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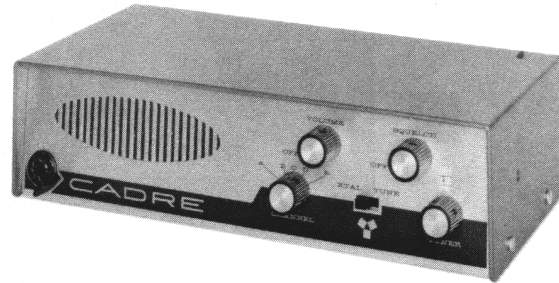
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PHOTOFACT[®] with

CIRCUITRACE[®]

TRADE NAME : Cadre Model 510
 SUPPLIER : Cadre Industries Corp.
 Endicott, N. Y.
 TYPE SET : 18 Transistor Transceiver
 POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles
 (or) 12 Volt Storage Battery
 RATING : 5 Watts, .19 Amp. @ 117 VAC
 .8 Amp. @ 12.6VDC
 TUNING RANGE : Any 5 CB Channels 1 thru 22
 Receiver may be continuously tuned.



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A4..... GENERAL CEMENT #5009, 8195, 8274..... WALSCO #2515, 2516, 2532
 A5, A7 thru A10, A15, A16..... GENERAL CEMENT #5000, 5003, 5066..... WALSCO #2515, 2516, 2518
 A6, A11, A12, A14..... GENERAL CEMENT #8282, 8606, 8606-L... WALSCO #2526, 2541, 2542

RECEIVER ALIGNMENT

Connect output meter across voice coil except for step 3.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	High side thru .05mfd to base of X4, low side to common. (Tune to 455K, 400v Mod.)	Any	A1, A2, A3	Adjust for maximum.
2.	High side thru .05mfd to base of X2, low side to common. (Tune to 1.68MC, 400v Mod.)	Any	A4	Adjust for maximum.
3.	Not Used	Center Channel	A5	Connect DC probe of VTVM to emitter of X2, low side to common. Adjust for maximum.
4.	High side to antenna terminal, low side to common. (Tune to channel frequency.)	Channel Desired	A6, A7	Adjust for maximum.
5.	"	Center Channel Used.	A8	Crystal-Tune switch to tune position. Adjust for maximum.

TRANSMITTER ALIGNMENT

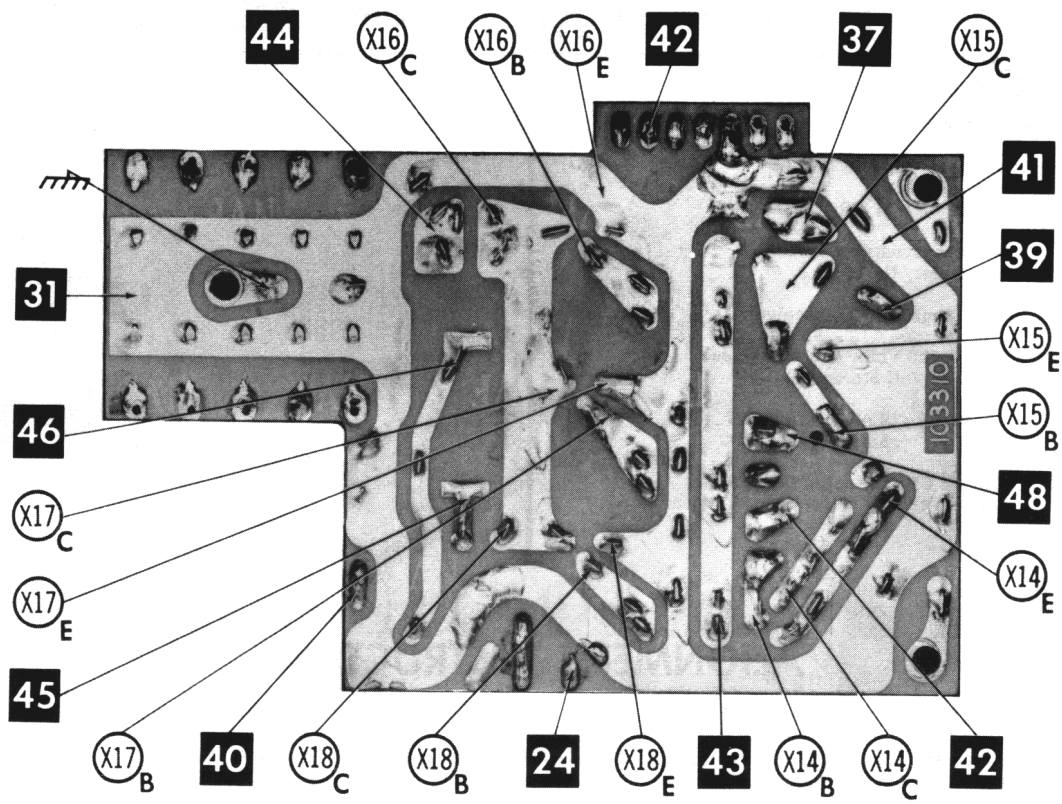
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

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.

