



TRANSFORMERS REACTORS FILTERS

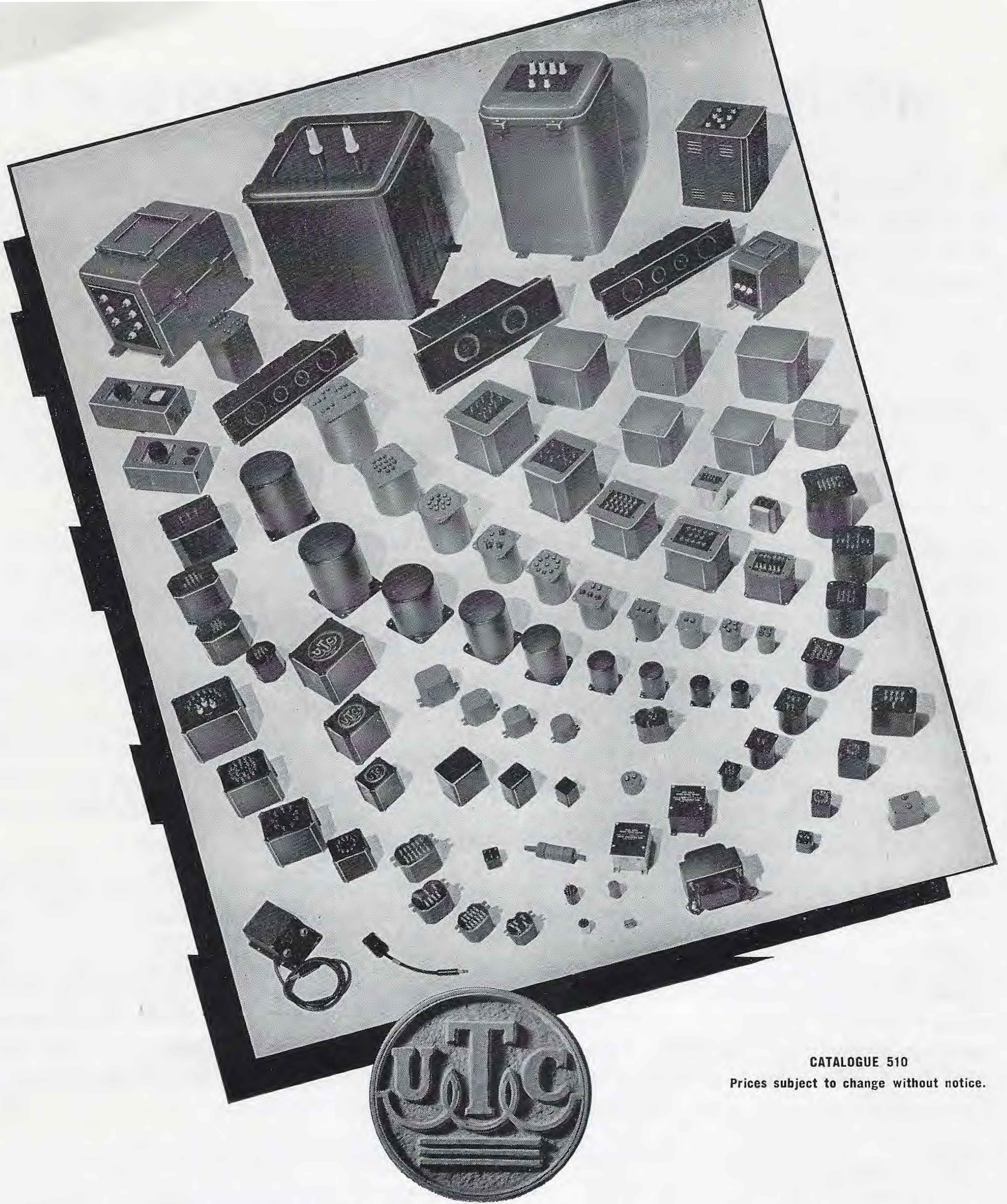
UNITED TRANSFORMER COMPANY • 150 VARICK STREET, NEW YORK 13, N. Y.

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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	10	\$16.00	CVL-10	17	\$10.00	HQD-1	13	\$15.00	LS-184	7	\$200.00	R-73	22	\$14.00	S-47	20	\$23.00
A-11	10	18.00	CVL-11	17	13.50	HQD-2	13	15.00	LS-185	7	450.00	R-74	22	25.00	S-48	20	34.00
A-12	10	16.00	CVL-12	17	20.00	HQD-3	13	15.00	LS-190	7	30.00	R-75	22	40.00	S-49	20	33.00
A-14	10	17.00				HQD-4	13	15.00	LS-192	7	35.00	R-76	22	65.00	S-50	20	50.00
A-16	10	15.00	CVM-0	18	10.00	HQD-5	13	15.00	LS-691	6	400.00	R-77	22	110.00	S-51	20	11.00
A-17	10	17.00	CVM-1	18	15.00	HQE-1	13	6.00	LS-692	6	800.00	R-78	22	20.00	S-52	20	14.00
A-18	10	16.00	CVM-2	18	23.00	HQE-2	13	6.00	LS-950	7	15.00	R-79	22	25.00	S-53	20	3.70
A-19	10	19.00	CVM-3	18	33.00	HQE-3	13	7.00	LS-980	7	40.00	R-80	22	35.00	S-54	20	3.70
A-20	10	16.00	CVM-4	18	55.00	HQE-4	13	7.50	MA-1	8	15.00	R-81	22	70.00	S-55	20	3.70
A-21	10	18.00	CVM-5	18	130.00	HQE-5	13	8.00	MB-1	8	15.00	R-83	22	20.00	S-56	20	3.70
A-24	10	16.00							MC-1	8	15.00	R-84	22	25.00	S-57	20	5.50
A-25	10	17.00	CVP-1	17	11.00				MC-2	8	17.00	R-85	22	35.00	S-58	20	6.50
A-26	10	16.00	CVP-2	17	16.00	Type No.	Page No.	List Price				R-86	22	70.00	S-59	20	5.50
A-27	10	16.00	CVP-3	17	25.00	LS-6L1	5	50.00	O-1	11	14.00	R-90	22	3.30	S-60	20	12.00
A-30	10	12.00	CVP-4	17	35.00	LS-6L3	5	35.00	O-2	11	14.00	R-91	22	7.50	S-61	20	5.50
A-32	10	10.00	CVP-5	17	60.00	LS-6L4	5	60.00	O-3	11	14.00	R-92	22	7.50	S-62	20	6.50
CG-1C	18	75.00	FT-1	21	3.50	LS-5	5	50.00	O-4	11	11.00	R-93	22	15.00	S-63	20	12.50
CG-1S	18	75.00	FT-2	21	3.20	LS-6	5	35.00	O-5	11	11.00	R-94	22	20.00	S-64	20	6.50
CG-2L6	19	20.00	FT-3	21	4.00	LS-7	5	40.00	O-6	11	13.00	R-95	22	17.00	S-65	20	6.50
CG-4L6	19	35.00	FT-4	21	4.25	LS-10	4	25.00	O-7	11	13.00	R-101	21	7.50	S-66	20	6.50
CG-15	19	13.00	FT-5	21	4.50	LS-10X	4	35.00	O-8	11	14.00	R-102	21	9.00	S-67	20	6.50
CG-16	19	13.00	FT-6	21	4.50	LS-12	4	28.00	O-9	11	14.00	R-103	21	9.50	S-68	20	7.00
CG-19	19	13.00	FT-7	21	4.50	LS-12X	4	35.00	O-10	11	14.00	R-104	21	10.50	S-69	20	7.00
CG-33	18	8.00	FT-8	21	6.00	LS-14	4	32.00	O-11	11	14.00	R-105	21	13.00	S-70	20	7.00
CG-34	18	13.00	FT-9	21	6.00	LS-14X	4	37.00	O-12	11	13.00	R-106	21	7.50	S-71	20	12.00
CG-40	18	10.00	FT-10	21	7.00	LS-15	4	32.00	O-13	11	10.00	R-107	21	9.00	S-72	20	7.50
CG-41	18	10.00				LS-15X	4	37.00	O-14	11	14.00	R-108	21	10.50	S-74	20	20.00
CG-44	18	10.00	HA-100	9	21.00	LS-18	4	31.00	O-15	11	14.00	R-109	21	16.00			
CG-45	18	10.00	HA-100X	9	26.00	LS-19	4	26.00	P-1	11	15.00	R-110	21	7.50	SC-1	16	3.00
CG-48C	18	10.00	HA-101	9	24.00	LS-20	4	25.00	P-2	11	15.00	R-111	21	9.00	SC-2	16	4.50
CG-50	17	16.00	HA-101X	9	29.00	LS-21	4	26.00	P-3	11	14.00	R-112	21	10.50	SC-3	16	5.00
CG-51AX	18	13.00	HA-103A	9	25.00	LS-22	4	32.00	P-4	11	13.00	R-113	21	16.00	SC-4	16	7.00
CG-53AX	18	15.00	HA-104	9	22.00	LS-25	4	32.00	P-5	11	13.00				SC-5	16	13.00
CG-59AX	18	15.00	HA-105	9	16.00	LS-26	4	30.00	P-6	11	14.00	SO-1	12	6.50	V-0	16	13.00
CG-100	18	11.00	HA-106	9	18.00	LS-27	4	26.00	P-7	11	14.00	SO-2	12	6.50	V-0-B	16	17.00
CG-101	18	11.00	HA-107	9	26.00	LS-30	4	26.00	P-8	11	15.00	SO-3	12	6.50	V-1	16	20.00
CG-102	18	16.00	HA-108	9	21.00	LS-30X	4	32.00	P-9	11	15.00	SO-4	12	5.50	V1-M	16	35.00
CG-103	18	16.00	HA-108X	9	25.00	LS-31	4	32.00	P-10	11	15.00	SO-5	12	6.50	V-2	16	17.00
CG-104	18	23.00	HA-111	9	22.00	LS-31X	4	39.00	P-11	11	15.00	SO-6	12	6.50	V-2-B	16	20.00
CG-105	18	23.00	HA-113	9	20.00	LS-32	4	30.00	P-12	11	15.00	SSO-1	12	6.50	V-3	16	25.00
CG-108	18	45.00	HA-114	9	22.00	LS-33	5	30.00	P-13	11	14.00	SSO-2	12	6.50	V-3-B	16	33.00
CG-109	18	45.00	HA-130X	9	30.00	LS-34	5	45.00	P-14	11	11.00	SSO-3	12	6.50	V-4	16	37.00
CG-120	18	17.00	HA-133	9	20.00	LS-38	4	40.00	P-15	11	15.00	SSO-4	12	6.50			
CG-121	18	25.00	HA-134	9	25.00	LS-39	4	30.00	PF-1	22	12.00	SSO-5	12	5.50	Type No.	Page No.	List Price
CG-122	18	20.00	HA-135	9	25.00	LS-40	4	26.00	PF-2	22	12.00	SSO-6	12	6.50	V1-C1	14	11.00
CG-124	18	22.00	HA-137	9	22.00	LS-47	5	35.00	PF-3	22	5.00			V1-C2	14	11.00	
CG-125	18	23.00				LS-48	5	60.00	PF-4	22	12.00	S-1	19	3.60	V1-C3	14	11.00
CG-126	18	37.00	HC-115	9	13.00	LS-49	5	60.00				S-2	19	4.50	V1-C4	14	11.00
CG-131	17	11.00	HC-116	9	20.00	LS-50	4	26.00	R-14	21	2.20	S-3	19	3.50	V1-C5	14	11.00
CG-132	17	12.00	HC-117	9	13.00	LS-51	4	28.00	R-15	21	2.20	S-4	19	5.70	V1-C6	14	11.00
CG-133	17	14.00				LS-52	5	35.00	R-16	21	2.20	S-5	19	4.70	V1-C7	14	14.00
CG-134	17	14.00	HP-122	9	15.00	LS-54	5	25.00	R-17	21	3.00	S-6	19	3.50	V1-C8	14	14.00
CG-135	17	15.00	HP-123	9	22.00	LS-55	5	35.00	R-18	21	3.00	S-7	19	5.50	V1-C9	14	14.00
CG-136	17	15.00				LS-56	6	35.00	R-19	21	4.20	S-8	19	5.00	V1-C10	14	14.00
CG-137	17	12.00	Type No.	Page No.	Net Price	LS-57	5	25.00	R-20	21	4.60	S-9	19	6.00	V1-C11	14	14.00
CG-140	17	12.00	HQA-1	13	7.00	LS-58	5	50.00	R-21	21	4.60	S-10	19	5.50	V1-C12	14	14.00
CG-141	17	14.00	HQA-2	13	7.00	LS-60A	5	40.00	R-22	21	4.20	S-11	19	4.70	V1-C13	14	14.00
CG-233	17	13.00	HQA-3	13	7.50	LS-61	5	35.00	R-23	22	4.40	S-12	19	5.50	V1-C14	14	14.00
CG-235	17	18.00	HQA-4	13	7.50	LS-62A	5	35.00	R-24	22	4.60	S-13	19	7.00	V1-C15	14	16.50
CG-238AX	18	35.00	HQA-5	13	8.00	LS-63	5	25.00	R-25	22	4.90	S-14	19	5.20	V1-C16	14	16.50
CG-300	18	20.00	HQA-6	13	8.00	LS-66	6	110.00	R-26	22	4.90	S-15	19	5.50	V1-C17	14	16.50
CG-301	18	30.00	HQA-7	13	9.00	LS-67	6	110.00	R-27	22	4.50	S-16	19	7.00	V1-C18	14	16.50
CG-302	18	37.00	HQA-8	13	9.00	LS-70	7	40.00	R-28	22	6.50	S-17	19	9.00	V1-C19	14	16.50
CG-303	18	50.00	HQA-9	13	10.00	LS-72	7	43.00	R-29	22	4.90	S-18	19	6.00	V1-C20	14	16.50
CG-304	18	140.00	HQA-10	13	10.00	LS-74	7	40.00	R-30	22	13.50	S-19	19	9.00	V1-C21	14	17.50
CG-305	18	75.00	HQA-11	13	10.00	LS-80	7	30.00	R-31	22	4.00	S-20	19	13.00	V1-C22	14	18.50
CG-306	18	140.00	HQA-12	13	11.00	LS-82	7	32.00	R-32	22	5.50	S-21	19	18.00			
CG-307	18	125.00	HQA-13	13	11.00	LS-83	7	70.00	R-33	22	3.20	S-22	19	28.00			
CG-308	18	165.00	HQA-14	13	13.00	LS-84	7	30.00	R-34	22	3.20	S-23	20	3.80			
CG-309	18	300.00	HQA-15	13	14.00	LS-88	7	12.00	R-35	22	4.20	S-24	20	4.20			
CG-310	18	210.00	HQA-16	13	15.00	LS-89A	7	100.00	R-36	22	4.20	S-25	20	3.50			
CG-311	18	75.00	HQA-17	13	16.00	LS-90	7	15.00	R-37	22	4.50	S-26	20	3.50			
CG-312	18	75.00	HQA-18	13	17.00	LS-91	7	15.00	R-38A	22	3.30	S-27	20	4.50			
CG-315	18	20.00				LS-92	7	25.00	R-39	22	4.20	S-28	20	4.50			
CG-316	18	30.00	HQB-1	13	16.00	LS-93	7	40.00	R-40	22	6.00	S-29	20	4.50			
CG-333	17	14.00	HQB-2	13	16.00	LS-94	7	15.00	R-41	22	9.50	S-30	20	4.50			
CG-422	18	22.00	HQB-3	13	16.00	LS-96	7	75.00	R-42	22	10.50	S-31	20	6.00			
CG-428	18	30.00	HQB-4	13	17.00	LS-98	7	40.00	R-43	22	12.00	S-32	20	6.00			
CG-429	18	31.00	HQB-5	13	17.00	LS-99	7	120.00	R-44	22	14.50	S-33	20	8.50			
CG-431	18	45.00	HQB-6	13	18.00	LS-102	6	80.00	R-45	22	21.00	S-34	20	8.50			
CG-433	17	14.00	HQB-7</														

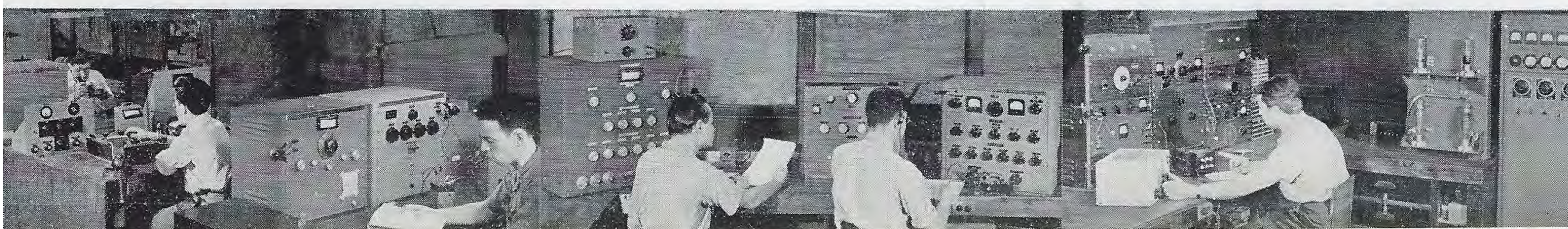


CATALOGUE 510

Prices subject to change without notice.

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.

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.



LINEAR STANDARD AUDIO TRANSFORMERS

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.

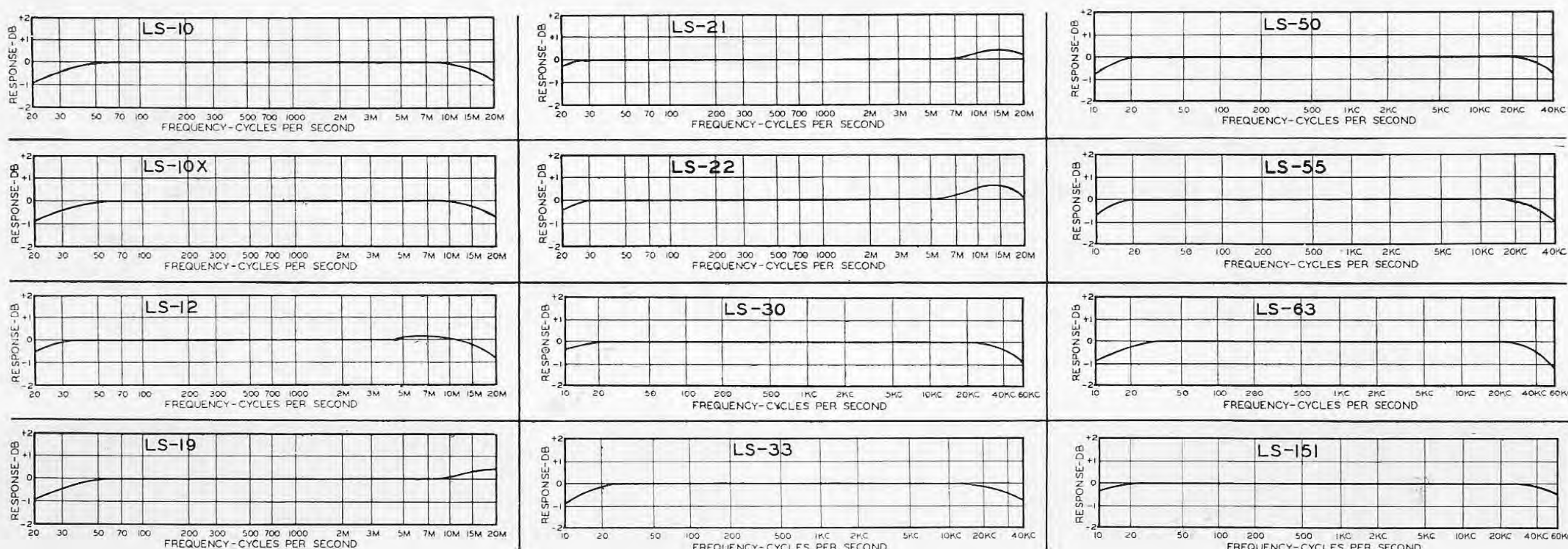
UTC LINEAR STANDARD transformers are the **ONLY** audio units with a **GUARANTEED** uniform response . . . ± 1 DB from 20 to 20,000 cycles.

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 units employ high conductivity outer case for maximum shielding. For very low level applications, units whose code numbers end in X employ multiple alloy shielding, making possible a transformer with extremely low inductive pickup.

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 (see page 6).

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.

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	Unbal. 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	+10 DB	-74 DB	.5 MA	LS-1
LS-10X	As above	As above	50,000 ohms	20-20,000	+10 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	+10 DB	-74 DB	.5 MA	LS-1
LS-12X	As above	As above	80,000 ohms overall, split	20-20,000	+10 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	+10 DB	-74 DB	.5 MA	LS-1
LS-14X	As above	As above	50,000 ohms	20-20,000	+10 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	+10 DB	-74 DB	.5 MA	LS-1
LS-15X	As above	As above	As above	20-20,000	+10 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	+20 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	+15 DB	-74 DB	0 MA	LS-1

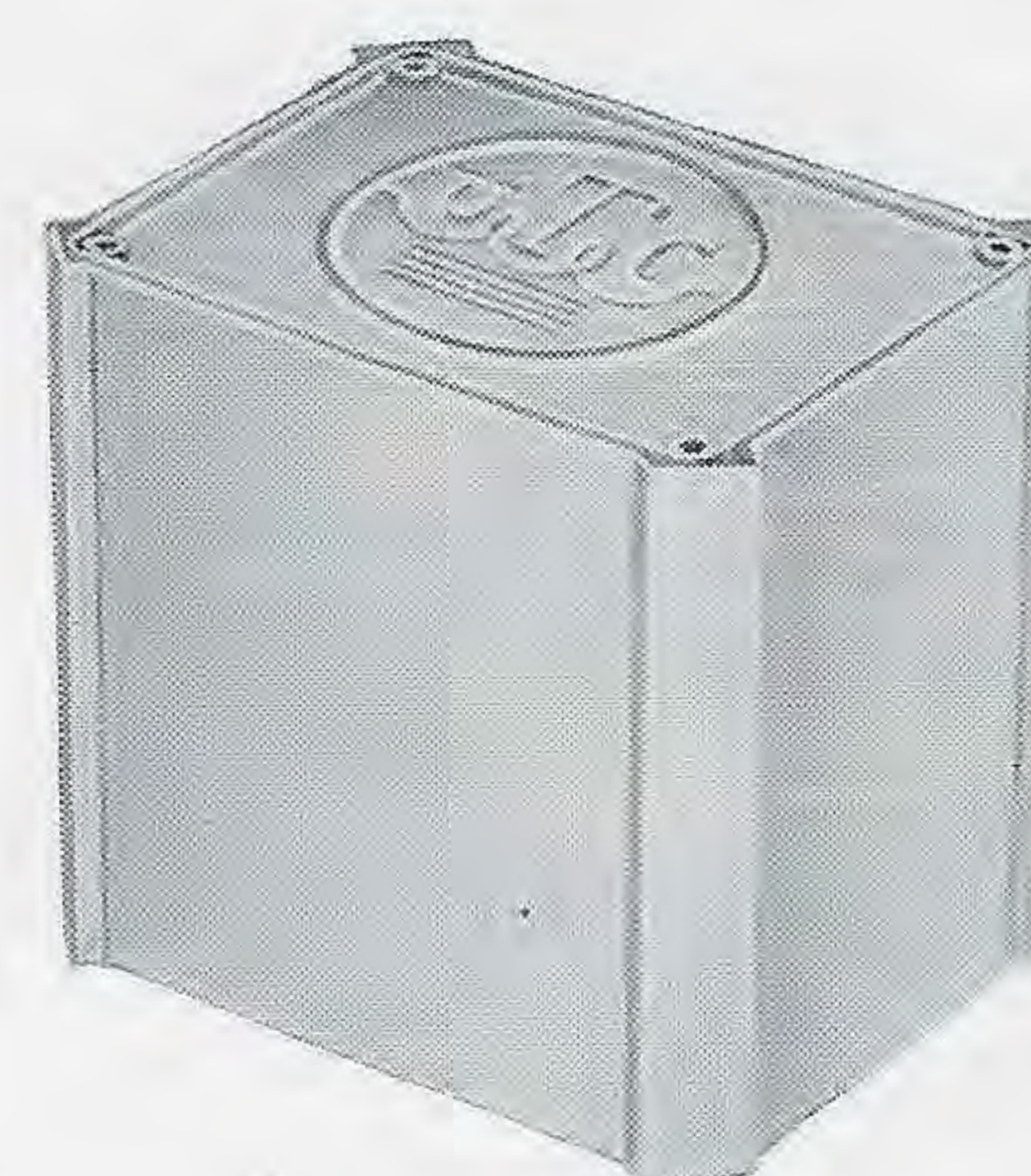


LS-1 CASE

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

MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max.† Level	Relative * hum	Unbal. 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	+15 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-2 CASE

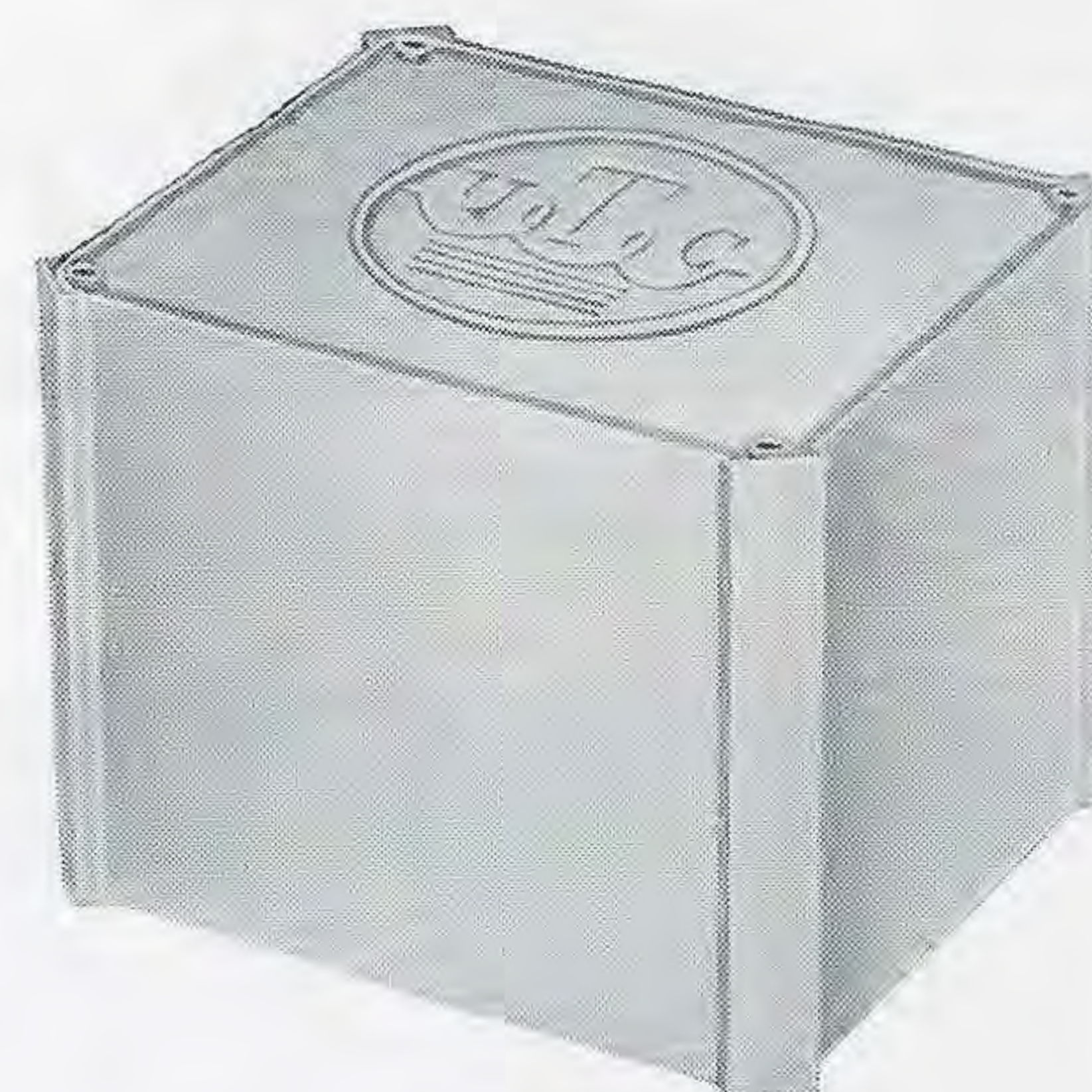
Length 4 7/16"
 Width 3 1/2"
 Height 4 3/16"
 Mounting 2 11/16" x 3 11/16"
 Screws 8-32
 Cutout 2 3/4" dia.
 Unit Weight 7.5 lbs.

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max.† Level	Relative * hum	Unbal. 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	+12 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	+10 DB	-74 DB	0 MA	LS-1
LS-21	Single plate to push pull grids. Split pri. and sec.	15,000 ohms	135,000 ohms; 3:1 overall	20-20,000	+10 DB	-74 DB	0 MA	LS-1
LS-40	Single plate to push pull grids. Split secondary	15,000 ohms	135,000 ohms; 3:1 overall	30-20,000	+12 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	+18 DB	-50 DB	.25 MA	LS-2
LS-25	Push pull plates to push pull grids. Medium level. Split primary and sec.	30,000 ohms plate to plate	50,000 ohms; turn ratio 1.3:1 overall	20-20,000	+15 DB	-74 DB	1 MA	LS-1
LS-26	Bridging line to 1 or 2 grids	5000 ohms	60,000 in two sections	15-20,000	+15 DB	-74 DB	0 MA	LS-1

PLATE, CRYSTAL, PHOTOCELL, AND BRIDGING TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Imp. ohms	± 1 db from	Max.† Level	Relative * hum	Unbal. DC in prim'y	Case No.
LS-27	Single plate to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600 cycles	30-15,000	+15 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	20-20,000	+15 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	20-20,000	+16 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 for crystal	Equalized	+10 DB	-74 DB	0 MA	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	20-20,000	+10 DB	-74 DB	0 MA	LS-1
LS-150	Bridging from 50 to 500 ohm line to line	4,000 ohms, bridging	50, 125/150, 200, 250, 333, 500/600	15-30,000	+15 DB	-74 DB	1 MA	LS-1
LS-151	Bridging from 50 to 500 ohm line to line	16,000 ohms, bridging	50, 125/150, 200, 250, 333, 500/600	15-30,000	+18 DB	-74 DB	1 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 10-24
 Cutout 3 3/4" dia.
 Unit Weight 15 lbs.

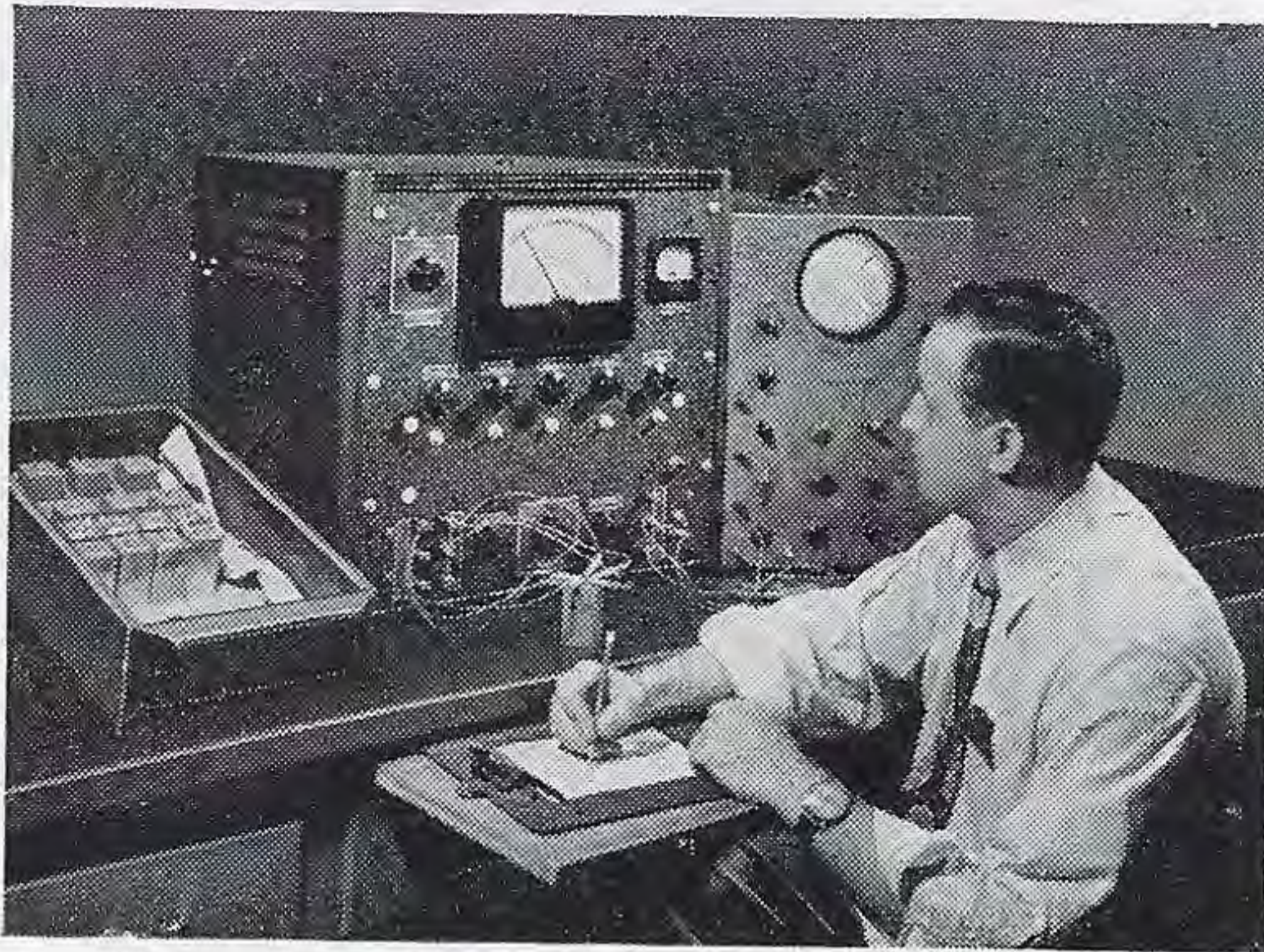
The values of unbalanced DC shown will effect approximately 1.5 DB loss at 30 cycles.

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

Q Multiple alloy magnetic shield.

† 6 MW as ODB reference.

PRODUCTION PRECISION



Magnetic Amplifier Testing. Five check points with DC controlled to .5%, inductance measured to .5%.



Phase angle and inductance checked to .05 degrees. Deviation cannot exceed .02 degrees from -40°C. to $+85^{\circ}\text{C.}$



This precision inductor test is for a .3% reactor requiring precise high Q and accurate orientation in case.



To assure dependability of hermetically sealed units, samples of production are run through controlled temperature and humidity cycling.

HYBRID AND REPEAT COILS

Type No.	Application	Pri. and Sec. Impedances	± 1 db from	Max. Level	Hum Reduction	Max. Unbal. DC in Pri.	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

DRIVER TRANSFORMERS

Type No.	Application	Primary Impedance	Refl. Sec. Impedance	± 1 db from	Max. Level	Max. Unbal. DC in Pri.	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	+32 DB	5 MA	LS-2
LS-6	Driver, push pull 45'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	+32 DB	5 MA	LS-2
LS-7	Push pull 6C5 or similar plates to A prime 45's, 6F6's, 2A3's, 6L6's	30,000 ohms plate to plate	.45 primary impedance turns 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	+32 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	+37 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	+37 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 or 245 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, 6AS7G	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 6F6, class B 46's 6AS7G, 807-TR, 1614-TR	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

HIGH LEVEL MATCHING TRANSFORMERS

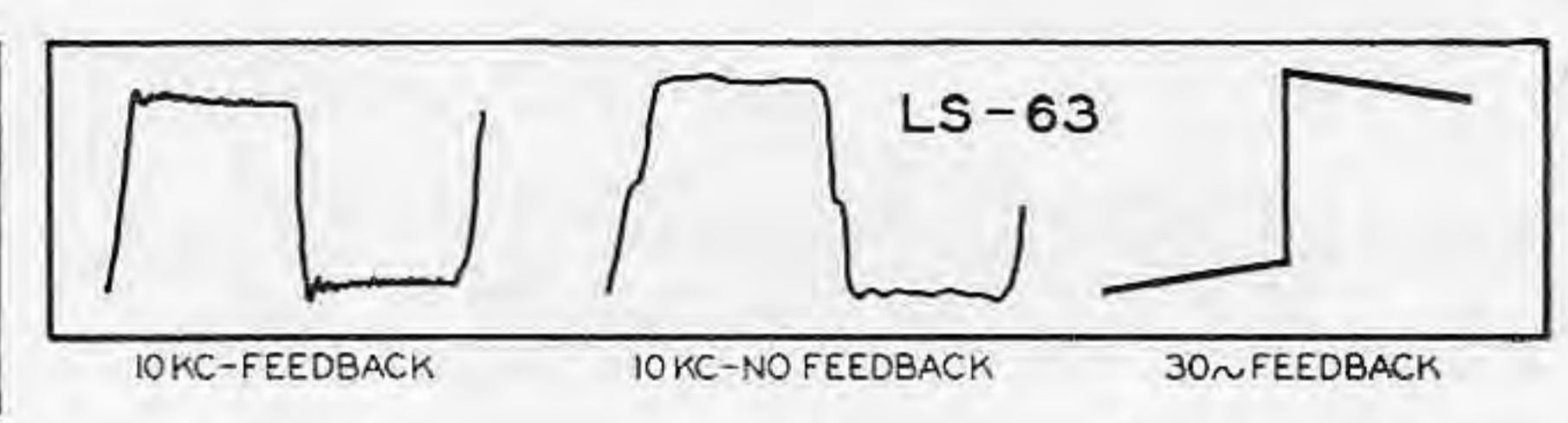
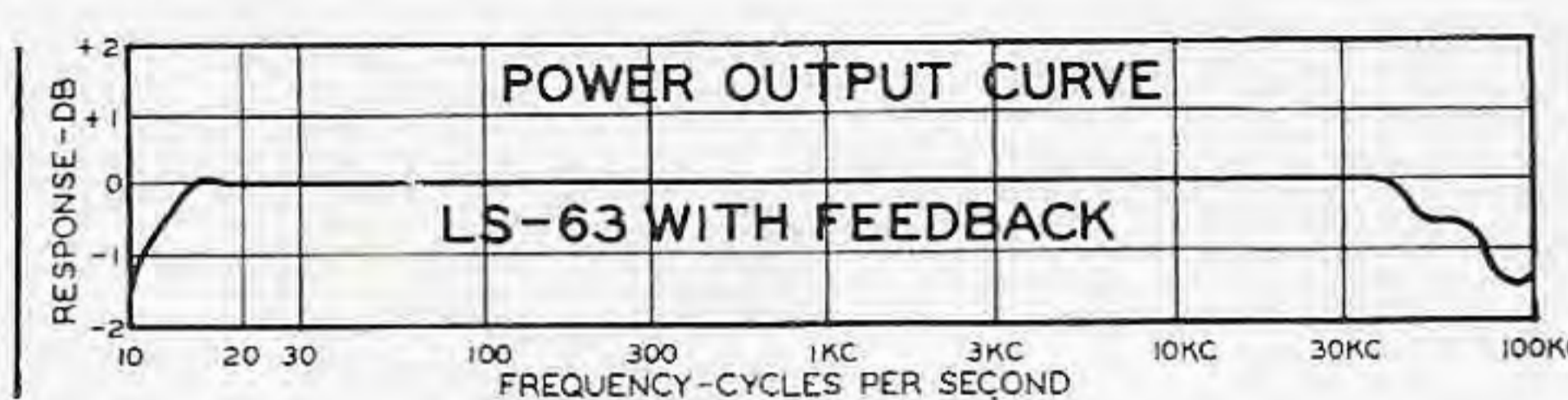
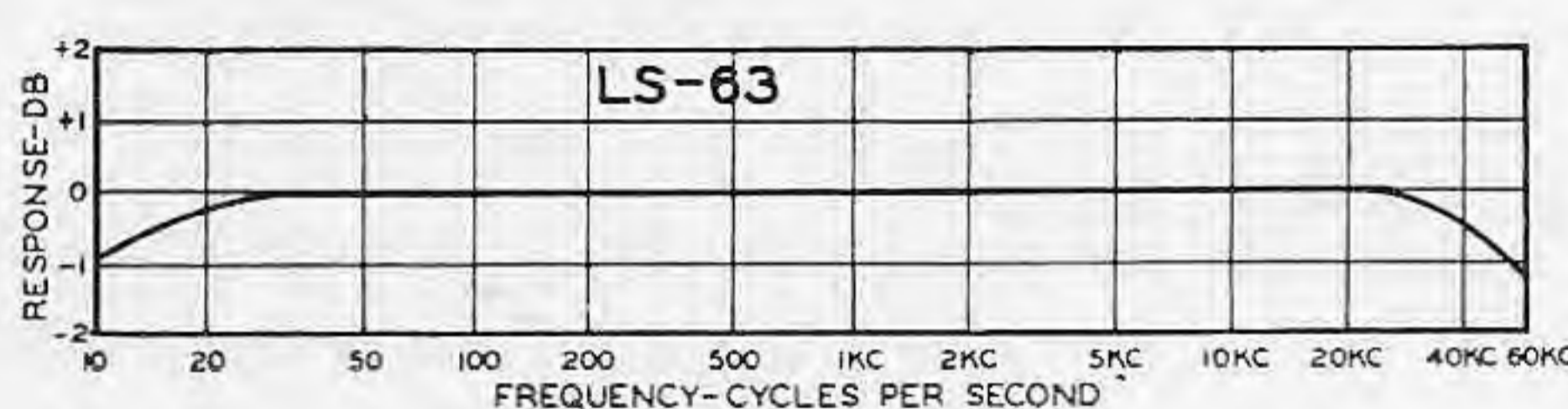
Type No.	Application	Primary Impedance	Secondary Impedance	$\pm .2$ db from	Max. Level	Case No.
LS-33	High level line matching	50, 125, 200, 250, 333, 500/600 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500/600	20-20,000	15 watts	LS-2
LS-34	High level line matching	50, 125, 200, 250,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

LS OUTPUT TRANSFORMERS...THE FINEST

While the UTC Linear Standard line is generally designed for a flat response from 20 cycles to 20 Kc., a much wider response is required for output transformers. A transformer that would be down 1 DB at 20 cycles and 20 Kc. would have substantial distortion components at 30 cycles and 10 Kc. In addition, if the transformers are to be used in circuits employing feedback, wider range response is required to assure stability. As is noted in the left curve below, typical UTC output transformers are down less than 1 DB at 10 cycles and less than 1 DB at 40 to 60 Kc. Because of this, a fine power output curve is possible. The center curve below indicates the power output response curve of a "Williamson" Amplifier employing the LS-63 transformer at 8 watts output level.

