



**the hallicrafters co.**

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



## INSTALLATION

**UNPACKING** - Check all shipping tags and labels for instructions before removing or destroying them. The SR-75 is shipped with the cabinet back held in place with four self-tapping hex head screws. Before placing the set in operation, remove these screws and replace them with the four thumb screws which are packed with the set.

**LOCATION** - The SR-75 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 SR-75 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.

## OPERATION AS A RECEIVER

<u>CONTROL</u>	<u>BROADCAST RECEPTION</u>	<u>SHORTWAVE RECEPTION</u>
RECEIVE/TRANSMIT switch	Set at RECEIVE	Same
VOLUME control	Turn clockwise	Same
SPEAKER/PHONES switch	Set at SPEAKER or PHONES	Same
AM/CW switch	Set at AM	Set at AM for phone and CW for code
BAND SELECTOR	Set at 1	Set at 2, 3 or 4.
TUNING control	Tune for the loudest clearest reception.	See BAND SPREAD TUNING

**BAND SPREAD TUNING** - Any narrow range of frequencies in the frequency spectrum covered by the SR-75 may be spread out electrically with the BAND SPREAD control. To use the band spread dial, set the band spread dial pointer to zero, set the main tuning dial pointer at the high frequency limit of the range of frequencies to be covered and then 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 to position "3", the main tuning dial pointer to 7.3 MC (megacycles) and tune in the stations with the BAND SPREAD control.

**NOTE** - The main tuning dial calibration will be true only when the band spread dial pointer is set at zero.

## OPERATION AS A TRANSMITTER

Before applying power, remove the back cover and insert the appropriate crystal into the crystal socket ( $\frac{1}{2}$  inch pin spacing, .093 inch diameter pin). Insert the proper coil into the banana jacks PL-4 (refer to fig. 8). An 80 meter crystal is used for 80 meter operation and a 40 meter crystal is used for operation on 40, 20, and 10 meters. The 11 meter band may be used with a crystal in the range of 6.74 to 6.8 MC.

Insert two standard #2,  $1\frac{1}{2}$  volt flashlight cells (not supplied) in the holder on the top of the chassis. These cells are necessary to actuate the keying relay.

Replace the back cover making certain that the AC line cord interlock is properly seated in the socket on the rear of the chassis.

If the crystal and coil for either 80, 40 or 20 meter operation have been installed, set the slide switch on the rear of the chassis to the position indicating 80, 40 and 20 meter operation. If the crystal (40 meters) and coil for 10 or 11 meter operation have been installed, set the slide switch to the position indicating 10 and 11 meter operation.

Connect plug PL-3 on the keying and tuning lamp cable to socket SO-3 (see fig. 2). Connect a telegraph key to the two brown leads. A pilot bulb (Type #49), used for tuning purposes, is connected to the red and black leads. If desired, a 0-100 milliamperere D.C. meter may be used in place of the tuning lamp, the red lead being connected to the plus terminal.

Connect the proper antenna. (Refer to page 6).

**CAUTION:** When switching from RECEIVE to TRANSMIT it is important that: (1) the shorting switch on the telegraph key is left open and (2) the key is not held down. A current transient great enough to burn out the tuning lamp results if these precautions are not observed.

Set the TRANSMIT-RECEIVE switch to the TRANSMIT position.

Turn the VOLUME control sufficiently clockwise to close the power switch.

Turn the LOADING control (see fig. 2) fully clockwise.

### 80, 40 AND 20 METER OPERATION

Close the key and adjust the AMPLIFIER TUNING (see Fig. 2) to resonance as indicated by a pronounced dip in the brilliance of the tuning lamp or current meter reading. (Inserting a 0-500 milliamperere thermocouple R.F. ammeter or a suitable pilot bulb\* in series with the antenna lead is a good indicating device to assure maximum transfer of energy into the antenna, since under certain conditions maximum power output and the resonance dip may deviate slightly. If a pilot bulb is used in the antenna lead, it should be shorted out or removed with transmitting.)

