



# NEW

## TRANSFORMERS, FILTERS, MAGAMPS, HIGH Q COILS

### NEW UTC "FLATS"™ ELECTRIC WAVE FILTERS

Manufactured & Guaranteed to  
MIL-F-18327B by Full Environmental Testing



These filters meet today's need for flat component configurations, have excellent attenuation characteristics and are ruggedized to Grade 4, MIL-F-18327B. Straight pin terminals and flat construction make these units ideally suited for printed circuit applications. These filters are hermetically sealed in flat metal cases shielded to reduce hum pickup. FP-A case: 2 x 2 x 2 1/2" h., 2.5 oz. FP-B case: 2 x 1 1/2 x 3/4" h., 2 oz. Stock price: \$42.00 each net.

**FHH-200:** Flat package high pass filter, source and load 10K ohms. Units are within 1 db up to 300 cycles 3 db  $\pm$  1 db at 200 cycles, and have an attenuation of at least 40 db at frequencies below 140 cycles. FP-A case. Mil Type: FR4RX33YY.

**FLH-600:** Flat package low pass filter, source and load 10K ohms. Units are within 1 db from DC to 450 cycles, 3 db  $\pm$  1 db at 600 cycles, and have an attenuation of at least 40 db at frequencies above 800 cycles. FP-A case. Mil Type: FR4RX11YY.

**FLH-5000:** Flat package low pass filter, source and load 10K ohms. Units are within 1 db from DC to 4.2 KC, 3 db  $\pm$  1 db at 5 KC, and have an attenuation of at least 43 db at frequencies above 6400 cycles. FP-B case. Mil Type: FR4RX11YY.

**FLL-3500:** Flat package low pass filter, source and load 600 ohms. Units are within 1 db from DC to 3 KC, 3 db  $\pm$  1 db at 3500 cycles, and have an attenuation of at least 40 db at frequencies above 4500 cycles. FP-A case. Mil Type: FR4RX11YY.

**FLL-18000:** Flat package low pass filter, source and load 600 ohms. Units are within 1 db from DC to 15 KC, 3 db  $\pm$  1 db at 18 KC, and have an attenuation of at least 43 db at frequencies above 23 KC. FP-A case. Mil Type: FR4RX11YY.

**FLL-50000:** Flat package low pass filter, source and load 600 ohms. Units are within 1 db from DC to 42 KC, 3 db  $\pm$  1 db at 50 KC, and have an attenuation of at least 43 db above 64 KC. FP-B case. Mil Type: FR4RX11YY.

### NEW, LLP-15, STANDARD LOW FREQUENCY LOW PASS FILTER

Manufactured & Guaranteed to MIL-F-18327B  
By Full Environmental Testing



The LLP-15 low frequency low pass filter has a loss of less than 3 db at 15 cycles and attenuation of more than 40 db at 30 cycles. Source and load impedance 100K ohms. Mil Type FR4RX11FA. Dim: 2 1/4 x 2 1/4 x 3 1/2" h., 1 1/2 lbs. Price: \$60.00 net.

### NEW "FE,\* FI,\* FO"™ MINIATURE INDUCTORS

Manufactured &  
Guaranteed to MIL-T-27B  
by Full Environmental  
Testing



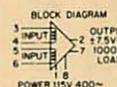
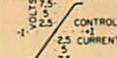
FE, FI, FO miniature inductors are ideal for transistor and printed circuit applications, having both pin terminals and a molded flat construction. These units are symmetrical toroids providing maximum Q in minimum size. The FE and FI inductors are adjusted at 1 V, 1 KC. The FO units are adjusted at 1 V, 400 cycles. All units are adjusted to a tolerance of  $\pm$ 1%. The ma DC Max shown is for approximately 5% drop in inductance. The temperature stability is unequalled from -55°C to +100°C. For AC level limitations, a general rule of thumb would be to consider the maximum AC current approximately equal to the maximum DC current rating. However, for specific applications, contact UTC with exact level, frequency, and Q requirements to determine suitability of part in application. All FE, FI, FO inductors are equally well suited for vacuum tube application. All units Mil Type: TF5RX20ZZ.

| Type No. | Ind. Hy. (0 DC) | ma DC Max. | DCR Max. | Price Net |
|----------|-----------------|------------|----------|-----------|
| FE-02    | .0200           | 50         | 5.1      | 7.80      |
| FE-05    | .0500           | 30         | 12       | 7.80      |
| FE-1     | .100            | 22         | 22       | 8.10      |
| FE-5     | .500            | 10         | 122      | 8.70      |
| FE-1     | 1.00            | 7          | 250      | 9.60      |
| FE-2     | 2.00            | 5          | 500      | 10.50     |
| FI-.04   | .0400           | 50         | 4.3      | 8.10      |
| FI-1     | .100            | 30         | 11       | 8.40      |
| FI-.25   | .250            | 20         | 27       | 8.70      |
| FI-.5    | .500            | 14         | 60       | 9.00      |
| FI-1     | 1.00            | 10         | 110      | 9.60      |
| FI-4     | 4.00            | 5          | 430      | 10.80     |
| FO-1     | .100            | 60         | 4.2      | 9.00      |
| FO-.5    | .500            | 25         | 23       | 9.60      |
| FO-1     | 1.00            | 18         | 43       | 9.90      |
| FO-2     | 2.00            | 12         | 92       | 10.50     |
| FO-5     | 5.00            | 8          | 240      | 11.70     |
| F-10     | 10.0            | 6          | 440      | 13.50     |

### NEW LINE OF SOLID STATE "MAS"™ PUSH-PULL MAGNETIC AMPLIFIERS

The "MAS" magamps operate on an input of 115 V 400 cycles with an output of  $\pm$ 7.5 V DC, 1000 ohm load and have 2 isolated control inputs. These magnetic amplifiers afford a power gain of approximately 30,000. The power input and output are also completely and individually isolated. The "MAS" magamps are manufactured to MIL-T-27B standards. Units are housed in a hermetically sealed steel case with plug-in octal compressed glass terminals. The "MAS" magamps are 3 inches high with a 1 1/2 inch diameter and weighs approximately 1/2 pound.

TYPICAL CHARACTERISTICS



The "MAS" magamps have many advantages over other active circuit elements such as tubes, transistors: • Long life and years of maintenance free operation due to magnetic characteristics and solid state elements. • Ruggedness can withstand high shock, vibration, radiation, and moisture. • Reliability — can withstand 10 times overloads and operate into short without damage.

Possible applications include: • Control Amplifier • Photocell • SCR Controls • Strain Gauge Amplifier • Meter Preamps • Thermocouple • Differential Amplifier • Signal mixing, summing, integration • Hydraulic Servo Valve Driver • Servo Motor • Linear Amplifications of Transducer Signals.

| Type Number | Winding Number | Input Resistance Ohms | Trans-resistance Ohms  | Nominal DC $\mu$ amps 5V DC Output 1000 $\Omega$ Load | Price Net |
|-------------|----------------|-----------------------|------------------------|---|-----------|
| MAS-400     | 1              | 45                    | 2.5 x 10 <sup>4</sup>  | 200   | 135.00    |
|             | 2              | 45                    | 2.5 x 10 <sup>4</sup>  | 200   |           |
| MAS-410     | 1              | 500                   | 8.0 x 10 <sup>4</sup>  | 60  | 135.00    |
|             | 2              | 500                   | 8.0 x 10 <sup>4</sup>  | 60  |           |
| MAS-420     | 1              | 1000                  | 12.5 x 10 <sup>4</sup> | 40  | 135.00    |
|             | 2              | 100                   | 4.0 x 10 <sup>4</sup>  | 125   |           |

### NEW "PIL"™ AUDIO TRANSFORMERS

Manufactured & Guaranteed to MIL-T-27B  
by Full Environmental Testing

These units are the smallest audio transformers available. The DO-T type structure incorporated overcomes inherently poor electrical characteristics usually found in miniature audio transformers. These ultraminiature PIL transformers are engineered to provide top electrical performance. All units are subjected to a 500 volt dielectric strength test, instead of the usual 100 volts, for higher safety margins and reliability.

Units are designed to a field-proven, ruggedized construction with a completely rigid cylindrical bobbin eliminating wire movement and stress. The turns are circular, effecting uniform wire lay and eliminating corner stress. The leads are rigidly anchored to the coil wire terminal board fashion, eliminating the use of tape, and brought out through strain relief. The units are terminated in weldable and solderable, insulated Gold plated Dumet leads. Dim: 3/8" dia. x 3/8" h., 1/20 oz.

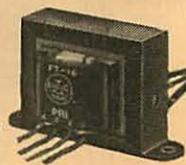
All units are metal encased to Grade 4. Units made to Class S are available on special order. U. S. Patent No. 2,949,591.



| Type No. | MIL Type  | Pri Imp | Unbal D.C. ma In Pri | Sec Imp | Pri DCR | Max Mw Level | $\pm$ 3 db Fre Range @ 1 Mw | Net Price |
|----------|-----------|---------|----------------------|---------|---------|--------------|-----------------------------|-----------|
| PIL-50   | TF4RX17YY | 500 CT  | 3                    | 500 CT  | 40      | 100          | 800 cps-250KC               | 7.20      |
| PIL-70   | TF4RX13YY | 10K CT  | 1                    | 500 CT  | 530     | 100          | 800 cps-250KC               | 7.50      |
| PIL-75   | TF4RX13YY | 10K CT  | 1                    | 2K CT   | 530     | 100          | 800 cps-250KC               | 7.50      |

### CHANNEL FRAME FILAMENT/TRANSISTOR TRANSFORMER

For high intensity display and precision work lamps. Primary 115V 50/60 Cycles — Test Volts RMS: 1500. Taps on primary to modify secondary nominal voltage, -6%, +6%, +12%.



| Type No. | Secondary               | W     | D     | H     | M     | Lbs.  | Net Price |
|----------|-------------------------|-------|-------|-------|-------|-------|-----------|
| FT-16    | 11VCT-2.5A or 5.5VCT-5A | 3 3/4 | 2 1/8 | 2 3/8 | 3 1/8 | 1 1/2 | 5.85      |

## TRANSISTOR TRANSFORMERS Hermetically sealed to MIL-T-27B



## DO-T\* AND DI-T\* TRANSISTOR TRANSFORMERS

DO-T  
(Actual Size)DI-T  
(Actual Size)

Revolutionary transistor transformers hermetically sealed to MIL-T-27B specs. Plastic insulated solderable leads, firmly anchored to withstand 10 pound pull. Ideal for printed circuits. DO-T:  $\frac{3}{16}$ " dia. x  $\frac{13}{16}$ " long, wt., 1/10 oz. DI-T:  $\frac{3}{16}$ " dia. x  $\frac{1}{2}$ " long, wt., 1/15 oz. these compact units provide frequency response, high efficiency and low distortion. U.S. Pat. No. 2,949,591

| DO-T Type | DI-T Type | Net Each | Application | Pri. Imped., Ohms   | Sec. Imped., Ohms |
|-----------|-----------|----------|-------------|---|-------------------|
| DO-T1     | DI-T1     | \$6.00   | a           | 20K/30K, 0.5 ma   | 800/1200          |
| DO-T2     | DI-T2     | 5.40     | b           | 500/600, 3 ma   | 50/60             |
| DO-T3     | DI-T3     | 5.40     | b           | 1K/1.2K, 3 ma   | 50/60             |
| DO-T4     |           | 5.40     | b           | 600, 3 ma   | 3.2               |
| DO-T5     | DI-T5     | 5.40     | b           | 1.2K, 2 ma  | 3.2               |
| DO-T6     |           | 6.00     | b           | 10K, 1 ma   | 3.2               |
| DO-T7     |           | 6.60     | c           | 200K  | 1K                |
| DO-T8     | DI-T8     | 4.80     | d*          | 3.5 hys. @ 2 ma   | 2.5 hys.††        |
| DO-T9     | DI-T9     | 6.60     | e           | 10K/12K, 1 ma   | 500/600 CT        |
| DO-T10    | DI-T10    | 6.60     | f           | 10K/12.5K, 1 ma   | 1.2K-1.5K CT      |
| DO-T11    | DI-T11    | 6.60     | f           | 10K/12.5K, 1 ma   | 2K/2.5K CT        |
| DO-T12    |           | 5.70     | b           | 150/200 CT, 10 ma   | 12/16             |
| DO-T13    |           | 6.00     | b           | 300/400 CT, 7 ma  | 12/16             |
| DO-T14    |           | 6.00     | b           | 600/800 CT, 5 ma  | 12/16             |
| DO-T15    |           | 6.00     | b           | 800/1070 CT, 4 ma   | 12/16             |
| DO-T16    |           | 6.00     | b           | 1K/1330 CT, 3.5 ma  | 12/16             |
| DO-T17    |           | 6.00     | b           | 1.5K/2K CT, 3 ma  | 12/16             |
| DO-T18    |           | 6.30     | b           | 7.5K/10K CT, 1 ma   | 12/16             |
| DO-T19    | DI-T19    | 6.00     | b           | 300 CT, 7 ma  | 600               |
| DO-T20    | DI-T20    | 6.00     | b           | 500 CT, 5.5 ma  | 600               |
| DO-T21    | DI-T21    | 6.00     | b           | 900 CT, 4 ma  | 600               |
| DO-T22    | DI-T22    | 6.00     | b           | 1500 CT, 3 ma   | 600               |
| DO-T23    | DI-T23    | 6.90     | a           | 20K/30K CT, .5 ma   | 0.8K/1.2K CT      |
| DO-T24    |           | 7.50     | c           | 200K CT   | 1K CT             |
| DO-T25    | DI-T25    | 7.20     | a           | 10K/12K CT, 1 ma  | 1.5K/1.8K CT      |
| DO-T26    | DI-T26    | 5.70     | d†          | 6 hys. @ 2 ma   | 4.5 hys.††        |
| DO-T27    | DI-T27    | 4.80     | d†          | 1.25 hys. @ 2 ma  | 0.9 hy.††         |
| DO-T28    | DI-T28    | 4.80     | d§          | 0.3 hy. @ 4 ma  | 0.1 hy.††         |
| DO-T29    |           | 5.70     | b           | 120/150 CT, 10 ma   | 3.2/4             |
| DO-T30    |           | 5.70     | b           | 320/400 CT, 7 ma  | 3.2/4             |
| DO-T31    |           | 6.00     | b           | 640/800 CT, 5 ma  | 3.2/4             |
| DO-T32    |           | 6.00     | b           | 800/1K CT, 5 ma   | 3.2/4             |
| DO-T33    |           | 6.00     | b           | 1060/1330 CT, 3.5 ma  | 3.2/4             |
| DO-T34    |           | 6.00     | b           | 1.6K/2K CT, 3 ma  | 3.2/4             |
| DO-T35    |           | 6.30     | b           | 8K/10K CT, 1 ma   | 3.2/4             |
| DO-T36    | DI-T36    | 7.50     | a           | 10K/12K CT, 1 ma  | 10K/12K CT        |
| DO-T37    | DI-T37    | 7.80     | a           | 2K/2.5K CT, 3 ma  | 8K/10K Split      |
| DO-T38    | DI-T38    | 7.80     | a           | 10K/12K CT, 1 ma  | 2K/2.4 Split      |
| DO-T39    |           | 7.80     | a           | 20K/30K CT, .5 ma   | 1K/1.5K Split     |
| DO-T40    |           | 8.40     | a           | 40K/50K CT, .25 ma  | 400/500 Split     |
| DO-T41    | DI-T41    | 7.50     | a           | 400/500 CT, 8/6 ma  | 400/500 Split     |
| DO-T42    |           | 7.50     | a           | 400/500 CT, 8/6 ma  | 120/150 Split     |
| DO-T43    | DI-T43    | 7.50     | a           | 400/500 CT, 8/6 ma  | 40/50 Split       |
| DO-T44    | DI-T44    | 7.50     | a           | 80/100 CT, 12/10 ma   | 32/40 Split       |
| DO-T45    |           | 7.80     | a           | 1K/1.25K CT, 3.5 ma   | 16K/20K Split     |
| DO-T46    |           | 8.40     | c           | 100K CT   | 500 CT            |
| DO-T47    |           | 8.10     | a           | 9K/10K, 1 ma  | 9K/10K CT         |
| DO-T48    |           | 7.80     | a           | 8K/10K, 1 ma  | 1.2K/1.5K CT      |
| DO-T49    |           | 7.80     | d§§         | Series—.075 hys @ 10 ma, 10.5Ω<br>Parallel—.018 hys @ 20 ma, 2.6Ω<br>Series—.20 hys @ 1 ma, 510Ω<br>Parallel—.5 hys @ 2 ma, 1275Ω |                   |
| DO-T50    |           | 5.70     | d§§         |   |                   |
| DO-T51    | DI-T51    | 7.80     | a           | 2K/2.5K CT, 3 ma  | 2K/2.5 K split    |
| DO-T52    | DI-T51    | 7.80     | a           | 4K/5K CT, 2 ma  | 8K/10K CT         |
| DO-T400   |           | 6.60     | h           | 28V, 380-1 KC   | 6.3 V, 60 ma      |
| DO-T410   |           | 7.80     | h           | 28V, 380-1 KC   | Two 6.3 V, 30 ma  |
| DO-T420   |           | 7.80     | h           | 28V, 380-1 KC   | 28 V, 10 ma       |
| DO-TSH    | DI-TSH    | .90      |             | High mu shield and cover; 25 db   |                   |

\*630 ohms. †2100 ohms. ††100 ohms. §25 ohms.

‡DI-T primary impedance. §§2 Wdgs.

a—Interstage; b—Output; c—Input; d—Inductor; e—Driver or Output; f—Driver; g—matching; h—Power Unit.

## NEW

## DI-T200\* SERIES TRANSISTOR TRANSFORMERS

These revolutionary transistor transformers embody the same rugged reliable construction afforded by the unique winding techniques and physical construction found in the DO-T & DI-T transformers. DI-T200 series differ by having straight pin, 1" long, .017 d. Dumet wire, gold plated leads. To MIL-T-27B, size  $\frac{5}{16}$  x  $\frac{3}{8}$ ", wt. 1/15 oz. U.S. Pat. No. 2,949,591

| Type No. | Application                        | Pri. Imped., Ohms   | Sec. Imped., Ohms           | Net Each |
|----------|------------------------------------|---|-----------------------------|----------|
| DI-T225  | Interstage                         | 80 CT<br>100 CT   | 32 Split<br>40 Split        | \$8.40   |
| DI-T230  | Output or Matching                 | 300 CT  | 600 Split                   | 7.20     |
| DI-T235  | Interstage                         | 400 CT<br>500 CT  | 40 Split<br>50 Split        | 8.40     |
| DI-T240  | Interstage or Output (Ratio 2:1:1) | 400 CT<br>500 CT  | 400 Split<br>500 Split      | 8.40     |
| DI-T245  | Output or Matching                 | 500 CT<br>600 CT  | 50 CT<br>60 CT              | 6.90     |
| DI-T250  | Output or Mixing                   | 500 CT  | 600 CT                      | 7.20     |
| DI-T255  | Output or Matching                 | 1,000 CT<br>1,200 CT  | 50 CT<br>60 CT              | 6.90     |
| DI-T260  | Output                             | 1,500 CT  | 600 CT                      | 7.20     |
| DI-T265  | Isolation or Interstage            | 2,000 CT<br>2,500 CT  | 8,000 Split<br>10,000 Split | 8.70     |
| DI-T270  | Output or Driver                   | 10,000 CT<br>12,000 CT  | 500 CT<br>600 CT            | 7.80     |
| DI-T273  | Output or Driver                   | 10,000 CT<br>12,500 CT  | 1,200 CT<br>1,500 CT        | 7.80     |
| DI-T276  | Interstage or Driver               | 10,000 CT<br>12,000 CT  | 2,000 CT<br>2,400 CT        | 7.80     |
| DI-T278  | Interstage or Driver               | 10,000 CT<br>12,500 CT  | 2,000 Split<br>2,500 Split  | 8.70     |
| DI-T283  | Isolation or Interstage            | 10,000 CT<br>12,000 CT  | 10,000 CT<br>12,000 CT      | 8.40     |
| DI-T288  | Interstage or Driver               | 20,000 CT<br>30,000 CT  | 800 CT<br>1,200 CT          | 8.10     |
| DI-T204  | Split Inductor (2 wdgs)            | Series: .1 hy @ 4 ma DC, 25Ω<br>Parallel: .025 hy @ 8 ma DC, 6Ω     |                             | 6.00     |
| DI-T208  | Split Inductor (2 wdgs)            | Series: .9 hy @ 2 ma DC, 105Ω<br>Parallel: .2 hy @ 4 ma DC, 26Ω     |                             | 6.00     |
| DI-T212  | Split Inductor (2 wdgs)            | Series: 2.5 hy @ 2 ma DC, 630Ω<br>Parallel: .6 hy @ 4 ma DC, 157Ω   |                             | 6.00     |
| DI-T216  | Split Inductor (2 wdgs)            | Series: 4.5 hy @ 2 ma DC, 2300Ω<br>Parallel: 1.1 hy @ 4 ma DC, 575Ω |                             | 6.90     |

DI-T200SH Drawn Hipermalloy shield provides 15 to 20 db shielding through side of case

.75

## NEW PIL\* ULTRAMINIATURE AUDIO INDUCTORS

The new PIL series constitutes the smallest audio inductors available. These units are metal encased, ruggedized manufactured and guaranteed to MIL-T-27B. They are MIL Type TF4RX-20YY. Physical construction is that of the PIP (DO-T, DI-T) units shown on this page.

| Type No. | Con. Ind. Hys. | Min @ DC | DCR  |
|----------|----------------|----------|------|
| PIL-5    | Series .12     | 0        | 43   |
|          | Parallel .03   | 0        | 10.7 |
|          | Series .10     | 10       |      |
|          | Parallel .025  | 10       |      |
| PIL-8    | Series .32     | 0        | 115  |
|          | Parallel .08   | 0        | 28   |
|          | Series .16     | 10       |      |
|          | Parallel .06   | 10       |      |
| PIL-12   | Series .8      | 0        | 300  |
|          | Parallel .2    | 0        | 75   |
|          | Series .4      | 5        |      |
|          | Parallel .15   | 5        |      |

 $\frac{5}{16}$ " Dia.  
x  $\frac{3}{16}$ " high  
Wt.  $\frac{1}{20}$  oz.

## PIP\* SERIES TRANSISTOR PULSE TRANSFORMERS

UTC's PIP series of subminiature transistor type pulse transformers is designed to give a maximum of component density in equipments, their configuration being especially compatible with transistors. The design is based on the UTC DO-T and DI-T series to impart exceptional reliability. PIP-1 through PIP-9 have a ratio of 4:4:1, PIP-10 through PIP-12 have a ratio of 5:3:1. All units are checked and adjusted in a transistor test circuit to give the required pulse width.

Hermetically sealed, manufactured & guaranteed to MIL-T-20138B by full environmental testing... all units, completely METAL CASED, MIL type TP6RX4410CZ. See UTC page 6 for other miniature pulse transformers.

