Net **\$25**

● 2F LOW PASS FILTER

In practically all high fidelity sound sources such as phono, sound on film, microphone and similar service, a substantial amount of scratch or other parasitic noise is encountered. Since this noise is in the upper range of the audio spectrum, a low pass filter will eliminate the greater portion of it. For highest fidelity, however, this filter should have little effect on frequencies below the cutoff point. The 2F filter is ideal in this respect and is recommended for all broadcast work. Frequency of cutoff is 6000 cycles.

H-3 case, Net **\$40**

● 2G LOW PASS FILTER

Same as above, but cutoff frequency is 4500 cycles.

H-3 case, Net **\$40**

● 2H SCRATCH FILTER

This low pass filter is similar in purpose to the 2G but has not as sharp cutoff characteristics; suitable for most commercial and home applications.

H-1 case, Net **\$15**

● 2J LOW PASS

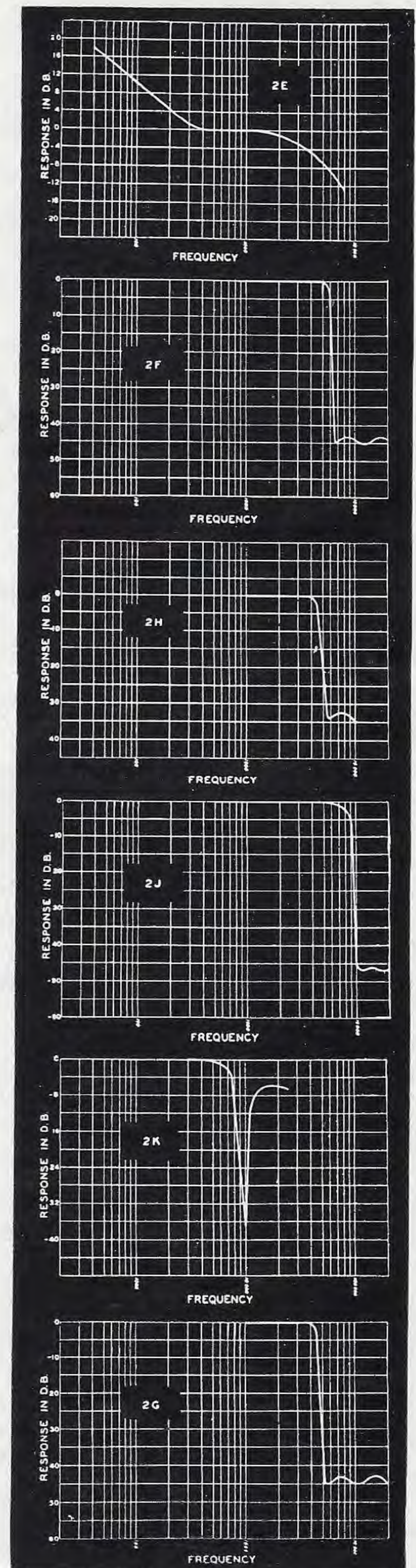
STATION FILTER

This filter has a 9000 cycle cutoff, attenuating all frequencies beyond this point to eliminate the possibility of the broadcast station overrunning its sidebands.

H-3 case, Net **\$40**

● 2K INTERSTATION BEAT FILTER

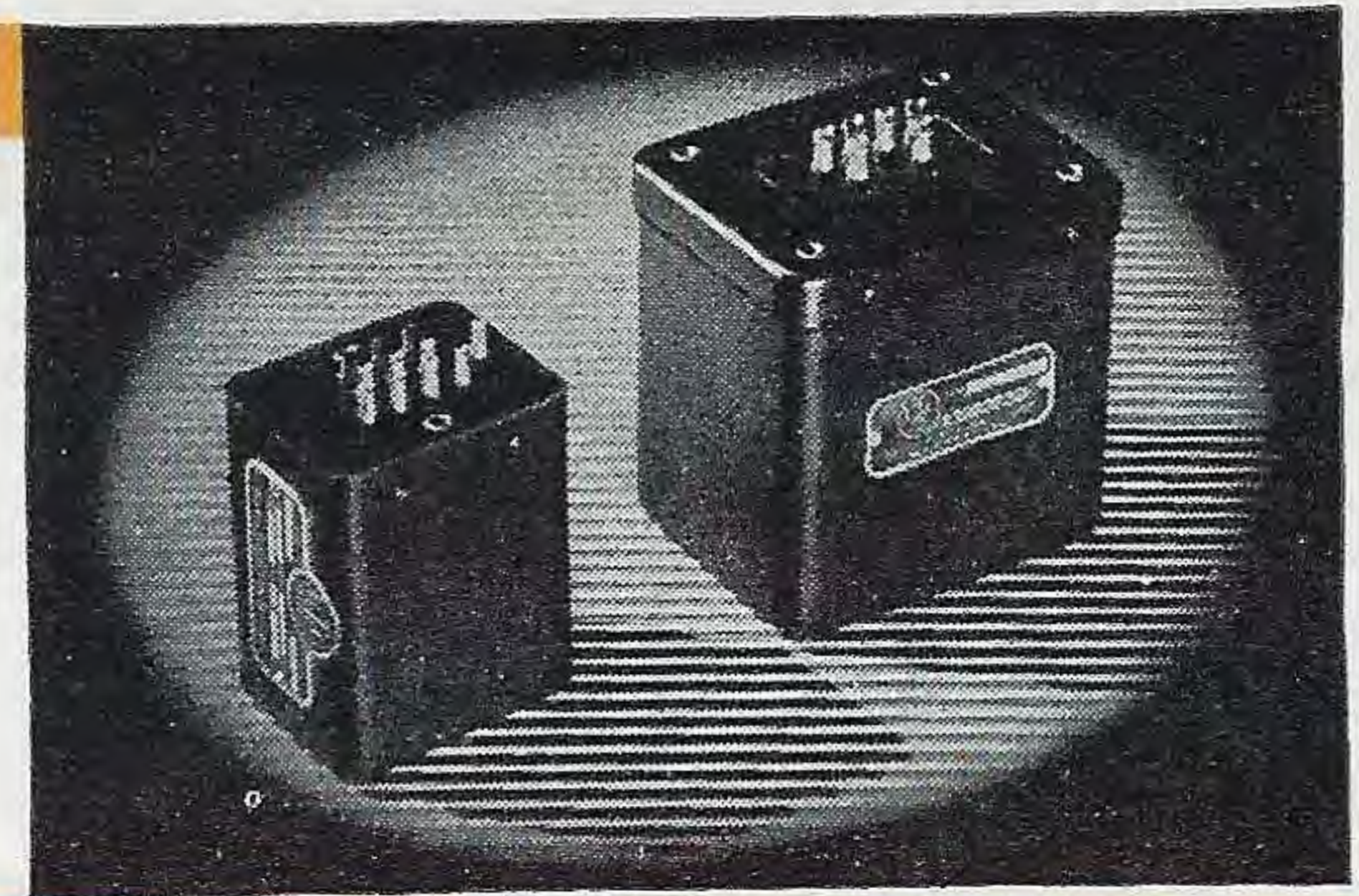
In high fidelity receivers some difficulty is encountered due to the 10KC beat frequency between the carriers of stations on adjacent channels. The 2K filter is designed to eliminate this one frequency without affecting the other high fidelity characteristics. H-1 case, Net **\$13**



UTC HIPERM ALLOY TRANSFORMERS

The UTC Hiperm Alloy audio and power transformers are specifically designed for portable and compact high fidelity service. The frequency characteristic of the Hiperm Alloy audio units is uniform from 30 to 20,000 cycles. The outer case is of high conductivity alloy finished in high polish black anodic. Through the use of tapped metallic inserts, these transformers can be mounted with the terminals either up or down, and with no waste space. A hum balanced coil structure is used on all audio units to insure minimum pickup. The electrostatic shields are brought out to separate terminals on the terminal strip.

The H-1 case units weigh $1\frac{3}{4}$ lbs. and are $2\frac{1}{8} \times 2\frac{3}{8} \times 3$ high with $1\frac{3}{8}$ mtg. centers. The H-2 case units weigh $2\frac{1}{4}$ lbs. and are $2\frac{7}{8} \times 3\frac{3}{8} \times 3\frac{3}{4}$ high with $2 \times 2\frac{3}{4}$ mtg. centers.



LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Case No. List Price
HA-100	Low impedance mike, pickup, or multiple line to grid	50, 125, 200, 250, 333, 500 ohms	60,000 ohms in two sections	H-1 \$12.50
HA-100X	Same as above but with tri-alloy internal shield to effect very low hum pickup			H-1 17.50
HA-101	Low impedance mike, pickup, or multiple line to push pull grids	50, 125, 200, 250, 333, 500 ohms	120,000 ohms overall, in two sections	H-1 15.00
HA-101X	Same as above but with tri-alloy internal shield to effect very low hum pickup			H-1 20.00
HA-103A	Low impedance mike, pickup, or parallel mixer to grid	2.5, 5.5, 10, 15, 22, 30, 38, 60 ohms	60,000 ohms in two sections	H-1 15.00
HA-108	Mixing, low impedance mike, pickup, or multiple line	50, 125, 200, 250, 333, 500 ohms	50, 125, 200, 250, 333, 500 ohms	H-1 12.50
HA-108X	Same as above but with tri-alloy internal shield to effect very low hum pickup			H-1 17.50
HA-130X	Three isolated lines or pads to one or two grids with tri-alloy internal shield	30, 50, 200, 250 ohms each primary	60,000 ohms overall, in two sections	H-1 20.00

PLATE, CRYSTAL AND PHOTOCELL TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Case No. List Price
HA-111	Crystal microphone or pickup, to multiple line	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	H-1 \$12.50
HA-112	Photocell, high-mu triode, diode or over-biased detector to multiple line	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	H-1 12.50
HA-113	Single plate to multiple line	8,000 to 15,000 ohms	50, 125, 200, 250, 333, 500 ohms	H-1 12.50
HA-114	Push pull low level plates to multiple line	8,000 to 15,000 ohms	50, 125, 200, 250, 333, 500 ohms	H-1 12.50

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	Case No. List Price
HA-104	Single plate to P.P. grids like 2A3, 59, 46, 6L6	8,000 to 15,000 ohms	95,000 ohms; turn ratio 1.25:1	H-1 \$13.00
HA-105	Single plate to single grid	8,000 to 15,000 ohms	60,000 ohms 2:1 turn ratio	H-1 9.00
HA-106	Single plate to push pull grids	8,000 to 15,000 ohms	135,000 ohms 1.5:1 ratio, each side	H-1 11.00
HA-107	Push pull plates to push pull grids	8,000 to 15,000 ohms	35,000 ohms each secondary 1.5:1 turn ratio overall	H-2 15.00

POWER TRANSFORMERS

Type No.	Primary Voltage 50/60 Cycles	High Voltage	Filament Windings	Case No. List Price
HP-122	115	220-0-220 15 MA	6.3 V.C.T.-.5A 6.3 V.C.T.-1.2A	H-1 \$10.00
HP-123	115	275-0-275 35 MA	6.3 V.C.T.-.5A 6.3 V.C.T.-2A	H-2 15.00

FILTER AND AUDIO CHOKES

Type	Inductance	DC Current	DC Resistance	Case No. List Price
HC-115	Series-400 hy Parallel-100 hy	2.5 MA 5 MA	7,000 ohms 1,750 ohms	H-1 \$8.50
HC-116	Series-600 hy Parallel-150 hy	8 MA 16 MA	4,000 ohms 1,000 ohms	H-2 15.00
HC-117	60 hy	15 MA	3,000 ohms	H-1 8.50
HC-127	60 hy	40 MA	1,000 ohms	H-2 15.00
HC-128	Series 50 Hy. Parallel 12.5 Hy.	50 MA 100 MA	500 125	H-2 8.50

UTC ULTRA COMPACT AUDIO UNITS

The UTC Ultra Compact audio units are small, light-weight units ideal for remote pickup and similar equipment. High fidelity is obtainable in all individual units, the frequency response being ± 2 DB from 30 to 20,000 cycles, except A-11, A-21, A-25 (50-10,000 cycles). All units employ true hum balancing coil structures, which combined with a high conductivity outer case, afford a maximum of inductive shielding.

Ultra Compact audio units weigh $5\frac{1}{2}$ ounces and have overall dimensions $1\frac{1}{16} \times 1\frac{1}{16} \times 1\frac{1}{8}$ inches. Mounting dimensions are $1\frac{1}{8}$ inches between centers, top and bottom.



Type No.	Application	Primary Impedance	Secondary Impedance	List Price
A-10	Low impedance mike, pickup, or multiple line to grid	50, 125, 200, 250, 333, 500 ohms	50,000 ohms	\$10.00
A-11	Line to grid, tri-alloy shielding for low pickup	50, 200, 500	50,000 ohms for 1 or 2 grids	10.00
A-12	Low impedance mike, pickup, or multiple line to push pull grids	50, 125, 250, 250, 333, 500 ohms	80,000 ohms overall, in two sections	10.00
A-14	Dynamic microphone to one or two grids	30 ohms	50,000 ohms overall, in two sections	9.00
A-16	Single plate to single grid	8,000 to 15,000 ohms	60,000 ohms, 2:1 turn ratio	8.00

Type No.	Application	Primary Impedance	Secondary Impedance	List Price
A-17	Single plate to single grid	As above, will carry 8 MA DC	60,000 ohms 2:1 turn ratio	\$11.00
A-18	Single plate to two grids	8,000 to 15,000 ohms	80,000 ohms overall, 2.3:1 turn ratio overall	9.00
A-19	Single plate to two grids	As above, will carry 8 MA DC	80,000 ohms 2.3:1 turn ratio	12.00
A-20	Mixing, low impedance mike, pickup, or multiple line to multiple line	50, 125, 200, 250, 333, 500 ohms	50, 125, 200, 250, 333, 500 ohms	10.00
A-21	Mixing, tri-alloy shielding for low pickup	50, 200, 500	50, 200, 500	10.00
A-24	Single plate to multiple line	8,000 to 15,000 ohms	50, 125, 200, 250, 333, 500 ohms	10.00
A-25	Single plate to multiple line	As above, will carry 8 MA DC	50, 125, 200, 250, 333, 500 ohms	9.00
A-26	Push pull low level plates to multiple line	8,000 to 15,000 ohms each side	50, 125, 200, 250, 333, 500 ohms	10.00
A-27	Crystal microphone to multiple line	100,000 ohms	50, 125, 200, 250, 333, 500 ohms	10.00
A-30	Audio choke, 300 henrys @ 2 MA 6000 ohms D.C., 75 henrys @ 4 MA 1500 ohms D.C., inductance with no D.C. 450 henrys			7.00

OUNCER HIGH FIDELITY AUDIO UNITS

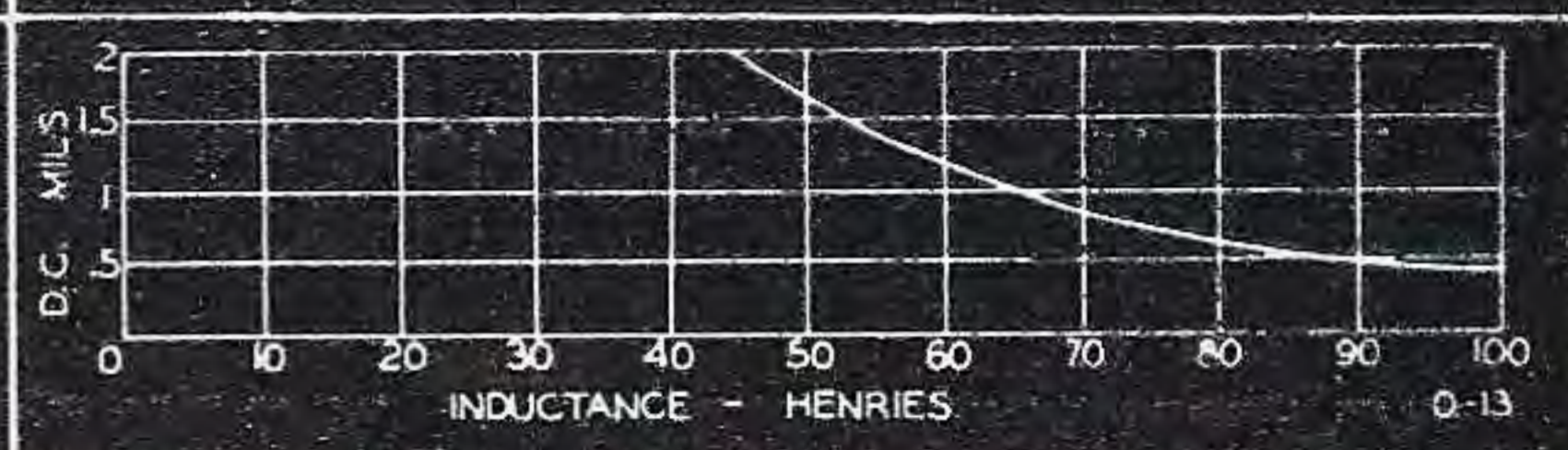
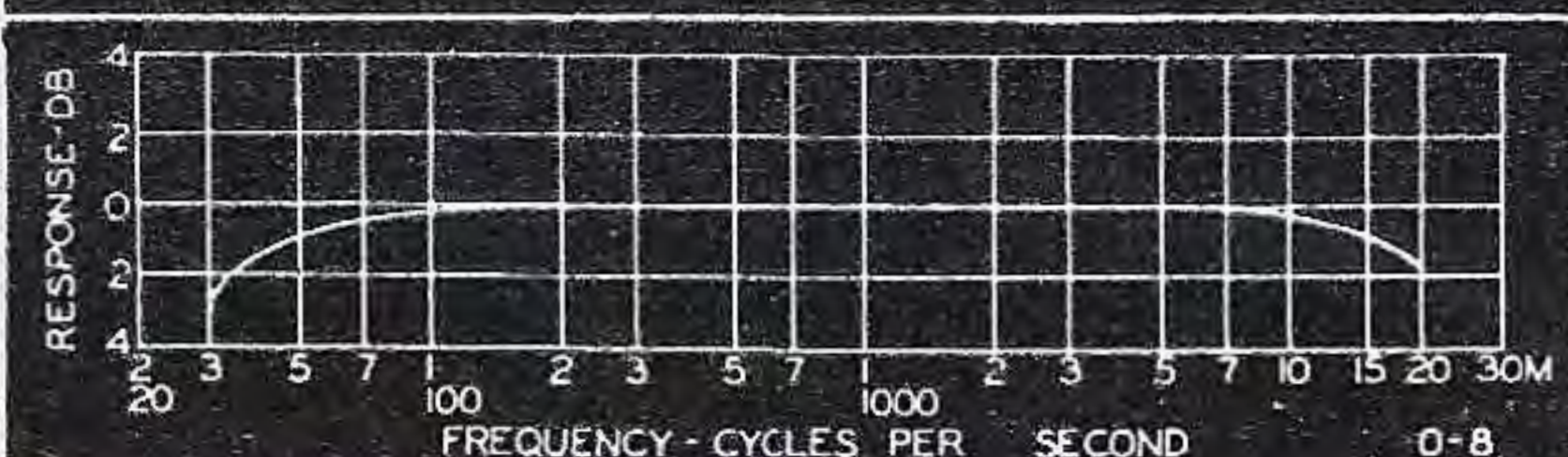
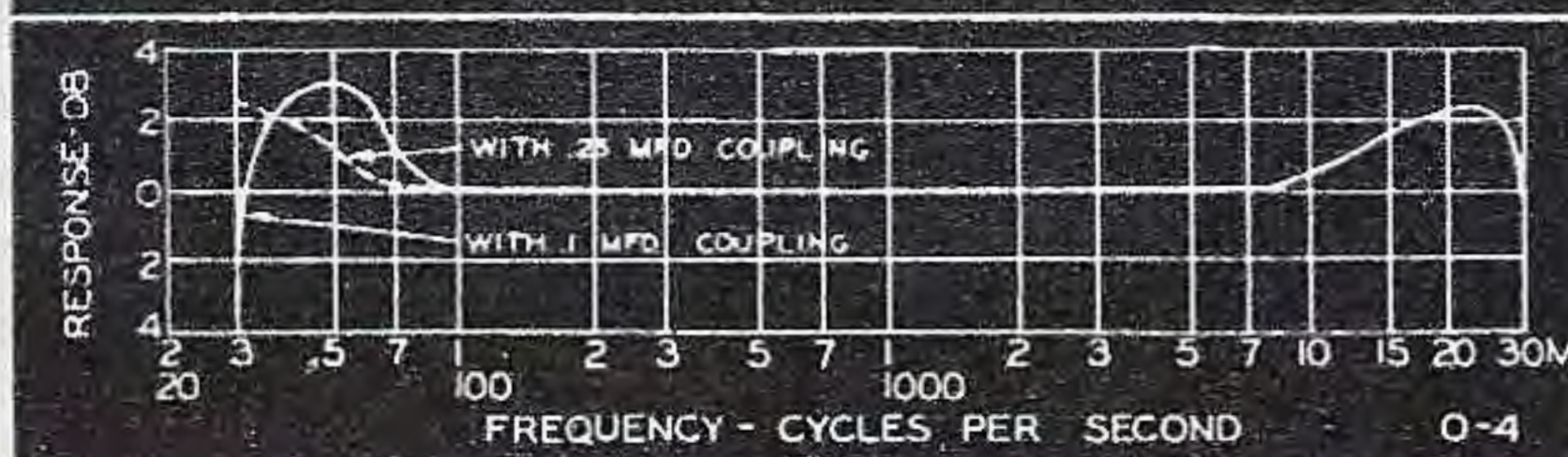
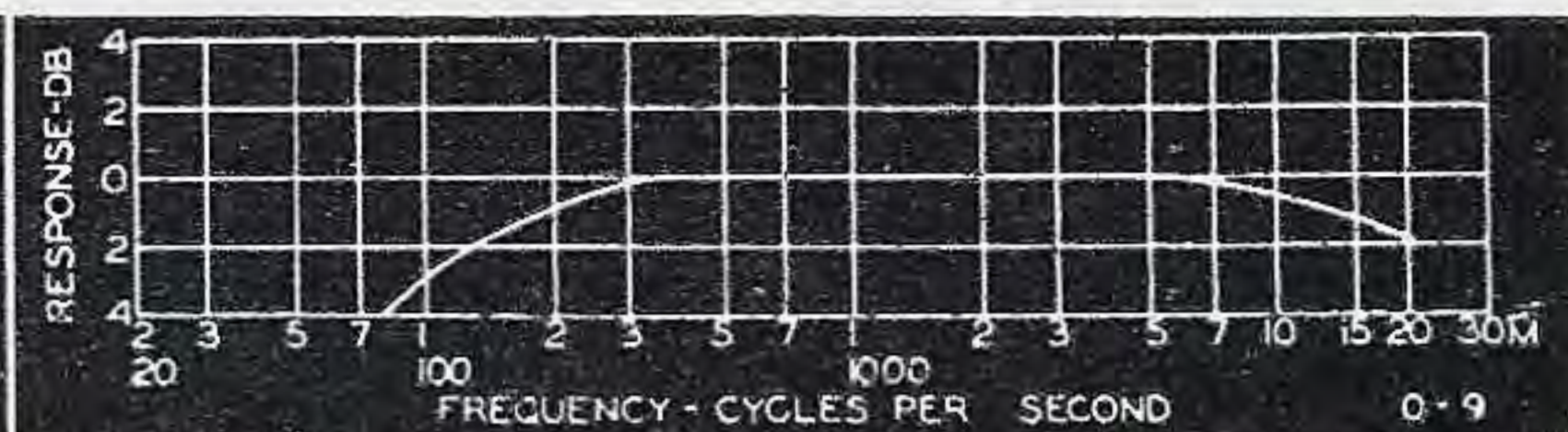
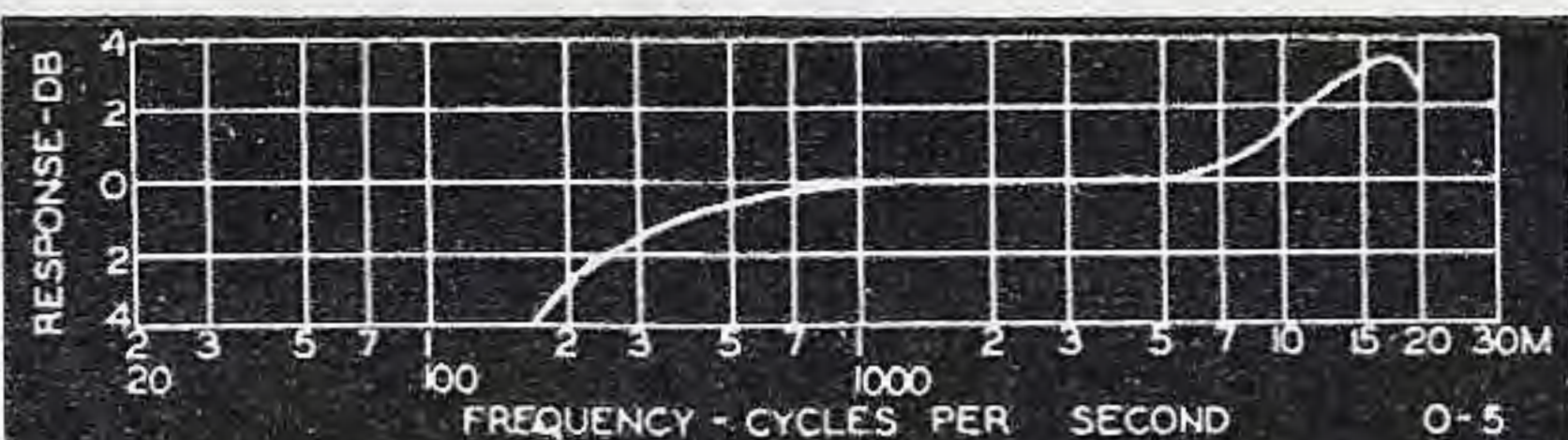
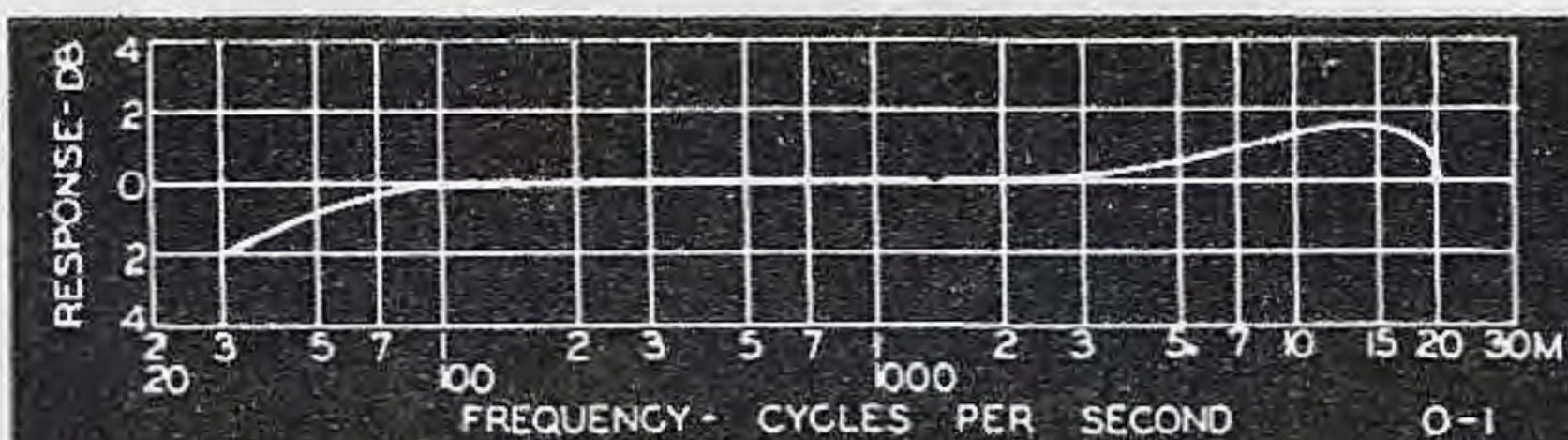
The new UTC OUNCER series represents the acme in compact quality transformer practice. These units are ideal for hearing aid, aircraft, glider, portable, concealed service, and similar applications. The overall dimensions are $\frac{7}{8}$ " diameter by $1\frac{3}{16}$ " height, including lugs. Mounting is effected by two screws, opposite the terminal board side, spaced $\frac{13}{16}$ ". Weight approximately one ounce. Units not carrying D.C. have high fidelity characteristics being uniform from 40 to 15,000 cycles. Items with D.C. in pri. and O-14 and O-15 are for voice frequencies from 150 to 4,000 cycles.



