



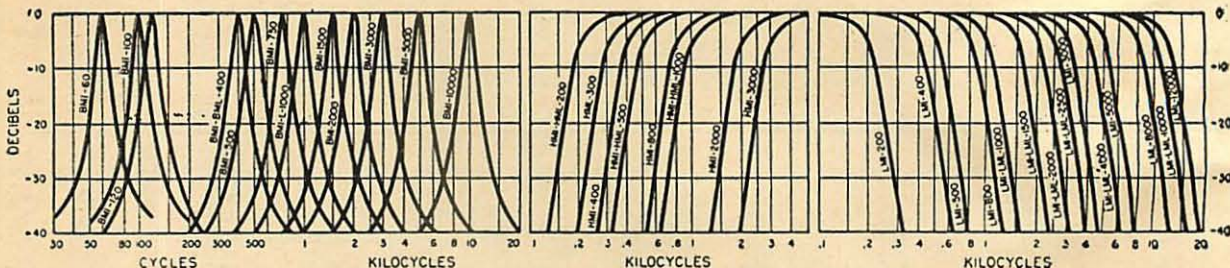


## INTERSTAGE and LINE FILTERS

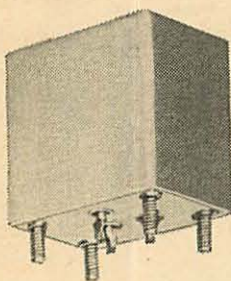
Hermetically sealed to MIL-T-27A and MIL-F-18327 Specs.

UTC makes a wide range of specialized filters covering bands ranging from .1 cycle to 400 megacycles. A group of standardized filters have been developed covering the more common mid-range frequencies, which take

care of many filter requirements with stock units. All of these standard filters are in drawn hermetically sealed cases shielded to reduce hum pick-up. Special frequencies to order.



TYPICAL RESPONSE CURVES OF STANDARD FILTERS



FILTER CASE M

- Base ..... 1 3/4" x 1 1/4"
- Mtg. .... 3/4" x 1 1/4"
- Mtg. Studs (stainless)..... 6-32
- Cutout ..... 7/8" dia.
- Height, BMI, LMI, BML ..... 1 5/8"
- Height, HMI, HML, LML ..... 2 1/2"
- Weight ..... 6 oz. and 9 oz.

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. Input 10,000 ohms, output to grid.

BTI are same as BMI but with 10,000 ohms output for transistor applications. HMI units (High Pass) has a loss of less than 6 db at cutoff frequency, and an attenuation of 35 db at .67 cutoff frequency. Input and output 10,000 ohms.

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. Input and output 10,000 ohms.

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.

BML (Band Pass) have input of 500/600 ohms, output to grid.

### STANDARD FILTERS... STOCK FREQUENCIES

BMI-60	LMI-400
BMI-100	LMI-500
BMI-120	LMI-800
BMI-400	LMI-1000
BMI-500	LMI-1500
BMI-750	LMI-2000
BMI-1000	LMI-2500
BMI-1500	LMI-3000
BMI-2000	LMI-4000
BMI-3000	LMI-5000
BMI-4000	LMI-10000
BMI-5000	BML-400
BMI-10000	BML-1000
BTI-60	HML-200
BTI-100	HML-300
BTI-120	HML-500
HMI-200	HML-1000
HMI-400	LML-1000
HMI-500	LML-1500
HMI-800	LML-2000
HMI-1000	LML-2500
HMI-2000	LML-4000
HMI-3000	LML-8000
HMI-4000	LML-10000
LMI-200	LML-12000



## TELEMETERING BAND PASS FILTERS

Hermetically sealed to MIL-T-27A and MIL-F-18327 Specs.

The standard group of UTC telemetering filters described below incorporates extreme miniaturization with maximum stability, a complete set of 18 filters taking a volume of approximately 19 cubic inches. Both TMN and TMW types are designed for 100K input and output impedance and have an insertion loss of less than 6 db. Four pin hermetic header matches small Winchester socket.

TMN filters are down less than 3 db at  $\pm 7.5\%$  of center frequency. They are down more than 18 db at  $\pm 25\%$  of center frequency. Attenuation is greater than 40 db beyond  $1.75 F_c$  and  $.58 F_c$ .

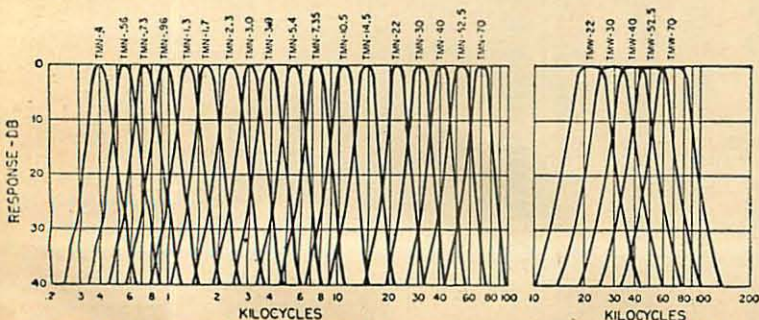
TMW filters are down less than 3 db at  $\pm 15\%$  of center frequency. They are down more than 20 db at  $\pm 50\%$  of center frequency. Attenuation is greater than 40 db beyond  $2.5 F_c$  and  $.4 F_c$ .



TMN-4 thru TMN-1.7  
3/16 x 1 1/2 x 2 inches  
Weight ..... 3.5 oz.



TMN-2.3 thru TMW-70  
3/32 x 2 1/2 x 1 3/8 inches  
Weight ..... 1.2 oz.



TYPICAL RESPONSE CURVES OF STANDARD TM FILTERS

Type No.	Center Frequency KC	Band Width $\pm$	Type No.	Center Frequency KC	Band Width $\pm$
TMN-.4	.4	7 1/2 %	TMN-14.5	14.5	7 1/2 %
TMN-.56	.56	7 1/2 %	TMN-22	22	7 1/2 %
TMN-.73	.73	7 1/2 %	TMN-30	30	7 1/2 %
TMN-.96	.96	7 1/2 %	TMN-40	40	7 1/2 %
TMN-1.3	1.3	7 1/2 %	TMN-52.5	52.5	7 1/2 %
TMN-1.7	1.7	7 1/2 %	TMN-70	70	7 1/2 %
TMN-2.3	2.3	7 1/2 %	TMW-22	22	15 %
TMN-3.0	3.0	7 1/2 %	TMW-30	30	15 %
TMN-3.9	3.9	7 1/2 %	TMW-40	40	15 %
TMN-5.4	5.4	7 1/2 %	TMW-52.5	52.5	15 %
TMN-7.35	7.35	7 1/2 %	TMW-70	70	15 %
TMN-10.5	10.5	7 1/2 %			



**MINIFILTERS**

Hermetically sealed to MIL-T-27A and MIL-F-18327 Specs.

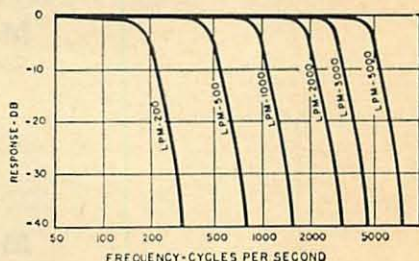
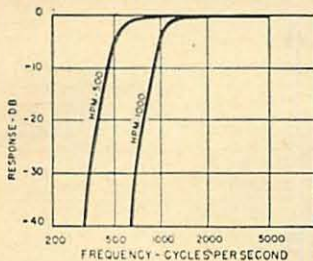
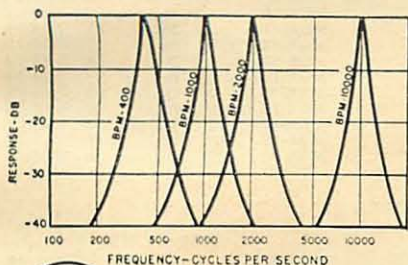
The UTC stock interstage filters on the opposite page have been an industry standard for over a decade. The new UTC miniature filters provide almost the same characteristics in an extremely miniaturized package. Attenuation of these miniature filters is only slightly less than their larger counterparts, as is operating level. Special filters can be supplied for any frequency above the minimum shown for each group, at \$48.00 net. Straight pin terminals are provided for printed or standard circuits.

BPM units (band pass) have 2:1 gain, Attenuation is approximately 2 db ± 3% from center frequency, and 35 db per octave as shown. Input 10,000 ohms, output to grid, tapped for 10,000 ohms output to provide flexibility in transistor circuits. For tube circuits continuity is on grid side, for transistor use continuity is on input side.

HPM units (high pass) have a loss of less than 6 db at cutoff frequency, and an attenuation of 30 db at .67 cutoff frequency, 40 db at .6 cutoff frequency. Input and output 10,000 ohms.

LPM units (low pass) have a loss of less than 6 db at cutoff frequency, and an attenuation of 30 db at 1.5 cutoff frequency, 40 db at 1.65 cutoff frequency. Input and output 10,000 ohms.

**TYPICAL RESPONSE CURVES OF MINIATURE FILTERS**



**BPM case (MIL AF)**  
3/4 x 3/4 x 1 1/4"  
Weight.....1 oz.

**HPM and LPM case (MIL AG)**  
1 x 1 x 1 1/4"  
Weight.....2 1/4 oz.

**STANDARD FILTERS STOCK FREQUENCIES**

BPM—400	BPM—10000	LPM—1000
BPM—750	HPM—500	LPM—2000
BPM—1000	HPM—1000	LPM—3000
BPM—1500	LPM—200	LPM—5000
BPM—2000	LPM—500	



**TELEGRAPH TONE CHANNEL FILTERS**

Hermetically sealed to MIL-T-27A and MIL-F-18327 Specs.

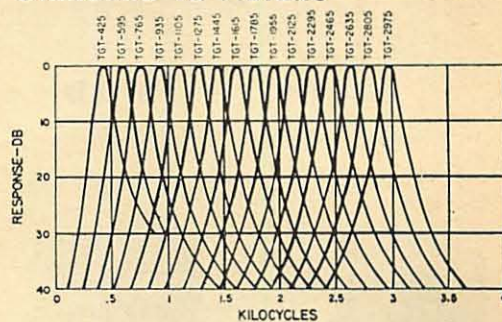
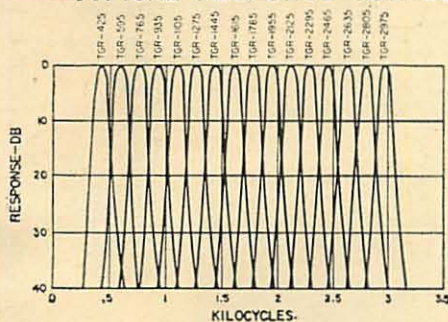
UTC band pass filters for multiplex transmitting and receiving provide maximum stability in miniature sizes. Stock filters cover all standard transmit and receive bands. All units employ 7 terminal header matching subminiature 7 pin socket.

TGR (receiving) filters are 600 ohms in and out. They are down less than 3 db at ± 42.5 cycles from center frequency and down more than

30 db at ± 170 cycles. Attenuation is greater than 15 db at adjacent channel crossover.

TGT (transmitting) filters are 600 ohms in and out. They are down less than 3 db at ± 42.5 cycles from center frequency and down more than 16 db at ± 170 cycles. Attenuation is greater than 7.5 db at adjacent channel crossover.

**TYPICAL RESPONSE CURVES OF STANDARD TG FILTERS**

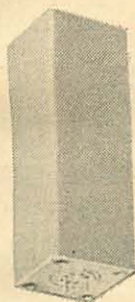


**RECEIVING FILTERS**

Type No.	Center Frequency (Cyc.)	Type No.	Center Frequency (Cyc.)
TGR-425	425	TGR-1785	1785
TGR-595	595	TGR-1955	1955
TGR-765	765	TGR-2125	2125
TGR-935	935	TGR-2295	2295
TGR-1105	1105	TGR-2465	2465
TGR-1275	1275	TGR-2635	2635
TGR-1445	1445	TGR-2805	2805
TGR-1615	1615	TGR-2975	2975

**TRANSMITTING FILTERS**

Type No.	Center Frequency (Cyc.)	Type No.	Center Frequency (Cyc.)
TGT-425	425	TGT-1785	1785
TGT-595	595	TGT-1955	1955
TGT-765	765	TGT-2125	2125
TGT-935	935	TGT-2295	2295
TGT-1105	1105	TGT-2465	2465
TGT-1275	1275	TGT-2635	2635
TGT-1445	1445	TGT-2805	2805
TGT-1615	1615	TGT-2975	2975



**TGR CASE**  
1 1/2 x 1 1/2 x 4 1/2"  
Mtg.....1 1/4 x 1 1/4"  
Screws .....6-32  
Weight.....15 oz.



**TGT CASE**  
1 1/2 x 1 1/2 x 2 1/2"  
Mtg.....1 1/4 x 1 1/4"  
Screws .....6-32  
Weight.....8 oz.



# NEW "M" TYPE TOROIDS

Hermetically sealed to MIL-T-27A Specs., . . . all units MIL type TF4RX20YY

**MAXIMUM Q**  
**MINIMUM SIZE**

UTC Permalloy Dust Toroids have been the standard of the industry for 20 years. The MQ series of coils provide the highest Q factor in their class (see curves below) with miniaturized dimensions. All units are hermetically sealed to MIL-T-27A Specifications . . . laboratory adjusted to 1% tolerance—0 DC. Uncased and molded toroids available on production orders.

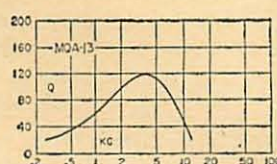
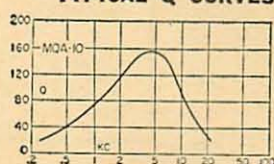
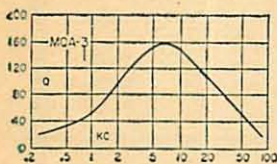
The stability is excellent. For the MQE-7 the inductance change is less than 1% for voltages from .1 to 3 volts. The MQA-13 change is less than 1% for applied voltages from .1 to 20 volts. The MQB-5 change is less than 1% for applied voltages from .1 to 50 volts. DC is permissible

through the coil (values listed below). Inductance is virtually independent of frequency, temperature and vibration.

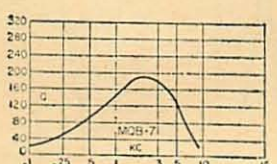
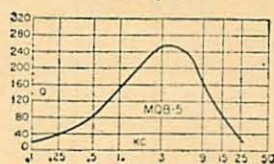
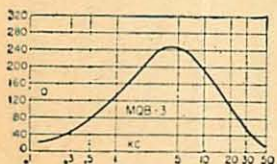
Hum pickup is extremely low due to the toroidal winding structure, with windings uniformly spread over the core. The case is of high permeability, affording additional shielding such that close spacing of units can be effected, the coupling attenuation being approximately 80 db.

TQA units are similar to MQA but centertapped for oscillator applications, etc. They employ an extremely stabilized structure for wide temperature range. Q is slightly lower than MQA.

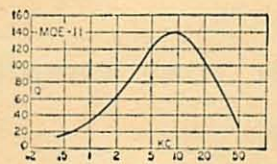
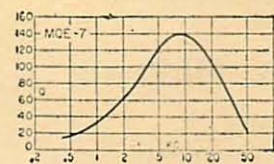
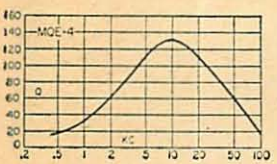
### TYPICAL Q CURVES



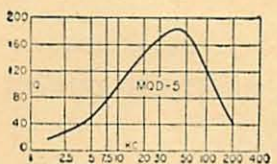
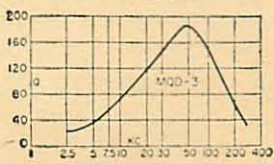
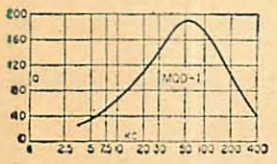
### MQA



### MQB



### MQE



### MQD

### MQA and TQA TYPES

Type No.	Inductance (0 DC)	DC MA Max.	Center Tapped Type No.
MQA-1	7 mhy.	250	TQA-1
MQA-2	12 mhy.	200	TQA-2
MQA-3	20 mhy.	150	TQA-3
MQA-4	30 mhy.	125	TQA-4
MQA-5	50 mhy.	100	TQA-5
MQA-6	70 mhy.	80	TQA-6
MQA-7	120 mhy.	60	TQA-7
MQA-8	.2 hy.	50	TQA-8
MQA-9	.3 hy.	40	TQA-9
MQA-10	.5 hy.	30	TQA-10
MQA-11	.7 hy.	25	TQA-11
MQA-12	1 hy.	20	TQA-12
MQA-13	1.5 hy.	17	TQA-13
MQA-14	2.5 hy.	13	TQA-14
MQA-15	4 hy.	10	TQA-15
MQA-16	6 hy.	9	TQA-16
MQA-17	10 hy.	7	TQA-17
MQA-18	15 hy.	5	TQA-18
MQA-19	22 hy.	4	TQA-19

### MQB TYPES

Type No.	Inductance (0 DC)	DC MA Max.
MQB-1	10 mhy.	400
MQB-2	30 mhy.	250
MQB-3	70 mhy.	170
MQB-4	120 mhy.	120
MQB-5	.5 hy.	60
MQB-6	1 hy.	40
MQB-7	2 hy.	30
MQB-8	3.5 hy.	22
MQB-9	7.5 hy.	16
MQB-10	12 hy.	11
MQB-11	18 hy.	9
MQB-12	25 hy.	8

### MQE TYPES

Type No.	Inductance (0 DC)	DC MA Max.
MQE-1	7 mhy.	135
MQE-2	12 mhy.	100
MQE-3	.20 mhy.	80
MQE-4	30 mhy.	65
MQE-5	50 mhy.	50
MQE-6	70 mhy.	40
MQE-7	100 mhy.	35
MQE-8	150 mhy.	30
MQE-9	.25 hy.	22
MQE-10	.4 hy.	17
MQE-11	.6 hy.	14
MQE-12	.9 hy.	12
MQE-13	1.5 hy.	9
MQE-14	2 hy.	8
MQE-15	2.8 hy.	7.2

### MQD TYPES

These high frequency coils are extremely stabilized type for temperature range from -40° C to +85° C.