U.S. Pat. No. 2,949,591

All Units Individually Adjusted to Parameters Shown in Table

 $\frac{5}{16}$ " Dia. x  $\frac{3}{16}$ " high  
Weight 1/20 oz.

| Type No. | APPROX. DCR, OHMS   |             |             |     | BLOCKING OSCILLATOR PULSE |           |              |        |              | COUPLING CIRCUIT CHARACTERISTICS |          |           |              |        |            |               | Net Each |
|----------|---|-------------|-------------|-----|---------------------------|-----------|--------------|--------|--------------|----------------------------------|----------|-----------|--------------|--------|------------|---------------|----------|
|          | 1-Brn 2-Rd  | 3-Orn 4-Yel | 5-Grn 6-Blu |     | Width $\mu$ Sec.          | Rise Time | % Over Shoot | Drop % | % Back Swing | P Width $\mu$ Sec.               | Volt Out | Rise Time | % Over Shoot | Drop % | Back Swing | Imp. in, out, |          |
| PIP-1    | .18   | .20         | .07         | .05 | .05                       | .025      | 0            | 0      | 37           | .05                              | 9        | .018      | 0            | 0      | 12         | 50            | \$6.00   |
| PIP-2    | .78   | .156        | .17         | .1  | .025                      | 0         | 0            | 25     | .1           | 8                                | .02      | 0         | 0            | 5      | 50         | 6.00          |          |
| PIP-3    | 1.01  | 1.25        | .37         | .2  | .030                      | 2         | 0            | 15     | .2           | 7                                | .035     | 0         | 0            | 5      | 100        | 6.00          |          |
| PIP-4    | 1.5   | 1.85        | .54         | .5  | .05                       | 0         | 0            | 15     | .5           | 7                                | .06      | 0         | 0            | 0      | 100        | 6.00          |          |
| PIP-5    | 2.45  | 3.1         | .9          | 1   | .08                       | 0         | 0            | 14     | 1            | 6.8                              | .15      | 0         | 0            | 5      | 100        | 6.00          |          |
| PIP-6    | 3.0   | 3.7         | 1.1         | 2   | .10                       | 0         | 0            | 15     | 2            | 6.6                              | .18      | 0         | 2            | 10     | 100        | 6.00          |          |
| PIP-7    | 4.9   | 6.05        | 1.8         | 3   | .20                       | 0         | 0            | 14     | 3            | 6.8                              | .20      | 0         | 2            | 10     | 100        | 6.00          |          |
| PIP-8    | 8.0   | 9.7         | 2.9         | 5   | .30                       | 0         | 0            | 3      | 5            | 7.9                              | .22      | 0         | 13           | 25     | 200        | 6.00          |          |
| PIP-9    | 13.1  | 15.9        | 4.7         | 10  | .35                       | 0         | 5            | 12     | 10           | 6.5                              | .4       | 0         | 15           | 20     | 200        | 6.00          |          |
| PIP-10   | .55   | .41         | .15         | .1  | .01                       | 0         | 0            | 20     | 0            | 8                                | .01      | 0         | 0            | 5      | 140/50     | 6.00          |          |
| PIP-11   | 2.9   | 2.2         | .82         | 1   | .02                       | 4         | 4            | 6      | 1            | 6.6                              | .05      | 0         | 6            | 12     | 280/100    | 6.00          |          |
| PIP-12   | 9.4   | 7.1         | 2.6         | 5   | .05                       | 0         | 12           | 12     | 5            | 8                                | .09      | 2         | 12           | 25     | 560/200    | 6.00          |          |
| PIP-100  | Transistor pulse transformer kit, consisting of PIP-1 thru PIP-9 in plastic case. |             |             |     |                           |           |              |        |              |                                  |          |           |              |        |            |               | 51.00    |
| PIP-SH   | Drawn Hipermalloy shield and cover for PIP's provides 20 to 30 db shielding.      |             |             |     |                           |           |              |        |              |                                  |          |           |              |        |            |               | .90      |

UTC PAGE 2. \*UTC Trade Mark. All Product Lines or Type Designations are UTC Trade Marks. Specify by Trade Mark to assure UTC high quality and reliability. © 1965 United Transformer Corp., New York, N. Y.

## TRANSISTOR TRANSFORMERS Hermetically sealed to MIL-T-27B



Primary 115V. 50/60 cycles (tapped on H-143 thru H-146 for dual secondary voltages). DC ratings are approximate, based on silicon bridge rectifier (except H-141, H-142 also shown F.W.C.T.). Choke input DCV is based on 10% voltage drop in choke. Condenser value, C, is in 1000 mfd. H-141, H-142, H-147 listing under "Secs in parallel" is single winding. All units MIL type TF4RX02.

## TRANSISTOR SUPPLY TRANSFORMERS

| Type No. | Sec. V Rms | Sec. A | Sec. in Parallel |           |           | Sec. in Series |           |           | MIL Case | Net Each |           |    |        |       |
|----------|------------|--------|------------------|-----------|-----------|----------------|-----------|-----------|----------|----------|-----------|----|--------|-------|
|          |            |        | Choke DCV        | Input DCA | Cond. DVC | Input DCA      | Choke DCV | Input DCA |          |          | Cond. DVC |    |        |       |
| H-141    | 20 CT      | .3     | 16.5             | .3        | 26        | .2             | .2        |           | EB       | \$10.20  |           |    |        |       |
| H-142    | 20 CT      | .6     | 16.5             | .43       | 12        | .3             | .5        |           | EA       | 12.90    |           |    |        |       |
| H-143    | 17/21.5    | 1.5    | 14/17.5          | 3         | 18.5/25   | 2              | 1         | 28/35     | 1.5      | 43/56    | 1         | .5 | HA     | 18.60 |
| H-144    | 17/21.5    | 4      | 14/17.5          | 8         | 18.5/25   | 5              | 2         | 28/35     | 4        | 43/56    | 2.5       | 1  | LA     | 30.00 |
| H-145    | 17/21.5    | 9      | 14/17.5          | 18        | 18.5/25   | 12             | 6         | 28/35     | 9        | 43/56    | 6         | 4  | RC-175 | 45.90 |
| H-146    | 34/43      | 4.5    | 28/35            | 9         | 43/56     | 6              | 4         | 56/70     | 4.5      | 85/110   | 3         | 1  | UTC    | 45.90 |
| H-147    | 10         | 20     | 8.2              | 20        | 10        | 13             | 12        |           |          |          |           |    | KA     | 27.00 |

## UNIVERSAL TRANSISTOR SUPPLY TRANSFORMERS

Low Voltage DC Supply  
Telephone Supply  
Bias Supply  
Battery Chargers  
Plating Rectifiers

UTC universal transistor supply transformers are high reliability units in drawn MIL cases. Primary tapes can modify nom. AC voltages by -6%, +6%, and +12%. The capacitor following the rectifier affects the DC voltage.

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

| Type No. | MIL DC Range         | Indust. DC Range      | MIL CASE | Net Each |
|----------|----------------------|-----------------------|----------|----------|
| H-915    | 6V-.065A to 53V-.02A | 6V-.085A to 53V-.025A | AH       | \$11.70  |
| H-925    | 6V-.22A to 53V-.07A  | 6V-.28A to 53V-.085A  | AJ       | 12.90    |
| H-935    | 6V-1.2A to 53V-4A    | 6V-1.52A to 53V-48A   | FA       | 14.40    |
| H-94     | 6V-3A to 53V-1A      | 6V-3.8A to 53V-1.2A   | HA       | 19.80    |
| H-95     | 6V-7.5A to 53V-2.5A  | 6V-9A to 53V-3A       | KA       | 28.80    |
| H-96     | 6V-18A to 53V-6A     | 6V-23A to 53V-7.5A    | OA       | 48.00    |

PRIMARY 115 VOLTS, 50/60 CYCLES  
NOMINAL SEC. VOLTS, 16.5 to 81

|       |                      |                      |    |       |
|-------|----------------------|----------------------|----|-------|
| H-965 | 12V-1.5A to 106V-.5A | 12V-1.9A to 106V-.6A | HA | 20.40 |
|-------|----------------------|----------------------|----|-------|

## NEW 400-CYCLE MET\* TYPES

PRIMARY 115 VOLTS, 400 CPS.  
NOMINAL SEC., 8.25-40.5 VOLTS

|         |                     |                     |    |         |
|---------|---------------------|---------------------|----|---------|
| MET 455 | 6V-1.2A to 53V-4A   | 6V-1.52A to 53V-48A | AJ | \$12.90 |
| MET 465 | 6V-3A to 53V-4A     | 6V-3.8A to 53V-1.2A | FA | 14.40   |
| MET 475 | 6V-7.5A to 53V-2.5A | 6V-9A to 53V-3A     | HA | 20.40   |

## 400 CYCLE MOLDED TYPES

Primary 105/115 Volts 380-1000 Cycles. Sec 6.3 VCT 2500V RMS Test

| Type No. | Sec. Amp. | L In.                      | W In. | H In. | Wt. Lbs. | Net Each |
|----------|-----------|----------------------------|-------|-------|----------|----------|
| H-101    | 3.5       | 1 5/8                      | 1 3/8 | 2     | .3       | \$14.10  |
| H-102    | 5.5       | 1 3/4                      | 2     | 2 1/4 | .44      | 15.00    |
| H-103    | 10        | 2 1/4                      | 2 1/8 | 2 1/2 | .8       | 17.40    |
| H-104    | 25        | 2 7/8                      | 2 1/2 | 3 1/2 | 1.5      | 21.90    |
| H-118    | .3        | Sub ounces mold see pg. 10 |       |       |          | 9.00     |



## TRANSISTOR INVERTER TRANSFORMERS

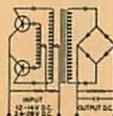
High reliability (layer insulated) types providing high efficiency in small size. Units are in drawn MIL cases. Circuit details supplied with transformer. With 6 V. input instead of 12 V., output voltage is halved, current rating remains the same.

FOR 12/14 OR 24/48 VOLT BATTERY



| Type No. | DC output, when used in circuit shown | MIL Case | Net Each |
|----------|---------------------------------------|----------|----------|
| H-97     | 250V.-60MA                            | AH       | \$14.70  |
| H-98     | 375V.-100MA                           | AJ       | 15.90    |
| H-99     | 425V.-175MA                           | FA       | 20.40    |
| H-100    | 550V.-200MA                           | GB       | 21.00    |

**IMMEDIATE DELIVERY**  
ON ALL ITEMS FROM STOCK



## NEW MET\* 400-CYCLE SERIES

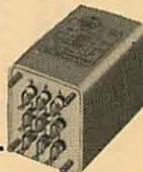
| Type No. | MIL Type  | Sec. Volt (MIL) | Amps. (Indust.) | Amps. (Test) | Sec. V. RMS | MIL Case | Net Each |
|----------|-----------|-----------------|-----------------|--------------|-------------|----------|----------|
| MET-410# | TF45X01YY | 6.3             | .6              | .75          | 500         | RC-25    | \$ 7.80  |
| MET-420  | TF45X01AH | 6.3CT           | 2               | 2.5          | 1500        | AH       | 9.60     |
| MET-430± | TF45X01FA | 12.6CT          | 2               | 2.5          | 1500        | FA       | 18.00    |
| MET-435  | TF45X01FA | 6.3CT           | 10              | 12           | 2500        | FA       | 12.00    |
| MET-440  | TR45X01GB | 6.3CT           | 6               | 7            | 2500        | GB       | 15.00    |

†Two MET-430's, Scott-connected, provide 26v., 2-phase from 115 v., 3-phase 400 cps input. Replaces former No. H-139. †105/115/125 v. primary. ‡57.5/99.7/115 v. primary. #Replaces former No. H-140.

## HERMETIC SEALED TRANSISTOR/FILAMENT SUPPLY TRANSFORMER

Primary: 105/115/210/220 volts, 50/60 cycles, except H-130, H-137, H-138, H-104 (115v.) and H-131 (115/220v.) Suited to 400/100 cycle service. H-128: 6 1/2" x 5 1/2" x 7 3/4" h. (wt. 34 lbs.). H-129: 6 1/2" x 5 1/2" x 7 3/4" h. (wt. 28 lbs.).

METAL CASED TF4 TYPE



## MIL-T-27B RATINGS IN REGULAR TYPE, INDUSTRIAL RATINGS IN BOLD TYPE

| Type No. | MIL Type         | Sec. Volts     | Amps. (MIL) | Amps. (Indust.) | Sec. Test V. RMS | MIL Case  | Net Each |  |
|----------|------------------|----------------|-------------|-----------------|------------------|-----------|----------|--|
| H-119    | TF4RX01AH        | 6.3CT          | .3          | .38             | 1500             | AH        | \$ 8.40  |  |
| H-120    | TF4RX01GB        | 2.5            | 10          | 12              | 4000             | GB        | 13.80    |  |
| H-121    | TF4RX01JB        | 2.5            | 10          | 12              | 10000            | JB        | 18.00    |  |
| H-122    | TF4RX01KB        | 2.5            | 20          | 26              | 10000            | KB        | 21.00    |  |
| H-123    | TF4RX01NB        | 2.5            | 5           | 7.5             | 10000            | NB        | 36.00    |  |
|          |                  | 2.5            | 5           | 7.5             |                  |           |          |  |
|          |                  | 2.5            | 10          | 15              |                  |           |          |  |
| H-124    | TF4RX01FB        | 5              | 3           | 3               | 2000             | FB        | 12.00    |  |
| H-125    | TF4RX01KB        | 5              | 10          | 12              | 10000            | KB        | 21.00    |  |
| H-126    | TF4RX01LA        | 5              | 20          | 25              | 10000            | LA        | 27.00    |  |
| H-127    | TF4RX01NA        | 5              | 20          | 30              | 21000            | NA        | 45.00    |  |
| H-128    | TF4RX01YY        | 5              | 60          | 75              | 21000            |           | 81.00    |  |
| H-129    | TF4RX01YY        | 5              | 10          | 12              | 21000            |           | 90.00    |  |
|          |                  | 5              | 10          | 12              |                  |           |          |  |
|          |                  | 5              | 20          | 24              |                  |           |          |  |
| H-130    | TF4RX01AJ        | 6.3CT          | .6          | .75             | 1500             | AJ        | 9.00     |  |
| H-131    | TF4RX01FB        | 6.3CT          | 2           | 2.5             | 2500             | FB        | 12.00    |  |
| H-132    | TF4RX01JA        | 6.3CT          | 6           | 7               | 2500             | JA        | 19.20    |  |
|          |                  | 6.3CT          | 6           | 7               |                  |           |          |  |
| H-133    | TF4RX01HB        | 6.3CT          | 7           | 8               | 2500             | HB        | 15.00    |  |
| H-134    | TF4RX01HA        | 6.3CT          | 10          | 12              | 2500             | HA        | 16.80    |  |
| H-135    | TF4RX01JB        | 10 CT          | 10          | 13              | 2500             | JB        | 21.00    |  |
| H-136    | TF4RX01LA        | 14, 12, 11 CT  | 10          | 14              | 2500             | LA        | 27.00    |  |
| H-137    | TF4RX01EB        | 6.3            | .6          | .75             | 1500             | EB        | 12.00    |  |
|          |                  | 6.3            | .6          | .75             |                  |           |          |  |
| H-138    | TF4RX01GA        | 12.6           | 2           | 2.5             | 1500             | GA        | 19.50    |  |
|          |                  | 12.6           | 2           | 2.5             |                  |           |          |  |
|          |                  | 400 CYCLE TYPE |             |                 |                  |           |          |  |
| H-139*   | TF4RX01FA        | 12.6CT         | 2           | 2.5             | 1500             | FA        | 18.00    |  |
|          | Pri. 400 cyc.    | 12.6           | 2           | 2.5             |                  |           |          |  |
|          | 57.5, 99.7, 115V |                |             |                 |                  |           |          |  |
| H-140    | TF4RX01YY        | 6.3            | .6          | .75             | 500              | RC-25     | 7.80     |  |
|          | Pri. 400 Cyc.    |                |             |                 |                  | UTC Pg. 5 |          |  |

\*Two H-139's Scott connected provide 26 volt two phase from 115V. three phase 400 cycle input.



# TRANSISTOR TRANSFORMERS

(Commercial Types)

## & M-S Transformers & Inductors

### TRANSISTOR TRANSFORMERS (Commercial Type)

#### NEW CAT★ TRANSISTOR IMPEDANCE TYPES

All units in RC-50 case. Frequency range,  $\pm 2$  db, 50-15,000 cps. Power level 1 watt except CAT-15, 5 watts.

| UTC Type | Application | Imped. Ohms   | Primary Unbal. Ma DC | Secondary Imped., Ohms | Net Each |
|----------|-------------|---------------|----------------------|------------------------|----------|
| CAT-15   | Output      | 48/12 spl.    | 750*                 | 16 spl./8/4            | \$8.10   |
| CAT-20   | Istg./outp. | 500/125 spl.  | 20                   | 16/4 split             | 7.80     |
| CAT-25   | Istg./outp. | 500/125 spl.  | 20                   | 500/125 spl.           | 7.80     |
| CAT-30   | Input/istg. | 500/125 spl.  | 20                   | 2K/500 split           | 7.80     |
| CAT-40   | Istg./outp. | 10K/2.5K spl. | 8                    | 2K/500 split           | 7.80     |

\*Balance. ★Trade mark.

#### CHANNEL FRAME FILAMENT/TRANSISTOR TRANSFORMERS

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

| Type No. | Secondary                   | W     | D     | H      | M      | Lbs.  | Net Each |
|----------|-----------------------------|-------|-------|--------|--------|-------|----------|
| FT-1     | 2.5 VCT-3A                  | 27/8  | 15/8  | 111/16 | 23/8   | 3/4   | \$4.05   |
| FT-2     | 6.3 VCT-1.2A                | 27/8  | 15/8  | 111/16 | 23/8   | 3/4   | 3.90     |
| FT-3     | 2.5 VCT-6A                  | 33/16 | 17/8  | 2      | 213/16 | 1     | 4.50     |
| FT-4     | 5.3 VCT-3A                  | 33/16 | 17/8  | 2      | 213/16 | 1     | 4.50     |
| FT-5     | 2.5 VCT-10A                 | 33/16 | 21/8  | 2 1/2  | 213/16 | 1 1/2 | 4.65     |
| FT-6     | 5 VCT-3A                    | 33/16 | 21/8  | 2 1/2  | 213/16 | 1 1/2 | 4.65     |
| FT-7     | 7.5 VCT-3A                  | 33/16 | 21/8  | 2 1/2  | 213/16 | 1 1/2 | 4.65     |
| FT-8     | 6.3 VCT-8A                  | 4     | 2 1/2 | 2 1/2  | 3 1/8  | 2 1/2 | 5.40     |
| FT-10    | 24 VCT-2A<br>or 12V-4A      | 4     | 2 1/2 | 2 1/2  | 3 1/8  | 2 1/2 | 5.55     |
| FT-11    | 24 VCT-1A<br>or 12 V-2A     | 3 3/4 | 2 1/2 | 2 1/2  | 3 1/8  | 1 1/2 | 4.95     |
| FT-12    | 36 VCT-1.3A<br>or 18 V-2.6A | 4     | 2 1/2 | 2 1/2  | 3 1/8  | 2 1/2 | 5.55     |

Taps on pri. of FT-13, FT-14 & FT-15 to modify sec. nominal V, -6% +6%, +12%

|       |             |       |       |       |       |       |        |
|-------|-------------|-------|-------|-------|-------|-------|--------|
| FT-13 | 26 VCT-.04A | 2 1/2 | 1 3/8 | 1 1/4 | 1 3/4 | 1/4   | \$4.20 |
| FT-14 | 26 VCT-.25A | 2 1/2 | 1 3/8 | 1 1/4 | 2 3/8 | 3/4   | 4.50   |
| FT-15 | 48VCT-1A    | 4     | 2 1/2 | 2 1/2 | 3 1/8 | 2 1/2 | 6.30   |

#### TRANSISTOR/FILAMENT TRANSFORMERS

Pri. 115 x 50/60 Cycles; Bridge Rectifier

S-77, S-78 & S-79 Tapped For Dual Secondary Voltages

| UTC Type | DCV    | DCA    | Case No. See Page 11 | Net Each |
|----------|--------|--------|----------------------|----------|
| S-75     | 5.2/14 | 1.2/4  | G-1                  | 6.00     |
| S-76     | 10/26  | 4/11.4 | G-4                  | 9.00     |
| S-77     | 14/56  | 3/1    | G-5                  | 10.20    |
| S-78     | 28/110 | 9/3    | G-10                 | 30.00    |
| S-79     | 32/120 | 3/1    | G-7                  | 18.00    |

## MILITARY STANDARD TRANSFORMERS AND INDUCTORS

#### Hermetically Sealed To MIL-T-27B Specifications

Made and guaranteed to meet MIL-T-27B by full environmental testing.

#### FILAMENT, POWER, PLATE TRANSFORMERS

Primary 105/115/125 v., 54/66 cycles. Current ratings are for high voltage secondary DC, choke input filter. For condenser input, reduce by 70%. All units are MIL grade 4, ruggedized; equally usable where grade 1 is specified. Electrostatically shielded.

| UTC Type | MS No.  | MIL Type TF4RX- | Secondary Rating   | MIL Case | Net Each |
|----------|---------|-----------------|--|----------|----------|
| N-583A   | 90016-2 | 01EB002         | 2.5 v.-3 a.; 1000 WV   | EB       | \$10.20  |
| N-584A   | 90017-2 | 01GB003         | 2.5 v.-10 a.; 1000 WV  | GB       | 14.10    |
| N-585A   | 90018-2 | 01FB004         | 5 v.-3 a.; 1000 WV   | FB       | 11.10    |
| N-586A   | 90019-2 | 01HB005         | 5 v.-10 a.; 1000 WV  | HB       | 15.30    |
| N-587A   | 90020-2 | 01FB006         | 6.3 v.-2 a.; 1000 WV   | FB       | 11.10    |
| N-588A   | 90021-2 | 01GB007         | 6.3 v.-5 a.; 1000 WV   | GB       | 12.90    |
| N-589A   | 90022-2 | 01JB008         | 6.3 v.-10 a.; 1000 WV  | JB       | 17.70    |
| N-590A   | 90023-2 | 01KB009         | 6.3 v.-20 a.; 1000 WV  | KB       | 22.50    |
| N-591A   | 90024-2 | 01JB012         | 2.5 v.-10 a.; 6300 WV  | JB       | 18.00    |
| N-592A   | 90025-2 | 01KB013         | 5 v.-10 a.; 6300 WV  | KB       | 21.00    |
| N-593A   | 90026-2 | 03HA001         | 200-100-0-100-200, 70 ma; 6.3 v.-2 a.; 6.3 v.-3 a.; 325-0-325, 70 ma; 6.3 v.-2 a.; 6.3 v.-4 a. | HA       | 20.70    |
| N-594A   | 90027-2 | 03JB002         | 325-0-325, 150 ma; 6.3 v.-2 a.; 6.3 v.-4 a.  | JB       | 22.35    |
| N-595A   | 90028-2 | 03KB006         | 325-0-325, 150 ma; 5 v.-3 a.; 6.3 v.-5 a.  | KB       | 25.35    |
| N-596A   | 90029-2 | 03LB003         | 400-0-400, 175 ma; 5 v.-3 a.; 6.3 v.-8 a.  | LB       | 27.30    |
| N-597A   | 90030-2 | 03MB004         | 450-0-450, 250 ma; 5 v.-3 a.; 6.3 v.-8 a.  | MB       | 33.90    |
| N-598A   | 90031-2 | 02KB001         | 350-0-350, 250 ma  | KB       | 19.80    |
| N-599A   | 90032-2 | 02LB002         | 550-0-550, 250 ma  | LB       | 26.85    |
| N-600A   | 90036-2 | 02NB003         | 800-0-800, 250 ma  | NB       | 37.50    |

#### CIRCUIT DEVELOPMENT TRANSFORMERS FOR TRANSISTORS

The UTC Laboratory circuit development transformers aid the designer in selecting optimum impedances for best power and distortion results from his transistor circuit.