OUNCER HIGH FIDELITY AUDIO UNITS (MAX. LEVEL 0 DB)

200 ohm balanced winding may be used for 250 ohms.

Type No.	Application	Pri. Imp.	Sec. Imp.	List Price
O-1	Mike, pickup or line to 1 grid	50, 200, 500	50,000	\$10.00
O-2	Mike, pickup or line to 2 grids	50, 200, 500	50,000	10.00
O-3	Dynamic mike to 1 grid	7.5/30	50,000	9.00
O-4	Single plate to 1 grid	8,000 to 15,000	60,000	8.00
O-5	Single plate to 1 grid, D.C. in Pri.	8,000 to 15,000	60,000	8.00
O-6	Single plate to 2 grids	8,000 to 15,000	95,000	9.00
O-7	Single plate to 2 grids, D.C. in Pri.	8,000 to 15,000	95,000	9.00
O-8	Single plate to line	8,000 to 15,000	50, 200, 500	10.00
O-9	Single plate to line, D.C. in Pri.	8,000 to 15,000	50, 200, 500	10.00
O-10	Push pull plates to line	8,000 to 15,000 each side	50, 200, 500	10.00
O-11	Crystal mike or pickup to line	50,000	50, 200, 500	10.00
O-12	Mixing and matching	50,200	50, 200, 500	9.00
O-13	Reactor, 200 Hys.—no D.C.; 50 Hys.—2 M.A. D.C., 6,000 ohms			7.00
O-14	50:1 mike or line to 1 grid	200	$\frac{1}{2}$ megohm	10.00
O-15	10:1 single plate to 1 grid	8,000 to 15,000	1 megohm	10.00



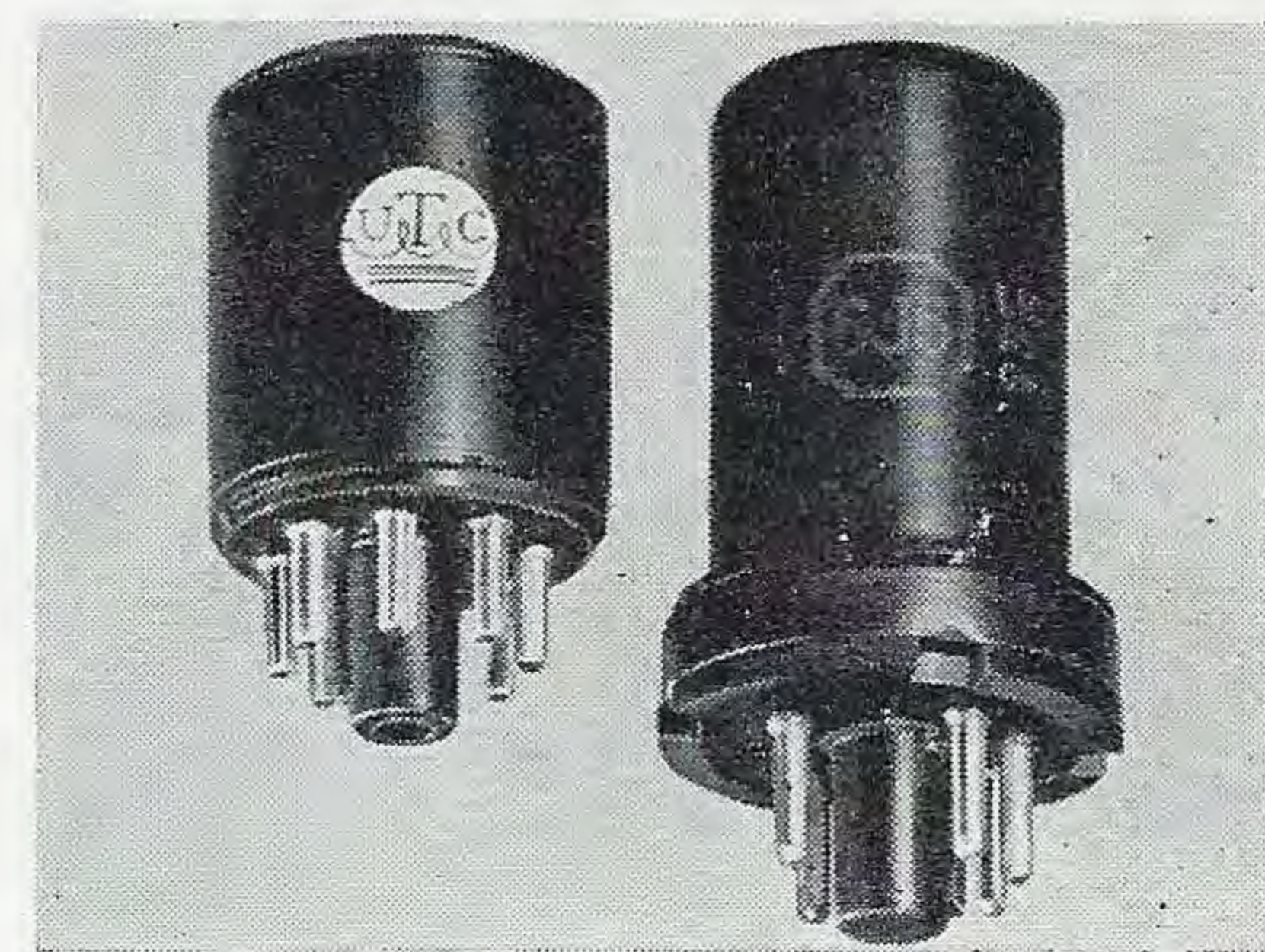
PLUG-IN HIGH FIDELITY AUDIO UNITS

UTC has been producing plug-in transformers for audio service for the past three years. The new "P" series is the final culmination of this development. These units have identical characteristics to the popular UTC Ouncer transformers, and weigh only two ounces. Units not carrying D.C. have high fidelity characteristics, being uniform from 40 to 15,000 cycles. Items with D.C. in pri. and O-14 and O-15 are for voice frequencies from 150 to 4,000 cycles. They are of submersion proof design and fit standard octal sockets. The low weight and over-size pins used make it impossible to dislodge these units from their sockets, even when used upside down in portable equipment. Overall dimensions are $1\frac{1}{8}$ " diameter . . . height exclusive of terminals — $1\frac{1}{2}$ ".

PLUG-IN HIGH FIDELITY AUDIO UNITS (MAX. LEVEL 0 DB)

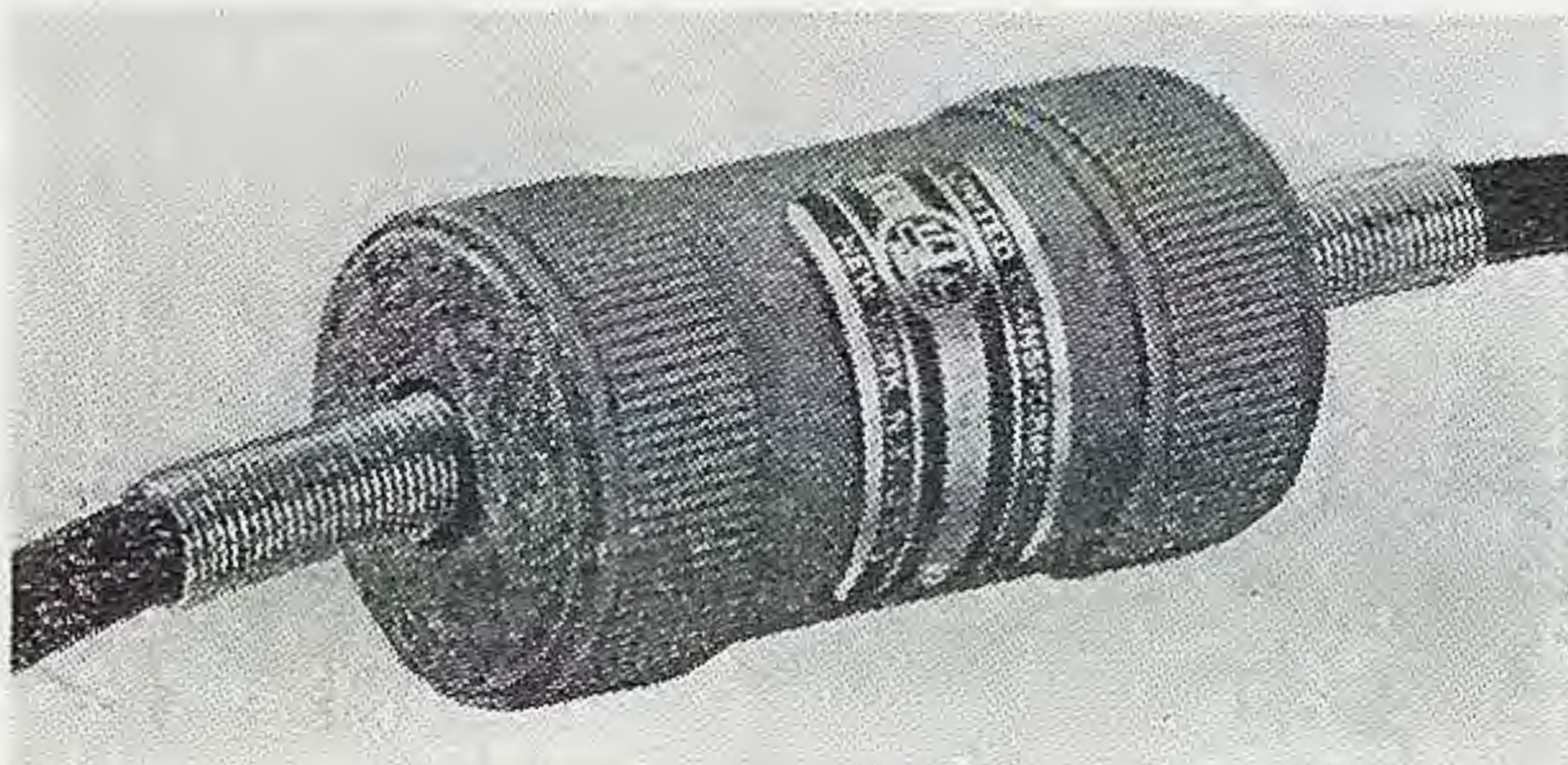
200 ohm balanced winding may be used for 250 ohms.

Type No.	Application	Pri. Imp.	Sec. Imp.	List Price
P-1	Mike, pickup or line to 1 grid	50, 200, 500	50,000	\$11.00
P-2	Mike, pickup or line to 2 grids	50, 200, 500	50,000	11.00
P-3	Dynamic mike to 1 grid	7.5/30	50,000	10.00
P-4	Single plate to 1 grid	8,000 to 15,000	60,000	9.00
P-5	Single plate to 1 grid, D.C. in Pri.	8,000 to 15,000	60,000	9.00
P-6	Single plate to 2 grids	8,000 to 15,000	95,000	10.00
P-7	Single plate to 2 grids, D.C. in Pri.	8,000 to 15,000	95,000	10.00
P-8	Single plate to line	8,000 to 15,000	50, 200, 500	11.00
P-9	Single plate to line, D.C. in Pri.	8,000 to 15,000	50, 200, 500	11.00
P-10	Push pull plates to line	8,000 to 15,000	50, 200, 500	11.00
P-11	Crystal mike or pickup to line	each side	50, 200, 500	11.00
P-12	Mixing and matching	50,000	50, 200, 500	10.00
P-13	Reactor, 200 Hys.—no D.C.; 50 Hys.—2 M.A. D.C., 6,000 ohms	50,200	50, 200, 500	8.00
P-14	50:1 mike or line to 1 grid	200	$\frac{1}{2}$ megohm	11.00
P-15	10:1 single plate to 1 grid	8,000 to 15,000	1 megohm	11.00



UTC MICROPHONE CABLE TRANSFORMERS

The UTC cable transformers are designed to be inserted in the cable circuit, and are ruggedly constructed to withstand mechanical abuse. The cable connections (supplied less cable) are made through the spring strain relief to terminal boards inside the end caps. These units may be located any place on the cable within twenty-five feet of the amplifier. $1\frac{1}{2}$ " diameter . . . $2\frac{1}{2}$ " long . . . 1 lb.



Type MC-1—primary tapped 30/50 and 200/250 ohms, secondary to grid, standard fidelity	List \$7.50
Type MC-2—primary tapped 30/50 and 200/250 ohms, secondary to grid, high fidelity	List 10.00
Type MC-3—crystal microphone to 50/200 ohm line	List 10.00



AUTOMATIC VOLTAGE REGULATORS

95 - 130 Volts Input 110, 115, 120 Volts output; 1% accuracy

The UTC automatic voltage regulator is **new**. It involves no moving parts and effects instantaneous correction for either transient or chronic line voltage fluctuations. This unit has innumerable applications in broadcast apparatus, laboratory equipment, etc. Automatically stabilized line voltage takes all the kinks out of duplicating results at different occasions, whether used on a radio production line or for correct colour in colour photography.

FEATURES

- **CONSTANT OUTPUT VOLTAGE**
independent of transients or continuous variations in line voltage.
- **ACCURACY 1%**
in output voltage for an input range of **95 to 130 volts**.
- **INDEPENDENT OF LOAD**
negligible variation in output voltage from **no load to full load**.
- **NO MOVING PARTS**
this new UTC design (patent pending) requires no maintenance . . . assures permanent dependability.
- **110-115-120 VOLT OUTPUT**
available at the triple outlet receptacle.
- **HIGH EFFICIENCY**
comparable to a standard non-regulating transformer.
- **HIGH POWER FACTOR**
better than 90% on typical unit.
- **LOW DISTORTION**
Distortion is unusually low in these units . . . less than 20% for **all** harmonics in typical unit.
- **NEGLIGIBLE TIME CONSTANT**
- **LOW TEMPERATURE RISE**
55° C. on typical unit.



AUTOMATIC VOLTAGE REGULATORS Provide Constant Output Voltage For:

LABORATORY APPARATUS	PRODUCTION TESTING
PHOTOGRAPHY LIGHTING	ELECTRONIC
EXCITER LAMPS	INSTRUMENTS
AUDIO AMPLIFIERS	TELEVISION EQUIPMENT
COLOR MATCHING UNITS	RECORDING UNITS
POWER SUPPLIES	PHOTO ENGRAVING
COLOUR PHOTOGRAPHY	TELEPHONE SYSTEMS
CONSTANT SPEED	INDUSTRIAL RESEARCH
MOTORS	TEMPERATURE CONTROL
METER CALIBRATION	RADIO TRANSMITTERS

Type No.	Capacity VA	Primary Volts 60 Cycles	Secondary Volts $\pm 1\%$	Approx. Wgt. Lbs.	Net Price
AR-1	15	95-130	110, 115, 120	8	\$12.00
AR-2	30	95-130	110, 115, 120	10	15.00
AR-3	60	95-130	110, 115, 120	12	21.00
AR-4	120	95-130	110, 115, 120	18	28.00
AR-5	250	95-130	110, 115, 120	22	46.00
AR-6	500	95-130	110, 115, 120	36	67.00
AR-7	1000	95-130	110, 115, 120	60	110.00
AR-8	2000	95-130	110, 115, 120	120	200.00

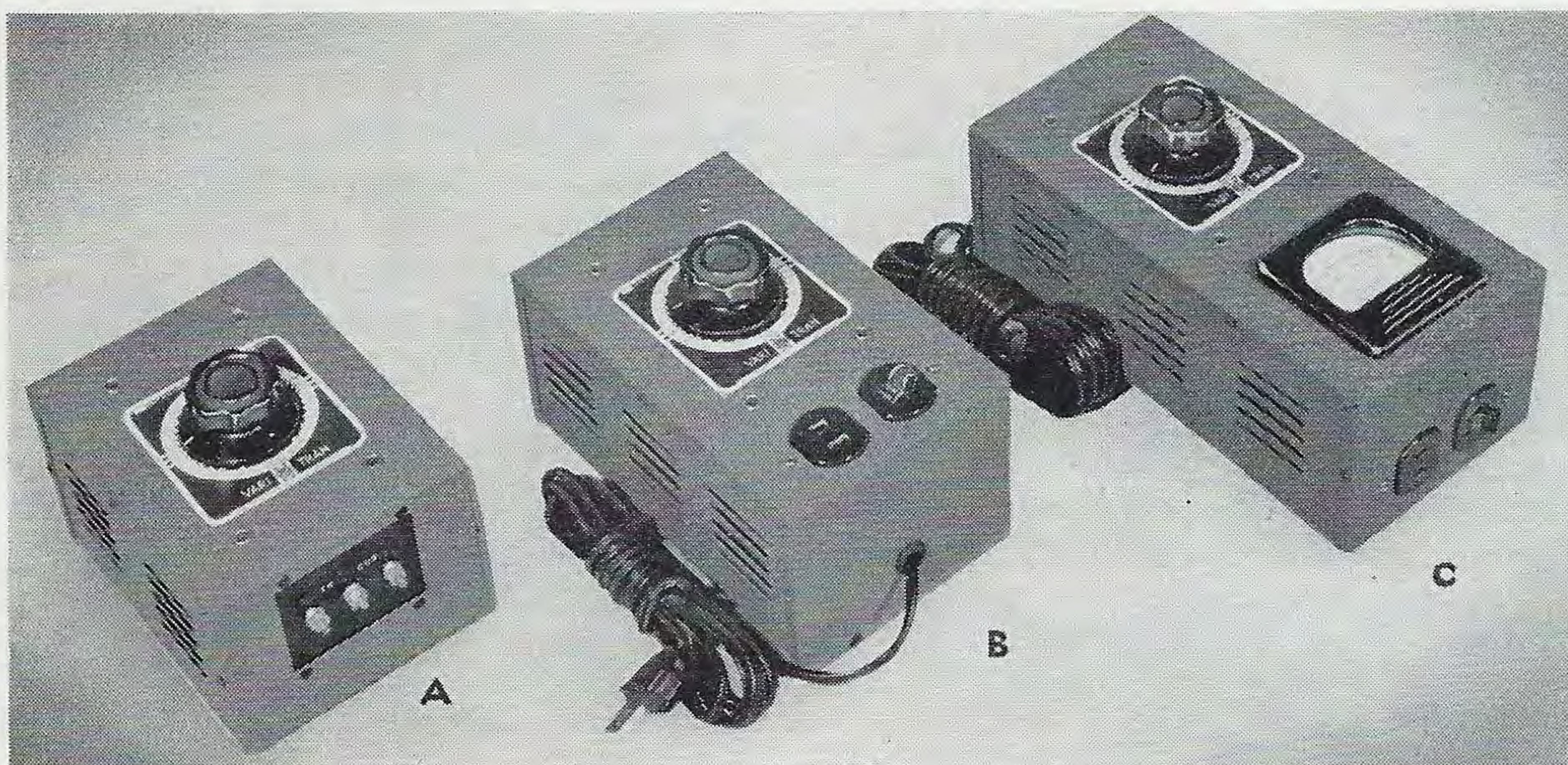
Designs for 220 volt service available at 25% increase in price, for 50 cycle units increase price 25%; for 42 cycles, 35% increase; for 25 cycles, increase price 100%. Special secondary voltages available to customers' specifications at small increase in price.

UTC VARITRAN CONTROL UNITS

For controlling: Rectifier output . . . motors . . . heaters . . . lights . . . line voltage

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. The output voltage is independent of load. In addition to its many laboratory uses, the varitran is widely employed for controlling electric ovens, fans, soldering irons, furnaces and heaters, for photographic and enlarging lighting control, for life tests of lamps and for dimming illumination.



