Hallicrafters, Inc.

Model: S-38	Chassis:	Year: Pre 1948
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 17 - CHANGES 17-3
Riders Volume 15 - HALLICRAFTERS 15-59
Riders Volume 15 - HALLICRAFTERS 15-60
Riders Volume 15 - HALLICRAFTERS 15-61
Riders Volume 15 - HALLICRAFTERS 15-62
Riders Volume 15 - HALLICRAFTERS 15-63
Riders Volume 15 - HALLICRAFTERS 15-64

Courtesy Nostalgia Air

Farnsworth Models

The parts shortage has resulted in the substitution of various types of tuning capacitors without change in part numbers stamped on them. In ordering replacement tuning capacitors for ET-060, 061, 063, 064, 065, 066, 069; EK-263, 264, and 265 the following suggestions should be observed:

Gang Capacitor with 21 plate oscillator section requires the removal of trimmer from r-f section of gang if the loop antenna has a r-f trimmer located on it. This capacitor used B.C. oscillator coil #38483 and, if an S.W. oscillator coil is used requires S.W. oscillator coil #38549. Both of these coils have a white dot to indicate finish lug.

A #26239 gang capacitor with 19 plate oscillator section (identified by red dot on rear) may require the removal of r-f trimmer as explained above. This capacitor requires B.C. oscillator coil #38706 and S.W. oscillator coil (if used) #38709. These oscillator coils are marked with a yellow dot at the finish lug.

The following is an alignment hint for the Farnsworth models with respect to the use of the antenna:

The antenna should be held in a vertical position, ⅜ inch from the back side of the radio chassis in order to maintain the maximum output of the antenna after being installed in the cabinet. Therefore, we suggest some type of a jig to be made out of scrap material found around the service department to hold said antenna in the proper position while the serviceman is realigning the radio out of the cabinet. This suggestion is very helpful in getting the best operation out of the radio and, in addition, saving expense and time.

GALVIN DIAL CORD SLIPPAGE

Dial slippage encountered in 1946 home sets using slide rule type dials can easily be remedied by restringing using two dial cords.

Formerly, a single cord and tension spring was used for both driving the tuning capacitor and moving the pointer. It is recommended that two cords and tension springs be used; one for driving the tuning capacitor and one for moving the pointer.

Before removing the old cord, make a sketch showing the old cord layout. This will assist greatly in restringing.

First install the drive cord between the tuning shaft and tuning capacitor pulley. It is to be routed in exactly the same manner as the old cord was, except run it only between the tuning shaft and tuning capacitor pulley. Be sure to wind 3 turns around the tuning shaft. The old tension spring is used to provide tension on the cord by hooking in exactly as before. Use the cord originally on the set for this purpose, except cut it down to the required length.

Install the pointer cord supplied by routing it in the same fashion as before except that it does not go to the tuning shaft. Simply run it to the tuning capacitor pulley and apply light tension to it with the attached tension coil spring. There are several holes in the tuning capacitor pulley through which the tension spring may be hooked and/or adjusted.

To calibrate pointer, simply turn the tuning capacitor to the fully meshed position and set pointer to "V" notch or calibration mark provided.

Use a drop of household cement to fix pointer to cord. A drop of cement on all knots will secure them.

Gamble-Skogmo 43-7601, 43-7601A, 43-7601B

These models, shown on *pages 16-1 to 16-5 of Rider's Volume XVI*, use the General Instrument Record Changer model 205, which can be found on *pages RCD.CH. 15-5 to 15-8 of Rider's Volume XV*.

General Electric 250

To reduce the hum in this model, which is found on *pages 15-32 to 15-36 of Rider's Volume XV*, it is suggested that the following change be made.

Resistor R16 (2200 ohms) should be removed from the negative battery terminal lug, lengthen pigtail, insulate with a spaghetti covering, and solder to the ground lug of the terminal board located at socket saddle of the 1LH4 tube.

An appreciable increase in duration of operation from a fully charged battery in this model can be effected in the following manner, realizing, however, that some degree of performance is sacrificed in regard to sensitivity and power output. Replace power-supply filter resistor, R17 (1500 ohms) with one of 4700 ohms, 1 watt, carbon. This change should be made only when the customer demands a longer duration of operation to one battery charge.

Hallicrafters S-38

In the event that an a-c hum develops in this receiver, the schematic of which appears on *page 15-59 of Rider's Volume XV*, it has been found that the 35Z5GT is the cause of the trouble, even though the tube passes a normal test. Also, other tubes in this set have been known to cause hum. Try replacement tubes.

Another cause is a high resistance ground between the chassis and the case. This usually develops through the rubber mounting grommets or through the switch mounting rivets. Occasionally it may be a defective 25-μf capacitor (C36), which should be replaced if defective. It is possible that C36 is not of the correct value. Check this point.

