

 **SAMS**

PHOTOFACT[®]

CB RADIO SERIES



CB-5
5
MARCH 1964



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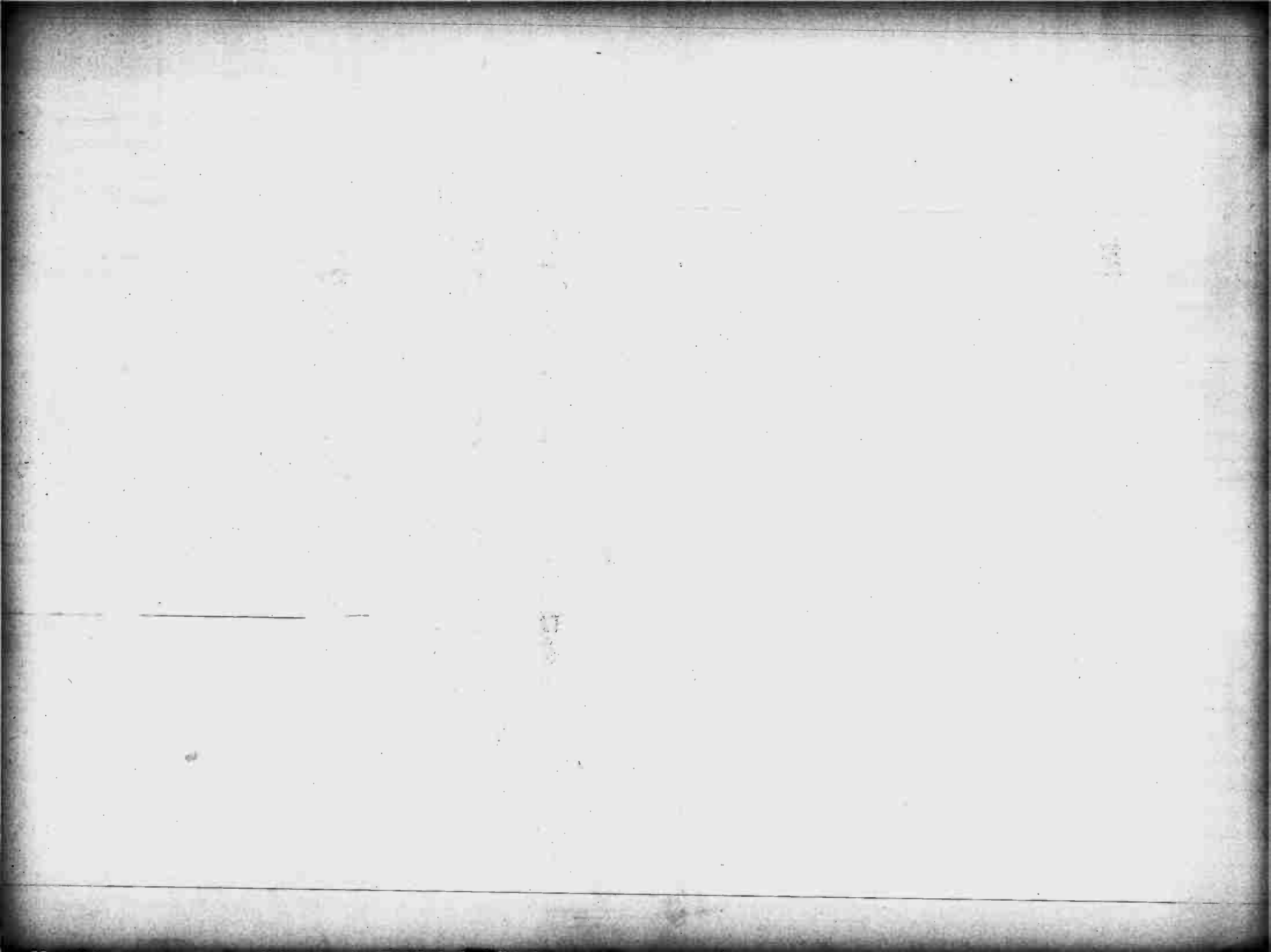
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SAMS PHOTOFACT[®]

CB RADIO SERIES

VOLUME

5

by the *Howard W. Sams* ENGINEERING STAFF



HOWARD W. SAMS & CO., INC.

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C B RADIO SERIES

VOLUME 5

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NOTICE

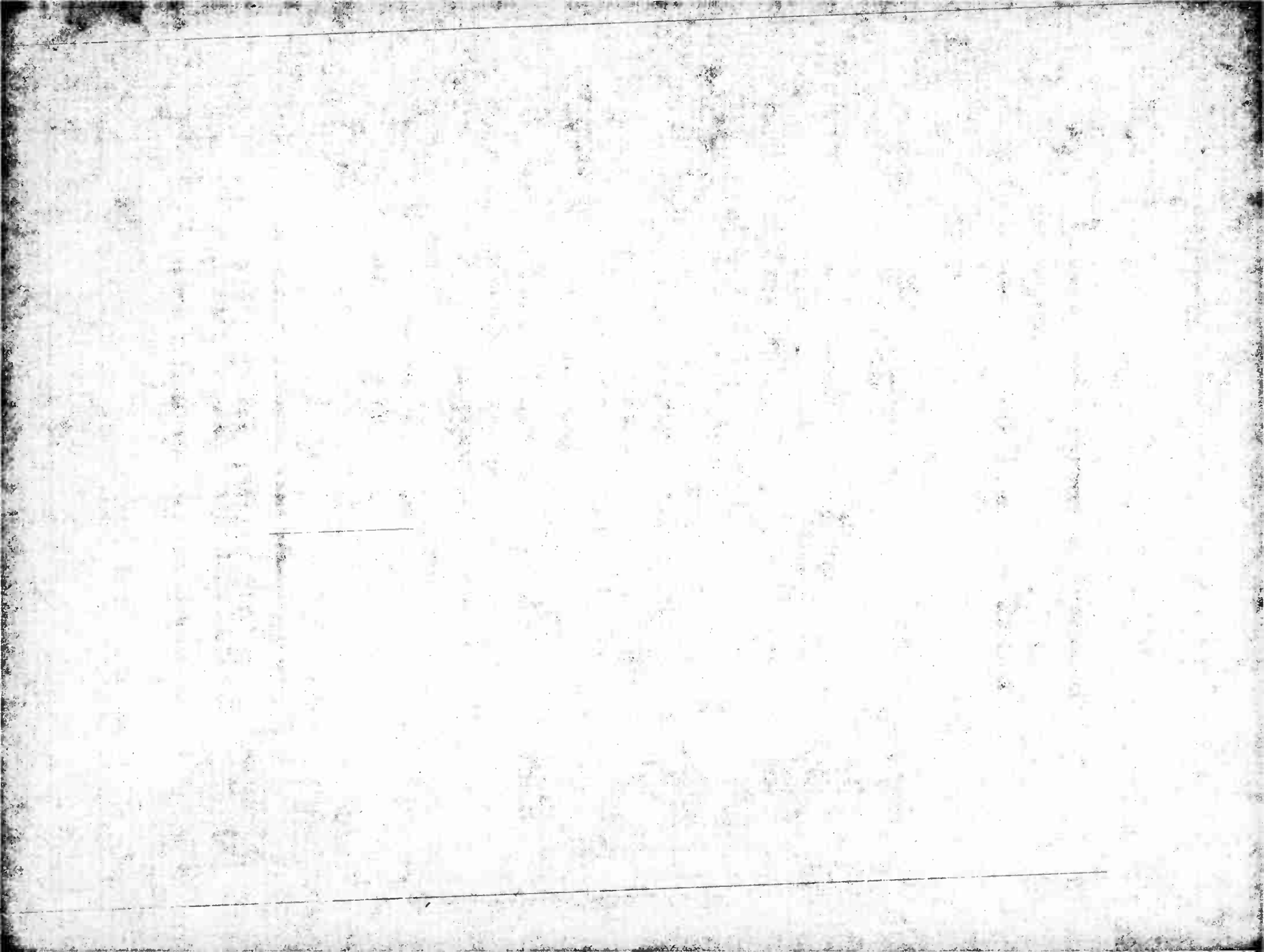
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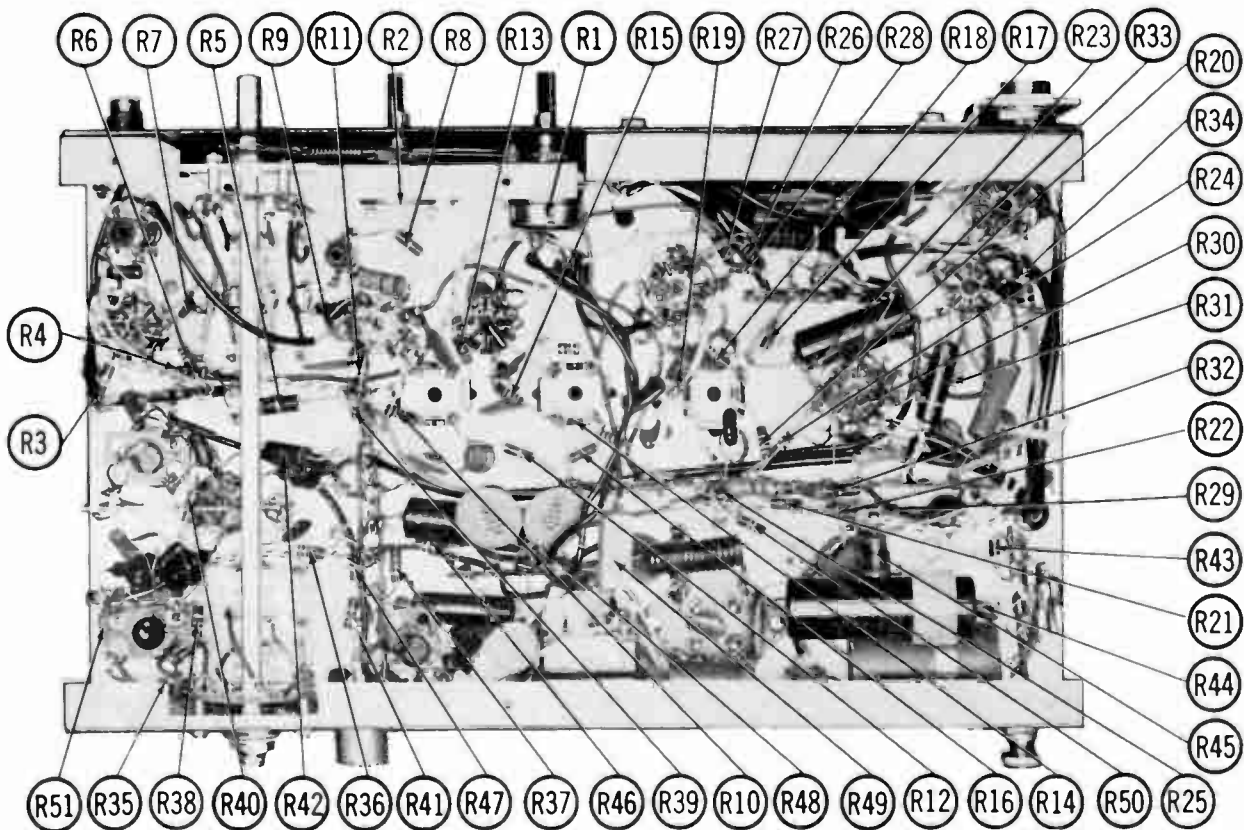
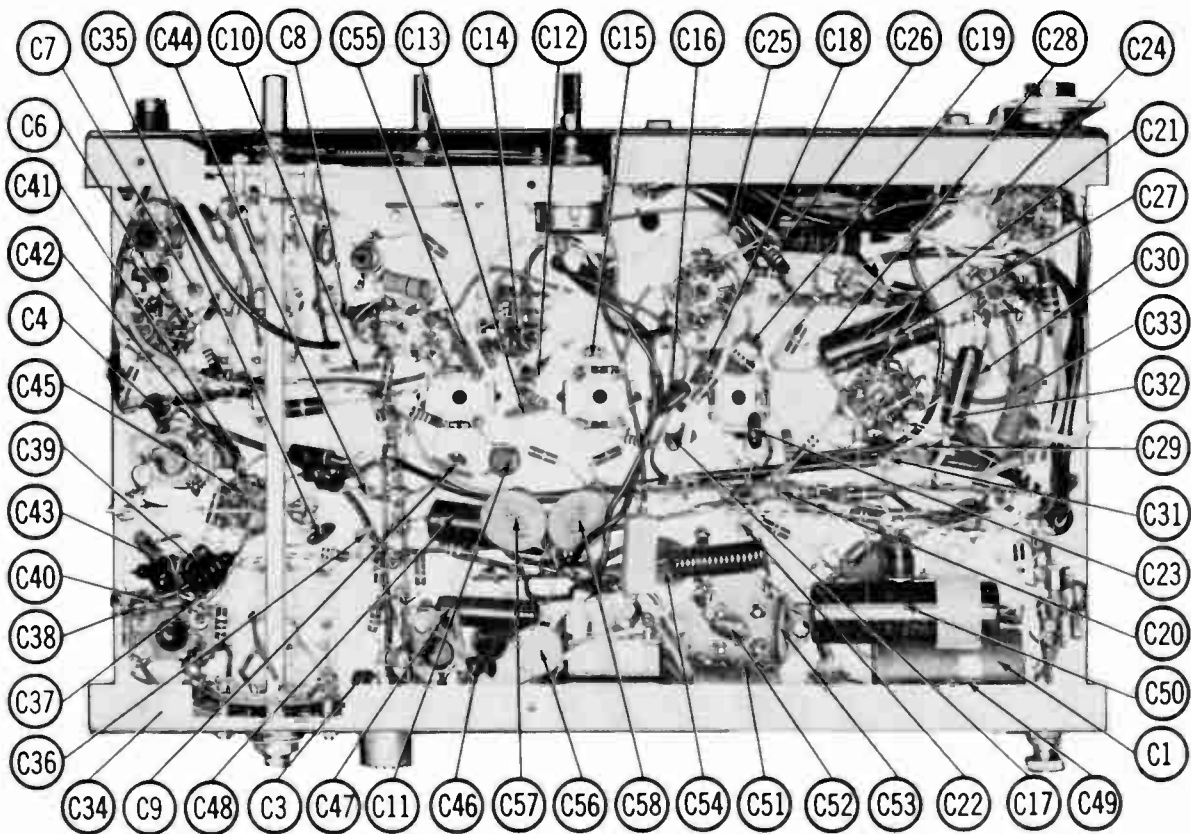
C B RADIO SERIES

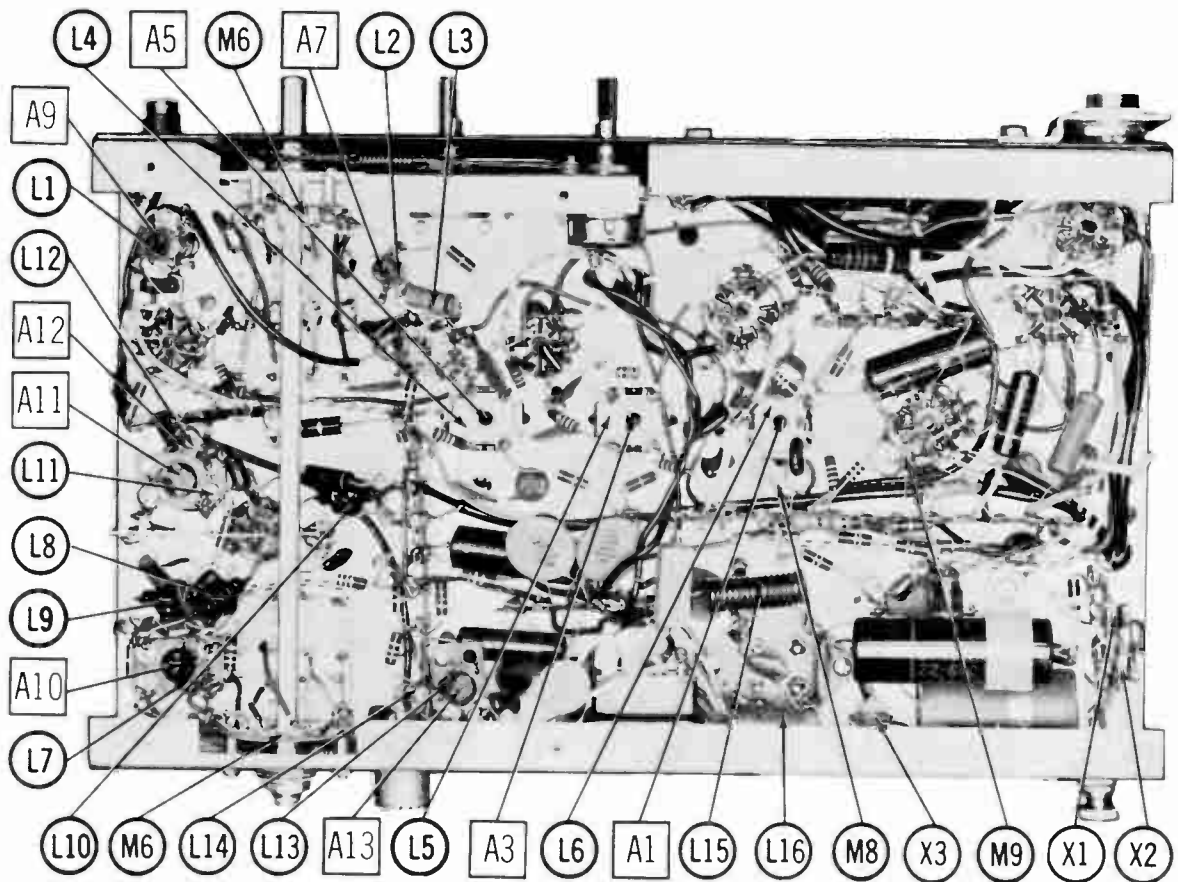
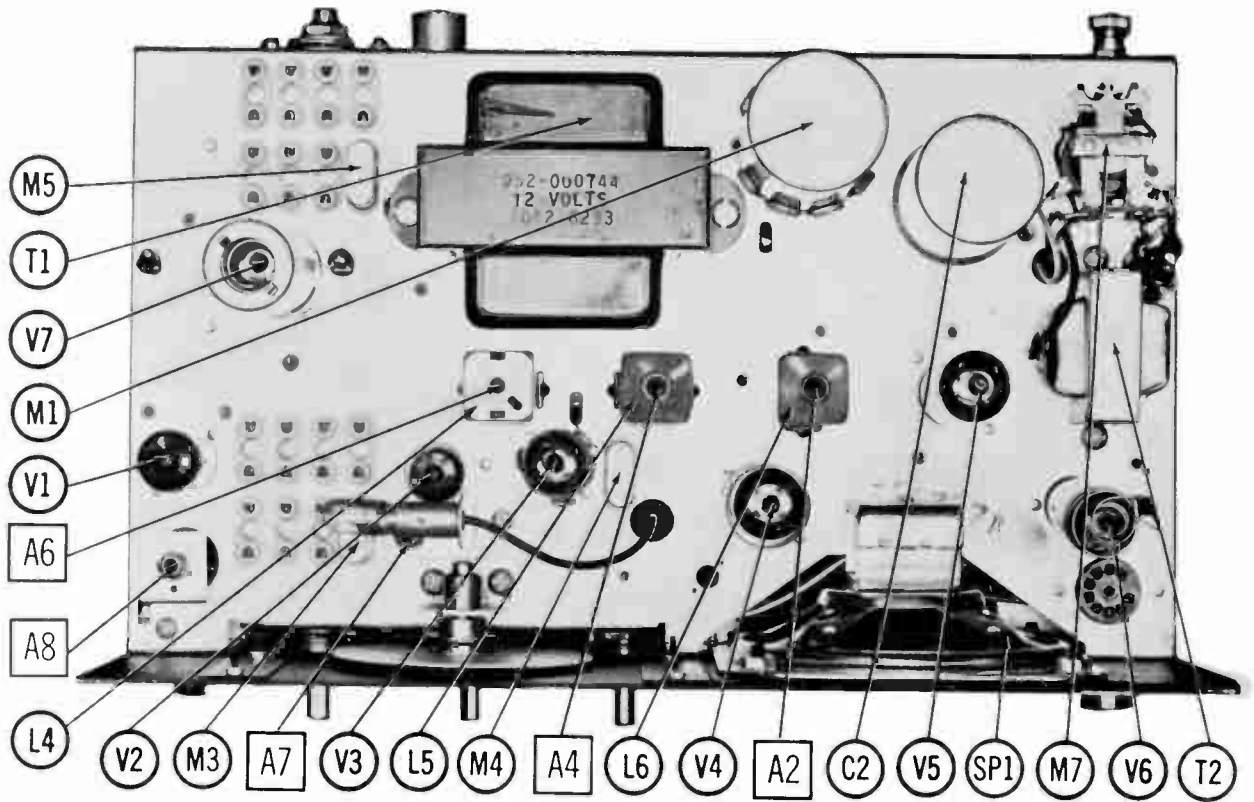
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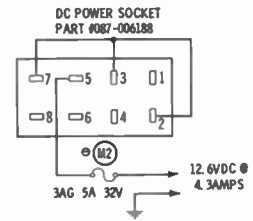
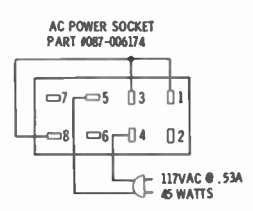
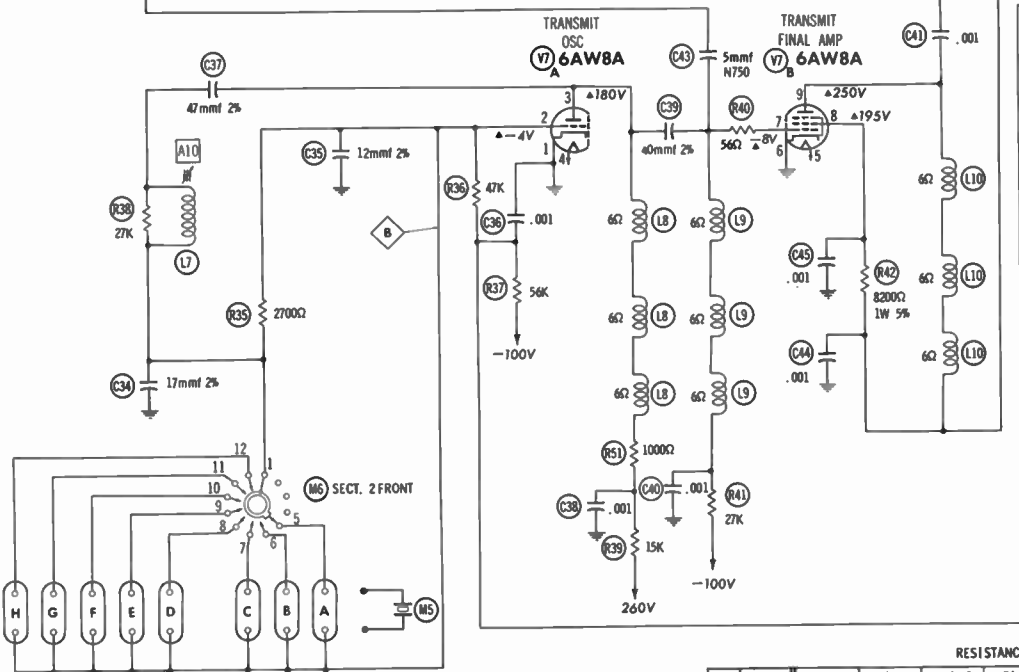
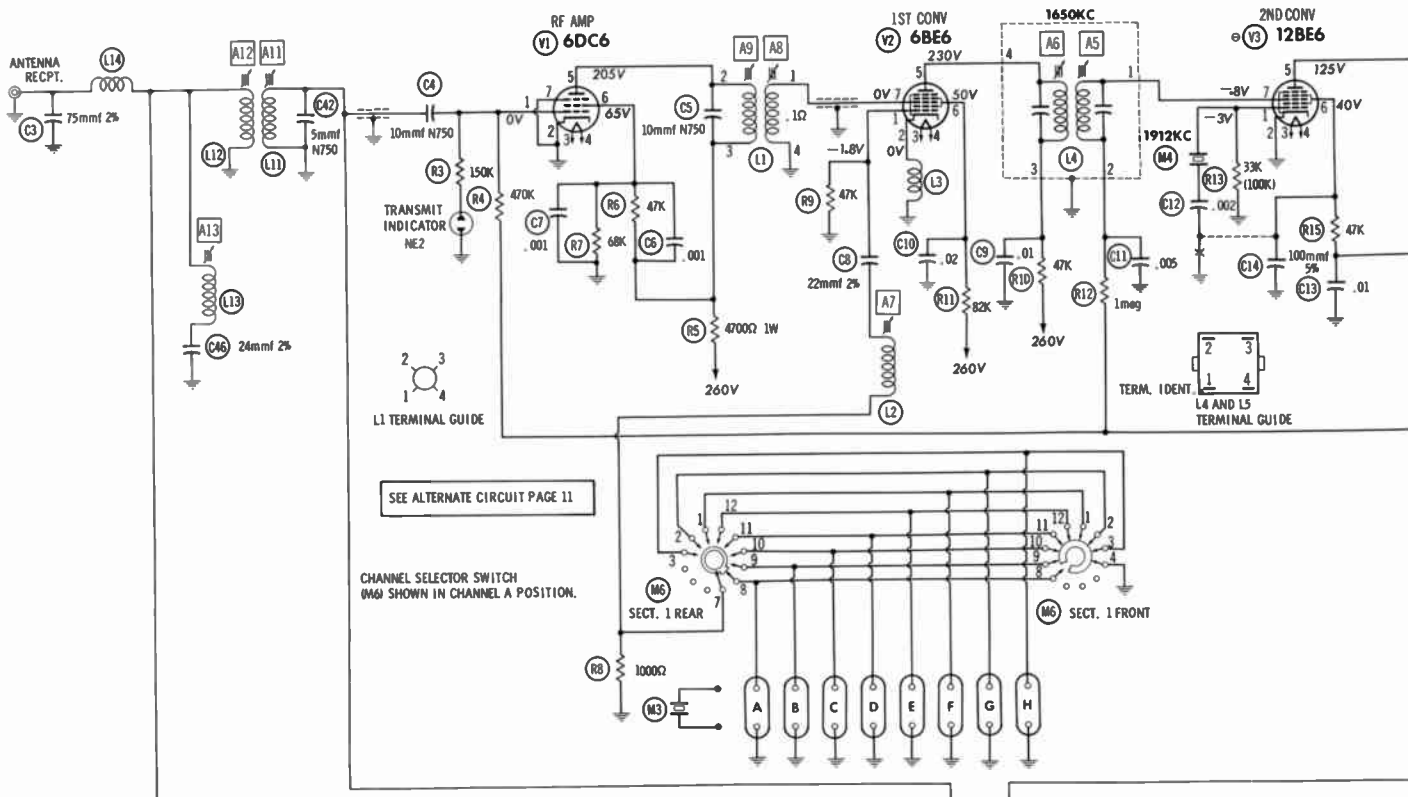
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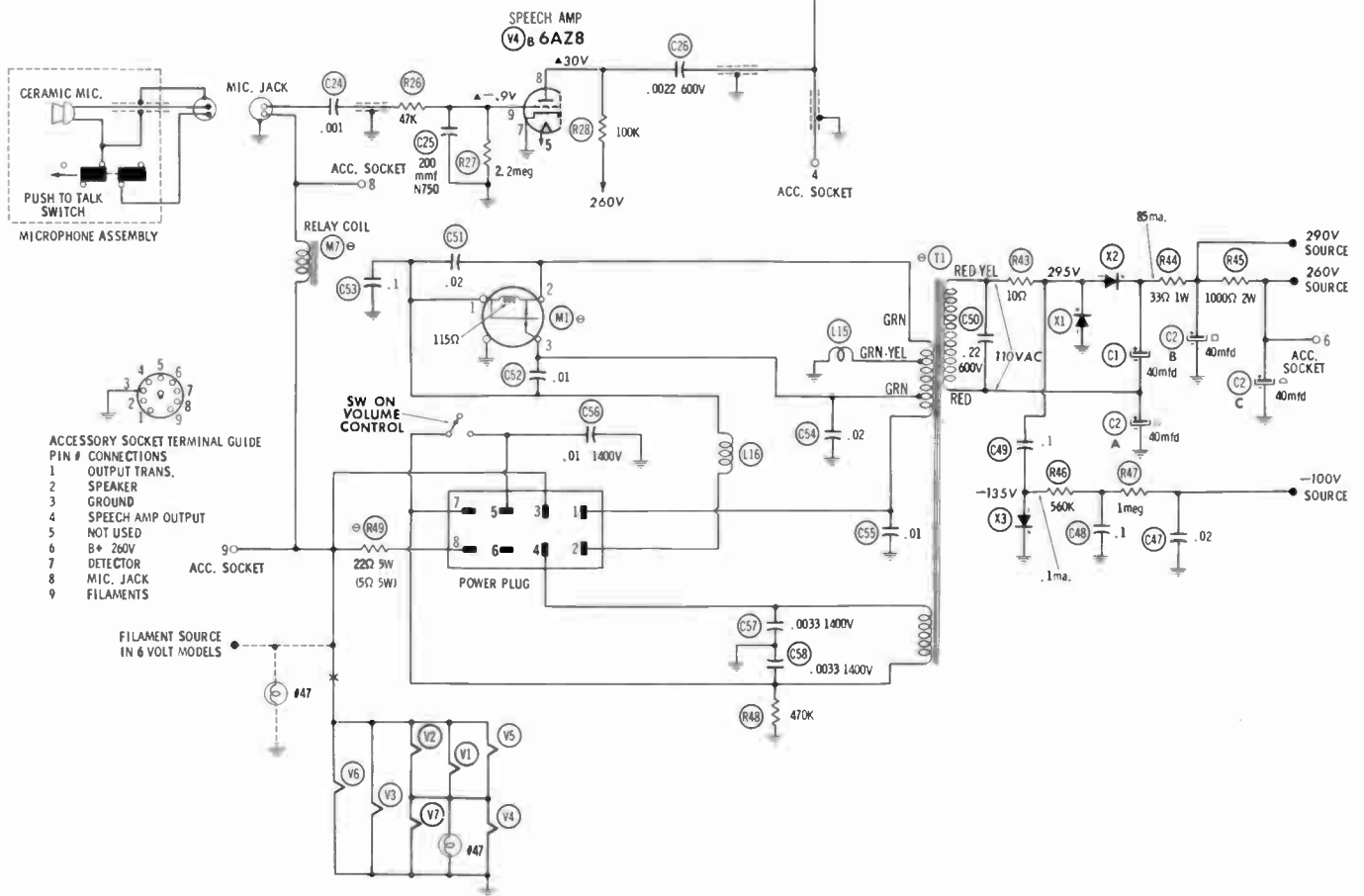
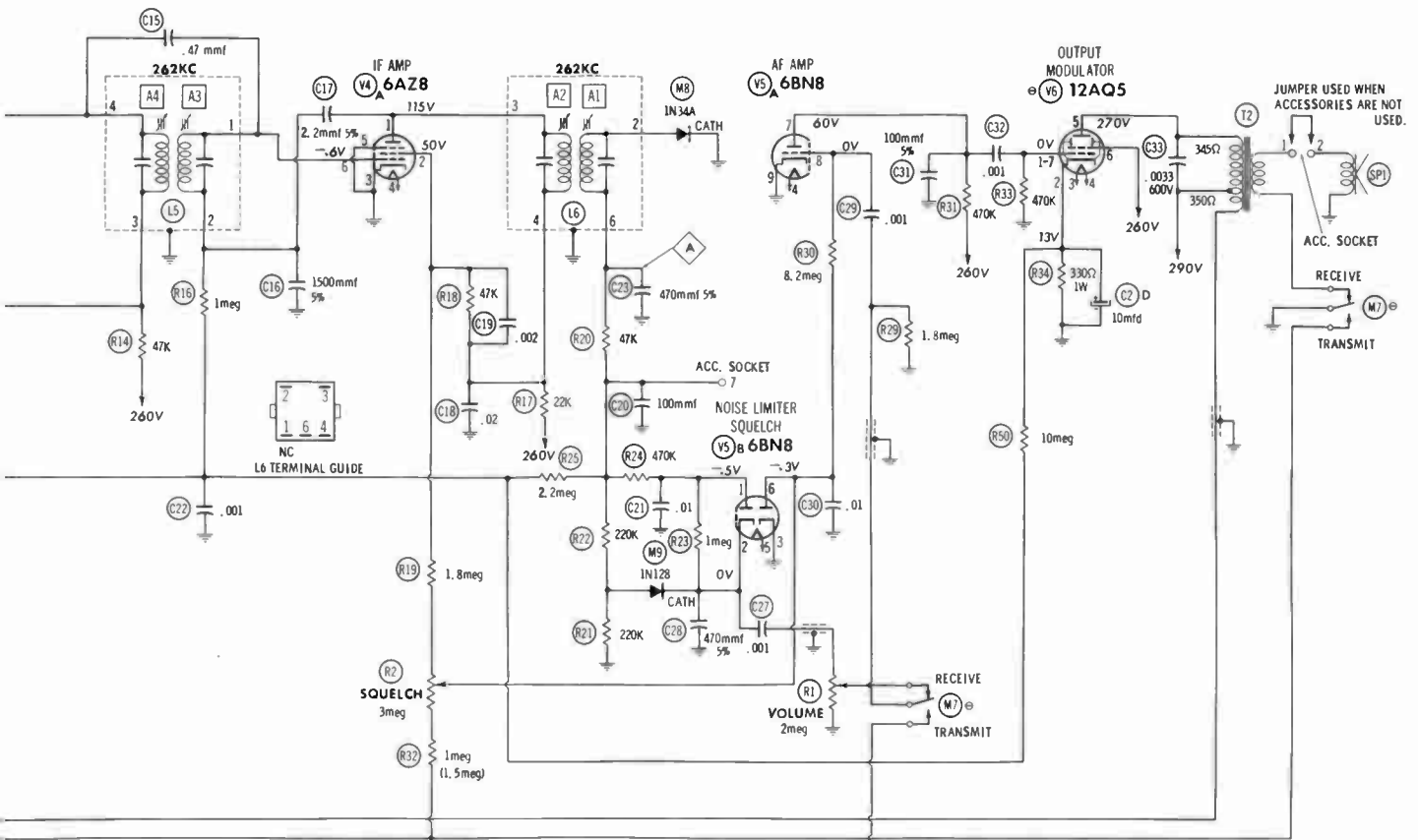
- ⊖ See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise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

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DC6	2.5meg	0Ω	FIL	FIL	15700Ω	135K	0Ω		
V2	6BE6	47K	0Ω	FIL	FIL	148K	183K	.1Ω		
V3	12BE6	33K	0Ω	FIL	FIL	148K	185K	2.8meg		
V4	6AZ8	2.8meg	170K	0Ω	FIL	FIL	2.8meg	0Ω	†100K	2.2meg
V5	6BN8	400K	600K	0Ω	FIL	FIL	1.7meg	1470K	8.2meg	0Ω
V6	12AQ5	470K	330Ω	FIL	FIL	1400Ω	†1100Ω	470K		
V7	6AW8A	0Ω	▲47K	†2000Ω	FIL	FIL	0Ω	▲53K	18500Ω	1300Ω

† MEASURED FROM OUTPUT OF X2.
 ALL READINGS TAKEN IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 ▲ TAKEN IN "TRANSMIT" POSITION.



PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	TYPE	REPLACEMENT DATA				
			AMPEREX	GENERAL ELECTRIC	RCA	RAYTHEON	SYLVANIA
V1	RF Amplifier	6DC6					
V2	1st Converter	6BE6					
V3	2nd Converter	12BE6 (6BE6)*					
V4	IF Amp. -Mic Amp.	6AZ6					
V5	ANL-Squeich-AF Amp.						
V6	Output-Modulator						
V7	Trans. Osc. -Final Amp.						

* 6-Volt Versions.

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.085A	027-000296	A300	1N1763	2F4
X2	.085A	027-000296	A300	1N1763	2F4
X3	.001A	027-000284	1N536	1N1763	Model 10

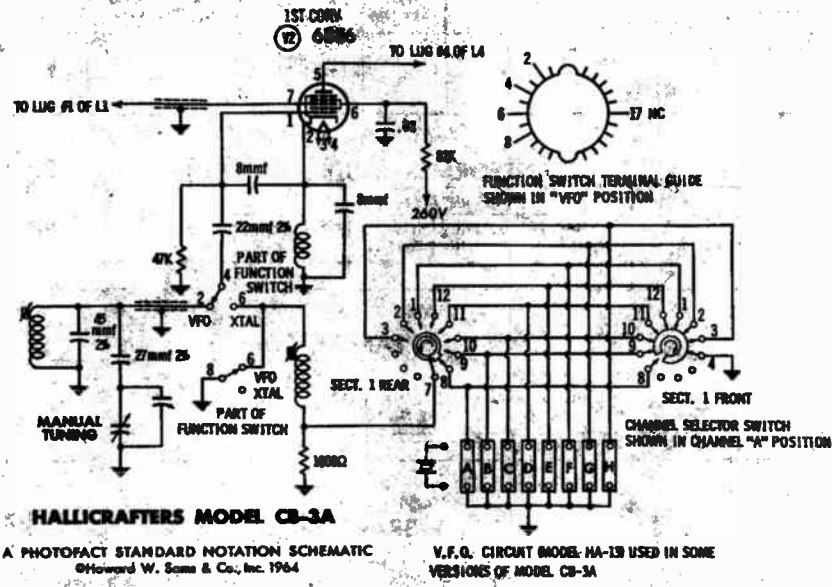
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Hallicrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	40	200	045-000633	PRS1580	BR40-250	QT1-14	TD-40-250	TC58	TVA-1511
C2A	40	350							
B	40	350							
C	40	200	045-000632	AFH4-04-70	D0460		XC3-40	FP425	TVLS4624.5*
D	10	50				QT1-15			

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

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.
C3	75 2%				22R5Q75	CM-15E-750G		
C4	10 N750			DTN-10	C10Q1U	CC TN-100	CN7-410	10TCU-Q10
C5	10 N750			DTN-10	C10Q1U	CC TN-100	CN7-410	10TCU-Q10
C6	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	22 2%				22R5Q22	CM-15E-220G		
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C11	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C12	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	100 5%			DTN-100	C10T1U	CC TN-101	CN7-310	10TCU-T10
C15	.47							
C16	1500 5%							
C17	2.2 5%							
C18	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C19	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	100			DTN-100	C10T1U	CC TN-101	CN7-310	10TCU-T10
C21	.01 200V		P266N-01	D6-103	FM2S1	2DP-1-103	GEM-211	2TM-S10
C22	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C23	470 5%							
C24	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C25	200 N750			DTN-200	C10T2U	CC TN-201	CN7-320	10TCU-T20
C26	.0022 600V		P688N-0022	DD-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C27	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	470 5%							
C29	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	100 5%			DTN-100	C10T1U	CC TN-101	CN7-310	10TCU-T10
C32	.001		BPD-001	DD-102	BYA10S1	CCD-103	B-110	5HK-S10
C33	.0033 600V		P688N-0033	DD-233	CUB6D33	6DP-1-233	GEM-6233	6TM-D33
C34	17 2%				22R5Q18	CM-15E-180G		
C35	12 2%				22R5Q12	CM-15E-120G		
C36	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	47 2%				22R5Q47	CM-15E-470G		
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C39	40 2%				22R5Q4	CM-15E-340G	MCE223	
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	5 N750			DTN-5	C10V5U	CC TN-050	CN7-550	10TCU-V50
C43	5 N750			DTN-5	C10V5U	CC TN-050	CN7-550	10TCU-V50
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C45	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46	24 2%				22R5Q24	CM-15E-240G	MCE220	
C47	.02 200V		P288N-02		FM2S2	2DP-1-102	GEM-212	2TM-S12
C48	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C49	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C50	.22 600V		P688N-22		CUB6P22	6DP-5-224	GEM-6022	6TM-P22
C51	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	.1		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C54	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C55	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C56	.01 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C57	.0033 1400V		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C58	.0033 1400V		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33



PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			Hallcrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLOY PART No.
R1	Volume & Switch	2meg	025-002048	F2-2meg, BU204, KR-1 or (B-70, KR-2)	A47-2meg-2, FS-3, SWR-12	Q13-129, 75-1 or (BU1, CFS7, SS1, DC1)*	UA26A, SF1000, DS-41 or (RU26A, SL38, SF1000, US-41) or (U66, US-36)
R2	Switch	3meg	025-002047	F3-3meg, BU204, or (B-856)		Q17-140 or (BU1, CFS1, SS1, DC1)*	UA26L, SF1000 or (RU26L, SL38, SF1000) or (U69)

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
R49	250 SW	PW5-22	5W-SQ-22						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Hallcrafters PART No.	MERT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	RF Coupling	051-002791					
L2	Receive Osc.	051-003319					
L3	Conv. Cath. (27uh)	053-000647		72F275AE		T360	
L4	165KC IF	050-000751				T604	
L5	242KC IF (Input)	050-000861				T605	
L6	242KC IF (Output)	050-000862					
L7	Trans. Osc. Plate	051-003312					
L8	RF Choke (500oh)	053-000537					
L9	RF Choke (500oh)	053-000537					
L10	RF Choke (500oh)	053-000537					
L11	RF Coupling	051-003324					
L12	RF Coupling Sec.	051-002770					
L13	54MC Trap	053-000564					
L14	RF Choke (.22uh)	053-000661					
L15	Hash Choke	051-002785					
L16	Hash Filter	051-002740					

HALLICRAFTERS MODEL CB-3A

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
				Hallicrafters PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC. 1	SEC. 2						
T1	117VAC ①. 53A or 12.8VDC ②4.3A	110VAC ①. 085A DC	12.8VAC ①1.8A	052-000744 052-000743*					* 8 Volt Versions

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			Hallicrafters PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T2	18K	3-4Ω	055-000433					

SPEAKER

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

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				Hallicrafters PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
				M1	Interrupter Interrupter	12.6 6.3	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Hallicrafters PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	5A 32V	039-100332	008-000883	311005. (3AG 5A 32V)	155020	AGC 5	HHJ-B
	3AG	8A 32V	039-000699†	008-000883				
	3AG	10A 32V	039-000309*	008-000883				

† 12 Volt Operation.
* 6 Volt Operation.

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M3	Crystal	019-002819	Receive, 1st Converter. When ordering specify desired channel, Model and Serial Number of Receiver. Receive, 2nd Converter (1912KC) Transmit. When ordering specify desired channel, Model and Serial Number of Receiver. Receive (Rotary Wafer) Transmit (Rotary Wafer) 12 Volt Coil 8 Volt Coil
M4	Crystal	019-002917	
M5	Crystal	019-002820	
M8A	Switch	062-000194	
B	Switch	062-000193	
M7	Relay	021-000511	
	Relay	021-000510	
M8	Detector	1N34A	
M9	Squelch Microphone	1N128 081-000111	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Channel Selector	015-001883	Handle Assembly	150-003500
Knob - Volume	015-001880	Holder - Microphone	078-003277
Knob - Squelch	015-001878	Latch - Cabinet Bottom	030-000777-1
Front Panel	068-001303	Latch - Cabinet Top	030-000777-2

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) 8258 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8498 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Boading Strap	Use BELDEN No. 8681 (3/8 In.)



PHOTOFACT[®] with

CIRCUITRACE[®]

TRADE NAME: Hallicrafters Model CB-5
SUPPLIER: The Hallicrafters Company
 4400 W. 54th St., Chicago 32, Illinois
TYPE SET: 3 Tube, 18 Transistor Transceiver
POWER SUPPLY: 110 - 120 Volts AC, 60 Cycles (or)
 12 Volt Storage Battery
RATING: 1.6 Amp. @ 12.6VDC (Transmit)
 3.2 Amp. @ 12.6VDC (Receiver)
TUNING RANGE: Any 6 CB Channels 1 thru 23



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6, A8, A9..... GENERAL CEMENT #5907, 8607, 8727
 WALSCO #2515
 A7, A10 thru A16..... GENERAL CEMENT #8606, 9295, 8282
 WALSCO #2526, 2543, 2544

RECEIVER ALIGNMENT

Set volume control at maximum. Set squelch control to maximum sensitivity position.
 Keep generator output level as low as possible consistent with a usable indication.
 Connect output meter across voice coil.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .1mfd to base of X4 (2nd Mixer), low side to ground. Tune to 455KC (400% Mod.).	Any	A1 thru A6	Adjust for maximum output.
High side thru .1mfd to base of X2 (1st Mixer), low side to ground. Tune to 1650KC.	"	A7	"
Across antenna jack. Tune to channel frequency.	11 (27.085MC)	A8 thru A13	"

TRANSMITTER ALIGNMENT

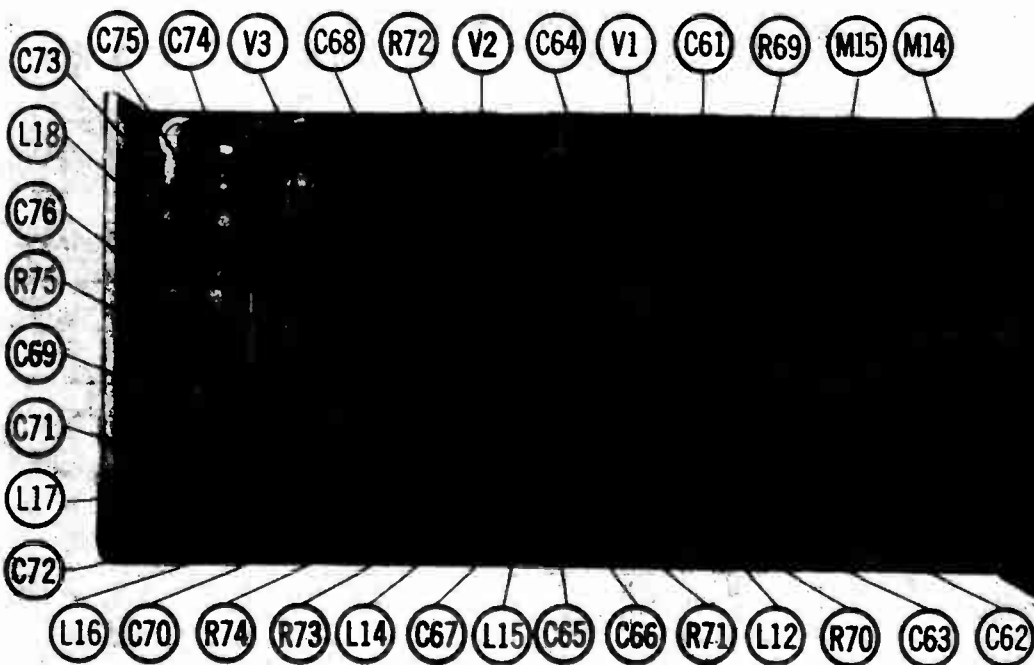
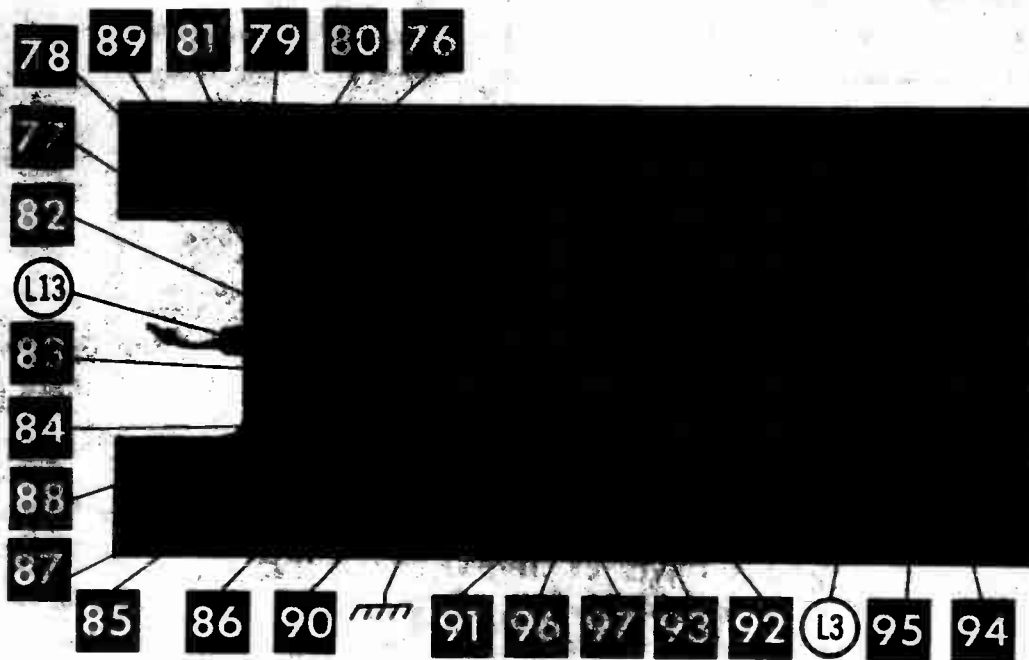
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

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.

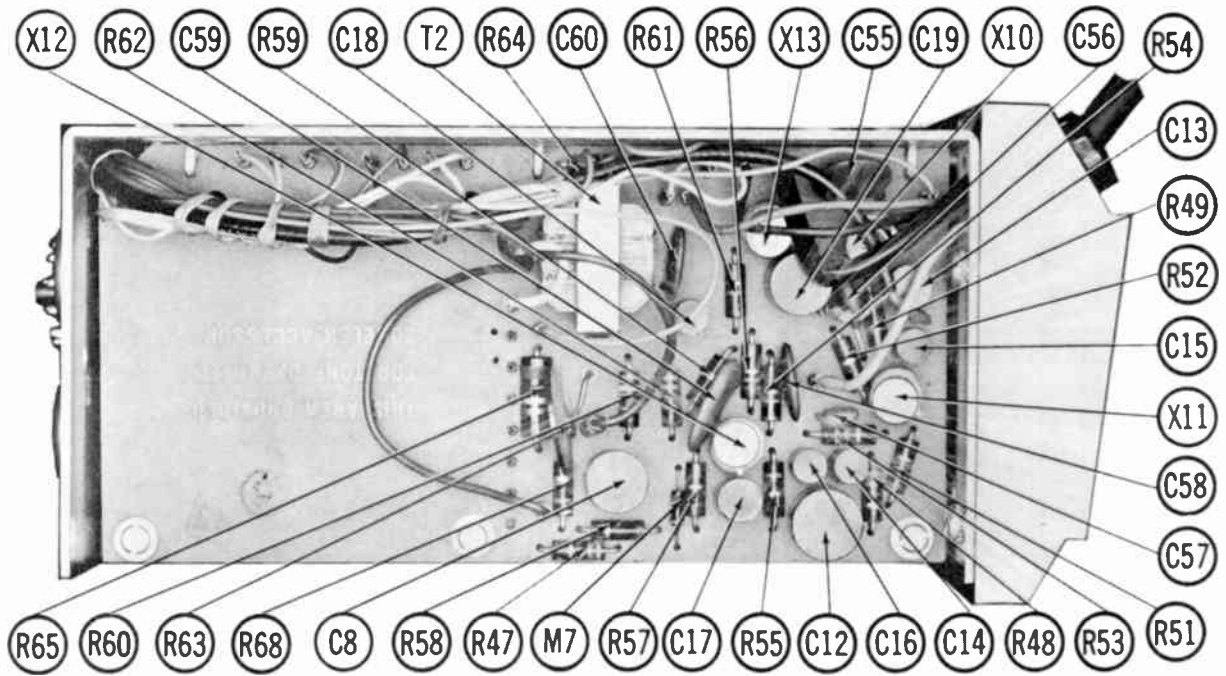
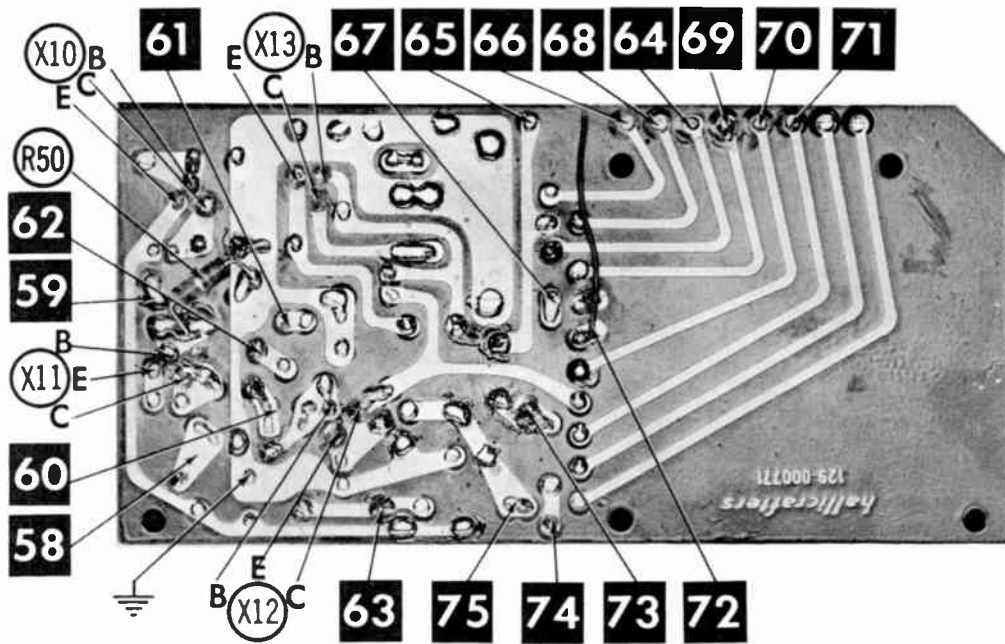
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Field strength meter or pilot light dummy load.	11 (27.085MC)	A14, A15	Adjust for maximum indication. Set A14 just below peak. Check all channels to be sure oscillator starts.
Any receiver tuned to 54MC	Any	A16	Adjust for MINIMUM interference on receiver.

HALLICRAFTERS MODEL CB-5



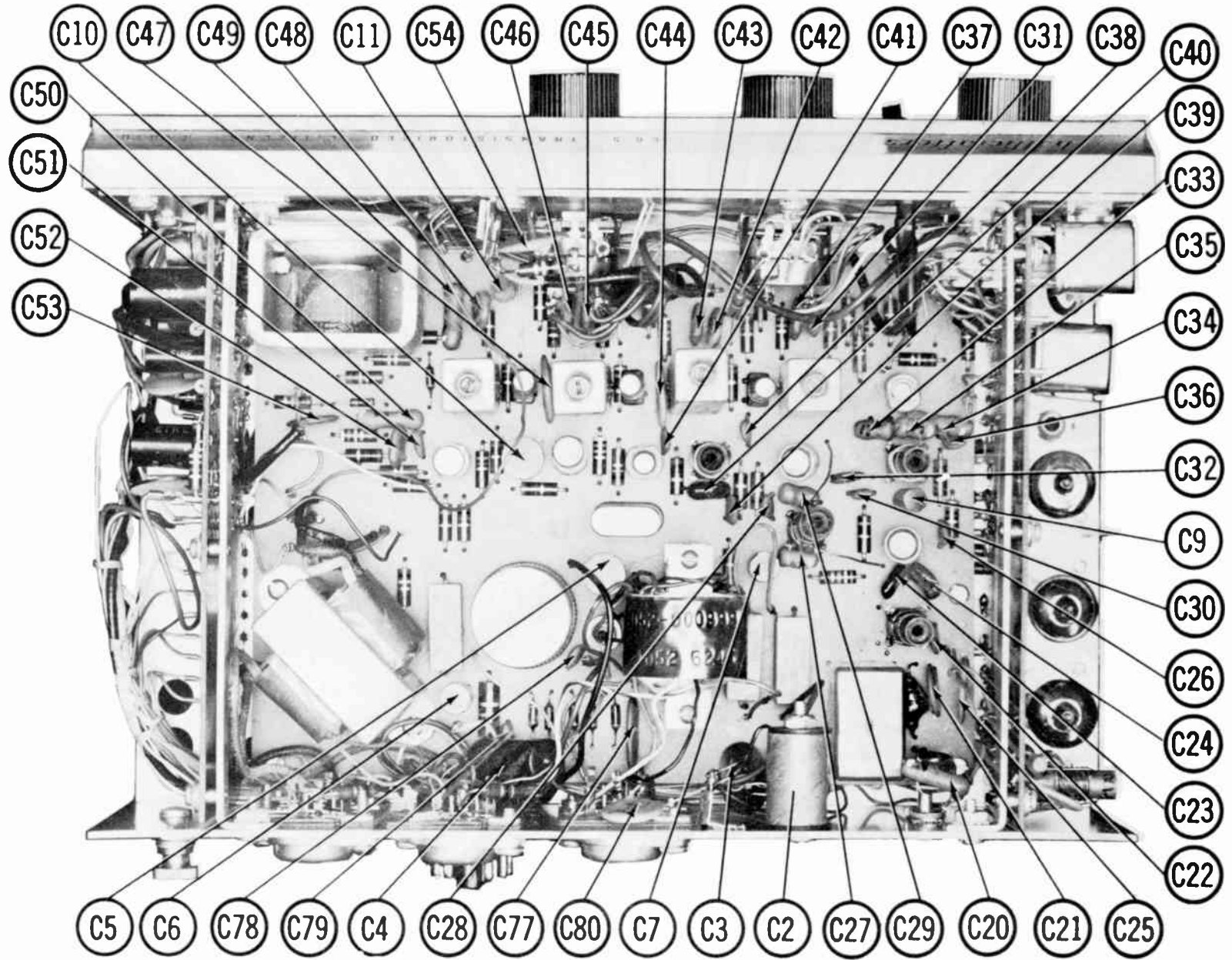
TRANSMITTER PRINTED BOARD

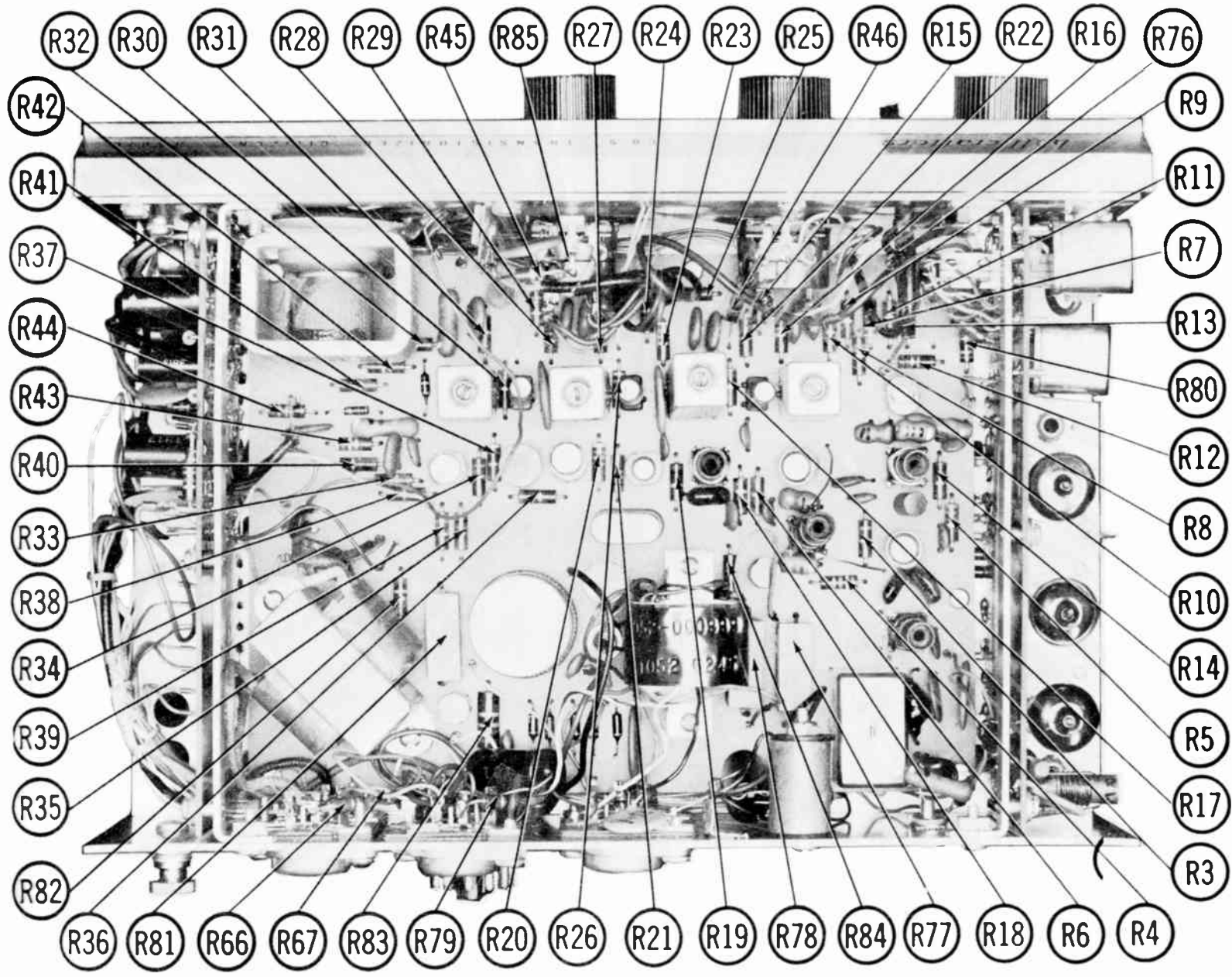
A Howard W. Sams CIRCUITRAC Photo



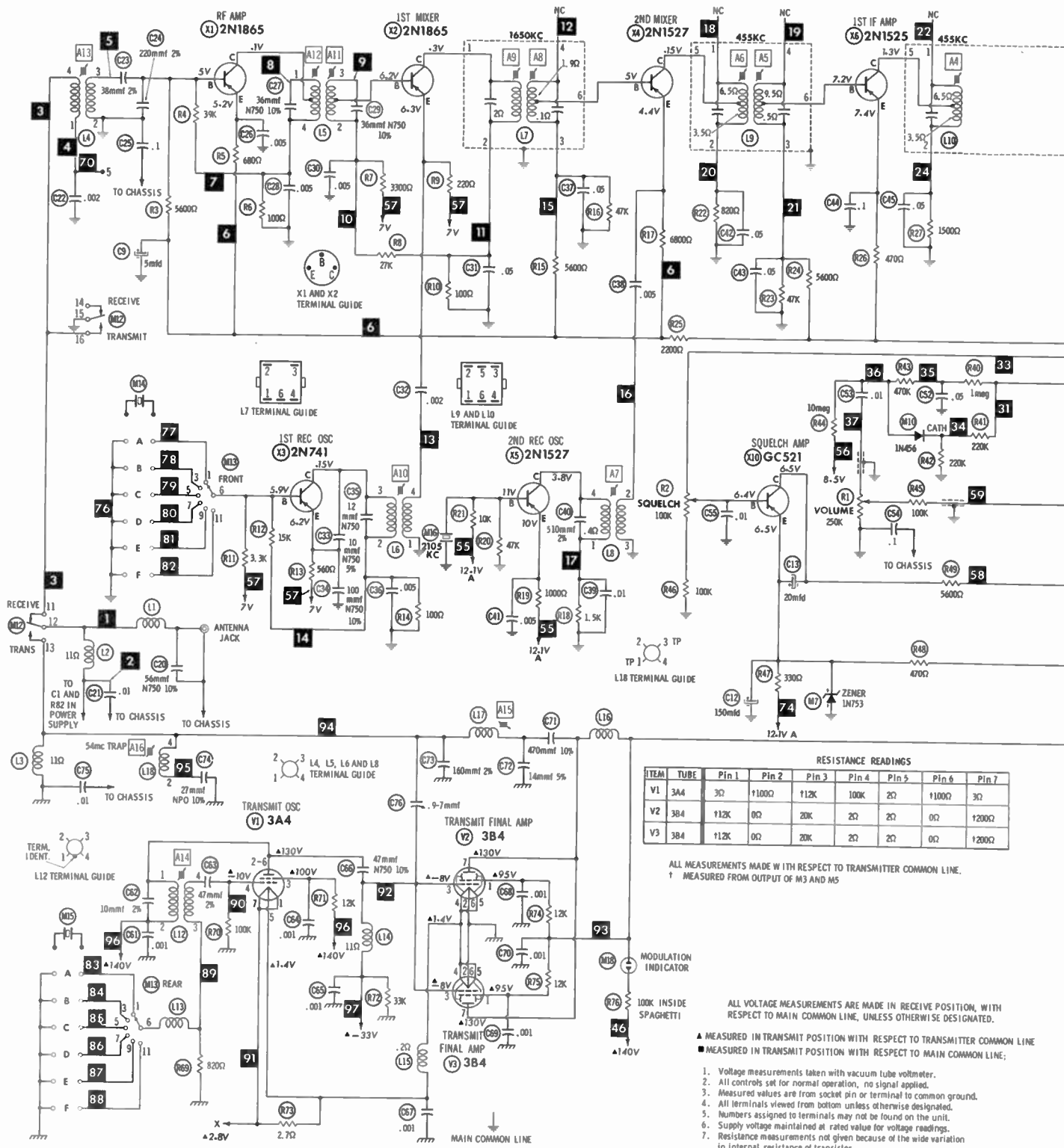
AUDIO PRINTED BOARD

A Howard W. Sams **CIRCUITRACE** Photo

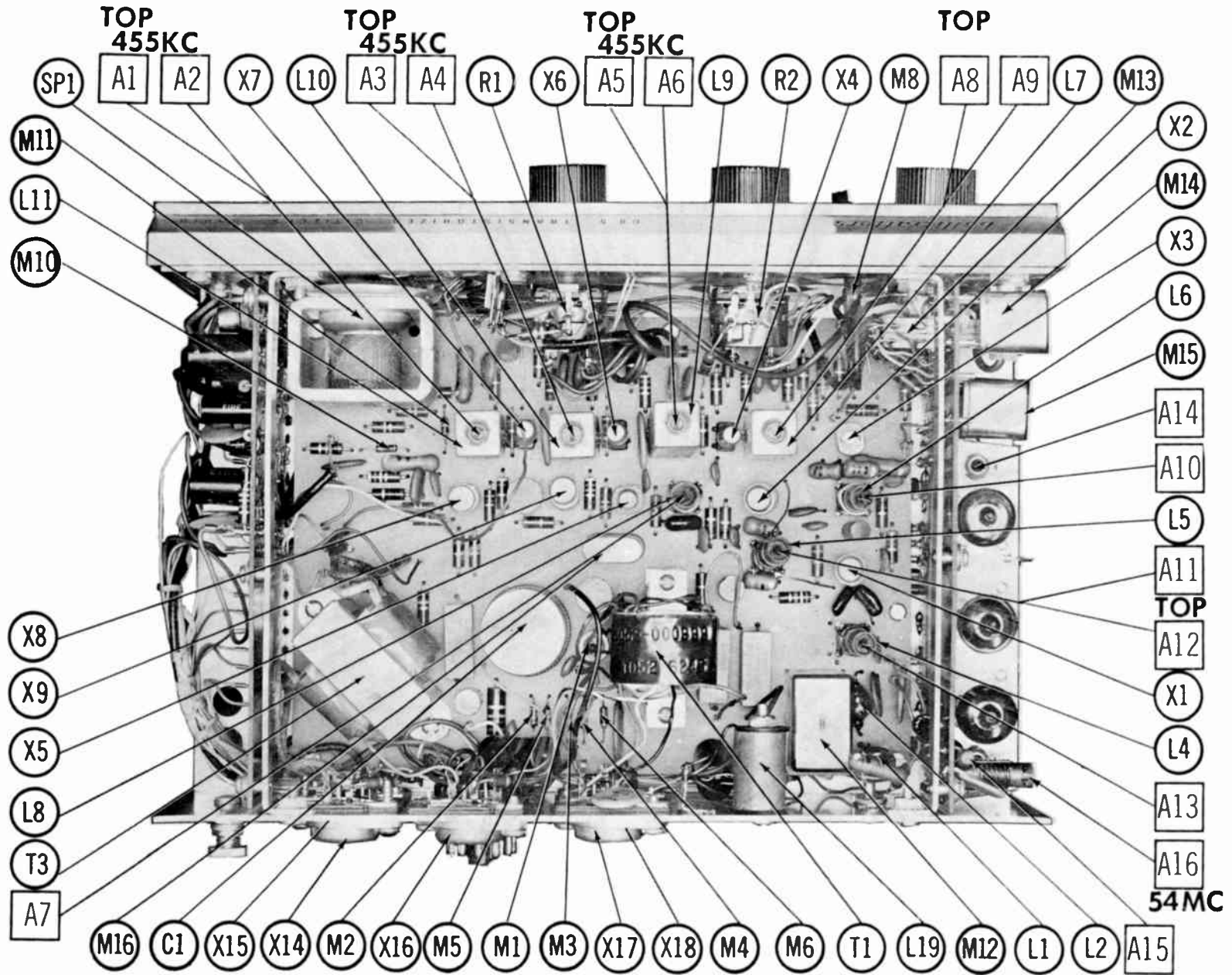


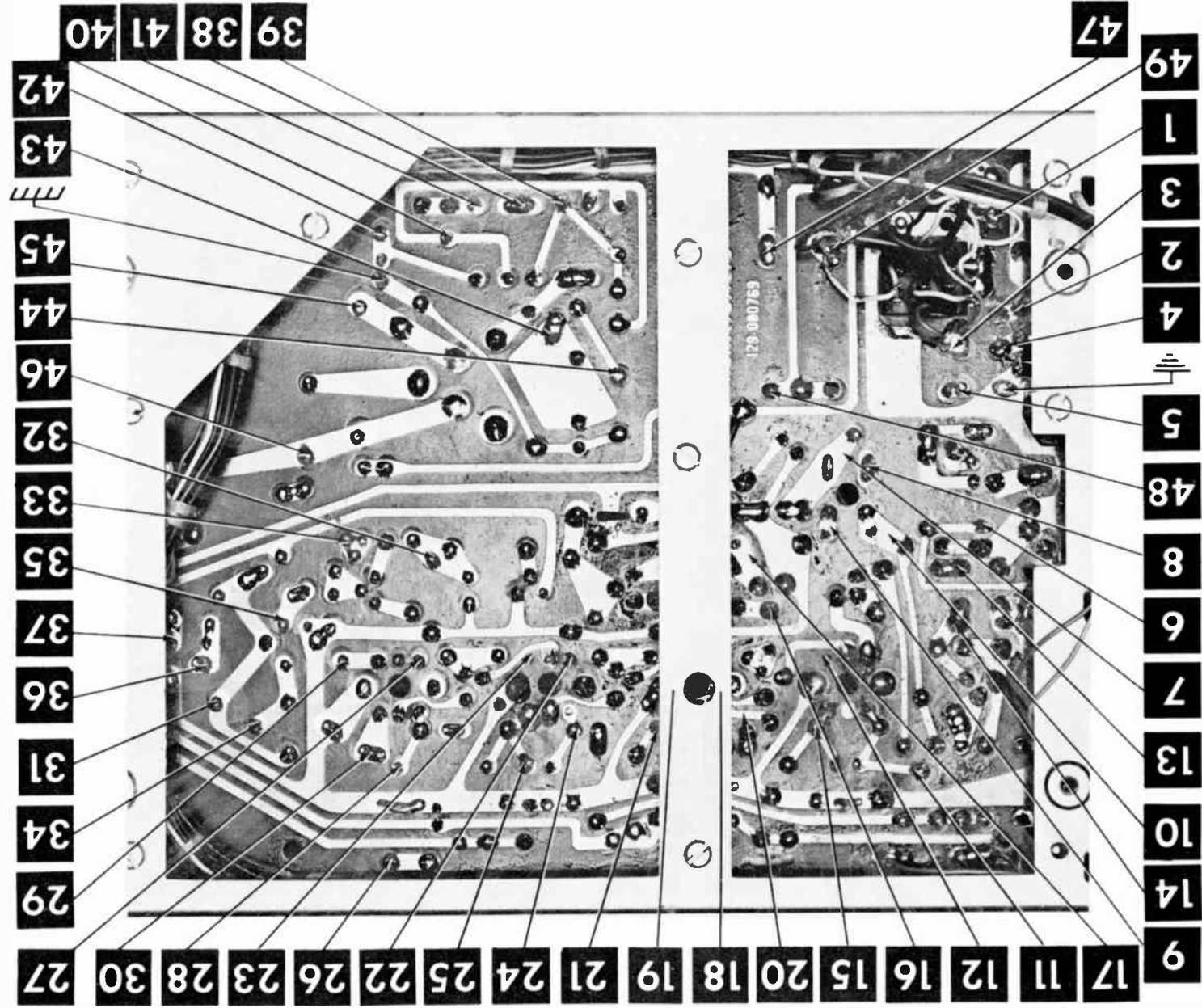


HALLCRAFTERS MODEL CB-5

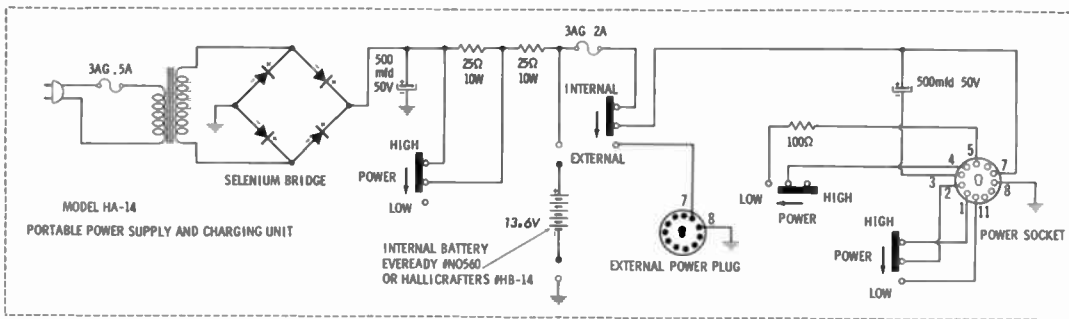


A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CircuitTrace**
 ©Howard W Sams & Co., Inc. 1964

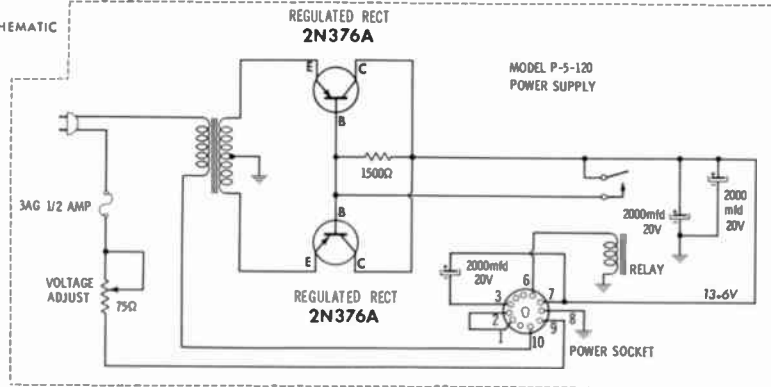




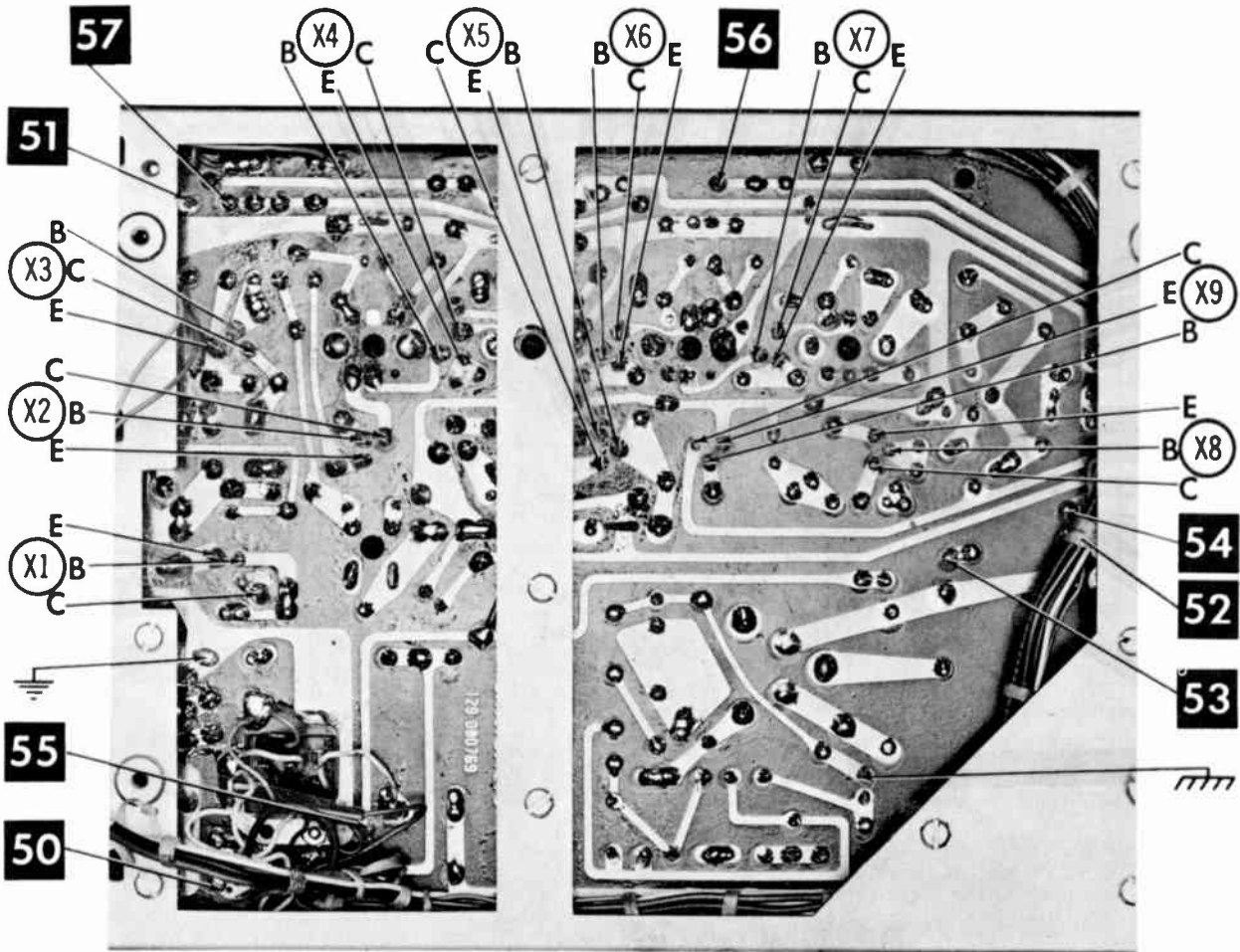
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HALLICRAFTERS MODEL CB-5A



A Howard W. Sams **CIRCUITRACE** Photo

PARTS LIST AND DESCRIPTION

TUBES

♦ AMPEREX ♦		GENERAL ELECTRIC ♦		RCA ♦		RAYTHEON ♦		SYLVANIA ♦	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	Transmit Crystal Osc.	3A4		V3	Transmit Final RF Amp.	3B4			
V2	Transmit Final RF Amp.	3B4							

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2N1865	RF Amp.	D8-25			PNP
X2	2N1865	1st Mixer	D8-25			PNP
X3	2N741	1st Rec. Crystal Osc.	DS-25			PNP
X4	2N1527	2nd Mixer	DS-25		2N1527	PNP
X5	2N1527	2nd Rec. Crystal Osc.	DS-25		2N1527	PNP
X6	2N1525	1st IF Amp.	DS-25		2N1525	PNP
X7	2N1525	2nd IF Amp.	DS-25		2N1525	PNP
X8	TI-495	1st AGC Amp.	D844			NPN
X9	2N585	2nd AGC Amp.	D844	GE-5	2N585	NPN
X10	GC521	Squelch Amp.	DS-26			PNP
X11	GC521	1st AF Amp.	DS-26			PNP
X12	GC520	2nd AF Amp. -Speech Amp.	DS-26			PNP
X13	GC520	Driver	DS-26			PNP
X14	2N376A	Output- Modulator	DS520	GE-3	2N376	PNP (Note 1)
X15	2N376A	Output- Modulator	D8520	GE-3	2N376	PNP (Note 1)
X16	2N555	Current Regulator	D8520	GE-3		PNP (Note 1)
X17	2N376A	Power Osc.	DS520	GE-3	2N376	PNP (Note 1)
X18	2N376A	Power Osc.	D8520	GE-3	2N376	PNP (Note 1)

Note 1. When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Hallcrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	20	250	045-000889	AFH2-26	B0210	XC2-13	TMD-2235	FP217A	PCL52515.1
B	20	250							
C2	100	20	045-000899	CRE623A	NLW100-25	MT1-20	MLV100-25	TT25X100	TE-1211
C3	100	20	045-000899	CRE623A	NLW100-25	MT1-20	MLV100-25	TT25X100	TE-1211
C4	100	20	045-000899	CRE623A	NLW100-25	MT1-20	MLV100-25	TT25X100	TE-1211
C5	400	3	045-000898	CRE239A	NLW400-3	MT1-26	BL2011	TT3X400	TE-1067
C6	20	15	045-000886	BCD15020	NLP20-15	MT1-10	BL1440	PET1570	VL-1169
C7	20	15	045-000886	BCD15020	NLP20-15	MT1-10	BL1440	PET1570	VL-1169
C8	50	15	045-000888	BCD15050	NLP50-15	MT1-16	MLV50-15	PET1575	VL-1174
C9	5	15	045-000887	BCD15005	NLP5-15	MT1-3	MLV5-15	PET1535	VL-1164
C10	50	15	045-000888	BCD15050	NLP50-15	MT1-16	MLV50-15	PET1575	VL-1174
C11	5	15	045-000887	BCD15005	NLP5-15	MT1-3	MLV5-15	PET1535	VL-1164
C12	150	6	045-000917	BCD6150	ECSF150-10	MT1-21	MLV150-6	TT6X150	VL-1104
C13	20	15	045-000886	BCD15020	NLP20-15	MT1-10	BL1440	PET1570	VL-1169
C14	10	20	045-000916	BCD25010	NLP10-25	MT1-5	MLV10-25	PET1760	VL-1207
C15	5	15	045-000887	BCD15005	NLP5-15	MT1-3	MLV5-15	PET1535	VL-1164
C16	10	20	045-000916	BCD25010	NLP10-25	MT1-5	MLV10-25	PET1760	VL-1207
C17	20	15	045-000886	BCD15020	NLP20-15	MT1-10	BL1440	PET1570	VL-1169
C18	5	15	045-000887	BCD15005	NLP5-15	MT1-3	MLV5-15	PET1535	VL-1164
C19	50	15	045-000888	BCD15050	NLP50-15	MT1-16	MLV50-15	PET1575	VL-1174

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.
C20	56 N750 10%		BPD-01	TCN-56	BYA10S1	CCTN-560	CN7-456	10TCU-Q56
C21	.01		BPD-02	DD-103	BYA10D2	CCD-103	B-110	5HK-S10
C22	.002			DD-202		CCD-202	B-220	5HK-D20
C23	38 2%	#461-151360						
C24	220 2%				CD15F221G	DM-15-221G		
C25	.1		TTD-1				TA-010	TH-P10
C26	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C27	36 N750 10%	#491-106360-94		TCN-36				
C28	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C29	36 N750 10%	#491-106360-94		TCN-36				
C30	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C31	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C32	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	10 N750 5%			TCN-10	C10Q1U		CN7-410	10TCU-Q10
C34	100 N750 10%			TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C35	12 N750 10%			TCN-12			CN7-412	10TCU-Q12
C36	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C37	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C38	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C39	.01		TTD-01	CK-103	H2		TA-110	TG-S10
C40	510 2%				CD19F511G	DM-15-511G		
C41	.005		TTD-005	CK-502	H1		TA-250	TG-D50
C42	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C43	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C44	.1		TTD-1				TA-010	TH-P10
C45	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C46	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C47	.1		TTD-1				TA-010	TH-P10
C48	.05		TTD-05	CK-503	H5		TA-150	TG-S50
C49	62 N750 10%			TCN-62		CCTN-620	CN7-462	10TCU-Q62
C50	82 N750 10%			TCN-82		CCTN-820	CN7-462	10TCU-Q82

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.	
C51	.01	Note 1	TTD-01	CK-103	H2		TA-110	TG-S10	
C52	.05		TTD-05	CK-503	H5		TA-150	TG-S50	
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C54	.1		TTD-1				TA-010	TH-P10	
C55	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C56	.05		TTD-05	CK-503	H5		TA-150	TG-S50	
C57	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C59	.1		TTD-1				TA-010	TH-P10	
C60	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C61	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C62	10 2%	#481-131100							
C63	47 2%	#481-151470				MCE215			
C64	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C65	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C66	47 N750 10%	Note 1	TCN-47		C10Q47U	CCTN-470	CN7-447	10TCU-Q47	
C67	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C68	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C69	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C70	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C71	470 10%		(27 NPO) †	D1-470	DD-471	JB6T47	CCD-471	GP347	10TS-T47
C72	14 5%								
C73	160 2%								
C74	27 NPO 10%								
C75	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C76	.9-7	#044-100511							
C77	.01 1KV	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10		
C78	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C79	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C80	.01	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10		

Note 1. Not used in some versions.
 † Alternate Value. # Hallicrafters Part Number.

