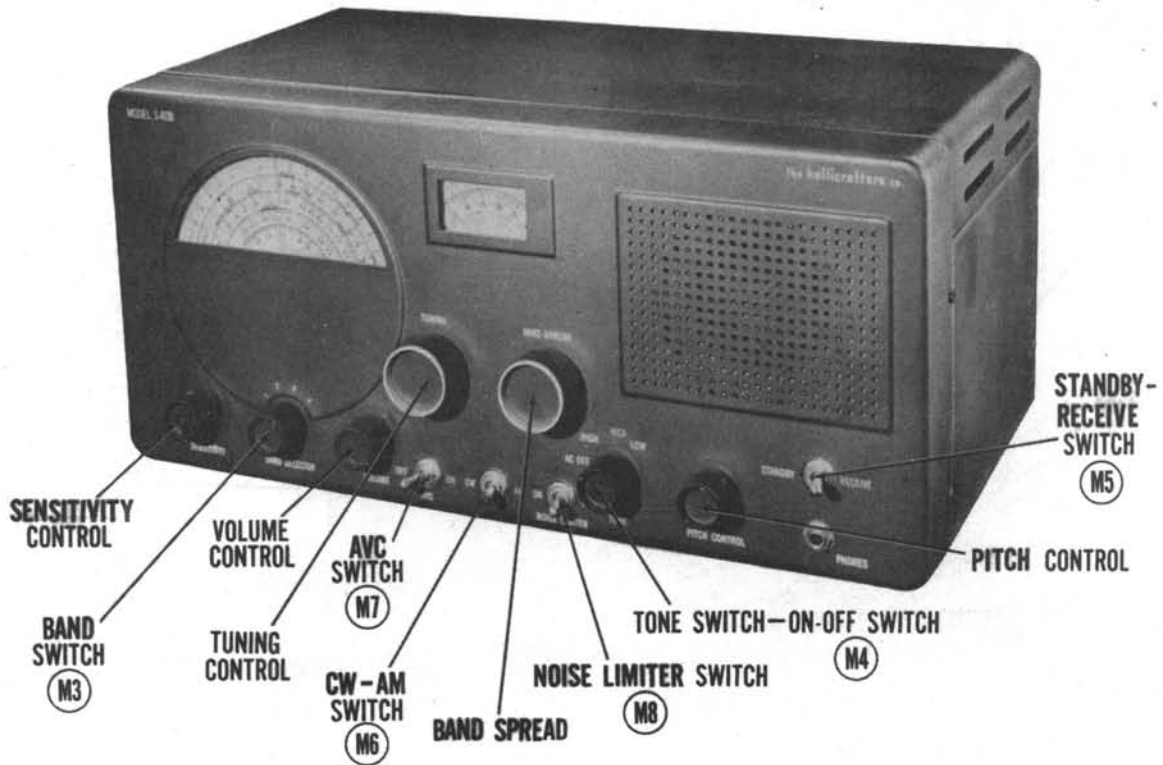




HALLICRAFTERS  
MODEL S-40B



HALLICRAFTERS  
MODEL S-40B

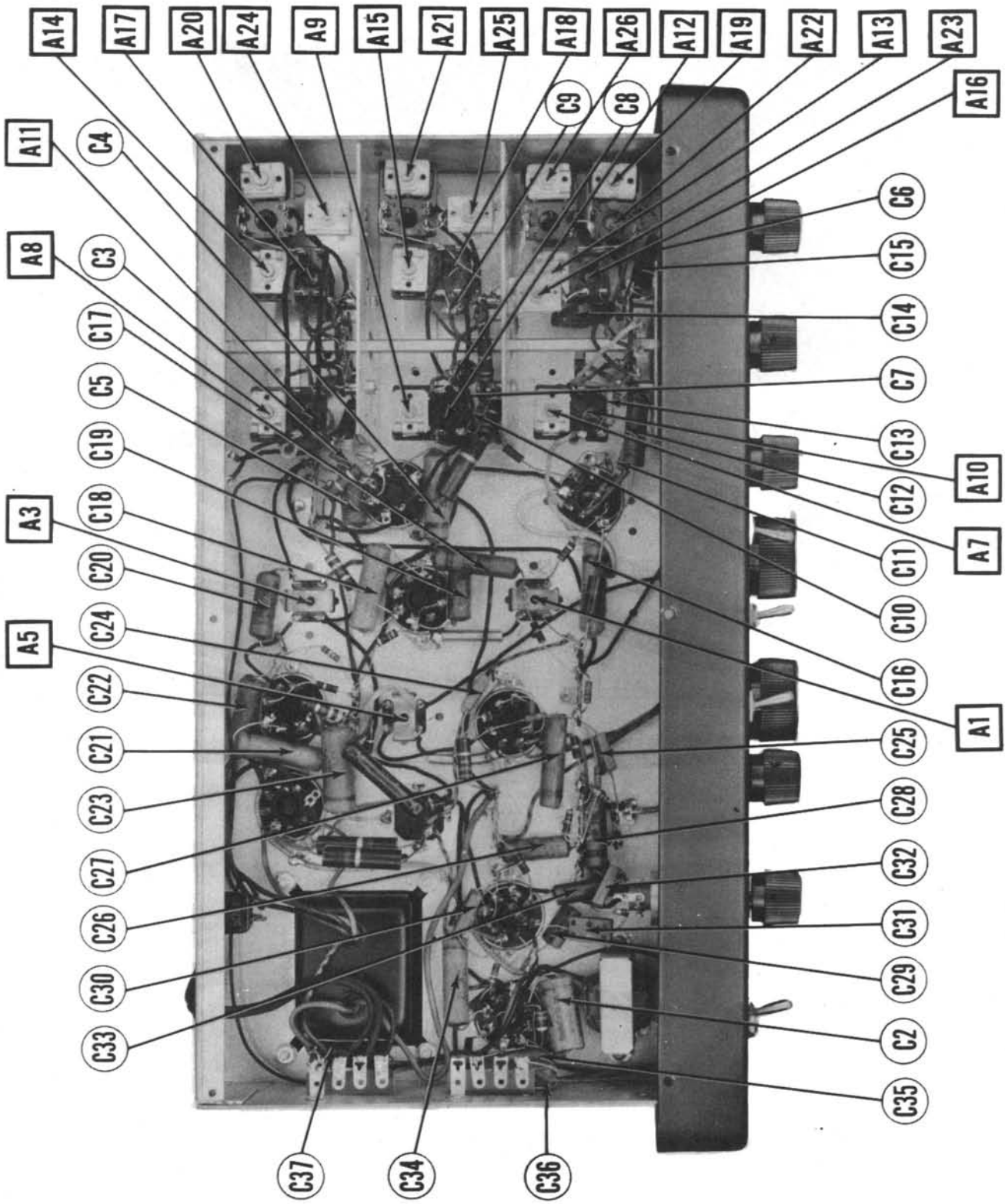
HALLICRAFTERS MODEL S-40B

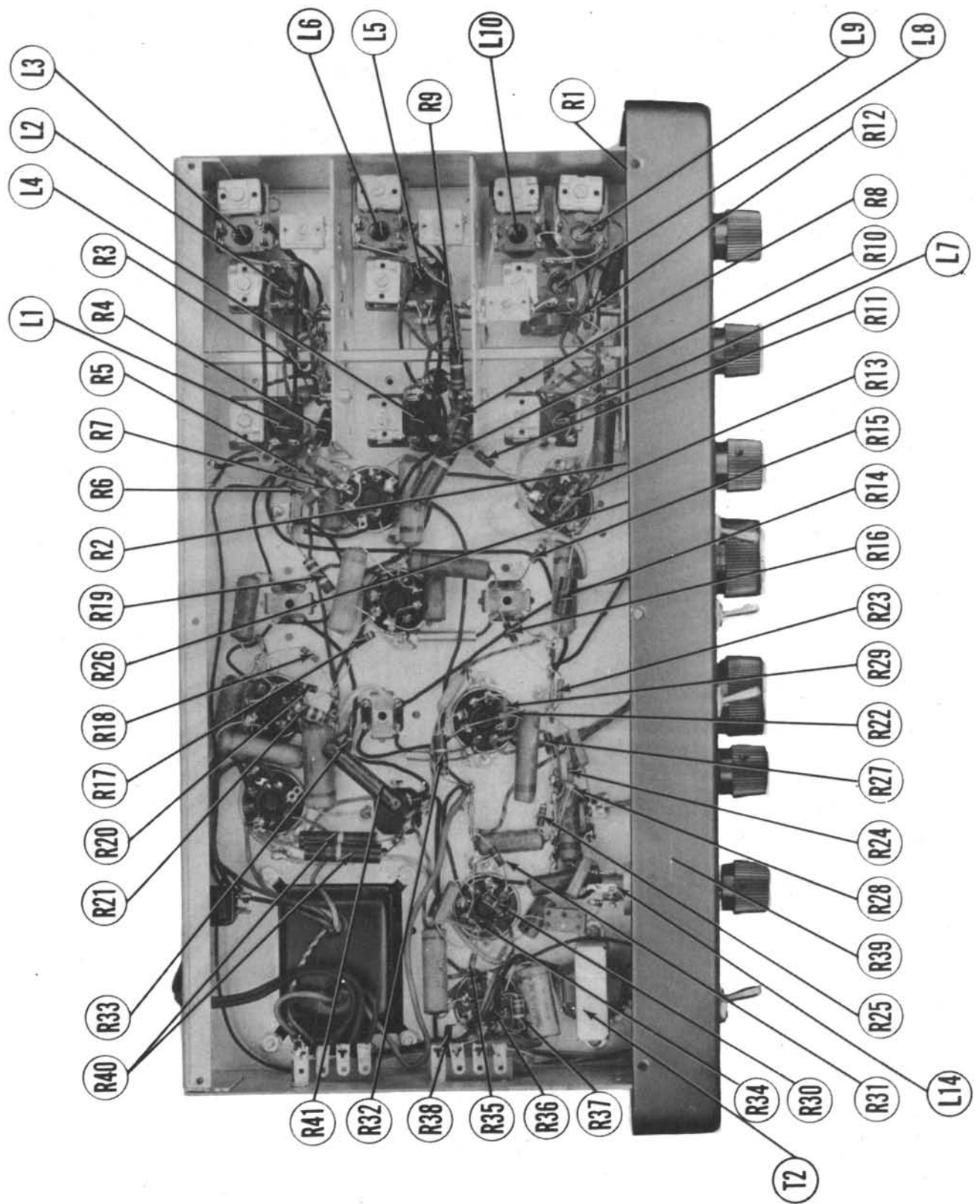
TRADE NAME	Hallicrafters, Model S-40B	
MANUFACTURER	The Hallicrafters Co., 5th and Kostner Aves., Chicago 24, Illinois	
TYPE SET	AC Operated 4 Band Superheterodyne Communications Receiver	
TUBES (EIGHT)	Types 6SG7 RF Amp., 6SA7 Converter, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6H6 Det.-AVC-ANL, 6SC7 AF Amp.-BFD, 6K6GT Power Output, 5Y3GT Rectifier	
POWER SUPPLY	105-125 Volts AC	RATING .61 Amp. @ 117 Volts AC
TUNING RANGE -	(Band #1)540-1680KC, (Band #2)1680KC-5.4MC, (Band #3)5.3MC-15.5MC, (Band #4)15.5MC-44MC	