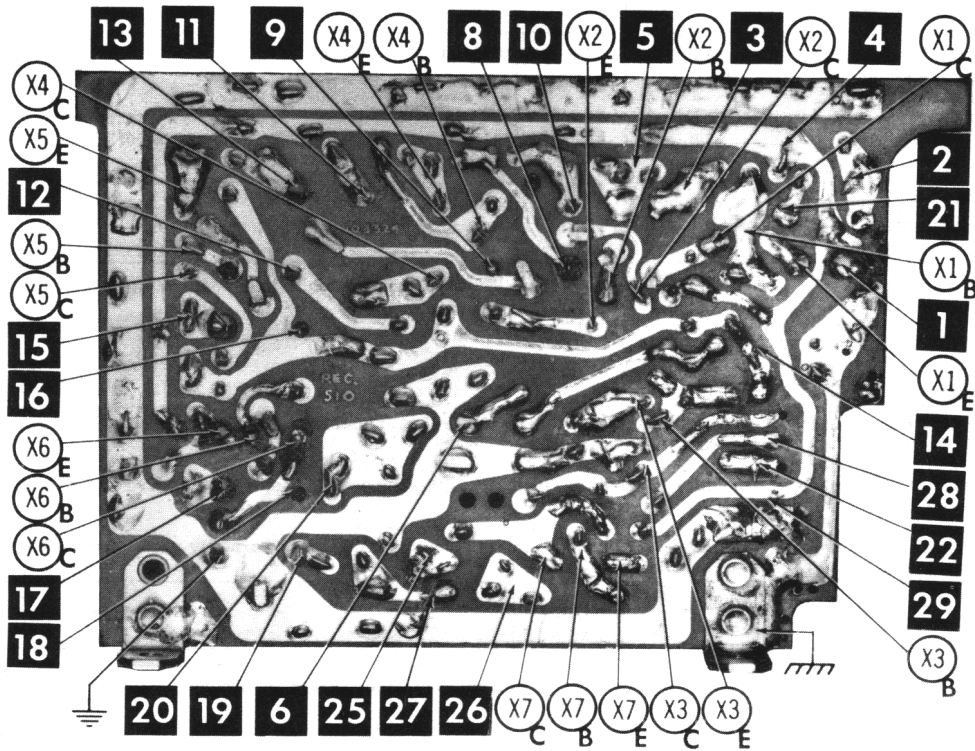
		ADJUST	REMARKS
Connect dummy load or antenna. Remove shorting wire from terminal 2 and 5 of power plug. Connect 0-500MA meter between these two pins.		A9, A10, A11	Key transmitter. Adjust for maximum output (current reading must not exceed 380MA). Replace shorting wire.
Connect Antenna.		A12	MINIMUM interference on lower TV channels.

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



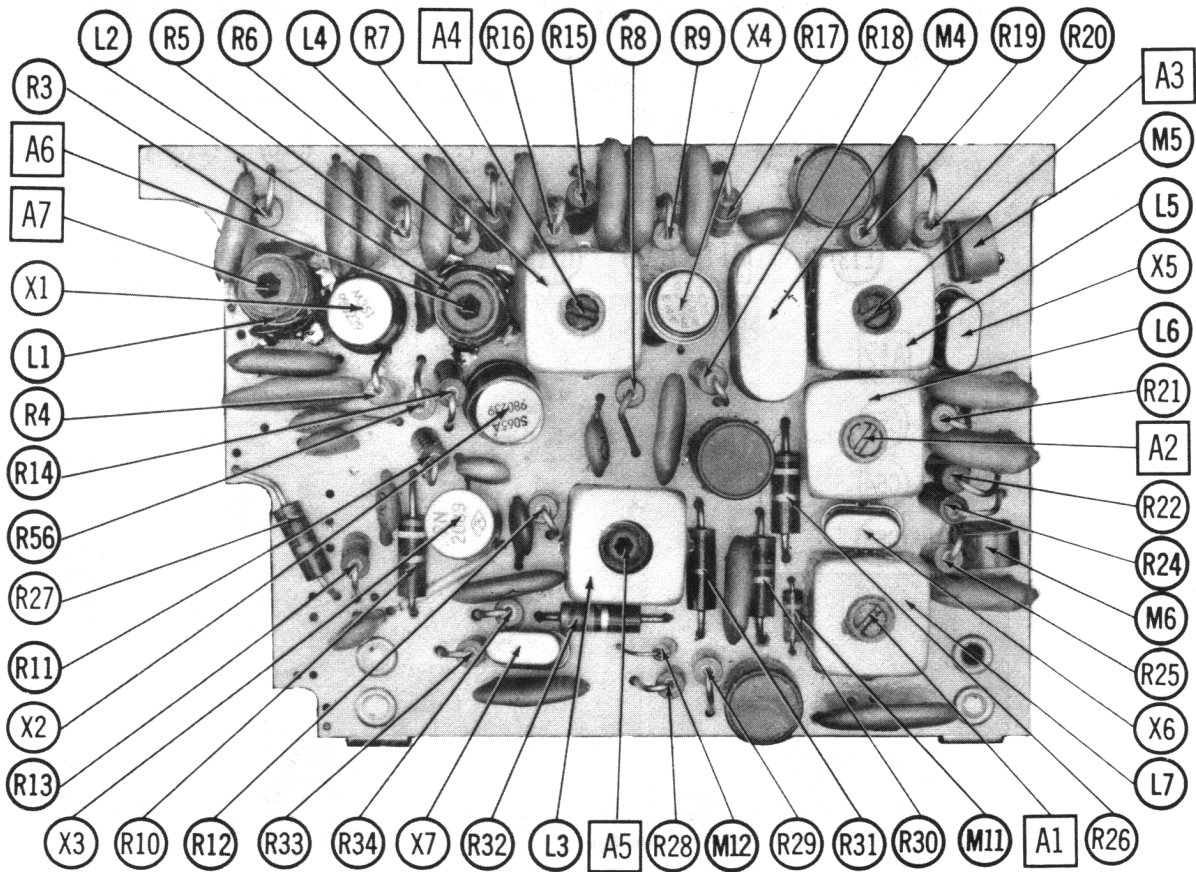
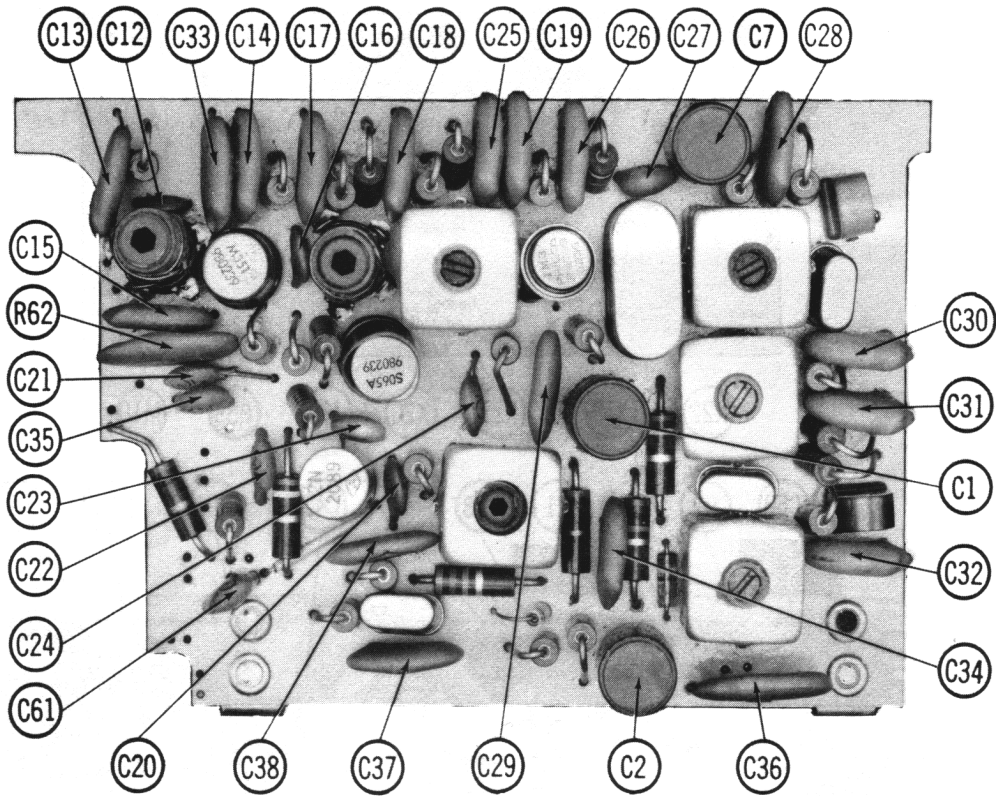
A Howard W. Sams **CIRCUITRACE** Photo

