

the hallicrafters co.

SERVICE BULLETIN FOR MODEL SX-43

GENERAL:

Tubes	Kleven	
Speaker Output	500/5000 Ohms.	
Headset Output	High Impedance.	
Antenna Input	For 72 to 600-ohm line or single wire lead-in.	
Phone Input	High Impedance.	
External Power Connector.	Std. Octal Socket.	
Tuning Range	Band 1	
	2. 840 mc - 1700 mc.	AG.
	3. 1.7 mc - 5 mc.	AM.
	3. 5 mc - 16 mc.	AM.
	3A. 14 mc - 14.4 mc.	AM.
	4. 16.6 mc - 44 mc.	AM.
	5. 44 mc - 55 mc.	AM/PH
	6. 86 mc - 109 mc.	PH
Intermediate Frequency . . .	455 kc/50.7 mc.	
Power Supply	105-125 V, 50/60 cycles AC.	
Power Consumption	90 Watts.	



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/SHAPE.
BAND SELECTOR	- 4.
VOLUME	- Maximum. [No signal should be heard.]
3. Set "C" 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. |
| OPTICAL PRISMING | - Zero with plates half needed. |

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 28 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 34 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.

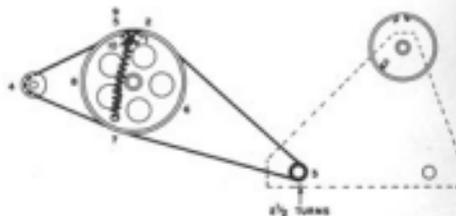


Fig. 1. Dial cable stringing, general coverage dial

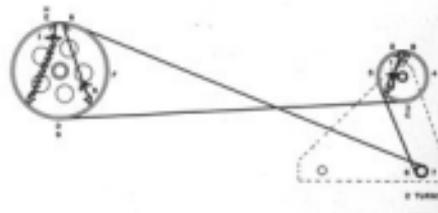


Fig. 2. Dial cable stringing, band spread dial.

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 BMA dummy antenna mentioned in the Alignment chart consists of a 200 mf condenser in

series with a 60 oh r-f choke which is shunted by a 400 mf condenser in series with a 400 ohm carbon resistor.

The following control settings are to be set before alignment:

TUNE Switch	- HIGH
STAND-BY-ROCKETS	- OFF
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 #24g.	10.7 mc	BAND SEL.-5 REC. SW.-PM	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 6-60 and ground with a V.T. voltmeter.	
3	None	See step 1.	455 kc **	BAND SEL.-4 REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	See step 1.	S9, S10, S11, S12, S14	Adjust for max. audio output.	
4	None	See step 1.	455 kc **	BAND SEL.-4 REC. SW.-AM-NYC SEL. SW.-CRYSTAL-SHARP	See step 1.	S11	Adjust for max. audio output.	
5	None	See step 1.	455 kc **	BAND SEL.-4 REC. SW.-AM-NYC 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.							
8A	None	See step 1.	10.7 mc	BAND SEL.-5 REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	See step 1.	S15*	Tune slug S15 to high freq. side of 50 (11.125 mc). Tune for max. audio output.	
9	Std. BMA dummy	To terminals A1 and A2 with jumper between A2 and GND.	1500 kc 600 kc	BAND SEL.-1 REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	1500 kc	B*, C, D	Adjust for max. audio output.	
10	Std. BMA dummy		4.5 mc 2 mc	BAND SEL.-2 REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	4.5 mc 2 mc	F*, G, H S16*	Adjust for max. audio output.	
11	200-ohm carbon res.		14 mc *** 6 mc ***	BAND SEL.-3 REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	14 mc 6 mc	I*, J, E S17*, S18, S19	Adjust for max. audio output.	
12	200-ohm carbon res.		14 mc	BAND SEL.-3A REC. SW.-AM-NYC SEL. SW.-NORMAL-SHARP	M.T. dial at 20M, band line, B.S. dial at 14 mc	I*	Adjust for calibration. Check band spread calibration and reset trimmer 5 if necessary. Increase trimmer cap. to decrease bandwidth etc.	

* Note - Calibration adjustment.

