SERVICE DATA FOR MODEL S-94, MARK II

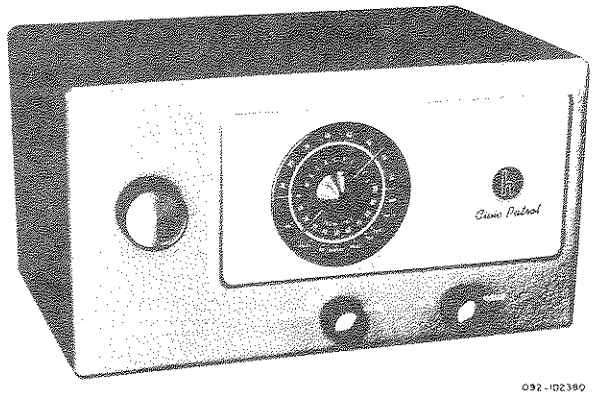


Figure 1. Hallicrafters Model S-94

TUBE REPLACEMENT

For access to the tubes, remove the cabinet rear cover. The rear cover is held in place by four screws and washers.

CAUTION: Before attempting to make any replacement, rotate the tuning control fully counterclockwise to prevent damage to the tuning gang.

ACCESS TO CHASSIS BOTTOM

For access to the chassis bottom, remove the cabinet bottom cover which is held in place by four screws located within the rubber feet.

CHASSIS REMOVAL

To remove the chassis from the cabinet, first remove the cabinet rear cover which is held in place by four screws, then unsolder the speaker leads at the speaker terminals. Remove the cabinet bottom cover which is held in place by four screws within the rubber feet. Unsolder the isolating capacitor from the mounting lug on the cabinet frame. Remove the additional four screws and washers from the plastic mounting bases which secure the chassis to the cabinet frame. Remove the three knobs from the front panel, and push in on the shafts to slide the chassis partway out of the cabinet. Finally, pull the chassis out through the rear opening.

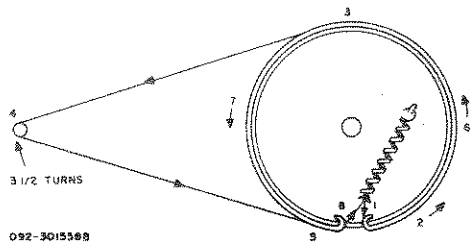


Figure 2. Dial Cord Stringing Diagram

DIAL CORD RESTRINGING

To restring the tuning dial, first remove the chassis from the cabinet. See "CHASSIS REMOVAL". For stringing details, see Figure 2.

TECHNICAL SPECIFICATIONS

TUBES..... 8 and 1 selenium rectifier
SPEAKER..... 5 inch PM, 3.2 ohm voice coil
HEADPHONE OUTPUT IMPEDANCE..... 100 ohm
ANTENNA INPUT IMPEDANCE..... 300 ohm
ANTENNA..... Vertically polarized whip or doublet
POWER SUPPLY.. 105-125 volts DC or 50-60 cycle AC
POWER CONSUMPTION..... 30 watts
INTERMEDIATE FREQUENCY.....10.7 MC
FREQUENCY COVERAGE..... 30 to 50 MC
DIMENSIONS .. 7-1/2" high x 13" wide x 8-3/4" deep
WEIGHT.....Net - 9 lbs., 10 oz.; Shipping - 12 lbs.

SQUELCH RANGE CONTROL ADJUSTMENT

The Squelch Range control (See Fig. 3) adjusts the operating point of the output section of the 12AU7 squelch tube (V8). This control has been carefully adjusted at the factory for proper operation and will normally not require readjustment unless the squelch tube, relay, or components in the squelch circuit have been replaced. If adjustment is necessary, proceed as follows:

1. Connect a DC milliammeter (0-15 ma) in series with the squelch relay, RY1, in the plate circuit of the squelch tube, V8.

2. Set the Volume control at maximum, the Squelch Range control fully clockwise (minimum resistance) and the Squelch control on the front panel fully counterclockwise (maximum resistance) but not at "Off".

3. Tune the receiver to a noisy part of the band where no signal is present.

4. With no signal tuned in, slowly rotate the Squelch Range control counterclockwise until the background noise is no longer audible. At this point the relay contacts are closed and the grid of the audio output tube is shorted to ground. Note the plate current reading of the squelch tube (should be anywhere from 6.5 to 10.25 ma), and then continue to advance the Squelch Range control until the plate current drops 2 ma from that obtained at the point of squelch. This is the proper setting of the Squelch Range control.

