the hallicrafters co.

JULY, 1949
FORM 94X436
RUN NO. X
SEE CHASSIS STAMP

SERVICE BULLETIN FOR MODEL S-72

GENERAL

Tubes	Eight plus selenium rectifier
Speaker	5-inch PM
Speaker V.C. Impedance	3.2 ohms (100 ohm headset tap)
Headset Output	For 500 to 5000-ohm phones
Antenna	Loop for band 1 Whip for bands 2, 3 and 4 Provisions for connection to an external antenna
Tuning	Manual

Tuning Range

Band Selector Position	Frequency Range
1.	550 kc - 1600 kc
2.	1500 kc - 4.4 mc
3.	4.5 mc - 11.5 mc
4.	11 mc - 30 mc

Intermediate Frequency	455 kc.
Power Supply	105-125 V. DC/60 cycles AC or Battery Pack
Power Consumption	25 Watts

RESTRINGING DIAL CORD

GENERAL COVERAGE DIAL

To restring the general coverage tuning dial drive, cut a 32-inch length of 30 lb. test dial cord and tie one end to the tie-point "1" shown in Fig. 1. Follow the number sequence "1" through "12" and at position "12" stretch the tension spring and tie the cord securely. Note that the string is wrapped around the drive shaft three and a fraction times for proper traction. Close the gang capacitor and attach the pointer so that it is aligned with the index marks on the left side of the dial scales.

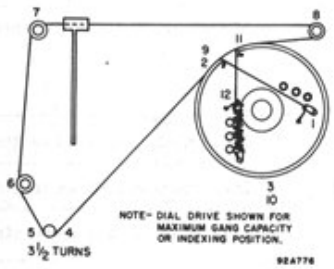


Figure 1. Dial cable stringing procedure, general coverage

BAND SPREAD DIAL

To restring the band spread tuning dial drive, cut a 24-inch length of 30 lb. test dial cord and tie one end to the tension spring in the band spread pulley at position "A" in Figure 2. Turn the pulley counter-clockwise to the stop and string up the drive following the lettered sequence "A" through "E" and at position "E" stretch the tension spring and tie the cord securely.

In cases where the set screw on the band spread pulley has been loosened, set the general coverage dial to the frequency of a signal generator or local short wave station and tune in the signal with the band spread drive shaft. Turn the pulley counter clockwise to the stop, tighten the set screw and attach the band spread pointer and index it at 100 on the band spread dial scale.

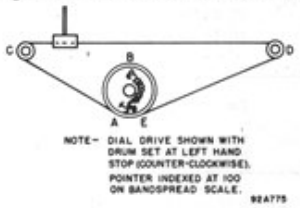


Figure 2. Dial cable stringing procedure, band spread

BATTERY REPLACEMENT

A strip of canvas webbing and a hold down screw are used to keep the battery in the cabinet. To replace the battery, disconnect the battery plug and loosen the hold down screw. Refer to Fig. 3.

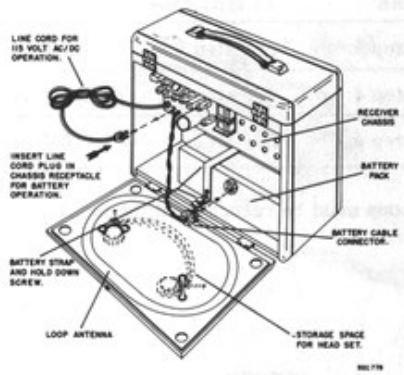


Figure 3. Battery compartment

Suitable replacement packs can be found from the list shown below.

REPLACEMENT BATTERY LIST

Manufacturer	Type No.	Manufacturer	Type No.
BRIGHT STAR	66-50	OLIN	0615 0614
BURGESS	G6M60 F6A60	RAY-O-VAC	AB878 AB994
DELCO	8760	RCA	VS018 VS019
EVERREADY	754 753	SEARS ROEBUCK	67E605
GENERAL	60BF65 60A6F65	USALITE	680
MONTGOMERY WARD	62A35M 62A33	WESTERN WIZARD	60B6F6/5 60A6F6/5
NATIONAL UNION	N808		

NOTE - Only one battery pack of the type listed above is required.

CAUTION - When the receiver is to operate on batteries it is necessary to insert the line cord plug in the chassis receptacle as shown in Fig. 3.

