

SAMS PHOTOFACT®

CB RADIO SERIES



CB-58
58
OCTOBER 1974



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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.



MODEL 13-879

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

L1, L2, L5, L6, L7, L8, L9, L10, L11	GC ELECTRONICS 9440
L3, L4, IFT1, IFT2	9087, 9089
L15.	8290, 5000

MIDLAND MODEL 13-879

SYNTHESIZER ALIGNMENT

INDICATOR	ADJUST	REMARKS
Frequency Counter Oscilloscope (usable to 30 MHz)	L5	Connect to secondary of L5. Check frequency on Channels 1, 5, 9, 13, 17, 21. Set to Channel 13 and adjust for maximum.
Frequency Counter		Connect to Emitter of Q8. Check frequency on Channels 1, 2, 3, 4.
Frequency Counter Oscilloscope (usable to 30 MHz)	L6	Connect to Emitter of Q18. Key transmitter. Check frequency on Channels 1, 2, 3, 4. Set to Channel 11 and adjust for maximum.
		NOTE: If any crystals are out of tolerance they must be replaced.

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

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ALIGNMENT INSTRUCTIONS (Continued)

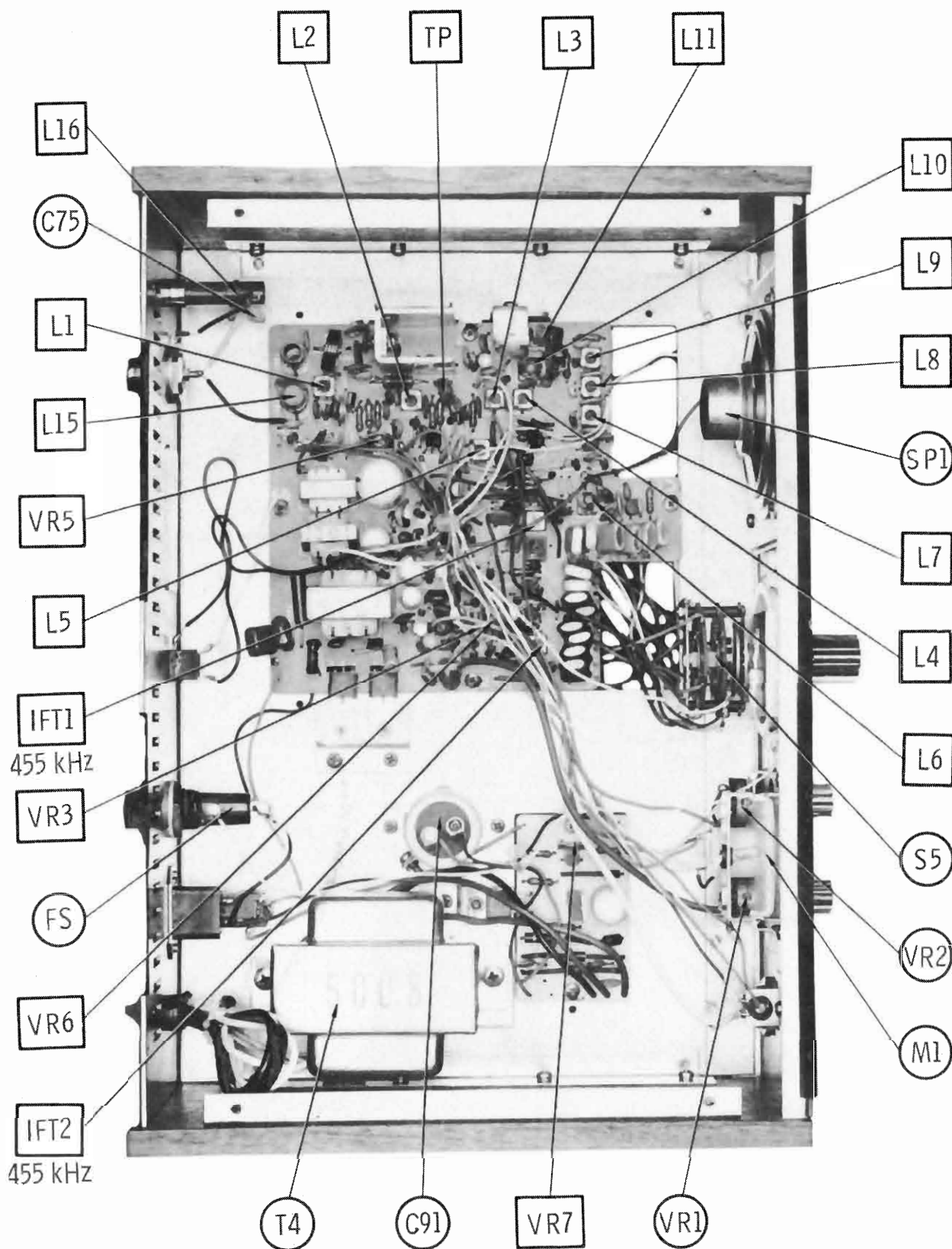
RECEIVER ALIGNMENT

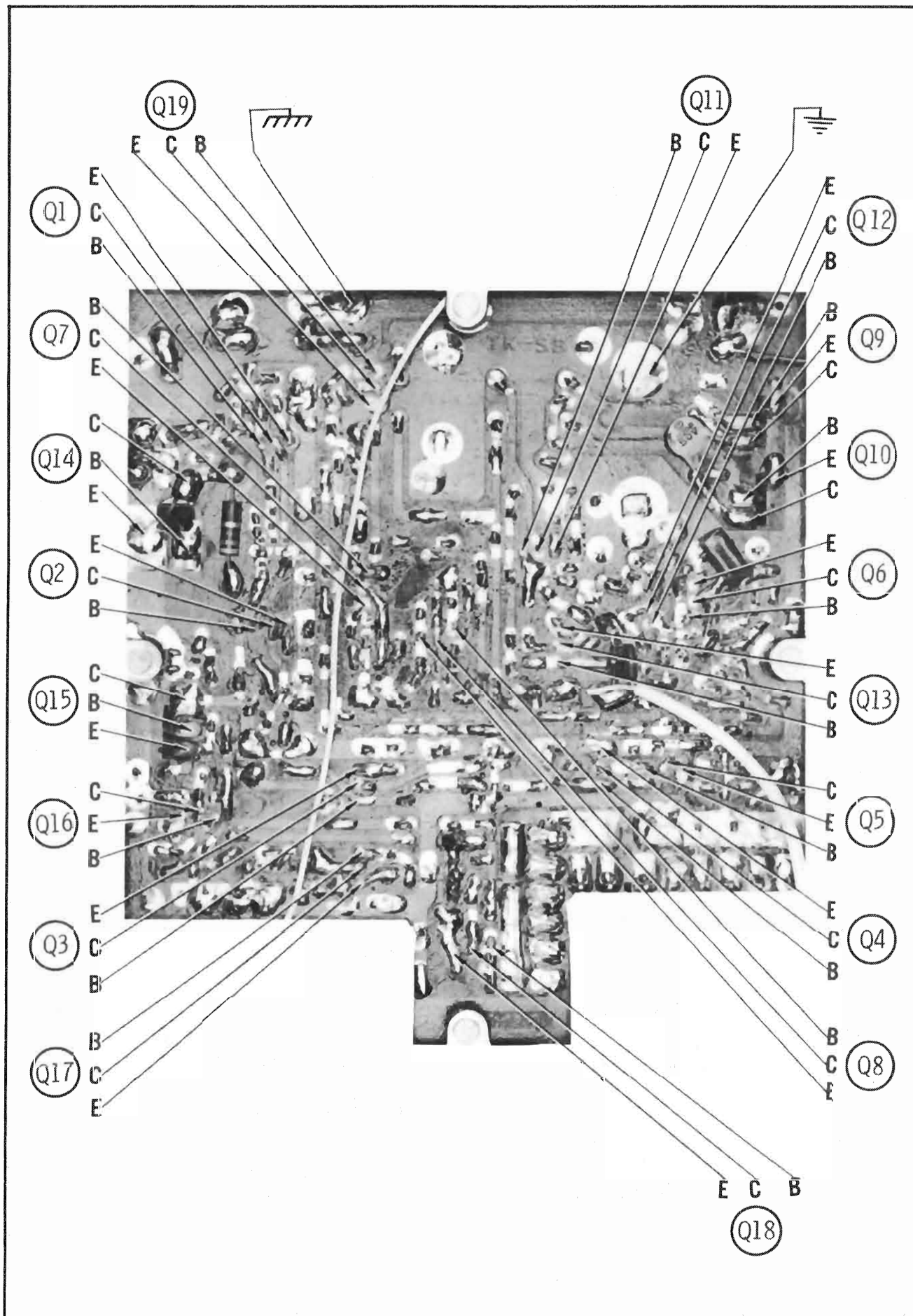
Connect an AC VTVM across speaker voice coil.
 Squelch control fully CCW.
 Adjust volume control for suitable reading.

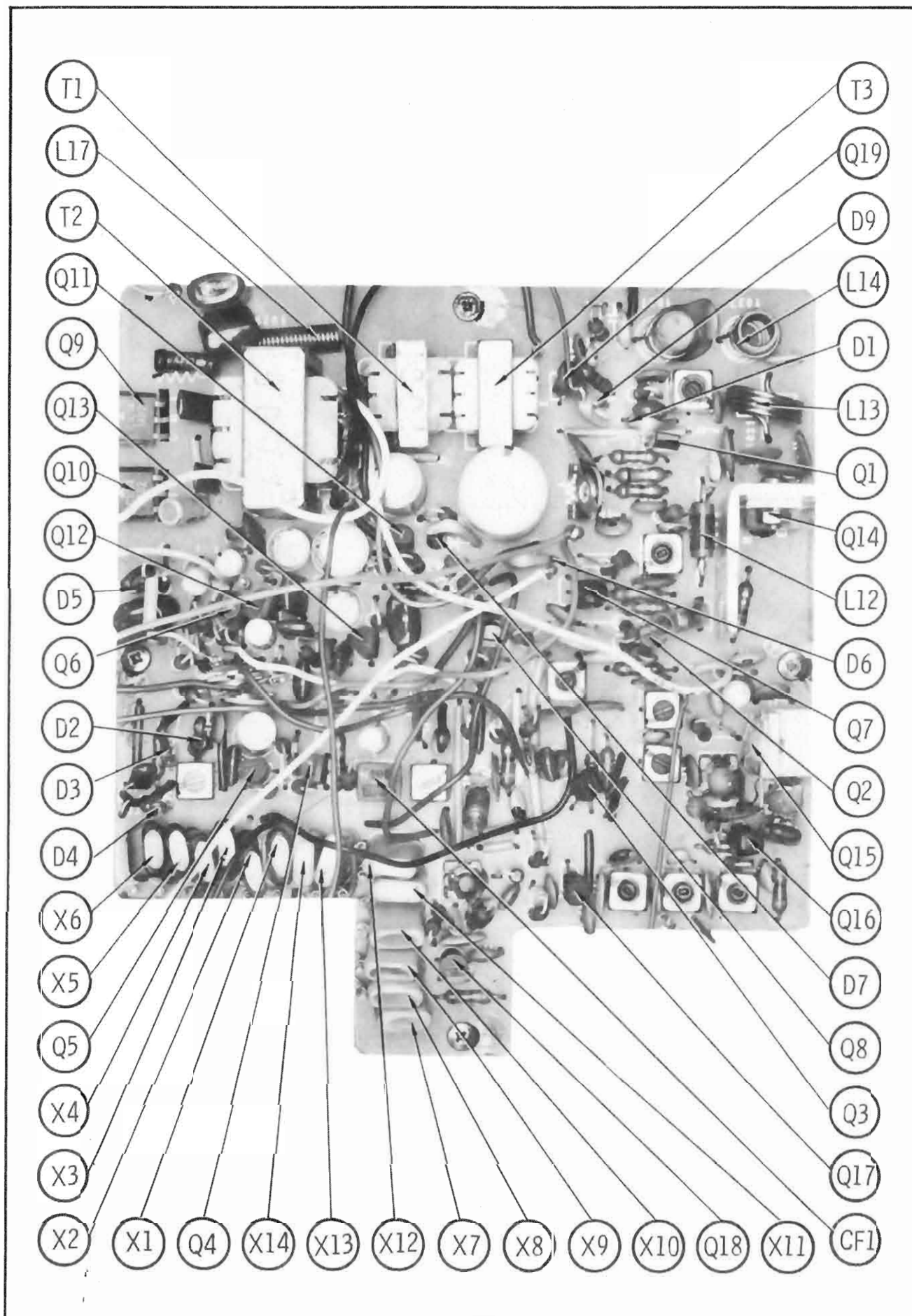
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect high side thru a .1 uF to base of Q3, low side to ground. Set to 455 KHz, 1000 Hz, 30% mod.	Any	IFT1, IFT2	Keep generator output as low as possible. Adjust for maximum.
Connect high side to antenna connector, low side to ground. Set to 27.115 MHz, 1000 Hz, 30% mod.	13	L1, L2, L3, L4	Keep generator output as low as possible, adjust for maximum.
Connect high side to antenna connector, low side go ground. Set to 27.115 MHz, 1000 Hz, 30% mod. 500MV output.	13	VR3	Turn squelch control folly CW. Adjust until squelch just breaks.
Connect high side to antenna connector, low side to ground. Set to 27.115 MHz, 1000 Hz, 30% mod. 100 MV output.	13	VR6	Adjust for a "9" on "S" meter scale.

TRANSMITTER ALIGNMENT

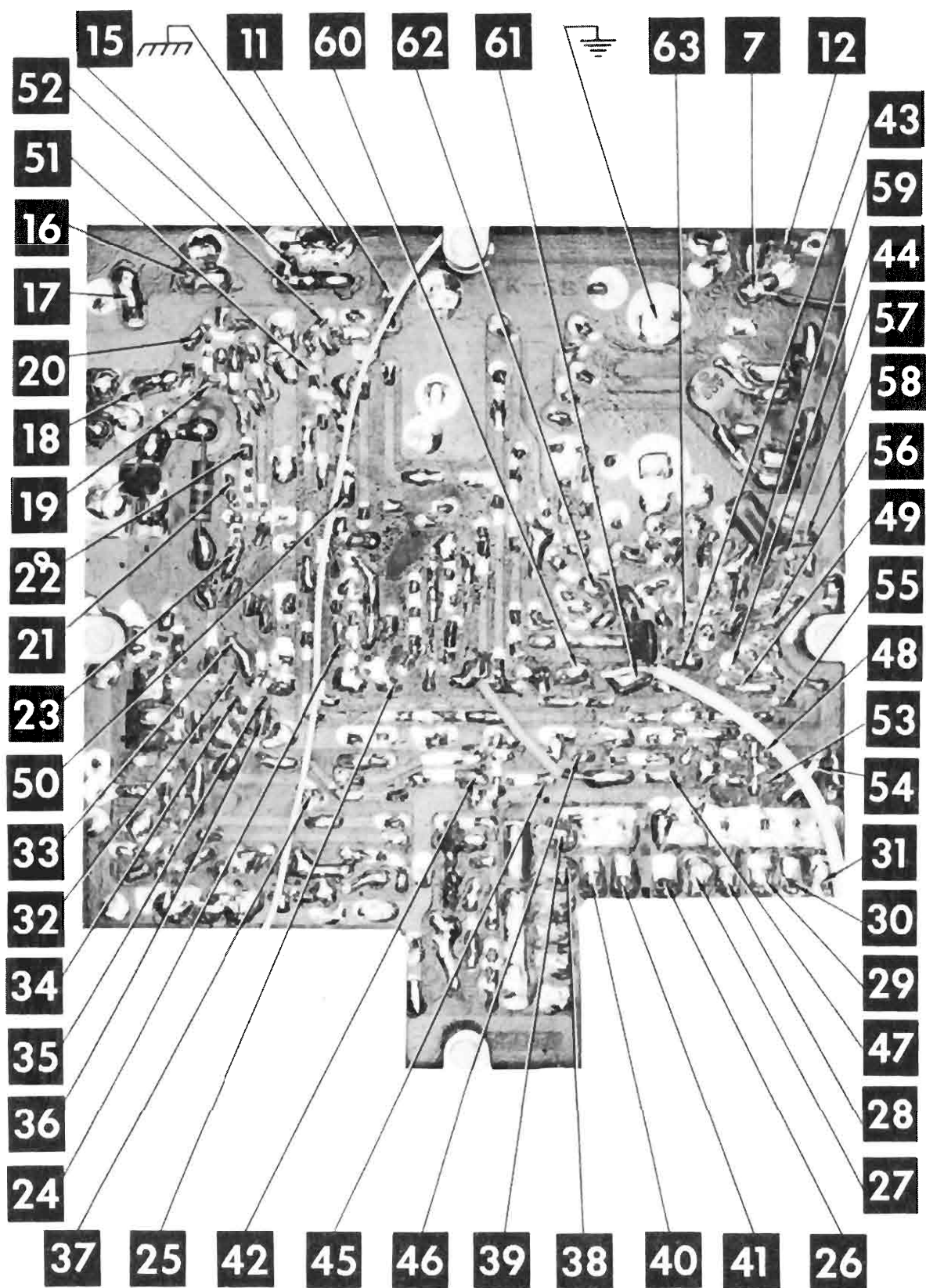
INDICATOR	ADJUST	REMARKS
Oscilloscope (usable to 30 MHz) RF output meter	L7, L8, L9	Connect output meter to antenna connector. Connect scope to secondary of L9. Set channel selector to channel 13. Key transmitter and adjust for maximum.
RF Output Meter 0-1A. DC Milliammeter	L10, L11	Connect output meter to antenna connector. Remove jumper TP and connect milliammeter. Adjust L10 for maximum current. Adjust L11 for MINIMUM current.
RF Output Meter 0-1A. DC Milliammeter	L15	Connect output meter to antenna connector. Remove jumper TP and connect milliammeter. Adjust for 5 watts input.
RF Output Meter Oscilloscope (usable to 30 MHz)		Connect audio oscillator (600-ohm output) to microphone terminal (Pin 1) and ground. Frequency 1 KHz. Connect RF output meter to antenna connector. Connect scope to output meter. Less than 7 mV output from audio oscillator should produce 100% modulation.
RF Output Meter	VR5	Connect to antenna connector. Adjust for agreement of RF power meter and output meter.
0-25 VDC Voltmeter	VR7	Connect to FS (Fuse) and ground. Adjust for 13.8 VDC.
TV (Channel 2)	L16	Connect to antenna, Key transmitter. Adjust for MINIMUM interference.

