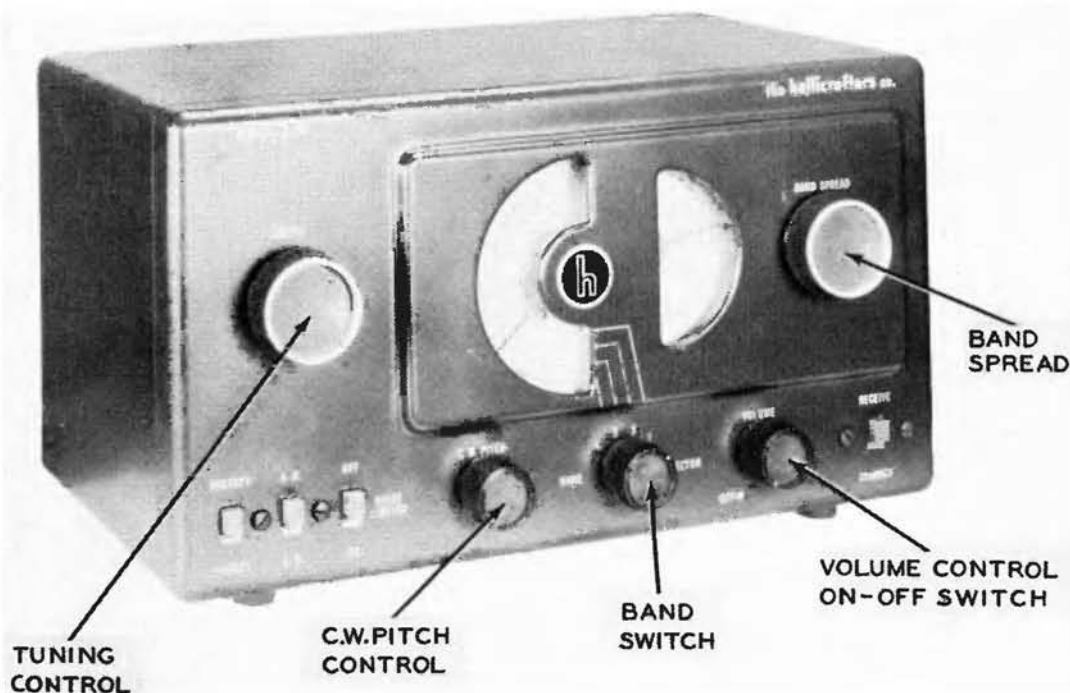




HALLICTRAFTERS MODEL S-38

TRADE NAME Hallicrafters Model S-38
 MANUFACTURER Hallicrafters Co., 2611 S. Indiana Ave., Chicago, Illinois
 TYPE SET AC - DC Superheterodyne - 4 Band Communications Receiver
 TUBES (SIX) Types 12SA7GT Converter, 12SK7GT 1 $\frac{1}{2}$ Amp., 12SQ7GT Det.-AVC-AF, 12SQ7GT BFO-ANL, 35L6GT Power Output, 35Z5GT Rectifier.
 POWER SUPPLY 105-125 Volts AC-DC Rating .245 Amps. @ 117 Volts AC
 TUNING RANGE Band #1- 540-1650KC Band #2- 1650KC-5.0MC Band #3 5.0MC-14.5MC Band #4- 13.5MC-32.0MC

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
NONE	High side to stator plates of rear section of tuning gang. Low side to "G" on antenna strip.	455KC	"1"	1000KC	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. Repeat adjustment.
"	"	"	"	"	"	BFO Slug	Turn off 400 Ω modulation on signal generator. Set CW/AM switch at CW. Remove pitch control knob and adjust slotted screw shaft for zero beat.
390 Ω carbon res.	High side to "A1" on antenna strip. Low side to "G" on antenna strip.	30MC	"4"	30MC	"	A5, A6	Adjust for maximum output. Rock gang slightly when adjusting A6.
"	"	14MC	"3"	14MC	"	A7, A8	Adjust for maximum output. Rock gang slightly when adjusting A8.
"	"	5MC	"2"	5MC	"	A9	Adjust for maximum output.
"	"	1.8MC	"	1.8MC	"	A10	Adjust for maximum output and repeat A9 at 5MC.
"	"	5MC	"	5MC	"	A11	Adjust for maximum output. Rock gang slightly.
"	"	1500KC	"1"	1500KC	"	A12	Adjust for maximum output.
"	"	600KC	"	600KC	"	A13	Adjust for maximum output and repeat A12 at 1500KC.
"	"	1500KC	"	1500KC	"	A14	Adjust for maximum output. Rock Gang Slightly.
Set receiver controls 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 at "0" (min. cap.); "Standby-receive" switch at receive. Adjust output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	6AD	
2	IF Amp.	12SK7GT	12SK7GT	6N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	6C	
4	BFO-ANL	12SQ7GT	12SQ7GT	6C	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HALLICRAFTERS PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
7 (A)	40 CAP. 150	45B091	TC48	TRB-40X30-150	TA-430	Filter - Red
8	30 CAP. 150		3N523	Y-30-150	UT-301	Filter - Yellow
9	25 CAP. 200	46A7254J	TP430	S-4-25	TC-25	Cath. Bypass - Blue
10	0.02 CAP. 400	46A7203J	TP423	S-4-02	TC-12	Line Isolating
11	0.02 CAP. 600	46A7203J	TP412	S-6-02	TC-12	Line Isolating
12	0.01 CAP. 400	46A7102J	TP408	S-4-01	TC-11	35L6 Plate Bypass
13	0.005 CAP. 400	46A7102J	TP408	S-3-005	TC-25	Audio Coupling
14	0.01 CAP. 400	46A7102J	TP421	S-4-01	TC-11	BFO Plate Bypass
15	0.05 CAP. 200	46A7053J	TP426	S-4-05	TC-15	IF Cath. Bypass
16	0.05 CAP. 200	46A7053J	TP423	S-4-05	TC-12	Screen Bypass
17	0.01 CAP. 800	46A7103J	TP410	S-4-01	TC-11	AVC Filter
18	0.05 CAP. 200	46A7053J	TP426	S-4-05	TC-15	Ant. Coupling
19	220 CAP. 500	CM202A22M	MC240	M0.5-325	1PM-325	RF Bypass Pwr. Supp.
20	220 CAP. 500	CM202A22M	MC240	M0.5-325	1PM-325	RF Bypass Blade
21	470 CAP. 500	CM201A47M	MC245	M0.5-35	1PM-35	BFO Grid Cap.
22	2700 CAP. 500	CM201A27M	MC245	M0.5-325	1PM-325	RF Grid Cap.
23	220 CAP. 800	CM201A22M	MC240	M0.5-325	1PM-325	Osc. Grid Cap.
24	2700 CAP. 800	CM201A27M	MC240	M0.5-325	1PM-325	Fixed Padder
25	510 CAP. 500	CM201A51M	MC245	M0.5-35	1PM-35	RF Bypass Rect.
26	220 CAP. 800	CM201A22M	MC240	M0.5-325	1PM-325	Audio Plate Bypass
27	1200 CAP. 800	CM201A12M	MC245	M0.5-325	1PM-325	Fixed Trimmer

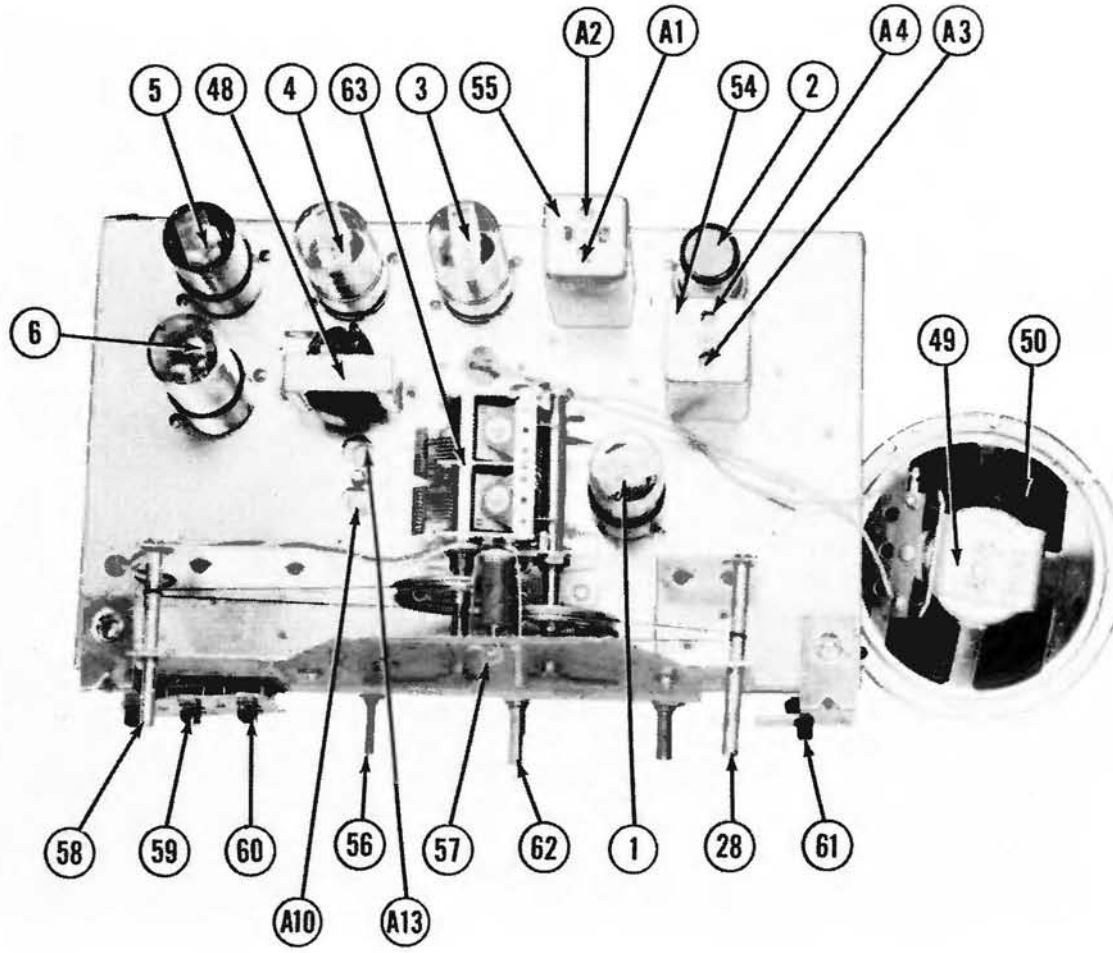
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HALLICRAFTERS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28 (A)	500Ω RESIST. 1	25B094	Not req.	DL3-133	RS-2	Volume Control
29 (B)	Start Switch		Not req.	A	SW-4	Attach to 28A per instructions.
30 (C)	Switch		Not req.	M28		

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		HALLICRAFTERS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
29	10KΩ	RC20A103M	MC240	BTS-10K		Br.-Blk.-Or. Ant. Shunt
30	470KΩ	RC20A474M	MC240	BTS-470K		Yl.-Vi.-Yl. Converter Grid
31	47KΩ	RC20A473M	MC240	BTS-47K		Yl.-Vi.-Blk. Osc. Series Grid
32	22KΩ	RC20A223M	MC240	BTS-22K		Red-Red-Or. Osc. Grid
33	2.2 Meg.	RC20A224M	MC240	BTS-2.2 Meg.		Red-Red-Grn. AVC Network
34	47KΩ	RC20A473M	MC240	BTS-47K		Yl.-Vi.-Or. Diode Load
35	470KΩ	RC20A474M	MC240	BTS-470K		Yl.-Vi.-Br. CW AVC Shorting
36	47KΩ	RC20A473M	MC240	BTS-47K		Yl.-Vi.-Or. BFO Grid
37	10 Meg.	RC20A104M	MC240	BTS-10 Meg.		Br.-Blk.-blue 1st AF Grid
38	220KΩ	RC20A224M	MC240	BTS-220K		Red-Red-Yl. 1st AF Plate Load
39	470KΩ	RC20A474M	MC240	BTS-470K		Yl.-Vi.-Yl. Output Grid
40	150KΩ	RC20A151M	MC240	BTS-150K		Br.-Grn.-Br. Output Cathode
41	100KΩ	RC20A101M	MC240	BTS-100K		Br.-Blk.-Red Filter
42	650KΩ	RC20A651M	MC240	BTS-650K		Blue-Gray-Br. "

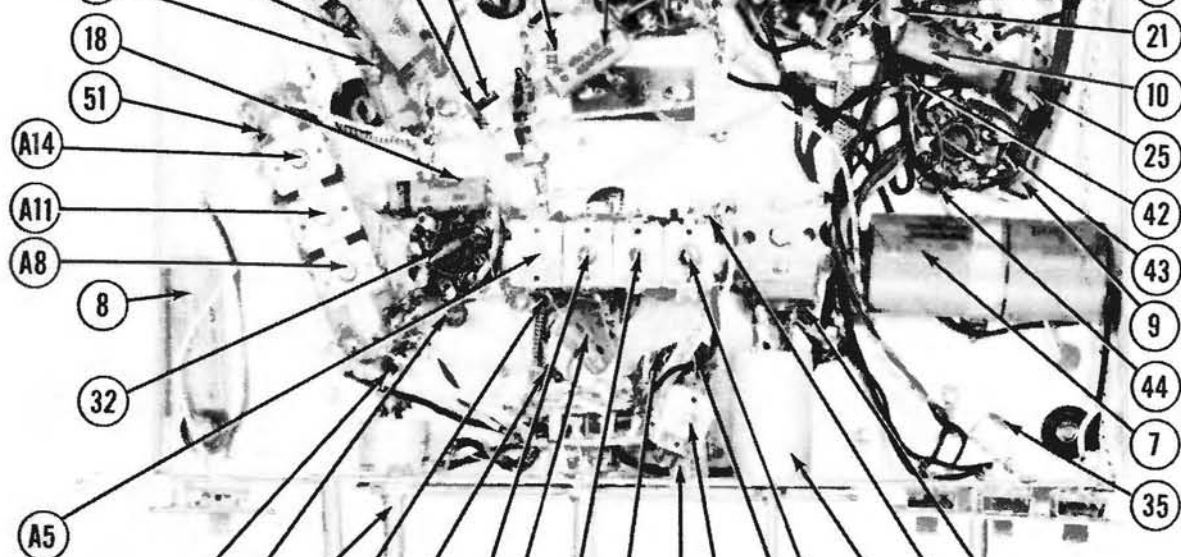
CHASSIS—TOP VIEW

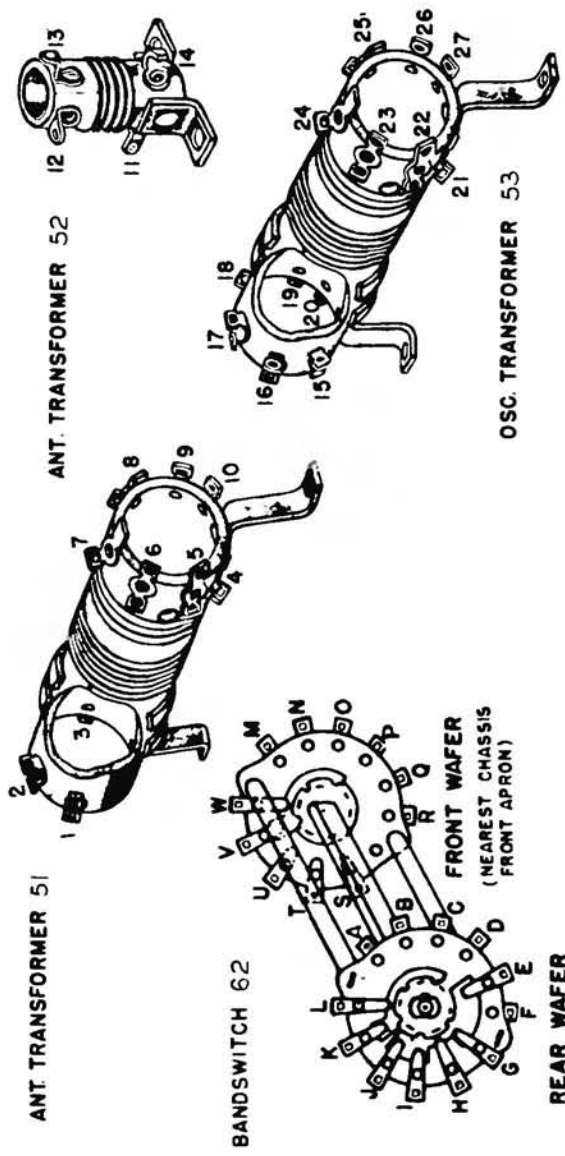


CHASSIS—BOTTOM VIEW

A14
A11
A8
A5

18
51
8
32

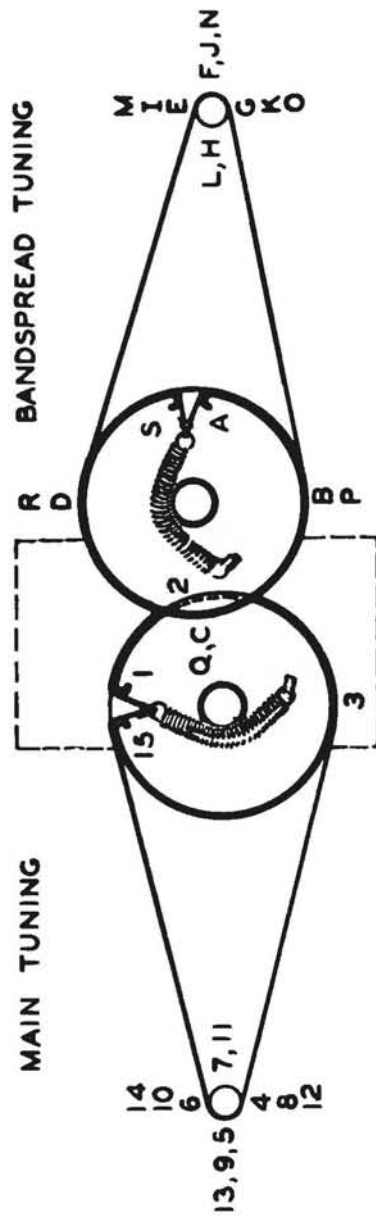




COIL CONNECTIONS

To restring the main tuning dial cord, cut a 14" length of 30 lb. test dial cord and tie one end of 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 bandspeed 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).

DIAL STRINGING PROCEDURE

the hallicrafters co.

SERVICE BULLETIN No. 2 FOR MODEL S-38

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. 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; 35Z5GT—power rectifier for AC operation.

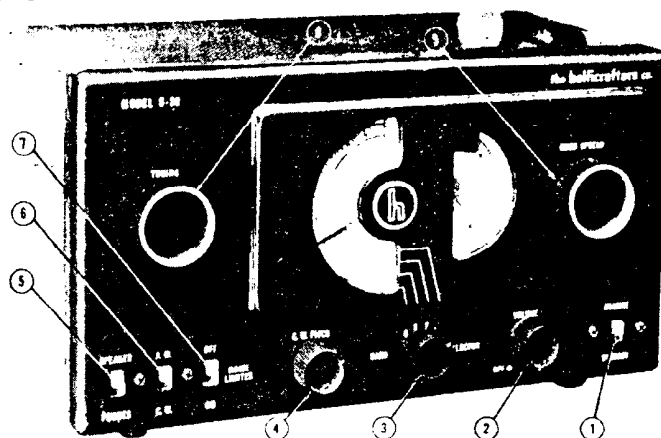


Fig. 1. Front view of receiver showing control locations.

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 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

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/ PHONES	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 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.

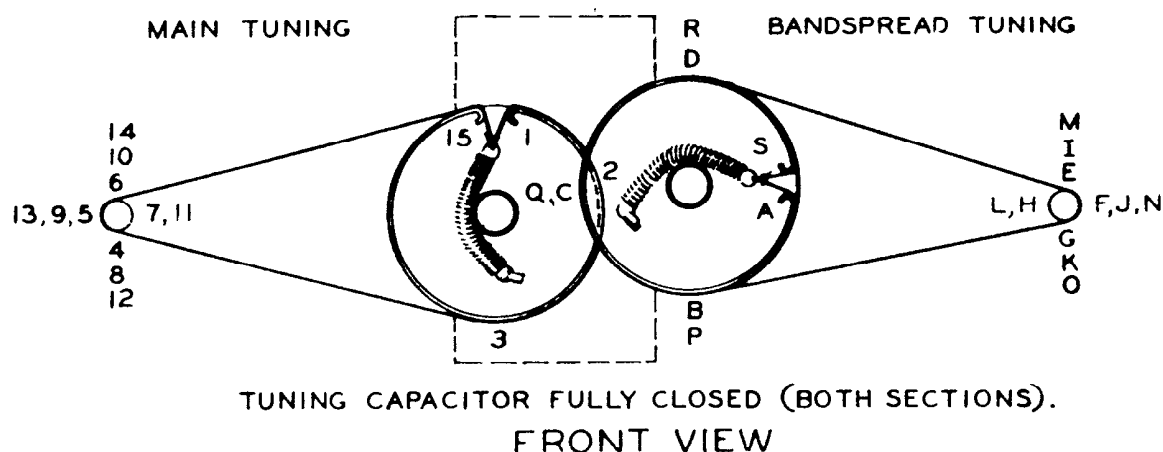


Fig. 2. Dial cable stringing procedure.

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 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."

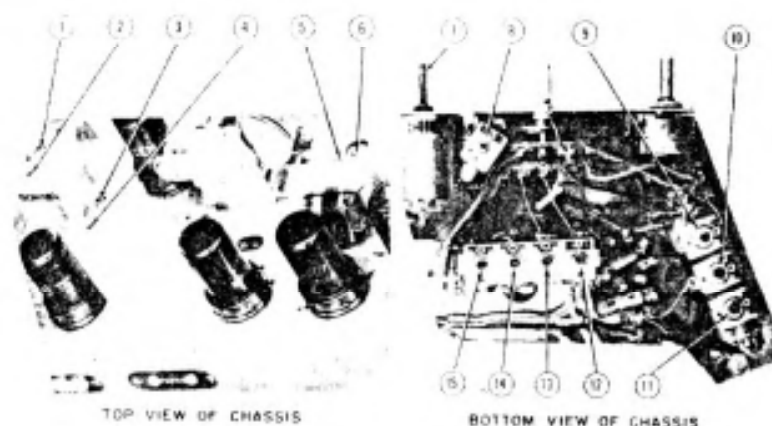


Fig. 5. Top and bottom views of the receiver locating slugs, padders and trimmers for alignment purposes.

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	2nd IF	Maximum output	1
					1 and 2	1st IF	Maximum output	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 strip	30 mc	"4"	30 mc	12	Osc. Trimmer	Maximum output	4
RMA Dummy		30 mc		30 mc	† 8	Mix. Trimmer	Maximum output	5
BAND #3 ADJUSTMENT								
STANDARD	"A1" on antenna strip	14 mc	"3"	14 mc	13	Osc. Trimmer	Maximum output	6
RMA Dummy		14 mc		14 mc	† 9	Mix. Trimmer	Maximum output	7
*BAND #2 ADJUSTMENT								
STANDARD	"A1" on antenna strip	5 mc	"2"	5 mc	14	Osc. Trimmer	Maximum output	8
RMA Dummy		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 strip	1500 kc	"1"	1500 kc	15	Osc. Trimmer	Maximum output	11
RMA Dummy		600 kc		600 kc	5	Osc. Padder	Maximum output and repeat step 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.

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; 600 vdcw; paper	46AY101J	\$.10	S-1a, b, c	Bandswitch; two sections ganged; rotary four position	60A240	\$.95
C-2, 3 & 4	Trimmer Unit for antenna transformer T-1	44B129	.40	S-2 & 3	"RECEIVE-STANDBY" and "NOISE LIMITER" switches; slide action; SPST.	60A244	.20
C-5	Trimmer for antenna transformer T-2	44B121	.10	S-4	"SPEAKER-PHONES" switch; slide action; SPST.	60A243	.20
C-6	2700 mfd; $\pm 5\%$; 500 vdcw; mica	CM 31A270J	.30	S-5	"A M -C W" switch; slide action; DPST.	60A245	.25
C-7	Tuning capacitor; air; 2 sections ganged	46C142	2.90	TRANSFORMERS			
C-8, 23, 27 & 28	220 mfd; 500 vdcw; mica	CM20A220K	.15	T-1	Antenna coil for bands 1, 2 and 3	51C821	2.35
C-9	3000 mfd; $\pm 5\%$; 500 vdcw; mica	CM 30A300J	.50	T-2	Antenna coil for band 4	51C818	.65
C-10 & 11	Dual padner for oscillator transformer T-3	44A152	.65	T-3	Oscillator coil for bands 1, 2, 3 and 4	51C822	2.45
C-12, 13, 14 & 15	Trimmer Unit for oscillator transformer T-3	44B159	.50	T-4	Input IF transformer; 455 kc.	50C183	1.20
C-16 & 34	0.02 mfd; 400 vdcw; paper	46AW203J	.10	T-5	Diode IF transformer; 455 kc.	50C184	1.20
C-17 & 36	0.25 mfd; 200 vdcw; paper	46AT254J	.15	T-6	Beat frequency oscillator coil; 455 kc.	64B031	1.25
C-18, 19, 21 & 22	Trimners for IF transformers T-4 and T-5	44A097	.75	T-7	Audio output transformer; 3,000 ohm primary — 15 ohm secondary tapped at 3 ohms	55A025	.95
C-20 & 35	0.05 mfd; 200 vdcw; paper	46AR150J	.10	TERMINAL STRIPS			
C-24	0.005 mfd; 400 vdcw; paper	46AW093J	.10	TS-1	Antenna and ground connector strip	88A032	.10
C-25	2 mfd; twisted insulated wire leads; NOT AVAILABLE AS A SPARE PART	AVAILABLE AS A SPARE PART		TS-2	Headset plug connector strip, bakelite	88A021	.10
C-26 & 39	470 mfd; 500 vdcw; mica	CM20A470K	.70	MISCELLANEOUS MECHANICAL COMPONENTS			
C-28 & 37	0.01 mfd; 400 vdcw; paper	46AW103J	.10				
C-29, 31, 32 & 33	Electrolytic; four section unit; color coded leads; sect. 1: 10C-29) 20 mfd, 25 vdcw; sect. 2 & 3: 10C-31 & 32) 30 mfd, 150 vdcw; sect. 4: 10C-33) 40 mfd, 150 vdcw.	45B091	.80	QUANT. IN EQUIPMENT	DESCRIPTION	HALLICRAFTER'S PART NUMBER	LIST PRICE PER COMPONENT
C-30	0.02 mfd; 600 vdcw; paper	46AY203J	.10	2	Knob; for Volume Control and Band Selector switches	15A049	.15
PILOT LAMP				1	Knob; for C. W. PITCH Control	15A058	.15
LM-1	6-8 v @ 150ma; brown bead; G. E. Type 47	39A004	.10	2	Knob; for main TUNING and BANDSPREAD tuning Controls	15A047	.25
LOUDSPEAKER				1	Pointer; for main tuning dial	82A102	.15
LS-1	5" P.M. speaker; 3.2 ohm voice coil	89C035	2.50	1	Pointer; for bandspread tuning dial	82A103	.15
PLUGS				1	Calibrated dial assembly, complete	83B057	.15
PL-1	AC line cord with two prong plug at one end	87A078	.35	1	Dial window; glass	22B157	.30
PL-2	Speaker voice coil connector plug	88A072	.10	1	Octal tube sockets; Arphenel type MIP-8	6A035	.10
RESISTORS				1	Dial lamp socket; bayonet	86A011	.15
R-1 & 13	470,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE470M	.10	2	Tuning capacitor dial drive pulley	28A002	.10
R-2	22,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE220M	.10	1	Tuning capacitor rear mounting bracket	67A568	.10
R-3	47 ohm; $\frac{1}{2}$ watt; carbon	RC20AE470M	.10	1	Tuning capacitor front mounting bracket	67A569	.15
R-4	390 ohm; $\pm 10\%$; $\frac{1}{2}$ watt; carbon	RC20AE390K	.10	1	Left hand switch mounting bracket	67B599	.10
R-5	2.2 megohm; $\frac{1}{2}$ watt; carbon	RC20AE220M	.10	1	Right hand switch mounting bracket	67B561	.10
R-6 & 10	47,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE470M	.10	4	Rubber mounting feet for cabinet	16A007	.10
R-7 & 5-6	Volume Control; $\frac{1}{2}$ megohm; includes SPST toggle action switch assembly on rear	25B094	.50	2	Spring washers for grounding tuning capacitor drive shafts	44A043	.10
R-8	10 megohm; $\frac{1}{2}$ watt; carbon	RC20AE100M	.10	4	"C" washers; thin-pin type	75A052	.10
R-9 & 11	470 ohm; $\pm 10\%$; $\frac{1}{2}$ watt; carbon	RC20AE470K	.10	1	Rear cover plate; carbonized	32C331	.10
R-12	220,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE220M	.10	1	Bottom cover plate; painted steel	63C220	.45
R-14	150 ohm; $\pm 10\%$; $\frac{1}{2}$ watt; carbon	RC20AE150K	.10				
R-15	15 ohm; $\frac{1}{2}$ watt; carbon	RC20AE150M	.10				
R-16	1,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE100M	.10				
R-17	680 ohm; 1 watt; carbon	RC20AE680M	.10				
R-18 & 21	22 ohm; $\frac{1}{2}$ watt; carbon	RC20AE220M	.10				
R-19	330 ohm; $\frac{1}{2}$ watt; carbon	RC20AE330M	.10				
R-20	10,000 ohm; $\frac{1}{2}$ watt; carbon	RC20AE100M	.10				

NOTE: Mica dielectric capacitors have a tolerance of $\pm 10\%$, unless otherwise specified; paper dielectric capacitors tolerance is $\pm 10 - +40\%$; carbon resistors have a tolerance of $\pm 20\%$, unless otherwise specified.

NOTE: ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Explanation of abbreviations: mfd—microfarads; vdcw—DC working volts; v—volts; ma—milliamperes; IF—intermediate frequency; sect.—section; REF. NO.—circuit symbol as on the schematic diagram.

