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communications
SERVICE INSTRUCTIONS

S-77

the hallcrafters co.

MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT - CHICAGO 26, U.S.A.

GENERAL SPECIFICATIONS

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

Intermediate Frequency . . . 455 kc

Power Supply 105-125 V. DC/60 cycles AC
(using 117 V. ballast tube, R-38)
or 210-250 V. DC/60 cycles
AC (using 220 V. ballast tube, R-39)

Power consumption 40 Watts

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

SERVICE INSTRUCTIONS

RESTRINGING DIAL CORD

To restring the main tuning dial cord, cut a 15-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."

To restring the band spread tuning dial cord cut a 22-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. G.E. #47 (brown 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

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 main tuning index marker on the low frequency end of the range and set the bandspread dial on zero position. The main tuning 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

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.

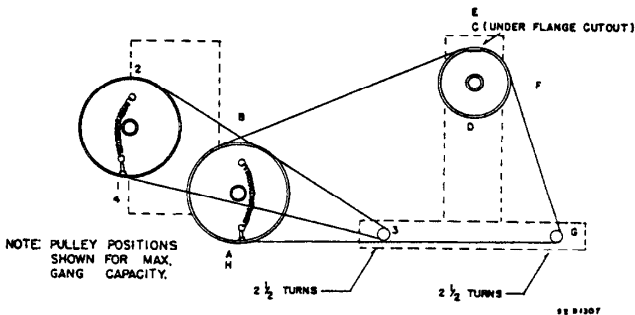
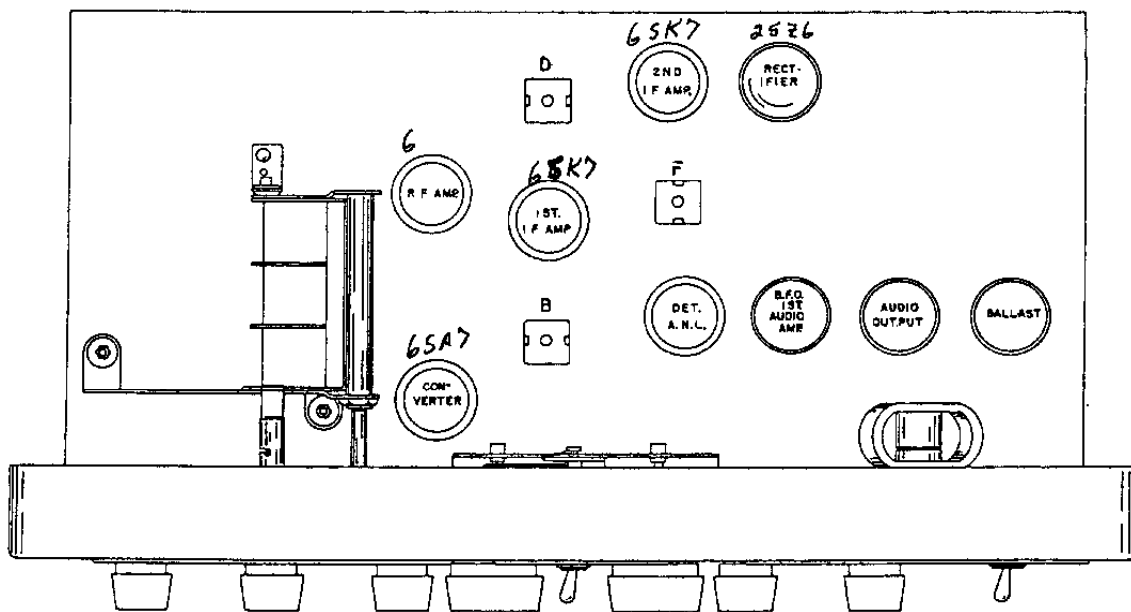


