

SAMS PHOTOFACT[®]

CB RADIO SERIES



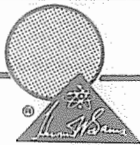
CB-121
121
MAY 1977



CONTENTS

TRADE NAME AND MODEL	PAGE	TRADE NAME AND MODEL	PAGE	TRADE NAME AND MODEL	
COBRA		PEARCE-SIMPSON		TRUETONE	
21XLR.....	5	Alley Cat 23.....	53	CYJ4732A-77	
COMMANDO		PRESIDENT		(23-4732-6C)...	
2340.....	33	Dwight D.....	73		

CB-131
M



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

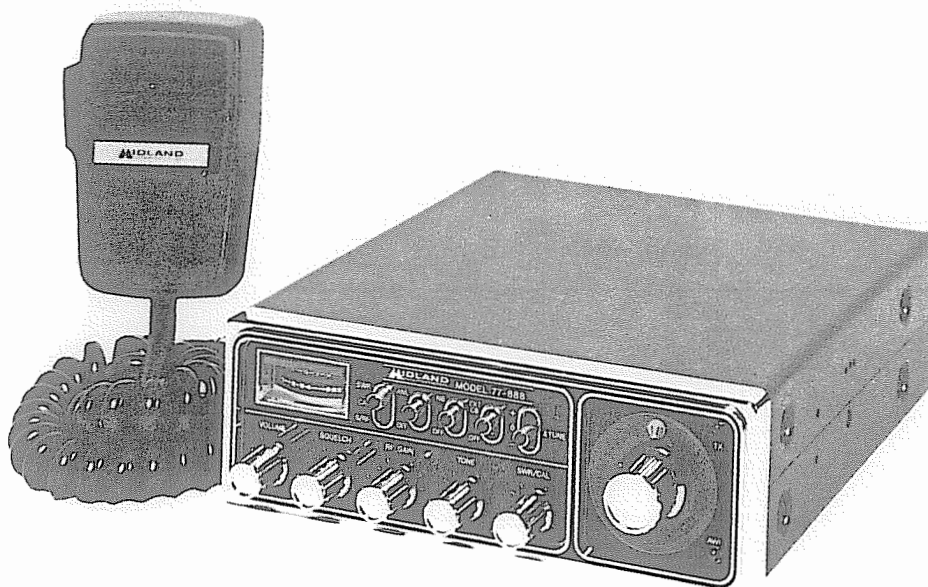
Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(Refer to FCC Rules and Regulations Part 95, Subpart 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.



MIDLAND MODEL 77-888

MODEL 77-888

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

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Printed in U. S. of America

7CE532

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period. Adjustments made with 13.8-volt DC input. Connect low sides of test equipment to ground unless specified otherwise. Connect 50-ohm dummy load or antenna before keying transmitter.

Suggested Alignment Tools:

GC ELECTRONICS:

L14, T7 thru T10	5009
L7, L11, L12	9304
L1, L2, L5, T1 thru T6	9440
CT1	5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1.	Ch. 19	CT1	Adjust for 10.240MHz.
Input of RF VTVM to TP2.	Ch. 19	T1	Adjust for maximum.
Input of DC meter to TP8.	Ch. 19	L1	Adjust for 2.8 volts.
Input of frequency counter to TP3.	Ch. 19, Xmit		Check for 10.695MHz.
Input of RF VTVM to TP4.	Ch. 19	L2, T2	Adjust for maximum.
Input of frequency counter to TP4.	Ch. 1		Check for 37.660MHz. Repeat for all channels. (Channel frequency 10.695MHz = frequency on counter)

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP10. 455kHz, 1000Hz @ 30% modulation.	Ch. 19, Delta Tune - 0 RF Gain - Max	T10, T9, T8	Adjust for maximum output.
Output of signal generator thru .01uF to TP11. 10.695MHz, 1000Hz @ 30% modulation.	Ch. 19	T7, L14	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T6, T5	Adjust for maximum output. Repeat above steps if necessary.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19, Delta Tune - 0 RF Gain - Max.	RV1	SQUELCH RANGE Set squelch control vR2 fully clockwise. Adjust RV1 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	RV3	S METER Adjust RV3 for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
	Ch. 19	L5, T3, T4, L7, L11, L12	Adjust for maximum.
	Ch. 19	L12	Adjust for 4 watts maximum.

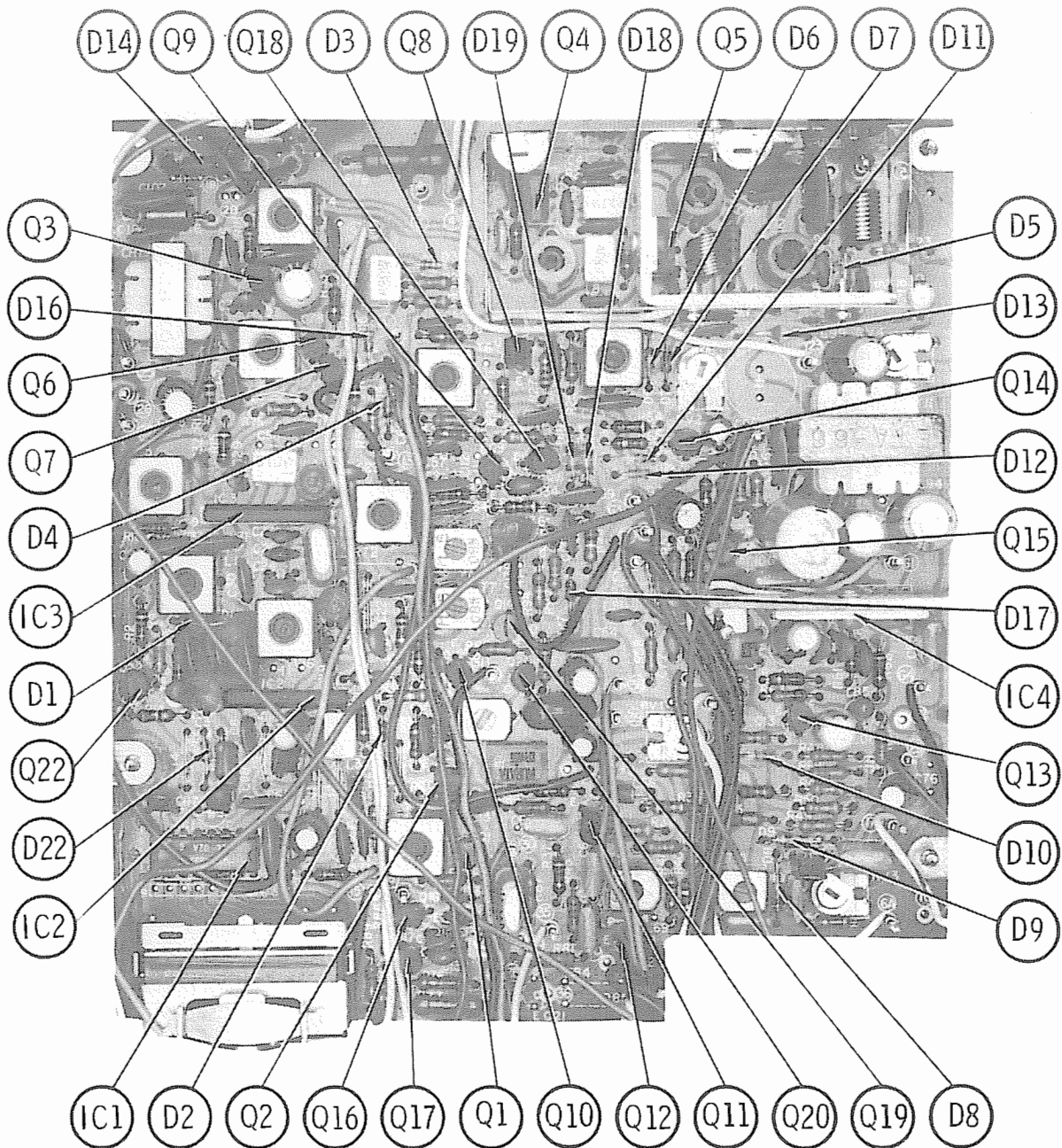
TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

