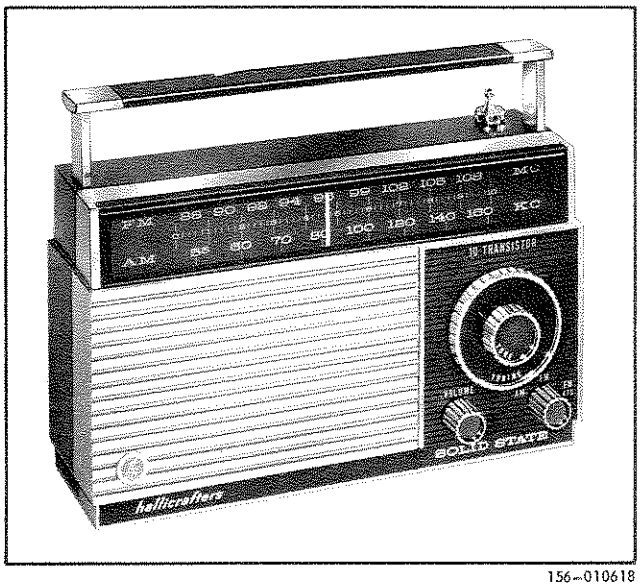
SERVICE DATA

MODEL FM-1000



156-010618

Figure 1. Hallicrafters Model FM-1000 Radio.

SPECIFICATIONS.

Circuit:	10-transistor, 2-band superheterodyne system with AFC - includes earphone jack and external antenna jack.
Frequency Coverage:	AM - 535-1605KC. FM - 88-108MC.
Intermediate Frequency (IF):	AM - 455KC. FM - 10.7MC.
Power Output:	350 milliwatts (max.).
Speaker:	3 inch, 8 ohm.
Antennas:	Ferrite rod for AM; collapsible whip for FM.
Power Supply:	DC - 6 volts (four AA size, 1-1/2 volt batteries - Eveready 915). AC - 117 volts, 60 cycles.
DC Current Drain:	18 milliamperes maximum (no signal).
Dimensions:	5-3/32"(H) x 8-5/8"(W) x 2-5/8"(D).
Net Weight:	3.0 pounds.

BATTERY AND LINE CORD ACCESS.

To gain access to the battery and line cord compartments the panel at the rear of the radio must be removed. To remove the panel, press down on the thumbnail notches and slide the panel out. When installing batteries, insure that the polarity of the batteries is the same as the polarity indicated on the battery holder. The button end of the battery is positive. When the radio is to be operated from the four AA size batteries, set the AC/DC switch to BATT.

When AC operation is desired, merely unwind the line cord to its full length and insert the plug into any 105-125 volt, 60 cycle outlet. Set the AC/DC switch to AC for AC operation.

DIAL CORD RESTRINGING.

Before attempting to restring the dial cord, the rear of the case must be separated from the front and the printed circuit board along with the rod antenna must be removed from the chassis.

To separate the rear of the case from the front, loosen the slotted screw at the rear. Carefully pull the rear of the radio away from the front.

Remove all front panel knobs. Remove the screws and posts shown in figure 5. The wire from the telescopic and antenna and the lug on the external antenna jack may have to be removed. Carefully lift the printed circuit board away from the chassis. String dial cord with large pulley fully clockwise as shown in figure 2.

