

SERVICE DATA, MODEL CR-44A

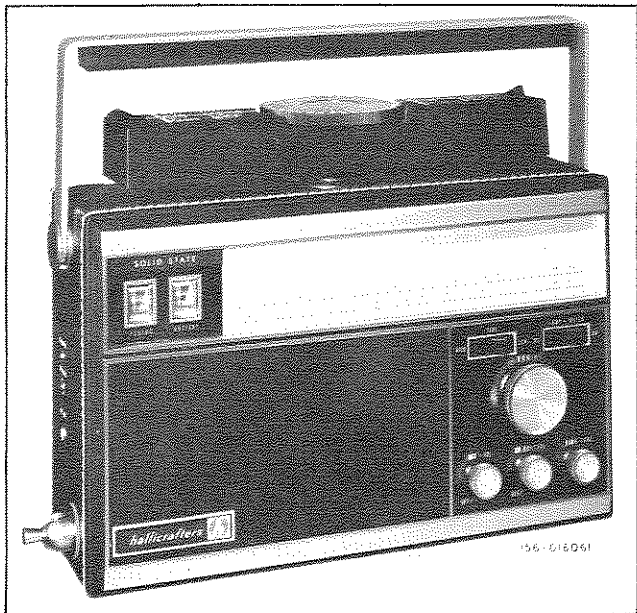


Figure 1. Hallicrafters Model CR-44A Receiver.

SPECIFICATIONS

Circuit:	Five band superheterodyne receiver with untuned rf stage. Circuit contains 17 transistors and 6 diodes.
Tuning Range:	LW 185 kHz - 400 kHz AM 535 kHz - 1605 kHz MB 2.0 MHz - 5.2 MHz FM 87.5 MHz - 108.5 MHz VHF 152 MHz - 173 MHz
Input Impedance (external antenna):	75 ohms
Sensitivity:	LW 400 μ V/m for 12 dB S/N AM 250 μ V/m for 12 dB S/N MB 175 μ V/m for 12 dB S/N FM 10 μ V for 20 dB S/N VHF 12 μ V for 20 dB S/N
Selectivity (IF):	LW/AM/MB 5kHz-10kHz at 6dB FM/VHF 130kHz-200kHz at 6dB
IF Rejection:	LW 10dB min AM 24dB min MB 30dB min FM 40dB min VHF 40dB min
AFC Holding Range:	\pm 400 kHz
AGC Figure of Merit:	LW/AM/MB-36 dB min

IF Frequency:	LW/AM/MB - 455 kHz FM/VHF - 10.7 MHz
Audio Output:	500 mW
Audio Distortion:	10% at 300 mW
Power Source:	6 Vdc (four 1-1/2 volt D cells)
Battery Drain:	20 mA (without input signal)

CHASSIS REMOVAL

To remove the chassis from the case, use the following procedure.

1. Remove rear cover.
2. Rotate TUNING knob until dial pointer lies between 535 kHz and 600 kHz on the AM band. Loosen screw on dial pointer slide and remove dial cord from the pointer.
3. Remove all knobs.
4. To release the chassis from the case, remove eight screws and three nuts shown in figure 7. Slide chassis out as far as the interconnecting leads will allow. These leads are long enough to permit the receiver chassis to swing to a horizontal position, with the battery holder placed under the speaker magnet.

DIAL CORD RESTRINGING

To restring the dial cord, remove the chassis following instructions given in the preceding paragraph and proceed as follows:

1. Position TUNING drum as shown in figure 2.
2. Tie one end of dial cord to plastic stud at numbered step 1 (figure 2).
3. Proceed to restring in ascending numerical sequence as shown in figure 2. Finish restringing with numbered step 8 and attach free end of string to plastic stud on TUNING drum. Sufficient tension should exist on spring to prevent cord slippage.

ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED

1. AM Signal Generator covering 180 kHz to 12 MHz, with 75-ohm output impedance.
2. FM Signal Generator covering 80 to 180 MHz, with 75-ohm output impedance.

