



PHOTOFACT[®] with

CIRCUITRACE[®]

TRADE NAME: Demco Model Satellite (CB-1A) consists of:
R-101A (Receiver)
R-102 (Speaker)
T-110A (Transmitter)
M-10A (SWR Meter)
VM-12-120 (Power Modulator)

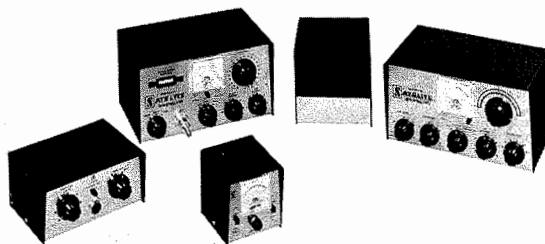
SUPPLIER: For Current Address, see Master Index

TYPE SET: AC Operated Multi-Unit Base Station

POWER SUPPLY: 110 - 120 Volts AC, 60 Cycles

RATING: 47 Watts, .5 Amp. @ 117VAC (Receiver)
42 Watts, .45 Amp. @ 117VAC (Transmitter)
20 Watts, .17 Amp. @ 117VAC (Modulator)

TUNING RANGE: All 23 CB Channels



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6..... GENERAL CEMENT #5097, 8727..... WALSCO #2515
A7, A9, A14, A20..... GENERAL CEMENT #8606, 8606L, 8869.. WALSCO #2543, 2544, 2588

RECEIVER ALIGNMENT

Connect a DC VTVM from point Δ to ground. Set for negative voltage.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 7 (grid) of V3 (Conv.), low side to chassis. Tune to 455KC.	Any	A1 thru A6	Adjust for maximum.
High side thru .01mfd to pin 2 (grid) of V2A (Mixer), low side to chassis. Tune to 27.065MC.	9	A7 thru A11	Set front panel selector to Tune. Set Dial to channel 9. Adjust for maximum indication. Check channel 2 (26.975MC) and channel 22 (27.225MC) for maximum output. Readjust A7 & A8 as required for proper dial calibration.
High side to antenna receptacle, low side to chassis. Tune to 27.065MC.	9	A12 thru A14	Adjust for maximum.

A15 thru A19 should be adjusted individually for each desired channel (A thru E respectively). These adjustments should be made with the signal generator connected to the antenna receptacle and tuned to the desired transmit frequency.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

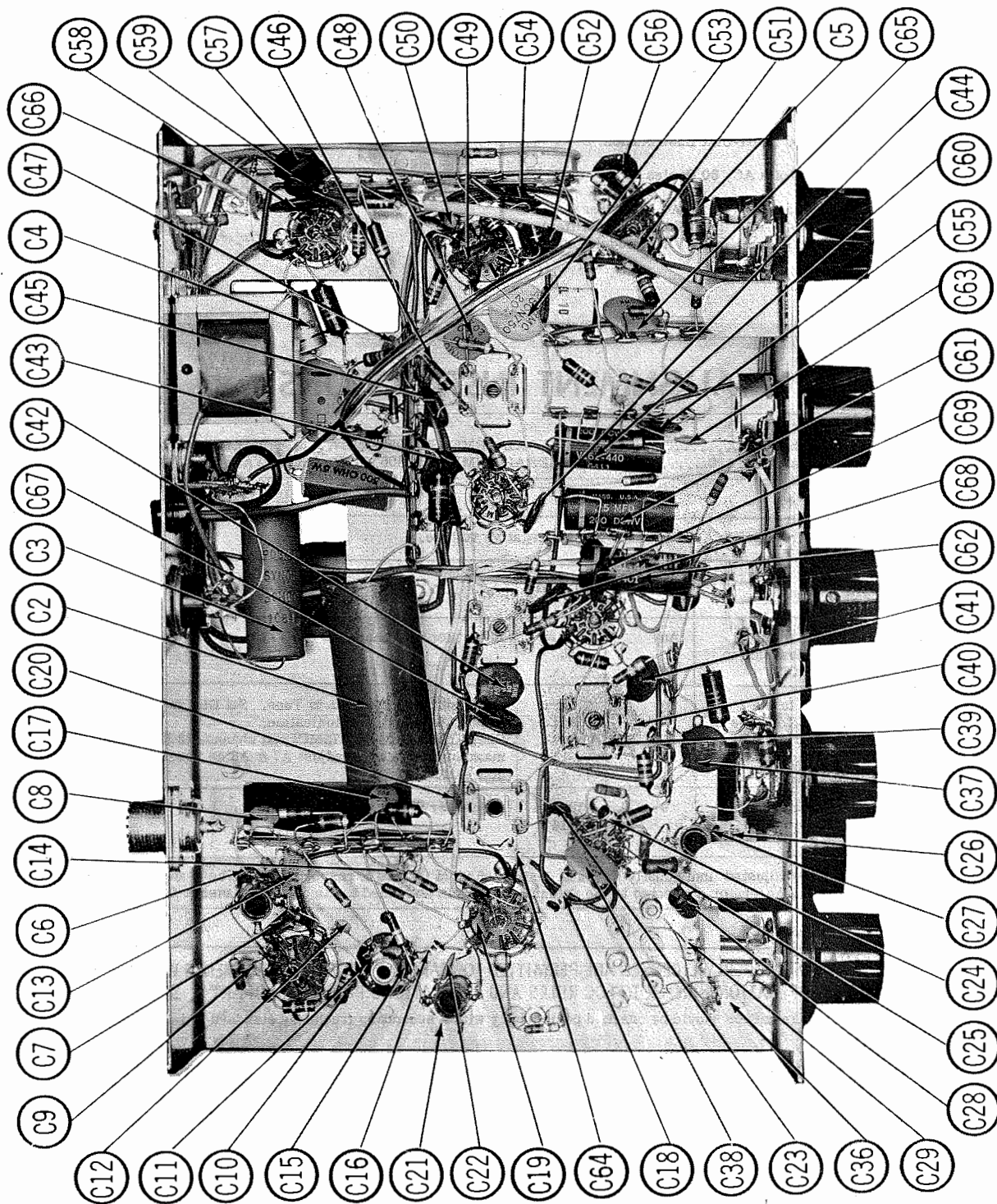
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

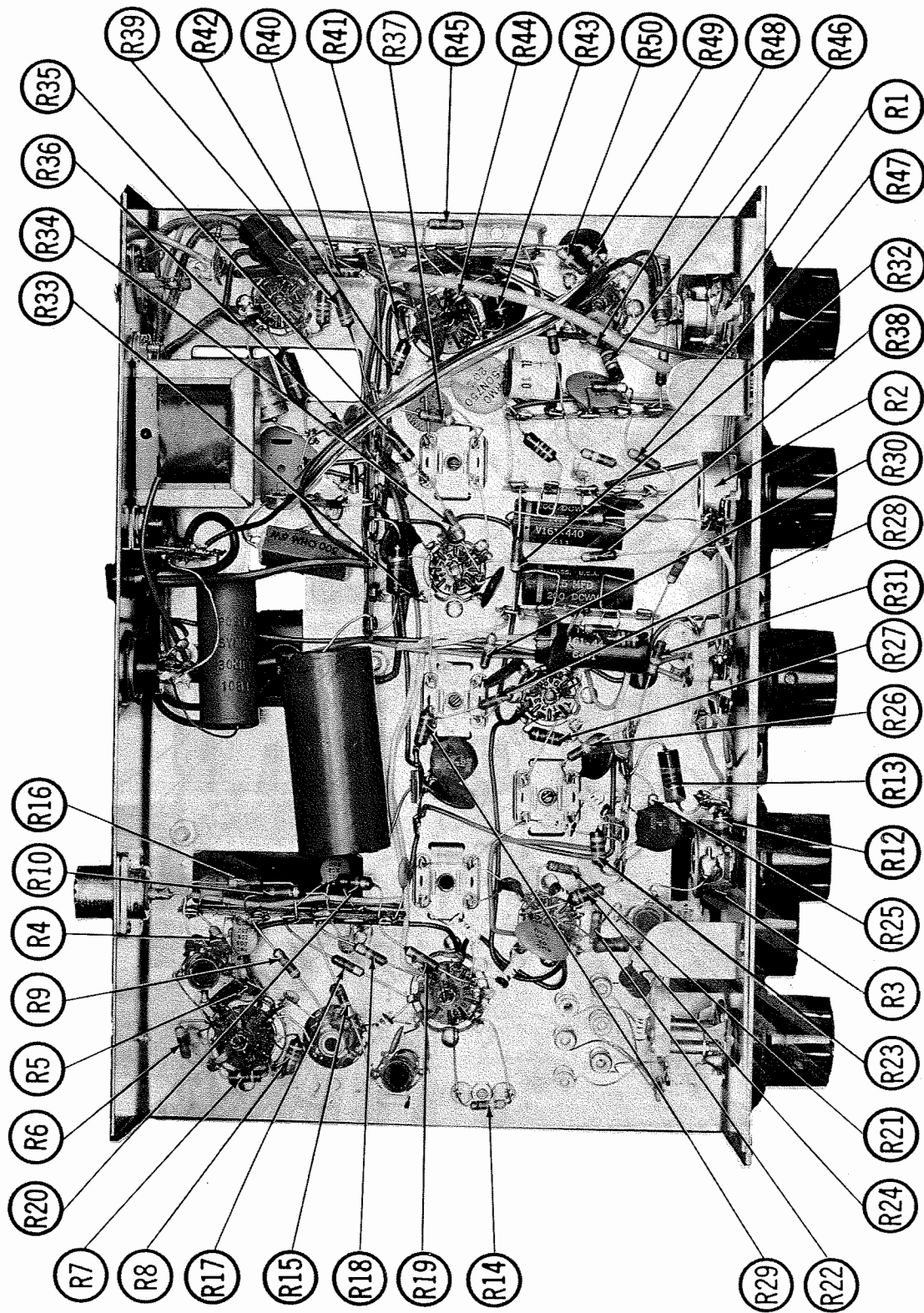
Connect either 50 Ω dummy load or the normally used antenna system.

INDICATOR	ADJUST	REMARKS
Front panel meter and output indicator lamp (Red).	A20	Turn the Mode switch to Tune and the Meter switch to Mils. Adjust for MINIMUM meter deflection and maximum lamp brilliance. Key transmitter on each channel used to insure oscillator starting.
Front panel meter and output indicator lamp (Red).	A21, A22	Turn the Mode switch to Xmit. and the Meter switch to Volts. Adjust for maximum meter deflection and maximum lamp brilliance. Repeat several times.

HOWARD W. SAMs & CO., INC. Indianapolis 6, Indiana

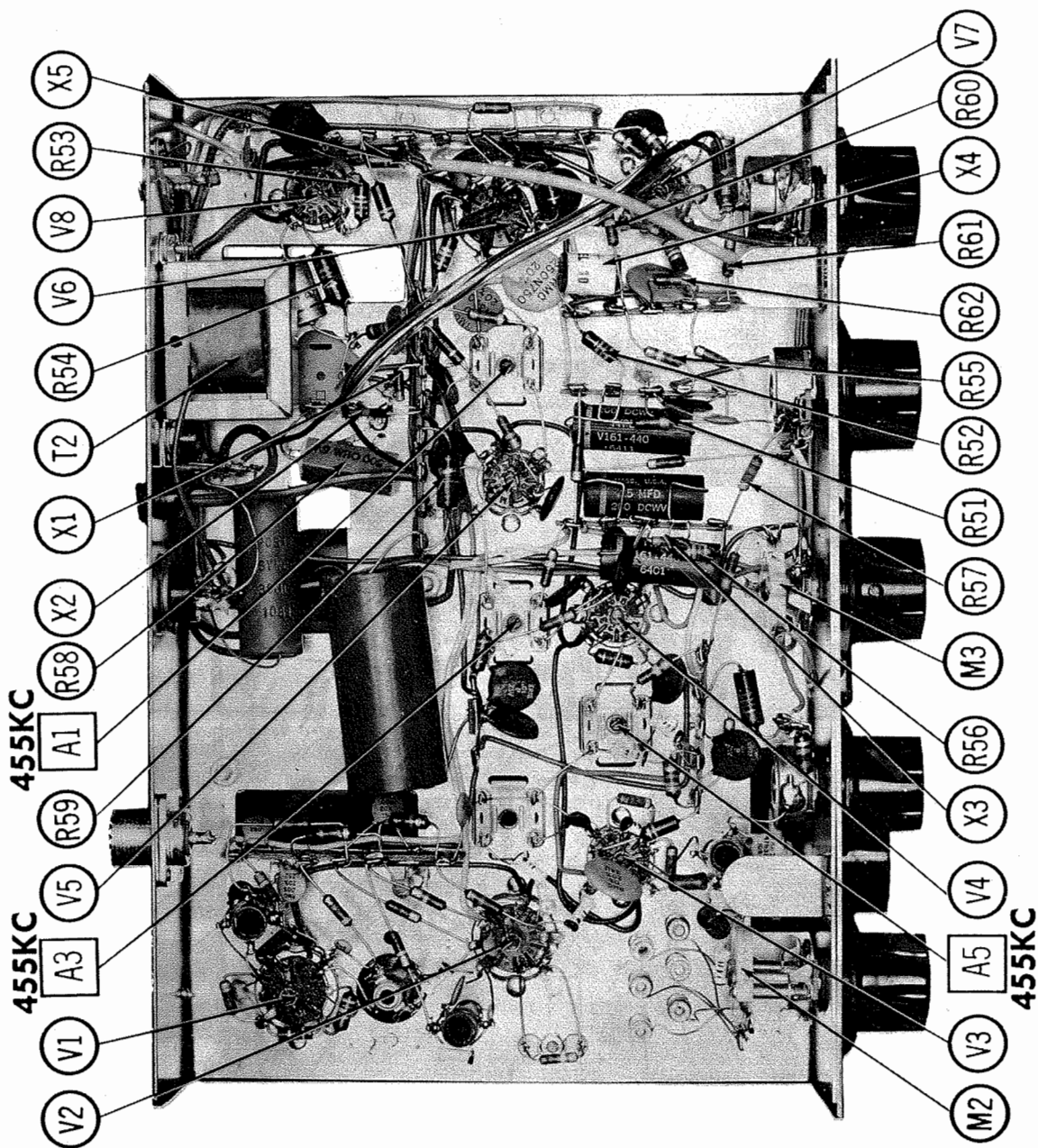


RECEIVER - CAPACITOR IDENT.



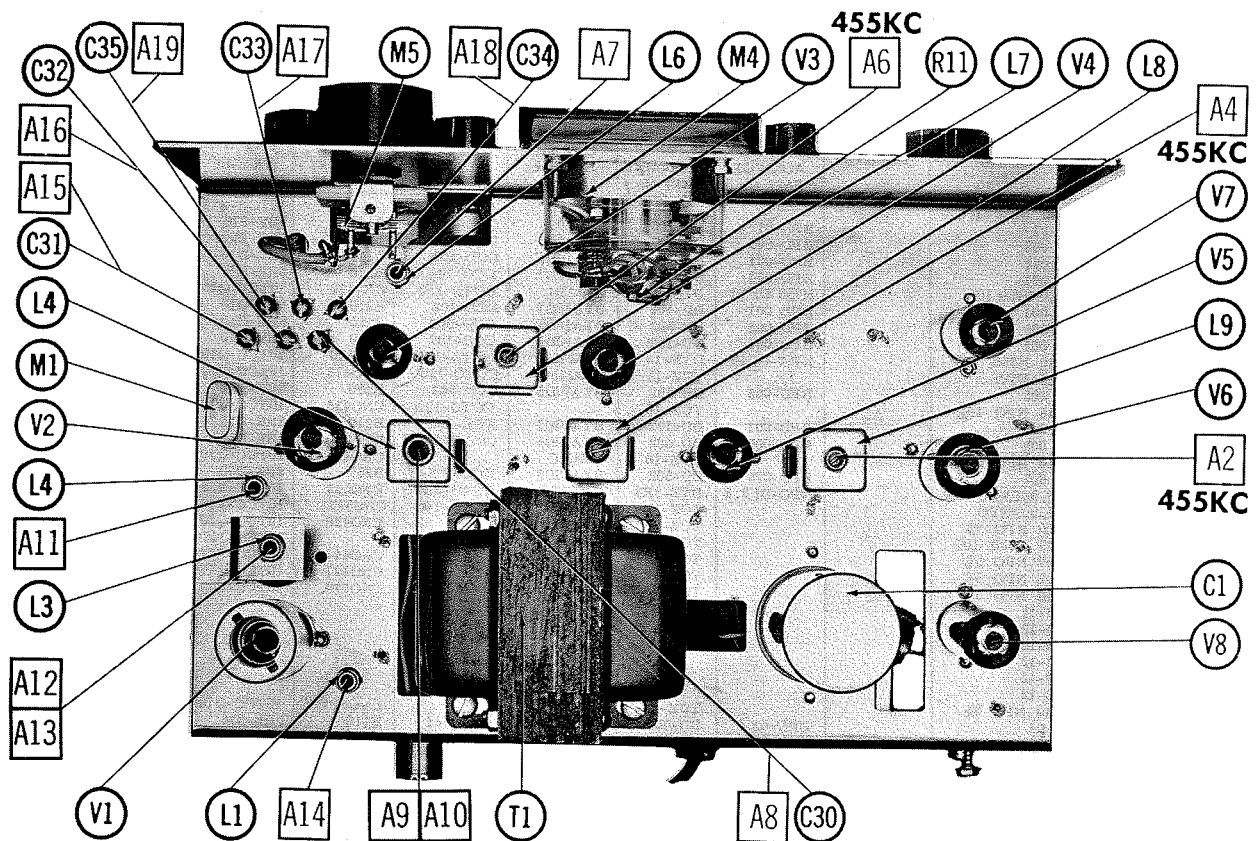
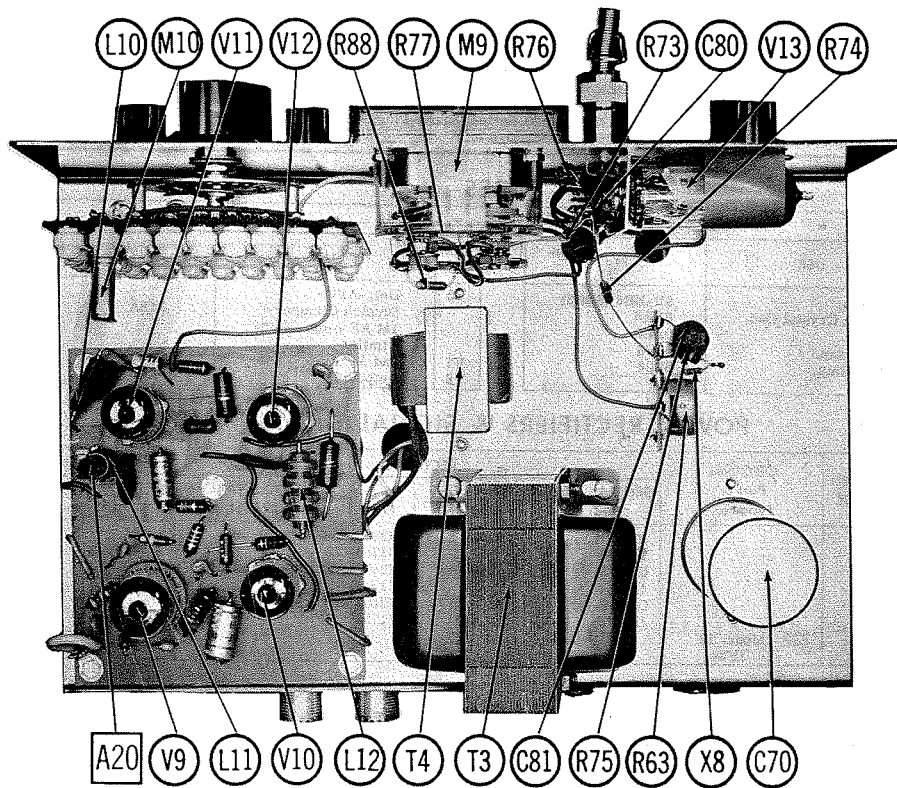
RECEIVER - RESISTOR IDENT. (REFER TO PAGE 36 FOR R51 THRU R62)

DEMCO MODELS M10, R101A, R102, T10A, VM12-120



RECEIVER

TRANSMITTER



RECEIVER

DEMCO MODELS M10, R101A, R102, T10A, VM12-120

RECEIVER PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor-1 Shielded for Press-to-Talk (Neoprene)
	8498 3 Conductor-1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TUBES

* AMPEREX * GENERAL ELECTRIC * RCA * SYLVANIA *					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.	6R-HH8 (6BZ8)	V6	Det.-AVC-Squelch Clamper-1st AF Amp.-Noise Limiter	6T8A
V2	Mixer & Crystal Osc.	6EA8	V7	2nd AF Amp.	6AU6A
V3	Conv.	6BE6	V8	Output	6AQ5A
V4	1st IF Amp.	6BJ6			
V5	2nd IF Amp.	6BJ6			

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Port or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X1	67MA		GE-504 or 1N1696	A500*	1N2863 or 1N1764	F6 or 50H	
X2	67MA		GE-504 or 1N1696	A500 *	1N2863 or 1N1764	F6 or 50H	
X3			GE-504 or 1N1696	A500 or 1N1491	1N2863 or 1N1764	F6 or 50H	
X4		Model 10					
X5		1N34					1N34AS

* Part #VB500 may be used to replace X1 and X2.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	DEMCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.
C1A	40	450						
B	40	450		AFH3-44	CCO350	XC3-40	TMS-3748	FP377.1
C	40	450						
C2	50	350		PRS1680	BR50-350	QTI-16	TD-50-450	TC79
C3	30	150		PRS1460	BR30-150	QTI-12	TD-30-150	TC47
C4	32	64						
C5	10	12		PTT53	NLW10-15	MT1-5	MLV10-12	TT12X10
								TL-1128

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	75 N220 10%					*		10TCR-Q75
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C8	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C11	10 N750 10%		N750-D1 10	DTN-10	C10Q1U	CCTN-100	CN7410	10TCU-Q10
C12	.001		BPD 001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C13	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C15	10 N750 10%		N750-D1 10	DTN-10	C10Q1U	CCTN-100	CN7410	10TCU-Q10
C16	15 NPO			TCZ-15	C10Q15C	CCTO-150	CNO415	10TCC-Q15
C17	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C18	18 NPO 10%			TCZ-18		CCTO-180	CNO418	10TCC-Q18
C19	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C20	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C21	10 NPO 5%			TCZ-10	C10Q1C		CNO410	10TCC-Q10
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C23	3.5pf NPO 10%		NPO-D1 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO533	10TCC-V33
C24	1.5pf NPO			TCZ-1R5	C10V15C	CCTO-1R5	CNO515	10TCC-V15
C25	20 NPO 5%			TCZ-20	C10Q2C		CNO420	10TCC-Q20
C26	47 N330 10%			TCA-47		*		10TCS-Q47
C27	47 NPO 5%			TCZ-47	C10Q47C		CNO447	10TCC-Q47
C28	47 NPO 5%			TCZ-47	C10Q47C		CNO447	10TCC-Q47
C29	10 NPO 5%			TCZ-10	C10Q1C		CNO410	10TCC-Q10
C30	3-12							
C31	3-12							
C32	3-12							
C33	3-12							
C34	3-12							
C35	3-12							
C36	10 NPO 5%			TCZ-10	C10Q1C		CNO410	10TCC-Q10
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C38	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C39	18 NPO 10%			TCZ-18		CCTO-180	CNO418	10TCC-Q18
C40	18 NPO 10%			TCZ-18		CCTO-180	CNO418	10TCC-Q18
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C43	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C44	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C46	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C47	100 N330			TCA-100		*		10TCS-T10
C48	100 N330			TCA-100		*		10TCS-T10
C49	.1 25V		TTD-1	CK-104	H6		TA010	HY550

RECEIVER PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C50	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C51	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C53	250 N750		N750-DI 220	DTN-220	C10T22U	CCTN-221	CN7322	10TCU-T22
C54	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C55	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C57	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C58	.01 1KV		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C60	.25 200V		BE2P25		PM2P25	2DP-4-254	PVC2025	2TM-P25
C61	.25 200V		BE2P25		PM2P25	2DP-4-254	PVC2025	2TM-P25
C62	.25 200V		BE2P25		PM2P25	2DP-4-254	PVC2025	2TM-P25
C63	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C64	18 NPO 10%			TCZ-18		CCCTO-180	CNO418	10TCC-Q18
C65	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C66	250 N750		N750-DI 220	DTN-220	C10T22U	CCTN-22J	CN7322	10TCU-T22
C67	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C68	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C69	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			DEMCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg		F2-1meg, SRS012, KR-1 or (B-70-S)	A47-1meg-Z, RS-2, SWE-12	Q13-137, T6-1, or (BU1, CF26, SS3, GC)*	UA16A, SK750, US41 or (RU16A, SL38, SK750, US41) or (U53, US26)
R2	Squelch	3meg		F1-3meg, SRS012, or (B-84)	A47-3meg-S, RS-2	Q11-140 or (BU1, CF21, SS3, DC1)*	UA36L, SK750, or (RU36L, SL38, SK750) or (U59)
R3	"S" Meter Zero	25K		F1-25K, SRS012, or (B-26)		Q11-120 or (BU1, CF11, SS3, DC1)*	UA253L, SK750, or (RU253L, SL38, SK750) or (U29)

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R58	500Ω 5W	PW5-500	5W-SQ-500						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DEMCO PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna						
L2	Neutralizing						
L3	RF						
L4	10MC IF						
L5	Crystal Osc. Plate						
L6	Variable Osc.						
L7	1st IF (455KC)	BC-352	12-C30		RTC-8632	T607	
L8	2nd IF (455KC)	BC-353	12-C31		RTC-8633	T608	
L9	3rd IF (455KC)	BC-353	12-C31		RTC-8633	T608	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	DEMCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117V @ .5A	120V @ 67MA	6.3V @ 2.7A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DEMCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	5000Ω	3-4Ω		A-2930	A-3877	24851	S-3X	

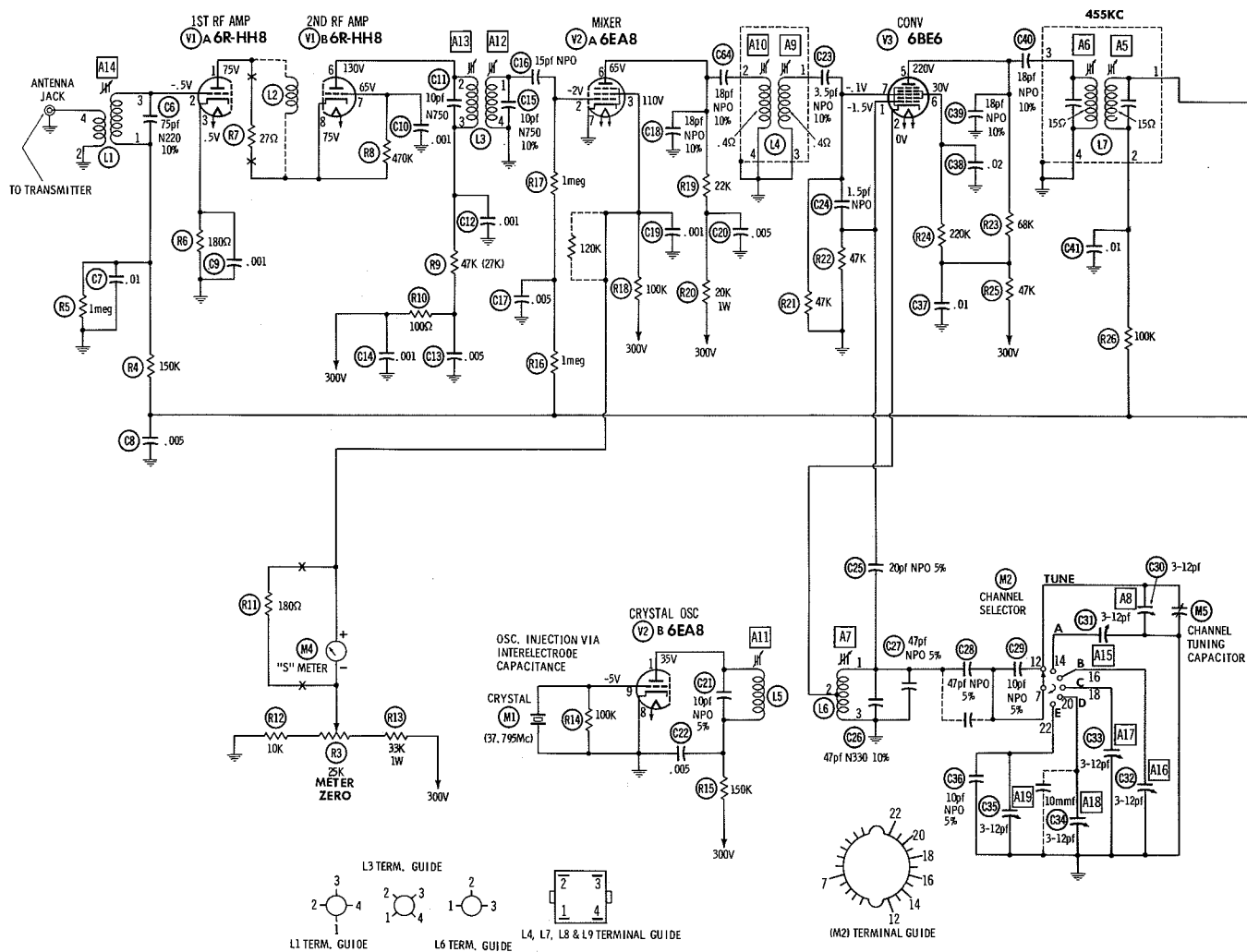
SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		DEMCO PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω		4A01	

MISCELLANEOUS

ITEM No.	PART NAME	DEMCO PART No.	NOTES
M1	Receiver Crystal		37.795MC
M2	Channel Switch		6-Position Rotary
M3	Distance-Local-Audio Compression Switch		3-Position Rotary
M4	"S" Meter		
M5	Variable Tuning Cap.		3-18pf

DEMCO MODELS M10, R101A, R102, T10A, VM12-120



RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6R-HH8 (6BZ8)	INF	280K	180Ω	FIL	FIL	148K	INF	INF	0Ω
V2	6EA8	1150K	2.3meg	122K	FIL	FIL	142K	0Ω	0Ω	
V3	6BE6	47K	0Ω	FIL	FIL	118K	1270K	47K		
V4	6B16	300K	470Ω	FIL	FIL	12700Ω	1150K	0Ω		
V5	6B16	300K	470Ω	FIL	FIL	16200Ω	116K	0Ω		
V6	6T8A	350K	680K	270K	FIL	FIL	2.5meg	0Ω	11meg	1480K
V7	6AU6A	1.5meg	1500Ω	FIL	FIL	11meg	11.5meg	1500Ω		
V8	6AQ5A	470K	470Ω	FIL	FIL	1890Ω	1500Ω	470K		
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

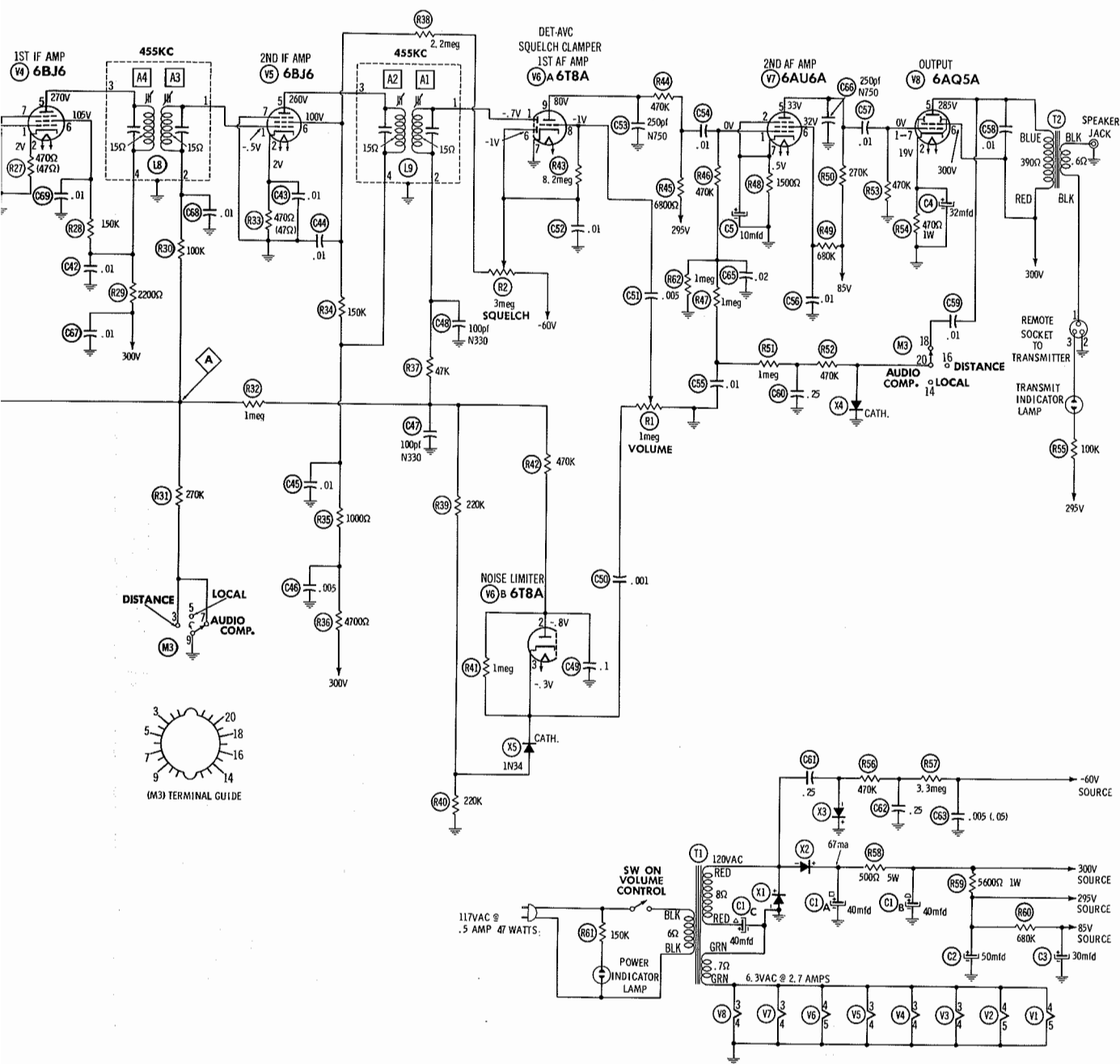
† MEASURED FROM CATHODE OF X2 INF INFINITE

Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

- See parts list for alternate value or application.
- Voltage measurements taken with vacuum tube voltmeter.
- All controls set for normal operation, no signal applied.
- Measured values are from socket pin or terminal to common ground.
- All terminals viewed from bottom unless otherwise designated.
- Numbers assigned to terminals may not be found on the unit.
- Supply voltage maintained at rated value for voltage readings.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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RECEIVER

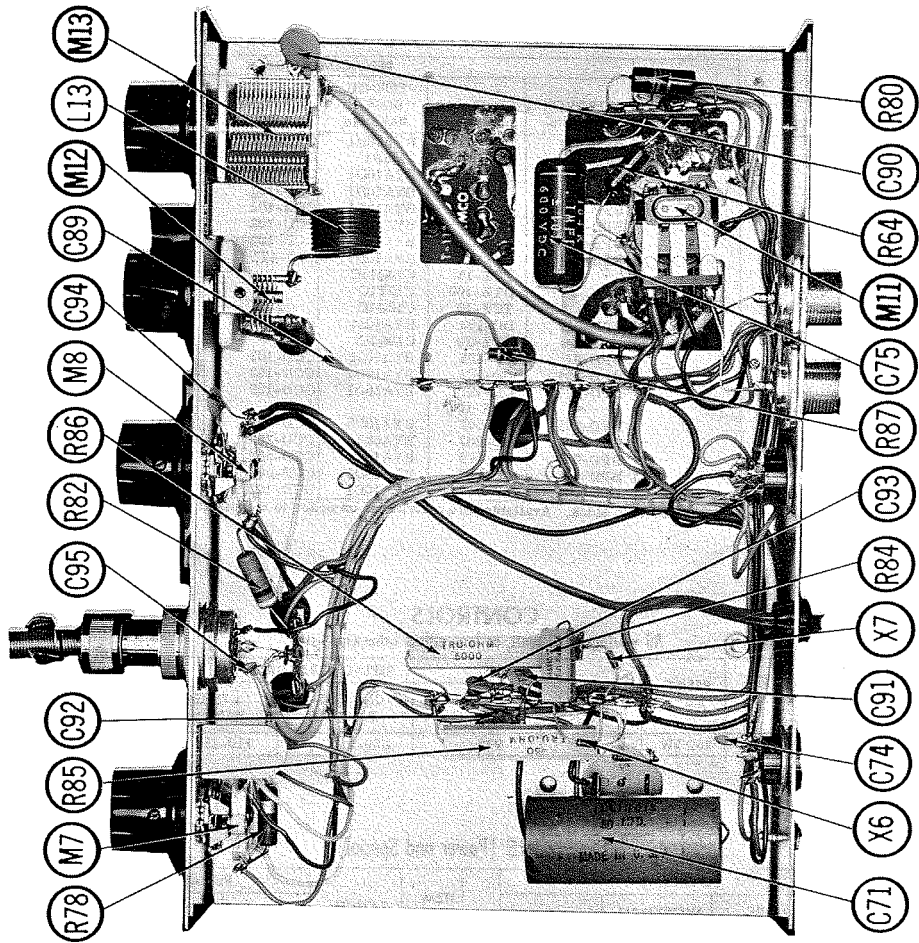
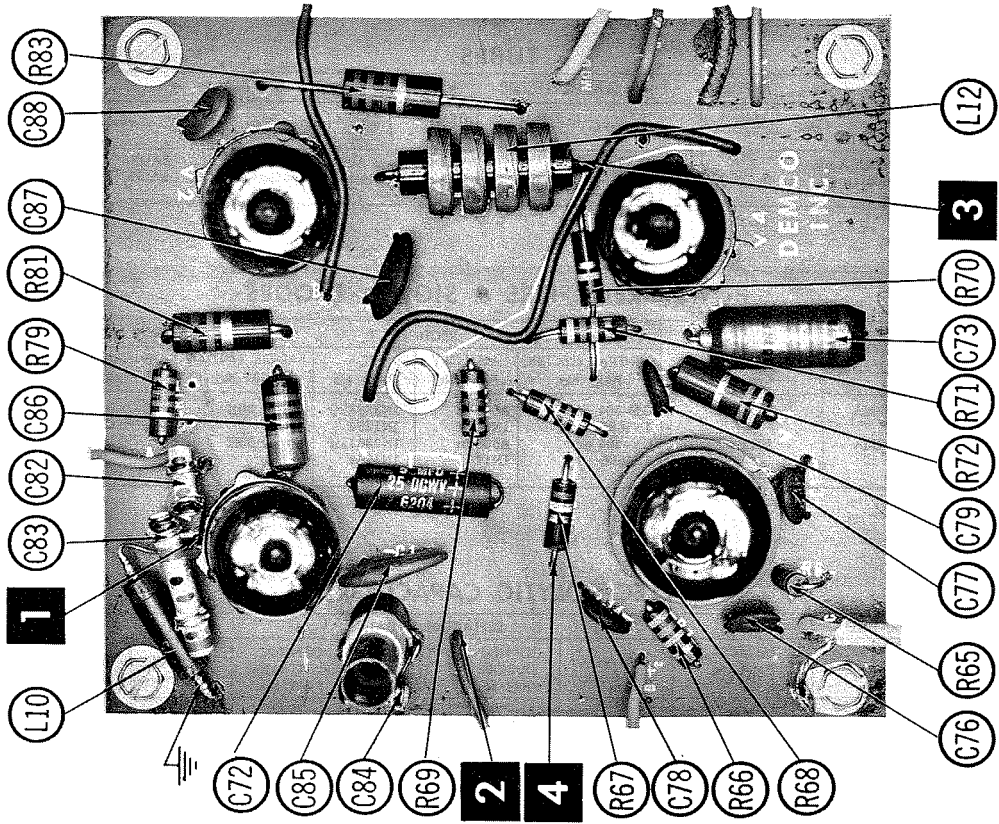


DEMCO MODEL R101A

RECEIVER

DEMCO MODELS M10, R101A, R102, T100A, VM12-120

TRANSMITTER



TRANSMITTER PARTS LIST AND DESCRIPTION

TUBES

• AMPEREX •			• GENERAL ELECTRIC •			• RCA •			• SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V9 V10 V11	Speech Amp. Modulator Osc.	12AX7A 6AQ5A 6C4	V12 V13	Final Amp. Modulation Indicator	6AQ5A EM87						

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X6	80MA	ED3004	GE-504 or 1N1696	A500 or 1N1491	1N2863 or 1N1764	F6 or 50H	
X7	80MA	ED3006	GE-504 or 1N1696	A500 or 1N1491	1N2863 or 1N1764	F6 or 50H	
X8		ED3004					1N82A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DEMCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C70A	40	450							
B	40	450		AFH3-44	CCO350	XC3-40	TMS-3748	FP377.1	TVL-3787
C	40	450							
C71	50	350		PRS1680	BR50-350	QT1-16	TD-50-450	TC79	TVA-1713
C72	5	15		PTT64	NLW5-15	MT1-3	MLV5-15	TT25X5	TL-1152
C73	25	25		PTT82	NLW25-25	MT1-11	MLV25-25	TT25X25	TL-1207

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C74	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C75	.1	600V		P688N-1	DF-104	PM6P1	8DP-4-104	GEM601	8TM-P10
C76	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C77	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C78	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C79	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C80	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C81	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C82	15	NPO 5%			TCZ-15	C10Q15C		CNO415	10TCC-Q15
C83	100	NPO 5%			DTZ-100	C10T1C		CNO310	10TCC-T10
C84	10	NPO 5%			TCZ-10	C10Q1C		CNO410	10TCC-Q10
C85	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C86	20	NPO 5%			TCZ-20	C10Q2C		CNO420	10TCC-Q20
C87	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C88	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C89	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C90	100	N330			TCA-100	*			10TCS-T10
C91	.005			BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C92	.02			BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C93	.005			BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C94	.005			BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C95	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			DEMCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R63	Meter Zero	15Ω 2W		V15	U39-15	110-15	PFL 15

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R84	47Ω 5W	PW5-50	5W-SQ-47.5		R86	5000Ω 10W	PW10-5000	10W-SQ-5000	(3000Ω) †
R85	350Ω 10W	PW10-350	10W-SQ-350						

† Alternate Value.