If this set loses sensitivity after being in use for approximately a half hour, replace the 12SA7GT/G tube, as an investigation has revealed that this condition is due to a certain percentage of Hytron tubes of this type, of a particular production run marked 1/6, 2/6, 1A6, or 2A6. The replacement should have any other marking than those listed previously.

Hallicrafters S-40

In the event that band 4 (15.7 to 43 mc) fails to operate at all times, but reception on other bands is normal, trouble is indicated in the oscillator circuit of this band, which in most cases can be traced to a weak 6SA7 oscillator tube or low line voltage. In those few cases where trouble persists, even though all voltages are normal and the tube has been replaced, this trouble can be remedied by replacement of the oscillator coil T9 and capacitor C18, as follows:

Replace T9 oscillator coil, part #51B791 containing 7 primary turns, with part #51B791B, having 10 primary turns. Change capacitor C8 (100 $\mu\mu$f) to part #CC25UK680K, 68 $\mu\mu$f. Connect the cathode lead from terminal 6 of the 6SA7 (V2) to T9 direct to the secondary winding where it leaves the coil form rather than to terminal lug "A" on the top of the coil form. (See sketch of coil form on *page 15-67, 68 in Rider's Volume XV*.) Replacement coils are furnished without the iron cores, as they are interchangeable. If new cores are needed, due to loss or breakage, they can be ordered under part #77A068.

If the receiver cannot be placed in "break-in" operation, apply the following remedy: Notice on the schematic of the receiver on *page 15-67, 68 in Rider's Volume XV* that the grid of V6 the output 6F6G tube is connected to the power switch S7, so that when the switch is in the "send" position the grid of this tube is grounded. Many operators wish to leave this switch in the "send" position and connect from terminal 5 on the plug PL2, through the transmitter relay to ground. In order to do this, the lead between S7 and V6 should be removed. On later production runs, this lead has been eliminated. See notes on "Power Requirements" and "Preparation for Use" on *page 15-71 of Rider's Volume XV*.

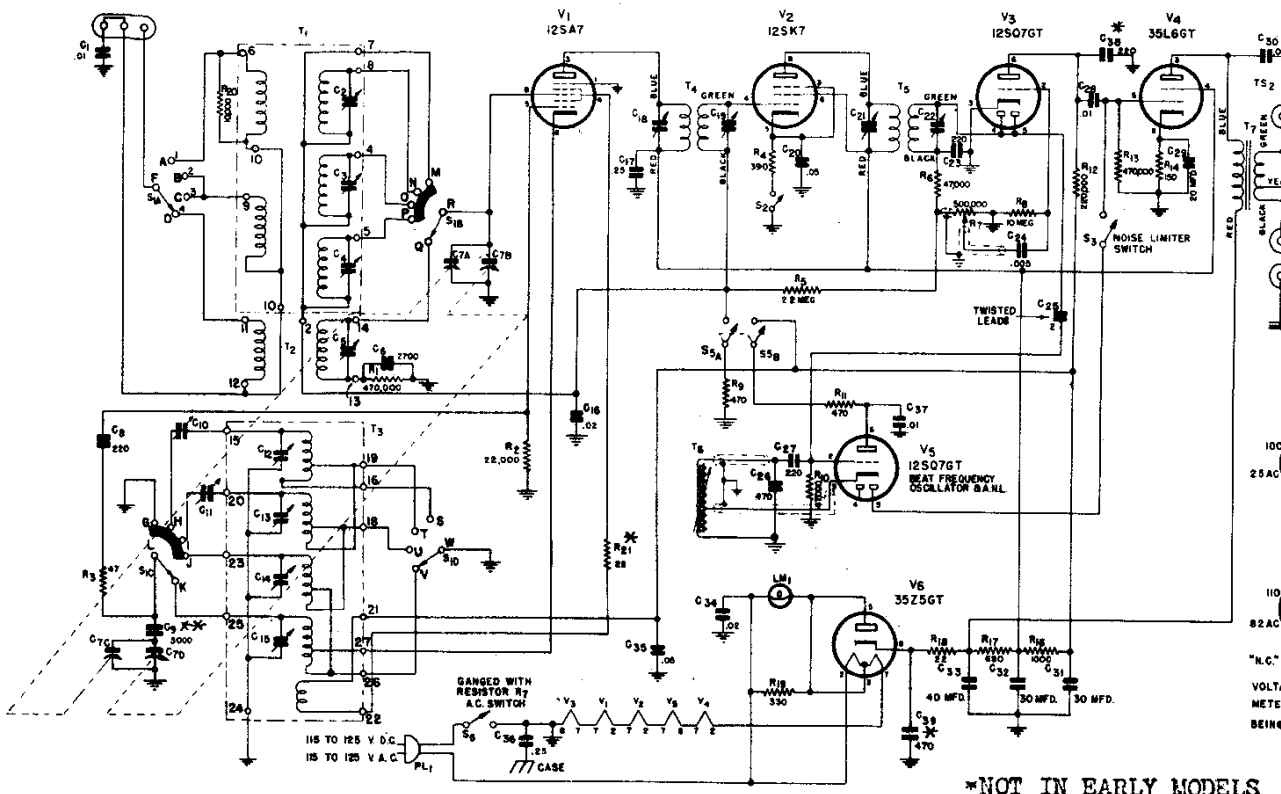
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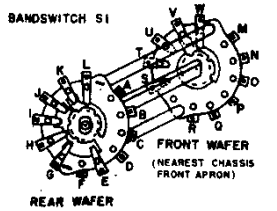
THE HALLICRAFTERS CO.

