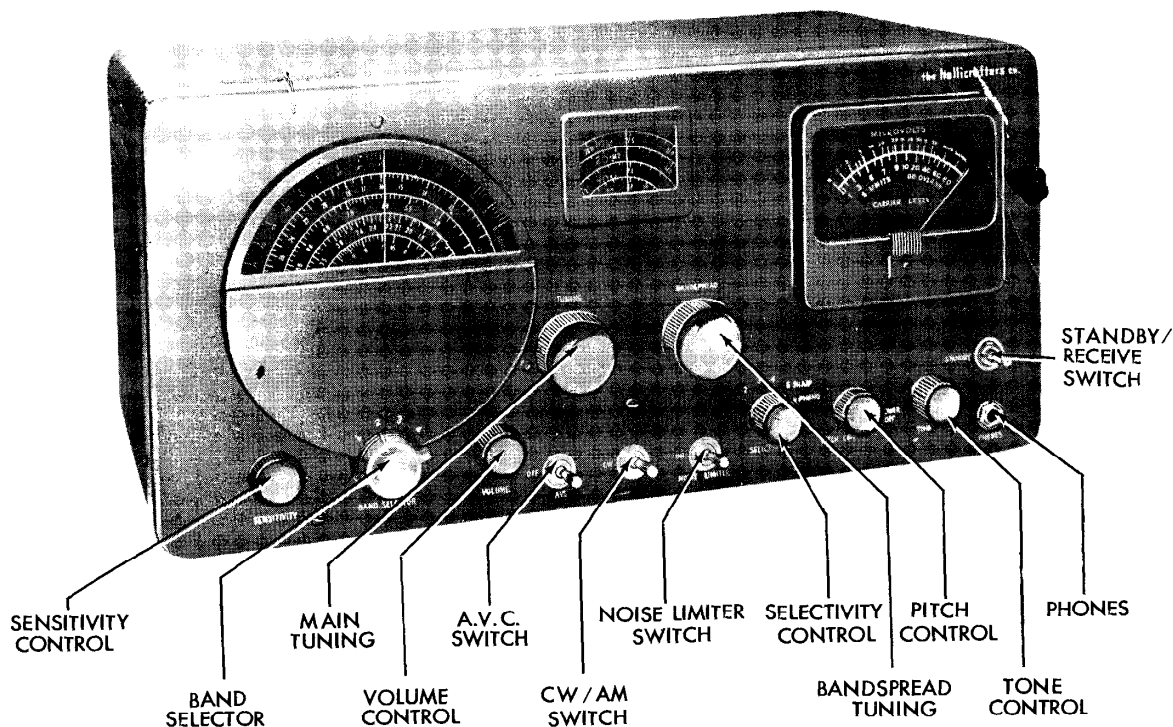


the hallicrafters co.

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



92X1398

FIG. 1. COMMUNICATIONS RECEIVER MODEL S-76

GENERAL SPECIFICATIONS

- Tubes 9 plus voltage regulator and rectifier
- Power Supply - Model S-76 . . . 105-125 volts, 50/60 cycles AC
- Model S-76U . . . 105-250 volts, 25/60 cycles AC
- Power Consumption 77 watts
- Speaker Output Impedances . . . 3.2 and 500 ohms
- Headset Output Impedance 500 ohms
- Antenna Input Impedance 300 ohms
- Phono Input Impedance High Impedance
- 1st Intermediate Frequency . . . 1650 KC
- 2nd Intermediate Frequency . . . 50 KC

FREQUENCY COVERAGE

Band	Frequency Range	Reception
1	538 KC - 1580 KC	AM/CW
2	1720 KC - 4.9 MC	AM/CW
3	4.6 MC - 13 MC	AM/CW
4	12 MC - 34 MC	AM/CW

RESTRINGING DIAL CORD

The dial drive system of the S-76 consists of three separate string drives: (1) bandspread tuning gang drive (2) main tuning gang drive and (3) large bandspread ratio pulley drive. Refer to Fig. 2 for diagram of dial stringing. All restringing should be done with the main tuning and bandspread gangs full-meshed.

BANDSPREAD TUNING GANG DRIVE - Tie one end of a 36" length of 30 lb. test dial cord to position 1 of the bandspread gang drive pulley. Follow the stringing procedure 1 through 12. At position 12, stretch the tension spring and tie the cord securely to the spring.

MAIN TUNING GANG DRIVE - Tie one end of a 25" length of 30 lb. test dial cord to the tension spring at position A on the main tuning gang drive pulley. Follow the stringing procedure A through H. At position H, stretch the tension spring and tie the cord securely to the spring. Note that 2 1/2 turns of dial cord are wrapped around the main tuning drive shaft for proper traction.

LARGE BANDSPREAD RATIO PULLEY DRIVE - Tie one end of a 23" length of 30 lb. test dial cord to the tension spring at position A on the large bandspread ratio pulley. Follow the stringing procedure A through F. At position F, stretch the tension spring and tie the cord securely to the spring. Note that 2 1/2 turns of dial cord are wrapped around the bandspread tuning drive shaft for proper traction.

"S" METER ADJUSTMENTS

MECHANICAL ADJUSTMENT - Turn the receiver OFF. The "S" meter mechanical adjustment screw is located on the "S" meter escutcheon. Carefully rotate this screw until the pointer is in line with the right hand index mark on the "S" meter.

ELECTRICAL ADJUSTMENT -

1. Short the antenna terminals to the chassis.
2. Set the STANDBY/RECEIVE switch at RECEIVE, AM/CW switch at AM, AVC switch at ON, NOISE LIMITER SWITCH at OFF and the SENSITIVITY control fully clockwise.
3. Turn the receiver ON.
4. The electrical adjustment control for the "S" meter is located on the rear apron of the chassis. Turn this control slowly until the "S" meter pointer indicates 0 on the microvolt scale.

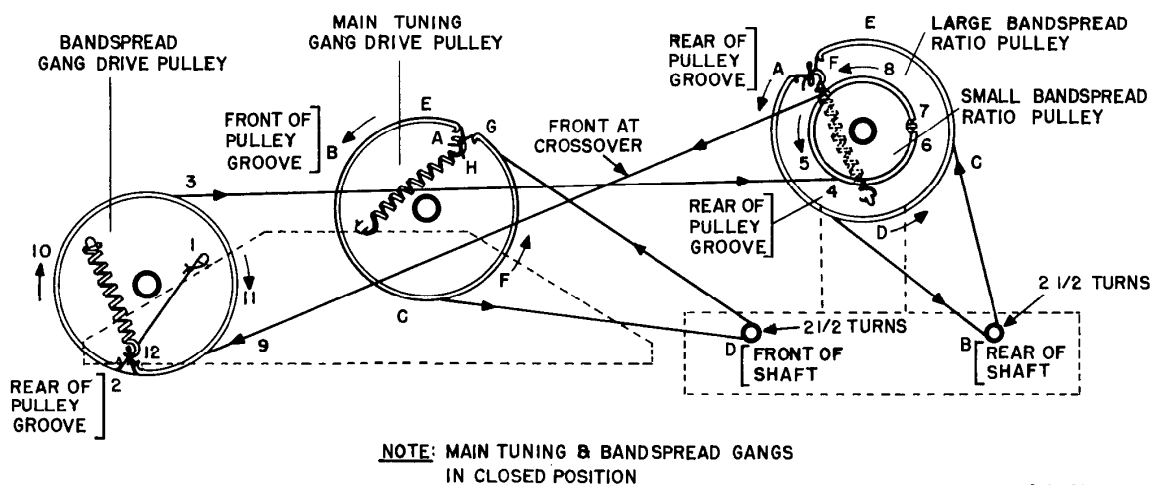


FIG. 2. DIAL CORD STRINGING PROCEDURE

DIAL LAMP REPLACEMENT

Refer to Fig. 9 for the location of the dial lamps used in the receiver. To gain access to defective lamps, raise the hinged top cover of the cabinet.

