

# communications



**OPERATING and SERVICE  
INSTRUCTIONS**



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Set RECEPTION control at FM and adjust slug S-16 for maximum output. Now set Slug S-7 for the null or minimum output as indicated on the output meter. Check the discriminator by slowly tuning the signal generator through 10.7 mc and observe the two maximum audio level readings on the output meter. If the two peaks are equal the job is done; if not, it may be necessary to reset Slug S-16 until a reasonable balance is obtained.

### RF ALIGNMENT

After completing the alignment of the IF amplifier stages the RF amplifier stages may be aligned according to the following chart. Connect the high side of the signal generator to terminal A-1 through the dummy antenna specified and connect a jumper between antenna terminal A-2 and GND. Use just enough signal generator output to obtain a 500 milliwatt audio output level for best results.

### ALIGNMENT CHART

Dummy Antenna	Signal Generator Frequency	Band Selector Range	Radio Dial Setting	Adjust	Remarks
RMA	1500 kc	550-1600 kc	1500 kc	C-47*, 6, 21, 35	Adjust for max. output
	600 kc		600 kc	S-36*	
RMA	4.0 mc	1.62-4.9 mc	4.0 mc	C-45*, 20, 34	Adjust for max. output
	1.8 mc		1.8 mc	S-35*	
RMA	14.0 mc	4.9-15 mc	14.0 mc	C-43*, 4, 19, 33	Adjust for max. output
	7.0 mc		7.0 mc	S-34*, 22, 26, 30	
RMA	28 mc	15-32 mc	28 mc	C-42*, 3, 18, 32	Adjust for max. output
	18 mc		18 mc	S-33*, 21, 25, 29	
300-ohm non-inductive resistor	50 mc	27-56 mc	50 mc	C-41*, 2, 17, 31	Adjust for max. output
	30 mc		30 mc	S-32*, 20, 24, 28	
300-ohm non-inductive resistor	105 mc	54-109 mc	105 mc	C-40*, 1, 16, 30	Adjust for max. output
	60 mc		60 mc	S-31*, 19, 23, 27	

\* Note - Calibration adjustment.

Note - 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.