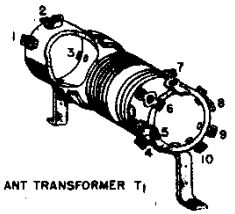
MODEL S-38, Early and Revised

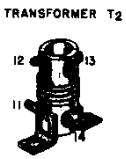


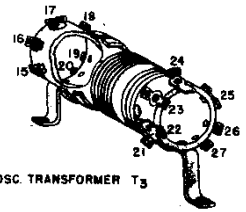
**C9 WAS 2700 μμf IN EARLY MODELS

*NOT IN EARLY MODELS









August 1946

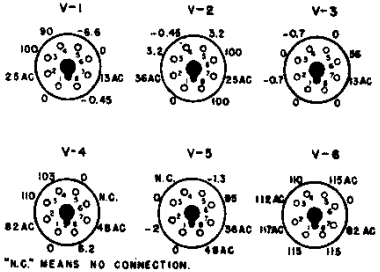
NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIAL VIEWS HAVE BEEN EXAGGERATED FOR CLARITY OF TERMINAL LUG LOCATION.

GENERAL: Model S-38 is a 6 tube AC/DC superheterodyne table model, radio receiver, incorporating 4 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.

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

VOLTAGES AT TUBE TERMINALS

ALL VOLTAGES ARE DC UNLESS OTHERWISE SPECIFIED



"N.C." MEANS NO CONNECTION.

VOLTAGES LISTED WERE TAKEN WITH AN ELECTRONIC VOLT METER; AT 117 V. A-C LINE VOLTAGE; NO SIGNAL BEING RECEIVED. CONTROLS SET AS FOLLOWS:

VOLUME	MAX. CLOCKWISE
TUNING	SET AT 550 KC
BANDSPREAD	SET AT 100
A.M./C.W.	SET AT "C.W."
RECEIVE/STANDBY	SET AT "RECEIVE"
NOISE LIMITER	SET AT "OFF"
BAND SELECTOR	SET AT "1"
SPEAKER/PHONES	SET AT "SPEAKER"

NOTE: RESISTANCE VALUES ARE IN OHMS; MICA CAPACITOR VALUES ARE IN MMF.; PAPER CAPACITOR VALUES ARE IN DECIMAL EQUIVALENTS OF MFD; ELECTROLYTIC CAPACITOR VALUES ARE IN MFD.