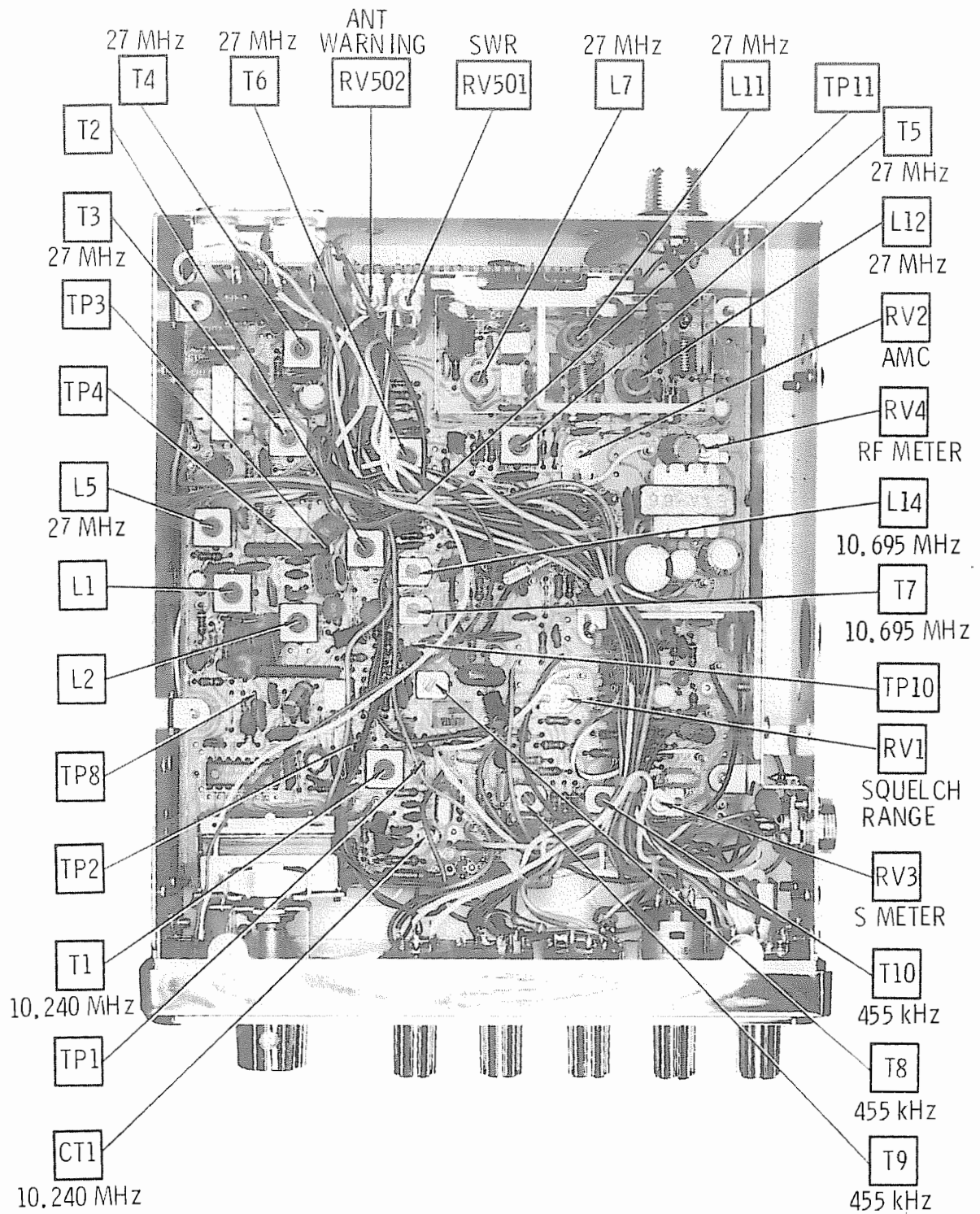
NOE: Be sure to check transmit frequency and power on all active channels after adjustments of transmitter.

See page 4 for channel frequencies.