CAUTION - To avoid electrical shock, disconnect the receiver from the power source before making any dial lamp replacement.

To replace the bandspread and main tuning dial lamps, unclip the dial light assembly from the mounting bracket. This enables bringing the defective lamp out into the open where it may be replaced. Make replacements with a 6-8 volt, 250 ma (blue bead) Mazda #44 pilot lamp or equivalent.

To replace the pilot lamps which illuminate the "S" meter, remove either socket assembly from the meter by pulling it slightly sideways. The socket assembly and defective lamp may then be brought out into the open for service. Make replacements with a 6-8 volt, 1 c.p. (pink bead) Mazda #51 pilot lamp or equivalent.

TUBE REPLACEMENT

The tube types and their relative location in the receiver are shown in Fig. 9. Raise the hinged top cover of the cabinet to gain access to all tubes. When installing a replacement octal 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 must be lined up with the socket holes before pushing the tube into place. Handle all tubes with care as they are fragile and will not withstand mechanical abuse.

I-F ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED:

1. Vacuum tube voltmeter (VTVM)
2. Signal generator (unmodulated) covering 50 KC and 1650 KC. If a 50 KC signal generator is not available, use two separate generators to provide a 50 KC beat frequency. Set the frequency of one generator to 700 KC and the other to 750 KC.
3. 3.2 or 500 ohm speaker

It is necessary to remove the receiver chassis from the cabinet to make the I-F alignment. The chassis is held in the cabinet by three screws along both the bottom edge of the front panel and the rear of the cabinet and by two screws on each side of the front panel.

The I-F alignment should be made with the main tuning and bandspread tuning capacitors meshed half way, VOLUME, TONE and SENSITIVITY controls fully clockwise, NOISE LIMITER and AVC switches at OFF, RECEIVE/STANDBY switch at RECEIVE, CW/AM switch at AM and the BAND SELECTOR switch at 2. Refer to Figs. 3 and 4 for the location of all adjustments.

Connect the high side of the VTVM to the junction of [C-75], [R-38], [R-43], [R-44] and [R-59]. See Fig. 7. Connect the common side of the VTVM to the chassis. Use just enough signal generator output to give a 1 volt indication on the VTVM.

STEP	SIGNAL GENERATOR COUPLING	SIGNAL GEN. FREQUENCY	SELECTIVITY CONTROL SETTING	ADJUST	REMARKS
1	Connect the high side of the generator to terminal 1 of transformer T2 (see Fig. 7) and the ground side to the chassis.	50 KC (No Mod.)	5	1	Maximum output
				2	Maximum output
				3	Maximum output
				4	Maximum output
				1	Maximum output
				2	Maximum output
				3	Maximum output
2	Connect the high side of the generator to stator plates of center section of main tuning capacitor. Connect the ground side of the generator to frame of main tuning capacitor.	1650 KC (No Mod.)	5	5	Maximum output. After making adjustment 5 retune the generator for a maximum indication on the VTVM.
				6	Maximum output
				7	Maximum output
				8	Maximum output
				9	Maximum output
					Rotate the SELECTIVITY control from position 5 to 1. The VTVM reading should decrease progressively with each position of the SELECTIVITY control. If this does not occur, it is an indication that the 50 KC I-F system is not properly aligned. This indicates that steps 1 and 2 must be repeated.
3	Connect the high side of the generator to terminal 1 of transformer T2 (see Fig. 7) and the ground side to the chassis.	50 KC (No Mod.)	4	10	Disconnect the VTVM. Set the CW/AM switch at CW. Remove the PITCH CONTROL knob. Using a speaker as an indicating device, adjust 10 for a zero beat. After completing this adjustment, replace the knob with the index mark in the top center position.

R-F ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED:

1. Output meter. The AC scale of a vacuum tube voltmeter (VTVM) or other suitable meter may be used.
2. Signal generator covering 600 KC to 30 MC. Generator must have amplitude modulated output.
3. Alignment tool made of polystyrene or other similar material.

It is not necessary to remove the chassis from the cabinet for the R-F alignment. All R-F alignment adjustments can be made through the holes in the bottom of the cabinet.

The R-F alignment should be made with the BANDSPREAD, VOLUME, TONE and SENSITIVITY controls fully clockwise, NOISE LIMITER and AVC switches at OFF, RECEIVE/STANDBY switch at RECEIVE, CW/AM switch at AM and the SELECTIVITY control at 3. Refer to Figs. 3 and 4 for the location of all adjustments.

CONNECTING THE TEST EQUIPMENT:

1. Connect the output meter between the 500 ohm speaker terminal and the chassis. Properly load the output of the receiver with a speaker or dummy load. Speaker loading will enable the operator to monitor the signal and result in better alignment.
2. Connect the high side of the signal generator to antenna terminal A1 through a 330 ohm carbon resistor. Place the jumper between antenna terminals A2 and G. Connect the ground side of the generator to the chassis. Keep the output of the signal generator as low as possible at all times to prevent overloading of the receiver.

STEP	SIGNAL GENERATOR FREQUENCY (MOD.)	BAND SELECTOR SETTING	MAIN TUNING DIAL SETTING	ADJUST	REMARKS
1	30 MC	4	30 MC	A	Maximum output
				B	Maximum output
				C	Maximum output
				D	Maximum output
				E	Maximum output
				F	Maximum output
2	11.5 MC	3	11.5 MC	G	Maximum output
				H	Maximum output
				J	Maximum output
				K	Maximum output
				L	Maximum output
				M	Maximum output
3	4.6 MC	2	4.6 MC	N	Maximum output
				P	Maximum output
				Q	Maximum output
				R	Maximum output
4	1400 KC	1	1.4 MC	S	Maximum output
				T	Maximum output
				U	Maximum output
				V	Maximum output
	600 KC	1	.6 MC		