The square wave is a particularly effective method for checking output transformers, since it gives the response of a transformer in an amplifier to a virtually infinite band of frequencies at one setting. The third figure below illustrates square waves obtained with the LS-63 transformer in a "Williamson" Amplifier Circuit. Of particular interest is the short rise time, which is far superior for UTC transformers than any standard make which we have measured. The excellent high frequency response is evident both with and without feedback. At the low frequency end the high inductance of these transformers is illustrated by the small angle at the top of the 30 cycle square wave.

The above characteristics are obtained only by maintaining high primary inductance and low leakage reactances. For the LS-63 the primary inductance is 300 Hys. at 50 volts, 60 cycles. The leakage reactance of each half primary to the secondary is approximately 11 Mhy., and the leakage reactance of each half primary to the other half primary is approximately 20 Mhy.



OUTPUT TRANSFORMERS TO HIGH IMPEDANCE (RF) LOAD

Type No.	Primary will match following typical tubes	Primary Impedance	Secondary Impedance	± .4 db. from	Max. Level	Case No.
LS-56	Push pull 2A3's, 6A5G's, 300A's, 275A's, 6A3's, 6AS7, 6L6	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	*
LS-67	Class B 203A, 838, ZB120, 805	9,000 and 6,900 ohms plate to plate	10000, 2500	25-20,000	260 watts	*
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	4,750 ohms plate to plate	2500, 2000, 1750, 1500, 1250	25-20,000	2500 watts	LS-6



LS-6 CASE

Length15 $\frac{3}{8}$ "
 Width13"
 Height24"
 Mounting Hole..... $\frac{3}{8}$ " dia.
 Unit Weight.....350 lbs.

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-7
LS-106	Modulation reactor	50 hy	750 MA	120 ohms	10000	Spec.

* See dimension chart, page 7.

SPECIAL LS UNITS

Custom built LS units are available for any frequency from $\frac{1}{2}$ 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 $\frac{1}{2}$ cycle to 20 cycles
 Primary Impedance10 ohms C. T.
 Secondary Impedance1.5 megohms C. T.
 Secondary Inductance75 megohenries
 ShieldingFor -160 DB operation
 Case.....3" x 5 $\frac{1}{4}$ " x 5 $\frac{5}{8}$ " high
 Type D-1515.....Net Price \$80.00

LS-7 CASE

Length20 $\frac{3}{8}$ "
 Mounting7 $\frac{3}{8}$ " x 14 $\frac{5}{16}$ "
 Height18 $\frac{1}{2}$ "
 Mounting11 $\frac{5}{8}$ " x 19 $\frac{3}{8}$ "
 Mounting Hole..... $\frac{3}{8}$ " dia.
 Unit Weight.....500 lbs.
 Width17 $\frac{3}{4}$ "

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 coefficient. Large components (up to 250 KVA) are housed in oil tanks.



DIMENSIONS

Type No.	L	W	H	Mtg.	Wt.
LS-66	9¾	4¾	6¾	37/8x 91/8	37
LS-67	9¾	4¾	6¾	37/8x 91/8	37
LS-73	9½	4¾	6¾	37/8x 87/8	34
LS-83	8¾	4¾	6¾	37/8x 81/8	25
LS-89A	9½	7	9	6 x 85/8	68
LS-96	10¼	4¾	6¾	37/8x 95/8	40
LS-99	14½	8½	10¼	7¼x13½	80
LS-102	9¾	4¾	6¾	37/8x 91/8	37
LS-103	13½	8½	10¼	7¼x12½	58
LS-105	13½	8½	10¼	7¼x12½	58
LS-121Y	8¼	3¾	5½	3x7-13/16	23
LS-181	9¾	4¾	6¾	37/8x 91/8	37
LS-182	10¾	4¾	6¾	37/8x10½	45
LS-183	15½	10	13¼	8½x14½	70
LS-184	17¼	10	13¼	8½x16¼	102
LS-185	23	10	13¼	8½x22	230

COMBINED PLATE AND FILAMENT TRANSFORMERS

Type No.	Typical Application	Pri. Volts 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.-.6A	LS-1
LS-192	Power amplifier service	105, 115, 125	335-0-335 180 MA DC 60-0-60, 20 MA	5 V.-3A 6.3 V.C.T.-.75A 6.3 V.C.T.-5.25A	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-74	For push pull parallel 6L6's, 2A3's, 6B4's	115	415-395-0-395-415 275 MA	5 V.-6A 6.3 V.C.T.-5A	LS-3

PLATE TRANSFORMERS*

Type No.	Application	Primary Voltage 50/60 cycles	High Voltage	Approximate DC Voltage Out of Filter	DC Current
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.

FILAMENT TRANSFORMERS

Type No.	Application	Pri. Volts 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	10,000	LS-3
LS-84	203A, 845, etc. HF200, HF300	100, 110, 120, 220, 230, 240	10 V.C.T.-8A	2,500	LS-3
LS-88	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	12,000	*
LS-83	872A, 575 or 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-20A	35,000	*
LS-89A	Three 869 rectifiers	100, 110, 120, 220, 230, 240	5 V.C.T.-60A	35,000	*

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	450 ohms 110 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	88 ohms 22 ohms	2500	LS-3
LS-93	Filter choke with hum bucking tap	Series-26 hy Parallel-6.5 hy	200 MA 400 MA	120 ohms 30 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 250 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	125 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	*

* See dimension chart, this page.

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. 1½" diameter . . . 2½" long . . . ½ 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 Telephone type 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 7/8x1½x2½.

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

UTC Amplifier type mike/high impedance adaptor is identical to MA-1 in electrical characteristics. The high impedance side employs a connector similar to Amphenol 75-MC1F. This single conductor connector screws unit on to corresponding male plug connector usually found on amplifiers. The low impedance side employs a connector similar to Amphenol 91-MC3M . . . the usual 3 contact recessed male connector to which standard quality microphone plugs will mate.

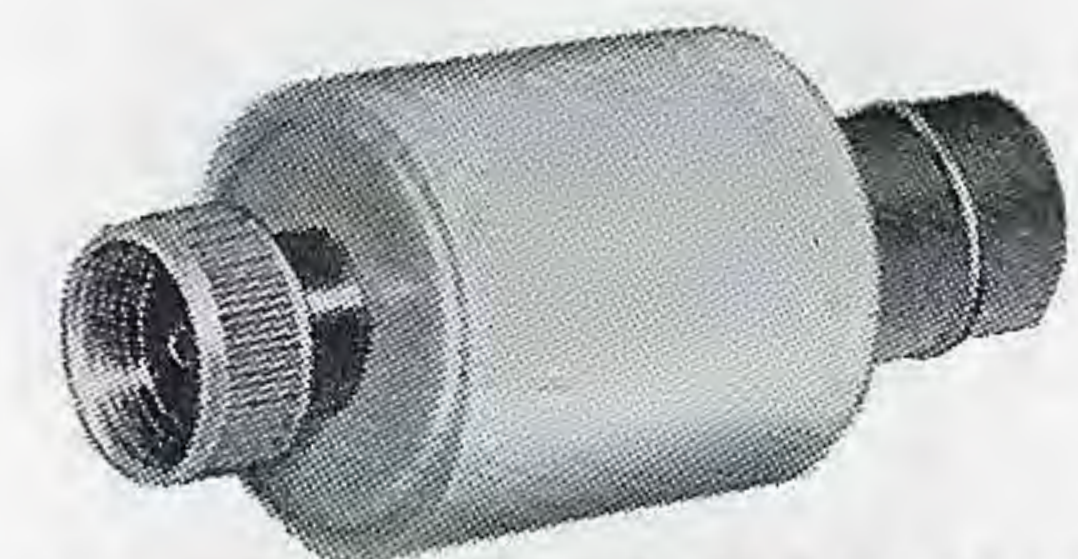
Type MB-1—Primary 50 to 500 ohms . . . 15:1 ratio.



UTC MICROPHONE
CABLE TRANSFORMERS



UTC Telephone type MIKE/HIGH IMPEDANCE
ADAPTOR

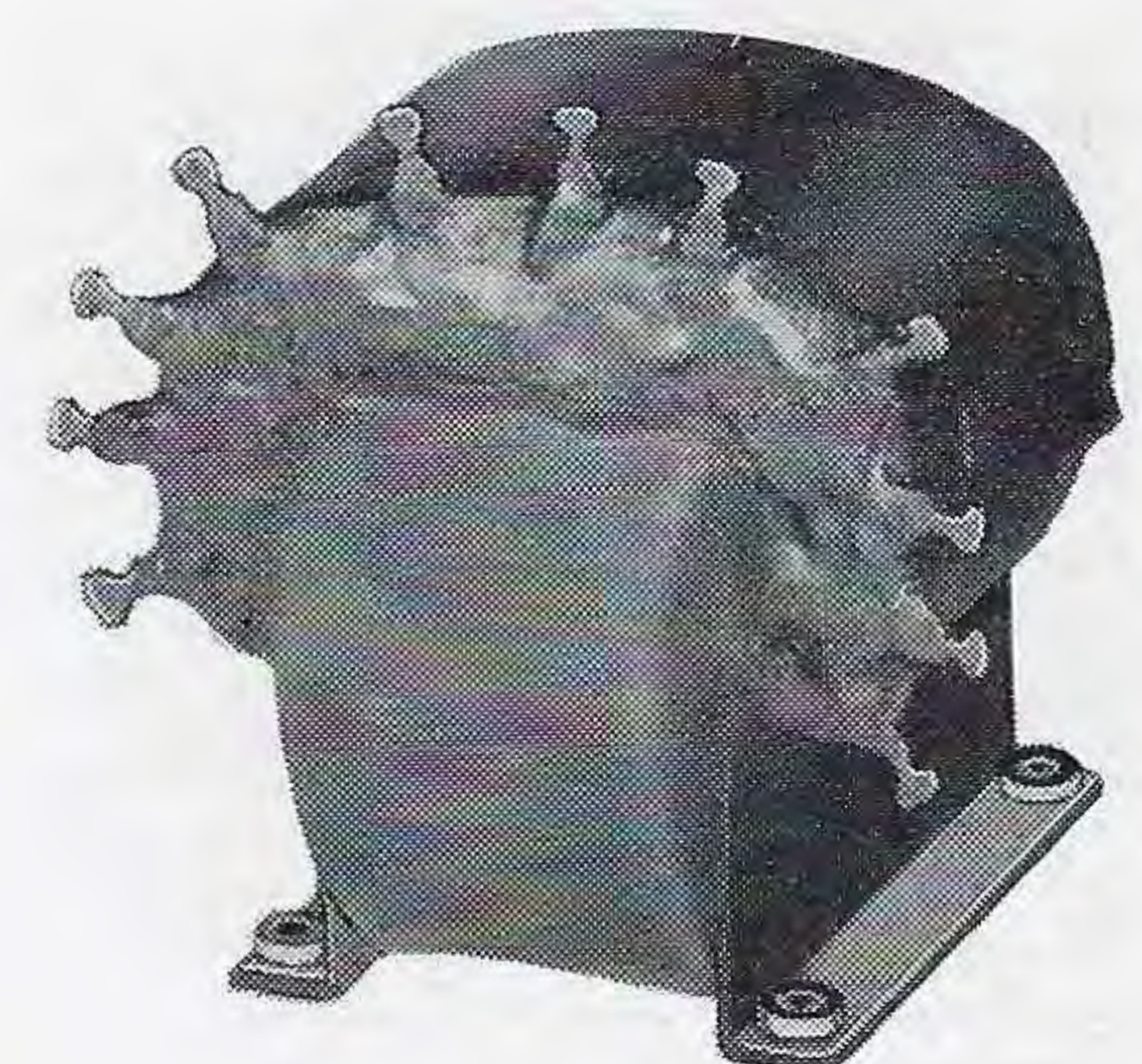
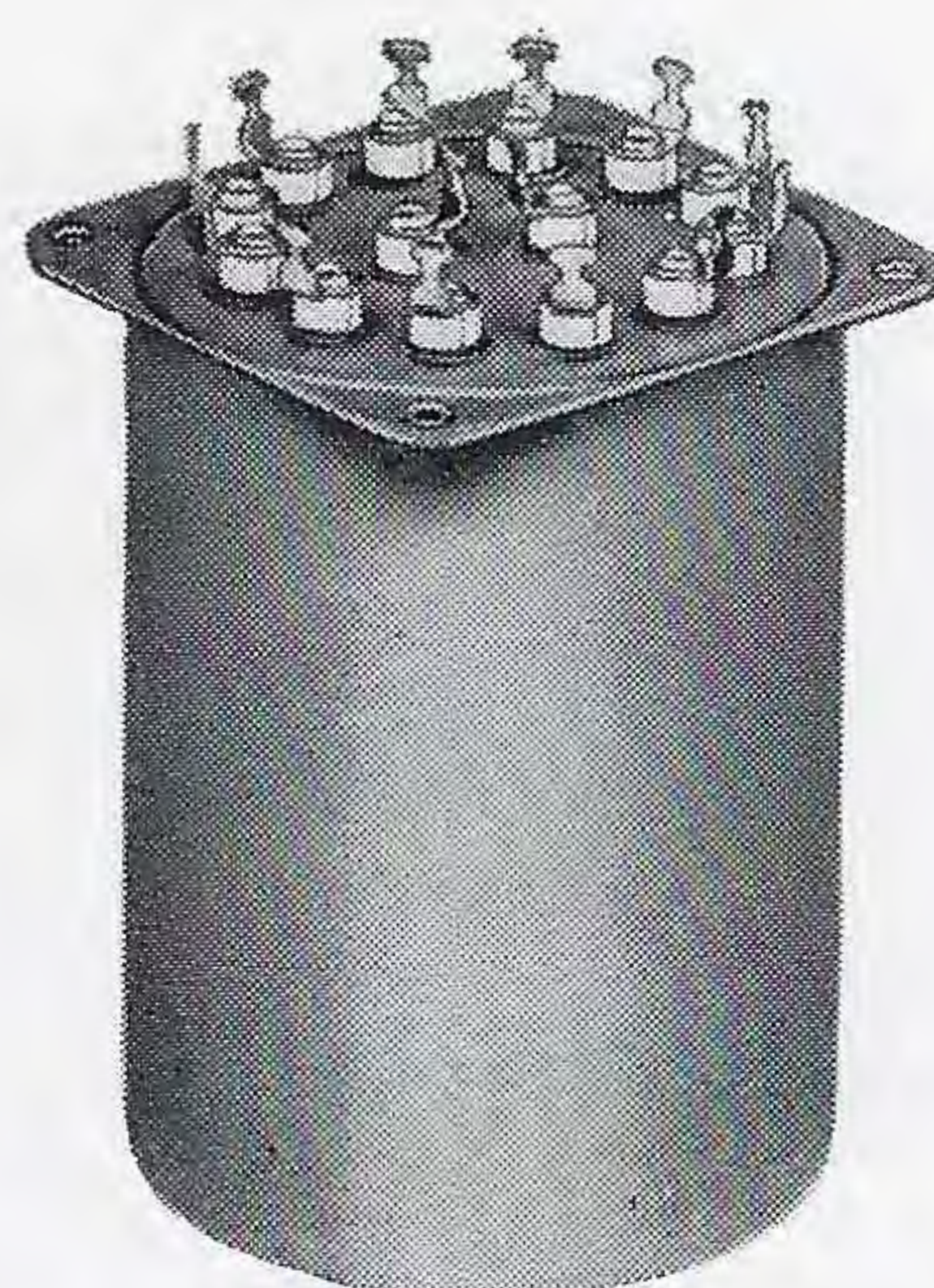
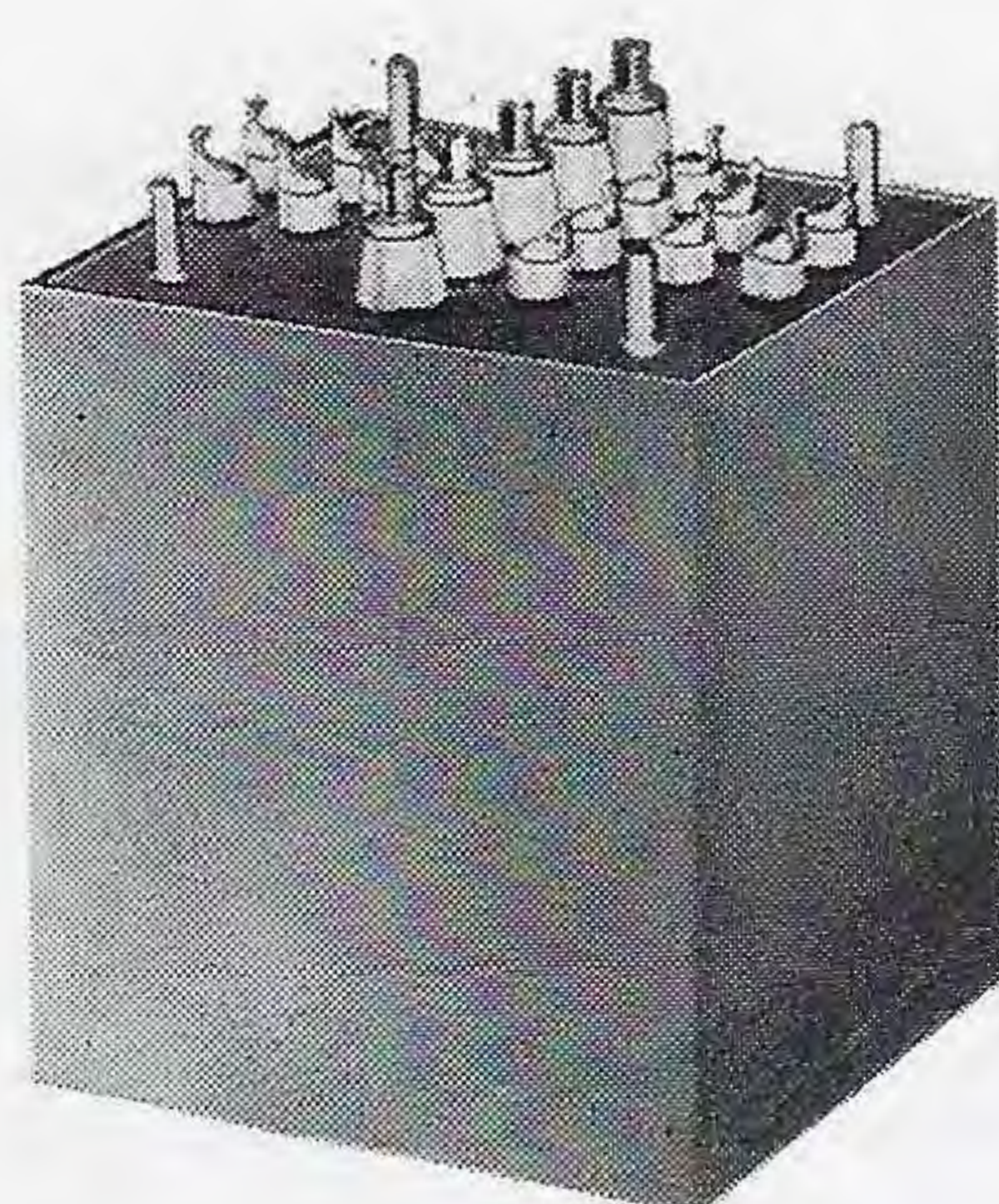


UTC AMPLIFIER TYPE MIKE/HIGH
IMPEDANCE ADAPTOR

HERMETICALLY SEALED COMPONENTS

During World War II the United Transformer Company was the largest supplier of transformers to the Armed Services. This same leadership continues in the UTC production of hermetic sealed components for present military applications. Extensive experience in supplying these components for the variety of equipment involved permits us to quickly resolve manufacturers' application problems. A wide range of tools and facilities are available for both standard and miniature types of hermetic sealed units. Standardized cases and terminals specifically designed for military service are available from stock.

For some aircraft and other light weight applications the elimination of the hermetic sealed case is essential. For these designs UTC units are Fosterite impregnated under Westinghouse license.



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 3/8"
Width 1 15/16"
Height 3 1/8"
Mounting 1 3/8" x 1 13/16"
Screws 6-32
Cutout 1 13/16" dia.
Unit Weight 2 lbs.



TYPE H-2 CASE

Length 3 3/16"
Width 2 13/16"
Height 3 1/2"
Mounting 2" x 2 3/4"
Screws 8-32
Cutout 2 11/16" dia.
Unit Weight 5 lbs.

LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

Type No.	Application	Primary Imp. (ohms)	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	60,000 ohms in two sections	30-20,000	+ 10DB	.5 MA	H-1
HA-100X	Same as above but with tri-alloy internal shield to effect very low hum pickup						H-1
HA-101	Low impedance mike, pickup, or multiple line to P.P. grids	50, 125/150, 200, 250, 333, 500/600	120,000 ohms overall, split	30-20,000	+ 10DB	.5 MA	H-1
HA-101X	As above but with tri-alloy internal shield to effect very low hum pickup		80,000 ohms overall, split				H-1
HA-103A	Low impedance mike, pickup, or parallel mixer to grid	2.5, 5.5, 10, 15, 22, 30, 38, 60	60,000 ohms in two sections	30-20,000	+ 10DB	.5 MA	H-1
HA-108	Mixing, low impedance mike, pickup, or multiple line	50, 125/150, 200, 250, 333, 500/600	50, 125/150, 200, 250, 333, 500/600	30-20,000	+ 10DB	.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 each primary	60,000 ohms overall, in two sections	30-20,000	+ 10DB	.5 MA	H-1

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Imp.	Secondary Impedance	± 1 db from	Max. Level	DC in Prim'y	Case No.
HA-104	Single plate to P.P. grids like 2A3, 6L6 (split secondary)	15,000 ohms	95,000 ohms 1.25:1	30-20,000	+ 12 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	+ 12 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	+ 12 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	+ 20 DB	.25 MA	H-2
HA-137	Push pull plates to push pull grids (split Pri. and Sec.)	30,000 ohms plate to plate	68,000 ohms 1.5:1 turn ratio	30-20,000	+ 12 DB	0	H-1

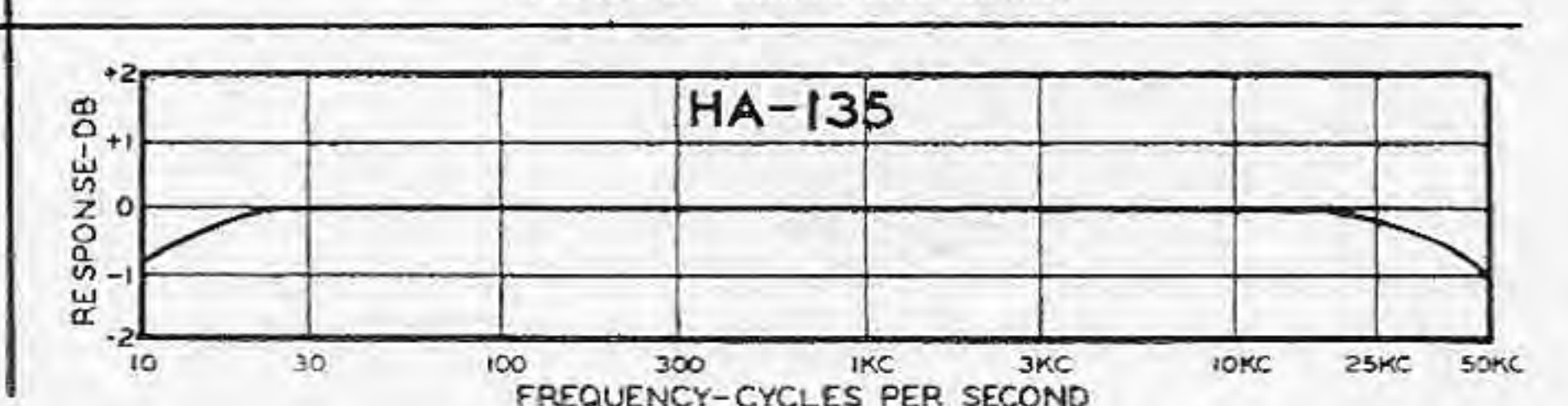
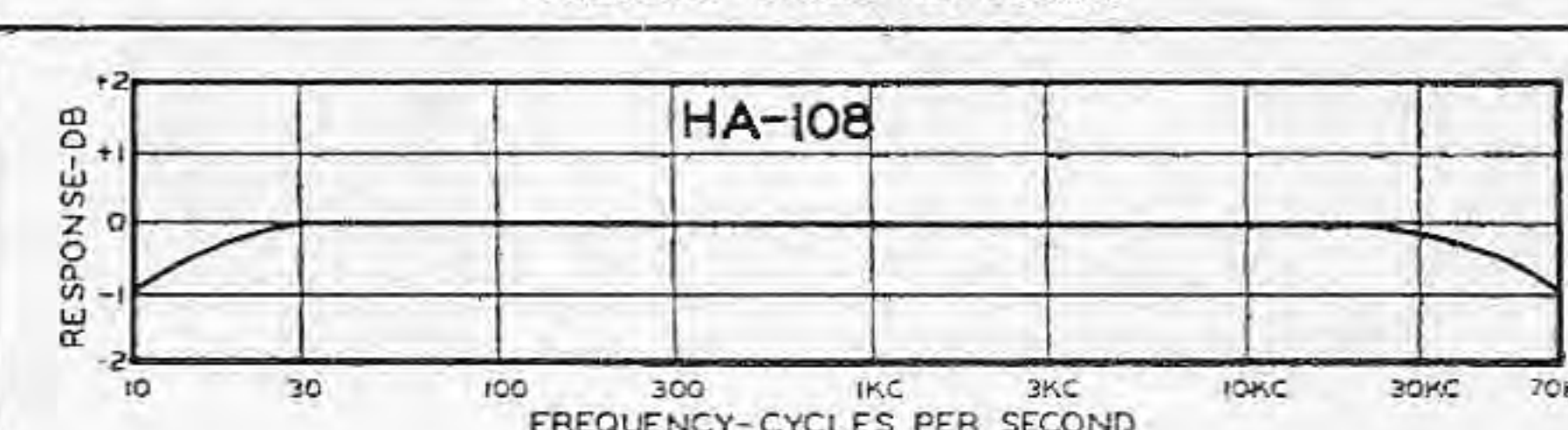
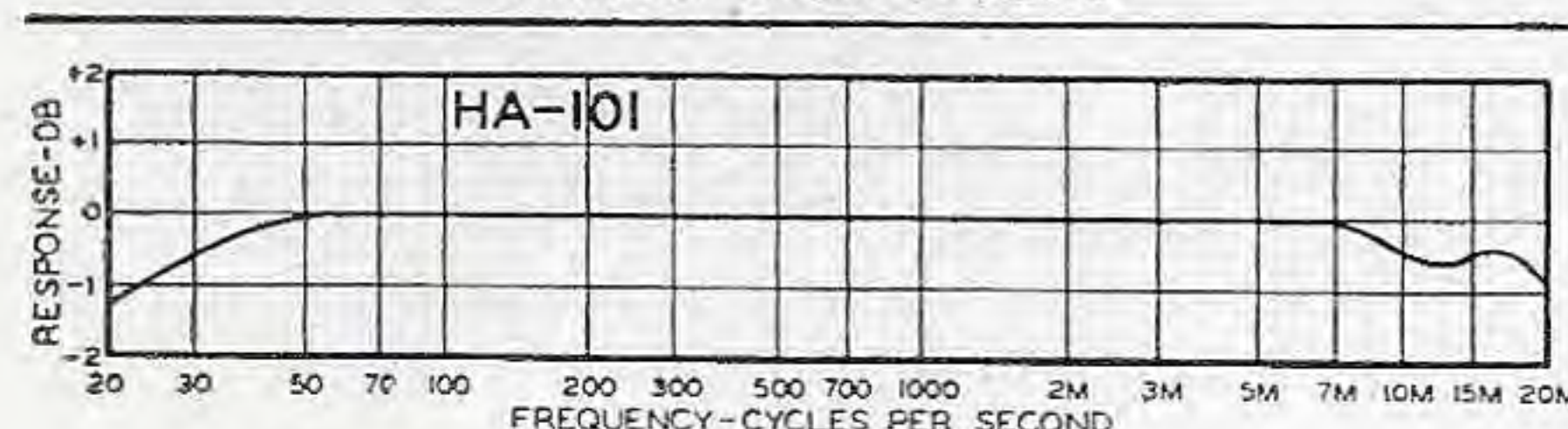
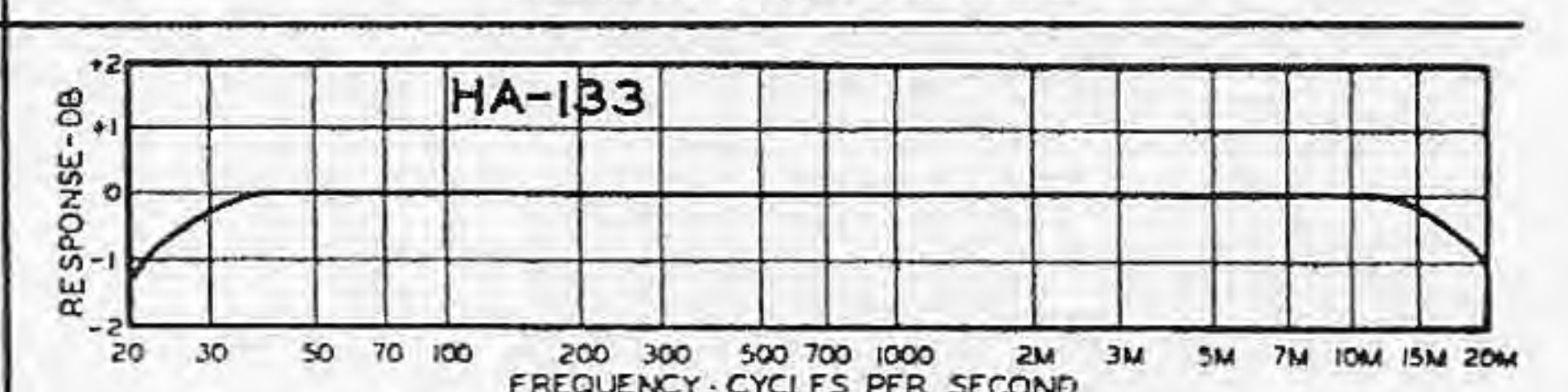
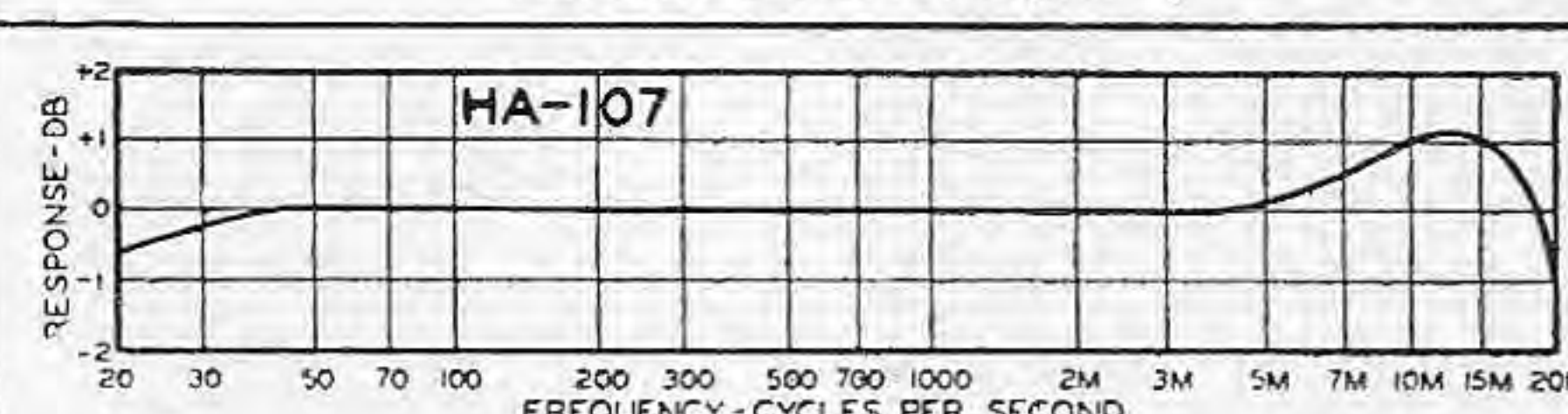
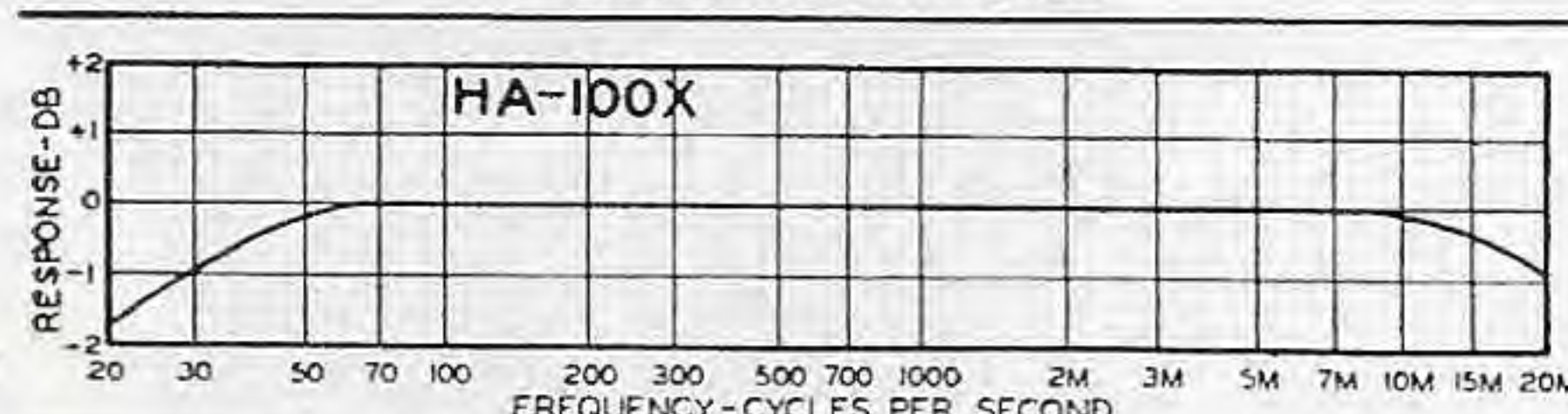
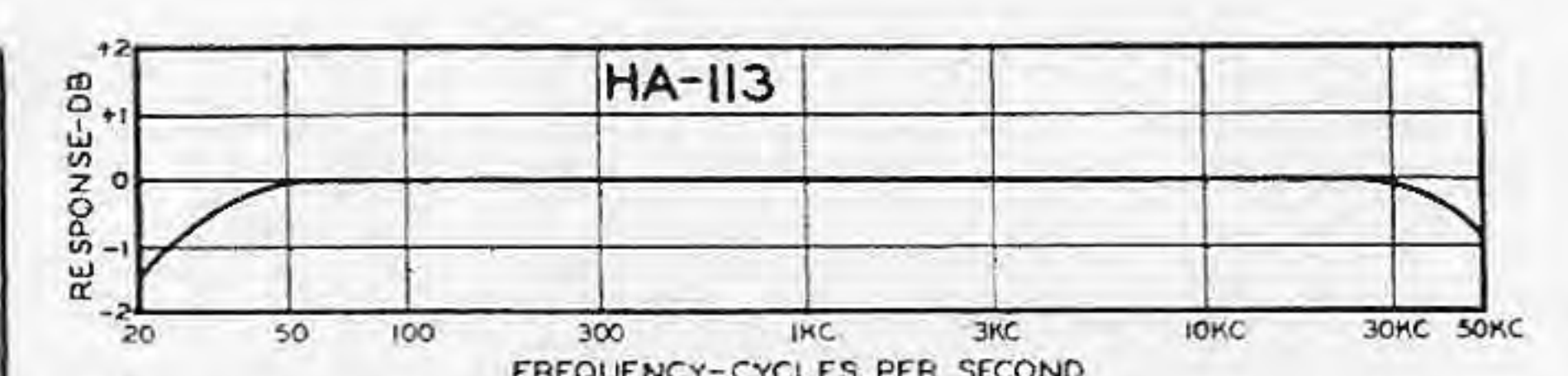
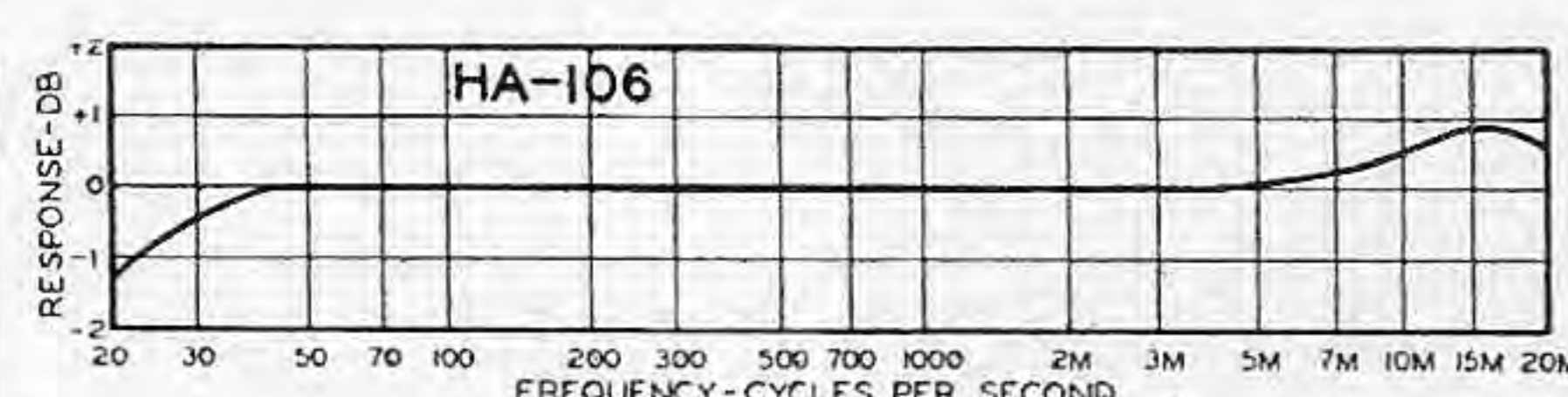
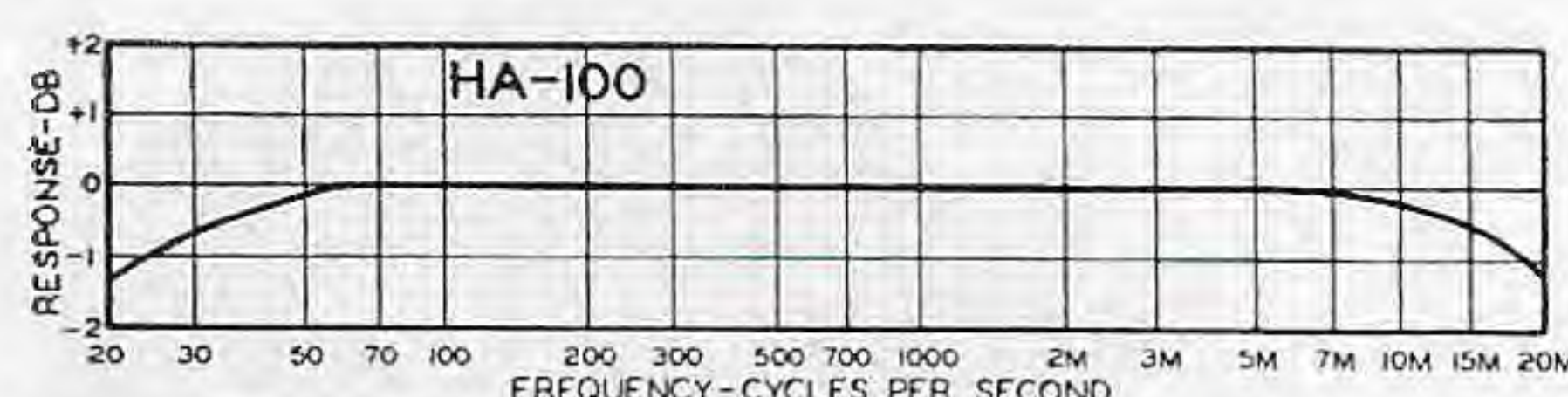
PLATE AND CRYSTAL TO LINE TRANSFORMERS

Type No.	Application	Primary Imp.	Secondary Imp. ohms	± 1 db from	Max. Level	DC in Prim'y	Case No.
HA-111	Crystal microphone or pickup, to multiple line	100,000 ohms	50, 125/150, 200, 250, 333, 500/600	30-20,000 measured with resistive source	+ 10 DB	0	H-1
HA-113	Single plate to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600	30-20,000	+ 12 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	30-20,000	+ 15 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	30-20,000	+ 16 DB	1 MA	H-1
HA-134	Push pull 6B4's, 6L6, or 2A3's to line	5000/9400 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600	30-20,000	+ 32 DB	5 MA	H-2
HA-135	Push pull 2A3's, etc. to voice coil	3000/5000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	30-20,000	+ 34 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 6X4, 6X5 rectifier	115	220-0-220 15 MA	6.3 V.C.T.-.6A 6.3 V.C.T.-1.2A	H-1
HP-123	Pre-amp. or tuner power supply using 6X4, 6X5 rectifier	115	275-0-275 35 MA	6.3 V.C.T.-.6A 6.3 V.C.T.-2A	H-2

Type No.	Application	Inductance	DC Current	DC Resistance	Test Voltage	Case No.
HC-115	Parallel feed and filter choke	Series-400 hy Parallel-100 hy	2.5 MA 5 MA	6000 ohms 1500 ohms	1500	H-1
HC-116	Parallel feed and filter choke	Series-600 hy Parallel-150 hy	8 MA 16 MA	3400 ohms 850 ohms	1500	H-2
HC-117	Parallel feed and filter choke	Series-200 hy Parallel-50-hy	15 MA 30 MA	3200 ohms 800 ohms	1500	H-1



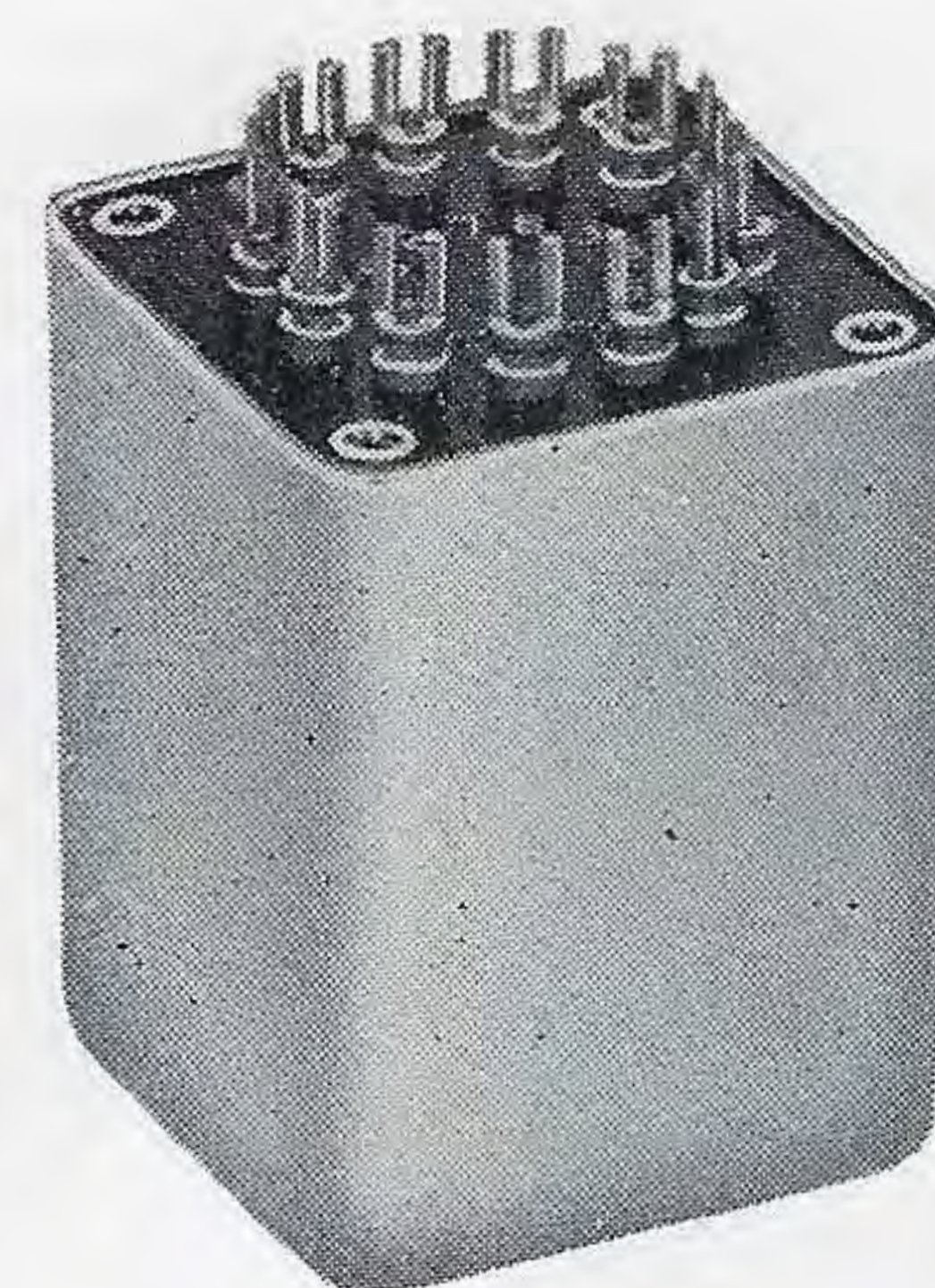
ULTRA COMPACT AUDIO UNITS

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 $+7$ DB.

LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

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 overall, in two sections	30-20,000
A-14	Dynamic microphone to one or two grids	30 ohms	50,000 ohms overall, in two sections	30-20,000
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



TYPE A CASE

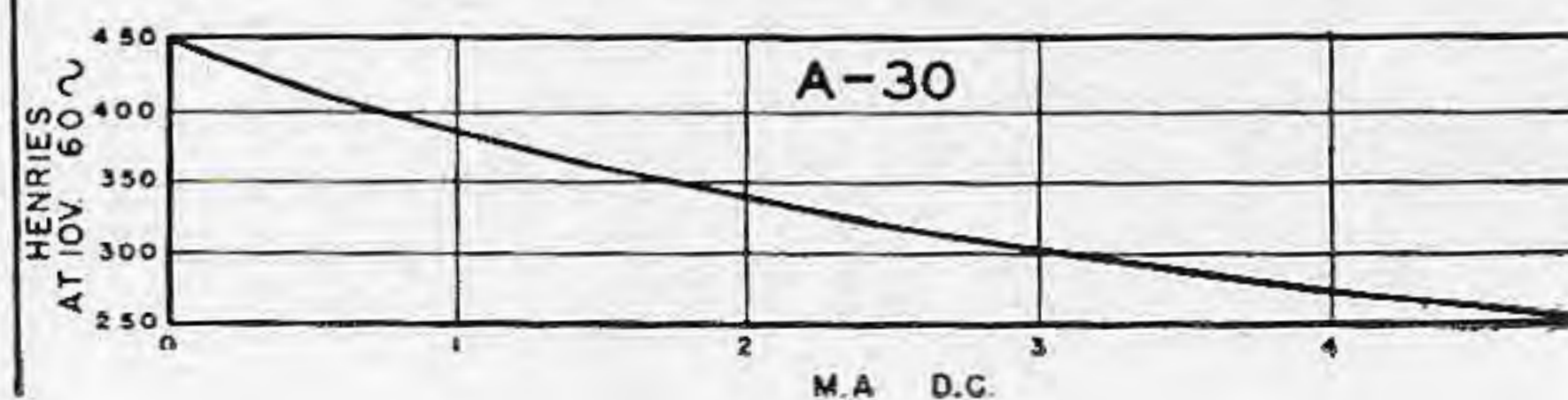
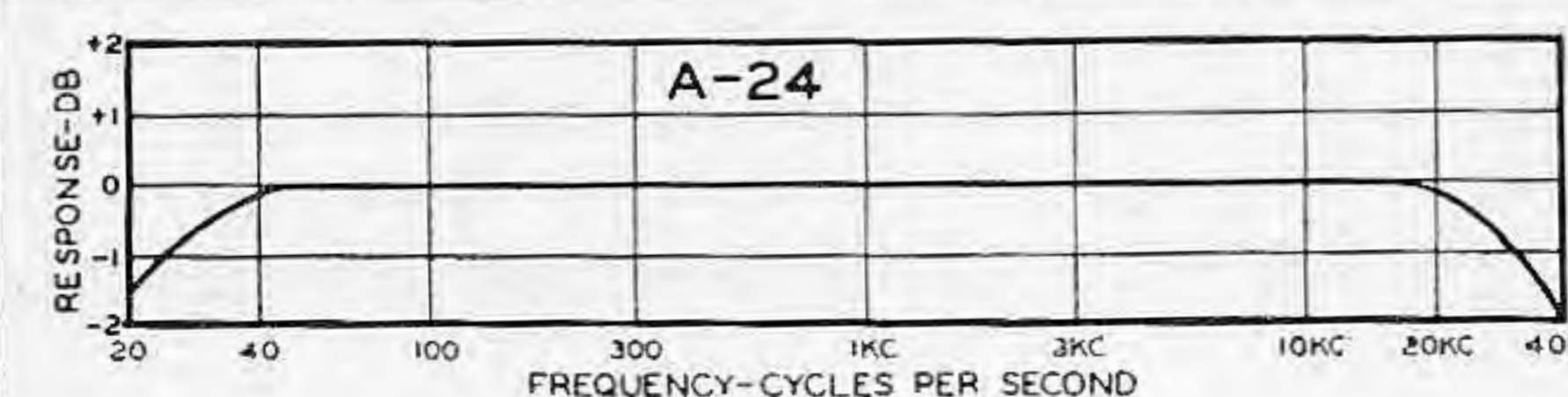
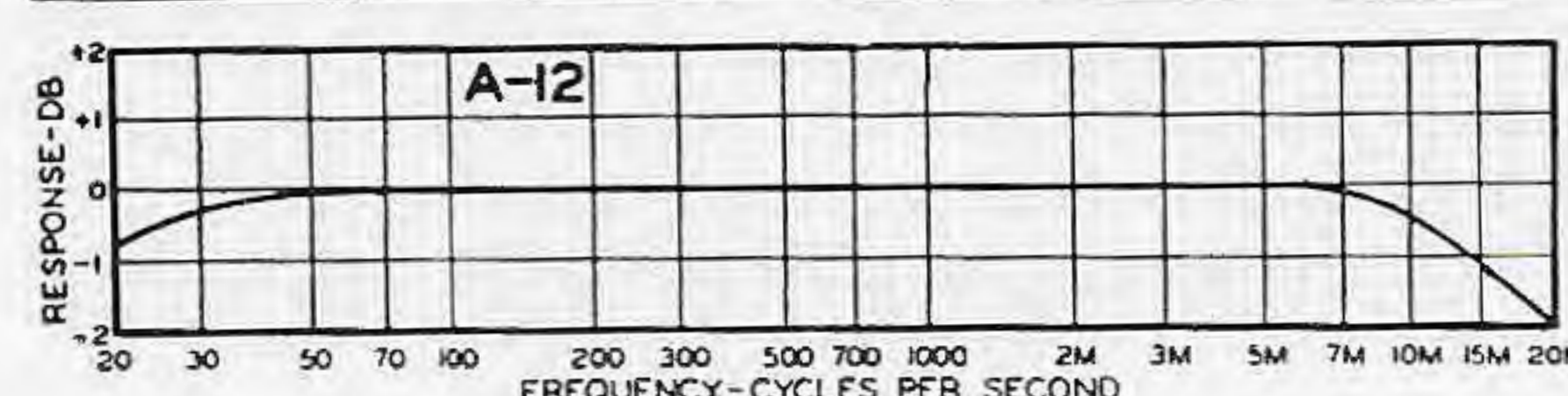
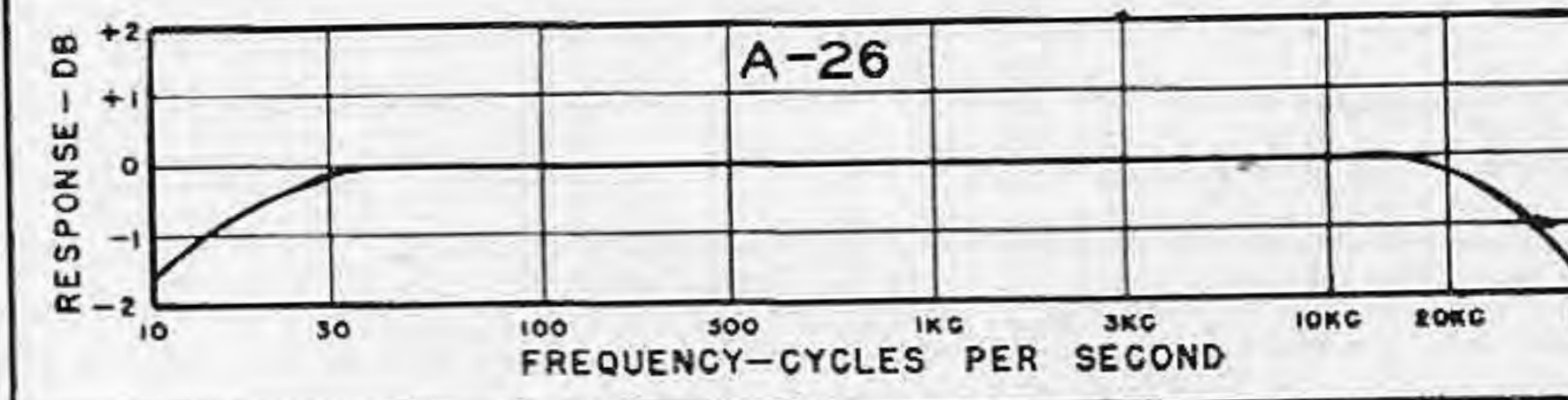
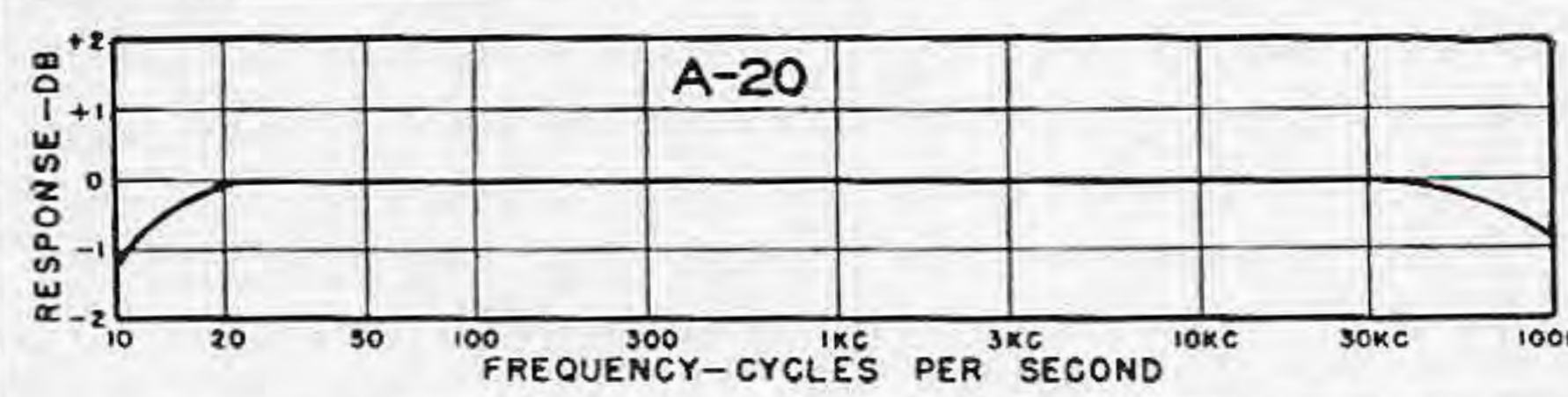
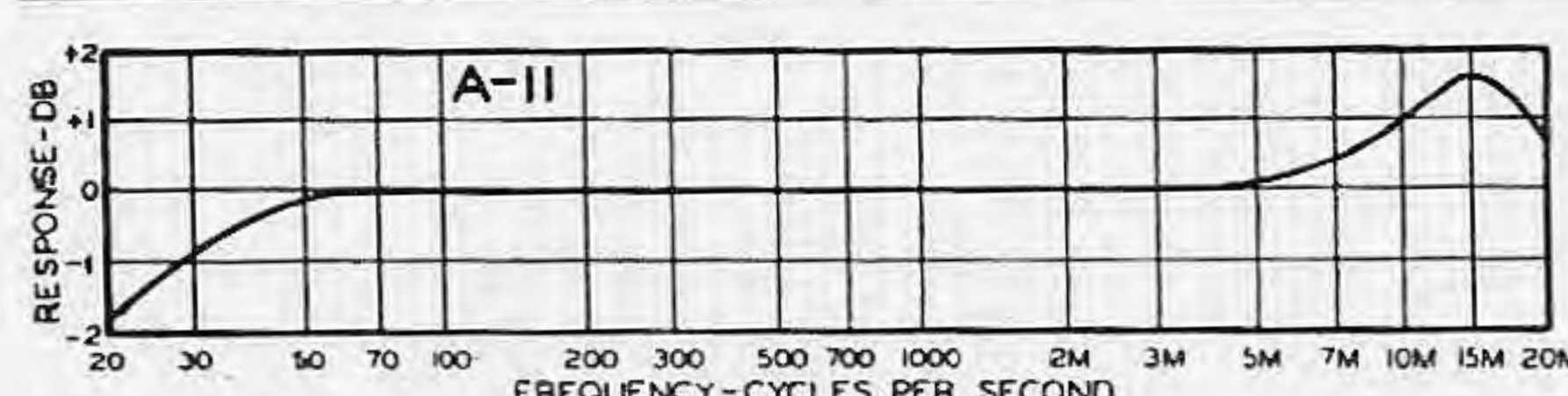
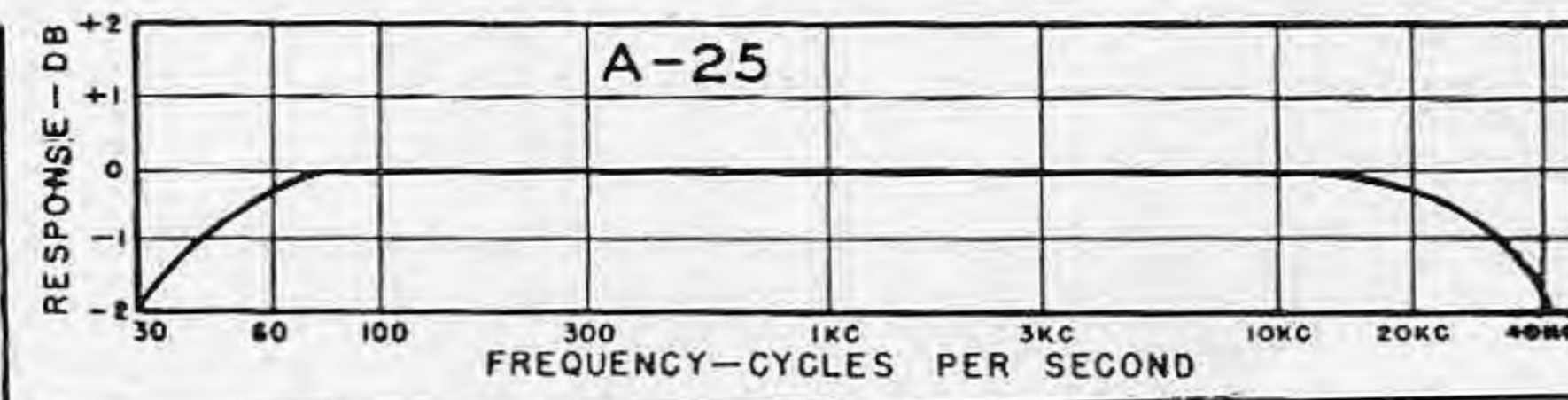
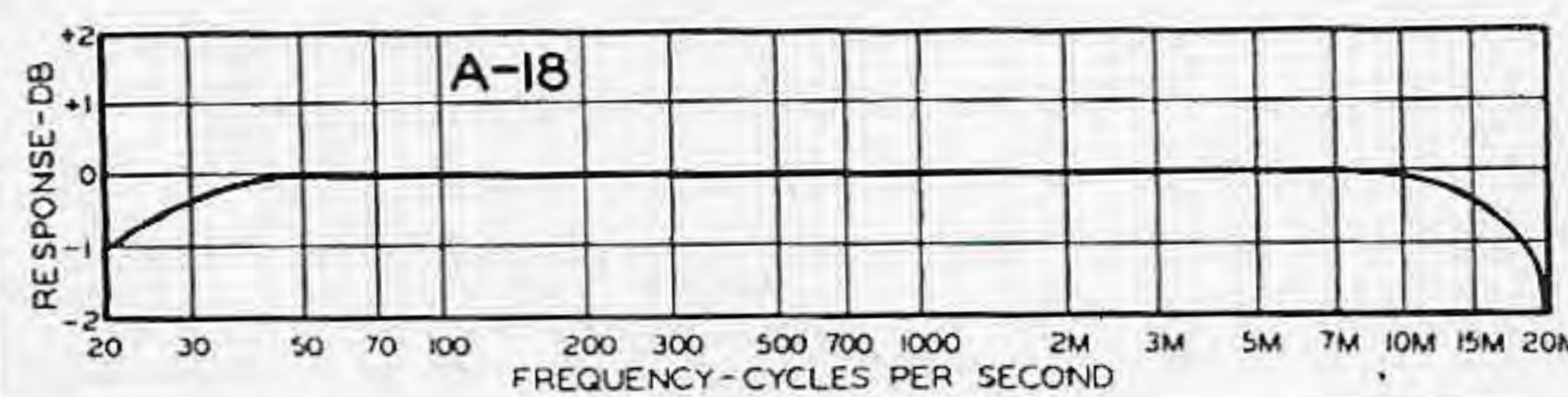
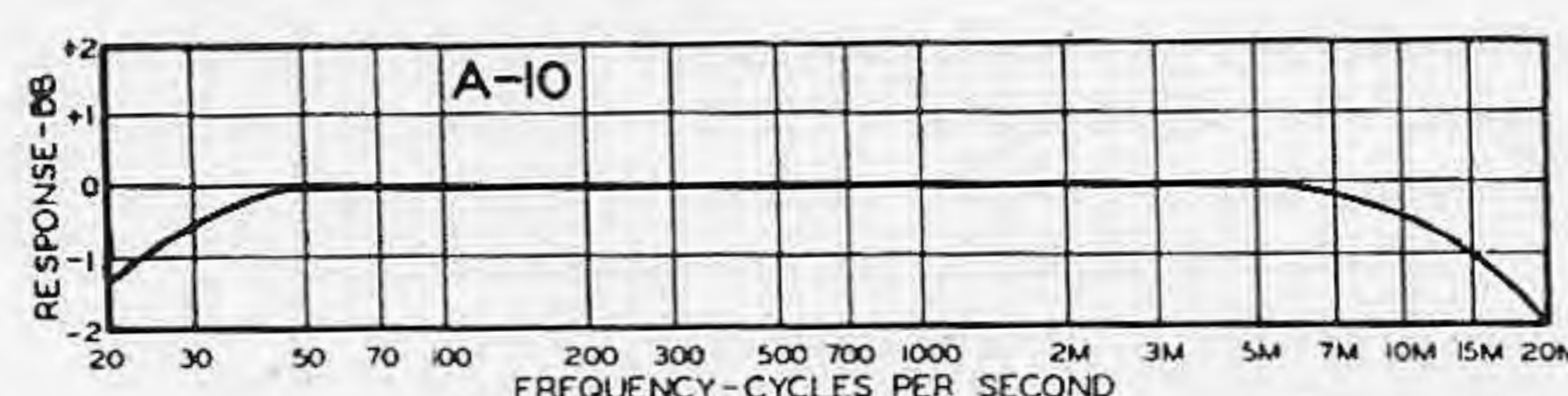
Length $1\frac{1}{2}$ "
 Width $1\frac{1}{2}$ "
 Height 2"
 Mounting $1\frac{5}{32}$ " sq.
 Screws 4-40
 Cutout $1\frac{3}{8}$ " dia.
 Unit Weight..... $\frac{1}{2}$ lb.

INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 2 db from
A-16	Single plate to single grid	15,000 ohms	60,000 ohms, 2:1 turn ratio	30-20,000
A-17	Single plate to single grid 8 MA unbalanced D.C.	As above	As above	50-20,000
A-18	Single plate to two grids. Split primary, can also be used for P.P. plates	15,000 ohms	80,000 ohms overall, 2.3:1 turn ratio over-all	30-20,000
A-19	Single plate to two grids 8 MA unbalanced D.C.	15,000 ohms	80,000 ohms overall, 2.3:1 turn ratio over-all	50-20,000

PLATE AND CRYSTAL TO LINE TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 2 db from
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, 250 henrys @ 5 MA 6000 ohms D.C., 65 henrys @ 10 MA 1500 ohms D.C. 450 henrys @ 0 MA			
A-32	Filter choke 60 henrys @ 15 MA 2000 ohms D.C., 15 henrys @ 30 MA 500 ohms D.C.			



OUNCER AUDIO UNITS

STANDARD AND PLUG-IN TYPES

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.

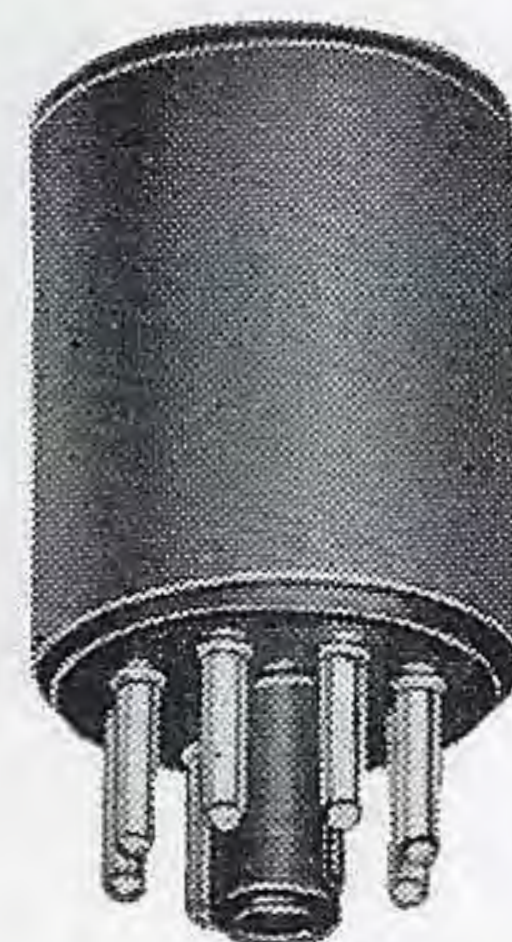
Ouncer items are ideal for portable broadcast, hearing aid, aircraft, concealed service, and similar applications. High fidelity characteristics are provided, uniform from 40 to 15,000 cycles, except for O-14, O-15, and units carrying DC which are intended for voice frequencies from 150 to 4,000 cycles.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

"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.



**OUNCER
CASE**

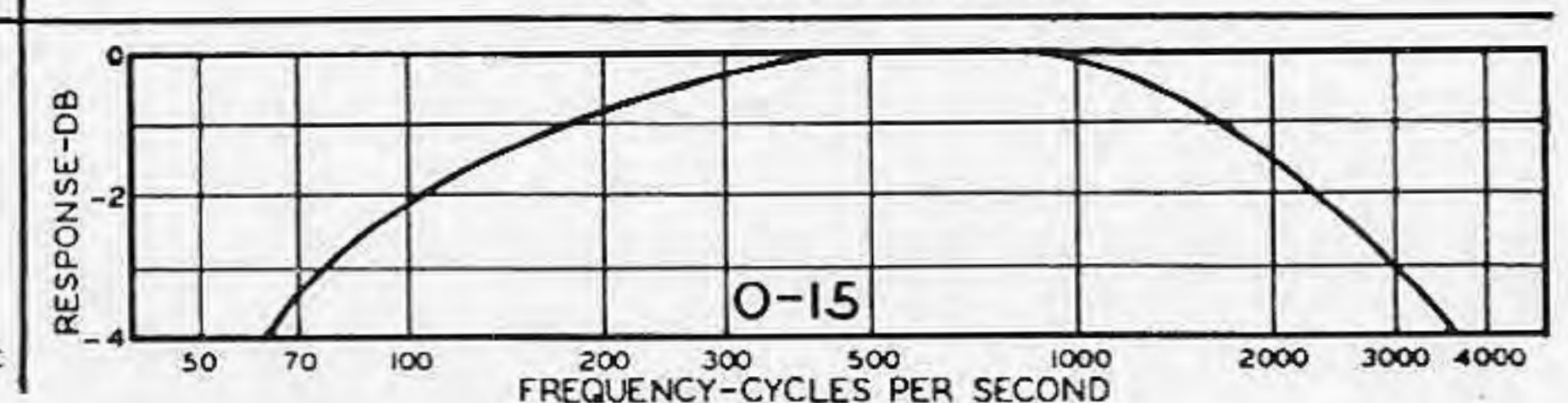
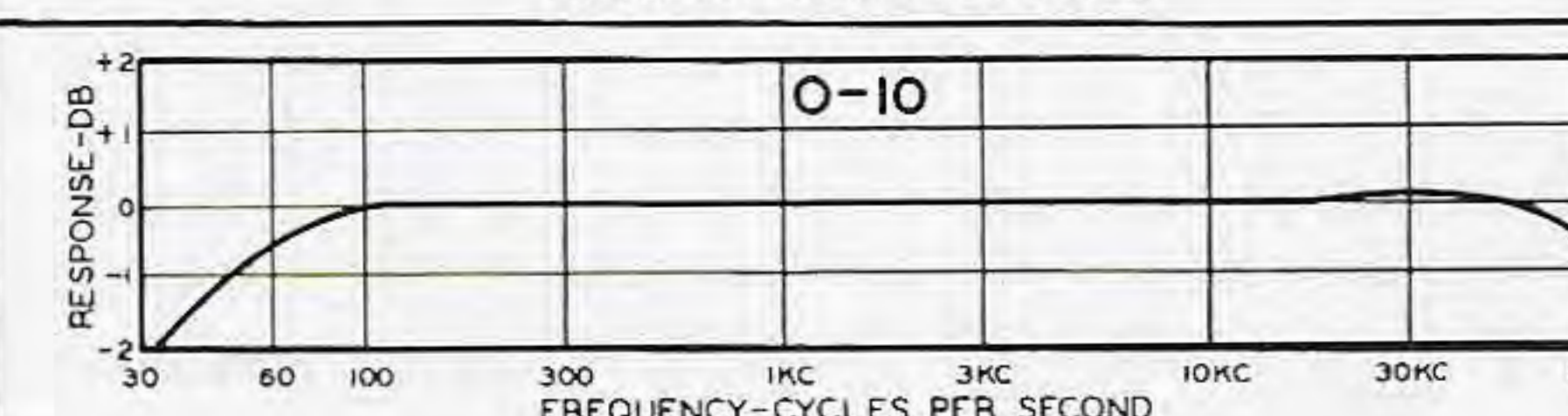
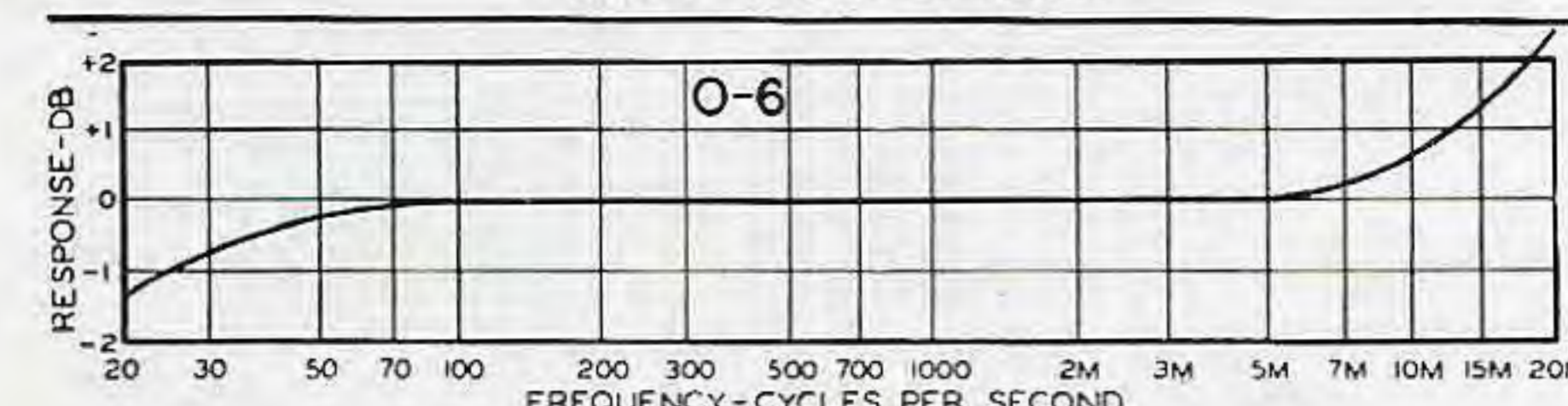
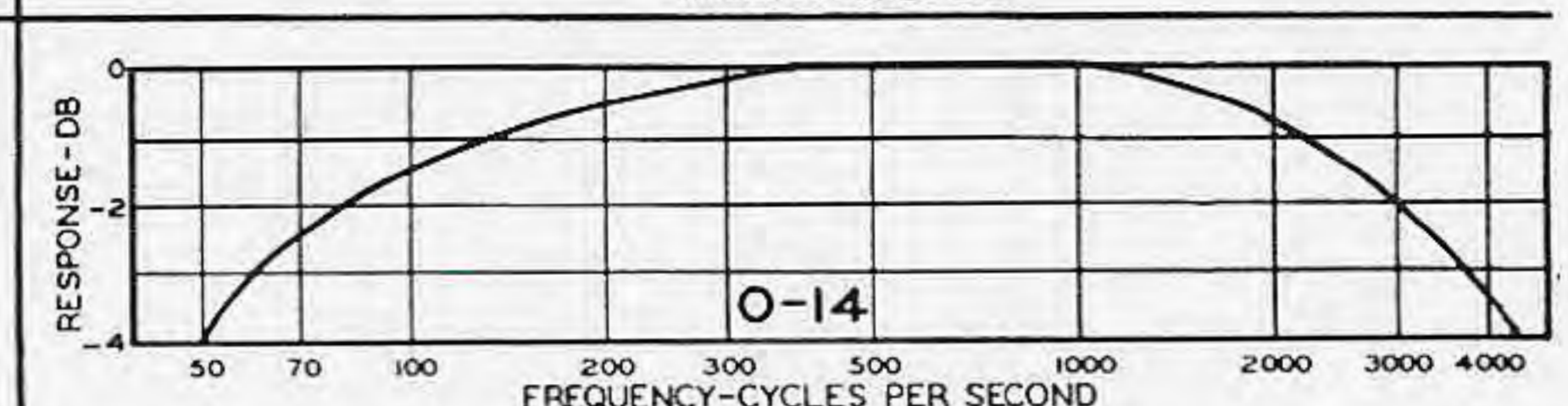
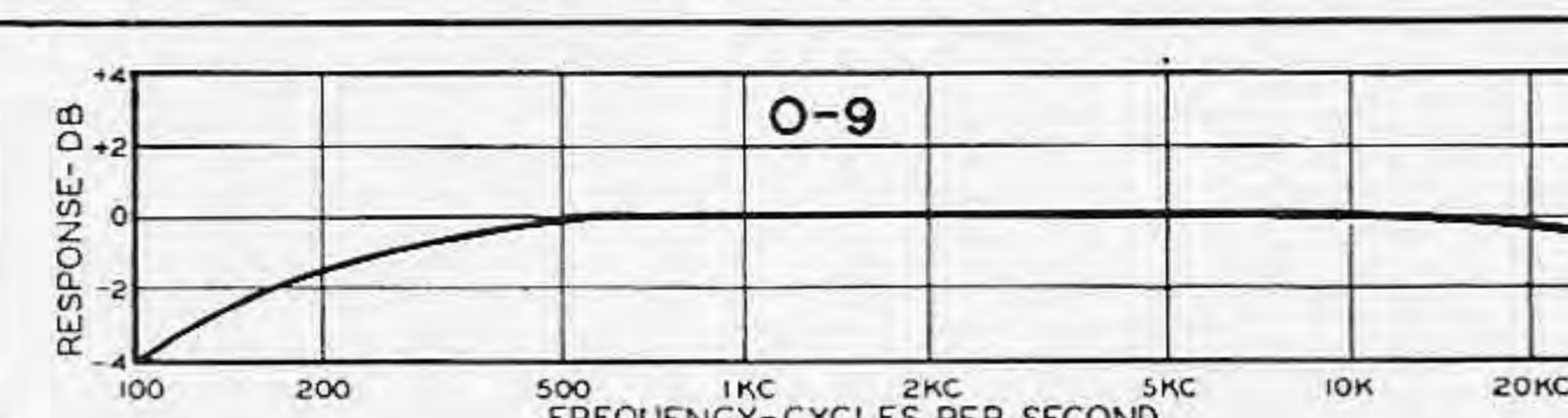
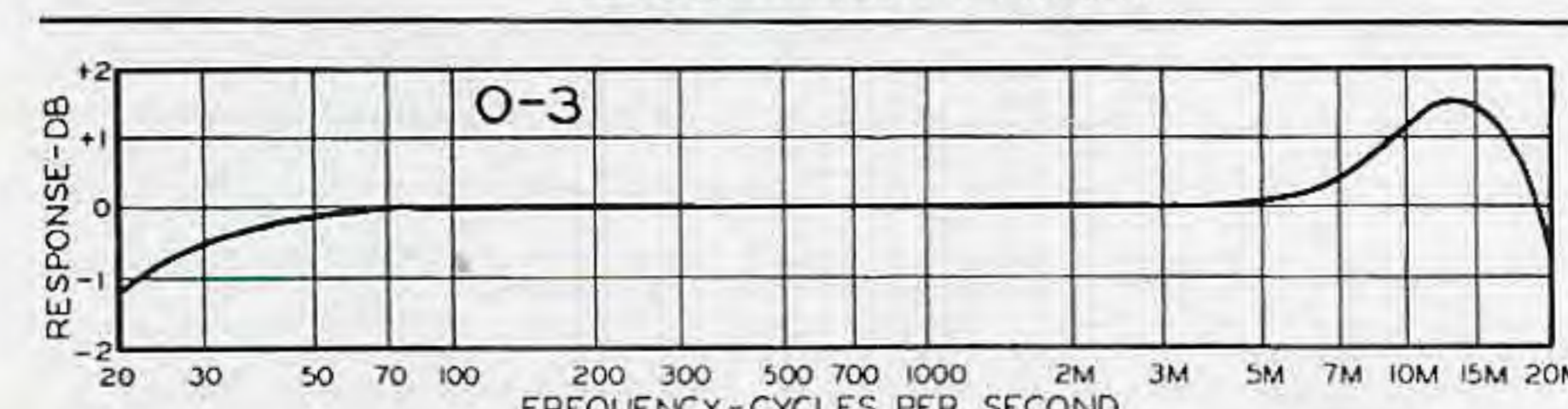
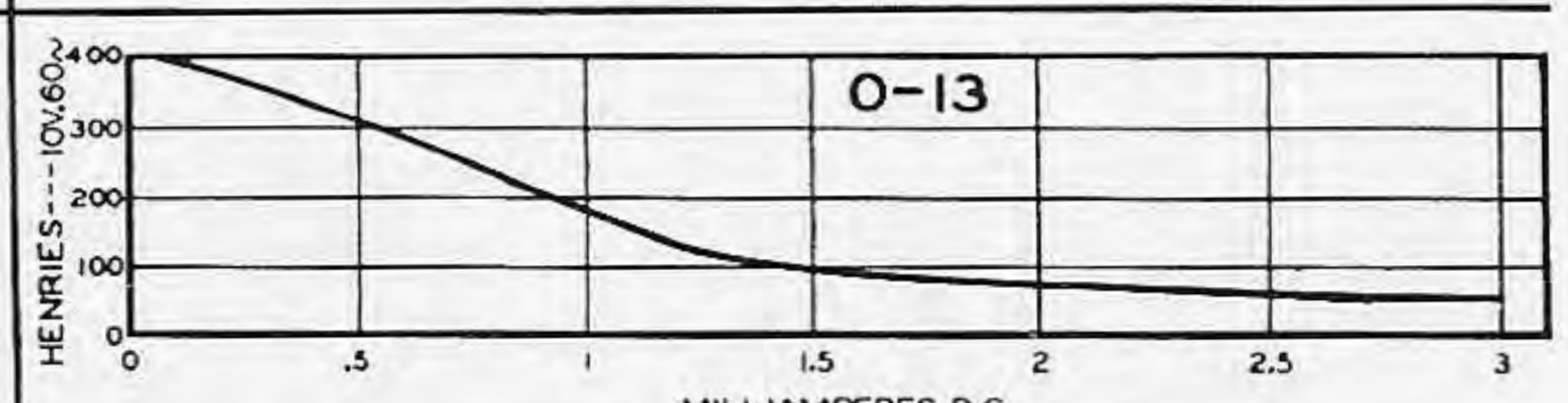
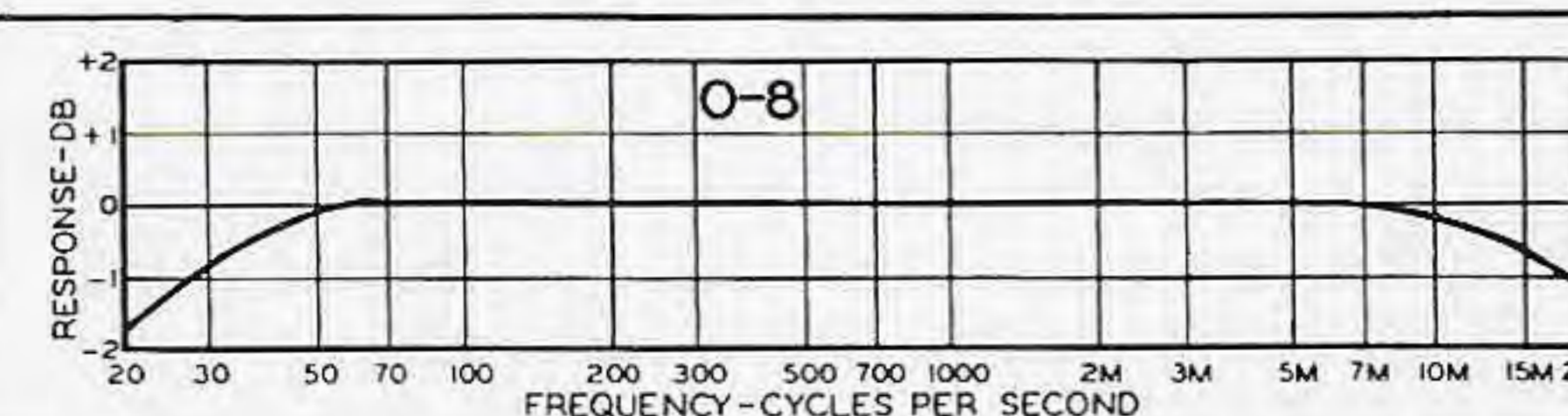
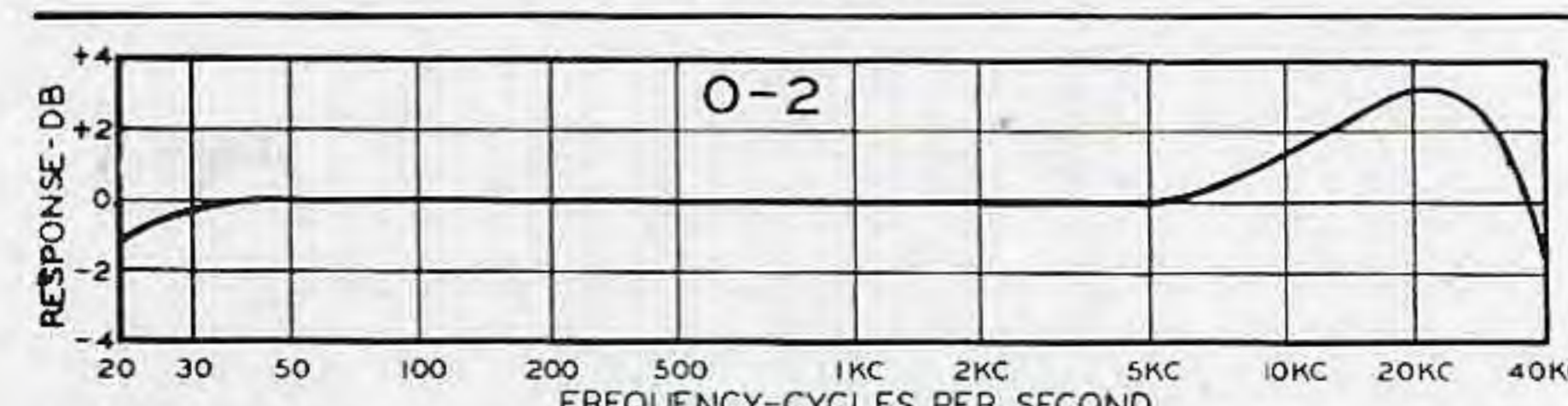
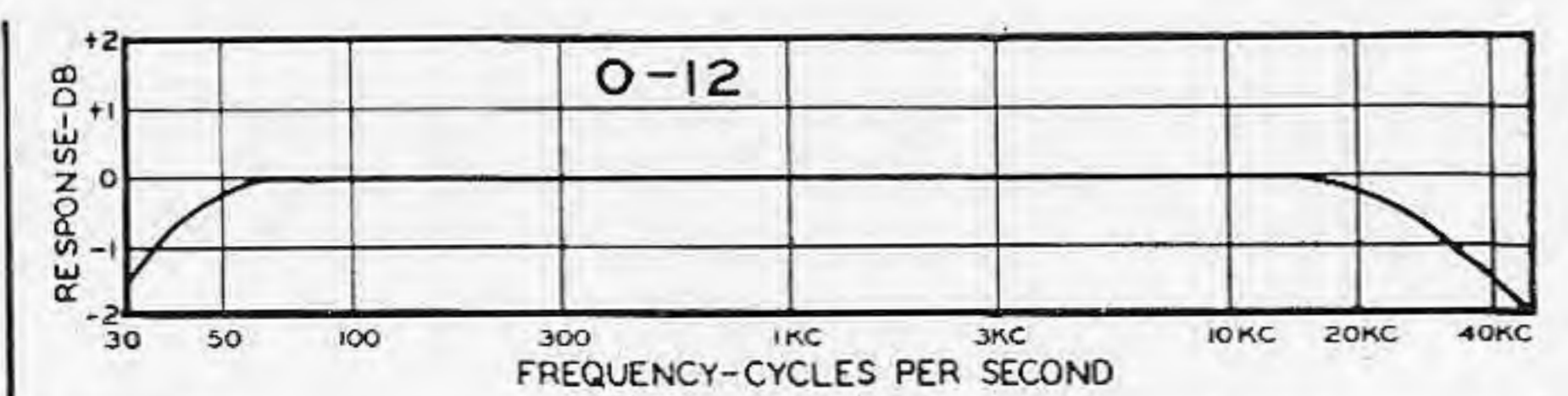
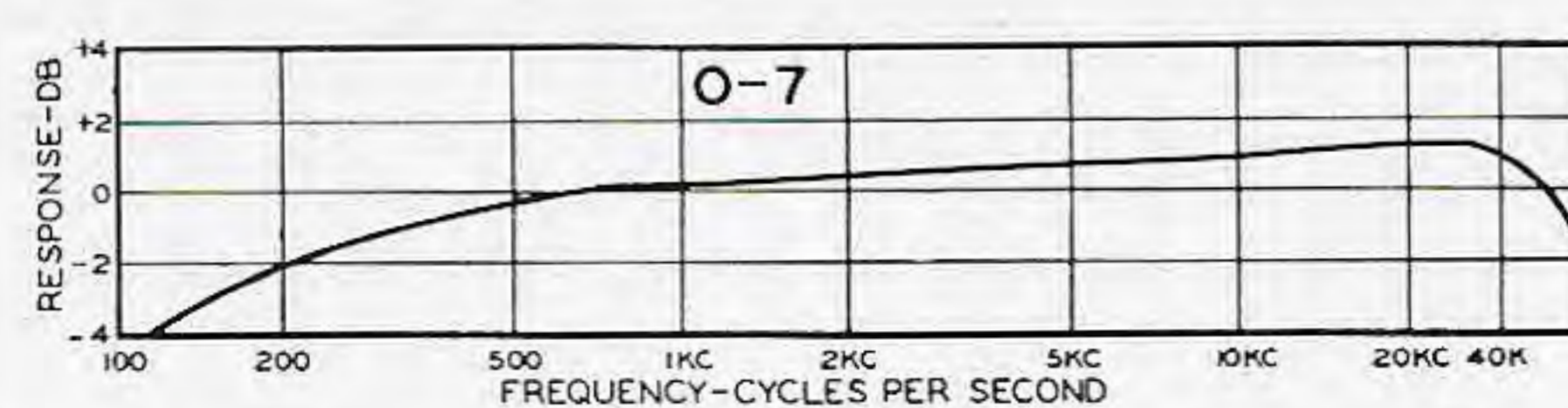
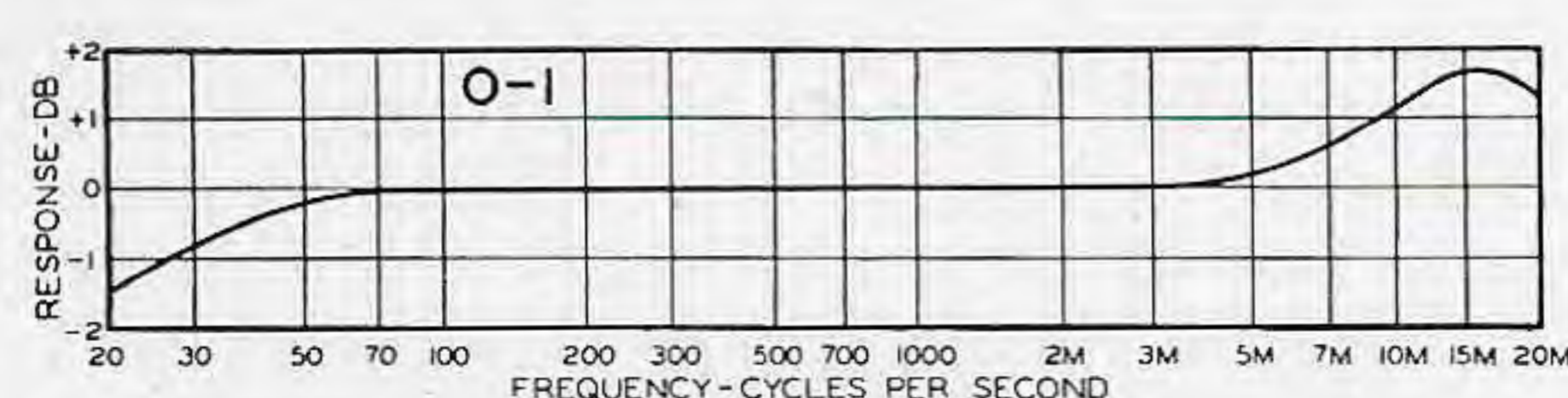
Dia. $\frac{7}{8}$ "
Ht. $1\frac{3}{16}$ "
Mtg. $1\frac{1}{16}$ "
Scr. 2-56
Wt. 1 oz.



