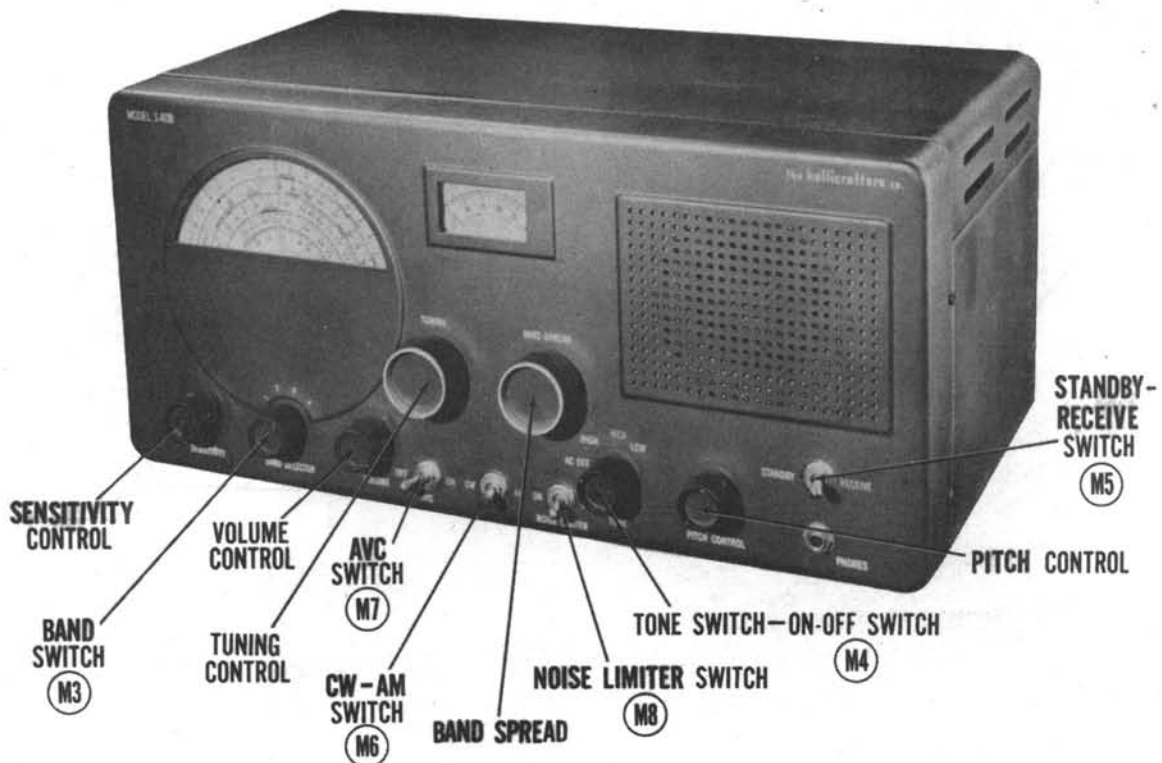




**HALLICRAFTERS
MODEL S-40B**



**HALLICRAFTERS
MODEL S-40B**

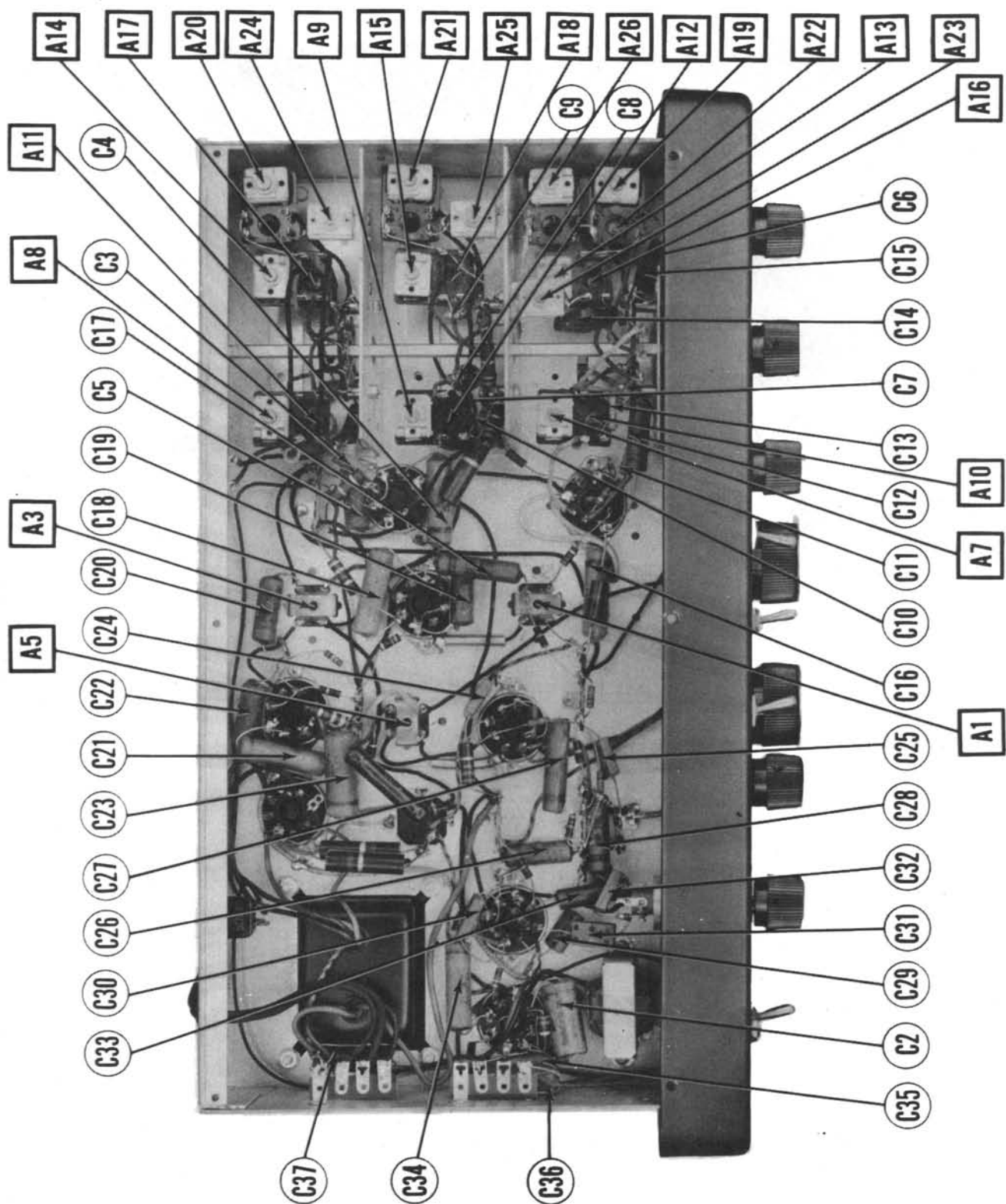
HALLICRAFTERS MODEL S-40B

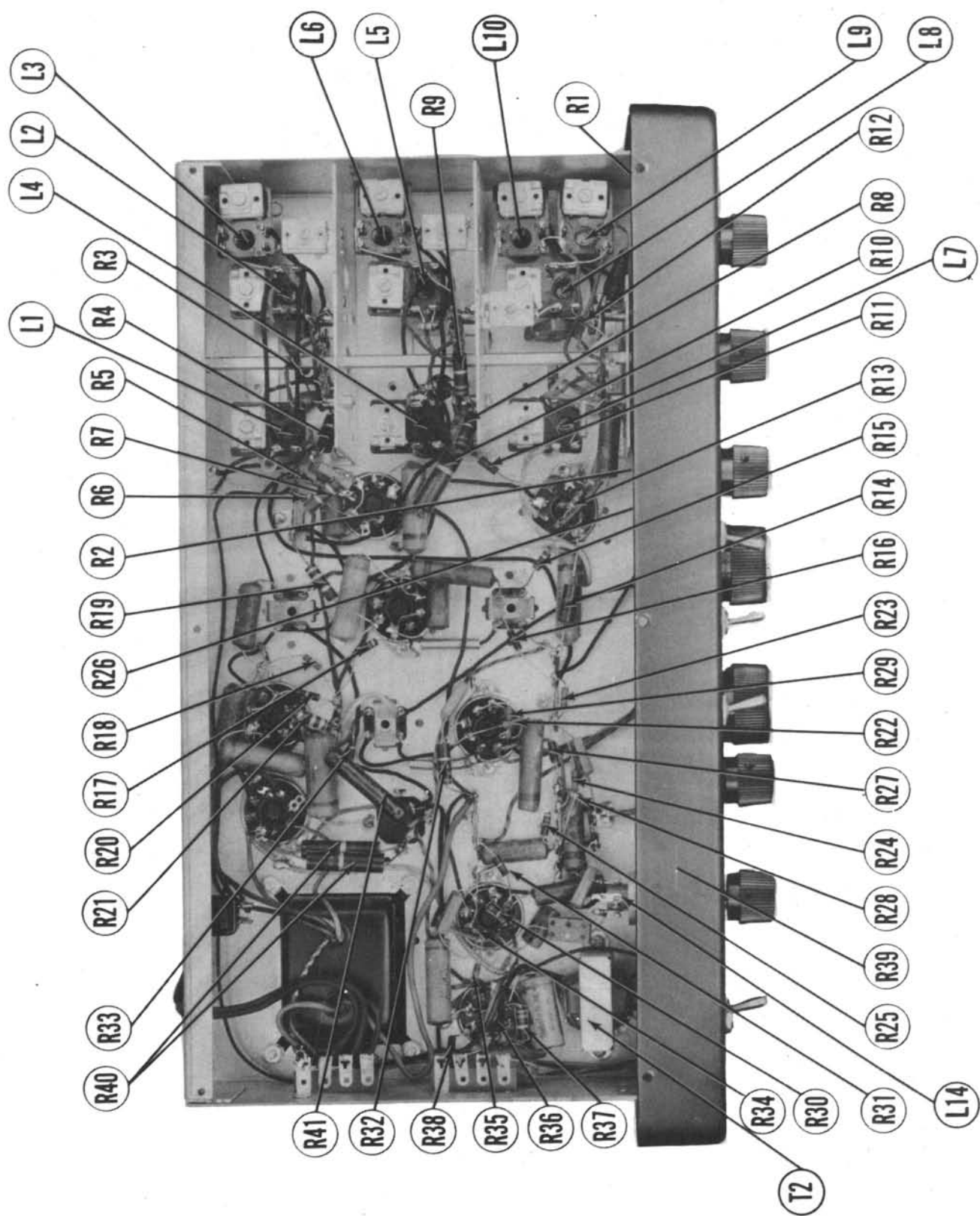
TRADE NAME	Hallicrafters, Model S-40B	
MANUFACTURER	The Hallicrafters Co., 5th and Kostner Aves., Chicago 24, Illinois	
TYPE SET	AC Operated 4 Band Superheterodyne Communications Receiver	
TUBES (EIGHT)	Types 6SG7 RF Amp., 6SA7 Converter, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6H6 Det.-AVC-ANL, 6SC7 AF 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

