

the hallicrafters co.

SERVICE BULLETIN FOR MODEL SX-43

GENERAL

Tubes Ten plus rectifier
 Speaker Output 500/5000 Ohms.
 Headset Output Low impedance.
 Antenna Input For 72 to 600-ohm line or
 single wire lead-in.
 Phono Input High impedance.
 External Power Connector. Std. octal socket.
 Tuning Range. Band 1. 540 kc - 1700 kc. AM.
 2. 1.7 mc - 5 mc. AM.
 3. 5 mc - 16 mc. AM.
 3A. 14 mc - 14.4 mc. AM.
 4. 15.5 mc - 44 mc. AM.
 5. 44 mc - 55 mc. AM/FM
 6. 86 mc - 109 mc. FM

Intermediate Frequency. . 455 kc/10.7 mc.
 Power Supply. 105-125 V. 50/60 cycles AC.
 Power Consumption 90 Watts.



92X721

CARRIER LEVEL METER ADJUSTMENT

1. Connect a jumper between the two antenna terminals and ground.
2. Set front panel controls as follows:
 - SENSITIVITY - Maximum.
 - RECEPTION - AM/AVC.
 - SELECTIVITY - NORMAL/SHARP.
 - BAND SELECTOR - 4.
 - VOLUME - Maximum. (No signal should be heard.)
3. Set "S" METER ADJ. (See Fig. 3.) on rear chassis apron for zero on the CARRIER LEVEL meter.

POSITIONING CONTROL KNOBS

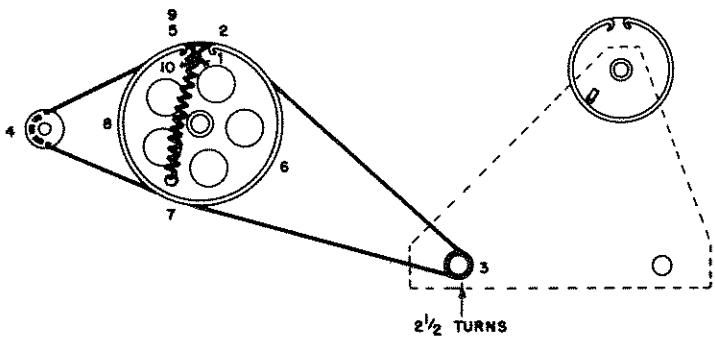
- BAND SELECTOR - As required by markings.
- RECEPTION - As required by markings.
- SELECTIVITY - As required by markings.
- SENSITIVITY - Zero at full counter clockwise rotation.
- VOLUME - Zero at full counter clockwise rotation.
- CW PITCH - See alignment chart.
- CRYSTAL PHASING - Zero with plates half meshed.

RESTRINGING DIAL CORD

Two separate dial drive mechanisms are used: one for the general coverage dial and one for the band spread dial. The stringing sequence for each is shown in Figs. 1. and 2. by a series of numbers and letters. Use 30 lb. test dial cord. Approximately 51 inches of cord will be required for the bandspread dial drive and about 26 inches for the general coverage dial drive. Note that the cording procedure for the bandspread dial starts with a knotted loop at the driving pulley and is threaded to the driven-pulley via two routes, one numbered 1-9 (approximately 24 inches long) and the other lettered A to I (approximately 27 inches long). In production the short, numbered route, string is threaded through first on the bandspread drive.

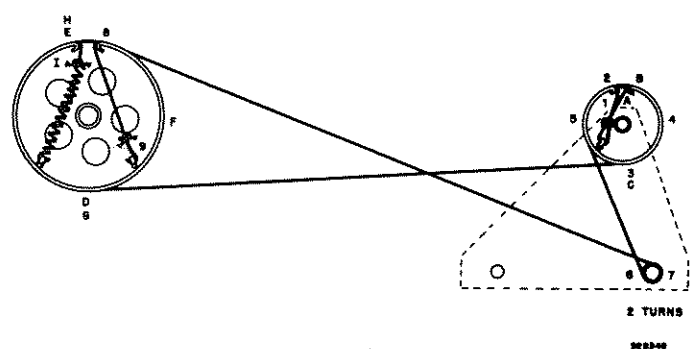
REPLACING LAMPS

The two dial lamps and meter lamp are accessible through the hinged cabinet cover. Remove two screws holding the metal light shield to expose the dial lamps. Replace these with 6-8 V. 250 MA. GE. #44 (Blue bead) or equivalent. The carrier level meter lamp is made accessible by removing the four screws holding the protective cover located directly behind the meter. Replace this lamp with a 6-8 V. 150 MA. GE. #47 (Brown bead) or equivalent. Do not use a 250 MA. lamp in the meter housing as the excessive heat will discolor the meter scale.



92B348

Fig. 1. Dial cable stringing, general coverage dial



92B349

Fig. 2. Dial cable stringing, band spread dial.

ALIGNMENT PROCEDURE

It will be necessary to remove the receiver chassis from the cabinet to make alignment adjustments on the i-f stages. The r-f stages receive final alignment through the holes in the bottom of the cabinet to compensate for the close proximity of the cabinet to the r-f coils. The chassis is held in the cabinet by seven screws along the edge of the flange of the front panel and by three screws through the bottom of the cabinet along the rear edge.

The standard RMA dummy antenna specified in the alignment chart consists of a 200 mmf condenser in

series with a 20 uh r-f choke which is shunted by a 400 mmf condenser in series with a 400 ohm carbon resistor.

