

**installation
and
operating
instructions
for model S-40 B
radio receiver**



94X586
750

the hallicrafters co.

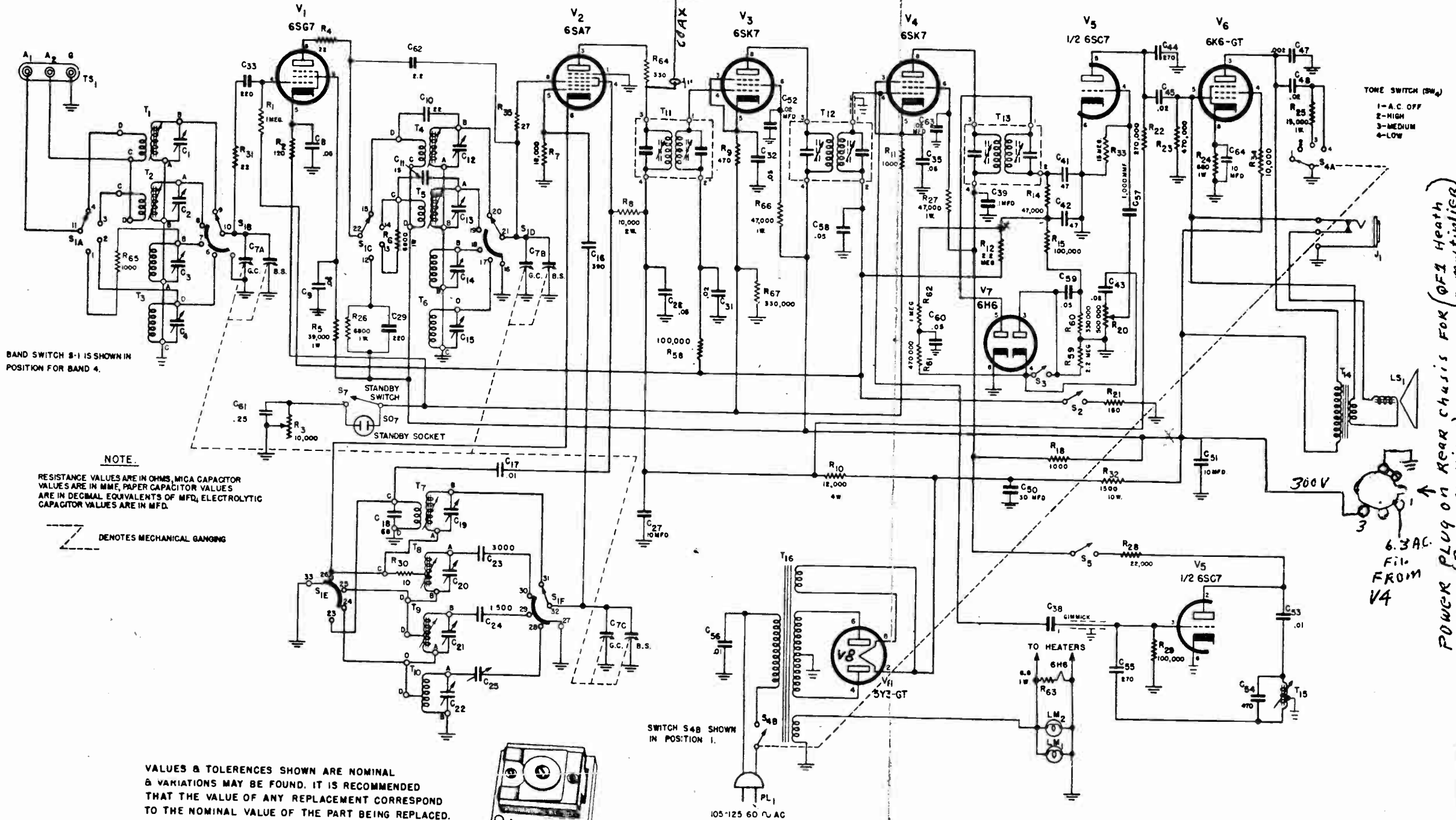
MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.



92X1140

Figure 1. Radio Receiver Model S-40B, BU, front view.

PHONO PLUG TO
Q MULTIPLIER
COAX

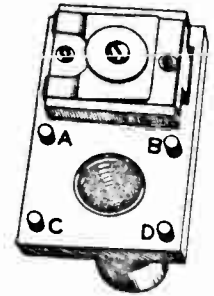


BAND SWITCH S-1 IS SHOWN IN POSITION FOR BAND 4.

NOTE.
RESISTANCE VALUES ARE IN OHMS, MICA CAPACITOR VALUES ARE IN MME, PAPER CAPACITOR VALUES ARE IN DECIMAL EQUIVALENTS OF MFD, ELECTROLYTIC CAPACITOR VALUES ARE IN MFD.

--- DENOTES MECHANICAL GANGING

VALUES & TOLERANCES SHOWN ARE NOMINAL & VARIATIONS MAY BE FOUND. IT IS RECOMMENDED THAT THE VALUE OF ANY REPLACEMENT CORRESPOND TO THE NOMINAL VALUE OF THE PART BEING REPLACED.



REPRESENTS TRANSFORMERS T-1 TO T-10

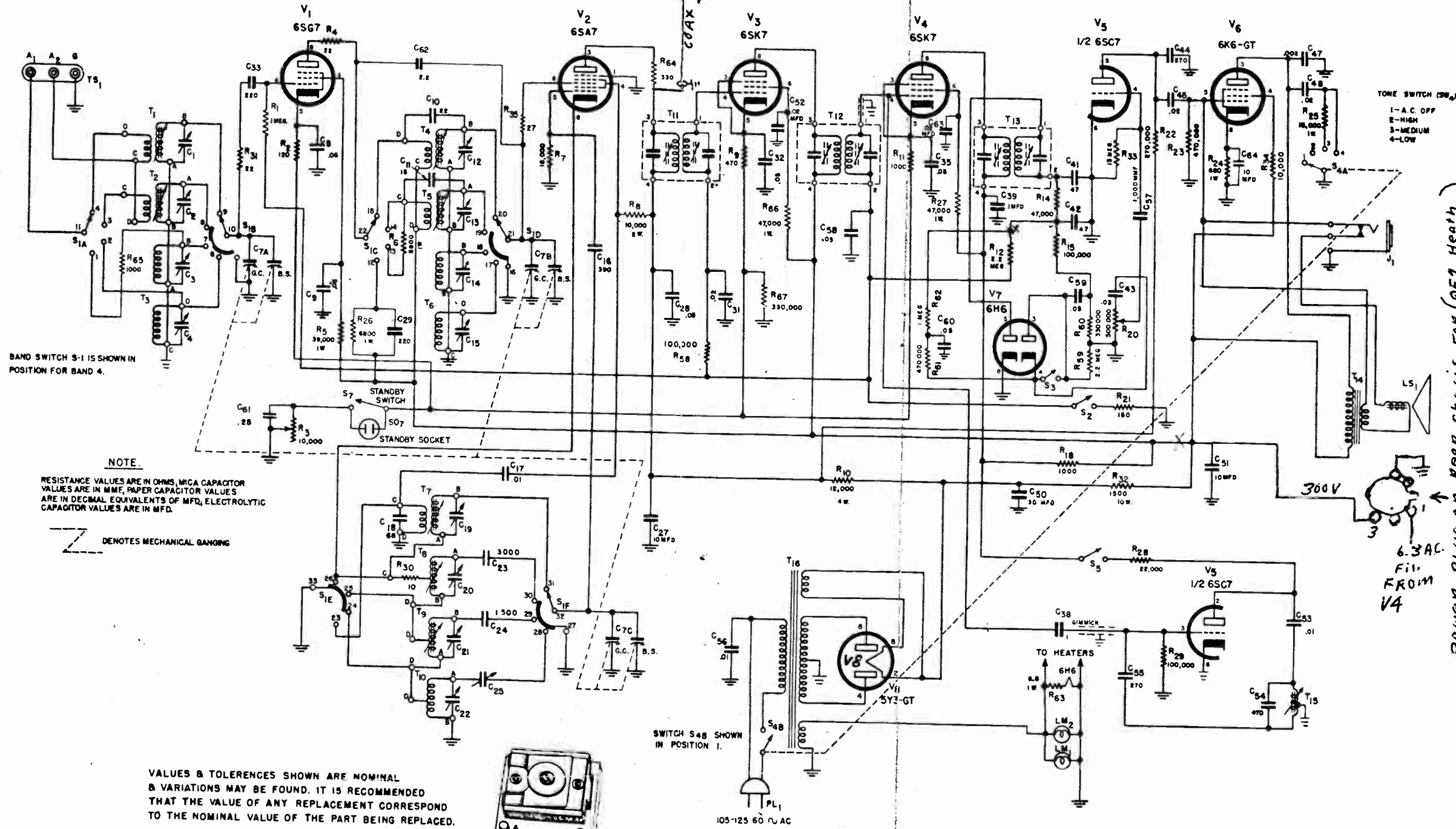
TONE SWITCH (SW4)
1-A.C. OFF
2-HIGH
3-MEDIUM
4-LOW

POWER PLUG ON REAR CHASSIS FOR (6.3 AC Fil. FROM V4)

SWITCH S4B SHOWN IN POSITION 1.

