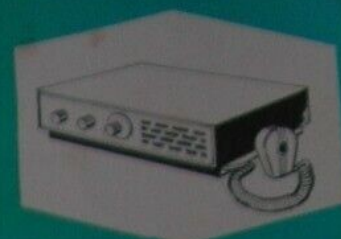


SAMS PHOTOFACT[®] CB RADIO SERIES



CB-28
28
JUNE 1970



CONTENTS

TRADE NAME AND MODEL PAGE

JOHNSON

Messenger 124
(242-124)..... 5

Messenger 125
(242-125)..... 21

MIDLAND

13-770
(6 Channel)
13-772
(12 Channel)..... 31

TRADE NAME AND MODEL PAGE

OLSON

CB-88..... 47

PENNCREST

981-6051
(Golden Pinto)..... 65
985-6060
(Pinto-23B)..... 81

TRADE NAME AND MODEL PAGE

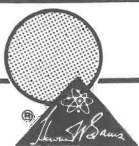
ROBYN

TR-123B..... 99

TRUETONE

MIC4920A-96
(DC-4920)..... 115

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



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

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

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

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



OLSON MODEL CB-88

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A7..... GENERAL CEMENT #8290,8277,8276...WALSCO #2512, 2515, 2525
 A8 GENERAL CEMENT #9440.....WALSCO #2501
 A9 thru A17..... GENERAL CEMENT #8606,8606L,8869..WALSCO #2543, 2544, 2588

OLSON MODEL CB-88

RECEIVER

Connect VTVM to Test Point **A** for Negative Reading. Set Squelch Control to midrange. Volume Control to MINIMUM.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to source of Q4 (2nd Rec Mixer), low side to Chassis. Tune to 455KC (Mod.).	Any	A1 thru A7	Adjust for maximum negative reading.
			Before proceeding with alignment of Receiver, check voltage on gate of Q2 (1st Receiver Mixer). This should be approximately -5.2V to -6.5V. This indicates Q3 (Local Osc.) is operating. This voltage is measured with 100K Isolation Resistor.
High side thru .01mfd to antenna connector, low side to chassis. Tune to 27.115MC (Channel 13) (30% Mod.). .5uv to luv input.	13	A8 thru A11	With 100K Isolation Resistor in series with VTVM probe measure voltage at gate of Q5 (Rec. Osc.) This should be approximately -2.3V to -5V. (Channel 1 thru 4) Adjust for maximum.

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TY760

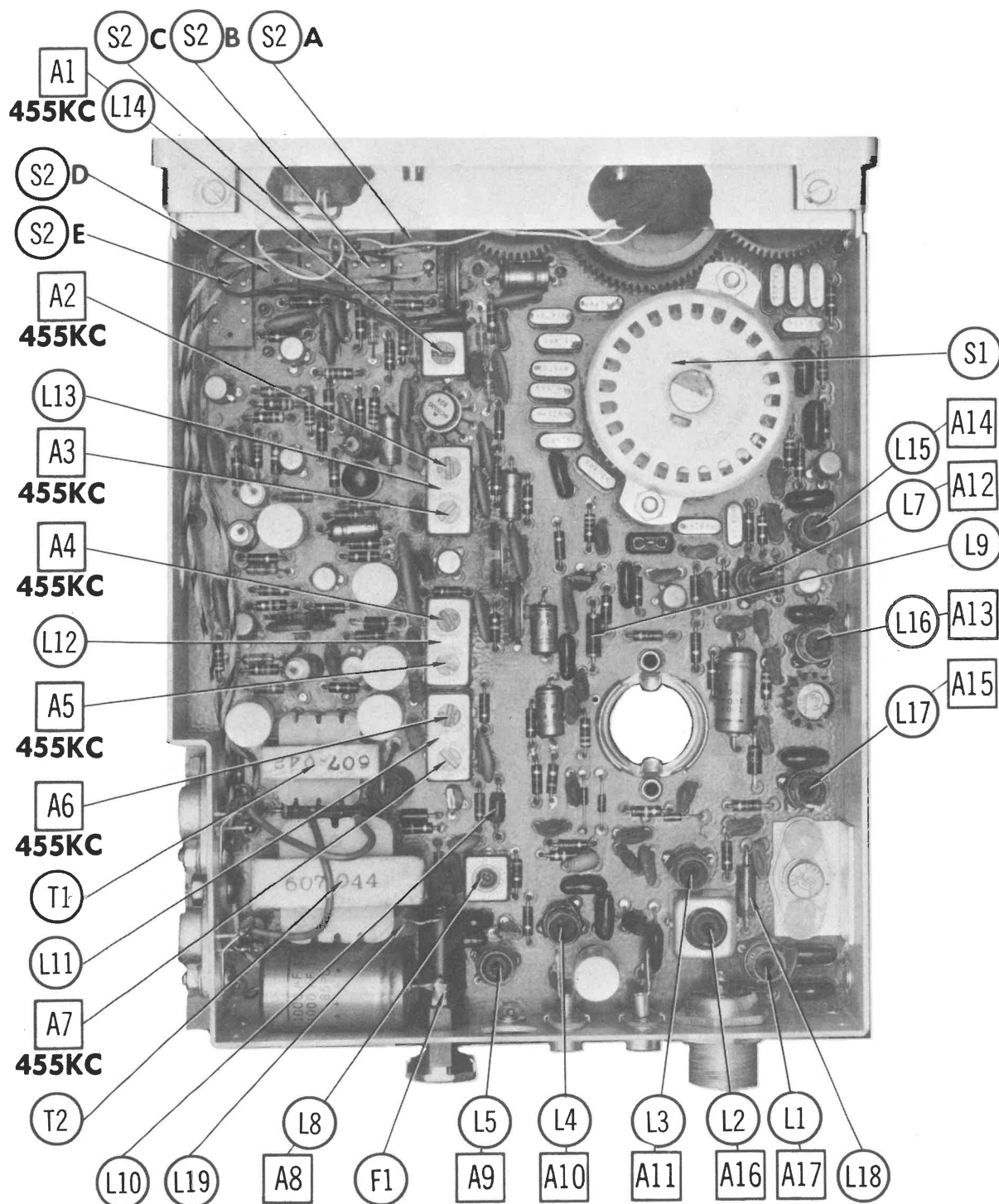
ALIGNMENT INSTRUCTIONS

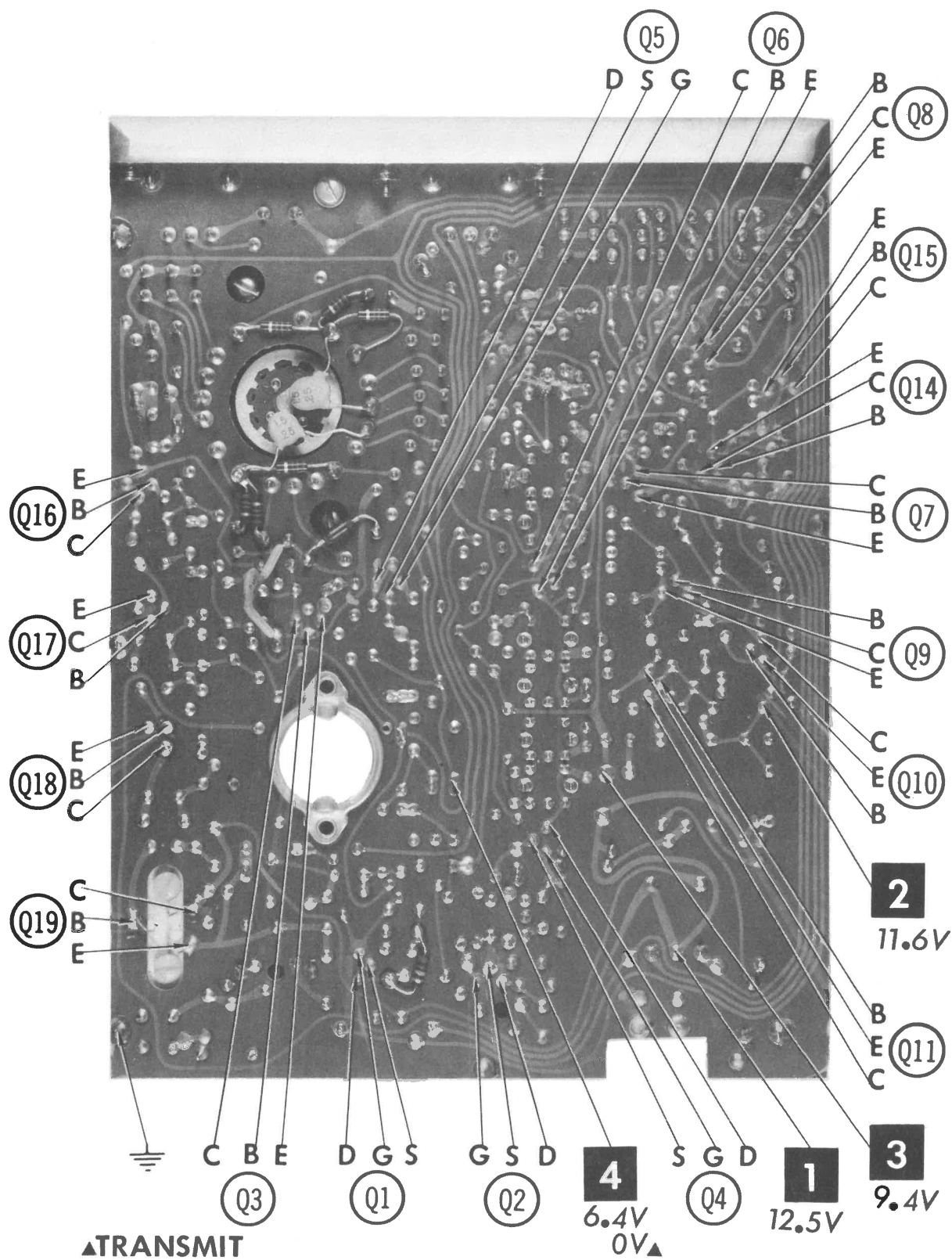
RECEIVER (Continued)

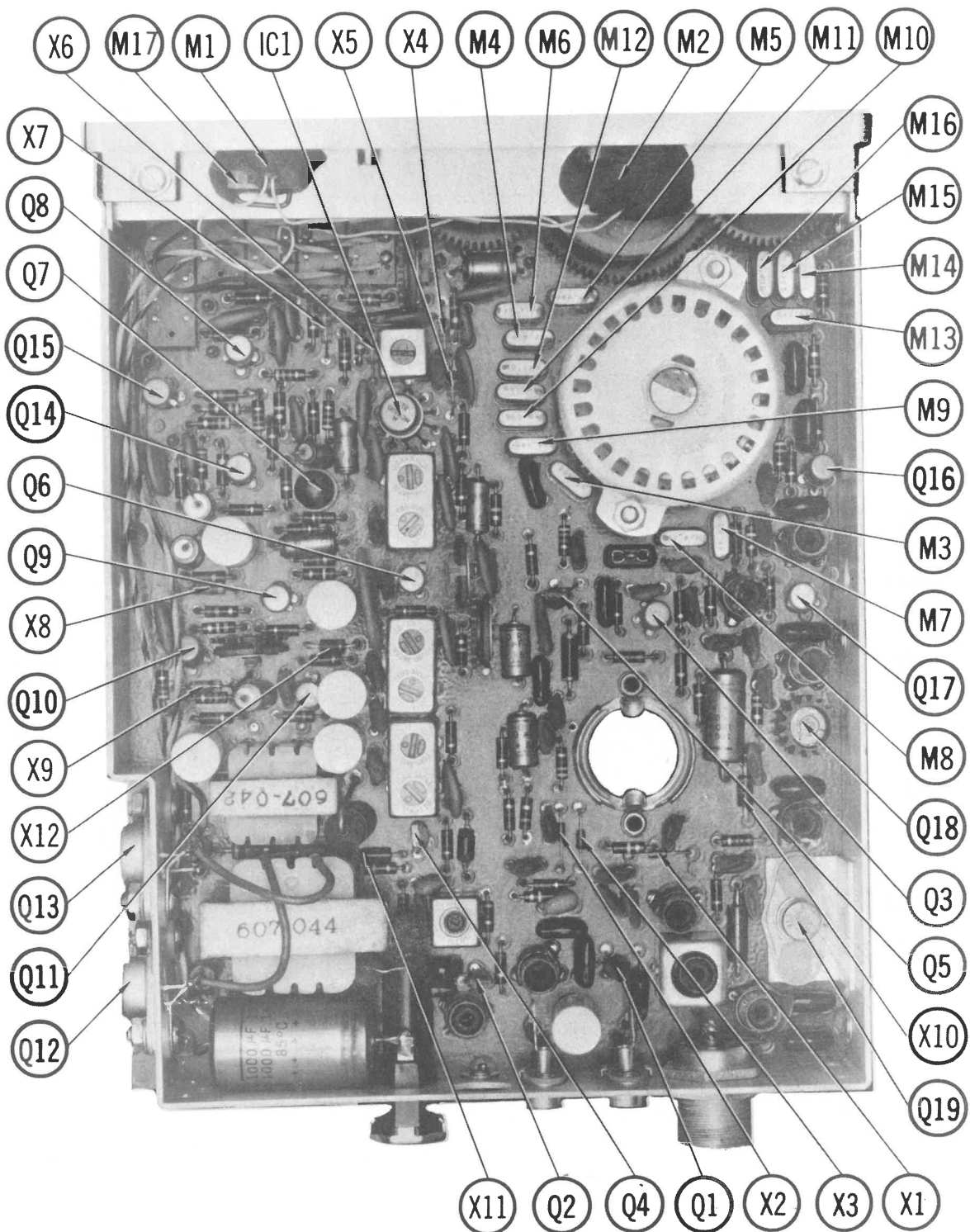
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to antenna connector, low side to chassis. Tune to 27.115MC (Channel 13) (30% Mod.). .5uv to luv input. Increase input to 2uv 30% Mod.	13	R4	With AC VTVM across Speaker Terminals Reading should be at least 1.8VAC.
High side thru .01mfd to antenna connector, low side to chassis. Tune to 27.115MC (Channel 13) (30% Mod.). .5uv to luv input. Increase input to 50uv 30% Mod.	13 13	R6 R3	Adjust for "S9" Reading on Receiver Meter (M17). Set Squelch Control (R2) fully counterclockwise, adjust R3 to Point where Receiver squelches.
High side thru .01mfd to antenna connector, low side to chassis. Tune to 27.115MC (Channel 13) (30% Mod.). .5uv to luv input.	13		With Pad Button depressed, Receiver "S" Meter (M17) should drop to a reading of about "S6". This represents about 20db attenuation.
Increase input to 50uv 30% Mod. Reduce signal generator input to .5uv and apply noise source.	13		With AUL Button depressed, there should be a drop in noise level.

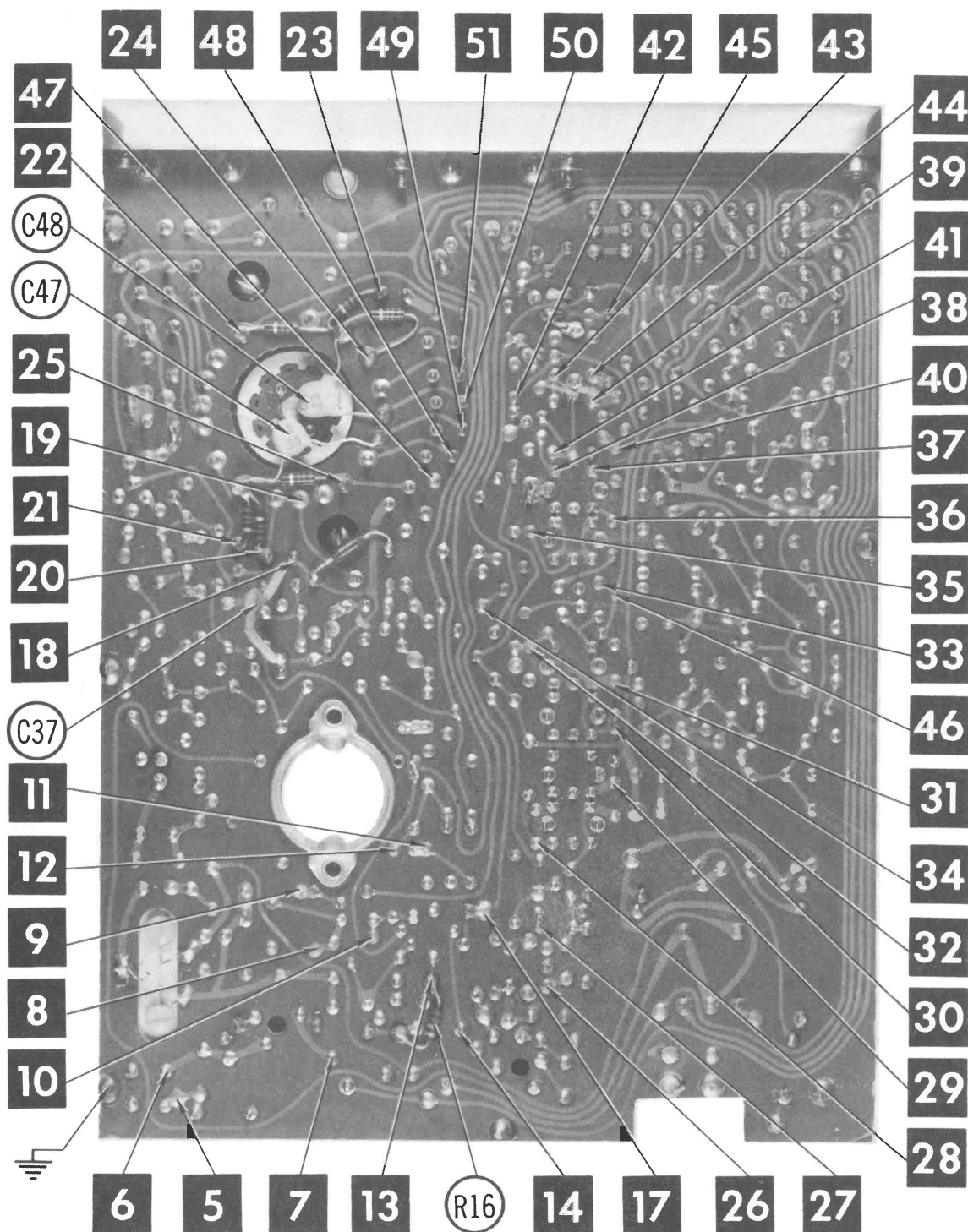
TRANSMITTER

INDICATOR	ADJUST	REMARKS
VTVM	A12	With 100K isolation resistor in series with VTVM probe measure voltage at gate of Q2 (1st Rec Mixer). Adjust A12 for Peak Negative Reading. Turn A12 1 1/2 turns in clockwise direction from peak. Voltage readings should be -5.2V to -6.5V. Check on Channels 1, 13, & 23.
RF Wattmeter	A13 thru A16	Adjust for maximum on Channel 13.
Nearby TV (Ch. 2)		Check all channels for MINIMUM of 3 Watts output. Adjust for MINIMUM interference.
Frequency Meter		Connect Frequency Meter to antenna connector thru 10pf capacitor. Measure frequency. (+ 1300 cycle tolerance).
Oscilloscope	R5	Connect Scope to Antenna Connector. Talk (Do Not Whistle) into Microphone at normal voice level. Adjust Modulation Level (R5) for 100% Modulation on Peaks.