### Inductance (0 DC)

MQD-1	2 mhy.
MQD-2	3 mhy.
MQD-3	5 mhy.
MQD-4	7 mhy.
MQD-5	12 mhy.
MQD-6	20 mhy.

The DC MA Max. shown will drop the coil inductance slightly.



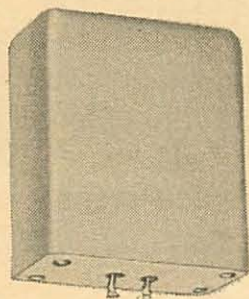
MQE CASE

Length	1 1/16"
Width	1/2"
Height	1 3/32"
Mounting	3/4"
Screws	4-40
Cutout	3/16" x 1/2"
Unit Weight	1.5 oz.



MQA, MQD, TQA CASE

Length	1 3/32"
Width	1 1/16"
Height	1 23/32"
Mounting	7/8" x 5/8"
Screws	4-40
Cutout	5/16" x 1/2"
	(TQA, 3/16" x 3/4")
Unit Weight	4 oz.



MQB CASE

Length	2 1/16"
Width	1 1/16"
Height	2 13/16"
Mounting	2 1/16" x 1 1/2"
Screws	6-32
Cutout	3/8" x 1/2"
Unit Weight	14 oz.



## VARIDUCTORS

### HVC AND TVC HERMETIC VARIDUCTORS

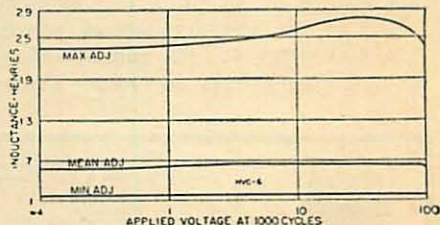
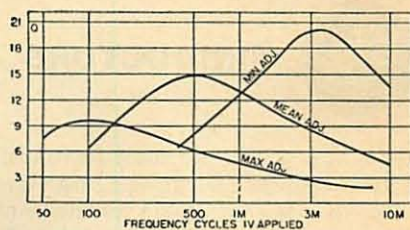
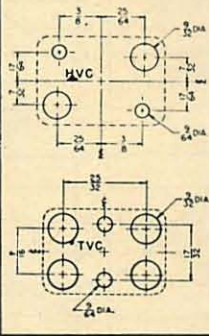
Variable inductors hermetically sealed to MIL-T-27A Specs., all units MIL type TF4RX20YY.

UTC Variductors have served as a simple solution to tuned circuit problems for over 15 years . . . for oscillators, equalizers, filters, etc.

HVC Inductors are hermetically sealed to MIL-T-27A and provide exceptionally wide inductance range with high Q in an extremely compact unit. HVC units are usable over a wide frequency range and have high stability with temperature and voltage change.

TVC Inductors are identical to the HVC units but provide taps at 30% and 50% of total turns. They are ideal for oscillator circuits, impedance matching, and phase inversion where high Q and adjustable inductance are required.

Inductance range is +200%, -70% of nominal value through adjusting screw on top of case. Range is covered in 90° rotation. Setting is positive. Effective Q over a wide frequency range and variation of inductance with applied AC voltage are illustrated for a typical HVC unit. Case dimensions are 1 1/8" long, 2 5/32" wide, 1 7/32" high . . . weight 2 ounces. Chassis cutout dimensions for HVC and TVC units are illustrated, 3/16" dia. holes are to clear the 4-40 stainless mounting studs.



Type No.	Min. Hys.	Mean Hys.	Max. Hys.	DC* Ma.	Tapped Type No.
HVC-1	.002	.006	.02	100	TVC-1
HVC-2	.005	.015	.05	60	TVC-2
HVC-3	.011	.040	.11	40	TVC-3
HVC-4	.03	.1	.3	30	TVC-4
HVC-5	.07	.25	.7	20	TVC-5
HVC-6	.2	.6	2	15	TVC-6
HVC-7	.5	1.5	5	10	TVC-7
HVC-8	1.1	4	11	7	TVC-8
HVC-9	3	10	30	5	TVC-9
HVC-10	7	25	70	3.5	TVC-10
HVC-11	20	60	200	2	TVC-11
HVC-12	50	150	500	1.5	TVC-12

Choosing Type No.: If frequency is above 100 cycles, use type providing required inductance between mean and min. values.

### VIC STANDARD VARIDUCTORS

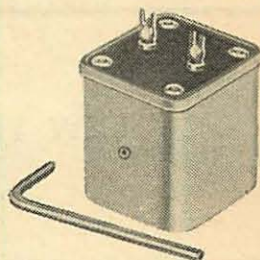
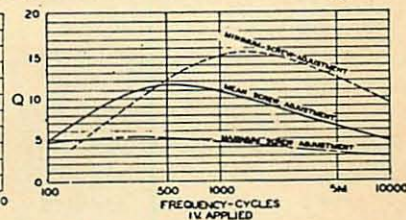
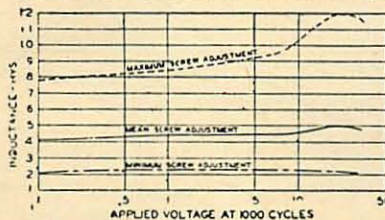
UTC type VIC variable inductors offer a convenient approach to the problem of tuned audio circuits. By adjusting a set screw in the side of the case, an inductance value of +85%, -45% from mean value is obtainable. Range is covered in 60° rotation. Setting is positive. Effective Q for a wide frequency range and variation of inductance with applied AC voltage are shown on the illustrated curves, for a typical VIC unit.

The VIC inductor is housed in a rugged die cast case 1 1/2" long, 1 1/4" wide and 1 3/8" high with mounting centers on terminal board side 1 3/8" by 7/32", tapped for 4-40 screw. Weight is 5 1/2 oz.

Type	Mean Hys.	DC Ma*
VIC-1	.0085	75
VIC-2	.013	60
VIC-3	.021	50
VIC-4	.034	40
VIC-5	.053	35
VIC-6	.084	30
VIC-7	.13	25
VIC-8	.21	21
VIC-9	.34	18
VIC-10	.51	15
VIC-11	.85	12

Type	Mean Hys.	DC Ma*
VIC-12	1.3	10
VIC-13	2.2	8
VIC-14	3.4	7
VIC-15	5.4	6
VIC-16	8.5	5
VIC-17	13	4
VIC-18	21	3.5
VIC-19	33	3
VIC-20	52	2
VIC-21	83	1.5
VIC-22	130	1

\*DC MA shown is maximum recommended . . . will effect some reduction in inductance and Q.



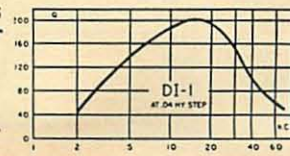
## HIGH Q PRECISION INDUCTANCE DECADES

UTC DI inductance decades are invaluable instruments for design and experimental work with tuned circuits, wave filters, and equalizers. They set new standards of Q, stability, frequency range, and convenience. The low hum pickup toroid coils employ a new permalloy dust core which, combined with special winding methods, provides very high Q, excellent voltage and temperature stability, and high self resonance fre-

quency. The switch employed is a new low capacity type which lab tests have proven for low contact resistance after 100,000 operations. The inductance values are laboratory adjusted to better than 1% precision, with calibration noted on base.

DI inductance decades are housed in a compact, rugged, die cast case with control on a sloping panel, ideally suiting these units to laboratory use.

Type No.	Induct. Henries	Optimum Range	Max. Q	Max. ACMA	Ins. Test Volts RMS
DI-1	10 x .01	2-60 KC	200	500	500
DI-2	10 x .1	.25-20 KC	200	150	500
DI-3	10 x 1	.25-10 KC	200	50	500
DI-4	10 x 10	.2-1.5 KC	100	15	500



DI CASE

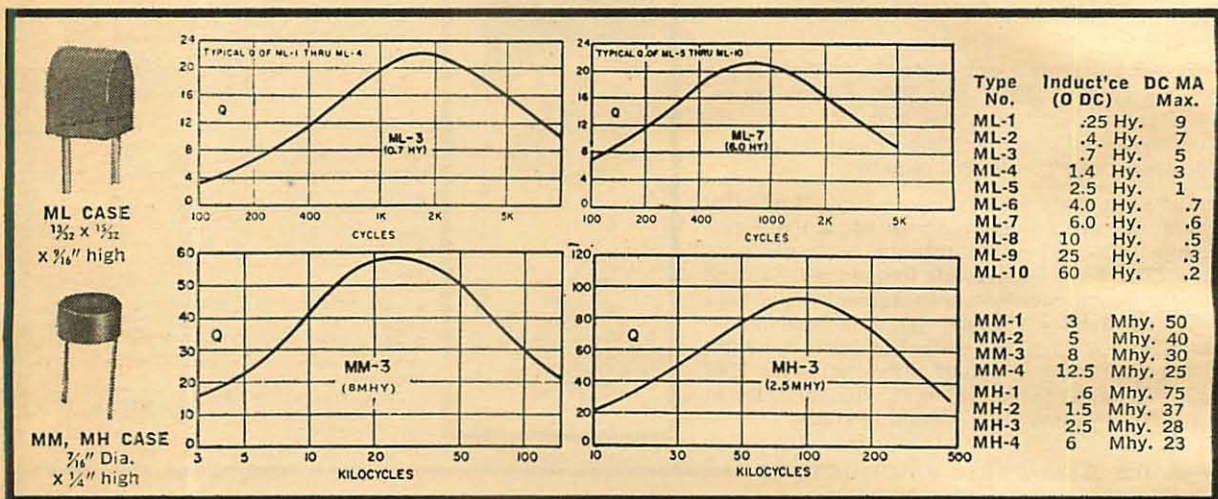
Length	4 1/2"
Width	4 3/8"
Height	2 3/8"
Weight	2 lbs.



**MINIDUCTORS** Hermetically sealed to MIL-T-27A Specs., ... all units MIL type TF5RX20ZZ

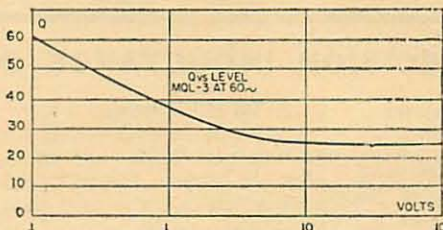
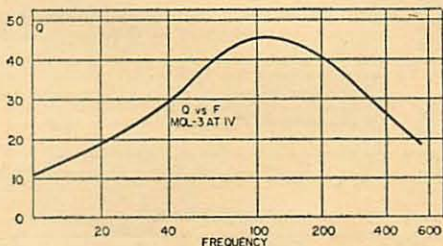
UTC Miniductors are ideal for transistor and printed circuit applications, providing high Q in miniature form. The ML-1 to 4 units are for medium low frequencies, adjusted to  $\pm 3\%$  at 1 V. 1 KC. The ML-5 thru 10 series are for lower frequencies, adjusted to  $\pm 3\%$  at 1 V. 400 cycles. The MM and MH units are for medium and high frequencies, adjusted to a tolerance of  $\pm 2\%$ .

Temperature stability is excellent on all Miniductors, from  $-55^{\circ}$  C. to  $+100^{\circ}$  C. The ML units are in a Hipermalloy shield case ... the MM and MH coils are symmetrical toroids ... for high coupling attenuation and low hum pickup. The DCMA MAX, shown is for approximately 5% drop in inductance.



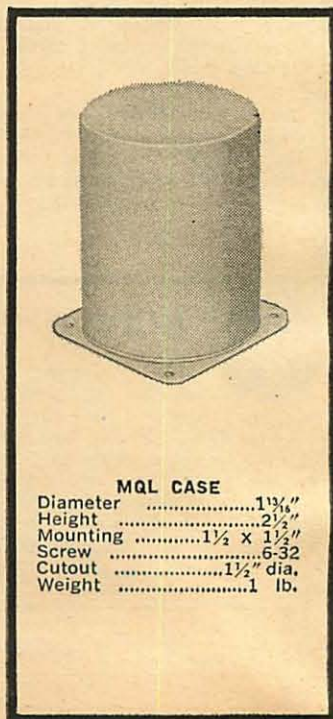
**LOW FREQUENCY HIGH Q COILS** Hermetically sealed to MIL-T-27A Specs., ... all units MIL type TF4RX20YY

Permalloy dust toroids are not suited to providing high Q at low frequencies. The MQL series of laminated Hipermalloy coils were specifically designed for this class of service. The unique structure employed provides exceptional Q and stability. Inductance values are laboratory adjusted to 2% tolerance at 1 volt, 60 cycles. Stability with voltage is excellent, for MQL-3 inductance variation is less than 1% from .1 V. to 1 V. 60 cycles. Temperature stability is exceptional, total inductance swing being less than 3.5% for the wide range of  $-55^{\circ}$ C to  $+85^{\circ}$ C. A hum reducing lamination structure plus heavy Hipermalloy shielding provide very low hum pickup ... 240 microvolts/gauss for MQL-3 series connected. Two identical windings brought out to four terminals permit series, parallel, center tapped, or transformer type connections.



Type No.	Series Henries (0 DC)	Parallel Henries (0 DC)
MQL-0	1	.25
MQL-1	10	2.5
MQL-2	20	5
MQL-3	200	50
MQL-4	400	100
MQL-5	2500	625

(For 60 cycles and lower)



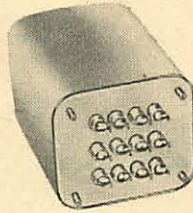


**SILICON RECTIFIER TRANSFORMERS**

TRANSISTOR SUPPLY . . . TELEPHONE SUPPLY . . .  
BATTERY CHARGERS . . . PLATING RECTIFIERS

Hermetically sealed to MIL-T-27A  
specs. Type TF4RX02.

UTC silicon rectifier transformers are high reliability units in drawn MIL cases. The chart below shows the secondary voltages available and the approximate DC voltages which result in typical silicon rectifier circuits (at MIL currents shown). Primary taps can modify nom. AC voltages by -6%, +6%, and +12%. Since the capacitor following the rectifier affects the DC voltage, values used (in 1000 mfd) are shown, in parenthesis ( ), after each current rating. Case dimensions on page 1406.



PRIMARY 115 VOLTS, 50/60 CYCLES  
NOMINAL SEC. VOLTS, 8.25 to 40.5

Type No.	MIL DC Range	Indust. DC Range	MIL CASE
H-94	6V-3A to 53V-1A	6V-4A to 50V-1.2A	HA
H-95	6V-7.5A to 53V-2.5A	6V-9A to 50V-3A	KA
H-96	6V-18A to 53V-6A	6V-23A to 50V-7.5A	OA

MIL-T-27A RATINGS IN REGULAR TYPE, INDUSTRIAL RATINGS IN BOLD TYPE

Nom. AC Volts*	FULL WAVE BRIDGE SILICON RECTIFIER						FULL WAVE C.T.				
	40.5	32.25	28.5	24	20.25	16.5	12	8.25	40.5 CT	24 CT	16.5 CT
Approx. DC Volts*	53	41	34	25	24	18	12	6	24	12	6.6
H-94 DC Amp.	1. (5)	1.1(5)	1.2(5)	1.3(5)	2 (1)	1.5(1)	2.5(2)	3 (2)	1.5(1)	1.8(1)	2.3(2)
H-94 DC Amp.	1.2(5)	1.5(5)	1.5(5)	1.6(5)	2.5(1)	2 (1)	3 (2)	3.8(2)	2 (1)	2.2(1)	2.8(2)
H-95 DC Amp.	2.5(1)	3 (1)	3 (1)	3.5(1)	5 (2)	3.7(2)	6 (4)	7.5(4)	3.7(2)	4.5(2)	5.5(4)
H-95 DC Amp.	3 (1)	3.5(1)	3.8(1)	4 (1)	6 (2)	4.5(2)	7.5(4)	9 (4)	4.5(2)	5.5(2)	6.7(4)
H-96 DC Amp.	6 (4)	7 (4)	7.5(4)	8 (4)	12 (6)	9 (6)	15 (12)	18 (12)	9 (6)	11 (6)	13.5(12)
H-96 DC Amp.	7.5(4)	8.5(4)	9.5(4)	10 (4)	15 (6)	11 (6)	19 (12)	23 (12)	11 (6)	13.5(6)	17 (12)

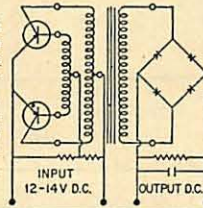
\*Nom. AC and DC volts are at 115 volt input . . . primary taps can modify -6%, +6%, and +12%.