**PLUG-IN
CASE**

Dia. $1\frac{3}{32}$ "
Ht. $1\frac{5}{32}$ "
Skt. St. Oct.
Wt. 2 oz.

OUNCER Type No.	Application	Pri. Imp.	Sec. Imp.	PLUG-IN Type No.
O-1	Mike, pickup or line to 1 grid	50, 200/250, 500/600	50,000	P-1
O-2	Mike, pickup or line to 2 grids	50, 200/250, 500/600	50,000	P-2
O-3	Dynamic mike to 1 grid	7.5/30	50,000	P-3
O-4	Single plate to 1 grid	15,000	60,000	P-4
O-5	Single plate to 1 grid, D.C. in Pri.	15,000	60,000	P-5
O-6	Single plate to 2 grids	15,000	95,000	P-6
O-7	Single plate to 2 grids, D.C. in Pri.	15,000	95,000	P-7
O-8	Single plate to line	15,000	50, 200/250, 500/600	P-8
O-9	Single plate to line, D.C. in Pri.	15,000	50, 200/250, 500/600	P-9
O-10	Push pull plates to line	30,000 ohms plate to plate	50, 200/250, 500/600	P-10
O-11	Crystal mike or pick-up to line	50,000	50, 200/250, 500/600	P-11
O-12	Mixing and matching	50, 200/250	50, 200/250, 500/600	P-12
O-13	Reactor, 300 Hys.—no D.C.; 50 Hys.—3 MA. D.C., 6000 ohms			P-13
O-14	50:1 mike or line to 1 grid	200	$\frac{1}{2}$ megohm	P-14
O-15	10:1 single plate to 1 grid	15,000	1 megohm	P-15



WIDE RANGE HIGH-QUALITY AMPLIFIERS

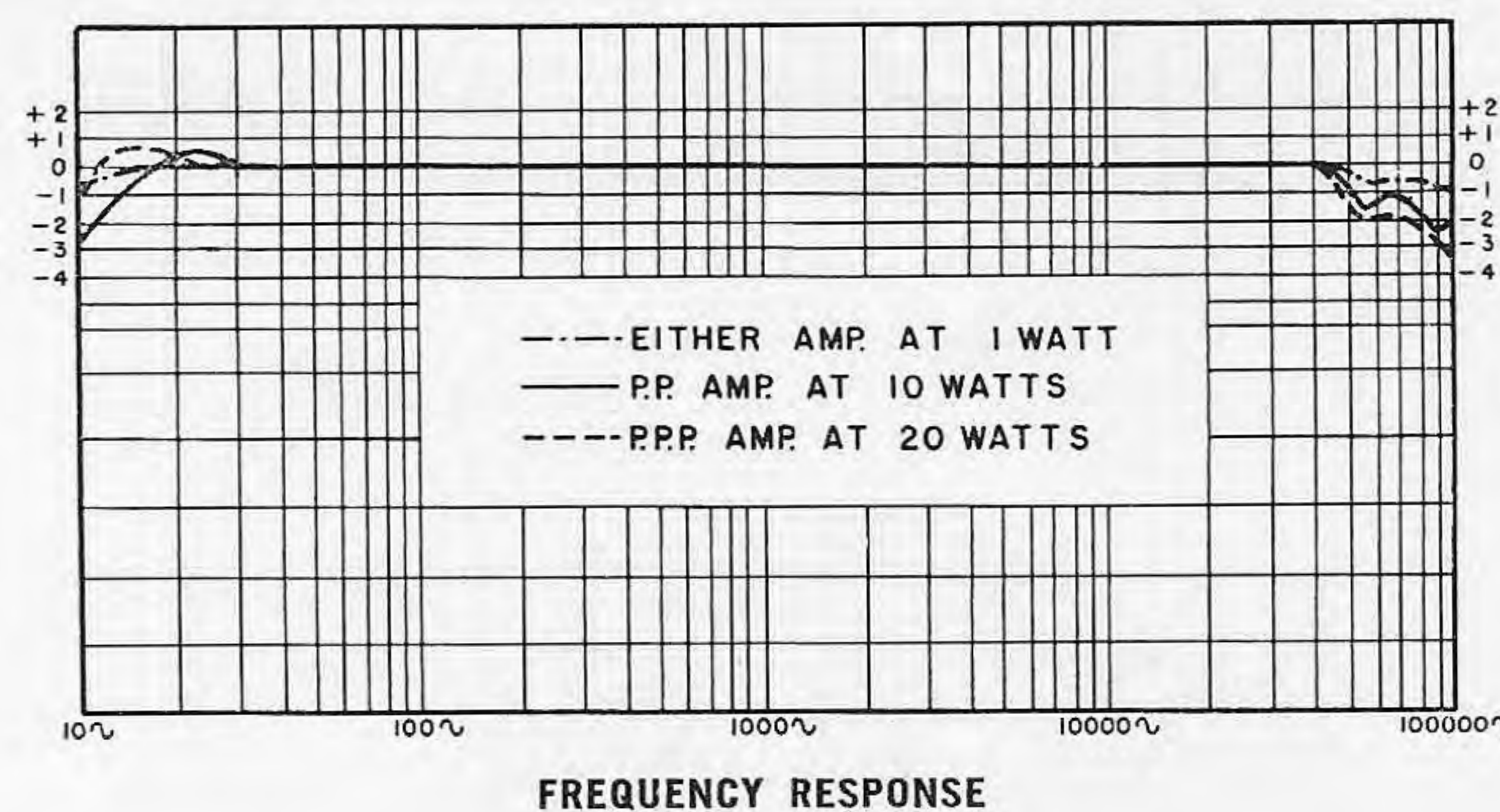
The two power amplifiers shown below have been developed in our laboratories to provide the critical listener with the utmost fidelity in music reproduction. Through the use of the highest quality components and the application of proven feedback techniques, two amplifiers of outstanding characteristics have been obtained. The amplifiers are essentially identical in circuitry, construction and performance, the principal difference being merely that of power output.

The table at the right gives performance specifications applicable to both amplifiers as indicated. From these figures it may be readily seen that because of their linearity and wide range, these amplifiers are ideal for laboratory applications outside the audio frequency range as well.

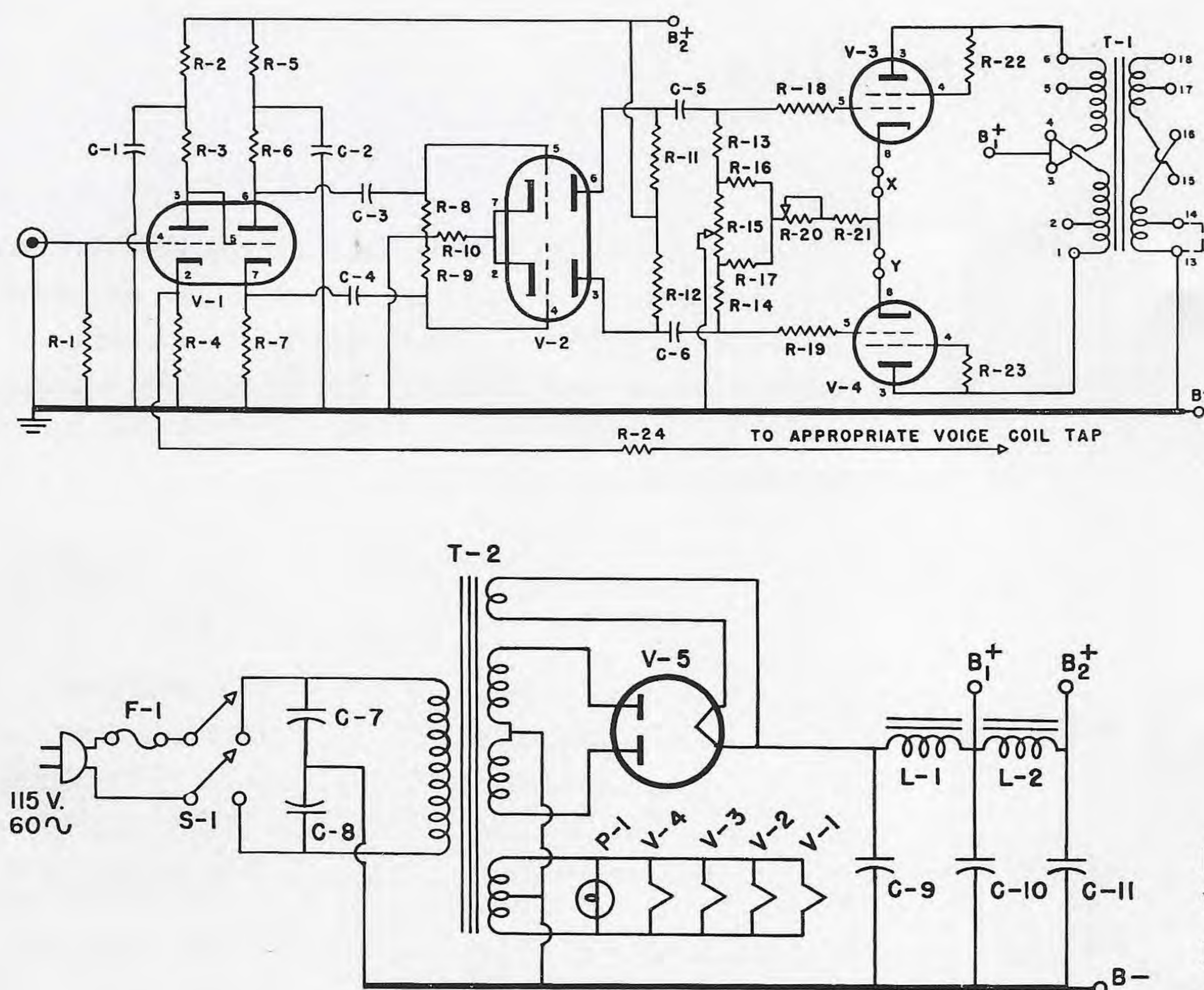
To assist the constructor in assembling these amplifiers, UTC has made each available in kit form. See page B for further details.

SPECIFICATIONS

	PUSH-PULL	PUSH-PULL PARALLEL
DISTORTION	8 W — 0.1% 10 W — 0.3% 12 W — 1.0%	16 W — 0.1% 20 W — 0.4% 24 W — 0.8%
DAMPING FACTOR	25	25
HUM	—75 db	—75 db
SENSITIVITY	1.1 volt gives 8 watts	1.2 volt gives 16 watts



UTC W-10 10-WATT WILLIAMSON AMPLIFIER



PARTS LIST

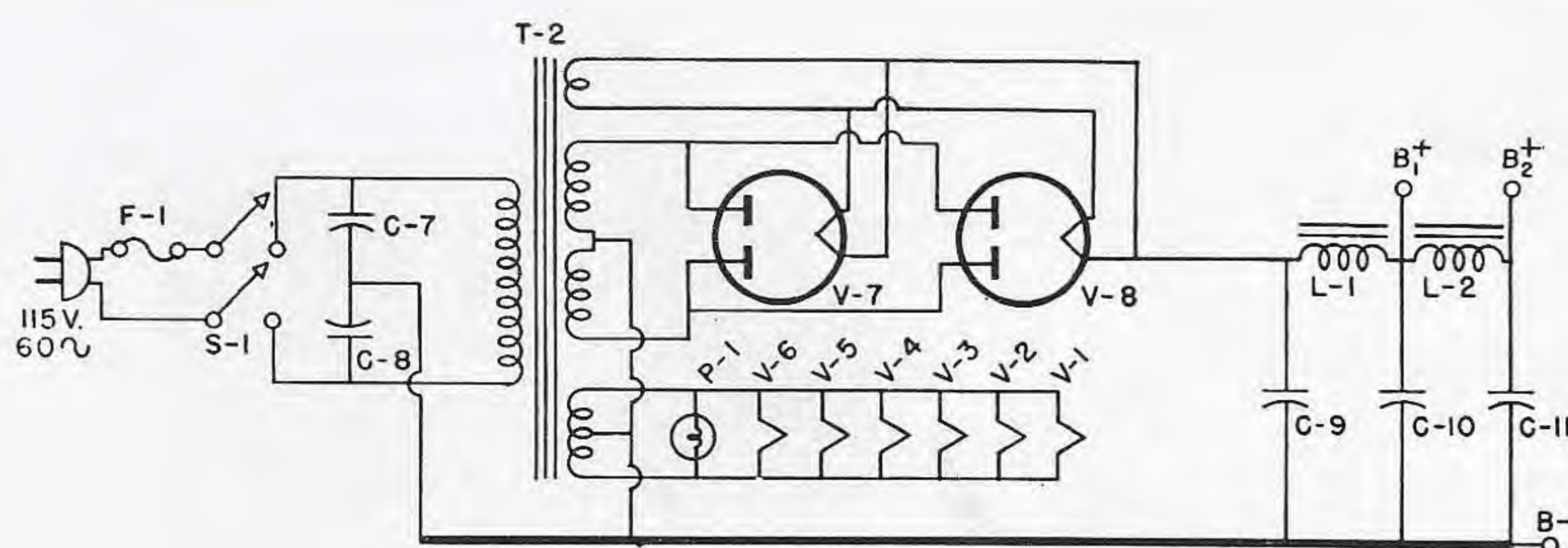
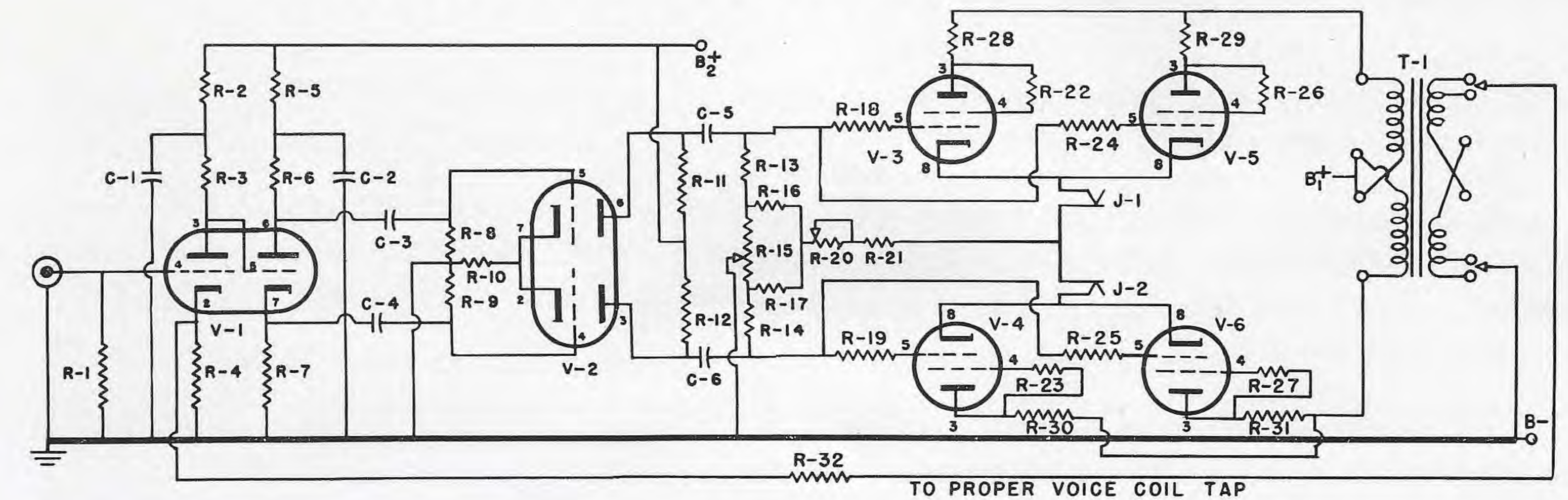
T-1	LS-63
T-2	LS-74 or R-113
L-1	CG-100
L-2	CG-48C
V-1, 2	6X4
V-3, 4	1614
V-5	5U4G
C-1, 2, 9, 10, 11	8 Mfd.-600 V.-elect.
C-3, 4	.05 Mfd.-400 V.-paper
C-5, 6	.25 Mfd.-600 V.-paper
C-7, 8	.1 Mfd.-400 V.-paper
R-1, 8, 9	470 K
R-2	33 K, 1 W
R-3	47 K, 1 W
R-4	470 ohms
R-5	22 K, 1 W
R-6, 7	22 K, 1 W, matched
R-10	390 ohms
R-11, 12	47 K, 2 W, matched
R-13, 14	100 K
R-15, 20	100 ohms, 2 W, wirewound pot.
R-16, 17, 22, 23	100 ohms, 1 W
R-18, 19	1 K
R-21	150 ohms, 5 W
R-24	*1200 $\sqrt{\text{Voice Coil Z}}$
F-1	3 Amp. Fuse
P-1	6.3 V. Pilot Light
S-1	DPST

* 1200 times square root of voice coil impedance.

All resistors 10%, 1/2 watt except where noted otherwise.

Insert a 0-100 Ma. meter at X and one at Y. Adjust R-20 until sum of readings is 110 Ma. Adjust R-15 so that each meter reads 55 Ma.

UTC W-20 20 WATT WILLIAMSON AMPLIFIER

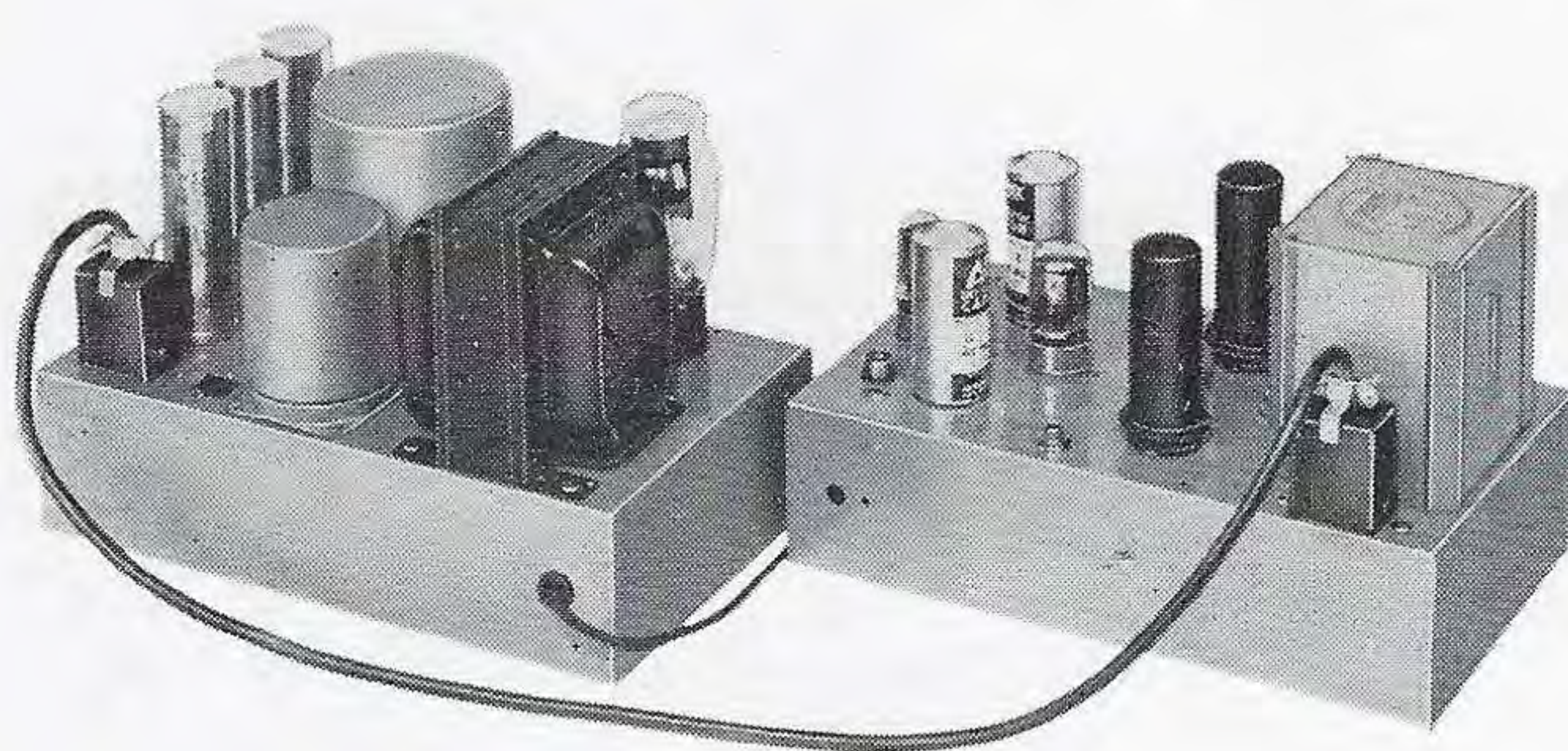


PARTS LIST			
T-1	LS-60A	R-11, 12	47 K, 2 W, matched
T-2	LS-74	R-13, 14	100 K
L-1	CG-102	R-15, 20	50 ohms, 4 W,
L-2	CG-48C		wirewound Pot.
V-1, 2	7N7	R-16, 17	50 ohms, 5 W
V-3, 4, 5, 6	1614	R-18, 19, 24, 25	1 K
V-7, 8	5U4	R-21	100 ohms, 10 W
C-1, 2, 9, 10, 11	8 Mfd.-600 V.-elect.	R-22, 23, 26, 27	100 ohms, 1 W
C-3, 4	.05 Mfd.-600 V.-paper	R-28, 29, 30, 31	47 ohms, 1 W
C-5, 6	.25 Mfd.-600 V.-paper	R-32	*1700 $\sqrt{\text{Voice Coil Z}}$
C-7, 8	1 Mfd.-400 V.-paper	F-1	5-Amp. Fuse
R-1, 8, 9	470 K	S-1	DPST
R-2	33 K, 1 W	P-1	6.3 V. Pilot Light
R-3	47 K, 1 W	J-1, 2	Closed circuit jacks,
R-4	470 ohms		insulated from chassis.
R-5	22 K, 1 W		
R-6, 7	22 K, 1 W, matched		
R-10	390 ohms		
		* 1700 times square root of voice coil impedance.	
All resistors 10%, 1/2 watt except where noted otherwise.			

All resistors 10%, 1/2 watt except where noted otherwise.

Insert a 0-150 Ma. meter in J-1 and one in J-2. Adjust R-20 until sum of readings is 200 Ma. Adjust R-15 so that each meter reads 100 Ma.

UTC AMPLIFIER KITS



W-10



W-20

The two deluxe amplifiers described above are available in basic kit form. The kits consist of the parts listed below. Other components such as tubes, resistors, etc. are **not** supplied, but may be readily secured from your local distributor. The chassis come completely punched and finished in baked grey enamel. A comprehensive instruction manual is included with each kit.

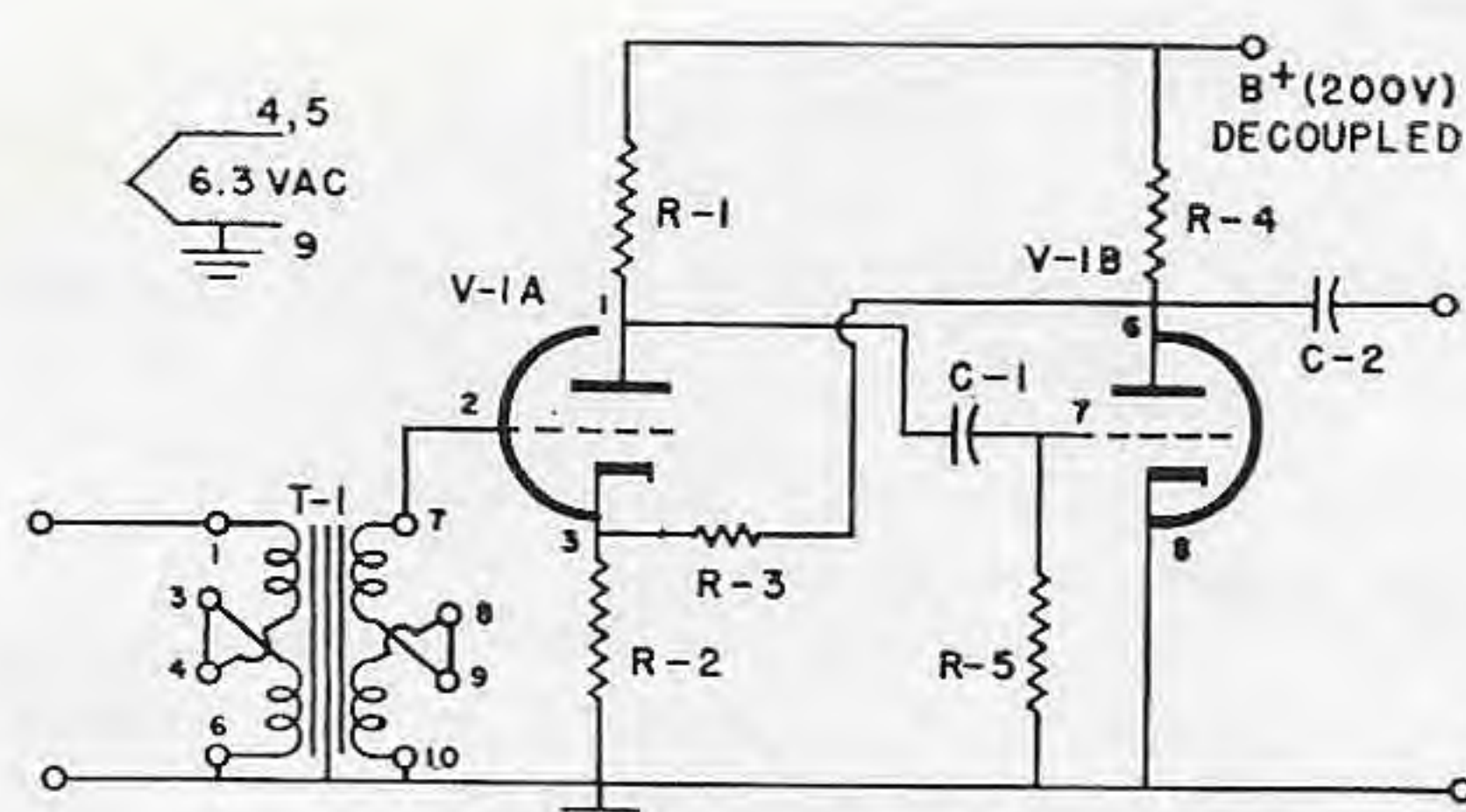
W-10

- 1.....LS-63 Output Transformer
- 1.....CG-100 Choke
- 1.....CG-48C Choke
- 1.....R-113 Power Transformer
- 1.....W-10A Amplifier Chassis, 7" x 12" x 3" high
- 1.....W-10P Power Supply Chassis, 7" x 12" x 3" high
- 1.....W-10 Instruction Manual

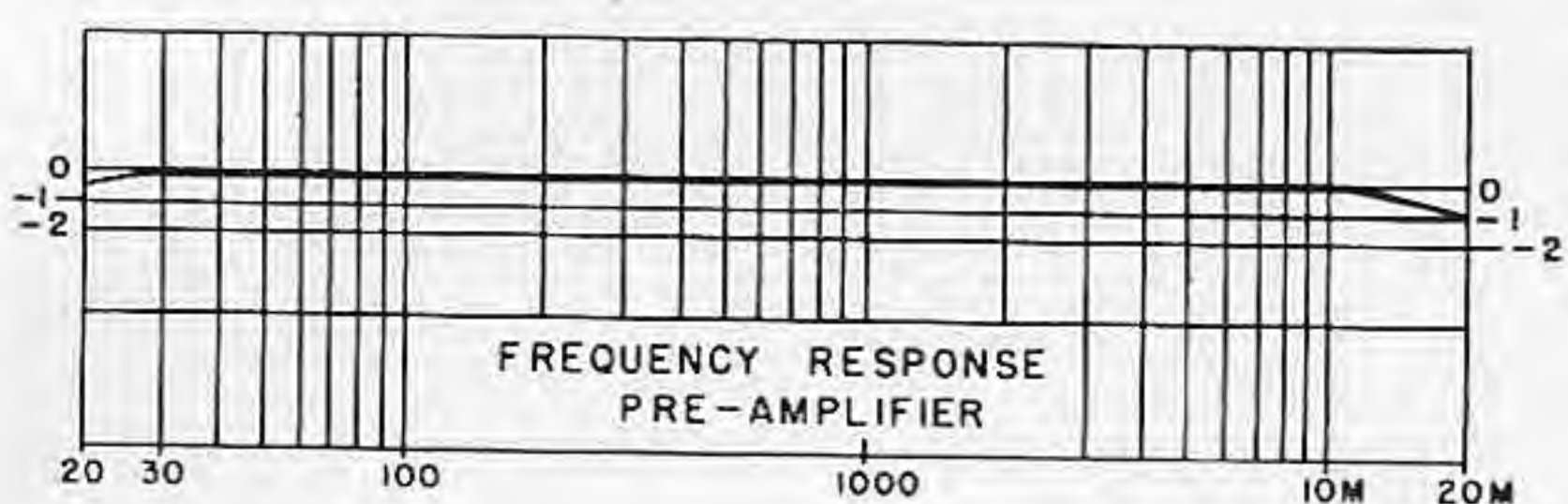
W-20

- 1.....LS-60A Output Transformer
- 1.....LS-74 Power Transformer
- 1.....CG-102 Choke
- 1.....CG-48C Choke
- 1.....W-20A Amplifier Chassis, 8 1/2" x 15" x 3" high
- 1.....W-20P Power Supply Chassis, 8" x 12" x 3" high
- 1.....W-20 Instruction Manual

AUXILIARY HIGH FIDELITY EQUIPMENT



PRE-AMPLIFIER

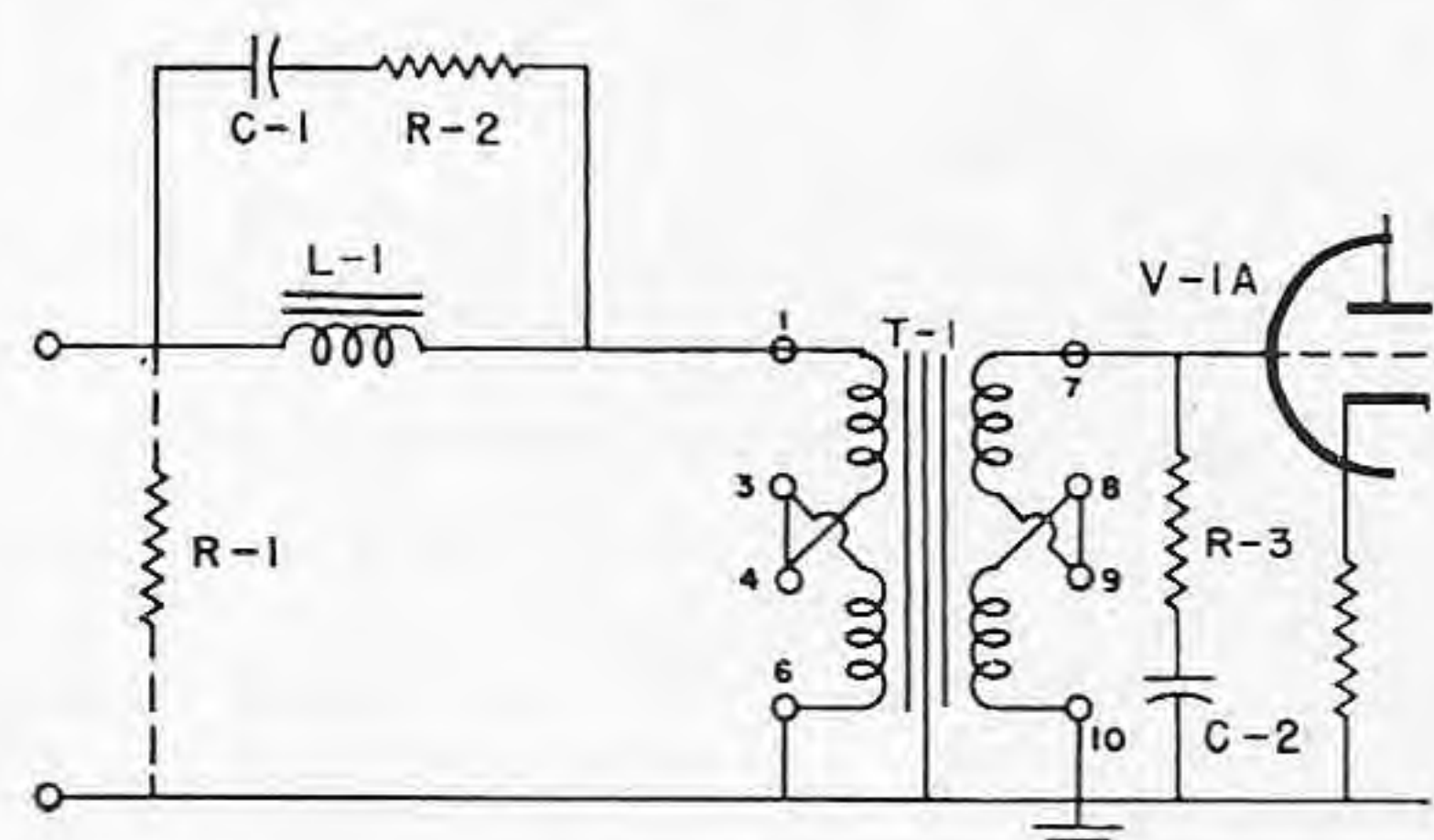


The pre-amplifier shown is suitable for low-level amplification where high gain (approx. 60 db.), low distortion, and low noise are required. The use of degenerative current and voltage feedback minimizes distortion and provides excellent frequency characteristics. (See graph above). The type 12A7 tube is especially designed for low hum, noise, and microphonics. The components have been selected to permit construction in ultra-compact form. (Note use of A-10 transformer and minimum number of condensers.) Where ambient magnetic fields are high, UTC type A-11 may be used to insure additional shielding.