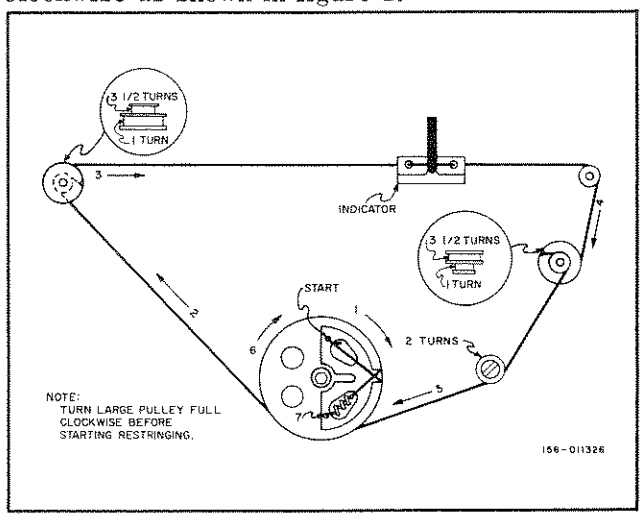
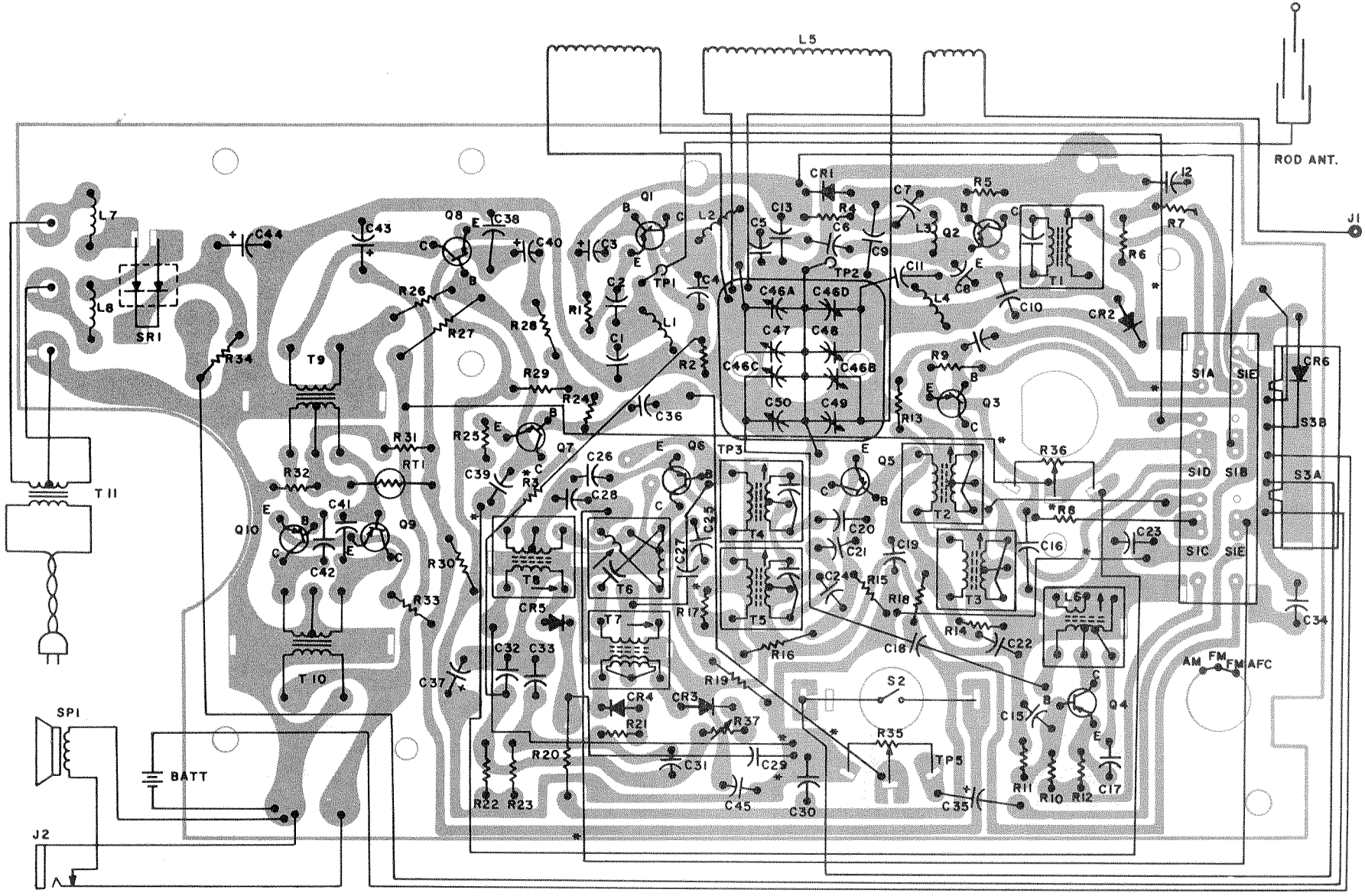


Figure 2. Dial Cord Restringing Diagram.