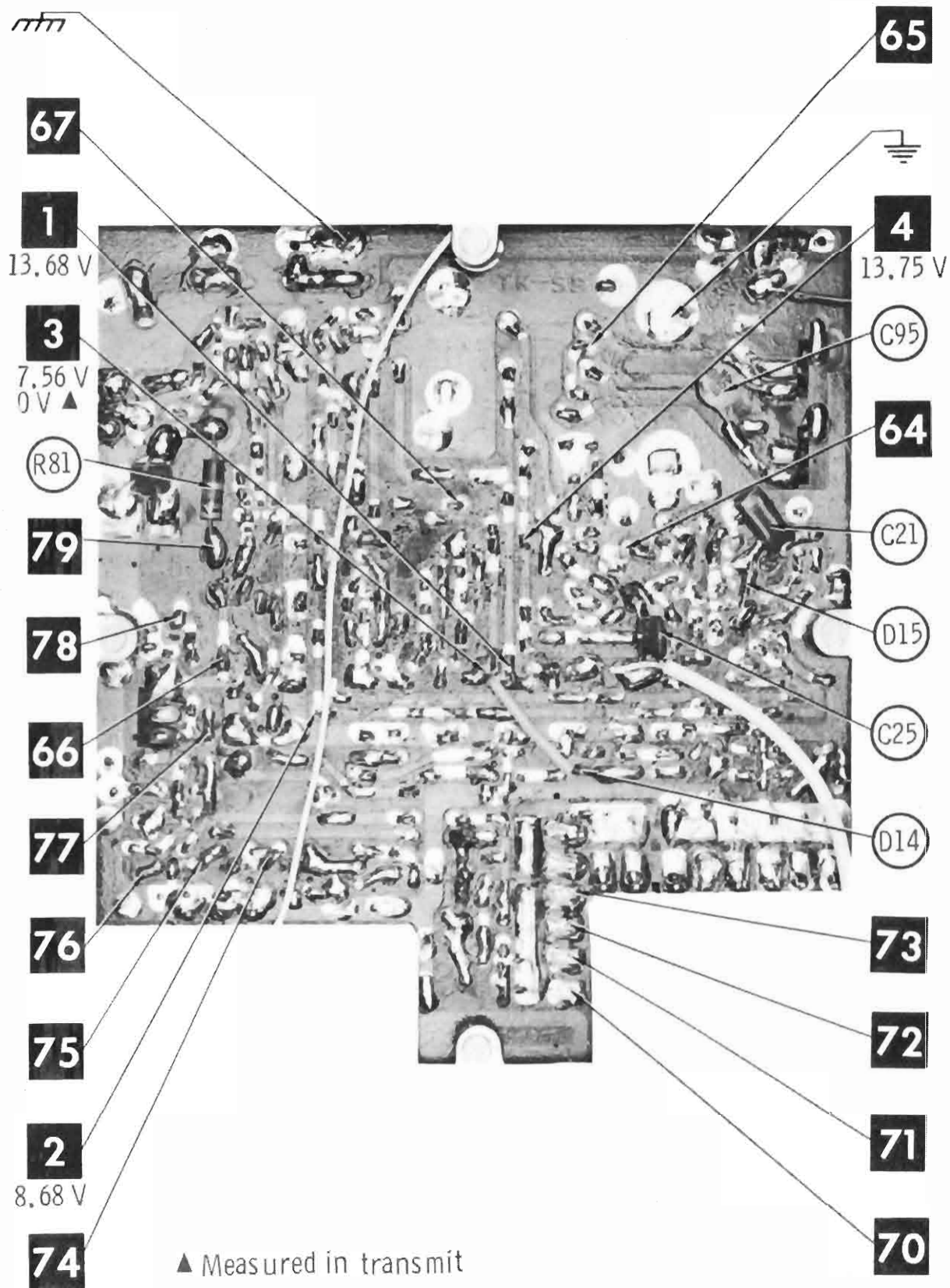




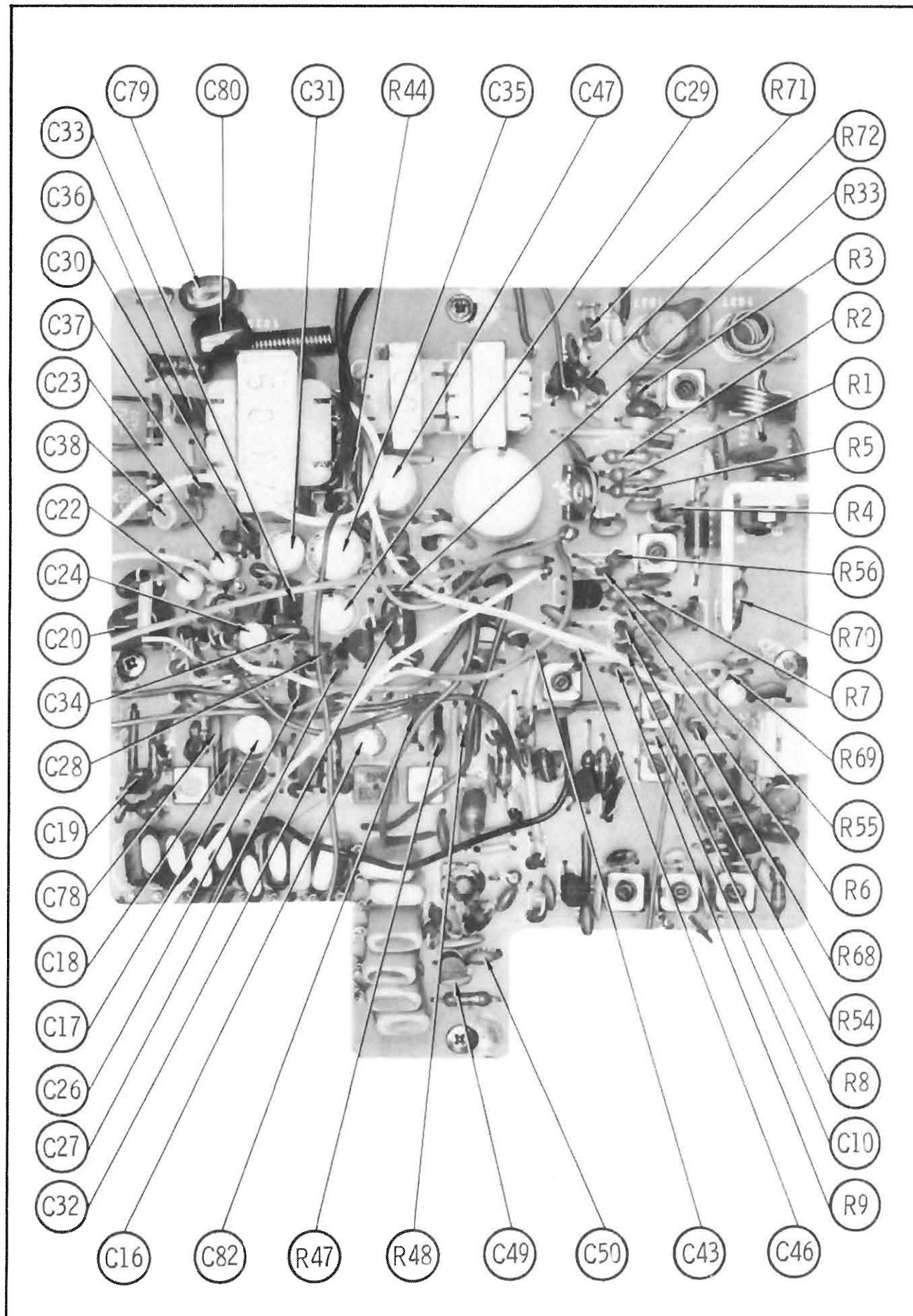


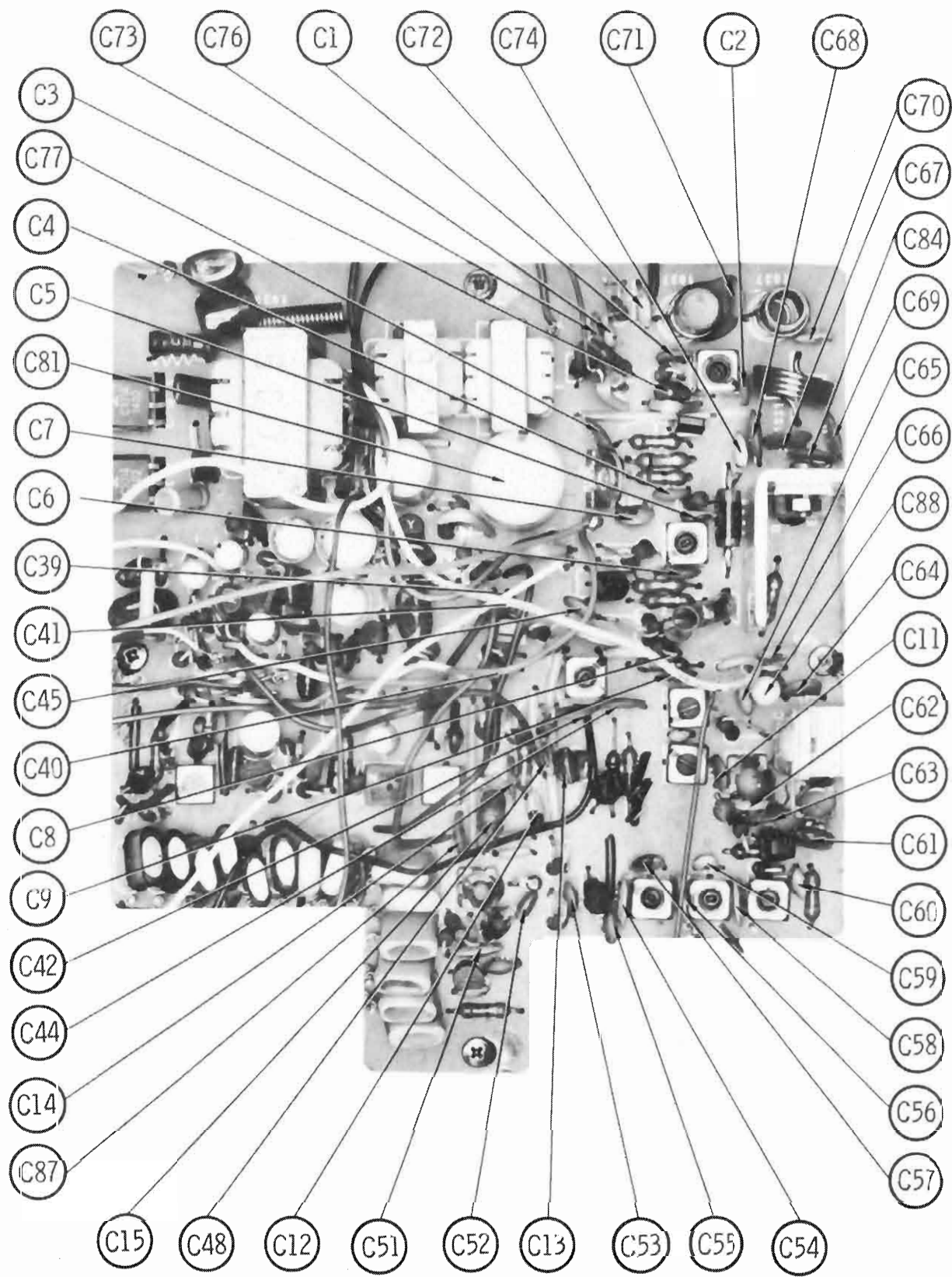
MIDLAND MODEL 13-879

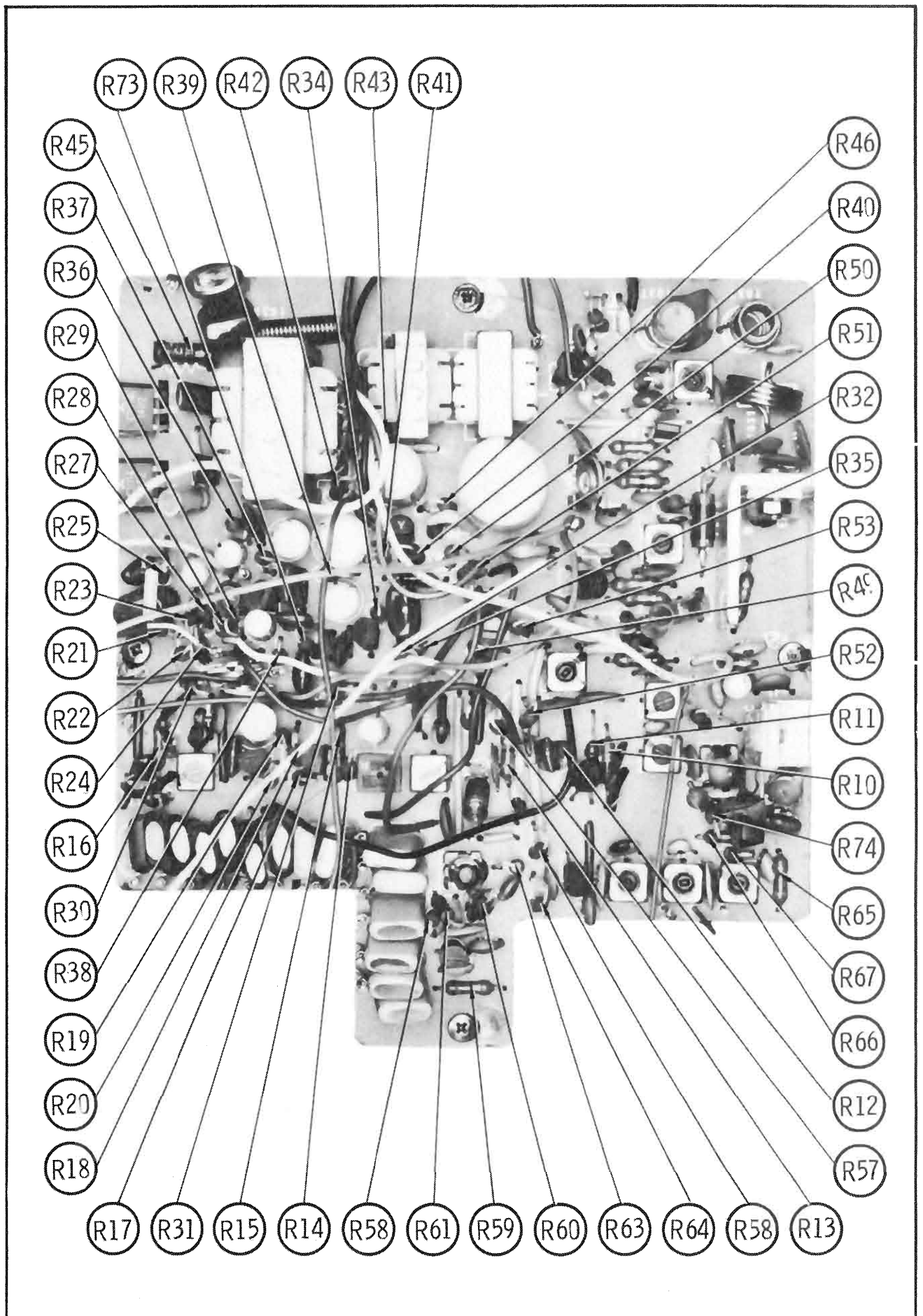


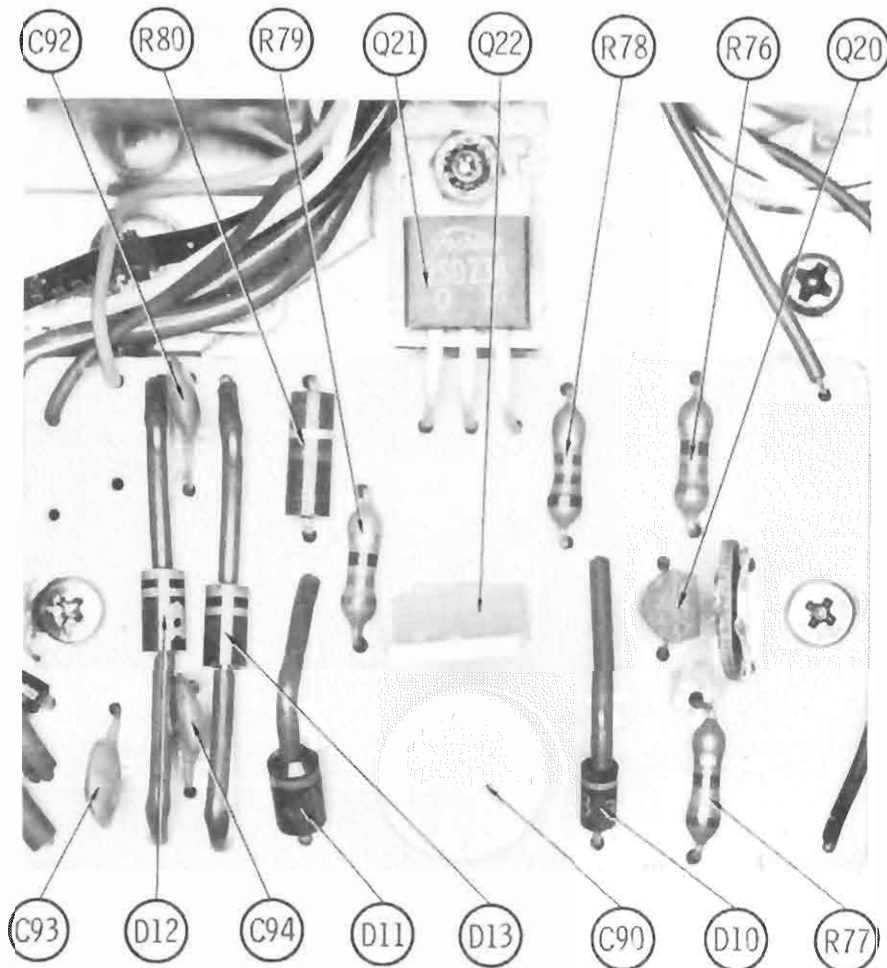
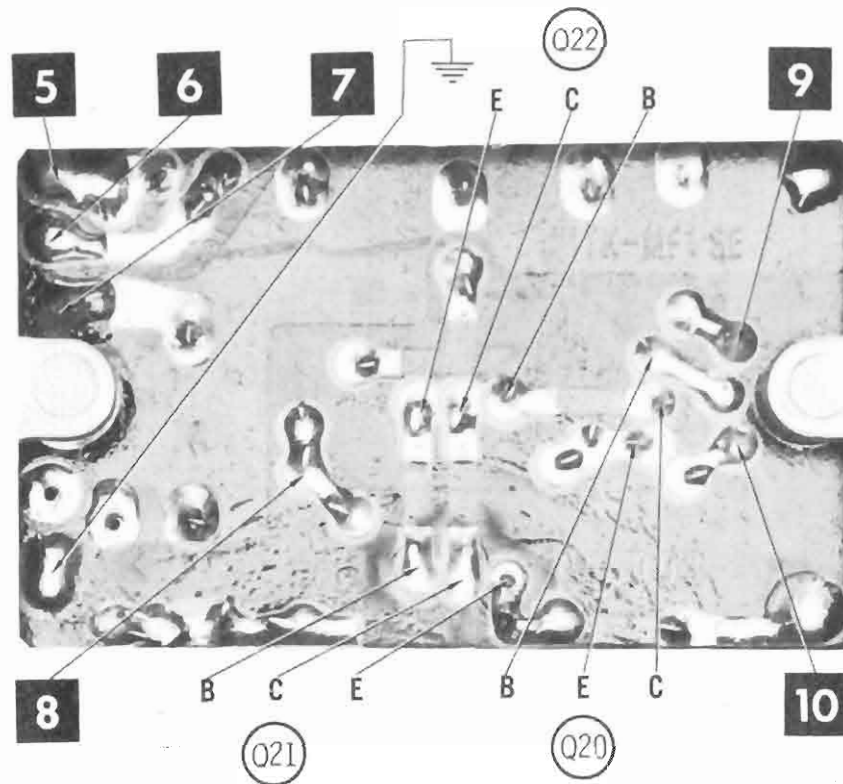


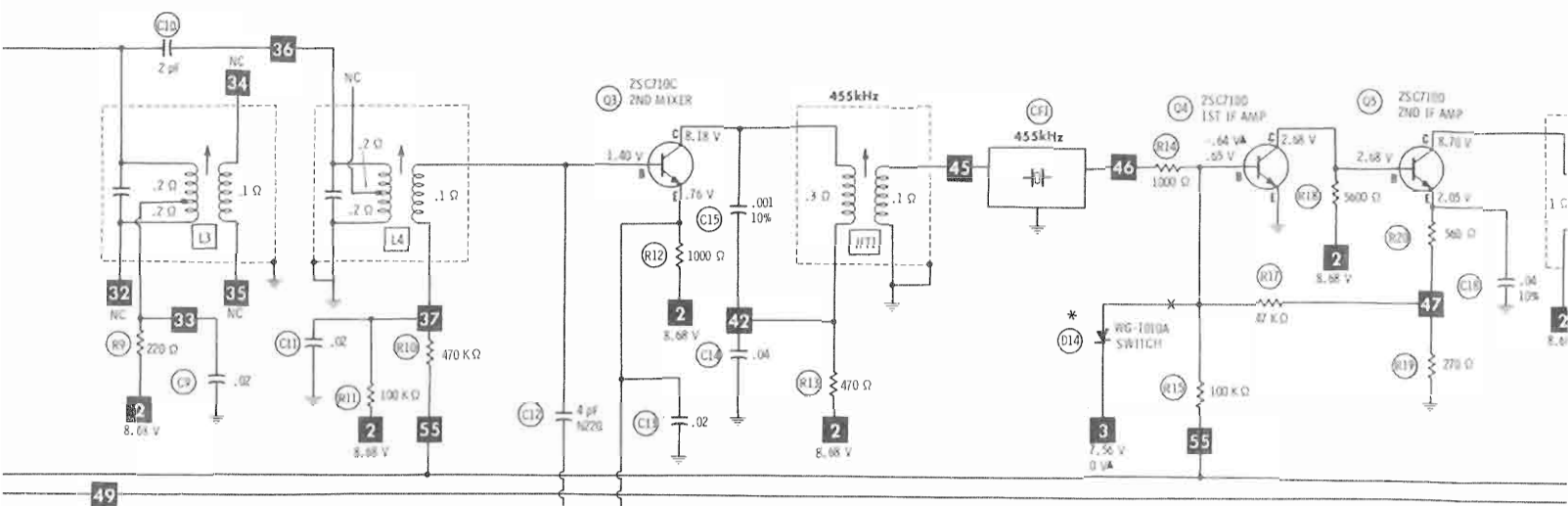