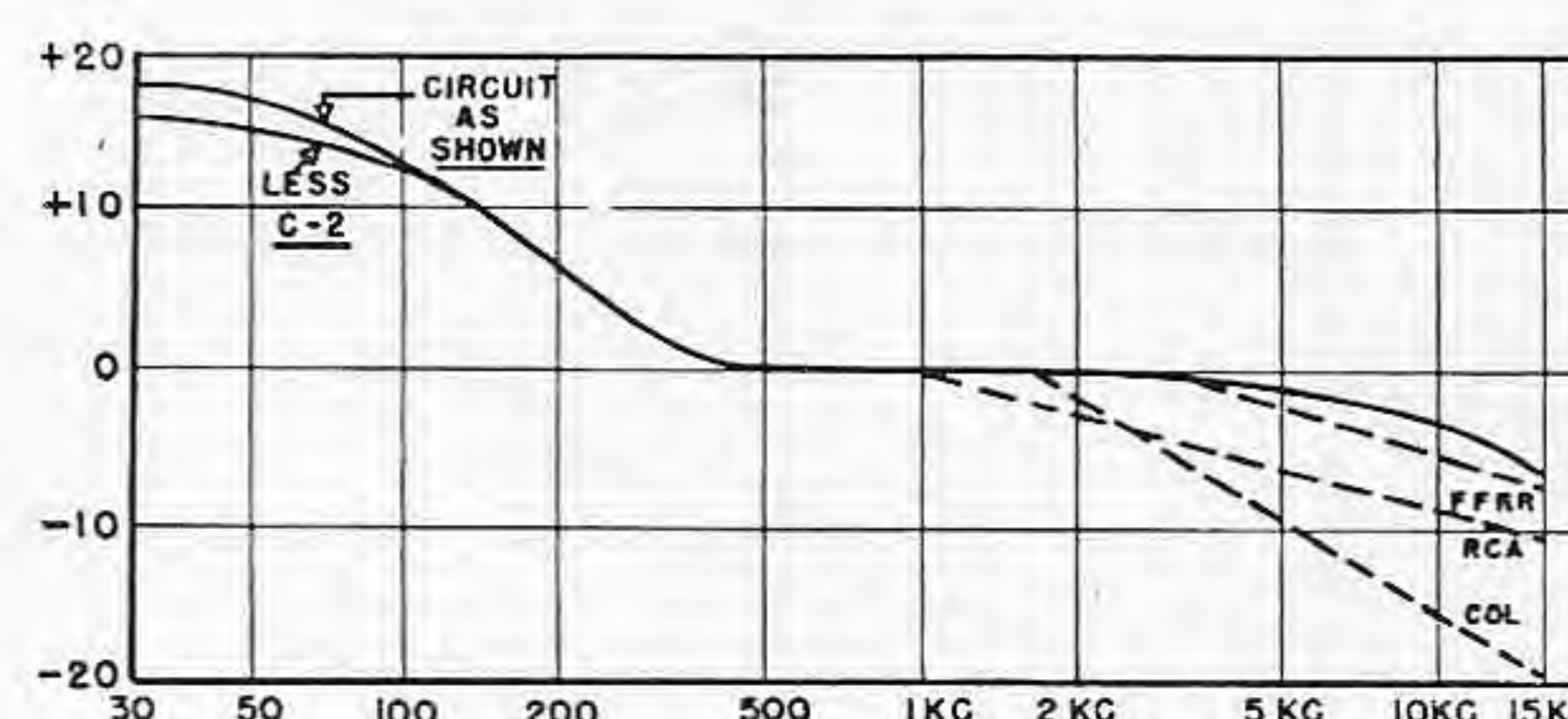
PARTS LIST

T-1	A-10 (A-11)
R-1	50 K, 1 W
R-2	680 ohms
R-3	68 K
R-4	30 K, 1 W
R-5	10 Meg.
C-1	.02 Mfd.-400 V.-paper
C-2	.05 Mfd.-400 V.-paper

All resistors 10%, 1/2 watt except where noted otherwise.



VARIABLE RELUCTANCE EQUALIZER



turnover is shown below. Increased roll-off may be obtained through use of resistor R-1. Cartridge manufacturers' recommendations should be considered if this resistor is used.

PARTS LIST

L-1	HQA-15
T-1	A-10 (A-11)
R-1	See Text
R-3	150 K
C-2	.04 Mfd.-150 V.-paper

Values for R-2 and C-1		
Turnover Freq.	R-2	C-1
450 c.p.s. (Shown)	15 K	.03 Mfd.
350	12 K	.04 Mfd.
550	18 K	.02 Mfd.

All resistors 10%, 1/2 watt except where noted otherwise.

The basic circuit at the left may be incorporated into an excellent equalizer for the variable reluctance type pickup. The HQA-15 is compact and has low hum pickup. The inductor-capacitor network provides a characteristic much closer to that desired than do simple RC circuits. The characteristic for a 450 cycle

CONTINUOUSLY VARIABLE EQUALIZER

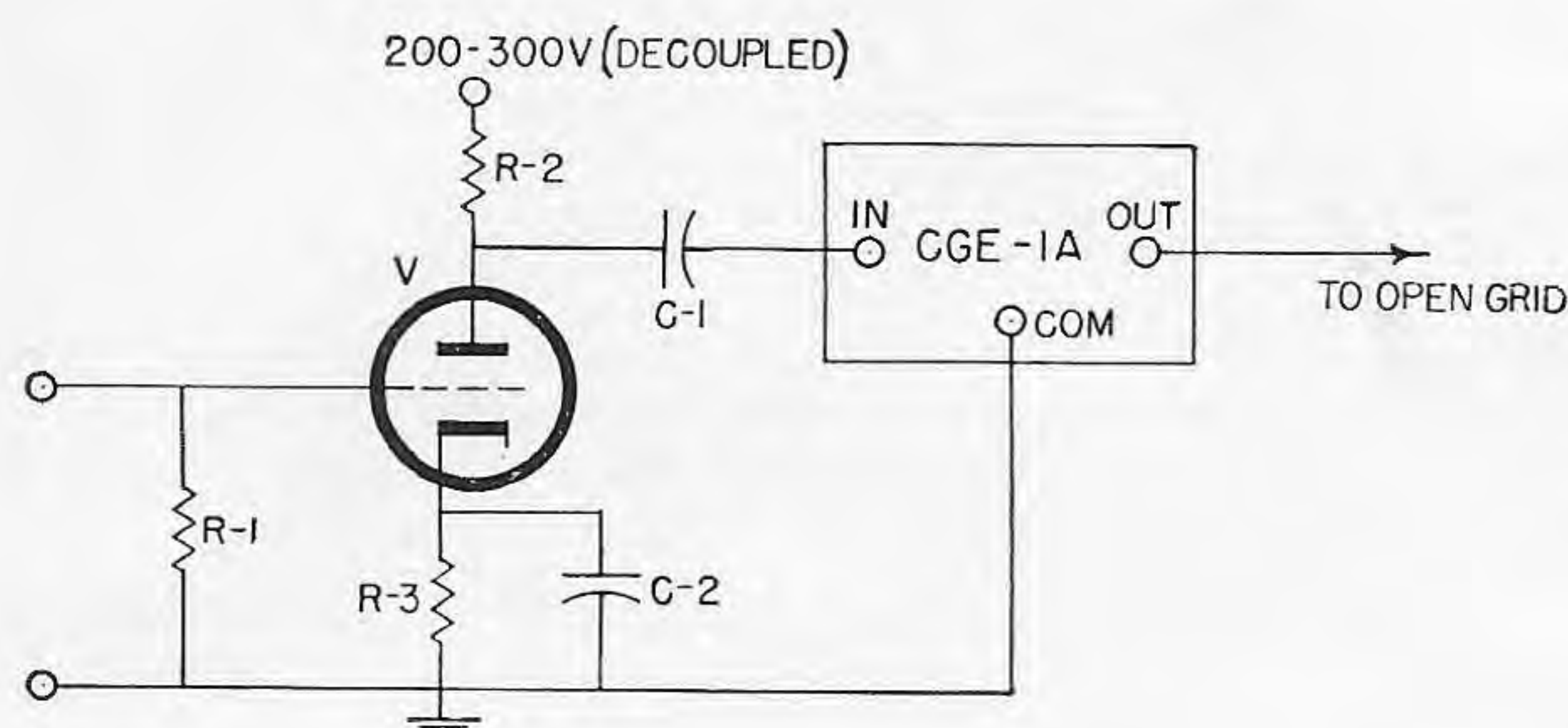
Parts List

R-1	1 Meg, 1/2 W.
R-2	22K, 1 W.
R-3	1K, 1/2 W.
C-1	0.1 Mfd.—400 V.-paper
C-2	50 Mfd.—10 V.-elect.

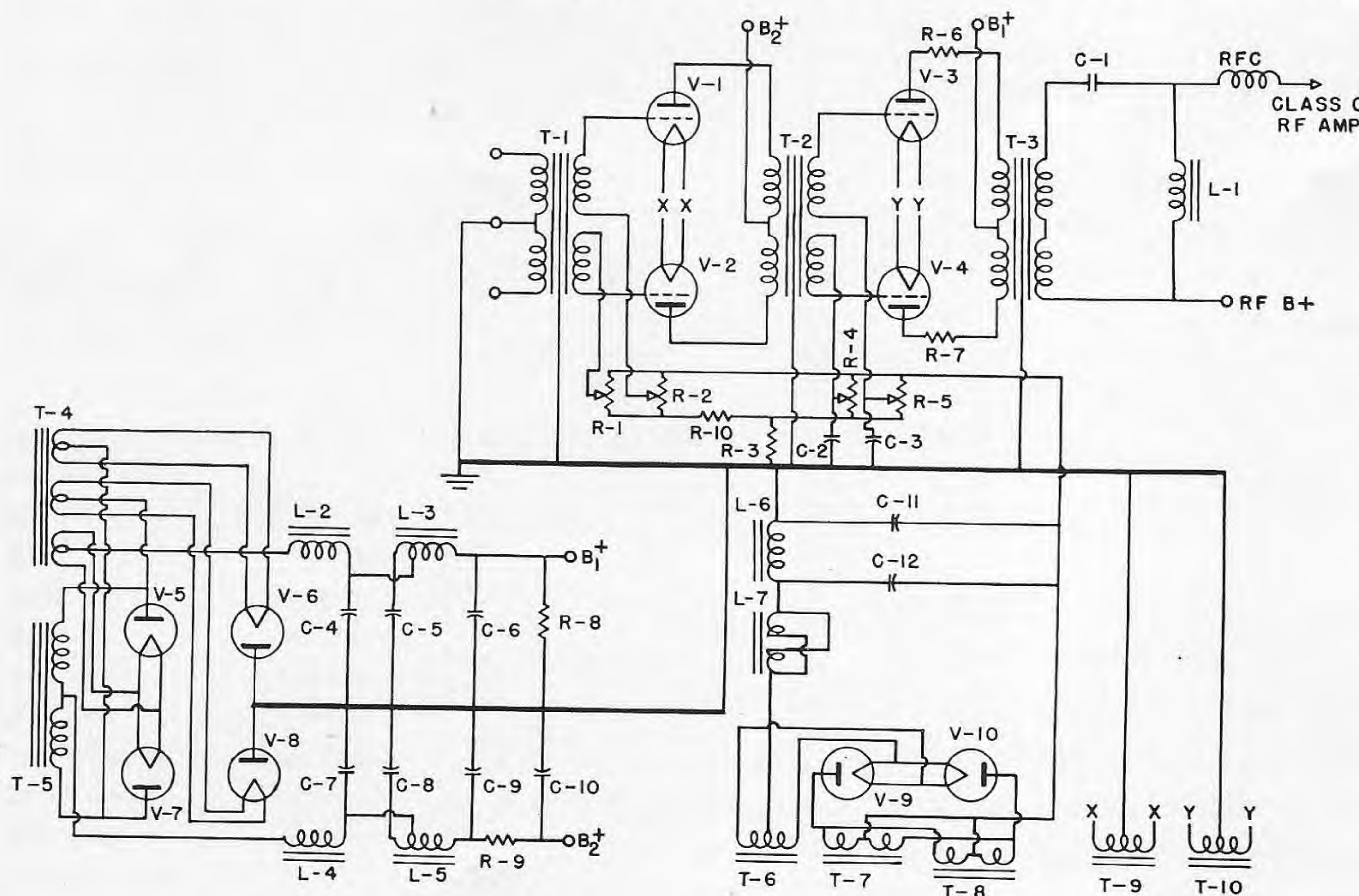
V is 6J5, 6C5, 6C4, 1/2 6SN7, 1/2 12AU7, etc.

In addition to the equalization required as correction for deliberately introduced response variations (e.g., recording characteristics, etc.), it is desirable to control the relative response at the ends of the spectrum to compensate for individual tastes or deficiencies in components such as pick-ups and loudspeakers.

The UTC CGE-1A equalizer provides continuously variable equalization up to 15 DB in either direction at both the low end and the high end. (See page 17.) The simple circuit to the left will provide both the extra amplification (18 DB) and proper source impedance for optimum operation of the equalizer. Since a D.C. path is provided through the equalizer, no grid-leak is required for the succeeding stage.



I KW BROADCAST MODULATOR



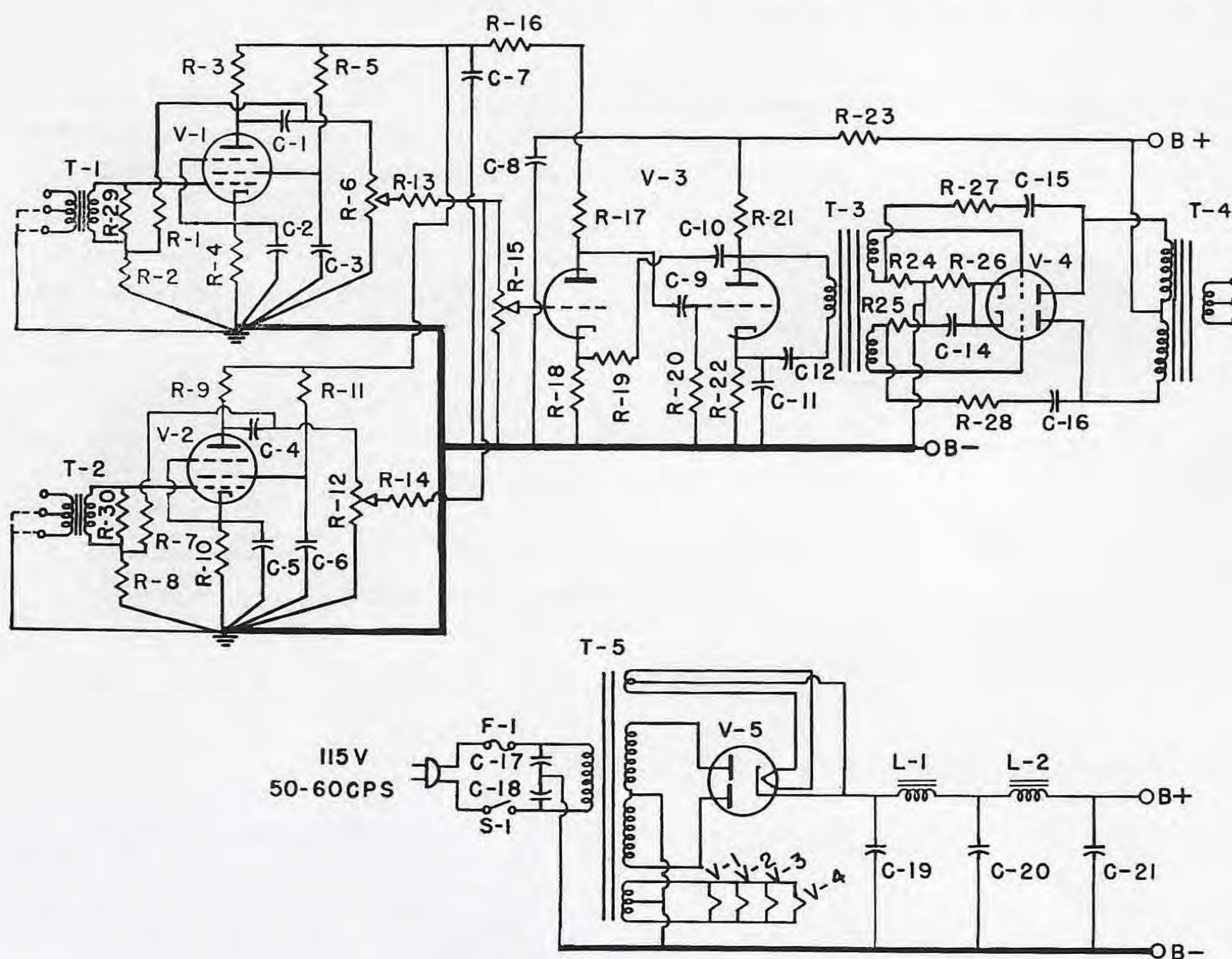
PARTS LIST

T-1	LS-18
T-2	LS-48
T-3	LS-691
T-4	LS-121Y
T-5	LS-185
T-6	LS-80
T-7, 8	CG-316
T-9	LS-84
T-10	CG-125
L-1	LS-104A
L-2	LS-105
L-3, 6, 7	LS-96
L-4	LS-92
L-5	LS-93
V-1, 2	845
V-3, 4	849
V-5, 6, 7, 8	872
V-9, 10	866
C-1	4 Mfd.
C-2, 3, 11, 12	20 Mfd.
C-5, 8	1 Mfd.
C-4, 6, 7, 9, 10	2 Mfd.
R-1	250 ohms, 5 W
R-3	275 ohms, 200 W
R-4, 5	125 ohms, 25 W
R-6, 7	50 ohms, 10 W
R-8	50 K, 200 W
R-9	1500 ohms, 100 W
R-10	500 ohms, 10 W

The circuit above shows a 1000 watt modulator suitable for high-fidelity broadcast service. The use of a duplex plate supply permits the use of a Class A driver stage with resulting low distortion. Although a common bias supply is used, provision is made for adjusting the bias of each tube independently. The input transformer matches the 845 grids to a high level 500 or 600 ohm line.

REMOTE BROADCAST AMPLIFIER

PARTS LIST



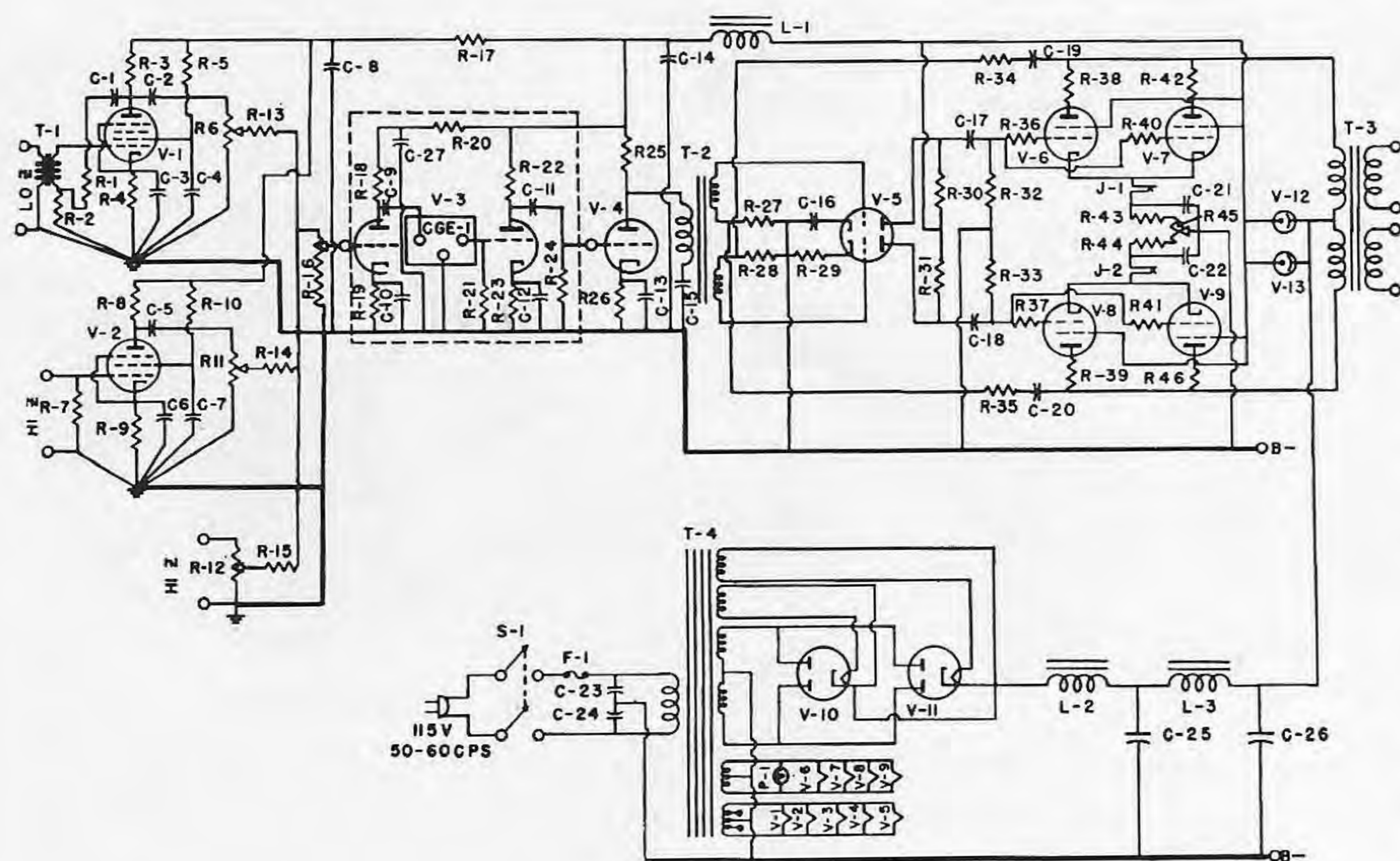
T-1, 2	HA-100X
T-3	HA-106
T-4	HA-114
T-5	HP-122
L-1, 2 (series connection)	HC-117
V-1, 2	1620
V-3, 4	12AY7
V-5	6X4
C-1, 4	.1 Mfd.-400 V.-paper
C-2, 5, 11, 14	50 Mfd.-25 V.-elect.
C-3, 6	1 Mfd.-200 V.-metallized
C-7, 8, 20, 21	20 Mfd.-350 V.-elect.
C-9, 15, 16, 17, 18	.05 Mfd.-400 V.-paper
C-10, 12	.5 Mfd.-400 V.-metallized
R-1, 5, 7, 11	1.5 Meg.
R-2, 8	10 K
R-3, 9	270 K
R-4, 10	1800 ohms
R-6, 12	500 K Pot.
R-13, 14	470 K
R-15	3 Meg. Pot.
R-16	20 K
R-17, 21	47 K, 1 W
R-18, 22	820 ohms
R-19	120 K
R-20	1 Meg.
R-23	5.6 K, 1 W
R-24, 25	18 K
R-26	390 ohms, 1 W
R-27, 28	82 K
R-29, 30	68 K

All resistors 10%, 1/2 watt except where noted otherwise.

The amplifier shown is excellent for remote broadcast service. The use of Hiperm Alloy transformers permits the realization of excellent fidelity and small size in one design. Flat frequency response and low distortion are achieved through the use of feedback networks in each stage, while the two-stage LC filter and the employment of low-noise type tubes keep the noise and hum output at a very low value. The push-pull output stage will deliver a signal of 18 dbm level to the 600 ohm output with very low distortion. The voltage gain from either input is approximately 85 db.

PUBLIC ADDRESS AMPLIFIER

PARTS LIST



T-1	CG-235	C-1	.005 Mfd.-400 V.-paper
T-2	CG-136	C-2, 5, 11, 23, 24	.05 Mfd.-400 V.-paper
T-3	CG-4L6	C-3, 6, 10, 12, 13, 16	50 Mfd. 25 V.-elect.
T-4	CG-428	C-4, 7	.5 Mfd.-200 V.-metallized
L-1	CG-45	C-8, 14, 25, 26, 27	20 Mfd.-450 V.-elect.
L-2, 3	CG-102	C-9, 15	.5 Mfd.-400 V.-metallized
V-1, 2	6J7	C-17, 18, 19, 20	1 Mfd.-400 V.-paper
V-3, 5	6SN7	C-21, 22	50 Mfd.-150 V.-elec*
V-4	6C5		
V-6, 7, 8, 9	6L6		
V-10, 11	5V4G		
V-12, 13	OB2 (VR-105)		
R-1, 5, 10	1.5 Meg.	R-24	1 Meg.
R-2	10 K	R-29	1200 ohms, 1 W
R-3, 8	270 K	R-30, 31	100 K, 1 W
R-4	2 K	R-32, 33	220 K
R-9, 23, 26	1800 ohms	R-34, 35	470 K
R-6, 11, 12	500 K Pot.	R-36, 37, 40, 41	10 K
R-7	2.7 Meg.	R-38, 39, 42, 46	47 ohms, 1 W
R-13, 14, 15	470 K	R-43, 44	200 ohms, 10 W
R-16	3 Meg. Pot.	R-45	100 ohms, 4 W wirewound pot.
R-17	47 K, 1 W	S-1	DPST Switch
R-18	22 K, 1 W	F-1	5 Amp. Fuse
R-19	2700 ohms	P-1	6.3 V. Pilot light
R-20	10 K, 1 W	J-1, 2	Short-circuit jacks, insulated from chassis.
R-21, 27, 28	10 K		
R-22, 25	56 K, 2 W		

High power, low distortion, good frequency response and flexibility are features of the public address amplifier depicted here. Three inputs provide a variety of gains and impedances, with level adjustments easily maintained through the use of simple mixing circuits and a master volume control. Complete bass and treble equalization may be effected through the use of the CGE-1 Equalizer. A power supply of excellent regulation, both for plates and screens, and the use of 6L6's in Class AB-1 with negative feedback enable a power output of 50 watts to be achieved with low distortion. Provision is made for balancing of the output stages.

All resistors 10%, 1/2 watt except where noted otherwise.

SUBOUNCER UNITS

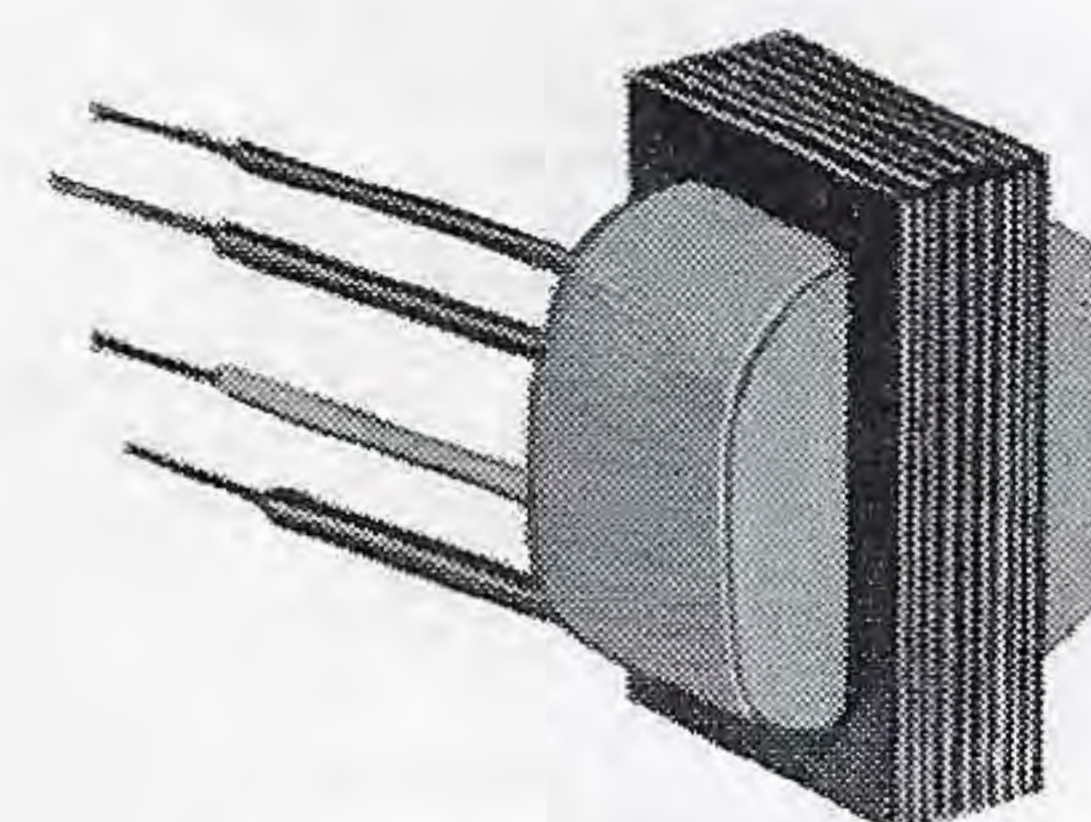
FOR HEARING AIDS...VEST POCKET RADIOS...MIDGET DEVICES

UTC Sub-Ouncer units fulfill an essential requirement for miniaturized components having relatively high efficiency and wide frequency response. Through the use of special nickel iron core materials and winding methods, these miniature units have performance and dependability characteristics far superior to any other comparable items. They are ideal for hearing aids, miniature radios, and other types of miniature electronic equipment.

The coils employ automatic layer windings of double Formex wire . . . in a molded Nylon bobbin. All insulation is of cellulose acetate. Four inch color coded flexible leads are employed, securely anchored mechanically. No mounting facilities are provided, since this would preclude maximum flexibility in location. Units are vacuum impregnated and double (water proof) sealed. The curves below indicate the excellent frequency response available. Alternate curves are shown to indicate operating characteristics in various typical applications.

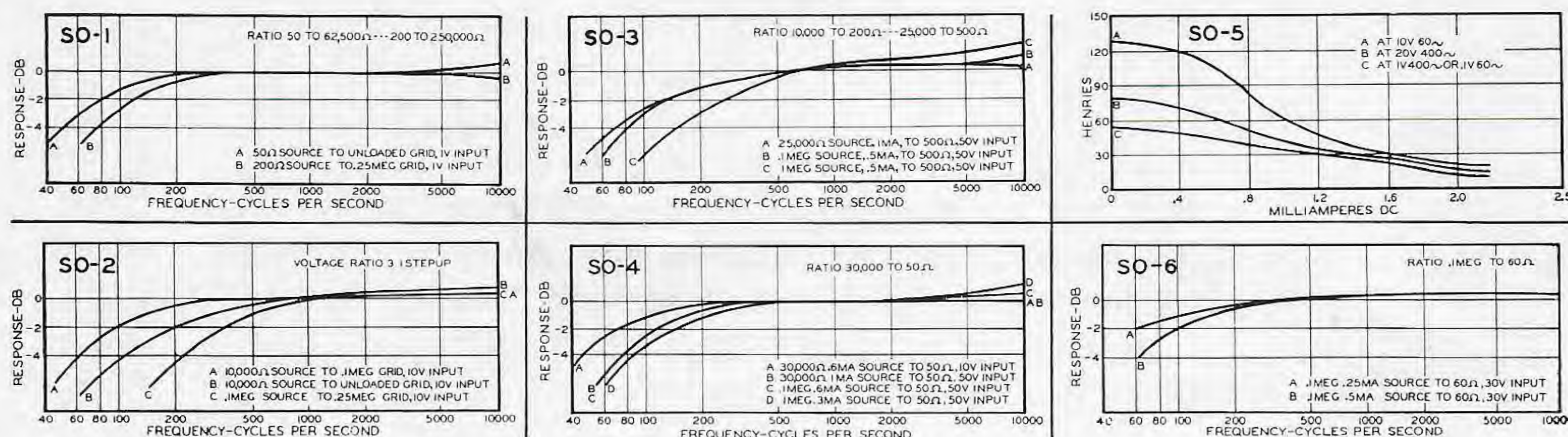
Type	Application	Level	Pri. Imp.	D.C. in Pri.	Sec. Imp.	Pri. Res.	Sec. Res.
*S0-1	Input	+ 4 V.U.	200 50	0	250,000 62,500	16	2650
S0-2	Interstage/3:1	+ 4 V.U.	10,000	0	90,000	225	1850
*S0-3	Plate to Line	+ 20 V.U.	10,000 25,000	3 mil. 1.5 mil.	200 500	1300	30
S0-4	Output	+ 20 V.U.	30,000	1.0 mil.	50	1800	4.3
S0-5	Reactor 50 HY at 1 mil. D.C. 3000 ohms D.C. Res.						
S0-6	Output	+ 20 V.U.	100,000	.5 mil.	60	3250	3.8

*Impedance ratio is fixed, 1250:1 for S0-1, 1:50 for S0-3. Any impedance between the values shown may be employed.



SUBOUNCER UNIT

Dimensions $\frac{1}{16}$ " x $\frac{5}{8}$ " x $\frac{7}{8}$ "
Weight03 lb.



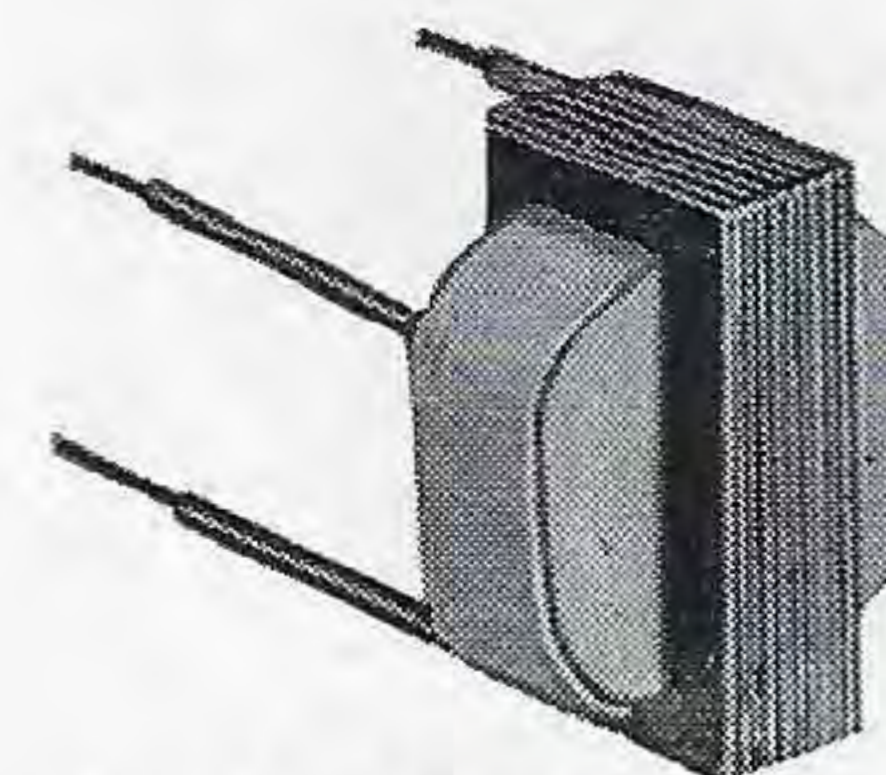
SUB-SUBOUNCER UNITS

FOR HEARING AIDS AND ULTRA-MINIATURE EQUIPMENT

UTC Sub-SubOuncer units have exceptionally high efficiency and frequency range in their ultra-miniature size. This has been effected through the use of specially selected Hiperm-Alloy core material and special winding methods. The constructional details are identical to those of the Sub-Ouncer units described above. The curves below show actual characteristics under typical conditions of application.

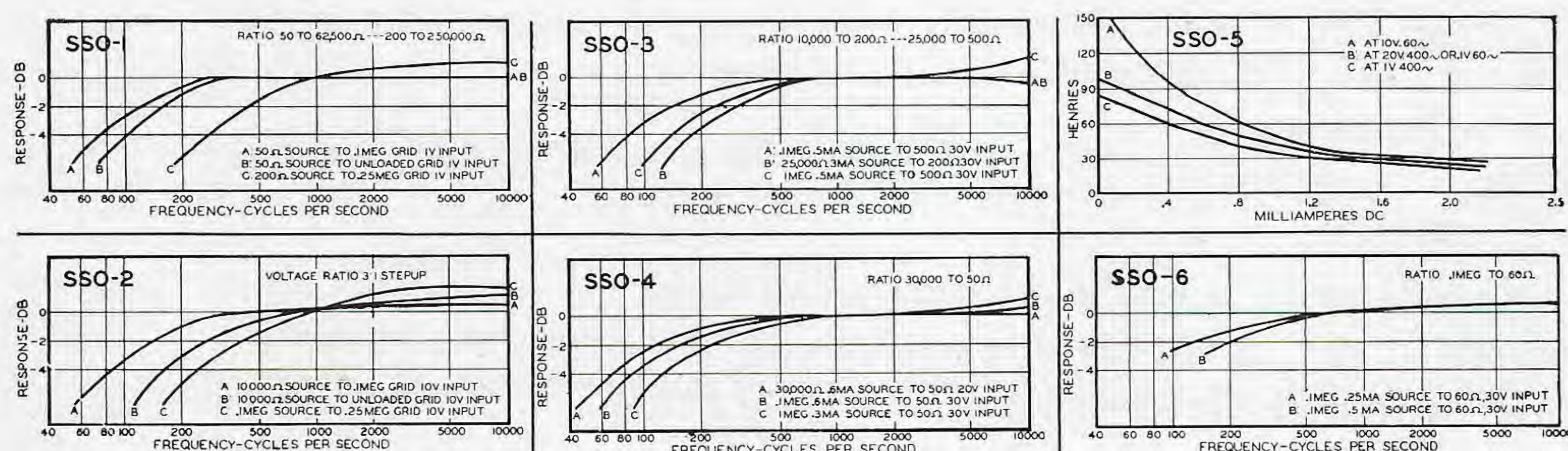
Type	Application	Level	Pri. Imp.	D.C. in Pri.	Sec. Imp.	Pri. Res.	Sec. Res.
*SS0-1	Input	+ 4 V.U.	200 50	0	250,000 62,500	13.5	3700
SS0-2	Interstage/3:1	+ 4 V.U.	10,000	0	90,000	750	3250
*SS0-3	Plate to Line	+ 20 V.U.	10,000 25,000	3 mil. 1.5 mil.	200 500	2600	35
SS0-4	Output	+ 20 V.U.	30,000	1.0 mil.	50	2875	4.6
SS0-5	Reactor 50 HY at 1 mil. D.C. 4400 ohms D.C. Res.						
SS0-6	Output	+ 20 V.U.	100,000	.5 mil.	60	4700	3.3

*Impedance ratio is fixed, 1250:1 for SS0-1, 1:50 for SS0-3. Any impedance between the values shown may be employed.



SUB-SUBOUNCER UNIT

Dimensions $\frac{1}{16}$ " x $\frac{3}{4}$ " x $\frac{5}{8}$ "
Weight02 lb.



UTC HIGH Q TOROID INDUCTORS



HQA, HQC, HQD CASE

Diameter	1 13/16"
Height	1 13/16"
Mounting	1 1/8"
Screws	6-32
Cutout	5/16" x 1 13/16"
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	5/16" x 1 1/8"
Unit Weight	14 oz.