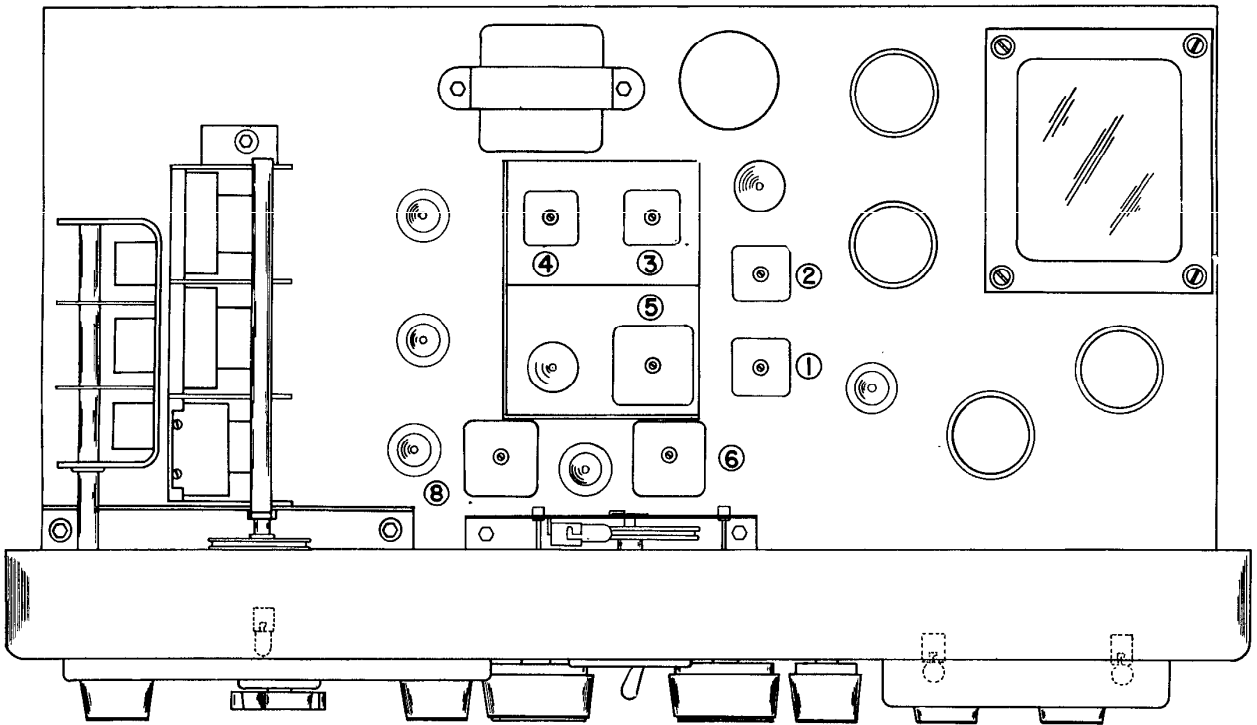


FIG. 3 TOP VIEW - LOCATION OF ALIGNMENT ADJUSTMENTS

9201387

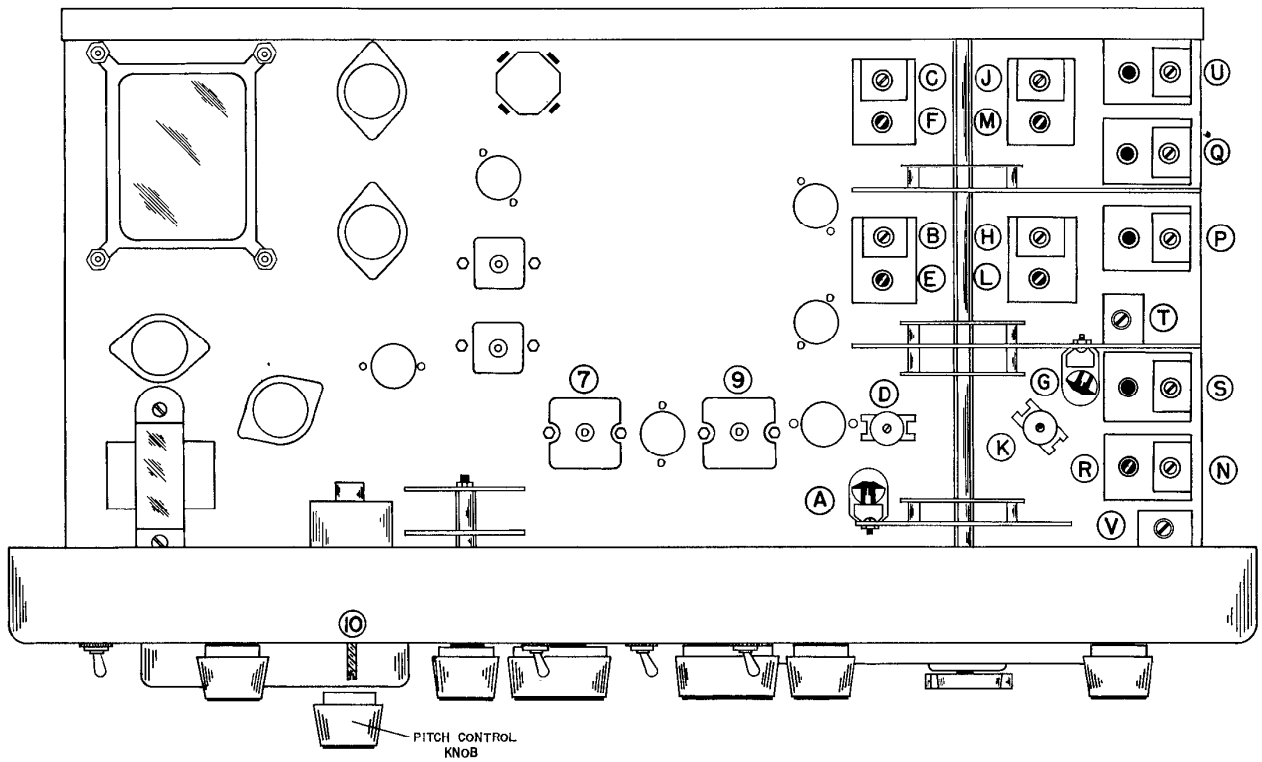


FIG. 4 BOTTOM VIEW - LOCATION OF ALIGNMENT ADJUSTMENTS

9201386

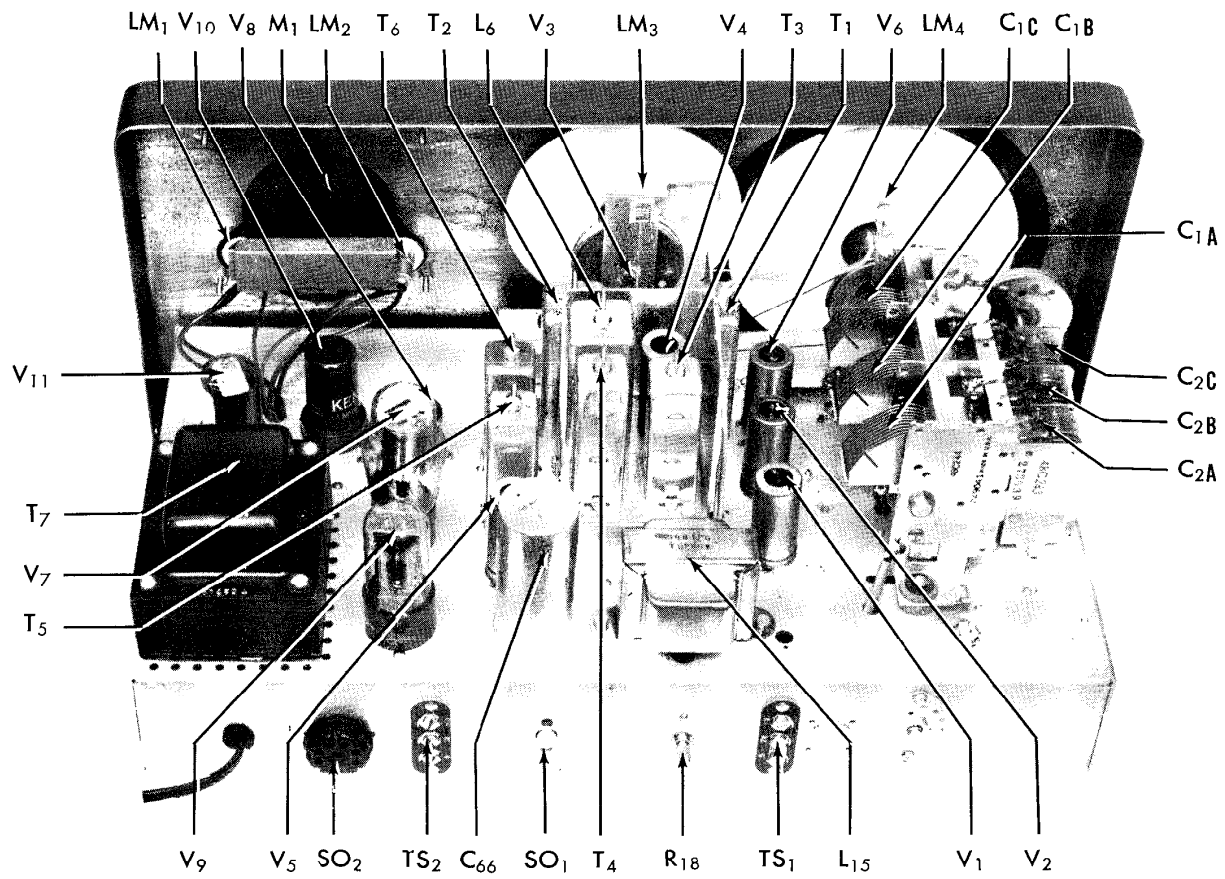


FIG. 5 TOP VIEW - COMPONENT LOCATION

92X1397

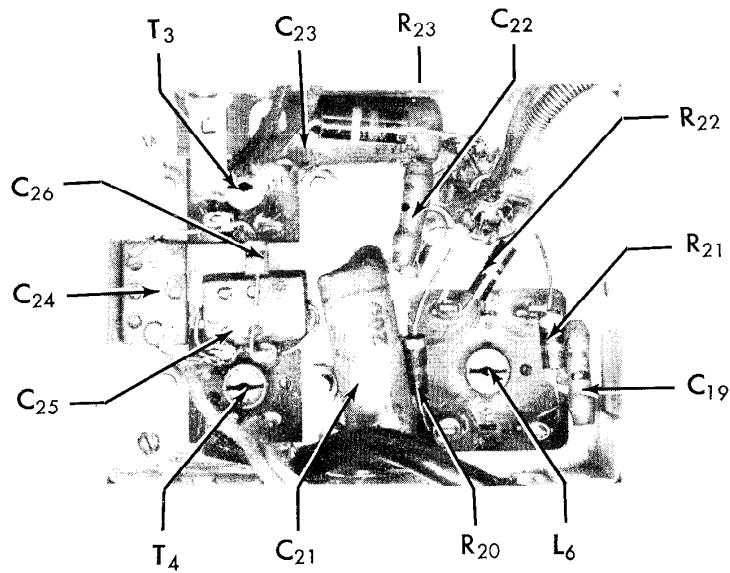


FIG. 6 BOTTOM VIEW OF 2ND CONVERTER UNIT - COMPONENT LOCATION

92X1416

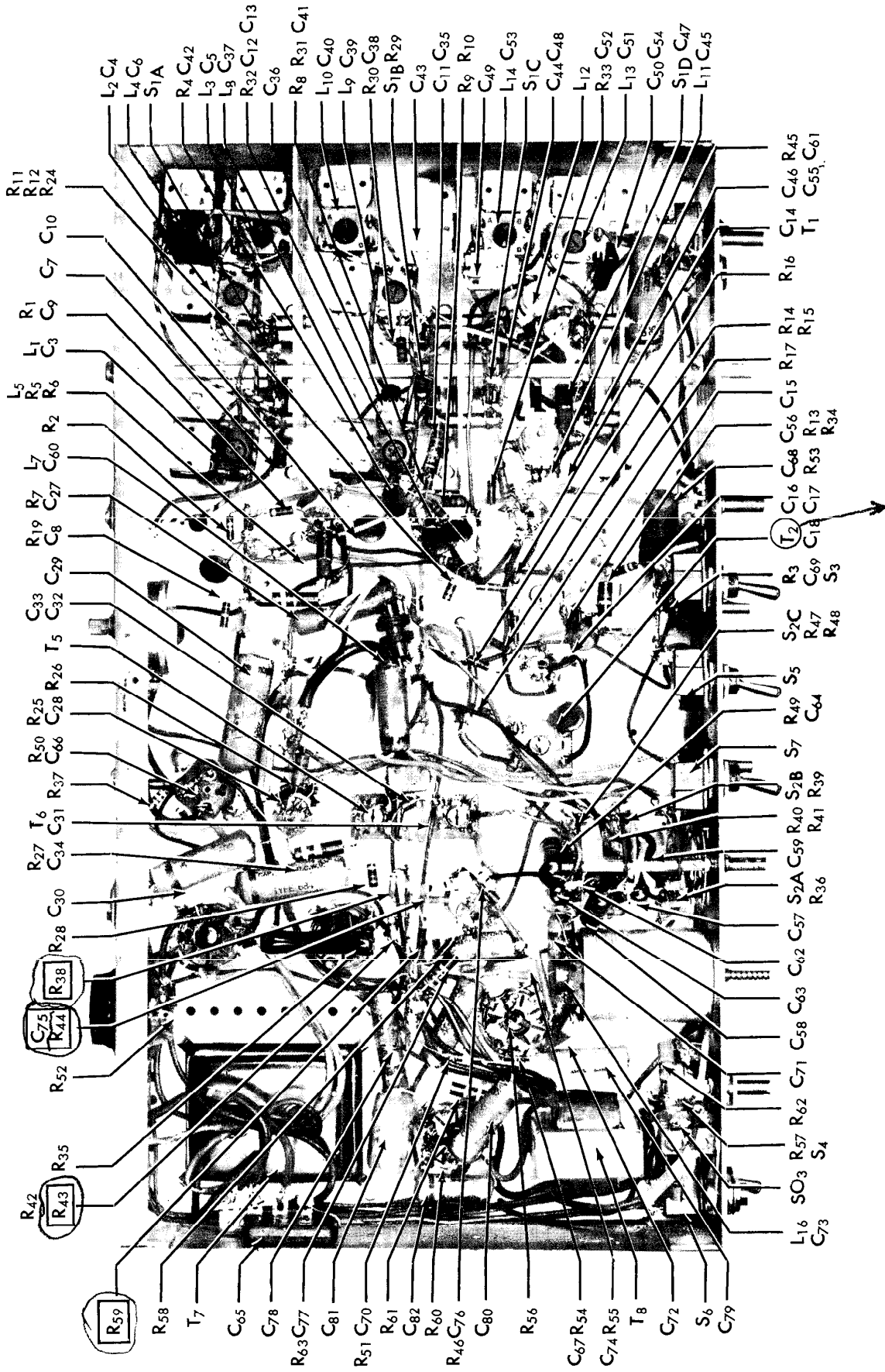


FIG. 7 BOTTOM VIEW - COMPONENT LOCATION

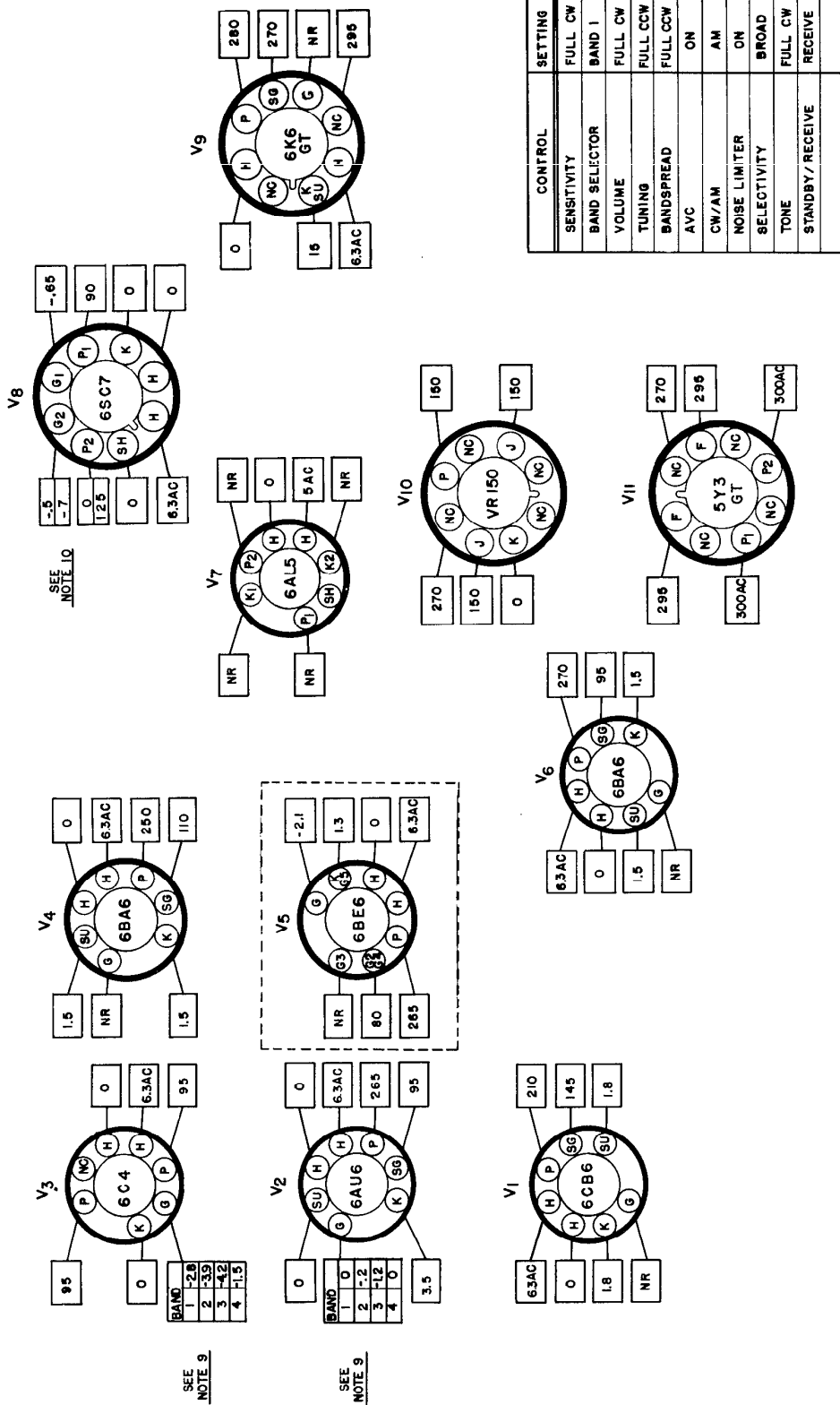
92X:399

SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS			RESISTORS		
C-1A,B,C	Capacitor, MAIN TUNING; 3 section	48C244	R-1	22 ohms 1/2 watt, carbon	23X20X220K
C-2A,B,C	Capacitor, BANDSPREAD; 3 section	48C243	R-2,25,58,59	1 megohm 1/2 watt, carbon	23X20X105K
C-3,4,5,6	Trimmers (part of antenna coils L-1,2,3, and 4)	-----	R-3,15,26	100 ohms 1/2 watt, carbon	23X20X101K
C-7,41,67, 75,76	220 mmf. 500 V., ceramic	47B20221K5	R-4,8,14,21	15 ohms 1/2 watt, carbon	23X20X150K
C-8,9,10,12, 13,14,15, 16,17,18, 42	5000 mmf. 450 V., ceramic	47A168	R-5,39,47	180 ohms 1/2 watt, carbon	23X20X181K