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

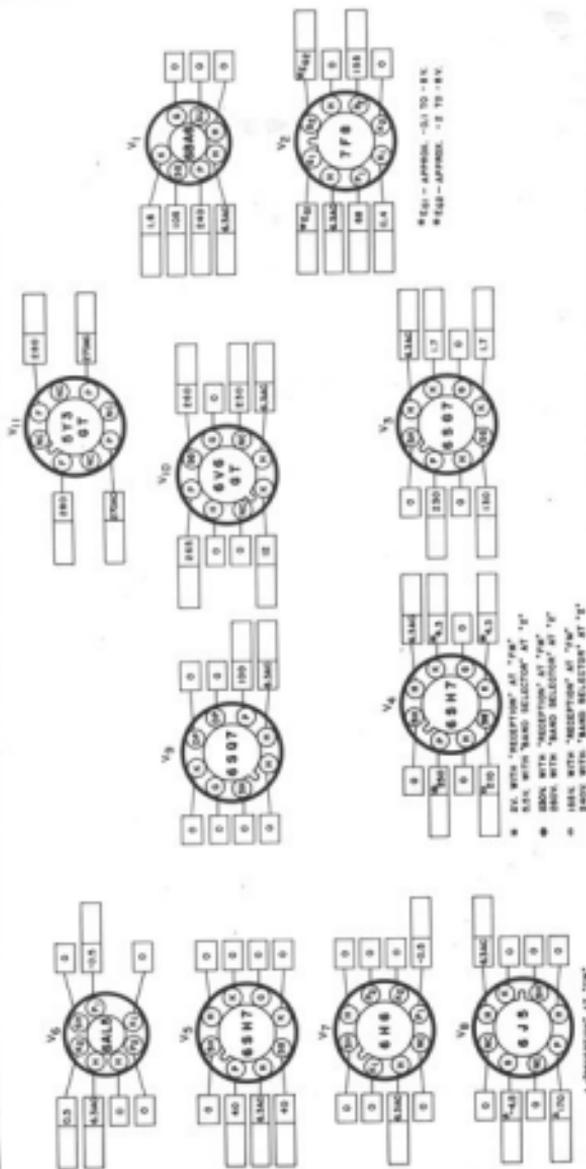
*** Note - Hook signal generator when making adjustments.

4 Note - Step 9, adjusts the 11.125 mc oscillator for the dual conversion circuit required for AM reception on BAND B. After aligning band B in step 10, tune to approx. 44.6 Mc and pick up fourth harmonic of the oscillator. If the oscillator harmonic falls at approx. 51.5 mc, the oscillator is oscillating at the low frequency side or image frequency and must be readjusted.

SERVICE PARTS LIST

SERVICE PARTS LIST (Continued)