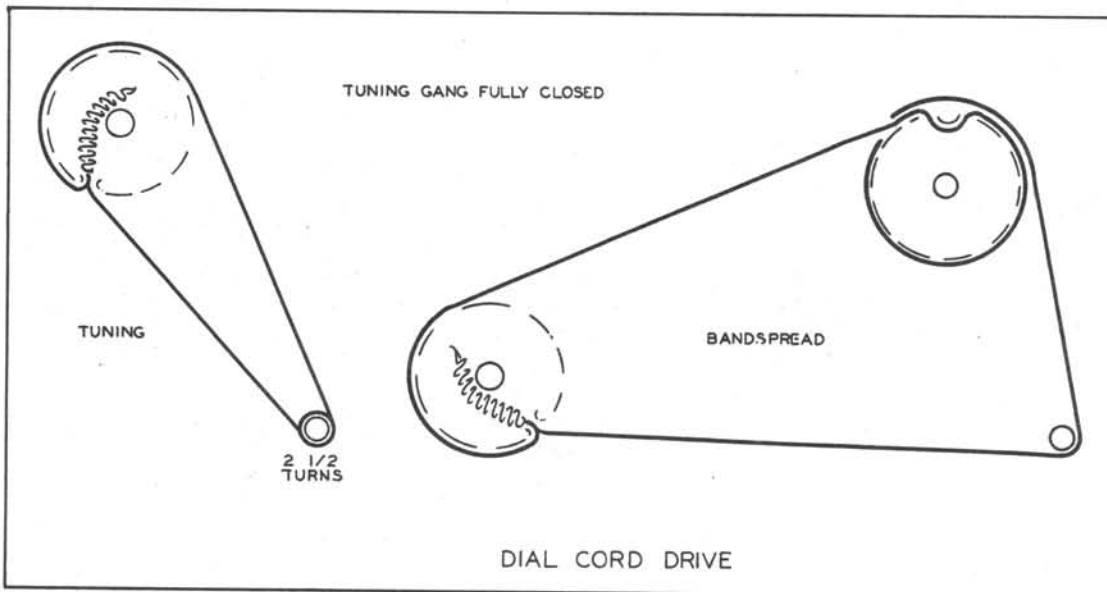
To set dial scale, turn main tuning gang fully closed and set the dial scale so the zero calibration on the logging scale is aligned with the index line on the dial covering.

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	"	600KC (400 % Mod.)	1	600KC	"	A26	Adjust for maximum output. Repeat steps 9 and 10 until no further improvement can be made.