LAST R SYMBOL R-67
LAST C SYMBOL C-64

PHONO PLUG TO MULTIPLIER

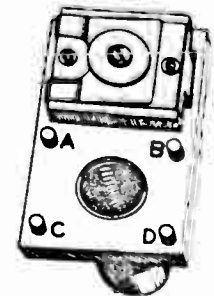


BAND SWITCH S-1 IS SHOWN IN POSITION FOR BAND 4.

NOTE.
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REPRESENTS TRANSFORMERS T4 TO T10

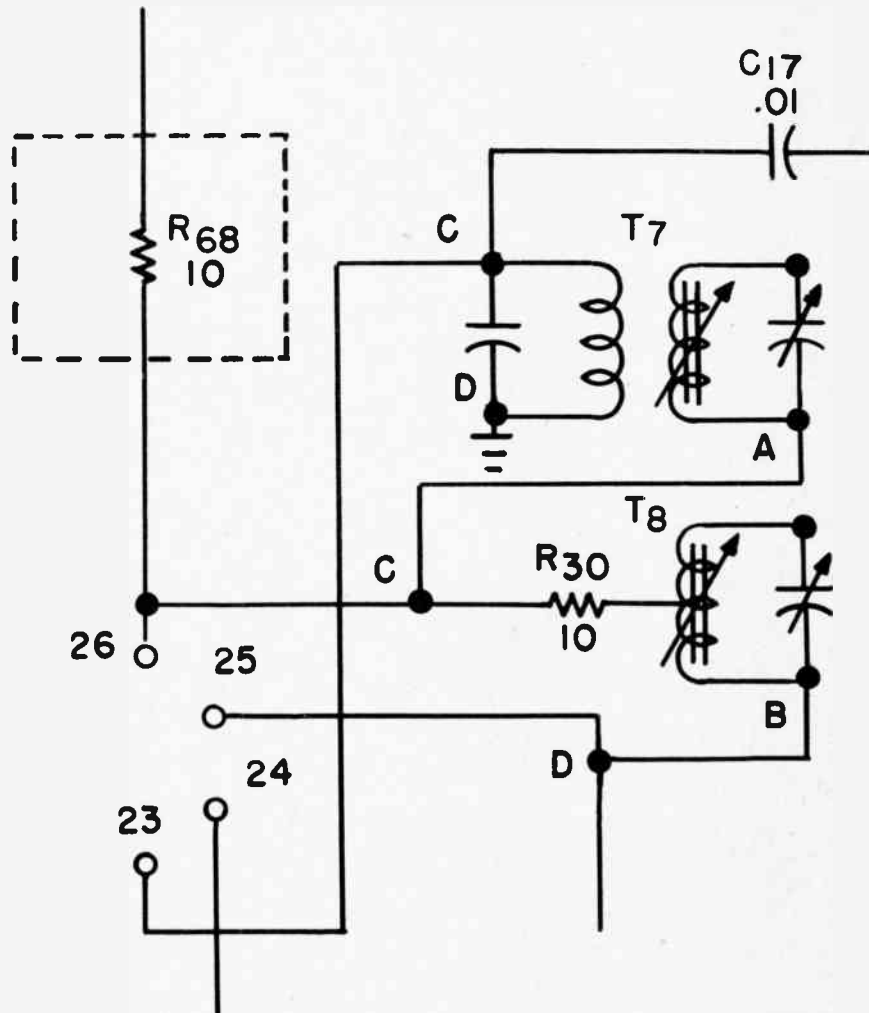
TOPE SWITCH (S-4)
1-A.C. OFF
2-HIGH
3-MEDIUM
4-LOW

POWER PLUG ON REAR CHASSIS FOR (6.3 Heath Fil. FROM V4) (Bottom view)

LAST R SYMBOL R-67
LAST C SYMBOL C-64

ERRATA SHEET FOR S-40B

After printing this manual a circuit improvement was made by adding Resistor R-68 to the Oscillator Circuit as illustrated below.



92B1408

94X697

the hallicrafters co.

SERVICE BULLETIN FOR MODEL S-40B

GENERAL

Tubes Seven plus rectifier
Speaker 5-inch PM
Speaker V.C. Impedance . 3.2 ohms
Headset Output Low Impedance
Antenna Provision for external antenna
Tuning Manual

Tuning Range	Band Selector Position	Frequency Range
	1.	540 kc - 1680 kc
	2.	1680 kc - 5.4 mc
	3.	5.3 mc - 15.5 mc
	4.	15.5 mc - 44 mc

Intermediate Frequency . 455 kc.
Power Supply Standard Model 105-125 V. 60 cycles AC
Universal Model 105-250 V. 25/135 cycles AC
Power Consumption 75 Watts

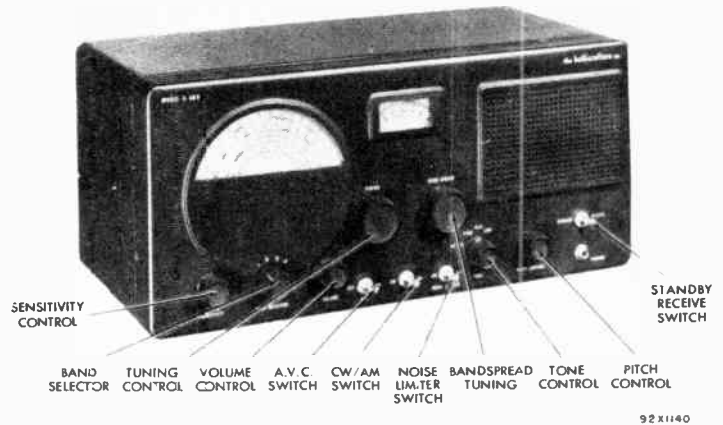
RESTRINGING DIAL CORD

To restringing the general coverage tuning dial cord, cut an 18-inch 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. Follow the numbers "1" through "4", and at position "4" stretch the tension spring and tie the cord securely.

To restringing the band spread tuning dial cord cut a 36-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. 7 for the location of the two dial lamps used in the receiver. To gain access to defective lamps, reach in through cabinet cover and unclip the dial lamp sockets. The



sockets may then be brought out into the open to change the defective lamp. Replace lamps with 6-8 V. Mazda #44 (Blue bead) lamps or equivalent.

ALIGNMENT PROCEDURE

For I-F amplifier alignment it will be necessary to remove the receiver chassis from the cabinet. The chassis is held in the cabinet by three screws along both the bottom edge of the front panel and the rear of the cabinet, and two screws on either side of the front panel.

NOTE - R-F alignment should be accomplished through the holes provided in the cabinet bottom as the oscillator calibration will be effected slightly by changes in the capacity between the cabinet bottom and the r-f coils and wiring.

Before starting the alignment procedure, check the position of the general coverage dial index marker on the low frequency end of the range and the bandspread dial on zero position. The general coverage condenser should index at max. capacity, and the bandspread condenser at min. capacity.

The standard RMA dummy antenna mentioned 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.