MIDLAND MODEL 13-879



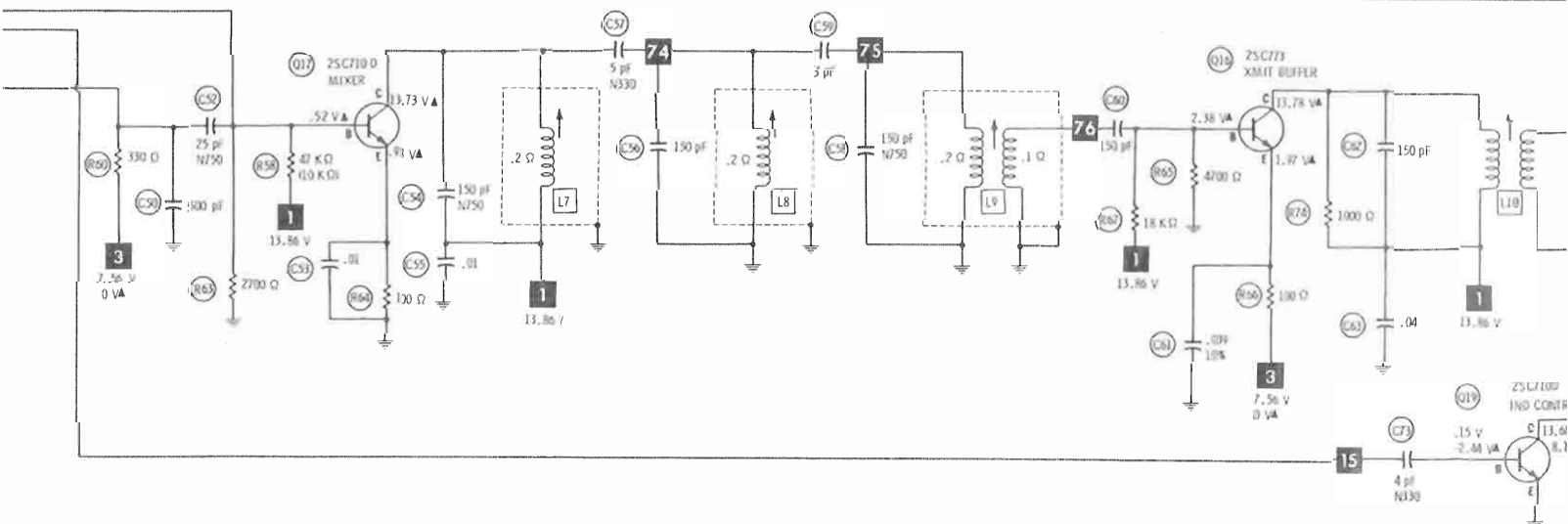
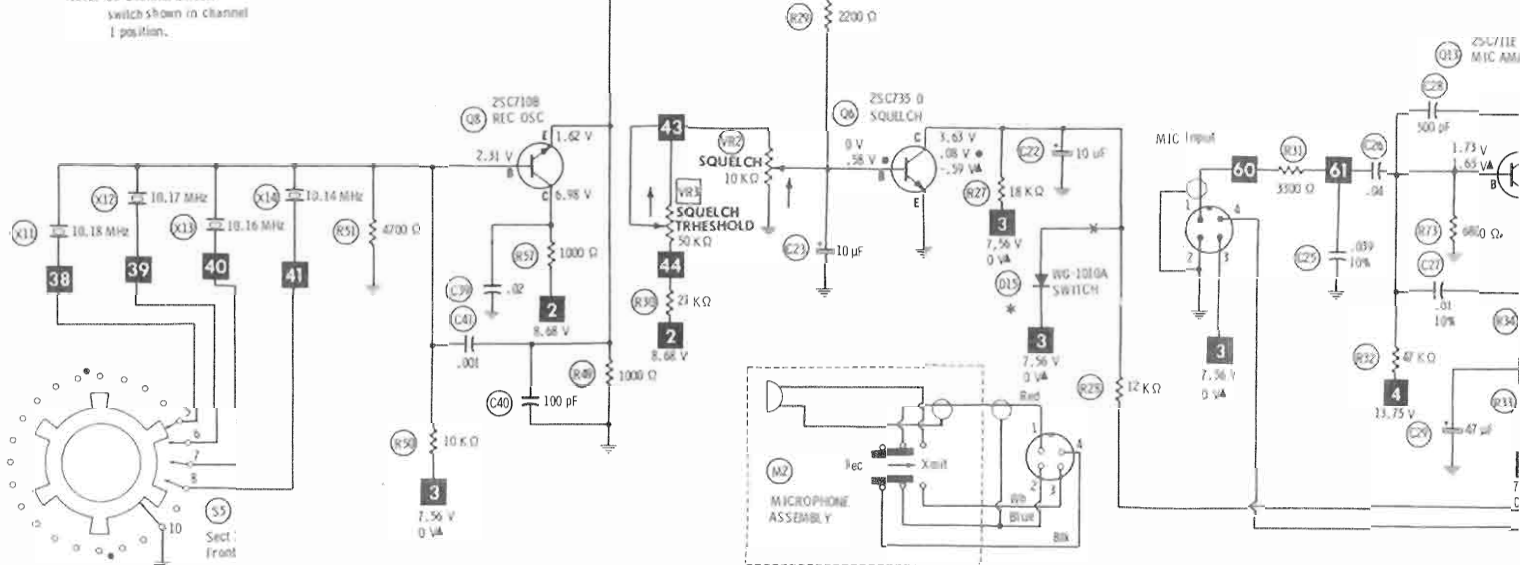


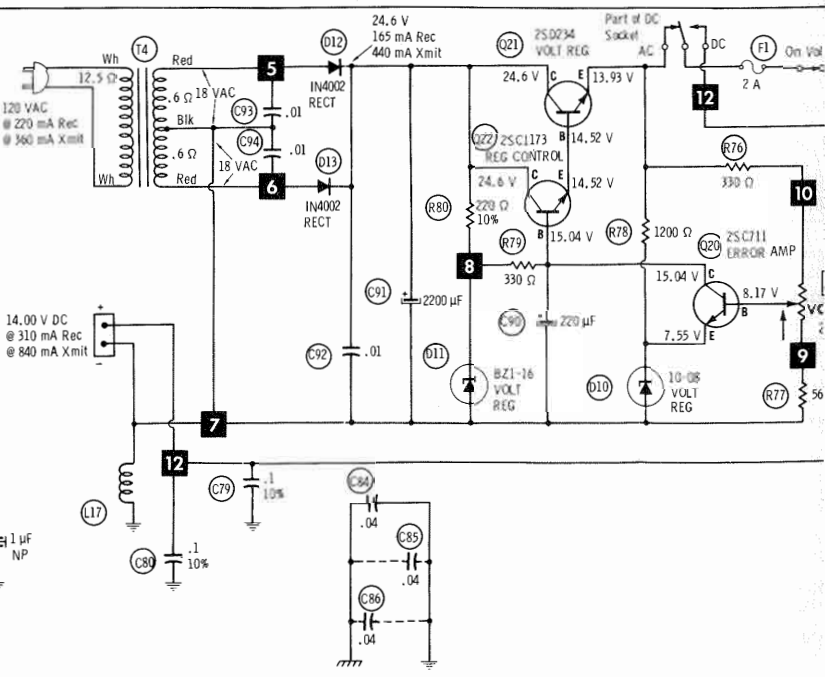
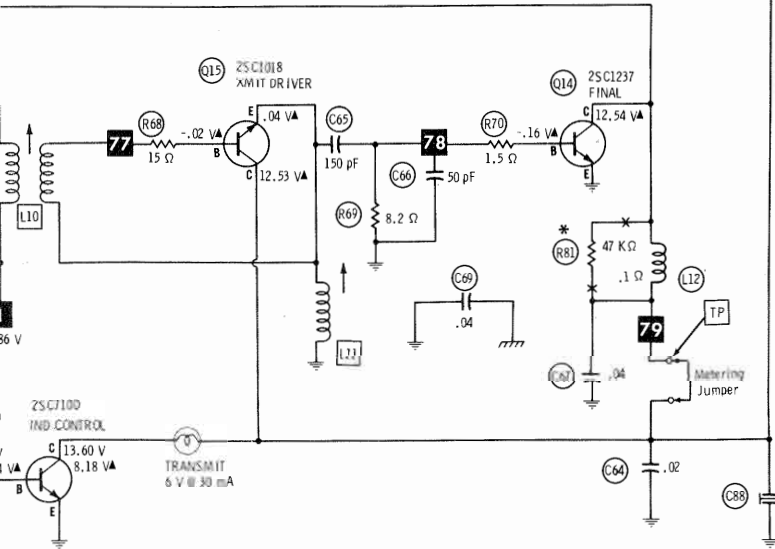
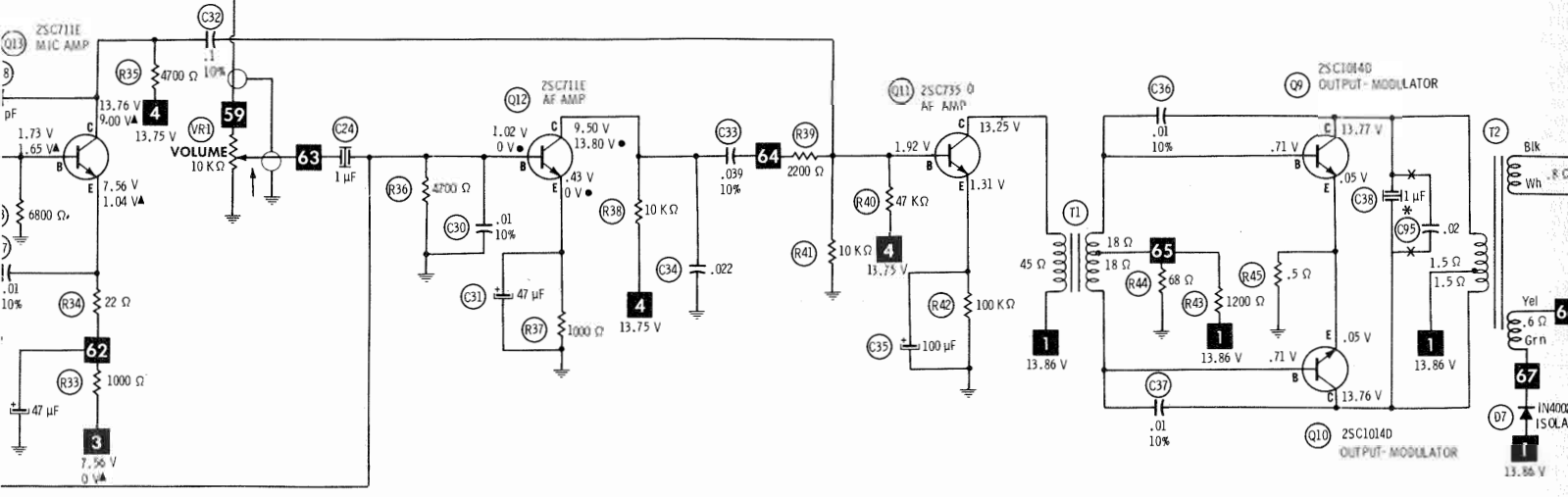
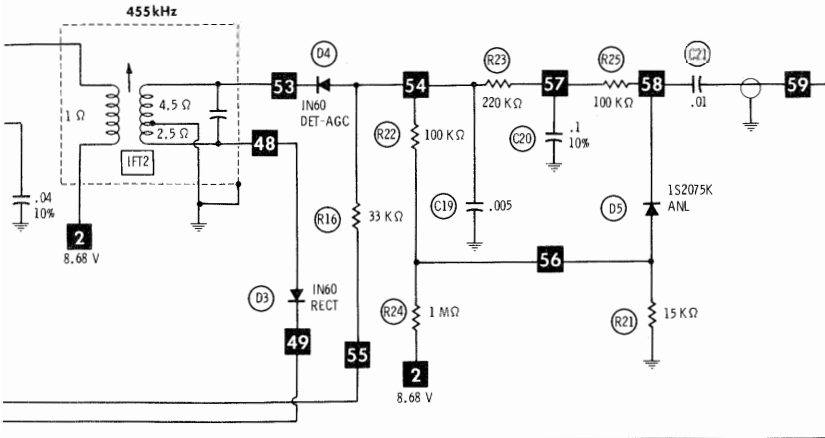






NOTE: 55 Channel Selector switch shown in channel 1 position.