FIG. 1. DIAL CABLE STRINGING PROCEDURE

ALIGNMENT CHART

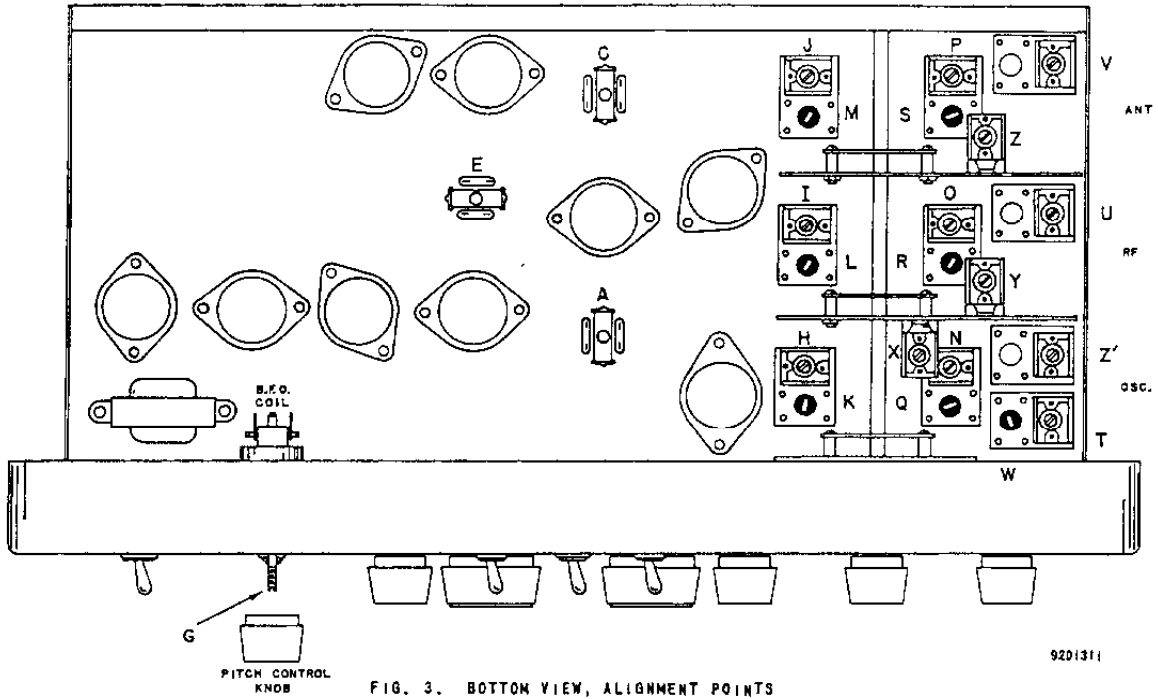
Step	Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Band Switch Setting	Receiver Dial Setting	Adjust	Remarks
1	None	Stator plates in center section of tuning gang.	455 kc	"1"	1000 kc	A,B,C, D,E,F	Maximum audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 MW signal level.
2	None	See step 1	455 kc (No modulation)	"1"	1000 kc	G	With the CW/AM switch set at CW, remove the pitch control knob and adjust "G" for zero beat. Replace the knob with the dot on the center position.
3	Std RMA dummy	"A1" on antenna strip. Jumper connected between "A2" and "G".	36 mc	"4"	36 mc	*I,I,J	Maximum output as in step 1.
			18 mc		18 mc	*K,L,M	
4	Std RMA dummy	See step 3	14 mc	"3"	14 mc	*N,O,P	Maximum output as in step 1.
			10 mc		10 mc	*Q,R,S	
5	Std RMA dummy	See step 3	5 mc	"2"	5 mc	*T,U,V	Maximum output as in step 1.
			1.8 mc		1.8 mc	*W	
6	Std RMA dummy	See step 3	1500 kc	"1"	1500 kc	*X,Y,Z	Maximum output as in step 1.
			600 kc		600 kc	*Z'	

*Note - Calibration adjustments.