- SENSITIVITY Set at maximum
- VOLUME Set at maximum
- AVC switch Set at OFF
- BAND SPREAD Set at zero
- CW/AM Set at AM (See Step 2)
- NOISE LIMITER Set at OFF
- STANDBY RECEIVE Set at RECEIVE
- TONE SWITCH Set at HIGH

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

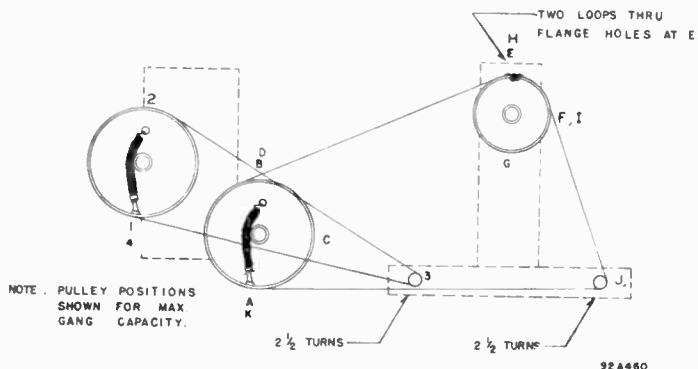
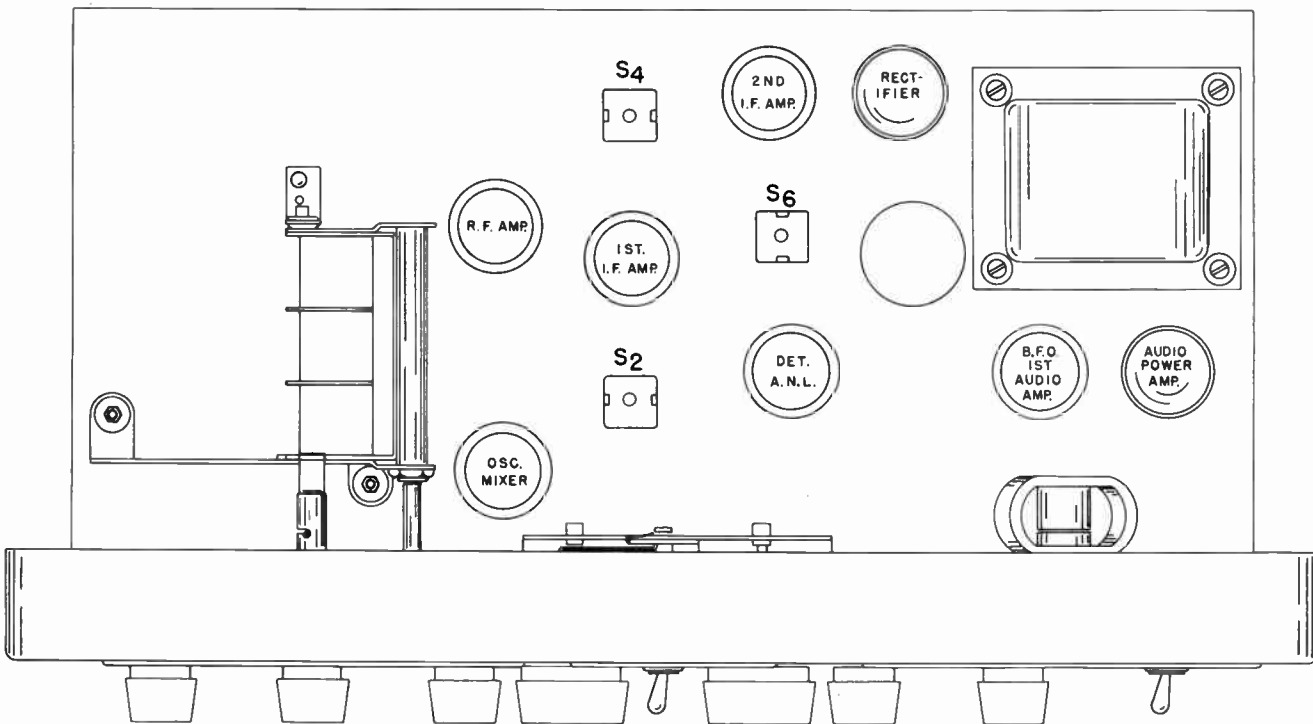


Fig. 1. Dial cable stringing procedure

ALIGNMENT CHART

Step	Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Band Switch Setting	Receiver Dial Setting	Adjust	Remarks
1	None	Stator plates in center section of tuning gang.	455 kc	"1"	1000 kc	S1,S2,S3 S4,S5,S6	Maximum audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 MW signal level.
2	None	See step 1	455 kc (No modulation)	"1"	1000 kc	S7	With the CW/AM switch set at CW, remove the pitch control knob and adjust S1 for zero beat. Replace the knob with the dot in the center position.
3	Std RMA dummy	"A1" on antenna strip. Jumper connected between "A2" and "G".	36 mc 18 mc	"4"	36 mc 18 mc	*A, B, C *S8,S9,S10	Maximum output as in step 1
4	Std RMA dummy	See step 3	14 mc 10 mc	"3"	14 mc 10 mc	*D, E, F *S11,S12,S13	Maximum output as in step 1
5	Std RMA dummy	See step 3	5 mc 1.8 mc	"2"	5 mc 1.8 mc	*G, H, I *S14	Maximum output as in step 1
6	Std RMA dummy	See step 3	1500 kc 600 kc	"1"	1500 kc 600 kc	*J, K, L *M	Maximum output as in step 1

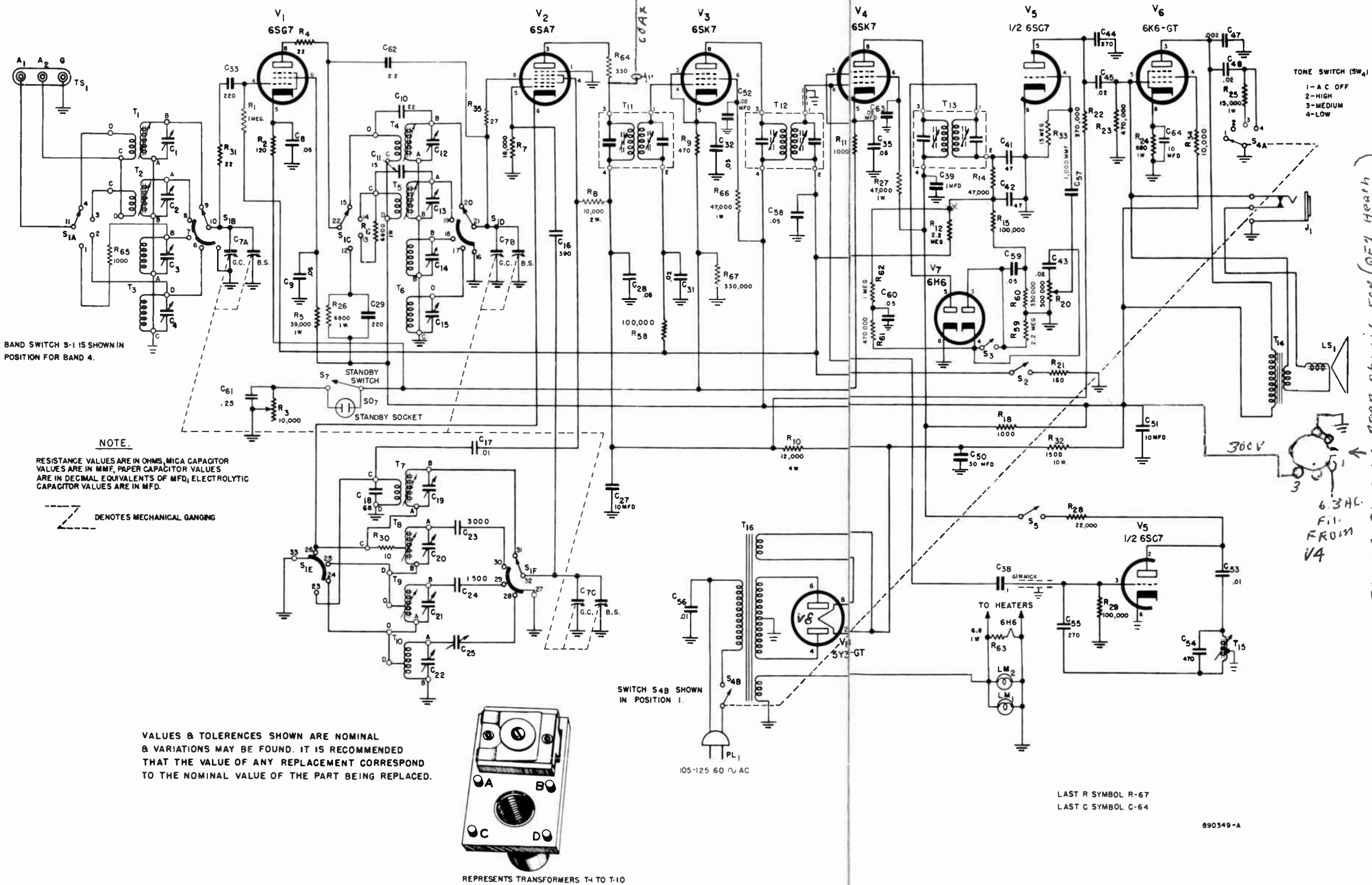
*Note - Calibration adjustments.



