Hallicrafters, Inc.

	Model: 5R10	**Chassis:**	**Year:** Pre 1952
	Power:	**Circuit:**	**IF:**
	Tubes:		
	Bands:		

Resources
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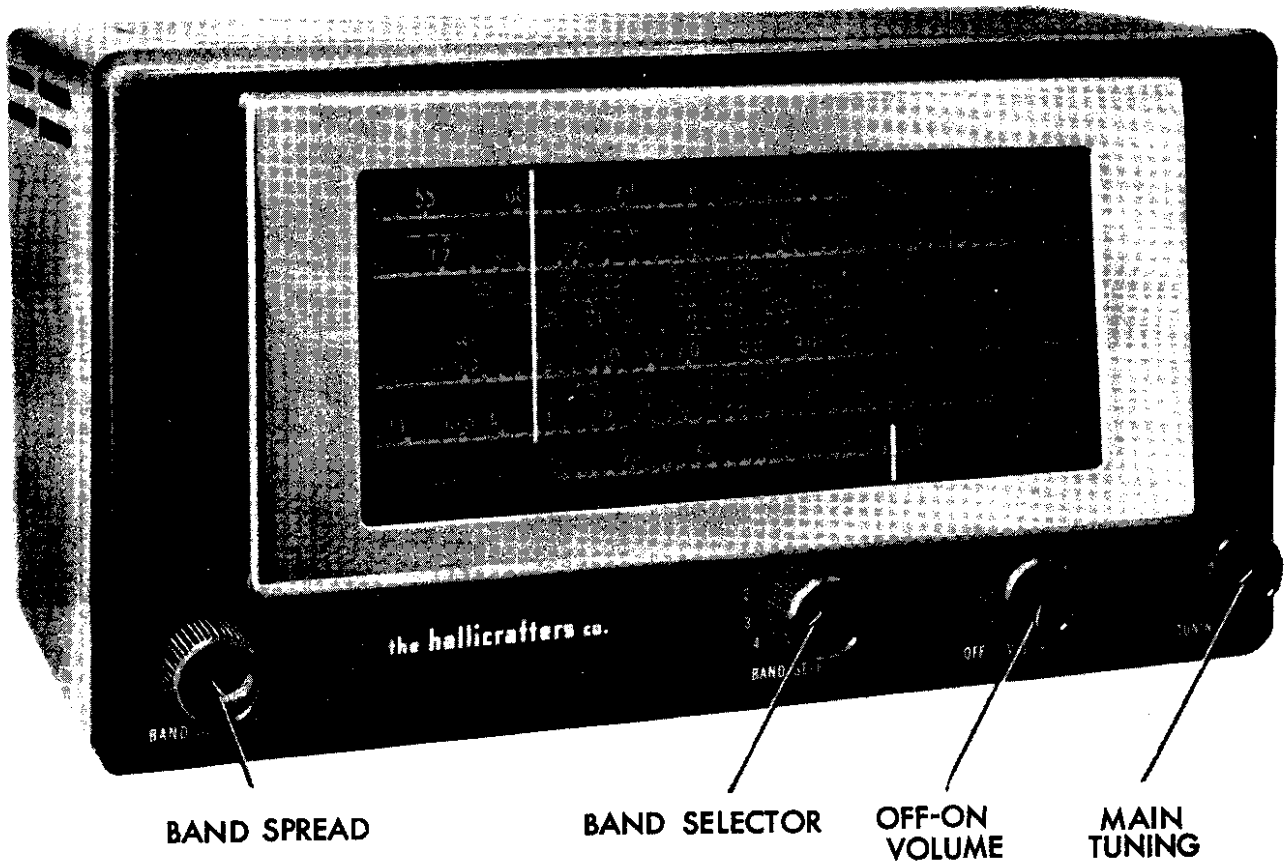


FIG. 1. RADIO RECEIVER MODEL 5R10

INSTALLATION

LOCATION - The receiver is equipped with rubber feet for table top or shelf mounting. When locating and mounting the receiver, avoid excessively warm locations such as those found near radiators and hot air registers or recessed installations which prevent proper 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 DC (direct current) or 60 cycles AC (alternating current) source. The normal power consumption of the receiver is 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 minute warm-up period when operating on a DC source, it may be necessary to reverse the power plug at the wall outlet.