VARITRAN RATINGS

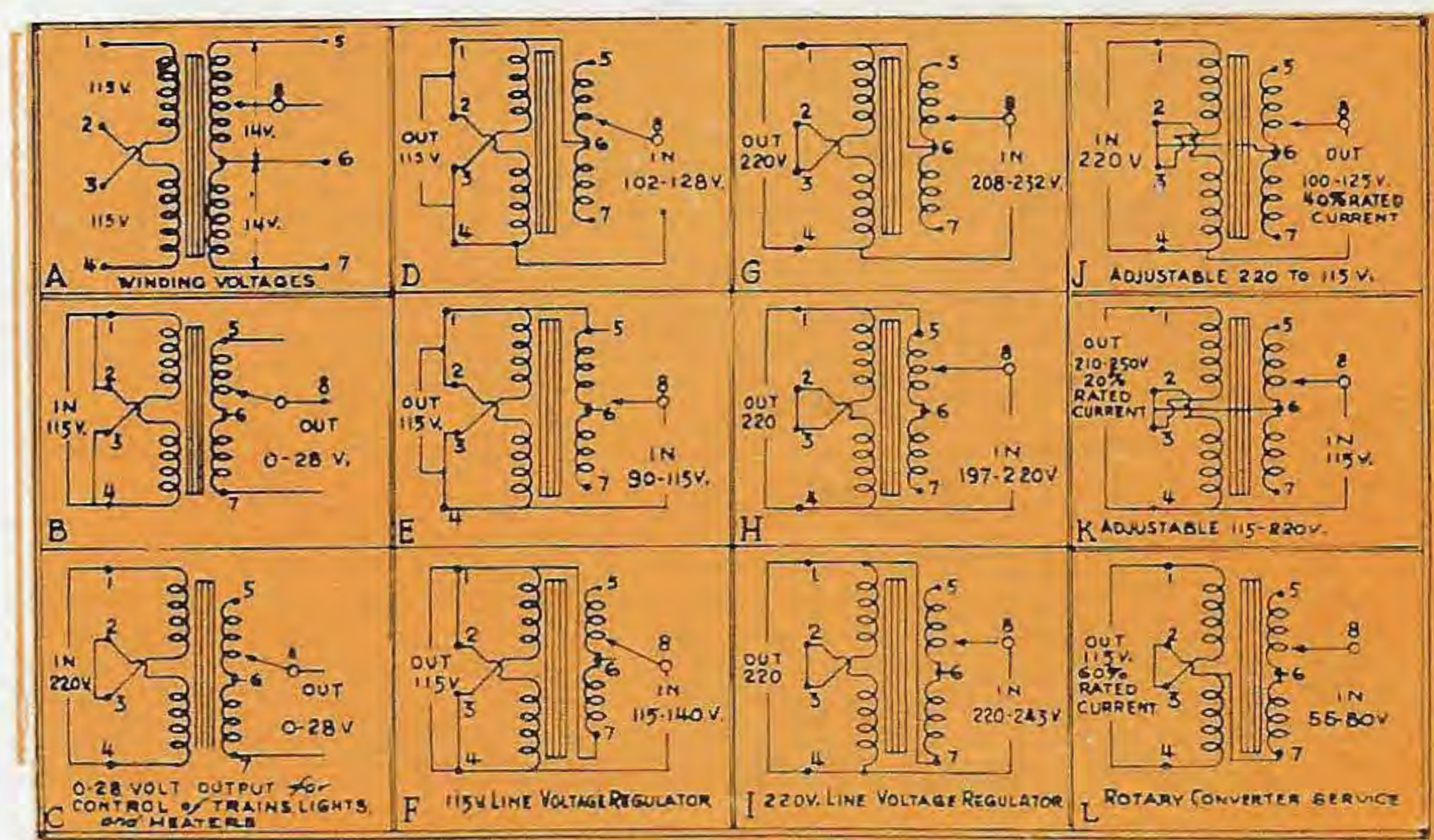
Standard Varitrans are designed for 115 or 230 volt service. The respective output voltages are 0-130 and 0-260 volts. The Varitran autotransformer current and wattage rating is based at 115 volts. As the voltage is reduced, the wattage output is reduced correspondingly. The maximum current can be taken at any point from 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	4½ x 6½ x 4	8	\$7.50
V-0-B	230 volts	0-260	230	1	A	4½ x 6½ x 4¾	10	9.50
V-1	115 volts	0-130	570	5	B	5 x 8½ x 3½	11	10.00
V-1-M	115 volts	0-130	570	5	C	5 x 10½ x 3½	12	15.00
V-2	115 volts	0-130	570	5	A	5 x 7 x 3½	11	9.00
V-2-B	230 volts	0-260	570	2.5	A	5 x 7 x 4½	14	11.50
V-3	115 volts	0-130	850	7.5	A	5 x 7 x 4½	14	14.00
V-3-B	230 volts	0-260	850	3.75	A	5 x 7 x 5½	18	18.00
V-4	115 volts	0-130	1250	11	A	6½ x 11 x 6½	32	20.00
V-4-B	230 volts	0-260	1250	5.5	A	6½ x 11 x 6½	38	25.00
V-5	115 volts	0-130	1950	17	A	6½ x 11 x 7½	45	32.00
V-5-B	230 volts	0-260	1950	8.5	A	6½ x 11 x 9	56	37.00
V-6	115 volts	0-130	3500	30	A	9 x 18 x 9	90	60.00
V-6-B	230 volts	0-260	3500	15	A	9 x 18 x 9	90	70.00
V-7	115 volts	0-130	5000	44	A	9 x 20 x 9	120	87.00
V-7-B	230 volts	0-260	5000	22	A	9 x 20 x 9	120	95.00

UNIVERSAL VARITRANS

These varitrans have a 115/230 V. primary winding and a smoothly variable secondary from 0-28 volts. Line voltage control can be effected for 102/140 V. or 197/243 volts to 115 V. or 220 volts respectively. The 28 volt secondary can also be used for low voltage lights, cauteries, trains, rectifiers, etc. The primary and secondary windings can be arranged to effect variable 220/115 or 115/220 volt arrangements. Appearance as in Fig. A above.

Type	Max. Amps. Output	Approx. Dimensions	Approx. Weight, Lbs.	Net Price
VL-0	1.5	4½ x 6½ x 2½	5	5.50
VL-1	3.5	4½ x 6½ x 3	7	6.50
VL-2	6	4½ x 6½ x 4	10	8.00
VL-3	11	5 x 7 x 5	15	13.00



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 Lbs.
Case	L	W	H	L	W	
PA-1	2½	3	3	1⅜	...	2
PA-2	3⅛	4½	4½	1⅝	3⅛	5
PA-3	3¾	4⅞	4¼	1⅞	3⅞	10
PA-4	6	4⅞	6	3¾	5¼	18
CA-1	7¾	9	5½	...	...	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

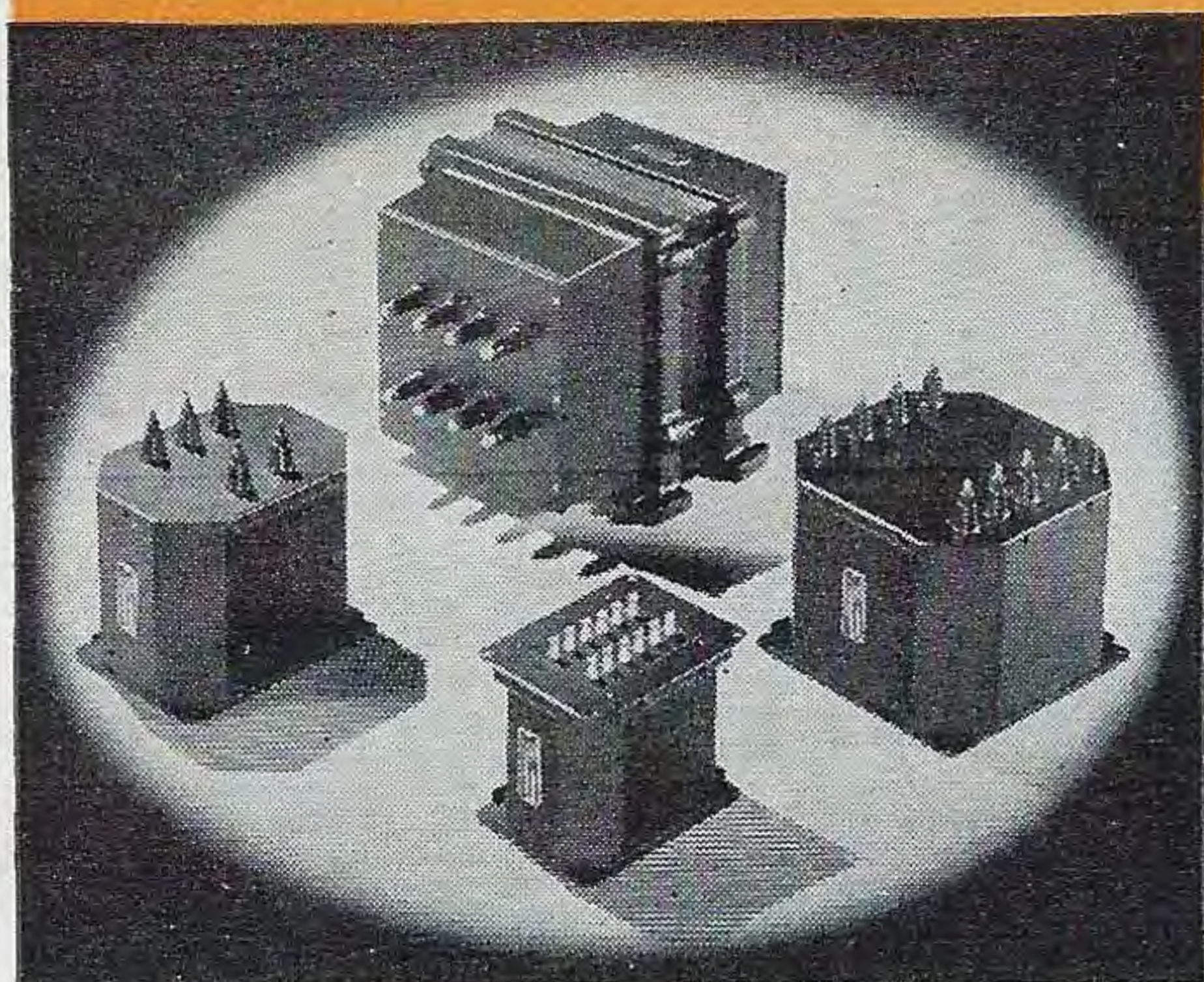
Type No.	Imped. P.P. Ohms	Typical Tubes	Case	List Price
PA-15	8,000	45's, 50's, 6F6 triodes	PA-2	\$7.00
PA-16	3,000/5,000	2A3's, 6A5G's	PA-2	7.00
PA-19	6,000/10,000	6B5, 6A6, 6F6, 89, 46	PA-2	7.00
PA-710	14,000/20,000	10's, 47's, 2A5 pentodes	PA-2	7.00
PA-2L6	6,600	6L6's self bias	PA-3	10.00
PA-4L6	3,300/3,800	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	435-365-0 365-435 125-0-125	125 25	5V-3A	5V-2A	6.3 VCT-3A	2.5 VCT-5A	PA-3 10.00
PA-428	500-0-500 80-0-80	250 100	5V-3A	5V-2A	6.3 VCT-4A	*6.3 VCT-3A 2.5 VCT-3A	PA-4 14.00
PA-429	600-525-0- 525-600	250	5V-3A	6.3 VCT-3-A	*7.5 VCT-3A 6.3 VCT-3A		PA-4 15.00
PA-431	500-400-0- 400-500 80-0-80	500 100	5V-3A	5V-2A	6.3 VCT-5A	6.3 VCT-3A	CA-1 22.50
PA-432	300-0-300	50	5V-2A	6.3V-2A			PA-2 7.00

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.

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 2½ 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.

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	7½	5½	32	\$25.00
PA-304	1500-1235-0-1235-1500	1250/1000	800	14	11	9¼	118	65.00
PA-305	2400-1750-0-1750-2400	2000/1500	300	10	7½	5½	50	35.00
PA-306	2400-1750-0-1750-2400	2000/1500	500	14	11	9¼	120	65.00
PA-307	3500-3000-2400-0-2400-3000-3500	3000/2500/2000	300	13	11	9¼	110	60.00
PA-308	3500-3000-2400-0-2400-3000-3500	3000/2500/2000	500	15	11	9¼	140	85.00
PA-309	3500-3000-2400-0-2400-3000-3500	3000/2500/2000	1000	17	14	11¼	210	135.00
PA-310	4600-4050-3500-0-3500-4050-4600	4000/3500/3000	600	15	14	11¼	168	105.00
PA-311	1500-1235-0-1235-1500	1250/1000	500	10	7½	5½	50	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

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 2½% 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	4¾ x 3¼ x 3½	6	\$6.00
VA-2	250	4¾ x 4¼ x 3½	9	7.50
VA-3	500	5½ x 4½ x 4	11	10.00
VA-4	1000	5½ x 6 x 4	19	15.00
VA-5	2000	7 x 6 x 5¼	25	20.00

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

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	2½	10	2500	6000	PA-2	\$7.50
PA-120	2½	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 14/11/10	10 10	1500	4000	PA-4	20.00

VARIMATCH TRANSFORMERS

The ever increasing number of vacuum tubes available for audio and RF applications has increased the difficulty of obtaining transformers suitable for matching to the various correct tube loads. If a standard transformer having a limited impedance range is purchased and used for a specific purpose as the "nearest thing" available, comparatively high distortion is inevitable. As a solution to these problems, UTC has developed the Varimatch transformer, which through proper design permits a very wide range of impedance matching. Varimatch units are available for modulator service, PA service, and driver service.

TRANSFORMERS FOR MODULATION SERVICE

The turns ratio of a transformer definitely limits its application. This is an important factor in modulator work as the number of combinations of modulator tubes and operating conditions available, and class C combinations possible, is almost unlimited. Standard transformers as made in the past will generally take care of only one combination of modulator and final stage, and since only a limited number of these transformers have been available, the amateur frequently found it necessary to use a transformer which was "the nearest thing" to the actual transformer required for the particular application. While a 20% mismatch caused by such an occurrence does not represent a serious loss in power, it greatly reduces the undistorted power available from a class B modulator because optimum plate load is not reflected to the tubes. The UTC Varimatch transformer eliminates this difficulty through the use of a combination of tapped windings affording an extremely wide range in impedance matching.

VARIMATCH MODULATION TRANSFORMERS

Will match any modulator tube to any RF load
The VARIMATCH transformer can never become obsolete. All units carry class C current.

Type No.	Max. Audio Watts	Max. Class C Input	Typical Modulator Tubes	Case	List Price
VM-0	12	25	30, 49, 79, 6A6, 53, 2A3, 6B5	PA-1	\$5.00
VM-1	30	60	6V6, 6B5, 2A3, 42, 46, 6L6, 210	PA-2	8.00
VM-2	60	125	801, 6L6, 809, 4-46, T-20, 1608	PA-3	12.50
VM-3	125	250	800, 807, 845, TZ-20, RK-30, 35-T	PA-4	20.00
VM-4	300	600	50-T, 203A, 805, 838, T-55, ZB-120	CA-1	32.50
VM-5	600	1200	805, HF-300, 204A, HK-354, 250TH	CA-2	70.00

VARIMATCH DRIVER TRANSFORMERS

Type No.	Primary	Typical Output Tubes	Case No. List Price
PA-51AX	All single tubes like: 6C5, 30, 49, 53, 79, 89, 6A6, 45, 46, 2A3	19, 30, 49, 79, 89, 2A3, 45, 46, 6L6, 42, 59	PA-1 \$5.50
PA-53AX	P. P. tube like: 45, 59, 2A3, 6B5, 6L6	46, 4-46, 841, 210, 801, RK-18, 800, 203A, 838, 805, 50T, 830B	PA-2 7.50
PA-59AX	50, 200, 500 ohm line	805, 838, 203A, ZB-120, 100TH, 800, 55T, RK-18	PA-2 7.50
PA-238AX	4-2A3, 4-45, 4-50, 2-211A, 2-845	4-805's, 4-838's, 4-203A's, 2-204's, 2-849's, 2-HF300's, 2-HF200's, 2-250TH's, 2-450TH's	PA-3 17.50
PA-512	50, 200, 500 ohm line	2-250TH, 2-450TH, 2-HF200, 2-HF300, 2-204A, 2-849	PA-3 20.00

TERMINAL ARRANGEMENT—VM-0 to VM-5 Inclusive

PRIMARY		SECONDARY												
P to P Imp	P-B-B-P	Join 9 & 10 Con. to 7 & 12	Join 9 & 10 Con. to 8 & 12	Join 9 & 10 Con. to 8 & 11	Join 8 & 9 Con. to 7 & 12	Join 7 & 9 10 & 12 Con. to 7 & 10	Join 8 & 9 10 & 11 Con. to 8 & 10	Join 3 & 4 Con. to 1 & 6	Join 3 & 4 Con. to 2 & 6	Join 2 & 3 Con. to 1 & 6	Join 3 & 4 Con. to 2 & 5	Join 1 & 3 4 & 6 Con. to 1 & 4	Join 7 & 11 8 & 12 Con. to 7 & 8	Join 1 & 5 2 & 6 Con. to 1 & 2
Line to RF	500 ohms connected to 7 and 8, join 7 to 11 and 8 to 12							15000	9300	7700	5000	3700		
Line to RF	500 ohms con- nected to 1 and 2, join 1 to 5 and 2 to 6	16.000	11.000	8000	6800	4000	2000							
2000	2-3-4-5	8600	6350	4300	3620	2150	1070						200	
2000	1-2-5-6	15.700	11.400	7900	6550	3920	1950						350	
3000	2-3-4-5	13.000	9400	6500	5500	3240	1620						300	
3000	1-2-5-6	23.500	17.000	11.800	10.000	5900	2950						520	
3800	2-3-4-5	16.400	12.000	8200	7000	4100	2050						380	
3800	1-2-5-6	29.800	21.500	15.000	12.600	7500	3740						660	
4000	2-3-4-5	17.400	12.500	8650	7300	4300	2160						400	
4000	8-9-10-11							5500	3450	2850	1850	1380		250
5000	2-3-4-5	21.600	15.700	10.800	9150	5400	2700						500	
5000	8-9-10-11							7000	4300	3500	2300	1730		300
6000	1-3-4-6	8600	6350	4300	3620	2140	1070						200	
6000	8-9-10-11							8300	5150	4250	2750	2180		370
6600	1-3-4-6	9500	7000	4750	4000	2350	1180						220	
6600	8-9-10-11							9100	5650	4660	3000	2400		405
7000	1-3-4-6	10.000	7300	5050	4280	2500	1250						230	
7000	8-9-10-11							9700	6000	5000	3200	2400		430
8000	1-3-4-6	12.000	8400	5800	4900	2900	1440						270	
8000	8-9-10-11							11000	6900	5650	3700	2760		500
9000	1-3-4-6	13.000	9400	6500	5500	3240	1620						300	
9000	8-9-10-11							12500	7750	6300	4150	3100		550
9000	7-9-10-12							6200	3900	3200	2050	1550		275
10000	1-3-4-6	14.400	10,500	7200	6100	3600	1800						330	
10000	8-9-10-11							14000	8600	7100	4600	3450		600
10000	7-9-10-12							6900	4300	3500	2300	1740		310
12000	1-3-4-6	17.400	12.500	8700	7250	4320	2150						400	
12000	7-9-10-12							8300	5150	4250	2750	2070		370
14000	7-9-10-12							9700	6000	4900	3200	2440		430
16000	7-9-10-12							11000	6900	5600	3700	2780		500
18000	7-9-10-12							12500	7750	6300	4150	3140		550
ADDED VALUES FOR VM4 AND VM5														
14000	13-3-4-14	11.600	8100	5600	4720	2800	1400						260	
16000	13-3-4-14	13.200	9300	6400	5400	3200	1600						300	
18000	13-3-4-14	15.000	10.400	7200	6100	3600	1800						340	
20000	13-3-4-14	16.700	11.600	8000	6800	4000	2000						375	
22000	13-3-4-14	18.300	12.800	8800	7500	4400	2200						410	
P to P Imp.	P-B-B-P	Join 3 & 4 Con. to 13 & 14	Join 3 & 4 Con. to 1 & 14	Join 4 & 6 Con. to 13 & 14	Join 3 & 4 Con. to 13 & 5	Join 2 & 3 Con. to 13 & 14	Join 3 & 13 4 & 14 Con. to 4 & 13	Join 1 & 5 2 & 6 Con. to 1 & 2						
14000	7-9-10-12	17.600	13.500	7000	9000	10.800	4400	430						
16000	7-9-10-12	20.000	15.500	8000	10.300	12.400	5050	500						
18000	7-9-10-12	22.400	17.400	9000	11.500	13.900	5650	550						

VARIMATCH TRANSFORMERS

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Type No.	Max. Audio Watts	Max. Class C Input	Typical Modulator Tubes	Case	List Price
VM-0	12	25	30, 49, 79, 6A6, 53, 2A3, 6B5	PA-1	\$5.00
VM-1	30	60	6V6, 6B5, 2A3, 42, 46, 6L6, 210	PA-2	8.00
VM-2	60	125	801, 6L6, 809, 4-46, T-20, 1608	PA-3	12.50
VM-3	125	250	800, 807, 845, TZ-20, RK-30, 35-T	PA-4	20.00
VM-4	300	600	50-T, 203A, 805, 838, T-55, ZB-120	CA-1	32.50
VM-5	600	1200	805, HF-300, 204A, HK-354, 250TH	CA-2	70.00

VARIMATCH DRIVER TRANSFORMERS

Type No.	Primary	Typical Output Tubes	Case No. List Price
PA-51AX	All single tubes like: 6C5, 30, 49, 53, 79, 89, 6A6, 45, 46, 2A3	19, 30, 49, 79, 89, 2A3, 45, 46, 6L6, 42, 59	PA-1 \$5.50
PA-53AX	P. P. tube like: 45, 59, 2A3, 6B5, 6L6	46, 4-46, 841, 210, 801, RK-18, 800, 203A, 838, 805, 50T, 830B	PA-2 7.50
PA-59AX	50, 200, 500 ohm line	805, 838, 203A, ZB-120, 100TH, 800, 55T, RK-18	PA-2 7.50
PA-238AX	4-2A3, 4-45, 4-50, 2-211A, 2-845	4-805's, 4-838's, 4-203A's, 2-204's, 2-849's, 2-HF300's, 2-HF200's, 2-250TH's, 2-450TH's	PA-3 17.50
PA-512	50, 200, 500 ohm line	2-250TH, 2-450TH, 2-HF200, 2-HF300, 2-204A, 2-849	PA-3 20.00

TERMINAL ARRANGEMENT—VM-0 to VM-5 Inclusive

PRIMARY		SECONDARY												
P to P Imp	P-B-B-P	Join 9 & 10 Con. to 7 & 12	Join 9 & 10 Con. to 8 & 12	Join 9 & 10 Con. to 8 & 11	Join 8 & 9 Con. to 7 & 12	Join 7 & 9 10 & 12 Con. to 7 & 10	Join 8 & 9 10 & 11 Con. to 8 & 10	Join 3 & 4 Con. to 1 & 6	Join 3 & 4 Con. to 2 & 6	Join 2 & 3 Con. to 1 & 6	Join 3 & 4 Con. to 2 & 5	Join 1 & 3 4 & 6 Con. to 1 & 4	Join 7 & 11 8 & 12 Con. to 7 & 8	Join 1 & 5 2 & 6 Con. to 1 & 2
Line to RF	500 ohms connected to 7 and 8, join 7 to 11 and 8 to 12							15000	9300	7700	5000	3700		
Line to RF	500 ohms con- nected to 1 and 2, join 1 to 5 and 2 to 6	16.000	11.000	8000	6800	4000	2000							
2000	2-3-4-5	8600	6350	4300	3620	2150	1070						200	
2000	1-2-5-6	15.700	11.400	7900	6550	3920	1950						350	
3000	2-3-4-5	13.000	9400	6500	5500	3240	1620						300	
3000	1-2-5-6	23.500	17.000	11.800	10.000	5900	2950						520	
3800	2-3-4-5	16.400	12.000	8200	7000	4100	2050						380	
3800	1-2-5-6	29.800	21.500	15.000	12.600	7500	3740						660	
4000	2-3-4-5	17.400	12.500	8650	7300	4300	2160						400	
4000	8-9-10-11							5500	3450	2850	1850	1380		250
5000	2-3-4-5	21.600	15.700	10.800	9150	5400	2700						500	
5000	8-9-10-11							7000	4300	3500	2300	1730		300
6000	1-3-4-6	8600	6350	4300	3620	2140	1070						200	
6000	8-9-10-11							8300	5150	4250	2750	2180		370
6600	1-3-4-6	9500	7000	4750	4000	2350	1180						220	
6600	8-9-10-11							9100	5650	4660	3000	2400		405
7000	1-3-4-6	10.000	7300	5050	4280	2500	1250						230	
7000	8-9-10-11							9700	6000	5000	3200	2400		430
8000	1-3-4-6	12.000	8400	5800	4900	2900	1440						270	
8000	8-9-10-11							11000	6900	5650	3700	2760		500
9000	1-3-4-6	13.000	9400	6500	5500	3240	1620						300	
9000	8-9-10-11							12500	7750	6300	4150	3100		550
9000	7-9-10-12							6200	3900	3200	2050	1550		275
10000	1-3-4-6	14.400	10.500	7200	6100	3600	1800						330	
10000	8-9-10-11							14000	8600	7100	4600	3450		600
10000	7-9-10-12							6900	4300	3500	2300	1740		310
12000	1-3-4-6	17.400	12.500	8700	7250	4320	2150						400	
12000	7-9-10-12							8300	5150	4250	2750	2070		370
14000	7-9-10-12							9700	6000	4900	3200	2440		430
16000	7-9-10-12							11000	6900	5600	3700	2780		500
18000	7-9-10-12							12500	7750	6300	4150	3140		550
ADDED VALUES FOR VM4 AND VM5														
14000	13-3-4-14	11.600	8100	5600	4720	2800	1400						260	
16000	13-3-4-14	13.200	9300	6400	5400	3200	1600						300	
18000	13-3-4-14	15.000	10.400	7200	6100	3600	1800						340	
20000	13-3-4-14	16.700	11.600	8000	6800	4000	2000						375	
22000	13-3-4-14	18.300	12.800	8800	7500	4400	2200						410	
P to P Imp.	P-B-B-P	Join 3 & 4 Con. to 13 & 14	Join 3 & 4 Con. to 1 & 14	Join 4 & 6 Con. to 13 & 14	Join 3 & 4 Con. to 13 & 5	Join 2 & 3 Con. to 13 & 14	Join 3 & 13 4 & 14 Con. to 4 & 13	Join 1 & 5 2 & 6 Con. to 1 & 2						
14000	7-9-10-12	17.600	13.500	7000	9000	10.800	4400	430						
16000	7-9-10-12	20.000	15.500	8000	10.300	12.400	5050	500						
18000	7-9-10-12	22.400	17.400	9000	11.500	13.900	5650	550						

TUBE COMBINATIONS

VM-0

Primary Impedance	27,000	14,000	10,000	8,000	7,000	6,000	5,000	4,000
		31-33-49	6A6-19-53					
		46-47-2A5	49-79-89	2A5 A Prime				
		59 Pent.	43-19	42 A Prime		46-59	6L6-250V.	
Push		89 Pent.	59-71A	45-43-50		Class B	2A3-6A3	25L6
Pull	38	42	6B5-6F6	6V6 AB1		6F6 AB	6A5G	48
Single		38	10-41-42	59 Pent.	46-42-47	31-46-59		43-59-45
		49 class B		89 Pent.	49-89-31			71A-43-50
		89 class B		2A5-33				

VM-1

Modulator Tubes	Modulator Plate to Plate Load Imped.	Plate Volts	Bias Volts	AF Power Output	Class C DC Watts Input
2A3's AB	3000 ohms	300 V.	— 62 V.	15 W.	30 W.
2-45's AB	3200 ohms	275 V.	— 68 V.	12 W.	24 W.
1602's 210's	8000 ohms	425 V.	— 50 V.	25 W.	50 W.
53 or 6A6	10000 ohms	300 V.	0	10 W.	20 W.
2-53's or 6A6's	5000 ohms	300 V.	0	20 W.	40 W.
46's	6000 ohms	450 V.	0	25 W.	50 W.
2-6L6's Class AB ₁	6600 ohms	400 V.	— 23 V.	30 W.	60 W.
841	7000 ohms	425 V.	— 5 V.	28 W.	56 W.