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.-AFC-A.N.L.	90X6H6	6H6	7Q	
V6	AF Amp.-BFO	90X6SC7	6SC7	8S	
V7	Power Output	90X6KGT	6KGT	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.

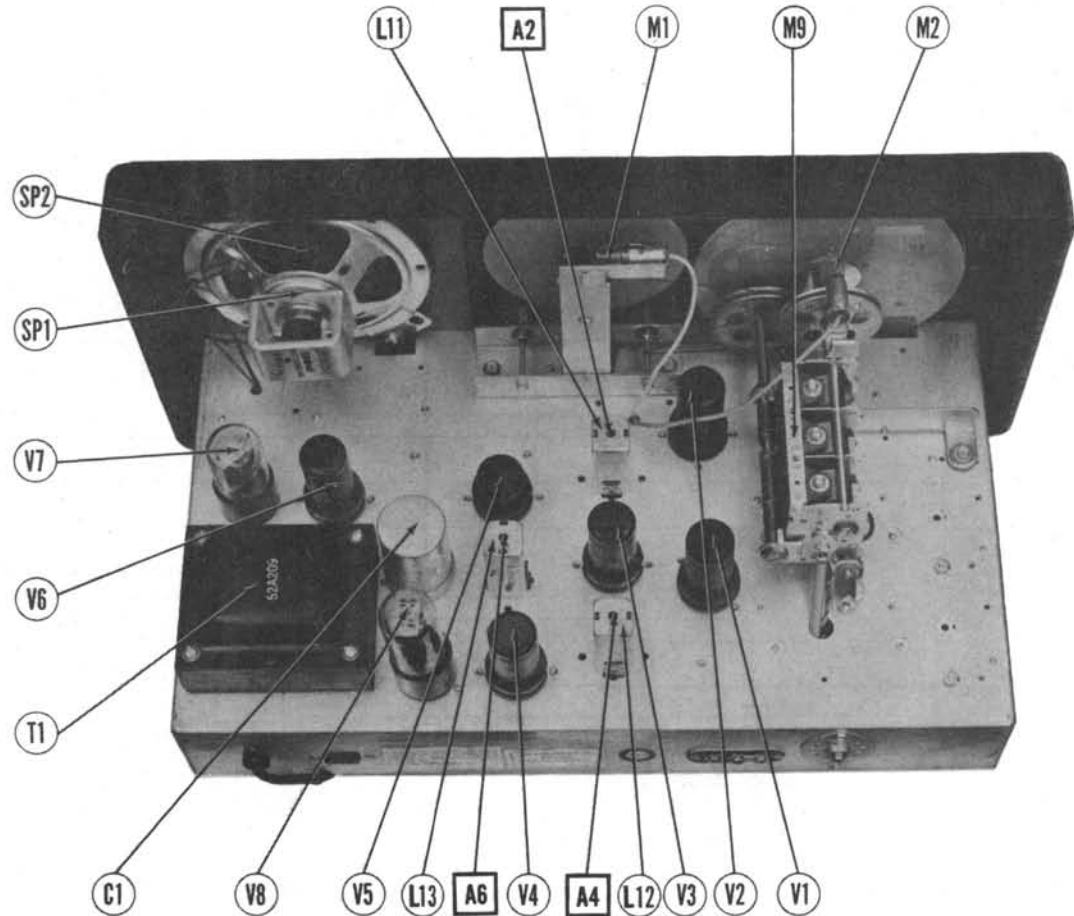
ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA				IDENTIFICATION CODES
			Hallcrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SPRAGUE PART No.	
C1	30	450	45A062	AFH266J	UP4145	TVL-4729	Filter
C2	10	450	45A121	PR525/10	BR102A	TVA-1204	Filter
C3	220	500	47X20B221K	1468-00025	5W5T25	IFM-325	Output Cath. Bypass
C4	.05	200	46AW503J	1468-00025	5W5T25	IFM-325	RF Coupling
C5	.05	200	46AW503J	1468-00025	5W5T25	IFM-325	RF Amp. Screen
C6	.25	200	46AT254J	1468-00025	5W5T25	IFM-325	RF Amp. Cathode
C7	2.2	200	46AT254J	1468-00025	5W5T25	IFM-325	Cathode Bypass
C8	22	200	47X20B221K	1468-00025	5W5T25	IFM-325	RF Coupling
C9	15	500	47X20B221K	1468-00025	5W5T25	IFM-325	RF Coupling
C10	220	500	47X20B221K	1468-00025	5W5T25	IFM-325	RF Amp. Plate
C11	390	500	47X20B391K	1468-0004	5W5T4	IFM-34	Osc. Grid Cap
C12	.01	400	46AW103J	1468-0001	5W5T4	IFM-34	Osc. Feedback
C13	68	400	47X25U680K	1464-0001	IR5D3	29C15	Fixed Trimmer
C14	2700	500	47X30C302K	1464-0001	IR5D3	MS-23	Fixed Padder
C15	1500	500	47X30C152J	1464-0001	IR5D3	MS-23	Fixed Padder
C16	.05	400	46AW503J	1468-0001	5W5T25	IFM-325	RF Bypass
C17	.02	400	46AW503J	1468-0001	5W5T25	IFM-325	RF Bypass
C18	.02	600	46AU203J	1468-0002	5W5T25	IFM-325	AVC Filter
C19	.05	200	46AU203J	1468-0002	5W5T25	IFM-325	1st IF Screen
C20	.05	200	46AU203J	1468-0002	5W5T25	IFM-325	2nd IF Cathode
C21	.02	600	46AU203J	1468-0002	5W5T25	IFM-325	AVC Filter
C22	.05	200	46AU203J	1468-0002	5W5T25	IFM-325	Decoupling
C23	.1	400	46AV104J	1468-0001	5W5T25	IFM-325	Diode RF Filter
C24	47	500	47X20B470M	1468-00005	5W5T25	IFM-325	Diode RF Filter
C25	47	500	47X20B470M	1468-00005	5W5T25	IFM-325	Diode RF Filter
C26	.05	200	46AU203J	1468-0001	5W5T25	IFM-325	ANL Filter
C27	.05	200	46AU203J	1468-0001	5W5T25	IFM-325	Audio Coupling
C28	.02	200	46AU203J	1468-0001	5W5T25	IFM-325	Audio Coupling
C29	1000	500	47X25B102M	1468-00025	5W5T25	IFM-325	Osc. Grid Cap
C30	270	500	47X20B271K	1468-00005	5W5T25	IFM-325	Fixed Trimmer
C31	270	500	47X20B271K	1468-00005	5W5T25	IFM-325	Osc. Feedback
C32	470	500	46AW103J	1468-0001	5W5T25	IFM-325	Osc. Feedback
C33	.01	400	46AW103J	1468-0001	5W5T25	IFM-325	Output Plate Bypass
C34	.02	1000	46A104	1468-0002	5W5T25	IFM-325	Tone Comp.
C35	.002	1000	46A104	1468-0002	5W5T25	IFM-325	Line Filter
C36	.02	600	46A104	1468-0002	5W5T25	IFM-325	
C37	.01	600	46A104	1468-0002	5W5T25	IFM-325	