##### LAB-5

20 Cycles to 20kc

Up to 50mw Continuous

Pri Imp.  $\Omega$  Sec. Imp.  $\Omega$

125 125

200 split 200 split

500 split 500 split

2000 split 2000 split

Net Each: \$48.00

LAB-10 units in LS-1 case

LAB-20 units in LS-3 case

LAB\* UNIT



See UTC page 8 for dimensions Terminal board as shown above

##### LAB-10

20 Cycles to 20kc

Up to 1W Continuous

Pri. Imp.  $\Omega$  Pri. to Sec. Ratio

1900  $\Omega$  to 20:1 or

14,400  $\Omega$  to 10:1

925  $\Omega$  to 10:1 or

7600  $\Omega$  to 5:1

Net Each: \$30.00

##### LAB-20

20 Cycles to 20kc

Up to 50W Continuous

Pri. Imp.  $\Omega$  Sec. Imp.

6, 12, 4, 8,

24, 40, 16, 64,

54, 70,

Net Each: \$60.00

#### TRANSISTOR/FILAMENT SUPPLY TRANSFORMERS

Primary 115 volts 50/60 cycles

| Type No. | Sec. V RMS | Sec. A RMS | In Parallel Choke in DCV DCA | C in DCV DCA | In Series Choke in DCV DCA | C in DCV DCA | Case No. See Pg. 9 | Net Each |       |        |        |         |       |
|----------|------------|------------|------------------------------|--------------|----------------------------|--------------|--------------------|----------|-------|--------|--------|---------|-------|
| CG-30    | 17/21.5    | 1.5        | 14/17.5                      | 3            | 18.5/25                    | 2            | 28/35              | 1.5      | 43/56 | 1      | RC-112 | \$18.90 |       |
| CG-31    | 17/21.5    | 1.5        | 4.5                          | 28/35        | 9                          | 43/56        | 6                  | 56/70    | 4.5   | 85/110 | 3      | RC-175  | 42.00 |
| CG-32    | 34/43      | 4.5        | 34/43                        | 4.5          | 6.3VCT                     | 1.2          |                    |          |       |        |        | RC-62   | 10.50 |

#### FILAMENT/TRANSISTOR SUPPLY 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. Amp. | Working Voltage | Sec. Test Volts RMS | Case No. See Page 9 | Net Each |
|----------|-----------------|-----------|-----------------|---------------------|---------------------|----------|
| CG-33    | 6.3             | 4         | 500             | 2000                | RC-75               | \$ 9.00  |
| CG-34    | 2.5             | 10        | 2500            | 6000                | RC-112              | 10.20    |
| CG-35    | 6.3             | 6         | 500             | 2000                | RC-87               | 9.60     |
| CG-36    | 6.3/6.3         | 5/5       | 500             | 2000                | RC-100              | 13.50    |
| CG-120   | 2.5             | 10        | 5000            | 11000               | RC-125              | 15.00    |
| CG-121   | 5               | 25        | 5000            | 11000               | RC-150              | 18.00    |
| CG-122   | 7.5/6.3         | 10        | 1500            | 4000                | RC-125              | 15.00    |
| CG-124   | 10              | 10        | 1500            | 4000                | RC-150              | 15.00    |
| CG-125   | 14/12/11        | 10        | 1500            | 4000                | RC-150              | 18.00    |
| CG-126   | 14/11/10        | 10        | 1500            | 4000                | RC-152              | 24.00    |



RC CASE See Pg. 9

#### AUDIO TRANSFORMERS

Frequency response 300-10,000 cps,  $\pm 2$  db. Split 600-ohm units provides for 600 ohms CT and 1500 ohms. Electrostatic shielding provided on W-784, W-785 and W-786. No. W-783 has center-tapped secondary for 90K CT or 22.5K CT. All units in AJ case. Wt., 0.6 lb.

| UTC Type | MS No.  | MIL Type TF1RX- | #  | Pri. Ohms | Pri. DC Ma., Unbal. | Sec. Ohms | Net Each |
|----------|---------|-----------------|----|-----------|---------------------|-----------|----------|
| W-783    | 90000-1 | 15AJ001         | a  | 10K CT    | 10                  | 90K spl.  | \$15.90  |
| W-784    | 90001-1 | 16AJ002         | b  | 600 spl.  | .....               | 4/8/16    | 14.70    |
| W-785    | 90002-1 | 10AJ001         | c  | 600 spl.  | .....               | 135K CT   | 14.10    |
| W-786    | 90003-1 | 16AJ001         | d  | 600 spl.  | .....               | 600 spl.  | 14.10    |
| W-787    | 90004-1 | 13AJ001         | e  | 7.6K/4.8K | 40                  | 600 spl.  | 12.75    |
| W-788    | 90005-1 | 13AJ002         | f  | 7.6K/4.8K | 40                  | 4/8/16    | 12.90    |
| W-789    | 90006-1 | 13AJ003         | g  | 15K CT    | 10                  | 600 spl.  | 12.45    |
| W-790    | 90007-1 | 13AJ004         | g+ | 24K CT    | 20                  | 600 spl.  | 12.90    |
| W-791    | 90008-1 | 13AJ005         | g# | 60K CT    | 20+                 | 600 spl.  | 12.45    |

# Use: a—PP plates to pp grids, 15 dbm level. b—Line to VC, 2 watts. c—Line to pp grids, 15 dbm. d—Line to line, 15 dbm. e—Plate to line, 2 watts. f—Plate to VC, 2 watts. g—PP plates to line. †Balanced. ‡ watts. † watt. #0.5 watt.

#### INDUCTORS

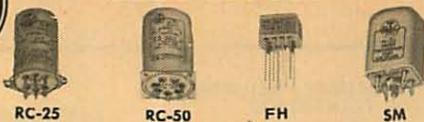
Two windings for series or parallel connection. Inductance shown for series connection. All but Z-847 are standard MIL case types. Rated 3500 WVDC, unless otherwise noted.

| UTC Type | MS No.  | MIL Type | Induct. 'Hy. | Ma DC | DCR Ohms | MIL Case | Net Each |
|----------|---------|----------|--------------|-------|----------|----------|----------|
| Z-848*   | 90009-1 | 04FA001  | 16           | 80    | 645      | FA       | \$11.40  |
| Z-849*   | 90010-1 | 04GA002  | 25           | 80    | 670      | GA       | 14.10    |
| Z-850*   | 90011-1 | 04HA003  | 40           | 80    | 1020     | HA       | 21.30    |
| Z-851†   | 90013-1 | 04HA005  | 16           | 125   | 330      | HA       | 16.50    |
| Z-852†   | 90014-1 | 04JB006  | 25           | 125   | 460      | JB       | 24.30    |
| Z-853    | 90037-1 | 04KA007  | 40           | 125   | 535      | KA       | 29.40    |
| Z-854    | 75000-2 | 04LA009* | 16           | 200   | 180      | LA       | 31.50    |
| Z-855    | 75001-2 | 04MA010* | 25           | 200   | 210      | MA       | 36.90    |
| Z-856    | 75002-2 | 04NA012* | 16           | 315   | 105      | NA       | 43.20    |
| Z-857    | 75003-2 | 04Y013*  | 25           | 315   | 150      | YY       | 75.00    |

\*1000 WVDC. †2000 WVDC. ‡TF1RX-. •TF4RX.

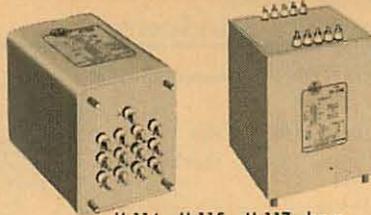
HERMETIC COMPONENTS Hermetically sealed to MIL-T-27B

HERMETIC AUDIO UNITS



These extremely compact units are proved to specifications of MIL-T-27B. Response & level ratings: RC-25: Similar to Ouncers for case (1 1/2" x 1 1/4" x 1 1/4" h. 1.5 oz.). RC-50: Similar to ultra compact units for case (1 1/8" x 1 1/8" x 2 1/4" h. 0.8 oz.). SM: Similar to SSO units for case (1 1/4" x 1 1/2" x 3/2" h. 0.8 oz.). FH: 2 1/2" x 2 1/2" x 1/4" h. .8 oz.

HERMETIC SEALED POWER and PLATE TRANSFORMERS



Power transformers: primary 115V, 60 cycles suited to 50-1000 cycles service. Plate transformers: primary 105/115/210/220 volts, 50/60 cycles. "L" ratings are choke input. "C" ratings are condenser input. H-80 thru H-197 MIL type TF4RX03, H-110 thru H-117 MIL type TF4RX02. The tapped high voltage winding provides either of two secondary voltages for greatest versatility. The power transformer listings indicate DC voltages and permissible currents for both choke and condenser input filters, as well as for military and industrial applications.

H-114, H-115, H-117 have terminals opposite mounting.

"W" suffix units designed for full wave center tap and full wave bridge application. Center tap of secondary may be disconnected from ground.

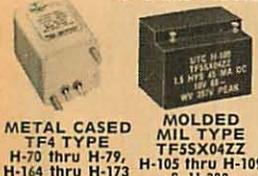
MIL-T-27B Ratings in Regular Type, Industrial Ratings in Bold Type

| Type No. | HV Sec. C. T. | Approx. DC Volts | Approx. DC MA | Fil. Wdg.                                     | Approx. DC Volts | DC MA | Fil. Wdg.   | MIL Case | Net Each |
|----------|---------------|------------------|---------------|---|------------------|-------|-------------|----------|----------|
| H-80     | 450           | C 240            | 30            | 6.3VCT-2A                                     | C 215            | 38    | 6.3VCT-2.5A | FA       | \$12.90  |
| H-81     | 500           | L 170            | 95            |   | L 160            | 110   |             |          |          |
|          |               | C 270            | 55            | 6.3VCT-3A                                     | C 245            | 75    | 6.3VCT-3A   | HA       | 18.00    |
|          | 550           | L 200            | 85            | 5V-2A   | L 180            | 105   | 5V-2A       |          |          |
| H-82     |               | C 310            | 50            |   | C 280            | 65    |             |          |          |
|          | 550           | L 180            | 145           |   | L 160            | 190   |             |          |          |
|          |               | C 290            | 90            | 6.3VCT-4A                                     | C 270            | 115   | 6.3VCT-4.5A | JB       | 20.40    |
| H-83     | 600           | L 215            | 135           | 5V-2A   | L 190            | 180   | 5V-2A       |          |          |
|          |               | C 330            | 85            |   | C 315            | 100   |             |          |          |
|          | 600           | L 215            | 165           | 6.3V-5A                                       | L 200            | 210   | 6.3V-6A     | JA       | 21.00    |
| H-84     |               | C 315            | 100           | 5V-2A   | C 320            | 120   | 5V-2A       |          |          |
|          | 670           | L 250            | 150           |   | L 230            | 200   |             |          |          |
|          |               | C 400            | 90            |   | C 380            | 110   |             |          |          |
| H-85     | 700           | L 245            | 225           |   | L 240            | 255   |             |          |          |
|          |               | C 390            | 135           | 6.3V-5A                                       | C 375            | 160   | 6.3V-6A     | KA       | 26.40    |
|          | 750           | L 275            | 205           | 6.3V-1A                                       | L 270            | 230   | 6.3V-1.5A   |          |          |
| H-86     |               | C 430            | 125           | 5V-3A   | C 410            | 150   | 5V-4A       |          |          |
|          | 700           | L 245            | 300           |   | L 230            | 370   |             |          |          |
|          |               | C 390            | 190           | 6.3V-6A                                       | C 355            | 230   | 6.3V-6A     | LA       | 30.00    |
| H-87     | 750           | L 270            | 280           | 6.3V-1.5A                                     | L 250            | 350   | 6.3V-2A     |          |          |
|          |               | C 425            | 170           | 5V-3A   | C 395            | 210   | 5V-4A       |          |          |
|          | 720           | L 270            | 310           |   | L 250            | 360   |             |          |          |
| H-88     |               | C 425            | 180           | 6.3V-6A                                       | C 395            | 225   | 6.3V-7.5A   | MB       | 30.90    |
|          | 790           | L 295            | 300           | 6.3V-2A                                       | L 280            | 350   | 6.3V-2A     |          |          |
|          |               | C 475            | 160           | 5V-3A   | C 440            | 210   | 5V-4A       |          |          |
| H-89     | 800           | L 245            | 420           |   | L 230            | 515   |             |          |          |
|          |               | C 390            | 275           | 6.3V-6A                                       | C 390            | 300   | 6.3V-6A     | NB       | 36.00    |
|          | 800           | L 275            | 400           | 6.3V-2A                                       | L 275            | 480   | 6.3V-2A     |          |          |
| H-90     |               | C 440            | 250           | 5V-4A   | C 430            | 290   | 5V-6A       |          |          |
|          | 850           | L 305            | 430           |   | L 275            | 550   |             |          |          |
|          |               | C 460            | 280           | 6.3V-8A                                       | C 445            | 340   | 6.3V-10A    | OA       | 49.50    |
| H-91     | 1050          | L 400            | 400           | 6.3V-4A                                       | L 370            | 500   | 6.3V-5A     |          |          |
|          |               | C 600            | 260           | 5V-6A   | C 575            | 320   | 5V-6A       |          |          |
|          | 900           | L 340            | 200           | 6.3V-5A                                       | L 330            | 220   | 6.3V-6A     | KA       | 27.00    |
| H-92     | 1000          | L 390            | 190           | 6.3V-1A                                       | L 385            | 195   | 6.3V-1.5A   |          |          |
|          |               | C 5V-3A          |               |   |                  |       |             |          |          |
|          | 900           | L 340            | 265           | 6.3V-6A                                       | L 330            | 310   | 6.3V-8A     | MB       | 33.00    |
| H-93     | 1050          | L 400            | 240           | 6.3V-2A                                       | L 395            | 290   | 6.3V-2A     |          |          |
|          |               | C 5V-4A          |               |   |                  |       |             |          |          |
|          | 1000          | L 370            | 300           | 6.3V-8A                                       | L 340            | 390   | 6.3V-10A    | OA       | 49.50    |
| H-194**  | 1200          | L 465            | 265           | 6.3V-4A                                       | L 455            | 350   | 6.3V-5A     |          |          |
|          |               | C 5V-6A          |               |   |                  |       |             |          |          |
|          | 200           | L 170            | 140           | 6.3V-3.5A                                     | L 160            | 155   | 6.3V-4A     | HA       | 21.00    |
| H-195**  |               | C 275            | 85            |   | C 260            | 95    |             |          |          |
|          | 235           | L 200            | 125           |   | L 190            | 135   |             |          |          |
|          |               | C 325            | 75            |   | C 310            | 85    |             |          |          |
| H-196**  | 215           | L 185            | 285           | 6.3V-5A                                       | L 175            | 300   |             |          |          |
|          |               | C 300            | 180           |   | C 285            | 195   | 6.3V-6A     | JA       | 24.00    |
|          | 265           | L 230            | 240           |   | L 220            | 255   |             |          |          |
| H-197**  |               | C 375            | 150           |   | C 360            | 165   |             |          |          |
|          | 230           | L 200            | 445           | 6.3V-5A                                       | L 190            | 480   |             |          |          |
|          |               | C 320            | 280           | 6.3V-1.5A                                     | C 300            | 300   | 6.3V-6A     | KA       | 30.00    |
| H-198    | 285           | L 250            | 380           |   | L 240            | 420   | 6.3V-2A     |          |          |
|          |               | C 400            | 235           |   | C 380            | 260   |             |          |          |
|          | 260           | L 230            | 500           | 6.3V-6A                                       | L 220            | 550   | 6.3V-7A     | MB       | 42.00    |
| H-110    |               | C 360            | 320           | 6.3V-2A                                       | C 340            | 350   | 6.3V-2A     |          |          |
|          |               | C 450            | 260           |   | C 430            | 290   |             |          |          |
|          | 800           | L 1000           | 5             | 1.25 V—2A connected to one end of HV winding. |                  |       |             | HA       | 27.00    |
| H-111    | 1600          | L 2000           | 5             | 6.3 V—.6A 5.2 KV RMS test voltage             |                  |       |             |          |          |
|          | 2400          | L 3000           | 5             |   |                  |       |             |          |          |
|          | 2400          | L 3000           | 5             |   |                  |       |             |          |          |
| H-112    | 1050          | L 365            | 300           |   | L 400            |       |             | MB       | 27.00    |
|          | 1200          | L 430            | 275           |   | L 385            |       |             |          |          |
|          |               | L 730            | 210           |   | L 280            |       |             |          | 29.70    |
| H-113    |               | L 860            | 190           |   | L 265            |       |             |          |          |
|          | 1050          | L 415            | 500           |   | L 600            |       |             | NA       | 33.00    |
|          | 1200          | L 480            | 450           |   | L 550            |       |             |          |          |
| H-114    |               | L 830            | 350           |   | L 420            |       |             |          | 36.00    |
|          |               | L 960            | 310           |   | L 380            |       |             |          |          |
|          | 1500          | L 615            | 320           |   | L 385            |       |             | NA       | 36.00    |
| H-115    |               | L 790            | 275           |   | L 330            |       |             |          |          |
|          | 1900          | L 790            | 275           |   | L 330            |       |             |          |          |
|          |               | L 1230           | 220           |   | L 270            |       |             |          | 39.60    |
| H-116    |               | L 1580           | 190           |   | L 230            |       |             |          |          |
|          | 2500          | L 1050           | 310           |   | L 375            |       |             | †        | 54.00    |
|          | 3000          | L 1275           | 275           |   | L 330            |       |             |          |          |
| H-117    | 2500          | L 1050           | 475           |   | L 525            |       |             | †        | 81.00    |
|          | 3000          | L 1265           | 425           |   | L 475            |       |             |          |          |
|          |               | L 1500           | 275           |   | L 375            |       |             | †        | 81.00    |
| H-118    | 4400          | L 1900           | 235           |   | L 320            |       |             |          |          |
|          | 5000          | L 2125           | 950           |   | L 1150           |       |             | ††       | 291.00   |
|          | 6000          | L 2550           | 850           |   | L 1050           |       |             |          |          |

\*For 50 cycles, secondary current ratings reduced by 10%. \*\*DC ratings for bridge rectifier circuits. †6x5Vx634, †6x4Vx62x8, †11x11x144 ‡ New full wave bridge rectifier types

IMMEDIATE DELIVERY ON ALL UTC STOCK ITEMS

HERMETIC SEALED FILTER INDUCTORS TUBE and TRANSISTOR TYPE



The multiple ratings for the "H" series of filter chokes suit these units for the complete gamut of military and industrial applications. Transistor supply units are swinging type to enhance regulation. H-79 terminals opposite mounting. \*Relates to ripple voltage, in input filter circuits only.

| Type No. | Ind. Hys.                  | DC Res.  | Max. Ch. Input | DCV* Test V. | MIL Case | Net Each |           |          |
|----------|----------------------------|----------|----------------|--------------|----------|----------|-----------|----------|
| H-70     | 20                         | 925      | 150            | 1000         | AH       | \$ 7.20  |           |          |
| H-71     | 20                         | 40       | 350            | 500          | FB       | 9.00     |           |          |
| H-72     | 13                         | 70       | 215            | 500          | GB       | 11.40    |           |          |
| H-73     | 10                         | 100      | 130            | 700          | JB       | 12.90    |           |          |
| H-74     | 11                         | 150      | 135            | 700          | KB       | 17.40    |           |          |
| H-75     | 11                         | 200      | 90             | 700          | LB       | 24.00    |           |          |
| H-76     | 11                         | 200      | 85             | 1500         | MB       | 27.00    |           |          |
| H-77     | 10                         | 200      | 60             | 2000         | OB       | 34.50    |           |          |
| H-78     | 7                          | 400      | 48             | 2500         | OA       | 42.00    |           |          |
| H-79     | 7                          | 800      | 20             | 3000         | OB       | 42.00    |           |          |
| H-164 †  | 45†                        | 5        | 1.25           | 295          | AG       | 6.40     |           |          |
| (2 wdg.) | 11.25†                     | 70       | 1.5            | 500          | AH       | 7.50     |           |          |
| H-164 †  | 125†                       | 50       | 1.2            | 500          | AH       | 7.50     |           |          |
| (2 wdg.) | 100                        | 100      | 1.8            | 750          | AJ       | 8.40     |           |          |
| H-168 †  | 68†                        | 100      | 1.8            | 750          | AJ       | 8.40     |           |          |
| (2 wdg.) | 17†                        | 200      | 2              | 1000         | GB       | 10.20    |           |          |
| H-178 †  | 18                         | 125      | 6              | 1000         | GB       | 10.20    |           |          |
| (2 wdg.) | .045                       | 250      | .15            | 1000         | JA       | 15.00    |           |          |
| H-171 †  | 91                         | .75A     | .03            | 1000         | JA       | 15.00    |           |          |
| (2 wdg.) | 2.25†                      | 1.5A     | .0075          | 1000         | HA       | 12.60    |           |          |
| H-172 †  | 70†                        | .25A     | .22            | 1000         | HA       | 12.60    |           |          |
| (2 wdg.) | 17.5†                      | .5A      | .055           | 1000         | KA       | 21.00    |           |          |
| H-173 †  | 90†                        | .5A      | .15            | 1000         | KA       | 21.00    |           |          |
| (2 wdg.) | 22.5†                      | 1A       | .038           | 1000         | KA       | 21.00    |           |          |
| Type No. | Inductance Henries @ DC MA | DCR Ohms | Test DC Volts  | L            | W        | H        | Wgt. Lbs. | Net Each |
| H-105    | 2.5 @ 25 MA                | 225      | 1000           | 1 1/4        | 1 1/4    | 1 1/4    | .1        | \$ 5.70  |
| H-106    | 2.25 @ 40 MA               | 110      | 1000           | 1 1/4        | 1 1/4    | 1 1/4    | .28       | 6.90     |
| H-107    | 2 @ 120 MA                 | 55       | 2500           | 2 1/8        | 1 1/4    | 1 1/4    | .9        | 7.50     |
| H-108    | 2 @ 220 MA                 | 35       | 2500           | 2 1/2        | 2 1/2    | 2 1/2    | 1.7       | 9.60     |
| H-109†   | 2 @ 150 MA                 | 16       | 750            | 2 1/2        | 2 1/2    | 2 1/2    | 1.7       | 10.80    |
| (2 wdg.) | .04 @ 250 MA               | 15       | 750            | 2 1/2        | 2 1/2    | 2 1/2    | 1.7       | 10.80    |
| H-300 †  | 1 @ 5 MA                   | 40       | 500            | 1            | 3/4      | 3/4      | 0.5       | 6.30     |
| (2 wdg.) | .25 @ 10 MA                | 10       |                |              |          |          |           |          |

†Split winding in series \*Split winding in parallel †Rated in millihenries

HERMETIC COMPONENTS *Hermetically sealed to MIL-T-27B*

## MAT\* MAGNETIC AMPLIFIERS FOR SERVO MOTOR APPLICATIONS

## VACUUM TUBE TYPE



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-27B 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° phase shift with motor load... for 3 phase, 30° phase shift.

| 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., approx.      | .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 ohms      | 8450 ohms | 4750 ohms     | 5650 ohms     |
| Case, Length, in.      | 1 1/4          | 1 1/2     | 1 3/4         | 2 1/8         |
| Width, in.             | 1 1/16         | 2 1/8     | 2 1/2         | 3 1/8         |
| Height, in.            | 2 1/16         | 2 3/4     | 2 1/16        | 3 3/8         |
| Mtg. Dim., in.         | 1 1/16 x 1 1/2 | 1 x 1 5/8 | 1 1/8 x 1 7/8 | 1 1/2 x 2 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          |
| Net Each               | \$27.00        | \$30.00   | \$36.00       | \$39.00       |

MAT-5 115V.-400 cyc. to 460 VCT; provides 230V. 48 MA DC or 460V. 24 MA DC. RC-37 Case (UTC pg. 9). MIL type TF4SY02YY. Net Each \$10.80

MAT-6 Input... 10,000 ohms pri... 1:15 C.T. ratio... phase shift under 1°. RC-25 case (UTC pg. 5). MIL type TF4RX10YY. Net Each \$9.00

## TRANSISTOR TYPE

UTC transistor MAT units are identical to their vacuum tube counterparts, but designed for low impedance control. The input transformer may be chosen by impedance ratio rather than precise rated impedance.

| Type No.         | MAT-7         | MAT-8      | MAT-9          | MAT-10        | MAT-60        |
|------------------|---------------|------------|----------------|---------------|---------------|
| Power output     | 4 W.          | 8 W.       | 11 W.          | 18 W.         | 50 W.         |
| RL, ohms         | 3300          | 1600       | 1200           | 720           | 260           |
| CL, mfd approx.  | .2            | .3         | .5             | .7            | .7            |
| Cont. Wind. Res. | 38Ω           | 52Ω        | 30Ω            | 36Ω           | 50            |
| Case Length, in. | 2 3/16        | 2 1/2      | 2 3/4          | 2 3/4         | MIL MB        |
| Width, in.       | 1 1/16        | 2 1/4      | 2 1/2          | 2 3/4         |               |
| Height, in.      | 1 1/2         | 1 1/16     | 2              | 2 1/4         |               |
| Mtg. Dim., in.   | 1 3/8 x 1 7/8 | 1 1/16 x 2 | 1 1/16 x 2 1/8 | 2 3/8 x 2 3/8 | 60 cycle type |
| Studs, stainless | 4-40          | 6-32       | 8-32           | 8-32          |               |
| Cutout, in.      | 1             | 1          | 1              | 1             |               |
| Weights, lbs.    | .65           | 1.1        | 1.7            | 2.75          |               |
| Net Each         | \$25.80       | \$28.80    | \$34.50        | \$37.50       | \$54.00       |

MAT-11 115V.-400 cyc. to two 28 Volt .2A windings for 56 VCT-2A or 28 V. .4 A. RC-37 (UTC pg. 9) case. MIL type. TF4SY02YY. Net Each \$10.05

MAT-65 115V. 60 cyc. to 8.5 VCT @ 500 ma & 63 VCT @ 300 ma. FA case. MIL Type TF4SX02FA. Net Each \$2.60

## ULTRASHIELDED POWER-LINE ISOLATION TRANSFORMERS

Simulates battery operation for critical circuits requiring extreme isolation from power line.