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Fig. 2. Top view, alignment points

PHONO COAX Connector on REAR Chassis FOR Q-Multiplier (Heath Q-F1) select-o-Ject



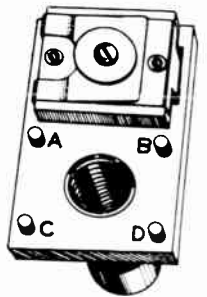
BAND SWITCH S-1 IS SHOWN IN POSITION FOR BAND 4.

NOTE.

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REPRESENTS TRANSFORMERS T4 TO T10

SWITCH S4B SHOWN IN POSITION I.

105-125 60 AC

LAST R SYMBOL R-67
LAST C SYMBOL C-64

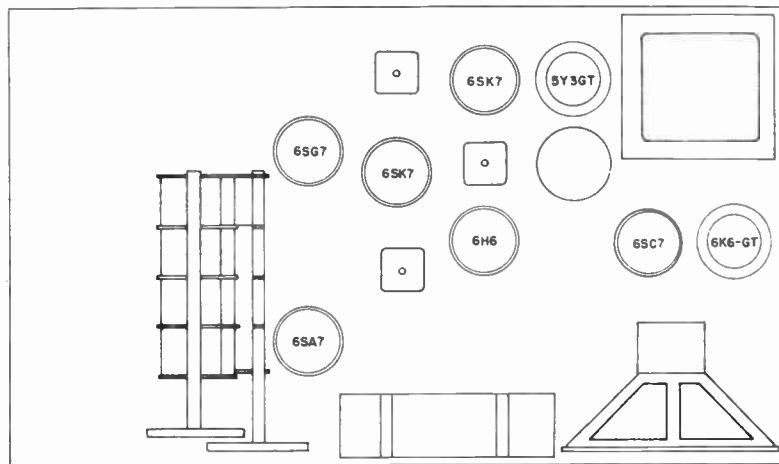
890349-A

TONE SWITCH (SW4)
1-A OFF
2-HIGH
3-MEDIUM
4-LOW

POWER PLUG on REAR Chassis FOR (Q-F1 Heath Q-Multiplier)

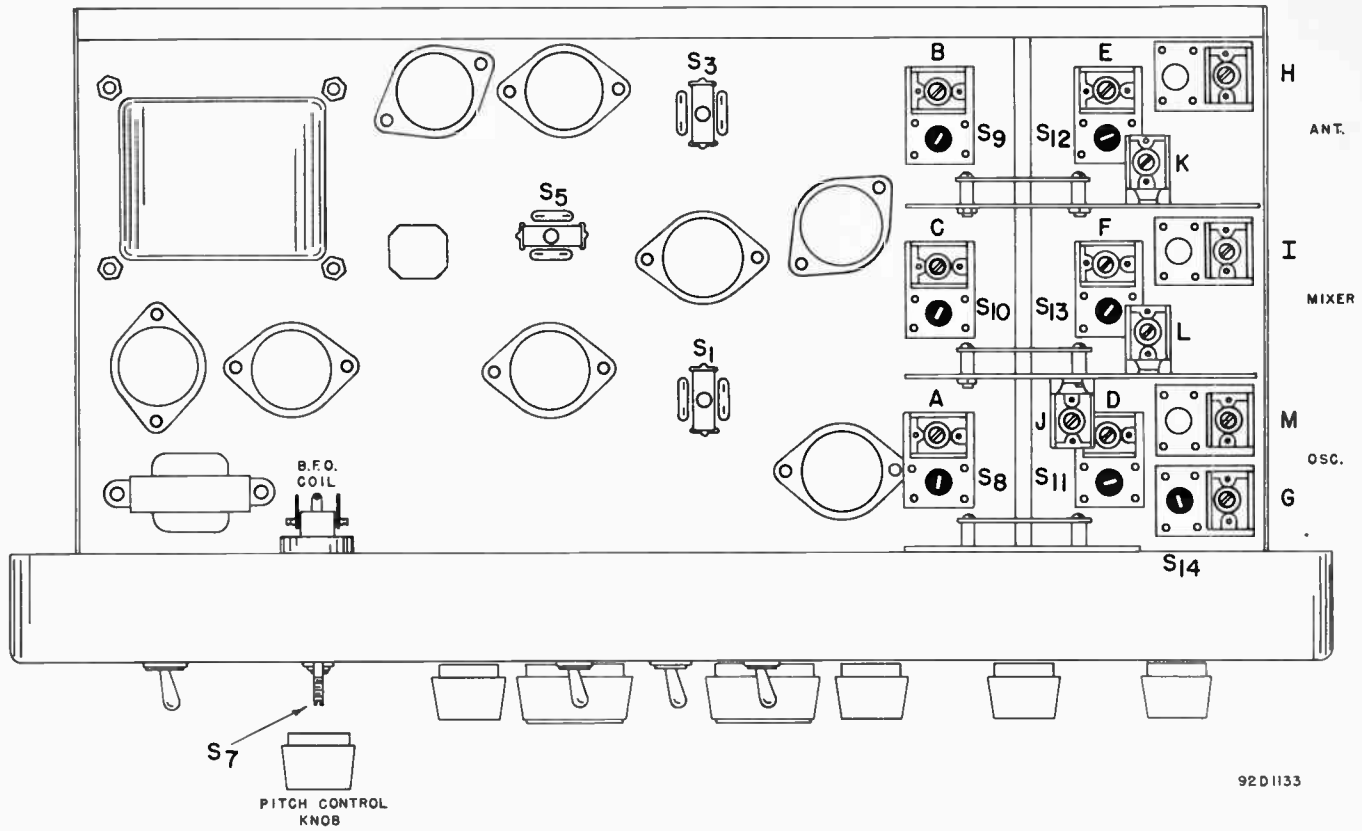
6.3AL FIL. FROM V4

Fig. 8. Schematic diagram



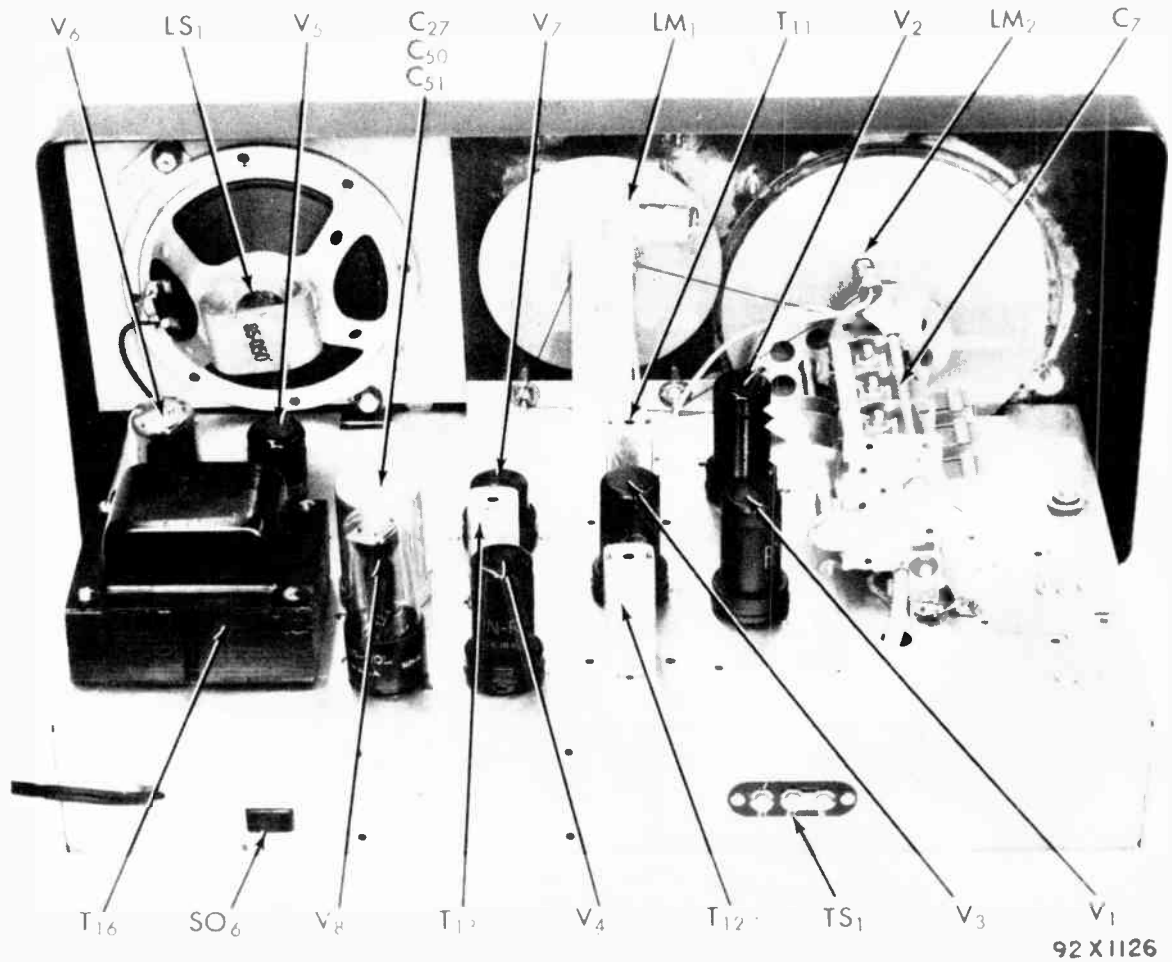
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Fig. 7. Top view. Location of tubes and pilot lamps