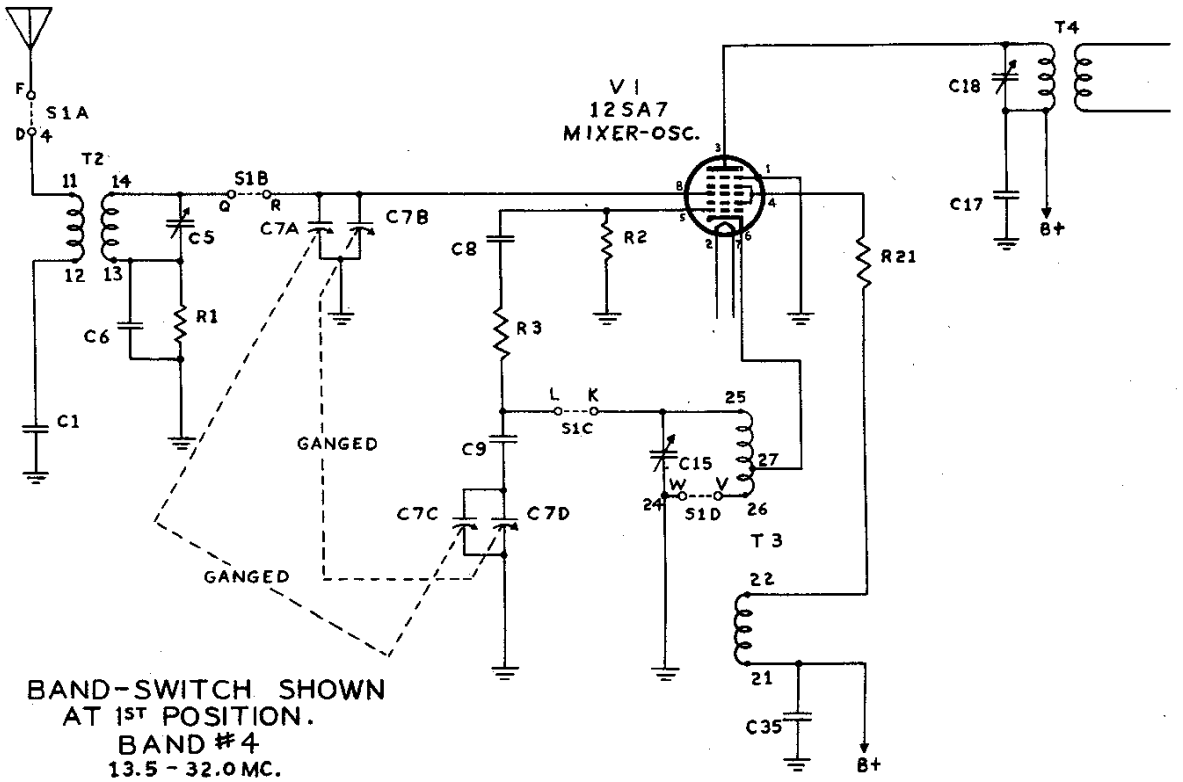
IF PEAK 455 KC

- - - - DENOTES ELECTRICAL SHIELD.
——— DENOTES UNSHIELDED UNIT ASSEMBLY.
DENOTES MECHANICAL GANGING.

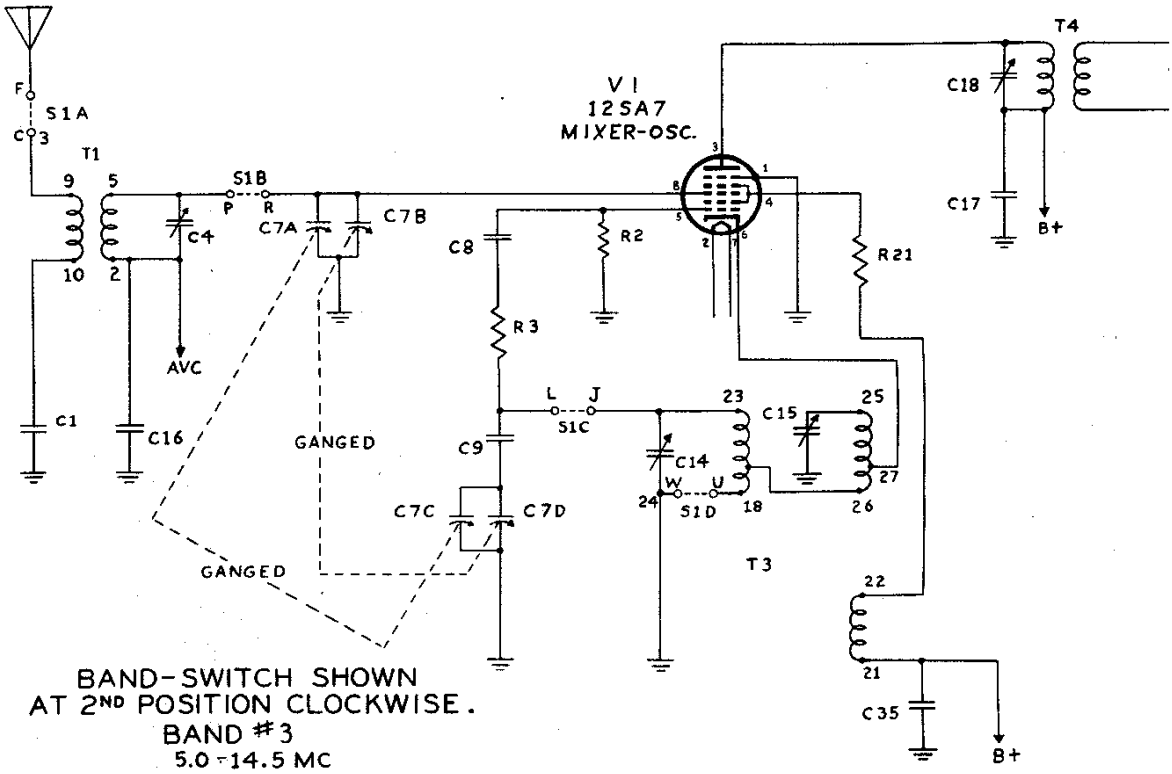
LETTERS AT BANDSWITCH (S_1) AND NUMERALS AT ANTENNA AND OSCILLATOR TRANSFORMERS (T_1, T_2 & T_3) IDENTIFY CORRESPONDING TERMINAL LUGS ON PICTORIAL VIEWS.