Designed to give the ultimate in isolation, for line-powered equipment, which formerly could only be obtained from battery power. The effective capacity coupling between primary and secondary windings is less than 0.1 MMFD.

For this purpose shields are individually terminated to allow maximum flexibility. Input and output terminals are brought out on opposite sides of a special housing in order to maintain the excellent isolation between line and load.



HIT\*

MIL-T-27B Ratings in Regular Type Industrial Ratings in Bold Type Primary 115 V 50/60 Cycles

| Type No. | Power Watts | Power Case Watts | Size                   | Net Each |
|----------|-------------|------------------|------------------------|----------|
| HIT-1    | 50          | 60               | 4 1/2 x 4 1/2 x 3 1/2" | \$33.00  |
| HIT-15   | 120         | 150              | 5 1/2 x 5 x 3 1/2"     | 39.00    |
| HIT-2    | 160         | 200              | 5 1/2 x 5 1/2 x 4 1/2" | 48.00    |
| HIT-3    | 400         | 480              | 8 x 6 1/2 x 5 1/2"     | 69.00    |
| HIT-4    | 1000        | 1200             | 9 x 7 1/2 x 7 1/2"     | 120.00   |
| HIT-450† | 80          | 100              | 4 1/2 x 4 1/2 x 3 1/2" | 33.00    |

† Primary, 115v. 400 cps. Secondary, 115 volts.

## PRECISION MINIATURE WIDE APPLICATION PULSE TRANSFORMERS

UTC miniature, wound core, pulse transformers are individually precision adjusted in standard test circuits to close tolerances. They are high reliability units hermetically sealed by vacuum molding and suited for service from -70° C. to +130° C. Wound core structure provides excellent temperature stability (un-

like ferrite). Designs are high inductance type to provide minimum of droop and assure true pulse width. H-45 thru H-57 ratio 1:1. H-60 thru H-69 ratio 4:1. Others ratio 5:3:1.

See PIP pulse units on UTC page 1

ALL UNITS INDIVIDUALLY ADJUSTED TO PARAMETERS SHOWN IN TABLES

| Type No. | APPROX. DCR, OHMS   |      |      | BLOCKING OSCILLATOR PULSE |           |              |         | COUPLING CIRCUIT CHARACTERISTICS |                |             |           |           |              |         | Net Each |                          |
|----------|---|------|------|---------------------------|-----------|--------------|---------|----------------------------------|----------------|-------------|-----------|-----------|--------------|---------|----------|--------------------------|
|          | 1-2   | 3-4  | 5-6  | Width μSec.               | Rise Time | Over Shoot % | Droop % | Back Swing μSec.                 | P. Swing μSec. | Width μSec. | Volts Out | Rise Time | Over Shoot % | Droop % |          | Back in, out, Swing ohms |
| H-60     | .124  | .14  | .05  | .05                       | .016      | 0            | 0       | 30                               | .05            | 9.3         | .012      | 0         | 0            | 20      | 50       | \$ 6.60                  |
| H-61     | .41   | .48  | .19  | .1                        | .016      | 0            | 0       | 30                               | .1             | 8.2         | .021      | 0         | 0            | 15      | 50       | 6.60                     |
| H-62     | .78   | .94  | .33  | .2                        | .022      | 0            | 0       | 18                               | .2             | 7.4         | .034      | 0         | 5            | 12      | 100      | 6.60                     |
| H-63     | 1.86  | 2.26 | .70  | .5                        | .027      | 2            | 10      | 20                               | .5             | 7.5         | .045      | 0         | 20           | 25      | 100      | 6.60                     |
| H-64     | 3.73  | 4.4  | 1.33 | 1                         | .033      | 0            | 12      | 25                               | 1              | 7           | .078      | 0         | 15           | 23      | 100      | 6.60                     |
| H-65     | 6.2   | 7.3  | 2.22 | 2                         | .066      | 0            | 15      | 25                               | 2              | 6.6         | .14       | 0         | 10           | 20      | 100      | 7.50                     |
| H-66     | 10.2  | 12   | 3.6  | 3                         | .087      | 0            | 18      | 30                               | 3              | 6.8         | .17       | 0         | 10           | 20      | 100      | 7.50                     |
| H-67     | 14.5  | 17.5 | 5.14 | 5                         | .097      | 0            | 23      | 28                               | 5              | 7.9         | .2        | 0         | 18           | 28      | 200      | 7.50                     |
| H-68     | 42.3  | 52.1 | 14.8 | 10                        | .14       | 0            | 15      | 28                               | 10             | 6.5         | .4        | 0         | 15           | 30      | 200      | 7.50                     |
| H-611    | .426  | .32  | .132 | .1                        | .018      | 8            | 0       | 12                               | .1             | 8.2         | .02       | 0         | 0            | 30      | 140/50   | 6.60                     |
| H-641    | 5   | 3.6  | 1.4  | 1                         | .04       | 0            | 10      | 10                               | 1              | 7           | .07       | 0         | 20           | 30      | 280/100  | 6.60                     |
| H-671    | 21  | 16   | 6    | 5                         | .08       | 0            | 14      | 12                               | 5              | 8           | .2        | 0         | 25           | 30      | 560/200  | 7.50                     |
| H-69     | Transistor pulse transformer kit, consists of H-60 thru H-68 in plastic case. |      |      |                           |           |              |         |                                  |                |             |           |           |              |         |          | 60.00                    |

Size & weight of H-60 thru H-68 same as H-45.

## VACUUM TUBE PULSE TRANSFORMERS

| Type No. | APPROX. DCR, OHMS  |     |     | BLOCKING OSCILLATOR PULSE |           |              |         | COUPLING CIRCUIT CHARACTERISTICS |                |             |           |           |              |         | DIMENSIONS               |               |       |       |           |          |
|----------|--|-----|-----|---------------------------|-----------|--------------|---------|----------------------------------|----------------|-------------|-----------|-----------|--------------|---------|--------------------------|---------------|-------|-------|-----------|----------|
|          | 1-2  | 3-4 | 5-6 | Width μSec.               | Rise Time | Over Shoot % | Droop % | Back Swing μSec.                 | P. Swing μSec. | Width μSec. | Volts Out | Rise Time | Over Shoot % | Droop % | Back in, out, Swing ohms | Imp. in, ohms | L In. | W In. | Wt. Grams | Net Each |
| H-45     | 3  | 3.5 | 4   | .05                       | .022      | 0            | 20      | 10                               | .05            | 17          | .01       | 20        | 0            | 35      | 250                      | 3/8           | 3/8   | 1     | \$ 6.75   |          |
| H-46     | 5.5  | 6.5 | 7   | .10                       | .024      | 0            | 25      | 10                               | .10            | 19          | .01       | 30        | 10           | 50      | 250                      | 3/8           | 3/8   | 1     | 6.75      |          |
| H-47     | 3.7  | 4.0 | 4   | .20                       | .026      | 0            | 25      | 8                                | .20            | 18          | .01       | 30        | 15           | 65      | 500                      | 1/16          | 3/16  | 4     | 6.00      |          |
| H-48     | 5.5  | 5.8 | 6   | .50                       | .03       | 0            | 20      | 5                                | .50            | 20          | .01       | 30        | 20           | 65      | 500                      | 1/16          | 3/16  | 4     | 6.00      |          |
| H-49     | 8  | 8.5 | 9   | 1                         | .04       | 0            | 20      | 10                               | 1              | 24          | .02       | 15        | 15           | 65      | 500                      | 1/16          | 3/16  | 4     | 6.00      |          |
| H-50     | 20   | 21  | 22  | 2                         | .05       | 0            | 20      | 10                               | 2              | 27          | .05       | 10        | 15           | 35      | 500                      | 1/16          | 3/16  | 4     | 6.00      |          |
| H-51     | 28   | 31  | 33  | 3                         | .10       | 1            | 20      | 8                                | 3              | 26          | .07       | 10        | 10           | 35      | 500                      | 1/16          | 3/16  | 4     | 6.00      |          |
| H-52     | 36   | 41  | 44  | 5                         | .13       | 1            | 25      | 8                                | 5              | 23          | .15       | 10        | 10           | 45      | 1000                     | 1/16          | 3/16  | 4     | 6.00      |          |
| H-53     | 37   | 44  | 49  | 7                         | .28       | 0            | 25      | 8                                | 7              | 24          | .20       | 10        | 10           | 50      | 1000                     | 5/8           | 5/8   | 6     | 6.00      |          |
| H-54     | 50   | 58  | 67  | 10                        | .30       | 0            | 20      | 8                                | 10             | 24          | .25       | 10        | 10           | 50      | 1000                     | 5/8           | 5/8   | 6     | 6.30      |          |
| H-55     | 78   | 96  | 112 | 16                        | .75       | 0            | 20      | 10                               | 16             | 23          | .40       | 5         | 15           | 20      | 1000                     | 5/8           | 5/8   | 6     | 6.30      |          |
| H-56     | 93   | 116 | 138 | 20                        | 1.25      | 0            | 25      | 10                               | 20             | 23          | .6        | 5         | 10           | 10      | 1000                     | 5/8           | 5/8   | 6     | 6.30      |          |
| H-57     | 104  | 135 | 165 | 25                        | 2.0       | 0            | 30      | 10                               | 25             | 24          | 1.5       | 5         | 10           | 10      | 1000                     | 5/8           | 5/8   | 6     | 6.30      |          |
| H-461    | 9.6  | 6.4 | 2.5 | .1                        | .025      | 0            | 0       | 8                                | .1             | 19          | .02       | 3         | 5            | 20      | 700/250                  | 3/8           | 3/8   | 1     | 6.75      |          |
| H-501    | 30   | 20  | 7   | 2                         | .08       | 0            | 12      | 5                                | 2              | 27          | .06       | 12        | 15           | 35      | 1400/500                 | 1/16          | 1/16  | 4     | 6.00      |          |
| H-531    | 66   | 47  | 17  | 7                         | .32       | 0            | 12      | 3                                | 7              | 24          | .23       | 12        | 10           | 40      | 2800/1000                | 5/8           | 5/8   | 6     | 6.00      |          |
| H-561    | 180  | 142 | 53  | 20                        | 1.75      | 0            | 13      | 5                                | 20             | 23          | .7        | 5         | 10           | 10      | 2800/1000                | 5/8           | 5/8   | 6     | 6.30      |          |
| H-58     | Pulse transformer kit. Consisting of H-45 thru H-57 in a partitioned plastic case. |     |     |                           |           |              |         |                                  |                |             |           |           |              |         |                          |               |       |       |           | 75.00    |

UTC PAGE 6. \*UTC Trade Mark. All Product Lines or Type Designations are UTC Trade Marks. Specify by Trade Mark to assure UTC high quality and reliability. © 1965 United Transformer Corp., New York, N. Y.

ELECTRIC WAVE FILTERS *Manufactured to MIL-F-18327B*

BM &amp; LM Series



HM Series

## INTERSTAGE AND LINE FILTERS

Available in stock frequencies listed below (numerical part of type number is cutoff frequency in cps). Compact shielded cases hermetically sealed to MIL-T-27B specs. BMI, LMI, BML cases:  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " h.; wt., 6 oz. HMI, HML, LMI cases:  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $2\frac{1}{2}$ " h.; wt., 9 oz. The BMI filters are band pass interstage units designed to operate between a vacuum tube plate (or 10,000 ohms) and a grid. They provide a gain of 2 at center frequency. BTI units are same as BMI, but 10,000 ohms output.

BML band pass filters, similarly, work into a grid, but have an input impedance of 500/600 ohms. They provide a gain of 9. HMI filters are high pass interstage units.

LMI filters are low pass interstage units.

HML filter are high pass with input and output impedance of 500/600 ohms.

LML filters are low pass filters with input and output impedance of 500/600 ohms.

LLP low frequency low pass filter, loss of less than 40 db at 20 cycles. Source & load 100K ohms.

| UTC Type  | Net Ea. | UTC Type  | Net Ea. | UTC Type  | Net Ea. |
|-----------|---------|-----------|---------|-----------|---------|
| BMI-30    | \$36.00 | LMI-200   | \$31.50 | HMI-800   | \$31.50 |
| BMI-50    | 30.00   | LMI-400   | 31.50   | HMI-1000  | 31.50   |
| BMI-60    | 30.00   | LMI-500   | 31.50   | HMI-2000  | 31.50   |
| BMI-90    | 30.00   | LMI-800   | 31.50   | HMI-3000  | 31.50   |
| BMI-100   | 30.00   | LMI-1000  | 31.50   | BML-400   | 30.00   |
| BMI-120   | 30.00   | LMI-1500  | 31.50   | BML-1000  | 30.00   |
| BMI-150   | 30.00   | LMI-2000  | 31.50   | HML-200   | 39.00   |
| BMI-200   | 30.00   | LMI-2500  | 31.50   | HML-300   | 39.00   |
| BMI-240   | 30.00   | LMI-3000  | 31.50   | HML-500   | 39.00   |
| BMI-300   | 30.00   | LMI-4000  | 31.50   | HML-1000  | 39.00   |
| BMI-400   | 30.00   | LMI-5000  | 31.50   | LML-1000  | 31.50   |
| BMI-500   | 30.00   | LMI-10000 | 31.50   | LML-1500  | 31.50   |
| BMI-750   | 30.00   | BTI-60    | 36.00   | LML-2000  | 31.50   |
| BMI-800   | 30.00   | BTI-100   | 36.00   | LML-2500  | 31.50   |
| BMI-1000  | 30.00   | BTI-120   | 36.00   | LML-3000  | 31.50   |
| BMI-1500  | 30.00   | HMI-50    | 31.50   | LML-4000  | 31.50   |
| BMI-2000  | 30.00   | HMI-100   | 31.50   | LML-8000  | 31.50   |
| BMI-3000  | 30.00   | HMI-200   | 31.50   | LML-10000 | 31.50   |
| BMI-4000  | 30.00   | HMI-300   | 31.50   | LML-12000 | 31.50   |
| BMI-5000  | 30.00   | HMI-400   | 31.50   | LLP-10    | 60.00   |
| BMI-10000 | 30.00   | HMI-500   | 31.50   |           |         |
| LMI-100   | 31.50   |           |         |           |         |

## NEW 400-CYCLE 115 V. LINE FILTERS

Intended for use on 115 v., 400 cps line to eliminate harmonic distortion.



UTC No. PLF-25 — Gives 150 v. output into 500 ohm load with  $\pm 1$  db, 375-425 cps. Will attenuate 800 cycles by 30 db; 1200 cycles and higher by at least 50 db. MIL type, FR4RX11NB. Meets MIL-F-18327B. Size  $4\frac{1}{2}$ " w. x  $5\frac{1}{2}$ " d. x  $5\frac{1}{2}$ " h. Weight, 10 lbs. Net Each .....\$66.00

UTC No. PLP-13 — Eliminates harmonic distortion, rejects 60 and 120 cycles, and gives zero phase shift at 400 cycles. Operating into 1000 ohm load, provides 115 v. output at 400 cycles, within  $\pm 1$  db, 375-425 cycles. Attenuates 800 cycles by 15 db; 1200 cps by 45 db; above 1200 cps by at least 35 db; 120 cps by 20 db; and, 60 cps by 30 db. MIL type FR4RX22-LB; meets MIL-F-18327B specifications. Size,  $3\frac{1}{2}$ " w. x  $4\frac{1}{2}$ " d. x  $4\frac{1}{2}$ " h. Weight,  $6\frac{1}{2}$  lbs. Net Each .....\$66.00

## TELEGRAPH TONE CHANNEL FILTERS

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) & TGT (transmitting) filters are

**TGT CASE**  
 $1\frac{1}{2}$  x  $1\frac{1}{2}$  x  $2\frac{1}{2}$   
Mtg  $1\frac{1}{16}$  x  $1\frac{1}{16}$ "  
Screws ..... 6-32  
Weight ..... 8 oz.

**TGR CASE**  
 $1\frac{1}{2}$  x  $1\frac{1}{2}$  x  $4\frac{1}{4}$   
Mtg  $1\frac{1}{16}$  x  $1\frac{1}{16}$ "  
Screws ..... 6-32  
Weight ..... 15 oz.

600 ohms in and out. They are down less than 3 db at  $\pm 42.5$  cycles from center frequency. TGR units are down more than 30 db at  $\pm 170$  cycles. Attenuation is greater than 15 db at adjacent channel crossover. TGT units are down more than 16 db at  $\pm 170$  cycles. Attenuation is greater than 7.5 db at adjacent channel crossover. All units are MIL type FR4RX-22YY.

| UTC Type | Net Each | Center Frequency (Cyc.) | UTC Type | Net Each |
|----------|----------|-------------------------|----------|----------|
| TGT-425  | \$42.00  | 425                     | TGR-425  | \$72.00  |
| TGT-595  | 42.00    | 595                     | TGR-595  | 72.00    |
| TGT-765  | 42.00    | 765                     | TGR-765  | 72.00    |
| TGT-935  | 42.00    | 935                     | TGR-935  | 72.00    |
| TGT-1105 | 36.00    | 1105                    | TGR-1105 | 63.00    |
| TGT-1275 | 36.00    | 1275                    | TGR-1275 | 63.00    |
| TGT-1445 | 36.00    | 1445                    | TGR-1445 | 63.00    |
| TGT-1615 | 36.00    | 1615                    | TGR-1615 | 63.00    |
| TGT-1785 | 33.00    | 1785                    | TGR-1785 | 60.00    |
| TGT-1955 | 33.00    | 1955                    | TGR-1955 | 60.00    |
| TGT-2125 | 33.00    | 2125                    | TGR-2125 | 60.00    |
| TGT-2295 | 33.00    | 2295                    | TGR-2295 | 60.00    |
| TGT-2465 | 30.00    | 2465                    | TGR-2465 | 57.00    |
| TGT-2635 | 30.00    | 2635                    | TGR-2635 | 57.00    |
| TGT-2805 | 30.00    | 2805                    | TGR-2805 | 57.00    |
| TGT-2975 | 30.00    | 2975                    | TGR-2975 | 57.00    |
| TGT-3145 | 30.00    | 3145                    | TGR-3145 | 57.00    |
| TGT-3315 | 30.00    | 3315                    | TGR-3315 | 57.00    |

**IMMEDIATE DELIVERY ON ALL ITEMS**



BPM

## MINIFILTERS\*



HPM &amp; LPM

These units provide almost the same characteristics as the standard interstage units listed to the left, although extremely miniaturized. Hermetically sealed to MIL-T-27B specs. B type case:  $3\frac{1}{2}$ " x  $3\frac{1}{2}$ " x  $1\frac{1}{2}$ " h.; wt., 1 oz. H and L cases:  $1$ " x  $1$ " x  $1\frac{1}{2}$ " h.; wt.,  $2\frac{1}{4}$  oz. Cutoff frequencies in cps indicated by type number.

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

BPH units (BAND PASS) attenuation less than 3 db  $\pm 5\%$  from center frequency, and 40 db per octave. Source and load 500 ohms.

HPM units (HIGH PASS) are down less than 6 db at cutoff frequency, and more than 30 db at .67 cutoff frequency, 40 db at .6 cutoff frequency. Input and output 10,000 ohms.

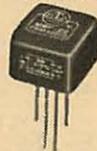
LPM units (LOW PASS) are down less than 6 db at cutoff frequency, and more than 30 db at 1.5 cutoff frequency, 40 db at 1.65 cutoff frequency. Input and output 10,000 ohms.

| UTC Type   | Net Ea. | UTC Type  | Net Ea. | UTC Type  | Net Ea. |
|------------|---------|-----------|---------|-----------|---------|
| BPH-50000  | \$27.00 | HPM-2500  | \$27.00 | HPM-1500  | \$30.00 |
| BPH-100000 | 27.00   | BPM-3000  | 27.00   | HPM-4000  | 30.00   |
| BPM-400    | 27.00   | BPM-3200  | 27.00   | LPM-200   | 30.00   |
| BPM-440    | 27.00   |           |         | LPM-300   | 30.00   |
| BPM-500    | 27.00   | BPM-4000  | 27.00   | LPM-500   | 30.00   |
| BPM-600    | 27.00   | BPM-4800  | 27.00   | LPM-1000  | 30.00   |
| BPM-750    | 27.00   | BPM-5000  | 27.00   | LPM-1500  | 30.00   |
| BPM-800    | 27.00   | BPM-6000  | 27.00   | LPM-2000  | 30.00   |
| BPM-1000   | 27.00   | BPM-6400  | 27.00   | LPM-3000  | 30.00   |
| BPM-1200   | 27.00   | BPM-8000  | 27.00   | LPM-5000  | 30.00   |
| BPM-1500   | 27.00   | BPM-10000 | 27.00   | LPM-6000  | 30.00   |
| BPM-1600   | 27.00   | BPM-20000 | 27.00   | LPM-8000  | 30.00   |
| BPM-1800   | 27.00   | HPM-500   | 30.00   | LPM-10000 | 30.00   |
| BPM-2000   | 27.00   | HPM-1000  | 30.00   | LPM-15000 | 30.00   |

## TELEMETERING BAND PASS FILTERS



TMN-4 thru  
TMN-1.7  
 $1\frac{1}{16}$  x  $1\frac{1}{2}$  x  $2\frac{1}{2}$ "  
Weight 3.5 oz.  
TMN-2.3 thru  
TMW-70  
 $3\frac{1}{2}$  x  $2\frac{1}{2}$  x  $1\frac{1}{2}$ "  
Weight 1.2 oz.