The following control settings are to be set before alignment:

| | |
|------------------|-----------------------|
| TONE Switch | - HIGH |
| STANDBY-RECEIVE | - RECEIVE |
| NOISE LIMITER | - OFF |
| VOLUME | - Max. gain |
| SENSITIVITY | - Max. sensitivity |
| Band Spread Dial | - High frequency stop |

ALIGNMENT CHART

| Step | Dummy Antenna | Signal Generator Coupling | Signal Generator Frequency | Receiver Control Settings | Receiver Dial Setting | Adjust | Remarks |
|------|---|--|----------------------------|--|--|----------------------------------|---|
| 1 | None | Connect to center section (rear stator plates) of low capacity gang. | 10.7 mc (No modulation) | BAND SEL.-5 REC. sw.-FM | General coverage dial at mid-scale | S1,S2, S3,S4, S5,S6, S7 | Adjust for max. D.C. voltage as measured between pin #7 of the 6AL5 and ground with a V.T. voltmeter. |
| 2 | None | See step 1. | 10.7 mc (No modulation) | See Step 1 | See step 1. | S8 | Adjust for zero D.C. voltage as measured between junction of R-50 and C-83 and ground with a V.T. voltmeter. |
| 3 | None | See step 1. | 455 kc ** | BAND SEL.-4 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | See step 1. | S9,S10, S12,S13, S14 | Adjust for max. audio output. |
| 4 | None | See step 1. | 455 kc ** | BAND SEL.-4 REC. sw.-AM-MVC SEL. sw.-CRYSTAL-BROAD | See step 1. | S11 | Adjust for max. audio output. |
| 5 | None | See step 1. | 455 kc ** | BAND SEL.-4 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | See step 1. | A | Adjust for max. audio output. |
| 6 | None | See step 1. | 455 kc ** (No modulation) | BAND SEL.-4 REC. sw.-CW SEL. sw.-NORMAL-SHARP | See step 1. | CW PITCH control. | Remove CW PITCH control knob and set shaft for zero beat. Replace knob with zero at index line. |
| 7 | Repeat steps 1 & 2 for possible detuning during adjustments in steps 3, 4, and 5. | | | | | | |
| 8E | None | See step 1. | 10.7 mc | BAND SEL.-5 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | See step 1. | S15* | Tune slug S15 to high freq. side of 10.7 mc (11.155 mc). Tune for max. audio output. |
| 9 | Std. RMA dummy | To terminals A1 and A2 with jumper between A2 and GND. | 1500 kc 600 kc | BAND SEL.-1 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | 1500 kc 600 kc | B*, C, D E* | Adjust for max. audio output. |
| 10 | Std. RMA dummy | See step 9. | 4.5 mc 2 mc | BAND SEL.-2 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | 4.5 mc 2 mc | F*, G, H S16* | Adjust for max. audio output. |
| 11 | 330-ohm carbon res. | See step 9. | 14 mc *** 6 mc *** | BAND SEL.-3 REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | 14 mc 6 mc | I*, J, K S17*, S18 S19 | Adjust for max. audio output. |
| 12 | 330-ohm carbon res. | See step 9. | 14 mc | BAND SEL.-3A REC. sw.-AM-MVC SEL. sw.-NORMAL-SHARP | M.T. dial at 20M. band line B.S. dial at 14 mc | L* | Adjust for calibration. Check band spread calibration and reset trimmer L if necessary. Increase trimmer cap. to decrease bandspread etc. |

* Note - Calibration adjustment.

** Note - Set generator frequency to exact crystal freq. as follows: Turn on BFO and set CW PITCH for approx. 1000 cycles with signal generator set at approx. 455 kc. Set SELECTIVITY control at CRYSTAL-SHARP and tune signal generator for weakest of two response frequencies on either side of zero beat: adjust CRYSTAL PHASING control for complete null; retune signal generator for maximum output on opposite side of zero beat for the exact IF alignment frequency.

*** Note - Rock signal generator when making adjustments.

Note - Step 8. adjusts the 11.155 mc oscillator for the dual conversion channel required for AM reception on band 5. After aligning band 5 in step 15, tune to approx. 44.6 mc and pick up fourth harmonic of the oscillator. If the oscillator harmonic falls at approx. 51.3 mcs, the oscillator is oscillating at the low frequency side or image frequency and must be readjusted.

ALIGNMENT CHART —Continued

| Step | Dummy Antenna | Signal Generator Coupling | Signal Generator Frequency | Receiver Control Settings | Receiver Dial Setting | Adjust | Remarks |
|------|---------------------|---------------------------|----------------------------|--|--|----------------|---|
| 13 | 330-ohm carbon res. | See step 9. | 14.2 mc *** | BAND SEL.—3A REC. sw.—AM-MVC SEL. sw.—NORMAL—SHARP | M.T. dial at 20 M. band index line. B.S. dial at 14.2 mc. | M, N | Adjust for max. audio output. |
| 14 | 330-ohm carbon res. | See step 9 | 36 mc *** | BAND SEL.—4 REC. sw.—AM-MVC SEL. sw.—NORMAL—SHARP | 36 mc | O*, P, Q | Adjust for max. audio output. Osc. falls on low freq. side of signal. |
| | | | 18 mc *** | | 18 mc | S20*, S21, S22 | |
| 15 | 330-ohm carbon res. | See step 9 | 54 mc *** | BAND SEL.—5 REC. sw.—AM-MVC SEL. sw.—NORMAL—SHARP | 54 mc | R*, S, T | Adjust for max. audio output |
| | | | 46 mc *** | | 46 mc | S23*, S24, S25 | |
| 16 | 330-ohm carbon res. | See step 9 | 106 mc *** | BAND SEL.—6 REC. sw.—AM-MVC SEL. sw.—NORMAL—SHARP | 106 mc | U*, V, W, | See step 1. |
| | | | 89 mc *** | | 89 mc | S26*, S27, S28 | |

For footnotes — see previous page.