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			Hallicrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	250K	025-002126	F2-250K, SU204, KR-3, or (B-51, KR-3)	A47-250K-7, FS-3, SWE-21	Q13-130, 76-4, or (BU1, CF23, SS1, VF)*	UA254A, SL3500, US-43 or (RU254A, SL38, SL3500, US-43) or (U44, US-28)
R2	Squelch & TSQ Sw.	100K	025-002127	F1-100K, SU204, KR-3, or (B-40, KR-3)	A47-100K-S, FS-3, SWE-21	Q11-128, 76-4, or (BU1, CF13, SS1, VF)*	UA15L, SL3500, US-43 or (RU15L, SL38, SL3500, US-43) or (U41, US-28)

* "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
R63	10Ω (Cold) Thermistor			#023-000495	R78	220Ω 5W	MR3	5W-SQ-220	#445-012221
R77	22Ω 5W	MR2	5W-SQ-22	#445-012220	R81	100Ω 5W	PW5-100	5W-SQ-100	#445-012101

Hallicrafters Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Hallicrafters PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Ant. Load (7 turns)	051-003508					
L2	RF Choke (710uh)	053-000530	TV-206	6148	RTC-8583	T327	
L3	RF Choke (710uh)	053-000530	TV-206	6148	RTC-8583	T327	
L4	Receiver Input	051-003505					
L5	Receiver RF	051-003503					
L6	1st Receiver Osc.	051-003504					
L7	1650KC 1F	050-000880					
L8	2nd Receiver Osc.	051-003506					
L9	1st 455KC 1F	050-000878					
L10	2nd 455KC 1F	050-000878					
L11	3rd 455KC 1F	050-000879					
L12	Trans. Osc.	051-003502					
L13	RF Choke(1.8uh)	053-000669					
L14	RF Choke (710uh)	053-000530	TV-206	6148	RTC-8583	T327	
L15	Fl. Choke (4.7uh)	053-000663	SW-631	74F476AP	RTC-8518	T819	
L16	RF Choke (1MH)	053-000625					
L17	Final Tank	051-003507					
L18	54MC Trap	051-003501					
L19	Hash Choke	051-003513					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Hallicrafters PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	12.6VDC ① 1.4A	110VAC ② .058A	3VAC ③ .63A	052-000999					

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			Hallicrafters	MERIT	STANCOR	THORDARSON	TRIAD	
	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	PART No.	
T2	2.2	1	055-000410					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			Hallicrafters	MERIT	STANCOR	THORDARSON	TRIAD	
	PRI.	SEC.1	PART No.	PART No.	PART No.	PART No.	PART No.	
T3	2000Ω CT	3-4Ω	055-000482					
		SEC.2						
		50K						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Hallicrafters PART No.	QUAM PART No.	
SP1	3" PM 3-4Ω	085-000224		

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
M1	.63A	027.000312	A50 or D50	1N2858	F-1 or 10H
M2	.001A	019-002935	1N537 or A100 or D100	1N2859	20H or F2
M3	.058A	019-002935	A300 or D300 ①	1N1783 or 1N2861 or 1N3194	F2 or 20H
M4	.058A	019-002935	A300 or D300 ①	1N1783 or 1N2861 or 1N3194	F2 or 20H
M5	.058A	019-002935	A300 or D300 ①	1N1783 or 1N2861 or 1N3194	F2 or 20H
M6	.058A	019-002935	A300 or D300 ①	1N1783 or 1N2861 or 1N3194	F2 or 20H
M7	.058A	019-002962 ②			

① Part #FW300 may replace M3 thru M6. ② 6.2 Volt Zener Diode (1N753).

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Hallicrafters PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M8	3AG/SB	2 Amp. 125V S/B	039-100428	008-000883	313002. 2 Amp/125V S/B	155020	MDL2	HHJ
M9	3AG/SB	1.5Amp 125V S/B		-	30301.5 1.5 Amp 125V S/B	155020	MDL 1 1/2	HHJ

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M10	Diode	019-002964	Noise Limiter (1N456)
M11	Diode	019-002952	Audio Detector (1N618)
M12	Relay	021-000864	Transmit-Receive
M13	Switch	060-002559	Channel Selector
M14	Crystal	019-002819	Receive
M15	Crystal	019-002820	Transmit
M16	Crystal	019-002936	2105KC
M17	Microphone Assy.	081-000113	Includes Push-to-talk Switch
M18	Modulation Indicator	086-000632	Neon Bulb
	DC Power Cable	087-007629	
	Audio Printed Board	150-005335	
	Rec. Printed Board	150-005337	
	Trans. Printed Board	150-005333	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Channel Selector Dial	150-005455	Squelch Knob	015-001572
Channel Selector Knob	015-001571	Front Panel	068-001327
Volume Knob	015-001572	Cabinet	066-003655

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. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

HALLCRAFTERS MODEL CB-5



PHOTOFACT®



TRADE NAME : Hallmark Model 512
SUPPLIER : Hallmark Instruments, Inc.
 6612 Denton Drive
 P. O. Box 10941, Dallas, Texas
TYPE SET : 9 Tube Transceiver
POWER SUPPLY : 110 - 120VAC, 60 Cycles (or)
 12 Volt Storage Battery
RATING : .54 Amp. @117VAC (or)
 4.5 Amp. @12.6VDC
TUNING RANGE : Any 12 CB Channels 1 thru 23

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A4.....GENERAL CEMENT #5097, 8727
 WALSCO #2515
 A5.....GENERAL CEMENT #8721, 8271, 8867
 A6, A7, A8, A9.....GENERAL CEMENT #8606, 8606L, 8869
 WALSCO #2543, 2544, 2588
 A10.....GENERAL CEMENT #5000, 5003, 5066
 WALSCO #2512, 2525, 2528

RECEIVER ALIGNMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .1mfid to pin 7 (grid) of converter (V2), low side to chassis. Tune to 455KC.	Any	A1, A2, A3, A4	Adjust for maximum output.
Across antenna receptacle. Tune to channel frequency.	Center Channel Used.	A5, A6	Adjust for maximum output.

TRANSMITTER ALIGNMENT

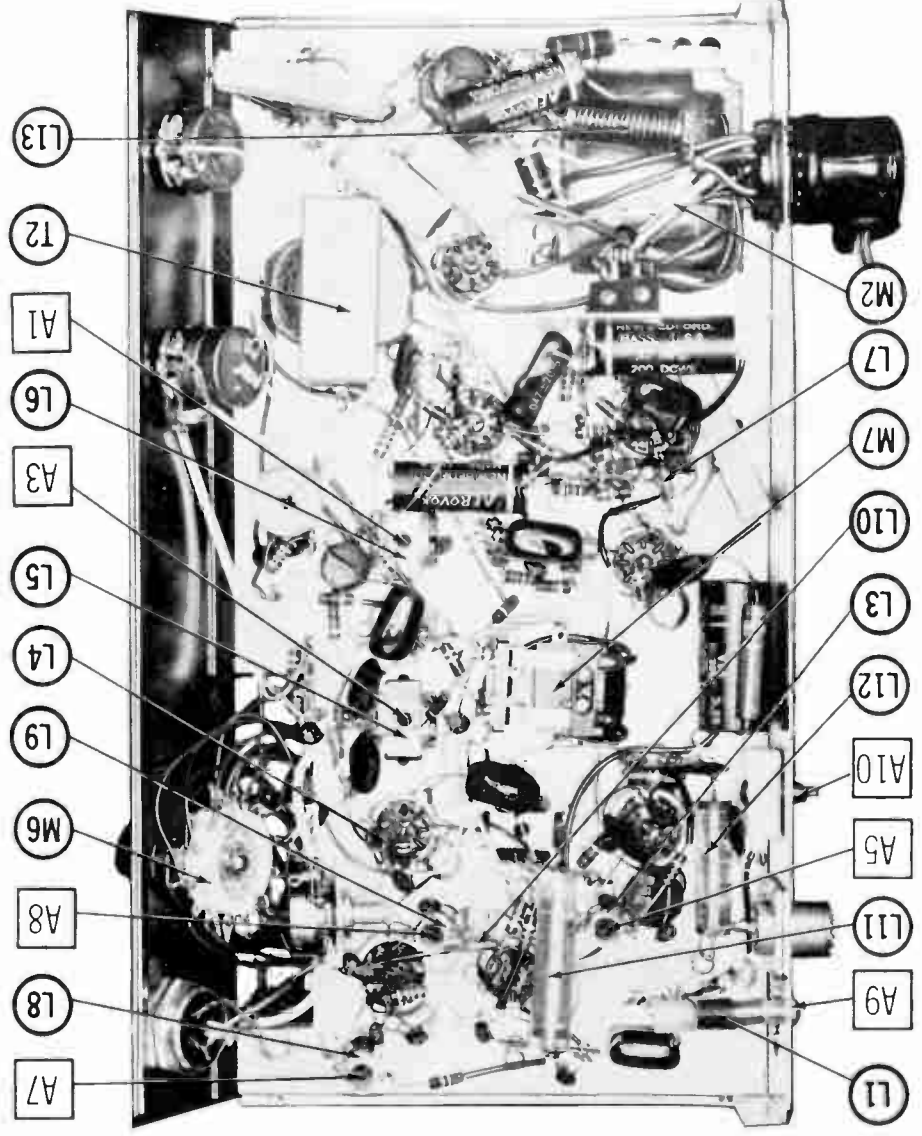
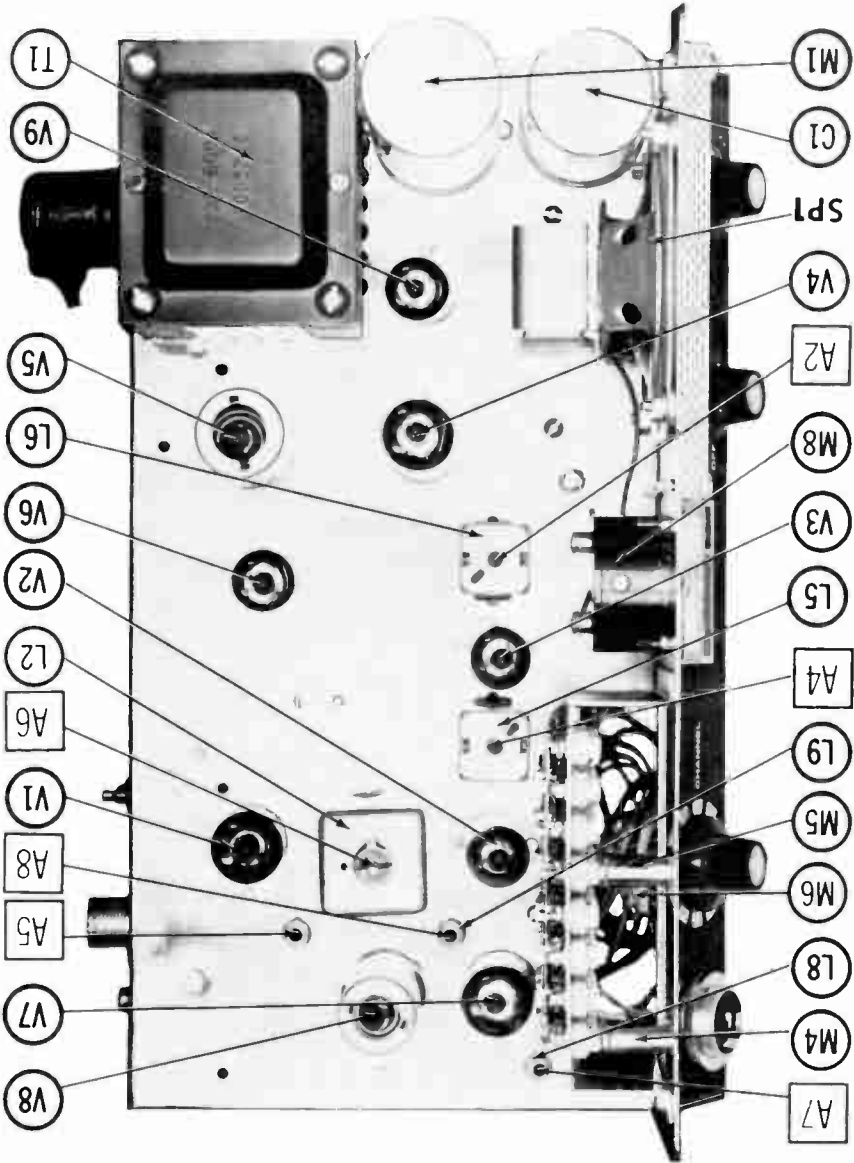
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

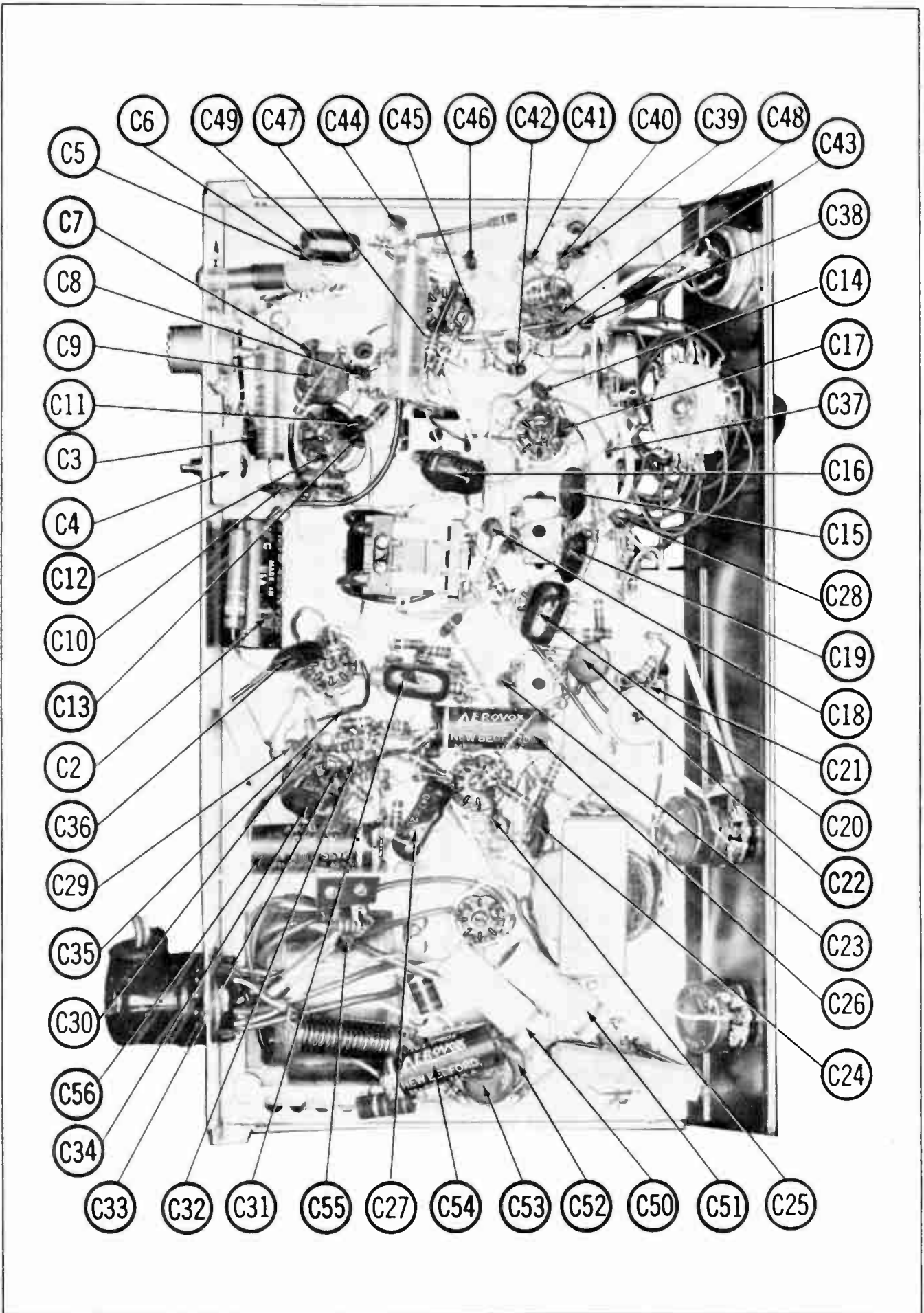
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

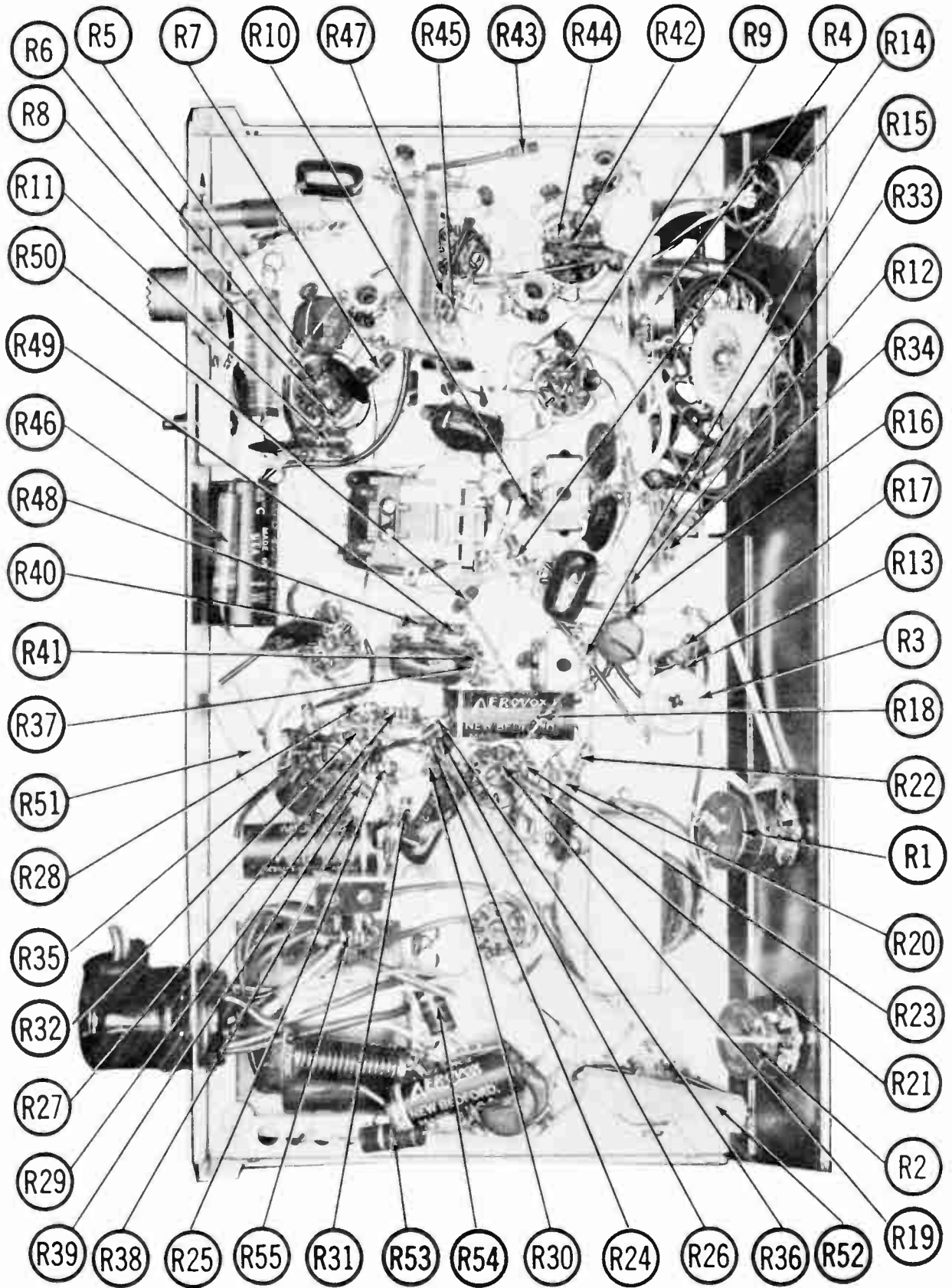
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

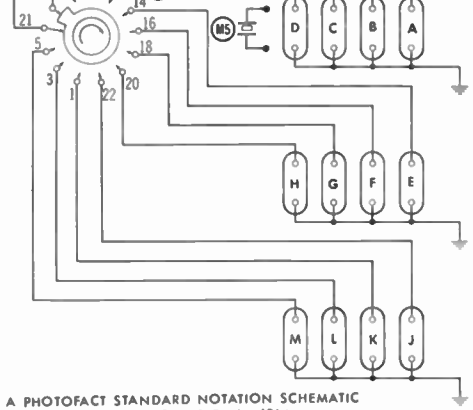
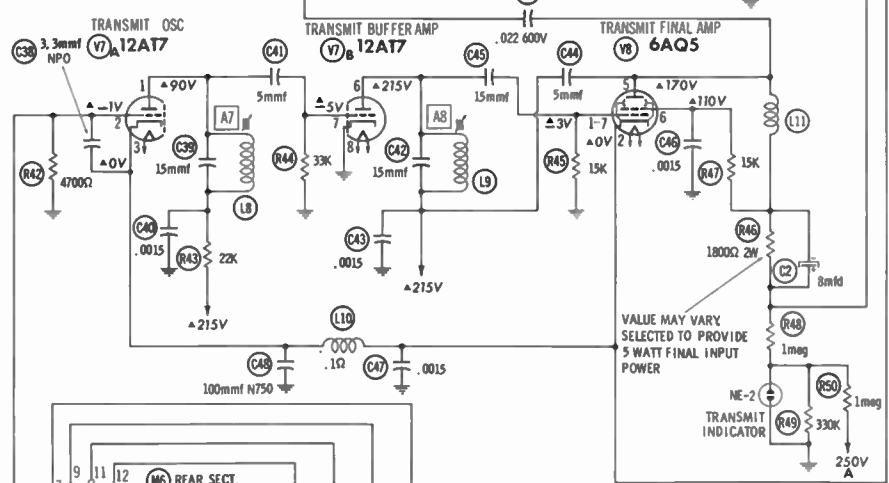
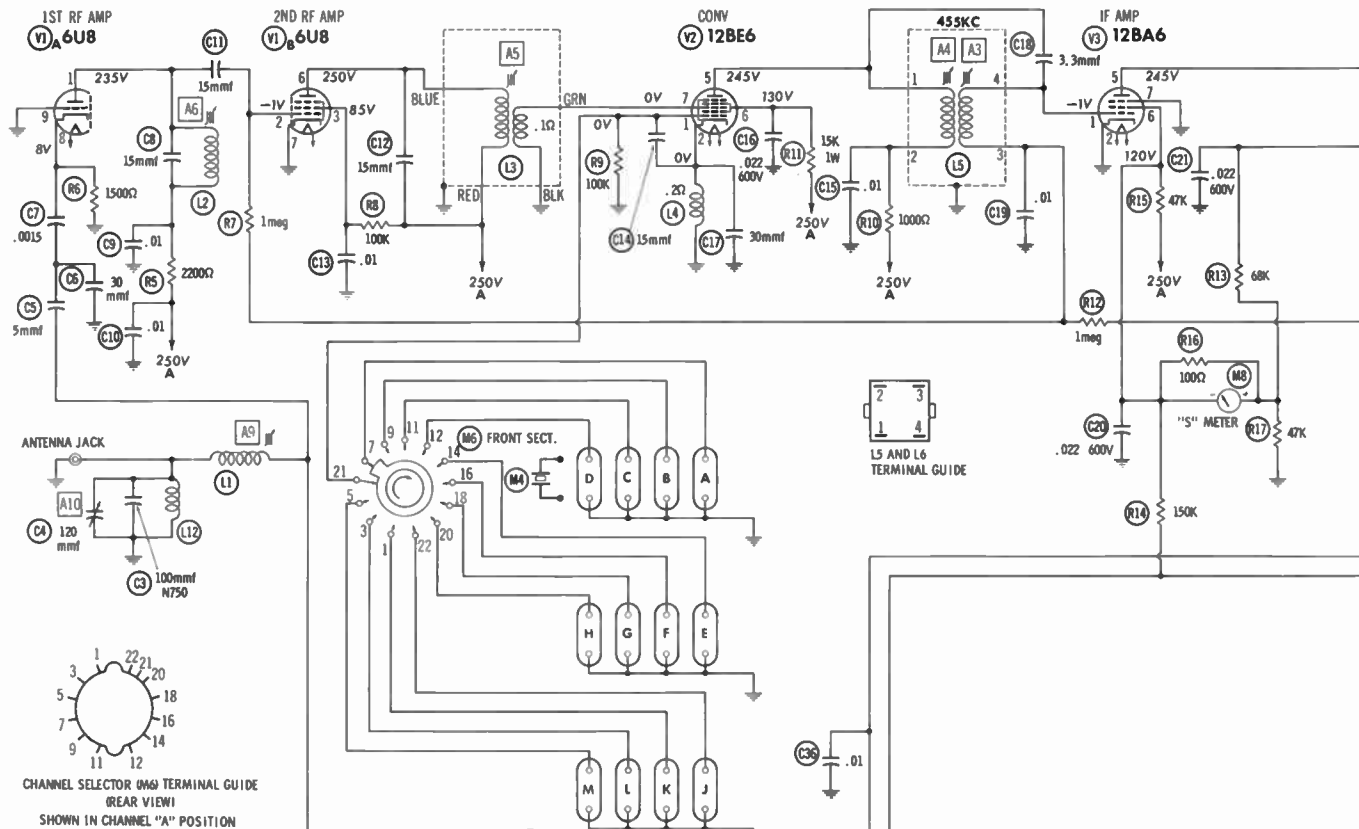
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect dummy load to antenna receptacle. Use Wattmeter or field strength meter.	Center Channel Used.	A7	Key transmitter. Adjust for maximum output. Set A7 just below peak. Key transmitter several times to be sure oscillator starts on all channels.
"	"	A8, A9, A10	Key transmitter. Adjust for maximum output.

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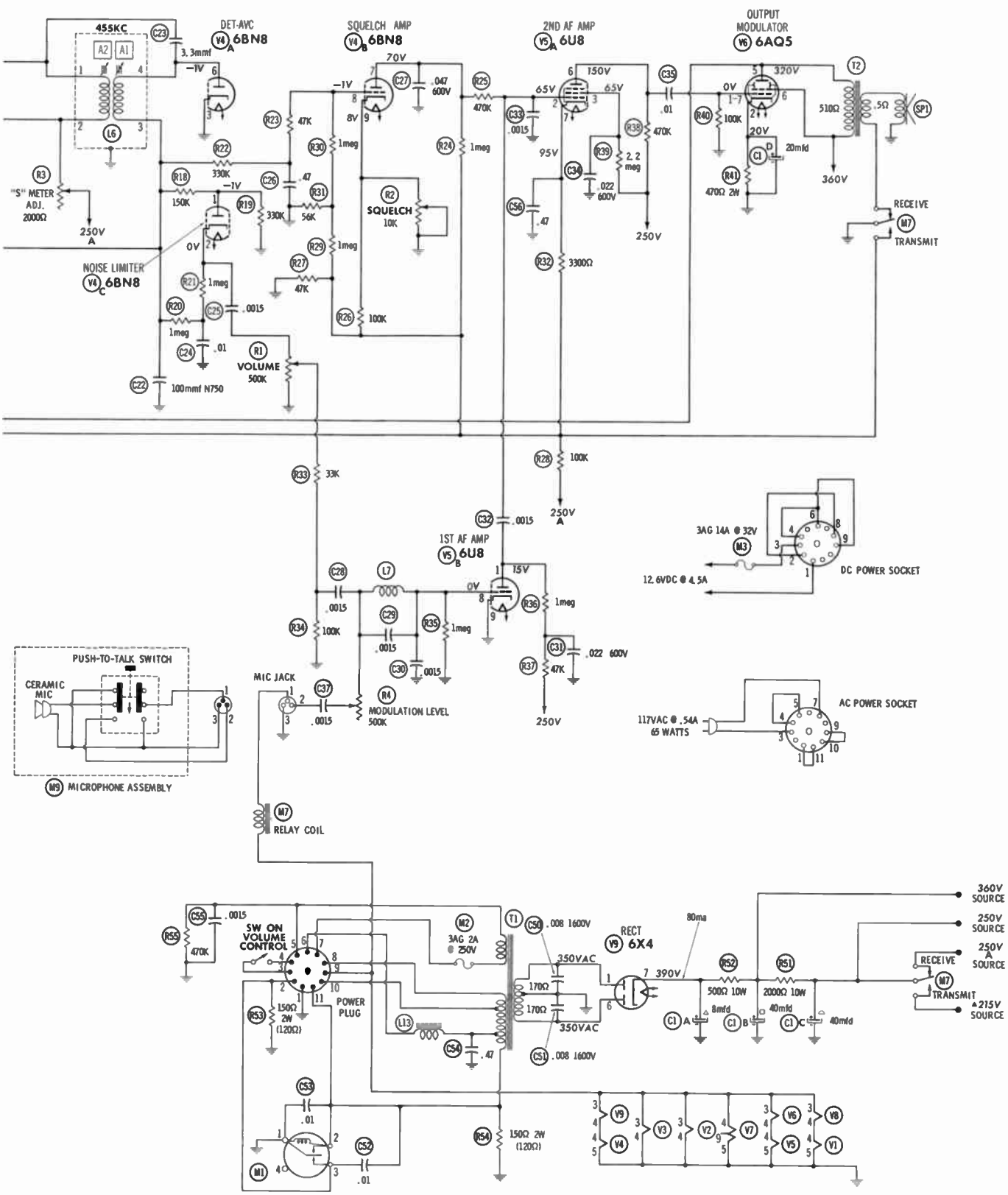


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	14700Ω	2.7meg	†100K	FIL	FIL	†2500Ω	0Ω	1500Ω	0Ω
V2	12BE6	100K	.2Ω	FIL	FIL	†3500Ω	†17K	.1Ω		
V3	12BA6	1.6meg	0Ω	FIL	FIL	†2500Ω	147K	0Ω		
V4	6BN8	280K	2.2meg	0Ω	FIL	FIL	320K	†1.1meg	500K	8000Ω
V5	6U8	†1meg	†1.6meg ▲3.5meg	12meg	FIL	FIL	1470K	†100K ▲3900Ω	1meg	0Ω
V6	6AQ5	100K	470Ω	FIL	FIL	†1100Ω	†500Ω	100K		
V7	12AT7	▲125K	4700Ω	▲.1Ω	FIL	FIL	▲†2500Ω	33K	0Ω	FIL
V8	6AQ5	15K	▲0Ω	FIL	FIL	†3200Ω	†18K	15K		
V9	6X4	170Ω	NC	NC	TP	NC	170Ω	150K		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 ▲ MEASURED IN "TRANSMIT" POSITION. TP TIE POINT NC NO CONNECTION
 † MEASURED FROM PIN #7 OF V9.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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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.

HALLMARK MODEL 512

PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	AMPEREX	GENERAL ELECTRIC	RCA	RAYTHEON	SYLVANIA
	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp. Converter IF Amp. Detector-Noise Limiter-Squelch	6U8	V5 V6 V7 V8 V9	AF Amp.-Speech Amp. Output-Modulator Trans. Osc.-Buffer Final RF Amp. Rectifier	6U8
V2		12BE6			6AQ5
V3		12BA6			12AT7
V4		6BN8			6AQ5 6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HALLMARK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	8	450		AFH4-78-10	D0640	XC4-21	TMQ-4547	FP-429	TVL-4736
B	40	450							
C	40	450							
D	20	25							
C2	3	450		PRS1715	BR8-450	QT1-4	TD-8-450	TC-71	TVA-1704

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.
C3	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CNT-310	10TCU-T10
C4	120mmf							
C5	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C6	30		NPO-DI 33	TCZ-30	C10Q3C	CCTO-300		10TCC-Q30
C7	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C8	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C12	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C17	30		NPO-DI 33	TCZ-30	C10Q3C	CCTO-300		10TCC-Q30
C18	3, 3		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C21	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C22	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CNT-310	10TCU-T10
C23	3, 3		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C26	.47 400V		P488N-P5		CUB4P5	4DP-5-504	GEM-405	4PS-P50
C27	.047 600V		P688N-047	DD-503	PM6847	6DP-3-473	GEM-6147	6TM-S47
C28	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C29	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C30	.0015		BPD-0015	DD-152	LA10D15 C4	CCD-152	B-215	10TS-D15
C31	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C32	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C33	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C34	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-233	GEM-6122	6TM-S22
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C38	3, 3 NPO		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C39	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C40	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C41	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C42	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C43	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C44	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C45	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C46	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C47	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C48	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CNT-310	10TCU-T10
C49	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-233	GEM-6122	6TM-S22
C50	.008 1600V							
C51	.008 1600V							
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	.47 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2PS-P50
C55	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C56	.47 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2PS-P50

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			HALLMARK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	500K		F2-500K, SU204, KR-2 or (B-60-S)	A47-500K-Z RS-2, SWE-20	Q13-133, PQ, 76-2 or (BU2, CF25, SSS, WF)*	UA55A, SL2500, US-42 or (RU55A, SL38, SL2500, US-42) or (U48, US-27)
R2	Squelch	10K		F1-10K, SU204 or (B-14)	A47-10K-S RS-2	Q11-116, PQ or (BU1, CF9, SSS, DC1)*	UA14L, SL2500 or (RU14L, SL38, SL2500) or (U20)
R3	"S" Meter Adjust Modulation Level	2000Ω 2W			U39-2000	Q13-133, PQ or (BU1, CF25, SSS, DC1)*	UA55A, SL2500 or (RU55A, SL38, SL2500) or (U48)
R4		500K		F2-500K, SU204 or (B-60)	A47-500K-Z RB-2		

* "SNAPTROL"

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
R51	2000Ω 10W	PW10-200	10W-8Q-200		R52	500Ω 10W	PW10-500	10W-8Q-500	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HALLMARK PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna		BC-562	4202	RTC-8516	T856	
L2	Bandpass		TV-118	6171-A	RTC-8609	T216	
L3	Bandpass						
L4	Cath. Choke(1uh)		BC-562	4602	RTC-8516	T976	
L5	1st IF		BC-352	12-C9	RTC-8636	TE623	
L6	2nd IF		BC-352	12-C10	RTC-8637	TE623	
L7	RF Choke (1uh)		BC-562	4602	RTC-8516	T976	
L8	Trans. Osc.		TV-118	6171-A	RTC-8609	T216	
L9	Buffer Plate		TV-118	6171-A	RTC-8609	T216	
L10	RF Choke (1uh)		BC-562	4602	RTC-8516	T976	
L11	RF Choke (24uh)		BC-565	74F225A1	RTC-8519	T863	
L12	RF Choke (24uh)		BC-565	74F225A1	RTC-8519	T863	
L13	Hash Filter		BC-537	5219	RTC-9181	T963	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PR1	SEC. 1	SEC. 2	HALLMARK PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④.540A (or) 12.6V DC④ 4.5A	700VCT ④.080A	12.7V ④3.1A	222-6001					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PR1	SEC.	HALLMARK PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	4800Ω	3-4Ω		A-3019	A-3022	26849	8-5Z	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		HALLMARK PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-4Ω	35B996	3A07	

VIBRATOR

ITEM No.	INPUT VOLTS	FRE. QUENCY	REPLACEMENT DATA			NOTES
			HALLMARK PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	12.6	115%		6301	G1601	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						
			HALLMARK PART No.		LITTELFUSE PART No.		BUSS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER	
M2	3AG	3A 250V P/T			318002 (3AG 2A 250V P/T			GJV-2	
M3	3AG	14A 22V	①		312014 (3AG 14A 22V	155020		AGC-14	HDJ

① DC Operation only.

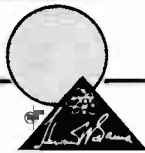
MISCELLANEOUS

ITEM No.	PART NAME	HALLMARK PART No.	NOTES
M4	Crystal		Receiver (order by frequency & channel desired) Transmit (order by frequency & channel desired) Crystal Selector (Receive) Crystal Selector (Transmit) Receive-Transmit Includes Push-to-talk Switch
M5	Crystal		
M6A	Switch		
B	Switch		
M7	Relay		
M8	"B" Meter		
M9	Microphone Ass'y.		

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
	8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/B)
	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.)

HALLMARK MODEL 512



PHOTOFACT®



TRADE NAME : Heath Models GW-12A, GWW-12A (AC)
GW-12D, GWW-12D (AC-Batt.)

SUPPLIER : Heath Co., Subsidiary of Daystrom, Inc.
Benton Harbor, Michigan

TYPE SET : 7 Tube Transceiver

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

RATING : 42 Watts, .42 Amp. @ 117 VAC (Rec.)
48 Watts, .48 Amp. @ 117 VAC (Trans.)
3.3 Amp. @ 12.6 VDC (Rec.)
3.8 Amp. @ 12.6 VDC (Trans.)

TUNING RANGE : Any one CB Channel 1 thru 23

HEATH MODELS GW-12A/D, GWW-12A/D

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A7..... GENERAL CEMENT #8606, 8606-L, 8869, 9295, 9302
WALSCO #2543, 2511, 2544, 2588

RECEIVER ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output indication. Connect output meter across voice coil.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 (grid of V1 (Mixer), low side to chassis. Tune to 455KC (400 μ Mod.).	Channel Used	A1 thru A4	Turn squelch control fully counterclockwise. Adjust for maximum output.
Across antenna jack. Tune to channel frequency (400 μ Mod.).	Channel Used.	A5	Adjust for maximum output.

TRANSMITTER ALIGNMENT

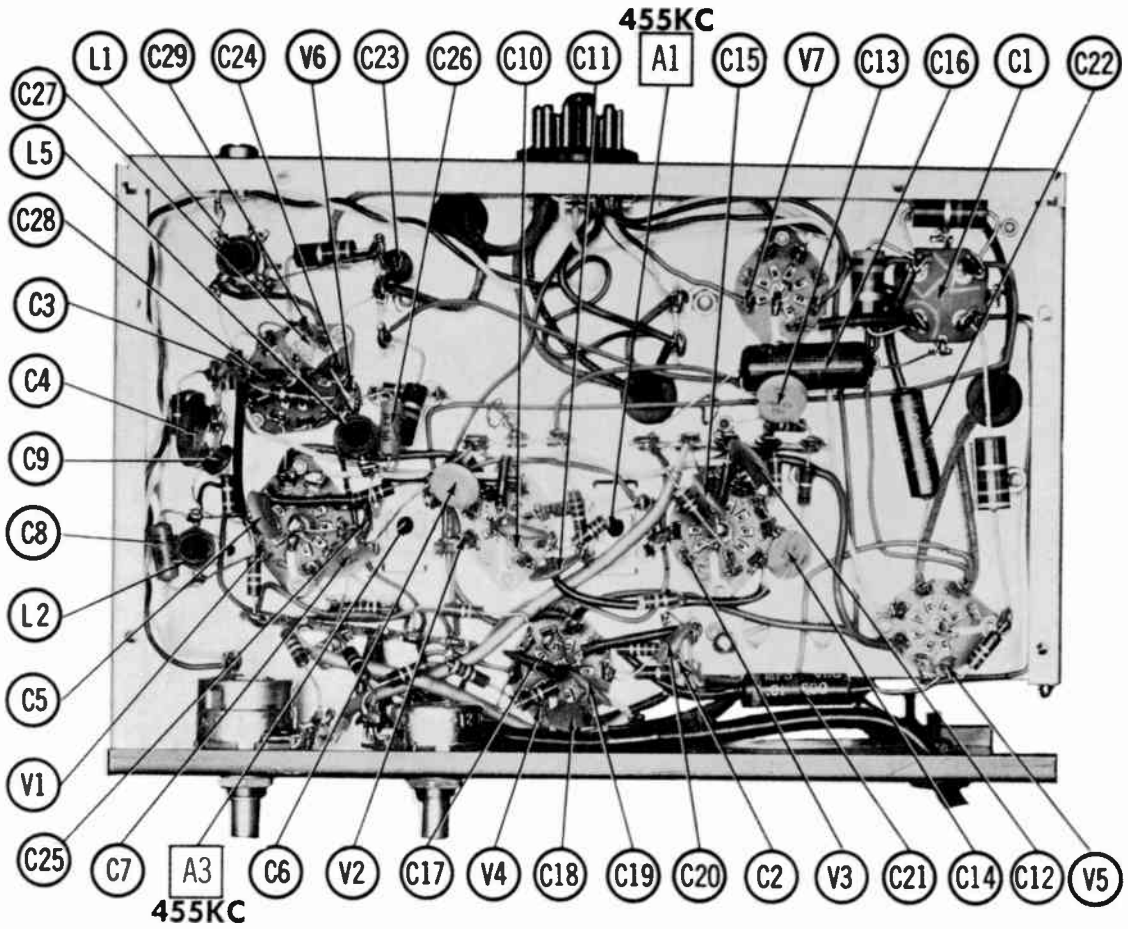
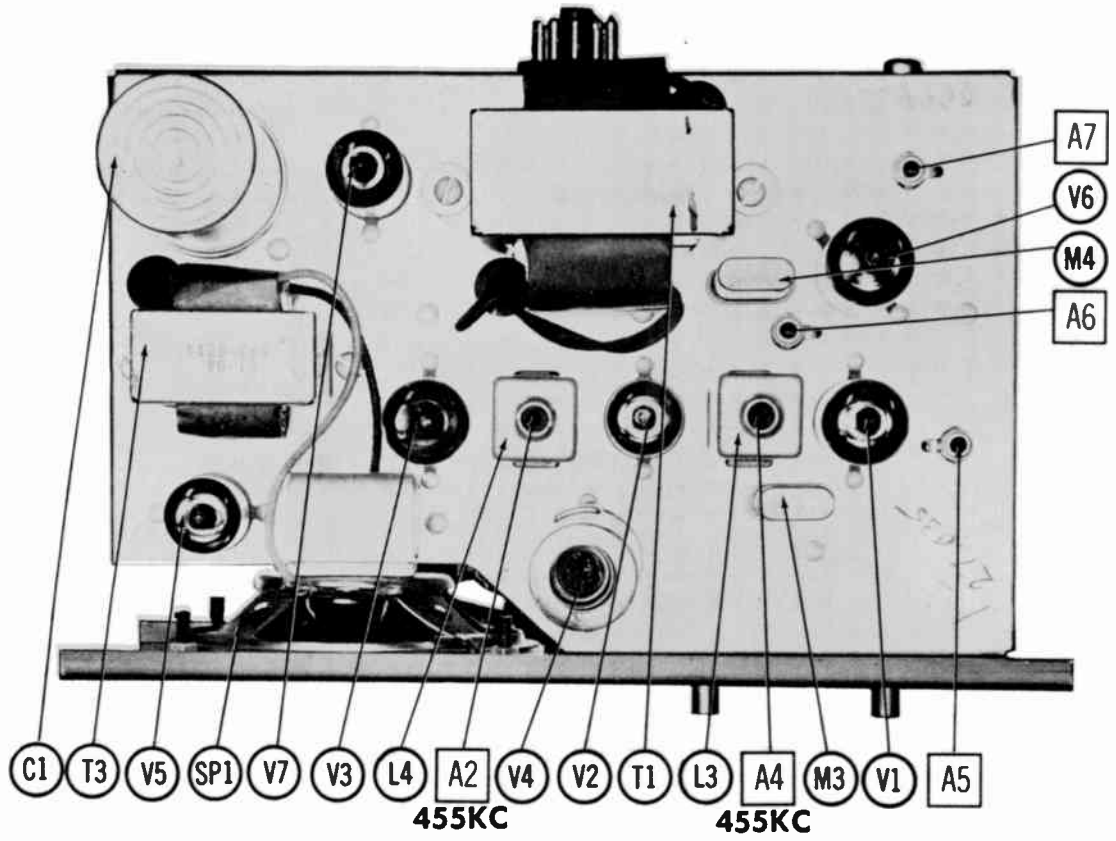
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

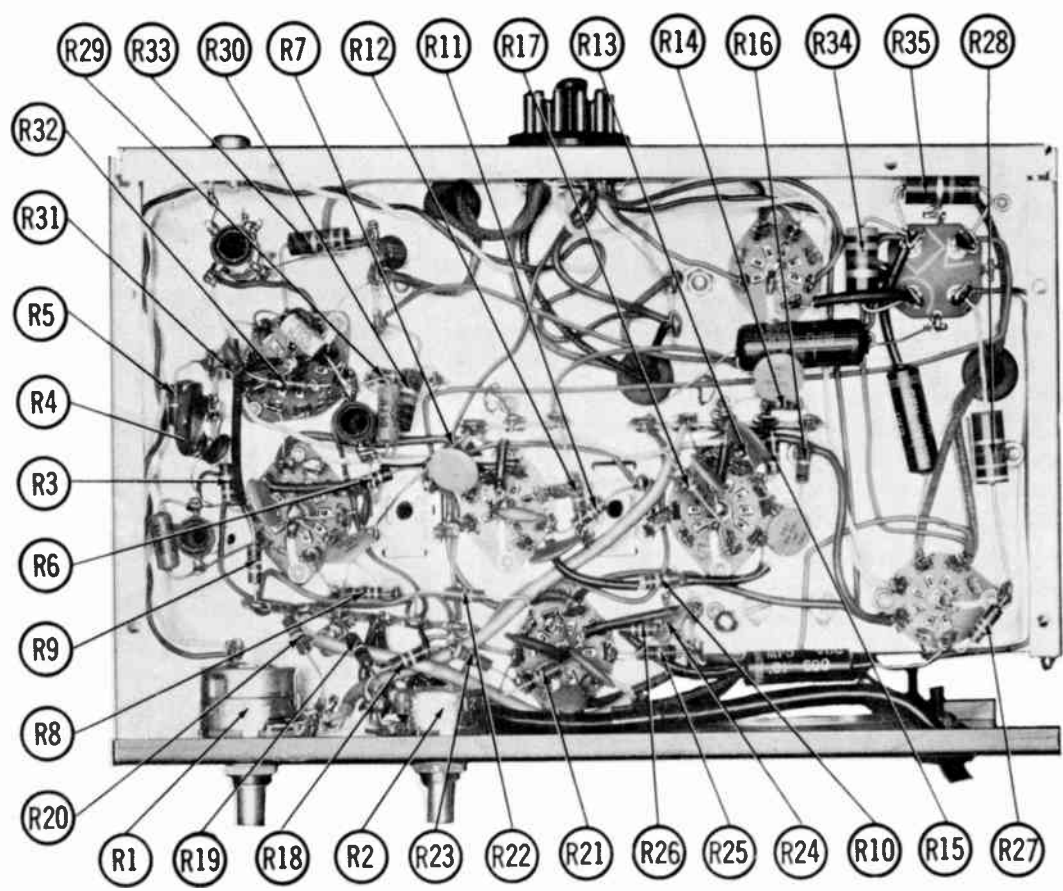
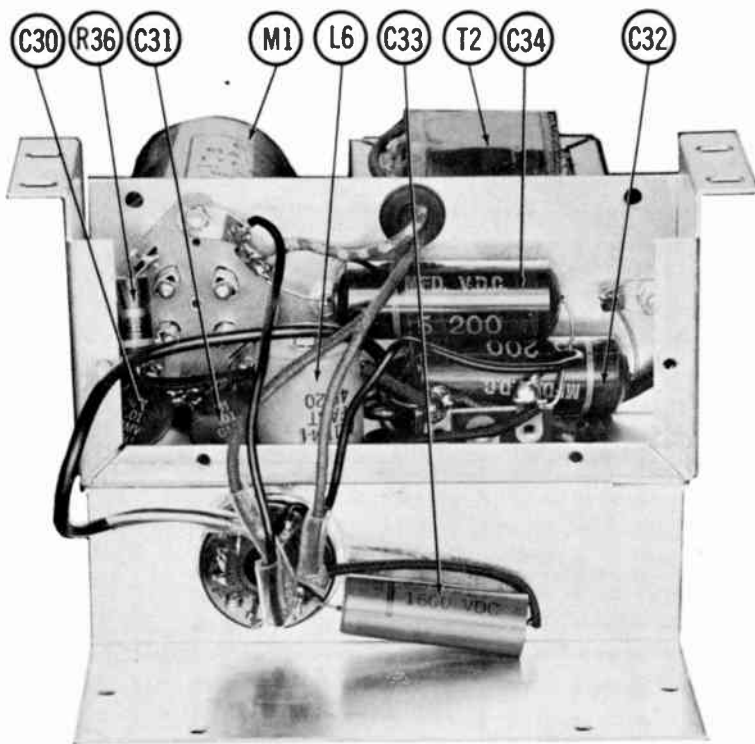
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

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.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Field strength meter or RF wattmeter.	Channel Used.	A6	Key transmitter. Adjust for maximum output. Key transmitter several times to be sure oscillator starts each time. If necessary, back off A6 SLIGHTLY from maximum output.
"	"	A7	Adjust for maximum output.

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





PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	REPLACEMENT DATA		ITEM No.	USE	TYPE
		AMPEREX	GENERAL ELECTRIC			
V1	Mixer-Rec. Osc.		8EA8	V5	Output - Modulator	6AQ5A
V2	IF Amp.		6BJ6	V6	Transmit Osc. - Final Amp.	8AU8
V3	Det. - AVC-Noise Limiter- Squelch Amp.		6BJ7	V7	Rectifier	8X4
V4	Speech Amp. - AF Amp.		6AN8			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HEATH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	80	450	25-93		C0365 BR20-250				TVLS-4708,10*
B	40	350							
C	20	350							
D	20	250							
C2	10	10	25-54	PTT39	NLW10-15	MT1-5	MLV10-10	TT12X10	TE-1114

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

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.
C3	3.3 NPO	(.002) †	NPO-DI 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C4	.1mfd		TTD-1	CK-104	H6		TA-010	TG-P10
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	10 N750		N750-S1 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C9	.002		BPD-002	DD-202	BYA10D1	CCD-202	B-220	5HK-D20
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	100 N750		N750-D1 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	100 N750		N750-D1 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.1 200V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	47M-P10
C17	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	100 N750		N750-D1 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01 200V 10%		BE2S1		PM4S1	4DP-1-103	PVC-211	2TM-S10
C22	.01 200V 10%		BE2S1		PM4S1	4DP-1-103	PVC-211	2TM-S10
C23	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C24	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C28	10 N750		N750-S1 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C27	4.7 N750		N750-S1 5, 0	TCN-5	C10Q5U			
C28	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C29	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.5 200V		P288N-5		PM2P5	2DP-5-504	GEM-205	2TM-P50
C33	.5 200V		P288N-5		PM2P5	2DP-5-504	GEM-205	2TM-P50
C34	.005 1600V 10%		VBC-9					MB-D5

† Alternate Value.

CONTROLS

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

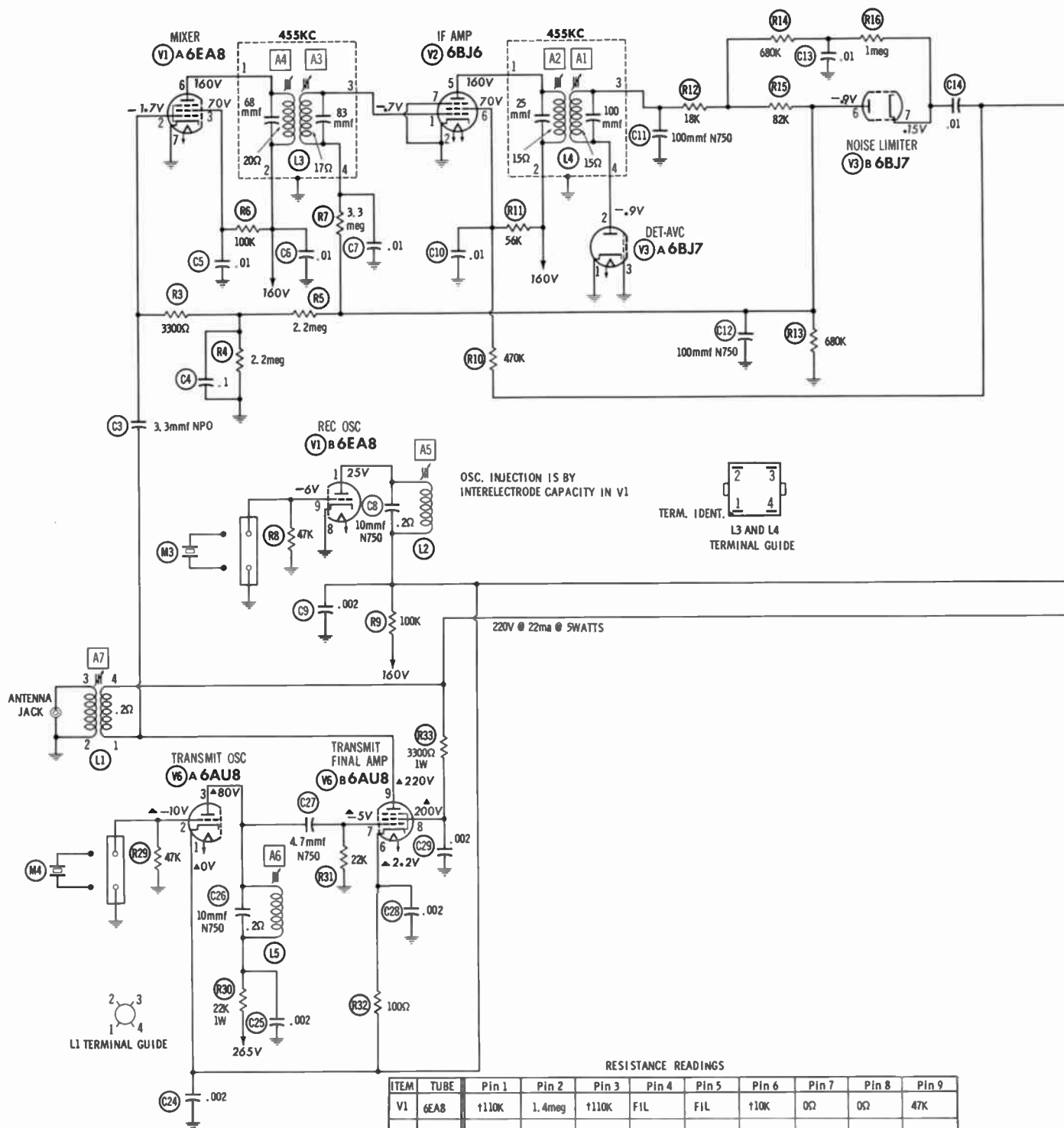
ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			HEATH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg	19-26	F2-1meg, SU204, KR-1 or (B-70-S)	A47-1meg-Z RS-2, SWE-12	B13-137, SK3, 76-1 or (BU2, CF25, SS3, GC) *	UA16A, SL2500, US-41 or (RU18A, SL38, SL2500, US-41) or (U53, US-26)
R2	Squelch	100K	10-12	F1-100K, SU204 or (B-40)	A47-100K-S RS-2	B11-128, SK3 or (BU2, CF13, SS3, DC1) *	UA15L, SL2500 or (RU15L, SL38, SL2500) or (U41)

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HEATH PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Coupling	40-471					
L2	Receive Osc.	40-470					
L3	1st IF	52-38	BC-352	14-C1	RTC-8632	T607	
L4	2nd IF	52-39	BC-353	14-C2	RTC-8633	T608	
L5	Transmit Osc.	40-470					
L6	Hash Choke	45-20					

HEATH MODELS GW-12A/D, GWW-12A/D



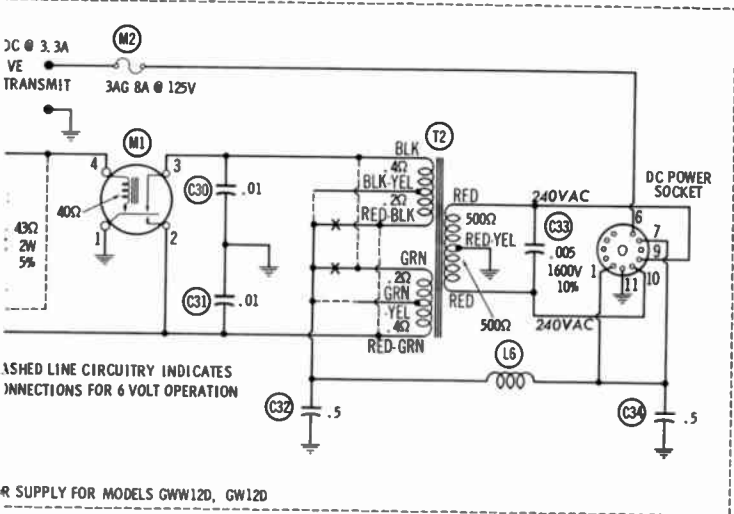
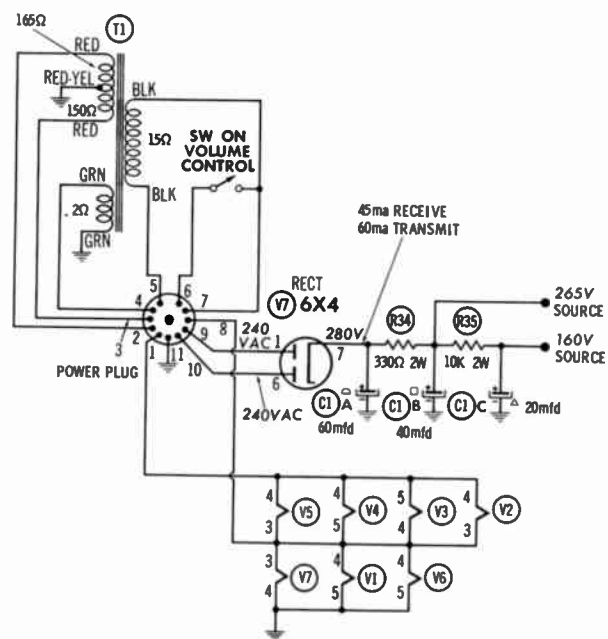
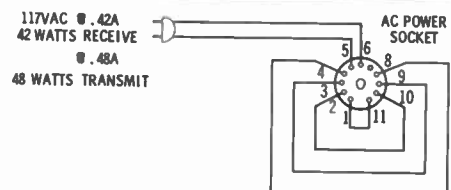
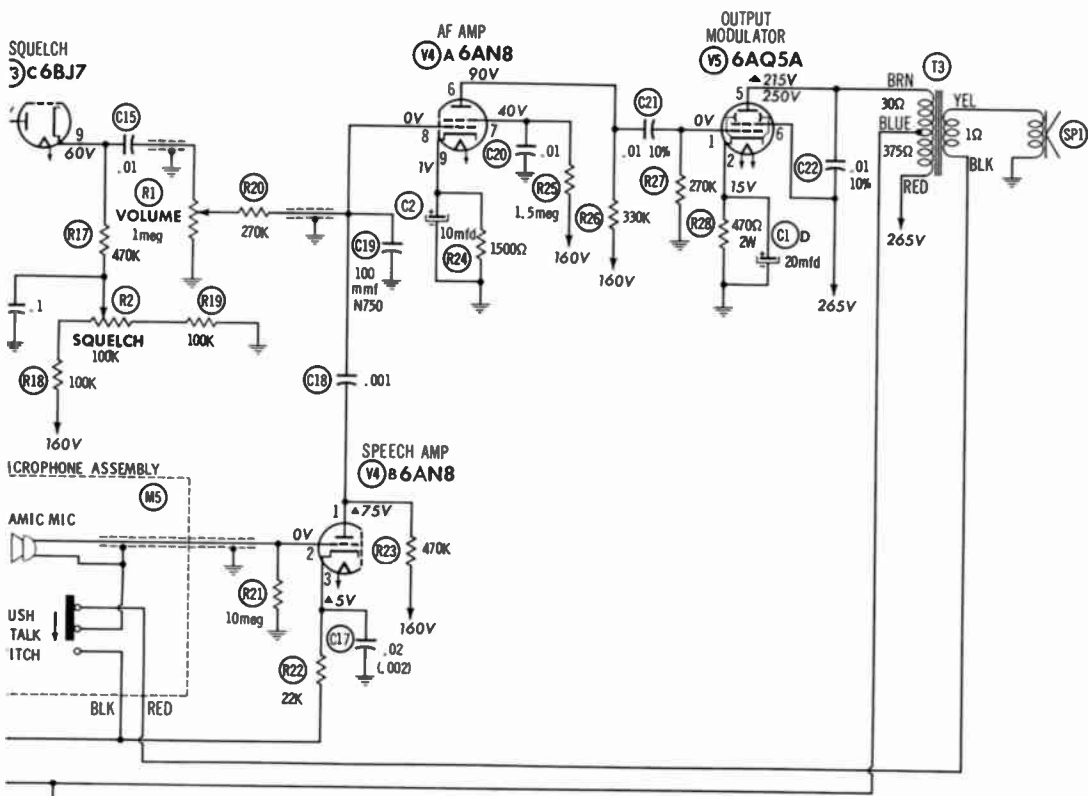
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EA8	1110K	1.4meg	1110K	FIL	FIL	110K	0Ω	0Ω	47K
V2	6BJ6	4meg	0Ω	FIL	FIL	110K	166K	0Ω		
V3	6BJ7	0Ω	780K	0Ω	FIL	FIL	680K	2.5meg	1535K	610K
V4	6AN8	1480K	10meg	22K	FIL	FIL	1340K	11.5meg	380K	1500Ω
V5	6AQ5A	270K	470Ω	FIL	FIL	1735Ω	1330Ω	NC		
V6	6AU8	0Ω	47K	122K	FIL	FIL	100Ω	22K	14100Ω	1705Ω
V7	6X4	150Ω	NC	FIL	FIL	NC	165Ω	50K		

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
 ▲ MEASURED IN TRANSMIT POSITION.
 † MEASURED FROM PIN 7 OF V7.
 NC NO CONNECTION.

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HEATH MODELS GW-12A/D, GWW-12A/D

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	HEATH PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④ .48A	480VCT ④ .060A	6.3VAC ④ 3.2A	54-34					

TRANSFORMER (VIBRATOR)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	PRI. 2	SEC. 1	HEATH PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	6.3VCT ④ 1A DC	6.3VCT ④ 1A DC	480VCT ④ .060A	55-2					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HEATH PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	5000Ω Tap ④ 30Ω DC Res.	3-4Ω	51-94					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		HEATH PART No.	QUAM PART No.	
SP1	3 1/2" PM	3-4Ω	401-72 3A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE. QUENCY	REPLACEMENT DATA			NOTES
				HEATH PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6V	115%	68-5	5372	1610	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			HEATH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	8A	421-4	423-6	312008	155020	GLH8	HHJ-B

MISCELLANEOUS

ITEM No.	PART NAME	HEATH PART No.	NOTES
M3	Crystal (Rec.)	404-14 thru 404-36	
M4	Crystal (Trans.)	404-44 thru 404-66	
M5	Microphone	480-31	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Volume, Squelch	462-159	Cabinet	90-M229F

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)
8258 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable Use BELDEN No. 8499 Single Conductor Shielded (Neoprene)
8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap Use BELDEN No. 8661 (3/8 in.)



PHOTOFACT®

TRADE NAME : Heath Models GW-22A, GWW-22A(For AC)
 GW-22D, GWW-22D(For DC)
SUPPLIER : Heath Co., Subsidiary of Daystrom, Inc.
 Benton Harbor, Michigan
TYPE SET : 8 Tube Transceiver
POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles (or)
 6 or 12 Volt Storage Battery
RATING : 45 Watts, .46 Amp. @ 117VAC (Rec.)
 55 Watts, .56 Amp. @ 117VAC (Trans.)
 3.4 Amp. @ 12.6VDC (Rec.)
 4.0 Amp. @ 12.6VDC (Trans.)
TUNING RANGE : Any 5 CB Channels 1 thru 23



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A11.....GENERAL CEMENT #8606, 9295, 8282
 WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Volume Control should be at maximum. Output of generator should be no higher than necessary to obtain an output indication. Connect output meter across voice coil.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 (grid) of V2 (Mixer), low side to chassis. Tune to 455KC (400v Mod.)	Any	A1 thru A4	Turn squelch control fully counterclockwise. Adjust for maximum output.
Across antenna jack. Tune to channel frequency.	Center Channel Used.	A5	Adjust clockwise until signal disappears. Adjust counterclockwise one full turn past point where signal reappears.
"	"	A6, A7, A8	Adjust for maximum 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 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.

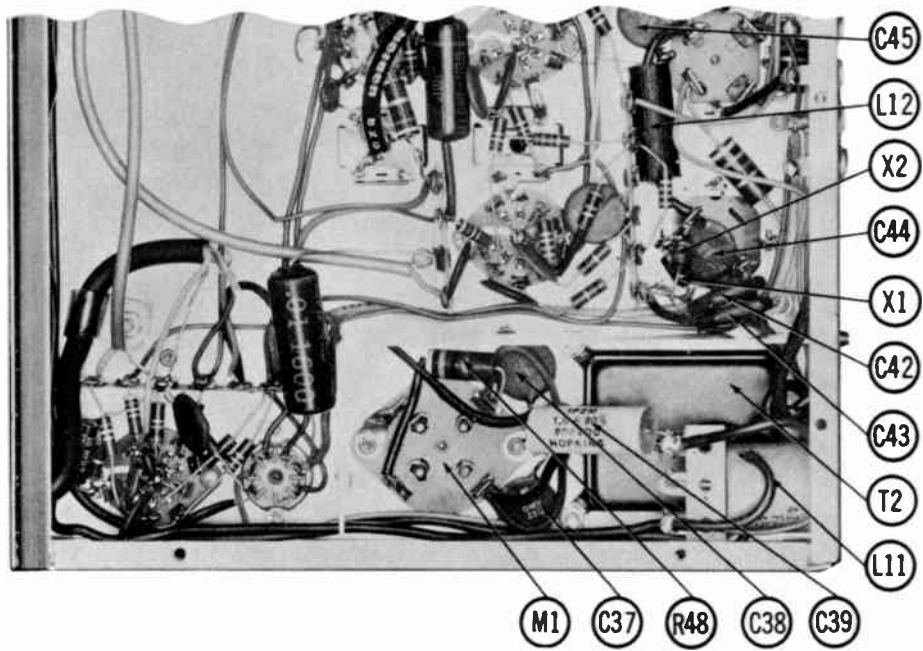
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
#47 Pilot lamp dummy load.	Center Channel Used.	A9	Key transmitter. Adjust A9 clockwise until lamp goes out. Then turn counterclockwise till lamp just lights, continue for one turn. Check each channel to be sure oscillator starts each time.
Field strength meter, #47 dummy load lamp.	"	A10, A11	Key transmitter. Adjust for maximum.