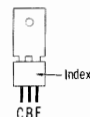




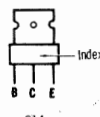
Q2 thru Q5
Q7, Q8, Q12, Q13
Q16 thru Q20



Q6
Q11



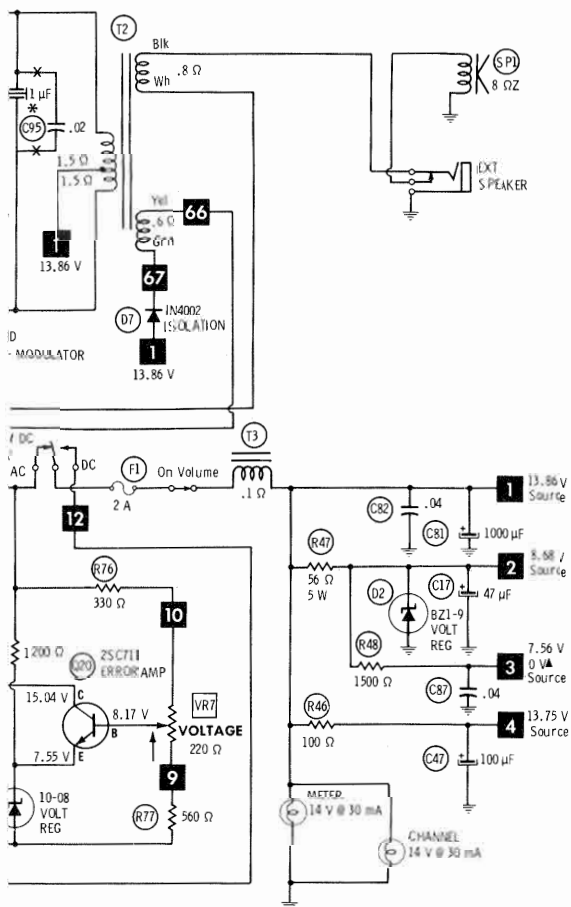
Q9, Q10, Q15
Q21, Q22



Q14

Terminal Guides

OSCILLATOR



Chan	Crystal Complement
1	X1, X7, X11
2	X1, X8, X12
3	X1, X9, X13
4	X1, X10, X14
5	X2, X7, X11
6	X2, X8, X12
7	X2, X9, X13
8	X2, X10, X14
9	X3, X7, X11
10	X3, X8, X12
11	X3, X9, X13
12	X3, X10, X14
13	X4, X7, X11
14	X4, X8, X12
15	X4, X9, X13
16	X4, X10, X14
17	X5, X7, X11
18	X5, X8, X12
19	X5, X9, X13
20	X5, X10, X14
21	X6, X7, X11
22	X6, X8, X12
23	X6, X9, X13

MIDLAND MODEL 13-879

MIDLAND MODEL 13-879

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS

ITEM No.	TYPE / MFR. No. / PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	WG1010A/09-306161	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D2	EQB01-09/09-306287	GEZD-9.1	Z-1210	PTC505	HEPZ0412	SK3060	RT240	ECG 139
D3	(9 V Zener)							
D4	1N60/09-306019	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D5	1N60/09-306019	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D6	1S2075K/09-306211	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D7	WG1010A/09-306161	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D8	1N4002/09-306315	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
D9				PTC202		SK3031	RT214	ECG 117
D10	1N60/09-306019	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D11	1008	GEZD-15	Z-1214	PTC509	HEPZ0418	SK3063	RT245	ECG 145
D12	(15 V Zener)							
D13	ZB1-16/09-306243	GEZD-15	Z-1214	ZB16	HEPZ0419	SK3063	RT246	ECG 5075
D14	(16 V Zener)							
D15	1N4002/09-306315	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
D16				PTC202		SK3031	RT214	ECG 117
D17	1N4002/09-306315	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
D18				PTC202		SK3031	RT214	ECG 117
D19	WG1010A/09-306161	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D20		GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D21	2SC535(B)/09-302006	GE-20	TR-24	PTC136	HEP56	SK3018	RT108	ECG 107
D22								
D23	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D24	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D25	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D26	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D27	2SC735(Y)/09-302040	GE-63	TR-21	PTC123	HEP53	SK3124	RT102	ECG 123A
D28								
D29	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D30	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D31	2SC1014/09-302046	GE-28	TR-55	PTC110	HEPS3020	SK3041	RT154	ECG 186
D32	2SC1014/09-302046	GE-28	TR-55	PTC110	HEPS3020	SK3041	RT154	ECG 186
D33	2SC735(Y)/09-302040	GE-63	TR-21	PCT123	HEP53	SK3124	RT102	ECG 123A
D34								
D35	2SC711/09-302107	GE-62	TR-21	PTC139	HEP729	SK3018	RT102	ECG 123A
D36	2SC711/09-302107	GE-62	TR-21	PTC139	HEP729	SK3018	RT102	ECG 123A
D37	2SC1237/09-302192	GE-28	TR-55	PTC110	HEPS3020			ECG 210
D38								ECG 210
D39	2SC1018/09-302102	GE-28	TR-55	PTC110	HEPS3020			ECG 123A
D40	2SC773/09-302078	GE-17	TR-62	PTC123	HEP736	SK3020	RT102	ECG 123A
D41	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D42	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D43	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D44	2SC710/09-302012	GE-20	TR-24	PTC121	HEP56	SK3018	RT108	ECG 107
D45	2SC711/09-302107	GE-62	TR-21	PTC139	HEP729	SK3018	RT102	ECG 123A
D46	2SD234/09-303018	GE-28	TR-57	PTC110			RT133	ECG 152
D47	2SC1173(X)/09-302164	GE-66	TR-76	PTC110		SK3054	RT154	ECG 152

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C16	1 NP 50 V		CTA7425	BRNP-1-50		TCN501A	
C17	47 16 V		RME-E-E-050	EP15-50	PC50-16	MTV50CB15	EV-1226
C22	10 16 V		RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C23	10 16 V		RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C24	1 NP 50 V		CTA7425	BRNP-1-50		TCN501A	
C29	47 16 V		RME-E-E-050	EP15-50	PC50-16	MTV50CB15	EV-1226
C31	47 16 V		RME-E-E-050	EP15-50	PC50-16	MTV50CB15	EV-1226
C35	100 16 V		RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C38	1 NP 50 V		CTA7425	BRNP-1-50		TCN501A	
C47	100 16 V		RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C81	1000 16 V		RME-N-E-1000	EP15-1000	PC1000-16	MTA1000G25	EV-1260
C88	1 NP 50 V		CTA7425	BRNP-1-50		TCN501A	
C90	2200 25 V		RME-K-G-250	EP30-250	PC250-25	MTV250DJ25	EV-1345
C91	2200 35 V		ME-J2000		WBR2000-50	TC50200	TVA-1318.2

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENC0 PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C2	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C3	.022		1DP-1-223		DPMS6S22	EWFA1A122	225P22391WD3
C4	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C5	20 N330 10%						10TCS-920
C6	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C7	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C8	.001		CCD-102	DD-102	GP1000	SM210	2SS-D10
C9	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C10	2			DTZ-2R2	NP02P2	CN0522	10TCC-Y22
C11	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C12	4	N220					10TCR-V39
C13	.02		1DP-1-223		DPMS6S22	EWFA1A122	225P22391WD3
C14	.04					GP140	
C15	.001	10%	DM-19-102J	DD-403	CD19F102J500	SK210	424ME1001J501
C18	.04	10%	1DP-2-473	CPR-1000J	DPMS6S47	EWFA1A147	225P47391WD3
C19	.005		1DP-1-502	CPR-5000J	DPMS6D5	EWFA1A250	6PS-D50
C20	.1	10%	1DP-2-104		DPMS2P1	EWFA1A010	225P10491WD3
C21	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C25	.039	10%	1MD-1-393		DPMS-6S39	PVC6139	1PB-S39
C26	.04		1DP-2-473		DPMS6S47	EWFA1A147	225P47391WD3
C27	.01	10%	1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C28	500		CCD-501	DD-501	GP500	GP350	10TS-T50

PARTS

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

CAPACITORS

ITEM No.	
C30	
C32	
C33	
C34	
C36	
C37	
C39	
C40	
C41	
C42	
C43	
C44	
C45	
C46	
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C79	
C80	
C82	
C84	
C85	
C86	
C87	
C92	
C93	
C94	
C95	

* Not normal

CONTINUED

ITEM No.	
VR1	Vo1
VR2	Sq1
VR3	Sq1
VR5	RF
	RF
VR6	"S"
VR7	Vo1

(2) Cut of
(6) Altern.

RESIST

ITEM No.	
R45	

COILS

ITEM No.	
IFT1	Re
IFT2	Re
L1	Re
L2	Re

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS(cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCOPART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C30	.01	10%	1DP-1-103	CPR-10000J	DPMS6S1	EWFA111G	225P10391WD3
C32	.1	10%	1DP-2-104		DPMS2P1	EWFA010	225P10491WD3
C33	.039	10%	1MD-1-393		DPMS-6S39	PVC6139	1PB-S39
C34	.022		1DP-1-223		DPMS6S22	EWFA122	225P22391WD3
C36	.01	10%	1DP-1-103	CPR-10000J	DPMS6S1	EWFA110	225P10391WD3
C37	.01	10%	1DP-1-103	CPR-10000J	DPMS6S1	EWFA110	225P10391WD3
C39	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C40	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C41	.001		CCD-102	DD-102	GP1000	SM210	25S-D10
C42	.04			DD-403		GP140	
C43	50	N750					10TCU-Q50
C44	.04			DD-403		GP140	
C45	15		CCT0-150	DTZ-15	NP015	CN0415	10TCC-Q15
C46	80	N750					
C48	15	N330	*			*	10TCS-Q15
C49	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C50	500		CCD-501	DD-501	GP500	GP350	10TS-T50
C51	80	N750					
C52	25	N750					
C53	.01		CCD-103	DTN-25			10TCU-Q25
C54	150	N750	ECTN-151	CK-103	MGP01	TA110	TG-S10
C55	.01		CCD-103	DTN-150	N150	CN7315	10TCU-T15
C56	150	N750	ECTN-151	CK-103	MGP01	TA110	TG-S10
C57	5	N330	*	DTN-150	N150	CN7315	10TCU-T15
C58	150	N750	ECTN-151	DTN-150	N150	CN7315	10TCS-V50
C59	3						10TCU-T15
C60	150		CCD-151	DD-151	GP150	GP315	10TCC-V30
C61	.039	10%	1MD-1-393	DPMS-6S39		GP315	10TS-T15
C62	150		CCD-151	DD-151	GP150	GP315	1PB-S39
C63	.04			DD-403		GP140	10TS-T15
C64	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C65	150		CCD-151	DD-151	GP150	GP315	10TS-T15
C66	50		CCT0-510	DTZ-50	NP050	CN0450	10TCC-Q50
C67	.04			DD-403		GP140	
C68	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C69	.04			DD-403		GP140	
C70	200		CCD-201	DD-201	GP200	GP320	10TS-T20
C71	300		CCD-301	DD-301	GP300	GP330	10TS-T30
C72	300		CCD-301	DD-301	GP300	GP330	10TS-T30
C73	4	N330	*			*	10TCS-V39
C74	15		CCT0-150	DTZ-15	NP015	CN0415	10TCC-Q15
C75	25			DTZ-25		CN0425	10TCC-Q25
C76	1				CN0510		10TCC-V10
C77	.04			DD-403		GP140	
C78	.02		CCD-203	CK-203	MGP02	TA120	TG-S20
C79	.1	10%	1DP-2-104		DPMS2P1	EWFA010	225P10491WD3
C80	.1	10%	1DP-2-104		DPMS2P1	EWFA010	225P10491WD3
C82	.04			DD-403		GP140	
C84	.04			DD-403		GP140	
C85	.04			DD-403		GP140	
C86	.04			DD-403		GP140	
C87	.04			DD-403		GP140	
C92	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C93	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C94	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C95	.02		CCD-203	CK-203	MGP02	TA120	TG-S20

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
VR1	Volume/Switch	10 K	13-160083				
VR2	Squelch	10 K	13-166037				
VR3	Squelch Threshold	50 K	13-164071	TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503B (2)	MTC54L1 (2)
VR5	RF Meter	20 K		T-20K (2) or TSV-25K (2)	C-253 (2)	X201R253B (2)	MTC24L1 (2)
	RF Meter	30 K	(6)	TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503B (2)	MTC54L1 (2)
VR6	"S" Meter	30 K		TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503 (2)	MTC54L1 (2)
VR7	Voltage	200	164064	T-200 or TSV-250		X201R251B	MTC22L1

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

(6) Alternate part, may be used in some versions.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
R45	.5 1/2 W WW		77-302508				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	REMARKS
IFT1	Rec. Input IF	13-090231 (ETC-1003) (1)			(1) Number on unit.
IFT2	Rec. Output IF	13-090232 (1033C) (1)			
L1	Rec. Ant	13-176320 (ETC-1003) (1)			
L2	Rec. RF	13-090233 (ETC-1004) (1)			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)(cont)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	REMARKS
L3	Rec. Mixer Input	13-090230			
L4	Rec. Mixer Output	13-090230			
L5	Syn Osc	13-170176			
		(ETC-1002) (1)			
L6	Xmit Osc	13-170177			
L7	Xmit Mixer	13-176327			
L8	Xmit Mixer	13-176327			
L9	Xmit Mixer	13-176326			
		(ETC-1002) (1)			
L10	Xmit Amp	13-176325			
L11	Xmit Driver	13-176324			
L12	Final Amp	13-178115			
L13	Pi Network	13-176323			
L14	Pi Network	13-176344			
L15	Ant Matching	13-176322			
L16	TVI Trap	13-176321			
L17	Choke	13-178116			

FILTER CHOKE

ITEM No.	RATINGS			MFR. PART No.
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	
T3	840 mA	.1	.26 mH	13-176326

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			MFR. PART No.
	PRI.	SEC. 1	SEC. 2	
T1	1	1		13-096129 (1001)

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		MFR. PART No.
	PRI.	SEC.	
T2	32	8	13-096135 (5007)

TRANSFORMER (Power)

ITEM No.	RATING			MFR. PART No.
	PRI.	SEC. 1	SEC. 2	
T4	120 VAC @ 360 mA	36 VAC @ 1750 mA		13-098015 (5008)

SPEAKER

ITEM No.	TYPE	MFR. PART No.
SP1	3" PM 8 ohms	13-060079

ACCESSORIES

ITEM	MFR. PART No.
Microphone	13-038047
Power Cord AC	13-034054

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	HOLDER	DEVICE		
FS	2A Quickacting		13-159124	AGC2	HKP	312002	342001AL			

MISCELLANEOUS

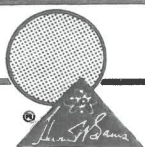
ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter, Ceramic	13-179026	(455 kHz)
M1	Meter	13-200038	"S"/RF
S5	Switch	13-180068	Channel Selector
X1	Crystal	13-128071	37.00MHz
X2	Crystal	13-128072	37.650MHz
X3	Crystal	13-128073	37.700MHz
X4	Crystal	13-128074	37.750MHz
X5	Crystal	13-128075	37.800MHz
X6	Crystal	13-128084	37.850MHz
X7	Crystal	13-128083	10.635MHz
X8	Crystal	13-128082	10.625MHz
X9	Crystal	13-128081	10.615MHz
X10	Crystal	13-128080	10.595MHz
X11	Crystal	13-128296	10.180MHz
X12	Crystal	13-128297	10.170MHz
X13	Crystal	13-128298	10.160MHz
X14	Crystal	13-128299	10.140MHz

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

ITEM	PART No.	ITEM	PART No.
Case, Top	13-010213	Plate, Microphone	13-020527
Case, Sides (wood)	13-010214	Plate, FCC	13-023157
Panel, Access (main P/C board)	13-018018	Feet, Case	13-026014
Panel, Access (power supply)	13-018019	Knob, Vol/Squelch	13-110126
Plate, Front Function	13-020523	Knob, Channel	13-115053
Grille, Speaker	13-020524	Disc, Channel No. Cover	13-115088
Lens, Transmit Lamp	13-020525	Disc, Channel No.	13-115061
Window, Channel	13-020526	Microphone Bracket	13-158293

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/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



MODEL CAM-89

COBRA MODEL CAM-89

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.