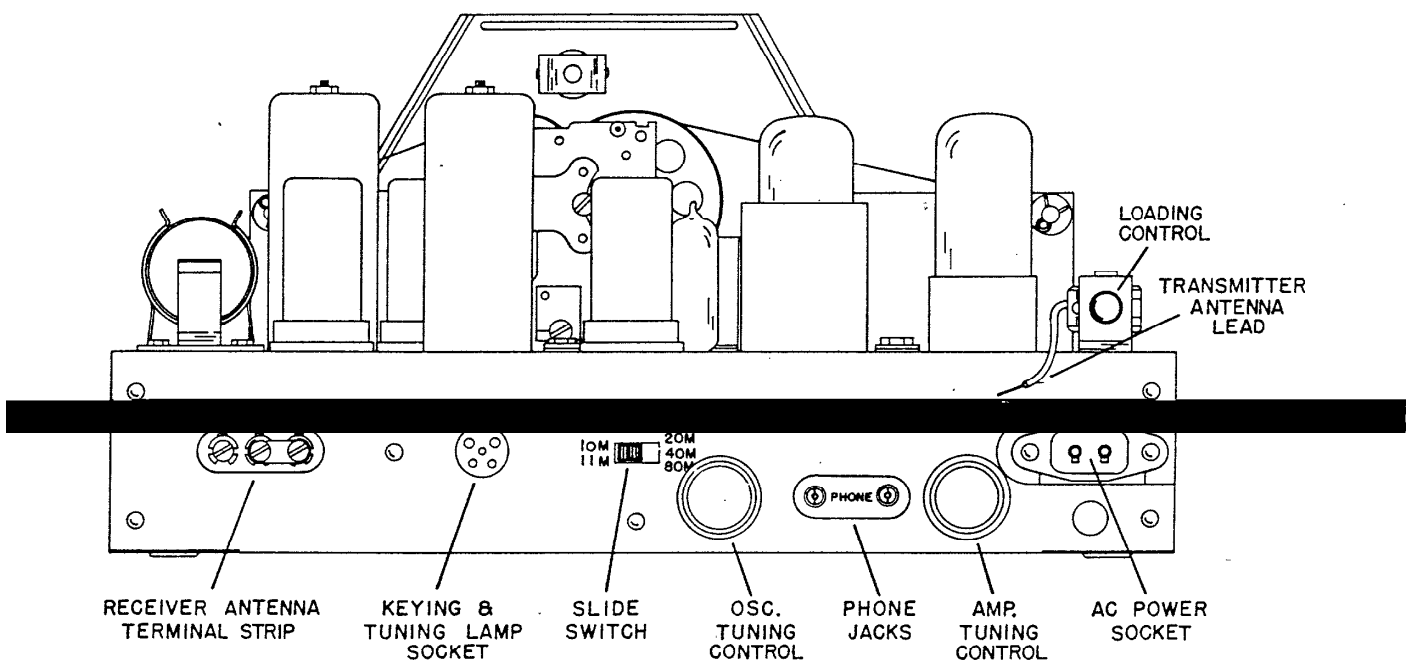
Turn the LOADING control counter-clockwise in small steps, each time adjusting the AMP. TUNING for a minimum indication on the tuning lamp or D.C. meter. It will be noted that as the LOADING control is turned farther clockwise the dip becomes less pronounced. When the transmitter is properly loaded, the minimum of the dip should not go below 40 milliamperes. Maximum transfer of energy into the antenna circuit is indicated by a maximum indication of the pilot bulb or R.F. ammeter in series with the antenna lead.

\* Use any bulb that will give a suitable indication. The current rating, as indicated by the color of the bead, will be determined by the type of antenna and frequency used. For pilot bulb data, refer to the "Miscellaneous Data" section in the ARRL "RADIO AMATEURS HANDBOOK".

10 AND 11 METER OPERATION

Adjust the OSC. TUNING control (see fig. 2) for resonance as indicated by minimum brilliance of the tuning lamp or minimum current on the D.C. milliammeter if one is used.

Proceed as outlined above for 80, 40, and 20 METER OPERATION.



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FIG. 2. REAR VIEW, CONTROLS AND CONNECTIONS

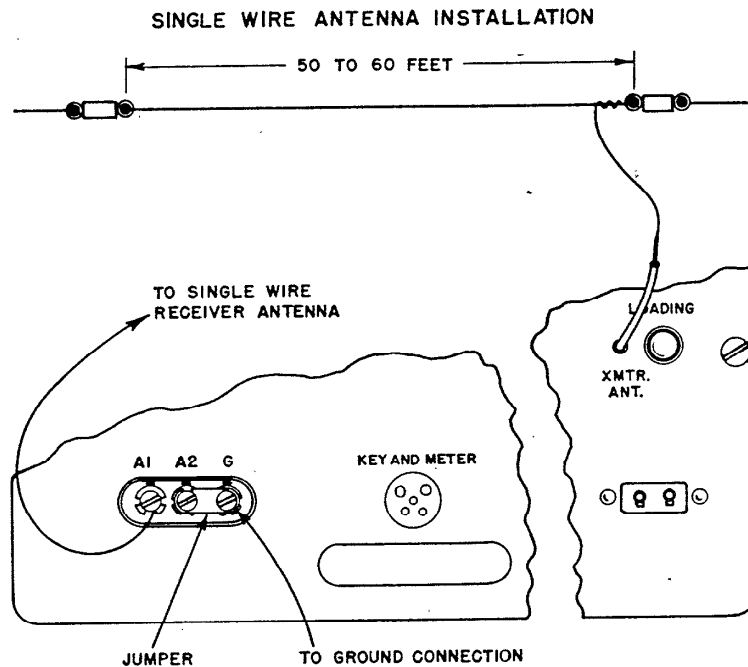
"The Hallicrafters Co. reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate these revisions in earlier models."