VM-2

Modulator Tubes	Modulator Plate to Plate Load Imped.	Plate Volts	Bias Volts	AF Power Output	Class C DC Watts Input
2 53's or 6A6's	5000 ohms	300 V.	0	20 W.	40 W.
2-46's	6000 ohms	450 V.	0	25 W.	50 W.
4-46's	3000 ohms	450 V.	0	50 W.	100 W.
2-6L6's Class AB ₁	6600 ohms	400 V.	— 23 V.	30 W.	60 W.
1602's or 210's	8000 ohms	425 V.	— 50 V.	25 W.	50 W.
801's	10000 ohms	600 V.	— 75 V.	45 W.	90 W.
2-6L6's AB ₂	3800 ohms	400 V.	— 25 V.	60 W.	120 W.
4-6L6's AB ₁	3300 ohms	400 V.	— 23 V.	60 W.	120 W.
TZ20	6100 ohms	500 V.	0	40 W.	80 W.

VM-3

Modulator Tubes	Modulator Plate to Plate Load Imped.	Plate Volts	Bias Volts	AF Power Output	Class C DC Watts Input
4-46's	3000 ohms	450 V.	— 20 V.	50 W.	100 W.
2-6L6's AB ₂	3800 ohms	400 V.	— 25 V.	60 W.	120 W.
4-6L6's AB ₂	1900 ohms	400 V.	— 25 V.	120 W.	240 W.
RK 30's or 800's	12500 ohms	1000 V.	— 55 V.	100 W.	200 W.
	6400 ohms	750 V.	— 40 V.	90 W.	180 W.
35 T's	10000 ohms	1000 V.	— 25 V.	125 W.	250 W.
	6600 ohms	750 V.	— 35 V.	90 W.	180 W.
RK 18's	10000 ohms	750 V.	— 40 V.	65 W.	130 W.
	12000 ohms	1000 V.	— 50 V.	100 W.	200 W.
RK 31's	13600 ohms	1000 V.	0	110 W.	220 W.
845's AB	4600 ohms	1000 V.	— 175 V.	75 W.	150 W.
	8800 ohms	1250 V.	— 225 V.	105 W.	210 W.
825	8000 ohms	850 V.	— 68 V.	80 W.	160 W.
756	6800 ohms	850 V.	— 30 V.	100 W.	200 W.
T-20	8000 ohms	600 V.	— 30 V.	50 W.	100 W.
	12000 ohms	800 V.	— 40 V.	70 W.	140 W.
809's	5200 ohms	500 V.	0	60 W.	120 W.
809's	8400 ohms	750 V.	— 5 V.	100 W.	200 W.
TZ20	12000 ohms	800 V.	0	70 W.	140 W.
HK54	6000 ohms	750 V.	0	108 W.	216 W.

VM-4

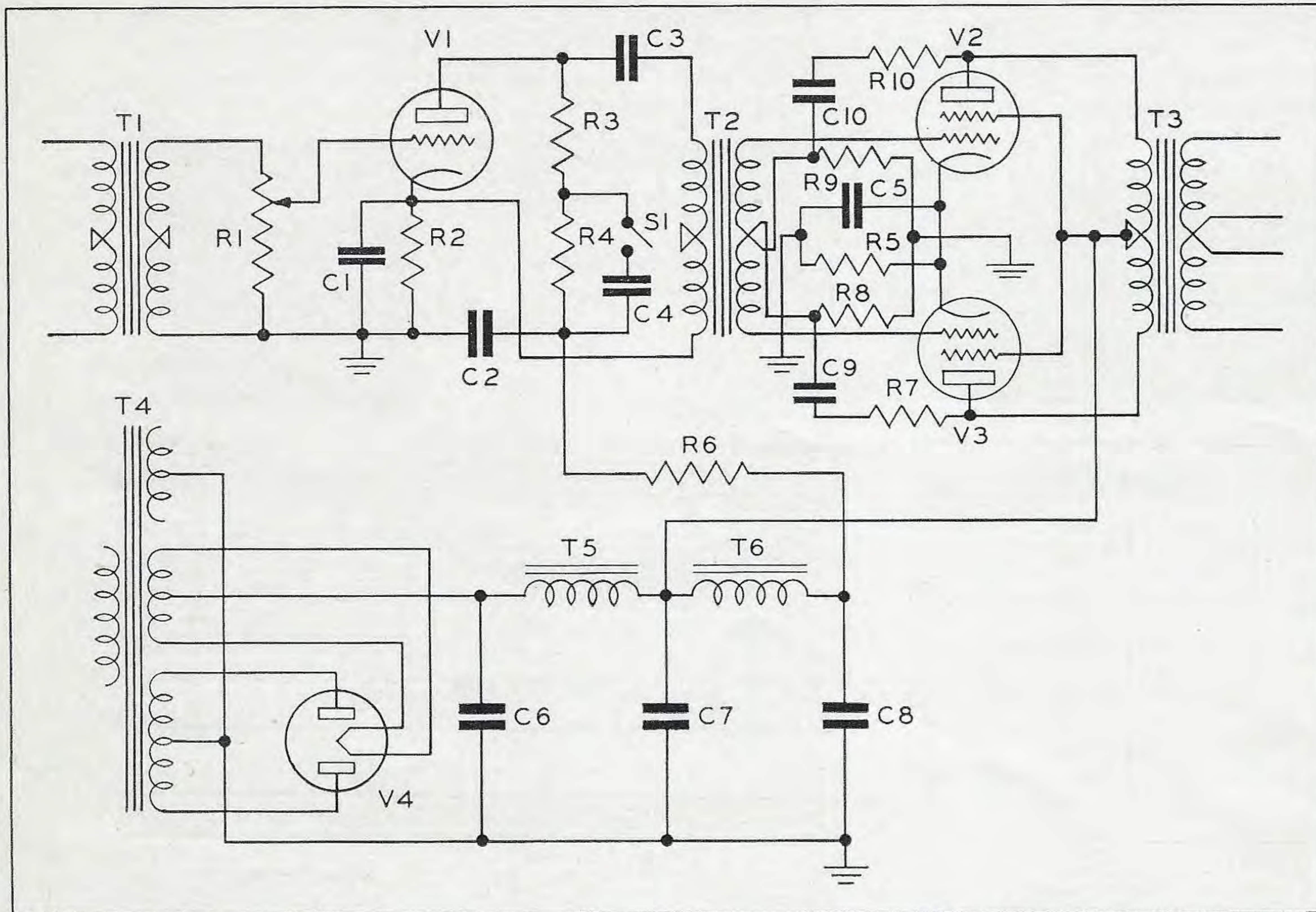
Modulator Tubes	Modulator Plate to Plate Load Imped.	Plate Volts	Bias Volts	AF Power Output	Class C DC Watts Input
RK 30's or 800's	12500 ohms	1000 V.	— 55 V.	100 W.	200 W.
25 T's	10000 ohms	1000 V.	— 35 V.	115 W.	230 W.
	12800 ohms	1250 V.	— 45 V.	130 W.	260 W.
	16000 ohms	1500 V.	— 60 V.	140 W.	280 W.
RK 31's	13600 ohms	1000 V.	0	110 W.	220 W.
	17000 ohms	1250 V.	0	140 W.	280 W.
203 H's 203A's	6900 ohms	1000 V.	— 35 V.	200 W.	400 W.
or 211's	9000 ohms	1250 V.	— 45 V.	260 W.	520 W.
838's	7600 ohms	1000 V.	0	200 W.	400 W.
	11200 ohms	1250 V.	— 16 V.	260 W.	520 W.
830 B's	6000 ohms	800 V.	— 27 V.	135 W.	270 W.
	7600 ohms	1000 V.	— 35 V.	175 W.	350 W.
805's	6700 ohms	1250 V.	0	300 W.	600 W.
50 T's	20000 ohms	2000 V.	— 180 V.	250 W.	500 W.
	15000 ohms	1500 V.	— 135 V.	175 W.	350 W.
	10000 ohms	1250 V.	— 125 V.	135 W.	270 W.
HK 354's	10000 ohms	1500 V.	— 125 V.	280 W.	560 W.
HF-100's	7000 ohms	1000 V.	— 35 V.	200 W.	400 W.
	12000 ohms	1500 V.	— 52 V.	260 W.	520 W.
ZB-120's	4800 ohms	750 V.	0	150 W.	300 W.
	7000 ohms	1000 V.	0	200 W.	400 W.
	9000 ohms	1250 V.	0	245 W.	490 W.
	11000 ohms	1500 V.	— 9 V.	300 W.	600 W.
808's	13000 ohms	1250 V.	— 15 V.	190 W.	380 W.
100-TH's	5200 ohms	1000 V.	0	200 W.	400 W.
	7200 ohms	1250 V.	0	250 W.	500 W.
	9600 ohms	1500 V.	— 22 V.	300 W.	600 W.
100-TL's	5000 ohms	1000 V.	0	210 W.	420 W.
	10000 ohms	1500 V.	— 22 V.	300 W.	600 W.
811's	15000 ohms	1250 V.	0	175 W.	350 W.
811's	18000 ohms	1500 V.	— 9 V.	225 W.	450 W.
812's	15000 ohms	1250 V.	— 36 V.	175 W.	350 W.
812's	18000 ohms	1500 V.	— 46 V.	225 W.	450 W.
TZ40	9000 ohms	1000 V.	0	150 W.	300 W.
TZ40	6900 ohms	1000 V.	0	175 W.	350 W.
HK54	12500 ohms	1500 V.	— 45 V.	200 W.	400 W.

VM-5

Modulator Tubes	Modulator Plate to Plate Load Imped.	Plate Volts	Bias Volts	AF Power Output	Class C DC Watts Input
203 H's, 203 A's	9000 ohms	1250 V.	— 45 V.	260 W.	520 W.
or 211's	11200 ohms	1250 V.	— 16 V.	260 W.	520 W.
838's	6700 ohms	1250 V.	0	300 W.	600 W.
805's	8200 ohms	1500 V.	— 16 V.	370 W.	740 W.
203H	10000 ohms	1750 V.	— 65 V.	370 W.	740 W.
	15000 ohms	2000 V.	— 75 V.	450 W.	900 W.
204A or HF 300	7800 ohms	1500 V.	— 40 V.	400 W.	800 W.
	8200 ohms	1750 V.	— 50 V.	500 W.	1 KW.
	8800 ohms	2000 V.	— 60 V.	600 W.	1200W.
	13120 ohms	2500 V.	— 85 V.	650 W.	1300W.
150 T's	5000 ohms	1250 V.	— 100 V.	260 W.	520 W.
	8000 ohms	1500 V.	— 125 V.	350 W.	700 W.
	10400 ohms	2000 V.	— 175 V.	500 W.	1 KW.
	14000 ohms	2500 V.	— 225 V.	650 W.	1300W.
50 T's	20000 ohms	2000 V.	— 175 V.	250 W.	500 W.
4-203A's	4500 ohms	1250 V.	— 45 V.	500 W.	1 KW.
4-838's	5600 ohms	1250 V.	— 16 V.	500 W.	1 KW.
4-805's	3350 ohms	1250 V.	0	600 W.	1200W.
HK 354's	15000 ohms	2000 V.	— 175 V.	370 W.	740 W.
	17500 ohms	2500 V.	— 225 V.	460 W.	920 W.
HF-100	16000 ohms	1750 V.	— 62 V.	350 W.	700 W.
HF-200	11000 ohms	2000 V.	— 92 V.	500 W.	1000W.
822	9000 ohms	2000 V.	— 90 V.	500 W.	1000W.
	16000 ohms	2000 V.	— 50 V.	380 W.	760 W.
100-TH	16000 ohms	2000 V.	Adj.	380 W.	760 W.
	22000 ohms	2500 V.	Adj.	460 W.	920 W.
250-TH	2360 ohms	1000 V.	0	350 W.	700 W.
	3280 ohms	1250 V.	0	540 W.	1080W.
	4200 ohms	1500 V.	— 10 V.	630 W.	1260W.
810's	6600 ohms	1500 V.	— 30 V.	500 W.	1000W.

HIGH FIDELITY FOR PHONO-RADIO SERVICE

AN IDEAL F-M AMPLIFIER



COMPONENTS

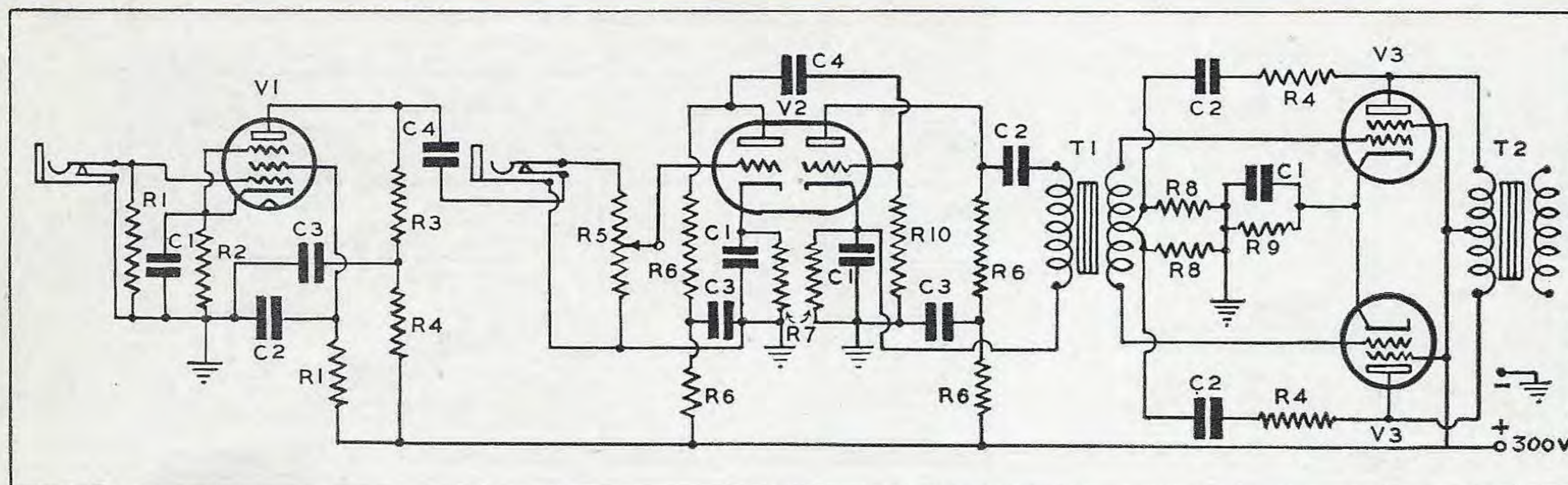
T1	LS-10X
T2	LS-19
T3	LS-57
T4	LS-70, PA-422
L1	LS-92, PA-100
L2	LS-94, PA-45
C1	10 Mfd.
C2	.5 Mfd.
C3	.25 Mfd.
C4	.1 Mfd.
C5	10 Mfd.
C6	8 Mfd.
C7	8 Mfd.
C8	8 Mfd.
C9	.25 Mfd.
C10	.25 Mfd.
R1	.5 Meg.
R2	3000 ohms
R3	5000 ohms
R4	.1 Meg.
R5	175 ohms
R6	50000 ohms
R7	.1 Meg.
R8	10000 ohms
R9	10000 ohms
R10	.1 Meg.
S1	SPST switch
V1	6C5G
V2	6L6G
V3	6L6G
V4	5Z3

Medium power output and gain requirements are found in home use. The circuit shown is designed specifically for such service and affords an absolute minimum of harmonic distortion and noise with wide frequency response.

The undistorted power output of this amplifier is 12 watts and the gain is approximately 50 DB. A low impedance input transformer affords ease of connection to the low impedance output of high fidelity tuners. Either a matching transformer or direct connection to the grid of the first tube can be used if a crystal pickup is employed.

The circuit is simple, using a simple 6C5 triode driving push pull 6L6's in pure class A operation. Feedback is employed to reduce the effective plate resistance and harmonic distortion. Two stage filtering, plus a tri-alloy shielded input transformer assure extremely low hum level. Switch S1, when closed, effects a 6 DB rise at the low frequency end to compensate for the low frequency cutoff of disc records.

MOBILE AMPLIFIER



COMPONENTS

T1	PA-132
T2	PA-19
C1	10 Mfd.
C2	.25 Mfd.
C3	1 Mfd.
C4	.01 Mfd.
R1	2 Meg.
R2	2500 ohms
R3	.25 Meg.
R4	.1 Meg.
R5	.5 Meg.
R6	25000 ohms
R7	2000 ohms
R8	10000 ohms
R9	175 ohms, 25 W.
R10	.5 Meg.
V1	6J7
V2	6F8G
V3	6L6G

The circuit shown illustrates a typical amplifier designed for mobile service. 6 volt DC is used for the filaments and a Mallory vibropak of 300 volt—150 MA output for the plate supply. The circuit effects a gain of 120 DB and a power output of 12 watts. Where it is desired to use this unit for modulator service instead of PA service, a VM-0 or VM-1 should be used as the output transformer.

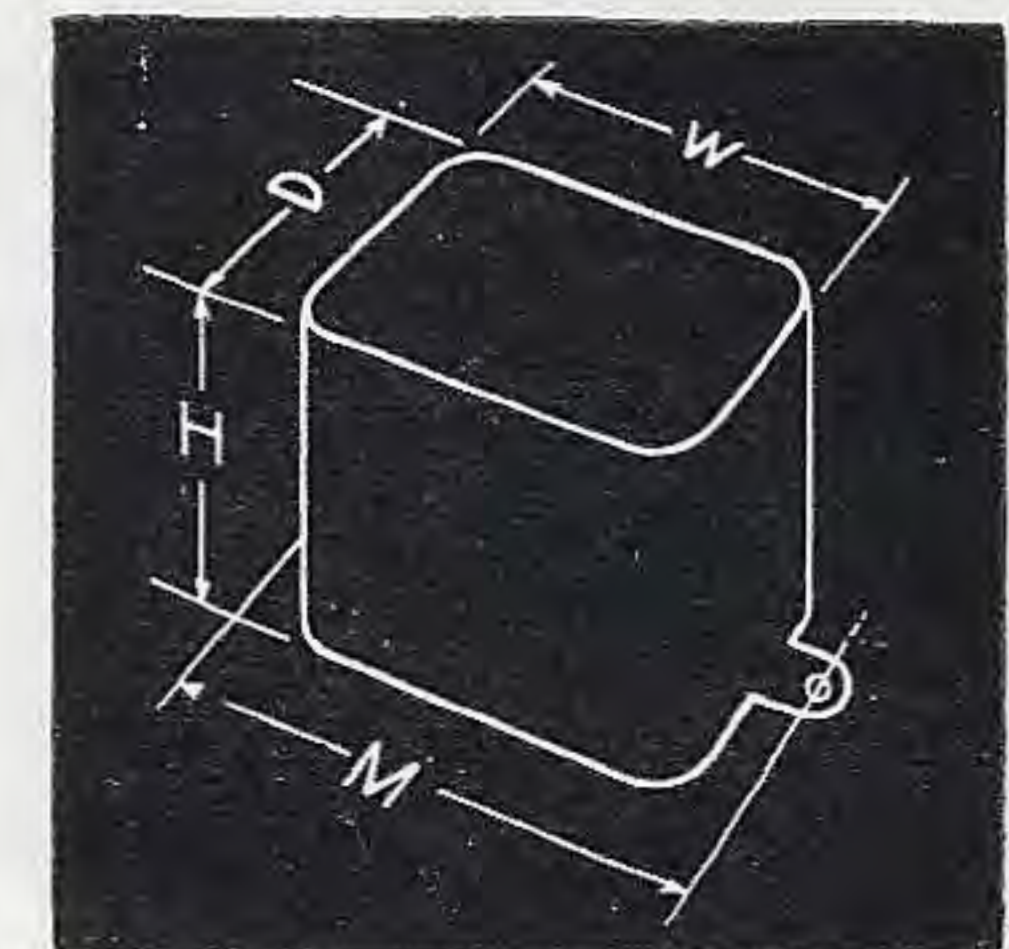
SPECIAL SERIES AUDIO TRANSFORMERS

UTC Special Series transformers represent unprecedented value. These items are specifically designed for amateur and popular-priced PA service. For commercial equipment the PA or LS series of units are recommended. The Special Series units are finished in a rich, commercial type gray crinkle enamel. Small units are poured with humidity-proof sealing compound in modern drawn cases. A recessed terminal strip is provided permitting above chassis or breadboard wiring in addition to standard chassis type wiring. The universal windings provided on driver, matching and output transformers assure a maximum of flexibility. Modulator output units will carry the DC current in the class C stage and will match practically any audio tubes to any RF load within the power rating of the transformer. Large components are housed in formed cases with top or bottom mounting and louvers for good ventilation.



CASE SIZES

Type No.	H	W	D	M	Weight Lbs.
G-1	1 7/8	2	1 3/4	2 7/16	1
G-2	2 5/16	2 3/8	1 5/16	2 7/8	1 1/2
G-3	2 1/2	2 3/4	2 1/8	3 1/4	2
G-4	2 15/16	3 1/8	2 5/16	3 5/8	3



CLASS A INPUT TRANSFORMERS

Type No.	Application	Ratio	Case	Net Price
S-1	1 plate* to 1 grid	3 1/2 : 1	G-2	\$1.35
S-2	1 plate* to 2 grids	2 : 1	G-2	1.50
S-3	1 plate* to 1 or 2 grids compact type	4 : 1 2 : 1	G-1	1.20
S-4	1 plate* to 2 grids wide range response	1 : 1	G-3	2.10
S-5	Single or double button mike or line to 1 grid hum-bucking type	16 : 1	G-2	1.80
S-6	Single or double button mike or line to 1 grid, compact type	16 : 1	G-1	1.20
S-7	Single plate* and carbon mike to one or two grids	3 : 1 16 : 1	G-2	2.10

* Will match tubes like 56, 6C5, 6C6 triode, 77 triode, 37, etc. Can be used with high mu triodes with loss in low frequencies.