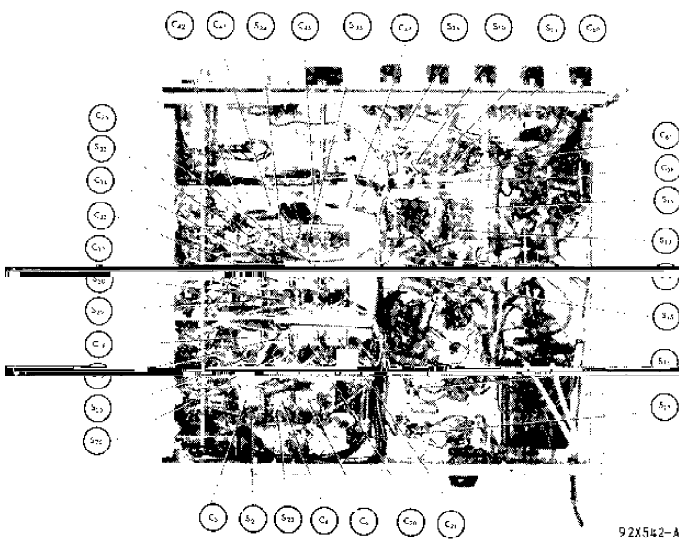


FIG. 8. Alignment adjustments, bottom view

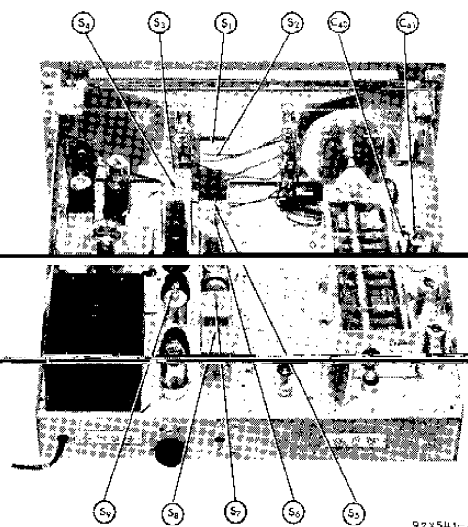


FIG. 9. Alignment adjustments, top view

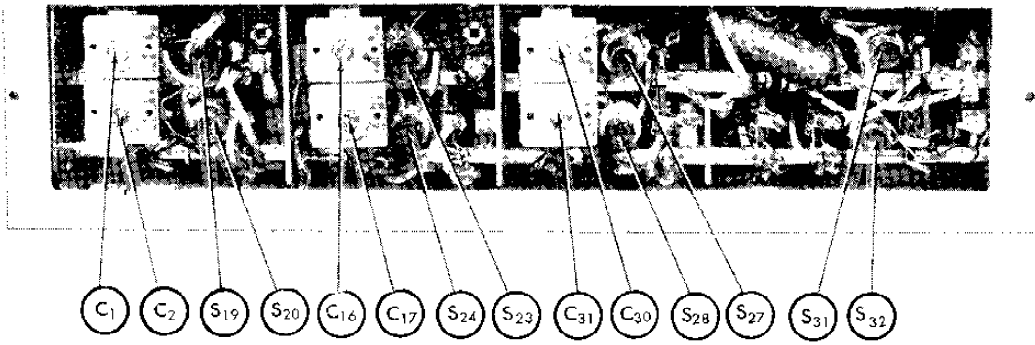