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FIG. 2. TOP VIEW, ALIGNMENT POINTS



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R₃₈ (110 V)

R₃₉ (220 V)

LS₁

V₇

V₆

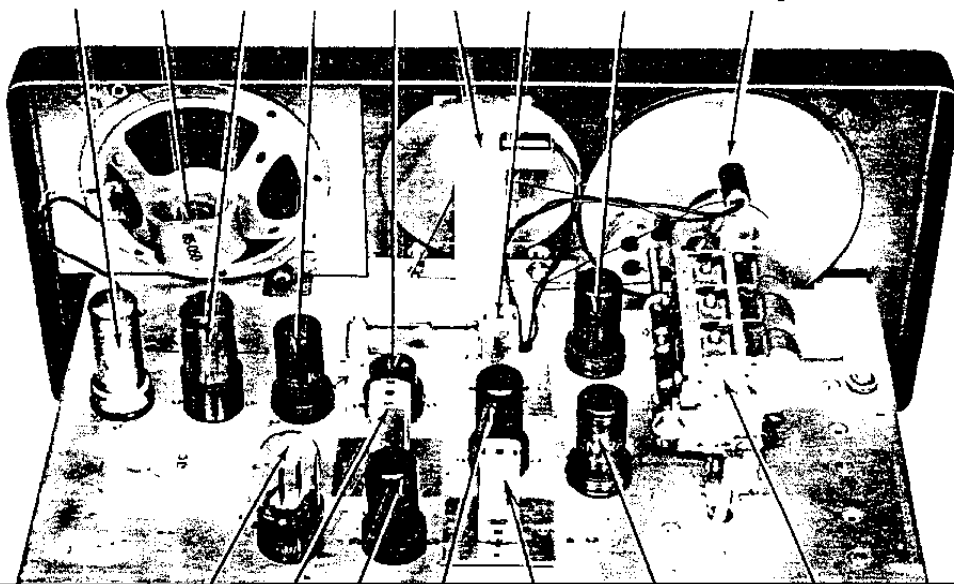
V₅

LM₁

