

SAMS PHOTOFACT[®] CB RADIO SERIES



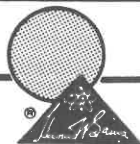
CB-47
47
JULY 1973



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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.



MODEL SBE-11CB (Trinidad)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

T101 thru T108, L112, L113	GC ELECTRONICS
L101, L102	#8290, 5000
L103 thru L111	#9440
	#9089

Connect an AC VTVM across speaker voice coil. Set squelch control fully counterclockwise. Adjust Volume control to obtain a suitable reading. Set ANL to Off, DELTA TUNE to center (0) position.

RECEIVER ALIGNMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q103 (2nd Mixer), low side to ground. Set to 455KC (Mod.)	Any	T108, T107, T106, T105, T104, T103	Adjust for maximum.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to antenna connector, low side to ground. Set to 27.085MC (Mod.)	Ch. 11	L101, L102, T101, T102	Adjust for maximum.

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3CY108

SBE MODEL SBE-11CB

RECEIVER ALIGNMENT (Continued)

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Set generator output level to 150uv.	Ch. 11	R180	Adjust for S-RF Meter reading of "S-9".

TRANSMITTER ALIGNMENT

INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength Meter.	L104, L105, L106, L107, C154	Key transmitter and adjust for maximum RF output.

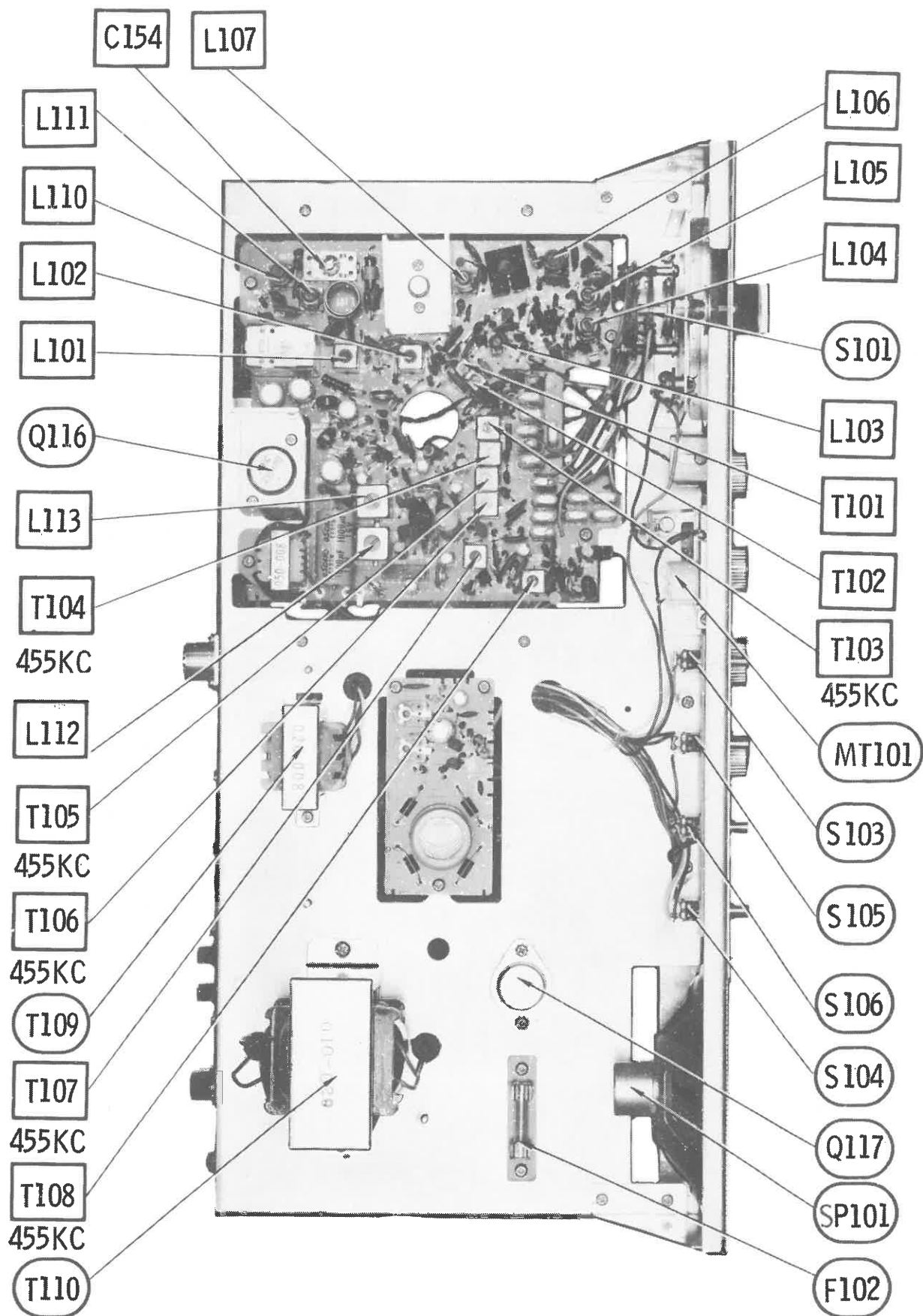
INDICATOR	ADJUST	REMARKS
RF Wattmeter	L110 C154	Adjust L110 for maximum, re-peak C154 for 3 to 3.5 watts output.

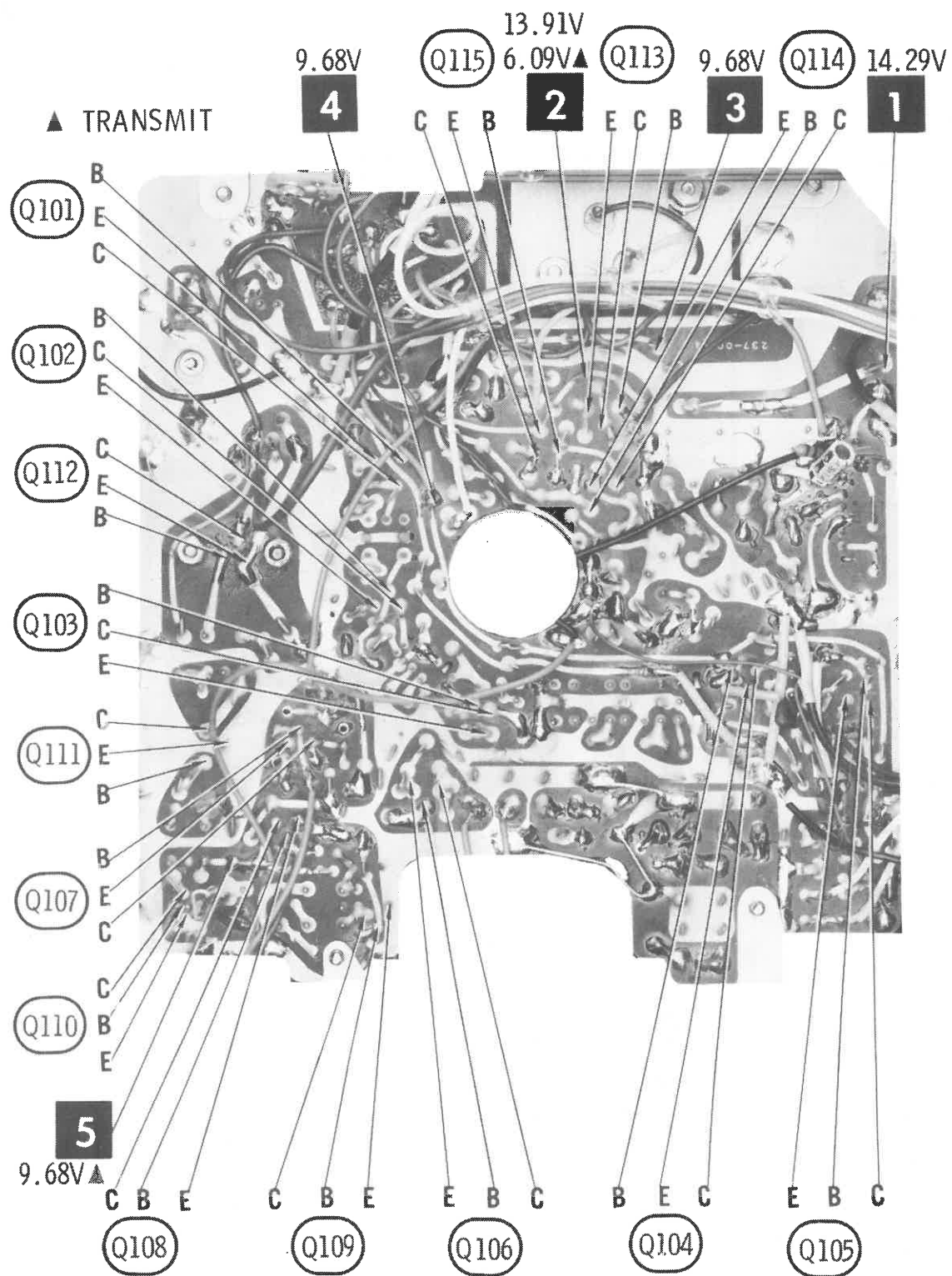
INDICATOR	ADJUST	REMARKS
RF Wattmeter	R182	Adjust for "S-RF" meter reading in agreement with RF Wattmeter.

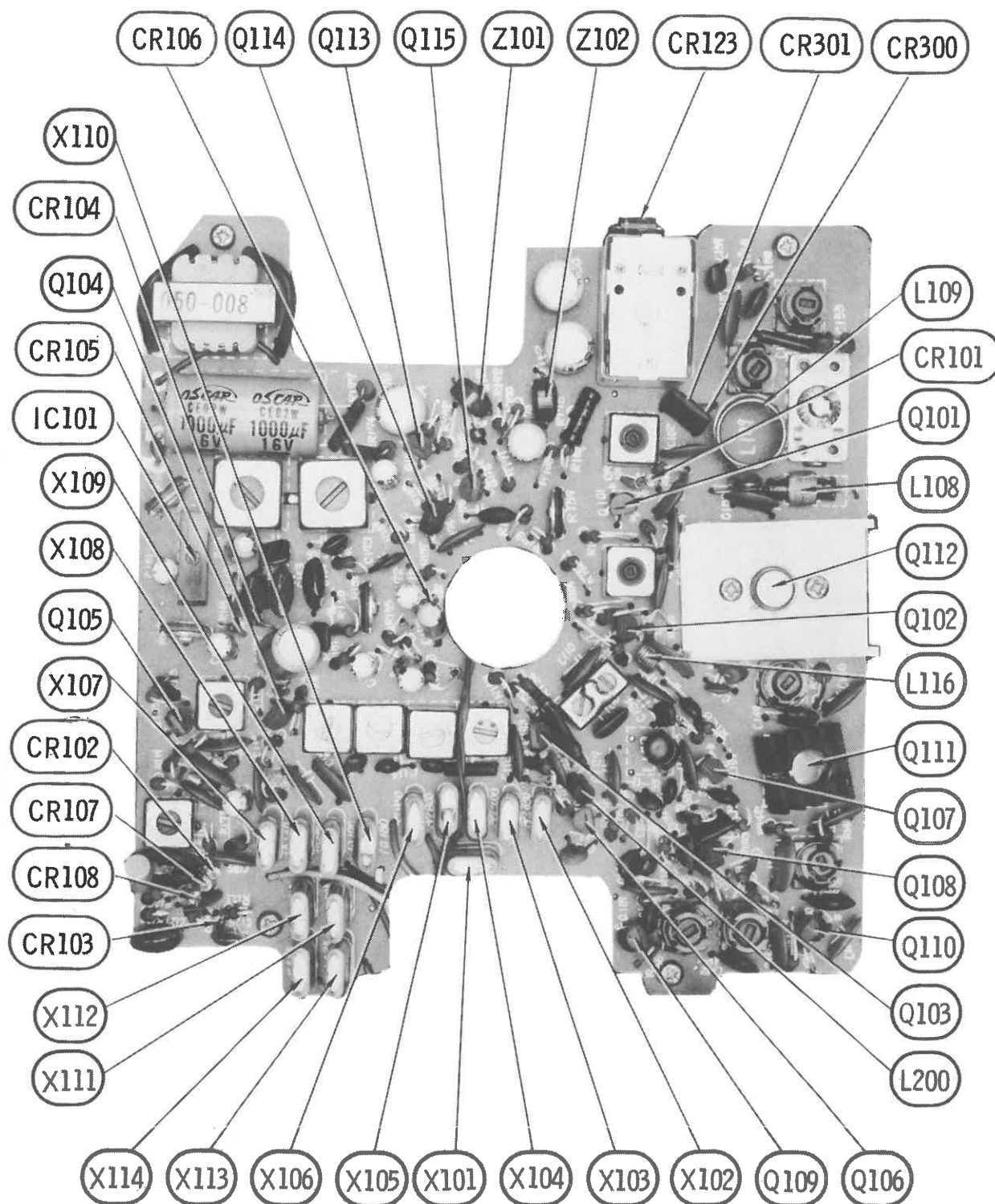
INDICATOR	ADJUST	REMARKS
TV Receiver (Ch. 2)	L111	Adjust for MINIMUM interference.

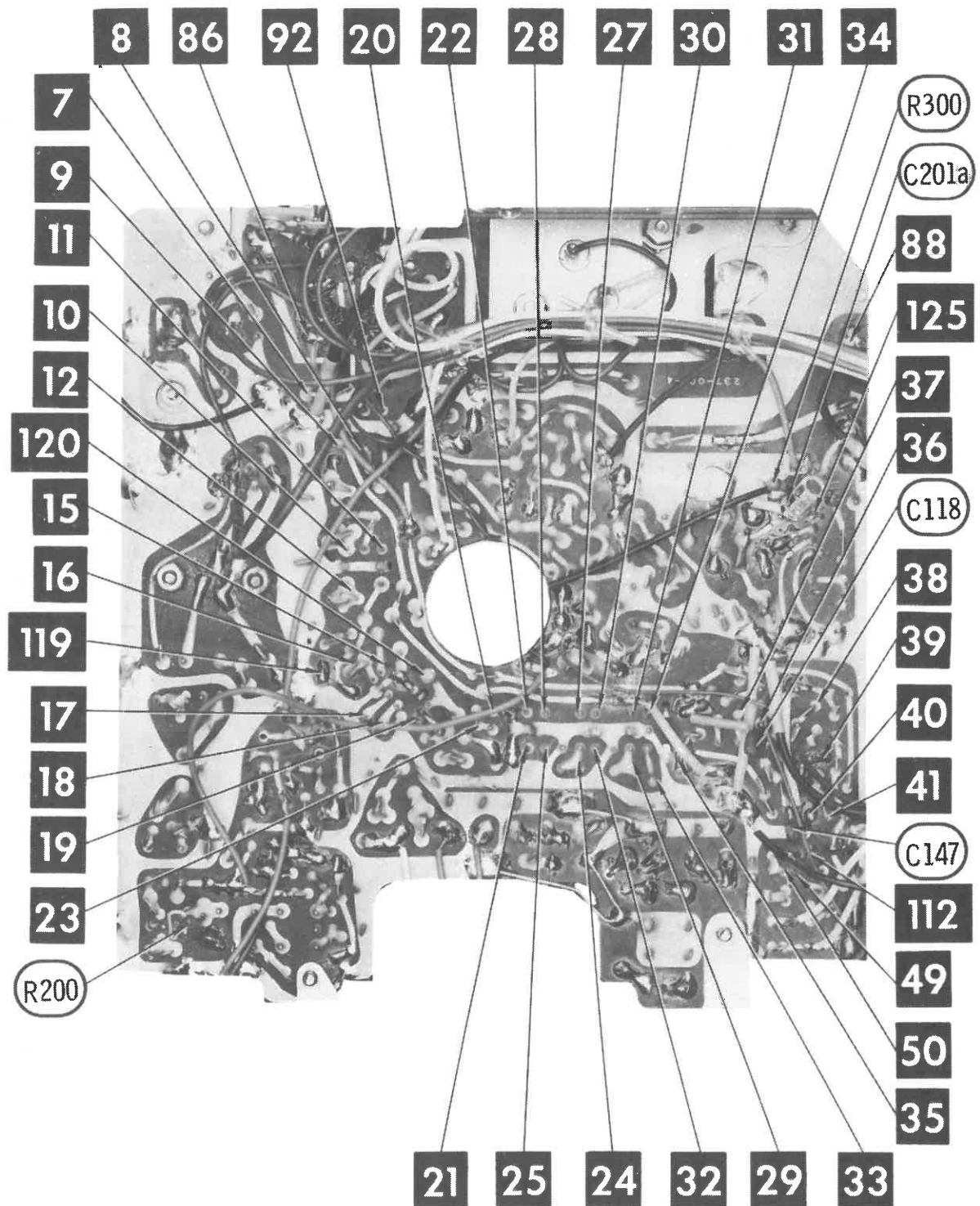
INDICATOR	ADJUST	REMARKS
Modulation monitor, AC VTVM	L112, L113	Connect an audio generator to microphone input, high side thru .01mfd to Pin 2, low side to ground. Set to 1KC. Adjust output level to give 50% modulation on transmit. Measure AC voltage at collector of Q116. (AF Power Amp). Set generator to 4KC; adjust for AC voltage 35db lower than 1KC voltage.

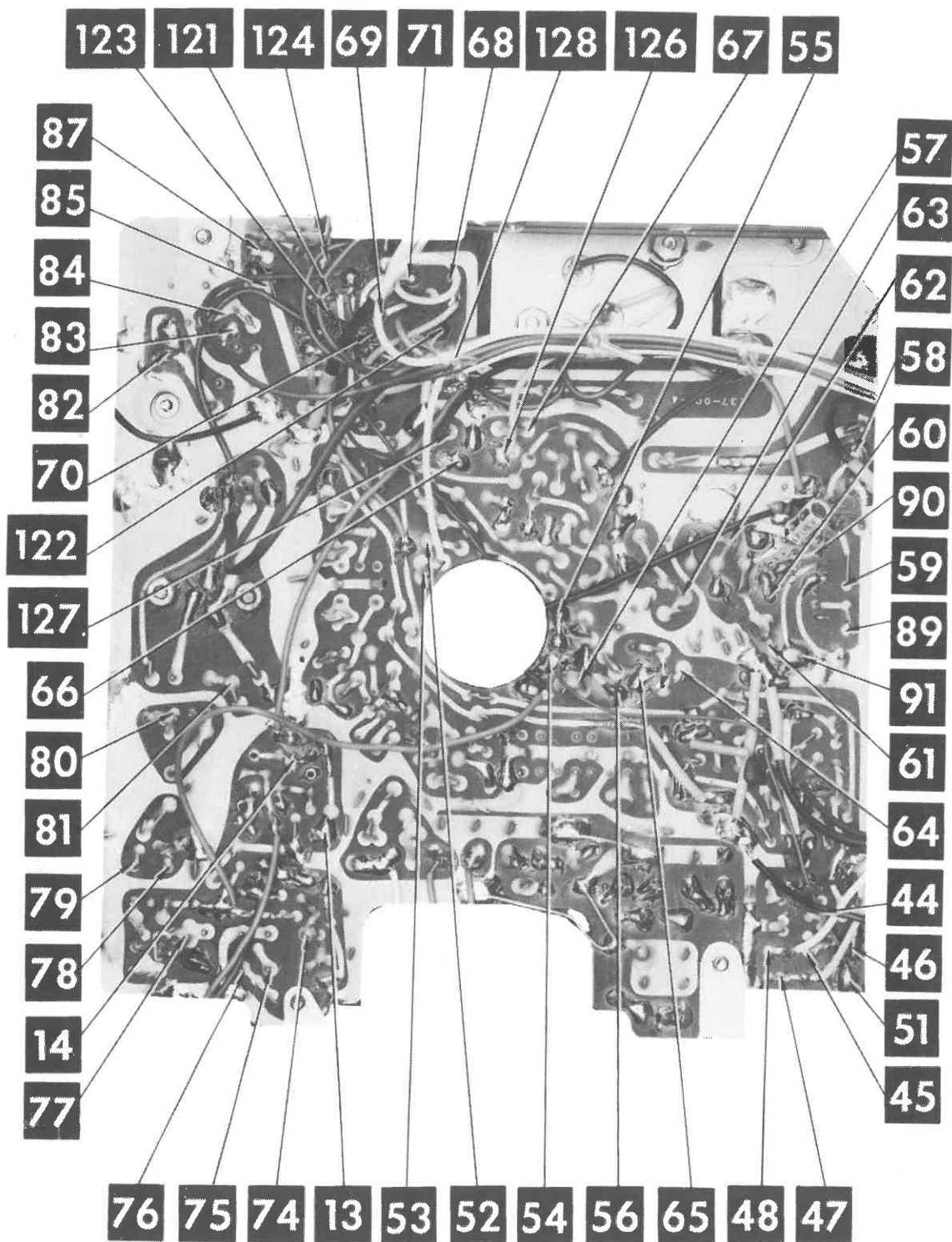
INDICATOR	ADJUST	REMARKS
Modulation monitor	R152	Set generator to 2.5KC, output adjusted to give 50% modulation, then increase by 16db. Adjust for 85% modulation.