## TRANSMITTING ANTENNA

The transmitting antenna may be in the form of a single wire installation or half-wave doublet. It is recommended that the doublet be used when transmitting on the higher frequency bands. Antenna heights between 35 to 70 feet are usually suitable for all bands. Keep the antenna clear of surrounding objects insofar as possible. For further information concerning antennas refer to the "ARRL ANTENNA HANDBOOK".

### SINGLE WIRE ANTENNA

If a single wire antenna is to be used, the overall length (including lead-in), should be between 50 and 60 feet. It is then connected to the phenolic covered antenna lead located at the rear of the set. For details of construction see fig. 3.



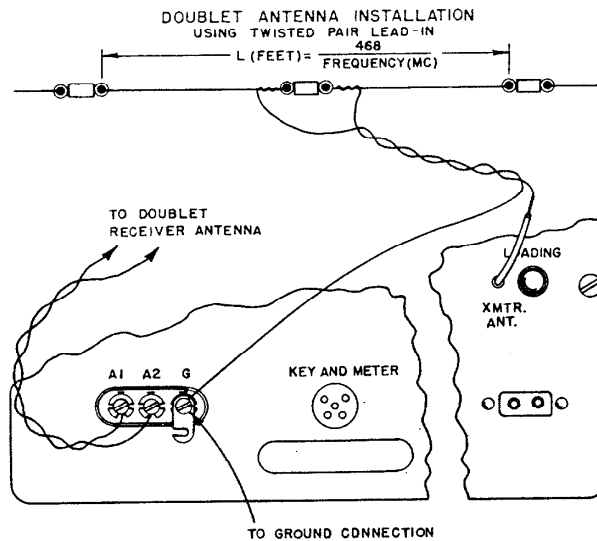
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FIG. 3. SINGLE WIRE ANTENNA CONSTRUCTION DETAILS AND CONNECTIONS

### DOUBLET ANTENNA

The construction of the half-wave doublet antenna is as shown in fig. 4. The antenna length (feet) is determined by dividing the constant 468 by the operating frequency in megacycles. No. 12 or No. 14 enameled wire is generally used for the antenna.

Since the impedance at the center of a doublet antenna is approximately 75 ohms it should be fed with a 75-ohm Twin-Lead, twisted pair, or coaxial transmission line. The transmission line should be run away at right angles to the antenna if possible, one conductor being connected to the lead at the rear of the set and the other to terminal "G" on terminal strip TS-1. If a coaxial line is used, connect the outer conductor to terminal "G".



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FIG. 4. DOUBLET ANTENNA CONSTRUCTION DETAILS AND CONNECTIONS

## RECEIVING ANTENNAS

A short single wire antenna (15 to 20 feet including lead-in) is recommended for general CW reception. A full size antenna of either of the types illustrated for transmitting may be used for receiving modulated or weak code signals. CAUTION: The same antenna should never be connected to the transmitter and receiver simultaneously. Also, the transmitting and receiving antennas should be located as far apart as possible.

For further information concerning antennas refer to the "ARRL ANTENNA HANDBOOK".

If special problems such as BCL or TVI are present because of your particular location, consult your HALLICRAFTERS dealer or authorized service center.

## SERVICE

### RESTRINGING DIAL CORD

To restring the main tuning dial cord cut a 17-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 13½-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 one and a fraction turns of dial cord for proper traction.

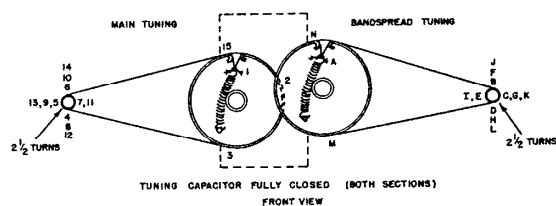


FIG. 5. DIAL CABLE STRINGING PROCEDURE

### TUBE REPLACEMENT

The types of tubes required and their relative position in the receiver are shown in the illustration, Fig. 8. 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. A slightly different technique must be used on the miniature tubes. They have seven small pins which have to be lined up with the socket holes before pushing into place. Handle with care as all tubes are considered fragile and do not tolerate much mechanical abuse.