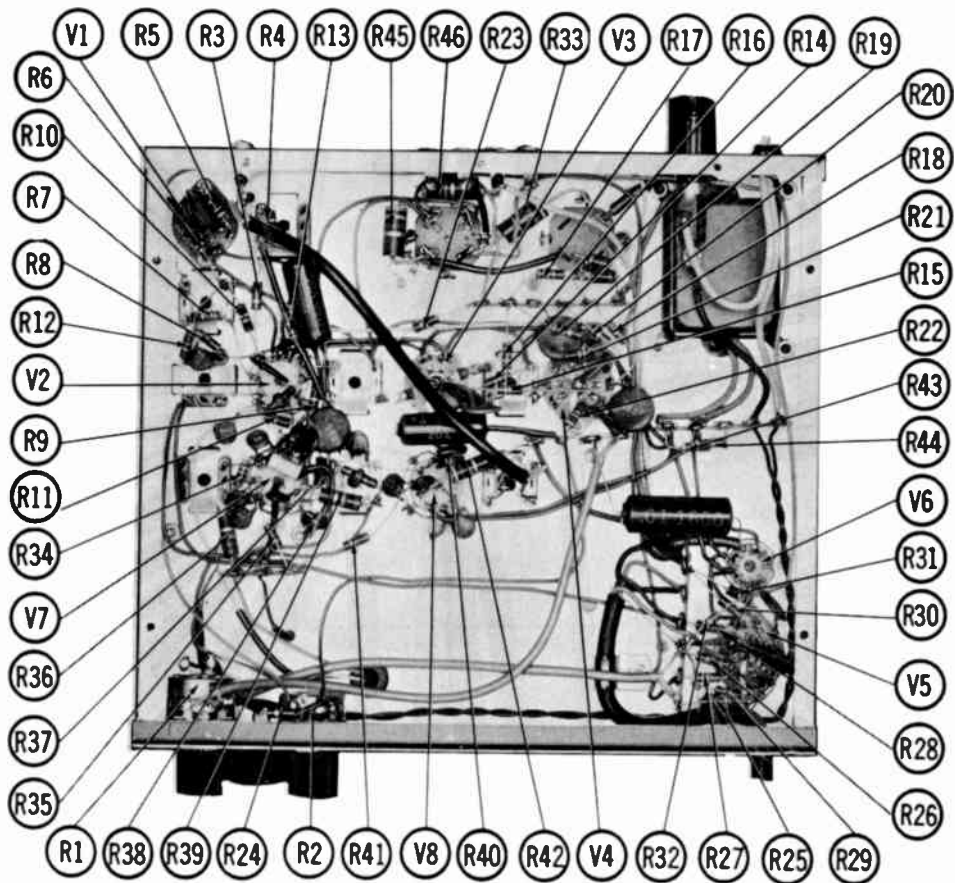
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

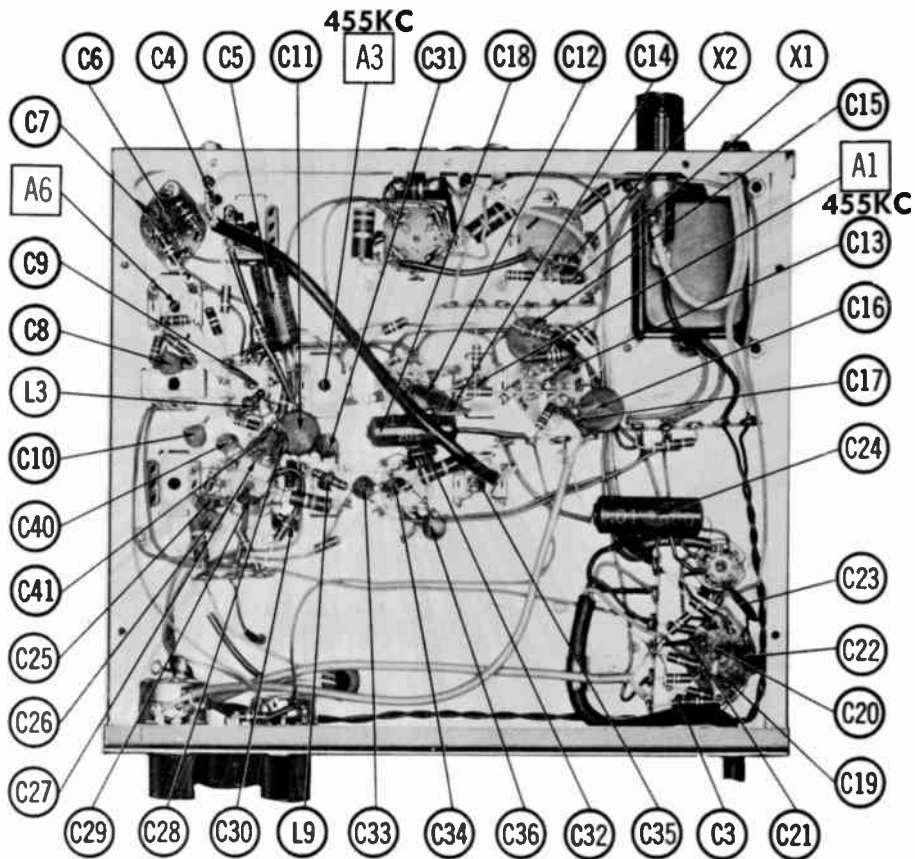
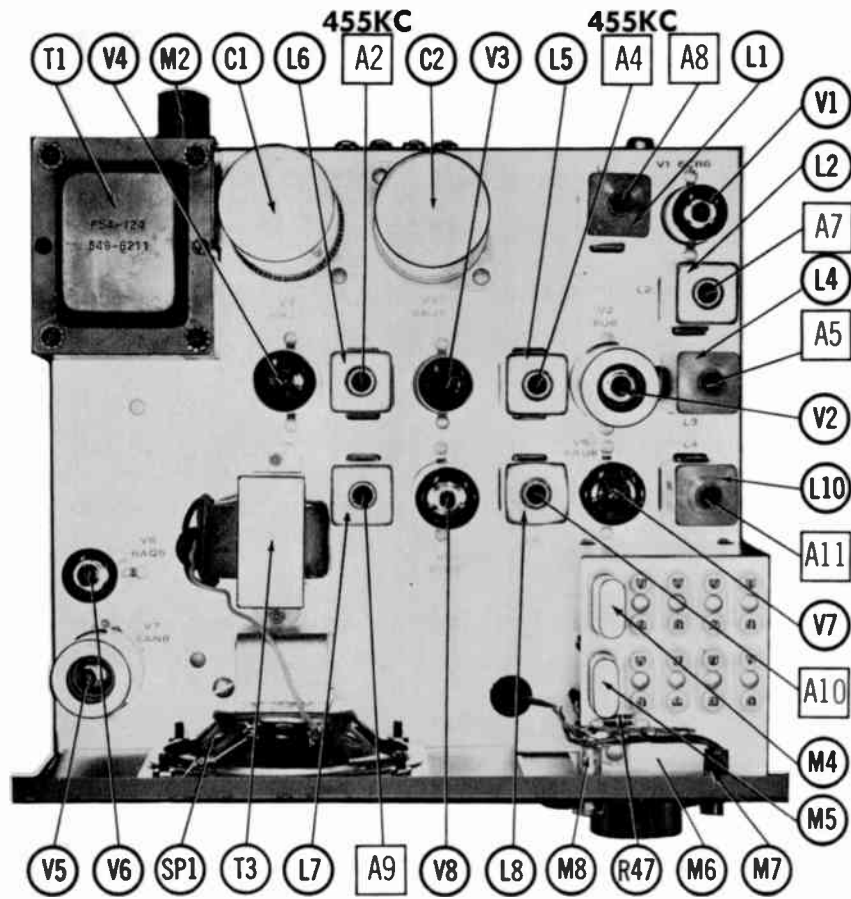
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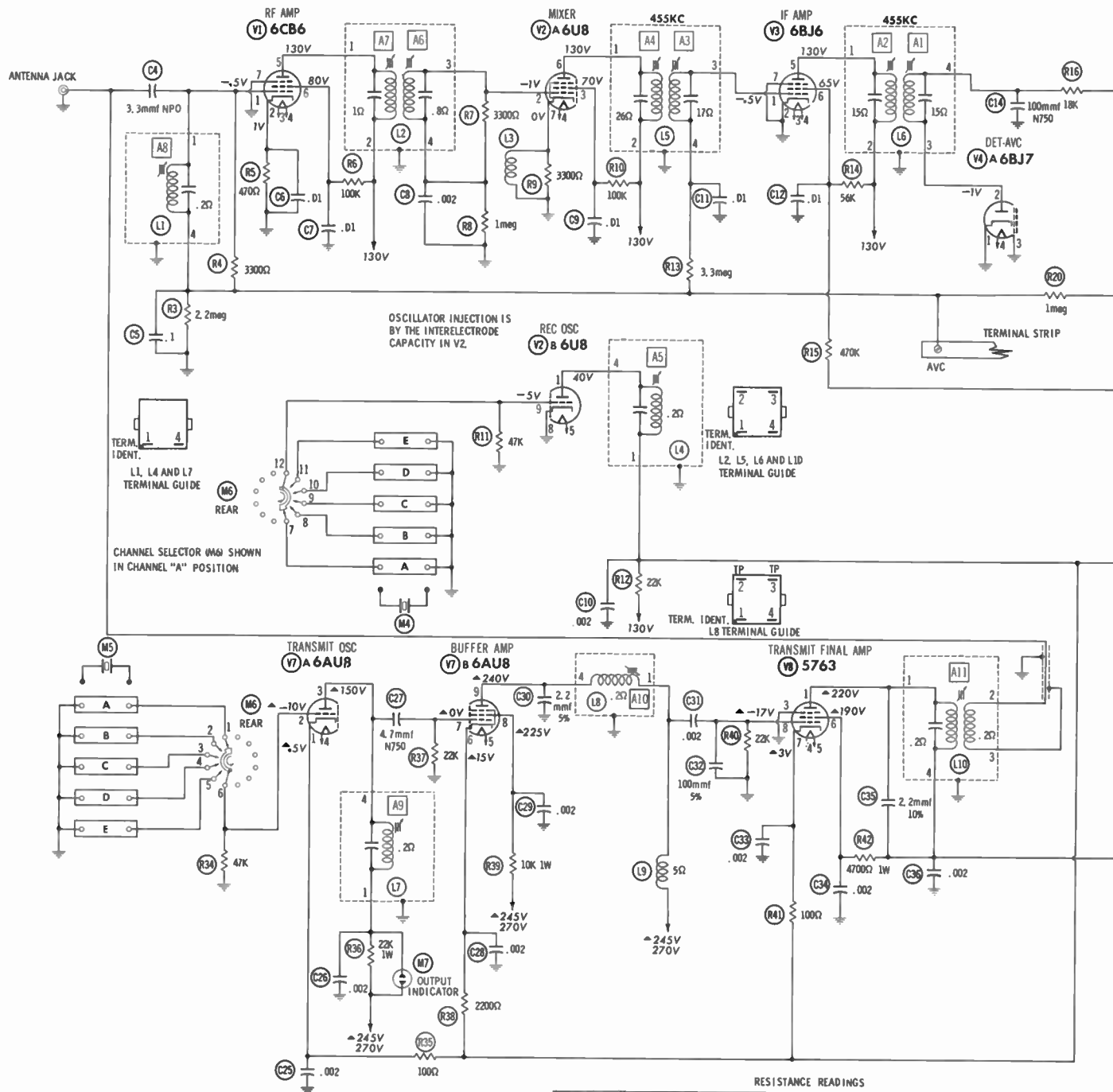
HEATH MODELS GW-22A/D, GWW-22A/D



DC POWER - PARTIAL BOTTOM VIEW







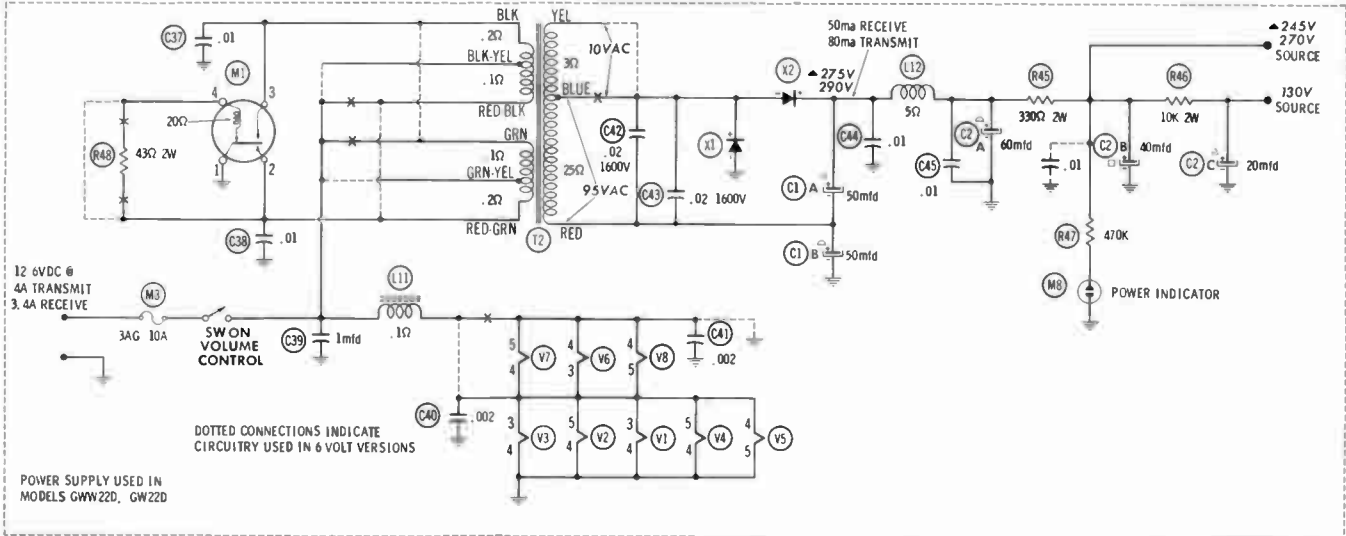
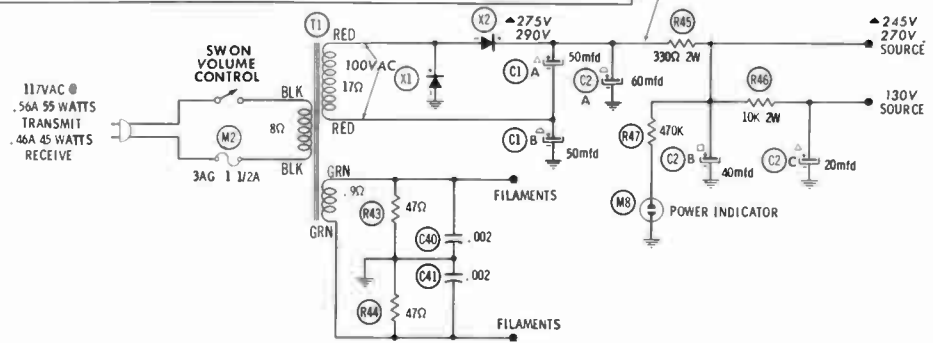
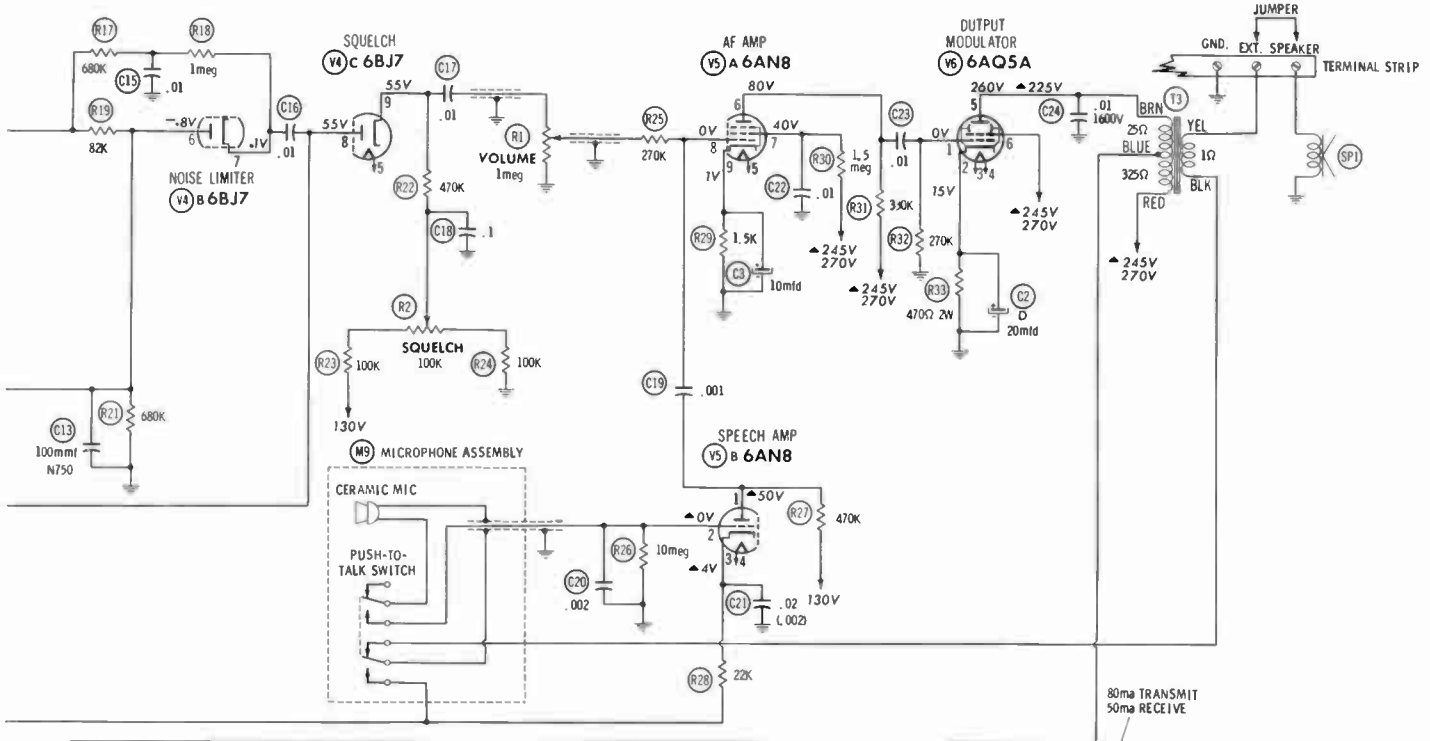
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	1.1meg	470Ω	FIL	FIL	†10K	†110K	0Ω		
V2	6U8	†32K	1meg	†110K	FIL	FIL	†10K	5Ω	0Ω	47K
V3	6B16	4.4meg	0Ω	FIL	FIL	†10K	†66K	0Ω		
V4	6BJ7	0Ω	†710K	0Ω	FIL	FIL	†610K	2.5meg	†540K	†350K
V5	6AN8	†1.450K	†10meg	†22K	FIL	FIL	†330K	†1.5meg	500K	1500Ω
V6	6AQ5A	270K	470Ω	FIL	FIL	†680Ω	†330Ω	NC		
V7	6AU8	†100Ω	†47K	†122K	FIL	FIL	†2200Ω	†22K	†110K	†1395Ω
V8	5763	†1.660Ω	NC	0Ω	FIL	FIL	†1.5400Ω	†100Ω	†22K	TP

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
 † MEASURED FROM OUTPUT OF X2.
 NC NO CONNECTION ▲ MEASURED IN TRANSMIT POSITION. TP TIE POINT



HEATH MODELS GW-22A/D, GWW-22A/D

PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	AMPEREX		GENERAL ELECTRIC		RCA		RAYTHEON		SYLVANIA	
		TYPE		TYPE		TYPE		TYPE		TYPE	
V1	RF Amp.	6CB6		6CB6		V5	Speech Amp. -AF Amp.	6AN8			
V2	Mixer - Osc. (Rec.)	6U8		6U8		V6	Output-Modulator	6AQ5A			
V3	IF Amp.	6BJ6		6BJ6		V7	Trans. Osc. -Buffer	6AU8			
V4	Detector-AVC-Noise Limiter-Squeich	6BJ7		6BJ7		V8	Final Amp.	5763			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.080A	57-27	VB400	1N3254	F-4
X2	.080A	57-27		1N3254	F-4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HEATH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	.50	200	25-93	AFH2-33	B0260	XC2-33	TMD2655	FP242.5A	TVL-2576
B	.50	200							
C2A	.60	450							
B	.40	350							
C	.20	350	25-54	PTT39	NLW10-15	MT1-5	MLV10-10	TT12K10	TE-1114
D	.20	250							
C3	10	10							

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

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.
C4	3.3 NPO	(.002) †	NPO-DI 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C5	.1 200V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C14	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.1 200V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10
C19	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C21	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01 1600V		VBC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C25	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C26	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C27	4.7 N750		N750-SI 5.0	TCN-5	C10V5U	CCTN-050	CN7-547	10TCU-V47
C28	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C29	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C30	2.2 5%		1469-000022	DTZ-22	22R5Q22	CM-20B-220J	CNO-422	MS-422
C31	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C32	100 5%		1469-0001	DTZ-100	22R5T1	CM-20B-101J	CNO-310	MS-31
C33	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C34	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C35	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C36	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	1mfd 200V		P288N-1.0		MP2W1		GEM-21	2TM-M1
C40	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C41	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C42	.02 1600V				DPMS16S2	16DP-4-203	UAC-120	MB-S2
C43	.02 1600V				DPMS16S2	16DP-4-203	UAC-120	MB-S2
C44	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			HEATH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg	19-26	F2-1meg, SU204, KR-1 or (B-70-S)	A47-1meg-Z, R8-2, SWE-12	B13-137, SK3, 76-1 or (BU2, CF26, SS3, GC)*	UA16A, SL2500, US-41 or (RU16A, SL38, SL2500, US-41) or (U53, US-26)
R2	Squeich	100K	10-12	F1-100K, SU204, or (B-40)	A47-100K-S, R8-2	B11-128, SK3 or (BU2, CF13, SS3, DC1)*	UA15L, SL2500 or (RU15L, SL38, SL2500) or (U41)

* "SNAPTROL"

PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HEATH PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Coil						
L2	RF Coil	40-442					
L3	RF Choke (30uh)	45-27	TV-180	72F335AP	RTC-8593	T972	
L4	Rec. Osc.	40-312					
L5	1st IF	52-38	BC-352	14-C1	RTC-8632	T607	
L6	2nd IF	52-39	BC-353	14-C2	RTC-8633	T608	
L7	Trans. Osc.	40-312					
L8	Trans. Driver	40-431					
L9	RF Choke (30uh)	45-27	TV-180	72F335AP	RTC-8593	T972	
L10	Final	40-432					
L11	Line Filter Choke	45-20		6177	RTC-9171	T866	
L12	Filter Choke (90uh)	45-7					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	HEATH PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ② .58A	100VAC ② .22A (AC)	6, 3VAC ② 3.4A	(F) 54-124					
T2	12.6VDC ② 2.2A	105VAC Tap ④ 95VAC ② .18A (AC)		55-8					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HEATH PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	5000Ω Tap ④ 4300Ω	3-4Ω	(F) 51-94					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		HEATH PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-4Ω	401-72	3A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				HEATH PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6V	115%	68-5	5372	1610	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			HEATH PART No.		LITTELFUSE PART No.		6USS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1 1/2A	421-1 ①	423-1	31201.5	342012	AGC 1 1/2	HKP
M3	3AG	10A	421-30 ②	423-6	311010	155020	AGC 10	HMJ

① AC Operation Only.
② DC Operation Only.

MISCELLANEOUS

ITEM No.	PART NAME	HEATH PART No.	NOTES
M4	Crystal (Rec.)	Order by Channel	
M5	Crystal (Trans.)	Order by Channel	
M6	Switch (Ch. Sel.)	63-94	
M7	Indicator (Output)	412-13	
M8	Indicator (Power)	412-12	
M9	Microphone Ass'y.	480-29	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Volume, Squelch	462-159	Cabinet - Front Panel	203-M330F834
Knob - Channel Selector	462-139	Cabinet	90-M249F

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. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

HEATH MODELS GW-22A/D, GWW-22A/D



PHOTOFACT[®]



TRADE NAME : Johnson Messenger Two
 Models 242-162, 242-163 (Transceiver)
 250-810, 250-811 (Selective Call Unit)

SUPPLIER : E. F. Johnson Co., Waseca, Minn.

TYPE SET : 10 Tube Transceiver
 1 Tube - 2 Transistor Selective Call Unit

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

RATING : 75 Watts, .72 Amp. @ 117VAC (Transmit)
 65 Watts, .64 Amp. @ 117VAC (Receive)

TUNING RANGE : Any 10 CB Channels 1 thru 23

JOHNSON MODELS 242-162/-163, 250-810/-811

Suggested Alignment Tools:

- A1 thru A8, A10, A11..... GENERAL CEMENT #8282, 8606, 8606L
 WALSCO #2526, 2543, 2544
- A9, A12, A13, A14, A15..... GENERAL CEMENT #8271, 8722
 WALSCO #2519
- A16, A17..... GENERAL CEMENT #5000, 5003, 5006
 WALSCO #2515, 2516, 2518

RECEIVER ALIGNMENT

Connect DC VTVM from Point \diamond to ground.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru a .1mf to pin 1 of V2 (Converter), low side to chassis. Tune to 455KC, 400v Mod.	Any	A1, A2, A3, A4, A5, A6, A7, A8	Adjust for maximum.
Across antenna terminals. Tune to channel frequency.	Center Channel Used.	A9	Adjust for maximum. Check other channels to be sure oscillator starts.
"	"	A10, A11, A12	Adjust for maximum.

TRANSMITTER ALIGNMENT

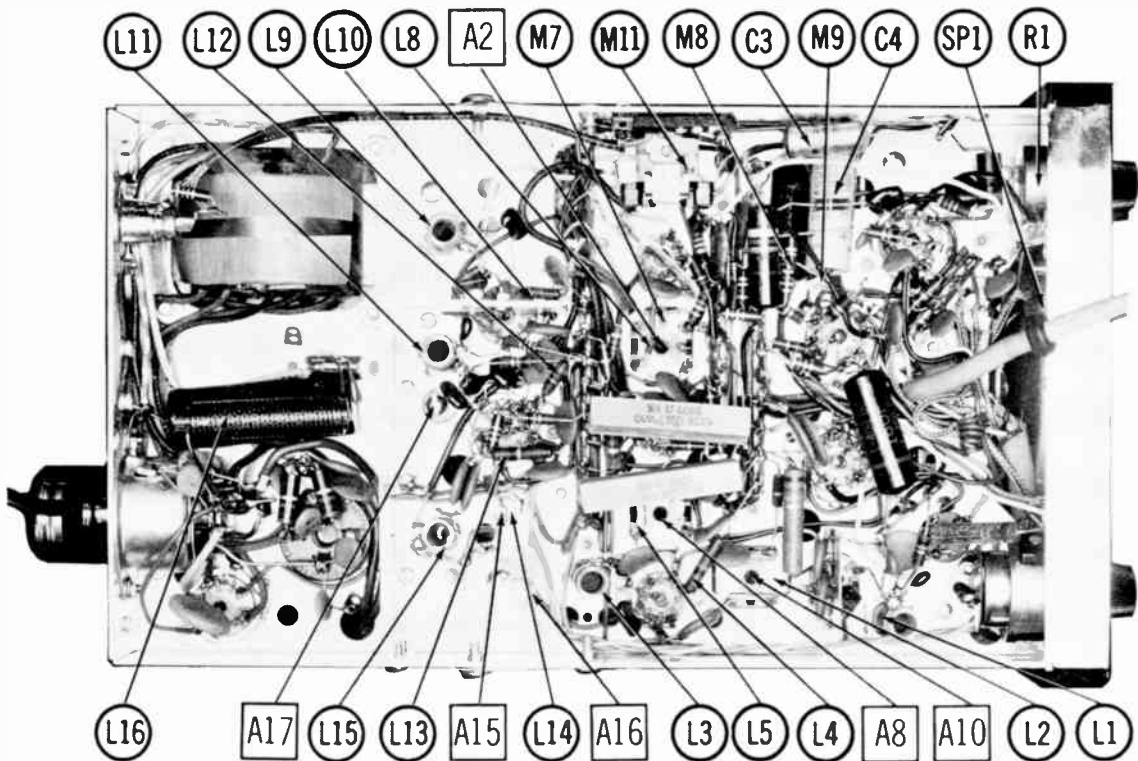
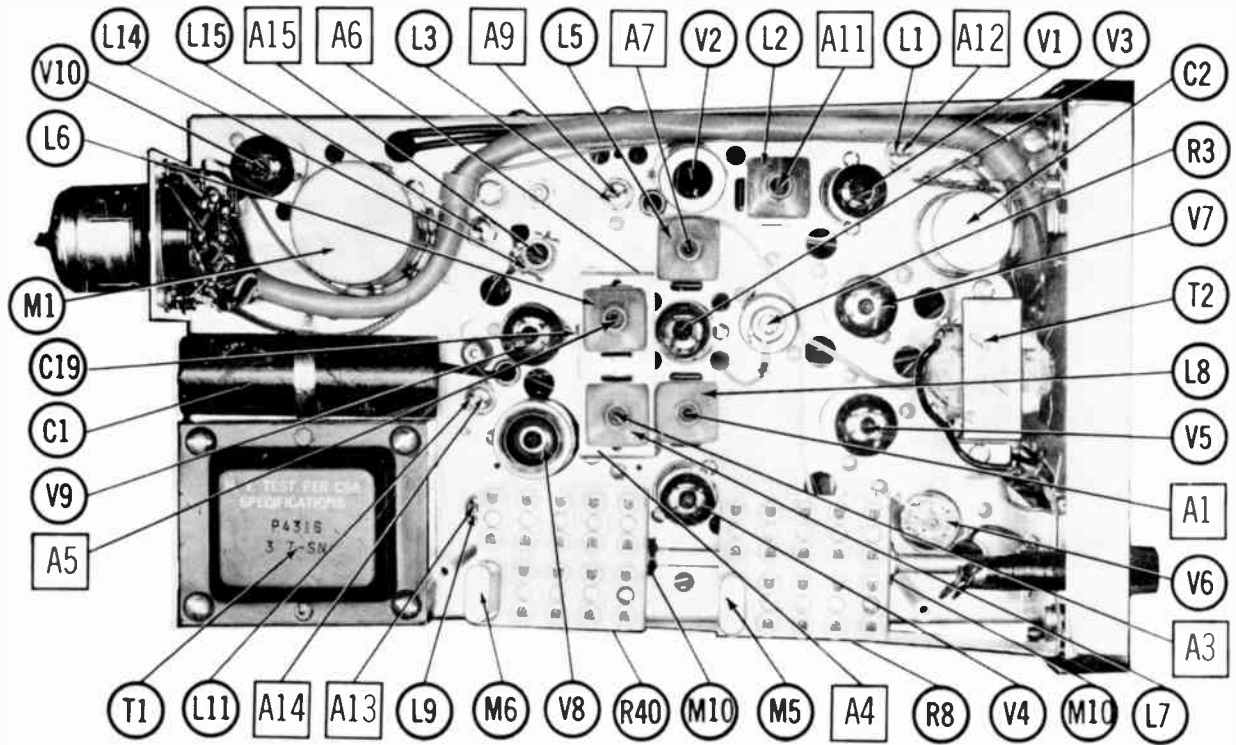
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

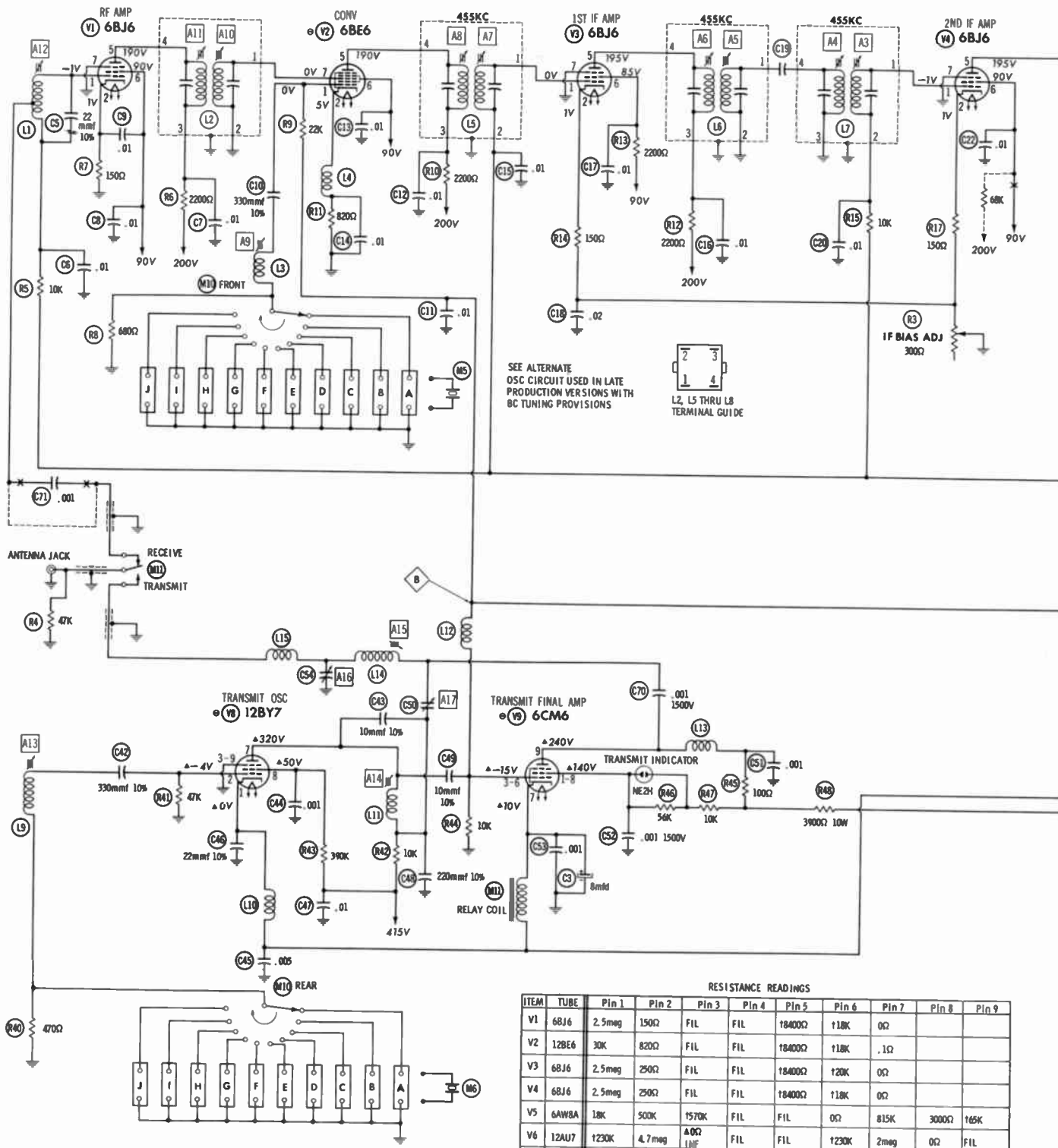
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

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.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect DC VTVM from point \diamond to ground.		A13, A14	Key transmitter. Adjust for maximum deflection. Check other channels to be sure oscillator starts each time.
Connect DC VTVM across R45 (V9 plate). Each volt indicated represents 10MA of plate current.		A15, A16	Key transmitter. Adjust A15 for MINIMUM (Resonance). Adjust A16 for 3 volts. Repeat adjustments. Make note of meter indication as A15 is adjusted. (See next step.)
Connect DC VTVM from point \diamond to ground.		A17	If voltage increases as A15 is backed out, adjust A17 SLIGHTLY clockwise. Readjust A15. If voltage increases as A15 is turned in, adjust A17 SLIGHTLY counterclockwise. Readjust A15. A17 is adjusted correctly when meter indicates equal or no voltage rise each side of resonance. Readjust A13 thru A17.

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





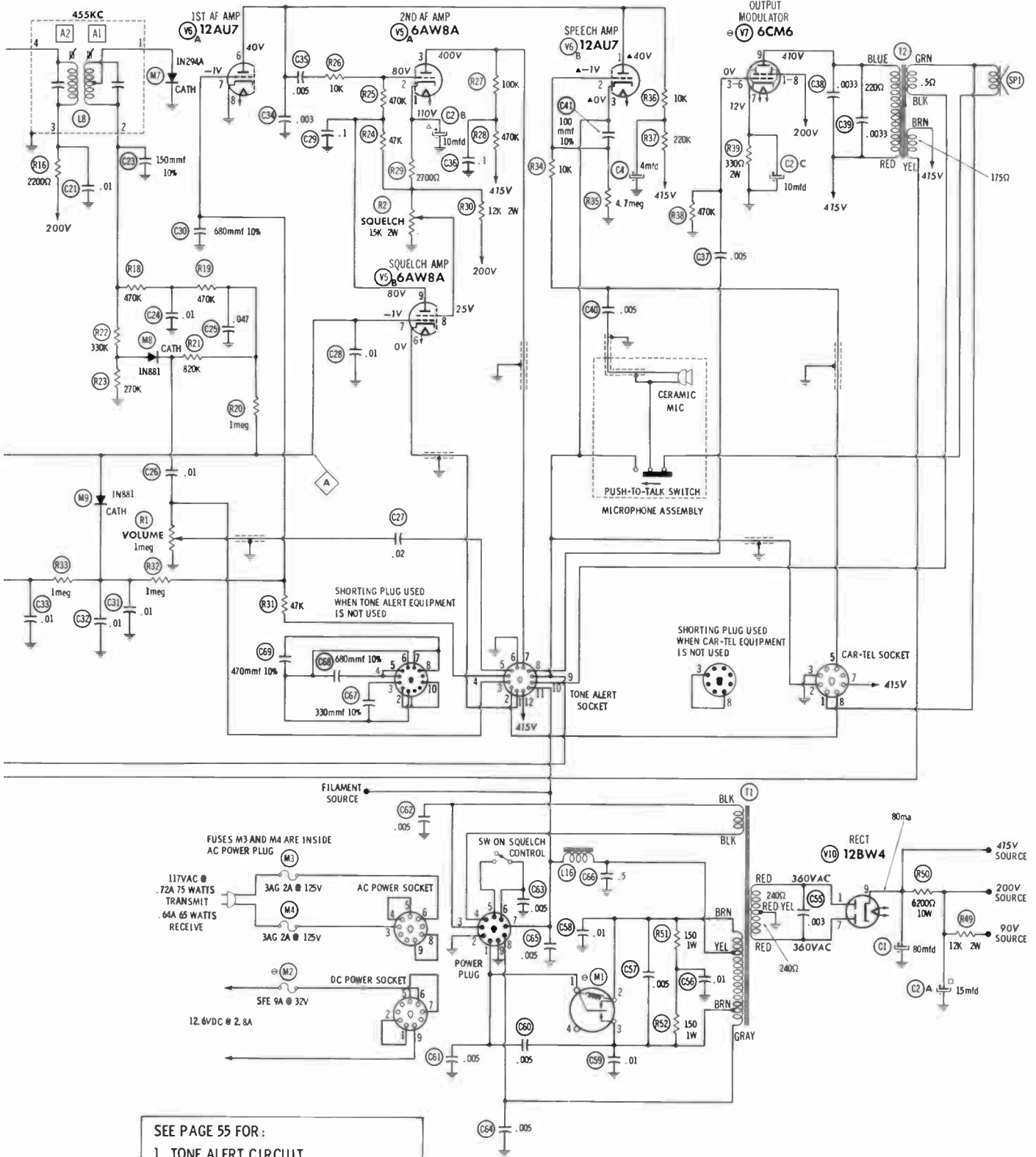
- See parts list for alternate value or application.
1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.
 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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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.5meg	150Ω	FIL	FIL	†8400Ω	†18K	0Ω		
V2	12BE6	30K	820Ω	FIL	FIL	†8400Ω	†18K	.1Ω		
V3	6BJ6	2.5meg	250Ω	FIL	FIL	†8400Ω	†20K	0Ω		
V4	6BJ6	2.5meg	250Ω	FIL	FIL	†8400Ω	†18K	0Ω		
V5	6AW8A	18K	500K	†570K	FIL	FIL	0Ω	815K	3000Ω	†65K
V6	12AU7	†230K	4.7meg	†40Ω	FIL	FIL	†230K	2meg	0Ω	FIL
V7	12A85	†6200Ω	NC	470K	FIL	FIL	470K	330Ω	†6200Ω	†220Ω
V8	7054	†5Ω	47K	0Ω	FIL	FIL	NC	†10K	†390K	0Ω
V9	7061	†170K	TP	10K	FIL	FIL	10K	†325Ω	†70K	†4.2K
V10	12BW4	240Ω	NC	NC	TP	TP	NC	240Ω	NC	100K

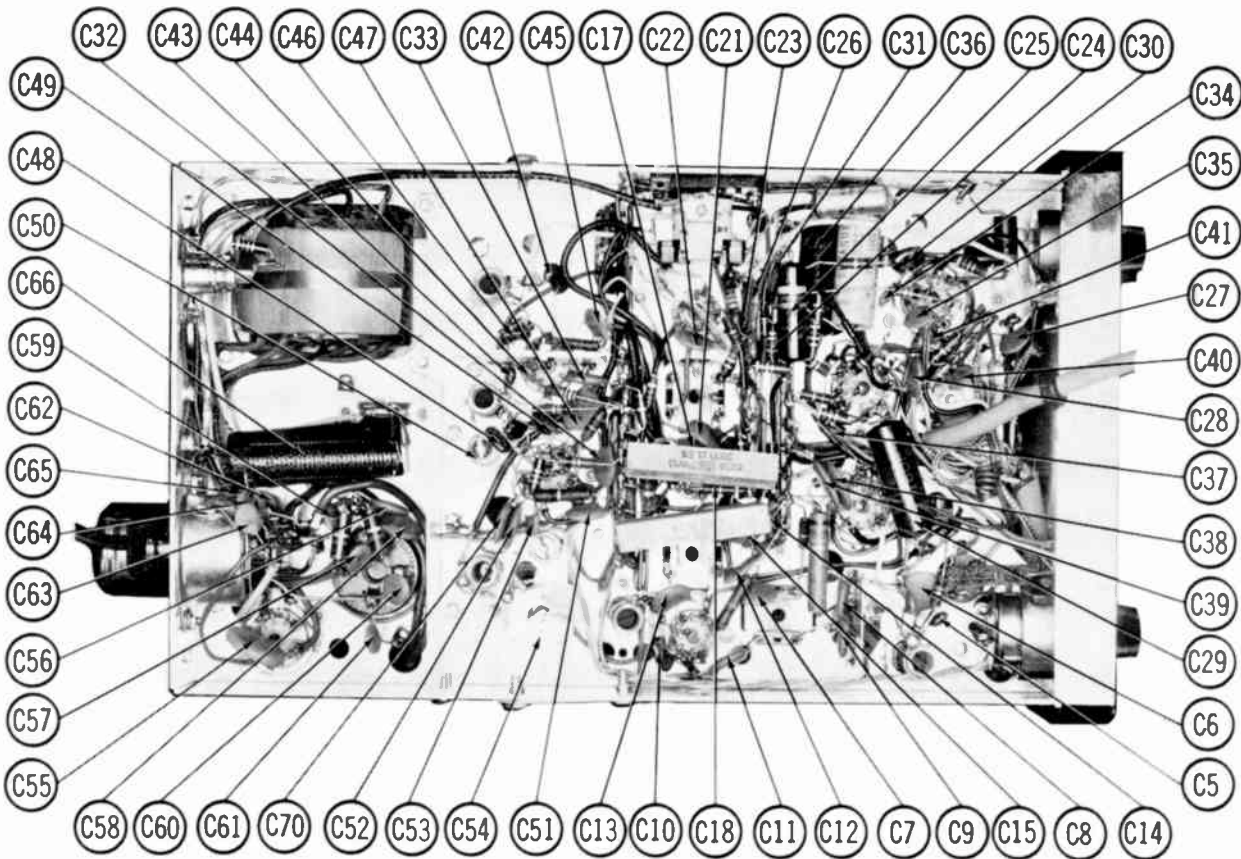
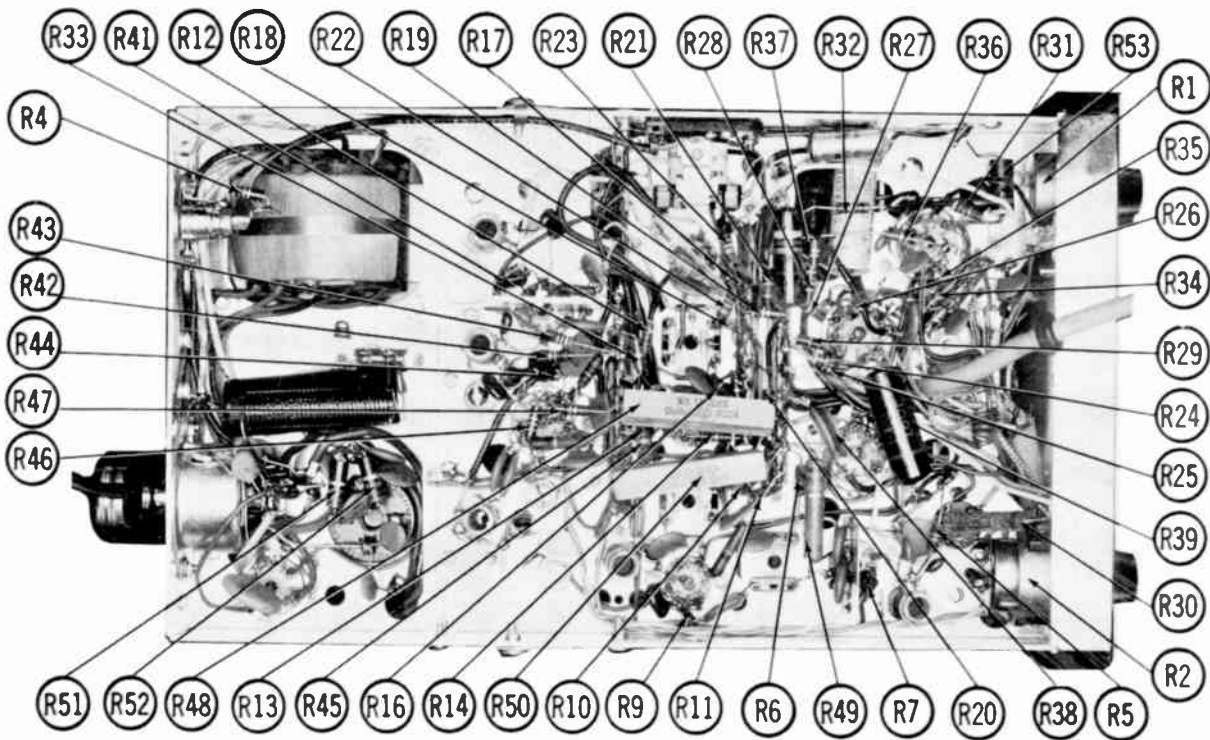
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 † MEASURED IN "TRANSMIT" POSITION. NC NO CONNECTION TP TIE POINT
 † MEASURED FROM PIN 9 OF V10.



SEE PAGE 55 FOR:

1. TONE ALERT CIRCUIT.
2. FILAMENT CIRCUIT.
3. LOCAL OSCILLATOR CIRCUIT USED IN LATE VERSIONS WITH BROADCAST TUNING PROVISIONS.

JOHNSON MODELS 242-162/-163, 250-810/-811



TRANSCEIVER PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	REPLACEMENT DATA		
		JOHNSON PART No.	AERVOX PART No.	CORNELL-DUBILIER PART No.
V1	RF Amp.	6BJ6		
V2	Conv.	12BE6 (6BE6) †		
V3	1st IF Amp.	6BJ6		
V4	2nd IF Amp.	6BJ6		
V5	Squelch Amp. -2nd AF Amp.	6AW8A		

† Used in 6-Volt Models.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	JOHNSON PART No.	AERVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	80	450	22, 1298, 1	PRS1780	BR8045		TD-80-450	TC80	TVA-1716
C2A	15	300							
B	10	150	22, 1541	AFH3-22	C0760		TMT-3292	FP328	TVL-3580
C	10	25							
C3	8	150		PRS1405	BBR8-150		TD-8-150	TC41	TVA-1405
C4	4	350	22, 1654	PRS1600	BR435		TD-4-450	TC697	TVA-1801

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AERVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	22 10%		ADM-15-220	TCZ-22	C10Q22C	CM-15-220J	CNO-422	10TCC-Q22
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	330 10%		D1-330	DD-331	LA10T33	CCD-331	GP333	10TS-T33
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C19	.56mmf							
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	150 10%		D1-150	DD-151	LA10T15	CCD-151	GP315	10TS-T15
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.047 200V		P288N-047	DD-503	CUB2S47	2DP-3-473	GEM-2147	2TM-S47
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C30	680 10%							
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.003		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C35	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C36	.1 400V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM-601	6TM-P10
C37	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AERVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C38	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C39	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C40	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	100 10%		1469-100	TCN-100	22R5 T1	CM-15E-101	MCE235	MS-31
C42	330 10%		DI 330	DD-331	LA10T33	CCD-331	GP333	10TS-T33
C43	10 10%		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10TS-Q10
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C45	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	22 10%							
C47	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C48	220 10%		D1-220	DD-221	LA10T22	CCD-221	GP322	10TS-T22
C49	10 10%		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10TS-Q10
C50								
C51	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C52	.001 1500V		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C53	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C54								
C55	.003		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C80	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C81	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C82	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C83	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C84	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C85	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C86	.5 200V		P288N-5	DD-503	CUB2P5	2DP-5-504	GEM-205	2TM-P50
C87	330 10%		D1 330	DD-331	LA10T33	CCD-331	GP333	10TS-T33
C88	680 10%							
C89	470 10%							
C70	.001 1500V		1466-00047	DD30-102	5W5T47	CM-19B47M	MCJ244	1FM-344
C71	.001		DAC-2	DD-102	HV816D1	3CCD-102	UAC-210	30GA-D10
			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			JOHNSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	1meg	22, 1647	F2-1meg, SU204 or (B-70)	A47-1meg-Z, RS-2	Q13-137, PQ or (BU2, CF26, SS5, DC1)°	UA16A, SL2500 or (BU16A, SL36, SL2500) or (U53)
R2	Squelch & Switch	15K 2W	22, 1932		A43S-10K, RS-2	W11-116, SK5, 76-11	R10ML, US-30
R3	1F Bias	300Ω 2W		WN-301 or (WW-301)	U39-300	W11-102, SK5	VW300

* "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	3900Ω 10W	PW10-3900	10W-SQ-3900		R50	6200Ω 10W	PW10-6200	10W-SQ-6200	

TRANSCEIVER PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		JOHNSON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna	22. 1175-21					
L2	RF Bandpass	22. 1623-1					
L3	Osc. Grid	23. 1175-15	TV-118	6171-A	RTC-8609	T216	
L4	RF (20uh)	22. 1549	TV-192	6152	RTC-8584	T300	
L5	1st IF	22. 1964-1	BC-352	12-C1	RTC-8632	T607	
L6	2nd IF	22. 1964-3	BC-352	12-C1	RTC-8632	T607	
L7	3rd IF	22. 1964-3	BC-352	12-C1	RTC-8632	T607	
L8	4th IF	22. 1964-2					
L9	Transmit Osc. Grid	23. 1175-17	TV-118	6171-A	RTC-8609	T216	
L10	Cath. Choke(6.8uh)						
L11	Trans. Osc. Plate	23. 1175-17	TV-118	6171-A	RTC-8609	T216	
L12	RF Choke(6.8uh)						
L13	Plate Choke(20uh)	22. 1549	TV-192	6152	RTC-8584	T300	
L14	Antenna Load	23. 1175. 24	TV118	6171-A	RTC-8609	T216	
L15	Antenna Load	23. 1175-23	TV-118	6171-A	RTC-8609	T216	
L16	Hash Choke(4uh)	16. 1456		5219	RTC-9181	TA-616	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	JOHNSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ①. 72A (or) 12.8VCT ②. 6A	18V Tap ③ 12.6V CT④ 1.2A	720VCT ⑤. 080A	P4316					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	JOHNSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
		SEC. 2						
T2	4500Ω	3-4Ω						
		4500Ω						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		JOHNSON PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-4Ω	22-1612	3A070T	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				JOHNSON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter Interrupter	12.6 6.3	115% 115%	22-1570-1 ① 22-1570-2 ②	6301 ① 5301 ②	G1601 ① 1601 ②	① 12 Volt Version ② 6 Volt Version

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			JOHNSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	9A 32V	22-1590-4 ①		307009 (SFE 9A 32V)	155009	SFE9	HHH
	SFE	20A 32V	22-1590-6 ②		311020 (SFE 20A 32V)	155020	SFE20	HHJ
M3	3AG	2A 125V	22-1257 ③		312002 (3AG 2A 125V)		AGC 2	
M4	3AG	2A 125V	22-1257 ③		312002 (3AG 2A 125V)		AGC 2	

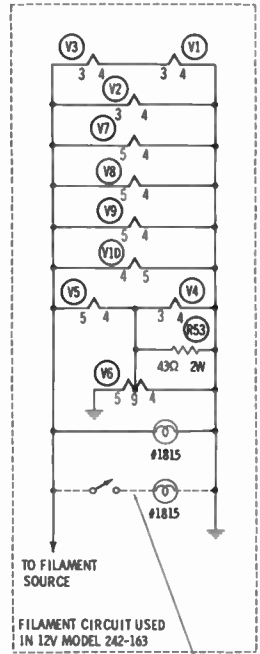
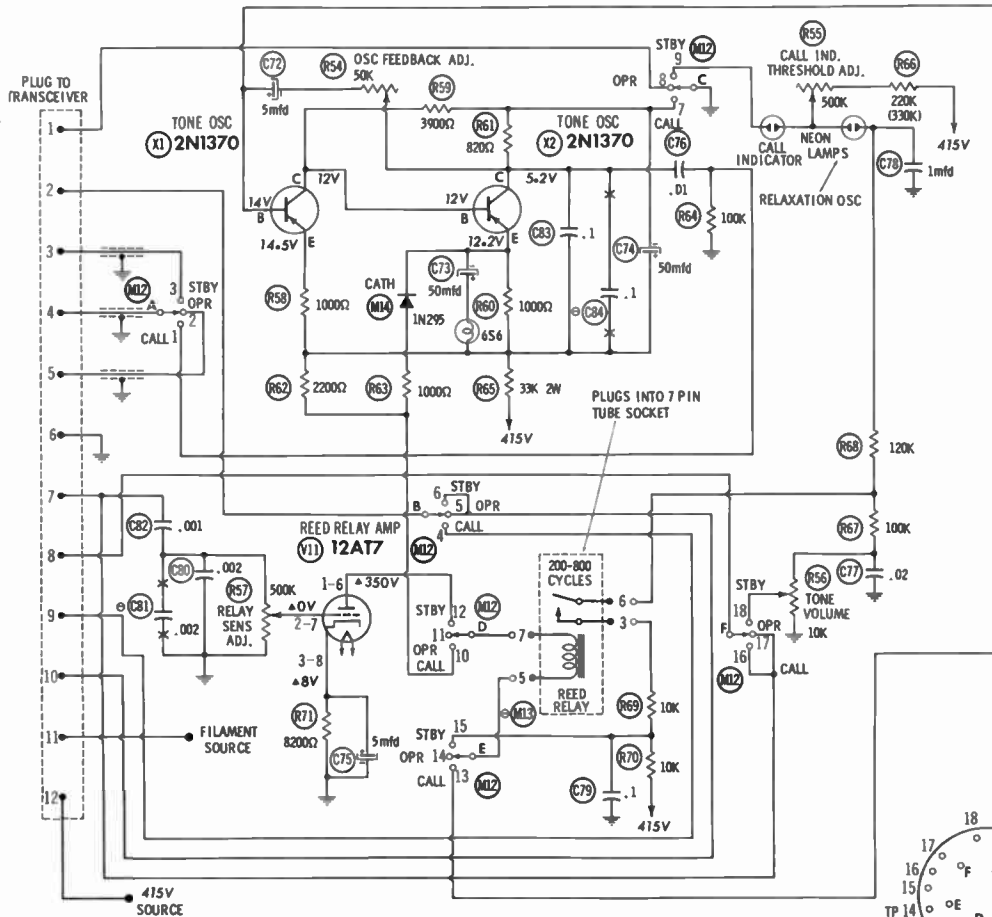
① 12 Volt Operation ② 6 Volt Operation ③ AC Operation.

MISCELLANEOUS

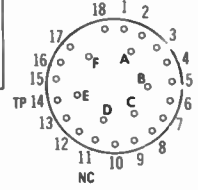
ITEM No.	PART NAME	JOHNSON PART No.	NOTES
M5	Crystal		Receive (order by Frequency & Channel desired) Transmit (Order by Frequency & Channel desired) Detector (1N284A) Squelch (1N881) Overload (1N881 or 1N1138) Channel Selector, Rotary Wafer Type Receive-Transmit
M6	Crystal		
M7	Crystal Diode		
M8	Crystal Diode		
M9	Crystal Diode		
M10	Switch		
M11	Relay		

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) 6237 Low Loss (RG-6/U) 6240 (Solid) Miniature (RG-58/U) 6259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)



SWITCH AND BC INDICATOR LIGHT USED IN VERSIONS WITH BC TUNING PROVISIONS

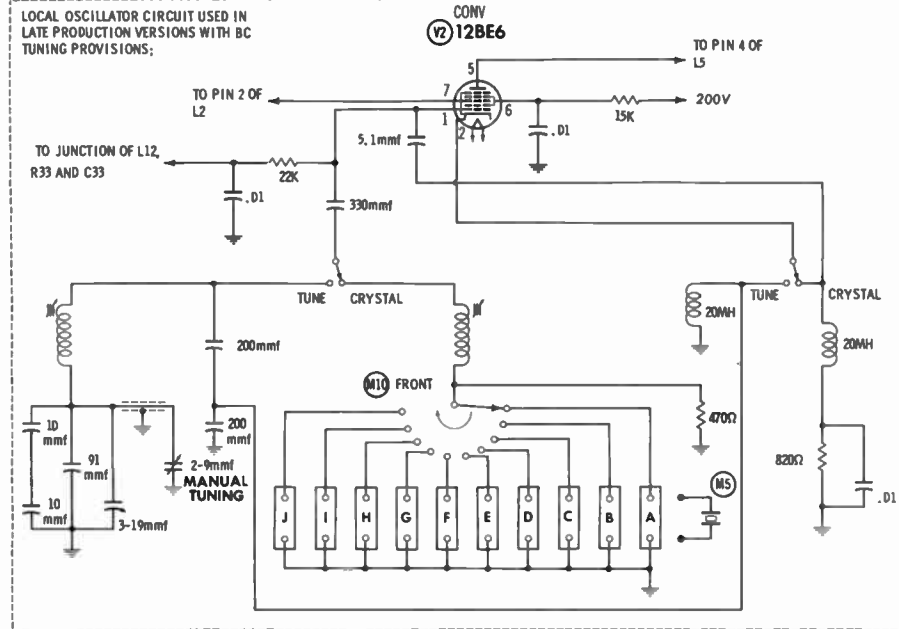


FUNCTION SWITCH (M12) TERMINAL GUIDE

TONE ALERT CIRCUIT FOR MODELS: 250-810 AND 250-811

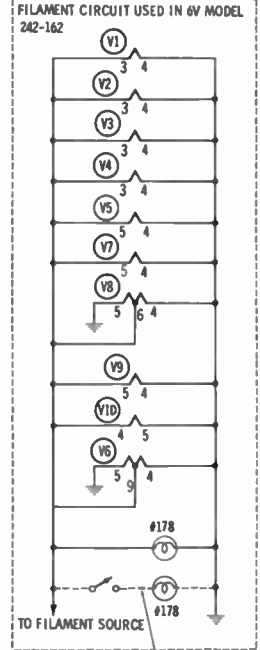
- ⊙ See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise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

ALL VOLTAGES MEASURED IN CALL POSITION UNLESS OTHERWISE DESIGNATED
 ▲ MEASURED IN EITHER STANDBY OR OPERATE POSITION



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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JOHNSON MODELS 242-162/-163, 250-810/-811



SWITCH AND BC INDICATOR LIGHT USED IN VERSIONS WITH BC TUNING PROVISIONS

TONE ALERT PARTS LIST AND DESCRIPTION TUBES

	AMPEREX	GENERAL ELECTRIC	RCA	RAYTHEON	SYLVANIA
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V11	Reed Relay Control Amp.	12AT7			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2N1370	Oscillator				PNP
X2	2N1370	Oscillator				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	JOHNSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C72	5	25	22. 1734-2						
C73	50	3	22. 1734-8						
C74	50	25	22. 1734-9						
C75	5	25	22. 1734-2						

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.	
C78	.01								
C77	.02 50V								
C78	1mf 200V								
C79	.1								
C80	.002								
C81	.002	Note 1							
C82	.001								
C83	.1 25V								
C84	.1 25V	Note 1							

Note 1. Not used when high frequency tone reeds are installed.

CONTROLS

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

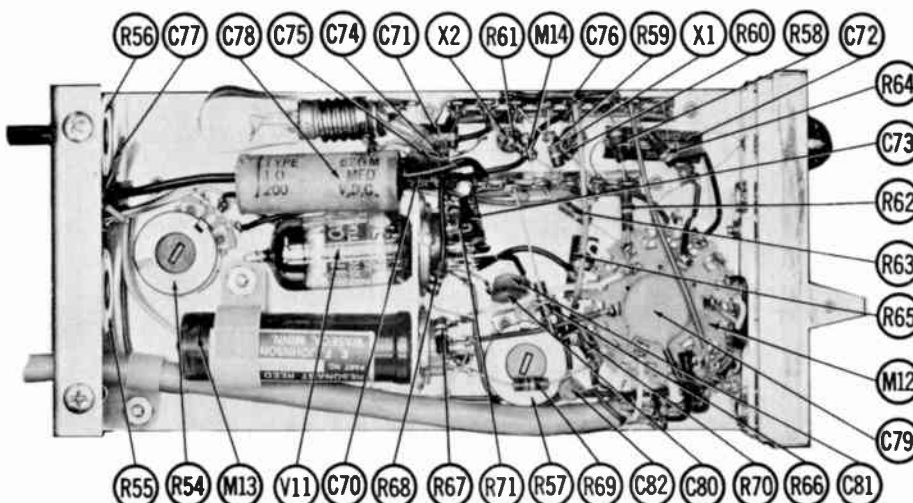
ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			JOHNSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R54	Feedback Adjust	50K	22-1890-2	TT-31 ①	B47-50K-S ①	B11-123, TM9, or (BU11, CF12, SS6, DC2)*	PTA54L ①
R55	Latch Light Adjust	500K	22-1890-3	TT-59 ①	B47-500K-S ①	B11-133, TM9, or (BU11, CF16, SS6, DC2)*	PTA55L ①
R56	Tone Volume	10K	22-1890-1	F2-10K, SN010, AK-38		B13-116, TM4, or (BU11, C F61, SS6)*	RU14A, SL37, SN1000
R57	Sensitivity Adjust	500K	22-1890-3	TT-59 ①	B47-500K-S ①	B11-133, TM9, or (BU11, CF16, SS6, DC2)*	PTA55L ①

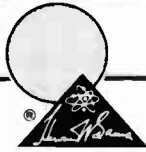
* "SNAPTROL"

① Cut off Shaft and Adjust from Rear.

MISCELLANEOUS

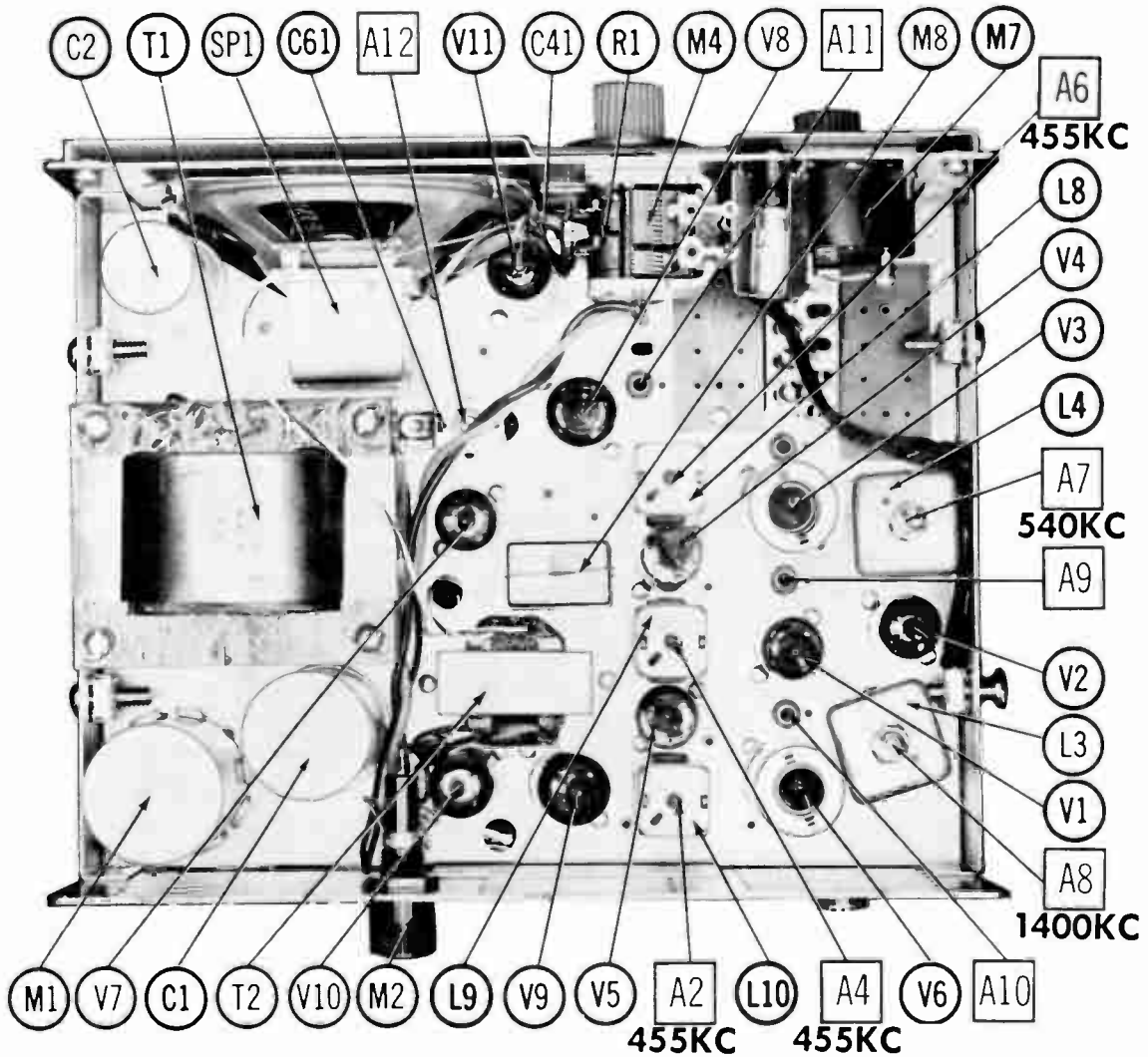
ITEM No.	PART NAME	JOHNSON PART No.	NOTES
M12	Switch	22. 1891	Standby-Operate-Call (Lever Type)
M13	Tone Reed Relay	22. 1889-1 thru 22. 1889-26	Low Frequency Tone
	Tone Reed Relay	22. 1889-27 thru 22. 1889-37	High Frequency Tone
M14	Diode	22. 3901	1N295





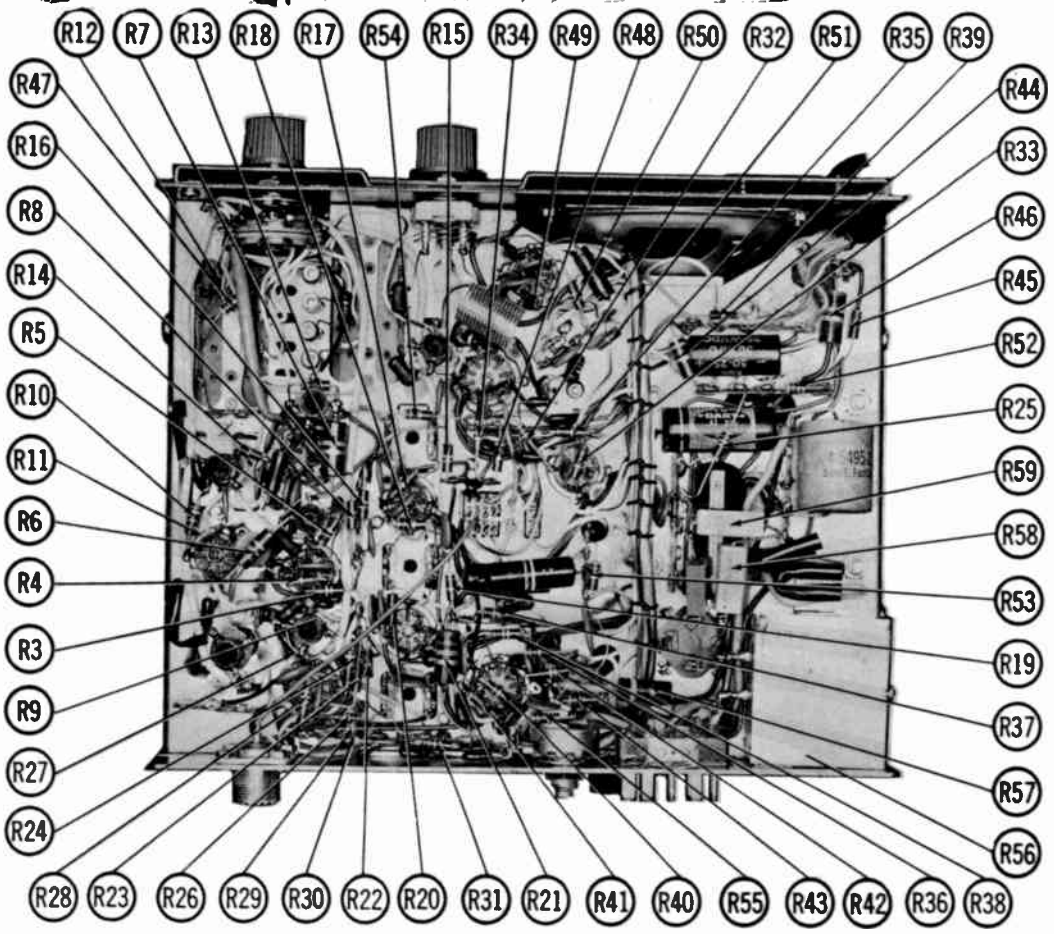
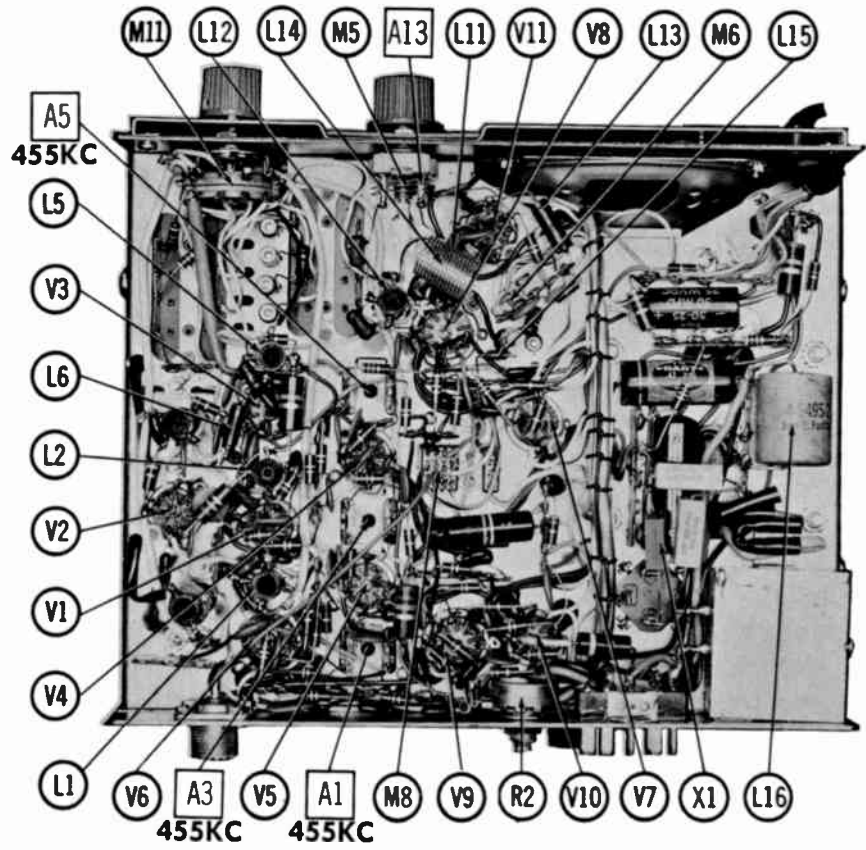
PHOTOFAC[®]

TRADE NAME: Kaar Models TR327, TR327A, TR327B
SUPPLIER: Kaar Engineering Corp.
 2995 Middlefield Road,
 P.O. Box 1320, Palo Alto, Calif.
TYPE SET: 10 (or) 11 Tube Transceiver
POWER SUPPLY: 110 -- 120 Volts AC, 60 Cycles (or)
 6 (or) 12 Volt Storage Battery
RATING: 64 Watts, .75 Amp. @ 117 VAC
 4.1 Amp. @ 12.6 VDC
TUNING RANGE: Any 4 CB Channels 1 thru 23
 Model TR327A also tunes Broadcast Band
 Model TR327B has tuneable CB Receiver



KAAR MODELS TR327, TR327A, TR327B

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



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6, A12.....GENERAL CEMENT #5907, 8607, 8727
 WALSCO #2515
 A7, A8.....GENERAL CEMENT #8196, 8722, 8272
 WALSCO #2515, 2516, 2518, 2519, 2525, 2541
 A9, A10, A11..... GENERAL CEMENT #8606, 9295, 8282
 WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Connect output meter across voice coil.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mf to pin 2 (grid) of V3 (Mixer), low side to chassis. Tune to 455KC (400% Mod.)	Any	A1 thru A6	Turn squelch control fully clockwise. Adjust for maximum output.
Across antenna jack. Tune to 540KC (400% Mod.)	BC	A7	BC Tuning gang fully closed. Adjust for maximum output.
Across antenna jack. Tune to 1400KC (400% Mod.)	BC	A8	Set dial pointer to 1400KC. Adjust for maximum output.
Across antenna jack. Tune to channel frequency.	Center Channel Used.	A9, A10	Adjust for maximum 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 19, Subpart D, Section 19.71).