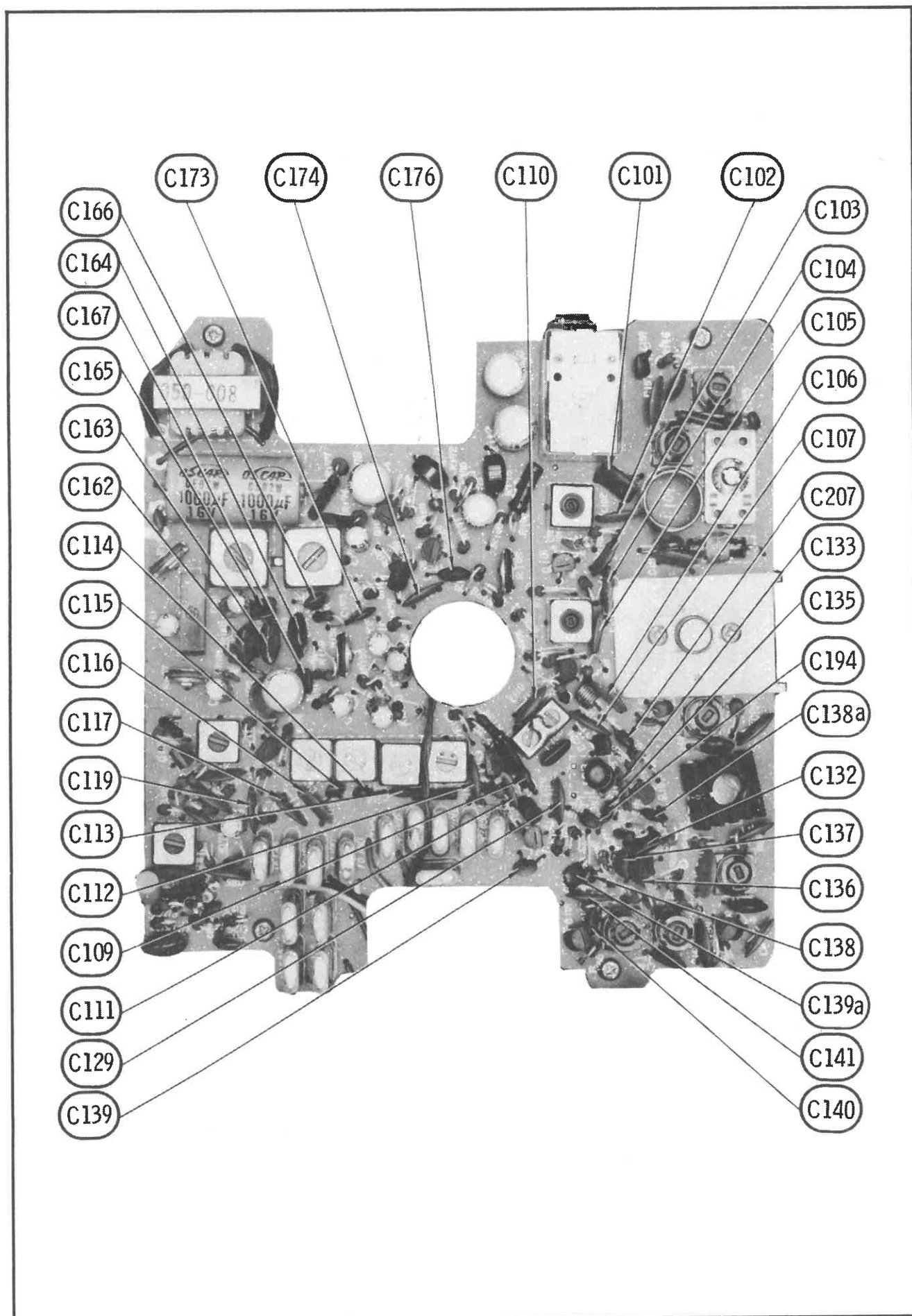


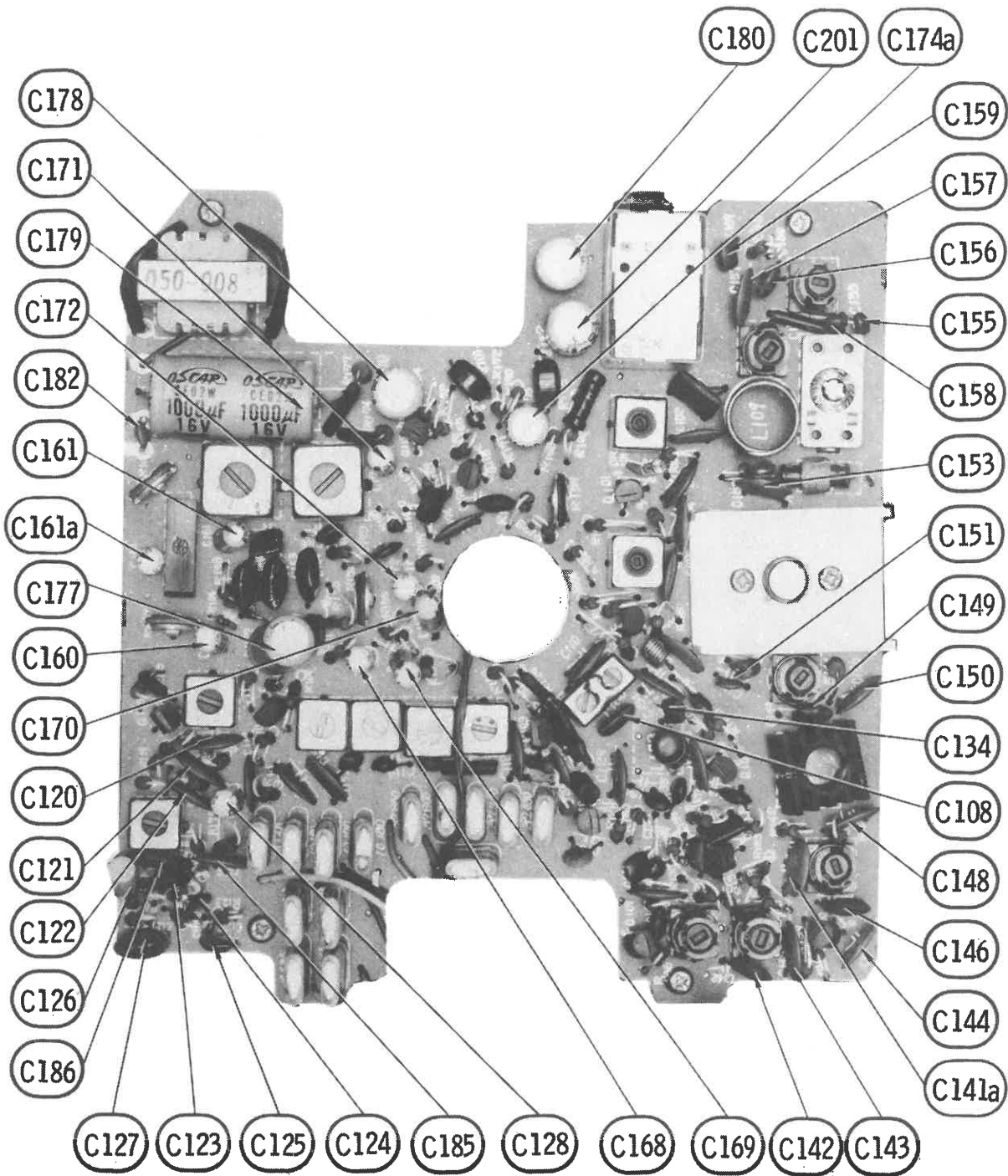


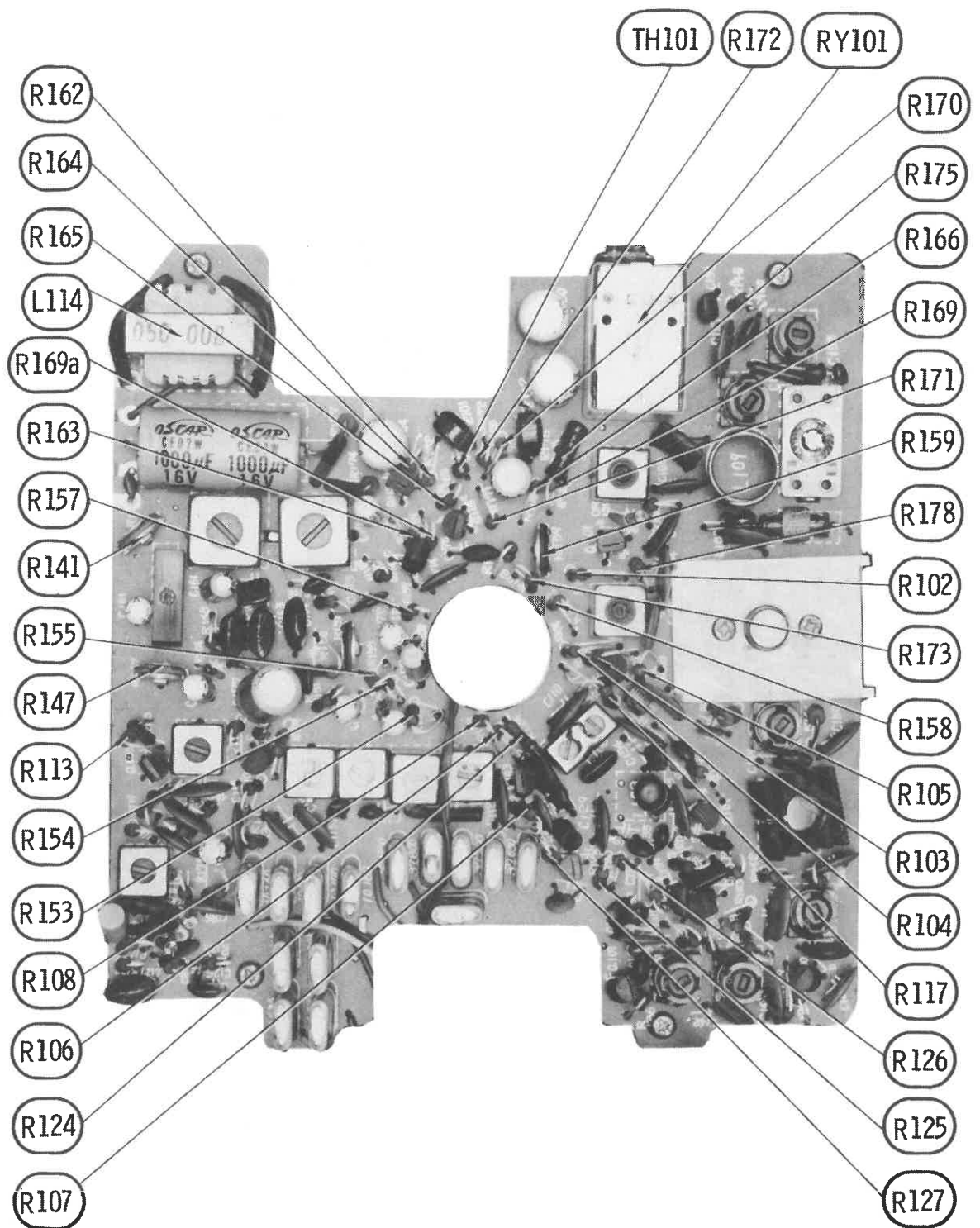


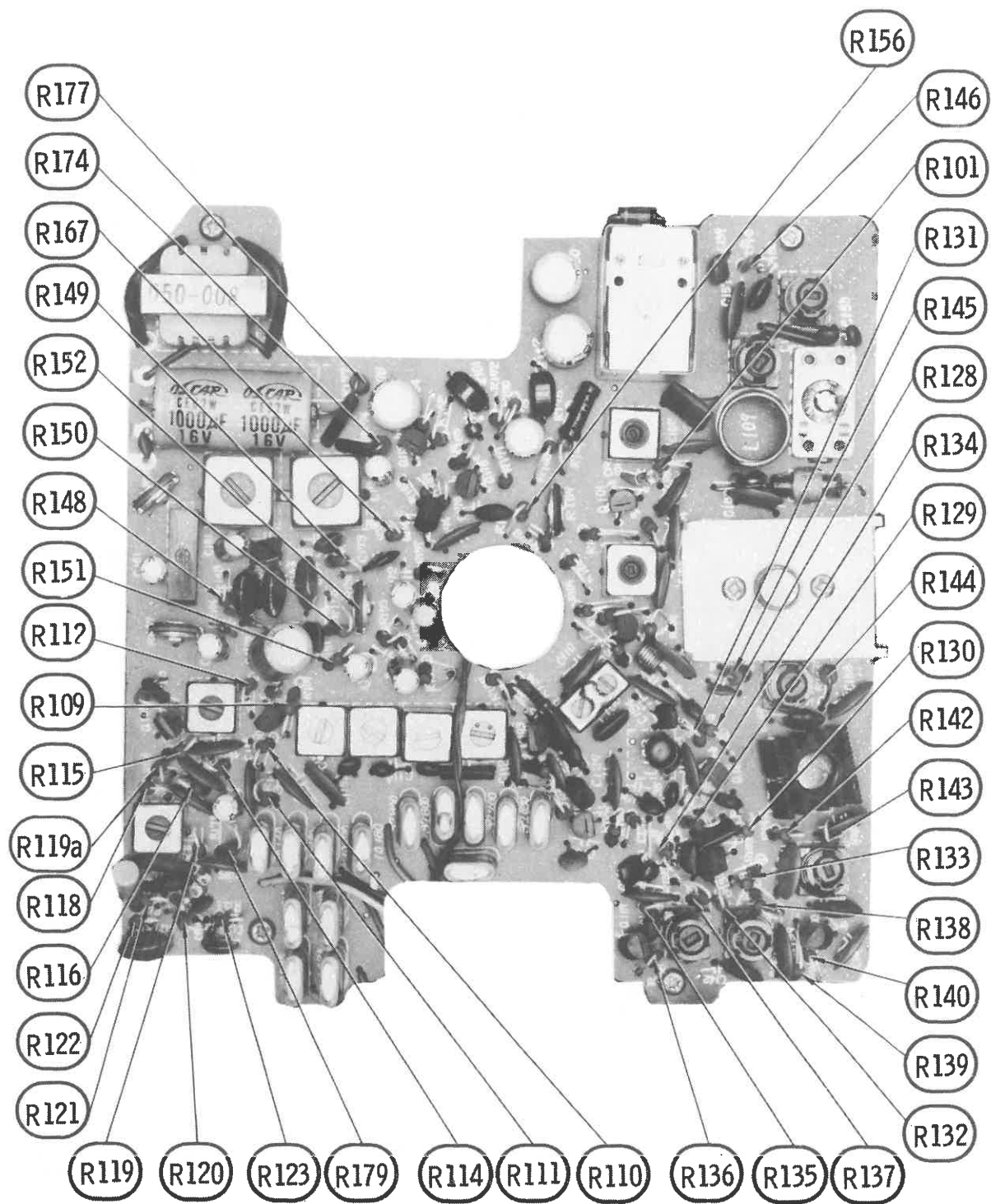




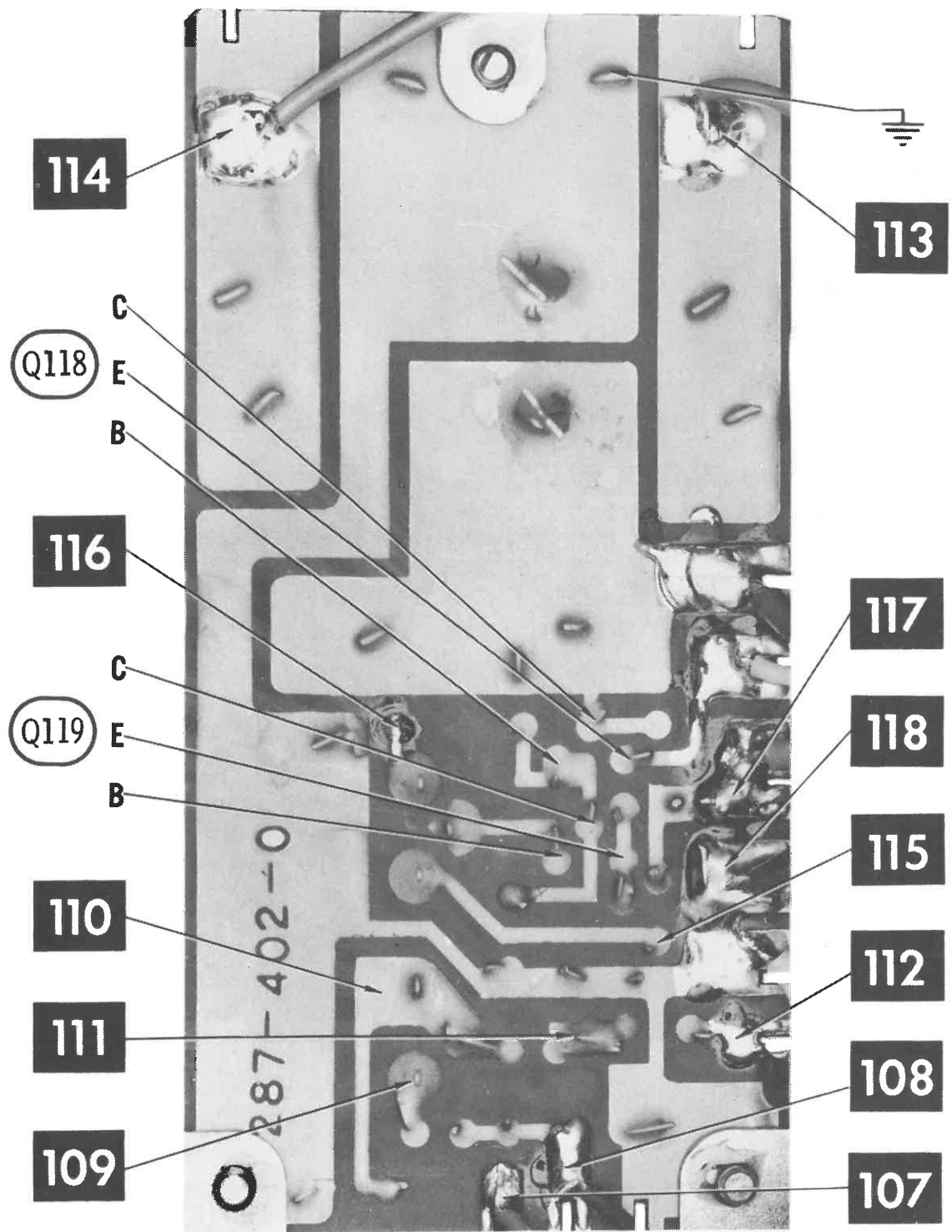


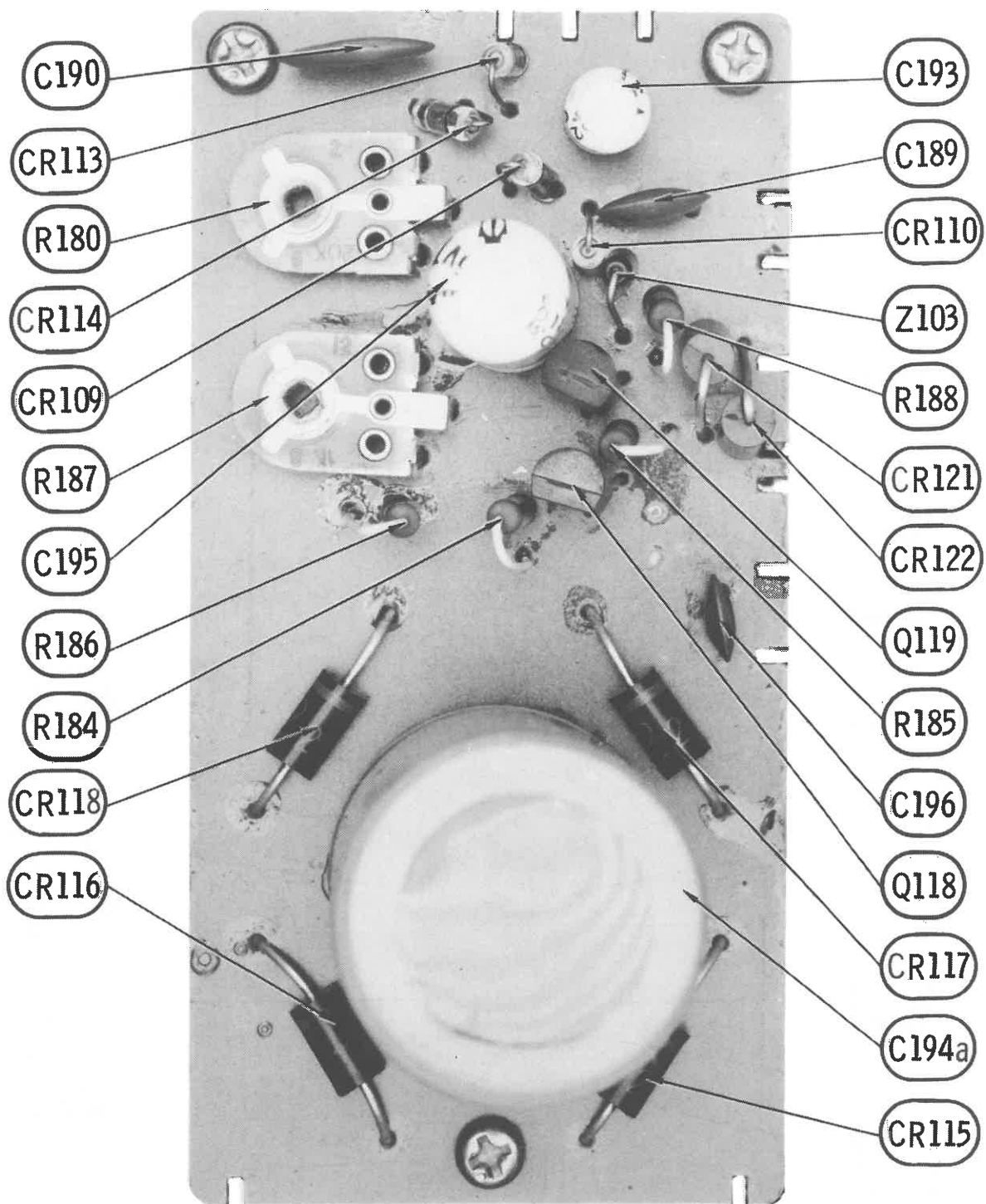


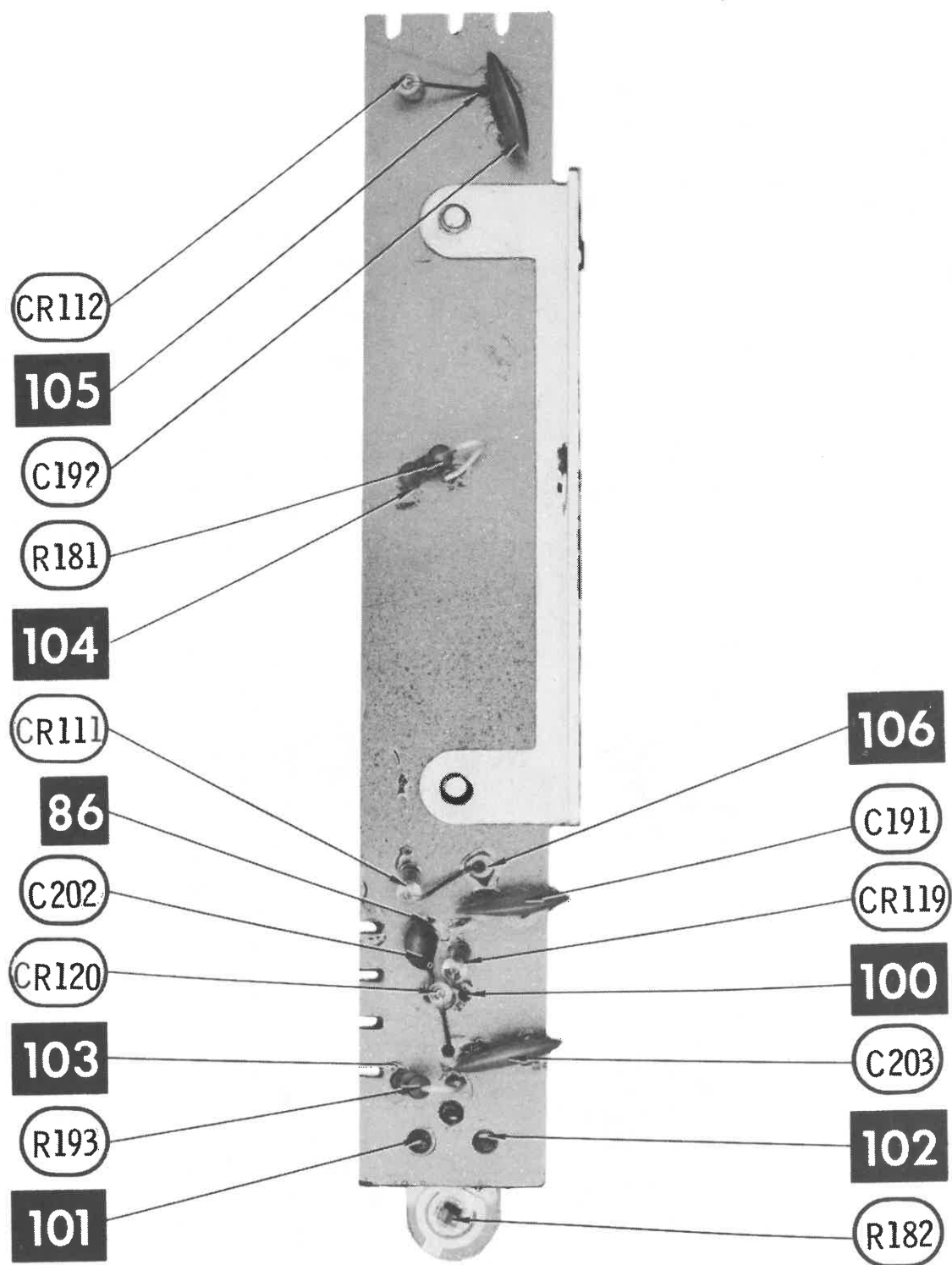


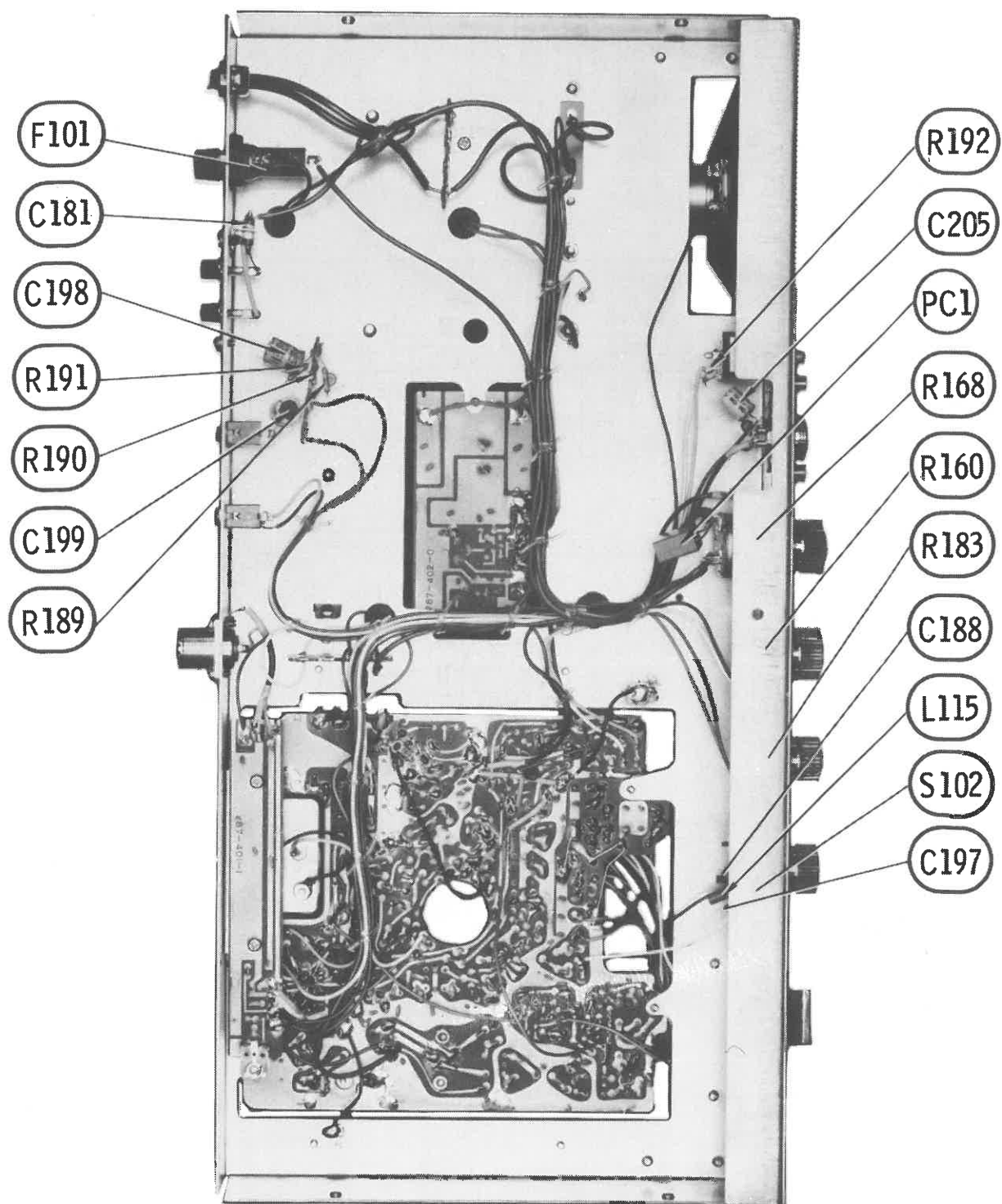


SBE MODEL SBE-11CB

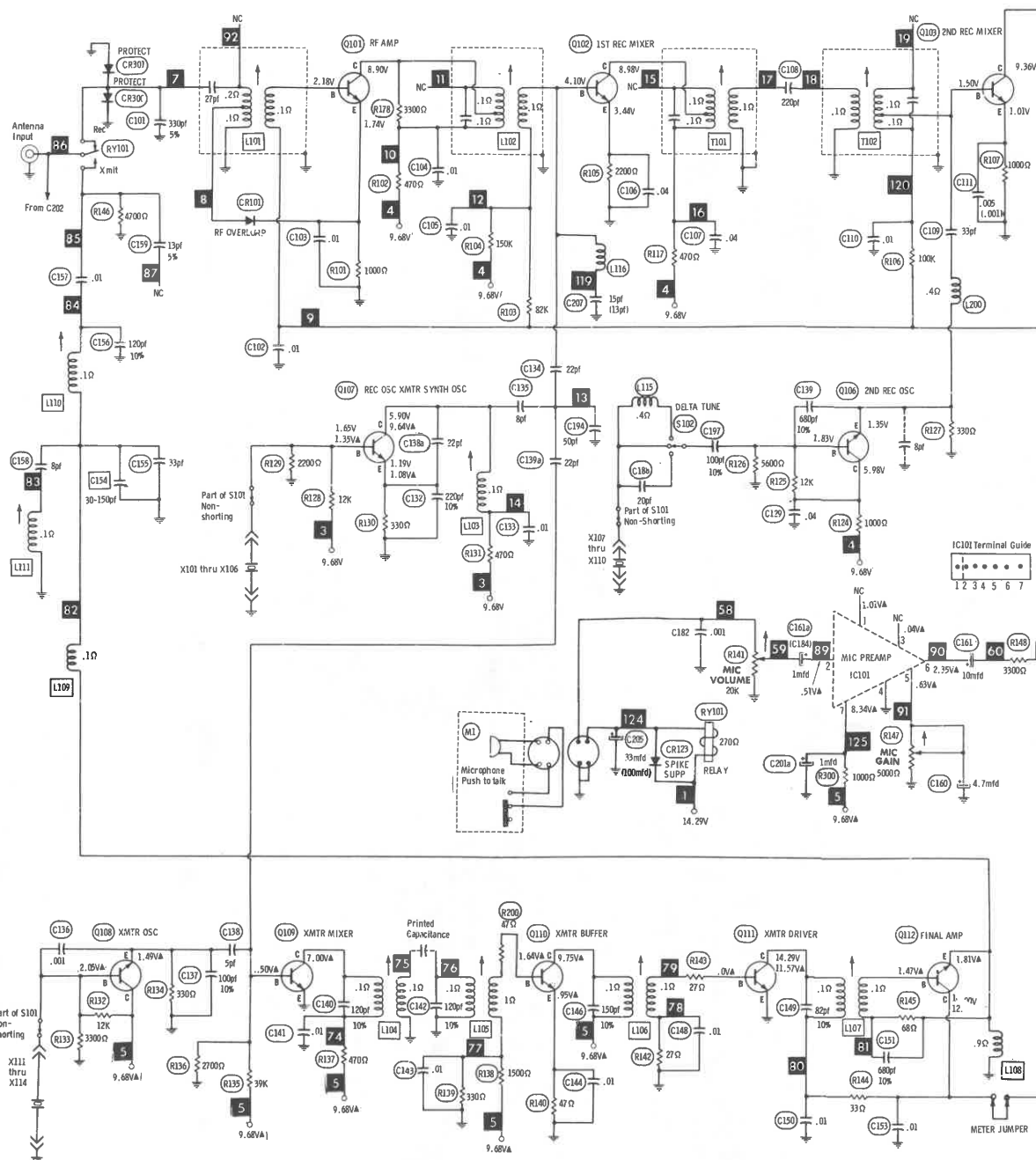








SBE MODEL SBE-11CB



- * Denotes ground. (Voltage reference unless otherwise indicated).
 --- Indicates connection used in some versions.
 * Indicates connection not used in some versions.
 * Omitted in some versions.