**DIAL LAMP REPLACEMENT**

Refer to fig. 8 for 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 replacement with 6-8 volt Mazda #47 (brown bead) lamp.

**SERVICE OR OPERATION QUESTIONS**

For further details regarding operation or servicing of the SR-75 contact your dealer. Make no service shipments directly to the factory before first writing for authorization and instructions.

**RECEIVER 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                      RECEIVE/TRANSMIT . . . . Set at RECEIVE  
 SPEAKER/PHONES . . Set at SPEAKER        BAND SPREAD . . . . . Set at zero  
 VOLUME . . . . . Set at maximum

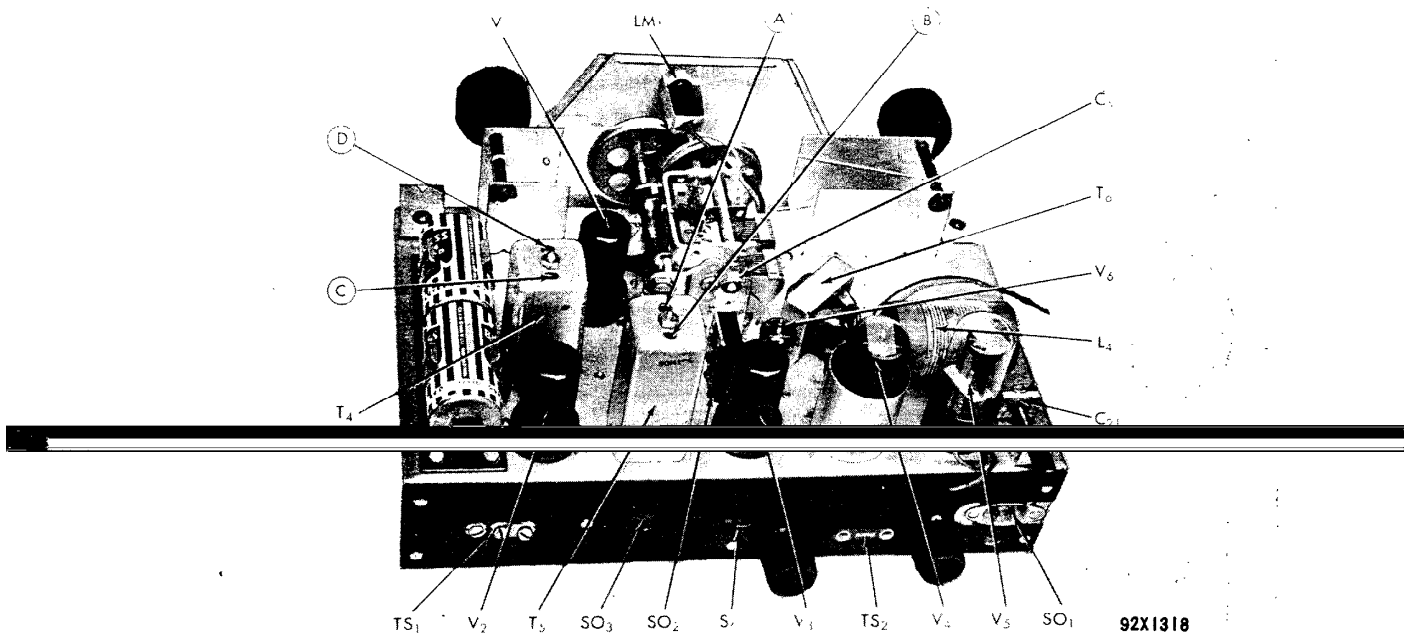
For the settings of the remaining controls, see alignment chart.

**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 suitable output indication.
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.

