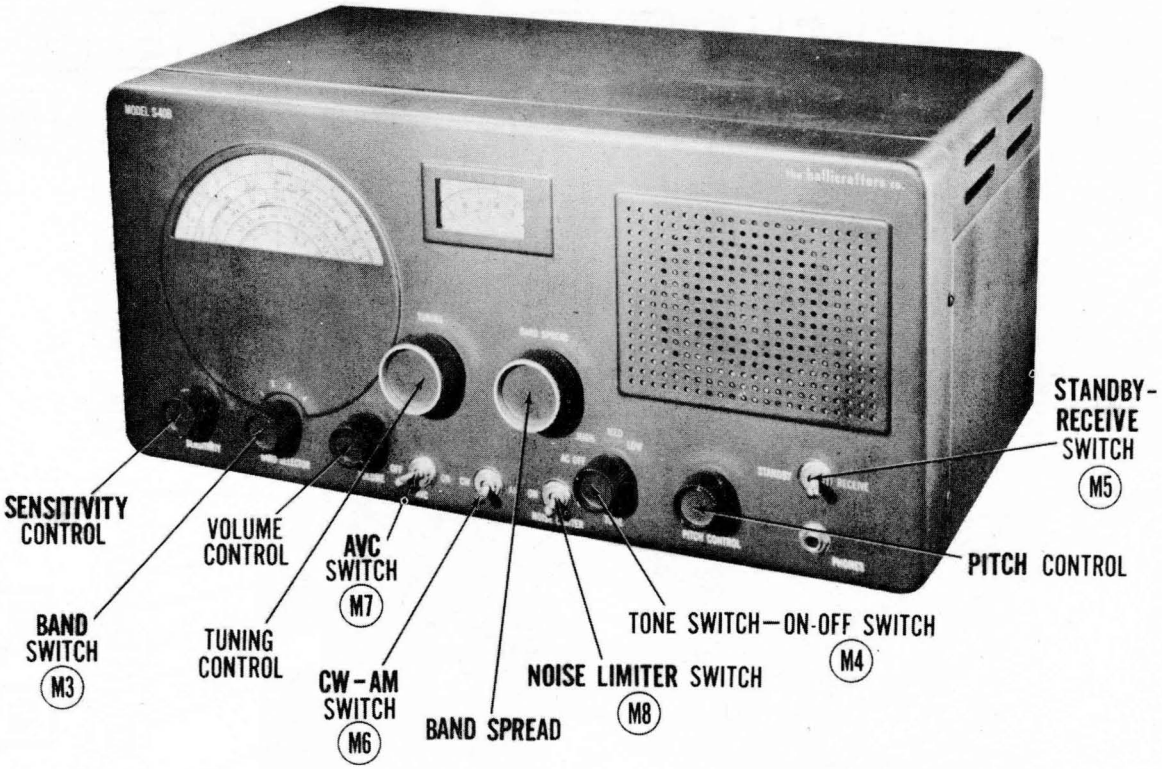
HALLICRAFTERS
MODEL S-40B

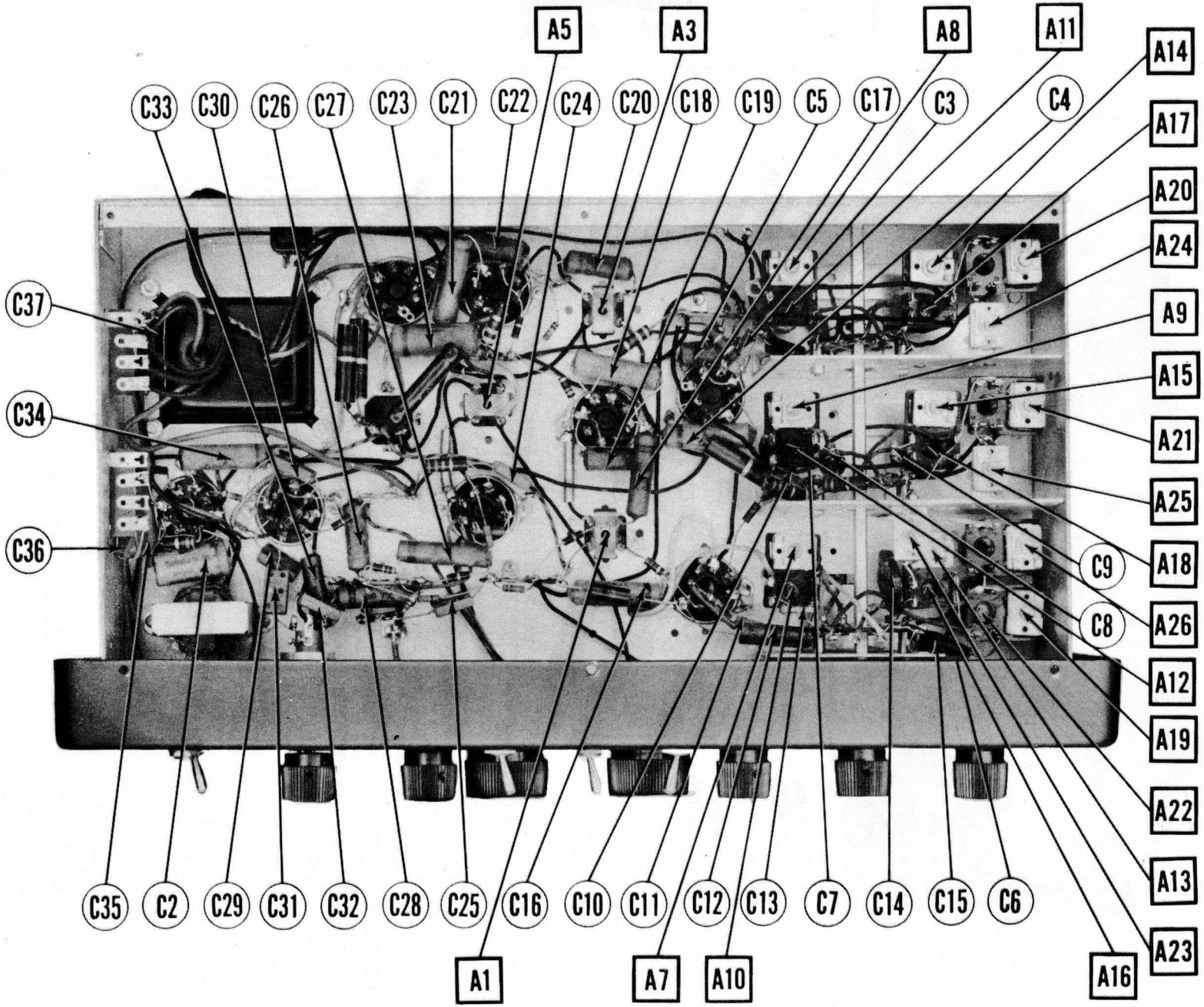


HALLICRAFTERS
MODEL S-40B

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


A5
A3
A8
A11
A14
C33
C30
C26
C27
C23
C21
C22
C24
C20
C18
C19
C5
C17
C3
C4
A17
A20
A24
C37
A9
A15
C34