ALIGNMENT PROCEDURE

It will be necessary to remove the receiver chassis from the cabinet to make the I F. alignment adjustments. To do this, first, remove all the knobs from the control panel; next, unfasten the ANL switch and phone jack from the front panel; then, unsolder the antenna connections, two for the loop antenna and one for the whip antenna; last, remove the two screws fastened to the cabinet through the angle brackets mounted on the chassis and lift out of the case.

The primaries of the I.F. transformers are adjusted from the bottom of the chassis and the secondaries are adjusted from the top of the chassis.

Before starting the alignment procedure, check the position of the general coverage dial pointer at the low frequency end of the range. The pointer should index at the maximum capacity of the tuning capacitor.

Set the following controls before alignment.

VOLUME . . . . . Set at maximum

VOICE/CODE . . . . . Set at maximum VOICE

ANL. . . . . Set at OFF

BAND SPREAD . . . . Set at 0

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	A,B,C,D	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 mod.)	"1"	1000 kc	E	With the VOICE/CODE switch set at CODE, adjust E for a 1000 cycle note.
3.	Just before r-f amplifier alignment, run band spread pointer to zero to check operation of the band spread compression trimmer. If the trimmer is fully tight before the pointer reaches zero, loosen the set screw on the drum dial and turn the drive shaft clockwise until the trimmer is fully compressed. Now back off the trimmer one and one-half turns and turn the pulley counter-clockwise until the pointer indicates 100. Now tighten the set screw on the shaft. This check permits the compression trimmer to work over its operating range without binding. Before proceeding to the next step, set the band spread dial at 0						
4.	10 mmf from ext. antenna lead to chassis.	Couple the generator to the ext. ant. lead thru a 15 mmf capacitor	30 mc	"4"	30 mc	F,G,H	Maximum output as in step 1.
5.	See step 4.	See step 4.	11.5 mc	"3"	11.5 mc	I,J,K	Maximum output as in step 1.
6.	See step 4.	See step 4.	4.4 mc	"2"	4.4 mc	L,M,N	Maximum output as in step 1.
*7.	See step 4.	See step 4.	1500 kc	"1"	1500 kc	O,P,Q	Maximum output as in step 1.

*NOTE - Loop must be reconnected for this step.