MNF-4 thru  
MNF-5.4  
 $1\frac{1}{2}$ " Sq. x  
 $1\frac{1}{2}$ " high  
Weight 1 oz.  
MNF-7.35 thru  
MWF-70  
 $2\frac{1}{2}$ " Sq. x  
 $1\frac{1}{2}$ " high  
Weight  $1\frac{1}{3}$  oz.

Both TMN and TMW types are designed for 100 K 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 Fc and .58 Fc.

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 Fc and .4 Fc.

MNF and MWF (Minifilter) provide same performance as filters described above but are extremely miniaturized. Slanted toward use with transistors. Pin terminals ideally suited for printed circuits.

| UTC Type | Net Each | Center Frequency KC | Band Width $\pm$ | UTC Type | Net Each |
|----------|----------|---------------------|------------------|----------|----------|
| TMN-.4   | \$39.00  | .4                  | 7 1/2%           | MNF-.4   | \$39.00  |
| TMN-.56  | 39.00    | .56                 | 7 1/2%           | MNF-.56  | 39.00    |
| TMN-.73  | 39.00    | .73                 | 7 1/2%           | MNF-.73  | 39.00    |
| TMN-.96  | 39.00    | .96                 | 7 1/2%           | MNF-.96  | 39.00    |
| TMN-1.3  | 39.00    | 1.3                 | 7 1/2%           | MNF-1.3  | 39.00    |
| TMN-1.7  | 39.00    | 1.7                 | 7 1/2%           | MNF-1.7  | 39.00    |
| TMN-2.3  | 39.00    | 2.3                 | 7 1/2%           | MNF-2.3  | 39.00    |
| TMN-3.0  | 39.00    | 3.0                 | 7 1/2%           | MNF-3.0  | 39.00    |
| TMN-3.9  | 39.00    | 3.9                 | 7 1/2%           | MNF-3.9  | 39.00    |
| TMN-5.4  | 39.00    | 5.4                 | 7 1/2%           | MNF-5.4  | 39.00    |
| TMN-7.35 | 39.00    | 7.35                | 7 1/2%           | MNF-7.35 | 39.00    |
| TMN-10.5 | 42.00    | 10.5                | 7 1/2%           | MNF-10.5 | 42.00    |
| TMN-14.5 | 42.00    | 14.5                | 7 1/2%           | MNF-14.5 | 42.00    |
| TMN-22   | 42.00    | 22                  | 7 1/2%           | MNF-22   | 42.00    |
| TMN-30   | 42.00    | 30                  | 7 1/2%           | MNF-30   | 42.00    |
| TMN-40   | 42.00    | 40                  | 7 1/2%           | MNF-40   | 42.00    |
| TMN-52.5 | 42.00    | 52.5                | 7 1/2%           | MNF-52.5 | 42.00    |
| TMN-70   | 42.00    | 70                  | 7 1/2%           | MNF-70   | 42.00    |
| TMW-22   | 42.00    | 22                  | 15%              | MWF-22   | 42.00    |
| TMW-30   | 42.00    | 30                  | 15%              | MWF-30   | 42.00    |
| TMW-40   | 42.00    | 40                  | 15%              | MWF-40   | 42.00    |
| TMW-52.5 | 42.00    | 52.5                | 15%              | MWF-52.5 | 42.00    |
| TMW-70   | 42.00    | 70                  | 15%              | MWF-70   | 42.00    |

## HIGH Q PRECISION INDUCTANCE DECADE

Invaluable instruments for design and experimental work with tuned circuits, wave filters, and equalizers. 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 frequency. The inductance values are laboratory adjusted to better than 1% precision, with calibration noted on base.



**DI CASE**  
Length .....  $4\frac{1}{2}$ "  
Width .....  $4\frac{3}{8}$ "  
Height .....  $2\frac{3}{8}$ "  
Weight ..... 2 lbs.

| Type No. | Induct. Henries | Optimum Range | Max. Q | Max. ACMA | Ins. Test Volts | Test RMS | Net Each |
|----------|-----------------|---------------|--------|-----------|-----------------|----------|----------|
| DI-1     | 10 x .01        | 2-60 KC       | 200    | 500       | 500             |          | \$42.00  |
| DI-2     | 10 x 1          | .25-20 KC     | 200    | 150       | 500             |          | 54.00    |
| DI-3     | 10 x 1          | .25-10 KC     | 200    | 50        | 500             |          | 57.00    |
| DI-4     | 10 x 10         | .2-1.5 KC     | 100    | 15        | 500             |          | 72.00    |



## HIGH Q COILS &amp; INDUCTORS

## MINIDUCTORS \*

All these ultracompact high Q units are grade 5, hermetically sealed to (MIL-T-27B). All give extra temperature stability rated at 1%, -55° C to +100° C.

MM—Ultraminiature epoxy molded toroidal inductors with pin terminals for printed circuit application. Maximum Q at 30 KC.  $\frac{3}{16}$  dia. x  $\frac{1}{4}$ " w. .07 oz.

MH—Ultraminiature epoxy molded toroidal inductors similar to MM except maximum Q at 100 KC. Size & wt. as MM.

ML—Ultraminiature hypermalloy cased inductors with epoxy board and pin terminals for printed circuit application. Maximum Q at 800 cps, 2 KC, depending on inductance.  $\frac{3}{16}$  x  $\frac{3}{64}$  x  $\frac{3}{16}$ " w. .2 oz.

MO—Miniature epoxy molded inductors with pin terminals for printed circuit application. Maximum Q at 600 cps to 1500 cps depending on inductance.  $\frac{3}{16}$  x  $\frac{1}{16}$  x  $\frac{3}{16}$ " w. 1 oz.

MW—Miniature epoxy molded toroidal inductors with pin terminals for printed circuit application. Maximum Q at 5 to 10 KC.  $\frac{3}{32}$  dia. x  $\frac{1}{32}$ " w. .25 oz.



| UTC Type | Induct., Hys. | Net Each | UTC Type | Induct., Hys. | Net Each | UTC Type | Induct., Hys. | Net Each |
|----------|---------------|----------|----------|---------------|----------|----------|---------------|----------|
| ML-0     | .15           | \$ 8.40  | MM-6     | .03           | \$ 8.10  | MO-2     | 2             | \$ 6.60  |
| ML-1     | .25           | 8.40     | MM-7     | .06           | 8.40     | MO-5     | 5             | 6.60     |
| ML-2     | .40           | 8.40     | MM-8     | .12           | 8.40     | MO-7.5   | 7.5           | 6.60     |
| ML-3     | .70           | 8.40     | MH-1     | .0006         | 8.10     | MO-20    | 20            | 6.60     |
| ML-4     | 1.4           | 8.40     | MH-2     | .0015         | 8.10     | MO-50    | 50            | 7.20     |
| ML-5     | 2.5           | 8.40     | MH-3     | .0025         | 8.40     | MO-100   | 100           | 7.20     |
| ML-6     | 4.0           | 8.40     | MH-4     | .006          | 8.40     | MW-.05   | .05           | 7.20     |
| ML-7     | 6.0           | 8.40     | MH-5     | .01           | 8.70     | MW-.10   | .10           | 7.50     |
| ML-8     | 10            | 8.40     | MH-6     | .015          | 8.70     | MW-.25   | .25           | 7.50     |
| ML-9     | 25            | 8.70     | MH-7     | .025          | 9.00     | MW-.5    | .5            | 7.80     |
| ML-10    | 60            | 9.90     | MH-8     | .04           | 9.00     | MW-.75   | .75           | 8.40     |
| MM-1     | .003          | 7.50     | MO-1     | .1            | 6.30     | MW-1     | 1             | 8.70     |
| MM-2     | .005          | 7.50     | MO-15    | .15           | 6.30     | MW-1.2   | 1.2           | 9.30     |
| MM-3     | .008          | 7.80     | MI-3     | .3            | 6.30     | MW-2     | 2             | 10.80    |
| MM-4     | .0125         | 7.80     | MO-5     | .5            | 6.30     | MW-3     | 3             | 11.70    |
| MM-5     | .02           | 8.10     | MO-1     | 1             | 6.30     | MW-5     | 5             | 13.50    |

## HIGH Q TOROID INDUCTORS

Favorites for over fifteen years, UTC HQ Toroids are only excelled by the preferred new "M" series. As typical Q curves show, HQ coils are available for application from 100 cycles to 100 KC. Adjusted to 1%, the inductance is virtually independent of frequency, temperature, and vibration. Voltage stability is excellent, and shielding case assures 80 db coupling attenuation. Hermetically to MIL-T-27B. All units MIL type TF4RX-20YY.



**HQA and HC CASE**  
Diameter  $1\frac{1}{8}$ "  
Height  $1\frac{1}{8}$ "  
Mounting  $1\frac{1}{8}$ "  
Screws 6-32  
Cutout  $\frac{3}{16}$  x  $1\frac{1}{4}$ "  
Weight 5 oz.



**HBQ CASE**  
Length  $2\frac{5}{8}$ "  
Width  $1\frac{1}{2}$ "  
Height  $2\frac{5}{8}$ "  
Mounting  $1\frac{1}{4}$  x  $2\frac{1}{4}$ "  
Screws 6-32  
Cutout  $\frac{3}{16}$  x  $1\frac{1}{8}$ "  
Weight 14 oz.



**HQE CASE**  
Length  $1\frac{1}{8}$ "  
Width  $\frac{1}{2}$ "  
Height  $1\frac{1}{2}$ "  
Mounting  $\frac{3}{4}$ "  
Screws 4-40  
Cutout  $\frac{3}{16}$  x  $\frac{1}{2}$ "  
Weight 1.5 oz.

| Type No. | Inductance (O DC) | DC MA Max. | Net Each | Type No. | Inductance (O DC) | DC MA Max. | Net Each |
|----------|-------------------|------------|----------|----------|-------------------|------------|----------|
| HQA-1    | 5 mhy.            | 400        | \$7.50   | HQB-1    | 10 mhy.           | 410        | \$15.00  |
| HQA-2    | 12.5 mhy.         | 260        | 7.80     | HQB-2    | 30 mhy.           | 240        | 15.30    |
| HQA-3    | 20 mhy.           | 200        | 8.10     | HQB-3    | 70 mhy.           | 170        | 15.90    |
| HQA-4    | 30 mhy.           | 160        | 8.40     | HQB-5    | .5 hy.            | 60         | 17.40    |
| HQA-5    | 50 mhy.           | 130        | 8.70     | HQB-6    | 1 hy.             | 41         | 18.00    |
| HQA-6    | 80 mhy.           | 100        | 9.00     | HQB-7    | 2 hy.             | 30         | 18.90    |
| HQA-7    | 125 mhy.          | 85         | 9.00     | HQB-8    | 3.5 hy.           | 22         | 19.80    |
| HQA-8    | 200 mhy.          | 65         | 9.60     | HQB-9    | 7.5 hy.           | 16         | 21.00    |
| HQA-9    | 300 mhy.          | 50         | 9.60     | HQB-10   | 12 hy.            | 11         | 21.90    |
| HQA-10   | .5 hy.            | 40         | 9.90     | HQB-11   | 18 hy.            | 9          | 22.80    |
| HQA-11   | .75 hy.           | 35         | 9.90     | HQB-12   | 25 hy.            | 8          | 24.00    |
| HQA-12   | 1.25 hy.          | 26         | 10.80    | HQC-1    | 1 mhy.            | 1350       | 15.60    |
| HQA-13   | 2 hy.             | 20         | 11.40    | HQC-2    | 2.5 mhy.          | 850        | 16.80    |
| HQA-14   | 3 hy.             | 16         | 12.90    | HQC-3    | 5 mhy.            | 600        | 18.00    |
| HQA-15   | 5 hy.             | 13         | 13.80    | HQC-4    | 10 mhy.           | 420        | 19.80    |
| HQA-16   | 7.5 hy.           | 10         | 15.00    | HQC-5    | 20 mhy.           | 300        | 24.00    |
| HQA-17   | 10 hy.            | 9          | 15.90    | HQE-1    | 5 mhy.            | 155        | 7.80     |
| HQA-18   | 15 hy.            | 8          | 16.80    | HQE-2    | 10 mhy.           | 110        | 7.80     |
|          |                   |            |          | HQE-3    | 50 mhy.           | 50         | 8.10     |
|          |                   |            |          | HQE-4    | 100 mhy.          | 35         | 8.40     |
|          |                   |            |          | HQE-5    | 200 mhy.          | 25         | 8.70     |

## LOW FREQUENCY HIGH Q COILS

## MQL TYPES

All these units of MIL type TF4RX20YY induct value to 2% tolerance at 1v., 60 cycles. Exceptional Q and stability, inductance swing less than 3.5% from -55°C to +85°C. The case, sealed hermetically to MIL-T-27B is  $1\frac{1}{4}$ " dia.  $2\frac{1}{2}$ " h. Either transformer, parallel, series or center type connections are permitted due to dual windings to 4 terminals. Mounting  $1\frac{1}{2}$ " sq. with a 6-32 screw. Cutout  $1\frac{1}{2}$ " dia wt. 1 lb.

| Type No. | Hys. (O DC) | Net Each    | Type No. | Hys. (O DC) | Net Each   |
|----------|-------------|-------------|----------|-------------|------------|
| MQL-0    | 1           | .25 \$30.00 | MQL-3    | 200         | 50 \$30.00 |
| MQL-1    | 10          | 2.5 30.00   | MQL-4    | 400         | 100 31.50  |
| MQL-2    | 20          | 5 30.00     | MQL-5    | 2500        | 625 33.00  |

## HERMETIC "M" TYPE TOROIDS

UTC permalloy dust toroids provide highest Q factor with miniaturized dimensions. Lab adjusted to 1% tolerance and sealed to MIL-T-27B specs. Magnetic case plus toroid provide 80 db shielding.

| Type | Ind., Hys.  | Net Each | Type | Ind., Hys. | Net Each |
|------|---|----------|------|------------|----------|
| MQA  | 40 at 500 cps, 160 at 5 kc, approx. 40 at 20 kc.  |          |      |            |          |
| MQB  | 40 at 250 cps, 250 at 3 kc, approx. 40 at 20 kc.  |          |      |            |          |
| MQD  | 40 at 5 kc, 185 at 50 kc, approx. 40 at 300 kc.   |          |      |            |          |
| MQE  | 20 at 600 cps, 140 at 10 kc, approx. 40 at 40 kc. |          |      |            |          |



TQA units are similar to MQA but center tapped for oscillator application, etc. Net each: TQA-1 thru TQA-15, \$1.50 more than MQA's; TQA-16, 14.70; TQA-17, 15.90; TQA-18, 17.40; TQA-19, 21.00; TQA-20, 23.40.

| UTC Type | Ind., Hys. | Net Each | UTC Type | Ind., Hys. | Net Each |
|----------|------------|----------|----------|------------|----------|
| MQA-1    | .007       | \$ 7.50  | MQB-1    | .010       | \$12.90  |
| MQA-2    | .012       | 7.80     | MQB-2    | .030       | 13.20    |
| MQA-3    | .020       | 8.10     | MQB-3    | .070       | 13.50    |
| MQA-4    | .030       | 8.40     | MQB-4    | .120       | 13.80    |
| MQA-5    | .050       | 8.70     | MQB-5    | .50        | 14.10    |
| MQA-6    | .070       | 9.00     | MQB-6    | 1.0        | 14.40    |
| MQA-7    | .120       | 9.30     | MQB-7    | 2.0        | 14.70    |
| MQA-8    | .20        | 9.60     | MQB-8    | 3.5        | 15.00    |
| MQA-9    | .30        | 9.90     | MQB-9    | 7.5        | 15.90    |
| MQA-10   | .50        | 10.20    | MQB-10   | 12         | 16.80    |
| MQA-11   | .70        | 10.50    | MQB-11   | 18         | 18.00    |
| MQA-12   | 1.0        | 10.80    | MQB-12   | 25         | 19.20    |
| MQA-13   | 1.5        | 11.10    | MQB-13   | 40.0       | 21.00    |
| MQA-14   | 2.5        | 11.40    | MQB-14   | 60.0       | 24.00    |
| MQA-15   | 4.0        | 12.00    | MQD-0    | .001       | 14.50    |
| MQA-16   | 6.0        | 12.90    | MQD-1    | .002       | 15.00    |
| MQA-17   | 10.0       | 13.80    | MQD-2    | .003       | 15.60    |
| MQA-18   | 15.0       | 15.00    | MQD-3    | .005       | 16.20    |
| MQA-19   | 22.0       | 18.00    | MQD-4    | .007       | 16.80    |
| MQA-20   | 35.0       | 20.70    | MQD-5    | .012       | 18.00    |

## VARIDUCTORS

These variable inductors are ideal for use in tuned circuits, equalizers, oscillators, etc. TYPE HVC—Gives highest Q and stability; adjustable -70% to +200% of mean value. Hermetically sealed to MIL-T-27B.

HVV Types: For precise matching; vernier inductance variation  $\pm 10\%$  of nominal value. Offer high Q over a wide frequency range and high temperature stability.

VIC—Adjustable -45% to +85% of mean value.

Size: HVC, TVC and HVV types,  $1\frac{1}{8}$ " lg. x  $2\frac{5}{8}$ " w. x  $1\frac{1}{2}$ " h.; weight 2 oz. VIC type,  $1\frac{1}{32}$ " lg. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " h.; weight  $\frac{5}{2}$  oz. HVC, TVC, U.S. Pat. No. 2,879,489; HVV, Pat. Pend.

TVC type inductors are identical to HVC units, but provide taps at 30% and 50% of total turns—ideal for oscillator circuits, etc. HVC & TVC, U. S. Pat. No. 2,879,489

| UTC Type | Mean Hys. | DC Ma. | Net Each | UTC Type | Mean Hys. | DC Ma. | Net Each |
|----------|-----------|--------|----------|----------|-----------|--------|----------|
| HVC-1    | .006      | 100    | 9.00     | TVC-6    | .6        | 15     | 11.10    |
| HVC-2    | .015      | 60     | 9.00     | TVC-7    | 1.5       | 10     | 11.70    |
| HVC-3    | .040      | 40     | 9.00     | TVC-8    | 4         | 7      | 11.70    |
| HVC-4    | .1        | 30     | 9.00     | TVC-9    | 10        | 5      | 11.70    |
| HVC-5    | .25       | 20     | 9.00     | TVC-10   | 25        | 3.5    | 12.90    |
| HVC-6    | .6        | 15     | 9.00     | TVC-11   | 60        | 2      | 14.10    |
| HVC-7    | 1.5       | 10     | 9.60     | TVC-12   | 150       | 1.5    | 15.30    |
| HVC-8    | .4        | 7      | 9.60     | VIC-1    | .0085     | 75     | 6.60     |
| HVC-9    | 10        | 5      | 9.60     | VIC-2    | .013      | 60     | 6.60     |
| HVC-10   | 25        | 3.5    | 9.90     | VIC-3    | .021      | 50     | 6.60     |
| HVC-11   | 60        | 2      | 10.80    | VIC-4    | .034      | 40     | 6.60     |
| HVC-12   | 150       | 1.5    | 12.00    | VIC-5    | .053      | 35     | 6.60     |
| HVV-.006 | .006      | 200    | 12.00    | VIC-6    | .084      | 30     | 6.60     |
| HVV-.015 | .015      | 120    | 12.00    | VIC-7    | .13       | 25     | 6.60     |
| HVV-.04  | .04       | 80     | 12.00    | VIC-8    | .21       | 21     | 6.90     |
| HVV-.1   | .10       | 50     | 12.00    | VIC-9    | .34       | 18     | 6.90     |
| HVV-.25  | .25       | 30     | 12.00    | VIC-10   | .54       | 15     | 6.90     |
| HVV-.6   | .6        | 20     | 12.00    | VIC-11   | .85       | 12     | 6.90     |
| HVV-1.5  | 1.5       | 13     | 12.90    | VIC-12   | 1.3       | 10     | 7.20     |
| HVV-4    | 4         | 6      | 12.90    | VIC-13   | 2.2       | 8      | 7.20     |
| HVV-10   | 10        | 4.5    | 12.90    | VIC-14   | 3.4       | 7      | 7.20     |
| HVV-25   | 25        | 3      | 13.20    | VIC-15   | 5.4       | 6      | 7.50     |
| HVV-60   | 60        | 2      | 14.40    | VIC-16   | 8.5       | 5      | 7.50     |
| HVV-150  | 150       | 1.3    | 15.90    | VIC-17   | 13        | 4      | 7.50     |
| TVC-1    | .006      | 100    | 11.10    | VIC-18   | 21        | 3.5    | 7.80     |
| TVC-2    | .015      | 60     | 11.10    | VIC-19   | 33        | 3      | 7.80     |
| TVC-3    | .040      | 40     | 11.10    | VIC-20   | 52        | 2      | 8.40     |
| TVC-4    | .1        | 30     | 11.10    | VIC-21   | 83        | 1.5    | 9.00     |
| TVC-5    | .25       | 20     | 11.10    | VIC-22   | 130       | 1      | 12.00    |

## MQM TYPES

Designed for high Q at low frequencies. Structure provides exceptional stability, adjusted to 2% at 1v., 60 cycles. Inductance variation less than 2% from -55°C to +130°C. Made to MIL-T-27B, MIL type TF4SX20YY. Size  $1\frac{1}{4}$ " d. x  $1\frac{1}{2}$ " h., cutout:  $1\frac{1}{2}$ " d., wt. 5 oz.

| Type No. | Series Hy (O DC) | Parallel Hy (O DC) | Series DCR1 $\pm 20\%$ | Net Each |
|----------|------------------|--------------------|------------------------|----------|
| MQM-2    | 2                | 5                  | 21                     | \$12.60  |
| MQM-16   | 16               | 4                  | 143                    | 12.60    |
| MQM-40   | 40               | 10                 | 368                    | 12.60    |
| MQM-300  | 300              | 75                 | 3700                   | 13.50    |
| MQM-600  | 600              | 150                | 5720                   | 13.50    |





## HI-FI &amp; BROADCASTING COMPONENTS

## ULTRACOMPACT\* HI-FI AUDIOS

Small light weight, wide range units. Level +15 dbm except where otherwise noted. Top and bottom mounting. Die cast case, 1 1/2" x 1 1/2" x 2" h. Weight, 1/2 lb.



| UTC Type   | Application                           | Primary Impedance, Ohms               | Sec. Imped., Ohms | # | Net Each |
|------------|---------------------------------------|---------------------------------------|-------------------|---|----------|
| A-10       | Input                                 | 50, 125/150, 200/250, 333, 500/600    | 50K split         | a | \$13.20  |
| A-11       | Shield. Input                         | 50, 200, 500                          | 50K CT            | a | 12.00    |
| A-12       | Input                                 | Same as A-10                          | 80K split         | a | 12.00    |
| A-15       | Interstage*                           | 10K/2.5K split**                      | 2K/500 sp.        | c | 9.90     |
| A-16       | Pl. to grid                           | 15K                                   | 60K               | a | 9.90     |
| A-17       | Pl. to grid                           | 15K, 8 ma                             | 60K               | c | 12.00    |
| A-18       | Pl. to p-p                            | 15K split                             | 80K split         | a | 12.00    |
| A-19       | Pl. to p-p                            | 15K, 8 ma                             | 80K split         | c | 12.00    |
| A-20       | Mixing                                | Same as A-10                          | Same as pri.      | d | 14.40    |
| A-21       | Shield Mixing                         | 50, 200/250, 500/600                  | Same as pri.      | e | 12.00    |
| A-22       | Tr. to line*                          | 500 CT                                | 500/125 spl.      | c | 9.90     |
| A-23       | Tr. to V.C.*                          | 500 CT                                | 16/4 split        | f | 9.90     |
| A-24       | Pl. to line                           | 15K split                             | See A-10 pri.     | f | 12.90    |
| A-25       | Pl. to line                           | 15K, 8 ma                             | See A-10 pri.     | c | 12.00    |
| A-26       | P-p to line                           | 30K CT                                | See A-10 pri.     | f | 13.20    |
| A-27       | Input                                 | 100K split                            | See A-10 pri.     | b | 12.00    |
| A-28       | Tr. to V.C.                           | 48 CT, 5 w.                           | 16 (split), 8, 4  | c | 10.20    |
| A-28       | Tr. to V.C.                           | 25K/6250 split                        | 500/125 split     | b | 10.20    |
| A-35       | Transistor                            | 10K/2.5K split                        | 500/125 split     | b | 9.90     |
| A-36       | Interstage                            | 500/125 split                         | 150/37.5 split    | c | 9.60     |
| A-37       | Interstage                            | 500/125 split                         | 50/12.5 split     | c | 9.60     |
| A-38       | Interstage                            | 100/25 split                          | 40/10 split       | c | 9.30     |
| A-39       | line to transist.                     | 600/150 split                         | 2K/500 split      | a | 11.10    |
| A-30       | Inductor: 250 hys.                    | @ 5 ma; 65 hys @ 10 ma                |                   |   | 10.20    |
| A-32       | Split Filter                          | Series: 60 Hys @ 15 ma, 2000 ohms     |                   |   | 6.60     |
| (2-wdg.s.) | Inductor                              | Parallel: 15 Hys @ 30 ma, 500 ohms    |                   |   | 2.70     |
| A-33       | Hipermalloy shield fits A units 20 db |                                       |                   |   | 9.90     |
| A-40       | Power transformer:                    | 115v 60 cycles to two 6.3 CT—2A Secs. |                   |   |          |
| A-41       | Split Filter                          | Series: 240 Mhy @ .2A, 6 ohms         |                   |   | 6.30     |
| (2-wdg.s.) | Inductor                              | Parallel: 60 Mhy @ .4A, 1.50 ohms     |                   |   |          |
| A-42       | Split Filter                          | Series: 4 hys-50 ma, 100 ohms         |                   |   | 6.60     |
| (2-wdg.s.) | Inductor                              | Parallel: 1 hy-100 ma, 25 ohms        |                   |   |          |
| A-43       | Matching to 2 simult. lines           | 600/150 split                         | (2) 600/150 split | g | 14.10    |
| A-44       | 1st/2nd output                        | 4K/1K split, 12 ma                    | 600/150 spl.      | b | 9.90     |
| A-45       | Spkr. match                           | 4, 8, 16                              | 4 w. max lvl.     | c | 6.60     |
| A-46       | Chopper                               | 10K/2.5K                              | 50K               |   | 15.00    |
| A-47       | 3-wdg. hybrid.                        | 500/600CT                             | 2 x 500/600CT     |   | 15.00    |

\*+30 dbm. 76K ohms. †1.5K ohms. ‡52K ohms. ††500 ohms. \*\*8 ma. #Frequency response (±2 db), cps: a—20-20,000, b—30-20,000, c—40-20,000, d—10-50,000, e—30-30,000, f—20-40,000, g—20-30,000.

## HIPERMALLOY\*

## TRANSFORMERS

Hipermalloy audio and power transformers are specifically designed for portable and compact service. High fidelity though light in weight and dependable. 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.



TYPE H-2 CASE

Length ..... 3 1/2"  
Width ..... 2 1/4"  
Height ..... 3 1/2"  
Mounting 2 x 2 1/2"  
Screws ..... 6-32  
Cutout 2 1/16" dia.  
Unit Wt. ... 1/2 lbs.

TYPE H-1 CASE

Length ..... 2 3/4"  
Width ..... 1 1/2"  
Height ..... 3 1/4"  
Mount 1 x 1 1/2"  
Screws ..... 6-32  
Cutout 1 1/4" dia.  
Unit Wt. ... 1/2 lbs.

LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS  
Units Housed in Type H-1 Case

| UTC Type | Applica-tion   | Primary Imped. Ohms                 | Sec. Imped. Ohms | Level dbm | Net Each |
|----------|--|-------------------------------------|------------------|-----------|----------|
| HA-100   | Line to grid   | 50, 125/150, 200, 250, 333, 500/600 | 60K split        | +18       | \$17.40  |
| HA-100X  | As above but multiple alloy shields for low hum pickup |                                     |                  | +16       | 17.40    |
| HA-101   | Line to grids  | Same as HA-100                      | 120K split       | +18       | 22.20    |
| HA-101X  | As above but multiple alloy shields for low hum pickup |                                     | 80K split        | +16       | 18.00    |
| HA-103A  | Mike/mixer to grid                                     | 2.5, 5, 10, 15, 22, 30, 38, 60      | 60K split        | +18       | 15.00    |
| HA-108*  | Mixing   | Same as HA-100                      | Same as Pri      | +20       | 19.80    |
| HA-108X* | As above but multiple alloy shields for low hum pickup |                                     |                  | +18       | 19.80    |
| HA-130X  | Line to grids.   | 30, 50, 200, 250                    | 60K Split        | +18       | 21.00    |

INTERSTAGE AUDIO TRANSFORMERS  
Units Housed in Type H-1 Case, except HA-107; in H-2 Case

| UTC Type | Applica-tion   | Primary Imped. Ohms | Sec. Imped. Ohms | Level Mw. | Net Each |
|----------|----------------|---------------------|------------------|-----------|----------|
| HA-104   | Pl. to grids   | 15K split           | 95K              | 100       | \$15.00  |
| HA-105   | Pl. to grid    | 15K                 | 60K              | 100       | 21.00    |
| HA-106   | Pl. to grids   | 15K split           | 135K             | 100       | 18.90    |
| HA-107   | Pl's. to grids | 30K                 | 80K              | 600       | 27.00    |
| HA-137   | Pl's. to grids | 30K                 | 68K              | 100       | 16.80    |

Continued on next column

## LINEAR STANDARD\* TRANSFORMERS

Guaranteed frequency response of ±1 db 20-20,000 cps, ±1 db 7-50,000 cps on high level units, make these ideal transformers for uniform frequency response and low distortion. High efficiency and dependability through shielding. Top and bottom mounting.



## LOW LEVEL TRANSFORMERS

Type LS-1 case, 2 3/8" x 3 1/8" x 3 1/4" h. Suffix X indicates multiple alloy shield. Weight, 3 lbs.

| UTC Type | Application                        | Pri. Imp., Ohms                     | Sec. mp., Ohms    | Level dbm | Net Each |
|----------|------------------------------------|-------------------------------------|-------------------|-----------|----------|
| LS-10    | Input                              | 50, 125/150, 200, 250, 333, 500/600 | 60K split         | +19       | \$24.00  |
| LS-10X   | Input                              | As above                            | 50K               | +17       | 24.00    |
| LS-12    | Input                              | As above                            | 120K split        | +19       | 27.00    |
| LS-12X   | Input                              | As above                            | 80K split         | +17       | 24.00    |
| LS-30    | Mixing                             | As above                            | Same as pri.      | +23       | 24.00    |
| LS-30X   | Mixing                             | As above                            | Same as pri.      | +20       | 27.00    |
| LS-19    | Pl. to grids                       | 15K                                 | 95K               | +20       | 19.50    |
| LS-21    | Pl. to p-p                         | 15K                                 | 135K split        | +20       | 24.00    |
| LS-40    | Pl. to p-p                         | 15K, 8 ma                           | 135K split        | +20       | 33.00    |
| LS-25    | P-P to p-p                         | 30K split                           | 50K split         | +23       | 27.00    |
| LS-27    | Pl. to line                        | 15K, 8 ma                           | See LS-10 pri.    | +23       | 24.00    |
| LS-50    | Pl. to line                        | 15K                                 | See LS-10 pri.    | +23       | 24.00    |
| LS-51    | P-p to line                        | 30K split                           | See LS-10 pri.    | +24       | 27.00    |
| LS-14X   | Lo-Z to grids                      | 2.5, 5, 10, 15, 22, 30, 38, 60      | 50K               | +17       | 24.00    |
| LS-26    | Line to grids                      | 5K                                  | 60K               | +23       | 27.00    |
| LS-31    | Line to line                       | 30, 50, 200, 250                    | See LS-10 pri.    | +23       | 24.00    |
| LS-32    | Lo-Z to line                       | Same as LS-14X                      | See LS-10 pri.    | +23       | 33.00    |
| LS-68    | Matching to 2 Simult. lines or Tr. | 600/150 split                       | (2) 600/150 split | +15       | 24.00    |
| LS-150   | Line to line                       | 4K                                  | See LS-10 pri.    | +23       | 21.00    |
| LS-151   | Line to line                       | 16K                                 | See LS-10 pri.    | +26       | 21.00    |
| LS-140   | 70 db hybrid                       | 500/600 split                       | Same as pri.      | +18       | 27.00    |
| LS-141   | Hybrid †                           | 500/600 split                       | Same as pri.      | +18       | 21.00    |

† Has 3 sets of coils.

## HIGH LEVEL TRANSFORMERS

Sizes: LS-33, -34, -35, -47, -52, -54, -55, -56, -61, -63, 3 1/2" x 4 1/8" x 4 1/8" h. (Wt., 7 1/2 lbs.). LS-61L, -61L, -48, -58, -65, -666, -667, 5" x 5 1/2" x 4 1/8" h. (Wt., 15 lbs.). LS-691, 13" x 1 5/8" x 24" h. (Wt. 370 lbs.). LS-692, 13" x 1 5/8" x 28" h. (Wt. 520 lbs.).

| UTC Type | Application    | Pri. Imped., Ohms                   | Level Watts | Net Each     |
|----------|----------------|-------------------------------------|-------------|--------------|
| LS-33    | Matching       | 50, 125/150, 200, 250, 333, 500/600 | a           | 20 \$24.00   |
| LS-34    | Matching       | As above                            | a           | 40 33.00     |
| LS-47    | Driver         | 5K                                  | i           | 20 24.00     |
| LS-48    | Driver         | 12K                                 | j           | 40 60.00     |
| LS-61L   | P-p output     | 9K                                  | b           | 30 36.00     |
| LS-614   | P-p output     | 4,500/3,800                         | b           | 55 66.00     |
| LS-58    | P-p output     | 2.5K/1.5K                           | b           | 40 57.00     |
| LS-52    | P-p output     | 8000                                | b           | 20 24.00     |
| LS-55    | P-p output     | 5K/3K split                         | b           | 20 24.00     |
| LS-61    | P-p output     | 10K/6K split                        | b           | 20 24.00     |
| LS-54    | P-p output     | 8000                                | c           | 20 21.00     |
| LS-57    | P-p output     | 5K/3K split                         | c           | 20 21.00     |
| LS-63    | P-p output     | 10K/6K split                        | c           | 20 21.00     |
| LS-56    | P-p output     | 5K/3K split                         | d           | 20 27.00     |
| LS-35    | EL-34's †      | 5K CT 43% taps                      | e           | 35 24.00     |
| LS-65    | 6550's †       | 3.3K CT 40% taps                    | e           | 60 42.00     |
| LS-666   | P-p transistor | 8 split                             | f           | 50 21.00     |
| LS-667   | P-p transistor | 8 split                             | e           | 50 21.00     |
| LS-691   | Modulation     | 10,400                              | g           | 1,000 600.00 |
| LS-692   | Modulation     | 4,750                               | h           | 2,500 930.00 |

† With feedback. # Secondary Impedance: a—1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125/150, 200/250, 333, 500/600 ohms. b—500, 333, 250/200, 125, 50, 30, 20, 10, 7.5, 5, 2.5, 1.2 ohms. c—30, 20, 15, 10, 7.5, 5, 2.5, 1.2 ohms. d—6K, 5K, 4K, 1.8K, 1.5K, 1K, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2 ohms. e—4, 8, 16 ohms. f—500 ohms. split, g—4.5K, 4K, 3.5K, 2.75K, 2K, h—2.5K, 2K, 1.75K, 1.5K, 1.25K. i—Pri./1/2 Sec. 3:2:1. j—Pri./1/2 Sec. 5:1:1.

Continued from bottom of previous column

## PLATE TO LINE TRANSFORMERS

## Units Housed in Type H-1 Case

| UTC Type | Application        | Pri. Imped. Ohms | Sec. Imped. Ohms                    | Level Mw | Net Each |
|----------|--------------------|------------------|-------------------------------------|----------|----------|
| HA-113   | to multiple line   | 15K split        |                                     | 125      | \$18.00  |
| HA-114   | Lo-Z to multi-line | 30K              | 50, 125/150, 200, 250, 333, 500/600 | 200      | 21.00    |
| HA-133   | to multi-line      | 15K split        |                                     | 160      | 21.00    |

## OUTPUT TRANSFORMERS

## Units Housed in Type H-2 Case

| UTC Type | Applica-tion       | Pri. Imped. Ohms | Sec. Imped. Ohms                    | Level Watts | Net Each |
|----------|--------------------|------------------|-------------------------------------|-------------|----------|
| HA-134   | P-p to line        | 5K/9.4K          | 50, 125/150, 200, 250, 330, 500/600 | 15          | \$16.80  |
| HA-135   | P-p to V.C.        | 3K/5K            | 30, 20, 15, 10, 7.5, 5, 2.5, 1.2    | 18          | 16.80    |
| HA-136   | 5881's screen-taps | 6.6K             | 4, 8, 16                            | 20          | 18.00    |

## POWER TRANSFORMERS

## Units Housed: HP-122 in Type H-1 Case; HP-123 in Type H-2 Case

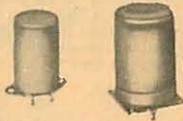
| UTC Type | Applica-tion     | Psi. Volt | Hi-Volt   | Fil. Wind      | Net Each |
|----------|------------------|-----------|-----------|----------------|----------|
| HP-122   | Pre-amp          | 115       | 220-O-220 | 6.3 V.C.T.—.6A | \$12.00  |
| HP-123   | Pre-amp or Tuner | 115       | 275-O-275 | 6.3 V.C.T.—.6A | 12.00    |

UTC PAGE 9. \*UTC Trade Mark. All Product Lines or Type Designations are UTC Trade Marks. Specify by Trade Mark to assure UTC high quality and reliability. © 1965 United Transformer Corp., New York, N. Y.



## COMMERCIAL GRADE COMPONENTS

## DIMENSIONS, COMMERCIAL GRADE "RC" CASE



Performance insured during constant usage due to the ruggedness of this vacuum impregnated component with special sealing compound. Case, finished in light gray enamel, is ready for mounting on chassis. (All audio components linear).

| Case No. | Base Dim. (Sq.)  | Mounting Dim. (Sq.) | Ht., $\pm \frac{1}{16}$ , $-\frac{1}{16}$ | Cutout Dia.     | Unit Wt. (Lbs.)  |
|----------|------------------|---------------------|---|-----------------|------------------|
| RC-37    | 1 $\frac{3}{8}$  | 1 $\frac{1}{8}$     | 1 $\frac{5}{8}$                           | 1 $\frac{1}{4}$ | .35              |
| RC-50    | 1 $\frac{5}{8}$  | 1 $\frac{1}{8}$     | 2 $\frac{1}{4}$                           | 1 $\frac{1}{2}$ | $\frac{1}{2}$    |
| RC-62    | 1 $\frac{1}{2}$  | 1 $\frac{1}{2}$     | 2 $\frac{1}{2}$                           | 1 $\frac{1}{2}$ | 1                |
| RC-75    | 2 $\frac{1}{8}$  | 1 $\frac{1}{8}$     | 2 $\frac{7}{8}$                           | 1 $\frac{7}{8}$ | 1 $\frac{1}{2}$  |
| RC-87    | 2 $\frac{3}{16}$ | 2 $\frac{3}{16}$    | 3 $\frac{1}{4}$                           | 2               | 2 $\frac{1}{2}$  |
| RC-100   | 3                | 2 $\frac{3}{8}$     | 3 $\frac{3}{4}$                           | 2 $\frac{5}{8}$ | 3 $\frac{1}{2}$  |
| RC-112   | 3 $\frac{1}{16}$ | 2 $\frac{1}{16}$    | 4 $\frac{1}{8}$                           | 2 $\frac{7}{8}$ | 5                |
| RC-125   | 3 $\frac{3}{4}$  | 3                   | 4 $\frac{1}{2}$                           | 3               | 6 $\frac{1}{2}$  |
| RC-150   | 4 $\frac{1}{2}$  | 3 $\frac{3}{16}$    | 5 $\frac{1}{2}$                           | 3 $\frac{3}{4}$ | 11               |
| RC-152   | 5 $\frac{1}{8}$  | 4 $\frac{1}{8}$     | 5 $\frac{1}{2}$                           | 4               | 15 $\frac{1}{2}$ |
| RC-175   | 5 $\frac{3}{4}$  | 4 $\frac{7}{8}$     | 7   | 4               | 22               |

## SWINGING INPUT AND FILTER INDUCTORS

| UTC Type             | Induct. Henries | DC MA  | DC Res. Ohms | Test Volts | Case No.   | Net Each |
|----------------------|-----------------|--------|--------------|------------|--|----------|
| CG-40                | 10              | 200    | 110          | 1750       | RC-112   | \$ 8.10  |
| CG-44                | 30              | 100    | 400          | 1750       | RC-100   | 6.90     |
| CG-45                | 250             | 15     | 5000         | 1750       | RC-87  | 6.00     |
| CG-48C               | 75              | 50     | 2200         | 1750       | RC-87  | 7.50     |
| CG-100               | 12              | 150    | 110          | 2500       | RC-125   | 9.00     |
| CG-102               | 12              | 250    | 100          | 3000       | RC-150   | 13.20    |
| CG-104               | 10              | 350    | 90           | 5000       | RC-152   | 15.00    |
| CG-108               | 10              | 500    | 52           | 7000       | RC-175   | 27.00    |
| CG-15                | 10              | 1000   | 40           | 9000       | 11 $\frac{1}{2}$ x 4 $\frac{3}{4}$ x 6 $\frac{7}{8}$ H. Wt., 40 lbs. | 54.00    |
| CG-101               | 25/5            | 150    | 110          | 2500       | RC-125   | 9.00     |
| CG-103               | 25/5            | 250    | 100          | 3000       | RC-150   | 13.20    |
| CG-105               | 25/5            | 350    | 90           | 5000       | RC-152   | 15.00    |
| CG-109               | 25/5            | 500    | 52           | 7000       | RC-175   | 27.00    |
| CG-111 $\frac{1}{2}$ | 100/10mh        | 2.5a.  | .6           | 1500       | RC-87  | 11.40    |
| (2 wdgs)†            | 25/2.5mh        | .5a.   | .15          |            |  |          |
| CG-112 $\frac{1}{2}$ | 40/10mh         | 6 a.   | .24          | 1500       | RC-112   | 12.60    |
| (2 wdgs)†            | 10/2.5mh        | 12 a.  | .06          |            |  |          |
| CG-113 $\frac{1}{2}$ | 7/1.75mh        | 17.5a. | .036         | 1500       | RC-125   | 14.70    |
| (2 wdgs)†            | 1.8/45mh        | 35 a.  | .009         |            |  |          |
| CG-1C                | 25/5            | 1000   | 40           | 9000       | 11 $\frac{1}{2}$ x 4 $\frac{3}{4}$ x 6 $\frac{7}{8}$ H. Wt., 40 lbs. | 54.00    |

† Split winding in series. †Wt., 40 lbs. ‡ Split winding in parallel.

## PLATE TRANSFORMERS

Primary for 105, 115, 220, 230 volts; 50/60 cycles. For reduced power, secondary can be cut in half, using 220 v. primary on 110 volts; may be used on 25 to 43 cycles in this case. "W" suffix units designed for full wave center tap and full wave bridge application. Center tap may be disconnected from ground.

| UTC Type | High Voltage                  | DC Volts    | Case No. | Net Each |
|----------|-------------------------------|-------------|----------|----------|
| CG-300   | 625-515-0-515-625             | 500/400     | RC-150   | \$16.20  |
| CG-300W  | 625-515-0-515-625             | 1000/800    | RC-150   | 17.70    |
| CG-301   | 580-530-300-0-300-530-580     | 475/425/250 | RC-152   | 24.00    |
| CG-301W  | 580-530-300-0-300-530-580     | 950/850/500 | RC-152   | 26.40    |
| CG-302   | 950-750-0-750-950             | 760/610     | RC-175   | 30.00    |
| CG-302W  | 950-750-0-750-950             | 1520/1220   | RC-175   | 33.00    |
| CG-303   | 1500-1235-400-0-400-1235-1500 | 1250/1000   | RC-175   | 36.00    |
| CG-303W  | 1500-1235-400-0-400-1235-1500 | 2500/2000   | RC-175   | 39.60    |

## POWER AND BIAS TRANSFORMERS

Primary 115 volts, 50/60 cycles. DCMA is for choke input; reduce 70% for condenser input. Filament 1 is 5 volts, 3 amps., and Filament 2 is 5 volts, 2 amps., except as otherwise noted.

| UTC Type | High Voltage  | DC Ma     | Filament 3                       | Filament 4                       | Case No. | Net Each |
|----------|---|-----------|----------------------------------|----------------------------------|----------|----------|
| CG-422   | 435-365-0-365-435   | 125       | 6.3 VCT-3A                       | 2.5 VCT-5A                       | RC-150   | \$21.00  |
| CG-428   | 125-0-125<br>500-0-500<br>80-0-80                               | 25<br>250 | 6.3 VCT-4A                       | 6.3 VCT-3A, tapped<br>2.5 VCT-3A | RC-152   | 24.90    |
| CG-429*  | 600-525-0-525-600   | 250       | 7.5 VCT-3A, tapped<br>6.3 VCT-4A |                                  | RC-152   | 24.90    |
| CG-431†  | 500-400-0-400-500<br>80-0-80                                    | 500       | 6.3 VCT-5A                       | 6.3 VCT-3A                       | RC-175   | 36.00    |
| CG-315   | Tapped for any DC voltage from 15 to 100 volts within 6%—250 MA |           |                                  |                                  | RC-125   | 14.40    |
| CG-316   | Tapped for any DC voltage from 75 to 400 volts within 6%—250 MA |           |                                  |                                  | RC-152   | 21.00    |

\* Filament 2 is 6.3 VCT-3A. † Filament 1 is 5V-6A.

## AUDIO UNITS

| UTC Type | Use † | Pri. Imped., Ohms        | Level   | Case RC- | Net Each |
|----------|-------|--------------------------|---------|----------|----------|
| CG-131   | a     | 15K                      | +28 dbm | 50       | \$ 9.90  |
| CG-132   | b     | 15K                      | +30 dbm | 62       | 9.90     |
| CG-133   | c     | 30K CT                   | +32 dbm | 75       | 10.50    |
| CG-134   | d     | 50, 200, 500             | +30 dbm | 50       | 9.00     |
| CG-135   | e     | 50, 200, 500             | +30 dbm | 50       | 9.90     |
| CG-235   | f     | 50, 200, 500             | +28 dbm | 75       | 12.00    |
| CG-136   | g     | 15K, 50, 200             | +30 dbm | 62       | 13.20    |
| CG-137   | h     | 50, 200, 500             | +28 dbm | 50       | 8.40     |
| CG-140   | i     | 15K                      | +30 dbm | 50       | 7.80     |
| CG-141   | j     | 30K CT                   | +32 dbm | 50       | 9.00     |
| CG-233   | k     | 30K CT                   | +35 dbm | 87       | 9.00     |
| CG-333   | k     | 30K CT                   | +35 dbm | 87       | 9.00     |
| CG-433   | k     | 5K CT                    | 10 w.   | 100      | 9.90     |
| CG-15    | l     | 8K CT                    | 20 w.   | 100      | 12.00    |
| CG-16    | l     | 3K/5K CT                 | 20 w.   | 100      | 12.00    |
| CG-19    | l     | 6K/10K CT                | 20 w.   | 100      | 12.00    |
| CG-710   | l     | 14K/20K CT               | 20 w.   | 100      | 12.00    |
| CG-216   | l     | 9K CT                    | 30 w.   | 125      | 13.80    |
| CG-20    | m     | 5K CT, 43% screen taps   | 25 w.   | 125      | 15.00    |
| CG-21    | m     | 3.3K CT, 40% screen taps | 50 w.   | 150      | 24.00    |
| CVP-1    | n     | 3K/5K/6K/8K/10K/14K CT   | 12 w.   | 100      | 13.20    |
| CVP-2    | n     | "                        | 30 w.   | 125      | 14.40    |
| CVP-3    | n     | "                        | 60 w.   | 150      | 21.00    |
| CVP-4    | n     | "                        | 125 w.  | 152      | 24.00    |
| CVP-5    | n     | "                        | 300 w.  | 175      | 39.00    |
| CVL-1    | p     | 500                      | 15 w.   | 87       | 9.00     |
| CVL-2    | p     | 500                      | 40 w.   | 125      | 10.50    |
| CVL-3    | p     | 500                      | 75 w.   | 150      | 15.00    |
| CVM-0    | q     | Any Class B              | 12 w.   | 100      | 10.50    |
| CVM-1    | q     | "                        | 30 w.   | 125      | 13.80    |
| CVM-2    | q     | "                        | 60 w.   | 150      | 18.00    |
| CVM-3    | q     | "                        | 125 w.  | 152      | 21.00    |
| CVM-4    | q     | "                        | 300 w.  | 175      | 39.00    |
| CVM-5    | q     | "                        | 600 w.  | †        | 105.00   |
| CG-51AX  | r     | 15K                      | 5 w.    | 87       | 9.00     |
| CG-53AX  | r     | 3K/10K CT                | 20 w.   | 112      | 10.50    |
| CG-59AX  | r     | 50, 200, 500             | 20 w.   | 112      | 10.80    |

† 7" x 12" x 9"; Wt., 60 lbs. †a—Pl. to grid. b—Pl. to 2 grids. c—2 pl. to 2 grids. d—Input, humbucking. e—P-p input, humbucking. f—Input, mag. shielded. g—Dual input, humbucking. h—Mixing. i—Pl. to line. j—P-p to line. k—Driver. l—Output. m—Feedback output. n—Universal output. p—Universal matching. q—Universal modulator. r—Universal driver.

## END CASTING UNITS

See note on "W" suffix units under plate transformers.

| UCT Type | High Volt                       | DC Volt                   | L                   | W                | H                | Wt. Lbs. | Net Each |
|----------|---------------------------------|---------------------------|---------------------|------------------|------------------|----------|----------|
| CG-304   | 1500-1235-0-1235-1500           | 1.25K                     | 1K 14 $\frac{1}{8}$ | 8 $\frac{1}{2}$  | 10 $\frac{3}{8}$ | 100      | \$141.00 |
| CG-304W† | 1500-1235-0-1235-1500           | 2.5K                      | 2K 14 $\frac{1}{8}$ | 8 $\frac{1}{2}$  | 10 $\frac{3}{8}$ | 100      | 156.00   |
| CG-305   | 2400-1750-0-1750-2400           | 2K 1.5K 10 $\frac{1}{2}$  | 4 $\frac{3}{4}$     | 6 $\frac{7}{8}$  | 50               | 63.00    |          |
| CG-305W† | 2400-1750-0-1750-2400           | 4K 3K 10 $\frac{1}{2}$    | 4 $\frac{3}{4}$     | 6 $\frac{7}{8}$  | 50               | 69.00    |          |
| CG-306   | as above                        | 2K 1.5K 13 $\frac{7}{8}$  | 8 $\frac{1}{2}$     | 10 $\frac{3}{8}$ | 100              | 150.00   |          |
| CG-306W† | as above                        | 4K 3K 13 $\frac{7}{8}$    | 8 $\frac{1}{2}$     | 10 $\frac{3}{8}$ | 100              | 165.00   |          |
| CG-307   | 3500-3000-2400-0-2400-3000-3500 | 3K 2.5K 13 $\frac{7}{8}$  | 8 $\frac{1}{2}$     | 10 $\frac{3}{8}$ | 90               | 138.00   |          |
| CG-308   | as CG-307                       | 3K 2.5K 15 $\frac{1}{8}$  | 8 $\frac{1}{2}$     | 10 $\frac{3}{8}$ | 125              | 162.00   |          |
| CG-309   | as CG-307                       | 3K 2.5K 21                | 10                  | 13 $\frac{1}{4}$ | 253              | 360.00   |          |
| CG-310   | 4600-4050-3500-0-3500-4050-4600 | 4K 3.5K 17 $\frac{1}{4}$  | 10                  | 13 $\frac{1}{4}$ | 150              | 309.00   |          |
| CG-311   | 1500-1235-0-1235-1500           | 1.25K 1K 10 $\frac{1}{2}$ | 4 $\frac{3}{4}$     | 6 $\frac{7}{8}$  | 50               | 66.00    |          |
| CG-311W† | 1500-1235-0-1235-1500           | 2.5K 2K 10 $\frac{1}{2}$  | 4 $\frac{3}{4}$     | 6 $\frac{7}{8}$  | 50               | 69.00    |          |
| CG-312   | 1800-1500-0-1500-1800           | 5K 1.25K 10 $\frac{1}{2}$ | 4 $\frac{3}{4}$     | 6 $\frac{7}{8}$  | 38               | 66.00    |          |

† Full Wave Bridge Rectifier types.

## VARIPOWER\* AUTOFORMERS

Simultaneous control of filament, plate and line voltage. Filament voltage control within 2 $\frac{1}{2}$ %. Output voltage from 0 to 130 volts, 50/60 cycles. Taps at 25, 55, 75, 95, 100, 105, 110, 115, 120, 125, and 130 volts.

| UTC Type | Watts Output | Case No. | Net Each | UTC Type | Watts Output | Case No. | Net Each |
|----------|--------------|----------|----------|----------|--------------|----------|----------|
| CVA-1    | 150          | RC-112   | \$12.00  | CVA-4    | 1000         | RC-152   | \$21.00  |
| CVA-2    | 250          | RC-125   | 14.10    | CVA-5    | 2000         | RC-175   | 36.00    |
| CVA-3    | 500          | RC-150   | 18.00    |          |              |          |          |

## MINIATURE, OUNCER, SUBOUNCER &amp; SUB-SUBOUNCER UNITS

SUBOUNCER\* & SUB-SUBOUNCER\* AUDIO TRANSFORMERS  
TRANSISTOR & TUBE TYPES HERMETICALLY SEALED

## TO MIL-T-27B

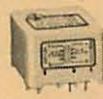
UTC SSO-#P and SO-#P units are ideal miniaturized components having high efficiency and wide frequency response. Special nickel iron core materials and winding methods provide exceptional performance and reliability.

These units are vacuum molded to MIL Grade 5. They employ 50 mil deeply anchored pin terminals ideally suited for printed circuit and transistor application. Terminals are strong enough to support these light weight units.

The UTC SML-70 is an ultra miniature transformer providing high shielding, extremely low insertion loss with wide band response, 200 cycles to 20 kc. These units are provided with pin terminals (.025 dia.) strong enough to support the unit and are ideal for printed circuits.



SO-#P UNIT  
Dim.  $\frac{3}{4} \times 1 \times \frac{3}{2}$ "  
Pin Length  $\frac{1}{2}$ "  
Wt. ....05 lb.



SSO-#P UNIT  
Dim.  $\frac{3}{4} \times \frac{7}{8} \times \frac{3}{16}$ "  
Pin Length  $\frac{1}{2}$ "  
Wt. ....04 lb.



SML-70  
 $\frac{7}{16} \times \frac{3}{16} \times \frac{1}{16}$ "  
Wt. .2 oz.

PRINTED CIRCUIT AUDIO UNIT — HIPERMALLOY  
SHIELD CASE

| Type No. | Application              | Pri. Imp. ohms | Sec. Imp. ohms | Net Each |
|----------|--------------------------|----------------|----------------|----------|
| SML-70   | Input or Chopper Service | 200K           | 1K             | \$8.40   |

MIL TYPE: TF5RX16ZZ.

## PRINTED CIRCUIT MOLDED TYPES TO MIL GRADE 5

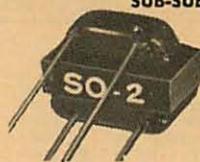
| Type No. | Application  | Pri. Imp. ohms | Sec. Imp. ohms | Net Each |
|----------|--|----------------|----------------|----------|
| SO-2P    | Interstage/3:1   | 10K            | 90K            | \$6.90   |
| SO-3P*   | Plate to line  | 10K<br>25K     | 200<br>500     | 6.90     |
| SO-5P    | Inductor: 40 hy at 1 ma, 2675 ohms, series;<br>4 hy at 4 ma, 670 ohms, parallel; |                |                | 6.90     |
| SO-7P*   | Transistor   | 20K            | 800            | 6.60     |
|          | Interstage   | 30K            | 1200           |          |
| SO-8P    | Transistor   | 10K            | 2000 CT        | 7.50     |
|          | to PP Sec.   |                |                |          |
| SO-9P    | PP Transistor  | 500 CT         | 3.2            | 7.50     |
|          | to V.C.  |                |                |          |
| SO-14P   | Transistor   | 80 CT          | 32 Split       | 7.80     |
|          | Interstage   | 100 CT         | 40 Split       |          |
| SO-15P   | Tr. output   | 600 CT         | 600 Split      | 7.80     |
| SO-17P   | Inductor: 16 hy at 2 ma, 1.1K ohms, series;<br>4 hy at 4 ma, 275 ohms, parallel; |                |                | 6.90     |

MIL TYPES: TF5RX13ZZ: SO-3P, SO-7P, SO-8P; TF5RX15ZZ: SO-2P;  
TF5RX17ZZ: SO-9P, SO-14P, SO-15P, SO-17P; TF5RX20ZZ: SO-5P.

|         |  |                  |                    |        |
|---------|--|------------------|--------------------|--------|
| SSO-3P  | Plate to line  | 10K<br>25K       | 200                | \$7.20 |
| SSO-5P  | Inductor: 100 hy at 0 ma, 4.4K ohms, series;<br>25 hy at 0 ma, 1.1K ohms, parallel |                  |                    | 6.90   |
| SSO-8P  | Transistor to pp sec.  | 10K              | 2000 CT            | 7.20   |
| SSO-14P | Transistor   | 10K CT           | 200 CT             | 7.50   |
|         | Interstage   | 25K CT           | 500 CT             |        |
| SSO-15P | Transistor   | 20K CT           | 800 CT             | 7.50   |
|         | Interstage   | 30K CT           | 1200 CT            |        |
| SSO-19P | Output matching  | 500 CT           | 600 CT             | 7.20   |
| SSO-20P | Output   | 1.5K CT          | 600 CT             | 7.20   |
| SSO-21P | Crystal/Chopper  | 200K CT          | 1000 CT            | 8.10   |
| SSO-22P | Interstage   | 10K CT<br>12K CT | 1500 CT<br>1800 CT | 7.20   |
| SSO-23P | Inductor: 8 hy at 2 ma, 600 ohms, series;<br>2 hy at 4 ma, 150 ohms, parallel      |                  |                    | 6.90   |
| SSO-24P | Inductor: 3.5 hy at 2 ma, 160 ohms, series;<br>0.9 hy at 4 ma, 40 ohms, parallel   |                  |                    | 6.90   |
| SSO-25P | Transistor   | 10K CT           | 10K/<br>2.5K spl.  | 8.10   |
|         | Interstage   |                  |                    |        |
| SSO-27P | Tr. Output   | 4K CT 2.5 ma     | 600 spl.           | 8.10   |

MIL TYPES: TF5RX13ZZ: SSO-3P, SSO-8P, SSO-14P, SSO-15P, SSO-22P,  
SSO-25P, SSO-27P; TF5RX16ZZ: SSO-21P; TF5RX17ZZ: SSO-19P, SSO-20P;  
TF5RX20ZZ: SSO-5P, SSO-23P, SSO-24P.

## SUB-SUBOUNCERS\* AND SUBOUNCERS\*



Lead mounted (channel available as separate item) miniature nickel iron core units for transistor or vacuum tube circuits. Plastic mounted leads. SSO Sub-Subouncers: Approx. 2 db, 140-10,000 cps; +20 VU except inputs +7 VU. ( $\frac{7}{16}'' \times \frac{3}{4}'' \times \frac{3}{4}''$ ; wt., .02 lb.) SO Subouncers: Approx. 2 db, 100-10,000 cps; +24 VU except inputs +10 VU. ( $\frac{1}{2}'' \times \frac{3}{4}'' \times \frac{7}{8}''$ ; wt., .03 lbs.)

| UTC SSO- | Net Each | Application                       | Pri. Imp., Ohms  | Sec. Imp., Ohms | UTC SO- | Net Each |
|----------|----------|-----------------------------------|--|-----------------|---------|----------|
| 1        | \$4.50   | Input                             | 50/200   | 62.5K/250K      | 1       | \$3.60   |
| 2        | 4.80     | Interstage                        | 10K, .25 ma  | 90K             | 2       | 3.30     |
| 3        | 4.20     | Pl. to line                       | 10K/25K, 1.5 ma  | 200/500         | 3       | 3.30     |
| 4        | 3.90     | Output                            | 30K, 1 ma  | 50              | 4       | 3.30     |
| 5        | 3.90     | Inductor:                         | 50 hys. @ 1 ma   | 4400 ohms#      | 5†      | 3.90     |
| 6        | 4.20     | Output                            | 100K, .5 ma  | 60              | 6       | 3.90     |
| 7        | 3.30     | Tr. intrstg.                      | 20K/30K†   | 80/1200         | 7       | 3.60     |
| 8        | 3.90     | Tr. intrstg.                      | 10K, 1 ma  | 2K CT           | 8       | 3.60     |
| 9        | 3.00     | Tr. to V.C.                       | 10K, 2 ma  | 16              | 9       | 3.60     |
| 10       | 3.00     | Tr. to V.C.                       | 500 CT   | 3.2             | 10      | 3.60     |
| 11       | 3.00     | Tr. to V.C.                       | 10K, 2 ma  | 3.2             | 11      | 3.60     |
| 12       | 3.00     | Tr. Output                        | 2K/4K CT   | 8/16            | 12      | 4.20     |
| 13       | 4.50     | Input                             | 500/600S   | 50/60           | 13      | 4.20     |
| 14       | 4.20     | Tr. intrstg.                      | 400/500 CT   | 400/500 Split   | 14      | 4.20     |
| 15       | 4.20     | Tr. output                        | 1K/1.2K††  | 50/60           | 15      | 4.20     |
| 16       | 3.00     | Tr. intrstg.                      | 400/500 CT   | 120/150 Split   | 16      | 4.20     |
| 17       | 3.30     | Output                            | 200K   | 1K              | 17      | 3.30     |
| 18       | 3.30     | Output                            | 400/500 CT   | 40/50 Split     | 18      | 4.20     |
| 19       | 3.30     | Matching                          | 10K/25K CT   | 200/500 CT      | 19      | 4.20     |
| 20       | 3.30     | Output                            | 80/100 CT  | 32/40 Split     | 20      | 4.20     |
| 21       | 4.80     | Chopper                           | 20K/30K CT   | .8K/1.2K CT     | 21      | 4.20     |
| 22       | 3.90     | Tr. intrstg.                      | 600 CT, 5 ma   | 600 Split       | 22      | 4.20     |
| 23       | 3.00     | Inductor:                         | 1.2K/1.5K††  | 3.2/4           | 23      | 4.20     |
| 24       | 3.00     | Tr. intrstg.                      | 2.5K CT, 4 ma  | 2500 Split      | 24      | 4.20     |
| 25       | 5.10     | Transist. Int.                    | 10K/12.5K**  | 500/600 CT      | 25      | 4.20     |
| 26       | 5.10     | Transist. Int.                    | Inductor: 16 hy at 2ma, 1.1K ohms, series;<br>4 hy at 4 ma, 275 ohms, parallel | 3.2/4           | 26      | 4.20     |
| 27       | 5.10     | Tr. output                        | 7.5K/9.4K CT   | 3.2/4           | 27      | 4.20     |
| CH       | .30      | Mounting channel for any of above | 500 CT   | 600 CT          | CH      | .30      |

†0.5 ma. †Resis., 2675 ohms. †3.5 ma. \*\*2 ma. ††3 ma. #DC resis.

## OUNCER\* AUDIO UNITS

## Standard and Plug-in Types



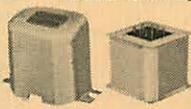
UTC ouncer components provide wide range ±1 db, 30 to 20,000 cps (except Nos. O-14 and O-15). In compact  $\frac{7}{8}''$  dia. case. No. O-16 has heavy shielding (case  $1\frac{1}{16}''$  dia.). P-16 has 9 pin plug ( $1\frac{1}{16}''$  dia.). Wt., 4 oz. max.

| UTC No. | Net Each | Application                             | Pri. Imped., Ohms        | Sec. Imped., Ohms  | UTC No. | Net Each |
|---------|----------|---|--------------------------|--------------------|---------|----------|
| O-1     | \$7.80   | Input                                   | 50, 200, 500             | 50K                | P-1     | \$9.00   |
| O-2     | 7.80     | P-p input                               | 50, 200, 500             | 50K CT             | P-2     | 9.00     |
| O-3     | 7.50     | Input                                   | 7.5/30                   | 50K                | P-3     | 8.40     |
| O-4     | 6.60     | Pl. to grid                             | 15K                      | 60K                | .....   | .....    |
| O-5     | 6.60     | Pl. to grid                             | 15K, 2 ma                | 60K                | .....   | .....    |
| O-6     | 7.50     | Pl. to p-p                              | 15K                      | 95K CT             | P-6     | 8.40     |
| O-7     | 7.50     | Pl. to p-p                              | 15K, 2 ma                | 95K CT             | P-7     | 8.40     |
| O-8     | 7.80     | Pl. to line                             | 15K                      | 50, 200, 500       | P-8     | 9.00     |
| O-9     | 7.80     | Pl. to line                             | 15K, 2 ma                | 50, 200, 500       | P-9     | 9.00     |
| O-10    | 8.40     | P-p to line                             | 30K CT                   | 50, 200, 500       | P-10    | 9.00     |
| O-11    | 7.80     | Cryst. out.                             | 50K                      | 50, 200, 500       | P-11    | 9.00     |
| O-12    | 7.80     | Mixing                                  | 50, 200, 500             | 50, 200, 500       | P-12    | 9.00     |
| O-13    | 6.30     | Inductor                                | 300 Hys-0 ma;            | 6000 ohms          | .....   | .....    |
| O-14    | 7.50     | 50:1 input                              | 200                      | 500K               | .....   | .....    |
| O-15    | 7.50     | 10:1 P/G                                | 15K                      | 1 meg.             | P-15    | 9.00     |
| O-16    | 10.20    | Shld. input                             | 250 CT                   | 50K                | P-16    | 11.40    |
| O-17    | 1.50     | Hipermailloy shield, 25 db, for Ouncers |                          |                    | .....   | .....    |
| O-18    | 7.80     | Tr. intrstg.                            | 10K split                | 2K split           | .....   | .....    |
| O-19    | 7.80     | Tr. intrstg.                            | 10K split                | 4K split           | .....   | .....    |
| O-20    | 6.30     | Tr. to line                             | 1.5K CT                  | 500 split          | .....   | .....    |
| O-21    | 5.40     | Tr. to V.C.                             | 2K/4K CT                 | 8/16               | .....   | .....    |
| O-22    | 5.40     | Tr. to V.C.                             | 500/400 CT               | 4/3.2              | .....   | .....    |
| O-23    | 5.10     | Inductor                                | 7 Hys-3 ma;              | 230 ohms           | .....   | .....    |
| O-24    | 5.10     | Inductor                                | 1.6 Hys-3 ma;            | 25 ohms            | .....   | .....    |
| O-25    | 8.10     | Transist. Input                         | 600/150 split            | 2K/500 split       | .....   | .....    |
| O-26    | 8.10     | Transist. Int.                          | 10K CT 4 ma.             | 10K CT             | .....   | .....    |
| O-27    | 8.40     | Transist. Int.                          | 10K CT 4 ma.             | 500/125 split      | .....   | .....    |
| O-28    | 8.40     | Transist. Int.                          | 50K CT. 2 ma.            | 500/125 split      | .....   | .....    |
| O-29    | 8.70     | Transist. Int.                          | 100K CT 1 ma.            | 500/125 split      | .....   | .....    |
| O-30    | 8.10     | Transist. Int.                          | 500/125 split            | 500/125 split      | .....   | .....    |
| O-31    | 8.10     | Transist. Int.                          | 500/125 split            | 150/37.5 split     | .....   | .....    |
| O-32    | 8.10     | Transist. Int.                          | 500/125 split            | 50/12.5 split      | .....   | .....    |
| O-33    | 8.10     | Transist. Int.                          | 100/25 split             | 40/10 split        | .....   | .....    |
| O-34    | 5.10     | Split                                   | Series: 60 Mhy-80 ma;    | 4 ohms             | .....   | .....    |
|         |          | Inductor                                | Parallel: 15 Mhy-160 ma; | 1 ohm              | .....   | .....    |
| O-36    | 5.10     | Split                                   | Series: 1 Hy-20 ma;      | 60 ohms            | .....   | .....    |
|         |          | Inductor                                | Parallel: .25 Hy-40 ma;  | 15 ohms            | .....   | .....    |
| O-37    | 8.10     | Tr. to line                             | 4K/1K spl.,              | 4 ma 650/150 split | .....   | .....    |
| O-38    | 5.10     | Spkr. match                             | 0, 4, 8, 16 ODC          | .....              | .....   | .....    |
| O-BR    | .21      | Mounting U-bracket for ouncers          |                          |                    | .....   | .....    |

## AMATEUR &amp; PUBLIC ADDRESS TRANSFORMERS "S" SERIES



## DIMENSIONS, SPECIAL SERIES TRANSFORMERS

G-1 thru  
G-4G-5 thru  
G-12

UTC Special Series transformers are specifically designed for amateur and popular-priced PA service. These units are finished in a rich, commercial type medium gray enamel. A recessed terminal strip is provided, permitting above chassis or bread-board wiring in addition to standard chassis type.

## G-CASE SIZES

| Case | Height, In. | Width, In. | Depth, In. | Wt., Lbs. |
|------|-------------|------------|------------|-----------|
| G-1  | 17/8        | 23/16      | 13/4       | 1         |
| G-2  | 23/16       | 33/8       | 115/16     | 1 1/2     |
| G-3  | 2 1/2       | 33/4       | 29/32      | 2         |
| G-4  | 2 15/16     | 4 1/8      | 23/16      | 3         |
| G-5  | 33/4        | 3 1/8      | 4 1/2      | 4 1/2     |
| G-7  | 49/8        | 45/8       | 5 1/2      | 8         |
| G-8  | 49/8        | 59/8       | 59/8       | 12        |
| G-9  | 57/8        | 59/8       | 63/4       | 21        |
| G-10 | 57/8        | 6 1/8      | 65/8       | 24        |
| G-11 | 57/8        | 6 1/2      | 79/8       | 31        |
| G-12 | 10 1/4      | 79/8       | 9 1/4      | 52        |

## INPUT AND DRIVER TRANSFORMERS

| Type | Application           | Ratio         | Level   | Case | Net    |
|------|-----------------------|---------------|---------|------|--------|
| UTC  |                       | Pri. to Sec.  |         |      | Each   |
| S-1  | Plate to grid         | 1:3 1/2       | +30 dbm | G-2  | \$4.80 |
| S-2  | Plate to p-p grids    | 1:4 †         | +30 dbm | G-2  | 6.00   |
| S-3  | Pl. to 1 or 2 grids   | 1:4 †         | +25 dbm | G-1  | 4.50   |
| S-5  | Line to grid, humbkg. | 1:16          | +30 dbm | G-2  | 5.10   |
| S-6  | Line to grid, compact | 1:16          | +25 dbm | G-1  | 4.50   |
| S-8  | Driver pl. to p-p     | 2.66:1, 5:1 † | 5 w.    | G-3  | 6.60   |
| S-9  | Driver p-p to p-p     | 2.66:1, 3.0:1 | 20 w.   | G-4  | 8.70   |
| S-10 | Driver p-p to p-p     | 5:1 †         | 5 w.    | G-3  | 6.60   |

† Center tapped.