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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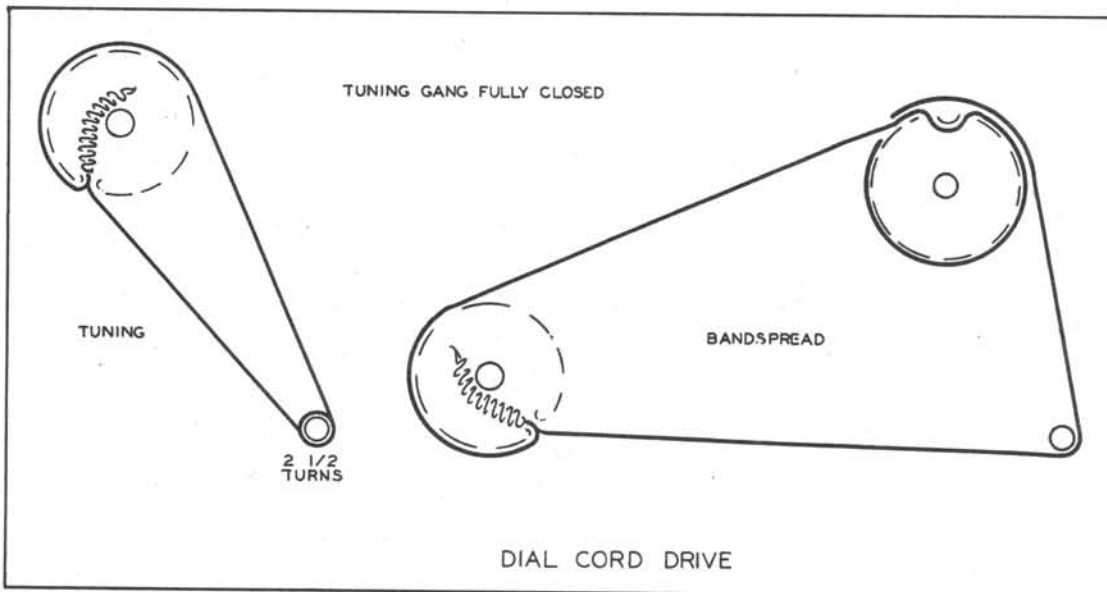