TRANSMITTER PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

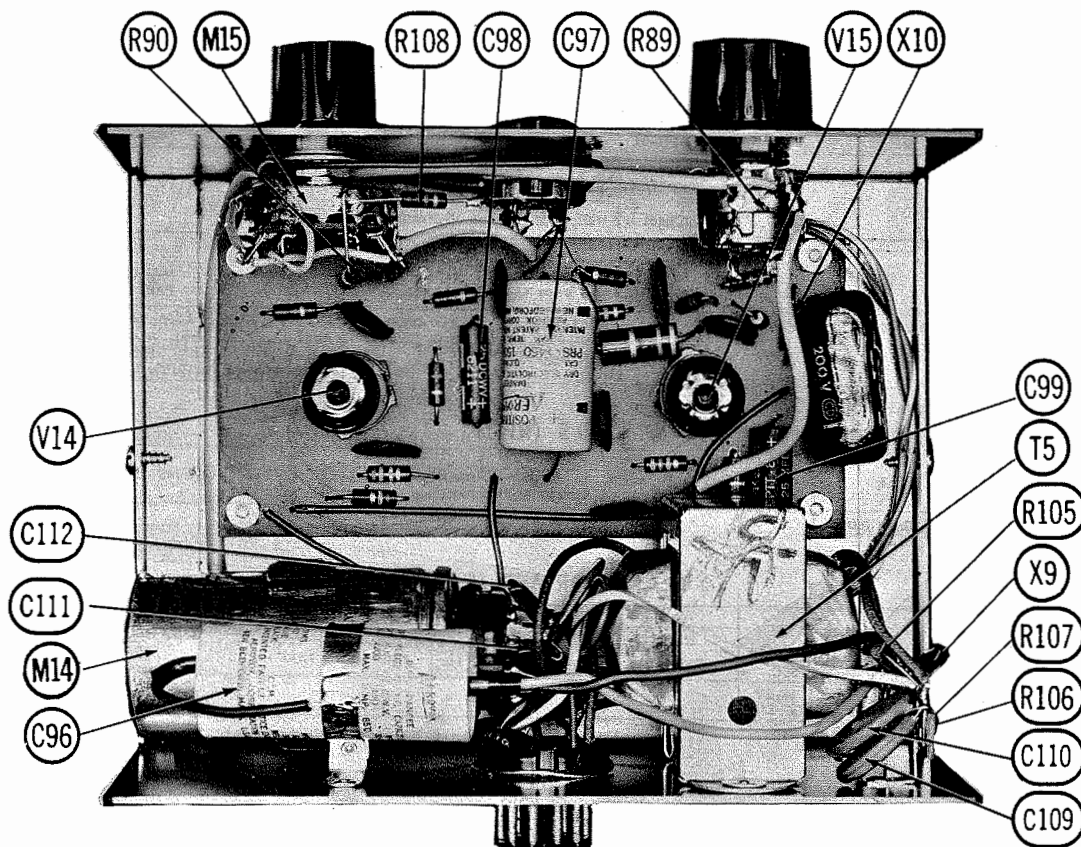
ITEM No.	USE	REPLACEMENT DATA					NOTES
		DEMCO PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L10	RF Choke(4.7uh)			74F476AP		T819	
L11	Osc. Plate						
L12	RF Choke (2.5MH)		BC-549	4537	RTC-8535	T836	
L13	Final Plate						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	DEMCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	117V @ .45A	120V @ .080A	6.6V @ 1.6A						

MISCELLANEOUS

ITEM No.	PART NAME	DEMCO PART No.	NOTES
M6	Channel Switch		23-Position Rotary Calibration-Xmit. -Tune (3-Position Rotary) Off-Volts-Mils (3-Position Rotary) Volt-Current
M7	Switch		
M8	Switch		
M9	Meter		
M10	Transmit Crystal		Transmit-Receive (3PDT) Plate Tuning (35pf Max.) Antenna Tuning (420pf max)
M11	Relay		
M12	Variable Capacitor		
M13	Variable Capacitor		



MODULATOR CHASSIS

DEMCO MODELS M10, R101A, R102, T10A, VM12-120

MODULATOR PARTS LIST AND DESCRIPTION

TUBES

♦ AMPEREX ♦			♦ GENERAL ELECTRIC ♦			♦ RCA ♦			♦ SYLVANIA ♦		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V14	Preamplifier	12AU6	V15	Voice Limiter	12AQ5						

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X9	21MA		GE-504 or 1N1695	1N2070 or 1N1490	1N2863 or 1N1763	F4 or 40H	
X10							

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		DEMCO PART No.	REPLACEMENT DATA					
	CAP.	VOLT.		AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C96A	30	150		PRS2200	EDL5315SS	QT2-7	TDL8-8	TCD497	TVA-2450
B	50	150							
C97	30	150		PRS1460	BR30-150	QT1-12	TD-30-150	TC47	TVA-1412
C98	10	25		PTT79	NLW10-25	MT1-5	MLV10-25	TT25X10	TL-1204
C99	25	25		PTT82	NLW25-25	MT1-11	MLV25-25	TT25X25	TL-1207

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C100	500		SI 500	D6-501	LA10T5-C4	CCD-501	GP350	5GA-T50	
C101	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	
C102	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20	
C103	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	
C104	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50	
C105	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	
C106	.5 200V		BE2P5		PM2P5	2DP-5-504	PVC205	2TM-P50	
C107	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20	
C108	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	
C109	.015 1.6KV			DD16-153	HVE16S15				
C110	.015 1.6KV			DD16-153	HVE16S15				
C111	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	
C112	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10	

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			DEMCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R89	Gain & Power	1meg		F2-1meg, SRS012, KR-1, or (B-70-S)	A47-1meg-Z, RS-2, SWE-12	Q13-137, 76-1, or (BU1, CF26, SS3, GC)*	UA16A, SK750, US41, or (RU16A, SL35, SK750, US41) or (U53, US26)

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DEMCO PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L14	RF Choke (60uh)		TV-193	6110	RTC-8573	T-302	

TRANSFORMER (POWER)

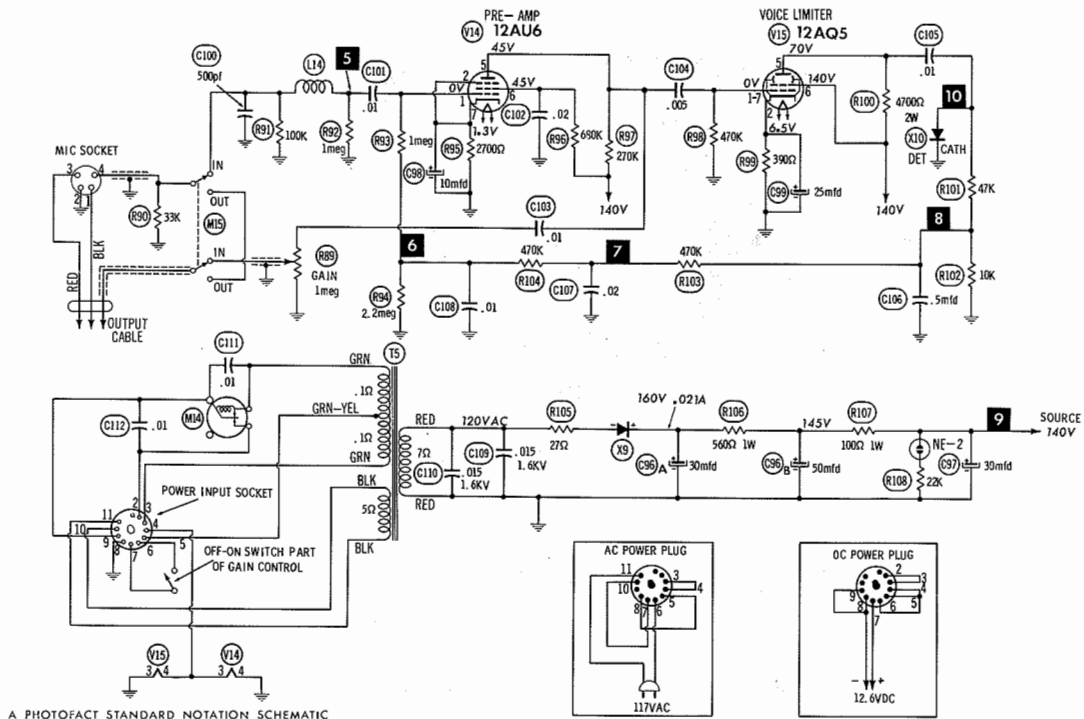
ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	PRI. 2	SEC. 1	DEMCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T5	117V @ .17A	12.6VDC @ 21MA	12.6V @ .375A						

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			NOTES
				DEMCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M14	Interrupter	12.6V	115%		6301	G1601	

MISCELLANEOUS

ITEM No.	PART NAME	DEMCO PART No.	NOTES
M15	In-Out Switch		



A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITTRACE

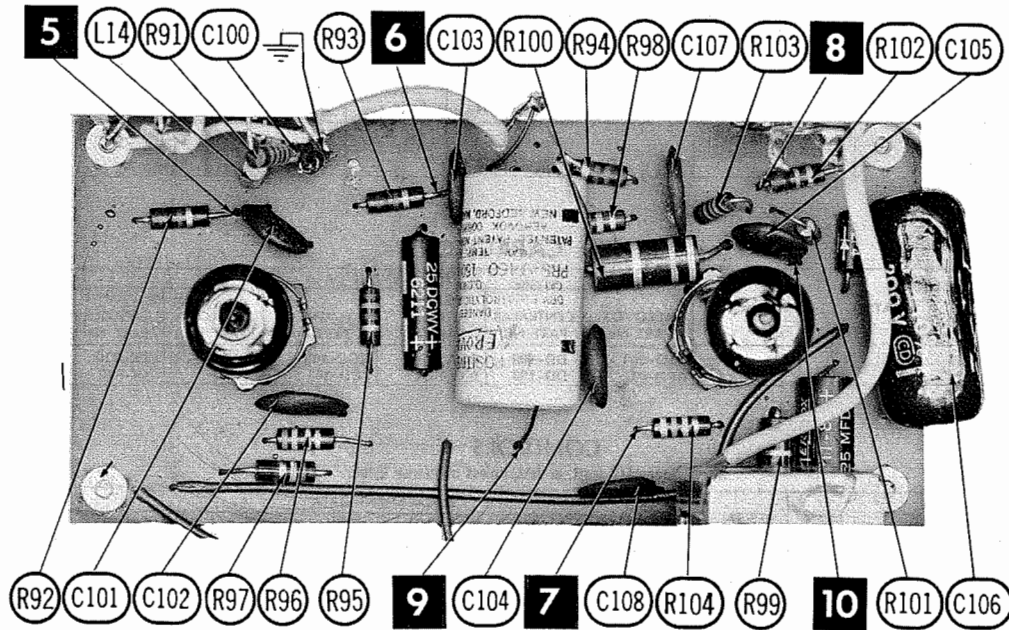
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RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V14	12AU6	1.5meg	2700Ω	FIL	FIL	1270K	1680K	2700Ω
V15	12AQ5	470K	390Ω	FIL	FIL	15400K	1660Ω	470K

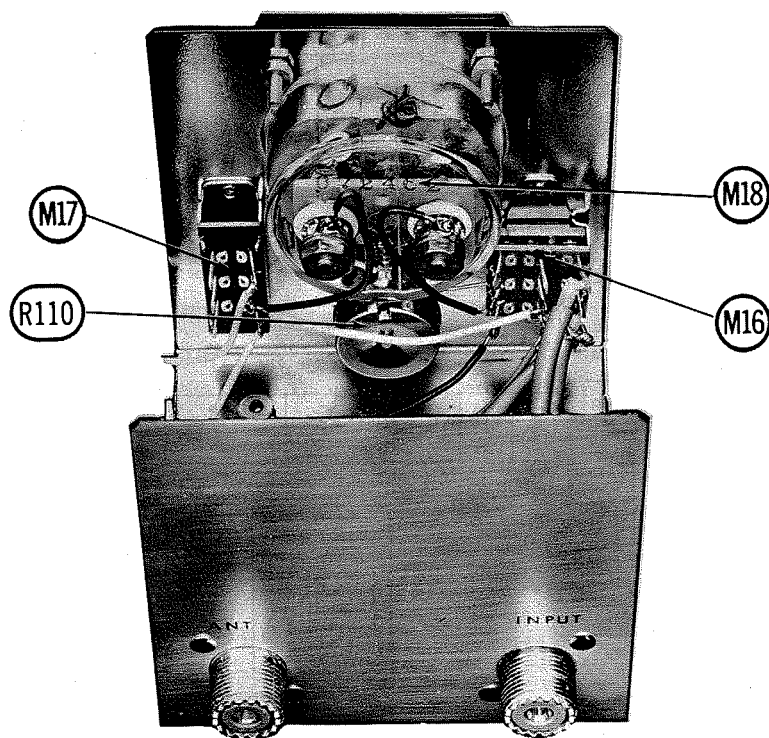
DEMCO MODEL VM12-120

- Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
- † MEASURED FROM OUTPUT (CATHODE) OF X9
- ALL MEASUREMENTS WITH "IN-OUT" SWITCH IN THE "IN" POSITION.
1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.
 5. Numbers assigned to terminals may not be found on the unit.
 6. Supply voltage maintained at rated value for voltage readings.



MODULATOR

A Howard W. Sams CIRCUITTRACE® Photo



SWR CHASSIS

SWR PARTS LIST AND DESCRIPTION

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.
X11		1N60					1N60
X12		1N60					1N60
X13		1N60					1N60

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C113	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C114	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10

CONTROLS

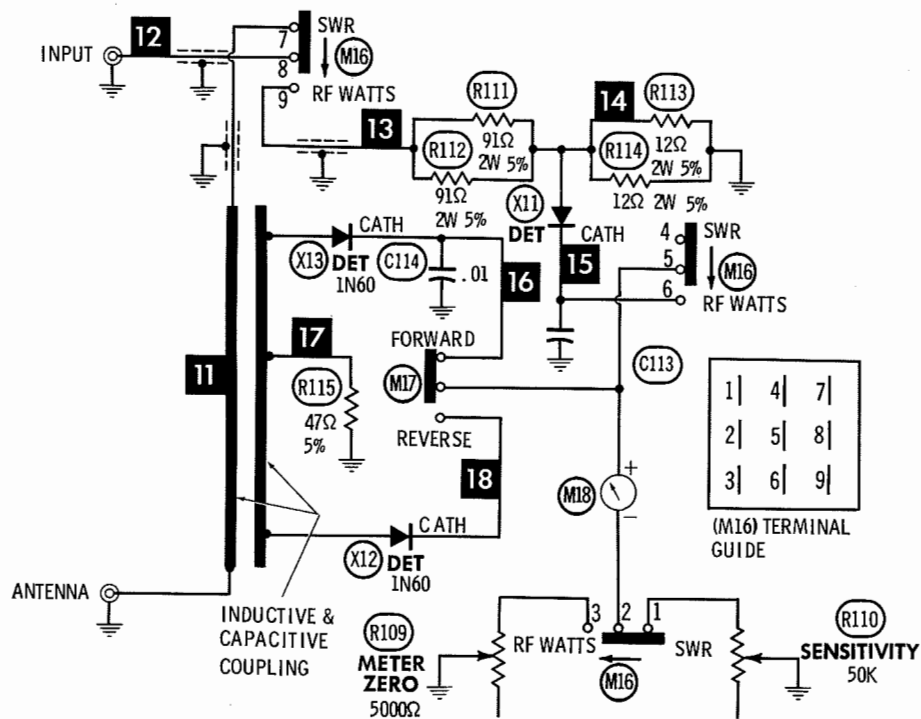
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			DEMCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R109 R110	Meter Zero Sensitivity	5000Ω 50K		V-5000 F1-50K, SRS010, or (B-31)	U39-5000 A47-50K-S, RS-2	110-5000 Q11-123, or (BU2, CF12, SS2, DC1)*	PFL 5K UA54L, SK750, or (RU54L, SL38, SK750) or (U35)

* "SNAPTROL"

MISCELLANEOUS

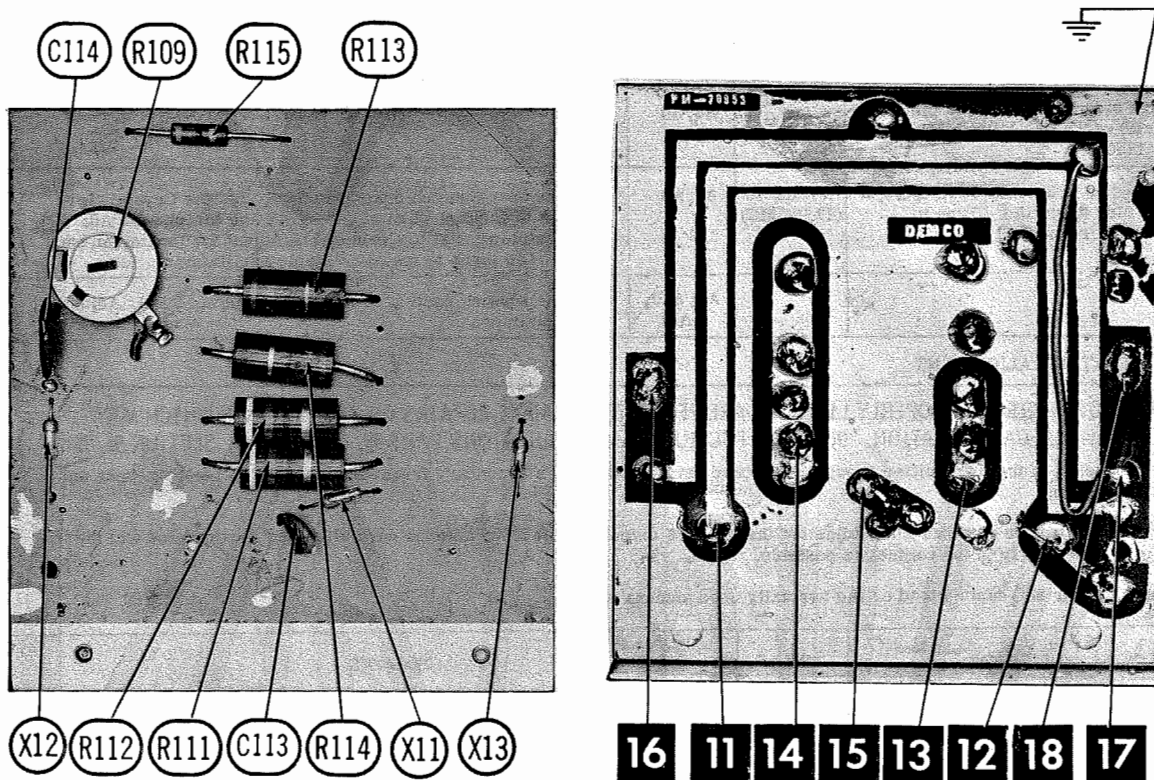
ITEM No.	PART NAME	DEMCO PART No.	NOTES
M16 M17 M18	Switch Switch Meter		SWR-RF Watts (3PDT) Forward-Reverse (DPDT)



A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**

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DEMCO MODEL M10



SWR

A Howard W. Sams **CIRCUITRACE** Photo

DEMCO MODELS M10, R101A, R102, T100A, VM12-120



PHOTOFACT®

TRADE NAME : Globe Model 65-228 (President VIII)

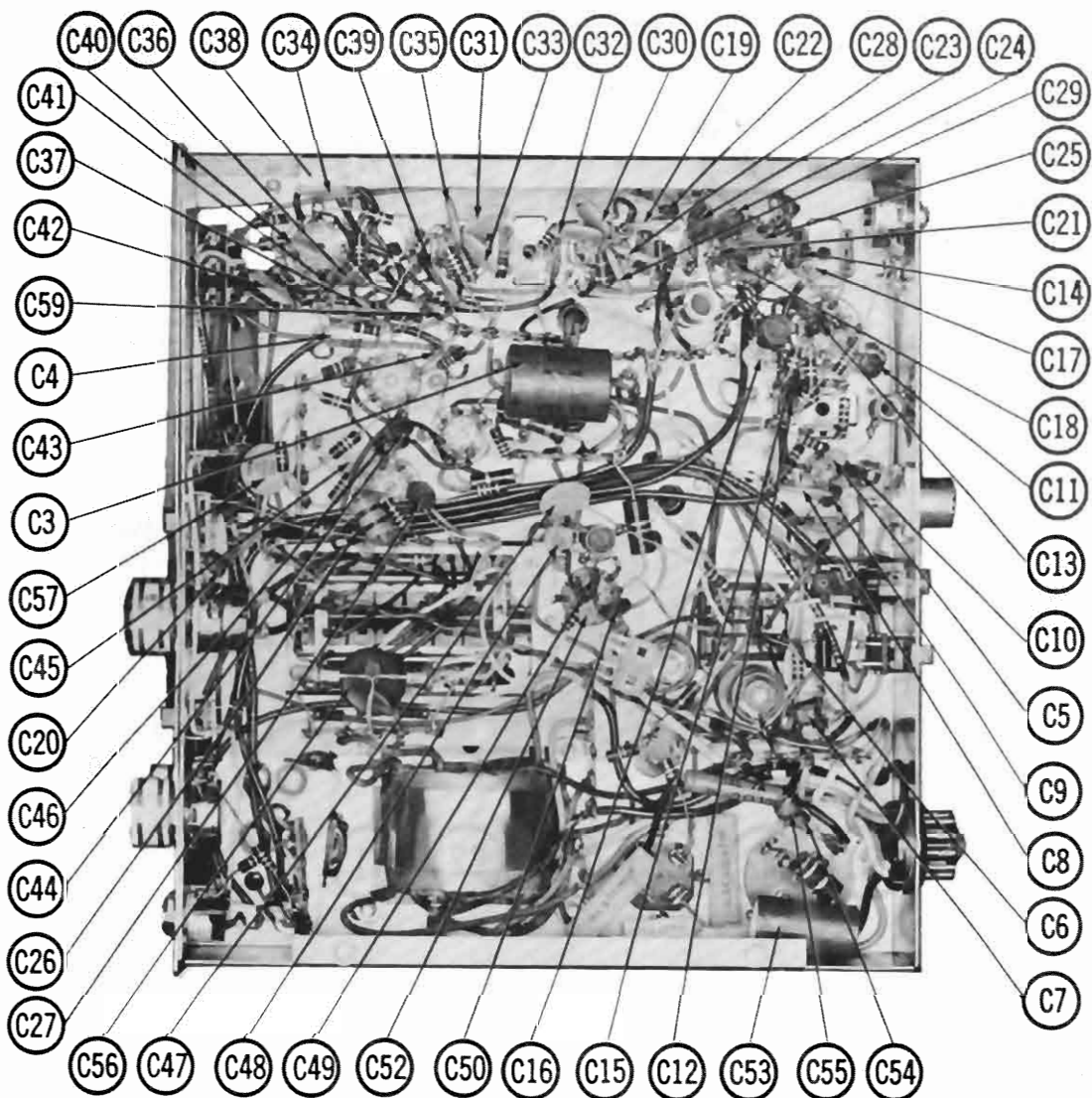
SUPPLIER : For Current Address, see Master Index

TYPE SET : 10 Tube Transceiver

POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles (or)
6 or 12 Volt Storage Battery

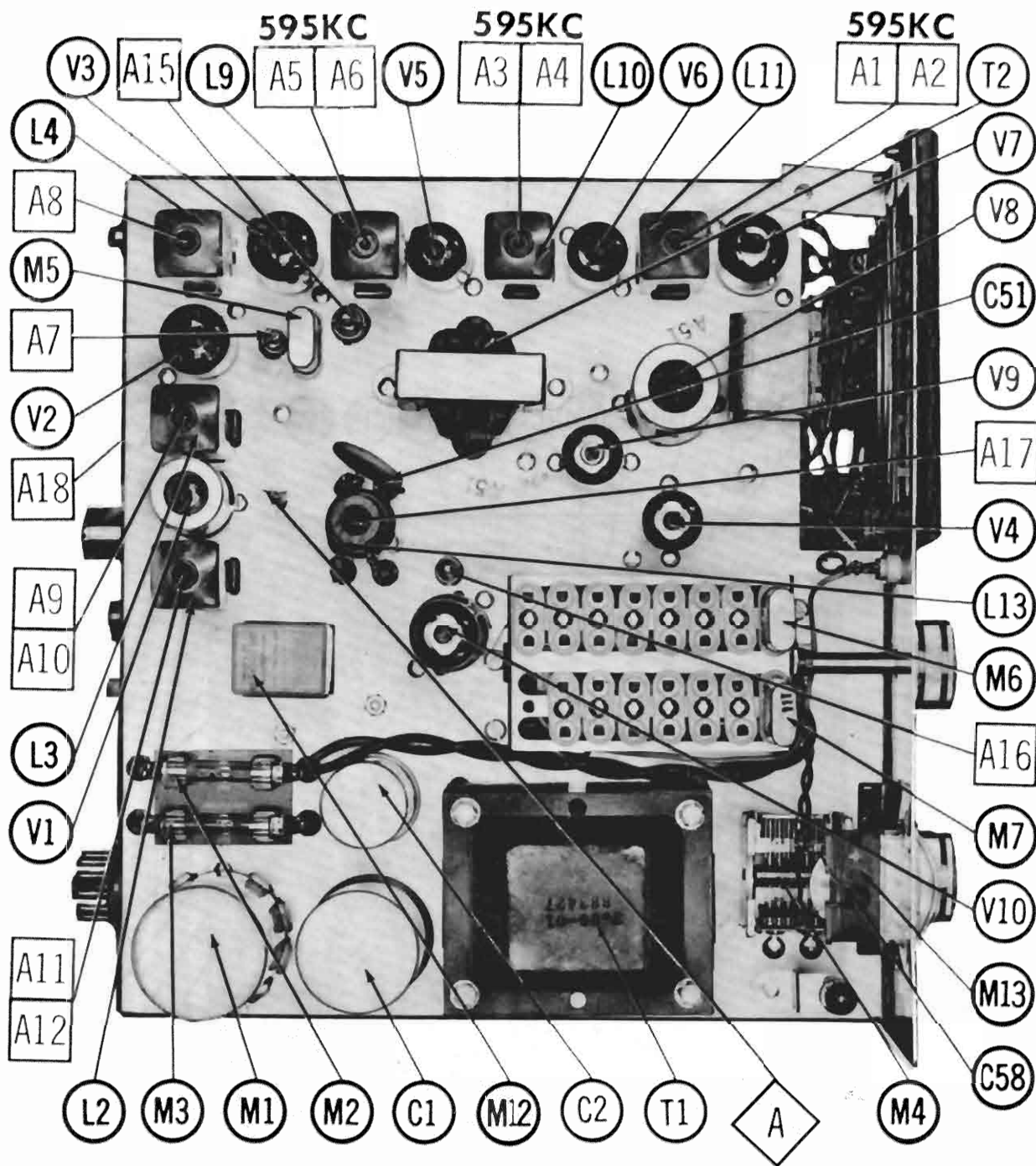
RATING : 77 Watts, .72 Amp. @ 117VAC (Trans.)
57 Watts, .56 Amp. @ 117VAC (Rec.)

TUNING RANGE : Any 8 CB Channels 1 thru 23
Receiver may be continuously tuned.



GLOBE MODEL 65-228 (PRESIDENT VIII)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6, A8 thru A12, A18...GENERAL CEMENT #8606, 8606L, 8869...WALSCO #2543, 2544, 2588
 A7, A13 thru A16,.....GENERAL CEMENT #8868, 9087, 9089.....WALSCO #2528, 2541, 2587
 A17.....GENERAL CEMENT #8869.....WALSCO #2588

RECEIVER ALIGNMENT

Connect a DC VTVM from point Δ to chassis. Set to read negative voltage.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .001mfd to pin 2 of V3A (2nd Mixer), low side to chassis. Tune to 595KC (Unmod.).	Any	A1 thru A6	Remove M5 (24.1MC Crystal). Adjust for maximum. If two peaks are observed, use the one with the slug farthest out. Replace M5.
		A7	Connect VTVM thru a 1meg to pin 9 of V2B (1st Rec. Crystal Osc.) set to read negative voltage. Turn A7 fully in, then slowly back out (CCW). Meter deflection will gradually increase, then suddenly decrease. Continue (CCW) until a sharp increase is noted. Continue CCW 1/4 turn.
High side to antenna receptacle, low side to chassis. Tune to 27.087MC (Unmod.).	11	A8 thru A12	Set the xtal-tune switch to Xtal. Reconnect VTVM to point Δ . Adjust for maximum.
High side to antenna receptacle, low side to chassis. Tune 27.255MC (300v Mod.)	23	A13, A14, A15	Set the Xtal-Tune Switch to Tune. Tune to channel 23. Adjust A13 & A14 1/8-turn from closed. Adjust A15 until signal is heard. Readjust A8 for maximum. Use innermost peak.
High side to antenna receptacle, low side to chassis. Tune to 26.975MC.	2		Tune the receiver until a signal is heard. If dial reads high, reset generator to channel 23 (27.255MC) and tune receiver to generator. Turn A15 1/4-turn CCW. Adjust A14 until signal is heard. Reset generator to channel 2 (26.975MC). Retune the receiver until the signal is heard. Repeat for proper tracking. If dial reads low, reset generator to channel 23 (27.255MC) and tune receiver to generator. Turn A15 1-fourth turn clockwise. Adjust A14 until signal is heard. Reset generator to channel 2 (26.975MC). Retune the receiver until the signal is heard. Repeat for proper tracking.
"		A8	Readjust A8 for maximum (most inward peak).
High side to antenna receptacle, low side to chassis. Tune to 27.255MC.		A13	Tune receiver for maximum. Adjust A13 for maximum. Repeat the last two steps in sequence.
High side to antenna receptacle, low side to chassis. Tune to 26.975MC.	2	A9, A10, A11, A12	Repeak for maximum.

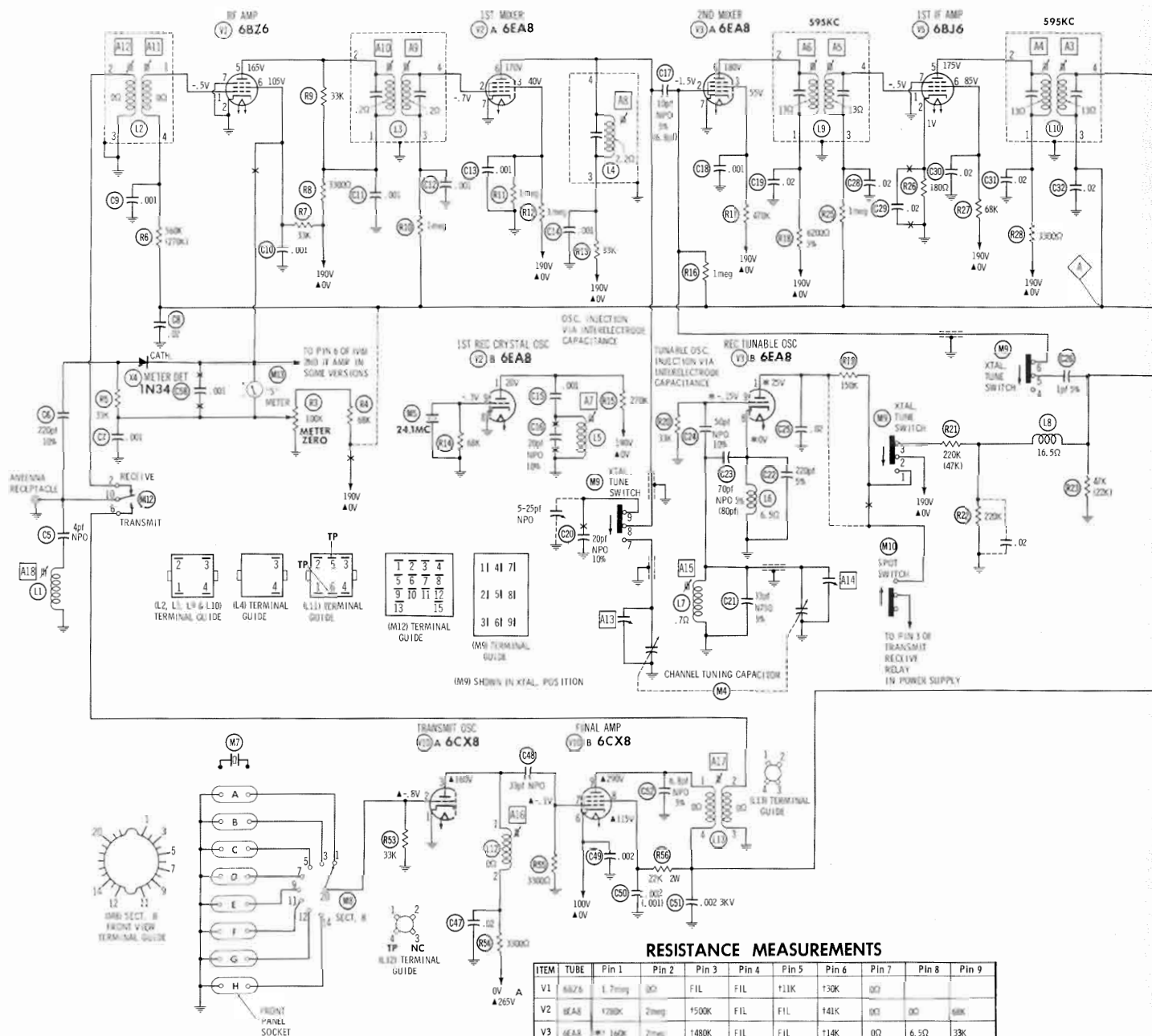
TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).
 The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50 Ω dummy load or the normally used antenna system.

INDICATOR	ADJUST	REMARKS
Field strength meter or front panel meter. Set transmitter to center channel used.	A16	Adjust A16 CCW until meter drops to zero. Gradually adjust clockwise for a sudden increase. Continue clockwise 1/2-turn. Use peak with slug farthest in.
"	A17	Adjust for maximum. Check all channels to be sure oscillator starts each time.
	A18	Adjust for MINIMUM interference on lower TV channels.



Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

1. See parts list for alternate value or application.
2. Voltage measurements taken with vacuum tube voltmeter.
3. All controls set for normal operation, no signal applied.
4. Measured values are from socket pin or terminal to common ground.
5. All terminals viewed from bottom unless otherwise designated.
6. Numbers assigned to terminals may not be those on the unit.
7. Supply voltage maintained at rated value for voltage readings.

A. PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.7meg	00	FIL	FIL	111K	130K	00		
V2	6EA8	1200K	2meg	1500K	FIL	141K	141K	00	00	68K
V3	6EA8	160K	2meg	1480K	FIL	FIL	114K	00	6.5Ω	33K
V4	6A54	145K	NC	FIL	FIL	NC	47K	00		
V5	6BJ6	2meg	1800	FIL	FIL	112K	175K	00		
V6	6BJ6	1meg	1800	FIL	FIL	111K	175K	00		
V7	12BR7	111K	2.2meg	05K	FIL	FIL	2meg	1meg	2meg	FIL
V8	6EA8	14200K	300K	11meg	FIL	FIL	1200K	3300K	3300K	68K
V9	6A20A	470K	10000	FIL	FIL	17000	17000	470K		
V10	6CX8	00	33K	141K	FIL	FIL	00	3300K	12K	17000
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

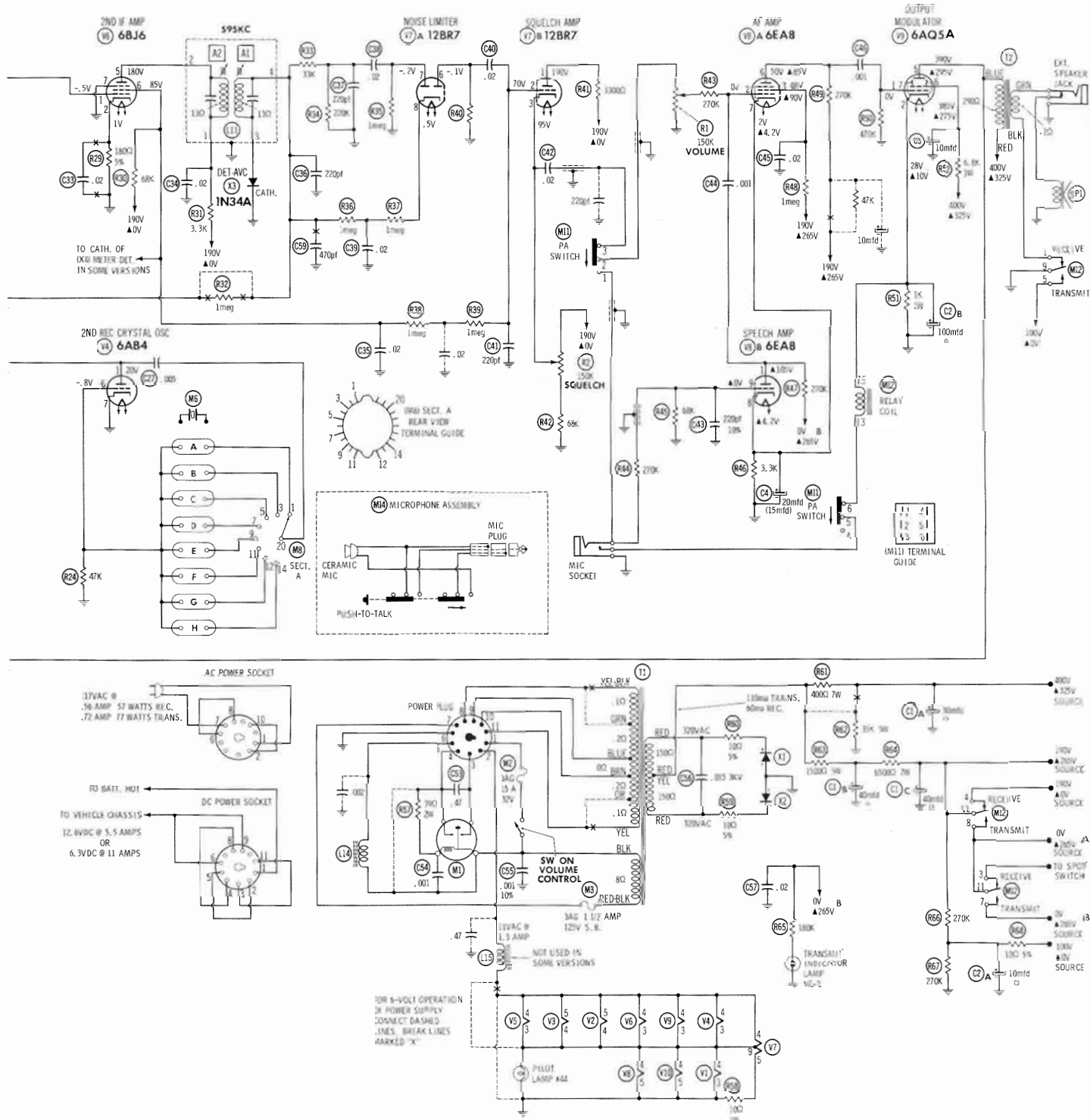
ALL MEASUREMENTS MADE IN RECEPTIVE POSITION UNLESS OTHERWISE INDICATED.

NC: NO CONNECTION

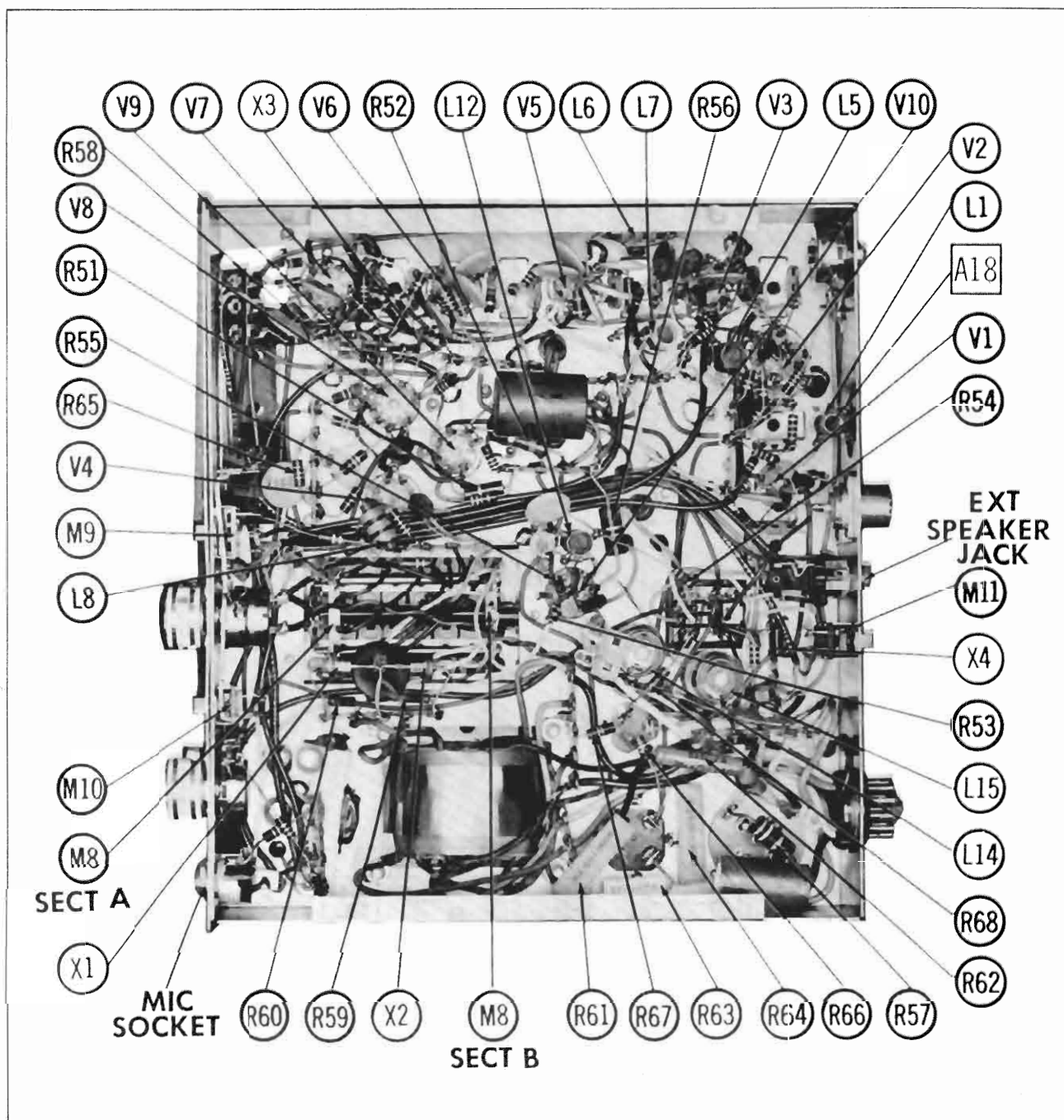
▲: MEASURED IN TRANSMIT POSITION

†: MEASURED FROM POWER TRANSFORMER SECONDARY CENTER TAP

*: MEASURED IN TUNE POSITION



GLOBE MODEL 65-228 (PRESIDENT VIII)



PARTS LIST AND DESCRIPTION

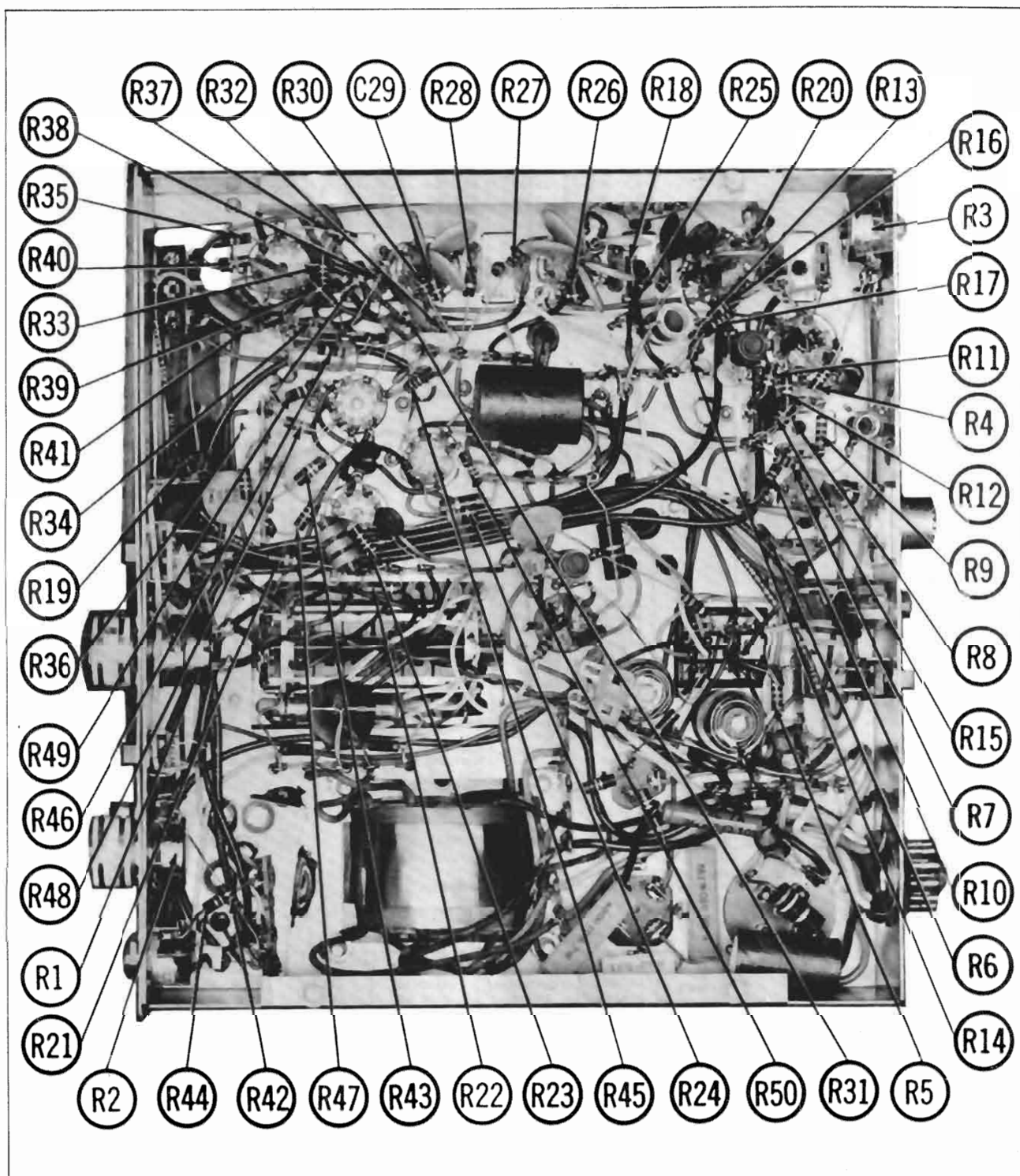
TUBES

• AMPEREX •			• GENERAL ELECTRIC •			• RCA •			• SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.	6BZ6	V6	2nd IF Amp.	6BJ6	V7	Noise Limiter-Squelch Amp.	12BR7	V2	1st Mixer-1st Crystal Osc.	6EA8
V3	2nd Mixer-Rec. Tunable Osc.	6EA8	V8	AF Amp. -Speech Amp.	6EA8	V9	Output-Modulator	8AQ5A	V4	2nd Rec. Crystal Osc.	8AB4
V5	1st IF Amp.	6BJ6	V10	Transmit Osc. -Final Amp.	6CX8						

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES GENERAL ELECTRIC PART No.
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X1	110MA (Trans.)	U-2400-03			1N3196 or 1N3563	F-6 ①	1N34AS 1N34AS
X2	110MA (Trans.)	U-2400-03			1N3196 or 1N3563	F-6 ①	
X3		U-2400-01					
X4		U-2400-02					

① Use two units in series.



GLOBE MODEL 65-228 (PRESIDENT VIII)

PARTS LIST AND DESCRIPTION (CONTINUED)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	GLOBE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	30	450	U-1304-01 ①	AFH4-112		XC4-61			
B	40	350							
C	40	350							
D	30	25							
C2A	10	100	U-1303-01 ②	AFH3-13-08		XC3-14	TMD3154	FP384, 16	TVL-2708
B	100	25							
C	50	6							
C3	10	450	U-1301-04 ③	PRS1720 CRE611A	BR10-450 NLW20-25	QT1-6 MT1-14	TD-10-450 BL1561	TC72 TT25X20	TVA-1705 TE-1206
C4	20	25							

① C1D not used. ② C2C not used. ③ Alternate Value 15mfd (Part #U-1301-05).

PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	EIMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	4pf NPO ±.25pf	#U-1300-04	DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TCC-V39
C6	220 10%		BPD-001	DD-102	BYA10D1	CCD-102	B210	10TS-T22
C7	.001		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-D10
C8	.02		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C11	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C12	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C13	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C15	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C16	20 NPO 10%	Note 1	NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO420	10TCC-Q20
C17	10 NPO 5%	(6.8pf) †	NPO-DI 10	DTZ-10	C10Q1C		CNO410	10TCC-Q10
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C19	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C20	20 NPO 10%	Note 2	NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO420	10TCC-Q20
C21	33 N750 5%			DTN-33	C10Q33U		CN7433	10TCU-Q33
C22	220 5%			DTZ-220	CD10E22LJ		CNO322	10TCC-T22
C23	10 NPO 5%	(80pf) †		DTZ-68	C10Q68C		CNO468	10TCC-Q68
C24	50 NPO 10%		NPO-DI 50	DTZ-50	C10Q5C	CCTO-510	CNO450	10TCC-Q50
C25	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C26	1pf 5%	#U-1300-01					CNO510	10TCC-V10
C27	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C28	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C29	.02	Note 1	BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C30	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C31	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C32	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C33	.02	Note 1	BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C34	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C35	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C36	220		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C37	220 10%		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C38	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C39	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C40	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C41	220		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C42	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C43	220 10%		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C45	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C47	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C48	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO433	10TCC-Q33
C49	.002		BPD-002	DD-202	BYA10D2	CCD-202	B220	5HK-D20
C50	.002		BPD-002	DD-202	BYA10D2	CCD-202	B220	5HK-D20
C51	.002 3KV	(.001) †	HVD-30-2200	DD30-202		3CCD-202	3HV222	30GA-D20
C52	6.8pf NPO 5%				C10V68C		CNO568	10TCC-V68
C53	.47mfd 100V		BE2P47		WMF1P47	IDP-4-474	PVC1047	2PS-P47
C54	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C55	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C56	.015 3KV	#U-1300-74						
C57	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C58	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C59	470	Note 1	SI 470	D6-471	LA10T47-C4	CCD-471	GP347	5GA-T47

† Alternate Value.

Note 1. Not used in some versions.

Note 2. Some versions use a 5-25pf Trimmer (Part #U-1800-08).

Globe Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			GLOBE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	150K	U-1700-08	F2-250K, SRS008, KR-1 or (B-44, KR-1)	A47-250K-Z, RS-2, SWE-12	B13-328, SK2, 76-1, or (BU1, CF23, SS2, GC)*	UA154A, SK750, US41, or (RU25A, SL35, SK750, US41) or (U42, US26)
R2	Squelch	150K	U-1700-07	F1-150K, SRS008, or (B-43)	A47-150K-S, RS-2	B11-328, SK-2 or (BU1, CF14, SS2, DC1)*	UA25L, SK750 or (RU154L, SL35, SK750) or (U43)
R3	Meter Zero	100K	U-1700-04	F1-100K, SN010, or (B-40)	A47-100K-S, FKS-1/4	B11-128, SK-2 or (BU1, CF13, SS2, DC1)*	UA15L, SL3500, or (RU15L, SL35, SL3500) or (SU41)

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R61	4000 7W			#U-1107-03	R63	15000 5W	PWS-15000	SWSQ-1500	#U-1105-07
R62	35K 5W			#U-1105-08	R64	65000 7W			#U-1107-06

Globe Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		GLOBE PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC Trap	U-1400-25					
L2	Rec. Antenna	U-1600-14					
L3	RF	U-1600-06					
L4	1st Mixer Plate	U-1600-13					
L5	Crystal Osc. Plate	U-1400-04					
L6	RF Choke(1,2uh)	U-1500-02					
L7	Tunable Osc.	U-1400-06					
L8	RF Choke(2MH)	U-1500-12					

PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)(cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		GLOBE PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L9	1st IF	U-1800-08					Not used in some versions.
L10	2nd IF	U-1800-09					
L11	3rd IF	U-1600-10					
L12	Trans. Osc. Plate	U-1400-11					
L13	Final Plate	U-1400-26					
L14	Hash Choke(200uh)	U-1500-07					
L15	Filament Choke (200uh)						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	PRI. 2	SEC. 1	GLOBE PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117 VAC @.72A	12.6VDC @5.5A or 6.3VDC @11A	320V @110MA	U-3600-01					
	SEC. 2 11VAC @1.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	GLOBE PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	9500Ω	3-4Ω	U-3600-07					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		GLOBE PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-4Ω	U-3000-03	3A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6.3V or 12.6V	115v	U-2500-03		1610	

FUSES

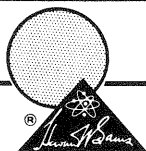
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GLOBE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	15A 32V	U-2300-05		311015	357002	AGC 15	4409
M3	3AG	1 1/2A 125V S/B	U-2300-02		31301.5		MDL 1 1/2	

MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
M4	Tuning Capacitor	U-1800-10	2 Sect.
M5	24.1MC Crystal	U-4100-03	Crystals are supplied in sets. Specify Channel desired when ordering
M6	Receive Crystals	65-728	
M7	Transmit Crystals		
M8	Channel Sel. Switch	U-1900-19	
M9	Xtal. -Tune Switch	U-1900-20	
M10	Spot Switch	U-1900-02	
M11	PA Switch	U-1900-05	3PDT Slide
M12	Transmit-Receive Relay	U-1900-12	SPST Slide
M13	"S" Meter	U-2600-01	DPDT Slide
M14	Microphone Ass'y.	U-3500-16	4PDT
			Ceramic Mic

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	8524 (Stranded) Available in 12 Colors
	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
	8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)



PHOTOFACT®



TRADE NAME: Hallicrafters Model CB-7

SUPPLIER: For Current Address, see Master Index

TYPE SET: 7 Tube Transceiver

POWER SUPPLY: 110 — 120 Volts AC, 60 Cycles (or)
12 Volt Storage Battery

RATING: 53 Watts, .51 Amp. @ 117VAC (Rec.)
60 Watts, .56 Amp. @ 117VAC (Trans.)
4.3 Amp. @ 12.6VDC (Rec.)
5.0 Amp. @ 12.6VDC (Trans.)

TUNING RANGE: Any 6 CB Channels 1 thru 23

HALLICRAFTERS MODEL CB-7

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....GENERAL CEMENT #5097, 8727..... WALSCO #2515
A7, A8, A9.....GENERAL CEMENT #8606, 8606L, 8869..... WALSCO #2543, 2544, 2588
A10, A11, A13....GENERAL CEMENT #5000, 8290, 8609

RECEIVER ALIGNMENT

Connect a DC VTVM between point **A** and chassis. Set to read negative voltage.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 7 (grid) of V2 (Converter), low side to chassis. Tune to 1650KC.	Any	A1, A2, A3, A4, A5, A6	Adjust for maximum.
High side to Antenna Receptacle, low side to chassis. Tune to Channel frequency.	11 (27.085MC)	A7	Adjust for maximum.
"	"	A8, A9	Adjust for maximum on first peak from maximum clockwise position.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

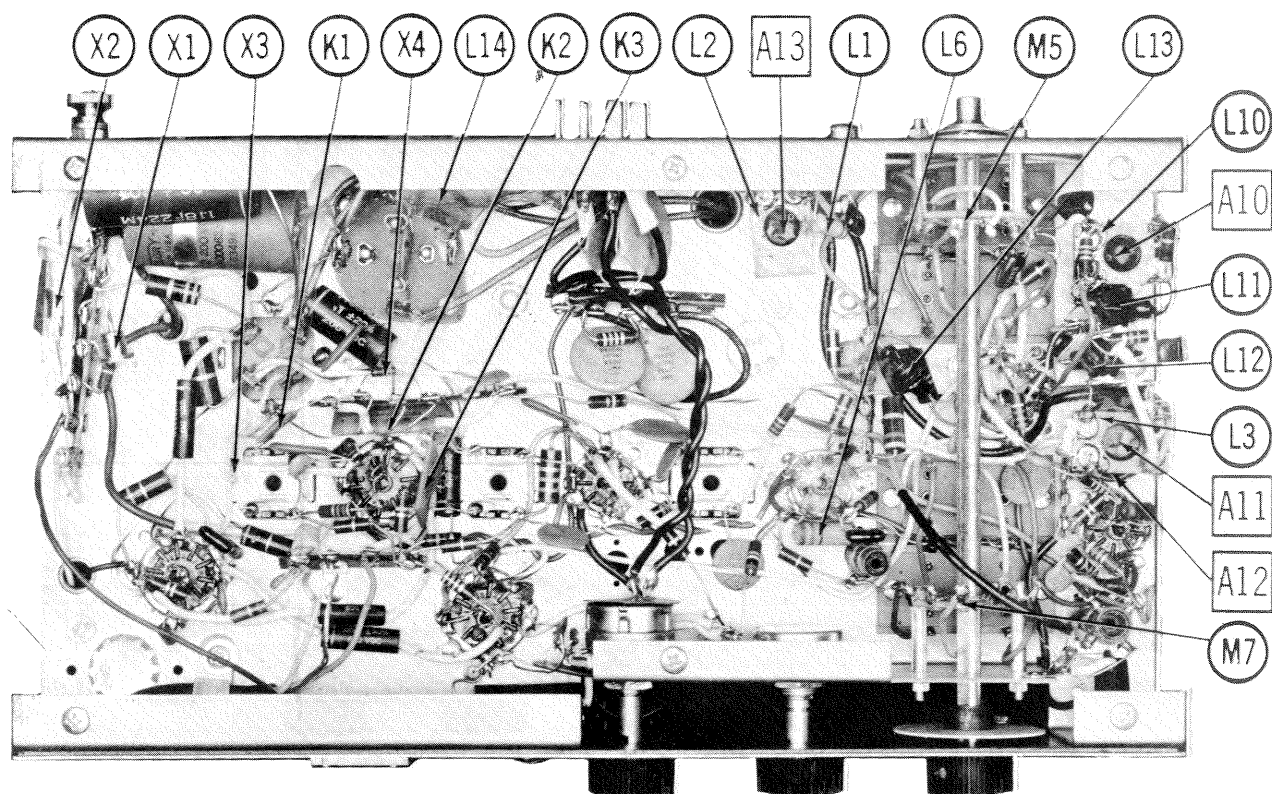
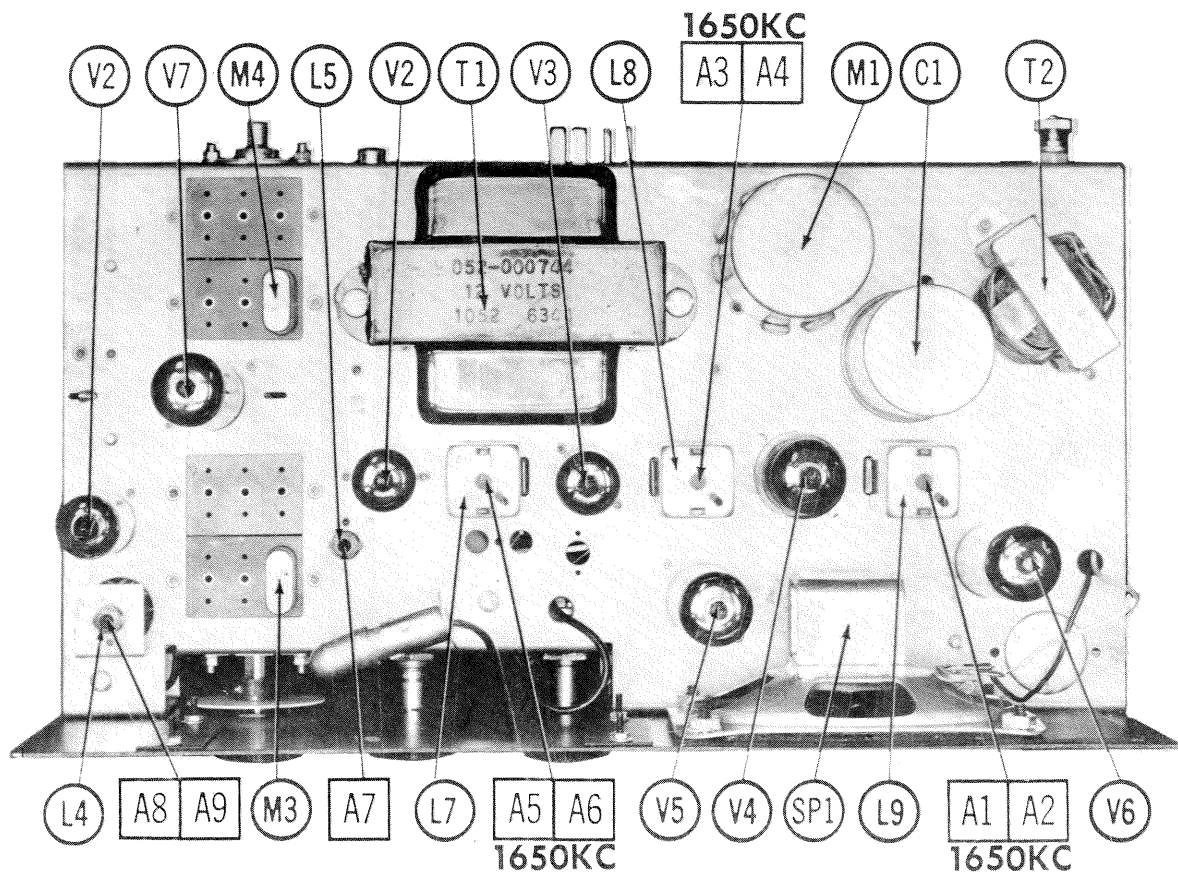
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

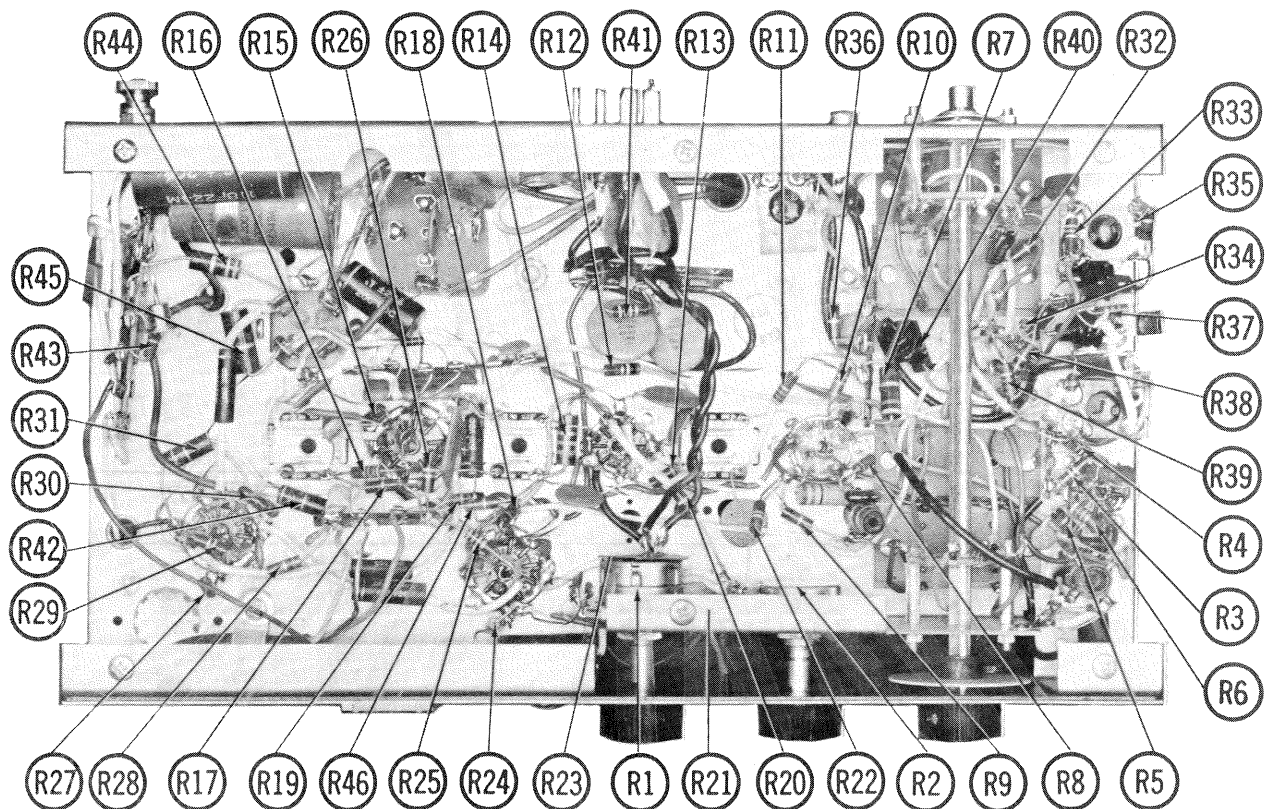
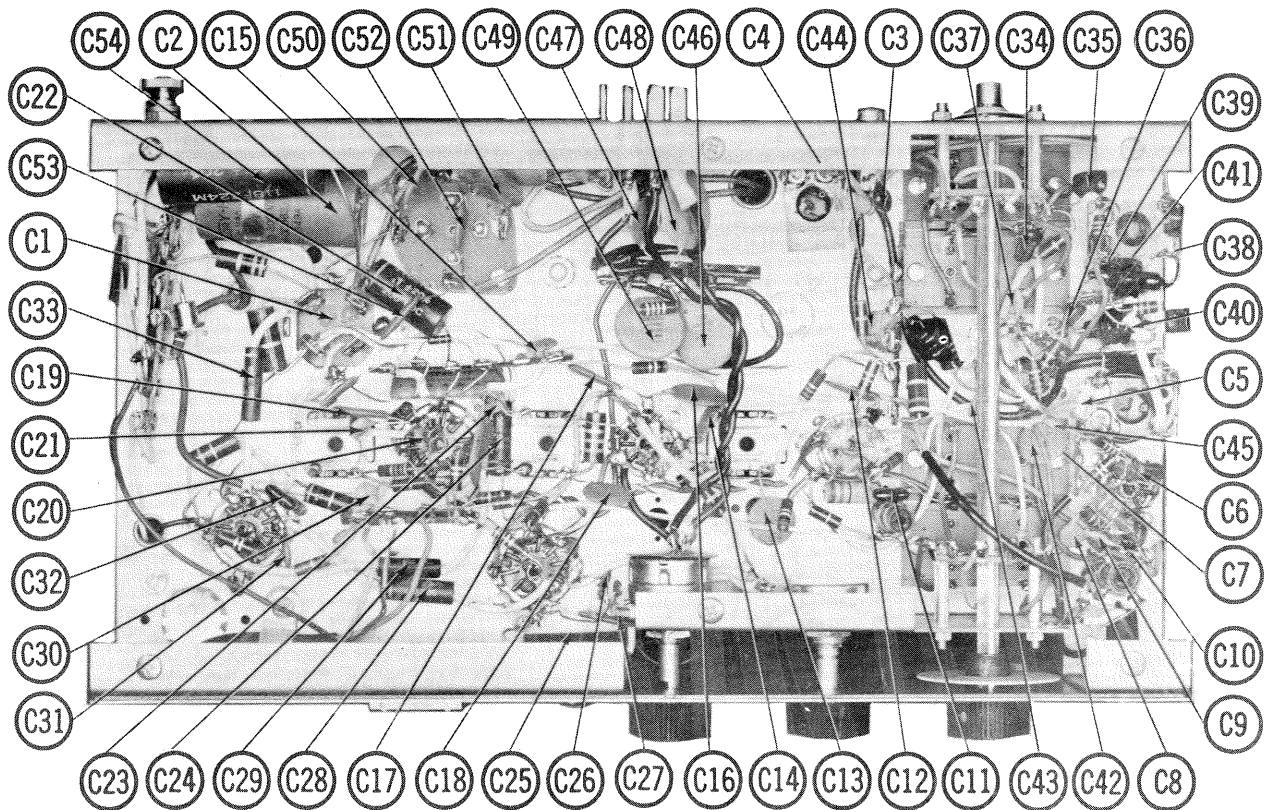
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50Ω dummy load or the normally used antenna system.

INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength Meter.	A10, L3 Primary	Adjust for maximum. Adjust L3 primary so that it shows no tendency to spring to its original position.
	A11	Adjust for MINIMUM interference on TV Channel 2.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana





PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 (Lowest Loss (RG-8/U Type))
Coiled Microphone Cable	Use BELDEN No. 8237 (Low Loss (RG-8/U))
Ignition Noise Suppression	Use BELDEN No. 8240 (Solid) Miniature (RG-58/U)
Bonding Strap	Use BELDEN No. 8497 (3 Conductor - 1 Shielded for Press-to-Talk (Neoprene))
	Use BELDEN No. 8496 (3 Conductor - 1 Shielded for Press-to-Talk (Vinyl))
	Use BELDEN No. 7300-Series Spark-Plug Sets
	Use BELDEN No. 8661 (3/8 In.)

TUBES

ITEM No.	USE	TYPE	GENERAL ELECTRIC	AMPEREX	RC	SYLVANIA	USE	TYPE
V1	RF Amp.	12AU6						6BN8
V2	Converter	12BE6						6GW6/ ECL86
V3	1st IF Amp.	12BA6						8CX8 (6CX8)*
V4	2nd IF Amp. - 1st Speech Amp.	6BL8/ ECF80						

* Alternate

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	GENERAL ELECTRIC	MALLORY	RECTIFIERS	GENERAL ELECTRIC	DIODES
X1	98MA (Trans.)	027-000296	GE504	1N1092 ①	1N2864	60H or F6	GENERAL ELECTRIC
X2	98MA (Rec.)	027-000296	GE504	1N1092 ①	1N2864	60H or F6	GENERAL ELECTRIC
X3	98MA (Trans.)	019-101918					
X4	98MA (Rec.)	019-002964					

① X1 and X2 may be replaced with one VB600.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA	REPLACEMENT DATA	REPLACEMENT DATA	REPLACEMENT DATA	REPLACEMENT DATA	REPLACEMENT DATA
C1A	40	200	Hallicrafters PART No.	CORNELL-DUBILIER PART No.	AEROVOX PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.
B	40	350					
C	40	350					
D	10	50					
C2	40	200	PR51580	BR40-250	QTL-14	TD-40-250	TC58
			045-000632				FP420-36A
			045-000633				TVLS-4624.5*
							TVA-1511

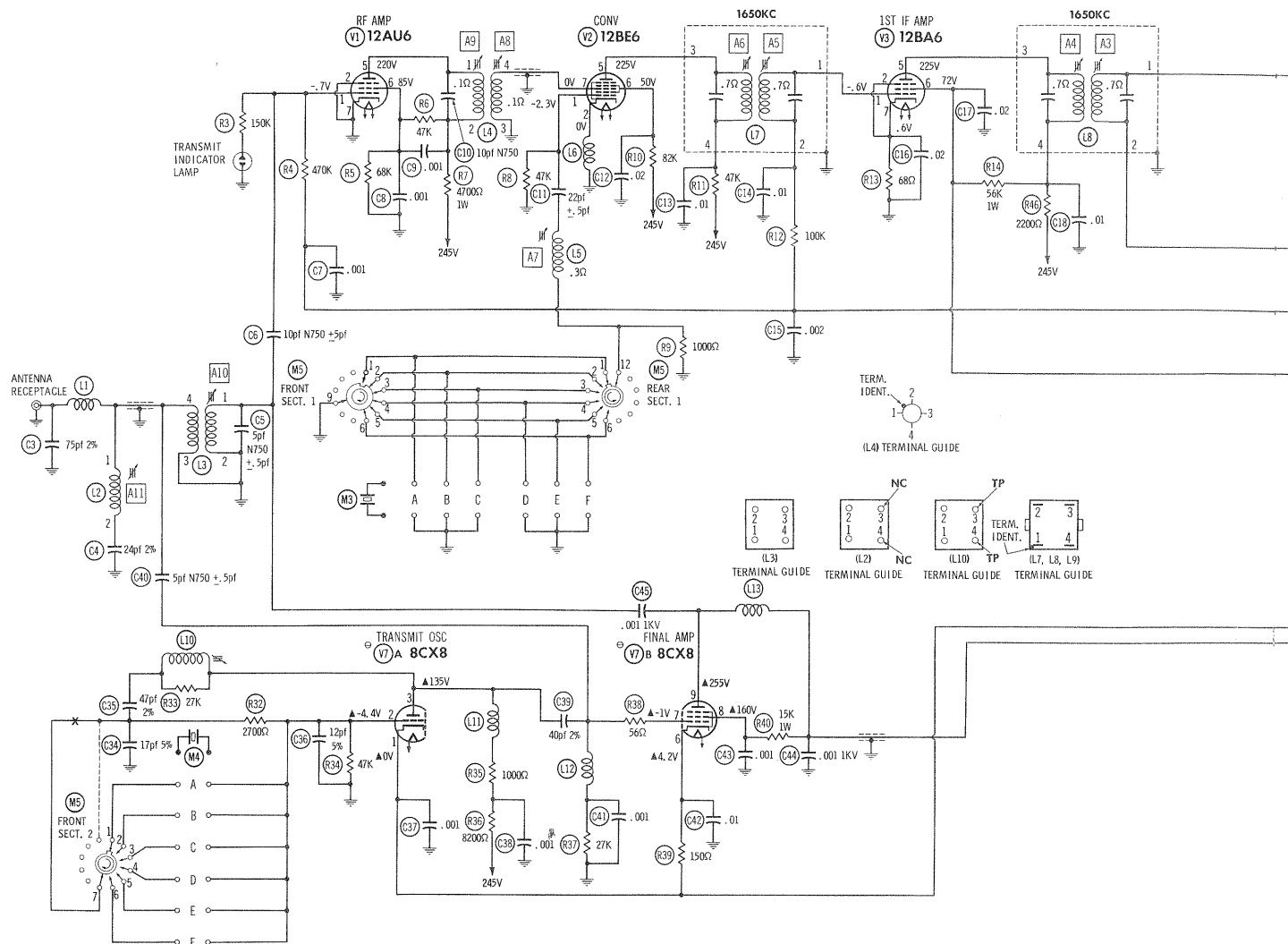
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELWENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	75 2%	#493-110750-333			CD15F750G	DM-10-750G		10TCU-V50
C4	24 2%	#493-110240-331			C10V5U	CCTN-050	CNT550	10TCU-Q10
C5	5 N750 ±.5pf			TCN-5	C10Q1U	CCTN-100	CNT410	5HK-D10
C6	10 N750 ±.5pf			TCN-10	BYA1001	CCD-102	B210	5HK-D10
C7	.001		BPD-001	DD-102	BYA1001	CCD-102	B210	5HK-D10
C8	.001		BPD-001	DD-102	BYA1001	CCD-102	B210	5HK-D10
C9	.001		BPD-001	DD-102	BYA1001	CCD-102	CNT410	10TCU-Q10
C10	10 N750 ±.5pf			TCN-10	C10Q1U	CCTN-100		
C11	22 ±.5pf	#493-110220-321			BYA6S2	CCD-203	B120	5HK-S20
C12	.02		BPD-02	DD-203	BYA10S1	CCD-103	B110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B220	5HK-S20
C15	.002		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C16	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C19	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C20	.001		BPD-001	DD-102	BYA10S1	CCD-102	B210	5HK-D10
C21	.001		BPD-001	DD-102	BYA10S1	CCD-102	B210	5HK-D10
C22	1 200V		P288N-1	DD-104	PKM2P1	2DP-4-104	GEM201	2TM-P10
C23	.001		BPD-001	DD-102	BYA10S1	CCD-102	B210	5HK-D10
C24	.0047 600V		P688N-0047	DD-472	PKM6D47	6DP-1-472	GEM6247	6TM-D47
C25	.0047 600V		P688N-0047	DD-472	PKM6D47	6DP-1-472	GEM6247	6TM-D47
C26	.002		BPD-02	DD-202	PKM10D2	4DP-3-104	GEM401	4TM-P10
C27	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C28	.0047 600V		P688N-0047	DD-472	PKM6D47	6DP-1-472	GEM6247	6TM-D47
C29	.001 600V		P688N-001	DD-102	PKM6D1	6DP-1-102	GEM621	6TM-D10
C30	.001		BPD-001	DD-102	BYA10S1	CCD-102	B210	5HK-D10
C31	.002		BPD-002	DD-202	BYA10S1	CCD-202	B220	5HK-D20
C32	12 5%		ADM-15-120	TCZ-12	CD10C120J	DM-10-120J	CN0412	MS-412
C33	.0033 600V		P688N-0033	DD-332	PKM6D33	6DP-1-332	GEM6233	6TM-D33
C34	17 5%	#493-110170-221			CD15E470G	DM-10-470G	CN0412	MS-412
C35	47 5%	#493-110470-323			CD10C120J	DM-10-120J	B210	5HK-D10
C36	12 5%		ADM-15-120	TCZ-12	BYA10D1	CCD-102	B210	5HK-D10
C37	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C39	40 2%	#493-110400-323			C10V5U	CCTN-050	CNT7550	10TCU-V50
C40	5 N750 ±.5pf			TCN-5	C10V5U	CCTN-050	B210	5HK-D10
C41	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-S10
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B210	5HK-S10
C43	.001 1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C44	.001 1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C45	.001 1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C46	.0033 1.4KV		HVD-15-3300	DD30-332	HVC16D33	3CCD-302	UAC233	30GA-D33
C47	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C48	.01 1.4KV		DAC-27	DD16-103	HVC16S1	1BDP-3-103	UAC-110	BL-S10
C49	.0033 1.4KV		HVD-15-3300	DD30-332	HVC16D33	3CCD-302	UAC233	30GA-D33
C50	.1 100V		TID-1	DD30-332	WMF1P1	1DP-2-104	TA010	TH-P10
C51	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C53	.02		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C54	.22 600V		P688N-22	DD-203	PKM6P22	6DP-5-224	GEM6022	6TM-P22

Hallicrafters Part Number.