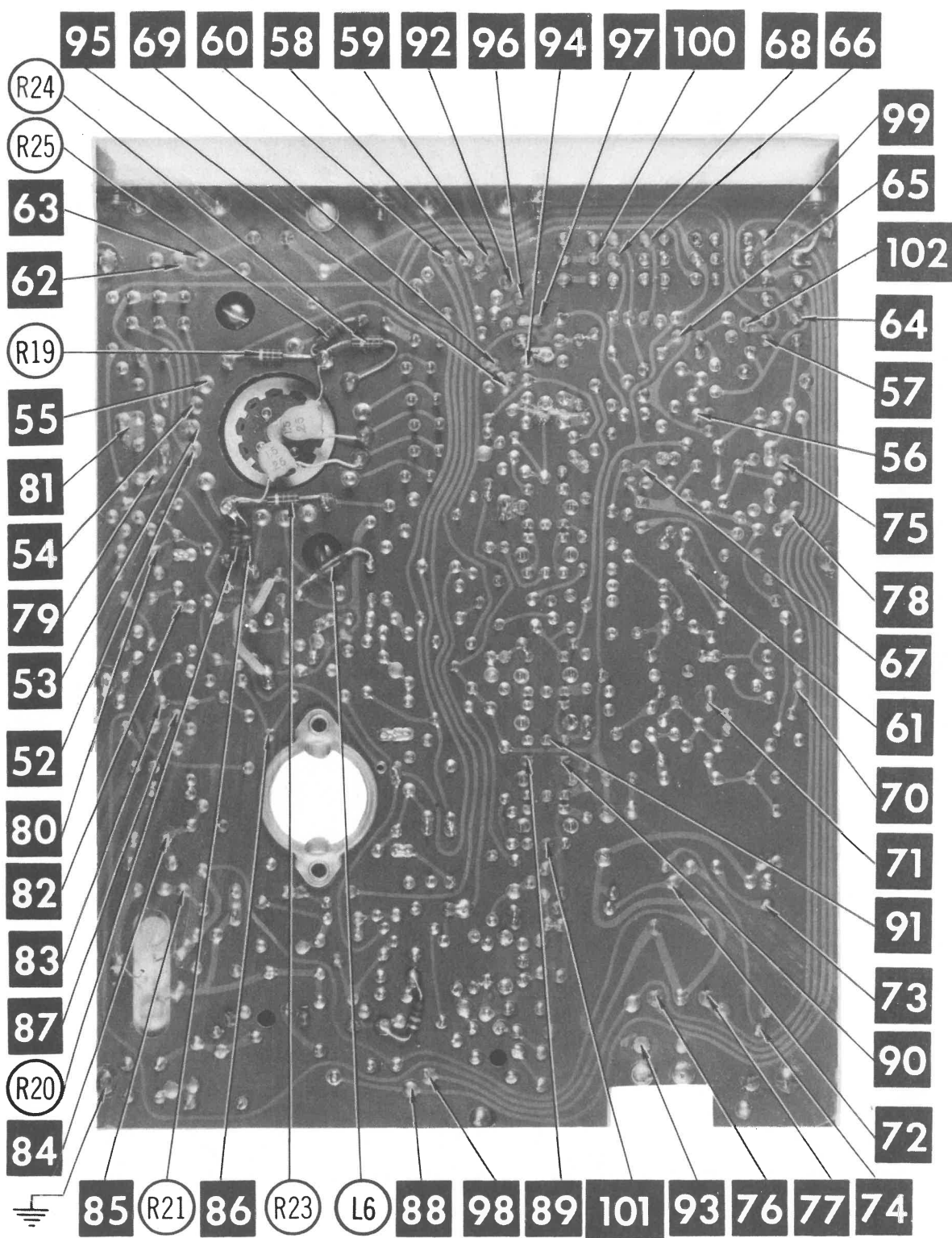


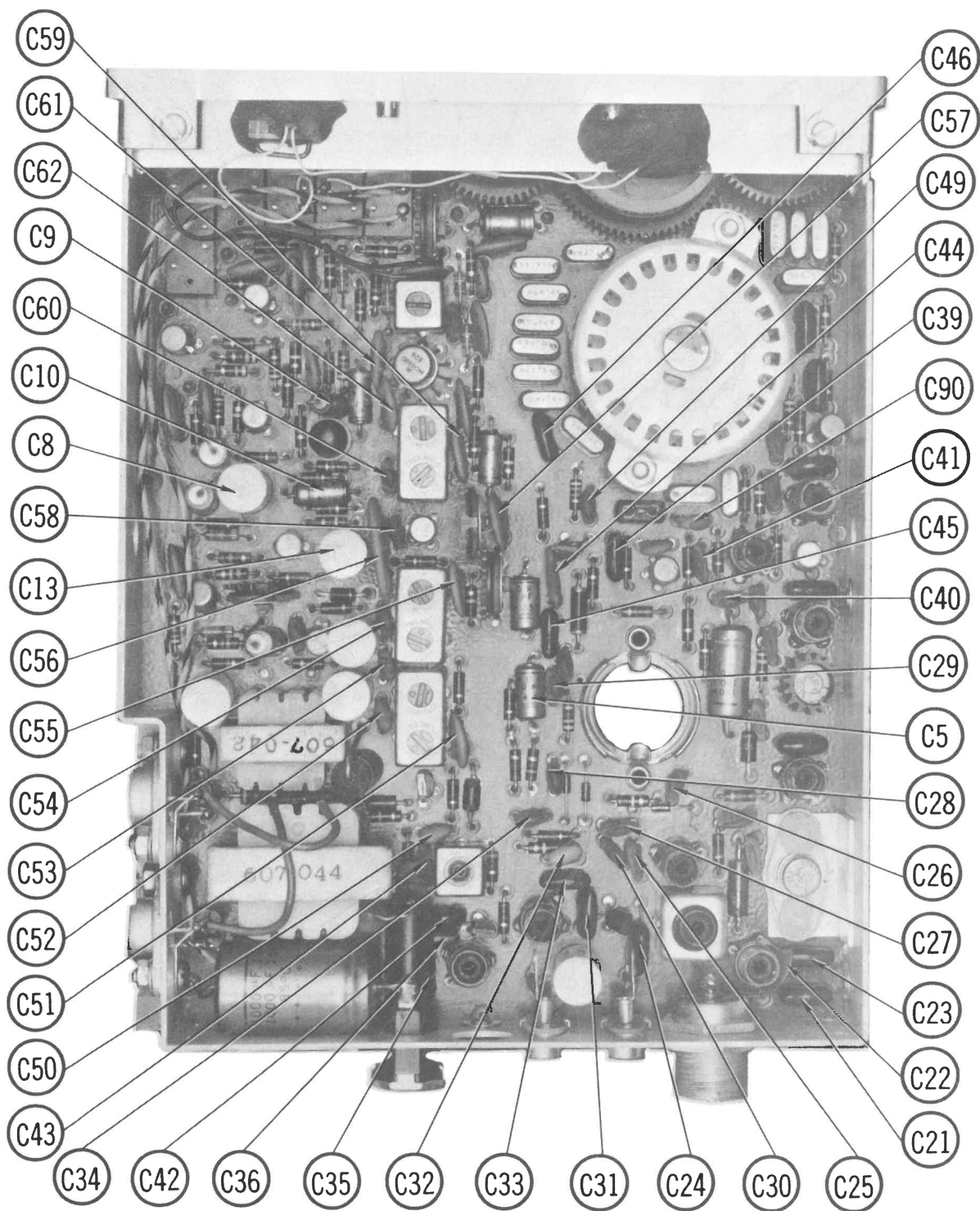


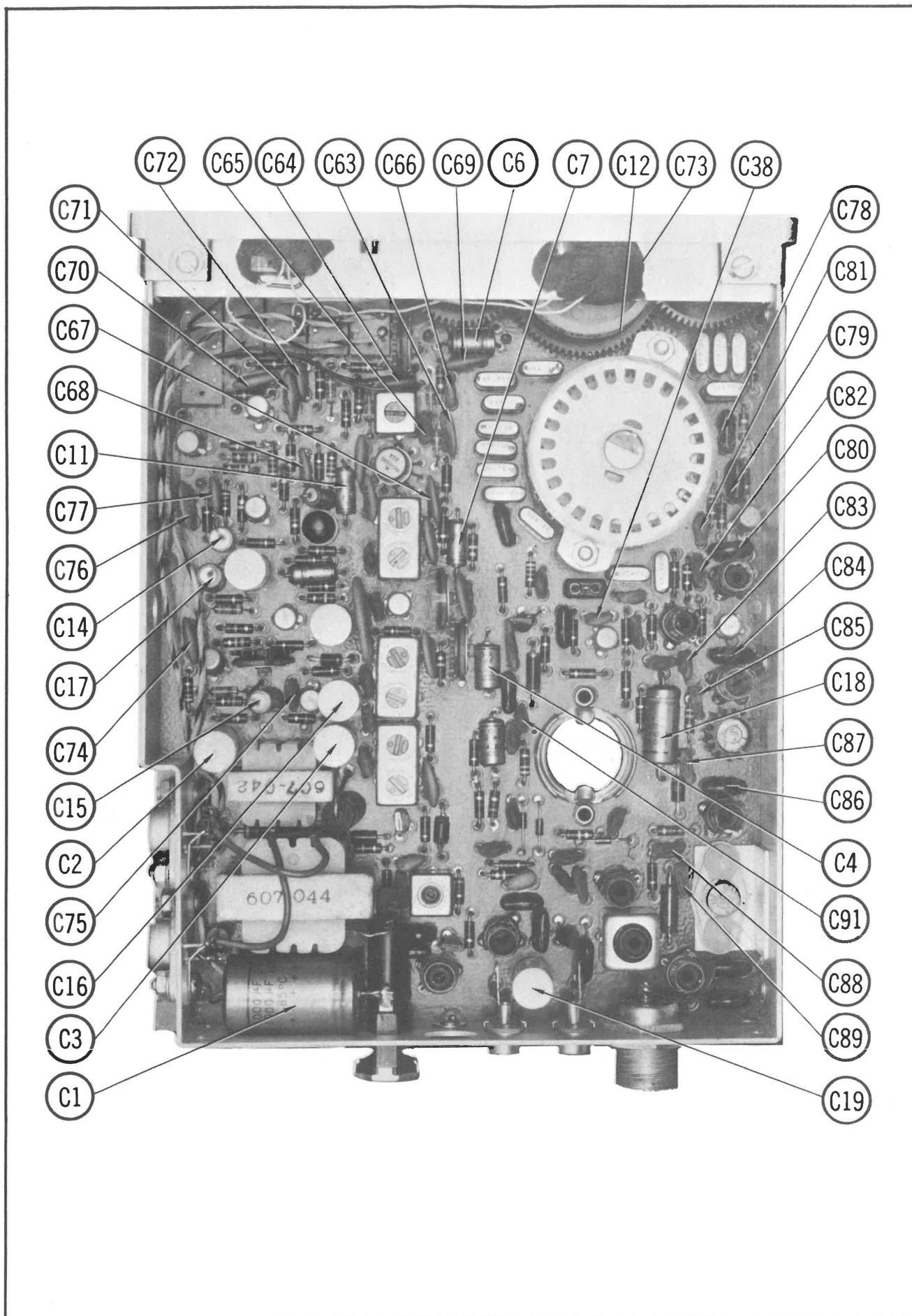




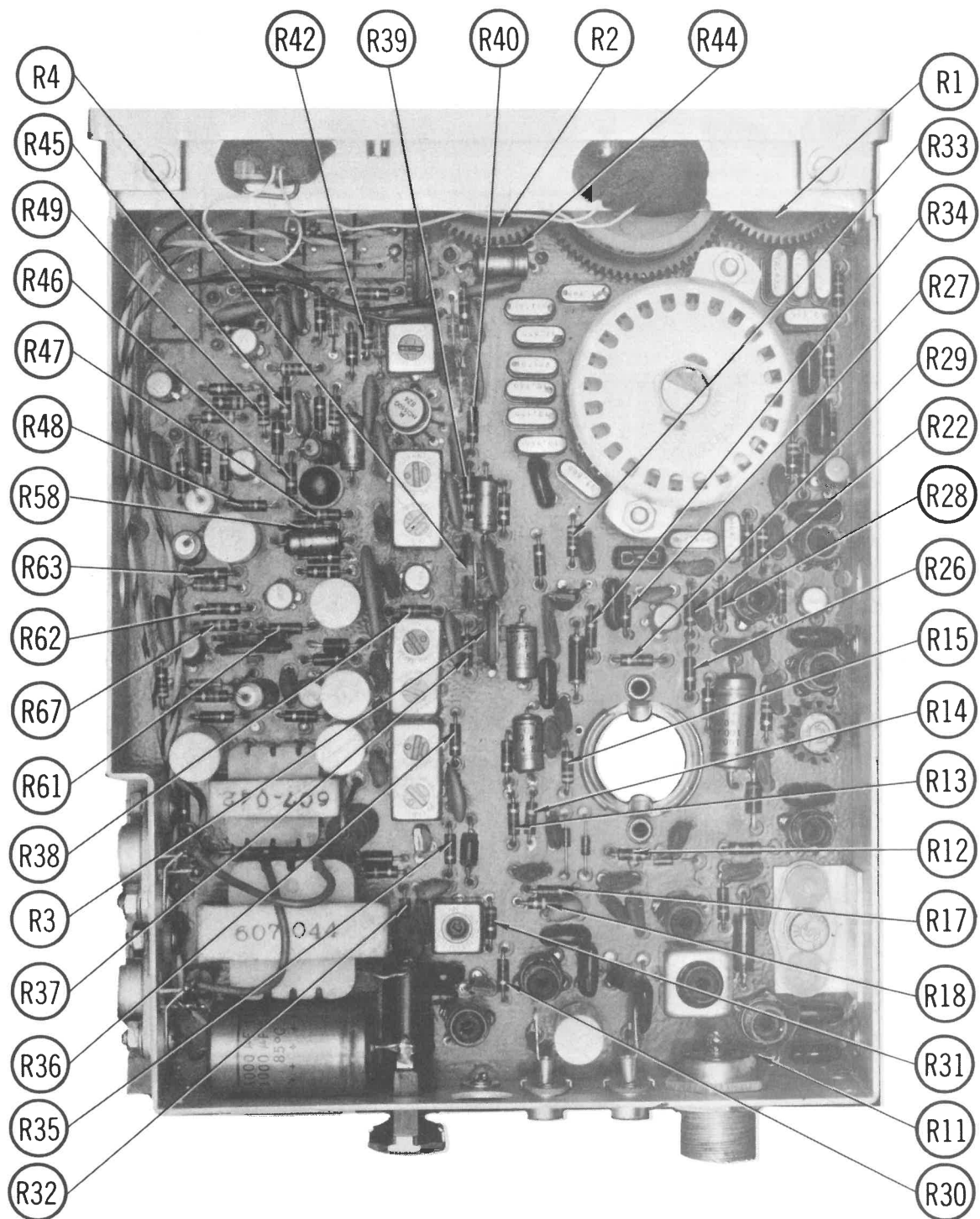
A Howard W. Sams **CIRCUITRACE** Photo

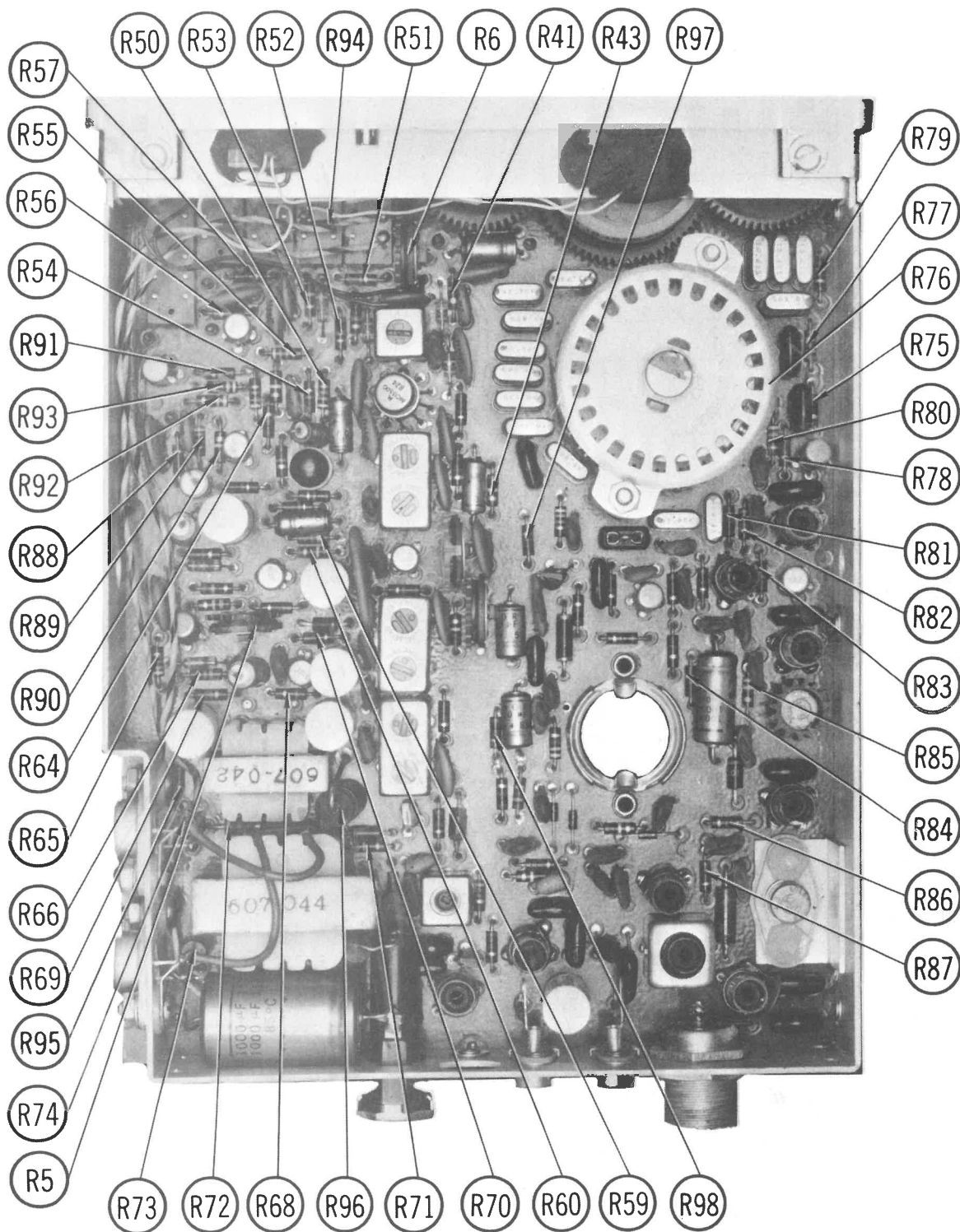


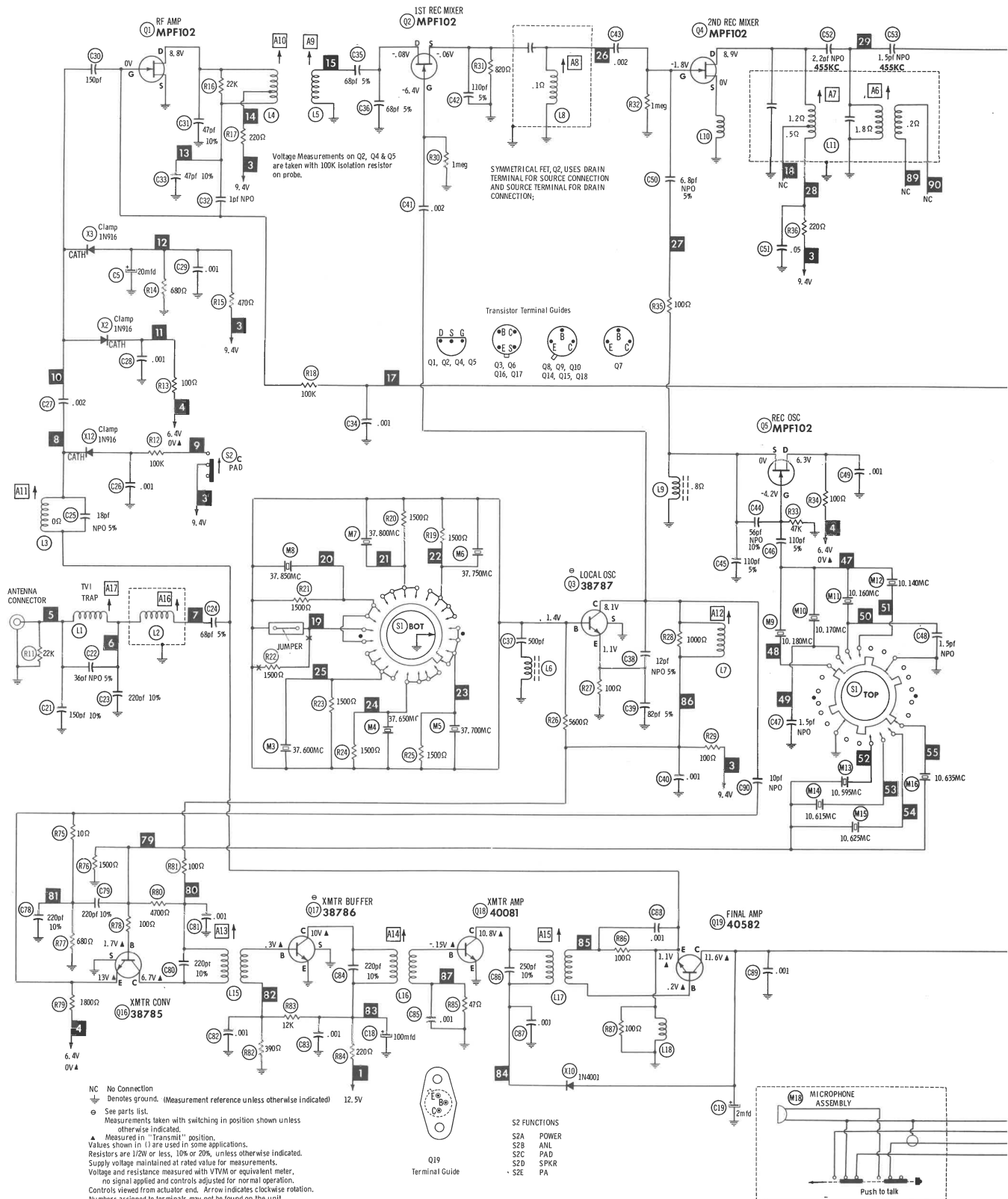




OLSON MODEL CB-88







PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA						
			MFGR. PART No.		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	MPF-102	RF Amp (FET)			GE-FET-1	FE-100	HEP802		ECG 132
Q2	MPF-102	1st Rec Mixer (FET)			GE-FET-1	FE-100	HEP802		ECG 132
Q3	38787 (40245)	Local Osc.			GE-20	TR-21	HEP55	SK3018	ECG 108
Q4	MPF-102	2nd Rec Mixer (FET)			GE-FET-1	FE-100	HEP802		ECG 132
Q5	MPF-102	Rec Osc. (FET)			GE-FET-1	FE-100	HEP802		ECG 132
Q6	38787 (40245)	IF Amp			GE-20	TR-21	HEP55	SK3018	ECG 108
Q7	2N3638	Squelch Amp			GE-22	TR-19	HEP716	SK3025	ECG 109
Q8	38788 (40232)	AF Emitter Follower			GE-10	TR-21	HEP50	SK3020	ECG 108
Q9	38788 (40232)	AF Amp			GE-10	TR-21	HEP50	SK3020	ECG 108
Q10	38788 (40232)	AF Amp			GE-10	TR-21	HEP50	SK3020	ECG 108
Q11	38788 (40232)	Driver			GE-10	TR-21	HEP50	SK3020	ECG 108
Q12	40316	Output-Modulator			GE-23	TR-23	HEP247	SK3026	ECG 152
Q13	40316	Output-Modulator			GE-23	TR-23	HEP247	SK3026	ECG 152
Q14	38788 (40232)	Mic Emitter Follower			GE-10	TR-21	HEP50	SK3020	ECG 108
Q15	38788 (40232)	Speech Amp			GE-10	TR-21	HEP50	SK3020	ECG 108
Q16	38785 (40244)	Xmtr Converter			GE-17	TR-21	HEP56	SK3018	ECG 108
Q17	30786 (40244)	Xmtr Buffer			GE-17	TR-21	HEP56	SK3018	ECG 108
Q18	38789 (40081)	Xmtr Driver					HEP243		
Q19	40582	Final Amp							

INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFGR. PART No.	REMARKS
IC1	IF Amp		MOTOROLA REPLACEMENT: HEP590

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	MZX9.1		1ZM9.1T10	ECG 139		9.1V Zener
X2	1N916	1N91	8D4	ECG 116		
X3	1N916	1N91	8D4	ECG 116		
X4	1N295	1N295	1N295	ECG 109		
X5	1N295	1N295	1N295	ECG 109		
X6	1N295	1N295	1N295	ECG 109		
X7	1N295	1N295	1N295	ECG 109		
X8	1N456	GE-504A	8D4	ECG 116		
X9	1N456	GE-504A	8D4	ECG 116		
X10	1N4001	GE-504A	8D4	ECG 116		
X11	1N4001	GE-504A	8D4	ECG 116		
X12	1N916	1N91	8D4	ECG 116		

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000 15V		PRS1230					
C2	150 15V		PTT107	EA15-150	NLW150-15	MT1-23	MTV150CK15	TE-1163
C3	150 15V		PTT107	EA15-150	NLW150-15	MT1-23	MTV150CK15	TE-1163
C4	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C5	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C6	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C7	1 50V		CRE750A		NLW1-50	MT1-1	MTA1D50	TE-1300
C8	150 15V		PTT107	EA15-150	NLW150-15	MT1-23	MTV150CK15	TE-1163
C9	1 50V		CRE750A		NLW1-50	MT1-1	MTA1D50	TE-1300
C10	1 50V		CRE750A		NLW1-50	MT1-1	MTA1D50	TE-1300
C11	1 40V		CRE750A		NLW1-50	MT1-1	MTA1D50	TE-1300
C12	1 50V		CRE750A		NLW1-50	MT1-1	MTA1D50	TE-1300
C13	150 15V		PTT107	EA15-150	NLW150-15	MT1-23	MTV150CK51	TE-1163
C14	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C15	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C16	150 15V		PTT107	EA15-150	NLW150-15	MT1-23	MTV150CK51	TE-1163
C17	20 16V		CRE761A	EA30-15	NLW20-50	MT1-11	MTA20E50	TE-1157
C18	100 15V		CRE743A	EA15-100	NLW100-15	MT1-19	MTA100E15	TE-1162
C19	2 50V		BCD50002	EP50-2	NLW2-50	MT1-1	MTV2CB50	TE-1301

OLSON MODEL CB-88

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.
C21	150 10%		ADM-15-151	CPR-150J	CD15F151K500	DM-15-151K	SX315	424MC1500J501
C22	36 NPO 5%			TCZ-36				
C23	220 10%		ADM-15-221	CPR-220J	CD15F221K500	DM-15-221K	SX322	424ME2200J501
C24	68 5%		ADM-15-680	CPR-68J	CD15E680J500	DM-15-680J	SX468	424MC680J501
C25	18 NPO 5%			TCZ-18	CY601CG180J		CN0418	10TCC-Q18
C26	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C27	.002		GPD X5F202K	DD-202	JBX601YP202K	CCD-202	GP220	10TS-D20
C28	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C29	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C30	150		GPD X5F151K	DD-151		CCD-151	GP315	10TS-T15
C31	47 10%		ADM-15-470	CPR-47J	CD15E470K500	DM-15-470K	SX447	424MC470J501
C32	1 NPO +.25		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C33	47 10%		ADM-15-470	CPR-47J	CD15E470K500	DM-15-470K	SX447	424MC470J501
C34	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C35	68 5%		ADM-15-680	CPR-68J	CD15E680J500	DM-15-680J	SX468	424MC680J501
C36	68 5%		ADM-15-680	CPR-68J	CD15E680J500	DM-15-680J	SX468	424MC680J501
C37	500		GPD X5F561K	DD-501	JBZ601YP501K	CCS-501	GP350	10TS-T50
C38	12 NPO 5%			TCZ-12	CZ601CG120J		CN0412	10TCC-Q12
C39	82 5%		ADM-15-820	CPR-110J	CD15E820J500	DM-15-820J	SX482	424MC820J501
C40	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C41	.002		GPD X5F202K	DD-202	JBX601YP202K	CCD-202	GP220	10TS-D20
C42	110 5%		ADM-15-111	CPR-110J	CD15F111J500	DM-15-111J	SX311	424MC1100J501
C43	.002		GPD X5F202K	DD-202	JBX601YP202K	CCD-202	GP220	10TS-D20
C44	56 NPO 10%			TCZ-56		CCD-560	CN0456	10TCC-Q56
C45	110 5%		ADM-15-111	CPR-110J	CD15F111J500	DM-15-111J	SX311	424MC1100J501
C46	110 5%		ADM-15-111	CPR-110J	CD15F111J500	DM-15-111J	SX311	424MC1100J501
C47	1.5 NPO +.25		NPO-DI 1.5	DTZ-1R5			CN0515	10TCC-V15
C48	1.5 NPO +.25		NPO-DI 1.5	DTZ-1R5			CN0515	10TCC-V15
C49	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C50	6.8 NPO 5%		NPO-DI 6.8	DTZ-6R8	CZ601CH6R8D		CN0568	10TCC-V68
C51	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C52	2.2 NPO +.25		NPO-DI 2.2	DTZ-2R2	CZ601CJ2R2D		CN0522	10TCC-V22
C53	1.5 NPO +.25		NPO-DI 1.5	DTZ-1R5			CN0515	10TCC-V15
C54	1.5 NPO +.25		NPO-DI 1.5	DTZ-1R5			CN0515	10TCC-V15
C55	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C56	.47 12V							
C57	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C58	1 NPO +.25		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C59	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C60	4.7 NPO +.25		NPO-DI 5.0		CZ601CH5R0D		CN0522	10TCC-V50
C61	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C62	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C63	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C64	.005		GPD X5R502K	DD-502	JBT601YP502K	CCD-502	JF250	10TS-D50

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.
C65	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C66	.01 100V		GPD X5S103K	DD-103	BYX601ZU103P	CCD-103	JF110	10TS-S10
C67	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C68	.005		GPD X5R502K	DD-502	JBT601YP502K	CCD-502	JF250	10TS-D50
C69	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C70	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C71	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C72	.005		GPD X5R502K	DD-502	JBT601YP502K	CCD-502	JF250	10TS-D50
C73	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C74	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C75	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C76	.05 25V		TTP-05	CK-503	HOV101ZV503Z	CCD-503	TA150	TGL-S50
C77	.005		GPD X5R502K	DD-502	JBT601YP502K	CCD-502	JF250	10TS-D50
C78	220 10%		ADM-15-221	CPR-220J	CD15F221K500	DM-15-221K	SX322	424ME2200J501
C79	220 10%		ADM-15-221	CPR-220J	CD15F221K500	DM-15-221K	SX322	424ME2200J501
C80	220 10%		ADM-15-221	CPR-220J	CD15F221K500	DM-15-221K	SX322	424ME2200J501
C81	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C82	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C83	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C84	220 10%		ADM-15-221	CPR-220J	CD15F221K500	DM-15-221K	SX322	424ME2200J501
C85	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C86	250 10%		ADM-15-251	CPR-250J	CD15F251K500	DM-15-251K	SX325	MS-325
C87	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C88	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C89	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C90	10 NPO 5%			DTZ-10	CZ601CG100J		CN0410	10TCC-Q10
C91	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	10K					
R2	Squelch	10K					
R3	Squelch Limit	10K		T-10K		X201R103B	MTC14L1
R4	IF Gain	100		T-100		X201R101B	MTC12L1
R5	Modulation Adjust	1000		T-1000		X201R102B	MTC13L1
R6	"S" Meter Adjust	10K		T-10K		X201R103B	MTC14L1

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R73	.82 2W	BWH .82		

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R74	.82 2W	BWH .82		

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	TVI Trap (54MC)				
L2	Final Output				
L3	RF Amp Input				
L4	RF Interstage				
L5	RF Interstage				
L6	RFC (2.2uh)			74F226AP	TA812
L7	Local Osc.				
L8	IF Interstage (10.7MC)				
L9	RFC (33uh)		19-6033	74F335AI	
L10	RFC (35uh)		19-2004	4586	TA811
L11	Input IF (455KC)				
L12	Interstage IF (455KC)				
L13	Interstage IF (455KC)				
L14	Output IF				
L15	Xmtr Converter				
L16	Xmtr Buffer				
L17	Xmtr Driver				
L18	RFC (6.8uh)			74F686AP	TA821
L19	RFC (22uh)		19-6022	74F225AI	TA311

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MFG. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	2	1							

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFG. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	20	3.2						
		SEC. 2						
		.2 DC Resistance						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFG. PART No.	QUAM PART No.	
SP1	3" x 5" PM 3.2 ohms		35A05	

OLSON MODEL CB-88

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA							
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	
F1	C1 1/2 250V			C 1 1/2	HC 1 1/4 to 1 3/4	33201.5	346005		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Meter Lamp		
M2	Dial Lamp		
M3	Crystal	251-026	37.600MC
M4	Crystal	251-027	37.650MC
M5	Crystal	251-028	37.700MC
M6	Crystal	251-029	37.750MC
M7	Crystal	251-030	37.800MC
M8	Crystal	251-031	37.850MC
M9	Crystal	251-025	10.180MC
M10	Crystal	251-024	10.170MC
M11	Crystal	251-023	10.160MC
M12	Crystal	251-022	10.140MC
M13	Crystal	251-032	10.595MC
M14	Crystal	251-033	10.615MC
M15	Crystal	251-034	10.625MC
M16	Crystal	251-035	10.635MC
M17	Meter	409-018	"S" Units 200ua
M18	Microphone Assembly	551-004	
S1	Switch	277-009	24-Position Rotary
S2	Switch	280-003	Push Button - Power, ANL, Pad, Speaker, PA

WIRING DATA

General-use Hook-up Wire Use BELDEN No. 8530 (Solid) Available in 12 Colors
8524 (Stranded) Available in 12 Colors

Shielded Antenna Lead Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
8237 Low Loss (RG-8/U)
8240 (Solid) Miniature (RG-58/U)
8259 (Stranded) Miniature (RG-58A/U)

Coiled Microphone Cable Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)

Ignition Noise Suppression Use BELDEN No. 7300-Series Spark-Plug Sets

Bonding Strap Use BELDEN No. 8661 (3/8 In.)