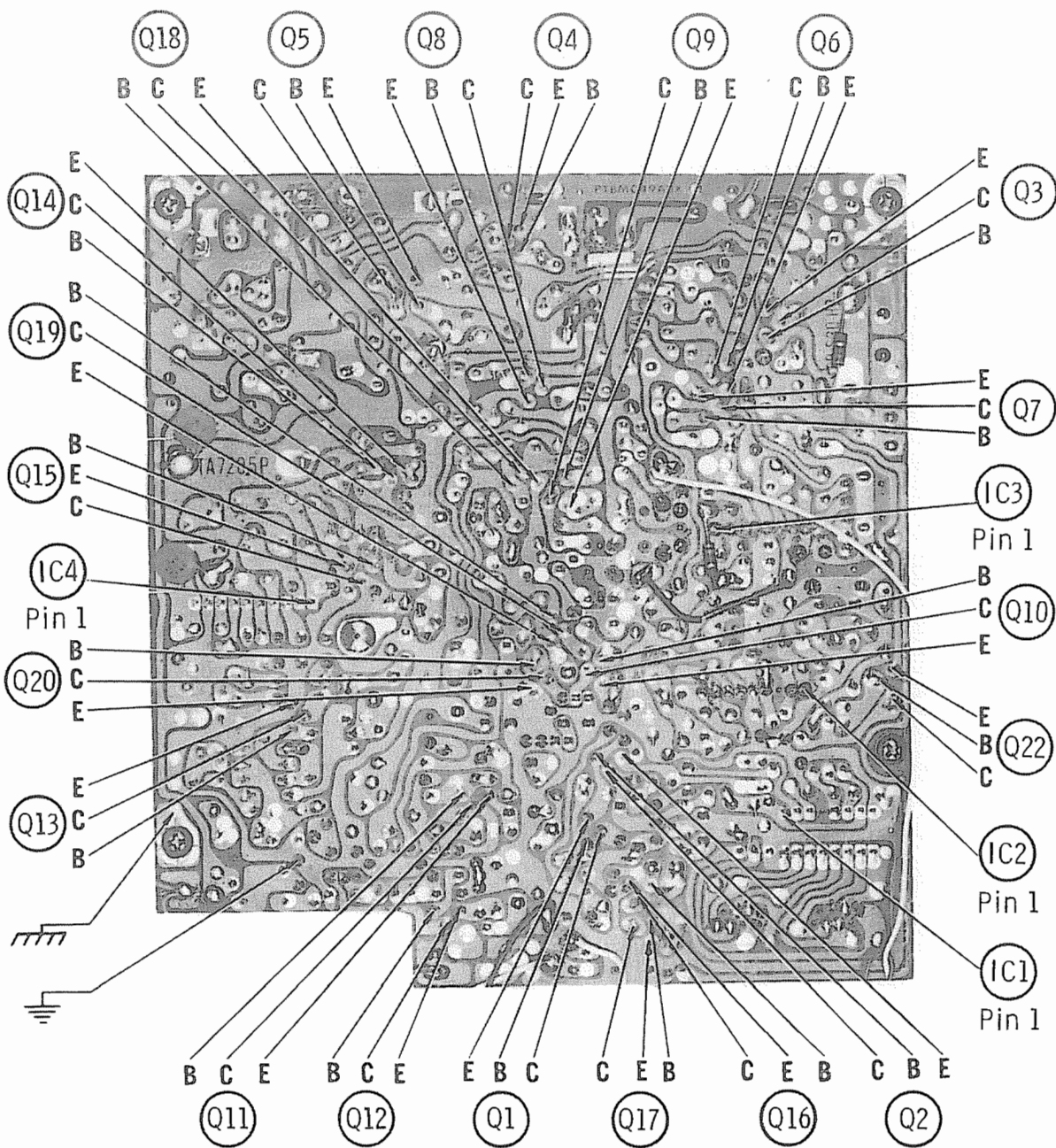
TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 100mV, 1000Hz signal at Mic input.	Ch. 19	RV2	ALC Adjust for 95% modulation.
	Ch. 19	RV4	RF PANEL METER Adjust for 3/4 reading on RF scale of meter.
Connect a 150-ohm noninductive resistor to antenna jack.	Ch. 19	RV502	ANT. WARNING (AWI) Adjust RV502 so antenna warning indicator lights.
SWR meter to antenna jack.	Ch. 19	RV501	SWR METER Adjust RV501 so that SWR METER agrees with external meter.