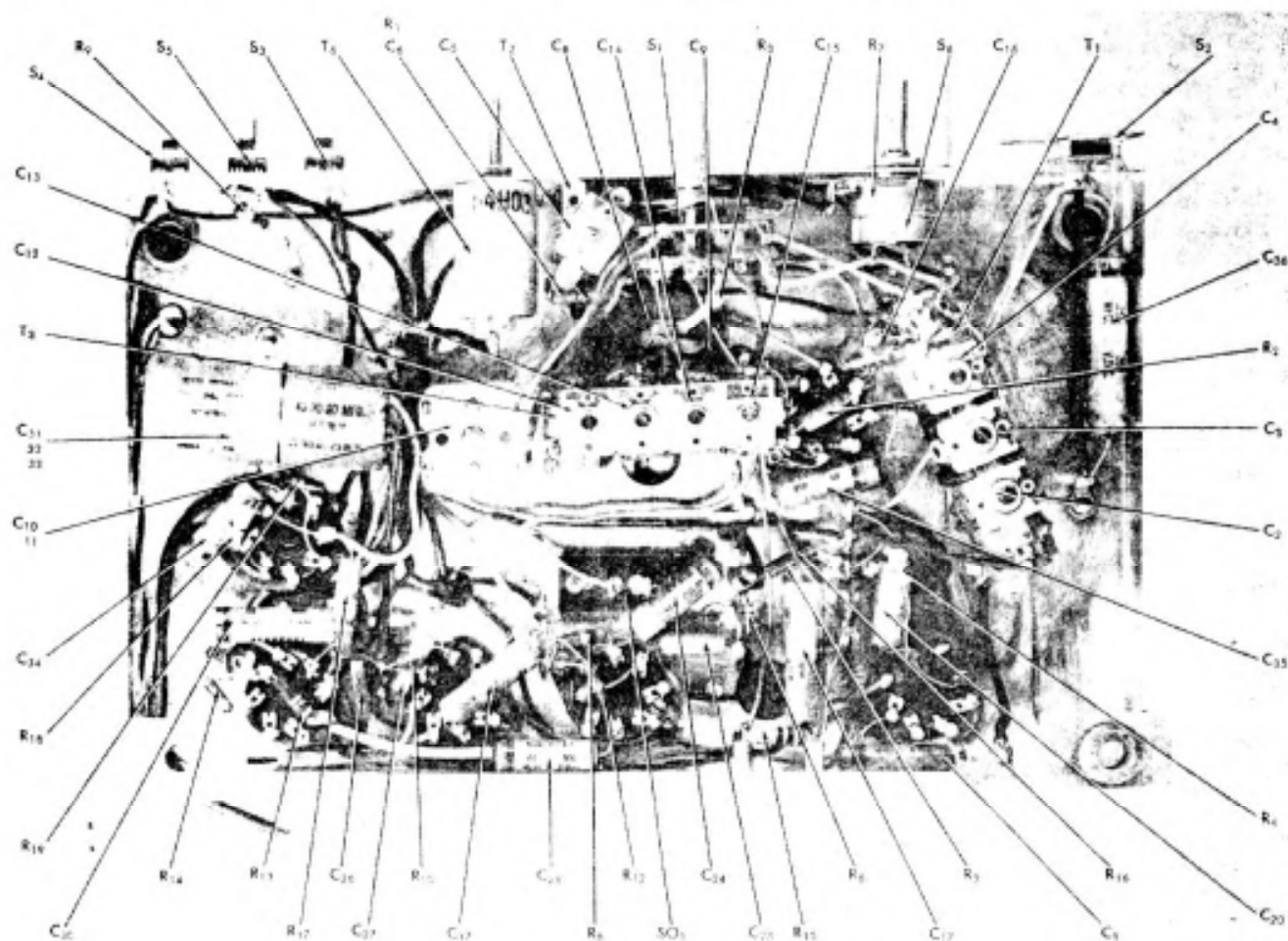
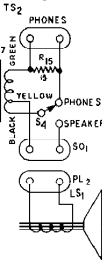
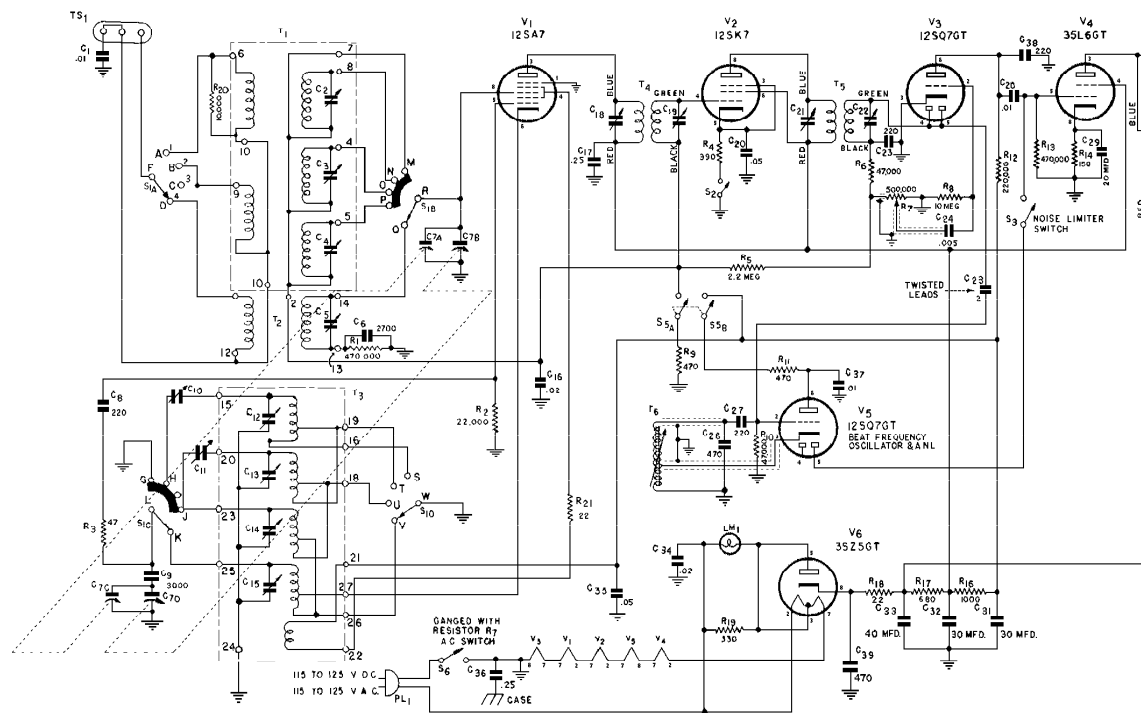
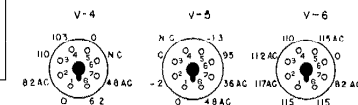
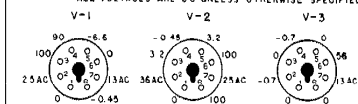


Fig. 4. Bottom view of the receiver showing components location.



VOLTAGES AT TUBE TERMINALS
ALL VOLTAGES ARE DC UNLESS OTHERWISE SPECIFIED



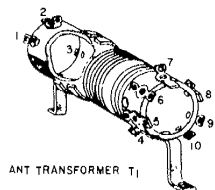
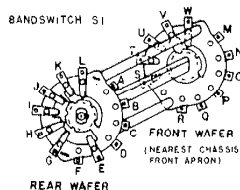
"N.C." MEANS NO CONNECTION

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

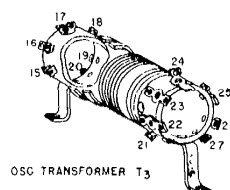
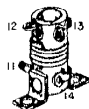
VOLUME	MAX CLOCKWISE
TUNING	SET AT 550 KG
BANDSPREAD	SET AT 100
A.M./P.W.	SET AT "C.W."
RECEIVE/STANDBY	SET AT "RECEIVE"
NOISE LIMITER	SET AT "OFF"
GANG SELECTOR	SET AT "1"
SPEAKER/PHONES	SET AT "SPEAKER"

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.

BANDSWITCH S1



ANT TRANSFORMER T2

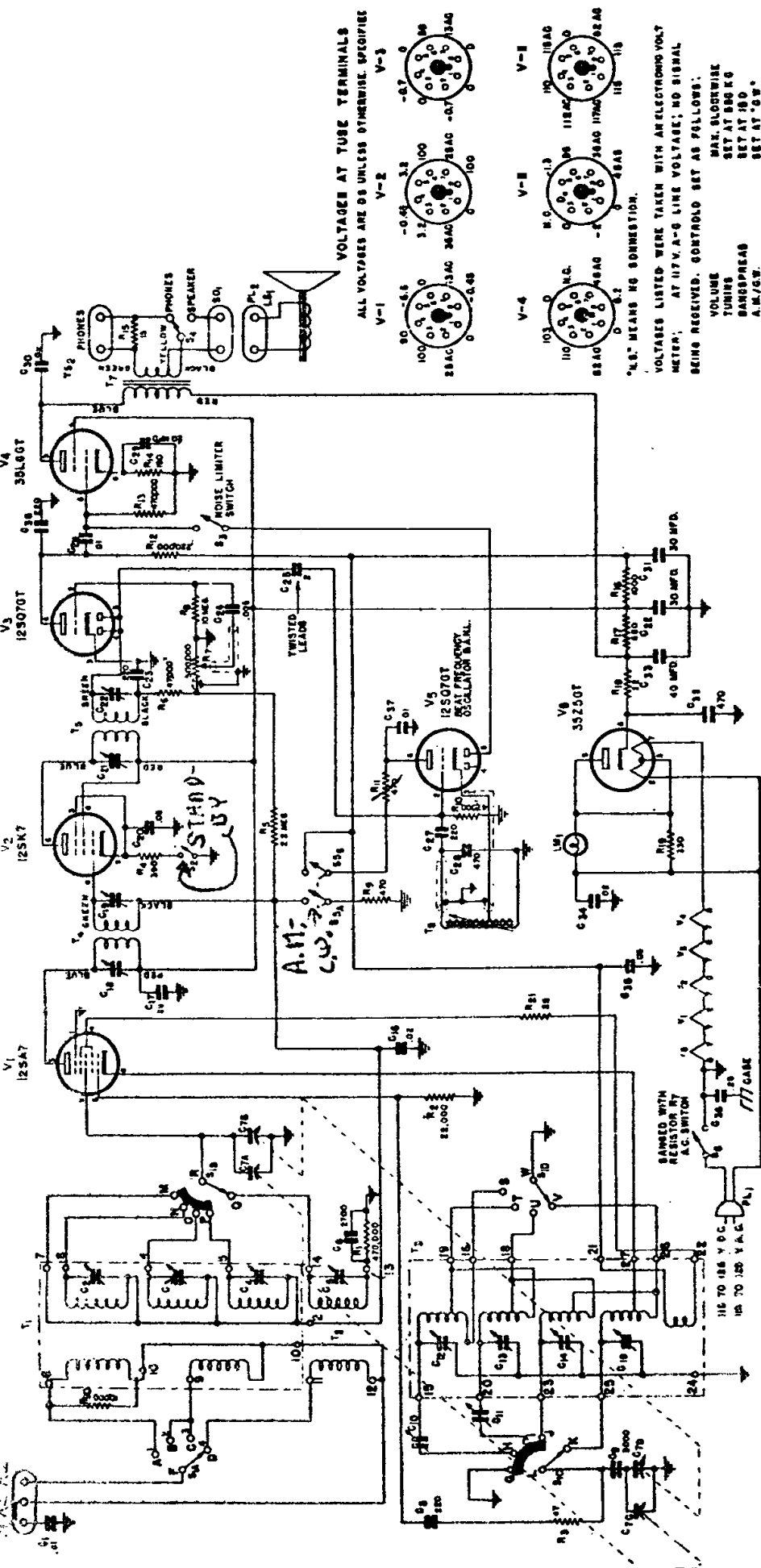


NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIAL VIEWS HAVE BEEN EXAGGERATED FOR CLARITY OF TERMINAL LUG LOCATION.

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

LETTERS AT BANDSWITCH (S1) AND NUMERALS AT ANTENNA AND OSCILLATOR TRANSFORMERS (T1, T2 & T3) IDENTIFY CORRESPONDING TERMINAL LUGS ON PICTORIAL VIEWS.

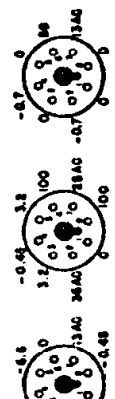
the hallicrafters co.
MODEL S-38



VOLTAGE AT TUBE TERMINALS

ALL VOLTAGES ARE 0.1 UNLESS OTHERWISE SPECIFIED

V-1 V-2 V-3



V-4 V-5 V-6



"N.B." MEANS NO CONNECTION.

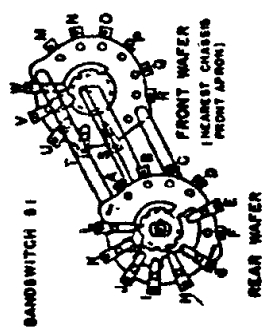
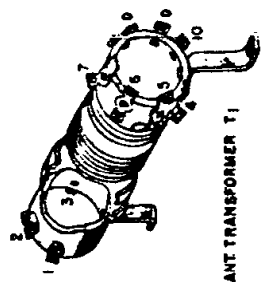
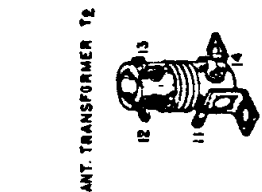
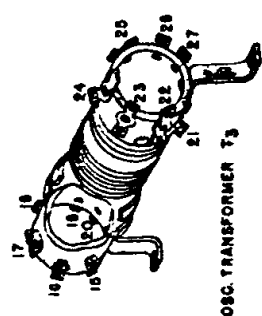
VOLTAGES LISTED WERE TAKEN WITH AN ELECTRONIC VOLT METER, AT 117 V. A-C LINE VOLTAGE; NO SIGNAL BEING RECEIVED. CONTRAST SET AS FOLLOWS:

- VOLUME MAX. CLOCKWISE
- TUNING SET AT 800 KC
- BANDSPREAD SET AT 100
- A.M./D.W. SET AT "OFF"
- RECEIVE/STANDBY SET AT "RECEIVE"
- NOISE LIMITER SET AT "OFF"
- SAND SELECTOR SET AT "1"
- SPEAKER/PHONE 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.

- REMOTES ELECTRICAL SHIELD
- - - REMOTES MECHANICAL SHIELD
- - - REMOTES UNWELDED UNIT ASSEMBLY

LETTERS AT BANDSWITCH (S1) AND NUMERALS AT ANTENNA AND OSCILLATOR TRANSFORMERS (T1, T2, T3) IDENTIFY CORRESPONDING TERMINAL LUGS ON PICTORIAL VIEWS.



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

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 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

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installation and operating instructions for model S-38A radio receiver

FEATURES

AC/DC OPERATION

AM BROADCAST 550 KC - 1650 KC

SHORT WAVE BROADCAST 1700 KC - 31 MC

DIRECT READING DIAL

SPREAD BAND TUNING

CODE OR VOICE RECEPTION

HEADSET CONNECTION



**94X475
550**

the hallicrafters co.
MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT, CHICAGO 34, U. S. A.

INSTALLATION AND OPERATING INSTRUCTIONS RADIO RECEIVER MODEL S-38A

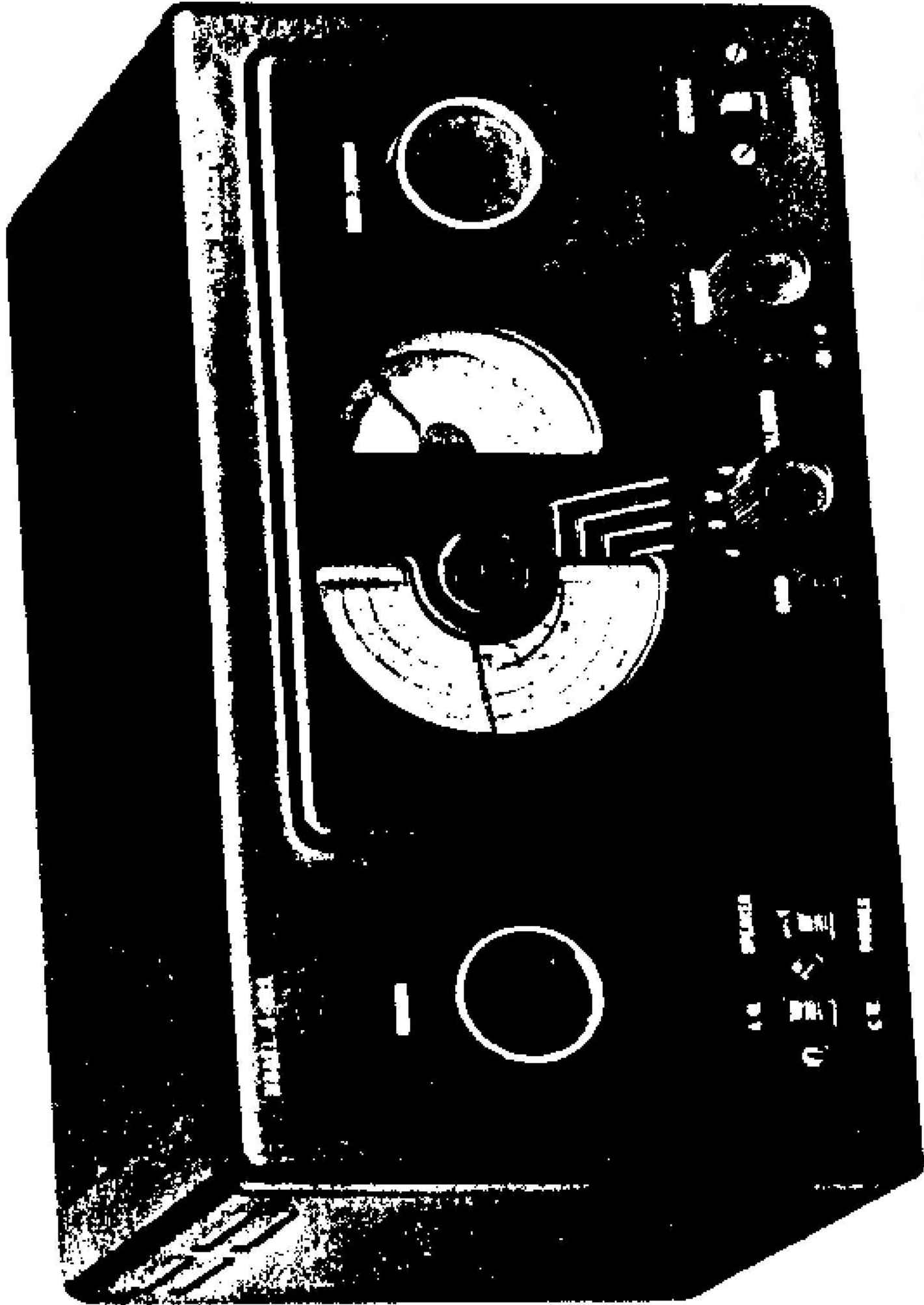


Fig. 1. Radio Receiver Model S-38A

DESCRIPTION

The Model S-38A radio receiver is a table model all-wave superheterodyne receiver capable of receiving all of the broadcasting services between 540 kilocycles (KC) and 31 megacycles (MC) in four overlapping bands as follows:

FREQUENCY COVERAGE

BANDS	*FREQUENCY RANGE	**TYPE OF RECEPTION
1	550 KC - 1650 KC	AM/CW
2	1.7 MC - 5.1 MC	AM/CW
3	5 MC - 14.5 MC	AM/CW
4	13 MC - 31 MC	AM/CW

* First and last dial calibration.

** AM - Amplitude Modulation CW - Code

The four bands or frequency ranges of the receiver are selected by the BAND SELECTOR. Four individual dial scales permit the frequency of reception to be read directly from the general coverage dial. Any narrow range of frequencies in the entire frequency spectrum covered by the receiver may be spread out electrically with the BAND SPREAD control. This feature provides more desirable tuning in the short wave broadcast ranges and particularly in the amateur bands. The general coverage dial setting for the amateur bands is shown on the dial scale (Heavy black bars) for convenience in setting up the receiver for amateur band reception.

Speaker or headset reception is available at the operator's discretion. The selection of each is made by a slide switch located on the panel. The speaker unit is built into the cabinet, the headset is plugged into the pin jack receptacles located on the rear chassis apron.

The AM/CW switch permits reception of either radio telephone or c-w code signals.

The RECEIVE/STANDBY switch permits the operator to disable the receiver for short standby periods yet maintain the tube heaters at operating temperature for immediate operation.

The receiver normally operates from a 105-125 V. DC (Direct Current) or 60 cycle AC (Alternating Current) power source. To place the receiver in operation it is merely necessary to connect a suitable antenna to the antenna terminals located on the rear chassis apron and plug the power plug into the wall outlet. Refer to the installation details that follow especially to the paragraph on "POWER SOURCE", before connecting the receiver to the wall outlet and avoid unnecessary and perhaps costly repairs.

INSTALLATION

UNPACKING - Check all shipping tags and labels for instructions before removing or destroying them.

LOCATION - The receiver is equipped with protective feet for table top or shelf mounting. Avoid excessively warm locations such as outlets for the heating system or recessed locations which prevent circulation of air. If the receiver is placed with its back to the wall, leave about an inch or two of clearance between the back of the cabinet and the wall for proper ventilation.

POWER SOURCE - The receiver operates from a 105-125 volt, 60 cycle AC (Alternating Current) or 105-125 volt DC (Direct Current) source. Power consumption is approximately 30 watts. The receiver will not operate from a 25-cycle AC source directly. If in doubt as to the voltage and frequency rating of your power source, contact the local power company representative to avoid costly repairs. If the receiver does not respond after a one minute warm-up period when operating from a direct current (DC) source, the power plug may have to be reversed at the wall outlet to obtain proper polarization.

Operation from a 220-volt AC/DC source may be had by using a special line cord adapter available as an accessory. Hallicrafters part 87D1566.

ANTENNA - A three terminal strip is provided on the rear chassis apron for antenna connections. The terminals are marked "A1", "A2", and "G". A jumper bar is normally connected between terminals "A2" and "G" for single wire antenna systems and unbalanced antenna transmission lines. For doublet antenna installations using a balanced transmission line, the jumper between "A2" and "G" is disconnected. A ground connection, when used, is connected to terminal "G".

Single Wire Antenna - If a single wire antenna installation is to be used, connect the jumper bar between antenna terminals "A2" and "G". A single wire antenna of about 50 to 100 feet long (including lead-in) is then connected to terminal "A1". Erect the antenna as high and free from surrounding objects as possible. A good ground connection generally improves reception when using this type of antenna. The water pipe makes a very effective ground.

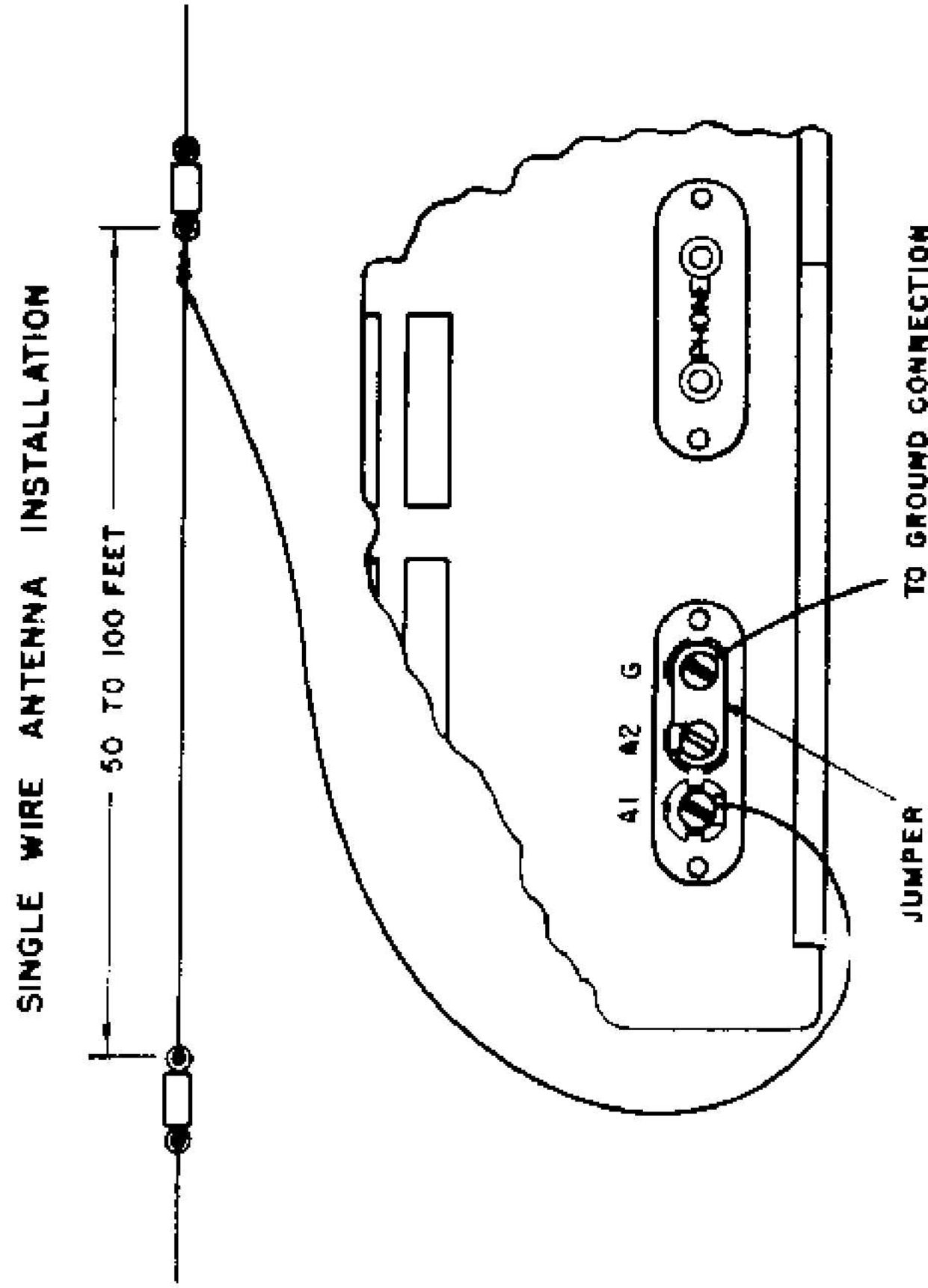


Fig. 2. Single wire antenna installation.

Doublet Antenna - The doublet antenna system is recommended for the higher frequency bands especially where maximum signal to noise is required over a relatively narrow range of frequencies. The transmission line from the antenna is connected to terminals "A1" and "A2". If a concentric line with a grounded outer conductor is used, connect the inner conductor to terminal "A1", the outer conductor to terminal "A2" and connect the jumper bar between terminals "A2" and "G".

The overall length (feet) of a doublet antenna may be determined by dividing the constant 468 by the desired frequency in megacycles.

Keep in mind that this type of antenna is directional broadside to its length and should be so oriented if maximum pickup from a given direction is desired.

DOUBLET ANTENNA INSTALLATION USING TWISTED PAIR LEAD-IN

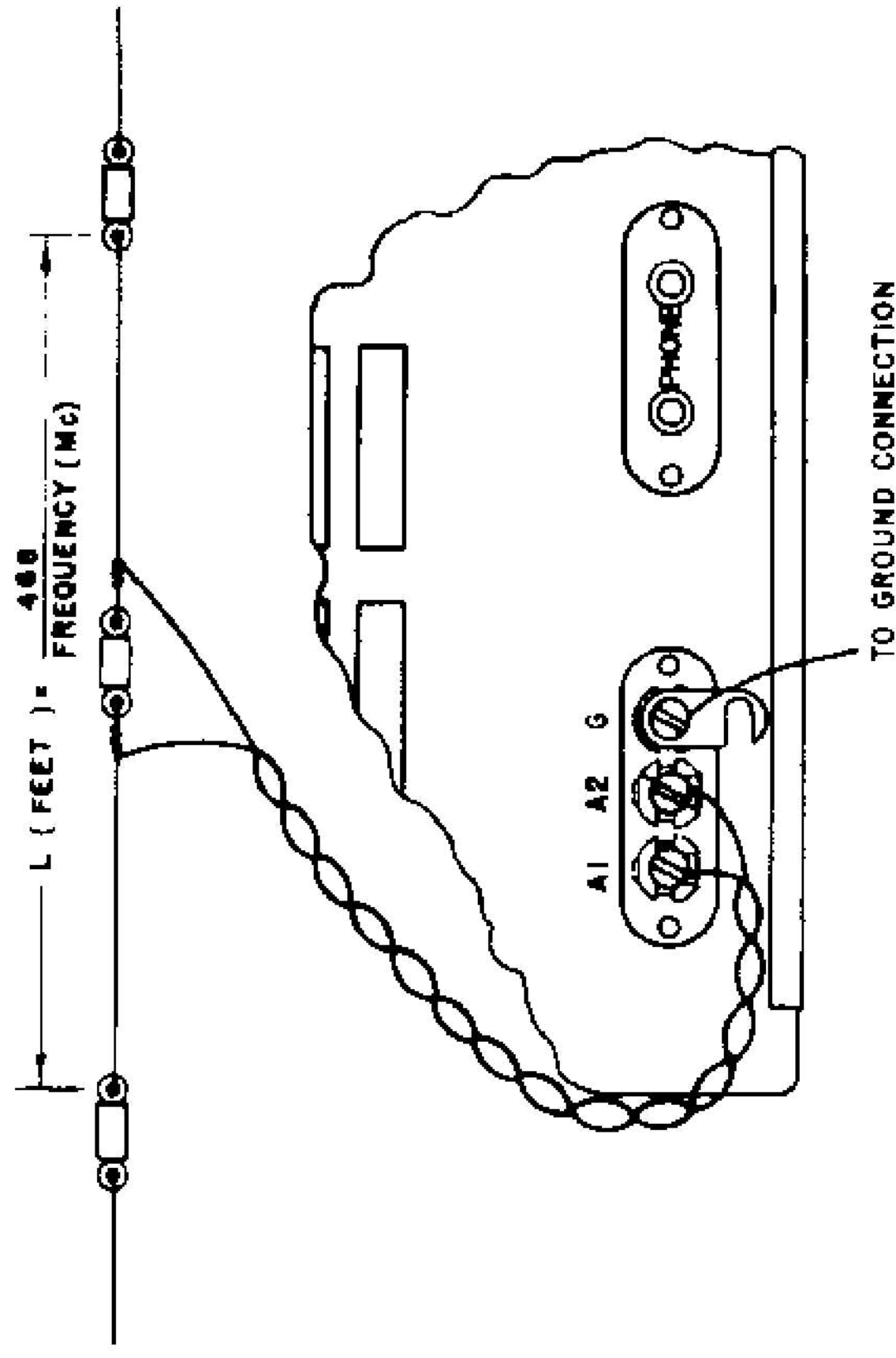


Fig. 3. Doublet antenna installation.

HEADSET CONNECTION - A pair of pin jacks are provided at the rear chassis apron for the headset phone tips. Any headset having a working impedance of 500 to 2,000 ohms may be used successfully with this receiver. To place the headset circuit in operation, set the SPEAKER/PHONES switch at PHONES.

OPERATION

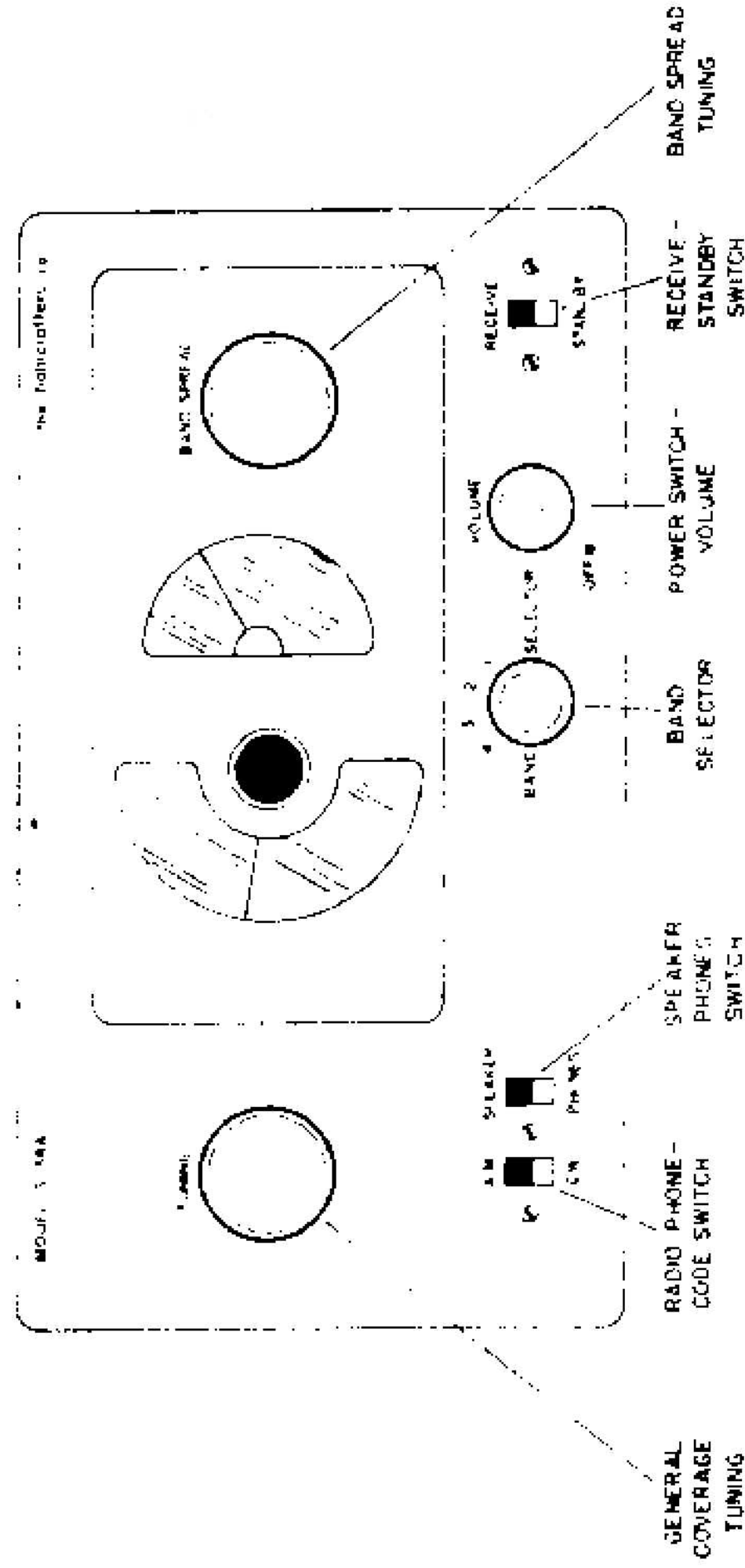


FIG. 4. Location of controls.