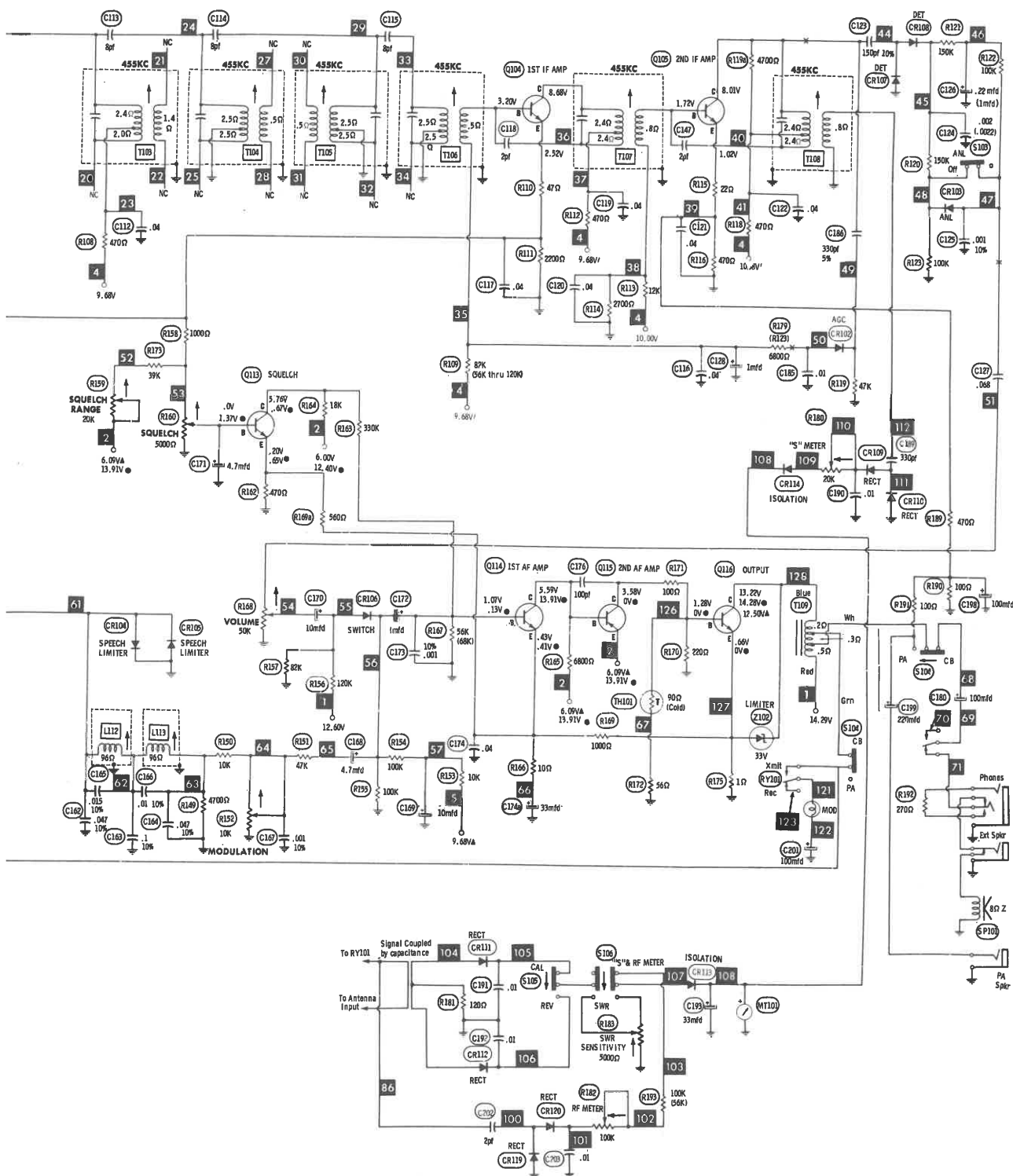
Measurements taken with switching in position shown unless otherwise indicated.

Values shown in () are used in some applications.
 Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
 Supply voltage maintained at rated value for measurements.
 Voltage and resistance measured with VTVM or equivalent meter.
 no signal applied and controls adjusted for normal operation.
 Arrow on control indicates direction of advance.
 Numbers assigned to terminals may not be found on the unit.
 Transistor resistances vary widely. No resistance measurements taken.

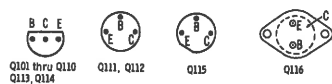
A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with **CircuitTrace**

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Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement
1	X101, X110, X114	7	X102, X108, X112	13	X104, X110, X114	19	X105, X108, X112
2	X101, X109, X113	8	X102, X107, X111	14	X104, X109, X113	20	X105, X107, X111
3	X101, X108, X112	9	X103, X110, X114	15	X104, X109, X113	21	X106, X110, X114
4	X101, X107, X111	10	X103, X109, X113	16	X104, X107, X111	22	X106, X109, X113
5	X102, X110, X114	11	X103, X108, X112	17	X105, X110, X114	23	X106, X107, X111
6	X102, X109, X113	12	X103, X107, X111	18	X105, X109, X113		



Transistor Terminal Guides



SBE MODEL SBE-11CB

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS(cont)

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.
CR123	FR2-02/ 8000-00006-147	GE-510	R210	PTC205	HEP170	SK3081		ECG 125
CR300		GE-300	D200	PTC214	HEPRO600	SK3100	RT218	ECG 177
CR301		GE-300	D200	PTC214	HEPRO600	SK3100	RT218	ECG 177
IC101	LAP011/ 8000-00006-011							
Q101	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q102	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q103	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q104	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q105	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q106	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q107	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q108	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q109	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q110	2SC738/ 8000-00006-005	GE-20	IRTR-53	PTC132	HEP56	SK3020	RT108	ECG 108
Q111	2SC775/ 8000-00006-001	GE-20	IRTR-62	PTC123	HEP736	SK3047	RT114	ECG 123A
Q112	2SC778/ 8000-00006-002		IRTR-65		HEPS3001	SK3049		ECG 195
Q113	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q114	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q115	2SA696, CS9012/ 8000-00006-004	GE-22	TR-19	PTC103	HEP52	SK3118	RT126	ECG 159
Q116	2SD180/ 8000-00006-006	GE-19	TR-26	PTC119	HEP247	SK3027	RT131	ECG 130
Q117	2SD81/ 8000-00006-190	GE-19	TR-26	PTC119	HEP247	SK3027	RT131	ECG 130
Q118	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q119	2SC710/ 8000-00006-003	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Z101	ZB1-9/ 8000-00006-009	GEZD-9.1		PTC505	HEPZ0412	SK3060		ECG 139
Z102	9.68V Zener ZB1-35/ 8000-00006-010	GEZD-33	Z-1222	PTC512	HEPZ0426	SK3095		ECG 147
Z103	33 Volt Zener 1S331/ 8000-00006-146	GEZD-5.6	Z-1204	PTC502	HEPZ0407	SK3057		ECG 137
	5.75V Zener							

(6) Matched Pair. (7) Two required - select matched pair.

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.
C126	.22 25V	8000-00006-169					SD35-R229
C128	1 16V	8000-00006-063	RME-A-E-001	EP15-2	WBR1-50	MTV1CB50	EV-1315
C160	4.7 25V		RME-A-G-005	EP30-5	WBR5-50	VTT4R7A50	EV-1319
C161	4.7 16V	8000-00006-064					
C161a	10 16V		RME-B-E-010	EP15-10	WBR10-25	VTT10A25	EV-1222
C168	10 10V	8000-00006-065					
C169	1 16V	8000-00006-063	RME-A-E-001	EP15-2	WBR1-50	MTV1CB50	EV-1315
C170	4.7 25V		RME-A-G-005	EP30-5	WBR5-50	VTT4R7A50	EV-1319
C171	4.7 16V	8000-00006-064					
C172	10 10V	8000-00006-065	RME-A-D-010	EP15-10	WBR10-25	VTT10A25	EV-1222
C173	10 16V		RME-B-E-010	EP15-10	WBR10-25	VTT10A25	EV-1222
C174a	10 10V	8000-00006-065					
C177	4.7 25V		RME-A-G-005	EP30-5	WBR5-50	VTT4R7A50	EV-1319
C178	4.7 16V	8000-00006-064					
C179	1 16V	8000-00006-063	RME-A-E-001	EP15-2	WBR1-50	MTV1CB50	EV-1315
C180	33 25V		ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C193	100 16V	8000-00006-067	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C194a	100 16V	8000-00006-067	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C195	100 16V	8000-00006-068	ME-G1000	EA15-1000	WBR1000-16	TC1501B	TVA-1163
C196	100 16V	8000-00006-067	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C197	100 16V	8000-00006-068	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C198	100 16V	8000-00006-067	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C199	220 16V	8000-00006-164	RME-J-E-250	EA15-250	WBR250-16	MTV250DE15	EV-1245
C205	33 16V		ME-3-E-035	EP15-25	WBR35-50	MTV30CB25	EV-1325
C205	100 25V	8000-00006-165					

SBE MODEL SBE-11CB

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA					
		MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	100 16V	8000-00006-067	RME-E-E-100	EP15-100	WBR100-16	MTV100CD15	EV-1230
C201a	1 16V	8000-00006-063	RME-A-E-001	EP15-2	WBR1-50	MTV1CB50	EV-1315

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCOR PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C101	330 5%		DM-19-331J	CPR-330J	CD15FD331J03	SX333	424ME3300J501
C102	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C103	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C104	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C105	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C106	.04		DD-403	DD-403	GP140	GP140	
C107	.04		DD-403	DD-403	GP140	GP140	
C108	220		DM-19-221J	CPR-220J	CD15FD221J03	SX322	424ME2200J501
C109	33		DM-15-330J	CPR-33J	CD15ED330J03	SX433	
C110	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C111	.005		CCD-502	CK-502	MGP005	TA250	TG-D50
C112	.04			DD-403		GP140	
C113	8				NP08P2		10TCC-V82
C114	8				NP08P2		10TCC-V82
C115	8				NP08P2		10TCC-V82
C116	.04			DD-403		GP140	
C117	.04			DD-403		GP140	
C118	2			DTZ-2R2	NP02P2	CNO522	10TCC-V22
C119	.04			DD-403		GP140	
C120	.04			DD-403		GP140	
C121	.04			DD-403		GP140	
C122	.04			DD-403		GP140	
C123	150 10%		DM-15-151J	CPR-150J	CD15FD151J03	SX315	424MC1500J501
C124	.002		CCD-202	DD-202	GP2000	GP220	2SS-D20
C125	.001 25V 10%					EWFA1A210	1PB-D10
C127	.068 25V 10%		1DP-2-683			EWFA1A168	431P6839R5
C129	.04			DD-403		GP140	
C132	220 10%		DM-19-221J	CPR-220J	CD15FD221J03	SX322	424ME2200J501
C133	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C134	22		DM-15-220J	CPR-22J	CD15ED220J03	SX422	
C135	8				NP08P2		10TCC-V82
C136	.001		CCD-102	DD-102	GP1000	SM210	2SS-D10
C137	100 10%		DM-15-101J	CPR-100J	CD15FD101J03	SX310	424MC1000J501
C138	5		DM-15-050D		CD15DC050D03	SX550	
C138a	22		DM-15-220J	CPR-22J	CD15ED220J03	SX422	
C139	680 10%		CCD-681	DD-681	GP680	GP368	10TS-T68
C139a	22		DM-15-220J	CPR-22J	CD15ED220J03	SX422	
C140	120 10%		DM-15-121J	CPR-120J	CD15FD121J03	SX312	424MC1200J501
C141	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C141a	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C142	120 10%		DM-15-121J	CPR-120J	CD15FD121J03	SX312	424MC1200J501
C143	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C144	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C146	150 10%		DM-15-151J	CPR-150J	CD15FD151J03	SX315	424MC1500J501
C147	2			DTZ-2R2	NP02P2	CNO522	10TCC-V22
C148	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C149	82 50V 10%		DM-15-820J	CPR-82J	CD15FD820J03	SX482	424MC820J501
C150	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C151	680 10%		CCD-681	DD-681	GP680	GP368	10TS-T68
C153	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C154	30-150	8000-00006-082					
C155	33		DM-15-330J	CPR-33J	CD15ED330J03	SX433	424MC1200J501
C156	120 10%		DM-15-121J	CPR-120J	CD15FD121J03	SX312	TG-S10
C157	.01		CCD-103	CK-103	MGP01	TA110	10TCC-V82
C158	8				NP08P2		
C159	13						
C162	.047 25V 10%		1DP-2-473			EWFA1A147	431P4739R5
C163	.1 25V 10%		1DP-2-104			EWFO5010	431P1049R5
C164	.047 25V 10%		1DP-2-473			EWFA1A147	431P4739R5
C165	.015 25V 10%		1DP-1-153			EWFA1A115	1PB-S15
C166	.01 50V 10%		1DP-1-103			EWFA1A110	1PB-S10
C167	.001 25V 10%	8000-00006-068				EWFA1A210	1PB-D10
C173	.001 25V 10%	8000-00006-068				EWFA1A210	1PB-D10
C174	.04			DD-403		GP140	
C176	100 10%		DM-15-101J	CPR-100J	CD15FD101J03	SX310	424MC1000J501
C181	.002						
C182	.001		CCD-102	DD-102	GP1000	SM210	2SS-D10
C185	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C186	330 5%		DM-19-331J	CPR-330J	CD15FD331J03	SX333	424ME3300J501
C188	20		DM-15-200J	CPR-20J		SX420	
C189	330		CCD-331	DD-331	GP330	GP333	10TS-T33
C190	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C191	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C192	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C194	50		DM-15-500J		CD15ED510J03		424MC510J501
C196	.002		CCD-202	DD-202	GP2000	GP220	2SS-D20
C197	100 10%		DM-15-101J	CPR-100J	CD15FD101J03	SX310	424MC1000J501
C202	2			DTZ-2R2	NP02P2	CNO522	10TCC-V22
C203	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C207	15		DM-15-150J			SX415	

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.
R141	Mic Volume	20K	8000-00006-045	T-20K(1) or TSV-25K	C-253	X201R253B	MTC24L1
R147	Mic Gain	5000	8000-00006-046	TSV-5K or T-5000	C-502	X201R502B	MTC53L1
R152	Modulation Adjust	10K	8000-00006-047	TSV-10K or T-10K	C-103	X201R103B	MTC14L1
R159	Squelch Range	20K	8000-00006-045	T-20K or TSV-25K	C-253	X201R253B	MTC24L1
R160	Squelch	5000	8000-00006-044	F1-5000(1), SSK014	A47-5000-S(1), KSS-3 or [NP-5000-S(1), UP-C-400]	Q11-114(1) or [BU1(1), CF8, SS1, DC1]*	UA53L(1), SK1000 or [RU53L, SL39(1), SK1000] or [U14(1)]
R160	Volume/Switch	50K	8000-00006-043				
R180	"S" Meter Adjust	20K	8000-00006-160	T-20K(2) or TSV-25K(2)	C-253(2)	X201R253B(2)	MTC24L1(20)
R182	"RF" Meter Adjust	100K	8000-00006-161	TSV-100K(2) or T-100K(2)	C-104(2)	X201R104B(2)	MTC15L1(2)
R183	"SWR" Sensitivity	5000	8000-00006-044	F1-5000(1), SSK014	A47-5000-S(1), KSS-3 or [NP-5000-S(1), UP-C-400]	Q11-114(1) or [BU1(1), CF8, SS1, DC1]*	UA53L(1), SK1000 or [RU53L, SL39(1), SK1000] or [U14(1)]
R187	Voltage Adjust	1000	8000-00006-159	TSV-1K(2) or T-1000(2)	C-102(2)	X201R102B(2)	MTC13L1(2)

* "SNAPTROL" (1) Enlarge mounting hole.

(2) For horizontal mounting, bend the two outside terminals to fit PC board. Use jumper to connect center terminal to 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.
R175	1 1/2 Watt (Film)		8000-00006-042	TH101	90 (Cold)		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L101	Antenna Matching	8000-00006-015			
L102	RF Amp	8000-00006-016			
L103	Synthesizer Osc.	8000-00006-023			
L104	Xmtr. Mixer (Pri.)	8000-00006-024			
L105	Xmtr. Mixer (Sec.)	8000-00006-024			
L106	Xmtr. Buffer	8000-00006-025			
L107	Xmtr. Driver	8000-00006-026			
L108	RF Choke (14uh)	8000-00006-014	19-2018	72F155AP	T862
L109	Final Amp. (8.5 turns)	8000-00006-021			
L110	Output Filter	8000-00006-020			
L111	Output Filter	8000-00006-020			
L112	AF Filter	8000-00006-027			
L113	AF Filter	8000-00006-027			
L115	RF Choke (5.6uh)	8000-00006-151	19-1004	74F566AP	T820
L116	Trap (7 turns)	8000-00006-149			
L200	RF Choke (3.9uh)		19-1003	74F396AP	T858
T101	1st Mixer (Pri.)	8000-00006-022		8856	
T102	1st Mixer (Sec.)	8000-00006-022		8856	
T103	Input IF	8000-00006-017	16-9026	8517	
T104	Interstage IF	8000-00006-018	16-9027	8517	
T105	Interstage IF	8000-00006-018	16-9027	8517	
T106	Interstage IF	8000-00006-018	16-9027	8517	
T107	Interstage IF	8000-00006-019	16-9028	8518	
T108	Output IF	8000-00006-019	16-9028	8518	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L114	1.6A	.2	2.5mh	8000-00006-013				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T109	20 ohms, Tap @ 8 ohms DC Resistance 1 ohm, Modulation Tap @ 8 ohms		8000-00006-012				

SBE MODEL SBE-11CB

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T110	120VAC @ 440ma*	17VAC @ 1.6A*		8000-00006-048				*Transmit

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP101	4" PM 8 ohm	8000-00006-152	4A1Z8	

FUSE DEVICES

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
F101	1A	8000-00006-158		AGC1	HKP	312001	342001	
F102	2A	8000-00006-091		AGC2		312002		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
MT101	Meter	8000-00006-156	
PC1	Component Combination		
RY101	Relay	8000-00006-095	
S101	Switch	8000-00006-087	Channel Selector
S102	Switch	8000-00006-153	DELTA TUNE
S103	Switch	8000-00006-154	ANL
S104	Switch	8000-00006-154	CB-PA
S105	Switch	8000-00006-154	CAL-REV
S106	Switch	8000-00006-154	"S" & RF Meter - SWR
X101	Crystal	8000-00006-028	37.600MC
X102	Crystal	8000-00006-029	37.650MC
X103	Crystal	8000-00006-030	37.700MC
X104	Crystal	8000-00006-031	37.750MC
X105	Crystal	8000-00006-032	37.800MC
X106	Crystal	8000-00006-033	37.850MC
X107	Crystal	8000-00006-034	10.140MC
X108	Crystal	8000-00006-035	10.160MC
X109	Crystal	8000-00006-036	10.170MC
X110	Crystal	8000-00006-037	10.180MC
X111	Crystal	8000-00006-038	10.595MC
X112	Crystal	8000-00006-039	10.615MC
X113	Crystal	8000-00006-040	10.625MC
X114	Crystal	8000-00006-041	10.635MC

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

ITEM	PART No.	ITEM	PART No.
Front Panel	8000-00006-170	Knob, Control	8000-00006-119
Bottom Cover	8000-00006-171	Knob, Channel Selector	8000-00006-115
Back Plate	8000-00006-189	Speaker Grill	8000-00006-181
Cabinet	8000-00006-178	Microphone Hanger	8000-00006-098

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone	8000-00004-153	

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

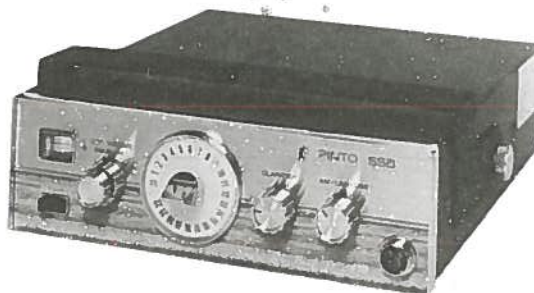
NOTE

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.



MODEL 981-6075 (Pinto SSB)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

	GC ELECTRONICS
T1 thru T5, T14, T17, T19	9440
T7, T8, T11, T12, T13, T28, T29	8230, 5000
CF1, T6, T15, T16, T18, T20 thru T24	9087, 9089

RECEIVER ALIGNMENT

AM - SSB

Connect an AC VTVM across speaker voice coil. Set Squelch control fully clockwise. Adjust Volume control to obtain a suitable reading. Set SILENCER to Off.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q3 (2nd Mixer, low side to ground. Set to 455KC (Unmod.).	Any	T8, T6, T28, T29, R17	Set mode switch to USB or LSB. Adjust for maximum.
As above, except set to 455KC (Mod.).	Any	T7, T27, CF1, R16	Set mode switch to AM. Adjust for maximum.
High side thru .01mfd to antenna connector, low side to ground. Set to 27.085MC (Mod.).	11	T5, T4, T3, T2, T1	Adjust for "S-9" reading on S-RF meter.

AM "S" -METER ADJUSTMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to antenna connector, low side to ground. Set to 27.085MC (Unmod.). Set output level at 150uv.	11	R251	Adjust for "S-9" reading on S-RF meter.

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

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3CY100

PENNEY'S MODEL 981-6075

RECEIVER ALIGNMENT (Continued)

SSB "S" - METER ADJUSTMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
As above, except set to 27.086MC (Unmod).	11	R253	Set mode switch to USB. Adjust for "S-9" reading on S-RF meter.

TRANSMITTER ALIGNMENT

AM

INDICATOR	ADJUST	REMARKS
Connect DC VTVM across R134 (emitter of Q26 to ground).	T13 thru T19, T24	Set mode switch to AM. Key transmitter and adjust for maximum.
Same as above. Connect RF wattmeter between antenna connector and dummy load or antenna.	T20	Adjust for maximum RF output with MINIMUM voltage across R134.
Disconnect lead to S5 (mode switch) from circuit board connector at point CTP and insert 0-1A DC ammeter between S5 lead and circuit board connector. Connect RF wattmeter between antenna connector and dummy load or antenna.	T21, T22, T23	Adjust for maximum RF output with MINIMUM collector current and 5 watts input.

RF METER CALIBRATION

INDICATOR	ADJUST	REMARKS
Connect RF wattmeter between antenna connector and dummy load or antenna.	R250	Set mode switch to AM. Key transmitter and adjust R250 to calibrate S-RF meter on unit with RF wattmeter.

MICROPHONE GAIN ADJUSTMENT

INDICATOR	ADJUST	REMARKS
Connect modulation monitor between antenna connector and dummy load or antenna; or connect vertical input of oscilloscope (usable at 27MC) across dummy load to monitor modulated RF output.	R105	Set mode switch to AM. Key transmitter and modulate by speaking into microphone. Adjust R105 to limit modulation to 100% with normal voice level.

TRANSMITTER ALIGNMENT (Continued)

SSB BALANCE MODULATION ADJUSTMENT

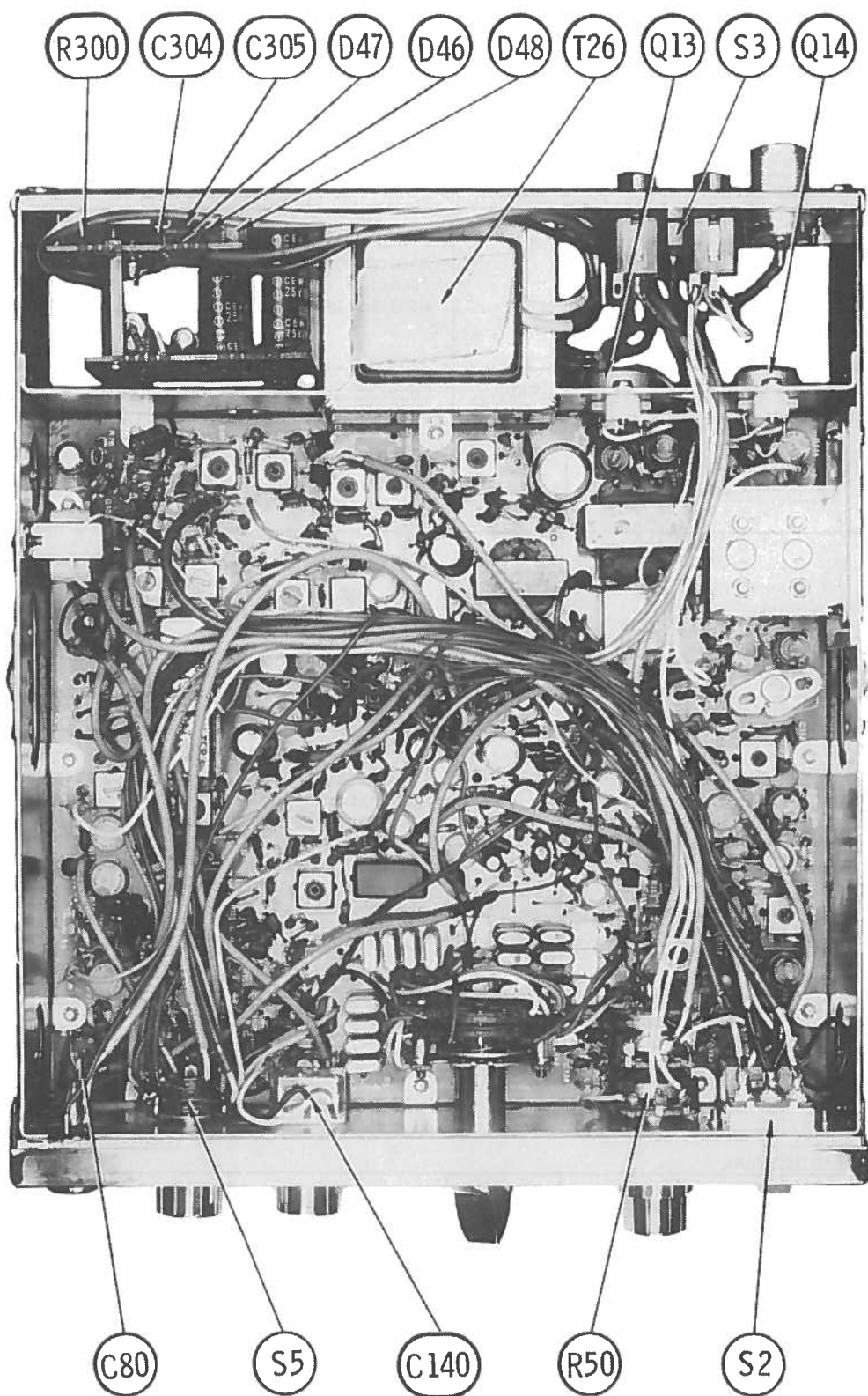
INDICATOR	ADJUST	REMARKS
Connect RF wattmeter between antenna connector and dummy load or antenna; or connect vertical input of oscilloscope (usable at 27MC) across dummy load to monitor RF output.	R96	Set mode switch to LSB or USB. Short pin 2 of microphone connector to ground to prevent modulation. Key transmitter and adjust R96 for MINIMUM RF output. Remove short.
Same as above.	T11, T12, T28, T29	Connect an audio generator to microphone connector, high side to pin 2, low side to chassis. Set generator frequency to 1000 cycles. Adjust generator output for 1 or 2 watts RF output. Adjust T11, T12, T28 and T29 for maximum output.