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

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

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

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



JOHNSON MODEL MESSENGER 124 (242-124)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 Thru A8, A10 Thru A23.....GENERAL CEMENT #8606L, 9440.....WALSCO #2501, 2544

A9.....GENERAL CEMENT #8276, 8277, 8290....WALSCO #2512, 2515, 2525

RECEIVER

Connect an AC VTVM across speaker voice coil. Set Volume Control fully clockwise and squelch control fully counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q3 (2nd Mixer), low side to chassis. Tune to 455KC (Mod)	Any	A1 Thru A6	Adjust for maximum.
High side thru .01mfd to Antenna connector, low side to chassis. Tune to 27.085MC (Mod)	11	A7	Set Delta tune control to 1/2 mesh. Adjust for maximum.
		A8 Thru A11	These adjustments for the crystal filter tuning require a precision sweep alignment with exact procedures. If alignment of the Filter is required return Unit to the factory for alignment.
	23	A12	Connect an RF voltmeter from emitter of Q2 to chassis ground. Turn A12 until it is flush with the top of the can. Turn the slug clockwise until the first peak is reached, then turn it 1/4 turn clockwise beyond the peak.

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JOHNSON MODEL MESSENGER 124

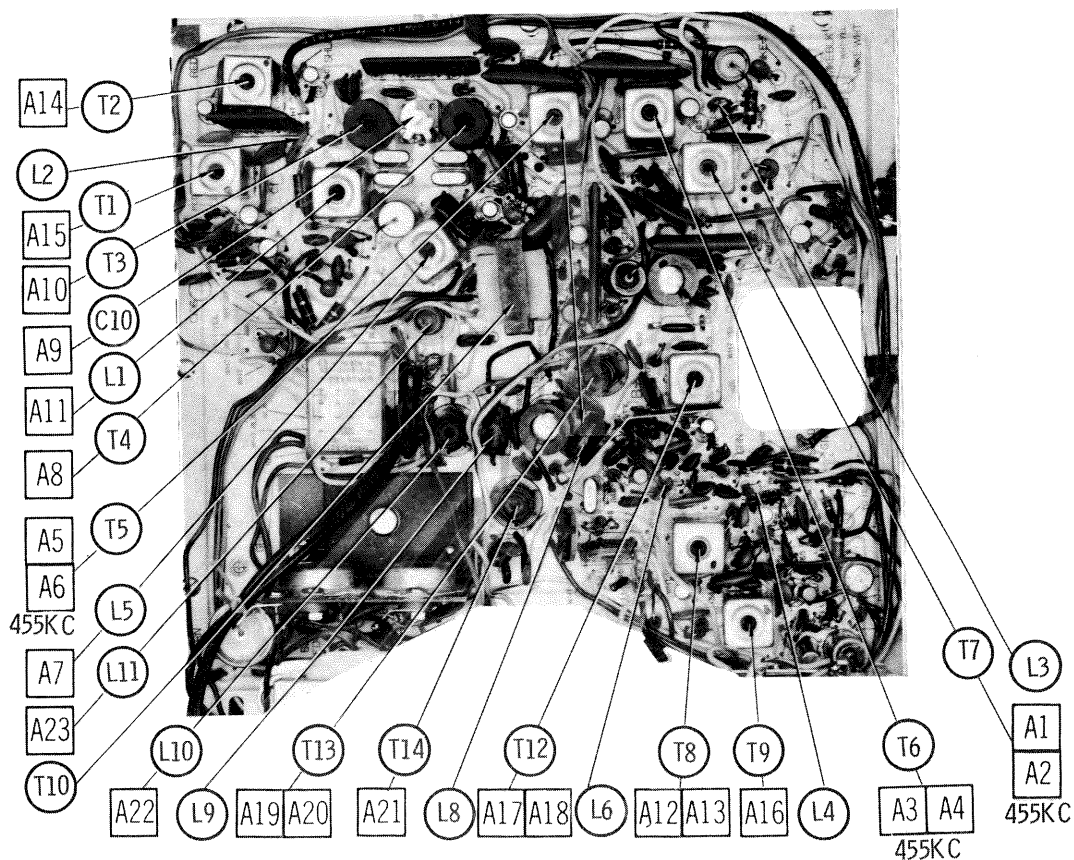
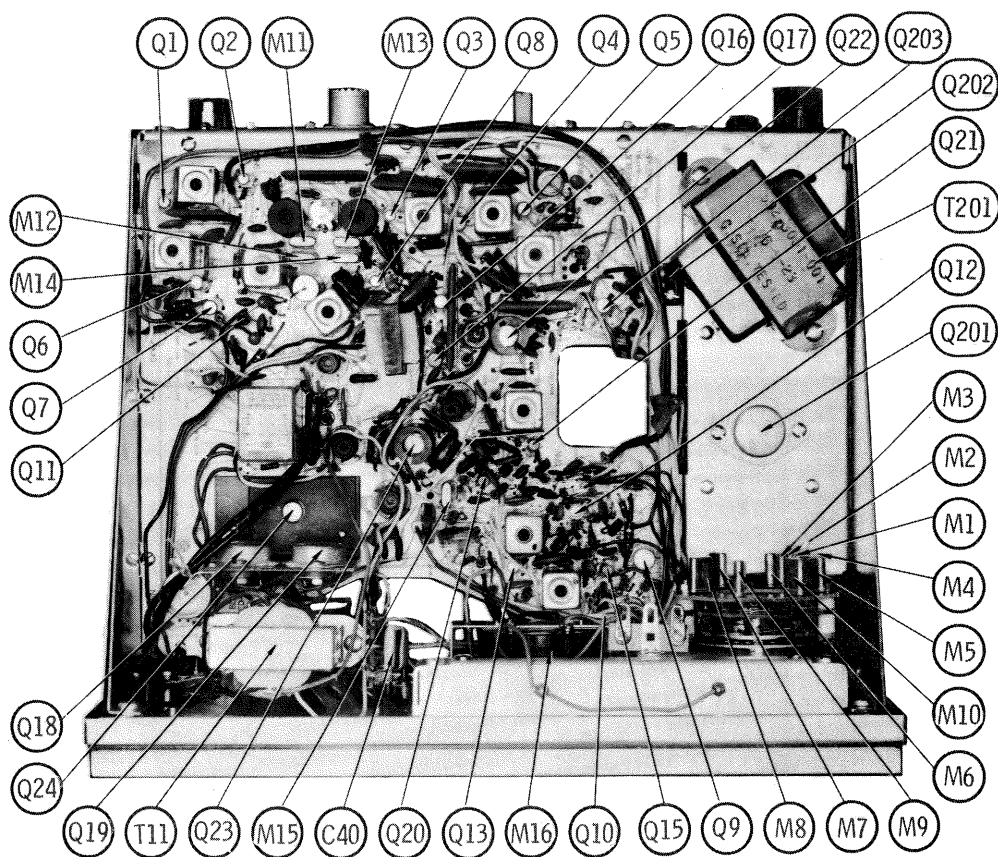
ALIGNMENT INSTRUCTIONS

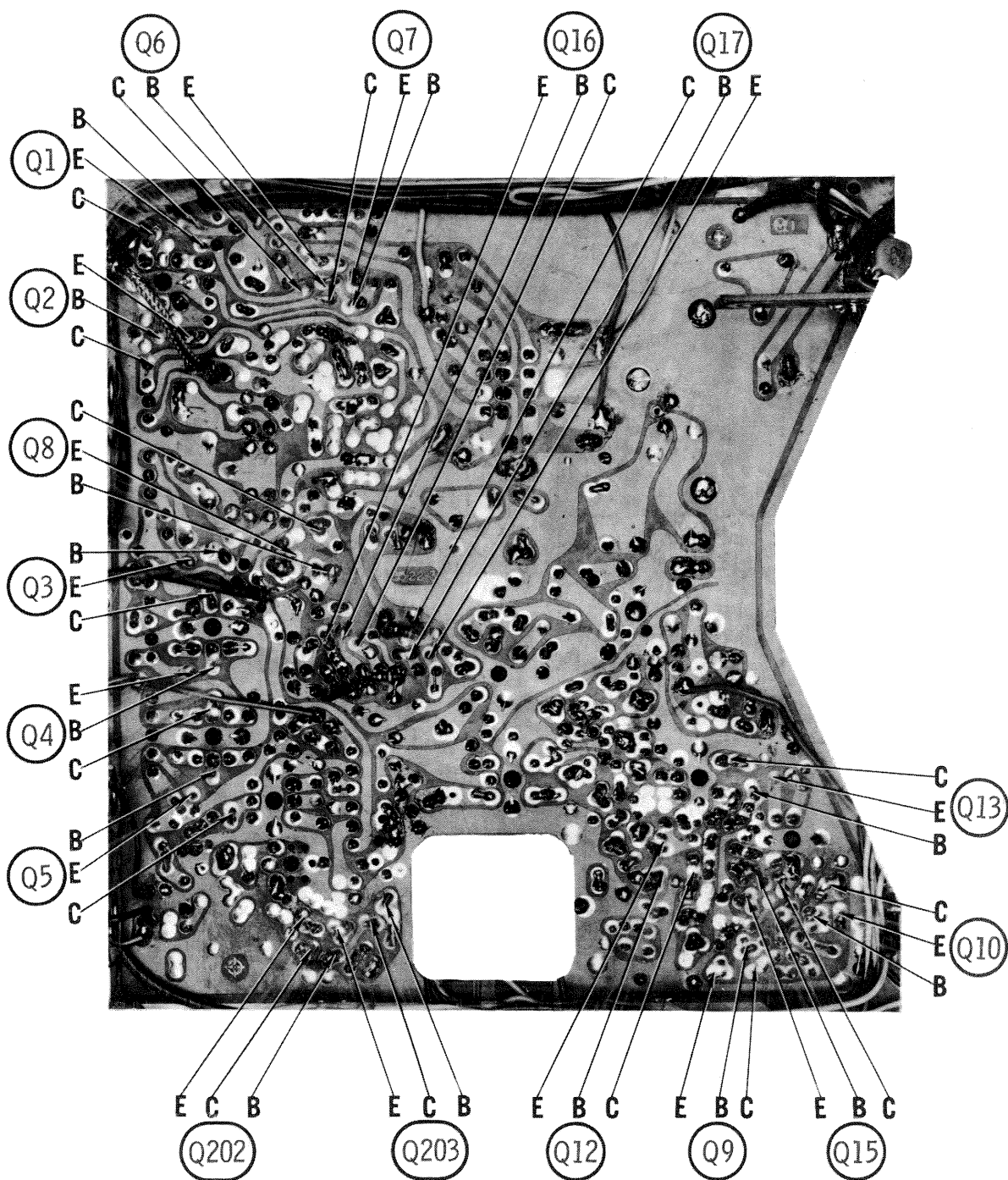
RECEIVER

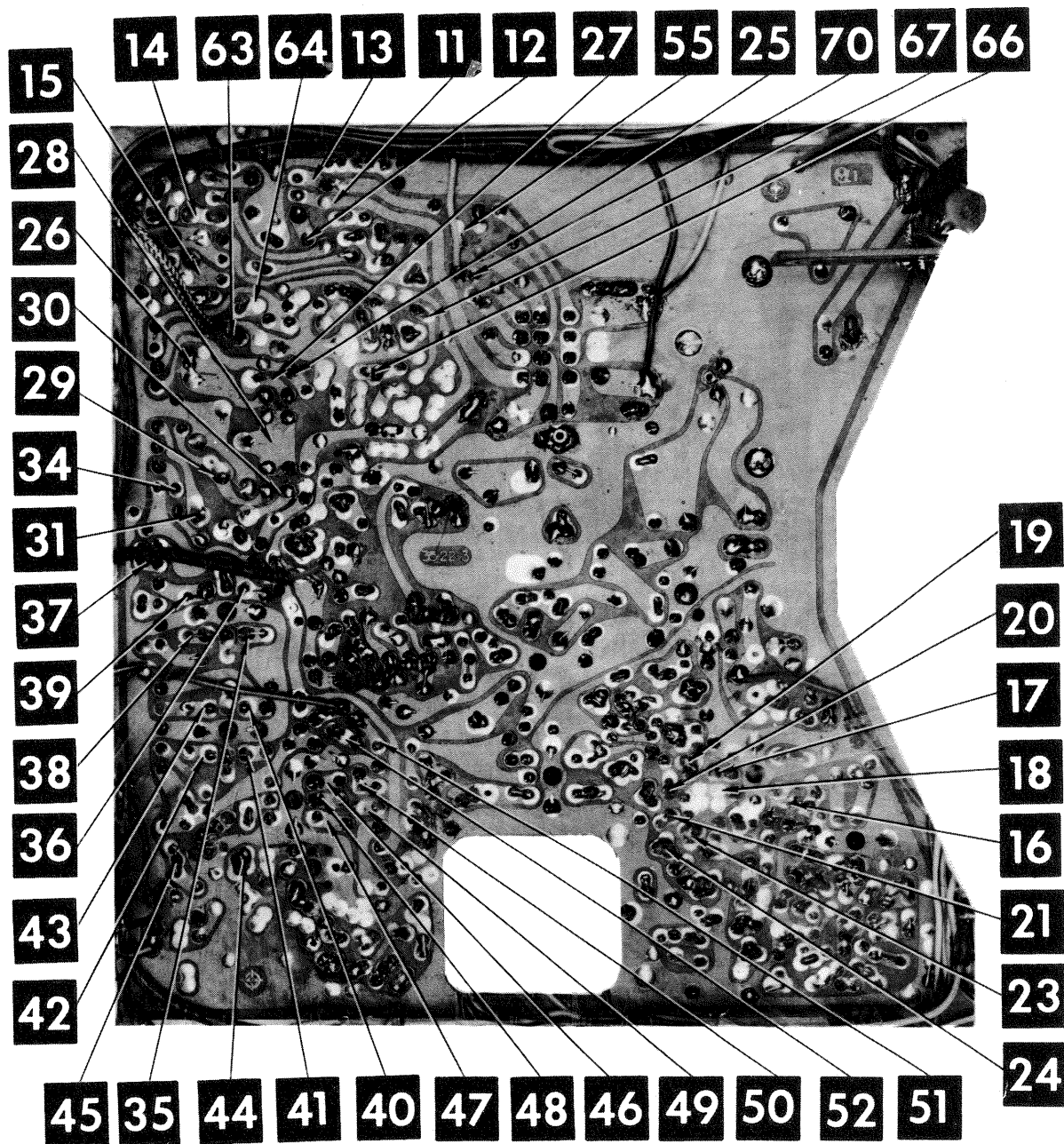
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
	11	A13,A14	Adjust for maximum reading on the RF voltmeter. Set channel selector to channels 1,6,11,16,20, and 23. The reading on the RF voltmeter should be approximately the same as above.
High side thru .01mfd to Antenna connector, low side to chassis. Tune to 27.085MC (Mod).	11	A15,A16	Adjust for maximum gain and best signal to noise ratio. Check for uniform gain on channels 1,11 and 21. Readjust A15 and A16 if necessary.
		R48	Adjust to Zero "S" meter.
High side thru .01mfd to Antenna connector, low side to chassis. Tune to 27.085MC.	11	R49	Set signal generator for 100mv unmodulated output. Adjust R49 for a reading of S5 on "S" meter.

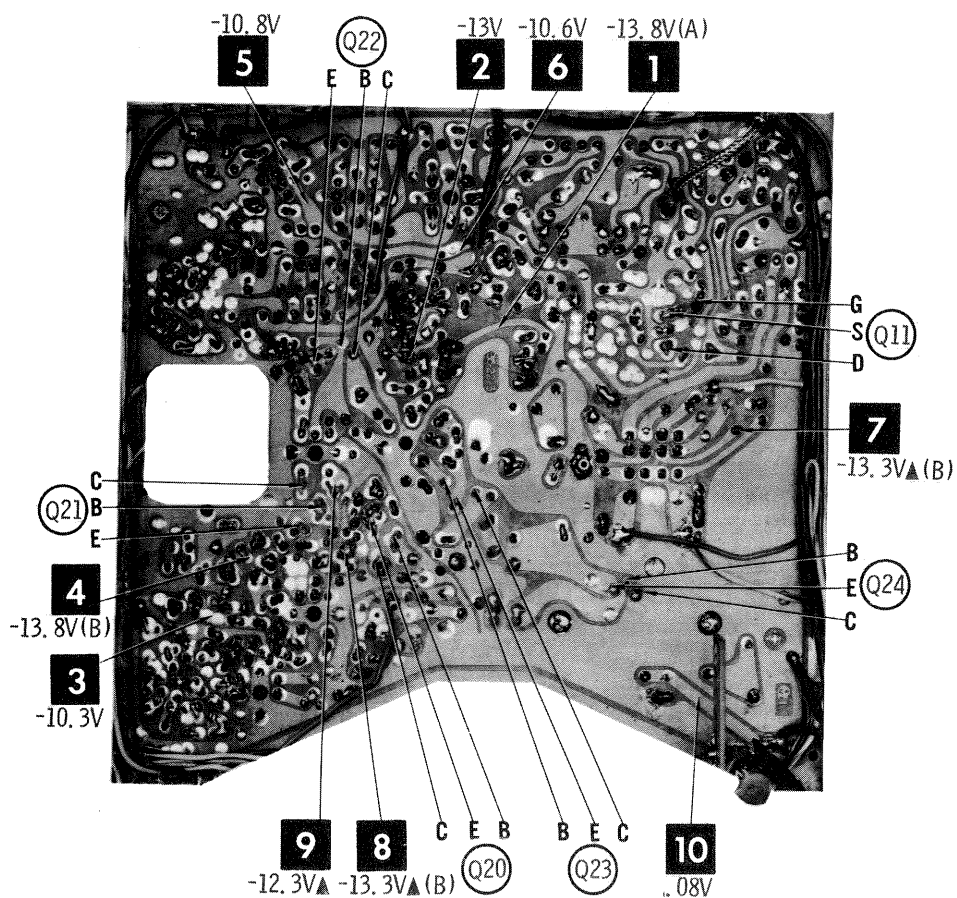
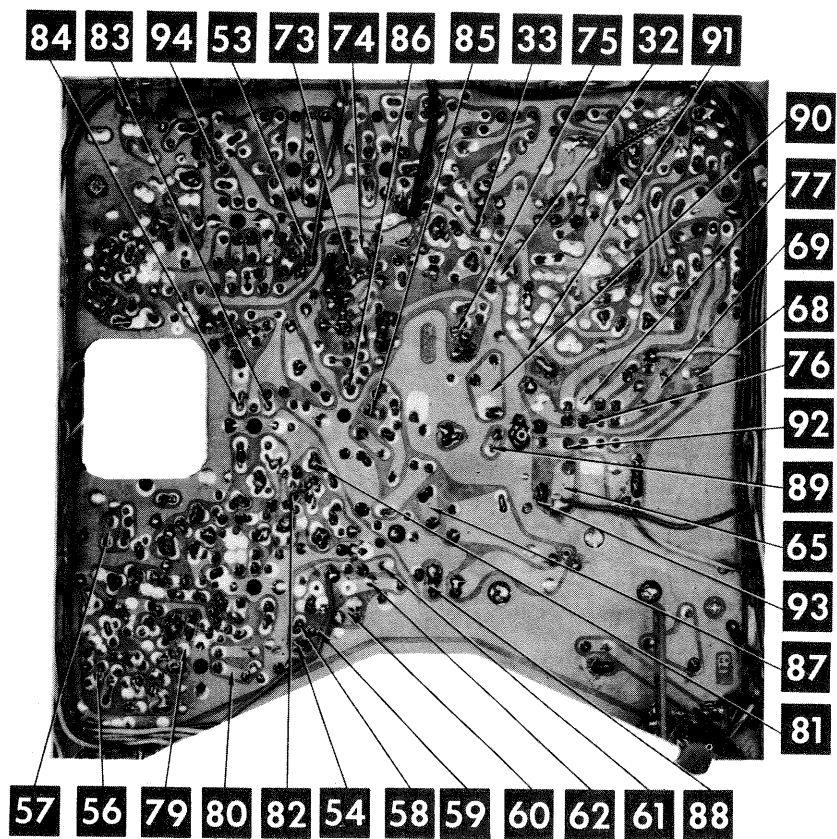
TRANSMITTER

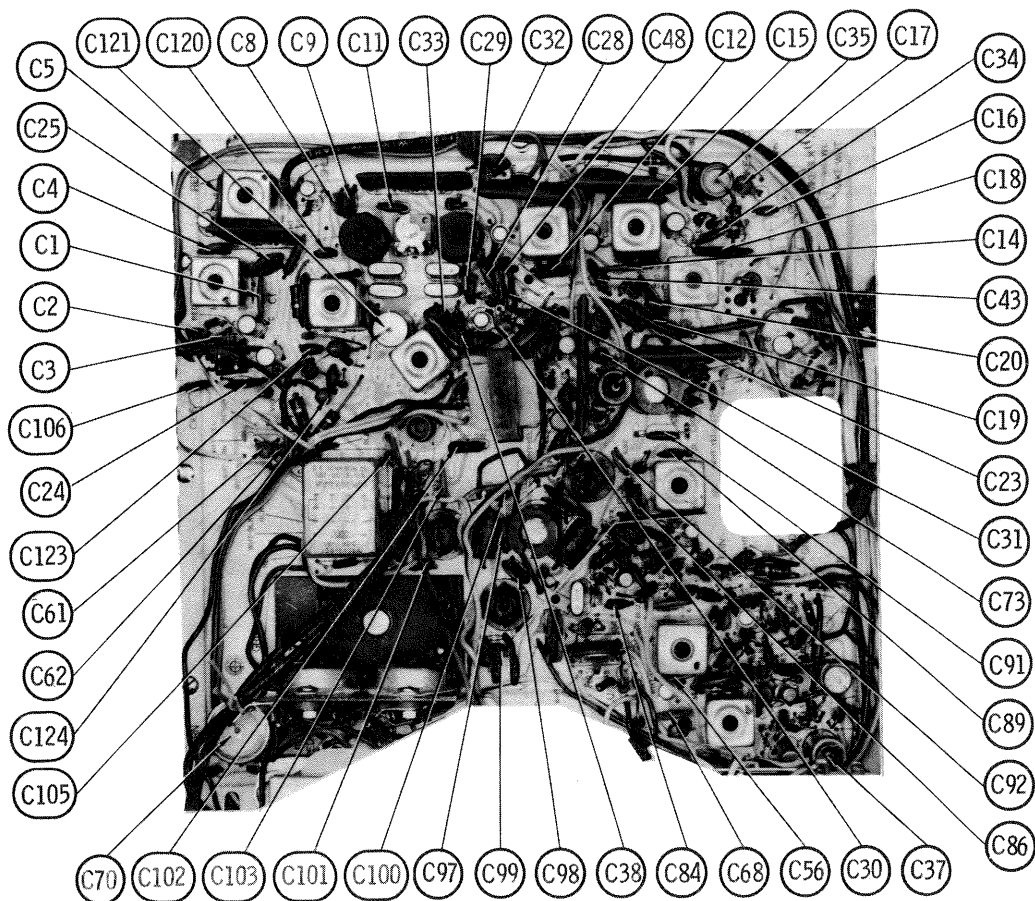
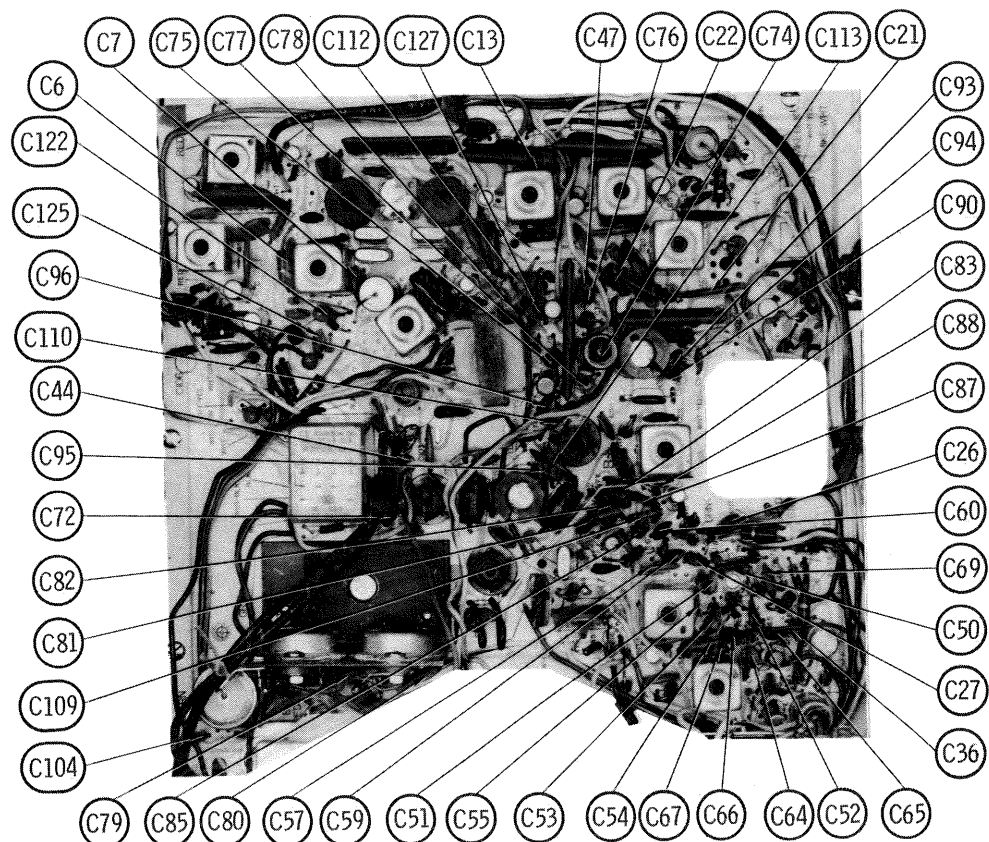
INDICATOR	ADJUST	REMARKS
RF wattmeter or Field strength meter.	A17 Thru A23	Adjust for maximum.
D-500 Ma DC Ammeter	A22	Insert meter in collector of Q24 (Final Amp). Readjust A22 for 5 watts input.
	R25	Key transmitter and adjust R25 for a reading of 4 on PWR scale of meter.
Audio generator and Modulation indicator	R23	Apply 2.5mv of audio at 1000 cps to pin 1 of the mic jack. Key transmitter and adjust mic gain control for 50% modulation. Set meter switch to Mod and adjust R23 for a reading of 50% on the Mod scale of meter.