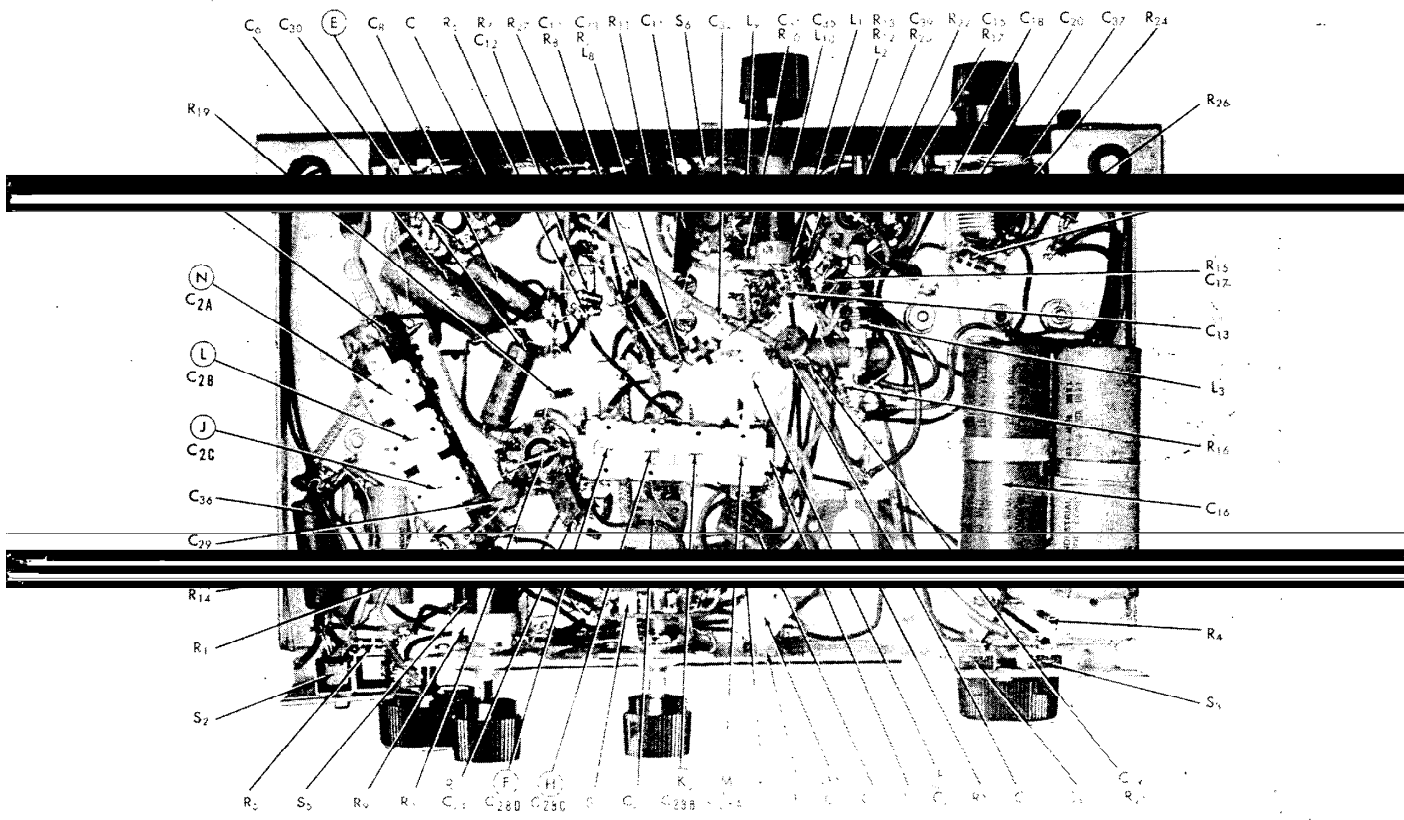
\* Note - Calibration adjustments.

\*\* 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.