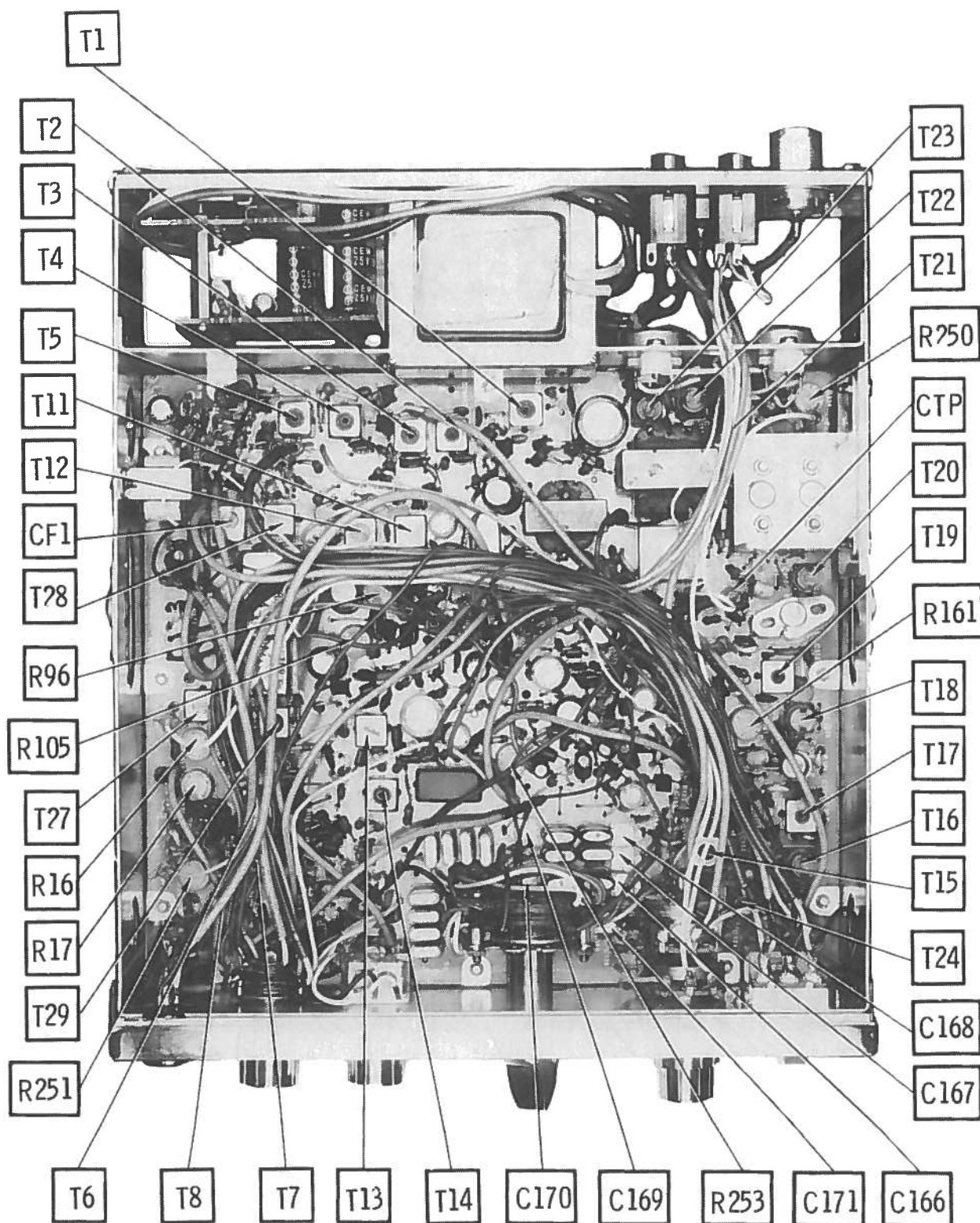
SSB ALC ADJUSTMENT

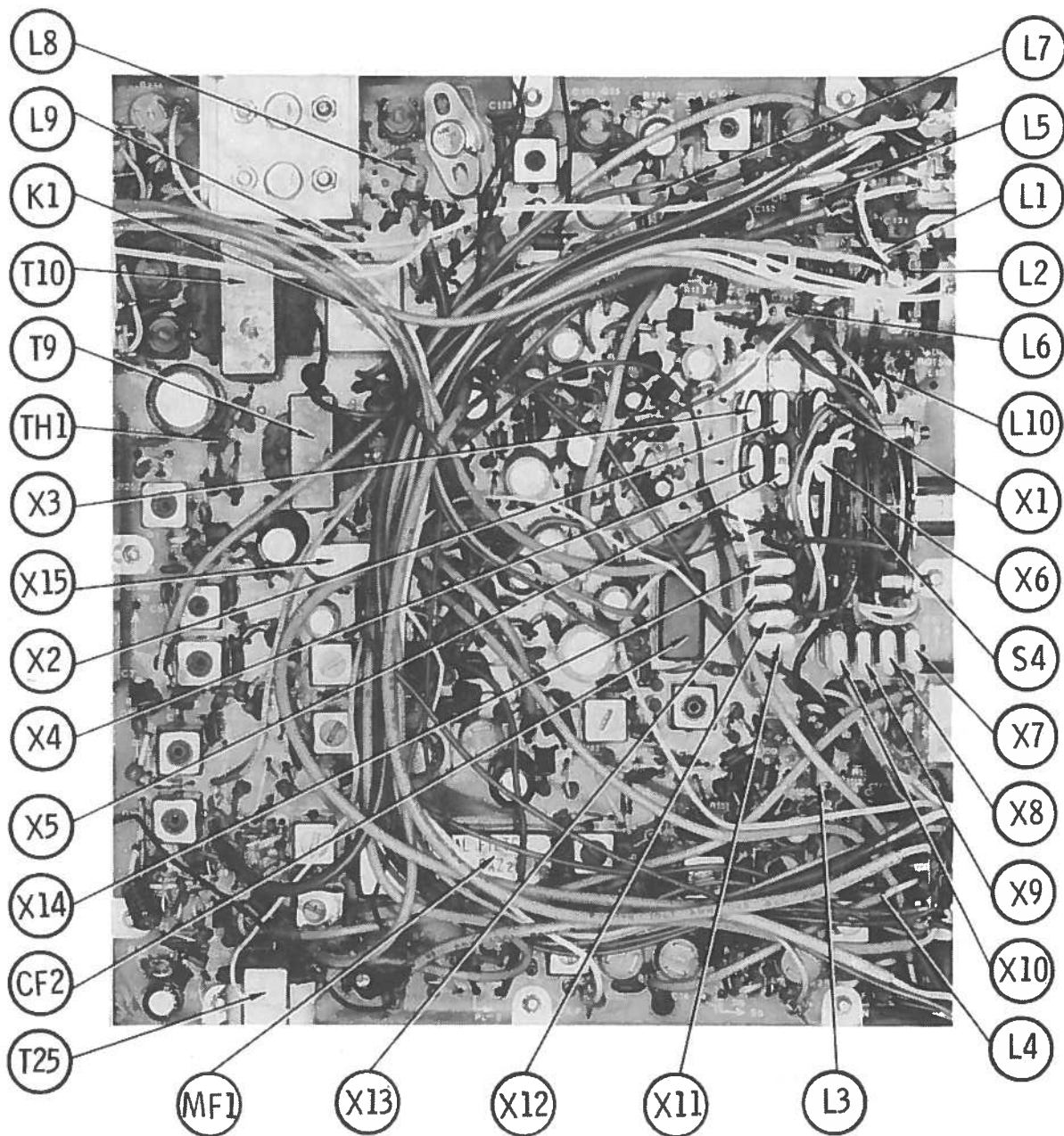
INDICATOR	ADJUST	REMARKS
Connect vertical input of oscilloscope (usable at 27MC) across dummy load. Connect two audio generators (or two-tone generator) to microphone connector, high sides to pin 2, low sides to chassis. Set generator frequencies at 600 and 1600 cycles. Adjust for equal output levels measured at pin 2 of microphone connector.	R161	Set mode switch to USB or LSB. Set R161 fully counterclockwise. Key transmitter and adjust generator outputs for 1 or 2 watts RF output. Oscilloscope should indicate RF signal fully modulated by 1000-cycle signal. Increase generator outputs until definite clipping of 1000-cycle signal is observed. Adjust R161 to restore undistorted output (no clipping).

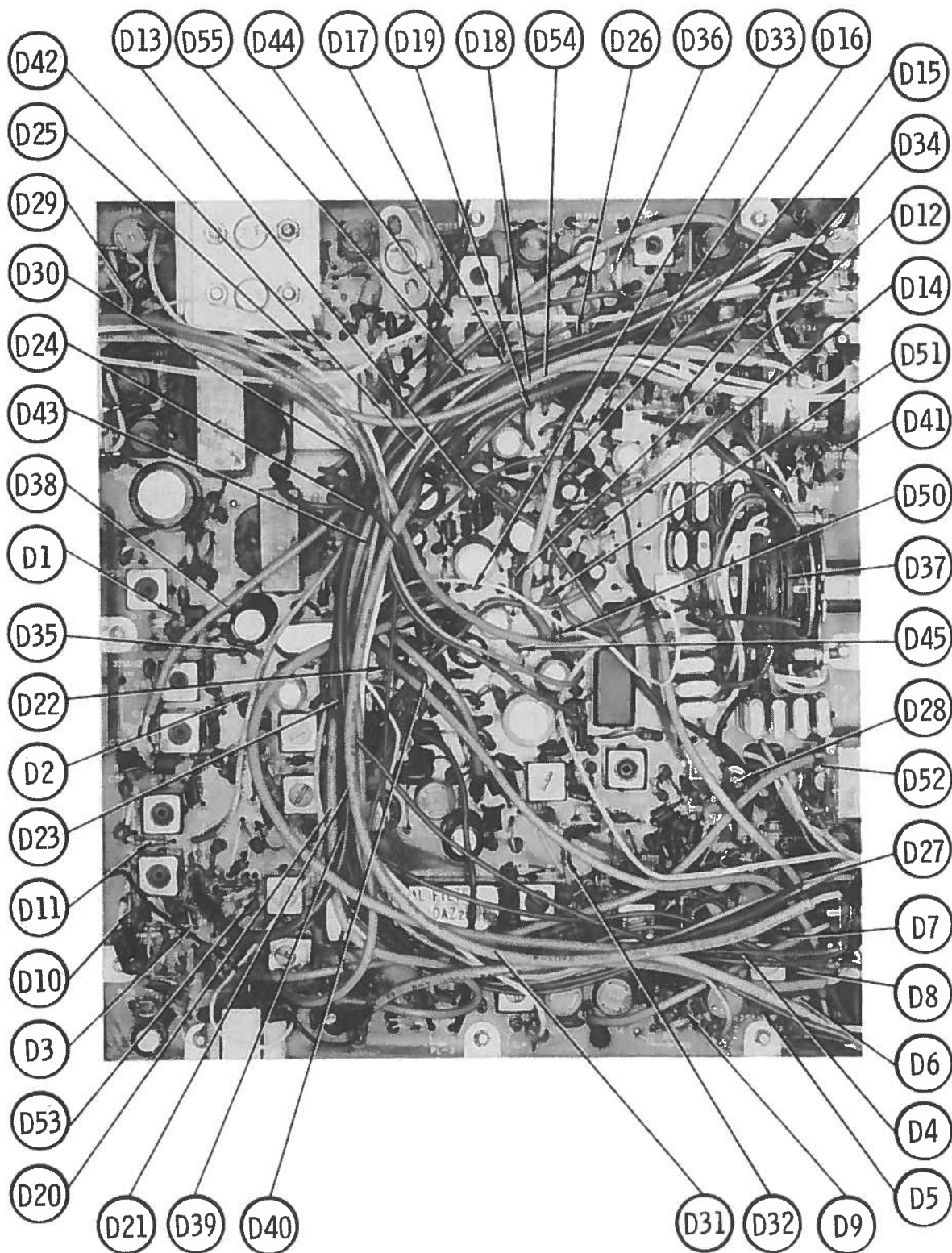
OSCILLATOR ADJUSTMENT

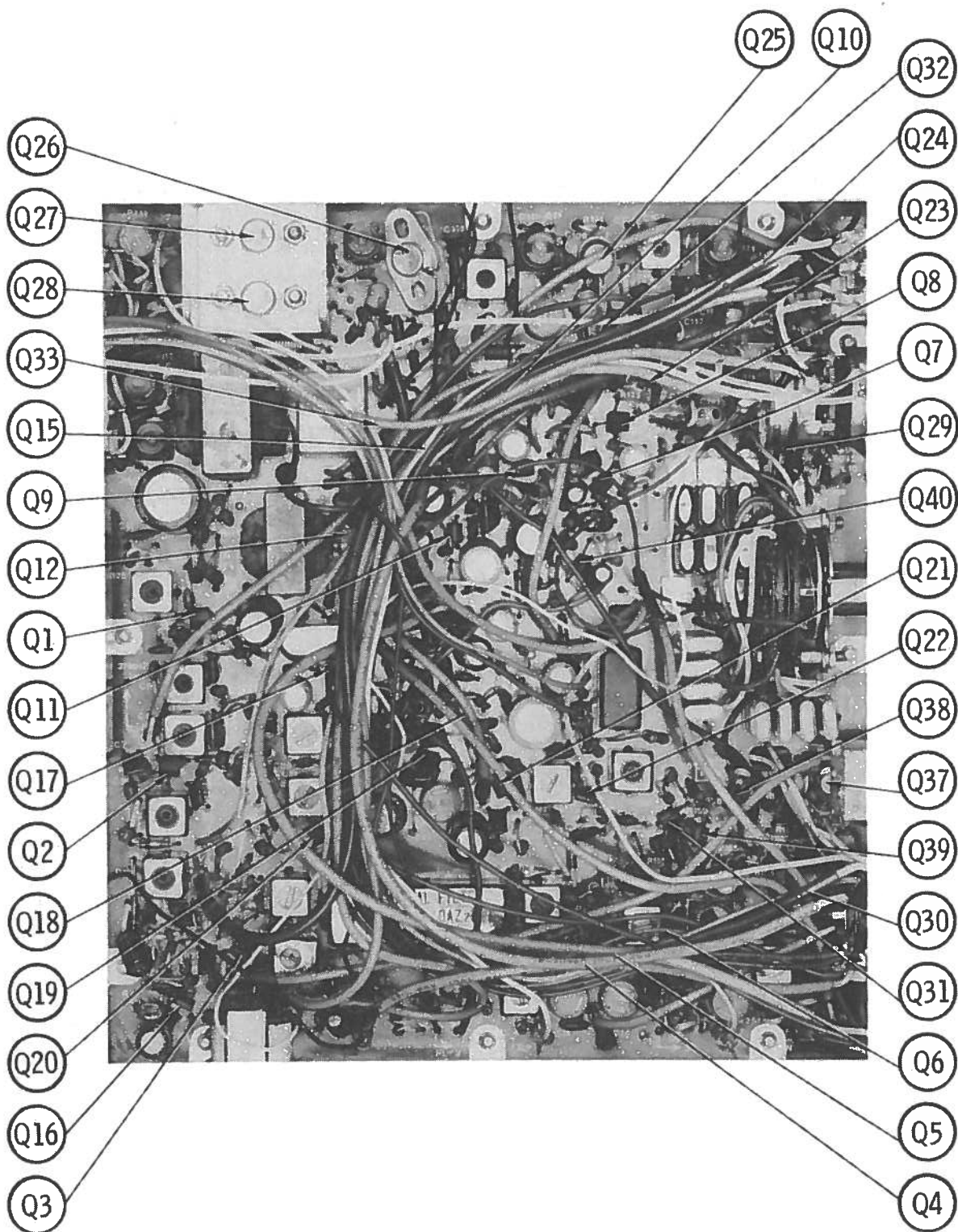
INDICATOR	ADJUST	REMARKS
Couple frequency meter to RF output to determine transmit frequency.	C166	Set mode switch to AM. Key transmitter and check frequency on Channels 1 thru 4; if consistently high or low, adjust C166 for best compromise.
"	C167	As above; Channels 5 thru 8.
"	C168	As above; Channels 9 thru 12.
"	C169	As above; Channels 13 thru 16.
"	C170	As above; Channels 17 thru 20.
"	C171	As above; Channels 21 thru 23.