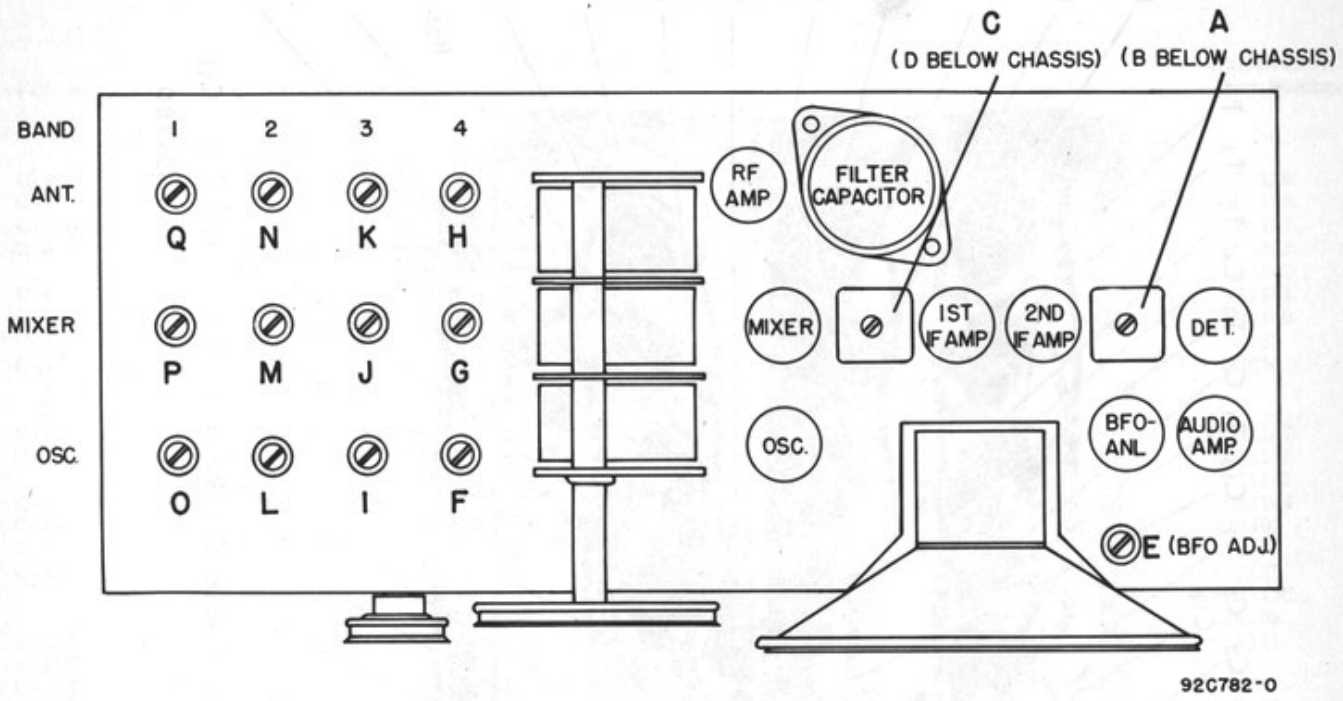


Figure 4. Alignment points