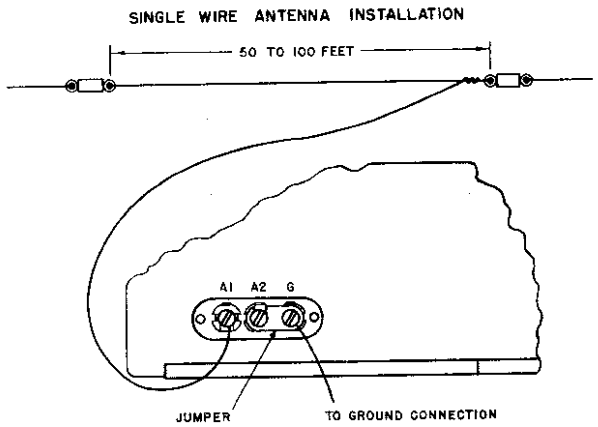
Operation from a 210-250 volt AC/DC source is possible by using a special line cord adapter available as an accessory. Consult your Hallicrafters dealer regarding this adapter unit (Hallicrafters part number 87D1566) if 210-250 volt operation is desired.

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 good ground connection, when used, is connected to terminal "G".

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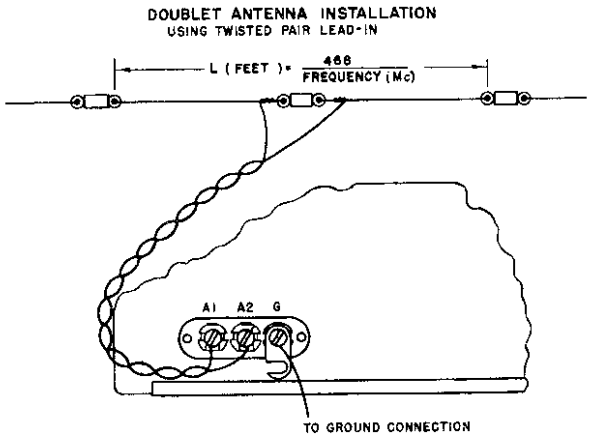
MODEL 5R10



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FIG. 2. SINGLE WIRE ANTENNA INSTALLATION

SINGLE WIRE ANTENNA - For a single wire antenna installation, connect a jumper 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 of surrounding objects as possible. For improved reception, it may be desirable to connect a ground wire between terminal "G" and a suitable ground such as a water pipe or outside ground stake.



92C1332-2

FIG. 3. DOUBLET ANTENNA INSTALLATION

DOUBLET ANTENNA - The doublet antenna is recommended for the high frequency bands, especially where a maximum signal to noise ratio is required over a relatively narrow range of frequencies. The antenna transmission line 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 a jumper 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.

OPERATION

STANDARD BROADCAST RECEPTION - For standard broadcast reception set the BAND SELECTOR switch to position "1", the SPEAKER/PHONES switch to "SPEAKER" and the BAND SPREAD dial pointer to "0". Note that the main tuning dial calibration will be true only when the bandspread dial pointer is set at zero. Turn on the receiver with the VOLUME control by turning it clockwise beyond the point of switch action. Adjust the TUNING and VOLUME controls in the usual manner, tuning carefully for the clearest reception. When operating the receiver from a DC source allow about a minute for warm-up. If the receiver doesn't respond after this 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 fully counter-clockwise beyond the point of switch action.

SHORT-WAVE RECEPTION - Reception in the short-wave bands is accomplished as described above for standard broadcast reception except that the BAND SELECTOR is set for bands 2, 3, or 4. The frequency of reception is read from the dial scale which corresponds to the setting of the BAND SELECTOR. Any narrow range of frequencies covered by the receiver may be spread out by tuning the stations with the BAND SPREAD control as explained below.

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BAND SPREAD TUNING - To use the band spread dial, set the bandspread 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 and tune in the stations with the BAND SPREAD control.

IMPORTANT - The calibrations on the main tuning dial scale are correct only when the BAND SPREAD dial pointer is set at "0".

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

SERVICE

GENERAL SPECIFICATION

Tubes	Four plus rectifier
Speaker	5-inch PM
Voice coil impedance	3.2 ohms
Headset output	High impedance (1500 to 5000 ohms)
Antenna	Provisions for external antenna with transmission line or single wire feed.
Intermediate frequency	455 KC
Power Supply	105-125 volts DC or 60 cycles AC
Power Consumption	30 watts
Tuning	Manual

TUNING RANGE

Band Selector Position	Frequency Range
1	540 KC - 1650 KC
2	1.65 MC - 5.1 MC
3	5 MC - 14.5 MC
4	13 MC - 31 MC

RESTRINGING DIAL CORD

MAIN TUNING DIAL POINTER DRIVE

Restring the main tuning dial pointer drive with a 39-inch length of 30 lb. test dial cord. Set the main tuning capacitor in a fully closed position. Tie one end of the cord to the tension spring at position "A" and follow the stringing procedure "A" through "I" as illustrated in Fig. 4. At position "I", stretch the tension spring and tie the cord securely. Note that three and a quarter turns of dial cord are wrapped around the main tuning drive shaft for proper traction.