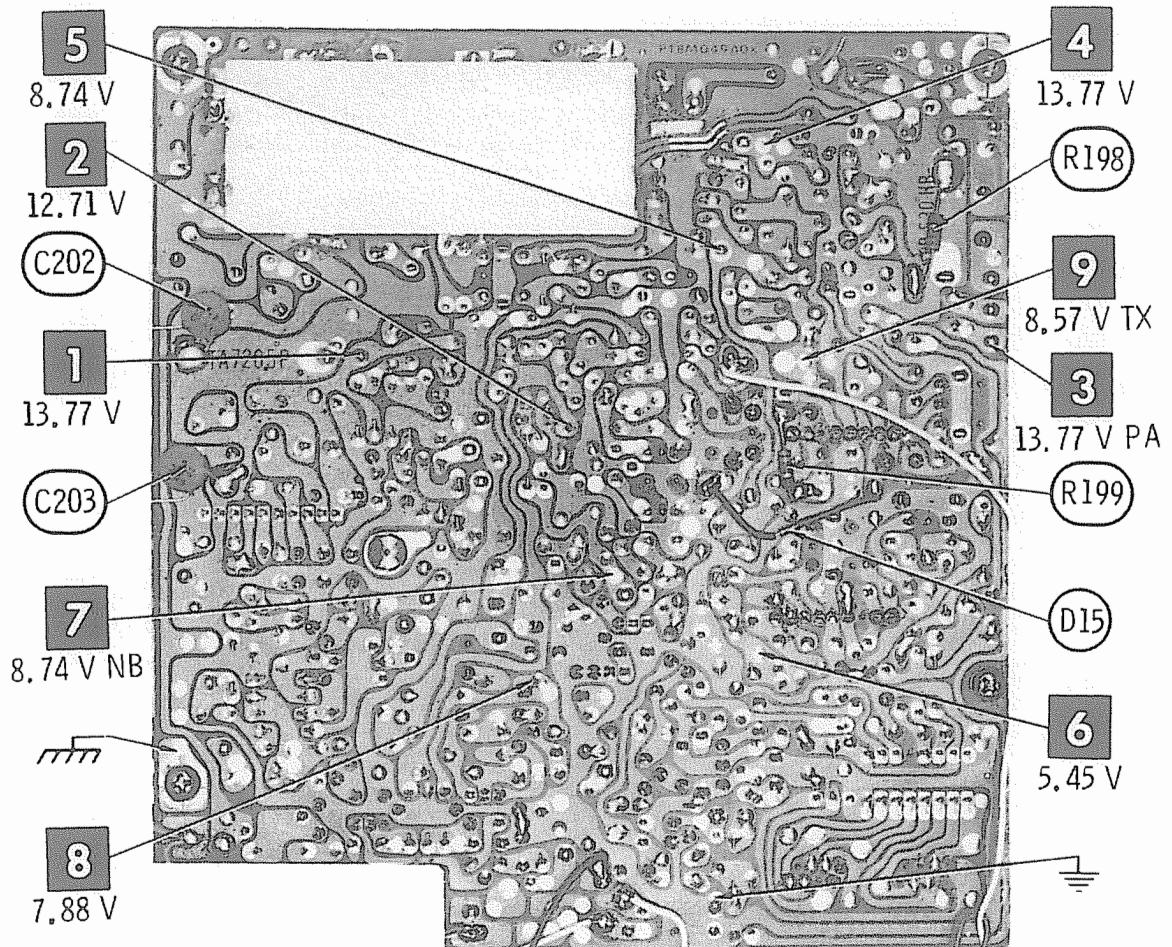
MAIN BOARD



CHASSIS BOTTOM

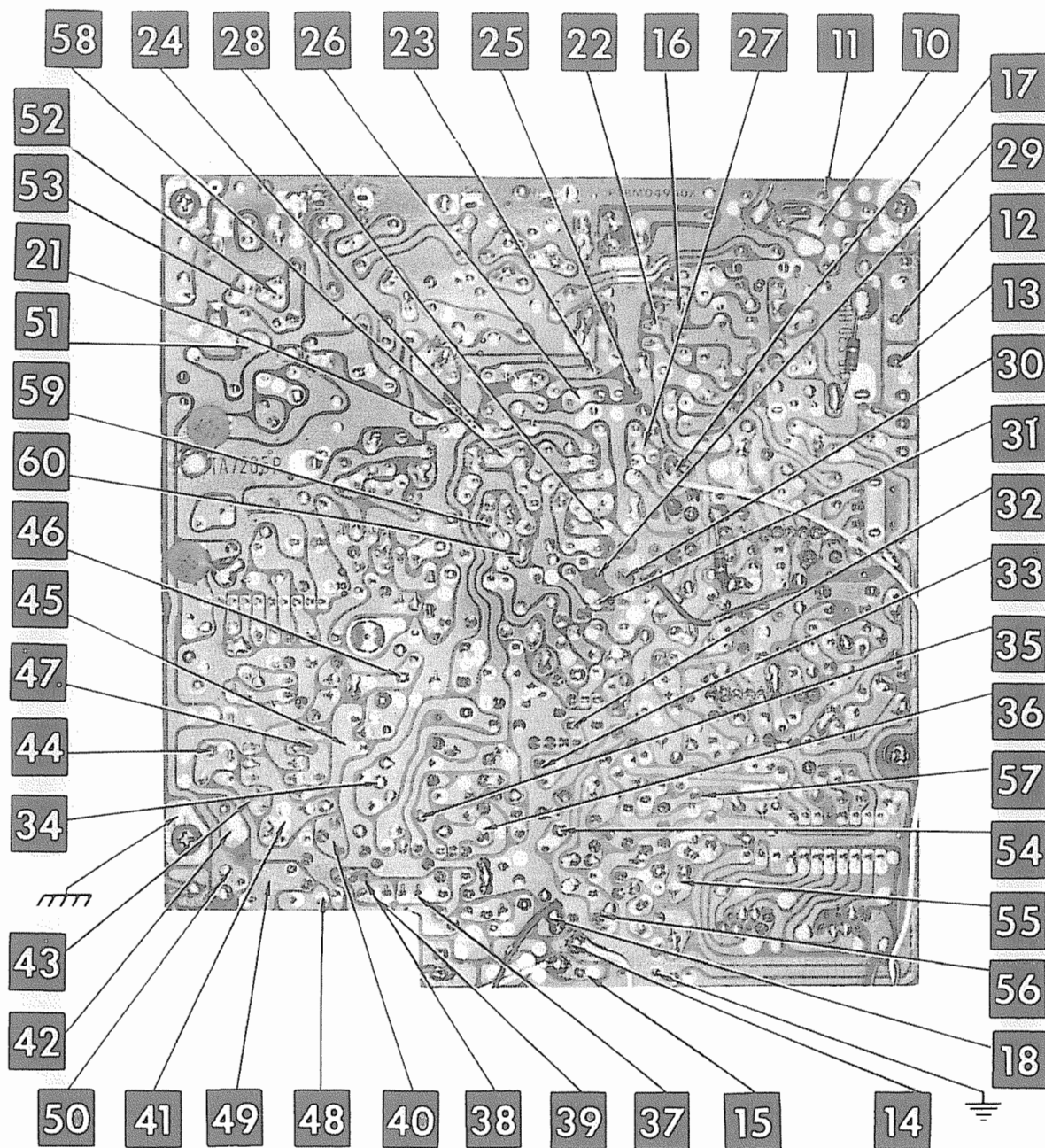