UNIVERSAL OUTPUT TRANSFORMERS TO LINE AND VOICE COIL

Type No.	Tubes and Pri. Ohms	Sec. Ohms	Power	Case	Net Price
S-14	Single tubes: 2500 ohms for 2A3, 6A3, 6A5 G, 6B4 G, 6L6, 6Y6, 25L6 4000 ohms for 2A5, 6F6 triode, 12A5, 25A6, 43, 45, 50, 71A 7000 ohms for 2A5, 6F6, 6K6, 20, 31, 33, 47 10000 ohms for 6G6, 38, 41	2, 8, 15, 500	10 W	G-2	\$1.95
S-15	P.P. tubes: 4000 ohms for 25L6, 6Y6G 5000 ohms for 2A3, 6A3, 6A5G, 6B4G, 45 10000 ohms for 19, 7J6G, 30, 49, 89, 6Z7G, 6AC5G, 53, 6A6, 6N6, 6N7, 6B5	2, 8, 15, 500	12 W	G-2	2.10
S-16	3000 ohms for 2A3, 6A3, 6A5G, 6B4G, AB 6000-6600 ohms for 2A5-6F6-42 triodes AB, 46, 59, 6L6 10000 ohms for 6B5, 6V6, 2A5-6F6-42 pentodes AB	2, 8, 15, 500	30 W	G-4	2.85
S-17	3300 ohms for 4 6L6's, 4-46's, 3800 ohms for 2 6L6's, AB2 5000 ohms for 1608, 809	2, 8, 15, 500	55 W.	G-5	3.90

MATCHING TRANSFORMERS

Type No.	Application	Pri. Ohms	Sec. Ohms	Case	Net Price
S-11	Single 56, 6C6 triode, 6C5 or Similar tube to line.	10,000	200/500	G-2	\$1.80
S-12	Line to speaker 15 watts.	500, 2000, 4000	2, 4, 8, 15	G-2	2.10
S-13	Line to speaker 30 watts.	500, 2000, 4000	2, 4, 8, 15	G-4	2.70

FILAMENT TRANSFORMER CHART

Filament Consumpt'n	Transf. for 1 tube	Transf. for 2 tubes*	Tube Types
2.5 V. 1.5-2 A.	S-53	S-53	2A5, 24A, 27, 35, 51, 45, 46, 47, 53, 59, 306A, 879, 885, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 914, 1610, RK-23
2.5 V. 2.5-3.25 A.	S-53	S-53	2A3, 82, RK-41, 843, 844, 1608, RK-39
2.5 V. 4/5 A.	S-57	S-57	836, 866, 866A, 871, 878, RK-21
2.5 V. 8/10 A.	S-57	S-58	RX-21, KY-21, RK-22
5 V. 1.5-2 A.	S-54	S-54	80, 83V, 5T4, 5W4, 5V4G, 5Y3G, 5Y4G, 5Z4
5 V. 3 A.	S-54	S-59	83, 5U4G, 5X4G, 5Z3
5/5.5 V. 5/6.75 A.	S-59	S-59	35T, 100T, 100TH, 100TL, HK-154, 267B, 353A, 872A, HK-54
5 V. 8/10.5 A.	S-59	S-60	RK-36, RK-38, 150T, HK-155, 250T, 250TH, 250TL, HK-354, 361A, 806, 872
6.3 V. .6-1 A.	S-55	S-55	6A3, 6A6, 6E6, 6F6, 6L6, 6N7, 42, 79, RK-25, RK-25B, RK-34, RK-39, RK-100, 802, 807, 913, RK-49
6.3 V. 2.5/3 A.	S-55	S-61	HK-55, RK-11, RK-12, 809
7.5 V. 1.25 A.	S-56	S-56	10, 81, 801, 841, 842, 941, 1602
7.5 V. 2 A.	S-56	S-61	T-20, TZ-20, 756, 865
7.5 V. 2.5-3.25 A.	S-56	S-61	RK-18, RK-19, RK-20, RK-20A, RK-30, RK-31, RK-32, RK-35, RK-37, T-55, 800, 804, 825, 834
7.5 V. 3.75/4 A.	S-61	S-61	808, RK-51, RK-52
10 V. 3.25-3.4 A.	S-62	S-62	RK-47, C-200, HF-200, C-201, C-202, 203A, C-203A, 203H, 211, 211B, 211C, 211D, 211H, 217A, 217C, 242B, 242C, 261A, 276A, 303A, 311, 311C, 376A, 803, 805, 835, 838, 845, 850, 852, 860, 952
10 V. 4-5 A.	S-62	S-62	HV-12, HV-27, RK-28, T-125, T-155, T-200, AD-203A, 203B, HD-203C, 203Z, HD-211C, 814, 822, RK-48
11-11.5 V. 3.85-5 A.	S-63	S-63	204A, 304A, 504A, C-300, HF-300, 849, 949
11 V. 10 A.	S-63		831, 861
14 V. 6 A.	S-63		241B

* Note: For more than two tubes add total filament currents and check current rating of corresponding filament transformers.

SPECIAL SERIES UNIVERSAL DRIVER AND OUTPUT UNITS

UNIVERSAL DRIVER TRANSFORMERS

(See Modulator chart for tube types)

Type No.	Application	Case	Net Price
S-8	Single driver plate to pushpull grids	G-3	\$1.65
S-9	Pushpull driver plates to grids of class B tubes up to 400 watts output.	G-4	2.25
S-10	Pushpull 56, 6C6 triode, 6C5, or similar plates to 45's, 2A3's or 6L6's, self or fixed bias.	G-3	2.10

UNIVERSAL OUTPUT TRANSFORMERS

Any modulator tubes to any RF load. (See chart)

Type No.	Audio Power	Case	Net Price
S-18	12 watts	G-3	\$2.10
S-19	30 watts	G-4	2.85
S-20	55 watts	G-5	3.90
S-21	110 watts	G-7	6.00
S-22	250 watts	G-9	8.40

TYPICAL MODULATOR COMBINATIONS

S-18 — 12 WATTS MAX.

DRIVER TUBES: In the combinations shown below, typical suitable driver tubes are: 27, 30, 37, 49, 53, 56, 76, 79, 89, 6A6, 6C5, 6C6 triode, 6E6, 6N7.

DRIVER Transf.	Sec. Term.	P.P. Tubes	MODULATOR STAGE			
			Watts Output	P.P. Load	Plate Volts	Bias Volts
S-2	G-G	6E6	1.6	14,000	250	27
S-8	G-G	19, 1J6G	2.1	10,000	135	0
S-8	G-G	30	2.5	10,000	180	18
S-8	G-G	49	3.5	12,000	180	0
S-8	G'-G'	89	3.5	10,000	180	0
S-2	G-G	25L6	4	4,000	110	7.5
S-8	G'-G'	6Z7G	4.2	12,000	180	0
S-2	G-G	6Y6G	7	4,000	135	13.5
S-8	G-G	79, 6Y7G	8	14,000	250	0
S-8	G'-G'	6AC5G	8	10,000	250	0
S-8	G'-G'	53, 6A6, 6N6, 6N7	10	10,000	300	0
S-2	G-G	2A3, 6A3, 6A5G, 6B4G	10	5,000	325	750 ohms
S-2	G-G	6B5	10	10,000	300	0
S-8	G-G	45	10	5,000	275	770 ohms
SINGLE TUBES						Pri. Load
S-1	F-G	43, 45, 59, 71A, 12A5, 25A6, 25A7				4000 ohms
		31, 46, 59, 6V6, 33				6000 ohms
		33, 42, 46, 47, 49, 89, 2A5, 6F6, 6B5				7000 ohms
		59, 89 pentode				8000 ohms
		10, 41, 42, 6G6, 6K6				10,000 ohms
		38, 12A7				14,000 ohms

S-19 — 30 WATTS MAX.

(53, 56, 6C6 triode, 6N7, may be substituted for 6C5 tubes)

TUBE OR TUBES	DRIVER		MODULATOR STAGE				
	Transf.	Sec. Terms.	P.P. Tubes	Watts Outp't	P.P. Load	Plate Volts	Bias Volts
6C5	S-10	G-G	6V6	13	8,000	300	20
6C5	S-2	G-G	6B5	13.5	10,000	325	0
6C5	S-10	G-G	2A3, 6A3, 45, 6A5G, 6B4G	15	3,000	325	68
6C5	S-10	G-G	2A5, 42, 6F6, Pen-tode AB	10	10,000	375	340 ohms
2A5	S-8	G-G	2A5, 42, 6F6, tri-ode AB	18	6,000	350	38
89	S-8	G'-G'	Parallel 53's, 6A6, 6N6, 6N7	19	5,000	300	0
45	S-8	G-G	10, 1602	25	8,000	425	50
45	S-8	G'-G'	46, 59	25	6,000	425	0
45	S-8	G'-G'	841	28	7,000	425	5
6C5	S-10	G-G	6L6 self bias	30	6,600	400	23

S-20 — 55 WATTS MAX.

P.P. Tubes	DRIVER		P.P. Tubes	Watts O'tp't	MODULATOR STAGE				
	Transf.	Sec. Term.			P.P. Load	Plate Volts	Plate Tr'sf.	Bias Volts	Bias Trsf.
Single 45	S-8	G'-G'	46	40*	5000	470	S-44	0	
2A3	S-9	1-1	801	45	10000	600	S-45	75	S-51
2A3	S-9	3-3	1608	50	5000	425	S-44	15	S-51
2A3	S-9	1-1	T-20	50	8000	600	S-45	30	S-51
Single 45	S-8	G'-G'	4-46, 59	56	3000	425	S-44	0	
6C5	S-10	G-G	6L6 AB2	60	3800	400	S-39	25	S-51
6C5	S-10	G-G	4-6L6	60	3300	400	S-40	23	
2A3	S-9	3-3	809	60	5000	500	S-41	0	

* Above manufacturers' rating, but frequently employed by amateurs.

S-21 — 115 WATTS MAX.

P.P.-2A3 Driver S-9 Transf. Sec. Term.	P.P. Tubes	Watts Output	MODULATOR STAGE				
			P.P. Load	Plate Volts	Plate Transf.	Bias Volts	Bias Trsf.
2-2	TZ-20	70	12000	800	S-46	0	
1-1	T-20	70	12000	800	S-46	40	S-51
*	845	75	4600	1000	S-47	175	S-52
3-3	4-46, 59	80	2500	470	S-44	0	
1-1	807	80	6600	600	S-45	30	S-51
1-1	800, RK-30	90	6600	750	S-45	40	S-51
1-1	800, RK-30	100	12000	1000	S-47	55	S-51
3-3	809	100	8400	750	S-45	5	S-51
2-2	825	100	6600	850	S-46	30	S-51
2-2	TZ-40	100	6000	750	S-45	0	
2-2	T-756	100	7000	850	S-46	30	S-51
1-1	50-T	100	8000	1000	S-47	90	S-51
2-2	RK-18	100	12000	1000	S-47	50	S-51
1-1	HK-354	100	15000	1000	S-47	60	S-51
*	845	105	8800	1250	S-47	225	S-52
3-3	RK-31	110	14000	1000	S-47	0	
1-1	4-6L6	110	2000	400	S-44	25	S-51
2-2	35-T	115	11000	1000	S-47	30	S-51

* Reverse S-9 transformer using terminals 1-1 for plates and P-P for grids.

S-22 — 250 WATTS MAX.

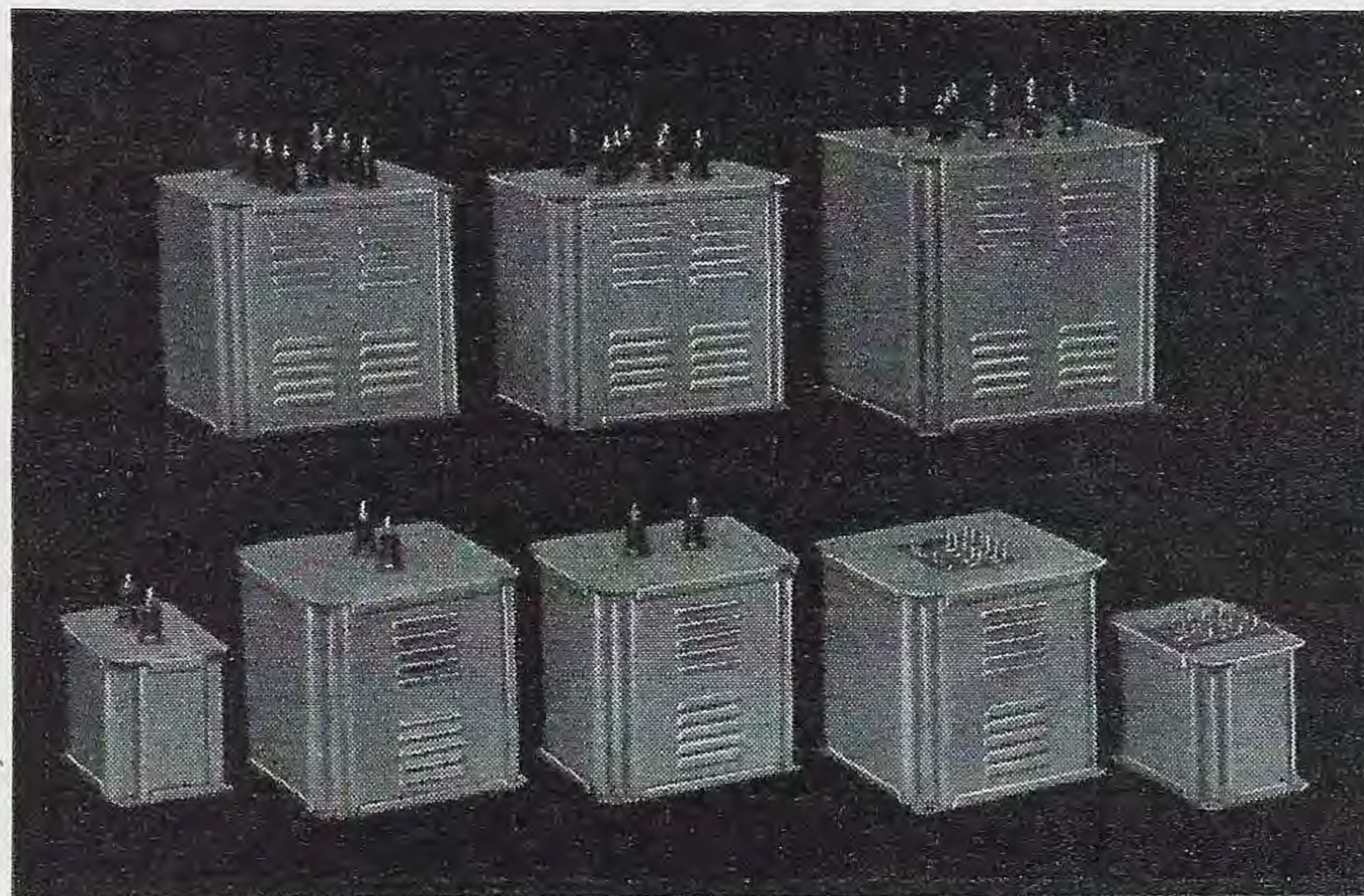
P.P.-2A3 Driver S-9 Transf. Sec. Term.	P.P. Tubes	Watts Output	MODULATOR STAGE				
			P.P. Load	Plate Volts	Plate Transf.	Bias Volts	Bias Trsf.
3-3	RK-31	140	17000	1250	S-47	0	
*	50 T	135	12000	1250	S-47	112	S-52
*	50 T	250	20000	2000	S-50	180	S-52
*	50 T	160	17000	1500	S-49	140	S-52
2-2	TZ-40	175	6800	1000	S-47	0	
1-1	T-55	175	6900	1000	S-47	40	S-51
1-1	T-55	225	9400	1250	S-47	50	S-51
2-2	HF-100	200	7000	1000	S-47	35	S-51
2-2	HF-100	250	12000	1500	S-49	52	S-51
2-2	100 TH	200	5200	1000	S-47	0	
2-2	100 TH	250	7200	1250	S-47	0	
1	100 TL	170	5200	1000	S-47	90	S-51
1	100 TL	230	7200	1250	S-47	112	S-52
2-2	ZB-120	150	4800	750	S-45	0	
2-2	ZB-120	200	6900	1000	S-47	0	
2-2	ZB-120	245	9000	1250	S-47	0	
*	HK-154	200	7500	1000	S-47	155	S-52
*	HK-154	225	11400	1250	S-47	210	S-52
1-1	203 A	200	6900	1000	S-47	35	S-51
1-1	203 A	250	9000	1250	S-47	45	S-51
3-3	203 Z	200	6900	1000	S-47	0	
2-2	203 Z	250	6700	1100	S-47	0	
1-1	211	200	6900	1000	S-47	77	S-51
1-1	211	250	9000	1250	S-47	100	S-51
1-1	HK-354	220	15000	1500	S-49	100	S-51
2-2	808	190	12700	1250	S-47	15	S-51
2-2	830 B	175	7600	1000	S-47	35	S-51
2-2	838	200	6900	1000	S-47	0	
2-2	838	250	9000	1250	S-47	0	

* Reverse S-9, using 2-2 for plates and P-P for grids.

† Reverse S-9, using 1-1 for plates and P-P for grids.

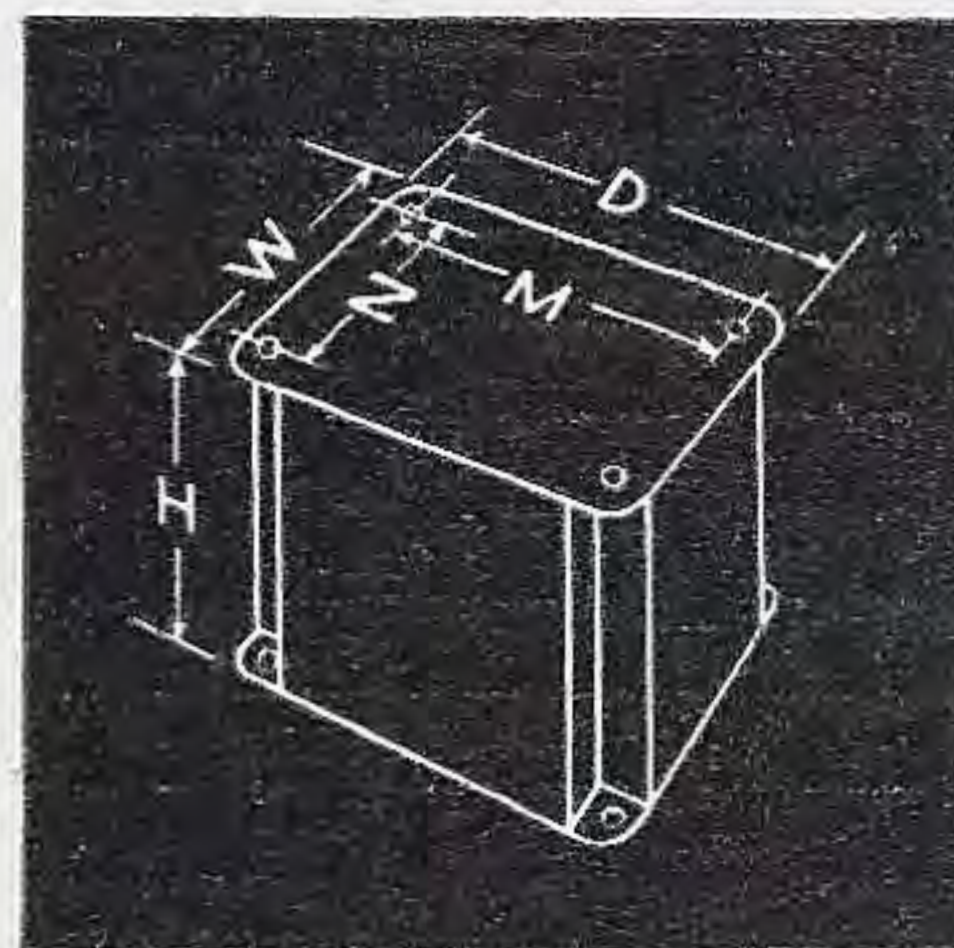
SPECIAL SERIES POWER EQUIPMENT

UTC Special Series power supply components are designed specifically for amateur and popular-priced PA service. The ratings are based on such applications and recommended for intermittent service. For commercial applications, PA or LS grade components should be employed. Tapped coil structures on power and bias supply transformers afford maximum flexibility, permitting a given transformer to be used with many circuits and types of tubes.



CASE SIZES

Type	H	W	D	M	N
G-5	3 $\frac{5}{8}$	3 $\frac{1}{8}$	4 $\frac{9}{16}$	3 $\frac{7}{8}$	2 $\frac{7}{16}$
G-6	4 $\frac{5}{8}$	3 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{13}{16}$	3 $\frac{3}{32}$
G-7	5 $\frac{3}{8}$	4 $\frac{9}{16}$	5 $\frac{9}{16}$	4 $\frac{27}{32}$	3 $\frac{25}{32}$
G-8	5 $\frac{3}{8}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{25}{32}$	4 $\frac{3}{4}$
G-9	6 $\frac{1}{8}$	5 $\frac{5}{16}$	6 $\frac{13}{16}$	6 $\frac{3}{32}$	4 $\frac{19}{32}$
G-10	6 $\frac{1}{8}$	6 $\frac{3}{16}$	6 $\frac{11}{16}$	5 $\frac{15}{16}$	5 $\frac{13}{32}$
G-11	7 $\frac{1}{8}$	6 $\frac{9}{16}$	7 $\frac{3}{8}$	6 $\frac{21}{32}$	5 $\frac{29}{32}$
S-50	11 $\frac{1}{4}$	7 $\frac{5}{8}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	6 $\frac{5}{8}$



FILTER, SWINGING, AND AUDIO CHOKES

Type No.	Service	Inductance	Current	Resistance	Case	Net Price
S-23	Audio	500 Hy.	5 Ma.	6000 ohms	G-2	\$1.35
S-24	P.P. Choke	500 Hy. C.T.	3 Ma.	4000 ohms	G-2	1.50
S-25	Filter	30 Hy.	30 Ma.	900 ohms	G-2	1.20
S-26	Filter	15 Hy.	60 Ma.	230 ohms	G-2	1.20
S-27	Filter	30 Hy.	75 Ma.	350 ohms	G-4	1.65
S-28	Filter	20 Hy.	100 Ma.	350 ohms	G-4	1.65
S-29	Filter	10 Hy.	175 Ma.	95 ohms	G-4	1.65
S-30	Swinging	5/25 Hy.	175 Ma.	95 ohms	G-4	1.65
S-31	Filter	20 Hy.	225 Ma.	120 ohms	G-5	2.10
S-32	Swinging	5/25 Hy.	225 Ma.	120 ohms	G-5	2.10
S-33	Filter	20 Hy.	300 Ma.	90 ohms	G-7	3.00
S-34	Swinging	5/25 Hy.	300 Ma.	90 ohms	G-7	3.00
S-35	Filter	20 Hy.	400 Ma.	85 ohms	G-8	3.90
S-36	Swinging	5/25 Hy.	400 Ma.	85 ohms	G-8	3.90
S-37	Filter	20 Hy.	550 Ma.	60 ohms	G-9	5.40
S-38	Swinging	5/25 Hy.	550 Ma.	60 ohms	G-9	5.40

UNIVERSAL BIAS TRANSFORMERS

Primary 115 V.—50/60 Cycles No Filament Windings

Type No.	Application	D.C. Current	Case No. Net Price
S-51	Will supply any bias voltage from 15 to 100 volts D.C. within approximately 6% of desired value.	200 Ma.	G-5 \$3.00
S-52	Will supply any bias voltage from 75 to 400 volts D.C. within approximately 6% of desired value.	200 Ma.	G-7 4.20

COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 V. — 50/60 Cycles

Type No.	High Voltage	D.C. Volt's*	Rect'r Fil.	Fil. #1	Fil. #2	C'se	Net Price
S-39	490-400-0-400-490 175 Ma.	400/310	5V.-3A.	2.5V.C.T.-6A.	6.3V.C.T. 4 A.	G-6	\$4.20
S-40	525-425-0-425-525 250 Ma.	400/310	5V.-3A.	6.3V.C.T.-3A.	6.3V.C.T. 3 A.	G-7	4.20
S-41	600-0-600 200 Ma.	475	5V.-3A.	7.5V. tapped 6.3V.-3A.	6.3V.C.T. 2 A.	G-7	3.60
S-42	600-525-0-525-600 300 Ma.	480/400	5V.-3A.	7.5V. tapped 6.3V.-3A.	6.3V.C.T. 3A.	G-8	5.10
S-43	525-0-525 450 Ma. 40-0-40, 200 Ma.	400	5V.-3A. 5V.-6A.	6.3V.C.T.-2A.	6.3V.C.T. 5 A.	G-9	7.20

* Based on two section filter, choke input.

PLATE TRANSFORMERS

Primary 115 V. — 50/60 Cycles

No.	High Voltage	DC Voltages*	DC Current	Case	Net Price
S-44	575-525-0-525-575	470/430	500 Ma.	G-9	\$6.30
S-45	900-750-0-750-900	750/620	200 Ma.	G-8	4.80
S-46	1000-750-0-750-1000	825/600	300 Ma.	G-9	5.70
S-74	1175-500-0-500-1175 Duplex rectifier	1000 400	†150 Ma ‡150 Ma.	G-10	7.20
S-47	1500-1250-1000-0-1000-1250-1500	1275/1050/825	300 Ma.	G-10	8.10
S-48	1500-1250-1000-0-1000-1250-1500	1300/1075/850	500 Ma.	G-11	11.70
S-49	2100-1800-1500-0-1500-1800-2100	1815/1540/1275	300 Ma.	G-11	10.80
S-50	3000-2500-0-2500-3000	2625/2175	300 Ma.	G-11	15.00

* Based on two section filter for 200 Ma. and 300 Ma. units, single section filter for 500 Ma. units, both choke input.

Note: Using a bridge rectifier circuit D.C. Voltages shown are doubled but available D.C. current reduced to half. S-49 and S-50 are not suitable for bridge rectifiers.

†200 Ma. if used alone. ‡300 Ma. if used alone.