   If a milliammeter is not available, the Squelch Range control can be "roughly" set by adjusting the Squelch Range control to the point of squelch as outlined above and then advancing the control 65° further counterclockwise.

the hallicrafters co.
MANUFACTURERS OF ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.

IF ALIGNMENT PROCEDURE

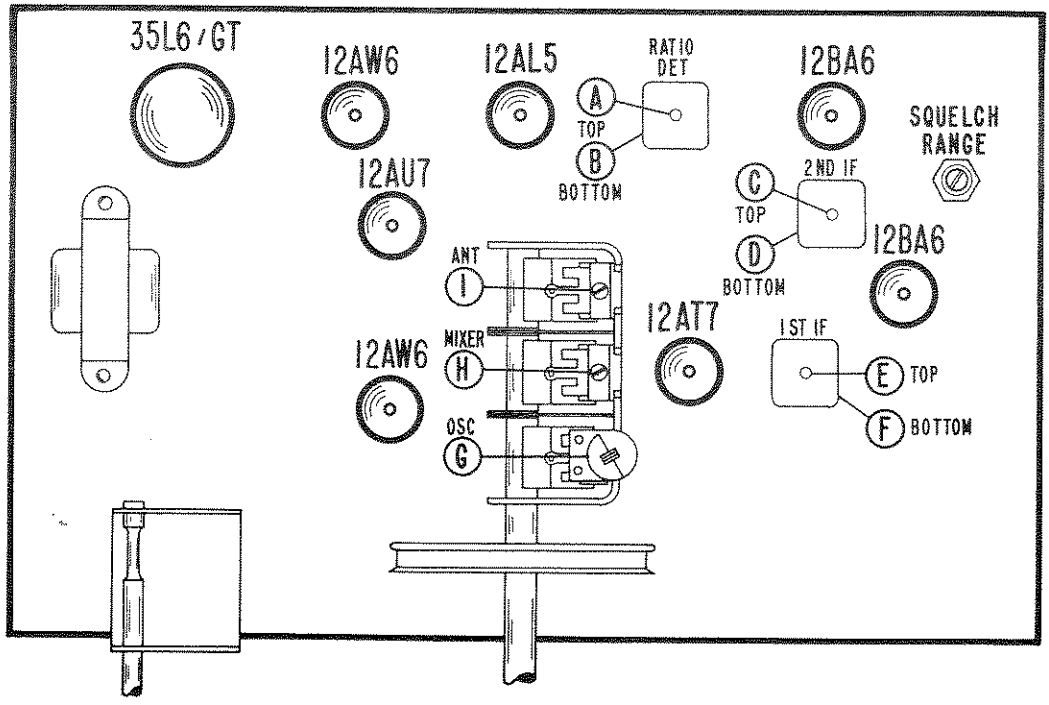
- Use a 10.7 MC signal generator, either amplitude modulated or unmodulated.
- Connect high side of generator through a .01 mfd. capacitor to pin 7 of V2; connect low side to chassis.
- Adjust generator output to maintain a one volt reading on VTVM.
- Set Volume control at maximum and Squelch control at "Off".
- See Fig. 3 for location of alignment adjustments.

1. Connect DC probe of VTVM to pin 2 of V5; connect common lead of VTVM to chassis. Adjust B, C, D, E, and F for maximum output.
2. Connect two 470,000 ohm resistors in series between pin 2 of V5 and the chassis. Connect DC probe of VTVM to junction of R10 and C16; connect common lead of VTVM to center tap of the two 470,000 ohm resistors. Adjust A for zero reading between a positive and negative peak. The two peaks should have approximately the same amplitude, if not, readjust B slightly and then touch up A.

RF ALIGNMENT PROCEDURE

- Use a signal generator either amplitude modulated or unmodulated which covers 33 MC and 49 MC.
- Connect high side of generator through a 270 ohm resistor to terminal "A" on antenna terminal strip on rear of chassis; low side to terminal "G".
- Use a non-metallic alignment tool.
- Connect DC probe of VTVM to pin 2 of V5; connect common lead of VTVM to chassis.
- Adjust generator output to maintain a one volt reading on VTVM.
- Set Volume control at maximum and Squelch control at "Off".
- See Fig. 3 for location of alignment adjustments.

1. Set generator and receiver dial to 49 MC and adjust G, then H, and then I for maximum output. When adjusting H and I "rock" tuning capacitor slightly.
2. Check calibration at low end of receiver by setting generator and receiver dial to 33 MC. A calibration adjustment is usually not necessary and should not be made unless the oscillator coil has been replaced. If adjustment is required, the oscillator coil lead connected to the gang should be varied in length or position until output is obtained at 33 MC.