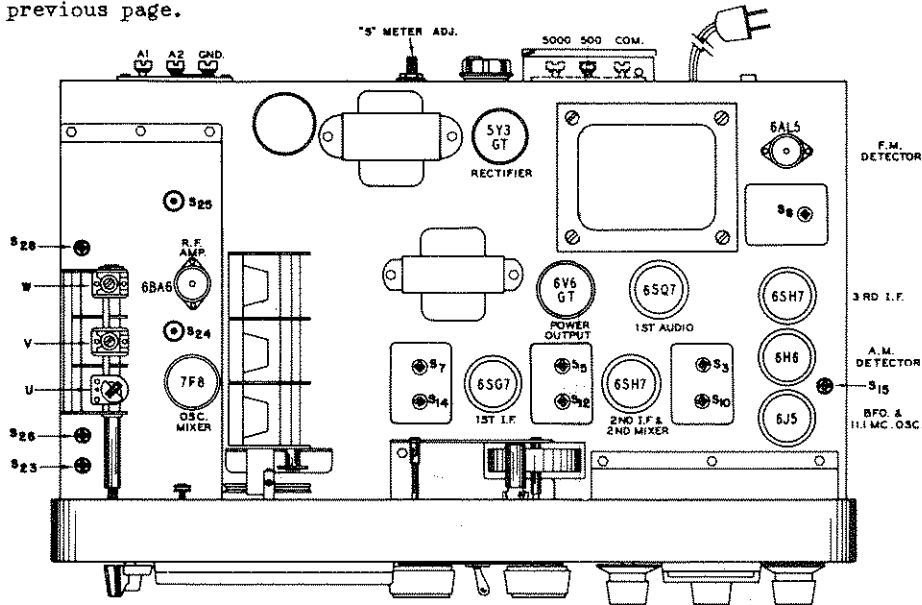


Fig. 3. Alignment adjustments, top view.

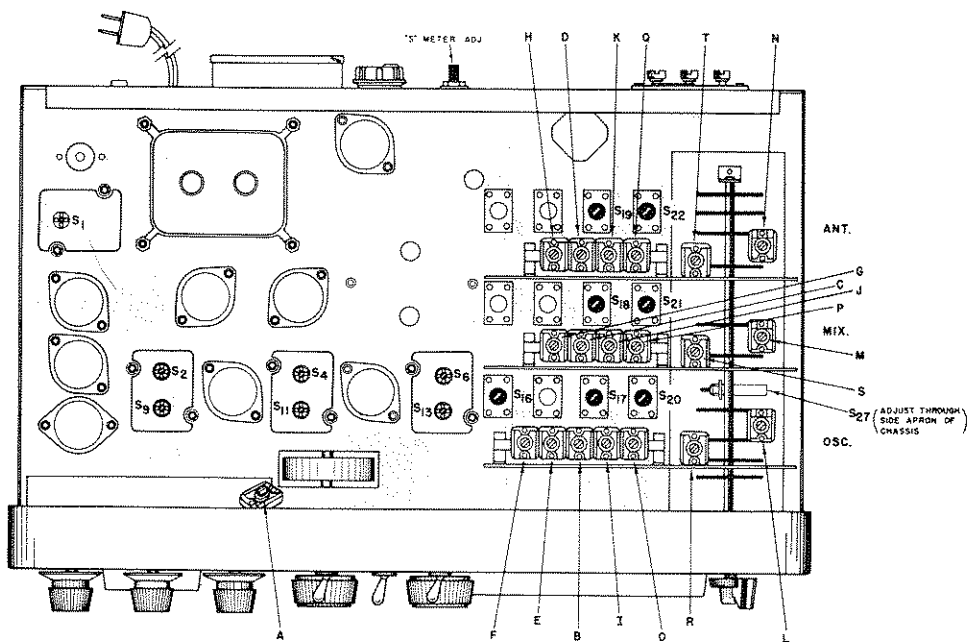


Fig. 4. Alignment adjustments, bottom view.