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			Hallcrafters PART No.	IRC PART No.	CENTRALAB PART No.	
R1A	10KΩ	1/2	25B590	Q14-116	AM-30-V	Sensitivity control
R2A	500KΩ	1/2	25A534	Q13-133	RS-2	Attach to R1A per instructions
R3A	500KΩ	1/2	25A534	Q13-133	AM-60-Z	Volume control
R4A	500KΩ	1/2	25A534	Q13-133	RS-2	Attach to R2A per instructions

* Reverse right and left terminal connections.

CHASSIS—TOP VIEW



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	BTS-120	RF Amp. Cathode
R7	39K		23X30X393K		RF Amp. Screen
R8	6800Ω		23X30X682K		RF Amp. Plate
R9	6800Ω		23X30X682K		RF Amp. Plate
R10	22Ω		23X20X220M		Parasitic Supp
R11	33Ω		23X20X330M		Parasitic Supp - See Note 1
R12	100Ω		23X10X100M		Parasitic Supp
R13	18KΩ		23X40X183K		Osc. Grid
R14	10KΩ		23X20X103K		Osc. Anode
R15	330Ω		23X20X331K		Parasitic Supp
R16	100KΩ		23X20X104K		1st IF Amp. Grid
R17	470Ω		23X20X471K	BTS-470	1st IF Amp. Cathode
R18	330KΩ		23X30X334K	BTS-330K	Cathode
R19	47KΩ		23X30X473K		2nd IF Amp. Cathode
R20	1000Ω		23X20X102K	BTS-1000	1st IF Amp. Cathode
R21	47KΩ		23X30X473K		2nd IF Amp. Cathode
R22	56KΩ		23X30X563K	BTS-56K	Diode Filter - See Note 2
R23	2.2Meg		23X20X225M	BTS-2.2Meg	AVC Network
R24	1Meg		23X20X105M	BTS-1Meg	AVC Network
R25	470KΩ		23X20X474K	BTS-470K	AVC Network
R26	150Ω		23X20X151K	BTS-150	AVC Network
R27	100KΩ		23X20X104K	BTS-100K	AVC Diode Load
R28	330KΩ		23X20X334K	BTS-330K	AVC Diode Load
R29	2.2Meg		23X20X225M	BTS-2.2Meg	AVC Diode Load
R30	100KΩ		23X20X104K	BTS-100K	AVC Diode Load
R31	22KΩ		23X20X223K	BTS-22K	AVC Diode Load
R32	6.8Ω		23X30X068K	BW-1-6.8	BFO Plate
R33	1000Ω		23X20X102K	BTS-1000	Det.-AVC-ANL Filament
R34	15Meg		23X20X156M	BTS-15Meg	Voltage Divider
R35	270KΩ		23X20X274K	BTS-270K	AF Amp. Grid
R36	470KΩ		23X20X474K	BTS-470K	AF Amp. Plate
R37	680Ω		23X30X684K	ETA-680	Output Grid
R38	10KΩ		23X20X103K	BTS-10K	Output Cathode
R39	15KΩ		23X30X153K	BTA-15K	Output Screen
R40	12KΩ		23X65CE123K		Tone Compensation
R41	1500Ω		24BG152E	1.3/4A-1500	Decoupling - See Note 3.