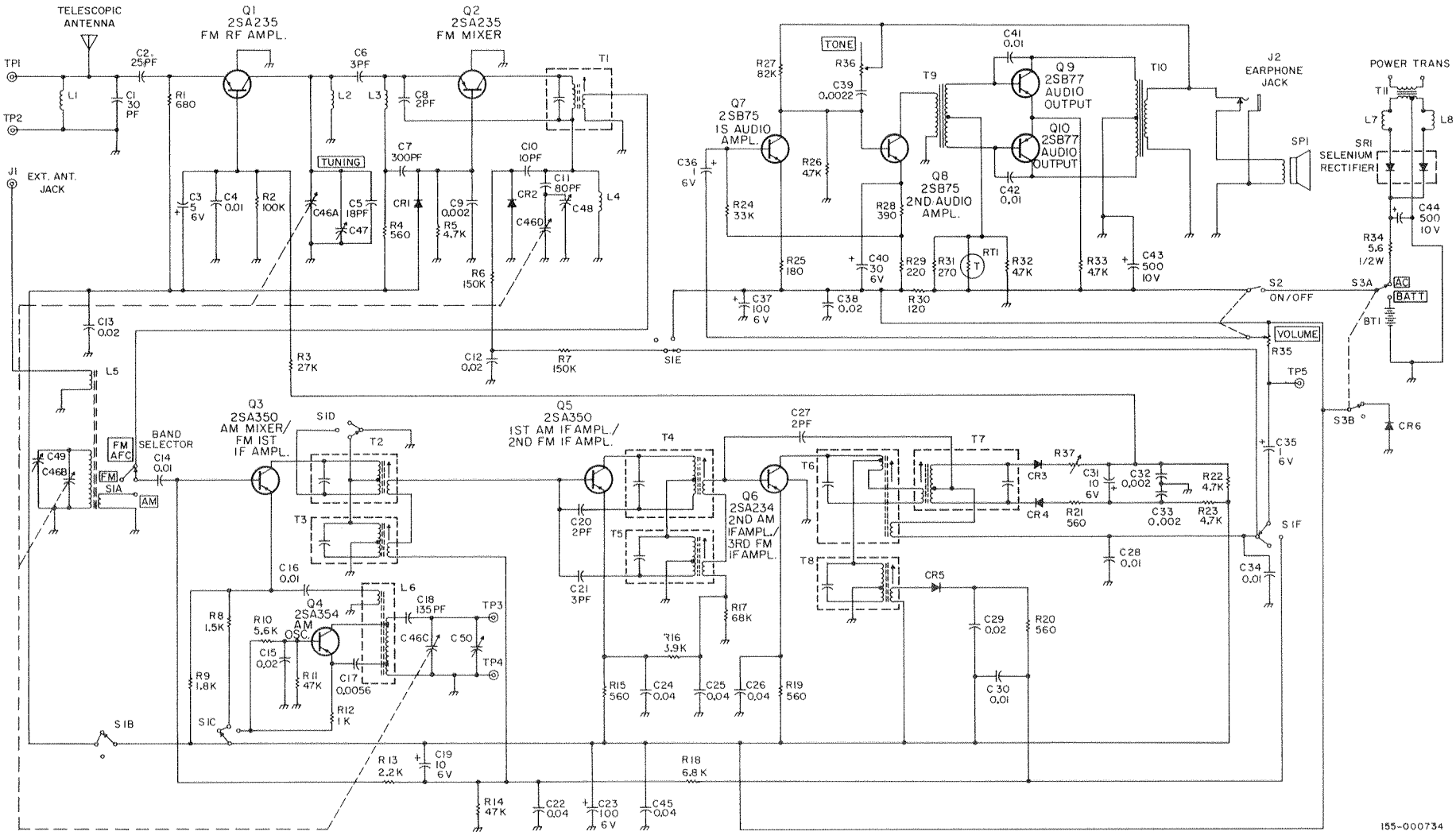


NOTE:

1. WIRING SHOWN FROM FOIL SIDE OF BOARD.
2. * INDICATES COMPONENT LOCATED ON FOIL SIDE OF BOARD.

Figure 3. Printed Circuit Board Diagram.

156-010829



NOTES:
1. UNLESS OTHERWISE SPECIFIED; ALL RESISTORS ARE IN OHMS, 1/2 WATT. ALL CAPACITORS ARE IN UF.
2. WAFERS OF S1 ARE MECHANICALLY GANGED.

Figure 4. Model FM-1000 Schematic Diagram.

ALIGNMENT PROCEDURE

TEST EQUIPMENT REQUIRED.

1. RF Signal Generator (AM, FM)
2. IF Sweep Generator (centered at 455KC for AM and 10.7MC for FM)
3. VTVM
4. Oscilloscope

GENERAL.