MAIN BOARD

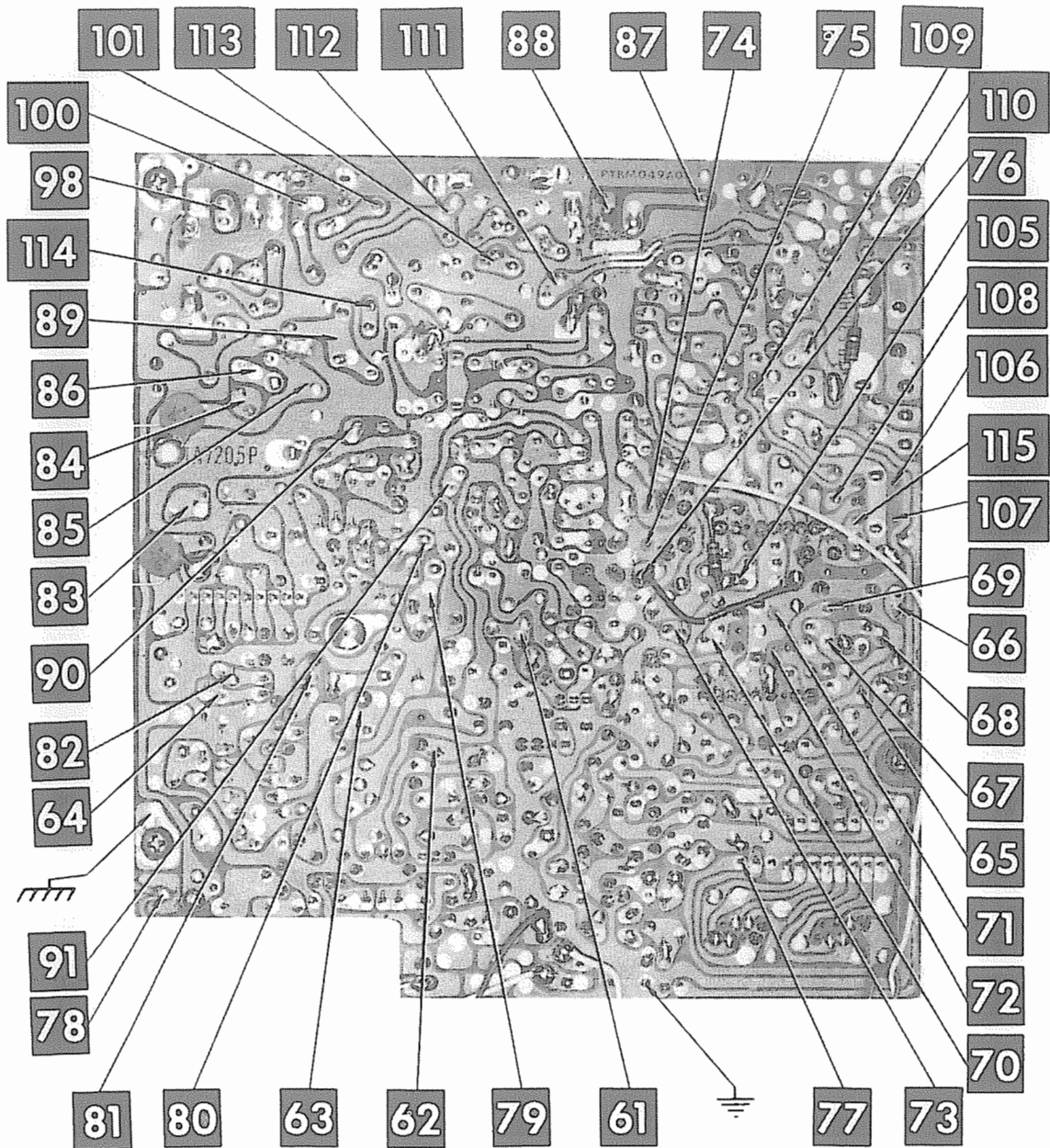


MIDLAND MODEL 77-883

MAIN BOARD

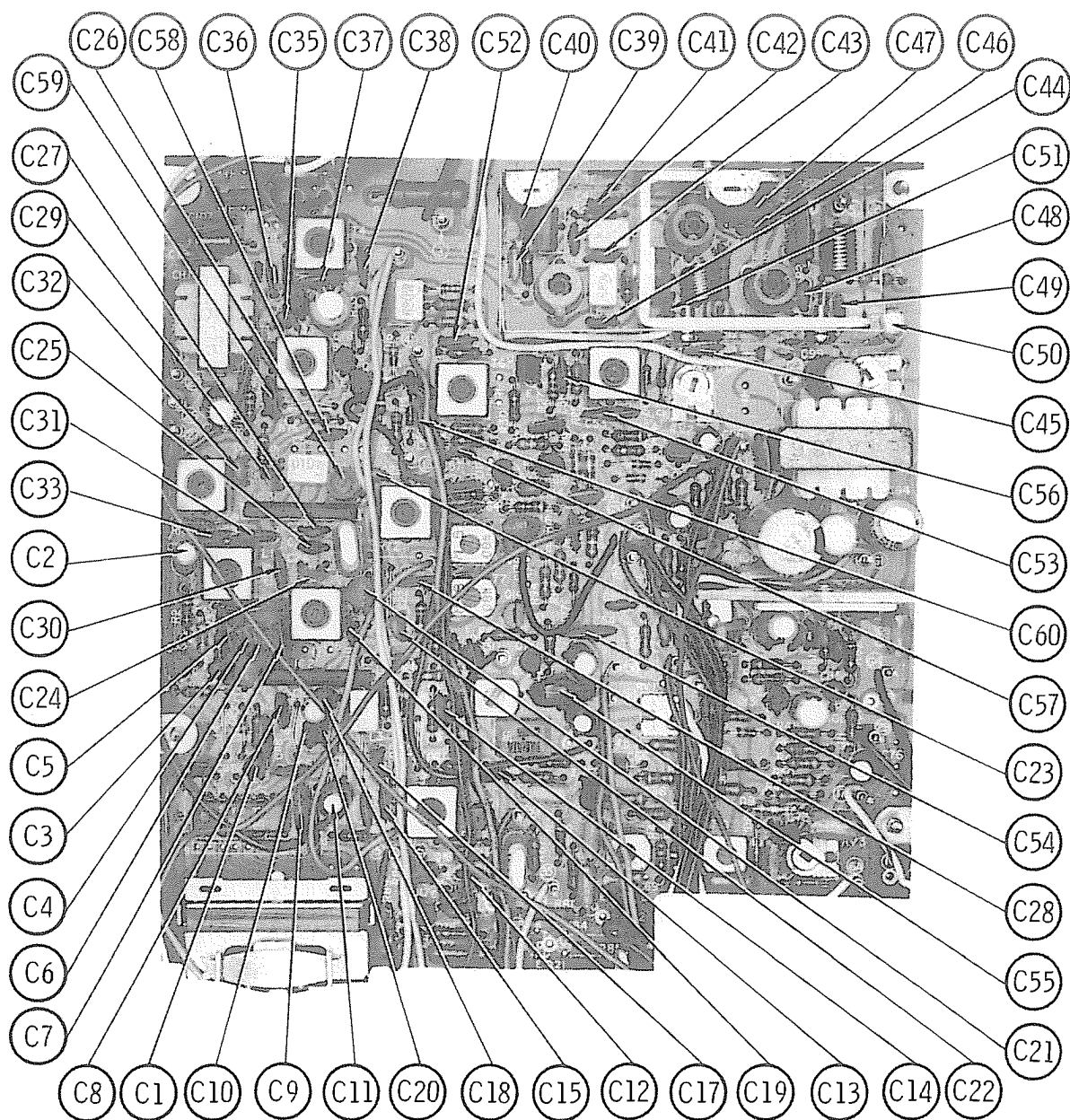