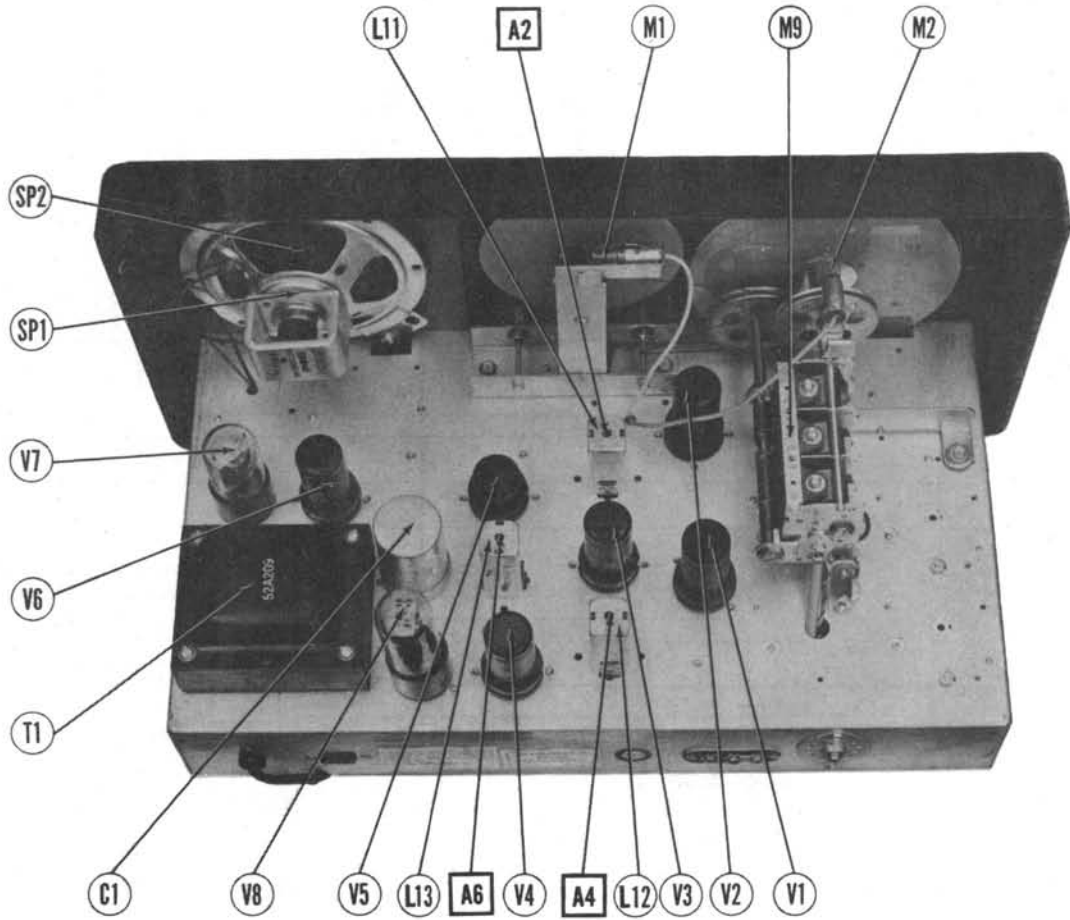
**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set dial scale, turn main tuning gang fully closed and set the dial scale so the zero calibration on the logging scale is aligned with the index line on the dial covering.  
 To set the bandspread dial scale, turn the fine tuning gang fully open and set the zero calibration on the bandspread dial scale even with the index mark on the dial covering.  
 The RMA dummy antenna consists of a 200MMF capacitor in series with a 20 microhenry choke, the combination is shunted by a 400MMF capacitor in series with a 400 ohm carbon resistor.  
 Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. Direct	High side to stator on center section of tuning gang. Low side to chassis.	455KC (400 % Mod.)	1	1000KC	Across voice coil	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2. Direct	"	455KC (Unmod.)	"	"	"	"	Turn the "CW-AM" switch to "CW". Remove the pitch control knob and turn the shaft until zero beat is heard in the speaker. Replace the knob with the indicator dot straight up.
3. RMA	High side thru dummy to antenna terminal "A1". (Connect link between A2 and G). Low side to chassis.	36MC (400 % Mod.)	4	36MC	"	A7, A8 A9	Adjust for maximum output.
4. RMA	"	18MC	"	18MC	"	A10, A11 A12	Adjust for maximum output. Repeat steps 3 and 4 until no further improvement can be made.
5. RMA	"	14MC (400 % Mod.)	3	14MC	"	A13, A14 A15	Adjust for maximum output.
6. RMA	"	10MC (400 % Mod.)	3	10MC	"	A16, A17 A18	Adjust for maximum output. Repeat steps 5 and 6 until no further improvement can be made.
7. RMA	"	5MC (400 % Mod.)	2	5MC	"	A19, A20 A21	Adjust for maximum output.
8. RMA	"	1.8MC (400 % Mod.)	2	1.8MC	"	A22	Adjust for maximum output. Repeat steps 7 and 8 until no further improvements can be made.
9. RMA	"	1500 KC (400 % Mod.)	1	1500 KC	"	A23, A24 A25	Adjust for maximum output.
10. RMA	"	800KC (400 % Mod.)	1	800KC	"	A26	Adjust for maximum output. Repeat steps 9 and 10 until no further improvement can be made.



# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		Hallcrafters PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	90X6SG7	6SG7	8BK	
V2	Converter	90X6SA7	6SA7	8R	
V3	1st IF Amp.	90X6SK7	6SK7	8N	
V4	2nd IF Amp.	90X6SK7	6SK7	8N	
V5	Det.-AVC-A. N. L.	90X6RH6	6RH6	7C	
V6	AF Amp.-BFO	90X6SC7	6SC7	8S	
V7	Power Output	90X6KG6T	6KG6T	7S	
V8	Rectifier	90X5Y3GT	5Y3GT	5T	

## CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA				SPRAGUE PART No.	ERIE PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION AND INSTALLATION NOTES
		Hallcrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	UP41145				
C1A	30	45A062	AFH266J		UP41145	TVL-4729		Filter	
C1B	10							Filter	
C1C	10							Filter	
C2	10	45A121	PR525/10	BR102A	BR102A	TVA-1204		Output Cath. Bypass	
C3	220	47X20B221K	I468-00025	5W5T25	5W5T25	IFM-325		RF Coupling	
C4	.05	46AW503J	P488-05	DF-503	DF-503	4TM-S5		RF Amp. Screen	
C5	.05	46AU503J	P288-05	DF-503	DF-503	2TM-S5		RF Amp. Cathode	
C6	.25	46AT254J	P468-25	G72P25	G72P25	2TM-P25		Cathode Bypass	
C7	2.2	47A160-4	S122	TCZ-2.2	TCZ-2.2			RF Coupling	
C8	22	47X21UK220M	SI15	TCN-22	TCN-22	19C7		RF Coupling	
C9	15	47X21UK220M	SI15	TCN-15	TCN-15	19C6		RF Coupling	
C10	220	47X20B221K	I468-0002	D6-221	D6-221	19C13		RF Amp. Plate	
C11	390	47X20B391K	I468-0004	D6-391	D6-391	IFM-34		Osc. Grid Cap	
C12	.01	46AW103J	P488-01	D6-103	D6-103	4TM-S1		Osc. Feedback	
C13	68	47X25UK680K		TCN-68	TCN-68	29C15		Fixed Trimmer	
C14	2700	47X30C320K	I464-0003	IR5D3	IR5D3	MS-23		Fixed Padder	
C15	1500	47X30C152J	I464-0005	IR5D15	IR5D15	MS-215		Fixed Padder	
C16	.05	46AW503J	P488-05	DF-503	DF-503	4TM-S5		RF Bypass	
C17	.02	46AU203J	P488-02	DF-203	DF-203	2TM-S2		RF Filter	
C18	.02	46AY203J	P688-02	DF-203	DF-203	2TM-S2		1st IF Screen	
C19	.05	45AU503J	P288-05	DF-503	DF-503	2TM-S5		1st IF Cathode	
C20	.05	45AU503J	P288-05	DF-503	DF-503	2TM-S5		AVC Filter	
C21	.02	46AY203J	P488-02	DF-203	DF-203	6TM-S2		2nd IF Screen	
C22	.05	46AV103J	P488-05	DF-503	DF-503	4TM-P1		Decoupling	
C23	.1	46AV104J	P488-01	DF-104	DF-104	4TM-P1		Diode RF Filter	
C24	47	47X20B470M	I468-00005	D6-470	D6-470	IFM-45		Diode RF Filter	
C25	47	47X20B470M	I468-00005	D6-470	D6-470	IFM-45		Diode RF Filter	
C26	.05	46AU503J	P488-05	DF-503	DF-503	2TM-S5		ANL Filter	
C27	.05	46AU503J	P488-05	DF-503	DF-503	2TM-S5		ANL Filter	
C28	.02	46AU203J	P488-02	DF-203	DF-203	2TM-S2		Audio Coupling	
C29	1000	47X25B102M	I468-0001	D6-102	D6-102	IFM-21		Audio Coupling	
C30	270	47X20B271K	I468-00025	D6-271	D6-271	IFM-325		AF Amp. Plate	
C31	270	47X20B271K	I468-00025	D6-271	D6-271	IFM-325		Osc. Grid Cap	
C32	470	47X20B471J	I468-00005	D6-471	D6-471	MS-35		Fixed Trimmer	
C33	.01	46AW103J	P488-01	D6-103	D6-103	4TM-S1		Osc. Feedback	
C34	.02	1000		DF-203	DF-203	6TM-S2		Output Plate Bypass	
C35	.02	600		P1068-022	P1068-022	MB-D2		Tone Comp.	
C36	.02	600		PTE652	PTE652	6TM-S2		Tone Comp.	
C37	.01	600		P688-01	P688-01	6TM-S1		Line Filter	

## CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			CENTRALAB PART No.	INSTALLATION NOTES
	RESISTANCE	WATTS	Hallcrafters PART No.	IRC PART No.	CLAROSTAT PART No.		
R1A	10KΩ	1/2	25B590	Q14-116	AM-30-V	B-15 *	Sensitivity control
R2A	500KΩ	1/2	25A534	Q13-133	AM-60-Z	B-60	Attach to R1A per instructions
R2B	500KΩ	1/2	25A534	Q13-133	AM-60-Z	B-60	Volume control
R3	10KΩ	1/2	25B590	Q14-116	AM-30-V	B-15 *	Attach to R2A per instructions

\* Reverse right and left terminal connections.

## PARTS LIST AND DESCRIPTIONS (Continued)

### RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Hallcrafters PART No.	IRC PART No.	
R3	1000Ω		23X20X102K	BTS-1000	Series Antenna
R4	22Ω		23X20X220M		Parasitic Supp
R5	1Meg		23X20X105M		RF Amp. Grid
R6	120Ω		23X20X121K		RF Amp. Cathode
R7	39K	1	23X30X393K		RF Amp. Screen
R8	6800Ω	1	23X30X682K		RF Amp. Plate
R9	6800Ω	1	23X30X682K		RF Amp. Plate
R10	22Ω	1	23X20X220M		Parasitic Supp
R11	33Ω	1	23X20X330M		Parasitic Supp - See Note 1
R12	18KΩ	2	23X20X183K		Parasitic Supp
R13	18KΩ	2	23X40X183K		Osc. Grid
R14	10KΩ	2	23X20X103K		Parasitic Supp
R15	330Ω	1	23X20X330K		1st IF Amp. Grid
R16	100KΩ	1	23X20X104K		1st IF Amp. Cathode
R17	470Ω	1	23X20X471K		Cathode
R18	330KΩ	1	23X30X334K		1st IF Amp. Screen
R19	47KΩ	1	23X30X473K		2nd IF Amp. Cathode
R20	1000Ω	1	23X20X102K		Diode Filter - See Note 2
R21	47KΩ	1	23X20X473K		AVC Network
R22	56KΩ	1	23X20X563K		AVC Network
R23	2.2Meg	1	23X20X225M		AVC Network
R24	1Meg	1	23X20X105M		AVC Network
R25	470KΩ	1	23X20X474K		AVC Network
R26	150Ω	1	23X20X151K		AVC Diode Load
R27	100KΩ	1	23X20X104K		AVC Diode Load
R28	330KΩ	1	23X20X334K		AVC Diode Load
R29	2.2Meg	1	23X20X225M		AVC Diode Load
R30	100KΩ	1	23X20X104K		BFO Grid
R31	22KΩ	1	23X20X223K		BFO Plate
R32	6.8Ω	1	23X30X068K		Det.-AVC-ANL Filament
R33	1000Ω	1	23X20X102K		Voltage Divider
R34	15Meg	1	23X20X156M		AF Amp. Grid
R35	270KΩ	1	23X20X274K		AF Amp. Plate
R36	470KΩ	1	23X20X474K		Output Grid
R37	680Ω	1	23X30X684K		Output Cathode
R38	10KΩ	1	23X20X103K		Output Screen
R39	15KΩ	1	23X30X153K		Tone Compensation
R40	12KΩ	1	23X65C123K		Decoupl. - See Note 3.
R41	1500Ω	10	24B1652E	1.3/4A-1500	Filter - Wire Wound