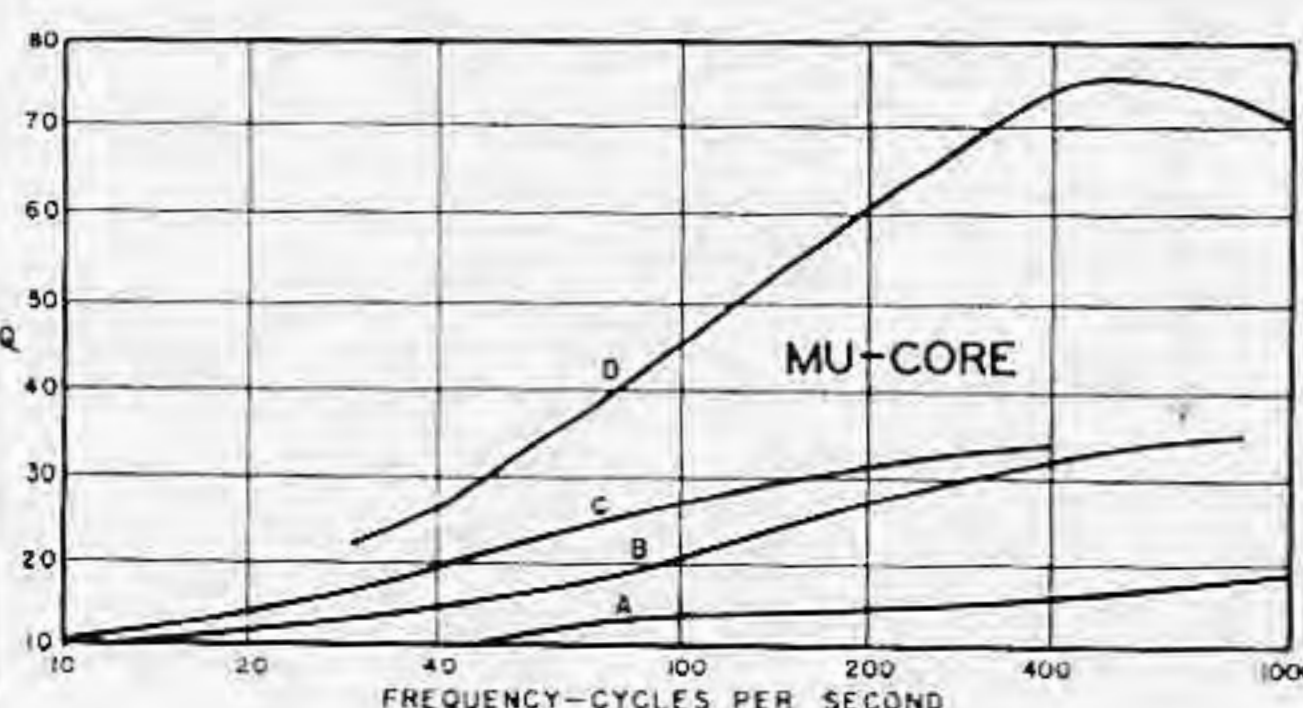
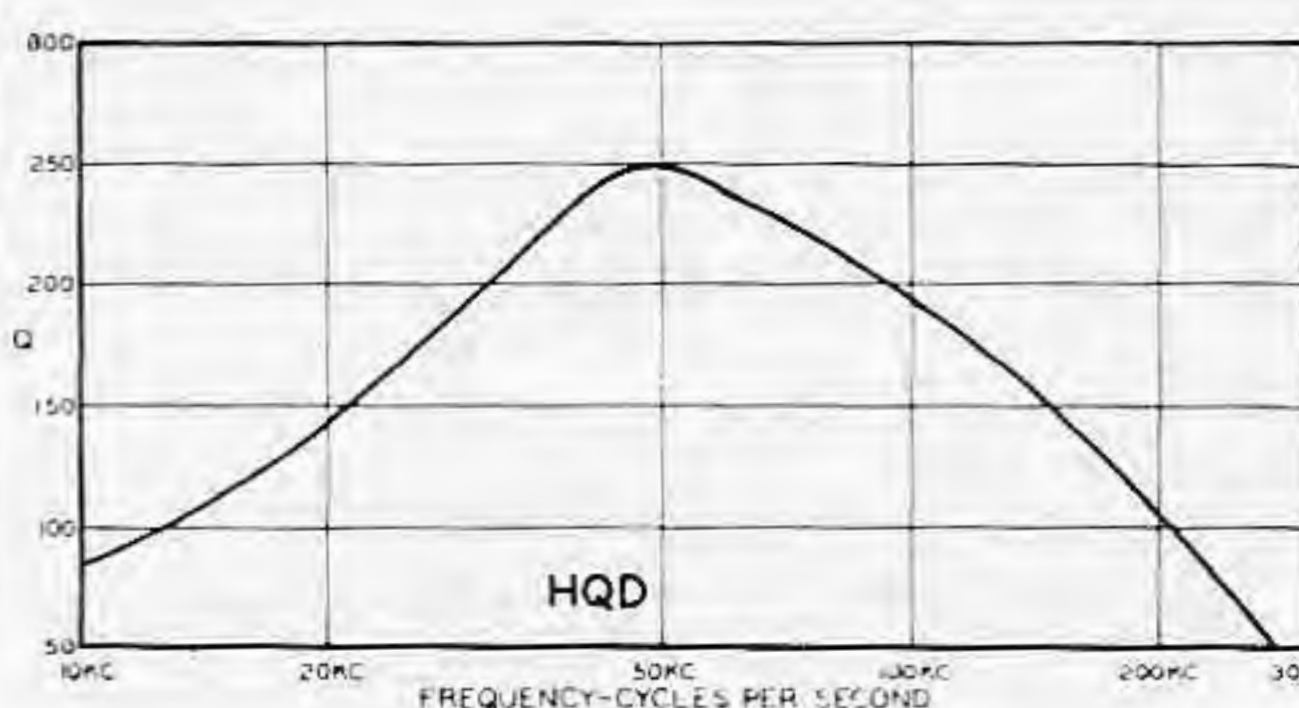
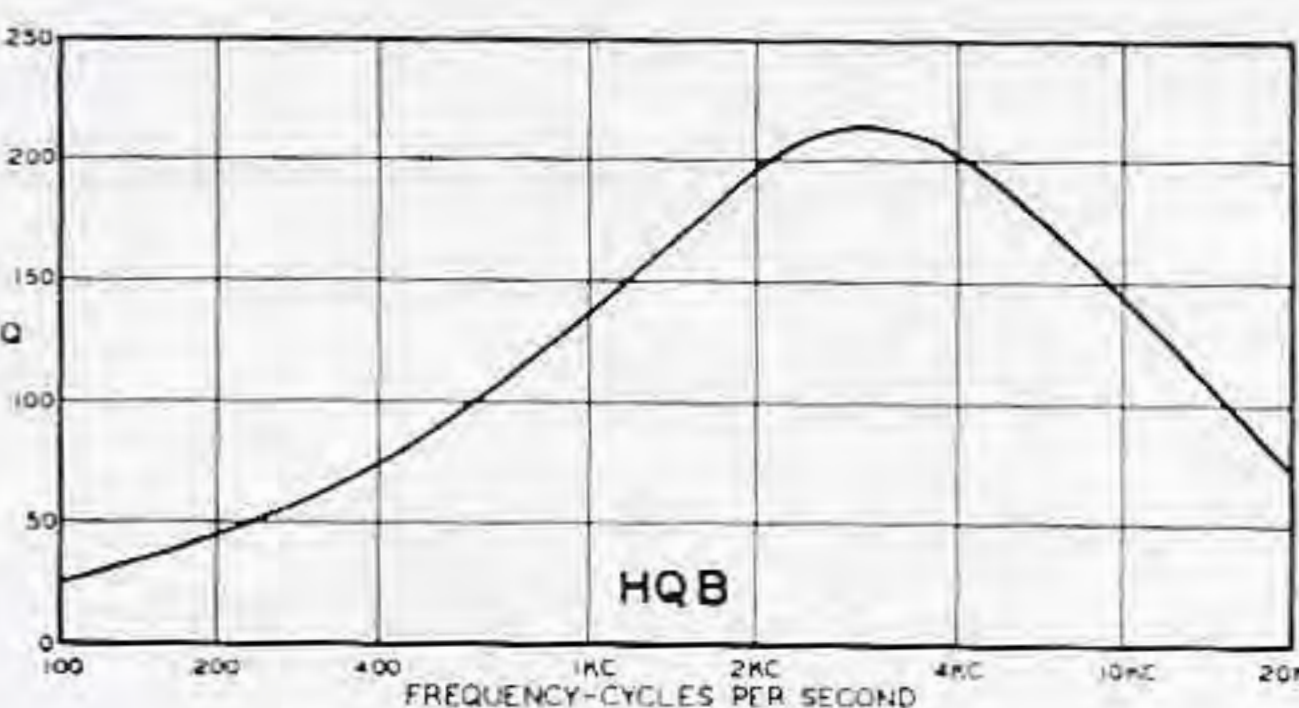
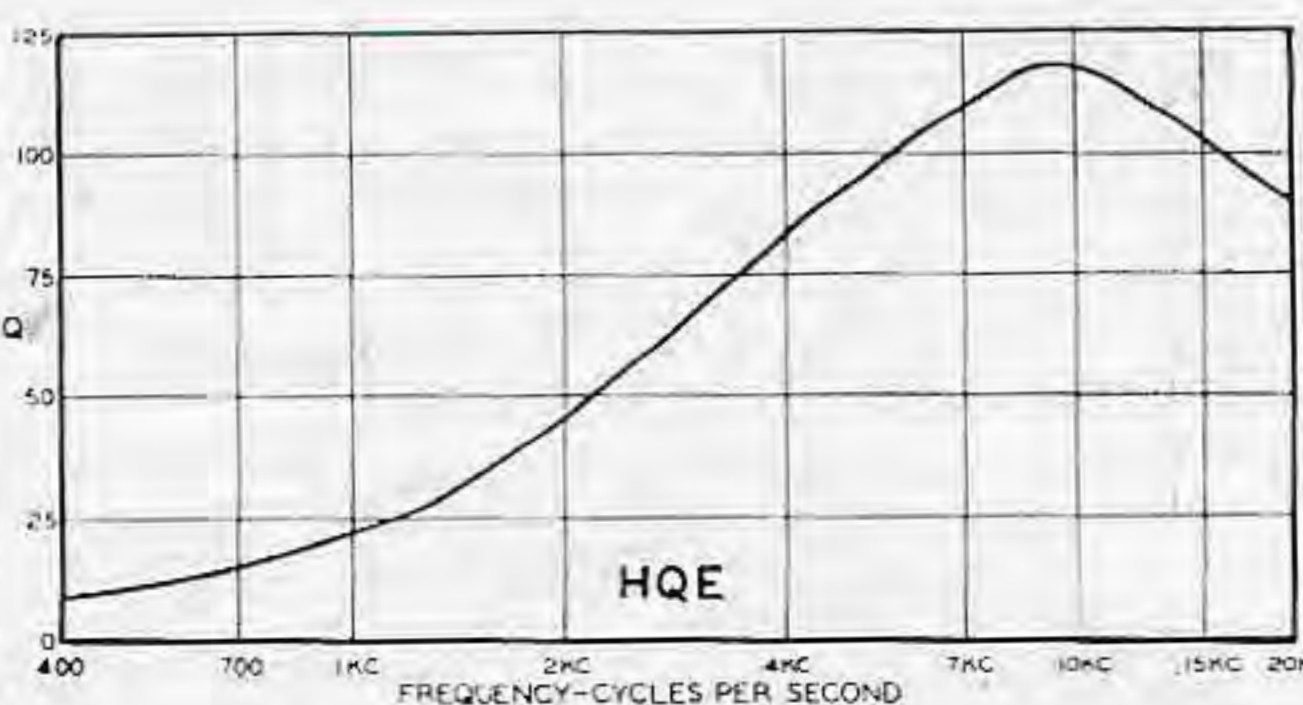
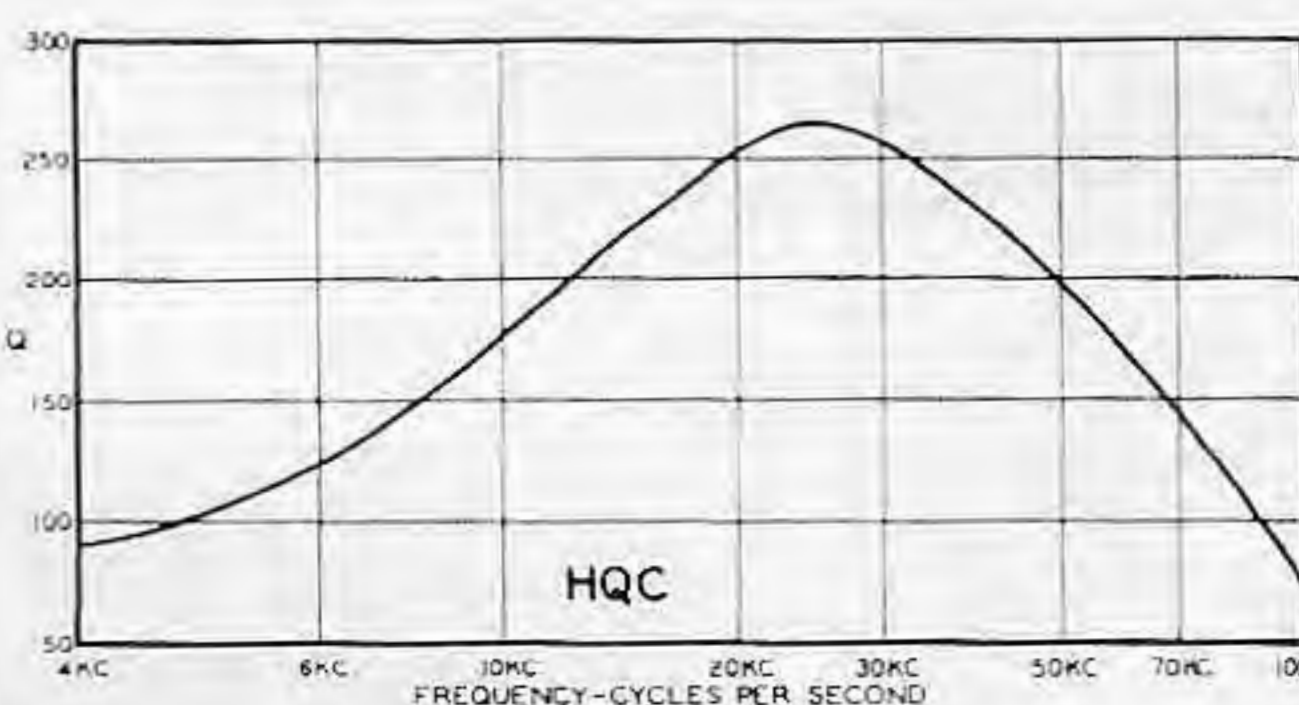
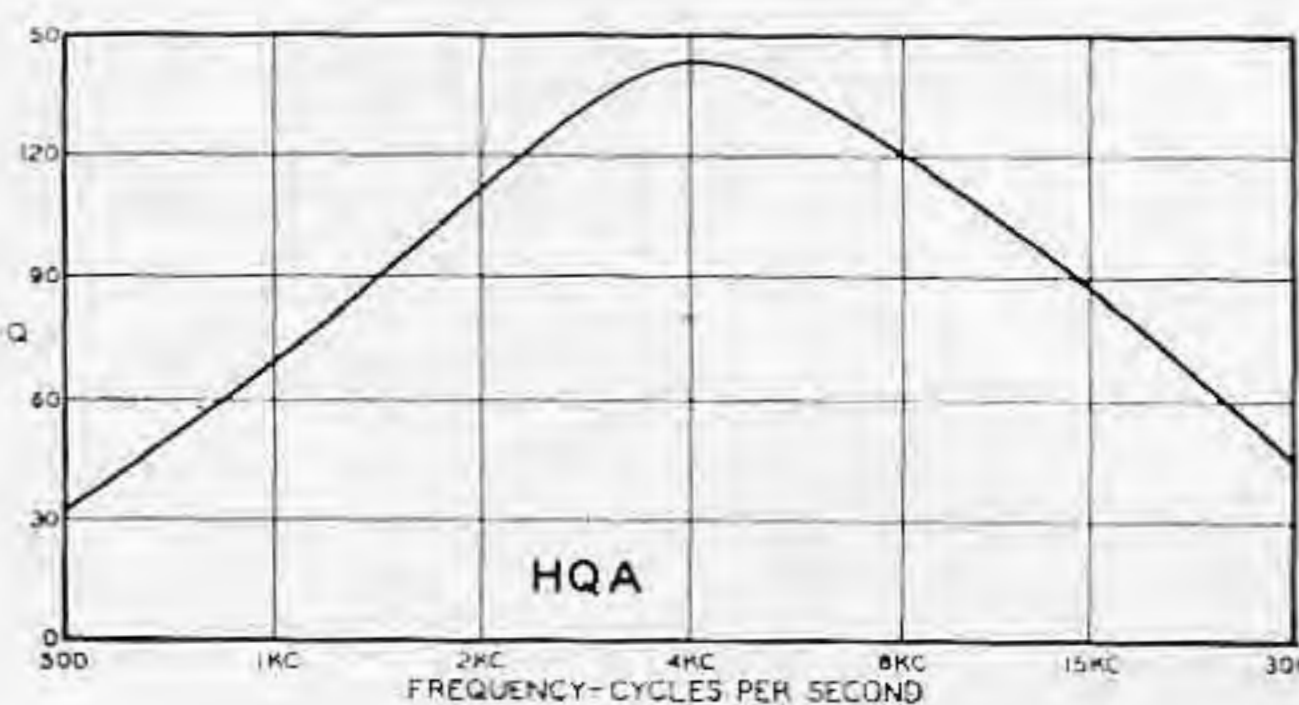


HQE CASE
(sub-miniature)

Length	1 5/16"
Width	1/2"
Height	1 3/16"
Mounting	1 3/16"
Screws	6/32"
Cutout	7/16" x 7/8"
Unit Weight	1.5 oz.



UNCASED HIGH Q TOROIDS



There are many applications in the audio, carrier, and super-sonic 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 Kc.
HQB coils have maximum Q (200) at approximately 4 Kc.
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.

HQE coils have maximum Q (120) at approximately 10 Kc. These coils are ideal for miniature applications.

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**.

Uncased HQ Coils in any of the types listed are available from stock. Deduct \$1.50 from cased price.

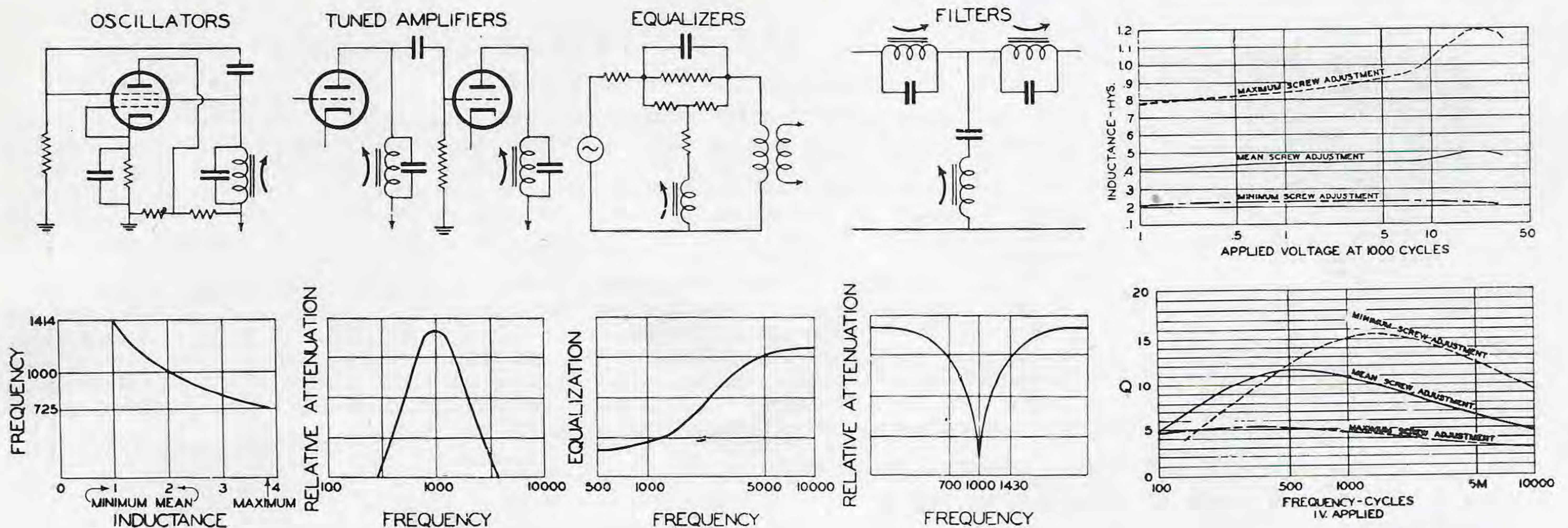
Other Values of Inductance than those listed available on special order at price of next higher listed value.

Mu-Core Coils employ special laminated core structures for good stability and low external field. The curves shown indicate approximate Q obtainable at any specific frequency by designing for that frequency.

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.	
HQE-1	5 mhy.	
HQE-2	10 mhy.	
HQE-3	50 mhy.	
HQE-4	100 mhy.	
HQE-5	200 mhy.	

*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.

UTC VARIABLE INDUCTORS



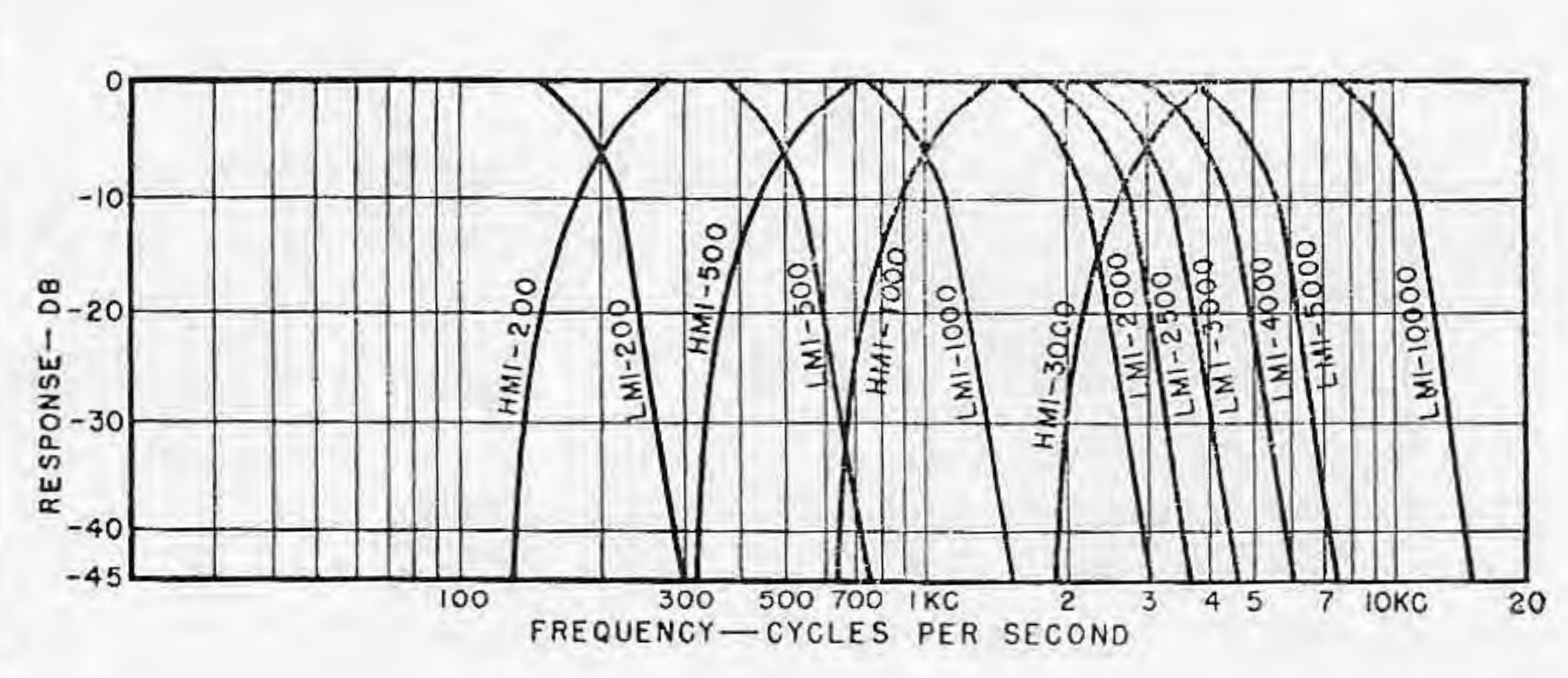
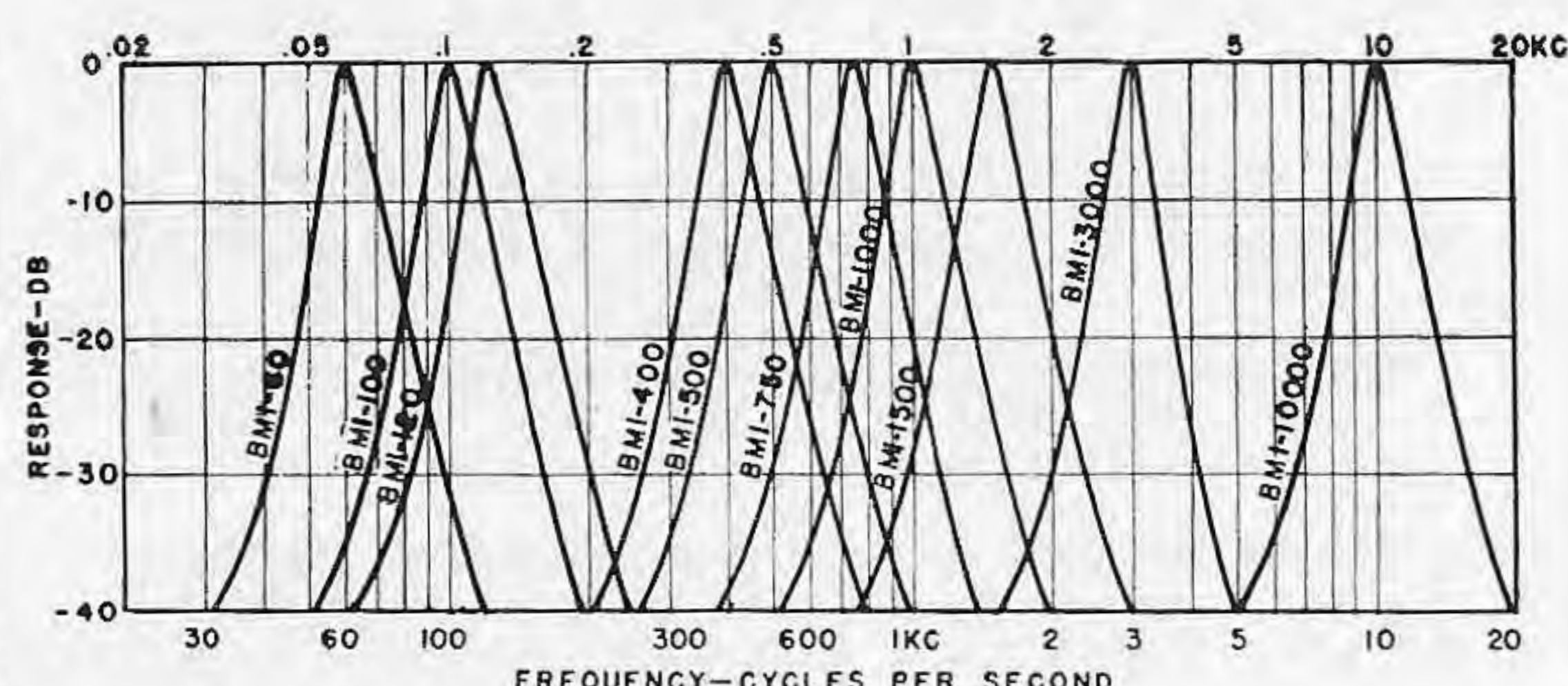
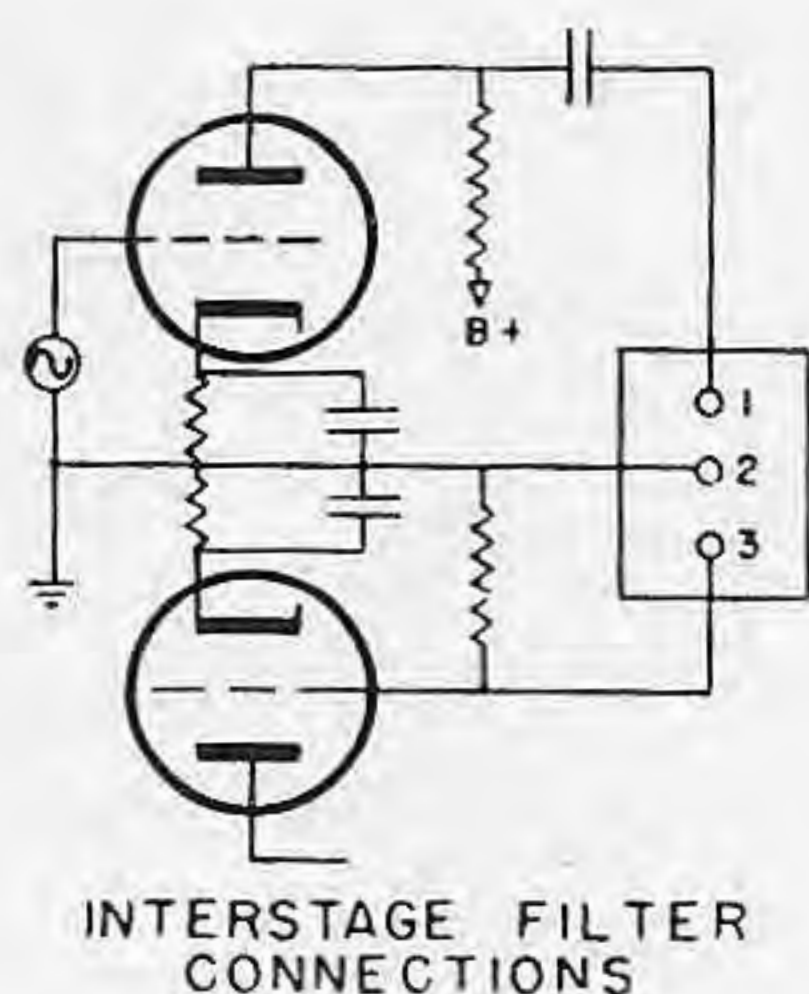
Type	Mean Hys.	Type	Mean Hys.
VI-C1	.0085	VI-C12	1.3
VI-C2	.013	VI-C13	2.2
VI-C3	.021	VI-C14	3.4
VI-C4	.034	VI-C15	5.4
VI-C5	.053	VI-C16	8.5
VI-C6	.084	VI-C17	13.
VI-C7	.13	VI-C18	21.
VI-C8	.21	VI-C19	33.
VI-C9	.34	VI-C20	52.
VI-C10	.54	VI-C21	83.
VI-C11	.85	VI-C22	130.

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 $1\frac{1}{2}$ " long, $1\frac{1}{4}$ " wide and $1\frac{1}{8}$ " high with mounting centers on terminal board side $1\frac{1}{8}$ " by $\frac{29}{32}$ ". Weight is $5\frac{1}{2}$ oz.



UTC INTERSTAGE AND LINE FILTERS



STOCK FREQUENCIES

(Number after letters is frequency)

BMI-60	LMI-200
BMI-100	LMI-500
BMI-120	LMI-1000
BMI-400	LMI-2000
BMI-500	LMI-3000
BMI-750	LMI-5000
BMI-1000	LMI-10000
BMI-1500	BML-400
BMI-3000	BML-1000
BMI-10000	HML-200
HMI-200	HML-500
HMI-500	LML-1000
HMI-1000	LML-2500
HMI-3000	LML-4000
	LML-12000

UTC standardized filters have been designed to take care of many present day filter requirements through stock units. The interstage type filters have a nominal impedance of 10,000 ohms, and lend themselves to effecting gain simultaneously with their frequency discrimination.

BMI units (Band Pass) have 2:1 gain. They are sharply peaked, having approximately 2 DB attenuation at plus or minus 3% from center frequency and attenuation of 40 DB per octave as shown.

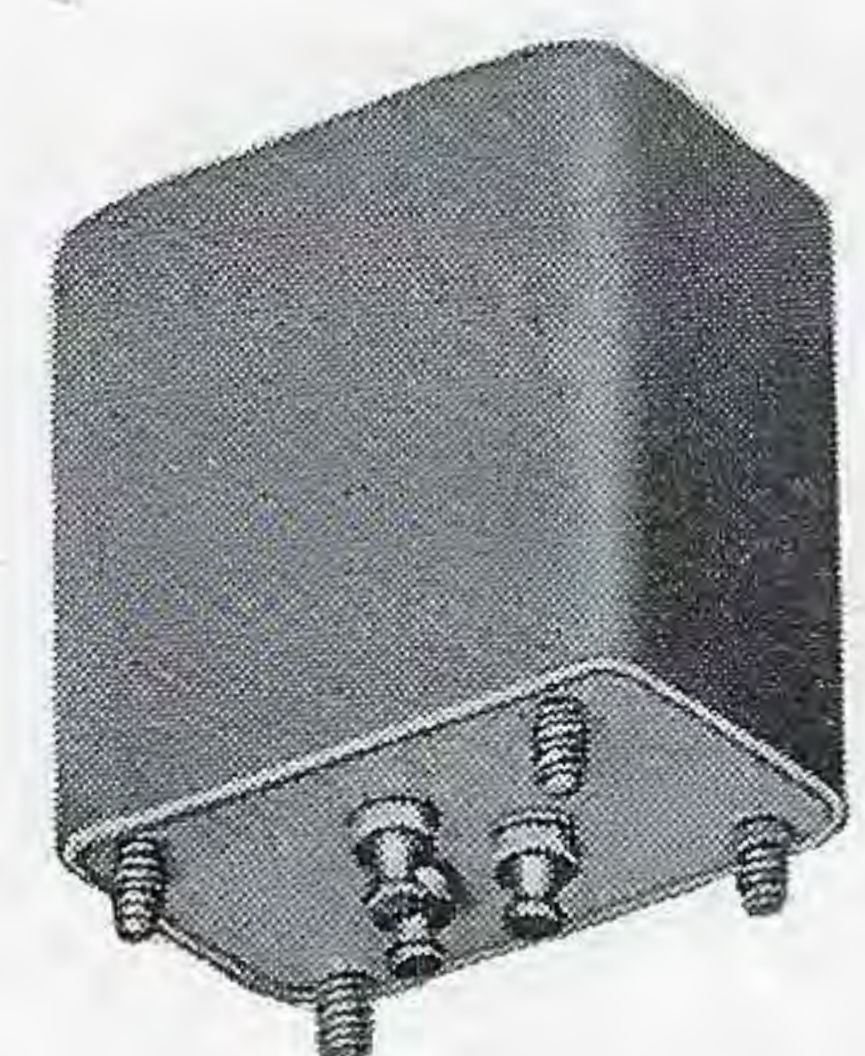
HMI units (High Pass) have a loss of less than 6 DB at cutoff frequency, and an attenuation of 35 DB at .67 cutoff frequency.

LMI units (Low Pass) have a loss of less than 6 DB at cutoff frequency, and an attenuation of 35 DB at 1.5 cutoff frequency.

BML (Band Pass), HML (High Pass), and LML (Low Pass) filters are similar to the interstage filters, in all characteristics, except that they are intended for an input and output impedance of 500/600 ohms.

All of the standard filters are housed in **hermetically sealed** cases, shielded to reduce hum pickup to 150 MV per gauss at 60 cycles.

In addition to the stock filters listed, any of the six types are available as **special units** for any frequency from 200 to 10,000 cycles. Order by type followed by frequency, as LMI-2500, designating low pass interstage filter—2500 cycles cutoff frequency. These special units are priced at \$35.00 net.



FILTER CASE M

Base	$1\frac{3}{16}$ " x $1\frac{1}{16}$ "
Mtg.	$\frac{3}{4}$ " x $1\frac{1}{4}$ "
Mtg. Screws	6-32
Cutout	$\frac{7}{8}$ " dia.
Height, BMI, LMI, BML	$1\frac{5}{8}$ "
Height, HMI, HML, LML	$2\frac{1}{2}$ "
Weight	6 oz. and 9 oz.

BROADCAST AND RECORDING EQUALIZERS AND FILTERS*

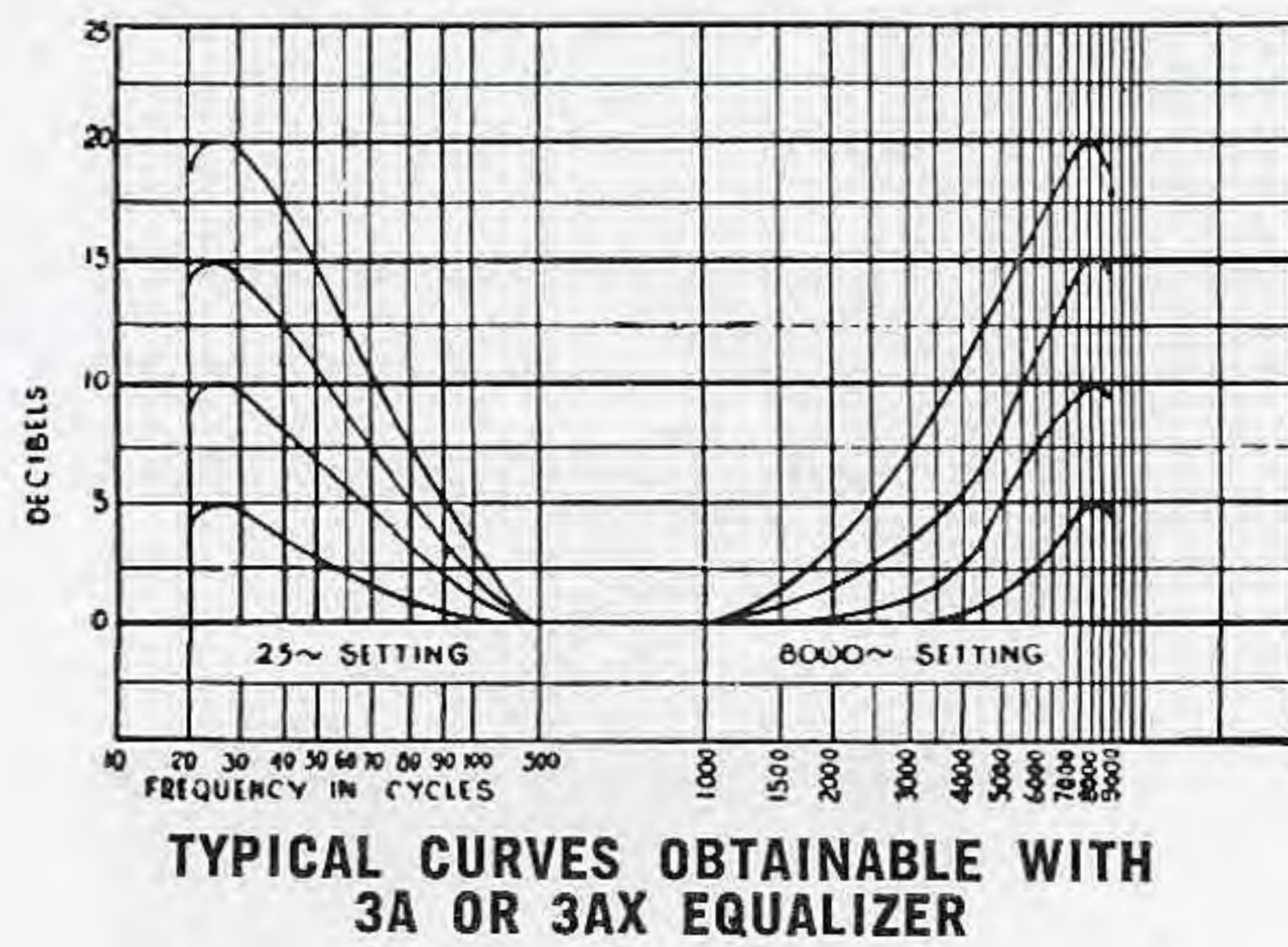
* 500/600 ohms



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 3½" x 19". Depth 7½". Weight 15 lbs.



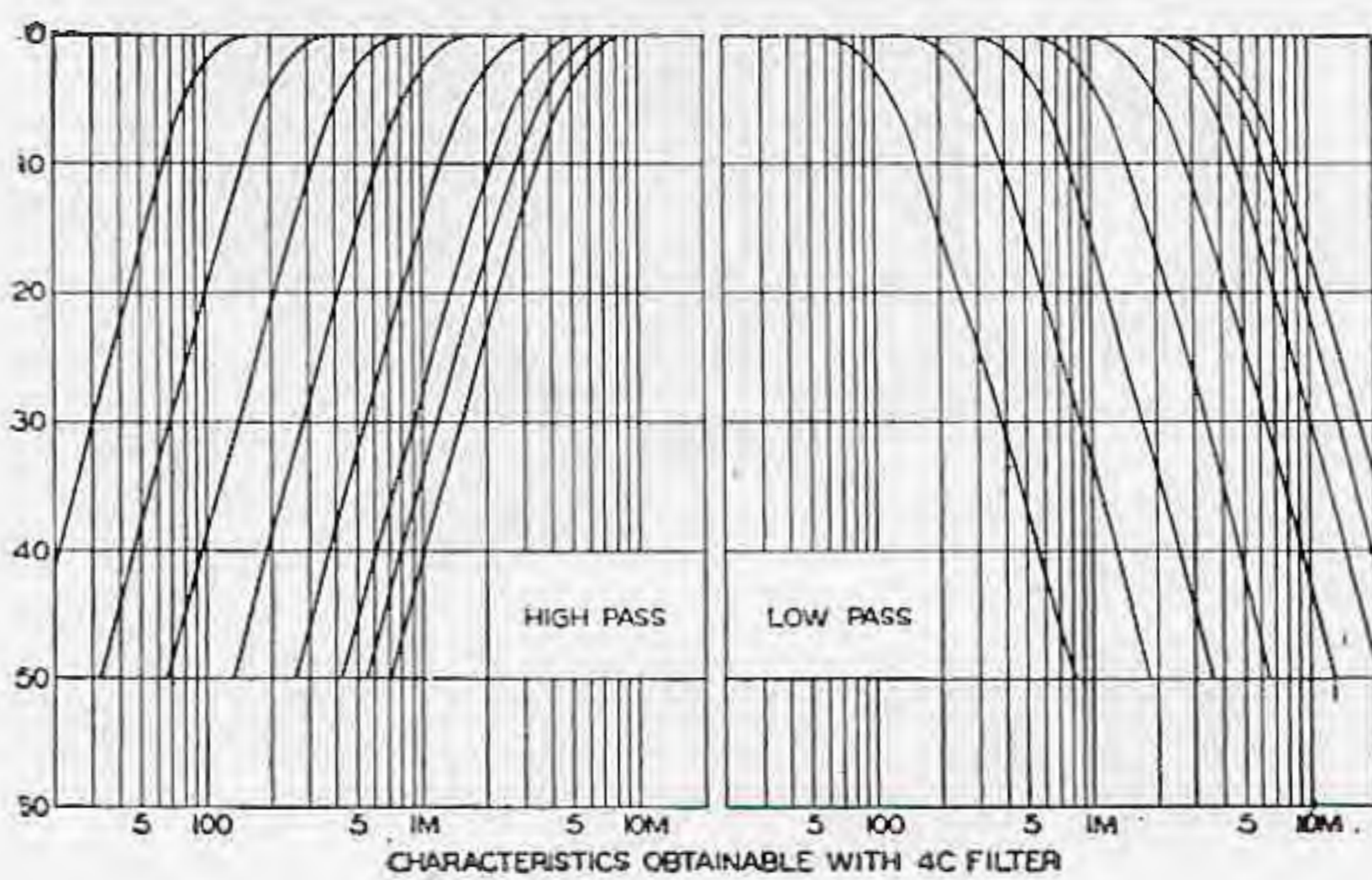
3A UNIVERSAL EQUALIZER

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 5¼" x 19" panel, which is similar in appearance to the 3AX unit. The weight of the 4C unit is 20 lbs.

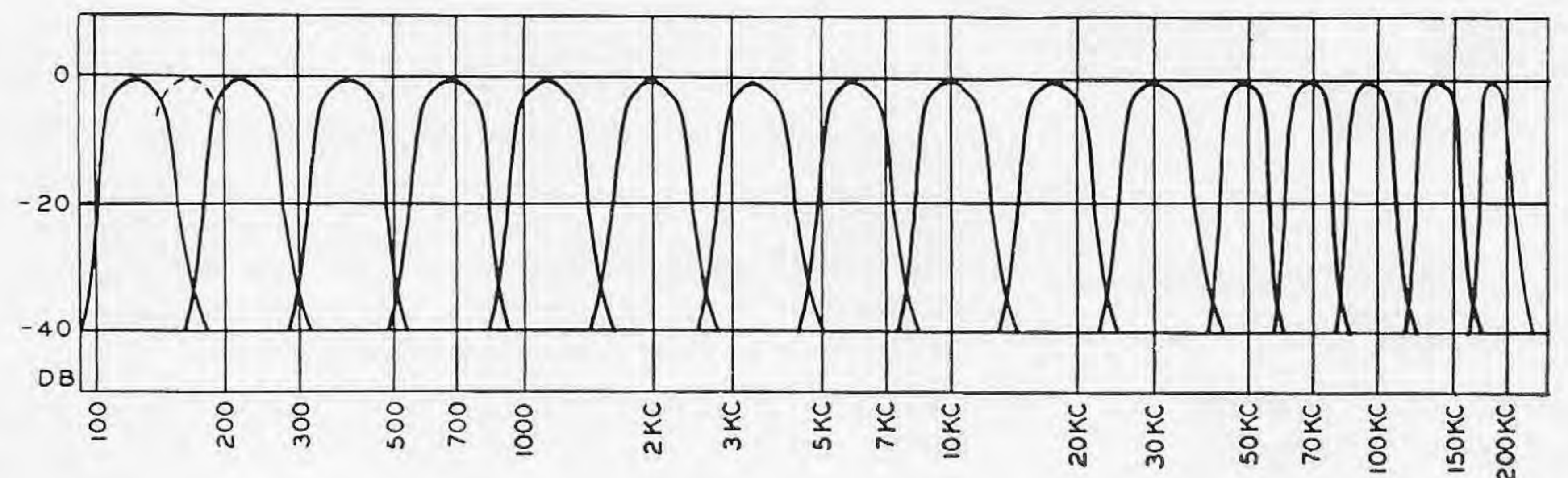
The low pass switch can be set for cutoff frequencies of 100, 250, 500, 1000, 2000, 3000, 4000, or 5000 cycles. The high pass switch has identical frequency points. The great number of cutoff frequencies provides for a wide latitude of tone control. If desired, though not normally necessary, external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



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 supersonic fields.