1. Set function switch to band being aligned.
2. VOLUME control should be set to maximum except for IF alignment.
3. Remove telescopic antenna wire.
4. Unless otherwise specified low side of test equipment should be connected to chassis ground.
5. Signal input should be kept as low as possible to avoid AVC action.
6. Standard modulation for AM is 400 CPS at 30% amplitude; 400 CPS at 22.5KC for FM.
7. Antenna input impedance is 75 ohms.

AM IF ALIGNMENT

STEP	SIGNAL SOURCE	CONNECTION	INPUT SIGNAL FREQUENCY	INDICATOR	CONNECTION	RADIO DIAL SET TO	ADJUST
1	AM IF Sweep Generator	To standard radiating loop.	Sweep centered at 455KC	Oscilloscope	TP2, TP4	Minimum frequency	T3 for maximum.
2	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	T5 for maximum.
3	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	T8 for maximum.
4	Repeat steps 1, 2 and 3.						

AM RF ALIGNMENT

STEP	SIGNAL SOURCE	CONNECTION	INPUT SIGNAL FREQUENCY	INDICATOR	CONNECTION	RADIO DIAL SET TO	ADJUST
1	AM Signal Generator	To standard radiating loop.	525KC modulated	VTVM	Across speaker voice coil.	525KC (low end)	L6 for maximum.
2	Same as step 1.	Same as step 1.	1650KC modulated	VTVM	Same as step 1.	1650KC (high end)	C50 for maximum.
3	Repeat steps 1 and 2 as necessary to obtain frequency range.						
4	Same as step 1.	Same as step 1.	600KC modulated	VTVM	Same as step 1.	600KC	L5 for maximum.
5	Same as step 1.	Same as step 1.	1400KC modulated	VTVM	Same as step 1.	1400KC	C49 for maximum.
6	Repeat steps 4 and 5 as necessary to minimize tracking error, and step 3 if necessary.						

FM IF ALIGNMENT

STEP	SIGNAL SOURCE	CONNECTION	INPUT SIGNAL FREQUENCY	INDICATOR	CONNECTION	RADIO DIAL SET TO	ADJUST
1	FM IF Sweep Generator	TP1, TP2	Sweep centered at 10.7 MC.	Oscilloscope	TP2, TP4	Maximum frequency	T1 for maximum symmetrical response at equal heights.
2	Same as step 1.	Same as step 1.	Same as step 1.	Oscilloscope	Same as step 1.	Same as step 1.	T2 for maximum symmetrical response at equal heights.
3	Same as step 1.	Same as step 1.	Same as step 1.	Oscilloscope	Same as step 1.	Same as step 1.	T4 for maximum symmetrical response at equal heights.
4	Same as step 1.	Same as step 1.	Same as step 1.	Oscilloscope	Same as step 1.	Same as step 1.	T6 for maximum symmetrical response at equal heights.
5	Same as step 1.	Same as step 1.	Same as step 1.	Oscilloscope	Same as step 1.	Same as step 1.	T7 for symmetrical response centered at 10.7 MC.
6	Repeat steps 1 thru 5 as necessary to obtain an "S" curve linearity.						

FM RF ALIGNMENT

STEP	SIGNAL SOURCE	CONNECTION	INPUT SIGNAL FREQUENCY	INDICATOR	CONNECTION	RADIO DIAL SET TO	ADJUST
1	FM Signal Generator	TP1, TP2 (thru a matching network, if necessary)	86MC modulated	VTVM	Across speaker voice coil.	86MC (low end)	L4 for maximum.
2	Same as step 1.	Same as step 1.	110MC modulated	VTVM	Same as step 1.	110MC (high end)	C48 for maximum.
3	Repeat steps 1 and 2 as necessary to obtain frequency range.						
4	Same as step 1.	Same as step 1.	90MC modulated	VTVM	Same as step 1.	90MC	L2 for maximum.
5	Same as step 1.	Same as step 1.	106MC modulated	VTVM	Same as step 1.	106MC	C47 for maximum.
6	Repeat steps 4 and 5 as necessary to minimize tracking error, and also step 3 if necessary.						