Note 1. Some models use 27Ω resistor in this application.

Note 2. Some models use 47KΩ resistor in this application.

Note 3. Some models use resistors in parallel to obtain desired value.

### TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA			
	IMPEDANCE	DC RES.	SEC.	Hallcrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .61A	700VCT @ 2A	5VAC @ 2.6A	52A209	PM8410	P2953	PH-70B ①

① Drill new mounting holes.

### TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	Hallcrafters PART No.	STANCOR PART No.	MERIT PART No.	
T2	6.3KΩ	3.2Ω	390Ω	40	55B093	A-3878	A-2931 RO-13

## PARTS LIST AND DESCRIPTIONS (Continued)

### SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	V. C. IMP.	Hallcrafters PART No.	JENSEN PART No.	
SP1	PM 4 3/4"	3.2Ω	85B050	ST-105 Mod. P5-X	5A1
SP2	4 3/4"	9/16"			

### R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Hallcrafters PART No.	MEISSNER PART No.	
L1	Antenna Coil	.3Ω	.1Ω	51B783		Band 4
L2	Antenna Coil	.4Ω	.2Ω	51B782		Band 3
L3 A	Antenna Coil	5Ω		51B1241		Band 2
L3 B	RF Coil	1.6Ω	.1Ω	51B787		Band 4
L4	RF Coil	1.6Ω	.2Ω	51B786		Band 3
L5	RF Coil	1.6Ω		51B1240		Band 2
L6 A	RF Coil	1.6Ω		51B791		Band 4
L6 B	Osc. Coil	.2Ω	.1Ω	51B133		Band 1
L7	Osc. Coil	.2Ω		51B789		Band 4
L8	Osc. Coil	1.5Ω		51B912		Band 3
L9	Osc. Coil	3.5Ω		50C243		Band 2
L10	Osc. Coil	9Ω	9Ω	50C243		Band 3
L11	1st IF	9Ω	9Ω	50C242		Band 2
L12	2nd IF	9Ω	16Ω	50B044		Band 1
L13	3rd IF	18Ω	16Ω			
L14	BFO Coil	15Ω				

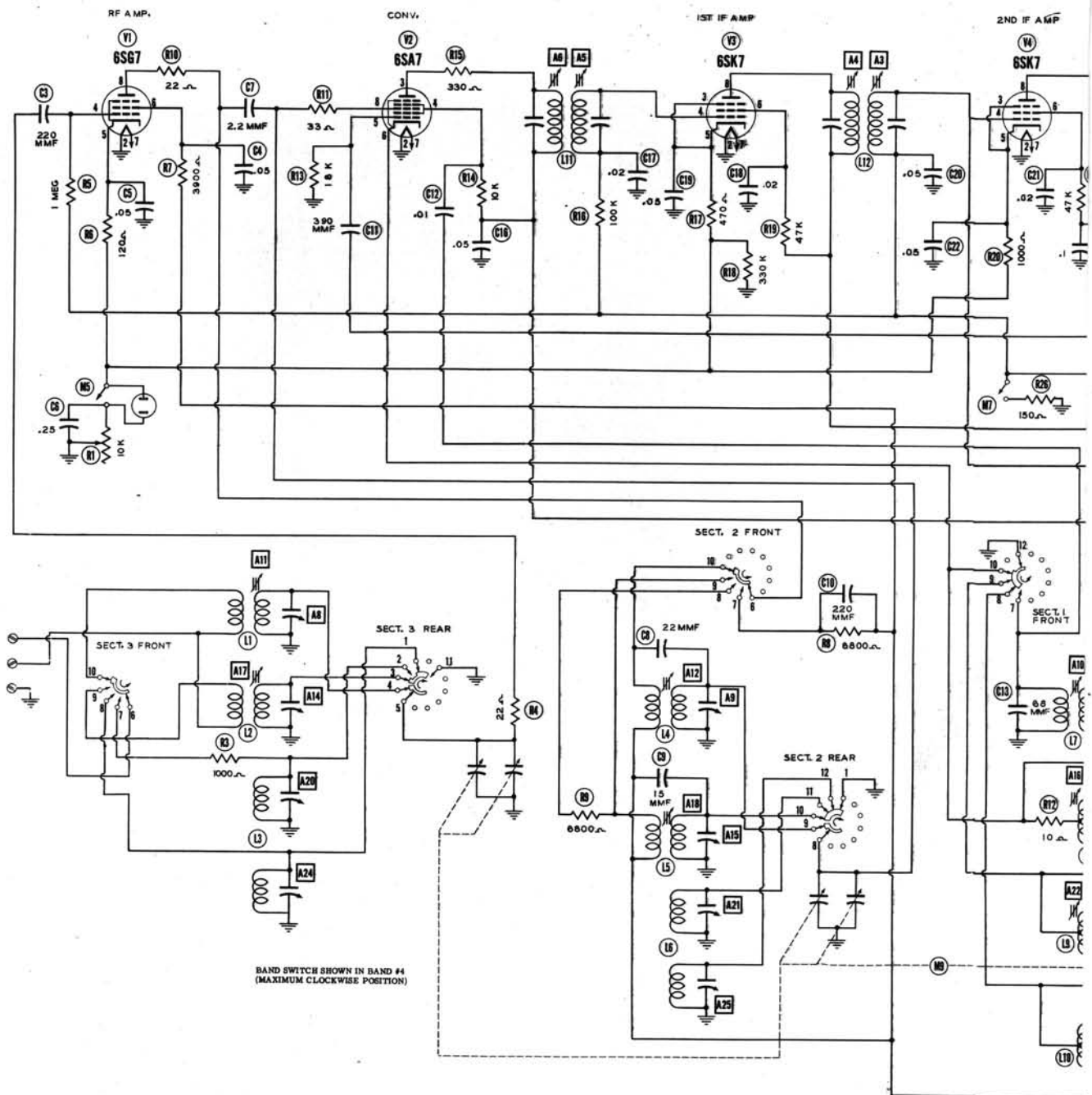
### DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Hallcrafters PART No.	Hallcrafters PART No.	
M1	Bayonet	6-8	.25	Blue	39A003	39A003	Type #44
M2	Bayonet	6-8	.25	Blue	39A003	39A003	Type #44