Fig. 10 Alignment adjustments, left side view

92X543

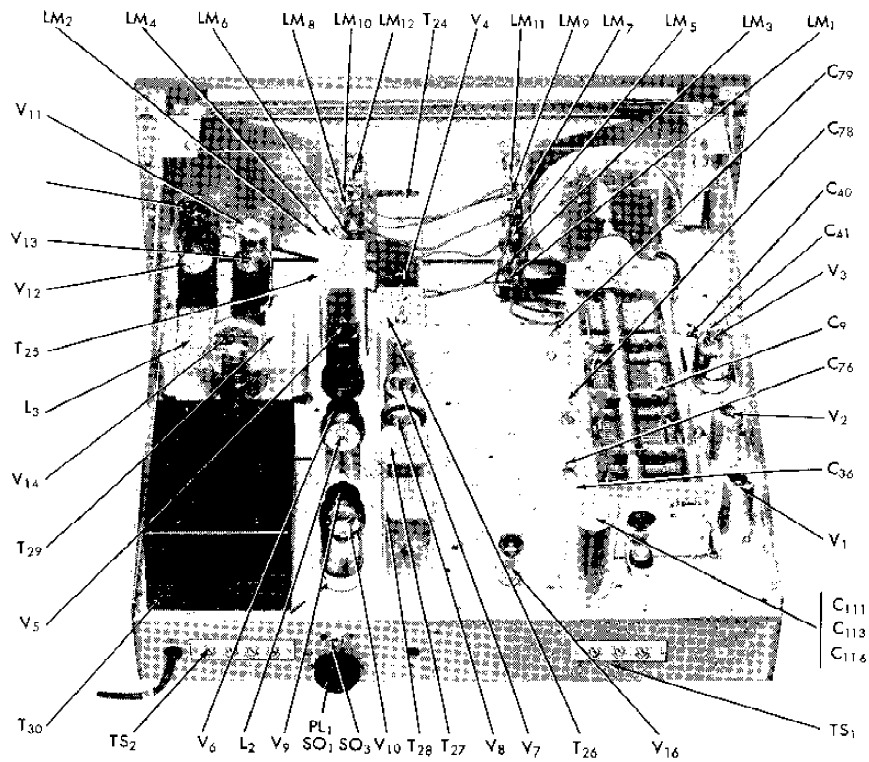


Fig. 11 Component locations, top view

92X544-B

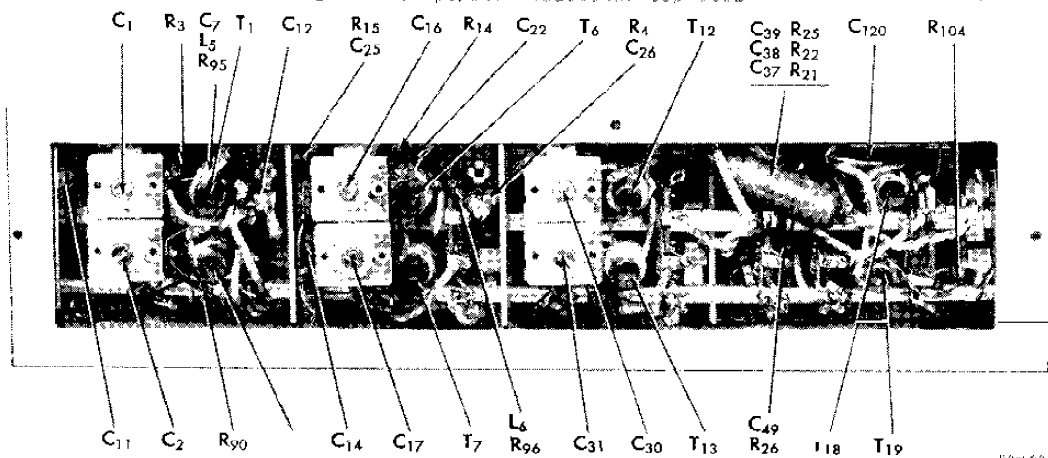
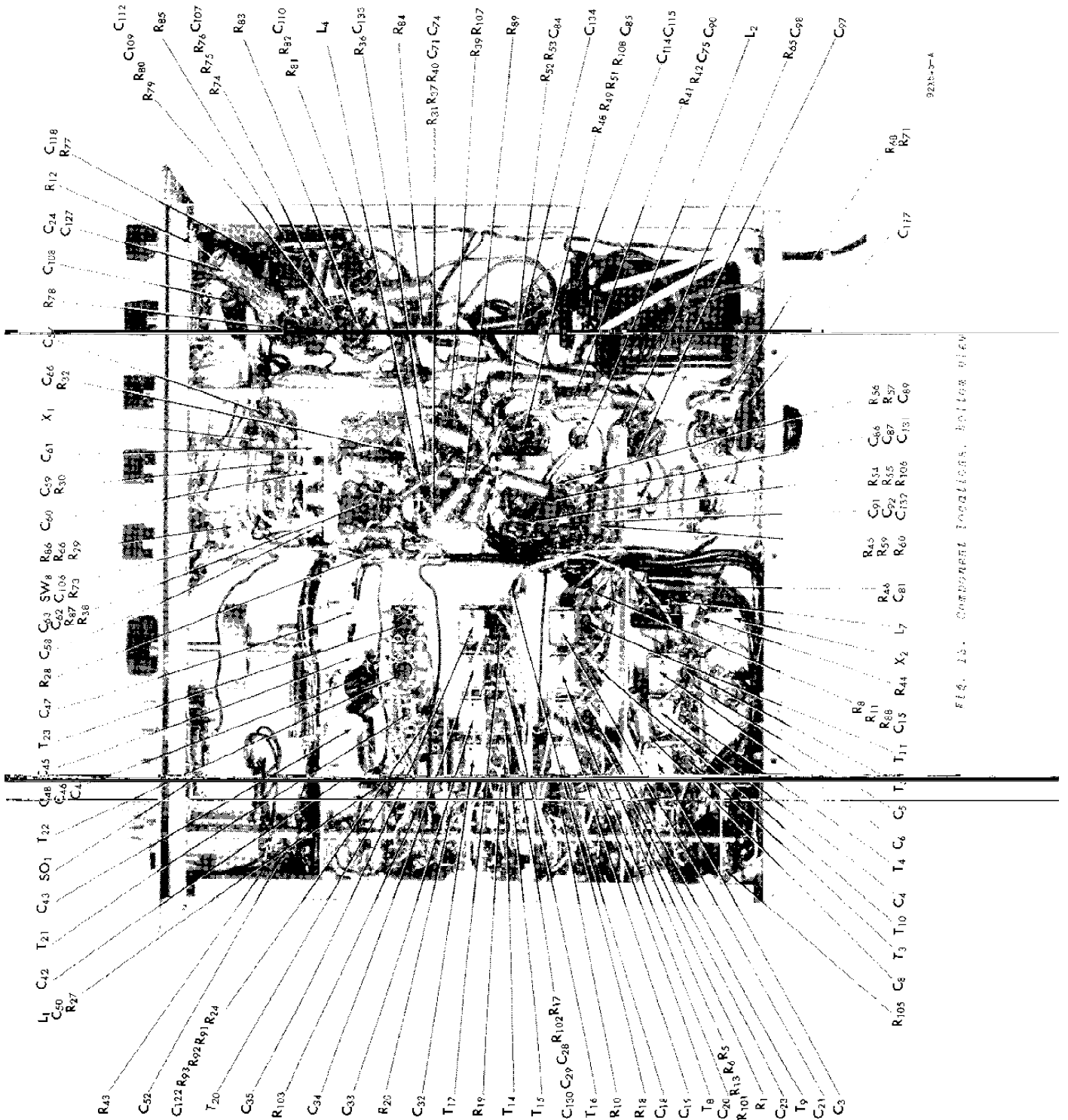