MODEL S-38, Early and Revised

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BAND-SWITCH SHOWN
AT 1ST POSITION.
BAND #4
13.5 - 32.0 MC.

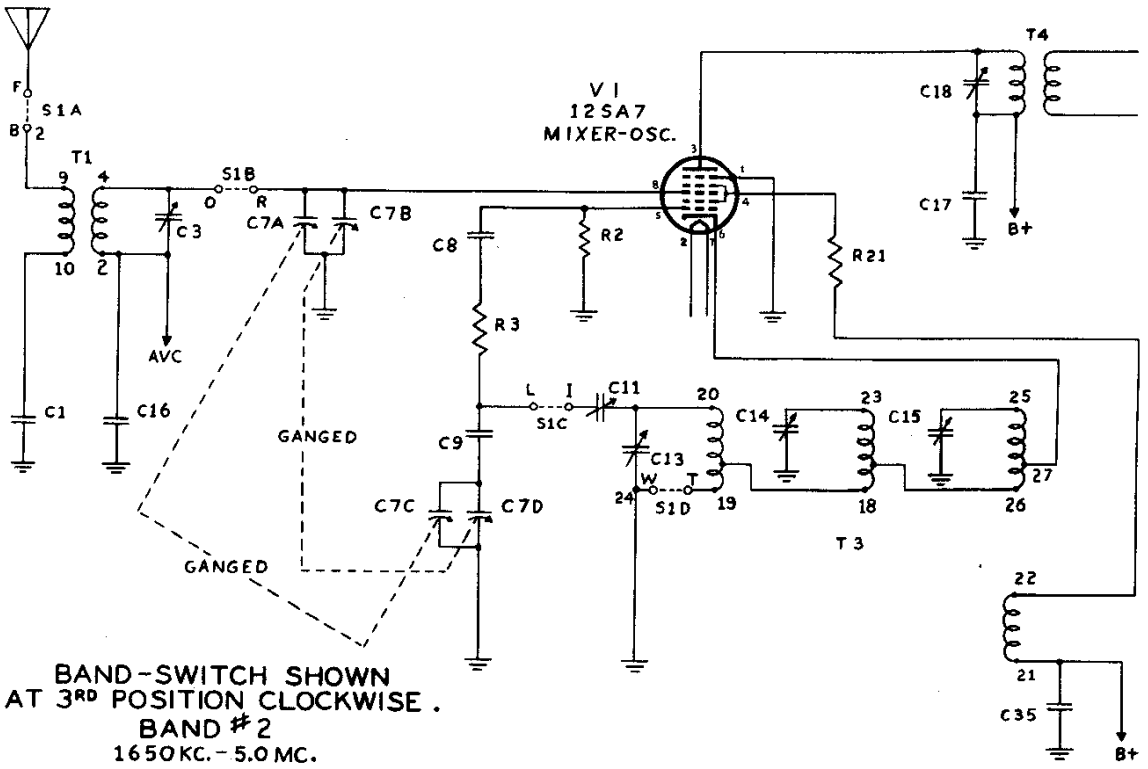


BAND-SWITCH SHOWN
AT 2ND POSITION CLOCKWISE.
BAND #3
5.0 - 14.5 MC

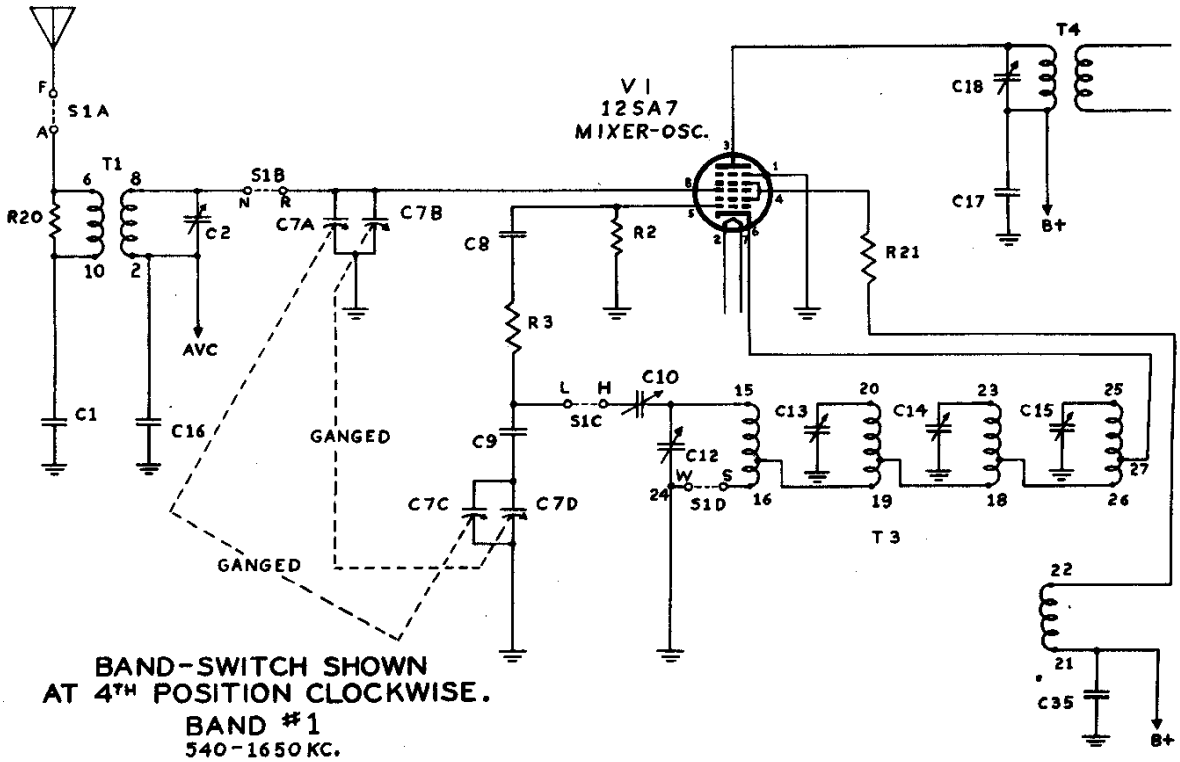
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MODEL S-38, Early and Revised



BAND-SWITCH SHOWN AT 3RD POSITION CLOCKWISE.
BAND #2
1650 KC. - 5.0 MC.



BAND-SWITCH SHOWN AT 4TH POSITION CLOCKWISE.
BAND #1
540-1650 KC.

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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 30 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

EQUIPMENT:

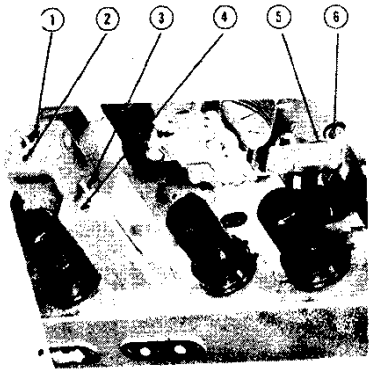
1. Signal Generator capable of the ranges indicated in the Alignment Chart, including a 400 cycle audio modulator.
2. Output meter capable of handling 1 watt of audio power.
3. Standard RMA dummy consisting of a 200 mmf condenser in series with a 20uh r-f choke which is shunted by a 400 mmf condenser 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 3 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:

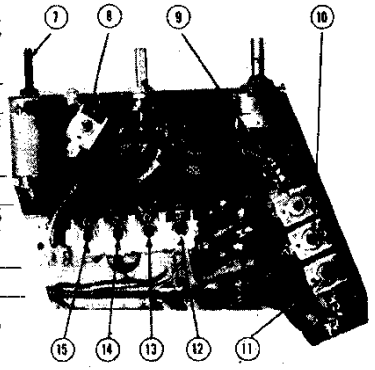
SPEAKER/PHONES switch at "SPEAKER."
VOLUME control at full clockwise (maximum).
CW/AM switch at "AM" (except for BFO adjustment).
NOISE LIMITER switch at "OFF."
BANDSPREAD TUNING control at "0," (min. cap.).
STANDBY/RECEIVE switch at "RECEIVE."