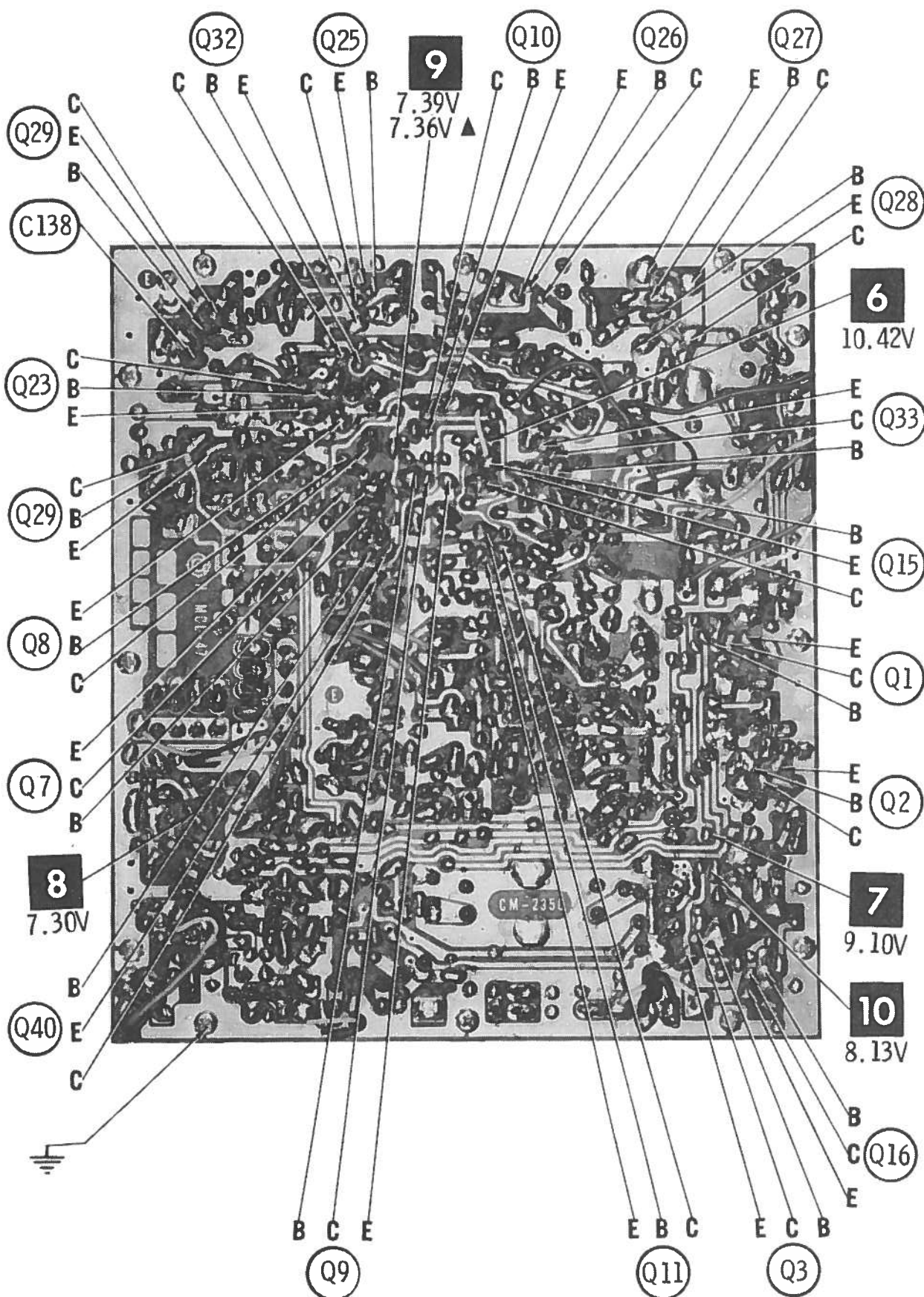


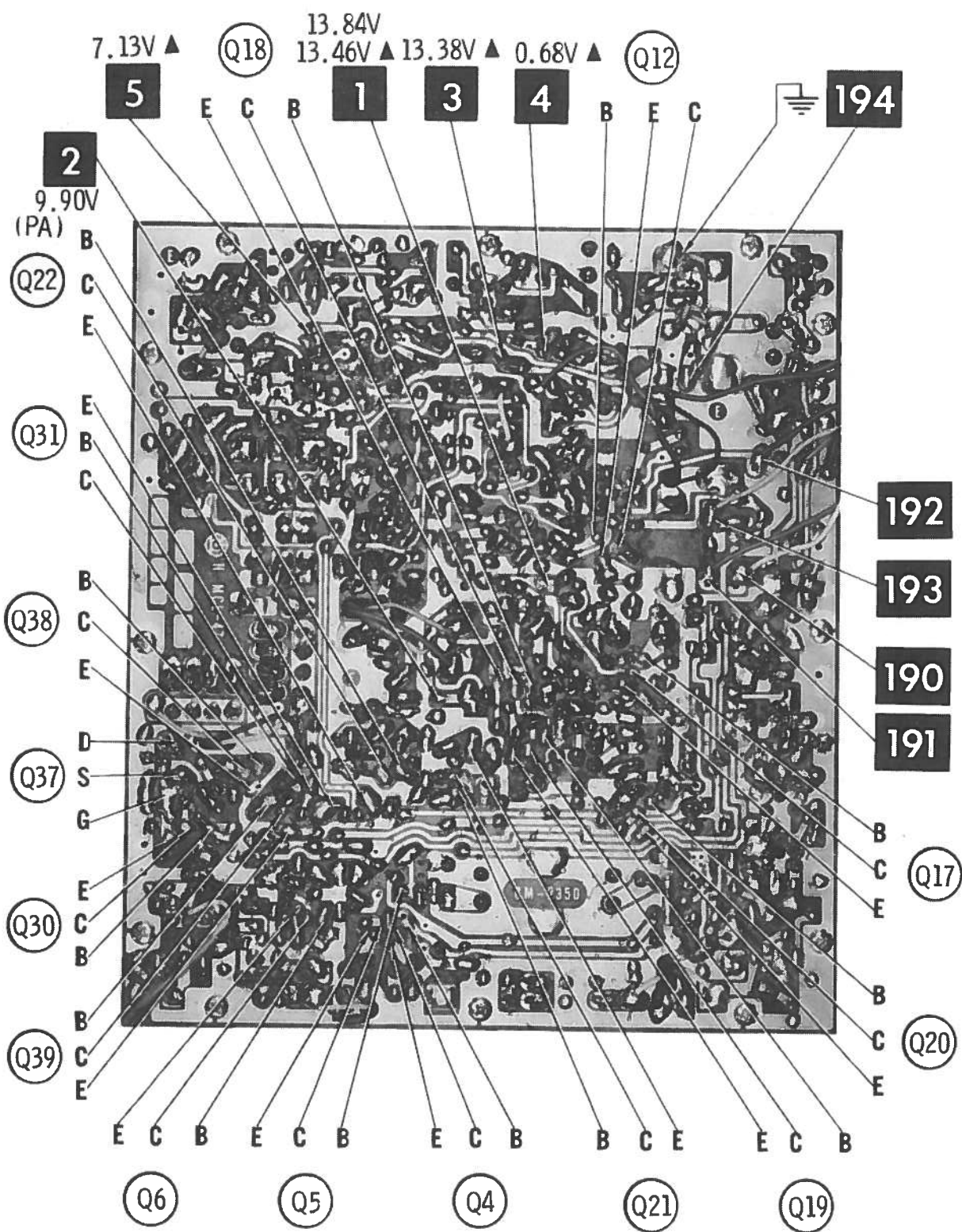


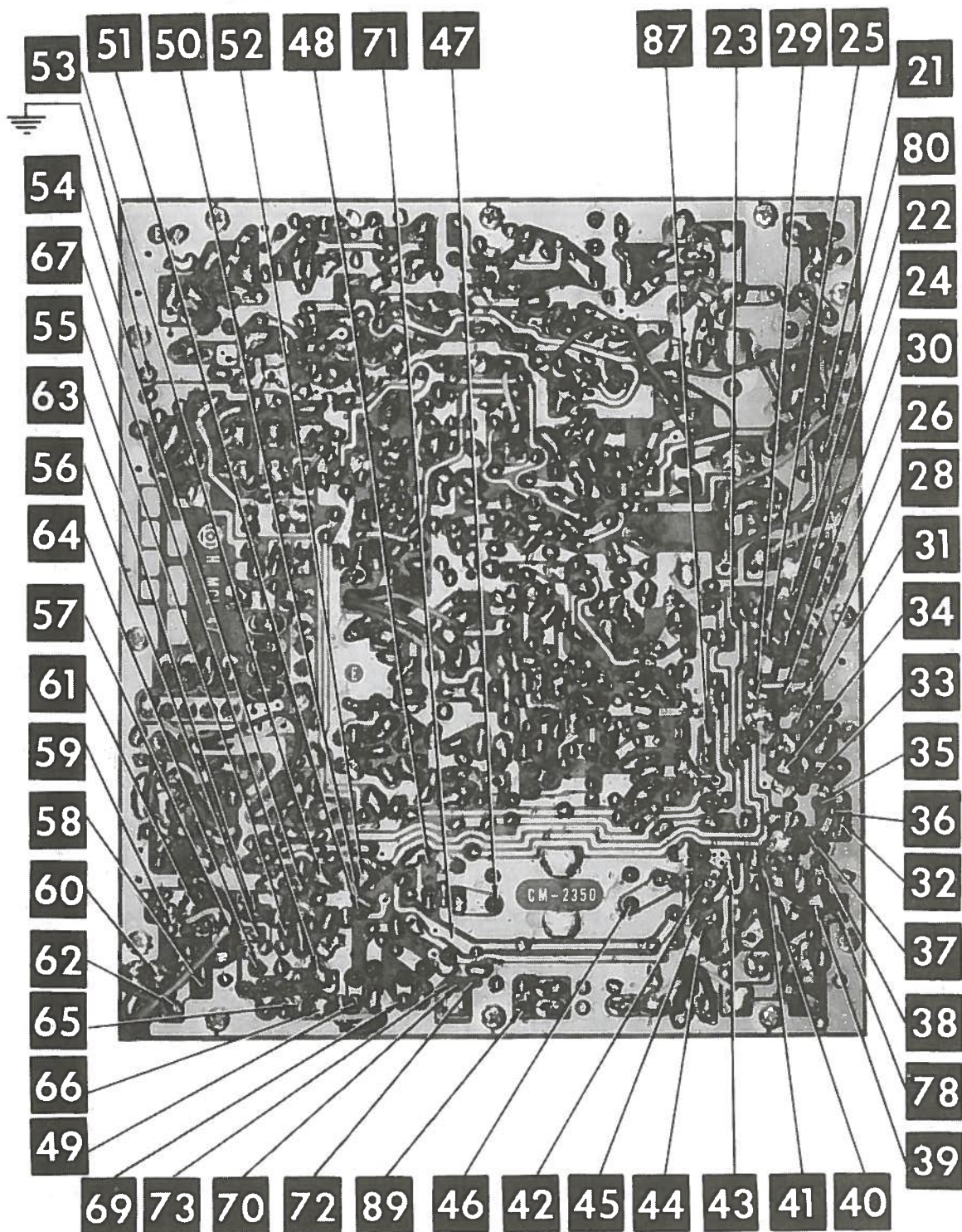


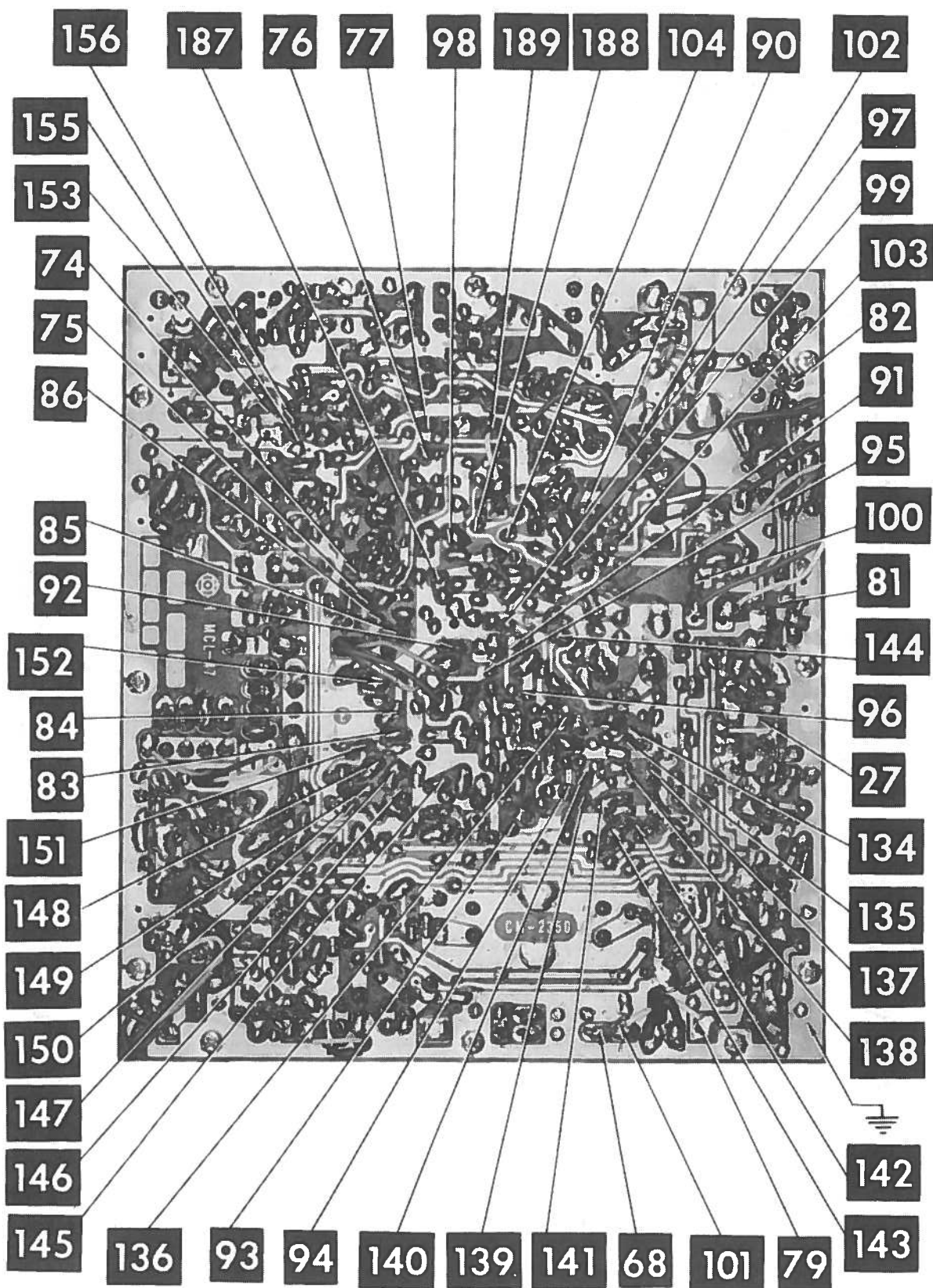


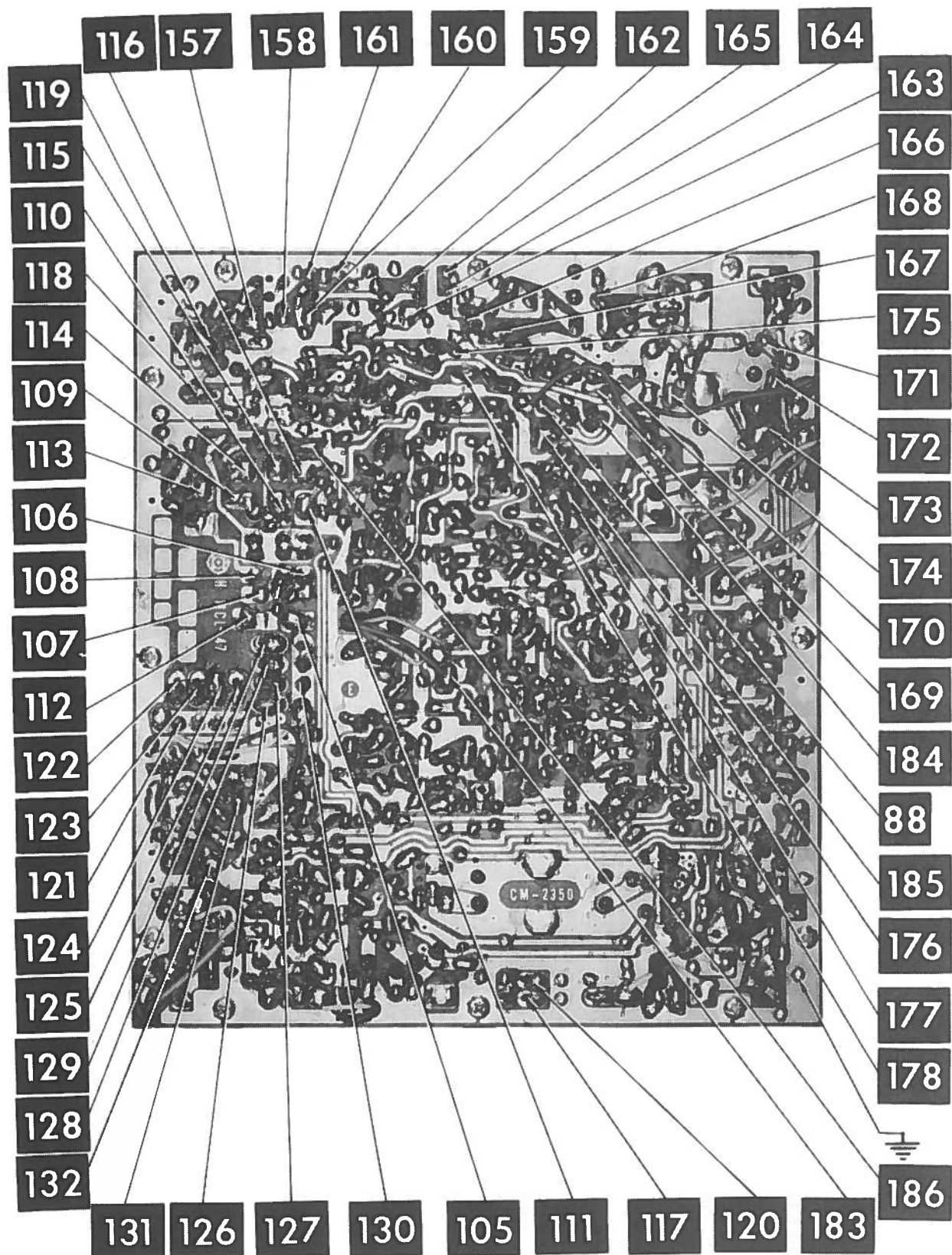


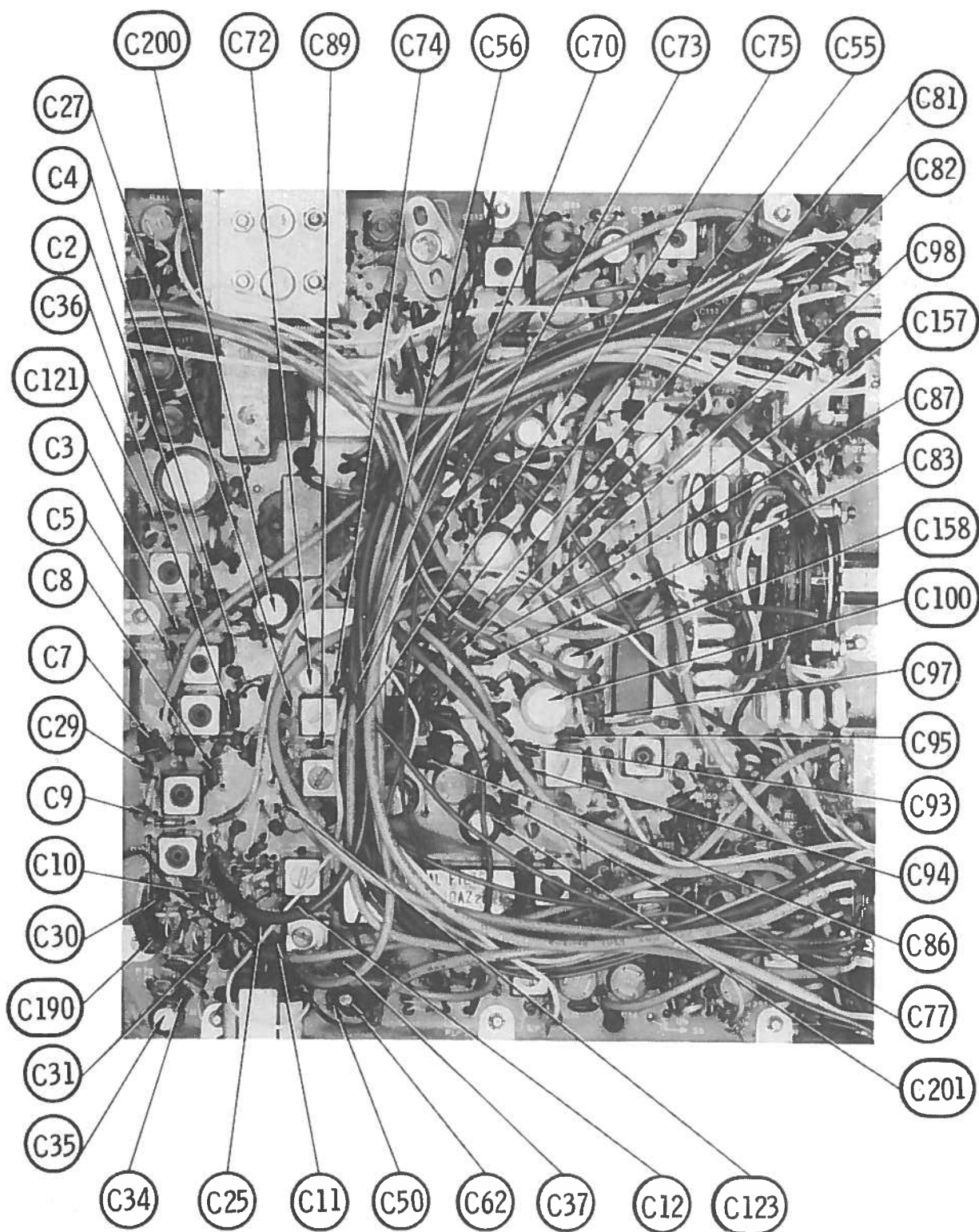


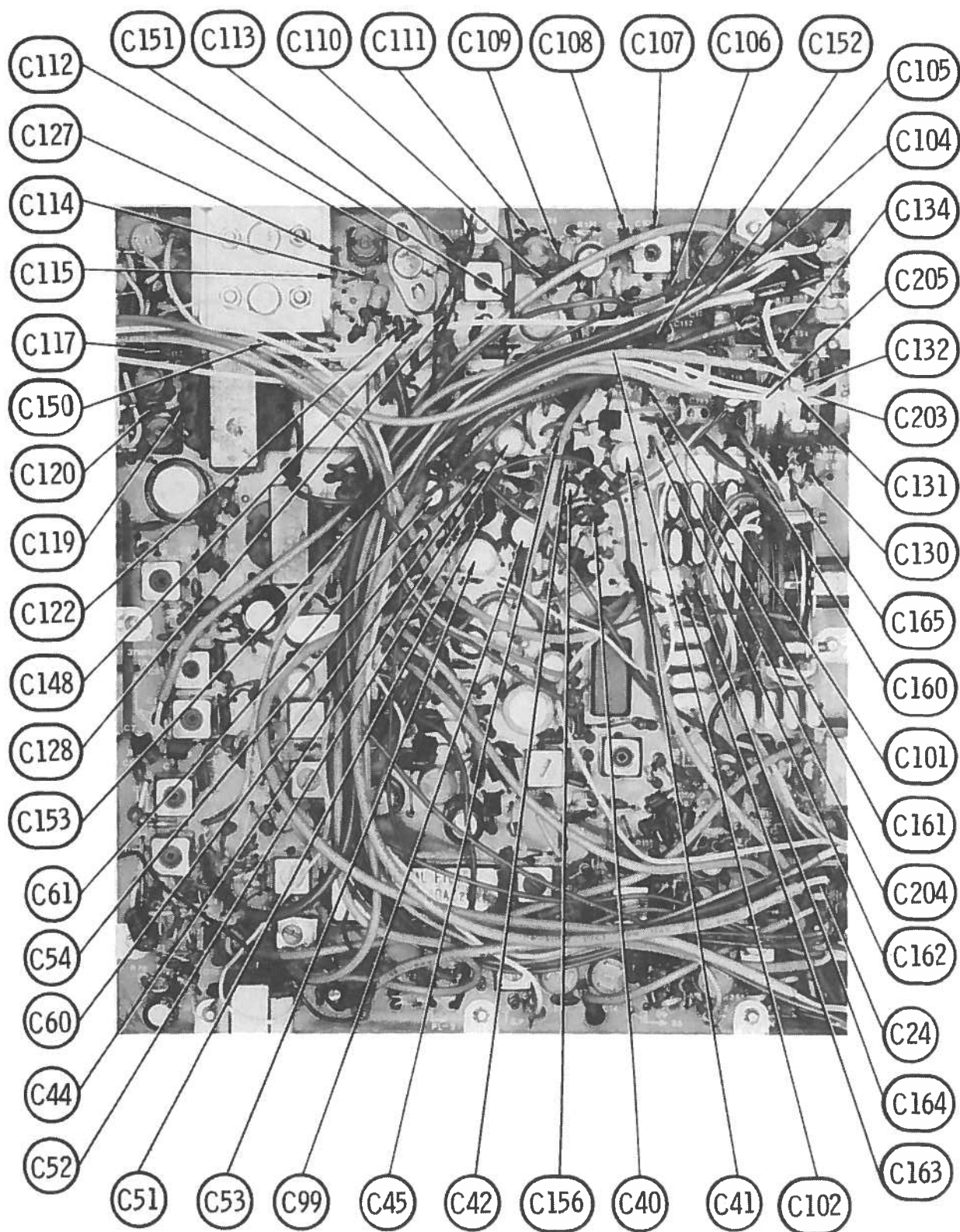


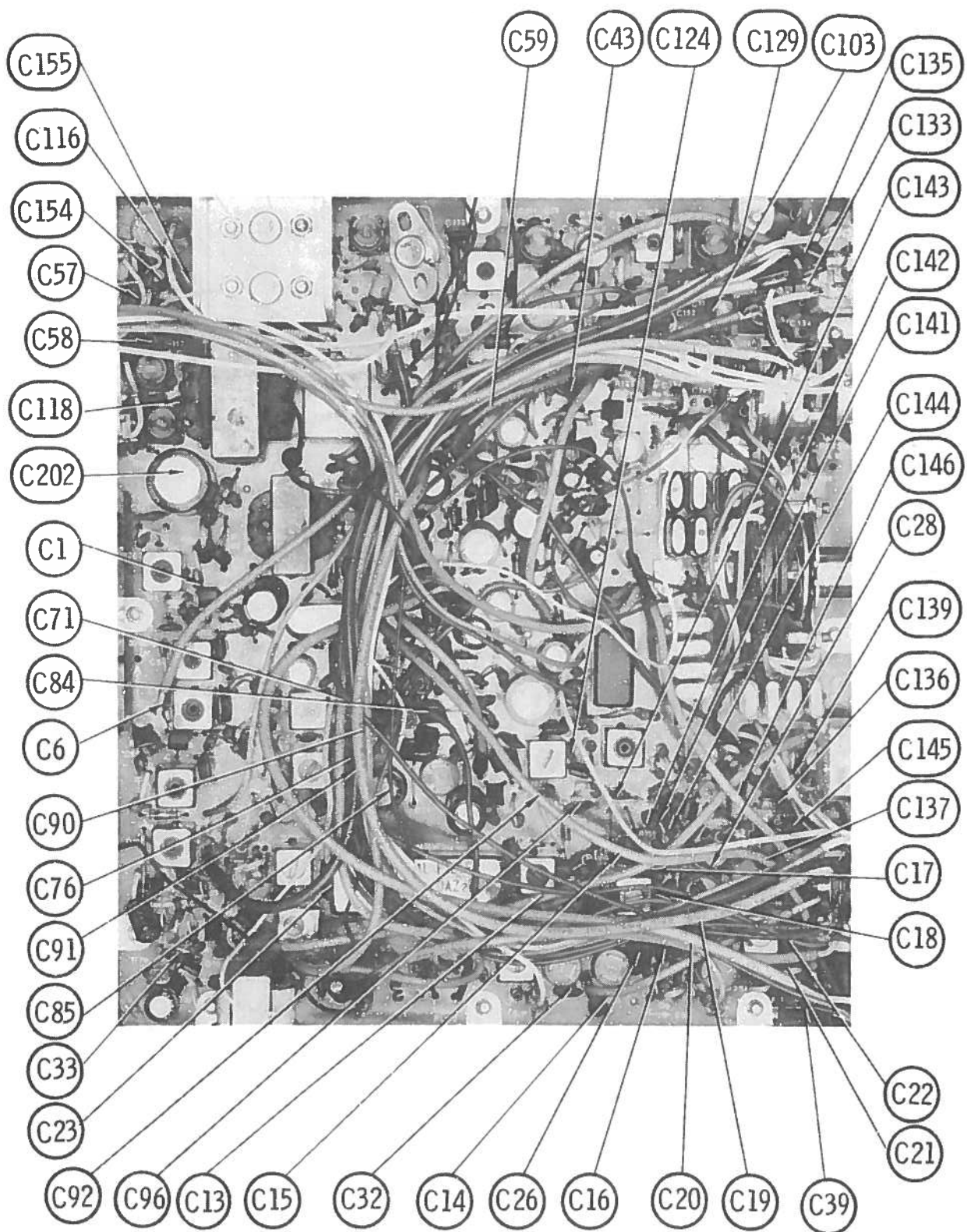


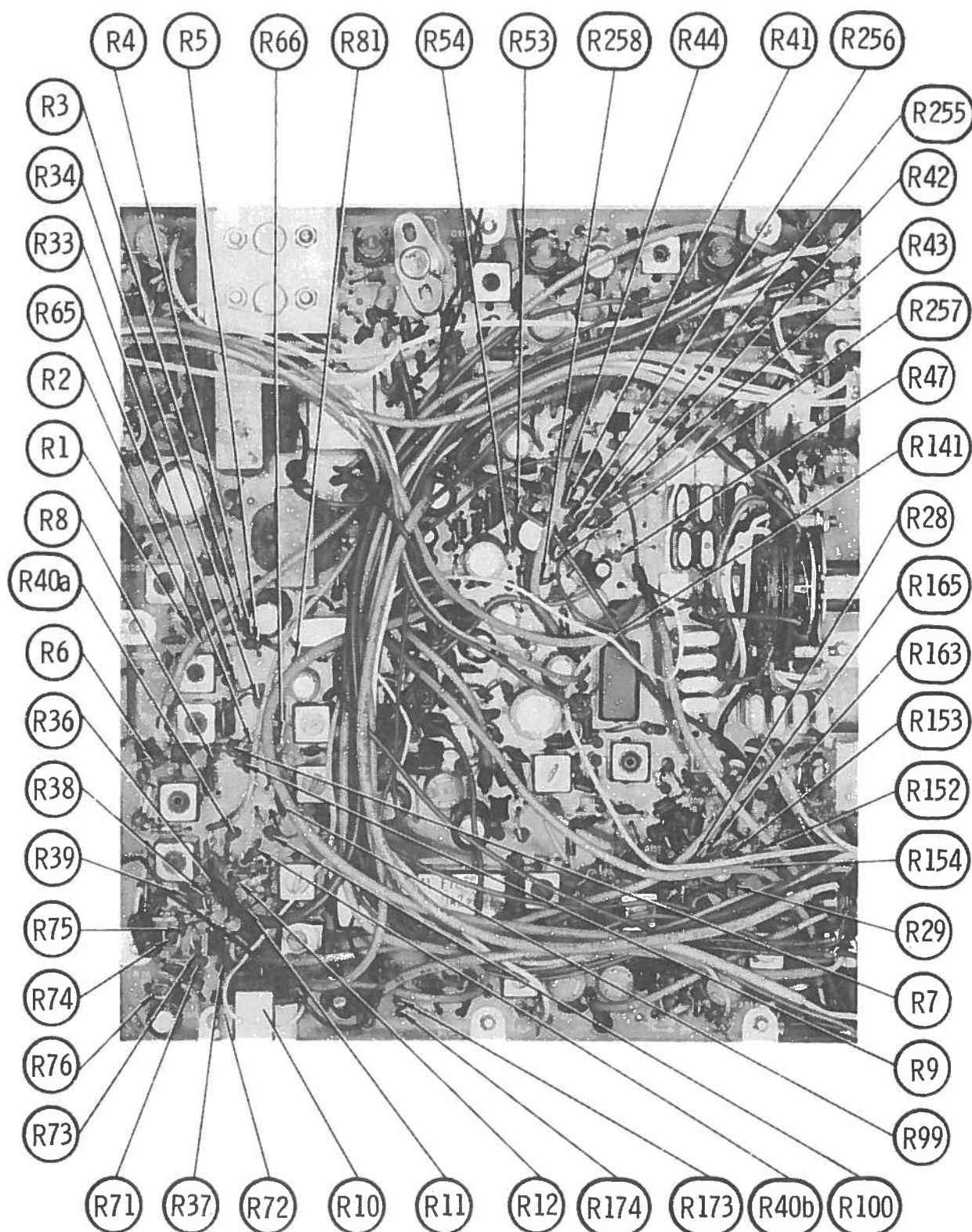


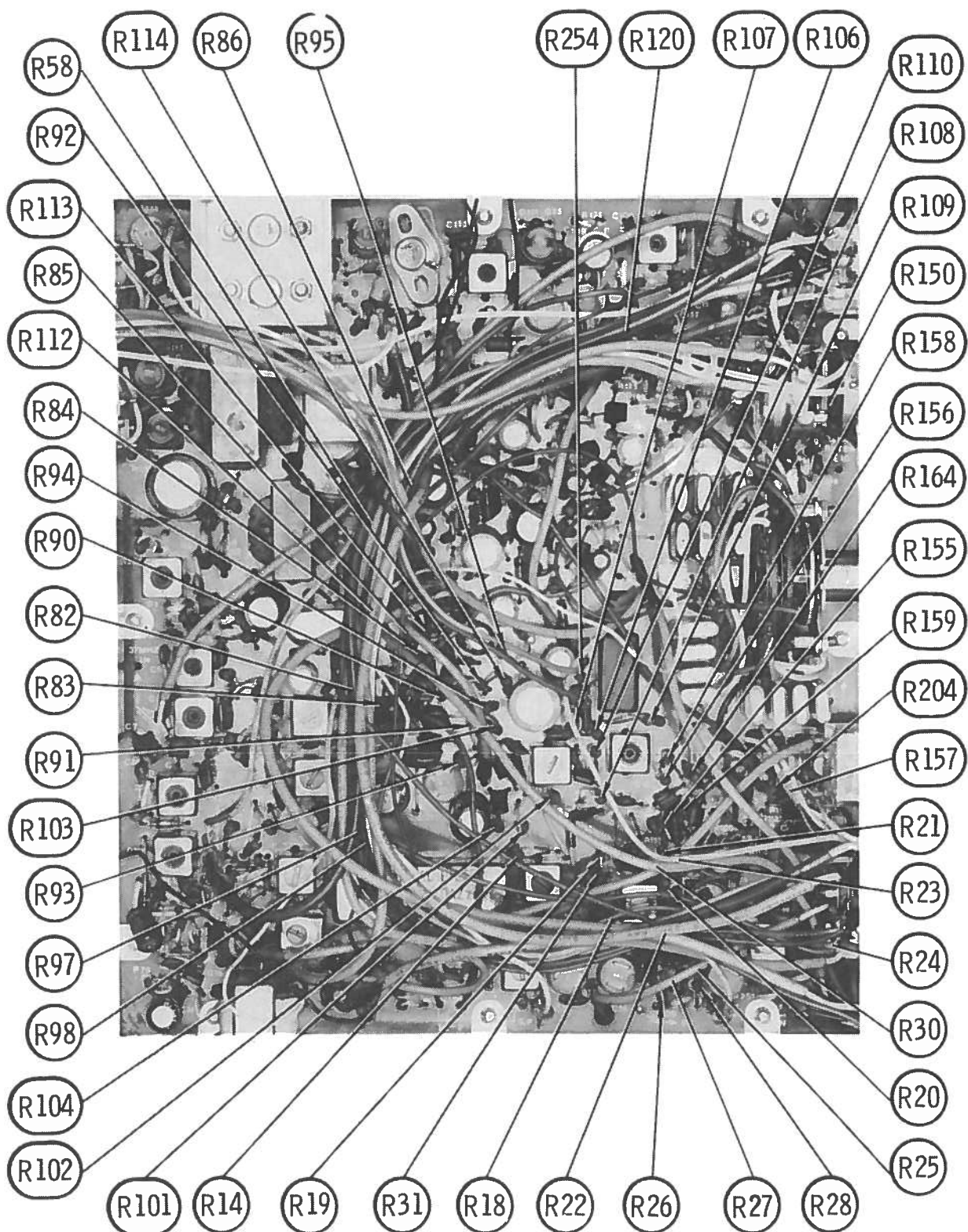


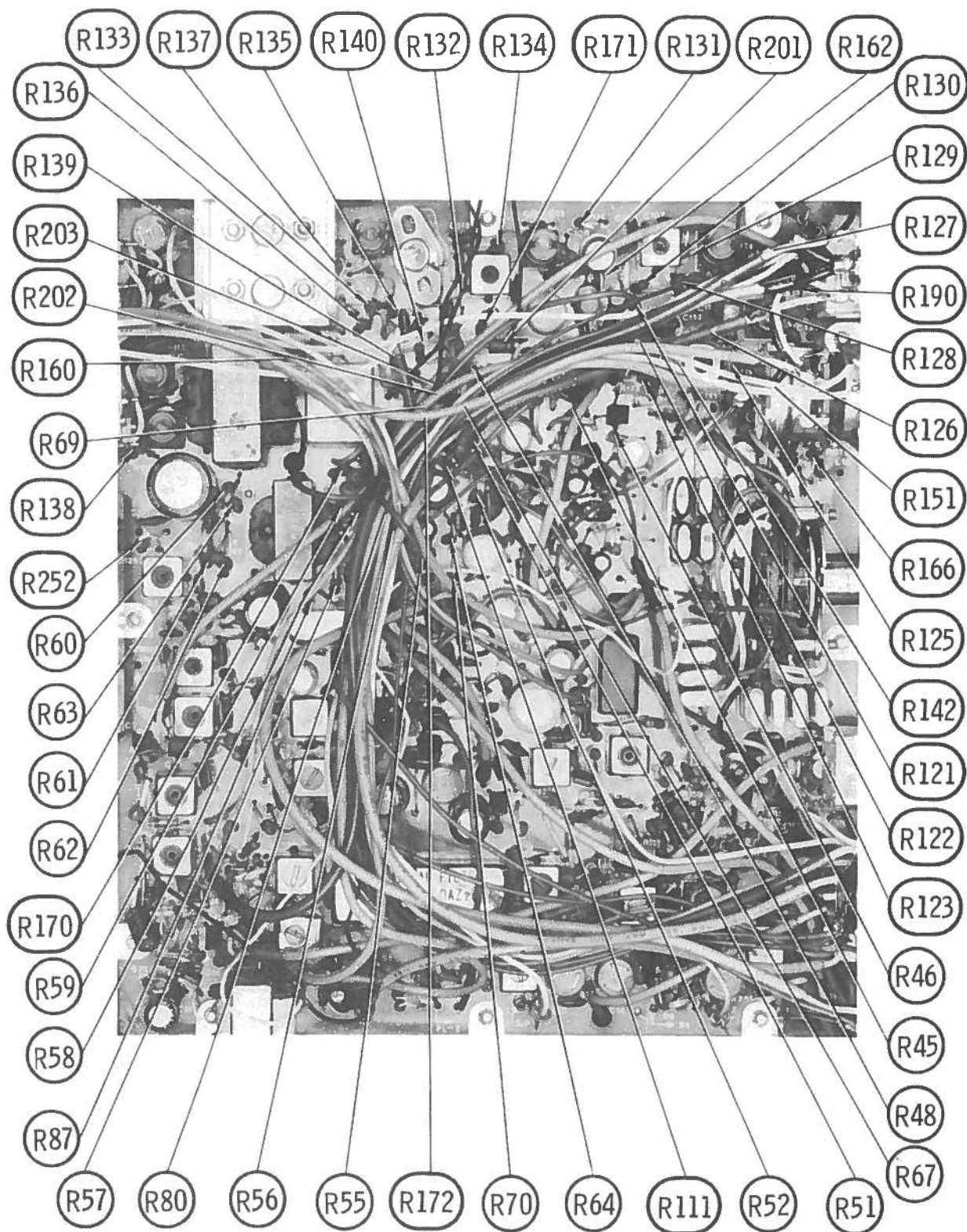


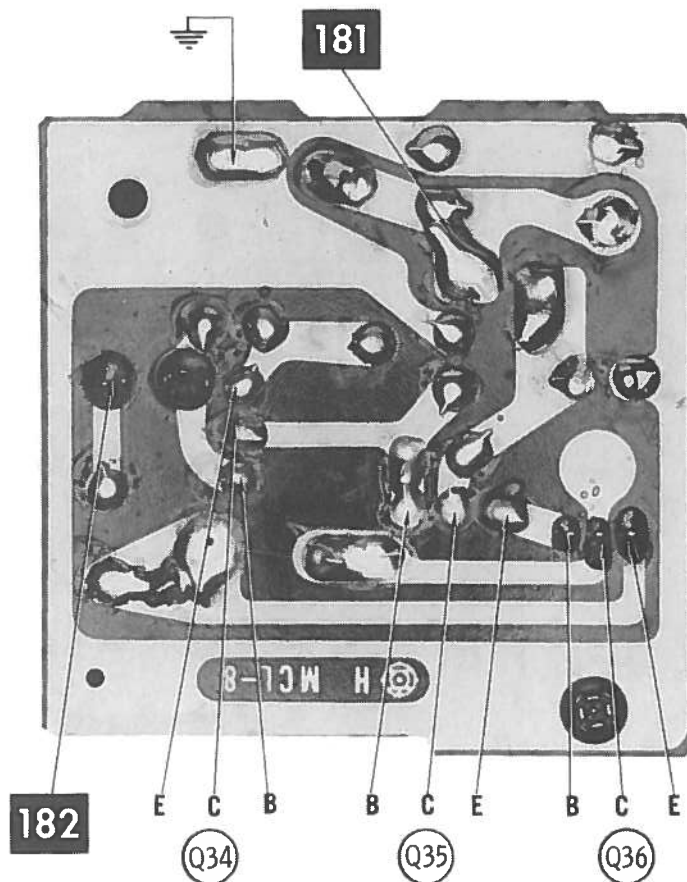


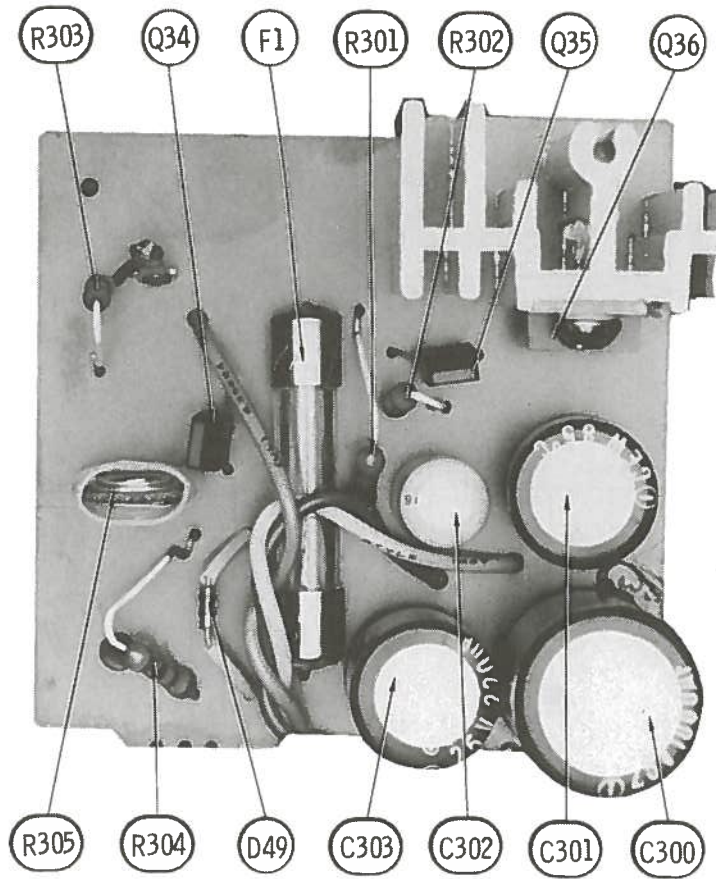


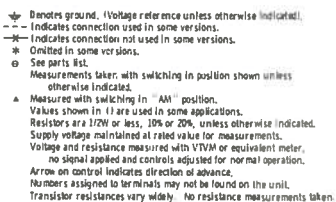












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PARTS LIST AND DESCRIPTION

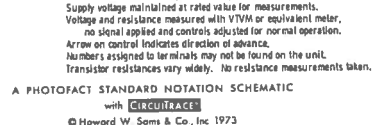
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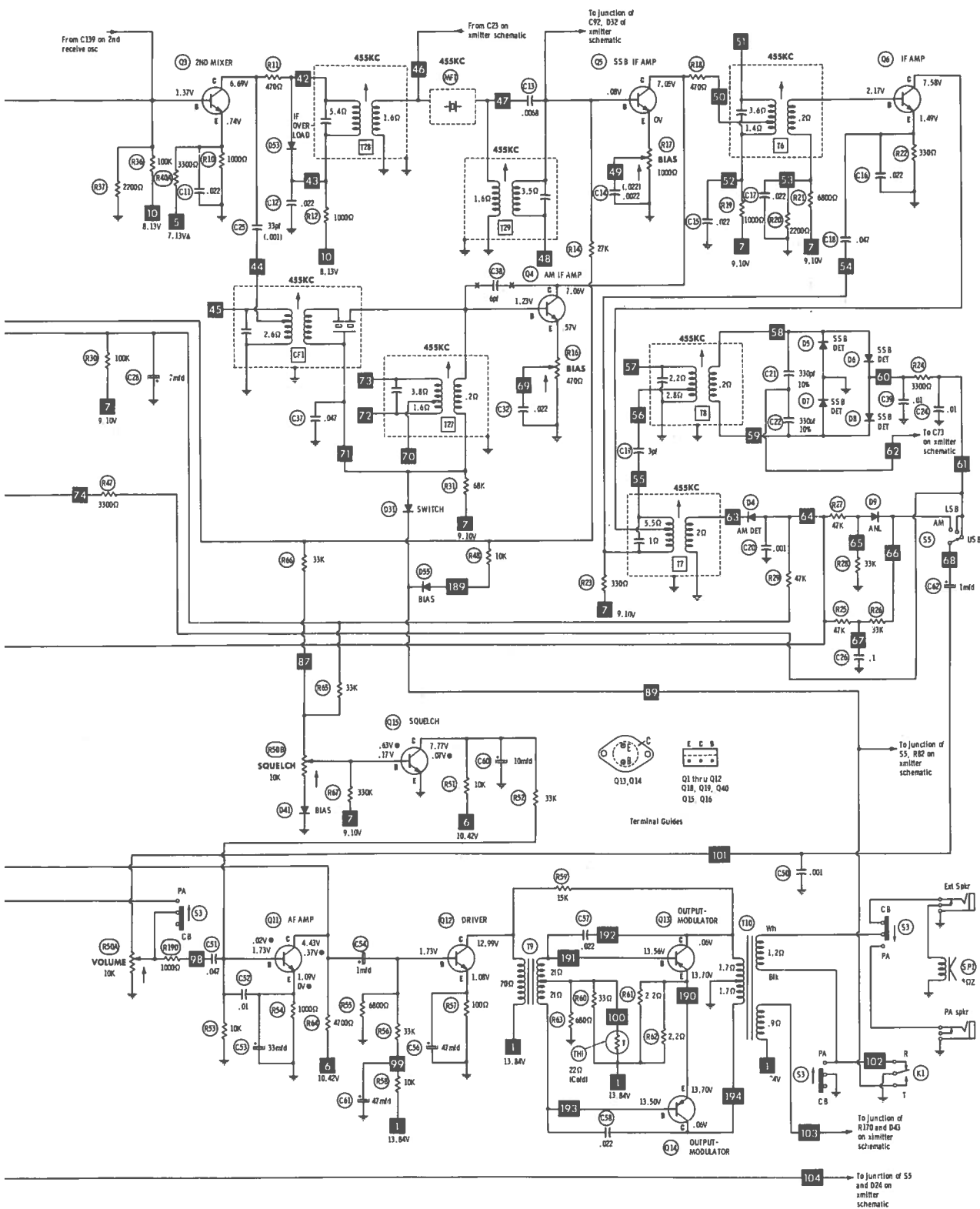
SEMICONDUCTORS

ITEM No.	TYPE / MFGR. 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.
01	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
02	1S2076/5330131	GE-300	D200	PTC214	HEPR0600	SK3100	RT218	ECG 177
03	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
04	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
05	1N60(P)/0575019(12)	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
06	1N60(P)/0575019(12)	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
07	1N60(P)/0575019(12)	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
08	1N60(P)/0575019(12)	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
09	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
010	1N60(P)/0575005	1N60 (7)	1N60 (7)	PTC206 (7)	HEP135 (7)	SK3088 (7)		ECG 109
011	1N60(P)/0575005							ECG 110 (6)
012	1N34A/0575001	1N34AS	1N34A	PTC214	HEP134	SK3087		ECG 109
013	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
014	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
015	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
016	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
D17	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
018	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
019	1S2076/5330131	GE-300	D200	PTC214	HEPR0600	SK3100	RT218	ECG 177
020	1N60(P)/0575019	1N60 (7)	1N60 (7)	PTC206 (7)	HEP135 (7)	SK3088 (7)		ECG 110 (6)
021	1N60(P)/0575019							
022	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
023	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
024	W06A/5330341							
D25	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
026	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
027	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
D28	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
029	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
030	W06A/5330341							
031	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
032	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
033	W06A/5330341							
034	HZ-7(B)/5330312 7V Zener	GEZO-7.5	Z-1208	PTC504	HEPZ0410	SK3059		ECG 138
035	HZ-9(B)/5330322 9V Zener	GEZO-9.1		PTC505	HEPZ0412	SK3060		ECG 139
036	HZ-7(B)/5330312 7V Zener	GEZO-7.5	Z-1208	PTC504	HEPZ0410	SK3059		ECG 138
D37	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
038	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
D39	1S2076/5330131	GE-300	D200	PTC214	HEPR0600	SK3100	RT218	ECG 177
D40	1S2076/5330131	GE-300	D200	PTC214	HEPR0600	SK3100	RT218	ECG 177
D41	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
042	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
043	W06A/5330341							
044	1S2076/5330131	GE-300	0200	PTC214	HEPR0600	SK3100	RT218	ECG 177
045	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
046	V03C/5330001	GE-510	R210	PTC205	HEP170	SK3081		ECG 125
047	V03C/5330001	GE-510	R210	PTC205	HEP170	SK3081		ECG 125
048	W06A/5330341							
D49	HZ-7(B)/5330312 7V Zener	GEZO-7.5	Z-1208	PTC504	HEPZ0410	SK3059		ECG 138
050	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
051	1N60(P)/0575005	1N60	1N60	PTC206	HEP135	SK3088		ECG 109
052	HZ-7(B)/5330312 7V Zener	GEZO-7.5	Z-1208	PTC504	HEPZ0410	SK3059		ECG 138
053	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
054	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
055	1N34A/0575001	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
Q1	2SC460(C)/0573487	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q2	2SC460(C)/0573487	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q3	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q4	2SC464(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q5	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q6	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q7	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q8	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q9	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q10	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q11	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q12	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q13	2SB337(B)/0573040	GE-13MP (6)	TR-02 (7)	PTC105 (7)	HEP232 (7)	SK3013 (6)	RT124 (7)	ECG 104MP(6)
Q14	2SB337(B)/0573040							
Q15	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q16	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q17	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q18	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q19	2SC458(O)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q20	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q21	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q22	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A

(CONTINUED ON PAGE 100)

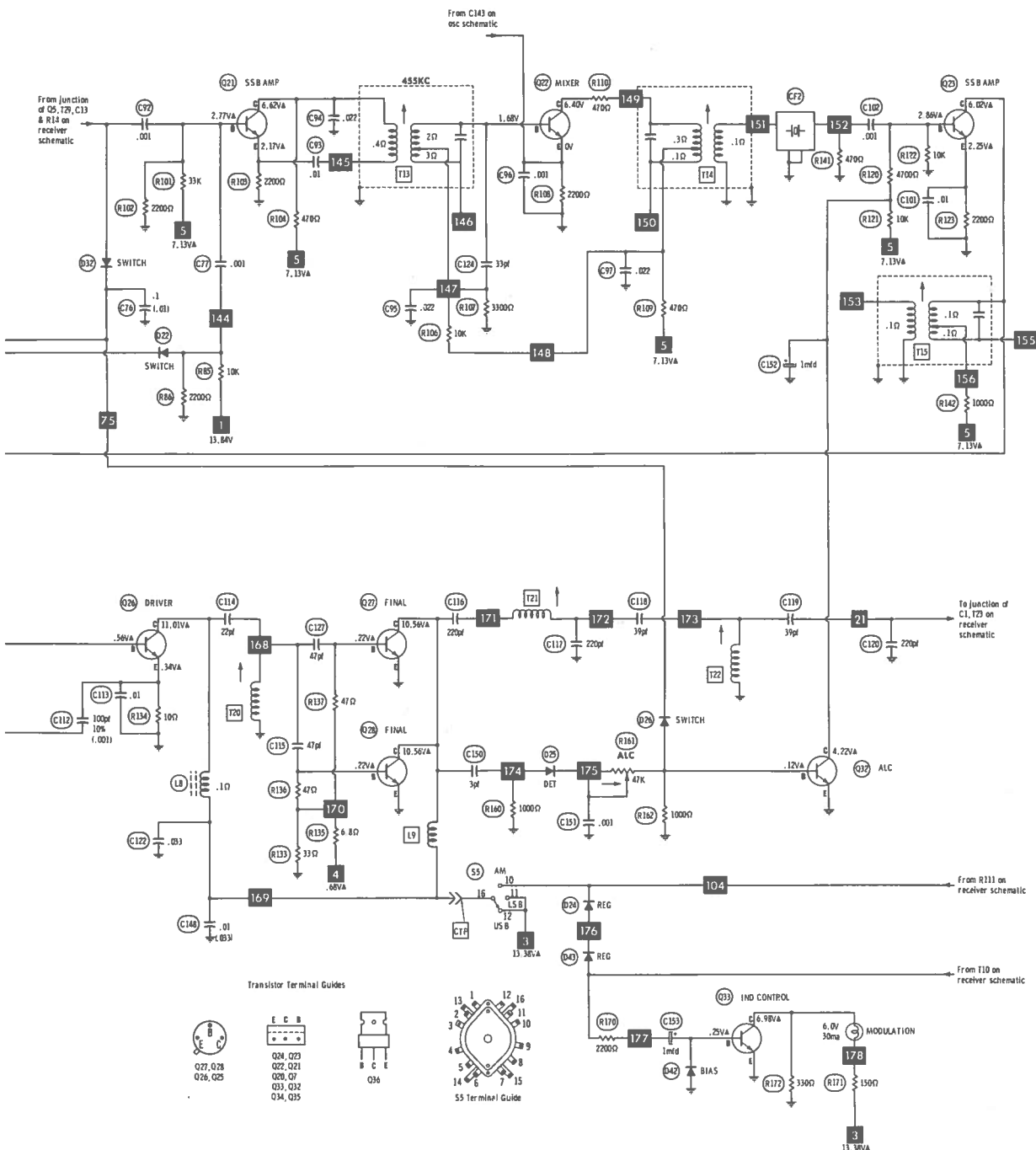
PENNEY'S MODEL 981-6075





PENNEYS MODEL 981-6075





PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (cont)

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.
Q23	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q24	2SC717/5320051	GE-20	IRTR-53	PTC132	HEP56	SK3020	RT108	ECG 108
Q25	2SC150(T)/0573517	GE-20	IRTR-62	PTC123	HEP736	SK3047	RT114	ECG 123A
Q26	2SC799/5320511		IRTR-65		HEPS3001	SK3049		ECG 195
Q27	2SC799/5320511		IRTR-65		HEPS3001	SK3049		ECG 195
Q28	2SC799/5320511		IRTR-65		HEPS3001	SK3049		ECG 195
Q29	2SC460(C)/0573487	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q30	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q31	2SC454(C)/0573492	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q32	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q33	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q34	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q35	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q36	2SC1061(T)/5320671	GE-57	IRTR-76	PTC110	HEP245	SK3054	RT154	ECG 152
Q37	3SK30(B)/5320032				HEPF2005	SK3116		ECG 220
Q38	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q39	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A
Q40	2SC458(D)/5320064	GE-10	IRTR-51	PTC123	HEP55	SK3018	RT102	ECG 123A

(6) Matched pair. (7) Two required - select matched pair. (12) 05, 06, 07, 08 are a matched set.

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.
C28	4.7 25V	0252615	RME-A-G-005	EP30-5	WBR5-50	VTT4R7A50	EV-1319
C35	22 25V	0252622	RME-O-G-025	EP30-25	WBR25-25	MTV25CB35	EV-1325
C40	3.3 25V	0252613	RME-A-H-003	EP30-5	WBR5-50	VTT3R3A50	EV-1618
C41	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C42	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C43	100 16V	0252531	RME-E-E-100	EP15-100	WBR100-16	MTV100C015	EV-1230
C44	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C45	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C53	33 16V	0251080	ME-3-E-035	EP15-25	WBR35-50	MTV30CB25	EV-1325
C54	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C56	47 25V	1252625	RME-F-G-050	EP30-50	WBR50-25	MTV50CD25	EV-1326
C59	10 25V	0252621	RME-B-G-010	EP30-10	WBR10-25	VTT10A25	EV-1322
C60	10 25V	0252621	RME-B-G-010	EP30-10	WBR10-25	VTT10A25	EV-1322
C61	47 25V	0252625	RME-F-G-050	EP30-50	WBR50-25	MTV50C025	EV-1326
C62	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C72	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C85	47 25V	0252625	RME-F-G-050	EP30-50	WBR50-25	MTV50C025	EV-1326
C87	22 25V	0252622	RME-O-G-025	EP30-25	WBR25-25	MTV25CB35	EV-1325
C98	33 16V		ME-3-E-035	EP15-25	WBR35-50	MTV30CB25	EV-1325
	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C99	47 25V	0252625	RME-F-G-050	EP30-50	WBR50-25	MTV50C025	EV-1326
C100	220 25V	0252632	RME-K-G-250	EA30-250	WBR250-25	MTV2500J25	EV-1345