SINGLE SECONDARY FILAMENT TRANSFORMERS

Primary Tapped 105, 115 Volts — 50/60 Cycles

Type No.	Secondary Volts	Secondary Current	Insulation	Case	Net Price
S-53	2.5 VCT	10 A.	1500 V.	G-3	\$1.35
S-54	5 VCT	4 A.	2500 V.	G-3	1.35
S-55	6.3 VCT	3 A.	1500 V.	G-3	1.35
S-56	7.5 VCT	3 A.	1500 V.	G-3	1.35
S-57	2.5 VCT	10 A.	10,000 V.	G-5	1.80
S-58	2.5 VCT	20 A.	10,000 V.	G-5	2.40
S-59	5 to 5.25 VCT	13 A.	5000 V.	G-5	2.10
S-60	5 to 5.25 VCT	22 A.	10,000 V.	G-7	4.50
S-61	7.5 VCT tapped 6.3 VCT	8 A.	3000 V.	G-5	2.10
S-62	10 VCT	10 A.	3000 V.	G-5	2.40
S-63	14 VCT tapped 12 VCT and 11 VCT	10 A.	5000 V.	G-7	4.50

MULTIPLE SECONDARY FILAMENT WINDINGS

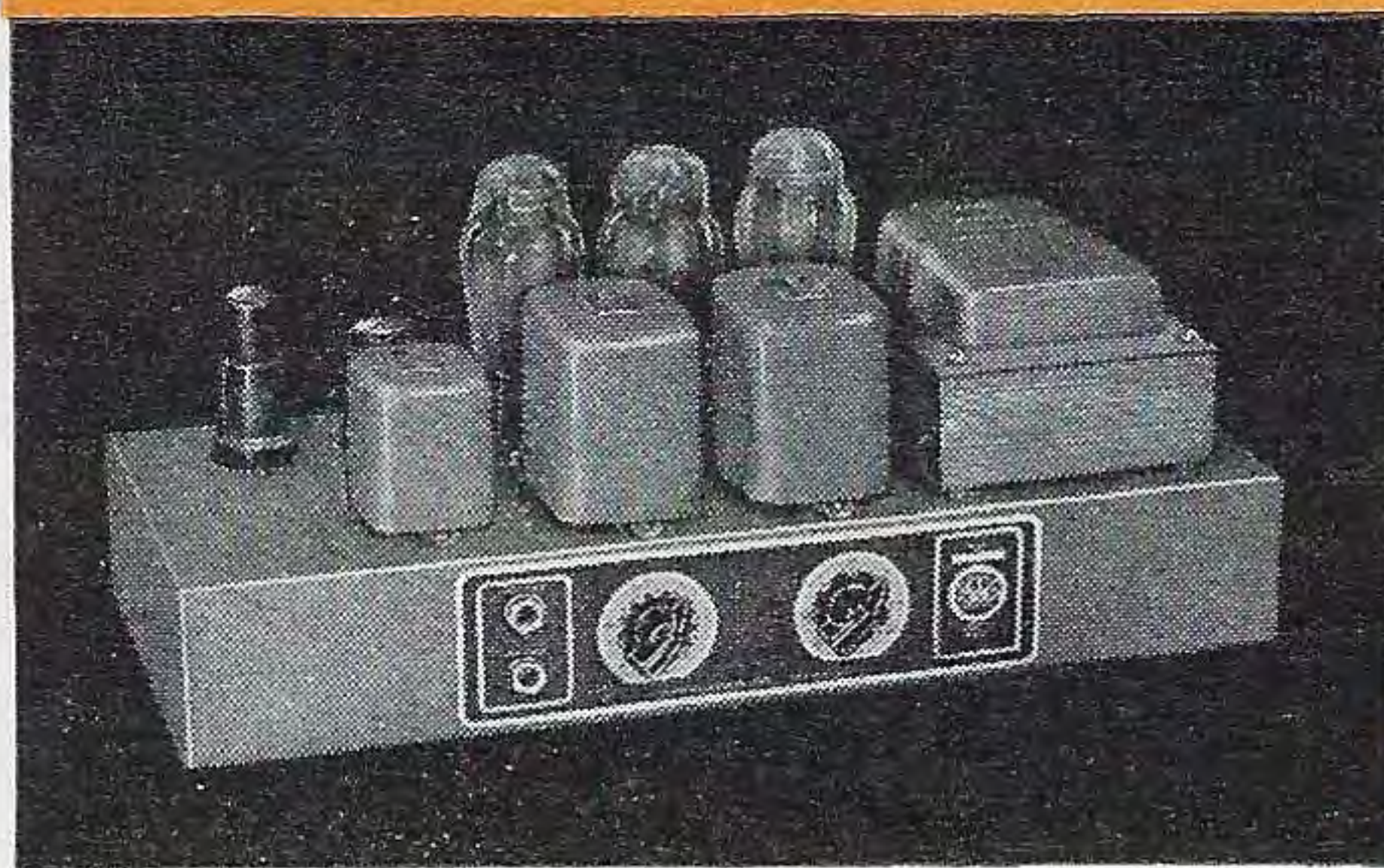
Primary Tapped 105, 115 Volts — 50/60 Cycles

Type No.	Fil 1	Fil. 2	Fil. 3	Insulation	Case	Net Price
S-64	2.5 VCT-5A	2.5 VCT-5A	5 VCT-6A	3000 V.	G-5	\$2.40
S-65	2.5 VCT-5A	5 VCT-4A	6.3 VCT-3A	3000 V.	G-5	2.40
S-66	2.5 VCT-10A	7.5 VCT-6.5A		3000 V.	G-5	2.40
S-67	5 VCT-6A	6.3 VCT-5A		3000 V.	G-5	2.40
S-68	5 VCT-3A	6.3 VCT-4A	7.5 VCT-5A	3000 V.	G-5	2.70
S-69	6.3 VCT-3A	7.5 VCT-6.5A		3000 V.	G-5	2.70
S-70	6.3 VCT-5A	6.3 VCT-5A		3000 V.	G-5	2.70
S-71	2.5 VCT-6A	2.5 VCT-6A	2.5 VCT-12A	10000 V.	G-7	4.50
S-72	5 VCT-3A	5 VCT-3A	5 VCT-6A	5000 V.	G-5	3.00

Prices shown for S-39, S-40, S-44, S-45, S-47, S-50 are new, effective as of June 15th, 1940



SPECIAL SERIES Amplifier Kits for Grid Cathode Modulation and PA.



S-26

The S-26 audio amplifier has been designed specifically for the high power modulator field. This unit employs 6L6 tubes in the output stage to obtain 25 watts of undistorted power, sufficient for modulating up to 500 watts RF input. The circuit is simple but highly efficient, effecting sufficient gain in three stages to operate from crystal or similar microphones. The tone and volume controls are mounted with the dual high impedance, high and low gain input jacks on one etched panel. A universal output plug is provided on the back of the chassis. The power supply is unusually rugged and employs a two-section filter for optimum regulation and hum reduction. Supplied with New GCM Type Modulation Transformer. The tubes required are one 6J7, one 6C5, two 6L6's and one 83. The S-26 kit is supplied completely mounted, ready to wire, less tubes, including all components, accessories, dust cover, etched plate, etc. Size 17" long x 7" wide x 9 1/4" high. Weight 32 pounds. Net Price **\$32.00**

S-25A—Same as above but for PA service with a universal line and voice coil output transformer.

Net **\$30.00**

S-25M—Same as above but with universal output transformer for plate modulation. Net **\$30.00**



S-110

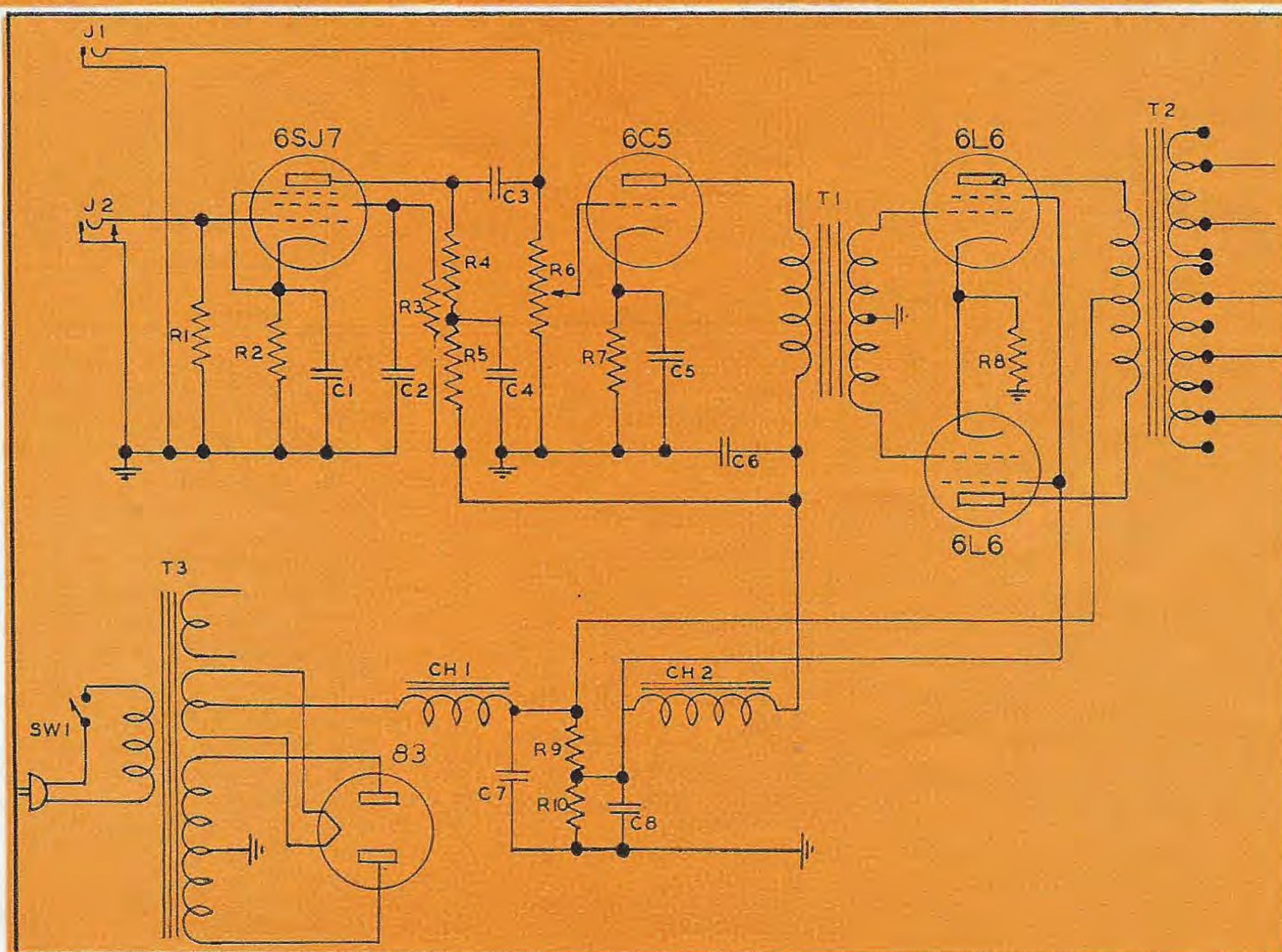
The S-110 audio amplifier is an ideal inexpensive unit for amateur use. Four highly efficient stages are employed, permitting crystal, microphone input and 100 watt undistorted output. Four 6L6 tubes are employed in the output stage for maximum tube economy and minimum plate potential. Fixed bias is employed on the output stage, permitting peak power handling ability appreciably over the normal rating. A modern etched panel sets off the attractive appearance of the gray crinkle cabinet. Tone and volume controls are provided. High impedance, high or low gain, dual input is arranged using standard jacks. Supplied with New GCM Type Modulation Transformer which permits Cathode Modulation at high efficiency. Tubes required are one 6J7, one 6C5, two 6F6's, four 6L6's, three 83's. The kit is supplied completely mounted, ready to wire, less tubes and dust cover, including all components, accessories, etched plate, etc. Size, less cabinet, 17" long x 12" wide x 9 1/4" high; with cabinet, 18" long x 13" wide x 12 1/2" high. Weight 59 pounds. Net Price **\$56.50**

S-100PA—Same as above but for PA service. Supplied with a universal line and voice coil output transformer. Net **\$55.00**

S-100 — Same as above but with universal output transformer for plate modulation. Net **\$52.50**

TYPICAL SPECIAL SERIES AMPLIFIER FOR PA OR MODULATION SERVICE, 20 WATTS OUTPUT . . . DUAL INPUT . . . GAIN FOR CRYSTAL MIKE

- J1 — open circuit jack
- J2 — closed circuit jacket
- CH1 — UTC S-30
- CH2 — UTC S-27
- T1 — UTC S-4
- T2 — S-16 for PA — GCM-3
for GC modulation
- T3 — UTC S-40
- SW1 — toggle switch
- R1 — 2 megohms, 1/2 watt
- R2 — 750 ohm, 1/2 watt
- R3 — 2 megohms, 1/2 watt
- R4 — 100,000 ohms, 1/2 watt
- R5 — 100,000 ohms, 1/2 watt
- R6 — 500,000 ohms
- R7 — 2,000 ohms, 1/2 watt
- R8 — 175 ohms, 20 watt
- R9 — 3,000 ohms, 20 watt
- R10 — 20,000 ohms, 20 watt
- C1 — 25 mfd., 25 V.
- C2 — .5 mfd., 400 V.
- C3 — .01 mfd., 400 V.
- C4 — .5 mfd., 400 V.
- C5 — 10 mfd., 25 V.
- C6 — .5 mfd., 400 V.
- C7 — C8 — 8-8 mfd., 600 V.





CATHODE MODULATION TRANSFORMERS

Cathode modulation brings down the cost of radio telephony by reducing the amount of modulation required. This system was originally developed by Frank Jones, and special matching transformers were developed by UTC with the cooperation of Mr. Jones. The UTC cathode modulation transformers incorporate a wide range of impedances to take care of every modulation requirement.

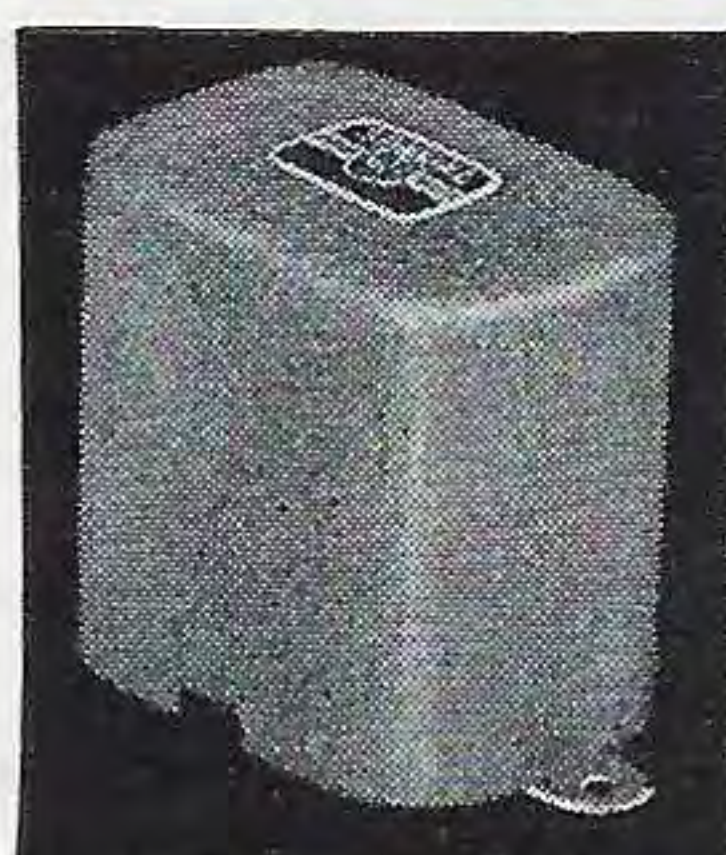
Up to 200 Watts RF Input



Type CM-15 cathode modulation transformer, tapped secondary 300 to 2,000 ohms, will handle 15 watts audio. G-3 Case.

Net Price **\$2.40**

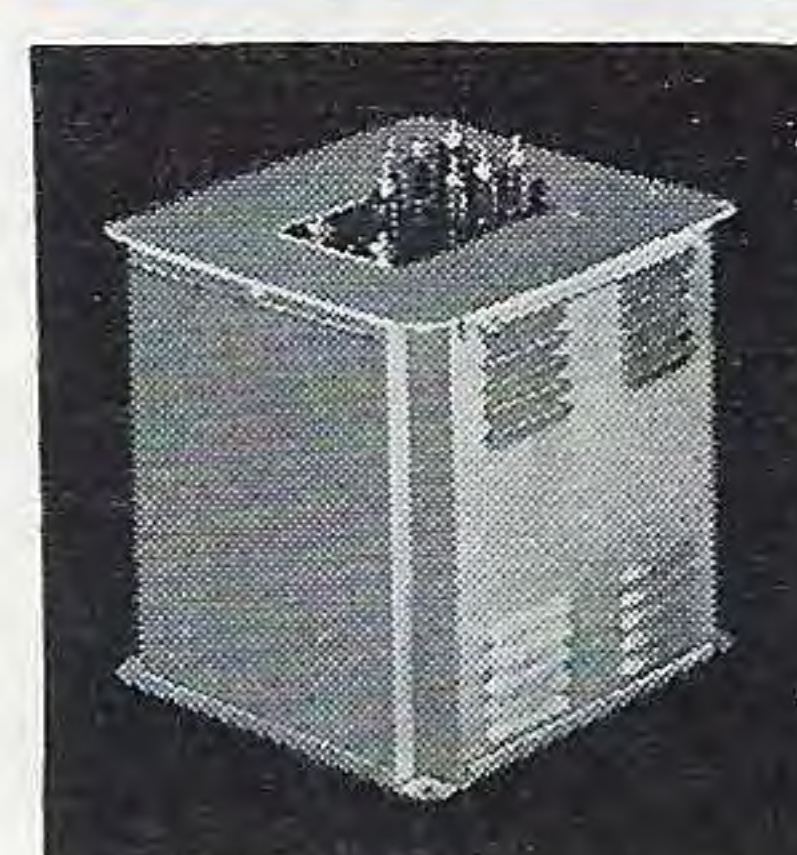
Up to 500 Watts RF Input



Type CM-16 cathode modulation transformer with variable tapped secondary 300 to 2,000 ohms, audio power 35 watts. G-4 Case.

Net Price **\$3.30**

Up to 1 KW RF Input



Type CM-17 cathode modulation transformer, tapped secondary impedance 300 to 2,000 ohms, for modulating 1 KW plus RF input. This transformer handles 100 watts audio power. G-Case.

Net Price **\$7.20**

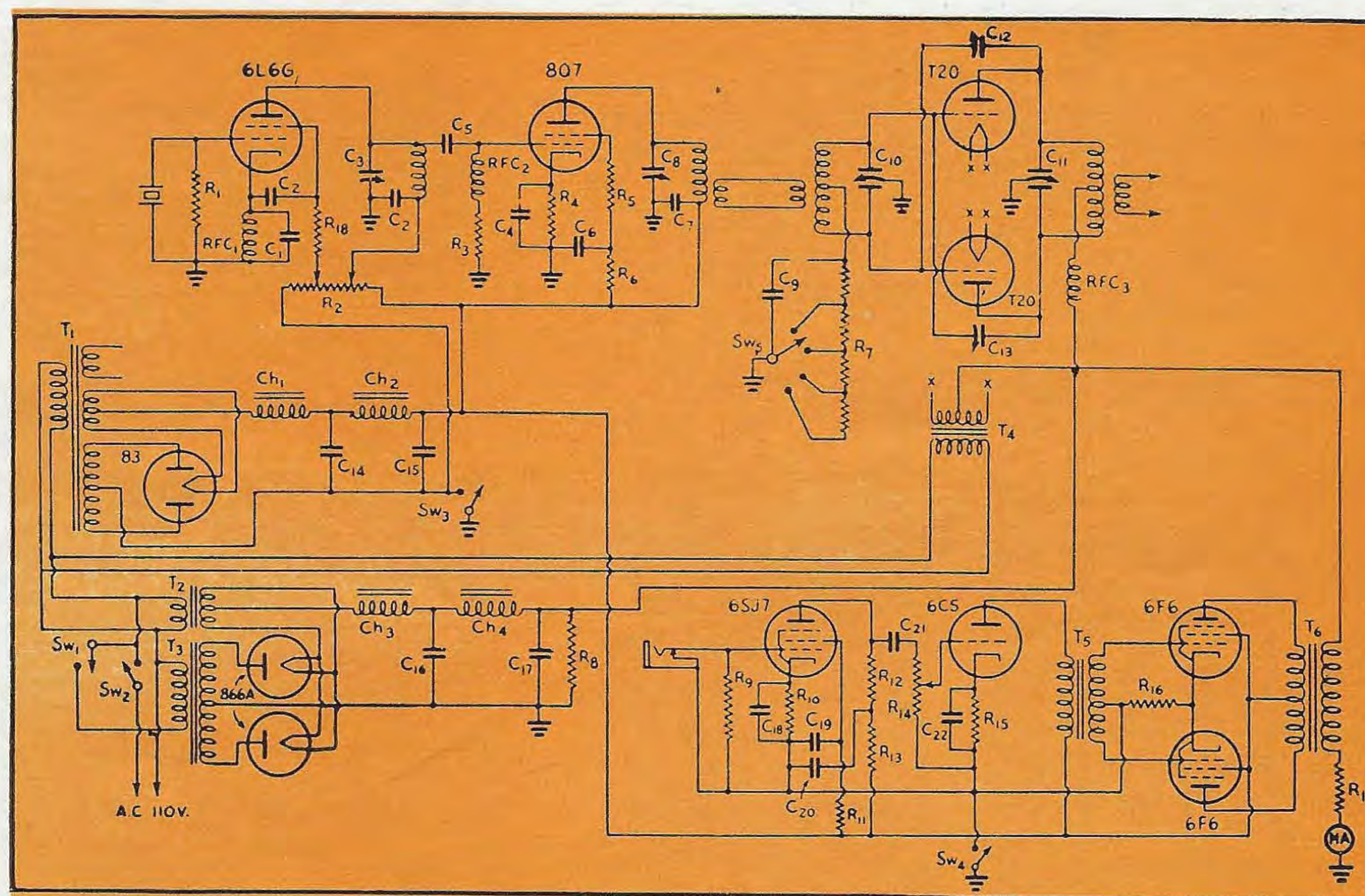
Type CM-18—15 watt line matching to RF load. Primary 200, 500 ohms. Secondary 300 to 2000 ohms. G-3 case.

Net **\$2.40**

A Popular Cathode Modulation Transmitter Circuit

The circuit shown is complete 'phone transmitter, including power supply and modulator, capable of delivering a 100% modulated carrier of 60 watts.

Cathode modulation is a system of modulation which brings the advantages of high power 'phone operation to a much greater group of amateur operators than has heretofore been possible. By means of cathode modulation it is possible to modulate a high-power Class C amplifier with a surprisingly small amount of audio power, thus appreciably decreasing the size and cost of the modulation equipment.



C₁ — 500- μ fd. mica.
C₂, C₇ — 0.01- μ fd. mica.
C₃, C₈ — 100- μ fd. variable.
C₄, C₆, C₂₁ — 0.01- μ fd. paper.
C₅ — 50- μ fd. mica.
C₉ — 1.0- μ fd. paper.
C₁₀, C₁₁ — Split-stator, 100 μ fd. each section, variable.
C₁₂, C₁₃ — 10- μ fd. neutralizing condenser.
C₁₄, C₁₅ — 8- μ fd., 450-volt electrolytic.
C₁₆, C₁₇ — 2- μ fd., 1000-volt.
C₁₈, C₂₂ — 10- μ fd., 25-volt electrolytic.
C₁₉ — 0.25- μ fd., 400-volt paper.
C₂₀ — 0.5- μ fd., 400-volt paper.
Ch₁ — 5-25-henry swinging choke, 175 ma. (S-30).
Ch₂ — 10-henry, 175-ma. filter choke (S-29).
Ch₃ — 5-25-henry swinging choke, 225 ma. (S-32).

Ch₄ — 20-henry, 225-ma. filter choke (S-31).
R₁ — 50,000-ohm, 1-watt.
R₂ — 25,000-ohm, 50-watt.
R₃ — 15,000-ohm, 2-watt.
R₄ — 100-ohm, 10-watt.
R₅ — 100-ohm, 1-watt.
R₆ — 20,000-ohm, 20-watt.
R₇ — 16,000-ohm, 20-watt, tapped every 2000 ohms (made from eight 2000-ohm resistors).
R₈ — 50,000-ohm, 100-watt.
R₉, R₁₁ — 2-megohm, $\frac{1}{2}$ -watt.
R₁₀ — 2500-ohm, $\frac{1}{2}$ -watt.
R₁₂ — 0.25-megohm, $\frac{1}{2}$ -watt.
R₁₃ — 100,000-ohm, $\frac{1}{2}$ -watt.
R₁₄ — 1-megohm volume control, with switch.
R₁₅ — 2,000-ohm, $\frac{1}{2}$ -watt.
R₁₆, R₁₇ — 200-ohm, 20-watt.
R₁₈ — 10,000-ohm, 1-watt.