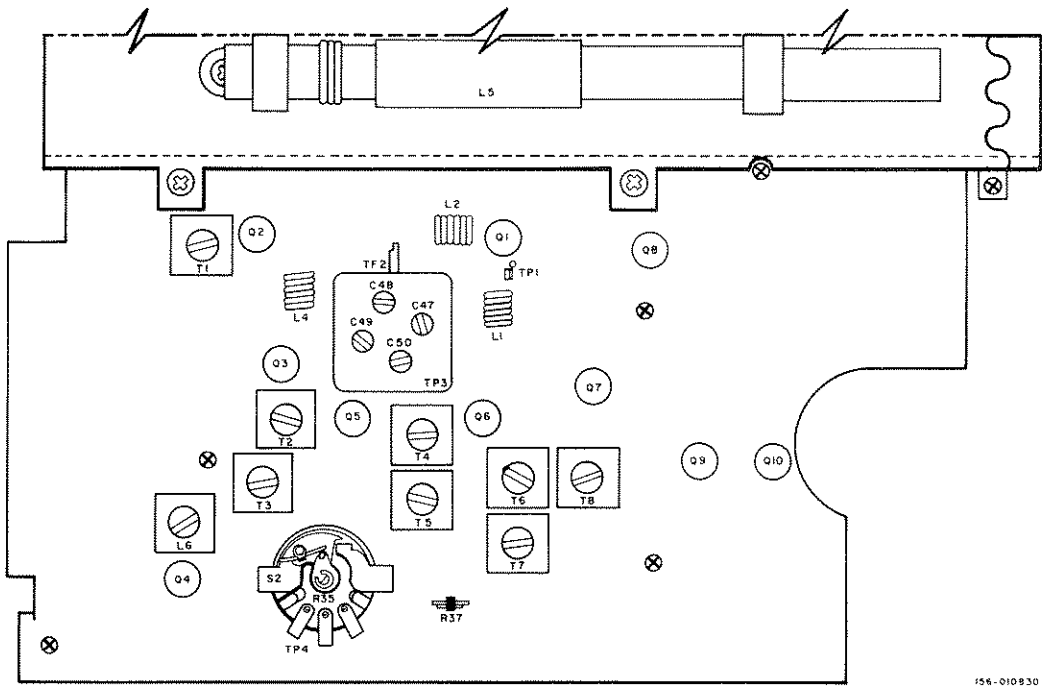


Figure 5. Top View Showing Component Location.

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C1	30PF, ceramic	120-004063
C2	25PF, ceramic	120-004064
C3	5μF, 6 V, electrolytic	120-004065
C4,16	0.01μF, ceramic	120-004066
C5	18PF, ceramic	120-004067
C6	3PF, ceramic	120-004068
C7	300PF, ceramic	120-004069
C8,27	2PF, ceramic	120-004070
C9,32,33	0.002μF, ceramic	120-004071
C10	10PF, ceramic	120-004072
C11	80PF, mica	120-004073
C12,13, 15,38	0.02μF, ceramic	120-004074
C14,41, 42	0.01μF, mylar	120-004076
C17	0.0056μF, mylar	120-004079
C18	135PF, mica	120-004080
C19,31	10μF, 6V, electrolytic	120-004081
C20	2PF, ceramic	120-004082
C21	3PF, ceramic	120-004083
C22,24, 25,26,45	0.04μF, ceramic	120-004084
C23,37	100μF, 6V, electrolytic	120-004085
C28,30, 34	0.01μF, ceramic	120-004090
C29	0.02μF, mylar	120-004091
C35,36	1μF, 6V, electrolytic	120-004097
C39	0.0022μF, mylar	120-004101
C40	30μF, 6V, electrolytic	120-004102
C43,44	500μF, 10V, electrolytic	120-004105
C46A,B, C,D	Variable, TUNING (includes C47,C48, C49 and C50)	120-004038
	***RESISTORS**	
R1	680 ohm	120-004108
R2	100K ohm	120-004109
R3	27K ohm	120-004110
R4,15, 19,20,21	560 ohm	120-004111
R5,22,23, 26,32	4.7K ohm	120-004112
R6,7	150K ohm	120-004113
R8	1.5K ohm	120-004115
R9	1.8K ohm	120-004116
R10	5.6K ohm	120-004117
R11,14	47K ohm	120-004118
R12	1K ohm	120-004119
R13	2.2K ohm	120-004120
R16	3.9K ohm	120-004123
R17	68K ohm	120-004124
R18	6.8K ohm	120-004125
R24	3.3K ohm	120-004131
R25	180 ohm	120-004132
R27	82K ohm	120-004134
R28	390 ohm	120-004135
R29	220 ohm	120-004136
R30	120 ohm	120-004137
R31	270 ohm	120-004138
R33	4.7 ohm	120-004140
R34	5.6 ohm, 1/2 watt	120-004141
R35	Variable, VOLUME (includes S2)	120-004034
R36	Variable, TONE	120-004035
R37	Variable	120-004039
	* Unless otherwise stated, all RESISTORS are carbon type, 1/4 watt.	
	COILS AND TRANSFORMERS	
L1,2,4	Coil, FM	120-004015
L3	Coil, FM trap	120-004018
L5	Coil, AM antenna	120-004020
L6	Coil, AM oscillator	120-004021
L7,8	Coil, FM trap	120-004022
T1,2,4	Transformer, FM IF	120-004024
T3,5	Transformer, AM IF	120-004026
T6	Transformer, FM IF	120-004029
T7	Transformer, FM IF	120-004030
T8	Transformer, AM IF	120-004031
T9	Transformer, input	120-004032
T10	Transformer, output	120-004033
T11	Transformer, power	120-004040
	TRANSISTORS AND DIODES	
Q1,2	Transistor, type 2SA235	120-002513
Q3,5	Transistor, type 2SA350	120-001190
Q4	Transistor, type 2SA354	120-004048
Q6	Transistor, type 2SA234	120-002656