C152	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C153	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C154	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C156	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C157	1 25V	0252611	RME-A-G-001	EP30-2	WBR1-50	MTV1CB50	EV-1315
C158	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C190	33 10V		ME-3-O-035	EP15-25	WBR35-50	VTT33A10	EV-1125
C200	100 16V	0252531	RME-E-E-100	EP15-100	WBR100-16	MTV100C015	EV-1230
C201	47 25V	0252625	RME-F-G-050	EP30-50	WBR50-25	MTV50C025	EV-1326
C202	470 25V	0256008	RME-N-G-500	EA30-500	WBR500-25	TC2505C	EV-1350
C203	220 10V	0252332	RME-G-O-250	EA15-250	WBR250-16	MTV250DB10	EV-1145
C300	1000 25V	0256074	RME-P-G-1000	EA30-1000	WBR1000-25	MTA1000G25	EV-1360
C301	220 25V	0252632	RME-K-G-250	EA30-250	WBR250-25	MTV250DJ25	EV-1345
C302	33 25V	0252623	ME-4-G-035	EP30-25	WBR35-50	MTV30CB25	EV-1325
C303	220 25V	0252632	RME-K-G-250	EA30-250	WBR250-25	MTV2500J25	EV-1345

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	18		CCT0-180		NP018	CN0418	10TCC-Q18
C2	10		CCT0-100		NP010	CN0410	10TCC-Q10
C3	.01 50V		10P-1-103	OTZ-10	MGPO1	EWFA1A10	1PB-S10
C4	.022 50V		1DP-1-223	CK-103	MGPO2	EWFA1A22	1PB-S22
C5	2			OTZ-2R2	NP02P2	CN0522	10TCC-V22

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/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	18			CCT0-180		NP018	CN0418	10TCC-Q18
C7	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C8	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C9	4					NP03P9		10TCC-V39
C10	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C11	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C12	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C13	.0068	50V		10P-1-682	00-682		EWFA1A268	1PB-068
C14	.0022	50V		CC0-222	00-222	GP2200	EWFA1A222	1PB-022
C15	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C16	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C17	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C18	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C19	3							10TCC-V30
C20	.001	50V		CCD-102	00-102	GP1000	EWFA1A210	1PB-010
C21	330	10%		CCD-331	00-331	GP330	GP333	10TS-T33
C22	330	10%		CC0-331	00-331	GP330	GP333	10TS-T33
C23	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C24	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C25	33			CCT0-330	0TZ-33	NP033	CN0433	10TCC-Q33
C26	.1	50V		10P-2-104	CK-104		EWFA1A210	1PB-P10
C27	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C29	33			CCT0-330	DTZ-33	NP033	CN0433	10TCC-Q33
C30	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C31	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C32	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C33	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C34	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C36	.033	50V		10P-1-333	CK-303		EWFA1A233	1PB-S33
C37	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C39	.01	50V		10P-1-103	CK103	MGP01	EWFA1A110	1PB-S10
C50	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C51	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C52	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C55	.1	50V		10P-2-104	CK-104		EWFA1A210	1PB-P10
C57	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C58	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C70	.0022	50V		CC0-222	00-222	GP2200	EWFA1A222	1PB-022
C71	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C73	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C74	47			CCT0-470	DTZ-47	NP047	CN0447	10TCC-Q47
C75	220	10%		CCD-221	00-221	GP220	GP322	10TS-T22
C76	.1	50V		10P-2-104	CK-104		EWFA1A210	1PB-P10
C77	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C80	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C81	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C82	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C83	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C84	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C86	.1	50V		10P-2-104	CK-104		EWFA1A210	1PB-P10
C89	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C90	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C91	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C92	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C93	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C94	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C95	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C96	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C97	.022	50V		10P-1-223	CK-203	MGP02	EWFA1A122	1PB-S22
C101	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C102	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C103	33			CCT0-330	0TZ-33	NP033	CN0433	10TCC-Q33
C104	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C105	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C106	10			CCT0-100	DTZ-10	NP010	CN0410	10TCC-Q10
C107	.001	50V		CC0-102	00-102	GP1000	EWFA1A210	1PB-010
C108	.001	50V		CCD-102	00-102	GP1000	EWFA1A210	1PB-010
C109	33			CCT0-330	0TZ-33	NP033	CN0433	10TCC-Q33
C110	.047	50V		10P-2-473	CK-503	MGP05	EWFA1A147	1PB-S47
C111	6							10TCC-V56
C112	100	10%		CCT0-101	0TZ-100	NP0100	CN0310	10TCC-T10
C113	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C114	22			CCT0-200	0TZ-20	NP020	CN0420	10TCC-Q20
C115	47			CCT0-470	0TZ-47	NP047	CN0447	10TCC-Q47
C116	220	10%		CC0-221	00-221	GP220	GP322	10TS-T22
C117	220	10%		CC0-221	00-221	GP220	GP322	10TS-T22
C118	39						CN0439	10TCC-Q39
C119	39						CN0439	10TCC-Q39
C120	220	10%		CCD-221	00-221	GP220	GP322	10TS-T22
C121	220	5%		CC0-221	00-221	GP220	GP322	10TS-T22
C122	.033	50V		10P-1-333	CK-303		EWFA1A133	1PB-S33
C123	.033	50V		10P-1-333	CK-303		EWFA1A133	1PB-S33
C124	33			CCT0-330	0TZ-33	NP033	CN0433	10TCC-Q33
C127	47			CCT0-470	0TZ-47	NP047	CN0447	10TCC-Q47
C128	.01	50V		10P-1-103	CK-103	MGP01	EWFA1A110	1PB-S10
C129	68	10%			0TZ-68		CN0468	10TCC-Q68
C130	47			CCT0-470	0TZ-47	NP047	CN0447	10TCC-Q47

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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.
C131	.001 50V	0282593	CCO-102	DO-102	GP1000	EWFA210	1PB-010
C132	27		CCTO-270		NP027	CN0427	10TCC-Q27
C133	6			DTZ-6R8	NP06P8	CN0568	10TCC-V56
C134	7						10TCC-V68
C135	6						10TCC-V56
C136	.001 50V		CCO-102	DO-102	GP-1000	EWFA210	1PB-010
C137	.01 50V		10P-1-103	CK-103	MGP01	EWFA110	1PB-S10
C138	5				NP05		10TCC-V50
C139	33		CCTO-330	DTZ-33	NP033	CN0433	10TCC-Q33
C140	4-140						
C141	.001 50V		CCO-102	DO-102	GP1000	EWFA210	1PB-010
C142	33		CCTO-330	DTZ-33	NP033	CN0433	10TCC-Q33
C143	47		CCTO-470	DTZ-47	NP047	CN0447	10TCC-Q47
C144	.033 50V		10P-1-333	CK-303		EWFA133	1PB-S33
C145	.033 50V		10P-1-333	CK-303		EWFA133	1PB-S33
C146	150 5%			DTZ-150		CN0315	10TCC-T15
C148	.01 50V		10P-1-103	CK-103	MGP01	EWFA110	1PB-S10
C150	3						10TCC-V30
C151	.001 50V		CCO-102	DO-102	GP1000	EWFA210	1PB-010
C155	.001 50V		CCO-102	DO-102	GP1000	EWFA210	1PB-010
C160	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C161	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C162	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C163	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C164	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C165	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C166	3-16	0283113					
C167	3-16	0283113					
C168	3-16	0283113					
C169	3-16	0283113					
C170	3-16	0283113					
C171	3-16	0283113					
C204	.01 50V	0283113	10P-1-103	CK-103	MGP01	EWFA110	1PB-S10
C205	.033 50V		10P-1-333	CK-303		EWFA133	1PB-S33
C304	.047		CCO-503	CK-503	MGP05	TA150	TG-S50
C305	.001			CI-102	AC-1000	UAC210	125L-010
C305	.001						

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R16	Bias	470 ohms	0151882	TSV-500(1) or T-500 (1)	C-501 (1)	X201R501B (1)	MTC52L1 (1)
R17	Bias	1000 ohms	0151883	TSV-1K(1) or T-1000 (1)	C-102 (1)	X201R102B (1)	MTC13L1 (1)
R50a	Squelch	10K	0156925				
b	Volume/Switch	10K					
R96	Carrier Balance	470 ohms	0151882	TSV-500(1) or T-500 (1)	C-501 (1)	X201R501B (1)	MTC52L1 (1)
R105	Gain	470 ohms	0151882	TSV-500(1) or T-500 (1)	C-501 (1)	X201R501B (1)	MTC52L1 (1)
R161	ALC	47K	0151888	TSV-50K(1) or T-50K (1)	C-503 (1)	X201R503B (1)	MTC54L1 (1)
R250	Meter Adjust	47K	0151888	TSV-50K(1) or T-50K (1)	C-503 (1)	X201R503B (1)	MTC54L1 (1)
R251	Meter Adjust	47K	0151888	TSV-50K(1) or T-50K (1)	C-503 (1)	X201R503B (1)	MTC54L1 (1)
R253	Meter Adjust	47K	0151888	TSV-50K(1) or T-50K (1)	C-503 (1)	X201R503B (1)	MTC54L1 (1)
R305	Voltage Adjust	1000 ohms	0151804	TSV-1K(2) or T-1000 (2)	C-102 (2)	X201R102B (2)	MTC13L1 (2)