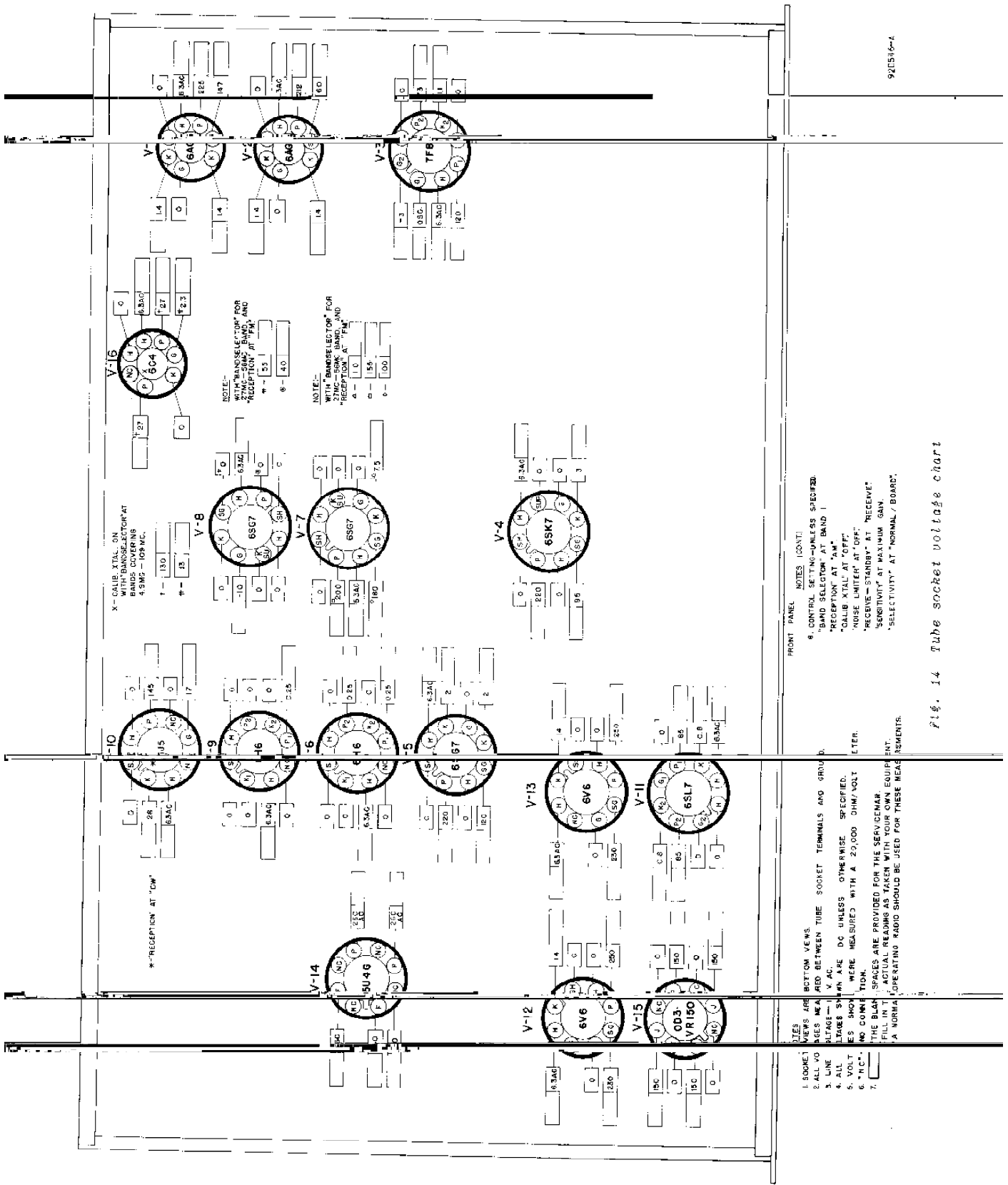
Fig. 12 Component locations, left side view.