**TRANSISTOR INVERTER TRANSFORMERS**

Hermetically sealed to MIL-T-27A specs. Type TF4SX40.

High switching current transistors have made it possible to eliminate vibrators for plate supplies operating from batteries. UTC inverter transformers for this application are high reliability (layer insulated) types providing high efficiency in small size. Units are in drawn MIL cases. Circuit details supplied with transformer. With 6 V. input instead of 12 V., output voltage is halved, current rating remains the same. Case dimensions on page 1406.



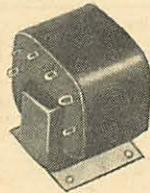
FOR 12/14 OR 24/28 VOLT BATTERY

Type No.	DC output, when used in circuit shown	MIL Case
H-97	250V.- 60MA	AH
H-98	375V.-100MA	AJ
H-99	425V.-175MA	FA
H-100	550V.-200MA	GB



**400 CYCLE FILAMENT TRANSFORMERS**

UTC molded 400 cycle filament transformers and reactors are designed to provide maximum reliability with small size and weight. They are suited to ground or airborne applications.



PRIMARY 105/115 VOLTS 380-1000 CYCLES. TYPE TF5SX01ZZ.

Type No.	Sec. Volts	Sec. Amp.	Test Volts RMS	L In.	W In.	H In.	Mtg. In.	Wt. Lbs.
H-101	6.3 CT	3.5	2500	1 3/8	1 3/8	2	1 1/4 x 1 3/8	.3
H-102	6.3 CT	5.5	2500	1 3/4	2	2 1/4	1 1/4 x 1 3/8	.44
H-103	6.3 CT	10	2500	2 1/4	2 1/4	2 1/2	1 1/4 x 1 3/8	.8
H-104	6.3 CT	25	2500	2 3/8	2 1/2	3 1/2	2 1/4 x 1 3/8	1.5

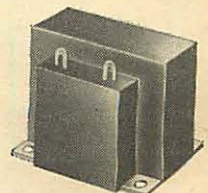


**MOLDED FILTER REACTORS**

Hermetically sealed to MIL-T-27A specs. Type TF5SX04ZZ.

Type No.	*Inductance Henries @ DC MA.	DCR, Ohms	Test Volts	L	W	H	Wgt. Lbs.
H-105	2.5 @ 25 MA, 2 @ 35 MA, 1.5 @ 45 MA.	225	1000	1 3/8	1 3/8	1 3/8	.1
H-106	2.25 @ 60 MA, 1.75 @ 80 MA, 1.25 @ 100 MA.	110	1000	1 3/8	1 3/4	1 3/8	.28
H-107	2 @ 120 MA, 1.5 @ 160 MA, 1 @ 200 MA.	55	2500	2 1/4	1 3/4	1 3/8	.9
H-108	2 @ 220 MA, 1.5 @ 270 MA, 1 @ 325 MA.	35	2500	2 1/4	2 1/4	2 1/8	2
H-109	Series: 40 Mhy @ 1.25A, 30 Mhy @ 1.75A, 20 Mhy @ 2.5A. Parallel: 10 Mhy @ 2.5A, 7.5 Mhy @ 3.5A, 5 Mhy @ 5A.	.6	750	2 1/4	2 1/4	2 1/8	2
		.15					

\*Inductance test is performed at maximum current rating.





# HERMETIC SEALED POWER TRANSFORMERS

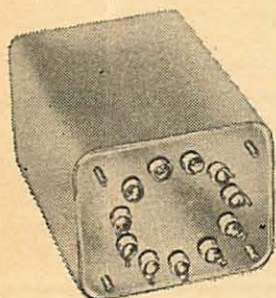
Primary 115 volts, 60 cycles . . . suited to 50\*/1000 cycles service

Hermetically sealed  
to MIL-T-27A Specs.

MIL-T-27A RATINGS IN REGULAR TYPE,  
INDUSTRIAL RATINGS IN BOLD TYPE  
"L" ratings are for choke input filter, "C" for condenser input

The "H" series of hermetic power transformers are suited to a wide variety of electronic applications in both military and industrial service. Conservative design provides maximum reliability through low temperature rise and high insulation safety factors. All units are in MIL cases with rugged internal construction.

The tapped high voltage winding provides either of two secondary voltages for greatest versatility. The listings indicate DC voltages and permissible currents for both choke and condenser input filters, as well as for military and industrial applications.



### MIL CASES, INCHES

Mil Case	W	H	L
AH	1 3/8	1 3/8	1 3/4
AJ	1 3/8	1 3/8	2 3/8
FA	2 3/8	2 3/8	3 3/8
FB	2 3/8	2 3/8	2 1/2
GB	2 3/8	2 3/8	2 3/8
HA	3 1/8	2 3/8	4 1/4
HB	3 1/8	2 3/8	3 3/8
JA	3 1/8	3 1/8	4 3/8
JB	3 1/8	3 1/8	3 3/8
KA	3 1/8	3 3/8	5 1/4
KB	3 1/8	3 3/8	4 3/8
LA	4 3/8	3 1/8	5 3/8
LB	4 3/8	3 1/8	4 1/2
MB	4 3/8	4	4 1/8
NA	5 1/8	4 3/8	6 3/8
NB	5 1/8	4 3/8	5 1/2
OA	5 1/2	4 1/2	6 3/4

### UTC CASES, INCHES

Type No.	W	H	L
H-79	7	7	8
H-113	6	5 1/2	6 1/2
H-114	6 1/2	6 1/2	8
H-115	6 1/2	6 1/2	8
H-116	9 1/2	8 1/2	10 1/2
H-117	11	11	14 1/2
H-128	6 1/2	5 1/2	7 1/2
H-129	6 1/2	5 1/2	7 1/2

Type No.	MIL Type	HV Sec. C.T.	Approx.** DC Volts	DC MA	Fil. Wdg.	Approx.** DC Volts	MA DC	Fil. Wdg.	MIL Case
H-80	TF4RX03FA	450	C 240	30	6.3VCT-2A	C 215	38	6.3VCT-2.5A	FA
H-81	TF4RX03HA	500	L 170 C 270	95 55	6.3VCT-3A	L 160 C 245	110 75	6.3VCT-3A 5V-2A	HA
		550	L 200 C 310	85 50	5V-2A	L 180 C 280	105 65		
H-82	TF4RX03JB	550	L 180 C 290	145 90	6.3VCT-4A	L 160 C 270	190 115	6.3VCT-4.5A 5V-2A	JB
		600	L 215 C 330	135 85	5V-2A	L 190 C 315	180 100		
H-83	TF4RX03JA	600	L 215 C 315	165 100	6.3V-5A	L 200 C 320	210 120	6.3V-6A 5V-2A	JA
		670	L 250 C 400	150 90	5V-2A	L 230 C 380	200 110		
H-84	TF4RX03KA	700	L 245 C 390	225 135	6.3V-5A	L 240 C 375	255 160	6.3V-6A 6.3V-1.5A 5V-4A	KA
		750	L 275 C 430	205 125	6.3V-1A 5V-3A	L 270 C 410	230 150		
H-85	TF4RX03LA	700	L 245 C 390	300 190	6.3V-6A	L 230 C 355	370 230	6.3V-6A 6.3V-2A 5V-4A	LA
		750	L 270 C 425	280 170	6.3V-1.5A 5V-3A	L 250 C 395	350 210		
H-86	TF4RX03MB	720	L 270 C 425	310 180	6.3V-6A	L 250 C 395	360 225	6.3V-7.5A 6.3V-2A 5V-4A	MB
		790	L 295 C 475	300 160	6.3V-2A 5V-3A	L 280 C 440	350 210		
H-87	TF4RX03NB	730	L 245 C 390	420 275	6.3V-6A	L 230 C 390	515 300	6.3V-6A 6.3V-2A 5V-6A	NB
		800	L 275 C 440	400 250	6.3V-2A 5V-4A	L 275 C 430	480 290		
H-88	TF4RX03NA	800	L 270 C 430	410 260	6.3V-6A	L 250 C 440	500 290	6.3V-8A 6.3V-4A 5V-6A	NA
		1000	L 370 C 570	350 230	6.3V-2A 5V-4A	L 360 C 550	410 240		
H-89	TF4RX03OA	850	L 305 C 460	430 280	6.3V-8A	L 275 C 445	550 340	6.3V-10A 6.3V-5A 5V-6A	OA
		1050	L 400 C 600	400 260	6.3V-4A 5V-6A	L 370 C 575	500 320		
H-90	TF4RX03JA	700	L 260 C 325	150 140	6.3V-5A 5V-2A	L 250 C 315	180 165	6.3V-5A 5V-2A	JA
		850	L 340 C 390	200 190	6.3V-5A 6.3V-1A 5V-3A	L 330 C 385	220 195	6.3V-6A 6.3V-1.5A 5V-4A	KA
H-92	TF4RX03MB	900	L 340 C 400	265 240	6.3V-6A 5V-4A	L 330 C 395	310 290	6.3V-8A 6.3V-2A 5V-4A	MB
		1050	L 400 C 500	240 200	6.3V-4A 5V-6A	L 455 C 550	350 240		
H-93	TF4RX03OA	1000	L 370 C 465	300 265	6.3V-8A 6.3V-4A 5V-6A	L 340 C 455	390 350	6.3V-10A 6.3V-5A 5V-6A	OA
		1200	L 465 C 570	265 200	6.3V-4A 5V-6A	L 455 C 550	350 240		
H-194***	TF4RX03HA	200	L 170 C 275	140 85	6.3V-3.5A	L 160 C 260	155 95	6.3V-4A	HA
		235	L 200 C 325	125 75		L 190 C 310	135 85		
H-195***	TF4RX03JA	215	L 185 C 300	285 180	6.3V-5A	L 175 C 285	300 195	6.3V-6A	JA
		265	L 230 C 375	240 150		L 220 C 360	255 165		
H-196***	TF4RX03KA	230	L 200 C 320	445 280	6.3V-5A 6.3V-1.5A	L 190 C 300	480 300	6.3V-6A 6.3V-2A	KA
		285	L 250 C 400	380 235		L 240 C 380	420 260		
H-197***	TF4RX03MB	260	L 230 C 360	500 320	6.3V-6A 6.3V-2A	L 220 C 340	550 350	6.3V-7A 6.3V-2A	MB
		320	L 280 C 450	420 260		L 270 C 430	470 290		

\*For 50 cycles, secondary current ratings are reduced by 20%.  
\*\*After appropriate H series choke.  
\*\*\*DC ratings are for bridge rectifier circuits.





**HERMETIC SEALED FILTER CHOKES**

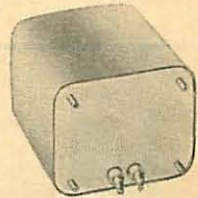
Hermetically sealed to MIL-T-27A Specs.

MIL-T-27A RATINGS IN REGULAR TYPE, INDUSTRIAL RATINGS IN BOLD TYPE

Type No.	MIL Type	Ind. Hys.	@ DC	MA DC	Ind. Hys.	@ DC	MA DC	Ind. Hys.	@ DC	MA DC	Res. Ohms	Max. DCV* Ch. Input	Test V. RMS	MIL Case
H-70	TF4RX04AH	20	20	18	25	14.5	30	10	35	925	350	1000	AH	
H-71	TF4RX04FB	20	40	18.5	50	15.5	60	10	70	350	500	2500	FB	
H-72	TF4RX04GB	13	70	11.5	85	9.5	105	7	125	215	500	2500	GB	
H-73	TF4RX04HB	11	100	9.5	125	7.5	150	5.5	175	150	700	2500	HB	
H-74	TF4RX04JB	11	150	10	170	8.5	195	6.5	215	135	700	2500	JB	
H-75	TF4RX04KB	11	200	10	230	8.5	250	6.5	300	90	700	2500	KB	
H-76	TF4RX04LB	11	200	10	230	8.5	250	6.5	300	85	1500	4500	LB	
H-77	TF4RX04MB	10	300	9	350	8	390	6.5	435	60	2000	5500	MB	
H-78	TF4RX04OA	7	400	6.5	430	6	465	5.5	500	48	2500	7000	OA	
H-79	TF4RX04YY	7	800	6.5	900	6	1000	5.5	1250	20	3000	9000	7x7x8	

Inductance test is performed at maximum military current rating.  
 \* Based on maximum ripple voltage across choke in choke input filter circuit, in terms of DC output voltage. Does not apply to condenser input circuits.

The multiple ratings for the "H" series of filter chokes suit these units for the complete gamut of military and industrial applications. Conservative design provides maximum reliability through low temperature rise and high insulation safety factor. MIL case dimensions on page 1406.

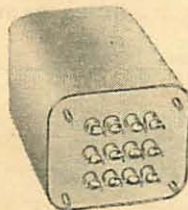


**HERMETIC SEALED FILAMENT TRANSFORMERS**

Hermetically sealed to MIL-T-27A Specs.

Primary: 105/115/210/220 volts . . . 50/60 cycles, except H-130 (115v.) and H-131 (115/220 v.) . . . Suited to 400/1000 cycle service.

The wide variety of "H" series filament transformers listed cover virtually every military and industrial need. Conservative design provides maximum reliability through low temperature rise and high insulation safety factor. MIL case dimensions on page 1406.

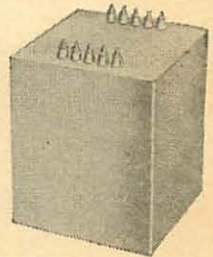


**HERMETIC SEALED PLATE TRANSFORMERS**

Hermetically sealed to MIL-T-27A Specs.

Primary: 105/115/210/220 Volts . . . 50/60 cycles.

The tapped high voltage winding on the "H" series hermetic plate transformers provide either of two secondary voltages for greatest versatility. The listing shows the DC voltage and permissible currents for a wide variety of applications in both military and industrial service. High insulation safety factor and low temperature rise provide a maximum in reliability. The first three types are in MIL cases. H-114 and above have terminals opposite mounting. MIL case dimensions on page 1406.



MIL-T-27A RATINGS IN REGULAR TYPE, INDUSTRIAL RATINGS IN BOLD TYPE.

Type No.	MIL Type	Sec. Volts	Amps. (MIL)	Amps. (Indust.)	Test Volts RMS	MIL Case
H-120	TF4RX01GB	2.5	10	12	4000	GB
H-121	TF4RX01JB	2.5	10	12	10000	JB
H-122	TF4RX01KB	2.5	20	26	10000	KB
H-123	TF4RX01NB	2.5	5	7.5	10000	NB
		2.5	5	7.5		
		2.5	10	15		
H-124	TF4RX01FB	5	3	3	2000	FB
H-125	TF4RX01KB	5	10	12	10000	KB
H-126	TF4RX01LA	5	20	25	10000	LA
H-127	TF4RX01NA	5	20	30	21000	NA
H-128	TF4RX01YY	5	60	75	21000	See Page 18
H-129	TF4RX01YY	5	10	12	21000	See Page 18
		5	10	12		
		5	20	24		
H-130	TF4RX01AJ	6.3CT	.6	.75	1500	AJ
H-131	TF4RX01FB	6.3CT	2	2.5	2500	FB
H-132	TF4RX01JA	6.3CT	6	7	2500	JA
		6.3CT	6	7		
H-133	TF4RX01HB	6.3CT	7	8	2500	HB
H-134	TF4RX01HA	6.3CT	10	12	2500	HA
H-135	TF4RX01JB	10CT	10	13	2500	JB
H-136	TF4RX01LA	14, 12, 11CT	10	14	2500	LA

MIL-T-27A RATINGS IN REGULAR TYPE, INDUSTRIAL RATINGS IN BOLD TYPE.

All ratings are for choke input filter.