TOP VIEW OF CHASSIS

Fig. 5, Top and bottom views of the receiver locating slugs, padders 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, PADDER, 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	"A1" on antenna	30 mc	"4"	30 mc	12	Osc. Trimmer	Maximum output	4
RMA Dummy	strip	30 mc		30 mc	† 8	Mix. Trimmer	Maximum output	5
				BAND #3 ADJUSTMENT				
STANDARD	"A1" on antenna	14 mc	"3"	14 mc	13	Osc. Trimmer	Maximum output	6
RMA Dummy	strip	14 mc		14 mc	† 9	Mix. Trimmer	Maximum output	7
				*BAND #2 ADJUSTMENT				
STANDARD	"A1" on antenna	5 mc	"2"	5 mc	14	Osc. Trimmer	Maximum output	8
RMA Dummy	strip	1.8 mc		1.8 mc	6	Osc. Padder	Maximum output and repeat step 8	9
		5 mc		5 mc	†10	Mix. Trimmer	Maximum output	10
				*BAND #1 ADJUSTMENT				
STANDARD	"A1" on antenna	1500 kc	"1"	1500 kc	15	Osc. Trimmer	Maximum output	11
RMA Dummy	strip	600 kc		600 kc	5	Osc. Padder	Maximum output and repeat step 11	12
		1500 kc		1500 kc	11	Mix. Trimmer	Maximum output	13



BOTTOM VIEW OF CHASSIS

*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.

THE HALLICRAFTERS CO.

MODEL S-38, Early and Revised

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

CONTROL SETTINGS FOR PRELIMINARY TEST OPERATION (Broadcast Band)

NAME	FUNCTION	SETTING
STANDBY/ RECEIVE	Receiver temporary standby	At "RECEIVE"
VOLUME	Audio gain control and receiver on/off switch	Half clockwise; adj. as necessary
BAND SELECTOR	Operating band selector	Clockwise to "1"
PITCH CONTROL	CW beat note pitch selector	Any position (not in use)

NAME	FUNCTION	SETTING
SPEAKER/ PHONES	Output selector switch	At "SPEAKER"
CW/AM	BFO on/off switch AVC on/off switch	At "AM" (AVC on)
NOISE LIMITER	Noise peak limiting	At "OFF"
TUNING	Main tuning control	To local station freq. on main dial scale
BAND SPREAD	Short wave band spreading	To "0" on small dial scale

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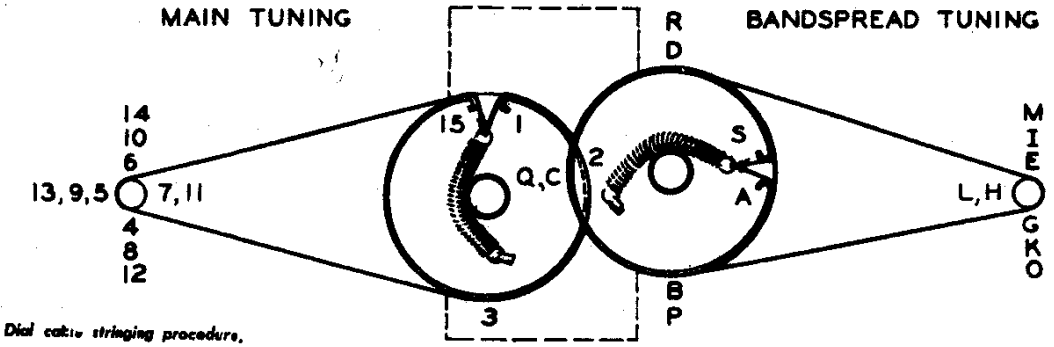


Fig. 2. Dial cable stringing procedure.

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 15, 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