GENERAL BROADCAST RECEPTION - For regular broadcast entertainment purposes, set the **BAND SELECTOR** at 1, the **AM/CW** switch at **RECEIVE**, the **SPEAKER/PHONE** switch at **SPEAKER** and the **RECEIVE/STANDBY** switch at **RECEIVE**. Turn on the receiver with the **VOLUME** control by turning it clockwise. Use the **TUNING** control and **VOLUME** control in the usual manner, tuning for the loudest, clearest reception to obtain top performance from the receiver. When operating the receiver from a 115 V. DC outlet allow about a minute for warm-up. If the receiver doesn't respond after a reasonable warm-up period, reverse the power plug at the wall outlet to obtain proper polarity. In certain cases hum picked up from an AC outlet may be reduced by properly polarizing the power plug.

To turn off the receiver, turn the **VOLUME** control counter-clockwise until the power switch clicks.

SHORTWAVE RECEPTION - Radio telephone or voice reception in the short wave bands is accomplished as described above for general broadcast reception except that the **BAND SELECTOR** is set for ranges 2, 3 or 4. The frequency of reception is read from the dial scale which corresponds to the setting of the band selector knob. Any section of the dial or short range of frequencies may be spread out by tuning the stations with the **BANDSPREAD** control. Note that the general coverage dial calibration will be true only when the bandspread pointer is set at zero. Code reception is accomplished by setting the **AM/CW** switch at **CW** and tuning for the desired pitch when tuning in the station.

BANDSPREAD TUNING - To use the bandspread dial, set the dial pointer at zero, set the general coverage dial pointer at the high frequency limit of the range of frequencies to be covered and tune in the stations with the **BAND SPREAD** control. For example: - Assume that the 40 meter amateur band is to be covered. Set the **BAND SELECTOR** at 3, the general coverage dial at 7.3 mc and tune with the **BAND SPREAD** control. The use of the bandspread feature is similar for the reception of shortwave broadcast, etc. In this case the bandspread dial is first set at zero and the station or group of stations located on the general coverage dial. Then by setting the general coverage dial pointer slightly higher in frequency than the group, the bandspread control will tune through the range, spreading out the group of stations over a large portion of the bandspread dial scale.

RECEIVE/STANDBY SWITCH - This switch must be set at **RECEIVE** for normal operation. To disable the receiver for short stand-by periods set the switch at **STANDBY**. This leaves the heaters at operating temperature during standby periods and permits instant response when reception is again desired.

SPEAKER/PHONES - Normally this switch is set at **SPEAKER** for loud speaker reception. Setting the switch at **PHONES** switches the output circuit from the speaker to the headset output jacks located on the rear apron of the chassis.

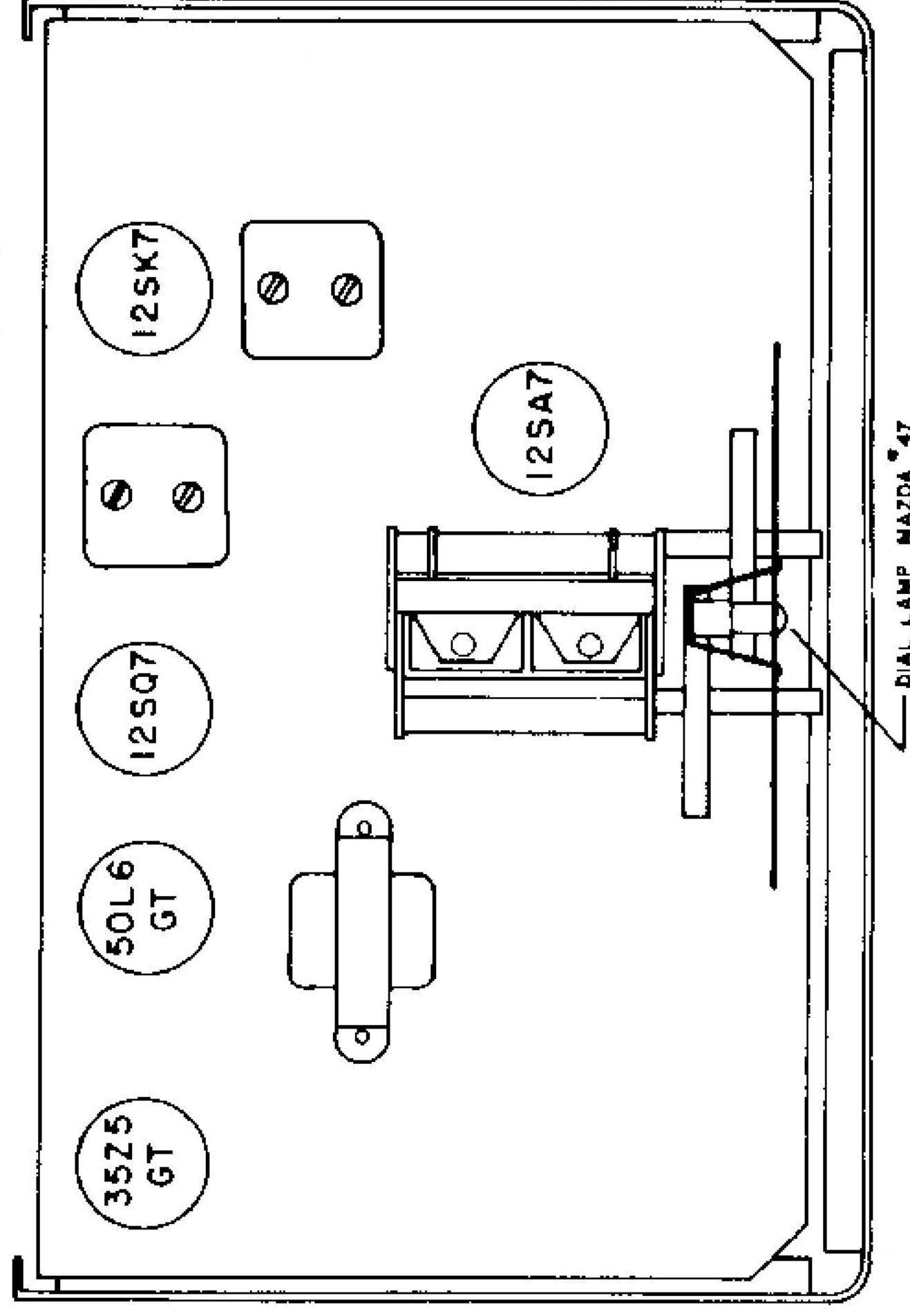
SERVICE

TUBE REPLACEMENT - The tube types and their relative position in the receiver are shown in the illustration, Fig. 5. When installing a replacement tube, insert the center guide pin into the center hole of the tube socket; rotate the tube until the key on the guide pin drops into the notch in the socket hole; and push down until the base of the tube rests firmly on the socket.

Handle tubes with care as they are considered fragile and do not tolerate much mechanical abuse.

DIAL LAMP REPLACEMENT - Refer to Fig. 5 for the location of the dial lamp. To replace a defective lamp, reach in through the rear of the cabinet and unclip the dial lamp socket by compressing the side springs. The socket and defective lamp may then be brought out into the open for service.

Make replacements with 6-8 volt Mazda #47 (Brown bead) lamps.



92B04

Fig. 5. Top view, location of tubes and dial lamp.

SERVICE OR OPERATION QUESTIONS - For further details regarding operation or servicing of the receiver, contact your dealer directly. Make no shipments directly to the factory before first writing for authorization and instructions. The factory cannot accept responsibility for unauthorized shipments.

the hallicrafters co.

FOR MODEL S-38A

GENERAL

Tubes	Four plus rectifier.										
Speaker	5-inch PM.										
Voice Coil Impedance	3.2 ohms.										
Headset Output	Low impedance.										
Antenna	Provisions for external antenna with transmission line or single wire feed.										
Tuning	Manual										
Tuning Range	<table> <tr> <th>Band Selector Position</th><th>Frequency Range</th></tr> <tr> <td>1</td><td>550 kc - 1650 kc.</td></tr> <tr> <td>2</td><td>1.7 mc - 5.1 mc.</td></tr> <tr> <td>3</td><td>5 mc - 14.5 mc.</td></tr> <tr> <td>4</td><td>13 mc - 31 mc.</td></tr> </table>	Band Selector Position	Frequency Range	1	550 kc - 1650 kc.	2	1.7 mc - 5.1 mc.	3	5 mc - 14.5 mc.	4	13 mc - 31 mc.
Band Selector Position	Frequency Range										
1	550 kc - 1650 kc.										
2	1.7 mc - 5.1 mc.										
3	5 mc - 14.5 mc.										
4	13 mc - 31 mc.										
Intermediate Frequency.....	455 kc.										
Power Supply.....	105-125 V. DC or 60 cycles AC.										
Power Consumption	30 Watts										

RESTRINGING DIAL CORD

To restring the general coverage tuning dial cord cut a 14-inch length of 30 lb. test dial cord and tie one end to the tension spring at position "1" on the diagram. Follow the sequence "1" through "15", and at position "15" stretch the tension spring and tie the cord securely.

To restring the band spread tuning dial cord, cut a 16-inch length of dial cord and follow the procedure as above, starting at position "A" on the diagram. Note that the tuning drive shafts are wrapped with two and a fraction turns of dial cord for proper traction.



92X609

REPLACING LAMPS

Refer to Fig. 4, for the location of the dial lamp used in receiver. To gain access to the defective lamp, reach in through the rear of the cabinet (cover removed) and unclip the dial lamp socket by compressing the side springs. The socket may then be brought out into the open to change the defective lamp. Replace defective lamps with 6-8 V. Mazda #47 (Brown bead) lamps or equivalent.

ALIGNMENT PROCEDURE

Holes in the bottom cover permit minor adjustment of the oscillator and mixer stage trimmers, however for complete alignment, the chassis will have to be removed from the cabinet. To separate the chassis from the cabinet, remove the back cover and bottom plate. The chassis is fastened to the cabinet by four front panel screws located near the slide switches and two cabinet screws located at the bottom rear of the cabinet.

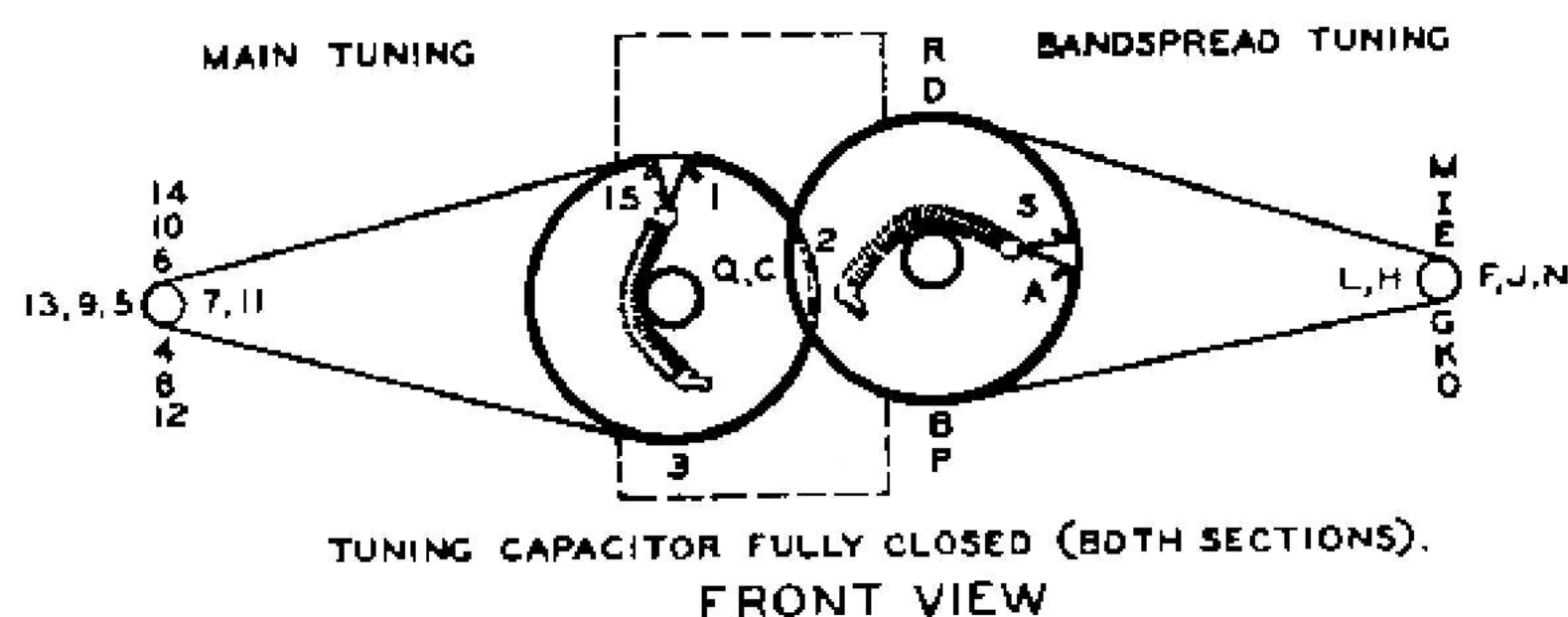
CAUTION - The four rubber grommets insulate the chassis from the cabinet. Check the condition of these grommets and replace if necessary.

The standard RMA dummy antenna specified in the alignment chart consists of a 200 mmf condenser in series with a 20 uh r-f choke which is shunted by a 400 mmf condenser in series with a 400 ohm carbon resistor.

Set the following controls before alignment.

AM/CW	Set at AM
SPEAKER/PHONES	Set at SPEAKER
VOLUME	Set at maximum
RECEIVE/STANDBY.....	RECEIVE
BAND SPREAD	Set at zero

For the settings of the remaining controls, see alignment chart.



92X614

FIG. 1. Dial cable stringing procedure.

ALIGNMENT CHART

Step	Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust	Remarks
1	.01 mfd cap.	Stator plates, front section of tuning gang.	455 kc	1	1000 kc	A,B,C,D	Adjust for max. audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 mw signal level.
2**	See step 1	See step 1	455 kc (No modulation)	1	1000 kc	E	Set the AM/CW switch at CW. (Reset the switch at AM when step 2 is completed.) Correct BFO operation is obtained by varying the coupling between the wire "E" and the 12SK7 tube grid and plate terminals (Pins 4 and 8.) Pushing the wire toward the grid terminal increases the capacity and the strength of the beat.
3	Std. RMA dummy	High side to term. A1 on antenna strip. Jumper wire between A2 and G	30 mc	4	30 mc	*F,G	Max. output as in step 1.
4	Std. RMA dummy	See step 3.	14 mc	3	14 mc	*H,J	Max. output as in step 1.
5	Std. RMA dummy	See step 3	5 mc	2	5 mc	*K,L	Max. output as in step 1.
6	Std. RMA dummy	See step 3	1500 kc 600 kc	1	1500 kc 600 kc	*M,N *P	Max. output as in step 1.

* Note - Calibration adjustments.

** Note - This step is generally unnecessary. Adjustment should be made if a weak beat note is obtained on strong c-w signals indicating lack of coupling between wire "E" and tube socket wiring.

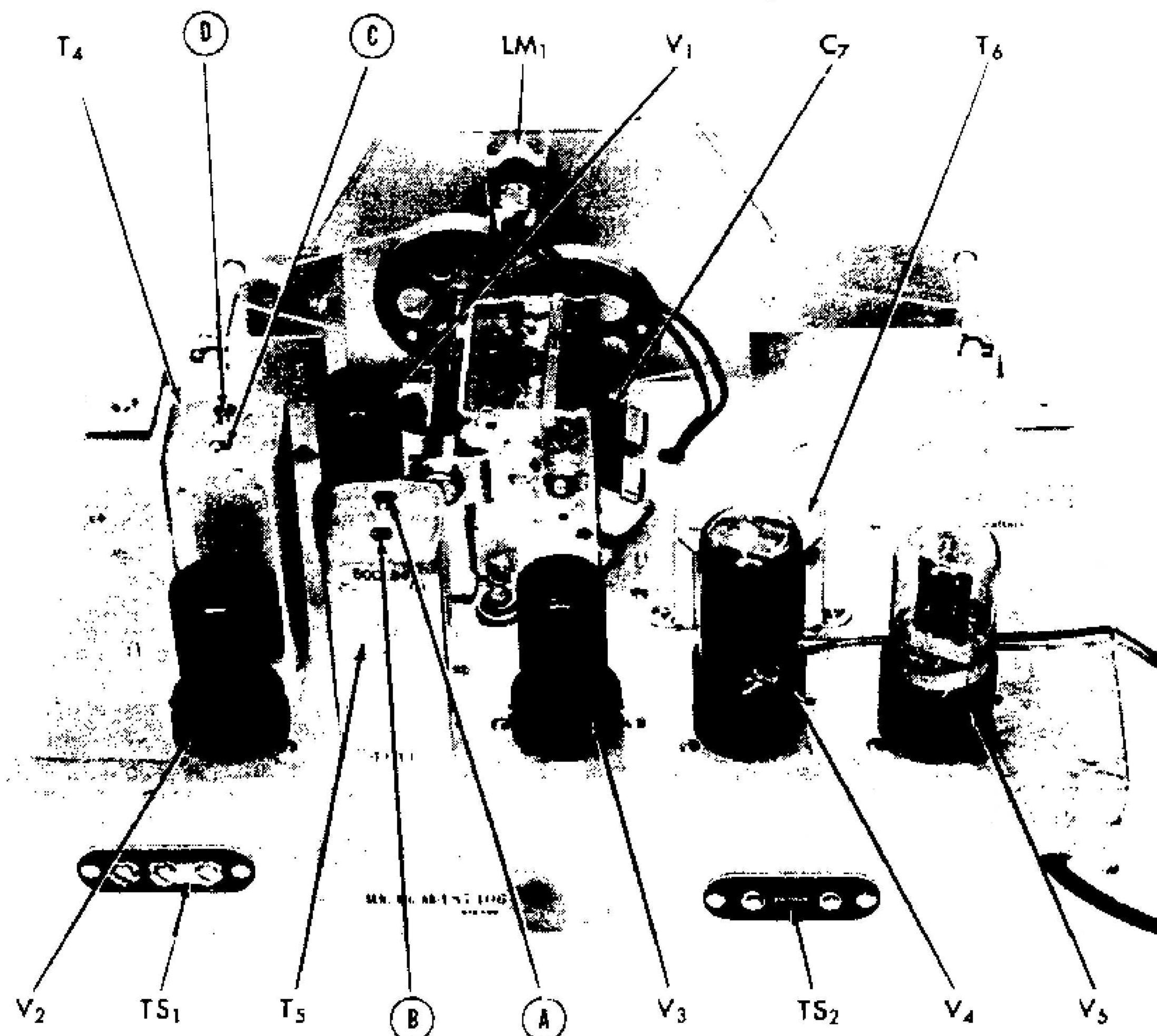


Fig. 2. Top view, alignment adjustments and component location

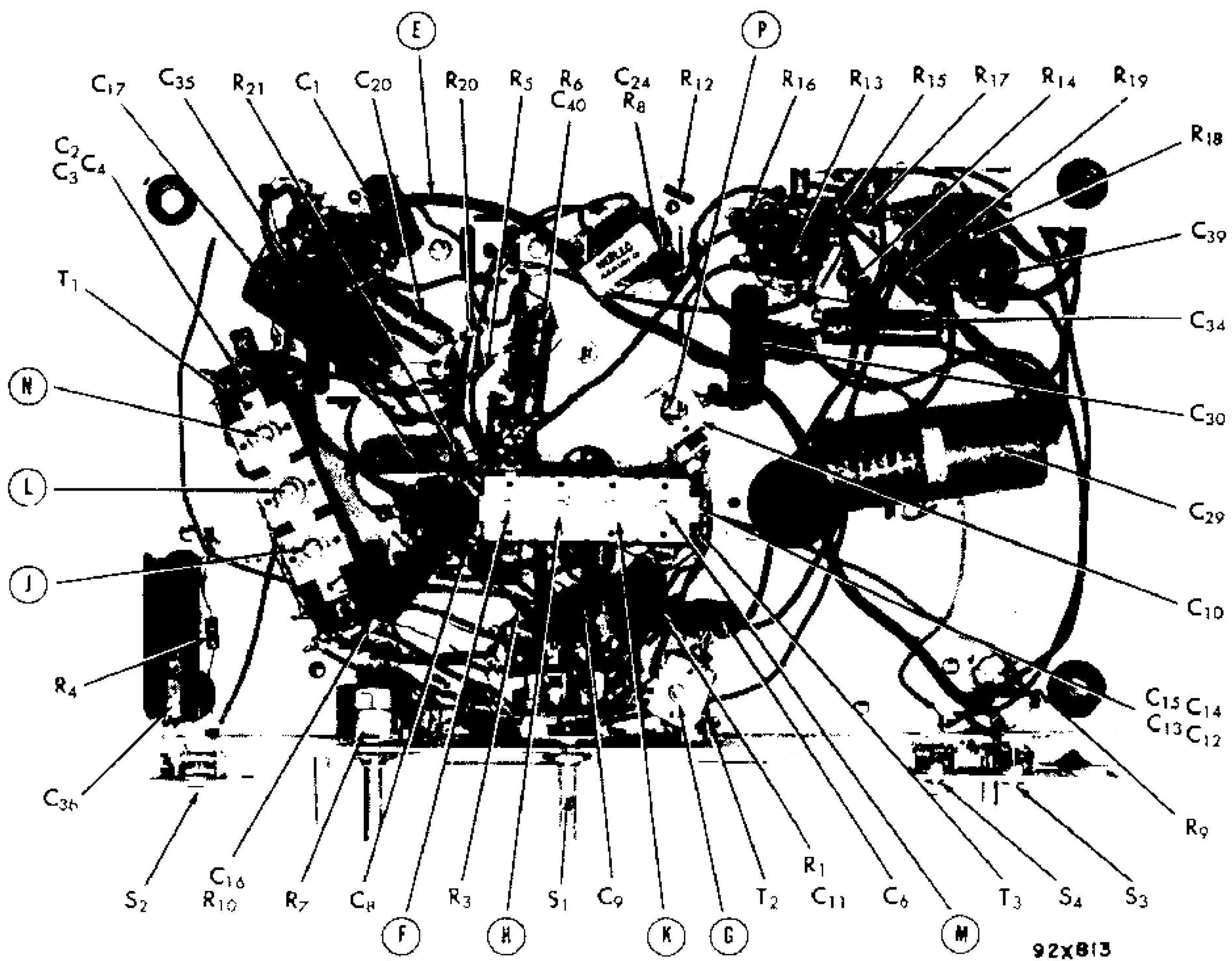


Fig. 3. Bottom view, alignment adjustments and component location

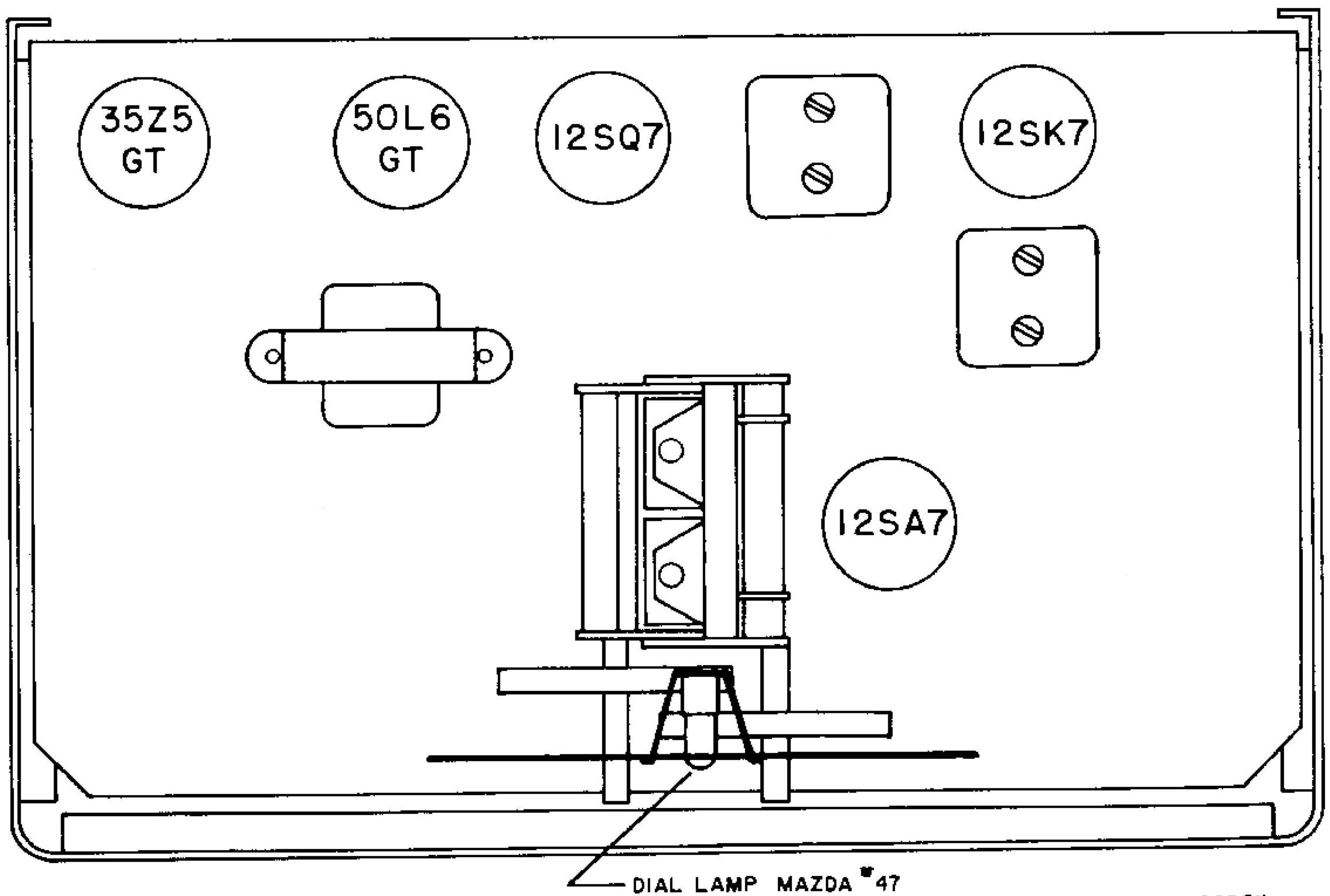
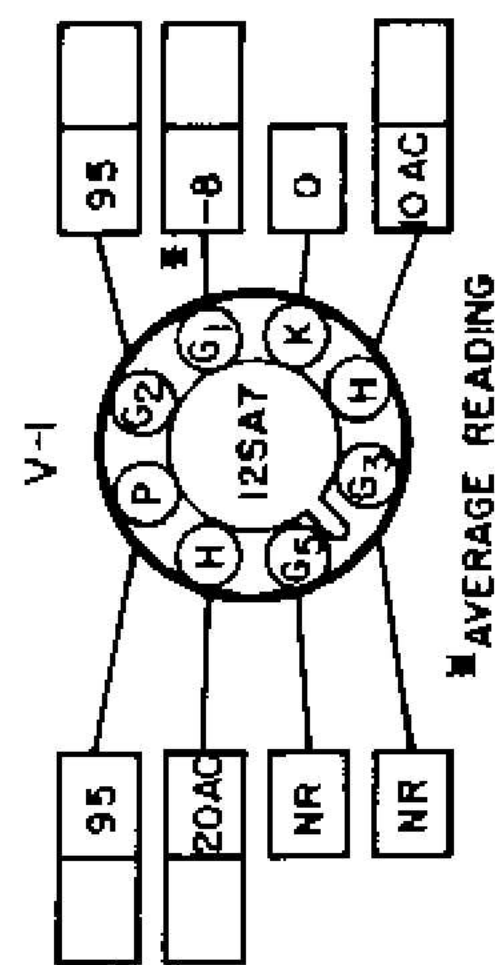
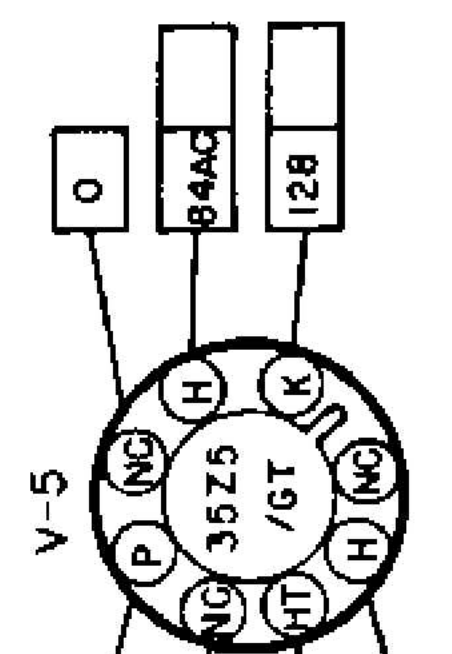
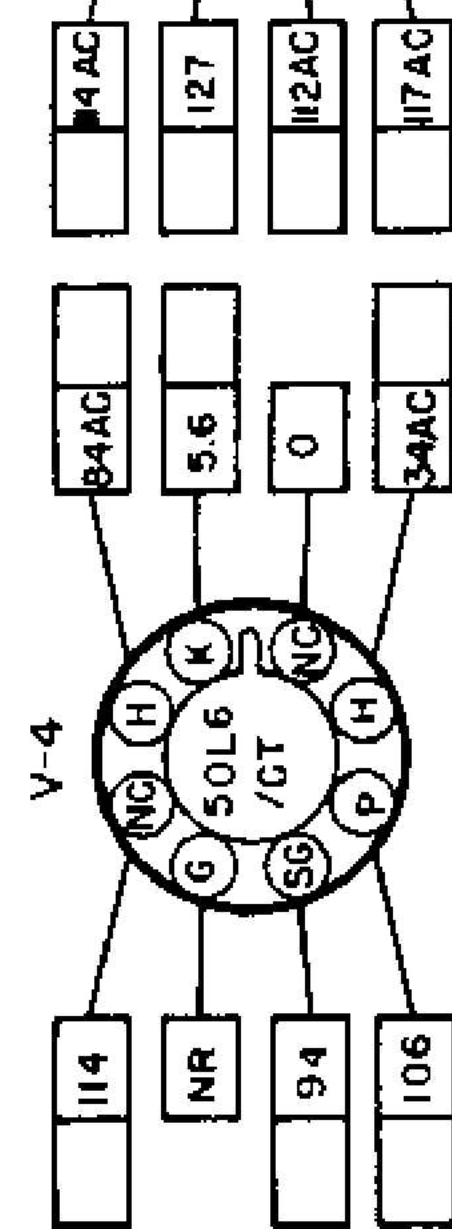
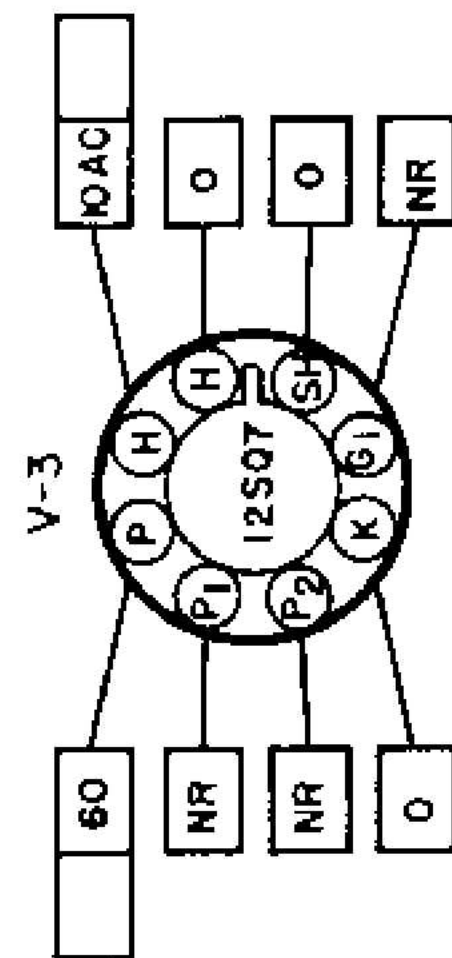
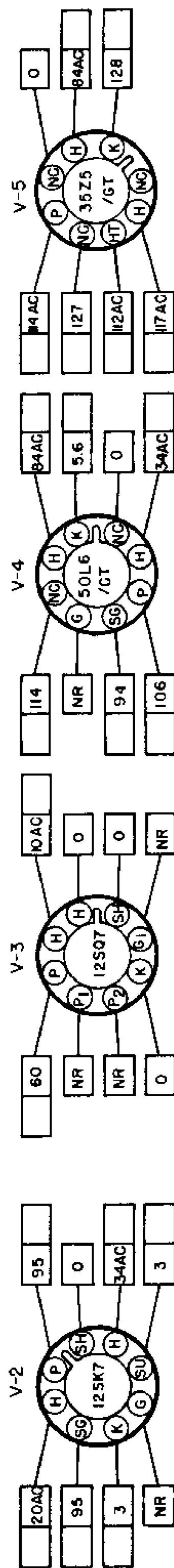