T₉

V₂

LM₂



V₈

T₁₁

V₄

V₃

T₁₀

TS₁

V₁

C₇

FIG. 4. TOP VIEW, COMPONENT LOCATION

92X1313

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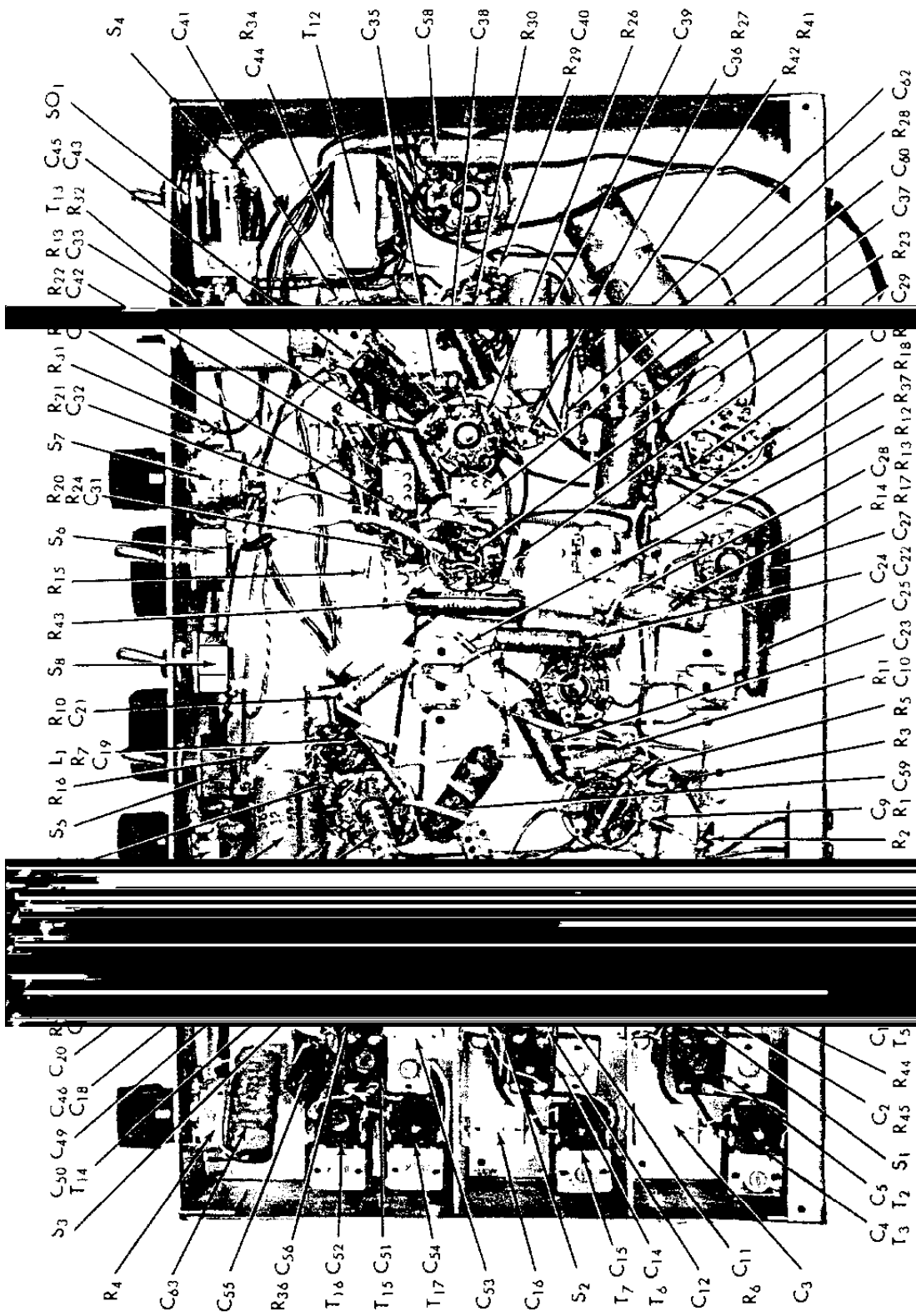
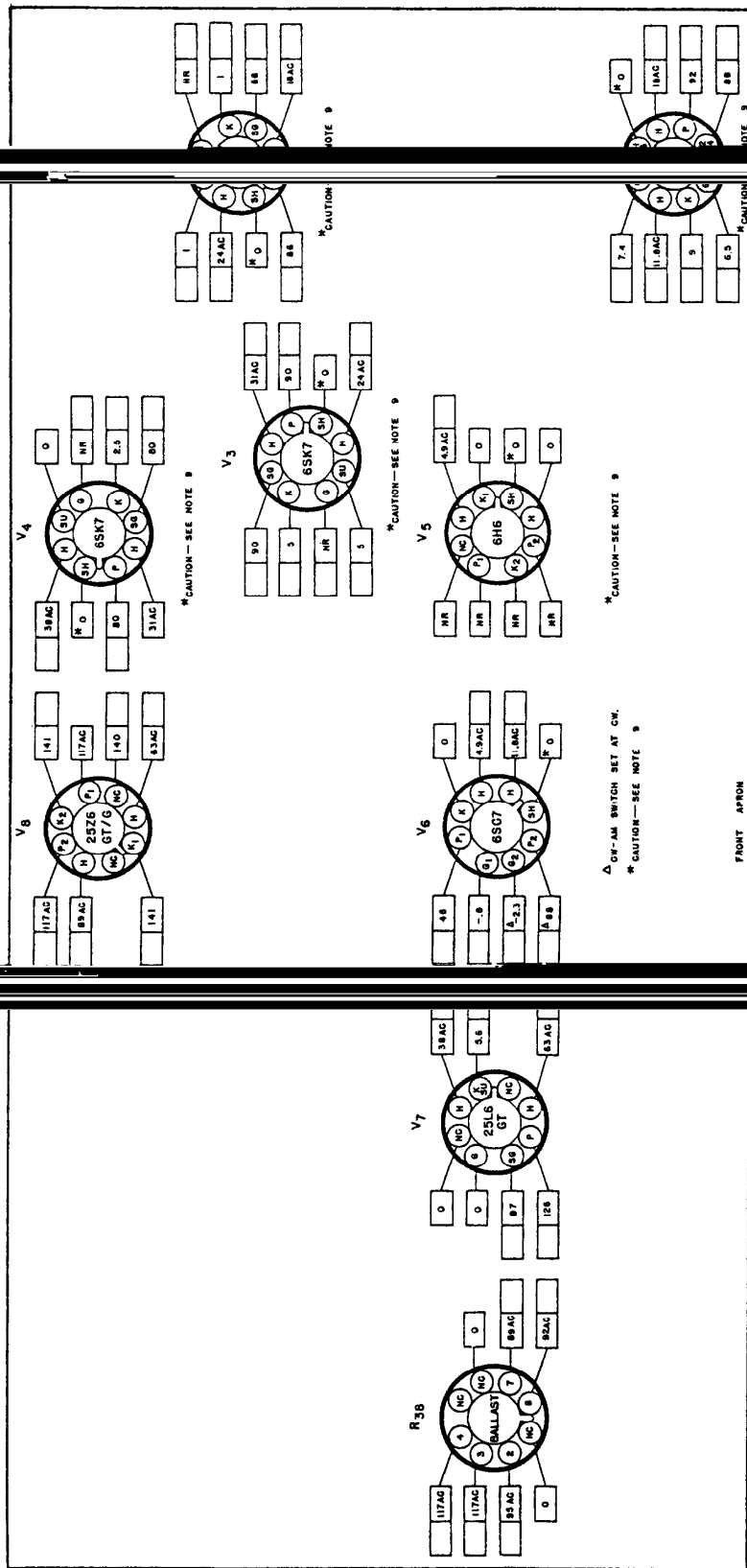