### MISCELLANEOUS

ITEM No.	PART NAME	HALLCRAFTERS PART No.	REPLACEMENT DATA		NOTES
			Hallcrafters PART No.	Hallcrafters PART No.	
M3A	Switch Wafer	60B389			Band, Antenna
B	Switch Wafer	62B039			Band, Mixer
C	Switch Wafer	62B044			Band, Oscillator
D	Switch Shaft	60B392			Band
M4	Switch	60A225			Power - Tone
M5	Switch	60A138			Standby - Receive
M6	Switch	60A138			CW-AM
M7	Switch	60A138			AVC
M8	Switch	60A138			Noise Limiter
M9	5' Gang Var. Cap	48C240			(U-438MMF) Each Section
	Dial	83C372			Bandspread
	Knob	12A058			General Coverage
	Knob	15A049			Pitch
	Knob	15A047			Sensitivity, Volume, Tone
	Knob	15A266			Tuning, Bandspread





BAND SWITCH SHOWN IN BAND #4  
(MAXIMUM CLOCKWISE POSITION)

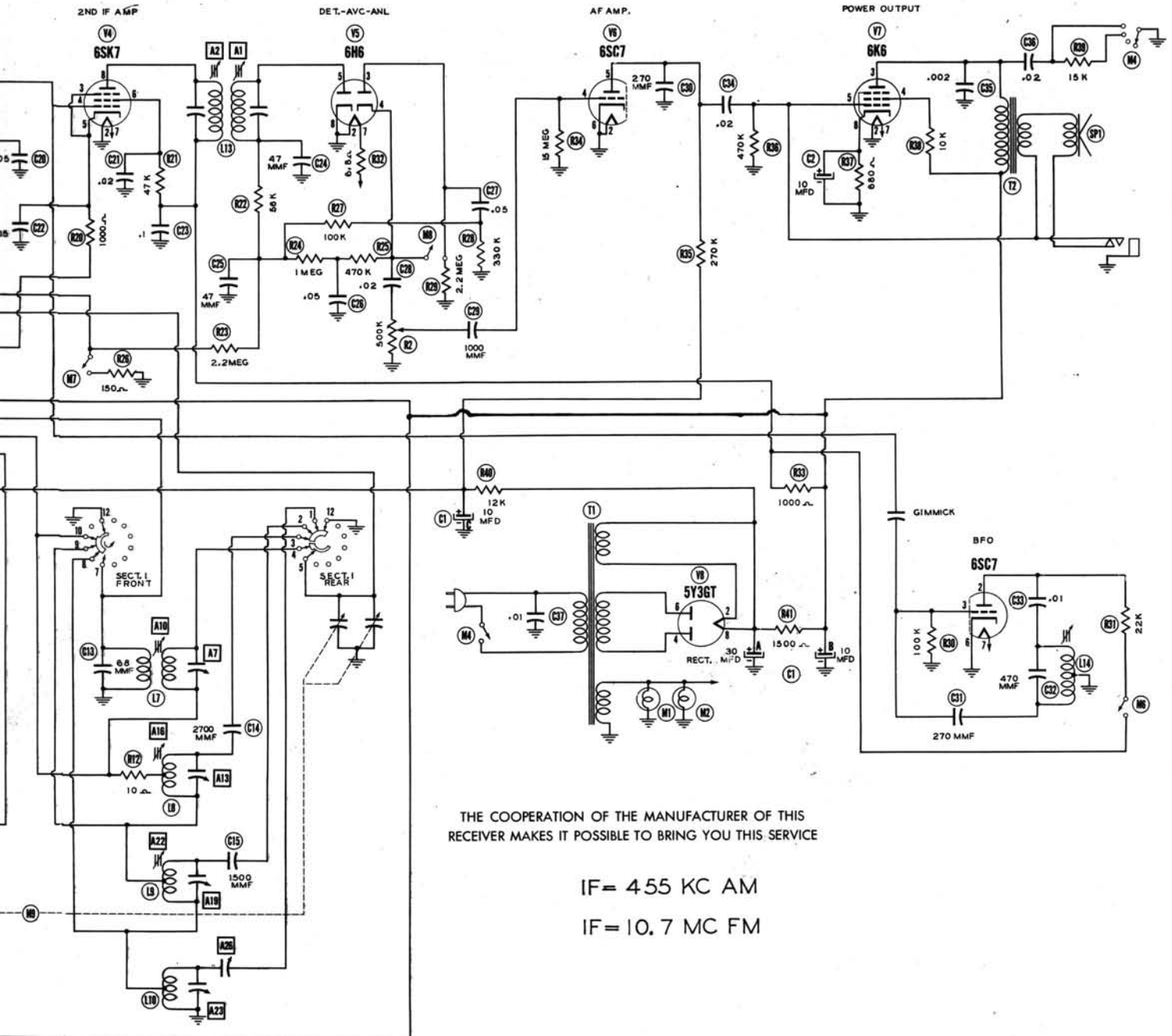
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SG7	0V	0V	45VDC	0V	45VDC	330VDC	6.3VAC	325VDC
V 2	6SA7	0V	0V	200VDC	110VDC	8-9.8VDC	.3VDC	6.3VAC	0V
V 3	6SK7	0V	0V	47VDC	0V	47VDC	305VDC	6.3VAC	320VDC
V 4	6SK7	0V	0V	50VDC	0V	50VDC	315VDC	6.3VAC	325VDC
V 5	6H8	0V	0V	-2VDC	0V	-8VDC	-8VDC	6.3VAC	0V
V 6	6SC7	0V	360VDC	-6VDC	-4VDC	75VDC	0V	6.3VAC	0V
V 7	6K8GT	0V	0V	315VDC	330VDC	0V	200VDC	6.3VAC	22VDC
V 8	5Y3GT	0V	380VDC	0V	340VAC	0V	340VAC	0V	380VDC

† TAKEN WITH VACUUM TUBE VOLTMETER

\* TAKEN WITH CW-AM RECEIVER-STANDBY SW. AVC SWITCH ON NOISE LIMITER SWITCH. CW-AM SWITCH BY AM U BAND SWITCH IN BAND 1

- DC Voltage measurements are at measured at 1,000 ohms per volt.
- Socket connections are shown as 1
- Measured values are from socket p