Fig. 4. Top view, location of tubes and dial lamp

SERVICE PARTS LIST

Ref. No.	Description	Manufacturer's Part Number	Ref. No.	Description	Manufacturer's Part Number
CONDENSERS			SWITCHES		
C-1,40	.01 mfd. 600 V., tubular	46AY103J	S-1	Bandswitch assembly	60A240
C-2,3,4	Trimmers, adjustable (Part of transformer T-1)		S-2	Switch, slide; RECEIVE-STANDBY	60A244
C-5	Trimmer, adjustable (For transformer T-2)	44A039	S-3,4	Switch, slide; SPST; AM-CW & SPEAKER-PHONES	60A243
C-6	2700 mmf 500 V, mica	47X30A272J	S-5	Switch, power (Part of VOLUME control R-7)	
C-7	Tuning condenser, 2 sections	48C162-1			
C-8	220 mmf 500 V, mica	47X20A221K			
C-9	3000 mmf 500 V, mica	47X30A302J			
C-10	Padder, adjustable (Band 1)	44A349			
C-11	2200 mmf 500 V, mica	47X30A222J			
C-12,13,14	Trimmers, adjustable (Part of transformer T-3)				
C-15			PL-1	Line cord	87A078
C-16	.02 mfd 400 V, tubular	46AW203J	TS-1	Terminal strip, antenna	88A032
C-17,36	.25 mfd 200 V, tubular	46AT254J	TS-2	Headset, jack	88A071
C-20,35	.05 mfd. 200 V, tubular	46AU503J		Socket, octal (tube)	6A250
C-24	Capacitor, composite; 5,000, 2X220, and 2000 mmf; 500 V.; ceramic	46A151		Socket, dial light	86A011
C-29	40-30-30 mfd 150 V, 20 mfd. 25 V, electrolytic	45B091			
C-30,34	.02 mfd 600 V, tubular	46AY203J			
C-39	470 mmf 500 V, mica	CM20A471M			
C-41,42	Wiring capacity.				
	RESISTORS			TUBES, RECTIFIERS AND LAMPS	
R-1,13,20	470,000 ohms 1/2 watt, carbon	23X20X474M	V-1	Type 12SA7, mixer/oscillator	90X12SA7
R-2	22,000 ohms 1/2 watt, carbon	23X20X223M	V-2	Type 12SK7, i-f amplifier & BFO	90X12SK7
R-3	47 ohms 1/2 watt, carbon	23X20X470M	V-3	Type 12SQ7, detector & 1st audio	90X12SQ7
R-4	390 ohms 1/2 watt, carbon	23X20X391K	V-4	Type 50L6GT, audio power amplifier	90X50L6GT
R-5	2.2 megohms 1/2 watt, carbon	23X20X225M	V-6	Type 35Z5GT, rectifier	90X35Z5GT
R-6	47,000 ohms 1/2 watt, carbon	23X20X473M	LM-1	Lamp, dial light, Mazda #47	39A004
R-7	Resistor, variable; VOLUME control	25B094			
R-8	10 megohms 1/2 watt, carbon	23X20X106M			
R-9	470 ohms 1/2 watt, carbon	23X20X471K			
R-10	10,000 ohms 1/2 watt, carbon	23X20X103M			
R-12	220,000 ohms, 1/2 watt, carbon	23X20X224M			
R-14	150 ohms 1/2 watt, carbon	23X20X151K			
R-15	15 ohms 1/2 watt, carbon	23X20X150M			
R-16	1000 ohms 1/2 watt, carbon	23X20X102M			
R-17	220 ohms 1 watt, carbon	23X30X221M			
R-18,21	22 ohms 1/2 watt, carbon	23X20X220M			
R-19	330 ohms 1/2 watt, carbon	23X20X221M			
	TRANSFORMERS AND COILS			MISCELLANEOUS	
T-1	Transformer, antenna stage, Bands 1, 2 and 3	51C821		Clip, coil mtg (For transformer T-2)	76A326
T-2	Transformer, antenna stage, Band 4	51B1015		Shaft, main tuning	74A244
T-3	Transformer, oscillator stage, Bands 1, 2, 3 and 4			Shaft, bandspread	74A245
T-4	Transformer, i-f amp. stage	50B183		Washer, spring (For main tuning and bandspread drive shafts)	4A043
T-5	Transformer, i-f amp. stage (diode)	50B184		Spring, retainer ("C" washer type)	75A062
T-6	Transformer, audio output	55A127		Dial cord	38A019
				Spring, dial cord	75A012
				Pointer, main tuning	82A140
				Pointer, bandspread tuning	82A103
				Dial scale	83C321
				Knob, VOLUME control and BAND SELECTOR	15A049
				Knob, TUNING and BAND-SPREAD	15A047
			LS-1	Speaker, PM	85C030
				Baffle, speaker	78B198
				Cabinet back	32C330
				Cabinet bottom	8C807
				Mounting foot, rubber	16A007

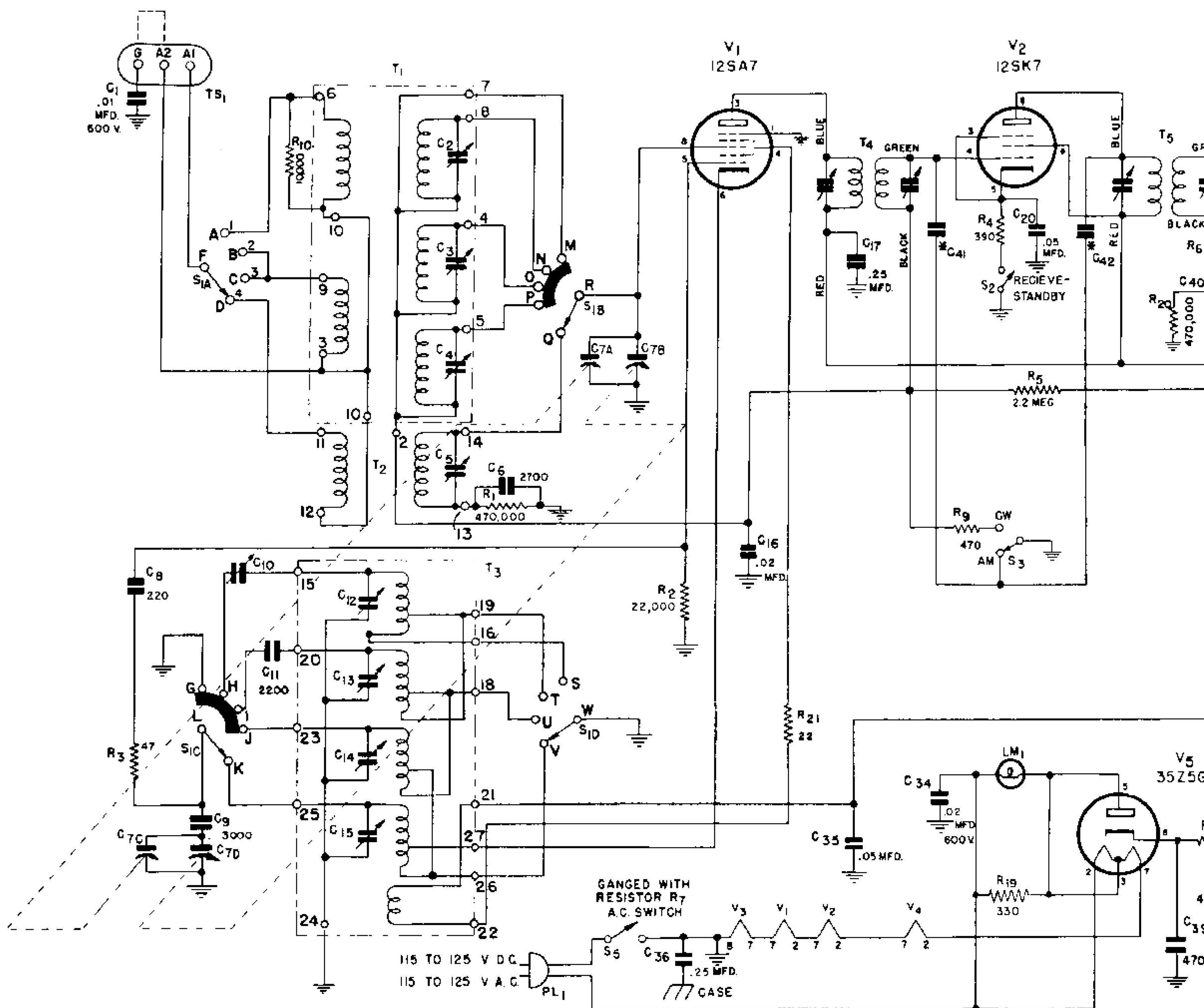


FRONT APRON

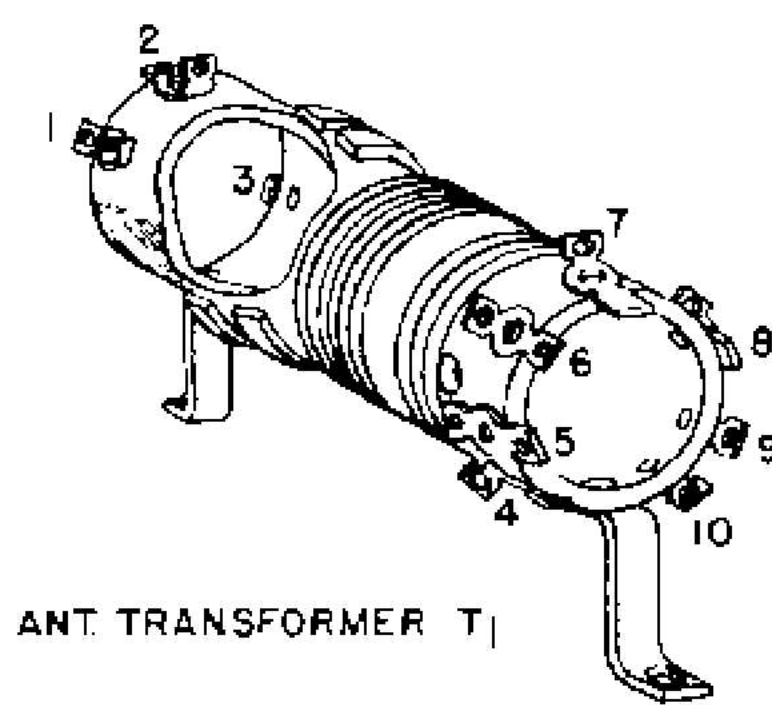
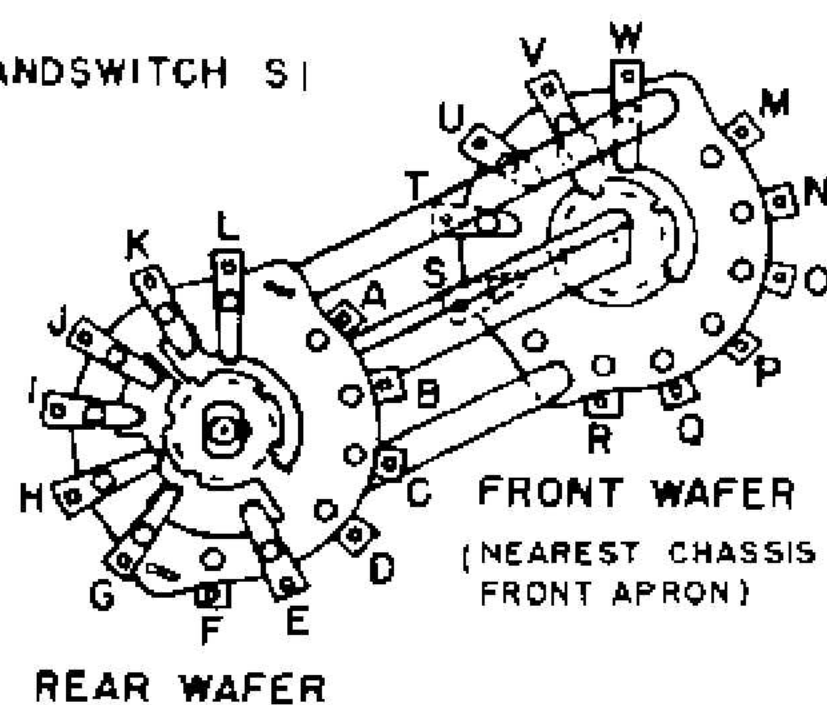
BOTTOM VIEW OF CHASSIS

1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS & CHASSIS, WITH ZERO SIGNAL INPUT.
3. LINE VOLTAGE—117 V. AC. AC VOLTAGES WILL BE DC VOLTAGES WHEN OPERATING FROM A DC SOURCE.
4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGES SHOWN WERE MEASURED WITH AN ELECTRONIC VOLTMETER.
6. "NC" NO CONNECTION. (VOLTAGES SHOWN FOR THIS TERMINAL ONLY WHEN TERMINALS ARE USED AS A TIE LUG.)
7. "NR" NOT READABLE. (READING GENERALLY MEANINGLESS)
8. SPACE PROVIDED FOR SERVICE METER READINGS.

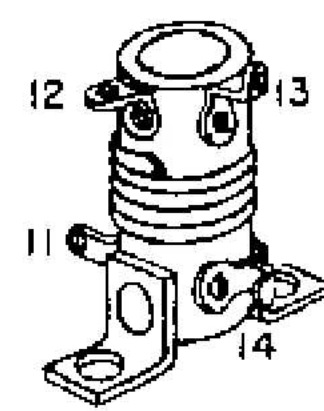
Fig. 5. Tube socket voltage chart.



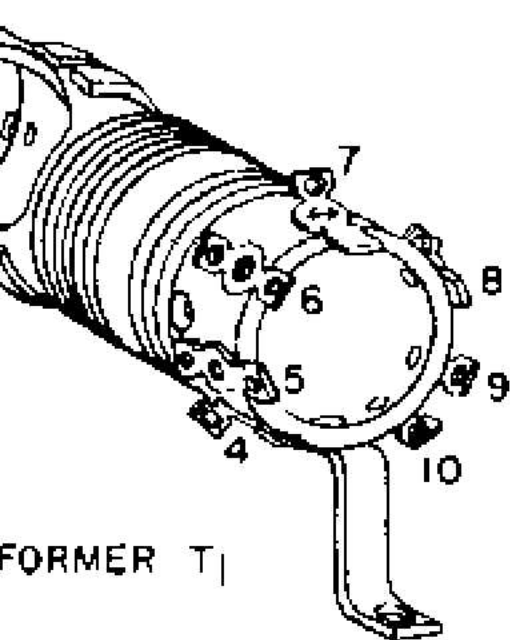
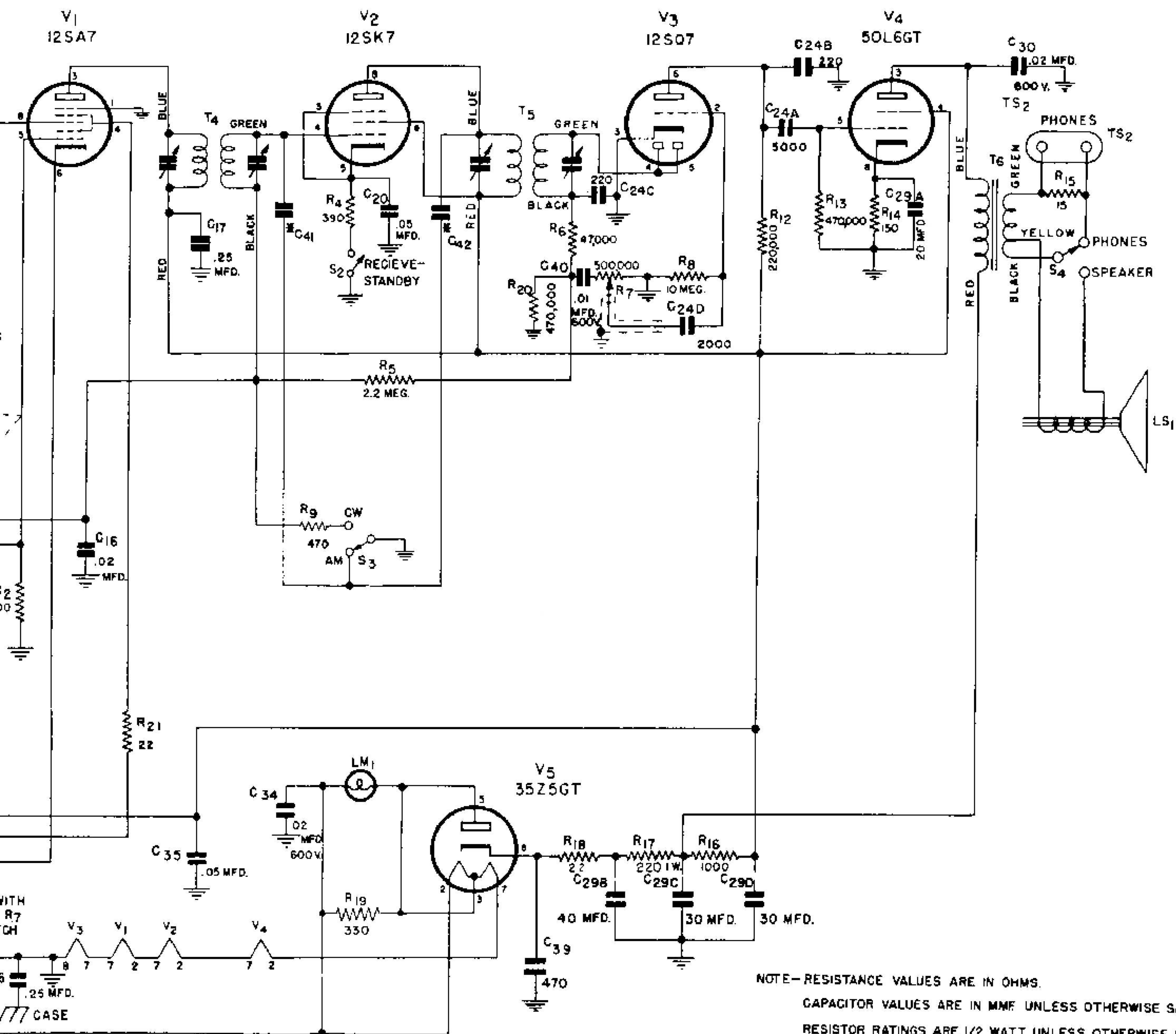
BANDSWITCH S1



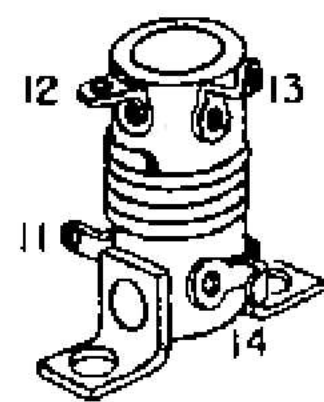
ANT. TRANSFORMER T2



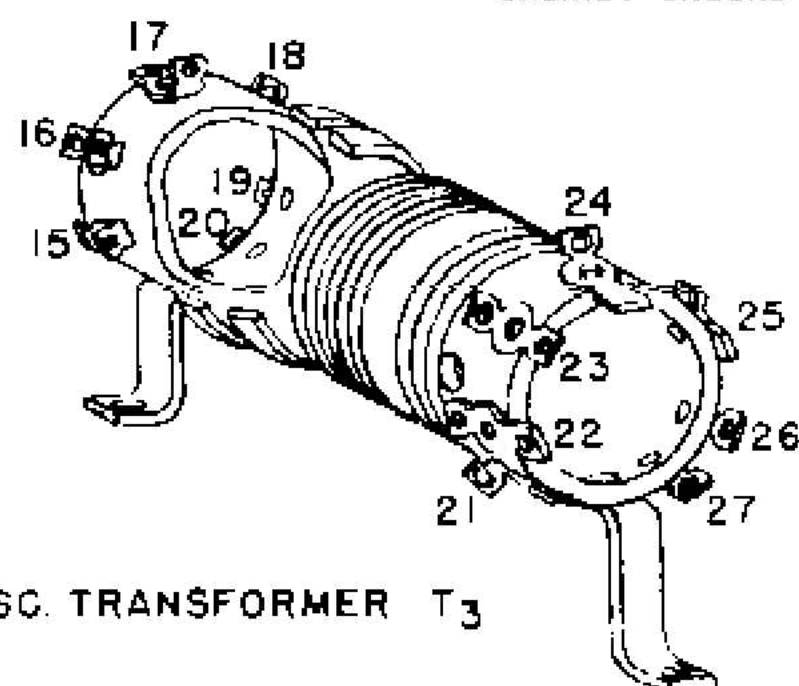
NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIALS
BEEN EXAGGERATED FOR CLARITY OF TERMINAL



ANT. TRANSFORMER T2



OSC. TRANSFORMER T3



LAST CONDENSER SYMBOL C-42
LAST RESISTOR SYMBOL R-21

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

Fig. 6. Schematic diagram.



communications

**OPERATING and SERVICE
INSTRUCTIONS**



the hallicrafters co.

MANUFACTURERS OF RADIO, TELEVISION AND ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.

DESCRIPTION

Hallicrafters Model S-38B is a table model, all-wave superheterodyne radio receiver which provides reception of the standard broadcast band and three shortwave bands with continuous coverage from 540 kilocycles (KC) to 32 megacycles (MC). The receiver employs five tubes including rectifier and provides AM (voice) and CW (code) reception over its entire frequency range.

FREQUENCY COVERAGE

BAND	FREQUENCY RANGE
1	540 KC - 1650 KC
2	1.65 MC - 5.1 MC
3	5 MC - 14.5 MC
4	13 MC - 32 MC

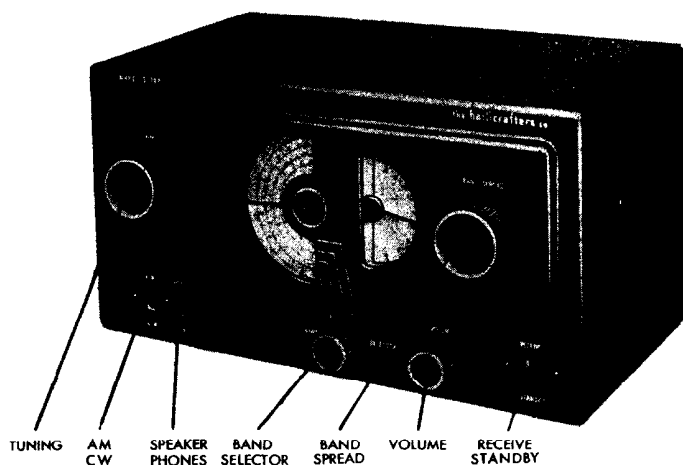


Fig. 1. Radio Receiver Model S-38B

92X1153-A

A bandswitch is provided for selecting any of the four ranges of reception which are indicated on the left hand or TUNING dial. An individual dial scale is provided for each of the four bands. The locations of the amateur bands and important shortwave channels are clearly marked on the TUNING dial. The BAND SPREAD dial is provided for fine tuning of the shortwave bands.

The RECEIVE/STANDBY switch permits disabling of the receiver for standby periods, the tube heaters being maintained at operating temperature for immediate operation.

The receiver is equipped with a built-in 5 inch permanent magnet speaker. Provision is also made in the receiver for the optional use of headphones.

The receiver is designed to operate from a 105-125 volt DC or 60 cycle AC power source. Before connecting the receiver to a wall outlet, carefully read the INSTALLATION INSTRUCTIONS which follow.

INSTALLATION INSTRUCTIONS

UNPACKING - Check all shipping labels and tags for instructions before removing or destroying them.

LOCATION - The receiver is equipped with rubber mounting feet for table top or shelf mounting. When locating the receiver, avoid excessively warm locations and recessed installations which prevent proper air circulation.

POWER SOURCE - The receiver is designed for operation from a 105-125 volt DC or 60 cycle AC power source. The power consumption is approximately 30 watts. If in doubt as to the frequency or voltage rating of your power source, contact the local power company representative to avoid damage to the receiver. When operating on DC, reverse the line cord plug at the wall outlet if the receiver does not operate after a one minute warm-up period. Operation from a 210-250 volt AC or DC source is possible by using a special line cord adapter available as an accessory from your Hallicrafters dealer (Hallicrafters part number 87D1566).

HEADPHONES - Tip jacks are provided on the rear apron of the chassis for headphone connection. Any standard pair of headphones with an impedance of 500 to 2000 ohms can be used with the receiver. For headphone operation, set the SPEAKER/PHONES switch located on the front panel at PHONES.

ANTENNA - A three terminal strip, marked A1, A2 and G, is provided on the rear apron of the chassis for antenna connection. Very satisfactory results can be obtained throughout the tuning range of the receiver with a conventional single wire antenna. In some instances, a length of wire strung about the room may suffice. However, it is recommended that a doublet antenna installation be employed on the shortwave bands for improved reception. Refer to page 3 for the construction and installation details of the single wire and doublet antennas.

SINGLE WIRE ANTENNA

1. Construct the antenna as shown in Fig. 2 and connect it to A1.
2. Connect the jumper between A2 and G.
3. Erect the antenna as high as possible and free of surrounding objects.
4. In some instances, a wire connected between G and a suitable ground such as a cold water pipe or outside ground rod may improve reception.

DOUBLET ANTENNA

1. The overall length (in feet) of the antenna is determined by dividing 468 by the frequency (in megacycles) at the high end of the range to which you wish to listen.
2. Construct the antenna as shown in Fig. 3.
3. A doublet antenna is directional broadside to its length and should be so oriented with respect to a desired station for maximum signal pickup.
4. When feeding the antenna with a twisted pair or ribbon type transmission line, connect the line to A1 and A2. The jumper between A2 and G should be disconnected.
5. When feeding the antenna with a coaxial transmission line, connect the inner conductor to A1 and the outer conductor to A2. Connect the jumper between A2 and G.
6. See Step 4 under SINGLE WIRE ANTENNA.

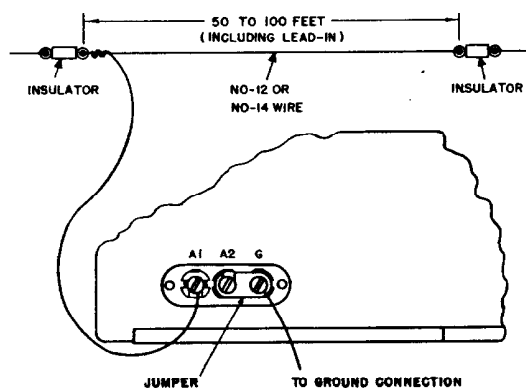


Fig. 2. Single Wire Antenna Installation

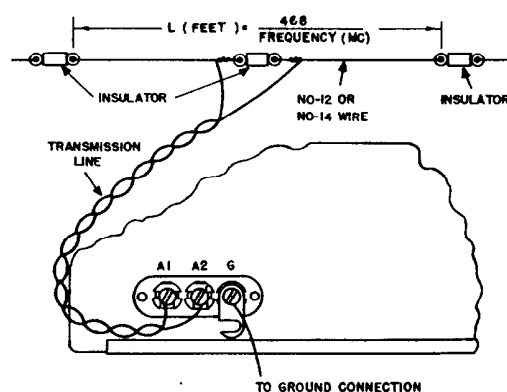


Fig. 3. Doublet Antenna Installation
Using Twisted Pair Lead-In

OPERATING INSTRUCTIONS

STANDARD BROADCAST RECEPTION

1. Set the **BAND SELECTOR** at 1 for the standard broadcast band.
2. Set the **AM/CW** switch at **AM** and the **SPEAKER/PHONES** switch at **SPEAKER**.
3. Set the **RECEIVE/STANDBY** switch at **RECEIVE**. When set at **STANDBY**, the receiver is inoperative but the tube heaters remain at operating temperature.
4. Set the **BAND SPREAD** dial pointer at 0. **IMPORTANT** - The calibration of the **TUNING** dial scales will be correct only when the **BAND SPREAD** dial pointer is set at 0.
5. Turn the receiver **ON** by rotating the **VOLUME** control clockwise to a well advanced position. When operating on DC, reverse the line cord plug at the wall outlet if the receiver does not operate after a one minute warm-up period. The **VOLUME** control will have to be reset for the desired volume level after the station has been tuned in.
6. Tune in the desired station with the **TUNING** control. Read the station frequency from the dial scale which corresponds to the setting of the **BAND SELECTOR**.
7. To turn the receiver **OFF**, rotate the **VOLUME** control counterclockwise until the switch click is heard.

SHORT WAVE RECEPTION

1. Follow the procedure outlined for **STANDARD BROADCAST RECEPTION** but set the **BAND SELECTOR** at 2, 3 or 4 for the desired shortwave band. For code reception, the **AM/CW** switch must be set at **CW** and the **TUNING** control must be adjusted for the desired pitch of the code signal when tuning in the station.
2. For fine tuning of the shortwave bands, refer to **BAND SPREAD TUNING** below.

BAND SPREAD TUNING

1. The **BAND SPREAD** control is a fine tuning adjustment which electrically spreads out any narrow range of frequencies in the tuning range of the receiver. Band spread tuning is not necessary on the standard broadcast band.
2. To use the **BAND SPREAD** control for fine tuning: (1) Set the **BAND SPREAD** dial pointer at 0 (2) Set the **TUNING** dial pointer at the high frequency end of the amateur band or group of shortwave stations to be covered and (3) Tune in the stations with the **BAND SPREAD** control.
3. Logging of shortwave stations is possible by recording the settings of the **TUNING** and **BAND SPREAD** dials. See inside of back cover for the shortwave station log.

SERVICE INSTRUCTIONS

GENERAL SPECIFICATIONS

Tubes	5 including 1 rectifier
Speaker	.5 inch PM
Voice Coil Impedance	3.2 ohms
Headphone Output Impedance	15 ohms
Antenna	Provision for use of either a single wire or doublet antenna
Intermediate Frequency	455 KC
Frequency Coverage	See page 2
Power Supply	105-125 volts DC or 60 cycles AC
Power Consumption	30 watts

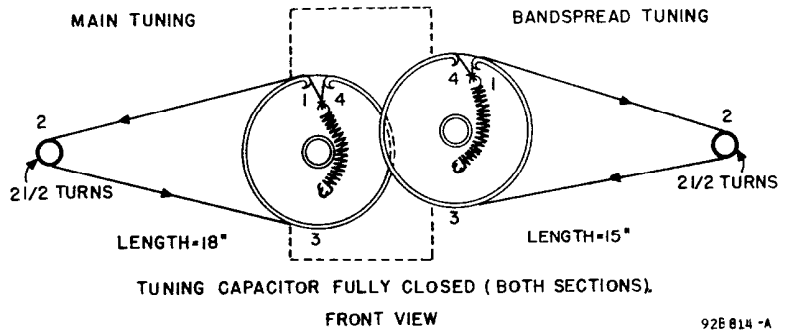


Fig. 4. Dial Cord Stringing Diagram

ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED

1. Signal generator, with amplitude modulated output, covering 455 KC to 30 MC. Use a modulated output for every step except step 2.
2. Output meter. Connect the meter across the speaker voice coil.
3. Standard RMA dummy antenna consisting of a 200 mmf. capacitor in series with a 20 microhenry choke which is shunted by a 400 mmf. capacitor in series with a 400 ohm carbon resistor.
4. Non-metallic alignment tool.