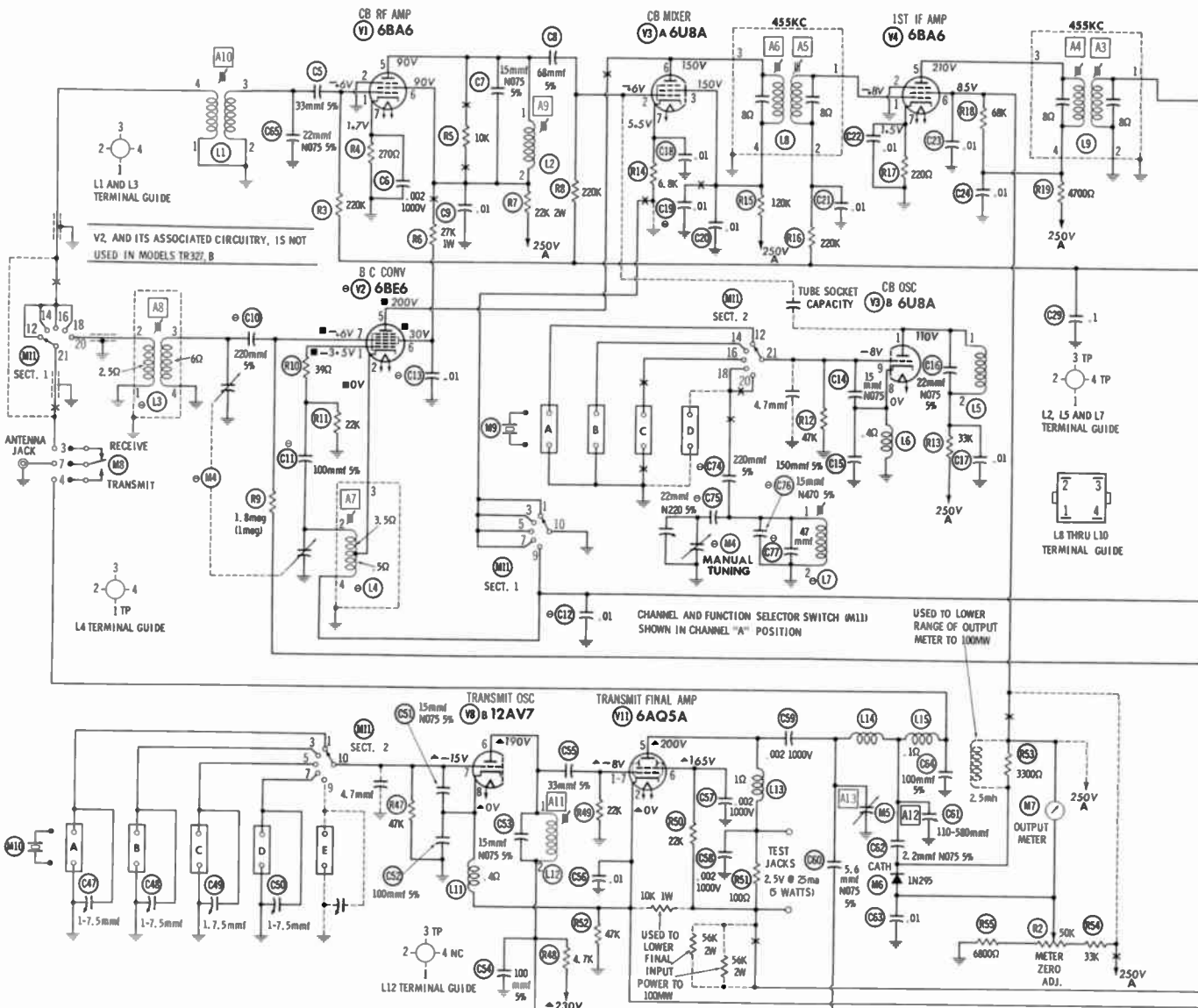
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

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.

Trimmers C47 thru C50 are provided for precise adjustment of frequency with the use of a secondary frequency standard.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect DC VTVM across test jacks (R51) on rear of chassis.	Any	A11	Key transmitter. Adjust for maximum deflection. Key transmitter on all channels to be sure oscillator starts.
"	Any	A12	Turn clockwise until snug.
"	Any	A13	Key transmitter. Adjust for MINIMUM deflection.
"	Any	A12	Turn slightly counterclockwise.
"	Any	A13	Readjust for MINIMUM. Repeat adjustments of A12 and A13 until any further adjustment of A12 results in a voltage drop. Voltage should be approximately 2.5V (25ma, 5 Watts).

KAAR MODELS TR327, TR327A, TR327B



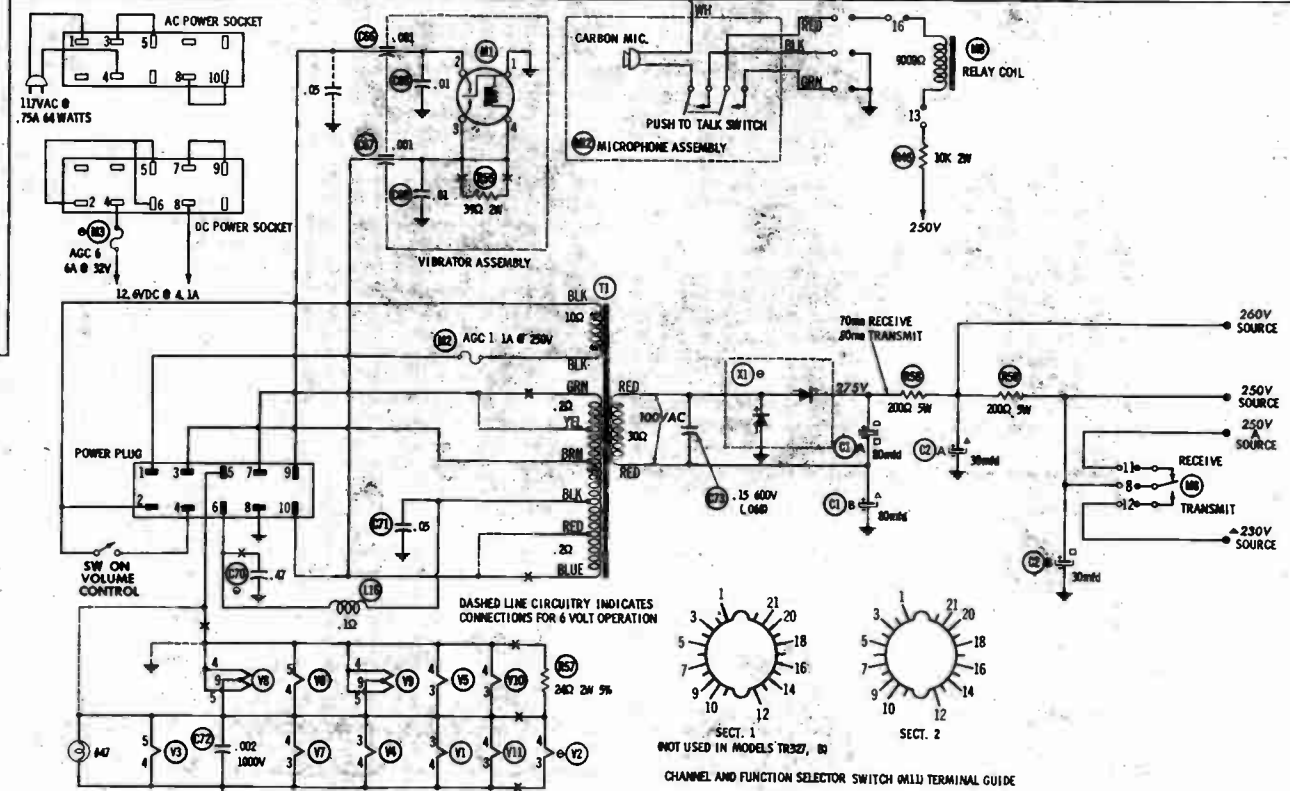
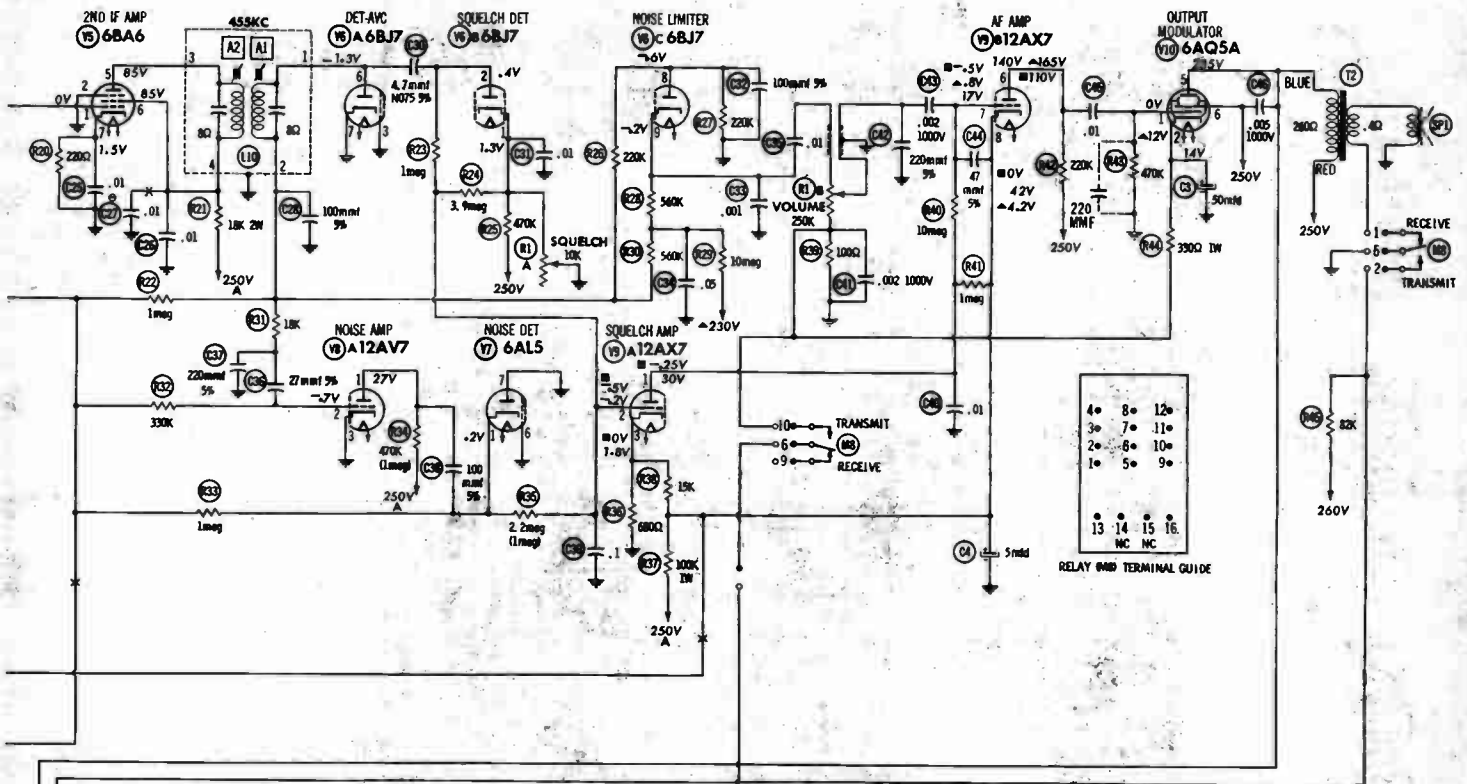
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	1.5meg	0Ω	FIL	122K	122K	270Ω			
V2	6BE6	22K	▲.5Ω	FIL	FIL	1120K	149K	3meg		
V3	6U8A	133K	1.5meg	1120K	FIL	FIL	1120K	6800Ω	▲.4Ω	47K
V4	6BA6	1.5meg	0Ω	FIL	FIL	15100Ω	150K	220Ω		
V5	6BA6	8Ω	0Ω	FIL	FIL	118K	118K	220Ω		
V6	6BL7	2500Ω	3meg	0Ω	FIL	FIL	400K	0Ω	200K	1.5meg
V7	6AL5	1.7meg	NC	FIL	FIL	TP	0Ω	0Ω		
V8	12AV7	1470K	1.6meg	0Ω	FIL	FIL	145100Ω	47K	▲.4Ω	FIL
V9	12AX7	1meg	1.9meg	680Ω	FIL	FIL	122K	10meg	15K	FIL
V10	6AQ5A	470K	430Ω	FIL	FIL	1660Ω	1400Ω	NC		
V11	6AQ5A	22K	▲0Ω	FIL	FIL	1760Ω	122K	NC		

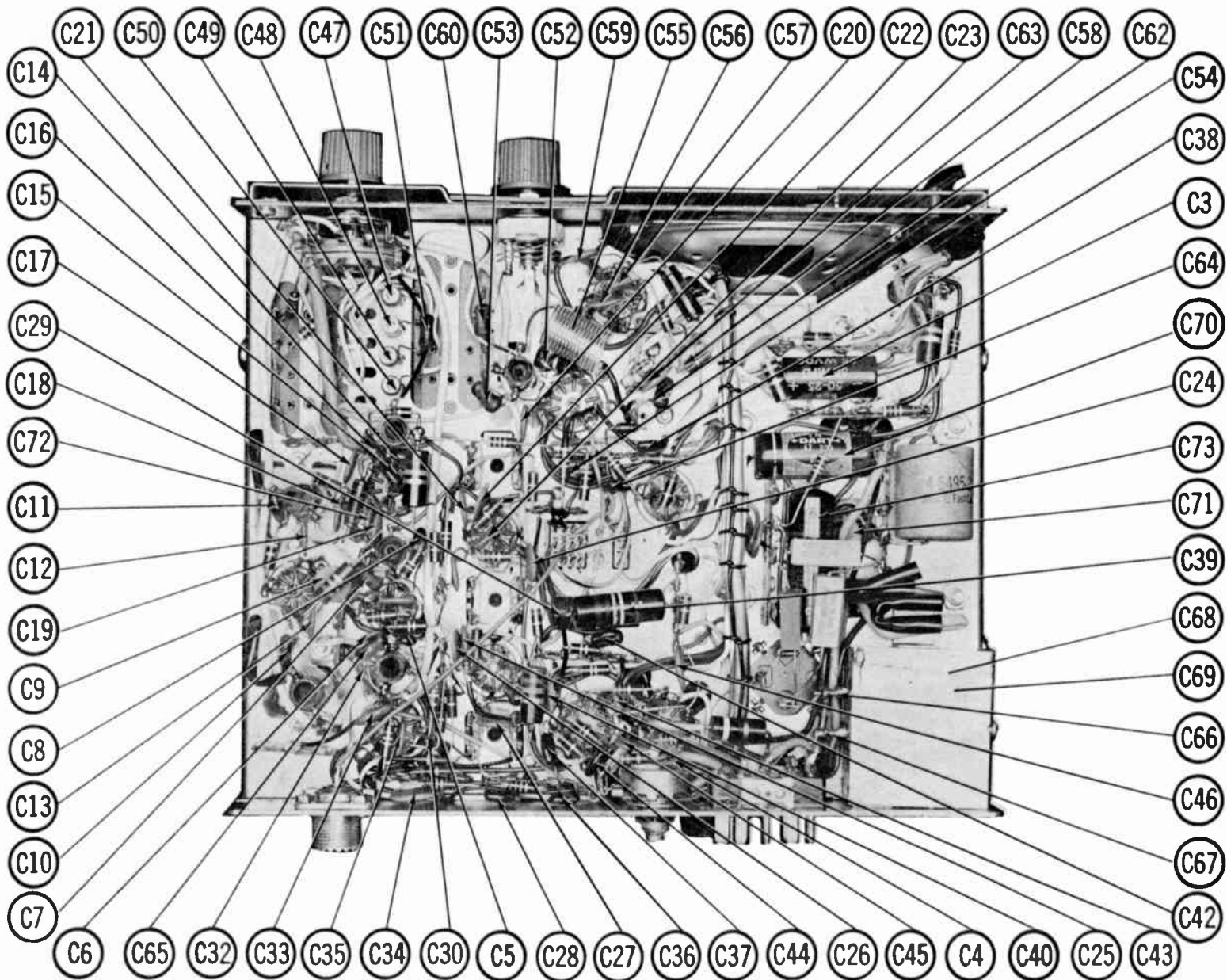
- ⊕ See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise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

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALL MEASUREMENTS MADE IN CRYSTAL CONTROLLED RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
 ▲ MEASURED IN TRANSMIT POSITION.
 ● MEASURED IN BC POSITION
 † MEASURED FROM OUTPUT OF X1. NC NO CONNECTION TP TIE POINT



KAAR MODELS TR327, TR327A, TR327B



PARTS LIST AND DESCRIPTION

TUBES

• AMPEREX •		GENERAL ELECTRIC •		RCA •		RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE		ITEM No.	USE
V1	CB RF Amp.	6BA6		V7	Noise Detector	6AL5			
V2	BC Conv.	6BE6		V8	Noise Amp. - Transmit Osc.	12AV7			
V3	CB Mixer - CB Rec. Osc.	6U8A		V9	Squelch Amp. - AF Amp.	12AX7			
V4	1st IF Amp.	6BA6		V10	Output - Modulator	6AQ5A			
V5	2nd IF Amp.	6BA6		V11	Transmit Final Amp.	6AQ5A			
V6	Det. - AVC - Squelch Det. - Noise Limiter	6BJ7							

① Not used in Models TR327, TR327B

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.090A		VB400 VB400	1N3254 or 1N2863 or 1N3195*	F-4* F-4*

* Use Two Units.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		KAAR 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.
C1A	.80 ▲ Neg.	200		AFH1-35 PRS1595	BR80-350				
C2A	.80 ▲ 30	200 350		AFH2-39	BR80-350 B0310	XC2-16	TMD2385	FP227.3A	TVL-2628
C3	.30 ▲ 25	350		PRS1265	BBR50-25	MT1-17	TD-50-25	TC29	TVA1206
C4	.50 ▲ 5	25		CRE754A	NLW5-50	MT1-3	MLV5-50	TT50X5	TE-1303

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	33 5%		NPO-DI 33	DTZ-33	C10Q33C	CC TO-330	CNO-433	10TCC-Q33
C6	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	15 N075 5%		ADM-15-680	CPR-68J	CD10F680J	SCDM-15-680J		MS-468
C8	68 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.01	Note 1	ADM-15-221	CPR-220J	CD10E221J	SCDM-15-221J		MS-322
C10	220 5%	Note 1	ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C11	100 5%	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	15 N075 5%		ADM-15-151	CPR-150J	CD10F151J	SCDM-15-151J	MCE236	MS-315
C15	150 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	22 N075 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.01	Note 3	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.01	Note 3	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	100 5%		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C29	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10
C30	4.7 N075 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.01		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C32	100 5%		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C33	.001		P488N-047	DD-503	PM6847	6DP-3-473	GEM-6147	6TM-847
C34	.05							

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.
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	27 5%		ADM-15-270	CPR-27J	CD10E270J	SCDM-15-270J		MS-427
C37	220 5%		ADM-15-221	CPR-220J	CD10E221J	SCDM-15-221J		MS-322
C38	100 5%		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C39	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C42	220 5%		ADM-15-221	CPR-220J	CD10E221J	SCDM-15-221J		MS-322
C43	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C44	47 5%		ADM-15-470	CPR-47J	CD10E470J	SCDM-15-470J		MS-447
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C46	.005 1000V		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C47	1-7.5			829-7				
C48	1-7.5			829-7				
C49	1-7.5			829-7				
C50	1-7.5			829-7				
C51	15 N075 5%		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C52	100 5%		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C53	15 N075 5%		ADM-15-330	CPR-33J	CD10E330J	SCDM-15-330J		MS-433
C54	100 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C55	33 5%		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C56	.01		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C57	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C58	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C59	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C60	5.6 N075 5%							
C61	110-580							
C62	2.2 N075 5%							
C63	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C64	100 5%		ADM-15-101	CPR-100J	CD10F101J	SCDM-15-101J	MCE235	MS-31
C65	22 N075 5%							
C66	.001		EF-001	MFT-1000		CCF-102	CT280A	
C67	.001		EF-001	MFT-1000		CCF-102	CT280A	
C68	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C69	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C70	.47 200V	Note 3	P488N-47	DD-503	PM6847	2CP-6-474	GEM-2047	2TM-P47
C71	.05		P688N-047	DD-503	PM6847	6DP-3-473	GEM-6147	6TM-847
C72	.002 1000V		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C73	.15 600V	(.068) †	P588N-15	CPR-220J	CD10E221J	SCDM-15-221J		MS-322
C74	220 5%	Note 2	ADM-15-221	CPR-220J	CD10E221J	SCDM-15-221J		MS-322
C75	22 N220 5%	Note 2						6TM-P15
C76	15 N470 5%	Note 2						MS-322
C77	47 NPO 5%	Note 2	TPNPO-470A	TCZ-47	C10Q47C			10TCC-Q47

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

Note 1. Not used in Models TR327, TR327B. Note 2. Not used in Models TR327, TR327A.

† Alternate Value. Note 3. Not used in some versions.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			KAAR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Squelch	10K	5016	F1-10K, R2-250K, RFS009 ①		† QJ-1674R	■ UE4464-S
R2	Volume & Switch	250K	5010	F1-50K, KR-4, F1-50K, SS008, or (B-31)	A47-50K-S, FKS-1/2	B11-123, SK2 or (BU2, CF12, SS2, DC1)*	UA54L, SK1000 or (RU54L, SL38, SK1000) or (U35)
R2	Meter Zero Adjust	50K	5010				

† "CONCENTRIKIT" Equivalent: K-6 Kit with base elements and shafts: B11-116, P22-021 ① (Panel)

B13-130, R1-028 (Rear)

76-1 (Switch)

① File Flat to Duplicate Original.

* "SNAPTROL" Equivalent: BU5, CF9, CR18, SF68 ①, SR1, GC.

■ "STA-LOC" Equivalent: FA14L, RU254A, IS1937, OS62, US41.

KAR MODELS TR327, TR327A, TR327B

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
R58	200Ω 5W	PW5-200	5W-SQ-200		R59	200Ω 5W	PW5-200	5W-SQ-200	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		KAAR PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	CB Ant.	2214	SW809				① Used with slug removed. ② Used in Model TR327B only. ③ Used in Model TR327A only.
L2	CB RF (.7-1.4uh)	2212					
L3	BC Ant.	2232 ③					
L4	BC Osc.	2233 ③					
L5	CB Rec. Osc.	2212 ①					
L6	Cath. Choke (4.7uh)	213-115	SW631	74F476AP		T819	
L7	CB Rec. Osc.	2241 ②					
L8	1st IF		BC352	14-C9	RTC-8636	T812	
L9	2nd IF		BC352	14-C9	RTC-8636	T812	
L10	3rd IF		BC353	14-C10	RTC-8637	T813	
L11	Cath. Choke (4.7uh)	213-115	SW631	74F476AP		T819	
L12	Trans. Osc. (.7-1.4uh)	2212					
L13	Plate Choke (12uh)	219-111	BC566	F2F125AP	RTC-8522	TA328	
L14	Plate Load (1.4uh)	2213					
L15	Ant. Load (.47uh)	201-115	TV239	4588	RTC-8513	T958	
L16	Hash Filter (25uh)	A5495-2					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	KAAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④ .75A	100VAC ④ .28A (AC)	12.6V ④ 1.6A	1200A					
	PRI. 2								
	12.6V DC 2.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	KAAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	5500Ω	3-4Ω	1030					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		KAAR PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	5700	4A10T	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				KAAR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6	115v	1610	5372	1610	R56 not used for 6 Volt operation.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			KAAR PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	AGC	1A 250V			312001	342012	AGC 1	HKP-CC
M3	AGC	6A 32V	①		311006	155020	AGC 6	HRJ
	AGC	15A 32V	②		311015	155020	AGC 15	HRJ

① 12 Volt Versions. ② 6 Volt Versions.

MISCELLANEOUS

ITEM No.	PART NAME	KAAR PART No.	NOTES
M4	BC Tuning Cap.	4346	2 Gang, Model TR327A only. Single Section, Model TR327B only.
M5	CB Tuning Cap.	4483	
M6	Final Plate Loading		3-14mmf
M7	Meter Rectifier		1N295 or 1N60A
M8	Meter	MR-2P	Signal Level (0-1ma)
M9	Relay	T154	Transmit-Receive
M10	Crystal		Receive (order by channel)
M11	Crystal		Transmit (order by channel)
M12	Switch	3034	4 Pole 5-Position Rotary Channel and Function Selector
	Microphone Ass'y.	CB9L	

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. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)



PHOTOFACT[®]

TRADE NAME : Lafayette Model HE-20C
 SUPPLIER : Lafayette Radio Electronics Corp.
 111 Jericho Turnpike, Syosset, L. I., N. Y.
 TYPE SET : 7 Tube Transceiver
 POWER SUPPLY : 110 - 120 VAC, 60 Cycles (or)
 12 Volt Storage Battery
 RATING : .52 Amp. @ 117VAC (or)
 4.5 Amp. @ 12.6VDC
 TUNING RANGE : Any 8 of CB Channels 1 thru 23
 Receiver may be continuously tuned.



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:	
A1 thru A6.....	GENERAL CEMENT #5097, 8727, 8607 WALSCO #2515
A7, A8, A9, A10, A12, A13.....	GENERAL CEMENT #8282, 8606, 8606L WALSCO #2526, 2543, 2544
A11.....	GENERAL CEMENT #5000, 5003, 5066 WALSCO #2512, 2525, 2528

RECEIVER ALIGNMENT

Connect output meter across voice coll.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 of 6EA8 (Mixer), low side to chassis. Tune to 1650KC (400% Mod.)	Any	A1, A2, A3, A4, A5, A6	Turn squelch control fully clockwise, adjust for maximum deflection.
Across antenna receptacle. Tune to channel frequency.	Center Channel used.	A7	Set Crystal-Tune switch to Tune. Set tuning dial to channel used. Turn A7 all the way in (Clockwise), then back out until a signal is heard. (Coil adjustment has several peaks, use peak with slug nearly in coll.)
"	"	A8, A9	Connect 100Ω and .005mfd in series across winding not being adjusted. Adjust for maximum output. Remove resistor and capacitor.

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).

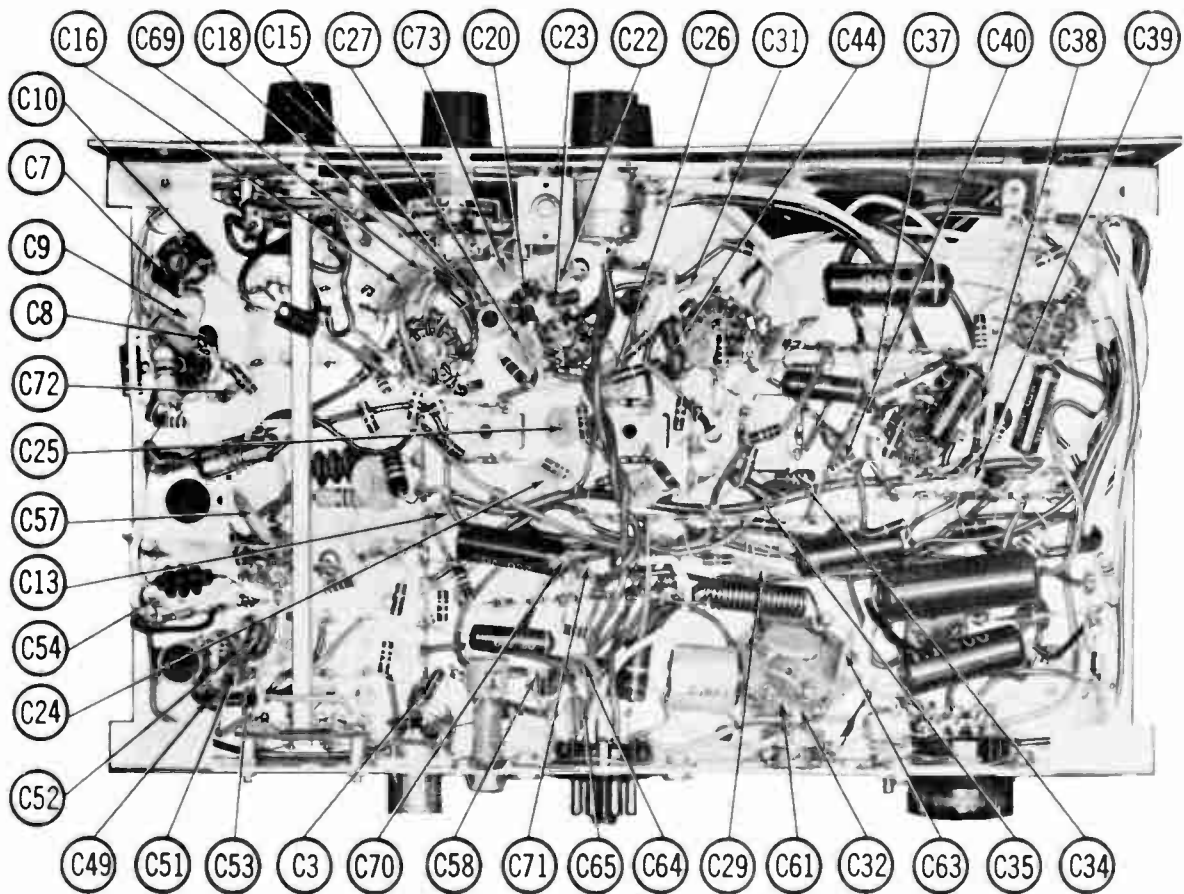
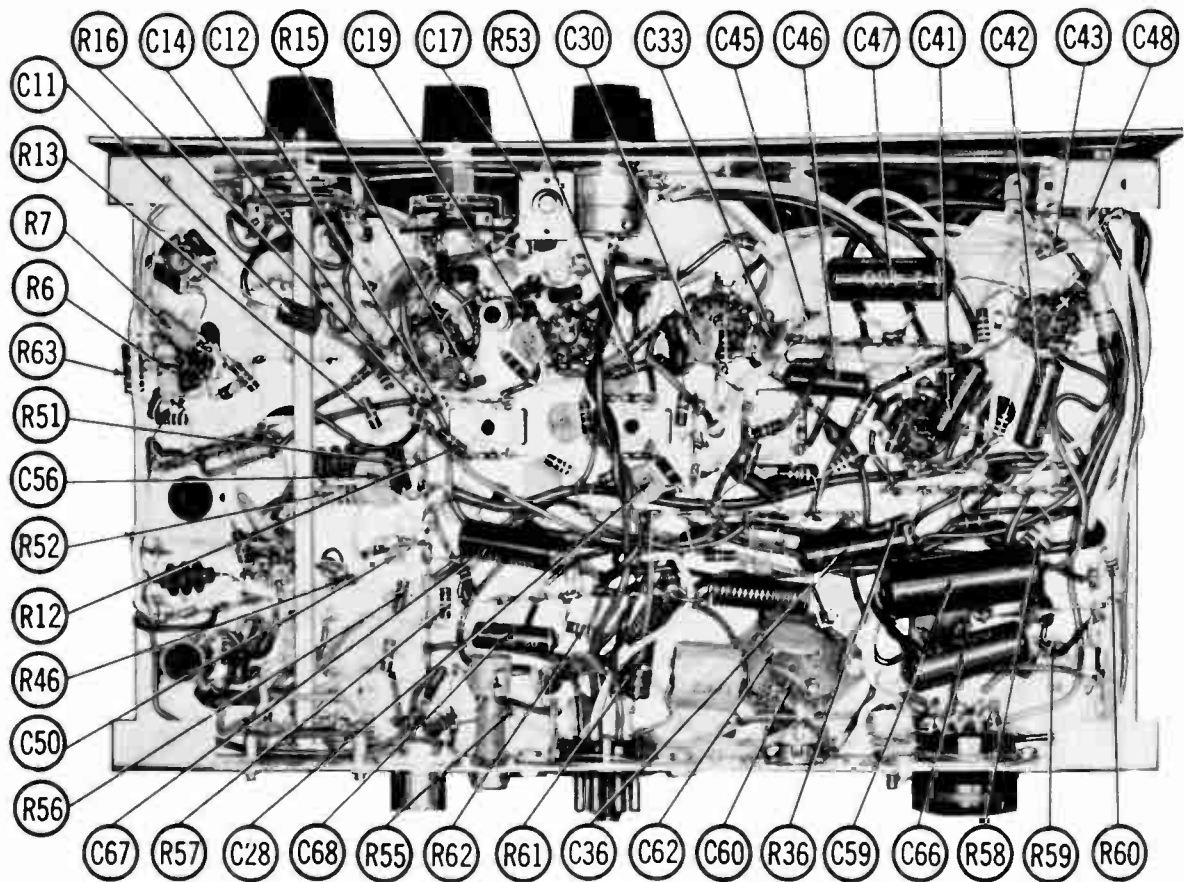
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

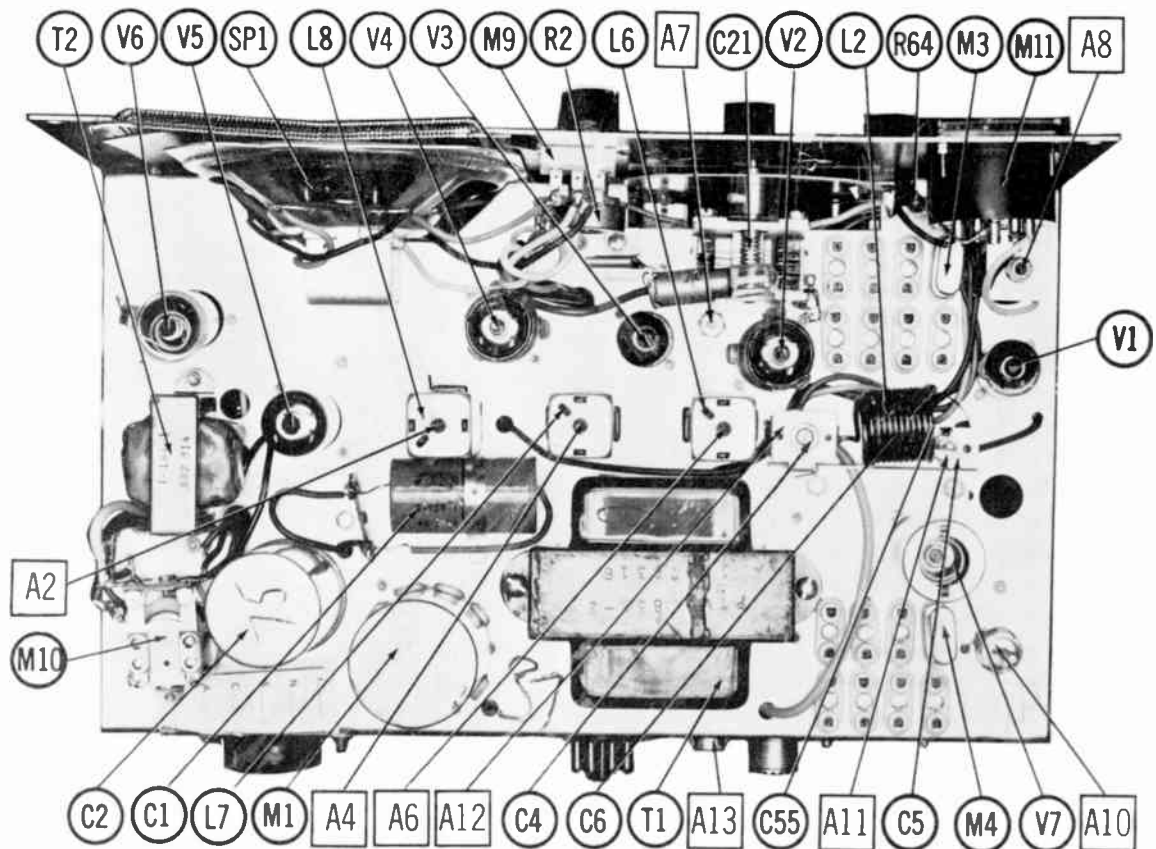
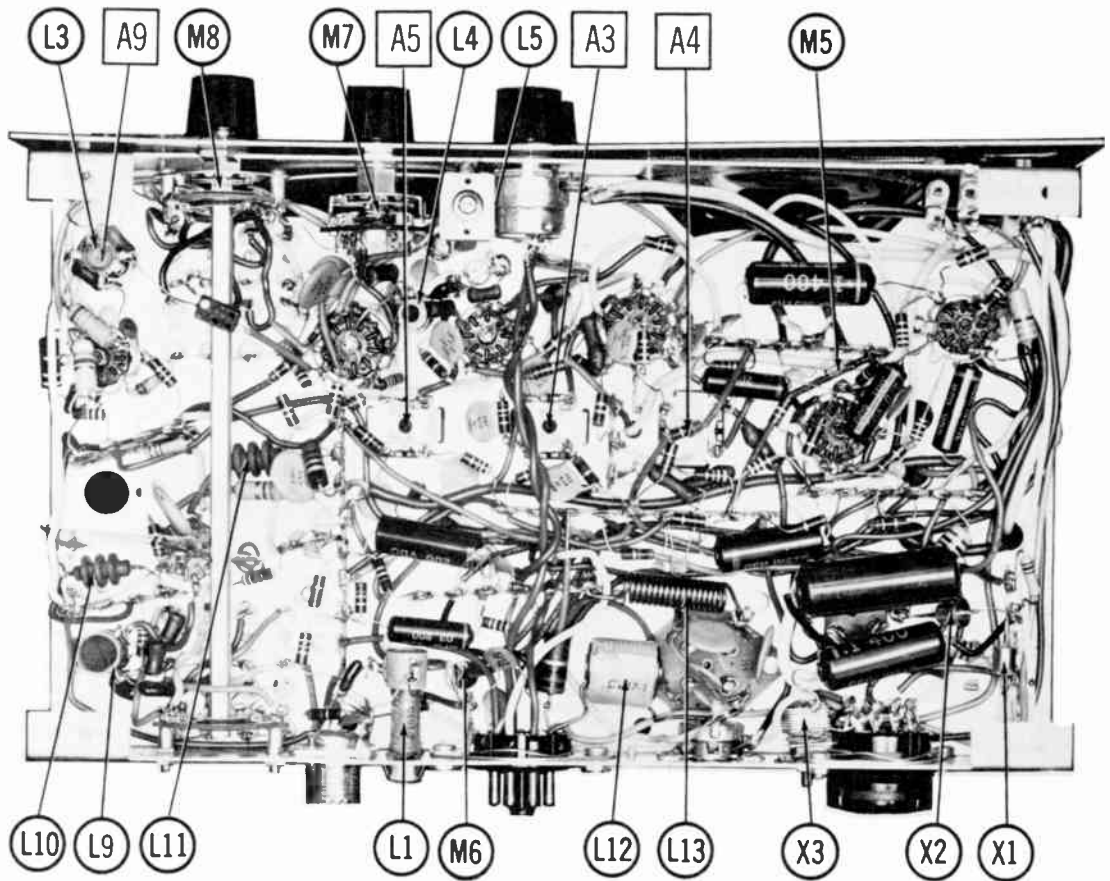
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

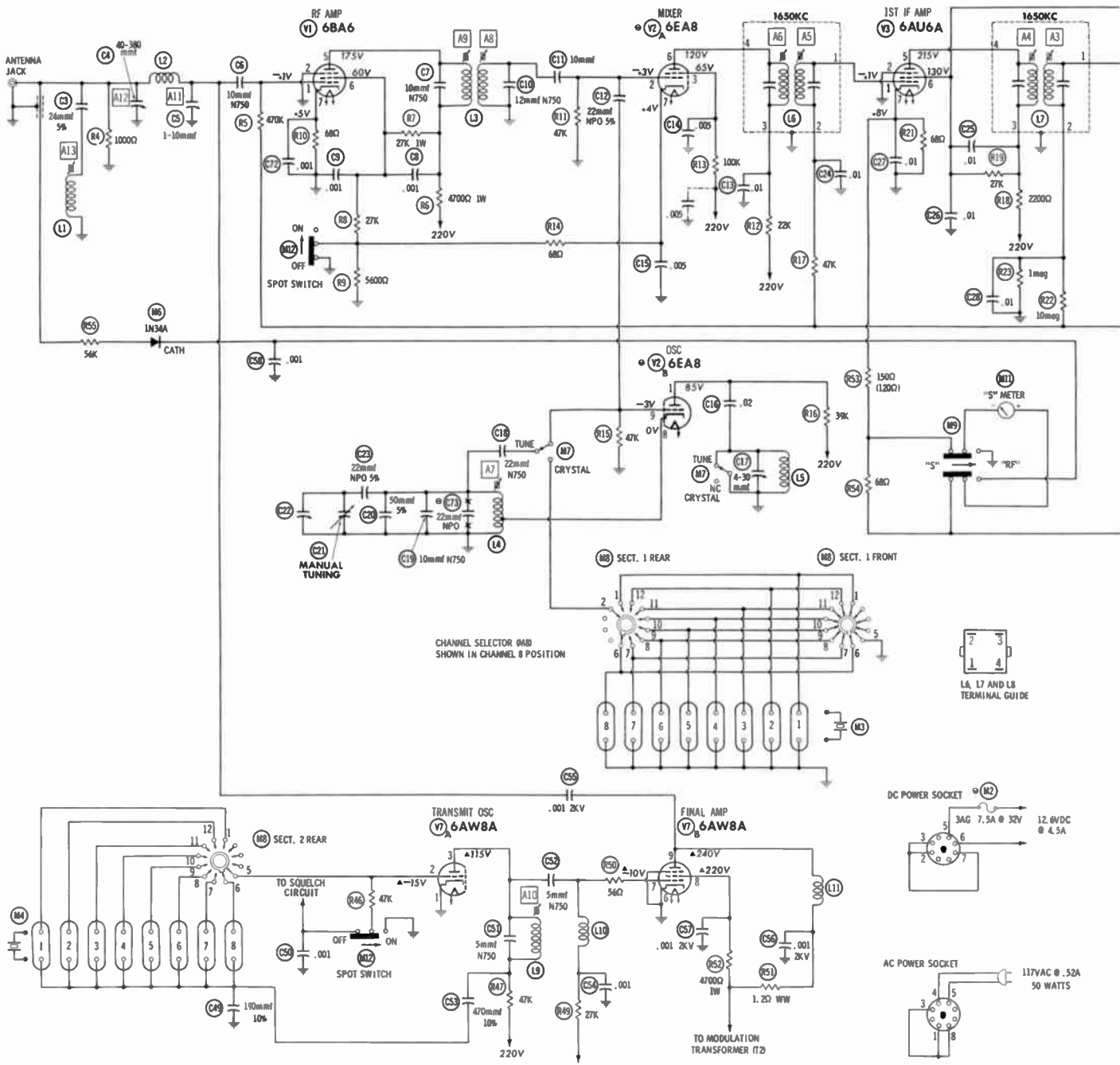
Set meter switch to P RF

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect dummy load to antenna receptacle.		A10	Key transmitter. Adjust for maximum deflection. Set A10 slightly below peak. Key transmitter several times to be sure oscillator starts. Check all channels used.
"		A11, A12	Key transmitter. Adjust for maximum deflection of front panel meter.
		A13	Adjust for MINIMUM interference on lower three TV channels.

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







Ⓞ 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. PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	2.2meg	0Ω	FIL	FIL	15800Ω	132K	68Ω		
V2	6EA8	140K	47K	1100K	FIL	FIL	123K	68Ω	0Ω	470K
V3	6AU6A	1.8meg	0Ω	FIL	FIL	12400Ω	130K	68Ω		
V4	6U8A	1120K	1meg	151K	FIL	FIL	12400Ω	200Ω	0Ω	2.2meg
V5	6T8	440K	425K	475K	FIL	FIL	2.3meg	0Ω	10meg	1470K
V6	6AQ5	NC	330Ω	FIL	FIL	1420Ω	11100Ω	470K		
V7	6AW8A	0Ω	47K	148K	FIL	FIL	0Ω	480K	15100Ω	1440Ω

† MEASURED FROM OUTPUT OF X1
 ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 NC NO CONNECTION
 ▲ MEASURED IN "TRANSMIT" POSITION.

PARTS LIST AND DESCRIPTION TUBES

♦ AMPEREX ♦			♦ GENERAL ELECTRIC ♦			♦ RCA ♦			♦ RAYTHEON ♦			♦ SYLVANIA ♦		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp. Receiver Mixer-Osc. 1st IF Amp. 2nd IF Amp. - Speech Amp.	6BA6	V5	Det. -ANL- Squeelch- AF Amp. Output-Modulator Trans. Osc. -Final RF	6T8	V6		6AQ5	V7		6AW8A			
V2		6EA8 (6U8A)*												
V3		6AU6A												
V4		6EA8 (6U8A)*												

* Alternate

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.080A	SR846-2	1N2070	1N1763	40H
X2	.080A	SR846-2	1N2070	1N1763	40H
X3	.0001A	①			Model 12 ①

① Selenium Type.

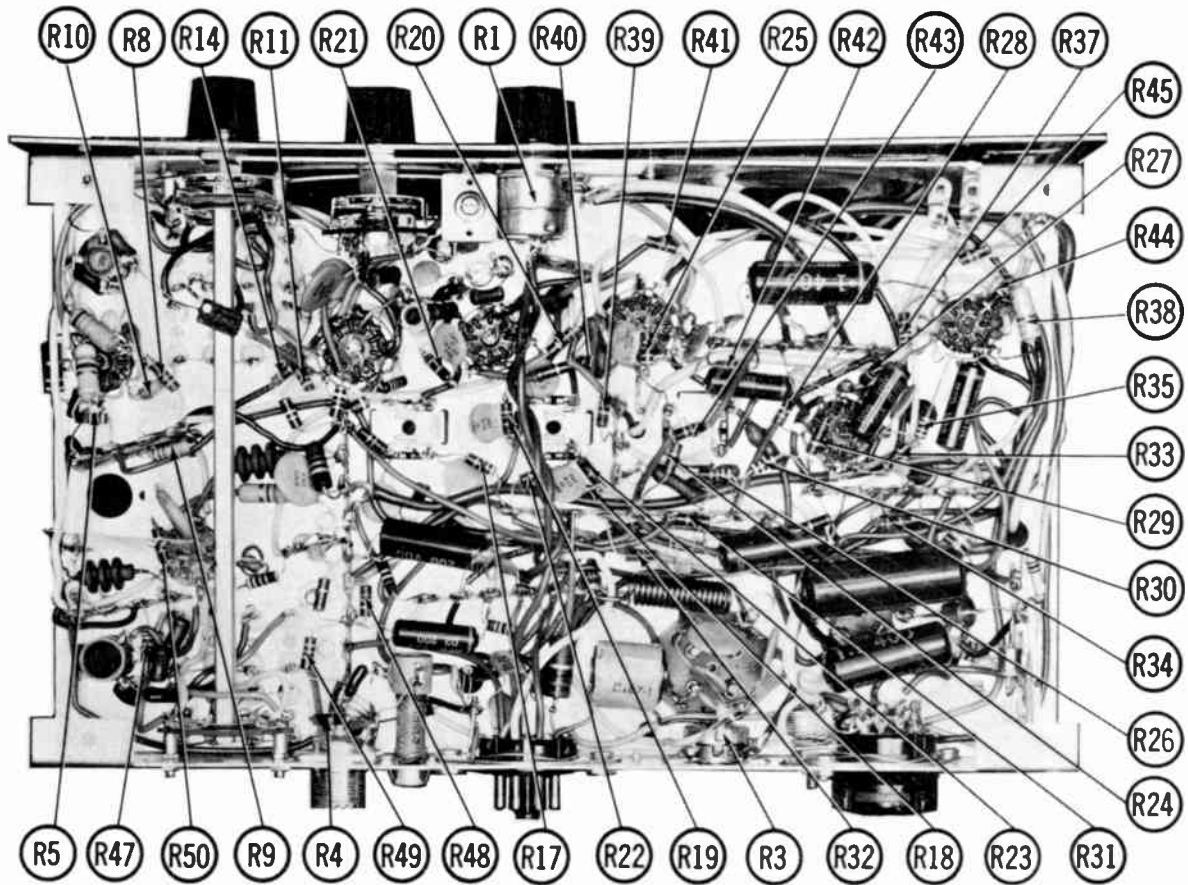
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Lafayette PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	40	200	E238-1	PRS1580	BR4025	QT1-14	TD-40-250	TC58	TVA-1511
C2A	40	350							
B	40	350							
C	40	200	E237-1	AFH3-43	C0340	XC4-22	TMT-3700	FP425	TVL8-4624.5*
D	10	50		PRS1580	BR4035		TD-40-350		

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

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.
C3	24 5%		1469-000024	TCZ-24	22R5Q24	CM-19B-240J	CNO-425	MS-424
C4	40-380							
C5	1-10			829-10				
C6	10 N750		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C7	10 N750		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	12 N750		N750-SI 12	TCN-12	C10Q12U	CCTN-120	CN7-412	10TCU-Q12
C11	10		1469-00001	TCZ-10	22R5Q1	CM-19B-100M	MCB-215	MS-41
C12	22 NPO 5%			DTZ-22	C10Q22C		CNO-422	10TCC-Q22
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C17	4-30							
C18	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C19	10 N750		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C20	50 5%		1469-00005	TCZ-50	22R5Q5	CM-19B-500J	MCE225	MS-45
C21		#V235A-4						
C22								
C23	22 NPO 5%			DTZ-22	C10Q22C		CNO-422	10TCC-Q22
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C32	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C35	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C36	.1 200V							
C37	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C41	.001 600V		P688N-001		PM8D1	6DP-1-102	GEM-1621	6TM-D10
C42	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30
C43	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C44	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C45	.002		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46	.001 400V							
C47	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C48	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C49	180 10%		1469-0002	TCZ-200	22R5T2	CM-19B-201K	MCB237	MS-32
C50	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C51	5 N750		N750-SI 5	TCN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C52	5 N750		N750-SI 5	TCN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C53	470 10%							
C54	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C55	.001 2000V							
C56	.001 2000V							
C57	.001 2000V							
C58	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C59	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C60	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C61	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C62	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C63	.1		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C64	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C65	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10



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.
C67	.1 200V	Note 1	P288N-1	DF-104	CUB2P1	ZDP-3-104	GEM-201	2TM-P10
C68	.02 200V		P288N-02	DF-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C69	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C70	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C71	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C72	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C73	22 NPO			DTZ-22	C10Q22C	CCD-102	CNO-422	10TCC-Q22

Lafayette Part Number.
Note 1. Not used in some versions.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			Lafayette PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	2meg	V-332A-2	F2-2meg, SU204, KR-1	A47-2meg-Z, FS-3, SWE-12	Q13-139, 76-1 or (BU1, CF27, SS14, GC)*	UA26A, SF1000, US-41 or (RU26A, SL38, SF1000, US-41) or (U55, US-28)
R2	Squelch	3meg	331A-4	F1-3meg, SU204, AK-31, or (B-84, AK-31)	A47-3meg-S, FS-3	QCB1①, B11-140, TM5, or (BU2, CF21, SS14, DC1)*	UA36L, SF1000, or (RU36L, SL38, SF1000) or (U59, EB247)
R3	Meter	200Ω 2W	P325-3			W11-100, SK5, or (BU1, WF1, SS3)*	

* "SNAPTROL"
① Use QCB1 instead of Tab Mount Plate in TM5.

PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Lafayette PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC Trap	C191-2					
L2	Ant. Loading	C194-1					
L3	RF Bandpass	T188-1					
L4	Rec. Osc. (Tune)	O189					
L5	Rec. Osc. (Crystal)						
L6	1st IF	1110-5				TA632	
L7	2nd IF	1110-5				TA632	
L8	3rd IF	1110-5				TA632	
L9	Trans. Osc.	C190-1					
L10	RF Choke (500uh)	C185-12	TV-188	6174	RTC-8592	T324	
L11	RF Choke (500uh)	C185-12	TV-188	6174	RTC-8592	T324	
L12	Hash Suppressor	187-1					
L13	RF Choke (.56uh)						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ① .52A 12.6VCT ② 4.5A	105V ③ .090A DC	12.6V ④ 3A	PTV-183-2					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	10.7K Tap 4600Ω	3-4Ω	T184-1					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Lafayette PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	S717-1	4A07	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE. QUENCY	REPLACEMENT DATA			NOTES
				Lafayette PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6	115v		6301	G-1601	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Lafayette PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SAG	7 1/2A 32V	①		31207.5	155020	AGC 7 1/2	HDJ

① Used in 12.6VDC Versions only.

MISCELLANEOUS

ITEM No.	PART NAME	Lafayette PART No.	NOTES
M3	Crystal		Receive (order by channel and frequency desired)
M4	Crystal		Transmit (order by channel and frequency desired)
M5	Noise Limiter	1N34A	
M6	Meter Rectifier	1N34A	
M7	Switch	811-1	Crystal-Tune (selector, rotary type)
M8	Switch	BS-866B-1	Crystal Selector (rotary wafer type)
M9	Switch		Meter, S-P RF (DPDT Slide type)
M10	Relay		Receive-Transmit
M11	8 Meter	8109-1	Spot Tuning
M12	Switch		Includes Push-to-talk Switch
	Microphone Ass'y.	M368B-1	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Tuning	K4005-11	Cabinet - Less Front Panel	RC9099C
Knob - All except tuning	K4005-12	Cabinet Front Panel	FP9091E
Dial Scale	DS817A-2		

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.)

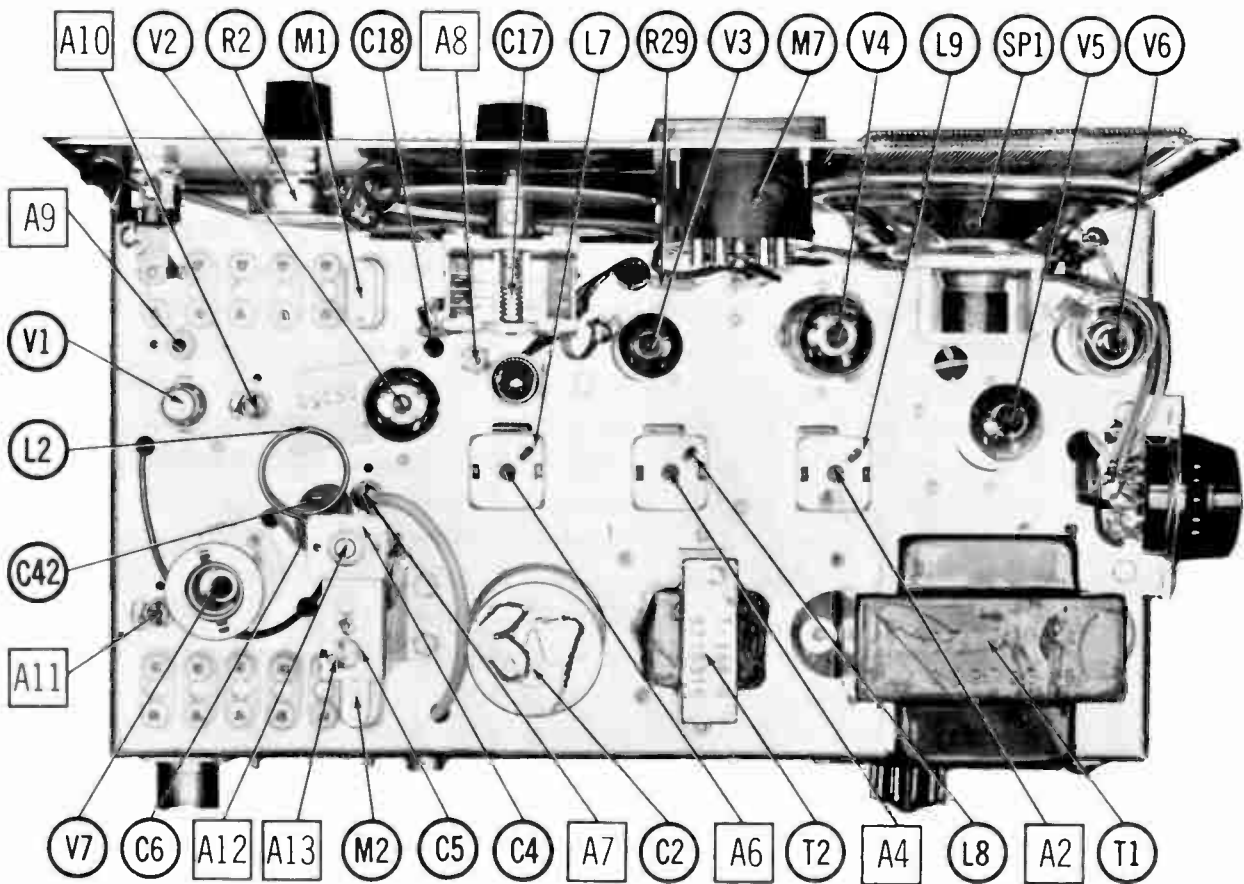


PHOTOFACT®

TRADE NAME : Lafayette Model HE-90
 SUPPLIER : Lafayette Radio Electronics Corp.
 111 Jericho Turnpike, Syosset, L. I., N. Y.
 TYPE SET : 7 Tube Transceiver
 POWER SUPPLY : 110 - 120 Volts AC, 50-60 Cycles (or)
 6 (or) 12 Volt Storage Battery
 RATING : 48 Watts, .55 Amp. @117 VAC (Receive)
 TUNING RANGE : Any 6 CB Channels 1 thru 23
 Receiver may be continuously tuned.

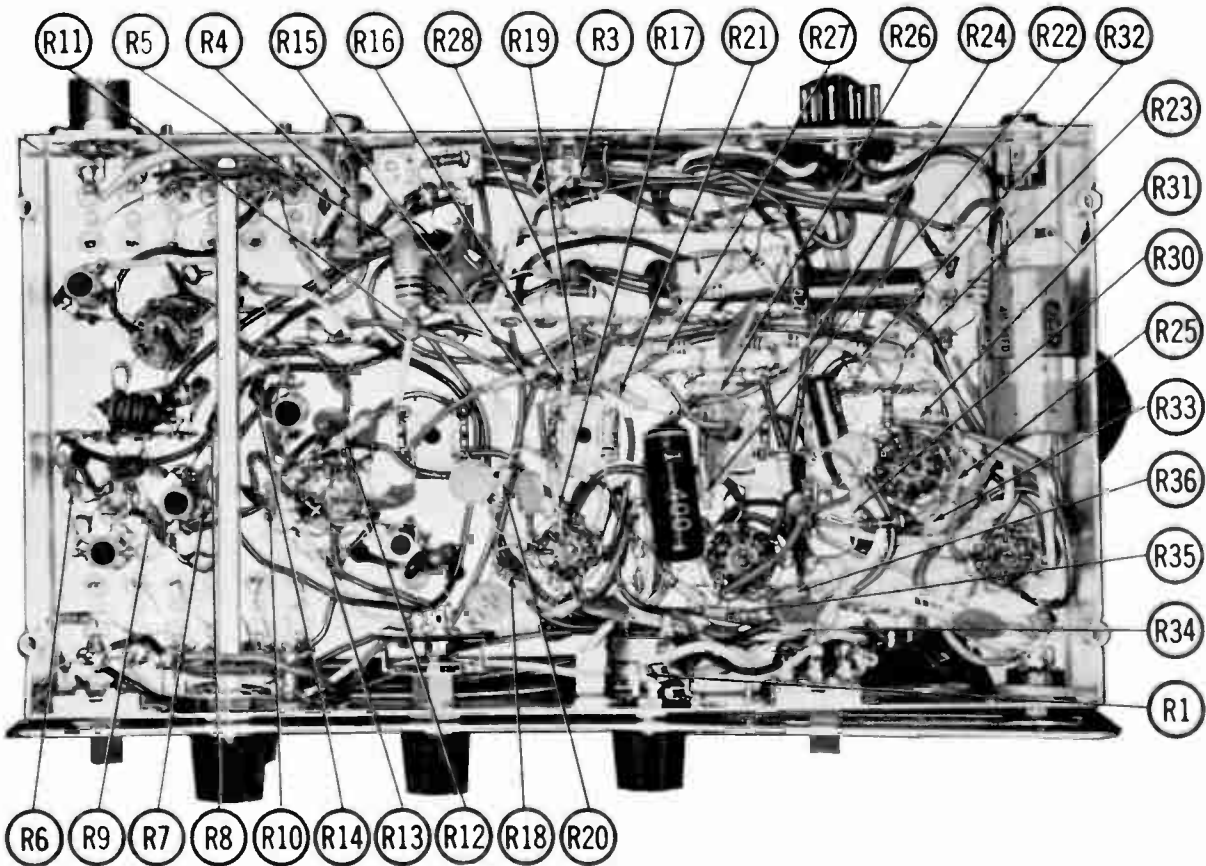
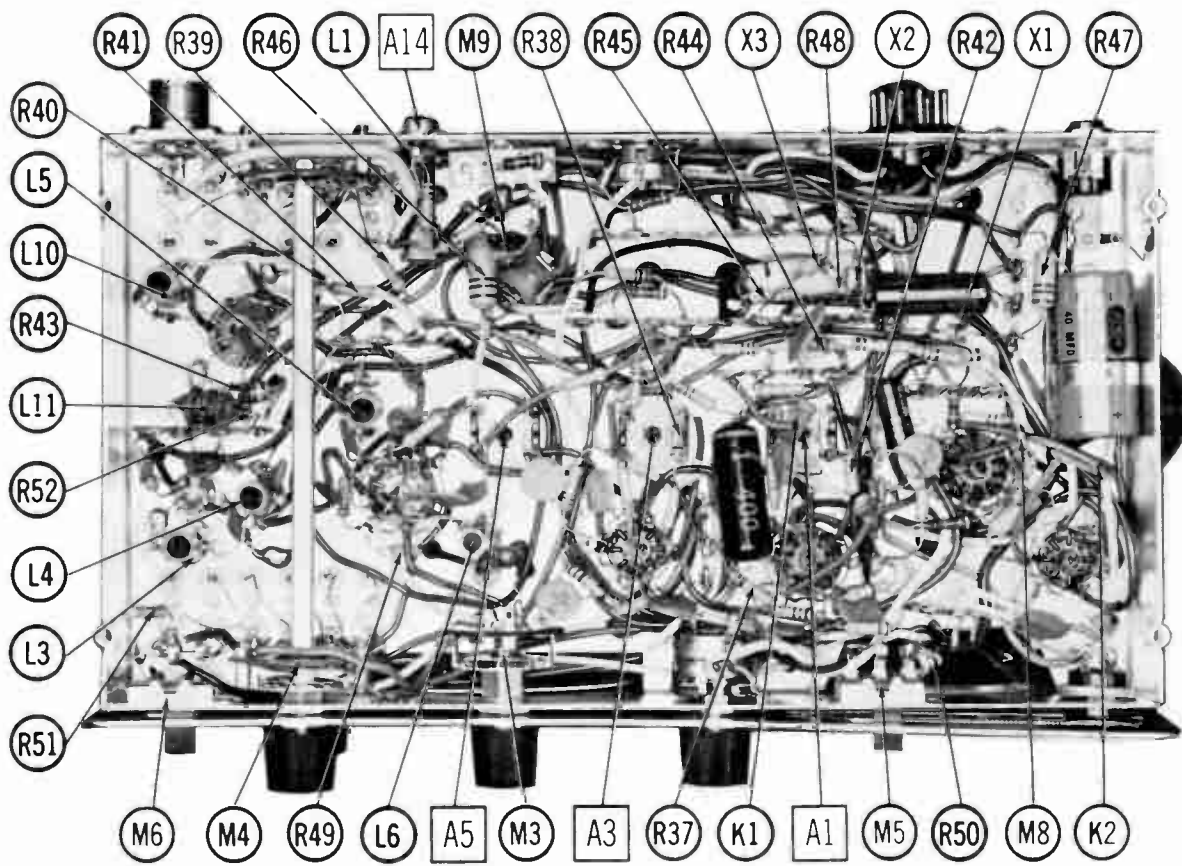


LAFAYETTE MODEL HE-90



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

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ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....	GENERAL CEMENT #5097, 8727, 8607 WALSCO #2515
A7, A8, A9, A10, A11, A13, A14.....	GENERAL CEMENT #8282, 8606, 8606L WALSCO #2526, 2543, 2544
A12.....	GENERAL CEMENT #5000, 5003, 5066 WALSCO #2512, 2525, 2528

RECEIVER ALIGNMENT

Connect output meter across voice coil.
Output of signal generator should be no higher than necessary to obtain an output indication.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 of V2 (mixer), low side to chassis. Tune to 1650KC (400v Mod.).	Any	A1 thru A6	Adjust for maximum output.
High side thru .01mfd to antenna receptacle, low side to chassis. Tune to channel frequency.	11 (27.085MC)	A7	Set crystal-tune switch to crystal position. Adjust A7 until a signal is heard. This is not a sharp adjustment and should be set in the middle of the range. Check operation on lowest and highest channels used and readjust A7 as required.
"	i1	A8	Set crystal-tune to tune position. Set tuning dial on Channel 11. Turn A8 all the way in (clockwise) then back out until a signal is heard. A8 will peak at several locations. Use the lowest peak (slug most in the coil).
"	11	A9	Disconnect one end of R8 to remove voltage from plate of V1. With the output of the signal generator turned to maximum, adjust A9 for MINIMUM deflection. Reconnect R8.
"	11	A10	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

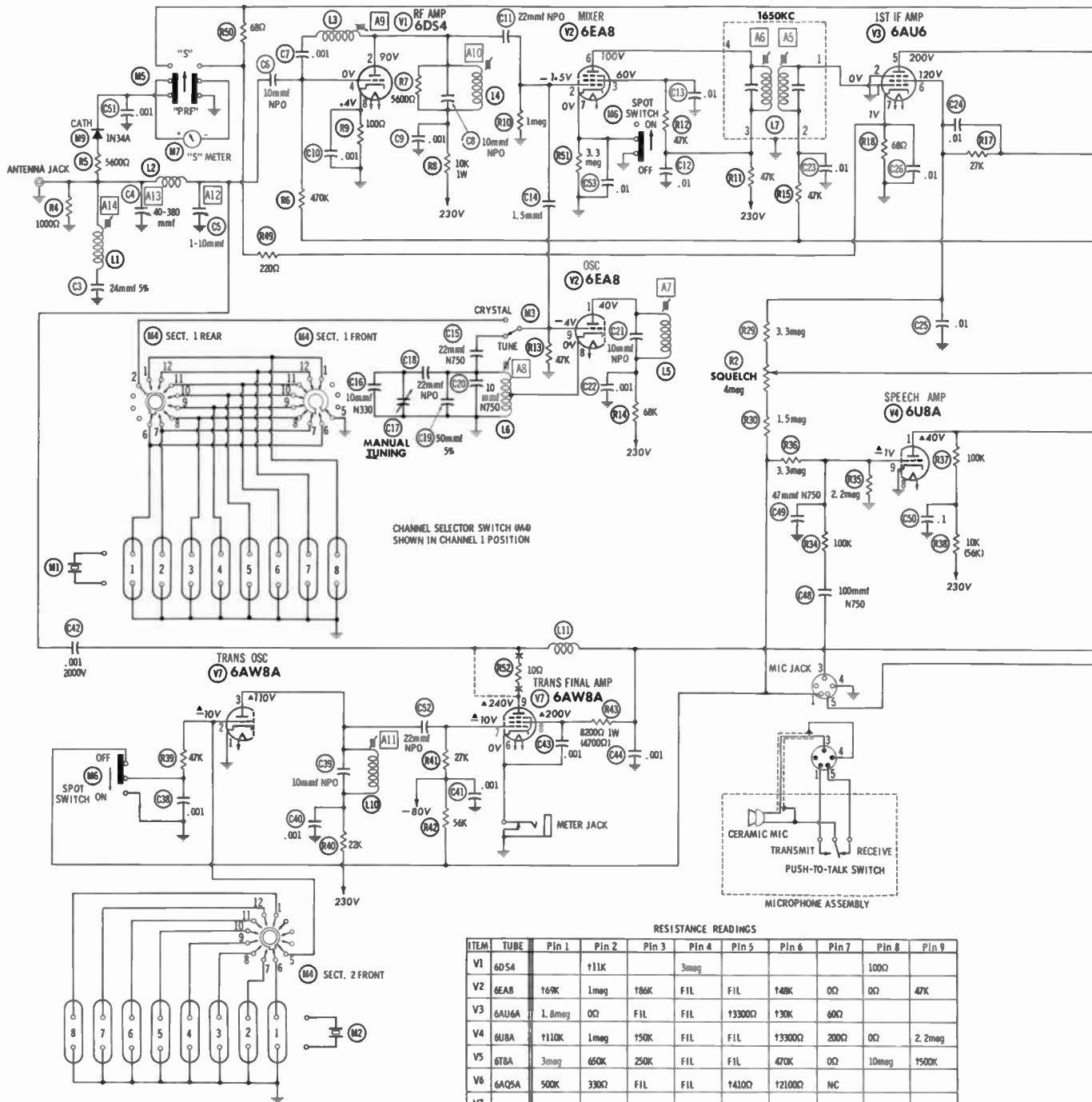
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

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.

	CHANNEL	ADJUST	REMARKS
Connect dummy load to antenna receptacle.	Used Channel	A11	Set meter switch to PRF position. Key transmitter. Adjust for maximum deflection on the front panel RF meter. Note rate of dropoff on each side of peak and set just below peak on side of gradual dropoff. Key transmitter several times to be sure oscillator starts each time.
"	"	A12, A13	Key transmitter. Alternately adjust A12 and A13 for maximum meter deflection.
		A14	Adjust for MINIMUM interference on lower three TV channels.

LAFAYETTE MODEL HE-90



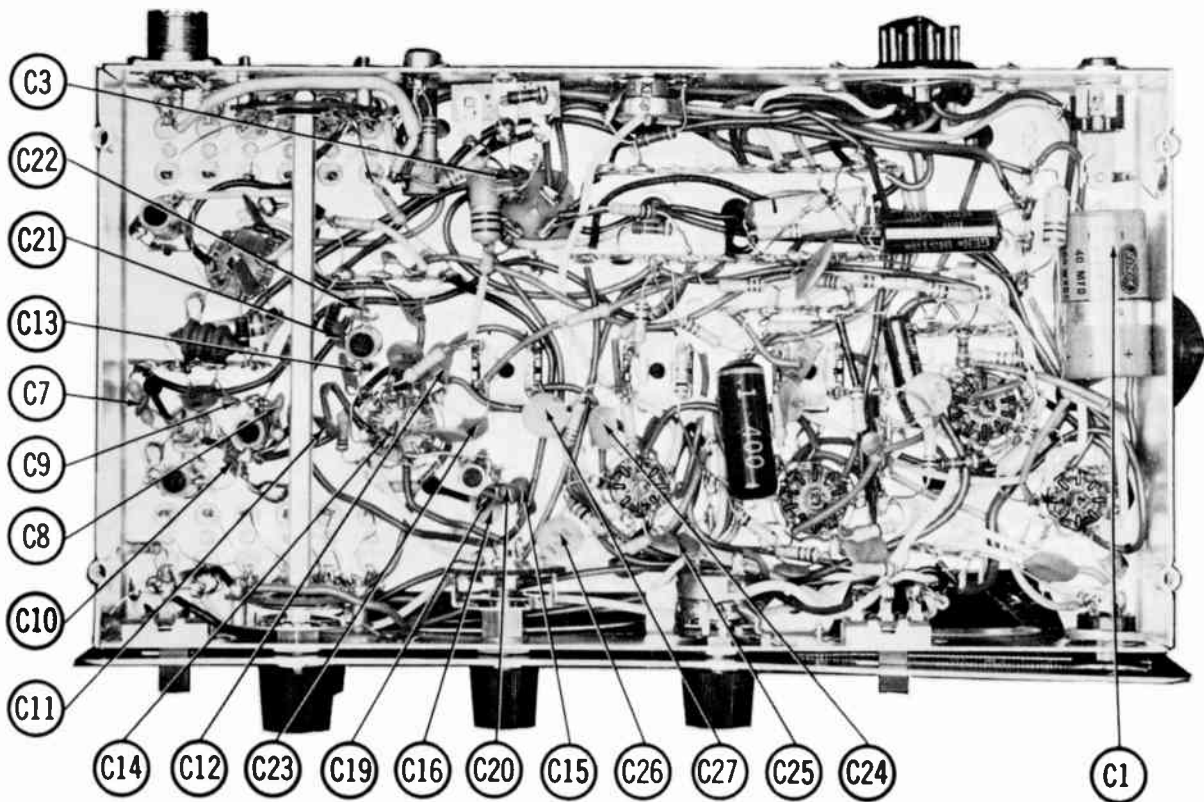
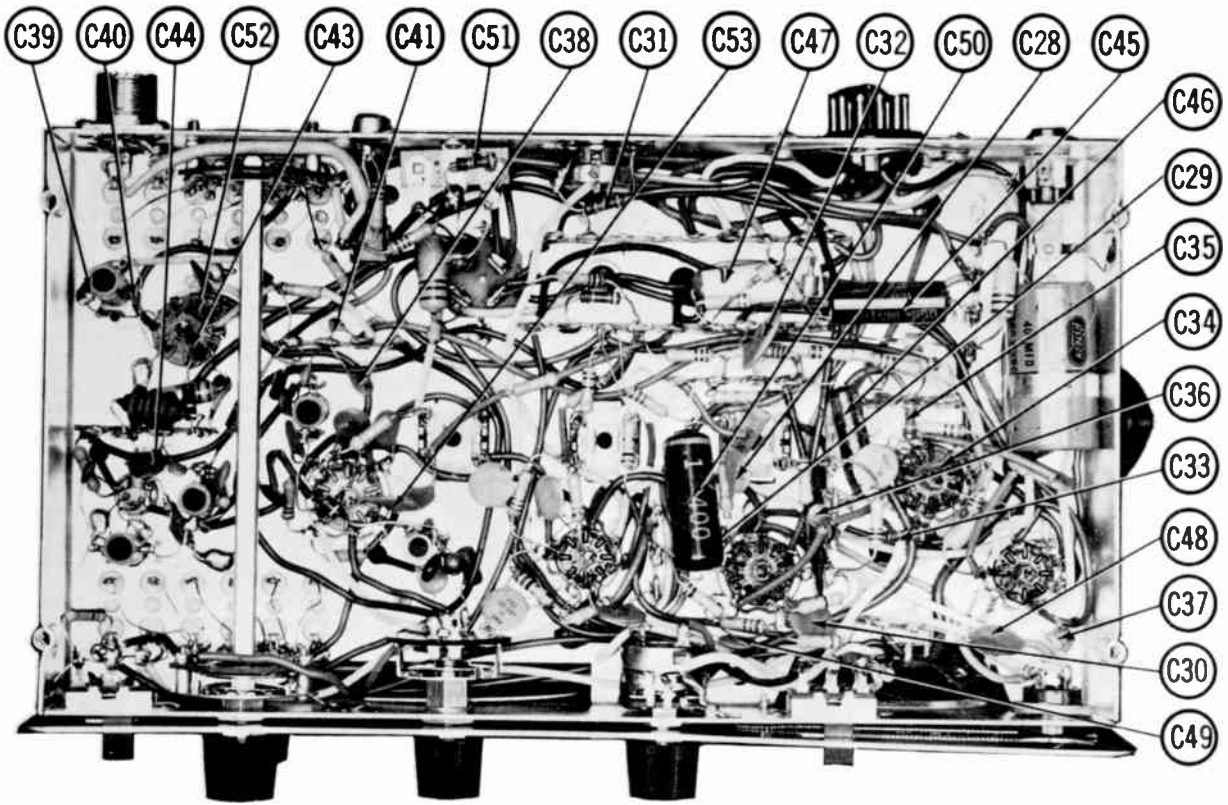
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DS4		†11k		3meg				100Ω	
V2	6EA8	†69k	1meg	†80k	FIL	FIL	†48k	0Ω	0Ω	47k
V3	6AU6A	1.8meg	0Ω	FIL	FIL	†3300Ω	†30k	60Ω		
V4	6U8A	†110k	1meg	†50k	FIL	FIL	†3300Ω	200Ω	0Ω	2.2meg
V5	6T8A	3meg	650k	250k	FIL	FIL	470k	0Ω	10meg	†500k
V6	6AQ5A	500k	330Ω	FIL	FIL	†410Ω	†2100Ω	NC		
V7	6AW8A	0Ω	†47k	†2200Ω	FIL	FIL	0Ω	†85k	†8500Ω	†600Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 † MEASURED FROM OUTPUT OF X1 NC NO CONNECTION
 ▲ MEASURED IN "TRANSMIT" 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.