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

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4CY166

ALIGNMENT

Suggested Alignment Tools:

T5, T6, T8

L7, L9, L12, L13, T1 thru T4, T11 thru T17 .. 9440

GC ELECTRONICS:

5000, 8290, 9087

9440

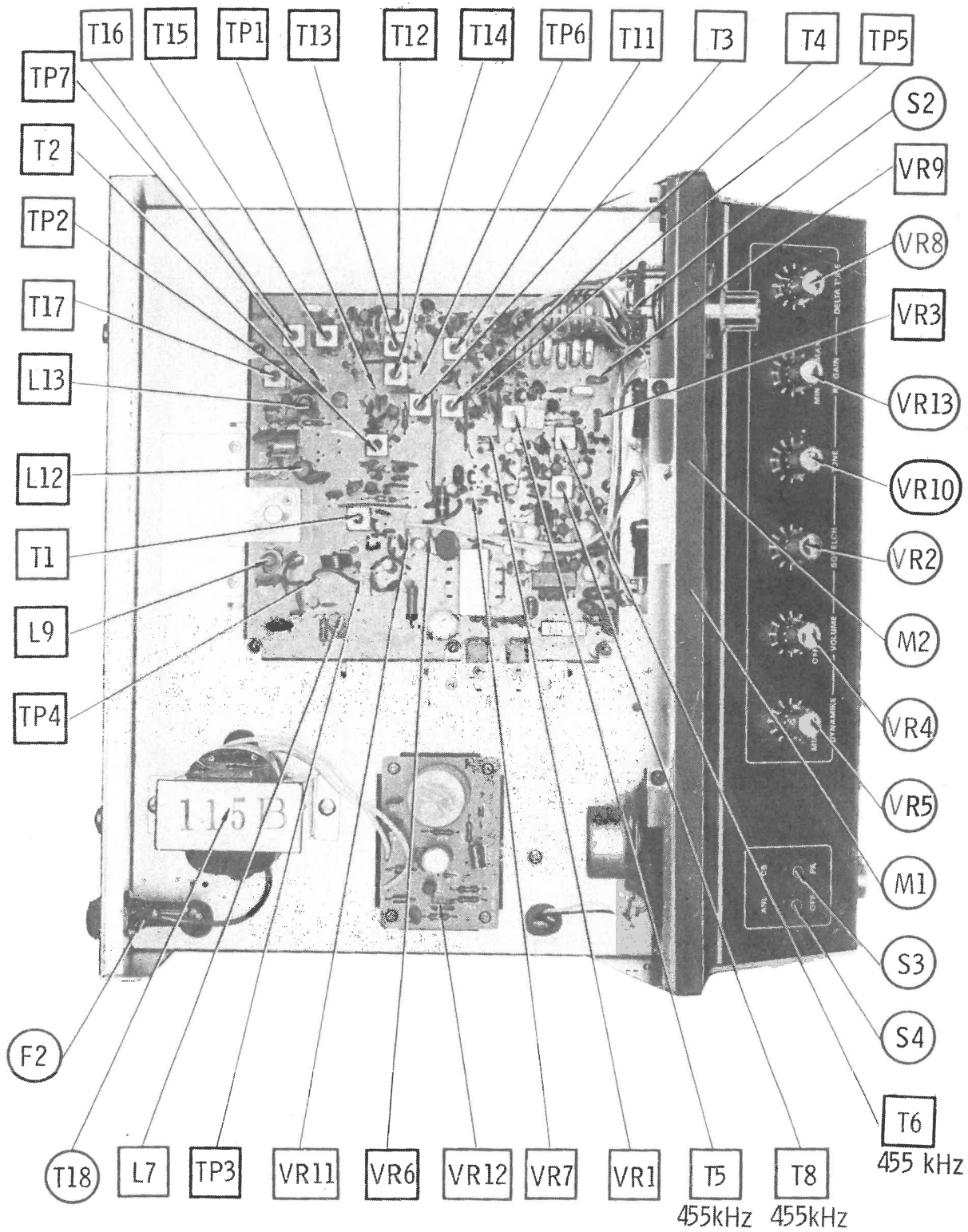
RECEIVER

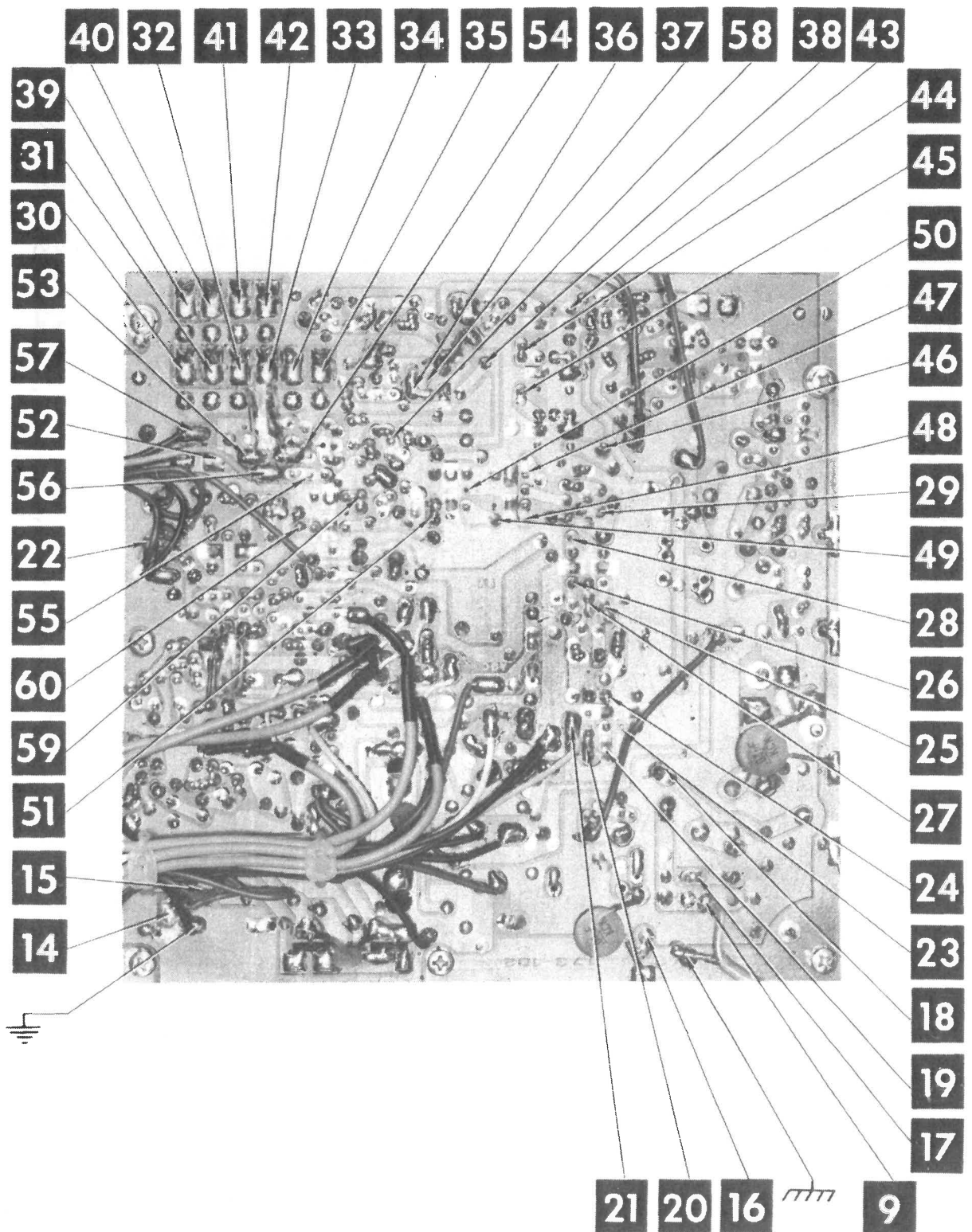
Connect an AC VTVM to speaker voice coil.
Set squelch control to maximum CCW.
Set RF gain control maximum CW.
Set delta tune to counter detent.
Set volume control to obtain suitable reading.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Voltage Reg	Any	VR12	Connect voltmeter to TR21 emitter. Adjust for 13.4 V.
High side thru .01 ufd to base of TR3, low side to ground. Set to 455 kHz, 1000 Hz @ 30% mod.	Any	T5, T6, T8	Adjust for maximum.
High side thru .01 ufd to antenna jack, low side to ground. Set to 27.075 MHz, 1000 Hz @ 30% mod.	10	T1, T2 T3, T4 T11, T12 T13, T14	Adjust for maximum.
AGC Same as above Output 0.4 uV	10	VR1	Adjust for 2 V AF output.
Squelch Range Same as above Output 200 uV	10	VR3	With Squelch maximum clockwise, adjust for 2 V AF output.
"S" Meter Same as above Output 100 uV	10	VR7	Adjust for S9 reading on panel meter.

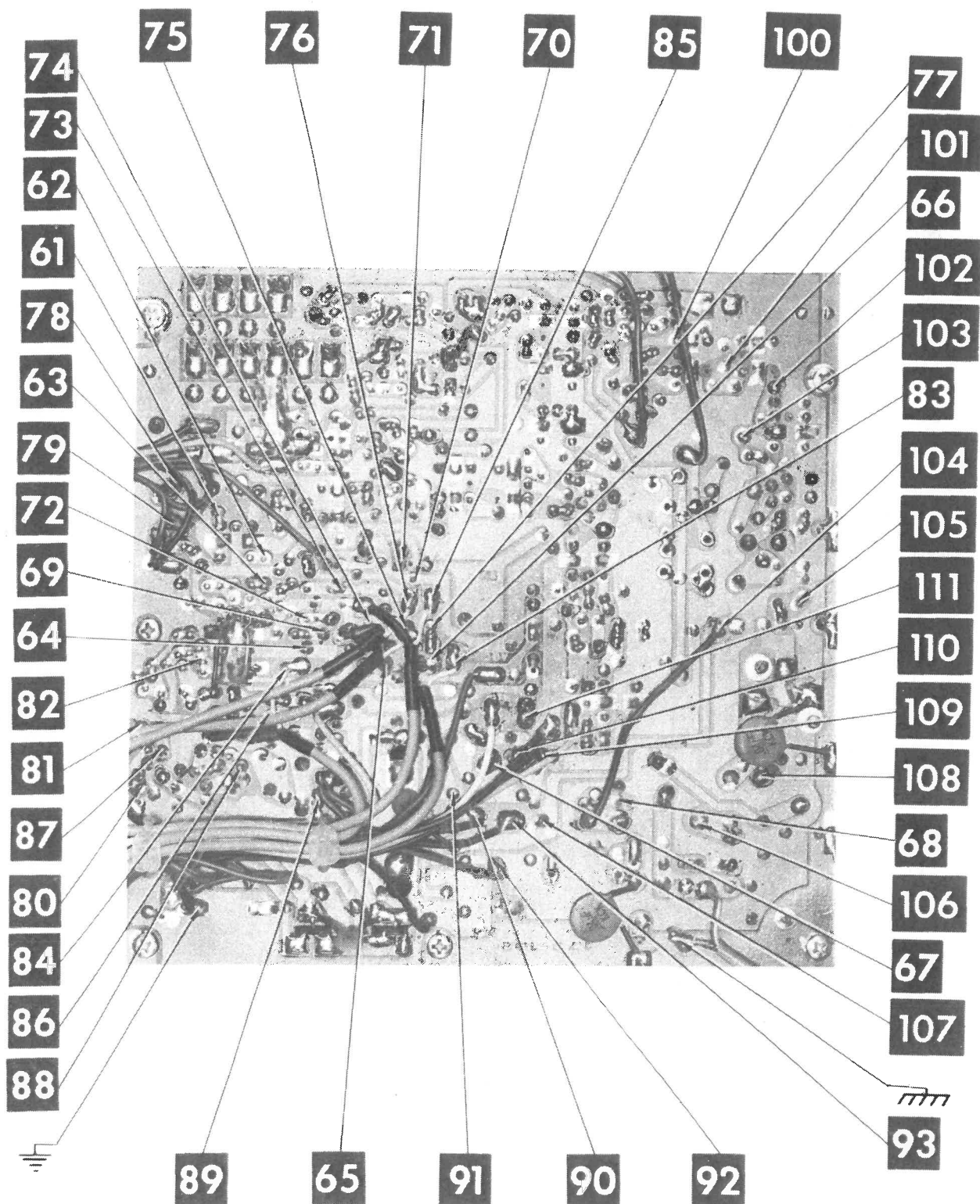
TRANSMITTER

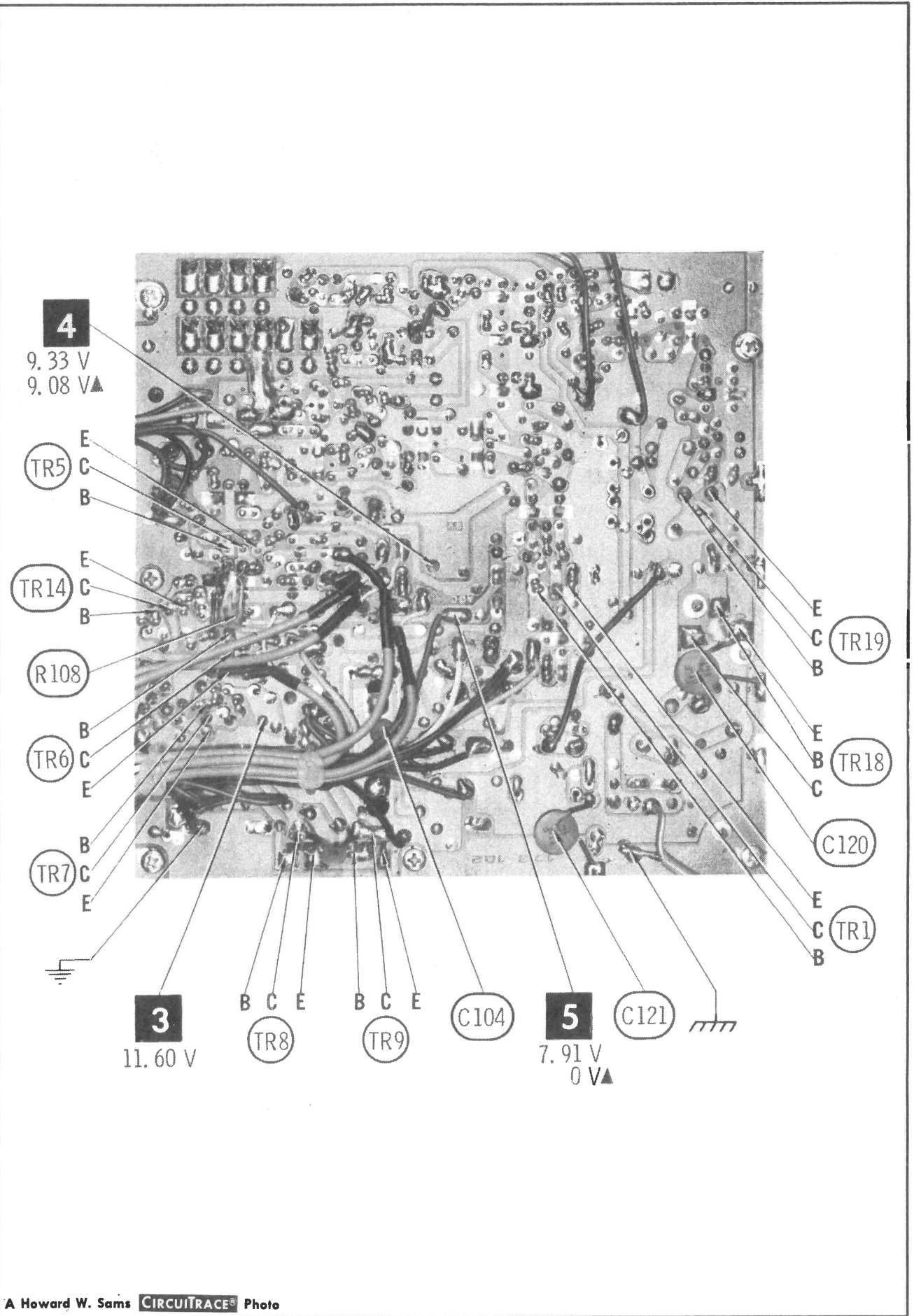
INDICATOR	ADJUST	REMARKS
RF Wattmeter	T15, T16, T17, L13, L12, L9	Connect wattmeter to antenna jack. Set channel selector to Channel 10. Key transmitter. Adjust for maximum.
0-1A DC Ammeter	L9	Insert meter between TP3 and TP4. Key transmitter. Adjust for 5 watts DC input.
Modulation meter	VR11	Key transmitter. Set dyna mike fully CW. Adjust for 100% modulation.
RF Wattmeter	VR6	Key transmitter. Adjust so "RF" panel meter agrees with wattmeter.
TV Set Chan 2	L7	Key transmitter. Adjust for MINIMUM interference.