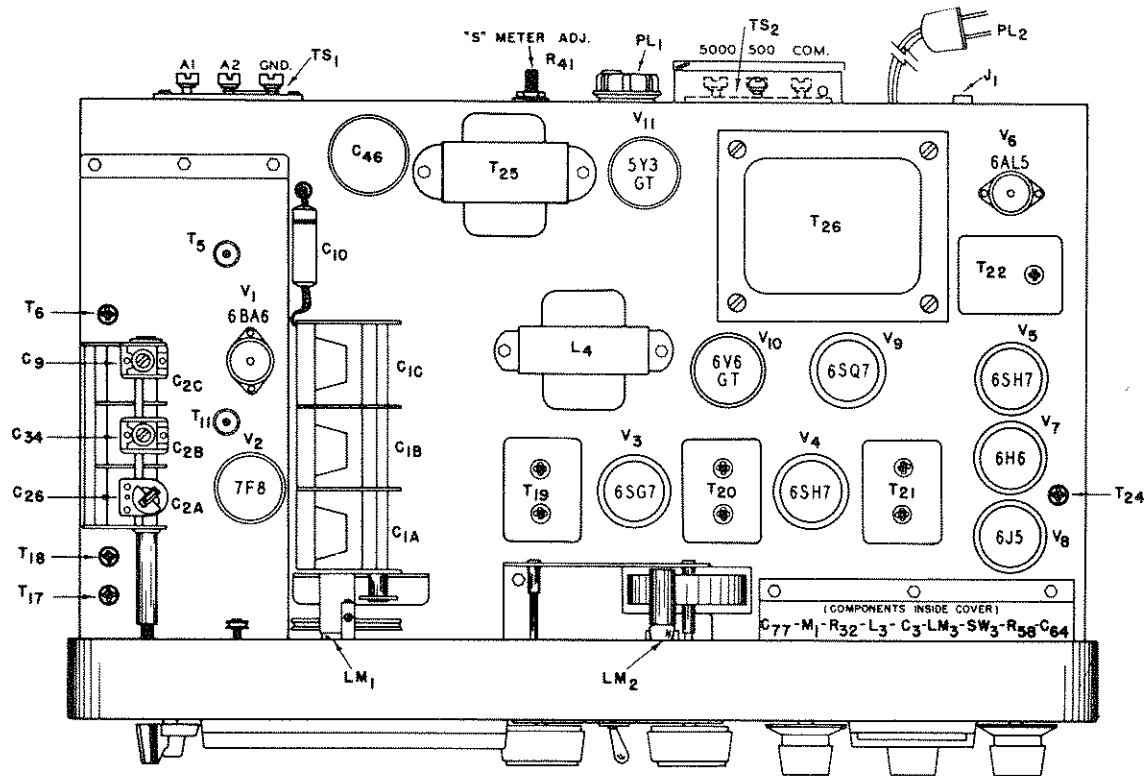


Fig. 5. Component location, top view.