Index the main tuning dial pointer by setting the main tuning gang at maximum capacity (fully closed) and aligning the dial pointer with the left hand dial index marker.

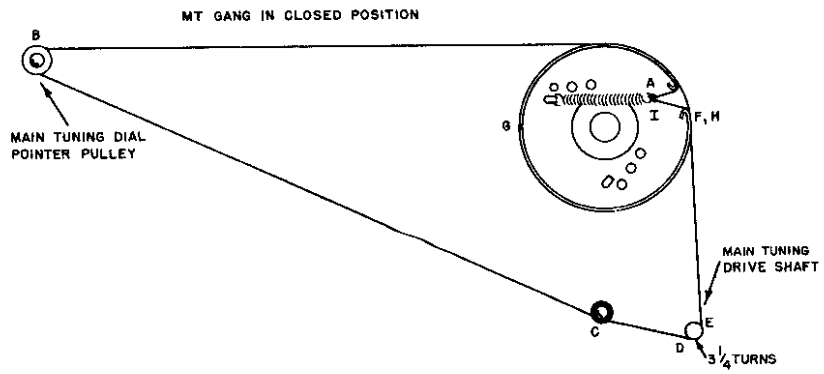


FIG. 4. MAIN TUNING DIAL POINTER DRIVE STRINGING PROCEDURE 9281329

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MAIN TUNING GANG DRIVE

Restring the main tuning capacitor drive with a 30-inch length of 30 lb. test dial cord. Set the main tuning capacitor in a fully open position. Tie one end of the cord to the tie point at position "1" and follow the stringing sequence "1" through"14" as shown in Fig. 5. At position "14", stretch the tension spring and tie the cord securely to the spring.

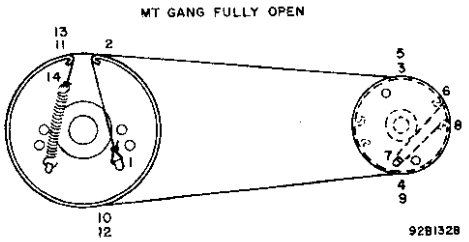


FIG. 5. MAIN TUNING GANG DRIVE STRINGING PROCEDURE

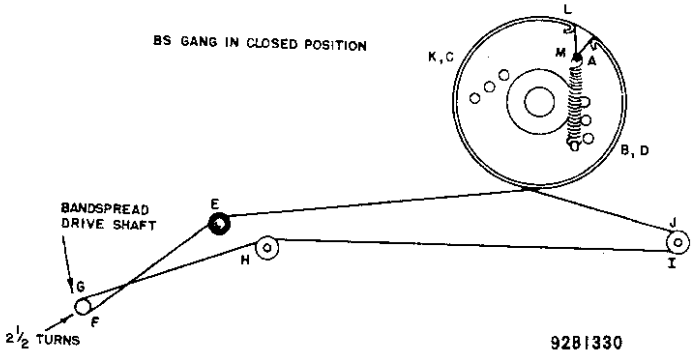


FIG. 6. BAND SPREAD GANG AND DIAL POINTER DRIVE STRINGING PROCEDURE

BAND SPREAD GANG AND POINTER DRIVE

Restring the band spread gang and pointer drive with a 44-inch length of 30 lb. test dial cord. Set the band spread capacitor in a fully closed position. Tie one end of the cord to the tension spring at position "A" and follow the sequence outlined in Fig. 6. At position "M", stretch the tension spring and tie the cord securely.

Index the band spread dial pointer by setting the band spread gang at maximum capacity and aligning the pointer with the position marked "100" on the band spread dial.