(CONTINUED ON PAGE 82)



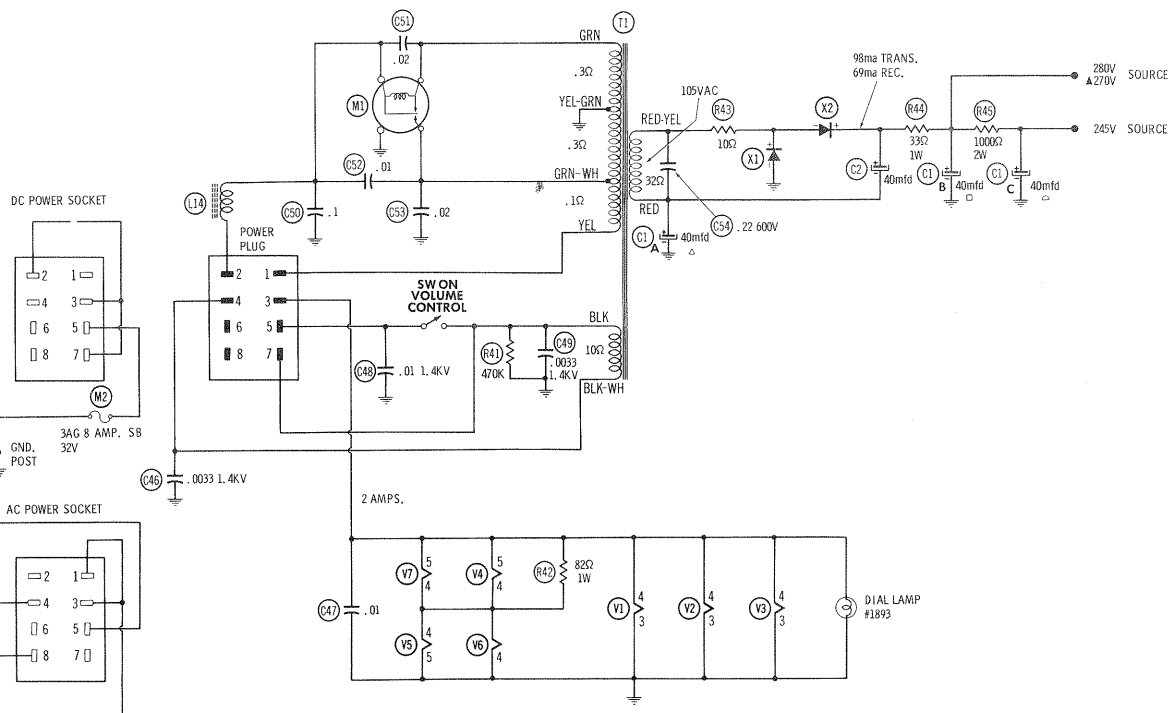
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	1.8meg	0Ω	FIL	FIL	15500Ω	140K	0Ω		
V2	12BE6	50K	1Ω	FIL	FIL	150K	183K	.1Ω		
V3	12BA6	1.4meg	70Ω	FIL	FIL	13300Ω	154K	70Ω		
V4	6BL8	1100K	450K	155K	FIL	FIL	13300Ω	150Ω	0Ω	2.4meg
V5	6BN8	154K	▲0Ω	1meg	FIL	FIL	*1.1meg	1500K	8.5meg	0Ω
V6	6W8	11meg	▲1800Ω	11000Ω	FIL	FIL	1320Ω	180Ω	700K	1220K
V7	8CX8	▲0Ω	50K	110K	FIL	FIL	▲150Ω	27K	115K	1350Ω
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS NOTED.
 ▲ MEASURED IN TRANSMIT POSITION.
 * MEASURED FROM CATHODE OF X2.
 * SQUELCH CONTROL MAX. COW.
 TP-TIE POINT
 NC-NO CONNECTION

- See parts list for alternate value or application.
- Voltage measurements taken with vacuum tube voltmeter.
- All controls set for normal operation, no signal applied.
- Measured values are from socket pin or terminal to common ground.
- All terminals viewed from bottom unless otherwise designated.
- Numbers assigned to terminals may not be found on the unit.
- Supply voltage maintained at rated value for voltage readings.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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HALLICRAFTERS MODEL CB-7

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	REPLACEMENT DATA				
		Hallcrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALORY PART No.
R1	Volume & Power Sw.	2meg 025-002048	F2-2meg, SF102, KH-1 or (B-76, KR-1)	A47-2meg-Z, FS-3, SWE-12	Q13-139, 76-1, or (BU1, CF27, SS1, GC)*	UA26A, SL3500, US41 or (RU26A, SL38, SL3500, US41) or (U55, US26)
R2	Squelch	3meg 025-002047	F1-3meg, SF102, or (B-84)	A47-3meg-S, FS-3	Q11-140 or (BU1, CF21, SS1, DC1)*	UA36L, SL3500 or (RU36L, SL38, SL3500) or (U59)

* 'SNAPTROL'

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Hallcrafters PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.
L1	RF Choke (22uh)	053-000661		4584	RTC-8512	T957
L2	54MC Trap	053-000564				
L3	Ant. Matching	050-001066				
L4	RF Trans.	051-002791				
L5	Rec. Osc.	051-003319				
L6	Cath. Choke (27uh)	053-000647				
L7	1st IF	050-300722		74F275AI		T360
L8	2nd IF	050-300722		1732		
L9	3rd IF	050-300722		1732		
L10	Trans. Osc.	051-003312				
L11	RF Choke (500uh)	053-000537		6174	RTC-8592	T834
L12	RF Choke (500uh)	053-000537		6174	RTC-8592	T834
L13	RF Choke (500uh)	053-000537		6174	RTC-8592	T834
L14	Hash Filter (40uh)	051-002140				

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
			Hallcrafters PART No.	MERIT PART No.	STANCOR PART No.	THORNDARSON PART No.	
	PRI. 1	PRI. 2	SEC. 1	SEC. 2	SEC. 3	SEC. 4	
T1	12.6VDC @ 5.0A	117VAC @ 5.6A	105VAC @ 98ma	052-000744			
	SEC. 2	SEC. 3	SEC. 4				
	12VAC @ 2A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
			Hallcrafters PART No.	MERIT PART No.	STANCOR PART No.	THORNDARSON PART No.	
	PRI.	SEC.	SEC. 1	SEC. 2	SEC. 3	SEC. 4	
T2	7500Ω	3-4Ω	055-000433				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Hallcrafters PART No.	QUAM PART No.	
SP1	3" x 4" PM 3-4Ω	085-000233		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Hallcrafters PART No.	REPLACEMENT DATA
K1	Detector RF Filter	47K, 100mmf, 100mmf	049-000244	Aerovox PA-97 Centrab PC-50 Sprague D-1
K2	ANL-AVC Filter	220K, 220K, 330K, 470K, 1meg, 2.2meg, 2.2meg	049-000281	
K3	Mic. Input Filter	47K, 2.2meg, .001mf, 200mmf	049-000282	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		NOTES
				Hallcrafters PART No.	CORNELL-DUBILIER PART No.	
M1	Interrupter	12.6	115v	027-000282	6371	G 1601

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			Hallcrafters PART No.	FUSE	HOLDER	BUSS PART No.
M2	3AG	8 Amp 32V S/B	039-000699	006-000883	313008	MDL 8
					155020	HHJ-B

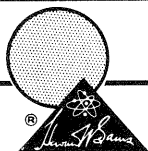
MISCELLANEOUS

ITEM No.	PART NAME	Hallcrafters PART No.	NOTES
M3	Receiver Crystals	019-002819*	* When ordering, insert Channel Number. * When ordering, insert Channel Number.
M4	Transmit Crystals	019-002820*	
M5	Channel Sel. Switch	062-000215	
	Receiver, Sect. 1	062-000216	
	Transmitter, Sect. 2	085-000234	
M6	Microphone Ass'y.		

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM		PART No.	ITEM	PART No.
Cabinet Top Rivet Assembly		150-006989	Channel Selector Knob	
Cabinet Bottom Rivet Assembly		150-006988	Volume or Squelch Knob	
Front Panel		088-001480	Transmit Indicator Lamp	
Front Panel Overlay		007-000881		



PHOTOFACT[®]



TRADE NAME : Sonar Model FS-23

SUPPLIER : For Current Address, see Master Index

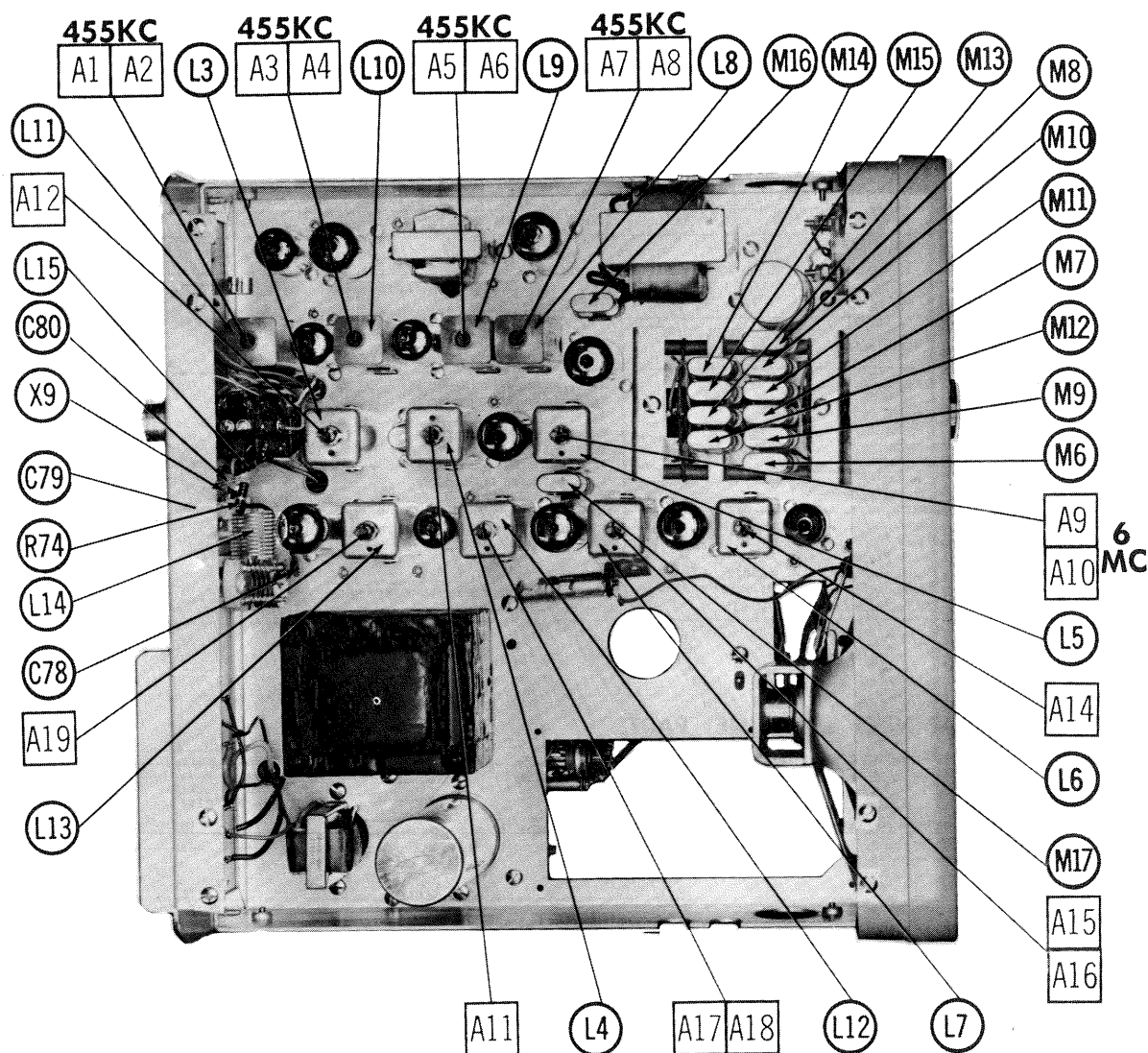
TYPE SET : 13-Tube, 2-Transistor Transceiver

POWER SUPPLY : 110 — 120 Volts AC, 60 Cycles (or)
12 Volt Storage Battery

RATING : 90 Watts, .78 Amp. @ 117VAC (Rec.)
87 Watts, .76 Amp. @ 117VAC (Trans.)
6.1 Amp. @ 12.6VDC

TUNING RANGE : All 23 CB Channels

SONAR MODEL FS-23



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A8.....GENERAL CEMENT #8606, 8606L, 8869.....WALSCO #2543, 2544, 2588
A9 thru A15,
A17 thru A21...GENERAL CEMENT #8868, 9087, 9089....WALSCO #2528, 2541, 2587

RECEIVER ALIGNMENT

Connect a DC VTVM from point Δ to ground. Set to indicate negative voltage.
Output of signal generator should be no higher than necessary to obtain a suitable indication.
Turn Volume and Fine Tuning to mid-range, RF Gain clockwise, and Squelch counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 (grid) of V5 (2nd Rec. Mixer), low side to ground. Tune to 6MC.	Any	A1 thru A8	Adjust for maximum.
High side thru .01mfd to pin 9 (grid) of V2 (1st Rec. Mixer), low side to ground. Tune to 6MC.	Any	A9, A10	"
Across Antenna receptacle. Tune to Channel Frequency.	10 (27.075MC)	A11, A12	"
Across Antenna receptacle. Tune to Channel Frequency. Increase output of generator.	"	A11, A12, A13	Remove plate voltage from V1 (RF Amp.) by disconnecting R9. Adjust A13 for MINIMUM. Readjust A11 and A12 for maximum.

SYNTHESIZER ALIGNMENT

		A14	DC probe of VTVM to Pin 2 (grid) of V4 (1st Synthesizer Mixer) low side to ground. Adjust A14 for maximum negative voltage.
		A15, A16	Connect a DC VTVM between point Δ and ground. Adjust A15 and A16 for maximum negative voltage.
C20 and C27 are crystal adjustments and should be adjusted only when using an accurate frequency meter.			

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50Ω dummy load or the normally used antenna system.

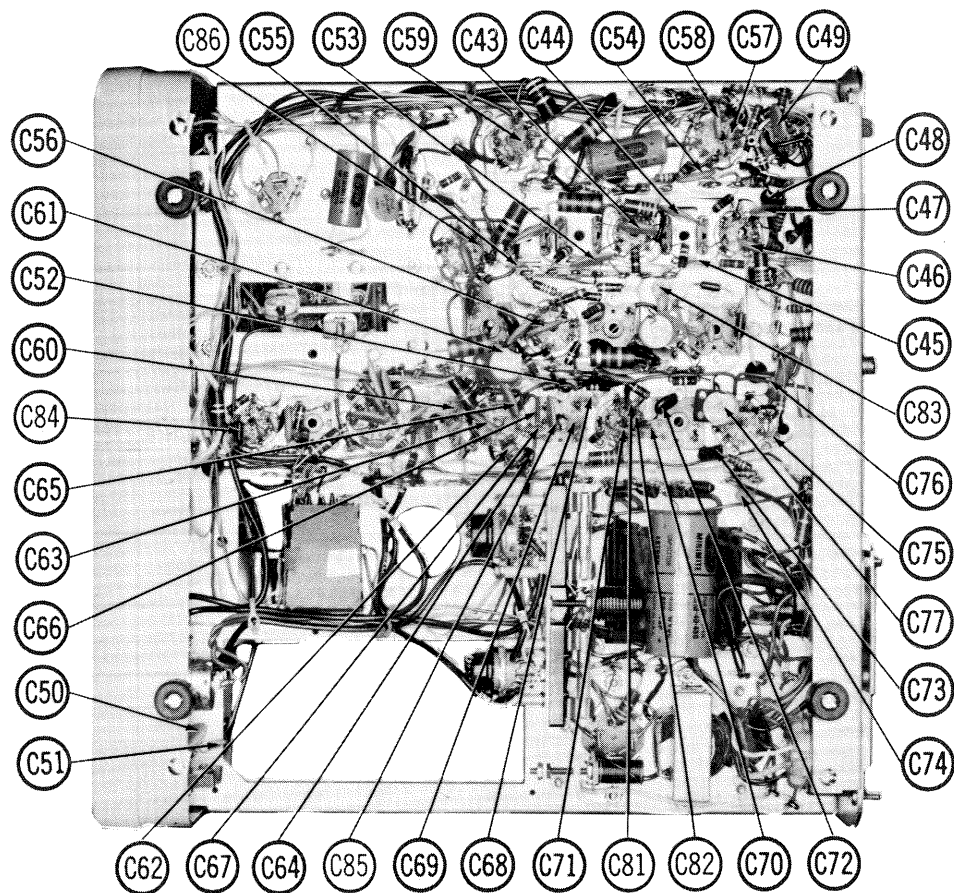
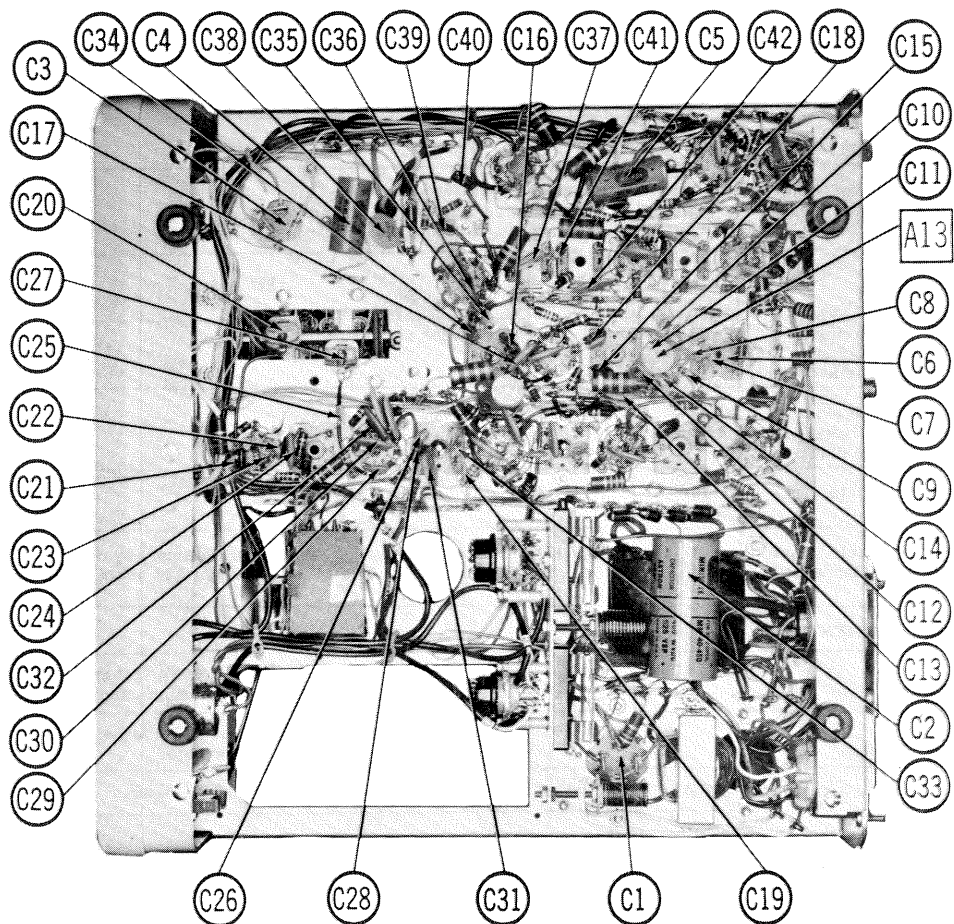
INDICATOR	ADJUST	REMARKS
DC VTVM to Test Point (grid of Final).	A17, A18, A19	Key transmitter. Adjust for maximum.
Front Panel Meter	A20, A21	Key Transmitter. Adjust for maximum.
C61 is crystal adjustment and should be adjusted only when using a accurate frequency meter.		

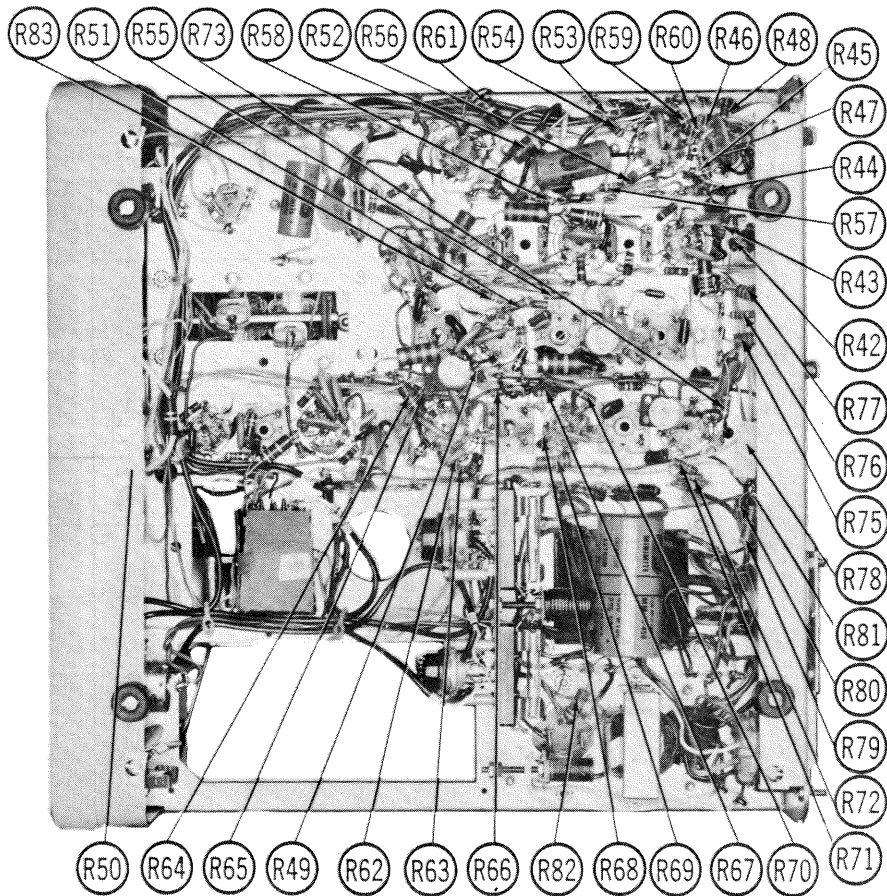
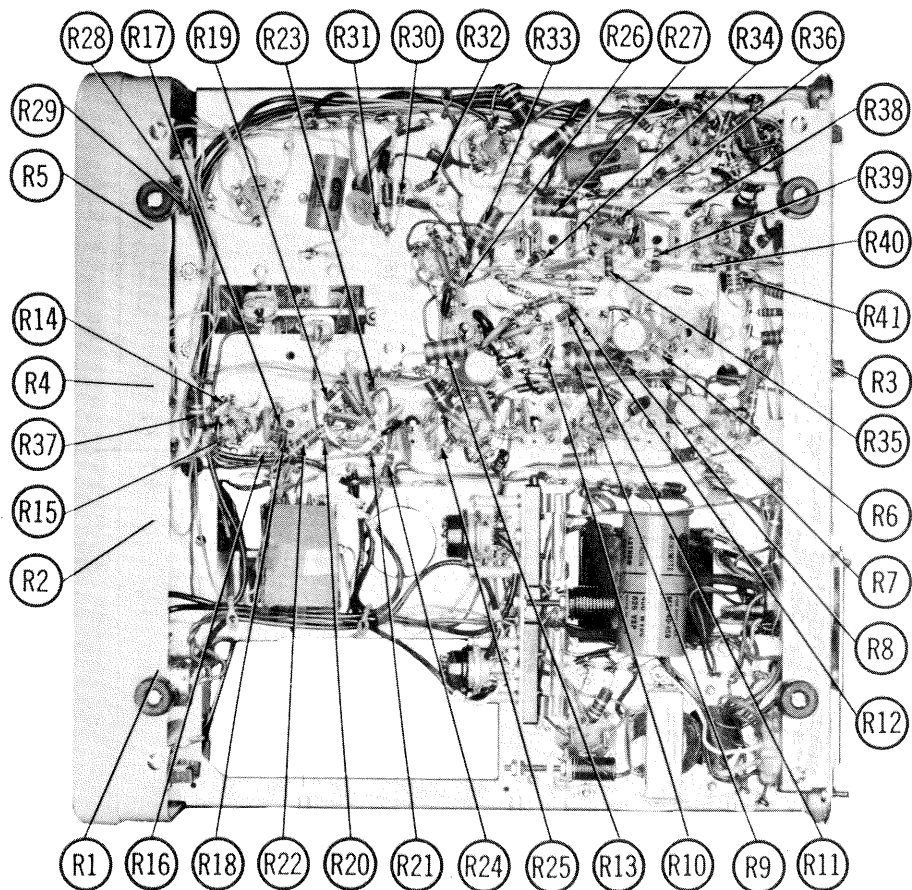
RESISTANCE MEASUREMENTS

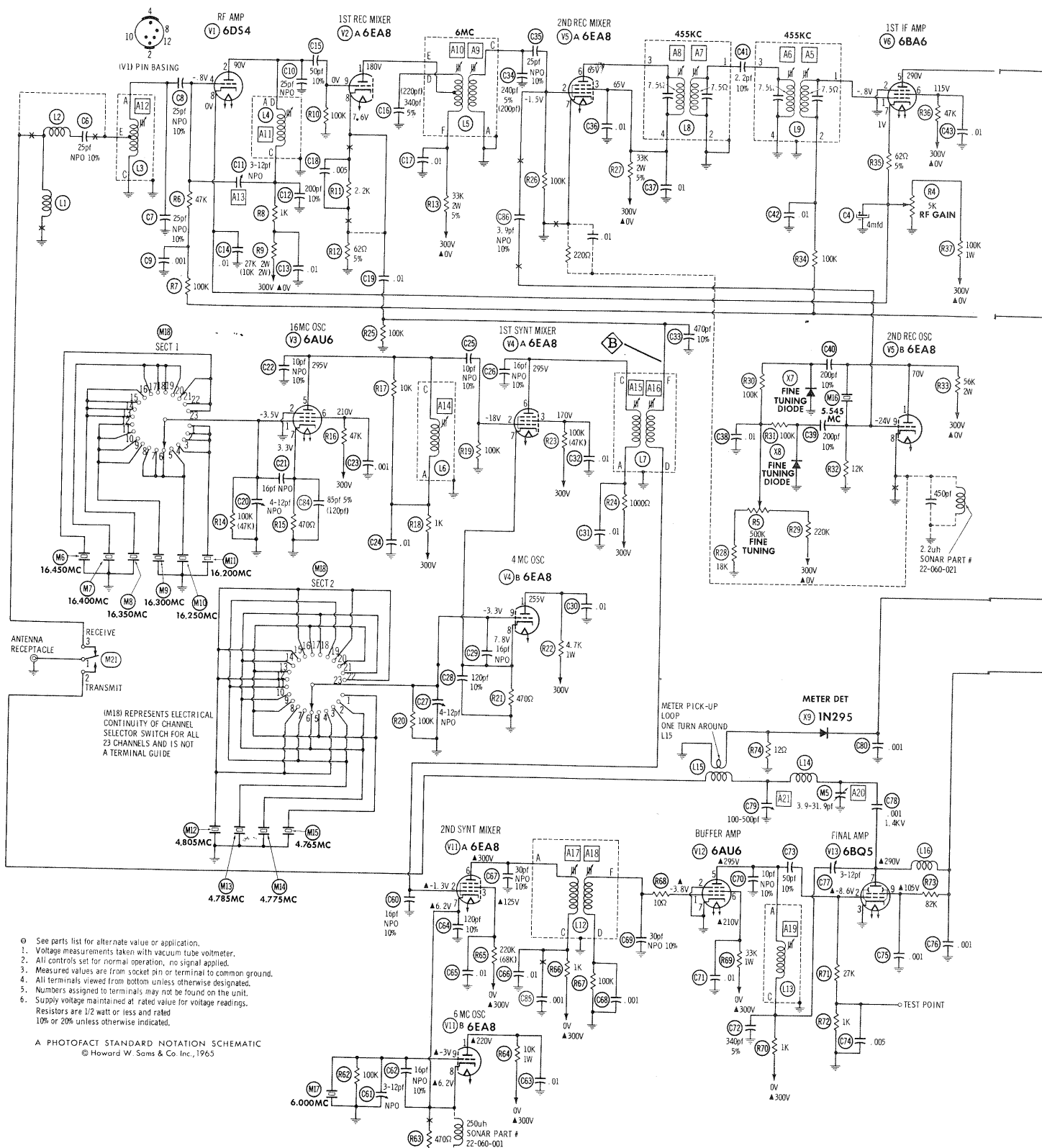
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V1	6DS4	NC	†33K	NC	3.8meg	NC	NC	NC	*0Ω	NC	FIL	NC	FIL
V2	6EA8	†36K	2.7meg	5200Ω	FIL	FIL	420K	0Ω	(62Ω) 2400Ω	110K			
V3	6AU6	100K	0Ω	FIL	FIL	†1000Ω	†47K	470Ω					
V4	6EA8	†4800Ω	110K	†100K	FIL	FIL	†1000Ω	500Ω	500Ω	110K			
V5	6EA8	†55K	100K	†39K	FIL	FIL	†39K	0Ω	0Ω	13K			
V6	6BA6	2.7meg	0Ω	FIL	FIL	†1000Ω	†48K	*66Ω					
V7	6BA6	2.7meg	0Ω	FIL	FIL	†1100Ω	†35K	68Ω					
V8	12AL5	■44K ●1.15meg	■145K ●1.25meg	FIL	FIL	■250K ●1meg	0Ω	■44K ●45K					
V9	12AT7	†600Ω	500K	220Ω	FIL	FIL	†540K	2.6meg	15K	FIL			
V10	12BH7	†220Ω	135Ω	480Ω	FIL	FIL	†220Ω	115Ω	480Ω	FIL			
V11	6EA8	†10K	110K	†220K	FIL	FIL	†1000Ω	500Ω	500Ω	100K			
V12	6AU6	110K	0Ω	FIL	FIL	†1000Ω	†35K	0Ω					
V13	6BQ5	NC	28K	0Ω	FIL	FIL	NC	†300Ω	NC	†85K			

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.

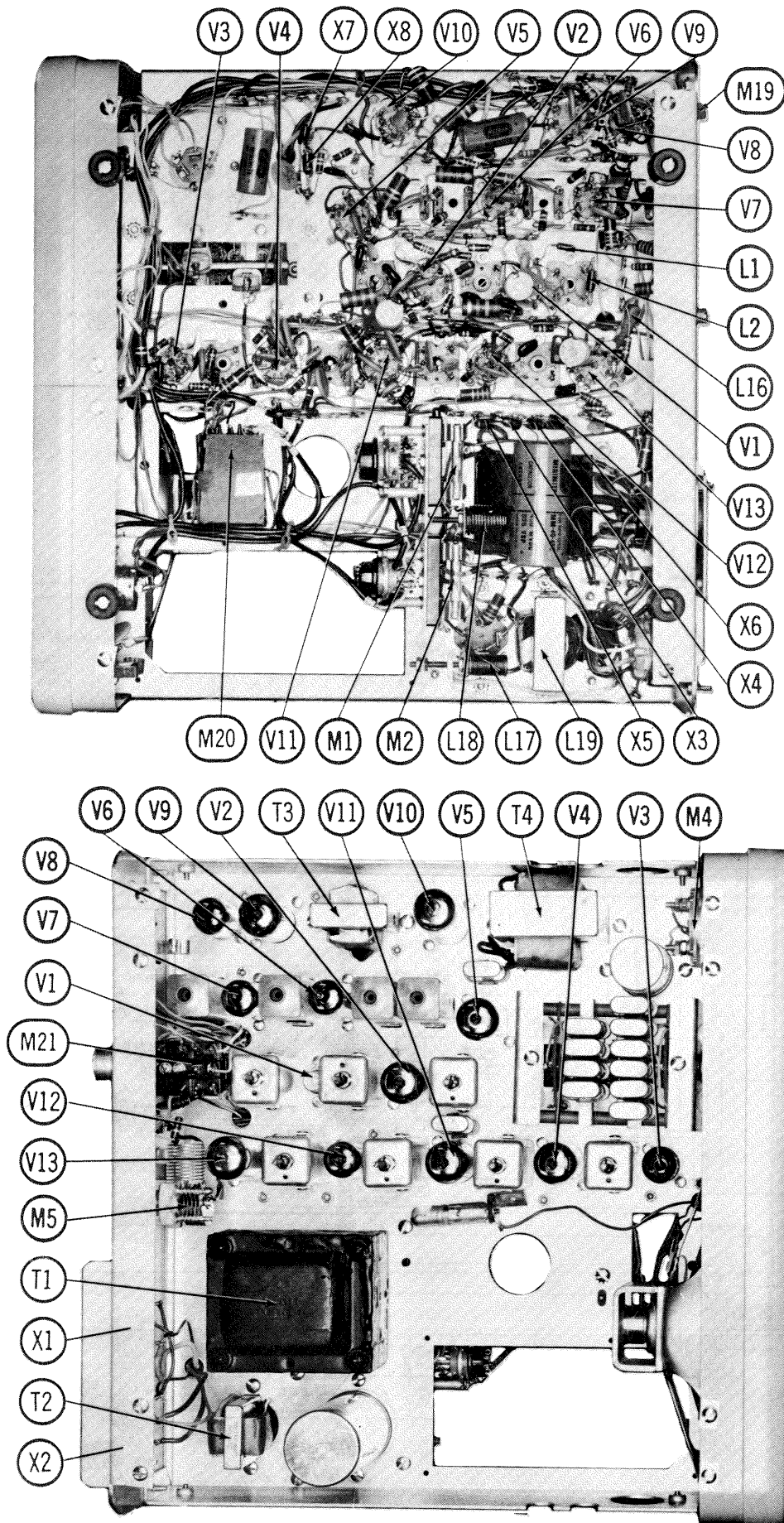
MEASURED FROM JUNCTION X5 & X6 ▲ MEASURED IN TRANSMIT POSITION. NC NO CONNECTION
RF GAIN SET AT MAX. ■ NOISE LIMITER OFF. ● NOISE LIMITER ON.











PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 824 (Stranded) Available in 12 Colors
	8237 Low Loss (RG-8/U Type)
	8240 (Solid) Miniature (RG-58/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor - 1 Shielded for Press-to-Talk (Neoprene)
	8496 3 Conductor - 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TUBES

• AMPEREX •		GENERAL ELECTRIC •		RCA •		SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE		
V1	RF Amp.	6DS4	V7	2nd IF Amp.	6BA6		
V2	1st Rec. Mixer-Squelch	6EA8	V8	Noise Limiter-Det.-AFC	12AL5		
V3	16MC Osc.	6AU6	V9	Speech Amp.-Driver	12AT7		
V4	1st Synthesizer Mixer -	6EA8	V10	Output - Modulator	12BH7		
V5	4MC Osc.	6EA8	V11	2nd Synthesizer Mixer -	6EA8		
V6	2nd Rec. Mixer -	6EA8	V12	6MC Osc.	6AU6		
	2nd Rec. Osc.	6BA6	V13	Buffer	6BQ5		
	1st IF Amp.						

