



# SERVICE MANUAL

## MODEL "ROYAL 1000"

### ALL TRANSISTOR TRANSOCEANIC

### PORTABLE RECEIVER

#### CHASSIS 9CT40Z2

#### *To the Serviceman*

#### GENERAL

The transistor portable chassis is a conventional super-heterodyne receiver using an individual mixer and oscillator to produce the 455 Kc intermediate frequency. The intermediate frequency amplifiers are conventional. It is necessary to use neutralization in the I.F. amplifier stages as in circuits using a triode tube. The 103-22 diode is used as a detector and AVC voltage source. This diode is part of I.F. Transformer T4. This is then followed by a first audio amplifier and a driver stage for the class B push pull output. The 121-47 output transistors are a matched pair and will be coded with paint dots, red, white, yellow and green. Should one transistor fail it must be replaced with another 121-47 transistor with corresponding color. Do not use 121-47 transistors in pairs unless their color codes are identical.

The iron core slugs of the RF, mixer and oscillator coils have hex-holes through their centers. This will enable the technician to tune the top slug then drop alignment wrench No. 68-32 down through the slug to adjust the slug in the lower coil.

Power Supply — Eight Zenith Z2NL 1½ volt or Standard Flashlight Batteries total 12 volts D.C. Approximate battery life 300 hours. One Zenith Z2NL 1½ volt or Standard Flashlight Battery for the dial light.

#### Frequency Ranges:

|                |                 |
|----------------|-----------------|
| 540 to 1600 Kc | 11.4 to 12.3 Mc |
| 2 to 4 Mc      | 14.6 to 15.8 Mc |
| 4 to 9 Mc      | 17.1 to 18.5 Mc |
| 9.4 to 10.1 Mc | 20.7 to 22.5 Mc |

Intermediate Frequency: 455 Kc

Power Output Undistorted: 500 Milliwatts

Speaker: 4 inch P.M.

Alnico V, Voice Coil Impedance — 3.2 ohms @ 1000 cycles

Accessory Earphone 39-22 Impedance 15 ohms @ 1000 cycles

#### RESISTANCE MEASUREMENTS

When making resistance measurements in the circuit, it is most important to remove the transistors in the circuit under test otherwise readings obtained will be incorrect. This is the direct result of a transistor acting as a diode.

When making measurements across an electrolytic capacitor, be certain the ohm meter leads are correctly polarized; also be certain the battery voltage of the meter does not exceed the working voltage of the capacitor. Otherwise damage to the capacitor may result.

#### VOLTAGE READINGS

It is suggested that a VTVM with an excellent low range scale be used to measure all circuit voltages. All voltages indicated on the accompanying diagrams have been measured under no signal conditions and a carbon battery supply voltage of 12.0 volts. Under these no signal conditions, a check can be made of the batteries. With carbon batteries, the total voltage should be 12.0 volts.

#### COMPONENT REPLACEMENT

When soldering components at the base of the transistor socket, it is suggested that the transistor be removed to avoid any possibility of excessive heat being transferred through the socket to the transistor. When soldering the low voltage electrolytics and germanium diodes, it is suggested that the wire be held with a pair of long nose pliers while soldering. The long nose pliers will act as a heat sink.

#### TRANSISTORS

At the present time we do not know of any satisfactory commercially available transistor tester.

If the transistor is suspected of being defective for any other reason than a barrier short, the only reliable check is to substitute a new transistor and then check performance. There is a possibility that if transistors are replaced in the IF or RF circuit, these circuits may need re-alignment as the result of slight differences in transistor characteristics.

#### SIGNAL TRACING

Past practices used in radiorepair commonly known as "Screw driver testing" in which the B + at the plate of the tube is shorted to ground to check for "clicks" in the speaker, is definitely not recommended. This practice would be comparable to shorting the collector of a transistor to ground which could damage the transistor. Standard point to point signal checking with the proper RF, IF and audio signals, should only be used.

#### REPAIR EQUIPMENT

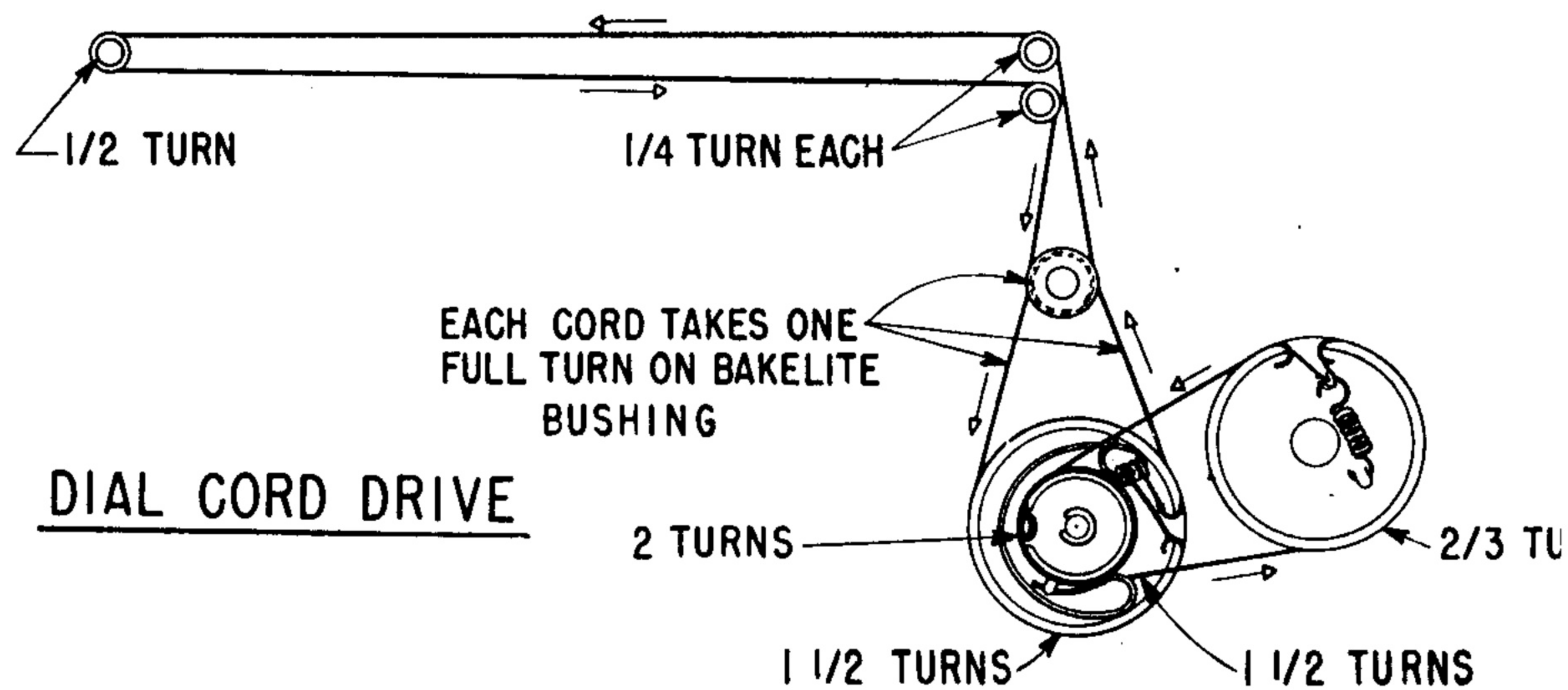
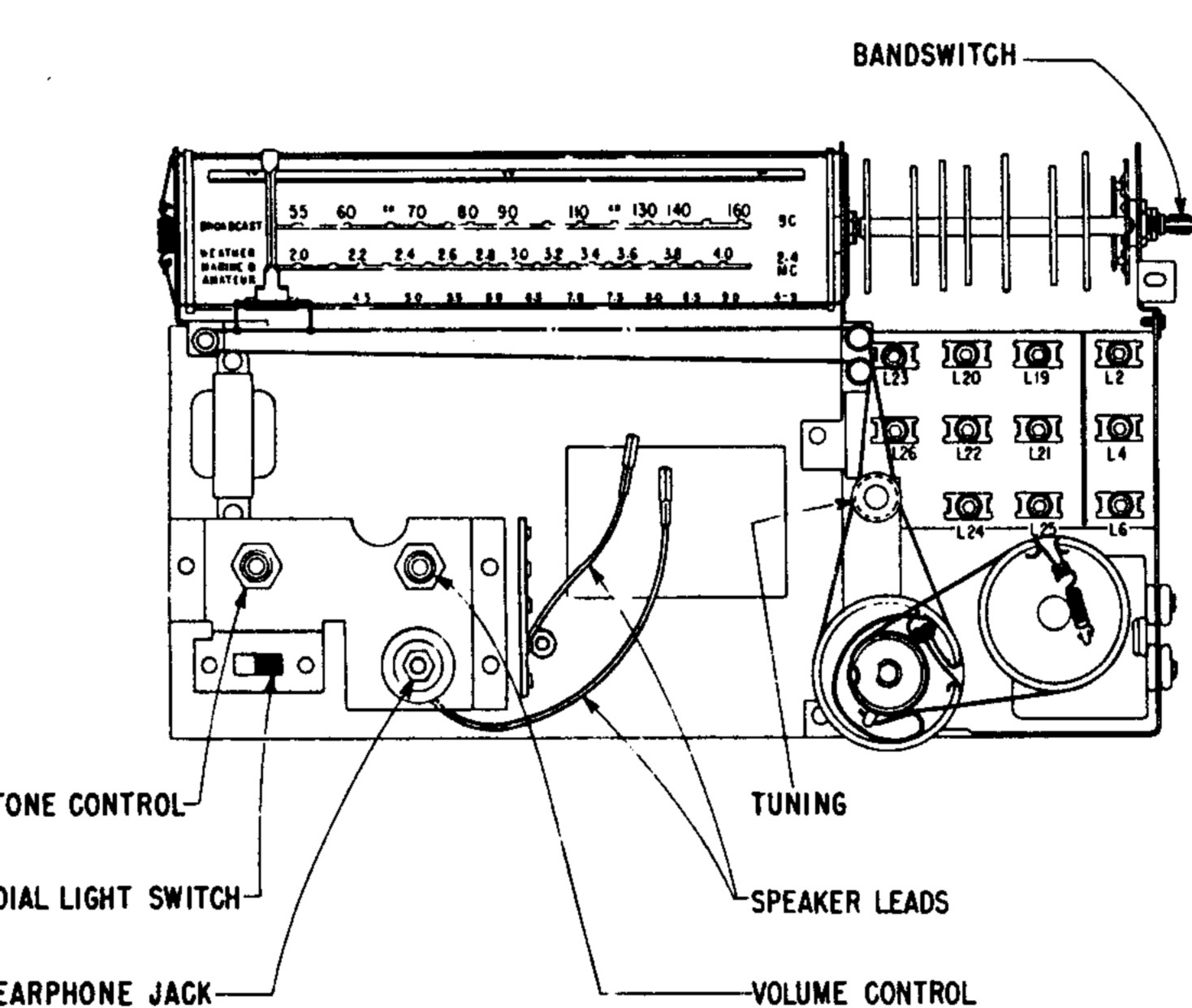
The following list of equipment is what we recommend and use for repair of transistor chassis:

1. An RF signal generator supplying frequencies from 455 Kc to 23 Mc.
2. An audio generator or an audio signal source to be used for signal tracing after the diode detector.
3. A VTVM with a good low range voltage scale and a reliable resistance scale.
4. M209B Dazor floating lamp & magnifier or equivalent.
5. A set of optometrist tools—pliers, cutters, picks, etc.
6. A soldering iron with a very fine tip, not to exceed 35 watts.

#### ALIGNMENT PROCEDURE

| OPER. | CONNECT GEN. TO<br>DUMMY ANTENNA                                                                                        | INPUT SIG. BAND<br>FREQUENCY                           | SET DIAL<br>AT | TRIMMERS                | PURPOSE                                                                                  |
|-------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------|-------------------------|------------------------------------------------------------------------------------------|
| 1     | One turn loop coupled loosely to Broadcast Wavemagnet                                                                   | 455 Kc BC                                              | 1600 Kc        | T1, T2, T3, T4          | Align I.F.                                                                               |
| * 2   | One turn loop coupled loosely to Broadcast Wavemagnet                                                                   | 600 Kc BC                                              | 600 Kc         | Rock gang, Adjust C 52B | Alignment of BC at 600 Kc                                                                |
| 3     | One<br><br>Turn Loop<br>Coupled<br>Loosely to<br>Broadcast Wavemagnet                                                   | 1600 Kc BC                                             | 1600 Kc        | C52A                    | Set osc. to scale                                                                        |
| 4     |                                                                                                                         | REPEAT OPERATIONS 2 & 3                                |                |                         |                                                                                          |
| * 5   |                                                                                                                         | 600 Kc BC                                              | 600 Kc         | Rock, adjust L18        | Alignment of B.C. mixer at 600 Kc                                                        |
| 6     |                                                                                                                         | 1400 Kc BC                                             | 1400 Kc        | C31B                    | Alignment B.C. mixer                                                                     |
| 7     |                                                                                                                         | REPEAT OPERATIONS 5 & 6                                |                |                         |                                                                                          |
| 8     |                                                                                                                         | 1400 Kc BC                                             | 1400 Kc        | C27                     | Alignment of B.C. ant.                                                                   |
| 9     |                                                                                                                         | One turn loop coupled loosely to Detachable Wavemagnet | 1400 Kc BC     | 1400 Kc                 | C28                                                                                      |
| * 10  | 3 Feet<br><br>of Wire<br><br>Approximately<br><br>1 Foot<br><br>and Parallel<br><br>from<br><br>Extended<br><br>Waverod | 2.1 Mc 2-4 Mc                                          | 2.1 Mc         | Rock L25, L17, L7       | Alignment of S.W. osc., mixer & antenna                                                  |
| 11    |                                                                                                                         | 3.9 Mc 2-4 Mc                                          | 3.9 Mc         | C26E, C26D, C26B        | Alignment of S.W. osc., mixer & antenna                                                  |
| 12    |                                                                                                                         | REPEAT OPERATIONS 10 & 11                              |                |                         |                                                                                          |
| * 13  |                                                                                                                         | 4.25 Mc 4-9 Mc                                         | 4.25 Mc        | Rock L24, L16, L6       | Alignment<br><br>of<br><br>Short Wave<br><br>Oscillator,<br><br>Mixer and<br><br>Antenna |
| 14    |                                                                                                                         | 8.75 Mc 4-9 Mc                                         | 8.75 Mc        | C26F, C26C, C26A        |                                                                                          |
| 15    |                                                                                                                         | REPEAT OPERATIONS 13 & 14                              |                |                         |                                                                                          |
| 16    |                                                                                                                         | 9.7 Mc 31 meters                                       | 9.7 Mc         | L23, L15, L5            |                                                                                          |
| 17    |                                                                                                                         | 11.8 Mc 25 meters                                      | 11.8 Mc        | L22, L14, L4            |                                                                                          |
| 18    |                                                                                                                         | 15.2 Mc 19 meters                                      | 15.2 Mc        | L21, L13, L3            |                                                                                          |
| 19    |                                                                                                                         | 17.8 Mc 16 meters                                      | 17.8 Mc        | L20, L12, L2            |                                                                                          |
| 20    |                                                                                                                         | 21.6 Mc 13 meters                                      | 21.6 Mc        | L19, L11, L1            |                                                                                          |

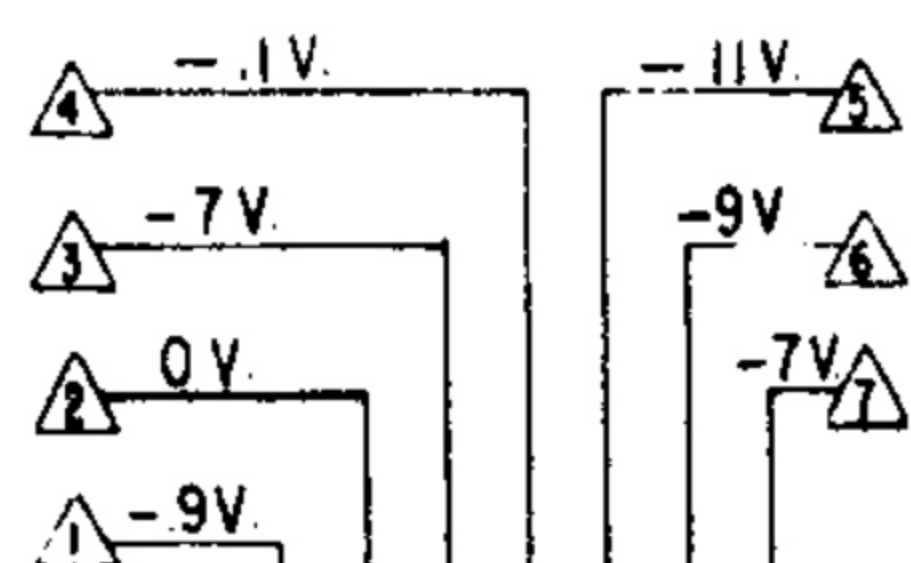
\* NOTE: Rock tuning condenser when making alignment under Operations 2, 5, 10, 13.



## DIAL CORD DRIVE

ONE CONTROL  
DIAL LIGHT SWITCH  
EARPHONE JACK  
TUNING  
SPEAKER LEADS  
VOLUME CONTROL

WAVE ROD LEAD  
ANTENNA TERMINAL  
121-49 MIXER  
GROUND TERMINAL  
121-44 R.F.  
121-48 OSC.  
L11 TOP 13M MIXER COIL  
L19 BOTTOM 13M OSC. COIL  
L1 TOP 13M ANT. COIL  
L2 BOTTOM 16M ANT. COIL  
L12 TOP 16M MIXER COIL  
L20 BOTTOM 16M OSC. COIL  
L15 TOP 31M MIXER COIL  
L23 BOTTOM 31M OSC. COIL  
L3 TOP 19M ANT. COIL  
L4 BOTTOM 25M ANT. COIL  
L5 TOP 31M ANT. COIL  
L6 BOTTOM 4-9MC ANT. COIL  
L13 TOP 19M MIXER COIL  
L21 BOTTOM 19M OSC. COIL  
L17 TOP 2-4 MC. MIXER COIL  
L25 BOTTOM 2-4 MC. OSC. COIL  
L14 TOP 25M MIXER COIL  
L22 BOTTOM 25M OSC. COIL  
L16 TOP 4-9MC. MIXER COIL  
L24 BOTTOM 4-9MC. OSC. COIL  
L18 TOP BROADCAST MIXER COIL  
L7 2-4 MC ANT. COIL



T1 1ST. I.F. TRANSFORMER  
WAVEMAGNET SOCKET  
L8 ANTENNA LOADING COIL  
C27 BROADCAST ANTENNA TRIMMER  
T2 2ND I.F. TRANSFORMER PRIMARY  
T3 2ND I.F. TRANSFORMER SECONDARY  
T4 3RD I.F. TRANSFORMER  
T5 DIODE DETECTOR ASSEMBLY  
S2 RADIO PHONO SWITCH  
L10 WAVEMAGNET ASSEMBLY (MOBILE)  
C28 BROADCAST ANTENNA TRIMMER (MOBILE)  
J2 PHONO CONNECTOR SOCKET  
P3 BATTERY CONNECTOR PLUG  
121-73 1ST. I.F.  
121-74 2ND I.F.  
121-64 1ST AUDIO  
121-46 DRIVER  
121-47 OUTPUT (MATCHED PAIRS)

## REAR VIEW

C26B 2-4 MC ANT. TRIMMER  
C26A 4-9 MC ANT. TRIMMER  
C26D 2-4 MC MIXER TRIMMER  
C26C 4-9 MC MIXER TRIMMER  
C26E 2-4 MC OSC. TRIMMER  
C26F 4-9 MC OSC. TRIMMER  
C52B BROADCAST PADDER  
C52A BROADCAST OSC. TRIMMER

C31B BROADCAST MIXER TRIMMER  
SECTIONAL BOTTOM VIEW OF TUNER HOUSING ASSEMBLY

## TRANSISTOR and TRIMMER LAYOUT

CHASSIS PARTS  
Chassis 9CT40Z2

| PART NO. | DIA. NO.                   | DESCRIPTION                                                            | PRICE |
|----------|----------------------------|------------------------------------------------------------------------|-------|
| 19-322   |                            | Coil mtg. clip (23 pt. of S-42118)                                     | .05   |
| 19-331   |                            | Spring clip (used on S-42118)                                          | .10   |
| 22-3     | C18                        | .01 mfd. ceramic disc - 500V                                           | .30   |
| 22-6     | C40                        | 470 mmf. ceramic disc - 1KV                                            | .25   |
| 22-11    | C11,18, 44,45              | .0033 mfd. ceramic disc - 500V (3 used)                                | .25   |
| 22-17    | C17                        | .001 mfd. ceramic disc - 1KV                                           | .25   |
| 22-18    | C41                        | .0022 mfd. ceramic disc - 500V                                         | .25   |
| 22-1392  | C28, 34                    | 25 mmf. ceramic - 500V (2 pt. of S-42118)                              | .33   |
| 22-1665  | C24                        | 5 mmf. ceramic - 500V (pt. of S-42118)                                 | .25   |
| 22-1761  | C29, 33                    | 50 mmf. ceramic - 500V (2 pt. S-42118)                                 | .25   |
| 22-2372  | C10                        | 22 mmf. ceramic - 500V                                                 | .25   |
| 22-2729  |                            | .001 mfd. ceramic disc - 25V (2 used)                                  | .25   |
| 22-2893  | C43                        | 12 mfd. electrolytic - 50V                                             | 1.10  |
| 22-2884  | C20, 21                    | 3 mfd. electrolytic - 12V (2 used on S-47501)                          | 1.50  |
| 22-2969  |                            | 6 section trimmer (2-4 Mc & 4-9 Mc ant., mixer & osc. used on S-43365) | 3.00  |
| 22-2972  | C30, 30A,B C,D             | 3 section variable (used on S-42118)                                   | 6.00  |
| 22-2979  | C35                        | 60 mmf. ceramic - 500V                                                 | .30   |
| 22-2981  | C39                        | 2700 mmf. mica - 500V (pt. of S-42118)                                 | 1.00  |
| 22-2982  | C38                        | 4300 mmf. mica (pt. of S-42118)                                        | 1.50  |
| 22-2983  | C26,27                     | Trimmer (BC ant. fixed)                                                | .35   |
| 22-2984  | C19                        | 10 mfd. electrolytic - 12V                                             | 1.00  |
| 22-2985  | C15                        | 500 mfd. electrolytic - 12V                                            | 2.00  |
| 22-2998  | C46                        | .1 mfd. mylar tubular - 50V                                            | .35   |
| 22-3034  | C1, 2, 3,5,6, 14,31, 32,42 | .05 mfd. ceramic disc - 25V (9 used)                                   | .45   |
| 22-3045  | C22,23                     | .047 mfd. mylar - 50V (2 used on S-47501)                              | .40   |
| 22-3105  | C37A, B                    | Section trimmer (BC padder)                                            | 1.50  |
| 22-3108  | C36                        | 100 mmf. ceramic - 500V (pt. of S-42118)                               | .25   |
| 22-3158  | C8,13                      | 7 mmf. ceramic disc - 500V (2 used)                                    | .25   |
| 22-3198  | C7,11                      | 2 x .05 mfd. ceramic disc - 25V (2 used)                               | .50   |
| 44-34    |                            | Miniature jack - headphone jack (used on S-47501)                      | .90   |
| 54-139   |                            | 3/8-32 x 9/16 hex. palnut (1 mts. ea. 85-591, 63-4623 & 4624)          | .03   |
| 54-142   |                            | 5-40 x 1/4 x 3/32 hex. nut (2 used on 85-591)                          | .03   |
| 54-345   |                            | 1/4-32 x 3/8 hex. nut - brass (mts. 44-34)                             | .03   |
| 54-421   |                            | Socket retaining nut (1 used on ea. 78-1063 & 1096)                    | .03   |
| 57-2385  |                            | Sw. mtg. plate (used on S-43365)                                       | .20   |
| 58-235   |                            | 3 prong plug (battery connector)                                       | .15   |
| 59-330   |                            | Dial pointer                                                           | .50   |
| 61-137   |                            | Idler pulley (3 used)                                                  | .10   |
| 63-1740  |                            | 82 ohm 1/2W ins. 10%                                                   | .17   |
| 63-1743  |                            | 100 ohm 1/2W ins. 10%                                                  | .17   |
| 63-1744  |                            | 100 ohm 1/2W ins. 20%                                                  | .17   |
| 63-1761  |                            | 270 ohm 1/2W ins. 10%                                                  | .17   |
| 63-1771  |                            | 470 ohm 1/2W ins. 10%                                                  | .17   |
| 63-1772  |                            | 470 ohm 1/2W ins. 20%                                                  | .17   |
| 63-1775  |                            | 560 ohm 1/2W ins. 10%                                                  | .17   |
| 63-1779  |                            | 680 ohm 1/2W ins. 20%                                                  | .17   |
| 63-1782  |                            | 820 ohm 1/2W ins. 10% (4 used)                                         | .17   |
| 63-1786  |                            | 1000 ohm 1/2W ins. 20% (4 used)                                        | .17   |
| 63-1793  |                            | 1500 ohm 1/2W ins. 20% (2 used)                                        | .17   |
| 63-1796  |                            | 1800 ohm 1/2W ins. 10%                                                 | .17   |
| 63-1800  |                            | 2200 ohm 1/2W ins. 20% (2 used)                                        | .17   |
| 63-1803  |                            | 2700 ohm 1/2W ins. 10%                                                 | .17   |
| 63-1806  |                            | 3300 ohm 1/2W ins. 10% (2 used)                                        | .17   |
| 63-1813  |                            | 4700 ohm 1/2W ins. 10%                                                 | .17   |
| 63-1814  |                            | 4700 ohm 1/2W ins. 20%                                                 | .17   |
| 63-1817  |                            | 5600 ohm 1/2W ins. 10%                                                 | .17   |
| 63-1824  |                            | 8200 ohm 1/2W ins. 10%                                                 | .17   |
| 63-1827  |                            | 10 K ohm 1/2W ins. 10% (2 used)                                        | .17   |
| 63-1828  |                            | 10 K ohm 1/2W ins. 20%                                                 | .17   |
| 63-1834  |                            | 15 K ohm 1/2W ins. 10%                                                 | .17   |
| 63-1848  |                            | 33 K ohm 1/2W ins. 10%                                                 | .17   |
| 63-1852  |                            | 39 K ohm 1/2W ins. 10%                                                 | .17   |
| 63-1862  |                            | 68 K ohm 1/2W ins. 10%                                                 | .17   |
| 63-1875  |                            | 150 K ohm 1/2W ins. 5%                                                 | .34   |
| 63-1880  |                            | 180 K ohm 1/2W ins. 10%                                                | .17   |
| 63-1898  |                            | 470 K ohm 1/2W ins. 20%                                                | .17   |
| 63-1904  |                            | 680 K ohm 1/2W ins. 10%                                                | .17   |
| 63-1912  |                            | 1 megohm 1/2W ins. 20%                                                 | .17   |
| 63-1933  |                            | 3.3 megohm 1/2W ins. 20%                                               | .17   |
| 63-3392  |                            | 1500 ohm 1/10W ins. 10%                                                | .17   |
| 63-3663  |                            | Thermistor                                                             | 1.10  |
| 63-4537  |                            | 6.8 ohm 1/2W ins. 20% (2 used)                                         | .17   |
| 63-4623  |                            | Vol. control & Sw. (used on S-47501)                                   | 2.05  |
| 63-4624  |                            | Tone control (used on S-47501)                                         | 1.40  |
| 68-32    |                            | Adjusting wrench                                                       | .60   |
| 78-644   |                            | Connector socket - phono                                               | .15   |
| 78-1063  |                            | Transistor socket - 3 contact (6 used)                                 | .35   |
| 78-1096  |                            | Transistor socket - 4 contact (3 used)                                 | .35   |
| 78-1097  |                            | Wavemagnet socket                                                      | .25   |
| 80-402   |                            | Drive cord tension spring                                              | .04   |
| 80-1180  |                            | Drive cord tension spring                                              | .35   |
| 80-1189  |                            | Drive cord tension spring                                              | .15   |
| 80-1230  |                            | Spring (cable retaining)                                               | .30   |
| 83-2145  |                            | 5 lug terminal strip                                                   | .10   |
| 83-2627  |                            | 2 lug terminal strip (2 used)                                          | .05   |

CHASSIS PARTS  
Chassis 9CT40Z2

| PART NO. | DIA. NO. | DESCRIPTION                                                                                                                                                                                 | PRICE |
|----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 83-2641  |          | 5 lug terminal strip                                                                                                                                                                        | .10   |
| 83-2673  |          | 6 lug terminal strip                                                                                                                                                                        | .10   |
| 83-2770  |          | 7 lug terminal strip - grip type (pt. of S-42112)                                                                                                                                           | .20   |
| 83-2822  |          | Ant. terminal strip (pt. of S-42112)                                                                                                                                                        | .50   |
| 85-495   |          | Radio - phono - switch D.P.D.T.                                                                                                                                                             | 5.18  |
| 85-591   |          | Band switch (pt. of S-42118)                                                                                                                                                                | 9.00  |
| 86-199   |          | Terminal (pt. of S-43365)                                                                                                                                                                   | .03   |
| 86-237   |          | Connector terminal (1 pt. of ea. S-21997 & 21999)                                                                                                                                           | .03   |
| 86-306   |          | Terminal                                                                                                                                                                                    | .03   |
| 93-966   |          | Lockwasher (2 used on 85-591)                                                                                                                                                               | .03   |
| 93-1043  |          | Spring washer (used on S-42149)                                                                                                                                                             | .10   |
| 94-334   |          | Capacitor mtg. bushing (3 mt. 22-2972)                                                                                                                                                      | .03   |
| 95-1563  |          | 1st I.F. transformer (used on S-42112)                                                                                                                                                      | 2.50  |
| 95-1564  |          | 2nd I.F. primary transformer                                                                                                                                                                | 2.50  |
| 95-1565  |          | 2nd I.F. secondary transformer                                                                                                                                                              | 2.50  |
| 95-1683  |          | Output transformer                                                                                                                                                                          | 4.50  |
| 95-1684  |          | Driver transformer                                                                                                                                                                          | 5.00  |
| 100-218  |          | Dial light lamp (2 used on S-42148)                                                                                                                                                         | .15   |
| 103-22   |          | Crystal diode                                                                                                                                                                               | .75   |
| 113-8    |          | 6-32 x 1/4 x 1/4 hex. hd. mach. screw lockwasher att. (2 used)                                                                                                                              | .03   |
| 113-9    |          | 8-32 x 1/4 x 1/4 hex. hd. mach. screw - lockwasher att. (2 used) on S-47501                                                                                                                 | .03   |
| 113-13   |          | 6-32 x 7/16 x 1/4 hex. hd. mach. screw - lockwasher att. (3 used on 22-2972)                                                                                                                | .03   |
| 114-193  |          | 8-32 x 3/16 x 1/4 hex. hd. self - tap - screw (4 mt. S-43365, 2 used on 57-2385, 3 on 85-591 & 2 mt. R.F. shelf)                                                                            | .03   |
| 114-442  |          | 8-32 x 5/16 hex. hd. self - tap - screw flat washer att. (used on 80-1230)                                                                                                                  | .03   |
| 114-444  |          | 8-32 x 3/8 hex. hd. mach. screw flat washer att. (used on 80-1230)                                                                                                                          | .05   |
| 114-456  |          | 8-32 x 1/4 hex. hd. mach. screw - flat washer att. (2 used on S-43623)                                                                                                                      | .03   |
| 114-571  |          | 4-24 x 3/16 x 3/16 hex. slot hd. self tap screw (2 mt. S-42148)                                                                                                                             | .03   |
| 121-44   |          | Transistor - R.F.                                                                                                                                                                           | 5.00  |
| 121-46   |          | Transistor - driver                                                                                                                                                                         |       |
| 121-47   |          | Transistor - output (2 used)                                                                                                                                                                | 5.90  |
| 121-48   |          | Transistor - oscillator                                                                                                                                                                     | 5.00  |
| 121-49   |          | Transistor - mixer                                                                                                                                                                          | 5.00  |
| 121-64   |          | Transistor - audio                                                                                                                                                                          | 2.15  |
| 121-73   |          | Transistor - 1st I.F.                                                                                                                                                                       | 2.50  |
| 121-74   |          | Transistor - 2nd I.F.                                                                                                                                                                       | 2.50  |
| 125-94   |          | Rubber grommet (3 used on S-43365)                                                                                                                                                          | .03   |
| 126-857  |          | Coil shield                                                                                                                                                                                 | .05   |
| 126-887  |          | Coil shield                                                                                                                                                                                 | .10   |
| 126-888  |          | Coil shield                                                                                                                                                                                 | .05   |
| 126-899  |          | Coil shield                                                                                                                                                                                 | .10   |
| 149-86   |          | Iron core (pt. of S-42080)                                                                                                                                                                  | .10   |
| 149-211  |          | Iron core (1 pt. of ea. S-42082, 42083, 42084, 42085, 42086, 42087, 42088, 42089, 42090, 42091, 42092, 42093, 42094, 42095, 42096, 42097, 42098, 42099, 42100, 42101, 42102, 42103 & 43433) | .10   |
| 188-149  |          | Retaining ring (1 used on ea. S-41768 & 41779)                                                                                                                                              | .03   |
| 199-241  |          | Paper sleeve                                                                                                                                                                                | .03   |
| S-17638  |          | Drive cord & eyelet assem. - tuning                                                                                                                                                         | .10   |
| S-21997  |          | Terminal & wire assem.                                                                                                                                                                      | .15   |
| S-21999  |          | Terminal & wire assem. (used on S-47501)                                                                                                                                                    | .15   |
| S-41768  |          | Dual pulley (used on S-43365)                                                                                                                                                               | .50   |
| S-41779  |          | Tuning shaft & pulley assem. (used on S-43365)                                                                                                                                              | .80   |
| S-42080  |          | Ant. loading coil                                                                                                                                                                           | .60   |
| S-42082  |          | Osc. coil (2-4 Mc. - pt. of S-42118)                                                                                                                                                        | .60   |
| S-42083  |          | Osc. coil (4-9 Mc. - pt. of S-42118)                                                                                                                                                        | .60   |
| S-42084  |          | Osc. coil (31M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42085  |          | Osc. coil (25M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42086  |          | Osc. coil (19M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42087  |          | Osc. coil (16M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42088  |          | Osc. coil (13M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42089  |          | Ant. coil (2-4 Mc. - pt. of S-42118)                                                                                                                                                        | .60   |
| S-42090  |          | Ant. coil (4-9 Mc. - pt. of S-42118)                                                                                                                                                        | .60   |
| S-42091  |          | Ant. coil (31M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42092  |          | Ant. coil (25M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42093  |          | Ant. coil (19M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42094  |          | Ant. coil (16M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42095  |          | Ant. coil (13M - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42096  |          | Mixer coil (BC - pt. of S-42118)                                                                                                                                                            | .60   |
| S-42097  |          | Mixer coil (2-4 Mc. - pt. of S-42118)                                                                                                                                                       | .60   |
| S-42098  |          | Mixer coil (4-9 Mc. - pt. of S-42118)                                                                                                                                                       | .60   |
| S-42099  |          | Mixer coil (31M - pt. of S-42118)                                                                                                                                                           | .60   |
| S-42100  |          | Mixer coil (25M - pt. of S-42118)                                                                                                                                                           | .60   |
| S-42101  |          | Mixer coil (19M - pt. of S-42118)                                                                                                                                                           | .60   |
| S-42102  |          | Mixer coil (16M - pt. of S-42118)                                                                                                                                                           | .60   |
| S-42103  |          | Mixer coil (13M - pt. of S-42118)                                                                                                                                                           | .60   |
| S-42112  |          | R.F. shelf bracket - terminal strip assem. (used on S-43365)                                                                                                                                | 1.00  |
| S-42118  |          | Bandswitch & coil assem. (return - for - repair)                                                                                                                                            |       |

# CHASSIS PARTS

## Chassis 9CT40Z2

| PART NO. | DIA. NO. | DESCRIPTION                                       | PRICE |
|----------|----------|---------------------------------------------------|-------|
| S-42148  |          | Dial light socket & wire assem. (used on S-42149) | 1.25  |
| S-42149  |          | Dial drum                                         | 5.00  |
| S-42163  |          | Drive cord & eyelet assem. pointer                | .20   |
| S-42653  |          | Drive cord, eyelet & spring assem.                | .35   |
| S-42723  |          | Elastic cord & staple assem.                      | .10   |
| S-43258  |          | 3rd I.F. transformer & diode assem.               | 6.00  |
| S-43365  |          | R.F. housing, pulley & stud assem. (mts. S-42118) | 2.00  |
| S-43433  |          | Osc. coil (BC - pt. of S-42118)                   | .60   |
| S-43623  |          | Pulley & bracket assem. (used on S-43365)         | .80   |
| S-43686  |          | Coil mtg. bracket (pt. of S-42118)                | .50   |
| S-47501  |          | Control mtg. bracket, sw. & strip assem.          |       |

# CABINET PARTS

Model Royal 1000 D

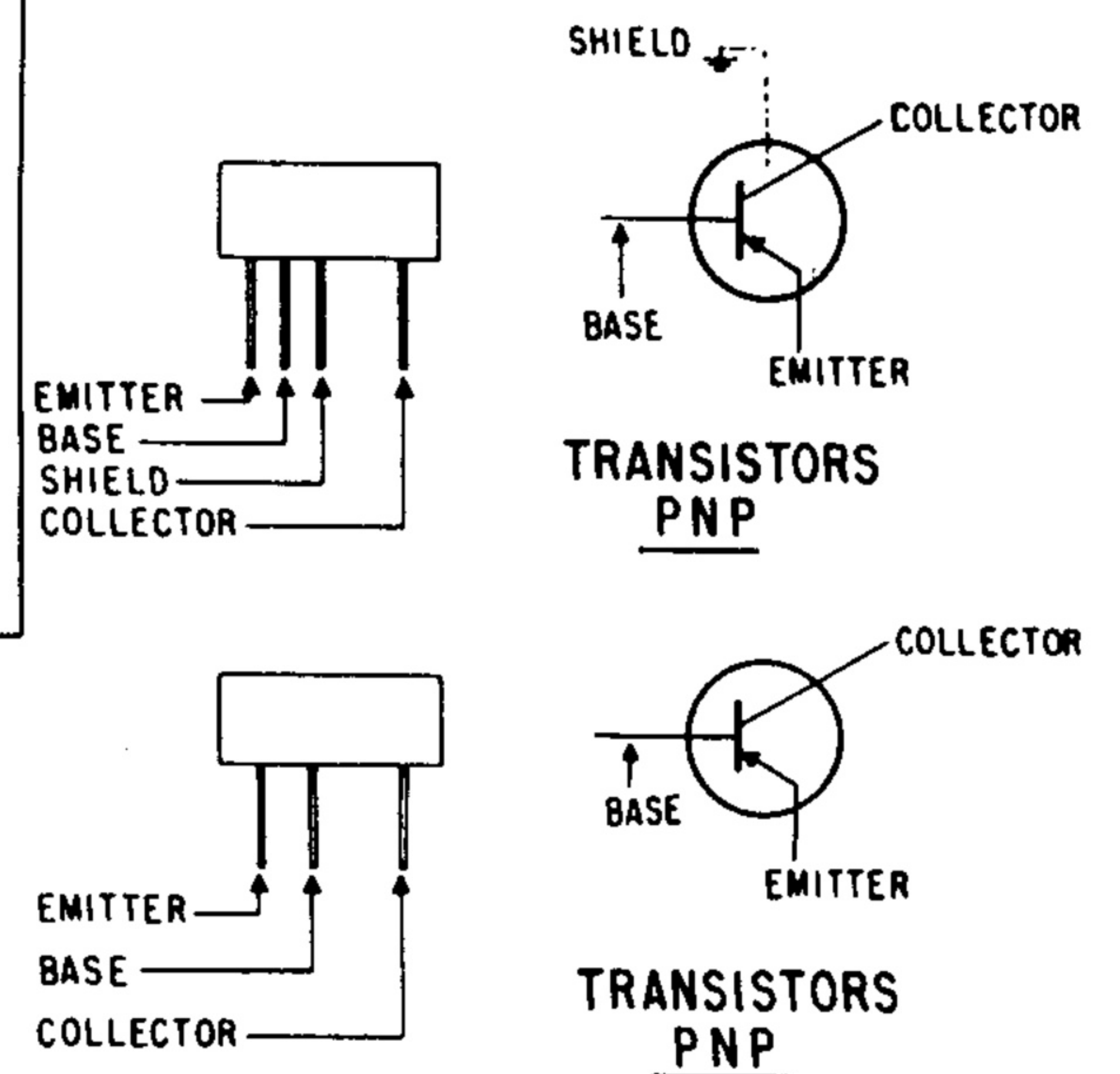
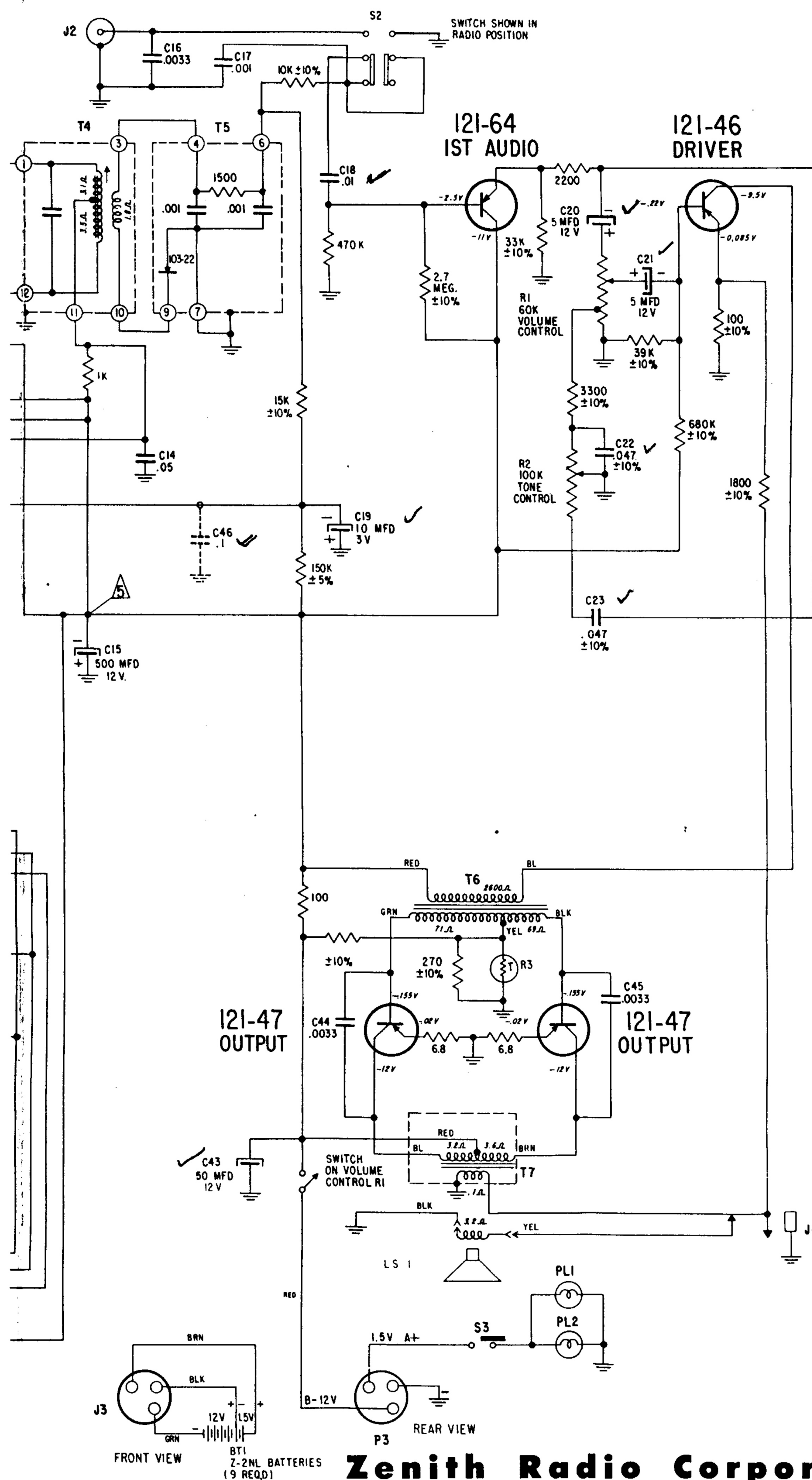
| PART NO. | DIA. NO. | DESCRIPTION                                           | PRICE |
|----------|----------|-------------------------------------------------------|-------|
| Z-2NL    |          | 1.5 V. "A" battery "D" (use 9)                        |       |
| 12-2463  |          | Rear door latch (pt. of S-48168)                      | .25   |
| 12-2604  |          | Support bracket                                       | .95   |
| 15-108   |          | Socket cap (pt. of S-48171)                           | .10   |
| 15-191   |          | Plug cap (used on 58-233)                             | .20   |
| 16-1362  |          | Packing carton                                        |       |
| 24-1001  |          | Battery case cover                                    |       |
| 27-257   |          | Paper disc (4 used)                                   | .03   |
| 36-205   |          | Handle - bottom section (mts. S-42207)                | 1.25  |
| 43-311   |          | Wavemagnet housing - fixed (used on S-42184)          | .75   |
| 46-1809  |          | Tuning knob                                           | 2.00  |
| 46-1810  |          | Release knob (used on S-42183)                        | 1.25  |
| 46-1811  |          | Tone control knob                                     | .50   |
| 46-1812  |          | Ant. knob (pt. of S-42207)                            | .25   |
| 46-1825  |          | Selector knob (Band sw.)                              | 1.25  |
| 46-1893  |          | Vol. control knob                                     | .50   |
| 49-829   |          | 4" PM speaker                                         | 8.00  |
| 54-12    |          | 6-32 x 1/4 x 3/32 hex. nut (3 mt. ea. 57-2372 & 2373) | .03   |
| 54-444   |          | Speed nut - tinnerman (9 mt. 192-236)                 | .03   |
| 54-445   |          | Speed nut - tinnerman (1 used on ea. 114-87)          | .05   |
| 54-455   |          | Speed nut - tinnerman (4 used on 57-2389)             | .03   |
| 54-467   |          | Speed nut - tinnerman (12 used)                       | .03   |
| 57-1725  |          | Emblem plate (used on log chart door)                 | .25   |
| 57-2208  |          | Emblem plate (used on 138-148)                        | .25   |
| 57-2371  |          | Cabinet top plate (mts. 43-311)                       | 5.25  |
| 57-2372  |          | End plate - left                                      | 8.00  |
| 57-2373  |          | End plate - right                                     | 8.00  |
| 57-2379  |          | Trim plate (band selector - used on 57-2373)          | 1.25  |
| 57-2380  |          | Trim plate (used on 57-2372)                          | 1.25  |
| 57-2386  |          | Hinge plate (1 used on ea. 57-2372 & 2373)            | .25   |
| 57-2389  |          | Escutcheon plate (used on 138-148)                    | 3.75  |
| 57-2414  |          | Nameplate (Zenith - pt. of S-42190)                   | .90   |
| 57-2415  |          | Band selector indicator plate (used on 46-1825)       | 1.25  |
| 57-2416  |          | Trim plate - tuning                                   | .80   |
| 58-233   |          | 7 prong connector plug (used on S-42184)              | .55   |
| 64-710   |          | Brass eyelet (used on S-48168)                        | .04   |
| 64-725   |          | Rivet (2 used on S-44814)                             | .03   |
| 76-923   |          | Release lever shaft                                   | .10   |
| 76-954   |          | Ant. pivot hsg. shaft                                 | .15   |
| 78-1101  |          | 3 contact socket (pt. of S-48171)                     | .20   |
| 80-1168  |          | Spring - rear door latch                              | .25   |
| 80-1176  |          | Selector knob spring (used on 46-1825)                | .10   |
| 80-1181  |          | Torsion spring (used on S-42206)                      | .15   |
| 80-1228  |          | Spring - handle                                       | .30   |
| 83-2489  |          | Rubber strip (3 used on 57-2371)                      | .03   |
| 83-2741  |          | Trim strip (used on 138-148)                          | .50   |
| 83-2742  |          | Support strip (1 used on ea. 57-2372 & 2373)          | .25   |
| 83-2785  |          | Rubber strip (2 used on S-42183)                      | .05   |
| 83-2865  |          | Spacer strip (5 used)                                 | .03   |
| 83-2930  |          | Retaining strip                                       | .03   |
| 86-299   |          | Terminal                                              | .03   |
| 86-310   |          | Terminal                                              | .05   |
| 86-323   |          | Spade terminal (used on S-42206)                      | .03   |
| 93-166   |          | Lockwasher (6 used)                                   | .03   |
| 93-565   |          | Steel washer (4 used on 57-2371)                      | .03   |
| 93-1289  |          | Fibre washer (pt. of S-48171)                         | .03   |
| 93-1301  |          | Felt washer (1 used with ea. 54-444)                  | .03   |
| 93-1324  |          | Steel washer                                          | .03   |
| 94-957   |          | Selector knob hub (used on 46-1825)                   | .75   |
| 94-985   |          | Spacer bushing (4 pt. of S-41850)                     | .05   |
| 110-348  |          | Vinyl material (2 used on end plates)                 | .30   |

# CABINET PARTS

Model Royal 1000 D

| PART NO. | DIA. NO. | DESCRIPTION                                                                | PRICE |
|----------|----------|----------------------------------------------------------------------------|-------|
| 110-349  |          | Vinyl material (cabinet support brkt.)                                     | 1.00  |
| 110-350  |          | Vinyl material - lower front door (pt. of S-42190)                         | .75   |
| 110-351  |          | Vinyl material - rear door (pt. of S-48168)                                | 1.30  |
| 110-352  |          | Vinyl material - inside top door (pt. of S-44814)                          | .55   |
| 112-535  |          | 6-20 x 3/8 Phils. pan hd. self tap screw (4 used)                          | .03   |
| 112-1113 |          | 4-40 x 7/32 Phils truss hd. mach. screw (4 used)                           | .03   |
| 112-1123 |          | 2-32 x 11/32 Fillister hd. self tap screw (3 used on S-43259)              | .03   |
| 112-1124 |          | 4-24 x 11/32 Fillister hd. self tap screw (4 used on S-43259)              | .03   |
| 112-1140 |          | 8-18 x 1/4 Phils rd. hd. self tap screw (4 mt. 57-2371)                    | .04   |
| 112-1150 |          | 4-40 x 1/4 Phils. rd. hd. mach. screw (2 used on S-42190)                  | .03   |
| 112-1156 |          | 4-24 x 1/4 Phils. flat hd. self tap screw (4 pt. of S-42190)               | .05   |
| 112-1190 |          | 5-20 x 3/16 Phils. pan hd. self tap screw (6 pt. of S-48168)               | .03   |
| 112-1205 |          | 2-56 x 3/16 slot pan hd. self tap screw (4 mt. S-42193 & pt. of S-42190)   | .03   |
| 112-1215 |          | 4-24 x 3/8 Phils. Fillister hd. self tap screw (5 used on 83-2741)         | .03   |
| 112-1225 |          | 4-40 x 3/16 Phils. hd. mach. screw (2 used on ea. S-41780 & 41850)         | .03   |
| 113-95   |          | 6-20 x 1/4 x 1/4 hex. hd. self tap screw lock washer att.                  | .05   |
| 114-87   |          | 8-18 x 1/2 x 1/4 hex. hd. self tap screw (2 used)                          | .03   |
| 114-572  |          | 4-24 x 3/16 x 3/16 hex. hd. self tap screw (1 used on ea. S-41778 & 41780) | .03   |
| 114-615  |          | 6-20 x 5/16 hex. hd. self tap screw (2 used on 57-2416)                    | .03   |
| 114-616  |          | 6-32 x 5/16 x 1/4 hex. hd. mach. screw (3 used on ea. 57-2372 & 2373)      | .03   |
| 114-620  |          | 6-32 x 5/16 x 1/4 hex. hd. mach. screw flatwasher att. (2 used)            | .03   |
| 117-206  |          | Handle release lever                                                       | 1.75  |
| 138-148  |          | Grille (used on S-41850)                                                   | 2.00  |
| 138-168  |          | Background grille                                                          | .60   |
| 152-266  |          | Handle support block                                                       | .30   |
| 166-97   |          | Plastic bumper (4 used on S-41850)                                         | .05   |
| 166-105  |          | Rubber bumper (5 used)                                                     | .03   |
| 166-106  |          | Bumper (2 used)                                                            | .03   |
| 188-177  |          | Knob clamping ring (used on 46-1809)                                       | .03   |
| 188-226  |          | Retaining ring (pt. of S-48168)                                            | .03   |
| 192-236  |          | Dial crystal                                                               | 5.00  |
| 196-302  |          | Trim plate gasket                                                          | .15   |
| 202-1299 |          | Shortwave program list                                                     | .15   |
| 202-1342 |          | Specifications book                                                        |       |
| 202-1353 |          | Instruction book                                                           | .60   |
| 202-1357 |          | Shortwave chart book                                                       | 2.50  |
| 202-1586 |          | Service notes                                                              |       |
| S-41778  |          | Spring & stud assem. - R.H. (used on 57-2373)                              | .30   |
| S-41780  |          | Spring & stud assem. - L.H. (used on 57-2372)                              | .30   |
| S-41850  |          | Cabinet support bracket                                                    | 5.00  |
| S-42183  |          | Wavemagnet mtg. strip & latch spring assem. (used with S-42184)            | .75   |
| S-42184  |          | WAVEMAGNET                                                                 | 3.50  |
| S-42190  |          | Lower door                                                                 |       |
| S-42193  |          | Log chart ret. plate & compass disc assem. (pt. of S-42190)                | 4.50  |
| S-42206  |          | Ant. pivot hsg., sleeve & shaft assem. (used with S-42207)                 | 2.50  |
| S-42207  |          | Telescopic antenna                                                         | 5.50  |
| S-42212  |          | WAVEMAGNET (mobile)                                                        | 7.50  |
|          |          | 22-2983 trimmer (used on S-42297)                                          | .35   |
|          |          | 83-2785 Rubber strip (2 used)                                              | .05   |
|          |          | 93-1289 Fibre washer (pt. of S-42298)                                      | .03   |
|          |          | 112-850 6-20 x 3/8 Phils. pan hd. Screw (2 used)                           | .05   |
|          |          | S-42297 WAVEMAGNET winding                                                 | 3.00  |
|          |          | S-42298 cable plug                                                         | 1.75  |
|          |          | S-42329 cover & suction cup assem.                                         | 1.25  |
|          |          | S-42330 housing & stud assem.                                              | 1.00  |
| S-43259  |          | Handle & pin assem.                                                        | 1.00  |
| S-43325  |          | Support brkt., trim & vinyl assem.                                         | 8.50  |
| S-44814  |          | Top door, trim strip & vinyl assem.                                        | 6.50  |
| S-48168  |          | Rear door & bushing assem.                                                 |       |
| S-48171  |          | Battery housing, contact & wire assem.                                     |       |

All prices shown are suggested retail prices which include Federal Manufacturers' Excise Tax where applicable and are subject to change without notice.



# NOTES:

- ALL RESISTORS  $\pm 20\%$  TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
- RADIO PHONO SWITCH SHOWN IN RADIO POSITION.
- RESISTANCE VALUES IN OHMS. CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
- ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
- D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A A.C.-D.C. OR VACUUM TUBE VOLT-METER.
- NUMBERS IN TRIANGLES INDICATE VOLTAGE TEST POINTS AND REFER TO NUMBERS IN TRIANGLES ON 123-1675 TRANSISTOR AND TRIMMER LAYOUT
- NO SIGNAL CURRENT DRAIN IS 14.5 MA.
- USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT. IF ANY OTHER TYPE OF ELECTROLYTIC IS USED, IT WILL BE NECESSARY TO ADD C46 SHOWN IN DOTTED LINES.

DENOTES CHASSIS  $\perp$

**Zenith Radio Corporation**

4001 Dickens Ave Chicago 39 Ill

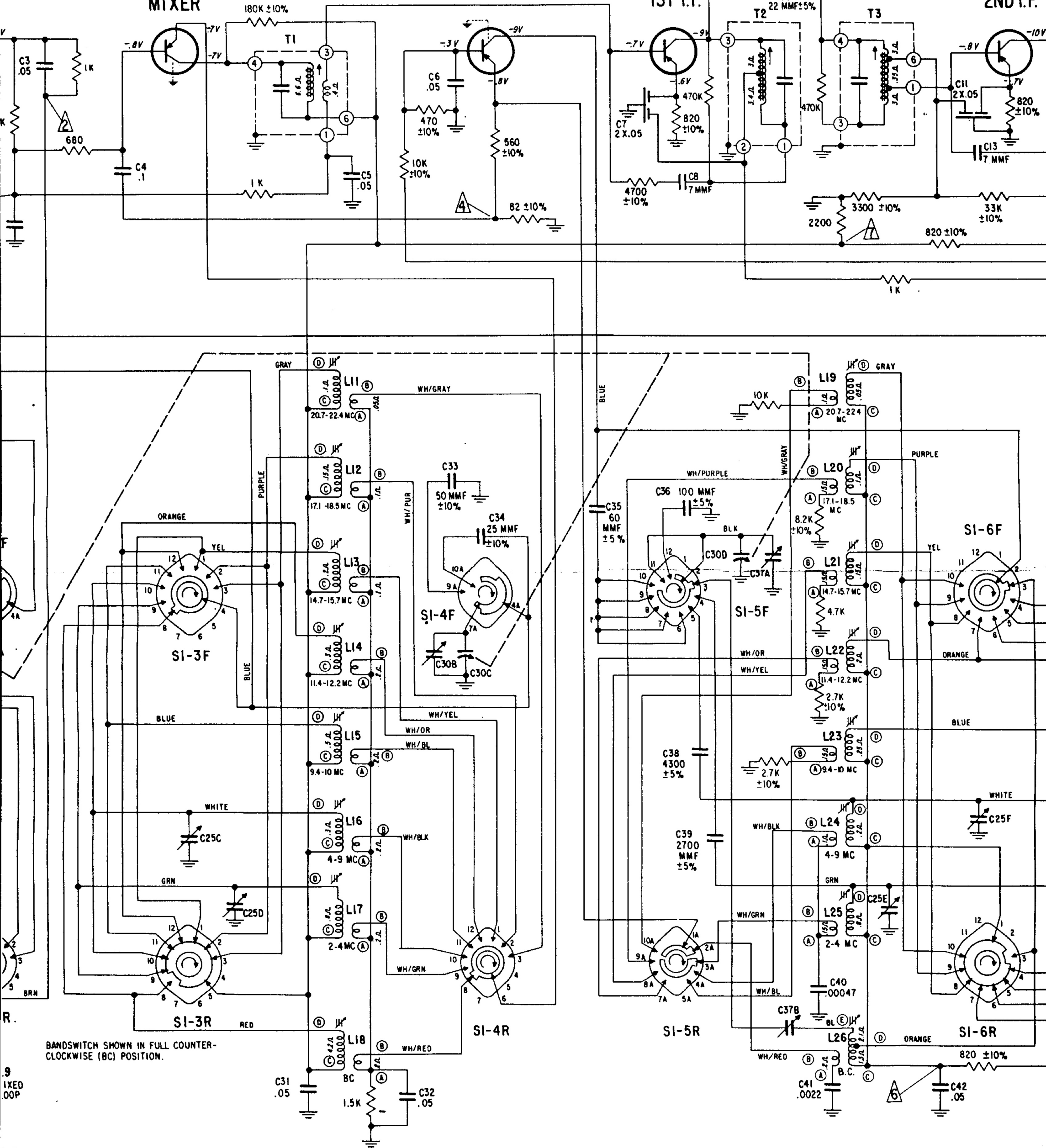
Printed in U.S.A.