REF. NO.	DESCRIPTION	MANUFACTURER'S PART NUMBER	REF. NO.	DESCRIPTION	MANUFACTURER'S PART NUMBER
CAPACITORS					
C-1	Capacitor, general coverage	48C176	L-1	8- μ choke, special	53A108
C-2	Capacitor, band spread	48C175	L-2	8- μ choke, special	53B099
C-3, 39, 48, 89	.02 mfd 400 V., tubular paper	66AW10J3	L-3	8- μ choke, 500 oh	53A107
C-4, 5, 6, 18, 29, 30, 32	Capacitor, trimmer strip assy.	98B199	L-4	Filter choke, 11 h. 75 ma.	56B647
C-7, 25, 31	Capacitor, trimmer, 4-50 mfd	48A270	T-1	Transformer, antenna, band 1	51B928
C-9, 12, 27, 34, 94	Capacitor, trimmer, 2-30 mfd	48A267	T-2	Transformer, antenna, band 2	51B927
C-10	.05 mfd 250 V., tubular paper	48A6C91	T-3	Transformer, antenna, band 3	51B926
C-11	.31 mfd 200 V., molded paper	48A810J3	T-4	Transformer, antenna, band 4	51B925
C-13, 48, 62	.01 mfd 350 V., ceramic	48A151F	T-5	Transformer, antenna, band 5	51B924
C-14	.1 mfd 200 V., tubular paper	48A10HJ4	T-6	Transformer, mixer, band 1	51B953
C-15, 16, 52	1500 mfd 350 V., ceramic	47A161	T-8	Transformer, mixer, band 2	51B952
C-17, 33	25 mfd 500 V., ceramic	47A161	T-9	Transformer, mixer, band 3	51B951
C-18, 19, 20, 22, 24	Capacitor, trimmer strip assy.	48B197	T-10	Transformer, mixer, band 4	51B950
C-21	1500 mfd 400 V., mica	CM20A152J	T-11	Transformer, mixer, band 5	51B949
C-23	3600 mfd 500 V., mica	CM20A392J	T-12	Transformer, oscillator, band 1	51B958
C-24	Capacitor, trimmer, 4-20 mfd	48A115	T-13	Transformer, oscillator, band 2	51B957
C-25, 93	.005 mfd 400 V., tubular paper	48A750J2	T-14	Transformer, oscillator, band 3	51B956
C-26	.02 mfd 450 V., tubular paper	48A720J3	T-15	Transformer, oscillator, band 4	51B955
C-27	10 mfd 25 V., electrolytic	42B233	T-16	Transformer, oscillator, band 5	51B954
C-28	.05 mfd 400 V., tubular paper	48A750J2	T-17	Transformer, oscillator, band 6	51B953
C-40, 41, 67, 88	100 mfd 500 V., ceramic	CC25AK101X	T-18	Transformer, 1st i-f	50C212
C-41	Capacitor, T.C.	98A188	T-19	Transformer, 2nd i-f	50C213
C-42	220 mfd 500 V., mica	CM20A271X	T-20	Transformer, 2nd i-f	50C214
C-43	51 mfd 500 V., ceramic	CC20A0510X	T-21	Transformer, 2nd i-f	50C215
C-45	60-20-20 mfd 450 V., electrolytic	48B113	T-22	Transformer, 2nd i-f	50C216
C-47, 96	.005 mfd 400 V., tubular paper	48A750J2	T-23	Transformer, 2nd i-f	50C217
C-49, 51, 55, 56, 64, 70, 75	.01 mfd 400 V., tubular paper	48A10J3	T-24	Transformer, 2nd i-f	50C218
C-50, 72, 84, 85, 90	.05 mfd 200 V., tubular paper	48A10HJ4	T-25	Transformer, 2nd i-f	50C219
C-51, 79	470 mfd 500 V., mica	CM20A232X	T-26	Transformer, 2nd i-f	50C220
C-52	470 mfd 500 V., mica	CM20A47J3	T-26*	Transformer, 2nd i-f	50C221
C-53	270 mfd 500 V., mica	CM20A27J3			
C-54	.005 mfd 450 V., ceramic	47A168			
C-57, 91	220 mfd 500 V., mica	CM20A231X			
C-58	Capacitor, trimmer, 2-30 mfd	48A182			
C-59	Capacitor, variable, CRYSTAL FRASING	CC20UAK150K			
C-76, 94	15 mfd 500 V., ceramic	CM25A812X			
C-80	820 mfd 500 V., mica	CM25A812X			
C-82, 83	1500 mfd 500 V., mica	CM25A102X			
C-84	2.2 mfd 500 V., ceramic	47A160-8			
C-92	.25 mfd 400 V., tubular paper	48A725J2			
RESISTORS					
R-1, 10	47 ohms \pm watt, carbon	RC20A670K	V-1	Tube, type 6BA5	98B58A5
R-2	27 ohms \pm watt, carbon	RC20A670K	V-2	Tube, type 3F8	90X7F8
R-3, 18, 24, 59, 61	1 meg-ohm \pm watt, carbon	RC20A105K	V-3	Tube, type 6X7	90X6X7
R-4	6 ohms \pm watt, carbon	23A011	V-4, 5	Tube, type 6AU6	90X6A15
R-6	68 ohms \pm watt, carbon	RC25A680K	V-6	Tube, type 6AB5	90X6A5
R-6, 47	15,000 ohms \pm watt, carbon	RC40A6153K	V-8	Tube, type 6BE6	90X6B6
R-7, 46	27,000 ohms \pm watt, carbon	RC30A6273K	V-8	Tube, type 6BD6	90X6B6
R-8, 18	33 ohms \pm watt, carbon	RC20A6330K	V-9	Tube, type 6BQ7	90X6B7
R-11, 16	1500 ohms \pm watt, carbon	RC30A1503K	V-10	Tube, type 6V6GT	90X6V6GT
R-12	470 ohm \pm watt, carbon	RC30A471X	V-11	Tube, type 5Y6GT/G	90X5Y6GT
R-13, 23	470,000 ohms \pm watt, carbon	RC20A474K	UM-1, 2	Lamp, dial illumination, 4-8 V. 250 ma. G.L. #47	39A603
R-14, 31	33,000 ohms \pm watt, carbon	RC30A3333K	UM-3	Lamp, meter illumination, 4-8 V. 150 ma. G.L. #47	39A604
R-15	270 ohms \pm watt, carbon	RC30A271X			
R-17, 26, 34	1500 ohms \pm watt, carbon	RC20A1502K			
R-19, 20	1500,000 ohms \pm watt, carbon	RC30A1503K			
R-21	470 ohms \pm watt, carbon	RC30A472K			
R-21	25 megohms \pm watt, carbon	RC20A158K			
R-22	Resistor, variable, VOLUME control	25B657			
R-24	25 ohms \pm watt, carbon	RC20A250K			
R-25	22,000 ohms \pm watt, carbon	RC20A222K			
R-27	50,000 ohms \pm watt, carbon	RC20A502K			
R-28, 52	3.2 megohms \pm watt, carbon	RC20A322K			
R-29, 58, 62	150 ohms \pm watt, carbon	RC20A151X			
R-33	480 ohms \pm watt, carbon	RC20A481X			
R-32	Resistor, variable, SENSITIVITY control	25B577			
R-33	2200 ohms \pm watt, carbon	RC20A222K			
R-35, 48	3300 ohms \pm watt, carbon	RC20A332K			
R-36	47,000 ohms \pm watt, carbon	RC20A472K			
R-37	15,000 ohms \pm watt, carbon	RC20A152K			
R-40, 45	82 ohms \pm watt, carbon	RC20A82K			
R-41	Resistor, variable, "S" Meter control	25A549			
R-42	27,000 ohms \pm watt, carbon	RC20A272K			
R-43	47,000 ohms \pm watt, carbon	RC20A472K			
R-49	150,000 ohms \pm watt, carbon	RC20A150K			
R-50, 51, 55, 56	100,000 ohms \pm watt, carbon	RC20A100K			
R-53	6.8 megohms \pm watt, carbon	RC20A685K			
R-57	82,000 ohms \pm watt, carbon	RC20A823K			
R-50	250,000 ohms \pm watt, carbon	23B875K			
R-63	10 ohms \pm watt, carbon	RC20A100K			
COILS AND TRANSFORMERS					
* Note — Used on special universal model only.					
TUBES AND LAMPS					
SWITCHES					
PLUGS AND SOCKETS					
MISCELLANEOUS COMPONENTS					