TRANSMITTER PRINTED BOARD



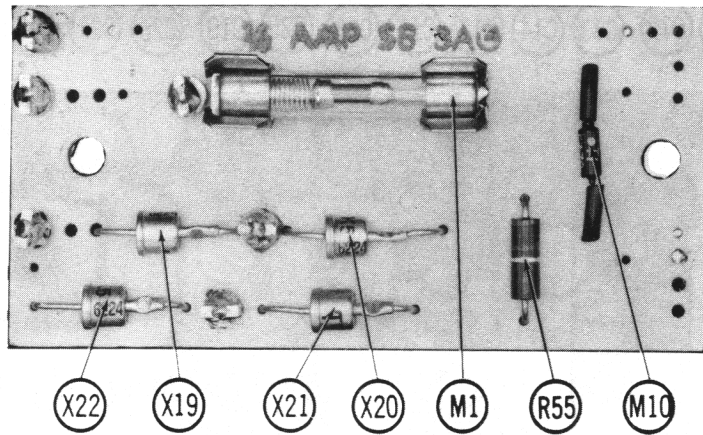
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RECEIVER PRINTED BOARD

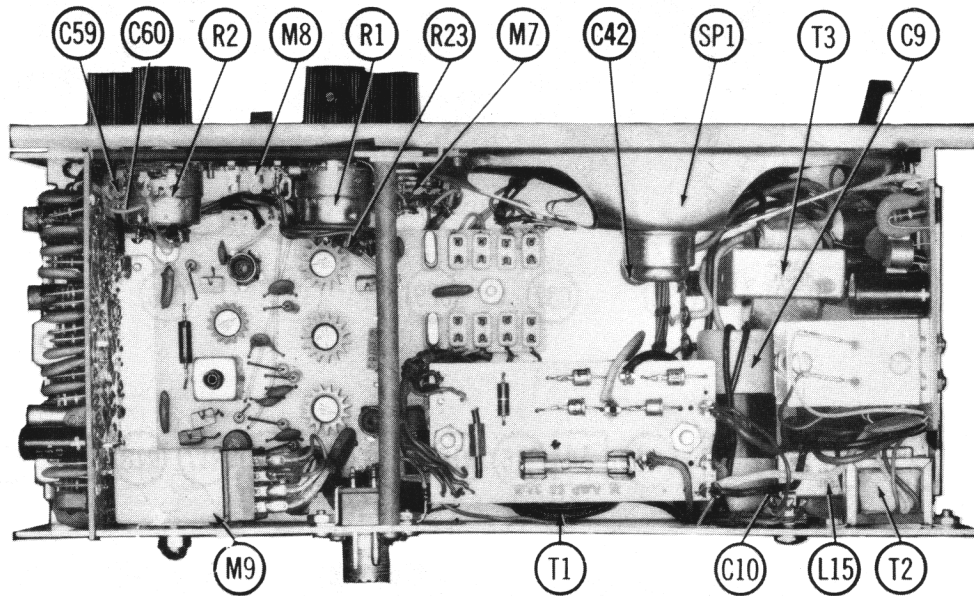


RECEIVER PRINTED BOARD

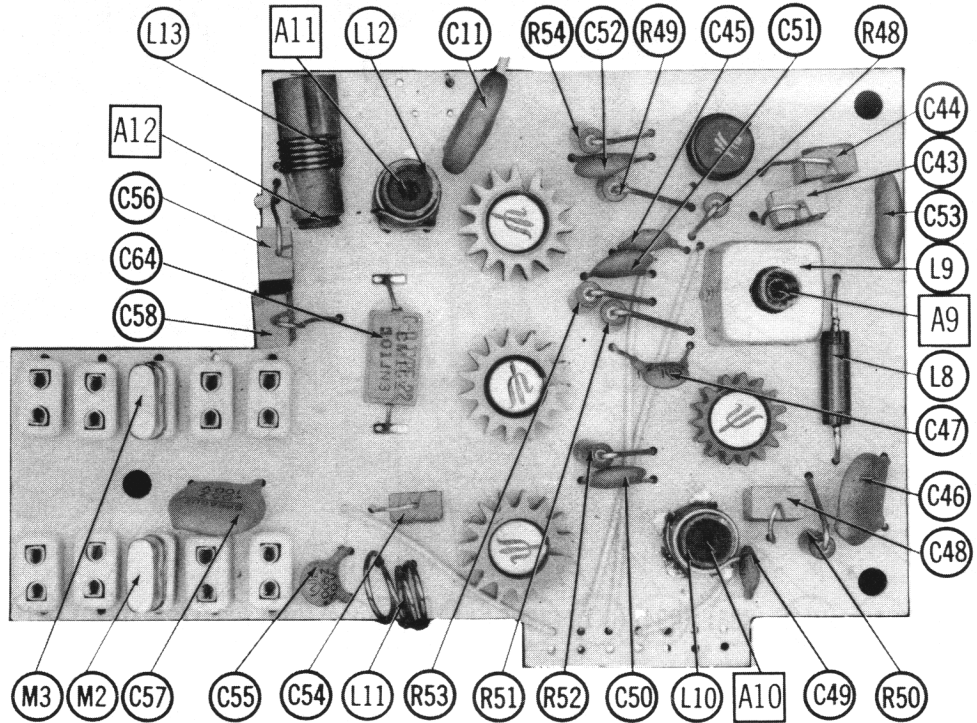
POWER



TOP VIEW



TRANS.



PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	M351	RF Amp.				
X2	S065A	Mixer				PNP
X3	2N2089	Receiver Oscillator				PNP
X4	2N1789	2nd Converter				PNP
X5	R539	1st IF Amp.				PNP
X6	R539	2nd IF Amp.				PNP
X7	M108	1st AF Amp.		2N406		PNP
X8	2N1274	1st Squelch Amp.		2N591		PNP
X9	2N1274	2nd Squelch Amp.		2N591		PNP
X10	2N1274	2nd AF Amp. - Speech Amp.		2N591		PNP
X11	2N1274	Driver		2N301		PNP
X12	2N250	Output-Modulator		2N301		PNP
X13	2N250	Output-Modulator				PNP
X14	PT856	Transmit Oscillator				PNP
X15	PT856	Transmit Driver				PNP
X16	PT857	Final Amplifier				PNP
X17	PT857	Final Amplifier				PNP
X18	PT857	Final Amplifier				PNP

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	CADRE PART No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X19	.500A	103318		1N3193	10H