C-11,19,22, 52,55	100 mmf. 500 V., ceramic	47X20UJ101K	R-6	1000 ohms 1/2 watt, carbon (part of L-5)	-----
C-20	2200 mmf. 500 V., mica (part of osc. coil, L-6)	-----	R-7,27	39,000 ohms 1 watt, carbon	23X30X393K
C-21,23,27, 78	.05 mfd. 200 V., tubular paper	46AU503J	R-9	2.2 megohms 1/2 watt, carbon	23X20X225K
C-24,25,31, 32	390 mmf. 500 V., mica	47X20D391J	R-10	2200 ohms 1/2 watt, carbon	23X20X222K
C-26,33,35, 38,44	2.2 mmf. 450 V., ceramic	47A160-4	R-11,42,52	330,000 ohms 1/2 watt, carbon	23X20X334K
C-28,72	470 mmf. 500 V., mica	47X20B471K	R-12,17,24, 28,29,30,32	3300 ohms 1/2 watt, carbon	23X20X332K
C-29,61	.25 mfd. 200 V., tubular paper	46AT254J	R-13,56	100,000 ohms 1/2 watt, carbon	23X20X104K
C-30,34	.05 mfd. 600 V., tubular paper	46AY503J	R-16	8200 ohms 1/2 watt, carbon	23X20X822K
C-36,45	25 mmf. 500 V., ceramic	47X20UK250K	R-18	Resistor; variable; 500 ohms ("S" METER ADJUSTMENT)	25C022
C-37,39,40	Trimmers (part of RF coils L-8,9 and 10)	-----	R-19	270 ohms 1/2 watt, carbon	23X20X271K