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.
T1	117VAC	700VCT	5VAC	52A209	PM8410	P2953
	② 61A	.069ADC	② 2A			

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	SEC.	Hallcrafters PART No.	STANCOR PART No.	MERIT PART No.
T2	6.3KΩ	3.2Ω	390Ω	55D093	A-3878	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	3.2Ω	85B050	ST-105	
SP2	CONE DIA.	V. C. DIA.		Mod. P5-X	5A1
	4 3/4"	9/16"			

R F COILS

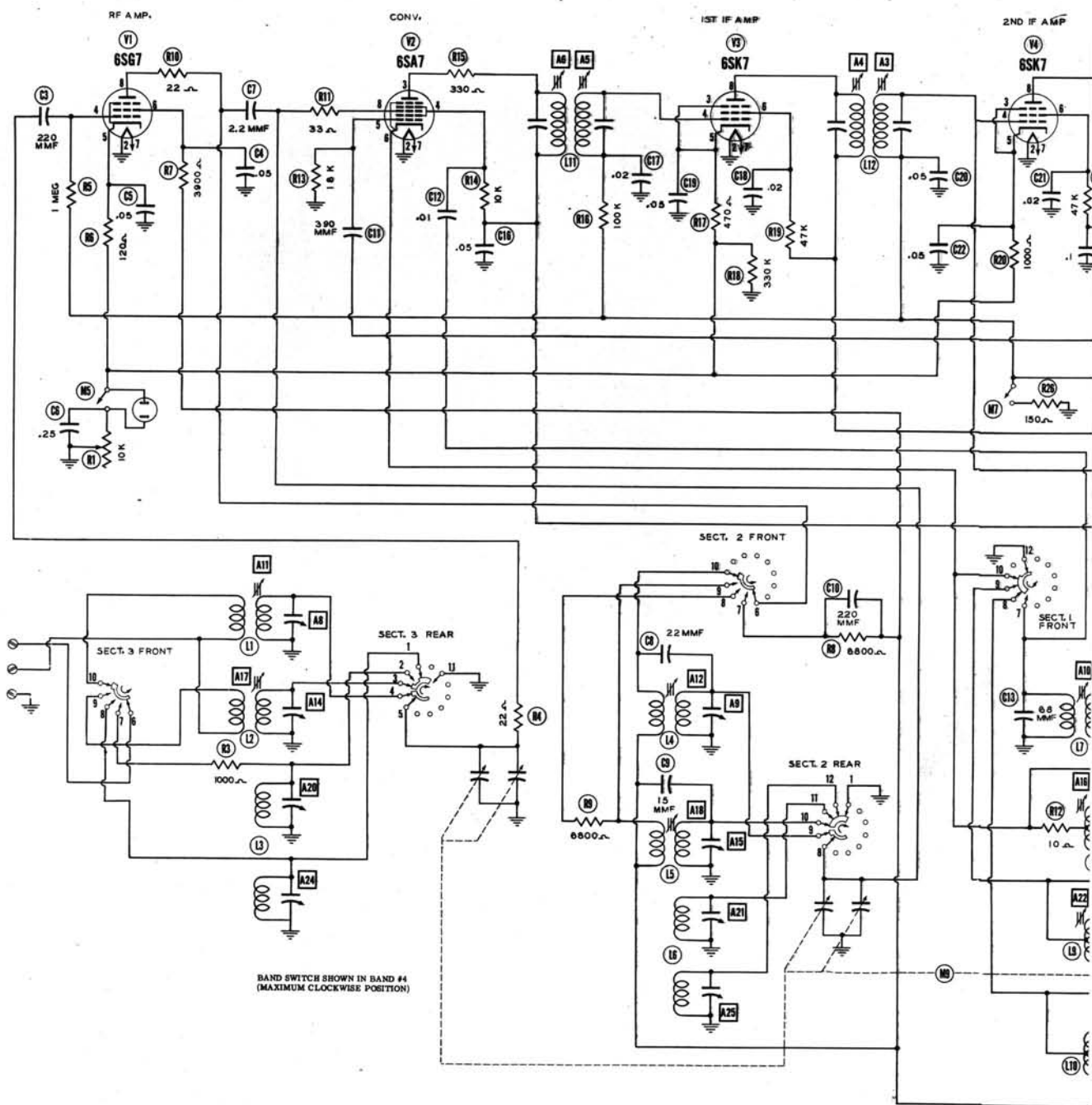
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	Hallcrafters PART No.	MEISSNER PART No.
L1	Antenna Coil	.3Ω	.1Ω	51B783	Band 4
L2	Antenna Coil	.4Ω	.2Ω	51B782	Band 3
L3 A	Antenna Coil	5Ω		51B1241	Band 2
L4	RF Coil	1.6Ω	.1Ω	51B787	Band 1
L5	RF Coil	5Ω	.2Ω	51B786	Band 4
L6 A	RF Coil	1.6Ω		51B1240	Band 3
L7	Osc. Coil	.5Ω	.1Ω	51B791	Band 2
L8	Osc. Coil	.5Ω	.2Ω	51B813	Band 1
L9	Osc. Coil	1.5Ω		51B789	Band 4
L10	Osc. Coil	3.5Ω		51B812	Band 3
L11	1st IF	9Ω	9Ω	50C243	Band 2
L12	2nd IF	9Ω	9Ω	50C243	Band 1
L13	3rd IF	18Ω	18Ω	50C242	
L14	BFO Coil	15Ω		50B044	

DIAL LIGHTS

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

MISCELLANEOUS

ITEM No.	PART NAME	Hallcrafters PART No.	NOTES
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	3 Gang Var. Cap	48C240	(11-438MMF) Each Section
	Dial	83B372	Bandspread
	Knob	12A058	General Coverage
	Knob	15A049	Pitch
	Knob	15A047	Sensitivity, Volume, Tone
	Knob	15A266	Tuning, Bandspread

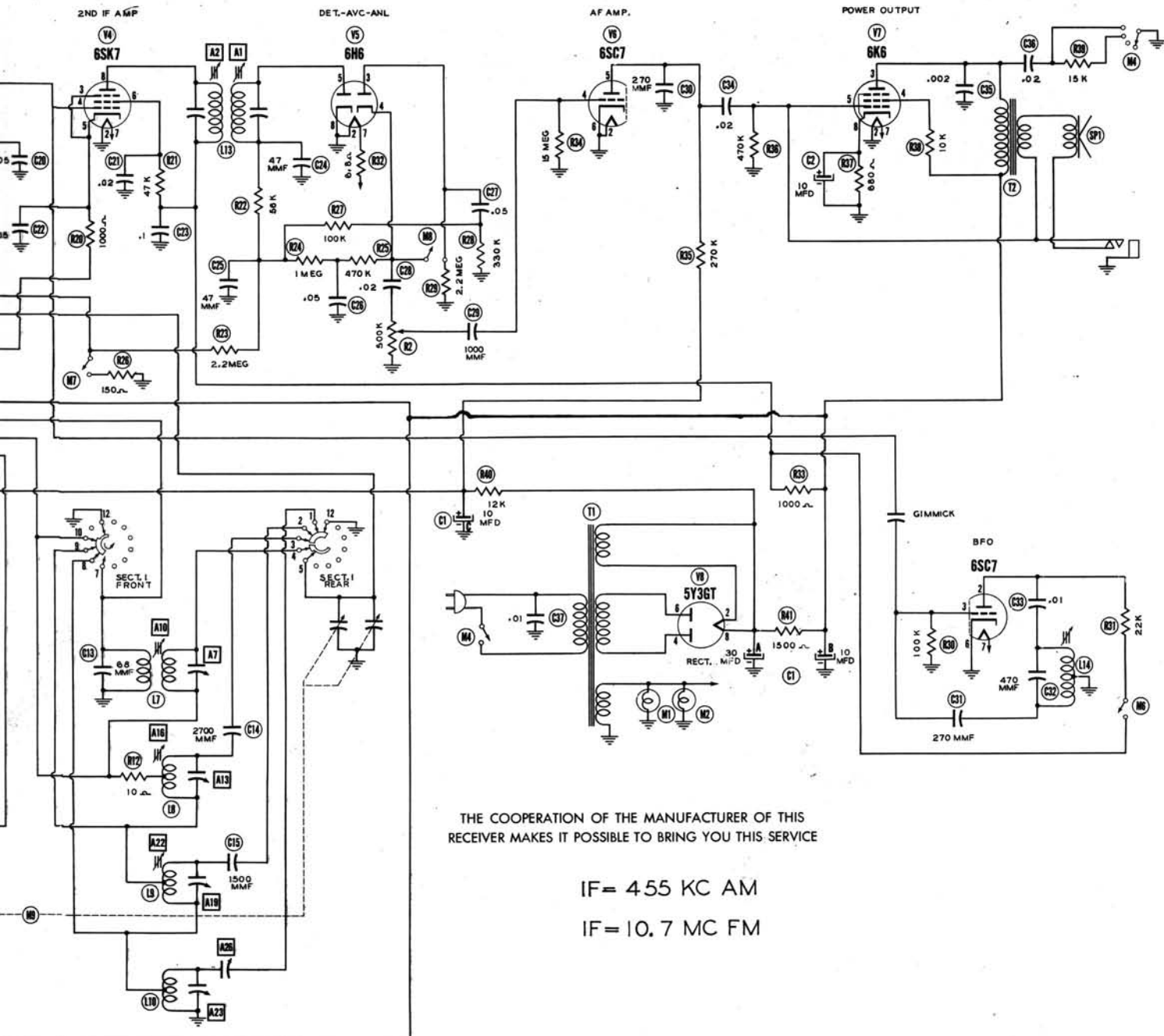


VOLTAGE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 8
V 1	6SG7	0V	0V	45VDC	0V	45VDC	330VDC	6.3VAC 325VDC
V 2	6SA7	0V	0V	200VDC	110VDC	8-9.8VDC	.3VDC	6.3VAC 0V
V 3	6SK7	0V	0V	47VDC	0V	47VDC	305VDC	6.3VAC 320VDC
V 4	6SK7	0V	0V	50VDC	0V	50VDC	315VDC	6.3VAC 325VDC
V 5	6SK7	0V	0V	-2VDC	0V	-8VDC	-6VDC	6.3VAC 0V
V 6	6SK7	0V	0V	360VDC	-6VDC	-4VDC	75VDC	6.3VAC 0V
V 7	6SK7	0V	0V	315VDC	330VDC	0V	200VDC	6.3VAC 21VDC
V 8	5Y3GT	0V	0V	380VDC	0V	340VAC	0V	380VDC

1 TAKEN WITH VACUUM TUBE VOLTMETER

2 TAKEN WITH CW-AM
RECEIVE-STANDBY SW
AFC SWITCH ON
NOISE LIMITER SWITCH
CW-AM SWITCH IN 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
- Line voltage maintained at 117 v