FIG. 5. BOTTOM VIEW, COMPONENT LOCATION

9211312

SERVICE PARTS LIST

Ref. No.	Description	Hallcrafters Part Number	Ref. No.	Description	Hallcrafters Part Number
CAPACITORS			TRANSFORMERS AND COILS		
C-1,9,10,21,23,38,43	.01 mfd. 600V., tubular paper	46AZ103J	L-1	Choke, RF	53A138
C-2,42,60	100 mmf. 500V., mica	47X20B101K	T-1	Coil, antenna; band 4	51B783
C-3,16,53	Trimmer, 2-20 mmf.	44A191	T-2	Coil, antenna; band 3	51B782
C-4	Trimmer (part of coil T-3)		T-3	Coil, antenna; bands 1 and 2	51B1241
C-5	Trimmer (part of coil T-2)		T-5	Coil, RF, band 4	51B787
C-6	Trimmer (part of coil T-1)		T-6	Coil, RF; band 3	51B786
C-7	Tuning capacitor, 3 section; ganged	48C240-B	T-7	Coil, RF; bands 1 and 2	51B1240
C-8,17,36,51	220 mmf. 500V., mica	47X20B221K	T-9,10	Transformer, 1st and 2nd IF	50C243
C-11	24 mmf., ceramic	47X25UK240M	T-11	Transformer, IF (detector stage)	50C242
C-12	15 mmf., ceramic	47X21UK150M	T-12	Transformer, audio output	55B110
C-13	Trimmer (part of coil T-5)		T-13	Coil, PITCH CONTROL	54B044
C-14	Trimmer (part of coil T-6)		T-14	Coil, oscillator, band 4	51B791
C-15	Trimmer (part of coil T-7)		T-15	Coil, oscillator; band 3	51B913
C-18,44	270 mmf. 500V., mica	47X20B271K	T-16	Coil, oscillator; band 2	51B789
C-19,40	.005 mfd. 600V., tubular paper	46AZ502J	T-17	Coil, oscillator; band 1	51B912
C-20,35	.003 mfd. 600V., tubular paper	46AY302J			
C-22,25,27,33,34	.02 mfd. 200V., tubular paper	46AU203J	SWITCHES		
C-24,28,41	.05 mfd. 600V., tubular paper	46AY503J	S-1	Wafer, bandswitch; antenna stage	60B389
C-25,57	2 mmf., wire gimmick		S-2	Wafer, bandswitch; RF stage	62B039
C-29,30	47 mmf. 500V., mica	47X20B470K	S-3	Wafer, bandswitch; oscillator stage	62B044
C-31,32,48	.05 mfd. 200V., tubular paper	46AU503J	S-4,5,6,8,	Switch, toggle (SPST); STANDBY-RECEIVE, A.V.C., A.N.L., and CW-AM	60A138
C-37	.1 mfd. 600V., tubular paper	46AY104J	S-7	Switch, PWR-TONE	60A225
C-39	10 mfd. 25V., electrolytic	45A121			
C-45	470 mmf. 500V., mica	47X20B471J	PLUGS AND SOCKETS		
C-46	.002 mfd. 600V., tubular paper	46AZ202J	PL-1	Line cord and plug	87B1573
C-47	10 mfd. 150V., electrolytic	45A097	SO-1	Jack, PHONES	36B004
C-49	68 mmf., ceramic	47X25UK680K	SO-2	Socket, octal, ballast tube	6A250
C-50	Trimmer (part of coil T-14)			Socket, octal, tube	6A250
C-51	Trimmer (part of coil T-15)			Socket, dial lamp (main tuning dial)	86B101
C-52	Trimmer (part of coil T-16)			Socket, dial lamp (bandspread dial)	68B068
C-54	Padder (part of coil T-17)				
C-55	1500 mmf. 500V., mica	47X35C152J	*TUBES, RECTIFIERS AND DIAL LAMPS		