REMOVING THE CHASSIS - The antenna and oscillator trimmers are accessible through the holes provided in the bottom cover. However, for complete alignment the chassis must be removed from the cabinet. To remove the chassis, proceed as follows: (1) Remove the cabinet back (2) Remove the four rubber mounting feet and the bottom cover (3) Remove the two screws at the bottom rear of the cabinet (4) Remove the front control knobs and (5) Remove the four screws which are located near the switches on the front panel.

CONTROL SETTINGS - BAND SPREAD control at 0, AM/CW switch at AM, SPEAKER/PHONES switch at SPEAKER, VOLUME control fully clockwise and RECEIVE/STANDBY switch at RECEIVE. For the settings of the remaining controls, see the ALIGNMENT CHART below. See Figs. 5 and 6 for the location of the alignment adjustments.

ALIGNMENT CHART

Step	Signal Generator Connections	Signal Gen. Frequency	Band Selector Setting	Receiver Dial Setting	Adjust	Instructions
1	High side to stator plates of front section of TUNING gang through a .01 mfd. capacitor. Ground side to G on antenna strip.	455 KC	1	1.0 MC	A,B, C,D	Adjust for maximum audio output at the speaker voice coil. Use just enough signal generator output to obtain a 50 milliwatt reading on the output meter.
2	Same as Step 1	455 KC (No Mod.)	1	1.0 MC	E	Set the AM/CW switch at CW. (Reset the switch at AM when Step 2 is completed.) For correct BFO operation, vary the coupling between wire E and pins 4 and 8 of the 12SK7 tube for a maximum beat note. Pushing wire E toward pin 4 increases the strength of the beat.
3	High side to A1 on antenna strip through the RMA dummy antenna. Ground side to G. Connect jumper between A2 and G.	30 MC	4	30 MC	F,G	Maximum output as in Step 1.
4	Same as Step 3	14 MC	3	14 MC	H,J	Maximum output as in Step 1.
5	Same as Step 3	5 MC	2	5 MC	K,L	Maximum output as in Step 1.
6	Same as Step 3	1500 KC 600 KC	1 1	1.5 MC .6 MC	M,N P	Maximum output as in Step 1.

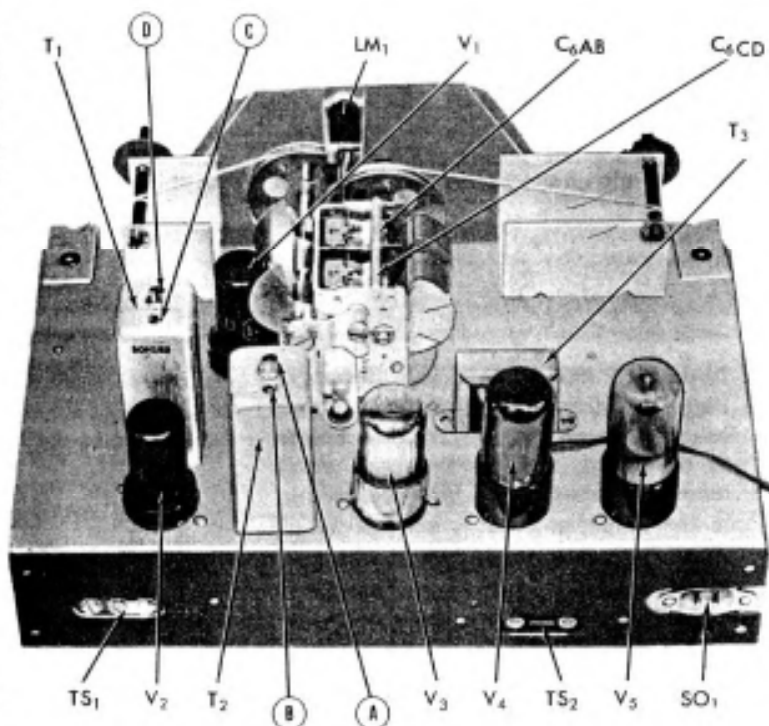
⊙ Step 2 is usually unnecessary. Adjustment should be made **ONLY** if a weak beat note is obtained on strong CW signals indicating lack of coupling between wire E and pins 4 and 8 of the 12SK7.

SERVICE OR OPERATING QUESTIONS - For further information regarding operation or servicing of the receiver, contact your dealer. Make no shipments directly to the factory as the factory will not accept responsibility for unauthorized shipments. Factory type service is available at any **HALLICTRAFTERS AUTHORIZED SERVICE CENTER** which displays the sign shown below. For the location of the **SERVICE CENTER** nearest you, consult your dealer or telephone directory.



92X1403

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



92X1154-A

Fig. 5. Top View of Chassis Showing Location of Alignment Adjustments and Components

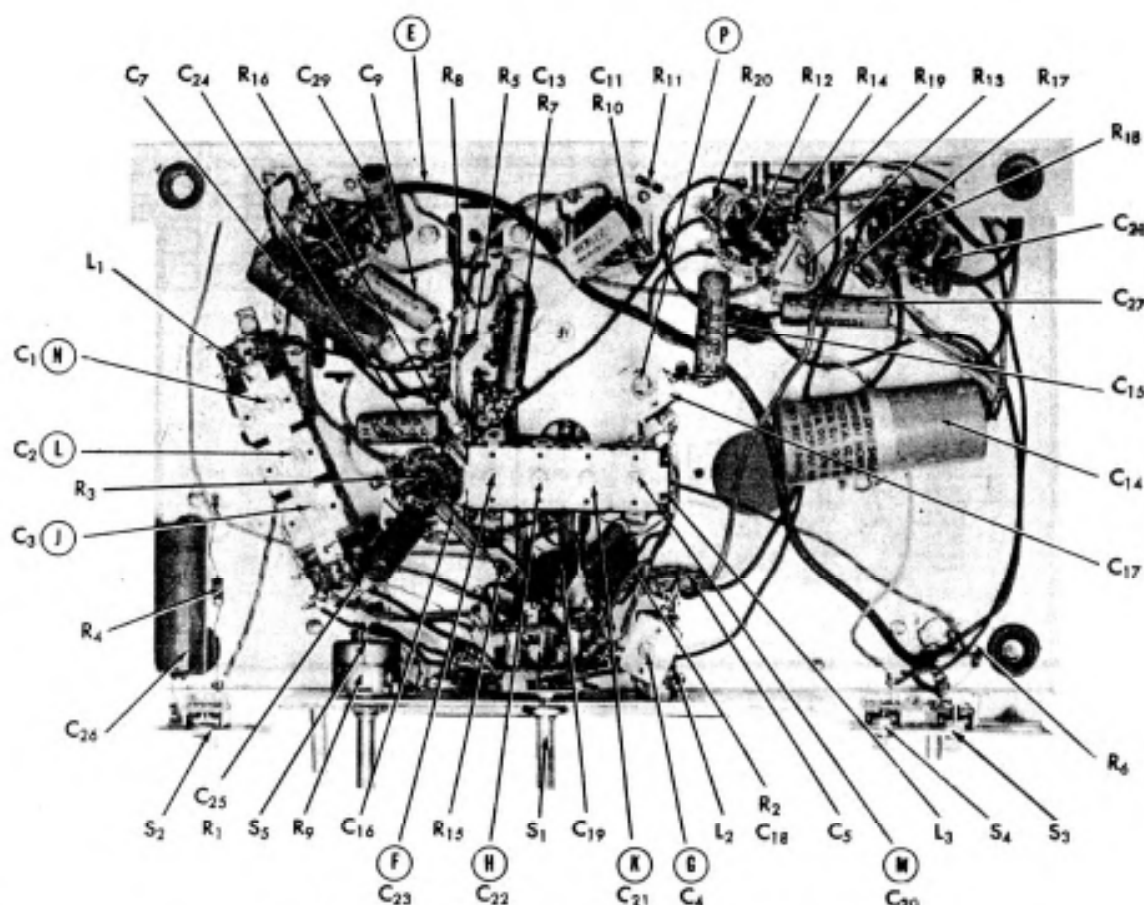


Fig. 6. Bottom View of Chassis Showing Location of Alignment Adjustments and Components

92X813-A

TUBE REPLACEMENT - The tube types and their location in the receiver are shown in Fig. 7. To gain access to all tubes, remove the back cover from the cabinet. Before attempting to replace the 12SA7, set the BAND SPREAD control fully clockwise and the TUNING control fully counterclockwise to prevent damage to the tuning capacitor. To replace a tube: (1) Insert the center guide pin of the tube into the center hole of the tube socket (2) Rotate the tube until the key on the guide pin drops into the notch in the socket hole and (3) Push down on the tube until the base of the tube rests firmly on the socket. Handle all tubes with care as they are fragile and will not withstand mechanical abuse.

DIAL LAMP REPLACEMENT - Refer to Fig. 7 for the location of the dial lamp used in the receiver. To gain access to the lamp, remove the back cover from the cabinet. To prevent damage to the tuning capacitor, set the BAND SPREAD control fully clockwise and the TUNING control fully counterclockwise before attempting to replace the lamp. Remove the dial lamp socket by compressing the side springs. The socket and defective lamp can then be brought out into the open. Make replacement with a 6-8 volt, Mazda #47 (brown bead) pilot lamp or equivalent.

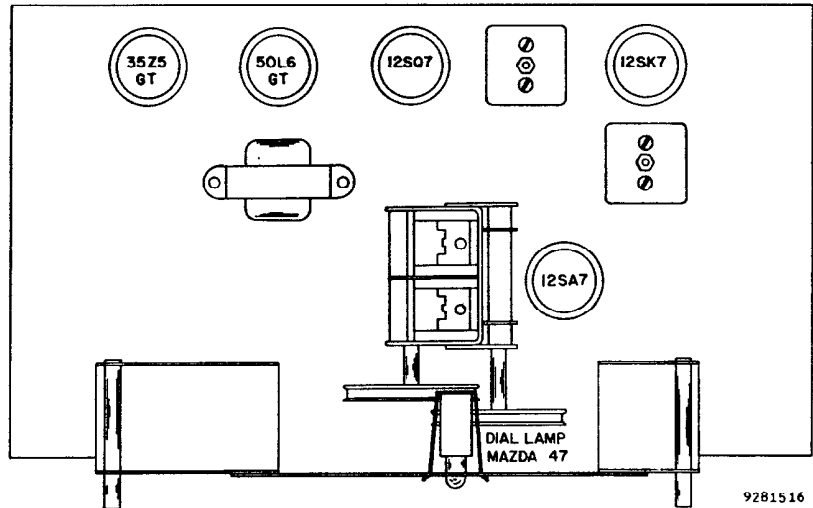
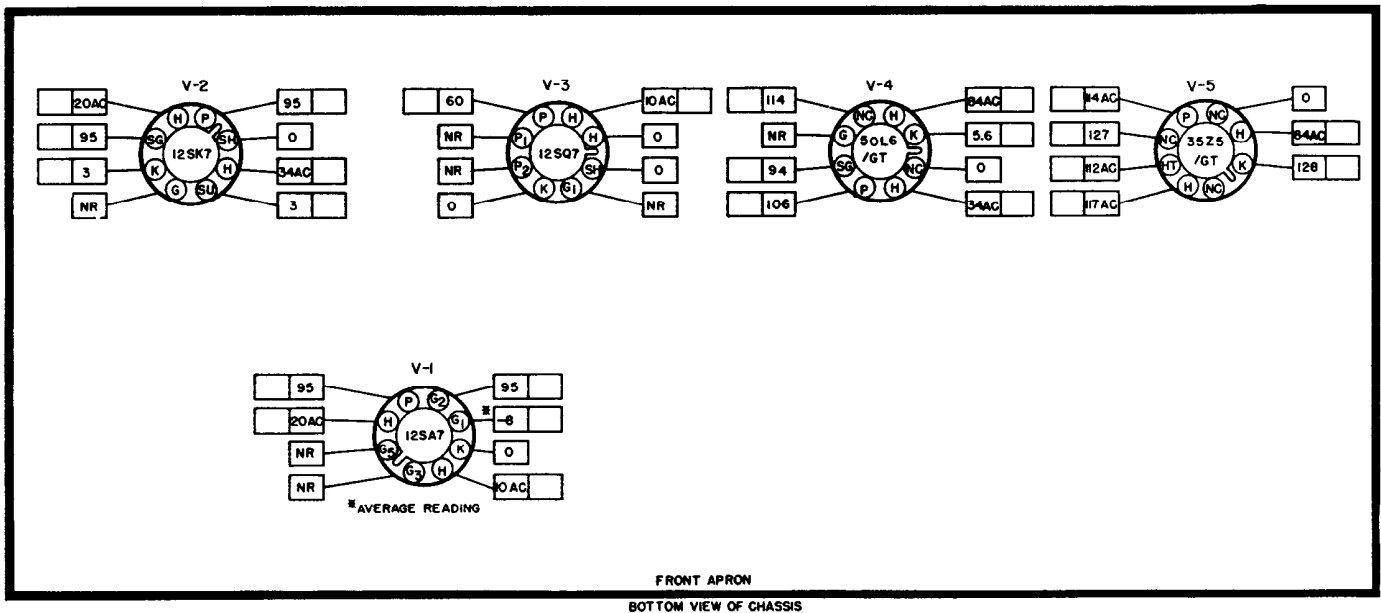


Fig. 7. Top View of Chassis Showing Tube and Dial Lamp Location



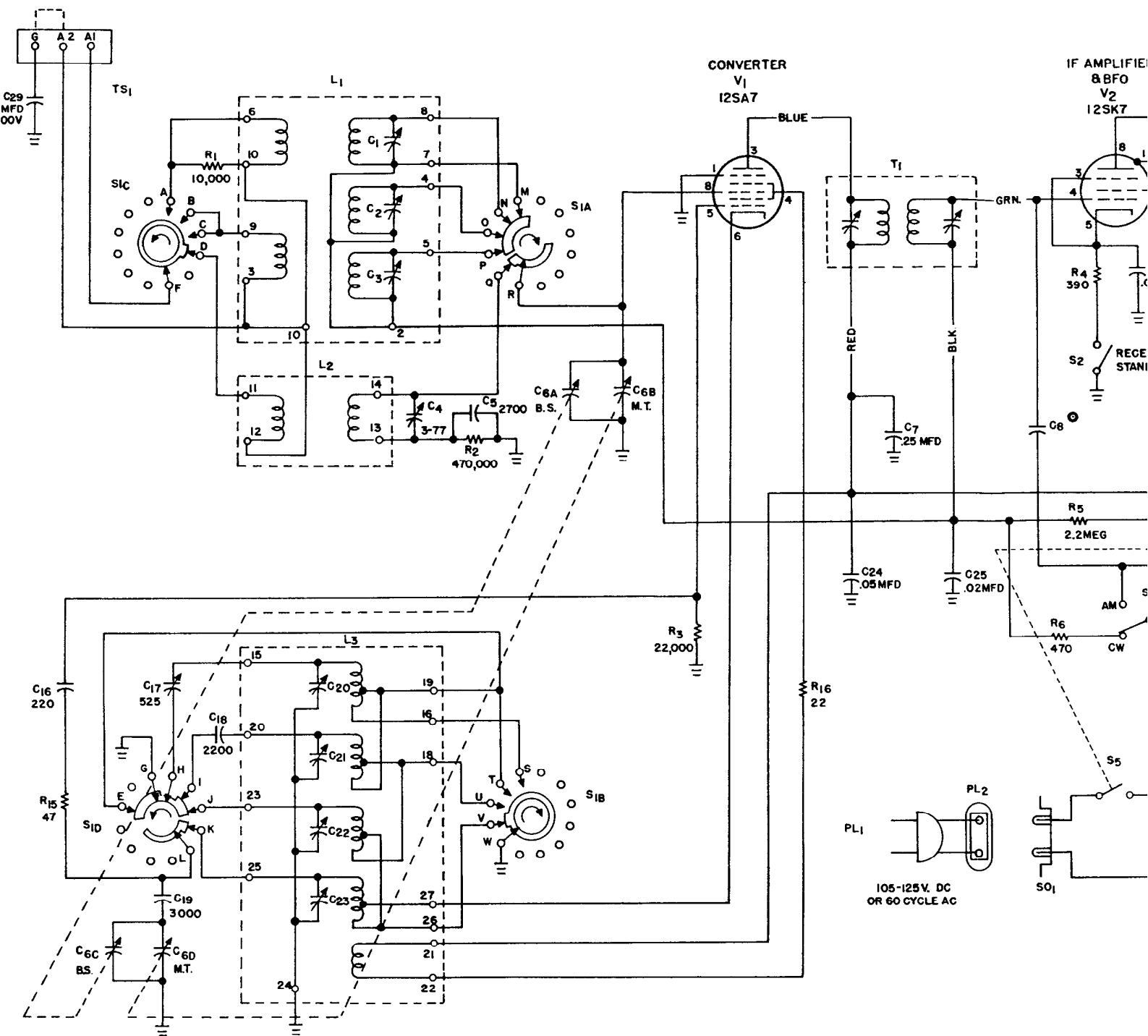
1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS & CHASSIS, WITH ZERO SIGNAL INPUT.
3. LINE VOLTAGE—117 V.A.C. AC VOLTAGES WILL BE DC VOLTAGES WHEN OPERATING FROM A DC SOURCE.
4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGES SHOWN WERE MEASURED WITH AN ELECTRONIC VOLTMETER.
6. "NC" NO CONNECTION. (VOLTAGES SHOWN FOR THIS TERMINAL ONLY WHEN TERMINALS ARE USED AS A TIE LUG.)
7. "NR" NOT READABLE. (READING GENERALLY MEANINGLESS)
8. SPACE PROVIDED FOR SERVICE METER READINGS.

Fig. 8. Tube Socket Voltage Chart

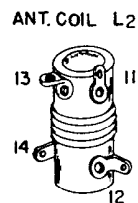
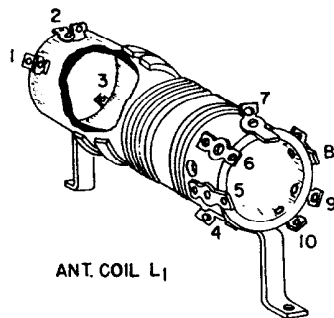
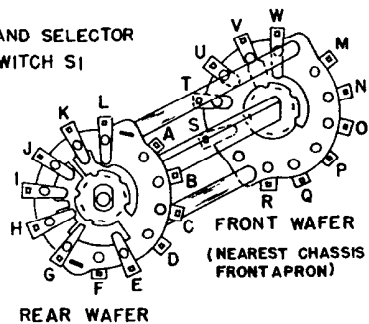
92C786

SERVICE PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			SWITCHES		
C-1,2,3	Trimmers; part of coil L-1	- - - - -	S-1A,B,C,D	Switch assembly, BAND SELECTOR	60C393
C-4	Trimmer, .375 mmf.	44A039			
C-5	2700 mmf. 500 V., mica	47X30B272J	S-2	Switch, spst slide; RECEIVE/ STANDBY	60A244
C-6A,B,C,D	Tuning capacitor, 2 section	48C162-1			
C-7	.25 mfd. 200 V., tubular	46AT254J	S-3,4	Switch, spdt slide; AM/CW and SPEAKER/PHONES	60A243
C-8,10	Wiring capacity	- - - - -			
C-9,24	.05 mfd. 200 V., tubular	46AU503J	S-5	Switch, power; part of VOLUME control R-7	- - - - -
C-11A,B,C,D	Composite capacitor: 5000, dual 220, 2000 mmf. 500 V.; ceramic	46A151			
			CONNECTORS		
C-12	100 mmf. 500 V., mica	47X20B101K			
C-13,29	.01 mfd. 600 V., tubular	46AZ103J	PL-1	Line cord and plug PL-2	87B1668-1
C-14A,B,C,D	20 mfd. 25 V., 60-40-40 mfd. 150 V., electrolytic	45B091	PL-2	Line cord plug	- - - - -
C-15,27	.02 mfd. 600 V., tubular	46AY203J		Socket, dial lamp; includes leads	86A011
C-16	220 mmf. 500 V., mica	47X20A221K		Socket, octal tube	6A250
C-17	Padder, 525 mmf.	44A349	SO-1	Socket, power input	10A286
C-18	2200 mmf. 500 V., mica	47X30B222J	TS-1	Terminal strip, antenna	88A671
C-19	3000 mmf. 500 V., mica	47X30B302J	TS-2	PHONE jacks	88A071
C-20,21,22, 23	Trimmers; part of coil L-3	- - - - -			
C-25	.02 mfd. 400 V., tubular	46AW203J			
C-26	.1 mfd. 400 V., tubular	46AV104J	V-1	12SA7: converter	90X12SA7
C-28	470 mmf. 500 V., mica	47X20B471M	V-2	12SK7: IF amplifier and B.F.O.	90X12SK7
RESISTORS			V-3	12SQ7: detector and audio amplifier	90X12SQ7
R-1	10,000 ohms 1/2 watt, carbon	23X20X103M	V-4	50L6GT: audio output	90X50L6GT
R-2,8,12	470,000 ohms 1/2 watt, carbon	23X20X474M	V-5	35Z5GT: rectifier	90X35Z5GT
R-3	22,000 ohms 1/2 watt, carbon	23X20X223M	LM-1	Lamp, pilot; Mazda #47	39A004
R-4	390 ohms 1/2 watt, carbon	23X20X391K			
R-5	2.2 megohms 1/2 watt, carbon	23X20X225M			
R-6	470 ohms 1/2 watt, carbon	23X20X471K			
R-7	47,000 ohms 1/2 watt, carbon	23X20X473M			
R-9	VOLUME control, 2 megohms; includes switch S-5	25B896			
R-10	10 megohms 1/2 watt, carbon	23X20X106M			
R-11	220,000 ohms 1/2 watt, carbon	23X20X224M			
R-13	150 ohms 1/2 watt, carbon	23X20X151K			
R-14	15 ohms 1/2 watt, carbon	23X20X150M			
R-15	47 ohms 1/2 watt, carbon	23X20X470M			
R-16,18	22 ohms 1/2 watt, carbon	23X20X220M			
R-17	330 ohms 1/2 watt, carbon	23X20X331M			
R-19	220 ohms 1 watt, carbon	23X30X221M			
R-20	1000 ohms 1/2 watt, carbon	23X20X102M			
COILS AND TRANSFORMERS					
L-1	Coil, antenna; bands 1, 2 and 3	51C821			
L-2	Coil, antenna; band 4	51B1015			
L-3	Coil, oscillator; bands 1, 2, 3 and 4	51C822	LS-1		
T-1	Transformer, 1st IF	50B183			
T-2	Transformer, 2nd IF	50B184			
T-3	Transformer, audio output	55A127			



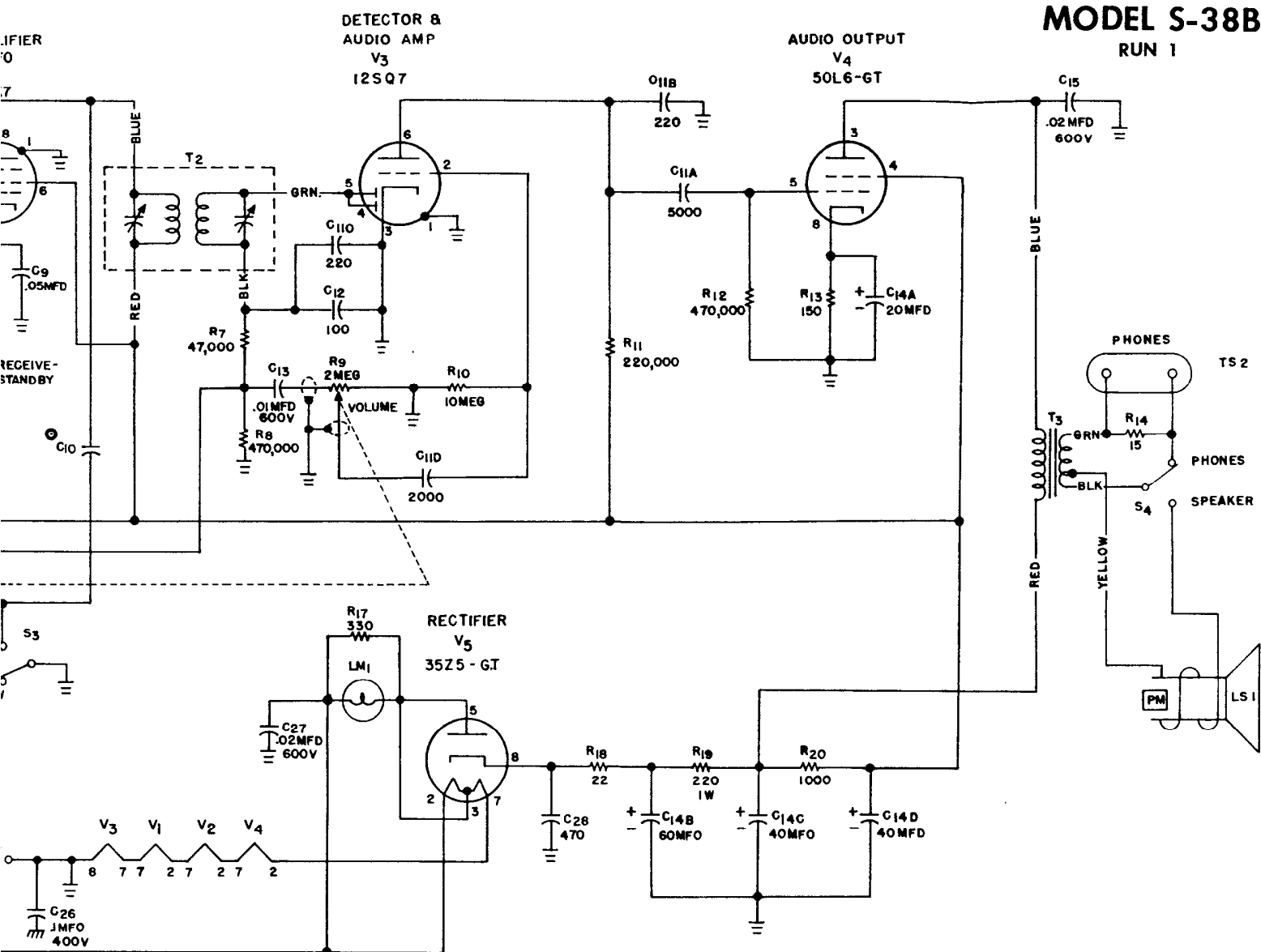
BAND SELECTOR
SWITCH S₁



NOTE: VALUES & TOLERANCES SHOWN ARE NOMIN
IT IS RECOMMENDED THAT THE VALUES OF
TO THE NOMINAL VALUE OF THE PART BEIN

MODEL S-38B

RUN 1

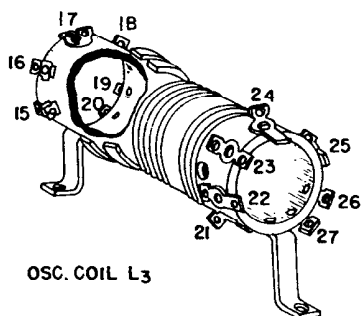


NOTE6

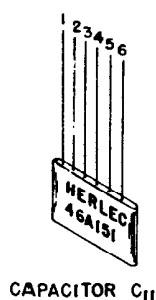
1. RESISTANCE VALUES ARE IN OHMS.
2. CAPACITOR VALUES ARE IN MMF UNLESS OTHERWISE SPECIFIED.
3. RESISTOR RATINGS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED.
4. BAND SELECTOR SWITCH (S1) SHOWN IN BAND 4 POSITION.
- ⊥ CHASSIS GROUND
- ⊥ CABINET GROUND
- ⊙ WIRE GIMMICK

LAST CAPACITOR SYMBOL C-29

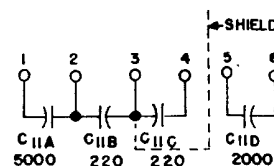
LAST RESISTOR SYMBOL R-20



OSC. COIL L3



CAPACITOR C11



89F 326-E

MINOR VARIATIONS MAY BE FOUND.
IF ANY REPLACEMENT CORRESPOND
TO BE REPLACED.

Fig. 9. Schematic Diagram



the hallicrafters co.

MANUFACTURERS OF ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.

GENERAL DESCRIPTION

World-wide radio reception is yours with the Hallicrafters Model S-38C. This 5 tube communications receiver tunes from 540 kilocycles to 32 megacycles to bring you standard broadcast programs, foreign and domestic shortwave broadcasts, amateurs, police, ships, aircraft and countless other exciting distant stations. It receives both voice and code broadcasts and is designed to operate from 105 to 125 volt direct current (DC) or 60 cycles alternating current (AC). A 5-inch Alnico V permanent magnet speaker is built into the top of the cabinet and tip jacks have been provided on the back of the set for plugging in a pair of headphones. The RECEIVE-STANDBY switch on the front panel is a special feature which permits you to silence the receiver without turning the set off.



Hallicrafters Model S-38C

Good reception of both standard and shortwave broadcasts can be obtained in most localities with the 15 foot antenna wire included with your receiver. It is merely necessary to uncoil this wire, connect one end of it to terminal A1 on the back of the set and then run it about the room in any convenient manner. To complete the antenna installation, connect the jumper between terminals A2 and G.

Your set is provided with two tuning knobs for greater ease of tuning. Wide tuning is done with the knob marked TUNING and fine tuning with the knob marked BAND SPREAD. The BAND SPREAD knob permits you to accurately tune in stations on crowded bands by spreading them out so that they may be more easily separated. In this way you are able to hear many more stations than you would on an ordinary radio with just one tuning knob.

The amateur bands and principal shortwave channels of the world are clearly marked on the dial for your convenience. Since shortwave conditions vary with the season of the year and even with the time of day, shortwave programs may not be heard with the same regularity as standard broadcasts. A special table has been provided on page 3 to aid you in determining the most favorable times for shortwave listening.

IMPORTANT

Your careful attention is especially invited to the installation and operating instructions. They have been provided to insure the satisfaction you have a right to expect from a Hallicrafters "Precision Built" product. Your receiver has an unusually high degree of sensitivity necessary to receive weak and distant stations. Careless operation of a high sensitivity receiver may result in excess noise or background hiss. These undesirable effects can be held to a minimum by careful adjustment of the tuning controls as well as the proper selection and arrangement of the antenna.

INSTALLATION INSTRUCTIONS

ANTENNA - The terminals marked A1, A2 and G on the back of the set are for antenna and ground connections. Good results can be obtained in most localities with the 15 foot antenna wire included with your receiver. This wire should be uncoiled to provide maximum signal pickup. An outside antenna 50 to 100 feet long (ordinary copper wire) may be necessary if the receiver is operated in a difficult reception area or steel constructed building. Connect the antenna wire to terminal A1 on the back of the set and then connect the jumper between terminals A2 and G. In some locations, reception may be improved by connecting a lead from terminal G to a cold water pipe or outside ground rod.

For really top performance, there is no substitute for an outside antenna such as used by the commercial radio stations. Provision has been made on your receiver for the connection of this type of antenna, commonly called a doublet. When a doublet antenna is used, the jumper is removed and the antenna is connected to terminals A1 and A2. Consult your radio dealer for further information.

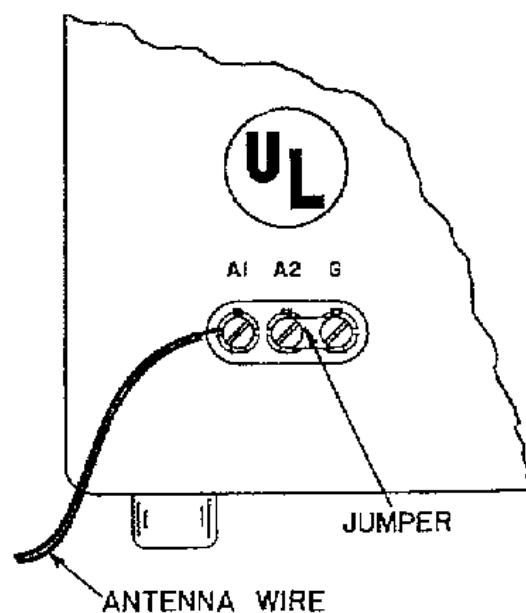


Fig. 1. Rear View of Receiver Showing Antenna and Ground Terminals

OPERATING INSTRUCTIONS

TUNING DIAL - All dial readings are in megacycles. To convert the readings on the standard broadcast band (band 1) to kilocycles, simply remove the dot and add two zeros; thus, .7 on the dial corresponds to 700 kilocycles.