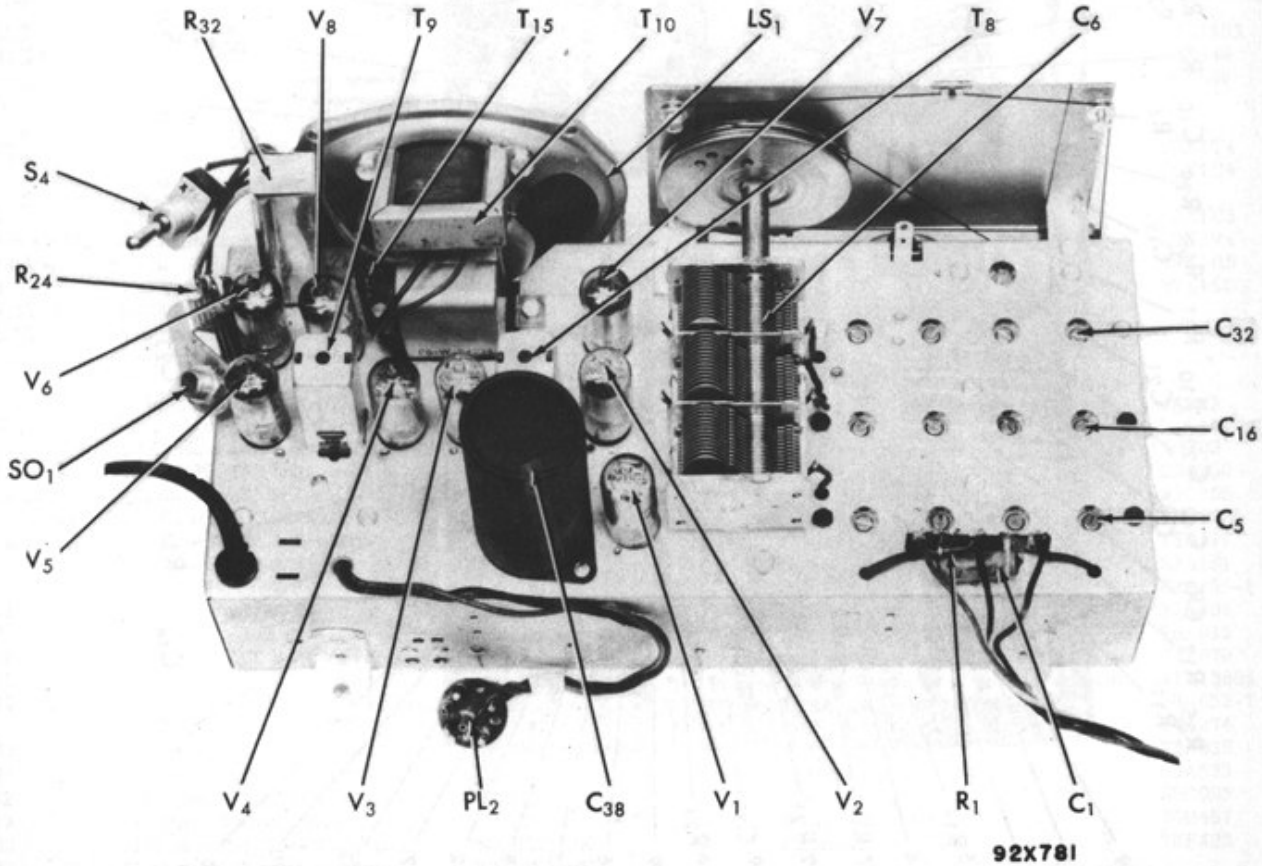


Figure 5. Top view, component location