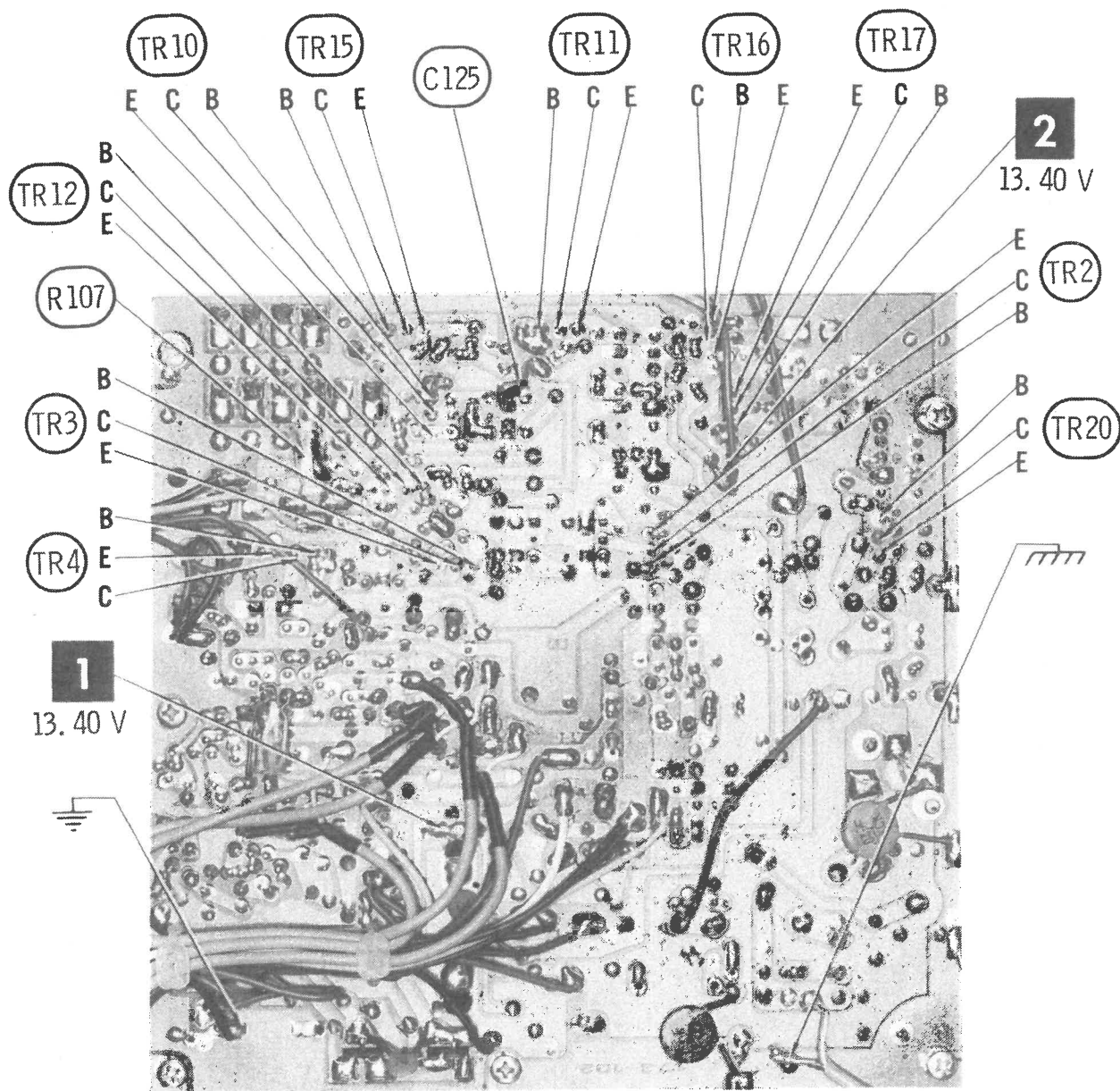


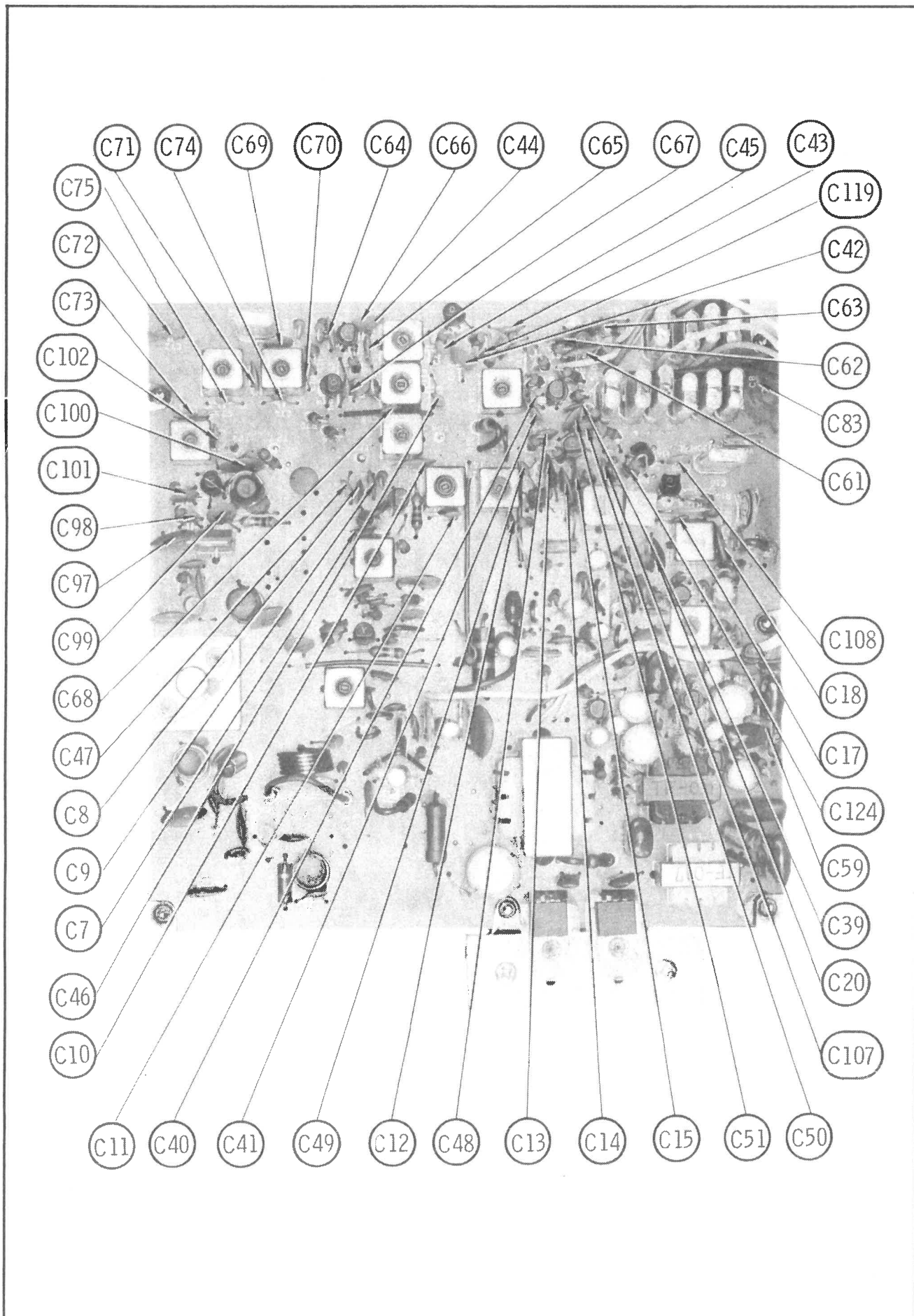


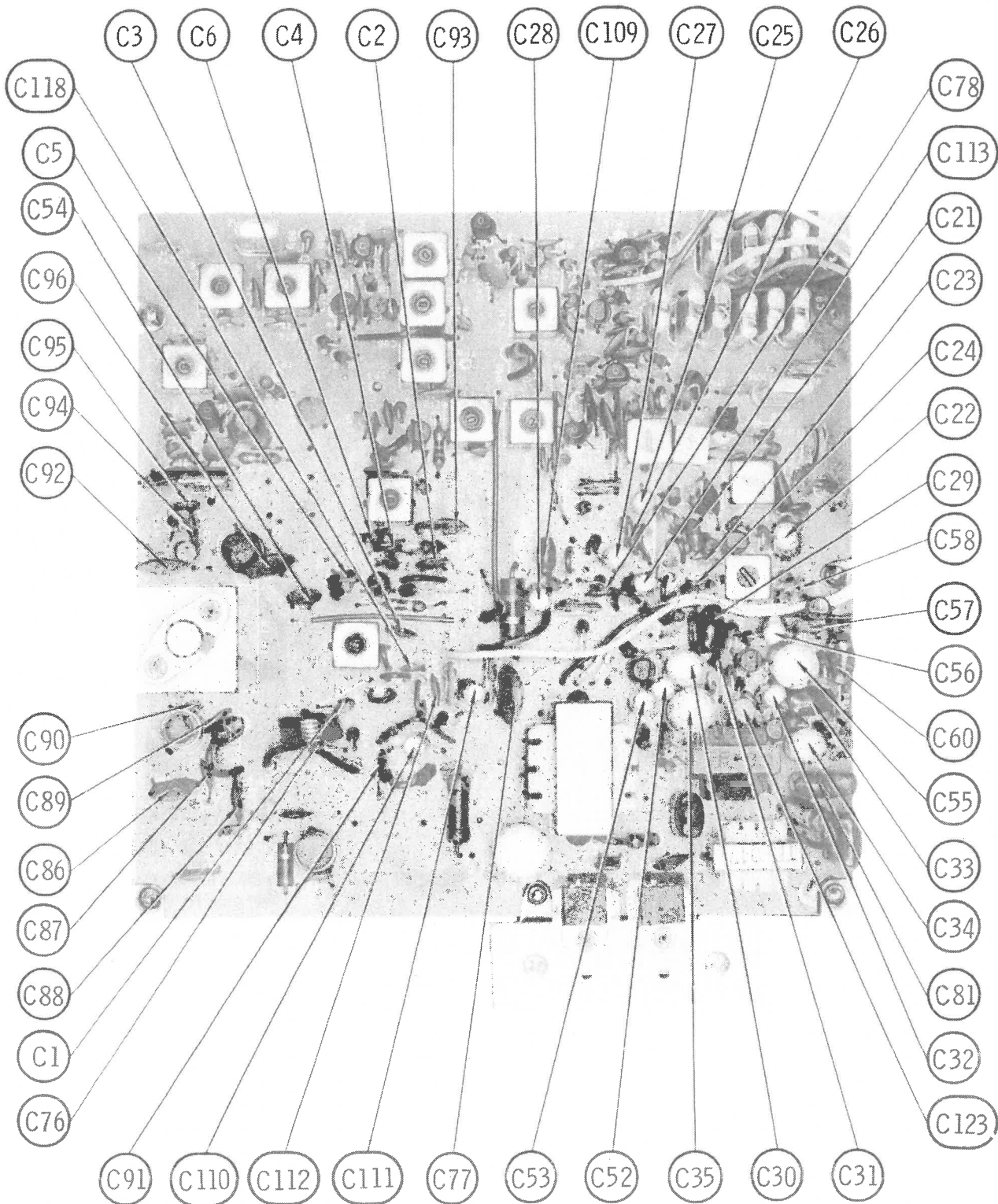
COBRA MODEL CAM-89

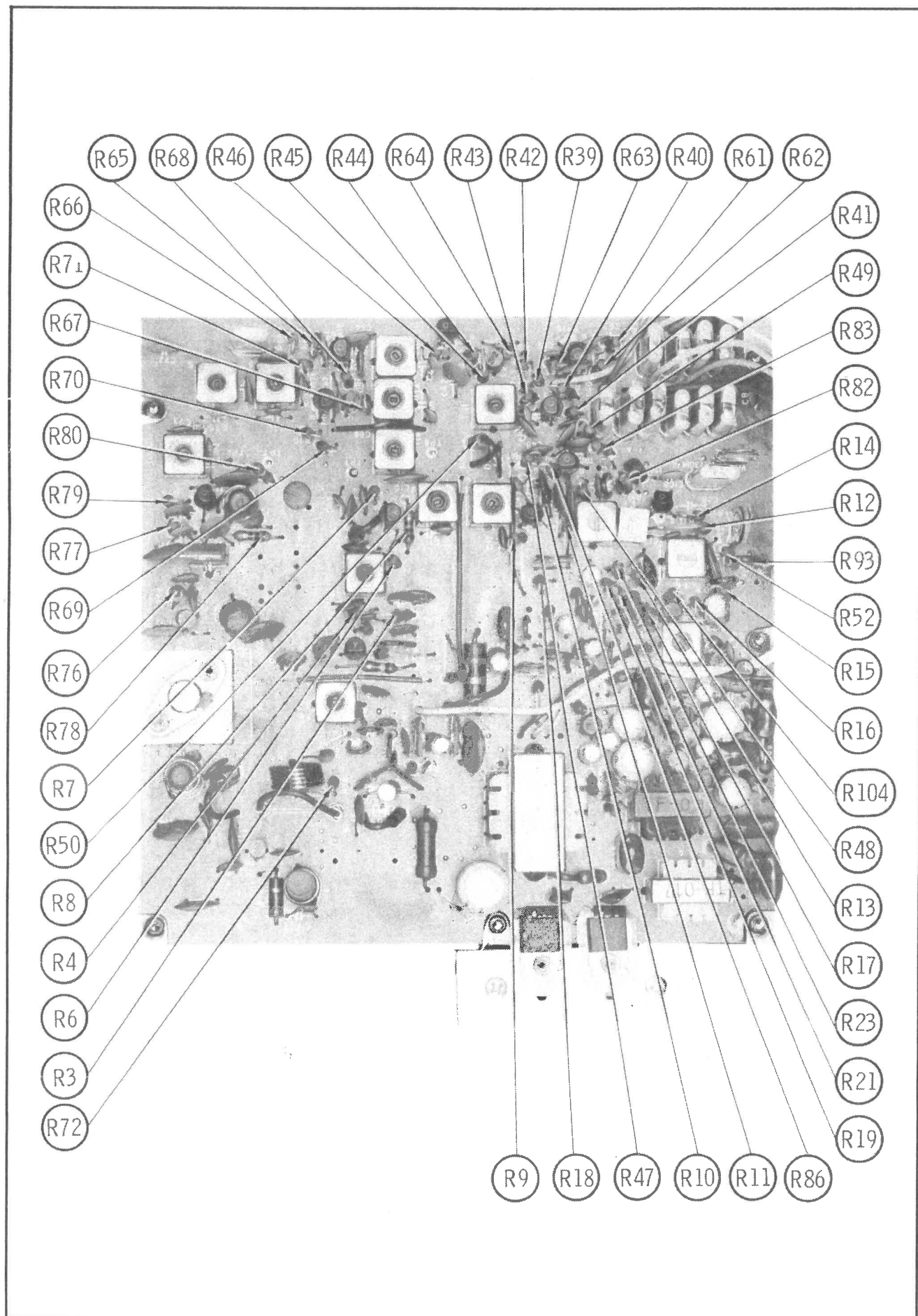


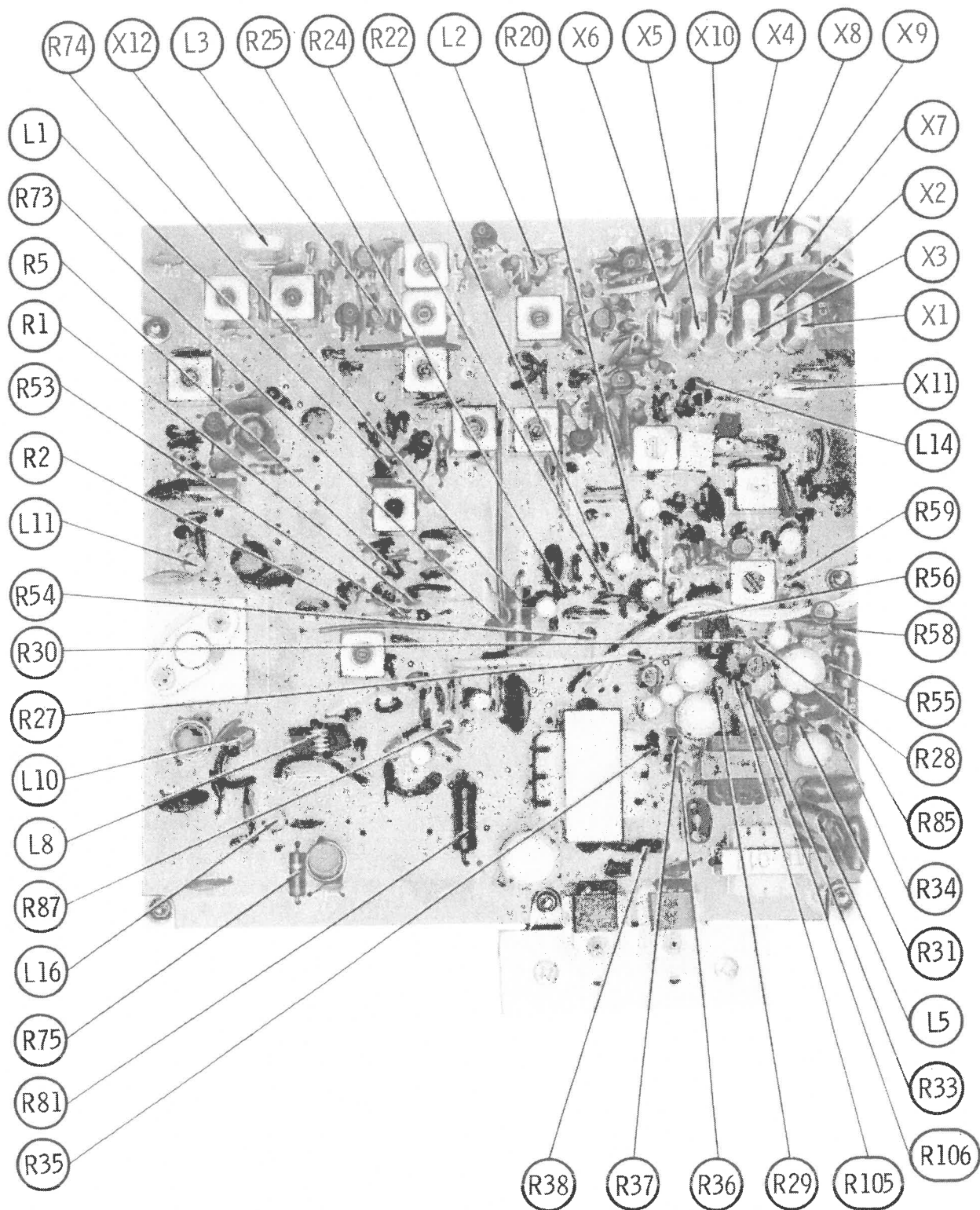


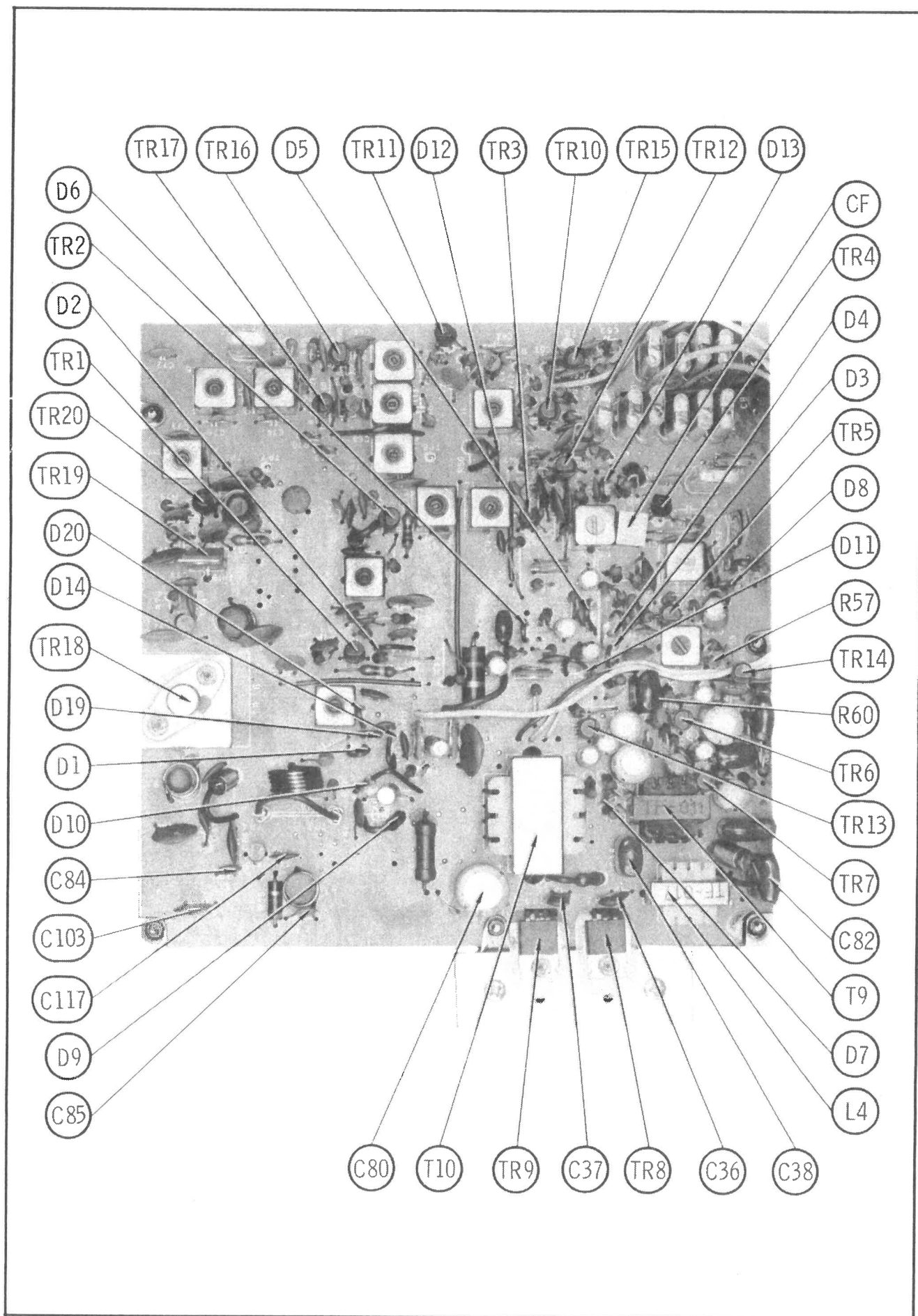


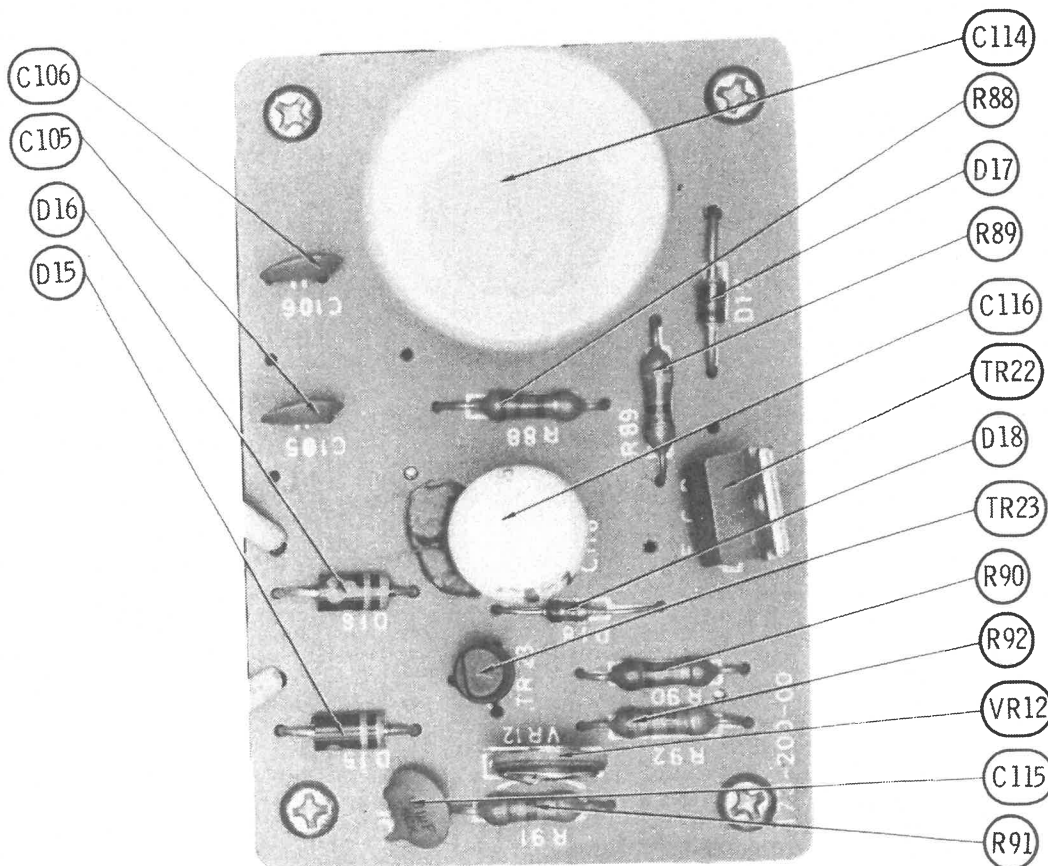
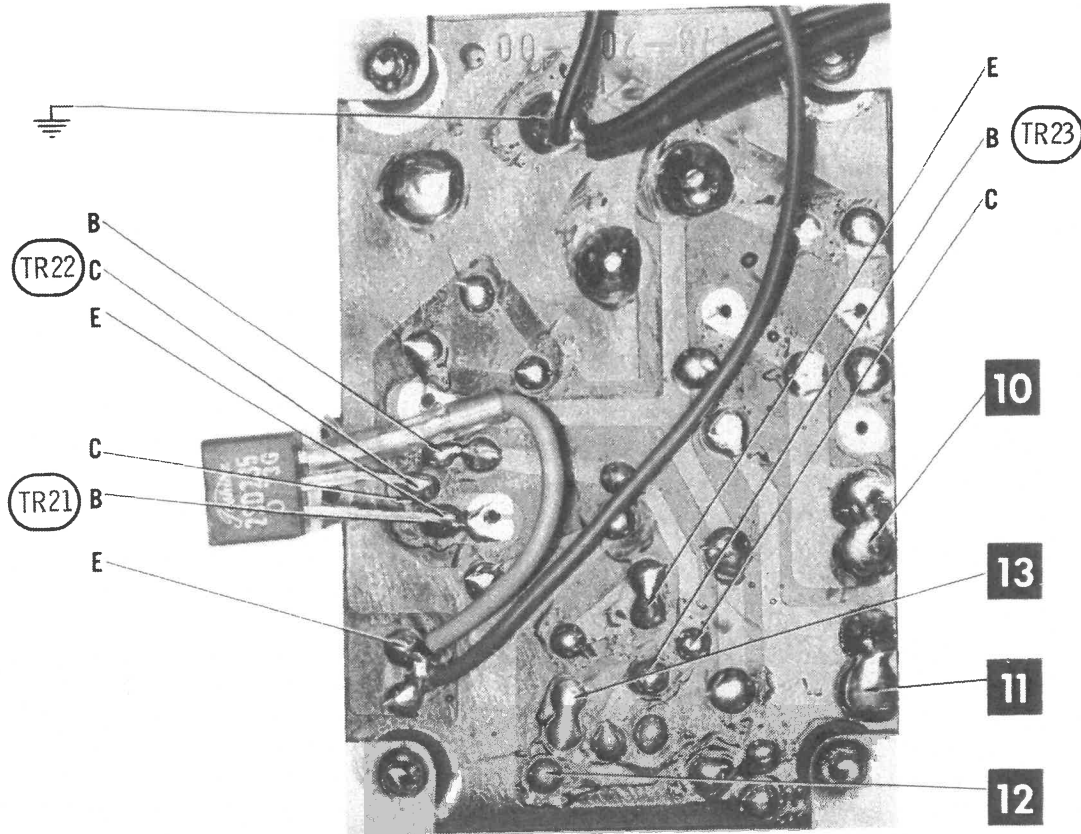












POWER SUPPLY BOARD

COBRA MODEL CAM-89

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.)

SEMICONDUCTORS

ITEM No.	TYPE / MFR. No. / PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D2	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D3	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D4	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D5	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D6	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D7	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D8	CZ092/152-051-9-001 (9.2 V Zener)	GEZD-9.1	Z-1210	PTC505	HEPZ0412	SK3060	RT240	ECG 139
D9	SRIK-1/151-040-9-003	GE-504A	8D4 or 5A4D	PTC201 or PTC202	HEPR0052	SK3030 or SK3031	RT213 or RT214	ECG 116 or ECG 117
D10	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D11	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D12	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D13	1S2688C/153-004-9-001	GE-90 (8)	D201 (8)		HEPR2503 (8)	SK3126 (8)		ECG 177
D14	1N60/150-001-9-005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
D15	SRIK-2/151-045-9-001	GE-504A	8D4 or 5A4D	PTC201 or PTC202	HEPR0052	SK3030 or SK3031	RT213 or RT214	ECG 116 or ECG 117
D16	SRIK-2/151-045-9-001	GE-504A	8D4 or 5A4D	PTC201 or PTC202	HEPR0052	SK3030 or SK3031	RT213 or RT214	ECG 116 or ECG 117
D17	BZ162/152-057-9-001 (16.2 V Zener)	GEZD-15	Z-1214	ZB16	HEPZ0419	SK3063	RT246	ECG 5075