C-56	3000 mmf. 500V., mica	47X35B302K	V-1	Type 6SG7, RF amplifier	90X6SG7
C-58	.02 mfd. 600V., molded tubular paper	46BR203L6	V-2	Type 6SA7, converter	90X6SA7
C-59	Resonant capacitor (.05 mfd. 600V.)	46A150	V-3,4	Type 6SK7, 1st and 2nd IF amplifiers	90X6SK7
C-62	60-20-20 mfd. 150V., electrolytic	45B128-C	V-5	Type 6H6, detector and A.N.L.	90X6H6
C-63	.25 mfd. 200V., tubular paper	46AT254J	V-6	Type 6SC7, audio amp. and B.F.O.	90X6SC7
			V-7	Type 25L6GT, audio output	90X25L6GT
			V-8	Type 25Z6GT/G, rectifier	90X25Z6GT/G
			LM-1,2	Lamp, dial; GE #47	39A004
RESISTORS			MISCELLANEOUS		
R-1	22 ohms 1/2 watt, carbon	23X20X220K		Bandswitch and shaft	60B392
R-2,7,20	1 megohm 1/2 watt, carbon	23X20X105M		Cabinet (lower section)	66E359
R-3	120 ohms 1/2 watt, carbon	23X20X121K		Cabinet front panel	68D160
R-4	10,000 ohms; SENSITIVITY control	25B590		Cabinet top	66D616
R-5,10,11,14,18,35,44	1000 ohms 1/2 watt, carbon	23X20X102K		Dial, bandspread	83B372
R-6,45	5800 ohms 1 watt, carbon	23X30X682K		Dial, main tuning	83C240
R-8	18,000 ohms 1/2 watt, carbon	23X20X183K		Dial cord	38A001
R-9	6.8 ohms 1/2 watt, carbon	23X20X068K		Foot, rubber	16A007
R-12,21,28	100,000 ohms 1/2 watt, carbon	23X20X104M		Glass, bandspread tuning dial	22A307
R-13,17	330 ohms 1/2 watt, carbon	23X20X331K		Glass, main tuning dial	22B199
R-15,23	2.2 megohms 1/2 watt, carbon	23X20X225M		Knob, BAND SELECTOR	15A266
R-16,30	150 ohms 1/2 watt, carbon	23X20X151K		Knob, PITCH CONTROL	15A058
R-19,34	47,000 ohms 1/2 watt, carbon	23X20X473K		Knob, TUNING and BANDSPREAD	15A047
R-22,27	330,000 ohms 1/2 watt, carbon	23X20X334M		Knob, SENSITIVITY, VOLUME and TONE	15A049
R-24,29	470,000 ohms 1/2 watt, carbon	23X20X474M		Lock, line cord	76A397
R-25	500,000 ohms; VOLUME control	25B586		Screw, Allen head (6-32 x 3/16)	3A1122
R-26	10 megohms 1/2 watt, carbon	23X20X106M		Slug, adjustable tuning	77A068
R-31	4700 ohms 1/2 watt, carbon	23X20X472K		Spaaker, PM; 5 inch	85B050
R-32	15 ohms 1 watt, carbon	23X30X150M		Spring, dial cord	75A012
R-33	15,000 ohms 1/2 watt, carbon	23X20X153K		Spring, retainer	75A062
R-36	10 ohms 1/2 watt, carbon	23X20X100K	LS-1	Terminal strip, antenna	88A032
R-37	270,000 ohms 1/2 watt, carbon	23X20X274M			
R-38	Ballast tube (117V.)	24B875			
R-39	Ballast tube (220V.)	24B874			
R-40	15 ohms 1/2 watt, carbon	23X20X150K	TS-1		
R-41	100 ohms 1/2 watt, carbon	23X20X101K			
R-42	1000 ohms 2 watts, carbon	23X40X102K			
R-43	110 ohms 10 watts, WW	24BG111E			