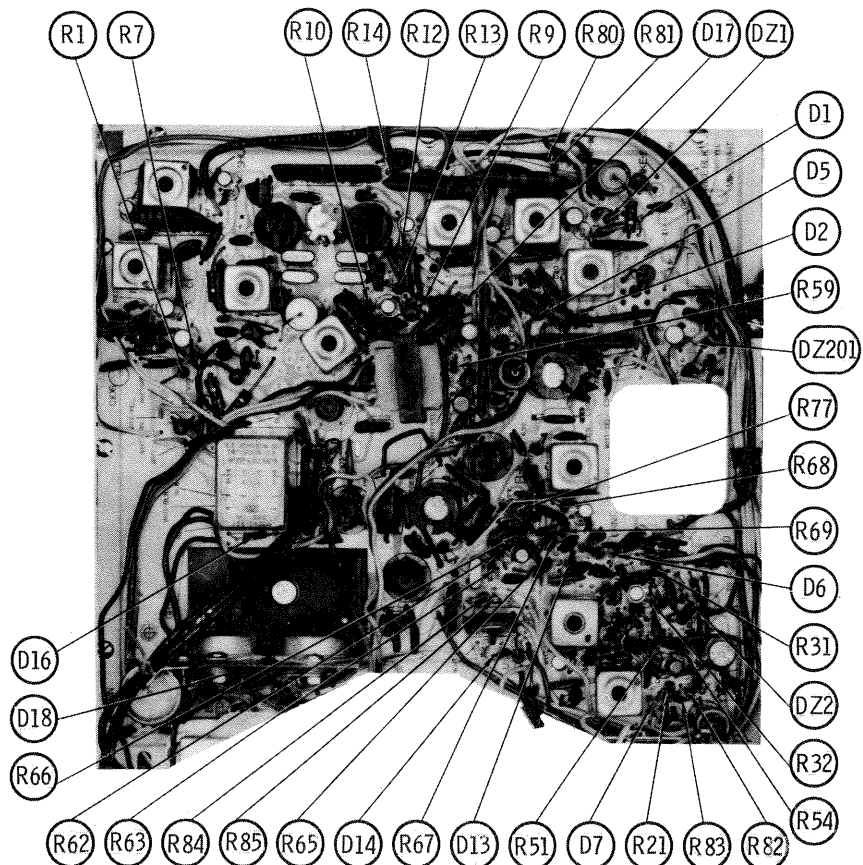
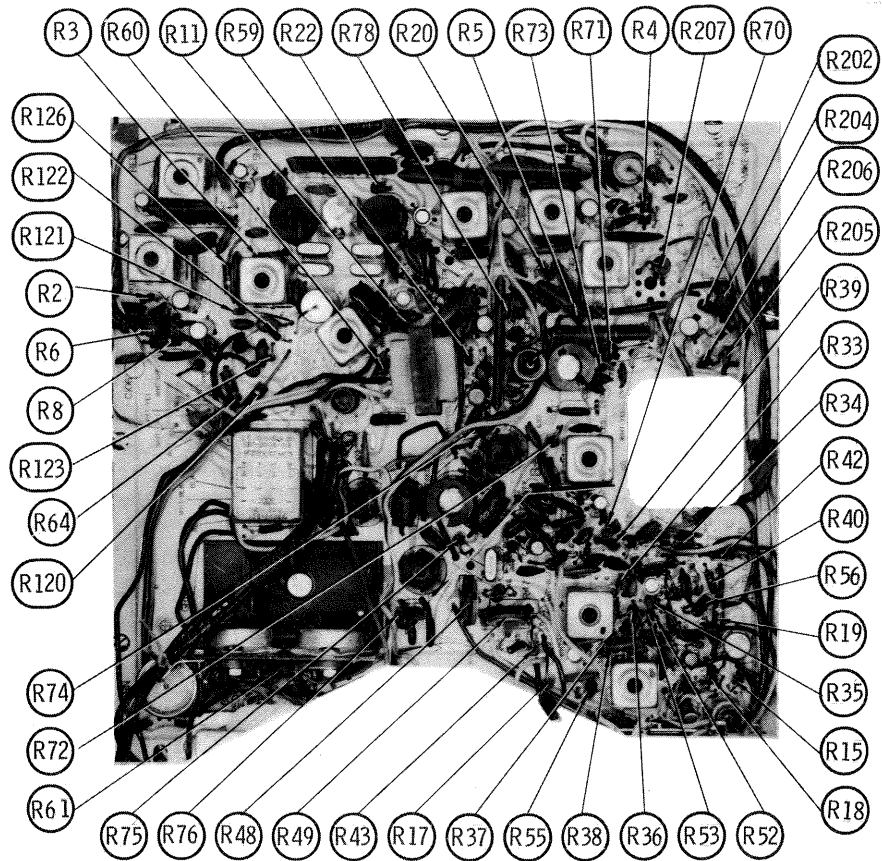


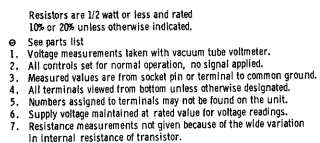










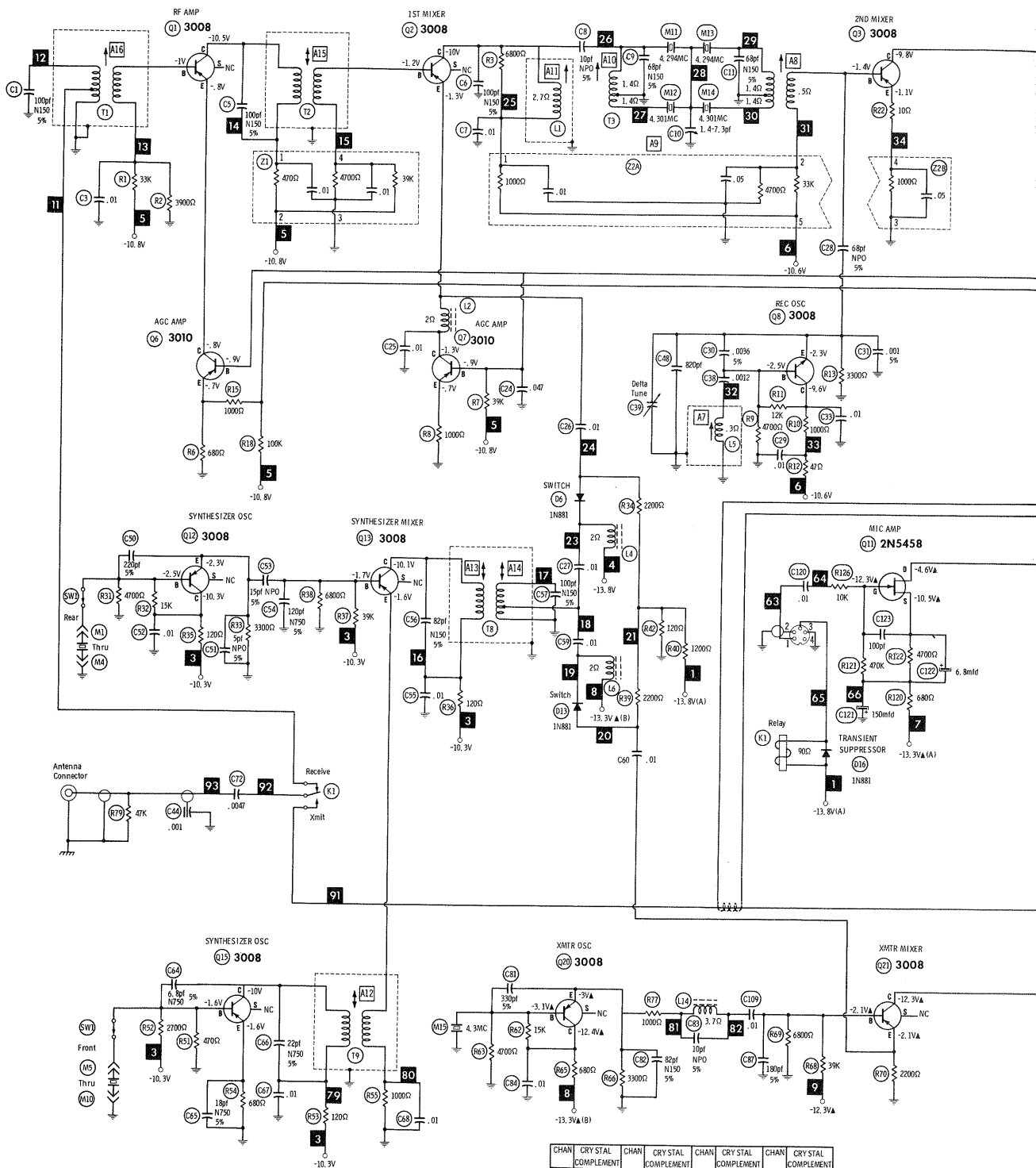


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with **CIRCUITRACE[™]**
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JOHNSON MODEL MESSENGER 124

JOHNSON MODEL MESSENGER 124





- ▲ Measured in "Transmit" position
Resistors are 1/2 watt or less and rated
10% or 20% unless otherwise indicated.
Controls viewed from actuator end. Arrow indicates clockwise rotation.
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.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **Circuitrace**
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CHAN	CRYSTAL COMPLEMENT	CHAN	CRYSTAL COMPLEMENT	CHAN	CRYSTAL COMPLEMENT	CHAN	CRYSTAL COMPLEMENT
1	M1, M5	7	M3, M6	13	M1, M8	19	M3, M9
2	M2, M5	8	M4, M6	14	M2, M8	20	M4, M9
3	M3, M5	9	M5, M7	15	M3, M8	21	M1, M10
4	M4, M5	10	M2, M7	16	M4, M8	22	M2, M10
5	M1, M6	11	M3, M7	17	M1, M9	23	M4, M10
6	M2, M6	12	M4, M7	18	M2, M9		

Refer to misc parts list for crystal frequencies



PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, 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.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	3008	RF Amp	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q2	3008	1st Mixer	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q3	3008	2nd Mixer	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q4	3010	1st IF Amp	576-0003-010	GE-1	TR-11		SK3005	ECG 100
Q5	3010	2nd IF Amp	576-0003-010	GE-1	TR-11	HEP251	SK3005	ECG 100
Q6	3010	AGC Amp	576-0003-010	GE-1	TR-11	HEP251	SK3005	ECG 100
Q7	3010	AGC Amp	576-0003-010	GE-1	TR-11	HEP251	SK3005	ECG 100
Q8	3008	Rec. Oscillator	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q9	1002	Squelch	576-0001-002	GE-2	TR-14		SK3004	ECG 102
Q10	1003	Squelch	576-0001-003	GE-2	TR-14		SK3004	ECG 102
Q11	2N5458 (6003)	Mic Amp	576-0006-003	GE-FET-1	FE-100	HEP254	SK3004	ECG 102
						HEP801		ECG 133
Q12	3008	Synthesizer Oscillator	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q13	3008	Synthesizer Mixer	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q15	3008	Synthesizer Oscillator	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q16	1003	AF Amp	576-0001-003	GE-2	TR-14		SK3004	ECG 102
Q17	1009	Driver	576-0001-009	GE-2	TR-14	HEP254	SK3004	ECG 102
Q18	2002 (40051)	Output-Modulator	576-0002-002	GE-25	TR-27		SK3034	ECG 127
			576-0040-051					
Q19	2002 (40051)	Output-Modulator	576-0002-002	GE-25	TR-27	HEP234	SK3034	ECG 127
			576-0040-051					
Q20	3008	XMTR Oscillator	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q21	3008	XMTR Mixer	576-0003-008	GE-9	TR-17	HEP3	SK3006	ECG 160
Q22	4004	Buffer	576-0004-004	GE-17	TR-22		SK3047	ECG 128
Q23	4004	Driver	576-0004-004	GE-17	TR-25	HEP53	SK3047	
Q24	4005	Final Amp	576-0004-005		TR-25		SK3048	
Q201	2002	Voltage Regulator	576-0002-002	GE-25	TR-27	HEP234	SK3034	ECG 127
Q202	2012 (2004)	Regulator Control		GE-2	TR-14	HEP254	SK3004	ECG 102
			576-0002-004					
Q203	2012 (2004)	Error Amp	576-0002-004	GE-2	TR-14	HEP254	SK3004	ECG 102

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
D1	1N67A	1N34AS	1N34A	ECG 109		
D2	1N67A	1N34AS	1N34A	ECG 109		
D5	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D6	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D7	1N67A	1N34AS	1N34A	ECG 109		
D13	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D14	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D15	1N67A	1N34AS	1N34A	ECG 109		
D16	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D17	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D18	1N2326					
D201	523-0013-002	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D202	523-0013-002	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D203	523-0013-002	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D204	523-0013-002	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D21	523-2004-100		5A4-D	ECG 117		
D22	523-2003-100		Z-1310			Zener
			1ZM10-T10 or Z-1110	ECG 140		
D2201	523-2003-100		1ZM10-T10 or Z-1110	ECG 140		Zener

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C17	6.8 35V	510-2045-689	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C23	1 35V	510-2045-109	PTT87		AL1-50	MT1-1	MTA1D50	TE-1300
C35	150 25V	510-4006-006	PTT124	EA30-150		MT1-21.5	MTA175F25	TL-1212
C37	470 4V	510-4001-006	BCD15500	EA50-500	WBR500-35	QT1-31	TC50050A	TL-1315
C61	6.8 35V	510-2045-689	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C62	6.8 35V	510-2045-689	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C70	1000 16V	510-3006-005	PRS1230	EA15-1000	WBR1000-16	QT1-32	TC1501A	TVA-1163
C73	22 15V	510-2003-220	PTT117	EA15-25	AL25-16	MT1-10	MTA25D20	TL-1157.1
C74	150 25V	510-4006-006	PTT124	EA30-150	WBR150-35	MT1-21.5	MTA175F25	TL-1212
C75	6.8 35V	510-2045-689	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C76	1 35V	510-2045-109	PTT87		AL1-50	MT1-1	MTA1D50	TE-1300
C77	56 6V	510-2001-560	BCD6050	EP6-50	PC50-16	MT1-15	MTV50CB15	TE-1133
C121	150 25V	510-4006-006	PTT124	EA30-150	WBR150-35	MT1-21.5	MTA175F25	TL-1212
C122	6.8 35V	510-2045-684	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C124	6.8 35V	510-2045-684	BCD50006	EP50-5	PC5-100	MT1-6	MTV6CB50	TL-1303.1
C202	400 40V	510-4009-001	PRS1390	EA50-500		QT1-31	TC50050A	TL-1315
C205	1000 16V	510-4006-005	PRS1230	EA15-1000	WBR1000-16	QT1-32	TC1501A	TVA-1163

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.
C1	100 N150 5%	#510-3016-101	TTP-01	CK-103	MGP01	CCD-103	TA110	10TCP-T10
C2	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C3	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C4	.01							TG-S10
C5	100 N150 5%	#510-3016-101		DTZ-100			CN0310	10TCP-T10
C6	100 NPO 5%			CK-103	MGP01	CCD-103	TA110	10TCC-T10
C7	.01		TTP-01	DTZ-10	NP010		CN0410	TG-S10
C8	10 NPO 5%							10TCC-Q10
C9	68 N150 5%							10TCP-Q68
C10	1.4-7.3	#189-0003-005						MS-327
C11	68 N150 5%	#510-3016-680	ADM-15-271	CPR-270J	CD15F271J500	DM-15-271	SX327	MS-327
C12	270 5%		ADM-15-271	CPR-270J	CD15F271J500	DM-15-271	SX327	MS-327
C13	270 5%							
C14	210 N080 5%	#510-3015-211						
C15	210 N080 5%	#510-3015-211						
C16	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C18	150 NPO 5%			DTZ-150			CN0315	10TCC-T15
C19	190 N080 5%	#510-3015-191						
C20	.1		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C21	190 N080 5%	#510-3015-191						
C22	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C24	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C25	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C26	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C27	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C28	68 NPO 5%			DTZ-68			CN0468	10TCC-Q68
C29	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C30	.0036 5%			CPR-3600J		DM-19-362	SX236	MS-236
C31	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C32	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C33	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C34	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C36	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C38	.0012		ADM-20-122	CK-103	MGP01	CCD-103	TA110	TG-S10
C39	2-19	#160-0110-081		CPR-1200J		DM-19-122	SX212	MS-212
C40	.22		DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C41	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C42	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C43	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C44	.001							
C45	.1		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C46	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C47	.0047		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C48	820				CD19F821J500	DM-19-821	SX382	MS-382
C49	.22		DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C50	220 5%		ADM-15-221	CPR-220J	CD15F221J500	DM-15-221	SX322	MS-322
C51	5 NPO 5%		NPO-DI 5.0		NP05			10TCC-V50
C52	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C53	15 NPO 5%			DTZ-15	NP015		CN0415	10TCC-Q15
C54	120 N750 5%	#510-3020-121		TCN-120				10TCU-T12
C55	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C56	82 N150 5%	#510-3016-820						10TCP-Q82
C57	100 N150 5%	#510-3016-101						10TCP-T10
C58	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C59	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C60	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C64	6.8 N750 5%				N6P8		CN7568	10TCU-V68
C65	18 N750 5%			TCN-18			CN7418	10TCU-Q18
C66	22 N750 5%			DTN-22			CN7422	10TCU-Q22
C67	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C68	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C69	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C71	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C72	.0047		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C78	.22		DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.
C79	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C80	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C81	330	5%	ADM-15-331	CPR-330J	CD15F331J500	DM-15-331	SX333	MS-333
C82	82 N150	5%						10TCP-Q82
C83	10 NPO	5%					CN0410	10TCC-Q10
C84	.01		TTP-01	DTZ-10	NP010		TA110	TG-S10
C85	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C86	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C87	180	5%	ADM-15-181	CPR-180J	CD15F181J500	DM-15-181	SX318	MS-318
C88	15 N150	5%						10TCP-Q15
C89	68 N150	5%						10TCP-Q68
C90	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C91	22	5%	ADM-15-220	CPR-22J	CD15E220J500	DM-15-220	SX422	MS422
C92	22 N150	5%						10TCP-Q22
C93	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C94	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C95	.0047		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C96	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C97	47 NPO	5%		DTZ-47			CN0447	10TCC-Q47
C98	33 N150	5%						10TCP-Q33
C99	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C100	.0047		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C101	27 NPO	5%		TCZ-27			CN0427	10TCC-Q27
C102	390	5%	ADM-15-391	CPR-390J	CD15F391J500	DM-15-391	SX339	MS-339
C103	100 N150	5%						10TCP-T10
C104	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C105	330	5%	ADM-15-331	CPR-330J	CD15F331J500	DM-15-331	SX333	MS-333
C106	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C109	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C110	33 N150	5%						10TCP-Q33
C112	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C113	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C120	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C123	100		NPO-DI 100	DTZ-100	NP0100	CCT0-101	CN0310	10TCC-T10
C125	100		NPO-DI 100	DTZ-100	NP0100	CCT0-101	CN0310	10TCC-T10
C126	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C127	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C201	.0047		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50
C206	.0047		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50

Johnson Part Number

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R16	Squelch/PA-Switch	5000	562-0001-012	F2-5000, SSK014, KR-2		Q13-114, 76-2 or [BU2, CF60, SS1, WF]*	UA53A, SK1000, US42 or [RU53A, SL39, SK1000, US42] or U12, US27
R23	Modulation Adj.	10K	562-0007-022	TT-14 of [F1-10K (1), SNK010]	B47010K-S or [NP-10K-S, NML-A-300, TT-2]	B11-116, TM4 or [BU11, CF9, SS6]*	TA14L or [RU14L, SL37, SN281] or UA146 (1), SN281
R25	Power Adjust	10K	562-0007-022	TT-14 or [F1-10K (1), SNK010]	B47-10K-S or [NP-10K-S, NML-A-300, TT-2]	B11-116, TM4 or [BU11, CF9, SS6]	TA14L or [RU14L, SL37, SN281] or UA14L (1), SN281
R26	Tone	100K	562-0007-021	TT-40 or [F1-100K (1), SNK012]	B47-100K-S or [NP-100K-S, NML-A-300, TT-2]	B11-128, TM4 or [BU11, CF13, SS6]*	PTA15L or [RU15L, SL37, SN1000] or UA15L (1), SN1000
R41	Volume/Power Switch	20K Tap @ 12K	562-0001-011	F16-25K, SSK014, KR-1		B19-119X, SK1, 76-1 or [BU2, CF103TT, SS1, GC]*	RU24T14, SL39, SK1000, US41
R44	Mic Gain	10K	562-0007-023	F1-10K, SSK014	A47-10K-S, KSS-3 or [NP-10K-S, UP-C-400]	Q11-116 or [BU2, CF9, SS1, DC1]	UA14L, SK1000 or [RU14L, SL39, SK1000] or U20 MTC12L1
R48	"S" Meter Zero	100	562-0004-101	TSV-100 or T-100		X201R101B	
R49	"S" Meter Sensitivity	10K	56-0004-103	TSV-10K or T-10K		X201R103B	MTC14L1

* "Snaptrol"

(1) Enlarge mounting hole.

(2) Disregard 5K Tap

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R81	3800 (Cold)		023-2042-003 (1)
R82	7500 (Cold)		023-2042-001 (2)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R85	15K (Cold)		

(1) Includes R80

(2) Includes R83

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	1st Mixer	542-1002-001			
L2	RF Choke	542-3002-002	19-6022	6152	TA311
L3	RF Choke	542-3002-002	19-6022	6152	TA311
L4	RF Choke	542-3002-002	19-6022	6152	TA311
L5	Rec. Oscillator	592-5007-005			
L6	RF Choke	542-3002-002	19-6022	6152	TA311
L8	RF Choke	542-3003-001		4624	
L9	RF Choke	542-3003-001		4624	
L10	Pi Network	542-1005-010			
L11	Pi Network	542-1005-004			
L14	4.3MC Filter	542-3002-004			
T1	Antenna Matching	592-5016-001			
T2	RF	592-5016-002			
T3	Crystal Filter Input	592-9002-010			
T4	Crystal Filter Output	592-9002-015			
T5	Input IF	592-5016-005			
T6	Interstage IF	592-5016-006			
T7	Output IF	592-5016-007			
T8	Synthesizer Mixer	592-5008-001			
T9	Synthesizer Oscillator	592-5010-001			
T12	XMTR Mixer	592-5008-002			
T13	Buffer	592-5021-001			
T14	Driver	592-5014-002			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L7	1.3 Amp	.4	18mh	542-5007-001					

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	117VAC @ .34A	22VAC @ 1.3A		592-3001-001					

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T11	18.3 CT	4	592-1013-004					
		SEC 2						
		1.3 DC Resistance						

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	3-1/2" PM 4 ohms	589-1004-001		

FUSE DEVICES

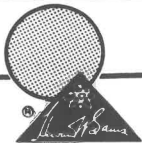
ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	6/10 Amp 250V	534-0002-014	534-1002-001	MDL 6/10	HJM	312600	342012	
F2	2 Amp	534-0003-024	534-1004-005	AGC2	HDJ	312002	155020	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	567-0003-013	
M1	Crystal	519-0006-014	10.180MC
M2	Crystal	519-0006-013	10.170MC
M3	Crystal	519-0006-D12	10.160MC
M4	Crystal	519-0006-011	10.140MC
M5	Crystal	519-0005-011	32.845MC
M6	Crystal	519-0005-012	32.895MC
M7	Crystal	519-0005-013	32.945MC
M8	Crystal	519-0005-014	32.995MC
M9	Crystal	519-0005-015	33.045MC
M10	Crystal	519-0005-016	33.095MC
M11	Crystal	519-0007-001	4.294MC
M12	Crystal	(Includes M11 Thru M14)	4.301MC
M13	Crystal		4.294MC
M14	Crystal		4.301MC
M15	Crystal	519-0008-001	4.300MC
M16	Meter	554-0014-003	200ma
SW1	Switch, Selector		
SW4	Switch, Meter	583-3004-104	
SW5	Switch, ANL	583-3004-102	
Z1	1st Mixer	544-0002-001	
Z2	2nd Mixer	544-0002-002	
Z3	1st IF	544-0002-003	
Z5	2nd IF	544-0002-004	
Z6	Noise Limiter	544-0002-015	
Z8	Audio	544-0002-006	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Cabinet	017-0676-003	Grille	017-1546-001
Dial Glass	559-1007-001	Knob, Selector	547-0007-005
Dial, Channel Indicator	032-0154-002	Knob, Volume, Squelch, Mic Gain, Delta Tune	547-0008-006
Front Panel	015-0798-004		



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

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

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

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



PENNCREST MODEL 985-6060 (Pinto-23B)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 Thru A6.....GENERAL CEMENT #8276, 8277, 8290....WALSCO #2512, 2515, 2525.