X20	.500A	103318		1N3193	10H
X21	.500A	103318		1N3193	10H
X22	.500A	103318		1N3193	10H

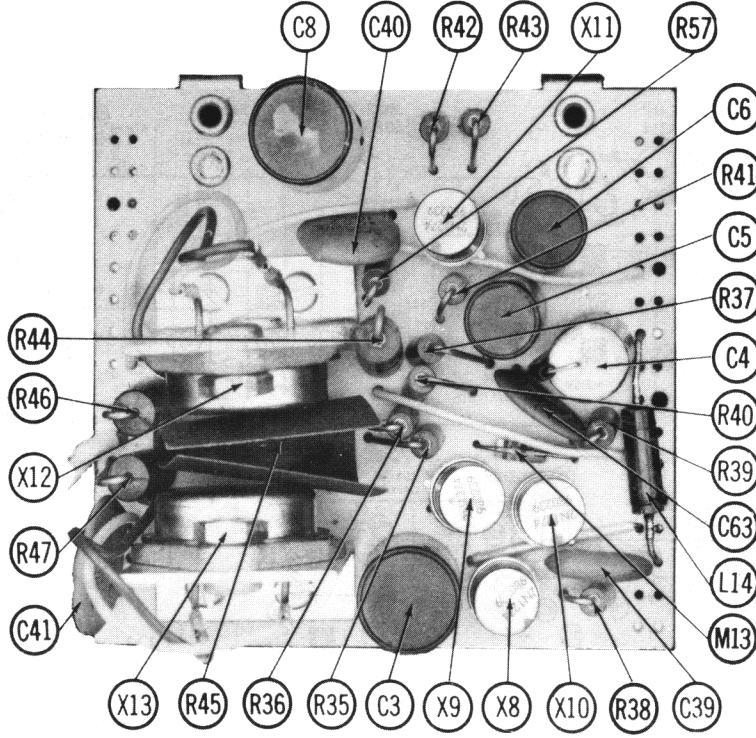
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOILT.	REPLACEMENT DATA							
			CADRE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	15	15	101013	BCD15015	ECPB409	MTL-10	MLV15-15	MLV15-15	TT15X15	VL-1168
C2	5	12	101115	BCD121005	ECPB405	MTL-3	MLV15-12	MLV15-12	TT12X15	VL-1124
C3	100	3	100689	BCD12100	ECPB417	MTL-19	MLV100-12	MLV100-12	TT12X100	VL-1140
C4	100	3	100689	BCD13100	ECPB417	MTL-22	MLV100-3	MLV100-3	PE1T400	VL-1051
C5	5	15	101431	BCD151005	ECPB405	MTL-3	MLV15-15	MLV15-15	PE1S35	VL-1064
C6	50	6	101113	BCD15050	ECPB115	MTL-15	MLV50-6	MLV50-6	TT6X50	VL-1094
C7	15	15	101013	BCD15015	ECPB409	MTL-10	MLV15-15	MLV15-15	TT15X15	VL-1168
C8	100	12	100656	BCD12100	ECPB417	MTL-19	MLV100-12	MLV100-12	TT12X100	VL-1140
C9	1000	15	101404	FRS1230	BR100015	QTI-32	ID-1000-15	ID-1000-15	TC1501	IYA-1163
C10	1000	15	101404	FRS1230	BR100015	QTI-32	ID-1000-15	ID-1000-15	TC1501	IYA-1163