- Line voltage maintained at 117 v
- Nominal tolerance on component + 10% in voltage and resistance
- Volume control at maximum, no ments.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF = 4.55 KC AM

IF = 10.7 MC FM

Pin 6	Pin 7	Pin 8
280VDC	6.3VAC	325VDC
280VDC	6.3VAC	0V
280VDC	6.3VAC	320VDC
315VDC	6.3VAC	325VDC
0V	6.3VAC	0V
0V	6.3VAC	0V
280VDC	6.3VAC	22VDC
340VAC	0V	380VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0Ω	0Ω	8KΩ	3.6Meg	8KΩ	140KΩ	.1Ω	18.3KΩ
V 2	6SA7	0Ω	0Ω	112KΩ	122KΩ	18KΩ	100	.1Ω	33Ω
V 3	6SK7	0Ω	0Ω	8.5KΩ	2.7Meg	8.5KΩ	148KΩ	.1Ω	11.5KΩ
V 4	6SK7	0Ω	0Ω	9KΩ	2.6Meg	9KΩ	150KΩ	.1Ω	12.5KΩ
V 5	6H6	0Ω	0Ω	2.2Meg	1.9Meg	490KΩ	490KΩ	.1Ω	0Ω
V 6	6SC7	0Ω	1.25KΩ	100KΩ	15Meg	128KΩ	0Ω	.1Ω	0Ω
V 7	6K6GT	0Ω	0Ω	11.9KΩ	11.5KΩ	470KΩ	112KΩ	.1Ω	88Ω
V 8	5Y3GT	Inf.	50KΩ	Inf.	150Ω	Inf.	150Ω	Inf.	50KΩ

† MEASURED FROM PIN 2 OF V 8

A TAKEN WITH CW-AM SWITCH IN CW  
 RECEIVE-STANDBY SWITCH IN RECEIVE  
 AVC SWITCH ON  
 NOISE LIMITER SWITCH ON  
 CW-AM SWITCH IN AM UNLESS OTHERWISE NOTED  
 BAND SWITCH IN BAND 1 (.55-1.5MC)

Resistance measurements are at 20,000 ohms per volt; AC Voltages are at 1,000 ohms per volt.  
 Connections are shown as bottom views.  
 Resistance values are from socket pin to common negative.  
 Voltage measurements are maintained at 117 volts for voltage readings.  
 Tolerance on component values makes possible a variation of 10% in voltage and resistance readings.  
 Control at maximum, no signal applied for voltage measurements.