RFC₁, RFC₂ — 2.5 mh. r.f. choke, 125 ma.
RFC₃ — 2.5 mh. r.f. choke, 500 ma.
SW₁ — S.p.s.t. toggle.
SW₂, SW₃ — D.p.s.t. toggle.
SW₄ — On volume control.
SW₅ — 11-position rotary switch.
T₁ — Plate-filament transformer; (S-39).
T₂ — Filament transformer, 2 $\frac{1}{2}$ -volt, 10-ampere (S-57).
T₃ — Plate transformer, 990-volt, 200-ma. (S-45).
T₄ — 7.5-volt filament transformer, 8-ampere (S-61).
T₅ — Interstage audio transformer, plate to p.p. grids (S-2).
T₆ — Cathode modulation transformer, 6F6 plates to 300-2000-ohm load (CM-15).
Figures in parentheses refer to UTC type number.

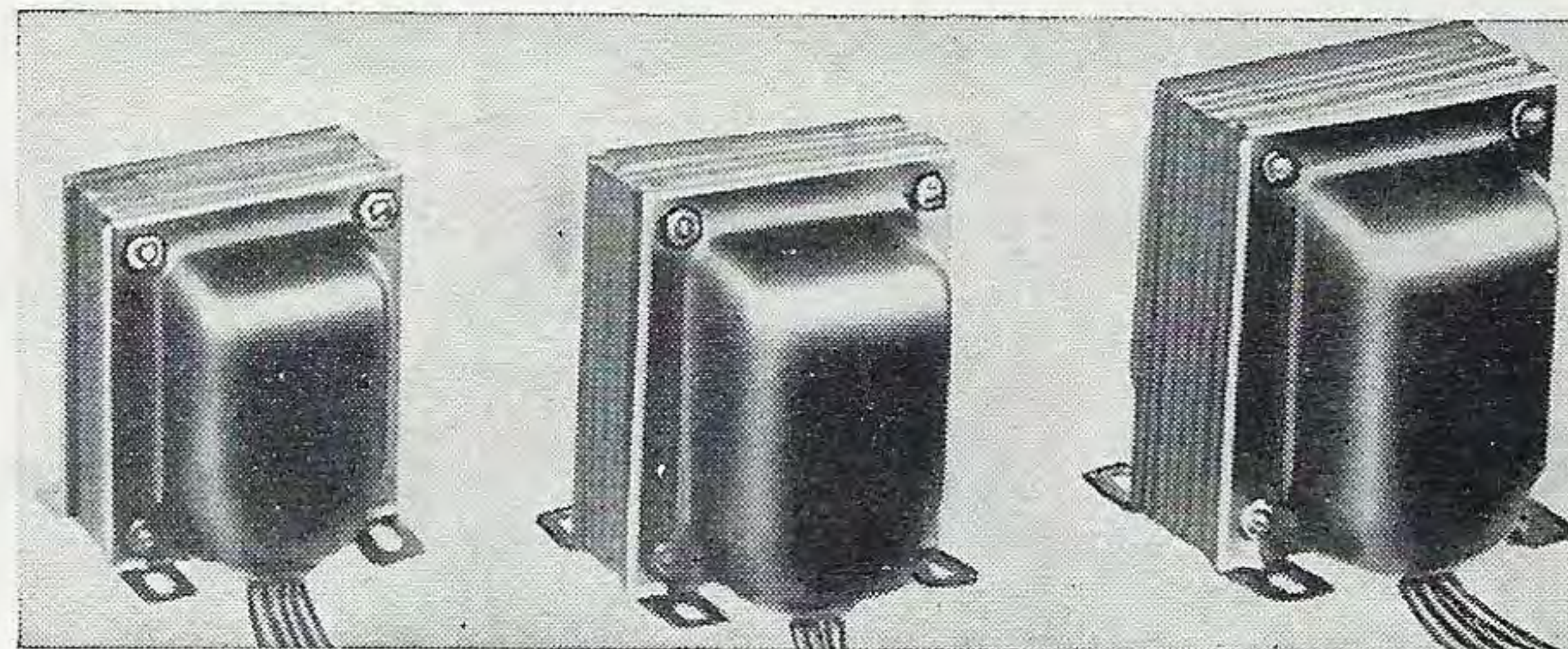
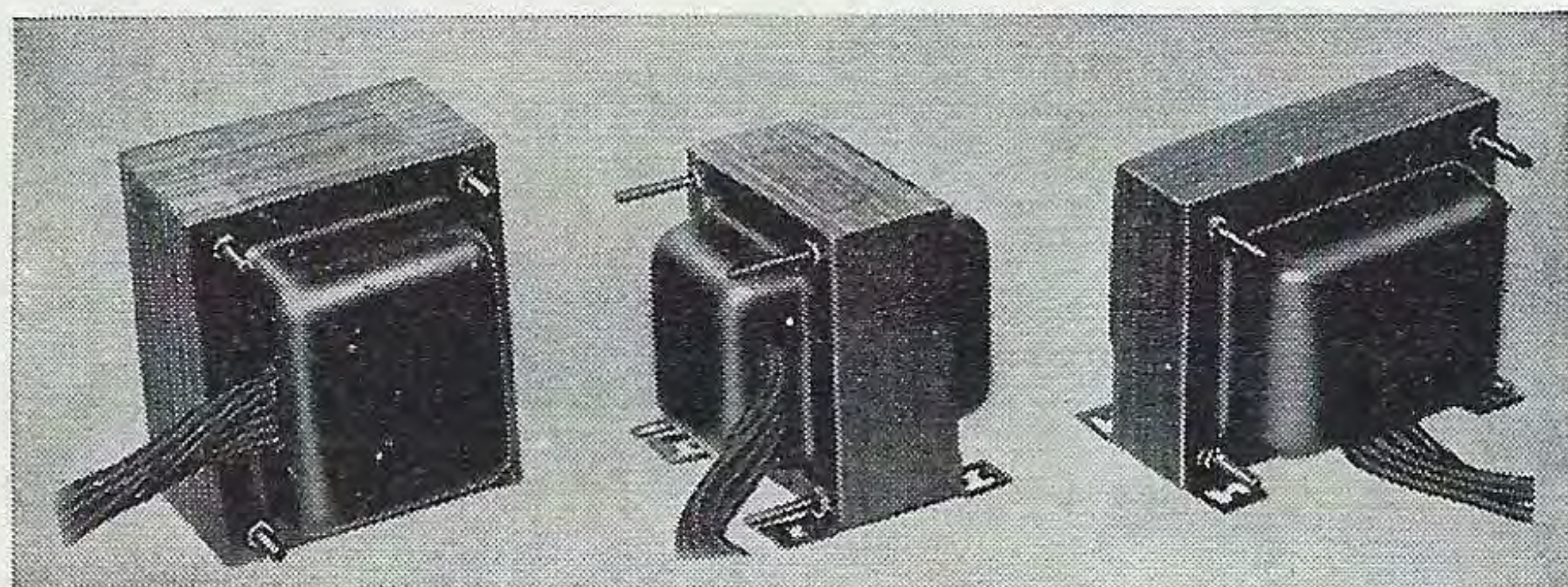


RADIO SET REPLACEMENT TRANSFORMERS

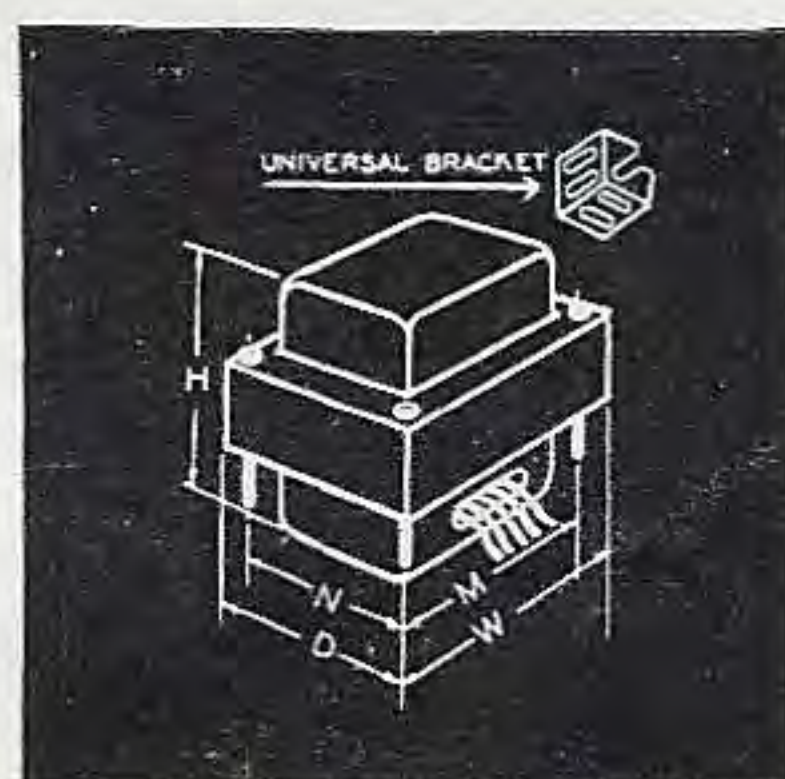


The new UTC replacement type transformers represent the culmination of years of development in this field. All units are vacuum sealed against humidity with special impregnating materials to prevent corrosion and electrolysis. Shells and brackets are finished in attractive high lustre black enamel.

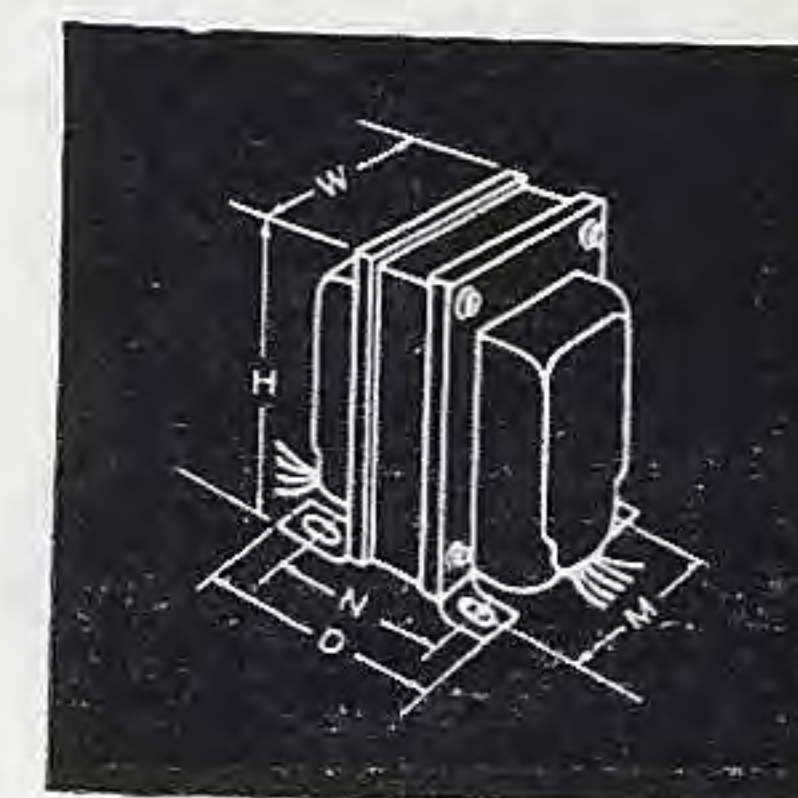
The new UTC shells and universal brackets employed make possible a latitude in mounting dimensions never approached heretofore. Using Varitap coil construction a minimum number of transformers have been developed to cover any requirement in the replacement field.



Through unique construction the five UTC Varitap Duplicate replacement transformers will service as many types of radio receivers as the 15 or 20 units more customarily employed for such service. The universal feet may be used for upright or horizontal mounting, or eliminated for flush mounting.



UTC vertical power transformers are unusually attractive in appearance, having smooth drawn cases finished in high lustre black enamel. The Varitap coil structure assures flexibility of application and permits the three units described to take the place of 5 to 8 units customarily employed for equivalent service.



VARITAP DUPLICATE REPLACEMENT POWER TRANSFORMERS

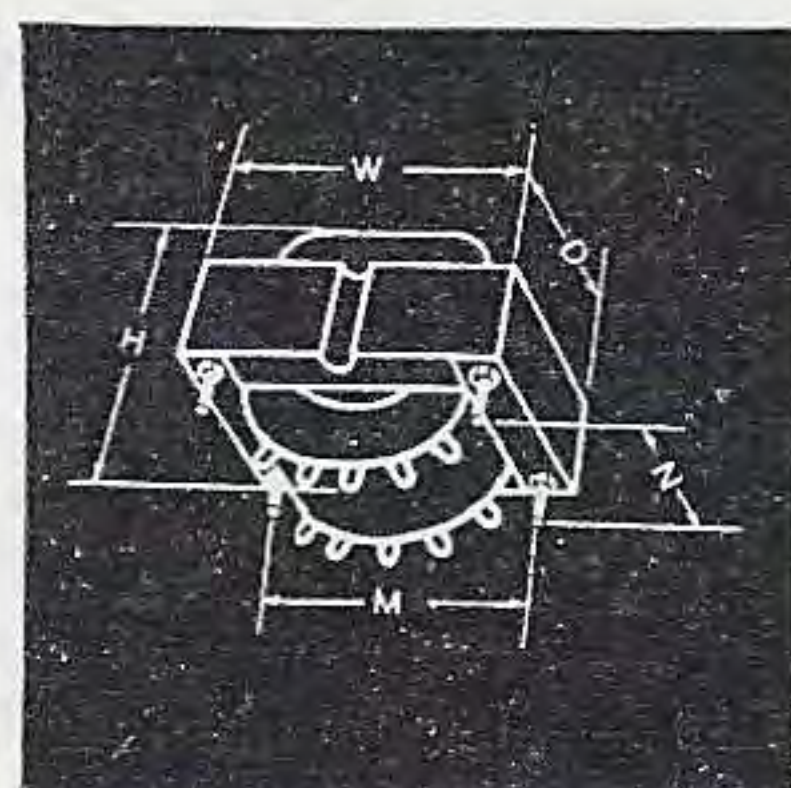
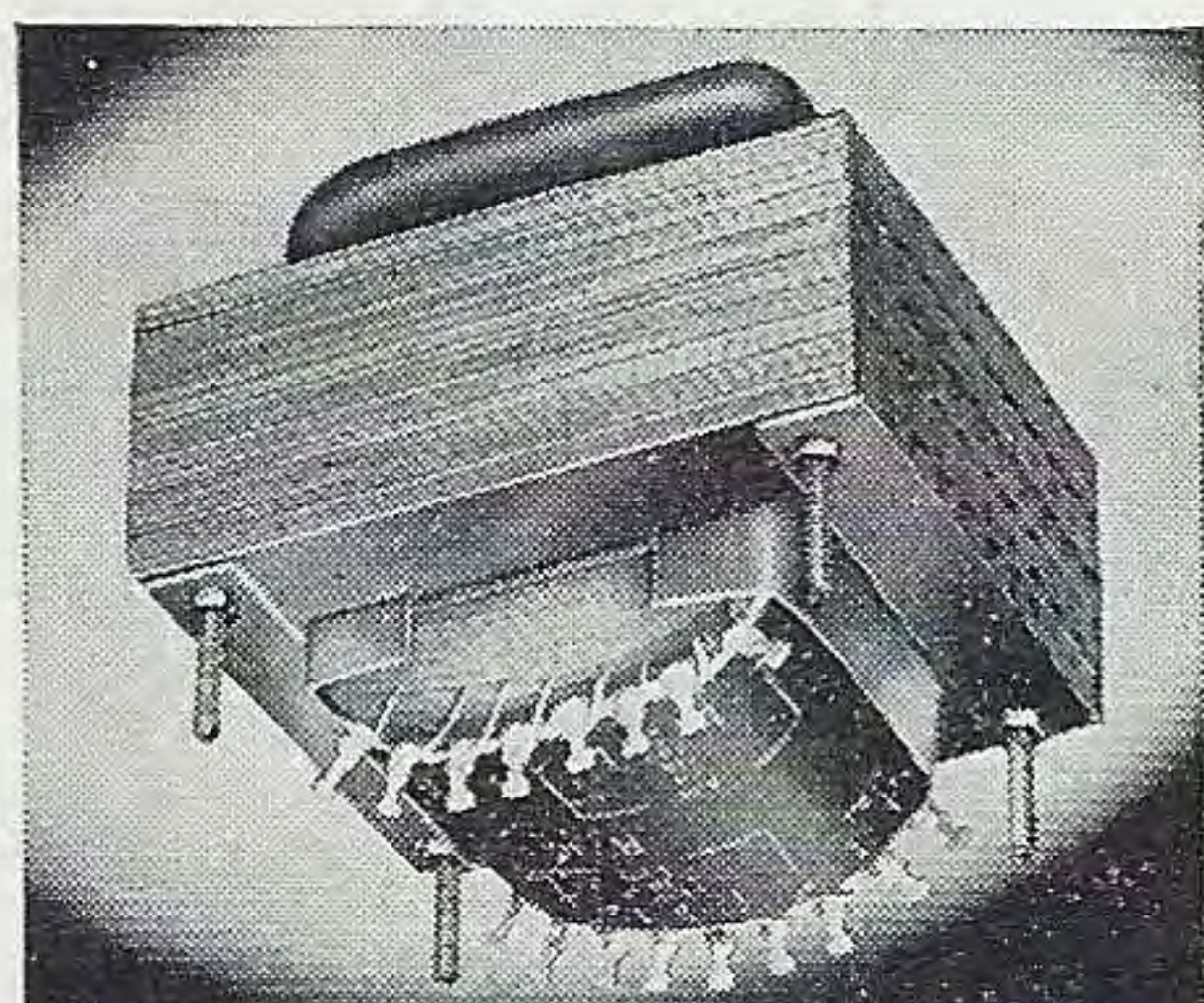
Type No.	High Voltage	Rect. Fil.	Fil. 1	Fil. 2	Dimensions, In.						Wt. Lb.	List Price
					W	D	H	M	N			
R-1	325-0-325 40MA	5V-2A	6.3 VCT-2A or 2.5-VCT-4A		3	2 1/2	2 3/4	2 1/2	2	2 1/2	2.50	
R-2	350-0-350 70MA	5V-3A	6.3 VCT-2.5A or 2.5-VCT-8A		3 3/8	2 7/8	3	2 1/2	2 1/4	3 1/4	3.00	
R-3	350-0-350 95MA	5V-3A	6.3 VCT-4.5A or 2.5-VCT-4.5A	2.5 VCT-9A	3 3/4	3 3/8	3 3/8	3 1/8	2 1/2	6 1/2	4.00	
R-4	375-0-375 120-MA	5V-4A	6.3 VCT-5A or 2.5-VCT-5A	2.5 VCT-15A	4 1/2	3 3/4	3 3/4	3 3/4	3	6 1/2	5.00	
R-5	385-0-385 180-MA	5V-4A	6.3 VCT-4A or 2.5-VCT-6A	6.3 VCT-5A	4 1/2	3 3/4	4 1/2	3 3/4	3	8 1/2	6.00	

VERTICAL SHIELDED POWER TRANSFORMERS FOR RECEIVERS AND AMPLIFIERS

Type No.	High Voltage	Rect. Fil.	Fil. 1	Fil. 2	Dimensions, In.						Wt. Lb.	List Price
					W	D	H	M	N			
R-54	300-0-300 50MA	5V-2A	6.3 VCT-2A or 2.5 VCT-5A		2 1/2	2 1/2	3 1/4	2	1 3/4	2 1/2	2.75	
R-11	350-0-350 75MA	5V-3A	6.3 VCT-3A or 2.5-VCT-3A	2.5 VCT-8A	3	3 1/4	3 1/2	2 1/4	2 1/4	4	4.25	
R-12	375-0-375 100-MA	5V-3A	6.3 VCT-4A or 2.5-VCT-4A	6.3 VCT-2A or 2.5 VCT-8A	3 1/4	3 3/8	4	2 1/2	2 1/2	6 1/2	5.25	
R-13	425-0-425 200-MA	5V-3A	6.3 VCT-5A or 2.5-VCT-5A	6.3 VCT-3A or 2.5 VCT-12A	3 3/8	4 1/2	4 3/8	3	3 3/8	8 1/2	7.50	

VARITAP FLUSH TYPE POWER TRANSFORMERS

The UTC flush type transformers are husky units designed for low temperature rise and good regulation. By employing a Varitap universal coil structure, (brought out to sturdy lugs) the five units described take the place of 12 to 15 units normally found in a flush type series.

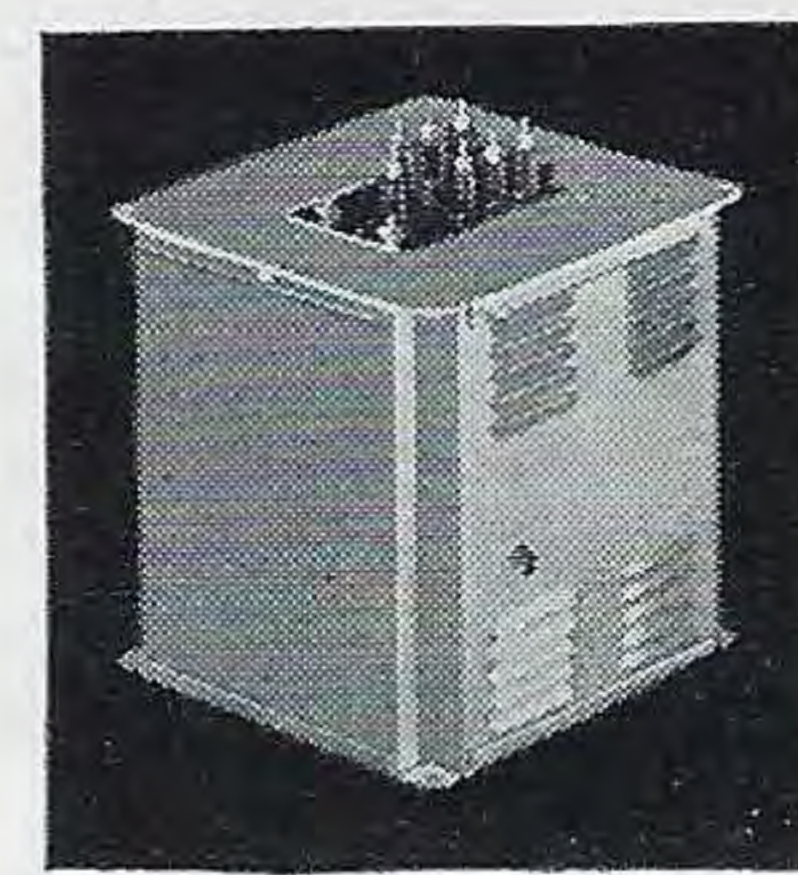


Type No.	High Voltage	Rect. Fil.	Fil. 1	Fil. 2	Dimensions, In.						Wt. Lb.	List Price
					W	D	H	M	N			
R-6	300-0-300 50MA	5V-2A	6.3 VCT-2A or 2.5-VCT-5A		3	2 1/2	3	2 1/2	2	2 1/2	2.50	
R-7	350-0-350 75MA	5V-3A	6.3 VCT-3A or 2.5-VCT-3A	2.5 VCT-8A	3 3/8	2 7/8	3 1/4	2 1/2	2 1/4	3	3.25	
R-8	375-0-375 100-MA	5V-3A	6.3 VCT-4A or 2.5-VCT-4A	2.5 VCT-10A	3 3/4	3 3/8	3 3/4	3 3/8	2 1/2	5 1/2	4.25	
R-9	400-0-400 125-MA	5V-3A	6.3 VCT-4A or 2.5-VCT-4A	6.3 VCT-2A or 2.5 VCT-10A	4 1/2	3 3/4	4	3 3/4	3	6 1/2	5.50	
R-10	425-0-425 200-MA	5V-3A	6.3 VCT-5A or 2.5-VCT-5A	6.3 VCT-3A or 2.5 VCT-12A	4 1/2	3 3/4	4 3/4	3 3/4	3	8 1/2	6.50	

First in Cathode Modulation

UTC Now Presents Universal Transformers for GRID-CATHODE MODULATION

Grid-Cathode Modulation is a form of grid and plate modulation, used for the purpose of reducing the amount of audio power required for 100% modulation of the Class C stage. In Grid-Cathode Modulation, the audio power required is 20% of the Class C input. After determination of the Class C impedance, the proper Grid voltage must also be applied to the Class C stage for correct operating conditions. The UTC-GCM series of transformers is of the Varimatch type, allowing wide latitudes of primary and secondary impedances as well as providing a variable voltage for the grid. A complete chart is provided with each unit illustrating values for practically all popular tube combinations.