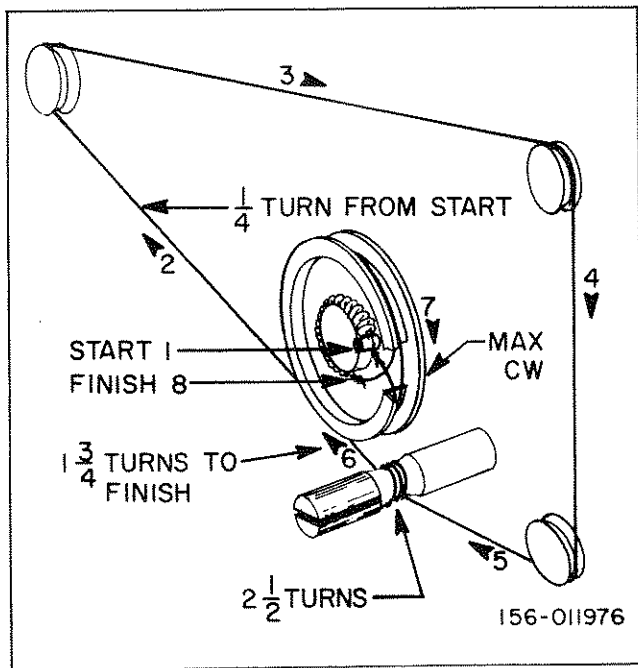


Figure 2. Dial Cord Restraining Diagram.

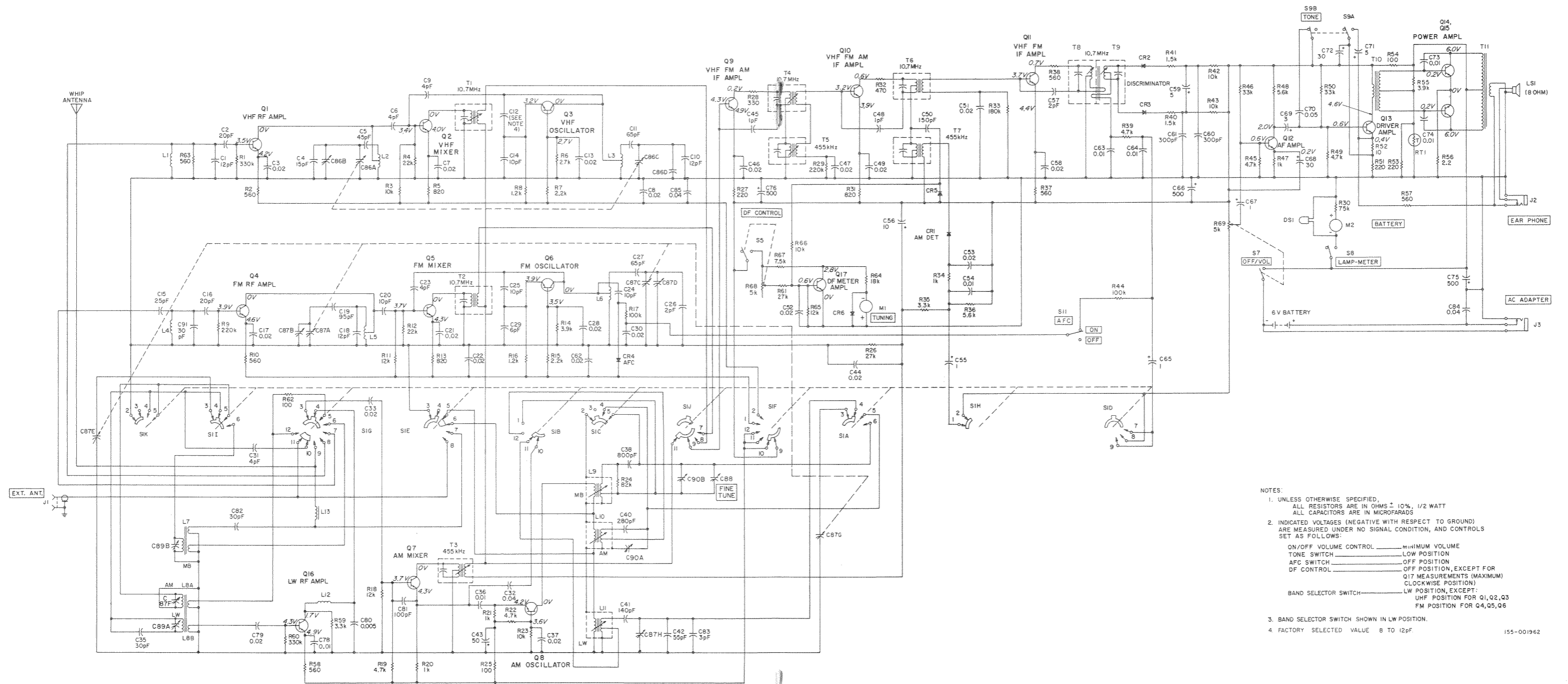
3. FM Sweep Generator capable of producing 500 kHz deviation centered at 10.7 MHz, with a sweep marker set at 10.7 MHz.