(1) Modify terminals to duplicate original mounting. (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.
R61	2.2 ohms, 1/2W		0134281	TH1	22 ohms (Co1d)	FR605	0576031 (13027)
R62	2.2 ohms, 1/2W		0134281				

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.
CF1	Ceramic Filter	5132081			
L1	RF Choke (1uh)	0318545	19-1000	74F106AP	
L2	RF Choke (.22uh)	0318544	19-2003	4584	T957
L3	RF Choke (2.2uh)	5152005		74F226AP	T812
L4	RF Choke (22uh)	5152078	19-6022	74F225AI	TA311
L5	RF Choke (3.9uh)	5152008	19-1003	4608	T858
L6	RF Choke (12uh)	5152015		72F125AP	
L7	RF Choke (4.7uh)	5152121		74F476AP	T819
L8	RF Choke (4.7uh)	5152121		74F476AP	T819
L9	RF Choke (.33uh)	5150071	19-2004	4586	TA811
L10	RF Choke (.22uh)	0318544	19-2003	4584	T957
T1	RF Amp Input	5123208			
T2	RF Amp Output	1520099			
T3	1st Mixer Input	0317175			
T4	1st Mixer Output	0322341	16-9031	2071	
T5	2nd Mixer Input	0322341	16-9031	2071	
T6	Rec. Interstage IF	0322115	16-9027	8517	
T7	AM Output IF	5132031	16-9028	8518	
T8	SSB Output IF	0322115	16-9026	8517	
T11	Xmtr. Input IF	0322111	16-9026	8517	
T12	Xmtr. Interstage IF	0322121	16-9027	8517	
T13	Xmtr. Output IF	0322116	16-9028	8518	
T14	Xmtr. 1st Mixer Output	0322341	16-9031	2071	
T15	Xmtr. 2nd Mixer Input	0322203	16-9031	2071	
T16	Xmtr. 2nd Mixer Output	0317192			
T17	Xmtr. Buffer Input	1520099			
T18	Xmtr. Buffer Output	0317194			
T19	Xmtr. Driver Input	1520099			
T20	Final Amp Input	5123007			
T21	Final Amp Output	0317197			
T22	Ant. Load	0317196			
T23	Antenna	5123007			
T24	Synthesizer Osc.	5123003			
T27	Rec. Interstage IF	0322115	16-9027	8517	
T28	Input IF		16-9026	8517	
T29	Rec. Interstage IF		16-9027	8517	

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	1CT		0441115				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T10	32 CT	8 ohms	5250611				
		SEC. 2					
		OC Resistance .9 ohms					

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T25	1400ma	.4	3mh	5220029		TR159		

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T26	120VAC @ 350ma	31.2VAC CT @ 1400ma	5211101				

PENNEY'S MODEL 981-6075

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3" x 5" PM	0526170	35A05Z8	

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	2A 125V	5720085		GJV2		318002		
F2	2A	0591138		AGC2	HDJ	312002	150145	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF2	Crystal Filter	5160221	10.635MC
K1	Relay	5640061	
MF1	Mechanical Filter	5161001	455KC
M1	Meter	5550318	
S2	Switch	5620543	Silencer
S3	Switch	0532062	CB-PA
S4	Switch	0531175	Channel Selector
S5	Switch		AM-LSB-US8
X1	Crystal	0599783	37.600MC
X2	Crystal	0599784	37.650MC
X3	Crystal	0599785	37.700MC
X4	Crystal	0599786	37.750MC
X5	Crystal	0599787	37.800MC
X6	Crystal	0599788	37.850MC
X7	Crystal	5780145	10.1415MC
X8	Crystal	5780146	10.1615MC
X9	Crystal	5780147	10.1715MC
X10	Crystal	5780148	10.1815MC
X11	Crystal	5780149	11.0485MC
X12	Crystal	5780151	11.0685MC
X13	Crystal	5780152	11.0785MC
X14	Crystal	5780153	11.0885MC
X15	Crystal	5780131	453.5KC

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

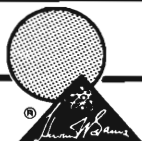
ITEM	PART No.	ITEM	PART No.
Escutcheon	6215221	Knob, Squelch	6262661
Rear Plate	7224301	Knob, Volume, On-Off	6262672
Cabinet, Top	7224261	Knob, Clarifier, Mode	6262993
Cabinet, Bottom	7224281	Knob, Channel Selector	6260154
		Mobile Mounting Bracket	7221461

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone	5420312	
Power Cord (AC)	0593477	
Power Cord (DC)	5740703	

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.



MODEL Messenger 123A (242-0123)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: GC ELECTRONICS
T1 thru T13, L6, L7 9440

JOHNSON MODEL MESSENGER 123A

RECEIVER

Connect an AC VTVM across speaker. Set squelch control to MINIMUM.
Set volume control to obtain a suitable meter reading.

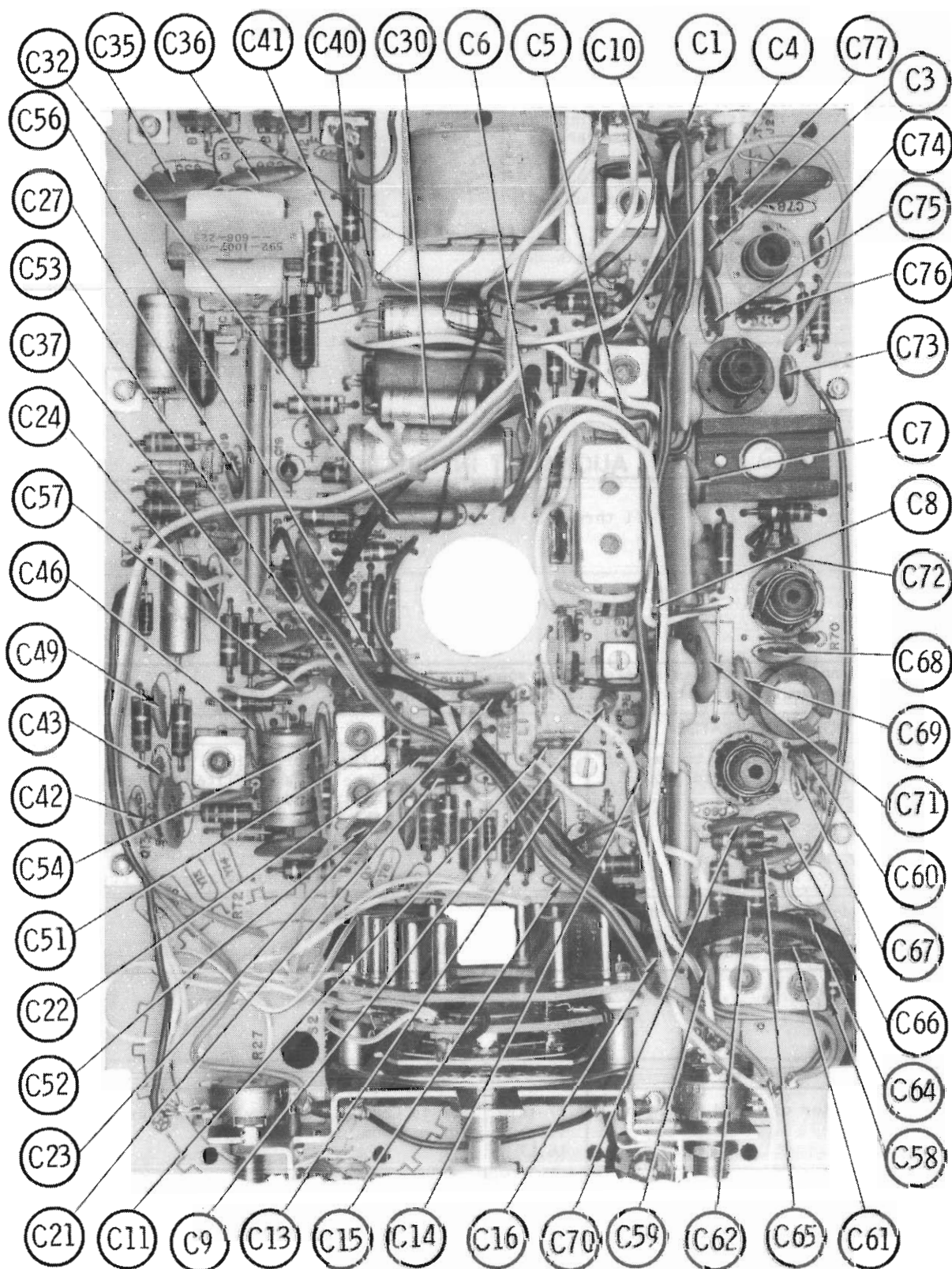
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q2 (mixer), low side to ground. Set to 455KC (mod.).	Any	T4,T3	Adjust for maximum. Note: Ceramic filter Z1 does not normally need realignment. However, if the receiver response curve indicates that Z1 alignment is necessary, do so with a sweep generator while monitoring the receiver response curve.
High side thru .01mfd to antenna connector, low side to ground. Set to 27.085MC (mod.).	11	T2,T1	Adjust for maximum.

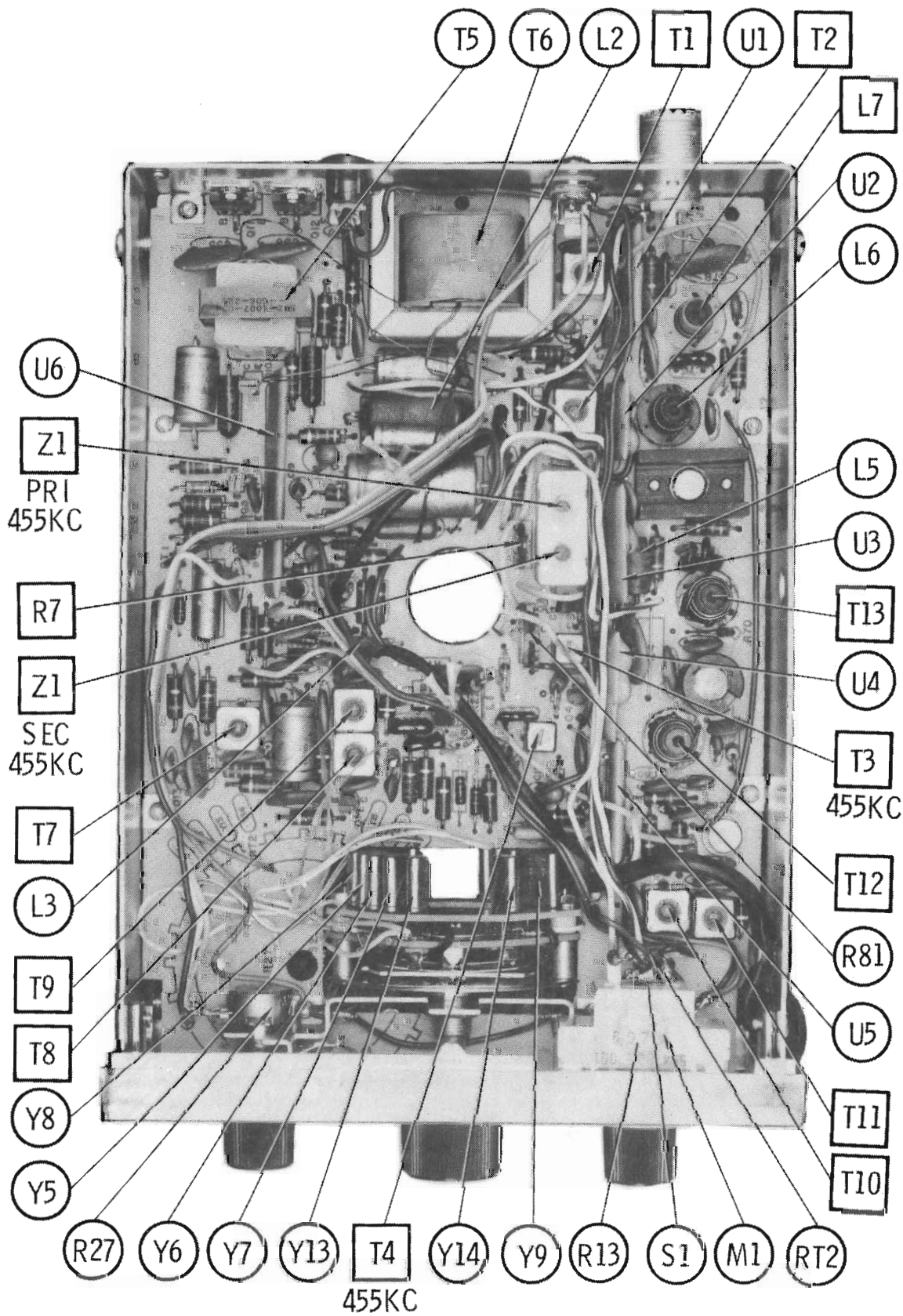
TRANSMITTER

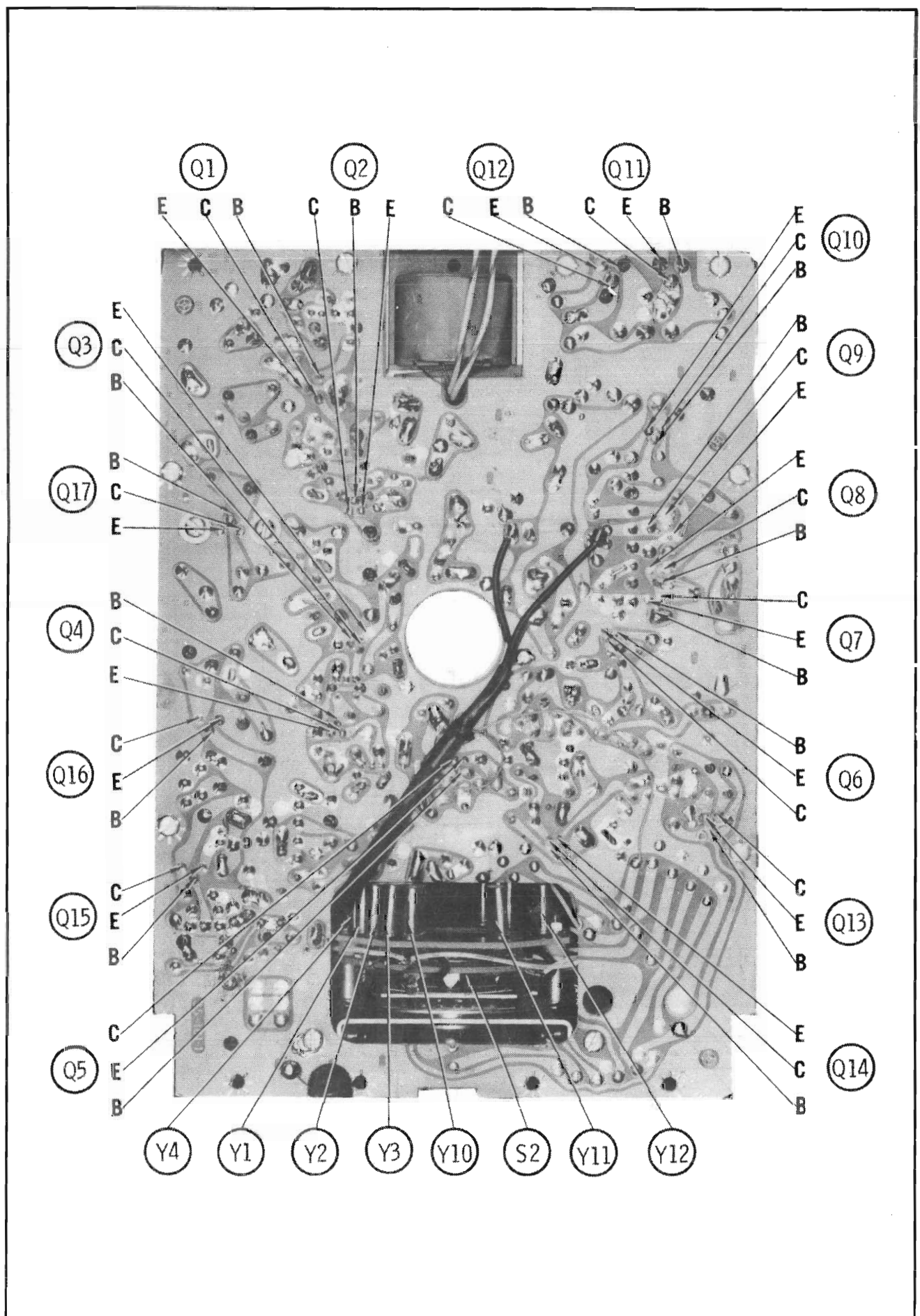
INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength meter.	T7 thru T13, L6,L7	Set to Channel 23. Key transmitter and adjust for maximum.
0-500ma DC Ammeter	L6	Insert meter in collector circuit of Q17 (Final Amp). Readjust L6 for 5 watts DC input.

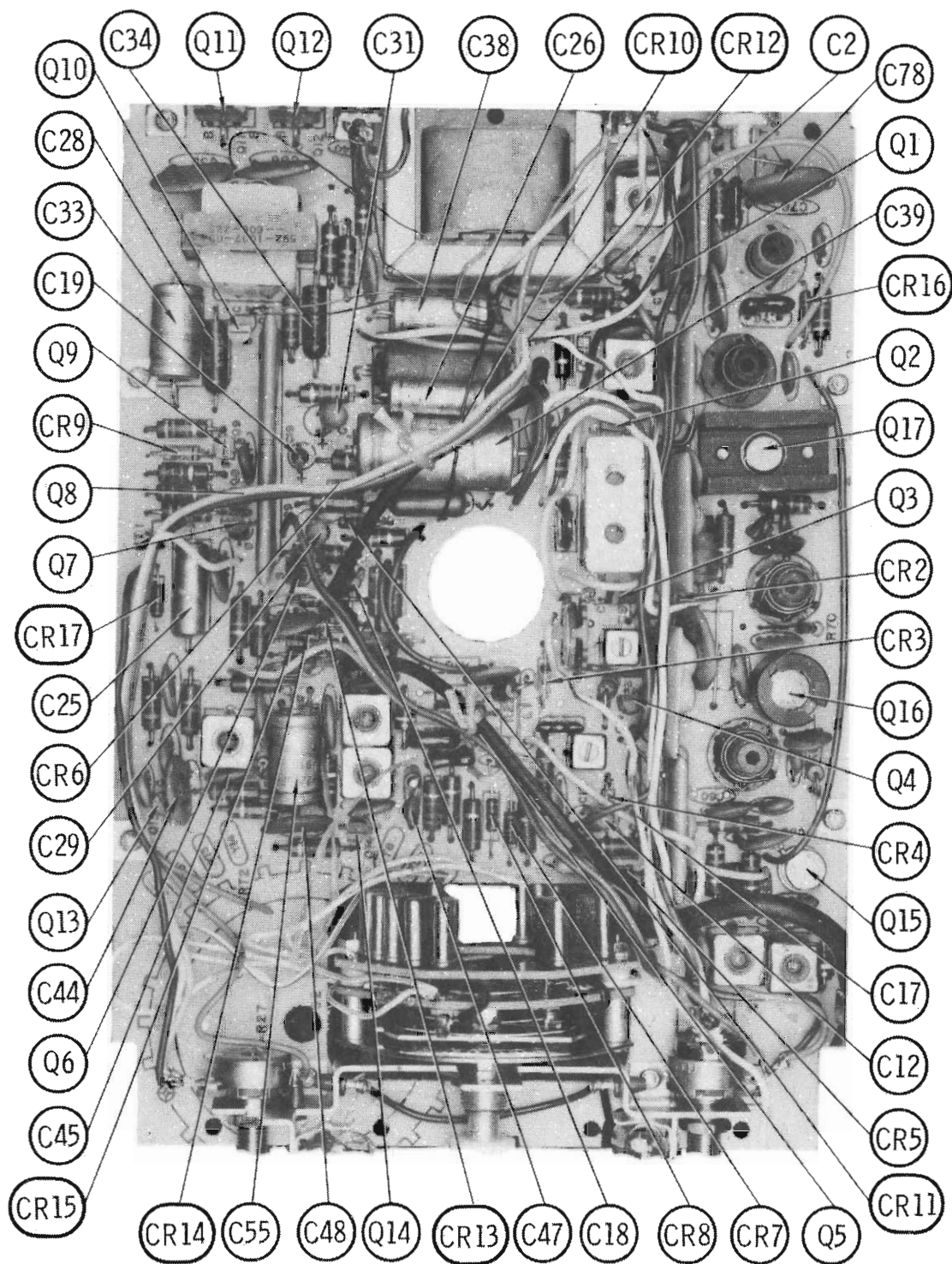
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

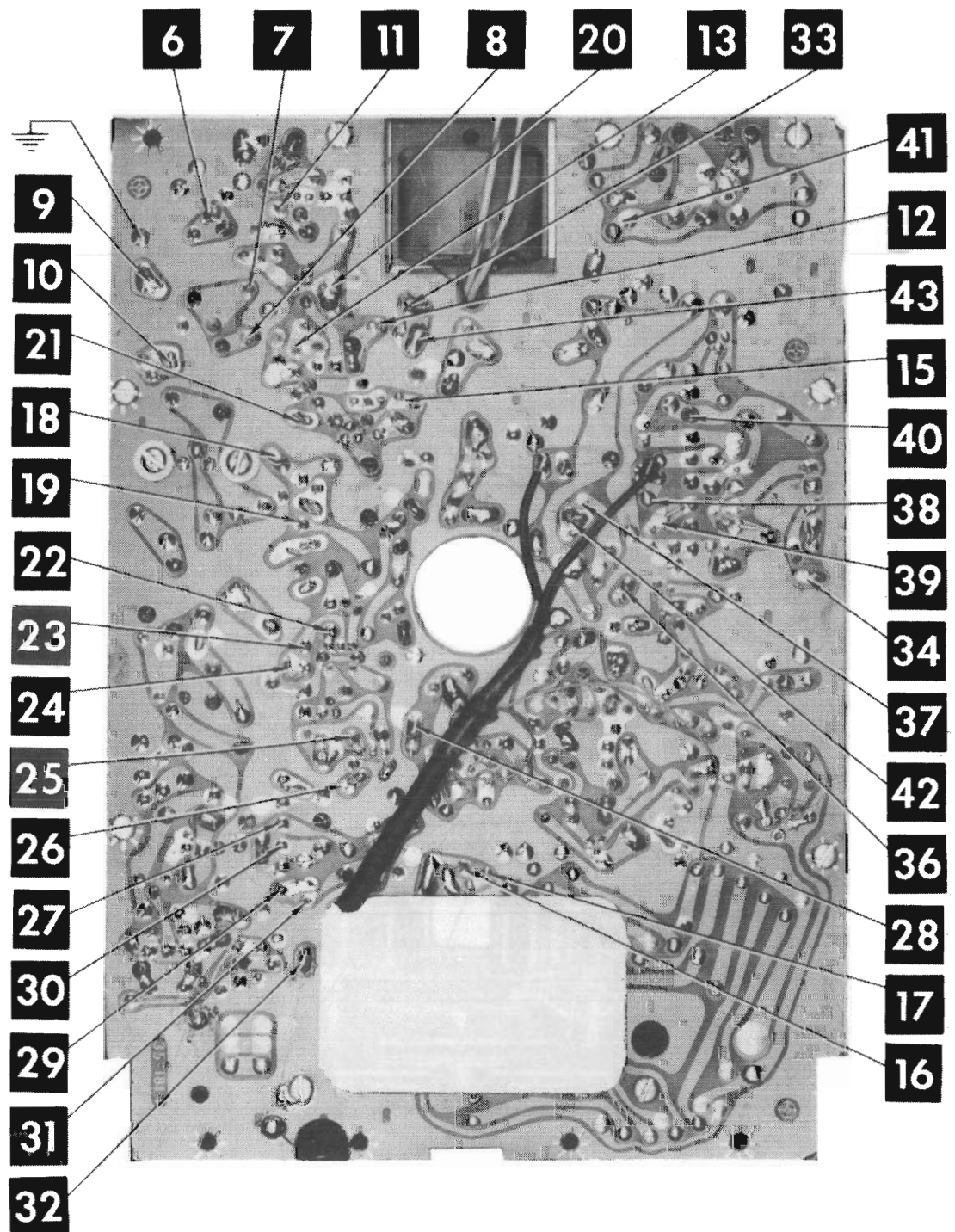
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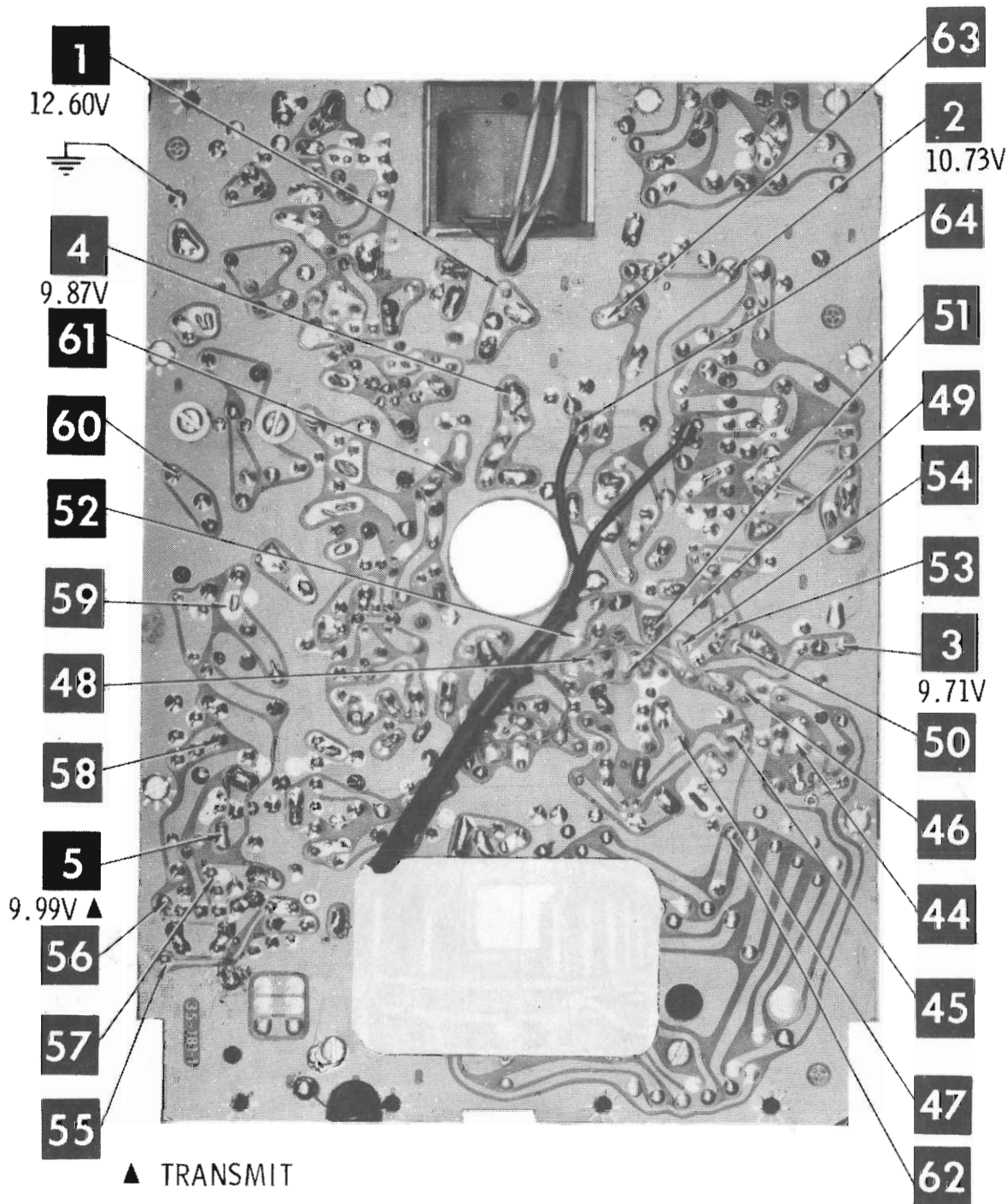