92X550-A



9223-5-4

FIG. 15. COMPONENT INSTALLATIONS, FOLLOW-UP VIEW



X - CALIB. XTAL. ON WITH "BANDSELECTOR" AT BANDS COVERING 4.5 MC - 10.7 MC.

\*\*"RECEPTION" AT "CW"

NOTE: WITH "BANDSELECTOR" FOR "RECEPTION" AT "FM" AND "RECEPTION" AT "FM"

NOTE: WITH "BANDSELECTOR" FOR "RECEPTION" BAND AND "RECEPTION" AT "FM"

FRONT PANEL NOTES (CONT.)

- 8. CONTROL SETTING - UNLESS SPECIFIED.
- 9. BAND SELECTION AT BAND 1
- "RECEPTION" AT "AM"
- "CALIB XTAL" AT "OFF"
- "ROUSE LIMITER" AT "OFF"
- "RECEIVE" STANDBY AT "RECEIVE"
- "SENSITIVITY" AT MAXIMUM GAIN.
- "SELECTIVITY" AT "NORMAL" / BOARD.

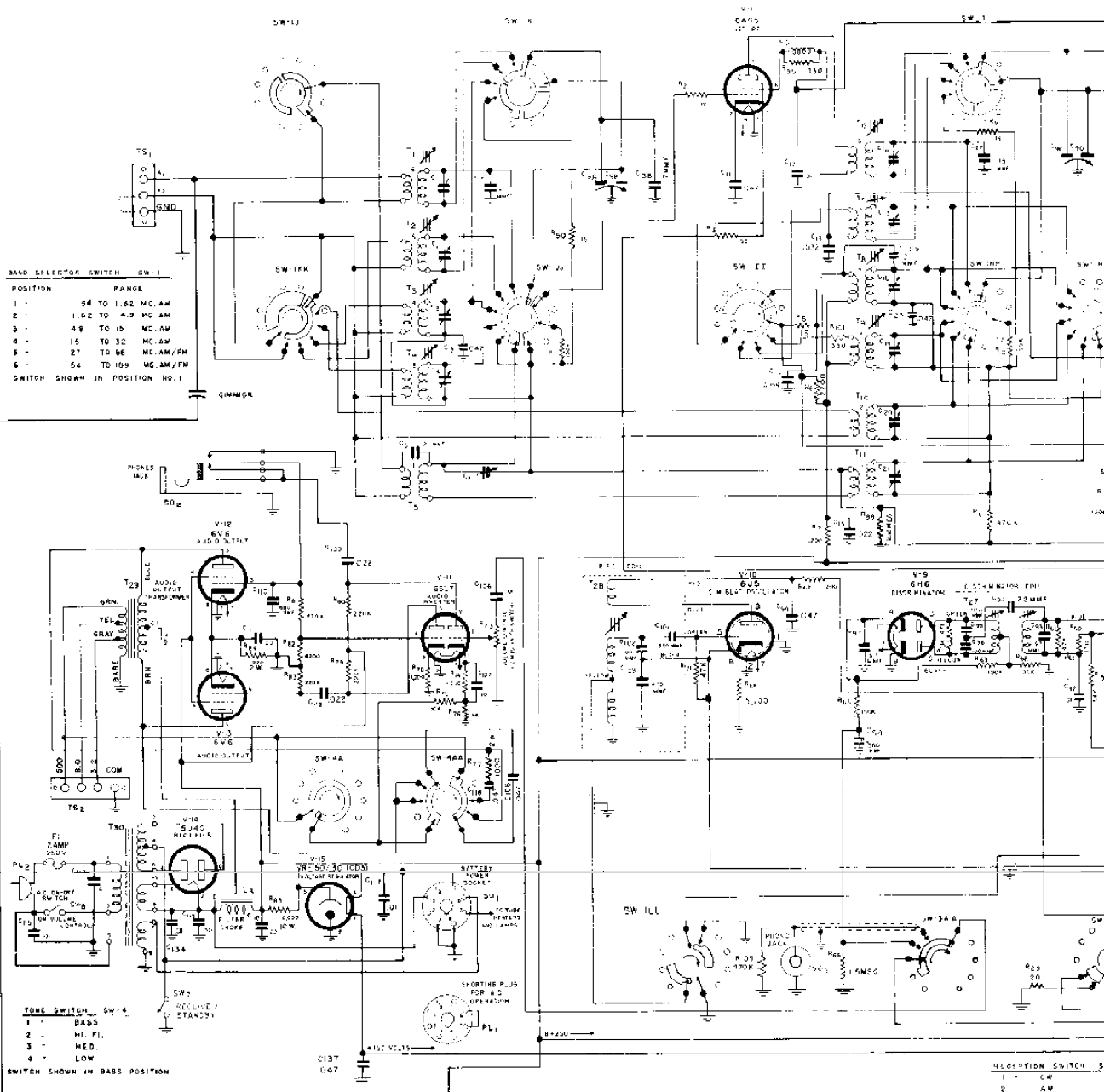
TOP VIEW NOTES

- 1. SOCKET PINS ARE SHOWN IN ALL VIEWS.
- 2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND GROUND.
- 3. LINE VOLTAGE IS 115 V. AC.
- 4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
- 5. VOLTAGES SHOWN WERE MEASURED WITH A 20,000 OHM/VOLT METER.
- 6. "R.C." - NO COMPONENT.
- 7. SPACES ARE PROVIDED FOR THE SERVICE MAN TO FILL IN THE ACTUAL READINGS AS TAKEN WITH HIS OWN EQUIPMENT.
- 8. OPERATING RADIO SHOULD BE USED FOR THESE MEASUREMENTS.