- NOTES—
1. SOCKET VIEW
 2. ALL VOLTAGE MEASURED BETWEEN TUBE SOCKET TERMINALS AND THE MASS (MOT. CHASSIS) WITH ZERO SIGNAL INPUT
 3. LINE VOLTAGE AC VOLTAGES WILL BE DC VOLTAGES WHEN OPERATING FROM A DC SOURCE.
 4. ALL VOLTAGE WERE MEASURED WITH AN ELECTRONIC VOLTMETER
 5. DC VOLTAGE WERE MEASURED WITH AN ELECTRONIC VOLTMETER
 6. *NC=NO CONNECTION
 7. *NR=NOT RECOMMENDED
 8. SP
 9. ALL READINGS WITH LINE PLUS POLARIZED SO THAT GROUND BUSES AND CHASSIS ARE AT SAME POTENTIAL

CONTROL	SETTING
SENSITIVITY	FULL CLOCKWISE
BAND SELECTOR	BAND 4
AVC	ON
NOISE LIMITER	AM
STANDBY/RECEIVE	RECEIVE

FIG. 6. TUBE SOCKET VOLTAGE CHART

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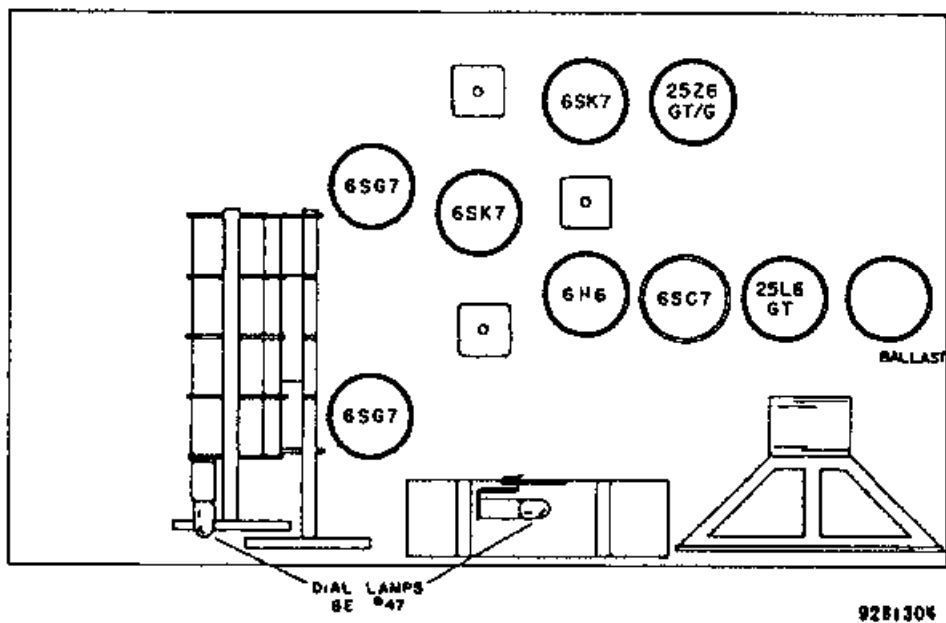
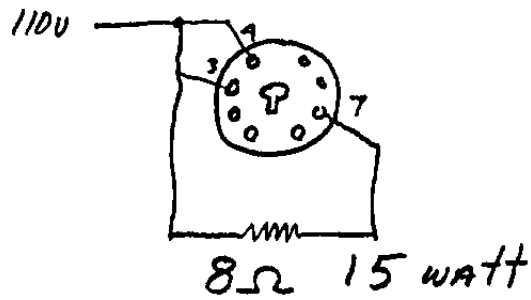