A7 Thru A11, A13, A17..GENERAL CEMENT #9087.....WALSCO #2501, 2544.

A12, A14, A15, A16, A18, A19, A20...GENERAL CEMENT #8868, 9089..WALSCO #2541, 2587.

PENNCREST MODEL 985-6060

RECEIVER

Connect an AC VTVM across speaker voice coil. Set Volume and Squelch control fully clockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q3 (2nd mixer), low side to chassis. Tune to 455KC (Mod)	Any	A1 Thru A6	Adjust for maximum.
High side thru .01mfd to Antenna Connector, low side to chassis. Tune to 27.085MC (Mod)	11	A7 Thru A12	Adjust for maximum.

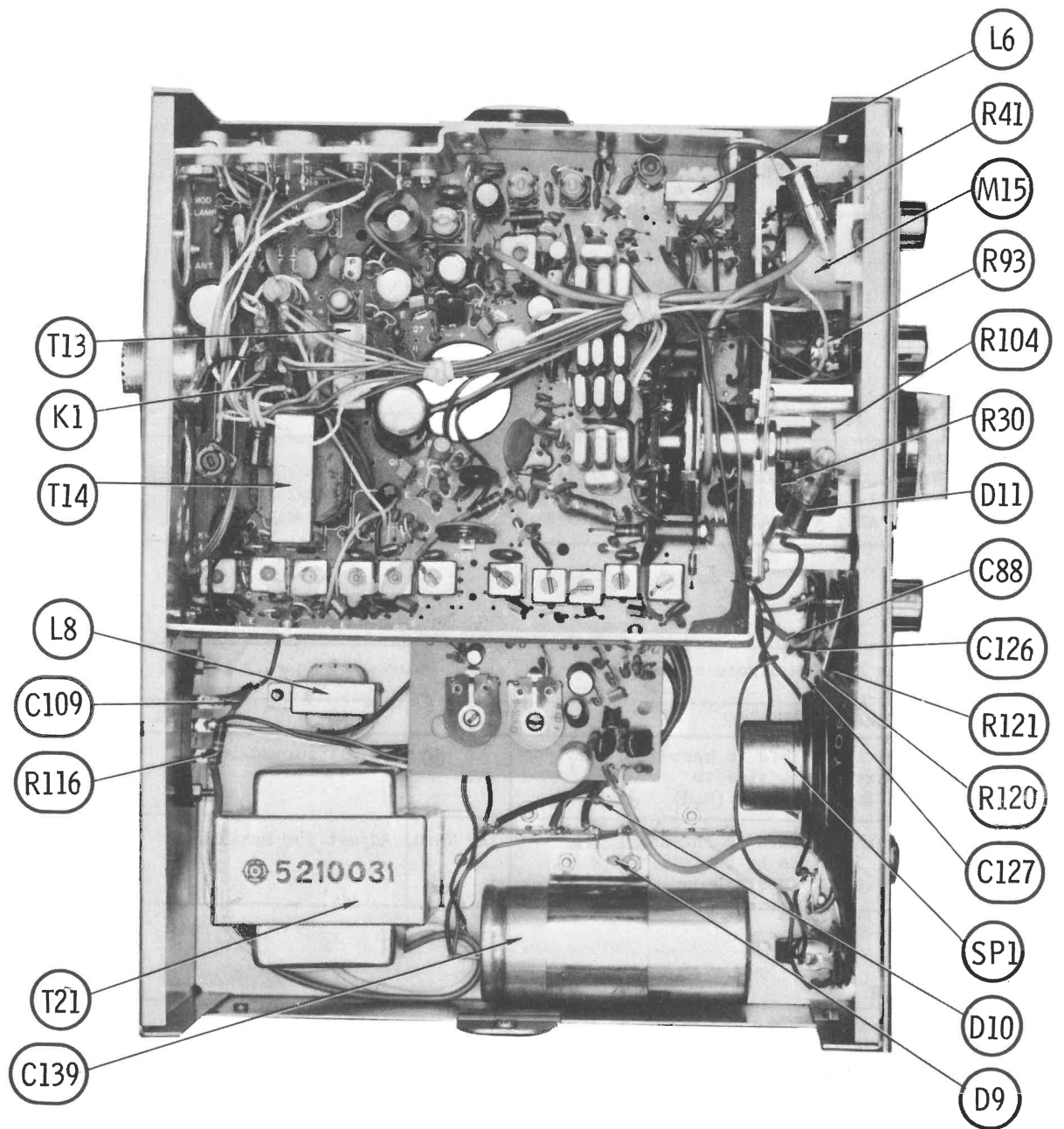
TRANSMITTER

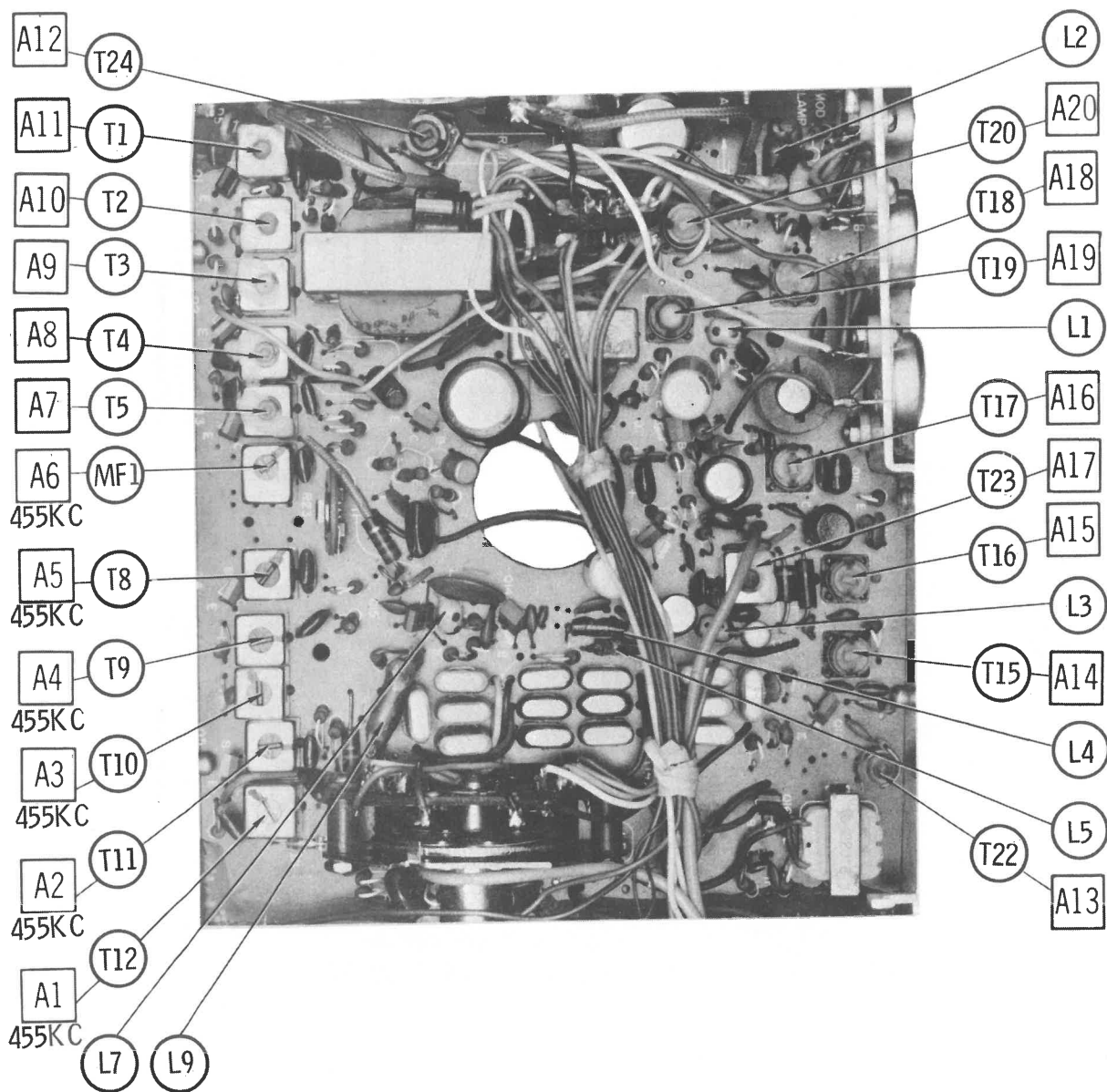
INDICATOR	ADJUST	REMARKS
RF wattmeter or field strength-meter	A14 Thru A20	Adjust for maximum.
0-500ma DC Ammeter	A19	Remove meter jumper and insert meter in Final Amp circuit. Readjust A19 for 5 watts input.
Signal Strengthmeter	A13	Adjust so spurious radiation near 26MC is minimum.

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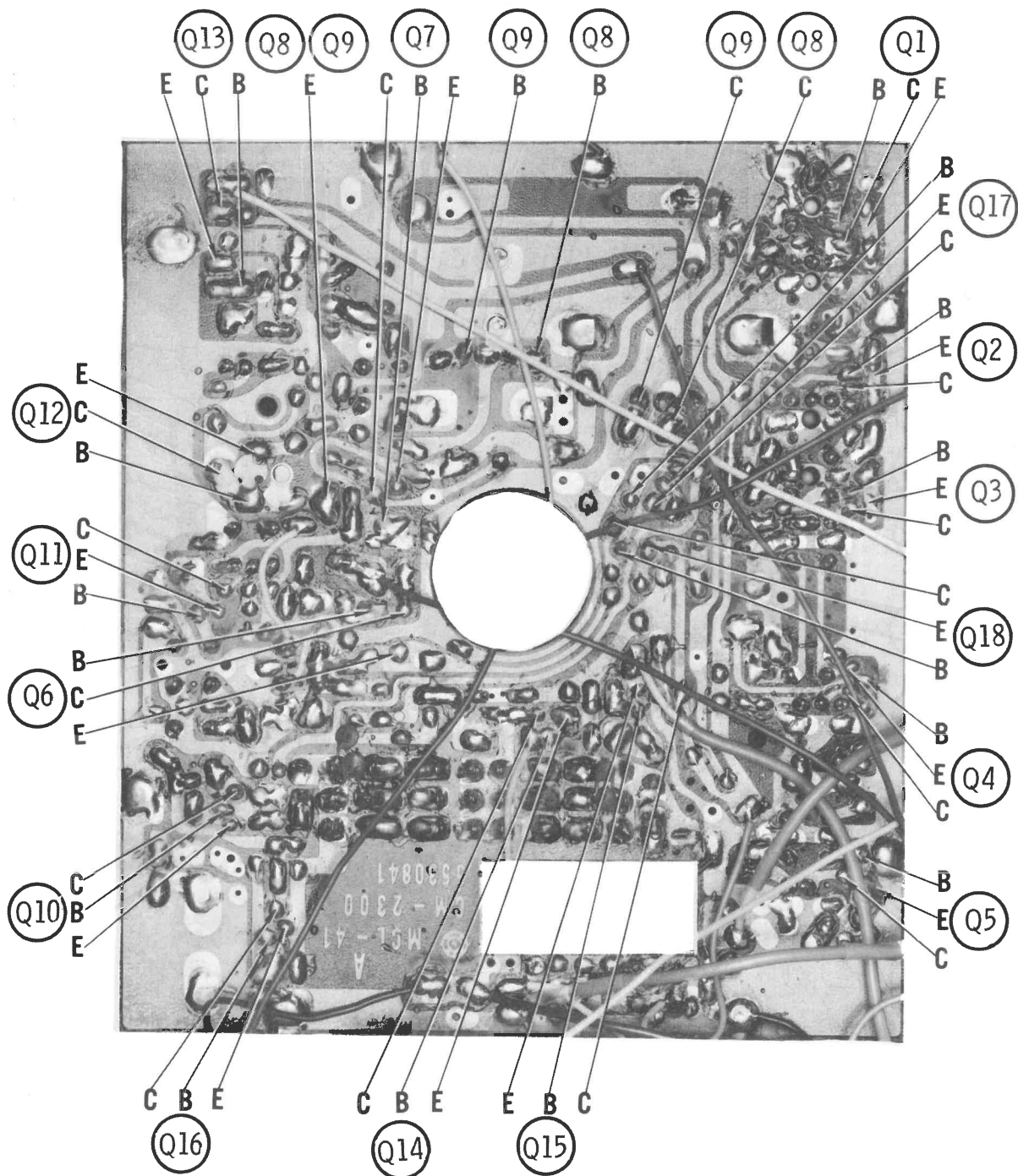
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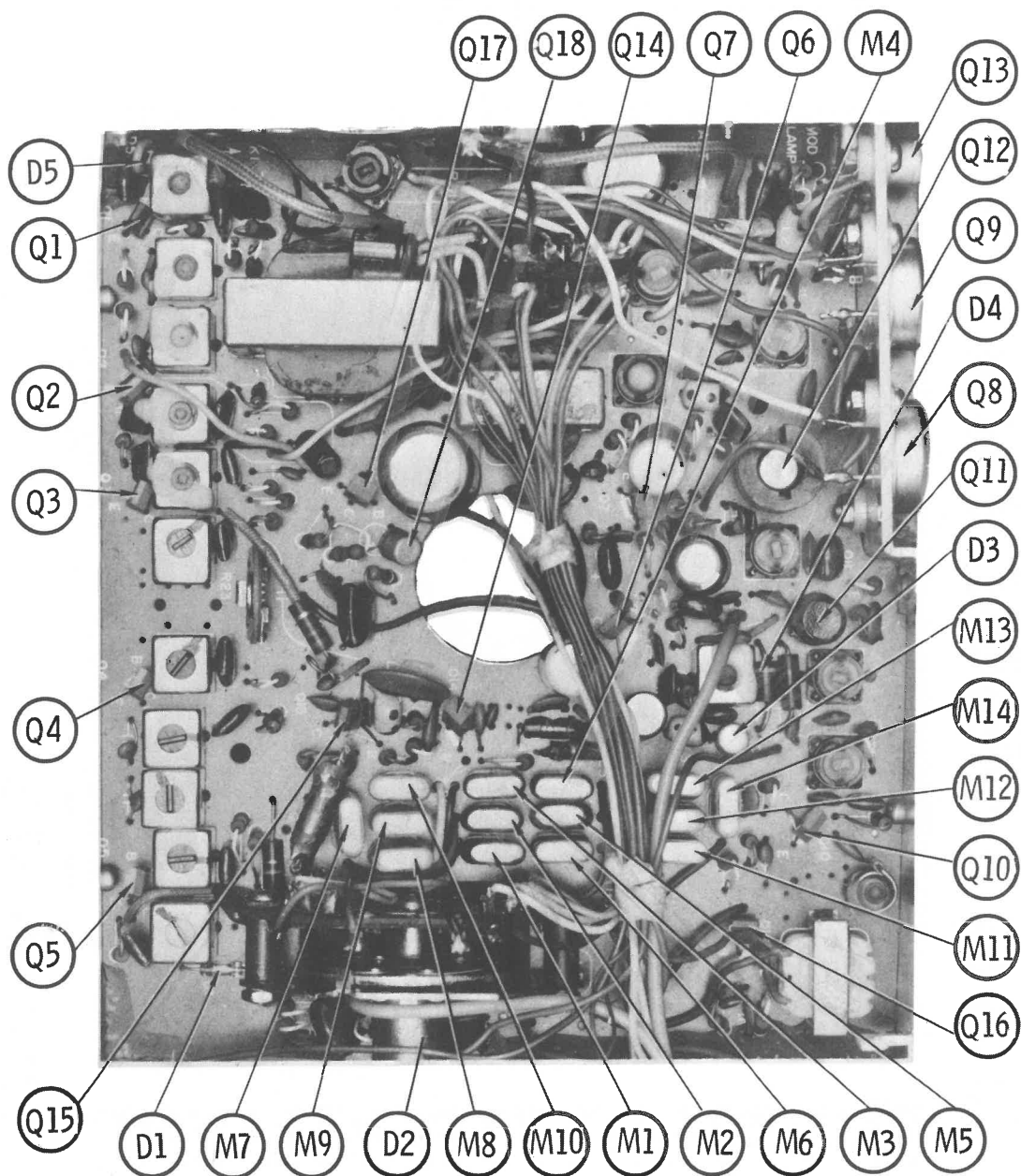
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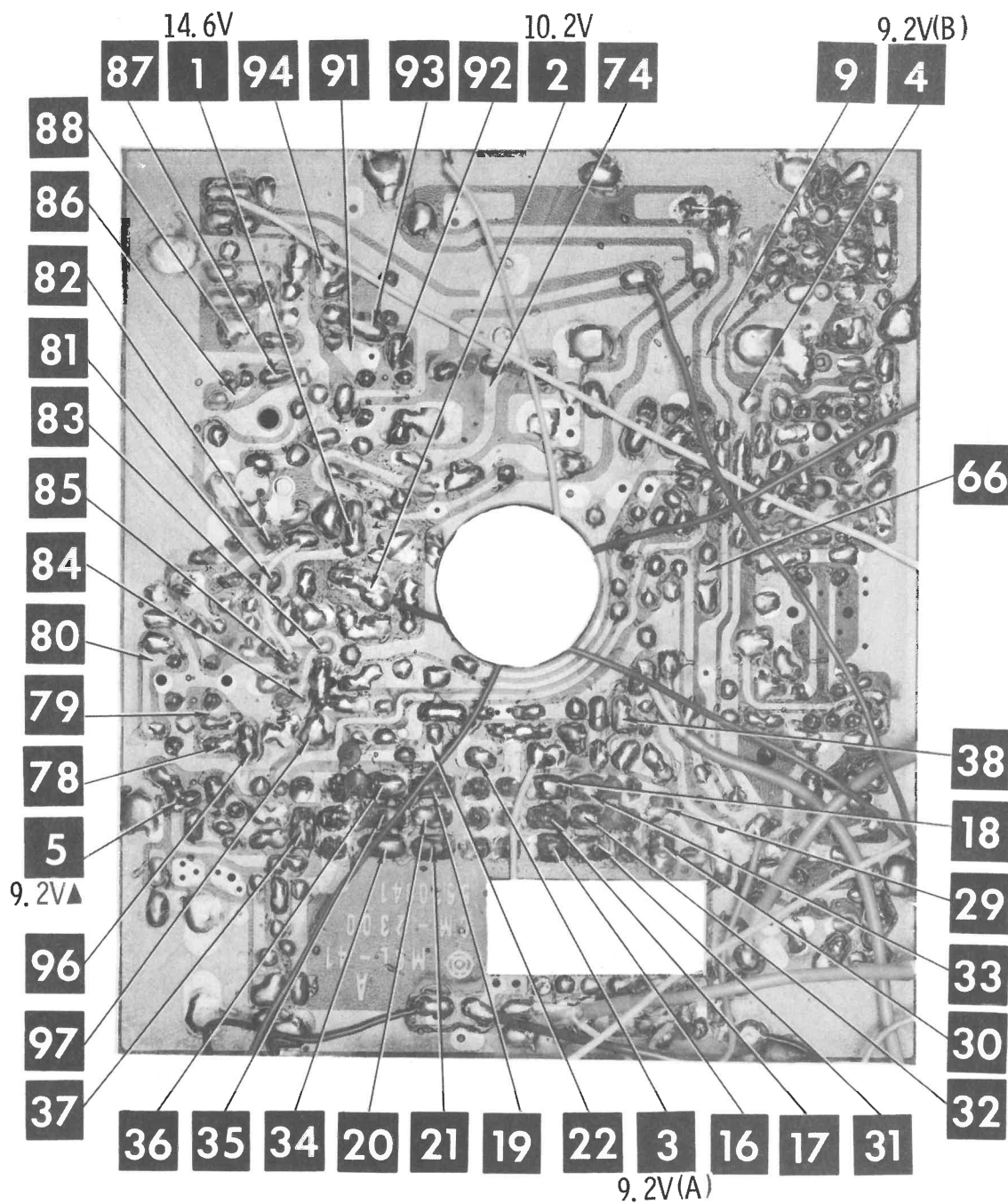