- Nominal tolerance on component $\pm 10\%$ in voltage and resistance
- Volume control at maximum, no ments.



Pin 6	Pin 7	Pin 8
220VDC	6.3VAC	325VDC
220VDC	6.3VAC	0V
220VDC	6.3VAC	320VDC
220VDC	6.3VAC	325VDC
220VDC	6.3VAC	0V
220VDC	6.3VAC	22VDC
220VDC	6.3VAC	320VDC

RESISTANCE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6SK7	0Ω	0Ω	8KΩ	3.6Meg	8KΩ	140KΩ	18.3KΩ
V 2	6H6	0Ω	0Ω	122KΩ	122KΩ	18KΩ	10Ω	33Ω
V 3	6SK7	0Ω	0Ω	8.5KΩ	2.7Meg	8.5KΩ	148KΩ	11.5KΩ
V 4	6SK7	0Ω	0Ω	8KΩ	3.6Meg	8KΩ	150KΩ	12.5KΩ
V 5	6H6	0Ω	0Ω	2.2Meg	1.9Meg	400KΩ	400KΩ	0Ω
V 6	6SC7	0Ω	12.25KΩ	100KΩ	15Meg	128KΩ	0Ω	0Ω
V 7	6K6	0Ω	0Ω	11.9KΩ	11.5KΩ	470KΩ	122KΩ	880Ω
V 8	5Y3GT	Inf.	50KΩ	Inf.	150Ω	Inf.	150Ω	50KΩ

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

age measurements are at 20,000 ohms per volt; AC Voltages
d at 1,000 ohms per volt.
connections are shown as bottom views.
d values are from socket pin to common negative.
age maintained at 117 volts for voltage readings.
tolerance on component values makes possible a variation of
in voltage and resistance readings.
control at maximum, no signal applied for voltage measure-