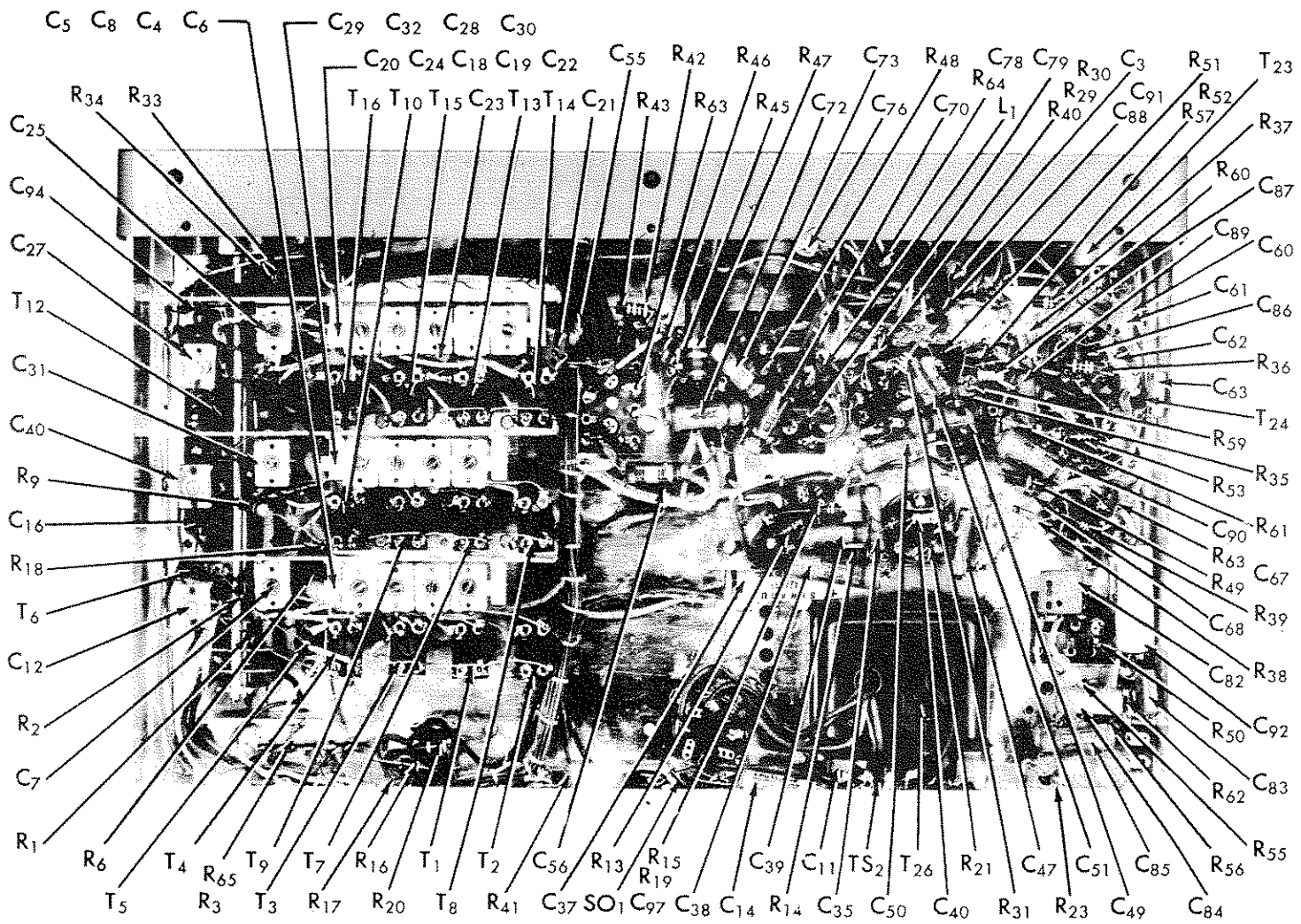


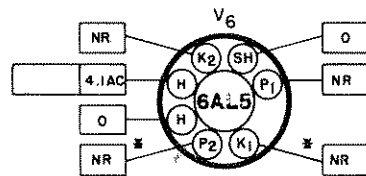
Fig. 6. Component location, bottom view.

SERVICE PARTS LIST

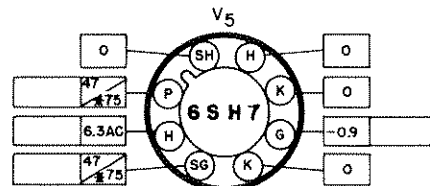
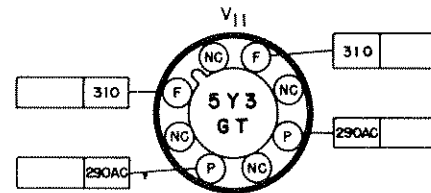
SERVICE PARTS LIST (Continued)

| REF. NO. | DESCRIPTION | HALLICRAFTER'S PART NUMBER |
|------------------------------|---|----------------------------|
| CAPACITORS | | |
| C-1 | Capacitor, general coverage | 48C174 |
| C-2 | Capacitor, band spread | 48C173 |
| C-3, 39, 48, 89 | .02 mfd 400 V., tubular paper | 46AW203J |
| C-4, 5, 6, 8, 28, 29, 30, 32 | Capacitor, trimmer strip assy. | 44B199 |
| C-7, 25, 31 | Capacitor, trimmer, 4-50 mmf | 44A200 |
| C-9, 12, 27, 34, 96, 76, 96 | Capacitor, trimmer, 2-30 mmf | 44A047 |
| C-10 | .05 mfd 200 V., tubular paper | 46A091 |
| C-11 | .01 mfd 600 V., molded paper | 46AC103J |
| C-13, 44, 62 | .01 mfd 350 V., ceramic | 47A167 |
| C-14 | .1 mfd 200 V., tubular paper | 46AU104J |
| C-15, 16, 52 | 1500 mmf 350 V., ceramic | 47A161 |
| C-17, 33 | 25 mmf 500 V., ceramic | 47A141 |
| C-18, 19, 20, 22, 24 | Capacitor, trimmer strip assy. | 44B197 |
| C-21 | 1500 mmf 500 V., mica | CM30A152J |
| C-23 | 3900 mmf 500 V., mica | CM35A392J |
| C-26 | Capacitor, trimmer, 4-20 mmf | 44A115 |
| C-35, 93 | .005 mfd 600 V., tubular paper | 46AY502J |
| C-36 | .02 mfd 600 V., tubular paper | 46AY203J |
| C-37 | 10 mfd 25 V., electrolytic | 42A033 |
| C-38 | .05 mfd 600 V., tubular paper | 46AY503J |
| C-40, 45, 61, 87, 88, 97 | 100 mmf 500 V., ceramic | CC25UK101K |
| C-41 | Capacitor, T.C. | 44A158 |
| C-42 | 220 mmf 500 V., mica | CM20B221K |
| C-43 | 51 mmf 500 V., ceramic | CC20UK510K |
| C-46 | 60-20-20 mfd 450 V., electrolytic | 45B113 |
| C-47, 67, 91, 95 | .005 mfd 450 V., ceramic | 47A168 |
| C-49, 51, 55, 56, 64, 70, 73 | .01 mfd 600 V., tubular paper | 46AZ103J |
| C-50, 72, 84, 85, 90 | .05 mfd 200 V., tubular paper | 46AU503J |
| C-53, 79 | 22 mmf 500 V., mica | CM20A220K |
| C-60 | 470 mmf 500 V., mica | CM20A471J |
| C-63 | 270 mmf 500 V., mica | CM20A271J |
| C-68 | 220 mmf 500 V., mica | CM20A221K |
| C-77 | Capacitor, variable, CRYSTAL PHASING | 48A182 |
| C-78 | 7 mmf 500 V., ceramic | CC20UK070K |
| C-80 | 820 mmf 500 V., mica | CM25A821K |
| C-82, 83 | 1000 mmf 500 V., mica | CM20A102K |