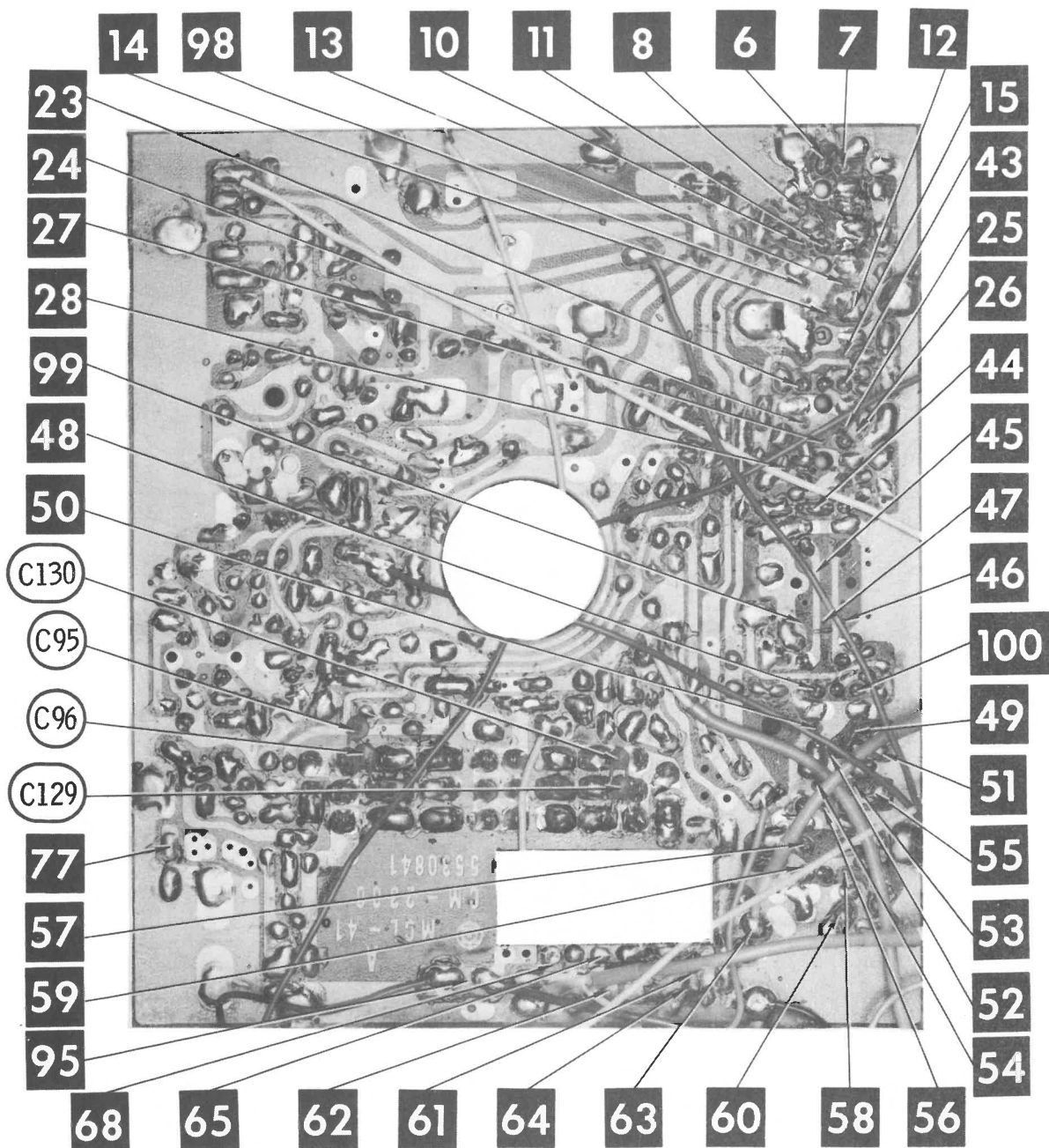


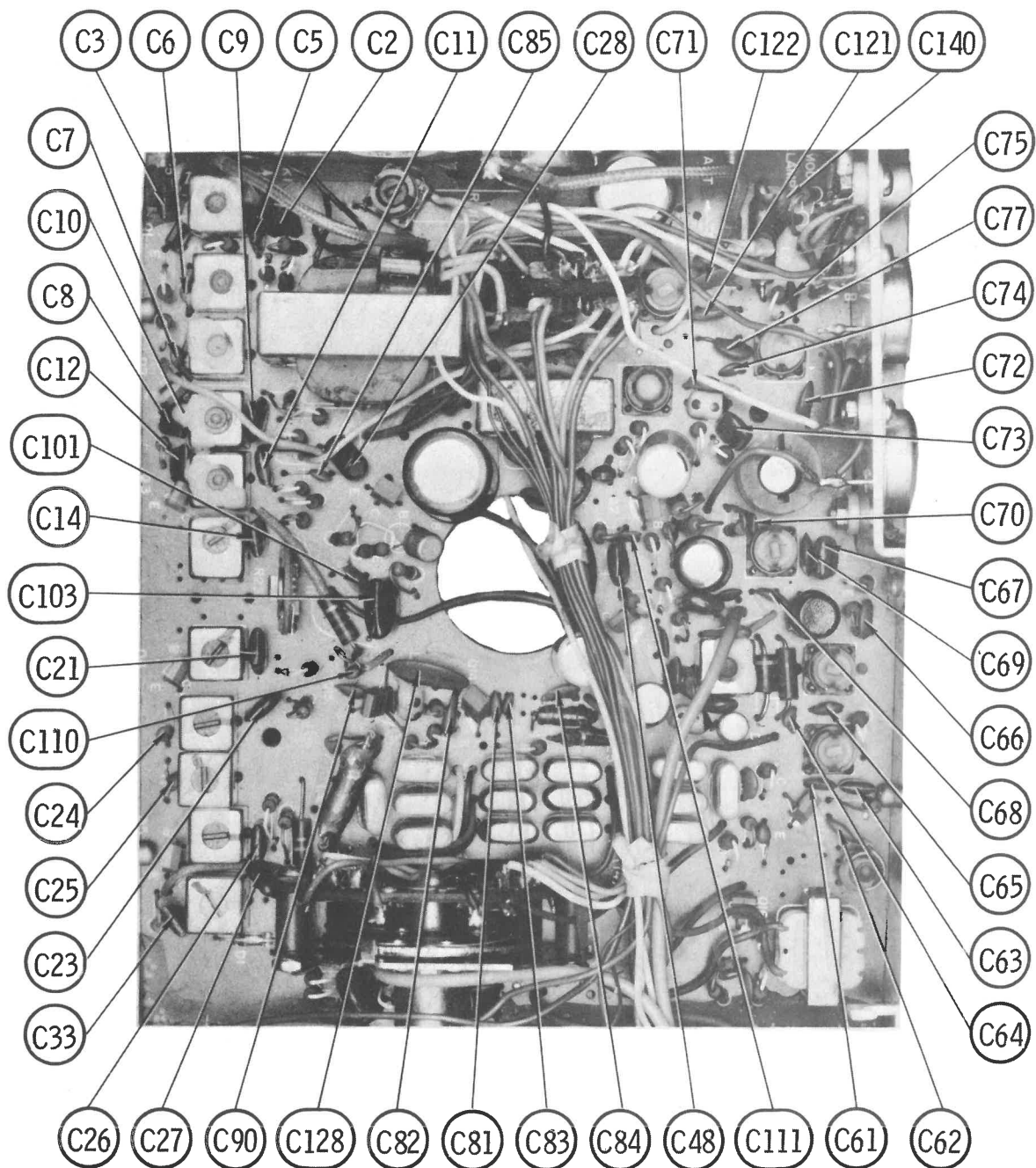
PENNCREST MODEL 985-6060

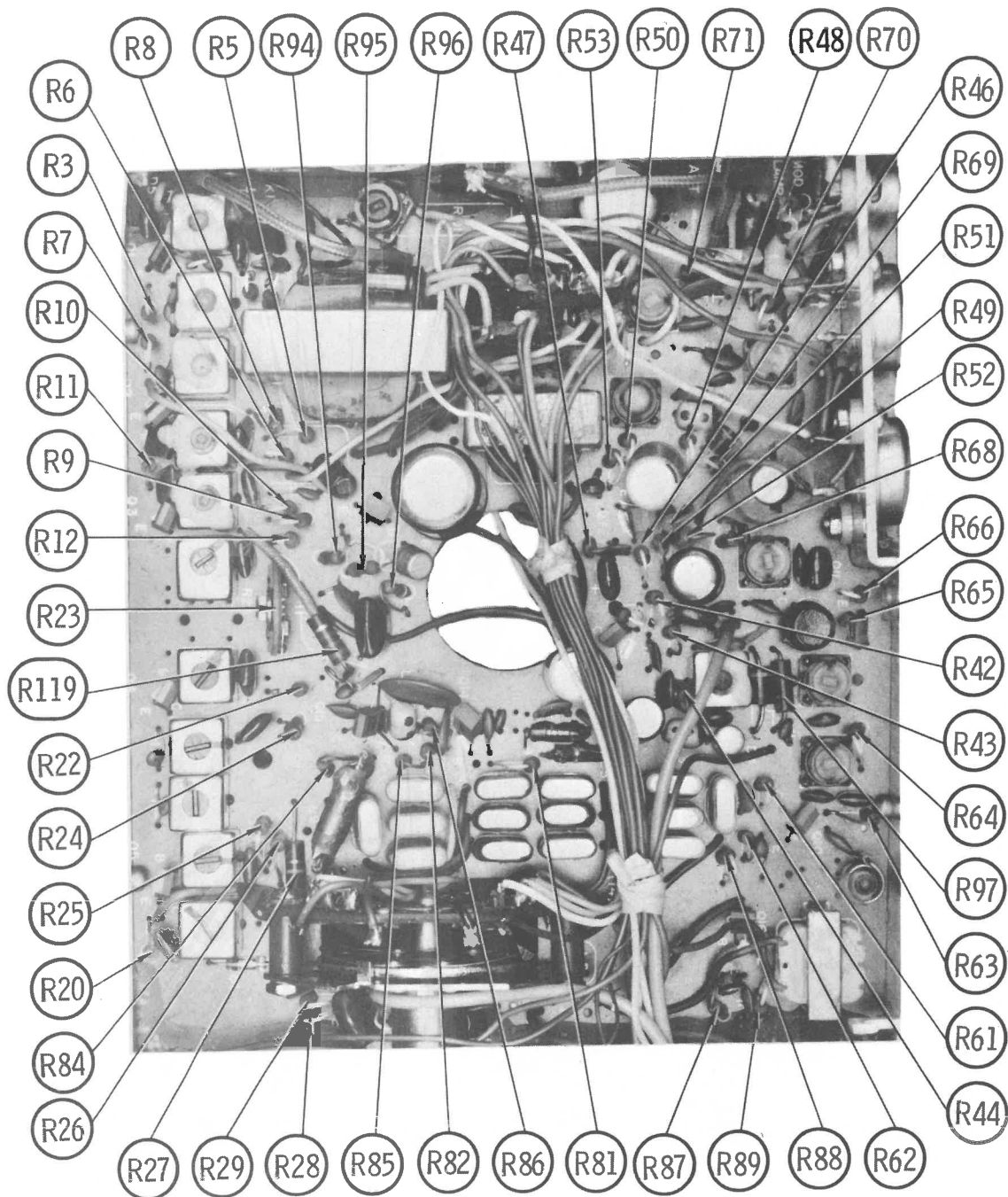




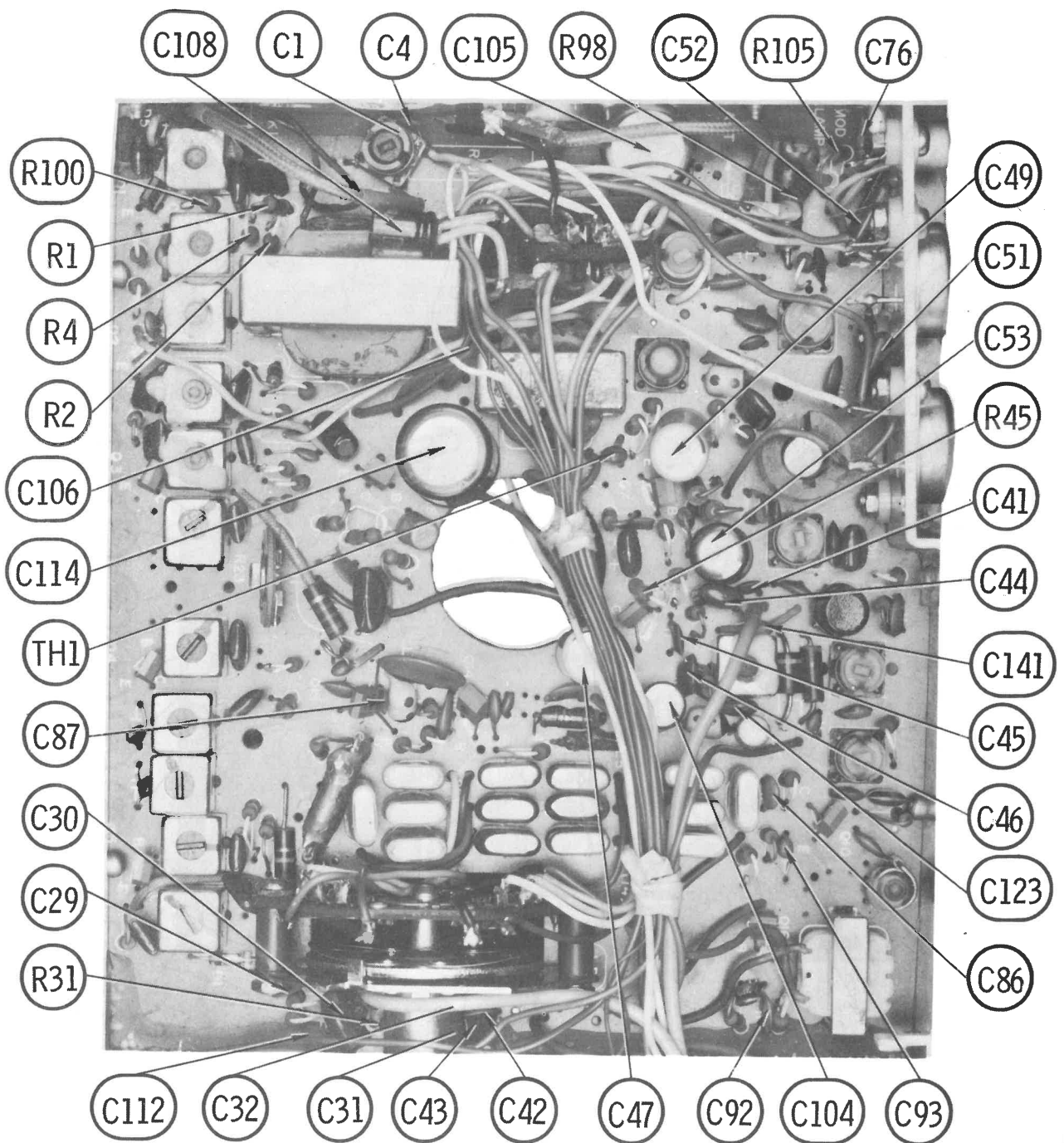


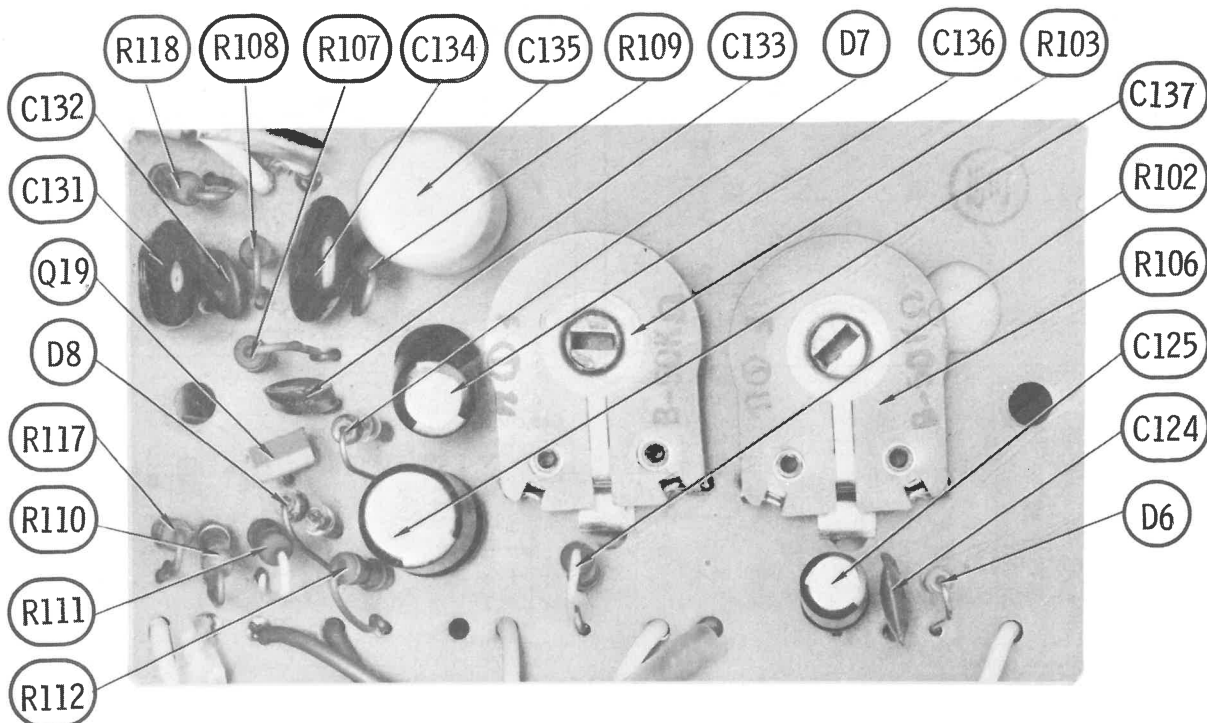
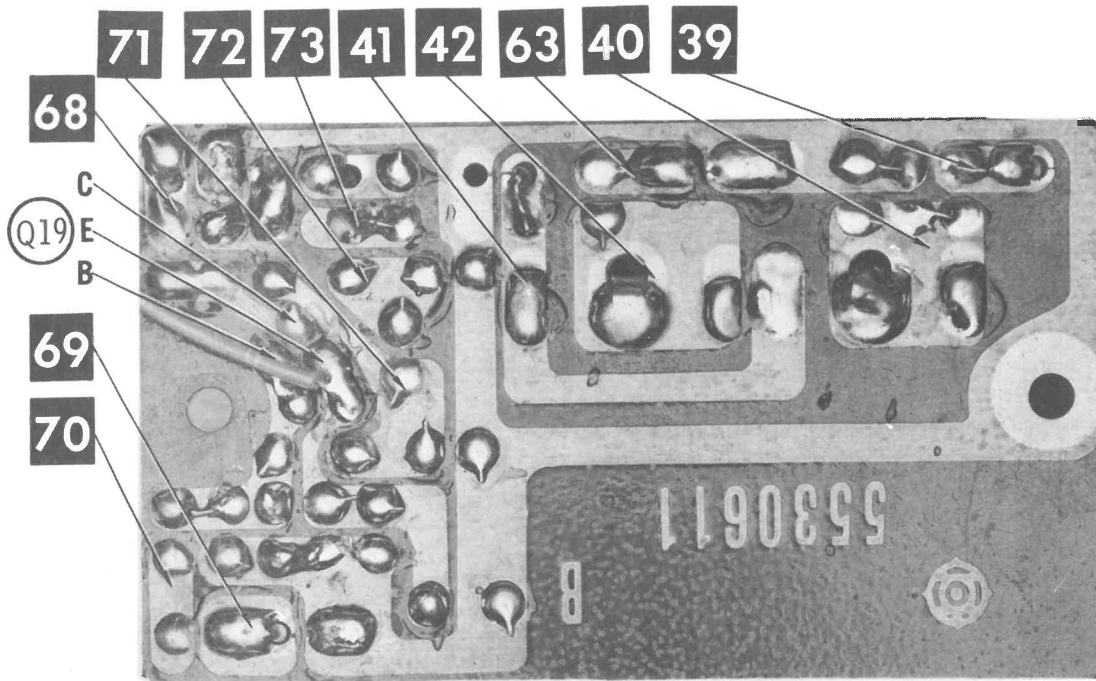




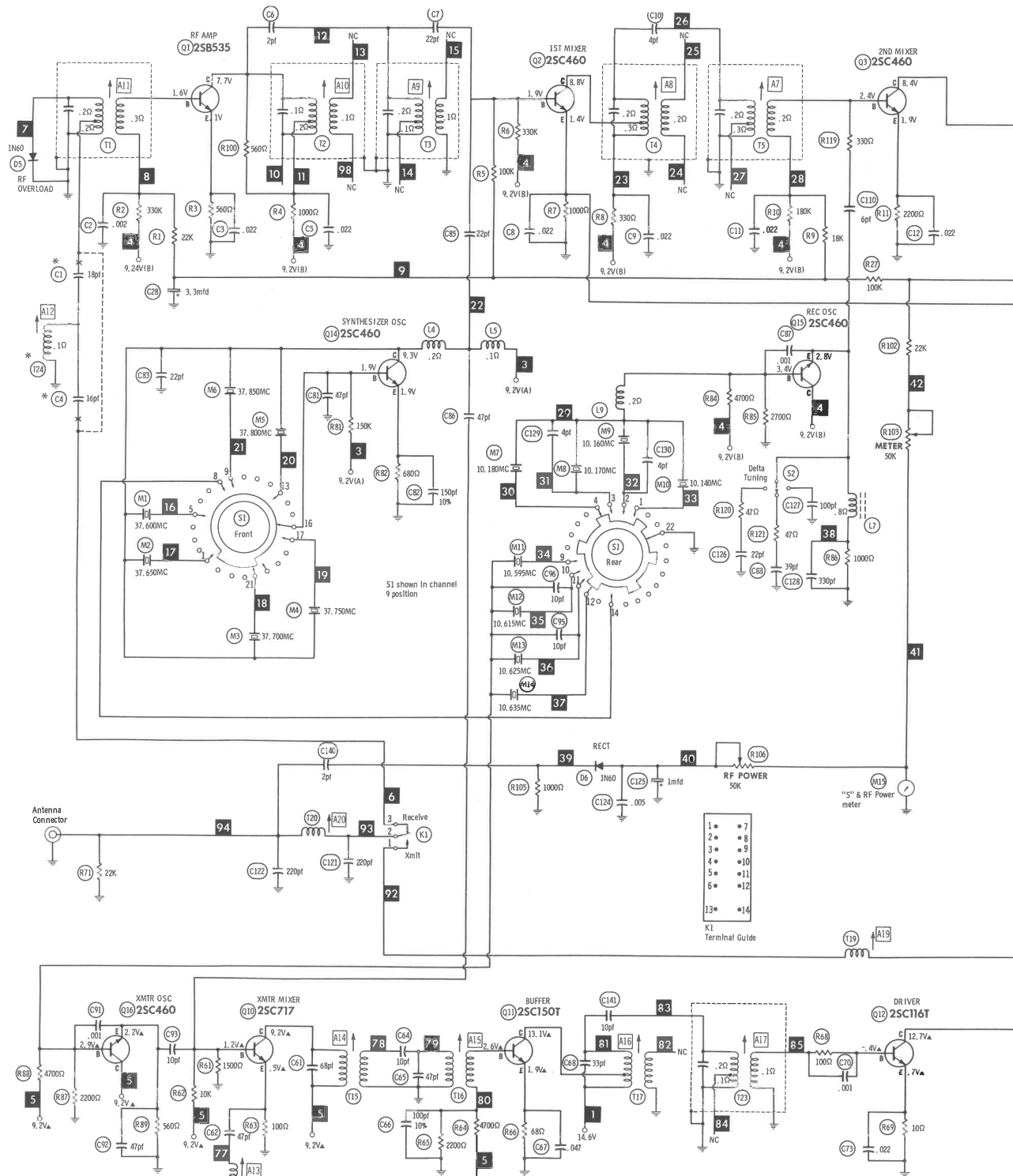


PENNCREST MODEL 985-6060





PENNCREST MODEL 985-6060



- NC No Connection
 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.

Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
 * May not be used in some versions
 ▲ Measured in "Transmit" position
 Controls viewed from actuator end. Arrow indicates clockwise rotation.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with **CIRCUITRACE**
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PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	2SC535	RF Amp	0573509	GE-17	TR-24	HEP56	SK3018	ECG 108
Q2	2SC460	1st Mixer	0573486	GE-11	TR-21	HEP53	SK3018	ECG 107
Q3	2SC460	2nd Mixer	0573486	GE-11	TR-21	HEP53	SK3018	ECG 107
Q4	2SC454	1st IF Amp	0573491	GE-20	TR-21	HEP53	SK3018	ECG 128
Q5	2SC454	2nd IF Amp	0573491	GE-20	TR-21	HEP53	SK3018	ECG 128
Q6	2SC458(LG)	AF Amp	5320022	GE-10	TR-21	HEP53	SK3020	ECG 123A
Q7	2SC458	Driver	0573479	GE-10	TR-21	HEP53	SK3020	ECG 123A
Q8	2SB337	Output - Modulator	0573040	GE-3	TR-01	HEP232	SK3009	ECG 121
Q9	2SB337	Output - Modulator	0573040	GE-3	TR-01	HEP232	SK3009	ECG 121
Q10	2SC717	XMTR. Oscillator	5320051			HEP56		
Q11	2SC150T	Buffer	0573517	GE-17	TR-24	HEP75	SK3047	ECG 128
Q12	2SC116T	Driver	0573519	GE-18			SK3047	ECG 128
Q13	2SC609T	Final Amp	0573541			HEP243		
Q14	2SC460	Synthesizer Oscillator	0573486	GE-11	TR-21	HEP53	SK3018	ECG 107
Q15	2SC460	Rec. Oscillator	0573486	GE-11	TR-21	HEP53	SK3018	ECG 107
Q16	2SC460	XMTR. Oscillator	0573486	GE-11	TR-21	HEP53		ECG 107
Q17	2SC458	Squelch	0573480	GE-10	TR-21	HEP53	SK3020	ECG 123A
Q18	2SC458	Squelch	5320111	GE-10	TR-21	HEP53	SK3020	ECG 123A
Q19	2SC458(LG)	Mic Amp	5320022	GE-10	TR-21	HEP53	SK3020	ECG 123A

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
D1	1N60	1N60	1N60	ECG 109		Zener
D2	1N60	1N60	1N60	ECG 109		
D3	TR-9S	GEZD-9.1	12M9.1-T10	ECG 139		
D4	HR-2A	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D5	1N60	1N60	1N60	ECG 109		(7) Two required.
D6	1N60	1N60	1N60	ECG 109		
D7	1N34A	1N34AS	1N34A	ECG 109		
D8	1N34A	1N34AS	1N34A	ECG 109		
D9	V03C	GE-504A(7)	18DC2A or 8D4 (7)	ECG 116(7) or ECG 117 (7)	SK3030 (7) or SK3031(7)	
D10	V03C	GE-504A(7)	18DC2A or 8D4 (7)	ECG 116(7) or ECG 117 (7)	SK3030 (7) or SK3031(7)	
D11	1N34A	1N34AS	1N34A	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
			PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C28	3	15V	0252513	BCD50003	EP15-2	AL3-150	MT1-3	MTV3CB50	TE-1150
C47	33	16V	0251080	BCD15035	EP15-25	PC30-35	MT1-13.5	MTV35CB25	TE-1159
C49	33	16V	0251080	BCD15035	EP15-25	PC30-35	MT1-13.5	MTV35CB25	TE-1159
C53	220	10V	0252332	BCD20200	EA15-250	PC200-16	MT1-25	MTV250CK10	TE-1138
C104	47	16V	0252525	BCD25050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1160
C105	500	15V	0252535	BCD15500	EA15-500	PC500-16	QTT1-30A	MTV500DN15	TL-1166
C108	10	25V	0252621	BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C114	500	15V	0252535	BCD15500	EA15-500	PC500-16	QTT1-30A	MTV500DN15	TL-1166
C125	1	10V	0252211	BCD50001	EP15-2	PC1-100	MT1-1	MTV1CB50	TE-1120
C136	30	10V	0252323	CRE413A	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1132.1
C137	50	10	0252325	BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1133
C139	4000	25V	0259704	PR2-027		BR4000-25		FP060.4A	TVL-1249
C135	33	16V	0251080	BCD15035	EP15-25	PC30-35	MT1-13.5	MTV35CB25	TE-1159

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.
C1	18	(1)		DD-180	NP018	CCD-180	GP418	10TS-Q18
C2	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C3	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C4	16	(1)						
C5	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C6	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CNO522	10TCC-V22
C7	22			DD-220	NP022	CCD-220	GP422	10TS-Q22
C8	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C9	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C10	4				NP03P9			10TCC-V39
C11	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C12	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C14	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C21	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C23	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C24	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CNO522	10TCC-V22
C25	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CNO522	10TCC-V22
C26	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C27	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C29	.005		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50
C30	.1		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C31	.005		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50
C32	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C33	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C41	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C42	.01		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C43	.0068		V1612D68	CPR-6800J	DPMS6D68	6DP-1-692	PVC6268	6PS-D68
C44	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C45	.0068		V1612D68	CPR-6800J	DPMS6D68	6DP-1-692	PVC6268	6PS-D68
C46	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C48	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C51	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C52	.033		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C61	68		GPD X5F680K	DD-680	NP068	CCD-680	GP468	10TS-Q68
C62	47		GPD X5F470K	DD-470	NP047	CCD-470	GP470	10TS-Q47
C63	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C64	.0		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10
C65	47		GPD X5F470K	DD-470	NP047	CCD-470	GP470	10TS-Q47
C66	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C67	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C68	33			DD-330	NP033	CCD-330	GP433	10TS-Q33
C69	.01		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C70	.001		DBE6D1	CPR-1000J	DPMS6D1	6DP-1-102	PVC621	225P10291WD3
C71	.002		GPD X5F202K	DD-202	GP2000	CCD-202	GP220	10TS-D20
C72	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C73	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C74	22			DD-220	NP022	CCD-220	GP422	10TS-Q22
C75	.001		DBE6D1	CPR-1000J	DPMS6D1	6DP-1-102	PVC621	225P10291WD3
C76	.04			DD-403			GP140	
C77	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C81	47		GPD X5F470K	DD-470	NP047	CCD-470	GP470	10TS-Q47
C82	150	10%	GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C83	22			DD-220	NP022	CCD-220	GP422	10TS-Q22
C84	.005		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50
C85	22			DD-220	NP022	CCD-220	GP422	10TS-Q22
C86	47		GPD X5F470K	DD-470	NP047	CCD-470	GP470	10TS-Q47
C87	.001		DBE6D1	CPR-1000J	DPMS6D1	6DP-1-102	PVC621	225P10291WD3
C88	39			DD-390		CCD-390	GP439	10TS-Q39
C90	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C92	10		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10
C93	10		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10
C95	10		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10
C96	10		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10
C101	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C103	.1		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C106	.022		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C109	.04			DD-403			GP140	
C110	6							10TCC-V56
C111	.005		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50
C112	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C121	220		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C122	220		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C123	.01		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C124	.005		GPD X5R502K	DD-502	GP5000	CCD-502	JF250	10TS-D50
C126	22							
C127	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C128	330	5%						
C129	4				NP03P9			10TCC-V39
C130	4				NP03P9			10TCC-V39
C131	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C132	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C133	.0068		V1612D68	CPR-6800J	DPMS6D68	6DP-1-692	PVC6268	6PS-D68
C134	.047		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3
C140	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CNO522	10TCC-V22
C141	10		GPDCOH100K	DD-100	NP010	CCD-100	GP410	10TS-Q10

(1) Not used in some versions.