Type No.	Type MIL	C.T. Sec. V.	DC Volts Approx.*	DC MA Choke	DC No. MA Choke	DC No. MA Choke	Case
H-110	TF4RX02MB	1050	365	275 H-75	385 H-77	350 H-77	MB
		1200	430	250 H-75	500 H-77	500 H-77	
H-111	TF4RX02NA	1050	415	440 H-77	550 H-77	500 H-77	NA
		1200	480	400 H-77	500 H-77	500 H-77	
H-112	TF4RX02NA	1500	615	290 H-77	350 H-77	300 H-76	NA
		1900	790	250 H-76	300 H-76	300 H-76	
H-113	TF4RX02YY	2500	1050	280 H-77	340 H-77	300 H-76	6 x 5 1/4 x 6 1/4
		3000	1275	250 H-76	300 H-76	300 H-76	
H-114	TF4RX02YY	2500	1050	450 H-79	500 H-78	450 H-78	6 1/2 x 6 1/2 x 8
		3000	1265	400 H-78	450 H-78	450 H-78	
H-115	TF4RX02YY	3500	1500	265 H-77	350 H-77	300 H-77	6 1/2 x 6 1/2 x 8
		4400	1900	225 H-77	300 H-77	300 H-77	
H-116	TF4RX02YY	5000	2125	450 H-79	560 H-79	500 H-78	8 1/2 x 9 1/4 x 10 1/4
		6000	2550	400 H-78	500 H-78	500 H-78	
H-117	TF4RX02YY	5000	2125	900 H-79	1100 H-79	1000 H-79	11 x 11 x 14 1/4
		6000	2550	800 H-79	1000 H-79	1000 H-79	

\*After filter choke.



For twenty-five years UTC has been the largest supplier of transformer components for military applications, to customer specifications. Listed below are a number of types, to MIL-T-27A specifications, which are now catalogued as UTC stock items. All units employ glass bead headers or terminals. For printed circuit use, wire terminals on glass header units can be straightened out without injury. Straight wire terminals available on production orders as well as flat (7/8 x 23/32 x 9/16) case for SM units . . . also MIL cases.

The frequency response ratings are based on military requirements. Actually, most of the units that do not carry DC are appreciably better in response than the range shown. For example:

H-1, H-3, H-5, H-8 are within 2db from 30 to 20,000 cycles. The level ratings are maximum level for reasonable distortion at the lowest frequency specified. For higher frequencies considerably higher levels are permissible. For example, the H-3 will handle +21dbm at 400 cycles.

The Impedance ratings are listed in standard manner. Transformers can be used for applications differing considerably from those shown, keeping in mind that impedance ratio is constant. Lower source impedance will improve response and level ratings . . . higher source impedance reduces them. Units may also be used reversed, input to secondary.



RC-25 CASE

Length ..... 1 1/4"  
Width ..... 1 1/4"  
Height ..... 1 1/4"  
Mtg. (slot center) 1 1/8" to 1 1/2"  
Screws ..... 4-40 Fil.  
Cutout ..... 7/8" Dia.  
Unit Weight ..... 1.5 oz.



RC-50 CASE

Length ..... 1 5/8"  
Width ..... 1 5/8"  
Height ..... 2 1/2"  
Mounting ..... 1 1/8"  
Screws ..... #6-32  
Cutout ..... 1 1/2" Dia.  
Unit Weight ..... 8 oz.



SM CASE

Length ..... 1 1/8"  
Width ..... 1 1/8"  
Height ..... 3/8"  
Screw ..... 4-40 Fil.  
Unit Weight ..... .8 oz.

MINIATURE AUDIO UNITS . . . RC-25 CASE

Type No.	Application	MIL Type	Pri. Imp. Ohms	Sec. Imp. Ohms	Pri. Unbal. DC MA	Response +2 db (Cyc.)	Level max. dbm
H-1	Mike, Unit, line to grid	TF4RX10YY	50, 200 CT, 500 CT*	50,000	0	50-10,000	+5
H-2	Mike to grid	TF4RX11YY	82	135,000	50	250-8,000	+18
H-3	Plate to single grid	TF4RX15YY	15,000	60,000	0	50-10,000	+6
H-4	Plate to single grid DC in Pri.	TF4RX15YY	15,000	60,000	4	200-10,000	+14
H-5	Plate to PP grids	TF4RX15YY	15,000	95,000 CT	0	50-10,000	+5
H-6	Plate to PP grids DC in Pri.	TF4RX15YY	15,000	95,000 split	4	200-10,000	+11
H-7	Plate or PP to line	TF4RX13YY	20,000 CT	150/600	4	200-10,000	+21
H-8	Mixing and matching	TF4RX16YY	150/600	600 CT	0	50-10,000	+8
H-9	82/41:1 input to grid	TF4RX10YY	150/600	1 meg.	0	200-3,000 (4 db.)	+10
H-10	10:1 plate to grid	TF4RX15YY	10,000	1 meg.	0	200-3,000 (4 db.)	+10
H-11	Reactor	TF4RX20YY	300 Hys.-0 DC, 50 Hys.-3 Ma. DC, 6,000 Ohms.				
H-12	Mike, line to PP grids	TF4RX10YY	50,200 CT, 500 CT*	50,000 CT	0	50-10,000	+5
H-13	Transistor Interstage	TF4RX13YY	10K/2.5K, Split	2K/5K split	4	100-10,000	+20
H-14	Transistor Interstage	TF4RX13YY	10K/2.5K, Split	4K/1K split	4	100-10,000	+20
H-15	Transistor to line	TF4RX13YY	1,500 CT	500/125 split	8	100-10,000	+20
H-16	Transistor to V.C.	TF4RX13YY	2,000 CT 4,000 CT	8 16	4	100-10,000	+20

COMPACT AUDIO UNITS . . . RC-50 CASE

Type No.	Application	MIL Type	Pri. Imp. Ohms	Sec. Imp. Ohms	Pri. Unbal. DC MA	Response +2 db (Cyc.)	Level max. dbm
H-19A	Balanced line to grid 1:14, multiple (75 db) shielding	TF4RX10YY	250 CT 500 CT	50,000 100,000 CT	0	30-20,000	+6
H-20	Plate or PP to PP grids	TF4RX15YY	15,000 split	80,000 split	0	30-20,000	+12
H-21	Plate to PP grids DC in Pri.	TF4RX15YY	15,000	80,000 split	8	100-20,000	+23
H-22	Plate to line	TF4RX13YY	15,000	50/200, 125/500**	8	50-20,000	+23
H-23	PP plates to line	TF4RX13YY	30,000 split	50/200, 125/500**	8	30-20,000	+19
H-24	Reactor	TF4RX20YY	450 Hys.-0 DC, 250 Hys.-5 Ma. DC, 6000 ohms 65 Hys.-10 Ma. DC, 1500 ohms				
H-25	Mixing or trans. to line	TF4RX17YY	500 CT	500/125 split	20	40-20,000	+30
H-26	Transistor Interstage	TF4RX13YY	10,000/2,500 (split)	2,000/500 split	8	40-20,000	+30
H-27	Transistor to V.C.	TF4RX17YY	500 CT	16/4 split	20	40-20,000	+30
H-280	Transistor driver	TF4RX17YY	200 CT	400 split	20	40-20,000	+30
H-281	Transistor to V.C.	TF4RX17YY	48 CT	16, 8, 4	750 Bal	40-20,000	5 watts
H-282	Transistor to V.C. RC-62 case, Pg. 37.	TF4RX17YY	20 CT	16, 8, 4	1000 Bal	40-20,000	10 watts
H-290	Chopper transformer Electrostatic & triple magnetic shld.	TF4RX10YY	2,500 e.s. (1/2 Pri.)	100K ratio 1:6.4	0	60-400	+5
H-291	Chopper transformer higher gain & 20 db better shielding	TF4RX10YY	2,000/500 e.s. (1/2 Pri.)	312K ratio 1:25/12.5	0	60-400	+10

SUBMINIATURE AUDIO UNITS . . . SM CASE

Type No.	Application	MIL Type	Pri. Imp. Ohms	Sec. Imp. Ohms	Pri. Unbal. DC MA	Response +2 db (Cyc.)	Level max. dbm
H-30	Input to grid	TF4RX10YY	50	62,500	0	150-10,000	+13
H-31	Plate to single grid	TF4RX15YY	10,000	90,000	0	300-10,000	+13
H-32	Single plate to line	TF4RX13YY	10,000***	200	3	300-10,000	+13
H-33	Single plate to low imp.	TF4RX13YY	30,000	50	1	300-10,000	+15
H-35	Reactor	TF4RX-20YY	100 Henries-0 DC, 50 Henries-1 Ma. DC, 4,400 ohms.				
H-36	Transistor Interstage	TF4RX15YY	25,000 (DCR800)	1,000 (DCR110)	5	300-10,000	+10
H-37A	Transistor output	TF4RX15YY	500CT (DCR50)	50 (DCR5)	3.5	300-10,000	+15
H-38	Transistor Interstage	TF4RX13YY	10,000 CT (DCR600)	1,200 CT	2	300-10,000	+15
H-39	Transistor Interstage	TF4RX13YY	10,000 CT (DCR600)	2,000 CT	2	300-10,000	+15
H-40A	Transistor output	TF4RX17YY	500 CT (DCR26)	600 CT	10	300-10,000	+15
H-41A	Transistor output	TF4RX13YY	1,500 CT (DCR71)	600 CT	7	300-10,000	+15

\* 200 ohm termination can be used for 150 ohms or 250 ohms, 500 ohm termination for 600 ohms.  
\*\* 200 ohm termination can be used for 150 ohms or 250 ohms, 125/500 ohm termination for 150/600 ohms.  
\*\*\* Can be used for 500 ohm load . . . 25,000 ohm primary impedance . . . 1.5 Ma. DC.



# NEW EXPANDED DO-T AND DI-T SERIES

Revolutionary transistor transformers hermetically sealed to MIL-T-27A Specifications.

UTC DO-T and DI-T transistor transformers provide unprecedented power handling capacity and reliability coupled with extremely small size. Comparative performance with other available products of similar size are shown in the curves (based on setting output power at 1 KC, then maintaining same input level over frequency range). The new expanded series of units cover virtually every transistor application.

## DO-T

High Power Rating . . . up to 100 times greater.

ACTUAL SIZE



Excellent Response . . . twice as good at low end.

Low Distortion . . . reduced 80%.

High Efficiency . . . up to 30% better.

Moisture Proof . . . hermetically sealed to MIL-T-27A.

Rugged . . . completely cased.

Anchored Leads . . . withstand 10 pound pull test.

## DI-T

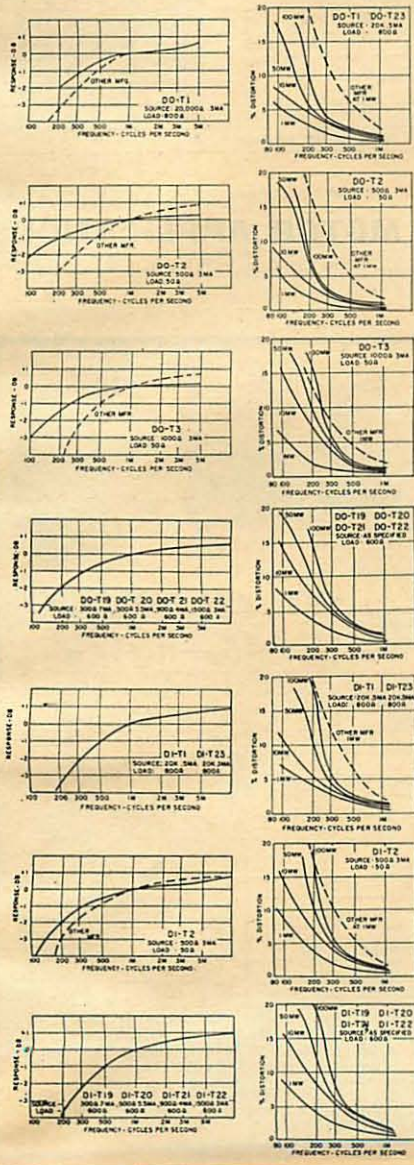
ACTUAL SIZE



5/16 Dia. x 13/32, 1/10 Oz.

Printed Circuit Use...plastic insulated leads.

5/16 Dia. x 1/4, 1/20 Oz.



DO-T No.	MIL Type	Application	Pri. Imp.	D.C. Ma. in Pri.	Sec. Imp.	Pri. Res.	Pri. Res. DI-T	Level Mv.	DI-T No.
DO-T1	TF4RX13YY	Interstage	20,000 30,000	.5 .5	800 1200	850	815	50	DI-T1
DO-T2	TF4RX17YY	Output	500 600	3 3	50 60	60	65	100	DI-T2
DO-T3	TF4RX13YY	Output	1000 1200	3 3	50 60	115	110	100	DI-T3
DO-T4	TF4RX17YY	Output	600	3	3.2	60		100	
DO-T5	TF4RX13YY	Output	1200	2	3.2	115	110	100	DI-T5
DO-T6	TF4RX13YY	Output	10,000	1	3.2	790		100	
DO-T7	TF4RX16YY	Input	200,000	0	1000	8500		25	
DO-T8	TF4RX20YY	Reactor 3.5 Hys. @ 2 Ma. DC, 1 Hy. @ 5 Ma. DC					630		DI-T8
	TF4RX20YY	Reactor 2.5 Hys. @ 2 Ma. DC, 9 Hy. @ 4 Ma. DC					630		DI-T8
DO-T9	TF4RX13YY	Output or driver	10,000 12,000	1 1	500 CT 600 CT	800	870	100	DI-T9
DO-T10	TF4RX13YY	Driver	10,000 12,000	1 1	1200 CT 1500 CT	800	870	100	DI-T10
DO-T11	TF4RX13YY	Driver	10,000 12,000	1 1	2000 CT 2500 CT	800	870	100	DI-T11
DO-T12	TF4RX17YY	Single or PP output	150 CT 200 CT	10 10	12 16	11		500	
DO-T13	TF4RX17YY	Single or PP output	300 CT 400 CT	7 7	12 16	20		500	
DO-T14	TF4RX17YY	Single or PP output	600 CT 800 CT	5 5	12 16	43		500	
DO-T15	TF4RX17YY	Single or PP output	800 CT 1070 CT	4 4	12 16	51		500	
DO-T16	TF4RX13YY	Single or PP output	1000 CT 1330 CT	3.5 3.5	12 16	71		500	
DO-T17	TF4RX13YY	Single or PP output	1500 CT 2000 CT	3 3	12 16	108		500	
DO-T18	TF4RX13YY	Single or PP output	7500 CT 10,000 CT	1 1	12 16	505		500	
DO-T19	TF4RX17YY	Output to line	300 CT	7	600	19	20	500	DI-T19
DO-T20	TF4RX17YY	Output or line to line	500 CT	5.5	600	31	32	500	DI-T20
DO-T21	TF4RX17YY	Output to line	900 CT	4	600	53	53	500	DI-T21
DO-T22	TF4RX13YY	Output to line	1500 CT	3	600	86	87	500	DI-T22
DO-T23	TF4RX13YY	Interstage	20,000 CT 30,000 CT	.5 .5	800 CT 1200 CT	850	815	100	DI-T23
DO-T24	TF4RX16YY	Input (usable for chopper service)	200,000 CT	0	1000 CT	8500		25	
DO-T25	TF4RX13YY	Interstage	10,000 CT 12,000 CT	1 1	1500 CT 1800 CT	800	870	100	DI-T25
DO-T26	TF4RX20YY	Reactor 6 Hy. @ 2 Ma. DC, 1.5 Hy. @ 5 Ma. DC				2100			
	TF4RX20YY	Reactor 4.5 Hy. @ 2 Ma. DC, 1.2 Hy. @ 4 Ma. DC					2300		DI-T26
DO-T27	TF4RX20YY	Reactor 1.25 Hy. @ 2 Ma. DC, 5 Hy. @ 11 Ma. DC				100			
	TF4RX20YY	Reactor .9 Hy. @ 2 Ma. DC, .5 Hy. @ 6 Ma. DC					105		DI-T27
DO-T28	TF4RX20YY	Reactor .3 Hy. @ 4 Ma. DC, .15 Hy. @ 20 Ma. DC				25			
	TF4RX20YY	Reactor .1 Hy. @ 4 Ma. DC, .08 Hy. @ 10 Ma. DC					25		DI-T28
DO-T29	TF4RX17YY	Single or PP output	120 CT 150 CT	10 10	3.2 4	10		500	
DO-T30	TF4RX17YY	Single or PP output	320 CT 400 CT	7 7	3.2 4	20		500	
DO-T31	TF4RX17YY	Single or PP output	640 CT 800 CT	5 5	3.2 4	43		500	
DO-T32	TF4RX17YY	Single or PP output	800 CT 1,000 CT	4 4	3.2 4	51		500	
DO-T33	TF4RX13YY	Single or PP output	1,060 CT 1,330 CT	3.5 3.5	3.2 4	71		500	
DO-T34	TF4RX13YY	Single or PP output	1,600 CT 2,000 CT	3 3	3.2 4	109		500	
DO-T35	TF4RX13YY	Single or PP output	8,000 CT 10,000 CT	1 1	3.2 4	505		500	
DO-T36	TF4RX13YY	Isol. or interstage	10,000 CT	1	10000 CT	950	970	500	DI-T36

DO-TSH Drawn Hyperalloy shield and cover for DO-T's, provides 25 to 30 db shielding, for DI-T's DI-TSH DCMA shown is for single ended usage (under 5% distortion—100MW—1KC) . . . for push pull, DCMA can be any balanced value taken by .5W transistors (under 5% distortion—500MW—1KC)  
\*DO-T units have been designed for transistor application only . . . not for vacuum tube service. Pats. Pend.