AM-CW SWITCH - Set this switch at AM to listen to voice and musical broadcasts. Set it at CW only if you wish to hear code signals.

SPEAKER-PHONES SWITCH - For operation of the built-in speaker, set the switch at SPEAKER. Tip jacks are provided on the back of the set for plugging in a pair of headphones. Use any 500 to 5000 ohm headphones. For headphone operation set the switch at PHONES.

BAND SELECTOR CONTROL - Set this control for the band you wish to tune.

VOLUME CONTROL - Turn this control clockwise to turn the set on. Allow about 30 seconds for the tubes to reach operating temperature and then advance the control to increase volume. To turn the set off, turn this control counter-clockwise until a click is heard.

NOTE - If the receiver does not operate after the 30 second warm up when connected to a DC source, the power plug should be reversed in the wall outlet to obtain proper polarity.

RECEIVE - STANDBY SWITCH - Set this switch at RECEIVE for radio reception. If you wish to silence the receiver without turning the set off, set the switch at STANDBY. To resume radio reception, simply return the switch to the RECEIVE position.

TUNING KNOB - Your receiver has been provided with two tuning knobs - The TUNING knob which operates the pointer on the left hand dial and a separate BAND SPREAD knob which operates the pointer on the right hand dial. The TUNING knob is for wide tuning and the BAND SPREAD knob for fine tuning. Use the TUNING knob to tune in the desired station. Tune for the clearest and strongest signal. If the signal is too strong, reduce it by means of the VOLUME control, not by using the TUNING knob. For code reception, adjust the TUNING knob for the desired pitch of the CW code signal when tuning in the station.

IMPORTANT - The dial readings will correspond to the exact station frequencies only if the BAND SPREAD dial pointer is set at 0.

BAND SPREAD KNOB - The BAND SPREAD knob permits you to accurately tune in stations on crowded bands by spreading them out so that they can be more easily separated. The BAND SPREAD knob can be used in two different ways. First, it may be left with the pointer at 5 while you partially tune in the desired station with the TUNING knob. Then, by "rocking" the BAND SPREAD knob back and forth (turn it a few degrees to the left and right through the desired station), you will be able to tune in the desired station with precision accuracy.

The second way to operate the BAND SPREAD knob is to use it to cover a group of stations. Set the BAND SPREAD knob so that the pointer reads 0 and then turn the TUNING knob to tune in the highest frequency station in the group. The other stations can be heard by slowly turning the BAND SPREAD knob from 0 to 100.

BEST SHORTWAVE RECEPTION TABLE

Band	Most Favorable Time	Most Favorable Distance
6-7 MC	Night - Winter	Day - 400 Miles - Night - Over 1500 Miles
9-10 MC	Day - Late Afternoon and Night - Winter	Over 500 Miles
11-12 MC	Evenings or Late Summer Afternoons	Day - Under 1500 Miles Night - Over 1500 Miles
15-18 MC	Early Mornings and Summer Evenings	Over 1500 Miles

SERVICE INSTRUCTIONS

GENERAL SPECIFICATIONS

Tubes 5 including 1 rectifier
 Speaker 5 inch PM
 Voice Coil Impedance 3.2 ohms
 Headphone Output Impedance . . . 15 ohms
 Antenna . . . Terminals for single wire or
 doublet antenna. (See Page 2.)
 Intermediate Frequency 455 KC
 Frequency Coverage . . . 540 KC - 32 MC
 Power Supply 105-125 volts DC or
 60 cycles AC
 Power Consumption 30 watts

TUNING

BANDSPREAD

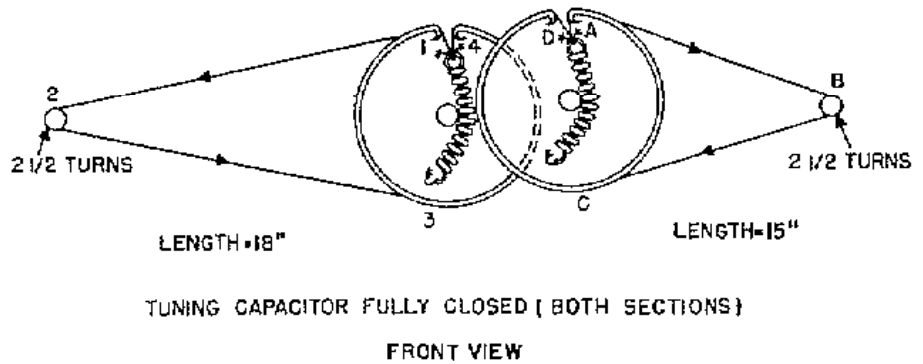


Fig. 2. Dial Cord Stringing Diagram

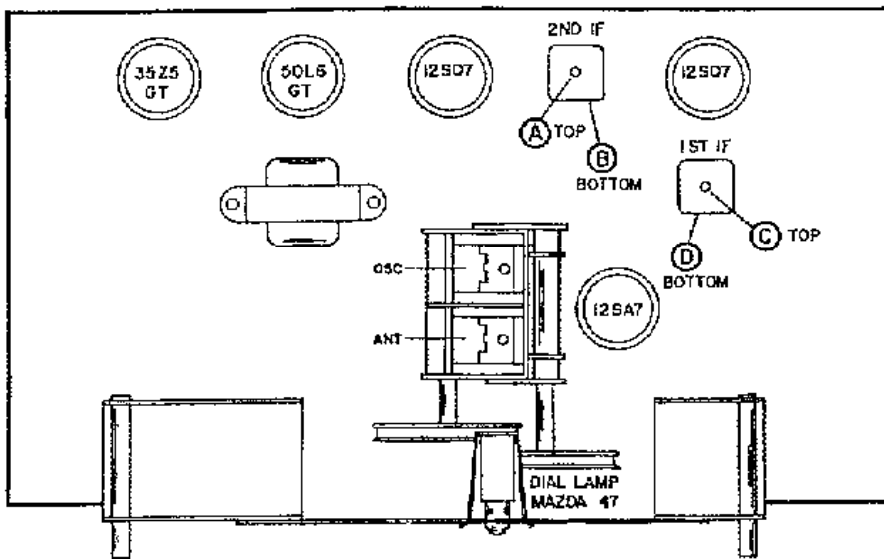


Fig. 3. Top View of Chassis Showing Location of Alignment Adjustments, Tubes and Dial Lamp

DIAL CORD STRINGING - Refer to Fig. 2 for the stringing diagram. Both sections of the tuning gang should be fully meshed. To restring the TUNING dial cord, tie one end of an 18 inch length of 30 lb. dial cord to the dial spring at 1 on the drive pulley. Follow the stringing sequence 1 through 4. At 4, stretch the spring and tie the cord securely to the spring. Cut off the excess cord and apply a drop of quick drying cement to the knot.

To restring the BAND SPREAD dial cord, cut a 15 inch length of dial cord and follow the procedure as explained above, starting at A and proceeding through D.

TUBE AND DIAL LAMP REPLACEMENT - Refer to Fig. 3 for the location of the tubes and dial lamp used in the receiver. To gain access to the tubes and lamp, remove the back cover from the cabinet. Before attempting to make any replacement, set the BAND SPREAD control fully clockwise and the TUNING control fully counterclockwise to prevent damage to the tuning gang. To replace a tube, insert the center guide pin into the center hole of the tube socket, rotate the tube until the key drops into position and then push down until the tube is held firmly in the socket. To make a dial lamp replacement, remove the dial lamp socket by compressing the side springs. Make replacement only with a type 47 pilot lamp.

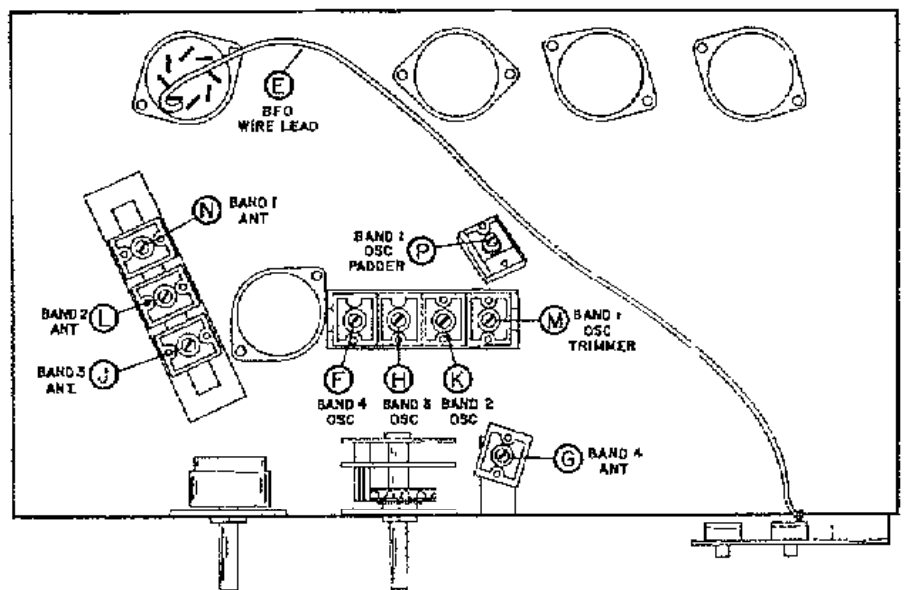


Fig. 4. Bottom View of Chassis Showing Location of Alignment Adjustments

ALIGNMENT INSTRUCTIONS

- Use an amplitude modulated generator covering 455 KC to 30 MC. Use a modulated output for every step except Step 2.
- Connect output meter across speaker voice coil.
- Use a non-metallic alignment tool.
- Set the AM/CW switch at AM, (except for BFO adjustment), SPEAKER/PHONES switch at SPEAKER, VOLUME control at maximum, RECEIVE/STANDBY switch at RECEIVE and the BAND SPREAD control at 0.
- See Flgs. 3 and 4 for location of alignment adjustments.

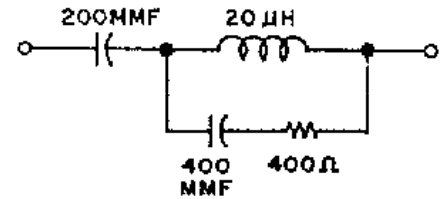


Fig. 5. RMA Dummy Antenna

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust
IF ALIGNMENT					
1	High side thru a .01 mfd. capacitor to stator plates of front section of TUNING gang. Low side to chassis.	455 KC	1	1.0 MC	A, B, C and D for maximum output. Keep reducing gen. output so that the reading on the output meter does not exceed 50 milliwatts
BFO ADJUSTMENT					
*2	Same as Step 1.	455 KC (No Mod.)	1	1.0 MC	Set the AM/CW switch at CW. (Reset the switch at AM when Step 2 is completed.) For correct BFO operation, vary the coupling between lead E and pins 4 and 8 of the 12SG7 tube for a maximum beat note. Pushing lead E toward pin 4 increases the strength of the beat.
RF ALIGNMENT					
3	High side thru RMA dummy antenna (Fig. 5) to terminal A1 on back of chassis. Low side to chassis. Connect jumper between A2 and G.	30 MC	4	30 MC	F and G for maximum output as in Step 1.
4	Same as Step 3.	14 MC	3	14 MC	H and J for maximum output as in Step 1.
5	Same as Step 3.	5 MC	2	5 MC	K and L for maximum output as in Step 1.
6	Same as Step 3.	1500 KC	1	1.5 MC	M and N for maximum output as in Step 1.
		500 KC	1	.8 MC	P for maximum output as in Step 1.

* Step 2 is usually unnecessary. Adjustment should be made ONLY if a weak beat note is obtained on strong CW signals indicating lack of coupling between wire lead E and pins 4 and 8 of the 12SG7.

SERVICE OR OPERATING QUESTIONS - For further information regarding operation or servicing of your radio, contact your dealer. Make no service shipments to the factory as the Hallicrafters Co. will not accept the responsibility for unauthorized shipments. Factory type service is available at any **HALLICRAFTERS AUTHORIZED SERVICE CENTER** which displays the sign shown at the right of the page. For the location of the one nearest you, consult your dealer or telephone directory.

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



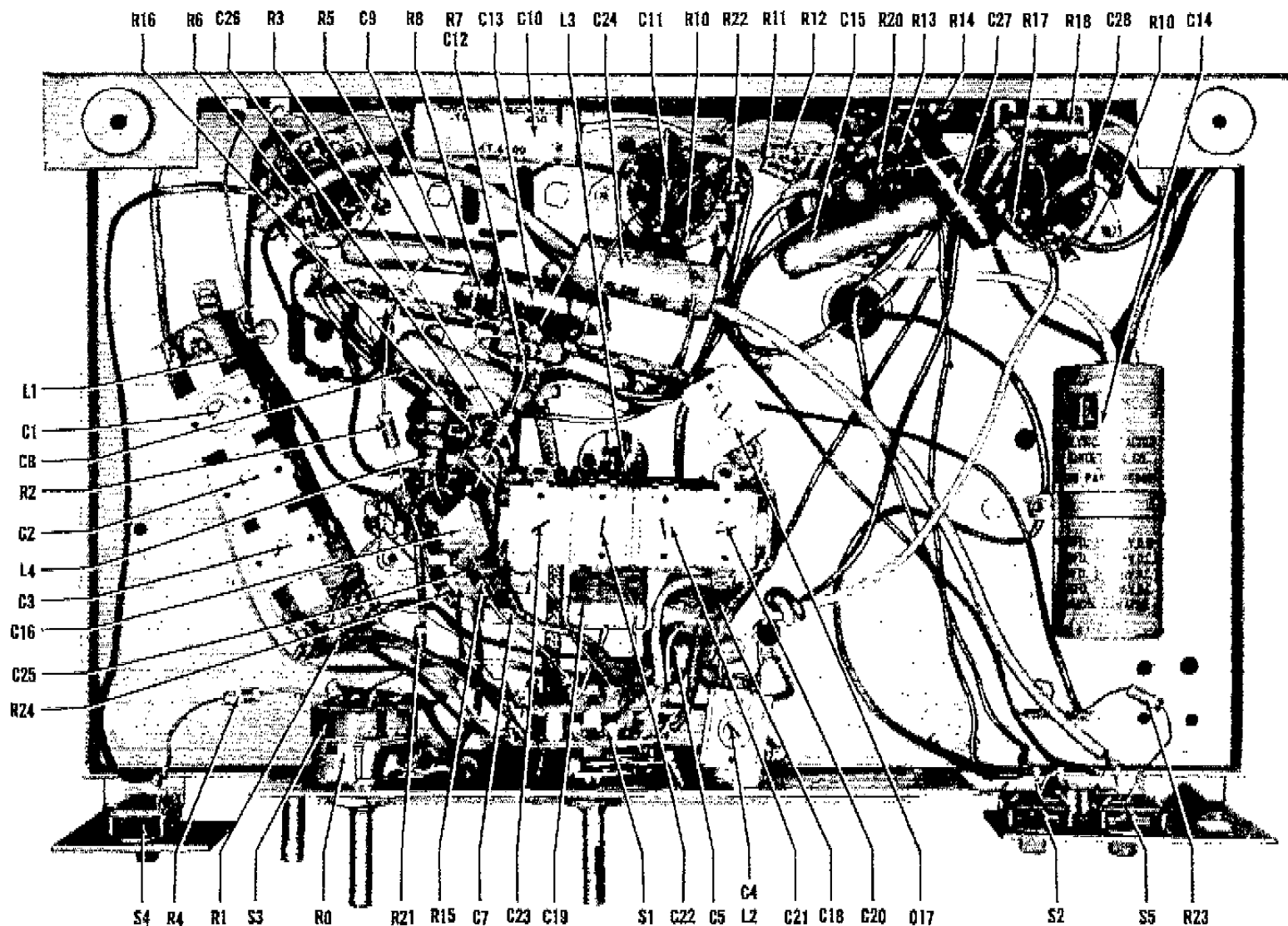
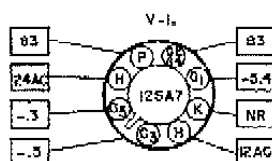
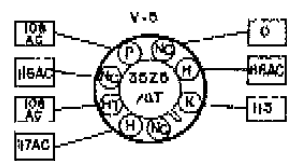
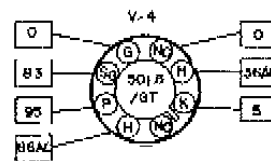
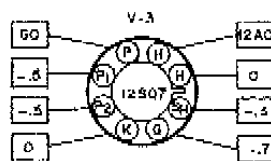
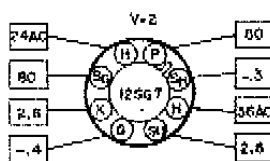


Fig. 6. Bottom View of Chassis Showing Component Location



1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND B- (PIN 8 OF 12SQ7) WITH ANTENNA TERMINALS SHORTED, AM/GW SWITCH AT AM, BAND SELECTOR SWITCH AT POSITION 1, RECEIVE/STANDBY SWITCH AT RECEIVE AND TUNING AND BANDSPREAD CONTROLS FULLY COUNTERCLOCKWISE.
3. LINE VOLTAGE - 117 VOLTS AC.
4. ALL VOLTAGES WERE MEASURED WITH A VACUUM TUBE VOLTMETER (VTVM) AND ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
5. NG - NO CONNECTION.
6. NR - NOT READABLE.

FRONT APRON
BOTTOM VIEW OF CHASSIS

Fig. 7. Tube Socket Voltage Chart

SERVICE PARTS LIST

Schematic Symbol	Description	Hollicrafters Part Number	Schematic Symbol	Description	Hollicrafters Part Number
CAPACITORS			SWITCHES		
C-1,2,3	Trimmer; part of antenna coil L-1	-----	S-1A,B,C&D	Bandswitch assembly (BAND SELECTOR)	80C393
C-4	Trimmer, 20-120 mmf.	44A424	S-2,5	Switch, slide; spdt (SPEAKER/ PHONES and AM/CW)	60A477
C-5	2700 mmf. 5%, 500V.; mica	47X30B272J	S-3	Switch, ON-OFF; part of VOLUME control R-9	-----
C-6A,B,C&D	Tuning capacitor, 2 section	48C162-1	S-4	Switch, slide; spst (RECEIVE/ STANDBY)	60A476
C-7,12,16	220 mmf. 10%, 500V.; mica	47X20B221K	SOCKETS AND CONNECTORS		
C-8,15	.02 mfd. 600V., tubular	46AY203J	Socket, dial lamp; includes leads		
C-9	.05 mfd. 200V., tubular	48AU503J	Socket, tube; octal		
C-10	.002 mfd. 600V., tubular	48AZ302F	Terminal strip, antenna		
C-11A,B,C &D	Capacitor, composite: 5000, 220, 220 and 2000 mmf., 500V.; ceramic	46A151	Tip jacks, PHONE		
C-13	.01 mfd. 600V., tubular	46AZ103J	TUBES AND DIAL LAMP		
C-14A,B,C &D	60-40-40 mfd. 150V., 20 mfd. 25V.; electrolytic	45B091	V-1	12SA7; converter	90X12SA7
C-17	Padder, 525 mmf.	44A349	V-2	12SG7; IF amplifier and BFO	90X12SG7
C-18	2200 mmf. 5%, 500V.; mica	47X30B222J	V-3	12SQ7 or 12SQ7GT/G; detector and audio amplifier	90X12SQ7 or 90X12SQ7GT/G
C-19	3000 mmf. 5%, 500V.; mica	47X30B302J	V-4	50L6GT; audio output	90X50L6GT
C-20,21,22, 23	Trimmer; part of oscillator coil L-3	-----	V-5	35Z5GT; rectifier	90X35Z5GT
C-24	.05 mfd. 600V., tubular	46AY503J	LM-1	Lamp, dial; type 47	39A004
C-25,26	5000 mmf. 450V., ceramic disc	47A168	MISCELLANEOUS PARTS		
C-27	.02 mfd. 600V., molded tubular	46BR203L6	Cabinet		
C-28	10,000 mmf. 450V., ceramic disc	47A224	Cabinet back		
RESISTORS			Cabinet bottom cover		
R-1	10,000 ohms 1/2 watt, carbon	23X20X103M	Clip, mtg; for antenna coil L-2		
R-2,5	2.2 megohms 1/2 watt, carbon	23X20X225M	Dial cord (specify length)		
R-3	22,000 ohms 1/2 watt, carbon	23X20X223M	Dial scale		
R-4	270 ohms 1/2 watt, carbon	23X20X271K	Dial window		
R-6	330 ohms 1/2 watt, carbon	23X20X331M	Knob, BAND SELECTOR and VOLUME		
R-7	47,000 ohms 1/2 watt, carbon	23X20X473M	Knob, BAND SPREAD and TUNING		
R-8,12,21,22	470,000 ohms 1/2 watt, carbon	23X20X474M	Line cord and plug		
R-9	2 megohms; VOLUME control	25B896	Line cord lock; male section		
R-10	10 megohms 1/2 watt, carbon	23X26X106M	Line cord lock; female section		
R-11	220,000 ohms 1/2 watt, carbon	23X20X224M	Mounting foot, cabinet		
R-13	150 ohms 1/2 watt, carbon	23X20X151K	Pointer, dial; BAND SPREAD		
R-14,15,17	15 ohms 1/2 watt, carbon	23X20X150M	Pointer, dial; TUNING		
R-16,18,24	22 ohms 1/2 watt, carbon	23X20X220M	Speaker, 5-Inch PM		
R-19	220 ohms 1 watt, carbon	23X30X221M	Spring, dial cord		
R-20	1000 ohms 1/2 watt, carbon	23X20X102M			
R-23	470 ohms 1/2 watt, carbon	23X20X471K			
COILS AND TRANSFORMERS					
L-1	Coil, antenna; bands 1, 2 and 3	51C821			
L-2	Coil, antenna; band 4	51B1015			
L-3	Coil, oscillator; all bands	51C822			
L-4	Choke, RF; 540 microhenries	53A107			
T-1	Transformer, 1st IF	50C531			
T-2	Transformer, 2nd IF	50C532			
T-3	Transformer, audio output	55A127			

Warranty

"The Hallicrafter's Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized radio dealer, wholesaler, from whom purchased, or, authorized service center, intact, for examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products."

Form No. 94X622

the Hallicrafters co.

MODEL S-38C RUN 2

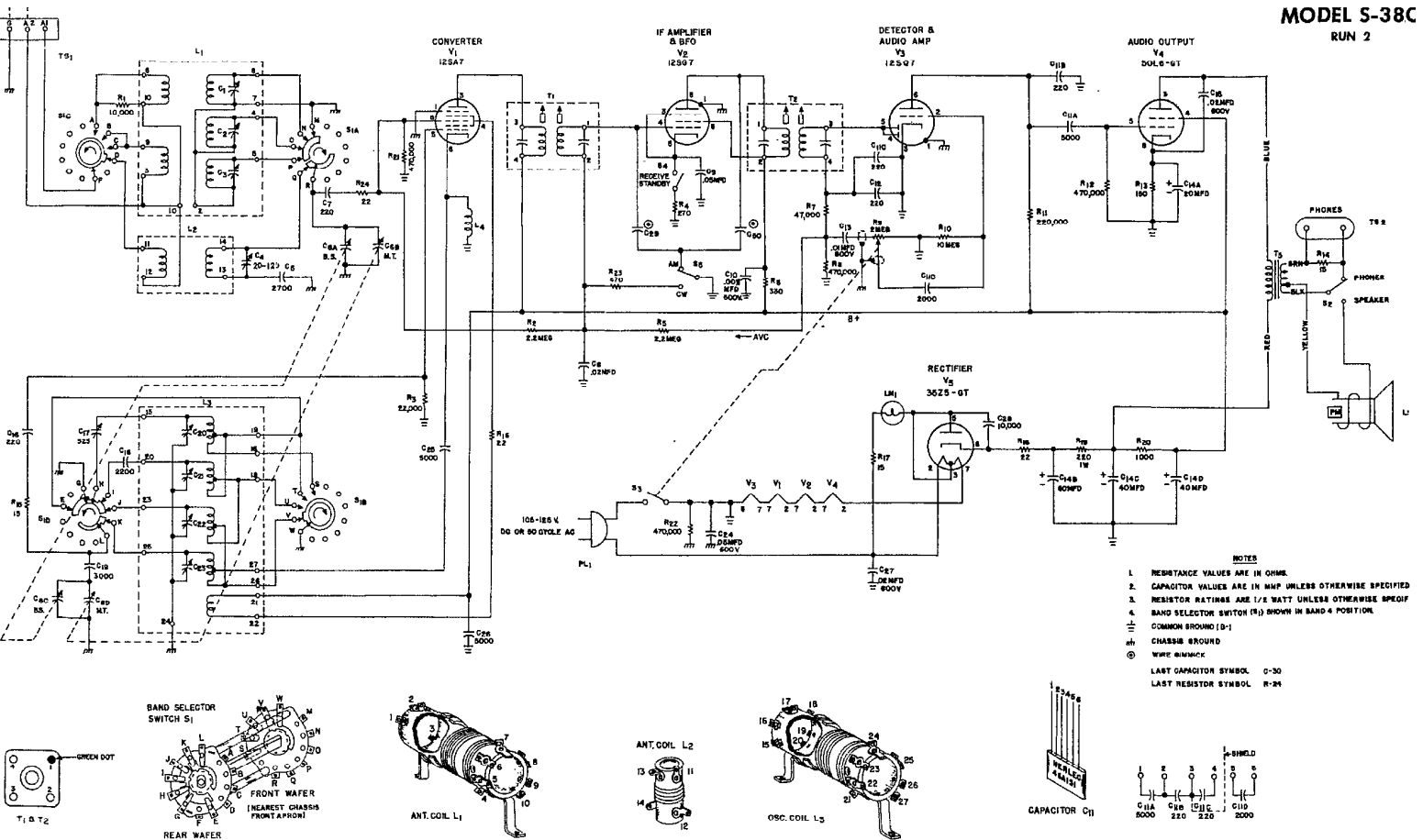
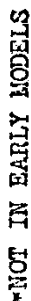
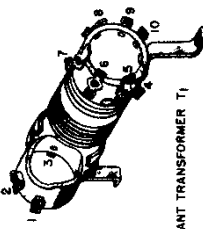


Fig. 8. Schematic Diagram

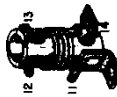
MODEL S-38, Early
and Revised



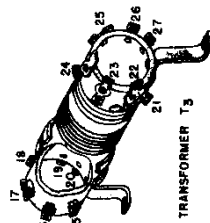
***C9 WAS 2700 μ f IN EARLY MODELS



ANT. TRANSFORMER T2



TRANSFORMER T₁



OSC. TRANSFORMER T₁

IF PEAK 455 KC

--- DENOTES ELECTRICAL SHIELD.
--- DENOTES UNSHIELDED UNIT ASSEMBLY.
--- DENOTES MECHANICAL GASKETING.

EXTENS AT BANDSWITCH (S₁) AND NUMERALS AT
ANTENNA AND OSCILLATOR TRANSFORMERS
T₁, T₂ AND T₃ IDENTIFY CORRESPONDING
SERIAL LOGS ON PICTORIAL VIEWS.

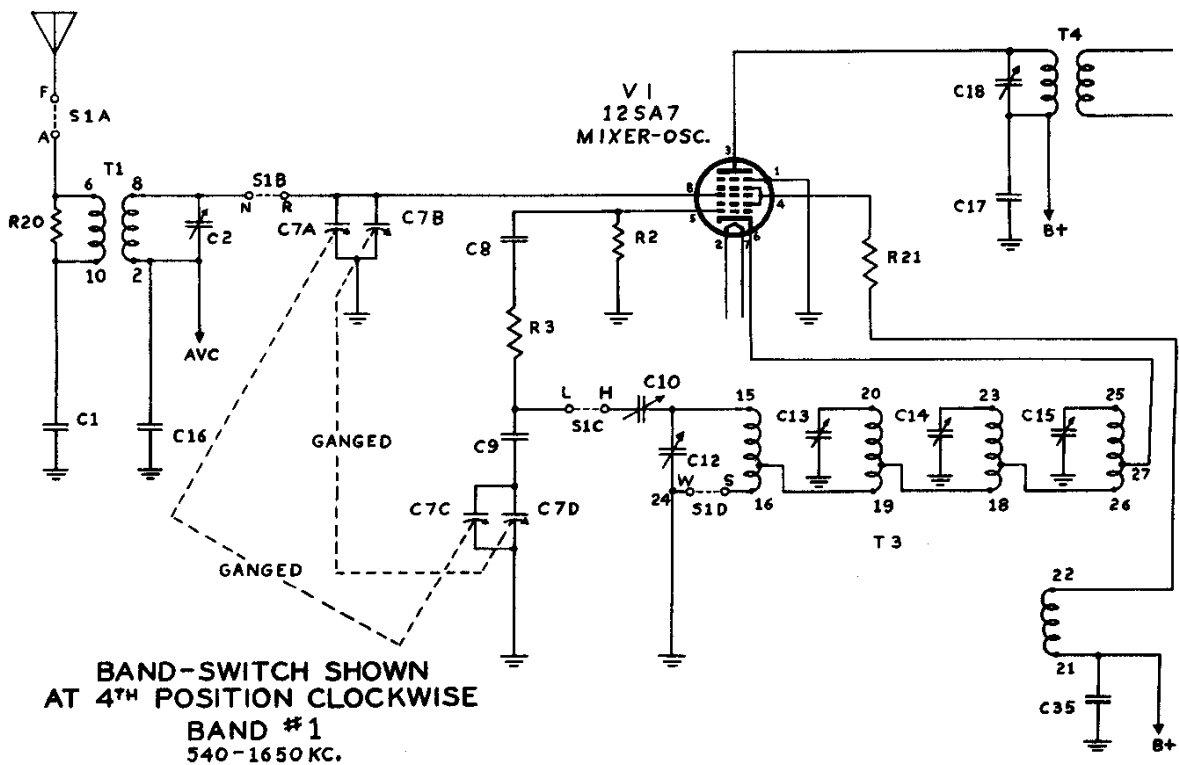
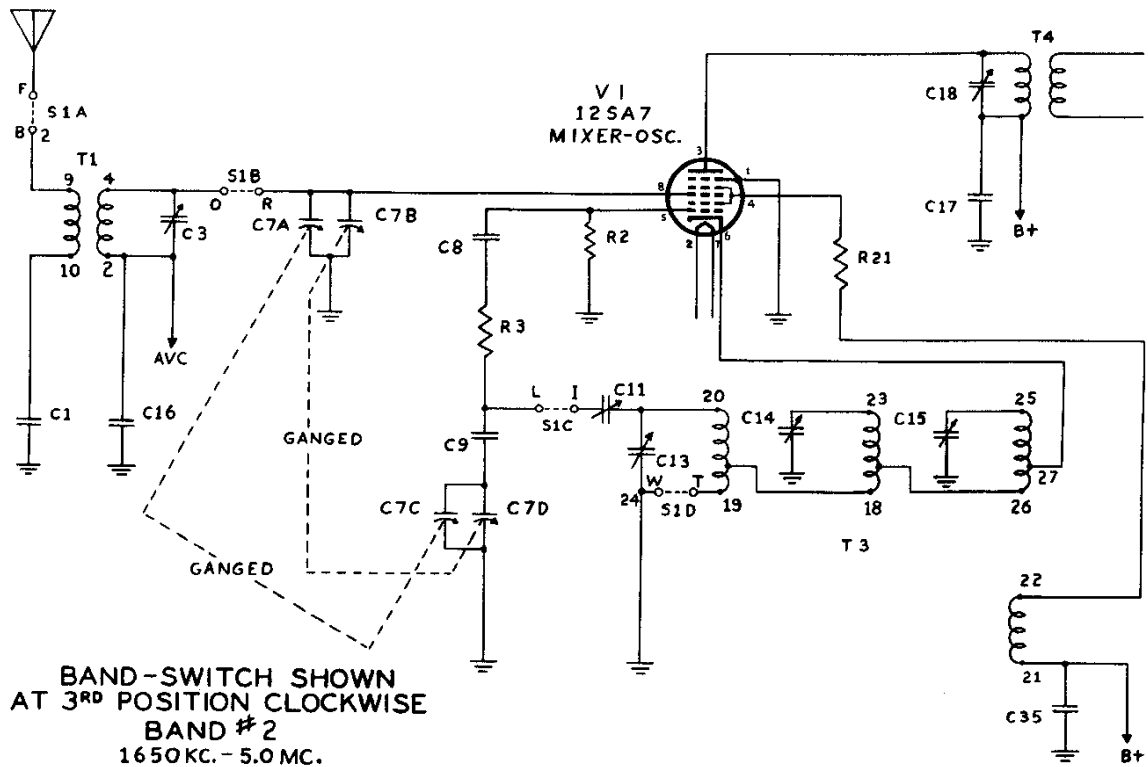
NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIAL VIEWS HAVE BEEN EXAGGERATED FOR CLARITY OF TERMINAL LUG LOCATION.