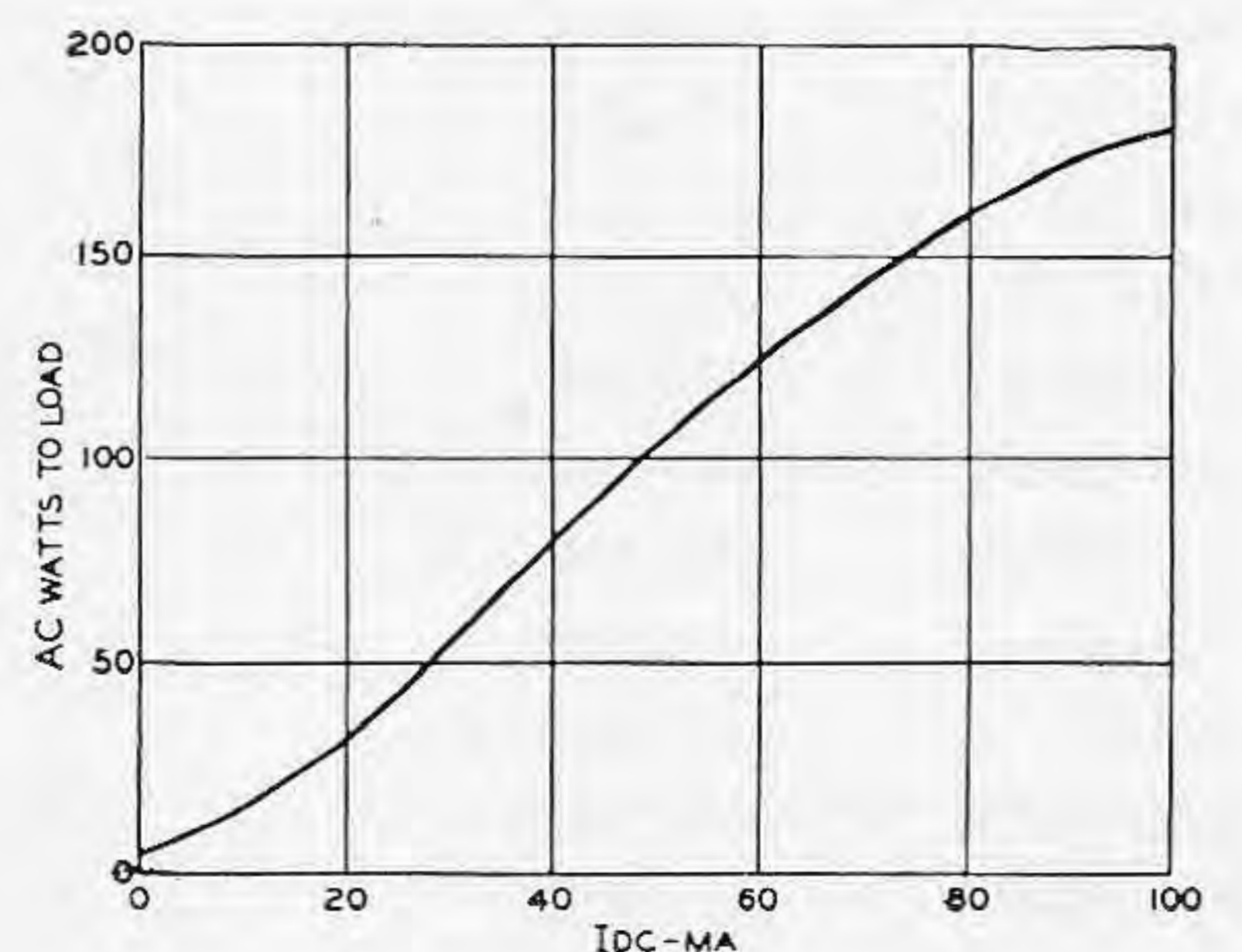
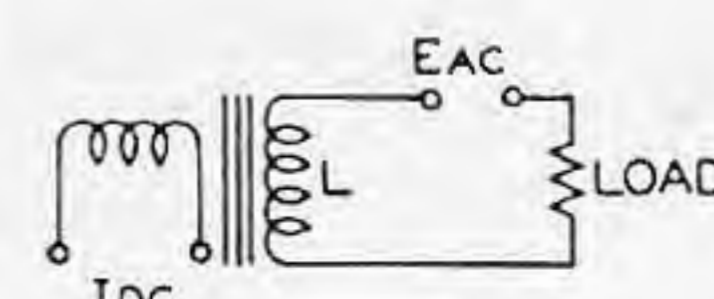
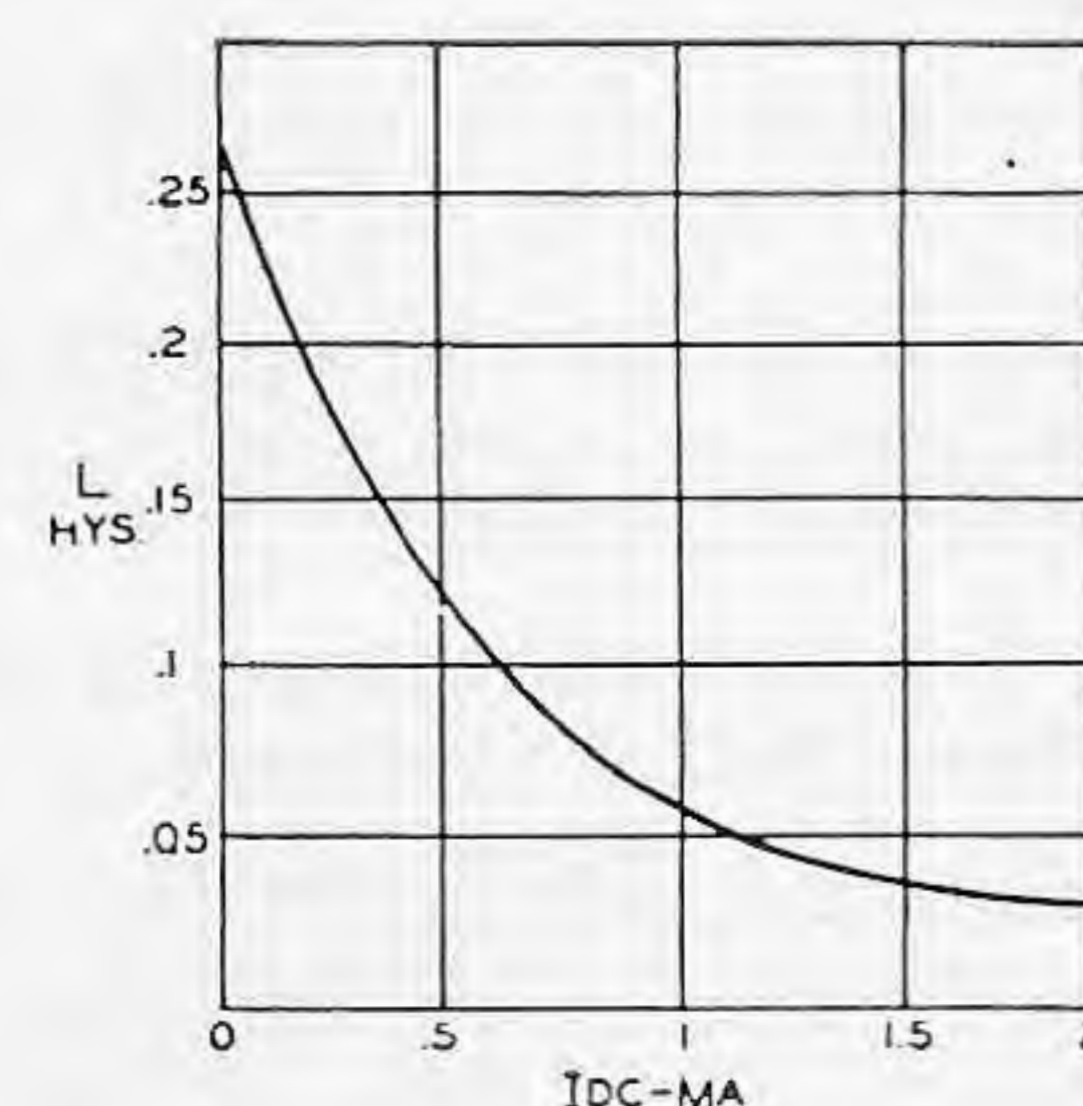
The curve illustrated shows a group of filters affording sixteen separate bands in the audio and supersonic region with 35 DB attenuation at the cross-over points. These have also been supplied spaced further apart (40 DB cross-over), with intermediate bands, permitting flat top band pass action for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



UTC SATURABLE REACTORS

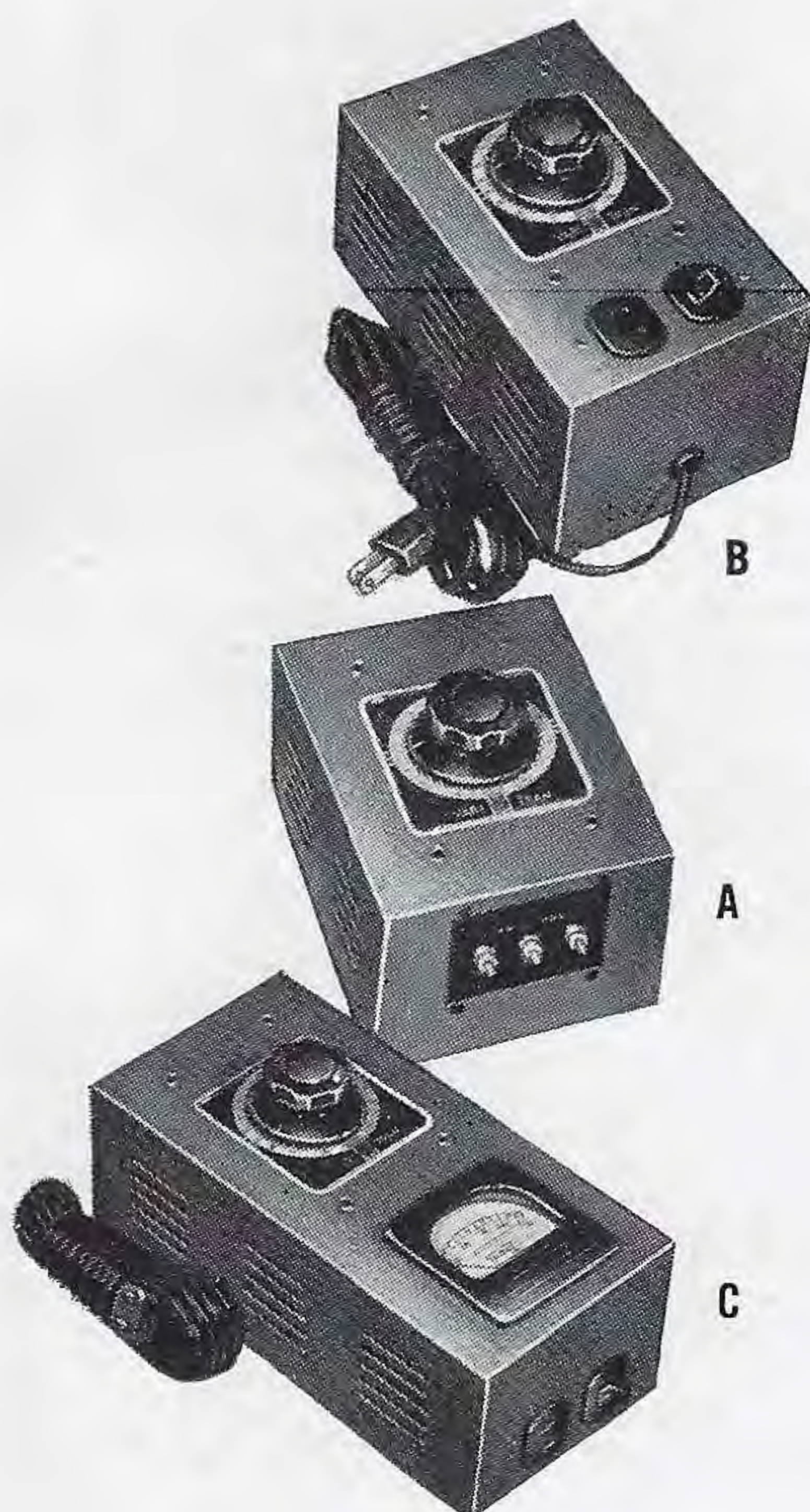
Saturable reactors are used extensively for both power control and phase control. The left curve is that of a small (1" cube) sensitive unit indicating the variation of inductance with saturating DC. The right curve is that of a moderate size power control reactor indicating power to the load with saturating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

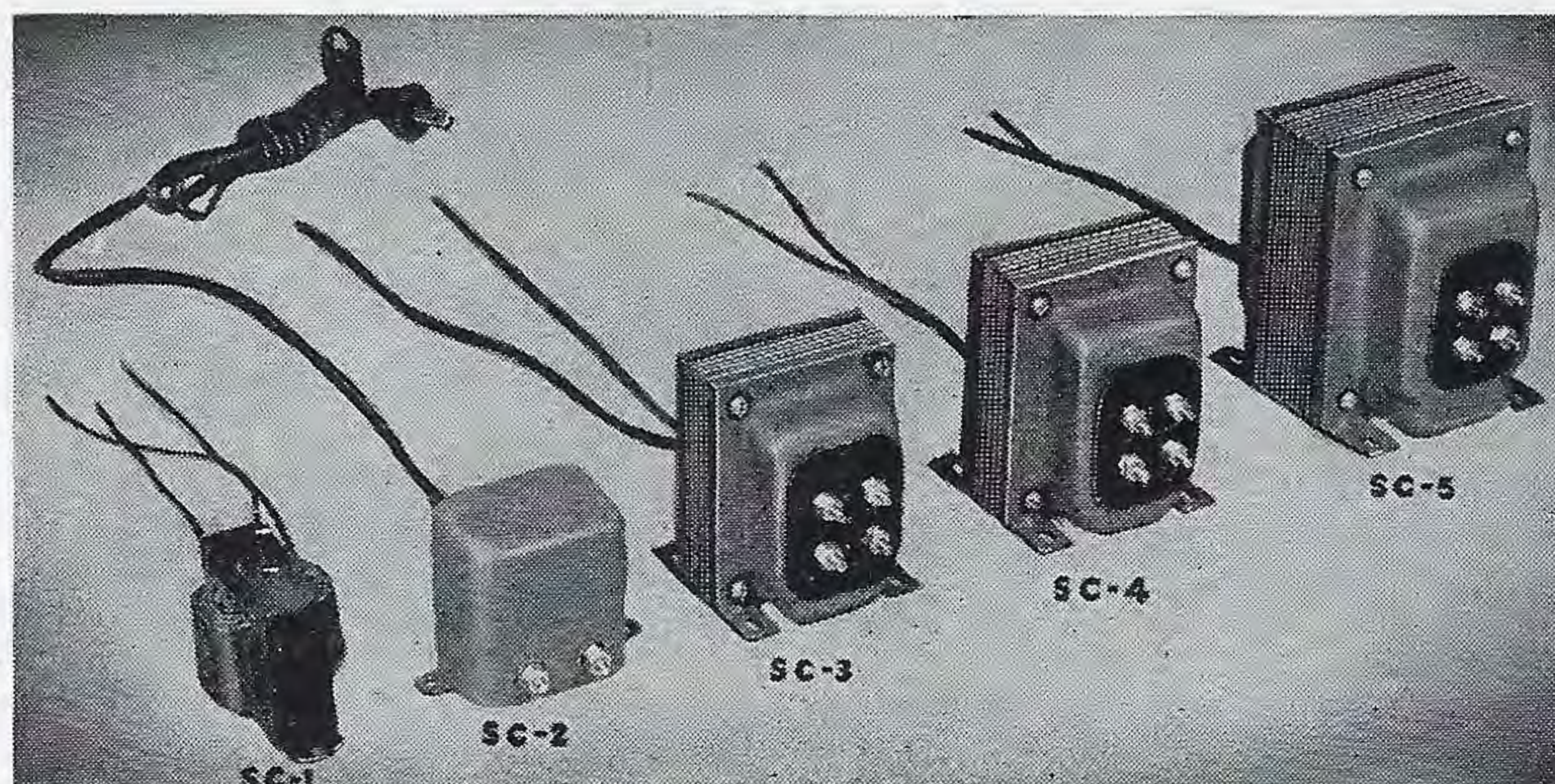
Standard Varitrans are designed for 115 or 230 volt service. The respective output voltages are 0-130 and 0-260 volts. The Varitran autotransformer current and wattage rating is based at 115 volts (115V. models). As the voltage is reduced, the wattage output is reduced correspondingly. The maximum current 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	4¼ x 6½ x 4½	10
V-0-B	230 volts	0-260	230	1	A	4¼ x 6½ x 4½	11
V-1	115 volts	0-130	570	5	B	47/8 x 8 x 35/8	12
V-1-M	115 volts	0-130	570	5	C	47/8 x 97/8 x 35/8	14
V-2	115 volts	0-130	570	5	A	47/8 x 7½ x 3¾	13
V-2-B	230 volts	0-260	570	2.5	A	47/8 x 7½ x 3¾	16
V-3	115 volts	0-130	850	7.5	A	47/8 x 7½ x 3¾	16
V-3-B	230 volts	0-260	850	3.75	A	5½ x 7½ x 5½	20

UTC SIGNALLING AND CONTROL TRANSFORMERS

UTC manufactures many special transformers for relay and light operation to equipment manufacturers. A number of standard units (115 V., 50-60 cycle input) are available as stock items as noted below. The type SC-1 transformer is of an open type construction, with insulated leads, suitable only for use in complete equipment. The output of this transformer is 6.1 volts at 3.25 Amps., suitable for continuous duty in lighting automobile type lamps or operating medium power signal devices. The type SC-2 transformer is similar to the SC-1, but is completely housed in a poured metal container with Underwriters' approved primary leads and secondary binding posts. Types SC-3, SC-4, and SC-5 are high power transformers suitable for operating relays, sirens, horns, gongs, etc. These units have four secondary terminals providing 4, 8, 12, 16, 20 and 24 volt output. The volt ampere rating is based on the 24 volt secondary tap with corresponding reduction at the lower voltages. Underwriters' approved primary leads are employed, and screw-type binding posts.

TYPE	SECONDARY VOLTS	WATTS	OVERALL DIMENSIONS	WEIGHT LBS.
SC-1	6.1	20	17/8x31/8x2	1½
SC-2	6.1	20	2½x3¼x2¼	1½
SC-3	4, 8, 12, 16, 20, 24	50	3 x3¾x3½	4
SC-4	4, 8, 12, 16, 20, 24	100	3¼x4½x4	5½
SC-5	4, 8, 12, 16, 20, 24	250	4 x5 x4¾	10½



UTC COMMERCIAL GRADE COMPONENTS



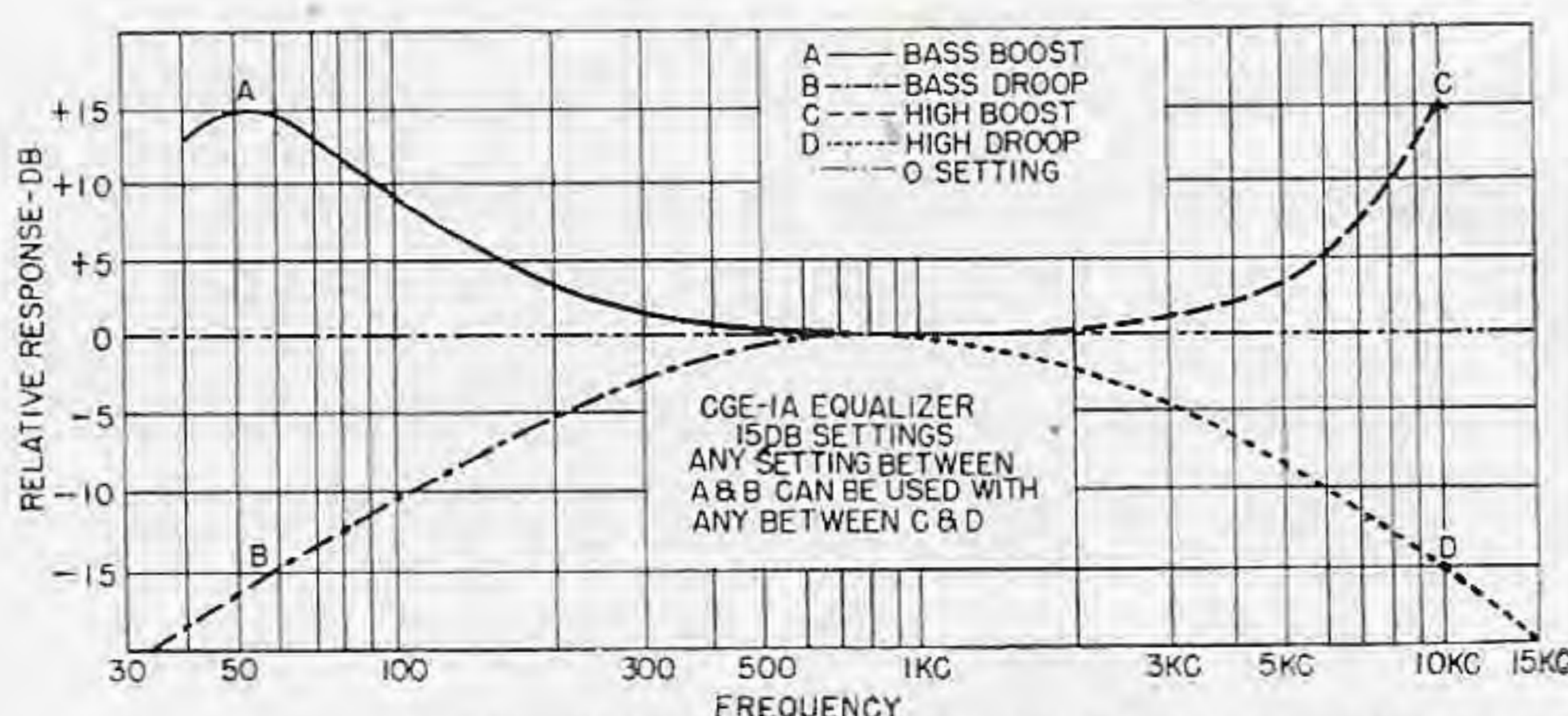
The commercial grade series of transformers incorporate conservative design and rugged construction to assure dependability under continuous service operation in industrial and commercial grade communication equipment. These units are mounted in uniform drawn cases finished in light grey enamel, and 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 centertapped 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 pickup	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, 12AU7, 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, 12AU7, 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



NEW UNIVERSAL INTERSTAGE EQUALIZER—CGE-1A

The UTC CGE-1A is the ideal device for any application where frequency response control is desired. Incorporating the latest developments in design and manufacture, this new unit provides the ultimate in control and flexibility. This equalizer is not a simple R-C tone control, but employs resonant circuits in a unique arrangement providing equalization characteristics unobtainable by conventional circuits. Designed to work from a low or medium impedance source (0 to 20,000 ohms) to a high impedance (500,000 ohms or open grid), the CGE-1A affords continuously variable equalization over a 30 DB range at either end of the spectrum, while introducing only 18 DB total insertion loss. (See curve above). Complete independence of high frequency and low frequency controls permits a wide variety of settings without affecting the over-all volume level. Because of its low insertion loss, this unit may be incorporated directly in many amplifiers. If existent gain is low, a single medium-mu triode stage will provide both proper gain and source impedance. (See circuit on centerfold, page C.) The mechanical construction permits mounting with case on panel directly behind controls, or with case separated from controls and panel. An etched, calibrated panel is provided.

CGE-1A Panel Dim. 2 $\frac{3}{8}$ " x 3 $\frac{1}{2}$ ". Wt. 2 Lbs.

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-62 Case



COMMERCIAL GRADE CASE

Case No.	Base Dim. (Sq.)	Mounting Dim. (Sq.)	Height	Cutout Dia.	Unit Weight (Lbs.)
RC-50	1 $\frac{5}{8}$	1-5/16	2 $\frac{1}{4}$	1 $\frac{1}{2}$	$\frac{1}{2}$
RC-62	1-13/16	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1
RC-75	2-3/16	1-13/16	2 $\frac{7}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$
RC-87	2-9/16	2-3/32	3 $\frac{1}{4}$	2	2 $\frac{1}{2}$
RC-100	3	2 $\frac{3}{8}$	3 $\frac{3}{4}$	2 $\frac{5}{8}$	3 $\frac{1}{2}$
RC-112	3-7/16	2-11/16	4 $\frac{1}{8}$	2 $\frac{7}{8}$	5
RC-125	3 $\frac{3}{4}$	3	4 $\frac{1}{2}$	3	6 $\frac{1}{2}$
RC-150	4 $\frac{1}{2}$	3-9/16	5 $\frac{1}{2}$	3 $\frac{3}{4}$	11
RC-152	5 $\frac{1}{8}$	4 $\frac{1}{8}$	5 $\frac{1}{2}$	4	15 $\frac{1}{2}$
RC-175	5 $\frac{3}{4}$	4 $\frac{7}{8}$	7 $\frac{1}{8}$	4	22

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, 6F6 triode, 6V6	20	RC-100
CG-16	3,000/5,000	2A3, 6A3, 6B4, 6AS7G, 6L6	20	RC-100
CG-19	6,000/10,000	6N7, 6F6, 6V6	20	RC-100
CG-710	14,000/20,000	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	45, 2A3, 6F6, 25L6, 6V6, 6B4	RC-100
CVP-2	30	45, 2A3, 6L6, 6V6	RC-125
CVP-3	60	50's, 300A's, 6L6's, 801, 807, 1614	RC-150
CVP-4	125	800's, 801's, 807's, 4-6L6's, 845's, 4-1614'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, .62, 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

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 for matching to the various correct tube loads. If a standard transformer having a limited impedance range is purchased and used for a specific purpose as the "nearest thing" available, comparatively high distortion is inevitable. 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	2A3, 6B5	RC-100
CVM-1	30	60	6V6, 2A3, 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, HF-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, 6C4, 12AU7, 45, 2A3	2A3, 45, 6L6	RC-87
CG-53AX	P. P. tube like: 45, 2A3, 6L6, 6B4	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-HF300's, 2-HF200's, 2-250TH's, 2-450TH's	RC-150
CG-512	50, 200, 500 ohm line	2-250TH, 2-450TH, 2-HF200, 2-HF300, 2-204A, 2-849	RC-150

VARIPOWERS AUTO-FORMERS

Type No.	Watts Output	Case No.	Designed for line voltage control, filament control and reduced power operation. Output voltage from 0 to 130 volts, 50/60 cycles. Varipower units permit control of filament voltage at the tube socket to within 2½% of desired value simultaneously with line voltage control and plate voltage control. Can be used to reduce or increase voltages on filament transformers. Taps at 25, 55, 75, 95, 100, 105, 110, 115, 120, 125 and 130 volts permit output voltages from 0 to 130 volts in 5 volt steps.
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	

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-3A	7.5 VCT-3A, tapped 6.3 VCT-4A	RC-152
CG-431	500-400-0-400-500 80-0-80	500 100	5V-6A	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	10¾	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	10¾	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	2200	1750	RC-87
CG-100	12	150	110	2500	RC-125
CG-102	12	250	100	3000	RC-150
CG-104	10	350	90	5000	RC-152
CG-108	10	500	52	7000	RC-175
CG-1S	10	1000	40	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	110	2500	RC-125
CG-103	5-25	250	100	3000	RC-150
CG-105	5-25	350	90	5000	RC-152
CG-109	5-25	500	52	7000	RC-175
CG-1C	5-25	1000	40	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.

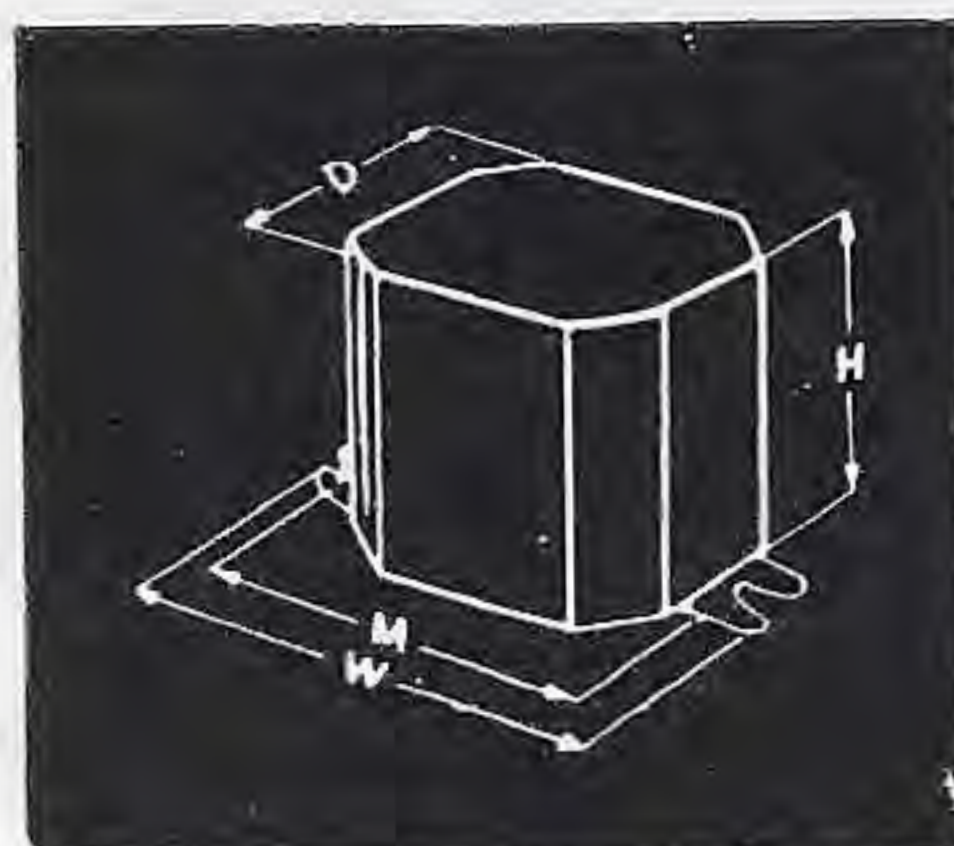
Type No.	Sec. Volts C. T.	Sec. Amps.	Working Voltage	Test Voltage	Case No.
CG-33	6.3	4	500	2000	RC-75
CG-34	2½	10	2500	6000	RC-112
CG-120	2½	10	5000	11000	RC-125
CG-121	5	25	5000	11000	RC-150
CG-122	7.5/6.3	10	1500	4000	RC-125
CG-124	10	10	1500	4000	RC-150
CG-125	14/12/11	10	1500	4000	RC-150
CG-126	*14/11/10 14/11/10	10 10	1500	4000	RC-152

SPECIAL SERIES AUDIO TRANSFORMERS



CASE SIZES

Type No.	H	W	D	M	Wt. Lbs.
G-1	1 7/8	2-13/16	1 3/4	2 3/8	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 5/8	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 6J5, 6C4, 12AU7, 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 or fixed bias	G-3

MATCHING TRANSFORMERS

Type No.	Application	Pri. Ohms	Sec. Ohms	Case
S-11	Single 6J5, 6C4, 12AU7 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.	Max. Watts	Primary Impedance	Typical Tubes	Class	Case
Single Tubes:					
S-14 10 W.	2500 ohms	2A3, 6A3, 6A5, 6B4, 6L6, 6Y6, 25L6, 35L6	A	G-2	
	4000 ohms	45, 6V6, 12A6	A		
	7000 ohms	42, 47, 2A5, 6AC5, 6F6, 6K6, 6N6, 7B5	A		
	10,000 ohms	37, 38, 41, 1G5, 3C5, 6A4, 6N7	A		
P. P. Tubes:					
S-15 12 W.	4000 ohms	6Y6, 25L6	AB	G-2	
	5000 ohms	45, 2A3, 6A3, 6A5, 6B4, 6AS7	AB		
	10,000 ohms	1H4, 6AC5G, 6B5, 19, 6A6, 6N6, 6N7, 6Y7	AB B		
S-16 30-W.	3000 ohms	45, 2A3, 6A3, 6A5, 6B4, 25L6	AB	G-4	
	6000 ohms	2A5, 6F6 triodes, 6AS7, 46, 6A6, 6N7	AB B		
	9000/10000 ohms	45, 2A5, 6AC5, 6B5, 6F6, 6L6, 6V6, 807-triode	AB		
S-17 55 W.	3800 ohms	6L6's	AB2	G-5	
	4500/5000 ohms	4—6L6's 46, 1608, 809	AB1 B		

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: 6C5, 6E6, 6N7, 6J5, 6C4, 12AU7, 6P5, 6J7-TR, 6SJ7-TR.

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	49	3.5	12,000	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	6Y7G	8	14,000	250	0
S-8	G'-G'	6AC5G	8	10,000	250	0
S-8	G'-G'	6A6, 6N6, 6N7	10	10,000	300	0
S-2	G-G	2A3, 6A3, 6A5G, 6B4G	10	5,000	325	750 ohms
S-8	G-G	45	10	5,000	275	770 ohms
S-2	G-G	6AS7G	10	5,000	250	1,250 ohms

		SINGLE TUBES	Pri. Load
S-1	F-G	43, 45, 71A, 25A6, 25A7	4,000 ohms
		46, 6V6	6,000 ohms
		42, 46, 47, 49, 2A5, 6F6, 6B5	7,000 ohms
		10, 41, 32, 6G6, 6K6	10,000 ohms
		38, 12A7	14,000 ohms

S-19—30 WATTS MAX.

(6J5, 6C4, 12AU7, etc. may be substituted for 6C5 tubes)

Tube or Tubes	DRIVER Transf.	Sec. Terms.	MODULATOR STAGE 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-10	G-G	2A3, 6A3, 45, 6A5G, 6B4G	15	3,000	325	68
6C5	S-10	G-G	2A5, 6F6 Pentode AB	10	10,000	375	340 ohms
2A5	S-8	G-G	2A5, 6F6, triode AB	18	6,000	350	38
89	S-8	G'-G'	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	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. Terms.	P.P. Tubes	Watts O'p't	MODULATOR STAGE P.P. Load	Plate Volts	Plate Tr'sf.	Bias Volts	Bias Tr'sf.
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	

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 application, 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 P.P. Load	STAGE 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
1-1	807	80	6600	600	S-45	30	S-51
1-1	800, RK-30	100	12000	1000	S-47	55	S-51
3-3	809	100	8400	750	S-45	5	S-51
2-2	825	100	6600	850	S-46	30	S-51
2-2	TZ-40	100	6000	750	S-45	0	
2-2	T-756	100	7000	850	S-46	30	S-51
1-1	50-T	100	8000	1000	S-47	90	S-51
2-2	RK-18	100	12000	1000	S-47	50	S-51
1-1	HK-354	100	15000	1000	S-47	60	S-51
*	845	105	8800	1250	S-47	225	S-52
3-3	RK-31	110	14000	1000	S-47	0	
1-1	4-6L6	110	2000	400	S-44	25	S-51
2-2	35-T	115	11000	1000	S-47	30	S-51

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

S-22—250 WATTS MAX.

P.P.-2A3 Driver S-9 Transf. Sec. Term.	P.P. Tubes	Watts Output	MODULATOR P.P. Load	STAGE Plate Volts	Plate Transf.	Bias Volts	Bias Trsf.
3-3	RK-31	140	17000	1250	S-47	0	
*	50 T	250	20000	2000	S-50	180	S-52
*	50 T	160	17000	1500	S-49	140	S-52
2-2	TZ-40	175	6800	1000	S-47	0	
1-1	T-55	175	6900	1000	S-47	40	S-51
1-1	T-55	225	9400	1250	S-47	50	S-51
2-2	HF-100	250	12000	1500	S-49	52	S-51
2-2	100 TH	250	7200	1250	S-47	0	
§	100 TL	230	7200	1250	S-47	112	S-52
2-2	ZB-120	150	4800	750	S-45	0	
2-2	ZB-120	245	9000	1250	S-47	0	
*	HK-154	225	11400	1250	S-47	210	S-52
1-1	203 A	250	9000	1250	S-47	45	S-51
3-3	203 Z	200	6900	1000	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	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.