A21
A25
C36
C9
A18
C8
A26
A12
A19
A22
A13
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C35
C2
C29
C31
C32
C28
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C16
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C11
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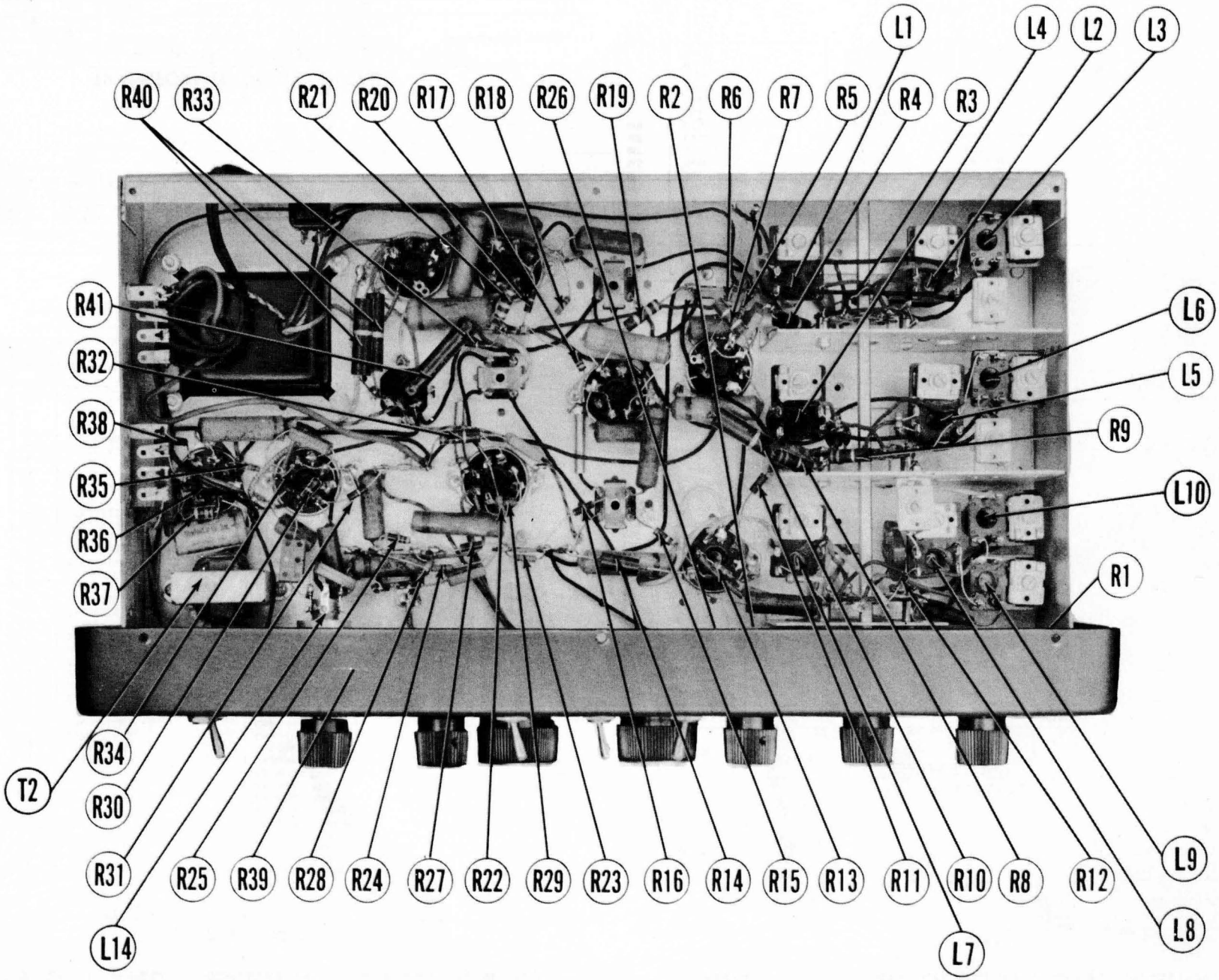
C14
C15
C6
A1
A7
A10
A16


L1
L4
L2
L3
R40
R33
R21
R20
R17
R18
R26
R19
R2
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R5
R4
R3
R41
L6
R32
L5
R38
R9
R35
L10
R36
R1
R37
R34
T2
R30
R31
R25
R39
R28
R24
R27
R22
R29
R23
R16
R14
R15
R13
R11
R10
R8
R12
L9
L8
L14
L7

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		Hallicrafters 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.	90X6H6	6H6	7Q	
V6	AF Amp.-BFO	90X6SC7	6SC7	8S	
V7	Power Output	90X6K6GT	6K6GT	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		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	450	45A062	AFH266J		UP41145		TVL-4729	▲ Filter
B	10	450							■ Filter
C	10	450							▲ Filter
C2	10	25	45A121	PRS25/10		BR102A		TVA-1204	Output Cath. Bypass
C3	220	500	47X20B221K	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	RF Coupling
C4	.05	400	46AW503J	P488-05	DF-503	PTE4S5		4TM-S5	RF Amp. Screen
C5	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	RF Amp. Cathode
C6	.25	200	46AT254J	P488-25		GT2P25		2TM-P25	Cathode Bypass
C7	2.2		47A160-4		TCZ-2.2				RF Coupling
C8	22		47X21UK220M	SI22	TCN-22	5W5Q2	GP1K-22	19C7	RF Coupling
C9	15		47X21UK150M	SI15	TCN-15		GP1K-15	19C6	RF Coupling
C10	220	500	47X20B221K	1468-0002	D6-221	5W5T2	GP2K-220	19C13	RF Amp. Plate
C11	390	500	47X20B391K	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Osc. Grid Cap
C12	.01	400	46AW103J	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Osc. Feedback
C13	68		47X25UK680K		TCN-68		N750L-68	29C15	Fixed Trimmer
C14	2700	500	47X30C302K	1464-003		1R5D3		MS-23	Fixed Padder
C15	1500	500	47X30C152J	1464-0015		1R5D15		MS-215	Fixed Padder
C16	.05	400	46AW503J	P488-05	DF-503	PTE4S5		4TM-S5	RF Bypass
C17	.02	200	46AU203J	P488-02	DF-203	PTE4S2		2TM-S2	AVC Filter
C18	.02	600	46AY203J	P688-02	DF-203	PTE6S2		6TM-S2	1st IF Screen
C19	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	1st IF Cathode
C20	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C21	.02	600	46AY203J	P688-02	DF-203	PTE6S2		6TM-S2	2nd IF Screen
C22	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	2nd IF Cathode
C23	.1	400	46AV104J	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C24	47	500	47X20B470M	1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	Diode RF Filter
C25	47	500	47X20B470M	1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	Diode RF Filter
C26	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	ANL Filter
C27	.05	200	45AU503J	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C28	.02	200	46AU203J	P488-02	DF-203	PTE4S2		2TM-S2	Audio Coupling
C29	1000	500	47X25B102M	1468-001	D6-102	1W5D1	GP2L-001	1FM-21	Audio Coupling
C30	270	500	47X20B271K	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	AF Amp. Plate
C31	270	500	47X20B271K	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Osc. Grid Cap
C32	470	500	47X20B471J	1469-0005	D6-471	5R5T5	GP2K-470	MS-35	Fixed Trimmer
C33	.01	400	46AW103J	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Osc. Feedback
C34	.02	600	46AY203J	P688-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C35	.002	1000	46A104	P1088-022		PTE16D2		MB-D2	Output Plate Bypass
C36	.02	600	46AY203J	P688-02	DF-203	PTE6S2		6TM-S2	Tone Comp.
C37	.01	600	46AC103J	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter

CONTROLS

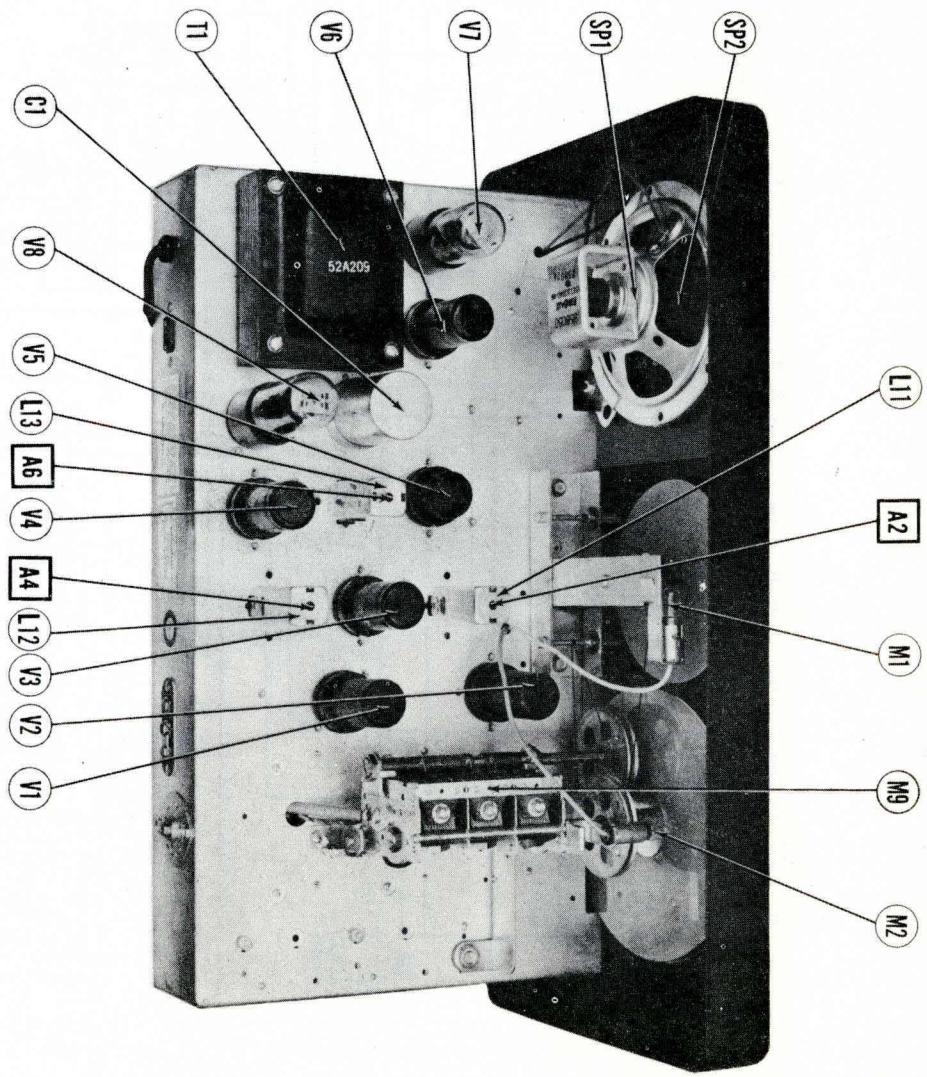
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	10KΩ	½	25B590	Q14-116	AM-30-V	B-15 *	Sensitivity control
B	Shaft		Not req.	Not req.	RS-2		Attach to R1A per instructions
R2A	500KΩ	½	25A534	Q13-133	AM-60-Z	B-60	Volume control
B	Shaft		Not req.	Not req.	RS-2		Attach to R2A per instructions

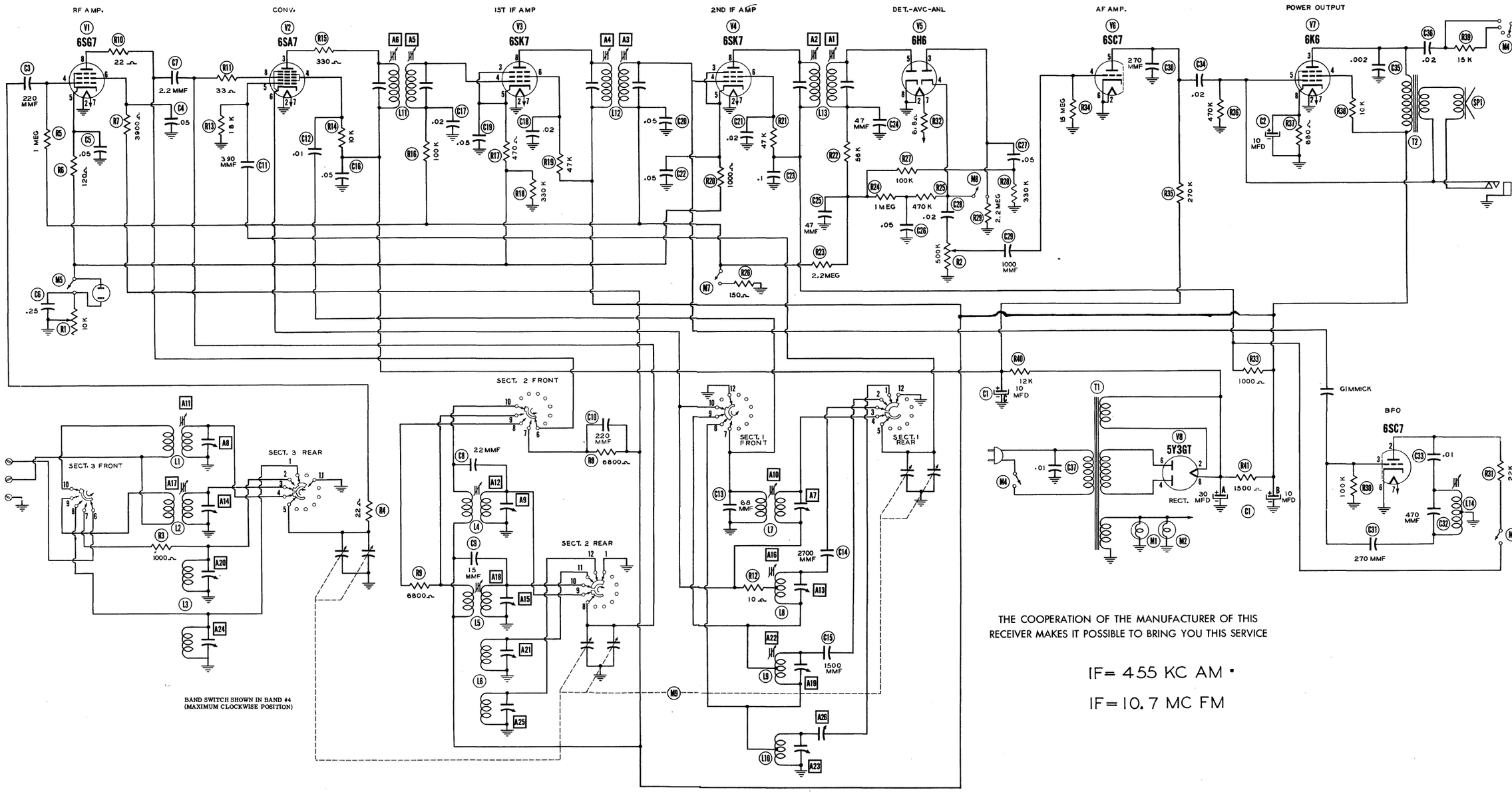
* Reverse right and left terminal connections.

SET 122

FOLDER 4

CHASSIS—TOP VIEW





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

IF= 455 KC AM •

IF= 10.7 MC FM

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	320VDC	6.3VAC	325VDC
V 2	6SA7	0V	0V	200VDC	110VDC	§-8.9VDC	-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	6H6	0V	0V	-.2VDC	0V	-.6VDC	-.6VDC	6.3VAC	0V
V 6	6SC7	0V	▲260VDC	-.6VDC	-.4VDC	75VDC	0V	6.3VAC	0V
V 7	6K6GT	0V	0V	315VDC	290VDC	0V	200VDC	6.3VAC	22VDC
V 8	5Y3GT	0V	380VDC	0V	340VAC	0V	340VAC	0V	380VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SG7	0Ω	0Ω	8KΩ	3.6Meg	8KΩ	†40KΩ	.1Ω	†8.3KΩ
V 2	6SA7	0Ω	0Ω	†12KΩ	†22KΩ	18KΩ	10Ω	.1Ω	33Ω
V 3	6SK7	0Ω	0Ω	8.5KΩ	2.7Meg	8.5KΩ	†48KΩ	.1Ω	†1.5KΩ
V 4	6SK7	0Ω	0Ω	9KΩ	2.6Meg	9KΩ	†50KΩ	.1Ω	†2.5KΩ
V 5	6H6	0Ω	0Ω	2.2Meg	1.9Meg	490KΩ	490KΩ	.1Ω	0Ω
V 6	6SC7	0Ω	†▲25KΩ	100KΩ	15Meg	†280KΩ	0Ω	.1Ω	0Ω
V 7	6K6GT	0Ω	0Ω	†1.9KΩ	†1.5KΩ	470KΩ	†12KΩ	.1Ω	680Ω
V 8	5Y3GT	Inf.	50KΩ	Inf.	150Ω	Inf.	150Ω	Inf.	50KΩ

† MEASURED FROM PIN 2 OF V 8

▲ 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)

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Hallicrafters PART No.	IRC PART No.	
R3	1000Ω	1/2	23X20X102K	BTS-1000	Series Antenna
R4	22Ω	1/2	23X20X220M		Parasitic Supp
R5	1Meg	1/2	23X20X105M		RF Amp. Grid
R6	120Ω	1/2	23X20X121K	BTS-120	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	1/2	23X20X220M		Parasitic Supp
R11	33Ω	1/2	23X20X330M		Parasitic Supp - See Note 1
R12	10Ω	1/2	23X10X100M		Parsitic Supp
R13	18KΩ	1/2	23X20X183K		Osc. Grid
R14	10KΩ	2	23X40X103K		Osc. Anode
R15	330Ω	1/2	23X20X331K		Parasitic Supp
R16	100KΩ	1/2	23X20X104K		1st IF Amp. Grid
R17	470Ω	1/2	23X20X471K	BTS-470	1st IF Amp. Cathode
R18	330KΩ	1/2	23X20X334K	BTS-330K	Cathode
R19	47KΩ	1	23X30X473K		1st IF Amp. Screen
R20	1000Ω	1/2	23X20X102K	BTS-1000	2nd IF Amp. Cathode
R21	47KΩ	1	23X30X473K		2nd IF Amp. Screen
R22	56KΩ	1/2	23X20X563K	BTS-56K	Diode Filter - See Note 2
R23	2.2Meg	1/2	23X20X225M	BTS-2.2Meg	AVC Network
R24	1Meg	1/2	23X20X105M	BTS-1Meg	AVC Network
R25	470KΩ	1/2	23X20X474K	BTS-470K	AVC Network
R26	150Ω	1/2	23X20X151K	BTS-150	AVC Network
R27	100KΩ	1/2	23X20X104K	BTS-100K	AVC Diode Load
R28	330KΩ	1/2	23X20X334K	BTS-330K	AVC Diode Load
R29	2.2Meg	1/2	23X20X225M	BTS-2.2Meg	ANL Diode Load
R30	100KΩ	1/2	23X20X104K	BTS-100K	BFO Grid
R31	22KΩ	1/2	23X20X223K	BTS-22K	BFO Plate
R32	6.8Ω	1	23X30X068K	BW-1-6.8	Det.-AVC-ANL Filament
R33	1000Ω	1/2	23X20X102K	BTS-1000	Voltage Divider
R34	15Meg	1/2	23X20X156M	BTS-15Meg	AF Amp. Grid
R35	270KΩ	1/2	23X20X274K	BTS-270K	AF Amp. Plate
R36	470KΩ	1/2	23X20X474K	BTS-470K	Output Grid
R37	680Ω	1	23X30X684K	BTA-680	Output Cathode
R38	10KΩ	1/2	23X20X103K	BTS-10K	Output Screen
R39	15KΩ	1	23X30X153K	BTA-15K	Tone Compensation
R40	12KΩ	4	23X65CE123K		Decoup - See Note 3.
R41	1500Ω	10	24BG152E	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			
	PRI.	SEC. 1	SEC. 2	SEC. 3	Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .61A	700VCT .069ADC	5VAC @ 2A	6.3VAC @ 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.		Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6.3KΩ	3.2Ω	390Ω	.4Ω	55B093	A-3878	A-2931	RO-13	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

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

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	Hallicrafters 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
B		1.6Ω				Band 1
L4	RF Coil	1.6Ω	.1Ω	51B787		Band 4
L5	RF Coil	5Ω	.2Ω	51B786		Band 3
L6A	RF Coil	1.6Ω		51B1240		Band 2
B		5Ω				Band 1
L7	Osc. Coil	.6Ω	.1Ω	51B791		Band 4
L8	Osc. Coil	.2Ω		51B813		Band 3
L9	Osc. Coil	1.5Ω		51B789		Band 2
L10	Osc. Coil	3.5Ω		51B912		Band 1
L11	1st IF	9Ω	9Ω	50C243		
L12	2nd IF	9Ω	9Ω	50C243		
L13	3rd IF	16Ω	16Ω	50C242		
L14	BFO Coil	15Ω		50B044		

DIAL LIGHTS

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

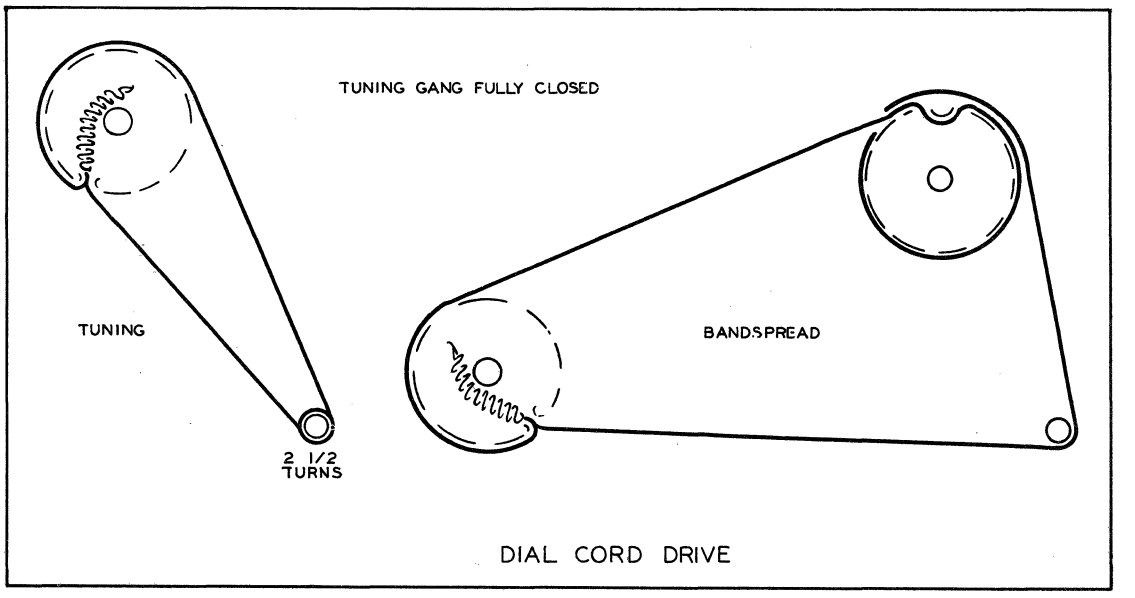
MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters 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
	Dial	83C240	General Coverage
	Knob	12A058	Pitch
	Knob	15A049	Sensitivity, Volume, Tone
	Knob	15A047	Tuning, Bandspread
	Knob	15A266	Band Switch

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	"	1500KC (400 ∿ Mod.)	1	1500KC	"	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.



DIAL CORD DRIVE