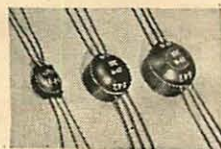
# Sec. 5600



## MINIATURE WIDE APPLICATION PULSE TRANSFORMERS

Hermetically sealed to MIL-T-27A Specs., . . . all units MIL type TF5SX36ZZ

UTC miniature, wound core, pulse transformers are precision, high reliability units, hermetically sealed by vacuum molding and suited for service from  $-70^{\circ}\text{C}$ . to  $+130^{\circ}\text{C}$ . Wound core structure provides excellent temperature stability (unlike ferrite). Designs are high inductance type to provide minimum of droop and assure true pulse width, as indicated on chart below. If used for coupling circuit where minimum rise time is important, use next lowest type number. Rise time will be that listed for this lower type number . . . droop will be that listed multiplied by ratio of actual pulse width to value listed for this type number. block oscillator data listed is obtained in standard test circuit shown. Coupling data was obtained with H. P. 212A generator (correlated for H-55, 56, 57) and source/load impedances shown. Three windings, 1; 1; 1.



Type No.	APPROX. DCR, OHMS			BLOCKING OSCILLATOR PULSE					COUPLING CIRCUIT CHARACTERISTICS					DIMENSIONS				
	1-2	3-4	4-5	Width $\mu$ Sec.	Rise Time	% Over Shoot	Droop %	% Back Swing	P. Width $\mu$ Sec.	Volts Out	Rise Time	% Over Shoot	Droop %	% Back Swing	Imp. in. out, ohms	L In.	W In.	Wt. Grams
H-45	3	3.5	4	.05	.022	0	20	10	.05	17	.01	20	0	35	250	$\frac{3}{8}$	$\frac{3}{8}$	1
H-46	5.5	6.5	7	.10	.024	0	25	10	.10	19	.01	30	10	50	250	$\frac{3}{8}$	$\frac{3}{8}$	1
H-47	3.7	4.0	4	.20	.026	0	25	8	.20	18	.01	30	15	65	500	$\frac{3}{8}$	$\frac{3}{8}$	4
H-48	5.5	5.8	6	.50	.03	0	20	5	.50	20	.01	30	20	65	500	$\frac{3}{8}$	$\frac{3}{8}$	4
H-49	8	8.5	9	1	.04	0	20	10	1	24	.02	15	15	65	500	$\frac{3}{8}$	$\frac{3}{8}$	4
H-50	20	21	22	2	.05	0	20	10	2	27	.05	10	15	35	500	$\frac{3}{8}$	$\frac{3}{8}$	4
H-51	28	31	33	3	.10	1	20	8	3	26	.07	10	10	35	500	$\frac{3}{8}$	$\frac{3}{8}$	4
H-52	36	41	44	5	.13	1	25	8	5	23	.15	10	10	45	1000	$\frac{3}{8}$	$\frac{3}{8}$	4
H-53	37	44	49	7	.28	0	25	8	7	24	.20	10	10	50	1000	$\frac{3}{8}$	$\frac{3}{8}$	6
H-54	50	58	67	10	.30	0	20	8	10	24	.25	10	10	50	1000	$\frac{3}{8}$	$\frac{3}{8}$	6
H-55	78	96	112	16	.75	0	20	10	16	23	.40	5	15	20	1000	$\frac{3}{8}$	$\frac{3}{8}$	6
H-56	93	116	138	20	1.25	0	25	10	20	23	.6	5	10	10	1000	$\frac{3}{8}$	$\frac{3}{8}$	6
H-57	104	135	165	25	2.0	0	30	10	25	24	1.5	5	10	10	1000	$\frac{3}{8}$	$\frac{3}{8}$	6
H-58	Pulse transformer kit. Consists of one of each of the above units in a partitioned plastic case. Ideal for the laboratory.																	

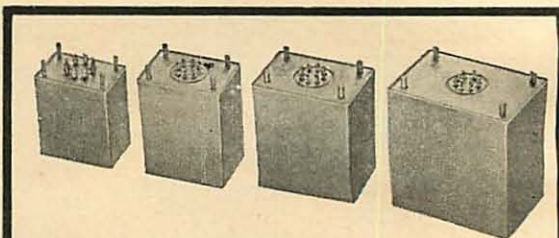
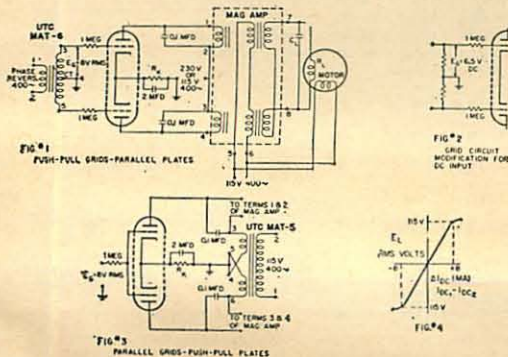


## MAGNETIC AMPLIFIERS FOR SERVO MOTOR APPLICATIONS

Hermetically sealed to MIL-T-27A Specs., . . . all units MIL type TF4SY40YY

The MAT 1-4 Magnetic Amplifiers are exceptionally stable units designed for the control of 2 phase, 115V., 400 cycle servo motors. They are compact . . . hermetically sealed . . . magnetically shielded . . . and meet MIL-T-27A and MIL-E-5400 Specifications. The output is sinusoidal, amplitude variable, and phase reversible. Control is provided by a dual triode such as 12AU7 operating with a plate voltage of 115 volts, 400 cycles, or higher. The signal to the triode grids can be polarity reversible DC or phase reversible 400 cycles with or without suppressed carrier modulation. These units eliminate DC power requirements as well as temperature sensitive dry disc rectifiers. The high input impedance provides minimum loading on sensing elements and high power gain. Ringing at low load level has been reduced to a minimum through high internal damping factors. The power output figures are conservative . . . power gain of the MAGNETIC STRUCTURE is approximately 40 . . . response time approximately 7.5 milliseconds. The maximum null voltage is 3 volts RMS. For single phase supply voltage the load capacitor should effect  $90^{\circ}$  phase shift with motor load . . . for 3 phase,  $30^{\circ}$  phase shift. (The chart values shown are approximate.)

For AC signal control the circuit of Figure 1 is employed. For DC signal control Figure 2 applies. Figure 3 shows the use of a power transformer (MAT-5) which provides higher plate voltages (230 volt supply data of chart) and eliminates the input transformer (MAT-6). The typical response curve of Figure 4 applies to all units, the larger units feeding heavier loads.



Type No.	MAT-1	MAT-2	MAT-3	MAT-4
<b>230 Volt Supply</b>				
Power output	4 W.	8 W.	11 W.	18 W.
RL, ohms	3300	1600	1200	720
CL, mfd.	.2	.3	.5	.7
<b>115 Volt Supply</b>				
Power output	2 W.	4 W.	6 W.	9 W.
RL, ohms	6500	3300	2200	1450
CL, mfd.	.13	.2	.3	.45
Reson. Freq.	40 cyc.	35 cyc.	35 cyc.	20 cyc.
Log-Decr.	.18	.23	.03	.65
Cont. Wdg. Res.	6200 $\Omega$	8450 $\Omega$	4750 $\Omega$	5650 $\Omega$
Case				
Length, in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{2}$
Width, in.	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$
Height, in.	2 $\frac{3}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{8}$	3 $\frac{3}{8}$
Mtg. Dim., in.	1 $\frac{3}{8}$ x 1 $\frac{1}{2}$	1 x 1 $\frac{1}{8}$	1 $\frac{1}{2}$ x 1 $\frac{1}{8}$	1 $\frac{1}{2}$ x 2 $\frac{1}{2}$
Studs, stainless	4-40	6-32	8-32	8-32
Cutout, in.	1	1	1	1
Unit Weight, lbs.	.67	1.1	1.7	2.75

**MAT-5** 115V.-400 cyc. to 460 VCT; provides 230V. 48 MA DC or 460V. 24 MA DC. RC-37 Case . . . 1 $\frac{1}{2}$  x 1 $\frac{1}{2}$  x 1 $\frac{1}{2}$  . . .  $\frac{1}{8}$  mtg. holes 1 $\frac{1}{2}$  x 1 $\frac{1}{2}$  . . . 6 oz. MIL type TF4SY02YY.

**MAT-6** Input . . . 10,000 ohms pri. . . 1:15 C.T. ratio. . . phase shift under  $1^{\circ}$  . . . RC-25 case. MIL type TF4RX10YY.



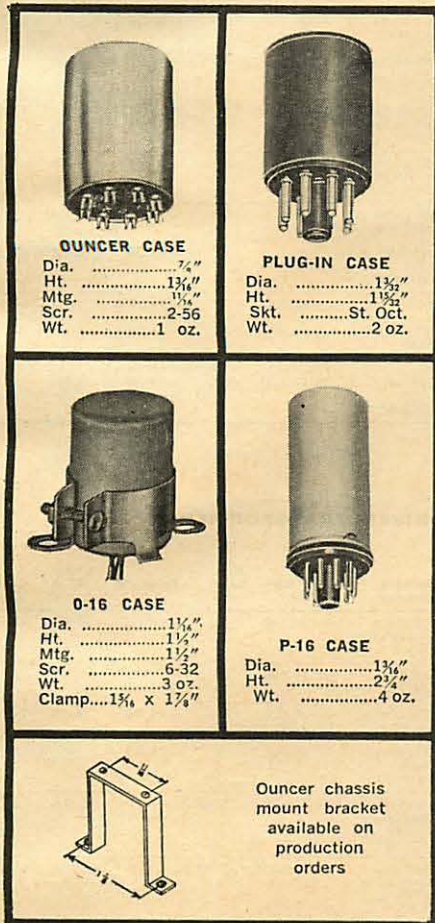
**OUNCER AUDIO UNITS / STANDARD AND PLUG-IN TYPES**

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 7/8" diameter . . . mounting opposite terminal board. Hermetic Ouncer (RC-25 case) listed on page 1408.

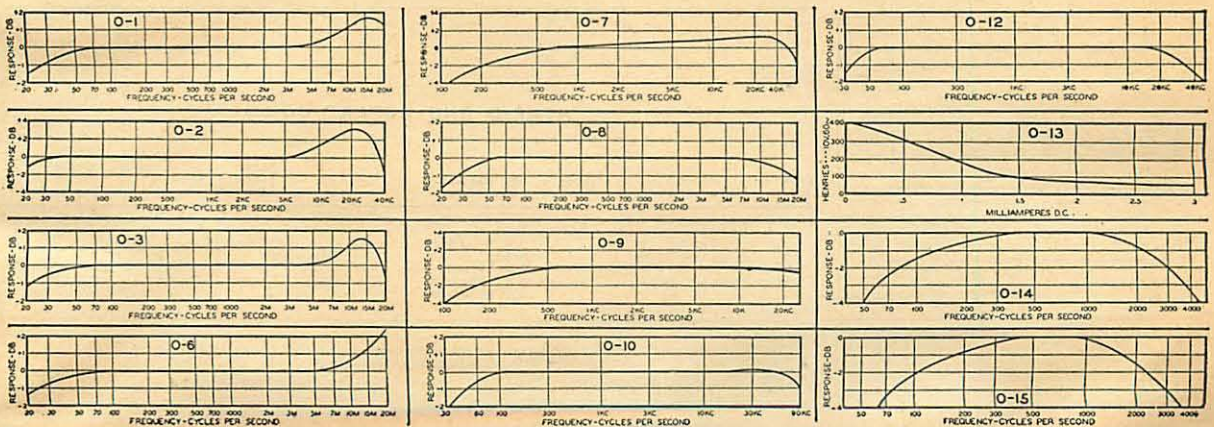
Ouncer items are ideal for portable broadcast, hearing aid, aircraft, concealed service, and similar applications. High fidelity characteristics are provided, uniform within approximately 1 db

from 30 to 20,000 cycles, except for 0-14, 0-15, and units carrying DC which are intended for voice frequencies. Transistor transformers are good to 80 cycles at low end. Maximum level +8 dbm.

"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 Type No.	Application	Pri. Imp.	Sec. Imp.	PLUG-IN Type No.
0-1	Mike, pickup or line to 1 grid	50, 200/250, 500/600	50,000	P-1
0-2	Mike, pickup or line to 2 grids	50, 200/250, 500/600	50,000 CT	P-2
0-3	Dynamic mike to 1 grid	7.5/30	50,000	P-3
0-4	Single plate to 1 grid	15,000	60,000	
0-5	Single plate to 1 grid, D.C. in Pri.	15,000	60,000	
0-6	Single plate to 2 grids	15,000	95,000 CT	P-6
0-7	Single plate to 2 grids, D.C. in Pri.	15,000	95,000 CT	P-7
0-8	Single plate to line	15,000	50, 200/250, 500/600	P-8
0-9	Single plate to line, D.C. in Pri.	15,000	50, 200/250, 500/600	P-9
0-10	Push pull plates to line	30,000 ohms plate to plate	50, 200/250, 500/600	P-10
0-11	Crystal mike or pick-up to line	50,000	50, 200/250, 500/600	P-11
0-12	Mixing and matching	50, 200/250	50, 200/250, 500/600	P-12
0-13	Reactor, 300 Hys.—no D.C.; 50 Hys.—3 Ma. D.C., 6000 ohms			
0-14	50:1 mike or line to 1 grid	200	1/2 megohm	
0-15	10:1 single plate to 1 grid	15,000	1 megohm	P-15
0-16	Mike or line to grid	250 C.T.	50,000	
This transformer provides very low hum pickup . . . employs two heavy gauge hypermalloy shields plus orientable mounting. Primary centertap is balanced to 1%. Can be used for 150, 200, 250, 500, or 600 ohm sources . . . 200:1 impedance ratio.				
Same as 0-16 but with nine pin plug in socket. 1 1/4" Dia. x 2 1/4" high, 4 oz. P-16				
0-17	Hipermalloy shield, slip fit over ouncer, 1" O.D., provides 25 db shielding.			
0-18	Transistor Interstage	10,000/2,500 (split)	2,000/500 (split)	
0-19	Transistor Interstage	10,000/2,500 (split)	4,000/1,000 (split)	
0-20	Transistor to line	1,500 CT	500/125 (split)	
0-21	Transistor to voice coil	Imp. ratio 250:1	2,000 CT	8
			4,000 CT	16
0-22	Transistor to Voice Coil	1W. @ 200 cyc.;	500 CT	4
		1/2W. @ 100 cyc.	400 CT	3.2
0-23	Reactor, 7 Hys. @ 3 Ma. DC; 3.5 Hys. @ 10 Ma. DC, 230 ohms			
0-24	Reactor, 1.6 Hys. @ 3 Ma. DC; 8 Hys. @ 10 Ma. DC, 25 ohms			

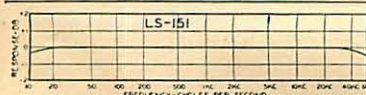
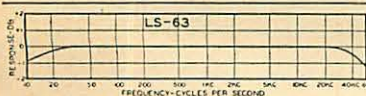
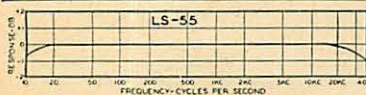
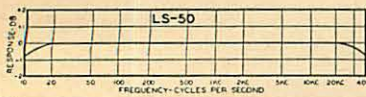
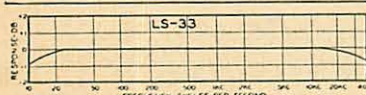
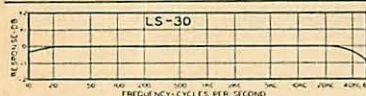
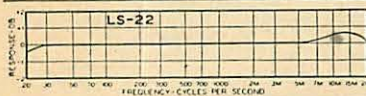
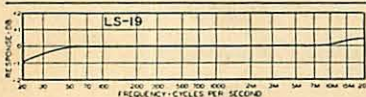
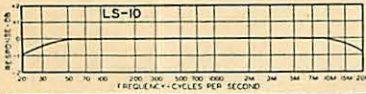




LINEAR STANDARD AUDIO TRANSFORMERS

The ever increasing use of wide range equipment 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.