C-43	Trimmer (for RF coil L-10, band 1)	44A399	R-20	150 ohms 1/2 watt, carbon	23X20X151K
C-46	Trimmer, 7-35 mmf. (for osc. coil L-11)	44A378	R-22,33	22,000 ohms 1/2 watt, carbon	23X20X223K
C-47	2400 mmf. 500 V., mica	47X30D242J	R-23,34	10,000 ohms 1 watt, carbon	23X30X103K
C-48	1000 mmf. 500 V., mica	47X25D102J	R-31	6800 ohms 1 watt, carbon	23X30X682K
C-49	Trimmer, 7-35 mmf. (for osc. coil L-12)	44A378	R-35	3000 ohms 10 watts, WW	24BG302E
C-50	470 mmf. 500 V., mica	47X20B471G	R-36	470 ohms 1/2 watt, carbon	23X20X471K
C-51,53	Trimmers (part of osc. coils L-13 and 14)	-----	R-37,60	470,000 ohms 1/2 watt, carbon	23X20X474K
C-54	Padder, 170 mmf. (for osc. coil L-14)	44B398	R-38	3.3 megohms 1/2 watt, carbon	23X20X335K
C-56	Capacitor, temperature compensated	44A158	R-40,48	220 ohms 1/2 watt, carbon	23X20X221K
C-57,62	4700 mmf. 600 V., molded tubular paper	46A181	R-41,49	390 ohms 1/2 watt, carbon	23X20X391K
C-58,63	.01 mfd. 600 V., molded tubular paper	46A179	R-43	82,000 ohms 1/2 watt, carbon	23X20X823K
C-59,64	.022 mfd. 600 V., molded tubular paper	46A180	R-44,55	47,000 ohms 1/2 watt, carbon	23X20X473K