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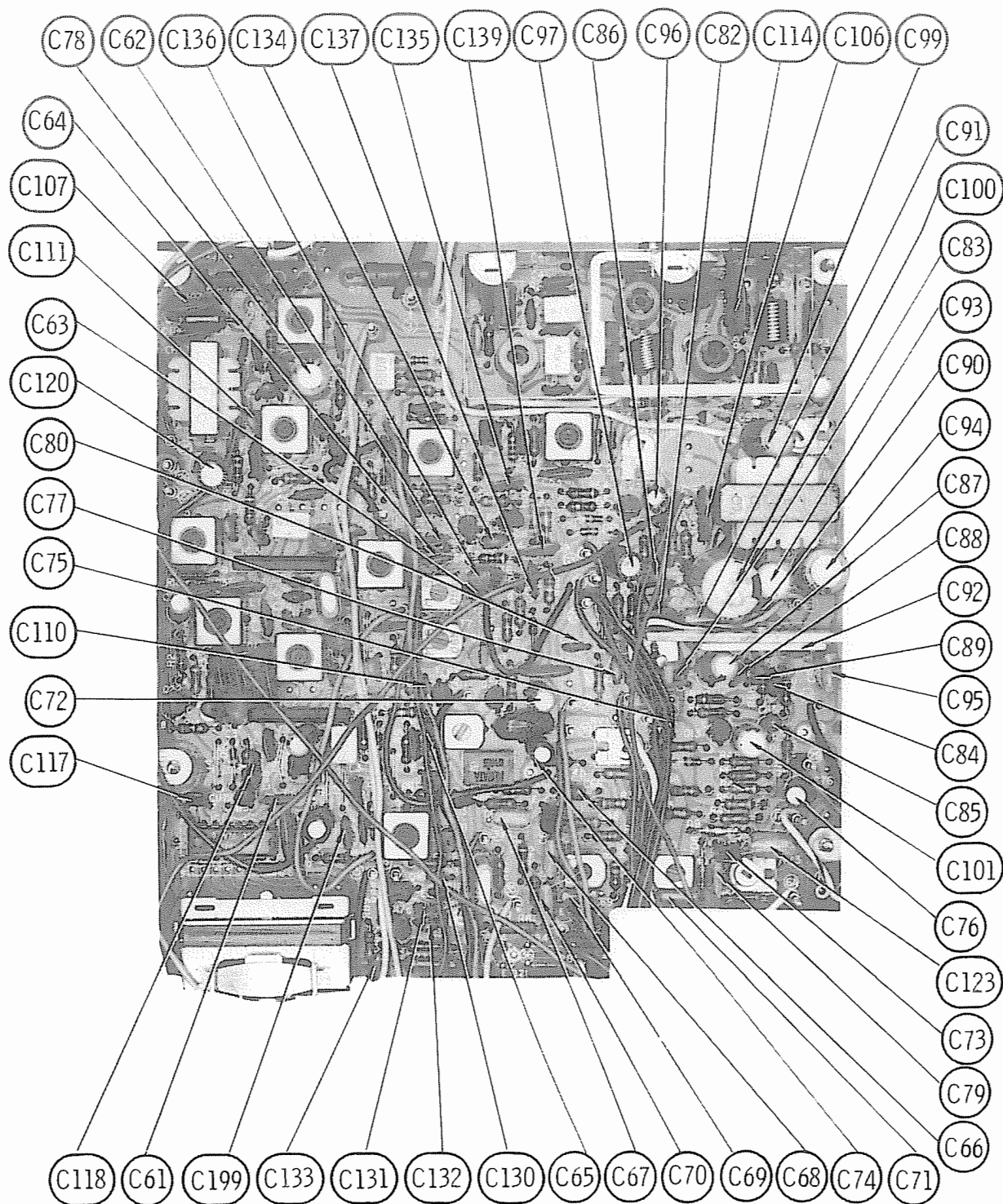