Schematic Symbol	Description	Hallicrafters Part Number
	TRANSISTORS AND DIODES (CONT)	
Q7,8	Transistor, type 2SB75	120-002013
Q9,10	Transistor, type 2SB77	120-002014
CR1	Diode, type 1S990	120-004055
CR2	Diode, variable capacitor, type 1S85	120-002893
CR3,4	Diode, type 1N60	120-002016
CR5	Diode, type 1N34	120-004059
CR6	Diode, zener, type 1S330	120-004060
	MISCELLANEOUS	
S1	Switch, rotary (band selector)	120-004036
S3	Switch, slide	120-004037
J2	Jack, earphone	120-004042
	Earphone	120-004041
J1	Terminal, external antenna	120-004043
	Battery Hook	120-004044
SR1	Selenium rectifier	120-004061
RT1	Thermistor	120-004062
	Cabinet, front	120-004142
	Cabinet, rear	120-004143
	Control panel	120-004144
	Case fizing base	120-004145
	Battery door	120-004146
	Handle	120-004147
	Dial Window	120-004148
	Nameplate	120-004149
	Antenna, telescopic	120-004150
	Knob, TONE	120-004151
	Knob, TUNING	120-004152
	Knob, VOLUME, band selector	120-004153
	Metal to insert TONE knob	120-004154
	Metal to insert TUNING knob	120-004155
	Metal to insert VOLUME and band selector knob	120-004156
	Badge	120-004157
	Dial pointer	120-004158
	Dial calibration plate	120-004159
	Adherent tape for dial pointer	120-004160
	Lid bolt (brass)	120-004161
	FCC label	120-004162
	Switch plate	120-004163
	Knob cushion (felt)	120-004164
	Label showing voltage	120-004165
	External antenna washer	120-004166
	Tuning drum	120-004167
	Stringing spring	120-004168
	Chassis for dial back	120-004169
	Dial pointer rail	120-004170
	Battery case	120-004171
	Handle setting hardware	120-004172
	PCB mounting stay (brass)	120-004173
	Printed circuit board	120-004015
	Chassis mounting stud (A)	120-004174
	Chassis mounting stud (B)	120-004175
	Battery holder mounting bracket (A)	120-004176
	Battery holder mounting bracket	120-004177
	Rear cabinet mounting stud	120-004178
	Battery case	120-004179
	Antenna holder	120-004180
	Tuning pulley (2)	120-004181
	Tuning pulley (1)	120-004182
	Tuning pulley stay (2)	120-004183
	Tuning pulley stay (1)	120-004184
	Speaker mounting bracket	120-004185
	Screw for tuning drum	120-004186
	Hex-head screw (11)	120-004187
	Line cord retainer	120-004188
	Plate for line cord retainer	120-004189
	Cord box	120-004190
	Battery label	120-004191
	Battery cushion	120-004192
	Stud for cord box	120-004193
	Telescopic antenna washer	120-004197
	Cord box washer	120-004198