C-60,68,69, 70,71,77, 80	.02 mfd. 600 V., tubular paper	46AY203J	R-45	Resistor, variable; 10,000 ohms (SENSITIVITY control)	25B590
C-65	.01 mfd. 600 V., molded paper	46X35X103J	R-46	1.5 megohms 1/2 watt, carbon	23X20X155K
C-66A,B,C	60-20-20 mfd. 450 V., electrolytic	45B113	R-50	10,000 ohms 1/2 watt, carbon	23X20X103K
C-73	560 mmf. 500 V., mica	47X20D561J	R-51	220,000 ohms 1/2 watt, carbon	23X20X224K
C-74	47 mmf. 500 V., ceramic	47X20UK470K	R-53	Resistor, variable; 500,000 ohms (VOLUME control)	25B534
C-79	.005 mfd. 600 V., tubular paper	46AY502J	R-54	15 megohms 1/2 watt, carbon	23X20X156K
C-81	10 mfd. 25V., electrolytic	45A121	R-57	Resistor, variable; 500,000 ohms (TONE control)	25B605
C-82	.01 mfd. 600 V., tubular paper	46AY103J	R-61	390 ohms 1 watt, carbon	23X30X391K
			R-62	560 ohms 1 watt, carbon	23X30X561K
			R-63	6.8 ohms 1 watt, carbon	23X30X068K
			TRANSFORMERS AND COILS		
			T-1,2	Transformer, 1st and 2nd IF (1650 KC)	50B488
			T-3,4,5,6	Transformer, IF (50 KC)	50B489
			T-7	Transformer, power (model S-76)	52C221

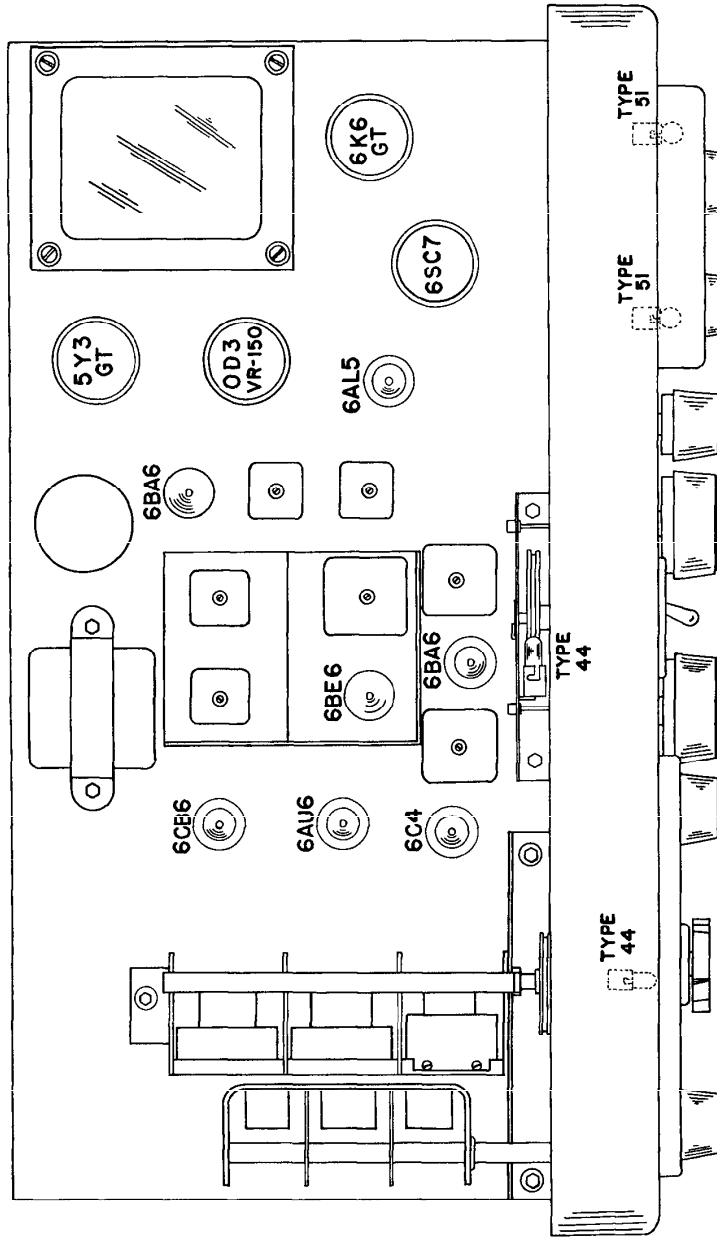
SERVICE PARTS LIST (Cont.)