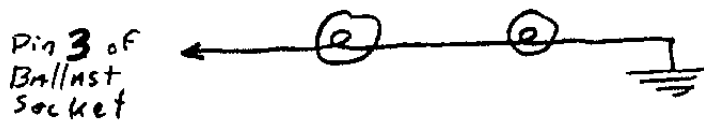
FIG. 7. TOP VIEW, LOCATION OF TUBES AND DIAL LAMPS

Replacement ckt

110V BALLAST



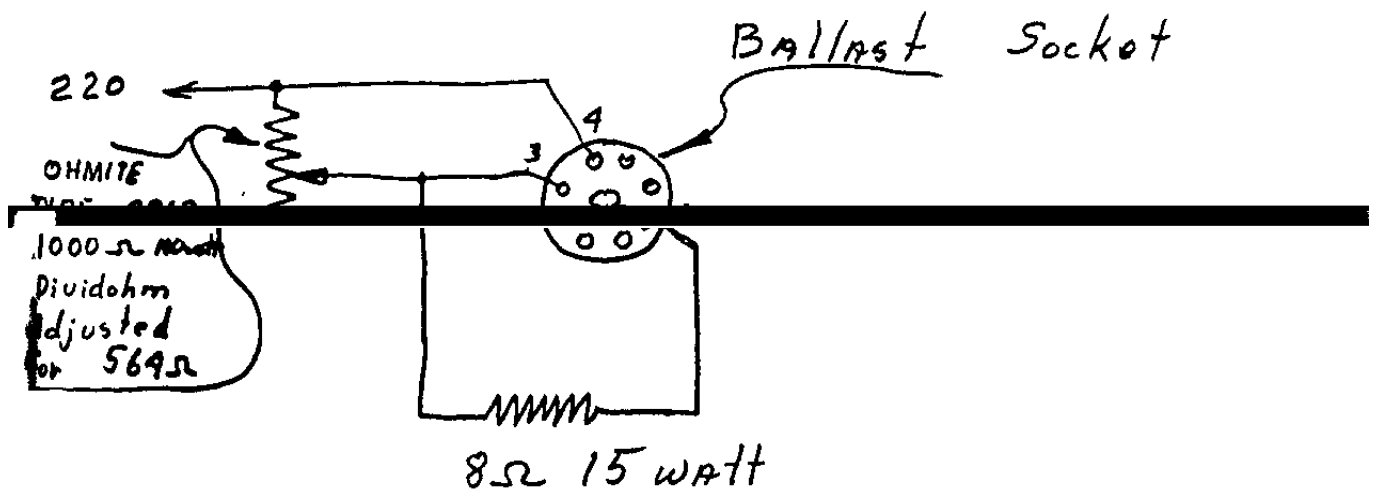
Re wire Panel Lamps.



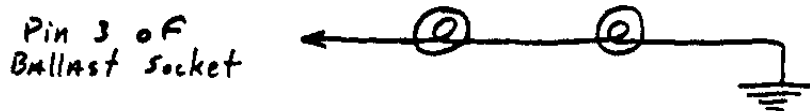
Replace Bulbs with "Chicago Miniature
TYPE 1B35 (55 volt @ .05 A) or similar

Replacement ckt

220v Ballast



Rewire Panel Lamps



Replace Bulbs with "Chicago Miniature"
TYPE 1835 (55 volt @ .05A) or similar