| C-86 | 2.2 mmf 500 V., ceramic | 47A160-4 |
| C-92 | .25 mfd 400 V., tubular paper | 46AV254J |
| C-94 | 15 mmf 500 V., ceramic | CC20UK150K |
| RESISTORS | | |
| R-1, 10 | 47 ohms 1/2 watt, carbon | RC20AE470K |
| R-2 | 27 ohms 1/2 watt, carbon | RC20AE270K |
| R-3, 38, 54, 59, 61 | 1 meg-ohm 1/2 watt, carbon | RC20AE105K |
| R-4, 9 | 6 ohms 1/2 watt, carbon | 23A011 |
| R-5 | 68 ohms 1/2 watt, carbon | RC20AE680K |
| R-6, 47 | 15,000 ohms 2 watts, carbon | RC40AE153K |
| R-7, 46 | 27,000 ohms 1 watt, carbon | RC30AE273K |
| R-8 | 33 ohms 1/2 watt, carbon | RC20AE330K |
| R-11, 16 | 1000 ohms 1 watt, carbon | RC30AE102K |
| R-12 | 100 ohms 1 watt, carbon | RC30AE101M |
| R-13, 23 | 470,000 ohms 1/2 watt, carbon | RC20AE474K |
| R-14, 31 | 33,000 ohms 1 watt, carbon | RC30AE333K |
| R-15 | 270 ohms 1 watt, carbon | RC30AE271K |
| R-17, 26, 34 | 1000 ohms 1/2 watt, carbon | RC20AE102K |
| R-18, 29, 58 | 150 ohms 1/2 watt, carbon | RC20AE151K |
| R-19, 39 | 220,000 ohms 1/2 watt, carbon | RC20AE224K |
| R-20 | 4700 ohms 1 watt, carbon | RC30AE472K |
| R-21 | 15 megohms 1/2 watt, carbon | RC20AE156K |
| R-22 | Resistor, variable, VOLUME control | 25B601 |
| R-24 | 15 ohms 1/2 watt, carbon | RC20AE150K |
| R-25, 42 | 22,000 ohms 1/2 watt, carbon | RC20AE223K |
| R-27 | 10,000 ohms 1 watt, carbon | RC30AE103K |
| R-28, 52 | 2.2 megohms 1/2 watt, carbon | RC20AE225K |
| R-29, 58, 62 | 150 ohms 1/2 watt, carbon | RC20AE151K |
| R-30 | 680 ohms 1/2 watt, carbon | RC20AE681K |
| R-32 | Resistor, variable, SENSITIVITY control | 25B577 |
| R-33 | 10 ohms 1/2 watt, carbon | RC20AE100K |
| R-35, 48 | 3300 ohms 1/2 watt, carbon | RC20AE332K |
| R-36 | 47,000 ohms 1/2 watt, carbon | RC20AE473K |
| R-37 | 15,000 ohms 1 watt, carbon | RC30AE153K |
| R-40, 45 | 82 ohms 1/2 watt, carbon | RC20AE820K |
| R-41 | Resistor, variable, "S" meter control | 25C022 |
| R-43 | 47,000 ohms 1 watt, carbon | RC30AE473K |
| R-49 | 100,000 ohms 1 watt, carbon | RC30AE104K |
| R-50, 51, 55, 56 | 100,000 ohms 1/2 watt, carbon | RC20AE104K |
| R-53, 65 | 6.8 megohms 1/2 watt, carbon | RC20AE685M |
| R-57 | 82,000 ohms 1/2 watt, carbon | RC20AE823K |
| R-60 | 250,000 ohms 1/2 watt, carbon | RC20AE254K |
| R-62, 63 | 6.8 Ohms 1 watt, carbon | RC30AE068K |
| R-64 | 680,000 ohms 1/2 watt, carbon | RC20AE684M |