PENNCREST MODEL 985-6060

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R23	IF Gain Adjust	500	0151083	TSV-500 or (T-500)		X201R501B	MTC52L1
R41	Volume/Power Switch	10K	0153725	F2-10K (1) SSK014, KR-1	A47-10K-Z (1), KSS-3, SWE-12 or [NP-10K-Z (1), UP-C-400, NWE-12]	Q13-116 (1), 76-1 or [BU1 (1), CF61, SS1, GC]*	RU14A, SL36, SL3250, US41 or [UA14A (1), SK1000, US41] or U18 (1), US26
R93	Squelch/PA Switch	10K	0153631				
R103	"S" Meter Adjust	50K	0151087	TSV-50K or (T-50K)		X201R503B	MTC54L1
R104	ANL/Switch	10K	0153733	F2-10K (1), SSK014, KR-1	A47-10K-Z (1), KSS-3, SWE-12 or [NP-10K-Z (1), UP-C-400, NWE-12]	Q13-116 (1), 76-1 or [BU1 (1), CF61, SS1, GC]*	RU14A, SL36, SL3250, US41 or [UA14A (1), SK1000, US41] or U18 (1), US26
R106	RF Power Meter Adjust	50K	0151087	TSV-50K or T-50K		X201R503B	MTC54L1

* "Snaprol"

(1) Enlarge mounting hole.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
TH1	27 (Cold)	FR26.5	0576031 (13D27)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (12uh)	0333086		72F125AP	
L2	RF Choke (2.2uh)	0318546		74F226AP	
L3	RF Choke (12uh)	0333086		72F125AP	T811
L4	RF Choke (1uh)	0318545		74F106AP	
L5	RF Choke (.22uh)	0318544		4584	T806
L7	RF Choke	0333086		72F125AP	T957
L9	RF Choke (2.2uh)	0318546		74F226AP	
MF1	Input IF	5132081			T811
T1	RF	5120098			
T2	RF	5120099			
T3	RF	0317175			
T4	Input IF	0322341			
T5	Output IF	0322341			
T8	Interstage IF	0322146			
T9	Interstage IF	0322146	16-9027	8517	
T10	Interstage IF	0322146	16-9027	8517	
T11	Interstage IF	0322146	16-9027	8517	
T12	Output IF	0322146	16-9027	8517	
T15	XMTR Mixer	5136022	16-9028	8518	
T16	Buffer Input	0317192			
T17	Buffer Output	0317193			
T18	Driver Output	0317194			
T19	Final Output	0317195			
T20	Pi Network	0317196			
T22	Trap	5123007			
T23	Harmonic Suppressor	0317180			
T24	Wavetrap	0317175			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (O CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L6	.63A	.3	1.5mh	0422018					

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L8	.72A	.5	.68mh	5220028					

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T21	117VAC 85ma	22VAC CT @ .72A		5210031					

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T13	4.4	1	1	0441114					

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T14	50	8	045204					
		SEC 2						
		30						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	3" x 4 3/4 PM 8 ohms	0526170	35A05Z8	

PENNCREST MODEL 985-6060

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	2 Amp	0591138				312002	155020	FG2-2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	0535018	
M1	Crystal	0599783	37.600MC
M2	Crystal	0599784	37.650MC
M3	Crystal	0599785	37.700MC
M4	Crystal	0599786	37.750MC
M5	Crystal	0599787	37.800MC
M6	Crystal	0599788	37.850MC
M7	Crystal	0599792	10.180MC
M8	Crystal	0599791	10.170MC
M9	Crystal	0599790	10.160MC
M10	Crystal	0599789	10.140MC
M11	Crystal	0599783	10.595MC
M12	Crystal	0599794	10.615MC
M13	Crystal	0599795	10.625MC
M14	Crystal	0599796	10.635MC
S1	Switch, Selector	5610013	
S2	Switch, Delta Tune	0531175	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Front Plate	7172121	Knob, Control	6261681
Knob, Selector	6261321		

ACCESSORIES

ITEM	MFR. PART No.	REMARKS
Cord, AC	0593477	
Cord, DC	5740701	

WIRING DATA

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



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

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

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

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



ROBYN MODEL TR-123B

ROBYN MODEL TR-123B

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:	GENERAL CEMENT #	WALSCO #
A1, A2, A3	8276, 8277, 8290.....	2512, 2515, 2525
A6 Thru A11	9087.....	2528
A4, A5, A12, A13	8868, 9089.....	2541, 2587

RECEIVER

Connect an AC VTVM across speaker voice coil. Set volume control fully clockwise and squelch control fully counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q4 (2nd Mixer), low side to chassis. Tune to 455KC (Mod.)	Any	A1,A2	Adjust for maximum.
High side thru .01mfd to antenna connector, low side to chassis. Tune to 27.085MC	11	A3 thru A8	Adjust A6 approximately one turn beyond the point where oscillation starts. Adjust the others for maximum.

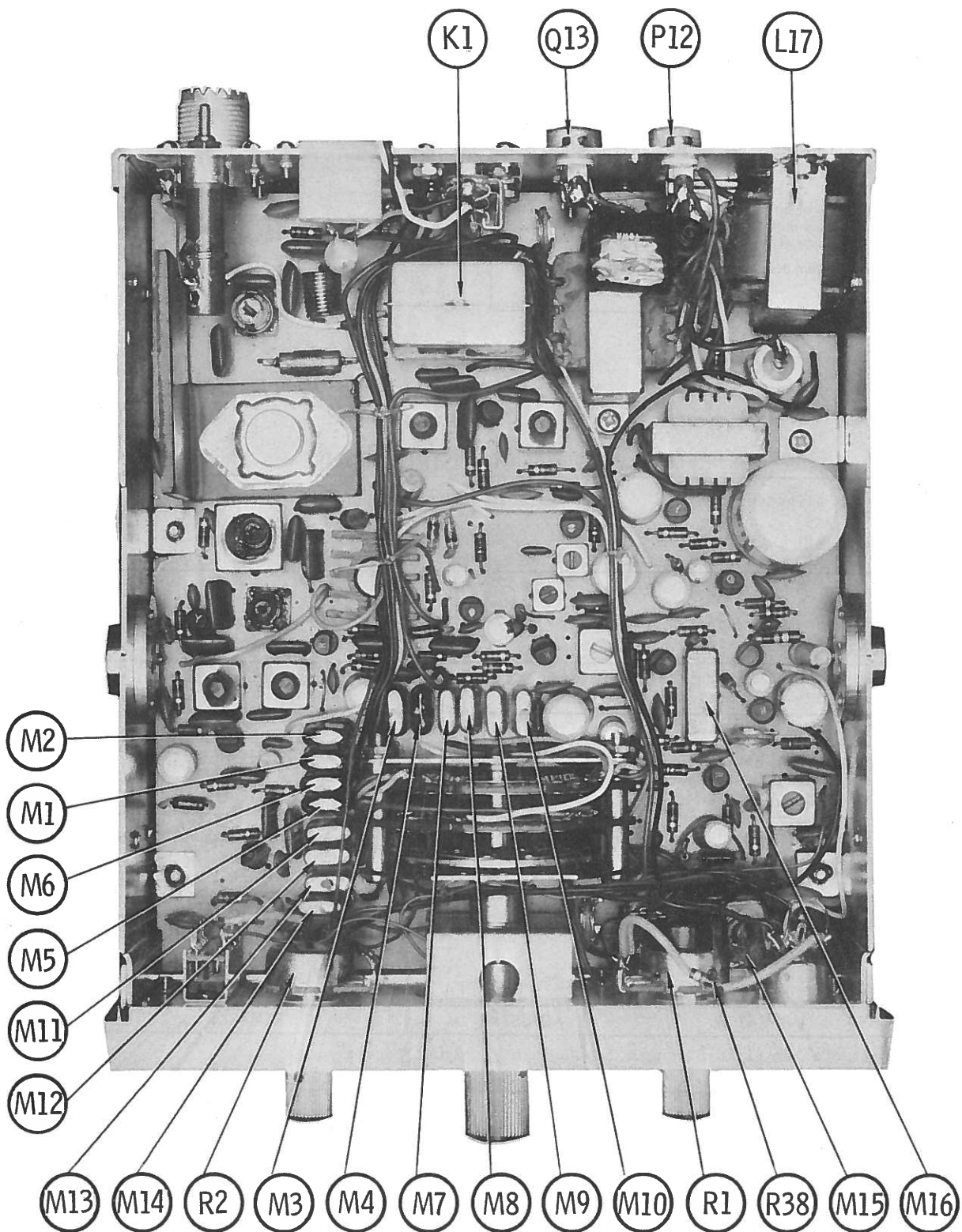
TRANSMITTER

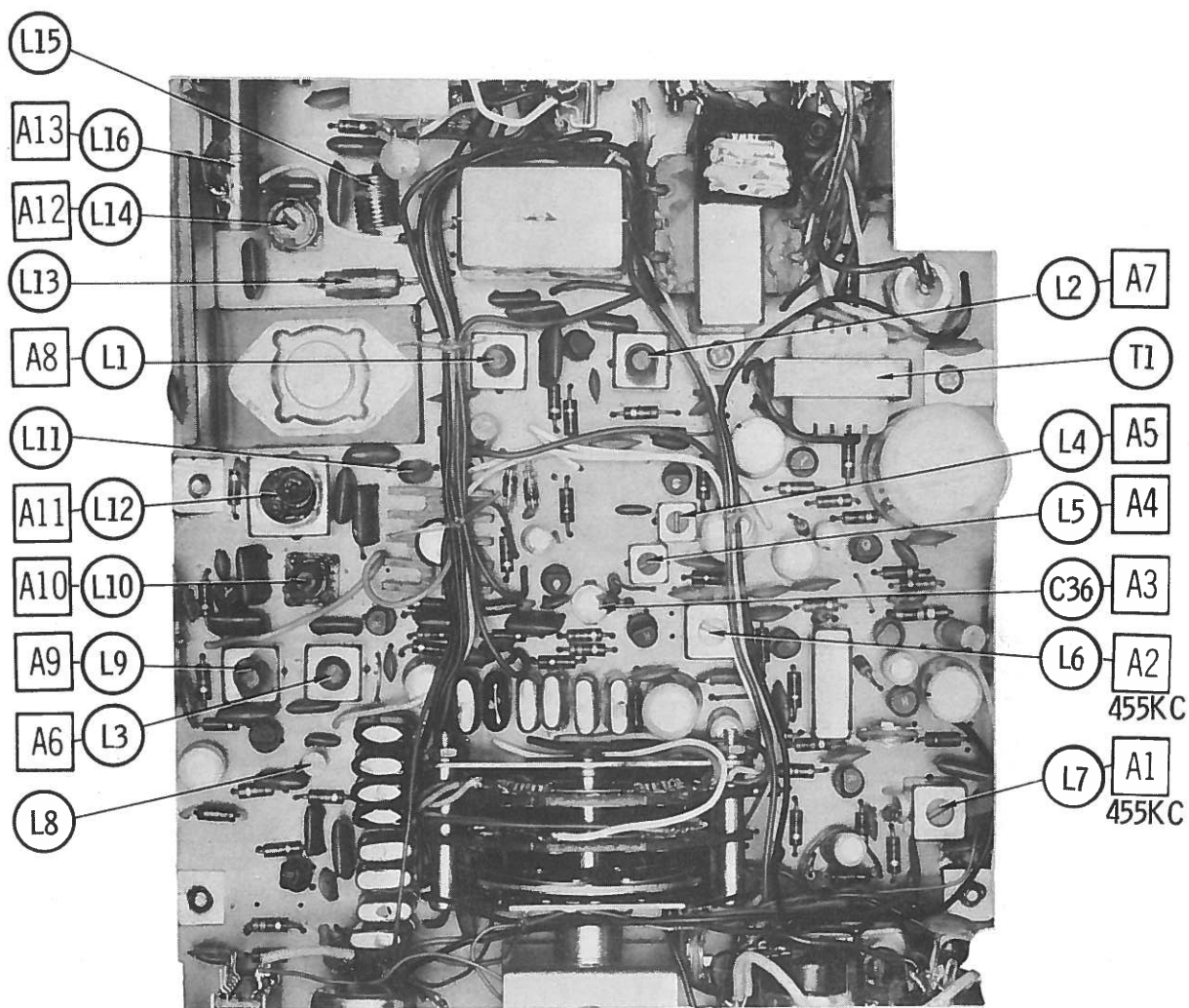
INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength Meter	A9 thru A12	Adjust for maximum.
0-500ma DC Ammeter	A12	Remove meter jumper at L13 and insert meter. Adjust A12 for 5 Watts input.
TV (Ch. 2)	A13	Adjust for MINIMUM interference on TV.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

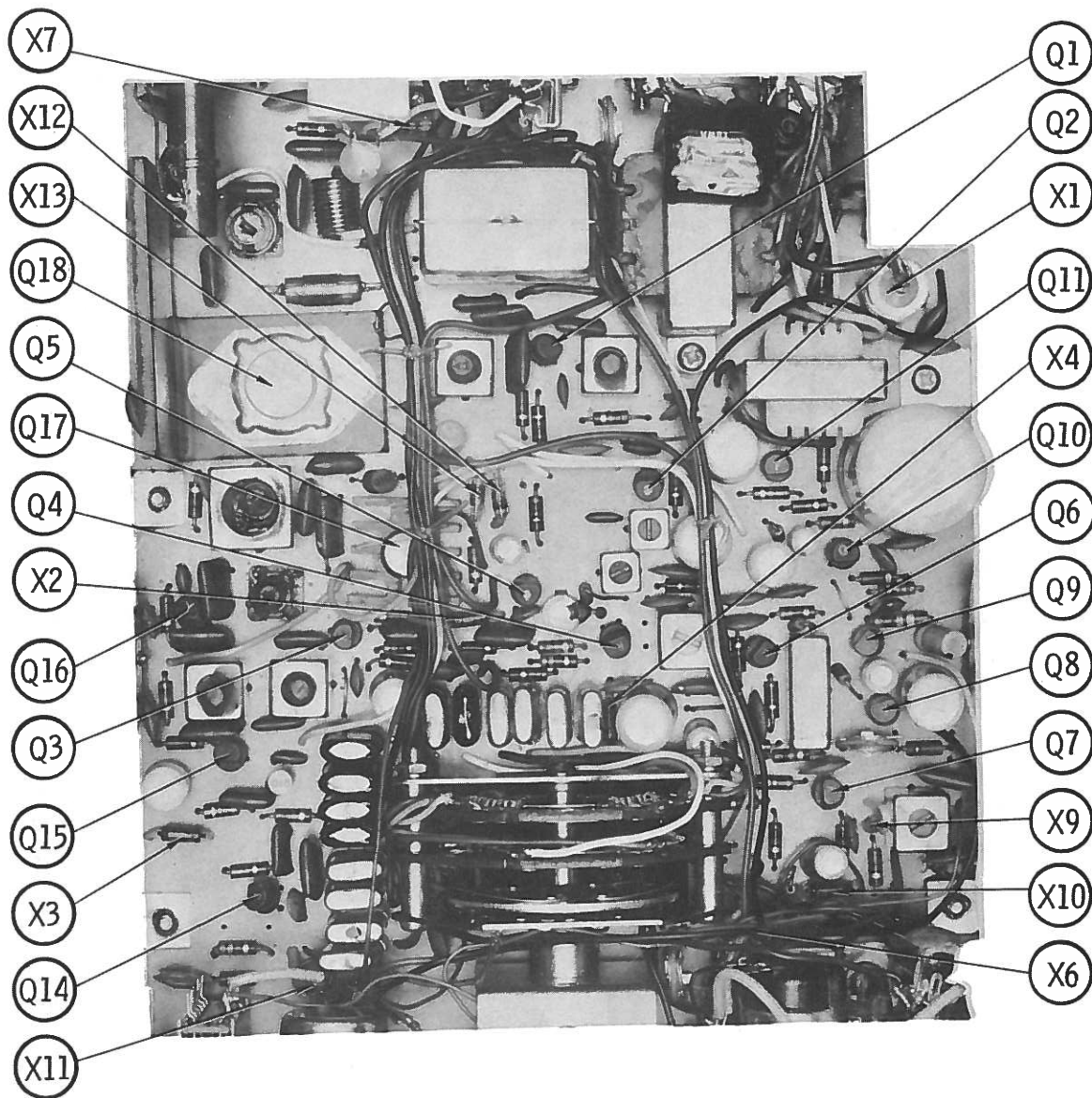
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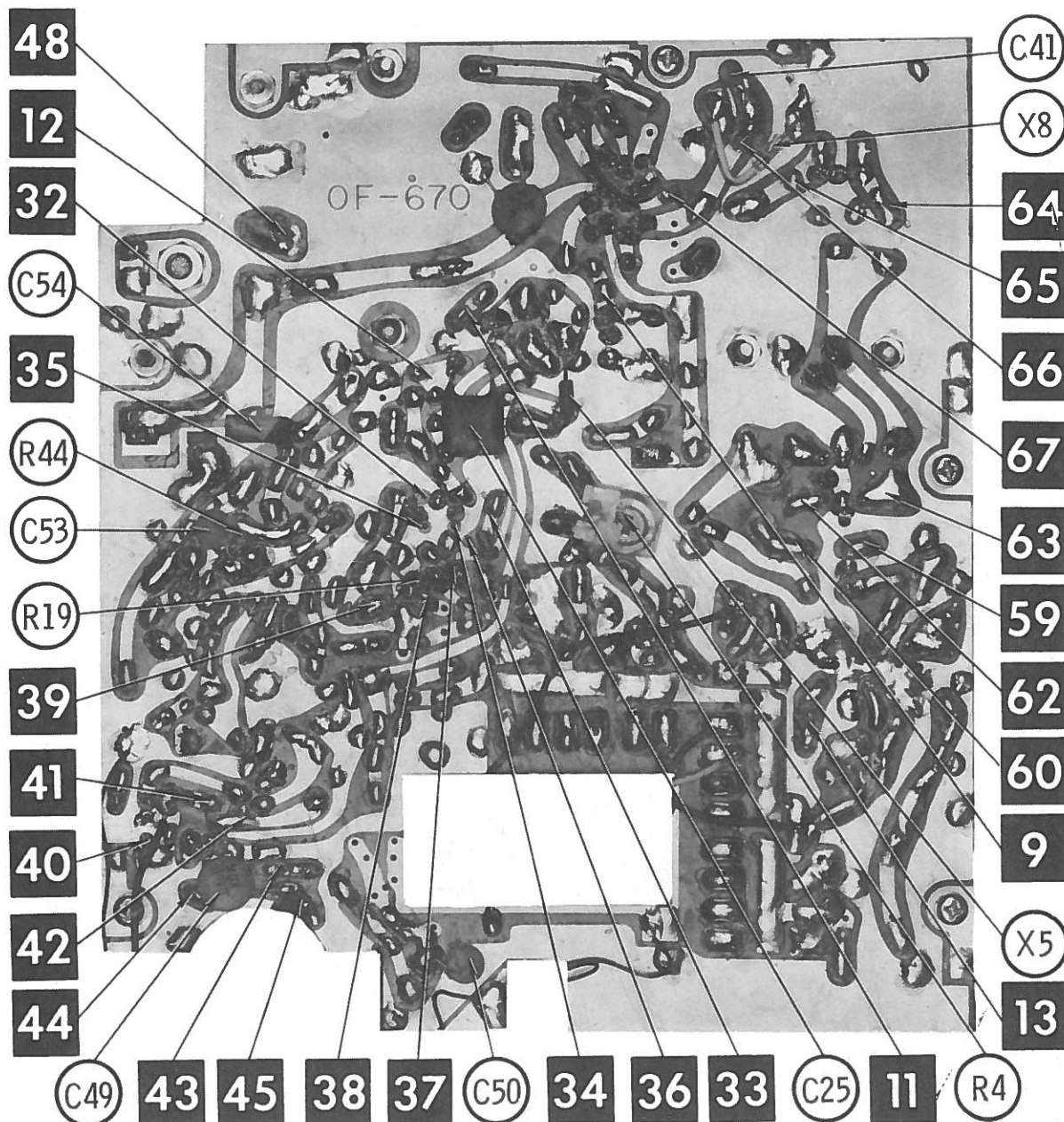
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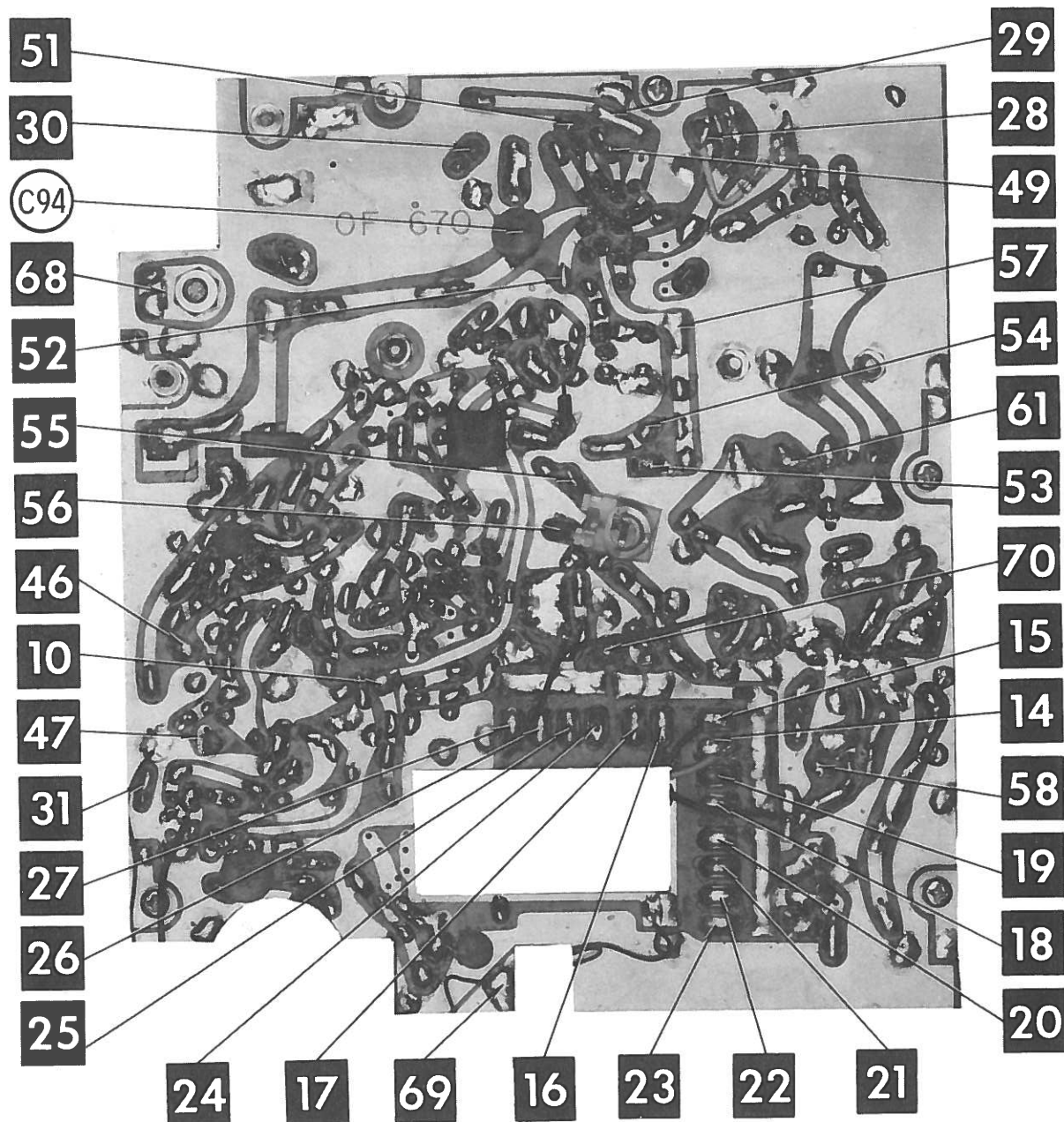