092-302379B

Figure 3. Tube Location And Alignment Adjustments

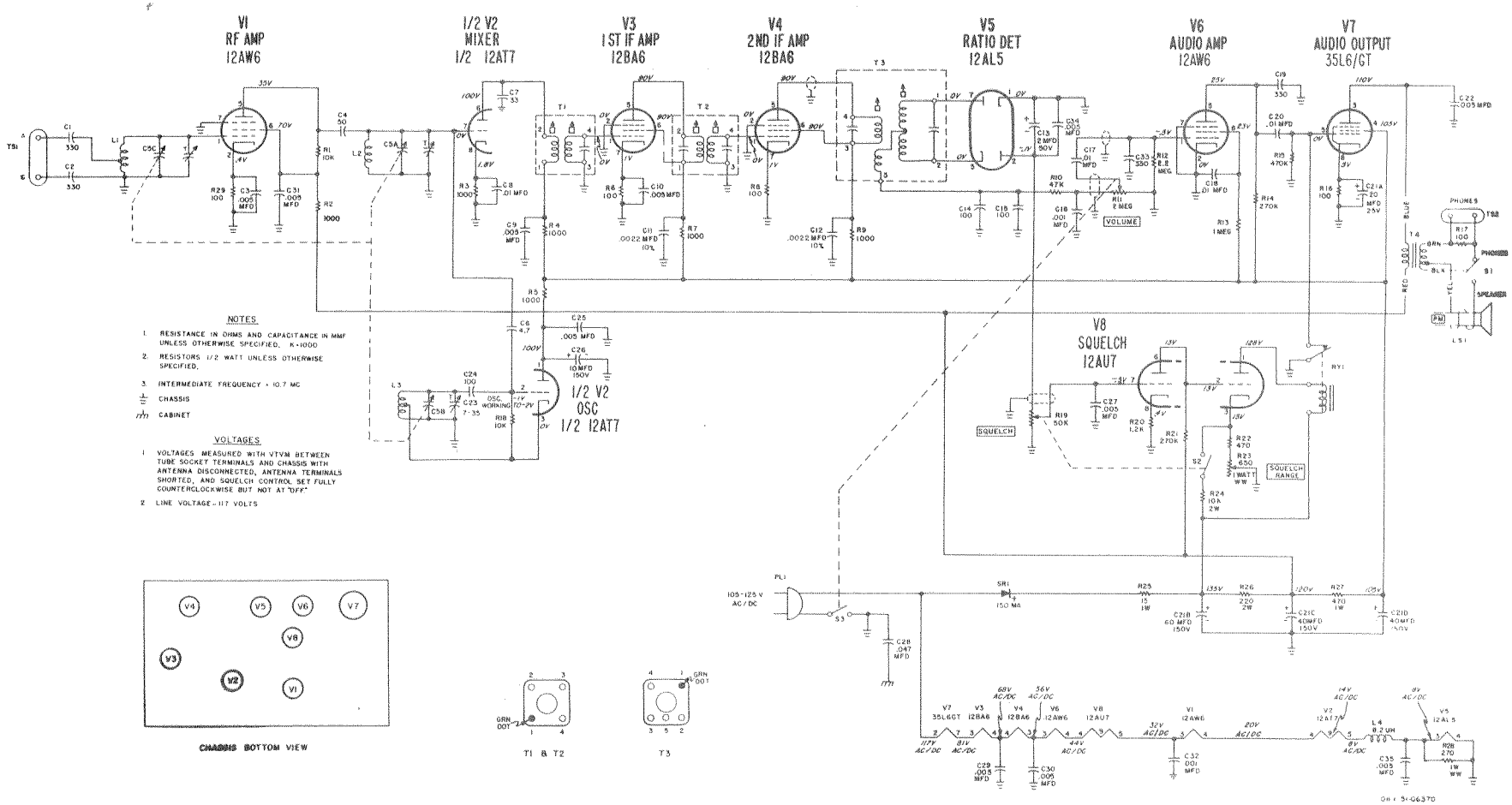


Figure 4. Schematic Diagram

SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C1, 2, 19, 33	330 mmf., 500V., 10%; ceramic	478-226331-4
C3, 9, 10, 22, 25, 27, 29, 30, 31, 34, 35	.005 mfd., 500V., GMV ceramic disc	047-100168
C4	50 mmf.; wire gimmick	491-106510-95
C5A, B, C	Tuning capacitor, 3 section	048-400348
C6	4.7 mmf., 500V, 20% ceramic	047-100160-06
C7	33 mmf., 500V, 5% ceramic	491-025330-24
C8, 17, 18, 20	.01 mfd., 500V., +80 -20%; ceramic disc	047-100224
C11, 12	.0022 mfd., 500V., 10% ceramic disc	047-300713
C13	2 mfd., 50V.; electrolytic	045-000192
C14, 15, 24	100 mmf., 500V., 10% ceramic	491-126101-95
C16, 32	.001 mfd., 500V., GMV; ceramic disc	047-100230
C21A, B, C, D	20 mfd. @ 25V.; 60-40-40 mfd. @ 150V.; electrolytic	045-200091
C23	7-35 mmf.; ceramic trimmer	044-100125
C26	10 mfd., 150V.; electrolytic	045-300097
C28	.047 mfd., 600V., 20%; molded paper	499-034473
	*RESISTORS	
R1, 18	10K ohm	451-252103
R2, 3, 4, 5, 7, 9	1K ohm	451-252102
R6, 8, 16, 17, 29	100 ohm	451-252101
R10	47K ohm	451-252473
R11	2 megohm, VOLUME Control; includes switch S3	025-101784
R12	2.2 megohm	451-252225
R13	1 megohm	451-252105
R14, 21	270K ohm	451-252274
R15	470K ohm	451-252474
R19	50K ohm, SQUELCH Control; includes switch S2	025-101785
R20	1.2K ohm	451-252122
R22	470 ohm	451-252471
R23	650 ohm, 1W, wirewound SQUELCH RANGE Control	025-101113
R24	10K ohm, 2W	451-552103
R25	15 ohm, 1W	451-352150
R26	220 ohm, 2W	451-552221
R27	470 ohm, 1W	451-352471
R28	270 ohm, 1W, wirewound	453-022271

*All resistors are 10%, 1/2 watt, carbon type unless otherwise specified.

Schematic Symbol	Description	Hallicrafters Part Number
	COILS AND TRANSFORMERS	
L1	Coil, Antenna	051-001930
L2	Coil, RF	051-001929
L3	Coil, Oscillator	051-001928
L4	Choke, RF, 8.2 UH	053-100333
T1	Transformer, 1st IF	050-300519
T2	Transformer, 2nd IF	050-300517
T3	Transformer, Ratio detector	050-300518
T4	Transformer, audio output	055-100127
	SWITCHES	
S1	Switch, SPDT; Speaker-Phones	060-200477
S2	Switch, SQUELCH ON/OFF; part of SQUELCH Control R19	----------
S3	Switch, POWER ON/OFF; part of VOLUME Control R11	----------
	TUBES AND RECTIFIER	
V1	12AW6; RF amplifier	090-901319
V2	12AT7; oscillator/mixer	090-900034
V3, 4	12BA6; 1st and 2nd IF amplifiers	090-900039
V5	12AL5; ratio detector	090-901186
V6	12AW6; audio amplifier	090-901319
V7	35L6/GT; audio output	090-900381
V8	12AU7; squelch	090-900036
SR1	Selenium rectifier, 150 ma	027-100158
	MISCELLANEOUS	
	Cabinet	040-300174
	Cabinet back	032-300680
	Clip, mtg.; for transformers T1, 2 and 3	076-100385
	Clip, push-on; for mounting dial window	076-000853
	Cover, cabinet bottom	008-301617
	Dial Scale	083-300510
	Dial Cord (specify length)	038-100026
	Foot, mounting; rubber	016-100007
	Grommet, rubber; chassis-cabinet insulating	016-100201
	"h" medallion	007-100021
	Insulator, nylon; fits in chassis-cabinet insulating grommet	004-100647
	Knob, TUNING Control	015-001500
	Knob, VOLUME and SQUELCH Controls	015-001471
PL1	Line cord and plug	087-100078
	Lock, line cord; male section	076-100397-01
	Lock, line cord; female section	076-100397-02
	Pointer, dial	082-100277
RY1	Relay, DC; SPST normally closed; 1000 ohms DC, 8-11 ma pull-in	021-100193
	Ring, retaining; "E" type	076-101052
	Shield, tube	069-100232
	Socket, tube; 7-pin miniature (V1, 3, 4, 5, 6)	006-200402
	Socket, tube; 9-pin miniature (V2, 8)	006-200401
	Socket, tube; octal (V7)	006-100250
	Speed nut; (for mounting "h" medallion)	002-101011
LS1	Speaker, 5 inch PM; 3.2 ohm voice coil	085-300120
	Spring, dial cord tension	075-100012
TS1	Terminal Strip, antenna	088-000456
TS2	Twin jack, Phones	088-000071
	Washer, extruded; chassis-cabinet, insulating	004-100646
	Window, dial	022-200345
	Wire, Antenna	087-000767