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	
X1		Power Osc.			PNP
X2		Power Osc.			PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	
X3		GE-504	IN2071 ①	IN1764 or IN3195	60H or F6
X4		GE-504	IN2071 ①	IN1764 or IN3195	60H or F6
X5		GE-504	IN2071 ①	IN1764 or IN3195	60H or F6
X6		GE-504	IN2071 ①	IN1764 or IN3195	60H or F6
X7		19-040-002			
X8		19-040-002			
X9		19-050-001			
		Part #FW600 may be used to replace X3 thru X5.			
		Part #VB600 may be used to replace X3 and X4; and also X5 and X6.			

① Part #FW600 may be used to replace X3 thru X5.
Part #VB600 may be used to replace X3 and X4; and also X5 and X6.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOIT.	REPLACEMENT DATA			
			SONAR PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	SPRAGUE PART No.
C1A	1500					
B	30	350				
C	30	350				
D	20	200				
C2	40	450				
C3A	40	250				
B	10	350				
C	5	50				
C4	4	50				
C5	4	50				

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBIER PART No.	EIMENCO PART No.	SPRAGUE PART No.
C6	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C7	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C8	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C9	.001		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C10	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C11	3-12 NPO	#09-610-017	ADM-15-201	CPR-200J	CD15F201J	DM-15-201K	MS-32
C12	200 10%		BPD-01	DD-103	BYA10S1	CCD-103	5HK-S10
C13	.01		TTD-01	DM-103	BYA10S1	CCD-103	TH-S10
C14	.01 100V		ADM-15-500	CPR-47J	CD15F510J	DM-15-500K	MS-45
C15	30 10%		ADM-15-331	CR-330J	CD15F331J	DM-15-331J	MS-330
C16	340 5%	(220) †	BPD-01	DK-502	BYA10S1	CCD-103	5HK-S10
C17	.01	Note 1	TDD-005	DM-103	H1	TA250	TG-D50
C18	.005 50V		TDD-01	DM-103		TA110	TH-S10
C19	.01 100V	#09-710-018	NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C20	4-12 NPO		NPO-DI 10	DTZ-10	C10Q15C	CCTO-100	10TCC-Q10
C21	16 NPO 10%		BPD-001	DD-102	BYA10S1	CCD-102	5HK-S10
C22	10 NPO 10%		BPD-001	DD-102	BYA10S1	CCD-102	5HK-S10
C23	.001		BPD-001	DD-102	BYA10S1	CCD-102	5HK-S10
C24	.001		BPD-001	DD-102	BYA10S1	CCD-102	5HK-S10
C25	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q15C	CCTO-100	10TCC-Q10
C26	16 NPO 10%	#09-710-018	NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C27	4-12 NPO		ADM-15-121	CPR-120J	CD15F121J	DM-15-121K	MS-312
C28	120 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C29	16 NPO 10%		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C30	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C31	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C32	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C33	470 10%	(450) †	DD-470	DD-471	J86147	CCD-471	10TTS-747
C34	240 5%	(200) †	ADM-15-241	CPR-240J	CD15F241J	DM-15-241K	MS-244
C35	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-240	10TCC-Q25
C36	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C37	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C38	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C39	200 10%		ADM-15-201	CPR-200J	CD15F201J	DM-15-201K	MS-32
C40	200 10%		ADM-15-201	CPR-200J	CD15F201J	DM-15-201K	MS-32
C41	2.2 10%		TDD-01	DM-103		TA110	TH-S10
C42	.01 100V		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C43	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C44	.01		TDD-01	DM-103		TA110	TH-S10
C45	.01 100V		TDD-01	DM-103		TA110	TH-S10
C46	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C47	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C48	200 10%		ADM-15-201	CPR-200J	CD15F201J	DM-15-201K	MS-32
C49	.05 100V		TDD-05	DM-103		TA150	TH-S50
C50	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C51	150 10%		DI-150	DD-151	LA10T15-S3	CCD-151	10TTS-T15
C52	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C53	.1 100V		TDD-1	DF-102		TA010	TH-P10
C54	.01 100V		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C55	.01 100V		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C56	.01		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C57	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C58	.005 1KV	(.01) †	BPD-005	DD-502	BYA10D1	CCD-502	5HK-D50
C59	.001 1.4KV	(.005) †	HVD-15-1000	DD30-102	HYB10D1	CCD-102	30GA-D10
C60	16 NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C61	3-12 NPO	#09-610-017	NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C62	16 NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	10TCC-Q15
C63	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C64	120 10%		ADM-15-121	CPR-120J	CD15F121J	DM-15-121K	MS-312
C65	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C66	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C67	30 NPO 10%		NPO-DI 33	TCZ-30	C10Q33C	CCTO-300	10TCC-Q30
C68	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C69	30 NPO 10%		NPO-DI 33	TCZ-30	C10Q33C	CCTO-330	10TCC-Q30
C70	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q15C	CCTO-100	10TCC-Q10
C71	.01		BPD-001	DD-103	BYA10S1	CCD-103	5HK-S10
C72	340 5%		ADM-15-331	CPR-330J	CD15F331J	DM-15-331J	MS-333
C73	50 10%		ADM-15-500	CPR-47J	CD15F510J	DM-15-500K	MS-45
C74	.005 50V		TDD-005	DM-103	H1	TA250	TG-D50
C75	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C76	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10

PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C77	3-12 NPO	#09-610-017	HVD-15-1000	DD30-102	HVB16D1	3CCD-102	UAC210	30GA-D10
C78	.001 1.4KV	#09-210-001	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C79	100-500							
C80	.001							
C81	.001							
C82	.001							
C83	.01 100V							
C84	85 5%	(120) †	ADM-15-820	DM-103	CD15F820J	DM-15-820J	CNO482	TH-S10
C85	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C86	3.9 NPO 10%							

Sonar Part Number

Note 1. Not used in some versions.

† Alternate Value.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			SONAR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	500K	03-504-037	F2-500K, SRS012, KR-1 or (B-60-S)	A47-500K-Z, RS-2, SWE12	Q13-133, 76-1, or (BU1, CF25, SS3, GC)*	UA55A, SL2500, US41 or (RU55A, SL38, SL2500, US41) or (U48, US26)
R2	Squelch	500K	03-504-003	F2-500K, SU204 or (B-60)	A47-500K-Z, RS-2 ①	Q13-133 or (BU1, CF25, SS6 ①, DC1)*	UA55A, SL2500 ①, or (RU55A, SL38, SL2500 ①) or (U48)
R3	"S" Meter Zero	100K	03-104-026	F1-100K, SS008, or (B-40)	A47-100K-S, FKS-1/2	B11-128, SK2, or (BU2, CF13, SS2, DC1)*	UA15L, SK1000 or (RU15L, SL38, SK1000) or (U41)
R4	RF Gain	5000Ω	03-502-036	F1-5000, SK010, or (B-10)	A47-5000S, RS-2	B11-114, SK3 or (BU2, CF8, SS5, DC1)*	UA53L, SL2500, or (RU53L, SL38, SL2500) or (U14)
R5	Fine Tuning	500K	03-504-003	F2-500K, SU204, or (B-60)	A47-500K-Z, RS-2 ①	Q13-133, or (BU1, CF25, SS6 ①, DC1)*	UA55A, SL2500 ①, or (RU55A, SL38, SL2500 ①) or (U48)

* "SNAPTROL"

① File Flat.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R78	180Ω 5W 10%		5W-SQ-180						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SONAR PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Ant. Filter	22-030-013	BC-352	12-C30	RTC8632	T607	Not used in some versions
L2	Ant. Filter						
L3	Ant. Matching						
L4	RF Plate (27MC)						
L5	1st IF (6MC)						
L6	Osc. Plate (16MC)	22-070-006	BC-352	12-C30	RTC8632	T607	Not used in some versions
L7	Mixer Plate (21MC)	22-050-018					
L8	2nd IF (455KC)	22-070-007					
L9	3rd IF (455KC)	22-050-017					
L10	4th IF (455KC)	22-010-020					
L11	5th IF (455KC)	22-010-020					
L12	Mixer Plate (27MC)	22-010-020	BC-352	12-C30	RTC8632	T607	
L13	Buffer Plate (27MC)	22-050-016					
L14	Final Plate (27MC)	22-070-008					
L15	Low Pass Filter	22-070-001					
L16	RF Choke (21uh)	22-090-003					
L17	Hash Choke (10uh)	22-060-005	TV-192	6152	RTC8584	TA311	
L18	Hash Choke (12uh)	22-100-003	BC-537	5220	RTC9182	T963	

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
L19	120ma	38Ω	.5Hy	14-100-001				

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	SEC. 1	SEC. 2	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @. 78A	230VCT @. 22A	13.2VAC @2.6A	14-010-032					
	PRI. 2	SEC. 1							
	17VCT @3.6A	230VCT @. 22A							

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T2	2	1	14-110-002 (14-110-001)					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T3	4	1	14-020-001					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC. 1	14-050-009					
T4	3600Ω	3-4Ω						
		SEC. 2						
		260Ω DC RES.						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		SONAR PART No.	QUAM PART No.	
SP1	2" x 6" PM 3-4Ω	36-042-608	26A07	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SONAR PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	10A	42-010-008	42-020-003	311010	357001	AGC 10	4405
M2	3AG	3A	42-010-012	42-020-003	312003	357001	AGC 3	4405

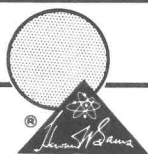
MISCELLANEOUS

ITEM No.	PART NAME	SONAR PART No.	NOTES
M3	Microphone Ass'y.	57-010-006	
M4	"S" Meter	32-010-010	
M5	Final Plate Tuning Cap.	08-150-012	
M6	16.450MC Crystal	40-010-014	
M7	16.400MC Crystal	40-010-013	
M8	16.350MC Crystal	40-010-012	
M9	16.300MC Crystal	40-010-011	
M10	16.250MC Crystal	40-010-010	
M11	16.200MC Crystal	40-010-009	
M12	4.805MC Crystal	40-010-008	
M13	4.785MC Crystal	40-010-007	
M14	4.775MC Crystal	40-010-006	
M15	4.765MC Crystal	40-010-005	
M16	5.545MC Crystal	40-010-016	
M17	6.000MC Crystal	40-010-015	
M18	Channel Sel. Switch	51-010-004	
M19	Noise Limiter Switch	10-020-005	
M20	Relay, Receive-Trans.	16-010-002	
M21	Relay, Receive-Trans.	16-010-002	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob -Channel Selector	33-020-005	Volume-Squelch, RF Gain, Fine Tuning Knob	33-010-010



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME : RCA Model Mark VIII (17704)

SUPPLIER : For Current Address, see Master Index

TYPE SET : 7 Tube Transceiver

POWER SUPPLY : 110 — 120 Volts AC, 60 Cycles (or)
6 or 12 Volt Storage Battery

RATING : 56 Watts, .56 Amp. @ 117VAC (Trans.)
46 Watts, .48 Amp. @ 117VAC (Rec.)

TUNING RANGE : Any 9 CB Channels 1 thru 23
Receiver may be continuously tuned

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....GENERAL CEMENT #5097, 8727.....WALSCO #2515
A7, A8 and A12 thru A14.....GENERAL CEMENT #8606, 8606L, 8869...WALSCO #2543, 2544, 2588
A9, thru A11.....GENERAL CEMENT #8868, 9087, 9089.....WALSCO #2528, 2541, 2587

RECEIVER ALIGNMENT

Connect a DC VTVM from point Δ to chassis. Set for negative voltage.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .001mfd to pin 7 (grid) of V2 (Conv.), low side to chassis. Tune to 1650KC.	Any Crystal Controlled	A1 thru A6	Adjust for maximum.
High side to antenna receptacle, low side to chassis. Tune to channel 11 (27.085MC).	11	A7, A8	Adjust for maximum.
High side to antenna receptacle, low side to chassis. Tune to 26.965MC.	1 (or 965)	A9	Set receiver to manual tuning (T). Adjust for maximum.
High side to antenna receptacle, low side to chassis. Tune to 27.225MC.	22 (or 225)	A10	Adjust for maximum. Repeat adjustment of A9 and A10 as required for dial calibration.
Radiate a signal into the normally used antenna connected to the receiver.	Tune to signal.	A11	Adjust for maximum speaker output.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

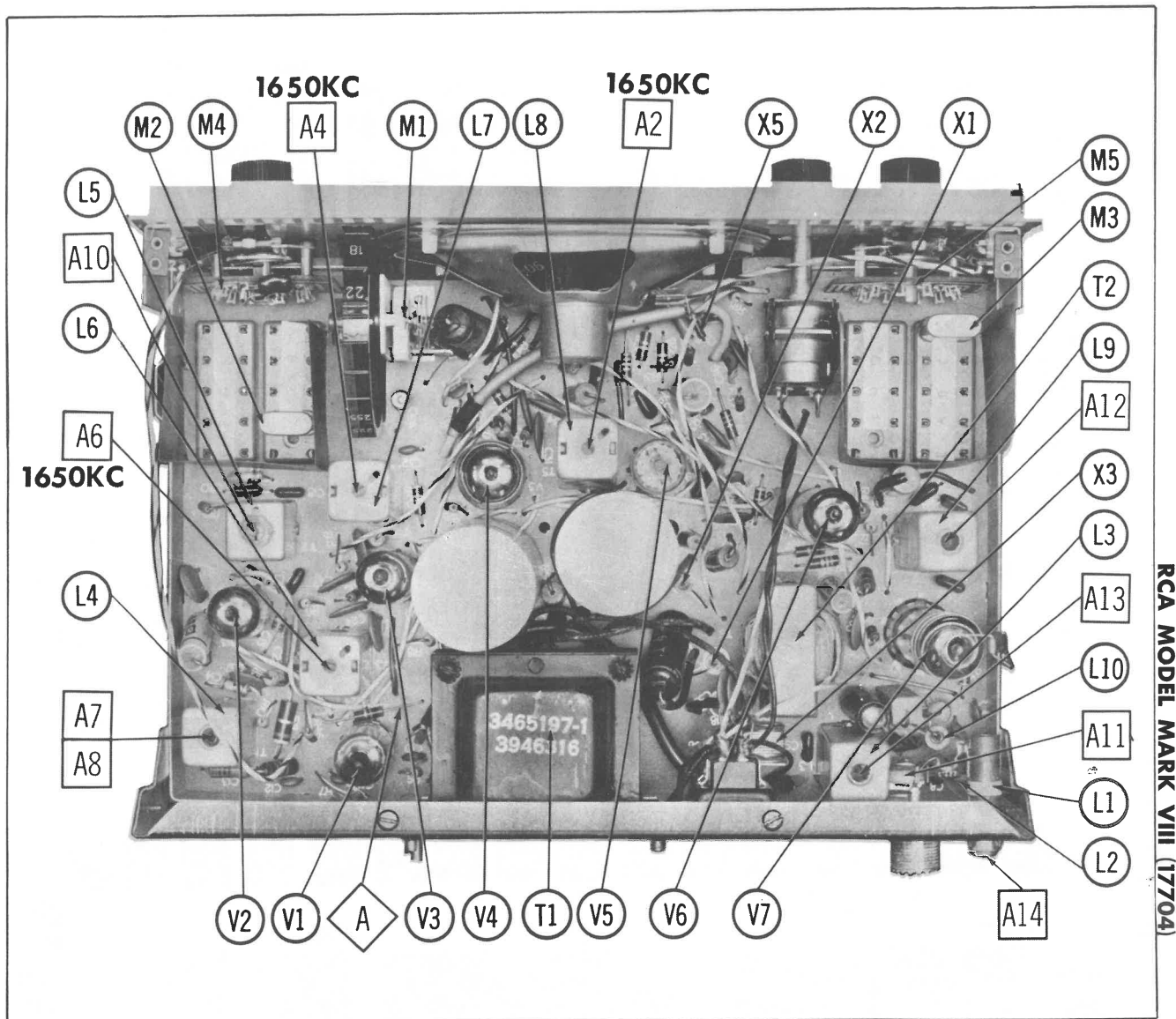
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50 Ω dummy load or the normally used antenna system.

INDICATOR	ADJUST	REMARKS
Field Strength Meter.	A12	Connect dummy load. Set transmitter for Channel 22. Key transmitter and adjust for maximum output. Note rate of dropoff on each side of peak and set 1/4 turn below peak on side of gradual dropoff. Check all channels to be sure oscillator starts.
"	A13	Set Transmitter for channel 11. Adjust for maximum output.
	A14	Key Transmitter, Adjust for MINIMUM interference on lower TV channel.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



RCA MODEL MARK VIII (17704)

PARTS LIST AND DESCRIPTION

TUBES

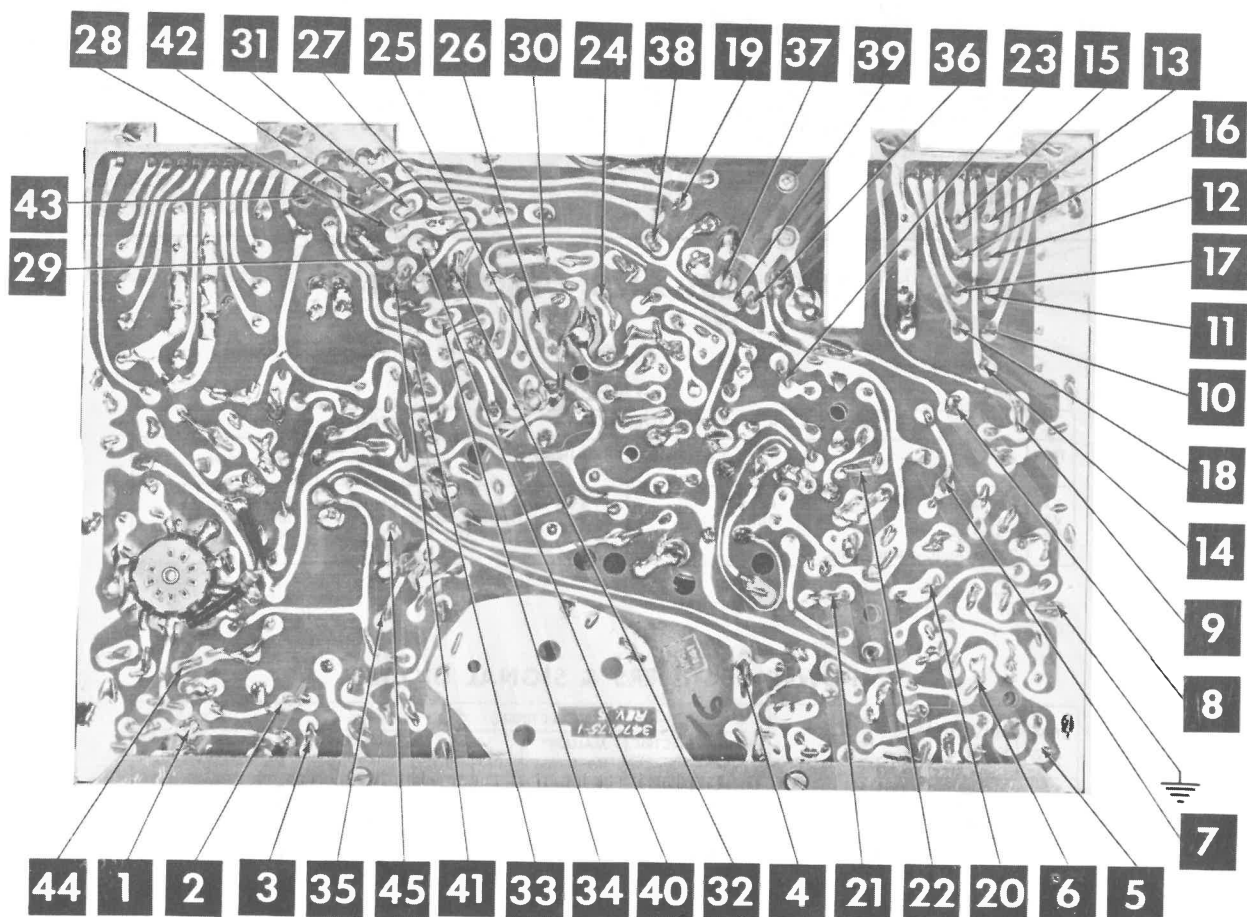
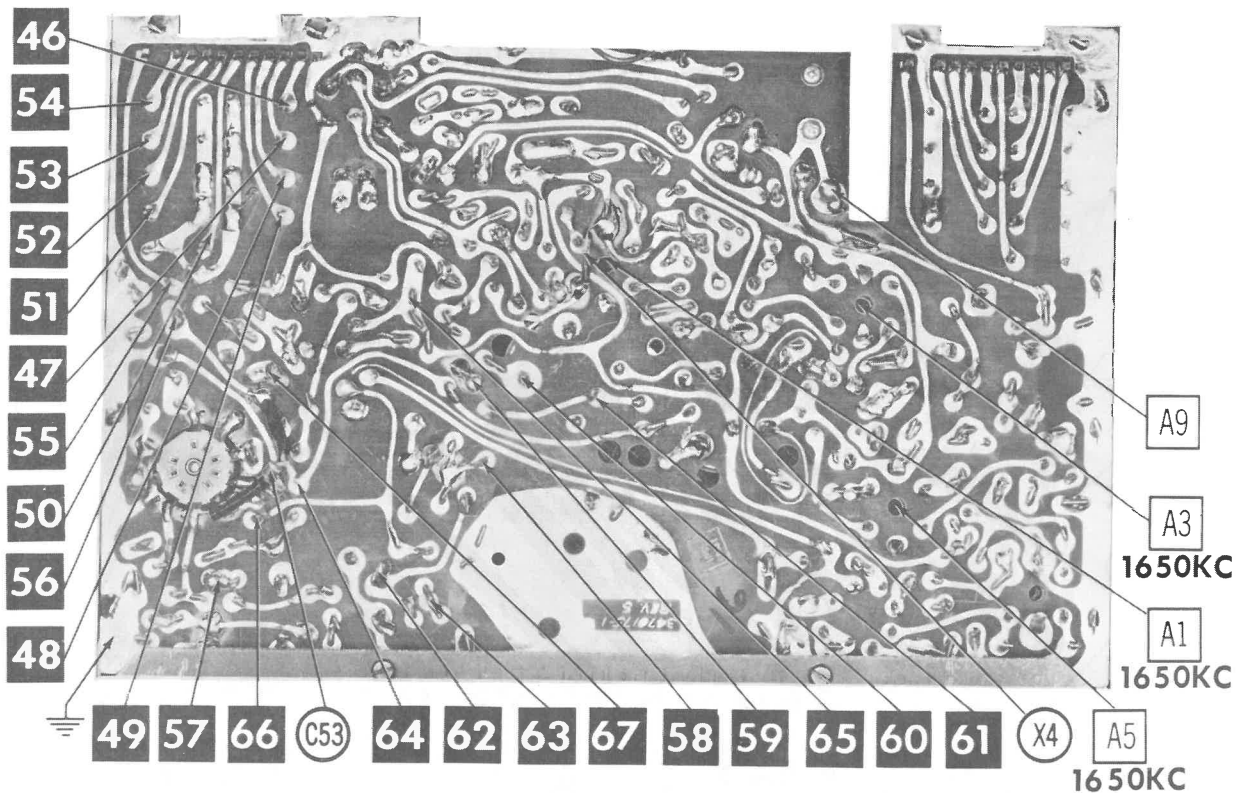
♦ AMPEREX ♦			♦ GENERAL ELECTRIC ♦			♦ RCA ♦			♦ SYLVANIA ♦		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.	6BA6	V5	AF Amp. - Squelch Clamper	6AV6						
V2	Converter	6BE6	V6	Output-Modulator	6AQ5A						
V3	1st IF Amp.	6BA6	V7	Trans. Osc. - Final Amp.	6GV8						
V4	2nd IF Amp. - Speech Amp.	6EA8									

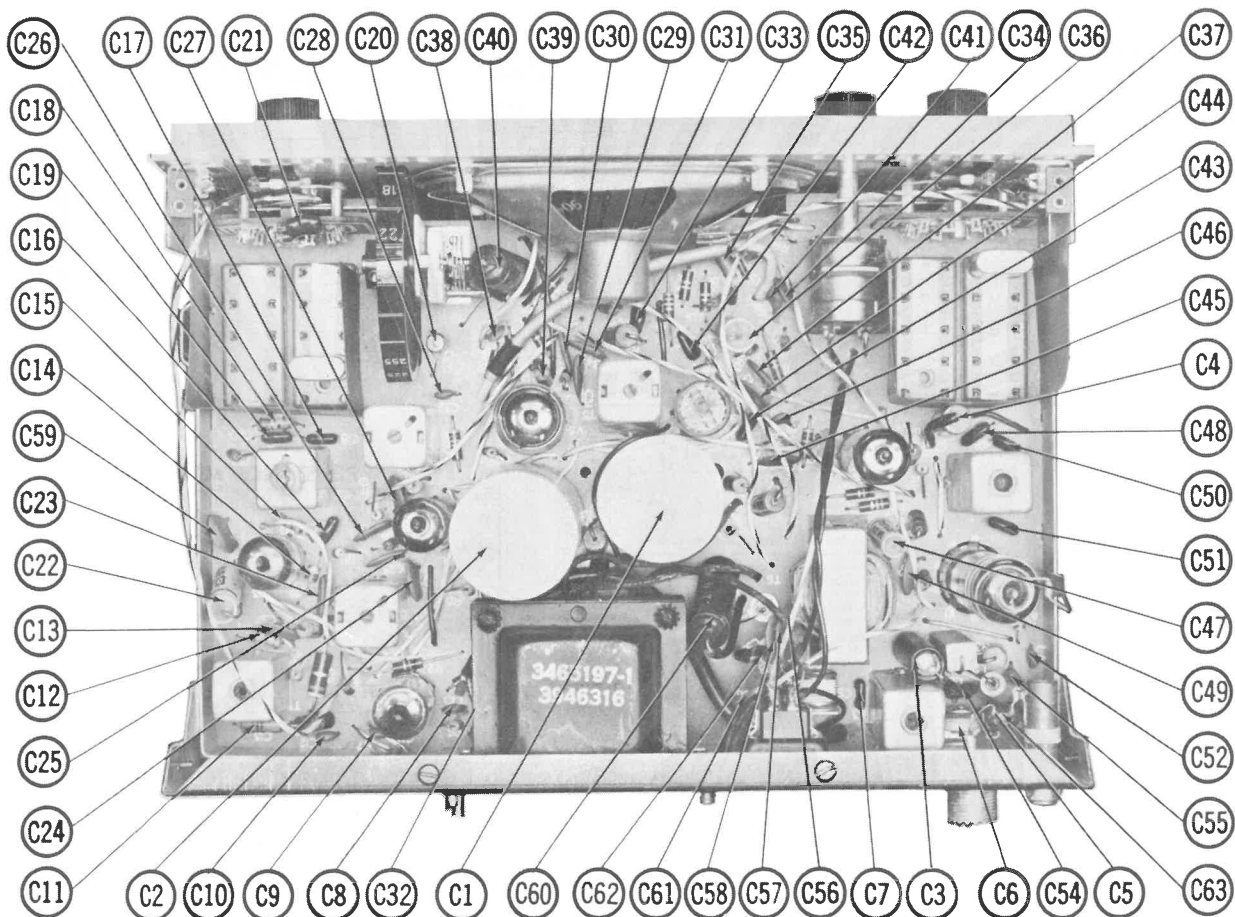
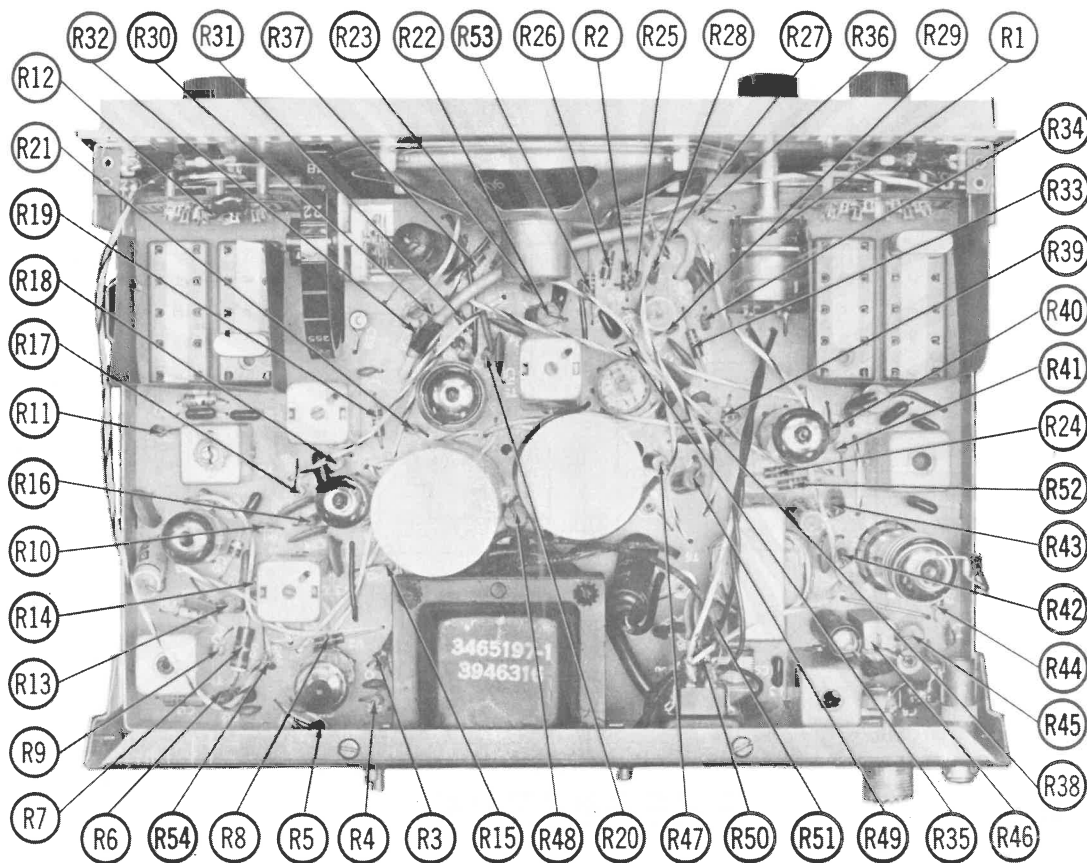
POWER RECTIFIERS & SIGNAL DIODES

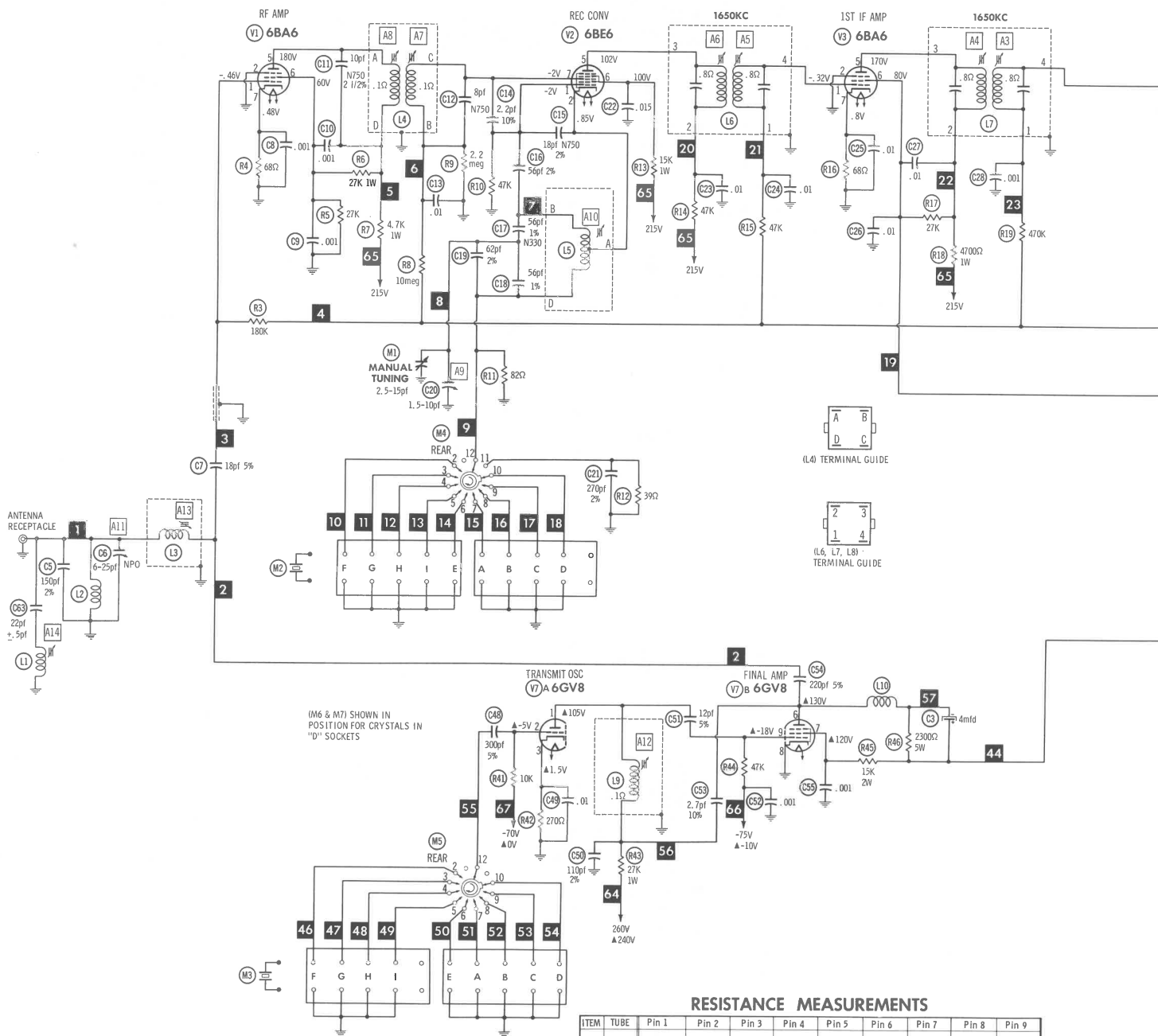
ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X1	105MA (Trans.)	223216 (RCA3583)	GE-504 or 1N1697	1N1492 or 1N2071	1N2864 or 1N3195	F4 or 40H	1N60 or 1N295
X2	105MA (Trans.)	223216 (RCA3583)	GE-504 or 1N1697	1N1492 or 1N2071	1N2864 or 1N3195	F4 or 40H	
X3		226182	GE-504 or 1N1695	1N540 or 1N2070	1N1763 or 1N2862	40H or F4	
X4		230099* (1N87G)					
X5	226180	226180					1N60

* Not used in some versions.

(CONTINUED ON PAGE 122)





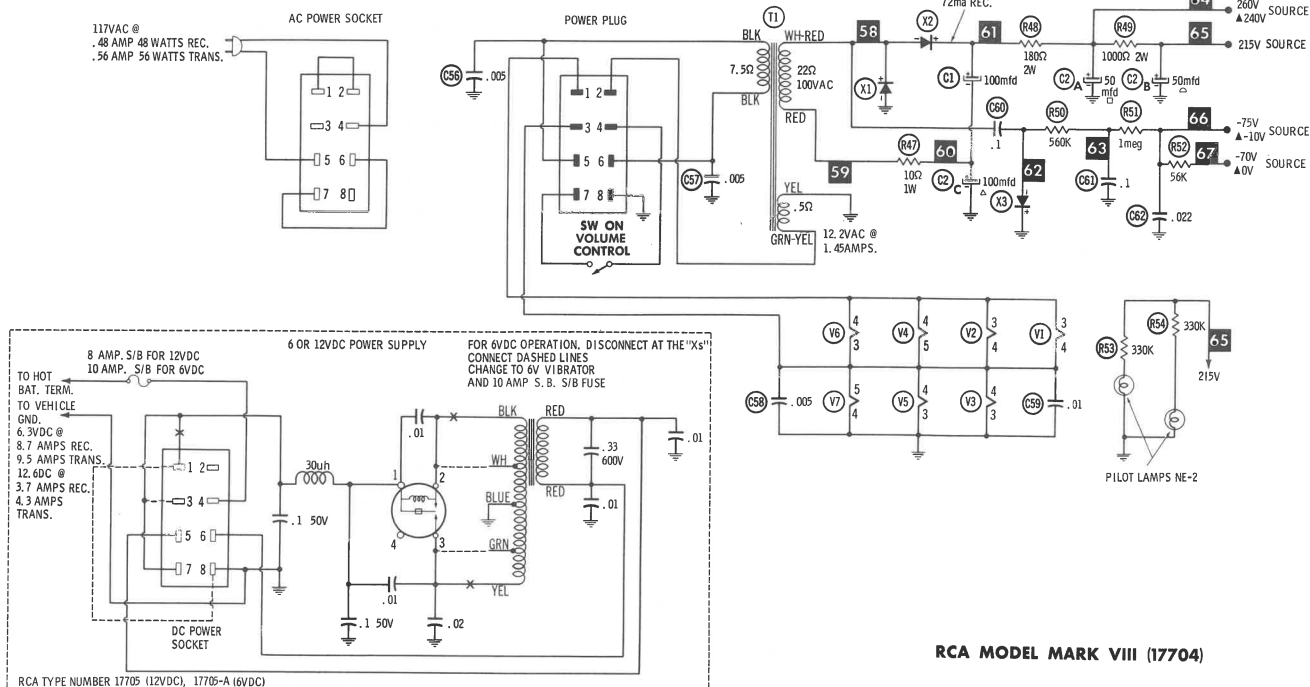
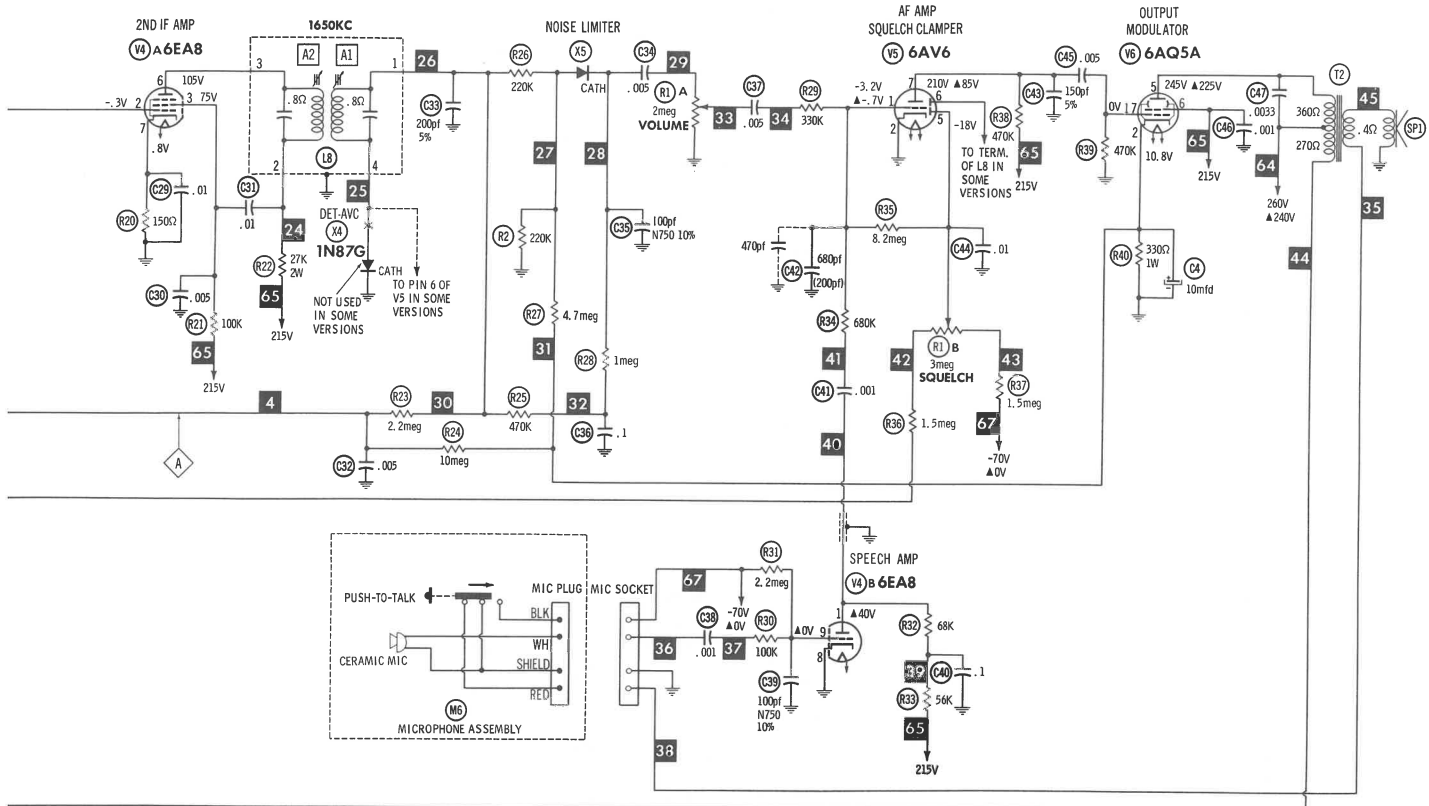


- © See parts list for alternate value or application.
 1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.
 5. Numbers assigned to terminals may not be found on the unit.
 6. Supply voltage maintained at rated value for voltage readings.
 Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with CIRCUITRACE

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ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE INDICATED.
 † MEASURED FROM CATHODE OF X2.
 Δ MEASURED IN TRANSMIT POSITION.
 * MEASURED IN CRYSTAL POSITION.
 NC NO CONNECTION.