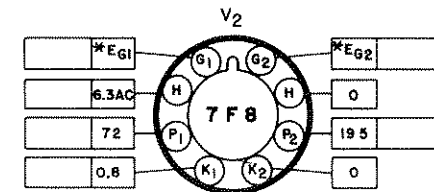
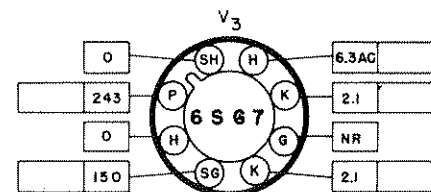
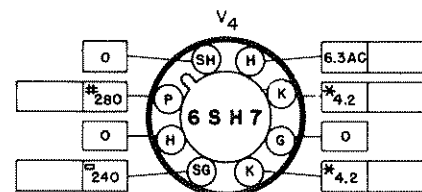
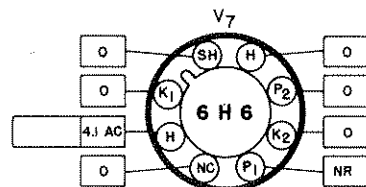
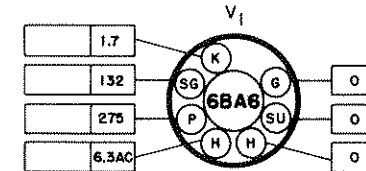
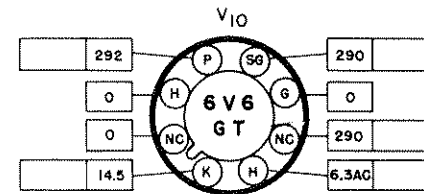
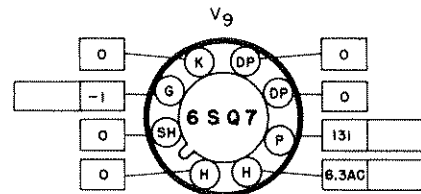
| REF. NO. | DESCRIPTION | HALLICRAFTER'S PART NUMBER |
|--|--|----------------------------|
| COILS AND TRANSFORMERS | | |
| L-1 | R-F choke, special | 53A108 |
| L-2 | R-F choke, special | 53B009 |
| L-3 | R-F choke, 540 uh | 53A107 |
| L-4 | Filter choke, 11 h. 75 ma. | 56B067 |
| T-1 | Transformer, antenna, band 1 | 51B928 |
| T-2 | Transformer, antenna, band 2 | 51B927 |
| T-3 | Transformer, antenna, band 3 | 51B926 |
| T-4 | Transformer, antenna, band 4 | 51B925 |
| T-5 | Transformer, antenna, band 5 | 51B924 |
| T-6 | Transformer, antenna, band 6 | 51B923 |
| T-7 | Transformer, mixer, band 1 | 51B934 |
| T-8 | Transformer, mixer, band 2 | 51B933 |
| T-9 | Transformer, mixer, band 3 | 51B932 |
| T-10 | Transformer, mixer, band 4 | 51B931 |
| T-11 | Transformer, mixer, band 5 | 51B930 |
| T-12 | Transformer, mixer, band 6 | 51B929 |
| T-13 | Transformer, oscillator, band 1 | 51B939 |
| T-14 | Transformer, oscillator, band 2 | 51B938 |
| T-15 | Transformer, oscillator, band 3 | 51B937 |
| T-16 | Transformer, oscillator, band 4 | 51B936 |
| T-17 | Transformer, oscillator, band 5 | 51B935 |
| T-18 | Transformer, oscillator, band 6 | 51B941 |
| T-19 | Transformer, 1st I-F | 50C212 |
| T-20 | Transformer, 2nd I-F | 50C213 |
| T-21 | Transformer, 3rd I-F | 50C214 |
| T-22 | Transformer, F-M detector | 50C208 |
| T-23 | Transformer, B.F.O. | 54B033-1 |
| T-24 | Transformer, oscillator, 11 mc. | 51B984 |
| T-25 | Transformer, output | 55B095 |
| T-26 | Transformer, power, 105-125V. 60 cycles | 52C143 |
| T-26* | Transformer, power 115/130/150/220/250 V. 25/60 cycles | 52C142 |
| * Note — Used on special universal model only. | | |
| TUBES AND LAMPS | | |
| V-1 | Tube, type 6BA6 | 90X6BA6 |
| V-2 | Tube, type 7F8 | 90X7F8 |
| V-3 | Tube, type 6SG7 | 90X6SG7 |
| V-4, 5 | Tube, type 6SH7 | 90X6SH7 |
| V-6 | Tube, type 6AL5 | 90X6AL5 |
| V-7 | Tube, type 6H6 | 90X6H6 |
| V-8 | Tube, type 6J5 | 90X6J5 |
| V-9 | Tube, type 6SQ7 | 90X6SQ7 |
| V-10 | Tube, type 6V6GT | 90X6V6GT |
| V-11 | Tube, type 5Y3GT/G | 90X5Y3GT |
| LM-1, 2 | Lamp, dial illumination, 6-8 V. 250 ma. G.E. #44 | 39A003 |
| LM-3 | Lamp, meter illumination, 6-8 V. 150 ma. G.E. #47 | 39A004 |
| SWITCHES | | |
| SW-1 | Switch assembly, BAND SELECTOR | 60C261 |
| SW-2 | Switch assembly, SELECTIVITY | 60B263 |
| SW-3 | Switch assembly, RECEPTION | 60B262 |
| SW-4, 5, 6 | Switch, toggle, SPST | 60A138 |
| SW-7 | Switch, power, part of R-22 | |
| PLUGS AND SOCKETS | | |
| PL-1 | Plug, octal, jumpers for a-c operation | 35A003 |
| PL-2 | Plug and cord assy, a-c power | 87A078 |
| J-1 | Jack, phono input | 36A029 |
| J-2 | Jack, headphones | 36A036 |
| | Socket, octal (Tube & SO-1) | 6A035 |
| | Socket, miniature, tube | 6A193 |
| | Socket, octal, tube | 6A223 |
| | Socket, pilot lamp, dial | 86B050 |
| | Socket, pilot lamp, meter | 6A262 |
| MISCELLANEOUS COMPONENTS | | |
| M-1 | Meter, carrier level | 82B125 |
| | Knob, TUNING and BANDSPREAD | 15A048 |
| | Knob, CW PITCH | 15A089 |
| | Knob, BAND SELECTOR | 15B088-1 |
| | Knob, RECEPTION | 15A094 |
| | Knob, SELECTIVITY | 15A095 |
| | Knob, VOLUME and SENSITIVITY | 15A097 |
| | Knob, CRYSTAL PHASING | 15A087 |
| X-1 | Crystal, 455KC | 19A123 |
| TS-1, TS-2 | Terminal strip, antenna or speaker | 88A567 |
| | Screw, knurled (For TS-1 or TS-2) | 3A1371 |
| | Cover, speaker terminals | 69B173 |