4. Audio Output Meter with 8-ohm input impedance or ac VTVM.
5. Wideband Oscilloscope of tv alignment type.
6. Tuning wand with iron and brass ends.
7. Nonmetallic alignment tool.

PREALIGNMENT NOTES

1. Set VOLUME control to maximum and TONE switch to LOW position.
2. Set am signal generator to produce 30 percent amplitude modulation.
3. Set fm signal generator to produce an on-frequency output with ± 22.5 kHz deviation.
4. Set fm sweep generator to produce a deviation of 500 kHz (± 250 kHz) centered at 10.7 MHz. Set marker to 10.7 MHz.
5. Set Audio Output Meter to its most sensitive range and use the lowest signal generator output producing a 10 dB S/N ratio.
6. Make all adjustments for a maximum indication on the Audio Output Meter (connected to the external speaker jack) EXCEPT for FM-VHF IF alignment.

AM ALIGNMENT					
Step	Band	AM Signal Generator			
		Connection to Receiver	Input Signal Frequency	Dial Setting (Tuning)	Adjust
1	AM	Connect high side of signal generator (output) through a 10k ohm resistor to the high side of C87E. Ground shield lead to receiver chassis.	455kHz	Minimum capacity	T3 T5 T7
2	LW	Use a radiating loop of several turns of wire to couple the signal generator output to the receiver.	180kHz	Maximum capacity	L11
	AM		520kHz		L10
3	MB	Same as step 2.	1.80MHz	Minimum capacity	L9
	LW		410kHz		C87H
4	AM	Same as step 2. Use a tuning wand to check the alignment of the antenna coils L8A, L8B and L7.	1.68MHz	Minimum capacity	C90A
	MB		5.5MHz		C90B
	LW		200kHz		L8A
5	AM	Same as step 2.	600kHz	200kHz 600kHz 2.0MHz	L8B
	MB		2.0MHz		L7
	LW		380kHz		C89A
6	AM	Repeat steps 2, 3, 4 and 5.	1400kHz	380kHz 1400kHz 5.0MHz	C87F
	MB		5.00MHz		C89B