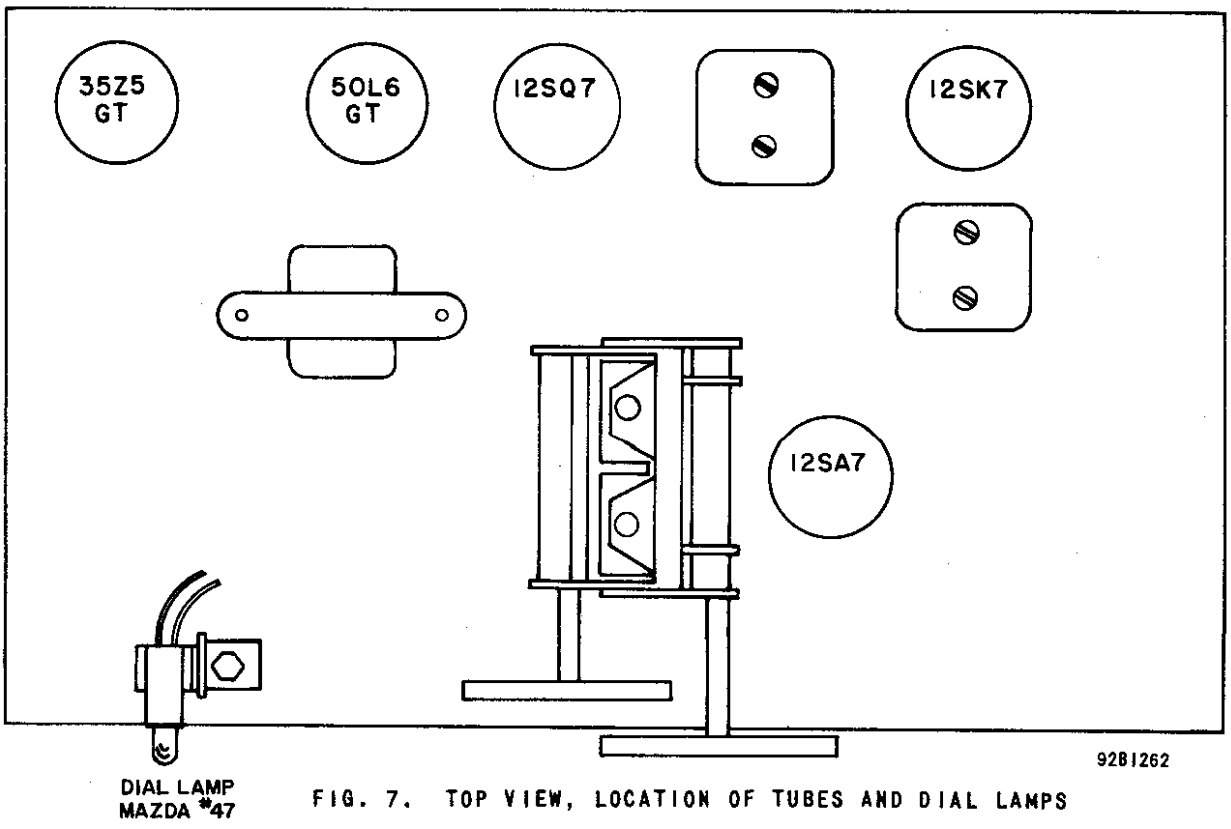


FIG. 7. TOP VIEW, LOCATION OF TUBES AND DIAL LAMPS

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TUBE REPLACEMENT

The tube types and their relative position in the receiver are shown in the illustration, Fig. 7. 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 then push down until 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. 7. for the location of the dial lamp used in the receiver. To replace a defective lamp, remove the cabinet back, reach in through the rear of the cabinet and unclip the dial lamp socket from the mounting clip. The socket may then be brought out into the open for dial lamp replacement. Make replacement with 6-8 volt Mazda #47 (brown bead) lamps or equivalent.

ALIGNMENT PROCEDURE

Holes in the bottom cover permit minor adjustment of the oscillator and converter stage trimmers; however for complete alignment, the chassis will have to be removed from the cabinet. To separate the chassis from the cabinet, first remove the cabinet back, the bottom cover which is held in place by the four mounting feet, and the front control knobs. Next, remove the speaker from the cabinet. The chassis is fastened to the cabinet by four Phillips head screws located at the bottom of the cabinet.

CAUTION - The rubber grommets, fiber washers and nylon insulators are used to insulate the chassis from the cabinet. Check the condition of these insulators and replace them if necessary.

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

Before starting alignment, set the SPEAKER/PHONES switch at SPEAKER, the VOLUME control fully clockwise and the BAND SPREAD control to zero. For the settings of the remaining controls, see the 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	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.
3	Std. RMA dummy	See step 2.	14 mc	3	14 mc	H,J	Max. output as in step 1.
4	Std. RMA dummy	See step 2.	5 mc	2	5 mc	K,L	Max. output as in step 1.
5	Std. RMA dummy	See step 2.	1500 kc 600 kc	1	1500 kc 600 kc	M,N P	Max. output as in step 1.