FILAMENT TRANSFORMERS

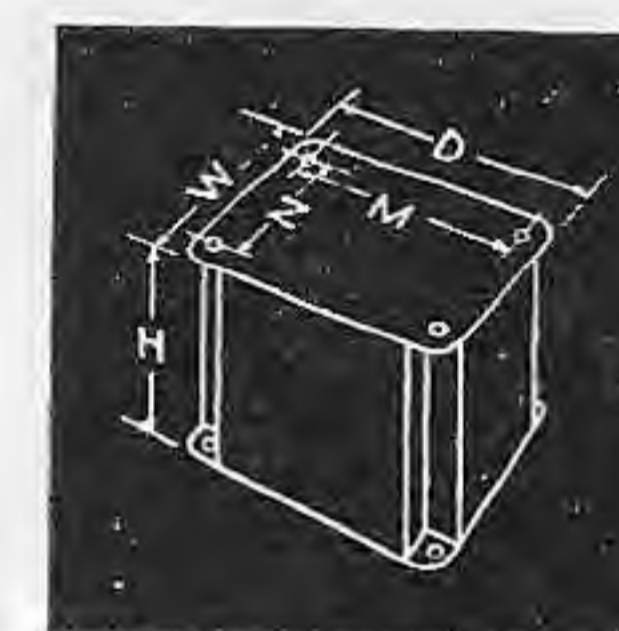
Primary Tapped 105, 115 Volts—50/60 Cycles				
Type No.	Secondary Volts	Secondary Current	Insulation	Case No.
S-53	2.5 VCT	10 A.	1500 V.	G-3
S-54	5 VCT	4 A.	2500 V.	G-3
S-55	6.3 VCT	3 A.	1500 V.	G-3
S-56	7.5 VCT	3 A.	1500 V.	G-3
S-57	2.5 VCT	10 A.	10,000 V.	G-5
S-58	2.5 VCT	20 A.	10,000 V.	G-5
S-59	5 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



CASE SIZES

Type No.	H	W	D	M	N	Wt. Lbs.
G-5	3 3/4	3 1/8	4 1/2	3 7/8	2-7/16	4 1/2
G-7	4 5/8	4 5/8	5 1/2	4-27/32	3-25/32	8
G-8	4 5/8	5 3/8	5 3/8	4-25/32	4 3/4	12
G-9	5 7/8	5 3/8	6 3/4	6-3/32	4-19/32	21
G-10	5 7/8	6 1/8	6 5/8	5-15/16	5-13/32	24
G-11	5 7/8	6 1/2	7 3/8	6-21/32	5-29/32	31
G-12	10 1/4	7 3/8	9 1/4	8 1/2	6 5/8	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.-6A	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.-3A -2A	6.3 V.C.T. 5A	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

FILTER, SWINGING, AND AUDIO CHOKES

Type No.	Service	Induct- ance	Current	Resistance	Insulation	Case No.
S-23	Audio	450 Hy.	5 Ma.	5000 ohms	1500 V.	G-2
S-24	P.P. Choke	500 Hy. C.T.	3 Ma.	400 ohms	1500 V.	G-2
S-25	Filter	30 Hy.	30 Ma.	800 ohms	1500 V.	G-2
S-26	Filter	15 Hy.	60 Ma.	250 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.	90 ohms	1500 V.	G-4
S-30	Swinging	5/25 Hy.	175 Ma.	90 ohms	1500 V.	G-4
S-31	Filter	20 Hy.	225 Ma.	100 ohms	2700 V.	G-5
S-32	Swinging	5/25 Hy.	225 Ma.	100 ohms	2700 V.	G-5
S-33	Filter	20 Hy.	300 Ma.	100 ohms	4000 V.	G-7
S-34	Swinging	5/25 Hy.	300 Ma.	100 ohms	4000 V.	G-7
S-35	Filter	20 Hy.	400 Ma.	60 ohms	5000 V.	G-8
S-36	Swinging	5/25 Hy.	400 Ma.	60 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

UTC REPLACEMENT TYPE COMPONENTS

DOUBLE SHELL POWER TRANSFORMERS

Type No.	High V.	DC MA.	Rect. Fil.	Amp. Fil.	W	D	H	M	N	Wt. Lb.
R-101	275-0-275	50	5V-2A.	6.3V CT-2.7A	3	2 1/2	2 3/4	2 1/2	2 1/8	2 1/2
R-102	350-0-350	70	5V-3A.	6.3V CT-3A.	3	2 1/2	3 3/8	2 1/2	2 1/8	3 1/2
R-103	350-0-350	90	5V-3A.	6.3V CT-3.5A.	3 3/8	2 7/8	3 3/8	2-13/16	2 1/4	4 1/2
R-104	350-0-350	120	5V-3A.	6.3V CT-5A.	3 3/4	3 1/8	3 3/8	3 1/8	2 1/2	5 1/2
R-105	385-0-385	160	5V-3A.	6.3V CT-5A.	3 3/4	3 1/8	3 7/8	3 1/8	2 1/2	7

SINGLE SHELL POWER TRANSFORMERS

Type No.	High V.	DC MA.	Rect. Fil.	Amp. Fil.	W	D	H	M	N	Wt. Lb.
R-106	300-0-300	50	5V-2A.	6.3V CT-2.7A	3	2 1/2	3	2 1/2	2 1/8	2 1/2
R-107	350-0-350	70	5V-3A.	6.3V CT-3A.	3	2 1/2	3 5/8	2 1/2	2 1/8	3 1/2
R-108	350-0-350	120	5V-3A.	6.3V CT-5A.	3 3/4	3 1/8	3 5/8	3 1/8	2 1/2	5 1/2
R-109	400-0-400	200	5V-3A.	6.3V CT-6A.	4 1/2	3 3/4	4	3 3/4	3	8

VERTICAL SHELL POWER TRANSFORMERS

Type No.	High V.	DC MA.	Rect. Fil.	Amp. Fil.	W	D	H	M	N	Wt. Lb.
R-110	300-0-300	50	5V-2A.	6.3V CT-2.7A	2 1/2	2 1/2	3 1/4	2	1 3/4	2 1/2
R-111	350-0-350	70	5V-3A.	6.3V CT-3A.	2 1/2	3 1/8	3 1/4	2	2 3/8	3 1/2
R-112	350-0-350	120	5V-3A.	6.3V CT-5A.	3 1/4	3 5/8	4	2 1/2	2 1/2	5 1/2
R-113	400-0-400	200	5V-3A.	6.3V CT-6A.	3 7/8	4 1/4	4 5/8	3	3 1/8	8

CHANNEL FRAME FILTER CHOKES

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

Type No.	Induct. Hys.	Current	Resistance Ohms	Dimensions, Inc.				Lbs.
				W	D	H	M	
R-55	6	40MA	300	2 1/2	1 3/8	1 3/8	2	1/2
R-14	8	40MA	250	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-15	12	30MA	450	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-16	15	30MA	630	2 7/8	1 3/8	1-11/16	2 3/8	3/4
R-17	20	40MA	850	3-5/16	1 5/8	2	2-13/16	1
R-18	8	80MA	250	3-5/16	1 5/8	2	2-13/16	1
R-19	14	100MA	450	3 3/4	1 3/4	2-5/16	3 1/8	1 1/2
R-20	5	200MA	90	4 1/8	2	2 5/8	3-9/16	2 1/2
R-21	3/15	200MA	90	4 1/8	2	2 5/8	3-9/16	2 1/2
R-22	120	5MA	4000	3-5/16	1 5/8	2	2-13/16	1

FILAMENT TRANSFORMERS

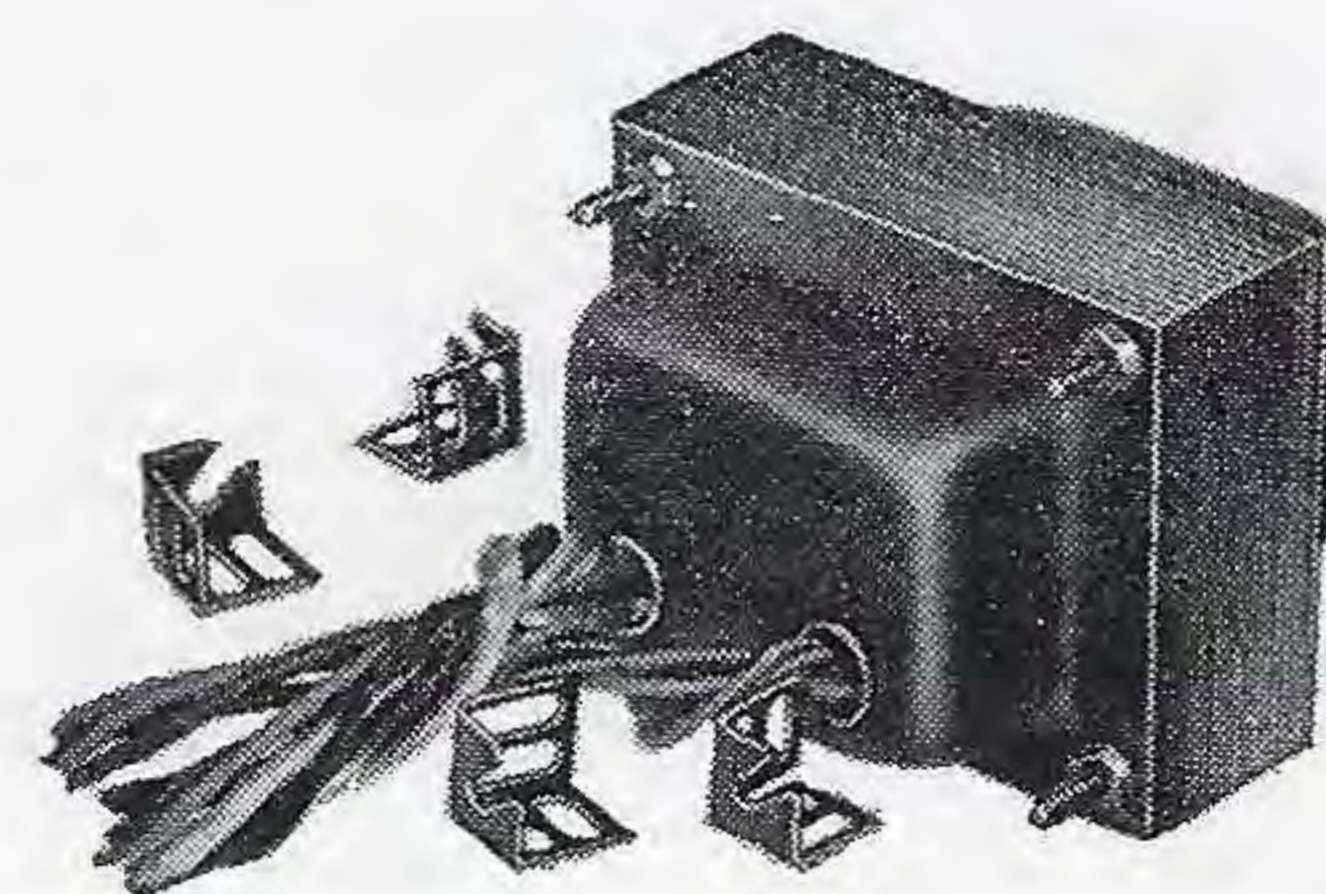
CHANNEL FRAME TYPE

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

Type No.	Secondary	Dimensions, Inches				Wt. Lbs.
		W	D	H	M	
FT-1	2.5 V.C.T.-3A	2 7/8	1 3/8	1-11/16	2 3/8	3/4
FT-2	6.3 V.C.T.-1.2A	2 7/8	1 3/8	1-11/16	2 3/8	3/4
FT-3	2.5 V.C.T.-6A	3-5/16	1 5/8	2	2-13/16	1
FT-4	6.3 V.C.T.-2.5A	3-5/16	1 5/8	2	2-13/16	1
FT-5	2.5 V.C.T.-10A	3 3/4	1 3/4	2-5/16	3 1/8	1 1/2
FT-6	5 V.C.T.-3A	3 3/4	1 3/4	2-5/16	3 1/8	1 1/2
FT-7	7.5 V.C.T.-3A	3 3/4	1 3/4	2-5/16	3 1/8	1 1/2
FT-8	6.3 V.C.T.-6A	4 1/8	2 1/4	2 5/8	3-9/16	2 1/2
FT-9	2.5V CT-10A. 10000V. Test	4 1/8	2 1/4	2 5/8	3-9/16	2 1/2
FT-10	24V CT-2A. or 12V-4A.	4 1/8	2 1/4	2 5/8	3-9/16	2 1/2

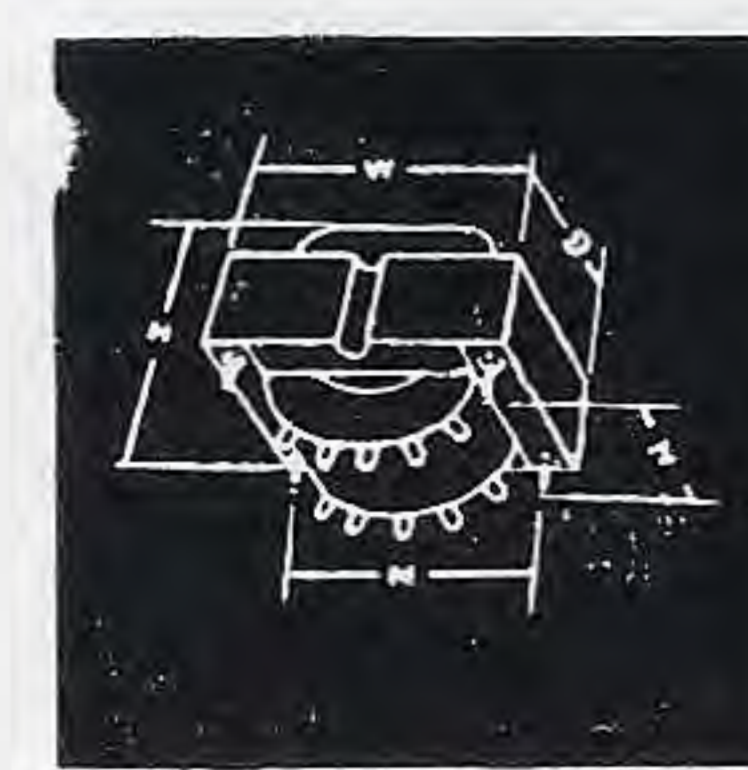
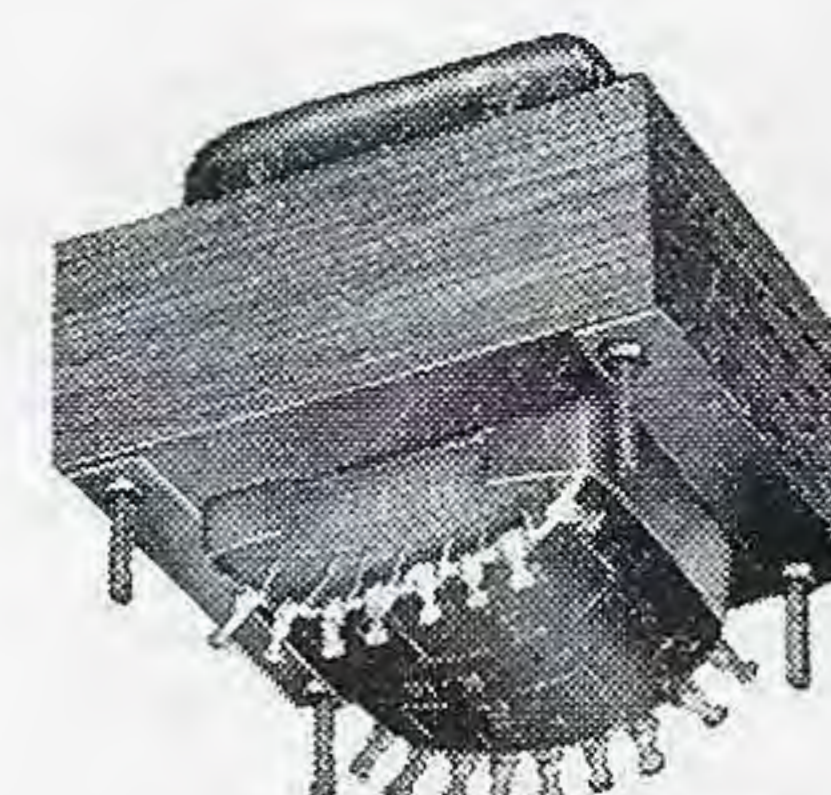
The UTC replacement type transformers represent the culmination of years of development in this field. All units are vacuum sealed against humidity with special impregnating materials to prevent corrosion and electrolysis. Shells and brackets are finished in attractive high lustre black enamel.

The UTC shells and universal brackets employed make possible a latitude in mounting dimensions never approached heretofore. A minimum number of transformers have been developed to cover any requirement in the replacement field. Pri. 117V. 50/60 cycles.



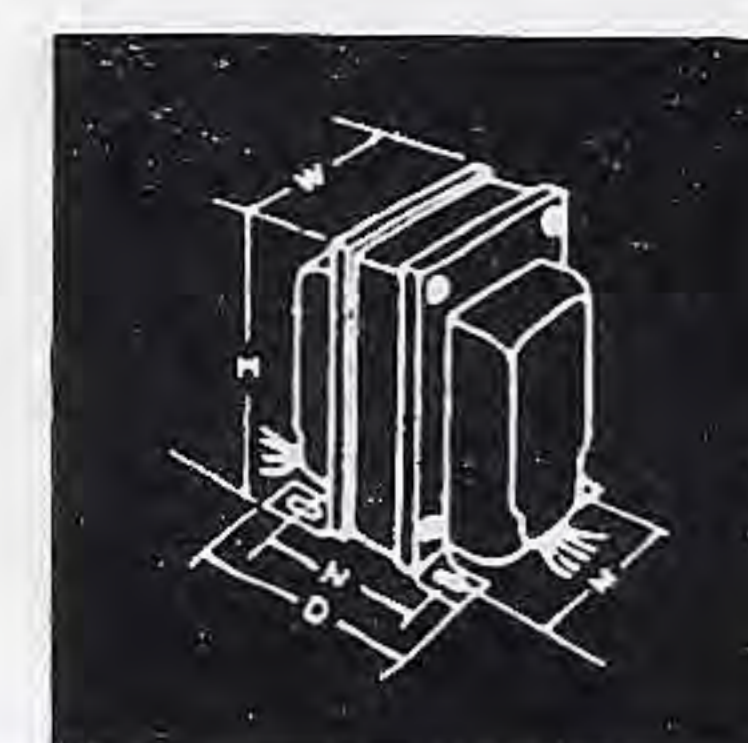
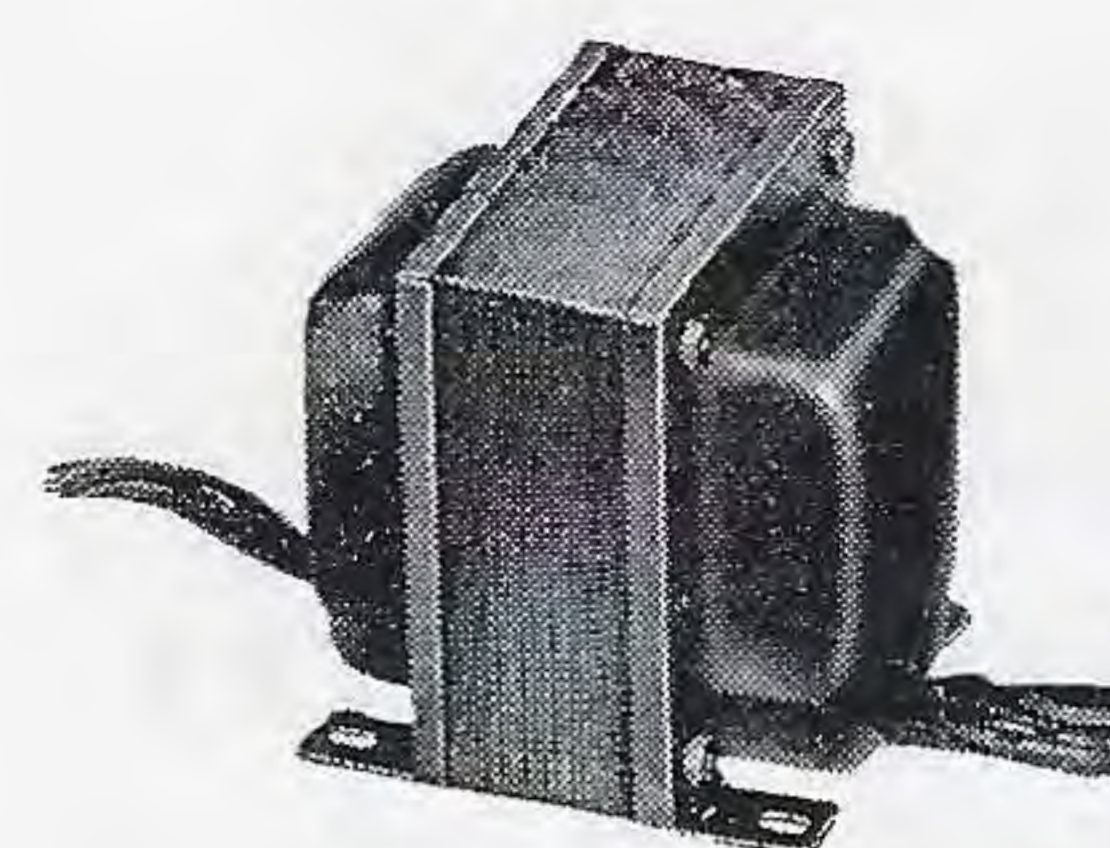
DOUBLE SHELL TYPE

The universal feet may be used for upright or horizontal mounting, or eliminated for flush mounting.



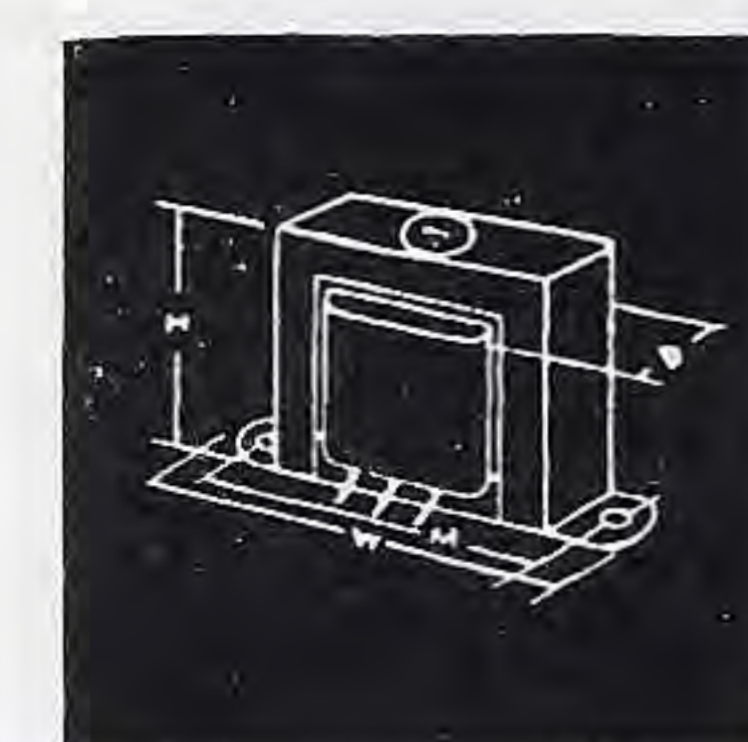
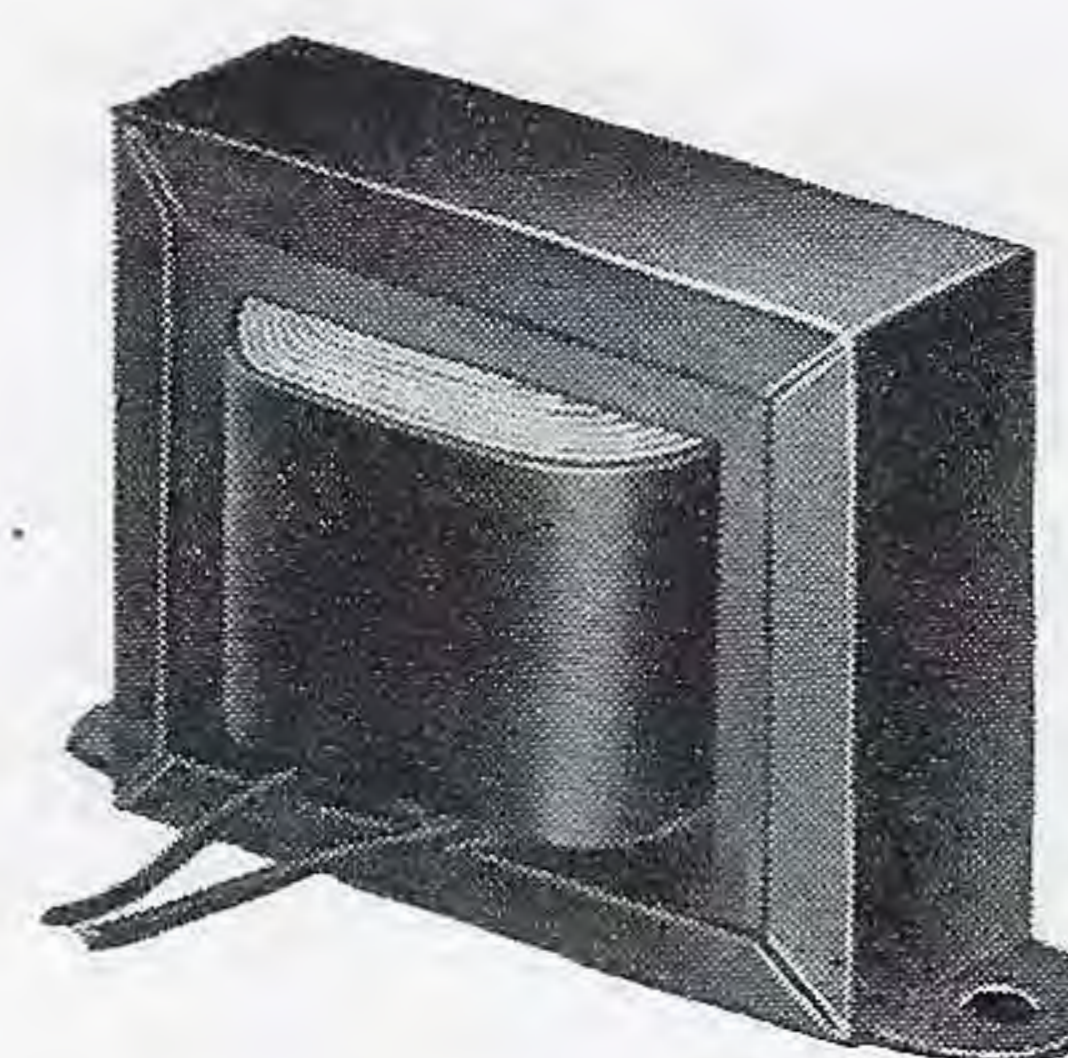
SINGLE SHELL TYPE

UTC flush type transformers are husky units designed for low temperature rise and good regulation. The rugged solder terminals permit ease of circuit change for the experimenter.



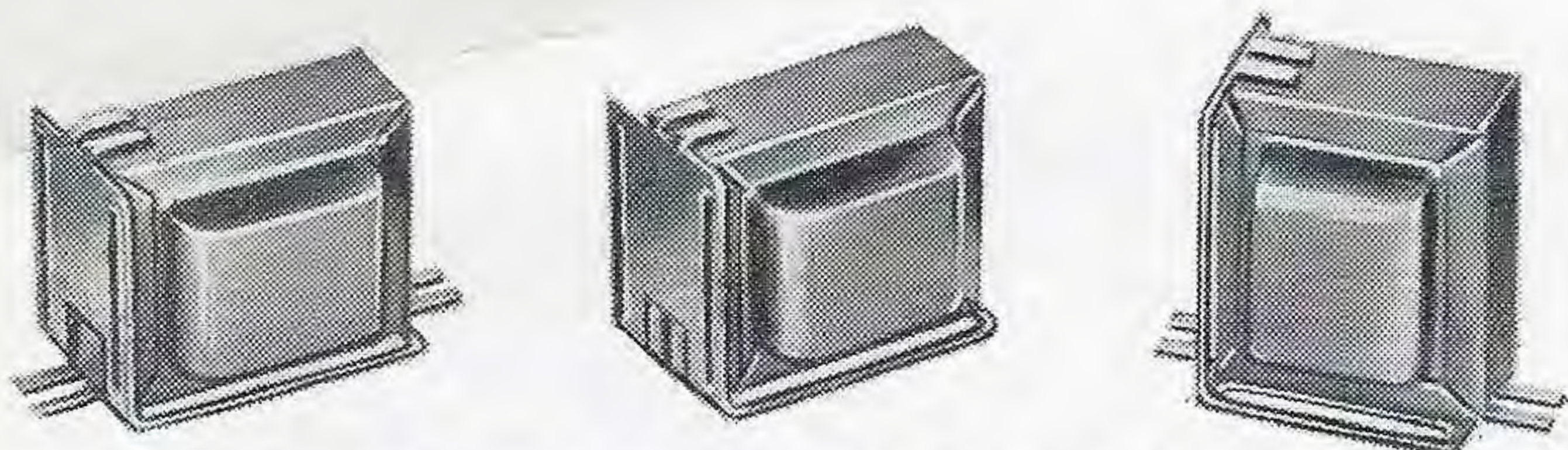
VERTICAL SHELL TYPE

UTC vertical power transformers are unusually attractive in appearance, having smooth drawn cases finished in high lustre black enamel.

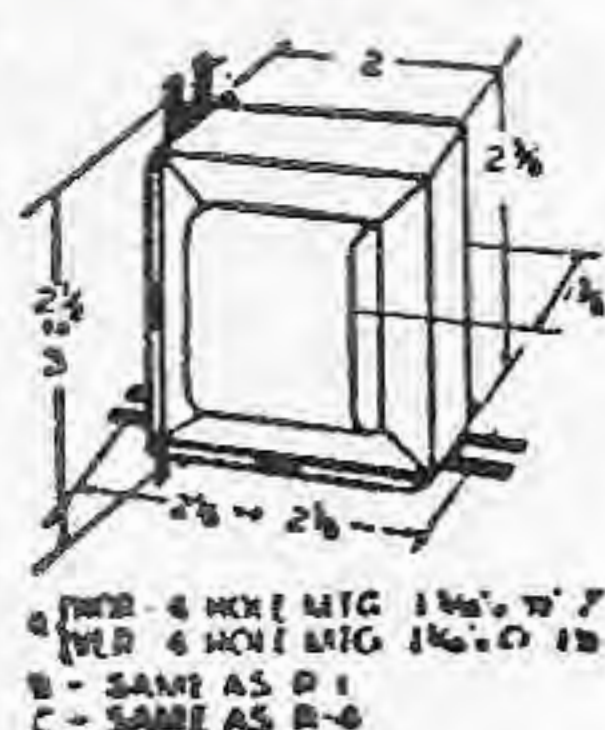


CHANNEL FRAME TYPE

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



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	3½:1 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	1¼
R-26	Driver, 1 plate to 2 grids	Single 42, 2A5, 6F6, 45, 46	A	1¼
R-27	15 watt Universal Output	All tubes up to 15 watts to any voice coil from .1 to 30 ohms	A	1¼
R-28	35 watt Universal Output	All tubes up to 35 watts to any voice coil from .1 to 30 ohms	B	2½
R-29	Mike to grid	Single or double button mike or line to 1 grid	A	1¼
R-30	Filter choke	13 Hys—250 MA—100 ohms	C	7
R-31	Filter choke	10 Hys— 80 MA—250 ohms	A	2½
R-32	Filter choke	10 Hys—150 MA—100 ohms	B	2½

* 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

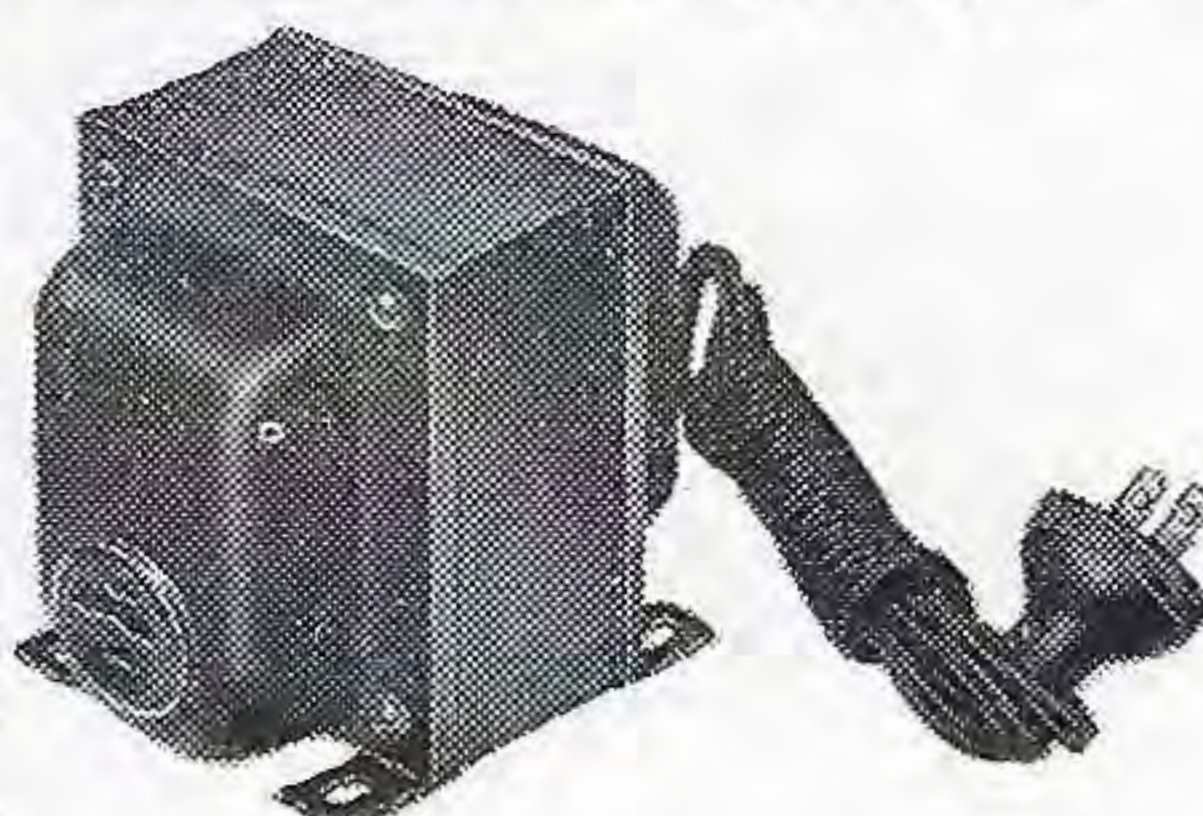
Type No.	Application	Description	Dimen., Ins.				Wt. Lbs.
			W	D	H	M	
R-33	1 plate* to 1 grid	4:1 ratio	27/8	13/8	1-11/16	23/8	¾
R-34	1 plate* to 2 grids	2:1 ratio	27/8	13/8	1-11/16	23/8	¾
R-35	Mike to 1 grid	17:1 ratio Pri. C.T.	27/8	13/8	1-11/16	23/8	¾
R-90	Intercomm. speaker to grid	4 ohm to 40,000 ohm grid	2½	13/8	13/8	2½	½
R-53	Plate & mike to grid	3:1 and 17:1 ratio	27/8	13/8	1-11/16	23/8	¾
R-56	1 plate to 2 grids	2:1 ratio	3-5/16	15/8	2	2-13/16	1
R-57	1 plate to 2 grids	2½:1 ratio	4½	2	25/8	3-9/16	2½
R-36	Driver	30, 49, etc. to class B 19, 49, 79, 89 grids	27/8	13/8	1-11/16	23/8	¾
R-37	R.F. Output	Class B 19, 49, 79, 89 plates to 3500 and 5,000 ohms	27/8	13/8	1-11/16	23/8	¾
R-58	5 watt Universal output	Any single tube to any voice coil, .1 to 30 ohms	2½	13/8	13/8	2½	½
R-38A	6 watt Universal	Any tubes up to 6 watts to any voice coil, .1 to 30 ohms	2½	13/8	13/8	2½	½
R-59	10 watt Universal	Any tubes up to 10 watts to any voice coil, .1 to 30 ohms	27/8	13/8	1-11/16	23/8	¾
R-60	15 watt Universal	Any tubes up to 15 watts to any voice coil, .1 to 30 ohms	3-5/16	15/8	2	2-13/16	1
R-39	10 watt line Matching Transformer	250, 500, 1,500 ohms to 2, 8, 15 ohms	27/8	13/8	1-11/16	23/8	¾
R-40	25 watt line Matching Transformer	250, 500, 1,500 ohms to 2, 8, 15 ohms	4½	2¼	25/8	3-9/16	2½

* 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	5½
R-44	250 watt capacity	6½
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. 1500 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	4½
R-48	150 watts	5½

PHOTO FLASH TRANSFORMERS

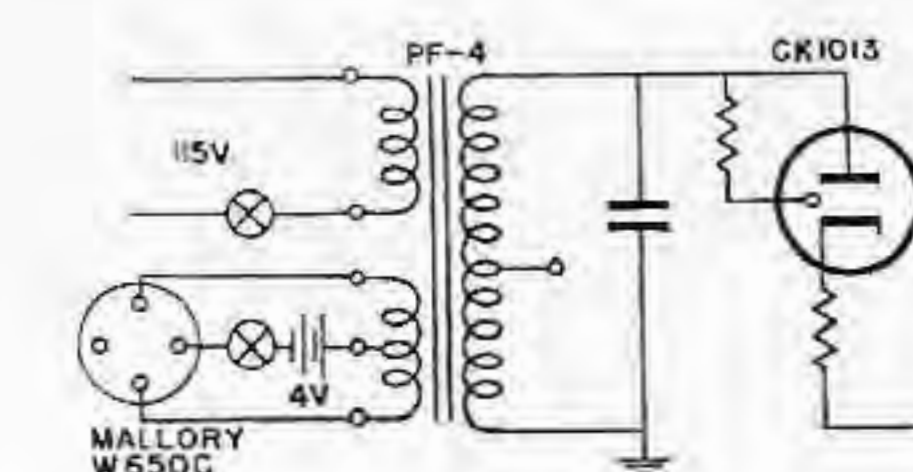
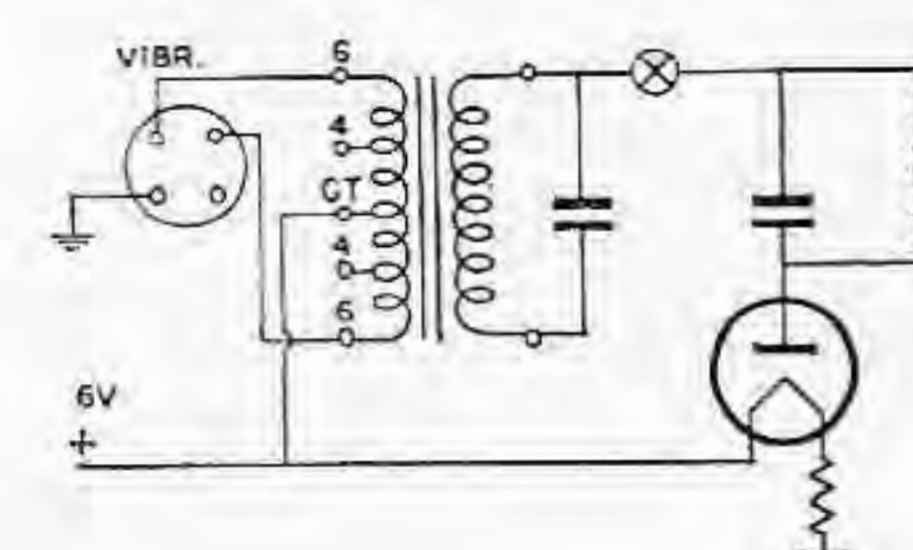
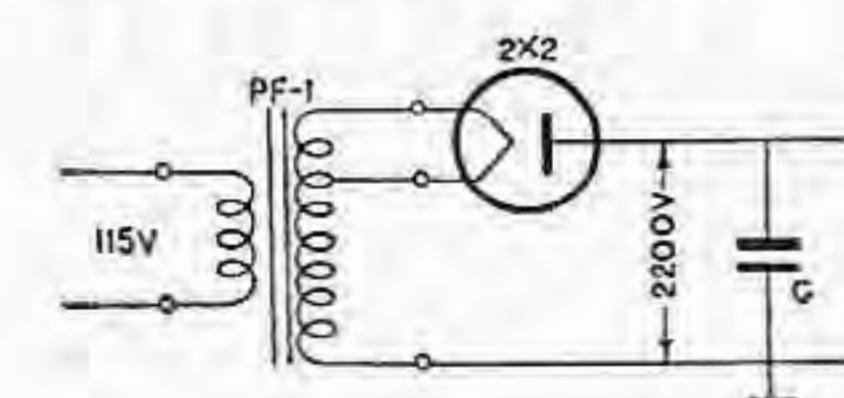
Can be used for either standard (Amglo type) or trigger (Sylvania type) multiple flash bulbs. Circuit details included with transformer.

PF-1 Primary for 115 volts, 50/60 cycles. Secondaries for power supply delivering 2200 volts DC to condenser up to 100 Mfd. Compound sealed in G-3 case 2½ x 2¾ x 2½ inches high. Weight 2 Lbs.

PF-2 For portable 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. Compound sealed in G-3 case. Weight 2 Lbs.

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

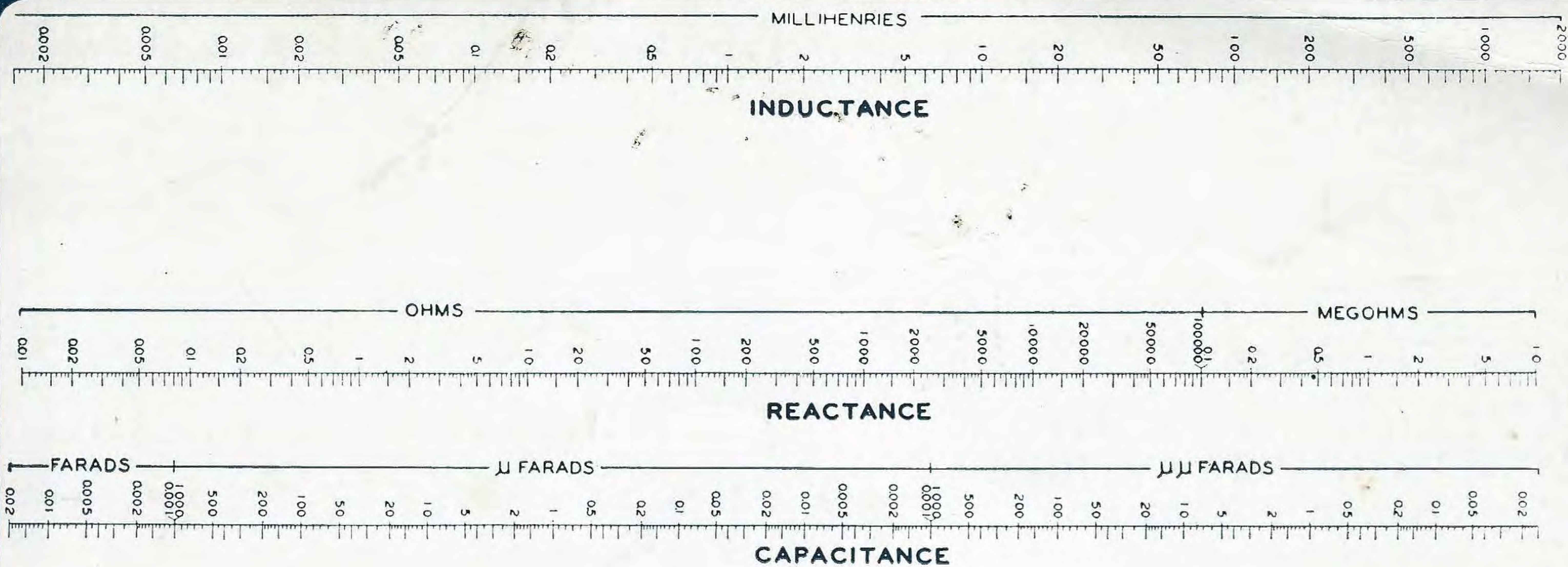
PF-4 Dual Pri. for either 4V battery or 115V 50/60 cycles. Secondary for power supply delivering 900 volts DC to condenser up to 150 Mfd. G-3 case, 2 Lb.



TELEVISION TRANSFORMERS

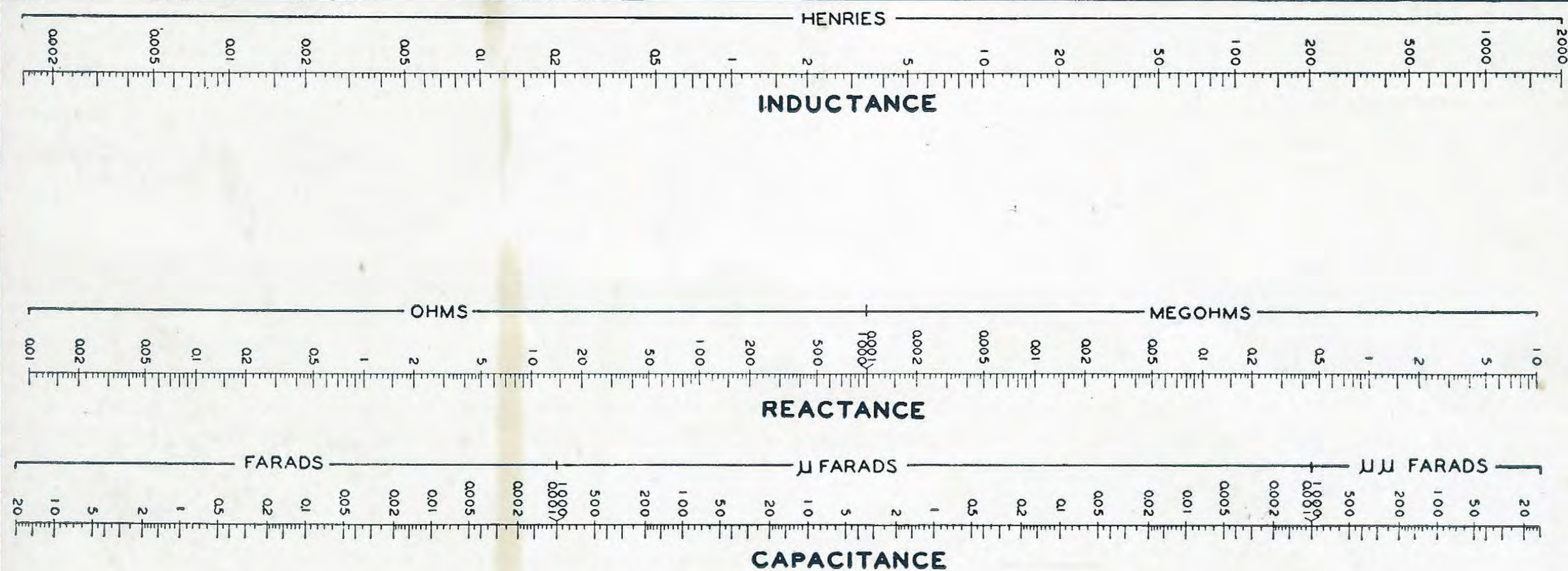
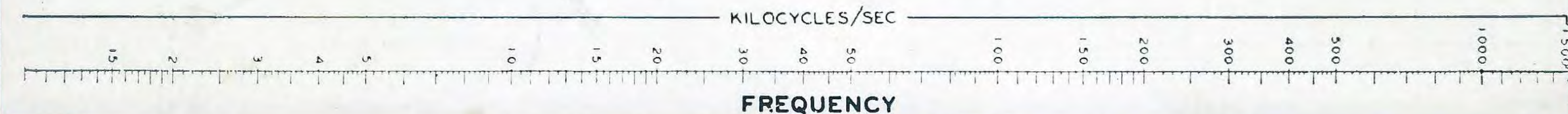
These components are quality designs, vacuum impregnated and fully compound sealed in heavy steel cases affording a high degree of shielding.

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-125	5



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.



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