LS case dimensions on page 1413.



LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level dbm	Relative* hum	Unbal. DC in primary	Case No.
LS-10	Low impedance mike, pickup, or multiple line to push pull grids	50, 125/150, 200, 250, 333, 500/600 ohms	60,000 ohms in two sections	20-20,000	+19	-74 DB	.5 MA	LS-1
LS-10X	As above	As above	50,000 ohms	20-20,000	+17	-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	+19	-74 DB	.5 MA	LS-1
LS-12X	As above	As above	80,000 ohms overall, split	20-20,000	+17	-92 DB-Q	.5 MA	LS-1
LS-14X	Low impedance mike, pickup, or parallel mixer to grid	2.5, 5.5, 10, 15, 22, 30, 38, 60 ohms	50,000 ohms	20-20,000	+17	-92 DB-Q	.5 MA	LS-1
LS-15X	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	+17	-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	+28	-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	+23	-74 DB	0 MA	LS-1
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	7-50,000	+23	-74 DB	.5 MA	LS-1
LS-30X**	As above	As above	As above	20-20,000	+20	-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	+23	-74 DB	.5 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	+23	-74 DB	.5 MA	LS-1

INTERSTAGE AND DRIVER TRANSFORMERS

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level dbm	Relative* hum	Unbal. DC in primary	Case No.
LS-19	Plate to PP grids like 2A3, 6L6, 5881 Split secondary	15,000 ohms	95,000 ohms 1.25:1 each side	20-20,000	+20	-50 DB	0 MA	LS-1
LS-21	Plate to PP grids Split pri. and sec.	15,000 ohms	135,000 ohms; 3:1 overall	10-20,000	+20	-74 DB	0 MA	LS-1
LS-40	Plate to PP grids Split secondary	15,000 ohms	135,000 ohms; 3:1 overall	30-18,000 (+2 db)	+20	-74 DB	8 MA	LS-1
LS-25	PP plates to PP grids Wbd. level split pri. and sec.	30,000 ohms plate to plate	50,000 ohms; turn ratio 1.3:1 overall	20-20,000	+23	-74 DB	1 MA	LS-1
LS-6	Driver, push pull 2A3'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	15 watts		5 MA	LS-2
LS-47	Driver from push pull 2A3's, or sim., to class BB28'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	20 Watts		5 MA	LS-2
LS-48	Driver trans. push pull 845's to 805 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	40 Watts		15 MA	LS-3

HYBRID AND REPEAT COILS

Type No.	Application	Pri and Sec. Impedances	± 1 db from	Max. Level dbm	Relative* hum	Unbal. DC in primary	Case No.
LS-140	Line to line for isol. balanced and unbal. cir.; bal. for max. cross talk 70 DB	500/600 ohms split 500/600 ohms split	30-20,000	+18	-92 DB-Q	0 MA	LS-1
LS-141	Three sets of bal. wind. for hybrid service, centertapped	500/600 ohms 500/600 ohms	30-15,000	+18	-74 DB	0 MA	LS-1

\* 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 uncase type. Q = Multiple alloy magnetic shields.  
 \*\* High electrostatic shielding.



**LINEAR STANDARD AUDIO TRANSFORMERS**

**PLATE, CRYSTAL, PHOTOCELL, AND BRIDGING TO LINE TRANSFORMERS**

Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level dbm	Relative* hum	Unbal. DC in primary	Case No.
LS-27	Single pl. to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600	30-15,000	+23	-74 DB	8 MA	LS-1
LS-50	Single pl. to multiple line	15,000 ohms	50, 125/150, 200, 250, 333, 500/600	10-40,000	+23	-74 DB	0 MA	LS-1
LS-51	Push pull low level pl. to multiple line	30,000 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600	10-40,000	+24	-74 DB	1 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	7-50,000	+23	-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	7-50,000	+26	-74 DB	1 MA	LS-1

**HIGH LEVEL MATCHING TRANSFORMERS**

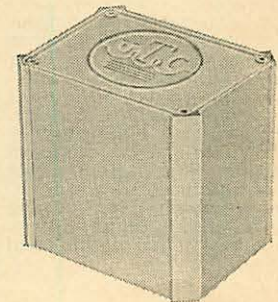
Type No.	Application	Primary Impedance	Secondary Impedance	± 1 db from	Max. Level	Case No.
LS-33	High level line matching	50, 125, 200, 250, 333, 500/600 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500/600	10-40,000	20 watts	LS-2
LS-34	High level line matching	50, 125, 200, 250, 333, 500/600 ohms	1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200, 250, 333, 500/600	10-40,000	40 watts	LS-3

**OUTPUT TRANSFORMERS TO LINE AND VOICE COIL**

Type No.	Primary will match typical tubes	Primary Impedance	Secondary Impedance	+ 1 db from	Max. Level	Case No.
LS-52	Push pull 6AQ5, 6V6, 6L6, 5881	8,000 ohms	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	7-50,000	20 watts	LS-2
LS-54	Same as above	8,000 ohms	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	7-50,000	20 watts	LS-2
LS-55	Push pull 2A3's, 300B, 6L6's, 6AS7G, 6080, 350B	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	7-50,000	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	7-50,000	20 watts	LS-2
LS-58	Push pull parallel as above	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	10-50,000	40 watts	LS-3
LS-61	Push pull triode; 6AS7G, 6080, 6L6, 5881, KT-66, 807, 1614	10,000 ohms pl. 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	7-50,000	20 watts	LS-2
LS-63	Same as above	10,000 ohms pl. to plate and 6,000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	7-50,000	20 watts	LS-2
LS-6L1	Self bias push pull 6L6's, 5881, KT-66, 6146 triode, 6159 triode	9,000 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	7-50,000	30 watts	LS-3
LS-6L4	Push pull 6146, 6159, 6L6's fixed bias or push pull parallel 6L6's self bias	4,500 ohms plate to plate and 3,800 ohms plate to plate	500, 333, 250, 200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2	12-50,000	55 watts	LS-3
LS-35	EL-34 in AB-feedback (see circuit pg. 25)	5,000 ohms CT 43% screen taps	4, 8, 16	7-50,000	35 watts	LS-3
LS-65	6550's in AB; feedback (see circuit pg. 25)	3,300 ohms CT 40% screen taps	4, 8, 16	7-50,000	60 watts	LS-3

**MODULATION TRANSFORMERS**

Type No.	Primary will match typical tubes	Primary Impedance	Secondary Impedance	+ 1 db from	Max. Level	Case No.
LS-56	Push pull 2A3's, 6AS7G's, 300B's, 6AS7G, 6L6, 6080	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	10-50,000	20 watts	LS-2
LS-691	Class B, 833A, 250TH	10,400 ohms plate to plate	4500, 4000, 3500, 2750, 2000	20-40,000	1000 watts	LS-6
LS-692	Class B push pull parallel 833A's	4,750 ohms plate to plate	2500, 2000, 1750, 1500, 1250	20-40,000	2500 watts	LS-6



LS-1 CASE

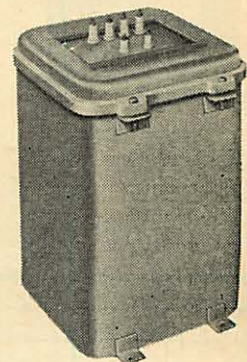
Length	3 1/4"
Width	2 5/8"
Height	3 1/2"
Mounting	1 1/8" x 2 1/4"
Screws	6-32
Cutout	1 3/4" dia.
Unit Weight	3 lbs.

LS-2 CASE

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

LS-3 CASE

Length	5 1/4"
Width	5"
Height	4 1/8"
Mounting	4 3/8" x 5 1/8"
Screws	10-24
Cutout	3 3/4" dia.
Unit Weight	15 lbs.



LS-6 CASE

Length	15 3/4"
Width	13"
Height—LS-691	24"
Height—LS-692	28"
Mounting Dimen.	7 3/4" x 14 1/4"
Mounting Hole	3/4" dia.
Unit Weight	350 lbs.
Unit Weight—LS-691	370 lbs.
Unit Weight—LS-692	520 lbs.



# HIPERMALLOY TRANSFORMERS

The UTC Hipermalloy 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 Hipermalloy audio units is uniform from 30 to 20,000 cycles. They incorporate a Hipermalloy 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 Primary shown is maximum unbalanced.

## LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

Type No.	Application	Primary Imp. (ohms)	Secondary Impedance	+ 1 db from	Max. Level dbm	Unbal. DC in primary	Case No.
HA-100	Low impedance, mike, pickup, or multiple line to grid	50, 125/150, 200, 250, 333, 500/600	60,000 ohms overall, split	30-20,000	+18	.5 MA	H-1
HA-100X	Same as above but with multiple alloy shields to effect very low hum pickup				+16		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	+18	.5 MA	H-1
HA-101X	As above but with multiple alloy shield to effect very low hum pickup		80,000 ohms overall, split	30-20,000	+16	.5 MA	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 overall, split	30-20,000	+18	.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	20-50,000	+20	.5 MA	H-1
HA-108X*	Same as above but with multiple alloy shield to effect very low hum pickup				+18		H-1
HA-130X	Three isolated lines or pads to one or two grids with tri-alloy internal shields	30, 50, 200, 250	60,000 ohms overall, split	30-20,000	+18	.5 MA	H-1

\* High electrostatic shielding.

## INTERSTAGE AUDIO TRANSFORMERS

Type No.	Application	Primary Imp.	Secondary Impedance	+ 1 db from	Max. Level dbm	Unbal. DC in primary	Case No.
HA-104	Single plate to P.P. grids like 2A3, 6L6 (split secondary)	15,000 ohms (split)	95,000 ohms 2.5:1	30-20,000	+20	0 MA	H-1
HA-105	Single plate to single grid	15,000 ohms	60,000 ohms 2:1 turn ratio	30-20,000	+20	0	H-1
HA-106	Single plate to push pull grids (split secondary)	15,000 ohms (split)	135,000 ohms 3:1 ratio overall	30-20,000	+20	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	+28	.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	+20	0	H-1

## PLATE AND CRYSTAL TO LINE TRANSFORMERS

Type No.	Application	Primary Imp.	Secondary Imp. ohms	+ 1 db from	Max. Level dbm	Unbal. DC in primary	Case No.
HA-111	Crystal microphone or pickup, to multiple line	100,000 ohms (split)	50, 125/150, 200, 250, 333, 500/600	30-20,000 measured with resistive source	+18	0	H-1
HA-113	Single plate to multiple line	15,000 ohms (split)	50, 125/150, 200, 250, 333, 500/600	30-40,000	+21	0 MA	H-1
HA-133	Single plate to multiple line (D.C. in Pri.)	15,000 ohms (split)	50, 125/150, 200, 250, 333, 500/600	30-40,000	+22	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	30-40,000	+23	1 MA	H-1

## OUTPUT TRANSFORMERS

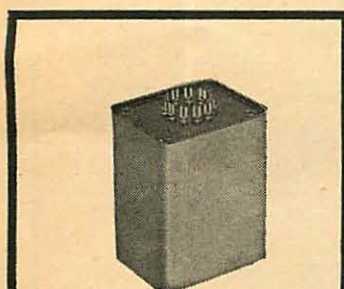
Type No.	Application	Primary Imp.	Secondary Imp.	Power	Case No.
HA-134	Push pull, 6L6, or 2A3's to line	5000/9400 ohms plate to plate	50, 125/150, 200, 250, 333, 500/600	10-50,000 15 watts	H-2
HA-135	Push pull 2A3's, etc. to voice coil	3000/5000 ohms plate to plate	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	10-50,000 18 watts	H-2
HA-136	5881's (KT-66's) in AB-feed back (see pg. 25 circuit)	6,600 ohms CT 43% screen taps	4, 8, 16	10-50,000 20 watts	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, 6X5GT 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, 6X5GT rectifier	115	275-0-275 35 MA	6.3 V.C.T.-.6A 6.3 V.C.T.-2A	H-2

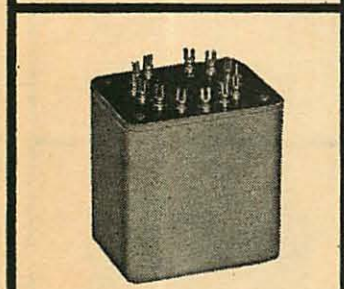
  

Type No.	Application	Inductance	DC Current	DC Resistance	Test Voltage	Case No.
HC-115	Parallel feed and filter choke	Series-400 Hys. Parallel-100 Hys.	2.5 MA 5 MA	6000 ohms 1500 ohms	1500	H-1
HC-116	Parallel feed and filter choke	Series-600 Hys. Parallel-150 Hys.	8 MA 16 MA	3400 ohms 850 ohms	1500	H-2
HC-117	Parallel feed and filter choke	Series-200 Hys. Parallel-40 Hys.	15 MA 35 MA	3200 ohms 800 ohms	1500	H-1



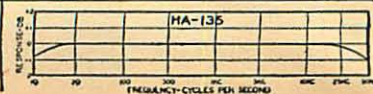
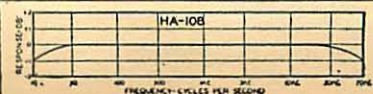
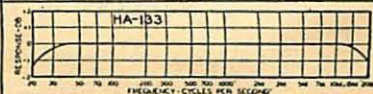
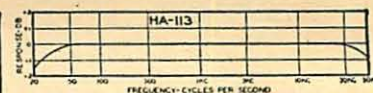
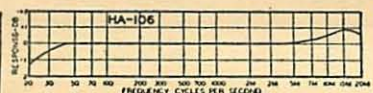
TYPE H-1 CASE

Length ..... 2 3/4" #  
 Width ..... 1 1/2" #  
 Height ..... 3 1/2" #  
 Mounting ..... 1 3/4" x 1 3/4" #  
 Screws ..... #6-32  
 Cutout ..... 1 3/4" dia.  
 Unit Weight ..... 2 lbs.



TYPE H-2 CASE

Length ..... 3 1/2" #  
 Width ..... 2 1/2" #  
 Height ..... 3 1/2" #  
 Mounting ..... 2 x 2 3/4" #  
 Screws ..... #6-32  
 Cutout ..... 2 1/4" #  
 Unit Weight ..... 5 lbs.







**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  $\pm 2$  db from 20 to 20,000 cycles, except where noted. Hermetic equivalents of this series (RC-50 case) are listed on page 1408.

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  $\pm 15$  dbm, except where noted.

**LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS**

Type No.	Application	Primary Impedance	Secondary Impedance	$\pm 2$ 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 (split)	20-20,000
A-11	Low impedance mike, pickup, or line to 1 or 2 grids $\pm 5$ dbm	50, 200, 500	50,000 ohms CT	20-20,000
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	20-20,000
A-14	Dynamic microphone to one or two grids	30 ohms	50,000 ohms overall, in two sections	20-20,000
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	10-50,000
A-21*	Mixing, low impedance mike, pickup, or line to line	50, 200/250, 500/600	50, 200/250, 500/600	30-30,000
Multiple alloy shield for extremely low hum pickup				

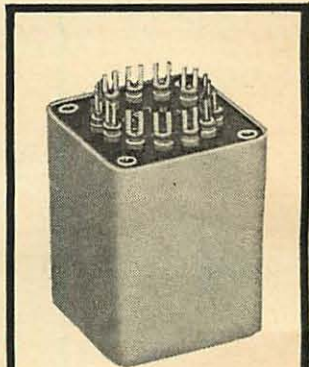
\* High electrostatic shielding.