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
TRANSFORMERS AND COILS (Cont.)			TUBES, RECTIFIERS AND LAMPS (Cont.)		
T-7	Transformer, power (model S-76U)	52C222	V-8	6SC7: audio amplifier and BFO	90X6SC7
T-8	Transformer, output	55B120	V-9	6K6GT: audio output	90X6K6GT
L-1	Coil, antenna (band 4)	51B1325	V-10	VR150: voltage regulator	90XVR150
L-2	Coil, antenna (band 3)	51B1324	V-11	5Y3GT: rectifier	90X5Y3GT
L-3	Coil, antenna (band 2)	51B1323	LM-1,2	Lamp, "S" meter; Mazda #51	39A030
L-4	Coil, antenna (band 1)	51B1322	LM-3,4	Lamp, main tuning and band-spread dial; Mazda #44	39A003
L-5	Choke, RF	53A215	MISCELLANEOUS		
L-6	Coil, 1600 KC oscillator	50B490		Bottom cover, cabinet	63B352
L-7	Choke, RF	53A107		Cabinet	66D652
L-8	Coil, RF (band 4)	51B1327		Cabinet front panel	68E159
L-9	Coil, RF (band 3)	51B1326		Cabinet top cover	66D616
L-10	Coil, RF (bands 1 and 2)	51B1319		Cord, dial; 84 inches	38A019
L-11	Coil, oscillator (band 4)	51B1321		Dial, scale, bandspread	83B388
L-12	Coil, oscillator (band 3)	51B1320		Dial scale, main tuning	83B387
L-13	Coil, oscillator (band 2)	51B1329		Escutcheon, main tuning dial	7C033
L-14	Coil, oscillator (band 1)	51B1328		**Extension, shaft	74B471
L-15	Choke, filter	56B107		Foot, rubber	16A007
L-16	Coil, BFO	54B045		Gasket, main tuning dial glass	12A040
SWITCHES				Glass, bandspread dial	22A321
S-1A	Wafer, BAND SELECTOR switch; antenna section	62B053		Glass, main tuning dial	22A315
S-1B	Wafer, BAND SELECTOR switch; RF section	62B053		Grommet, rubber; main tuning gang	16A180
S-1C	Wafer, BAND SELECTOR switch; osc. grid section	62B054		Insulator, "S" meter	8A1289
S-1D	Wafer, BAND SELECTOR switch; osc. plate section	62B055		Iron core, RF (for coils L-1,2,8,9 and 13)	77A066
S-2	Switch, rotary wafer; SELECTIVITY control	60B399		Iron core, RF (for osc. coils L-11 and 12)	3A1543
S-3,5,7	Switch, toggle; spst (AVC, CW/AM & NOISE LIMITER)	60A138	⊙ Knob, BAND SELECTOR; black phenolic or		15B421
S-4	Switch, power (part of TONE control, R-57)		** Knob, BAND SELECTOR; black phenolic or		15B422
S-6	Switch, toggle; dpst RECEIVE/STANDBY)	60A192	* Knob, BAND SELECTOR; aluminum		15B053
PLUGS AND SOCKETS				Knob, TUNING and BAND-SPREAD	15A048
PL-1	Line cord and plug	87A1669		Knob, PITCH CONTROL	15A334
PL-2	Plug, octal; JUMPER PLUG	35A003		Knob; SENSITIVITY, VOLUME, TONE and SELECTIVITY	15A335
SO-1	Jack, PHONO	36A041		Lock, line cord	76A397
SO-2	Socket, octal; DC POWER SOCKET	6B296		Pulley, bandspread ratio; 2 1/8" O.D.	28A093
SO-3	Jack, PHONES	36B048		Pulley, bandspread ratio; 1.14" O.D.	28A094
	Socket assembly, band-spread dial lamp	86A109	** Shaft and index plate, BAND SELECTOR switch or		74B472
	Socket assembly, main tuning dial lamp	86B108	* Shaft and index plate, BAND SELECTOR switch		74B172
	Socket assembly, "S" meter pilot lamp	86B107	Shield, miniature tube		69A306
	Socket, miniature 7 pin tube; molded mica filled	6A347	M-1	"S" meter	82C183
	Socket, octal tube	6B296		Spring, dial cord	75A163
TUBES, RECTIFIERS AND LAMPS			TS-1	Terminal strip, antenna	88A032
V-1	6CB6: RF amplifier	90X6CB6	TS-2	Terminal strip, speaker	88A578
V-2	6AU6: 1st mixer	90X6AU6	⊙ When knob 15B421 is used, shaft and index plate 74B472 must be used in conjunction with it.		
V-3	6C4: oscillator	90X6C4	** When Knob 15B422 is used, shaft and index plate 74B472 and shaft extension 74B471 must be used in conjunction with it.		
V-4,6	6BA6: 1650 KC IF amplifier and 50 KC IF amplifier	90X6BA6	* When Knob 15B053 is used, shaft and index plate 74B172 must be used in conjunction with it.		
V-5	6BE6: 2nd mixer and oscillator	90X6BE6			
V-7	6AL5: detector, AVC and ANL	90X6AL5			



NOTES

1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND THE CHASSIS WITH ZERO SIGNAL INPUT.
3. LINE VOLTAGE - 117 VOLTS, 60 CYCLES AC.
4. ALL VOLTAGES SHOWN ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED
5. DC VOLTAGES WERE MEASURED WITH A VACUUM TUBE VOLTMETER (VTVM).
6. "NC" - NO CONNECTION. VOLTAGE SHOWN FOR THIS TERMINAL ONLY WHEN TERMINAL IS USED AS A TIE LUG.
7. "NR" - NOT READABLE. VOLTAGES MEASURED AT THESE TERMINALS GENERALLY MEANINGLESS.
8. "CW" - CLOCKWISE. "CCW" - COUNTERCLOCKWISE
9. VOLTAGE AT THIS TERMINAL VARIES WITH SETTING OF BAND SELECTOR SWITCH.
10. AM WHERE TUBE SOCKET VOLTAGES CHANGE FROM AM TO CW OPERATION, TWO READINGS ARE SHOWN. THE UPPER READING IS WITH THE AM/CW SWITCH IN THE AM POSITION WHILE THE LOWER READING IS WITH THE SWITCH IN THE CW POSITION.



9201374

FIG. 9 TOP VIEW - LOCATION OF TUBES AND DIAL LAMPS

Warranty

"The Hallicrafter's Company warrants each new radio product manufactured 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 'hus defective.

