

SERVICE INSTRUCTIONS

Communication Receiver Model S-94 Mark 1A



Fig. 1. Model S-94

9242380

SPECIFICATIONS

Tubes and Rectifiers	8 tubes and 1 selenium rectifier
Speaker	5 inch PM
Voice Coil Impedance	3.2 ohms
Headphone Output Impedance	100 ohms
Antenna Input Impedance	300 ohms
Antenna	Vertically polarized whip or doublet
Intermediate Frequency	10.7 MC
Power Supply	105-125 volts DC or 50-60 cycle AC
Frequency Coverage	30 to 50 MC
Dimensions (overall)	7½" High x 13" Wide x 8½" Deep
Net Weight	9 Lb. 10 Oz.
Shipping Weight	12 Lb.

SQUELCH RANGE CONTROL ADJUSTMENT

The Squelch Range control (Fig. 3) adjusts the operating point of the output section of the 12AU7 squelch tube (V-6). 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, RY-1, in the plate circuit of the squelch tube, V-6.
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 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 noise is just squelched (disappears). 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° farther counterclockwise.

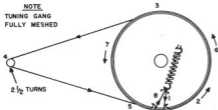


Fig. 2. Dial Cord Stringing Diagram

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IF ALIGNMENT

- 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 V-2; connect low side to chassis.
1. Connect DC probe of VTVM to pin 2 of V-5; common lead 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 V-5 and the chassis. Connect DC probe of VTVM to junction of R-10 and C-16; common lead 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

- 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.
1. Set generator and receiver dial to 49 MC and adjust G, then H, and then I for maximum output. When adjusting 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 on the top front of the tuning gang has been replaced. If adjustment is required, the oscillator coil lead connected to the chassis should be unsoldered and its length varied until maximum output is obtained at 33 mc.

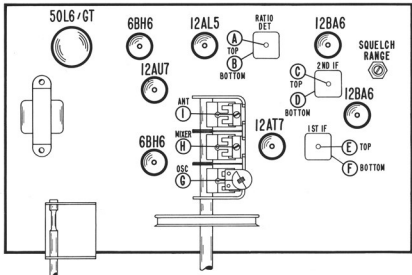
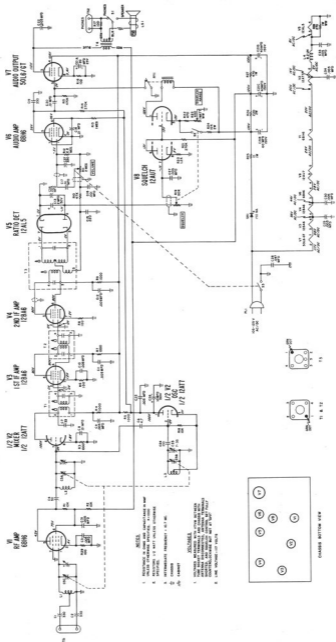


Fig. 3. Tube Location and Alignment Adjustments

MODEL S-94 MARK 1A



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SERVICE OR OPERATING QUESTIONS - For any further information regarding operation or servicing of your receiver, contact your Hallicrafters dealer. The Hallicrafters Co. maintains an extensive system of authorized service centers where any required service will be performed promptly and efficiently at a nominal charge. All Hallicrafters Authorized Service Centers display the sign shown at the right. For the location of the one nearest you, consult your dealer or telephone directory.

The Hallicrafters Company reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate these revisions in earlier models.



SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS					
C-1,2,16,37	.330 mfd. 10%, 500 V.; ceramic	47CA25331K/D	T-1	Transformer, 1st IF	50C519
C-3,9,10,11	0.005 mfd. GMV, 500 V.;		T-2	Transformer, 2nd IF	50C517
12,22,25,27,	ceramic disc	47A168	T-3	Transformer, ratio detector	50C518
29,30,31,34			T-4	Transformer, audio output	55A127
35,38			SWITCHES		
C-4	.50 mfd., wire gimmick	47X20UK510K/D	S-1	Switch, spst; Speaker-Phones	60A243
C-5	Tuning capacitor, 3 section	48D348	S-2	Switch, squeech on-off; part of Squeech control R-19	
C-6	0.4-7 mfd. 20%, 500 V.;		S-3	Switch, power on-off; part of Volume control R-11	
	ceramic	47A160-6	TUBES AND RECTIFIERS		
C-7	.33 mfd. 5%, 500 V.; ceramic	47X25C7330J	V-1	6BB6: RF amplifier	90X60H6
C-8,17,18,20	0.01 mfd. 40-20%, 450 V.;		V-2	12AT7: oscillator/mixer	90X12A7T
	ceramic disc	47A234	V-3,4	12BA6: 1st and 2nd IF amplifiers	90X12BA6
C-13	2 mfd. 50 V., electrolytic	45B192	V-5	12AL5: ratio detector	90X12A5L
C-15	.220 mfd. 10%, 500 V.;		V-6	6BB9: audio amplifier	90X60H9
	ceramic	47X32UK221K	V-7	58L6GT: audio output	90X50L6GT
C-16	0.001 mfd. GMV, 500 V.;		V-8	12AU7: squeech	90X12AU7
	ceramic disc	47A230	SR-1	Selenium rectifier, 150 ma.	27-158
C-21	60-40-40 mfd. 6150 V., 20 mfd. @ 25V.; electrolytic	45B091	MISCELLANEOUS		
C-23	7-35 mfd., ceramic trimmer	44A125	Cabinet		40C174
C-24	100 mfd. 10%, 500 V.; ceramic	47X23UK101K	Cabinet back		32C680
C-28	10 mfd. 150 V., electrolytic	45C097	Clip, mtg.; for transformers		
C-28	0.047 mfd. 600 V., molded tubular paper	46BR473L6	T-1, 2 and 3		76A385
RESISTORS					
R-1,2,18	10,000 ohms 10%, 1/2 watt;		Clip, window		76A853
		25X30X103K	Cover, cabinet bottom		8C1617
R-3,4,5,7,9	1000 ohms 10%, 1/2 watt; carbon	25X30X102K	Dial		8BC510
R-6,8,16,17,29	100 ohms 10%, 1/2 watt; carbon	25X30X101K	Dial cord (specify length)		38A026
R-10	47,000 ohms 10%, 1/2 watt; carbon	23X20X473K	Foot, mounting; rubber		16A007
R-11	2 megohms, variable; Volume control (includes power on-off switch)	25B1115	Grommet, rubber; chassis-cabinet insulating		16A201
R-12	2.2 megohms 10%; 1/2 watt; carbon	23X20X225K	"h" medallion		7A021
R-13	1 megohm 10%, 1/2 watt; carbon	23X20X105K	Insulator, nylon; fits in chassis-cabinet insulating grommet		4A647
R-14,21	270,000 ohms 10%, 1/2 watt; carbon	23X20X274K	Knob, Tuning control		15B002
R-15	470,000 ohms 10%, 1/2 watt; carbon	23X20X474K	Knob, Volume and Squeech controls		15B816
R-19	50,000 ohms, variable; Squeech control (includes squeech on-off switch)	25B1114	PL-1	Line cord and plug	87A078
R-20	1200 ohms 10%, 1/2 watt; carbon	23X20X122K	Lock, line cord		
R-22	470 ohms 10%, 1/2 watt; carbon	23X20X471K	male section		76A397-1
R-23	650 ohms 1 watt, wirewound variable; Squeech Range control	25A1113	female section		76A397-2
R-24	10,000 ohms 10%, 2 watt; carbon	25X40X103K	Pointer, dial		82A277
R-25	15 ohms 10%, 1 watt; carbon	23X30X150K	Relay, DC; spst normally closed; 1000 ohms DC, 8-11 ma pull-in		21B193
R-26	220 ohms 10%, 2 watt; carbon	25X40X221K	Ring, retaining; "K" type		76A1052
R-27	470 ohms 10%, 1 watt; carbon	23X30X471K	Shield, tube		69A232
R-28	270 ohms 10%, 1 watt; wirewound	24B9W21E	Socket, tube		
COILS AND TRANSFORMERS					
L-1	Coil, antenna	51A1930	7-pin miniature		6B402
L-2	Coil, RF	51A1929	9-pin miniature		6A401
L-3	Coil, oscillator	51A1928	octal		6A250
L-4	Choke, RF; 6.2 uh	53A333	Speed nut (for mounting "h" medallion)		2A1011
COILS AND TRANSFORMERS (Cont.)					
SWITCHES					
TUBES AND RECTIFIERS					
MISCELLANEOUS					
COILS AND TRANSFORMERS					
SWITCHES					
TUBES AND RECTIFIERS					
MISCELLANEOUS					