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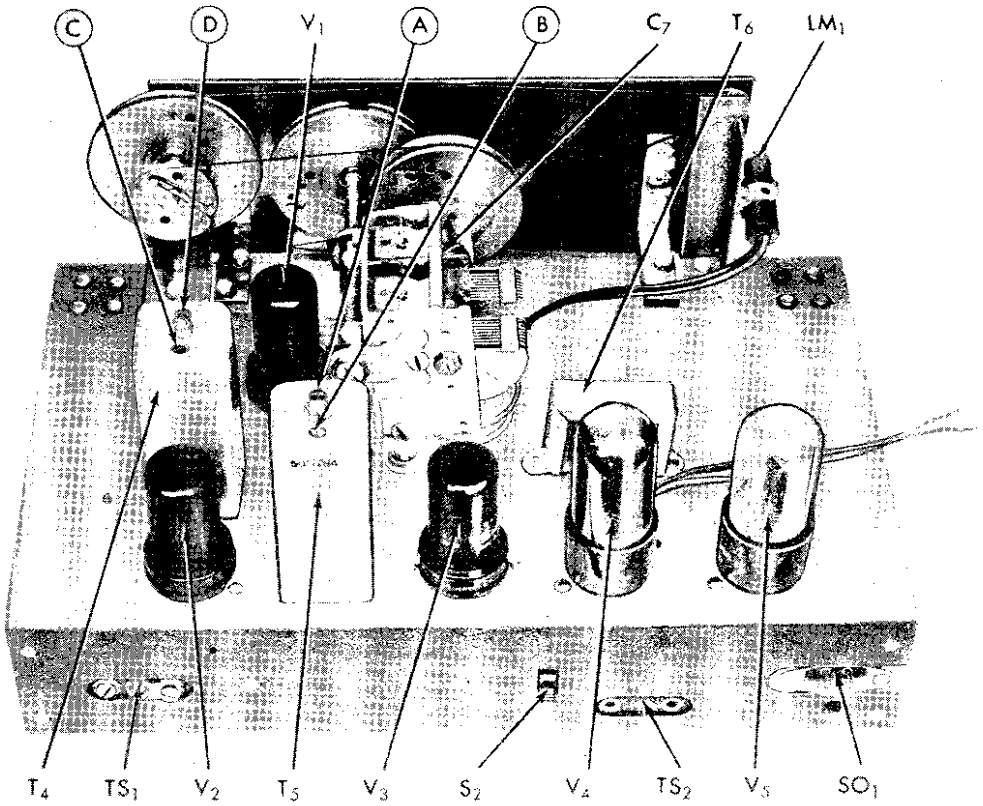