92D1133

Fig. 3. Bottom view, alignment points



92 X 1126

Fig. 4. Top view, component location

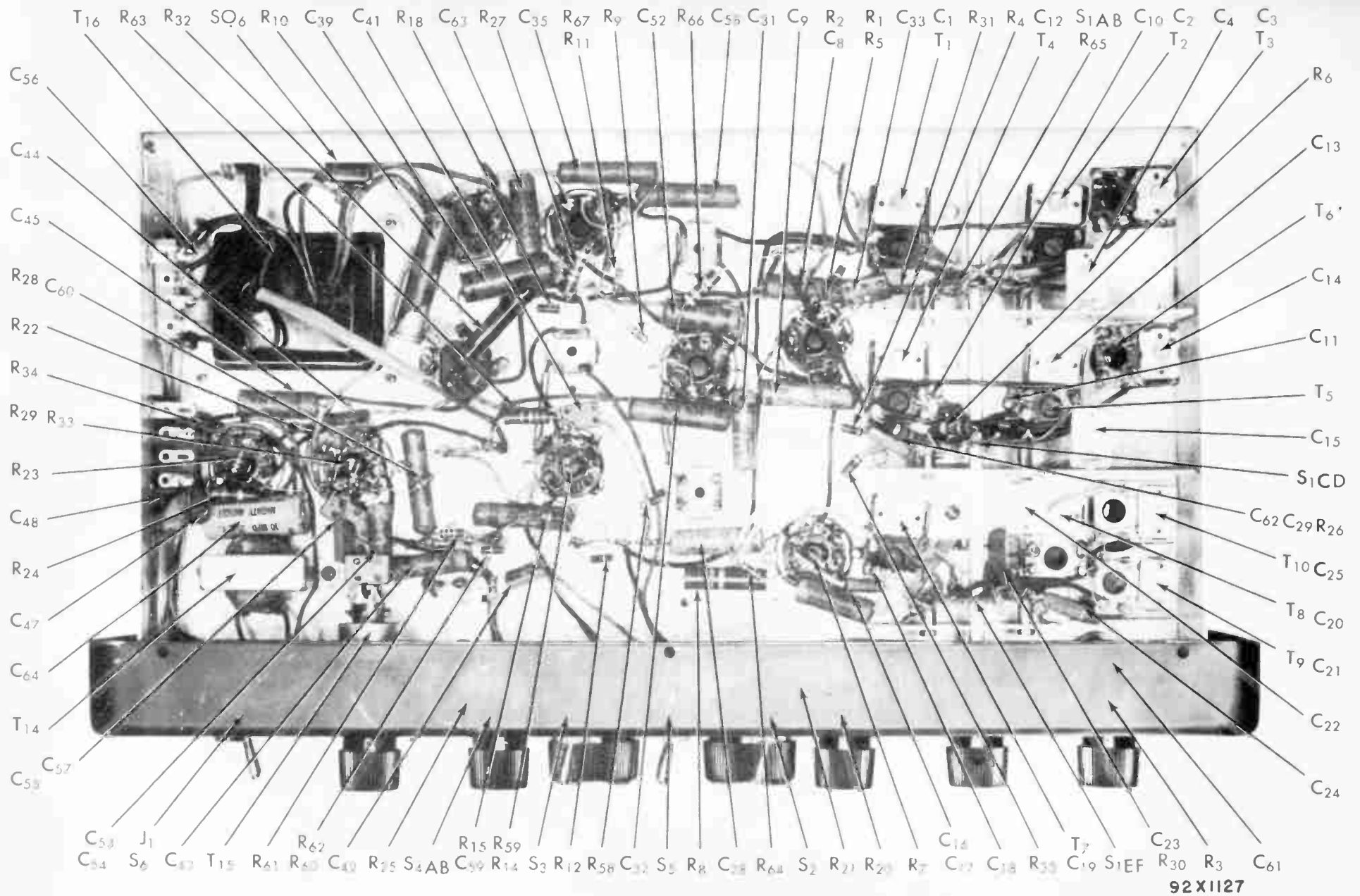
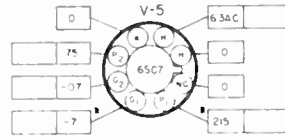
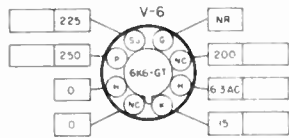
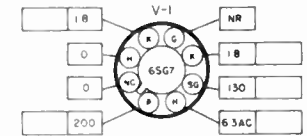
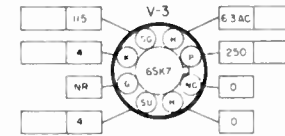
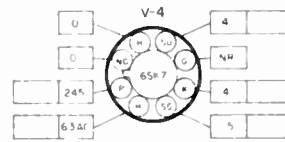
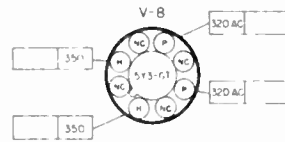


Fig. 5. Bottom view, component location

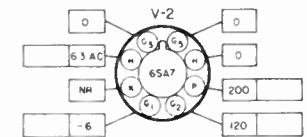
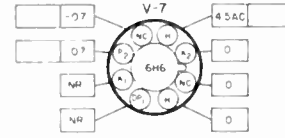
SERVICE PARTS LIST