- Primary designed to match all popular tubes.
- Secondary provides a wide range of impedances for GCM applications (1000 to 10,000 ohms).
- Separate tapped tertiary grid winding to facilitate exact grid matching.

GCM-1—200 or 500 ohm line to match tubes for GCM service. 30 watts audio output Net **\$4.80**

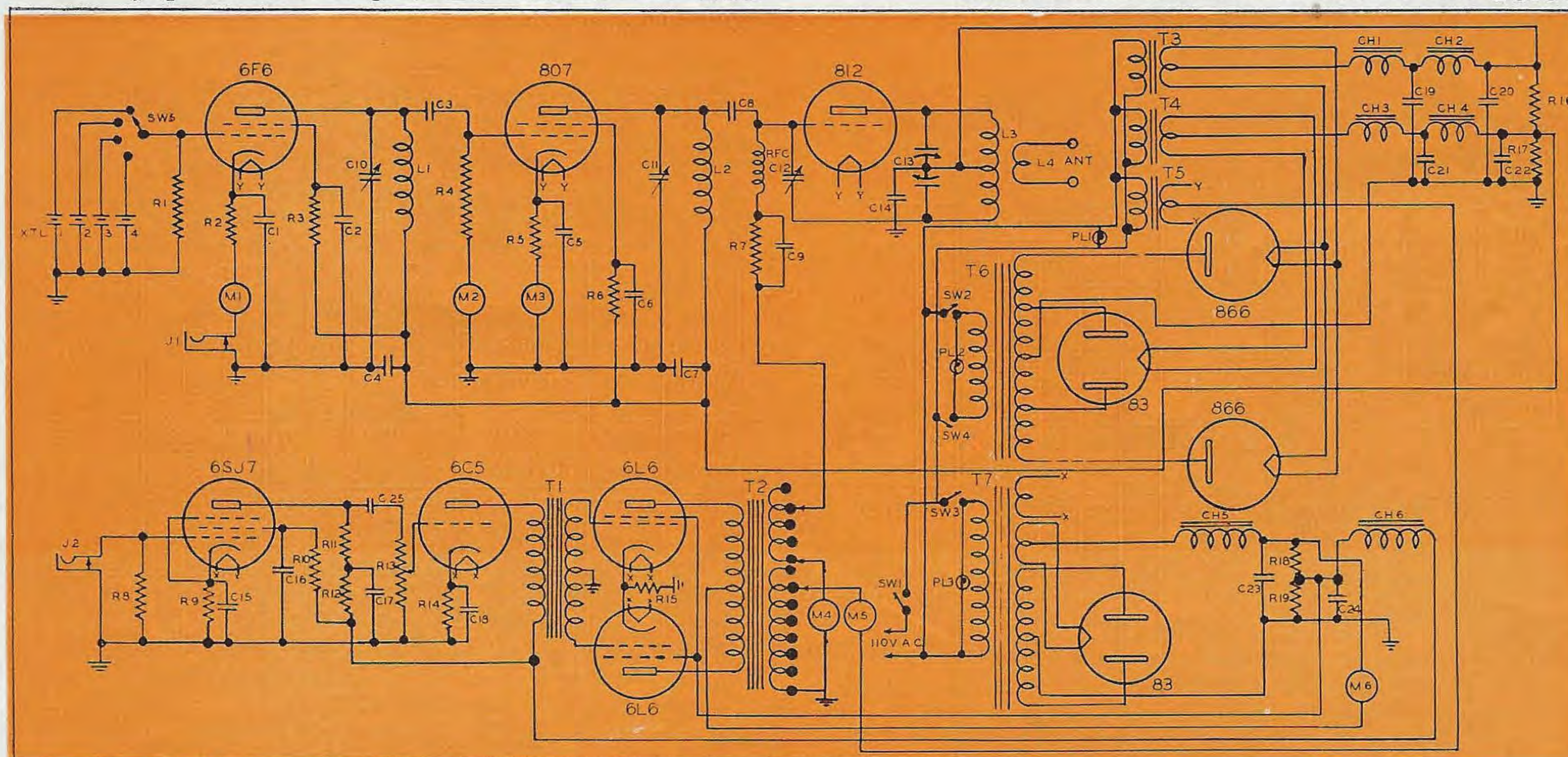
GCM-2—15 watts audio output, from all popular tubes to grid and cathode. Net **3.00**

GCM-3—30 watts audio output, from all popular tubes to grid and cathode. Net **4.50**

GCM-4—60 watts audio output, from all popular tubes to grid and cathode. Net **6.90**

GCM-5—200 watts audio output, from all popular tubes to grid and cathode Net **13.50**

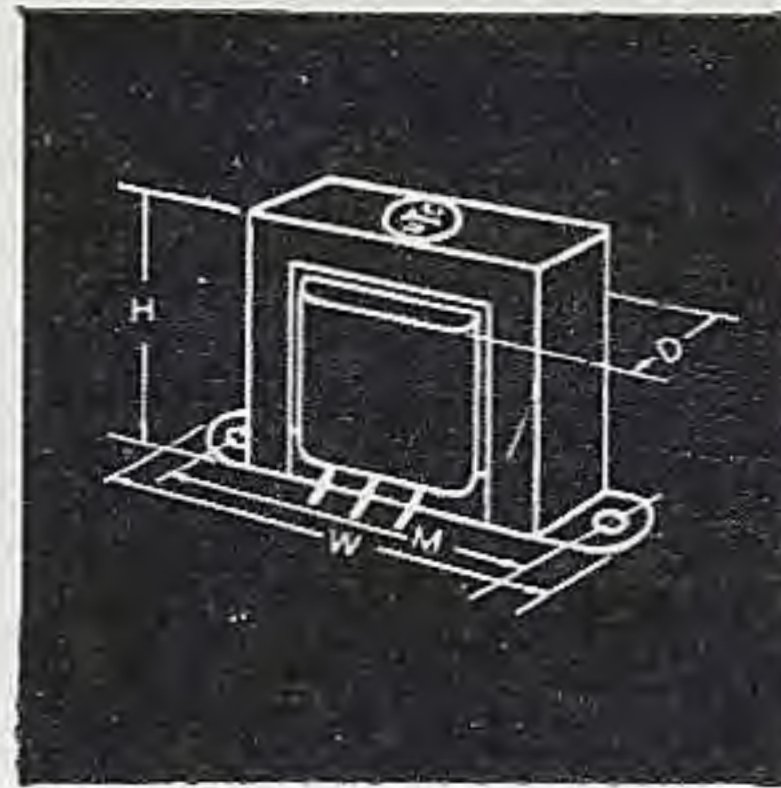
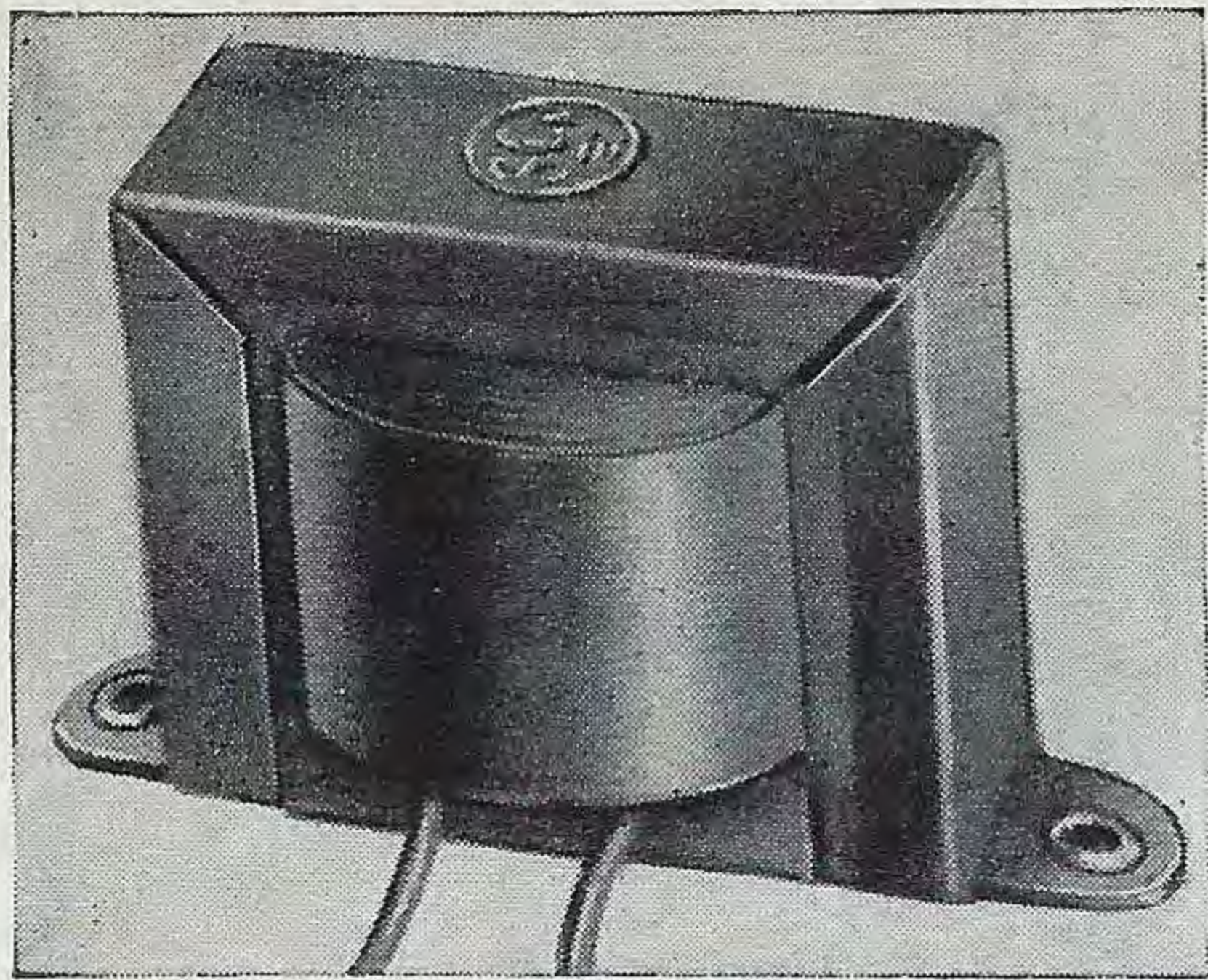
GCM-6—110 watts audio output from all popular tubes to grid and cathode Net **10.00**



TYPICAL GRID-CATHODE TRANSMITTER

50 watts phone, 100 watts CW 10-160 meters

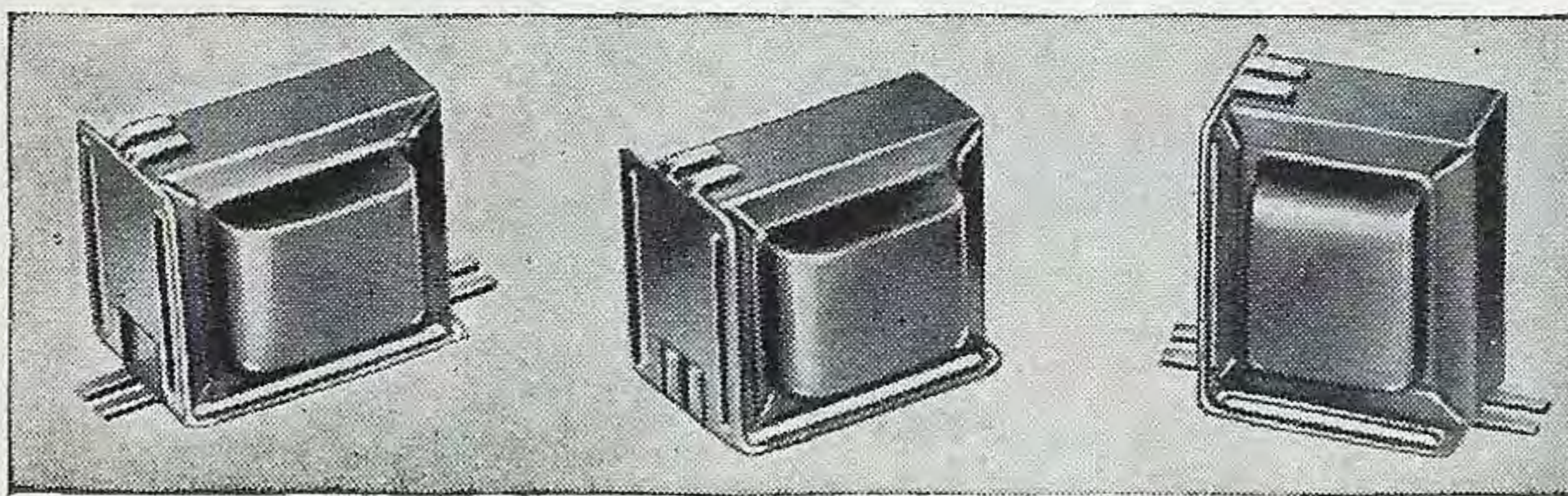
PL1 — Fil. pilot	C1 — .01 mfd. 400 V.	R1 — 50,000 ohms 1 watt	C21 — C22 — 8-8 mfd.
PL2 — H.V. pilot	C2 — .01 mfd. 400 V.	R2 — 500 ohms 1 watt	800 V.
PL3 — Mod. pilot	C3 — .0001 mfd. 600 V. mica	R3 — 50,000 ohms 2 watt	C23 — C24 — 8-8 mfd.
CH1 — UTC S-34	C4 — .01 mfd. 600 V.	R4 — 25,000 ohms 1 watt	600 V.
CH2 — UTC S-33	C5 — .01 mfd. 600 V.	R5 — 500 ohms	C25 — .01 mfd. 400 V.
CH3 — UTC S-30	C6 — .01 mfd. 600 V.	R6 — 25,000 ohms 5 watt	XTL 1-2-3-4 crystals
CH4 — UTC S-29	C7 — .01 mfd. 600 V.	R7 — 10,000 ohms 5 watt	SW1 — S.P.S.T.
CH5 — UTC S-30	C8 — .0001 mfd. 1500 V. mica	R8 — 2 megohms 1/2 watt	SW2 — S.P.S.T.
CH6 — UTC S-27	C9 — .01 mfd. 600 V.	R9 — 750 ohms 1/2 watt	SW3 — S.P.S.T.
T1 — UTC S-4	C10 — .0001 mfd.	R10 — 2 megohms 1/2 watt	SW4 — Safety switch
T2 — UTC GCM-3	C11 — .0001 mfd.	R11 — 100,000 ohms 1/2 watt	SW5 — S.P. 4 position
T3 — UTC S-57	C12 — 15 mfd. 1500 V.	R12 — 100,000 ohms 1/2 watt	J1 — Key jack
T4 — UTC S-54	C13 — 250 mfd.	R13 — 500,000 ohms	J2 — microphone jack
T5 — UTC S-70	C14 — .002 mfd. 1500 V. mica	R14 — 2,000 ohms 1/2 watt	M1 — 0-100 MA.
T6 — UTC S-47	C15 — 25 mfd. 25 V.	R15 — 175 ohms 20 watt	M2 — 0-100 MA.
T7 — UTC S-40	C16 — .5 mfd. 400 V.	R16 — 100,000 ohms 20 watt	M3 — 0-100 MA.
	C17 — .5 mfd. 400 V.	R17 — 100,000 ohms 20 watt	M4 — 0-100 MA.
	C18 — 10 mfd. 25 V.	R18 — 3,000 ohms 20 watt	M5 — 0-100 MA.
	C19 — C20 — 2 mfd. 1500 V.	R19 — 20,000 ohms 20 watt	M6 — 0-100 MA.



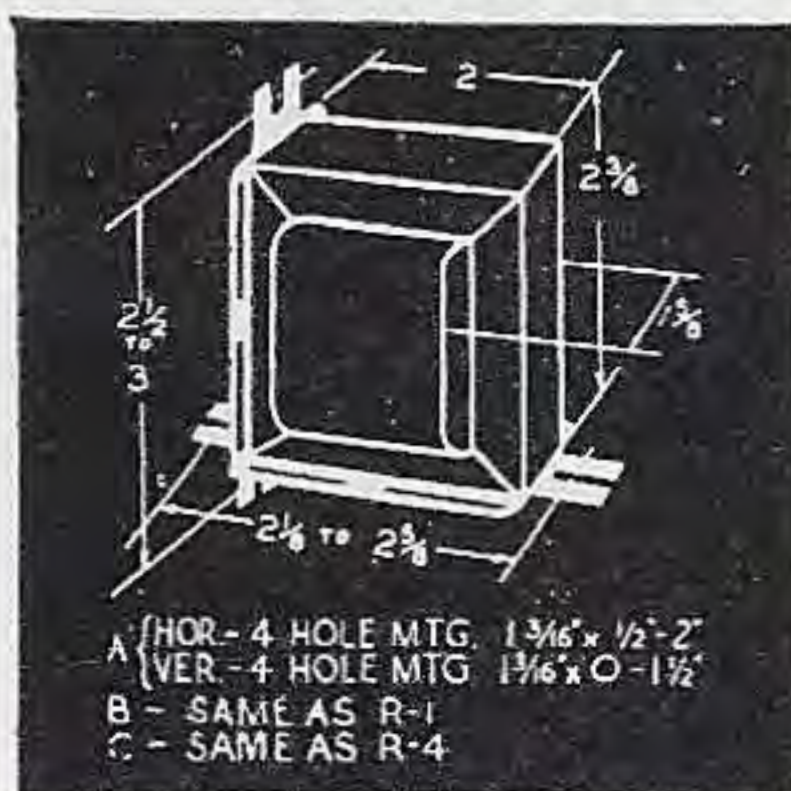
UTC filter chokes are conservatively designed and rated. Standard black enamel mounting channels are employed. Coils are completely sealed against adverse humidity conditions.

FILTER AND AUDIO CHOKES

Type No.	Induct. Hys.	Current	Resistance Ohms	Dimensions, Ins.				Wgt. Lbs.	List Price
				W	D	H	M		
R-55	10	35MA	300	2 1/2	1 3/8	1 3/8	2 1/8	1/2	\$.75
R-14	12	40MA	250	2 7/8	1 3/8	1 11/16	2 3/8	3/4	.90
R-15	15	30MA	450	2 7/8	1 3/8	1 11/16	2 3/8	3/4	.90
R-16	20	30MA	600	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.10
R-17	25	30MA	850	3 5/16	1 5/8	2	2 7/8	1	1.20
R-18	10	75MA	250	3 5/16	1 5/8	2	2 7/8	1	1.20
R-19	15	100MA	450	3 3/4	1 3/4	2 5/16	3 1/4	1 1/2	1.75
R-20	8	160MA	100	4 1/8	2	2 3/8	3 3/8	2 1/2	2.00
R-21	5/25	160MA	100	4 1/8	2	2 3/8	3 3/8	2 1/2	2.00
R-22	500	5MA	4000	3 5/16	1 5/8	2	2 7/8	1	1.75



The Varitap Duplicate audio units represent the acme in replacement transformer development. The units are extremely attractive, the double shells and universal mounting brackets being finished in high lustre black enamel. The figure A units use the new UTC universal bracket. This bracket makes possible four hole horizontal or vertical mounting and two hole, channel type, horizontal or vertical mounting. The coils of these units, in addition to efficient design and mechanical shielding, are vacuum impregnated and completely sealed with a special compound to assure complete protection against adverse climatic conditions.



VARITAP DUPLICATE AUDIO TRANSFORMERS AND FILTER CHOKES

(Completely Shielded Units, Universal Mtg.)

Type No.	Application	Description	Fig.	Wgt. Lbs.	List Price
R-23	1 plate* to 1 grid	3 1/2:1 ratio	A	1	\$1.75
R-24	1 plate* to 2 grids	2:1 ratio	A	1	1.85
R-25	2 plates* to 2 grids	1.5:1 stepup for class A triodes 1.5:1 stepdown for 6L6's, 2A3's, 2A5's, etc.	A	1 1/4	2.00
R-26	Driver, 1 plate to 2 grids	Single 42, 2A5, 6F6, 45, 46 to AB 6L6's, 42's, 2A5's, 6F6's, 46's	A	1 1/4	2.00
R-27	15 watt Universal Output	All tubes up to 15 watts to any voice coil from .1 to 30 ohms	A	1 1/4	1.75
R-28	35 watt Universal Output	All tubes up to 35 watts to any voice coil from .1 to 30 ohms	B	2 1/2	2.50
R-29	Mike to grid	Single or double button mike or line to 1 grid	A	1 1/4	1.85
R-30	Filter choke	13 Hys—250 MA—100 ohms	C	7	5.00
R-31	Filter choke	10 Hys—80 MA—250 ohms	A	2 1/2	1.50
R-32	Filter choke	10 Hys—150 MA—100 ohms	B	2 1/4	2.25

*Will match tubes like 27, 37, 56, 6C6 triode, 6C5. Can be used with high mu triodes with loss in low frequencies.

UTC channel frame TROPICAL WETPROOF audios are excellently designed. In addition to good frequency range, coils are vacuum-pressure treated followed by the UTC MOULD SEAL process of WET PROOFING to prevent moisture absorption.

CHANNEL FRAME AUDIO TRANSFORMERS

Type No.	Application	Description	Dimen., Ins.				Wt. Lbs.	1st Price
			W	D	H	M		
R-33	1 plate* to 1 grid	4:1 ratio	2 7/8	1 3/8	1 11/16	2 3/8	3/4	\$1.20
R-34	1 plate* to 2 grids	2:1 ratio	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.25
R-35	Mike to 1 grid	17:1 ratio	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.50
R-53	Plate and mike to grid	3:1 and 17:1 ratio	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.65
R-56	1 plate to 2 grids	2:1 ratio	3 5/16	1 5/8	2	2 7/8	1	1.50
R-57	1 plate to 2 grids	2 1/2:1 ratio	4 1/8	2	2 3/8	3 3/8	2 1/2	2.50
R-36	Driver	30, 49, etc. to class B 19, 49, 79, 89 grids	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.50
R-37	R.F. Output	Class B 19, 49, 79, 89 plates to 3500 and 5,000 ohms	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.60
R-58	5 watt Universal output	Any single tube to any voice coil .1 to 30 ohms	2 1/2	1 3/8	1 3/8	2 1/8	1/2	1.10
R-38A	6 watt Universal	Any tubes up to 6 watts to any voice coil .1 to 30 ohms	2 1/2	1 3/8	1 3/8	2 1/8	3/4	1.25
R-59	10 watt Universal	Any tubes up to 10 watts to any voice coil .1 to 30 ohms	2 7/8	1 3/8	1 11/16	2 3/8	1	1.40
R-60	15 watt Universal	Any tubes up to 15 watts to any voice coil .1 to 30 ohms	3 5/16	1 5/8	2	2 7/8	1 1/2	1.50
R-39	10 watt line Matching Transformer	250, 500, 1,500 ohms to 2, 8, 15 ohms	2 7/8	1 3/8	1 11/16	2 3/8	3/4	1.60
R-40	25 watt line Matching Transformer	250, 500, 1,500 ohms to 2, 8, 15 ohms	4 1/8	2 1/4	2 3/8	3 3/8	2 1/4	2.50

*Will match tubes like 27, 37, 56, 6C6 triodes, 6C5. Can be used with high mu triodes with loss in low frequencies.

CHANNEL FRAME FILAMENT TRANSFORMERS

Pri. 115 V.—50/60 Cycles

Type No.	Secondary	Dimensions, Inches				List Price
		W	D	H	M	
FT-1	2.5 V. C. T.-3A	2 7/8	1 3/8	1 11/16	2 3/8	\$1.25
FT-2	6.3 V. C. T.-1.2A	2 7/8	1 3/8	1 11/16	2 3/8	1.25
FT-3	2.5 V. C. T.-6A	3 5/16	1 5/8	2	2 7/8	1.50
FT-4	6.3 V. C. T.-2.5A	3 5/16	1 5/8	2	2 7/8	1.75
FT-5	2.5 V. C. T.-10A	3 3/4	1 3/4	2 5/16	3 1/4	1.75
FT-6	5 V. C. T.-3A	3 3/4	1 3/4	2 5/16	3 1/4	1.75
FT-7	7.5 V. C. T.-3A	3 3/4	1 3/4	2 5/16	3 1/4	1.75

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 1/2	6.00
R-44	250 watt capacity	6 1/2	7.00
R-45	500 watt capacity	13	14.00
R-46	1000 watts, no cord	26	25.00



EXPORT VOLTAGE ADAPTERS

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-48	150 watts	5 1/2	\$7.50

LINE VOLTAGE CORRECTORS

Auto-transformers complete with cord, plug and tap switch. Switch will effect 115 volts plus or minus 2 1/2 volts output for any input voltage from 90 to 135 volts, 50/60 cycles.

Type No.	Rating	Weight, Lbs.	List Price
R-50	100 watts	4	\$6.50
R-51	250 watts	5 1/2	8.00
R-52	1000 watts	18	25.00