**INTERSTAGE AUDIO TRANSFORMERS**

Type No.	Application	Primary Impedance	Secondary Impedance	$\pm 2$ db from
A-15	Transistor Interstage Max. level $+30$ dbm	10,000/2,500 (split) 8 MA D.C. unbal.	2,000/500 (split)	40-20,000
A-16	Single plate to single grid	15,000 ohms	60,000 ohms, 2:1 turn ratio	20-20,000
A-17	Single plate to single grid 8 MA unbalanced D.C.	As above	As above	40-20,000
A-18	Single plate to two grids. Split primary, can also be used for P.P. plates	15,000 ohms (split)	80,000 ohms overall, 2.3:1 turn ratio overall	20-20,000
A-19	Single plate to two grids 8 MA unbalanced D.C.	15,000 ohms	80,000 ohms overall, 2.3:1 turn ratio overall	40-20,000

**PLATE AND CRYSTAL TO LINE TRANSFORMERS**

Type	Application	Primary Impedance	Secondary Impedance	$\pm 2$ db from
A-22	Transistor to line Max. level $+30$ dbm	500 CT 20 MA D.C. unbal.	500/125 (split)	40-20,000
A-23	Transistor to voice coil Max. level $+30$ dbm	500 CT 20 MA D.C. unbal.	16/4 (split)	40-20,000
A-24	Single plate to multiple line	15,000 ohms (split)	50, 125/150, 200/250, 333, 500/600 ohms	20-40,000
A-25	Single plate to multiple line 8 MA unbalanced D.C.	15,000 ohms	50, 125/150, 200/250, 333, 500/600 ohms	40-20,000
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	20-40,000
A-27	Crystal microphone to multiple line	100,000 ohms (split)	50, 125/150, 200/250, 333, 500/600 ohms	30-20,000 measured with noninductive source
A-28	Transistor to voice coil 5 watts level	48 CT	16, 8, 4	40-20,000
A-30	Audio choke, 250 Hys. @ 5 Ma, 6000 ohms D.C.; 65 Hys. @ 10 Ma, 1500 ohms D.C.; 450 Hys. @ 0 Ma.			
A-32	Filter choke 60 Hys. @ 15 Ma, 2000 ohms D.C.; 15 Hys. @ 30 Ma, 500 ohms D.C.			
A-33	Hipermalloy shield, slip fit over A case, provides approximately 20 db shielding... $1\frac{1}{32} \times 1\frac{1}{32} \times 2\frac{1}{32}$			

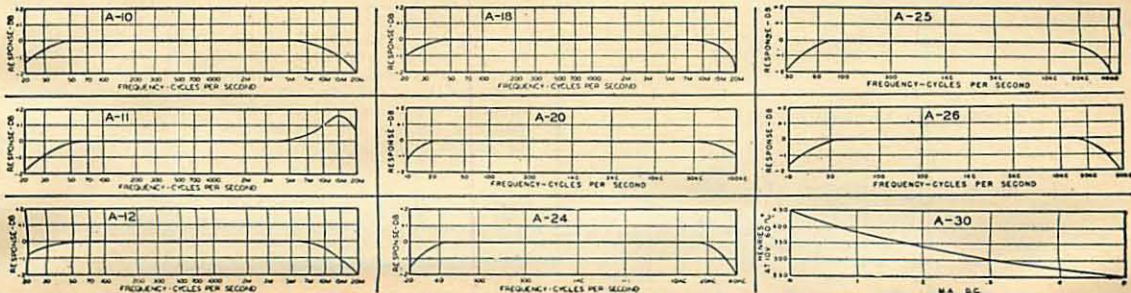


**TYPE A CASE**

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



**A-33 SHIELD**



## Sec. 5600



### COMMERCIAL GRADE COMPONENTS

The Commercial Grade series of transformers incorporate conservative design and rugged construction to assure dependability under continuous service operation in commercial grade 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.

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. CG-134, 135 and 136 are of the hum-bucking type to assure low hum pick-up. 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	Max. Level dbm	Secondary Impedance Ohms	Case No.
CG-131	1 plate to 1 grid	15,000	+28	135,000 1:3 ratio	RC-50
CG-132	1 plate to 2 grids	15,000	+30	135,000 split 1:3 ratio overall	RC-62
CG-133	2 plate to 2 grids	30,000 P to P	+32	80,000 overall 1:1.6 ratio overall	RC-75
CG-134	Line to 1 grid hum-bucking	50, 200, 500	+30	80,000	RC-50
CG-135	Line to 2 grids hum-bucking	50, 200, 500	+30	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	+28	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	+30	80,000 overall	RC-62
CG-137	Mixing	50, 200, 500	+28	50, 200, 500	RC-50
CG-140	Triode plate to line	15,000	+30	50, 200, 500	RC-50
CG-141	PP triode plates to line	30,000 P to P	+32	50, 200, 500	RC-50
CG-233	PP 6C5, 12AU7, similar triodes to AB 45's, 2A3's, 6L6's, etc.	30,000 P to P	+35	25,000 overall 1:9 ratio overall	RC-87
CG-333	PP 6C5, 12AU7, similar triodes to fixed bias 6L6's	30,000 P to P	+35	3,300 overall 1:33 ratio overall	RC-87
CG-433	PP 45, 2A3, similar tubes to fixed bias 2 or 4 6L6's	5,000 P to P	10W.	800 overall 1:4 ratio overall	RC-100

#### ULTRASONIC TRANSFORMERS

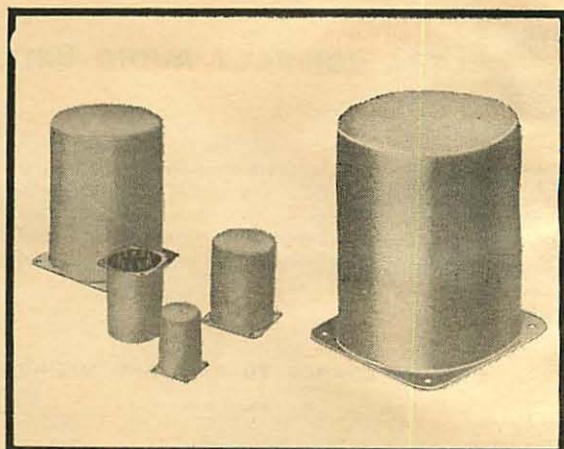
Frequency Range 10 KC to 50 KC

Type No.	Application	Pri. Imp. PP Ohms	Max. Watts	Sec. Imp. Ohms	Case No.
CGU-1	Driver, PP 5881's to PP 6156's	7000	25	4150 G-G	RC-62
CGU-2	Driver, PP 6550's to PP 5868's	5000	100	2400 G-G	RC-62
CGU-3	Output, PP 6550's	5000	100	300/170/75/18.75	RC-62
CGU-4	Output, PP 6155's, 4-125's	7200	300	300/170/75/18.75	RC-87
CGU-5	Output, PP 6155's, 4-125's	7200	300	30/17/7.5/1.88	RC-87
CGU-6	Output, PP 6156's 250TH's	4500	600	300/170/75/18.75	RC-125
CGU-7	Output, PP 6155's 250TH's	4500	600	30/17/7.5/1.88	RC-125
CGU-8	Output, PP 6156's	9200	1000	300/170/75/18.75	RC-175
CGU-9	Output, PP 5868's	10200	2000	300/170/75/18.75 5/8x5/8x8	RC-175

#### 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	6F6 triode, 6V6, 6AQ5	20	RC-100
CG-16	3,000/5,000	2A3, 6AS7G, 6L6, 6080	20	RC-100
CG-19	6,000/10,000	6V6, Triode; 6L6, 5881	20	RC-100
CG-710	14,000/20,000	7B5, 6AK6, 6K6GT	20	RC-100
CG-2L6	9,000	6L6's, AB1, 5881	30	RC-125



#### COMMERCIAL GRADE CASE

Case No.	Base Dim. (Sq.)	Mounting Dim. (Sq.)	Mounting Screw	Height +1/4, -1/16	Cutout Dia.	Unit Weight Lbs.
RC-37	1 3/8	1 1/4	4-40	1 3/8	1 1/4	.35
RC-50	1 3/8	1 1/4	6-32	2 1/4	1 1/2	1/2
RC-62	1 3/8	1 1/2	6-32	2 1/2	1 1/2	1
RC-75	2 1/8	1 3/8	8-32	2 3/4	1 3/4	1 1/2
RC-87	2 1/8	2 1/2	8-32	3 1/4	2	2 1/2
RC-100	3	2 3/4	8-32	3 3/4	2 3/4	3 1/2
RC-112	3 1/8	2 1/8	10-32	4 1/2	2 3/4	5
RC-125	3 3/4	3	10-32	4 1/2	3	6 1/2
RC-150	4 1/2	3 1/8	12-28	5 1/2	3 3/4	11
RC-152	5 1/4	4 1/8	12-28	5 1/2	4	15 1/2
RC-175	5 3/4	4 3/8	1/4-20	7 1/4	4	22

#### FEEDBACK OUTPUT TRANSFORMERS

(See page 25 for typical circuit)

Secondary Impedances: 4, 8, 16 ohms and 70 Volt line.

Type No.	Primary Impedance	Typical Tubes	Audio Watts	Case No.
CG-20	5,000 CT, 43% screen taps	EL-34 in AB	25	RC-125
CG-21	3,300 CT, 40% screen taps	6550's in AB1	50	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, 8,000, 10,000, 14,000 ohms, center tapped.

Type No.	Audio Watts	Typical Tubes	Case No.
CVP-1	12	2A3, 25L6, 6V6, 6AQ5	RC-100
CVP-2	30	2A3, 6L6, 6V6, 807, 5881	RC-125
CVP-3	60	300B's, 6L6's, 807, 1614, 5881, 1625	RC-150
CVP-4	125	807's, 4-6L6's, 845's, 4-1614's, 6146, 6159	RC-152
CVP-5	300	242A'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, 1, 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 18, 20, 25, 28, 30, 31, 40, 47, 50, 63, 69, 75 ohms.

Where speakers are to be connected in groups to one transformer, it is preferable that parallel connections 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



**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. Units are tested for breakdown at twice maximum working voltage plus 1000 volts and surge tested at 250% normal voltage. 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. RC case dimensions on page 1416.

**CG VARIMATCH MODULATION UNITS**

Will match any modulator tubes to any RF load.

The UTC Varimatch transformer eliminates the power loss and high distortion caused by imprecise matching of RF load to a class B modulation 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.

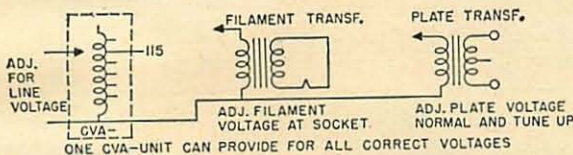
Primary impedances from 500 to 20,000 ohms  
Secondary impedances from 30,000 to 300 ohms

Type No.	Max. Audio Watts	Max. Class C Input	Typical Modulator Tubes	Case No.
CVM-0	12	25	2A3	RC-100
CVM-1	30	60	6V6, 2A3, 6L6, 807, 5881	RC-125
CVM-2	60	125	801A, 6L6, 809, T-20, 1608, 6159	RC-150
CVM-3	125	250	800, 807, 845, TZ-20, RK-30, 35-T	RC-152
CVM-4	300	600	50-T, 805, 838, T-55, ZB-120, 4-65A	RC-175
CVM-5	600	1200	805, HF-300, HK-354, 250TH, 810, 4-125A	7x12x9H 60 lbs.

**CG VARIMATCH DRIVER TRANSFORMERS**

Type No.	Primary	Typical Output Tubes	Max. Level Watts	Case No.
CG-51AX	All single tubes like: 6C5, 6C4, 12AU7, 2A3, 5814A Ratios 2.8:1, 3.1:1, Pri. to 1/2 sec.	2A3, 6L6	5	RC-87
CG-53AX	P. P. tube like: 2A3, 6L6, Ratios 2:1, 3:1, Pri. to 1/2 sec.	841, 801A, 800, 838, 805, 50T	20	RC-112
CG-59AX	50, 200, 500 ohm line Ratios 1:1, 1.4:1, Pri. to 1/2 sec.	805, 838, ZB-120, 100TH, 800, 55T	20	RC-112

**VARIPOWER AUTO-FORMERS**



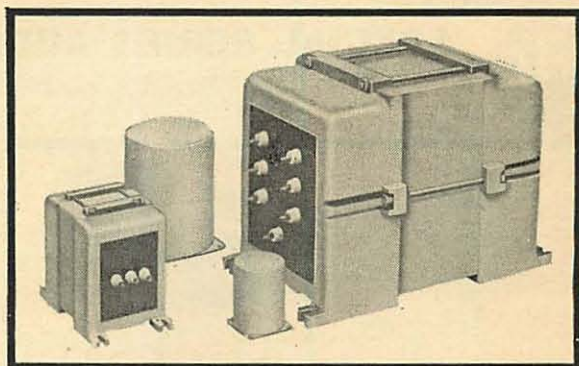
Type No.	Watts Output	Case No.
CVA-1	150	RC-112
CVA-2	250	RC-125
CVA-3	500	RC-150
CVA-4	1000	RC-152
CVA-5	2000	RC-175

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

**POWER AND BIAS TRANSFORMERS**

Primary 115 volts 50/60 cycles  
(DC MA is for choke input. Reduce to 70% for condenser input.)

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	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	6.3VCT-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.

**END CASTING UNITS**

Type No.	High Voltage	DC Voltage	DC MA	L	W	H	Mtg. Dim.	Wt. Lbs.
CG-304	1500-1235-0- 1235-1500	1250/1000	800	15	8 1/2	10 1/2	7 1/4 x 13 1/4	100
CG-305	2400-1750-0- 1750-2400	2000/1500	300	10 1/2	4 1/2	6 1/2	3 1/4 x 9 1/4	50
CG-306	2400-1750-0- 1750-2400	2000/1500	500	15	8 1/2	10 1/2	7 1/4 x 13 1/4	100
CG-307	3500-3000-2400-0- 2400-3000-3500	3000/2500 2000	300	14 1/2	8 1/2	10 1/2	7 1/4 x 12 1/4	90
CG-308	3500-3000-2400-0- 2400-3000-3500	3000/2500 2000	500	16 1/2	8 1/2	10 1/2	7 1/4 x 14 1/4	125
CG-309	3500-3000-2400-0- 2400-3000-3500	3000/2500 2000	1000	21	10	13 1/2	8 1/2 x 19	185
CG-310	4600-4050-3500-0- 3500-4050-4600	4000/3500 3000	600	19	10	13 1/2	8 1/2 x 16 1/4	150
CG-311	1500-1235-0- 1235-1500	1250/1000	500	10 1/2	4 1/2	6 1/2	3 1/4 x 9 1/4	50
CG-312	1800-1500-0- 1500-1800	1500/1250	400	10 1/2	4 1/2	6 1/2	3 1/4 x 9 1/4	50

**FILTER CHOKES**

Type No.	Inductance Henrys	DC MA	DC Res. Ohms	Test Volts RMS	Case No.
CG-40	10	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-15	10	1000	40	9000	1 1/2 x 4 3/4 x 6 1/2 H, 40 lb.

**SWINGING INPUT CHOKES**

Type No.	Inductance Henrys	DC MA	DC Res. Ohms	Test Volts RMS	Case No.
CG-101	25/5	150	110	2500	RC-125
CG-103	25/5	250	100	3000	RC-150
CG-105	25/5	350	90	5000	RC-152
CG-109	25/5	500	52	7000	RC-175
CG-1C	25/5	1000	40	9000	1 1/2 x 4 3/4 x 6 1/2 H, 40 lb.

**FILAMENT TRANSFORMERS**

Primary 105 115, 210, 220, 230 volts, 50/60 cycles, except CG-34... 105, 115, 220, 230. 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.

Type No.	Sec. Volts C. T.	Sec. Amps.	Working Voltage	Test Volts RMS	Case No.
CG-33	6.3	4	500	2000	RC-75
CG-34	2.5	10	2500	6000	RC-112
CG-120	2.5	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	10	1500	4000	RC-152

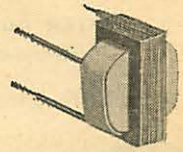
Two Windings.





**SUB-SUBOUNCER UNITS**

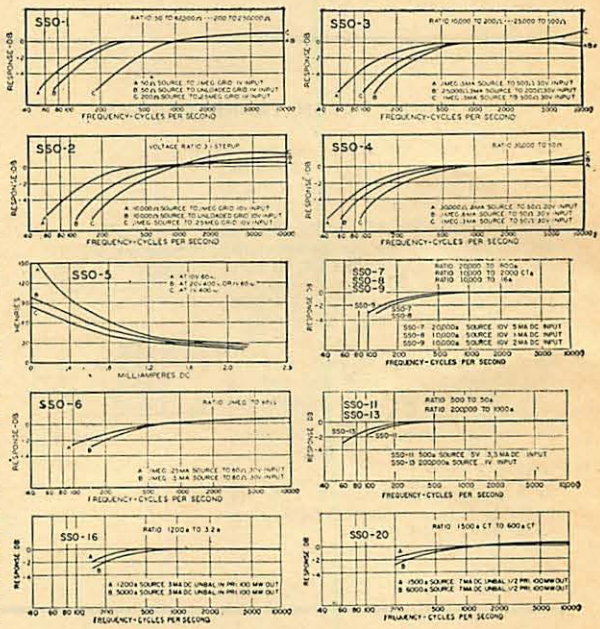
UTC Sub-subouncer units are ideal for ultra-miniaturized components having high efficiency and wide frequency response. Through the use of special nickel iron core materials and winding methods, these miniature units have superior performance and dependability characteristics. The coils employ automatic 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, (but channel with mounting centers is available on production orders). Units are vacuum processed and double (water proof) sealed. The curves below indicate the excellent frequency response. Hermetic SSO units (SM case) listed on page 1408.