Ref. No.	Description	Hallicrafters Part Number	Ref. No.	Description	Hallicrafters Part Number
CONDENSERS			TRANSFORMERS AND COILS		
C-1.2.12. 13,19	Trimmer, adjustable, part of transformers T-1,2,4,5 and 7	44A149	T-1	Transformer, antenna stage, band 4	51B783
C-3	Trimmer, adjustable, part of transformer T-3	44A389	T-2	Transformer, antenna stage, band 3	51B782
C-4.15.22	Trimmer, adjustable	44A191	T-3	Transformer, antenna stage, band 1 and 2	51B1241
C-7	Tuning capacitor, 3 sections ganged	48C240-B	T-4	Transformer, mixer stage, band 4	51B787
C-8.32.35, 58.59.60	.05 mfd. 200 V., tubular	46AU503J	T-5	Transformer, mixer stage, band 3	51B786
C-9.28	.05 mfd. 600 V., tubular	46AY503J	T-6	Transformer, mixer stage, band 1 and 2	51B1240
C-10	22 mmf. 500 V., ceramic	47X21UK220M	T-7	Transformer, oscillator stage, band 4	51B791
C-11	15 mmf. 500 V., ceramic	47X21UK150M	T-8	Transformer, oscillator stage, band 3	51B913
C-14.21	Trimmer, adjustable, part of transformers T-6 and 9	44A147	T-9	Transformer, oscillator stage, band 2	51B789
C-16	390 mmf. 500 V., mica	47X20B391K	T-10	Transformer, oscillator stage, band 1	51B912
C-17.53	.01 mfd. 600 V., tubular	46AY103J	T-11.12	Transformer, 1st and 2nd IF stages	50C243
C-18	68 mmf. 500 V., ceramic	47X25UK680K	T-13	Transformer, detector stage	50C242
C-20	Trimmer, adjustable, part of transformer T-8	44A148	T-14	Transformer, audio output	55B093
C-25	Padder, adjustable, part of transformer T-10	44A188	T-15	Transformer, BFO	54B044
C-23	3000 mmf. 500 V., mica	47X30C302K	T-16	Transformer, power	52A209
C-24	1500 mmf. 500 V., mica	47X30C152J	*T-16	Transformer, power (Universal)	52C210
C-27.53.51	30-10-10 mfd. 450 V., electrolytic	45A062	SWITCHES		
C-29.33	220 mmf. 500 V., mica	47X20B221K	S-1	Bandswitch, wafer, antenna stage	60B389
C-31.43	.02 mfd. 200 V., tubular	46AU203J		Bandswitch, wafer, mixer stage	62B039
C-38	2 mmf., twisted wire gimmick			Bandswitch, wafer, oscillator stage	62B044
C-39	.1 mfd. 600 V., tubular	46AY104J		Bandswitch, shaft	60B392
C-41.42	47 mmf. 500 V., mica	47X20B470M	S-2.3, 5.6	Switch, toggle, S.P.S.T., A.V.C., A.N.L., CW-AM, and STANDBY-RECEIVE	60A138
C-44.55	270 mmf. 500 V., mica	47X20B271K	S-4	Switch, PWR-TONE control	60A225
C-45.48.52. 63	.02 mfd. 600 V., tubular	46AY203J	PLUGS AND SOCKETS		
C-47	.002 mfd. 1000 V., tubular	46A104	J-1	Jack, headset	36A002
C-54	470 mmf. 500 V., mica	47X20B471J	PL-1	Line cord	87B1573
C-56	.01 mfd. 600 V., molded paper	46AC103J	SO-6	Socket, standby	10A015
C-57	1000 mmf. 500 V., mica	47X25B102M		Socket, octal (tube)	6A035
C-61	.25 mfd. 200 V., tubular	46AT254J		Socket, dial light, general coverage dial	86A070
C-62	2.2 mmf. 500 V., bakelite	47A160-4		Socket, dial light, bandspread dial	86B049
C-64	10 mfd. 25 V., electrolytic	45A121	TUBES, RECTIFIERS AND LAMPS		
RESISTORS			V-1	Type 6SG7, r-f amplifier	90X6SG7
R-1.62	1 megohm 1/2 watt, carbon	23X20X105M	V-2	Type 6SA7, mixer	90X6SA7
R-2	120 ohms 1/2 watt, carbon	23X20X121K	V-3,4	Type 6SK7, 1st and 2nd i-f amplifiers	90X6SK7
R-3	10,000 ohms. SENSITIVITY control	25B590	V-5	Type 6SC7, B.F.O. and audio amplifier	90X6SC7
R-4.31	22 ohms 1/2 watt, carbon	23X20X220M	V-6	Type 6K6GT, audio power amplifier	90X6K6GT
R-5	39,000 ohms 1 watt, carbon	23X30X393K	V-7	Type 6H6, A.N.L. and detector	90X6H6
R-6.26	6800 ohms 1 watt, carbon	23X30X682K	V-8	Type 5Y3GT, rectifier	90X5Y3GT
R-7	18,000 ohms 1/2 watt, carbon	23X20X183K	LM-1,2	Lamp, dial light, Mazda #44	39A003
R-8	10,000 ohms 2 watts, carbon	23X40X103K	MISCELLANEOUS		
R-9	470 ohms 1/2 watt, carbon	23X20X471K	TS-1	Terminal strip, antenna	88A032
R-10	12,000 ohms 4 watts, carbon	23X65CE123K		Lock, line cord	76A397
R-11,18.65	1000 ohms 1/2 watt, carbon	23X20X102K		Spring, retainer (Bandspread, and main tuning drive shaft)	75A062
R-12.59	2.2 megohms 1/2 watt, carbon	23X20X225M		Dial cord	38A001
R-14	47,000 ohms 1/2 watt, carbon	23X20X473M		Spring, dial cord	75A012
R-15.29.58	100,000 ohms 1/2 watt, carbon	23X20X104M		Dial, bandspread	83B372
R-20	1/2 megohm, VOLUME control	25A534		Dial, general coverage	83C240
R-21	150 ohms 1/2 watt, carbon	23X20X151M		Glass, general coverage dial	22B199
R-22	270,000 ohms 1/2 watt, carbon	23X20X274K		Window, bandspread	22A307
R-23.61	470,000 ohms 1/2 watt, carbon	23X20X474M	LS-1	Speaker, P.M. (5-inch)	85B050
R-24	680 ohms 1 watt, carbon	23X30X681K		Knob, PITCH CONTROL	12A058
R-25	15,000 ohms 1 watt, carbon	23X30X153M		Knob, SENSITIVITY, VOLUME and TONE	15A046
R-27.66	47,000 ohms 1 watt, carbon	23X30X473K		Knob, TUNING and BANDSPREAD	15A047
R-28	22,000 ohms 1/2 watt, carbon	23X20X223M		Knob, BAND SELECTOR	15A266
R-30	10 ohms 1/4 watt, carbon	23X10X100M		Foot, rubber	16A007
R-32	1500 ohms 10 watts, WW	24BG152E			
R-33	15 megohms 1/4 watt, carbon	23X10X156M			
R-34	10,000 ohms 1/2 watt, carbon	23X20X103M			
R-35	27 ohms 1/4 watt, carbon	23X10X270K			
R-60.67	330,000 ohms 1/2 watt, carbon	23X20X334K			
R-63	6.8 ohms 1 watt, carbon	23X30X068K			
R-64	330 ohms 1/2 watt, carbon	23X20X331K			

* Used on Universal Model S-40BU only.



ON/AM SWITCH IN ON POSITION



NOTES-

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

FRONT APPROX
BOTTOM VIEW OF CHASSIS

92 E 1097

FIG. 6. Tube socket voltage chart

INSTALLATION AND OPERATING INSTRUCTIONS

FOR

RADIO RECEIVER MODEL S-40B, BU

Your receiver, when properly installed, is capable of outstanding performance. Read the installation and operating instructions carefully as they are provided to insure the maximum satisfaction from your receiver.

GENERAL: - The S-40B receiver is a table model superheterodyne capable of receiving standard broadcast and foreign or domestic short wave stations over four frequency ranges with continuous coverage from 540 Kc to 43 Mc. A bandswitch is provided to select among the four ranges of reception which are indicated on the colorful and attractively illuminated main tuning dial scale. The amateur bands as well as foreign station locations are also clearly indicated on the main tuning dial scale for convenient reference. Appearing on the main tuning dial is also a logging scale which is used as a reference in logging radio stations of special interest. Many special features are provided to improve reception including bandspread tuning, automatic noise limiter and automatic volume control. Provision is made for the optional use of a headset. A beat frequency oscillator is provided for code reception. This feature is especially useful to the radio amateur and code enthusiast.

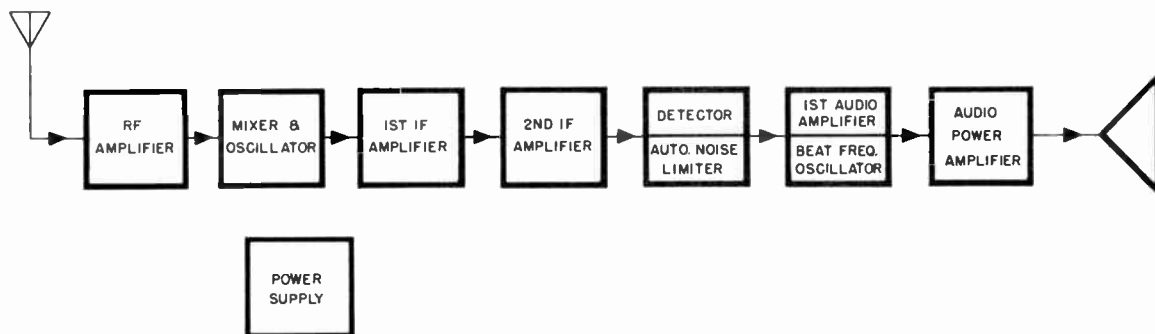
The S40B receiver is designed to operate from a 105 to 125-volt, a-c, 50/60 cycle source and requires 75 watts of power for operation. The S40BU receiver is designed to operate from a 110 to 250 volt a-c, 25 to 60 cycle source and requires 75 watts of power for operation. A switch is located on top of the transformer for adjusting the transformer to the proper voltage source. Connection to the power source is made by the two prong plug which is attached to the six foot line cord extending from the rear of the cabinet.

The complete receiver is 9 inches high by 18-1/2 inches wide by 11 inches deep and weighs 28 pounds.

The maximum output of the receiver at the speaker is one watt with less than ten percent distortion.