FIG. 8. TOP VIEW, ALIGNMENT POINTS AND COMPONENT LOCATIONS

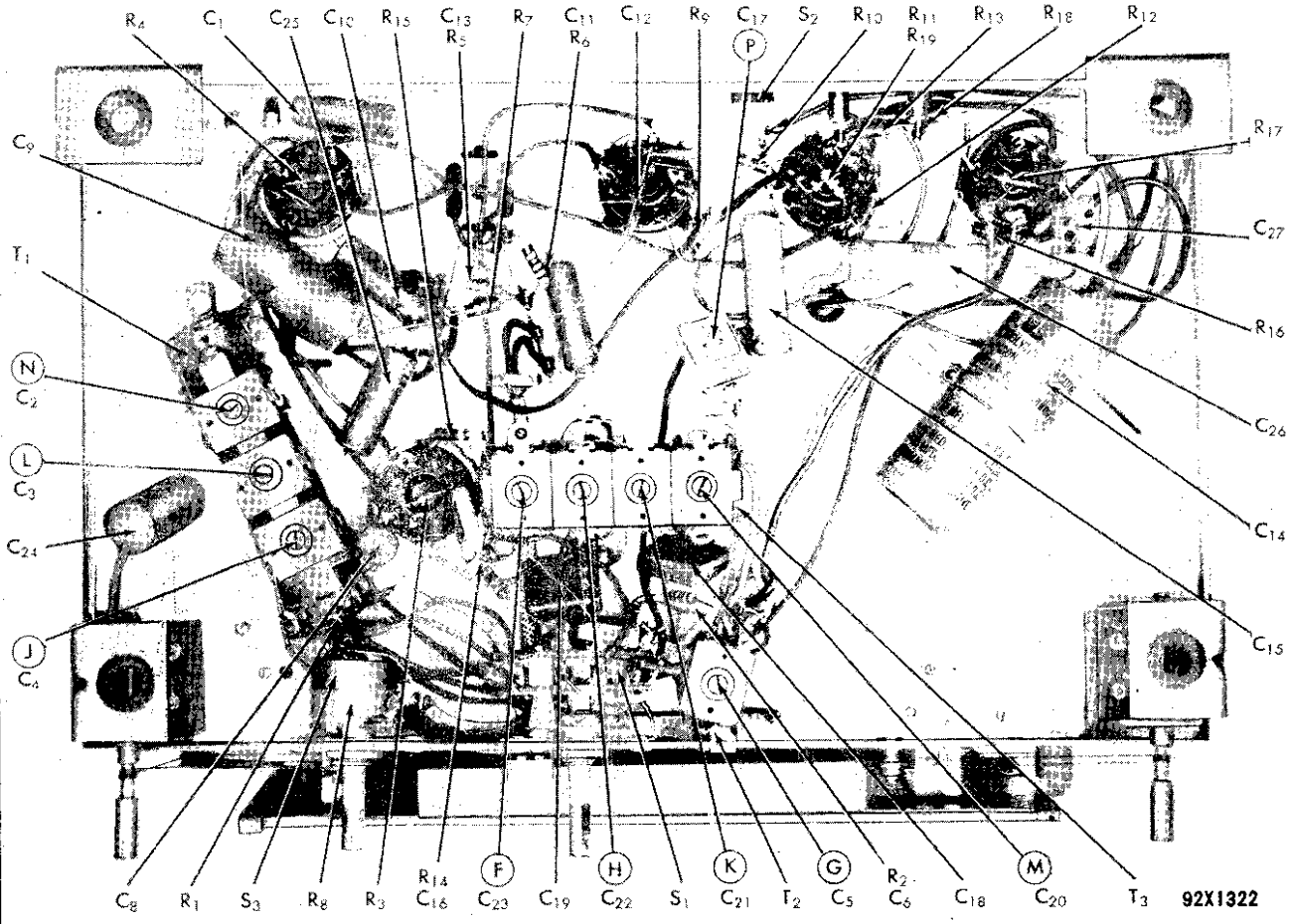
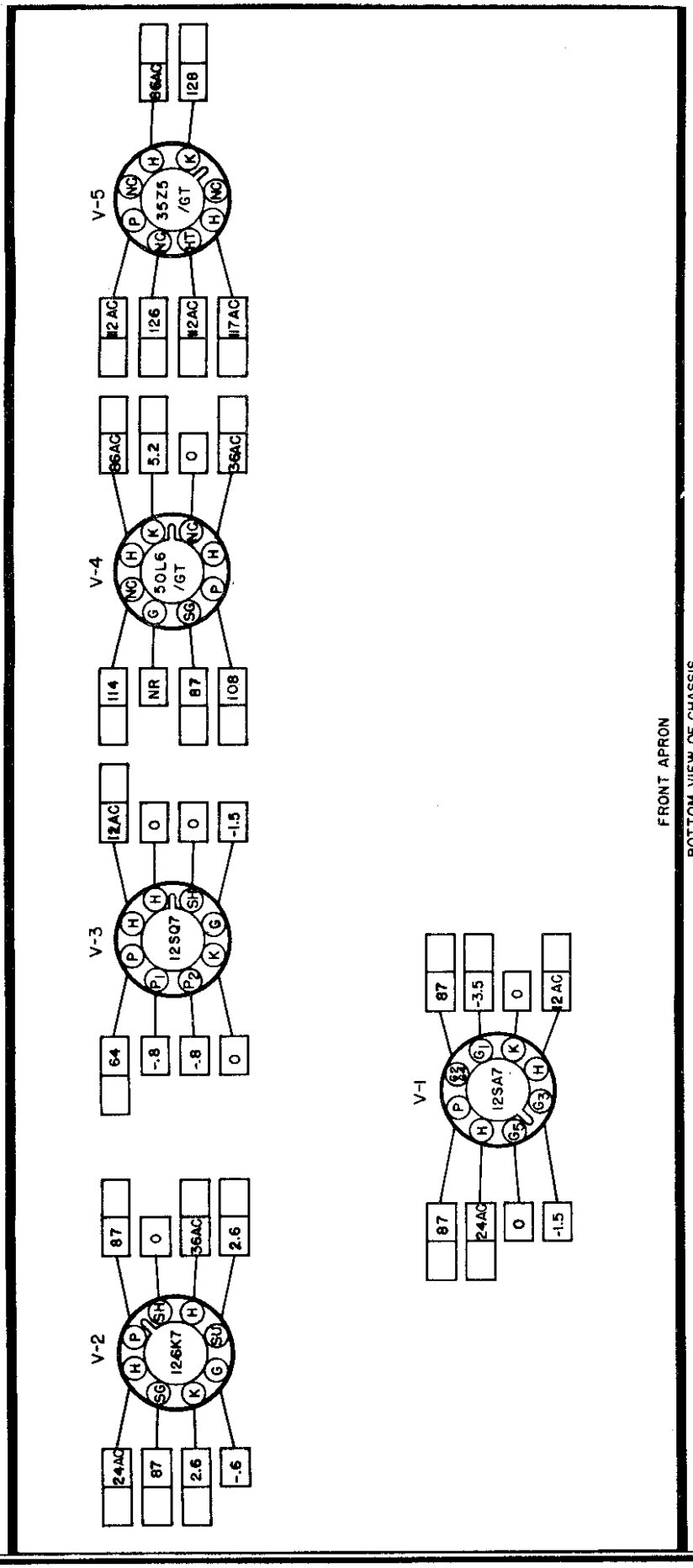


FIG. 9. BOTTOM VIEW, ALIGNMENT POINTS AND COMPONENT LOCATIONS

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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 A VACUUM TUBE 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.
9. BAND SELECTOR SWITCH AT BAND "4" POSITION.

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FIG. 10. TUBE SOCKET VOLTAGE CHART

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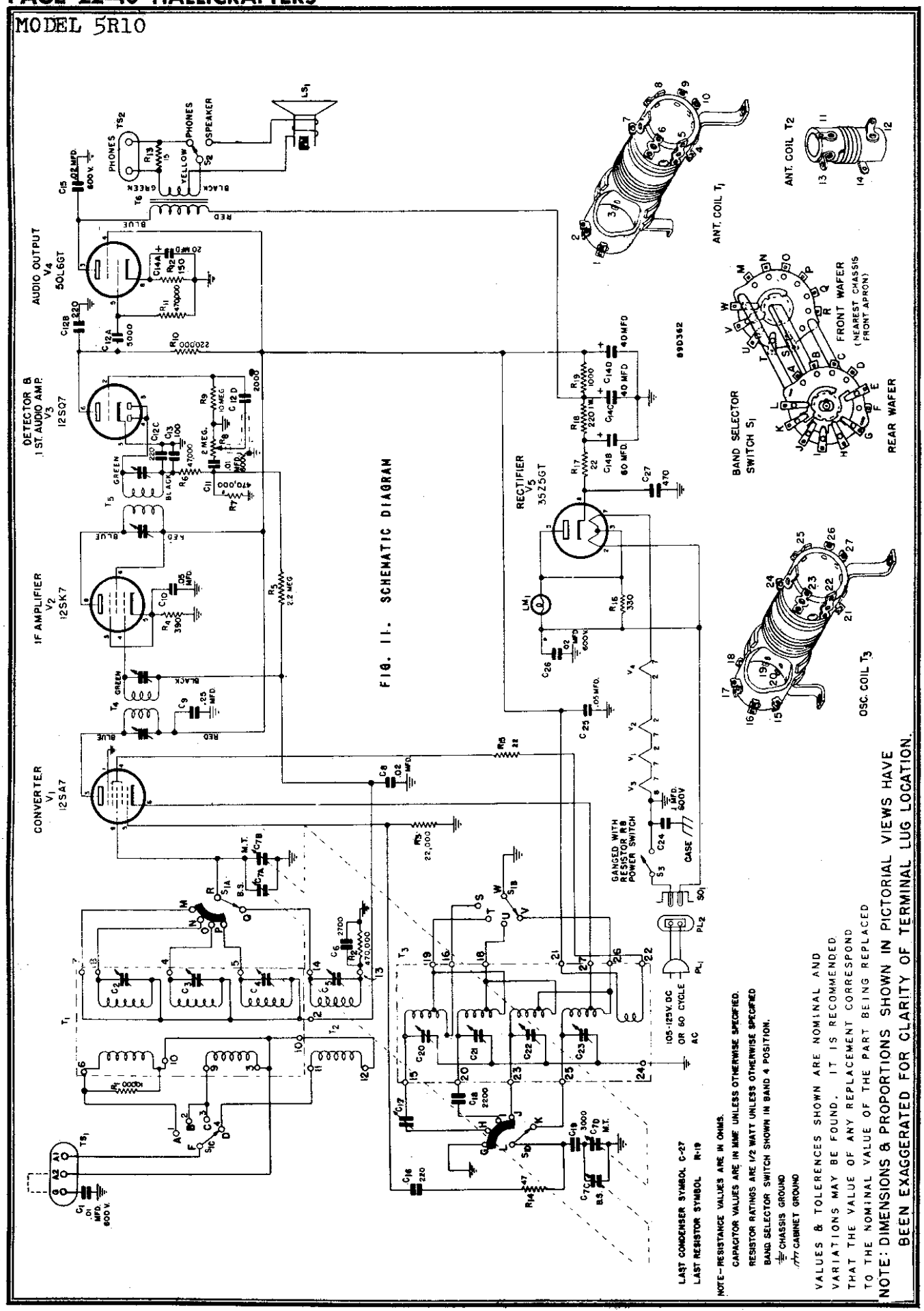


FIG. 11. SCHEMATIC DIAGRAM

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

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

CHASSIS GROUND

CABINET GROUND

BAND SELECTOR SWITCH SHOWN IN BAND 4 POSITION.

RESISTOR RATINGS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED

CAPACITOR VALUES ARE IN MMF. UNLESS OTHERWISE SPECIFIED.

NOTE-RESISTANCE VALUES ARE IN OHMS.