**SUB-SUBOUNCER UNIT**  
Dimensions .....  $7/16 \times 3/4 \times 43/64$ "  
Weight ..... .02 lb.

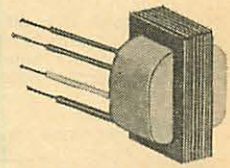
Type	Application	Max. Level dbm	Pri. Imp. ohms	Unbal. MA D.C. in Pri.	Sec. Imp. ohms	Pri. Res. ohms	Sec. Res. ohms
*SSO-1	Input	+7	200 50	0	250 K 62.5 K	13.5	3600
SSO-2	Interstage/3:1	+15	10K	0-.25	90 K	710	3150
*SSO-3	Plate to Line	+20	10K 25K 30K	3 1.5 1.0	200 500 50	2500	34
SSO-4	Output	+20	20K 30K	.5 5	800 1200	800	4.6
SSO-5	Reactor 50 HY at 1 mil. D.C.		4400 ohms		D.C. Res.		
SSO-6	Output	+20	100K	.5	60	3500	3.3
*SSO-7	Transistor Interstage	+20	20K 30K	.5 5	800 1200	800	110
SSO-8	Transistor to PP Sec.	+20	10K	1	2000 CT	1200	45
SSO-9	Transistor to V.C.	+20	10K	2	16	800	2.7
SSO-10	Transistor to V.C.	+20	10K	2	3.2	800	.65
*SSO-11	Transistor Output	+20	500 600	3.5 3.5	50 60	50	5
*SSO-12	Transistor Output	+20	1000 1200	3 3	50 60	90	5
SSO-13	Crystal to Transistor	+7	200K	0	1000	4000	190
*SSO-14	Transistor Interstage	+20	10K CT 25K CT	2 1	200 CT 500 CT	650	22
*SSO-15	Transistor Interstage	+20	20K CT 30K CT	1 1	800 CT 1200 CT	800	110
SSO-16	Output	+20	1200 1500	3 3	3.2 4	70	.45
SSO-17	Output or driver	+20	10K 12.5K	2 2	500 CT 600 CT	800	95
SSO-18	Single or P.P. Output	+20	7.5K CT 9.4K CT	4 4	3.2 4	770	.73
SSO-19	Output matching	+20	500 CT	10	600 CT	26	70
SSO-20	Output	+20	1.5K CT	7	600 CT	70	65
SSO-21	Crystal/Chopper	+7	200K CT	0	1000 CT	4000	200
SSO-22	Interstage	+20	10K CT 12K CT	4 4	1500 CT 1800 CT	800	300

SSO-23 Reactor 8 Hys. @ 2 MA D.C., 4 Hys. @ 5 MA D.C. 650 ohms  
SSO-24 Reactor 3.5 Hys. @ 2 MA D.C., 1.5 Hys @ 5 MA D.C. 160 ohms  
\*Impedance ratio is fixed, 1250:1 for SSO-1, etc. Any impedance between the values shown may be employed.

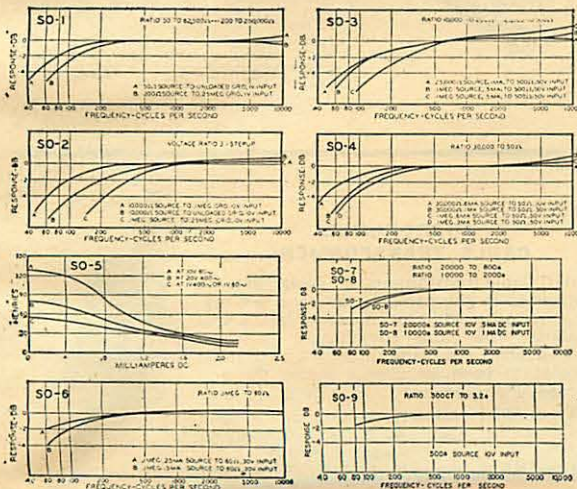


**SUBOUNCER UNITS**

UTC Subouncer units have high efficiency and frequency range in miniature size, handle higher level than SSO units above. The constructional details are identical to those of the Sub-Sub-Ouncer units (channel available on production orders). Available hermetically sealed on production orders (SOM case  $1/16 \times 1/16 \times 1 1/8$ ).



**SUBOUNCER UNIT**  
Dimensions .....  $1/16 \times 1/16 \times 1 1/8$ "  
Weight ..... .03 lb.



Type	Application	Max. Level dbm	Pri. Imp. ohms	Unbal. MA D.C. in Pri.	Sec. Imp. ohms	Pri. Res. ohms	Sec. Res. ohms
*SO-1	Input	+10	200 50	0	250 K 62.5 K	16	2500
SO-2	Interstage/3:1	+20	10K	0-.25	90 K	215	1850
*SO-3	Plate to Line	+23	10K 25K	3 1.5	200 500	1225	30
SO-4	Output	+23	30K	1.0	50	1850	3.8
SO-5	Reactor 50 HY at 1 mil. D.C.		2675 ohms		D.C. Res.		
SO-6	Output	+23	100K	.5	60	3400	3.7
*SO-7	Transistor Interstage	+23	10K 30K	.5 5	800 1200	450	32
SO-8	Transistor to PP Sec.	+23	10K	1	2000 CT	1000	40
SO-9	PP Transistor to V.C.	+24	500 CT	0	3.2	15	.35
*SO-10	Transistor output to voice coil	+24	2000 CT 4000 CT	4 2	8 16	290	2

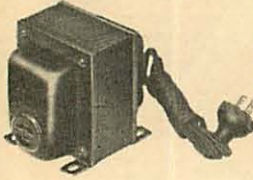
\*Impedance ratio is fixed, 1250:1 for SO-1, etc. Any impedance between the values shown may be employed.

# Sec. 5600

## STEP DOWN AUTO-TRANSFORMERS

220/240 Volt to 110/120 Volts, 50/60 Cycles.

All units have 6 foot cord and female receptacle, except R-64.



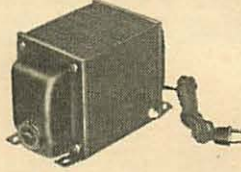
Type No.	Rating Watts	L	W	H	Mtg. Dim.	Wgt. Lbs.
R-41	85	3 3/4	2 3/4	3 3/4	2x1 7/8	4
R-42	125	3 1/2	3	3 1/2	2 1/4 x 2 1/4	5
R-43	175	3 3/4	3 1/4	3 3/4	2 1/4 x 2 1/4	5 1/2
R-44	250	4 3/4	3 3/4	3 3/4	2 1/2 x 2 1/4	6 1/2
R-45	500	4 3/4	3 3/4	4 3/4	3x3 1/4	12
R-46	1200	6 3/4	3 3/4	4 3/4	3x5 1/4	18
R-64	2500	10 1/2	4 3/4	6 3/4	3 3/4 x 9 3/4	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, except R-77.

Primary 110-120 volts 50/60 cycles—Secondary 110-120 volts  
Except R-97 220 volt Primary—120 volt Sec.



Type No.	Rating Watts	L	W	H	Mtg. Dim.	Wgt. Lbs.
R-72	40	3 3/4	2 3/4	3 3/4	2x1 3/8	4
R-73	100	3 3/4	3 3/4	3 3/4	2 1/2 x 2 3/8	6
R-74	250	4 3/4	3 3/4	4 3/4	3x3 1/2	12
R-75	600	7 3/4	3 3/4	4 3/4	3x6	20
R-76	1200	8 1/2	4 1/2	5 3/4	3 3/4 x 6 3/8	30
R-77	2500	12	7	9	6x11	70
R-97	250	4 3/4	3 3/4	4 3/4	3x3 1/2	12

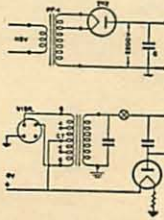
## PHOTO FLASH TRANSFORMERS

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<sup>o</sup> case 2 3/4 x 2 3/4 (3 3/4 including flanges) x 2 1/2 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<sup>o</sup> case. Weight 2 lbs.

PF-3 Trigger Transformer 15 KV peak. 3/8 O.D. x 3 long. Weight 2 oz.  
\*See page 1418.



## 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 voltage of 60 to 140 volts on 115 volt output models and 160 to 240 volts on 230 volt output model.

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

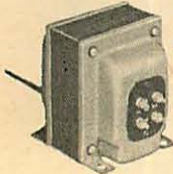


Type No.	Primary Voltage	Volts Sec.	Rating	Watts	L	W	H	Wgt. Lbs.
R-78	60, 70, 80, 90, 100, 110, 120, 130, 140	115	150	7	4	4 1/2	6	
R-79	60, 70, 80, 90, 100, 110, 120, 130, 140	115	300	7	4	4 1/2	9	
R-80	60, 70, 80, 90, 100, 110, 120, 130, 140	115	600	10 1/4	4	4 1/2	13	
R-81	60, 70, 80, 90, 100, 110, 120, 130, 140	115	1200	10 1/4	4	4 1/2	21	
R-86	160, 170, 180, 190, 200, 210, 220, 230, 240	230	1200	10 1/4	4	4 1/2	21	

## SIGNALLING AND CONTROL TRANSFORMERS

Primary 110-120 volts, 50/60 cycles—Secondary 4/8/12/16/20/24 volts

High power transformers suitable for operating relays, sirens, horns, gongs, etc. from 115 V. 50/60 cycle line. 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.

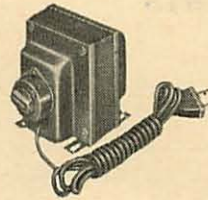


Type No.	Rating Watts	L	W	H	Mtg. Dim.	Wgt. Lbs.
SC-3	50	3	3 1/2	3 3/4	1 3/4 x 2 1/4	3
SC-4	100	3 1/4	4	4	2 1/4 x 2 1/2	5
SC-5	250	4	5	4 3/4	3 1/4 x 3	10

## 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.

Type No.	Rating Watts	L	W	H	Mtg. Dim.	Wgt. Lbs.
R-47	85	4 3/4	3	3 1/2	2 1/4 x 2 1/4	4 1/2
R-48	150	4 3/4	3 3/4	4	2 1/2 x 2 1/4	5 1/2



## TV VOLTAGE REGULATOR

Complete with cord, plug, and special locking switch. Permits operation of 115 volt 50/60 cycle TV sets on line voltages of 85, 90, 95, 100, 105, 110, 120, 125V.

Type No.	Rating Watts	L	W	H	Mtg. Dim.	Wgt. Lbs.
R-49	350	5	3 1/4	4	2 1/2 x 2 1/4	5

## VARITRAN VOLTAGE ADJUSTERS

Input 115 volts 50/60 cycles. Output continually adjustable from 0-130 Volts through roller contact on exposed auto-transformer winding. Regulation and efficiency are excellent, no wave form distortion. Output voltage is independent of load. Complete with line cord, switch, and receptacle . . . for loads up to 570 Watts . . . 5 A.

Type No.		L	W	H	Wt. Lbs.
V-1-M	with meter	4 3/4	9 3/4	3 3/4	14
V-1	without meter	4 3/4	8	3 3/4	12



## MICROPHONE CABLE TRANSFORMERS

UTC Cable transformers are designed to be inserted in the cable circuit, and are ruggedly constructed to withstand mechanical abuse. The cable connections (supplied less cable) are made through spring strain relief to terminal boards inside the end caps. 1 1/2" diameter . . . 2 1/2" long . . . 1/2 lb.

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

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

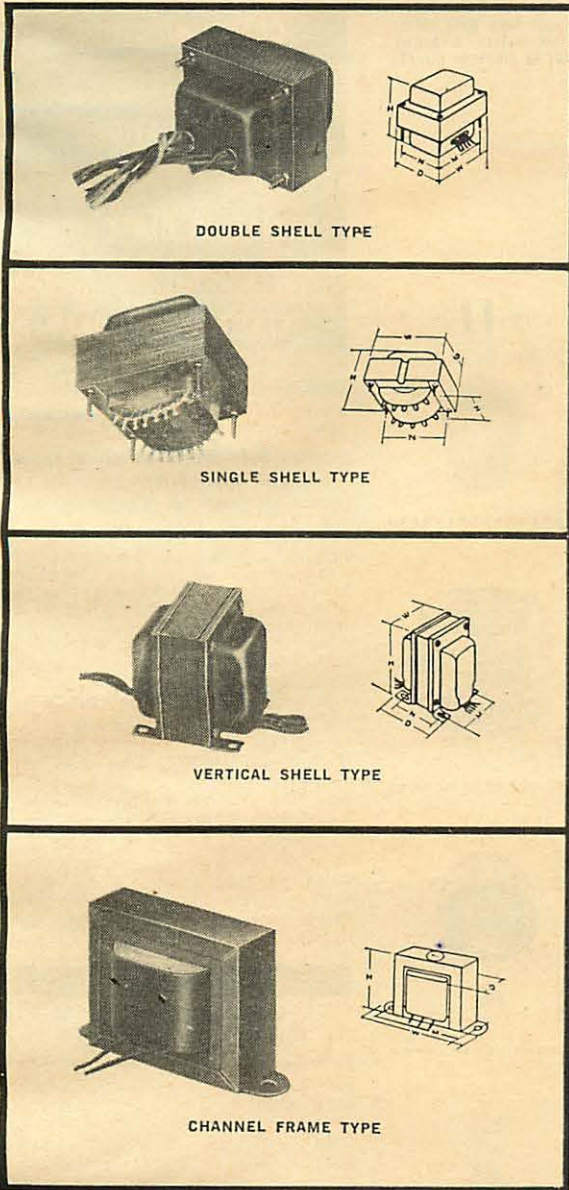




REPLACEMENT TYPE COMPONENTS

UTC replacement type transformers (Pri. 117 V. 50/60 cycles) provide the highest reliability in this field. All units are low temperature rise, vacuum sealed against humidity with special

impregnating materials to prevent corrosion and electrolysis. Shells are finished in attractive high lustre black enamel.



DOUBLE SHELL POWER TRANSFORMERS

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

SINGLE SHELL POWER TRANSFORMERS

Type No.	High V.	DC MA.	Rec. Fil.	Amp. Fil.	W	G	H	M	N	Wt. Lbs.
R-106	300-0-300	50	5V-2A.	6.3 VCT-2.7A	3	2 1/2	3 1/4	2 1/2	2 1/4	2 1/2
R-107	350-0-350	70	5V-3A.	6.3 VCT-3A	3	2 1/2	3 3/4	2 1/2	2 1/4	3 1/2

VERTICAL SHELL POWER TRANSFORMERS

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

CHANNEL FRAME FILTER CHOKES

Inductance Shown is at Rated D.C.M.A.—Test Volts RMS: 1500

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

FILAMENT TRANSFORMERS

CHANNEL FRAME TYPE

Pri. 115 V. 50/60 Cycles—Test Volts RMS: 1500

Type No.	Secondary	W	D	H	M	Wt. Lbs.
FT-1	2.5 VCT-3A	2 1/4	1 1/2	1 1/4	2 1/4	3/4
FT-2	6.3 VCT-1.2A	2 1/4	1 1/2	1 1/4	2 1/4	3/4
FT-3	2.5 VCT-6A	3 1/4	1 1/4	2	2 1/4	1
FT-4	6.3 VCT-3A	3 1/4	1 1/4	2	2 1/4	1
FT-5	2.5 VCT-10A	3 1/4	2 1/4	2 1/4	3 1/4	1 1/2
FT-6	5 VCT-3A	3 1/4	2 1/4	2 1/4	3 1/4	1 1/2
FT-7	7.5 VCT-3A	3 1/4	2 1/4	2 1/4	3 1/4	1 1/2
FT-8	6.3 VCT-8A	4 1/4	2 1/2	2 1/4	3 1/4	2 1/2
FT-10	24 VCT-2A or 12V-4A	4 1/4	2 1/2	2 1/4	3 1/4	2 1/2

CHANNEL FRAME AUDIO TRANSFORMERS

Type No.	Application	Description	W	D	H	M	Wt. Lbs.
R-34	1 plate 8 Ma to 2 grids	4:1 ratio	2 1/4	1 3/4	1 1/4	2 1/4	3/4
R-35	Mike to 1 grid	17:1 ratio to Pri. C.T.	2 1/4	1 3/4	1 1/4	2 1/4	3/4
R-58	5 watt Universal output	Any single tube to any voice coil, .1 to 30 ohms	2 1/2	1 3/4	1 1/4	2 1/4	1/2
R-38A	6 watt Universal	Any tubes up to 6 watts to any voice coil, .1 to 30 ohms	2 1/2	1 3/4	1 1/4	2 1/4	1/2
R-59	10 watt Universal	Any tubes up to 10 watts to any voice coil, .1 to 30 ohms	2 1/2	1 3/4	1 1/4	2 1/4	1/2
R-60	15 watt Universal	Any tubes up to 15 watts to any voice coil, .1 to 30 ohms	3 1/4	1 3/4	2	2 1/4	1
R-39	17 watt line Matching Transformer	250, 500, 1500 ohms to 2, 8, 15 ohms	2 1/4	1 3/4	1 1/4	2 1/4	3/4