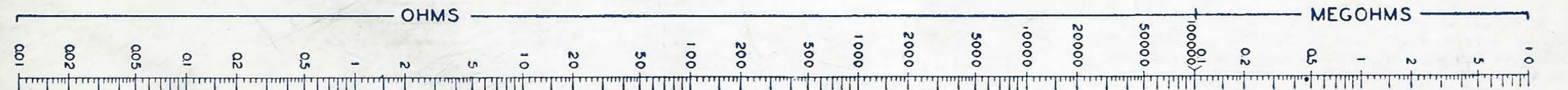


TRANSFORMERS

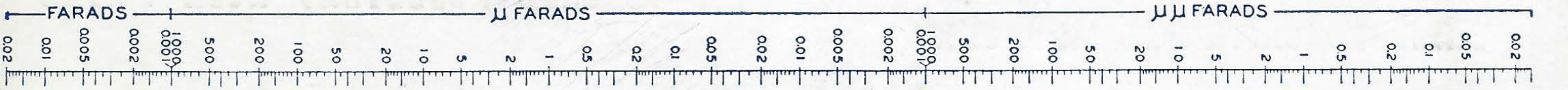




INDUCTANCE



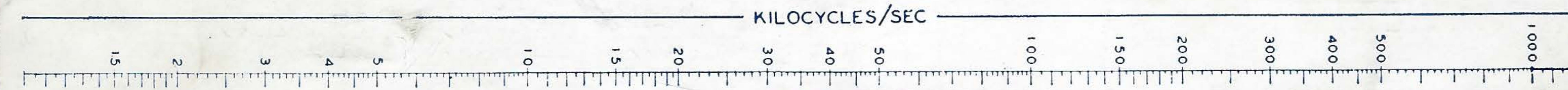
REACTANCE



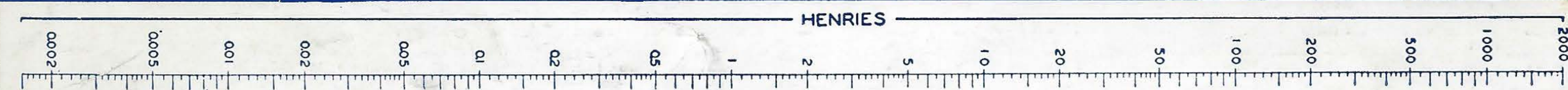
CAPACITANCE

United Transformer Co.
150 VARICK STREET NEW YORK 13, N. Y.

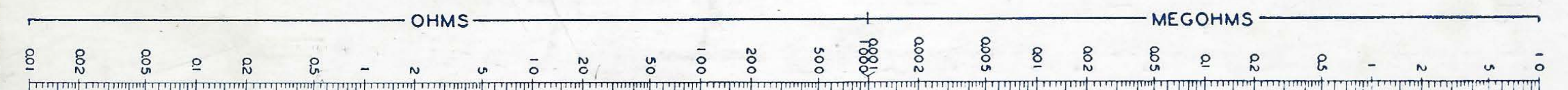
EXPORT DIVISION: 13 EAST 40th STREET, NEW YORK 16, N. Y., CABLES: "ARLAB"



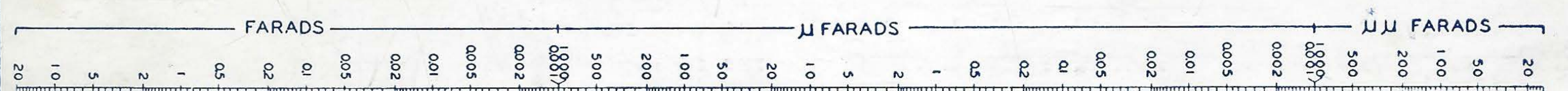
FREQUENCY



INDUCTANCE



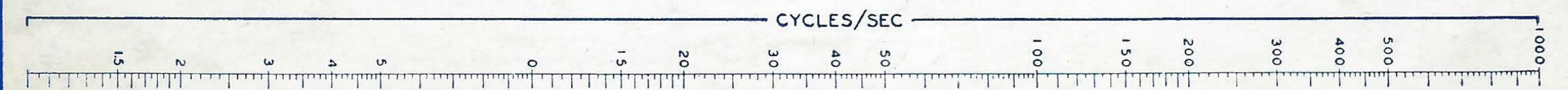
REACTANCE



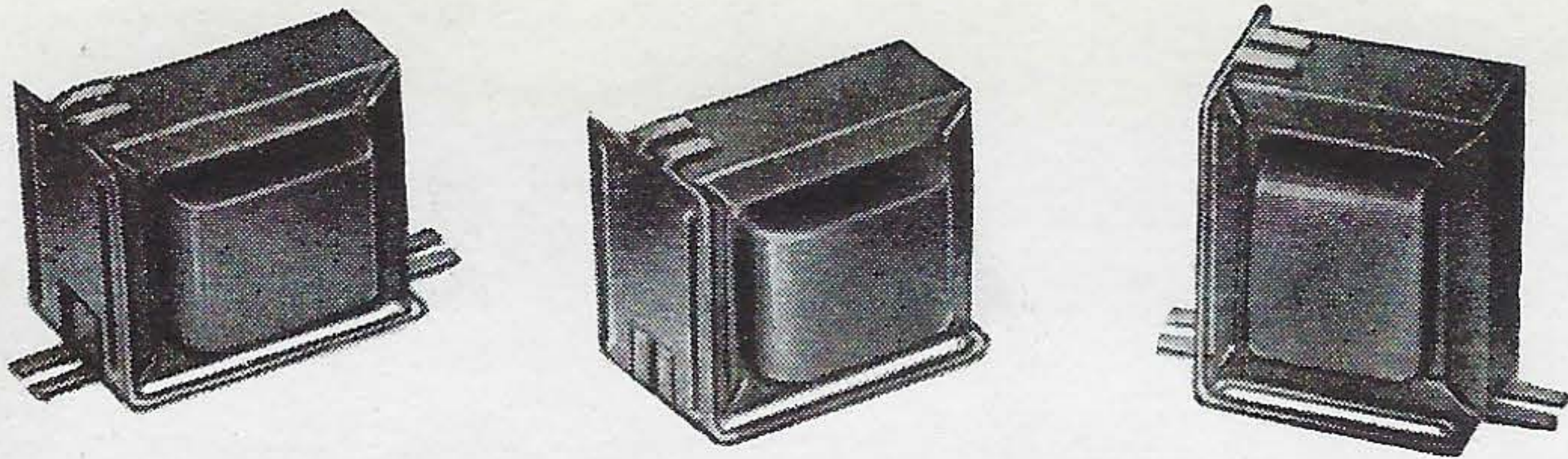
CAPACITANCE

REACTANCE—FREQUENCY CHART

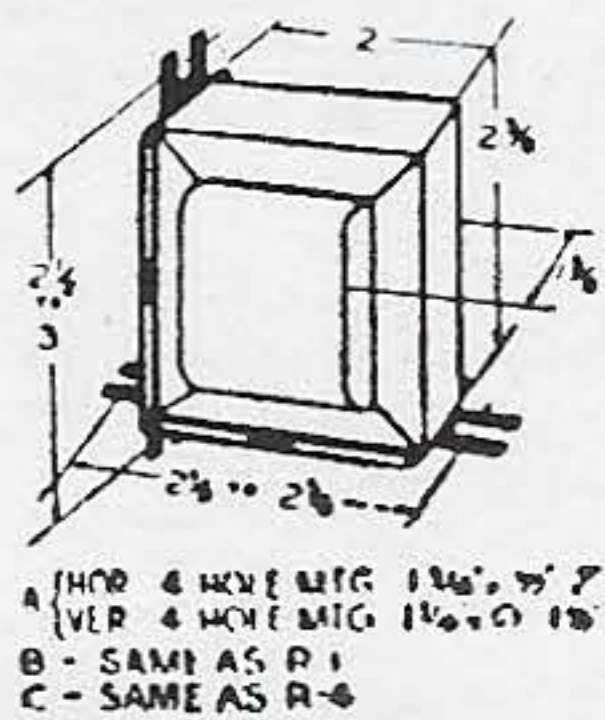
A straight edge across known values in any two columns will locate the corresponding values in the other two columns. For example, take an inductance of 1 Henry at 50 cycles. A straight edge across these points will intersect the reactance line at 310 ohms, and the capacity line at 10 mfd. indicating the capacity required for resonance.



FREQUENCY



Varitap Duplicate audio units are extremely attractive, the double shells and universal mounting brackets being finished in high lustre black enamel. The figure A units use the 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 sealed with a special compound to assure complete protection against adverse climatic conditions.



SHIELDED UNIVERSAL MOUNTING AUDIO TRANSFORMERS AND FILTER CHOKES

Type No.	Application	Description	Fig.	Wt. Lbs.
R-23	1 plate* to 1 grid	3 1/2:1 ratio	A	1
R-24	1 plate* to 2 grids	2:1 ratio	A	1
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
R-26	Driver, 1 plate to 2 grids	Single 42, 2A5, 6F6, 45, 46	A	1 1/4
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
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
R-29	Mike to grid	Single or double button mike or line to 1 grid	A	1 1/4
R-30	Filter choke	13 Hys—250 MA—100 ohms	C	7
R-31	Filter choke	10 Hys—80 MA—250 ohms	A	2 1/2
R-32	Filter choke	10 Hys—150 MA—100 ohms	B	2 1/4

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

CHANNEL FRAME AUDIO TRANSFORMERS

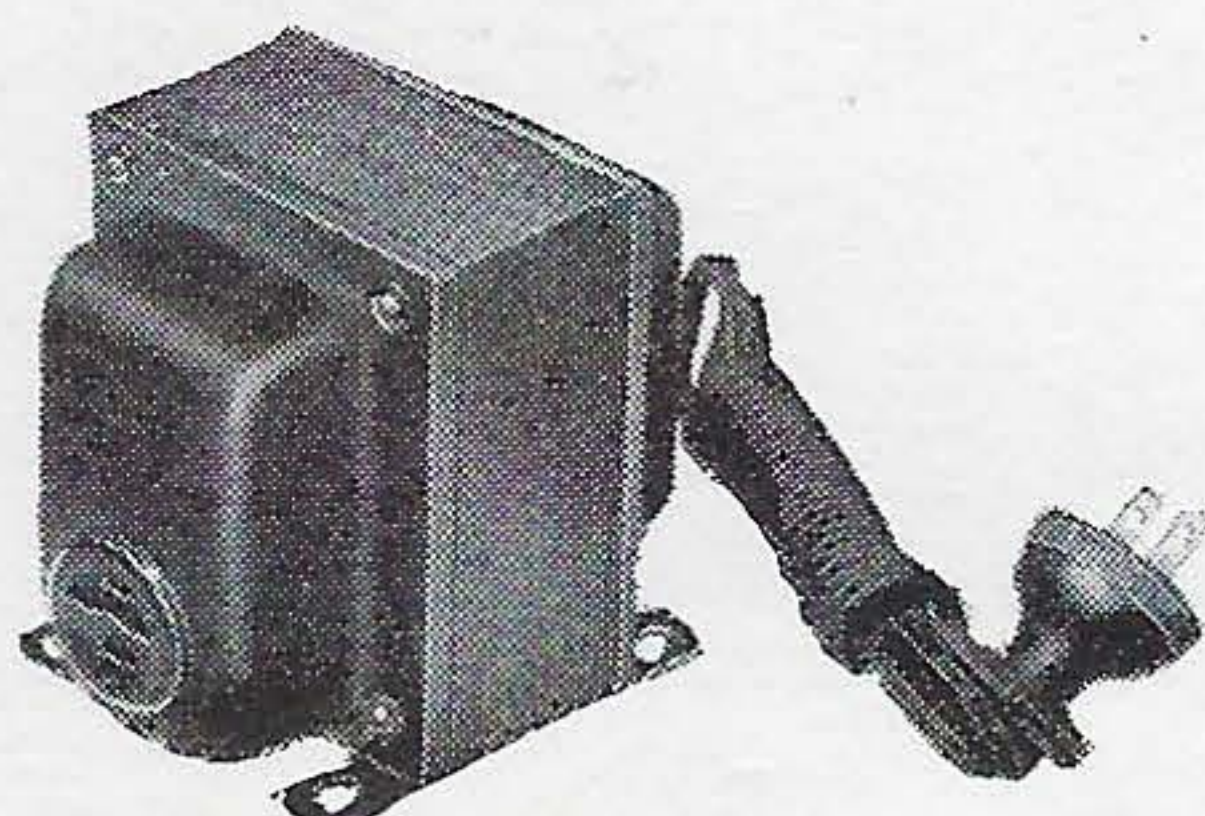
Type No.	Application	Description	W	D	H	M	Wt. Lbs.
R-33	1 plate* to 1 grid	4:1 ratio	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-34	1 plate* to 2 grids	2:1 ratio	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-35	Mike to 1 grid	17:1 ratio	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-90	Intercomm. speaker to grid	4 ohm to 40,000 ohm grid	2 1/2	1 3/8	1 3/8	2 1/8	1/2
R-53	Plate & mike to grid	3:1 and 17:1 ratio	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-56	1 plate to 2 grids	2:1 ratio	3-5/16	1 5/8	2	2-13/16	1
R-57	1 plate to 2 grids	2 1/2:1 ratio	4 1/8	2	2 3/8	3-9/16	2 1/2
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
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
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
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	1/2
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	3/4
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	2-13/16	1
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
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	3-9/16	2 1/2

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

STEP DOWN AUTO-TRANSFORMERS

With 6 foot cord and female receptacle
220-240 to 110-120 Volts—50/60 Cycles

Type No.	Application	Wgt. Lbs.
R-41	85 watt capacity	4
R-42	125 watt capacity	5
R-43	175 watt capacity	5 1/2
R-44	250 watt capacity	6 1/2
R-45	500 watt capacity	12
R-46	1200 watt capacity	18
R-64	2500 watts, no cord	30

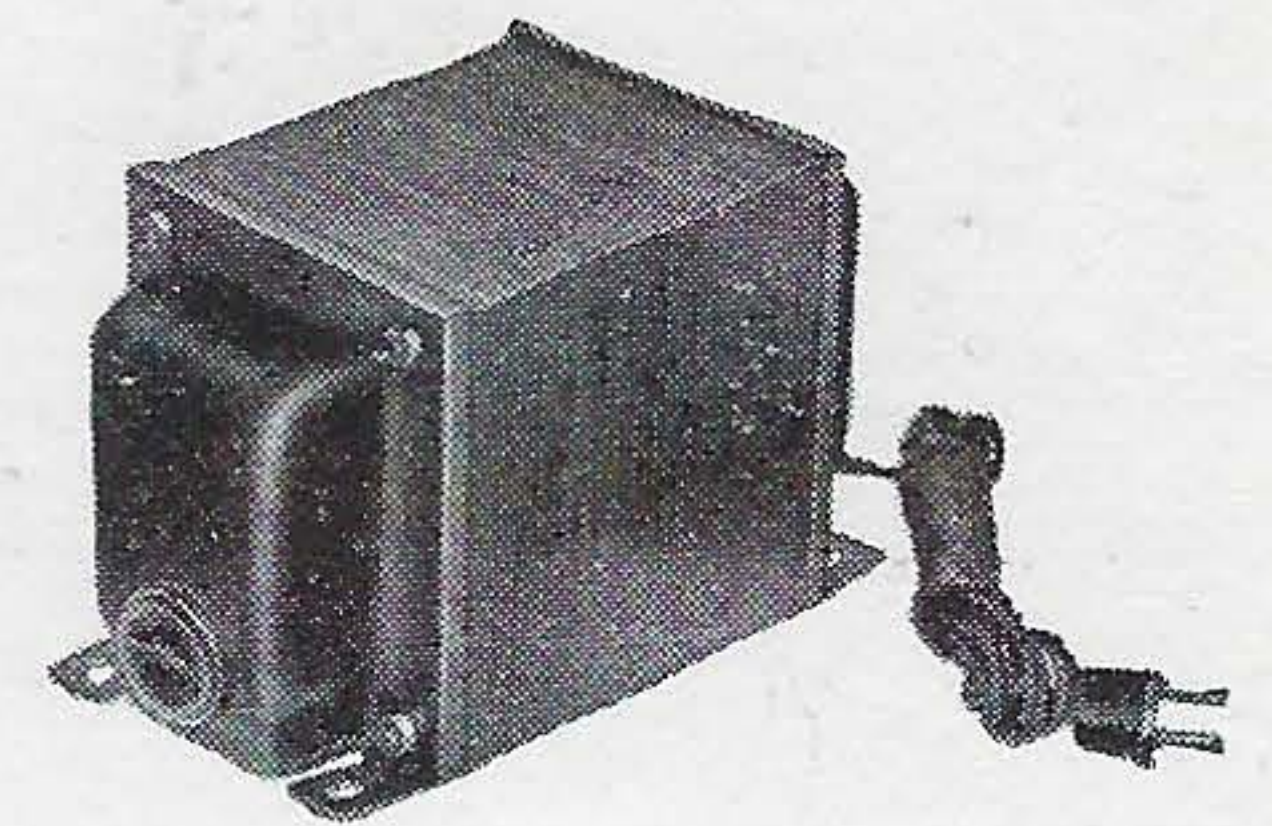


ISOLATION TRANSFORMERS

Ideal for isolating line noise, AC-DC sets, etc. Excellent electrostatic shielding. 2000 volt breakdown test. Six foot cord and female receptacle.

Primary 110-120 volts, 50/60 cycles—Secondary 110-120 volts

Type No.	Rating	Wgt. Lbs.
R-72	40 watts	4
R-73	100 watts	6
R-74	250 watts	12
R-75	600 watts	20
R-76	1200 watts	30
R-77	2500 watts (no cord)	70



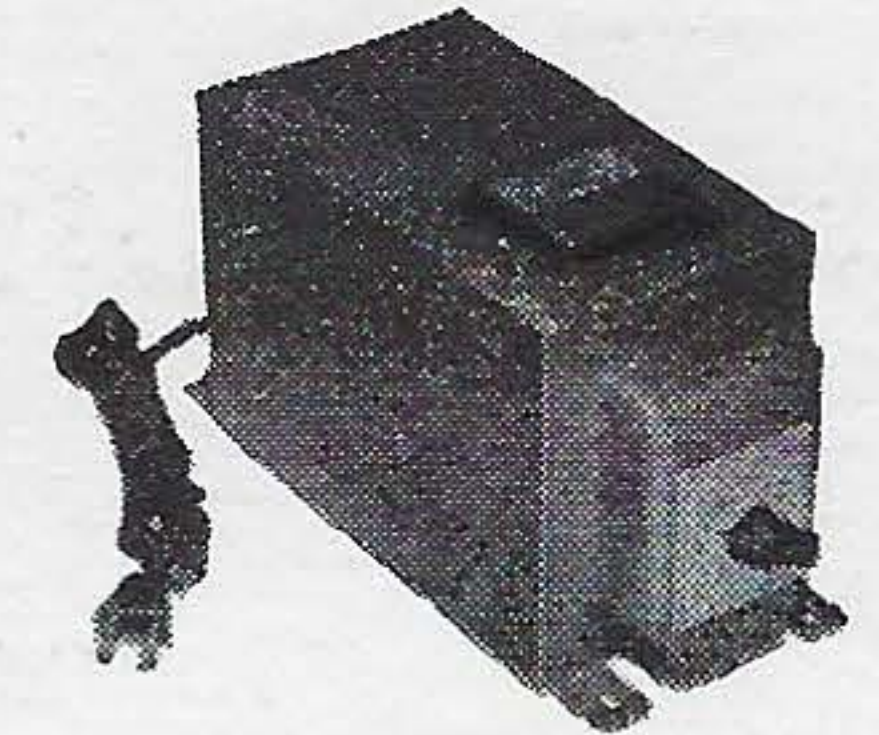
LINE VOLTAGE ADJUSTERS WITH METER

The perfect answer to abnormal or fluctuating line voltage. Adjust switch so that meter reads at red line and you know that your equipment is working at correct voltage.

These units combine a tapped auto-transformer with a switch and meter in a compact, rugged assembly.

The nine tap switch provides for line voltages of 60 to 140 volts on 115 volt output models and 160 to 240 volts on 230 volt output models.

All units are designed for 50/60 cycle service and come complete with 6 foot input cord and plug and outlet receptacle.



Type No.	Primary Voltages	Sec. Volts	Watts	Wt. Lbs.
R-78	60, 70, 80, 90, 100, 110, 120, 130, 140	115	150	6
R-79	60, 70, 80, 90, 100, 110, 120, 130, 140	115	300	9
R-80	60, 70, 80, 90, 100, 110, 120, 130, 140	115	600	13
R-81	60, 70, 80, 90, 100, 110, 120, 130, 140	115	1200	21
R-83	160, 170, 180, 190, 200, 210, 220, 230, 240	230	150	6
R-84	160, 170, 180, 190, 200, 210, 220, 230, 240	230	300	9
R-85	160, 170, 180, 190, 200, 210, 220, 230, 240	230	600	13
R-86	160, 170, 180, 190, 200, 210, 220, 230, 240	230	1200	21

EXPORT VOLTAGE ADAPTER

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. Similar in appearance to above but without meter.

Type No.	Rating	Wgt. Lbs.
R-47	85 watts	4 1/2
R-48	150 watts	5 1/2

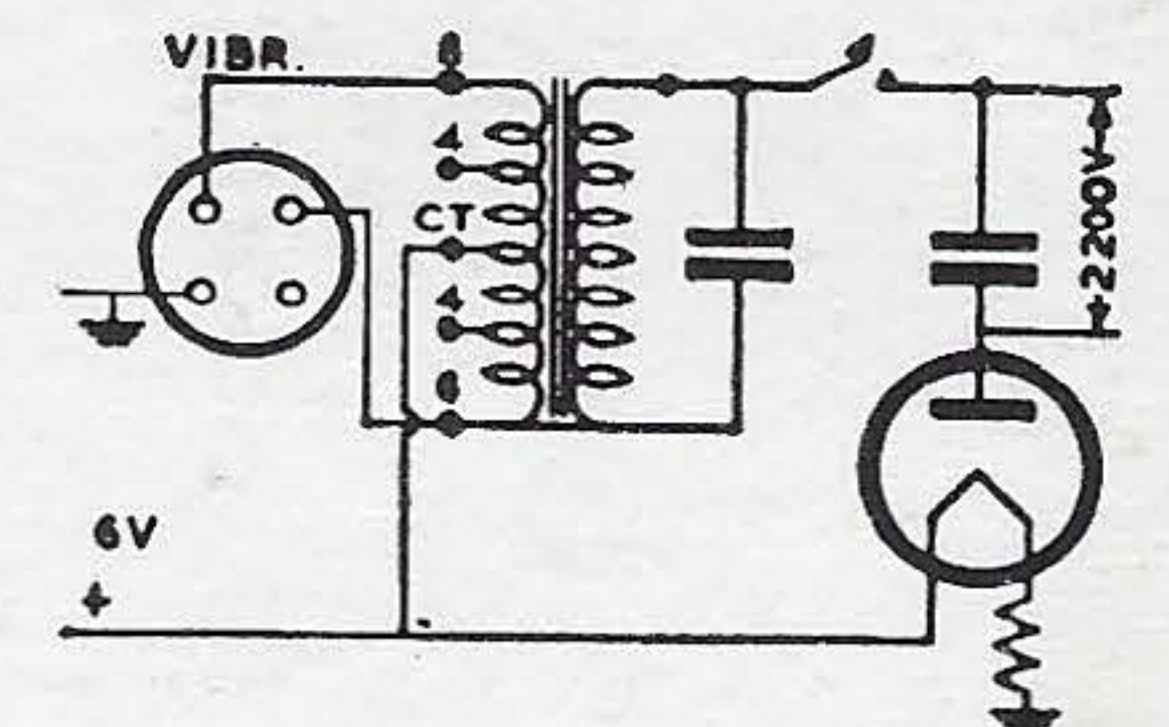
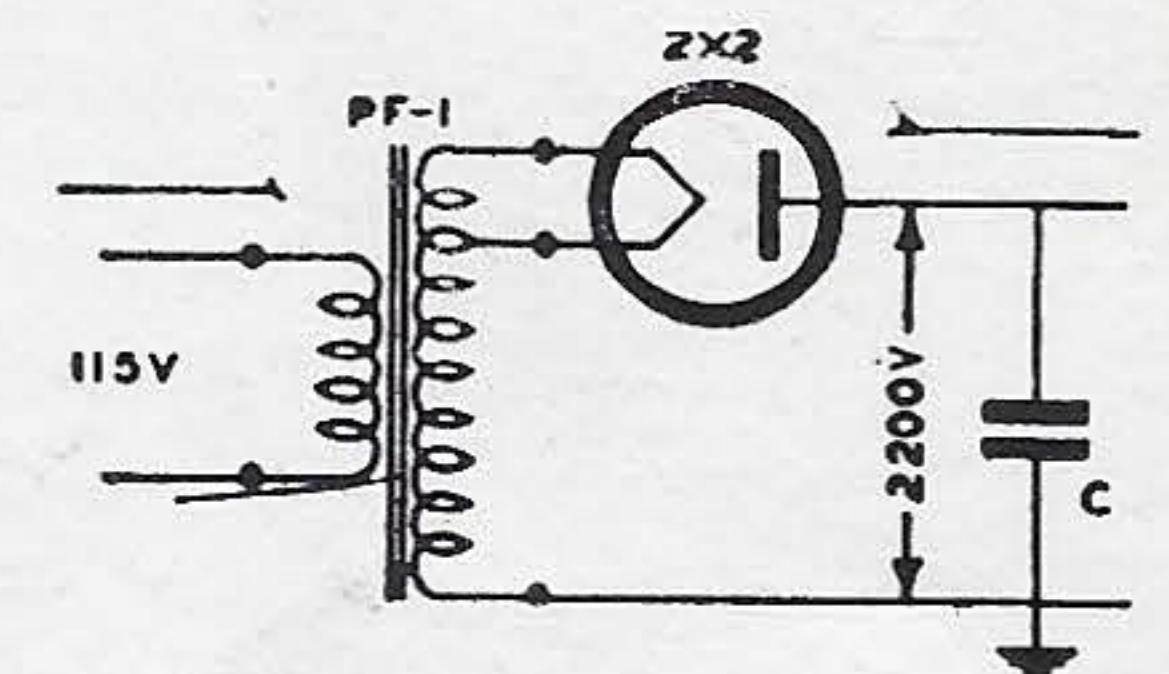
PHOTO FLASH TRANSFORMERS

Can be used for either standard (Amglo type) or trigger (Sylvania type) multiple flash bulbs. Circuit details included with transformer.

PF-1 Primary for 115 volts, 50/60 cycles. Secondaries for power supply delivering 2200 volts DC to condenser up to 100 Mfd. (30 Mfd. charges in 4 Sec.) Compound sealed in G-3 case 2 1/8 x 2 3/4 x 2 1/2 inches high. Weigh 2 Lbs.

PF-2 For portable photoflash service. Primary tapped for 4 volt or 6 volt battery (full wave vibrator). Secondary for power supply delivering 2200 volts DC to condenser up to 60 Mfd. (30 Mfd. charges in 8 sec. with 6 volts or 14 Sec. with 4 volts). Compound sealed in G-3 case. Weight 2 Lbs.

PF-3 Trigger Transformer 15 KV peak. 7/8 O.D. x 3" long Wt. 2 oz.



TELEVISION TRANSFORMERS

These components are quality designs, vacuum impregnated and fully compound sealed in heavy steel cases affording a high degree of shielding.