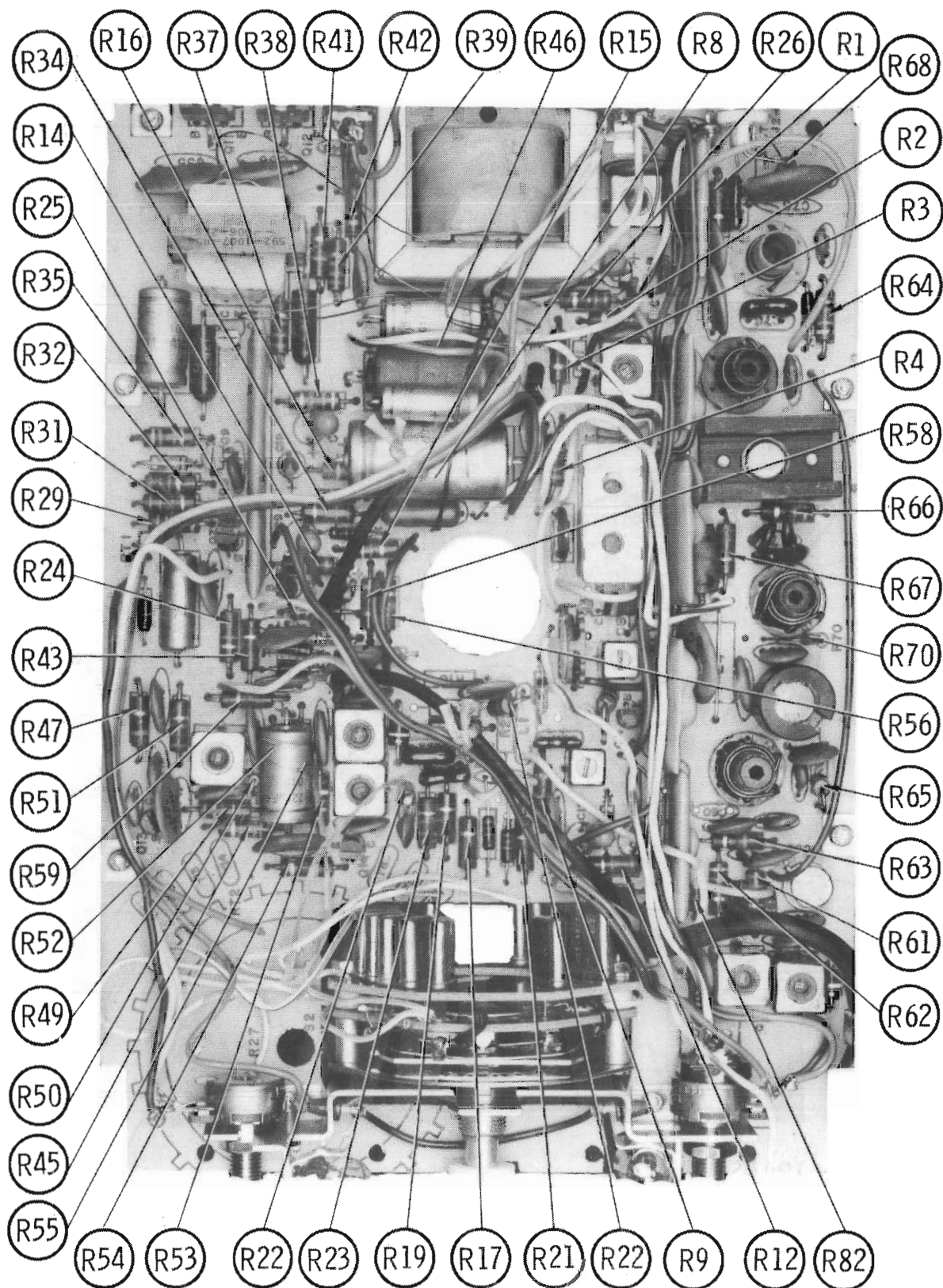






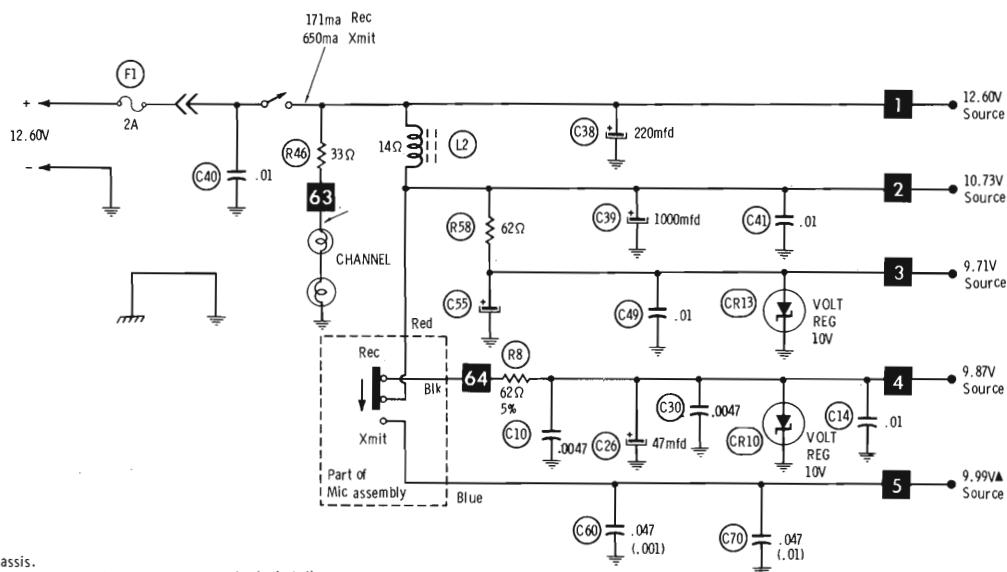
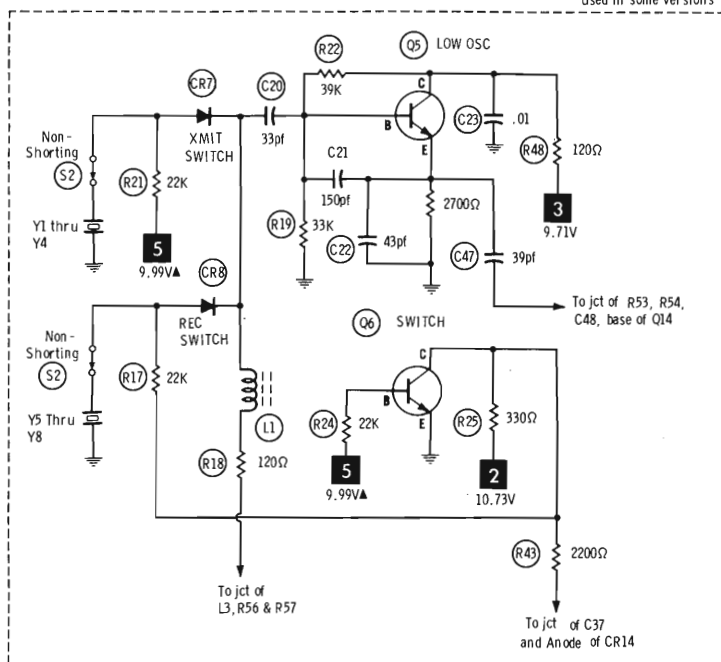






ALTERNATE CIRCUIT

Alt osc circuit
used in some versions



- Denotes chassis.
- Denotes ground. (Voltage reference unless otherwise indicated).
- Indicates connection used in some versions.
- Indicates connection not used in some versions.
- Omitted in some versions.
- See parts list.
- Measurements taken with switching in position shown unless otherwise indicated.
- Measured in "Transmit" position.
- Values shown in () are used in some applications.
- Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
- Supply voltage maintained at rated value for measurements.
- Voltage and resistance measured with VTVM or equivalent meter, no signal applied and controls adjusted for normal operation.
- Arrow on control indicates direction of advance.
- Numbers assigned to terminals may not be found on the unit.
- Transistor resistances vary widely. No resistance measurements taken.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**

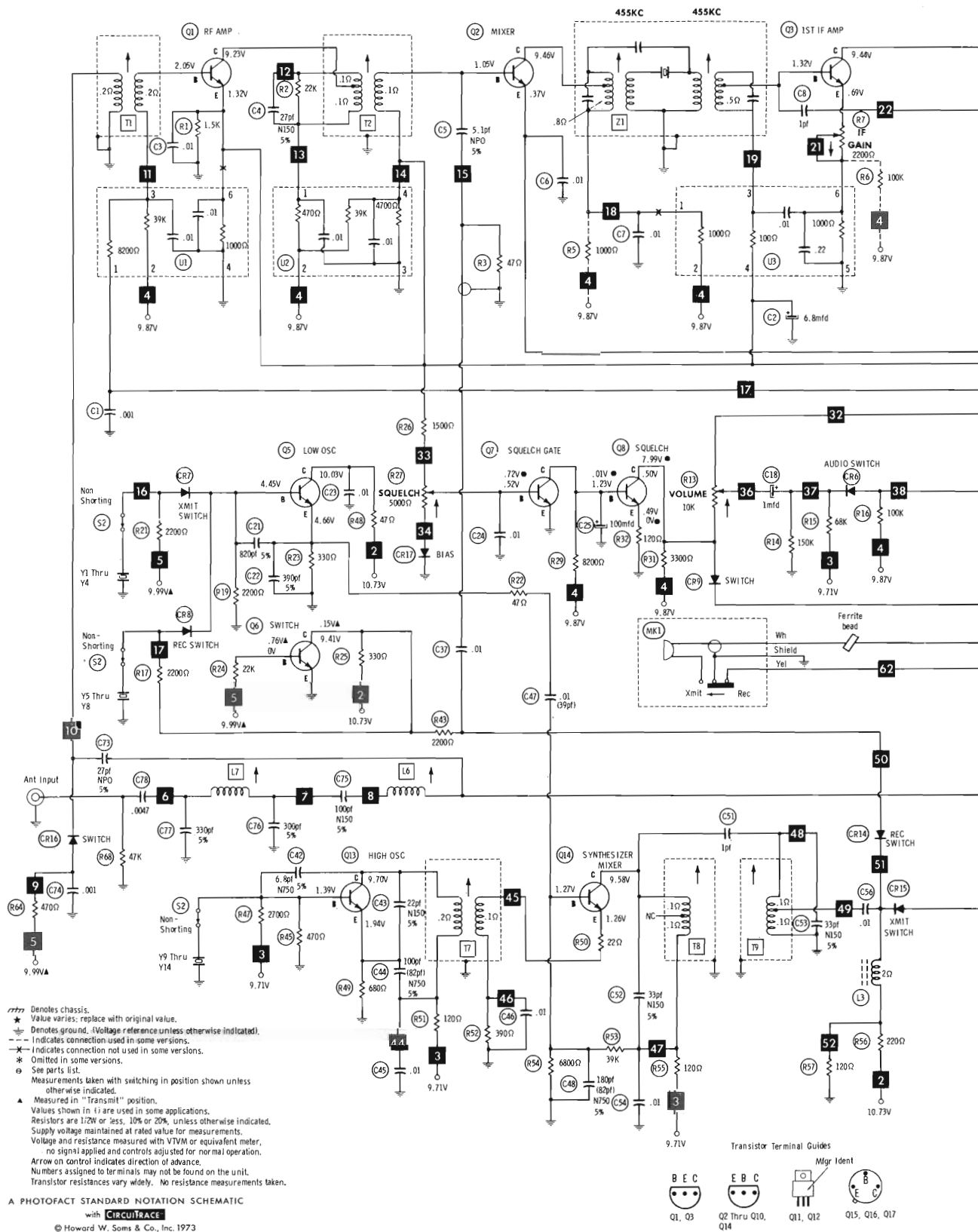
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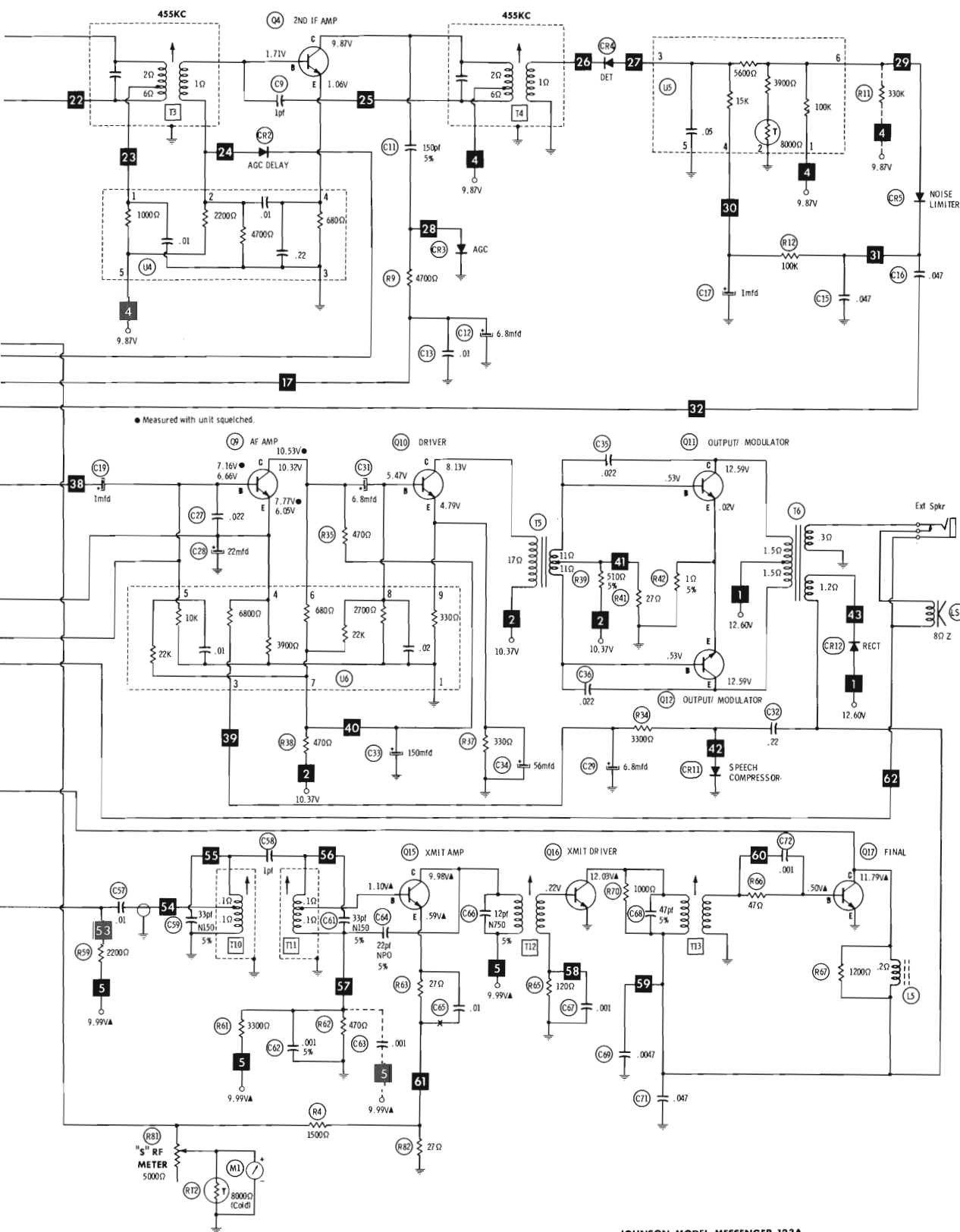
Crystal Complement			
Chan	High Osc	Low Osc (Rec)	Low Osc (Xmit)
1	Y9	Y5	Y1
2	Y9	Y6	Y2
3	Y9	Y7	Y3
4	Y9	Y8	Y4
5	Y10	Y5	Y1
6	Y10	Y6	Y2
7	Y10	Y7	Y3
8	Y10	Y8	Y4
9	Y11	Y5	Y1
10	Y11	Y6	Y2
11	Y11	Y7	Y3
12	Y11	Y8	Y4

Crystal Complement			
Chan	High Osc	Low Osc (Rec)	Low Osc (Xmit)
13	Y12	Y5	Y1
14	Y12	Y6	Y2
15	Y12	Y7	Y3
16	Y12	Y8	Y4
17	Y13	Y5	Y1
18	Y13	Y6	Y2
19	Y13	Y7	Y3
20	Y13	Y8	Y4
21	Y14	Y5	Y1
22	Y14	Y6	Y2
23	Y14	Y8	Y4

JOHNSON MODEL MESSENGER 123A

JOHNSON MODEL MESSENGER 123A





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
Shielded Antenna Lead	8524 (Stranded) Available in 12 Colors
	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 / MFG. 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.
CR1	1N67A/523-1000-067	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
CR2	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR3	1N67A/523-1000-067	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
CR4	1N67A/523-1000-067	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
CR5	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR6	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR7	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR8	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR9	1N67A/523-1000-067	1N34AS	1N34A	PTC207	HEP134	SK3087		ECG 109
CR10	523-2003-100 (10)		Z1210	PTC506	HEPZ0413	SK3061		ECG 140
CR11	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR12	1N4003/523-0001-002	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR13	523-2003-100 (10)		Z1210	PTC506	HEPZ0413	SK3061		ECG 140
CR14	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR15	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR16	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
CR17	1N881/523-1000-881	GE-504A	8D4 or 5A4D	PTC201 or	HEPR0052	SK3030 or	RT213 or	ECG 116 or
				PTC202		SK3031	RT214	ECG 117
Q1	3018/576-0003-018	GE-20	1RTR-51	PTC123	HEP56	SK3018	RT107	ECG 108
Q2	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q3	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q4	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q5	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q6	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q7	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q8	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q9	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q10	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q11	2001/576-0002-001	GE-66 (7)	1RTR-76 (7)	PTC110 (7)	HEP245 (7)	SK3054	RT154 (7)	ECG 152 (7)
Q12	2001/576-0002-001							
Q13	3018/576-0003-018	GE-20	1RTR-51	PTC123	HEP56	SK3018	RT107	ECG 108
Q14	3011/576-0003-011	GE-10	1RTR-51	PTC123	HEP728	SK3018	RT107	ECG 123A
Q15	4004/576-0004-004	GE-63	1RTR-62	PTC123	HEP736	Daz	RT114	ECG 128
Q16	4004/576-0004-004	GE-63	1RTR-62	PTC123	HEP736	SK3047	RT114	ECG 128
Q17	4005/576-0004-005		1RTR-65		HEPS3001	SK3048		ECG 195

(7) Two required -- select matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFG. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	6.8 35V	510-2045-689				TDC685M035FL	SD35-6R89
C12	6.8 35V	510-2045-689				SD35-6R89	
C17	1 35V	510-2045-109				TDC105M035EL	SD35-19
C18	1 35V	510-2045-109				TDC105M035EL	SD35-19
C19	1 35V	510-2045-109				TDC105M035EL	SD35-19
C25	100 10V	510-4003-005	ME-4-D-100	EA15-100	WBR100-16	MTA100E10	TVA-1130
C26	47 25V	510-4006-012	ME-4-G-050	EA30-50	WBR50-25	MTA50E25	TVA-1206
C28	22 15V	510-2003-220	ME-2-E-025	EA15-25	WBR25-25	MTA25D20	TVA-1148
C29	6.8 35V	510-2045-689				TDC685M035FL	SD35-6R89
C31	6.8 35V	510-2045-689				TDC685M035FL	SD35-6R89
C33	150 25V	510-4006-006	ME-G200	EA30-250	WBR250-25	MTA200F25	TVA-1207.5
C34	56 6V	510-2001-560					
C38	220 16V	510-4006-004	ME-B-E-250	EA15-250	WBR250-16	MTA250F15	TVA-1161
C39	1000 16V	510-4006-005	ME-G1000	EA15-1000	WBR1000-16	TC1501B	TVA-1163
C55	220 16V	510-4006-004	ME-B-E-250	EA15-250	WBR250-16	MTA250F15	TVA-1161

CAPACITORS

ITEM No.	RATING	MFG. PART No.	REPLACEMENT DATA				
			ARCO/ELMENDO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.001		CCD-102	DD-102	GP1000	GP210	10TS-D10
C3	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C4	27 N150	5% 510-3016-270	*			*	10TCP-Q27
C5	5.1 NPO	5% 510-3013-519					
C6	.01		CCD-103	CK-103	MGP01	TA110	TG-S10
C7	.01		CCD-103	CK-103	MGP01	TA110	TG-S10

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/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	1	510-9002-109				CN0510	10TCC-V10
C9	1	510-9002-109				CN0510	10TCC-V10
C10	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C11	150	100V 5%	DM-15-151J	CPR-150J	CD15FD151J03	SX315	424MC1500J501
C13	.01		CCD-103	CK-103	MGPO1	TA110	TG-S10
C14	.01		CCD-103	CK-103	MGPO1	TA110	TG-S10
C15	.047	250V	4DP-3-473		DPMS6S47	EW4147	4PS-S47
C16	.047	250V	4DP-3-473		DPMS6S47	EW4147	4PS-S47
C21	820	5%	DM-19-821		CD19F821J509	SX382	MS-382
C22	390	5%	DM-15-391	CPR-390J	CD15F391J500	SX339	MS-339
C23	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C24	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C27	.0022		CCD-222	DD-222	GP2200	GP222	10TS-D22
C30	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C32	.22		4DP-5-224		DPMS4P22	EW4022	4PS-P22
C35	.022		CCD-203	CK-203	MGPO2	TA120	TG-S20
C36	.022		CCD-203	CK-203	MGPO2	TA120	TG-S20
C37	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C40	.01		CCD-103	DD-103	GP1000C	JF110	10TS-S10
C41	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C42	6.8	N750 5%			N6P8	CN7568	10TCU-V68
C43	22	N150 5%	*			*	10TCP-Q22
C44	100	N150 5%	*			*	10TCP-T10
C45	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C46	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C47	.01	16V	CCD-502	CK-502	MGPO05	TA250	TG-D50
C48	180	N750 5%	510-3020-820				10TCU-T75
C49	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C51	1		510-9002-109			CN0510 *	10TCC-V10
C52	33	N150 5%	510-3016-330	*		*	10TCP-Q33
C53	33	N150 5%	510-3016-330	*		*	10TCP-Q33
C54	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C56	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C57	.01		CCD-502	CK-502	MGPO05	TA250	TG-D50
C58	1		510-9002-109			CN0510	10TCC-V10
C59	33	N150 5%	510-3016-330	*		*	10TCP-Q33
C60	.047	16V	510-3061-102				
C61	33	N150 5%	510-3016-330	*		*	10TCP-Q33
C62	.001	1KV 5%	510-3061-102				
C64	22	NPO 5%					
C65	.01		CCD-502	DTZ-22	MGPO05	CN0422	10TCC-Q22
C66	12	N750 5%		CK-502	N12	TA250	TG-D50
C67	.001		CCD-102	TCN-12	GP1000	CN7412	10TCU-Q12
C68	47	N150 5%	*	DD-102		GP210	10TS-D10
C69	.0047		CCD-472	DD-472G	GP4700	JF247	10TS-D47
C70	.047	16V	510-3061-102				
C71	.047		510-3002-473				
C72	.001	1KV 5%	510-3061-102				
C73	27	NPO 5%					
C74	.001		CCD-102	TCZ-27	GP1000	CN0427	10TCC-Q27
C75	100	N150 5%	*	DD-102		GP210	10TS-D10
C76	300		DM-19-301J	CPR-300J	CD15FD301J03	SX330	10TCP-T10
C77	330		DM-19-331J	CPR-330J	CD15FD331J03	SX333	424ME3000J501
C78	.0047	1.4KV	510-3001-472				424ME3300J501

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

JOHNSON MODEL MESSENGER 123A

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.
R007	IF Gain	2200	562-0019-222	TSV-2.5K(1) or T-2500(1)	C-252(1)	X201R252B(1)	MT252L1(1)
R013	Volume/Switch	10K	562-0016-004				
R027	Squelch	5000	562-0002-011				
R081	Meter Adjust	5000	562-0004-502	TSV-5K or T-5000	C-502	X201R502B	MT253L1

(1) Bend terminals to fit "PC" board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.
R42	1 5% Carbon		

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.
RT2	8000 (CoId)		569-3001-001

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L2	Peaking (20mh)	542-8001-011			
L3	RF Choke (20uh)	542-3002-002	19-6022	6152	TA300
L5	RF Choke (13uh)	542-3003-001		72F125AP	
L6	Final Amp	542-1005-010			
L7	Pi Filter	542-1005-004			
T1	Rec. Antenna Matching	592-5015-001			
T2	RF	592-5015-002			
T3	Interstage IF	592-5020-004	16-9033	8515	
T4	Output IF	592-5020-004	16-9033	8515	
T7	High Oscillator	592-5015-004			

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.	WORKMAN PART No.
T8	Synthesizer Mixer (Primary)	592-5015-005			
T9	Synthesizer Mixer (Secondary)	592-5015-005			
T10	Xmtr. Input (Primary)	592-5015-005			
T11	Xmtr. Input (Secondary)	592-5015-005			
T12	Xmtr. Amp	592-5014-001			
T13	Xmtr. Driver				
Z1	Input IF	532-2002-001 (1)			

(1) Includes ceramic filter.

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.	
T5	1.2	1 CT		592-1007-004				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T6	72	8	592-1013-006				
		SEC. 2					
		DC Resistance 1.2					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS1	3-5/8" PM 8 ohm	23-2927-001		

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	2A @ 250V, Quick Acting	534-0003-024	534-1004-005	AGC 2	HDJ	312002	150145	FG 2	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
MK1	Microphone	23-2708-005	
M1	Meter	554-0015-002	"S", RF Meter
S2	Switch	583-2029-102	Channel Selector
U1	PC Unit	544-0003-011	RF Amp
U2	PC Unit	544-0002-011	1st Mixer
U3	PC Unit	544-0003-043	1st IF
U4	PC Unit	544-0002-014	2nd IF
U5	PC Unit	544-0002-035	Noise Limiter
U6	PC Unit	544-0002-026	Audio
Y1	Crystal	519-0023-004	5.7350MC
Y2	Crystal	519-0023-003	5.7250MC
Y3	Crystal	519-0023-002	5.7150MC
Y4	Crystal	519-0023-001	5.6950MC
Y5	Crystal	519-0023-008	6.1904MC
Y6	Crystal	519-0023-007	6.1804MC
Y7	Crystal	519-0023-006	6.1704MC
Y8	Crystal	519-0023-005	6.1504MC
Y9	Crystal	519-0024-001	32.700MC
Y10	Crystal	519-0024-002	32.750MC
Y11	Crystal	519-0024-003	32.800MC
Y12	Crystal	519-0024-004	32.850MC
Y13	Crystal	519-0024-005	32.900MC
Y14	Crystal	519-0024-006	32.950MC

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

ITEM	PART No.	ITEM	PART No.
Front Panel	15-0799-002	Knob - Volume, Squeitch	547-0008-001
Cabinet Assembly	23-2201-011	Knob	547-0008-005
Back Plate	17-1628-002	Dial	32-0154-101