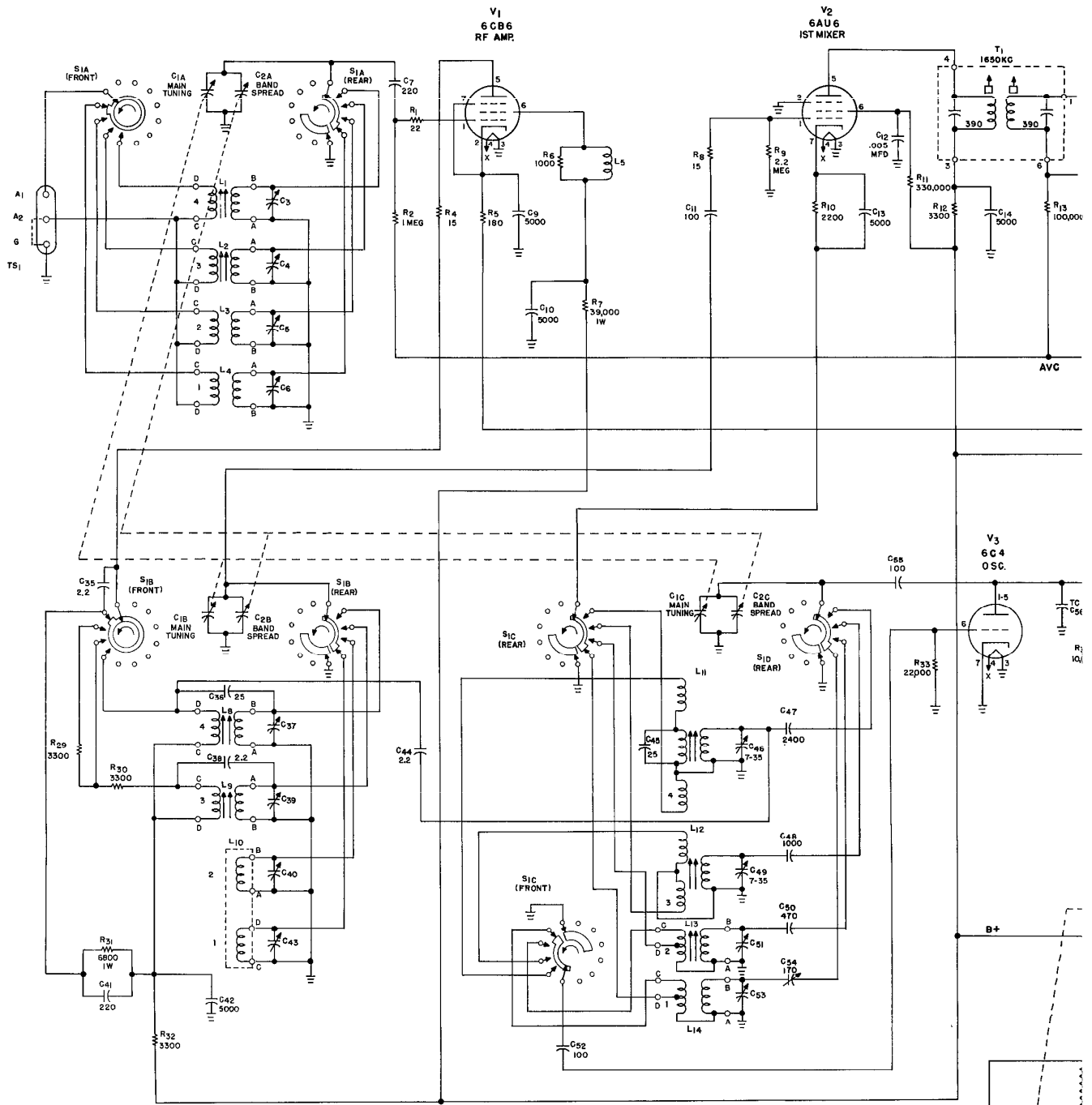
This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory 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.



LAST R SYMBOL R-63
 LAST C SYMBOL C-82
 LAST T SYMBOL T-B
 LAST L SYMBOL L-16

1. RESISTOR VALUES ARE IN OHMS AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
2. CAPACITOR VALUES ARE IN MMF UNLESS OTHERWISE SPECIFIED.
3. BAND SELECTOR SWITCH (S₁) SHOWN IN BAND 1 POSITION (EXTREME COUNTER-CLOCKWISE). SEE FIG. 7 FOR LOCATION OF SWITCH SECTIONS.
4. SELECTIVITY CONTROL (S₂) SHOWN IN BROAD POSITION (EXTREME COUNTER-CLOCKWISE). SEE FIG. 7 FOR LOCATION OF SWITCH SECTIONS.

PL1
 105-125V 50/60 ϕ AC

VALUES AND TOLERANCES 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.

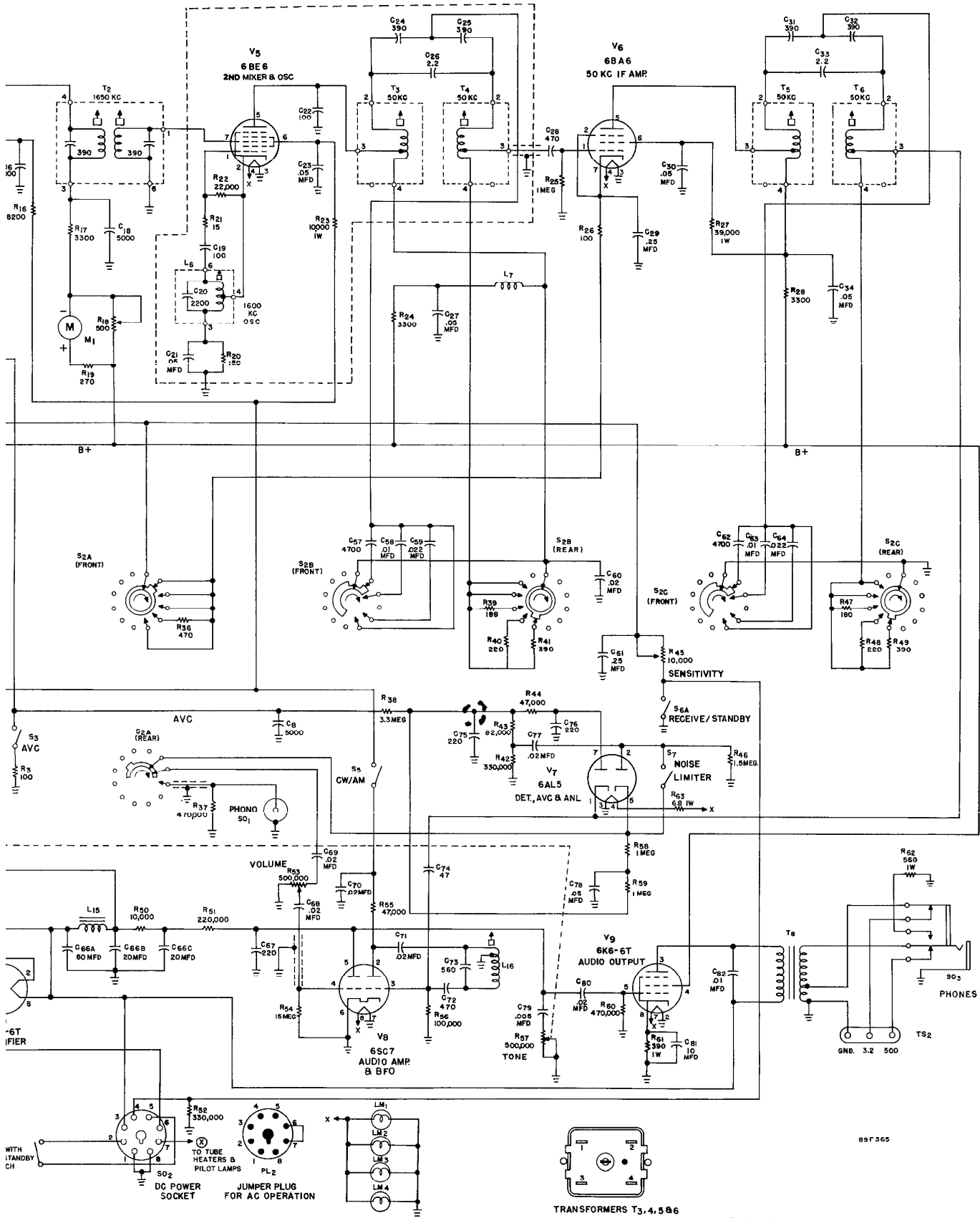


FIG. 10 SCHEMATIC DIAGRAM