MIDLAND MODEL 77-888

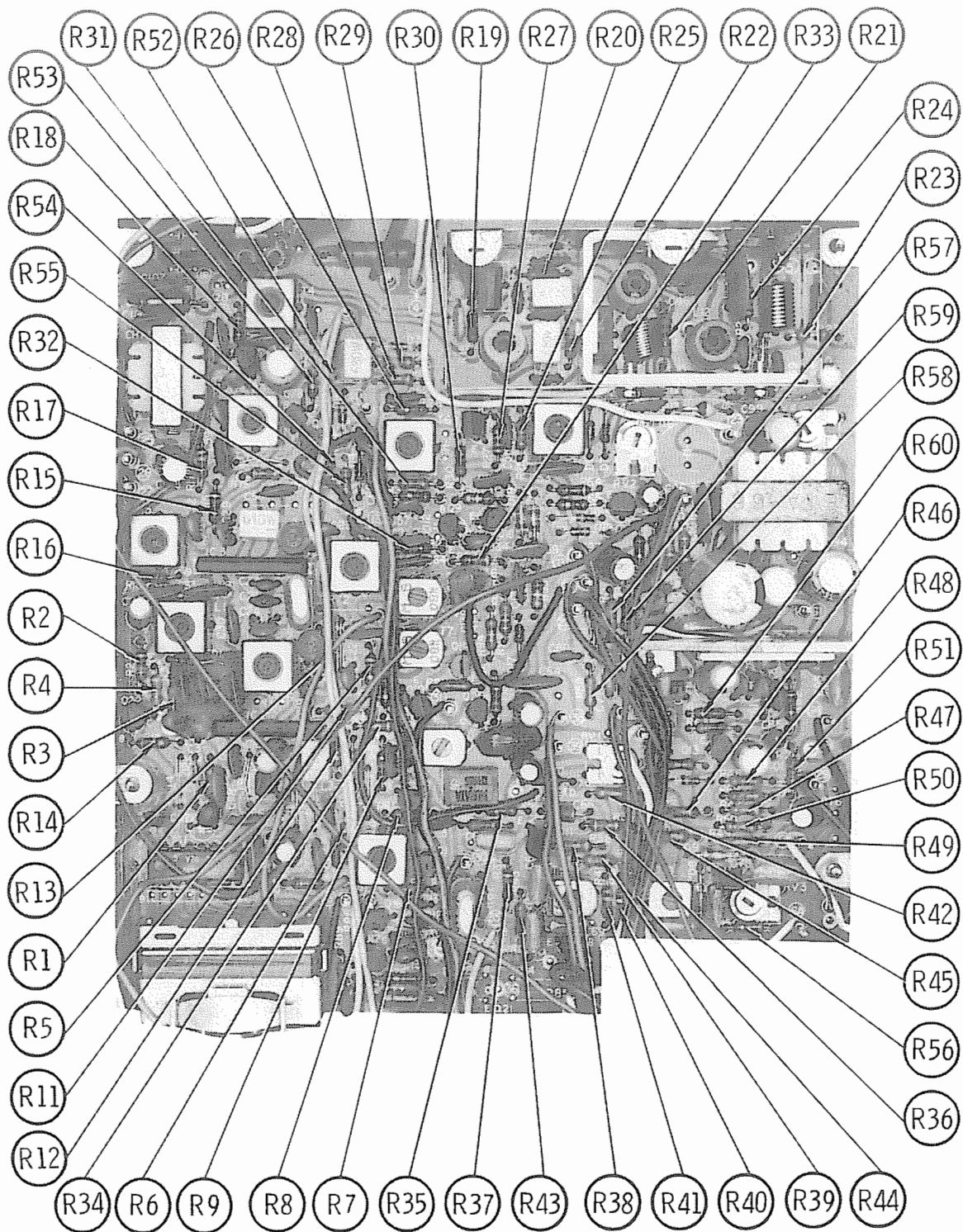
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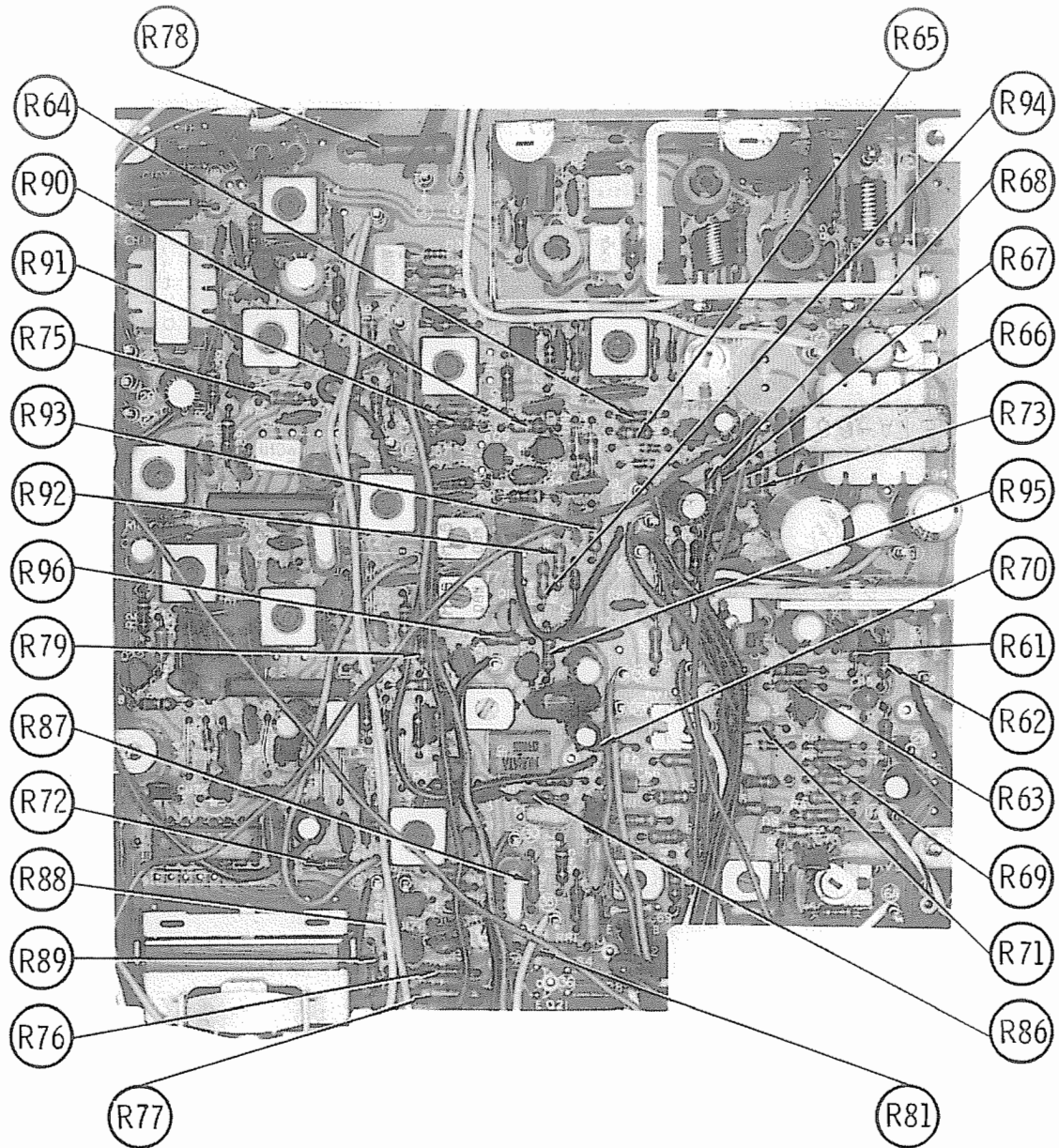
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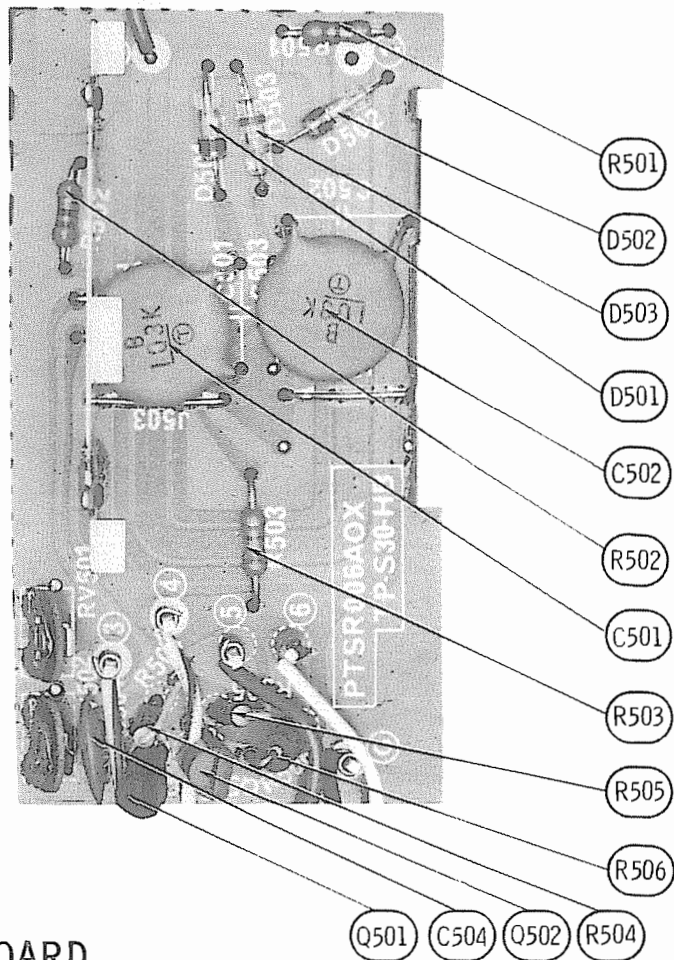
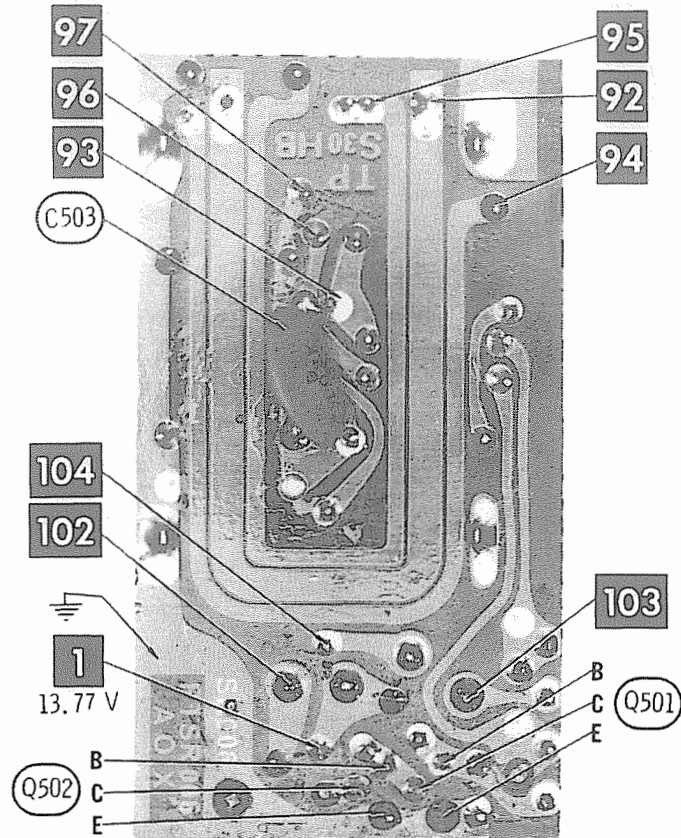
MAIN BOARD