RCA MODEL MARK VIII (17704)

PARTS LIST AND DESCRIPTION (CONTINUED)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	100	200	226179		APC020①	XC1-12①②			PCLS-1468* ①
C2A	50	350	226178						PCLS-3639,20 *
C2B	50	350							
C3	100	200							
C4	10	50							
			8979937-4	PRS1400	BBR4-150	QT1-3	TD-4-150	TT150X4	TV A-1402
			219181	CRE757A	NLW10-50	MT1-6	MLV10-50	TT50X10	TE-1304

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Use Insulating Sleeve. ② Use Printed Board Mounting Adapter.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	150 2%	#226222			CD15F151G	DM-15-151G		
C6	6-25 NPO	#226176						
C7	18 5%		ADM-15-180	TCZ-18	CD10C180J	DM-15-180J	CNO418	MS-418
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C11	10 N750 +.25pf	#226219						
C12	8 N750 +.25pf	#226220						
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C14	2.2pf 10%							
C15	18 N750 2%	#226221		TCN-18				
C16	56 2%				CD15F560G	DM-15-560G		
C17	56 1%					DM-15-560F		
C18	56 N330 1%	#226218						
C19	62 2%	#224629			CD15F620G	DM-15-620G		
C20	1.5-10	#219975		829-10				
C21	270 2%	#224051			CE15F271G	DM-15-271G		
C22	.015 400V		P288N-015	DD-153	PKM4S15	4DP-1-153	PVC4115	4TM-S15
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C28	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C30	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C32	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C33	200 5%		ADM-15-201	CPR-200J	CD15F201J	DM-15-201J	CNO320	MS-32
C34	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C35	100 N750 10%			TCN-100	C10T1U	CCTN-101	CN7310	10TCU-T10
C36	.1 200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C37	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C39	100 N750 10%			TCN-100	C10T1U	CCTN-101	CN7310	10TCU-T10
C40	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C41	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C42	680 5%	Note 1	ADM-19-681	CPR-680J	CD19F681J	DM-19-681J		MS-368
C43	150 5%		ADM-15-151	CPR-150J	CD15F151J	DM-15-151J	CNO315	MS-315
C44	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C45	.005		BPD-005	DD-502	BYA10D47	CCD-502	B250	5HK-D50
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C47	.0033 600V		P688N-0033	DD-332	PKM6D33	6DP-1-332	GEM6233	6TM-D33
C48	300 5%		ADM-15-301	CPR-300J	CD15F301J	DM-15-301J		MS-33
C49	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C50	110 2%	#226223			CD15F111G	DM-15-111G		
C51	12 5%		ADM-15-120	TCZ-12	CD10C120J	DM-15-120J	CNO412	MS-412
C52	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C53	2.7pf 10%							
C54	220 5%		ADM-15-221	CPR-220J	CD15F221J	DM-15-221J	CNO322	MS-322
C55	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C56	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C58	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C60	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C61	.1 200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM401	2TM-P10
C62	.022 400V		P488N-022	DD-203	PM4S22	4DP-2-223	GEM4122	4TM-S22
C63	22 +.5pf	#224626		TCZ-22				

Note 1. Some versions may use a 200pf and a 470pf in lieu of one 680pf.
RCA Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			RCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume & Switch	2meg	226190	F1-3meg ①,	P-3meg-S①,	† QJ-1787R	FA36L①,
B	Squelch	3meg		R2-2meg,	R-2meg-Z,		RU36A, OS1187,
				FFS103,RFS109,	CP-104, FR109,		IS1562, US42
				KR-2	SWE-20		

† "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B11-140, P17-105 (Panel)
B13-139, R9-115 (Rear) 76-2 (Switch)

"SNAPTROL" Equivalent: BU4①, CF21, CR22, SF8, SR7, WF
① Use Original Mounting Plate.

PARTS LIST AND DESCRIPTION (CONTINUED)

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R46	2300Ω 5W 3%			#226188					

RCA Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC Trap	226187	TV-195	73F124AF	RTC-8585	T367	
L2	RF Choke (120uh)	226186					
L3	Final Plate	226184					
L4	RF	226191					
L5	Rec. Osc.	226192					
L6	1st IF	226193					
L7	2nd IF	226193					
L8	3rd IF	226193					
L9	Trans. Osc. Plate	226183	TV-194	74F104AI	RTC-8574	T867	
L10	RF Choke (100uh)	226185					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RCA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117V @ .56A (Trans.)	100V @ .25A (Trans.)	12.2V @ 1.45A	226224					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RCA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	17.6K Tapped 8200Ω	3-4Ω	226194					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		RCA PART No.	QUAM PART No.	
SP1	3" x 5" PM 3-4Ω	107262	35A05	

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M1	Manual Tuning Cap.	226177 (3460404-1)	2.5 — 15pf *Insert Channel Number
M2	Receiver Crystal	17706-* (3460419-*)	
M3	Transmit Crystal	17707-* (3460421-*)	Receiver Channel Selector Transmitter Channel Selector (Ceramic)
M4	Switch	226189(3460252-1)	
M5	Switch	226189 (3460252-1)	
M6	Microphone Ass'y.	226214 (3470265-501)	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Front Grille Panel	226204	Channel Knob (Rec. or Trans.)	226202
Front Metal Trim (Left)	226211	Volume Knob	226200
Front Metal Trim (Right)	226212	Squelch Knob	226201
Tuning Knob	226203		

WIRING DATA

General-use Hook-up Wire Use BELDEN No. 8530 (Solid) Available in 12 Colors
8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
8237 Low Loss (RG-8/U)
8240 (Solid) Miniature (RG-58/U)
8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap Use BELDEN No. 8661 (3/8 In.)



PHOTOFACT[®] with

CIRCUITRACE[®]

TRADE NAME : Cadre Model 525 (500-1, 520)

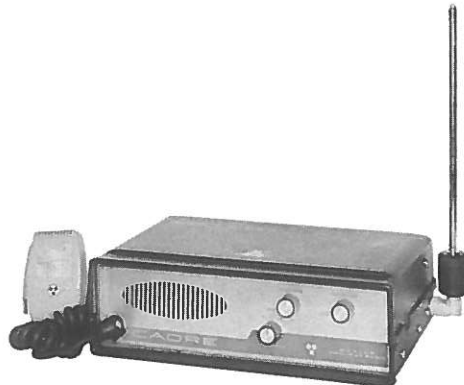
SUPPLIER : For Current Address, see Master Index

TYPE SET : 19-Transistor Transceiver

POWER SUPPLY : 6 Volts DC

RATING : 50MA@6VDC (Receive, No Signal)
370MA@6VDC (Transmit, No Modulation)

TUNING RANGE : Any 5 CB Channels 1 thru 23



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A5.....GENERAL CEMENT #5009, 8195, 8274.... WALSCO #2515, 2516, 2532
A6 thru A11.....GENERAL CEMENT #8282, 8606, 8606L... WALSCO #2526, 2541, 2542

RECEIVER ALIGNMENT

Connect VTVM, set to read negative voltage to point Δ .
Calibrate signal generator to necessary channel frequencies by zero beating with another CB transmitter.
Keep output of signal generator at the lowest level consistent with a clear indication on VTVM.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to Base of X4 (2nd Mixer), low side to ground (455KC Unmod.)	Any	A1, A2, A3	Adjust for maximum indication.
High side thru .01mfd to base of X2 (1st Mixer), low side to ground (1680KC Unmod.)	Any	A4	Adjust for maximum indication.
High side to antenna jack, low side to ground (27.085MC Unmod.)	11 (27.085MC)	A5, A6, A7	Adjust for maximum indication.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

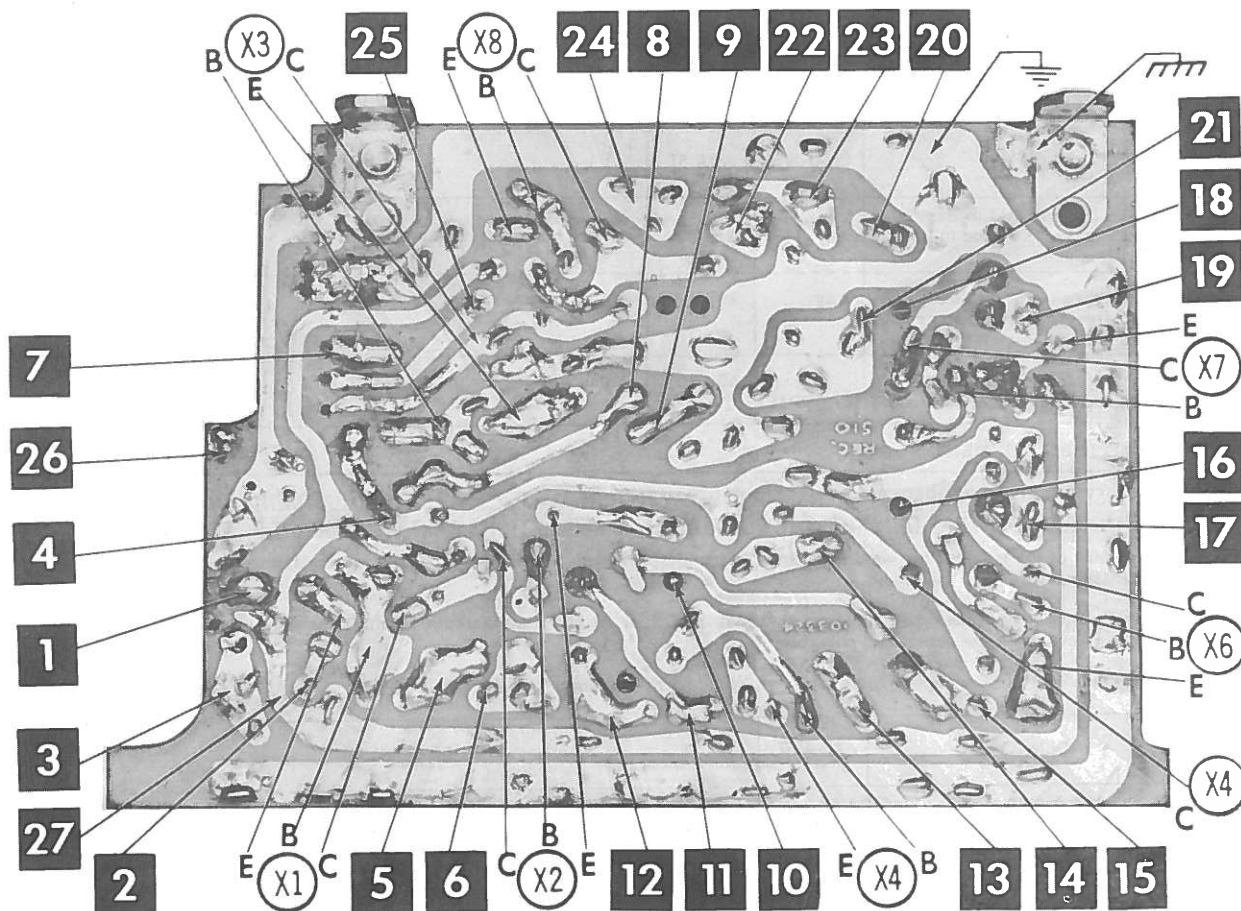
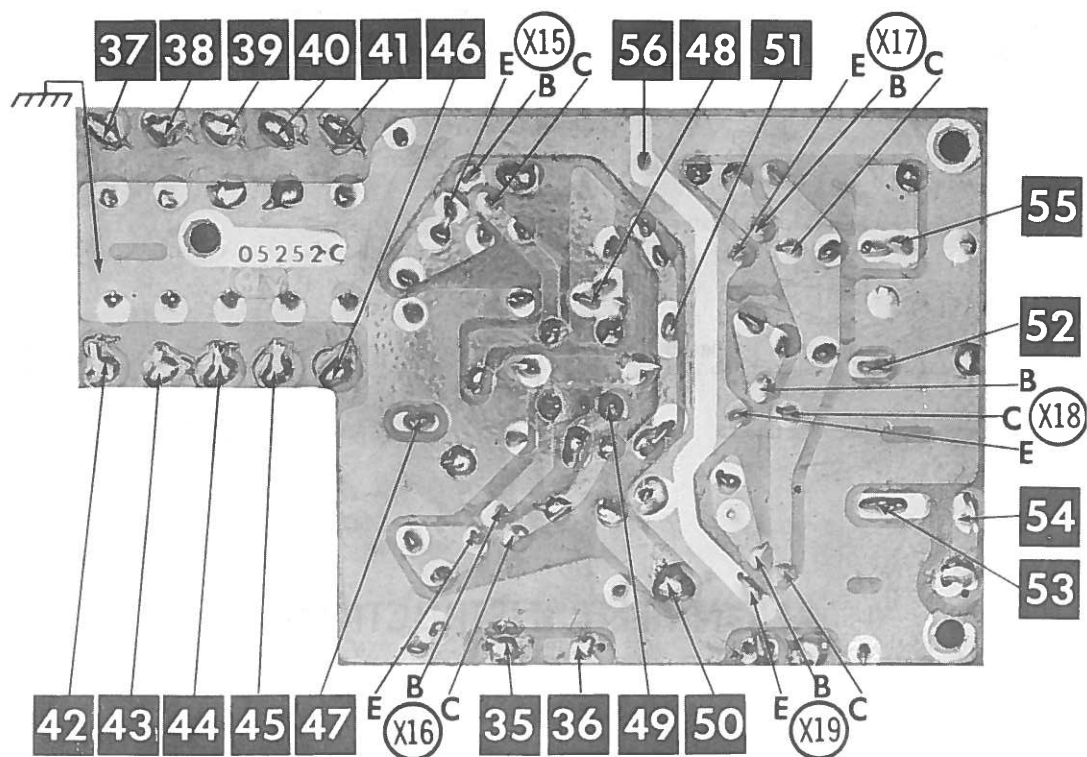
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50 Ω dummy load or the normally used antenna system.

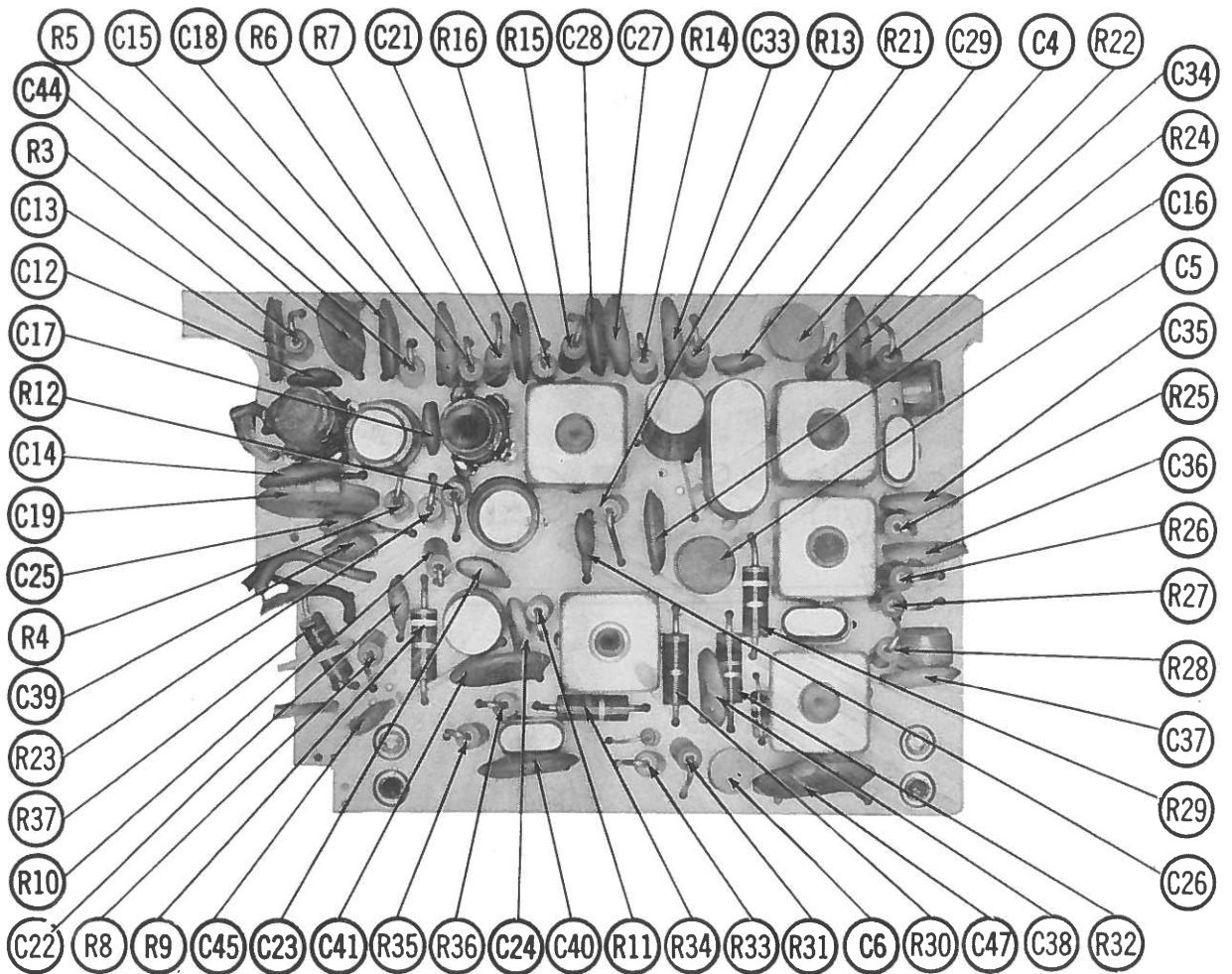
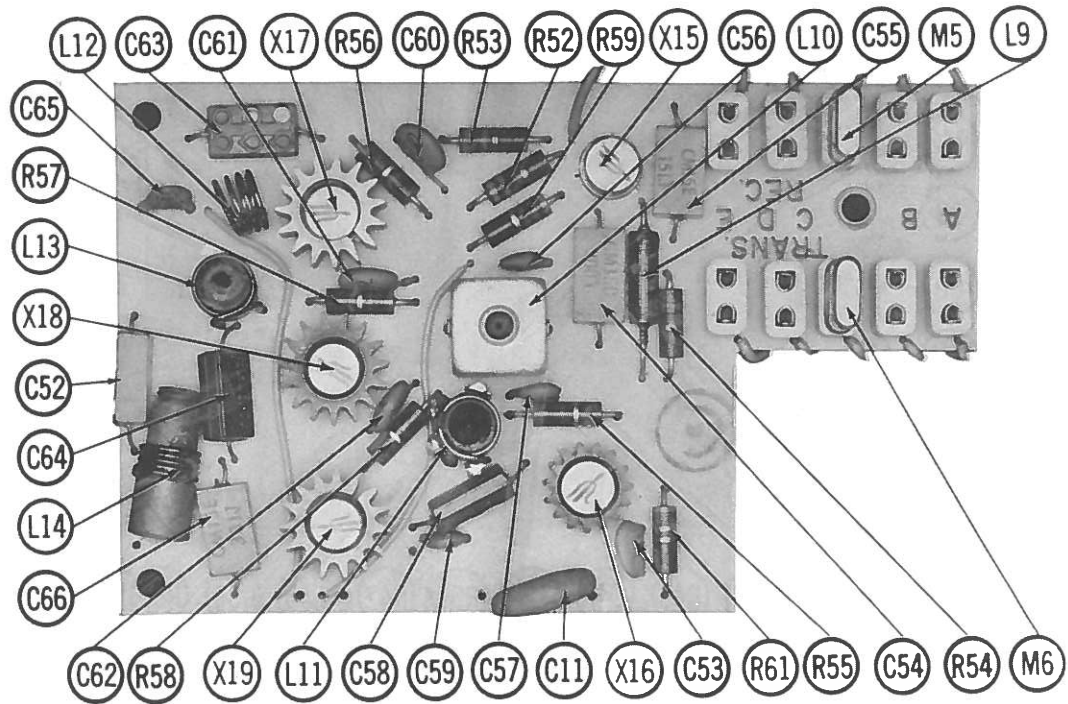
INDICATOR	ADJUST	REMARKS
Field Strength Meter	A8, A9, A10, A11	Key Transmitter. Adjust for maximum indication. Current must not exceed 400MA as indicated on a Milliammeter inserted into lead pin 5 of power plug.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

TRANSMITTER

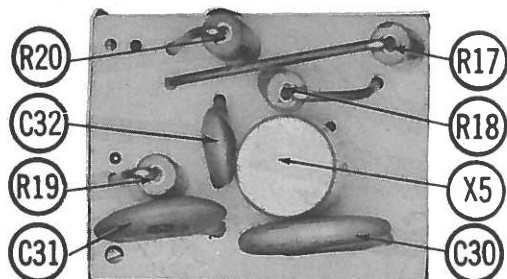
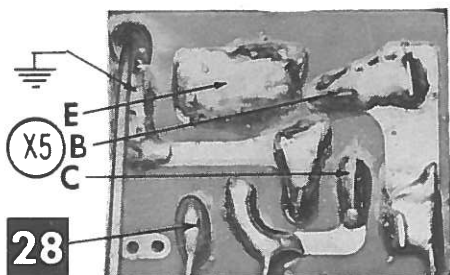
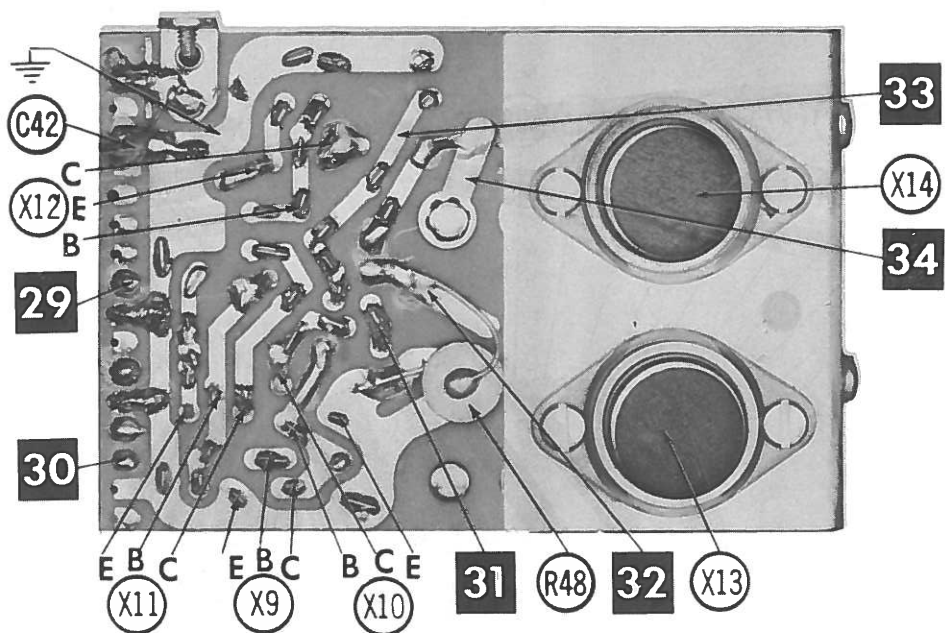
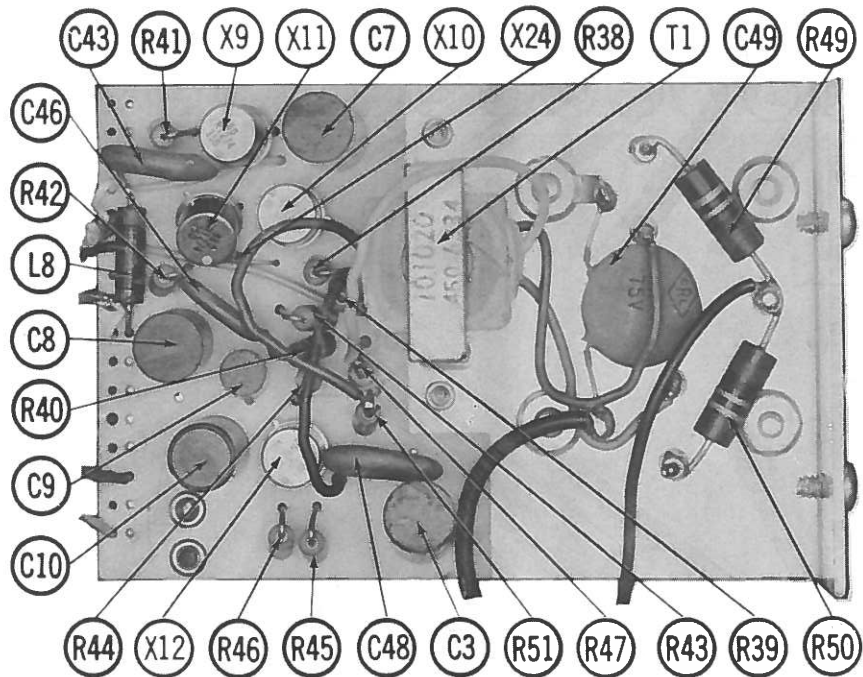


TRANSMITTER

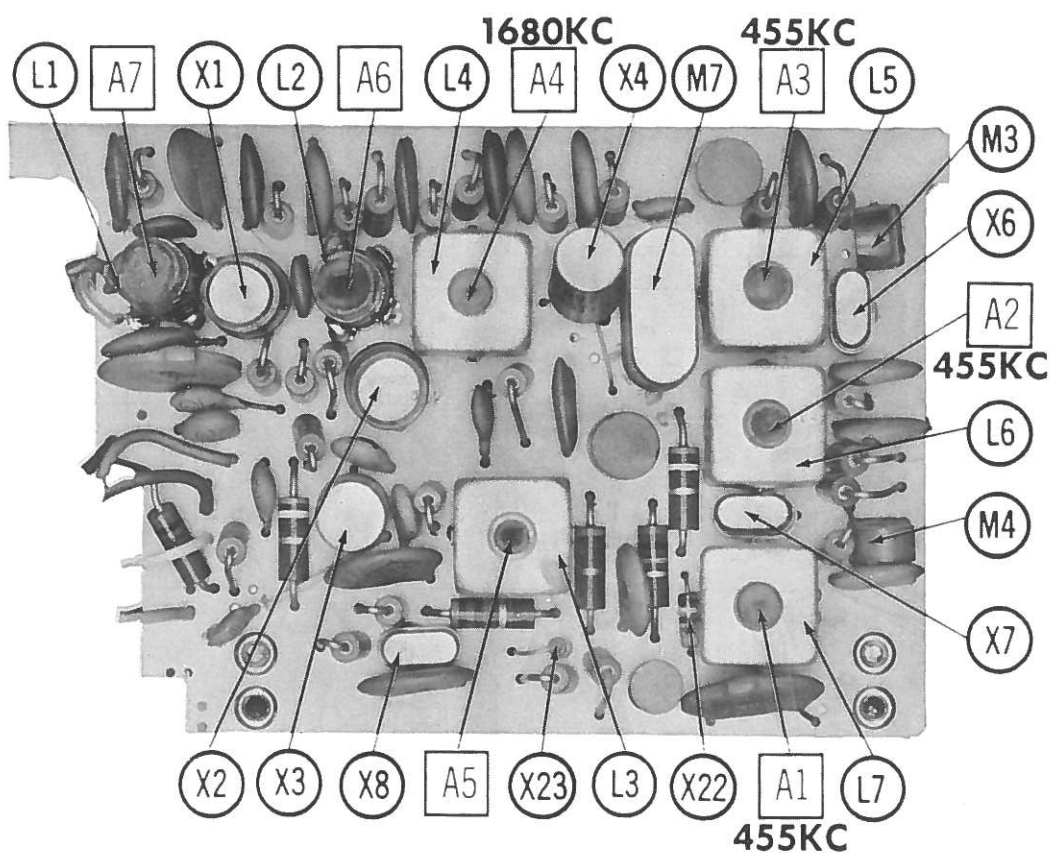


RECEIVER

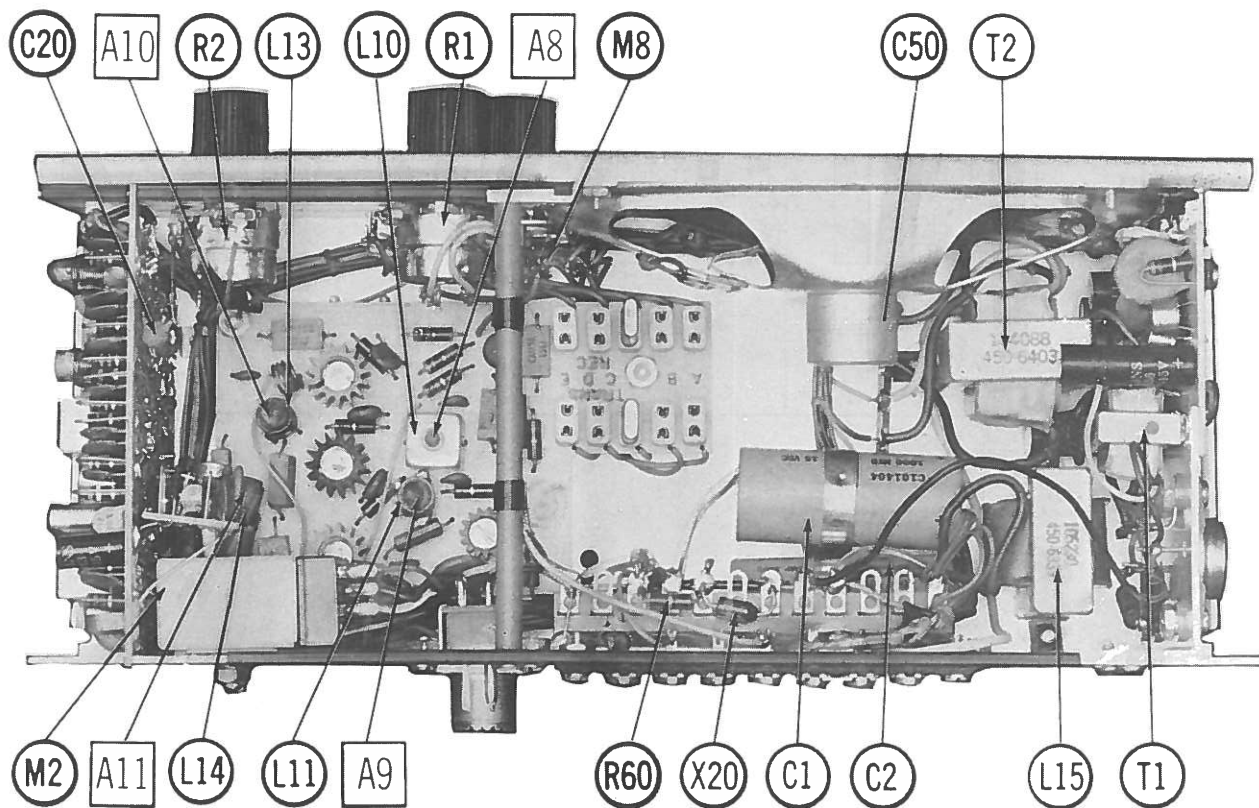
AUDIO



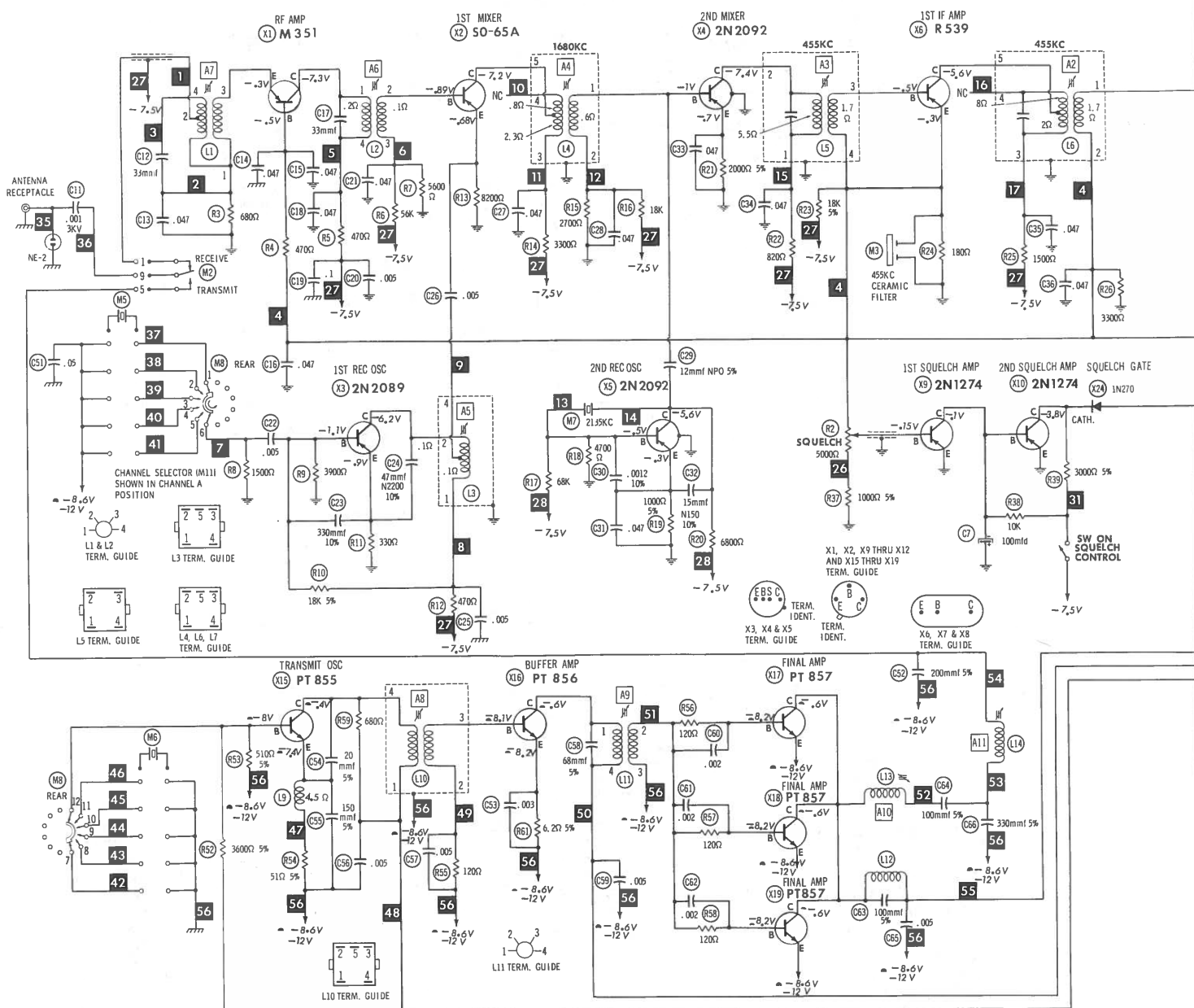
2ND RECEIVER OSCILLATOR



RECEIVER



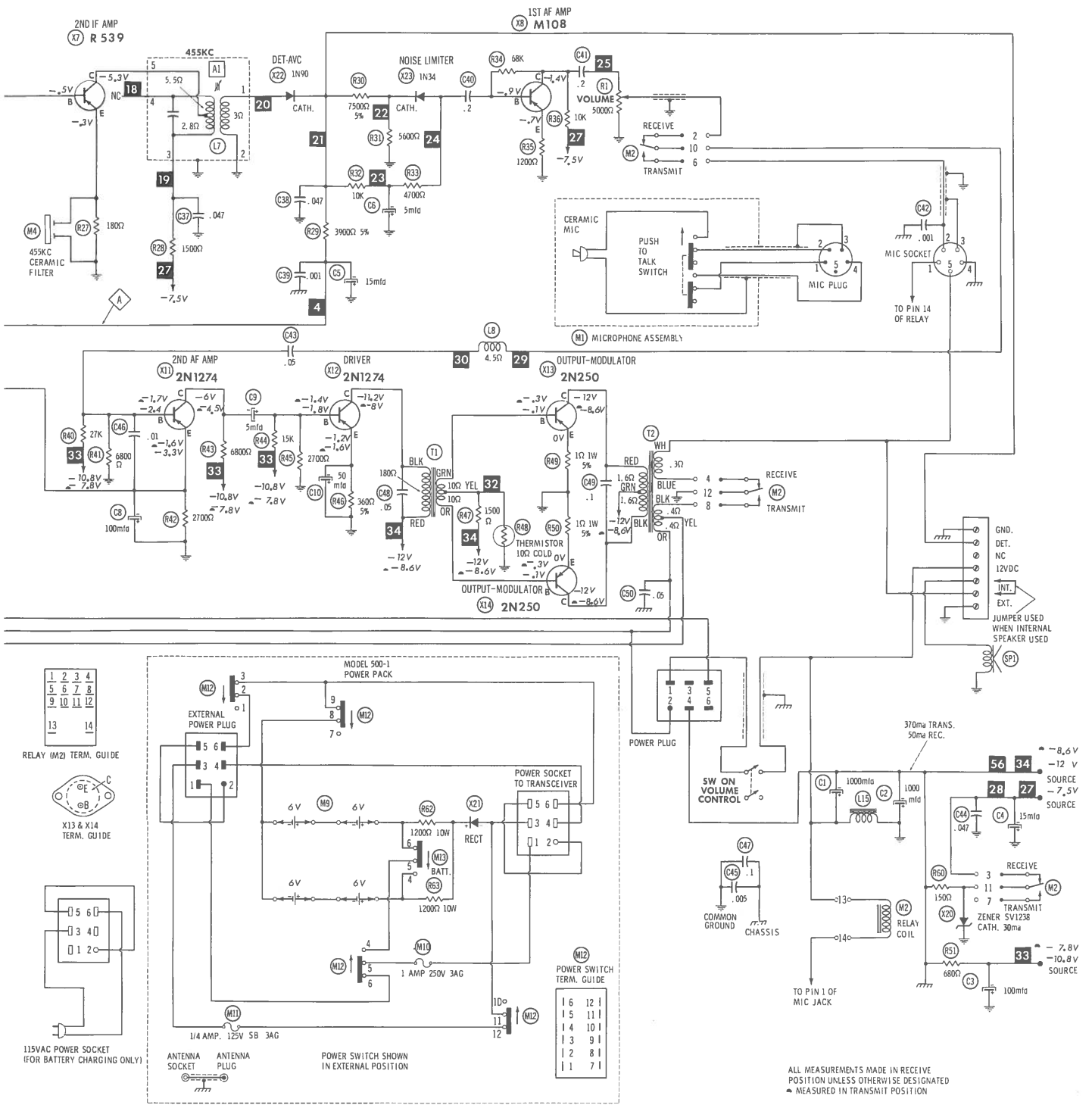
OVERALL CHASSIS TOP



- Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
- See parts list for alternate value or application.
 - Voltage measurements taken with vacuum tube voltmeter.
 - All controls set for normal operation, no signal applied.
 - Measured values are from socket pin or terminal to common ground.
 - All terminals viewed from bottom unless otherwise designated.
 - Numbers assigned to terminals may not be found on the unit.
 - Supply voltage maintained at rated value for voltage readings.
 - Resistance measurements not given because of the wide variation in internal resistance of transistor.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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CADRE MODEL 525 (500-1, 520)

PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			CADRE PART No.	NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.		
X1	M351	RF Amp.	DS-41			100678	PNP
X2	SO-65A	1st Mixer	DS-41			101087	PNP
X3	2N2089	1st Rec. Osc.	DS-41			104009	PNP
X4	2N2092	2nd Mixer	DS-25	GE-9		104059	PNP
X5	2N2092	2nd Rec. Osc.	DS-25	GE-9		104059	PNP
X6	R539	1st IF Amp.	DS-25	GE-9		101089	PNP
X7	R539	2nd IF Amp.	DS-25	GE-9		101089	PNP
X8	M108	1st AF Amp.	DS-26	GE-2	2N406		PNP
X9	2N1274	1st Squelch Amp.	DS-26	GE-2	2N406	100693	PNP
X10	2N1274	2nd Squelch Amp.	DS-26	GE-2	2N406	100693	PNP
X11	2N1274	2nd AF Amp.	DS-26	GE-2	2N406	100693	PNP
X12	2N1274	Driver	DS-26	GE-2	2N406		PNP
X13	2N250	Output-Modulator	DS-520	GE-3	2N301		PNP
X14	2N250	Output-Modulator	DS-520	GE-3	2N301		PNP
X15	PT855	Transmit Osc.	DS-41			101434	NPN
X16	PT856	Buffer	DS-41			101435	NPN
X17	PT857	Final Amp.				101436	NPN
X18	PT857	Final Amp.				101436	NPN
X19	PT857	Final Amp.				101436	NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.
X20	30ma	(100624) * 104213					
X21	Note 1	SG1198 (104081)				F-4	1N34AS
X22		1N90 (101153)					1N34AS
X23		1N34 (101679)					
X24		1N270 (101154)					

* Zener Type 1N2035

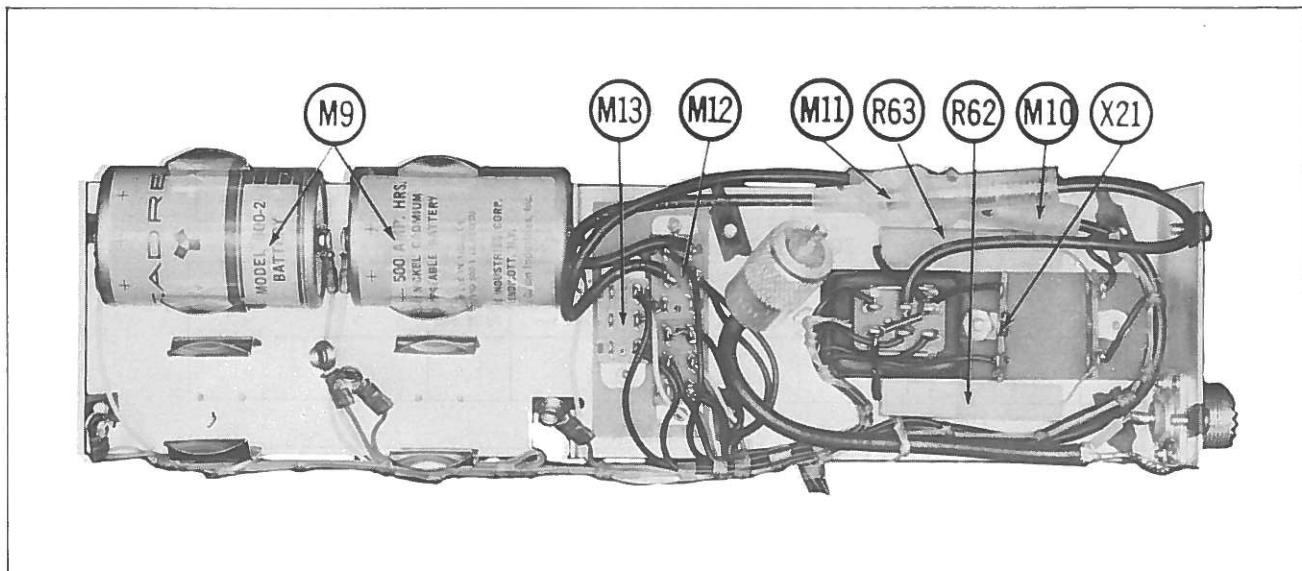
Note 1. Measured Current depends on charging time and condition of batteries.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		CADRE PART No.	REPLACEMENT DATA					
	CAP.	VOLT.		AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000	15	101404	PRS1230	BR1000-15	QT1-32	TD-1000-15	TC1501	TVA-1163
C2	1000	15	101404	PRS1230	BR1000-15	QT1-32	TD-1000-15	TC1501	TVA-1163
C3	100	15	100656	BCD15010	NLW100-15	MT1-19	MLV100-15	TT15X100	TE-1162
C4	15	15	101013	BCD15015	NLW15-15	MT1-10	MLV15-15	TT15X15	VL-1168
C5	15	15	101013	BCD15015	NLW15-15	MT1-10	MLV15-15	TT15X15	VL-1168
C6	5	12	101431	BCD12005	NLW5-15	MT1-3	MLV5-12	TT12X5	VL-1124
C7	100	15	100656	BCD15010	NLW100-15	MT1-19	MLV100-15	TT15X100	TE-1162
C8	100	3	100689	BCD3100	NLW100-3	MT1-18	MLV100-3	TT3X100	TE-1059.5
C9	5	12	101431	BCD12005	NLW5-15	MT1-3	MLV5-12	TT12X5	VL-1124
C10	50	6	101113	BCD6050	NLW50-6	MT1-15	MLV50-6	TT6X50	VL-1094

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	.001 3KV		HVD-30-1000	DD30-102		3CCD-102	3HV210	30GA-D10
C12	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO433	10TCC-Q33
C13	.047							HY-310
C14	.047							HY-310
C15	.047							HY-310
C16	.047							HY-310
C17	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO433	10TCC-Q33
C18	.047							HY-310
C19	.1		TTD-1	CK-104	H6		TA010	TG-P10
C20	.005		TTD-005	CK-502	H1		TA250	TG-D50
C21	.047							HY-310
C22	.005		TTD-005	CK-502	H1		TA250	TG-D50
C23	330 10%		DI-330	DD-331	JB6T33	CCD-331	GP333	10TS-T33
C24	47 N2200 10%							
C25	.005		TTD-005	CK-502	H1		TA250	TG-D50
C26	.005		TTD-005	CK-502	H1		TA250	TG-D50
C27	.047							HY-310
C28	.047							HY-310
C29	12 NPO 5%			TCZ-12			CNO412	10TCC-Q12
C30	.0012 10%		DI-1200	DD-122	JB6D12	CCD-122	JF212	10TS-D12
C31	.047							HY-310
C32	15 N150 10%							10TCP-Q15
C33	.047							HY-310
C34	.047							HY-310
C35	.047							HY-310
C36	.047							HY-310
C37	.047							HY-310
C38	.047							HY-310
C39	.001			DM-102				HY325
C40	.2			UK10-204				HY325
C41	.2			UK10-204				
C42	.001			DM-102				
C43	.05		TTD-05	CK-503	H5		TA150	TG-S50
C44	.047							HY-310
C45	.005		TTD-005	CK-502	H1		TA250	TG-D50
C46	.01		TTD-01	CK-103	H2		TA110	TG-S10
C47	.1		TTD-1	CK-104	H6		TA010	TG-P10
C48	.05		TTD-05	CK-503	H5		TA150	TG-S50
C49	.1		TTD-1	CK-104	H6		TA010	TG-P10
C50	.05		TTD-05	CK-503	H5		TA150	TG-S50
C51	.05		TTD-05	CK-503	H5		TA150	TG-S50
C52	200 5%		ADM-15-201	CPR-200J	CD10F201J	DM-10-201J	CNO320	MS-32
C53	.003			DM-302				



PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS(cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C54	20 5%		ADM-15-200	CPR-20J	CD10C200J	DM-10-200J		MS-42
C55	150 5%		ADM-15-151	CPR-150J	CD10F151J	DM-10-151J	CNO315	MS-315
C56	.005		TTD-005	CK-502	H1		TA250	TG-D50
C57	.005		TTD-005	CK-502	H1		TA250	TG-D50
C58	68 5%		ADM-15-680	CPR-68J	CD10F680J	DM-10-680J	CNO468	MS-468
C59	.005		TTD-005	CK-502	H1		TA250	TG-D30
C60	.002			DM-202				
C61	.002			DM-202				
C62	.002			DM-202				
C63	100 5%		ADM-15-101	CPR-100J	CD10F101J	DM-10-101J	CNO310	MS-31
C64	100 5%		ADM-15-101	CPR-100J	CD10F101J	DM-10-101J	CNO310	MS-31
C65	.005		TTD-005	CK-502	H1		TA250	TG-D50
C66	330 5%		ADM-15-331	CPR-330J	CD10F331J	DM-10-331J		MS-333

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			CADRE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Power Sw.	5000Ω	101007	F2-5000, SF014, KR-2 or (B-11, KR-2)		Q13-114, 76-2, or (BU2, CF60, SS14, WF)*
R2	Squelch & Squelch Switch	5000Ω	101189	F2-5000, SF014, KR-1 or (B-11, KR-1)		Q13-114, 76-1, or (BU2, CF60, SS14, GC)*

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R48	10Ω Cold			#101086					
R62	1200Ω 10W	PW10-1200	10W-SQ-1250		R63	1200Ω 10W	PW10-1200	10W-SQ-1250	

Cadre Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		CADRE PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna	103325					
L2	RF	103326					
L3	1st Rec. Osc.	103327					
L4	1st IF (1680KC)	101399					
L5	2nd IF (455KC)	101400					
L6	3rd IF (455KC)	101018					
L7	4th IF (455KC)	101019					
L8	RF Choke (50uh)	1008-500		72F475AP		TG248	
L9	RF Choke (50uh)	1008-500		72F475AP		TG248	
L10	Trans. Osc.	103312					
L11	Buffer	103313					
L12	RF Choke	103314					
L13	Bandpass Filter	103315					
L14	Antenna Matching	103316					

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CADRE PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	4	1	101020					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	CADRE PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
		SEC. 2						
T2	100Ω CT	4Ω	104088					
		25Ω CT						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		CADRE PART No.	QUAM PART No.	
SP1	2" x 6" PM 3-4Ω	101025	26A07	

MISCELLANEOUS

ITEM No.	PART NAME	CADRE PART No.	NOTES
M1	Microphone Ass'y.	104092	Receive Crystal Part Numbers are consecutive from 104121 for Channel 1 to 104143 for Channel 23. Transmit Crystal Part Numbers are consecutive from 103377 for Channel 1 to 103399 for Channel 23.
M2	Relay 4PDT	103335	
M3	455KC Filter	101897	
M4	455KC Filter	101897	
M5	Receive Crystal		
M6	Transmit Crystal		
M7	2135KC Crystal	101116	
M8	Channel Switch	104018	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Channel Selector - Knob	104030	Front Panel Face Plate	105004
Volume & Squealch - Knob	104031		

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
	8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8861 (3/8 In.)

POWER CHASSIS PARTS LIST AND DESCRIPTION

BATTERIES

ITEM No.	VOLTAGE	CADRE PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
M9	6V	101912				2 Required

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CADRE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M10	3AG	1A 250V	101437		312001	155020A	AGC 1	HDJ-B
M11	3AG	1/4A 125V S/B	101095		313.250	155020A	MDL 1/4	HDJ-B

MISCELLANEOUS

ITEM No.	PART NAME	CADRE PART No.	NOTES
M12	Power Switch 4PDT		
M13	Battery Switch 2PDT		



PHOTOFACT®

TRADE NAME: Hammarlund Model CB-Six
 SUPPLIER: For Current Address, see Master Index
 TYPE SET: 9 Tube Citizens Band Transceiver
 POWER SUPPLY: 110 — 120 Volts AC, 60 Cycles (or)
 12 Volts DC
 RATING: 68 Watts, .65 Amp. @ 117VAC (Receive)
 79 Watts, .72 Amp. @ 117VAC (Transmit)
 5.2 Amp. @ 12.6VDC (Receive)
 6.0 Amp. @ 12.6VDC (Transmit)
 TUNING RANGE: Any 6 of Citizens Band Channels 1 thru 22
 Receiver may be continuously tuned



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A11.....GENERAL CEMENT #8606, 8606L, 8869.....WALSCO #2543, 2544, 2588
 A13 thru A14.....GENERAL CEMENT #8606, 8606L, 8869.....WALSCO #2543, 2544, 2588
 A12 and A15.....GENERAL CEMENT #8868, 9087, 9089.....WALSCO #2528, 2541, 2587

RECEIVER ALIGNMENT

Connect a DC VIVM from Point Δ to ground. Set to indicate negative voltage. Output of signal generator should be no higher than necessary to obtain a suitable indication.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 7 (grid) of V3 (2nd Conv.), low side to ground. Tune to 262KC.	Any	A1 thru A6	Adjust for maximum.
High side thru .01mfd to pin 7 (grid) of V2 (1st Conv.), low side to ground. Tune to 1650KC.	Any	A7, A8, A9	Set the fine tuning control to mid-range. Adjust for maximum.
High side to antenna receptacle, Low side to ground. Tune to channel frequency.	11 (27.085MC)	A10, A11	Adjust for maximum.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

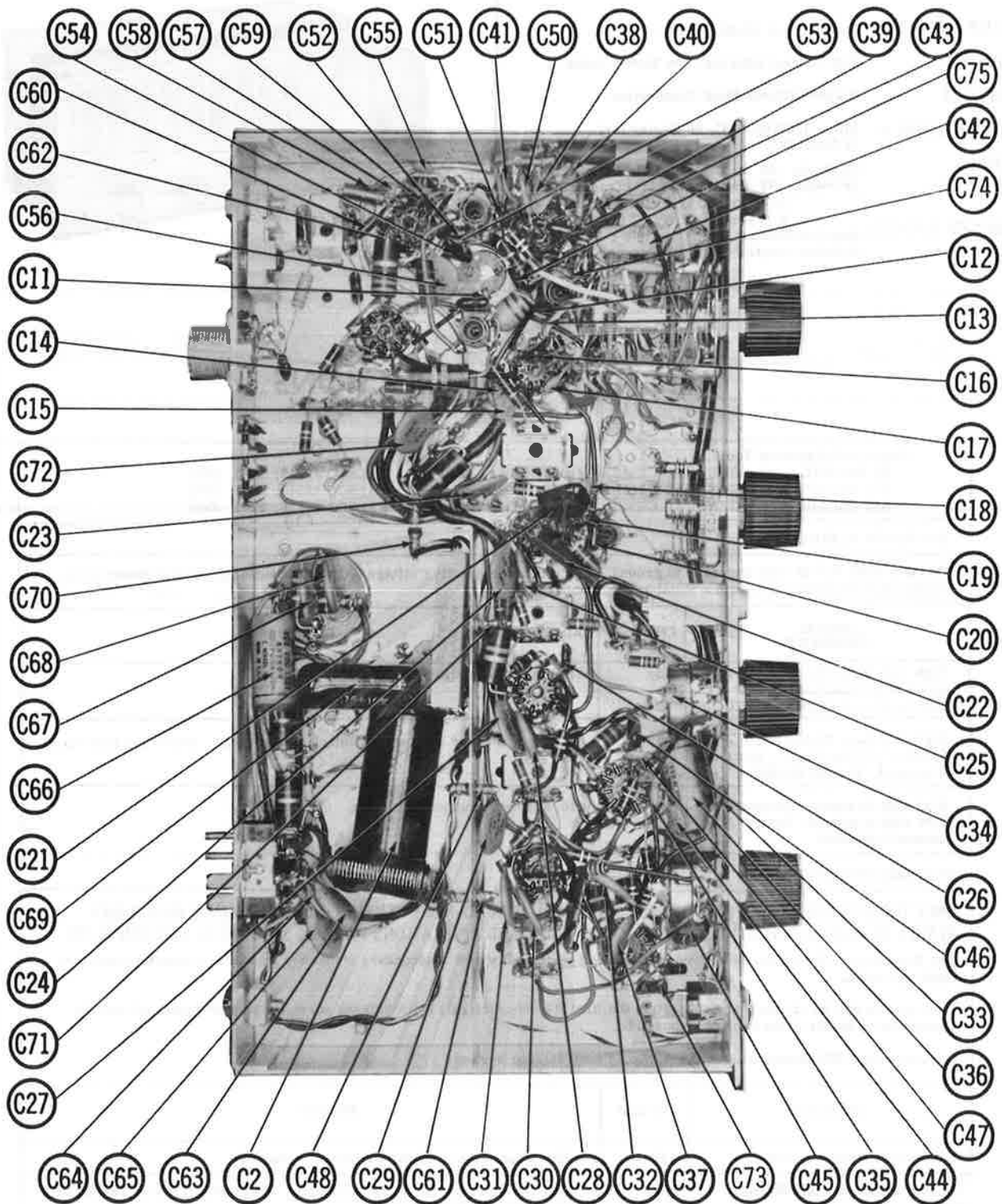
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

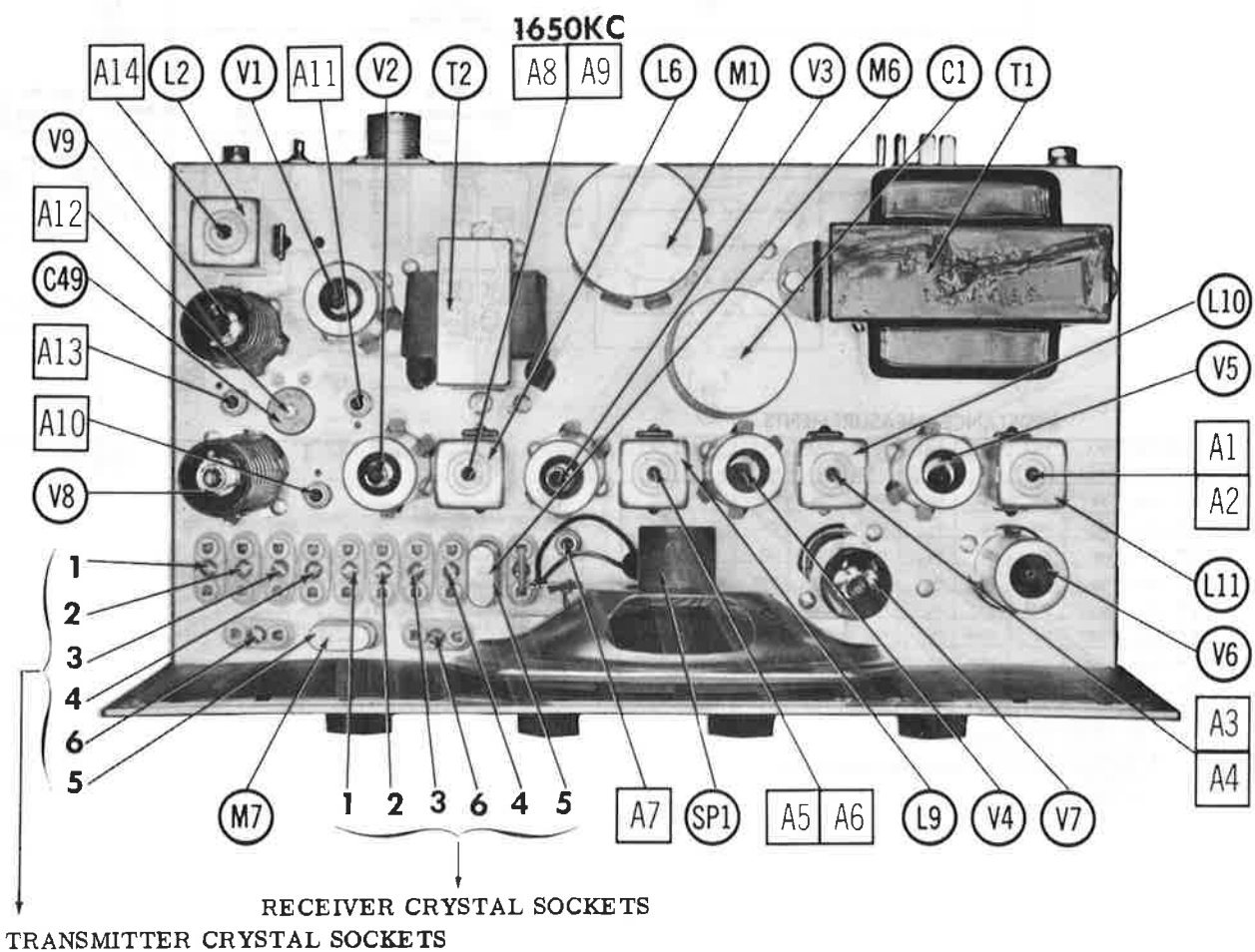
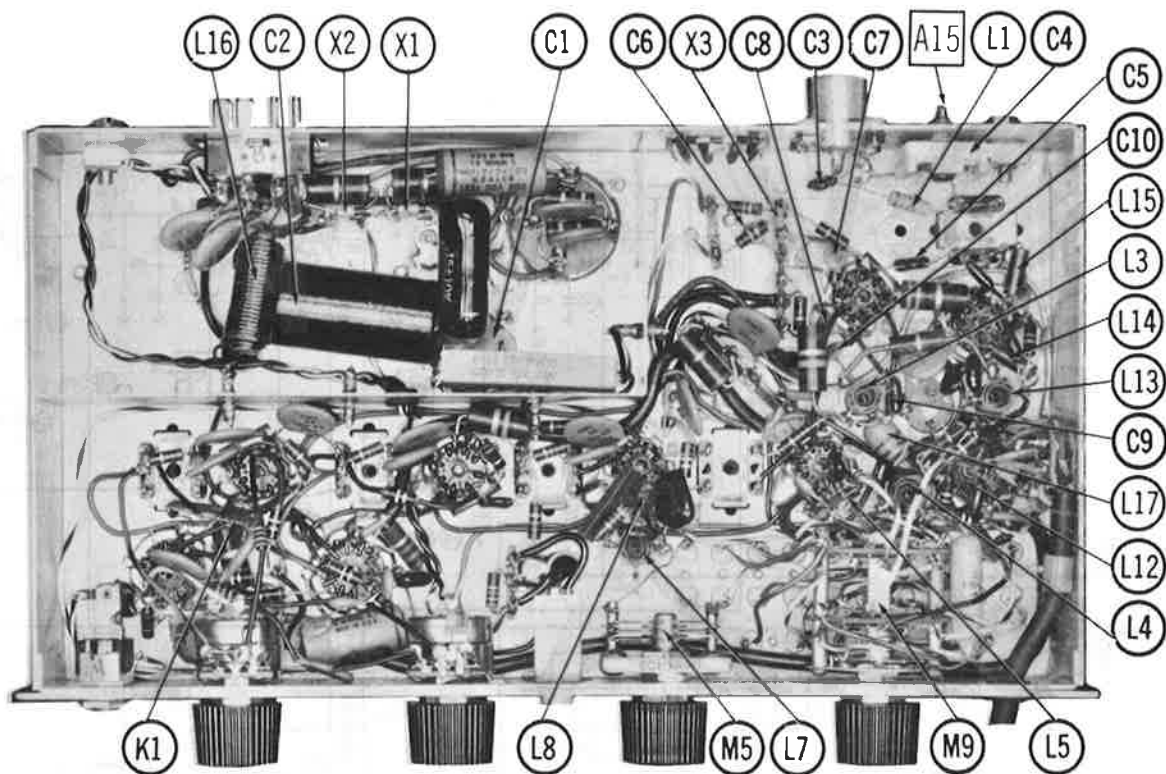
Connect either 50Ω dummy load or the normally used antenna system.

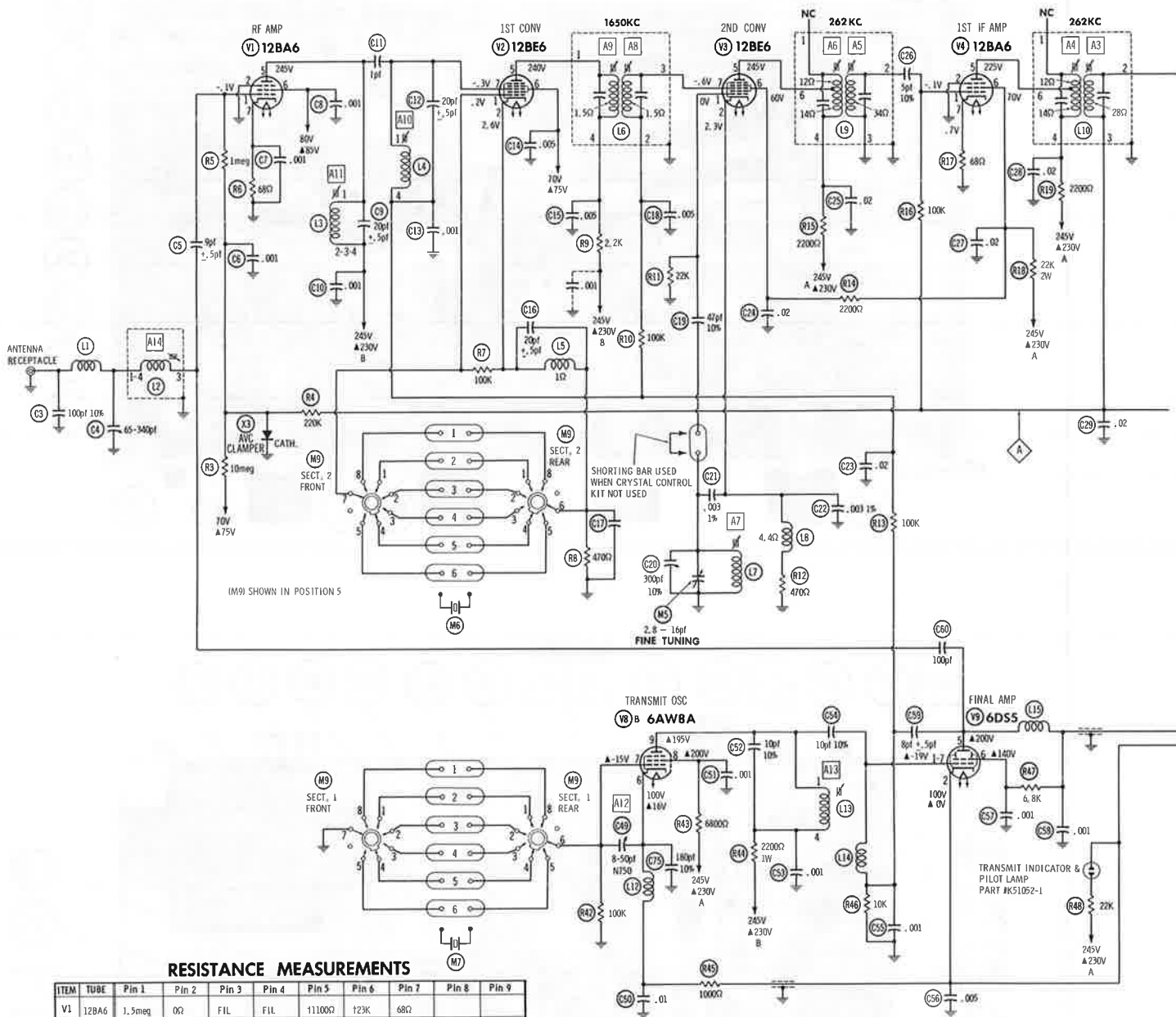
INDICATOR	ADJUST	REMARKS
An accurate frequency meter.	A12	Key transmitter. Adjust for crystal frequency.
RF Wattmeter or Field Strength meter.	A13	Key transmitter. Adjust for maximum, then back off one or two turns to insure stable oscillation.
RF Wattmeter or Field Strength meter.	A14, A15	Key transmitter. Adjust for maximum.

HAMMARLUND MODELS CB-SIX (CB-6)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana







Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

See parts list for alternate value or application.

1. Voltage measurements taken with vacuum tube voltmeter.

2. All controls set for normal operation, no signal applied.

3. Measured values are from socket pin or terminal to common ground.

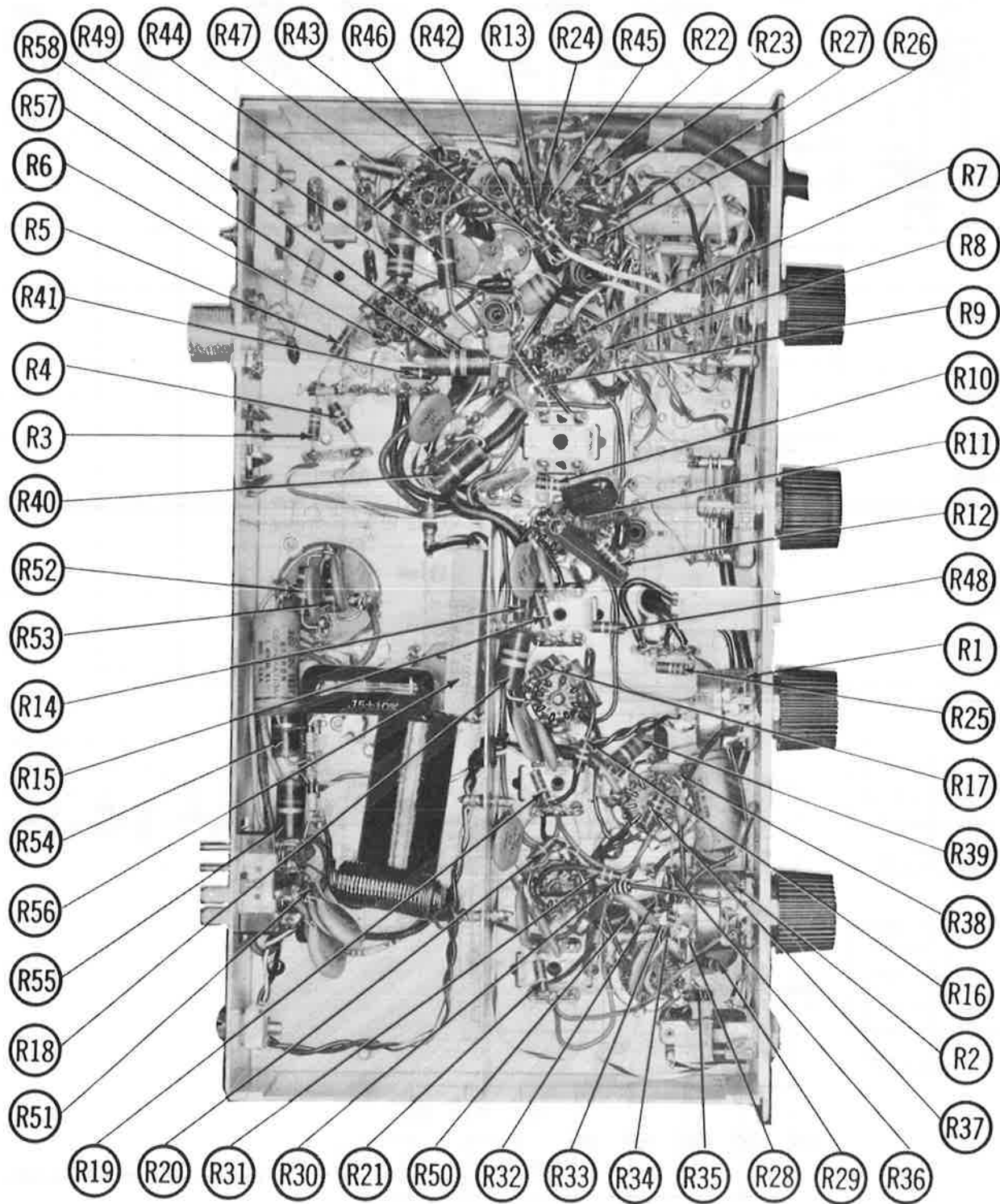
4. All terminals viewed from bottom unless otherwise designated.

5. Numbers assigned to terminals may not be found on the unit.

6. Supply voltage maintained at rated value for voltage readings.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8524 (Stranded) Available in 12 Colors
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor - 1 Shielded for Press-to-Talk (Neoprene)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TUBES

ITEM No.	USE	GENERAL ELECTRIC	AMPEREX	RCA	SYLVANIA	USE	ITEM No.	TYPE
V1	RF Amp.	12BA6		V6	Det.-AFC Noise Limiter - Squelch Clamper	6BJ7		TYPE
V2	1st Converter	12BE6		V7	AF Amp. - Output-Modulator	6GW8/ECL86		
V3	2nd Converter	12BA6		V8	Speech Amp. - Transmit Osc.	6AW8A		
V4	1st IF Amp.	12BA6		V9	Final Amp.	6DS5		
V5	2nd IF Amp.	12BA6						

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	RECTIFIERS	RCA PART No.	SARKIS TARTAN PART No.	DIODES
X1	110MA (Trans)	M41223-2	GE504	1N1096 or 1N2071		1N2884	F-4	GENERAL ELECTRIC PART No.
X2	110MA (Trans.)	M41223-2	GE504	1N1096 or 1N2071		1N2884	F-4	
X3		M41223-3						

① X1 and X2 may be replaced with one VB600.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	Hammarlund PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	REPLACEMENT DATA	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	40 350	K15504-73	AFH4-57-75	XC4-83				
C1B	40 350							
C1C	40 100							
C2	40 350	K23073-83	PRS1670	BR40-350	QTT1-14	TD-40-350	TC67	IVA-1611

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELWENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	100 10%	#K23935-1	ADM-15-101	CPR-100J	CD15F101K	DM-15-101K	MS-31
C4	65-340	#K235006-21					
C5	9 +.5pf						
C6	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C9	20 +.5pf	#K235006-17		TCZ-20	BYA10D1	CCD-102	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10

FIXED CAPACITORS(cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELWENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	1pf 10%	#K23941-1	BPD-001	TCZ-20	CCD-102	B210	5HK-D10
C12	20 +.5pf	#K23006-17	BPD-005	DD-102	CCD-502	B250	5HK-D50
C13	.001		BPD-005	DD-102	CCD-502	B250	5HK-D50
C14	.005		BPD-005	DD-102	CCD-502	B250	5HK-D50
C15	20 +.5pf	#K23006-17	BPD-001	TCZ-20	CCD-102	B210	5HK-D10
C16	.001		BPD-005	DD-102	CCD-502	B250	5HK-D50
C17	.005		BPD-005	DD-102	CCD-502	B250	5HK-D50
C18	47 10%		ADM-15-470	CPR-471	DM-15-470K	CNO447	MS-447
C19	300 10%	#K23027-28	ADM-15-301	CPR-300J	DM-15-301K	JF333	MS-33
C20	.003 1%	#K23942-1			DM-15-302F		
C21	.003 1%		BPD-02	DD-203	CCD-203	B120	5HK-S20
C22	.003 1%		BPD-02	DD-203	CCD-203	B120	5HK-S20
C23	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C24	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C25	5 10%	#K23006-5	ADM-15-050	DD-203	CCD-203	CNO447	MS-447
C26	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C27	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C28	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C29	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C30	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C31	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C32	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C33	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C34	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C35	.001		BPD-002	DD-202	CCD-202	B210	5HK-D20
C36	1.0mfd 200V						
C37	.02		BPD-02	DD-203	CCD-203	PVC11	2WTF-M1
C38	.001		ADM-15-301	DD-102	CCD-102	B210	5HK-S20
C39	.001		BPD-001	CPR-300J	DM-15-301K	JF333	MS-33
C40	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C41	.005		BPD-005	DD-502	CCD-502	B250	5HK-D50
C42	1.4 400V		PA68N-1	DF-104	4DP-3-104	GEM401	4TWP-F10
C43	300 10%		ADM-15-301	CPR-300J	DM-15-301K	JF333	MS-33
C44	.005		BPD-005	DD-502	CCD-502	B250	5HK-D50
C45	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C46	300 10%		ADM-15-301	CPR-300J	DM-15-301K	JF333	MS-33
C47	.002		BPD-002	DD-202	CCD-202	B210	5HK-D20
C48	.001		EF-001	MFT-1000	CCF-102	CT280A	
C49	8-50 N750	#K23038-5					
C50	.01		BPD-01	DD-103	CCD-103	B110	5HK-S10
C51	.001		ADM-15-100	DD-102	CCD-102	B210	5HK-D10
C52	10 10%		BPD-001	DTZ-10	DM-10-100K	CNO410	MS-41
C53	.001		ADM-15-100	DTZ-10	DM-10-100K	CNO410	MS-41
C54	10 10%		BPD-001	DTZ-10	DM-10-100K	CNO410	MS-41
C55	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C56	.005		BPD-005	DD-502	CCD-502	B250	5HK-D50
C57	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C58	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C59	8 +.5pf	#K23006-73	ADM-15-101	CPR-100J	DM-15-101K	CNO310	MS-31
C60	100 10%		EF-001	MFT-1000	CCF-102	CT280A	
C61	.001		EF-001	MFT-1000	CCF-102	CT280A	
C62	.001		EF-001	MFT-1000	CCF-102	CT280A	
C63	.001		EF-001	MFT-1000	CCF-102	CT280A	
C64	.001		EF-001	MFT-1000	CCF-102	CT280A	
C65	.001		EF-001	MFT-1000	CCF-102	CT280A	
C66	.001		EF-001	MFT-1000	CCF-102	CT280A	
C67	.001		EF-001	MFT-1000	CCF-102	CT280A	
C68	.02		BPD-02	DD-203	CCD-203	B120	5HK-S20
C69	.15 600V 10%		BPD-02	DD-203	CCD-203	B120	5HK-S20
C70	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C71	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C72	.01		BPD-01	DD-103	CCD-103	B110	5HK-S10
C73	300 10%		ADM-15-301	CPR-300J	DM-15-181K	JF333	MS-33
C74	.001		BPD-001	DD-102	CCD-102	B210	5HK-D10
C75	180 10%		ADM-15-181	CPR-180J	DM-15-181K	CNO318	MS-318

Hammarlund Part Number.