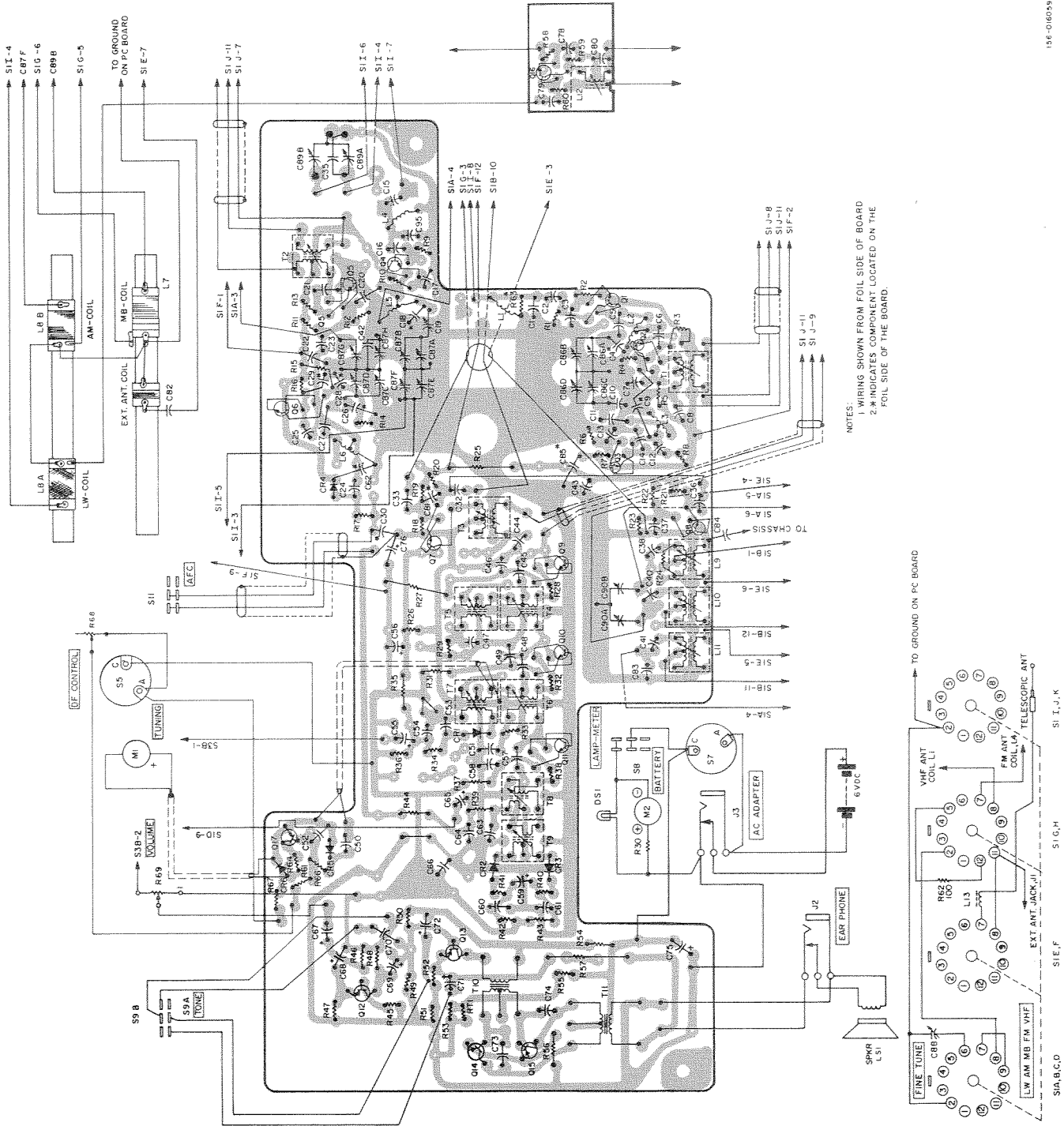


- NOTES:
- UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE IN OHMS $\pm 10\%$, 1/2 WATT. ALL CAPACITORS ARE IN MICROFARADS.
 - INDICATED VOLTAGES (NEGATIVE WITH RESPECT TO GROUND) ARE MEASURED UNDER NO SIGNAL CONDITION, AND CONTROLS SET AS FOLLOWS:

ON/OFF VOLUME CONTROL	MINIMUM VOLUME
TONE SWITCH	LOW POSITION
AF CONTROL	OFF POSITION
DF CONTROL	OFF POSITION, EXCEPT FOR Q17 MEASUREMENTS (MAXIMUM CLOCKWISE POSITION)
BAND SELECTOR SWITCH	LW POSITION, EXCEPT: UHF POSITION FOR Q1, Q2, Q3; FM POSITION FOR Q4, Q5, Q6
 - BAND SELECTOR SWITCH SHOWN IN LW POSITION.
 - FACTORY SELECTED VALUE 8 TO 12P.

155-001962

Figure 5. Model CR-44A Schematic Diagram.



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

Figure 6. Printed Circuit Board Wiring Diagram.

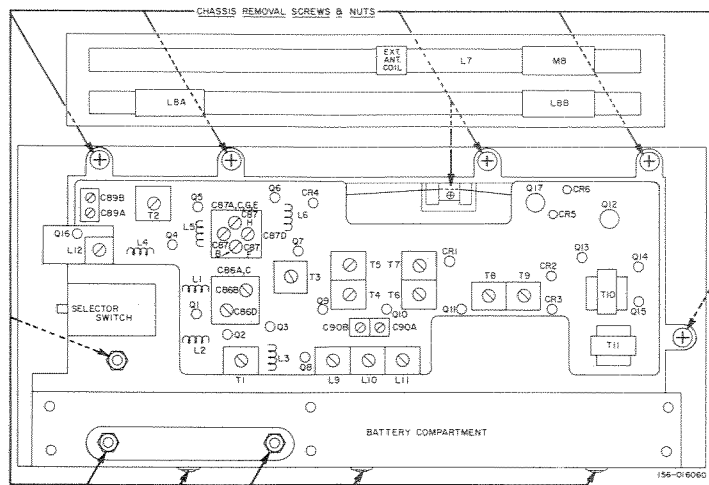


Figure 7. Alignment Points and Transistor Locations.