MECHANICAL DESCRIPTION: - The model S-40B radio receiver is housed in an attractive well ventilated aerodized sheet metal cabinet to minimize electrical interference and provide mechanical strength. The full length aerodized top cover, mounted on a piano type hinge, provides a means of gaining access to all of the tubes, dial lamps, and primary i-f transformer adjustments. Mixer, oscillator and secondary i-f adjustments may be made from the bottom of the cabinet through the holes provided for this purpose under the notice card. Three small holes on the bottom near the front of the cabinet provide access to the oscillator padder adjustments. All controls for tuning and operating are located on the front of the receiver. Notice that some of the control markings are in red. This is to aid the novice in operating the receiver.

ELECTRICAL DESCRIPTION: - The block diagram, Figure 2, illustrates the function of the receiver circuits in a simple manner which is described as follows: radio signals are picked up at the antenna and fed to the antenna coil of the r-f stage where the desired station signal is selected by a resonant circuit and fed to the mixer-oscillator tube.



92C1098

Figure 2. Radio Receiver Model S-40B. BU, block diagram showing receiver circuits.

At the same time the oscillator section of the mixer - oscillator tube generates a local r-f signal which is mixed with the selected incoming station signal. An intermediate frequency signal of 455 kc (kilocycles) is selected by the first i-f transformer and fed through two i-f amplifier stages to the detector automatic noise limiter stage where it is demodulated. The audio component of the i-f signal is amplified by one of the triode sections of the 1st audio-beat frequency oscillator tube and then capacity coupled to the audio power output tube where it is further amplified and fed to the speaker.

The a-v-c circuit is a conventional one which provides a uniform signal level when listening to music or voice (phone) broadcasts. It is in use with the AM/CW switch at the AM position.

The beat frequency oscillator stage operates in the CW position of the AM/CW switch and provides an r-f signal at 455 kc (kilocycles) which is fed to the detector stage to beat against the i-f signal, thereby rendering code signals intelligible. The pitch of the code signal can be varied by means of the CW-PITCH control which permits a variation from 0 to 1,000 cycles.

The automatic noise limiter circuit employs one diode of a duo-diode type tube (6H6), the other diode being used as the detector stage.

A power rectifier stage provides a well filtered source of high voltage to the plate and screen circuits.

INSTALLATION OF THE RECEIVER

1. As soon as the receiver has been unpacked, examine it for any apparent damage which might have occurred in shipment. If any damages are found, file a claim IMMEDIATELY with the transportation company. If purchased packed "over the counter" and any defects or damages are apparent after the receiver has been unpacked, return it IMMEDIATELY to the dealer. If purchased "unpacked" over the counter, examine carefully and thoroughly for any possible defects, BEFORE ACCEPTANCE.

2. Fill out and immediately mail the record return card which is enclosed with these instructions.

3. This receiver is equipped with rubber mounting feet for mounting on a table or other piece of furniture. Do not mount this radio on a radiator or any area subject to heat or high humidity.

4. An external antenna should be connected to the receiver as follows:

On the rear apron of the receiver chassis is located the antenna connector strip, marked A1, A2 and G. Select one of the antenna systems described below and connect it to the strip as directed.

An external ground connection is not essential to this receiver, but in some locations will help to improve reception especially on the higher frequencies. If it is desired to use an external ground, always connect it to the terminal marked "G" on the antenna terminal strip.

A. Single Wire Antenna: When using a single wire antenna installation, connect a jumper between the antenna terminal A2 and G. Then connect a single wire of about 50 to 75 feet (including lead-in) to terminal A1. Use #14 gauge copper wire or heavier for best results. Erect the antenna as high and free from surrounding objects as possible. This type of antenna works well where the signal to noise ratio is relatively high and a more elaborate installation is not practical. Refer to Fig. 3.

B. Doublet Antenna: This type of antenna is recommended where the receiving conditions are poor or where maximum sensitivity is required over a relatively narrow range of frequencies. The lead-in wires should be connected to terminals A1 and A2. If a concentric line with grounded outer conductor is used, connect the inner conductor to terminal A1, the outer conductor to terminal A2 and connect a jumper between terminal A2 and G.

(1) To determine the proper length of the doublet antenna in feet:

(a) Determine the frequency range to which you wish to listen.

(b) Divide 468 by the frequency (in megacycles) of the high frequency end of the range you selected. This will give you the length in feet. Refer to Fig. 4.

(2) To prepare the antenna for installation:

(a) Measure and cut the wire to the length determined in step (b) above. Cut this length in half.

(b) Wrap and solder the two wires of the lead-in to each of the quarter-wave sections at the insulator as shown in Figure 4.

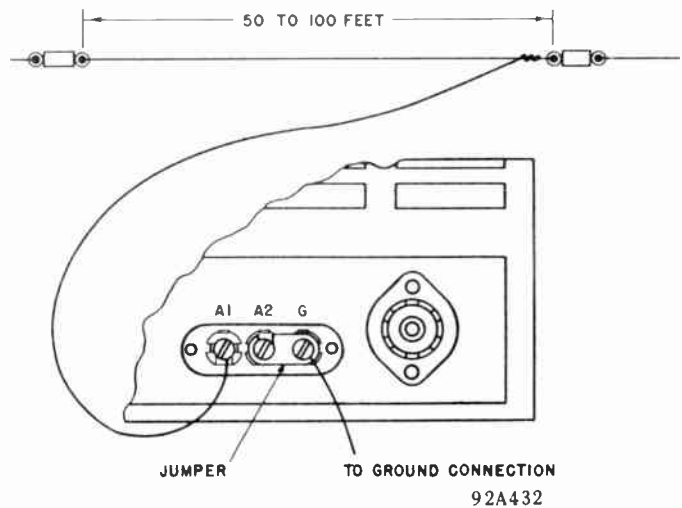


Figure 3. Single Wire Antenna Installation.

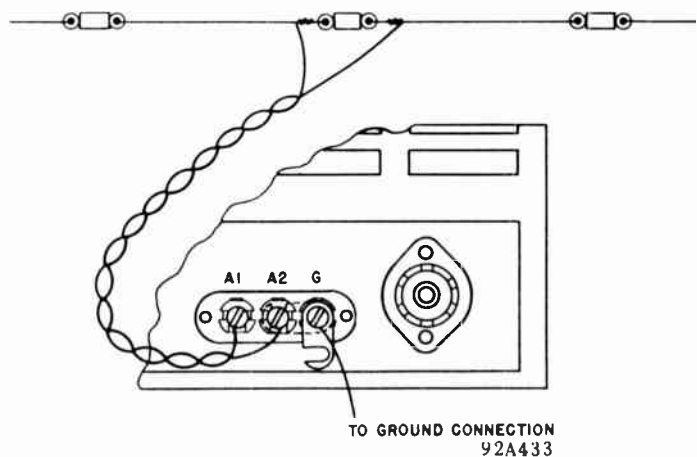


Figure 4. Doublet Antenna Installation.

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

For reference to other types of antenna refer to the latest edition of the Radio Amateur's A.R.R.L. Handbook, section on antennas. This book can be procured from most dealers of radio amateur "ham" equipment.

PRE-OPERATIONAL CHECK - The following checkup on a newly installed receiver is recommended before turning on the power for the first time.

- (1) See that the tubes are securely seated in their sockets. Refer to Figure 7 for the proper location of each tube.
- (2) Check the pilot lamps located behind the dial escutcheons and see that they are securely in place.
- (3) Check all external connections. See that they are secure and make positive contact. Remember that an improvised installation gives improvised results.

OPERATION OF THE RECEIVER

EXPLANATION OF THE CONTROLS. - Scanning across the front of the receiver from left to right, the control markings and an explanation of each is as follows:

NOTE: Some of the control markings are in RED. This is an added feature incorporated for the convenience of the listener who is not familiar with radio terminology as an aid in setting the controls most used for the reception of standard broadcast stations.

Reference to Figure 6 will help the listener in becoming familiar with the use of the controls.

1. **SENSITIVITY** control. - This control regulates the sensitivity of the receiver. Turning the control clockwise increases the sensitivity of the receiver.
2. **BAND SELECTOR** switch. - This switch selects the desired band or frequency range for the listener. The frequencies covered by each band switch position are read directly from the main tuning dial. Position #1 (in red) is the standard broadcast band. Each range has sufficient overlap to provide continuous coverage over the overall tuning range of the receiver.
3. **VOLUME** control. - This control sets the audio level at the speaker and is to be set for the level of volume most pleasing to the listener.
4. **A. V. C.** switch. - This switch, when set at "ON", provides a constant audio output level over reasonable variations in signal strength at the antenna, i.e. it automatically controls the sensitivity of the receiver when this circuit is in operation.
5. **Main TUNING** control. - This control tunes the receiver to the desired frequency of reception which is read on the main tuning dial located to the left of the control. The outer scale on the dial may be used for logging purposes which is described later on in these instructions.