D18	WZ061/152-052-9-002 (6.2 V Zener)	GEZD-6.2	Z-1204	PTC503	HEPZ0408	SK3058	RT237	ECG137
D19	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
D20	CD37/151-040-9-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
TR1	2SC394(X)/176-042-9-001	GE-17	TR-33	PTC139	HEP53	SK3018	RT108	ECG 107
TR2	2SC394(X)/176-042-9-001	GE-17	TR-33	PTC139	HEP53	SK3018	RT108	ECG 107
TR3	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR4	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR5	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR6	2SC372(Y)/176-042-9-003	GE-20	TR-21	PTC139	HEP55	SK3018	RT102	ECG 123A
TR7	2SC733(Y)/176-042-9-004	GE-20	TR-21	PTC123	HEP729	SK3122	RT100	ECG 123A
TR8	2SC1173(X)/172-014-9-001	GE-66	TR-55	PTC110		SK3054	RT154	ECG 152
TR9	2SC1173(X)/172-014-9-001	GE-66	TR-55	PTC110		SK3054	RT154	ECG 152
TR10	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR11	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR12	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR13	2SC373/176-025-9-001	GE-20	TR-24	PTC101	HEP55	SK3122	RT107	ECG 123A
TR14	2SC372(Y)/176-042-9-003	GE-20	TR-21	PTC139	HEP55	SK3018	RT102	ECG 123A
TR15	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR16	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR17	2SC372(0)/176-042-9-002	GE-20	TR-24	PTC139	HEP55	SK3018	RT102	ECG 123A
TR18	2SC756/172-014-9-002					SK3049		ECG 224
TR19	2SC1226A(P)/176-042-9-005	GE-28	TR-55	PTC110	HEP245	SK3054	RT154	ECG 186
TR20	2SC735(0)/176-042-9-006	GE-17	TR-25	PTC123	HEP53	SK3124	RT102	ECG 123A
TR21	2SD235(0)/176-042-9-007	GE-66	TR-92	PTC110	HEP701	SK3054	RT154	ECG 152
TR22	2SC1173(X)/172-014-9-003	GE-66	TR-55	PTC110		SK3054	RT154	ECG 152
TR23	2SC372(Y)/176-042-9-003	GE-20	TR-21	PTC139	HEP55	SK3018	RT102	ECG 123A