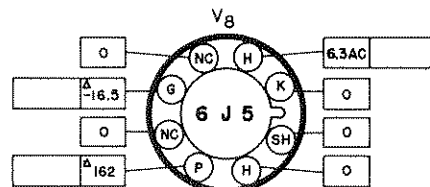
*EK1 5V. ON BAND 5 ONLY.
*EP2 -2V. ON BAND 5 ONLY.



*BAND SELECTOR AT "5"



*EG1 - APPROX. -0.1 TO -8V.
*EG2 - APPROX. -2 TO -8V.



Δ - "RECEPTION" AT "CW"

* 2V. WITH "RECEPTION" AT "FM"
5.5V. WITH "BAND SELECTOR" AT "2"
□ 190V. WITH "RECEPTION" AT "FM"
265V. WITH "BAND SELECTOR" AT "2"
270V. WITH "RECEPTION" AT "FM"
* 290V. WITH "BAND SELECTOR" AT "2"

FRONT PANEL

NOTES -

1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES MEASURED BETWEEN TUBE SOCKET TERMINALS AND CHASSIS WITH ZERO SIGNAL INPUT.
3. LINE VOLTAGE - 117V. AC.
4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
5. VOLTAGES SHOWN WERE MEASURED WITH AN ELECTRONIC VOLTMETER.
6. "NC" - NO CONNECTION (VOLTAGE SHOWN FOR THIS TERMINAL ONLY WHEN TERMINAL IS USED AS A TIE LUG.)
7. CONTROL SETTING -
"RECEPTION" AT "AM (MVC)" UNLESS OTHERWISE NOTED.
"STANDBY-RECEIVE" AT "RECEIVE".
"BAND SELECTOR" AT "4" UNLESS OTHERWISE NOTED.
"SENSITIVITY" CONTROL - MAXIMUM GAIN.
8. "NR" NOT READABLE. VOLTAGES MEASURED AT THESE TERMINALS GENERALLY MEANINGLESS
9. □ SPACE PROVIDED FOR SERVICE METER READINGS.

92D719

Fig. 7. Tube socket voltage chart.

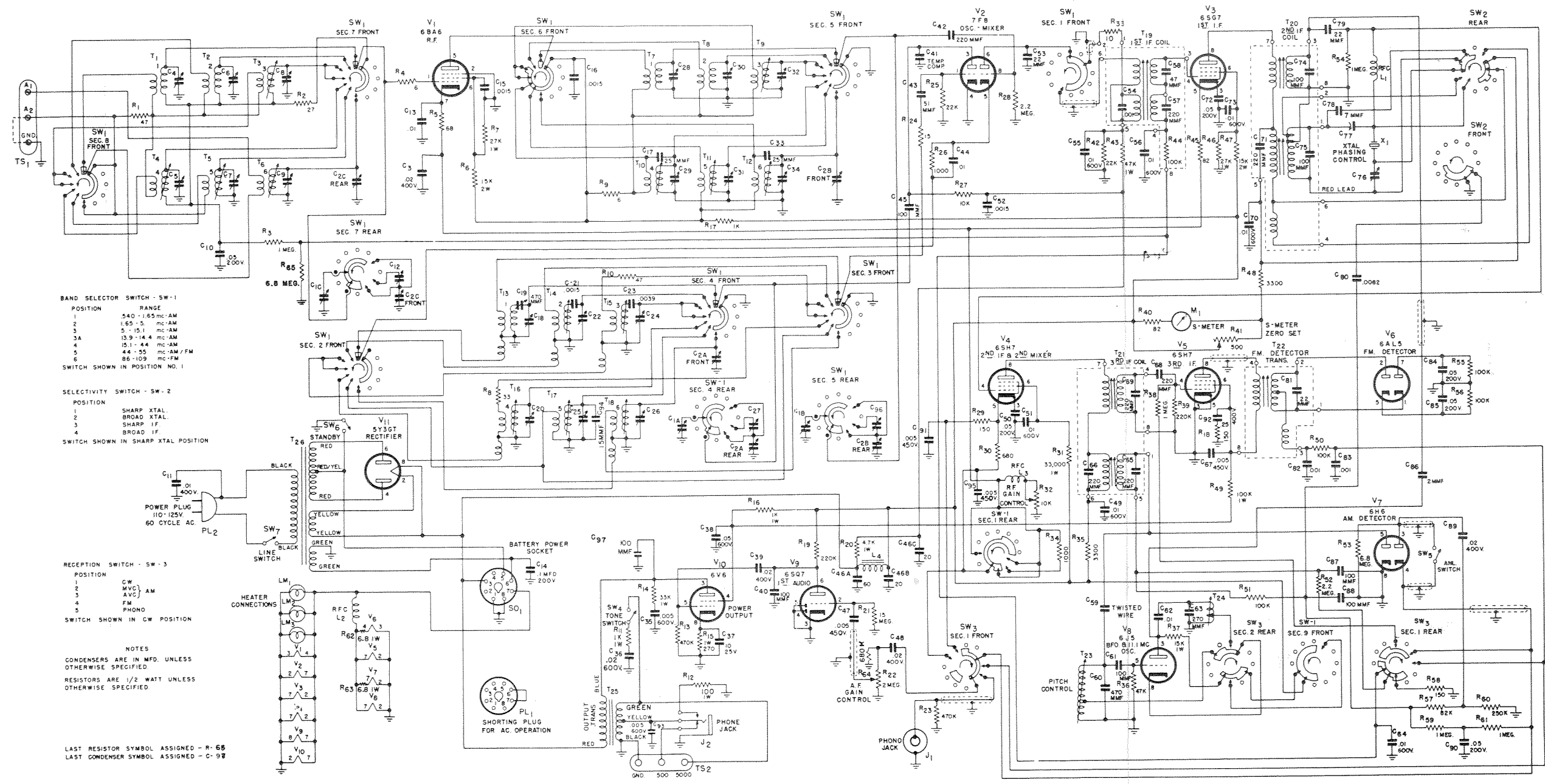


Fig. 8. Schematic diagram.