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS					
C1,10,18	Ceramic; 12pF ±10%	120-005260	C81	Ceramic; 100pF ±10%	120-005230
C2,16	Ceramic; 20pF ±10%	120-004508	C83	Ceramic; 3pF ±0.5pF	120-004505
C3,7,8,13, 17,21,22, 28,30,44,46, 47,49,51,52, 53,58,62	Ceramic; 0.02μF +100%-20%	120-004684	C86A,86B, 86C,86D	VHF Tuning Capacitor Assembly	120-005306
C4	Ceramic; 15pF ±10%	120-005229	C87A,87B, 87C,87D, 87E,87F, 87G,87H	AM/FM Tuning Capacitor Assembly	120-005307
C5	Ceramic; 45pF ±10%	120-004679	C88	FINE TUNE Capacitor	120-005308
C6,9,23,31	Ceramic; 4pF ±0.5pF	120-004506	C89A,89B, 90A,90B	Trimmer Capacitor Assembly	120-005309
C11,27	Ceramic; 65pF ±10%	120-004768	RESISTORS AND THERMISTORS		
C12	Ceramic; 8-10pF, nominal value 10pF ±0.5pF	120-005227	Unless otherwise noted: all resistors are carbon composition, 1/2 watt.		
C14,20,24, 25	Ceramic; 10pF ±10%	120-004507	R1,60	330k ohm	120-004693
C15	Ceramic; 25pF ±10%	120-004678	R2,10,37, 38,57,58, 63	560 ohm	120-004694
C19	Ceramic; 95pF ±10%	120-005262	R3,23,42, 43,66	10k ohm	120-005035
C26,57	Ceramic; 2pF ±0.5pF	120-004504	R4,12	22k ohm	120-005036
C29	Ceramic; 6pF ±0.5pF	120-004676	R5,13,31	820 ohm	120-005037
C32,84,85	Mylar; 0.04μF ±20%	120-005266	R6,35,59	3.3k ohm	120-004698
C33,37,79	Mylar; 0.02μF ±20%	120-005265	R7,15	2.2k ohm	120-005039
C35,82,91	Ceramic; 30pF ±10%	120-004529	R8,16	1.2k ohm	120-004696
C36,73,74	Mylar; 0.01μF ±20%	120-005264	R9,29	220k ohm	120-004707
C38	Polystyrene; 800pF ±5%	120-005270	R11,18, 65	12k ohm	120-005042
C40	Polystyrene; 280pF ±5%	120-005269	R14,55	3.9k ohm	120-005411
C41	Polystyrene; 140pF ±5%	120-005265	R17,44	100k ohm	120-004706
C42	Ceramic; 55pF ±10%	120-005261	R19,22,39, 45,49	4.7k ohm	120-004699
C43	Electrolytic; 50μF, 6V	120-005258	R20,21,34, 47	1k ohm	120-004695
C45,48	Ceramic; 1pF ±0.5pF	120-005259	R24	82k ohm	120-004706
C50	Ceramic; 150pF	120-004240	R25,54,62	100 ohm	120-005404
C54,63,64, 78	Ceramic; 0.01μF +100%-20%	120-004683	R26,61	27k ohm	120-005049
C55,65,67	Electrolytic; 1μF, 6V	120-004769	R27,51,53	220 ohm	120-004692
C56	Electrolytic; 10μF, 6V	120-004081	R28	330 ohm	120-004693
C59,71	Electrolytic; 5μF, 6V	120-004771	R30	75k ohm	120-005052
C60,61	Ceramic; 300pF ±10%	120-004530	R32	470 ohm	120-005053
C66,75,76	Electrolytic; 500μF, 6V	120-005257			
C68,72	Electrolytic; 30μF, 6V	120-004772			
C69	Electrolytic; 3μF, 6V	120-004770			
C70	Mylar; 0.005μF ±20%	120-005267			
C80	Mylar; 0.005μF ±20%	120-005263			

SERVICE REPAIR PARTS LIST (Continued)