GENERAL: Model S-38 is a 6 tube AC/DC superheterodyne portable 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.

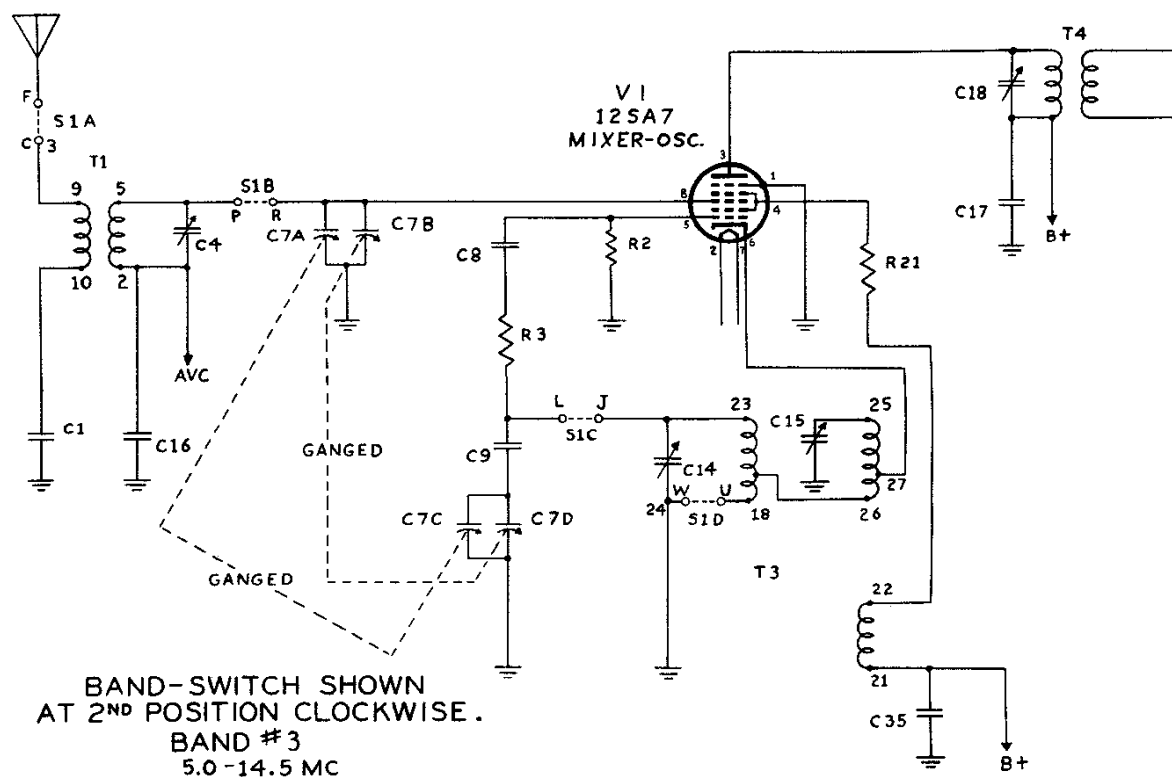
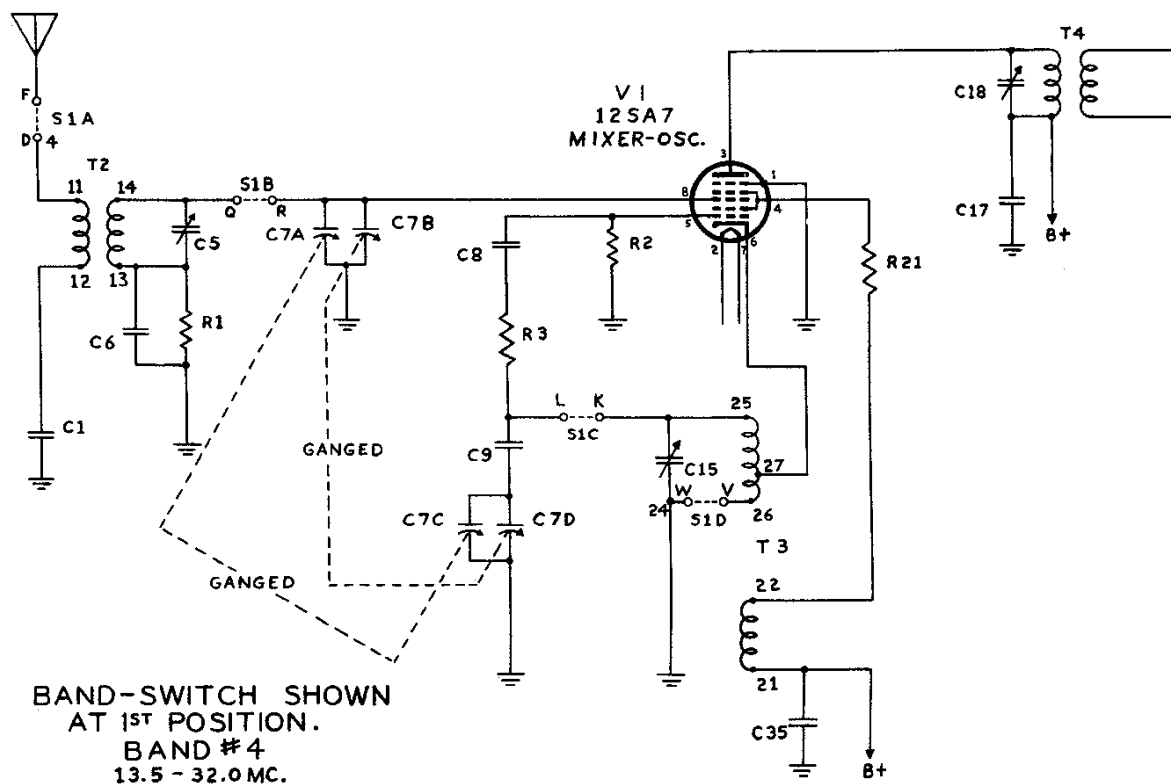
THE HALLICRAFTERS CO.

MODEL S-38, Early
and Revised



MODEL S-38, Early
and Revised

THE HALLICRAFTERS CO.



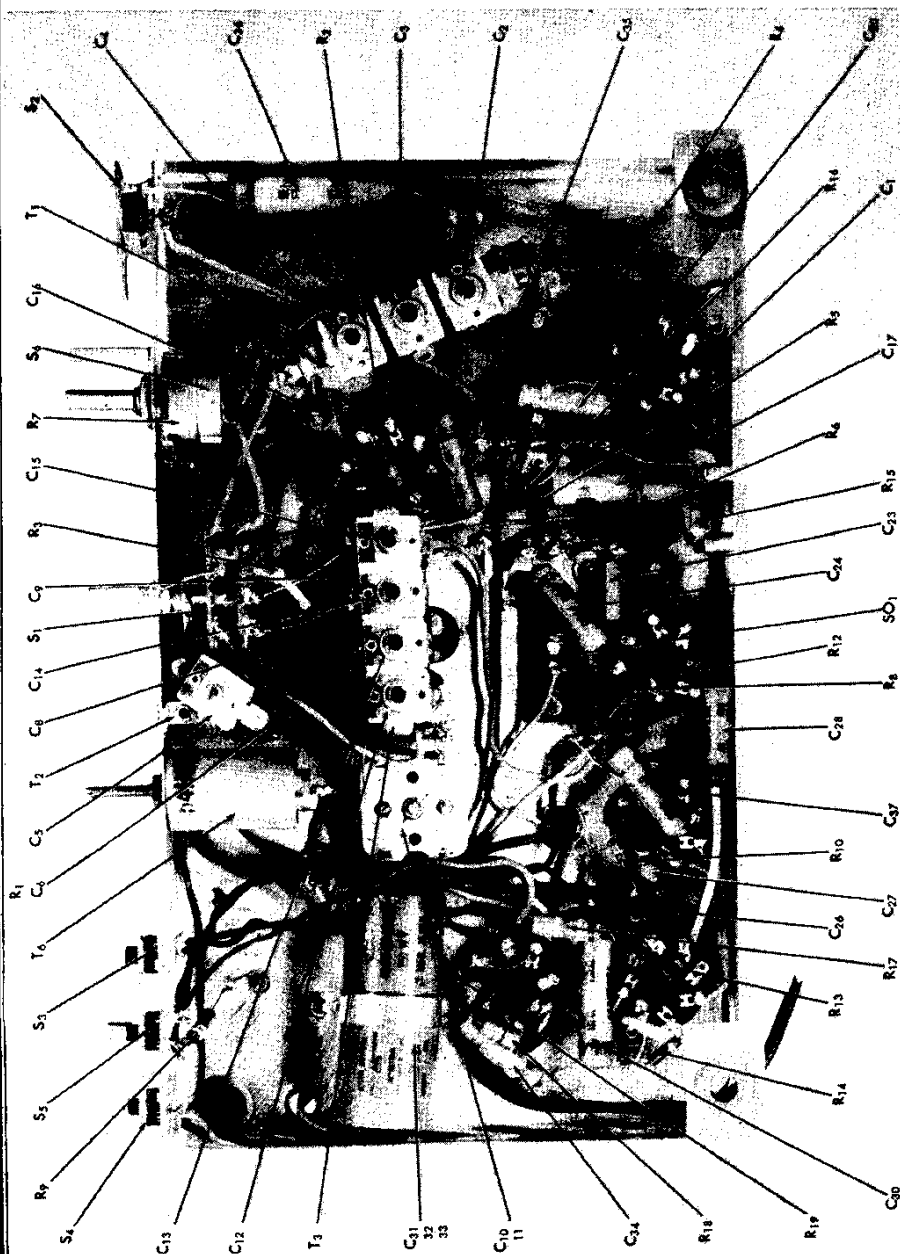


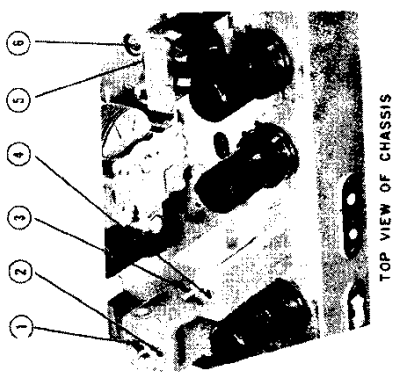
Fig. 4. Bottom view of the receiver showing components location.

CONTROL SETTINGS FOR PRELIMINARY TEST OPERATION (Broadcast Band)

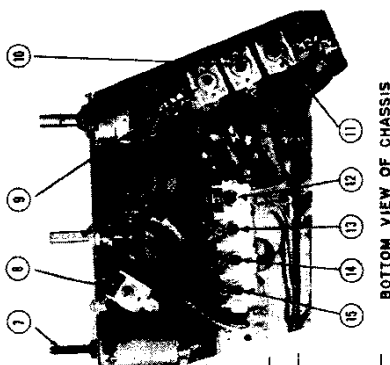
NAME	FUNCTION	SETTING
STANDBY/ RECEIVE	Receiver temporary standby	At "RECEIVE"
VOLUME	Audio gain control and receiver on/off switch	Half clockwise; adj. as necessary
BAND SELECTOR	Operating band selector	Clockwise to "1"
PITCH CONTROL	CW beat note pitch selector	Any position (not in use)
SPEAKER/ PHONES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

MODEL S-38, Early and Revised

THE HALLICRAFTERS CO.



TOP VIEW OF CHASSIS



BOTTOM VIEW OF CHASSIS

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

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
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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."

DUMMY ANT. SERIES	CONNECTION OF SIG. GENERATOR	SIG. GEN. FREQUENCY SETTING	BAND SWITCH SETTING	RECEIVER DIAL SETTING	ADJUST. SLUG, PADDOR, OR TRIMMER NO.	DESCRIPTION	TYPE OF ADJUSTMENT — MAKE ADJUSTMENT FOR.
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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
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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
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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 † 8	Osc. Trimmer Mix. Trimmer	Maximum output Maximum output
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STANDARD RMA Dummy	"A1" on antenna strip	14 mc 14 mc	"3"	14 mc 14 mc	13 † 9	Osc. Trimmer Mix. Trimmer	Maximum output Maximum output
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STANDARD RMA Dummy	"A1" on antenna strip	5 mc 1.8 mc 5 mc	"2"	5 mc 1.8 mc 5 mc	14 6 † 10	Osc. Trimmer Osc. Padder Mix. Trimmer	Maximum output Maximum output and repeat step 8 Maximum output
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STANDARD RMA Dummy	"A1" on antenna strip	1500 kc 600 kc 1500 kc	"1"	1500 kc 600 kc 1500 kc	15 5 11	Osc. Trimmer Osc. Padder Mix. Trimmer	Maximum output Maximum output and repeat step 11 Maximum output
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*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.

MAIN TUNING

BANDSPREAD TUNING

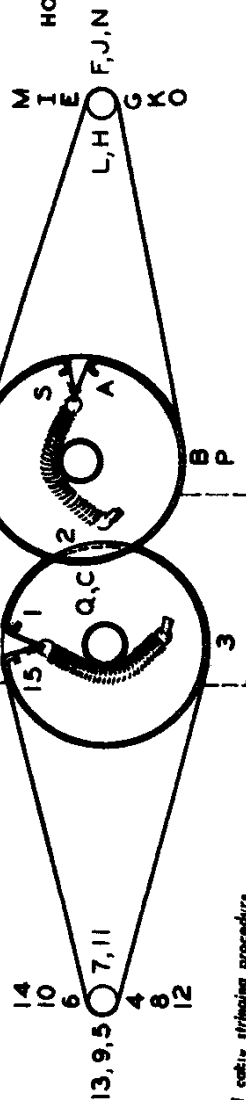


Fig. 2. Dial cord, stringing procedure.

TUNING CAPACITOR FULLY CLOSED (BOTH SECTIONS).

REF. NO.	DESCRIPTION	HALLICRAFTERS LIST PRICE PER COMPONENT
----------	-------------	--

C-1	0.01 mfd; 600 vdw; paper.	46AY103J
C-2, 3 & 4	Trimmer Unit for antenna transformer T-1.	44B129
C-5	Trimmer for antenna transformer T-2.	44B130
C-6	2700 mmf; $\pm 5\%$; 500 vdw; mica.	CM30A272J
C-7	Tuning capacitor; air; 2 sections ganged.	48C182
C-8, 23 & 27	220 mmf; 500 vdw; mica.	CM20A221K
C-8, 23 & 27	3000 mmf; 5%; 500 vdw; mica.	CM30A302J
C-9	Dual pad for oscillator transformer T-3.	44A152
C-10 & 11	Trimmer Unit for oscillator transformer T-3.	44B159
C-12, 13, 14	0.02 mfd; 400 vdw; paper.	46AW203J
C-16 & 34	1.25 mfd; 200 vdw; paper.	46AT254J
C-18 & 36	Trimmers for IF transformers T-4 and T-5.	44A097
C-20 & 35	0.05 mfd; 200 vdw; paper.	46AU503J
C-24	0.005 mfd; 400 vdw; paper.	46AV501J
C-25	2 mmf; twisted insulated wire leads; NOT AVAILABLE AS A SPARE PART.	46AV501J
C-26 & 39	470 mmf; 500 vdw; mica.	CM20A471K
C-28 & 37	0.01 mfd; 400 vdw; paper.	46AW102J
C-29, 31, 32 & 33	Electrolytic; four section unit; color coded leads; sect. 1 (C-29) 20 mfd, 25 vdw; sect. 2 & 3 (C-31 & 32) 30 mfd, 150 vdw; sect. 4 (C-33) 40 mfd, 150 vdw.	46B091
C-30	0.02 mfd; 600 vdw; paper.	46AY203J
LM-1	6/8 V @ 150ma; brown lead; G.E. type 47.	39A004
LS-1	5" P.M. speaker; 3.2 ohm voice coil.	85C035
PL-1	AC line cord with two prong plug at one end.	87A078
PL-2	Speaker voice coil connector plug.	88A072
R-1 & 13	22,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE474M
R-2	47,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE223M
R-3	47 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE470M
R-4	390 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE391K
R-5	2.2 megohm; $\frac{1}{2}$ watt; carbon.	RC20AE225M
R-6 & 10	10,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE473M
R-7 & 8-6	Vacuum Control; $\frac{1}{2}$ megohm; includes SPST switch.	95B084
R-8	10 megohm; $\frac{1}{2}$ watt; carbon.	RC20AE106M
R-9 & 11	470 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE471K
R-12	220,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE224M
R-14	150 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE151K
R-15	15 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE150M
R-16	1,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE102M
R-17	680 ohm; $\frac{1}{2}$ watt; carbon.	RC30AE681M
R-18 & 21	22 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE220M
R-19	330 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE331M
R-20	10,000 ohm; $\frac{1}{2}$ watt; carbon.	RC20AE103M

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.

REF. NO.	DESCRIPTION	HALLICRAFTERS LIST PRICE PER COMPONENT
----------	-------------	--

S-1a, b, c & d	Bandswitch; two sections ganged; rotary four position.	60A240
S-2 & 3	"RECEIVE-STANDBY" and "NOISE LIMITER" switches; slide action; SPST.	60A244
S-4	"SPEAKER-PHONES" switch; slide action; SPDT.	60A243
S-5	"A.M.-C.W." switch; slide action; DPST.	60A245
T-1	Antenna coil for bands 1, 2 and 3.	51C821
T-2	Antenna coil for band 4.	51C818
T-3	Oscillator coil for bands 1, 2, 3 and 4.	51C822
T-4	Input IF transformer; 455 kc.	50C183
T-5	Diode IF transformer; 455 kc.	50B184
T-6	Beat frequency oscillator coil; 455 kc.	54B031
T-7	Audio output transformer; 3,000 ohm primary - 15 ohm secondary tapped at 5 ohms.	55A075
TS-1	Antenna and ground connector strip.	88A032
TS-2	Headset plug connector strip; Bakelite.	88A071

MISCELLANEOUS MECHANICAL COMPONENTS

REF. NO.	DESCRIPTION	HALLICRAFTERS LIST PRICE PER COMPONENT
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15A049	Knob; for Volume Control and Band Selector switches.	.15
15A058	Knob; for C. W. PITCH Control.	.15
15A047	Tuning Controls.	.25
82A102	Pointer; for main tuning dial.	.15
82A103	Pointer; for bandspread tuning dial.	.15
92B157	Capacitor; for bandspread assembly, complete.	.30
64035	Dial window; glass.	.15
86A015	Dial tube sockets; Aramboni type MIP-3.	.15
28A002	Dial lamp socket; bayonet.	.10
67A559	Tuning capacitor dial drive pulley.	.10
67A558	Tuning capacitor rear mounting bracket.	.10
67B550	Tuning capacitor front mounting bracket.	.10
67B551	Right hand switch mounting bracket.	.10
16A007	Left hand switch mounting bracket.	.10
44A043	Rubber mounting feet for cabinet.	.10
75A062	Spring washers for grounding tuning capacitor drive shafts.	.10
32C331	Pin washers; (half-pin type).	.10
65C226	Flat cover plate; cardboard.	.10
	Bottom cover plate; painted steel.	.45

NOTE: ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

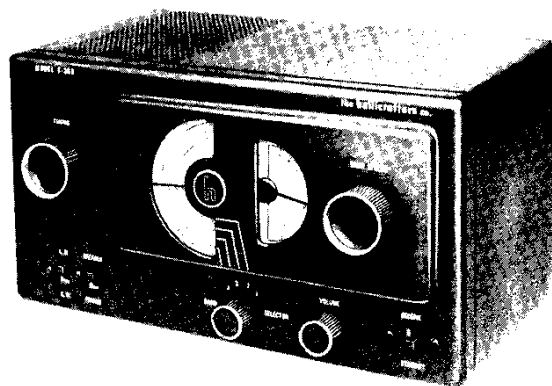
GENERAL

THE HALLICRAFTERS CO.

S-38A

S-38B

Tubes	Four plus rectifier.
Speaker	5-inch PM.
Voice Coil Impedance	3.2 ohms.
Headset Output	Low impedance.
Antenna	Provisions for external antenna with transmission line or single wire feed.
Tuning	Manual
Tuning Range	Band Selector Position Frequency Range
	1 550 kc - 1650 kc.
	2 1.7 mc - 5.1 mc.
	3 5 mc - 14.5 mc.
	4 13 mc - 31 mc.
Intermediate Frequency.....	455 kc.
Power Supply.....	105-125 V. DC or 60 cycles AC.
Power Consumption	30 Watts



92X1153

CAUTION - The four rubber grommets insulate the chassis from the cabinet. Check the condition of these grommets and replace if necessary.

The standard RMA dummy antenna specified in the alignment chart consists of a 200 mmf condenser in series with a 20 uh r-f choke which is shunted by a 400 mmf condenser in series with a 400 ohm carbon resistor.

ALIGNMENT PROCEDURE

Holes in the bottom cover permit minor adjustment of the oscillator and mixer stage trimmers, however for complete alignment, the chassis will have to be removed from the cabinet. To separate the chassis from the cabinet, remove the back cover and bottom plate. The chassis is fastened to the cabinet by four front panel screws located near the slide switches and two cabinet screws located at the bottom rear of the cabinet.

Set the following controls before alignment.

AM/CW	Set at AM
SPEAKER/PHONES	Set at SPEAKER
VOLUME	Set at maximum
RECEIVE/STANDBY.....	RECEIVE
BAND SPREAD	Set at zero

For the settings of the remaining controls, see alignment chart.

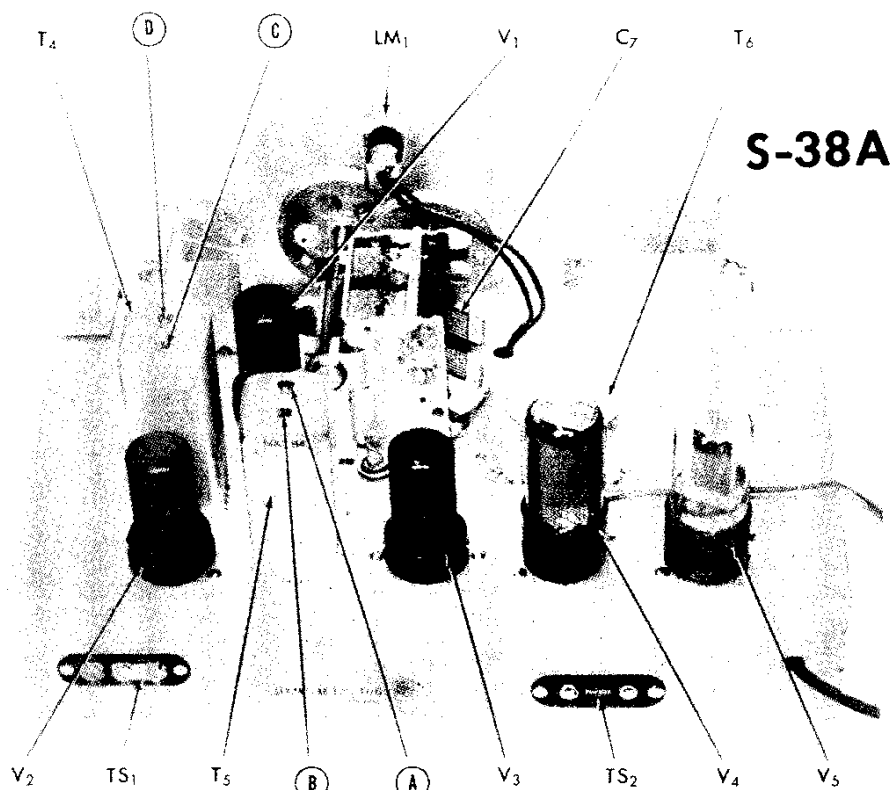
ALIGNMENT CHART

Step	Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust	Remarks
1	.01 mfd cap.	Stator plates, front section of tuning gang.	455 kc	1	1000 kc	A,B,C,D	Adjust for max. audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 mw signal level.
2**	See step 1	See step 1	455 kc (No modulation)	1	1000 kc	E	Set the AM/CW switch at CW. (Reset the switch at AM when step 2 is completed.) Correct BFO operation is obtained by varying the coupling between the wire "E" and the 12SK7 tube grid and plate terminals (Pins 4 and 8.) Pushing the wire toward the grid terminal increases the capacity and the strength of the beat.
3	Std. RMA dummy	High side to term. A1 on antenna strip. Jumper wire between A2 and G	30 mc	4	30 mc	*F,G	Max. output as in step 1.
4	Std. RMA dummy	See step 3.	14 mc	3	14 mc	*H,J	Max. output as in step 1.
5	Std. RMA dummy	See step 3	5 mc	2	5 mc	*K,L	Max. output as in step 1.
6	Std. RMA dummy	See step 3	1500 kc 600 kc	1	1500 kc 600 kc	*M,N *P	Max. output as in step 1.

* Note - Calibration adjustments.

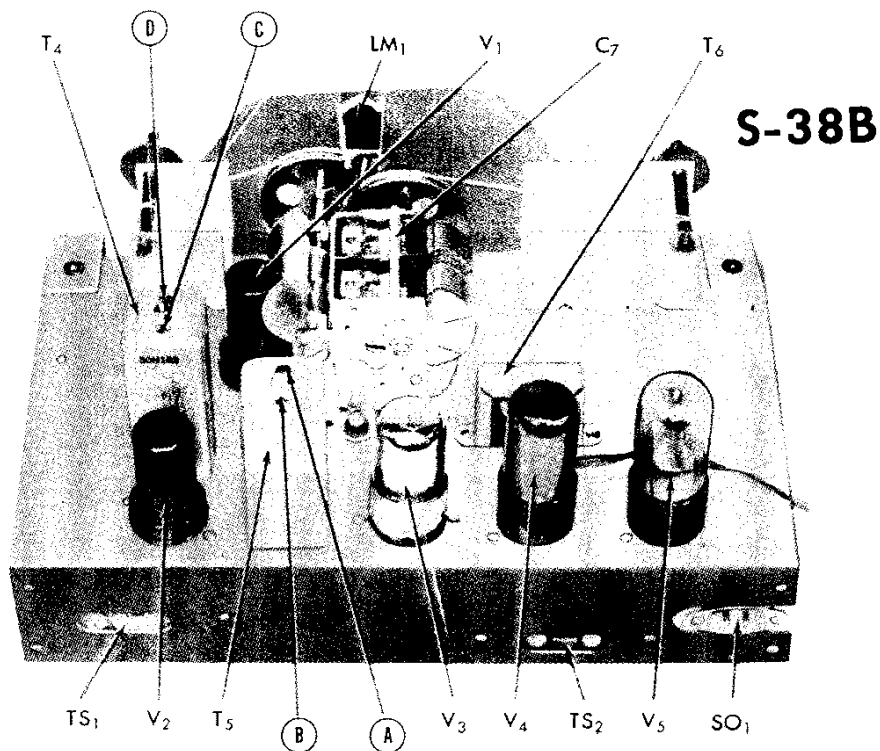
** Note - This step is generally unnecessary. Adjustment should be made if a weak beat note is obtained on strong c-w signals indicating lack of coupling between wire "E" and tube socket wiring.

S-38A
S-38B



92X812

Fig. 2. Top view, alignment adjustments and component location



92X1154

Fig. 2. Top view, alignment adjustments and component location

S-38A
S-38B

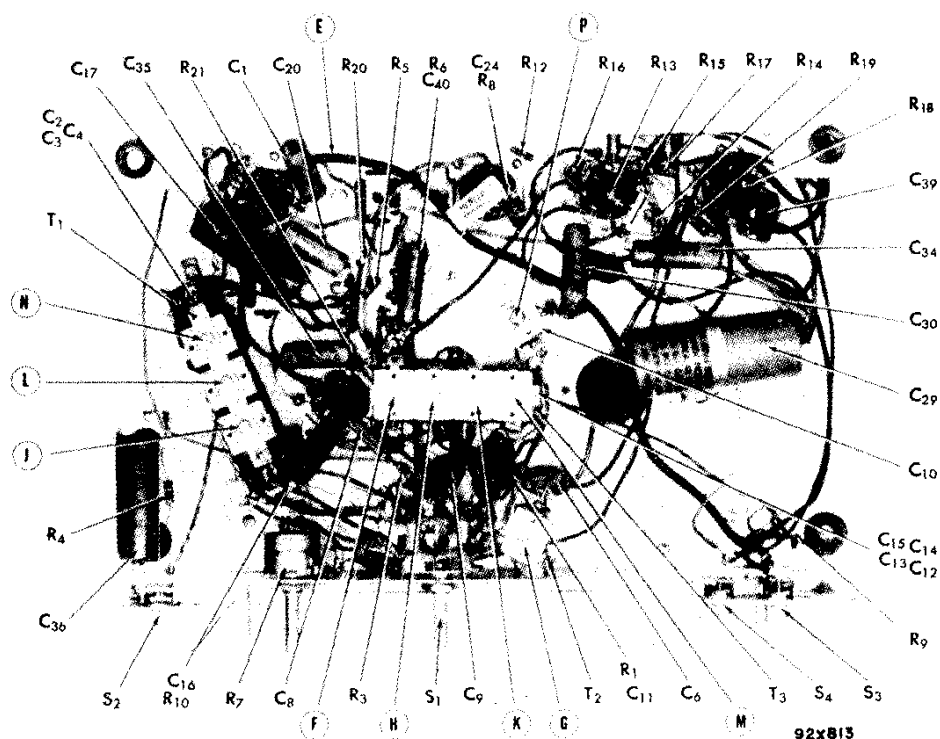


Fig. 3. Bottom view, alignment adjustments and component location

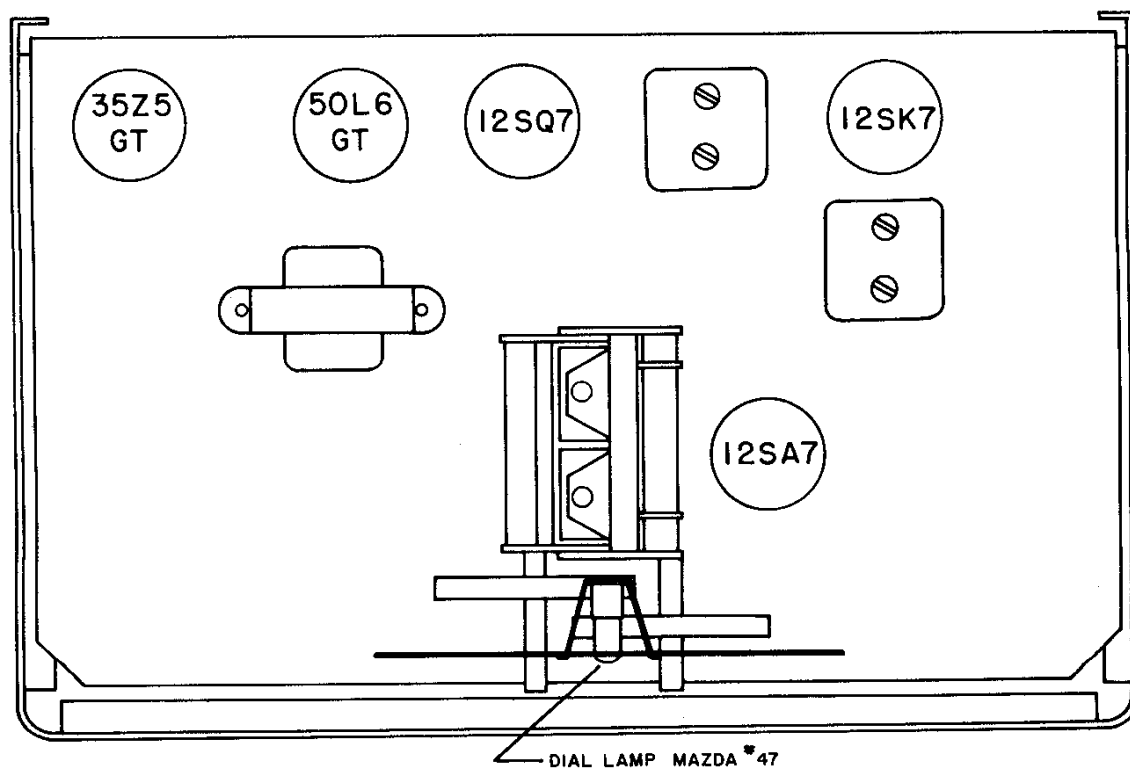


Fig. 4. Top view, location of tubes and dial lamps.