# 121-49 MIXER

# 121-48 OSC.

# 121-73 1ST I.F.

# 121-74 2ND I.F.

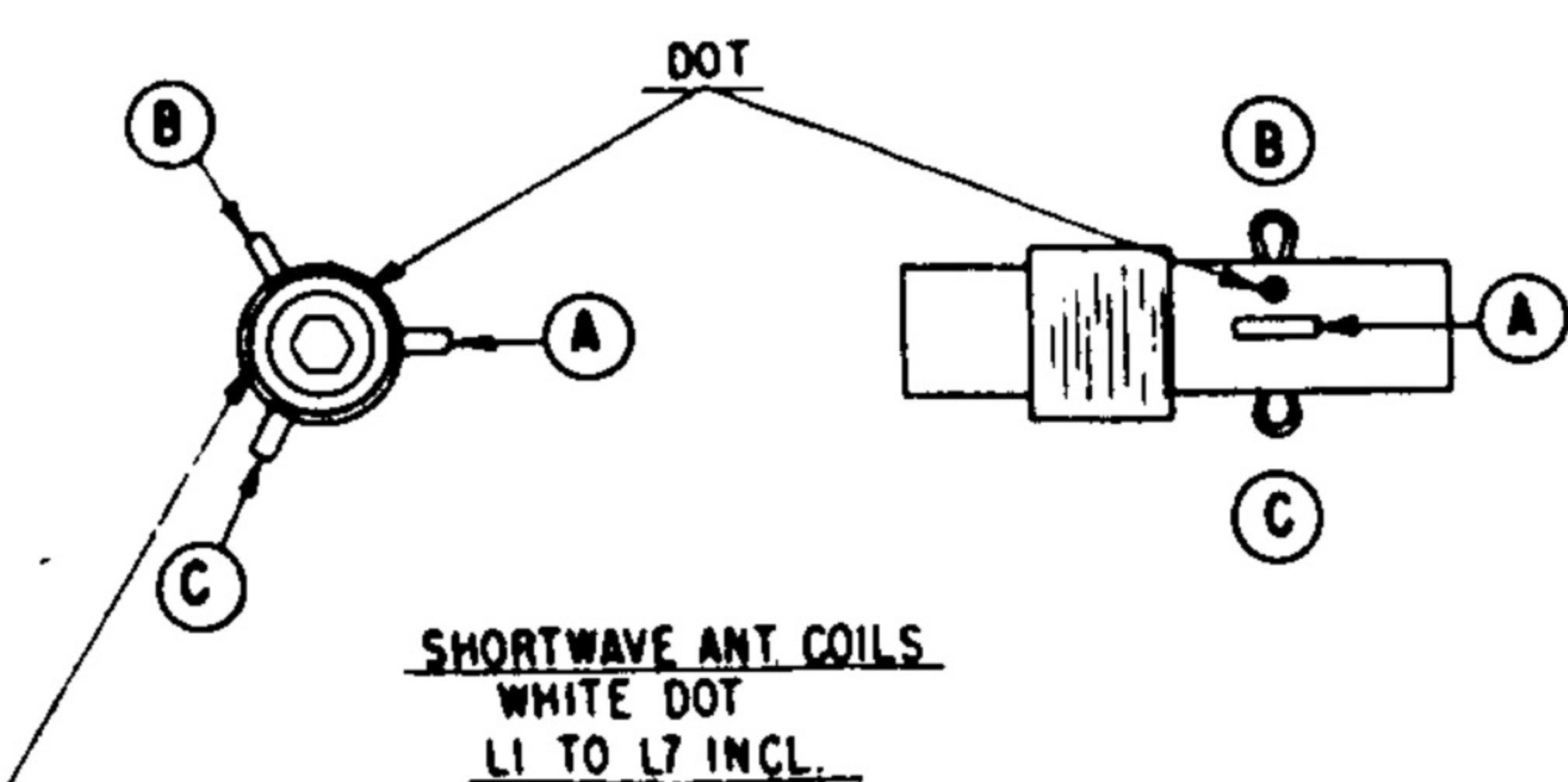
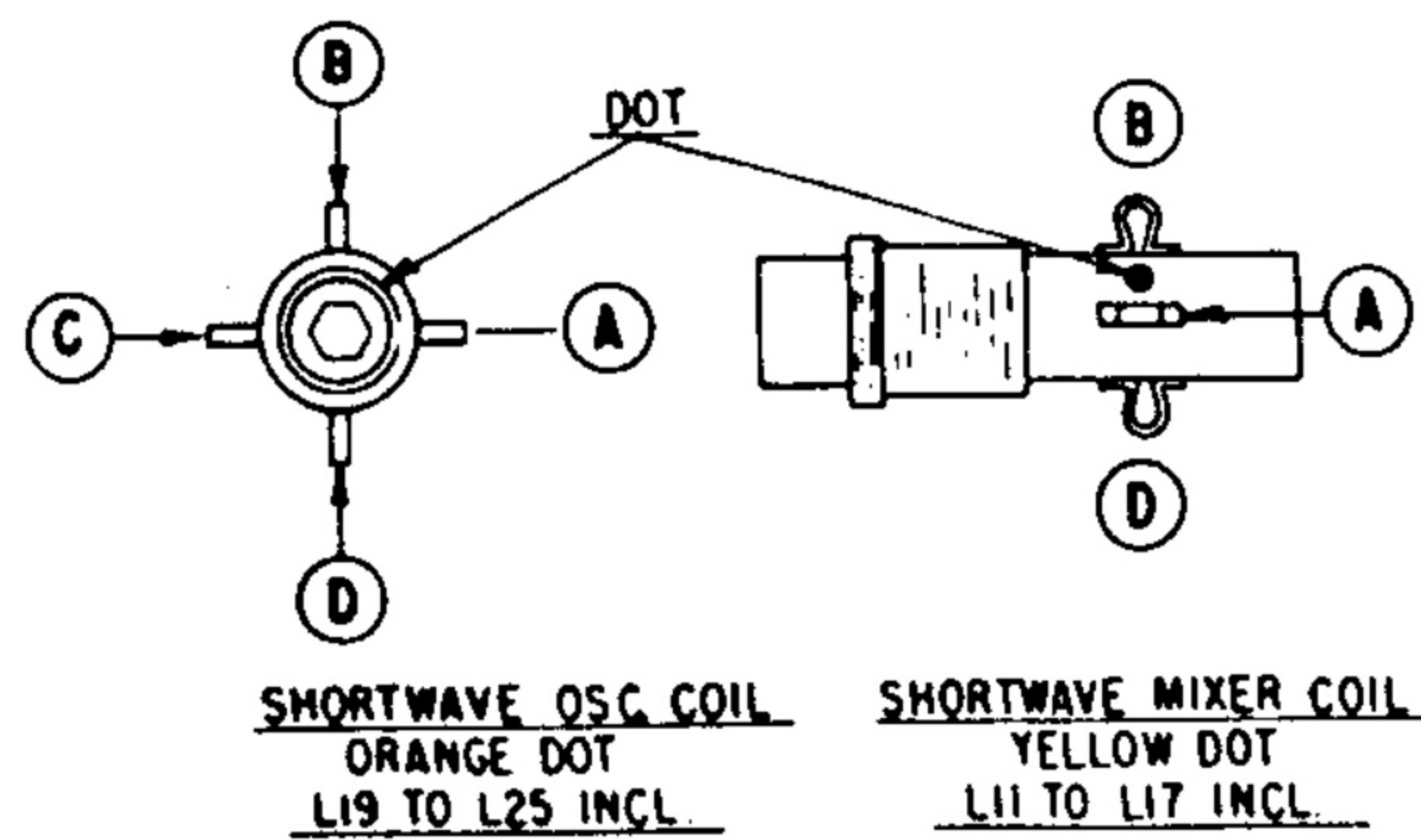
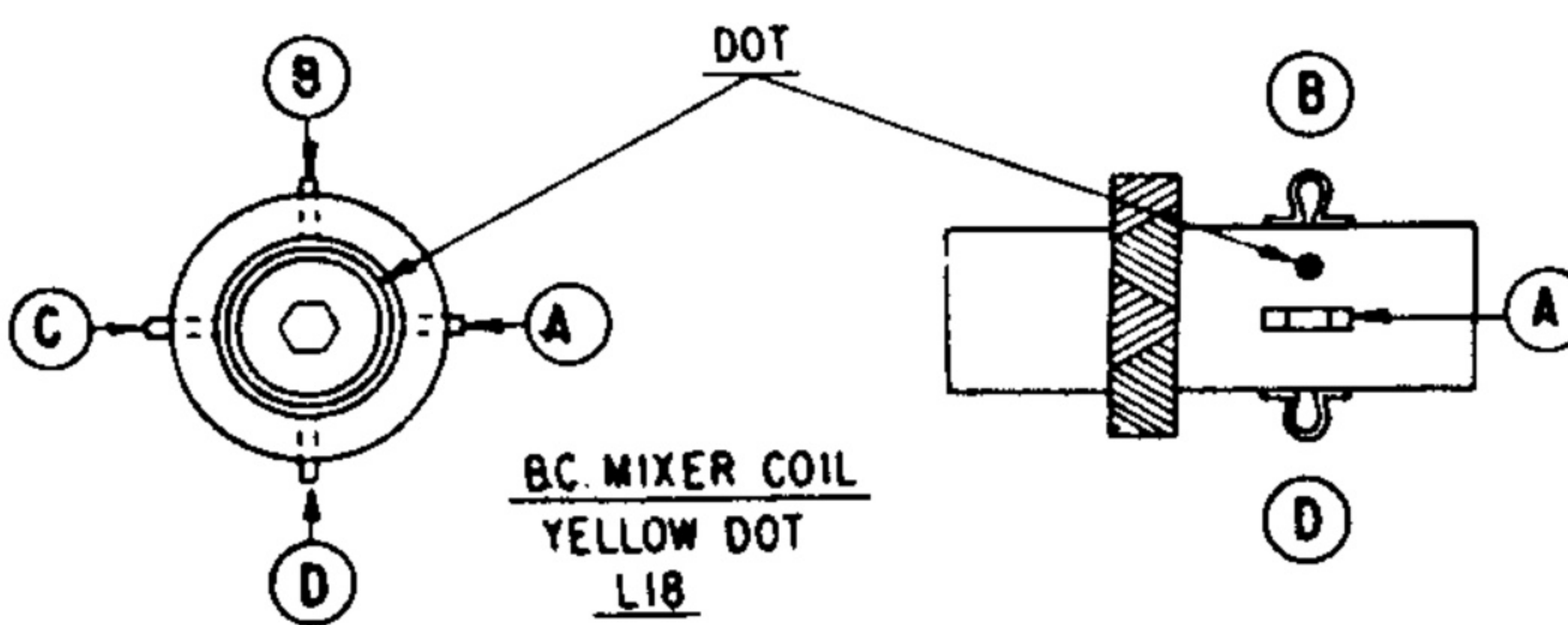
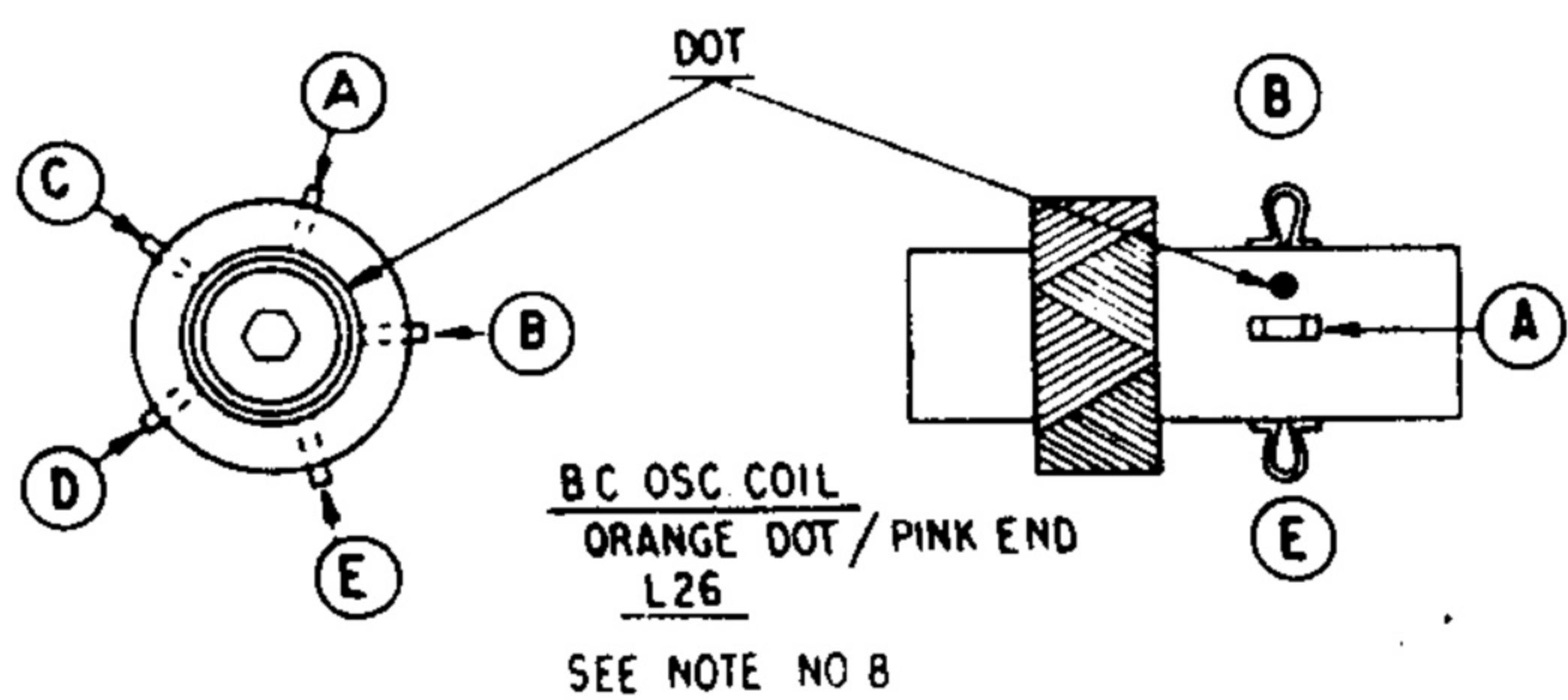
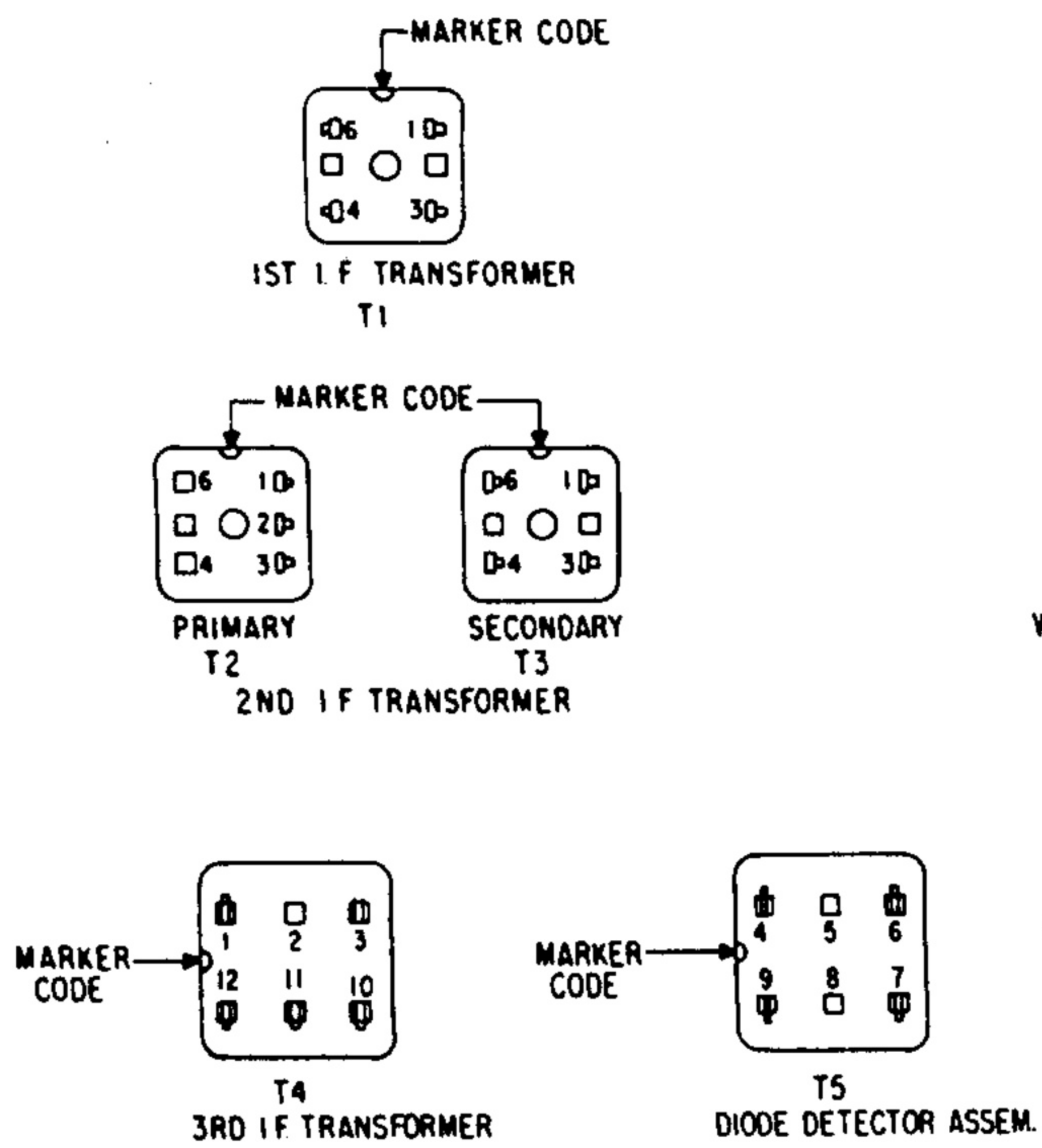


R.

9  
FIXED  
LOOP

10  
C27  
EXTENDED  
LOOP

121-44  
R.F.



TOP COLOR DEMOTES FREQUENCY

|                          |                     |
|--------------------------|---------------------|
| GRAY - 20.7 TO 22.4 MC   | BLUE - 9.4 TO 10 MC |
| VIOLET - 17.1 TO 18.5 MC | WHITE - 4-9 MC      |
| YELLOW - 14.7 TO 15.7 MC | GREEN - 2-4 MC      |
| ORANGE - 11.4 TO 12.2 MC | RED - BROADCAST     |

E1  
WAVE ROD