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA							
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	CENTRALAB PART No.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.		
C11	.001		DI 1000	DM-102	H-05D1	H-05D1	CCD-102	CCD-102	GP210	5GA-D1
C12	.33		DI 33	DD-330	L10033	L10033	CCD-330	CCD-330	GP433	5GA-Q33
C13	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C14	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C15	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C16	.33		DI 33	DD-330	L10033	L10033	CCD-330	CCD-330	GP433	5GA-Q33
C17	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C18	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C19	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C20	.47		DI 47	DD-470	L10047	L10047	CCD-470	CCD-470	GP447	5GA-Q47
C21	.005		BD-005	DD-502	BYA10D5	BYA10D5	CCD-502	CCD-502	B-250	5HK-D50
C22	.005		BD-005	DD-502	BYA10D5	BYA10D5	CCD-502	CCD-502	B-250	5HK-D50
C23	.330		BFD-005	DD-502	BYA10D5	BYA10D5	CCD-502	CCD-502	B-250	5HK-D50
C24	.005		BFD-005	DD-502	BYA10D5	BYA10D5	CCD-502	CCD-502	B-250	5HK-D50
C25	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C26	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50

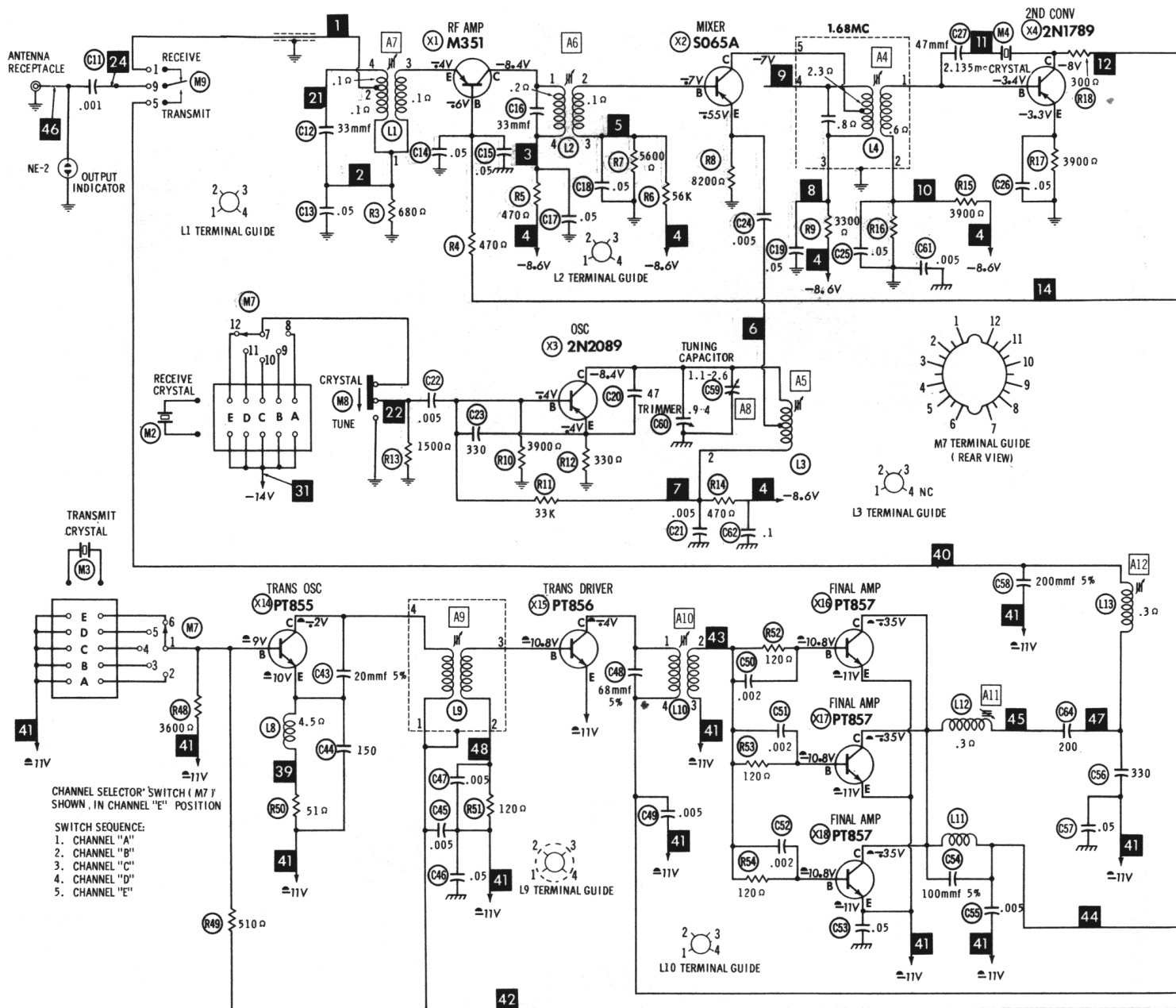
AUDIO BOARD



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA							
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	CENTRALAB PART No.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.		
C27	.47		DI 47	DD-470	L10047	L10047	CCD-470	CCD-470	GP447	5GA-Q47
C28	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C29	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C30	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C31	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C32	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C33	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C34	.05		TTD-05	DDA-503	H-05S5	H-05S5				TG-S50
C35	.001		DI 1000	DD-1000	H-08D1	H-08D1	CCD-102	CCD-102	GP210	5GA-D10
C36	.2	#101502	TTD-1	DDA-104	H-08P1	H-08P1				TH-P10
C37	.2	#101502	TTD-1	DDA-104	H-08P1	H-08P1				TH-P10
C38	.05		TTD-05	DDA-503	H-06S5	H-06S5				TG-S50
C39	.05		TTD-05	DDA-503	H-06S5	H-06S5				TG-S50
C40	.05		TTD-05	DDA-503	H-06S5	H-06S5				TG-S50
C41	.1		TTD-1	DDA-104	H-06P1	H-06P1				TH-P10
C42	.05		TTD-05	DDA-503	H-06S5	H-06S5				TG-S50

CADRE MODEL 510



ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED

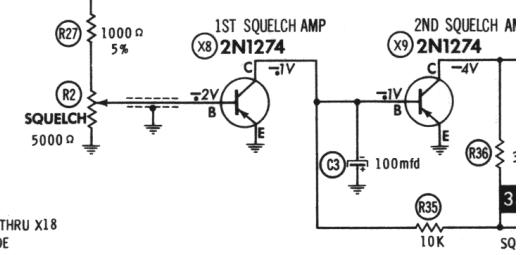
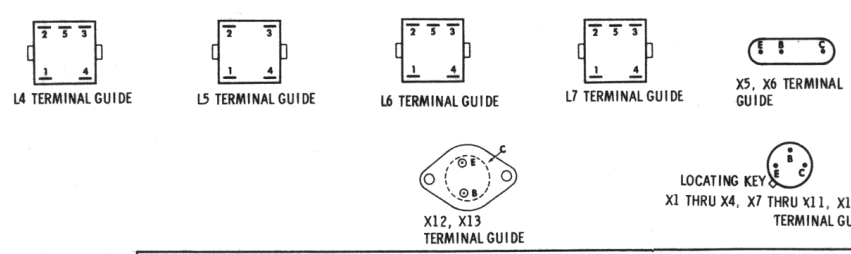
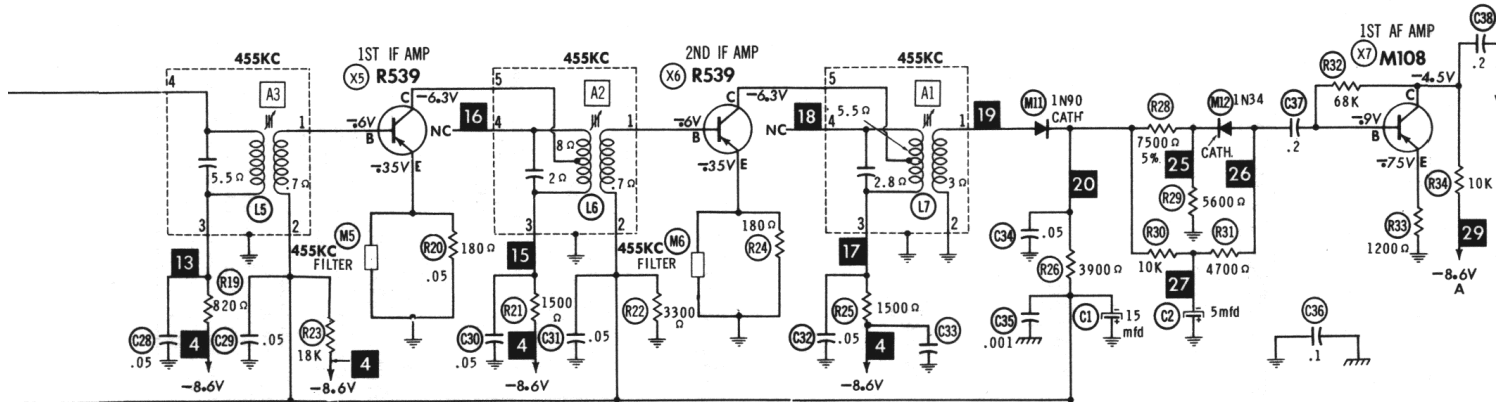
▲ MEASURED IN TRANSMIT POSITION

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

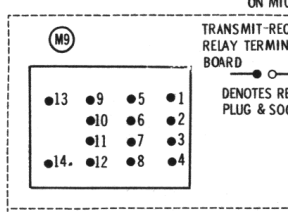
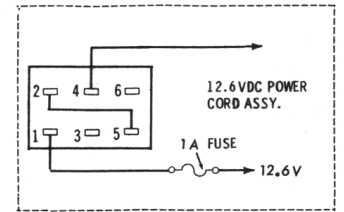
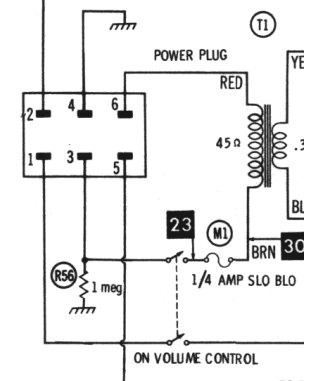
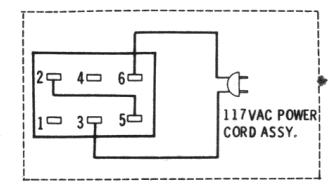
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

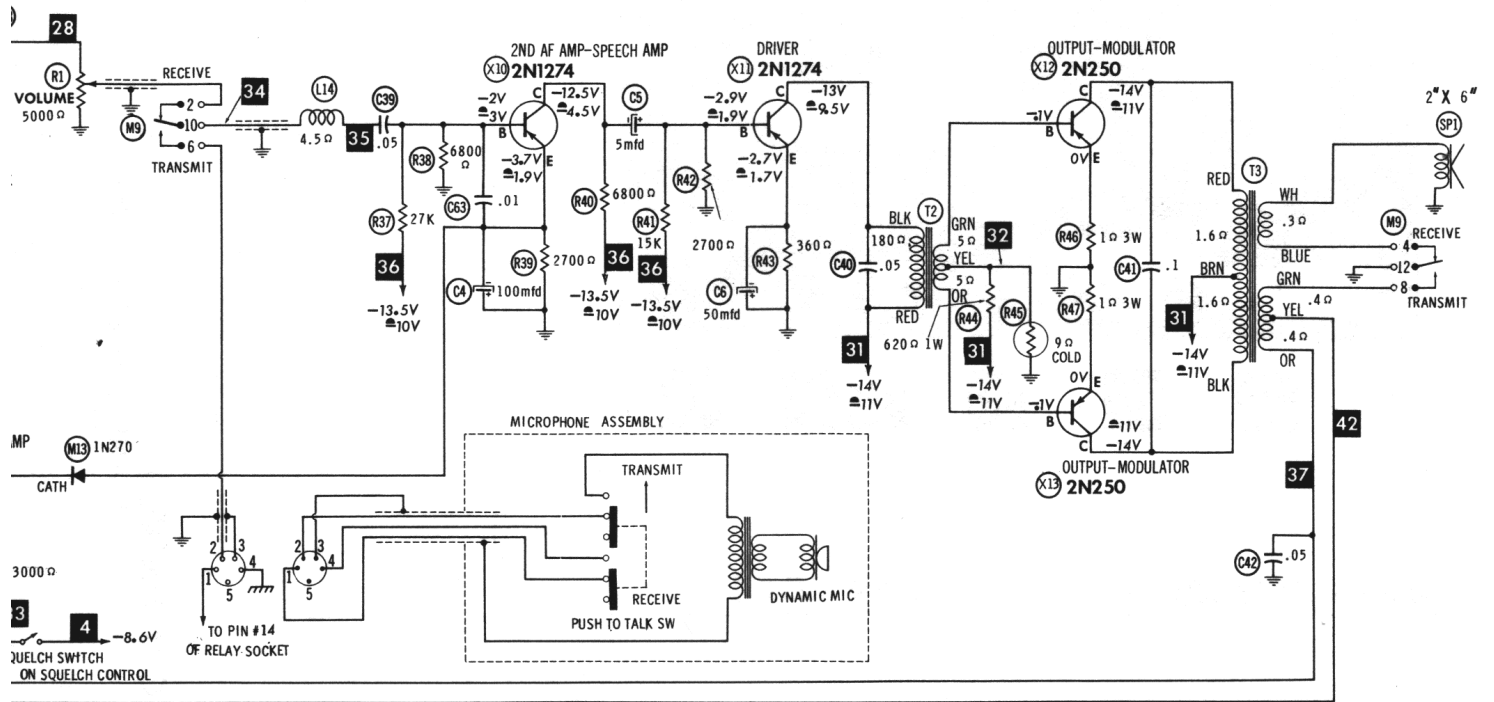
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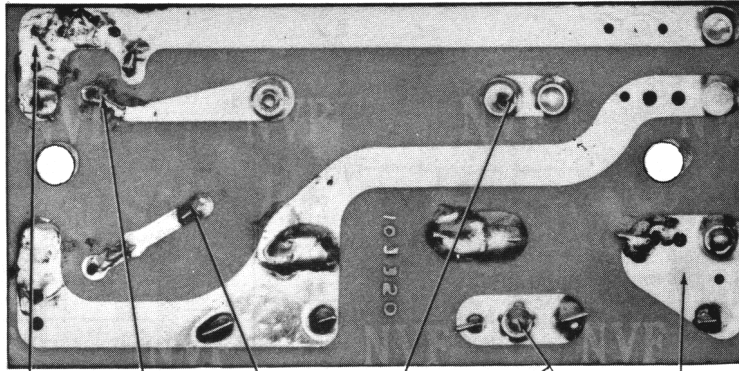


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.



TO P ON MIC

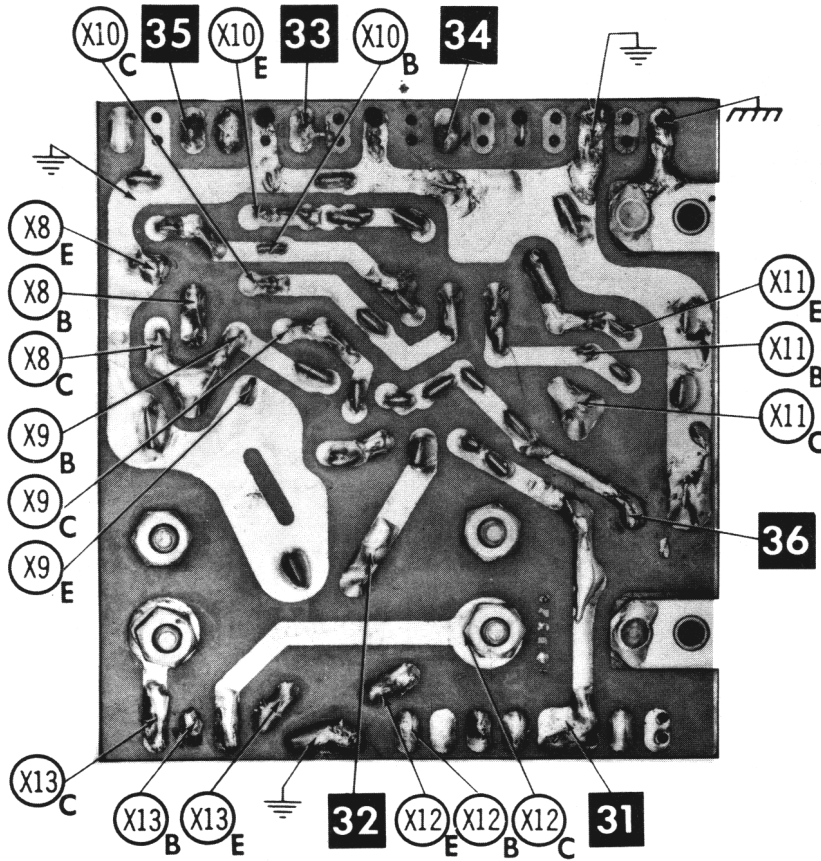




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A Howard W. Sams **CIRCUITRACE**® Photo

POWER BOARD



A Howard W. Sams **CIRCUITRACE**® Photo

AUDIO BOARD

PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELEMENCO PART No.	
C43	20 5%		1469-20	TCN-20	22P562	CM-15C-200	MS-42
C44	150		TTD-005	CK-502	HI		TG-D50
C45	.005		TTD-005	DDA-503	H-05S5		TG-D50
C46	.005		TTD-005	CK-502	HI		TG-D50
C47	.005		1469-68	TCN-68	22R5Q68	CM-15E-680	MS-468
C48	68 5%		TTD-005	CK-502	HI		TG-D50
C49	.005		TTD-005	DM-202	L10D2		5GA-D20
C50	.002			DM-202	L10D2		5GA-D20
C51	.002			DM-202	L10D2		5GA-D20
C52	.002			DM-202	L10D2		5GA-D20
C53	.05		TTD-05	DDA-503	H-05S5		MS-31
C54	100 5%		1469-100	TCN-100	22R5T1	CM-15E-101	TG-D50
C55	.005		TTD-005	CK-502	HI		TG-D50
C56	330			DDA-503	H-05S5		MS-32
C57	.05		TTD-05	TCN-200	22R5T2	CM-15E-201	
C58	200 5%		1469-200	TCN-200			
C59	1.1-2.6	#103333					
C60	9-4						
C61	.005		TTD-005	CK-502	HI		TG-D50
C62	.01		TTD-1	DA-104	H-05P1		TH-P10
C63	.01						
C64	200						

Cadre Part Number.

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 Switch)	5000Ω	101007	B-11, KR-2, or (F2-5000, SU204, KR-2)		Q13-114, 76-2	U-12, US-27 or (UA53A, US-42, SF1000)
R2	Squelch (Squelch Switch)	5000Ω	101189	B-11, KR-1, or (F2-5000, SU204, KR-1)		Q13-114, 76-1	U-12, US-26, or (UA53A, US-41, SF1000)

RESISTORS (Power and Special)

ITEM No.	RATING	WORKMAN PART No.	REMARKS	REPLACEMENT DATA	
				ITEM No.	RATING
R45	92 Cold		#101086		

COILS (RF-IF)

ITEM No.	USE	CADRE PART No.	REPLACEMENT DATA				NOTES
			MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna	103325					
L2	RF Receiver Osc.	103326					
L3	1.69MC IF	103327					
L4	1st 455KC IF	101399					
L5	2nd 455KC IF	101400					
L6	3rd 455KC IF	101018					
L7	RF Choke (50uh)	1008-500					
L8	Transmit Osc.	103312					
L9	Buffer	103313					
L10	Final	103314					
L11	Antenna Load	103315					
L12	Antenna Load	103316					
L13	RF Choke (50uh)	1008-500					

FILTER CHOKE

ITEM No.	CURRENT (Measured)	INDUCTANCE (1000~)	DC RES. (Ω)	REPLACEMENT DATA				NOTES
				CADRE PART No.	MERIT PART No.	STANCOR PART No.	THORDBARSON PART No.	
L15	.500A	175MH	.5Ω	101056				

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA			NOTES
		CADRE PART No.	MERIT PART No.	STANCOR PART No.	
T1	117VAC @ .08A (-21A)*	101110			* Transmit

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA			NOTES
		CADRE PART No.	MERIT PART No.	STANCOR PART No.	
T2	4:1	101020			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			NOTES
		CADRE PART No.	MERIT PART No.	STANCOR PART No.	
		PRI.	SEC. 1	SEC. 2	
T3	100Ω CT	101021			Ⓢ Alternate Part #104088
					25Ω CT

SPEAKER

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

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		
			CADRE PART No.	HOLDER	FUSE
M1	3AG	1/4A 125V S/B	101094		313.250 (3AG 1/4A) 125V S/B
	3AG	1A	101437		MDL 1/4 4405

MISCELLANEOUS

ITEM No.	PART NAME	CADRE PART No.	NOTES
M2	Crystal	101116	Receive (Specify Channel & Frequency)
M3	Crystal	101897	Transmit (Specify Channel & Frequency)
M4	Crystal	104018	2nd Converter (2.135MC)
M5	Trans-Filter	101029	(Clevite TF-04)
M6	Switch	103335	(Clevite TF-04)
M7	Relay	100624	Channel Selector (Rotary Wafar Type)
M8	Relay	101553	Crystal-Tune (DPDT Slide Type)
M9	Diode	101679	Receive-Transmit (4PDT, 3A)
M10	Diode	101574	(Zener E470)
M11	Diode		Audio Detector (IN90)
M12	Diode		Noise Limiter (IN34)
M13	Diode		Squelch Rectifier (IN270)

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.)