HALLCRAFTERS MODEL CB-7

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	REPLACEMENT DATA			
		RESISTANCE	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Power Switch	1meg	K15382-11	F2-1meg, SF012, KR-1 or (B-70, KR-1)	A47-1meg-Z, FS-3, SWE-12 SS14, GC)*
R2	Squelch & ANL Switch	150K	K15382-12	F1-150K, SF012, KR-3† or (B-43, KR-3 †)	A47-150K-S, FS-3, SWE-21†

* "SNAPTROL"

† Use switch terminals that have continuity in extreme counterwise position.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			REPLACEMENT DATA	
		IRC PART No.	WORKMAN PART No.	REMARKS	IRC PART No.	WORKMAN PART No.
R56	1000Ω 10W 10%			PW10-1000 10W-SQ-1000		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Hammarlund PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Ant. Choke(.56uh)	K40064-2	TV-239	RTC-8513	T802	
L2	Final Plate	M39137-1				
L3	RF Plate	K39308-1				
L4	1st Conv. Grid	K39308-1				
L5	1st Conv. RF Choke (2.2uh)	K42356-21	BC-563	RTC-8517	T813	
L6	1st IF (1650KC)	M39305-1				
L7	2nd Conv. Grid	K39307-1	1732			
L8	2nd Conv. RF Choke (100uh)	K42356-22	TV-194	RTC-8574	T974	
L9	2nd IF (262KC)	M39170-1				
L10	3rd IF (262KC)	M39170-1				
L11	4th IF (262KC)	M39170-1				
L12	Trans. Osc. Choke (25uh)	K42356-21	BC-662	74F225A1	T953	
L13	Trans. Osc. Plate	K39308-1				
L14	Final Grid Choke (21uh)	K39161-1	TV-192	RTC-8584	T300	
L15	Final Plate Choke (21uh)	K39161-1	TV-192	RTC-8584	T300	
L16	Filament Choke (90uh)	K39409-1				
L17	RF Choke (2.5mh)	K26779-1	4537			

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		Hammarlund PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T1	PRI. 1 117VAC ①. 72A SEC. 2 12.2VAC ②. 2.4A					
	PRI. 2 12.6VDC ③. 6.0A SEC. 1 110MA					
	PRI. 3 110VAC ④. 110MA					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		Hammarlund PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T2	6650Ω Tapped @ 150Ω					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Hammarlund PART No.	QUAM PART No.	
SP1	3" x 5" PM 3-8Ω	M39306-1	35A05Z8	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Hammarlund PART No.	REPLACEMENT DATA
K1	Detector RF -AVC- Noise Limiter Filter		K38885-1	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/QUENCY	REPLACEMENT DATA		NOTES
			Hammarlund PART No.	CORNELL-DUBILIER PART No.	
M1	Interrupter	12.6 VDC	K51038-1	6372	G1501

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		BUSS PART No.
			Hammarlund PART No.	FUSE HOLDER	
M2	3AG	1 Amp 125V S/B	K15888-5	① 313001	MDL1
M3	3AG	1 Amp 125V S/B	K15888-5	① 313001	MDL1
M4	3AG	6.1/4A 125V S/B	K51010-1	3136-25	MDX 6 1/4

① Fuse Mounts in AC Power Plug.

MISCELLANEOUS

ITEM No.	PART NAME	Hammarlund PART No.	NOTES
M5	Fine Tune Cap.	K11033-G106	2.8mmf - 16mmf
M6	Receiver Crystals	M39335	Add Channel Number after dash in Part Number
M7	Transmit Crystals	M39336	Add Channel Number after dash in Part Number
M8	Microphone Assembly	F39190-2	Ceramic
M9	Channel Switch	M39294-G1	6-Position Water Switch

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM		ITEM	
PART No.		PART No.	
Knob		K39164-2	



PHOTOFACT®

TRADE NAME: Knight Models KN-2500 (90SU413)
KN-2550 (90SU456)

SUPPLIER: For Current Address, see Master Index

TYPE SET: 7 Transistor Transceiver

POWER SUPPLY: 110 — 120 Volts AC, 60 Cycles (or)
6 (or) 12 Volt Storage Battery

RATING: 48 Watts, .47 Amp. @ 117VAC (Rec.)
52 Watts, .51 Amp. @ 117VAC (Trans.)

TUNING RANGE: Any 6 CB Channels 1 thru 23
Receiver may be continuously tuned



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6..... GENERAL CEMENT #5097, 8727..... WALSCO #2515
A7, A8, A9, A11, A12, A13..... GENERAL CEMENT #8868, 9087, 9089..... WALSCO #2528, 2541, 2587
A10, A14..... GENERAL CEMENT #8606, 8606L, 8869..... WALSCO #2543, 2544, 2588

RECEIVER ALIGNMENT

Output of signal generator should be no higher than necessary to obtain a suitable indication. Connect a DC VTVM from point **A** to ground. Set to indicate negative voltage.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 (grid) of V2 (Mixer), low side to ground. Tune to 1650KC	Any	A1 thru A6	Adjust for maximum.
High side to antenna receptacle, low side to ground. Tune to channel frequency.	11 (27.085MC)	A7	Set Tune-Fixed switch to Tune. Set tuning dial to Channel 11. Turn A7 fully into coil, then back out for maximum.
"	"	A8	Set Tune-Fixed switch to Fixed. Adjustment of A7 is broad, adjust to the middle of its range.
"	"	A9	Disconnect plate voltage from V1 by disconnecting one end of R9. Increase generator output. Adjust A9 (neutralizing) for MINIMUM. Reconnect R9 and reduce generator output.
"	"	A10	Adjust for maximum.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPART D, SECTION 95.95).

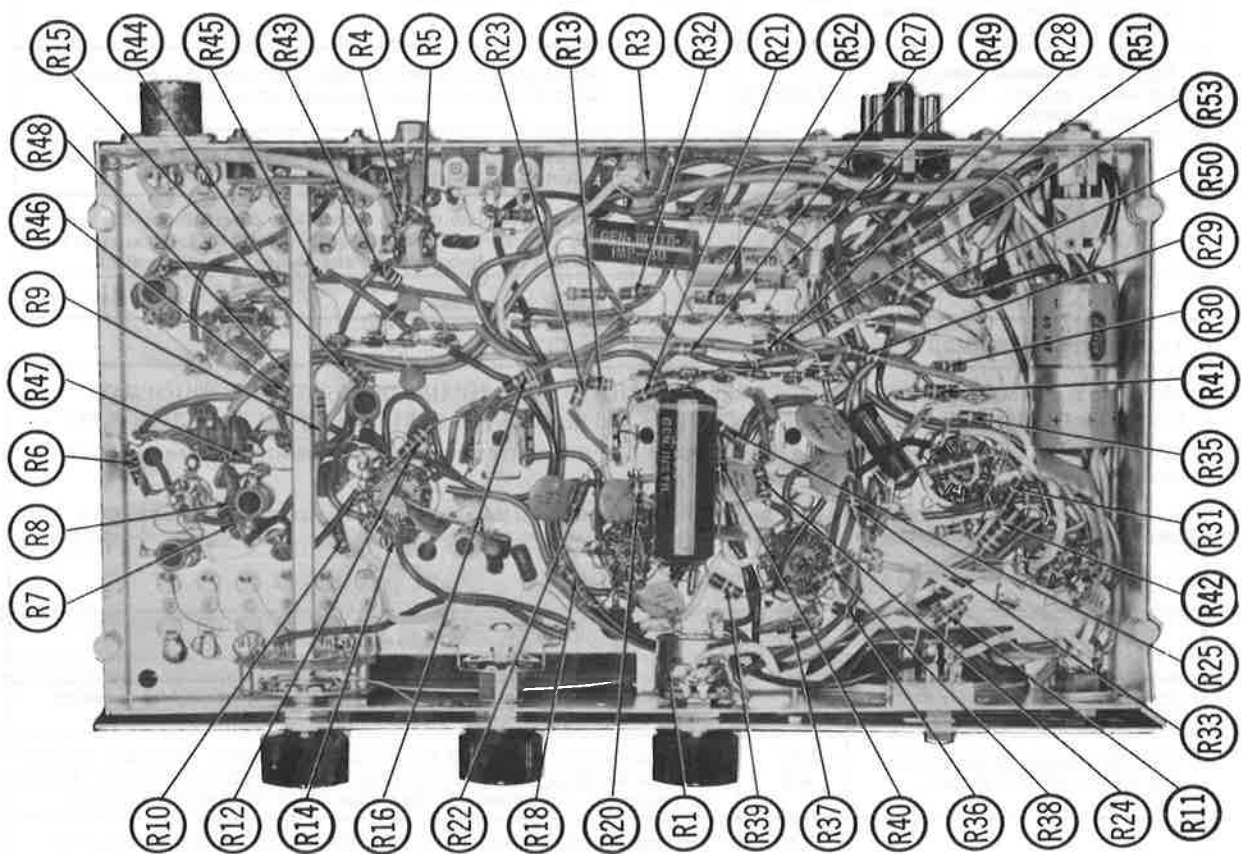
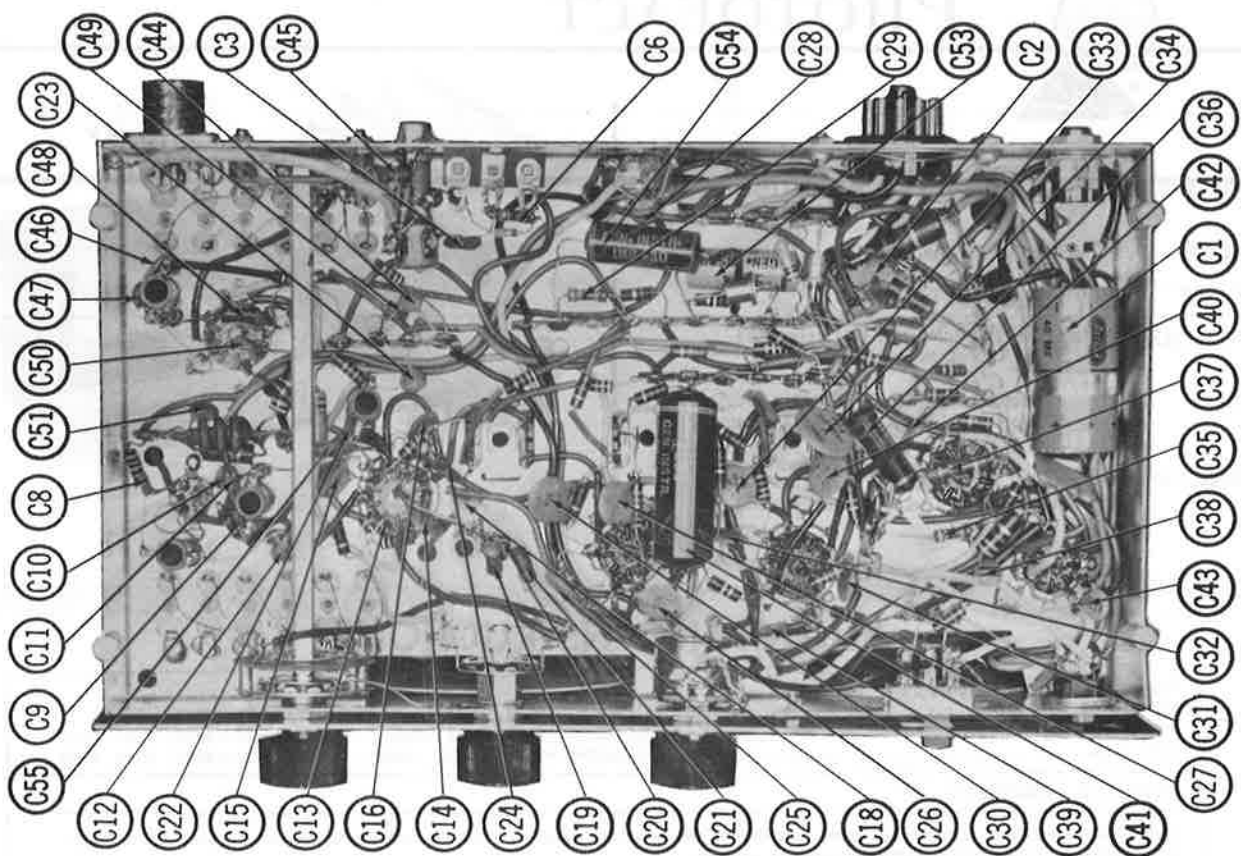
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

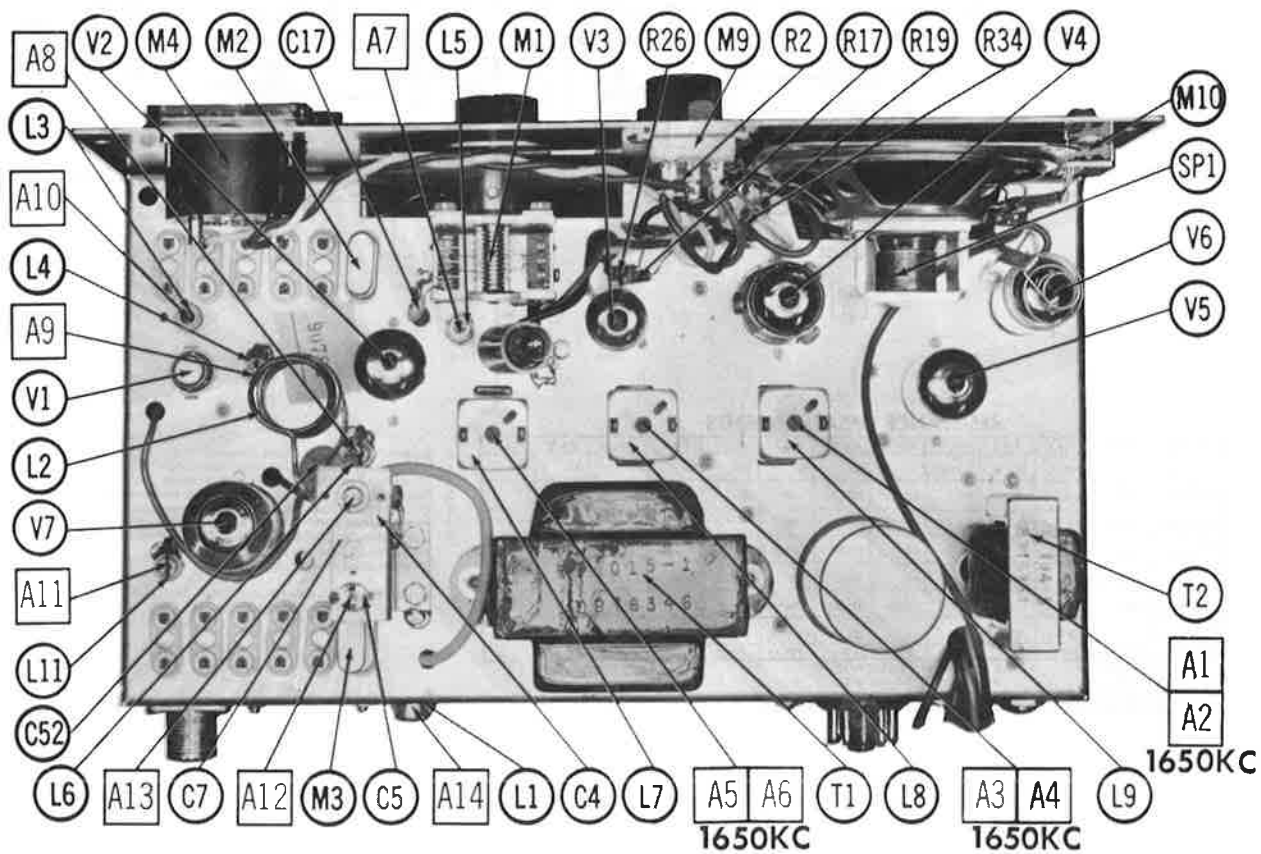
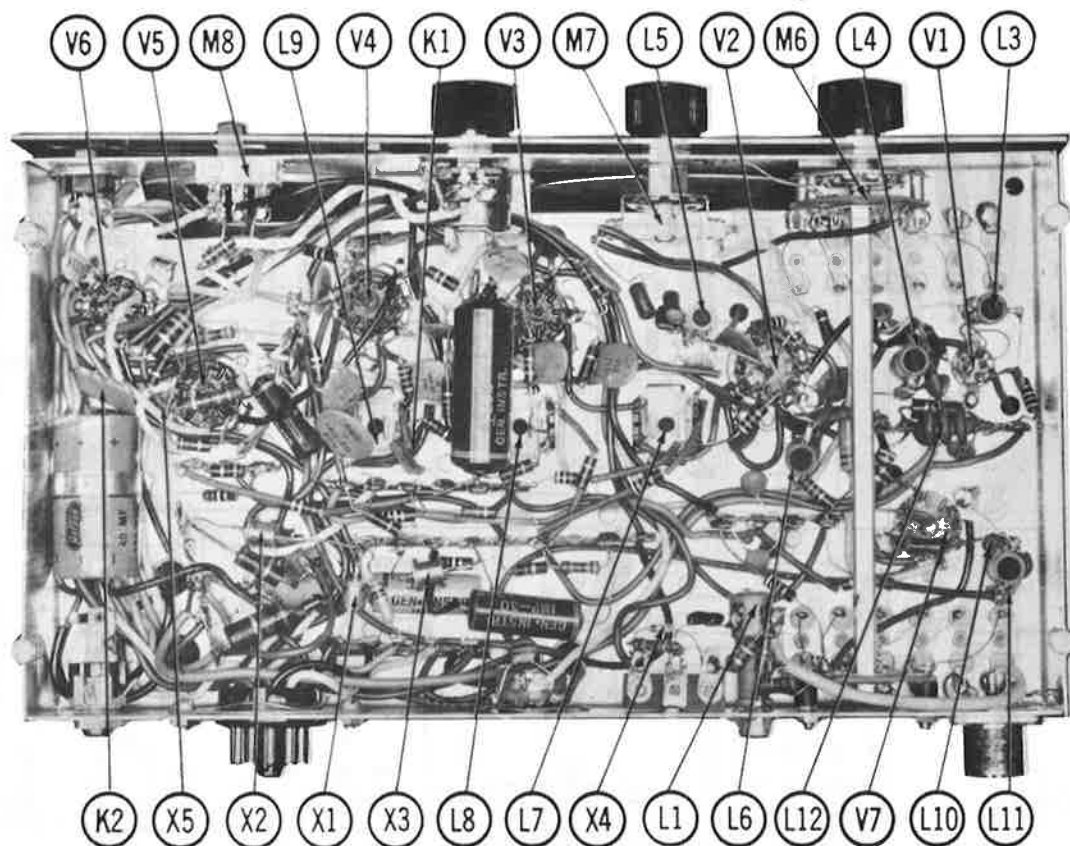
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

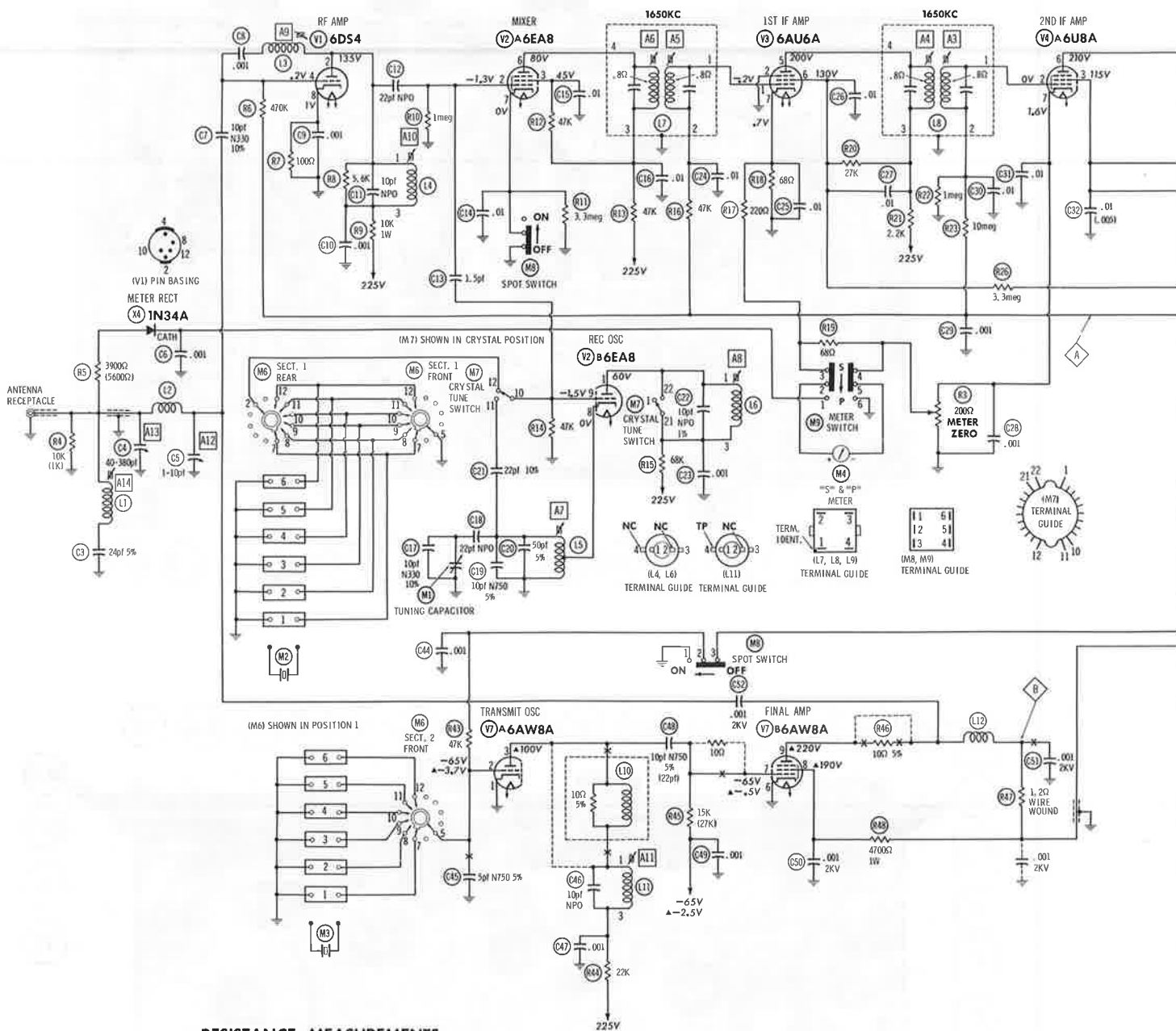
Connect either 50Ω dummy load or the normally used antenna system.

INDICATOR	ADJUST	REMARKS
Front panel meter (meter switch in P).	A11	Key transmitter. Adjust for maximum, then back off slightly to insure stable oscillations.
DC milliammeter in series with low side of L12 (V7 Plate).	A12, A13	Key transmitter. Adjust A12 for minimum and A13 for maximum. If meter exceeds 20-22ma, detune A13 slightly. Readjust A12 for minimum. Repeat as required to not exceed 20-22ma when A13 is adjusted for maximum.
	A14	Key transmitter and adjust A14 for MINIMUM interference on lower TV channels.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana







RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V1	6DS4	NC	11L, 5K	NC	2, 2meg	NC	NC	NC	100Ω	NC	FIL	NC	FIL
V2	6EA8	170K	1meg	110K	FIL	FIL	148K	0Ω	0Ω	47K			
V3	6AU6A	1, 8meg	0Ω	FIL	FIL	13300Ω	130K	58Ω					
V4	6U8A	1160K	1meg	150K	FIL	FIL	13300Ω	190Ω	0Ω	▲ 1.4meg			
V5	6F8A	2, 6meg	650K	550K	FIL	FIL	450K	0Ω	12meg	1500K			
V6	6AQ5A	500K	330Ω	FIL	FIL	1400Ω	11100Ω	500K					
V7	6AW8A	0Ω	▲ 47K	123K	FIL	FIL	0Ω	▲ 1, 6meg	15200Ω	1500Ω			
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12

NC NO CONNECTION

▲ MEASURED IN TRANSMIT POSITION*

TP TIE POINT

* MEASURED FROM ANODE OF X3

† MEASURED FROM CATHODE OF X2.

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE INDICATED.

See parts list for alternate value or application.

1. Voltage measurements taken with vacuum tube voltmeter.

2. All controls set for normal operation, no signal applied.

3. Measured values are from socket pin or terminal to common ground.

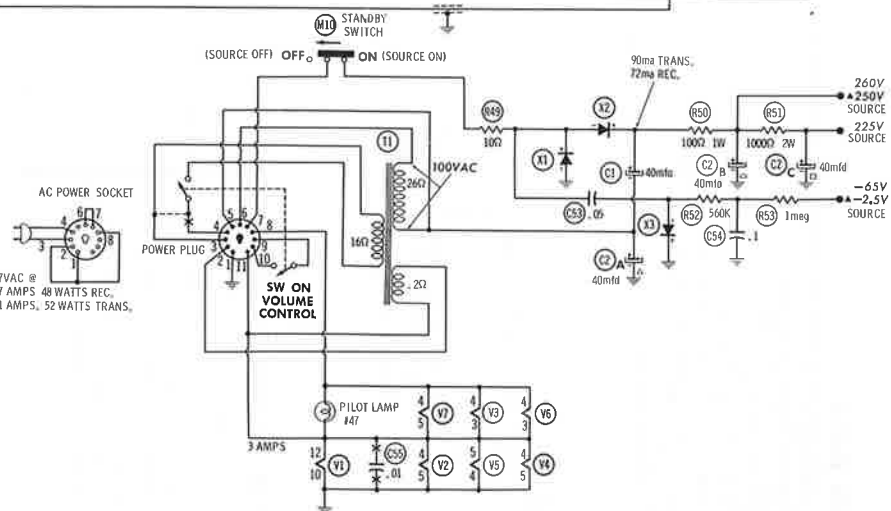
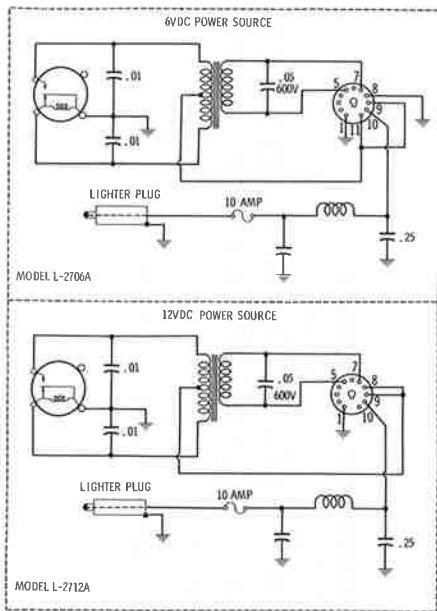
4. All terminals viewed from bottom unless otherwise designated.

5. Numbers assigned to terminals may not be found on the unit.

6. Supply voltage maintained at rated value for voltage readings.

Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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**KNIGHT MODELS KN-2500 (90SU413),
KN-2550 (90SU456)**

PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire Use BELDEN No. 8530 (Solid) Available in 12 Colors	
Shielded Antenna Lead Use BELDEN No. 8214 (Stranded) Available in 12 Colors	
8237 Low Loss (RG-8/U) Type)	
Coiled Microphone Cable Use BELDEN No. 8259 (Stranded) Miniature (RG-58/U)	
Ignition Noise Suppression Use BELDEN No. 7300-Series Spark-Plug Sets	
Bonding Strap Use BELDEN No. 8661 (3/8 In.)	

TUBES

ITEM No.	USE	GENERAL ELECTRIC			ITEM No.	USE	TYPE
		AMPEREX	RCA	SYLVANIA			
V1	RF Amp.				V5	Det.-AFC Noise Clipper	6T8A
V2	Mixer-Rec. Osc.				V6	Squeech Clamper-AF Amp	6AQ5A
V3	1st IF Amp.					Output-Modulator	6AW8A
V4	2nd IF Amp.-Speech Amp.					Trans. Osc.-Final Amp.	

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS			DIODES
			GENERAL ELECTRIC Part No.	MALLORY Part No.	SARKIS TARZIAN Part No.	
X1	90MA (Trans.)	SR846-2	GE-504	IN1096 or IN2071	IN2984 or IN547	40H or F4
X2	90MA (Trans.)	SR846-2	GE-504	IN1096 or IN2071	IN2864 or IN547	40H or F4
X3		SR846-2	GE-504	IN1096 or IN2071	IN2864 or IN547	40H or F4
X4		IN34A				1N34AS
X5		IN34A				1N34AS

① X1 and X2 may be replaced with one YB600.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOLT.	REPLACEMENT DATA			
		KNIGHT Part No.	AEROVOX Part No.	CORNELL-DUBILIER Part No.	SPRAGUE Part No.
C1	40	E238-1	PR31560	BR40-250	TC58
C2A	40				
C2B	200				
C3	350	E237-1	AFH4-85	QTT-14	TVLS-4624.5*
D	50			TD-40-250	FP425

* Not normally in distributor's stock, available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX Part No.	CORNELL-DUBILIER Part No.	ELWENCO Part No.	MALLORY Part No.	SPRAGUE Part No.
C3	24 5%		ADM-15-240	CPR-24J	DM-10-240J		MS-424
C4	40-380						
C5	1-10						
C6	.001		SI 1000	829-10	CCD-102	B210	5HK-D10
C7	10 N330 10%			LA10D1-C4	*		5HK-D10
C8	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C9	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C10	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C11	10 NPO		NPO-DI 10	C10Q22C	CCTO-100	CNO410	10TCC-Q10
C12	22 NPO		NPO-DI 22	C10Q22C	CCTO-220	CNO422	10TCC-Q22
C13	1.5						
C14	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C15	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C16	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C17	10 N330 10%			TC-10	CCD-103		10TCC-Q10
C18	22 NPO 5%			TC-10	CCD-103		10TCC-Q22
C19	10 N750 5%			TCN-10	DM-15-500J	CNO450	MS-45
C20	50 5%		ADM-15-500	C10Q1U	CCTO-220	CNO422	10TCC-Q22
C21	22 10%		NPO-DI 22	C10Q22C			
C22	10 NPO 1%						
C23	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C24	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C25	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C26	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C27	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C28	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C29	.001		SI 1000	LA10D1-C4	CCD-102	B210	5HK-D10
C30	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C31	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C32	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C33	.01		BPD-01	BYA10S1	CCD-103	B110	5HK-S10
C34	1.50V		TTD-1	H6	TA010		TG-P10
C35	.001		SI 1000	LA10D1-C4	CCD-102	B210	5HK-D10
C36	.02 200V		P288N-02	DPMS4S2	4DP-2-203	PVC212	2TM-S20
C37	.01		SI 10000	BYA10S1	CCD-103	B210	5HK-S10
C38	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C39	100 N750		N750-DI 100	C10T1U	CCIN-101	CN7310	10TCC-T10
C40	.005		BPD-005	DPMS4P25	CCD-502	B250	5HK-D50
C41	.25 400V		P488N-25	BYA10D5	4DP-5-254	PVC4025	4TM-P25
C42	.005		BPD-005	BYA10D5	CCD-502	B250	5HK-D50
C43	.002		BPD-002	BYA10D2	CCD-202	B220	5HK-D20
C44	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C45	5 N750 5%		NPO-DI 10	C10V5U	CCD-102	CN7550	10TCC-V50
C46	10 NPO		BPD-01	C10Q1C	CCTO-100	CNO410	10TCC-Q10
C47	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C48	.001		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C49	.001 2KV		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C50	.001 2KV		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C51	.001 2KV		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C52	.001 2KV		BPD-001	BYA10D1	CCD-102	B210	5HK-D10
C53	.05 400V		P288N-1	PKM3P1	2DP-3-104	GEM201	2TM-P10
C54	.1 200V		BPD-01	BYA10S1	CCD-103	B110	5HK-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Alternate Value.

PARTS LIST AND DESCRIPTION(cont)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	2meg	V329-4	F2-2meg, SF012, KR-2, or (B-16, KR-2)	A47-2meg-Z, FS-3, SWE-20	Q13-139, 76-2, or (BU1, CF27, SS14, WF)*
R2	Squelch	4meg	V339-1	F1-4meg, SF012 or (B-86)	A47-4meg-S, FS-3	Q11-240, or (BU1, CF22, SS14, DC1)*
R3	'S' Meter Zero Adj.	200Ω	P-325-3	V-200 ① or (WN-201)	U39-200 ①	SK5) or (BU1, WF1, SS8)*

① Insulate control from chassis and solder original center terminal lead to metal case of control.

* "SNAPTROL."

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		KNIGHT PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.
L1	54MC Trap	C191-2				
L2	Final Plate	C194-1				
L3	Neutralization Coil	C1016-1				
L4	RF Plate Coil	C180-2				12 Turns
L5	Rec. Osc. Coil	O188-5				
L6	Rec. Osc. Plate	C180-2				
L7	1st IF (1650KC)	I110-5	1732		TA632	
L8	2nd IF (1650KC)	I110-5	1732		TA632	
L9	3rd IF (1650KC)	I110-5	1732		TA632	
L10	RF Choke ①	O180-2				2 Turns on 100
L11	Trans. Osc. Plate	C185-12				
L12	RF Choke(500uh)		6174		RTC-8582	T834

① Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	KNIGHT PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T1	117V @ .51A	100V @ 6.1A @ .09A	2.9A	PT1015-1				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI	SEC.	KNIGHT PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T2	18K Tapped @ 600Ω	3-4Ω	T184-5				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		KNIGHT PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-402	S719-1	3A05	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	KNIGHT PART NO.	REPLACEMENT DATA
K1	Detector RF Filter	47K, 100mmf, 100mmf	C209-1	Aerovox PA-97 Centralab PC-50 Sprague D-1 Aerovox PA-112-1 Centralab PC-70 Mallory MS111 Sprague T-3
K2	Audio Coupling	500K, 500K, .005mfd, 250mmf	2066-1	

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	Tuning Capacitor	V235A	
M2	Receiver Crystal		
M3	Trans. Crystal		
M4	"S" Meter	8109-2	Ceramic
M5	Microphone Ass'y.	M879-4	
M6	Channel Switch	BS876-1	
M7	Crystal-Tune Switch	8111-3	
M8	Spot Switch		
M9	Meter Switch		DPDT Slide
M10	Standby Switch		DPDT Slide SPST Slide

CABINETS & CABINET PARTS
(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Dial Scale Tuning Knob	DS825-2 K4026-2	Knob with Indicator Line	K4026-1

KNIGHT MODELS KN-2500 (90SU413), KN-2550 (90SU456)



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME : Knight Model KN-2560 (90SX467)

SUPPLIER : For Current Address, see Master Index

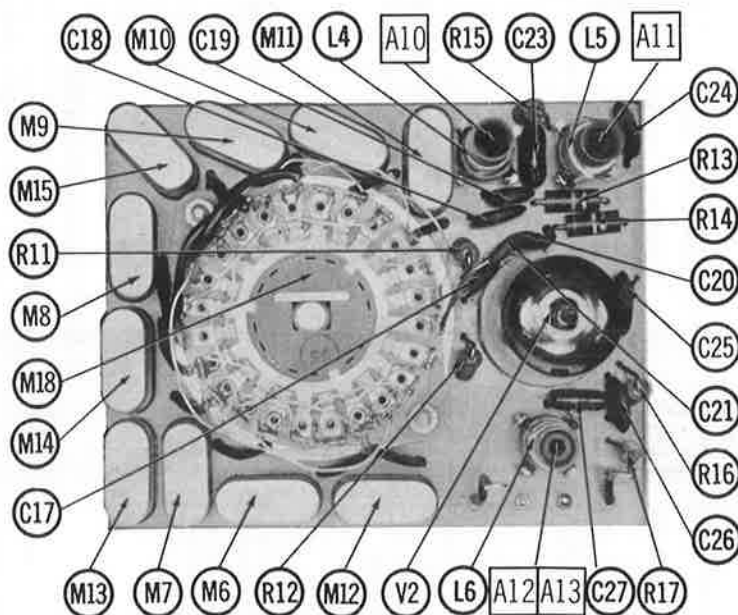
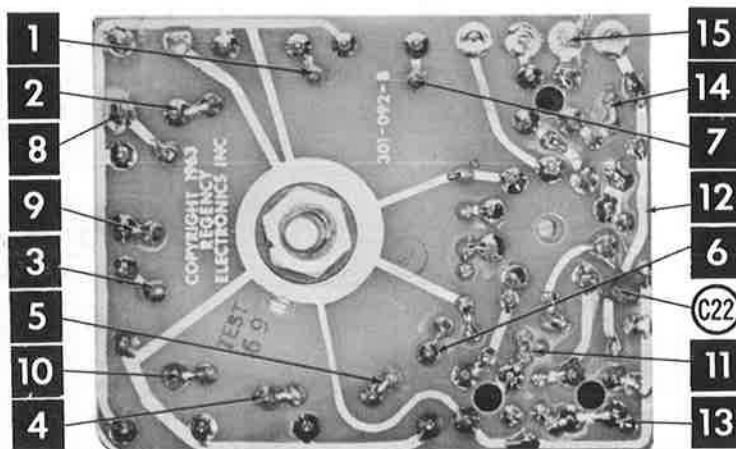
TYPE SET : 12 Tube Transceiver

POWER SUPPLY : 110 — 120 Volts AC, 60 Cycles (or)
12 Volt Storage Battery

RATING : 73 Watts, .69 Amp. @117VAC (Trans.)
71 Watts, .66 Amp. @117VAC (Rec.)

TUNING RANGE: ALL 23 CB Channels

KNIGHT MODEL KN-2560 (90SX467)



A Howard W. Sams
CIRCUITRACE[®] Photo

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana