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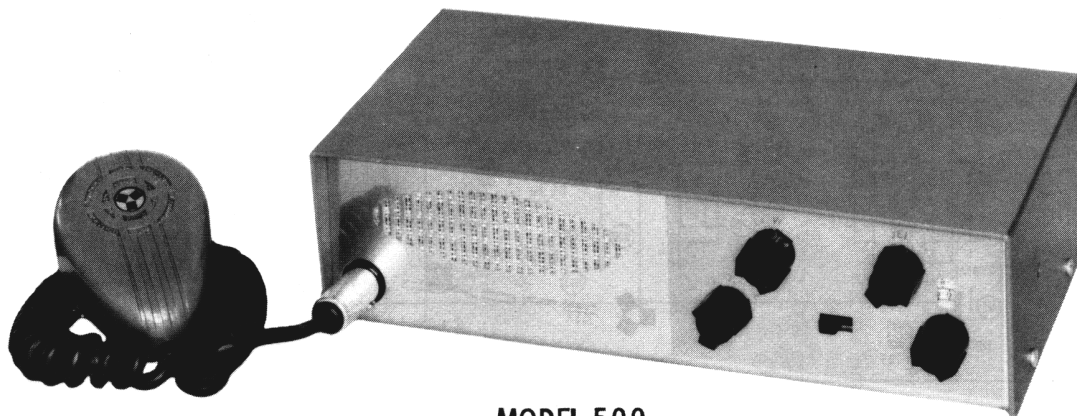
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PHOTOFACT® Folder

with CIRCUITRACE™

CADRE MODELS
500, 500-C



MODEL 500

CADRE MODELS
500, 500-C

TRADE NAME	Cadre Models 500, 500-C (Serial #4000 and Higher)
MANUFACTURER	Cadre Industries Corp.
TYPE SET	AC-Battery Operated 18 Transistor Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	RECEIVE : 5 Watts, .8 Amp. @117 Volts AC (or) .19 Amp. @12 Volts DC TRANSMIT: 14 Watts, .21 Amp. @117 Volts AC (or) .72 Amp. @12 Volts DC
TUNING RANGE	Any 5 Citizens Band Channels 1 thru 22. Receiver may be manually tuned.

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71.)

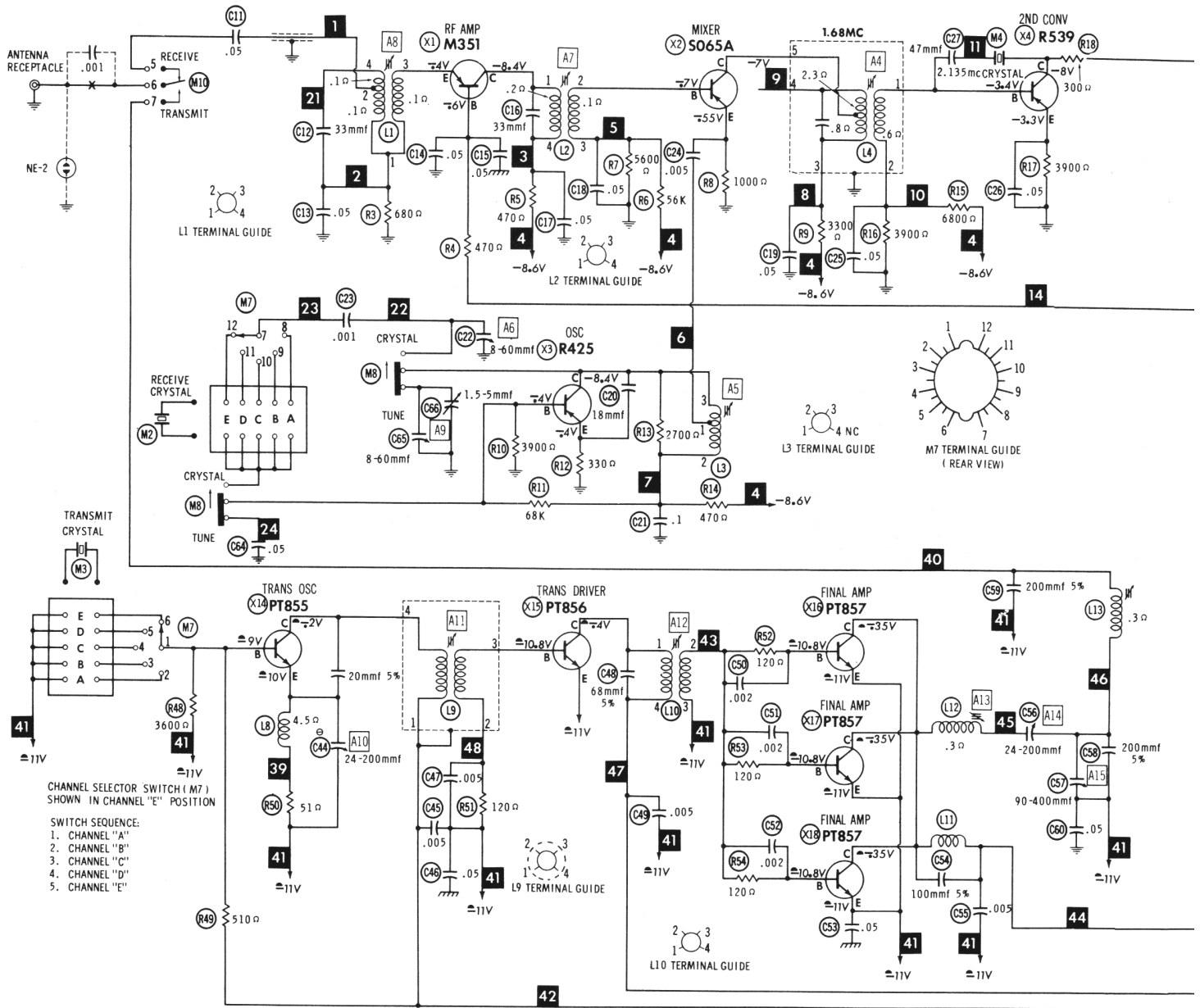
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement
LY645

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ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED
 ▲ MEASURED IN TRANSMIT POSITION

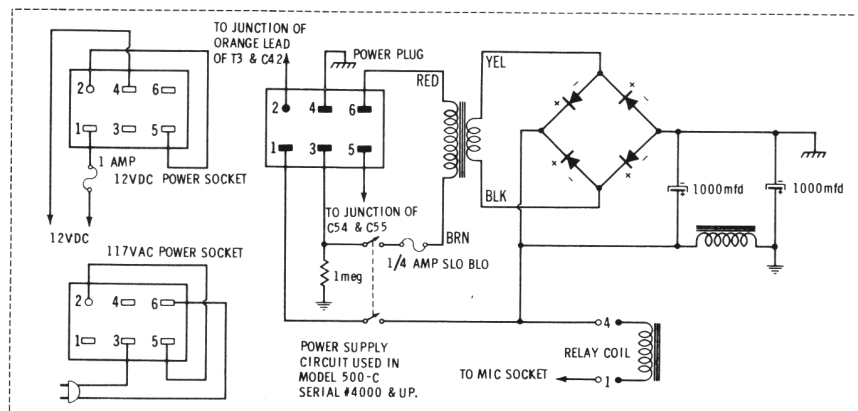
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

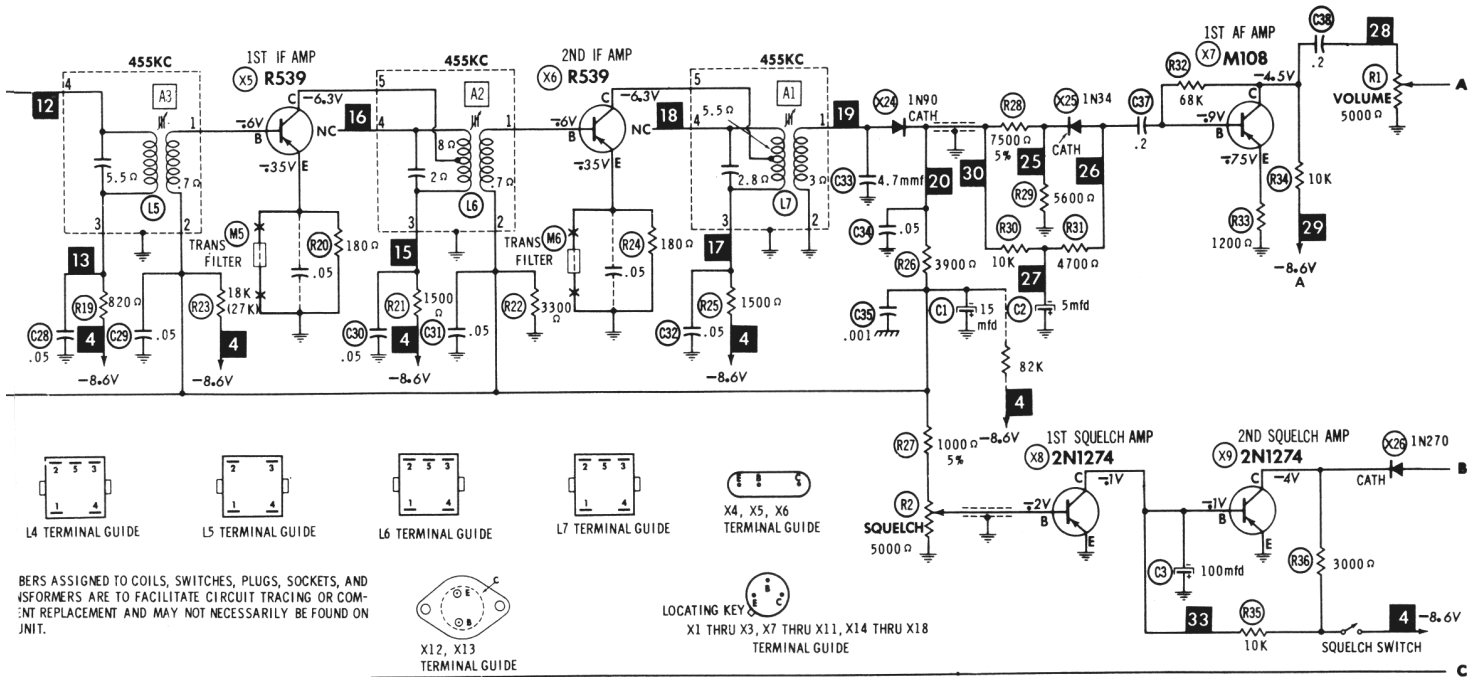
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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 ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

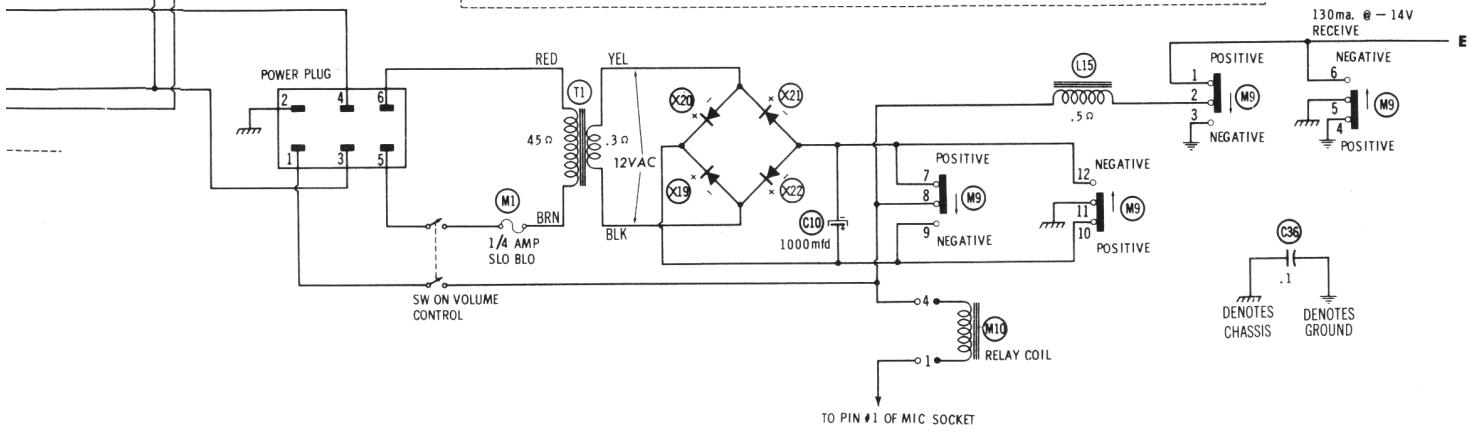
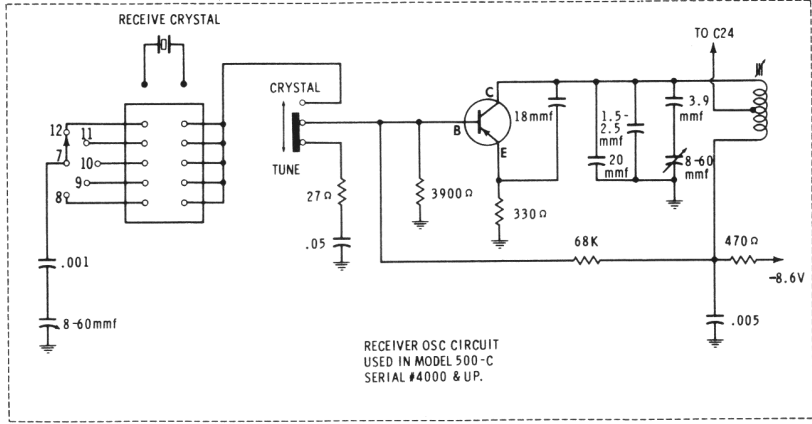
A PHOTOFACIT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

©Howard W. Sams & Co., Inc. 1963

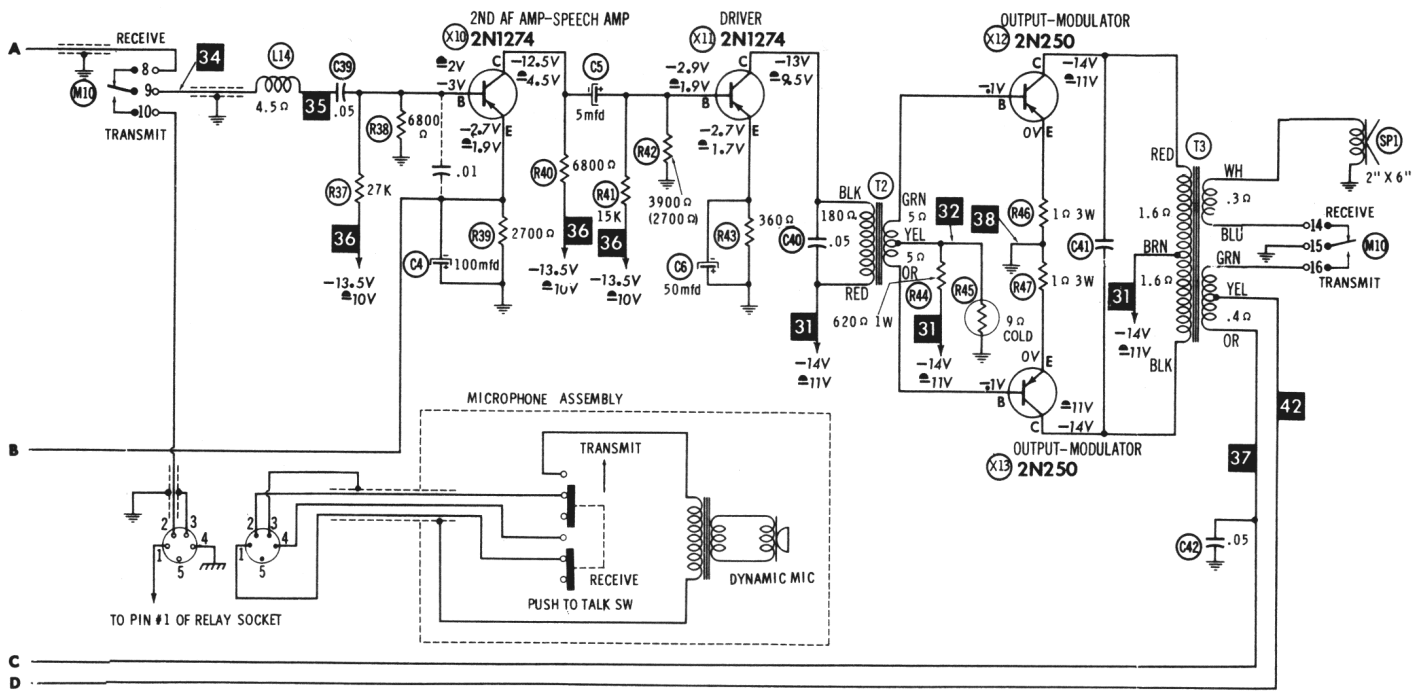




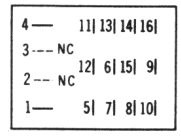
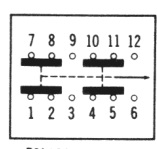
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON UNIT.



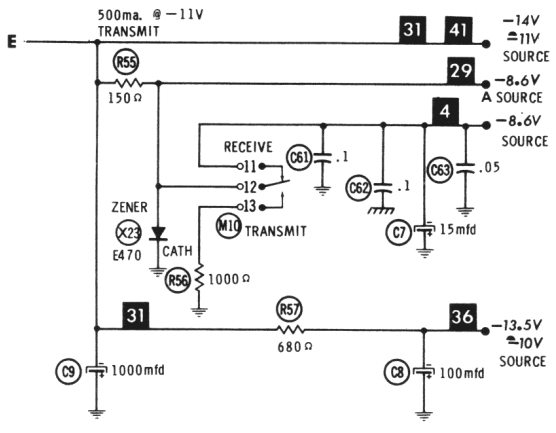
CADRE MODELS 500, 500-C



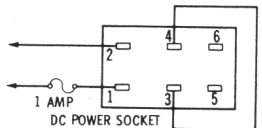
POSITIVE ← → NEGATIVE

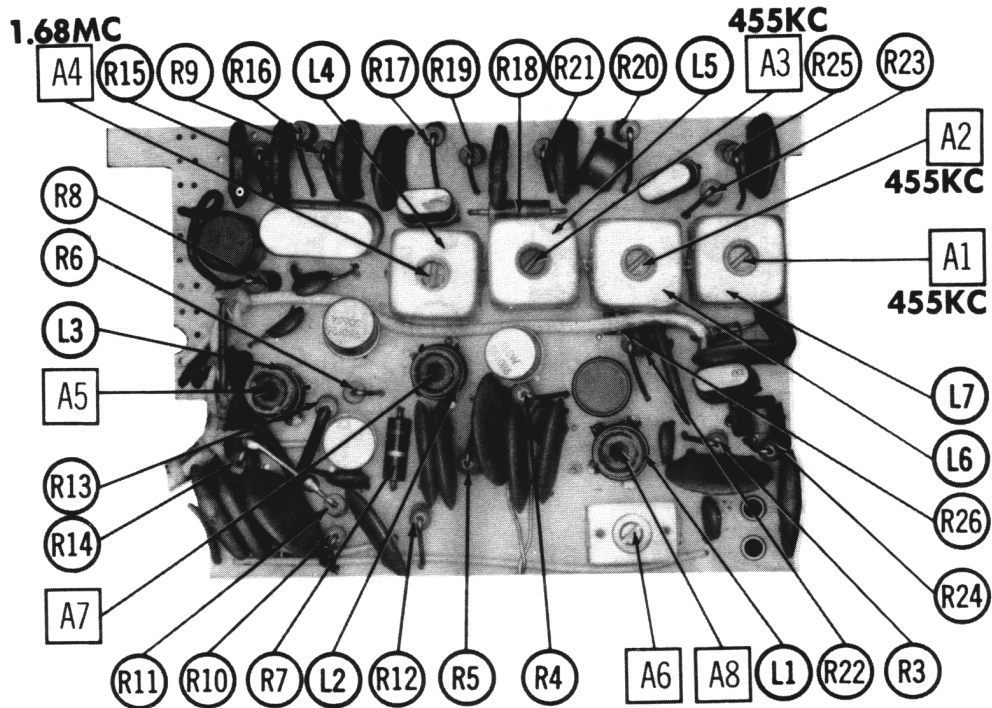
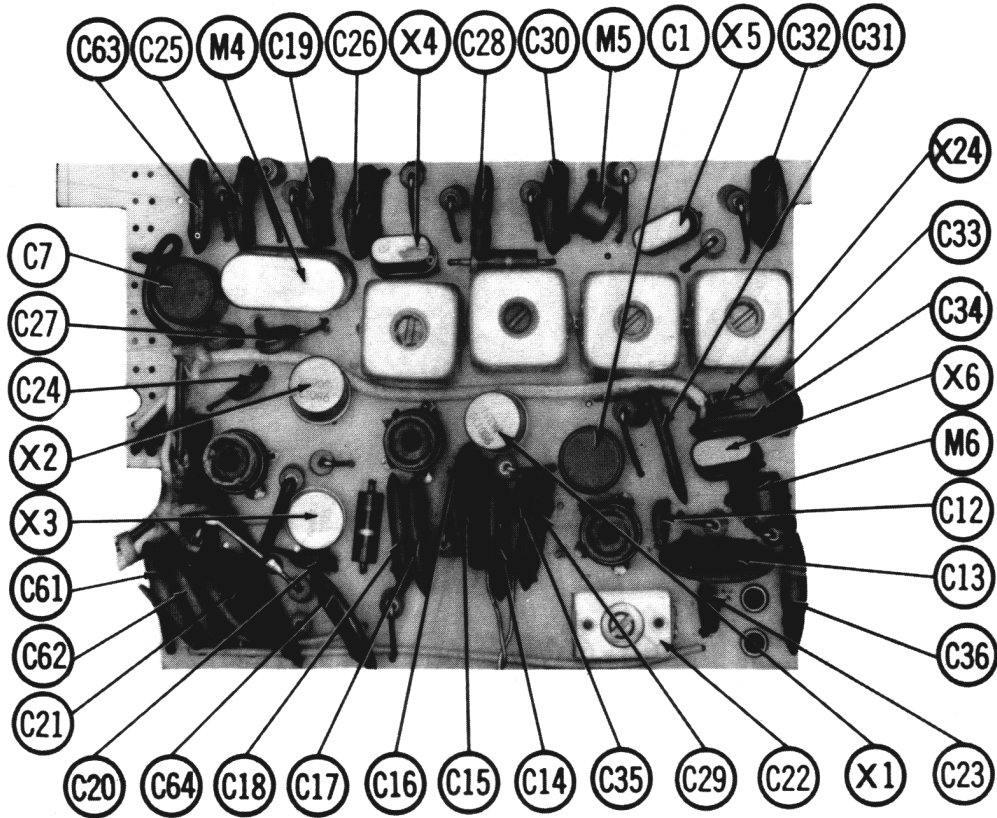


○ — ○
 DENOTES RELAY
 PLUG & SOCKET

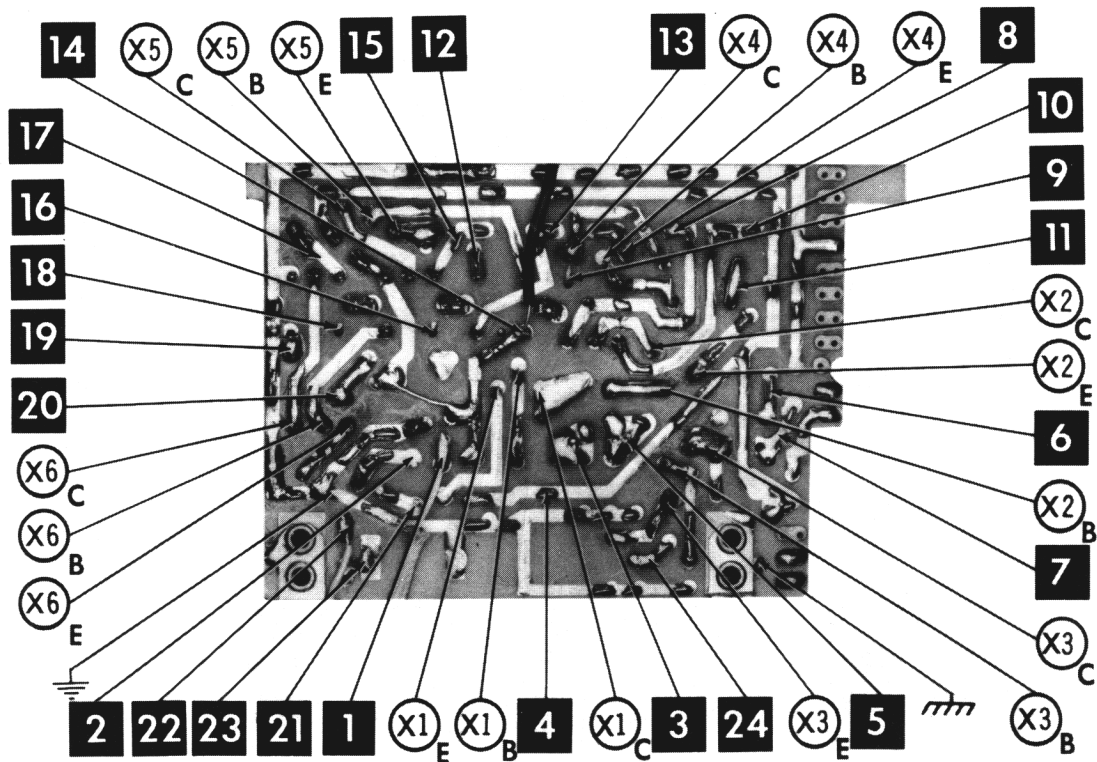


12.6VDC
 .190 A RECEIVE
 .720 A TRANSMIT

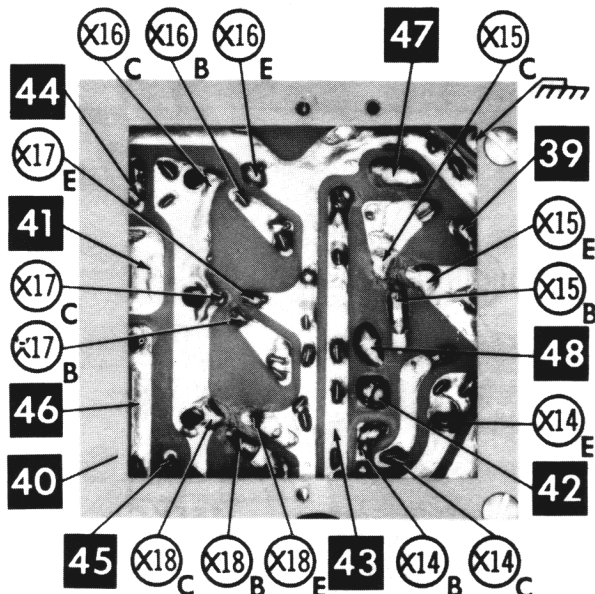




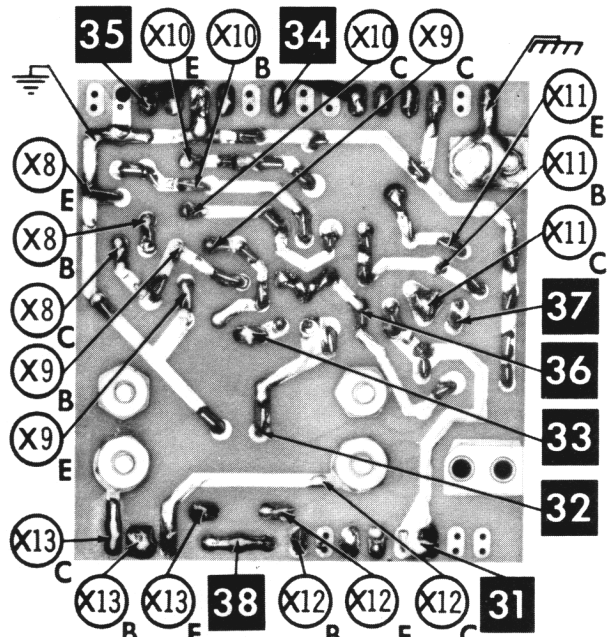
RECEIVER IF PRINTED BOARD



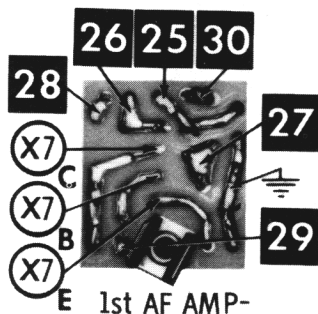
RECEIVER IF



TRANSMITTER



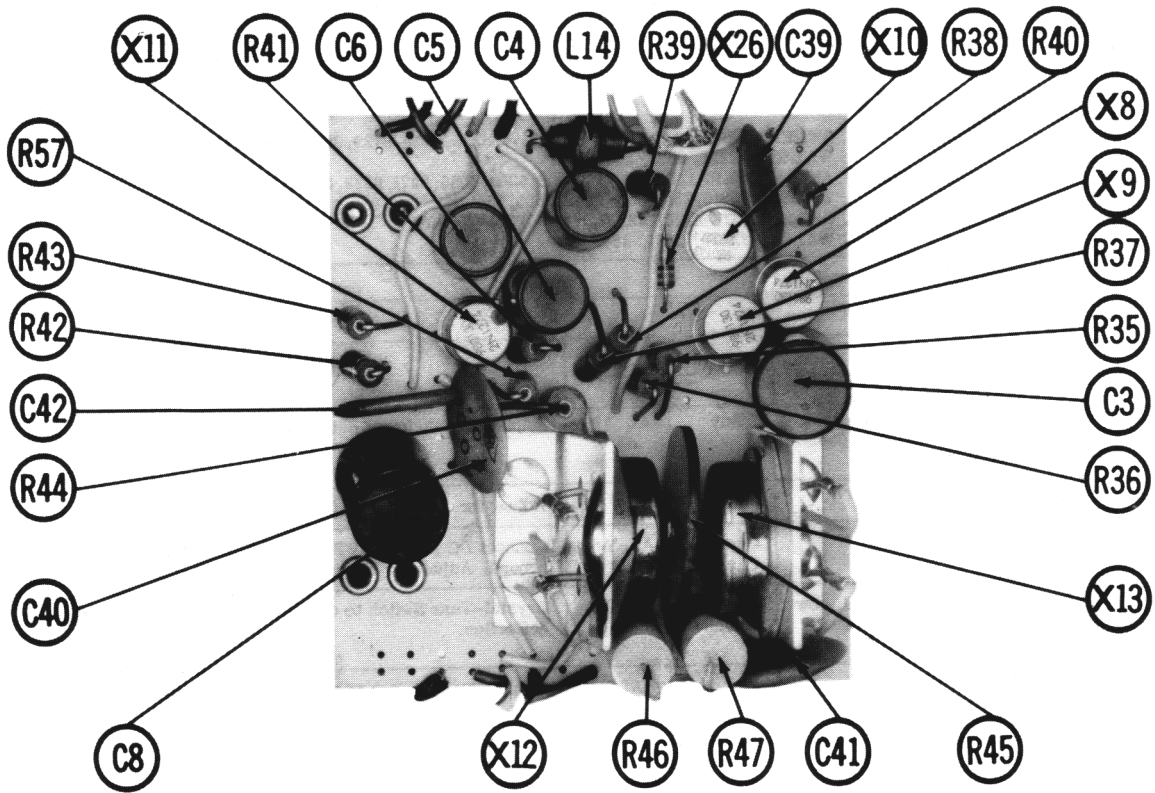
AUDIO



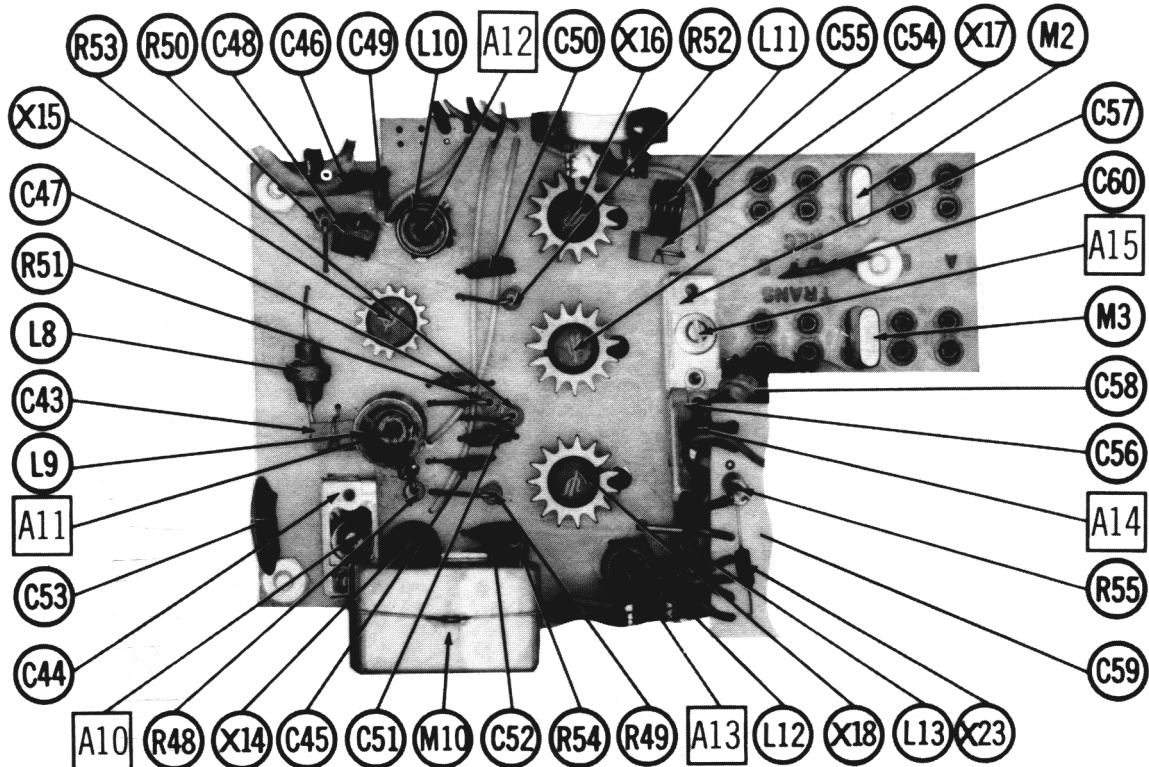
1st AF AMP-
NOISE LIMITER

B-BASE
E-EMITTER
C-COLLECTOR

PRINTED BOARDS



AUDIO PRINTED BOARD



TRANSMITTER PRINTED BOARD

ALIGNMENT INSTRUCTIONS

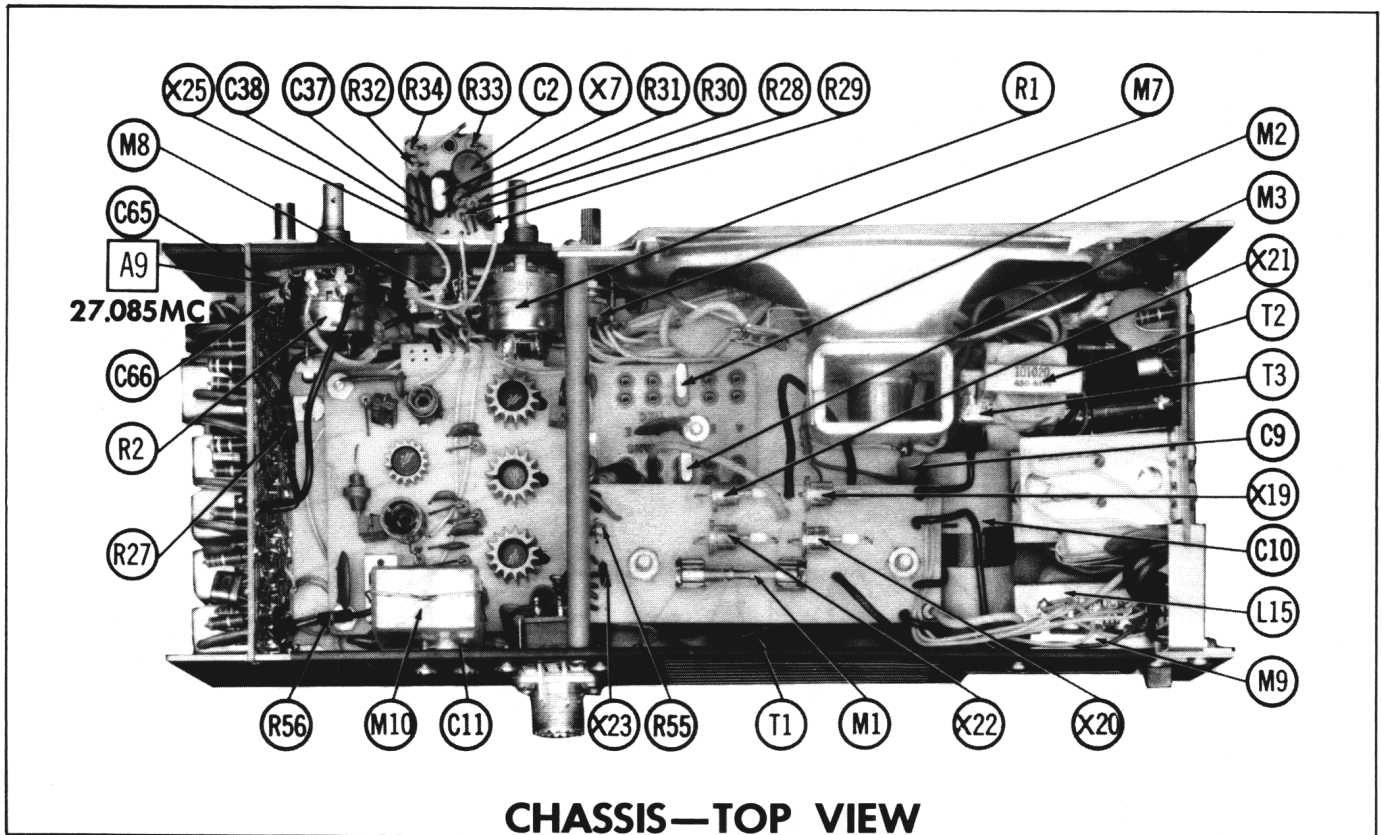
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
Best results are obtained when adjusting A8, A13, A14 and A15 if the antenna normally used is connected and the unit is as nearly in the cabinet as possible.	
Suggested Alignment Tools:	
A1 thru A4.	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532
A5, A7 thru A10, A15, A16.	GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298 WALSCO #2515, 2516, 2518, 2519, 2525, 2541
A6, A11, A12, A14.	GENERAL CEMENT #8282, 8606, 8606-L, 9091 WALSCO #2526, 2541, 2542, 2543, 2544

RECEIVER ALIGNMENT

Connect Output Meter across Voice Coil.				
	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	High side thru .05mfd to the base of X2. Low side to ground. Tune to 455KC (40% Mod.)	Any	A1, A2, A3	Adjust for maximum deflection.
2.	Retune generator to 1.68MC.	Any	A4	Adjust for maximum deflection.
3.	Not Used.	Center Channel	A5, A6	Connect DC probe of VTVM to Emitter of X2; low side to ground. Adjust for maximum VTVM deflection.
4.	High side to antenna terminal, low side to ground. Tune to Channel Frequency.	Center Channel	A7, A8	Crystal-Tune Switch to crystal position. Adjust for maximum deflection.
5.	Connect high side to antenna terminal, low side to ground. Tune to 27.085MC.	II	A9	Crystal-Tune Switch to tune position. Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

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	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST
1.	Channel Selector to center Frequency. Connect dummy load or antenna.	Field Strength Meter or RF Wattmeter. Remove shorting wire between pins 3 and 4 of power socket. Connect 0-500 DC milliammeter between these two pins.	A10, A11, A12, A13, A14
2.	Connect Antenna.	Field Strength Meter.	A15



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			GENERAL ELECTRIC PART No.	RCA PART No.	
X1	M351	RF Amplifier	GE-1	PNP	
X2	S065A	Mixer	GE-1	PNP	
X3	R425	Oscillator	GE-1	PNP	
X4	R539	2nd Converter	GE-1	PNP	
X5	R539	1st IF Amplifier	GE-1	PNP	
X6	M08	2nd IF Amplifier	GE-2	PNP	
X7	2N1274	1st AF Amplifier	GE-2	PNP	
X8	2N1274	1st Squelch Amplifier	GE-2	PNP	
X9	2N1274	2nd Squelch Amplifier	GE-2	PNP	
X10	2N1274	2nd AF Amplifier	GE-2	PNP	
X11	2N1274	Driver and Speech Amplifier	GE-2	PNP	
X12	2N250	Output-Modulator	GE-3	PNP	
X13	2N250	Output-Modulator	GE-3	PNP	
X14	PT865	Transmit-Oscillator	GE-6	NPN	
X15	PT866	Transmit-Driver	GE-6	NPN	
X16	PT857	Final Amplifier	GE-6	NPN	
X17	PT857	Final Amplifier	GE-6	NPN	
X18	PT857	Final Amplifier	GE-6	NPN	

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	
X19	.500A	10408	IN3193	10H	
X20	.500A	10408	IN3193	10H	
X21	.500A	10408	IN3193	10H	
X22	.500A	10408	IN3193	10H	
X23		100624			
X24		10153			
X25		101679			
X26		10154			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOLTI.	CADRE PART No.	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	
C1	15	10103	BCD15015	ECPB409	MTI-10	TT15X15	VL-1168
C2	5	10115	BCD12005	ECPB405	MTI-3	TT12X5	VL-1124
C3	100	10156	BCD12100	ECPB417	MTI-19	TT12X100	VL-1140
C4	100	100689	BCD3100	ECPB417	MTI-22	PT14100	VL-1051
C5	5	101431	BCD15005	ECPB405	MTI-3	TT15X5	VL-1164
C6	50	10113	BCD3050	ECPB115	MTI-15	TT15X50	VL-1094
C7	15	10103	BCD15015	ECPB409	MTI-10	TT15X15	VL-1168
C8	100	10156	BCD12100	ECPB417	MTI-19	TT12X100	VL-1140
C9	1000	10404	FR3230	BR1000-15	QTL-32	TC1501	TVA-1163
C10	1000	10404	FR3230	BR1000-15	QTL-32	TC1501	TVA-1163

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL DUBILIER PART No.	CENTRALAB PART No.	ELMENC0 PART No.	
C11	.05		TTD-05	H-0655	DDA-503	CCD-330	TG-560
C12	.33		DI-33	L10433	DD-330		5GA-Q33
C13	.05		TTD-05	H-0655	DDA-503		TG-560
C14	.05		TTD-05	H-0655	DDA-503		TG-560
C15	.05		TTD-05	H-0655	DDA-503		TG-560
C16	.33		DI-33	L10433	DD-330	CCD-330	5GA-Q33