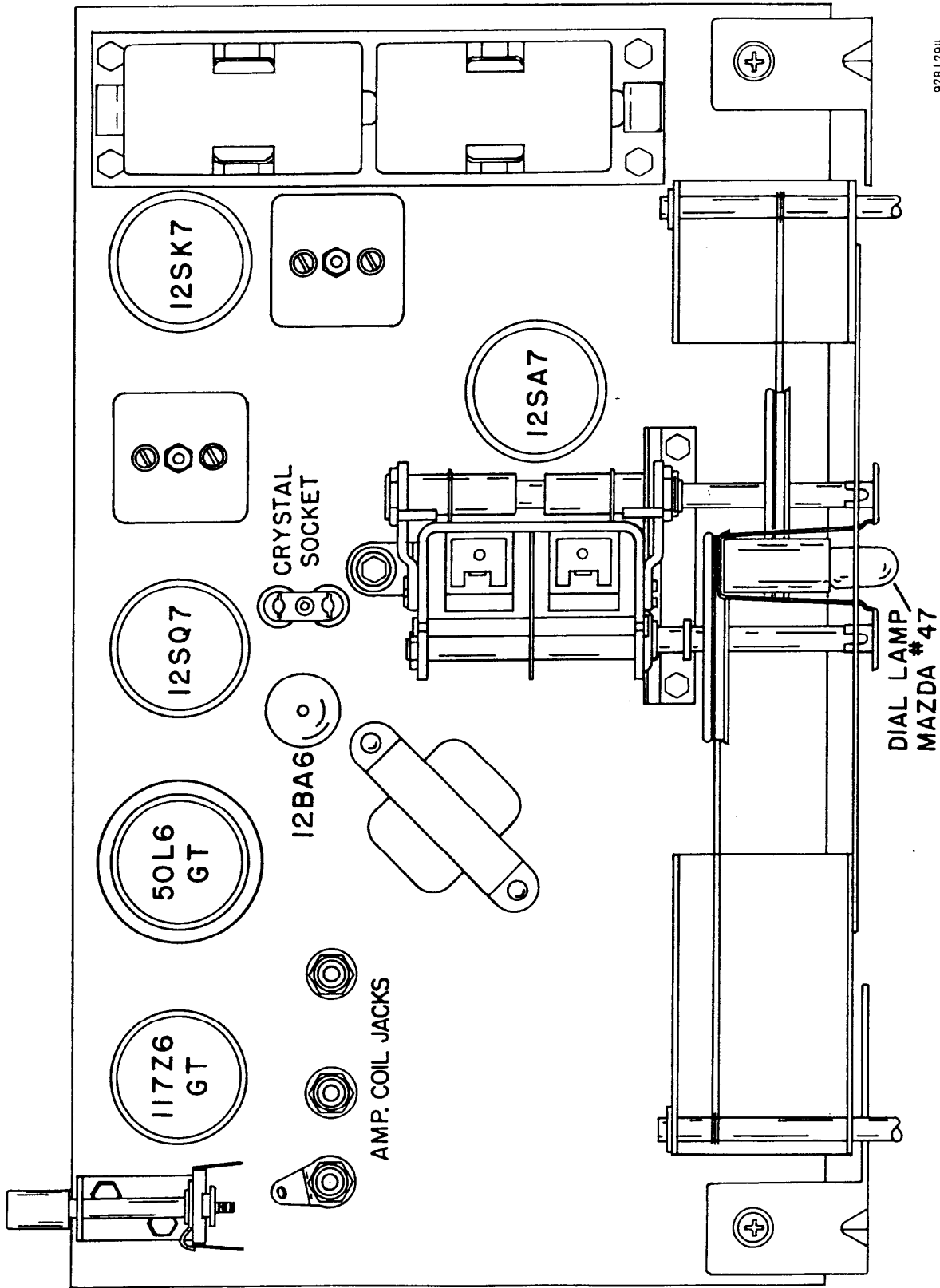
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FIG. 6. TOP VIEW, ALIGNMENT ADJUSTMENTS AND COMPONENT LOCATION



92X1319

FIG. 7. BOTTOM VIEW, ALIGNMENT ADJUSTMENTS AND COMPONENT LOCATION



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FIG. 8. TOP VIEW, LOCATION OF TUBES, DIAL LAMP, CRYSTAL SOCKET AND AMP. COIL JACKS