Fig. 14 Tube socket voltage chart

## SERVICE PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
<b>*RESISTORS</b>			<b>TRANSFORMERS AND COLLS</b>			<b>CAPACITORS</b>		
R1,10,51	100K ohms 20%	451-253104	T1	Transformer, antenna stage; band 6	051-200829	C1,2,16,17,30,31	Trimmers, adjustable; 2 section antenna, RF amp, and mixer stages	044-200165
R2	12 ohms	451-252120	T2	Transformer, antenna stage; band 5	051-200828	C3,4,6,18,19,20,21,32,33,34,35	Part of transformers T3,4,5,8,9,10,11,14,15,16 and 17 respectively	-----
R3,15	150 ohms	451-252151	T3	Transformer, antenna stage; band 4	051-200890	C5,120,130	2.2 mfd. 500V., bakelite	047-100160-04
R4,34	47K ohms, 1 watt	451-252473	T4	Transformer, antenna stage; band 3	051-200826	C7,79	5 mmf. 500V., ceramic	491-002030-95
R5,9,14,19,80,103,104	15 ohms 20%	451-252150	T5	Transformer, antenna stage; band 1	051-200823	C8,11,25	.047 mfd. 200V., molded tubular	499-011473
R6,13,17,20	2.2K ohms 20%	451-252222	T6	Transformer, RF stage; band 6	051-200833	C9	Capacitor, main tuning	048-300204
R7,18,40,87,74,78	1.2K ohms	451-252122	T7	Transformer, RF stage; band 5	051-200824	C13,15,27,29,50,59,63,74,86,87,91,109,112,132	.022 mfd. 600V., molded tubular	499-031223
R8,43,169	470K ohms 20%	451-253474	T8	Transformer, RF stage; band 4	051-200887	C14,38	5000 mmf. 500V., mica	470-514562
R12	Variable; Sensitivity Control	025-100548	T9	Transformer, RF stage; band 3	051-200825	C22,123	15 mmf. 500V., ceramic	491-000150-95
R16,22,32,45,86,106,110	1K ohm 20%	451-253102	T10	Transformer, antenna stage; band 2	051-200824	C23,62,70,84	.047 mfd. 200V., molded tubular	499-011473
R21,107	2.2 megohms	451-252225	T11	Transformer, RF stage; band 1	051-200824	C24	.22 mfd. 200V., molded tubular	499-011224
R23	47 ohms 20%	451-252470	T12	Transformer, mixer stage; band 5	051-200833	C36,76,78,120	7 mmf. 500V., ceramic	491-006070-95
R24	33 ohms 20%	451-252330	T13	Transformer, mixer stage; band 4	051-200844	C37,97	47 mmf. 500V., mica	470-213470
R25,75	10K ohms	451-252109	T14	Transformer, mixer stage; band 3	051-200888	C12,28,38,75,81,92,108,114,115,117,121,122,131,133,134,135	.01 mfd. 800V., molded tubular	499-031103
R26	5.6K ohms, 1 watt	451-252562	T15	Transformer, mixer stage; band 2	051-200886	C39,49	110 mmf. 500V., ceramic	491-025111-95
R27	470 ohms 20%	451-253471	T16	Transformer, mixer stage; band 1	051-200885	C40,41,57	Trimmer, adjustable; oscillator section bands 2 and 3	470-521472
R28	68K ohms, 1 watt	451-252683	T17	Transformer, oscillator stage; band 6	051-200830	C42	Trimmer, adjustable; oscillator section, band 4	044-100347
R29	120 ohms	451-252121	T18	Transformer, oscillator stage; band 5	051-200891	C43,45	Trimmer, adjustable; oscillator section, bands 5 and 6; crystal phasing	044-100077
R30,42,52	1 megohm 20%	451-253105	T19	Transformer, oscillator stage; band 4	051-200836	C44	470 mmf. 2%, 500V., silver mica	470-521472
R31,60	330 ohms	451-252331	T20	Transformer, oscillator stage; band 3	051-200835	C46	1500 mmf. 2%, 500V., silver mica	470-421152
R36	1.2 megohm	451-252125	T21	Transformer, oscillator stage; band 2	051-200834	C47	Trimmer, adjustable; oscillator section band 1	044-100076
R37	100K ohms, 1 watt	451-252104	T22	Transformer, oscillator stage; band 1	050-300198	C48	470 mmf. 2%, 500V., silver mica	470-231471
R38	270 ohms	451-252271	T23	Transformer, 1st IF amp. stage	050-300160	C51	220 mmf. 2%, 500V., silver mica	470-341221
R39,59,87	56K ohms	451-252563	T24	Transformer, 2nd IF amp. stage	050-300373	C52,66,71,99,108,118,137	.047 mfd. 600V., molded tubular	499-031473
R41,49,58,79,80,81,83	220K ohms	451-252224	T25	Transformer, 3rd IF amp. stage	050-300373	C58,60,61	Trimmer, adjustable; crystal phasing	044-200164
R44	4.7 megohms	451-252475	T26	Transformer, FM detector	050-300191	C89,90	180 mmf. 500V., mica	470-213181
R46,47	27K ohms, 2 watts	451-252273	T27	Transformer, BFO	050-300655	C98	560 mmf. 500V., mica	470-313581
R50	680 ohms	451-252681	T28	Transformer, audio output	050-300213	C107	10 mfd. 25V., electrolytic	045-100121
R53	820K ohms	451-252824	T29	Transformer, power; 115V, 50/60 cycles (Model SX-62A)	052-300131	C110	680 mmf. 500V., mica	470-313681
R55	10K ohms, 1 watt	451-252103	T30	Transformer, power; 115/230 V, 25/60 cycles (Model SX-62AU)	052-300131	C111,113,118	20 mfd. 25V., 30-20 mfd. 450V., electrolytic	045-100041
R56,57,71,94	47K ohms	451-252473	L1	RF choke (copper rod)	053-200008	C127	100 mfd. 25V., electrolytic	045-100116
R65	150K ohms	451-252154	L2	IF coupling coil	053-200104			
R66	1.5 megohms	451-252155	L3	Choke, filter	053-200067			
R68	3.1K ohms, 5%	451-251612	L4	RF choke; filament	053-100099			
R73	Variable; Volume Control	025-100549	L5,6	RF choke; screen (wound on R88 & R96)	053-100117			
R76,92	56 ohms	451-252560	L7	RF choke; plate	053-100139			
R77	1K ohm, 2 watts	451-253102						
R82	8.2K ohms	451-252822						
R84	220 ohms, 2 watts	451-252221						
R85	2K ohms, 5%, 10 watts; WW	451-253225						
R86	2.2 megohms 20%	451-253225						
R89	65K ohms	451-252683						
R91,93	4.7K ohms	451-252472						
R101,102	330 ohms 20%	451-252331						
R105	100 ohms	451-252101						
R108	6.8 ohms, 1 watt	451-252068						
			<b>MISCELLANEOUS</b>					
			X1	Clip, dial scale & window mtg.	076-100403			
			X2	Crystal, calibration; 500KC	019-100123	<b>SWITCHES</b>		
				Dial cord (specify length)	019-101211	SW1	Switch, BAND SELECTOR	060-400329
				Dial pointer	082-300301	SW2	Switch, SELECTIVITY	060-100234
				Dial scale (calibrated)	022-400215	SW3	Switch, RECEPTION	060-200330
				Escutcheon	007-400078	SW4	Switch, TONE	060-300236
				Flywheel, dial drive	071-100178	SW5,6,7	Switch, toggle; SPST	060-100138
			F1	Fuse, 2 amp. 250V; type 3AG	039-100428	SW8	Switch, power (part of volume control R73)	-----
				Fuse holder	006-100451	<b>PLUGS AND SOCKETS</b>		
				Knob, BAND SELECTOR OR TUNING	015-001593	PL1	Plug, JUMPER (for AC operation)	035-100003-01
				Knob, POINTER RESET	015-001609	PL2	Plug and cord, power	087-100076
				Knob, RECEPTION, SELECTIVITY, TONE, VOLUME & SENSITIVITY control	015-001601	SO1	Socket, octal; BATTERY POWER	006-100250
				Lock, line cord; male section	076-000397-01	SO2	Jack, PHONE	036-200004
				Lock, line cord; female section	076-000397-02	SO3	Jack, PHONO	036-100041
				Mounting foot; rubber	016-100029		Socket, dial lamp	036-200073-01
				Pulley, Assembly	028-300111		Socket, octal; black molded	006-200296
				Shaft, general coverage dial	074-100252		Socket, octal; mica	006-100283
				Shaft, index control	074-002650		Socket, miniature 7 pin; mica	006-100288
				Spring, dial drive	075-100232		Socket, miniature 7 pin; molded bakelite	006-100292
				Spring, pointer index	075-100232		Socket, octal	006-100250
			TS1	Terminal strip, antenna	088-200976			
			TS2	Terminal strip, speaker	088-200936			
				Ring, Retaining; index control shaft	076-100551 per W-12947			
				Window, dial	022-300214			



**BAND SELECTOR SWITCH SW-1**

POSITION	RANGE
1 -	54 TO 1.62 MC/AM
2 -	1.62 TO 4.9 MC/AM
3 -	4.9 TO 15 MC/AM
4 -	15 TO 32 MC/AM
5 -	27 TO 56 MC/AM/FM
6 -	54 TO 109 MC/AM/FM

SWITCH SHOWN IN POSITION NO. 1

**TONE SWITCH SW-4**

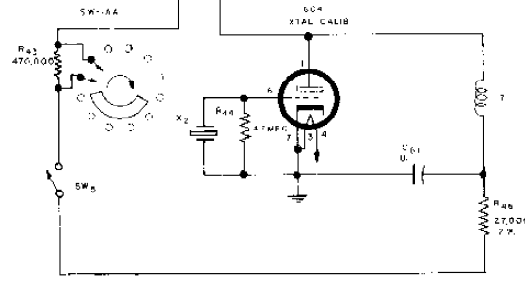
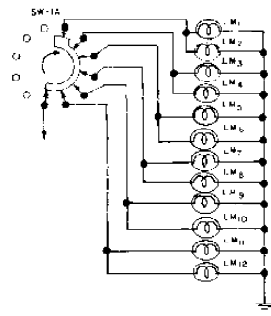
1 -	BASS
2 -	ME. FI.
3 -	MED.
4 -	LOW

SWITCH SHOWN IN BASS POSITION

**REGISTRATION SWITCH SW-24**

1 -	CR
2 -	AM
3 -	FM
4 -	PHONO

SWITCH SHOWN IN CR



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## Warranty

factured 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

*the Hallicrafters co.*