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						SPRAGUE PART No.
			AEROVOX PART No.	CORNELL DUBILIER PART No.	CENTRALAB PART No.	ELMENC0 PART No.	MALLORY PART No.		
C17	.05		TTD-05	H-0655	DDA-503				TG-560
C18	.05		TTD-05	H-0655	DDA-503				TG-560
C19	.05		TTD-05	H-0655	DDA-503				TG-560
C20	.18		DI-18	L10418	DD-180	CCD-180		GP418	5GA-Q18
C21	.1		TTD-1	H-0655	DA-104				TH-P10
C22	8-60	#101417	DI-001	H-0655	DM-102	404			5GA-D10
C23	.005		TTD-005	H-0655	DDA-503	CCD-102		GP210	TH-D50
C24	.05		TTD-05	H-0655	DDA-503	CCD-502		TA-250	TG-560
C25	.05		TTD-05	H-0655	DDA-503				TG-560
C26	.05		TTD-05	H-0655	DDA-503				TG-560
C27	.47		DI-47	L10047	DD-470	CCD-470		GP447	5GA-Q47
C28	.05		TTD-05	H-0655	DDA-503				TG-560
C29	.05		TTD-05	H-0655	DDA-503				TG-560
C30	.05		TTD-05	H-0655	DDA-503				TG-560
C31	.05		TTD-05	H-0655	DDA-503				TG-560
C32	.05		TTD-05	H-0655	DDA-503				TG-560
C33	4.7		DI-4.7	L1047	DD-4.7				TG-560
C34	.05	#100687	TTD-05	H-0655	DDA-503			GP210	5GA-D10
C35	.001		DI-001	H-0655	DM-102				TH-P10
C36	.1		TTD-1	H-0655	DA-104				
C37	.2	#101502	UK10-204						
C38	.2	#101502	UK10-204						
C39	.05		TTD-05	H-0655	DDA-503				TG-560
C40	.05		TTD-05	H-0655	DDA-503				TG-560
C41	.1		TTD-1	H-0655	DA-104				TH-P10
C42	.05		TTD-05	H-0655	DDA-503				TG-560
C43	20 5%	#101422	CM-15C-200	22P5Q2	TCN-20	CM-15C-200			MS-42
C44	24-200					425			
C45	.005		TTD-005	H-0655	DM-502	CCD-502		TA-250	TH-D50
C46	.05		TTD-05	H-0655	DDA-503				TG-560
C47	.005		TTD-005	H-0655	DM-502	CCD-502		TA-250	TH-D50
C48	68 5%		CM-15E-680	22R5Q88	TCN-68	CM-15E-680			MS-468
C49	.005		TTD-005	H-0655	DM-502	CCD-502		TA-250	TH-D50
C50	.002		DM-202	L1002	DM-202				5GA-D20
C51	.002		DM-202	L1002	DM-202				5GA-D20
C52	.002		DM-202	L1002	DM-202				5GA-D20
C53	.05		TTD-05	H-0655	DDA-503				TG-560
C54	100 5%		CM-15E-101	22R5T1	TCN-100	CM-15E-101		MCE935	MS-31
C55	.005	#101422	TTD-005	H-0655	DM-502	CCD-502		TA-250	TH-D50
C56	24-200					425			
C57	90-400					425			
C58	200 5%	#101421	CM-15E-201	22R5T2	TCN-200	CM-15E-201		MCE937	MS-32
C59	200 5%		CM-15E-201	22R5T2	TCN-200	CM-15E-201		MCE937	MS-32
C60	.05		TTD-05	H-0655	DDA-503				TG-560
C61	.1		TTD-1	H-0655	DA-104				TH-P10
C62	.1		TTD-1	H-0655	DA-104				TH-P10
C63	.05		TTD-05	H-0655	DDA-503				TH-P10
C64	.05		TTD-05	H-0655	DDA-503				TH-P10
C65	8-60		TTD-05	H-0655	DD-503				TG-560
C66	8-60	#101417	TTD-05	H-0655	DD-503				TG-560
C67	8-60	#101417	TTD-05	H-0655	DD-503				TG-560

Cadre Part Number.
 ① Some versions use a 150mmf in this application.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				MALLORY PART No.
			CADRE PART No.	CORNELL DUBILIER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	
R1	Volume, Power On-Off	5000Ω	101007	H-0655	B-II, KR-2 or (FZ-5000, SU204, KR-2)	Q13-114, 76-2	U12, US-27, or (U453A, US42, SF1000)
R2	Squelch, Squelch On-Off	5000Ω	101189	H-0655	B-II, KR-1 or (FZ-5000, SU204, KR-1)	Q13-114, 76-1	U-12, US-26 or (U453A, US41, SF1000)

PARTS LIST AND DESCRIPTION (CONTINUED)

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN PART No.			IRC PART No.	WORKMAN PART No.
R3	680Ω			R31	4700Ω		
R4	4700			R32	68K		
R5	4700			R33	1200Ω		
R6	56K			R34	10K		
R7	5600Ω			R35	10K		
R8	1000Ω			R36	3000Ω		
R9	3300Ω			R37	27K		
R10	3900Ω			R38	6800Ω		
R11	68K			R39	2700Ω		
R12	330Ω			R40	6800Ω		
R13	2700Ω			R41	15K		
R14	4700			R42	3900Ω		
R15	6800Ω			R43	360Ω		
R16	3900Ω			R44	620Ω 1W		
R17	3900Ω			R45	9Ω Cold		
R18	300Ω			R46	1Ω 3W		
R19	820Ω			R47	1Ω 3W		
R20	180Ω			R48	3600Ω		
R21	1500Ω			R49	510Ω		
R22	3300Ω			R50	510		
R23	18K			R51	120Ω		
R24	180Ω			R52	120Ω		
R25	1500Ω			R53	120Ω		
R26	3900Ω			R54	120Ω		
R27	1000Ω 5%			R55	1500		
R28	7500Ω 5%			R56	1000Ω		
R29	5600Ω			R57	680Ω		
R30	10K						

(27K) †

(2700) †

#101086

COILS (RF-IF)

Cadre Part Number.

† Alternate Value.

ITEM No.	USE	REPLACEMENT DATA			ITEM No.	USE	REPLACEMENT DATA		
		CADRE PART No.	Merit PART No.	Miller PART No.			Stancor PART No.	Workman PART No.	Notes
L1	Ant.	101396							
L2	RF	101397							
L3	Receiver Osc.	101398							
L4	1.68MC IF	101399							
L5	1st 455KC IF	101400							
L6	2nd 455KC IF	101018							
L7	3rd 455KC IF	101019							
L8	RF Choke (50uh)	101019							
L9	Transmit Osc.	101424							
L10	Transmit Driver	101425							
L11	Final	101427							
L12	Ant. Load	101428							
L13	Ant. Load	101429							
L14	RF Choke (50uh)	101424							

FILTER CHOKES

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

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	NOTES
		CADRE PART No.	Merit PART No.	STANCOR PART No.		
T1	117V @ .06A (.21A)*	10110				* Transmit

TRANSFORMER (DRIVER)

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

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				ITEM No.	NOTES
		CADRE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.		
T3	100Ω CT	101021					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		ITEM No.	NOTES
		CADRE PART No.	QUAM PART No.		
SP1	2" x 6" PM	101025			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			ITEM No.	NOTES
			CADRE PART No.	Holder	Holder		
M1	3AG S/B	1/4A	101095 ①	101094	121004	MDL 1/4	4405

① AC Power Supply

② DC Power Supply

MISCELLANEOUS

ITEM No.	PART NAME	CADRE PART No.	REPLACEMENT DATA			ITEM No.	NOTES
			FUSE	Holder	Holder		
M2	Crystal						
M3	Crystal	10116					
M4	Crystal						
M5	Trans-Filter						
M6	Trans.-Filter						
M7	Switch	101028					
M8	Switch	101029					
M9	Switch	101121					
M10	Relay	101024					

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.)