## SERVICE PARTS LIST

Ref. No.	Description	Manufacturer's Part Number	Ref. No.	Description	Manufacturer's Part Number
<b>CAPACITORS</b>			<b>TRANSFORMERS AND COILS (Cont.)</b>		
C-1,10	.01 mfd. 600 V., tubular	46AZ103J	L-5	Coil, amplifier (20 meters)	51B1292
C-2	Trimmers, adj. (part of T-1)		L-6	Coil, amplifier (40 meters)	51B1293
C-3	Trimmer, adjustable (for T-2)	44A039	L-7	Coil, amplifier (80 meters)	51B1294
C-4	2700 mmf. 500 V., mica	47X30B272K	L-8	Choke, cathode reactor	56A123
C-5	Main tuning and bandspread capacitor assembly	48C162-1	L-10	Coil, variable; OSC. TUNING	51B1295
C-6	.25 mfd. 200 V., tubular	46AT254J	<b>SWITCHES</b>		
C-7,9	Wiring capacity		S-1	Switch, rotary wafer; BAND	60C393
C-8,30	.05 mfd. 200 V., tubular	46AT503J	<b>SELECTOR</b>		
C-11	Capacitor, composite; 5000, 2X220, and 2000 mmf; 500 V., ceramic	46A151	S-2	Switch, slide; 4PDT; TRANSMIT-RECEIVE	60A396-C
C-12	100 mmf. 500 V., mica	47X20B101K	S-3	Switch, slide; SPDT; CW-AM	60A243
C-13	110 mmf. ceramic	47X30UJ111K	S-4	Switch, slide; SPDT; PHONES-SPEAKER	60A243
C-14	30 mfd. 25 V., electrolytic	45A034	S-5	Switch, power (part of VOLUME control R-9)	
C-15,17,31,34,35	5000 mmf. 450 V., ceramic	47A168	S-6	Switch, slide; DPDT (10,11M - 20, 40, 80M)	60A381
C-16	60-40-40 mfd. 150 V., electrolytic	45B091	RY-1	Relay, SPDT	21A116
C-18	1000 mmf. 450 V., ceramic	47A229	<b>PLUGS, SOCKETS AND TERMINAL TRIPS</b>		
C-19	.02 mfd. 600 V., tubular	46AZ203J	PL-1	Line cord and plug PL-2	87B1668
C-20	100 mmf. variable air; AMP. TUNING	48A249-B	PL-3	Plug, keying and tuning lamp	10A197
C-21	LOADING capacitor assembly	44B393	PL-4	Jack assembly, banana type	36A001
C-22	47 mmf. (part of L-5)		TS-1	Terminal strip, receiving antenna	88A671
C-23	120 mmf. (part of L-7)		TS-2	Strip, phone jack	88A071
C-24	220 mmf. 500 V., mica	47X20B221K	SO-1	Socket, dial light	86A011
C-25	Padder, adjustable (Band 1)	44A349	SO-2	Socket, a-c power	10A286
C-26	3000 mmf. 500 V., mica	47X30B302K	SO-3	Socket, keying and tuning lamp	6A246
C-27,37	2200 mmf. 500 V., mica	47X30B222K	<b>Socket, octal (Tubes V-1,2,3,5)</b>		
C-28	Trimmers, adjustable (part of T-3)				6A250
C-29	.02 mfd. 400 V., tubular	46AW203J			
C-32	21 mmf. ceramic				
C-33	50 mmf. ceramic (part of L-8)				
C-38	40 mfd. 300 V., 40 mfd. 150 V., 40 mfd. 150 V.; electrolytic	45B176			
C-39	2X4000 mmf. 450 V., ceramic	47A218			
<b>RESISTORS</b>			<b>TUBES, RECTIFIERS AND LAMPS</b>		
R-1	10,000 ohms 1/2 watt, carbon	23X20X103K	V-1	Type 12SA7, converter	90X12SA7
R-2,6,12	470,000 ohms 1/2 watt, carbon	23X20X474K	V-2	Type 12SK7, I.F. amplifier	90X12SK7
R-3	22,000 ohms 1/2 watt, carbon	23X20X223K	V-3	Type 12SQ7, 2nd detector; AVC	90X12SQ7
R-4	470 ohms 1/2 watt, carbon	23X20X471K	V-4	Type 50L6GT, audio/R.F. amp.	90X50L6GT
R-5	390 ohms 1/2 watt, carbon	23X20X391K	V-5	Type 117Z6GT, rectifier	90X117Z6GT
R-7	2.2 megohms 1/2 watt, carbon	23X20X225K	V-6	Type 12BA6, transmitter oscillator	90X12BA6
R-8	47,000 ohms 1/2 watt, carbon	23X20X473K	LM-1	Lamp, dial; GE #47 (brown bead)	39A004
R-9	2 megohms, VOLUME control	25B914	LM-2	Lamp, tuning; Mazda #49 (pink bead)	39A017
R-10	10 megohms 1/2 watt, carbon	23X20X106K	<b>MISCELLANEOUS</b>		
R-11	220,000 ohms 1/2 watt, carbon	23X20X224K		Baffle, speaker	78B198
R-13	109,000 ohms (part of L-2)			Bracket, switch mtg. (L.H.)	67B1309
R-14	150 ohms 1/2 watt, carbon	23X20X151K		Bracket, switch mtg. (R.H.)	67A1349-B
R-15,18	47 ohms 1/2 watt, carbon	23X20X470K		Cabinet	66B628
R-16	4700 ohms 1/2 watt, carbon	23X20X472K		Cabinet back	8C1183-B
R-17	15 ohms 1/2 watt, carbon	23X20X150K		Cabinet bottom	8C1184
R-19,24	22 ohms 1/2 watt, carbon	23X20X220K		Clip, battery	76A634
R-20	56,000 ohms 1/2 watt, carbon	23X20X563K		Clip, battery mtg.	76A635
R-21	27,000 ohms 1/2 watt, carbon	23X20X273K		Dial cord	38A019
R-22	39 ohms 2 watts, carbon	23X40X390K		Dial scale	83C378
R-23	39 ohms 1/2 watt, carbon	23X20X390K		Knob, TUNING and BANDSPREAD	15A047
R-25	47,000 ohms 1 watt, carbon	23X30X473K		Knob, VOLUME, BAND SELECTOR and AMP. TUNING	15A049
R-26	1200 ohms 1/2 watt, carbon	23X20X122K		Knob, OSC. TUNING	15A058
R-27	100 ohms 1/2 watt, carbon	23X20X101K		Mounting foot, rubber	16A007
<b>TRANSFORMERS AND COILS</b>				Pointer, bandspread	82A103
T-1	Coil, antenna (Bands 1, 2 and 3)	51C821		Pointer, main tuning	82A177
T-2	Coil, antenna (Band 4)	51B1015		Retainer, spring	75A062
T-3	Coil, oscillator (Bands, 1, 2, 3 and 4)	51C822		Shaft, bandspread	74A319
T-4	Transformer, 1st I-F	50B183		Shaft, main tuning	74A318
T-5	Transformer, I.F. (Diode)	50B184		Shell, plug (part of PL-3)	10A052
T-6	Transformer, audio output	55A127		Spring, dial cord	75A012
L-1,9	Choke, plate and grid	53A205		Speaker, 5 inch PM	85C030
L-2	Choke parasitic	53A206		Strip, battery mounting	8B1181
L-3	Choke, R.F.	53A038		Window, dial	22B311
L-4	Coil, amplifier (10 and 11 meters)	51B1291		Wrench, Allen #6	33-035
				Grommet, insulating; rubber	16A008
				Insulator, nylon (#fits in insulating grommet)	4A647
				Washer, insulating	4A646