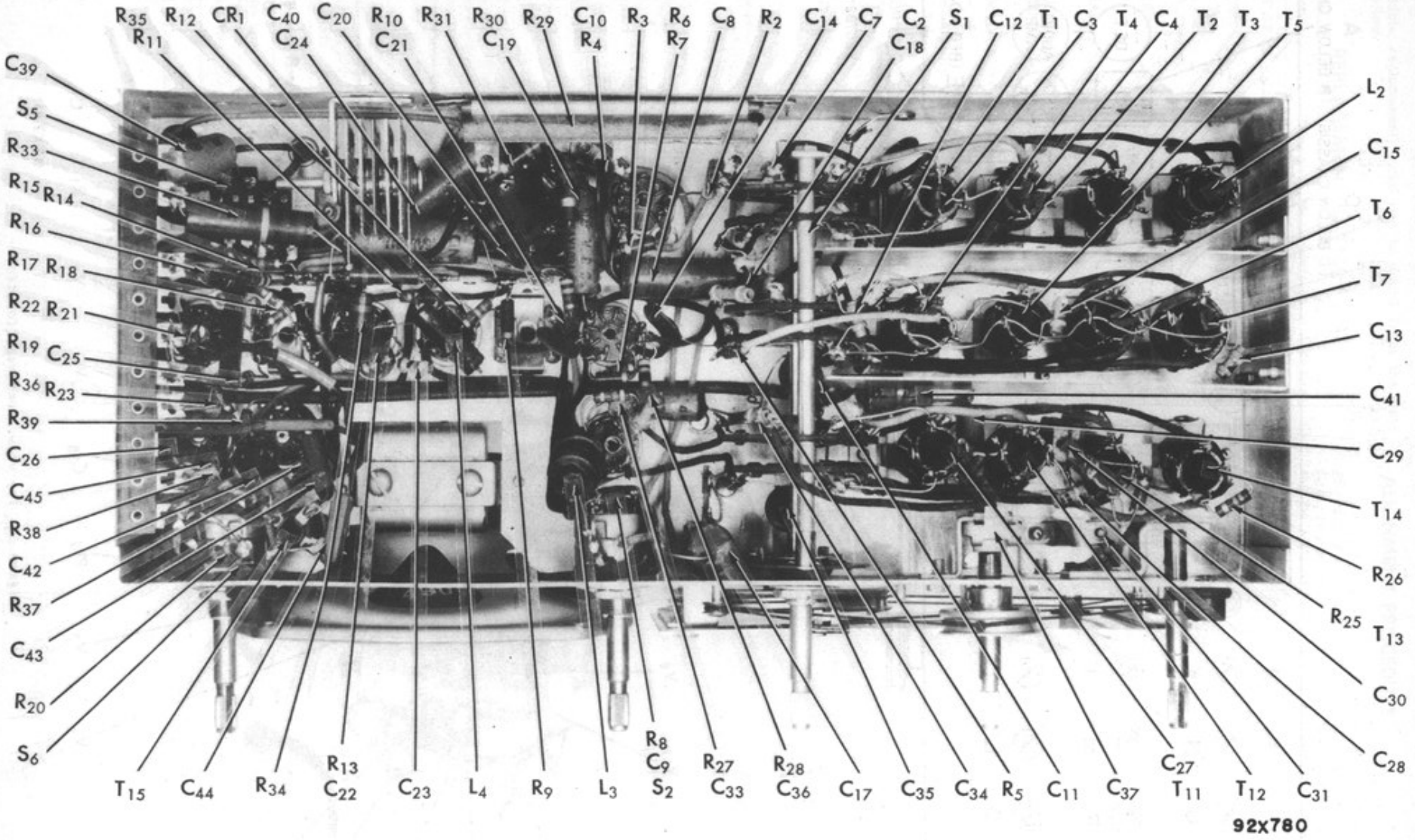
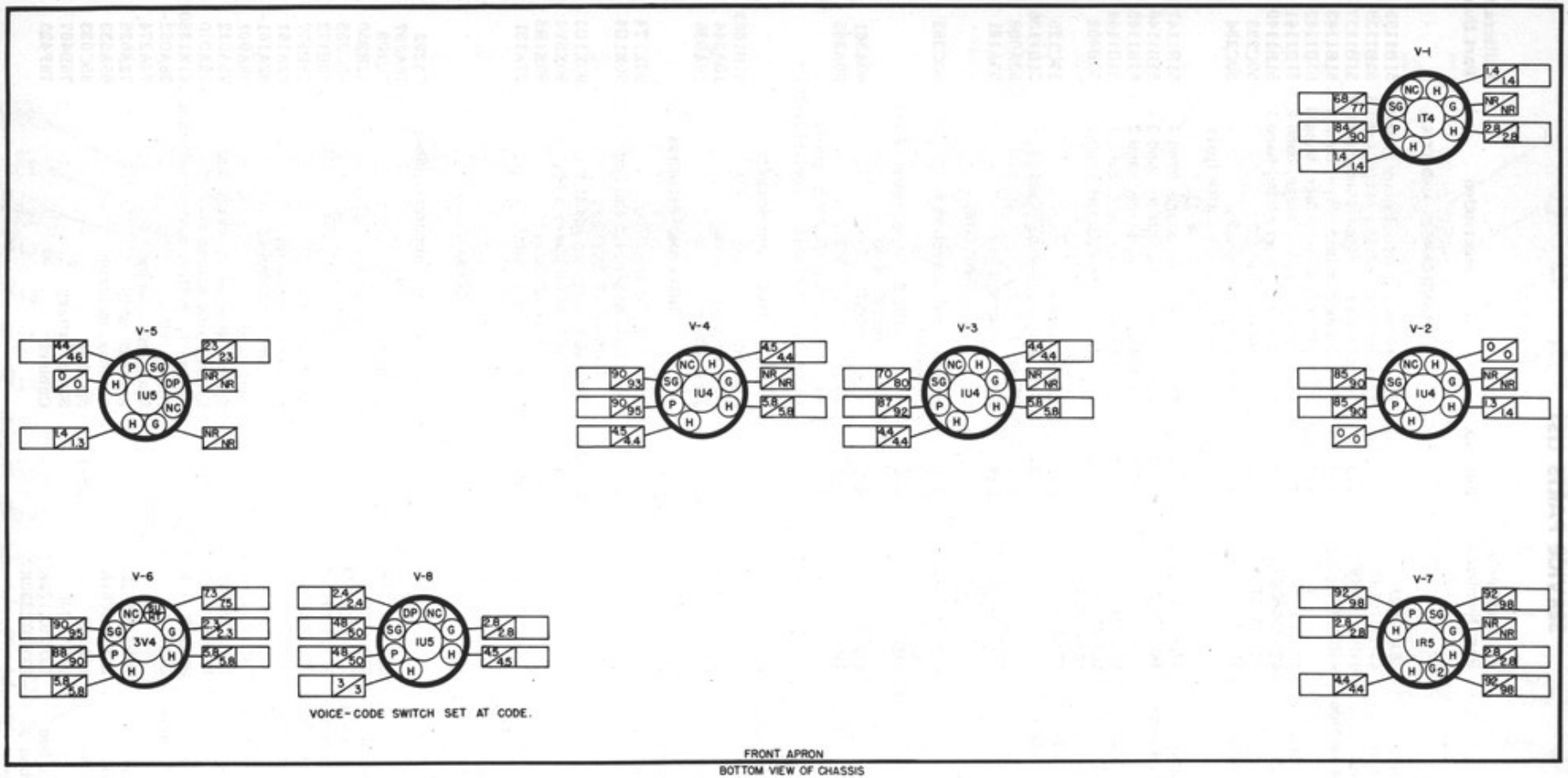


Figure 6. Bottom view, component location

SERVICE PARTS LIST

Ref. No.	Description	Hallicrafter's Part Number
	CAPACITORS	
C-1,33,42	.003 mfd., 600 V., tubular	46AZ302J
C-2,13,23,34	100 mmf., 500 V., ceramic	47B20101K5
C-3,4,15	15 mmf., 500 V., ceramic	47B20150K5
C-5	Trimmer, ant. assy., 4 sections (Bands 1,2,3,4)	44B374-1
C-6	Tuning capacitor, 3 section	48C221
C-7,18	68 mmf., 500 V., ceramic	47B20680K5
C-8	.05 mfd., 200 V., tubular	46AU503J
C-9,10,11,14, 20,21,22, 35	5000 mmf., 500 V., ceramic	47A168
C-12	47 mmf., 500 V., ceramic	47B20470K5
C-16	Trimmer, mixer assy., 4 sections, (Bands 1,2,3,4)	44B374-2
C-17	Capacitor, resonant (455KC)	46A150
C-19	.01 mfd., 600 V., tubular	46AY103J
C-24	.1 mfd., 200 V., tubular	46AU104J
C-25	Capacitor, composite; .002, .005, .0001, .005 mfd, 500 V., ceramic	47A203
C-27	22 mmf., 500 V., ceramic	47B20220K5
C-28	50 mmf., 500 V., ceramic	47B20500K5
C-29	3900 mmf., 500 V., mica	47X35A392J
C-30	1400 mmf., 500 V., mica	47X30A142J
C-31	Padder, adjustable, (Band 1)	44A376
C-32	Trimmer, osc. assy., 4 sections (Band 1,2,3,4)	44B374
C-36	7 mmf., 500 V., ceramic	47X20UK070K
C-37	Capacitor, band spread, (with shaft and bracket)	44B375
C-38	60-20-20 mfd., 150 V., 1000 mfd., 10 V., electrolytic	45B155
C-39	.02 mfd., 600 V., moulded paper	46BR203L6
C-40	.02 mfd., 200 V., tubular	46AU203J
C-41,44	470 mmf., 500 V., mica	47X20A471K
C-43	100 mmf., 500 V., mica	47X20A101M
C-45,26	1000 mmf., 500 V., ceramic	47B20102K5
C-46	100 mfd., 25 V., electrolytic	45A116
C-47	5.6 mmf., 500 V., composition	47A160-7
	RESISTORS	
R-1	10,000 ohms, 1/2 watt, carbon	23X20X103K
R-2,6,10,13, 14,15	4.7 megohms, 1/2 watt, carbon	23X20X475M
R-3	150 ohms, 1/2 watt, carbon	23X20X151K
R-4,37	22,000 ohms, 1/2 watt, carbon	23X20X223K
R-5,19	470 ohms, 1/2 watt, carbon	23X20X471K
R-7,24	100 ohms, 1/2 watt, carbon	23X20X101K
R-8	Resistor, variable, 500,000 ohms, VOICE/CODE control	25B847
R-9	2200 ohms, 1/2 watt, carbon	23X20X222K
R-11	100,000 ohms, 1/2 watt, carbon	23X20X104K
R-12	6800 ohm, 1/2 watt, carbon	23X20X682K
R-16,23,39	2.2 megohms, 1/2 watt, carbon	23X20X225M
R-17,27,38	47,000 ohms, 1/2 watt, carbon	23X20X473K
R-18,22	470,000 ohms, 1/2 watt, carbon	23X20X474K
R-20	Resistor, variable, 2 megohm, VOLUME control	25B839
R-21	3.3 megohms, 1/2 watt, carbon	23X20X335M
R-25	1000 ohms, 1/2 watt, carbon	23X20X102K
R-26	680 ohms, 1/2 watt, carbon	23X20X681K
R-28	47 ohms, 1/2 watt, carbon	23X20X470K
R-29	270 ohms, 2.3 watts; 350 ohms, 5.5 watts; W.W.	24A912
R-30,34	560 ohms, 1 watt, carbon	23X30X561K
R-31	680 ohms, 1 watt, carbon	23X30X681K
R-32	600 ohms, 9.3 watts, W.W.	24A913
R-33	22 ohms, 2 watts, W.W.	24BV220E
R-35	1200 ohms, 1/2 watt, carbon	23X20X122K
R-36	33 ohms, 1/2 watt, carbon	23X20X330K

Ref. No.	Description	Hallicrafter's Part Number
	TRANSFORMERS AND COILS	
T-1	Transformer, antenna stage, band 4	51B1139
T-2	Transformer, antenna stage, band 3	51B1138
T-3	Transformer, antenna stage, band 2	51B1137
T-4	Transformer, mixer stage, band 4	51B1143
T-5	Transformer, mixer stage, band 3	51B1142
T-6	Transformer, mixer stage, band 2	51B1141
T-7	Transformer, mixer stage, band 1	51B1140
T-8	Transformer, 1st I.F.	50C233
T-9	Transformer, 2nd I.F.	50C234
T-10	Transformer, audio output (part of speaker assy. LS-1)	
T-11	Transformer, osc. stage, band 4	51B1147
T-12	Transformer, osc stage, band 3	51B1146
T-13	Transformer, osc. stage, band 2	51B1145
T-14	Transformer, osc. stage, band 1	51B1144
T-15	Transformer, B.F.O. (with mtg. clip)	50B402
L-1	Loop antenna	57C125
L-2	Coil, antenna loading (band 1)	51B1136
L-3	Choke, R.F.	53A008
L-4	Choke, filament	53A121
	SWITCHES	
S-1	Switch, band (6 section assy. complete)	60C362
S-2	Switch, VOICE/CODE, (Part of r-f gain control, R-8)	
S-3	Switch, TONE	60A361
S-4	Switch, ANL, (S.P.S.T.)	60A365
S-6	Switch, ON-OFF (D.P.S.T. power switch, part of volume control R-20)	
	PLUGS AND SOCKETS	
PL-1	Line cord	87B1683
PL-2	Battery plug, 6 prong	10A344
SO-1	Jack, phone	36A036
	TUBES AND RECTIFIERS	
V-1	Type 1T4, r-f amplifier	90X1T4
V-2,3,4	Type 1U4, mixer, 1st and 2nd i-f amplifier	90X1U4
V-5,8	Type 1U5, detector and B.F.O.	90X1U5
V-6	Type 3V4, audio power amplifier	90X3V4
V-7	Type 1R5, oscillator	90X1R5
CR-1	Rectifier, selenium	27A151
	MISCELLANEOUS	
	Socket, 7 prong miniature (tube)	6A292
	Lock, line cord	76A397
	Escutcheon	7D109
	Escutcheon, dial	22B250
	Plate, dial	83C355
	Knob	15B172
	Knob (with dot)	15B177
	Pointer, main tuning	82A161
	Pointer, band spread	82A161-1
	Dial cord	38A001
	Spring, general coverage dial	75A012
	Spring, band spread dial	75A070
	Assembly, pulley, bushing and cam	41X13804
	Pulley, idler	28A052-7
	Shaft, main tuning	74A274
	Antenna, whip	72A035
	Antenna, insulator	65A533
LS-1	Speaker	85C093
	Strap, battery	76B467
	Cabinet	78F423



NOTES —

1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS & THE ELECTRICAL GROUND BUSS (NOT CHASSIS) WITH ZERO SIGNAL INPUT.
3. LINE VOLTAGE — 117 V. AC. BATTERY VOLTAGES TAKEN WITH FRESH BATTERY PACK.
4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGES SHOWN WERE MEASURED WITH AN ELECTRONIC VOLTMETER.
6. "NC" — NO CONNECTION.
7. "NR" — NOT READABLE (READING GENERALLY MEANINGLESS.)
8. ▭ SPACE PROVIDED FOR SERVICE METER READINGS.
9. ▱ UPPER VOLTAGE READINGS IN INDICATOR SPACE SHOW BATTERY OPERATION.
10. VOLTAGES FOR TUBE V-8, ARE SHOWN WITH VOICE-CODE SWITCH IN CODE POSITION.
11. ALL READINGS TAKEN WITH LINE PLUG POLARIZED SO THAT GROUND BUSS & CHASSIS ARE AT SAME POTENTIAL AS THE CHASSIS GROUND.

92D777

Figure 7. Tube socket voltage chart

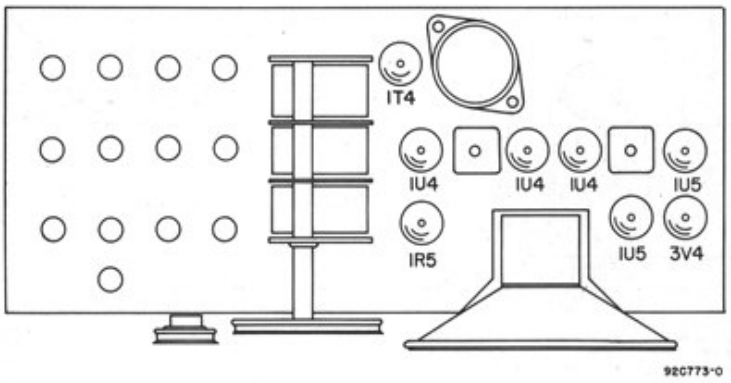
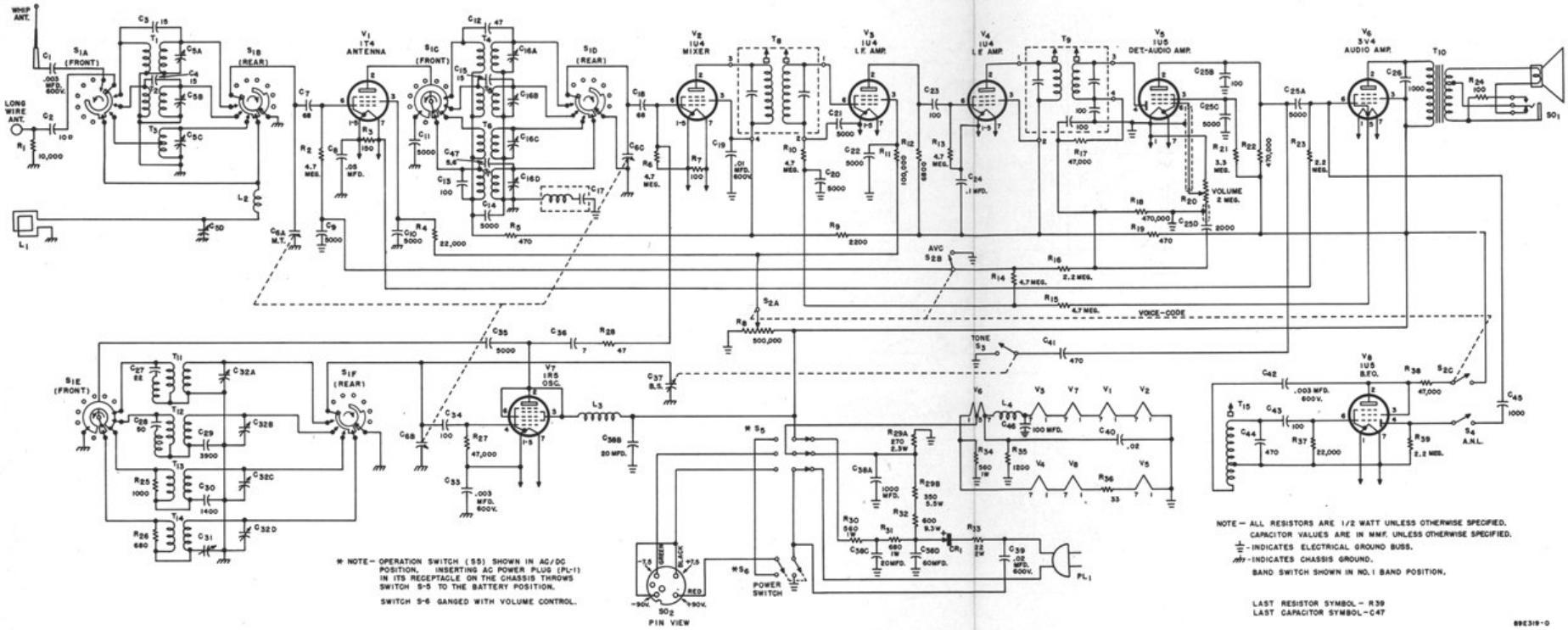


Fig. 9. Top view, location of tubes and dial lamp



* NOTE— OPERATION SWITCH (S5) SHOWN IN AC/DC POSITION. INSERTING AC POWER PLUG (PL-1) IN ITS RECEPTACLE ON THE CHASSIS THROWS SWITCH S-5 TO THE BATTERY POSITION.

SWITCH S-6 GANGED WITH VOLUME CONTROL.

NOTE— ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED.
CAPACITOR VALUES ARE IN MMF. UNLESS OTHERWISE SPECIFIED.
⏚ - INDICATES ELECTRICAL GROUND BUSS.
⏚ - INDICATES CHASSIS GROUND.
BAND SWITCH SHOWN IN NO. 1 BAND POSITION.

LAST RESISTOR SYMBOL — R39
LAST CAPACITOR SYMBOL — C47

89E319-0

Fig. 8. Schematic diagram