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
	CAPACITORS		
C-1	0.01 mfd; 600 vdcw; paper	46AY103J	$ .10
C-2, 3 & 4	Trimmer Unit for antenna transformer T-1	44B129	.40
C-5	Trimmer for antenna transformer T-2	44A039	.10
C-6	2700 mmf; ±5%; 500 vdcw; mica	CM30A272J	.30
C-7	Tuning capacitor; air; 2 sections ganged	48C162	2.90
C-8, 23, 27 & 38	220 mmf; 500 vdcw; mica	CM20A221K	.15
C-9	3000 mmf; 5%; 500 vdcw; mica	CM30A302J	
C-10 & 11	Dual padder for oscillator transformer T-3	44A152	.65
C-12, 13, 14 & 15	Trimmer Unit for oscillator transformer T-3	44B159	.50
C-16 & 34	0.02 mfd; 400 vdcw; paper	46AW203J	.10
C-17 & 36	0.25 mfd; 200 vdcw; paper	46AT254J	.15
C-18, 19, 21 & 22	Trimmers for IF transformers T-4 and T-5	44A097	.25
C-20 & 35	0.05 mfd; 200 vdcw; paper	46AU503J	.10
C-24	0.005 mfd; 400 vdcw; paper	46AW502J	.10
C-25	2 mmf; twisted insulated wire leads; NOT AVAILABLE AS A SPARE PART.		
C-26 & 39	470 mmf; 500 vdcw; mica	CM20A471K	.20
C-28 & 37	0.01 mfd; 400 vdcw; paper	46AW102J	.10
C-29, 31, 32 & 33	Electrolytic; four section unit; color coded leads; sect. 1(C-29) 20 mfd, 25 vdcw; sect. 2 & 3(C-31 & 32) 30 mfd, 150 vdcw; sect. 4(C-33) 40 mfd, 150 vdcw	45B091	.80
C-30	0.02 mfd; 600 vdcw; paper	46AY203J	.10
	PILOT LAMP		
LM-1	6/8 v @ 150ma; brown bead; G. E. type 47	39A004	.10
	LOUDSPEAKER		
LS-1	5" P.M. speaker; 3.2 ohm voice coil	85C035	2.50
	PLUGS		
PL-1	AC line cord with two prong plug at one end	87A078	.35
PL-2	Speaker voice coil connector plug	88A072	.10
	RESISTORS		
R-1 & 13	470,000 ohm; ½ watt; carbon	RC20AE474M	.10
R-2	22,000 ohm; ½ watt; carbon	RC20AE223M	.10
R-3	47 ohm; ½ watt; carbon	RC20AE470M	.10
R-4	390 ohm; ±10%; ½ watt; carbon	RC20AE391K	.10
R-5	2.2 megohm; ½ watt; carbon	RC20AE225M	.10
R-6 & 10	47,000 ohm; ½ watt; carbon	RC20AE473M	.10
R-7 & S-6	Volume Control; ½ megohm; includes SPST toggle action switch assembly on rear	25B094	.50
R-8	10 megohm; ½ watt; carbon	RC20AE106M	.10
R-9 & 11	470 ohm; ±10%; ½ watt; carbon	RC20AE471K	.10
R-12	220,000 ohm; ½ watt; carbon	RC20AE224M	.10
R-14	150 ohm; ±10%; ½ watt; carbon	RC20AE151K	.10
R-15	15 ohm; ½ watt; carbon	RC20AE150M	.10
R-16	1,000 ohm; ½ watt; carbon	RC20AE102M	.10
R-17	680 ohm; 1 watt; carbon	RC30AE681M	.10
R-18 & 21	22 ohm; ½ watt; carbon	RC20AE220M	.10
R-19	330 ohm; ½ watt; carbon	RC20AE331M	.10
R-20	10,000 ohm; ½ watt; carbon	RC20AE103M	.10

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
	SWITCHES		
S-1a, b, c & d	Bandswitch; two sections ganged; rotary four position	60A240	$ .95
S-2 & 3	"RECEIVE-STANDBY" and "NOISE LIMITER" switches; slide action; SPST	60A244	.20
S-4	"SPEAKER-PHONES" switch; slide action; SPDT	60A243	.20
S-5	"A.M.-C.W." switch; slide action; DPST	60A245	.25
	TRANSFORMERS		
T-1	Antenna coil for bands 1, 2 and 3	51C821	2.35
T-2	Antenna coil for band 4	51C818	.65
T-3	Oscillator coil for bands 1, 2, 3 and 4	51C822	2.45
T-4	Input IF transformer; 455 kc	50C183	1.20
T-5	Diode IF transformer; 455 kc	50B184	1.20
T-6	Beat frequency oscillator coil; 455 kc	54B031	1.25
T-7	Audio output transformer; 3,000 ohm primary —15 ohm secondary tapped at 3 ohms	55A075	.95
	TERMINAL STRIPS		
TS-1	Antenna and ground connector strip	88A032	.10
TS-2	Headset plug connector strip; bakelite	88A071	.10

MISCELLANEOUS MECHANICAL COMPONENTS

QUANT. IN EQUIPMENT	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
2	Knob; for Volume Control and Band Selector switches	15A049	.15
1	Knob; for C. W. PITCH Control	15A058	.15
2	Knob; for main TUNING and BANDSPREAD tuning Controls	15A047	.25
1	Pointer; for main tuning dial	82A102	.15
1	Pointer; for bandspread tuning dial	82A103	.15
1	Calibrated dial assembly, complete	83B257	.15
1	Dial window; glass	22B157	.30
6	Octal tube sockets; Amphenol type MIP-8	6A035	.10
1	Dial lamp socket; bayonet	86A011	.15
2	Tuning capacitor dial drive pulley	28A002	.10
1	Tuning capacitor rear mounting bracket	67A568	.10
1	Tuning capacitor front mounting bracket	67A559	.15
1	Left hand switch mounting bracket	67B560	.10
1	Right hand switch mounting bracket	67B561	.10
4	Rubber mounting feet for cabinet	16A007	.10
2	Spring washers for grounding tuning capacitor drive shafts	4A043	.10
4	"C" washers; (hair-pin type)	75A062	.10
1	Rear cover plate; cardboard	32C331	.10
1	Bottom cover plate; painted steel	63C220	.45

NOTE: ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.