FRONT PANEL

- NOTES:
1. SOCKET KEYS ARE BOTTOM KEYS.
 2. ALL VOLTAGES MEASURED BETWEEN THE SOCKET TERMINALS AND GROUND.
 3. ALL VOLTAGES MEASURED WITH A 50,000 OHM/VOLT METER.
 4. ALL VOLTAGES MEASURED WITH A 50,000 OHM/VOLT METER.
 5. VOLTAGES SHOWN WERE MEASURED WITH A 50,000 OHM/VOLT METER.
 6. "NO" - NO CONNECTION (VOLTAGE SHOWN FOR THIS TERMINAL ONLY WHEN TERMINAL IS USED AS A TIE LINE.)
 7. CONTROL SETTINGS:

- "A" WITH "RECEPTOR" AT "FM"
- "B" WITH "RECEPTOR" AT "FM"
- "C" WITH "RECEPTOR" AT "FM"
- "D" WITH "RECEPTOR" AT "FM"
- "E" WITH "RECEPTOR" AT "FM"
- "F" WITH "RECEPTOR" AT "FM"
- "G" WITH "RECEPTOR" AT "FM"
- "H" WITH "RECEPTOR" AT "FM"
- "I" WITH "RECEPTOR" AT "FM"
- "J" WITH "RECEPTOR" AT "FM"
- "K" WITH "RECEPTOR" AT "FM"
- "L" WITH "RECEPTOR" AT "FM"
- "M" WITH "RECEPTOR" AT "FM"
- "N" WITH "RECEPTOR" AT "FM"
- "O" WITH "RECEPTOR" AT "FM"
- "P" WITH "RECEPTOR" AT "FM"
- "Q" WITH "RECEPTOR" AT "FM"
- "R" WITH "RECEPTOR" AT "FM"
- "S" WITH "RECEPTOR" AT "FM"
- "T" WITH "RECEPTOR" AT "FM"
- "U" WITH "RECEPTOR" AT "FM"
- "V" WITH "RECEPTOR" AT "FM"
- "W" WITH "RECEPTOR" AT "FM"
- "X" WITH "RECEPTOR" AT "FM"
- "Y" WITH "RECEPTOR" AT "FM"
- "Z" WITH "RECEPTOR" AT "FM"
- "0" WITH "RECEPTOR" AT "FM"
- "1" WITH "RECEPTOR" AT "FM"
- "2" WITH "RECEPTOR" AT "FM"
- "3" WITH "RECEPTOR" AT "FM"
- "4" WITH "RECEPTOR" AT "FM"
- "5" WITH "RECEPTOR" AT "FM"
- "6" WITH "RECEPTOR" AT "FM"
- "7" WITH "RECEPTOR" AT "FM"
- "8" WITH "RECEPTOR" AT "FM"
- "9" WITH "RECEPTOR" AT "FM"

Fig. 7. Tube socket wiring chart.