(8) Varactor.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

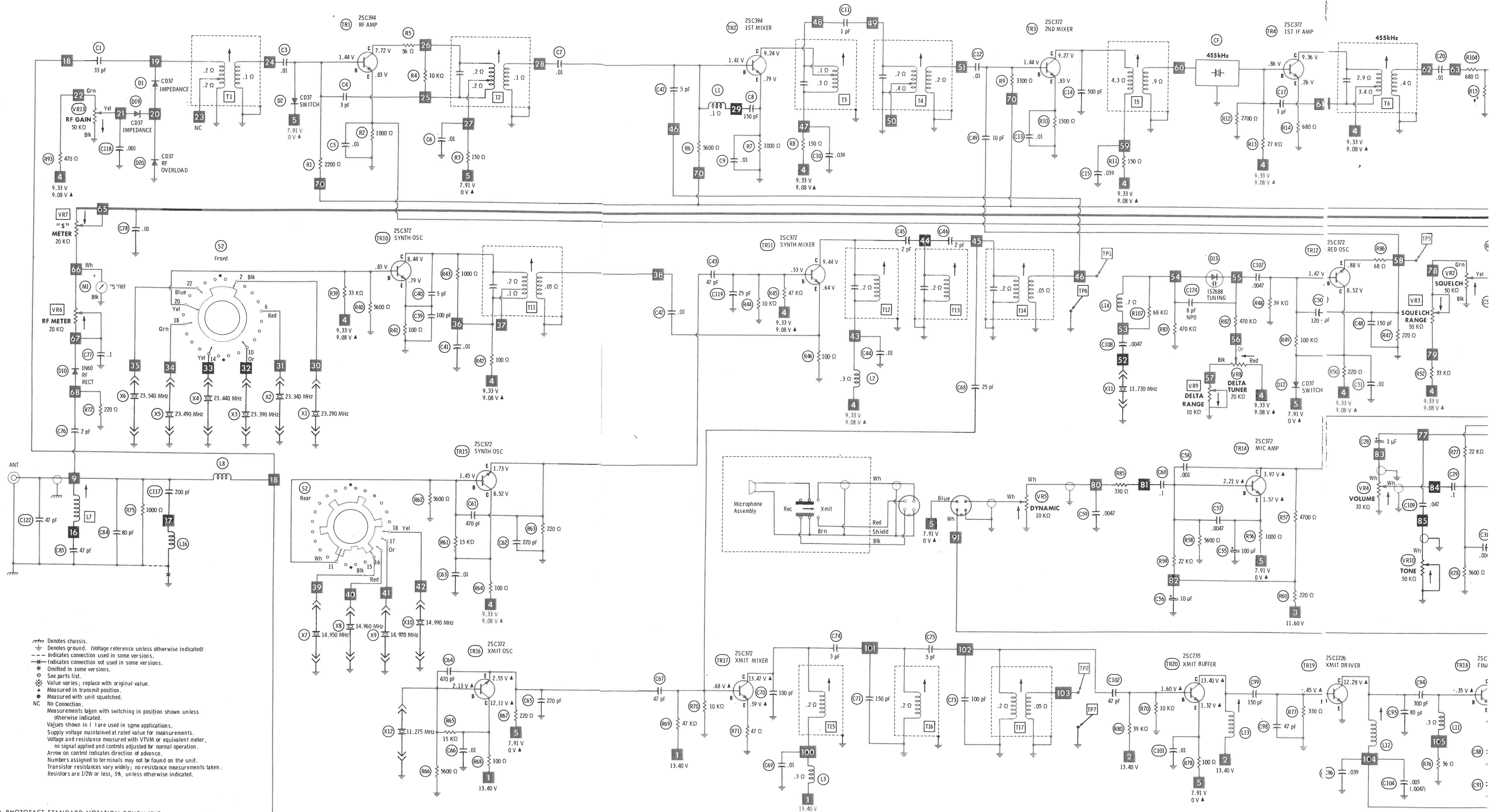
ELECTROLYTIC CAPACITORS

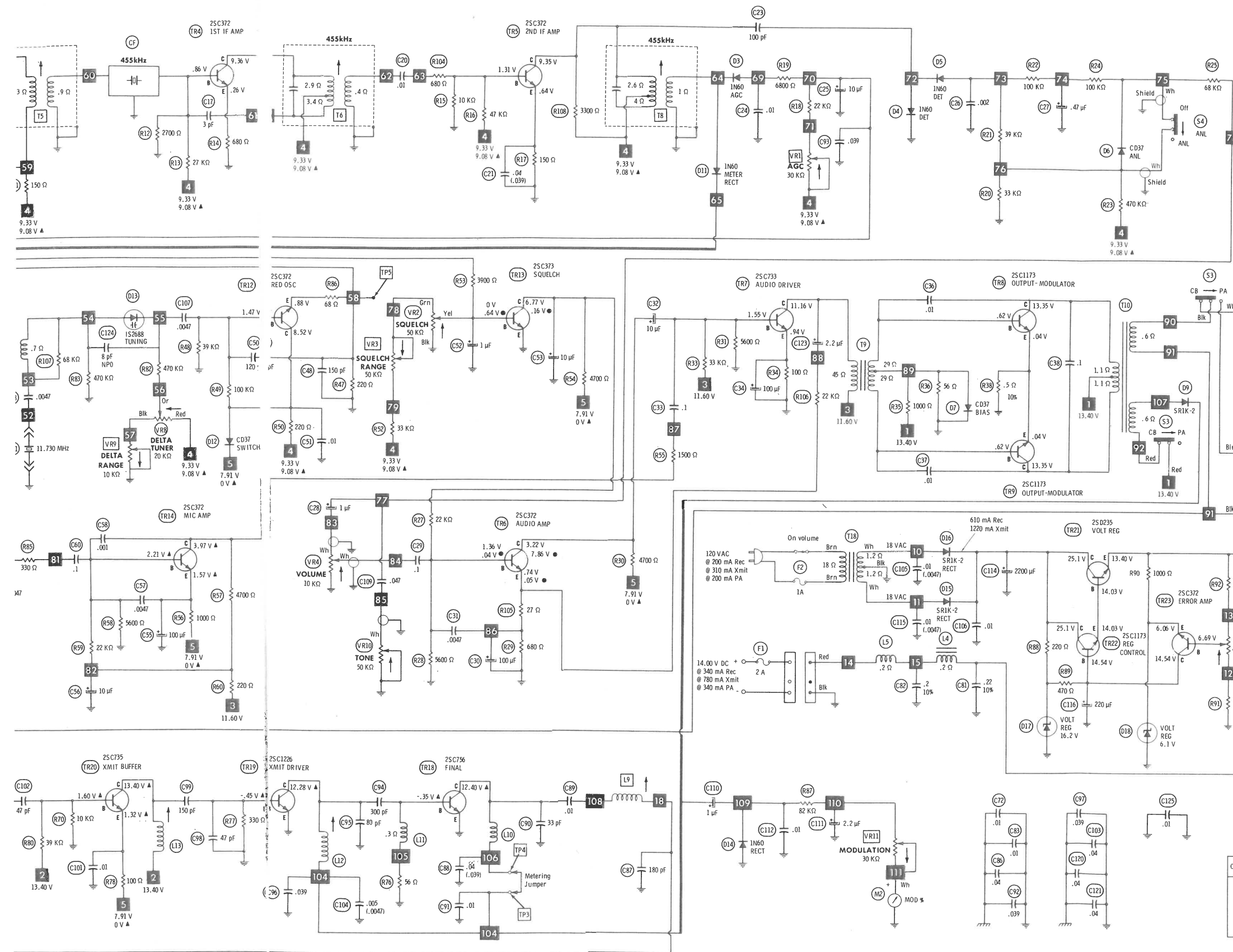
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		MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C22	47 10 V	022-120-9-002	RME-D-D-050	EP15-50	PC50-10	MTV50CB15	EV-1226
C25	10 16 V	022-120-9-001	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C27	.47 50 V	022-122-9-016			WBR1-500	TDC474M050EL	EV-1610
C28	1 25 V		RME-A-G-001	EP30-1	PC1-50	MTV1CB50	EV-1315
	1 16 V	022-099-9-003	RME-A-E-001	EP15-1	PC1-50	MTV1CB50	EV-1315
C30	100 10 V	022-099-9-004	RME-E-D-100	EP15-100	PC100-10	MTV100CB10	EV-1130
C32	10 16 V	022-120-9-001	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C34	100 10 V	022-099-9-004	RME-E-D-100	EP15-100	PC100-10	MTV100CB10	EV-1130
C35	100 16 V	022-120-9-004	RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C52	1 25 V		RME-A-G-001	EP30-1	PC1-50	MTV1CB50	EV-1315
	1 16 V	022-099-9-003	RME-A-E-001	EP15-1	PC1-50	MTV1CB50	EV-1315
C53	10 16 V	022-120-9-001	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C55	100 16 V	022-120-9-004	RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C56	10 16 V	022-120-9-001	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C80	470 16 V	022-099-9-006	RME-L-E-500	EP15-500	PC500-16	MTV500DN15	EV-1250
C110	1 25 V		RME-A-G-001	EP30-1	PC1-50	MTV1CB50	EV-1315
	1 16 V	022-099-9-003	RME-A-E-001	EP15-1	PC1-50	MTV1CB50	EV-1315
C111	2.2 25 V		RME-A-G-002	EP30-2	PC2-100	VTT2R2A50	EV-1317
C113	10 16 V	022-120-9-001	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C114	2200 25 V	022-007-9-007	ME-G2000		WBR2000-25	TC2520A	TVA-1213.5
C116	220 25 V		RME-K-G-250	EP30-250	PC250-25	MTV250DJ25	EV-1345
	220 16 V	022-122-9-008	RME-J-E-250	EP15-250	PC250-25	MTV250DE15	EV-1245
C123	2.2 25 V		RME-A-G-002	EP30-2	PC2-100	VTT2R2A50	EV-1317

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	33	020-127-9-003	CCT0-330	DTZ-33	NPO33	CNO433	10TCC-Q33
C2	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C3	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C4	3						10TCC-V30
C5	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C6	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C7	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C8	150		CCD-151	DD-151	GP150	GP315	10TS-T15
C9	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C10	.039			DD-403		GP140	
C11	1					CNO510	10TCC-V10
C12	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C13	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C14	500						
C15	.039			DD-403		GP140	
C17	3						10TCC-V30
C18	.04			DD-403		GP140	
C20	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C21	.04	020-125-9-004	CCD-103	DTZ-100	NPO100	CNO310	10TCC-T10
C23	100		CCD-103	CK-103	MGP01	TA110	TG-S10
C24	.01		CCD-202	DD-202	GP2000	GP220	2SS-D20
C26	.002		1DP-2-104		DPMS2P1	EWFA1A010	225P10491WD3
C29	.1		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C31	.0047		1DP-2-104		DPMS2P1	EWFA1A010	225P10491WD3
C33	.1		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C36	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C37	.01		1DP-1-103	CPR-10000J	DPMS6S1	EWFA1A110	225P10391WD3
C38	.1		1DP-2-104		DPMS2P1	EWFA1A010	225P10491WD3
C39	100		CCT0-101	DTZ-100	NPO100	CNO310	10TCC-T10
C40	5						10TCC-V50
C41	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C42	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C43	47		CCT0-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C44	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C45	2			DTZ-2R2	NPO2P2	CNO522	10TCC-V22
C46	2			DTZ-2R2	NPO2P2	CNO522	10TCC-V22
C47	5						10TCC-V50
C48	150		CCD-151	DD-151	GP150	GP315	10TS-T15
C49	10		CCT0-100	DTZ-10	NPO10	CNO410	10TCC-Q10
C50	120		CCT0-121	DTZ-120		CNO312	10TCC-T12
C51	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C54	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C57	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C58	.001		CCD-102	DD-102	GP1000	SM210	2SS-D10
C59	.0047		6DP-1-472		DMS6D47	EWFA1A010	6PS-D47
C60	.1		1DP-2-104		DPMS2P1	EWFA1A010	225P10491WD3
C61	470		CCD-471	DD-471	GP470	GP347	10TS-T47

COBRA MODEL CAM-89





Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement
1	X1, X7	7	X2, X9	13	X4, X7	19	X5, X9
2	X1, X8	8	X2, X10	14	X4, X8	20	X5, X10
3	X1, X9	9	X3, X7	15	X4, X9	21	X6, X7
4	X1, X10	10	X3, X8	16	X4, X10	22	X6, X8
5	X2, X7	11	X3, X9	17	X5, X7		
6	X2, X8	12	X3, X10	18	X5, X8	23	X6, X10

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C62	220		CCD-221	DD-221	GP220	GP322	10TS-T22
C63	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C64	470		CCD-471	DD-471	GP470	GP347	10TS-T47
C65	220		CCD-221	DD-221	GP220	GP322	10TS-T22
C66	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C67	47		CCTO-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C68	25			DTZ-25		CNO425	10TCC-Q25
C69	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C70	100		CCTO-101	DTZ-100	NPO100	CNO310	10TCC-T10
C71	150		CCD-151	DD-151	GP150	GP315	10TS-T15
C72	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C73	100		CCTO-101	DTZ-100	NPO100	CNO310	10TCC-T10
C74	3				NPO5		10TCC-V30
C75	5				NPO2P2	CN0522	10TCC-V50
C76	2			DTZ-2R2		TA010	10TCC-V22
C77	.1			CK-104		TA110	TG-P10
C78	.01			CK-103	MGP01	TA110	TG-S10
C81	.22	10%	4DP-5-224		DPMS4P22	EW4022	4PS-P22
C82	.2	10%	1DP-3-204				
C83	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C84	80						
C85	47		CCTO-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C86	.04			DD-403		GP140	
C87	180		CCD-181	DD-181	GP180	GP318	10TS-T18
C88	.04			DD-403		GP140	
C89	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C90	33		CCTO-330	DTZ-33	NPO33	CNO433	10TCC-Q33
C91	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C92	.039			DD-403		GP140	
C93	.039			DD-403		GP140	
C94	300		CCD-301	DD-301	GP300	GP330	10TS-T30
C95	80		CCTO-820	DTZ-82	NPO82	CNO482	10TCC-Q82
C96	.039			DD-403		GP140	
C97	.039			DD-403		GP140	
C98	47		CCTO-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C99	150		CCD-151	DD-151	GP150	GP315	10TS-T15
C100	.309			DD-403		GP140	
C101	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C102	47		CCTO-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C103	.04			DD-403		GP140	
C104	.005		CCD-502	CK-502	MGP005	TA250	TG-D50
C105	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C106	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C107	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C108	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C109	.047		CCD-503	CK-503	MGP05	TA150	TG-S50
C112	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C115	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C117	200		CCD-201	DD-201	GP200	GP320	10TS-T20
C118	.001		CCD-102	DD-102	GP1000	SM210	25S-D10
C119	25			DTZ-25		CNO425	10TCC-Q25
C120	.04			DD-403		GP140	
C121	.04			DD-403		GP140	
C122	47		CCTO-470	DTZ-47	NPO47	CNO447	10TCC-Q47
C124	8	NPO			NPO8P2		10TCC-V82
C125	.01		CCD-103	CK-103	MGP01	TA110	TG-S10

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.
VR1	AGC	30 K	008-209-9-009	TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503B (2)	MTC54L1 (2)
VR2	RF Gain	50 K	008-210-9-006	F1-50K (1), SSK014		BU1 (1), CF12, SS1, DC1	RU54L, SL36, SL3250
VR3	SqueIch Range	50 K	008-209-9-008	TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503B (2)	MTC54L1 (2)
VR4	Volume/Switch	10 K	008-210-9-005	F2-10K (1), SSK014, KR2		BU1 (1), CF61, SS1, WF	RU14A, SL36, SL3250, US27
VR5	Dynamike	10 K	008-210-9-003	F2-10K (1), SSK014		BU1 (1), CF61, SS1, DC1	RU14A, SL36, SL3250
VR6	RF Meter	20 K	008-209-9-010	T-20K (2) or TSV-25K (2)	C-253 (2)	X201R253B (2)	MTC24L1 (2)
VR7	"S" Meter	20 K	008-209-9-010	T-20K (2) or TSV-25K (2)	C-253 (2)	X201R253B (2)	MTC24L1 (2)

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.
VR8	Delta Tune	20 K	008-210-9-004	F1-25K (1), SSK014		BU1 (1), CF11, SS1, DC1	RU253L, SL36, SL3250
VR9	Delta Range	10 K	008-209-9-011	TSV-10K (2) or T-10K (2)	C-103 (2)	X201R103B (2)	MTC14L1 (2)
VR10	Tone	50 K	008-210-9-006	F1-50K (1), SSK014		BU1 (1), CF12, SS1, DC1	RU54L, SL36, SL3250
VR11	Modulation	30 K	008-209-9-009	TSV-50K (2) or T-50K (2)	C-503 (2)	X201R503B (2)	MTC54L1 (2)
VR12	Voltage	200	008-209-9-012	T-200 or TSV-250		X201R251B	MTC22L1
VR13	SqueIch	50 K	008-210-9-006	F1-50K (1), SSK014		BU1 (1), CF12, SS1, DC1	RU54L, SL36, SL3250

(1) Enlarge mounting hole.

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R38	.5 (10%, 1/2W, Metal)		004-012-9-001	R81	12 (10%, 2W, Metal)	CC-2-12	013-005-9-001

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			
		MFGR. PART No.	OTHER IDENTIFICATION	MEISSNER PART No.	MILLER PART No.
L1	14 MHz Trap	041-056-9-001	TC-71096		
L2	RF Choke (2.2 uH)	041-056-9-002	2R2		74F226AP
L3	RF Choke (2.2 uH)	041-056-9-002	2R2		74F226AP
L5	Line Choke	042-011-9-001	TC71095B		
L7	54 MHz Trap	041-056-9-003	TC71024		
L8	Ant (27 MHz)	044-028-9-001	NS-1344		
L9	Xmit Matching (27 MHz)	044-028-9-002	TC-710025		
L10	Xmit Final (27 MHz)	044-028-9-003	TC-71029		
L11	RF Choke (2.2 uH)	041-056-9-002	2R2		74F226AP
L12	Xmit Driver (27 MHz)	044-028-9-004	TC-71023		
L13	Xmit Buffer (27 MHz)	044-028-9-005	TC-71026		
L14	RF Choke (6.8 uH)	041-061-9-002	6R8		74F686AP
L16	RF Choke (1.0 uH)	041-062-9-001	LF4010		4602
T1	Rec Ant (27 MHz)	066-017-9-001	TKXN-22160BU		
T2	Rec RF (27 MHz)	066-017-9-002	TKXC-22534BU		
T3	Input IF (11.275 MHz)	060-016-9-001	TKAC-225361E		
T4	Interstage IF (11.275 MHz)	060-016-9-002	TKAC-21165A		
T5	Interstage IF (455 kHz)	060-016-9-003	YLN-208448M		
T6	Interstage IF (455 kHz)	060-016-9-004	YMC-20845AC		
T8	Output IF (455 kHz)	060-016-9-005	YMC-20846AC		
T11	Syn. Osc (23 MHz)	066-017-9-003	TKXC-23169F		
T12	Syn. Mixer (38 MHz)	066-017-9-004			
T13	Syn. Mixer (38 MHz)	066-017-9-004			
T14	Syn. Mixer (38 MHz)	066-017-9-005	TKXC-22535BM		
T15	Xmit Mixer (27 MHz)	066-017-9-006	K-13638HM		
T16	Xmit Mixer (27 MHz)	066-017-9-006	K-13638HM		
T17	Xmit Mixer (27 MHz)	066-017-9-007	K-13636BM		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (O CURRENT 1000~)	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L4	780 mA	.1	1.1 mH	044-028-9-006 (115C)				

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T9	1	1 CT		061-022-9-001 (69M) (69M)				

COBRA MODEL CAM-89

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T10	50	8	061-022-9-002 (UT115)				

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T18	120 VAC @ 310 mA	36 VAC @ 1220 mA	065-103-9-001 (T15B)				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3" x 4" PM 8 ohms	580-015-9-001		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	WORKMAN PART No.
F1	2 A, Fast Acting			AGC 2	HDJ	312002	F62-2
F2	1 A, Fast Acting			AGC 1	HKP	312001	F61-2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF	Ceramic Filter	140-009-9-001	(LF-B6)
M1	Meter	320-055-9-001	"S"/RF PWR
M2	Meter	320-054-9-001	Modulation
S2	Switch	083-162-9-001	Channel Selector
S3	Switch	084-036-9-002	CB-PA
S4	Switch	084-036-9-001	ANL
X1	Crystal	133-004-9-001	23.290 MHz
X2	Crystal	133-004-9-002	23.340 MHz
X3	Crystal	133-004-9-003	23.390 MHz
X4	Crystal	133-004-9-004	23.440 MHz
X5	Crystal	133-004-9-005	23.490 MHz
X6	Crystal	133-004-9-006	23.540 MHz
X7	Crystal	133-004-9-007	14.950 MHz
X8	Crystal	133-004-9-008	14.960 MHz
X9	Crystal	133-004-9-009	14.970 MHz
X10	Crystal	133-004-9-010	14.990 MHz
X11	Crystal	133-004-9-011	11.730 MHz
X12	Crystal	133-004-9-012	11.275 MHz

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Bottom	252-015-9-001	Panel, Back	262-012-9-001
Cabinet, Top	253-036-9-001	Panel, Front Setting (Right)	251-131-9-001
Chassis	257-059-9-001	Panel, Front Setting	251-132-9-001
Disc, Channel Number	380-176-9-002	Panel, Front	380-213-9-001
Knob, Channel	751-095-9-001	Plate, Brand	260-051-9-001
Knob, Control	751-095-9-002	Plate, Front	260-050-9-001
Hanger, Mic	741-074-9-001		

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone (DF-107B)	562-006-9-001	Complete