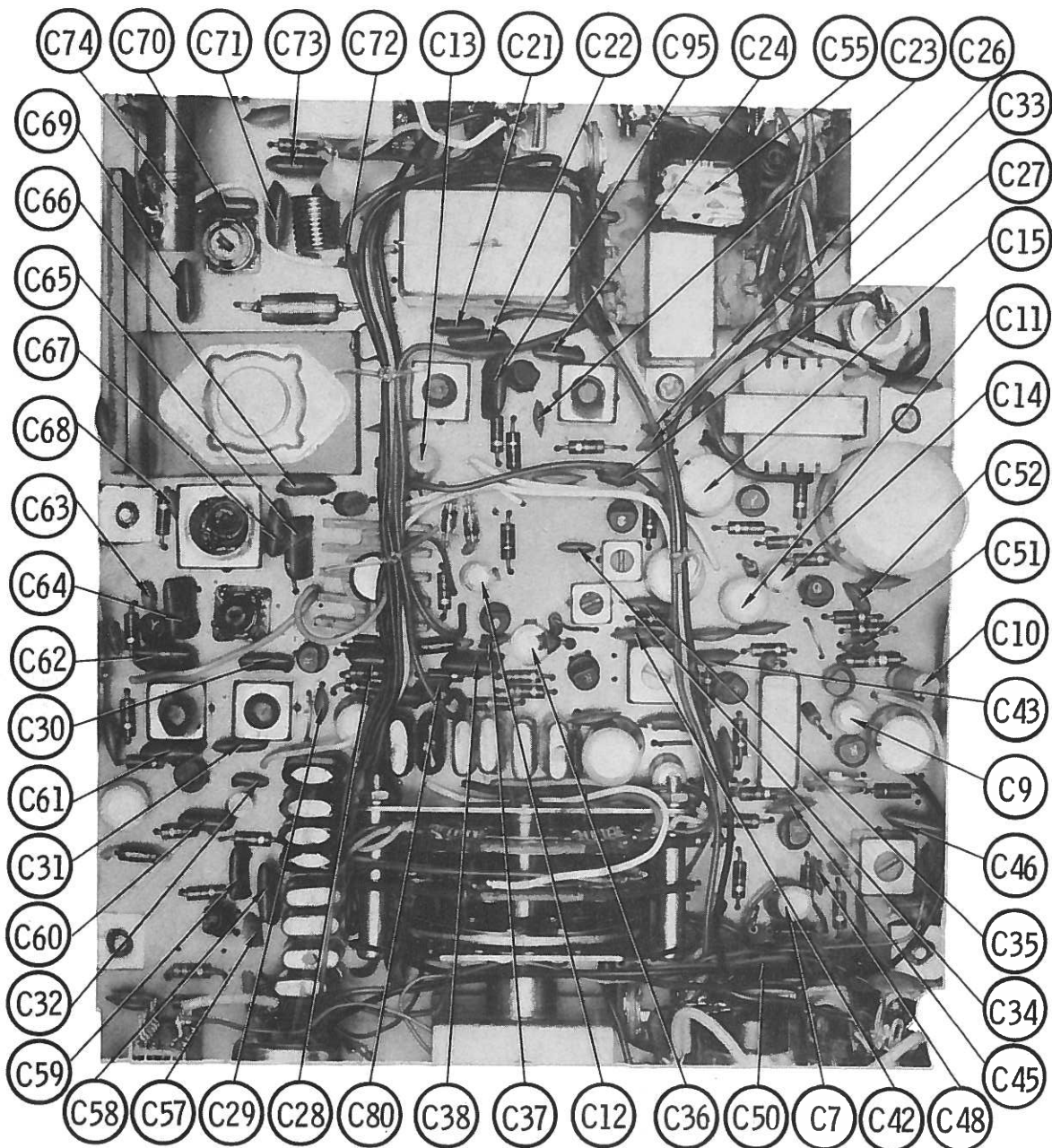


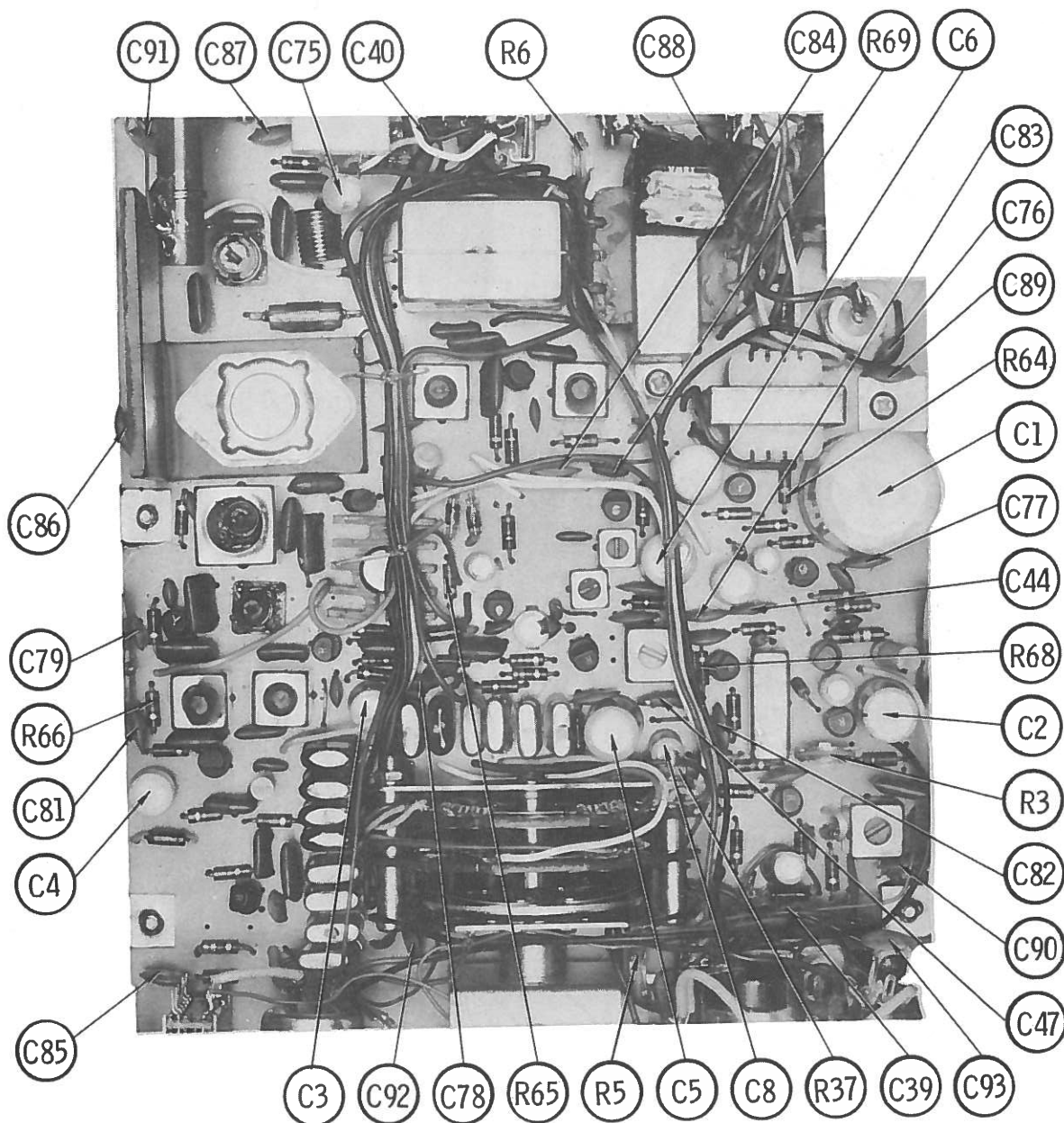


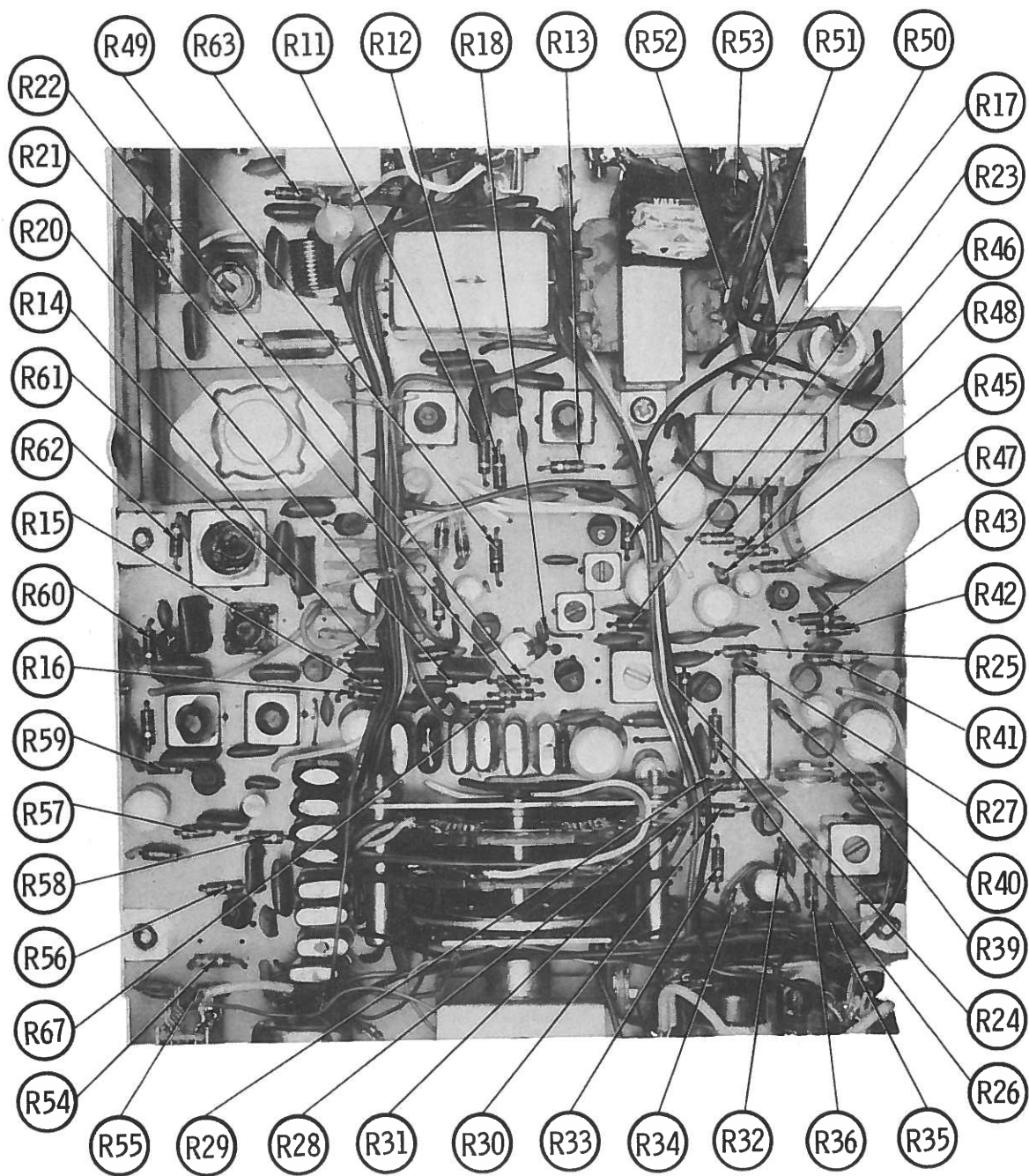












PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG)	Available
	8524 (Stranded 22AWG)	in
	8570 (Stranded 26AWG)	12 Colors

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	2SC388	RF Amp		GE-17	TR-24	HEP56	SK3018	ECG 108
Q2	2SC371	1st Mixer		GE-17	TR-22	HEP50	SK3018	ECG 108
Q3	2SC371	Synthesizer		GE-17	TR-22	HEP50	SK3018	ECG 108
Q4	2SC371	2nd Mixer		GE-17	TR-22	HEP50	SK3018	ECG 108
Q5	2SC371	Receiving Oscillator		GE-17	TR-22	HEP50	SK3018	ECG 108
Q6	2SC371	1st IF Amp		GE-17	TR-22	HEP50	SK3018	ECG 108
Q7	2SC371	2nd IF Amp		GE-17	TR-22	HEP50	SK3018	ECG 108
Q8	2SC371	Squelch		GE-17	TR-22	HEP50	SK3018	ECG 108
Q9	2SA495	Squelch		GE-21	TR-19	HEP52	SK3025	ECG 129
Q10	2SC372	AF Amp		GE-20	TR-21	HEP55	SK3020	ECG 108
Q11	2SC375	Driver		GE-20	TR-21	HEP56	SK3020	ECG 108
Q12	2SB463	Output Modulator				HEP643		ECG 131
Q13	2SB463	Output Modulator				HEP643		ECG 131
Q14	2SC371	Transmitter Oscillator		GE-17	TR-22	HEP50	SK3018	ECG 108
Q15	2SC388	Transmitter Mixer		GE-17	TR-24	HEP56	SK3018	ECG 108
Q16	2SC735	Buffer		GE-20	TR-21	HEP53	SK3020	ECG 123
Q17	2SC481	Driver						ECG 128
Q18	2SC106	Final Amp		GE-11				

ROBYN MODEL TR-123B

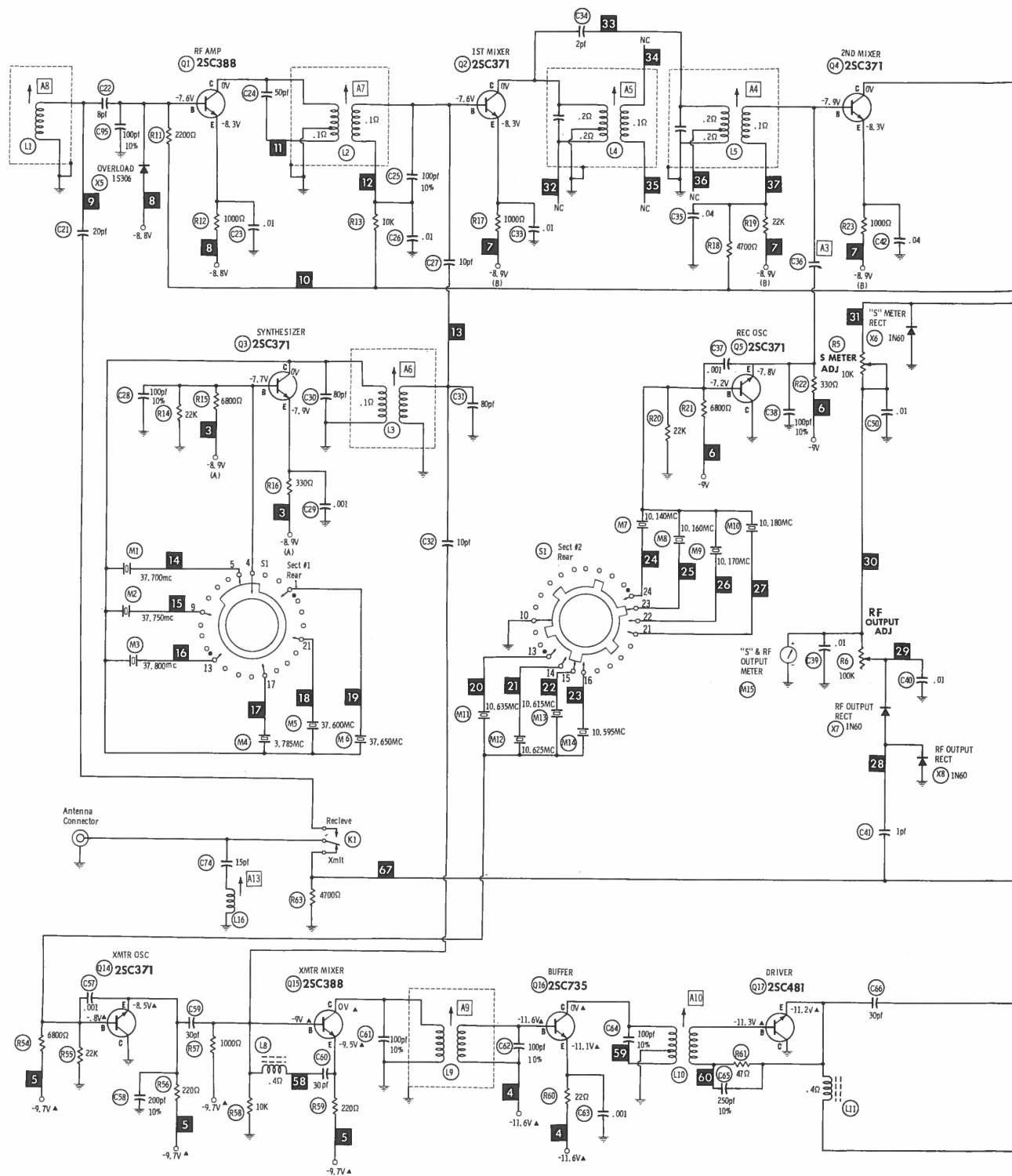
POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	1S1660	GEMR-2	3F40D			Zener
X2	1S130	GEZD-9.1	1ZM9.1-T10	ECG 139		
X3	1S130		1ZM10-T10 or Z-1110	ECG 140		
X4	1S130	GEZD-9.1	1ZM9.1-T10	ECG 139		Zener
X5	1S306	1N60	1N60	ECG 109		
X6	1N60	1N60	1N60	ECG 109		
X7	1N60	1N60	1N60	ECG 109		
X8	1N60	1N60	1N60	ECG 109		
X9	1N60	1N60	1N60	ECG 109		
X10	MC2526	1N34AS	1N34A	ECG 109		
X11	1S32	1N34AS	1N34A	ECG 109		
X12	1N60	1N60	1N60	ECG 109		
X13	1N60	1N60	1N60	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000 25V		PRS1295	EA30-1000	WBR1000-35			
C2	200 15V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C3	30 16V		BCD15035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1158
C4	30 16V		BCD15035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1158
C5	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C6	47 16V		BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1160
C7	10 16V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C8	10 16V			EP15-10				TE-1155
C9	10 16V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C10	1 25V		BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C11	33 16V		BCD12035	EP15-25	PC30-35	MT1-16	MTV30CB25	TE-1158
C12	4.7 16V		BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C13	1 25V		BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C14	1 25V		BCD50001	EP30-2	PC1-100	MT1-J	MTV1CB50	TE-1200
C15	100 15V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162

(CONTINUED ON PAGE 112)



NC No Connection

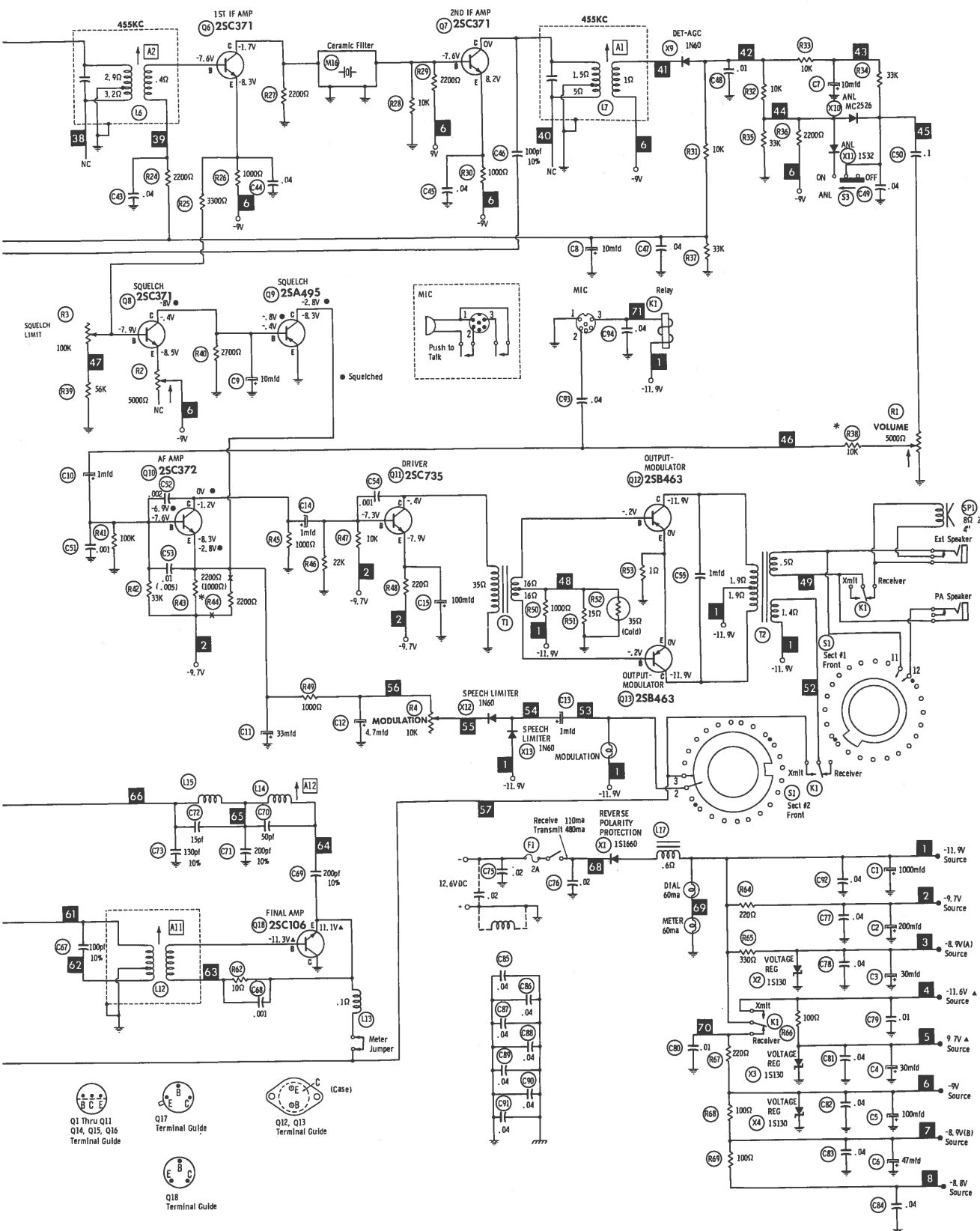
▲ Measured in "Transmit" position.
* May not be used in some versions.

Controls viewed from actuator end. Arrow indicates clockwise rotation.

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.

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

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**
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PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.
C21	20		NPO-DI 20	DTZ-20	NPO20	CCTO-200	CNO420	10TCC-Q20
C22	80			DTZ-82	NP082	CCTO-820	CNO482	10TCC-Q82
C23	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C24	50		NPO-DI 50	DTZ-50	NP050	CCTO-510	CNO450	10TCC-Q50
C25	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C26	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C27	10		NPO-DI 10	DTZ-10	NP010	CCTO-100	CNO410	10TCC-Q10
C28	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C29	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C30	80			DTZ-82	NP082	CCTO-820	CNO482	10TCC-Q82
C31	80			DTZ-82	NP082	CCTO-820	CNO482	10TCC-Q82
C32	10		NPO-DI 10	DTZ-10	NP010	CCTO-100	CNO410	10TCC-Q10
C33	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C34	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CNO522	10TCC-V22
C35	.04			DD-403			GP140	
C36								
C37	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C38	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C39	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C40	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C41	1		NPO-DI 1.0	TC7-1			CNO510	10TCC-V10
C42	.04			DD-403			GP140	
C43	.04			DD-403			GP140	
C44	.04			DD-403			GP140	
C45	.04			DD-403			GP140	
C46	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C47	.04			DD-403			GP140	
C48	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C49	.04			DD-403			GP140	
C50	.1		TTP-1	CK-104			TA010	TG-P10
C51	.001							
C52	.002		GPD X5F202K	DD-202	GP2000	CCD-202	GP220	10TS-D20
C53	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C54	.001			DD30-102	DPMS20D1	16DP-2-102		16PS-D10
C55	1	200V	V1612W1					
C57	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C58	200	10%	GPD X5F201K	DD-201	GP200	CCD-201	GP320	10TS-T20
C59	33			DD-330	NP033	CCD-330	GP433	10TS-Q33
C60	30			DD-300		CCD-300	GP430	10TS-Q30
C61	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C62	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C63	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C64	130	10%		DD-131			GP313	10TS-T13
C65	250	10%	GPD X5F251K	DD-251		CCD-251	GP325	10TS-T25
C66	30			DD-300		CCD-300	GP430	10TS-Q30
C67	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C68	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C69	200	10%	GPD X5F201K	DD-201	GP200	CCD-201	GP320	10TS-T20
C70	50		GPD X5F500K	DD-500	NP050	CCD-500	GP450	10TS-Q50
C71	200	10%	GPD X5F201K	DD-201	GP200	CCD-201	GP320	10TS-T20
C72	15		NPO-DI 15	DTZ-15	NP015	CCTO-150	CNO415	10TCC-Q15
C73	130	10%		DD-131			GP313	10TS-T13
C74	15		NPO-DI 15	DTZ-15	NP015	CCTO-150	CNO415	10TCC-Q15
C75	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C76	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C77	.04			DD-403			GP140	
C78	.04			DD-403			GP140	
C79	.01			DD-403			GP140	
C80	.01		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C81	.04		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C82	.04			DD-403			GP140	
C83	.04			DD-403			GP140	
C84	.04			DD-403			GP140	
C85	.04			DD-403			GP140	
C86	.04			DD-403			GP140	
C87	.04			DD-403			GP140	
C88	.04			DD-403			GP140	
C89	.04			DD-403			GP140	
C90	.04			DD-403			GP140	
C91	.04			DD-403			GP140	
C92	.04			DD-403			GP140	
C93	.04			DD-403			GP140	
C94	.04			DD-403			GP140	
C95	100	10%	GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	5000		F1-5000 (1), SF014, KR-1	A47-5000-S (1), FS-3,SWE-12 or [NP-5000-S (1), UP-B-400,NWE-12]	Q11-114 (1), 76-1 or [BU1 (1), CF8,SS1,GC]*	RU53L,SL36 (1), SL3250,US41 or [UA53A (1), SF1000,US41] or [U14 (1), US26]
R2	Squelch	5000		F2-5000 (1) SF014		Q13-114 (1) or [BU1 (1),CF60, SS1,GC] *	RU53A,SL36 (1), SL3250 or [UA53A (1), SF1000] or U12 (1)
R3	Squelch Limit	100K		TSV-100K (2) or T-100K (2)		X201R104B (2)	MTC15L1 (2)
R4	Modulation Adjust	10K		TSV-10K (2) or T-10K (2)		X201R103B (2)	MTC14L1 (2)
R5	"S" Meter Adjust	10K		TSV-10K (2) or T-10K (2)		X201R103B (2)	MTC14L1 (2)
R6	RF Output Adjust	100K		TSV-100K (2) or T-100K (2)		X201R104B (2)	MTC15L1 (2)

(1) Enlarge Mounting Hole.

(2) Cut off one of the end terminals and bend to fit "PC" Board.

* "SNAPTROL".

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R52	35 (Cold)		

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R53	1 1/2 W	WS-1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	Antenna Matching				
L2	Receiving RF				
L3	Synthesizer				
L4	IF Input				
L5	IF Output				
L6	IF Input		16-9026	2066	
L7	IF Output		16-9028	2068	
L8	RF Choke (1.2uh)				
L9	Transmitter Mixer				
L10	Buffer				
L11	RF Choke (1.2uh)				
L12	Driver				
L13	RF Choke (1.1uh)		19-2009	4602	T806
L14	Final Output				
L15	Pi Network				
L16	TVI Trap			20A687RBI	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L17	.48A	.6	2mh						

ROBYN MODEL TR-123B

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T1	1.4	1 CT							

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	47	8						
		SEC 2						
		1.4 DC Resistance						

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			PART No.	QUAM PART No.	
SP1	4" PM	8 ohms		4A1Z8	

FUSE DEVICES

ITEM No.	DESCRIPTION		REPLACEMENT DATA					
			PART No.		BUSS PART No.		LITTELFUSE PART No.	
			DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	2 Amp	250V			AGC-2	HDJ	311002	155020

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay		
M1	Crystal		37.700MC Channels 9, 10, 11, 12.
M2	Crystal		37.750MC Channels 13, 14, 15, 16.
M3	Crystal		37.800MC Channels 17, 18, 19, 20.
M4	Crystal		37.850MC Channels 21, 22, 23.
M5	Crystal		37.600MC Channels 1, 2, 3, 4.
M6	Crystal		37.650MC Channels 5, 6, 7, 8.
M7	Crystal		10.140MC Channels 4, 8, 12, 16, 20, 23.
M8	Crystal		Channels 3, 7, 11, 15, 19.
M9	Crystal		10.170MC Channels 2, 6, 10, 14, 18, 22.
M10	Crystal		10.180MC Channels 1, 5, 9, 13, 17, 21.
M11	Crystal		10.635MC Channels 1, 5, 9, 13, 17, 21.
M12	Crystal		10.625MC Channels 2, 6, 10, 14, 18, 22.
M13	Crystal		10.615MC Channels 3, 7, 11, 15, 19.
M14	Crystal		10.595MC Channels 4, 8, 12, 16, 20, 23.
M15	Meter		S & RF Output
M16	Ceramic Filter		
S1	Switch		Selector
S2	Switch		ANL