

SERVICE BULLETIN No. 2 FOR MODEL S-38

GENERAL: Model S-38 is a 6 tube AC/DC superheterodyne table model, radio receiver, incorporating 6 bands of AM/CW reception, as follows: band #1, 540 kc to 1650 kc; band #2, 1650 kc to 5.0 mc; band #3, 5.0 mc to 14.5 mc; band #4, 13.5 mc to 32.0 mc. Provision for AVC, noise limiting, BFO pitch, headset reception, standby operation, and bandspreading are provided.

REAR PANEL CONNECTIONS: Consist of line cord with plug, antenna and ground connector strip, and headset connector plug strip.

POWER SUPPLY DATA: 105 to 125 volts AC/DC line voltage. Power drain is 30 watts.

TUBE TYPES AND FUNCTION: 12SA7—mixer-oscillator; 12SK7—IF amplifier; 12SQ7GT—detector, AVC, audio amplifier; 35L6GT—audio power amplifier; 12SQ7GT—BFO and ANL; 55Z5GT—power rectifier for AC operation.



Fig. 1. Front view of receiver showing control locations.

DETAILED SERVICE INFORMATION

IF FREQUENCY	IF SELECTIVITY	IMAGE RATIO	SENSITIVITY	AUDIO OUTPUT
455 kc	7 kc wide at 6 db down 65 kc wide at 60 db down (for 50 milliwatt output)	2.7:1 at 50 mc 6:1 at 14 mc 10:1 at 5 mc 35:1 at 1500 kc	12 microvolt at 600 kc 12 microvolt at 5 mc 11 microvolt at 14 mc 23 microvolt at 30 mc (for 50 milliwatt output)	675 milliwatt with less than 10% distortion at 400 cycles

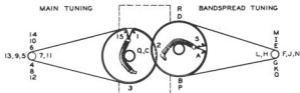
CONTROL SETTINGS FOR PRELIMINARY TEST OPERATION (Broadcast Band)

REF. NO. (in Fig. 1)	NAME	FUNCTION	SETTING	REF. NO. (in Fig. 1)	NAME	FUNCTION	SETTING
1	STANDBY/ RECEIVE	Receiver temporary standby	At "RECEIVE"	5	SPEAKER/ PHONON	Output selector switch	At "SPEAKER"
2	VOLUME	Audio gain control and receiver on/off switch	Half clockwise; adj. as necessary	6	CW/AM	BFO on/off switch AVC on/off switch	At "AM" (AVC on)
3	BAND SELECTOR	Operating band selector	Clockwise to "1"	7	NOISE LIMITER	Noise peak limiting	At "OFF"
4	PITCH CONTROL	CW beat note pitch selector	Any position (not in use)	8	TUNING	Main tuning control	To local station freq. on main dial scale
				9	BAND SPREAD	Short wave band spreading	To "0" on small dial scale

HOW TO RESTRING DIAL CORDS

To restring the main tuning dial cord, cut a 14" length of 30 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1" on the diagram. Following the numbers 1 through 13, wind the cord on the pulley and knob drive shaft. At position "15," stretch the tension spring and tie the cord securely. Cut off the excess cord. Note that two complete turns are wound on the knob drive shaft.

To restring the bandspread tuning dial cord, cut a 16" length of dial cord and follow the procedure as explained above, except start at position "A" on the diagram and proceed through position "S." Note that the knob-drive shaft has two complete turns.



TUNING CAPACITOR FULLY CLOSED (BOTH SECTIONS).
FRONT VIEW

Fig. 2. Dial cord restringing procedure.