## MATCHING, OUTPUT AND MODULATION UNITS

| UTC  | Application  | Pri. Imped., Ohms | Level, Watts | Case | Net    |
|------|--------------|-------------------|--------------|------|--------|
| Type |              |                   |              |      | Each   |
| S-11 | Pl. to line  | 15K               | a .25        | G-2  | \$5.10 |
| S-12 | Line to V.C. | .5K/2K/4K         | b 15         | G-2  | 5.40   |
| S-13 | Line to V.C. | .5K/2K/4K         | b 30         | G-4  | 7.80   |
| S-14 | Output       | 2.5K/4K/7K/10K    | c 10         | G-2  | 6.60   |
| S-15 | PP output    | 4K/5K/10K CT      | c 12         | G-2  | 7.20   |
| S-16 | PP output    | 3K/6K/9/10K CT    | c 30         | G-4  | 8.40   |
| S-17 | PP output    | 3.8K/4.5/5K CT    | c 55         | G-5  | 12.00  |
| S-18 | Univ. modul. | Any Class B       | d 12         | G-3  | 7.20   |
| S-19 | Univ. modul. | Any Class B       | d 30         | G-4  | 9.30   |
| S-20 | Univ. modul. | Any Class B       | d 55         | G-5  | 15.00  |
| S-21 | Univ. modul. | Any Class B       | d 110        | G-7  | 21.00  |
| S-22 | Univ. modul. | Any Class B       | d 250        | G-9  | 33.00  |

† Secondary Impedance: a—200/500 ohms. b—2, 4, 8, 15 ohms. c—2, 8, 15, 500 ohms. d—Any Class C.

## FILTER, SWINGING AND AUDIO INDUCTORS

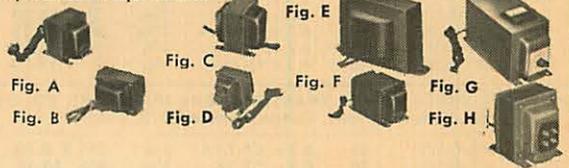
| Type    | Henries   | Ma. DC | Ohms | Insul.  | Case | Net    |
|---------|-----------|--------|------|---------|------|--------|
| S-23 §  | 300       | 5      | 5000 | 1500 v. | G-2  | \$4.50 |
| S-24 †  | 500       | 3      | 6000 | 1500 v. | G-2  | 5.10   |
| S-25    | 30        | 30     | 800  | 1500 v. | G-2  | 3.90   |
| S-26    | 12        | 60     | 250  | 1500 v. | G-2  | 3.90   |
| S-27    | 25        | 75     | 350  | 1500 v. | G-4  | 5.10   |
| S-28    | 20        | 100    | 350  | 1500 v. | G-4  | 6.30   |
| S-29    | 6         | 175    | 90   | 1500 v. | G-4  | 5.10   |
| S-30 †  | 4/20      | 175    | 90   | 1500 v. | G-4  | 5.10   |
| S-31    | 6         | 225    | 100  | 2700 v. | G-5  | 6.90   |
| S-32 †  | 4/20      | 225    | 100  | 2700 v. | G-5  | 6.90   |
| S-33    | 8         | 300    | 100  | 4000 v. | G-7  | 9.30   |
| S-34 †  | 4/20      | 300    | 100  | 4000 v. | G-7  | 9.60   |
| S-35    | 8         | 400    | 60   | 5000 v. | G-8  | 12.00  |
| S-36 †  | 4/20      | 400    | 60   | 5000 v. | G-8  | 12.00  |
| S-37    | 8         | 550    | 60   | 6000 v. | G-8  | 15.00  |
| S-38 †  | 4/20      | 550    | 60   | 6000 v. | G-8  | 15.00  |
| S-80    | 50/10 Mhy | 1.75A  | .5   | 500 v.  | G-1  | 3.90   |
| S-81    | 100/8 Mhy | 2.5A   | .6   | 1500 v. | G-3  | 6.00   |
| (2Wdgs) | 25/2 Mhy  | 5A     | .15  |         |      |        |

Audio. †P.P. Audio C. T. †Swinging.

Information on components in this box listed on UTC page 12.

## REPLACEMENT TYPE COMPONENTS

The shells and brackets of these vacuum sealed components are finished in shiny black enamel. A minimum number covers any replacement requirement.



## FILAMENT TRANSFORMERS

Primary Tapped 105, 115 Volts, 50-60 Cy.

| UTC  | Secondary       | Secondary | Insula- | Case | Net    |
|------|-----------------|-----------|---------|------|--------|
| Type | Volts           | Current   | tion    | No.  | Each   |
| S-53 | 2.5 VCT         | 10 Amp    | 1500 V  | G-3  | \$6.30 |
| S-54 | 5 VCT           | 4 Amp     | 2500 V  | G-3  | 5.70   |
| S-55 | 6.3 VCT         | 3 Amp     | 1500 V  | G-3  | 5.40   |
| S-57 | 2.5 VCT         | 10 Amp    | 10000 V | G-5  | 9.00   |
| S-58 | 2.5 VCT         | 20 Amp    | 10000 V | G-5  | 9.90   |
| S-59 | 5 to 5.25 VCT   | 13 Amp    | 5000 V  | G-5  | 9.30   |
| S-60 | 5 to 5.25 VCT   | 22 Amp    | 10000 V | G-7  | 13.20  |
| S-61 | 7.5 VCT tapped  | 10 Amp    | 3000 V  | G-5  | 10.20  |
| S-62 | 6.3 VCT         |           |         |      |        |
| S-63 | 10 VCT          | 10 Amp    | 3000 V  | G-5  | 9.30   |
| S-64 | 14 VCT tapped   | 10 Amp    | 5000 V  | G-7  | 13.20  |
|      | 12 VCT & 11 VCT |           |         |      |        |

| Type  | Filament 1 | Filament 2 | Filament 3  | Case | Net     |
|-------|------------|------------|-------------|------|---------|
| ‡S-64 | 2.5 VCT-5A | 2.5 VCT-5A | 5 VCT-6A    | G-5  | \$10.80 |
| ‡S-67 | 5 VCT-6A   | 6.3 VCT-5A |             | G-5  | 10.20   |
| ‡S-68 | 5 VCT-3A   | 6.3 VCT-4A | 7.5 VCT-5A  | G-5  | 10.50   |
| ‡S-70 | 6.3 VCT-5A | 6.3 VCT-5A |             | G-5  | 10.20   |
| §S-71 | 2.5 VCT 6A | 2.5 VCT-6A | 2.5 VCT-12A | G-7  | 15.00   |
| †S-72 | 5 VCT-3A   | 5 VCT-3A   | 5 VCT-6A    | G-5  | 11.40   |

§ Insulation 10,000 v. † Insulation 5000 v. ‡ Insulation 3000 v.

## COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 V., 50-60 Cy.

| UTC  | DC                       | Rect.   | Filament | Filament              | Case       | Net         |
|------|--------------------------|---------|----------|-----------------------|------------|-------------|
| Type | Voltage                  | V.      | No. 1    | No. 2                 | No.        | Each        |
| S-39 | 490-400-0-400-490        | 400/310 | 5V-3A    | 2.5 VCT-6A            | 6.3 VCT-4A | G-7 \$16.50 |
| S-40 | 525-425-0-425-525        | 400/310 | 5V-3A    | 6.3 VCT-3A            | 6.3 VCT-3A | G-7 18.00   |
| S-41 | 600-0-600-200 ma         | 475     | 5 V-3A   | 7.5 V tapped 6.3 V-3A | 6.3 VCT-2A | G-7 18.00   |
| S-42 | 600-525-0-525-600-300 ma | 480/400 | 5 V-6A   | 7.5 V tapped 6.3 V-3A | 6.3 VCT-3A | G-7 19.50   |

## PLATE AND BIAS TRANSFORMERS

Primary 115 V. 50/06 Cycles

| UTC  | 2.5 VCT-12A                          | DC             | DC  | Case | Net     |
|------|--------------------------------------|----------------|-----|------|---------|
| Type | High Voltage                         | Volts †        | Ma  |      | Each    |
| S-44 | 575-525-0-525-575                    | 470/430        | 500 | G-9  | \$25.80 |
| S-45 | 900-750-0-750-900                    | 750/620        | 200 | G-8  | 21.00   |
| S-46 | 1000-750-0-750-1000                  | 825/600        | 300 | G-9  | 24.00   |
| S-47 | 1500-1250-1000-0-1000-1250-1500      | 1275/1050/825  | 300 | G-10 | 33.00   |
| S-48 | 1500-1250-1000-0-1000-1250-1500      | 1300/1075/850  | 500 | G-11 | 39.00   |
| S-49 | 2100-1800-1500-0-1500-1800-2100      | 1815/1540/1275 | 300 | G-11 | 36.00   |
| S-50 | 3000-2500-0-2500-3000                | 2625/2175      | 300 | G-12 | 60.00   |
| S-51 | Any bias voltage from 15 to 100 ± 6% | 200            |     | G-5  | 12.00   |
| S-52 | Any bias voltage from 75 to 400 ± 6% | 200            |     | G-7  | 15.60   |

† Based on two section filter for 200 ma. and 300 ma. units. Single section filter for 500 ma. units, both choke input.

**IMMEDIATE DELIVERY  
ON ALL UTC STOCK ITEMS  
AND SPECIAL CUSTOM BUILT UNITS TO YOUR SPECS.**



TRANSFORMERS FOR INDUSTRY WIDE APPLICATIONS

DOUBLE SHELL POWER TRANSFORMERS (FIG. B SEE PG. 11)  
Rectifier filaments 5 volts, 3 amps except R-101, 2 amps.

| UTC Type | High V.   | DC Ma. | Amplifier Filament | Overall Height | Wt., Lbs. | Net Each |
|----------|-----------|--------|--------------------|----------------|-----------|----------|
| R-101    | 275-0-275 | 50     | 6.3 v. CT-2.7A     | 3"             | 2 1/2     | \$ 8.70  |
| R-102    | 350-0-350 | 70     | 6.3 v. CT-3A       | 3 5/8"         | 3 1/2     | 10.20    |
| R-103    | 350-0-350 | 90     | 6.3 v. CT-3.5A     | 3 15/16"       | 4 1/2     | 10.35    |
| R-104    | 350-0-350 | 120    | 6.3 v. CT-5A       | 3 7/8"         | 5 1/2     | 11.10    |
| R-105    | 385-0-385 | 160    | 6.3 v. CT-5A       | 4 3/8"         | 7         | 12.00    |

VERTICAL SHELL POWER TRANSFORMERS (FIG. C SEE PG. 11)  
Rectifier filaments 5 volts, 3 amps., except R-110, 2 amps.

|       |           |     |                |        |       |         |
|-------|-----------|-----|----------------|--------|-------|---------|
| R-110 | 300-0-300 | 50  | 6.3 v. CT-2.7A | 3 1/4" | 2 1/2 | \$ 8.70 |
| R-111 | 350-0-350 | 70  | 6.3 v. CT-3A   | 3 1/4" | 3 1/2 | 10.20   |
| R-112 | 350-0-350 | 120 | 6.3 v. CT-5A   | 4"     | 5 1/2 | 11.10   |
| R-113 | 400-0-400 | 200 | 6.3 v. CT-6A   | 4 5/8" | 8     | 14.10   |

CHANNEL FRAME FILTER INDUCTORS (FIG. E SEE PG. 11)  
Inductance Shown is at Rated D.C.M.A.—Test Volts RMS: 1500

| Type No. | Induct. Hys. | Current | Resist. Ohms | Dimensions, in. |       |       | Wt. Lbs. | Net Each |
|----------|--------------|---------|--------------|-----------------|-------|-------|----------|----------|
|          |              |         |              | W               | D     | H     |          |          |
| R-55     | 6            | 40MA    | 300          | 2 3/8           | 1 3/8 | 1 3/8 | 2 1/2    | \$1.65   |
| R-14     | 8            | 40MA    | 250          | 2 7/8           | 1 1/2 | 1 1/2 | 2 3/8    | 1.95     |
| R-15     | 12           | 30MA    | 450          | 2 7/8           | 1 1/2 | 1 1/2 | 2 3/8    | 1.95     |
| R-16     | 15           | 30MA    | 630          | 2 7/8           | 1 1/2 | 1 1/2 | 2 3/8    | 1.95     |
| R-17     | 20           | 40MA    | 850          | 3 1/8           | 1 3/8 | 2     | 2 1/2    | 2.25     |
| R-18     | 8            | 80MA    | 250          | 3 1/2           | 1 3/8 | 2     | 2 1/2    | 2.52     |
| R-19     | 14           | 100MA   | 450          | 3 3/4           | 1 7/8 | 2 1/2 | 3 1/8    | 3.00     |
| R-20     | 5            | 200MA   | 90           | 4 1/8           | 2 1/4 | 2 3/8 | 3 3/8    | 3.60     |
| R-21     | 15/3         | 200MA   | 90           | 4 1/8           | 2 1/4 | 2 3/8 | 3 3/8    | 3.60     |
| R-220    | 100/8 Mhy.   | 2.5A    | .6           | 3 3/4           | 2     | 2 3/8 | 3 1/8    | 4.20     |
|          | 25/2 Mhy.    | 5A      | .16          |                 |       |       |          |          |

PHOTOFLASH TRANSFORMERS  
STANDARD 982

Can be used for either standard (Amglo type) or trigger (Sylvania type) multiple flash tubes. 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 (Pg. 11) case 2 1/8 x 2 3/4 (3 3/4 including flanges) x 2 1/2 inches high. Weight 2 lbs. Net Each \$8.40

PF-3 Trigger Transformer 15 KV peak. 7/8 O.D. x 3 long. Weight 2 oz. Net each: \$6.00



TRANSISTOR TYPE

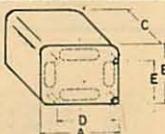
These are miniaturized light weight units for transistor type photo-flash supply.

PF-5 Primary for 115 volts, 50/60 cycles or for 4 1/2 V. battery switched by PF-6 inverter transformer. Output delivers 400 V. DC when used in voltage doubler circuit to charge photoflash capacitor (typically 40 watt-sec.). G-1 case (Pg. 11) Net each: \$8.40

PF-6 Inverter transformer transforms 4 1/2 V. DC from battery to input for PF-5 stepup transformer. Ouncer case (Pg. 11) Net each: \$5.10

PF-7 Trigger transformer. Shorting .25 mfd. capacitor (charged to approx. 225 V. DC) across terminals 1-2 produces 6 KV pulse at terminal 3 for triggering flash tube. 7/8" Dia. x 1 1/2"; Wt. 1/2 oz. Net each: \$3.60

MIL-T-27B CASE SIZES



| MIL Case | Size, Inches: Dimension |       |       | Mtg.                   |
|----------|-------------------------|-------|-------|------------------------|
|          | A                       | B     | C     | Studs                  |
| AF       | 3/4                     | 3/4   | 1 1/8 | Diag. 3/8 4-40 x 3/8   |
| AG       | 1                       | 1     | 1 3/8 | Diag. 3/4 4-40 x 3/8   |
| AH       | 1 1/8                   | 1 1/8 | 1 3/4 | Diag. 1 1/4 6-32 x 3/8 |
| AJ       | 1 1/8                   | 1 1/8 | 2 3/8 | 1 3/4 6-32 x 3/8       |
| EA       | 1 1/8                   | 1 1/8 | 2 3/4 | 1 3/8 6-32 x 3/8       |
| EB       | 1 1/8                   | 1 1/8 | 2 3/4 | 1 3/8 6-32 x 3/8       |
| FA       | 2 3/8                   | 2 3/8 | 3 1/8 | 1 1/2 6-32 x 3/8       |
| FB       | 2 3/8                   | 2 3/8 | 2 1/2 | 1 1/2 6-32 x 3/8       |
| GA       | 2 3/4                   | 2 3/4 | 3 1/8 | 2 1/8 6-32 x 3/8       |
| GB       | 2 3/4                   | 2 3/4 | 2 1/2 | 1 3/4 6-32 x 3/8       |
| HA       | 3 1/8                   | 2 3/8 | 4 1/4 | 2 1/8 8-32 x 3/8       |
| HB       | 3 1/8                   | 2 3/8 | 3 3/8 | 2 1/8 8-32 x 3/8       |
| JA       | 3 1/8                   | 3 1/8 | 4 7/8 | 2 1/8 8-32 x 3/8       |
| JB       | 3 1/8                   | 3 1/8 | 3 3/8 | 2 1/8 8-32 x 3/8       |
| KA       | 3 1/8                   | 3 3/8 | 5 1/4 | 3 2 1/4 10-32 x 1/2    |
| KB       | 3 1/8                   | 3 3/8 | 4 3/8 | 3 2 1/4 10-32 x 1/2    |
| LA       | 4 3/8                   | 3 1/8 | 5 3/8 | 3 2 1/4 10-32 x 1/2    |
| LB       | 4 3/8                   | 3 1/8 | 4 1/2 | 3 2 1/4 10-32 x 1/2    |
| MA       | 4 1/8                   | 4     | 6     | 3 1/2 1/4-20 x 5/8     |
| MB       | 4 1/8                   | 4     | 4 1/8 | 3 1/2 1/4-20 x 5/8     |
| NA       | 5 1/8                   | 4 3/8 | 6 1/8 | 3 3/4 1/4-20 x 5/8     |
| NB       | 5 1/8                   | 4 3/8 | 5 1/2 | 3 3/4 1/4-20 x 5/8     |
| OA       | 5 1/2                   | 4 1/2 | 6 3/4 | 3 1/4 1/4-20 x 5/8     |

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STEP-DOWN AUTO-TRANSFORMERS (FIG. A SEE PG. 11)  
With 6-ft. cord and female receptacle, except R-64; 220/240 to 110/120 v., 50/60 cps.

| UTC Type | Rating              | Size, Inches |       |       | Wt., Lbs. | Net Each |
|----------|---------------------|--------------|-------|-------|-----------|----------|
|          |                     | L.           | W.    | H.    |           |          |
| R-41     | 85 watt capacity    | 3 3/8        | 2 5/8 | 3 1/8 | 4         | \$6.75   |
| R-42     | 125 watt capacity   | 3 1/2        | 3     | 3 1/2 | 5         | 7.65     |
| R-43     | 175 watt capacity   | 3 3/4        | 3 1/4 | 3 7/8 | 5 1/2     | 8.40     |
| R-44     | 250 watt capacity   | 4 3/8        | 3 1/4 | 3 7/8 | 6 1/2     | 11.10    |
| R-45     | 500 watt capacity   | 4 5/8        | 3 3/8 | 4 5/8 | 12        | 12.00    |
| R-46     | 1200 watt capacity  | 6 7/8        | 3 7/8 | 4 5/8 | 18        | 24.00    |
| R-64     | 2500 watts, no cord | 10 1/2       | 4 3/4 | 6 3/4 | 30        | 57.00    |

ISOLATION TRANSFORMERS (FIG. F SEE PG. 11)

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. | Net Each |
|----------|--------------|-------|-------|-------|-------------|-----------|----------|
| R-72     | 40           | 3 1/8 | 2 5/8 | 3 1/8 | 2x1 7/8     | 4         | \$ 7.20  |
| R-73     | 100          | 3 3/4 | 3 1/4 | 3 7/8 | 2 1/2x2 3/8 | 6         | 10.50    |
| R-74     | 250          | 4 7/8 | 3 7/8 | 4 5/8 | 3x3 1/2     | 12        | 18.00    |
| R-75     | 600          | 7 3/8 | 3 7/8 | 4 5/8 | 3x5 7/8     | 20        | 24.00    |
| R-76     | 1200         | 8 1/2 | 4 1/2 | 6 1/8 | 3 5/8x6 5/8 | 30        | 57.00    |
| R-77     | 2500         | 12    | 7     | 9     | 6x11        | 70        | 99.00    |
| R-97     | 250          | 4 7/8 | 3 7/8 | 4 5/8 | 3x3 1/2     | 12        | 15.00    |

LINE VOLTAGE ADJUSTERS WITH METER (FIG. G SEE PG. 11)

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 cycles service and come complete with 6 foot input cord and plug and outlet receptacle.

| Type No. | Primary Voltages | Sec. Volts                                    | Watts Ratings | L      | W | H     | Wgt. Lbs. | Net Each |
|----------|------------------|---|---------------|--------|---|-------|-----------|----------|
| R-78     | †                | 115   | 150           | 7      | 4 | 4 3/4 | 6         | \$17.70  |
| R-79     | †                | 115   | 300           | 7      | 4 | 4 3/4 | 9         | 18.90    |
| R-80     | †                | 115   | 600           | 10 1/4 | 4 | 4 3/4 | 13        | 22.80    |
| R-81     | †                | 115   | 1200          | 10 1/4 | 4 | 4 3/4 | 21        | 33.00    |
| R-86     | †                | 230   | 1200          | 10 1/4 | 4 | 4 3/4 | 21        | 33.00    |
|          |                  | † 60, 70, 80, 90, 100, 110, 120, 130, 140     |               |        |   |       |           |          |
|          |                  | † 160, 170, 180, 190, 200, 210, 220, 230, 240 |               |        |   |       |           |          |

EXPORT VOLTAGE ADAPTER (FIG. D SEE PG. 11)

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. | Net Each |
|----------|--------------|-------|-------|-------|-------------|-----------|----------|
| R-47     | 85           | 4 5/8 | 3     | 3 1/2 | 2 1/4x2 1/4 | 4 1/2     | \$10.20  |
| R-48     | 150          | 4 3/4 | 3 1/4 | 4     | 2 1/2x2 1/2 | 5 1/2     | 11.70    |

TV VOLTAGE REGULATOR (FIG. D SEE PG. 11)

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, 125 V.

| Type No. | Rating Watts | L | W     | H | Mtg. Dim.   | Wgt. Lbs. | Net Each |
|----------|--------------|---|-------|---|-------------|-----------|----------|
| R-49     | 350          | 5 | 3 1/4 | 4 | 2 1/2x2 3/4 | 5         | \$12.00  |

SIGNALLING AND CONTROL TRANSFORMERS (FIG. H SEE PG. 11)

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. | Net Each |
|----------|--------------|-------|-------|-------|-------------|-----------|----------|
| SC-3     | 50           | 3     | 3 1/8 | 3 3/8 | 1 3/4x2 1/4 | 3         | \$8.40   |
| SC-4     | 100          | 3 1/4 | 3 3/8 | 4     | 2 1/8x2 1/2 | 5         | 9.90     |
| SC-5     | 250          | 4     | 4 5/8 | 4 3/4 | 3 3/8x3     | 10        | 14.40    |

INDUSTRIAL DISCOUNTS

Applicable to any UTC products listed in this catalog.

Assorted Quantities, Lots of

| 1-24      | 25-99    | 100 up   | 100-499/One Type |
|-----------|----------|----------|------------------|
| Net Price | Net —15% | Net —20% | Net —33 1/3%     |