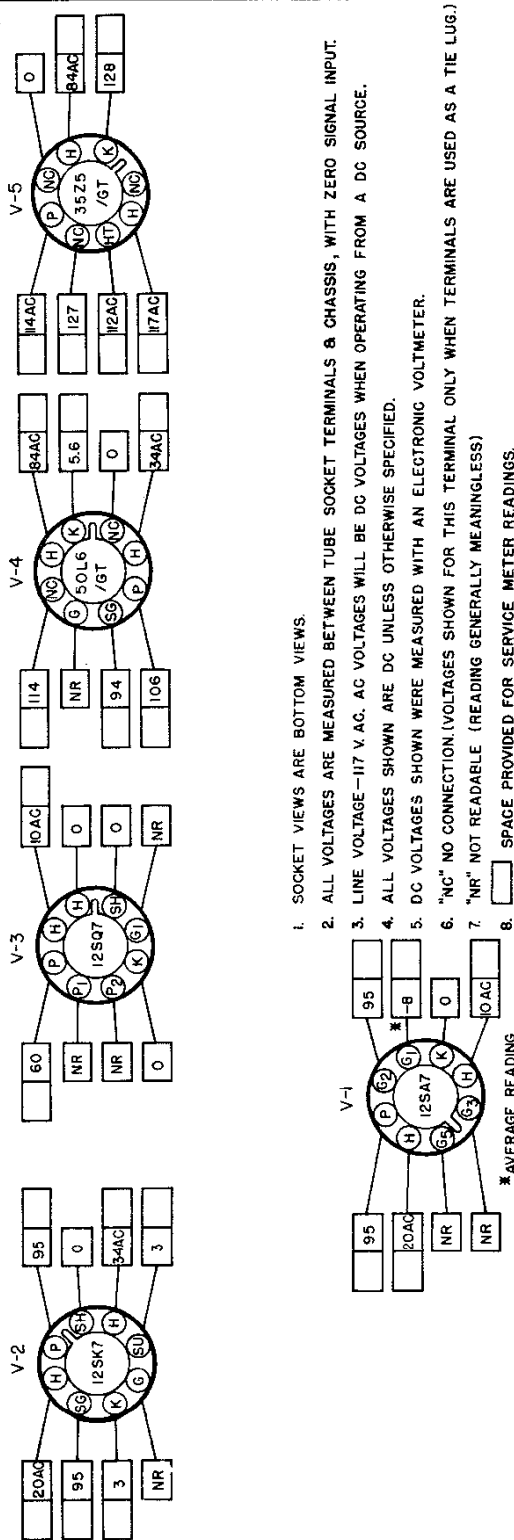


Fig. 5. Tube socket voltage chart.

RESTRINGING DIAL CORD

To restring the general coverage tuning dial cord cut a 14-inch length of 30 lb. test dial cord and tie one end to the tension spring at position "1" on the diagram. Follow the sequence *1" through "15", and at position "15" stretch the tension spring and tie the cord securely.

To restring the band spread tuning dial cord, cut a 16-inch length of dial cord and follow the procedure as above, starting at position "A" on the diagram. Note that the tuning drive shafts are wrapped with two and a fraction turns of dial cord for proper traction.

REPLACING LAMPS

Refer to Fig. 4, for the location of the dial lamp used in receiver. To gain access to the defective lamp, reach in through the rear of the cabinet (cover removed) and unclip the dial lamp socket by compressing the side springs. The socket may then be brought out into the open to change the defective lamp. Replace defective lamps with 6-8 V. Mazda #47 (Brown bead) lamps or equivalent.

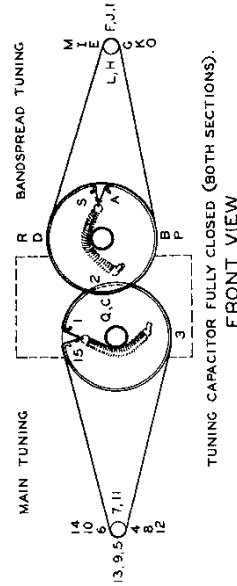
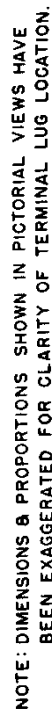


Fig. 1. Dial cable stringing procedure.

THE HALLICRAFTERS CO.



THE HALLICRAFTERS CO.

S-38A

S-38B

SERVICE PARTS LIST

Ref. No.	Description	Manufacturer's Part Number	Ref. No.	Description	Manufacturer's Part Number
CONDENSERS			SWITCHES		
C-1,40	.01 mfd. 600 V., tubular	46AY103J	S-1	Bandswitch assembly	60C393
C-2,3,4	Trimmers, adjustable (Part of transformer T-1)		S-2	Switch, slide; RECEIVE-STANDBY	60A244
C-5	Trimmer, adjustable (For transformer T-2)	44A039	S-3,4	Switch, slide; SPST; AM-CW & SPEAKER-PHONES	60A243
C-6	2700 mmf 500 V, mica	47X30A272J	S-5	Switch, power (Part of VOLUME control R-7)	
C-7	Tuning condenser, 2 sections	48C162-1			
C-8	220 mmf 500 V, mica	47X20A221K			
C-9	3000 mmf 500 V, mica	47X30A302J			
C-10	Padder, adjustable (Band 1)	44A349			
C-11	2200 mmf 500 V, mica	47X30A222J			
C-12,13,14,15	Trimmers, adjustable (Part of transformer T-3)		PL-1	Line cord (Includes PL-2)	87B1668-1
C-16	.02 mfd 400 V, tubular	46AW203J	TS-1	Terminal strip, antenna	88A671
C-17	.25 mfd 200 V, tubular	46AT254J	TS-2	Headset, jack	88A071
C-20,35	.05 mfd. 200 V, tubular	46AU503J	SO-1	Socket, a-c	10A286
C-24	Capacitor, composite; 5,000, 2X220, and 2000 mmf; 500 V.; ceramic	46A151		Socket, octal (tube)	6A250
				Socket, dial light	86A011
C-29	60-40-40 mfd 150 V, 20 mfd. 25 V, electrolytic	45B091			
C-30,34	.02 mfd 600 V, tubular	46AY203J			
C-33	100 mmf. 500 V, mica	47X20B101K	V-1	Type 12SA7, mixer/oscillator	90X12SA7
C-36	.1 mfd. 400 V., tubular	46AV104J	V-2	Type 12SK7, i-f amplifier & BFO	90X12SK7
C-39	470 mmf 500 V, mica	CM20A471M	V-3	Type 12SQ7, detector & 1st audio amplifier	90X12SQ7
C-41,42	Wiring capacity		V-4	Type 50L6GT, audio power amplifier	90X50L6GT
			V-6	Type 35Z5GT, rectifier	90X35Z5GT
			LM-1	Lamp, dial light, Mazda #47	39A004
RESISTORS			TUBES, RECTIFIERS AND LAMPS		
R-1,13,20	470,000 ohms 1/2 watt, carbon	23X20X474M			
R-2	22,000 ohms 1/2 watt, carbon	23X20X223M			
R-3	47 ohms 1/2 watt, carbon	23X20X470M			
R-4	390 ohms 1/2 watt, carbon	23X20X391K			
R-5	2.2 megohms 1/2 watt, carbon	23X20X225M			
R-6	47,000 ohms 1/2 watt, carbon	23X20X473M			
R-7	Resistor, variable; VOLUME control	25B896			
R-8	10 megohms 1/2 watt, carbon	23X20X106M			
R-9	470 ohms 1/2 watt, carbon	23X20X471K			
R-10	10,000 ohms 1/2 watt, carbon	23X20X103M			
R-12	220,000 ohms 1/2 watt, carbon	23X20X224M			
R-14	150 ohms 1/2 watt, carbon	23X20X151K			
R-15	15 ohms 1/2 watt, carbon	23X20X150M			
R-16	1000 ohms 1/2 watt, carbon	23X20X102M			
R-17	220 ohms 1 watt, carbon	23X30X221M			
R-18,21	22 ohms 1/2 watt, carbon	23X20X220M			
R-19	330 ohms 1/2 watt, carbon	23X20X221M			
TRANSFORMERS AND COILS			CABINET PARTS		
T-1	Transformer, antenna stage, Bands 1, 2 and 3	51C821		Clip, coil mtg (For transformer T-2)	76A362
T-2	Transformer, antenna stage, Band 4	51B1015		Shaft, main tuning	74A318
T-3	Transformer, oscillator stage, Bands 1, 2, 3 and 4	51C822		Shaft, bandsread	74A319
T-4	Transformer, i-f amp. stage	50B183		Washer, spring (for main tuning and bandsread drive shafts)	4A043
T-5	Transformer, i-f amp. stage (diode)	50B184		Spring, retainer ("C" washer type)	75A062
T-6	Transformer, audio output	55A127		Dial cord	38A019
				Spring, dial cord	75A012
				Pointer, main tuning	82A177
				Pointer, bandsread tuning	82A103
				Dial scale	83C373
				Knob, VOLUME control and BAND SELECTOR	15A049
				Knob, TUNING and BAND-SPREAD	15A047
			LS-1	Speaker, PM	85C030
				Baffle, speaker	78B198
				Cabinet back	8C1139
				Cabinet bottom	8C1140
				Mounting foot, rubber	16A007
				Window, dial	22B311

GENERAL DESCRIPTION

World-wide radio reception is yours with the Hallicrafters Model S-38C. This 5 tube communications receiver tunes from 540 kilocycles to 32 megacycles to bring you standard broadcast programs, foreign and domestic shortwave broadcasts, amateurs, police, ships, aircraft and countless other exciting distant stations. It receives both voice and code broadcasts and is designed to operate from 105 to 125 volt direct current (DC) or 60 cycles alternating current (AC). A 5-inch Alnico V permanent magnet speaker is built into the top of the cabinet and tip jacks have been provided on the back of the set for plugging in a pair of headphones. The RECEIVE-STANDBY switch on the front panel is a special feature which permits you to silence the receiver without turning the set off.



Hallicrafters Model S-38C

Good reception of both standard and shortwave broadcasts can be obtained in most localities with the 15 foot antenna wire included with your receiver. It is merely necessary to uncoil this wire, connect one end of it to terminal A1 on the back of the set and then run it about the room in any convenient manner. To complete the antenna installation, connect the jumper between terminals A2 and G.

Your set is provided with two tuning knobs for greater ease of tuning. Wide tuning is done with the knob marked TUNING and fine tuning with the knob marked BAND SPREAD. The BAND SPREAD knob permits you to accurately tune in stations on crowded bands by spreading them out so that they may be more easily separated. In this way you are able to hear many more stations than you would on an ordinary radio with just one tuning knob.

The amateur bands and principal shortwave channels of the world are clearly marked on the dial for your convenience. Since shortwave conditions vary with the season of the year and even with the time of day, shortwave programs may not be heard with the same regularity as standard broadcasts. A special table has been provided on page 3 to aid you in determining the most favorable times for shortwave listening.

INSTALLATION INSTRUCTIONS

ANTENNA - The terminals marked A1, A2 and G on the back of the set are for antenna and ground connections. Good results can be obtained in most localities with the 15 foot antenna wire included with your receiver. This wire should be uncoiled to provide maximum signal pickup. An outside antenna 50 to 100 feet long (ordinary copper wire) may be necessary if the receiver is operated in a difficult reception area or steel constructed building. Connect the antenna wire to terminal A1 on the back of the set and then connect the jumper between terminals A2 and G. In some locations, reception may be improved by connecting a lead from terminal G to a cold water pipe or outside ground rod.

For really top performance, there is no substitute for an outside antenna such as used by the commercial radio stations. Provision has been made on your receiver for the connection of this type of antenna, commonly called a doublet. When a doublet antenna is used, the jumper is removed and the antenna is connected to terminals A1 and A2. Consult your radio dealer for further information.

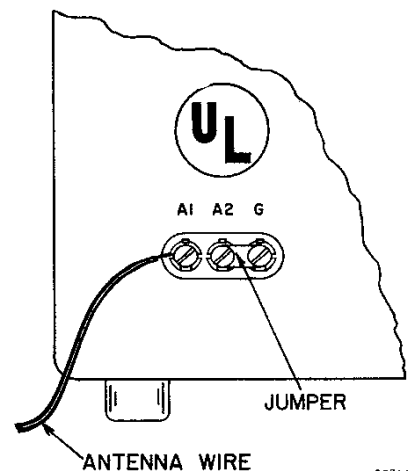


Fig. 1. Rear View of Receiver Showing Antenna and Ground Terminals

OPERATING INSTRUCTIONS

TUNING DIAL - All dial readings are in megacycles. To convert the readings on the standard broadcast band (band 1) to kilocycles, simply remove the dot and add two zeros; thus, .7 on the dial corresponds to 700 kilocycles.

AM-CW SWITCH - Set this switch at AM to listen to voice and musical broadcasts. Set it at CW only if you wish to hear code signals.

SPEAKER-PHONES SWITCH - For operation of the built-in speaker, set the switch at SPEAKER. Tip jacks are provided on the back of the set for plugging in a pair of headphones. Use any 500 to 5000 ohm headphones. For headphone operation set the switch at PHONES.

BAND SELECTOR CONTROL - Set this control for the band you wish to tune.

VOLUME CONTROL - Turn this control clockwise to turn the set on. Allow about 30 seconds for the tubes to reach operating temperature and then advance the control to increase volume. To turn the set off, turn this control counter-clockwise until a click is heard.

NOTE - If the receiver does not operate after the 30 second warm up when connected to a DC source, the power plug should be reversed in the wall outlet to obtain proper polarity.

RECEIVE-STANDBY SWITCH - Set this switch at RECEIVE for radio reception. If you wish to silence the receiver without turning the set off, set the switch at STANDBY. To resume radio reception, simply return the switch to the RECEIVE position.

TUNING KNOB - Your receiver has been provided with two tuning knobs - The TUNING knob which operates the pointer on the left hand dial and a separate BAND SPREAD knob which operates the pointer on the right hand dial. The TUNING knob is for wide tuning and the BAND SPREAD knob for fine tuning. Use the TUNING knob to tune in the desired station. Tune for the clearest and strongest signal. If the signal is too strong, reduce it by means of the VOLUME control, not by using the TUNING knob. For code reception, adjust the TUNING knob for the desired pitch of the CW code signal when tuning in the station.

IMPORTANT - The dial readings will correspond to the exact station frequencies only if the BAND SPREAD dial pointer is set at 0.

BAND SPREAD KNOB - The BAND SPREAD knob permits you to accurately tune in stations on crowded bands by spreading them out so that they can be more easily separated. The BAND SPREAD knob can be used in two different ways. First, it may be left with the pointer at 5 while you partially tune in the desired station with the TUNING knob. Then, by "rocking" the BAND SPREAD knob back and forth (turn it a few degrees to the left and right through the desired station), you will be able to tune in the desired station with precision accuracy.

The second way to operate the BAND SPREAD knob is to use it to cover a group of stations. Set the BAND SPREAD knob so that the pointer reads 0 and then turn the TUNING knob to tune in the highest frequency station in the group. The other stations can be heard by slowly turning the BAND SPREAD knob from 0 to 100.

BEST SHORTWAVE RECEPTION TABLE

Band	Most Favorable Time	Most Favorable Distance
6-7 MC	Night - Winter	Day - 400 Miles - Night - Over 1500 Miles
9-10 MC	Day - Late Afternoon and Night - Winter	Over 500 Miles
11-12 MC	Evenings or Late Summer Afternoons	Day - Under 1500 Miles Night - Over 1500 Miles
15-18 MC	Early Mornings and Summer Evenings	Over 1500 Miles

SERVICE INSTRUCTIONS

GENERAL SPECIFICATIONS

Tubes 5 including 1 rectifier
 Speaker 5 inch PM
 Voice Coil Impedance 3.2 ohms
 Headphone Output Impedance . . . 15 ohms
 Antenna Terminals for single wire or
 doublet antenna. (See Page 2.)
 Intermediate Frequency 455 KC
 Frequency Coverage 540 KC - 32 MC
 Power Supply 105-125 volts DC or
 60 cycles AC
 Power Consumption 30 watts

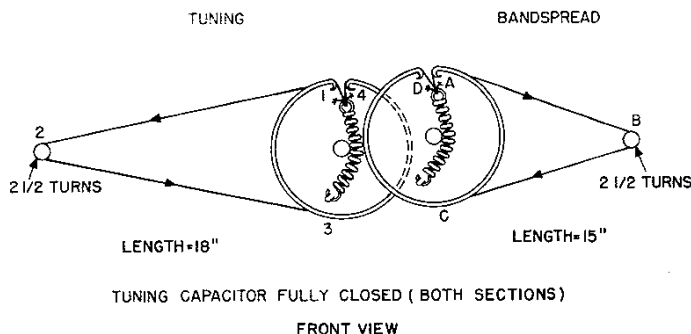
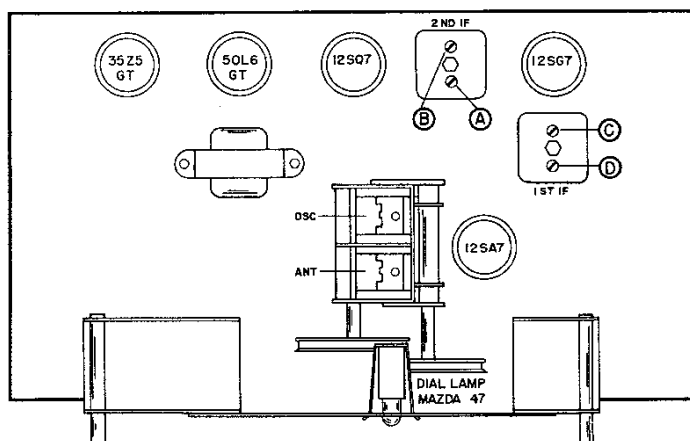


Fig. 2. Dial Cord Stringing Diagram

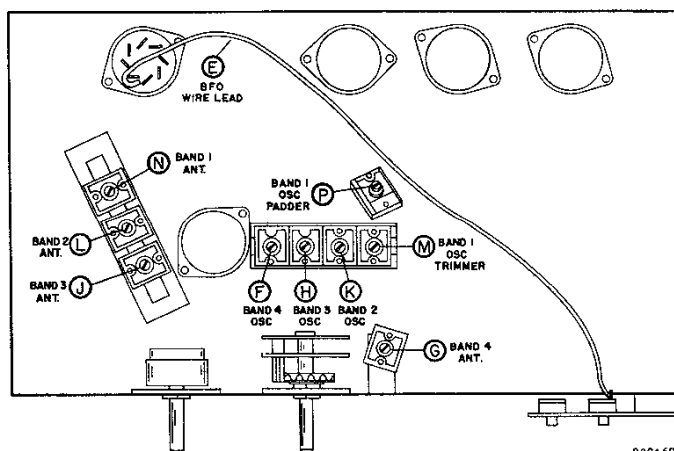
9281693



9281694-A

Fig. 3. Top View of Chassis Showing Location of Alignment Adjustments, Tubes and Dial Lamp

TUBE AND DIAL LAMP REPLACEMENT - Refer to Fig. 3 for the location of the tubes and dial lamp used in the receiver. To gain access to the tubes and lamp, remove the back cover from the cabinet. Before attempting to make any replacement, set the BAND SPREAD control fully clockwise and the TUNING control fully counterclockwise to prevent damage to the tuning gang. To replace a tube, insert the center guide pin into the center hole of the tube socket, rotate the tube until the key drops into position and then push down until the tube is held firmly in the socket. To make a dial lamp replacement, remove the dial lamp socket by compressing the side springs. Make replacement only with a type 47 pilot lamp.

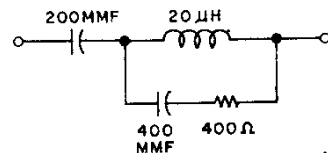


92C1695

Fig. 4. Bottom View of Chassis Showing Location of Alignment Adjustments

ALIGNMENT INSTRUCTIONS

- Use an amplitude modulated generator covering 455 KC to 30 MC. Use a modulated output for every step except Step 2.
- Connect output meter across speaker voice coil.
- Use a non-metallic alignment tool.
- Set the AM/CW switch at AM, (except for BFO adjustment), SPEAKER/PHONES switch at SPEAKER, VOLUME control at maximum, RECEIVE/STANDBY switch at RECEIVE and the BAND SPREAD control at 0.
- See Figs. 3 and 4 for location of alignment adjustments.



92A1549

Fig. 5. RMA Dummy Antenna

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust
IF ALIGNMENT					
1	High side thru a .01 mfd. capacitor to stator plates of front section of TUNING gang. Low side to chassis.	455 KC	1	1.0 MC	A, B, C and D for maximum output. Keep reducing gen. output so that the reading on the output meter does not exceed 50 milliwatts
BFO ADJUSTMENT					
*2	Same as Step 1.	455 KC (No Mod.)	1	1.0 MC	Set the AM/CW switch at CW. (Reset the switch at AM when Step 2 is completed.) For correct BFO operation, vary the coupling between lead E and pins 4 and 8 of the 12SG7 tube for a maximum beat note. Pushing lead E toward pin 4 increases the strength of the beat.
RF ALIGNMENT					
3	High side thru RMA dummy antenna (Fig. 5) to terminal A1 on back of chassis. Low side to chassis. Connect jumper between A2 and G.	30 MC	4	30 MC	F and G for maximum output as in Step 1.
4	Same as Step 3.	14 MC	3	14 MC	H and J for maximum output as in Step 1.
5	Same as Step 3.	5 MC	2	5 MC	K and L for maximum output as in Step 1.
6	Same as Step 3.	1500 KC	1	1.5 MC	M and N for maximum output as in Step 1.
		500 KC	1	.6 MC	P for maximum output as in Step 1.

* Step 2 is usually unnecessary. Adjustment should be made ONLY if a weak beat note is obtained on strong CW signals indicating lack of coupling between wire lead E and pins 4 and 8 of the 12SG7.

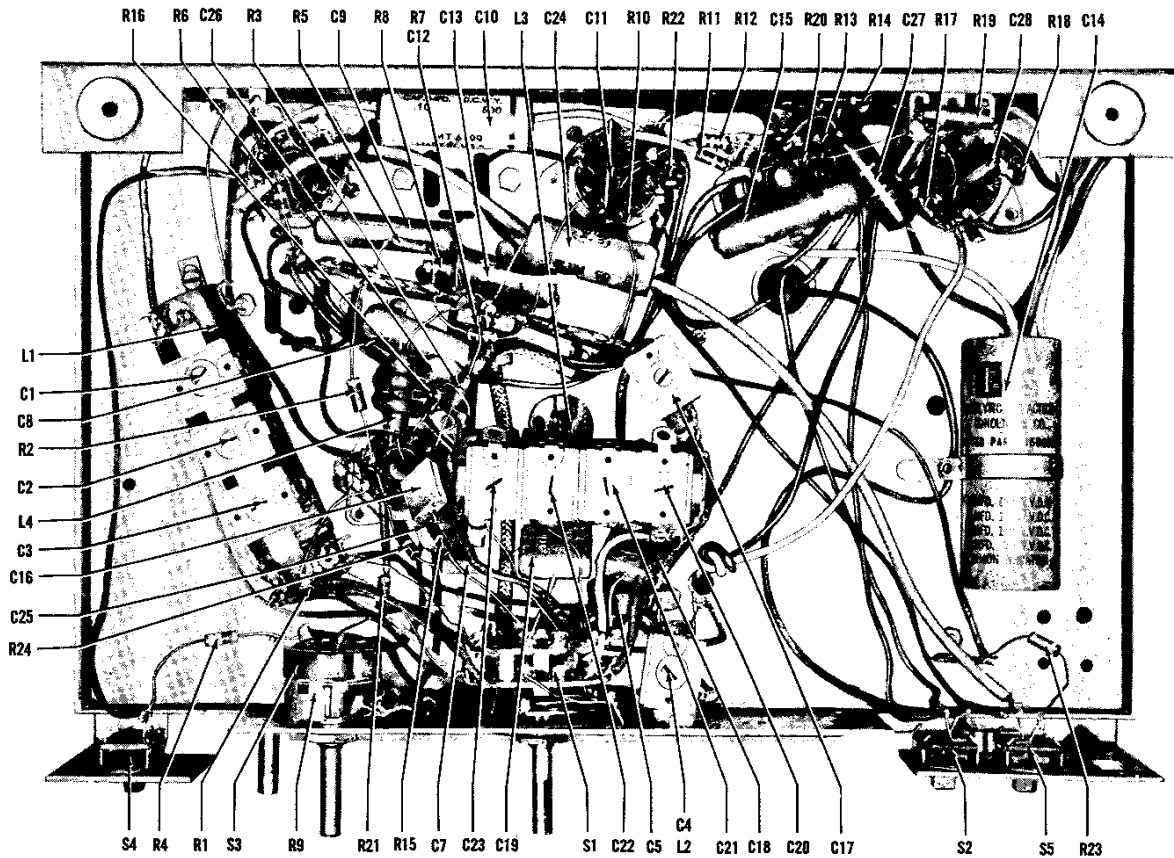
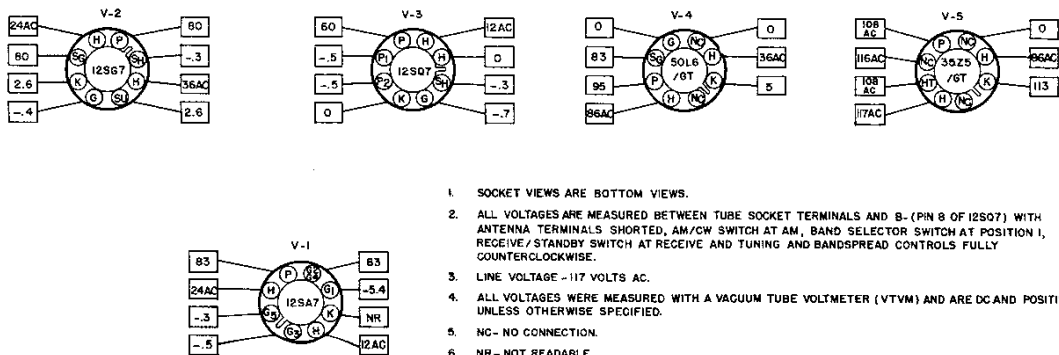


Fig. 6. Bottom View of Chassis Showing Component Location

92X1696-A



FRONT APRON

BOTTOM VIEW OF CHASSIS

Fig. 7. Tube Socket Voltage Chart

92C1697-A

MODEL S-38C



Fig. 8. Schematic Diagram

SERVICE PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			SWITCHES		
C-1,2,3	Trimmer; part of antenna coil L-1	-----	S-1A,B,C&D	Bandswitch assembly (BAND SELECTOR)	60C393
C-4	Trimmer, 3-77 mmf.	44A039	S-2,5	Switch, slide; spdt (SPEAKER/ PHONES and AM/CW)	60A477
C-5	2700 mmf. 5%, 500V.; mica	47X30B272J	S-3	Switch, ON-OFF; part of VOLUME control R-9	-----
C-6A,B,C&D	Tuning capacitor, 2 section	48C162-1	S-4	Switch, slide; spst (RECEIVE/ STANDBY)	60A476
C-7,12,16	220 mmf. 10%, 500V.; mica	47X20B221K			
C-8,15	.02 mfd. 600V., tubular	46AY203J			
C-9	.05 mfd. 200V., tubular	46AU503J			
C-10	.002 mfd. 600V., tubular	46AZ202F			
C-11A,B,C &D	Capacitor, composite: 5000, 220, 220 and 2000 mmf., 500V.; ceramic	46A151			
C-13	.01 mfd. 600V., tubular	46AZ103J			
C-14A,B,C &D	60-40-40 mfd. 150V., 20 mfd. 25V.; electrolytic	45B091	TS-1	Socket, dial lamp; includes leads	86A011
C-17	Padder, 525 mmf.	44A349	TS-2	Socket, tube; octal	6A250
C-18	2200 mmf. 5%, 500V.; mica	47X30B222J		Terminal strip, antenna	88A671
C-19	3000 mmf. 5%, 500V.; mica	47X30B302J		Tip jacks, PHONE	88A071
C-20,21,22, 23	Trimmer; part of oscillator coil L-3	-----	V-1		
C-24	.05 mfd. 600V., tubular	46AY503J	V-2	12SA7: convertor	90X12SA7
C-25,26	5000 mmf. 450V., ceramic disc	47A168	V-3	12SG7: IF amplifier and BFO	90X12SG7
C-27	.02 mfd. 600V., molded tubular	46BR203L6		12SQ7 or 12SQ7GT/G: detector and audio amplifier	90X12SQ7 or 90X12SQ7GT/G
C-28	10,000 mmf. 450V., ceramic disc	47A217	V-4	50L6GT: audio output	90X50L6GT
			V-5	35Z5GT: rectifier	90X35Z5GT
			LM-1	Lamp, dial; type 47	39A004
RESISTORS			TUBES AND DIAL LAMP		
R-1	10,000 ohms 1/2 watt, carbon	23X20X103M			
R-2,5	2.2 megohms 1/2 watt, carbon	23X20X225M			
R-3	22,000 ohms 1/2 watt, carbon	23X20X223M			
R-4	270 ohms 1/2 watt, carbon	23X20X271K			
R-6	330 ohms 1/2 watt, carbon	23X20X331M			
R-7	47,000 ohms 1/2 watt, carbon	23X20X473M			
R-8,12,21,22	470,000 ohms 1/2 watt, carbon	23X20X474M			
R-9	2 megohms; VOLUME control	25B896			
R-10	10 megohms 1/2 watt, carbon	23X20X106M			
R-11	220,000 ohms 1/2 watt, carbon	23X20X224M			
R-13	150 ohms 1/2 watt, carbon	23X20X151K			
R-14,15,17	15 ohms 1/2 watt, carbon	23X20X150M			
R-16,18,24	22 ohms 1/2 watt, carbon	23X20X220M			
R-19	220 ohms 1 watt, carbon	23X30X221M			
R-20	1000 ohms 1/2 watt, carbon	23X20X102M	PL-1		
R-23	470 ohms 1/2 watt, carbon	23X20X471K			
COILS AND TRANSFORMERS			MISCELLANEOUS PARTS		
L-1	Coil, antenna; bands 1, 2 and 3	51C821		Cabinet	66C772
L-2	Coil, antenna; band 4	51B1015		Cabinet back	32C513
L-3	Coil, oscillator; all bands	51C822		Cabinet bottom cover	32C501
L-4	Choke, RF; 540 microhenries	53A107		Clip, mtg; for antenna coil L-2	76A326
T-1	Transformer, 1st IF	50C531		Dial cord (specify length)	38A026
T-2	Transformer, 2nd IF	50C532		Dial scale	83C406
T-3	Transformer, audio output	55A127		Dial window	22B311
				Knob, BAND SELECTOR and VOLUME	15A049
				Knob, BAND SPREAD and TUNING	15A048
				Line cord and plug	87A078
				Line cord lock; male section	76A397-1
				Line cord lock; female section	76A397-2
				Mounting foot, cabinet	16A244
				Pointer, dial; BAND SPREAD	82A216
				Pointer, dial; TUNING	82A217
				Speaker, 5-inch PM	85C030
				Spring, dial cord	75A012

CHANGES

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, $\frac{3}{8}$ 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- μ f 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 μ f) to part #CC25UK680K, 68 μ 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*.