REPLACEMENT PARTS

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT	REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
CAPACITORS				SWITCHES			
C-1	0.01 mfd., 500 vdc., paper	464T032	8 1/2	S-13, S-4	Bandswitch, two sections spaced rotary	562430	\$ 35.
C-2, S-4, 4	Screen grid for antenna transformer T-4	448T033	20	S-2	"RECEIVE-STANDBY" and "TUNE" switches	562431	20
C-3	Screen for antenna transformer T-4	448T039	20	S-2 & 4	LIMITING switches, wide action, SPST	562434	20
C-4	1000 mfd., 2 1/2", 500 vdc., mica	464R047D	75	S-4	"OFF-AUTOMATIC" switch, wide action	562435	20
C-5	Tuning capacitor, var. 1 section spaced	461-87	2 3/4	S-10	SPDT	562436	20
C-6, S-13, 31	200 mfd., 500 vdc., mica	464R047K	75	S-11	"A.M.-C.W." switch, wide action, DPST	562438	20
C-7				TRANSFORMERS			
C-8	3000 mfd., 47", 500 vdc., mica	464R049D	75	T-1	Antenna coil for bands 1, 2 and 3	562501	2 1/2
C-10 & 11	One section for oscillator transformer T-3	448T032	20	T-2	Antenna coil for band 4	562502	2 1/2
C-12, S-14, 4	Three coils for oscillator transformer T-4	448T039	20	T-3	Oscillator coil for bands 1, 2, 3 and 4	562503	2 1/2
C-13				T-4	Input IF transformer, 455 kc.	562504	1 00
C-14 & 24	0.01 mfd., 400 vdc., paper	464R053M	10	T-5	Slide IF transformer, 455 kc.	562505	1 00
C-17 & 26	0.25 mfd., 750 vdc., paper	464T060	15	T-6	Beat frequency oscillator coil, 455 kc.	562506	1 00
C-18, S-15, 31	Screen for IF transformers T-4 and T-5	464R057	20	T-7	Auto output transformer, 1,800 ohm primary — 15 ohm secondary tapped at 3 ohms	562511	2 1/2
C-20 & 23	0.25 mfd., 200 vdc., paper	464L033J	10	TERMINAL STRIPS			
C-21	0.500 mfd., 400 vdc., paper	464R052J	10	TS-1	Antenna and ground connector 400	562527	25
C-22	2 mfd., varnished insulated wire leads; NOT AVAILABLE AS A SPARE PART.			TS-2	Headset plug connector strip, 5-pin, 400	562521	25
C-24 & 29	450 mfd., 500 vdc., mica	464R053K	20	MISCELLANEOUS MECHANICAL COMPONENTS			
C-28 & 37	0.01 mfd., 400 vdc., paper	464R052J	10	QWNT. IN EQUIPMENT	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
C-25, S-1, 31	Electrolytic, four section, 5000, 5000, 1000, 1000, 25 vdc., and 2 1/2" x 2" x .01 20 mfd., 150 vdc., and 100 100 40 mfd., 150 vdc.	492000 464T050J	30 30	2	Knob, for Volume Control and Band Selector switches	114240	14
C-26	600 mfd., 500 vdc., 2400	464T050J	30	2	Knob, for C. W. (MTC) Control	114246	14
PILOT LAMP				2	Knob, for main TUNING and BANDSPREAD	114247	25
LM-1	6.3 x 1/2" 150ma; brock base; C. E. type 47	254004	1 00	1	Tuning dial	114257	25
LB-1	5" P.M. speaker; 3/2 ohm voice coil	562055	2 50	1	Pointer, for main tuning dial	114258	15
PL-1	AC line cord with two prong plug at one end	562076	36	1	Pointer, for bandspread tuning dial	114259	15
PL-2	Speaker voice coil connector plug	562077	10	1	(Control) dial assembly, complete	114257	25
RESISTORS				1	For volume plate	114257	25
R-1 & 13	470,000 ohm, 1/2 watt, carbon	RC20AE470M	10	6	Ortal tube socket, Amphenol type MP-8	46225	70
R-2	25,000 ohm, 1/2 watt, carbon	RC20AE250M	10	1	One lamp socket, bayonet	562512	70
R-3	47 ohm, 1/2 watt, carbon	RC20AE470M	10	1	Tuning capacitor dial drive shaft	562513	70
R-4	300 ohm, 1/2 watt, carbon	RC20AE300M	10	1	Tuning capacitor rear mounting bracket	574268	70
R-5	2.2 megohm, 1/2 watt, carbon	RC20AE220M	10	1	Tuning capacitor front mounting bracket	574269	70
R-6 & 10	47,000 ohm, 1/2 watt, carbon	RC20AE470M	10	1	Spring washers for mounting tuning capacitor drive shafts	46241	70
R-7 & 9	Volume Control, 1/2 megohm, includes SPST toggle action switch assembly on rear	270094	20	1	Rubber mounting feet for cabinet	114257	70
R-8	10 megohm, 1/2 watt, carbon	RC20AE100M	10	1	Right hand switch mounting bracket	475041	70
R-9 & 11	470 ohm, 1/2 watt, carbon	RC20AE470M	10	1	Rubber mounting feet for cabinet	114257	70
R-10	220,000 ohm, 1/2 watt, carbon	RC20AE220M	10	2	Spring washers for mounting tuning capacitor drive shafts	46241	70
R-11	100 ohm, 1/2 watt, carbon	RC20AE100M	10	1	"C" washers, Chassis base	114262	70
R-12	10 ohm, 1/2 watt, carbon	RC20AE100M	10	1	Rear cover plate, carbonized	574269	70
R-13	1,000 ohm, 1/2 watt, carbon	RC20AE100M	10	1	Bottom cover plate, painted steel	562209	40
R-14	680 ohm, 1/2 watt, carbon	RC20AE680M	10				
R-15 & 21	10 ohm, 1/2 watt, carbon	RC20AE100M	10				
R-16	100 ohm, 1/2 watt, carbon	RC20AE100M	10				
R-17	680 ohm, 1/2 watt, carbon	RC20AE680M	10				
R-18 & 22	10 ohm, 1/2 watt, carbon	RC20AE100M	10				
R-19	330 ohm, 1/2 watt, carbon	RC20AE330M	10				
R-20	10,000 ohm, 1/2 watt, carbon	RC20AE100M	10				

NOTE: ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
 Expansion of abbreviations: mfd.—microfarads; mfd.—microfarads; vdc.—DC working volts; —vdc.—mV.—millivolts; IF.—intermediate frequency; and —action; REF. NO.—circuit symbol as on the schematic diagram.