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
R33	180k ohm	120-004709	Q14,15	Transistor, 2SB187 (A or B)	120-004729
R36,48	5.6k ohm	120-004700	Q16	Transistor, 2SC537R(B)	120-005298
R40,41	1.5k ohm	120-005056	Q17	Transistor, CS1369(D or E)	120-006604
R46,50	33k ohm	120-005057	CR1,5,6	Diode, DS410	120-005299
R52	10 ohm	120-004690	CR2,3	Diode, 1S188	120-004730
R56	2.2 ohm	120-005059	CR4	Diode, 1S555	120-005300
R64	18k ohm	120-005406			
R69/S7, R68/S5	5k ohm Pot. with SPST Switch; OFF-VOL, DF Control	120-005311		MISCELLANEOUS	
RT1	Thermistor; 250 ohm	120-004711	J3	Jack, AC ADAPTER	120-004733
	COILS AND TRANSFORMERS		J2	Jack, EAR PHONE	120-005365
L1	Coil, VHF Antenna	120-004776	J1	Jack, EXT ANT	120-005364
L2	Coil, VHF rf	120-005271	DS1	Lamp	120-005332
L3	Coil, VHF Oscillator	120-005272	M2	Meter, BATTERY	120-005344
L4	Coil, FM Antenna	120-005273	M1	Meter, TUNING	120-005343
L5	Coil, FM rf	120-005274	LS1	Speaker	120-005346
L6	Coil, FM Oscillator	120-005275	S1A/B/C/ D/E/F/G/ H/I/J/K	Switch, Rotary, Band Selector	120-005301
L7	Coil, MB Antenna	120-005276	S8,S9A/B	Switch, See-Saw; TONE, LAMP-METER	120-005302
L8A/8B	Coil, LW and AM Antennas	120-005277	S11	Switch, Slide, AFC Control	120-005303
L9	Coil, MB Oscillator	120-005278		Antenna, Telescopic	120-005371
L10	Coil, AM Oscillator	120-005279		Azimuth Plate	120-005366
L11	Coil, LW Oscillator	120-005280		Cabinet Assembly	120-005372
L12	Coil, Choke	120-005281		Casing, Antenna	120-005367
L13	Coil, Choke	120-005025		Cord, Dial	120-005339
T1,2	Transformer; FM-VHF	120-005282		Earphone	120-005355
T3	Transformer; AM-IF	120-005283		Escutcheon, Die Cast	120-005314
T4,6	Transformer; FM-VHF, IF	120-005284		Heat Sink, Transistor	120-005123
T5	Transformer; AM-IF	120-005285		Handle	120-005324
T7	Transformer; AM-IF	120-005286		Insulator, Telescopic	120-005372
T8	Transformer; FM-VHF, IF	120-005287		Antenna	
T9	Transformer FM-VHF, Ratio Detector	120-005288		Knob, Band Selector	120-005359
T10	Transformer; Audio Driver	120-005289		Knob, DF CONTROL, FINE TUNE, OFF-VOL	120-005358
T11	Transformer; Audio Output	120-005290		Knob, TUNING	120-005357
	TRANSISTORS AND DIODES			Lid, Antenna Casing	120-005368
Q1	Transistor, 2SC668(E)	120-005291		Lid Assembly, Cabinet Back	120-005313
Q2	Transistor, 2SC668(D)	120-005292		Liner, Handle	120-005325
Q3	Transistor, 2SC772K(D)	120-005293		Name Plate, Azimuth	120-005366
Q4,6,8	Transistor, 2SC772K(C)	120-005294		Name Plate, Band	120-005323
Q5	Transistor, 2SC772K(B)	120-005295		Name Plate, Jack	120-005322
Q7	Transistor, 2SC668(A)	120-005296		Name Plate, Meter	120-005317
Q9	Transistor, 2SC772(E)	120-005297		Panel	120-005319
Q10	Transistor, 2SC772(D)	120-004724		Plate, Meter Mounting	120-005316
Q11	Transistor, 2SC772(C)	120-004725		Pointer, Dial	120-005382
Q12	Transistor, 2SB186(A)	120-004728		Rail, Pointer	120-005384
Q13	Transistor, 2SB186(B)	120-004727		Retainer, Battery	120-005354
				Shaft, Gear	120-005340
				Shaft, TUNING	120-005333
				Window, Dial	120-005315