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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)
		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

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.	6DS4	V5	Det. -AVC-AF Amp.-ANL	6T8
V2	Receiver Mixer-Osc.	6EA8	V6	Output - Modulator	6AQ5A
V3	1st IF Amp.	6AU6	V7	Trans. Osc. -Final Amp.	6AW8A
V4	2nd IF Amp. -Speech Amp.	6UBA			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.070A	SR846-2	1N2070	1N1763	40H
X2	.070A	SR846-2	1N2070	2N1763	40H
X3	.0001A	SR846-2	1N2070	2N1763	40H

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Lafayette PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	40	200	E238-1	PRS1580	BR4025	QT1-14	TD-40-250	TC58	TVA-1511
C2A	40	350	E237-1	AFH3-43 PRS1580	C0340 BR4035	XC4-22	TMT-3700 TD-40-350	FP425	TVLS-4624.5 TVA-1611
B	40	350							
C	40	200							
D	10	50							

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

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.	
C3	24 5%	#V-235A-5							
C4	40-380								
C5	1-10								
C6	10 NPO		NPO-D1 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10	
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C8	10 NPO		NPO-D1 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10	
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C11	22 NPO		NPO-D1 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22	
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C14	1.5		NPO-SI 1.5	TCZ-1R5	C10V15C	CNO-515	CNO-515	10TCC-V15	
C15	22 N750		N750-D1 22	DTN-22	C10Q22U	CCTN-220	CN7-422	10TCC-Q22	
C16	10 N330			TCA-10				10TCS-Q10	
C17									
C18	22 NPO		NPO-D1 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22	
C19	50 5%								
C20	10 N750		N750-D1 10	DTN-10	C10Q10U	CCTN-100	CN7-410	10TCC-Q10	
C21	10 NPO		NPO-D1 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10	
C22	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C29	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C30	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C32	.1 50V								
C33	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C34	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-S10	
C36	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20	
C37	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20	
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C39	10 NPO		NPO-D1 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10	
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C41	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C42	.001 2000V								
C43	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C44	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C45	.1 200V	P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10		
C46	.1 200V	P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10		
C47	.05 200V	P488N-047	DD-503	PM4847	4DP-3-473	GEM-4147	4TM-S47		
C48	100 N750	N750-D1 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10		
C49	47 N750	N750-D1 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47		
C50	.1 400V	P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10		
C51	.001	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10		
C52	22 NPO	NPO-D1 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22		
C53	.01	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10		

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

Lafayette Part Number.

† Alternate Value.

LAFAYETTE MODEL HE-90

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			Lafayette PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	2meg	V-329-4	F2-2meg, SU204, KR-1 or (B-76, KR-1)	A47-2meg-Z, FS-3, SWE-12	Q13-139, 76-1, or (BU1, CF26, SS1, GC)*	UA26A, SF1000, US-41 or (RU26A, SL38, SF1000, US-41 or (U55, US-26)
R2	Squelch	4meg	V-339-1	F1-4meg, SU204, AK-31 or (B-94, AK-31)	A47-4meg-S, FS-3	QCB1Ⓛ, B11-240, TM5 or (BU2, CF22, SS14, DC1)*	UA36L, SF1000, or (RU36L, SL38, SF1000) or (U67, EB-247)
R3	Meter Zero Adjust	200Ω 2W	P325-3			W11-100, SK5, or (BU1, WF1, SS3)*	

* "SNAPTROL"

Ⓛ Use QCB1 instead of Tab Mount Plate in TM5.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Lafayette PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC Trap	C-191-2 Ⓛ					Ⓛ 7 Turns #36 Wire
L2	Antenna Load	C-194-1					
L3	Neutralizing	C-1016-1					
L4	RF Coil	C-180-2					
L5	Receiver Osc. Plate	C-180-2					
L6	Receiver Osc. Cath.	O-189-4					
L7	1st IF	I-110-5					
L8	2nd IF	I-110-5					
L9	3rd IF	I-110-5					
L10	Transmitter Osc.	O-180-2	TV-118	6171-A	RTC-8609	T216	
L11	RF Choke (.5MH)	C-185-12					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④.550A	100VAC ④.070A DC	6.3VAC ④2.4A	PT-1015-2					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	10.2K Tap 4000Ω	3-4Ω	T-184-6					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Lafayette PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	S719-1	3A05	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Lafayette PART No.	REPLACEMENT DATA
K1	Diode RF Filter	47K, 100mmf, 100mmf	C209-1	Aerovox PA-97 Centralab PC-50 Sprague D-1
K2	Audio Coupling	500K, 500K, 250mmf, .005mfd	2066-1	Aerovox PA-112-1 Centralab PC-70 Mallory MS-111 Sprague T-3

MISCELLANEOUS

ITEM No.	PART NAME	Lafayette PART No.	NOTES
M1	Crystal		Receive (order by channel and frequency)
M2	Crystal		Transmit (order by channel and frequency)
M3	Switch	8111-3	Tune-Crystal
M4	Switch	BS-876-1	Channel Selector
M5	Switch		Meter (S-P RF)
M6	Switch		Spot Calibrate (Off-On)
M7	Meter	8109	"S" or RF Indicating
M8	Squelch Rectifier		1N34A
M9	Meter Rectifier		1N34A
	Microphone	M-879-1	Includes Push-to-Talk switch

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Tuning	K4005-21	Cabinet	C9185-1
Knob - With Reference Dot	K4005-22	Speaker Grille	SG-9184-1
Front Panel	FP9183-1	Dial Scale	DS-6174-4



PHOTOFACT®

TRADE NAME : Olson Model RA-530
SUPPLIER : Olson Radio Corp.
 260 S. Forge Street, Akron 8, Ohio
TYPE SET : 9 Tube Transceiver
POWER SUPPLY : 110 — 120 Volts AC, 60 Cycles or
 12 Volt Storage Battery
RATING : 51 Watts, .50 Amp. @ 117VAC (Receive)
 70 Watts, .67 Amp. @ 117VAC (Transmit)
TUNING RANGE : Rec: Continuously Tuneable
 Trans: Any 12 CB Channels 1 thru 22



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6, A9, A12 thru A15, A18..... GENERAL CEMENT #8606, 9295, 8282
 WALSCO #2526, 2543, 2544, 2545
 A7, A8, A16..... GENERAL CEMENT #8196, 8722, 8272
 WALSCO #2515, 2516, 2518, 2519, 2525, 2541

RECEIVER ALIGNMENT

Set volume for maximum output and squelch for maximum sensitivity.
 Output of signal generator should be no higher than necessary to obtain an output indication.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 (grid) of V3 (2nd Mixer), low side to chassis. Tune to 595KC (400% Mod.).	Any	A1 thru A6	Adjust for maximum output.
Not Used .	Any	A7	Adjust for maximum voltage on pin 9 of V2 , then back off 1/4 turn.
Across antenna jack. Tune to channel frequency.	Channel 2 (26.975MC)	A8	Adjust for maximum output.
"	Channel 22 (27.255MC)	A10	"
"	Channel 11 (27.085MC)	A9, A11, A12, A13, A14, A15	"

TRANSMITTER ALIGNMENT

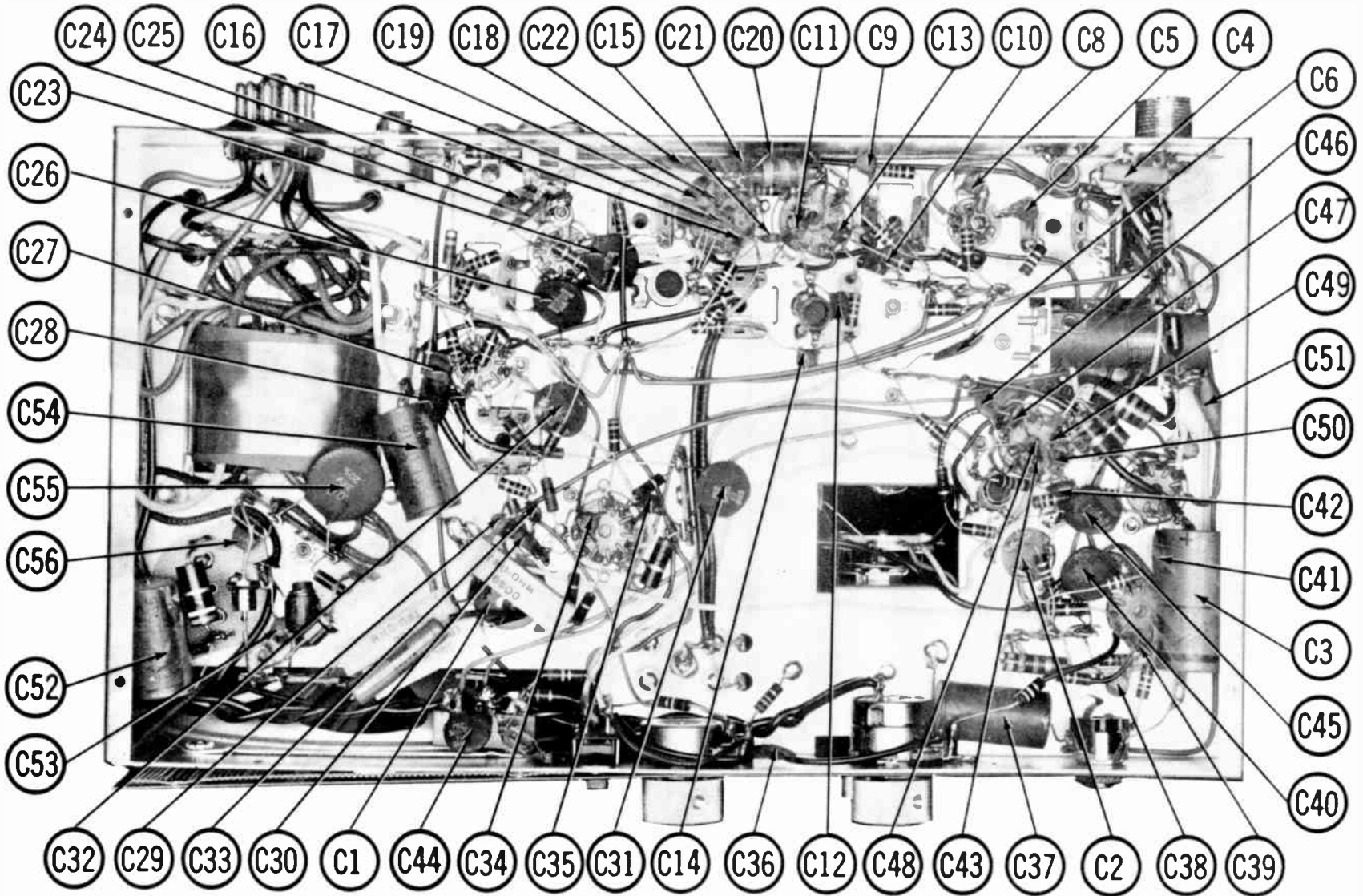
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The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

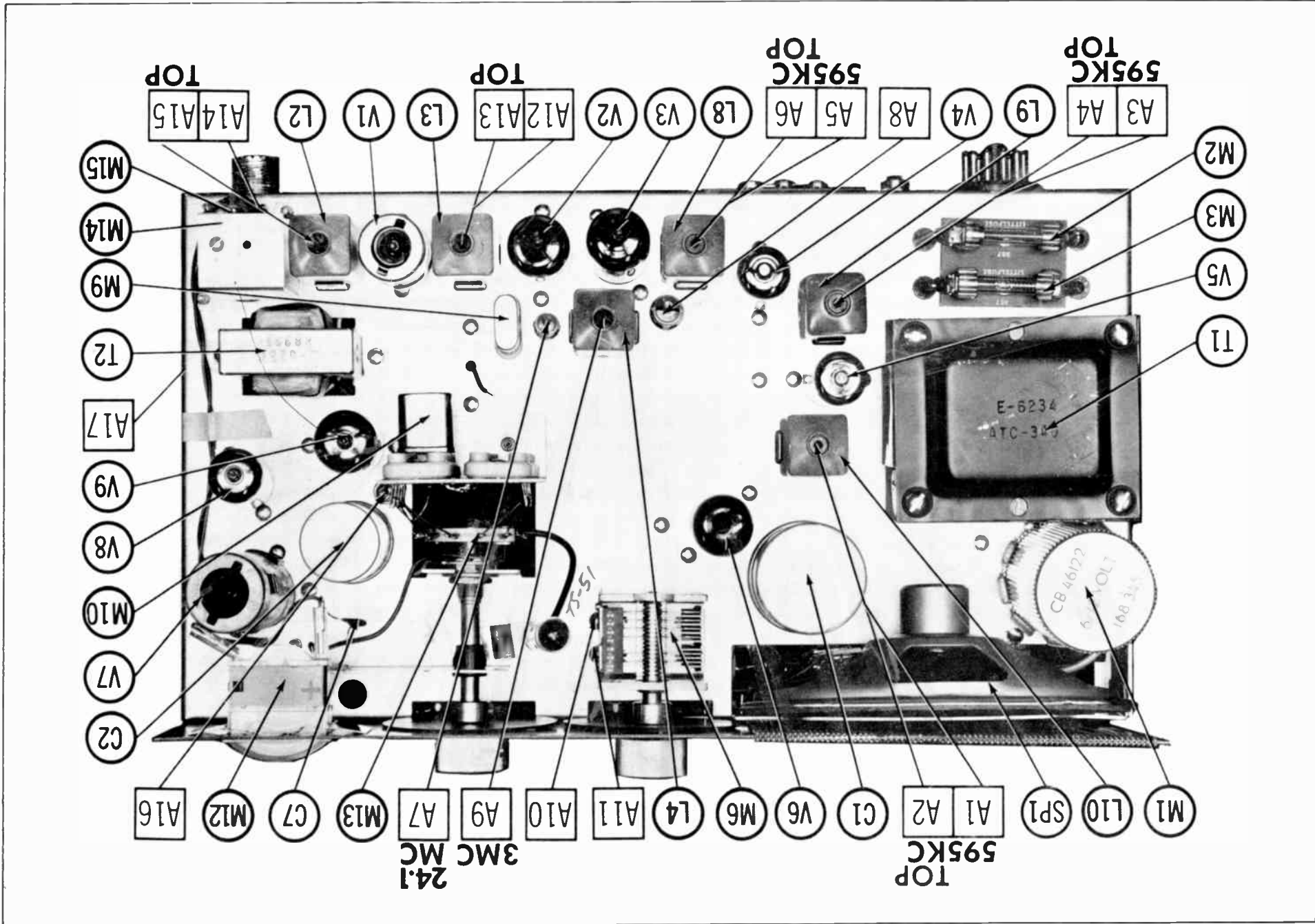
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

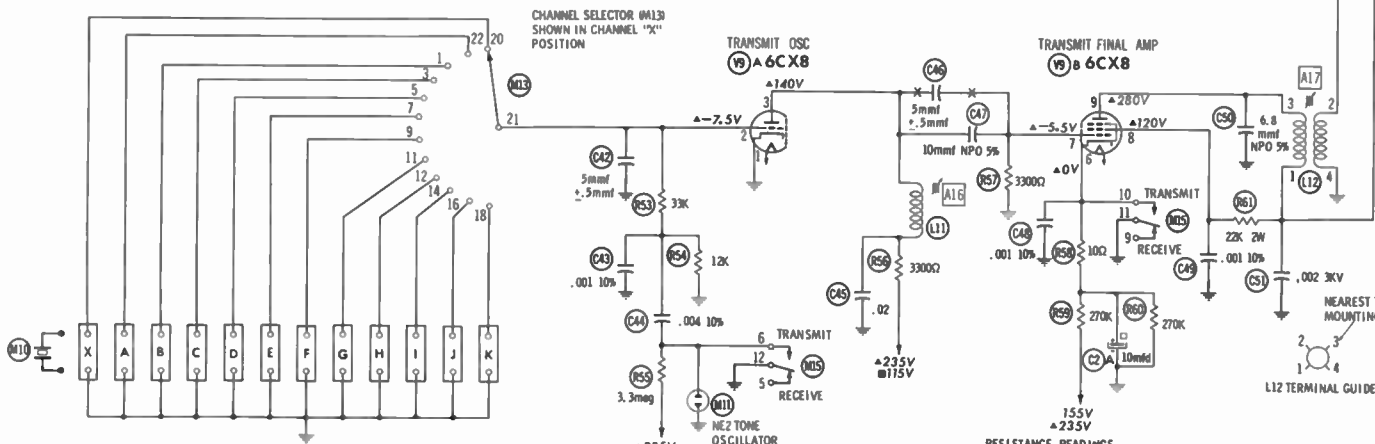
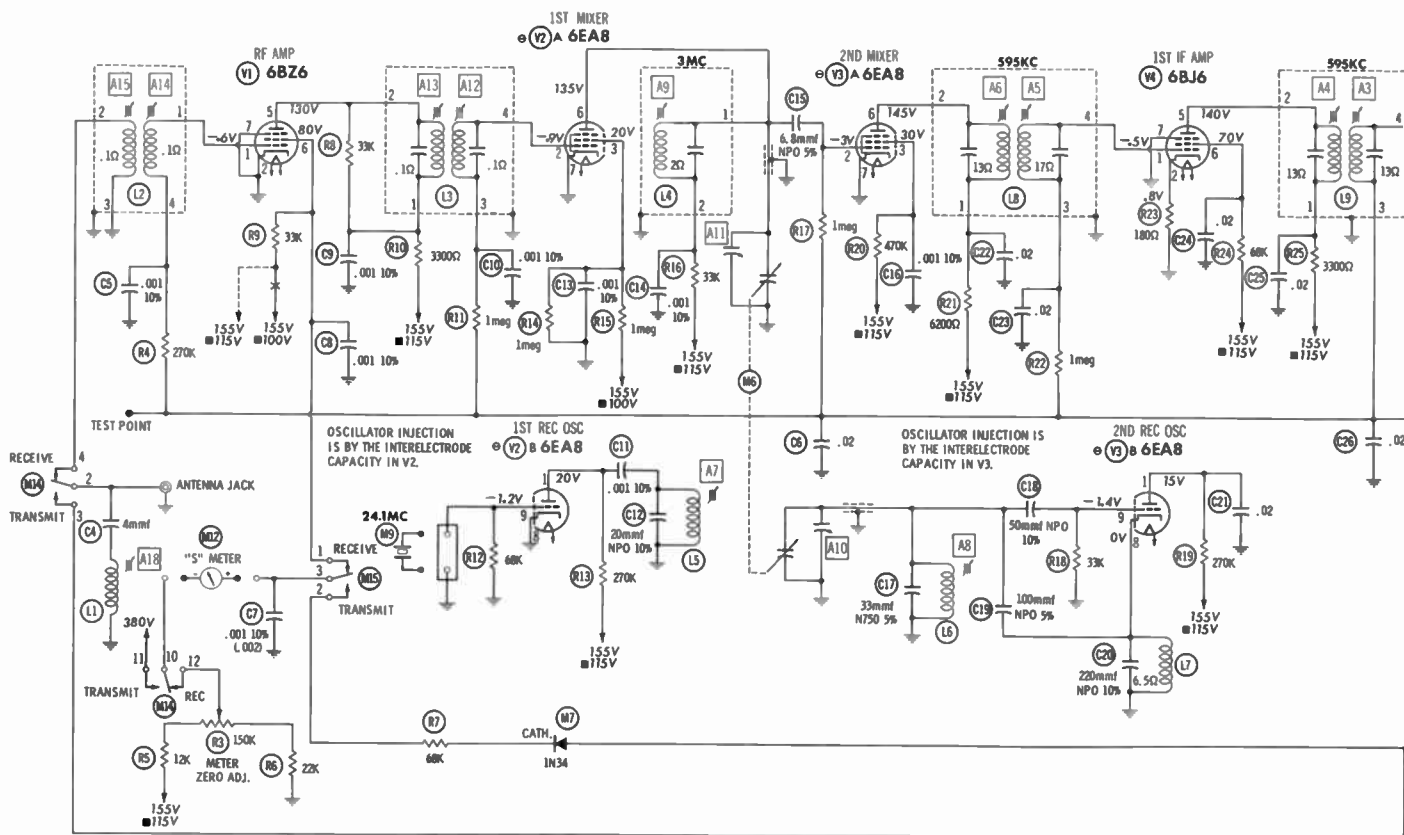
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Field strength meter or pilot lamp dummy load.	Center Channel Used.	A16	Adjust for maximum indication then turn slug 1/2 turn clockwise. Check all channels to be sure oscillator starts.
"	"	A17	Adjust for maximum indication.
"	"	A18	Adjust for MINIMUM interference with local TV receivers.

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



OLSON MODEL RA-530





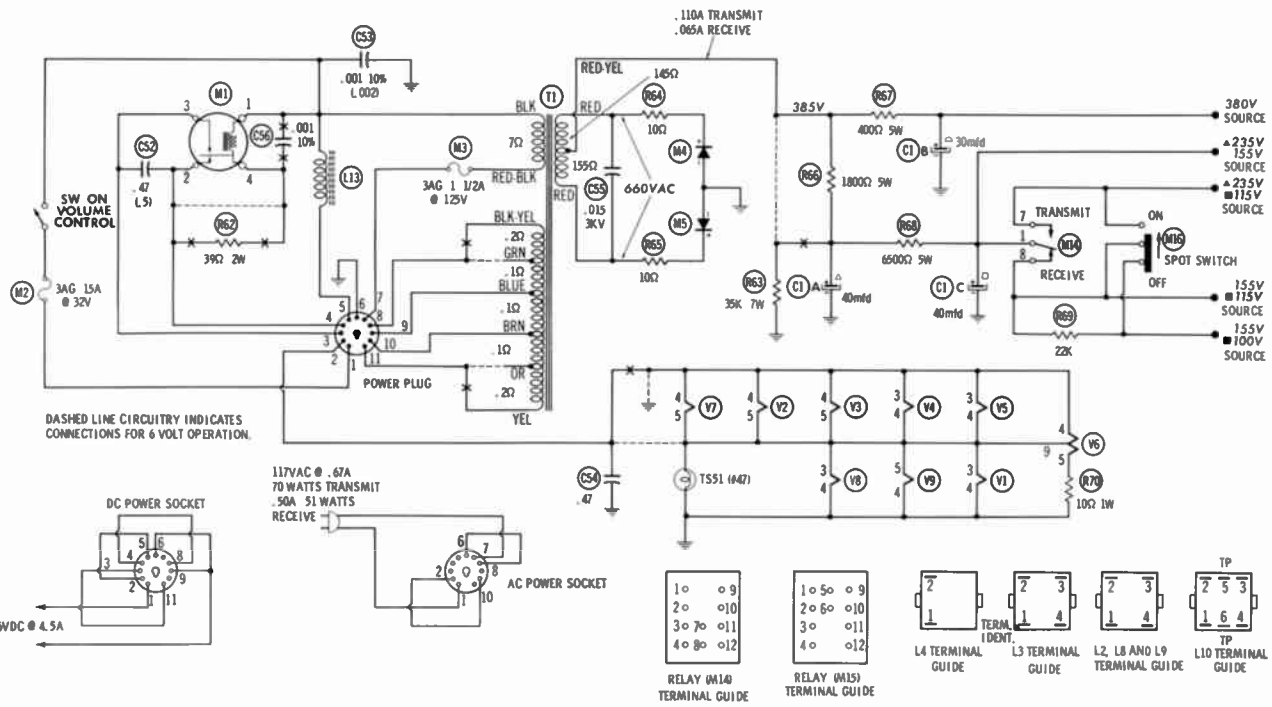
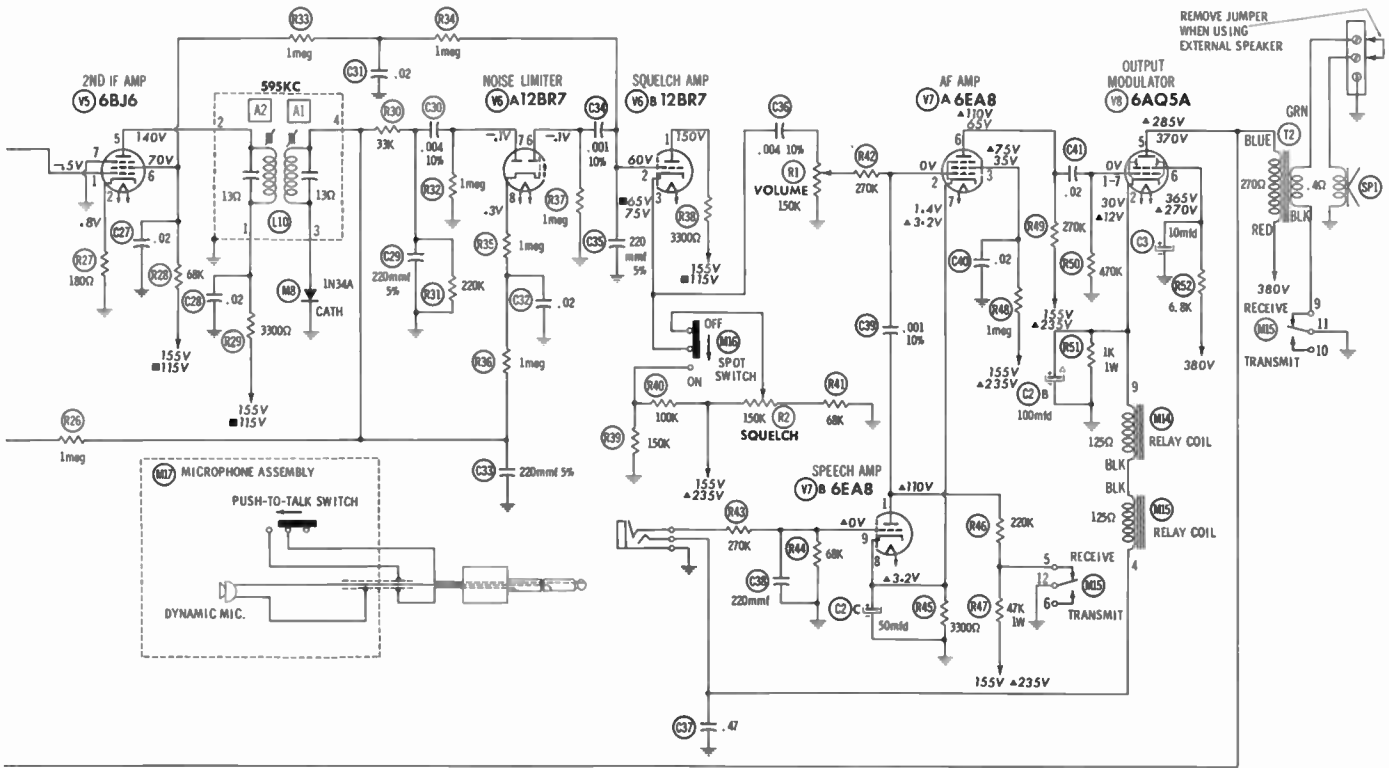
- © See parts list for alternate value or application.
1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.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

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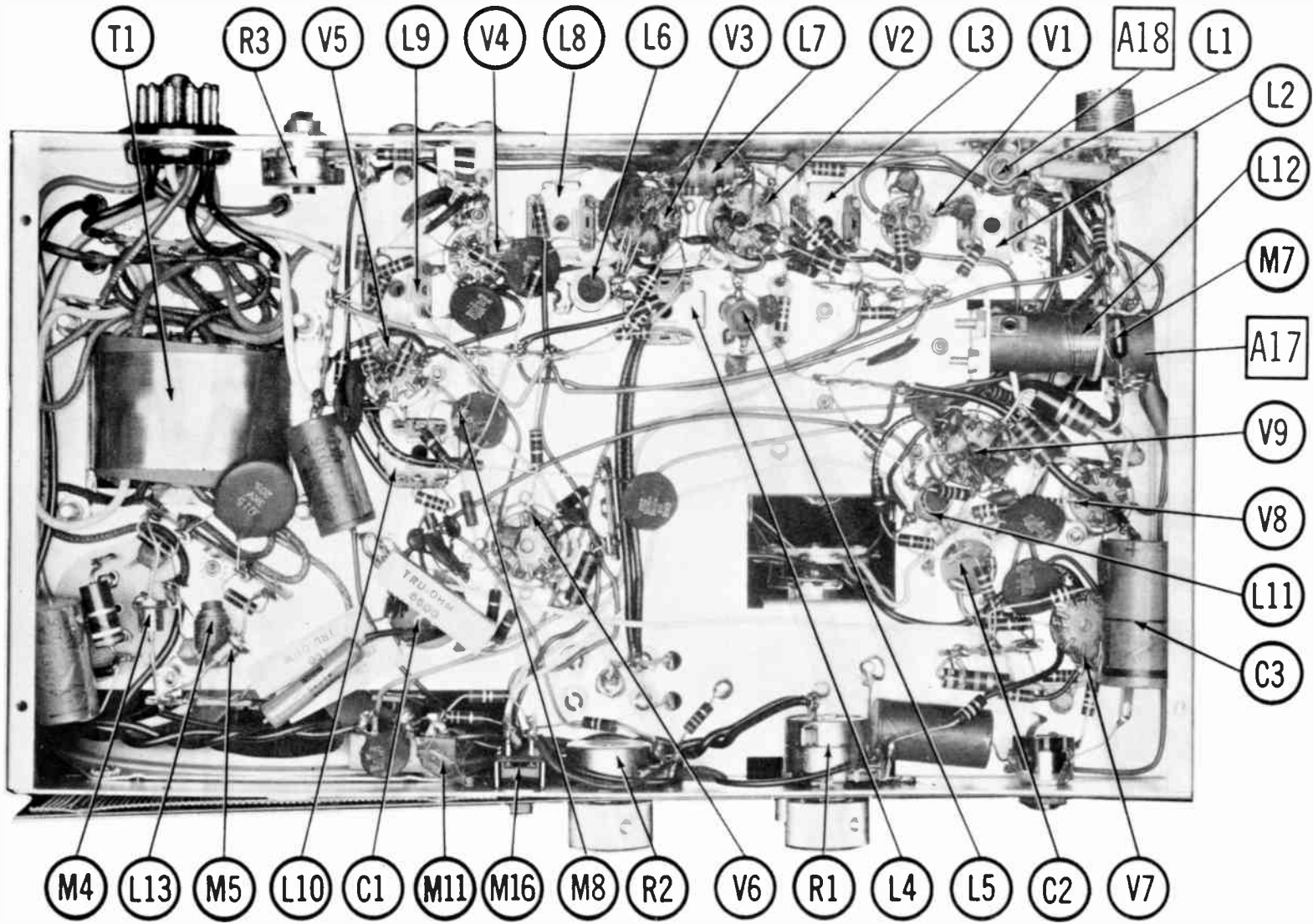
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.5meg	0Ω	FIL	FIL	†12K	†28K	0Ω		
V2	6EA8	†280K	2.2meg	†500K	FIL	FIL	†41K	0Ω	0Ω	68K
V3	6EA8	†280K	2.2meg	†480K	FIL	FIL	†15K	0Ω	6.5Ω	33K
V4	6BJ6	2.2meg	180Ω	FIL	FIL	†12K	†76K	0Ω		
V5	6BJ6	1.2meg	180Ω	FIL	FIL	†12K	†76K	0Ω		
V6	12BR7	†12K	2meg	150K	FIL	FIL	1meg	1meg	2.2meg	FIL
V7	6EA8	†1280K	280K	†1meg	FIL	FIL	†280K	3300Ω	3300Ω	68K
V8	6AQ5A	470K	†250Ω	1000Ω	FIL	FIL	†700Ω	†7200Ω	470K	
V9	6CX8	0Ω	45K	†12K	FIL	FIL	0Ω	3300Ω	†12K	†1700Ω

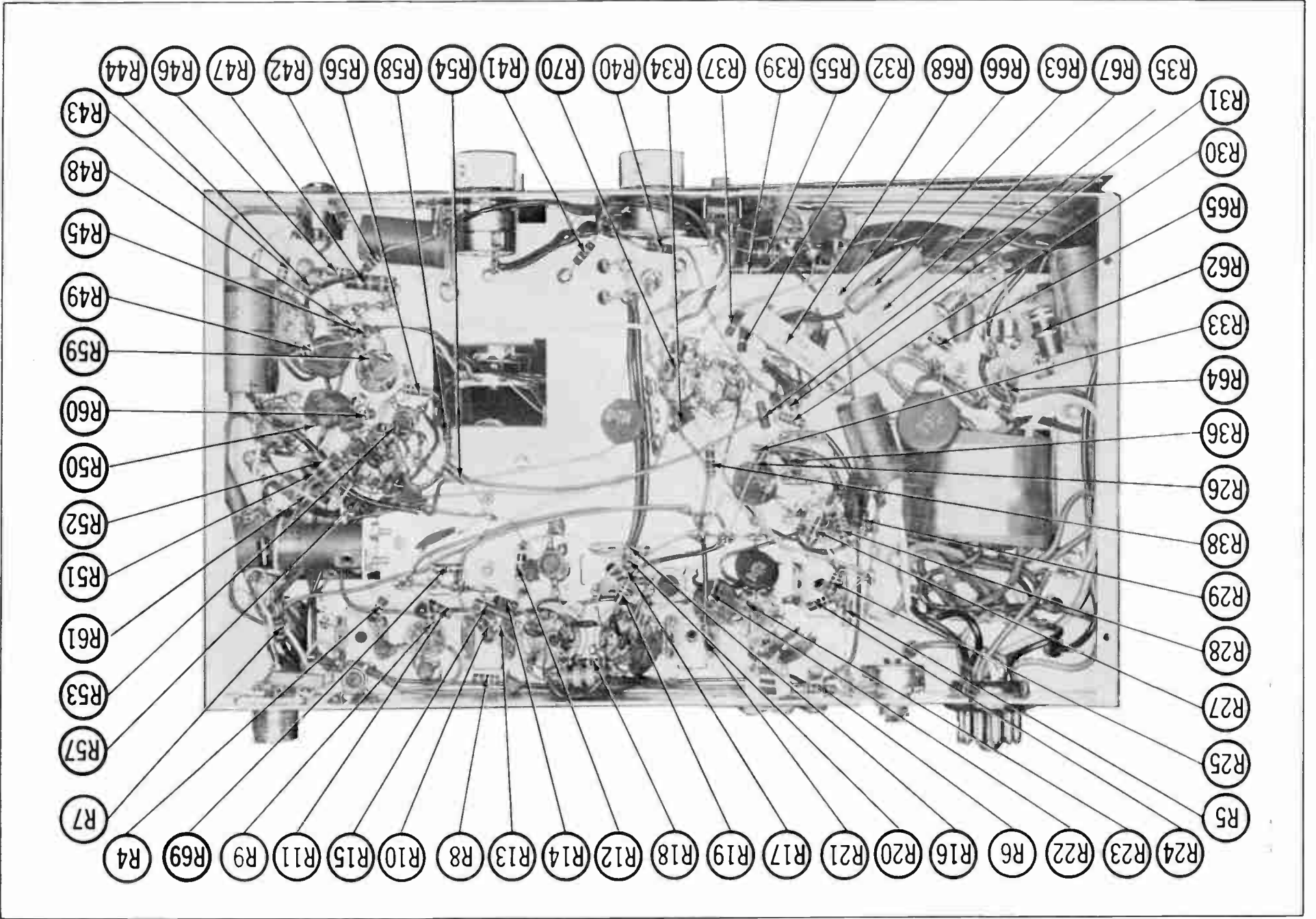
† MEASURED FROM RED-YEL LEAD OF POWER TRANSFORMER (T1).
Δ MEASURED IN TRANSMIT POSITION.
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
■ MEASURED WITH SPOT SWITCH IN THE ON POSITION.



OLSON MODEL RA-530



OLSON MODEL RA-530



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. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 in.)

TUBES

ITEM No.	USE	AMPEREX		GENERAL ELECTRIC		RCA		RAYTHEON		SYLVANIA	
		TYPE	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE		
V1	RF Amp.	6BZ6									
V2	1st Mixer-1st Rec. Osc.	6EA8 (6U8)*									12BR7
V3	2nd Mixer-2nd Rec. Osc.	6EA8 (6U8)*									6EA8
V4	1st 1F Amp.	6BJ6									6AQ5A
V5	2nd 1F Amp.	6BJ6									6CX8

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		OLSON 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.
C1A	▲ 40	350		AFH4-04-25	B0450	XC2-25	TMD-2390		
B	▲ 30	450			BR30-450	QT1-12	TD-30-450	FP376.7A	
C	■ 40	350							
D	▲ 30	25							
C2A	■ 10	100		AFH3-73	C0490	KC3-41.1	TMT-3060	FP307A	TVL-3423
B	▲ 100	25							
C	▲ 50	6							
C3	10	350		PRS1620	BR10-450	QT1-6	TD-10-450	TC62	TVA-1604

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.
C4	4		1469-000005		22R5V5K	CM-20C-050J	MCB205	MS-55
C5	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C6	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C7	.001 10%	(.002) †	DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C8	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C9	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C10	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C11	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C12	20 NPO 10%		NPO-DI 20	DTZ-20	C10Q2C	CCO-200	CNO-422	10TCC-Q20
C13	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C14	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C15	6.8 NPO 5%				C10V68C		CNO-568	10TCC-V68
C16	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C17	33 N750 5%			DTN-33	C10Q33U		CN7-433	10TCU-Q33
C18	50 NPO 10%		NPO-DI 50	DTZ-50	C10Q5C	CCO-510	CNO-450	10TCC-Q50
C19	100 NPO 5%			DTZ-100	C10T1C		CNO-310	10TCC-T18
C20	220 NPO 10%			DTZ-220			CNO-322	10TCC-T22
C21	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C22	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C23	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C24	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C25	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C26	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C27	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C28	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C29	220 5%			DTZ-220			CNO-322	10TCC-T22
C30	.004 10%		DI-4000	CF-392	JB6D39	CCD-392	JL-239	10TS-D40
C31	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C32	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C33	220 5%			DTZ-220			CNO-322	10TCC-T22
C34	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C35	220 5%			DTZ-220			CNO-322	10TCC-T22
C36	.004 10%		DI-4000	CF-392	JB6D39	CCD-392	JL-239	10TS-D40
C37	.47 200V		P288N-47		PM2P47	2DP-5-474	GEM-2047	2TM-P47
C38	220		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C39	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C40	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C41	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C42	5 ±.5mmf		NPO-DI 5.0	DD-050	LA10V5-SL	CCD-050	GP550	10TS-V50
C43	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C44	.004 10%		DI-4000	CF-392	JB6D39	CCD-392	JL-239	10TS-D40
C45	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C46	5 ±.5mmf	Note 1	NPO-DI 5.0	DD-050	LA10V5-SL	CCD-050	GP550	10TS-V50
C47	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C		CNO-410	10TCC-Q10
C48	.001 10%	(.002) †	DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C49	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C50	6.8 NPO 5%				C10V68C		CNO-568	10TCC-V68
C51	.002 3KV		HVD-30-2200	DD30-202		3CCD-202	3HV-222	30GA-D20
C52	.47 200V		P288N-47		PM2P47	2DP-5-474	GEM-2047	2TM-P47
C53	.001 10%	(.002) †	DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C54	.47 200V		P288N-47		PM2P47	2DP-5-474	GEM-2047	2TM-P47
C55	.015 3KV							
C56	.001 10%	Note 1	DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10

Note 1. Not used in some versions.
† Alternate Value.

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			OLSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	150K	W7306PL	F2-250K, SU304, KR-1 or (B-44, KR-1)	A47-250K-2, RB-2, 8WV-12	B13-328, BK3 76-1	UA184A, SL2500, UB-41 or (R128A, SL38, SL2500, UB-41) or (U42, US-36)
R2	Squelch	150K	W7306PL	F1-150K, SU304 or (B-43)	A47-150K-8, RB-2	B13-328, BK3 or (BU1, CF14, BK3, DC1)*	UA251, SL2500, or (RU154L, SL38, SL2500) or (U43)
R3	S Meter Adjust	150K	W7306-P	F1-150K, SU304 or (B-43)	A47-150K-8, FEB-1/2	B11-328, BK3, or (BU1, CF14, BK3)*	UA251, SN1000, or (RU154L, SL38, SN1000) or (U43)

* "KNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OLSON PART No.	MERT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC TV Trap						
L2	Receiver Input	AK-40-810					
L3	Receiver RF	TSP					
L4	3MC IF	L3P					
L5	1st Receiver Osc.	L2P					
L6	2nd Receiver Osc.	L2P					
L7	3-P1 Choke(109uh)			4642	RTC-8527	T907	
L8	1st 695KC IF	TSP					
L9	2nd 695KC IF	TSP					
L10	3rd 695KC IF	TTP					
L11	Transmitter Osc.						
L12	Final Amp.						
L13	Bank Choke (54uh)						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI 1	PRI 2	SEC. 2	OLSON PART No.	MERT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .67A	12.6VCT @ 2.7A Tap @ 6.3VCT	660VCT @ .110A	E-8234					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI	SEC.	OLSON PART No.	MERT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	8000Ω	1.4Ω	E-8256					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		OLSON PART No.	QUAM PART No.	
SP1	3" x 5" PM 3-4Ω	36A987	35A06	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQ.	REPLACEMENT DATA			NOTES
				OLSON PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6VDC	119%	CS46122	5972	1810	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	15A 25V			319015	356002	AGC15	3833-2
M3	3AG	1 1/2A 125V			30301.5		MDL 1 1/2	

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKIS TARZIAN PART No.
M4	.110A		1N540 or 1N2094 ⊕	1N1704 or 1N2869 or 1N3196	60E or F-6 ⊕
M5	.110A		1N540 or 1N2094 ⊕	1N1704 or 1N2869 or 1N3196	60E or F-6 ⊕

⊕ Part #CTP500 may be used to replace M4 and M5.

⊕ Two Required

OLSON MODEL RA-530

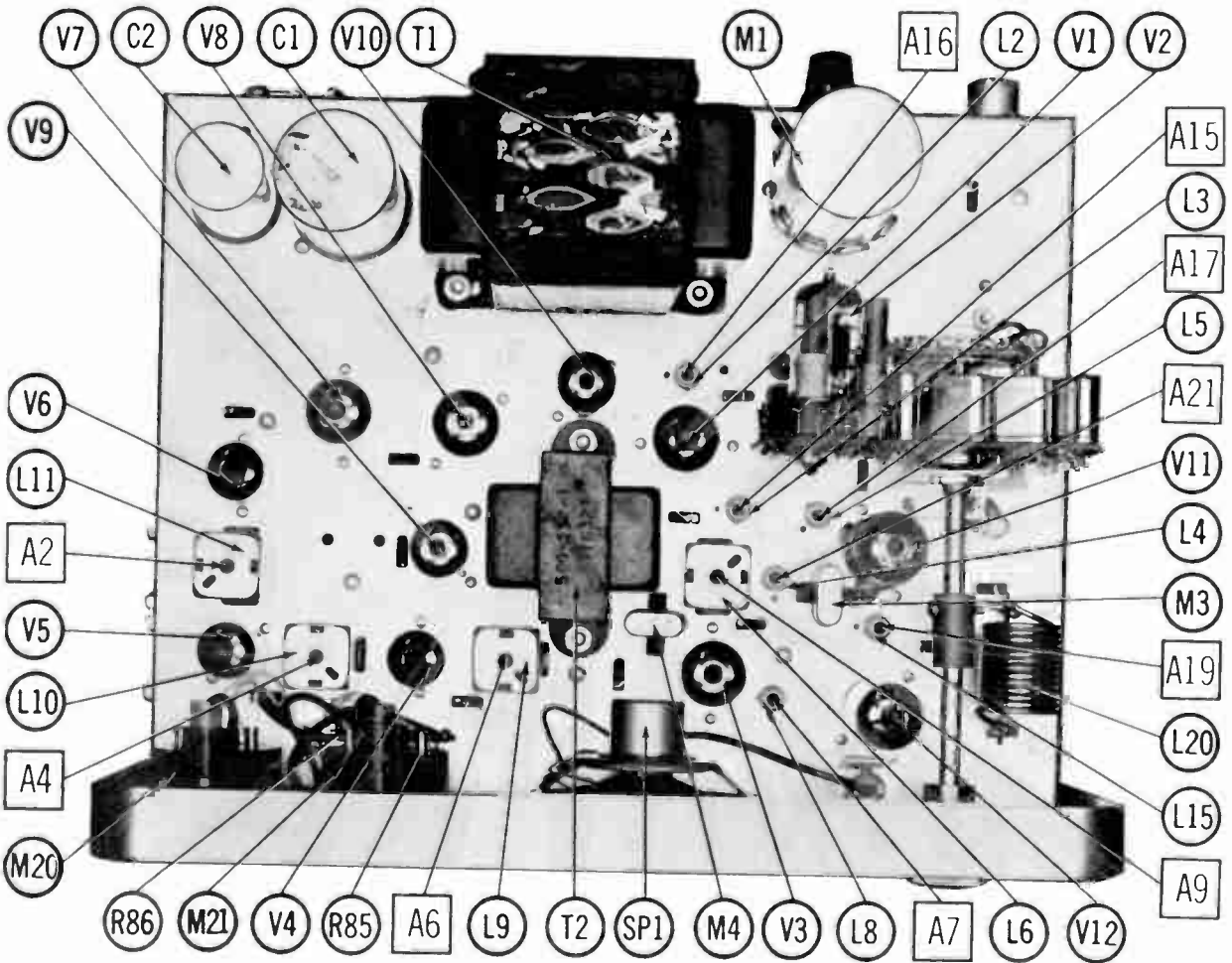


PHOTOFACT[®]



TRADE NAME : Olson Model RA-590
SUPPLIER : Olson Radio Corp.
 260 S. Forge Street, Akron 8, Ohio
TYPE SET : 12 Tube Transceiver
POWER SUPPLY : 110 - 120 VAC, 60 Cycles (or)
 12 Volt Storage Battery
RATING : 90 Watts, .75 Amp. @ 117 VAC (or)
 7 Amp. @ 12.6VDC
TUNING RANGE : All 23 CB Channels

OLSON MODEL RA-590



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

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....GENERAL CEMENT #5097, 8727
 WALSCO #2515
 A7 thru A21.....GENERAL CEMENT #8282, 8606, 8606L
 WALSCO #2526, 2543, 2544
 A22, A23.....GENERAL CEMENT #8721, 8722
 WALSCO #2519

RECEIVER ALIGNMENT

Connect DC VTVM between point \diamond and ground.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .001mfd to pin 2 (grid) of V3 (2nd Mixer), low side to ground. Tune to 260KC.	Any	A1 thru A6	Adjust for maximum.
High side to junction of M4 and C27. Tune to 7.502MC, 20UV.	"	A7	Set C33 (Δ tune) to mid-range. Adjust A7 for maximum audio signal or meter deflection. Retune generator to 7MC. The image will be SLIGHTLY stronger if A7 is properly adjusted.
High side to pin 7 (grid) of V1 (1st Mixer). Tune to 7.5MC.	"	A8, A9	Adjust for maximum.
Use sweep generator. Connect across antenna receptacle. Tune to 27.1MC		A10, All	Connect a low capacity RF voltmeter to the synthesizer output (junction of C14, C79). Connect a DC VTVM to the junction of C78, R72 (Cathode V2). Adjust A11 for maximum on VTVM. Adjust A10 clockwise for a maximum of 10 volts on RF voltmeter. Readjust A11 for maximum on VTVM and A10 for 10 volts on RF voltmeter. Check all channels. Remove meters.
Use sweep generator. High side to pin 8 (grid) of V2 (2nd Rec. Osc.) low side to ground. Tune to 19.61 MC, 400KC bandwidth.		A12, A13	Connect scope across synthesizer output (C79). Adjust for maximum symmetrical bandpass. Remove scope.
Connect signal generator across antenna receptacle. Tune to channel frequency, 400v Mod.	Center Channel Used.	A14, A15, A16	Adjust for maximum. Check high and low channels.

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).

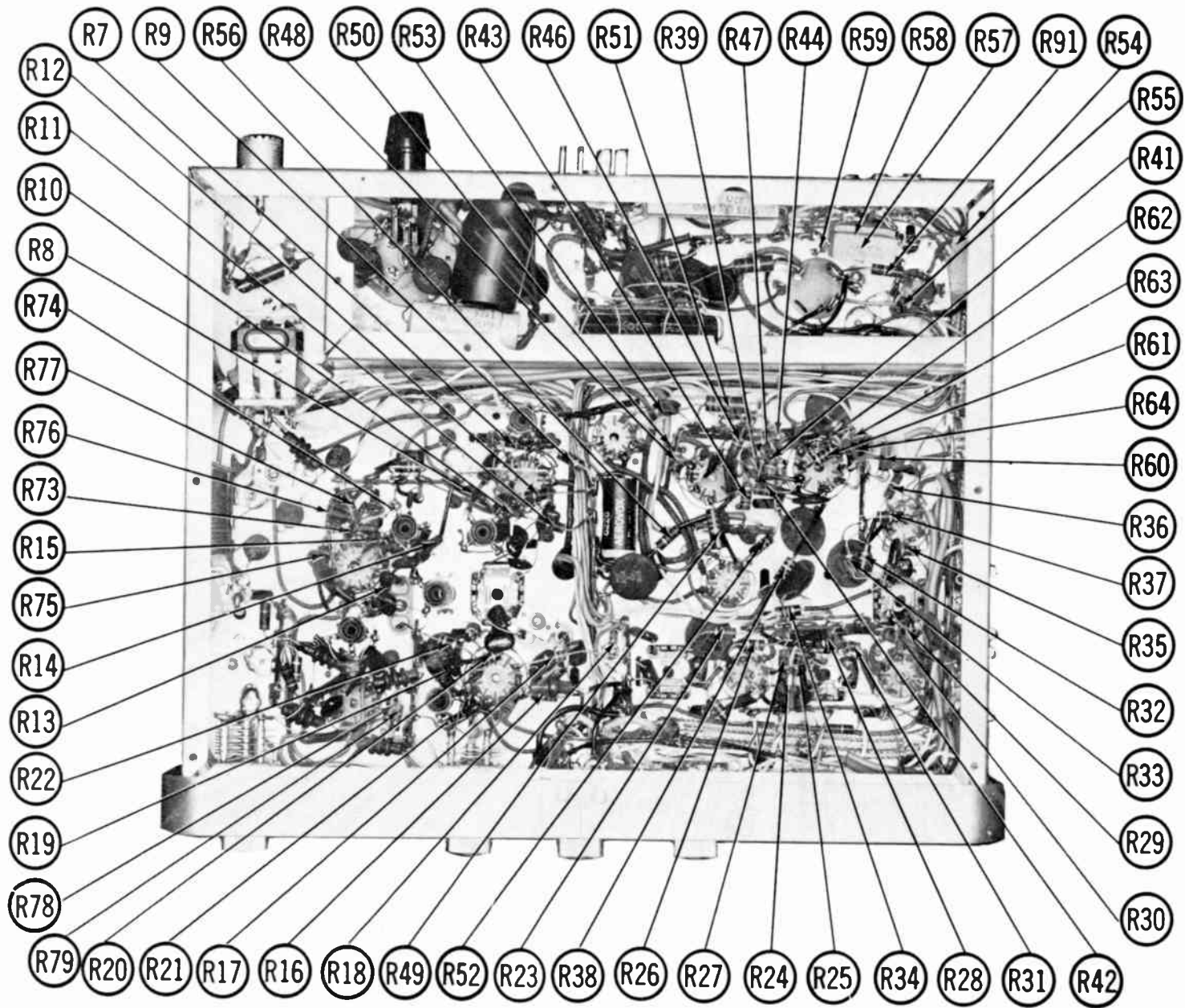
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

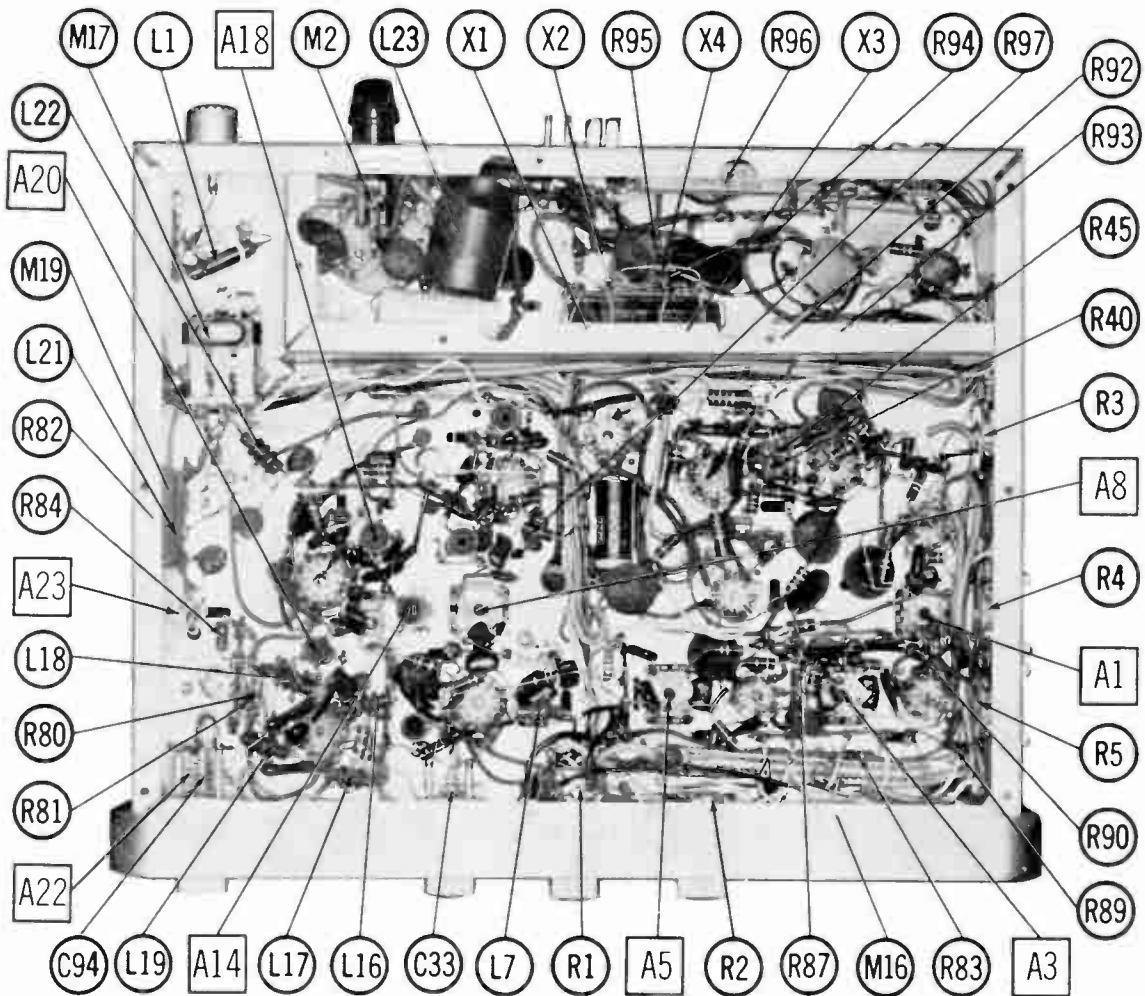
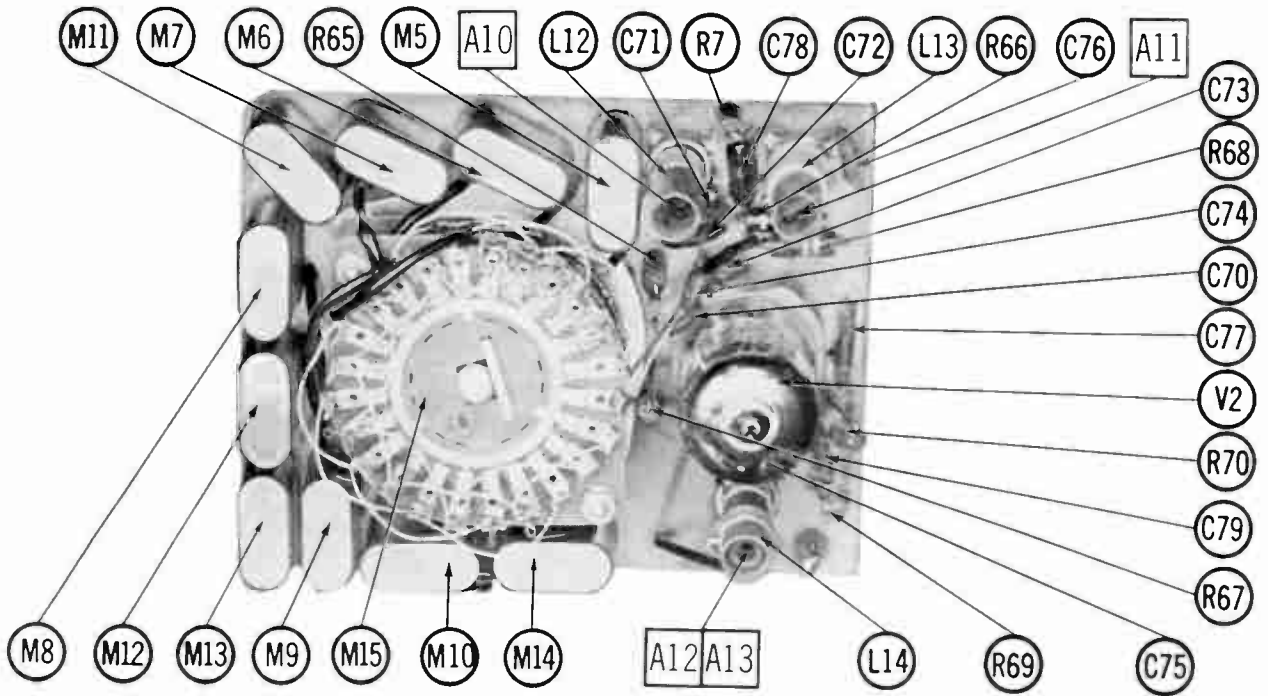
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

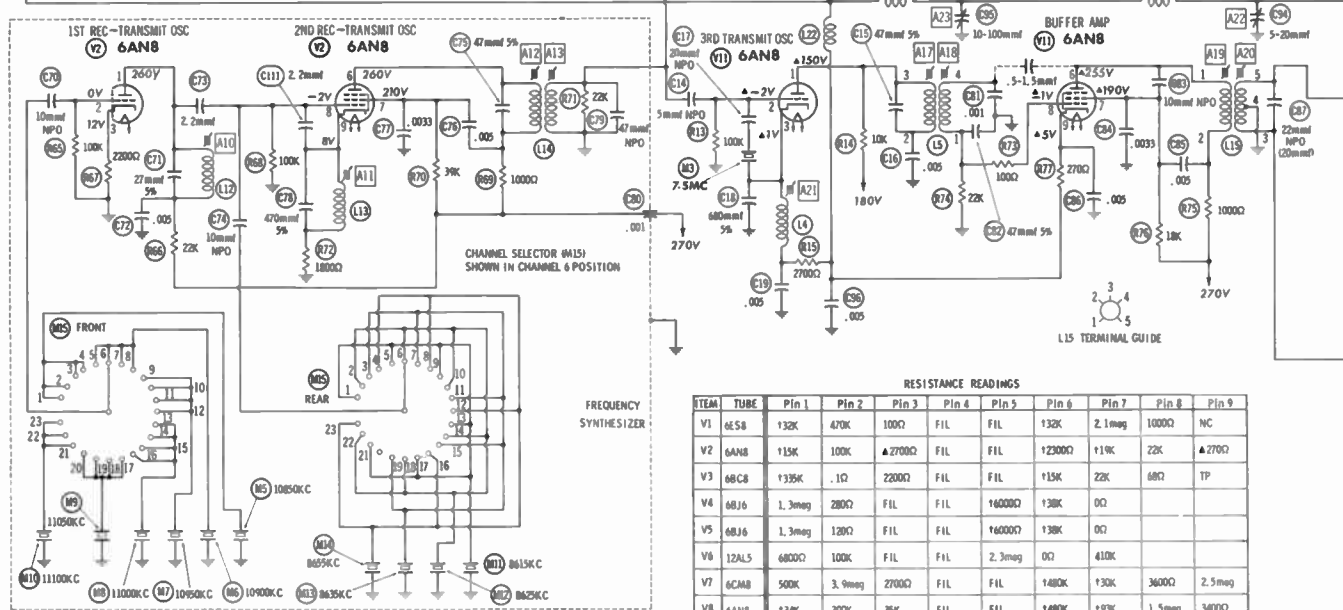
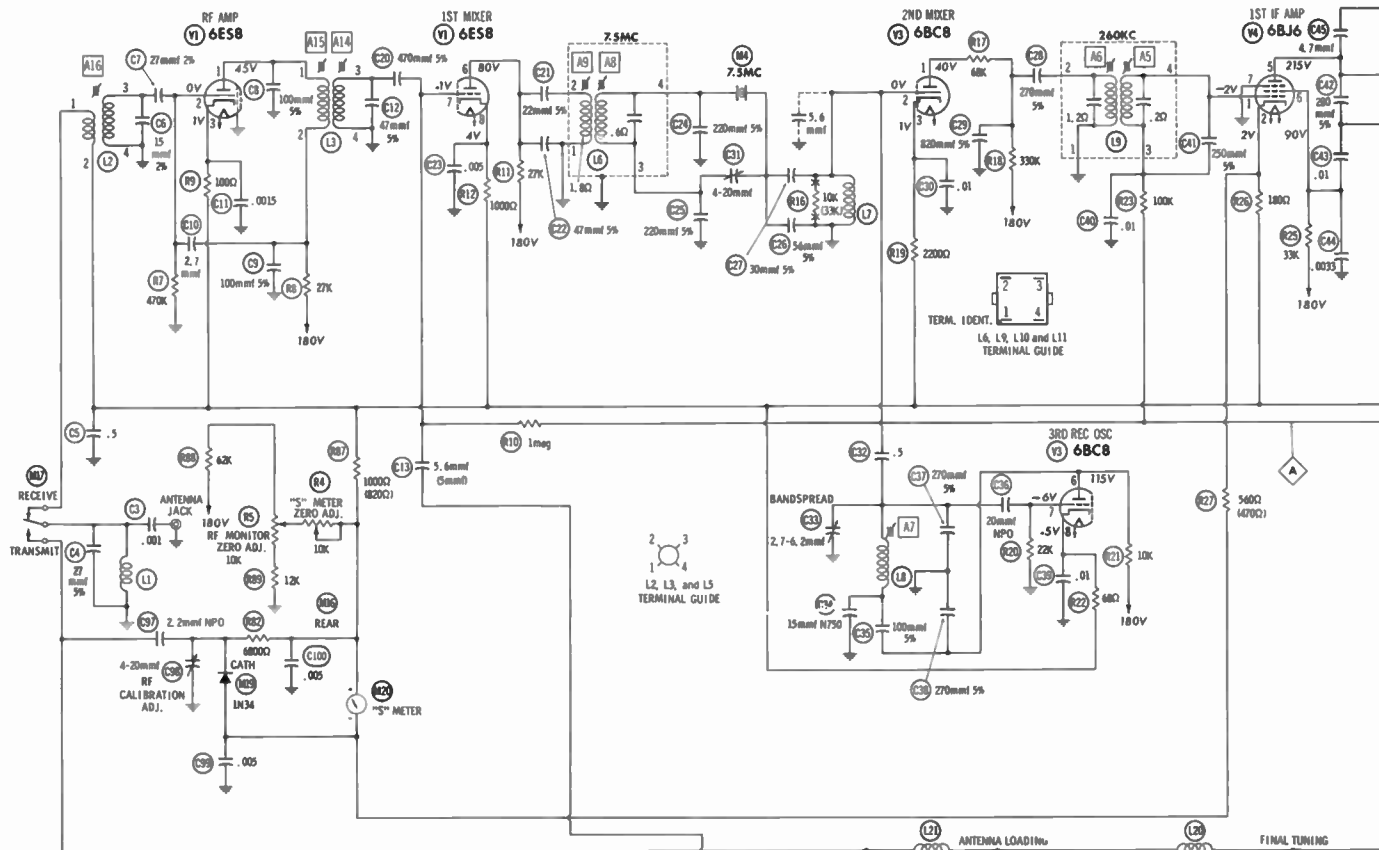
Connect dummy antenna.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect sweep generator to output of synthesizer (across C79). Tune to 27.1MC, 400KC bandpass.		A17, A18, A19, A20	Connect scope across R78 (grid of V12) with .5mfd in low side. Key transmitter. Adjust for bandpass of 26.95-27.26MC. Remove scope.
Connect DC VTVM across R78 (grid of V12).		A21	Key transmitter. Adjust for 20 volts MINIMUM on all channels.
Connect DC VTVM across R78 (grid of V12). Set meter switch to "C".		A22, A23	Key transmitter. Adjust A22 (Final) for MINIMUM reading on front panel meter. Adjust A23 (Loading) for 14-16MA. Repeat adjustments.
Connect RF voltmeter across antenna receptacle. Set meter switch to "S".		R6, C98	Short C94 (Final). Key transmitter. Adjust R6 for zero reading on front panel meter. Remove short from C94. Adjust C98 (RF Calibration) until meter reading indicates same voltage as RF voltmeter.

OLSON MODEL RA-590





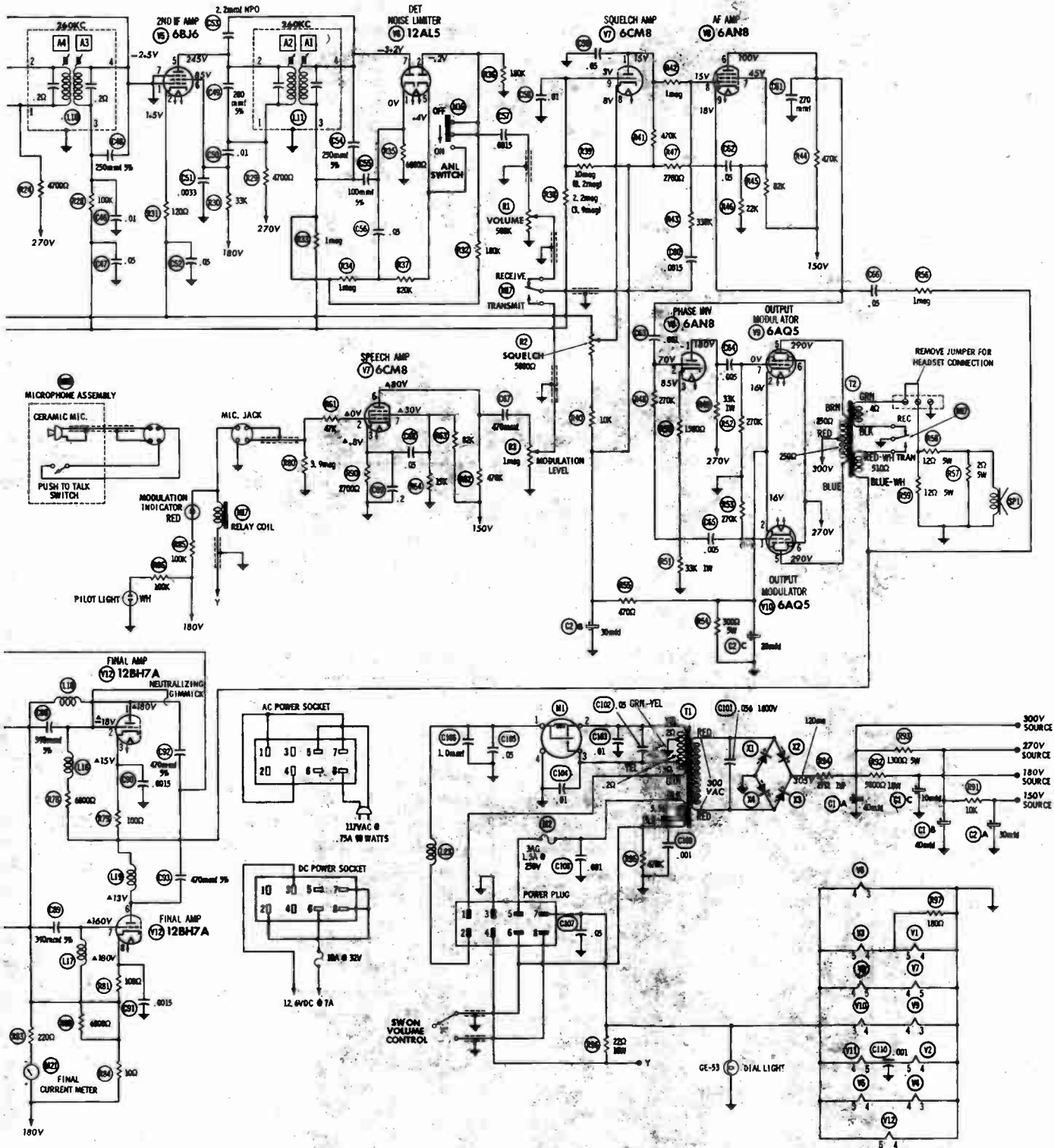


1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

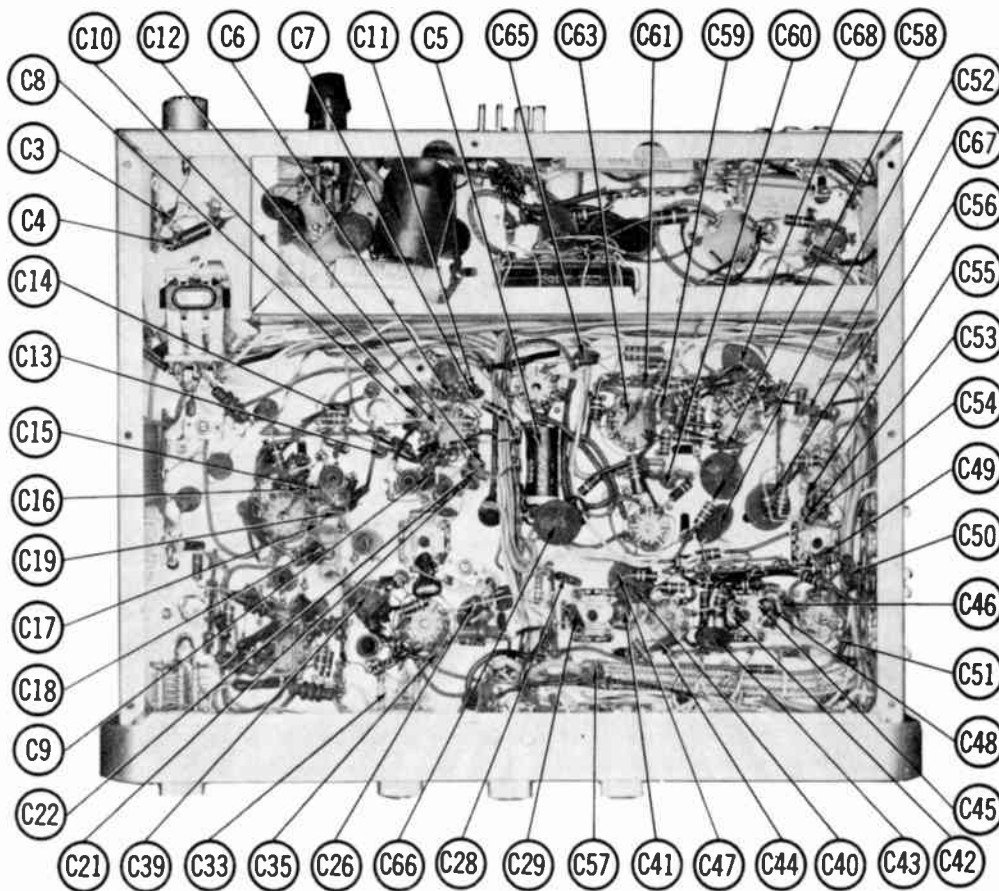
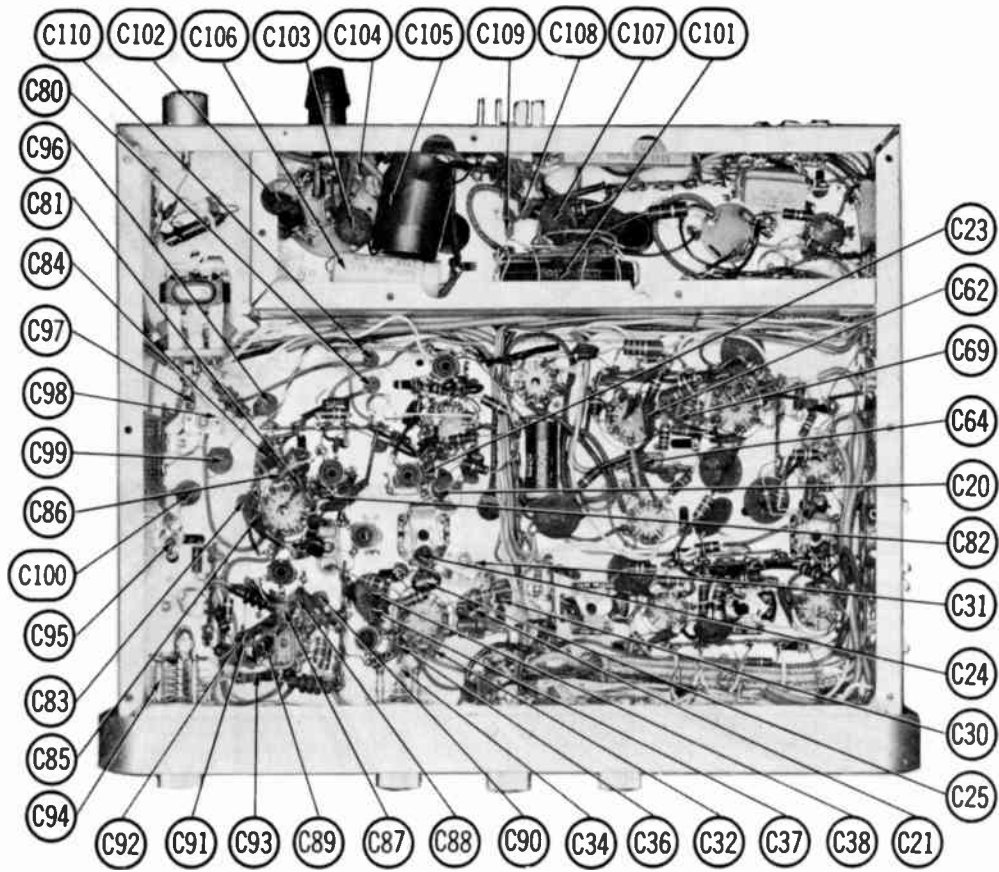
A PHOTOFAC STANDARD NOTATION SCHEMATIC
 ©Howard W. Sams & Co., Inc. 1964

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6ES8	132K	470K	100Ω	FIL	FIL	132K	2.1meg	1000Ω	NC
V2	6AN8	115K	100K	▲2700Ω	FIL	FIL	12300Ω	†14K	22K	▲270Ω
V3	6BC8	135K	.1Ω	2200Ω	FIL	FIL	115K	22K	68Ω	TP
V4	6BJ6	1.3meg	280Ω	FIL	FIL	16000Ω	138K	0Ω		
V5	6BJ6	1.3meg	120Ω	FIL	FIL	16000Ω	138K	0Ω		
V6	12AL5	6800Ω	100K	FIL	FIL	2.3meg	0Ω	410K		
V7	6CM8	500K	3.9meg	2700Ω	FIL	FIL	1480K	130K	3600Ω	2.5meg
V8	6AN8	134K	300K	35K	FIL	FIL	1480K	†93K	1.5meg	3400Ω
V9	6AQ5	NC	300Ω	FIL	FIL	1277Ω	†1327Ω	270K		
V10	6AQ5	270K	300Ω	FIL	FIL	1277Ω	†1327Ω	NC		
V11	6AN8	†23K	100K	2200Ω	FIL	FIL	†2300Ω	†42K	100K	1800Ω
V12	12BH7A	15000Ω	▲7500Ω	▲610Ω	FIL	FIL	▲510Ω	17500Ω	†5150Ω	NC

ALL MEASUREMENTS TAKEN IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 † MEASURED FROM OUTPUT OF BRIDGE RECTIFIER.
 ▲ MEASURED IN "TRANSMIT" POSITION. TP TIE POINT NC NO CONNECTION



OLSON MODEL RA-590



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)	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. 8681 (3/8 In.)	

TUBES

♦ AMPEREX ♦		GENERAL ELECTRIC ♦		RCA ♦		RAYTHEON ♦		SYLVANIA ♦			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.		
V1	RF Amp. -1st Mixer	6ES8	V6	Det. -Noise Limiter	12AL5	V7	Squelch Amp. -Speech Amp.	6CM8	V8	AF Amp. -Phase Inverter	6AN8
V2	1st Rec. Osc. -1st Trans. Osc. 2nd Rec. Osc. - 2nd Trans. Osc.	6AN8	V9	Output-Modulator	6AQ5	V10	Output-Modulator	6AQ5	V11	3rd Trans. Osc. -Buffer	6AN8
V3	2nd Mixer-3rd Rec. Osc.	6BC8	V12	Final Amp.	12BH7A						
V4	1st IF Amp.	6BJ6									
V5	2nd IF Amp.	6BJ6									

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X2	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X3	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X4	.120A		A300 or FW300	1N3194 or 1N2861	2F4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	40	450							
B	40	450							
C	10	450							
C2A	30	350							
B	30	350							
C	20	25							
				AFH3-43	C0340	XC3-29	TMT-3742	FP376.8	TVL-3785
				AFH3-109	C0830	XC3-10	TMT-3381	FP330A	TVL-3636

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.
C3	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	27 5%		1469-00027	TCZ-27	22R5Q27	CM-19B-270J	CNO-427	MS-427
C5	.5 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P50
C6	15 2%		1469-000015	TCZ-15	22P6Q15	CM-15E-150		
C7	27 2%		1469-000027	TCZ-27	22R5Q27	CM-19B-270J	CNO-427	MS-427
C8	100 5%		1469-0001	TCZ-100	22R5T1	CM-15E-101	MCE235	MS-31
C9	100 5%		1469-0001	TCZ-100	22R5T1	CM-15E-101	MCE235	MS-31
C10	2.7		NPO-D1 2.7	TCZ-2.7	C10V27C	CCTO-2R7	CNO-527	10TCC-V27
C11	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C12	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C13	5.6	(5) †	NPO-D1 5	TCZ-4.7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C14	5 NPO		NPO-D1 5	TCZ-4.7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C15	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C16	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	20 NPO		NPO-SI 20	TCZ-22	C10Q20C	CCTO-200	CNO-420	10TCC-Q20
C18	680 5%		1469-00068	TCZ-680		CM-15E-681		
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	470 5%		1469-00047		22R5T47	CM-19B-471J		
C21	22 5%		CI-22	TCZ-22	C10Q22C	CCD-220	CNO-422	10TCC-Q22
C22	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C23	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	220 5%		1469-00022		22R5T22	CM-19B-221J		
C25	220 5%		1469-00022		22R5T22	CM-19B-221J		
C26	56 5%		1469-000056	TCZ-56	22R5Q56	CM-15E-560		MS-456
C27	30 5%		1469-00003	TCZ-30	22R5Q30	CM-15E-300		
C28	270 5%		1469-00027	TCZ-270	22R5T27	CM-15E-271		
C29	820 5%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	4-20							
C32	.5							
C33	2.7-6.2							
C34	15 N750							
C35	100 5%		1469-0001		22R5T10	CM-19B-101J		
C36	20 NPO		NPO-SI 20	TCZ-20	C10Q20C	CCD-200	CNO-420	10TCC-Q20
C37	270 5%		1469-00027		22R5T27	CM-19B-271J		
C38	270 5%		1469-00027		22R5T27	CM-19B-271J		
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	250 5%		1469-00025		22R5T25	CM-19B-251J		
C42	200 5%		1469-0002		22R5T20	CM-19B-201J		
C43	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C45	4.7		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C46	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C48	250 5%		1469-00025		22R5T25	CM-19B-251J		
C49	200 5%		1469-0002		22R5T20	CM-19B-221J		
C50	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C51	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C52	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50

OLSON MODEL RA-590

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.
C53	2.2 NPO		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C54	250 5%		1469-00025		22R5T25	CM-19B-25LJ		
C55	100 5%		1469-0001		22R5T1	CM-19B-10LJ		
C56	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C57	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10T8-D15
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C60	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10T8-D15
C61	270		DI-270	DD-271	LA10T27	CCD-271	B-327	10T8-T27
C62	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C63	.001		EF-001	MFT-1000		CCF-102	CT280A	
C64	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C65	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C66	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C67	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10T8-T47
C68	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C69	.2							
C70	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10T8-Q10
C71	27 5%		NPO-SI 27	D6-270	LA10Q27	CCD-270	GP427	10T8-Q27
C72	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C73	2.2		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C74	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10T8-Q10
C75	47 5%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	MCB-471	MS-447
C76	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C77	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C78	470 5%		1469-00047		22R5T47	CM-19B-47LJ		
C79	47 NPO		NPO-DI 47	TCZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C80	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C81	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C82	47 5%		NPO-DI 47	TCZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C83	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10T8-Q10
C84	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C85	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C86	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C87	22 NPO	(20) †	NPO-SI 20	D6-220	LA10Q22	CCD-220	GP422	10T8-Q22
C88	390 5%		1469-00039		22R5T39	CM-19B-39LJ		
C89	390 5%		1469-00039		22R5T39	CM-19B-39LJ		
C90	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10T8-D15
C91	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10T8-D15
C92	470 5%		1469-00047		22R5T47	CM-19B-47LJ		
C93	470 5%		1469-00047		22R5T47	CM-19B-47LJ		
C94	5-20							
C95	10-100							
C96	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C97	2.2 NPO		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C98	4-20							
C99	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C100	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C101	.056 1600V							
C102	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-850
C103	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C104	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C105	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	GP150	6PS-850
C106	1.0 100V		P288N-1		CUB2W1		GEM-21	2TM-M1
C107	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	GP150	6PS-850
C108	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C109	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C110	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C111	2.2		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22

† Alternate Value.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			OLSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	500K		F2-500K, SU-204 or (B-60)	A47-500K-Z, KSS-3		RU55A, SL38, U942, or (UA55A, SF1000) or (U48)
R2	Squealch	5000Ω		F2-5000, SU-204, or (B-11)	A47-5000-S, KSS-3		
R3	Modulation Level	1meg		TT-70 †, or (F2-1meg, SN010, AK-38)	B47-1meg-Z †		PTA1254L
R4	"S" Meter Zero Adj.	10K		TT-14 †	B47-10K-S †		TA14L
R5	RF Monitor Zero Adj.	10K		TT-14 †	B47-10K-S †		TA14L

† Cut Shaft and File new adjusting Slot.

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
R54	300Ω 5W	PW5-300	5W-SQ-300		R92	5000Ω 10W	PW10-5000	10W-SQ-5000	
R57	2Ω 5W	PW5-2	5W-SQ-2		R93	1300Ω 5W	PW5-1300	5W-SQ-1300	
R58	12Ω 5W	PW5-12	5W-SQ-12		R96	22Ω 10W	PW10-22	10W-SQ-22	
R59	12Ω 5W	PW5-12	5W-SQ-12						

PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OLSON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Load(1. Sub)						
L2	Antenna						
L3	RF Interstage						
L4	3rd Trans. Osc.						
L5	Trans. Osc. Coup.						
L6	7.5MC IF						
L7	2nd Mlser Grid						
L8	3rd Rec. Osc.						
L9	1st 260KC IF						
L10	2nd 260KC IF						
L11	3rd 260KC IF						
L12	1st Rec. -Trans. Osc.						
L13	2nd Rec. -Trans. Osc.						
L14	Osc. Coupling						
L15	Final RF Coup.						
L16	RF Choke						
L17	RF Choke						
L18	RF Choke						
L19	RF Choke						
L20	RF Output Coup.						
L21	RF Output Coup.						
L22	RF Choke						
L23	Hash Suppressor						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	OLSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ①. 750A (or)12.6V DC ①. 7A	150VAC ①. 12A DC	12.6V ①. 5A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	OLSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	5000Ω CT	3-4Ω						
		SEC. 2						
		500Ω DC Res.						

SPEAKER

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

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				OLSON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6V	115 $\frac{v}{c}$		6301	G-1501	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1 $\frac{1}{2}$ A 250V 10A 32V			31201.5 (3AG 1 $\frac{1}{2}$ A 250V)	342001	AGC 1 $\frac{1}{2}$	HKP

① DC Operation only.

MISCELLANEOUS

ITEM No.	PART NAME	OLSON PART No.	NOTES
M3	Crystal		7.500MC (Transmit)
M4	Crystal		7.500MC (Receive)
M5	Crystal		10.850MC (Channels 1 thru 4)
M6	Crystal		10.900MC (Channels 5 thru 8)
M7	Crystal		10.950MC (Channels 9 thru 12)
M8	Crystal		11.000MC (Channels 13 thru 16)
M9	Crystal		11.050MC (Channels 17 thru 20)
M10	Crystal		11.100MC (Channels 21 thru 23)
M11	Crystal		8.615MC (Channels 1, 5, 9, 13, 17, 21)
M12	Crystal		8.625MC (Channels 2, 6, 10, 14, 18, 22)
M13	Crystal		8.635MC (Channels 3, 7, 11, 15, 19)
M14	Crystal		8.655MC (Channels 4, 8, 12, 16, 20, 23)
M15	Switch		Crystal Selector
M16	Switch		ANL-Slide Type
M17	Relay		Receive-Transmit
M18	Microphone Ass'y.		Includes Push-to-talk Switch
M19	Meter Rectifier		1N34
M20	S Meter		
M21	Meter		Final Current

OLSON MODEL RA-590



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME: Panasonic Model T-1

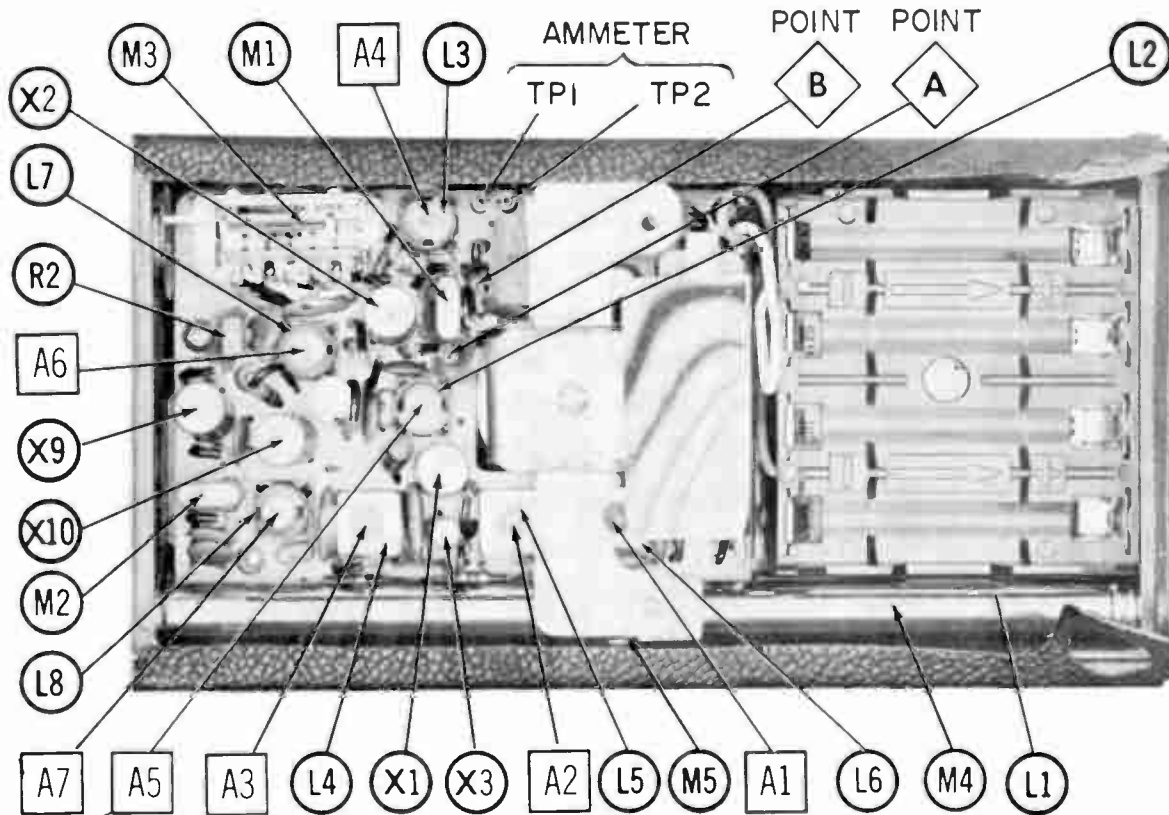
SUPPLIER: Matsushita Electric Corp. of America
Pan American Bldg.
220 Park Ave., New York 17, N. Y.
TYPE SET: 10 Transistor Transceiver

POWER SUPPLY: 12 Volts DC

RATING: 7.5MA @ 12VDC (Receive, No Signal)
15MA @ 12VDC (Transmit, No Modulation)

TUNING RANGE: Any one CB Channel 1 thru 22

PANASONIC MODEL T-1



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

ALIGNMENT INSTRUCTIONS

This transceiver meets all requirements of F.C.C. Rules & Regulations, Part 15, Subpart "E" for low power communications devices and requires no station license. However, only those persons properly licensed by the F.C.C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F.C.C. Rules & Regulations, Part 19, Subpart "D", Section 19.71.)


Equipment Required

1. AM Signal Generator
2. Ammeter
3. Output Meter
4. Oscilloscope
5. Transistor Radio Battery Eliminator
6. Audio Oscillator
7. Frequency Meter

Receiver IF Alignment

1. Connect output meter across speaker voice coil (use earphone jack).
2. Set volume control to maximum.
3. Remove batteries. Connect battery eliminator across battery terminals and set to -13.2 volts.
4. Connect high side of signal generator (set to 455 KC, 1000 cycles 30% modulation) through .01 mfd capacitor to rod antenna; low side to point $\diamond A$. (NOTE: Fully collapse rod antenna.) Adjust A1, A2, and A3 for maximum output. Keep output of signal generator low enough to maintain reading of .28 volts or less on output meter during adjustments.

Receiver Osc. and RF Alignment

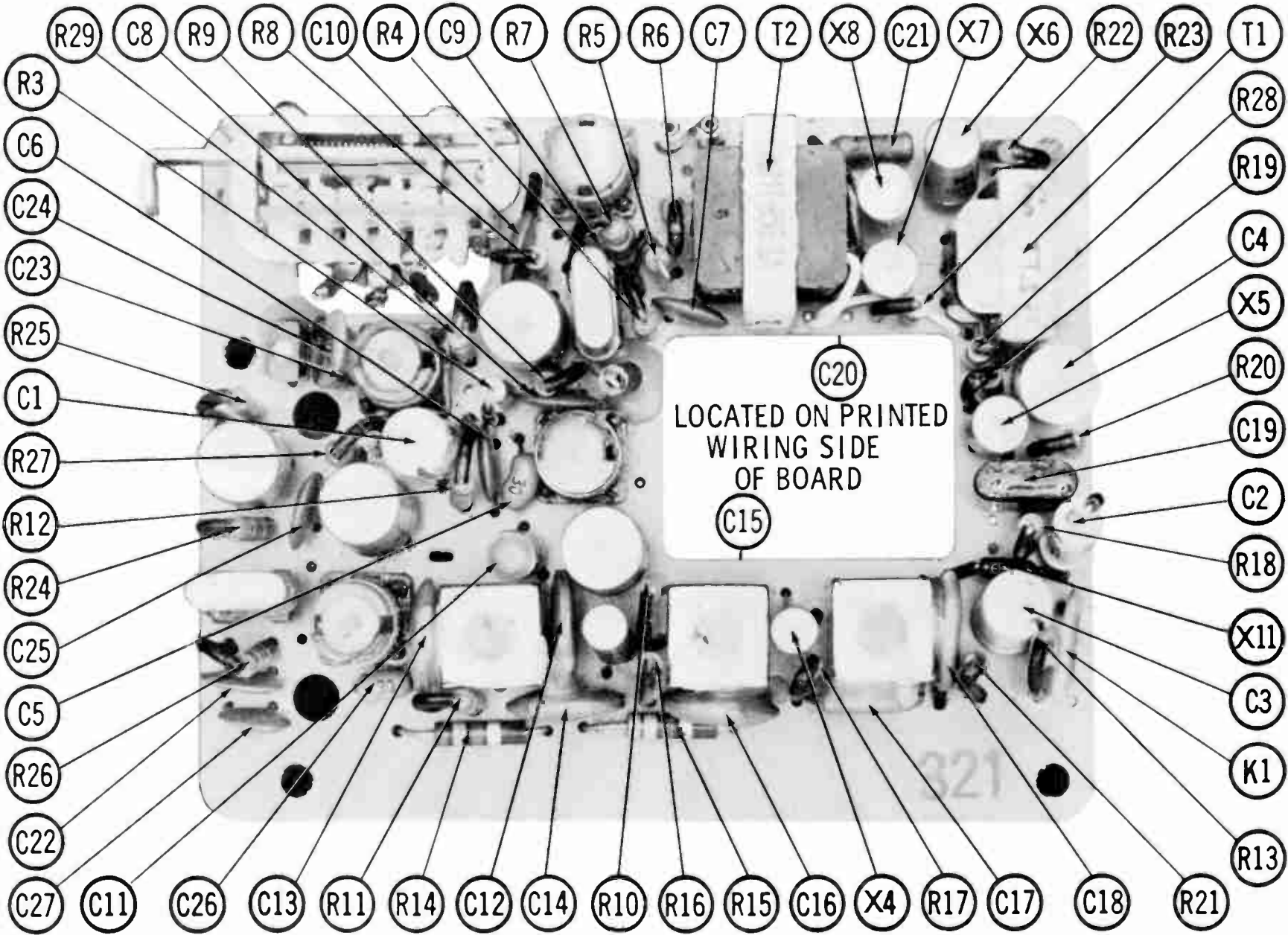
1. Disconnect signal generator and output meter.
2. Connect negative lead of ammeter (set on 100 μ a range) to point $\diamond A$. Connect positive lead through an OA70 (or equivalent) diode to point $\diamond B$ as follows:

3. Adjust A4 counterclockwise from center of coil form for maximum current reading. Then turn A4 clockwise until reading is 5% less than maximum.
4. Disconnect ammeter and reconnect output meter and signal generator. (Connect generator high side through 13 mmf capacitor to rod antenna; low side to point $\diamond A$. Set generator to 27.075 MC (Channel

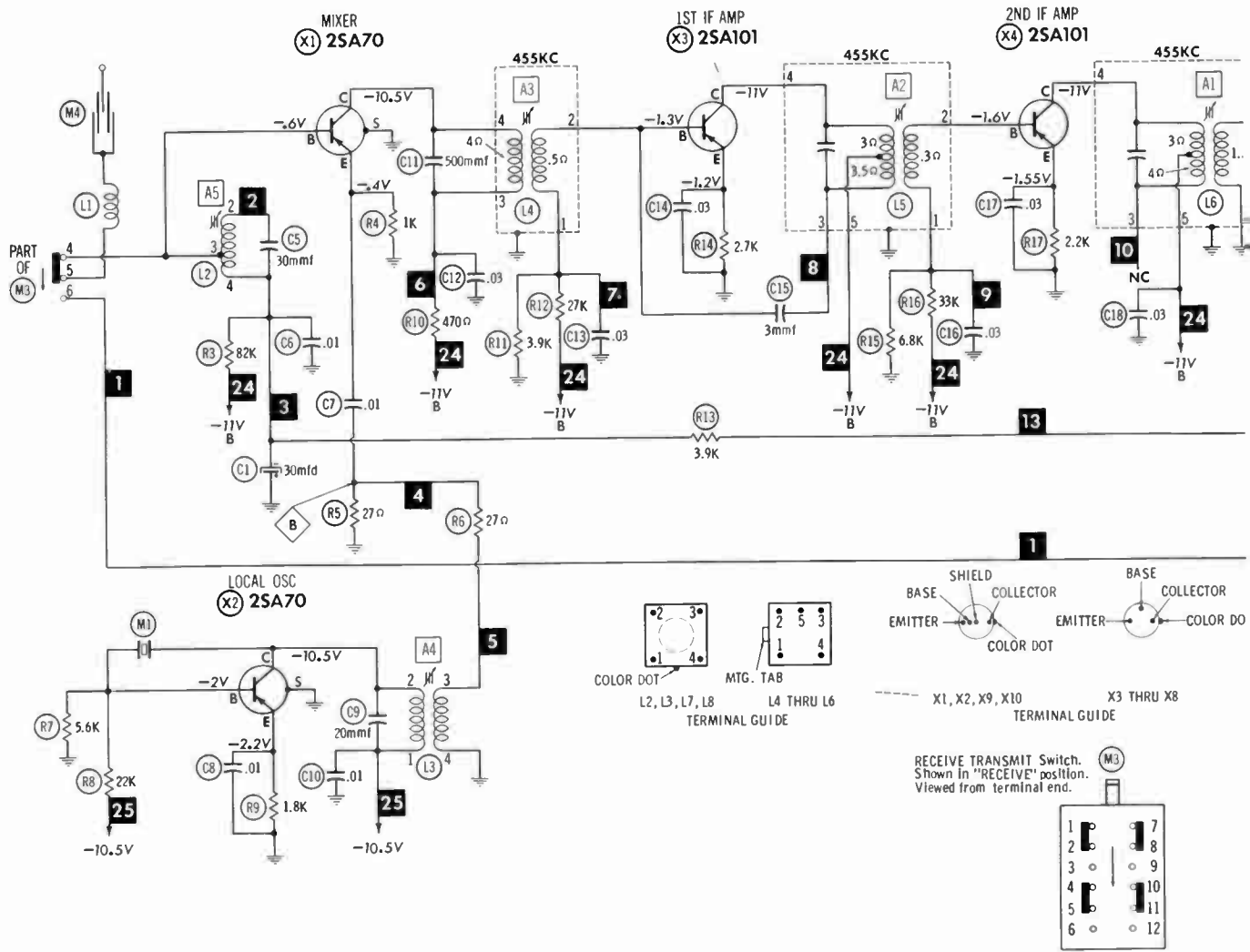
10). Again use 1000 cycles 30% modulation. Adjust A5 for maximum reading on output meter.

5. Reseal adjustments A4 and A5 with same type wax originally used, then check readings obtained in Steps 3 and 4. If abnormal change is noted, repeat adjustments.

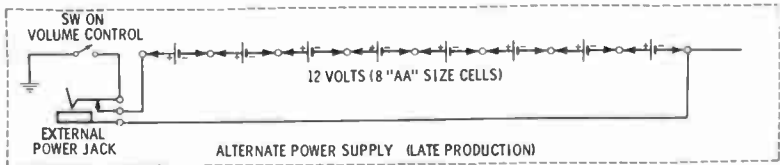
Transmitter Alignment

1. Remove shorting clip from ammeter test pins. Connect negative lead of ammeter (set on 10 ma range) to Test Pin 1; positive lead to Test Pin 2.
2. Set volume control to maximum.
3. Connect a dummy antenna (13 mmf capacitor and 39 Ω resistor in series) between rod antenna (fully collapsed) and point $\diamond A$.
4. Remove batteries. Connect battery eliminator across battery terminals and set to -13.2 volts.
5. Depress the transmit button located on top of case and make the following adjustments:
 - a. Adjust A6 counterclockwise from center of coil form for maximum current reading. Then turn A6 clockwise until reading is .15 ma less than maximum.
 - b. Adjust A7 for minimum current reading (dip).
 - c. Adjust R2 for current reading of 7.3 ma.
 - d. Repeat Steps 5a, b, and c several times to insure correct adjustment.
6. Connect an audio oscillator (set to 1000 cycles) across speaker voice coil (use earphone jack). Connect the vertical input terminals of an oscilloscope to the earphone jack of another Model T-1 known to be in good operating condition and set this unit up to receive signal from first unit. Depress transmit button on first unit and check to make sure waveform of signal picked up by second unit is free of distortion.
7. Reseal adjustments A6 and A7 with same type wax originally used, then check ammeter readings obtained in Step 5. If abnormal change is noted, repeat adjustments.
8. Disconnect ammeter and replace shorting clip on test pins.
9. Using a good frequency meter, check frequency of transmitter signal to make certain it is within the $\pm .005\%$ deviation permitted by the F.C.C.





1. All voltages are with respect to ground and were measured with VTVM under "no signal" conditions, with RECEIVE-TRANSMIT switch in "RECEIVE" position unless otherwise noted.
 2. Terminal guides (except M3) are bottom views.
 3. Coil resistances not shown are too low for accurate measurement with ohmmeter.
 4. Capacitance values less than 1 are in mfd.
 5. Standard tolerance of $\pm 20\%$ on all values except where noted in parts list.
- * Measured in "TRANSMIT" position.

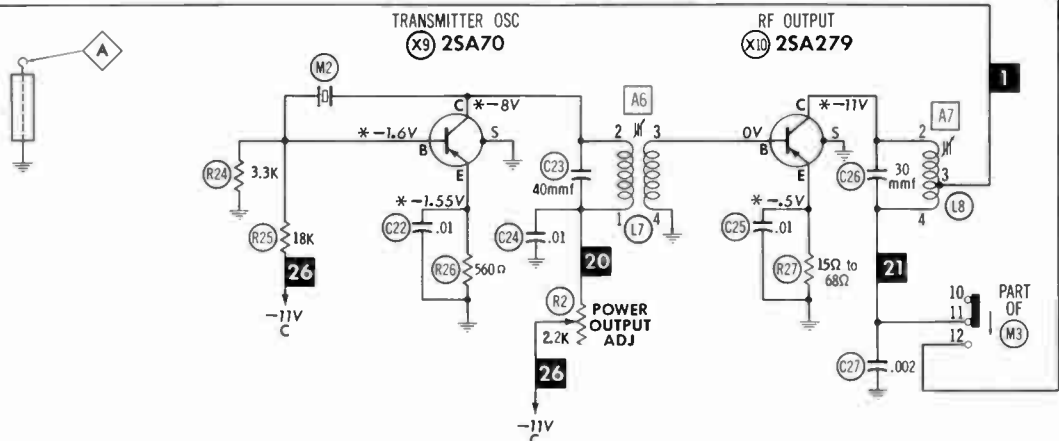
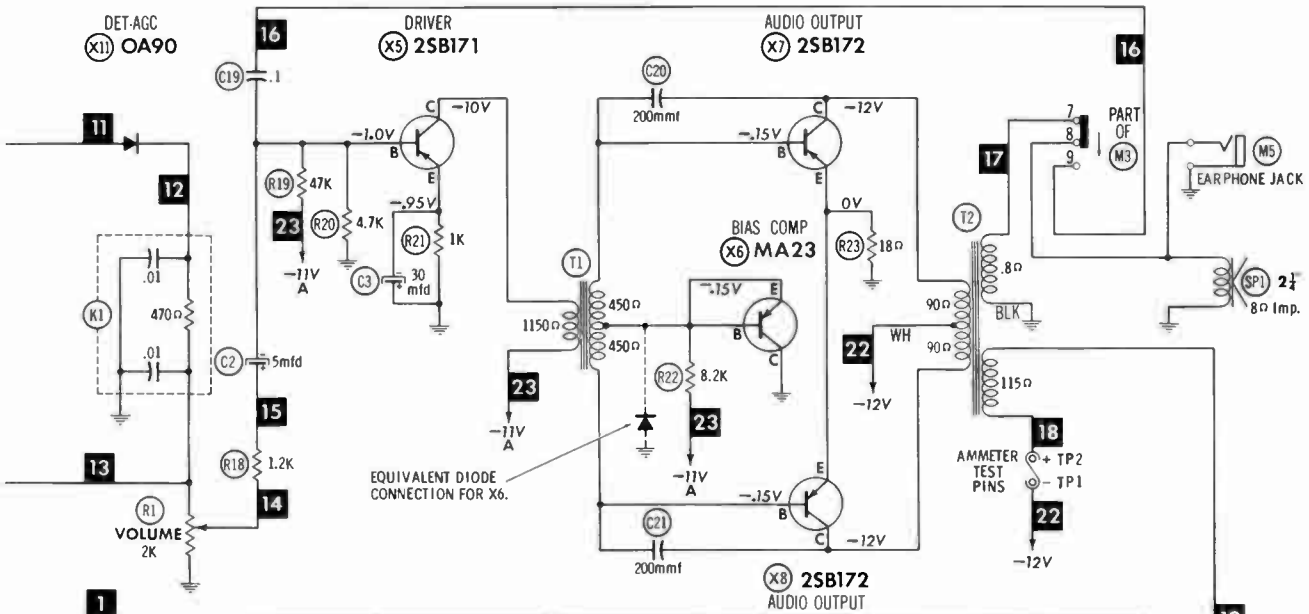


A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**

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NOTICE

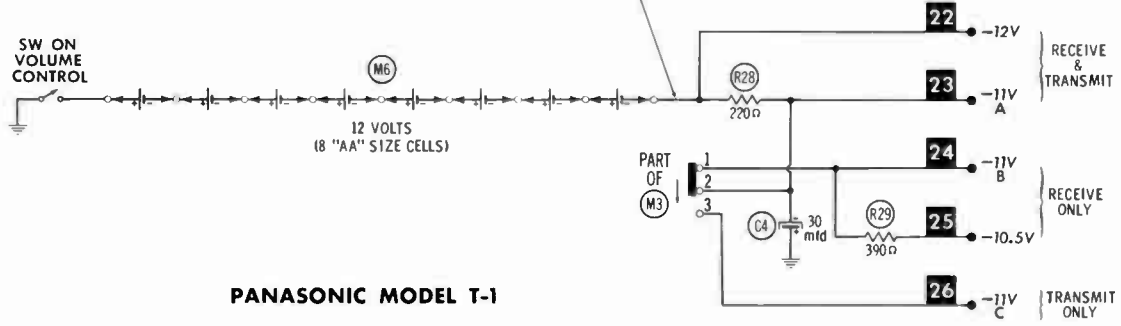
This transceiver meets all requirements of F. C. C. Rules & Regulations, Part 15, Subpart "E" for low-power communications devices and requires no station license. However, only those persons properly licensed by the F. C. C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F. C. C. Rules & Regulations, Part 19, Subpart "D", Section 19.71.)



BATTERY CURRENT DRAIN

RECEIVE: 7.5ma, Minimum Volume, No Signal
8ma, Maximum Volume, No Signal

TRANSMIT: 15ma, No Signal



PANASONIC MODEL T-1

PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2SA70	Mixer	D834	GE-1		PNP
X2	2SA70	Oscillator	D834	GE-1		PNP
X3	2SA101	1st IF Amp.	D825	GE-1		PNP
X4	2SA101	2nd IF Amp.	D825	GE-1		PNP
X5	2SB171	Driver	D826	GE-2	2N408	PNP
X6	MA25	Bias Regulator				PNP
X7	2SB172	Output - Modulator	D826	GE-2	2N408	PNP
X8	2SB172	Output - Modulator	D826	GE-2	2N408	PNP
X9	2SA70	Transmit Osc.	D834	GE-1		PNP
X10	2SA279	Final RF				PNP

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X11		OA90			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PANASONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	30	6	NCA6V30	PTT10	NLW30-6	MT1-13	MLV30-6	TT6X30	TE-1056
C2	5	6	NCT6V5	PTT21	NLW5-15	MT1-3	MLV5-6	TT6X5	TE-1084
C3	30	6	NCA6V30	PTT10	NLW30-6	MT1-13	MLV30-6	TT6X30	TE-1056
C4	30	15	NCA15V30	BCD15025	ECPB412	MT1-10	TT15X30	MLV25-15	TE-1158

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALA6 PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	30		DI-30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C6	.01		TTD-01	CK-103	H2		TA-110	TG-810
C7	.01		TTD-01	CK-103	H2		TA-110	TG-810
C8	.01		TTD-01	CK-103	H2		TA-110	TG-810
C9	30		DI-20	DD-200	L10Q2	CCD-200	GP420	10TS-Q20
C10	.01		TTD-01	CK-103	H2		TA-110	TG-810
C11	500							
C12	.03		TTD-03	CK303				TH-830
C13	.03		TTD-03	CK303				TH-830
C14	.03		TTD-03	CK303				TH-830
C15	3	±.5mmf						
C16	.03		TTD-03	CK303				TH-830
C17	.03		TTD-03	CK303				TH-830
C18	.03		TTD-03	CK303				TH-830
C19	.1		TTD-1	CK104	H05P1			TG-P10
C20	200		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C21	200		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C22	.01		TTD-01	CK-103	H2		TA-110	TG-810
C23	40		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C24	.01		TTD-01	CK-103	H2		TA-110	TG-810
C25	.01		TTD-01	CK-103	H2		TA-110	TG-810
C26	30		DI-30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C27	.002		DI-2000	DD-202	L10D2	CCD-202	GP220	10TS-D20

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PANASONIC PART No.	CENTRALA6 PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	2000Ω	SNV16T1.2				
R2	Power Output Adjust	2200Ω	2KΩ 2KC SFR-P6AV 2.2K				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PANASONIC PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Load	ZCO7-J					
L2	RF	TAP3-Z					
L3	Oscillator	TOP3-Z					
L4	1st IF	TI-VIC					
L5	2nd IF	TI-W2					
L6	3rd IF	TI-W4					
L7	Transmit Osc.	TOP3-Y					
L8	Transmit RF	TAP3-Y					

PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			PANASONIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T1	1.5	1	TT-43S					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			PANASONIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC. 1						
T2	1000ΩCT	6-8Ω	MT-856-3A					
		SEC. 2						
		10K						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PANASONIC PART No.	QUAM PART No.	
SP1	2 1/4" PM 6-8Ω	P-250S		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PANASONIC PART No.	REPLACEMENT DATA
K1	Diode RF Filter	.01mfd, .01mfd, 470Ω	CR31PK471	

MISCELLANEOUS

ITEM No.	PART NAME	PANASONIC PART No.	NOTES
M1	Receive Crystal	HC-18U/27.530	Channel 10
M2	Transmit Crystal	HC-18U/27.075	Channel 10
M3	Switch	PSW-D	Transmit-Receive (Slide Type, Spring Loaded)
M4	Antenna	RANT160-10	Telescopic Whip
M5	Earphone Jack	RJJ-16	
	Earphone (16Ω)	EP-P1B	

BATTERIES

ITEM No.	VOLTAGE	PANASONIC PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
M6	1.5V		930	1015	M-15R or MN-1500, ZM-9	8 Used

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Battery Case	RJK-3802	Push Button, Transmit-Receive	RBC-7
Antenna Rubber Tip	RHG-104	Volume Knob	RBV-19

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. 8499 Single Conductor Shielded (Neoprene)
	8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

PANASONIC MODEL T-1

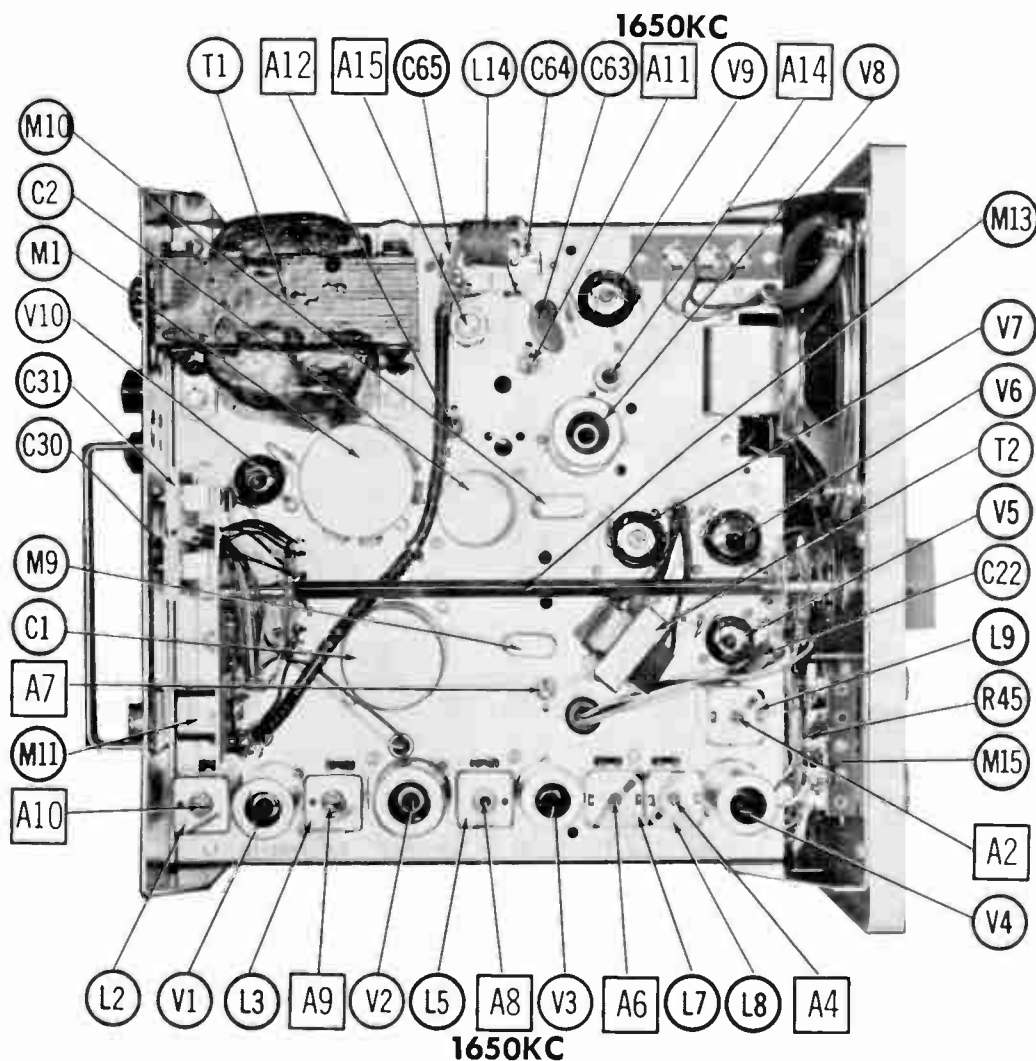


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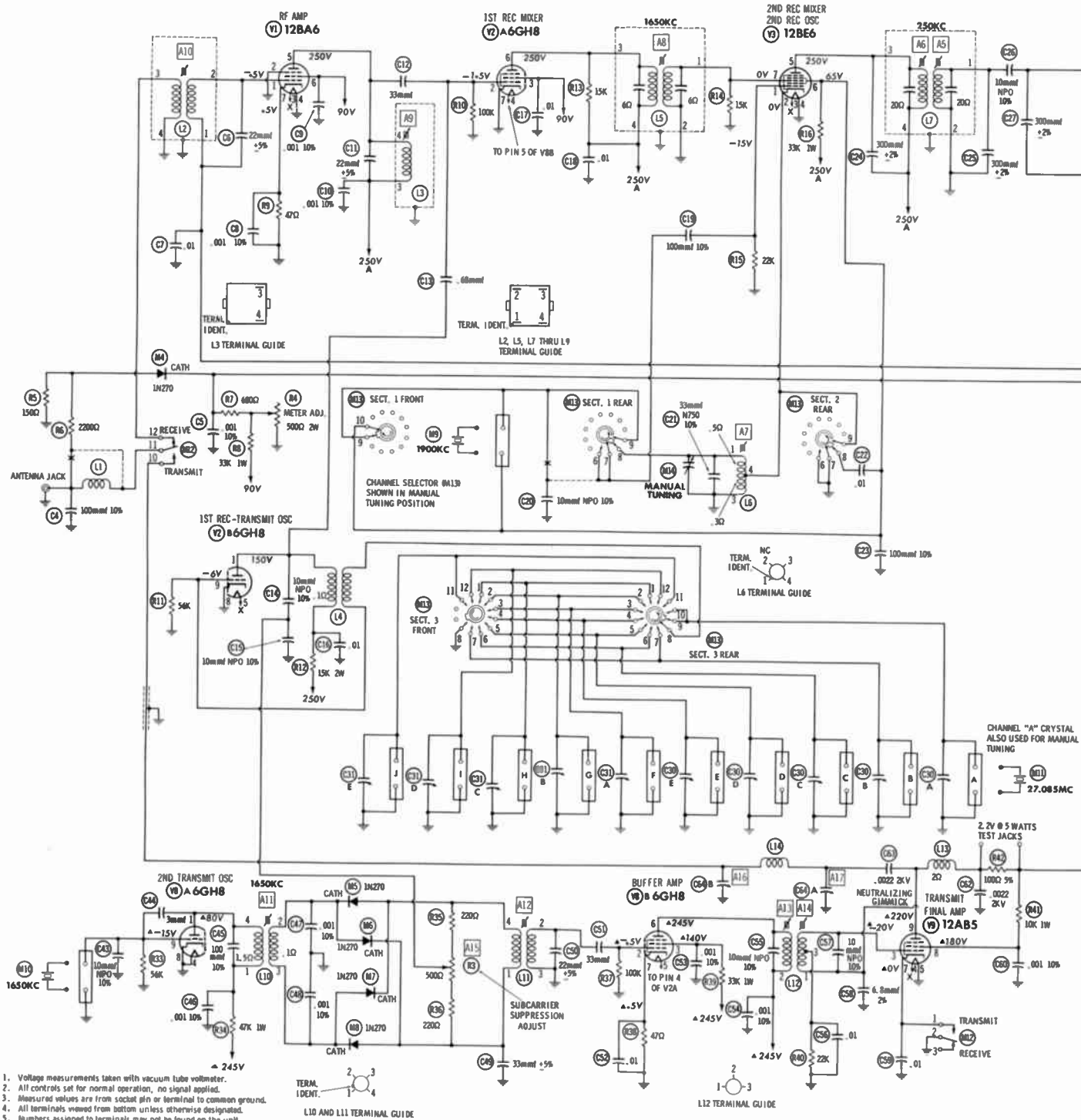


TRADE NAME : Raytheon Model Ray-Tel TWR-3
SUPPLIER : Raytheon Co., Distributor Products Div.
 411 Providence Turnpike, Westwood, Mass.
TYPE SET : 10 Tube Transceiver
POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles (or)
 12 Volt Storage Battery
RATING : 65 Watts, .65 Amp. @ 117VAC (Rec.)
 69 Watts, .69 Amp. @ 117VAC (Trans.)
TUNING RANGE : Channel 11 and any 9 CB Channels thru 23
 Receiver may be continuously variable.

RAYTHEON MODEL RAY-TEL TWR-3

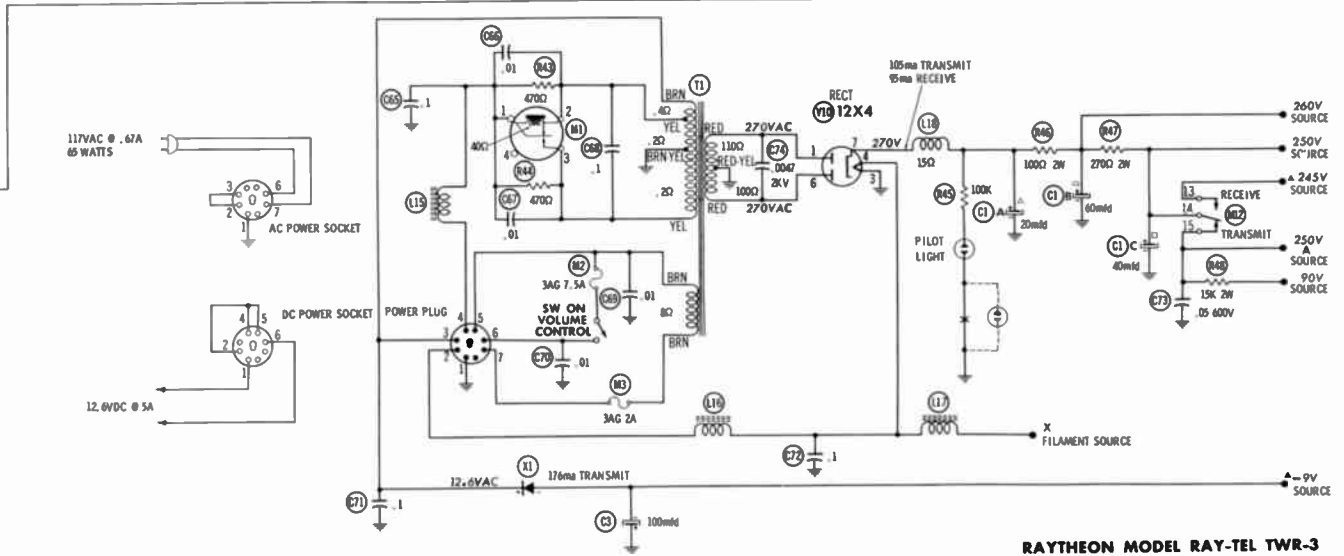
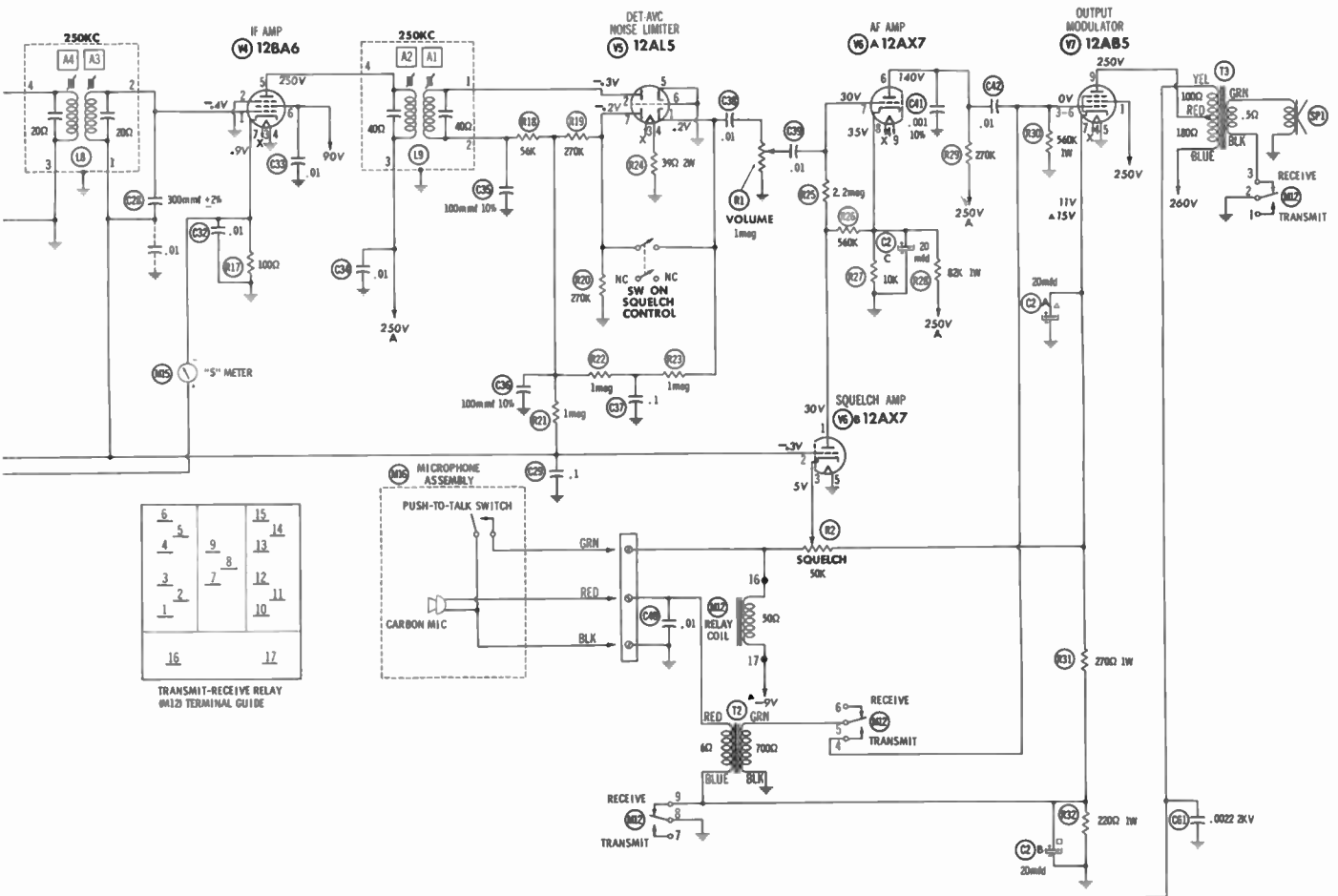


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

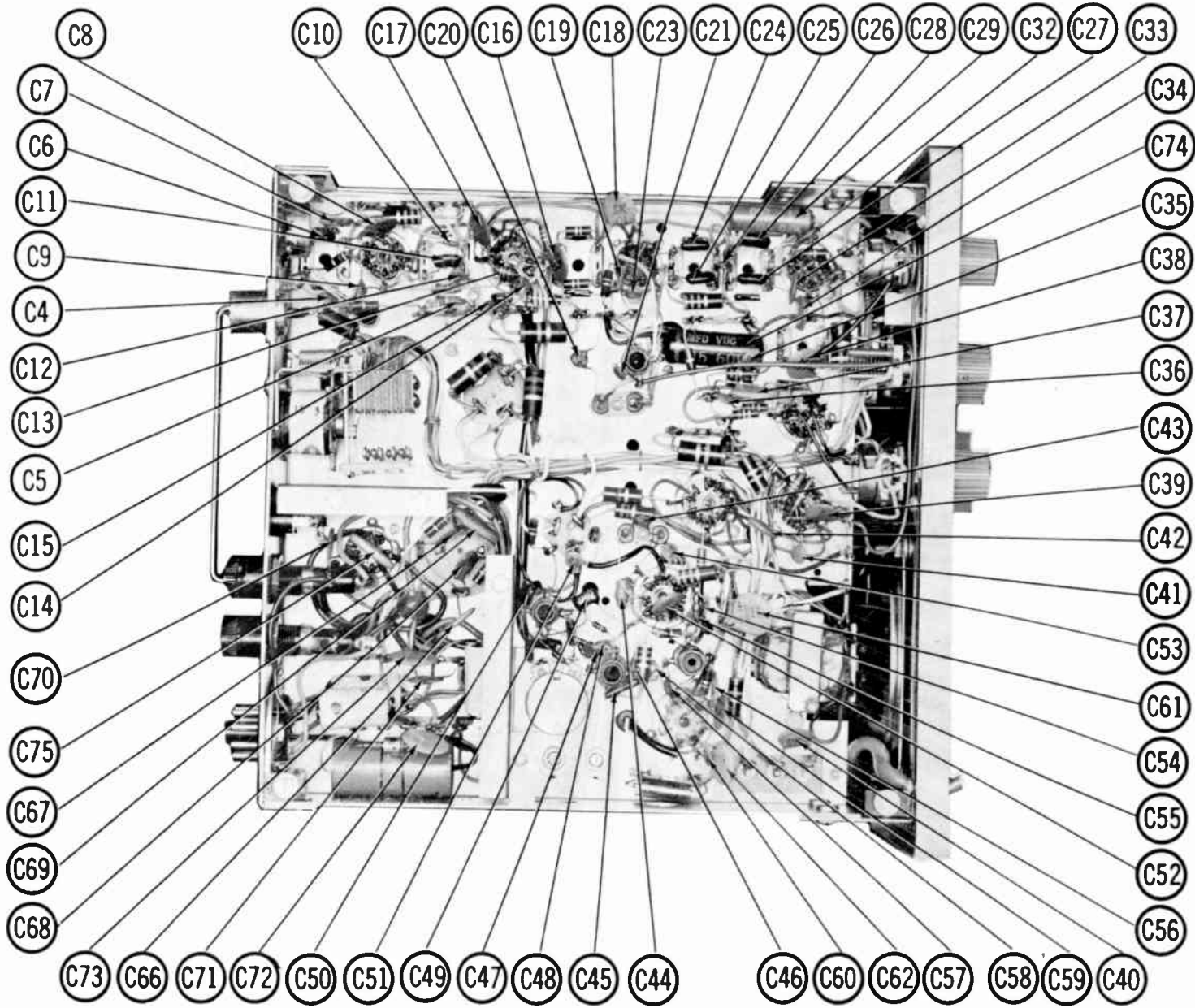


1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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RAYTHEON MODEL RAY-TEL TWR-3



RESISTANCE READINGS

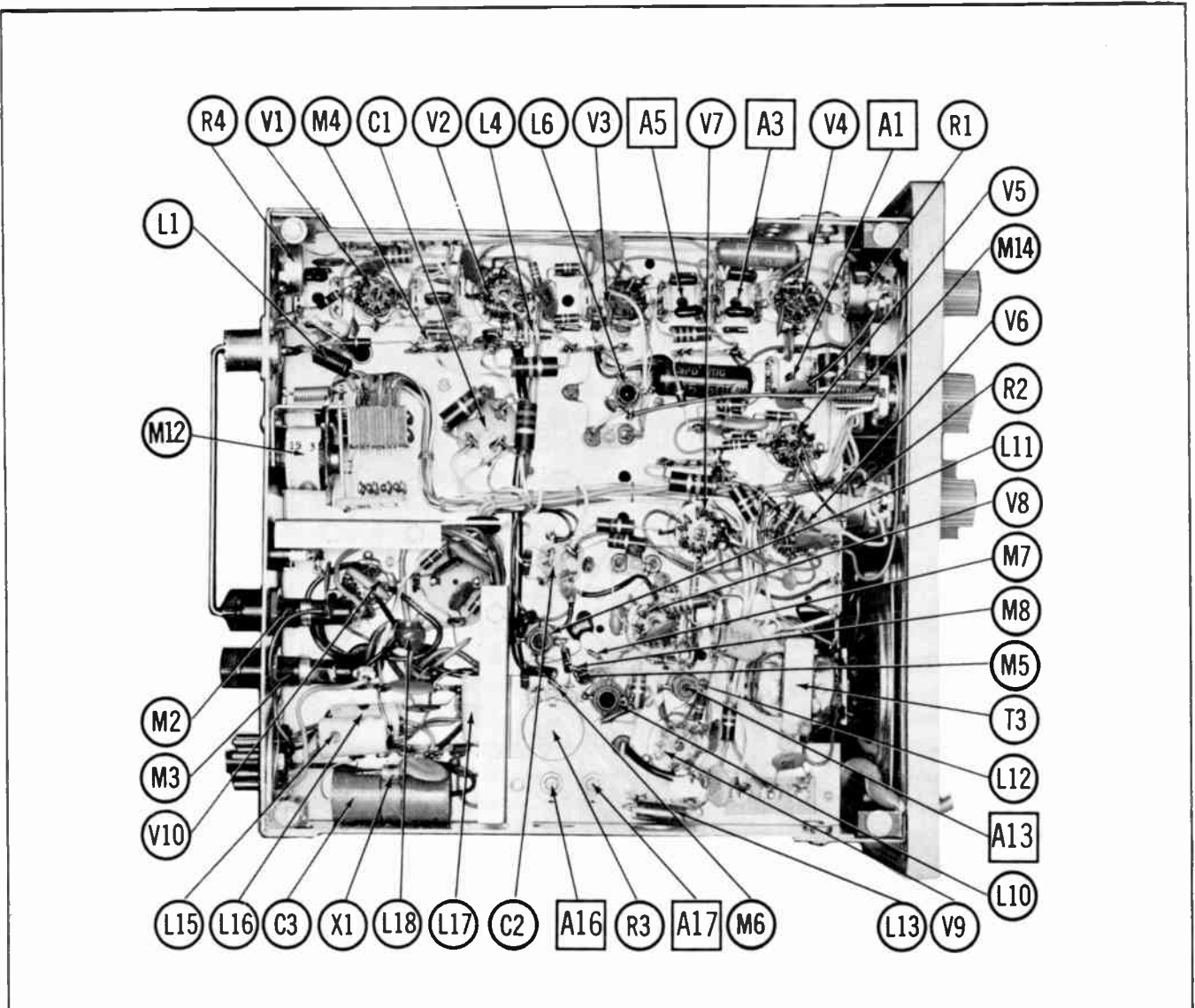
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	1.5meg	0Ω	FIL	FIL	†385Ω	†15K	47Ω		
V2	6GH8	†15K	100K	† 15K	FIL	FIL	†385Ω	0Ω	0Ω	56K
V3	12BE6	22K	.3Ω	FIL	FIL	†385Ω	†33K	5Ω		
V4	12BA6	1.5meg	0Ω	FIL	FIL	†385Ω	† 15K	95Ω		
V5	12AL5	2.6meg	596K	FIL	FIL	0Ω	0Ω	270K		
V6	12AX7	†600K	1.5meg	12K	FIL	FIL	†285K	2.7meg	9500Ω	NC
V7	12AB5	†385Ω	TP	▲ 700Ω 560K	FIL	FIL	▲700Ω 560K	▲490Ω 270Ω	NC	†295Ω
V8	6GH8	†▲47K	100K	†▲33K	FIL	FIL	†▲385Ω	47Ω	0Ω	56K
V9	12AB5	NC	NC	22K	FIL	FIL	NC	▲0Ω	†▲10K	†▲495Ω
V10	12X4	110Ω	NC	FIL	FIL	NC	100Ω	150K		

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.

† MEASURED FROM PIN 7 OF V10 NC NO CONNECTION

▲ MEASURED IN TRANSMIT POSITION. TP TIE POINT

RAYTHEON MODEL RAY-TEL TWR-3



PARTS LIST AND DESCRIPTION

TUBES

• AMPEREX •		GENERAL ELECTRIC •		RCA •		RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	RF Amp.	12BA8		V6	AF Amp. -Squelch Amp	12AX7			
V2	1st Rec. Mixer- 1st Rec. -Transmit Osc.	6GH6		V7	Output-Modulator	12AB5			
V3	2nd Rec. Mixer-Osc.	12BE6		V8	2nd Transmit Osc. - Buffer Amp.	6GH6			
V4	1F Amp.	12BA8		V9	Transmit Final Amp.	12AB5			
V5	Det. -AVC-Noise Limiter	12AL5		V10	Rectifier	12X4			

POWER RECTIFIERS

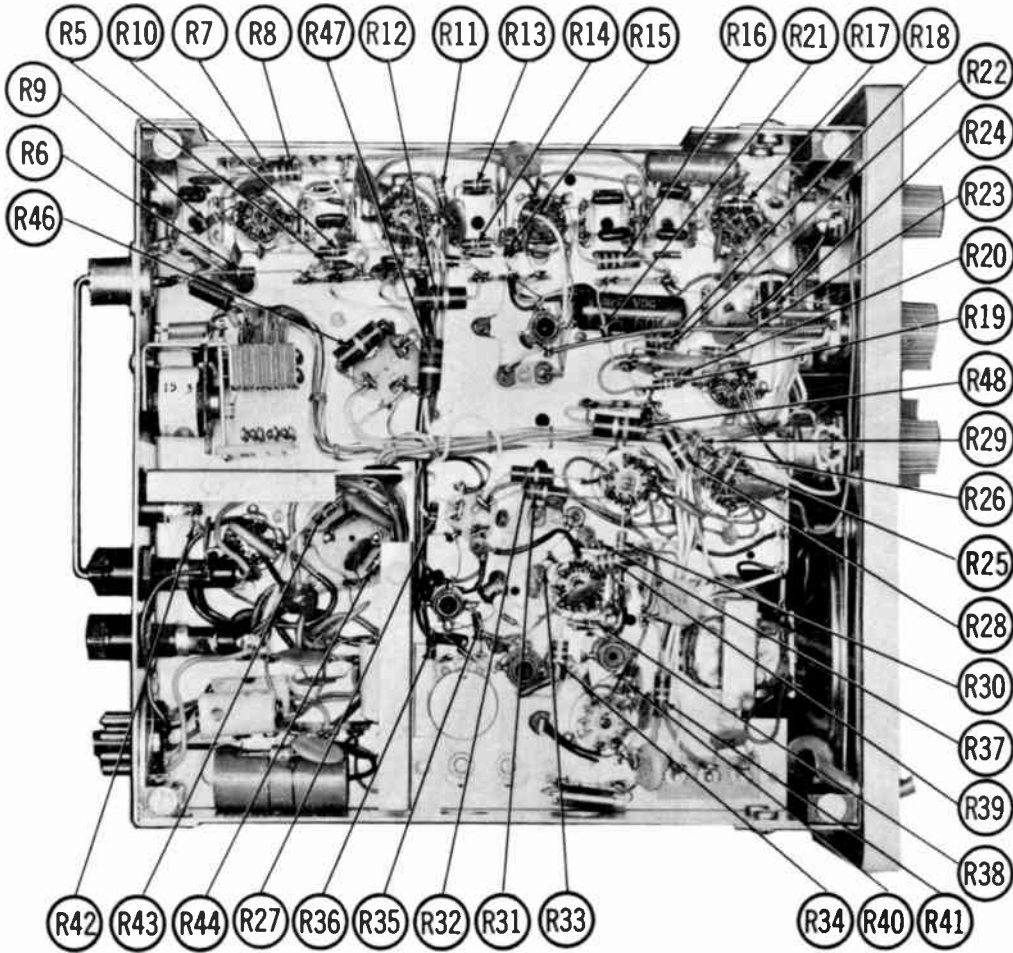
ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.178A	PT-505	1N537 or A100 or D100	1N2859	10H or F-1

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RAYTHEON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	▲ 20	300	0544	AFH3-29	C0230	XC3-30	TMT-3435	FP333.7	TVL-3868
B	▲ 60	300							
C	■ 40	300							
D	50	25							
C2A	▲ 20	150	0540	AFH3-05	XC0041	XC3-23	TMT-3112	FP311.2A	TVL-3433
B	■ 20	150							
C	20	150							
C3	100	50		PRS1380	BR100-50	QT1-23	TD-100-50	TC3501	TVA-1310

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.
C4	100 10%		DI-100	DD-101	LA10T1-S3	CCD-101	GP310	10TS-T10
C5	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C6	22 ±5%		ADM-15-220	CPR-22J	CD15E220J	DM-15-220J		MS-422
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C9	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C10	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C11	22 ±5%		ADM-15-220	CPR-22J	CD15E220J	DM-15-220J		MS-422
C12	33		BPD-000033	DD-330	LA10Q33-SL	CCD-330	GP433	5GA-Q33
C13	.88							
C14	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C15	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	100 10%		DI-100	DD-101	LA10T1-S3	CCD-101	GP310	10TS-T10
C20	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C21	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CC TN-330	CN7-433	10TCU-Q33
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	100 10%		DI-100	DD-101	LA10T1-S3	CCD-101	GP310	10TS-T10
C24	300 ±2%				CD15F301G	DM-15-301G	MCE241	
C25	300 ±2%				CD15F301G	DM-15-301G	MCE241	
C28	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C27	300 ± 2%				CD15F301G	DM-15-301G	MCE241	
C28	300 ± 2%				CD15F301G	DM-15-301G	MCE241	
C29	.1 200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM-201	2TM-P10
C30A		#DP-305						
B								
C								
D								
E								
C31A		#DP-305						
B								
C								
D								
E								
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	100 10%		DI-100	DD-101	LA10T1-S3	CCD-101	GP310	10TS-T10
C38	100 10%		DI-100	DD-101	LA10T1-S3	CCD-101	GP310	10TS-T10
C37	.1 100V		TTD-1				TA-010	TH-P10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C44	3		TCZ-3R3		C10V33C	CC TO-3R3	CNO-533	10TCC-V30
C45	100 10%		ADM-15-101	CPR-100J	CD15F101K	DM-15-101K	MCB235	MS-310
C48	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C47	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C48	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C49	33 ± 5%		ADM-15-330	CPR-33J	CD15E330J	DM-15-330J		MS-433
C50	22 ±5%		ADM-15-220	CPR-22J	CD15E220J	DM-15-220J		MS-422
C51	33		BPD-000033	DD-330	LA10Q33-SL	CCD-330	GP433	5GA-Q33
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C54	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C55	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CC TO-100	CNO-410	10TCC-Q10
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10



PARTS LIST AND DESCRIPTION (CONTINUED)

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.
C57	10 NPO 10%		NPO-D1 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C58	6.8 2%							
C59	.01		BPD-01	DD-103	BYA 10S1	CCD-103	B-110	5HK-S10
C60	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C61	.0022 2KV		HVD-30-2200	DD30-222	HVC20D2	3CCD-202	2HV-222	30GA-D22
C62	.0022 2KV		HVD-30-2200	DD30-222	HVC20D2	3CCD-202	2HV-222	30GA-D22
C63	.0022 2KV		HVD-30-2200	DD30-222	HVC20D2	3CCD-202	2HV-222	30GA-D22
C64A		#DP-120						
B								
C65	.1 100V		TTD-1				TA-010	TH-P10
C66	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C67	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C68	.1			DF-104				5HK-P10
C69	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C70	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C71	.1 100V		TTD-1				TA-010	TH-P10
C72	.1 100V		TTD-1				TA-010	TH-P10
C73	.05 800V		P688N-05	DD-503	PM6S5	6DP-3-503	GEM-615	6TM-S50
C74	.0047 2KV			DD30-472	HVC20D5	3CCD-502	2HV-247	30GA-D47

Raytheon Part Number.

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA					NOTES
			RAYTHEON PART No.	CENTRAL8 PART No.	CLAROSTAT PART No.	CTS-HRC PART No.	MALLORY PART No.	
R1	Volume & Switch	1meg	DP-172 (0388-02)	F2-1meg, SU204, KR-1 or (B-70-5)	A47-1meg-Z, RS-2, SWE-12	Q13-137, PQ, 78-1 or (BU2, CF28, SS5, GC)*	UA18A, SL2500, US-41 or (RU18A, SL38, SL2500, US-41) or (U53, US-28)	
R2	Squelch & ANL Switch	50K	DP-179 (0353)	F1-50K, SU204, KR-2 or (B-31, KR-2)	A47-50K-S, FS-3, SWE-20	Q11-123, 78-2, or (BU2, CF12, SS1, WF)*	UA54L, SF1000, US-42 or (RU54L, SL38, SF1000, US-42) or (U35, US-27)	
R3	Subcarrier Suppression Adjust	500Ω	(0341-20)	F1-500, SK010, or (B-4)	A47-500-S, FKS-1/2	B11-103, SK2, or (BU1, CF4, SS2, DC1)*	UA52L, SK1000, or (RU52L, SL38, SK1000) or (U2) PFL-800	
R4	Meter Adjust	500Ω 2W	(83-15)		US9-500	110-600		

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		RAYTHEON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.		
L1	Ant. Load(14 Turns)							
L2	Antenna	DP-188						
L3	Receiver RF	DP-187						
L4	Rec. -Trans. Osc.							
L5	1650KC IF							
L6	2nd Rec. Osc.	DP-188						
L7	1st 250KC IF	DP-171	BC-350	12-H1	RTC-8638	T604		
L8	2nd 250KC IF	DP-171	BC-350	12-H1	RTC-8638	T604		
L9	3rd 250KC IF		BC-351	12-H2	RTC-8639	T605		
L10	2nd Trans. Osc.	DP-169						
L11	Buffer Input	DP-178						
L12	Trans. Amp. Interstage	DP-185						
L13	Final RF Choke	DP-109						
L14	Ant. Load							
L15	Hash Choke	DP-106						
L16	Hash Choke	DP-106						
L17	Hash Choke	DP-106						
L18	RF Choke(500uh)		TV-203	8174	RTC-8592	T324		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	PRI. 2	SEC. 1	RAYTHEON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117V @ .89A	12.8V CT @ 3.1A	530VCT @ .105A DC	DP-112					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RAYTHEON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	1:	34.5	DP-176	A-2929 ①	A-4706 ①	MI-T85 ①	A-1X ①	① Drill New Mounting Hole (s).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RAYTHEON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	5900Ω Tap @ 2700Ω	3-4Ω	DP-177					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		RAYTHEON PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	DP-114	4A07	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			NOTES
				RAYTHEON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12V	115%	DP-137	8301	G1801	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RAYTHEON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7.5A			31107.5	342012	AGC 7 1/2	HKP
M3	3AG	2A			312002	342012	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	RAYTHEON PART No.	NOTES
M4	Meter Rectifier		1N270
M5	Ring Modulator Diode		1N270
M8	Ring Modulator Diode		1N270
M7	Ring Modulator Diode		1N270
M8	Ring Modulator Diode		1N270
M9	Crystal	DP-175	1900KC Receive Oscillator
M10	Crystal	DP-174	1650KC Transmit Oscillator
M11	Crystal		Part #DP-3001 thru DP-3023 for Channels 1 thru 23
M12	Relay		Transmit-Receive
M13	Switch		Channel Selector
M14	Tuning Cap.		Manual
M15	"S" Meter	DP-173	0-1MA
M16	Microphone Ass'y.		Includes Push-to-talk Switch

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
	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. 8881 (3/8 in.)



TRADE NAME : Realistic Model TRC-27A
SUPPLIER : Radio Shack Corp.
 730 Commonwealth Ave., Boston 17, Mass.
TYPE SET : 10 Tube-2 Transistor Transceiver
POWER SUPPLY : 105-125 Volts AC, 60 Cycles (or)
 12 Volt Storage Battery
RATING : 45 Watts, .48 Amp. @ 117 VAC (Rec.)
 55 Watts, .58 Amp. @ 117 VAC (Trans.)
TUNING RANGE : Any 3 CB Channels 1 thru 23



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A10, A12..... GENERAL CEMENT #8276, 8277, 8290
 WALSCO #2515, 2516, 2518
 A11..... GENERAL CEMENT #8276, 8290, 8868
 WALSCO #2525, 2528, 2587

RECEIVER ALIGNMENT

Volume Control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Set squelch control to maximum clockwise position. Connect output meter across voice coil.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	High side thru .01mfd to pin 2 (grid) of V2 (Mixer), low side to chassis. Tune to 455KC (400 μ Mod.).	Any	A1 thru A6	Adjust for maximum.
2.	Across antenna jack. Tune to Channel 11 (27.085MC).	11 (27.085MC)	A7, A8	"

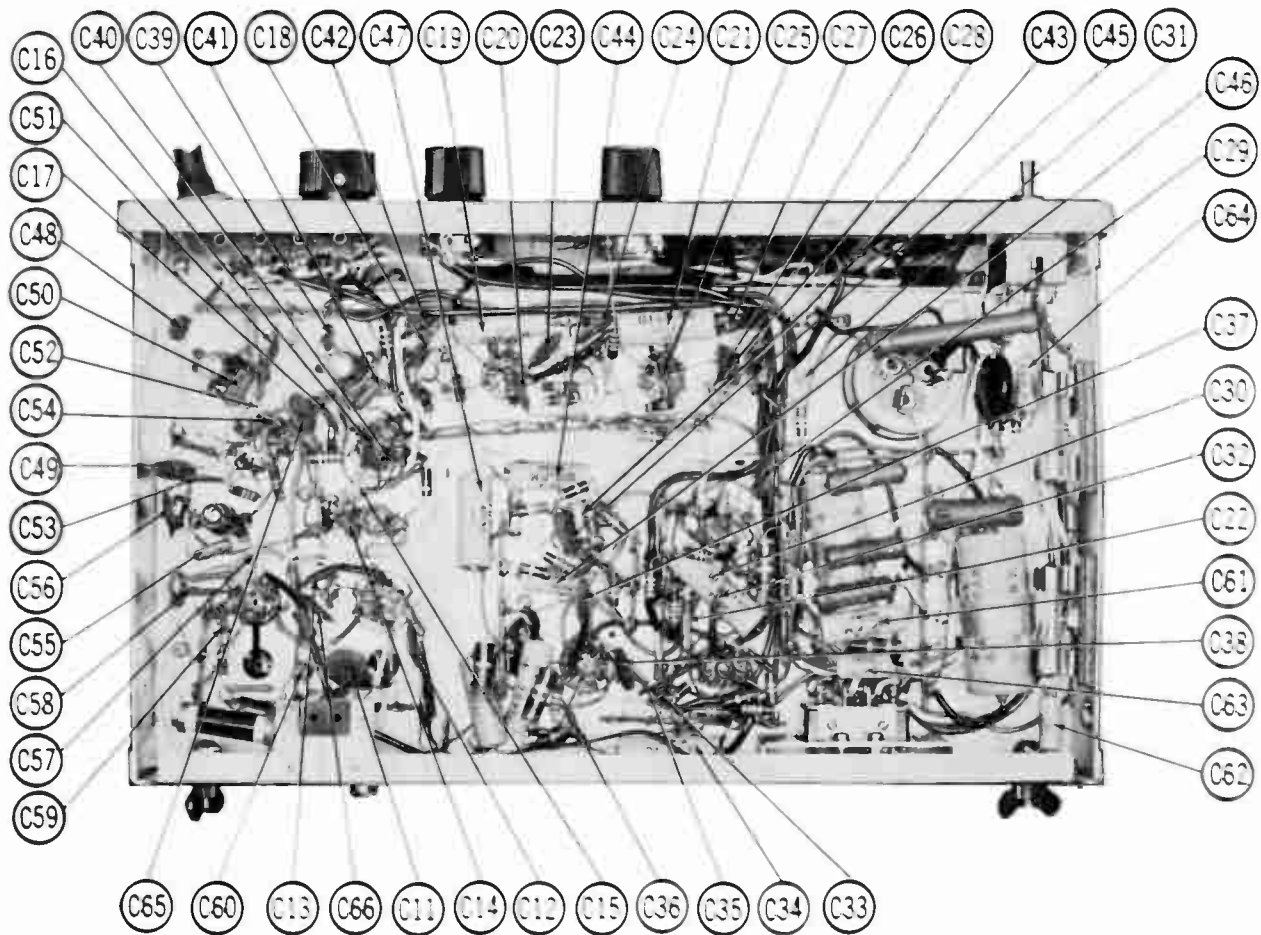
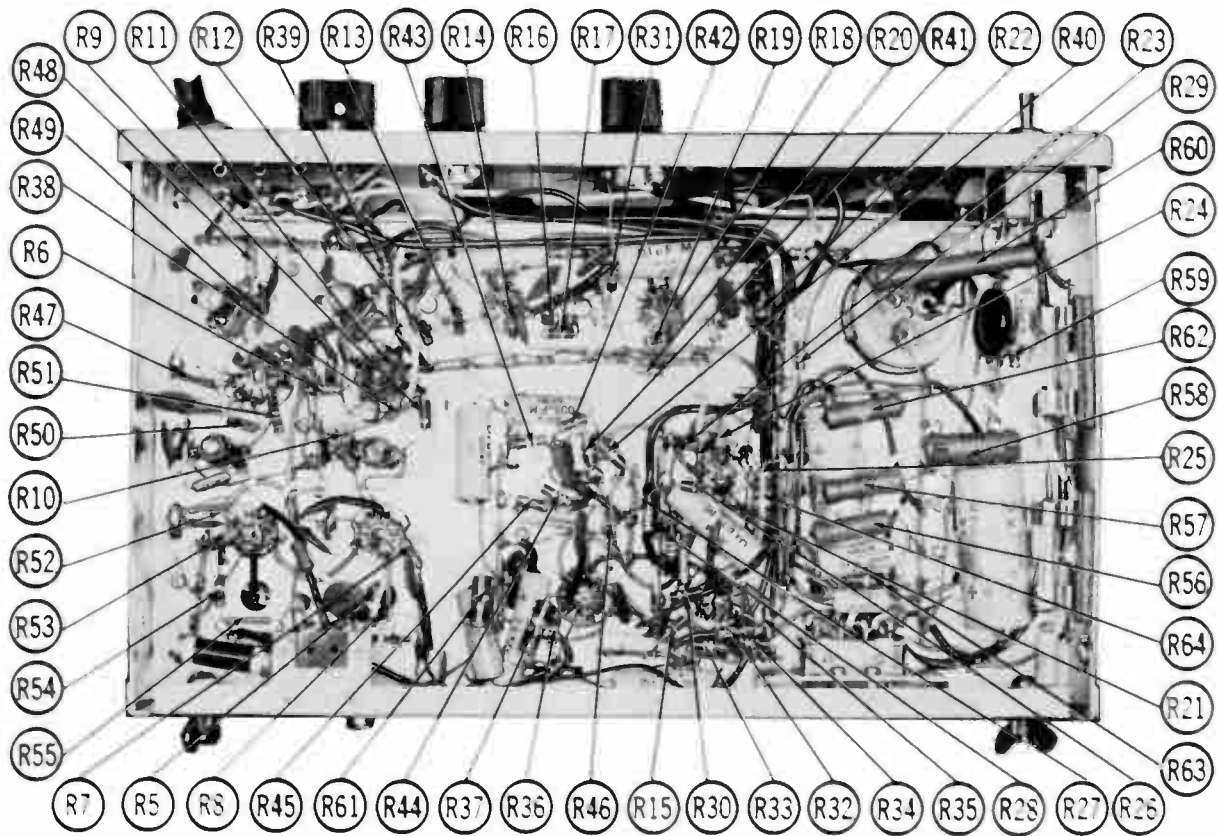
TRANSMITTER ALIGNMENT

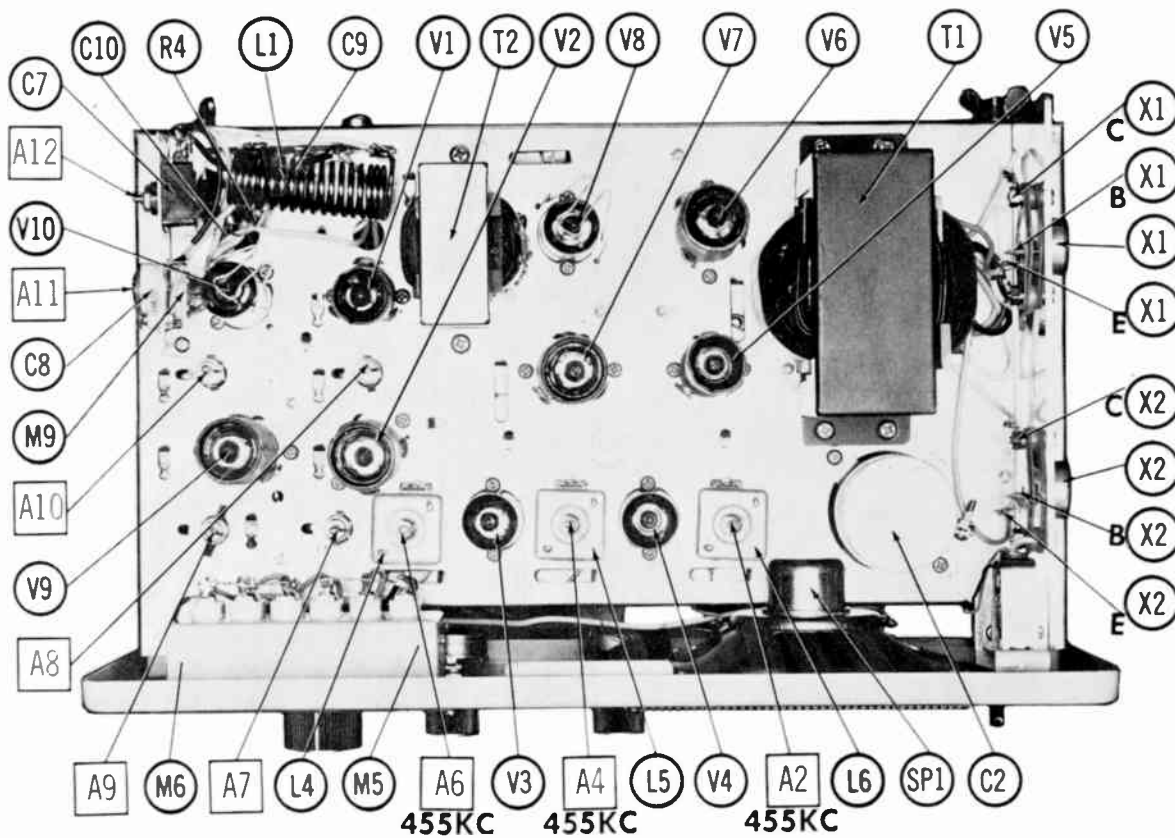
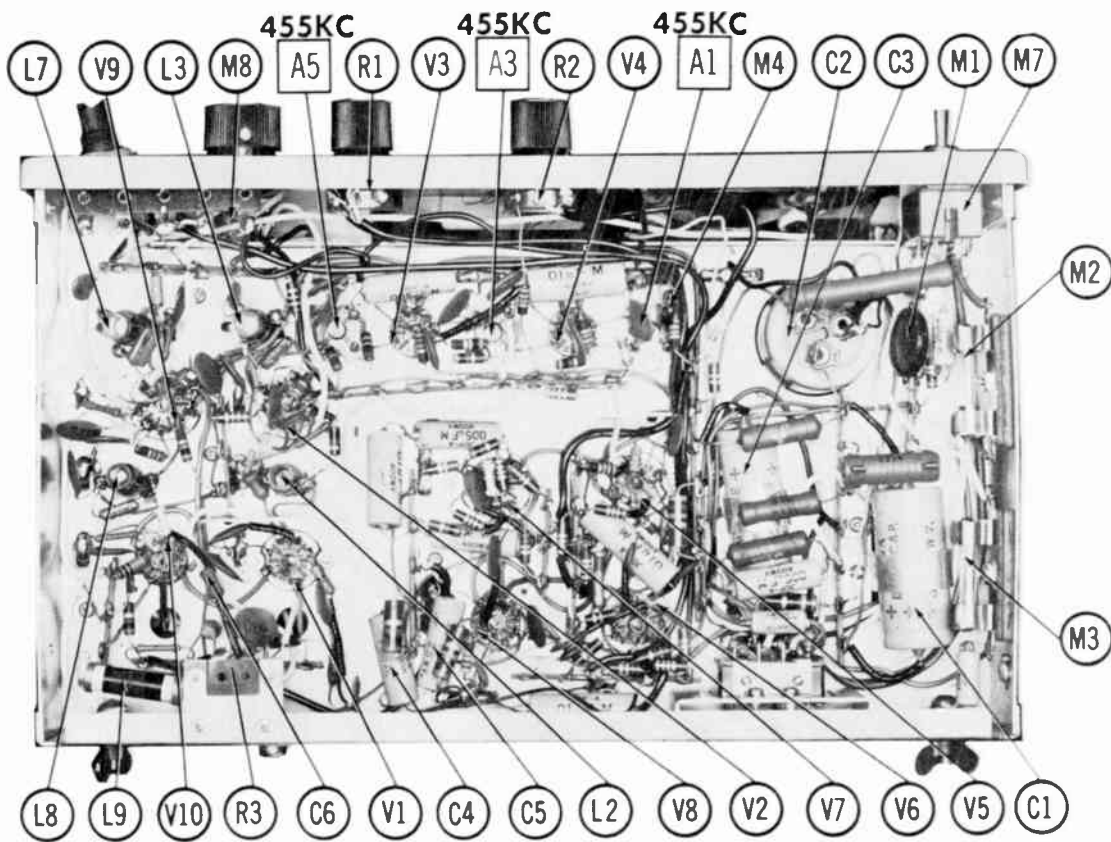
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

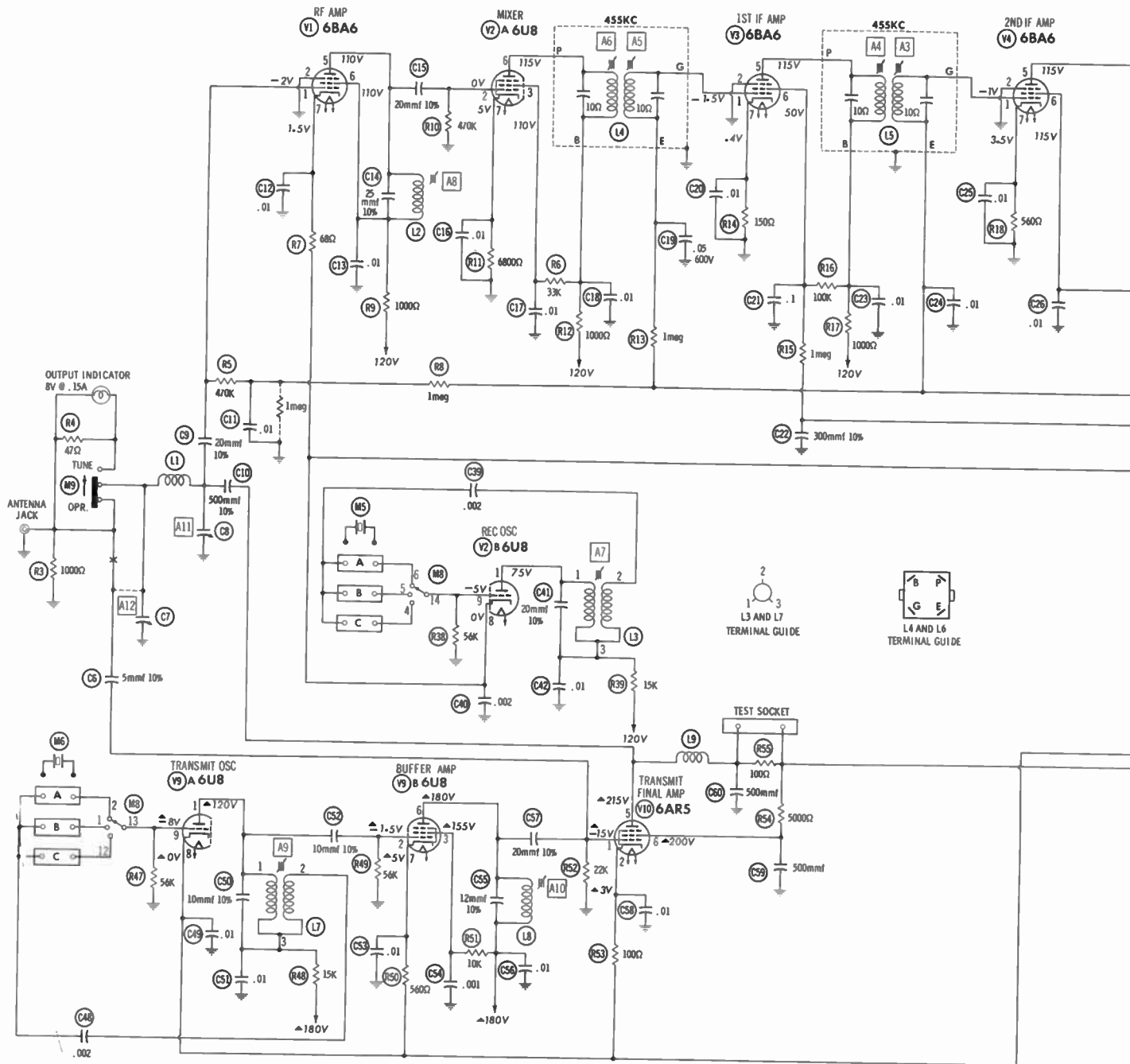
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

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.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
3.	Set switch M9 to tune. Use indicator bulb provided or leave switch in operate and use field strength meter.	11 (27.085MC)	A9, A10	Key transmitter. Adjust for maximum. Set A9 SLIGHTLY below peak on side of gradual dropoff. Key transmitter on all channels used to be sure oscillator starts each time.
4.	Set switch M9 to operate. Connect DC VTVM across test socket on bottom rear apron of chassis.	"	A11	Key transmitter. Adjust for MINIMUM (Approx. 2V).
5.	Set switch M9 to tune. Use indicator bulb provided or leave switch in operate position and use field strength meter.	"	A12	Key transmitter. Adjust for maximum. Repeat steps 4 and 5.







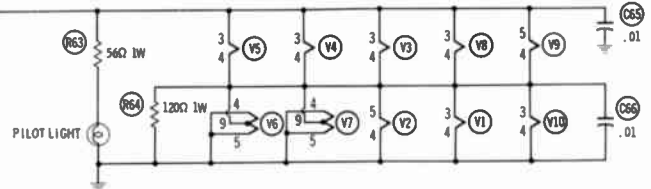
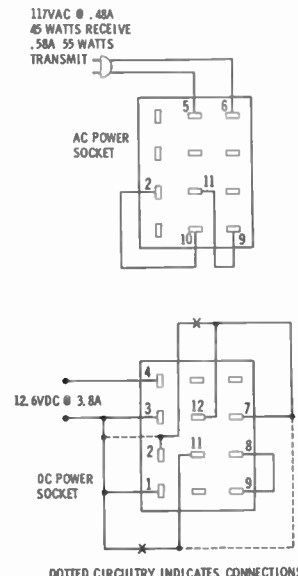
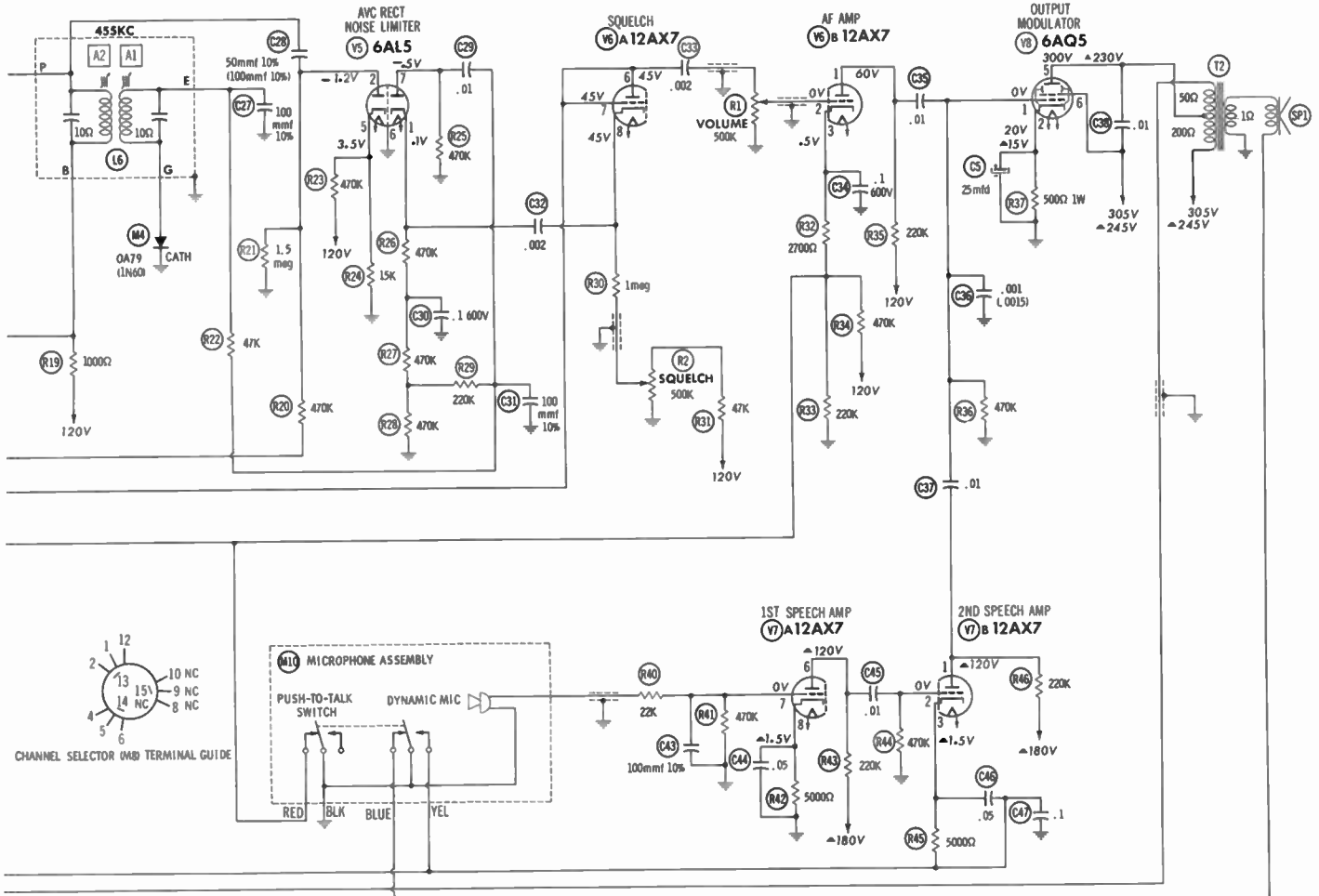
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	3.4meg	0Ω	FIL	FIL	†3000Ω	†3000Ω	68Ω		
V2	6U8	†17K	470K	†35K	FIL	FIL	†3000Ω	6800Ω	0Ω	56K
V3	6BA6	2.9meg	0Ω	FIL	FIL	†3000Ω	†103K	150Ω		
V4	6BA6	1.9meg	0Ω	FIL	FIL	†3000Ω	†3000Ω	560Ω		
V5	6AL5	1.1meg	1.5meg	FIL	FIL	14K	0Ω	470K		
V6	12AX7	†222K	100K	2700Ω	FIL	FIL	†1.1meg	†1.1meg	1meg	FIL
V7	12AX7	†226K	470K	45000Ω	FIL	FIL	†226K	21K	5000Ω	FIL
V8	6AQ5	470K	500Ω	FIL	FIL	†125Ω	†1000Ω	TP		
V9	6U8	†21K	56K	†16K	FIL	FIL	†6000Ω	†560Ω	▲0Ω	56K
V10	6AR5	22K	▲100Ω	FIL	FIL	†135Ω	†6200Ω	TP		

ALL MEASUREMENT TAKEN IN RECEIVE POSITION UNLESS OTHERWISE SPECIFIED.
 † MEASURED FROM OUTPUT OF M1
 ▲ MEASURED IN TRANSMIT POSITION
 ‡ MEASURED FROM JUNCTION C2A & R62
 TP TIE POINT

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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REALISTIC MODEL TRC-27A

PARTS LIST AND DESCRIPTION

TUBES

AMPEREX		GENERAL ELECTRIC		RCA		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	RF Amp.	6BA6		V6	Squelch Amp. - AF Amp.	12AX7			
V2	Mixer-Rec. Osc.	6U8		V7	Speech Amp.	12AX7			
V3	1st IF Amp.	6BA6		V8	Output-Modulator	6AQ5			
V4	2nd IF Amp.	6BA6		V9	Transmit Osc. - Buffer	6U8			
V5	AVC-Noise Limiter	6AL5		V10	Transmit Final Amp.	6AR5			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2SB26	Power Osc.	DS503	GE-3	2N2147	
X2	2SB26	Power Osc.	DS503	GE-3	2N2147	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REALISTIC 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	40	350		PRS1870	BR40-350	QT1-14	TD-40-350	TC67	TVA-1611
C2A	40	450		AFH2-57	B0450	XC2-25	TMD-2650	FP238A	TVL-2764
C2B	40	450							
C3	20	350		PRS1735	BR20-350	QT1-9	TD-20-350	TC85	TVA-1608
C4	3	350		PRS1600	BR4-350	QT1-2.1	TD-4-450	TC595	TVA-1601
C5	25	25		PRS1260	BBR25-25	QT1-11	TD-25-25	TC26	TVA-1205

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	5 10%		SI 5	D6-050	LA10V5-SL	CCD-050	GP550	10TS-V50
C7								
C8								
C9	20 10%			D6-200	LA10Q2-SL	CCD-200	CNO-422	10TS-Q20
C10	500		BPD-0005	DD-501	LA10T5-C4	CCD-501	GP350	10TS-T50
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	25 10%			D6-250	LA10Q25-SL	CCD-250	CNO-425	10TS-Q25
C15	20 10%			D6-200	LA10Q2-SL	CCD-200	CNO-422	10TS-Q20
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.05 600V		P688N-05	DD-503	DPMS-6S5	4DP-3-503	GEM-615	4PS-S50
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.1 400V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM-601	6TM-P10
C22	300 10%			D6-301	LA10T3-C4	CCD-301	JF-333	10TS-T30
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	100 10%			D6-101	LA10T1-S3	CCD-101	CNO-310	10TS-T10
C28	50 10%	(100) †		D6-500	LA10Q5-S3	CCD-500	CNO-450	10TS-Q50
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.1 600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM-601	6TM-P10
C31	100 10%			D6-101	LA10T1-S3	CCD-101	CNO-310	10TS-T10
C32	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C34	.1 600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM-601	6TM-P10
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.001	(.0015) †	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C40	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C41	20 10%		ADM-15-200	CPR-20J	CD10C200J	DM-10-200		MS-42
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	100 10%			D6-101	LA10T1-S3	CCD-101	CNO-310	10TS-T10
C44	.05 400V		P488N-05	DD-503	DPMS-4S5	4DP-3-503	GEM-415	4PS-S50
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C46	.05 400V		P488N-05	DD-503	DPMS-4S5	4DP-3-503	GEM-415	4PS-S50
C47	.1 400V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM-601	6TM-P10
C48	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C49	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C50	10 10%		ADM-15-100		CD10C100J	DM-10-100		MS-41
C51	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	10 10%			D6-100	LA10Q1-SL	CCD-100	CNO-410	10TS-Q10
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C55	12 10%		ADM-15-120		CD10C120J	DM-10-120		MS-412
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57	20 10%			CPR-20J	LA10Q2-SL	CCD-200	CNO-422	10TS-Q20
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	500		BPD-0005	DD-501	LA10T5-C4	CCD-501	GP350	10TS-T50
C60	500		BPD-0005	DD-501	LA10T5-C4	CCD-501	GP350	10TS-T50
C61	.05 400V		P488N-05	DD-503	DPMS-4S5	4DP-3-503	GEM-415	4PS-S50
C62	.001 600V		P688N-001	DD-102	DPMS-4D1	6DP-1-102	GEM-621	6PS-D10
C63	.001 600V		P688N-001	DD-102	DPMS-4D1	6DP-1-102	GEM-621	6PS-D10
C64	.01 400V		P488N-01	DD-103	DPMS-4S1	4DP-1-103	GEM-411	4PS-S10
C65	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value.

PARTS LIST AND DESCRIPTION (CONTINUED)

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA					NOTES
			REALISTIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	Volume	500K	35.12A	F2-500K ①, SU204 or (B-60 ①)	A47-500K-Z ①, KSS-3	B13-133, SK3 ①, or (BU1 ①), CF25, SS3, DC1)*	UA55A ①, SK1000 or (RU55A, SL38, SL3250) or (U48 ①)	
R2	Squelch	500K	37.07T	F1-500K ①, SU204, or (B-59 ①)	A47-500K-S ①, KSS-3	B11-133, SK3 ①, or (BU1 ①), CF18, SS3, DC1)*	UA55L ①, SK1000, or (RU55L, SL38, SL3250) or (U50 ①).	

* "SNAPTROL" ① Enlarge Mounting Hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	REALISTIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	7000Ω Tap ④ 5000Ω	6-8Ω	T02-26					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		REALISTIC PART No.	QUAM PART No.	
SP1	4" PM 8-8Ω		4A05Z8	

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
R56 R57 R58	200Ω 4W 50Ω 4W .8Ω 5W		4G200 4G50 WT68		R80 R82	1000Ω 8W 2000Ω 4W		4G2000	

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Port or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
M1	.095A	810C	VB400	1N2861 ①	2F4 ①

① Use Two Units.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		REALISTIC PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Ant. Loading						* Solder to Chassis
L2	Rec. RF						
L3	Rec. Osc.						
L4	1st IF		BC-356*	13-PC1*	RTC-8641*	T814*	
L5	2nd IF		BC-358*	13-PC1*	RTC-8641*	T814*	
L6	3rd IF		BC-357*	13-PC2*	RTC-8642*	T815*	
L7	Trans. Osc.						
L8	Trans. Interstage						
L9	RF Choke (8.8uh)		BC-586	4811	RTC-8521	T980	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			REALISTIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	10A			311010	350218	AGC-10	4405
M3	3AG	2A			312002	350218	AGC-2	4405

MISCELLANEOUS

ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M4	Diode		AM Detector, OA79 (IN80) When ordering specify channel and function. When ordering specify channel and function. Power (DPDT Toggle Type) Channel Selector (3 Position Wafer Type) Tune-Operate (2 Position Slide Type) Includes Push-to-talk Switch
M5	Crystal	44D778X	
M8	Crystal	44D776X	
M7	Switch		
M6	Switch		
M9	Switch		
M10	Microphone		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	PRI. 2	SEC. 1	REALISTIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④ .58A	12.8V DC ④ 2.2A	120VAC ④ .250A (AC)	T01-59					
	SEC. 2	SEC. 3	SEC. 4						
	12.8VAC ④ 1.8A In AC operation only.								

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-58/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.)

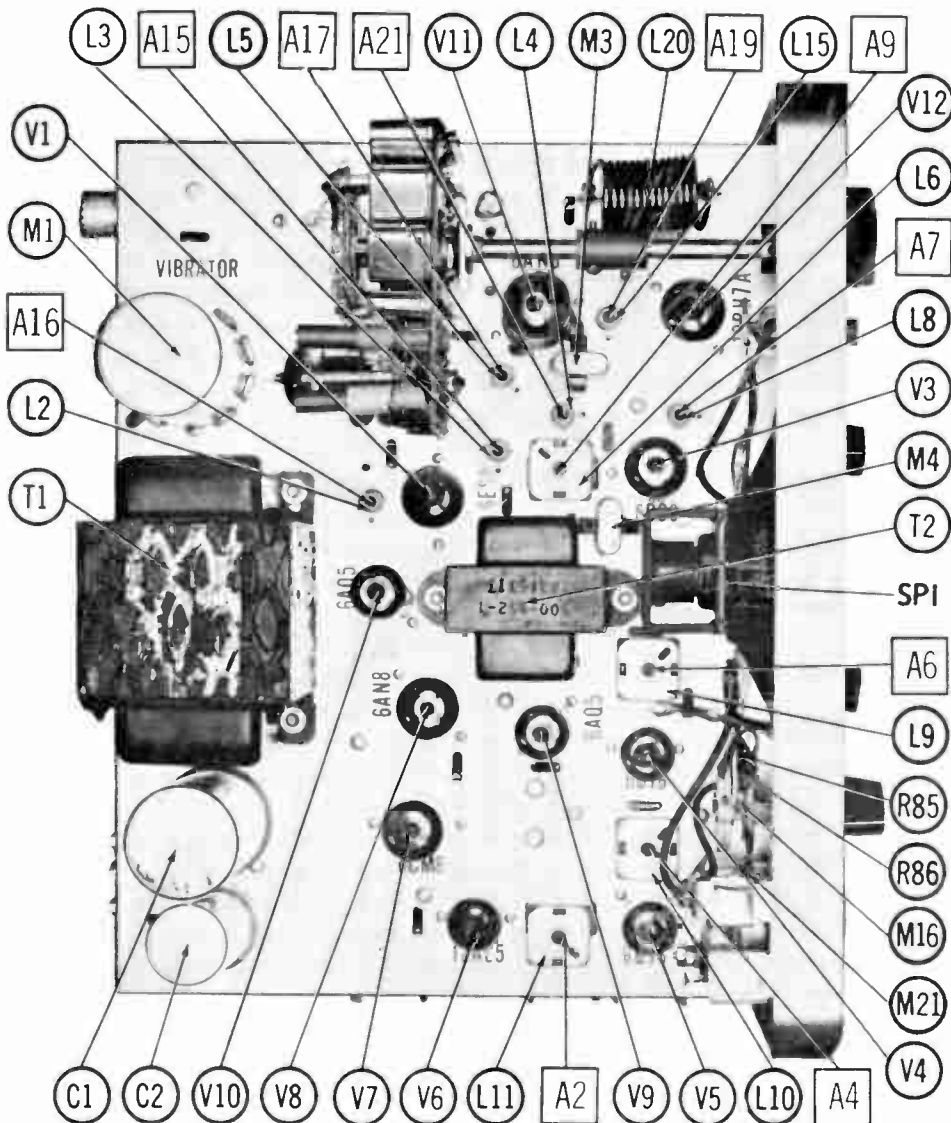


PHOTOFACT[®]

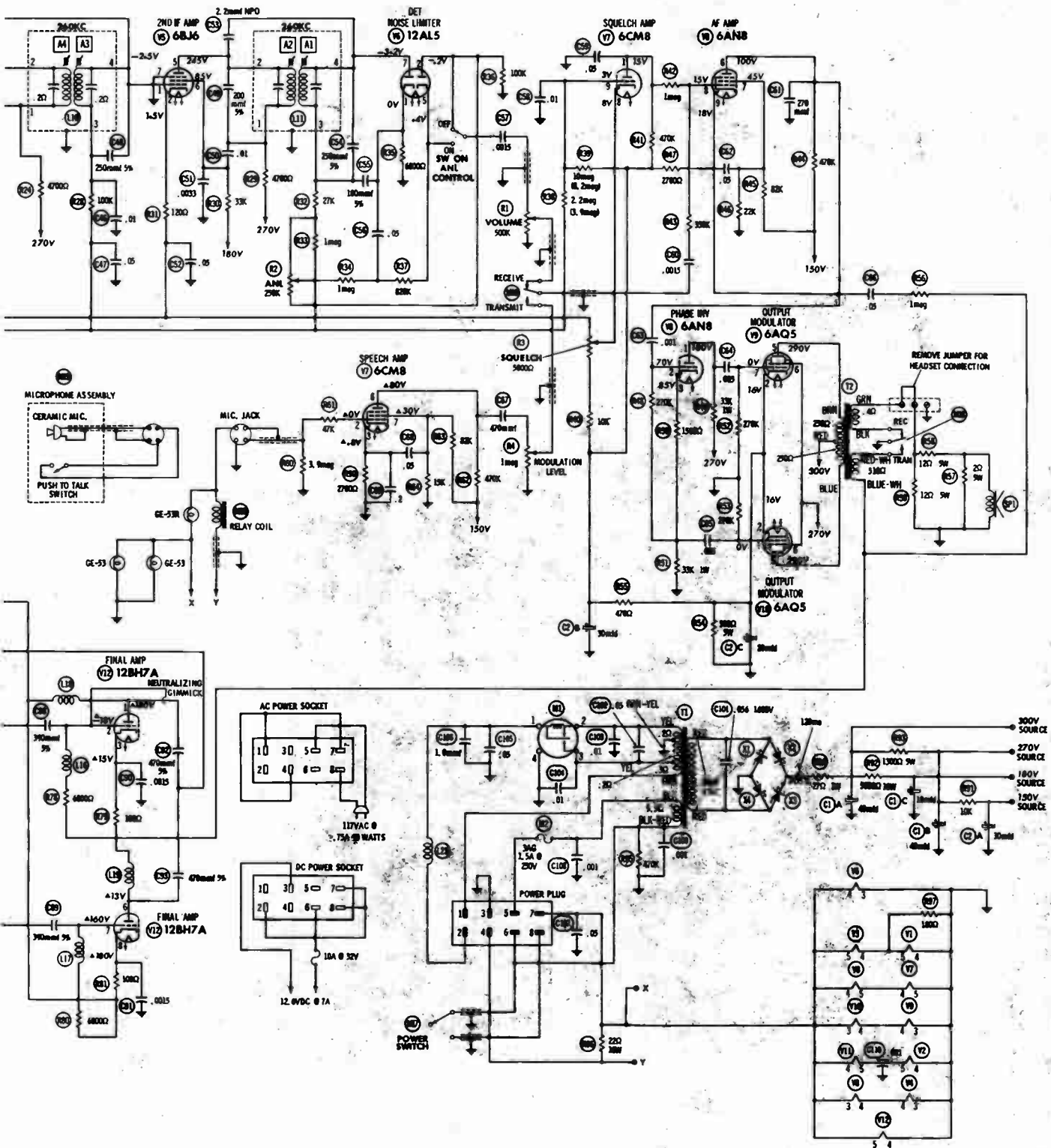


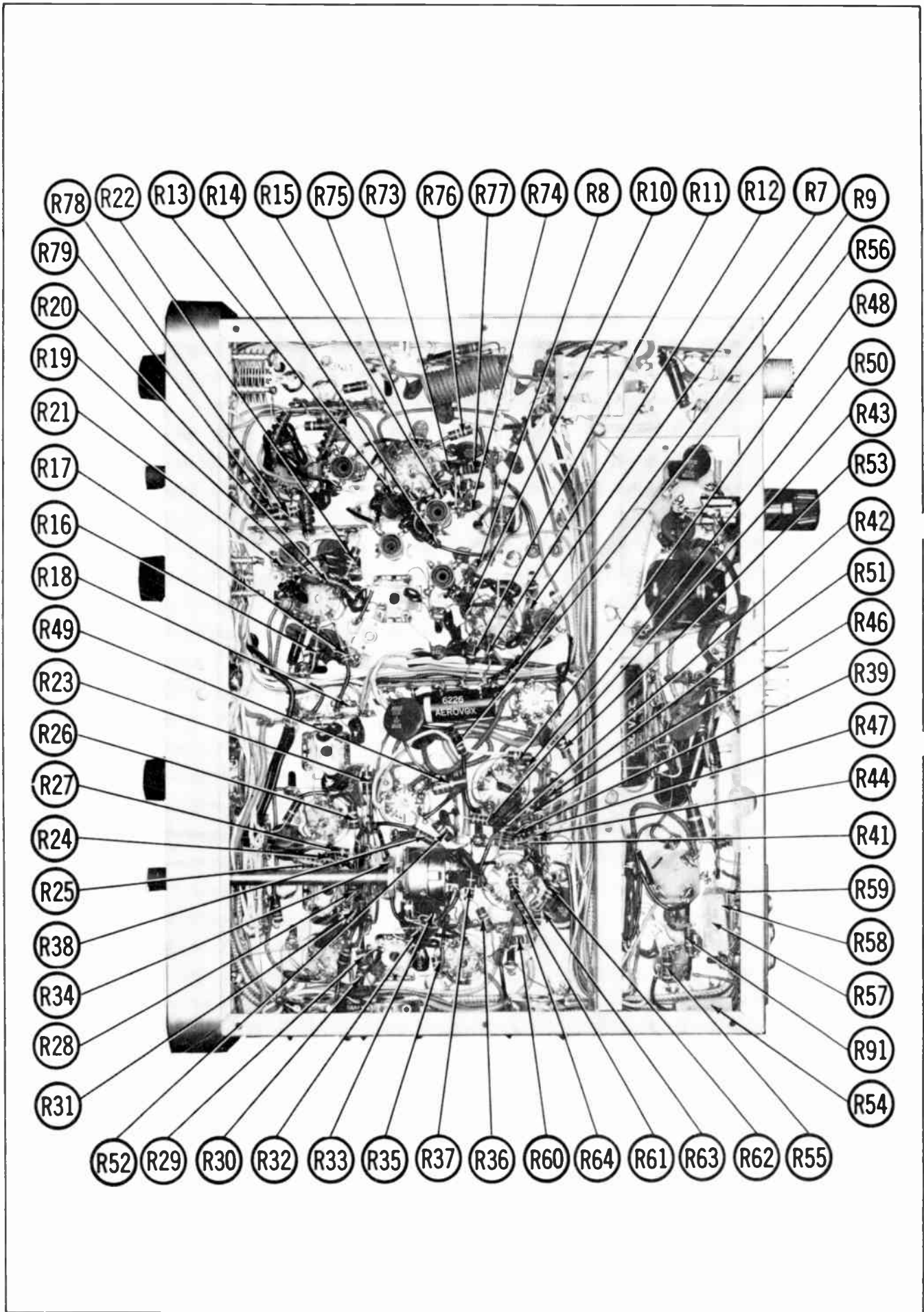
TRADE NAME: Regency Model "Range Gain"
SUPPLIER: Regency Electronics, Inc.
 7900 Pendleton Pike, Indianapolis 26, Ind.
TYPE SET: 12 Tube Transceiver
POWER SUPPLY: 110 - 120 VAC, 60 Cycles (or)
 12 Volt Storage Battery
RATING: 90 Watts, .75 Amp. @ 117VAC
 (or) 7 Amp. @ 12.6VDC
TUNING RANGE: All 23 CB Channels

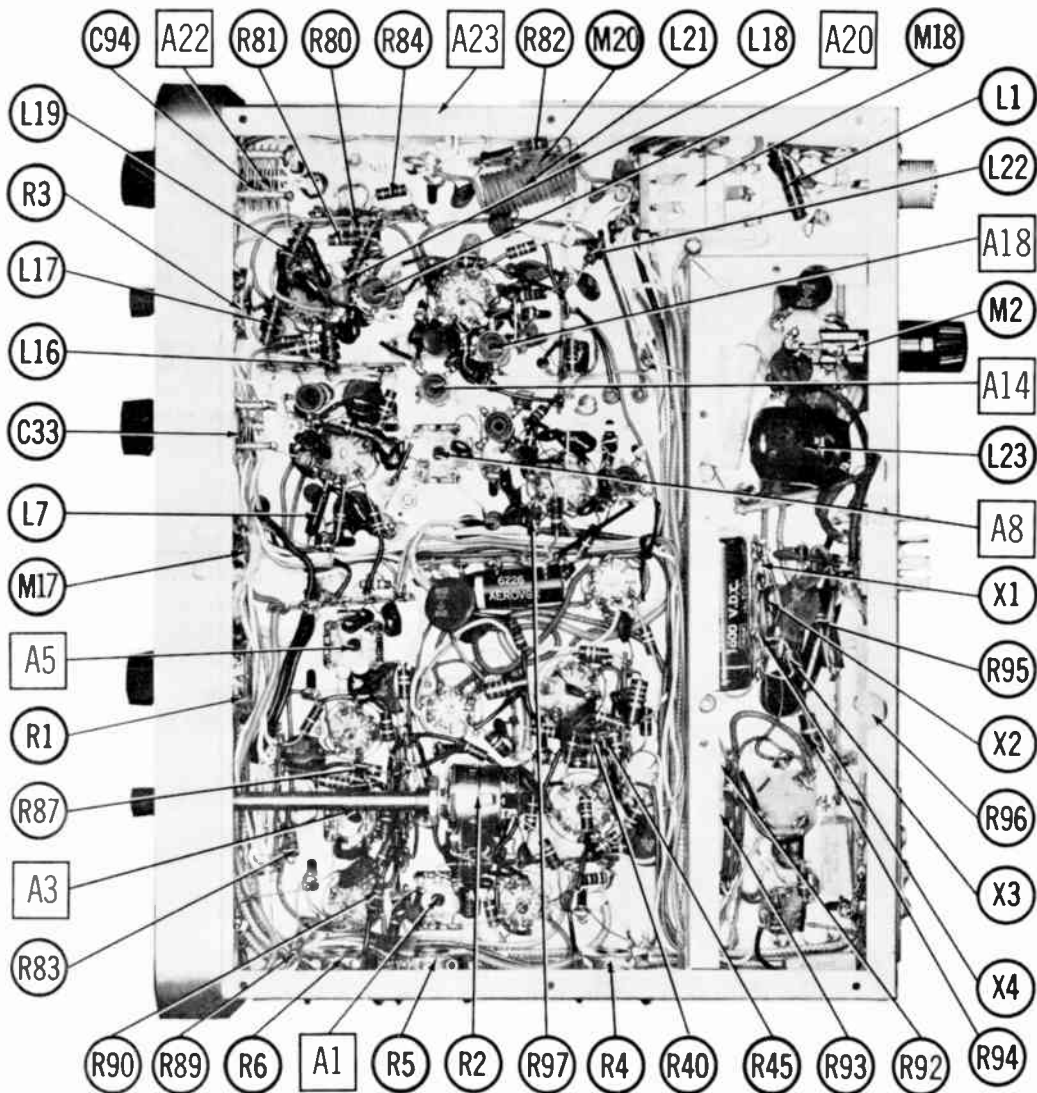
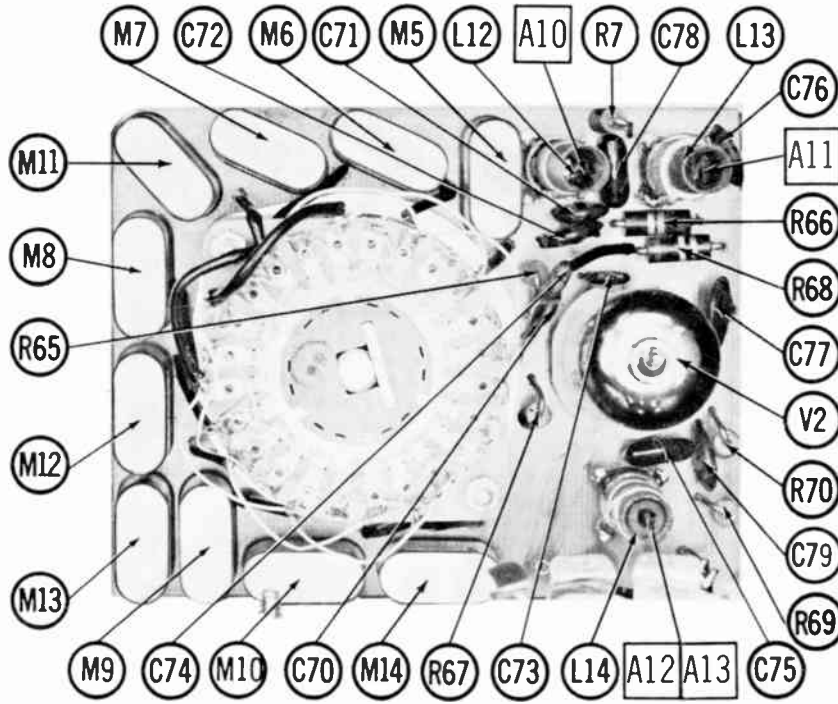
REGENCY MODEL RANGE GAIN



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 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.)

TUBES

♦ AMPEREX ♦		GENERAL ELECTRIC ♦		RCA ♦		RAYTHEON ♦		SYLVANIA ♦	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	RF Amp. -1st Mixer	6ES8		V6	Det. -Noise Limiter	12AL5			
V2	1st Rec. Osc. -1st Trans. Osc. 2nd Rec. Osc. - 2nd Trans. Osc.	6AN8		V7	Squelch Amp. -Speech Amp.	6CM8			
V3	2nd Mixer -3rd Rec. Osc.	6BC8		V8	AF Amp. -Phase Inverter	6AN8			
V4	1st IF Amp.	6BJ6		V9	Output-Modulator	6AQ5			
V5	2nd IF Amp.	6BJ6		V10	Output-Modulator	6AQ5			
				V11	3rd Trans. Osc. -Buffer	6AN8			
				V12	Final Amp.	12BH7A			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X2	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X3	.120A		A300 or FW300	1N3194 or 1N2861	2F4
X4	.120A		A300 or FW300	1N3194 or 1N2861	2F4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	REGENCY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	.40	450							
B	.40	450		AFH3-43	C0340	XC3-29	TMT-3742	FP376.8	TVL-3785
C	.10	450							
C2A	.30	350							
B	.30	350		AFH3-109	C0830	XC3-10	TMT-3361	FP330A	TVL-3636
C	.20	25							

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.
C3	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	27 5%		1469-000027	TCZ-27	22R5Q27	CM-19B-270J	CNO-427	MS-427
C5	.5 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P50
C6	15 2%		1469-000015	TCZ-15	22P5Q15	CM-15E-150		
C7	27 2%		1469-000027	TCZ-27	22R5Q27	CM-19B-270J	CNO-427	MS-427
C8	100 5%		1469-0001	TCZ-100	22R5T1	CM-15E-101	MCE235	MS-31
C9	100 5%		1469-0001	TCZ-100	22R5T1	CM-15E-101	MCE235	MS-31
C10	2.7		NPO-D1 2.7	TCZ-2.7	C10V27C	CCTO-2R7	CNO-527	10TCC-V27
C11	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C12	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C13	5.6		NPO-D1 5	TCZ-4.7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C14	5 NPO		NPO-D1 5	TCZ-4.7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C15	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C16	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	20 NPO		NPO-SI 20	TCZ-22	C10Q20C	CCTO-200	CNO-420	10TCC-Q20
C18	680 5%		1469-00068	TCZ-680		CM-15E-681		
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	470 5%		1469-00047		22R5T47	CM-19B-471J		
C21	22 5%		CI-22	TCZ-22	C10Q22C	CCD-220	CNO-422	10TCC-Q22
C22	47 5%		1469-000047	TCZ-47	22R5Q47	CM-15E-470		MS-447
C23	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	220 5%		1469-00022		22R5T22	CM-19B-221J		
C25	220 5%		1469-00022		22R5T22	CM-19B-221J		
C26	56 5%		1469-000056	TCZ-56	22R5Q56	CM-15E-560		MS-456
C27	30 5%		1469-00003	TCZ-30	22R5Q30	CM-15E-300		
C28	270 5%		1469-00027	TCZ-270	22R5T27	CM-15E-271		
C29	820 5%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	4-20							
C32	.5							
C33	2.7-6.2							
C34	15 N750							
C35	100 5%		1469-0001		22R5T10	CM-19B-101J		
C36	20 NPO		NPO-SI 20	TCZ-20	C10Q20C	CCD-200	CNO-420	10TCC-Q20
C37	270 5%		1469-00027		22R5T27	CM-19B-271J		
C38	270 5%		1469-00027		22R5T27	CM-19B-271J		
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	250 5%		1469-00025		22R5T25	CM-19B-251J		
C42	200 5%		1469-0002		22R5T20	CM-19B-201J		
C43	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C45	4.7		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C46	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C48	250 5%		1469-00025		22R5T25	CM-19B-251J		
C49	200 5%		1469-0002		22R5T20	CM-19B-221J		
C50	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C51	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C52	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50

REGENCY MODEL RANGE GAIN

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.
C53	2.2 NPO		NPO-SI 2.2	TCZ-2R2	C10V22C	CC TO-2R2	CNO-522	10TCC-V22
C54	250 5%		1469-00025		22R5T25	CM-19B-251J		
C55	100 5%		1469-0001		22R5T1	CM-19B-101J		
C56	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C57	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C60	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C61	270		DI-270	DD-271	LA10T27	CCD-271	B-327	10TS-T27
C62	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C63	.001		EF-001	MFT-1000		CCF-102	CT280A	
C64	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C65	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C66	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C67	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C68	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C69	.2							
C70	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10TS-Q10
C71	27 5%		NPO-SI 27	D6-270	LA10Q27	CCD-270	GP427	10TS-Q27
C72	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C73	2.2		NPO-SI 2.2	TCZ-2R2	C10V22C	CC TO-2R2	CNO-522	10TCC-V22
C74	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10TS-Q10
C75	47 5%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	MCB-471	MS-447
C76	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C77	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C78	470 5%		1469-00047		22R5T47	CM-19B-471J		
C79	47 NPO		NPO-DI 47	TCZ-47	C10Q47C	CC TO-470	CNO-447	10TCC-Q47
C80	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C81	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C82	47 5%		NPO-DI 47	TCZ-47	C10Q47C	CC TO-470	CNO-447	10TCC-Q47
C83	10 NPO		NPO-SI 10	D6-100	LA10Q1	CCD-100	GP410	10TS-Q10
C84	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C85	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C86	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C87	22 NPO	(20) †	NPO-SI 22	D6-220	LA10Q22	CCD-220	GP422	10TS-Q22
C88	390 5%		1469-00039		22R5T39	CM-19B-391J		
C89	390 5%		1469-00039		22R5T39	CM-19B-391J		
C90	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C91	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C92	470 5%		1469-00047		22R5T47	CM-19B-471J		
C93	470 5%		1469-00047		22R5T47	CM-19B-471J		
C94	5-20							
C95	10-100							
C96	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C97	2.2 NPO		NPO-SI 2.2	TCZ-2R2	C10V22C	CC TO-2R2	CNO-522	10TCC-V22
C98	4-20							
C99	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C100	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C101	.056 1600V							
C102	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	BT-150	5HK-S50
C103	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C104	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C105	.05		BPD-05	DD-503	CUB2S5	8DP-3-503	GP150	6PS-S50
C106	1.0 100V		P288N-1		CUB2W1		GEM-21	2 TM-M1
C107	.05		BPD-05	DD-503	CUB2S5	8DP-3-503	GP150	6PS-S50
C108	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C109	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C110	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C111	2.2		NPO-SI 2.2	TCZ-2R2	C10V22C	CC TO-2R2	CNO-522	10TCC-V22

† Alternate Value.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			REGENCY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	500K	101-734-2	F2-500K, SU204 or (B-60)	A47-500K-Z, KSS-3	B13-133, SK2 or (BU1, CF25, SS2, DC1)*	UA55A, SK1000 or (RU55A, SL38, SK1000) or (U48)
R2	ANL & ANL On-Off	250K	100-093-11	F2-250K, SU500, KR-2 or (AB-51, AK-11, KR-2)	A47-250K-Z, KSS-5, SWE-20	Q13-130, AQ5, 76-2 or (BU2, CF23, SS12, WF)*	UA254A, SL3500, EC240 (U), US-42 or (RU254A, SL38, SL3500, EC240 (U), US-42) or (U44, DS-36, US-27)
R3	Squelch	5000Ω	101-734	F5-5000, SU204, or B-12)		B17-114, SK2	UA53L, SK1000 or (RU53L, SL38, SK1000) or (U14)
R4	Modulation Level	1meg	301-094-1	TT-70 or (F2-1meg, SN010, AK-38)	B47-1meg-Z	B13-137, TM4 or (BU11, CF26, SS6)*	TA16A or (RU16A, SL37, SN1000)
R5	"S" Meter Zero Adj.	10K	301-094-2	TT-14 or (F1-10K, SN010, AK-38)	B47-10K-S	B11-116, TM4 or (BU11, CF9, SS6)*	TA14L, or (RU14L, SL37, SN1000)
R6	RF Monitor Zero Adj.	10K	301-094-2	TT-14 or (F1-10K, SN010, AK-38)	B47-10K-S	B11-116, TM4 or (BU11, CF9, SS6)*	TA14L, or (RU14L, SL37, SN1000)

* "SNAPTROL"

① Use Coupler with portion of original shaft to obtain desired length.

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
R54	300Ω 5W	PW5-300	5W-SQ-300		R92	5000Ω 10W	PW10-5000	10W-SQ-5000	
R57	2Ω 5W	PW5-2	5W-SQ-2		R93	1300Ω 5W	PW5-1300	5W-SQ-1300	
R58	12Ω 5W	PW5-12	5W-SQ-12		R96	22Ω 10W	PW10-22	10W-SQ-22	
R59	12Ω 5W	PW5-12	5W-SQ-12						

PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		REGENCY PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Load(L. Sub)						
L2	Antenna						
L3	RF Interstage						
L4	3rd Trans. Osc.						
L5	Trans. Osc. Coup.						
L6	7.5MC IF						
L7	2nd Mixer Grid						
L8	3rd Rec. Osc.						
L9	1st 260KC IF						
L10	2nd 260KC IF						
L11	3rd 260KC IF						
L12	1st Rec. -Trans. Osc.						
L13	2nd Rec. -Trans. Osc.						
L14	Osc. Coupling						
L15	Final RF Coup.						
L16	RF Choke						
L17	RF Choke						
L18	RF Choke						
L19	RF Choke						
L20	RF Output Coup.						
L21	RF Output Coup.						
L22	RF Choke						
L23	Hash Suppressor						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	REGENCY PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ④ .750A (or)12.6V DC ④ 7A	150VAC ④ .12A DC	12.6V ④ 5A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	REGENCY PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	5000Ω CT	3-4Ω						
		SEC. 2 500Ω DC Res.						

SPEAKER

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

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				REGENCY PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6V	115v		6301	G-1501	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			REGENCY		LITTELFUSE		BUSS	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1½A 250V 10A 32V			31201.5 (3AG 1½A 250V)	342001	AGC 1½	HKP

① DC Operation only.

MISCELLANEOUS

ITEM No.	PART NAME	REGENCY PART No.	NOTES
M3	Crystal		7.500MC (Transmit)
M4	Crystal		7.500MC (Receive)
M5	Crystal		10.850MC (Channels 1 thru 4)
M6	Crystal		10.900MC (Channels 5 thru 8)
M7	Crystal		10.950MC (Channels 9 thru 12)
M8	Crystal		11.000MC (Channels 13 thru 16)
M9	Crystal		11.050MC (Channels 17 thru 20)
M10	Crystal		11.100MC (Channels 21 thru 23)
M11	Crystal		8.615MC (Channels 1, 5, 9, 13, 17, 21)
M12	Crystal		8.625MC (Channels 2, 6, 10, 14, 18, 22)
M13	Crystal		8.635MC (Channels 3, 7, 11, 15, 19)
M14	Crystal		8.655MC (Channels 4, 8, 12, 16, 20, 23)
M15	Switch		Crystal Selector
M16	Switch		Meter Mode Selector (S-V-C)
M17	Switch		Power Off-On
M18	Relay		Receive-Transmit
M19	Microphone Ass'y.		Includes Push-to-talk Switch
M20	Rectifier (1N34)		(Meter)
M21	S Meter		

REGENCY MODEL RANGE GAIN



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME : Sampson Models M10 (SWR Meter)
 R101A (Receiver)
 R102 (Speaker)
 T110A (Transmitter)
 VM-12-120 (Voice Modulator)

SUPPLIER : The Sampson Co., Electronics Div.
 2244 S. Western Ave., Chicago 8, Illinois

TYPE SET : AC Operated Multi-Unit Base Station

POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles

RATING : 23 Watts, .30 Amp. @ 117VAC (Trans.)
 50 Watts, .55 Amp. @ 117VAC (Rec.)
 15 Watts, .17 Amp. @ 117VAC (Mod.)
 1.4 Amp. @ 12.6VDC (Mod.)

TUNING RANGE : Any CB Channel 1 thru 23

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....GENERAL CEMENT #5097, 8727 ... WALSCO #2515
 A7 thru A12.....GENERAL CEMENT #8869..... WALSCO #2588
 A13.....GENERAL CEMENT #8869..... WALSCO #2588

RECEIVER ALIGNMENT

Connect DC VTVM between point Δ and ground.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .05mfd to pin 7 (grid) of V3 (Converter), low side to ground. Tune to 455KC.	Any	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
High side thru .05mfd to pin 2 (grid) of V2 (Mixer), low side to ground. Tune to 10MC.	Any	A7, A8, A9	"
High side to antenna input, low side to ground.	Channel Used	A10, A11, A12	Adjust for maximum deflection. Check operation of receiver on all channels used. Readjust A10, A11 and A12 as required.

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.

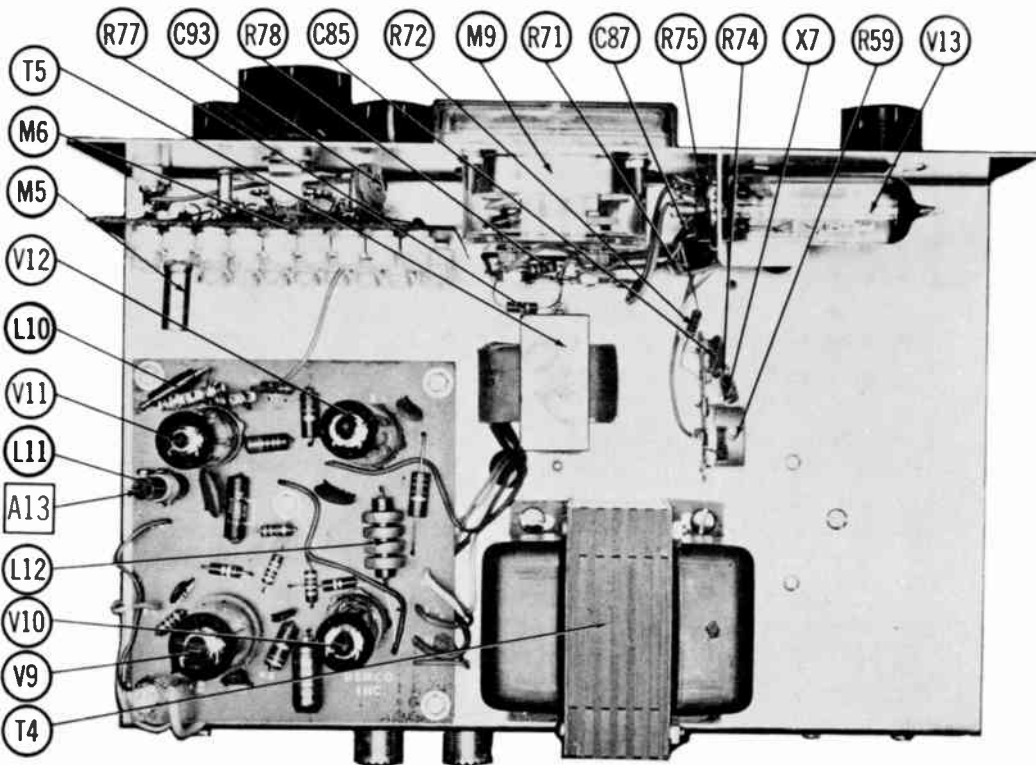
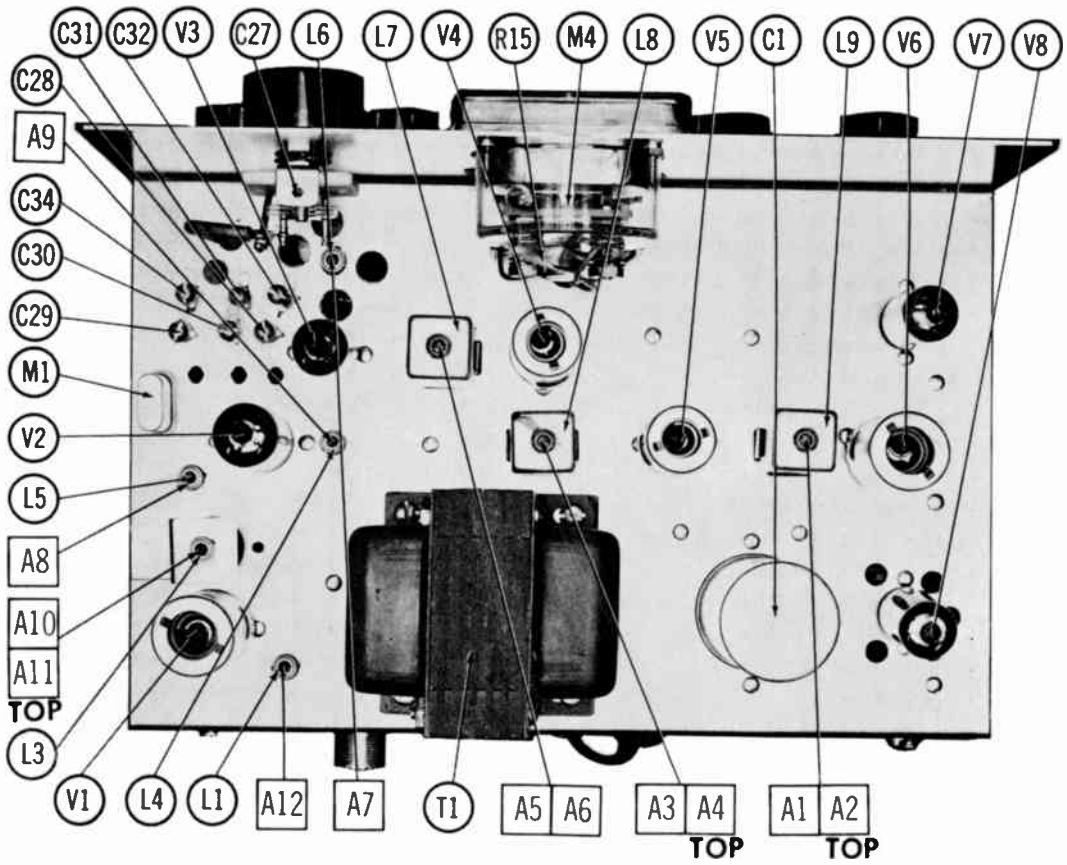
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Set switches to "Tune" and "Mds"

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect antenna or dummy load.	Center Channel Used.	A13	Key transmitter. Adjust for maximum indication on front panel meter.
Connect transmitter antenna.	Highest Channel Used.	A14, A15	Key transmitter. Adjust A14 (plate tuning) and A15 (antenna tuning) for maximum output light (red) brightness. (A14 and A15 may be adjusted for MINIMUM front panel meter indication). The adjustment should be repeated several times.

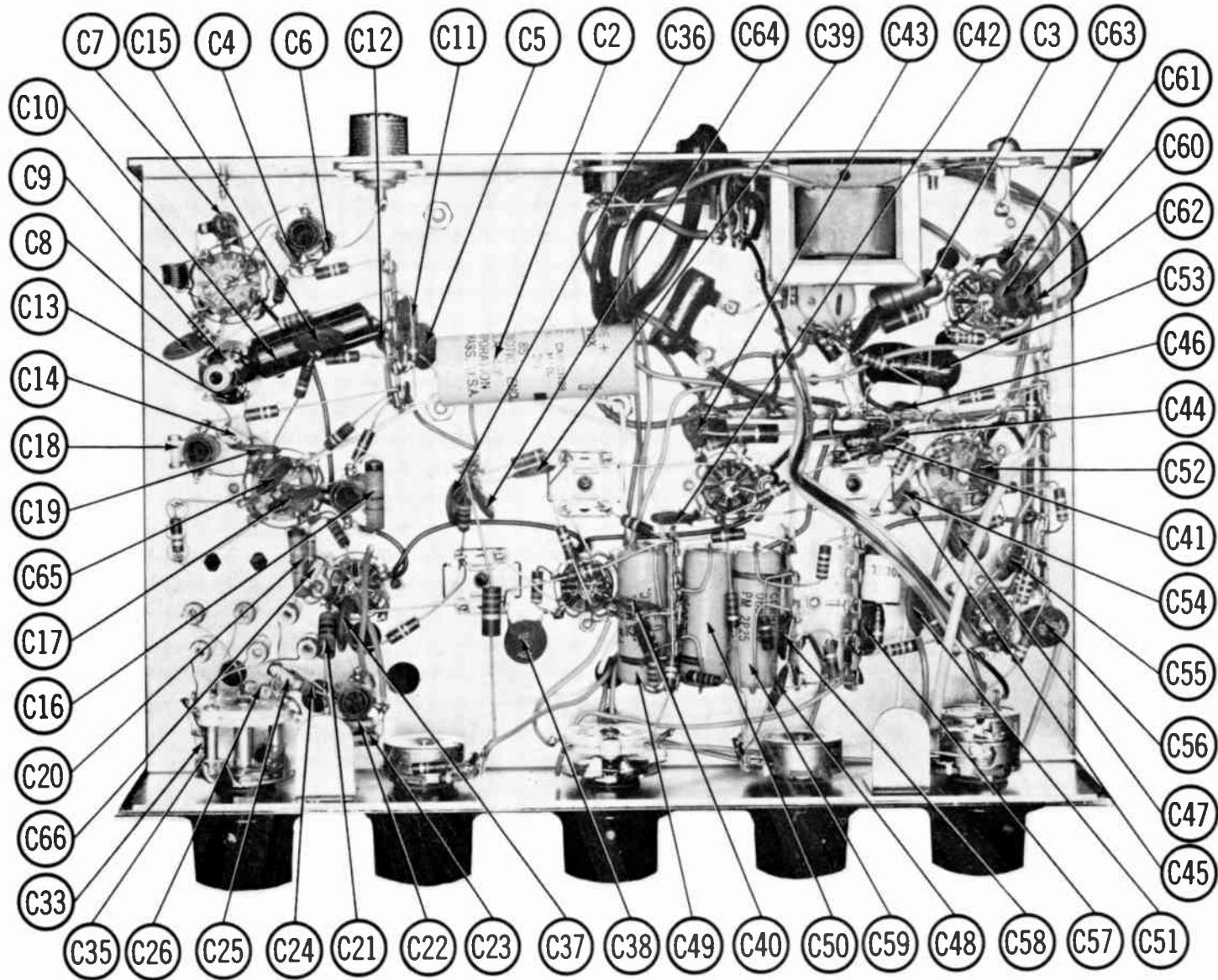
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

RECEIVER CHASSIS TOP VIEW

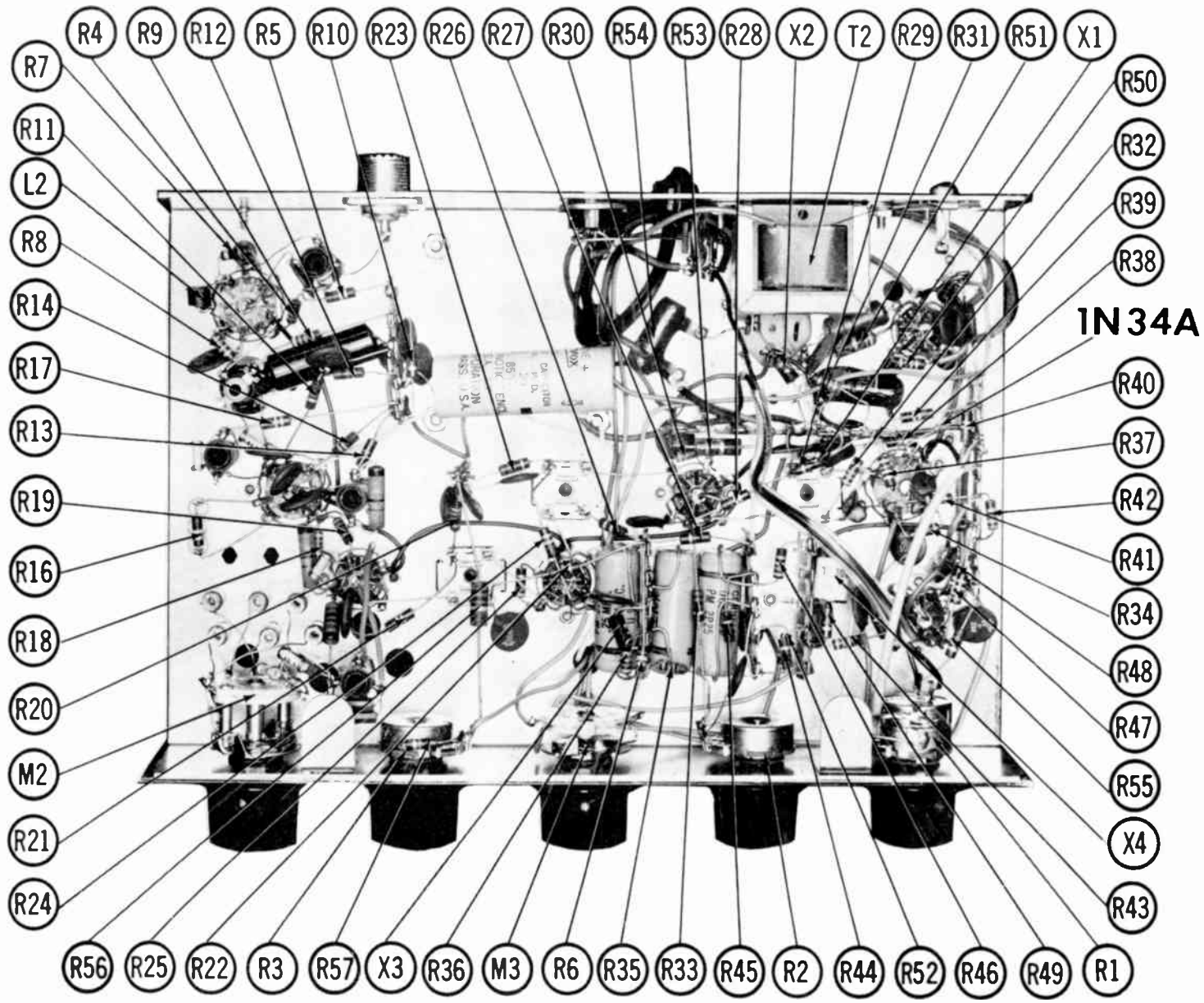


TRANSMITTER CHASSIS TOP VIEW

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120



RECEIVER CHASSIS—CAPACITOR IDENT



RECEIVER CHASSIS—RESISTOR & MISC. IDENT

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120

RECEIVER PARTS LIST AND DESCRIPTION

TUBES

• AMPEREX •		GENERAL ELECTRIC •		RCA •		RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	RF Amplifier Mixer-Osc. Converter 1st IF Amplifier	6BZ8		V5	2nd IF Amplifier Det. -Squelch-AF Amp. - AVC AF Amplifier Output	6BJ6			
V2		6EA8		V6		6T8			
V3		6BE6		V7		6AU6			
V4		6BJ6		V8		6AQ5			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.068A	2F4	A300	1N1764	2F4
X2	.068A	2F4	A300	1N1764	2F4
X3		2F4	A300	1N1764	2F4
X4		Model 10	A50		Model 10

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		SAMPSON 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.
C1A	40	450		AFH3-44	C0350	XC3-40	TMT-3748	FP371.1	TVL-3787
B	40	450							
C	40	450							
C2	20	450		PRS1735	BR20-450	QT1-10	TD20-450	TC75	TVA-1709
C3	25	25		CRE612	BBR25-25	MT1-11	MLV25-25	TC26	TVA-1205

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.	
C4	.01	(.001) ↑	BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C5	.005		BPD-005	DD-502	BYA10D6	CCD-502	B-250	5HK-D50	
C6	75		DI-75	DD-750	L10Q75	CCD-750	GP475	10TS-Q75	
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C8	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C9	10			DD-100	L10Q1	CCD-100	GP410	5GA-Q10	
C10	.05 600V			P688N-047	DD-503	PM6847	6DP-3-473	GEM-6147	6TM-847
C11	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C12	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	10				DD-100	L10Q1	CCD-100	GP410	5GA-Q10
C14	10				DD-100	L10Q1	CCD-100	GP410	5GA-Q10
C15	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	33			DI-33	DD-330	L10Q33	CCD-330	GP433	5GA-Q33
C17	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C18	10				DD-100	L10Q1	CCD-100	GP410	5GA-Q10
C19	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	33			DI-33	DD-330	L10Q33	CCD-330	GP433	5GA-Q33
C21	20			DI-20	DD-200	L10Q2	CCD-200	GP420	10TS-Q20
C22	47			1469-000047	TCZ-47	22R5Q47	CM-19B-470J		MS-447
C23	47			1469-000047	TCZ-47	22R5Q47	CM-19B-470J		MS-447
C24	47		1469-000047	TCZ-47	22R5Q47	CM-19B-470J		MS-447	
C25	1.5		CC20UK1R5C						
C26	10			DD-100	L10Q1	CCD-100	GP410	5GA-Q10	
C27	3-15								
C28	3-12								
C29	3-12								
C30	3-12								
C31	3-12								
C32	3-12								
C33	10			DD-100	L10Q1	CCD-100	GP410	5GA-Q10	
C34	3-12								
C35	10			DD-100	L10Q1	CCD-100	GP410	5GA-Q10	
C36	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C37	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-820	
C38	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C39	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C40	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C41	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C42	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C43	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C44	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C45	100		ADM-15-101	DTZ-100	22R5T1	DM-15-101T	MCE235	10TCC-T10	
C46	100		ADM-15-101	DTZ-100	22R5T1	DM-15-101T	MCE235	10TCC-T10	
C47	.01		TTD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810	
C48	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C49	.25 200V	(.05) ↑	P288N-25	DD-502	MP2P25	2DP-3-254	GEM-2025	2PS-P25	
C50	.25 200V		P288N-25		MP2P25	2DP-3-254	GEM-2025	2PS-P25	
C51	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C53	.1 200V			P488N-1	DF-104	PM4P1	4DP-3-104	GEM-401	4TM-P10
C54	250			DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C55	.01			BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C56	.01			BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C57	.02			BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-820
C58	.01			BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810

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.
C59	.25 200V		P288N-25	DD-103	MP2P25	2DP-3-254	GEM-2025	2PS-P25
C60	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C61	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C62	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C63	.250		DI-250	DD-251	L10T25	CCD-251	GP325	1078-T25
C64	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-810
C65	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C66	1.5			TCZ-1R5				10TCC-V15

† Alternate Value.

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			SAMPSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg		F2-1meg, SU204, KR-1 or (B-70-S)	A47-1meg-Z, RS-2, SWE-12	B11-140, PQ, QCC or (BU1, CF21, SS5, DC1)*	UA16A, SL2500, US-41 or (RU16A, SL38, SL2500, US-41) or (U53, US-26)
R2	Squelch	3meg		F1-3meg, SU204, or (B-84)	A47-3meg-S, RS-2	Q11-140, PQ, or (BU1, CF21, SS5)*	UA36L, SK1000, or (RU36L, SL38, SL2500) or (U59)
R3	"S" Meter Adjust	25K		F1-25K, SU204, or (B-26)	A47-25K-S, RS-2	B11-120, PQ, QCC or (BU1, CF11, SS5)*	UA253L, SL2500, or (RU253L, SL38, SL2500) or (U29)

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SAMPSON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna						
L2	Neutralizing						
L3	RF (27MC)						
L4	10MC 1F						
L5	10MC Oac.						
L6	455KC Oac.						
L7	1st 455KC 1F	DC-201	BC-352	12-C1	RTC-8632	T607	
L8	2nd 455KC 1F	DC-201	BC-353	12-C2	RTC-8633	T608	
L9	3rd 455KC 1F	DC-201	BC-353	12-C2	RTC-8633	T608	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SAMPSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .55A	115VAC @ .068A DC	6.3VAC @ 2.7A	DCB-101					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SAMPSON 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
		SAMPSON PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω		4A01	

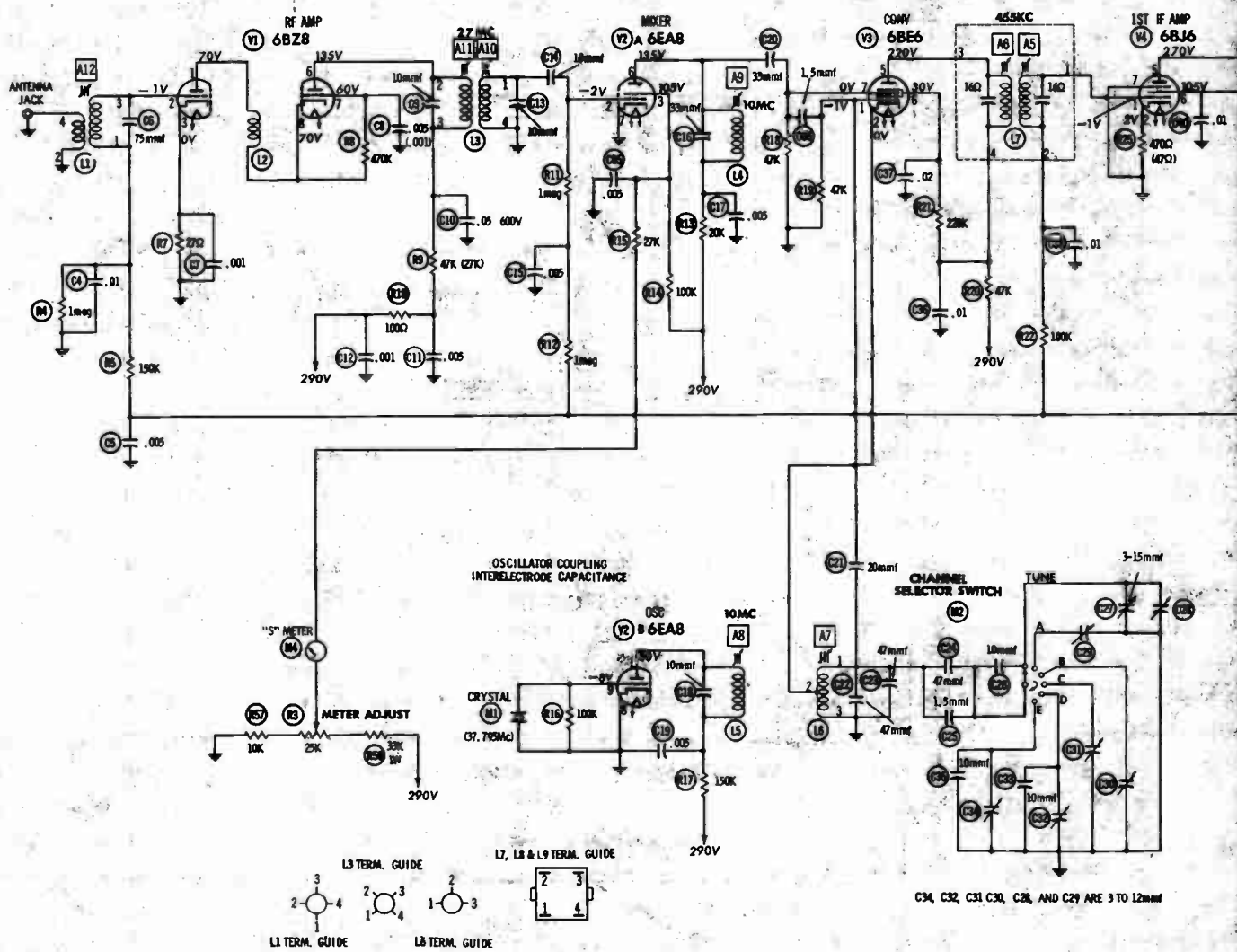
MISCELLANEOUS

ITEM No.	PART NAME	SAMPSON PART No.	NOTES
M1	Crystal		Receiver Oscillator (37.795MC)
M2	Switch		Channel Selector
M3	Switch		Distant-Local-Audio Comp.
M4	"S" Meter		

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. 8499 Single Conductor Shielded (Neoprene)
	8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120



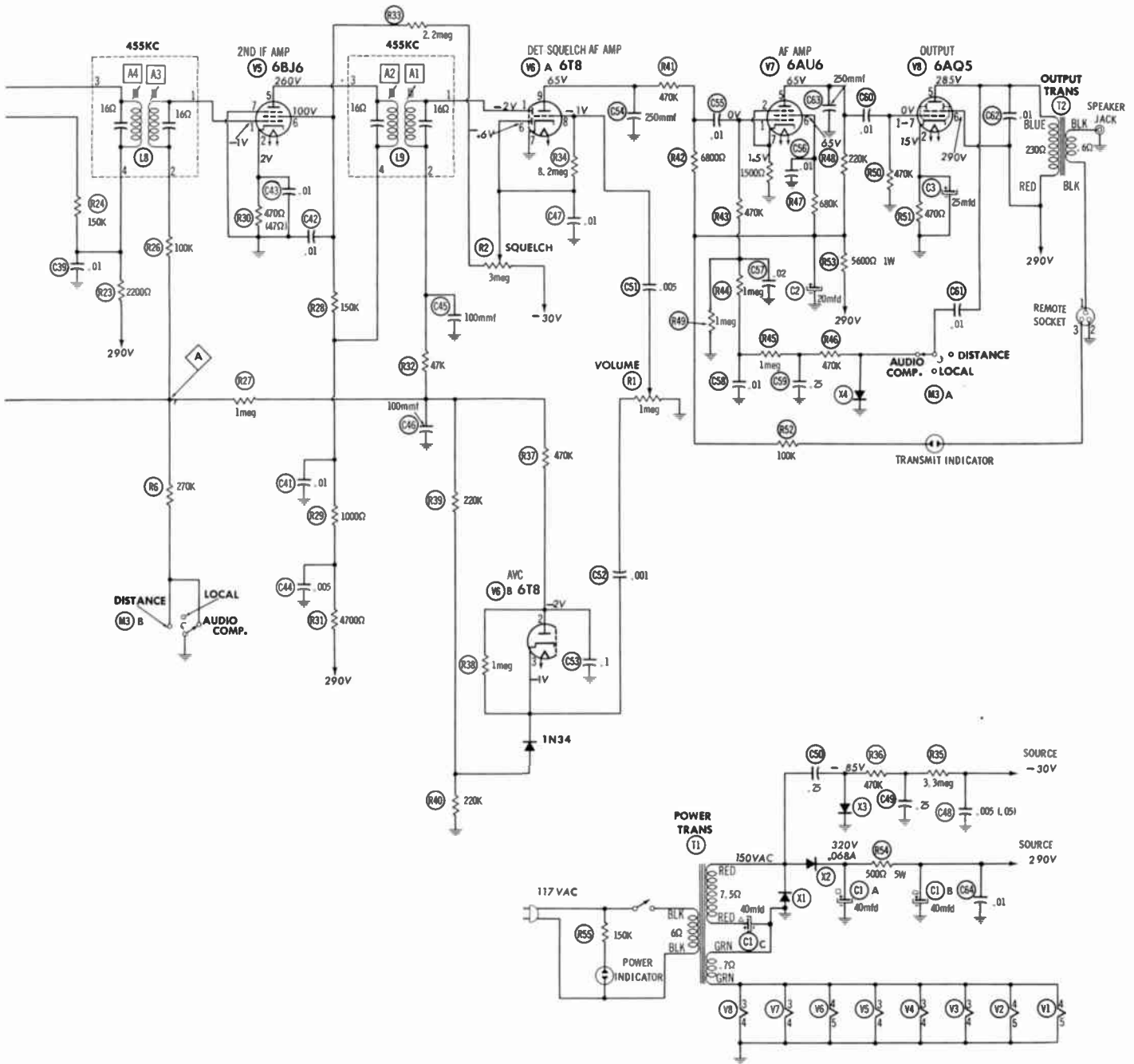
RESISTANCE READINGS

ITEM	TUBE	1	2	3	4	Pin 2	Pin 3	Pin 7	Pin 8	Pin 9
V1	6BZ8	Δ 1Ω	750K	27Ω			147K	Δ 47K	1M	Ω
V2	6EA8	1150K	2.8meg	1.100K			120.5K	Ω	Ω	100K
V3	6BE6	47K	.1Ω			147K	1270K	47K		
V4	6BJ6	750K	470Ω			12700Ω	1150K	Ω		
V5	6BL6	750K	470Ω			16200Ω	1165K	Ω		
V6	6T8	480K	910K	500K			2.4meg	Ω	10meg	1470K
V7	6AU6	1.5meg	1500Ω			1275K	1680K	1500Ω		
V8	6AQ5	470K	470Ω			1730Ω	1500Ω	470K		

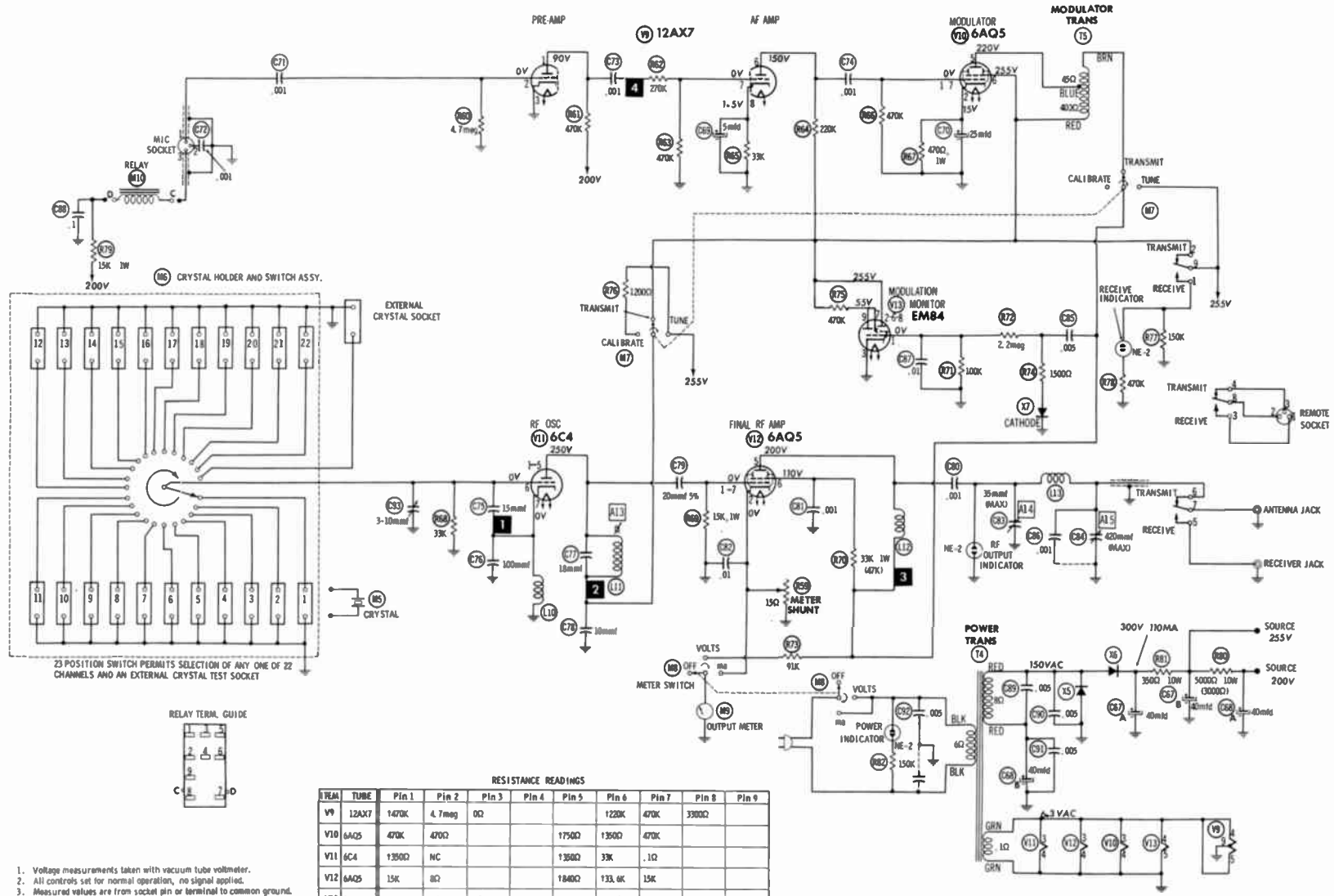
† MEASURED FROM CATHODE OF X1
 Δ MEASURED FROM CATHODE PIN #8, V1

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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SAMPSON MODELS M10, R101A, R102, T110A, VM12-120



1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pins 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.

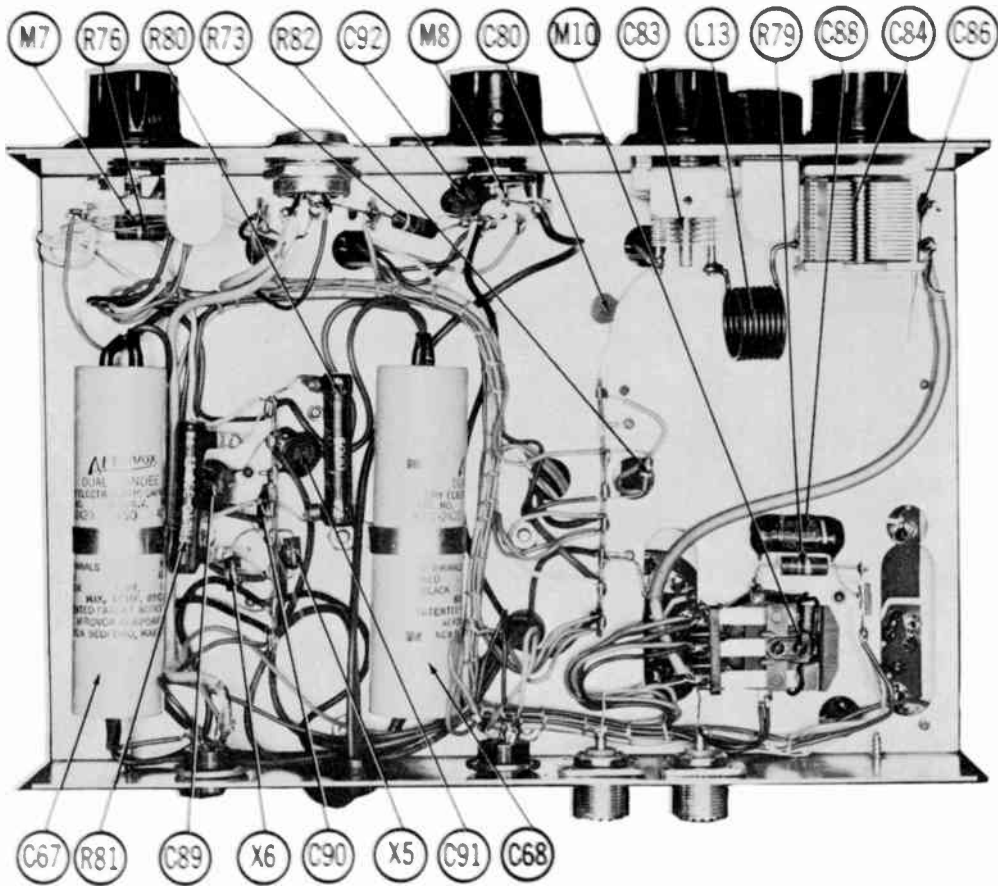
A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUTRACE**

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		RESISTANCE READINGS								
TUBE	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V9	12AX7	1470K	4.7meg	0Ω			1220K	470K	3300Ω	
V10	6AQ5	470K	470Ω			1750Ω	1350Ω	470K		
V11	6C4	1300Ω	NC			1300Ω	33K	.1Ω		
V12	6AQ5	15K	0Ω			1840Ω	133.6K	15K		
V13	EM84	100K	NC	0Ω			1300Ω	1470K	NC	1470K

ALL MEASUREMENTS TAKEN IN TRANSMIT POSITION.
† MEASURED FROM OUTPUT OF X6
NC NO CONNECTION.

TRANSMITTER



TRANSMITTER CHASSIS

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120

A Howard W. Sams **CIRCUITRACE** Photo

TRANSMITTER PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	TYPE	REPLACEMENT DATA				
			AMPEREX	GENERAL ELECTRIC	RCA	RAYTHEON	SYLVANIA
V9 V10 V11	Speech Amp. Modulator RF Oscillator	12AX7 8AQ5 8C4			V12 V13	Final Amp. Modulation Indicator	6AQ5 EM84

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X5	.110A	2F4	A200	1N1783	2F4
X8	.110A	2F4	A200	1N1783	2F4
X7	Signal	2F4	A200	1N1783	2F4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		SAMPSON 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.
C87A	40	450		PRS2420	BBRD4445	QT2-8	TDL-31	TCD-78	TVA-2470
B	40	450							
C88A	40	450		PRS2420	BBRD4445	QT2-8	TDL-31	TCD-78	TVA-2470
B	40	450							
C69	5	15		BCD15005	ECPB405	MT1-3	MLV5-15	PET1535	VL-1184
5	15			PRS1280	BBR25-25	QT1-11	TD-25-25	TC28	TVA-1205
C70	25	25							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRAL8 PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C71	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C72	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C73	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C74	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C75	15			TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C78	100		ADM-15-101	DTZ-100	22R5T1	DM-15-101J	MCE235	10TCC-T10
C77	18		DI-18	DD-180	L10Q18	CCD-180	GP418	5GA-Q18
C78	10			TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C79	20 5%		CM-15C-200	TCN-20				
C80	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C81	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C82	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C83	35mmf (Max.)							
C84	420mmf (Max.)							
C85	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C86	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C87	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C88	.1 200V		P288N-1	DF-104	CUB2P1	IDP-2-104	GEM-201	5HK-P10
C89	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C90	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C91	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C92	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C93	3-10							

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			SAMPSON PART No.	CENTRAL8 PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R59	Meter Shunt	15Ω				110-15	PFL-15

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SAMPSON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L10	Osc. Cathode						
L11	Osc. Plate						
L12	RF Choke (2.5MH)						
L13	Output Tank						

TRANSMITTER PARTS LIST AND DESCRIPTION (CONTINUED)

TRANSFORMER (POWER)

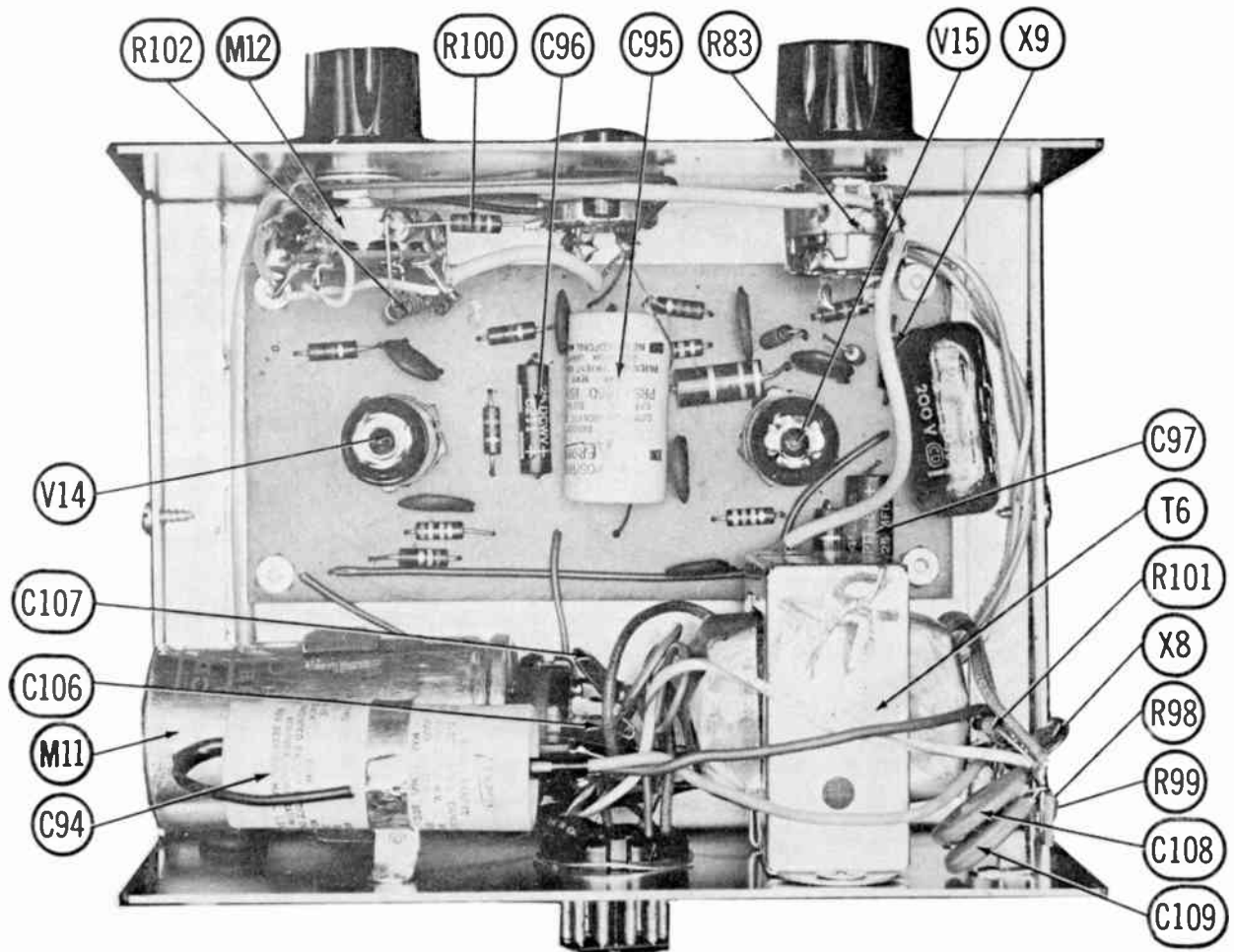
ITEM No.	RATING			REPLACEMENT DATA					NOTES
				SAMPSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC. 1	SEC. 2						
T4	117VAC @ .3A	200VAC @ .12A DC	6.3VAC @ 1.65A	DCB-101					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			SAMPSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T5	10	1						

MISCELLANEOUS

ITEM No.	PART NAME	SAMPSON PART No.	NOTES
M5	Crystal		Transmit
M6	Crystal Selector Ass'y.		Includes Switch and Receptacles
M7	Switch		Calibrate-Transmit-Tune (rotary type)
M8	Switch		Meter Selector, includes power off-on
M9	Meter		Volts-Current
M10	Relay		Receive-Transmit



MODULATOR CHASSIS

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120

MODULATOR PARTS LIST AND DESCRIPTION

TUBES

• AMPEREX •		GENERAL ELECTRIC		RCA		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V14	Preamplifier	12AU6		V15	Modulator	12AQ5			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X8	.021A	2F4	A200	1N1783	2F4
X9	Signal	2F4	A200	1N1783	2F4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		SAMPSON 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.
C94A	30	150		PRS2200	BBRD5315		TDL-5030-150	TCD497	TVA-2450
C95	50	150							
C96	30	150		PRS1460	BR-30-150		TD-30-150	TC47	TVA-1412
C97	10	25		PTT-82	BBR10-25	MT1-5	TD10-25	TC22	TVA-1204
C97	25	25		PRS1260	BBR25-25	QT1-11	TD25-25	TC26	TVA-1205

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALA8 PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C98	500		C1-500	DD-501	L10T5	CCD-501	GP350	10TS-T50
C99	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C100	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C101	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C102	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C103	.5 200V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C104	.02		P288N-5		PM2P5	2DP-2-475	GEM-205	2TP-P5
C105	.01		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20
C106	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C107	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C108	.015 1800V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C109	.015 1800V		DAC-27	DD16-103	HVE18S1	18DP-3-103	UAC-110	BL-S10
C110	.02		DAC-27	DD16-103	HVE18S1	18DP-3-103	UAC-110	BL-S10
C110	.02		BPD-02	DD-203	BYA6S2	CCD-203	B-120	5HK-S20

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			SAMPSON PART No.	CENTRALA8 PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R83	Gain, Switch	1meg		F2-1meg, SN204, KR-1, or (B-70-S)	A47-1meg-Z, RS-2, SWE-12	Q13-137, PQ, 76-1 or (BU2, CF26, SS5, GC)*	UA16A, SL2500, US-41, or (BU16A, SL38, SL2500, US-41) or (U53, US-26)

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SAMPSON PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L14	Choke (80uh)						

TRANSFORMER (POWER)

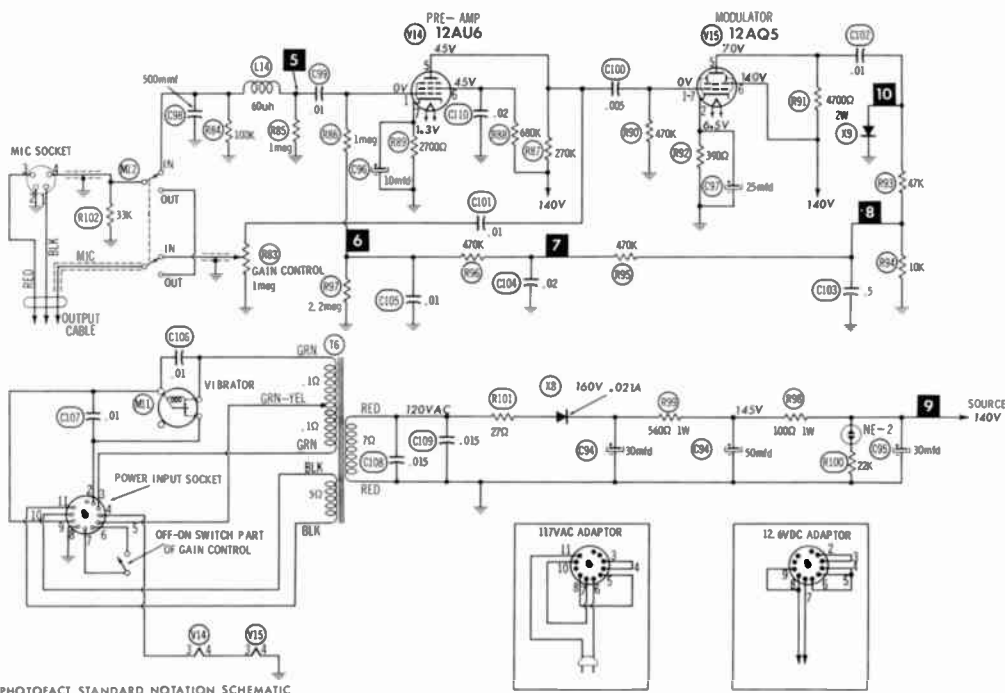
ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SAMPSON PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T8	117VAC ① .17A or 12VDC ① 1.4A	120VAC ① 21MA DC	12.6VAC ① .375A	DCM-105					

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			NOTES
				SAMPSON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M11	Interrupter	12.6	115%		G 8801	G 1601	

MISCELLANEOUS

ITEM No.	PART NAME	SAMPSON PART No.	NOTES
M12	Switch		Amplifier In-Out (Rotary Type)



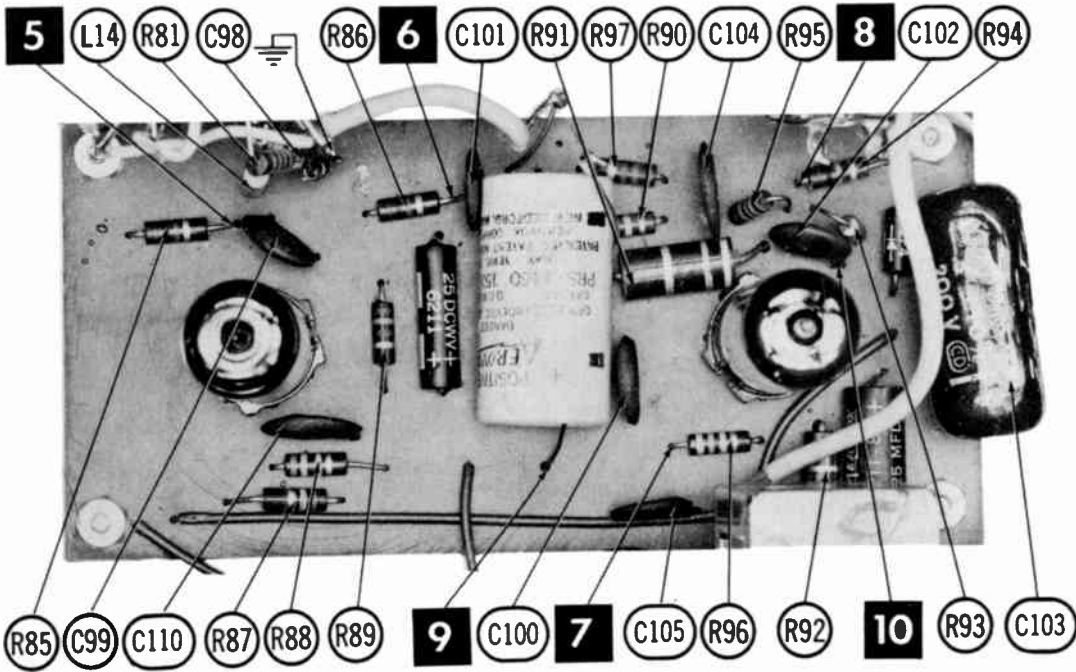
A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

©Howard W. Sams & Co., Inc. 1964 RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	1meg	2700Ω	FILS	FILS	1270K	1600K	2700Ω
V2	12AQ5	470K	390Ω	FILS	FILS	15500Ω	1660Ω	470K

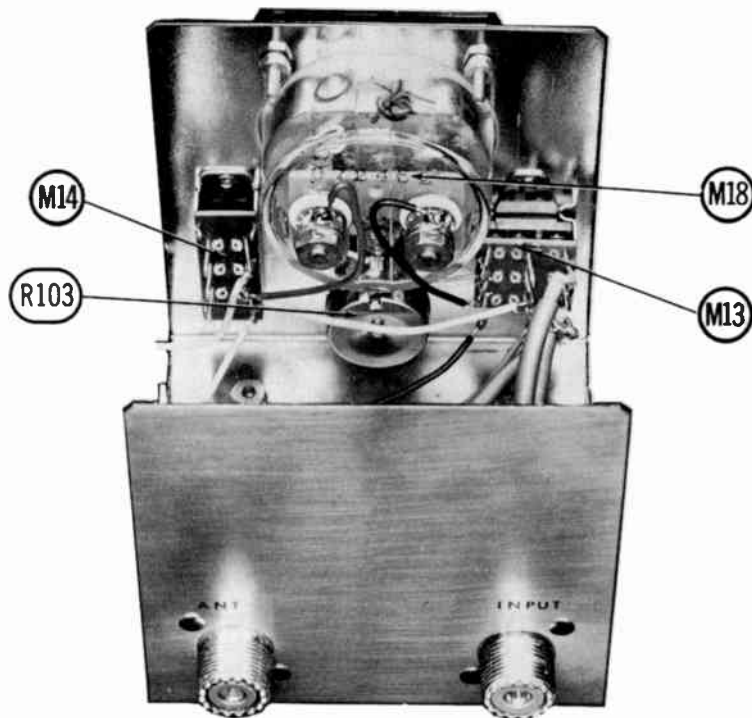
SAMPSON MODELS M10, R101A, R102, T110A, VM12-120

- 1 MEASURED FROM OUTPUT (CATHODE) OF X8
 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 CHASSIS

A Howard W. Sams **CIRCUITRACE** Photo



SWR CHASSIS

SWR PARTS LIST AND DESCRIPTION

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.
C111	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C112	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CONTROLS

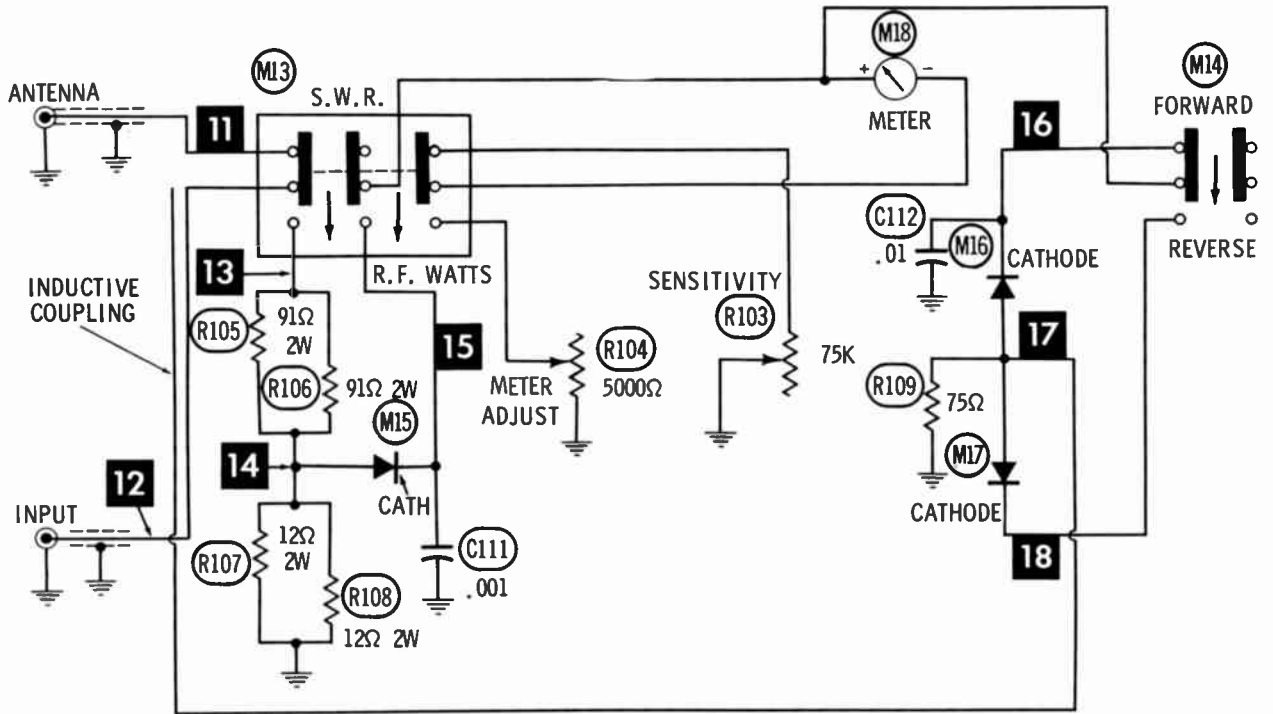
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			SAMPSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R103	Sensitivity	75K		F2-100K, SU204, AK-31 or (B-41, AK-31)		QCB2(T), B13-128, TM5 or (BU3, CF52, SS5, DC1)*	UA15R, SL2500, EB247 or (U40, EB247)
R104	Meter Adjust	5000Ω			U39-5000		PFL-5K

* "SNAPTROL"
 ① Use QCB2 instead of Tab Mount Plate in TM5.

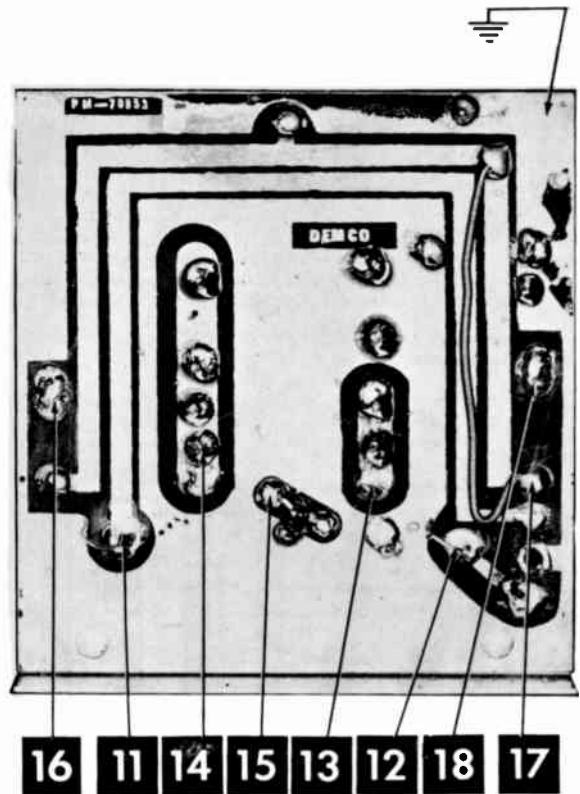
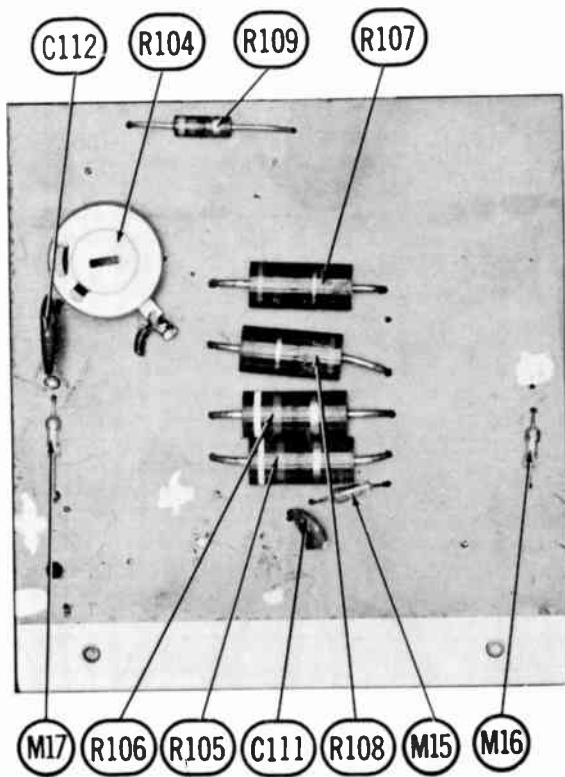
MISCELLANEOUS

ITEM No.	PART NAME	SAMPSON PART No.	NOTES
M13	Switch		SWR-RF Watts (TPDT Slide Type) Forward-Reverse (SPDT Slide Type) Meter Rectifier Meter Rectifier Meter Rectifier SWR-RF watts
M14	Switch		
M15	Diode		
M16	Diode		
M17	Diode		
M18	Meter		



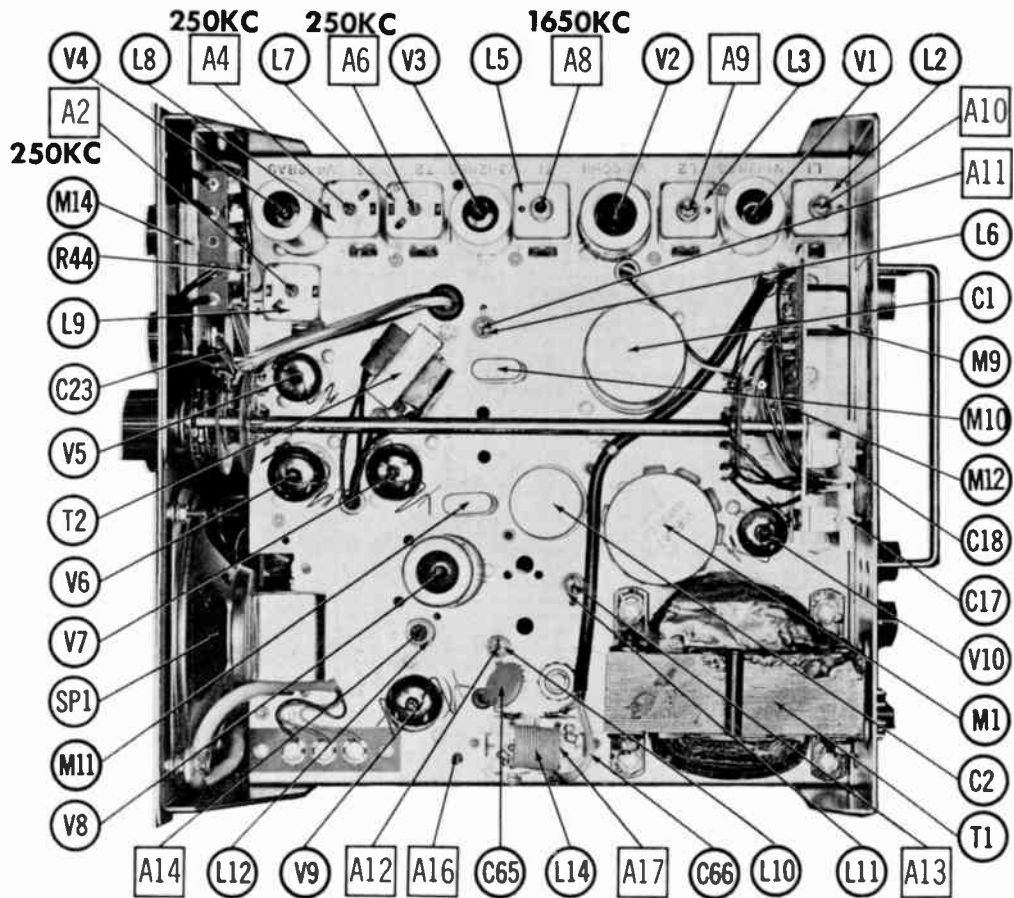
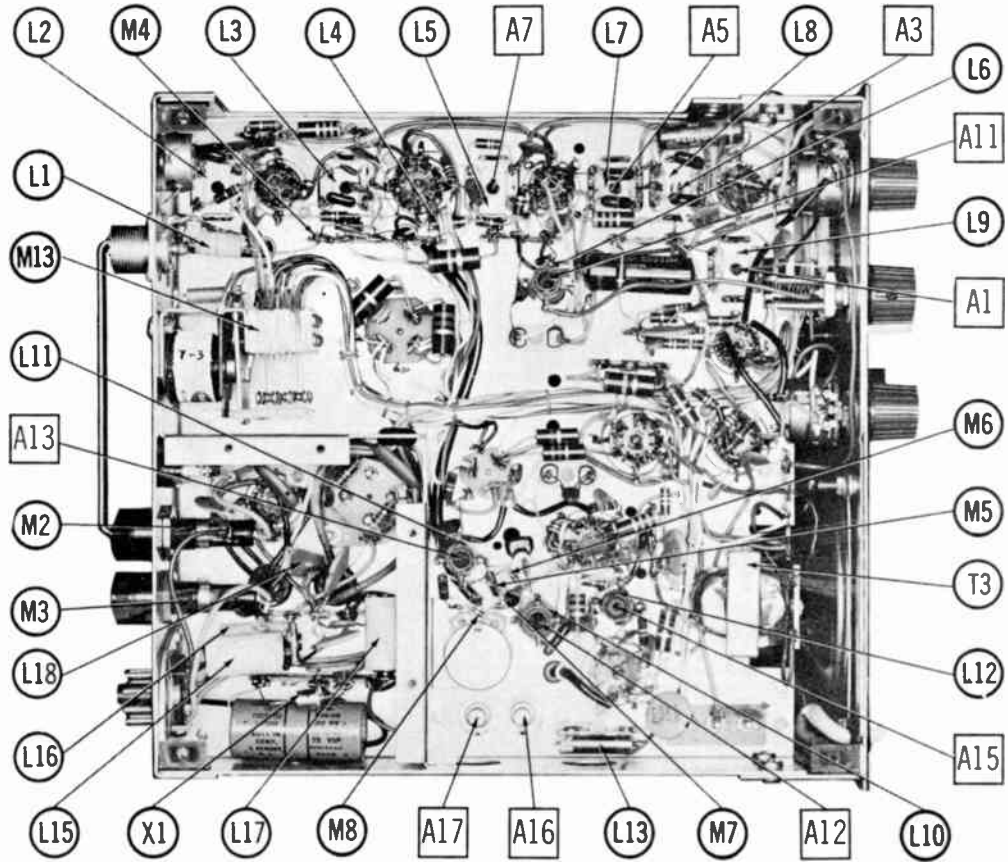
A PHOTOFACT STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**

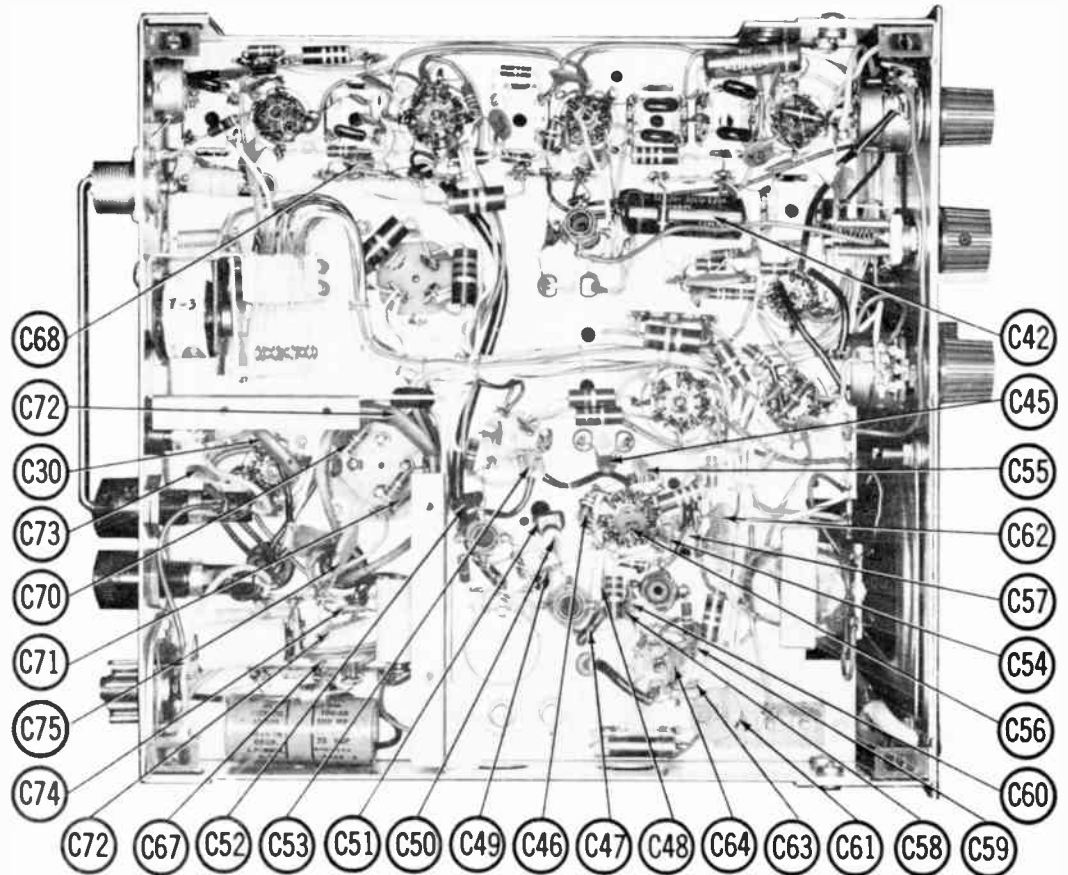
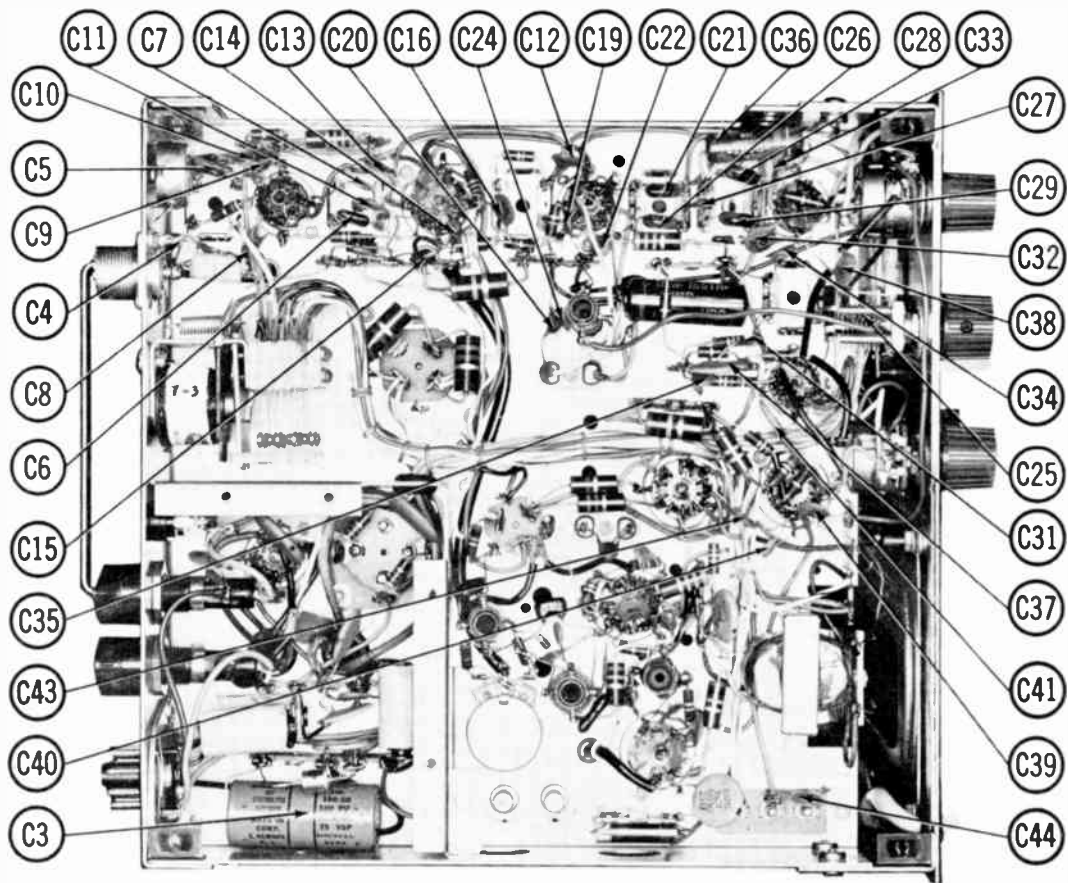
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SWR CHASSIS

SAMPSON MODELS M10, R101A, R102, T110A, VM12-120





PARTS LIST AND DESCRIPTION TUBES

• AMPEREX		• GENERAL ELECTRIC		• RCA		• RAYTHEON		• SYLVANIA	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	RF Amp.	12BA6		V6	AF Amp. -Speech Amp.	12AX7			
V2	Mixer - Osc.	6GH6		V7	Output - Modulator	12AB5			
V3	2nd Converter	12BE6		V8	Transmit Osc. -Buffer	6GH8			
V4	IF Amp.	12BA6		V9	Final RF Amp.	12AB5			
V5	Detector -ANL	12AL5		V10	Rectifier	12X4			

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1		PT505	1N2070	1N2856 or 1N3754	40H

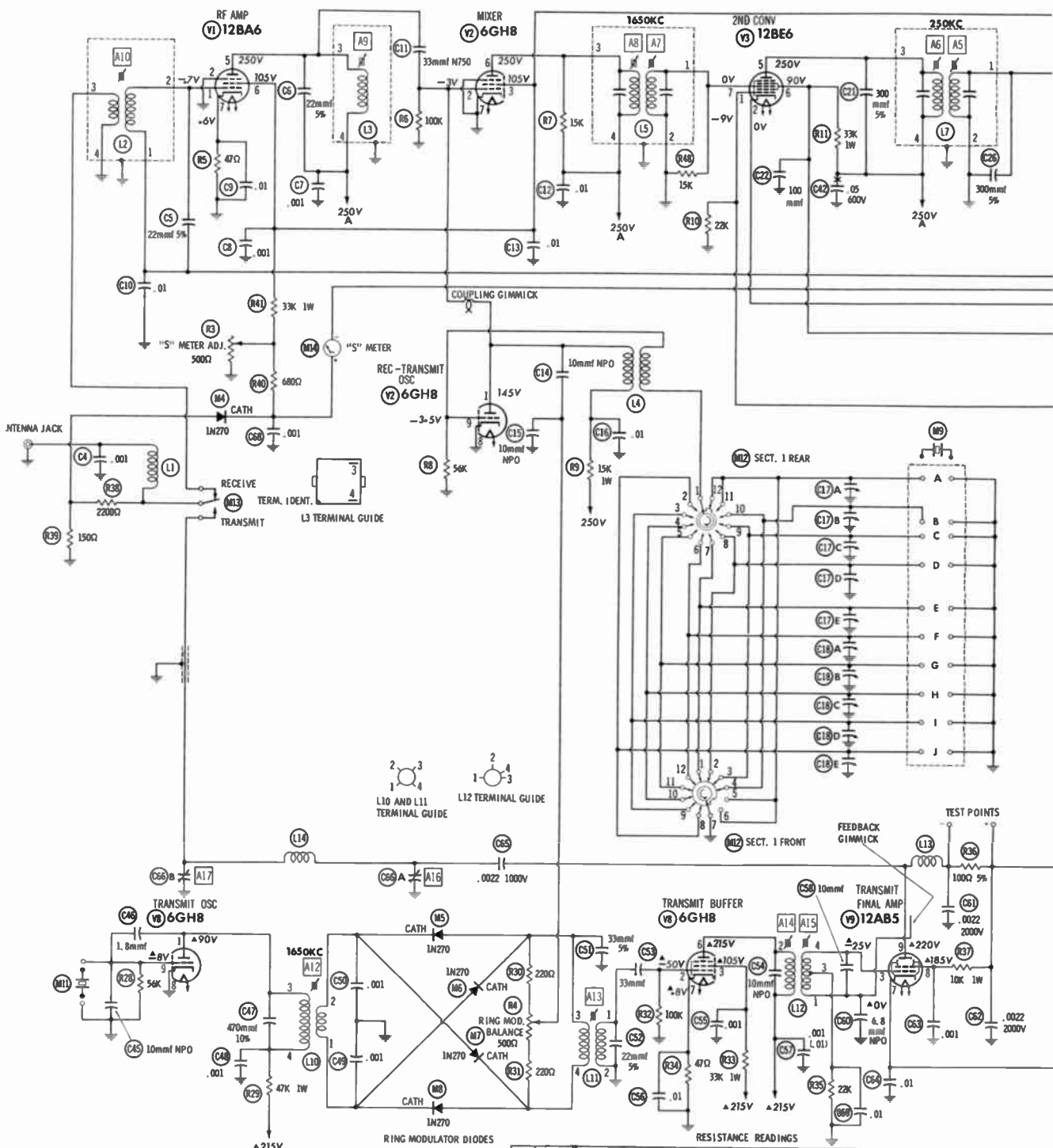
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	WEBSTER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	▲ 40	300							
B	▲ 60	300							
C	■ 20	300							
D	50	25		AFH4-46	D0360	XC4-72	TMQ-4140	FP419.7	TVL-4570
C2A	▲ 20	150							
B	■ 20	150		AFH3-05	XC0041	QT3-5	TMD-3112	FP311.2A	TVL-3433
C	20	150							
C3	100	50		PRS-1380	BR-100-50	QT1-23	TD-100-50	TC3501	TVA-1310

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.
C4	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C5	22 5%			DTZ-22	C10Q22C	CM-19B-220J	CNO-422	10TCC-Q22
C6	22 5%			DTZ-22	C10Q22C	CM-19B-220J	CNO-422	10TCC-Q22
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.01		BPD-01	DD-103	BYA10S1	CCD-102	B-210	5HK-D10
C10	.01		BPD-01	DD-103	BYA10S1	CCD-102	B-210	5HK-D10
C11	33 N750		N750-D1 33	DTN-33	C10Q33U	CCCTN-330	CN7-433	10TCC-Q33
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	10 NPO		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C15	10 NPO		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17A		#0561-68						
B								
C								
D								
E								
C18A		#0561-66						
B								
C								
D								
E								
C19	100		1469-0001	TCZ-100	22R5T1	CM-19B-10LJ	MCE235	MS-31
C20	10 NPO		NPO-D1 10	DTZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C21	300 5%		1469-0003	TCZ-300	22R5T3	CM-15E-301	MCE237	MS-33
C22	100		1469-0001	TCZ-100	22R5T1	CM-19B-10LJ	MCE235	MS-31
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	33 N750		N750-D1 33	DTN-33	C10Q33U	CCCTN-330	CN7-433	10TCC-Q33
C25								
C26	300 5%		1469-0003	TCZ-300	22R5T3	CM-15E-301	MCE237	MS-33
C27	10 NPO		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C28	300 5%		1469-0003	TCZ-300	22R5T3	CM-15E-301	MCE237	MS-33
C29	300 5%		1469-0003	TCZ-300	22R5T3	CM-15E-301	MCE237	MS-33
C30	.1							
C31	100		1469-0001	TCZ-100	22R5T1	CM-19B-10LJ	MCE235	MS-31
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-10LJ	MCE235	MS-31
C36	.1 200V		P468N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C37	.1 100V		P468N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	.1		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C42	.05 600V		P688N-047	DD-503	CUB8S47	6DP-3-473	GEM-6147	6TM-S47
C43	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	10 NPO		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C46	1.6	(22) †	NPO-S1 2		C10V2C			10TCC-V18
C47	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C48	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C49	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C50	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C51	33 5%		NPO-D1 33	DTZ-33	C10Q33C	CC TO-330	CNO-433	10TCC-Q33
C52	22 5%		1469-00022	TCZ-22	22R5Q22	CM-19B-220J		MS-422
C53	33		NPO-D1 33	DTZ-33	C10Q33C	CC TO-330	CNO-433	10TCC-Q33
C54	10 NPO		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C55	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57	.001	(.01) †	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C58	10		NPO-S1 10	TCZ-10	C10Q10C	CC TO-100	CNO-410	10TCC-Q10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C60	6.8 NPO		NPO-S1 6.8	TCZ-6R6	C10V68C	CC TO-6R6	CNO-568	10TCC-V68
C61	.0022 2000V		HVD-30-2200	DD30-202	HVC30D2	3CCD-202	3HV-222	30GA-D20
C62	.0022 2000V		HVD-30-2200	DD30-202	HVC30D2	3CCD-202	3HV-222	30GA-D20
C63	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C64	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C65	.0022 1000V		HVD-30-2200	DD30-202	HVC30D2	3CCD-202	3HV-222	30GA-D20

WEBSTER MODEL 440

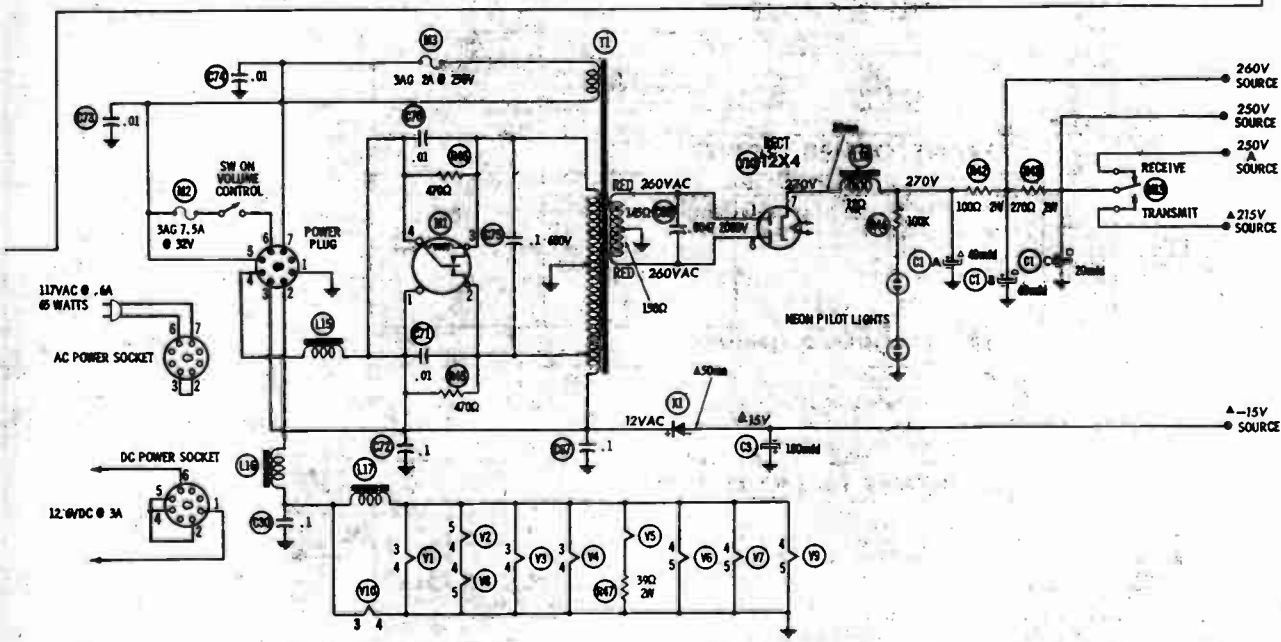
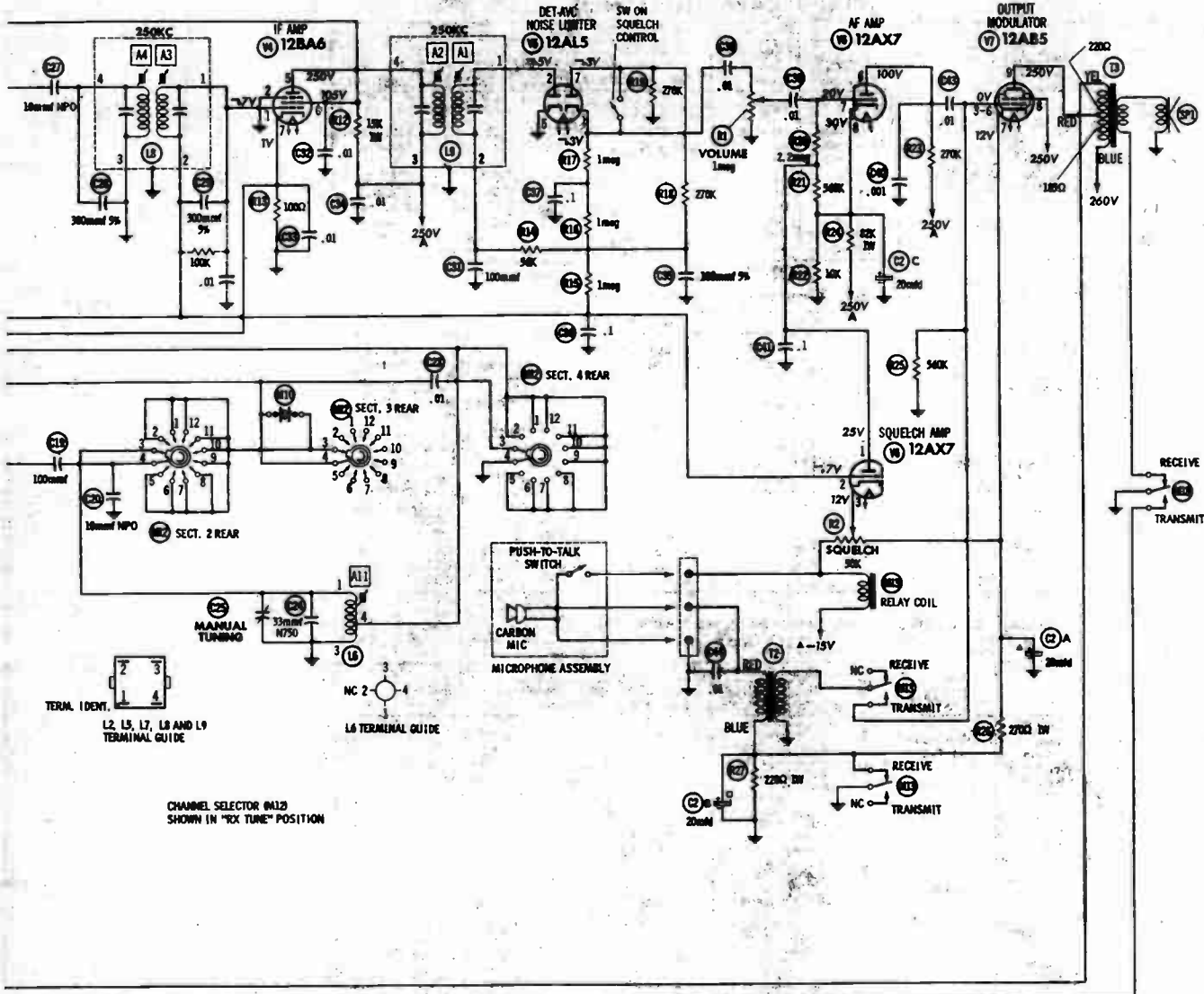


1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	1.6meg	0Ω	FIL	1370Ω	115k	47Ω			
V2	6GH8	†15k	100k	†15k	FIL	FIL	1370Ω	0Ω	0Ω	56k
V3	12BE6	22k	0Ω	FIL	FIL	1370Ω	133k	.1Ω		
V4	12BA6	1.6meg	0Ω	FIL	FIL	1370Ω	†15k	100Ω		
V5	12AL5	2.6meg	600k	FIL	FIL	0Ω	0Ω	270k		
V6	12AX7	570k	1.6meg	490Ω	FIL	FIL	1270k	2.8meg	10k	NC
V7	12AB5	TP	TP	560k	FIL	FIL	560k	270Ω ▲490Ω	1370Ω	1600Ω
V8	6GH8	▲147k	100k	▲133k	FIL	FIL	▲1370Ω	47Ω	0Ω	56k
V9	12AB5	NC	NC	22k	FIL	FIL	NC	▲0Ω	▲110k	1540Ω
V10	12X4	145Ω	NC	FIL	FIL	NC	150Ω	100k		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 † MEASURED FROM PIN 7 OF V10. NC NO CONNECTION.
 ▲ MEASURED IN "TRANSMIT" POSITION.
 TP TIE POINT.



WEBSTER MODEL 440

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.
C66A		#0554						
B								
C67	.1 200V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C68	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C69	.0047 2000V							
C70	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C71	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C72	.1		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C73	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C74	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C75	.1		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

Webster Part Number.
† Alternate Value.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			WEBSTER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg	0368-01	F2-1meg, SU204, KR-1 or (B-70-S)	A47-1meg-Z, FS-3, SWE-12	QCBI ①, B13-137, TM5, 76-1 ②, or (BU2, CF26, SS14, GC)*	UA16A, SF1000, US-41 or (RU16A, SL38, SF1000, US-41) or (U53, US-26)
R2	Noise Gate & ANL Switch	50K	0353	F2-50K, SU204, KR-1 or (B-32, KR-1)	A47-50K-Z, FS-3, SWE-12	QCBI ①, B13-123, TM5, 76-1 ②, or (BU2, CF63, SS14, GC)*	UA54A, SF1000, US-41 or (RU54A, SL38, SF1000, US-41) or (U53, US-26)
R3	Meter Adjust	500Ω 2W			U39-500	110-800	PFL-600
R4	Synthesizer Balance	500Ω	0341-20	F1-500, SN010, or B-4	A47-500-S, FKS-1/2	B11-103, SK6, or (BU2, CF4, SS6)*	UA52L, SN1000, or (RU52L, SL38, SN1000) or (U2)

* "ENAPTROL"

① Use QCBI instead of Tab Mount Plate in TM5. ② Use Switch with Metal Housing.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		WEBSTER PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	RF Choke (.56MH)						
L2	RF Bandpass	0041-60					
L3	RF Amp. Plate	0041-61					
L4	Receiver Osc. Coil	0047-50					
L5	1st IF (1650KC)	0075-60					
L6	Tune Osc. Coil						
L7	2nd IF (250KC)	0075-17					
L8	3rd IF (250KC)	0075-17					
L9	4th IF (250KC)	0075-17					
L10	Transmit Osc. Plate						
L11	Driver Grid	0026-01					
L12	Driver Plate	0062-50					
L13	RF Choke (15MH)	TL-70 (0020)	SW-631	4609	RTC-8519	T959	
L14	PI Network	TL-93(0027-01)					
L15	Hash Suppressor (15MH)	TL-70 (0020)		7625-6			
L16	Filament Choke						
L17	Filament Choke						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	WEBSTER PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L18	.080ADC	12Ω	.5MH						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	WEBSTER PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ② .8A (or 12.6VCT ③ 3A	560VCT ④ .080A DC	12.6V ⑤ 1.6A	ST-102A (1351-01)					

TRANSFORMER (DRIVER)

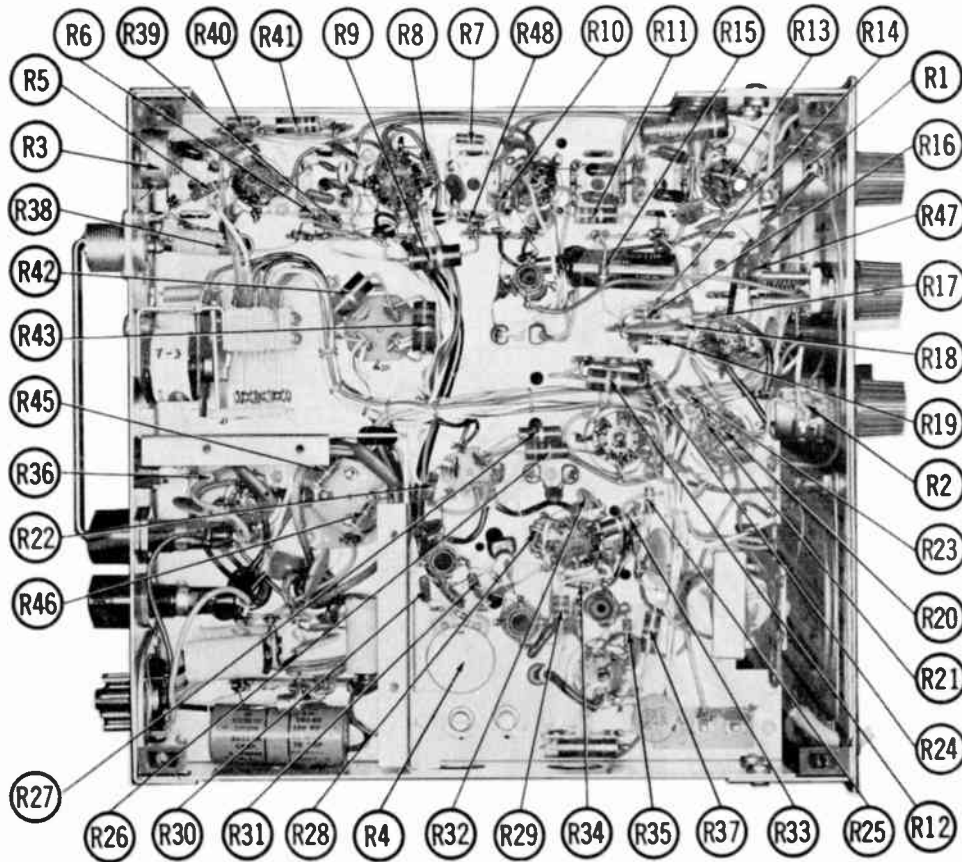
ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	WEBSTER PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2			1287-01	A-2929	A-4705*	25A24*	A-1X	* Drill New Mtg. Hole(s)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	WEBSTER PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	5000Ω*	3-4Ω	1312-20					* Modulation winding has DC resistance of 220Ω

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		WEBSTER PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	0706-01	4A1	



PARTS LIST AND DESCRIPTION (CONTINUED)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				WEBSTER PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6	115%	G1601 (0750)	6301	G1601	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			WEBSTER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7½A 32V	AGC 7½ (0670)		31107.5 (3AG 7½A 250V)	342001	AGC 7½	HKP
M3	3AG	2A 250V	AGC-2 (0667)		312002 (3AG 2A 250V)	342001	AGC-2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	WEBSTER PART No.	NOTES
M4	S Meter Rectifier		1N270
M5	Freq. Synthesizer		1N270
M6	Freq. Synthesizer		1N270
M7	Freq. Synthesizer		1N270
M8	Freq. Synthesizer		1N270
M9	Crystal		28.735MC Receiver Oscillator
M10	Crystal	0710-91	1900KC Receiver Oscillator
M11	Crystal	0710-90	1650KC Transmit Oscillator
M12	Switch		Channel Selector (Rotary Wafer Type)
M13	Relay		Receive-Transmit
M14	S Meter	0700-70	

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. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

PEARCE-SIMPSON Vol.
Companion..... 4

PHILMORE
CC-1, -1W, CT-1, -1W..... 3
TC-11, -11W, TC-612, -612W..... 3

POLY-COMM
PC-2-6, PC-2-12..... 2
PC-N-6, PC-N-12..... 3
Senior 23..... 4

RADIOCOM
27C-2A/-2B/-2C..... 4

RADSON
RP-115, -612..... 1
RT-70A, -75A..... 1

RAYTHEON
Raycom..... 4
Ray-Tel TWR-1..... 1
Ray-Tel TWR-2..... 4
Ray-Tel TWR-3..... 5

RCA
CRM-P2A-5..... 2
CRM-P2B-5 (M1-555528, M1-555529).... 1
CRM-P3A-5..... 1

REALISTIC Vol.
TRC-27 (94LS95)..... 1
TRC-27A..... 5

REALTONE
TR-6124..... 4

REGENCY
CB-27..... 1
CBM-27-6, CBM-27-12..... 1
Range Gain..... 5

SAMPSON
M10, R101A, R102, T110A, VM12-120.. 5

SONAR
E..... 2
E (Revised)..... 4

SONARCOM
CBP..... 2

SONY
CB-901..... 4

SPOKESMAN Vol.
700..... 2

TRIUMPH
TC-900, TC-900A..... 4

U. S. L.
TR-800..... 1

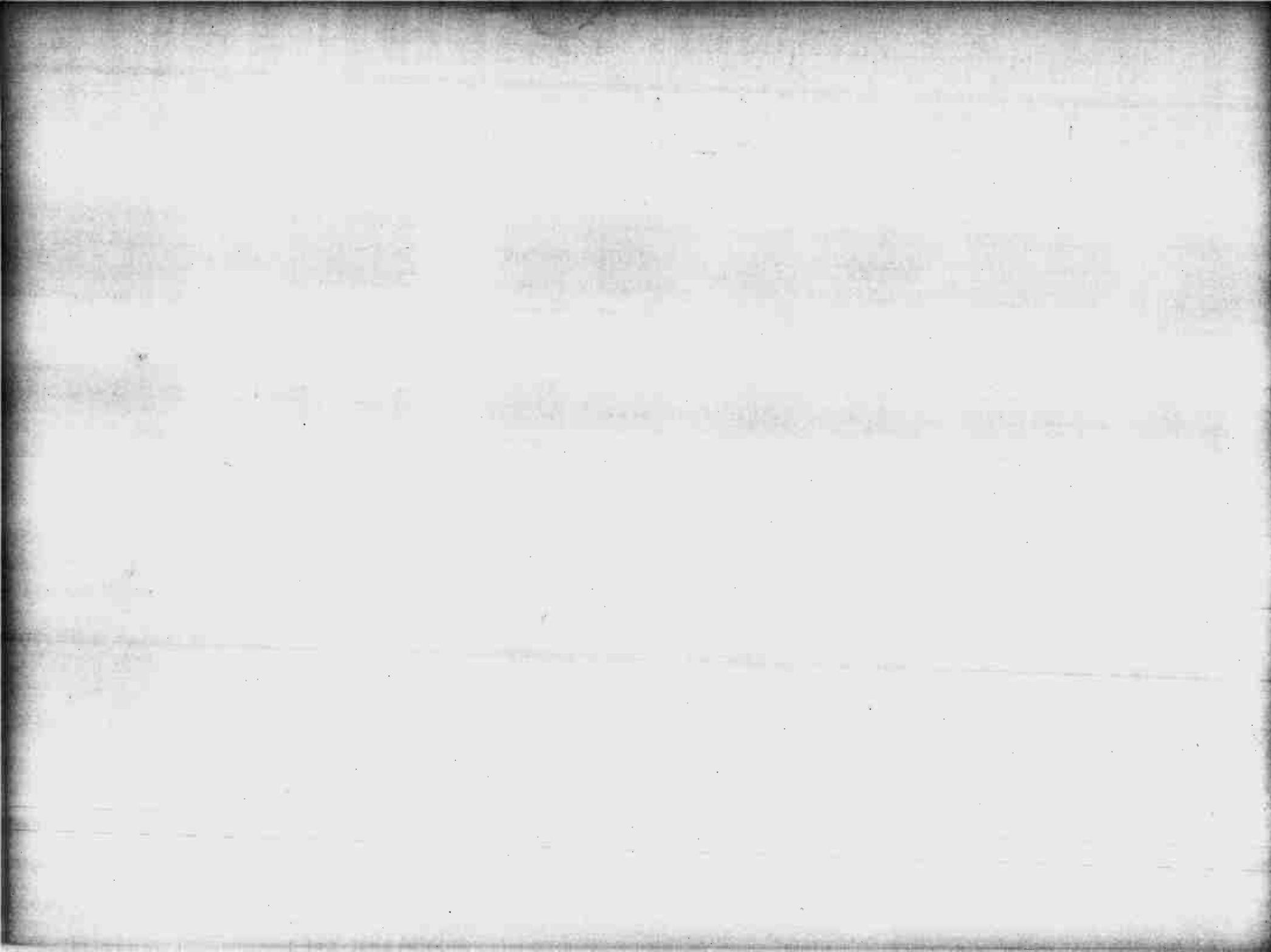
UTICA
MC-27..... 2
T & CH..... 4

VIKING
242-126, -127, -128, -129..... 1

VOCALINE
ED-27-8, ED-27-12, ED-27M-6,
ED-27M-12..... 1
JRC-406, JRC-425..... 2
PT-27..... 3

WEBCOR
ET-380..... 3

WEBSTER
Four-Eleven..... 2
440..... 5



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