Type No.	Application	Case	Wt. Lbs.
R-91	Horizontal oscillator (15750 cycles)	RC-50	1
R-92	Vertical oscillator (60 cycles)	RC-50	1
R-93	Vertical output, tapped for different tubes	RC-100	4
R-94	Horizontal output (special core), tapped for adjustment	RC-100	4
R-95	2800 vac (4000V-2MA DC) 2.5V-1.8A., 6.3V-.6A tapped 2.5V-2.1A. 7000 V test	RC-112	5

UTC REPLACEMENT TYPE COMPONENTS

VARITAP DUPLICATE REPLACEMENT POWER TRANSFORMERS

A

Type No.	High Volt- age	Rect. Fil.	Fil. 1	Fil. 2	W	D	H	M	N	Wt. Lb.
R-1	325-0-325 40MA	5V-2A	6.3 VCT-2A or 2.5-VCT-4A		3	2½	2¾	2½	2	2½
R-2	350-0-350 70MA	5V-3A	6.3 VCT-2.5A or 2.5-VCT-8A		3¾	2¾	3	2-13/16	2¾	3
R-3	350-0-350 95MA	5V-3A	6.3 VCT-4.5A or 2.5-VCT-4.5A	2.5 VCT-9A	3¾	3¾	3¾	3¾	2½	5½
R-4	375-0-375 120-MA	5V-4A	6.3 VCT-5A or 2.5-VCT-5A	2.5 VCT-15A	4½	3¾	3¾	3¾	3	6½
R-5	385-0-385 180-MA	5V-4A	6.3 VCT-4A or 2.5-VCT-6A	6.3 VCT-5A	4½	3¾	4½	3¾	3	8½

VARITAP FLUSH TYPE POWER TRANSFORMERS

B

Type No.	High Volt- age	Rect. Fil.	Fil. 1	Fil. 2	W	D	H	M	N	Wt. Lb.
R-6	300-0-300 50MA	5V-2A	6.3 VCT-2A or 2.5-VCT-5A		3	2½	3	2½	2	2½
R-7	350-0-350 75MA	5V-3A	6.3 VCT-3A or 2.5-VCT-3A	2.5 VCT-8A	3¾	2¾	3¾	2-13/16	2¾	3
R-8	375-0-375 100-MA	5V-3A	6.3 VCT-4A or 2.5-VCT-4A	2.5 VCT-10A	3¾	3¾	3¾	3¾	2½	5½
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	4½	3¾	4	3¾	3	6½
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	4½	3¾	4¾	3¾	3	8½

VERTICAL SHIELDED POWER UNITS

C

Type No.	High Volt- age	Rect. Fil.	Fil. 1	Fil. 2	W	D	H	M	N	Wt. Lb.
R-54	300-0-300 50MA	5V-2A	6.3 VCT-2A or 2.5-VCT-5A		2½	2½	3¾	2	1¾	2½
R-11	350-0-350 75MA	5V-3A	6.3 VCT-3A or 2.5-VCT-3A	2.5 VCT-8A	3	3¾	3¾	2½	2¾	3½
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	3¾	3¾	4	2½	2½	6
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	3¾	4½	4¾	3	3¾	8½

FILTER AND AUDIO CHOKES

D

Inductance Shown Is at Rated D.C.M.A.—Insulation Test: 1750 Volts

Type No.	Induct. Hys.	Current	Resist- ance Ohms	W	Dimensions, Ins.	Lbs.
R-55	6	40MA	300	2½	1¾ 1¾ 2	½
R-14	8	40MA	250	2½	1¾ 1-11/16 2¾	¾
R-15	12	80MA	450	2¾	1¾ 1-11/16 2¾	¾
R-16	15	30MA	600	2¾	1¾ 1-11/16 2¾	¾
R-17	20	40MA	850	3-5/16	1¾ 2 2-13/16	1
R-18	8	80MA	250	3-5/16	1¾ 2 2-13/16	1
R-19	14	100MA	450	3¾	1¾ 2-5/16 3¾	1½
R-20	7	160MA	100	4¾	2 2½ 3-9/16	2½
R-21	4/20	160MA	100	4¾	2 2½ 3-9/16	2½
R-22	120	5MA	4000	3-5/16	1¾ 2 2-13/16	1

FILAMENT TRANSFORMERS

D

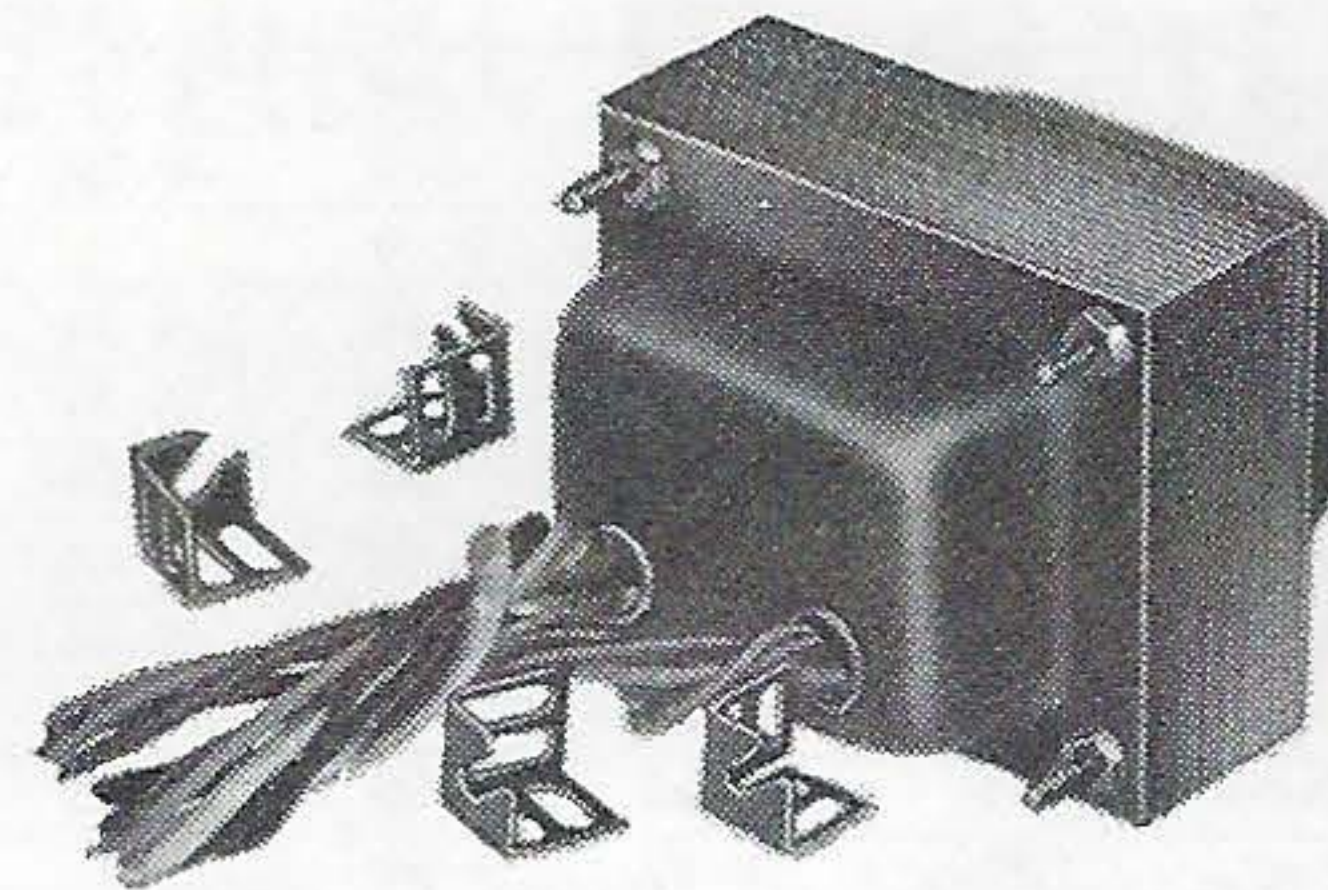
Pri. 115 V. 50/60 Cycles—1500 V. Breakdown

Type No.	Secondary	W	Dimensions, Inches	Wt. Lbs.
FT-1	2.5 V.C.T.-3A	2¾	1¾ 1-11/16 2¾	¾
FT-2	6.3 V.C.T.-1.2A	2¾	1¾ 1-11/16 2¾	¾
FT-3	2.5 V.C.T.-6A	3-5/16	1¾ 2 2-13/16	1
FT-4	6.3 V.C.T.-2.5A	3-5/16	1¾ 2 2-13/16	1
FT-5	2.5 V.C.T.-10A	3¾	1¾ 2-5/16 3¾	1½
FT-6	5 V.C.T.-3A	3¾	1¾ 2-5/16 3¾	1½
FT-7	7.5 V.C.T.-3A	3¾	1¾ 2-5/16 3¾	1½
FT-8	6.3 V.C.T.-6A	4¾	2¾ 2¾ 3-9/16	2½

The 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.

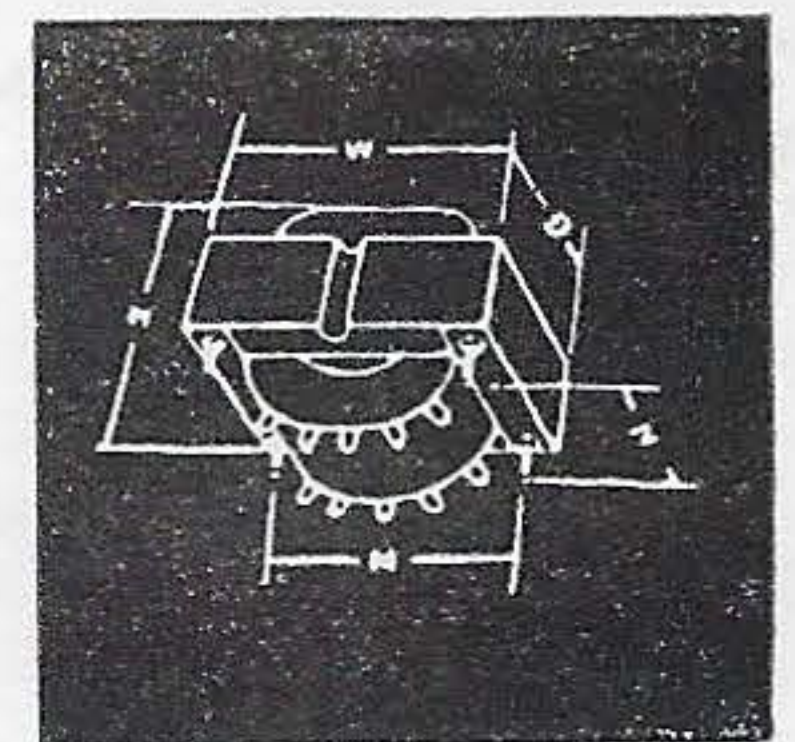
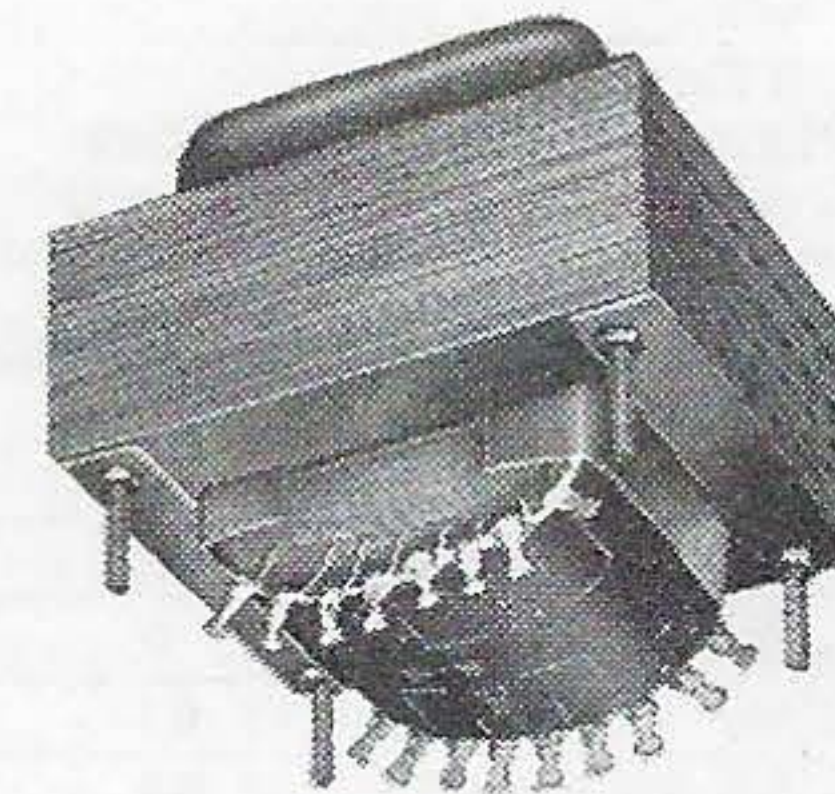
The UTC shells and universal brackets employed make possible a latitude in mounting dimensions never approached heretofore. Using Varitap coil construction a minimum number of transformers have been developed to cover any requirement in the replacement field.

A



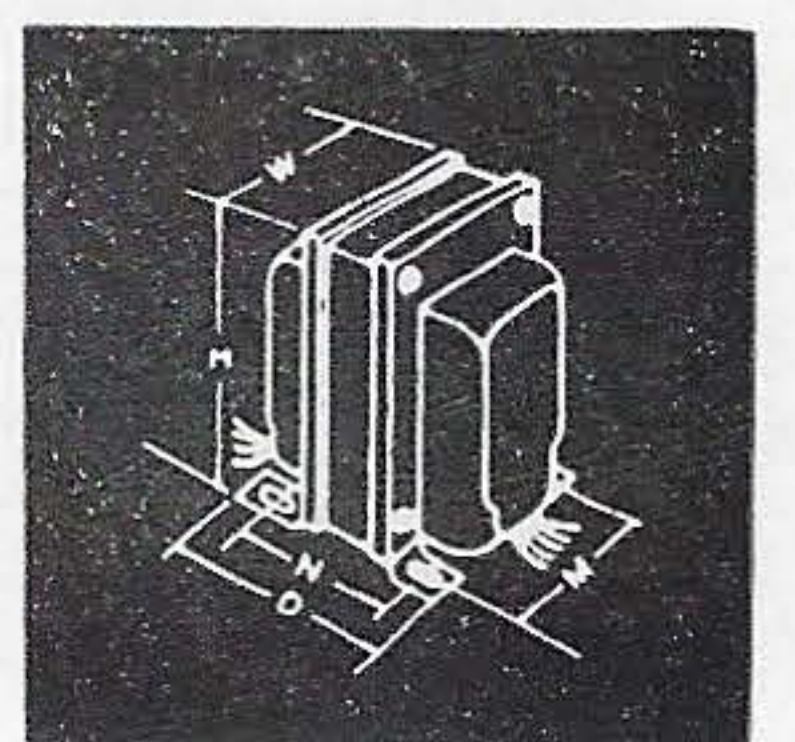
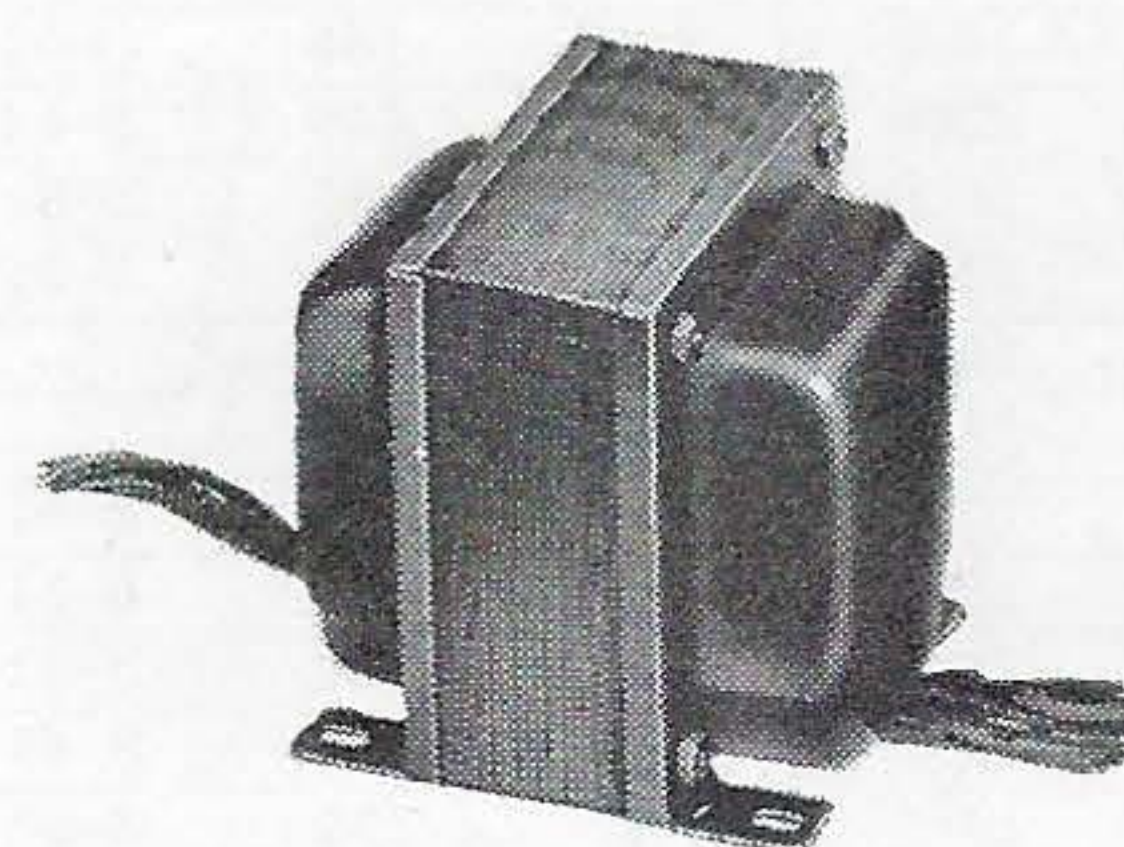
Through unique construction the five UTC Varitap Duplicate replacement transformers will service as many types of radio receivers as the 15 or 20 units more customarily employed for such service. The universal feet may be used for upright or horizontal mounting, or eliminated for flush mounting.

B



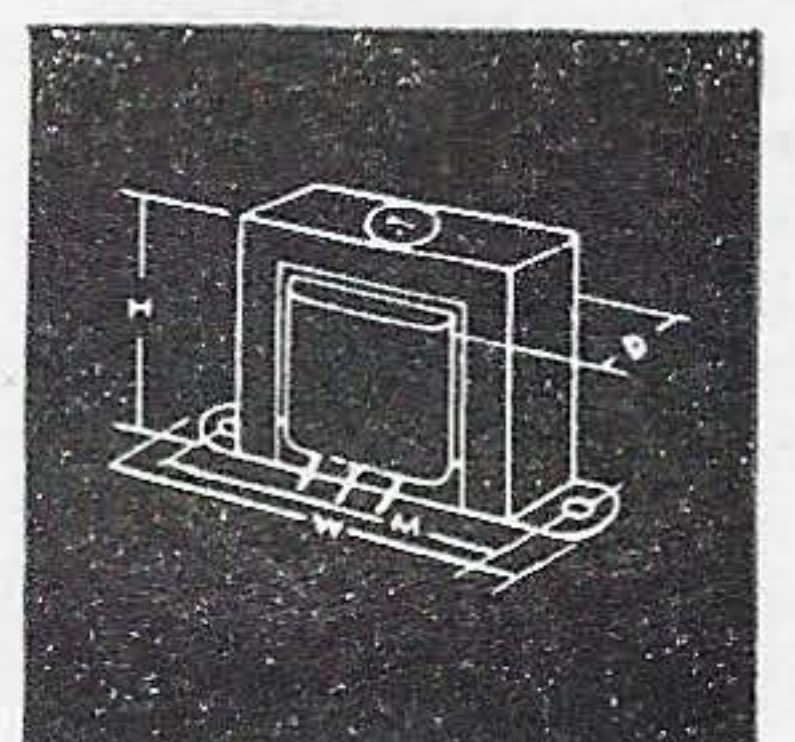
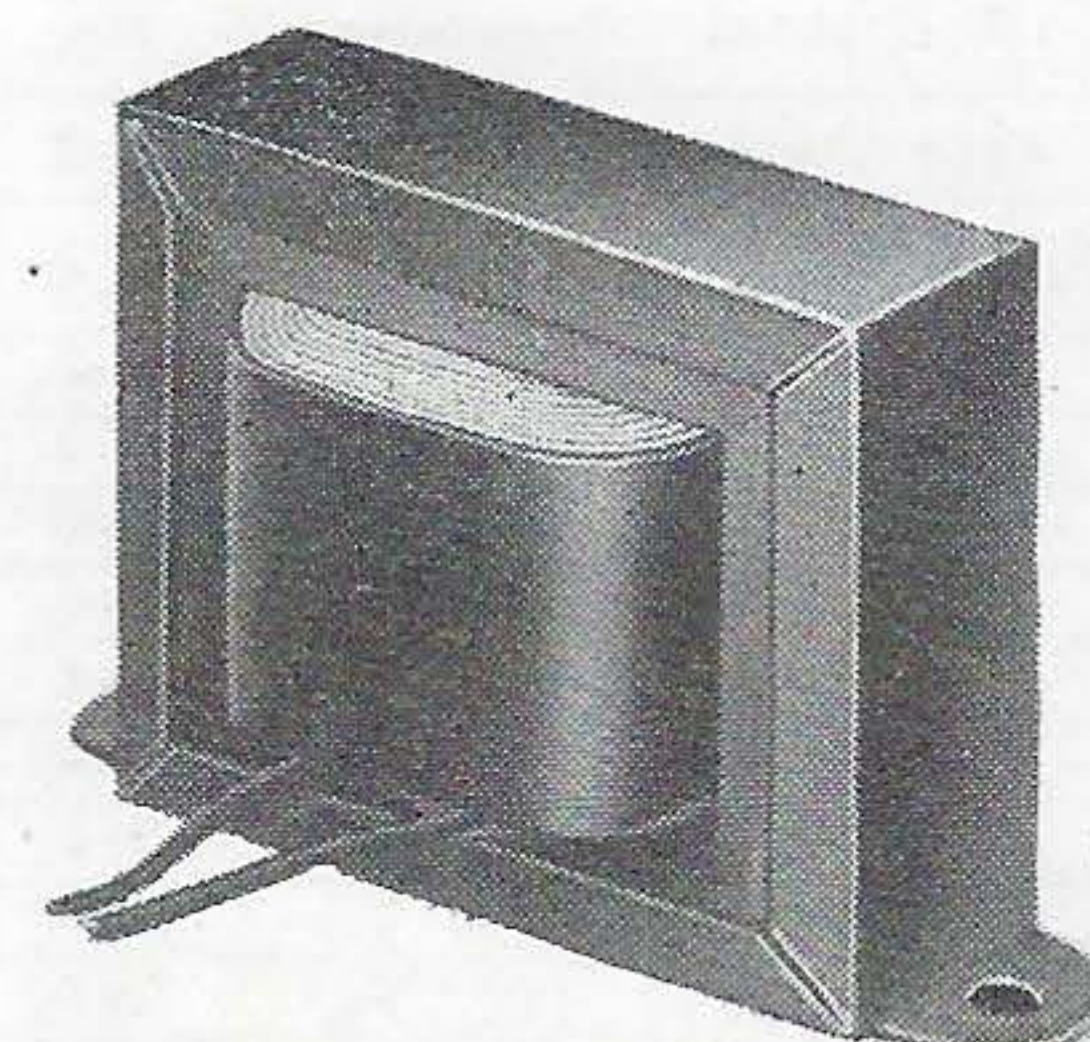
UTC flush type transformers are husky units designed for low temperature rise and good regulation. By employing a Varitap universal coil structure, the five units described are universal in application. The rugged solder terminals permit ease of circuit change for the experimenter.

C



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.

D



Channel frame chokes and audios are conservatively designed. Standard black enamel mounting channels are employed. Coils are tropic-sealed by vacuum-pressure method.

UTC 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 ICAS intermittent use. For commercial applications, CG 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. Stand by service should not be obtained by interrupting high voltage center tap.

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	6800	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.

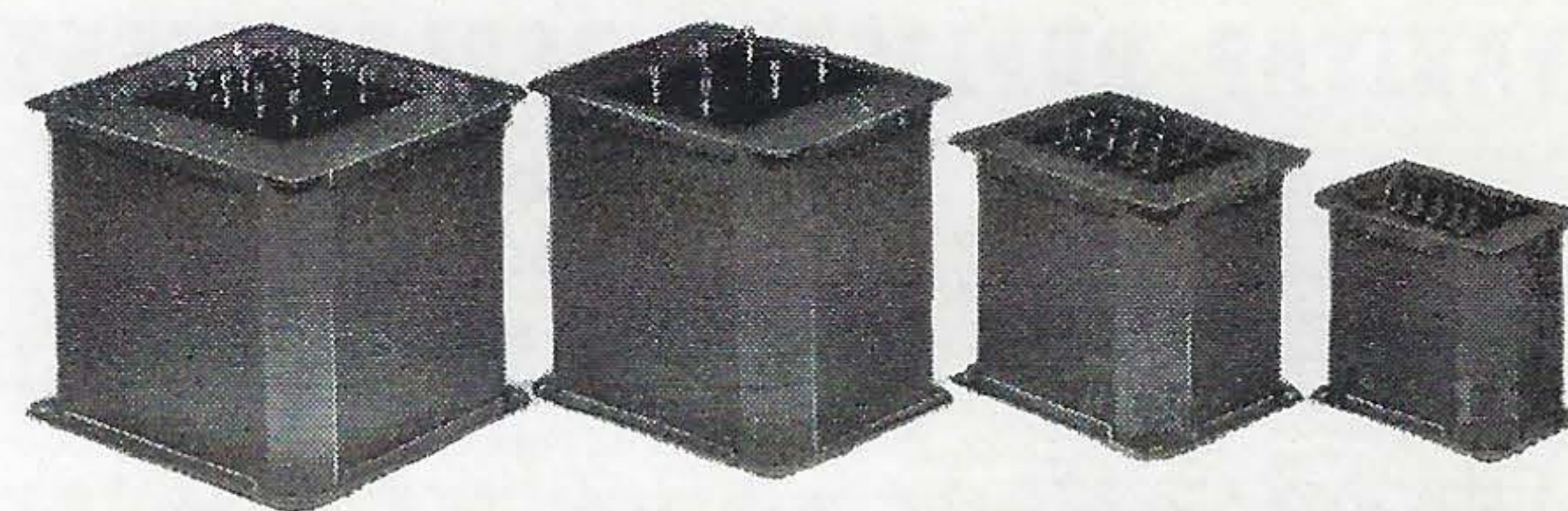
S-22 — 250 WATTS MAX.

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	245	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	
†	100 TL	170	5200	1000	S-47	90	S-51
†	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.

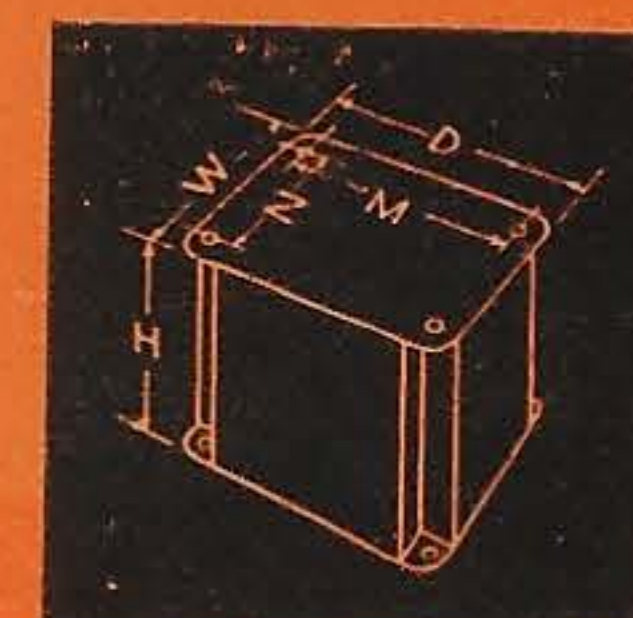
FILTER, SWINGING, AND AUDIO CHOKES

Type No.	Service	Inductance	Current	Resistance	Insulation	Case No.
S-23	Audio	500 Hy.	5 Ma.	6000 ohms	1500 V.	G-2
S-24	P.P. Choke	500 Hy. C.T.	3 Ma.	4000 ohms	1500 V.	G-2
S-25	Filter	30 Hy.	30 Ma.	900 ohms	1500 V.	G-2
S-26	Filter	15 Hy.	60 Ma.	230 ohms	1500 V.	G-2
S-27	Filter	30 Hy.	75 Ma.	350 ohms	1500 V.	G-4
S-28	Filter	20 Hy.	100 Ma.	350 ohms	1500 V.	G-4
S-29	Filter	10 Hy.	175 Ma.	95 ohms	1500 V.	G-4
S-30	Swinging	5/25 Hy.	175 Ma.	95 ohms	1500 V.	G-4
S-31	Filter	20 Hy.	225 Ma.	120 ohms	2700 V.	G-5
S-32	Swinging	5/25 Hy.	225 Ma.	120 ohms	2700 V.	G-5
S-33	Filter	20 Hy.	300 Ma.	90 ohms	4000 V.	G-7
S-34	Swinging	5/25 Hy.	300 Ma.	90 ohms	4000 V.	G-7
S-35	Filter	20 Hy.	400 Ma.	85 ohms	5000 V.	G-8
S-36	Swinging	5/25 Hy.	400 Ma.	85 ohms	5000 V.	G-8
S-37	Filter	20 Hy.	550 Ma.	60 ohms	6000 V.	G-8
S-38	Swinging	5/25 Hy.	550 Ma.	60 ohms	6000 V.	G-8



CASE SIZES

Type No.	H	W	D	M	N	Wt. Lbs.
G-5	3 3/4	3 1/4	4 1/2	3 3/4	2-7/16	4 1/2
G-7	4 3/4	4 3/4	5 1/2	4-27/32	3-25/32	8
G-8	4 3/4	5 3/4	5 3/4	4-25/32	4 3/4	12
G-9	5 3/4	5 3/4	6 3/4	6-3/32	4-19/32	21
G-10	5 3/4	6 1/4	6 3/4	5-15/16	5-13/32	24
G-11	5 3/4	6 1/4	7 3/4	6-21/32	5-29/32	31
G-12	10 1/4	7 3/4	9 1/4	8 1/4	6 3/4	52



COMBINED PLATE AND FILAMENT UNITS

Primary 115 V. — 50/60 Cycles

Type No.	Voltage	D.C. Voltages*	Rectifier Fil.	Fil. No. 1	Fil. No. 2	Case No.
S-39	490-400-0-400-490 175 Ma.	400/310	5 V.-3A	2.5 V.C.T. -6A	6.3 V.C.T. 4A	G-7
S-40	525-425-0-425-525 250 Ma.	400/310	5 V.-3A	6.3 V.C.T. -3A	6.3 V.C.T. 3A	G-7
S-41	600-0-600 200 Ma.	475	5 V.-3A	7.5 V. tapped 6.3 V.-3A	6.3 V.C.T. 2A	G-7
S-42	600-525-0-525-600 300 Ma.	480/400	5 V.-3A	7.5 V. tapped 6.3 V.-3A	6.3 V.C.T. 3A	G-8
S-43	525-0-525 450 Ma. 40-0-40, 200 Ma.	400	5 V.-3A 5 V.-6A	6.3 V.C.T. -2 A	6.3 V.C.T. 5 A	G-9

* Based on two section filter, choke input.

PLATE TRANSFORMERS—BIAS TRANSFORMERS

Primary 115 V. — 50/60 Cycles

Type No.	High Voltage	DC Voltages*	DC Current	Case No.
S-44	575-525-0-525-575	470/430	500 Ma.	G-9
S-45	900-750-0-750-900	750/620	200 Ma.	G-8
S-46	1000-750-0-750-1000	825/600	300 Ma.	G-9
S-74	1175-500-0-500-1175 Duplex rectifier	1000 400	†150 Ma. ‡150 Ma.	G-10
S-47	1500-1250-1000-0-1000-1250-1500	1275/1050/825	300 Ma.	G-10
S-48	1500-1250-1000-0-1000-1250-1500	1300/1075/850	500 Ma.	G-11
S-49	2100-1800-1500-0-1500-1800-2100	1815/1540/1275	300 Ma.	G-11
S-50	3000-2500-0-2500-3000	2625/2175	300 Ma.	G-12
S-51	Will supply any bias voltage from 15 to 100 volts DC within approximately 6% of desired value.		200 Ma.	G-5
S-52	Will supply any bias voltage from 75 to 400 volts DC within approximately 6% of desired value.		200 Ma.	G-7

* Based on two section filter for 200 Ma. and 300 Ma. units, single section filter for 500 Ma. units, both choke input.
† 200 Ma. if used alone
‡ 300 Ma. if used alone

FILAMENT TRANSFORMERS

Primary Tapped 105, 115 Volts — 50/60 Cycles

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

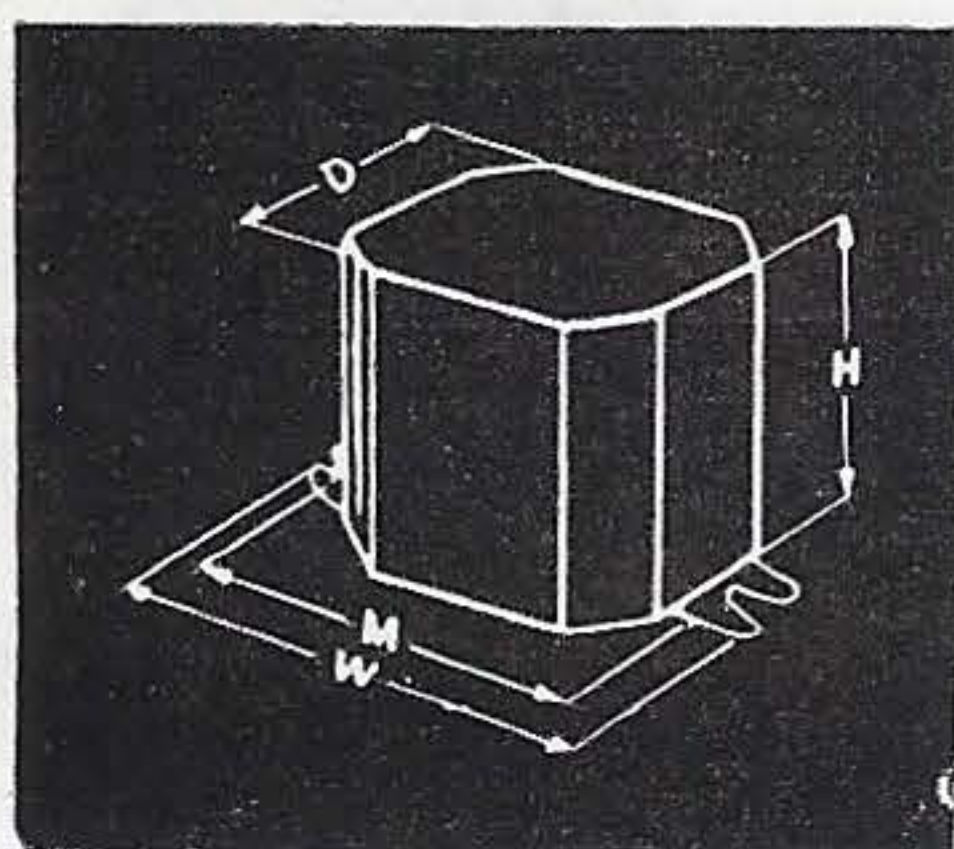
Type No.	Fil. 1	Fil. 2	Fil. 3	Insulation	Case No.
S-64	2.5 VCT-5A	2.5 VCT-5A	5 VCT-6A	3000 V.	G-5
S-65	2.5 VCT-5A	5 VCT-4A	6.3 VCT-3A	3000 V.	G-5
S-66	2.5 VCT-10A	7.5 VCT-6.5A		3000 V.	G-5
S-67	5 VCT-6A	6.3 VCT-5A		3000 V.	G-5
S-68	5 VCT-3A	6.3 VCT-4A	7.5 VCT-5A	3000 V.	G-5
S-69	6.3 VCT-3A	7.5 VCT-6.5A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

SPECIAL SERIES AUDIO TRANSFORMERS



CASE SIZES

Type No.	H	W	D	M	Wt. Lbs.
G-1	1 7/8	2-13/16	1 1/4	2 3/4	1
G-2	2-5/16	3 3/8	1-15/16	2 7/8	1 1/2
G-3	2 1/2	3 3/4	2-5/32	3 1/4	2
G-4	2-15/16	4 1/8	2-5/16	3 3/4	3



CLASS A INPUT TRANSFORMERS

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

* 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 DRIVER TRANSFORMERS

(See Modulator chart for tube types)

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

MATCHING TRANSFORMERS

Type No.	Application	Pri. Ohms	Sec. Ohms	Case
S-11	Single 56, 6C6 triode, 6C5 or similar tube to line.	15,000	200/500	G-2
S-12	Line to speaker 15 watts.	500, 2000, 4000	2, 4, 8, 15	G-2
S-13	Line to speaker 30 watts.	500, 2000, 4000	2, 4, 8, 15	G-4

UNIVERSAL OUTPUT TRANSFORMERS TO LINE AND VOICE COIL

(Secondary Impedances: 500, 15, 8, 2 ohms)

Type No.	Primary Impedance	Typical Tubes	Class	Case
S-14 10 W.	Single Tubes: 2500 ohms 4000 ohms 7000 ohms 10,000 ohms	2A3, 6A3, 6A5, 6B4, 6L6, 6Y6, 25L6, 35L6 31, 43, 45, 48, 6V6, 12A5, 12A6 33, 47, 42, 47, 59, 89, 2A5, 6AC5, 6F6, 6K6, 6N6, 7B5 37, 38, 41, 1G5, 3C5, 6A4, 6N7	A A A A	G-2
S-15 12 W.	P. P. Tubes: 4000 ohms 5000 ohms 10,000 ohms	6Y6, 25L6 45, 2A3, 6A3, 6A5, 6B4 30, 1H4, 6AC5G, 6B5, 19, 49, 53, 79, 89, 6A6, 6N6, 6N7, 6Y7	AB AB AB B	G-2
S-16 30 W.	3000 ohms 6000 ohms 9000/10000 ohms	45, 48, 2A3, 6A3, 6A5, 6B4, 25L6 42, 2A5, 6F6 triodes 46, 59, Parallel 53, 6A6, 6N7 42, 45, 2A5, 6AC5, 6B5, 6F6, 6L6, 6V6	AB AB B AB	G-4
S-17 55 W.	3800 ohms 4500/5000 ohms	6L6's 4-6L6's 46, 1608, 809	AB2 AB1 B	G-5

UNIVERSAL MODULATION TRANSFORMERS

Secondary carries class C current
Any modulator tubes to any RF load. (See chart)

Type No.	Audio Power	Case
S-18	12 watts	G-3
S-19	30 watts	G-4
S-20	55 watts	G-5
S-21	110 watts	G-7
S-22	250 watts	G-9

UTC Special Series transformers are specifically designed for amateur and popular-priced PA service. The Special units are finished in a rich, commercial type medium gray enamel. 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 of the class C stage for any of the impedances available 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. All units are vacuum impregnated—compound filled.

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	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

		43, 45, 59, 71A, 12A5, 25A6, 25A7	4,000 ohms
		31, 46, 59, 6V6, 33	6,000 ohms
S-1	F-G	33, 42, 46, 47, 49, 89, 2A5, 6F6, 6B5	7,000 ohms
		59, 89 pentode	8,000 ohms
		10, 41, 32, 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 Transf.	Sec. Terms.	P.P. Tubes	Watts Output	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	9,000	400	23

S-20 — 55 WATTS MAX.

P.P. Tubes	DRIVER Transf.	Sec. Term.	P.P. Tubes	Watts O'p't	P.P. Load	Plate Volts	Plate Tr'sf.	Bias Volts	Bias Tr'sf.
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	4500	400	S-40	23	
2A3	S-9	3-3	809	60	5000	500	S-41	0	

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

COMMERCIAL GRADE COMPONENTS

UTC CG power transformers, Varimatch units and chokes are designed to A.I.E.E. commercial standards. Ratings are conservative for continuous duty. Designs provide temperature rise less than 55 degrees C. Units are tested for breakdown at twice maximum working voltage plus 1000 volts. Plate transformers are given a surge test of 250% normal voltage at 200 cycles. All items are vacuum impregnated and sealed with special insulating compound.

The conservative design and manufacturing procedure of these units make them suitable for virtually all types of commercial equipment as well as ideally suited for quality amateur and public address service.

CG VARIMATCH MODULATION UNITS

Will match any modulator tubes to any RF load.

The ever increasing number of vacuum tubes available for audio and RF applications has increased the difficulty of obtaining transformers suitable or 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. 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. Designs provide that for any load impedance employed, full class C plate current can be carried by secondary winding.

Primary impedances from 500 to 20,000 ohms
Secondary impedances from 30,000 to 300 ohms

Type No.	Max. Audio Watts	Max. Class C Input	Typical Modulator Tubes	Case No.
CVM-0	12	25	30, 49, 79, 6A6, 53, 2A3, 6B5	RC-100
CVM-1	30	60	6V6, 6B5, 2A3, 42, 46, 6L6, 210	RC-125
CVM-2	60	125	801, 6L6, 809, 4-46, T-20, 1608	RC-150
CVM-3	125	250	800, 807, 845, TZ-20, RK-30, 35-T	RC-152
CVM-4	300	600	50-T, 203A, 805, 838, T-55, ZB-120	RC-175
CVM-5	600	1200	805, 11F-300, 204A, HK-354, 250TH	7x12x9H 60 lbs.

CG VARIMATCH DRIVER TRANSFORMERS

Type No.	Primary	Typical Output Tubes	Case No.
CG-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	RC-87
CG-53AX	P. P. tube like: 45, 59, 2A3, 6B5, 6L6	46, 4-46, 841, 210, 801, RK-18, 800, 203A, 838, 805, 50T, 830B	RC-112
CG-59AX	50, 200, 500 ohm line	805, 838, 203A, ZB-120, 100TH, 800, 55T, RK-18	RC-112
CG-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, 2-11F300's, 2-11F200's, 2-250TH's, 2-450TH's	RC-150
CG-512	50, 200, 500 ohm line	2-250TH, 2-450TH, 2-11F200, 2-11F300, 2-204A, 2-849	RC-150

VARIPOWER AUTO-FORMERS

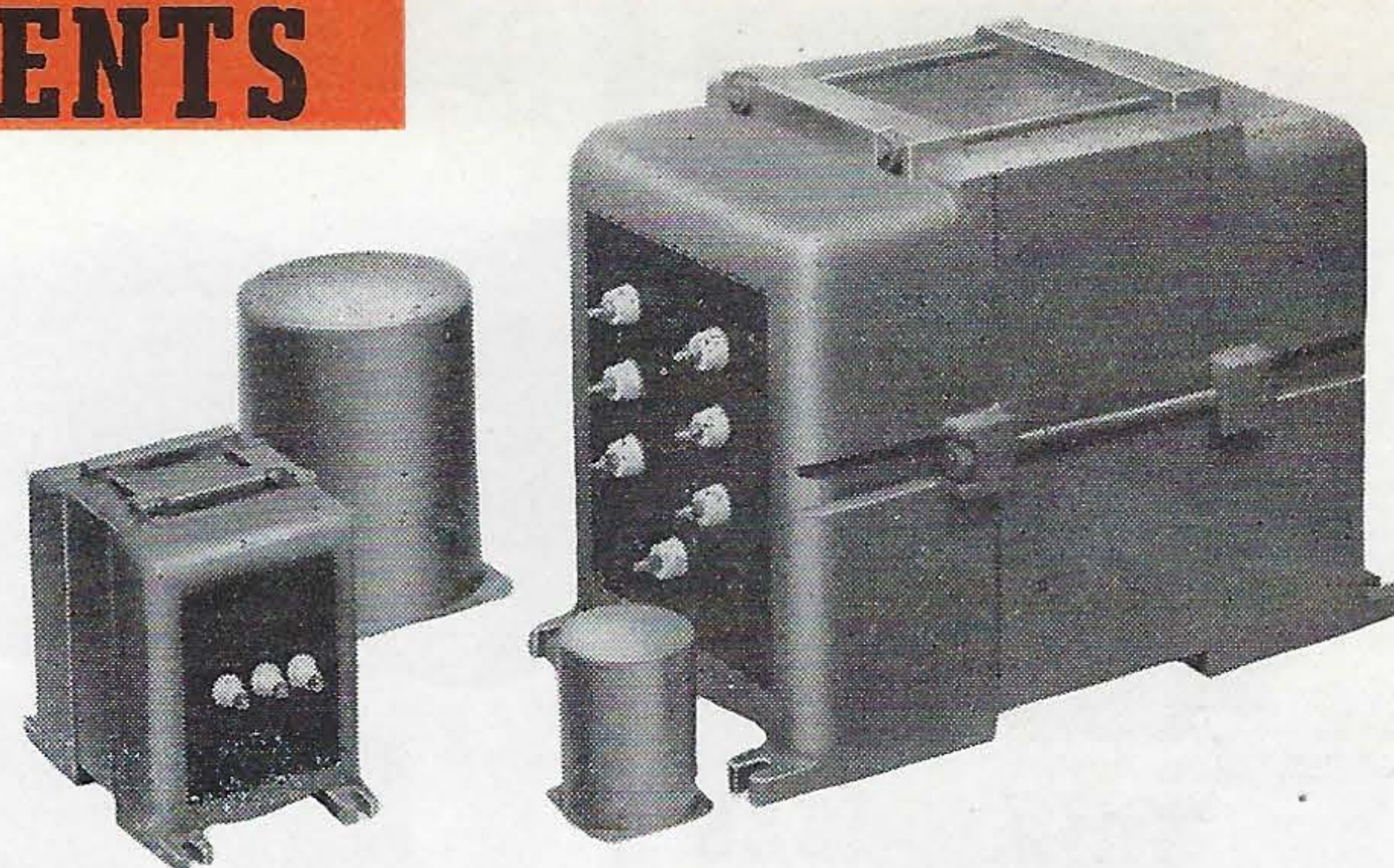
Type No.	Watts Output	Case No.
CVA-1	150	RC-112
CVA-2	250	RC-125
CVA-3	500	RC-150
CVA-4	1000	RC-152
CVA-5	2000	RC-175

Designed for line voltage control, filament control and reduced power operation. Output voltage from 0 to 130 volts, 50/60 cycles. Vari-power 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.

POWER AND BIAS TRANSFORMERS

Primary 115 volts 50/60 cycles

Type No.	High Voltage	DC MA.	Fil. 1	Fil. 2	Fil. 3	Fil. 4	Case No.
CG-422	435-365-0-365-435 125-0-125	125 25	5V-3A	5V-2A	6.3 VCT-3A	2.5 VCT-5A	RC-150
CG-428	500-0-500 80-0-80	250 100	5V-3A	5V-2A	6.3 VCT-4A	6.3 VCT-3A, tapped 2.5 VCT-3A	RC-152
CG-429	600-525-0-525-600	250	5V-3A	6.3 VCT-3-A	7.5 VCT-3A, tapped 6.3 VCT-3A		RC-152
CG-431	500-400-0-400-500 80-0-80	500 100	5V-3A	5V-2A	6.3 VCT-5A	6.3 VCT-3A	RC-175
CG-315	Tapped for any DC voltage from 15 to 100 volts within 6% — 250 MA						RC-125
CG-316	Tapped for any DC voltage from 75 to 400 volts within 6% — 250 MA						RC-152



CG 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. Secondary voltage is simultaneously halved.

Type No.	High Voltage	DC Voltage	DC MA	Case No.
CG-300	625-515-0-515-625	500/400	200	RC-150
CG-301	580-530-300-0-300-530-580	475/425/250	420	RC-152
CG-302	950-750-0-750-950	760/610	360	RC-175
CG-303	1500-1235-400-0-400-1235-1500	1250/1000 300	260* 175	RC-175

*300MA. if used without load on low voltage winding.

TYPE EC CASE UNITS

Type No.	High Voltage	DC Voltage	DC MA	L	W	H	Wt. Lbs.
CG-304	1500-1235-0-1235-1500	1250/1000	800	15	8½	10½	100
CG-305	2400-1750-0-1750-2400	2000/1500	300	10½	4¾	6¾	50
CG-306	2400-1750-0-1750-2400	2000/1500	500	15	8½	10½	100
CG-307	3500-3000-2400-0-2400-3000-3500	3000/2500 2000	300	14½	8½	10¾	90
CG-308	3500-3000-2400-0-2400-3000-3500	3000/2500 2000	500	16½	8½	10¾	125
CG-309	3500-3000-2400-0-2400-3000-3500	3000/2500 2000	1000	21	10	13¼	185
CG-310	4600-4050-3500-0-3500-4050-4600	4000/3500 3000	600	19	10	13¼	150
CG-311	1500-1235-0-1235-1500	1250/1000	500	10½	4¾	6¾	50
CG-312	1800-1500-0-1500-1800	1500/1250	400	10½	4¾	6¾	50

FILTER CHOKES

INDUCTANCE SHOWN IS AT RATED DC MA

Type No.	Inductance Henrys	DC MA	DC Res. Ohms	Test Volts	Case No.
CG-40	10	200	110	1750	RC-112
CG-41	4-20	200	110	1750	RC-112
CG-44	30	100	400	1750	RC-100
CG-45	250	15	5000	1750	RC-87
CG-48C	75	50	2500	1750	RC-87
CG-100	12	150	120	2500	RC-125
CG-102	12	250	105	3000	RC-150
CG-104	10	350	90	5000	RC-152
CG-108	10	500	55	7000	RC-175
CG-1S	10	1000	45	9000	11½x4¾x 6¾ H, 60 lb.

SWINGING INPUT CHOKES

INDUCTANCE SHOWN IS FROM 100% TO 10% OF RATED DC MA

Type No.	Inductance Henrys	DC MA	DC Res. Ohms	Test Volts	Case No.
CG-101	5-25	150	120	2500	RC-125
CG-103	5-25	250	105	3000	RC-150
CG-105	5-25	350	90	5000	RC-152
CG-109	5-25	500	55	7000	RC-175
CG-1C	5-25	1000	45	9000	11½x4¾x 6¾ H, 60 lb.

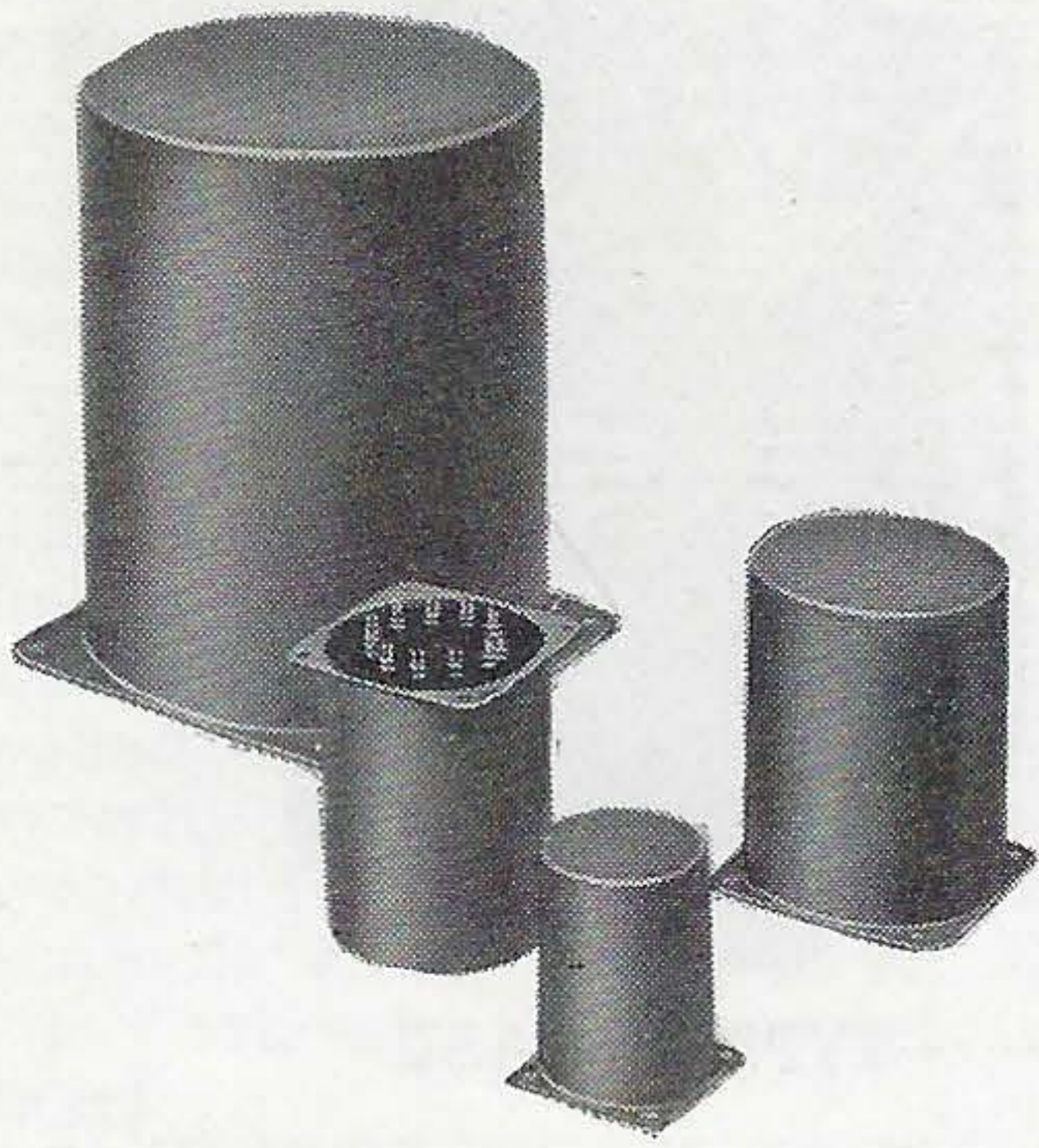
FILAMENT TRANSFORMERS

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.
CG-34	2½	10	2500	8000	RC-112
CG-120	2½	10	5000	11000	RC-125
CG-121	5	22	5000	11000	RC-150
CG-122	7.5/6.3	10	1500	4000	RC-125
CG-124	10	10	1500	4000	RC-150
CG-125	14/12/11	10	1500	4000	RC-150
CG-126	*14/11/10 14/11/10	10 10	1500	4000	RC-152

UTC COMMERCIAL GRADE COMPONENTS



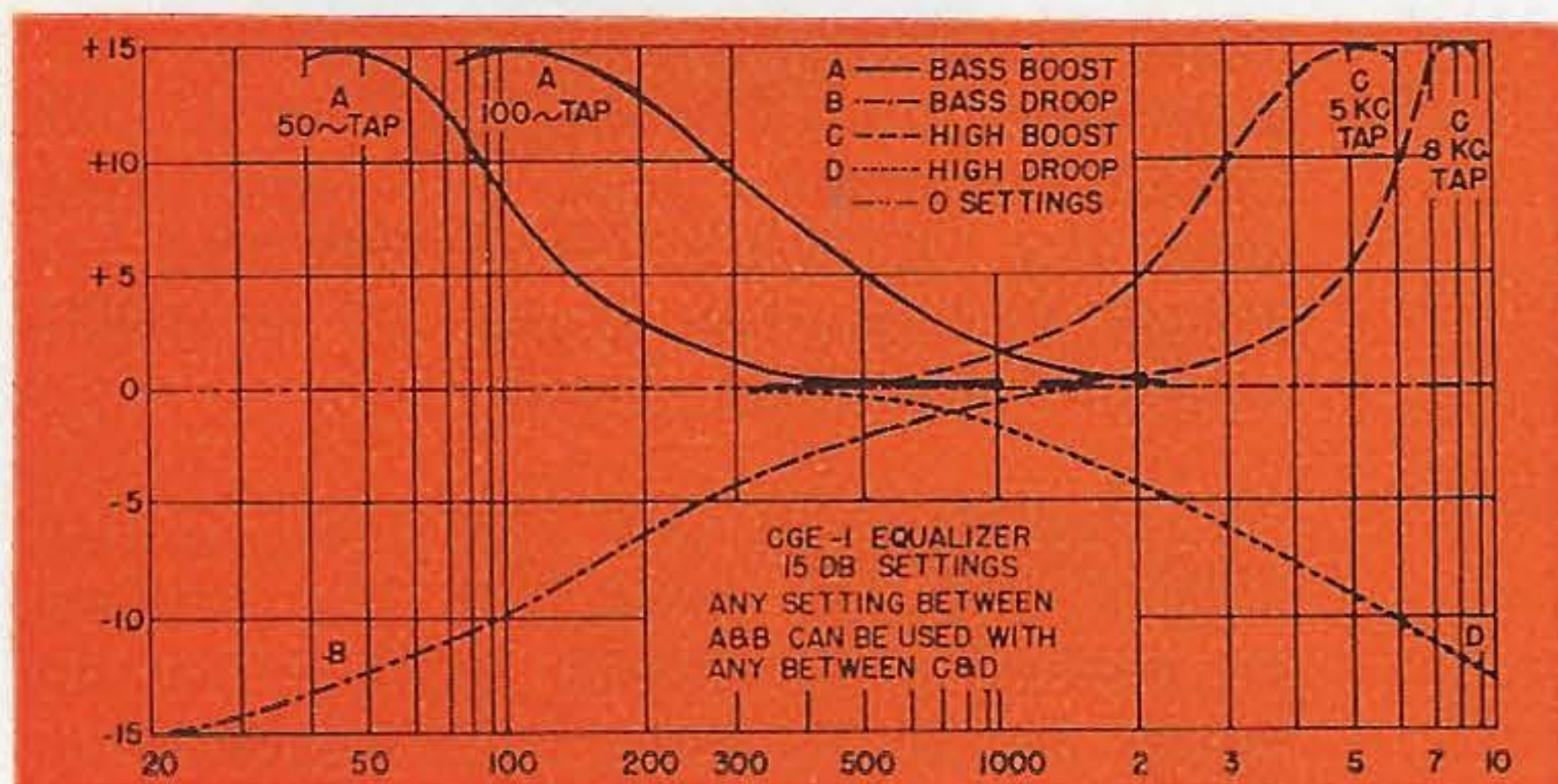
The commercial grade series of transformers incorporate conservative design and rugged construction to assure dependability under continuous service operation in industrial and commercial grade communication equipment. These units are mounted in uniform drawn cases finished in light grey enamel, and intended for chassis mounting. All items are poured with special sealing compound in addition to vacuum impregnation of coil structures. Type numbers are identical with the PA units except for the prefix "CG".

CG-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 40 to 10,000 cycles (no unbalanced D.C.), except CVL and CVM units... 40 to 6000 cycles. Parallel feed low level interstage units with 50,000 ohms and .25 mfd. 200 ohm windings on input transformers are balanced and may be used for 150 to 250 ohm circuits.



INPUT, INTERSTAGE, MIXING AND LOW LEVEL OUTPUT TRANSFORMERS

Type No.	Application	Primary Impedance Ohms	Secondary Impedance Ohms	Case No.
CG-131	1 plate to 1 grid	15,000	135,000 3:1 ratio	RC-50
CG-132	1 plate to 2 grids	15,000	135,000 center-tapped 3:1 ratio overall	RC-62
CG-133	2 plates to 2 grids	30,000 P to P	80,000 overall 1.6:1 ratio overall	RC-75
CG-134	Line to 1 grid hum-bucking	50, 200, 500	80,000	RC-50
CG-135	Line to 2 grids hum-bucking	50, 200, 500	120,000 overall	RC-50
CG-235	Line to 1 or 2 grids, hum-bucking; multiple alloy shielded for low hum pick-up	50, 200, 500 ohms	80,000 overall	RC-75
CG-136	Single plate and low impedance mike or line to 1 or 2 grids Hum-bucking	15,000, 50, 200	80,000 overall	RC-62
CG-233	PP 6C5, 56, similar triodes to AB 45's, 2A3's, 6L6's, etc.	30,000 P to P	25,000 overall .9:1 ratio overall	RC-87
CG-333	PP 6C5, 56, similar triodes to fixed bias 6L6's	30,000 P to P	5,000 overall .4:1 ratio overall	RC-87
CG-433	PP 45, 2A3, similar tubes to fixed bias 2 or 4 6L6's	5,000 P to P	1,250 overall .5:1 ratio overall	RC-100
CG-137	Mixing	50, 200, 500	50, 200, 500	RC-50
CG-140	Triode plate to line	15,000	50, 200, 500	RC-50
CG-141	PP triode plates to line	30,000 P to P	50, 200, 500	RC-50



UNIVERSAL INTERSTAGE EQUALIZER

This new UTC unit is the ideal device for any application requiring frequency response correction. Designed to be connected between two triode audio stages or will match a high impedance (5000 to 30000 ohms) source to grid.

The CGE-1 equalizer is not a simple R-C tone control, but employs resonant circuits to permit low or high end equalization without effecting mid-frequencies. With controls in center, no equalization is effected. Moving one control to left increases bass; to right, drops bass. Moving other control to left increases highs; to right drops highs. Controls are independent so that bass may be raised and highs dropped simultaneously, etc. Amount of equalization is continuously adjustable, up to 15 DB. The insertion loss effected is equal to the combined low frequency and high frequency settings plus 6 DB, or a maximum of 36 DB. Unless existent gain of equipment to which CGE-1 is added is high, an additional audio stage may be required.

This unit comes complete so that controls with etched panel (calibrated in DB) can be mounted on a chassis (2 1/2 inch minimum) or a panel with case containing the electrical elements held by etched panel screws.

CGE-1 Panel Dim. 2 3/8 x 4. Wt. 2 Lb.

DYNAMIC NOISE SUPPRESSION INDUCTOR

Incorporates two accurate High Q coils [.8 hy. and 2.4 hy.] for use in dynamic noise suppression circuits. Excellent circuit accompanies unit. Type CG-50 RC-75 Case

COMMERCIAL GRADE CASE

Case No.	Base Dim. (Sq.)	Mounting Dim. (Sq.)	Height	Cutout Dia.	Unit Weight (Lbs.)
RC-50	1 1/2	1-5/16	2 1/4	1 1/2	1/2
RC-62	1-13/16	1 1/2	2 1/2	1 1/2	3/4
RC-75	2-3/16	1-13/16	2 3/4	1 1/2	1 1/2
RC-87	2-9/16	2-3/32	3 1/4	2	2
RC-100	3	2 3/4	3 3/4	2	3
RC-112	3-7/16	2-11/16	4 1/4	3	4 1/2
RC-125	3 3/4	3	4 1/2	3	5 1/2
RC-150	4 1/2	3-9/16	5 1/2	4	10
RC-152	5 1/2	4 1/4	5 1/2	4	15
RC-175	5 3/4	4 3/4	7 1/4	4	20

OUTPUT TRANSFORMERS

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

Type No.	Imped. P.P. Ohms, Overall	Typical Tubes	Max. Watts	Case No.
CG-15	8,000	45, 48, 6F6 triode	20	RC-100
CG-16	3,000/5,000	2A3, 6A3, 48, 6B4	20	RC-100
CG-19	6,000/10,000	6N7, 6A6, 6F6, 89, 46, 6V6	20	RC-100
CG-710	14,000/20,000	41, 42, 47, 49, 6K6, 7B5	20	RC-100
CG-2L6	9,000	6L6's, AB1	30	RC-125
CG-4L6	3,800/4,500	2-6L6's, AB2 or 4-6L6's AB1	55	RC-150

CG VARIMATCH OUTPUTS FOR P. A.

Universal units designed to match any tubes within the rated output power, to line or voice coil. Output impedance 500, 200, 50, 16, 8, 5, 3, 1.5 ohms. Primary impedance 3000, 5000, 6000, 7000, 8000, 10,000, 14,000 ohms.

Type No.	Audio Watts	Typical Tubes	Case No.
CVP-1	12	42, 43, 45, 47, 2A3, 6A6, 6F6, 25L6	RC-100
CVP-2	30	42, 45, 2A3, 6L6, 6V6, 6B5	RC-125
CVP-3	60	46's, 50's, 300A's, 6L6's, 801, 807	RC-150
CVP-4	125	800's, 801's, 807's, 4-6L6's, 845's	RC-152
CVP-5	300	211, 242A's, 203A's, 838's, 4-845's, ZB-120's	RC-175

CG VARIMATCH LINE TO VOICE COIL TRANSFORMERS

The UTC VARIMATCH line to voice coil transformers will match any voice coil or group of voice coils to a 500 ohm line. More than 50 voice coil combinations can be obtained, as follows:

2, 4, 5, 6.2, 1, 1.25, 1.5, 2, 2.5, 3, 3.3, 3.8, 4, 4.5, 5, 5.5, 6, 6.25, 6.6, 7, 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 18, 20, 25, 28, 30, 31, 40, 47, 50, 63, 69, 75.

Where speakers are to be connected in groups to one transformer, it is preferable that parallel connection be used to eliminate the possibility of multiple resonance. If two speakers of different impedances are connected in parallel, the lower impedance speaker will develop greater power. If connected in series, the higher impedance speaker will develop greater power.

Type No.	Audio Watts	Primary Impedance	Secondary Impedance	Case No.
CVL-1	15	500 ohms	.2 to 75 ohms	RC-87
CVL-2	40	500 ohms	.2 to 75 ohms	RC-125
CVL-3	75	500 ohms	.2 to 75 ohms	RC-150

CG VARIMATCH LINE AUTOFORMERS

UTC Varimatch Line Autoformer will match one to ten 500 ohm lines or CVL windings to the 500 ohm output of an audio amplifier. The CVL-10 to 12 autoformers have impedances of 500, 250, 167, 125, 100, 83, 71, 62, 50 ohms.

Type No.	Audio Watts	Case No.
CVL-10	15	RC-87
CVL-11	30	RC-125
CVL-12	60	RC-150

ULTRA COMPACT AUDIO UNITS

The UTC Ultra compact audio units are small and light in weight, ideally suited to remote amplifier and similar compact equipment. High fidelity is obtainable in all individual units, the frequency response being ± 2 DB from 30 to 20,000 cycles.

All units except those carrying DC in Primary employ a true hum balancing coil structure, which combined with a high conductivity outer case, effects good inductive shielding. The die-cast case provides for top or bottom mounting. Maximum operating level $+ 10$ DB.

Type No.	Application	Primary Impedance	Secondary Impedance	± 2 db from
A-10	Low impedance mike, pickup, or multiple line to grid	50, 125/150, 200/250, 333, 500/600 ohms	50,000 ohms	30-20,000
A-11	Low impedance mike, pickup, or line to 1 or 2 grids	50, 200, 500	50,000 ohms	50-20,000 multiple alloy shield for extremely low hum pickup
A-12	Low impedance mike, pickup, or multiple line to push pull grids	50, 125/150, 200/250, 333, 500/600 ohms	80,000 ohms over-all, in two sections	30-20,000
A-14	Dynamic microphone to one or two grids	30 ohms	50,000 ohms over-all, in two sections	30-20,000
A-16	Single plate to single grid	15,000 ohms	60,000 ohms, 2:1 turn ratio	30-20,000
A-18	Single plate to two grids Split primary, can also be used for P.P. plates	15,000 ohms	80,000 ohms over-all, 2.3:1 turn ratio overall	30-20,000
A-19	Single plate to two grids 8 MA unbalanced D.C.	15,000 ohms	80,000 ohms over-all, 2.3:1 turn ratio overall	50-20,000
A-20	Mixing, low impedance mike, pickup, or multiple line to multiple line	50, 125/150, 200/250, 333, 500/600 ohms	50, 125/150, 200/250, 333, 500/600 ohms	30-20,000
A-21	Mixing, low impedance mike, pickup, or line to line	50, 200/250, 500/600	50, 200/250, 500/600	50-20,000 multiple alloy shield for extremely low hum pickup
A-24	Single plate to multiple line	15,000 ohms	50, 125/150, 200/250, 333, 500/600 ohms	30-20,000
A-25	Single plate to multiple line 8 MA unbalanced D.C.	15,000 ohms	50, 125/150, 200/250, 333, 500/600 ohms	50-20,000
A-26	Push pull low level plates to multiple line	30,000 ohms plate to plate	50, 125/150, 200/250, 333, 500/600 ohms	30-20,000
A-27	Crystal microphone to multiple line	100,000 ohms	50, 125/150, 200/250, 333, 500/600 ohms	30-20,000 measured with non-inductive source
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			
A-31	ORIENTATION MOUNT			



TYPE A CASE

Length $1\frac{1}{2}$ "
 Width $1\frac{1}{2}$ "
 Height 2"
 Mounting $1\frac{5}{32}$ " sq.
 Screws 4-40
 Cutout $1\frac{3}{8}$ " dia.
 Unit Weight $\frac{1}{2}$ lb.

ORIENTATION MOUNT

Type A-31 adaptor is a unique facility which permits rotating any ultra-compact unit after installation. 360 degrees of rotation in the horizontal plane and 40 degrees in the vertical plane can be effected. Consists of die cast cap which fastens to terminal board side of A unit and incorporates lockable swivel joint which requires one $\frac{3}{8}$ hole for mounting.

OUNCER AND PLUG-IN AUDIO UNITS

OUNCER Type No.	Application	Pri. Imp.	Sec. Imp.	PLUG-IN Type No.
0-1	Mike, pickup or line to 1 grid	50, 200/250, 500/600	50,000	P-1
0-2	Mike, pickup or line to 2 grids	50, 200/250, 500/600	50,000	P-2
0-3	Dynamic mike to 1 grid	7.5/30	50,000	P-3
0-4	Single plate to 1 grid	15,000	60,000	P-4
0-5	Single plate to 1 grid, D.C. in Pri.	15,000	60,000	P-5
0-6	Single plate to 2 grids	15,000	95,000	P-6
0-7	Single plate to 2 grids, D.C. in Pri.	15,000	95,000	P-7
0-8	Single plate to line	15,000	50, 200/250, 500/600	P-8
0-9	Single plate to line, D.C. in Pri.	15,000	50, 200/250, 500/600	P-9
0-10	Push pull plates to line	30,000 ohms plate to plate	50, 200/250, 500/600	P-10
0-11	Crystal mike or pick-up to line	50,000	50, 200/250, 500/600	P-11
0-12	Mixing and matching	50,200/250	50, 200/250, 500/600	P-12
0-13	Reactor, 200 Hys.—no D.C.; 50 Hys.—2MA. D.C., 6000 ohms			P-13
0-14	50:1 mike or line to 1 grid	200	$\frac{1}{2}$ megohm	P-14
0-15	10:1 single plate to 1 grid	15,000	1 megohm	P-15



OUNCER CASE

Diameter $\frac{7}{8}$ "
 Height $1\frac{1}{8}$ "
 Mounting $1\frac{1}{16}$ "
 Screws 2-56



PLUG-IN (P) CASE

Diameter $1\frac{3}{32}$ "
 Height $1\frac{15}{32}$ "
 Socket Standard Octal

UTC OUNCER components represent the acme in compact quality transformers. These units, which weigh one ounce, are fully impregnated and sealed in a drawn aluminum housing $\frac{7}{8}$ " diameter . . . mounting opposite terminal board.

Ouncer items are ideal for portable broadcast, hearing aid, aircraft, concealed service, and similar applications. High fidelity characteristics are provided, uniform from 40 to 15,000 cycles, except for 0-14, 0-15, and units carrying DC which are intended for voice frequencies from 150 to 4,000 cycles. Maximum level 0DB.

"P" series units are identical to the UTC OUNCER units but are sealed in bakelite housings with plug in base to fit standard octal socket. While of submersion proof design, these units weigh but two ounces. Oversize pins in the base make it impossible to dislodge these units from their sockets.

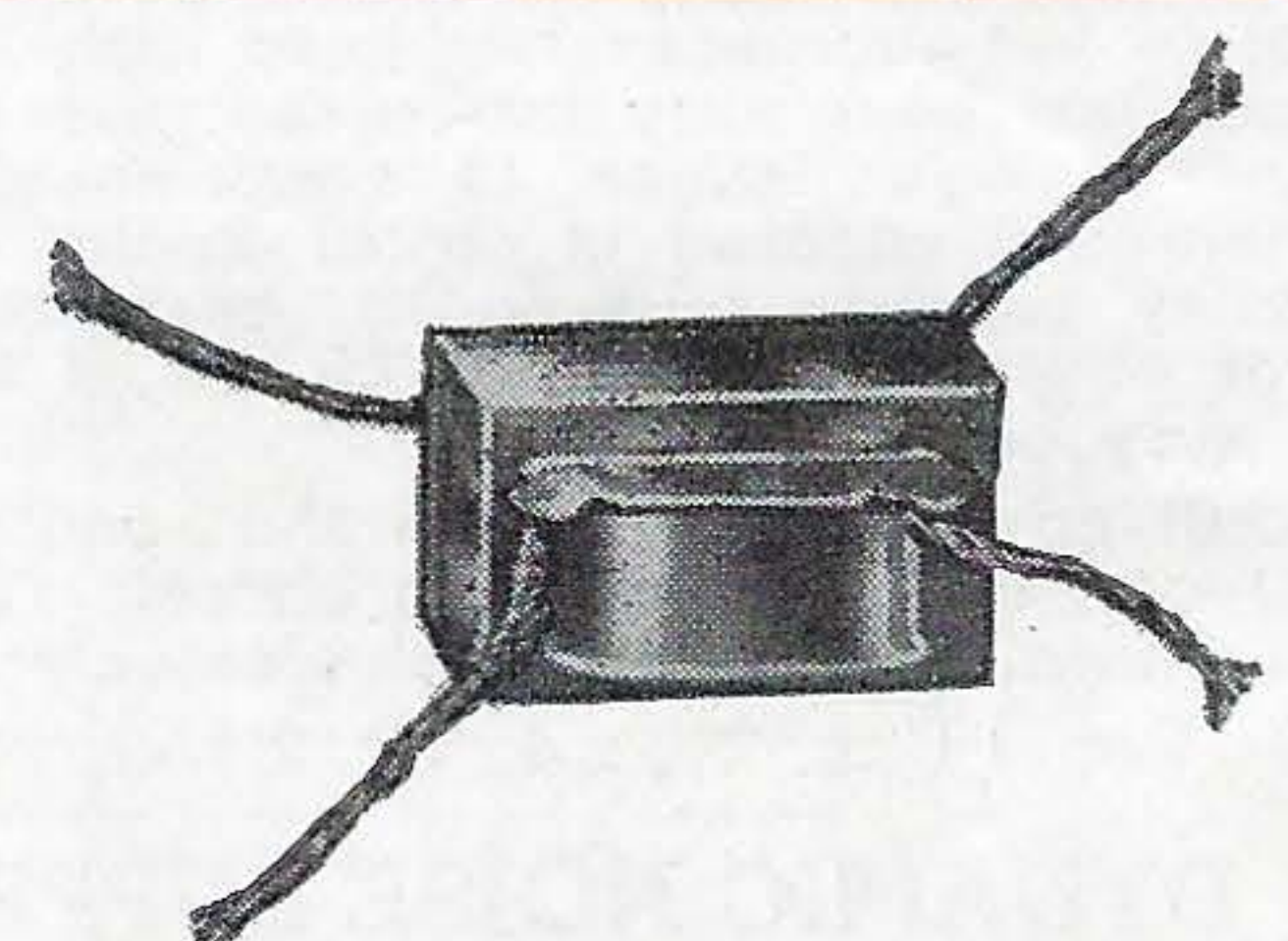
SUBOUNCER UNITS

FOR HEARING AIDS . . . VEST POCKET RADIOS . . . MIDGET DEVICES

UTC Sub-Ouncer units weigh only $\frac{1}{3}$ ounce. Through unique construction, however, these miniature units have performance and dependability characteristics far superior to any other comparable items. The coil is uniform layer wound of Formex wire . . . On a molded nylon bobbin . . . insulation is of cellulose acetate . . . leads mechanically anchored . . . core material Hiperm-alloy . . . entire unit triple (waterproof) sealed. The frequency response of these items is ± 3 DB from 200 to 5000 cycles.

Type	Application	Level	Pri. Imp.	D.C. in Pri.	Sec. Imp.
*SO-1	Input	+ 4 V.U.	200	0	250,000
SO-2	Interstage/3:1	+ 4 V.U.	10,000	0	90,000
*SO-3	Plate to Line	+ 23 V.U.	10,000	3 mil.	200
			25,000	1.5 mil.	500
SO-4	Output	+ 20 V.U.	30,000	1.0 mil.	50
SO-5	Reactor 50 HY at 1 mil. D.C. 3000 ohms D.C. Res.				

*Impedance ratio is fixed, 1250:1 for SO-1, 1:50 for SO-3. Any impedance between the values shown may be employed.



SUB-OUNCER UNIT

Dimensions $\frac{9}{16}$ " x $\frac{5}{8}$ " x $\frac{7}{8}$ "
 Weight $\frac{1}{3}$ oz.

UTC HIPERM ALLOY TRANSFORMERS

The UTC Hiperm alloy audio and power transformers are specifically designed for portable and compact service. While light in weight, neither dependability nor fidelity has been sacrificed. The frequency characteristic of the Hiperm alloy audio units is uniform from 30 to 20,000 cycles. They incorporate a Hiperm-alloy nickel iron core and hum balanced coil structure. The rugged die cast case is of high conductivity alloy finished in grey, arranged for mounting with the terminals either up or down. DC in Prim'y shown is maximum unbalanced.



TYPE H-1 CASE

Length $2\frac{3}{8}$ "
Width $1\frac{15}{16}$ "
Height $3\frac{1}{8}$ "
Mounting $1\frac{3}{8}$ " x $1\frac{13}{16}$ "
Screws 6-32
Cutout $1\frac{13}{16}$ " dia.
Unit Weight 2 lbs.



TYPE H-2 CASE

Length $3\frac{9}{16}$ "
Width $2\frac{13}{16}$ "
Height $3\frac{1}{2}$ "
Mounting 2" x $2\frac{3}{4}$ "
Screws 8-32
Cutout $2\frac{11}{16}$ " dia.
Unit Weight 5 lbs.



UTC MICROPHONE CABLE TRANSFORMERS



UTC MIKE/HIGH IMPEDANCE ADAPTOR

LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	DC in Prim'y	Case No.
HA-100	Low impedance mike, pickup, or multiple line to grid	50, 125/150, 200, 250, 333, 500/600 ohms	60,000 ohms in two sections	30-20,000	+15 DB	.5 MA	H-1
HA-100X	Same as above but with tri-alloy internal shield to effect very low hum pickup	as above	as above				H-1
HA-101	Low impedance mike, pickup, or multiple line to push pull grids	50, 125/150, 200, 250, 333, 500/600 ohms	120,000 ohms overall, in two sections	30-20,000	+15 DB	.5 MA	H-1
HA-101X	As above but with tri-alloy internal shield to effect very low hum pickup	as above	80,000 ohms overall, in two sections				H-1
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	30-20,000	+15 DB	.5 MA	H-1
HA-108	Mixing, low impedance mike, pickup, or multiple line	50, 125/150, 200, 250, 333, 500/600 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000	+15 DB	.5 MA	H-1
HA-108X	Same as above but with tri-alloy internal shield to effect very low hum pickup						H-1
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	30-20,000	+15 DB	.5 MA	H-1

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	DC in Prim'y	Case No.
HA-104	Single plate to P.P. grids like 2A3, 59, 6L6 (split secondary)	15,000 ohms	95,000 ohms 1.25:1	30-20,000	+17 DB	0 MA	H-1
HA-105	Single plate to single grid (split secondary)	15,000 ohms	60,000 ohms 2:1 turn ratio	30-20,000	+17 DB	0	H-1
HA-106	Single plate to push pull grids (split secondary)	15,000 ohms	135,000 ohms 3:1 ratio overall	30-20,000	+17 DB	0	H-1
HA-107	Push pull plates to push pull grids (split primary and secondary)	30,000 ohms plate to plate	80,000 ohms 1.6:1 turn ratio overall	30-20,000	+25 DB	.25 MA	H-2
HA-137	Push pull plates to push pull grids (split primary and secondary)	30,000 ohms plate to plate	68,000 ohms 1.5:1 turn ratio overall	30-20,000	+17 DB	0	H-1

PLATE AND CRYSTAL TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	DC in Primary	Case No.
HA-111	Crystal microphone or pickup, to multiple line	100,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000 measured with resistive source	+4 DB	0	H-1
HA-113	Single plate to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000	+18 DB	0 MA	H-1
HA-133	Single plate to multiple line (D.C. in Pri.)	15,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000	+18 DB	8 MA	H-1
HA-114	Push pull low level plates to multiple line	30,000 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000	+20 DB	1 MA	H-1
HA-134	Push pull 89's or 2A3's to line	5,000/9400 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600 ohms	30-20,000	+32 DB	5 MA	H-2
HA-135	Push pull 2A3's to voice coil	5,000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	30-20,000	+36 DB	5 MA	H-2

POWER TRANSFORMERS AND CHOKES

Type No.	Application	Primary Voltage 50/60 cycles	High Voltage	Filament Windings	Case No.
HP-122	Pre-amp. power supply using 84 rectifier	115	220-0-220 15 MA	6.3 V.C.T.-.5A 6.3 V.C.T.-1.2A	H-1
HP-123	Pre-amp. or tuner power supply using 84 rectifier	115	275-0-275 35 MA	6.3 V.C.T.-.5A 6.3 V.C.T.-2A	H-2

Type No.	Application	Inductance	DC Current	DC Resistance	Insulation Test Voltage	Case No.
HC-115	Parallel feed and filter choke	Series-400 hy Parallel-100 hy	2.5 MA 5 MA	7000 ohms 1750 ohms	1500	H-1
HC-116	Parallel feed and filter choke	Series-600 hy Parallel-150 hy	8 MA 16 MA	4000 ohms 1000 ohms	1500	H-2
HC-117	Filter choke with hum bucking tap	60 hy	15 MA	3000 ohms	1500	H-1

UTC MICROPHONE CABLE TRANSFORMERS

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 spring strain relief to terminal boards inside the end caps. $1\frac{1}{2}$ " diameter ... $2\frac{1}{2}$ " long ... $\frac{1}{2}$ lb.

Type MC-1—primary tapped 30/50 and 200/250 ohms, secondary to grid, standard fidelity.
Type MC-2—primary tapped 30/50 and 200/250 ohms, secondary to grid, high fidelity.

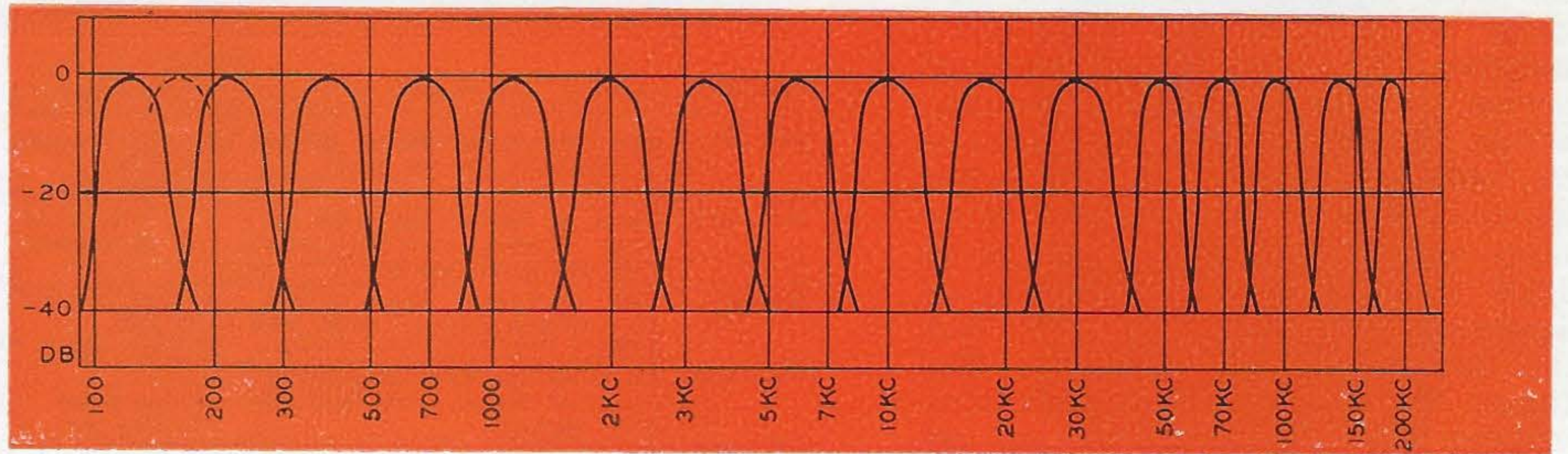
UTC MIKE/HIGH IMPEDANCE ADAPTOR is designed to match low impedance sources to an amplifier having high impedance input. Will match any source from 50 to 600 ohms, effecting a 15:1 step up ratio (225:1 impedance ratio). The plug on MA-1 goes into jack on amplifier ... the plug from mike goes into jack on MA-1. Flat 40-10,000 cycles. Rugged die casting $\frac{7}{8}$ x $1\frac{1}{8}$ x $2\frac{1}{8}$.

Type MA-1—primary 50 to 500 ohms ... 15:1 ratio ... jack input ... plug output.

UTC CUSTOM TOROID COIL FILTERS

UTC manufactures permalloy dust toroid filters for all applications. The stability of the inductors plus precision adjustment makes these filters ideal for all critical applications in the audio, carrier, and super-sonic fields.

The curve illustrated shows a group of filters affording sixteen separate bands in the audio and supersonic region with 35 DB attenuation at the cross-over points. These have also been supplied spaced further apart (40 DB cross-over), with intermediate bands, permitting flat top band pass action for any selected range from 100 cycles to 200 KC.



SUB-OUNCER PERMALLOY DUST TOROIDS

Weight 1/2 ounce uncased .8 ounce hermetically sealed. These miniaturized HQE coils have characteristics similar to our standard HQA, C, and D coils with little reduction in Q considering minute size.

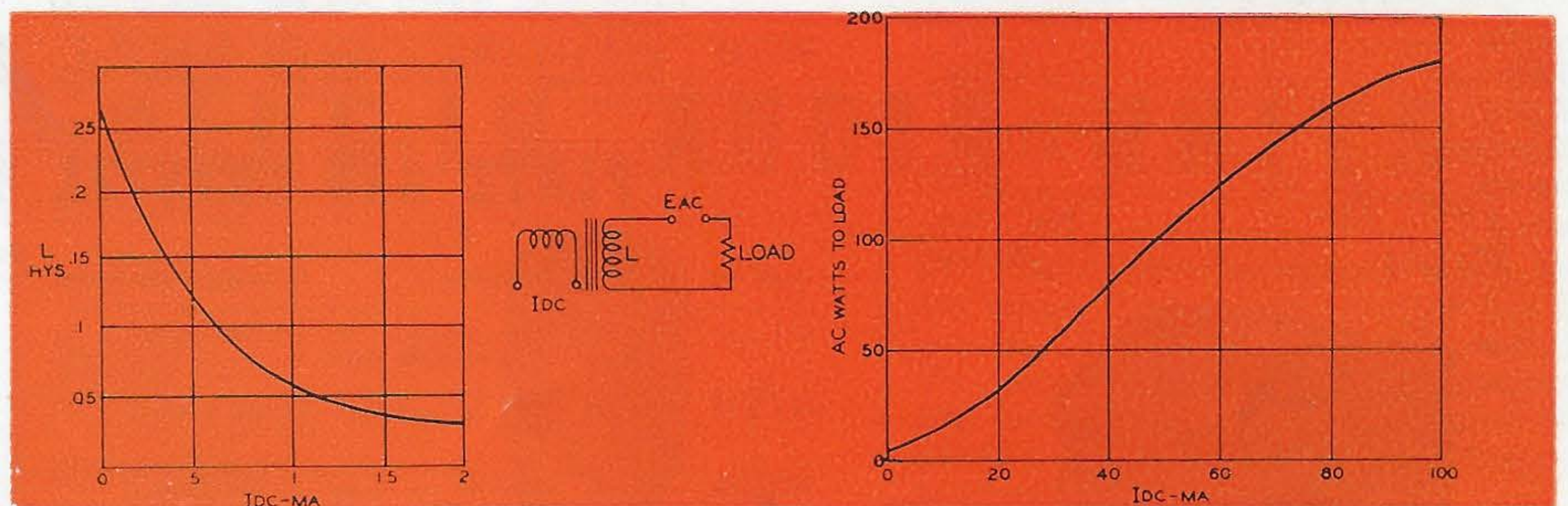
SUB-OUNCER TOROID FILTERS

Filters employing SUB-OUNCER toroids and special condensers represent the optimum in stable miniaturized filter performance. The unit shown... 1 x 1 x 2... employs 5 coils and 6 condensers for a complete band pass filter... weight 6 ounces.

UTC SATURABLE REACTORS

Saturable reactors are used extensively for both power control and phase control. The left curve is that of a small (1" cube) sensitive unit indicating the variation of inductance with saturating DC. The right curve is that of a moderate size power control reactor indicating power to the load with saturating DC.

These units are supplied to customer's specifications only... for all applications.



UTC VARITRAN CONTROL UNITS

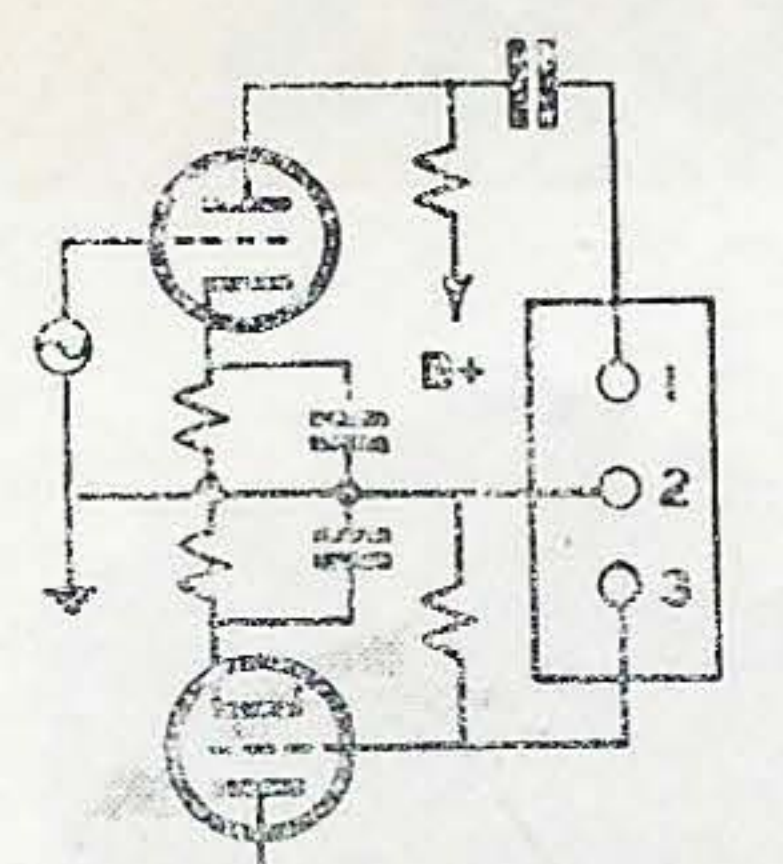
For controlling: Rectifier output... motors... heaters... lights... line voltage

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 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.

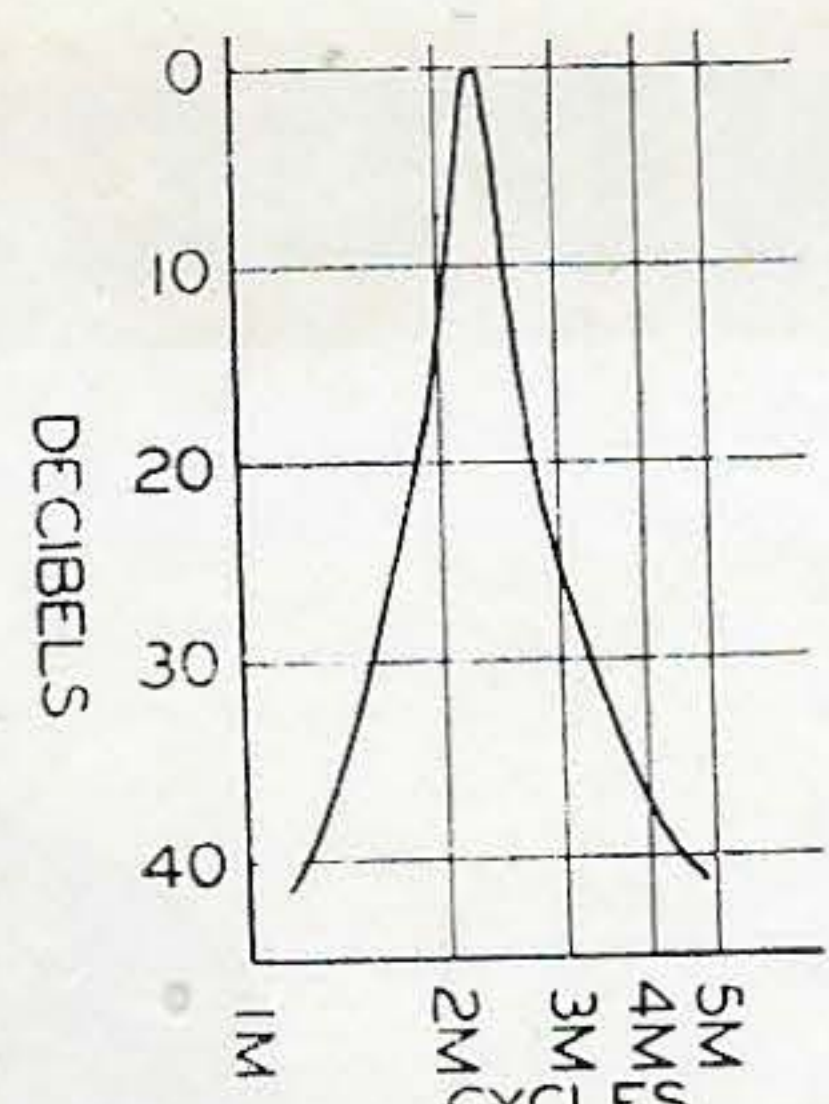
VARITRAN RATINGS

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 (115V. models). 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 60% 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.

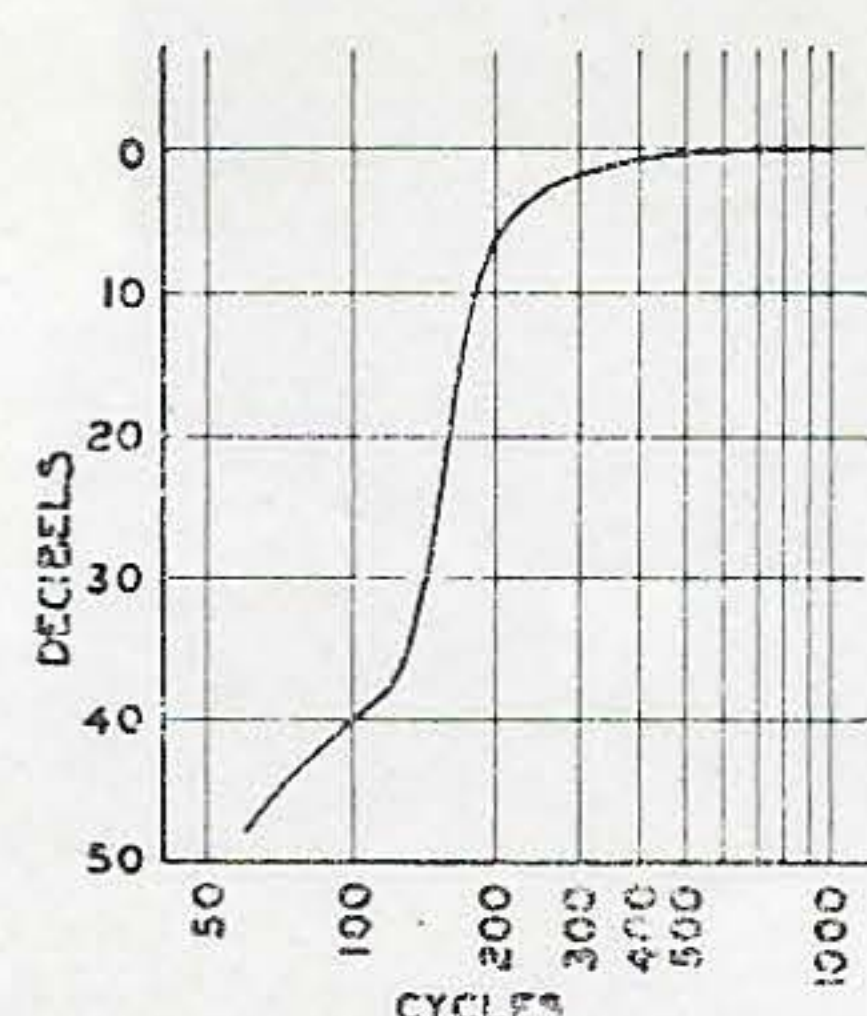
Type	Input Voltage	Output Voltage	Watts	Max. Amps.	Figure	Approx. Dimensions	Weight
V-0	115 volts	0-130	230	2	A	4 1/4 x 6 1/2 x 4 1/2	10
V-0-B	230 volts	0-260	230	1	A	4 1/4 x 6 1/2 x 4 1/2	11
V-1	115 volts	0-130	570	5	B	4 7/8 x 8 x 3 5/8	12
V-1-M	115 volts	0-130	570	5	C	4 7/8 x 9 7/8 x 3 5/8	14
V-2	115 volts	0-130	570	5	A	4 7/8 x 7 1/2 x 3 3/4	13
V-2-B	230 volts	0-260	570	2.5	A	4 7/8 x 7 1/2 x 3 3/4	16
V-3	115 volts	0-130	850	7.5	A	4 7/8 x 7 1/2 x 3 3/4	16
V-3-B	230 volts	0-260	850	3.75	A	5 1/2 x 7 1/2 x 5 1/2	20
V-4	115 volts	0-130	1250	11	A	6 1/4 x 10 3/4 x 5	34
V-4-B	230 volts	0-260	1250	5.5	A	6 1/4 x 10 3/4 x 5	36



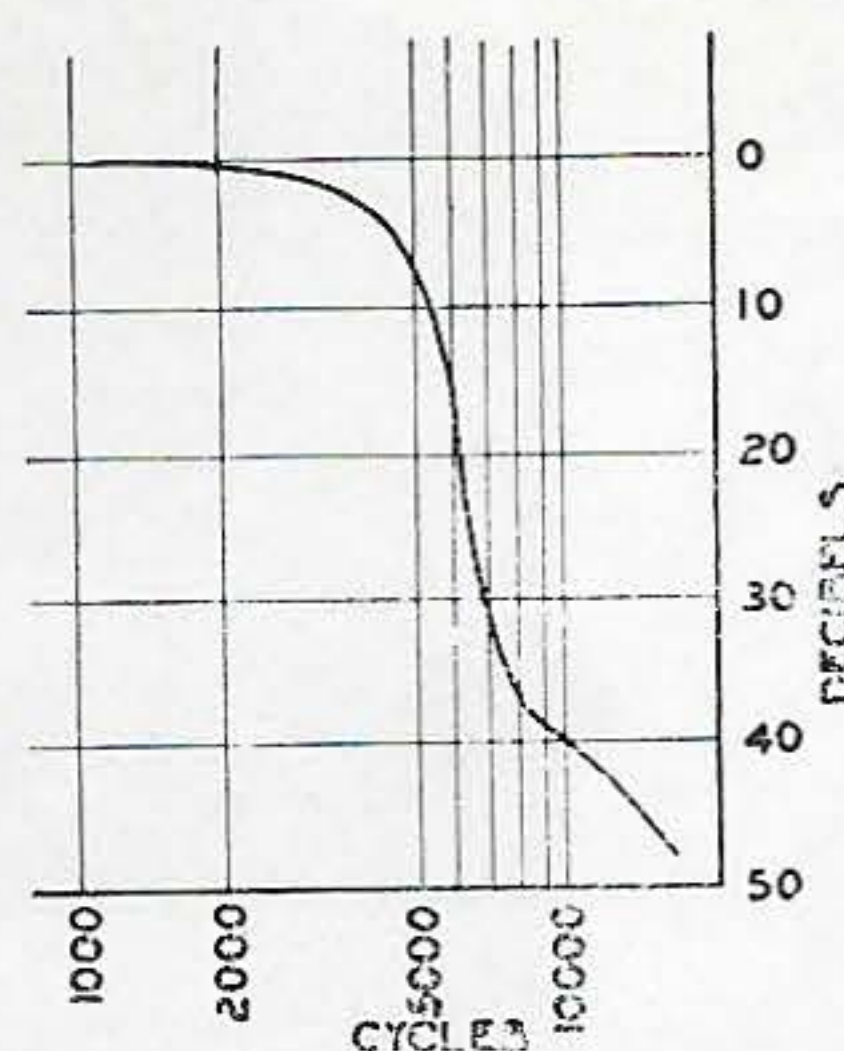
INTERSTAGE FILTER CONNECTIONS



TYPICAL BPI CURVE



TYPICAL HPI CURVE



TYPICAL LPI CURVE

Case for interstage filters same as HQB illustrated on Page 7.

UTC INTERSTAGE FILTERS

Interstage filters lend themselves to effecting gain simultaneously with their frequency discrimination. UTC manufactures three basic types of filters for such application with a nominal impedance of 10,000 ohms to be used in a circuit as illustrated.

Type **BPI (band pass)**, **LPI (low pass)**, and **HPI (high pass)** interstage filters are not carried in stock, but are available from standardized designs and components. They are available for any frequency from 200 to 10,000 cycles. Order by type followed by frequency as: LPI-2500, which designates a low pass filter—2500 cycles cutoff frequency. For low impedance circuits (500/600 ohms), order as RPL, LPL or HPL in similar manner. Output of BPL is to grid; LPL and HPL to 500/600 ohms.

All interstage filters are housed in **hermetically sealed cases** identical in dimensions to HQB, but cutout is $\frac{5}{8} \times 2$ inches. Dual alloy shielding reduces hum pickup to 150 MV per gauss at 60 cycles.

BPI units have 2:1 gain. They are sharply peaked, having approximately 2 DB attenuation at plus or minus 3% from mean frequency and attenuations of approximately 40 DB per octave. They are adjusted to zero phase shift at mean frequency.

HPI units have loss of less than 6 DB at cutoff frequency. At .67 cutoff frequency the attenuation is 35 DB and at .5 cutoff frequency, 40 DB.

LPI units have loss of less than 6 DB at cutoff frequency. At 1.5 cutoff frequency the attenuation is 35 DB and at twice cutoff frequency, 40 DB.

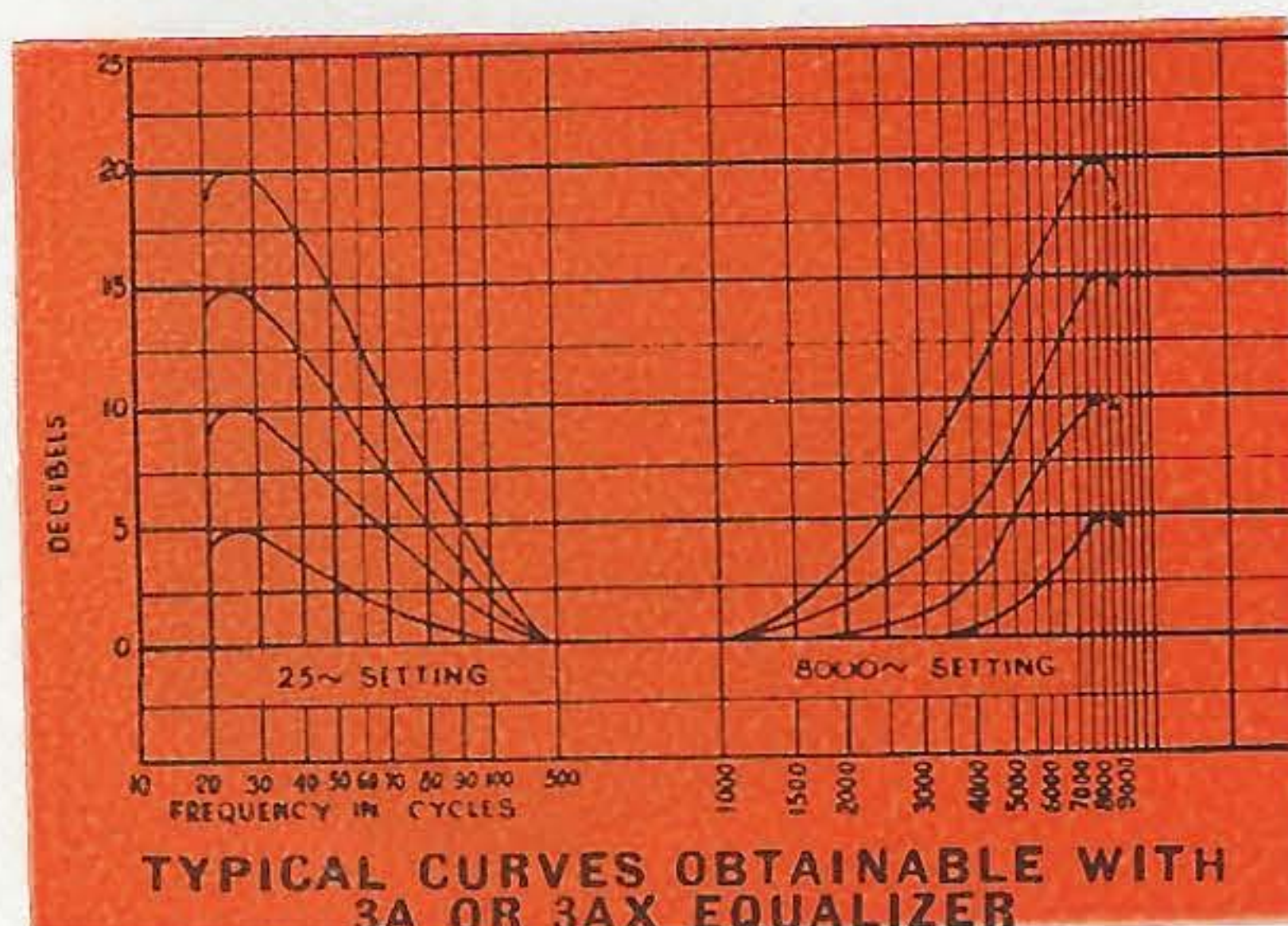
BROADCAST AND RECORDING EQUALIZERS AND FILTERS

500/600 ohms

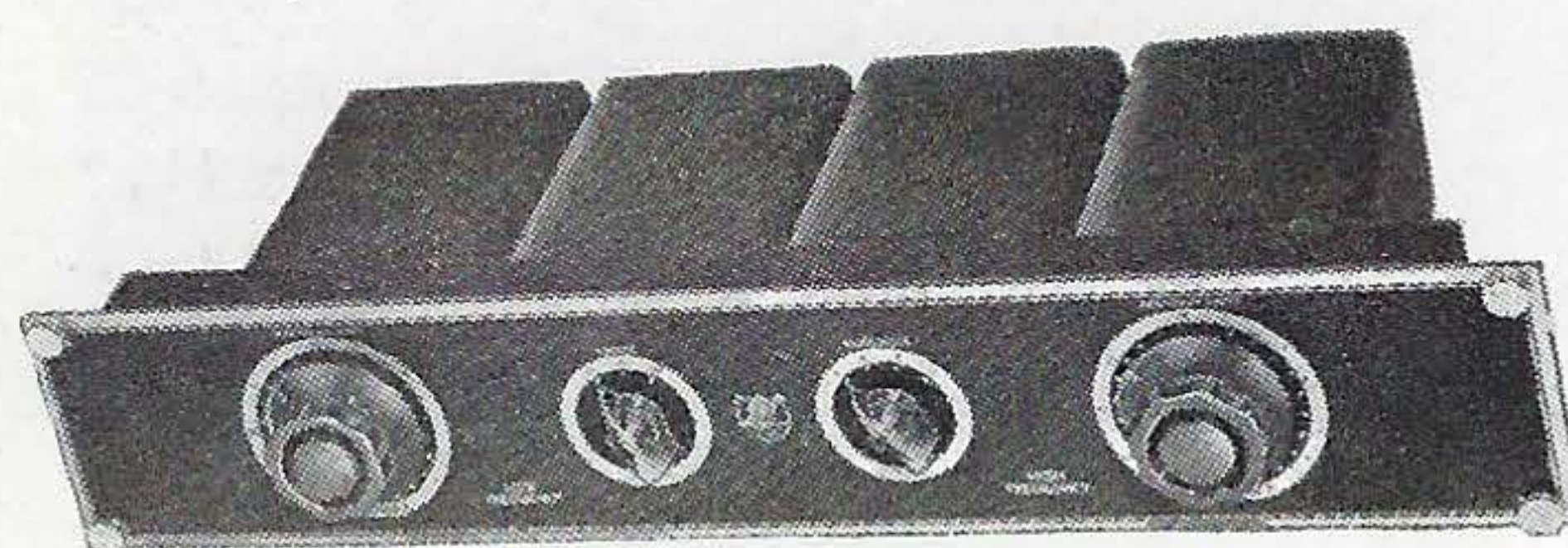
3AX UNIVERSAL EQUALIZER

The universal characteristics of the **UTC 3AX** 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. The low frequency controls include a switch for adjusting the maximum 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 set maximum equalization point at **4000, 6000, 8000, 10,000 or 15,000 cycles**, and a similar calibrated control reading directly in DB. **Equalization up to 25 DB** available at any frequency selected.

Through a unique arrangement of compensating pads, changes in adjustment of the **3AX** equalizer do not affect the insertion loss (50 DB). This permits rapid changes in tone color, with negligible change in volume. Where rapid change-over is required in service from one line to another, or from recording to play back, it is merely necessary to predetermine the required setting. The actual adjustment of the controls can be taken care of almost instantaneously. The construction is of the depressed chassis, etched panel, rack mount type. Thoroughly shielded against inductive pickup with UTC Trialloy Shielding. Dimensions of panel $3\frac{1}{2} \times 19$ ". Depth $7\frac{1}{2}$ ". Weight 15 lbs.



TYPICAL CURVES OBTAINABLE WITH 3A OR 3AX EQUALIZER



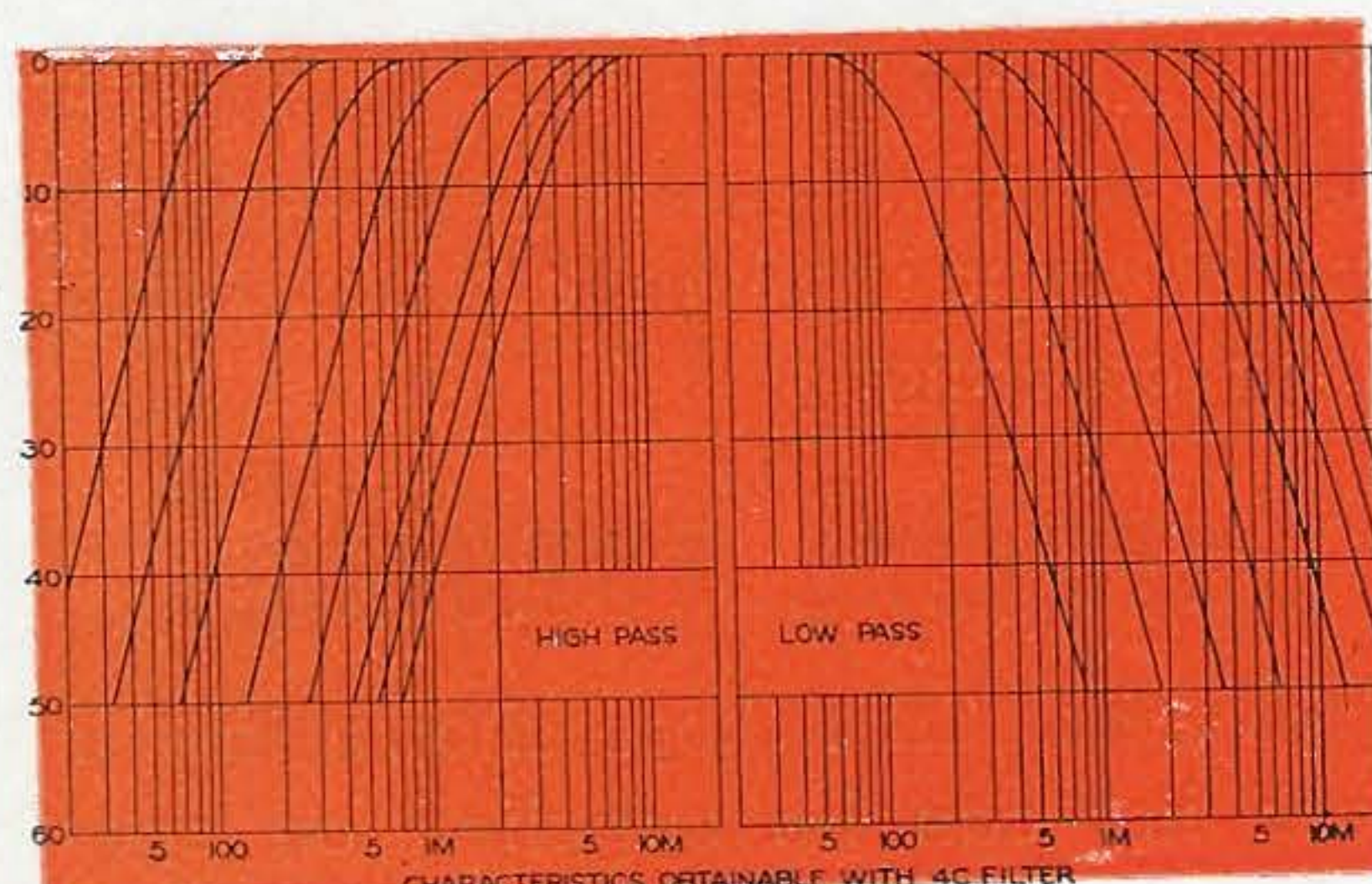
3A UNIVERSAL EQUALIZER

The **3A** equalizer is identical to the **3AX** described above, except that it does not incorporate the compensating pads for constant insertion loss. The insertion loss is roughly proportional to the amount of equalization employed. All other characteristics identical with the **3AX** unit, this item weighs 10 lbs.

4C SOUND EFFECTS FILTER

The use of filters to obtain unusual sound effects is now finding wide application in broadcast technique. The **Model 4C Filter** was originally developed for one of the large broadcast chains, and is now used extensively by most broadcast stations. Two controls are provided on the $5\frac{1}{4} \times 19$ " panel, which is similar in appearance to the **3AX** unit. The weight of the **4C** unit is 20 lbs.

The **low pass** switch can be set for cutoff frequencies of **100, 250, 500, 1000, 2000, 3000, 4000, or 5000 cycles**. The **high pass** switch has identical frequency points. The great number of cutoff frequencies provides for a wide latitude of tone control. If desired, though not normally necessary, external potentiometers may be inserted in the circuit for attenuation control.

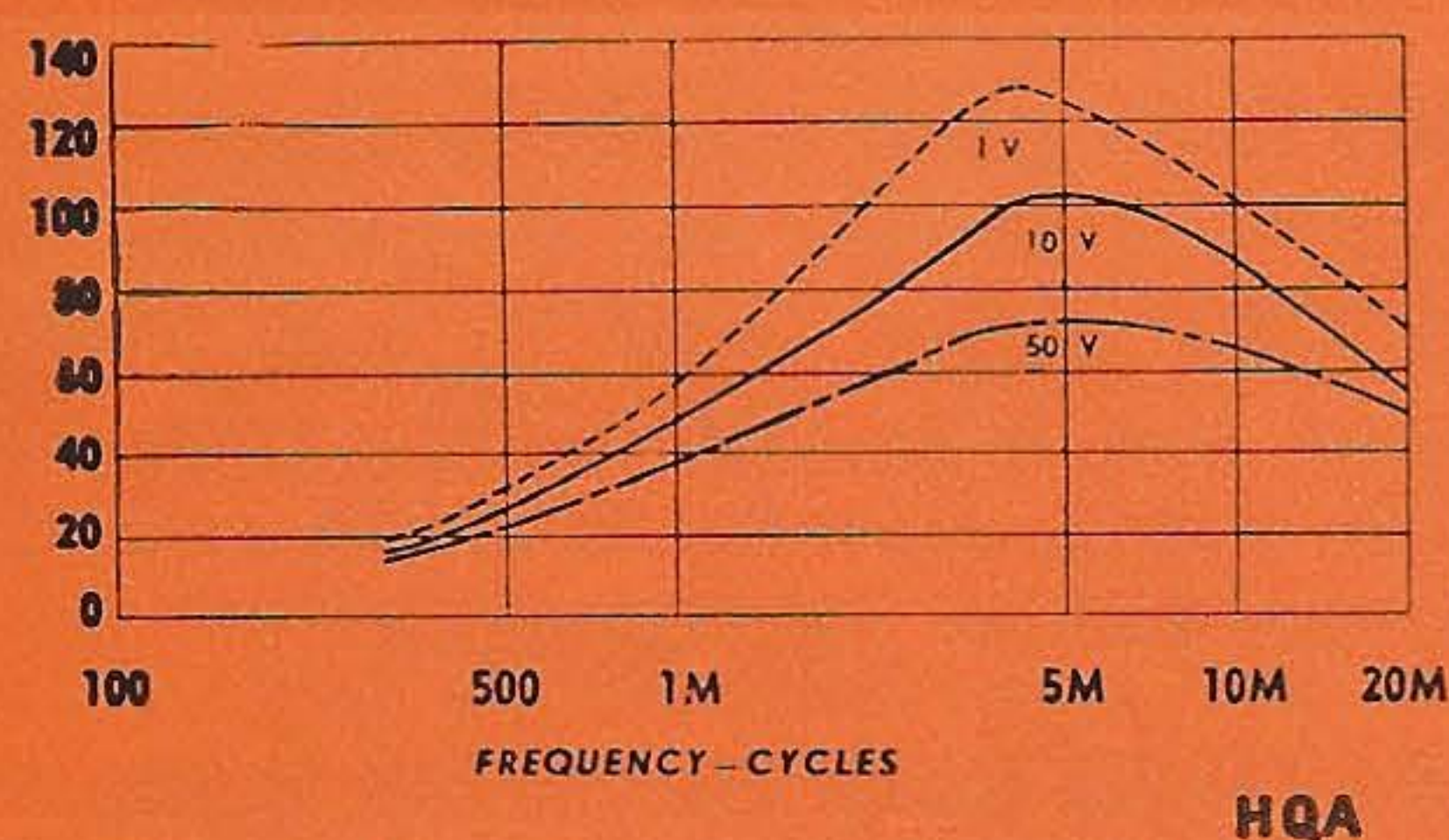


CHARACTERISTICS OBTAINABLE WITH 4C FILTER

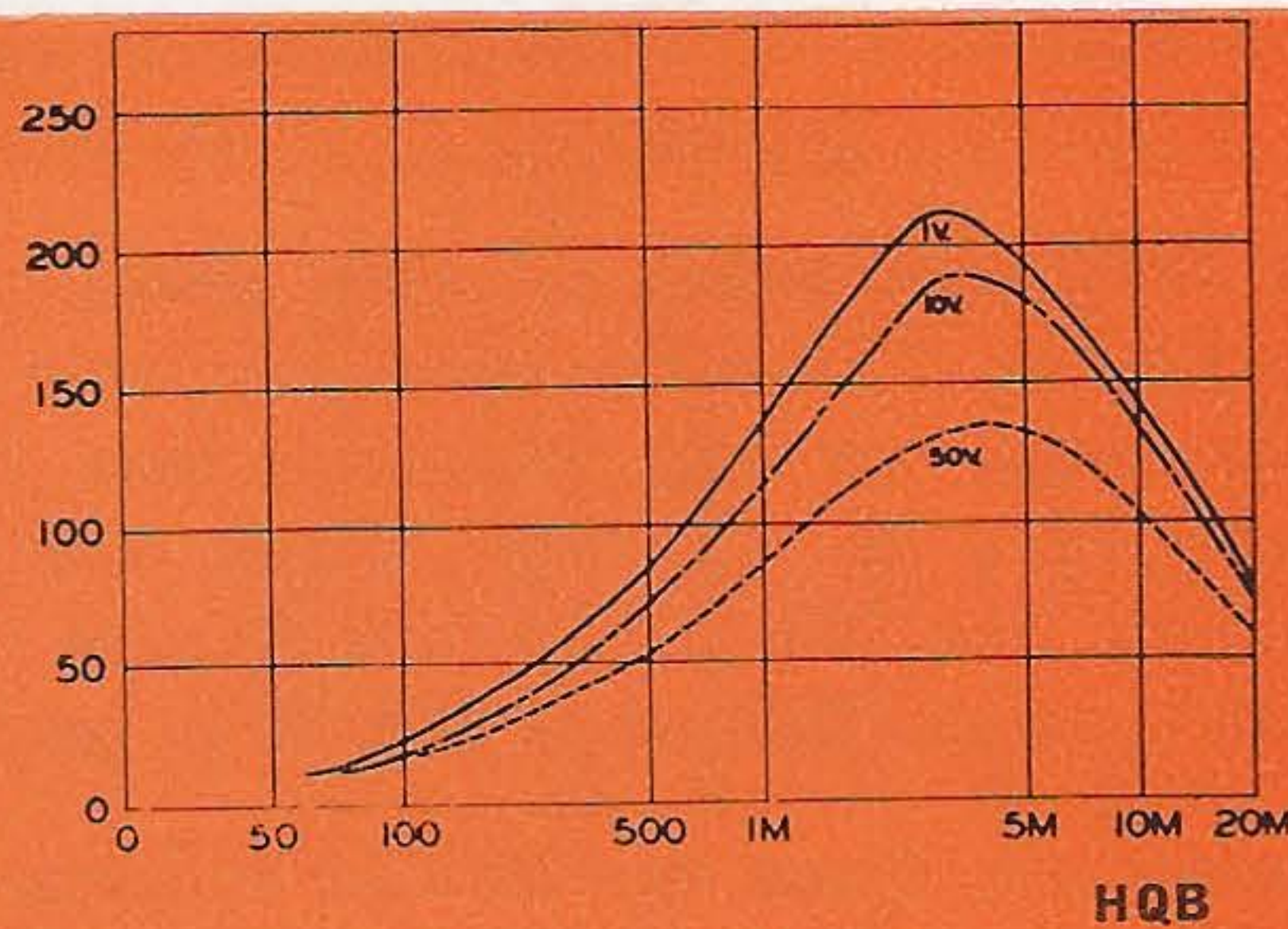
5A BOOST-DROP EQUALIZER

The **5A** equalizer, ideal for recording and reproduction, incorporates the **3A** equalizer with control for drooping highs and lows where required. Up to **15 DB** attenuation can be effected at **25, 50, or 100 cycles** for the low end and **4000, 6000, 8000, or 10,000 cycles** for the high end.

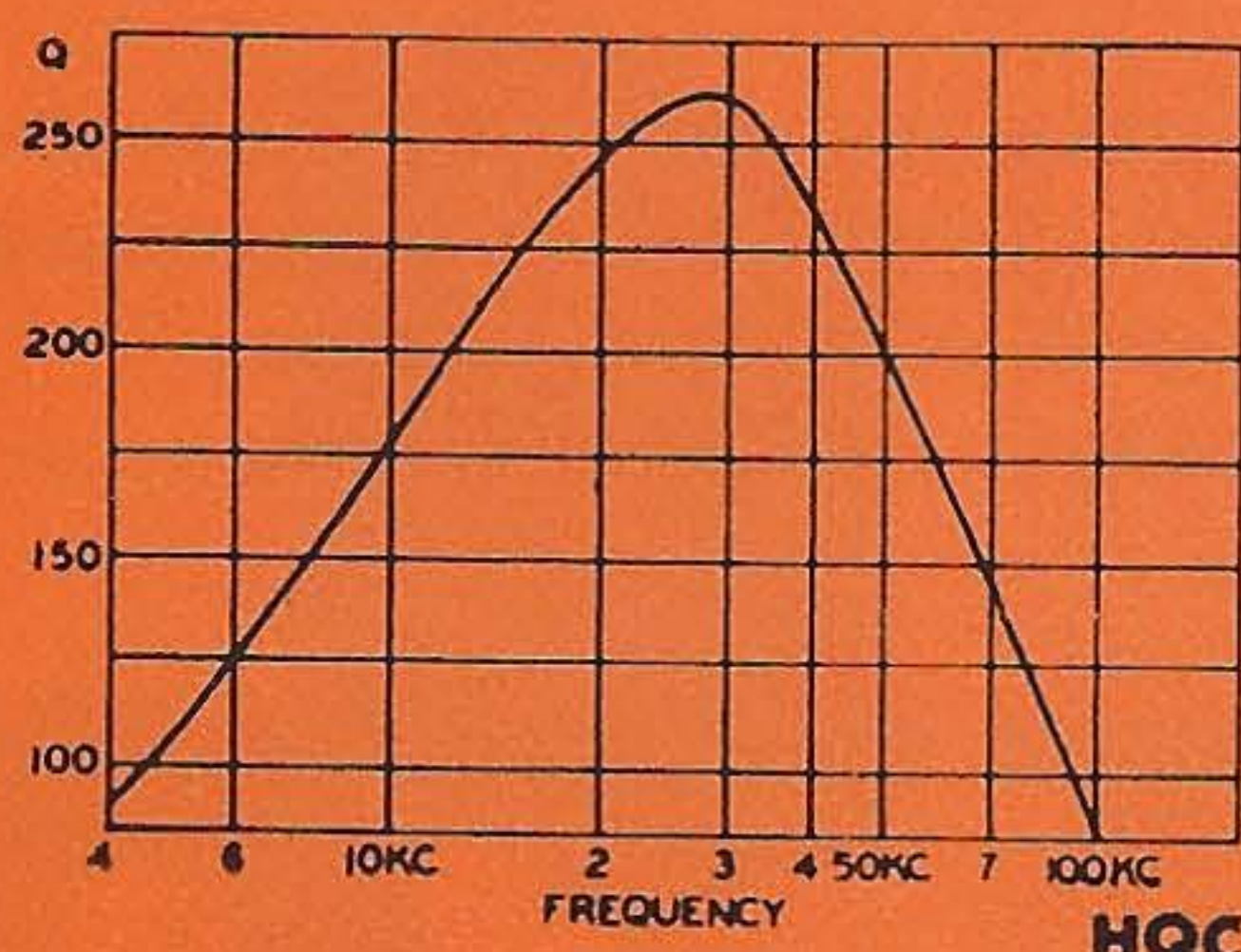
UTC HIGH Q TOROID INDUCTORS



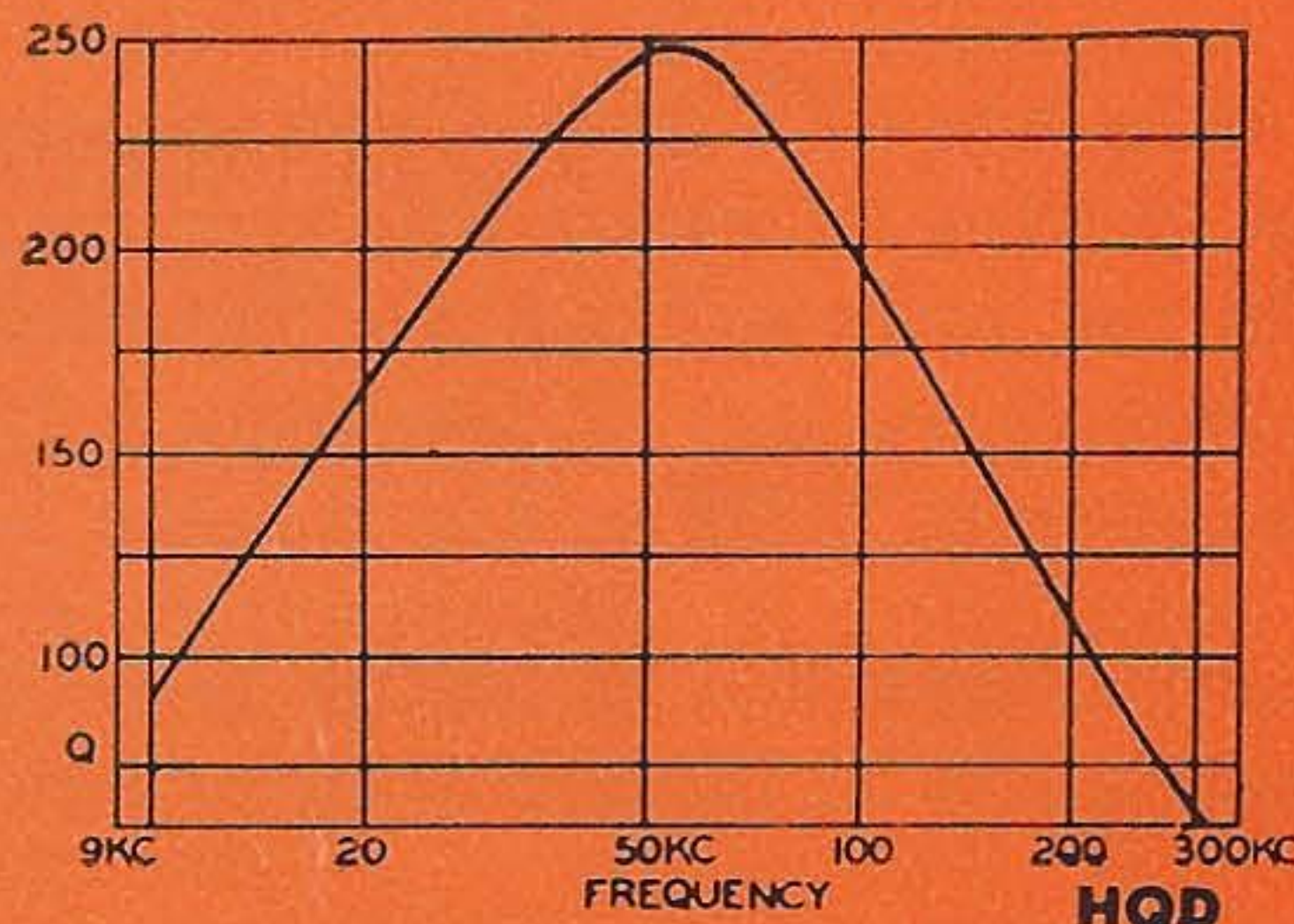
HQA



HQB



HQC



HQD

Type No.	Inductance Value	*DC MA Max.
HQA-1	5 mhy.	400
HQA-2	12.5 mhy.	260
HQA-3	20 mhy.	200
HQA-4	30 mhy.	160
HQA-5	50 mhy.	130
HQA-6	80 mhy.	100
HQA-7	125 mhy.	85
HQA-8	200 mhy.	65
HQA-9	300 mhy.	50
HQA-10	.5 hy.	40
HQA-11	.75 hy.	35
HQA-12	1.25 hy.	26
HQA-13	2. hy.	20
HQA-14	3. hy.	16
HQA-15	5. hy.	13
HQA-16	7.5 hy.	10
HQA-17	10. hy.	9
HQA-18	15. hy.	8
HQB-1	10 mhy.	410
HQB-2	30 mhy.	240
HQB-3	70 mhy.	170
HQB-4	120 mhy.	120
HQB-5	.5 hy.	60
HQB-6	1. hy.	41
HQB-7	2. hy.	30
HQB-8	3.5 hy.	22
HQB-9	7.5 hy.	16
HQB-10	12. hy.	11
HQB-11	18. hy.	9
HQB-12	25. hy.	8
HQC-1	1 mhy.	
HQC-2	2.5 mhy.	
HQC-3	5 mhy.	
HQC-4	10 mhy.	
HQC-5	20 mhy.	
HQD-1	.4 mhy.	
HQD-2	.1 mhy.	
HQD-3	2.5 mhy.	
HQD-4	5 mhy.	
HQD-5	15 mhy.	

There are many applications in the audio, carrier, and supersonic fields requiring inductors of high Q and great stability. The HQ series of permalloy dust toroid units developed for these applications have remarkable characteristics.

HQA coils have maximum Q (100) at approximately 5,000 cycles. **HQB** coils have maximum Q (200) at approximately 4,000 cycles. **HQC** coils have maximum Q (200) at approximately 30 Kc. **HQD** coils have maximum Q (200) at approximately 60 Kc. The stability is excellent and types are available for all high Q applications from 300 cycles to 300 Kc.

Stability is excellent. For the HQA-7 coil illustrated inductance change is less than 1% for applied voltages from .1 to 25 volts. For the HQB-5 coil illustrated the inductance change is less than 1% for applied voltage from .1 to 50 volts. DC is permissible through the coil. Inductance is virtually independent of frequency, temperature, and vibration.

Hum pickup is extremely low due to the toroidal winding structure . . . 70 microvolts per gauss for the HQA, 140 microvolts per gauss for the HQB. The cased toroid structure permits close spacing of units, effecting a coupling attenuation of approximately 80 DB.

All HQ coils are hermetically sealed. Units are laboratory adjusted to 1% tolerance.

*This value of D.C. will drop the coil inductance 5%. Values of D.C. below this will show proportionately (linear) less inductance drop. For example HQA-8 will drop 1/2% in L with 6.5MA.



HQA, HQC, HQD CASE

Diameter	1 13/16"
Height	1 3/16"
Mounting	1 1/8"
Screws	6-32
Cutout	9/16" x 1 3/16"
Weight	5 oz.



HQB CASE

Length	2 5/8"
Width	1 5/8"
Height	2 1/2"
Mounting	1 11/64" x 2 11/64"
Screws	6-32
Cutout	9/16" x 1 1/8"
Unit Weight	14 oz.



UNCASED HIGH Q TOROIDS

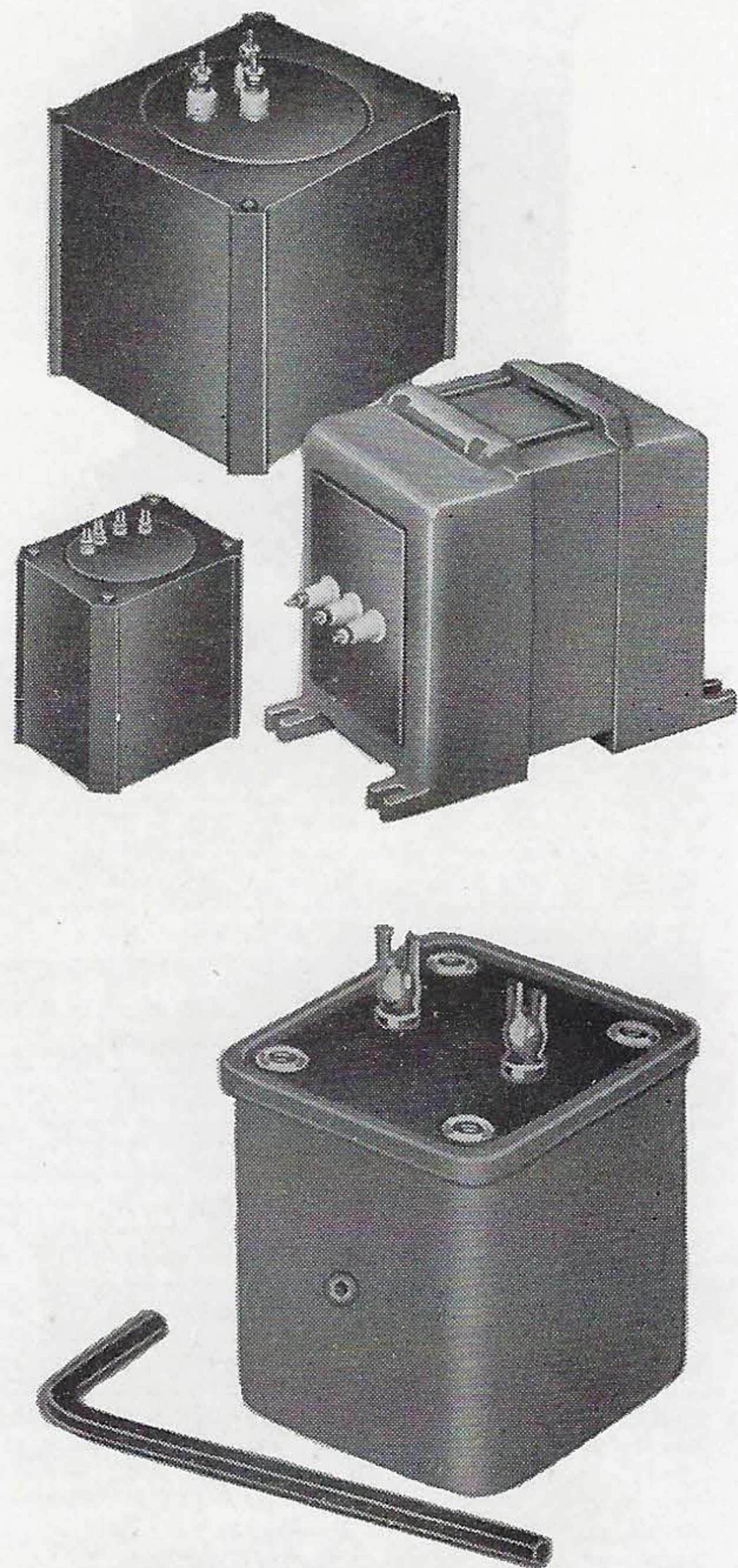
We can supply any of the Toroids listed without case. Deduct \$1.50. Specify type and inductance value when ordering.

SPECIAL TOROIDS

Sizes other than those shown in our stock list can be supplied on special order at price of next highest value.

LINEAR STANDARD FILTER, SWINGING, AND AUDIO CHOKES

(Inductance values are at D.C. current shown)



Type No.	Application	Inductance	DC Current	DC Resistance	Insulation Test Voltage	Case No.
LS-90	Filter choke with hum bucking tap	Series-50 hy Parallel-12.5 hy	50 MA 100 MA	510 ohms 128 ohms	2000	LS-2
LS-91	Filter choke with hum bucking tap	Series-14 hy Parallel-3.5 hy	125 MA 250 MA	200 ohms 50 ohms	2000	LS-2
LS-92	Filter choke with hum bucking tap	Series-16 hy Parallel-4 hy	175 MA 350 MA	96 ohms 24 ohms	2500	LS-3
LS-93	Filter choke with hum bucking tap	Series-26 hy Parallel-6.25 hy	200 MA 400 MA	112 ohms 28 ohms	3500	LS-3
LS-94	Parallel feed and filter choke	Series-320 hy Parallel-80 hy	3 MA 6 MA	6400 ohms 1600 ohms	1500	LS-1
LS-950	Filter choke with hum bucking tap	Series-100 hy Parallel-25 hy	35 MA 70 MA	1000 ohms 200 ohms	1500	LS-2
LS-96	Filter choke with hum bucking tap	Series-20 hy Parallel-5 hy	500 MA 1 amp	90 ohms 22.5 ohms	7500	*
LS-980	Filter choke with hum bucking tap	Series-14 hy Parallel-3.5 hy	400 MA 800 MA	100 ohms 25 ohms	5000	LS-3
LS-98	Swinging choke	8-40 hy	400 MA	90 ohms	5000	LS-3
LS-99	Filter choke with hum bucking tap	Series-20 hy Parallel-5 hy	1 amp 2 amp	50 ohms 12.5 ohms	10000	*
LS-105	Swinging choke	8-40 hy	1 amp	50 ohms	10000	*

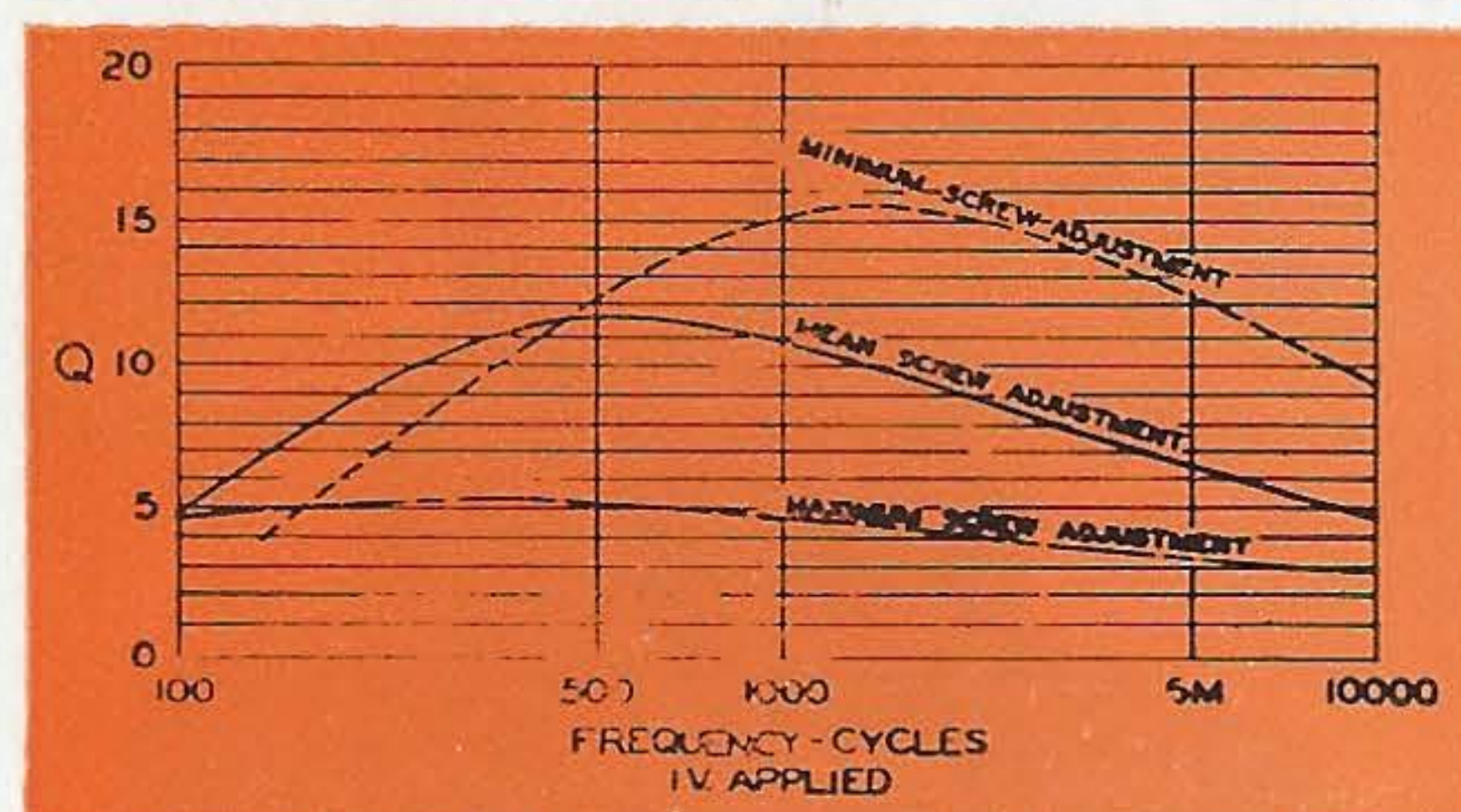
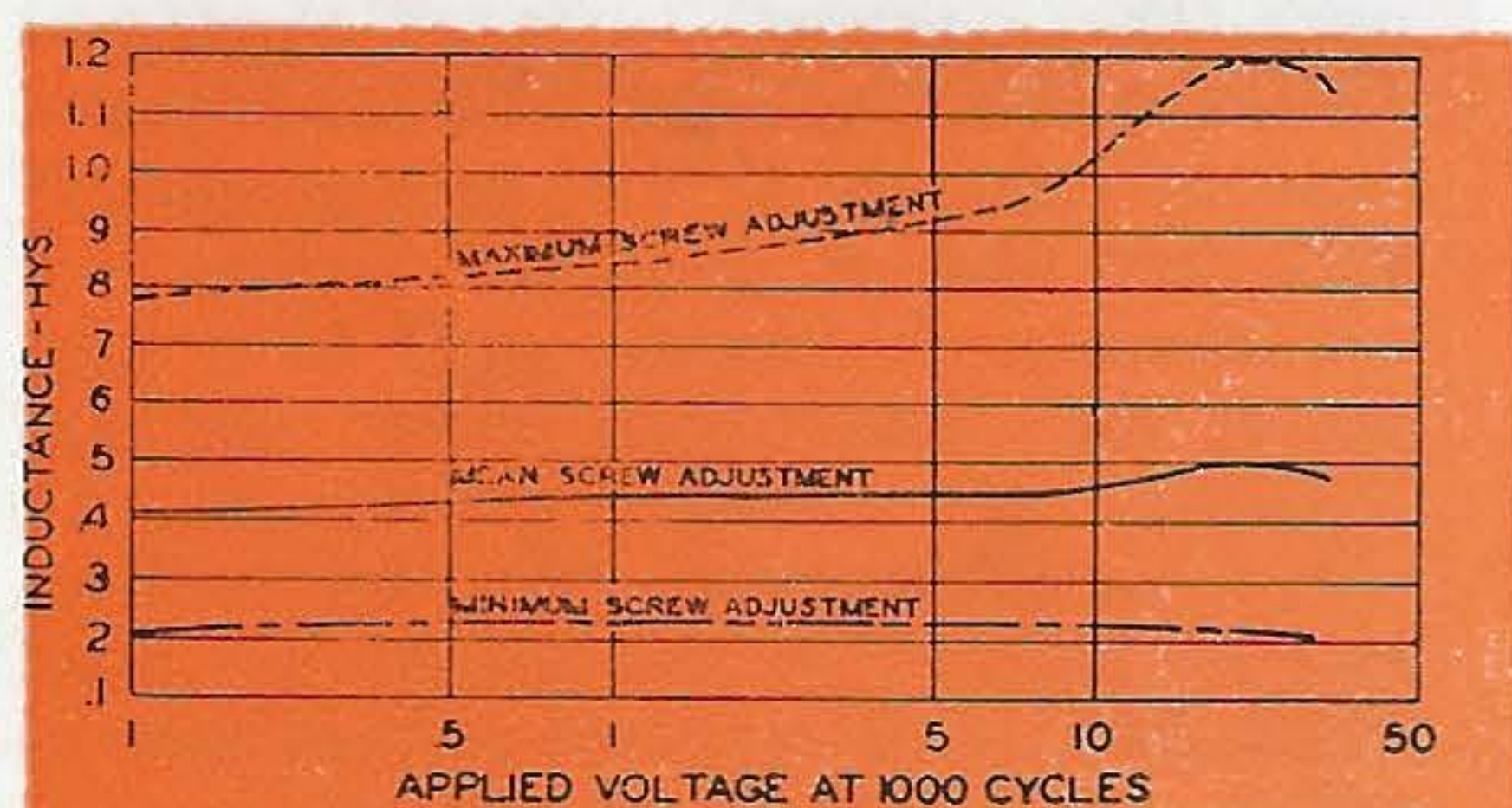
MODULATION REACTORS

Type No.	Application	Inductance	DC Current	DC Resistance	Insulation Test Voltage	Case No.
LS-102	Modulation reactor	50 hy	350 MA	250 ohms	5000	*
LS-103	Modulation reactor	50 hy	500 MA	175 ohms	7500	*
LS-104A	Modulation reactor	50 hy	1.3 amp	75 ohms	20000	*
LS-106	Modulation reactor	50 hy	750 MA	120 ohms	10000	Spec.

*See Chart Page 5

UTC

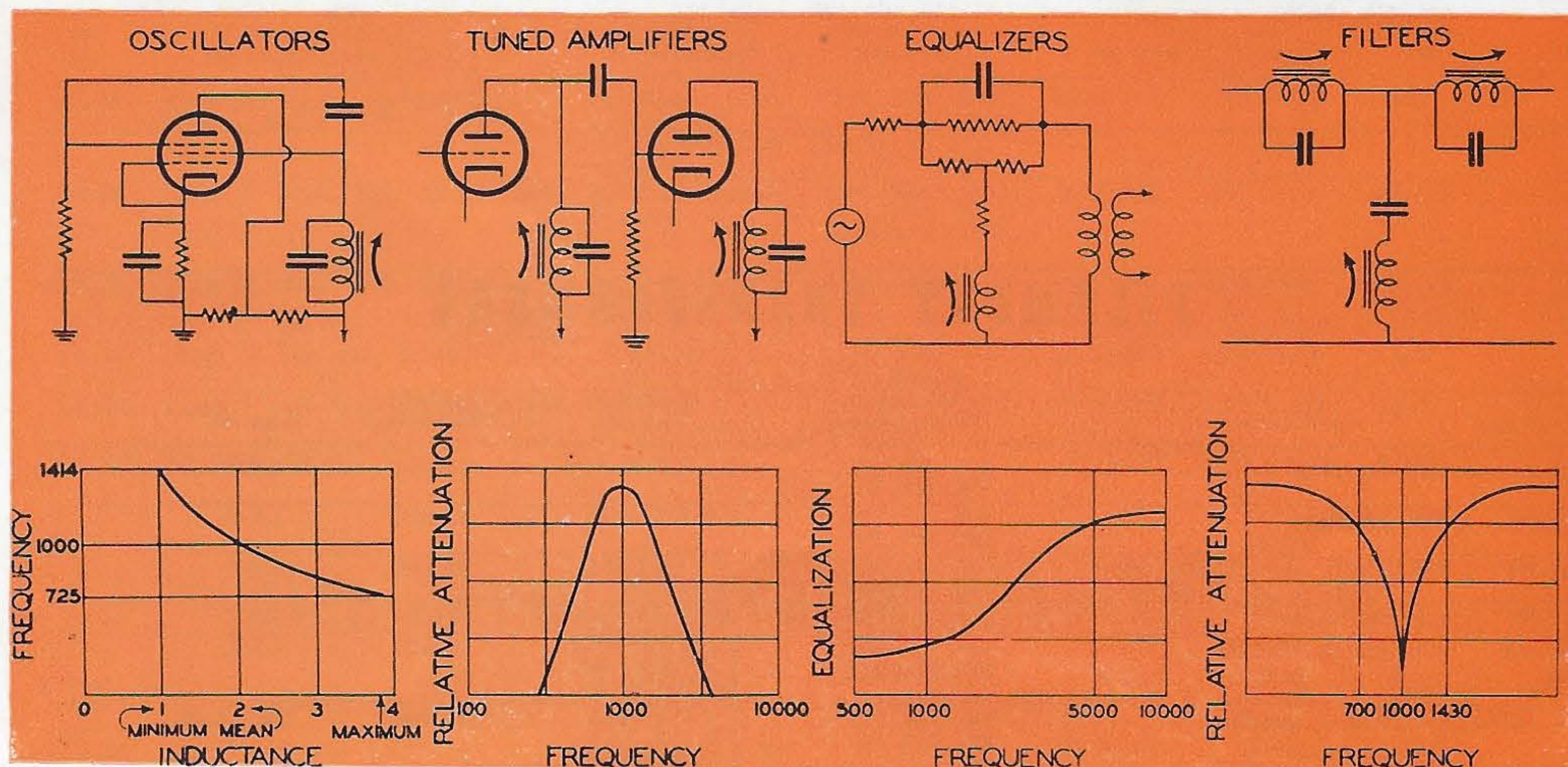
VARIABLE INDUCTORS



UTC type VIC variable inductors offer a revolutionary approach to the problem of tuned audio circuits. By adjusting a set screw in the side of the case, an inductance value of +90%, -50% from mean value is obtainable. Setting is positive. Effective Q for a wide frequency range and variation of inductance with applied AC voltage are shown on the illustrated curves, for a typical VIC unit.

The VIC inductor is housed in a rugged die cast case 1 1/2" long, 1 1/4" wide and 1 1/8" high with mounting centers on terminal board side 13/16" by 29/32". Weight is 5 1/2 oz.

Type	Mean Hys.	Type	Mean Hys.
VI-C1	.0085	VI-C12	1.3
VI-C2	.013	VI-C13	2.2
VI-C3	.021	VI-C14	3.4
VI-C4	.034	VI-C15	5.4
VI-C5	.053	VI-C16	8.5
VI-C6	.084	VI-C17	13.
VI-C7	.13	VI-C18	21.
VI-C8	.21	VI-C19	33.
VI-C9	.34	VI-C20	52.
VI-C10	.54	VI-C21	83.
VI-C11	.85	VI-C22	130.



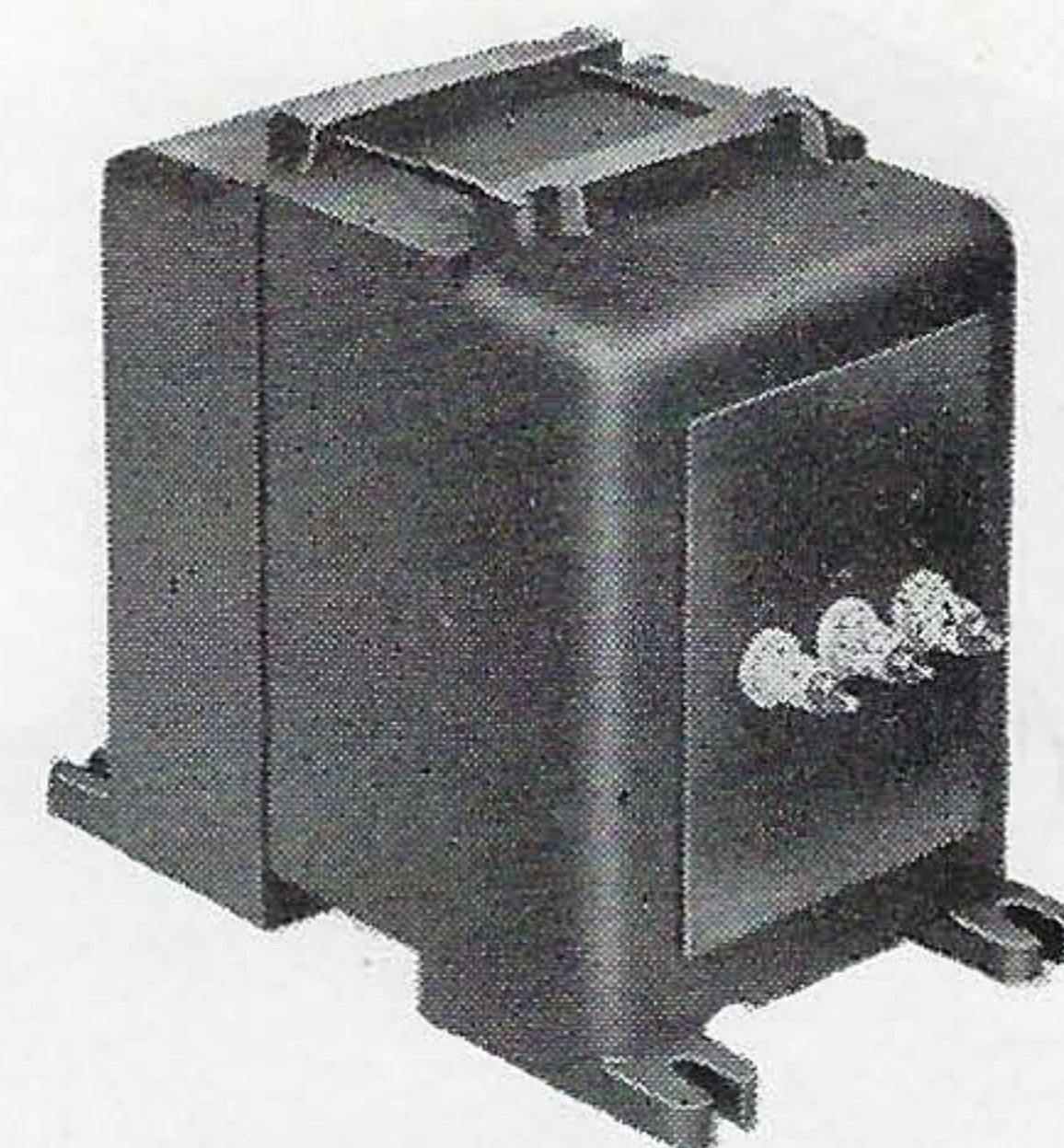
TYPICAL VIC APPLICATIONS

LINEAR STANDARD POWER EQUIPMENT

In choosing power components for broadcast and commercial equipment, the first factor to be considered is dependability. Linear standard power components are very conservatively designed for maximum reliability. Designs provide for low temperature rise 40°, and high insulation safety factors. Only the finest of materials and workmanship are used throughout.

The low power components of the Linear Standard series are housed in the familiar rectangular LS case with top or bottom mounting facilities. High power components are housed in end castings which completely protect the winding, while directly exposing the laminations for maximum heat transfer.

All units have a deep grey finish to obtain the highest heat radiation co-efficient. Large components (up to 250 KVA) are housed in oil tanks.



DIMENSIONS

Type No.	L	W	H	Mtg.	Wt.
LS-66	9 1/4	4 1/4	6 1/4	3 1/2 x 9 1/2	37
LS-67	9 1/4	4 1/4	6 1/4	3 1/2 x 9 1/2	37
LS-73	9 1/2	4 1/4	6 1/4	3 1/2 x 8 1/2	34
LS-83	8 3/4	4 1/4	6 1/4	3 1/2 x 8 1/2	25
LS-89A	9 1/2	7	9	6 x 8 1/2	68
LS-96	10 1/4	4 1/4	6 1/4	3 1/2 x 9 1/2	40
LS-99	14 1/2	8 1/2	10 1/4	7 1/2 x 13 1/2	80
LS-102	9 1/4	4 1/4	6 1/4	3 1/2 x 9 1/2	37
LS-103	13 1/2	8 1/2	10 1/4	7 1/2 x 12 1/2	58
LS-104A	16 1/2" High—LS-7 Case				500
LS-105	13 1/2	8 1/2	10 1/4	7 1/2 x 12 1/2	58
LS-121Y	8 1/4	3 1/4	5 1/2	3 x 7-13/16	23
LS-181	9 1/4	4 1/4	6 1/4	3 1/2 x 9 1/2	37
LS-182	10 1/4	4 1/4	6 1/4	3 1/2 x 10 1/2	45
LS-183	15 1/2	10	13 1/4	8 1/2 x 14 1/2	70
LS-184	17 1/4	10	13 1/4	8 1/2 x 16 1/4	102
LS-185	23	10	13 1/4	8 1/2 x 22	230

PLATE TRANSFORMERS

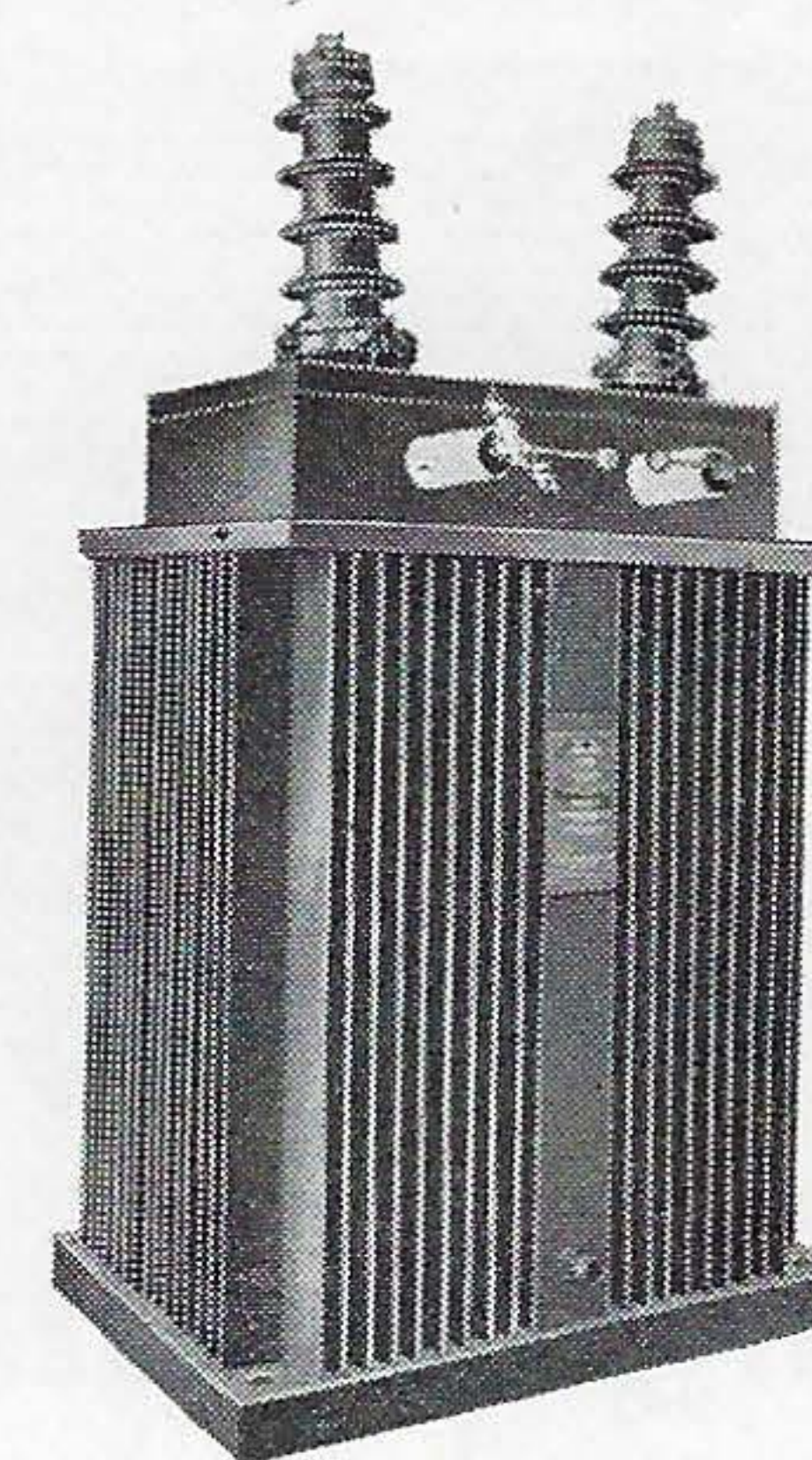
Type No.	Application	Primary Voltage 50/60 cycles	High Voltage	Approximate DC Voltage Out of Filter	DC Current
LS-181	For push pull 845, 800, etc.	100, 110, 120, 220, 230, 240	1500-1250-0-1250- 1500	1250-1050	200 MA
LS-182	Class B 203, 838, ZB120, etc.	100, 110, 120, 220, 230, 240	1500-1250-0-1250- 1500	1250-1050	350 MA
LS-183	Class B 805 or push pull parallel 203A's, etc.	100, 110, 120, 220, 230, 240	1750-1500-0-1500- 1750	1500-1250	400 MA
LS-184	Class B 204A, 849, HF200, HF300, 250TH, HK354, 100TH, etc.	100, 110, 120, 220, 230, 240	3500-3000-2500-0- 2500-3000-3500	3000-2500-2100	500 MA
LS-185	For combined class B and class C stages as above	100, 110, 120, 220, 230, 240	3500-3000-2500-0- 2500-3000-3500	3000-2500-2100	1.2 amp.

COMBINED PLATE AND FILAMENT TRANSFORMERS

Type No.	Application	Primary Voltage 50/60 cycles	High Voltage	Filament Windings	Case No.
LS-180	For pre-amplifier service	110	225-0-225 15 MA	6.3 V.C.T.-2A 6.3 V.C.T.-.5A	LS-1
LS-180H	Same as above but in hum-balanced construction (dual coils symmetrically arranged to neutralize stray fluxes)				LS-1
LS-190	Low power amplifier and receiver service	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
LS-70	High power amplifier service	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-3
LS-72	For fixed or self bias 6L6's, 300A's	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-3
LS-73	For push pull parallel 6L6's, 300A's, 2A3's	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	See Chart

FILAMENT TRANSFORMERS

Type No.	Application	Primary Voltage 50/60 cycles	Secondary Voltage	Insulation Test Voltage	Case No.
LS-80	866 rectifiers	100, 110, 120, 220, 230, 240	2.5 V.C.T.-10A	10,000	LS-3
LS-82	872 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-20A	12,000	LS-3
LS-84	203A, 845, etc. HF200, HF300	100, 110, 120, 220, 230, 240	10 V.C.T.-8A	10,000	LS-3
LS-86	6.3 volt tubes	105, 115, 125	6.3 V.C.T.-2A	2,500	LS-1
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
LS-121Y	872 Bridge rectifier	100, 110, 120, 220, 230, 240	5 V.C.T.-20A 5 V.C.T.-10A 5 V.C.T.-10A	35,000	See Chart
LS-83	872A, 575 or 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-60A	35,000	See Chart
LS-89A	Three 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-20A	12,000	See Chart



A considerable number of power supply applications require special components. These can be made to your specifications. The filter choke illustrated (for a 100 KW broadcast transmitter) is typical of the high power custom LS components.



LS-6 CASE

Length	15 3/4"
Width	13"
Height	22"
Mounting	7 3/8" x 14 5/16"
Mounting Hole	3/8" dia.
Unit Weight	350 lbs.

OUTPUT TRANSFORMERS

Linear Standard output and matching transformers employ large cores of high permeability steel and precisely balanced, highly interleaved coil structures. The frequency response and harmonic distortion are unequalled in commercially available material.

The multiple tap windings afford a wide range of impedances for every application. The impedance values given are for one load. Where it is desired to feed two loads simultaneously, with equal power, it is necessary to connect the loads to terminations of half the impedance value.

For example, if it is desired to split the output between a 500 ohm line and a 15 ohm voice coil, connect the 500 ohm line to 250 ohm termination and the 15 ohm speaker to the 7.5 ohm termination. If the bulk of the output is desired in one of the loads, connect this load to its correct termination and the other load to a termination of 20% rating or less. For example, if in the above case, the speaker were used solely for monitoring, connect 500 ohm line to 500 ohm termination and 15 ohm voice coil to 2.5 ohm termination.



LS-7 CASE

Length	20 3/8"
Width	17 3/4"
Height	26"
Mounting	11 5/8" x 19 3/8"
Mounting Hole	3/8" dia.
Unit Weight	500 lbs.

DRIVER TRANSFORMERS

Type No.	Application	Primary Impedance	Reflected Secondary Impedance	± 1 db from	Max. Level	Max. Unbalanced DC in Primary	Case No.
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, 500/600 ohms	2,000 ohms; 1:2 overall turns ratio	20-20,000	+36 DB	5 MA	LS-2
LS-6	Driver, push pull 45's, 59's, 2A3's, 6A5G's, etc., to push pull 845 or 211D grids	5,000 ohms plate to plate	2.25 primary impedance; turns ratio 1.5:1 overall	20-20,000	+33 DB	5 MA	LS-2
LS-7	Push pull 56, 6C5 or similar plates to A prime 45's, 42's, 6F6's, 2A3's, 6L6's	30,000 ohms plate to plate	.45 primary impedance; turn ratio 1.5:1 Pri. to Sec.	20-20,000	+25 DB	1 MA	LS-2
LS-47	Driver from push pull 2A3's, 6A5G's, or 300A's to class B 838's, 203A's, 805's, or ZB120's	5,000 ohms plate to plate	.1 pri. impedance turns ratio, Pri./1/2 Sec. 3.2:1	20-20,000	+33 DB	5 MA	LS-2
LS-48	Driver transformer push pull 845's to 204 or 849 grids in class B.	12,000 ohms plate to plate	.038 pri. impedance turns ratio, Pri./1/2 Sec. 5.1:1	20-20,000	+42 DB	15 MA	LS-3
LS-49	Push pull parallel 2A3, 6A5G, or 300A tubes to four 838, 203A, 805, or ZB120 tubes.	2,500 ohms plate to plate	Ratio Pri./1/2 Sec. 4:1 and 2.5:1	20-20,000	+39 DB	10 MA	LS-3

OUTPUT TRANSFORMERS TO LINE AND VOICE COIL

Type No.	Primary will match following typical tubes	Primary Impedance	Secondary Impedance	* $\pm .2$ db. from	Max. Level	Case No.
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	25-20,000	15 watts	LS-2
LS-54	Same as above	8,000 ohms	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	25-20,000	15 watts	LS-2
LS-55	Push pull 2A3's, 6A5G's, 300A's, 275A's, 6A3's, 6L6's, 6AL7'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	25-20,000	20 watts	LS-2
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	25-20,000	20 watts	LS-2
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	25-20,000	40 watts	LS-3
LS-60A	Push pull 2A3's, 6A3's, 6B4G's fixed bias, cathode follower drive	4,600 ohms plate to plate	15, 10, 7.5, 5, 3.75, 2.5, 1.2	20-20,000	30 watts	LS-3
LS-62A	Same as above	As above	500, 125	20-20,000	30 watts	LS-3
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	25-20,000	15 watts	LS-2
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	25-20,000	15 watts	LS-2
LS-6L1	Push pull 6L6's self bias	9,000 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	25-20,000	30 watts	LS-3
LS-6L3	Same as above	9,000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	25-20,000	30 watts	LS-3
LS-6L4	Push pull 6L6's fixed bias or push pull parallel 6L6's self bias	3,800 ohms plate to plate and 4,500 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	25-20,000	55 watts	LS-3

*Note: Actual frequency response is 10.-50,000 cycles. Values shown indicate recommended range for minimum distortion.

OUTPUT TRANSFORMERS TO HIGH IMPEDANCE (RF) LOAD

Type No.	Primary will match following typical tubes	Primary Impedance	Secondary Impedance	$\pm .4$ db. from	Max. Level	Case No.
LS-56	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	6000, 5000, 4000, 1800, 1500, 1000, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	25-20,000	20 watts	LS-2
LS-66	Class B 203A, 838, ZB120, 805	9,000 ohms plate to plate	5000, 4200, 4100, 3500, 3300, 2650, 2500, 2100, 1250, 600	25-20,000	260 watts	EC-175
LS-67	Class B 203A, 838, ZB120, 805	9,000 and 6900 ohms plate to plate	10000, 2500	25-20,000	260 watts	EC-175
LS-691	Class B 849, 833, 250TH	10,400 ohms plate to plate	4500, 4000, 3500, 2750, 2000	25-20,000	1000 watts	LS-6
LS-692	Class B push pull parallel 833's	3,650 ohms plate to plate	2500, 2000, 1750, 1500, 1250	25-20,000	2500 watts	LS-7
LS-693	To specifications			25-20,000	5000 watts	Spec.

HIGH LEVEL MATCHING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	$\pm .2$ db from	Max. Level	Case No.
LS-33	High level line matching	50, 125, 200, 250, 333, 500/600 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500/600	20-20,000	15 watts	LS-2
LS-34	High level line matching	50, 125, 200, 250, 333, 500/600 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500/600	20-20,000	30 watts	LS-3

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	Relative* hum-pickup reduction	Max. Unbalanced DC in prim'y	Case No.
LS-19	Single plate to push pull grids like 2A3, 6L6, 300A. Split secondary	15,000 ohms	95,000 ohms; 1.25:1 each side	20-20,000	+17 DB	-50 DB	0 MA	LS-1
LS-20	Single plate to single grid	15,000 ohms	60,000 ohms; 2:1 turn ratio	20-20,000	+14 DB	-74 DB	0 MA	LS-1
LS-21	Single plate to push pull grids. Split primary and secondary	15,000 ohms	135,000 ohms; turn ratio 3:1 overall	20-20,000	+14 DB	-74 DB	0 MA	LS-1
LS-40	Single plate to push pull grids. Split secondary	15,000 ohms	135,000 ohms; turn ratio 3:1 overall	30-20,000	+20 DB	-74 DB	8 MA	LS-1
LS-22	Push pull plates to push pull grids. Split primary and secondary	30,000 ohms plate to plate	80,000 ohms; turn ratio 1.6:1 overall	20-20,000	+26 DB	-50 DB	.25 MA	LS-2
LS-25	Push pull plates to push pull grids. Medium level. Split primary and secondary	30,000 ohms plate to plate	50,000 ohms; turn ratio 1.3:1 overall	20-20,000	+17 DB	-74 DB	1 MA	LS-1
LS-26	Bridging line to 1 or 2 grids	5000	60,000 in two sections	15-20,000	+20 DB	-74 DB	0	LS-1



LS-2 CASE

Length	47/16"
Width	3 1/2"
Height	4 3/16"
Mounting	2 11/16" x 3 11/16"
Screws	8-32
Cutout	2 3/4" dia.
Unit Weight	7.5 lbs.

MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	Relative* hum-pickup reduction	Max. Unbalanced DC in prim'y	Case No.
LS-30	Mixing, low impedance mike, pickup, or multiple line to multiple line	50, 125/150, 200, 250, 333, 500/600 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+17 DB	-74 DB	.5 MA	LS-1
LS-30X	As above	As above	As above	20-20,000	+15 DB	-92 DB-Q	.3 MA	LS-1
LS-31	Three isolated lines or pads to multiple line	30, 50, 200, 250 ohms each primary	50, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+15 DB	-74 DB	.5 MA	LS-1
LS-31X	As above	As above	As above	20-20,000	+14 DB	-92 DB-Q	.3 MA	LS-1
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, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+15 DB	-74 DB	.5 MA	LS-1



LS-3 CASE

Length	5 13/16"
Width	5"
Height	4 11/16"
Mounting	4 3/16" x 5 1/32"
Screws	10-32
Cutout	3 3/4" dia.
Unit Weight	15 lbs.

PLATE, CRYSTAL, PHOTOCELL, AND BRIDGING TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	Relative* hum-pickup reduction	Max. Unbalanced DC in prim'y	Case No.
LS-27	Single plate to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	30-15,000 cycles	+20 DB	-74 DB	8 MA	LS-1
LS-50	Single plate to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+17 DB	-74 DB	0 MA	LS-1
LS-51	Push pull low level plates to multiple line	30,000 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+20 DB	-74 DB	1 MA	LS-1
LS-38	Crystal microphone or pickup to multiple line, with internal equalizer	100,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	Equalized for crystal	+14 DB	-74 DB	0	LS-1
LS-39	Photocell, high-mu triode, diode or overbiased detector to multiple line	100,000 ohms	50, 125/150, 200, 250, 333, 500/600 ohms	20-20,000	+14 DB	-74 DB	0 MA	LS-1
LS-150	Bridging transformer from 50 to 500 ohm line to line	4,000 ohms, bridging	50, 125/150, 200, 250, 333, 500/600 ohms	15-30,000	+20 DB	-74 DB	1 MA	LS-1
LS-151	Bridging transformer from 50 to 500 ohm line to line	16,000 ohms, bridging	50, 125/150, 200, 250, 333, 500/600 ohms	15-30,000	+22 DB	-74 DB	1 MA	LS-1

HYBRID AND REPEAT COILS

Type No.	Application	Pri. and Sec. Impedances	± 1 db from	Max. Level	Hum* Reduction	Max. Unbalanced DC in prim'y	Case No.
LS-140	Line to line for isolating balanced and unbalanced circuits; balanced for maximum reduction cross talk (70 DB)	500/600 ohms split 500/600 ohms split	30-20,000	+10 DB	-92 DB Quadruple alloy shield	0 MA	LS-1
LS-141	Three sets of balanced windings for hybrid service, centertapped	500/600 ohms 500/600 ohms	30-15,000	+10 DB	-74 DB	0 MA	LS-1
LS-142	Line to line and to push pull grids for hybrid service	500/600 ohms 500/600 ohms 60,000 ohms	30-15,000	+10 DB	-74 DB	0 MA	LS-1
LS-143	High efficiency ring and talk repeat coil, for low frequency ringing	500/600 ohms 500/600 ohms	Efficient 15/12,000 cycles	+25 DB	-74 DB	5 MA	LS-2

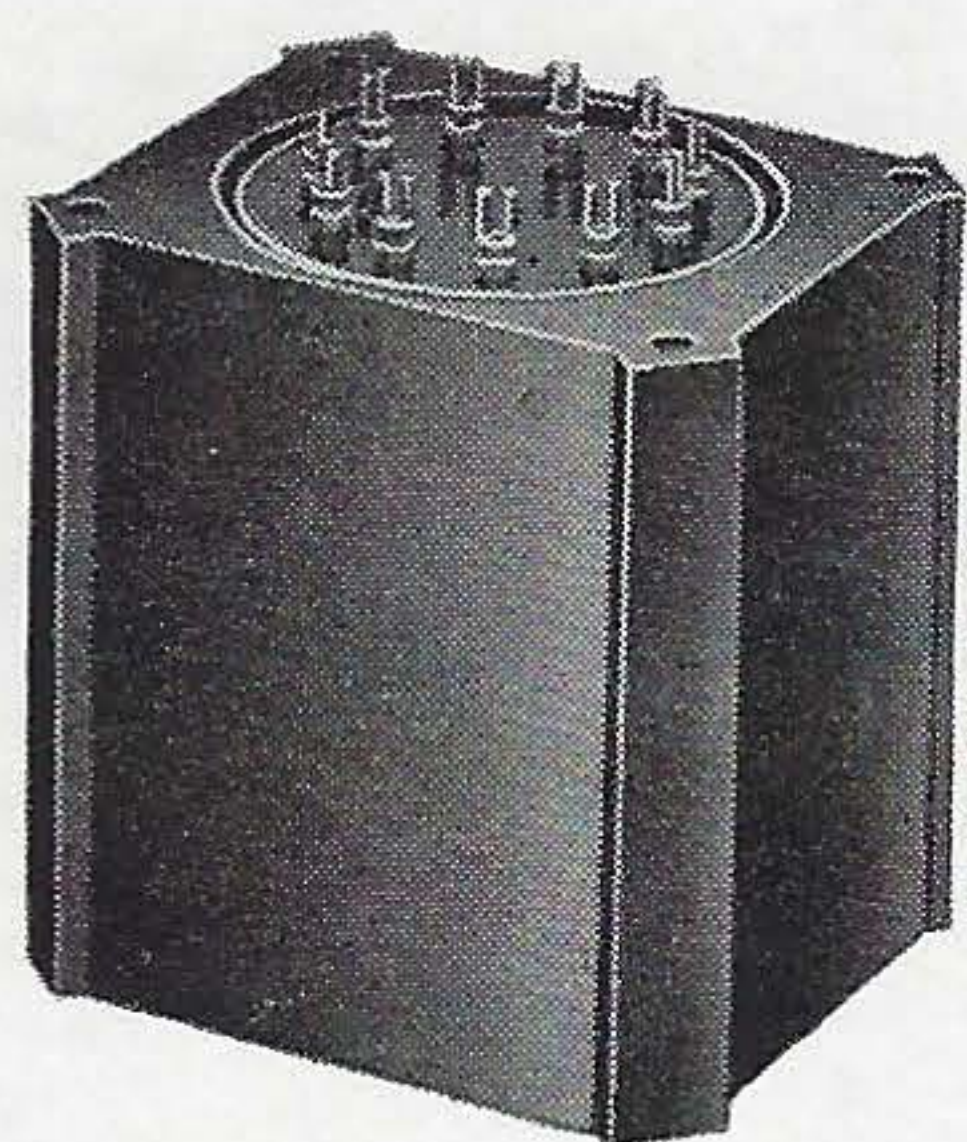
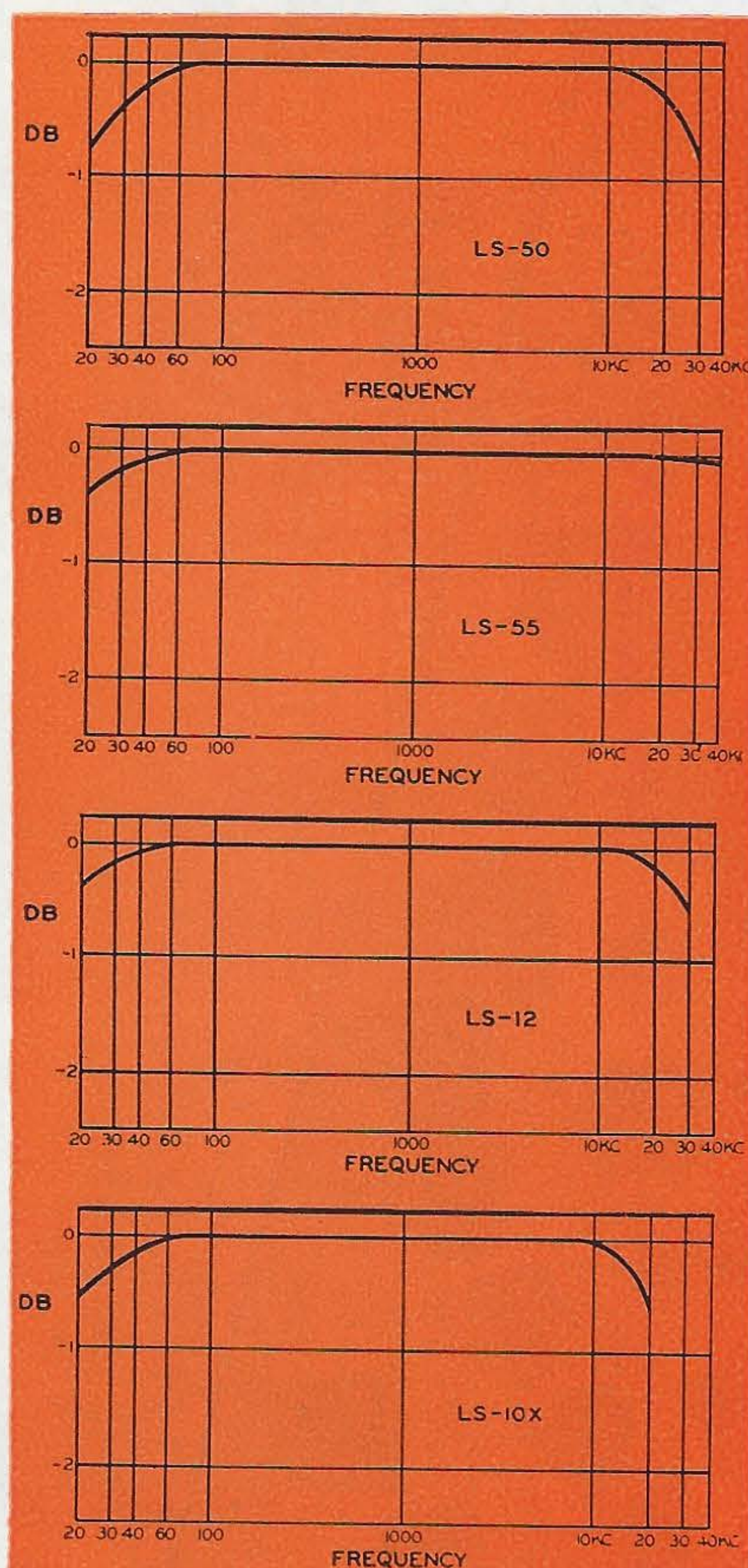
SPECIAL LS UNITS

Custom built LS units are available for any frequency from 1/2 cycle to 300 Kc. and for levels from -160 DB to 100 Kw. One of the many unusual LS designs is described below.

D-1515 BOLOMETER TRANSFORMER

Frequency range
1/2 cycle to 20 cycles
Primary Impedance
10 ohms C. T.
Secondary Impedance
.75 megohms C. T.
Secondary Inductance
.75 megahenries
Shielding
For -160 DB operation
Case RC-112 (See pg. 12)
Type D-1515 Net Price \$80.00

LINEAR STANDARD AUDIO TRANSFORMERS



LS-1 CASE

Length	3 1/8"
Width	2 5/8"
Height	3 1/4"
Mounting	1 15/16" x 27/16"
Screws	6-32
Cutout	1 7/8" dia.
Unit Weight	3 lbs.

LS-8 DYNAMIC NOISE SUPPRESSOR UNIT

Incorporating three special high Q coils in the LS-1 casting, this unit, used with its accompanying recommended circuit makes the finest dynamic noise suppressor we have tested.

Type LS-8 List Price \$40.00

The ever increasing use of wide range equipment for broadcast service has reached the point where the major limiting factor is the frequency range of the transformers employed. UTC Linear Standard components represent the closest approach to the ideal transformer from the standpoint of uniform frequency response, low wave form distortion, high efficiency, thorough shielding, and dependability.

LINEAR STANDARD AUDIO UNITS FEATURE:

UNIFORM FREQUENCY RESPONSE . . . at low frequencies, is effected through the use of HIPERM-ALLOY, a STABLE nickel iron alloy of very high initial permeability. Uniform high frequency response is the result of multiple section interleaved windings arranged in a semi-toroidal coil structure. This, plus special winding methods and insulations, assures a minimum of distributed capacity and leakage reactance.

UTC LINEAR STANDARD transformers are the ONLY audio units with a **GUARANTEED** uniform response . . . ± 1 DB from 20 to 20,000 cycles.

MINIMUM HUM PICKUP . . . is accomplished through the use of a hum balanced, semi-toroidal, coil structure which affords maximum neutralization of external fields. In addition, all low level units employ an internal high permeability alloy case as well as the high conductivity outer case for maximum shielding. For very low level applications, units whose code numbers end in X employ quadruple alloy shielding, making possible a transformer with the lowest inductive pickup commercially available.

NEGLIGIBLE WAVE FORM DISTORTION . . . is a function of proper impedance matching, minimum phase shift, and low flux density. These elements have been given great attention in the design of Linear Standard units. It is interesting to note that an output transformer reasonably flat from 20 to 20,000 cycles may show serious distortion at 30 and 10,000 cycles. For this reason, UTC high level units have a frequency range better than guaranteed value, generally 10 cycles to 50,000 cycles.

MULTIPLE TAP WINDINGS . . . make possible a wide combination of impedance terminations without impairing fidelity or efficiency. Precision winding methods result in winding accuracy of .1% . . . perfect balance of inductance and capacity . . . exact impedance reflection. For all practical uses, 500 ohm termination may be used for 600 ohm requirements. For maximum efficiency and balance, 250 ohm lines are recommended to be connected to 200 ohm terminations.

DEPENDABILITY . . . is a function of external and internal structure. Linear Standard units are housed in rugged die cast cases of precise dimension with reversible mounting to permit above chassis or subchassis wiring. The solid terminal posts on low absorption bakelite are arranged in a circular layout so that a round chassis hole will clear all terminals. Coils are vacuum baked and impregnated. Semi-hermetic sealing is accomplished through the use of a high adhesion compound poured through the large opening opposite the terminal board after controlled preheating of the unit for full compound penetration.

LOW IMPEDANCE TO GRID TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	Relative* hum-pickup reduction	Max. Unbalanced DC in prim'y	Case No.
LS-10	Low impedance mike, pickup, or multiple line to grid	50, 125/150, 200, 250, 333, 500/600 ohms	60,000 ohms in two sections	20-20,000	+15 DB	-74 DB	.5 MA	LS-1
LS-10X	As above	As above	50,000 ohms	20-20,000	+14 DB	-92 DB-Q	.5 MA	LS-1
LS-12	Low impedance mike, pickup, or multiple line to push pull grids	50, 125/150, 200, 250, 333, 500/600 ohms	120,000 ohms overall, in two sections	20-20,000	+15 DB	-74 DB	.5 MA	LS-1
LS-12X	As above	As above	80,000 ohms overall, in two sections	20-20,000	+14 DB	-92 DB-Q	.5 MA	LS-1
LS-14	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	20-20,000	+15 DB	-74 DB	.5 MA	LS-1
LS-14X	As above	As above	50,000 ohms	20-20,000	+14 DB	-92 DB-Q	.5 MA	LS-1
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	20-20,000	+15 DB	-74 DB	.5 MA	LS-1
LS-15X	As above	As above	As above	20-20,000	+14 DB	-92 DB-Q	.5 MA	LS-1
LS-18	High level multiple line to push pull grids	50, 125/150, 200, 250, 333, 500/600 ohms	50,000 ohms overall, in two sections	20-20,000	+30 DB	-50 DB	.5 MA	LS-2
LS-26	Bridging line to single or push pull grids	5,000 ohms	60,000 ohms in two sections	15-20,000	+20 DB	-74 DB	0	LS-1

The values of unbalanced DC shown will effect approximately 1.5 DB loss at 30 cycles.

* Comparison of hum balanced unit with magnetic shielding to normal uncased type.

Q Quadruple alloy magnetic shield.

CONRAD R. STRASSNER COMPANY

FACTORY REPRESENTATIVE

5108 Melrose Ave.

Los Angeles 38, - California

GRanite 3052 & GRanite 7086



C. R. STRASSNER CO.

FACTORY REPRESENTATIVE

5108 MELROSE AVE.

LOS ANGELES 38, CALIFORNIA

This catalogue presents the complete line of UTC transformers for broadcast, amateur, laboratory and replacement purposes. Each of the UTC lines described is distinguished by individual characteristics ideally suiting the items to the specific application intended. Each group of items is uniform and commercial in appearance. Cased units of all grades are finished in a uniform grey enamel.

It is surprising to many people to find out that by far the bulk of UTC production is on special units not normally catalogued. It is impossible to describe all these thousands of special designs as they become available. Our staff of application engineers will be more than pleased to discuss any customer's problem as related to special components.

CONDENSED CATALOG No. PS-409.

PRICES SHOWN ARE SUBJECT TO CHANGE WITHOUT NOTICE.

INDEX AND PRICE LIST

Type No.	Page No.	List Price	Type No.	Page No.	List Price	Type No.	Page No.	Net Price	Type No.	Page No.	List Price	Type No.	Page No.	List Price	Type No.	Page No.	Net Price
A-10	11	\$15.00	CVA-5	13	\$36.00	HQC-1	7	\$13.00	LS-141	3	\$28.00	R-32	17	\$5.00	S-37	15	\$14.00
A-11	11	16.00	CVL-1	12	8.00	HQC-2	7	13.00	LS-142	3	35.00	R-33	17	2.90	S-38	15	14.00
A-12	11	15.00	CVL-2	12	11.50	HQC-3	7	13.00	LS-143	3	28.00	R-34	17	3.00	S-39	15	10.50
A-14	11	14.00	CVL-3	12	17.50	HQC-4	7	13.00	LS-150	3	25.00	R-35	17	3.70	S-40	15	10.50
A-16	11	13.00	CVL-10	12	8.00	HQC-5	7	13.00	LS-151	3	25.00	R-36	17	3.70	S-41	15	9.50
A-18	11	14.00	CVL-11	12	11.50	HQD-1	7	15.00	LS-180	5	17.00	R-37	17	3.90	S-42	15	12.50
A-19	11	18.00	CVL-12	12	17.50	HQD-2	7	15.00	LS-180H	5	21.00	R-38A	17	3.00	S-43	15	17.50
A-20	11	15.00	CVM-0	13	8.50	HQD-3	7	15.00	LS-181	5	67.00	R-39	17	3.80	S-44	15	15.50
A-21	11	16.00	CVM-1	13	14.00	HQD-4	7	15.00	LS-182	5	87.00	R-40	17	5.50	S-45	15	12.00
A-24	11	15.00	CVM-2	13	20.50	HQD-5	7	15.00	LS-183	5	110.00	R-41	17	7.50	S-46	15	15.00
A-25	11	14.00	CVM-3	13	30.00				LS-184	5	170.00	R-42	17	8.50	S-47	15	19.00
A-26	11	15.00	CVM-4	13	50.00	Type No.	Page No.	List Price	LS-185	5	400.00	R-43	17	9.50	S-48	15	28.00
A-27	11	15.00	CVM-5	13	115.00	LS6L1	4	\$42.00	LS-190	5	27.00	R-44	17	12.50	S-49	15	26.50
A-30	11	10.00				LS6L3	4	28.00	LS-691	4	350.00	R-45	17	20.00	S-50	15	37.00
A-31	11	5.00	CVP-1	12	9.00	LS6L4	4	50.00	LS-692	4	700.00	R-46	17	35.00	S-51	15	9.00
CG-1C	13	60.00	CVP-2	12	14.00	LS-5	4	42.00	LS-693	4	1500.00	R-47	17	10.00	S-52	15	12.00
CG-1S	13	60.00	CVP-3	12	20.00	LS-6	4	31.00	LS-950	6	14.00	R-48	17	13.50	S-53	15	3.20
CG-2L6	12	19.00	CVP-4	12	29.00	LS-7	4	31.00	LS-980	6	40.00	R-53	17	3.70	S-54	15	3.20
CG-4L6	12	29.00	CVP-5	12	50.00	LS-8	2	40.00	MA-1	10	14.00	R-54	16	6.60	S-55	15	3.20
CG-15	12	11.00	FT-1	16	2.70	LS-10	2	25.00	MC-1	10	13.00	R-55	16	1.75	S-56	15	3.20
CG-16	12	11.00	FT-2	16	2.70	LS-10X	2	32.00	MC-2	10	17.00	R-56	17	3.70	S-57	15	4.50
CG-19	12	11.00	FT-3	16	3.00	LS-12	2	28.00	O-1	11	13.25	R-57	17	5.80	S-58	15	5.50
CG-34	13	11.50	FT-4	16	3.25	LS-12X	2	35.00	O-2	11	13.25	R-58	17	3.00	S-59	15	4.50
CG-40	13	8.50	FT-5	16	3.25	LS-14	2	28.00	O-3	11	12.00	R-59	17	3.50	S-60	15	10.00
CG-41	13	8.50	FT-6	16	3.25	LS-14X	2	35.00	O-4	11	10.50	R-60	17	3.70	S-61	15	4.50
CG-44	13	8.50	FT-7	16	3.25	LS-15	2	28.00	O-5	11	10.50	R-64	17	70.00	S-62	15	5.50
CG-45	13	8.50	FT-8	16	6.00	LS-15X	2	35.00	O-6	11	12.00	R-72	17	8.50	S-63	15	10.00
CG-48C	13	8.50	HA-100	10	19.00	LS-18	2	31.00	O-7	11	12.00	R-73	17	13.00	S-64	15	5.50
CG-50	9	16.00	HA-100X	10	24.00	LS-19	3	24.00	O-8	11	13.25	R-74	17	24.00	S-65	15	5.50
CG-51AX	13	10.50	HA-101	10	22.00	LS-20	3	21.00	O-9	11	13.25	R-75	17	35.00	S-66	15	5.50
CG-53AX	13	12.50	HA-101X	10	27.00	LS-21	3	24.00	O-10	11	13.25	R-76	17	55.00	S-67	15	5.50
CG-59AX	13	12.50	HA-103A	10	22.00	LS-22	3	31.00	O-11	11	13.25	R-77	17	95.00	S-68	15	6.00
CG-100	13	9.00	HA-104	10	20.00	LS-25	3	28.00	O-12	11	12.00	R-78	17	18.00	S-69	15	6.00
CG-101	13	9.00	HA-105	10	14.00	LS-26	2	25.00	O-13	11	9.50	R-79	17	22.00	S-70	15	6.00
CG-102	13	14.00	HA-106	10	16.00	LS-27	3	24.00	O-14	11	13.25	R-80	17	30.00	S-71	15	10.00
CG-103	13	14.00	HA-107	10	24.00	LS-30	3	25.00	O-15	11	13.25	R-81	17	60.00	S-72	15	6.30
CG-104	13	21.00	HA-108	10	19.00	LS-30X	3	32.00	P-1	11	14.50	R-83	17	18.00	S-74	15	16.50
CG-105	13	21.00	HA-108X	10	24.00	LS-31	3	28.00	P-2	11	14.50	R-84	17	22.00	V-0	9	11.50
CG-108	13	37.00	HA-111	10	19.00	LS-31X	3	35.00	P-3	11	14.50	R-85	17	30.00	V-0-B	9	15.00
CG-109	13	37.00	HA-113	10	18.00	LS-32	3	28.00	P-4	11	13.25	R-86	17	60.00	V-1	9	17.50
CG-120	13	15.00	HA-114	10	19.00	LS-33	4	28.00	P-5	11	12.00	R-90	17	3.00	V-1-M	9	29.00
CG-121	13	21.00	HA-130X	10	27.00	LS-34	4	42.00	P-6	11	12.00	R-91	17	7.00	V-2	9	15.00
CG-122	13	18.00	HA-133	10	18.00	LS-38	3	32.00	P-7	11	13.25	R-92	17	7.00	V-2-B	9	18.00
CG-124	13	18.00	HA-134	10	20.00	LS-39	3	25.00	P-8	11	13.25	R-93	17	14.00	V-3	9	22.00
CG-125	13	21.00	HA-135	10	19.00	LS-40	3	24.00	P-9	11	14.50	R-94	17	20.00	V-3-B	9	29.00
CG-126	13	33.00	HA-137	10	22.00	LS-47	4	35.00	P-10	11	14.50	R-95	17	15.00	V-4	9	32.00
CG-131	12	9.50	HC-115	10	13.00	LS-48	4	50.00	P-11	11	14.50	SO-1	11	5.60	V-4-B	9	40.00
CG-132	12	10.00	HC-116	10	20.00	LS-49	4	42.00	P-12	11	14.50	SO-2	11	5.60	Type No.	Page No.	List Price
CG-133	12	12.50	HC-117	10	12.00	LS-50	3	24.00	P-13	11	13.25	SO-3	11	5.60	VI-C1	6	\$11.00
CG-134	12	12.50	HP-122	10	13.00	LS-51	3	24.00	P-14	11	14.50	SO-4	11	5.60	VI-C2	6	11.00
CG-135	12	13.50	HP-123	10	20.00	LS-52	4	28.00	P-15	11	14.50	SO-5	11	5.10	VI-C3	6	11.00
CG-136	12	13.50	Type No.	Page No.	Net Price	LS-54	4	20.00	PF-1	17	10.00	S-1	14	\$3.30	VI-C4	6	11.00
CG-137	12	10.00	HQA-1	7	\$7.00	LS-55	4	28.00	PF-2	17	10.00	S-2	14	3.80	VI-C5	6	11.00
CG-140	12	12.00	HQA-2	7	7.00	LS-56	4	28.00	PF-3	17	4.50	S-3	14	3.10	VI-C6	6	11.00
CG-141	12	13.50	HQA-3	7	7.50	LS-57	4	20.00	R-1	16	6.10	S-4	14	5.20	VI-C7	6	14.00
CG-233	12	11.00	HQA-4	7	7.50	LS-58	4	50.00	R-2	16	7.40	S-5	14	4.25	VI-C8	6	14.00
CG-235	12	17.50	HQA-5	7	8.00	LS-60A	4	35.00	R-3	16	9.00	S-6	14	3.10	VI-C9	6	14.00
CG-238AX	13	32.00	HQA-6	7	8.00	LS-61	4	28.00	R-4	16	10.70	S-7	14	5.00	VI-C10	6	14.00
CG-300	13	18.00	HQA-7	7	9.00	LS-62A	4	35.00	R-5	16	13.00	S-8	14	4.00	VI-C11	6	14.00
CG-301	13	25.00	HQA-8	7	9.00	LS-63	4	20.00	R-6	16	6.10	S-9	14	5.20	VI-C12	6	14.00
CG-302	13	30.00	HQA-9	7	10.00	LS-66	4	100.00	R-7	16	7.80	S-10	14	4.70	VI-C13	6	14.00
CG-303	13	45.00	HQA-10	7	10.00	LS-67	4	100.00	R-8	16	9.50	S-11	14	4.25	VI-C14	6	14.00
CG-304	13	120.00	HQA-11	7	10.00	LS-70	5	34.00	R-9	16	11.00	S-12	14	4.70	VI-C15	6	16.50
CG-305	13	68.00	HQA-12	7	11.00	LS-72	5	40.00	R-10	16	14.00	S-13	14	6.20	VI-C16	6	16.50
CG-306	13	120.00	HQA-13	7	11.00	LS-73	5	54.00	R-11	16	9.50	S-14	14	4.50	VI-C17	6	16.50
CG-307	13	105.00	HQA-14	7	13.00	LS-80	5	23.00	R-12	16	10.80	S-15	14	4.70	VI-C18	6	16.50
CG-308	13	144.00	HQA-15	7	14.00	LS-82	5	30.00	R-13	16	15.50	S-16	14	6.20	VI-C19	6	16.50
CG-309	13	250.00	HQA-16	7	15.00	LS-83	5	60.00	R-14	16	2.10	S-17	14	7.50	VI-C20	6	16.50
CG-310	13	185.00	HQA-17	7	16.00	LS-84	5	23.00	R-15	16	2.10	S-18	14	5.00	VI-C21	6	17.50
CG-311	13	68.00	HQA-18	7	17.00	LS-88	5	11.00	R-16	16	2.10	S-19	14	7.50	VI-C22	6	18.50
CG-312	13	67.00	HQB-1	7	16.00	LS-89A	5	87.00	R-17	16	2.80	S-20	14	11.00			
CG-315	13	15.00	HQB-2	7	16.00	LS-90	6	14.00	R-18	16	2.80	S-21	14	15.50			
CG-316	13	25.00	HQB-3	7	16.00	LS-91	6	14.00	R-19	16	3.90	S-22	14	24.00			
CG-333	12	11.00	HQB-4	7	17.00	LS-92	6	23.00	R-20	16	4.30	S-23	15	3.40			
CG-422	13	19.00	HQB-5	7	17.00	LS-93	6	40.00	R-21	16	4.30	S-24	15	3.70			
CG-428	13	25.00	HQB-6	7	18.00	LS-94	6	14.00	R-22	16	3.90	S-25	15	3.10			
CG-429	13	27.50	HQB-7	7	19.00	LS-96	6	67.00	R-23	17	4.10	S-26	15	3.10			
CG-431	13	40.00	HQB-8	7	20.00	LS-98	6	40.00	R-24	17	4.30	S-27	15	3.80			
CG-433	12	12.00	HQB-9	7	21.00	LS-99	6	100.00	R-25	17	4.50	S-28	15	3.80			
CG-512	13	30.00	HQB-10	7	22.00	LS-102	6	70.00	R-26								