6. AM/CW switch. - This switch turns on a local oscillator used to produce the beat frequency necessary for making code signals intelligible. For ordinary reception it is set in the AM position.

7. BAND SPREAD tuning. - This control is used in conjunction with the main TUNING control for fine tuning of short wave stations, the use of which is explained later in these instructions.

8. NOISE LIMITER switch. - This switch cuts in a circuit which clips the noise voltage peaks generated by electrical disturbances, thereby providing intelligible reception in cases where reception would normally be impossible. This feature will not totally remove the noise but will do a good job of limiting it to a reasonable level.

9. TONE control. - This control adjusts the tone qualities of the audible signal for either speaker or headset and also includes a switch which turns the A-C power ON or OFF. The types of response available are - LOW, MED. and HIGH. In the A-C OFF position the power to the receiver is disconnected.

(a) LOW - The bass and high frequencies are attenuated to provide a response for voice frequencies only.

(b) MED. - The bass and high frequencies are attenuated somewhat less than for the LOW position providing a response for more than the ordinary voice frequencies. This position is preferred for voice communications when the signal to noise ratio will permit.

(c) HIGH - The bass and medium frequencies are attenuated in favor of the high audio frequencies providing good response for high audio frequency response.

10. PITCH control. - This control is used to vary the pitch of the code signal when listening to amateur or commercial code stations.

11. STANDBY-RECEIVE switch. - This switch disconnects the d-c voltage within the receiver while leaving the tube heaters at operating temperature, thus leaving the receiver in condition for instant use. This switch is used by the radio amateur "ham" to put the receiver in a standby condition when transmitting. For the general listener it provides a means of putting the receiver in an inoperative condition ready for instant use.

A special plug is provided on the rear of the chassis for making connections to a remote standby switch. Connection is made with a standard A.C. plug. This feature is especially useful when the receiver is used in conjunction with a transmitter, as it provides a convenient method of incorporating the receiver standby switch with the transmitter switching system.

BAND SPREAD TUNING

FOR THE "HAM". - To use the band spread dial, set the dial pointer at "O", set main tuning dial pointer at the high frequency end of the range to be covered and tune in the stations with the BAND SPREAD tuning control. Example: Assume you wish to listen in on the 10 meter band. Set the BAND SELECTOR at position 4 (15.7 to 43 mc), set main TUNING dial pointer at 30 mc (megacycles), the high end of the 10 meter band, and then set the band spread dial pointer at "O". You can now listen in on the 10 meter band by tuning with the BAND SPREAD tuning control. The preceding example holds true for any of the frequency ranges, although

For normal use, tune to desired frequency of reception. When using bandsread dial — for amateur bands, set at high frequency end of band; for short wave listening set slightly counter-clockwise past desired station frequency.

Set at desired frequency range.

Set at maximum clockwise when using an external tuning meter and for weak stations. Adjust as desired for local and general listening conditions.



Set to desired level of volume.

Set at OFF when listening to code stations, otherwise set at ON.

Set at CW for code stations, otherwise set at AM.

Set at ON if static or noise is excessive otherwise at OFF.

Set at "0" for normal tuning. Use for fine tuning or "band spread" tuning.

Normally set at RECEIVE, set at STANDBY for short standby periods.

Use standard type headset for head phone reception.

Set at position most pleasing to listener.

Use for code reception and tune for desired pitch of signal.

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Figure 6. Radio Receiver Model S-40B. BU, view showing use of controls.

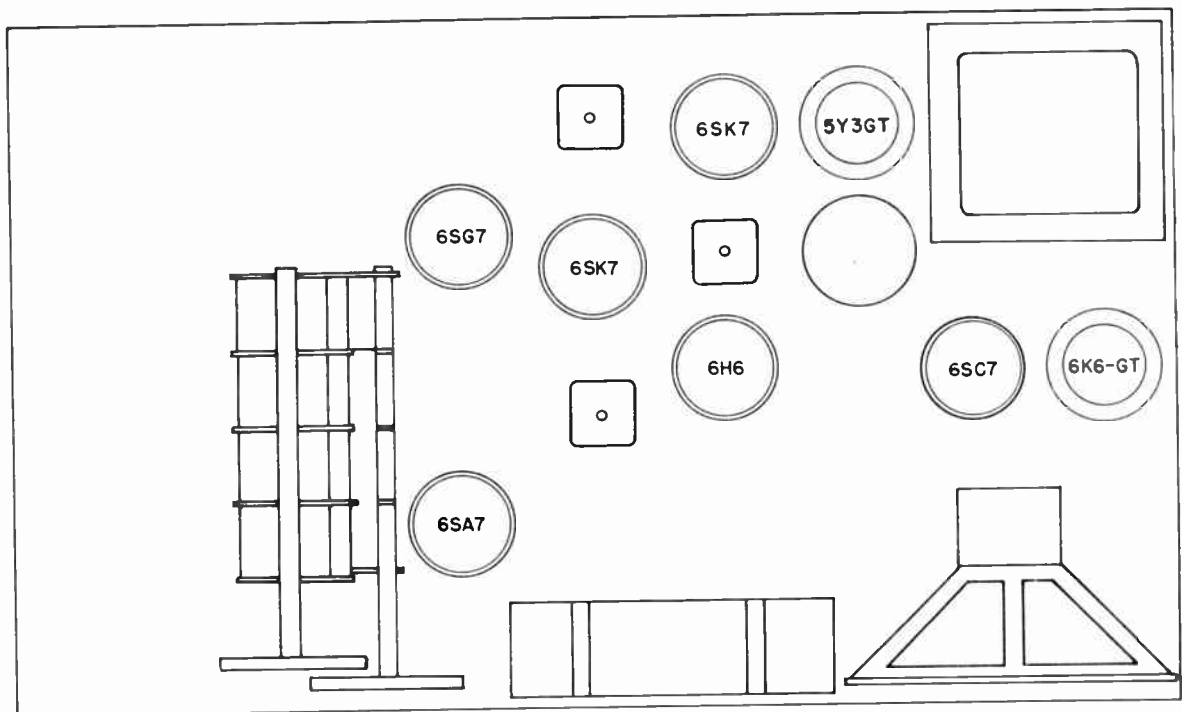
the higher in frequency is the range of tuning, the broader will be the range of tuning on the band spread tuning dial scale. Band spread tuning is not necessary on the broadcast band.

FOR THE SHORT WAVE LISTENER. - To tune in short wave broadcast radio stations with the band spread tuning control, set the band spread dial pointer at "O", set the main tuning dial pointer counterclockwise slightly past the frequency of the station you wish to tune in and then tune in the station with the **BAND SPREAD** control.

IMPORTANT. - The calibrations on the main tuning dial scale are only correct when the **BAND SPREAD** dial pointer is set at "O".

OWNER'S MAINTENANCE

PREVENTIVE MAINTENANCE. - Keep the various parts of the receiver clean, especially the tuning capacitors. Dust and dirt should be blown out with dry air or brushed out carefully without bending the capacitor plates in the slightest. Noisy reception may be also caused by dirty condenser wipers, faulty volume controls, switches and tubes, etc. in the receiver. Check the switch contacts and controls and make sure that all tubes are always in their sockets.



928881-A

Figure 7. Radio Receiver Model S-40B, BU, view showing tube locations.

REPLACING TUBES AND DIAL LAMPS. - When replacing tubes, check the tube type carefully and replace with the correct type. Refer to the top of the receiver chassis, Fig. 7, to determine the location of each tube. The receiver employs two dial lamps with bayonet type sockets to illuminate the two dial scales. Replace these with similar types, 6/8 volt, 250 ma., "blue bead" G.E. #44 or equivalent. The color code referred to is the color of the glass bead above the glass stem inside the envelope of the lamp.

PERIODIC ADJUSTMENTS. - This receiver has been carefully aligned at the factory and should not require realignment until it needs new tubes in the r-f and mixer-oscillator stages or shows signs of loss in sensitivity, off frequency calibration or requires service work on these stages. Alignment should not be attempted by inexperienced persons as maximum performance is obtained only by intelligent alignment.

A complete service bulletin is available for use in servicing this receiver and can be obtained from any one of our distributors or dealers or by contacting the factory direct.

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