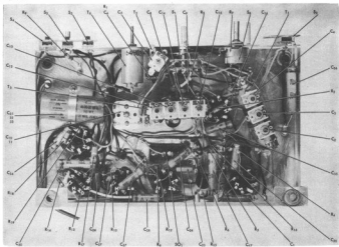


Fig. 4. Bottom view of the receiver showing component location.

ALIGNMENT INSTRUCTIONS

EQUIPMENT:

1. Signal Generator capable of the ranges indicated in the Alignment Chart, including a 400 cycle audio modulator.
2. Output meter capable of handling 1 watt of audio power.
3. Standard RMA dummy consisting of a 200 μ fd condenser in series with a 20k Ω -I choke which is shunted by a 400 μ fd condenser in series with a 400-ohm carbon resistor.
4. Non-metallic screw driver.

CONNECTIONS: Connect the Sig. Gen. "cold" lead to "G" on the antenna strip; the "hot" lead is connected as indicated in the Chart.

Connect the output meter across the terminals of socket SO.1 and remove the speaker plug from the socket and adjust the meter for 5 ohms impedance.

Caution: Set the meter at a sufficiently high range to prevent possible damage from overload.

CONTROL SETTINGS: After allowing about a ten minute warm up period, set the receiver's control as follows:

- SPEAKER/PHONES switch at "SPEAKER."
- VOLUME control at full clockwise (maximum).
- CW/AM switch at "AM" (except for BFO adjustment).
- NOISE LIMITER switch at "OFF."
- BANDSPREAD TUNING control at "0," (min. cap.).
- STANDBY/RECEIVE switch at "RECEIVE."

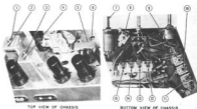


Fig. 5. Top and bottom views of the receiver locating slugs, paddlers and trimmers for alignment purposes.

DUMMY ANT. IN SERIES WITH SIG. GENERATOR	CONNECTION OF SIG. GENERATOR OUTPUT TO RECEIVER	SIG. GEN. FREQUENCY SETTING	BAND SWITCH SETTING	RECEIVER DIAL SETTING	ADJUST. SLUG, PADDLER, OR TRIMMER NO.	DESCRIPTION	TYPE OF ADJUSTMENT—MAKE ADJUSTMENT FOR:	STEP NO.
*IF ADJUSTMENT								
None	Stator plates of rear sect. of tuning gang	455 kc	"1"	1000 kc	3 and 4 1 and 2	2nd IF 1st IF	Maximum output Maximum output Repeat steps 1 and 2	1 2
BFO ADJUSTMENT—NOTE: Turn off Sig. Gen. 400 cycle modulation; set CW/AM switch at "CW"; remove Pitch Control knob and adjust slotted screw shaft.								
None	Stator plates of rear sect. of tuning gang	455 kc	"1"	1000 kc	7	BFO slug	Zero beat	3
BAND #4 ADJUSTMENT—NOTE: Make sure 400 cycle audio modulator is turned on; AM/CW switch should be at "AM."								
STANDARD RMA Dummy	"A1" on antenna strip	30 mc 30 mc	"4"	30 mc 30 mc	12 1, 8	Osc. Trimmer Mix. Trimmer	Maximum output Maximum output	4 5
BAND #5 ADJUSTMENT								
STANDARD RMA Dummy	"A1" on antenna strip	14 mc 14 mc	"3"	14 mc 14 mc	13 1, 9	Osc. Trimmer Mix. Trimmer	Maximum output Maximum output	6 7
*BAND #2 ADJUSTMENT								
STANDARD RMA Dummy	"A1" on antenna strip	5 mc 1.8 mc	"2"	5 mc 1.8 mc	14 6	Osc. Trimmer Osc. Padder	Maximum output Maximum output and repeat step 8	8 9
		5 mc		5 mc	110	Mix. Trimmer	Maximum output	10
*BAND #1 ADJUSTMENT								
STANDARD RMA Dummy	"A1" on antenna strip	1500 kc 600 kc	"1"	1500 kc 600 kc	15 5	Osc. Trimmer Osc. Padder	Maximum output Maximum output and repeat step 11	11 12
		1500 kc		1500 kc	11	Mix. Trimmer	Maximum output	13

*It may be necessary to repeat the indicated adjustments several times.
(Rock the main tuning capacitor slightly (turn back and forth) when making these adjustments.)

ATTENTION

Always give Model and Serial No. of equipment when ordering replacement parts or requesting information.