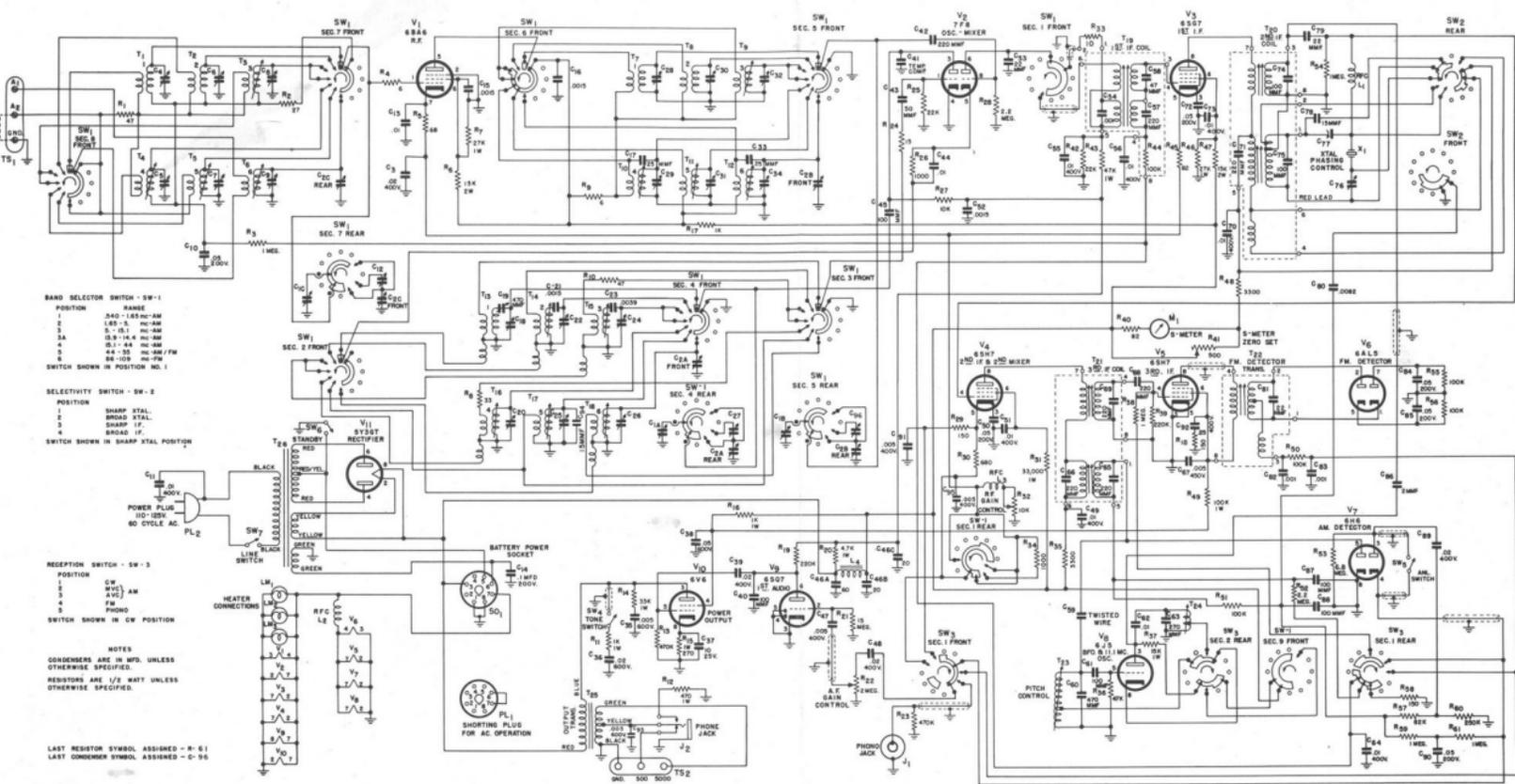


Fig. 8. Schematic diagram.