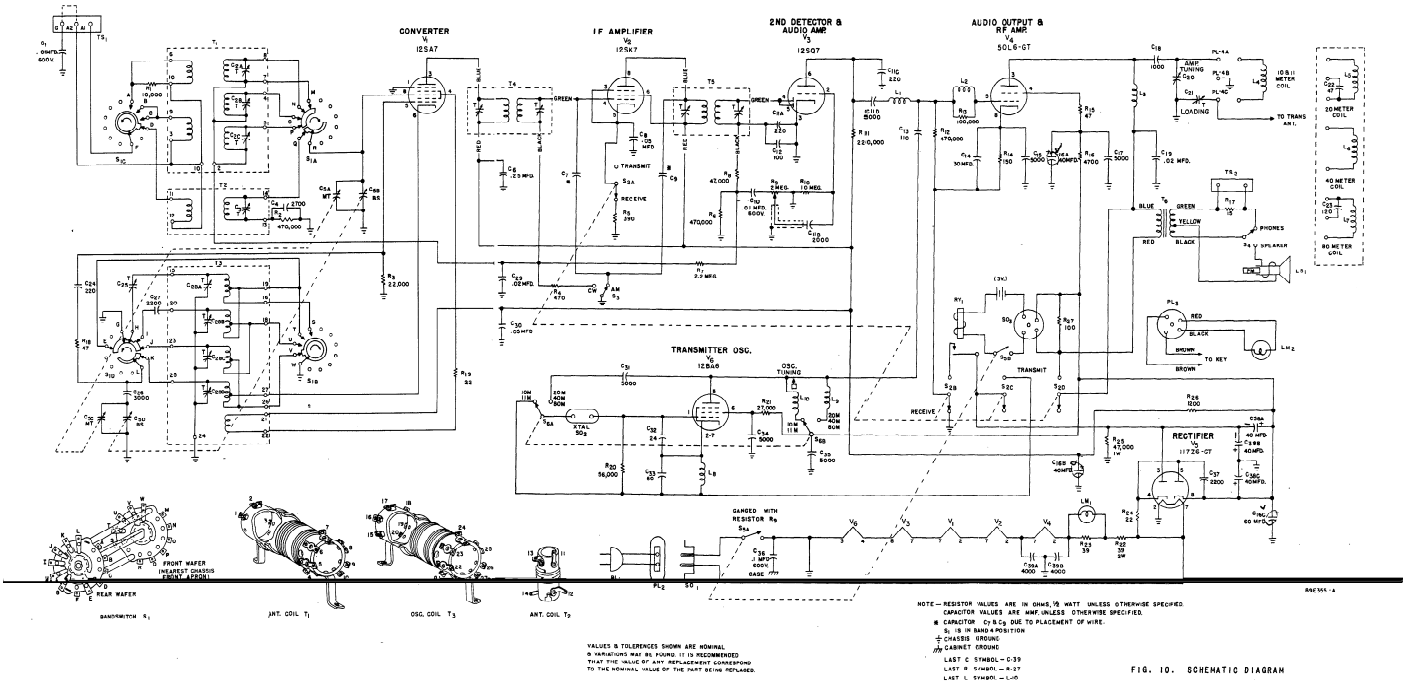


FIG. 10. SCHEMATIC DIAGRAM