LAST RESISTOR SYMBOL R-19

LAST CONDENSER SYMBOL C-27

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SERVICE PARTS LIST

Ref. No.	Description	Manufacturer's Part Number
	CAPACITORS	
C-1,11	.01 mfd. 600 V., tubular paper	46AZ103J
C-2,3,4	Trimmer, adj. (part of antenna coil T-1)	
C-5	Trimmer, adj. (for antenna coil T-2)	44A039
C-6	2700 mmf. 500 V., mica	47X30B272J
C-7	Tuning capacitor, 2 section	48C246-B
C-8	.02 mfd. 400 V., tubular paper	46AW203J
C-9	.25 mfd. 200 V., tubular paper	46AT254J
C-10,25	.05 mfd. 200 V., tubular paper	46AU503J
C-12	Capacitor, composite: 5000, 2X220, and 2000 mmf. 500 V.; ceramic	46A151
C-13	100 mmf. 500 V., mica	47X20B101K
C-14	60-40-40 mfd. 150 V., 20 mfd. 25 V., electrolytic	45B091
C-15,26	.02 mfd. 600 V., tubular paper	46AY203J
C-16	220 mmf. 500 V., mica	47X20B221K
C-17	Padder, adj. (for oscillator coil T-3, band 1)	44A349
C-18	2200 mmf. 500 V., mica	47X30B222J
C-19	3000 mmf. 500 V., mica	47X30B302J
C-20,21, 22,23	Trimmer, adj. (part of oscillator coil T-3)	
C-24	.1 mfd. 600 V., tubular paper	46AZ104J
C-27	470 mmf. 500 V., mica	47X20B471M
	RESISTORS	
R-1	10,000 ohms 1/2 watt, carbon.	23X20X103M
R-2,7,11	470,000 ohms 1/2 watt, carbon	23X20X474M
R-3	22,000 ohms 1/2 watt, carbon	23X20X223M
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-8	2 megohms; VOLUME control	25B896
R-9	10 megohms 1/2 watt, carbon	23X20X106M
R-10	220,000 ohms 1/2 watt, carbon	23X20X224M
R-12	150 ohms 1/2 watt, carbon	23X20X151K
R-13	15 ohms 1/2 watt, carbon	23X20X150M
R-14	47 ohms 1/2 watt, carbon	23X20X470M
R-15,17	22 ohms 1/2 watt, carbon	23X20X220M
R-16	330 ohms 1/2 watt, carbon	23X20X331M
R-18	220 ohms 1 watt, carbon	23X30X221M
R-19	1000 ohms 1/2 watt, carbon	23X20X102M
	TRANSFORMERS AND COILS	
T-1	Coil, antenna (bands 1, 2 and 3)	51C821
T-2	Coil, antenna (band 4)	51B1015
T-3	Coil, oscillator (all bands)	51C822
T-4	Transformer, 1st i-f	50B183
T-5	Transformer, i-f (detector)	50B184
T-6	Transformer, audio output	55A127
	SWITCHES	
S-1	Bandswitch assembly	60C393
S-2	Switch, slide; SPEAKER-PHONES	60A243
S-3	Switch, power (part of VOLUME control R-8)	
	CONNECTORS	
PL-1	Line cord and plug PL-2	87A1668-1
TS-1	Terminal strip, antenna	88A671
TS-2	Jack, PHONES	88A071
SO-1	Socket, power	10A286
	Socket, dial lamp	86B105
	Socket, octal; tube	6A250
	TUBES, RECTIFIERS AND DIAL LAMPS	
V-1	Type 12SA7, converter	90X12SA7
V-2	Type 12SK7, i-f amplifier	90X12SK7
V-3	Type 12SQ7, detector and 1st audio amplifier	90X12SQ7
V-4	Type 50L6GT, audio output	90X50L6GT
V-5	Type 35Z5GT, rectifier	90X35Z5GT
LM-1	Lamp, dial; Mazda #47	39A004
	CABINET PARTS	
	Baffle, speaker	78B579-B
	Cabinet	66B634-B
	Cabinet back	8C1204-B
	Channel, rubber; 4 inch (for escutcheon glass)	16A211
	Channel, rubber, 3/8 inch (for escutcheon glass)	16A212
	Cover, cabinet bottom	8C1212
	Clip, antenna coil T-2 mtg.	76A326
	Dial background	32B488
	Dial cord	38A019
	Dial scale (glass)	22B318-C
	Escutcheon	7C248
	Foot,mounting; rubber	16A007
	Glass, escutcheon	22B319
	Grommet, rubber; brown	16A015
	Grommet, rubber; red	16A201
	Insulator, nylon (fits in red insulating grommet)	4A647
	Knob, BAND SELECTOR	15B322
	Knob, BANDSPREAD, OFF-VOLUME and TUNING	15B323
	Pointer, bandspread tuning	82A179
	Pointer, main tuning	82A180
	Shield, dial lamp	8A1249
LS-1	Speaker, PM; 5 inch	85C030
	Spring, dial cord	75A012
	Washer, insulating	4A646

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