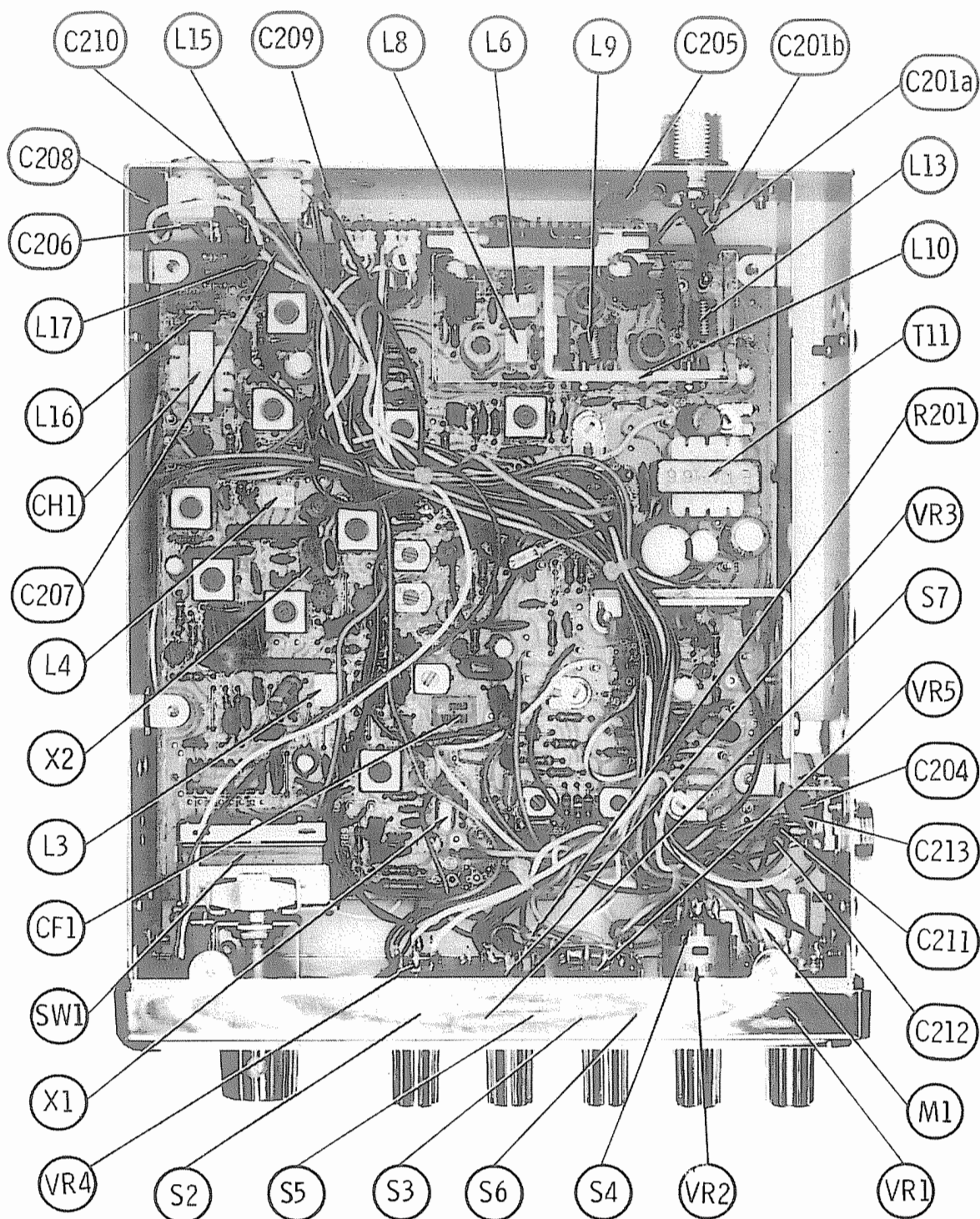
MAIN BOARD



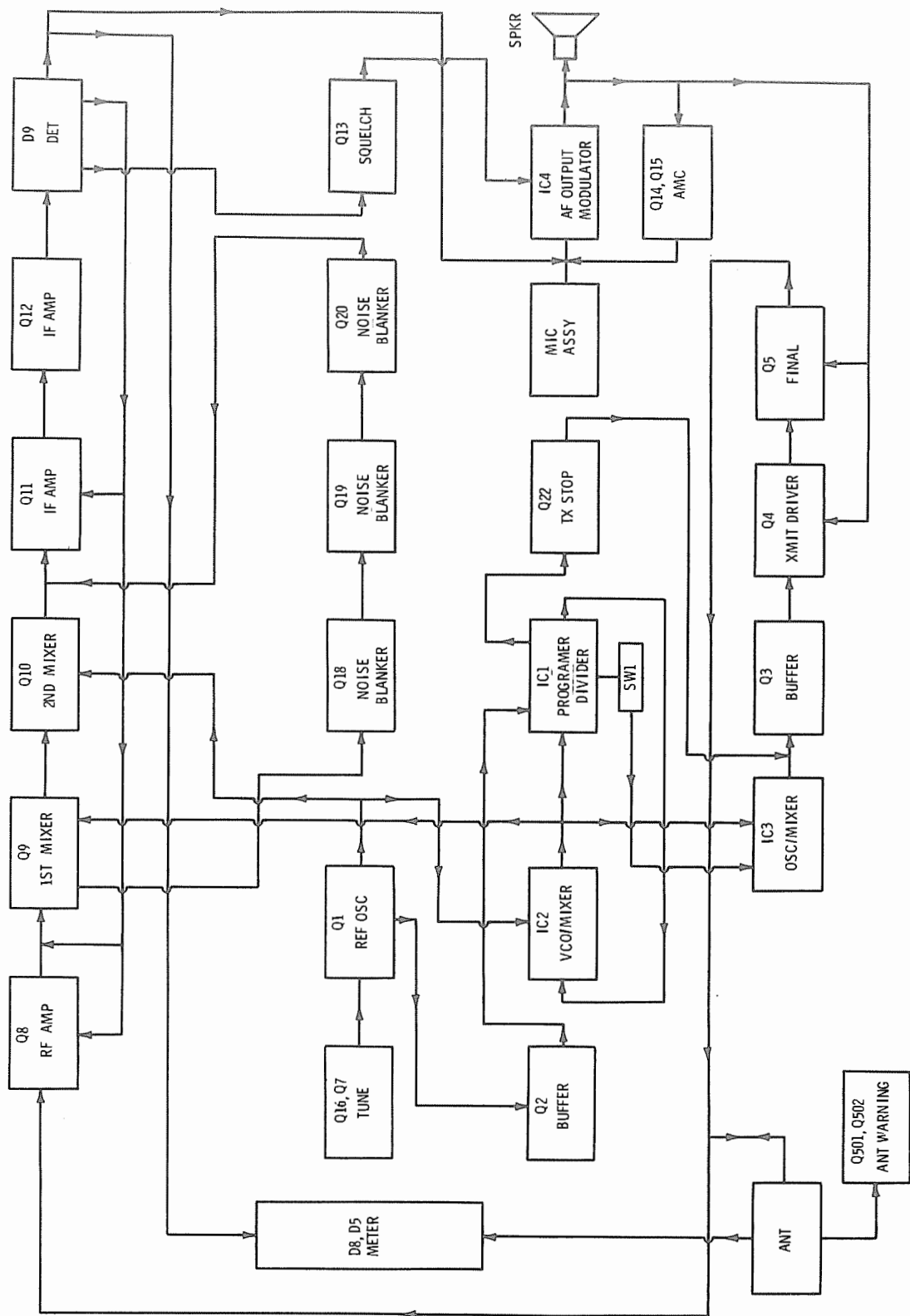
MAIN BOARD



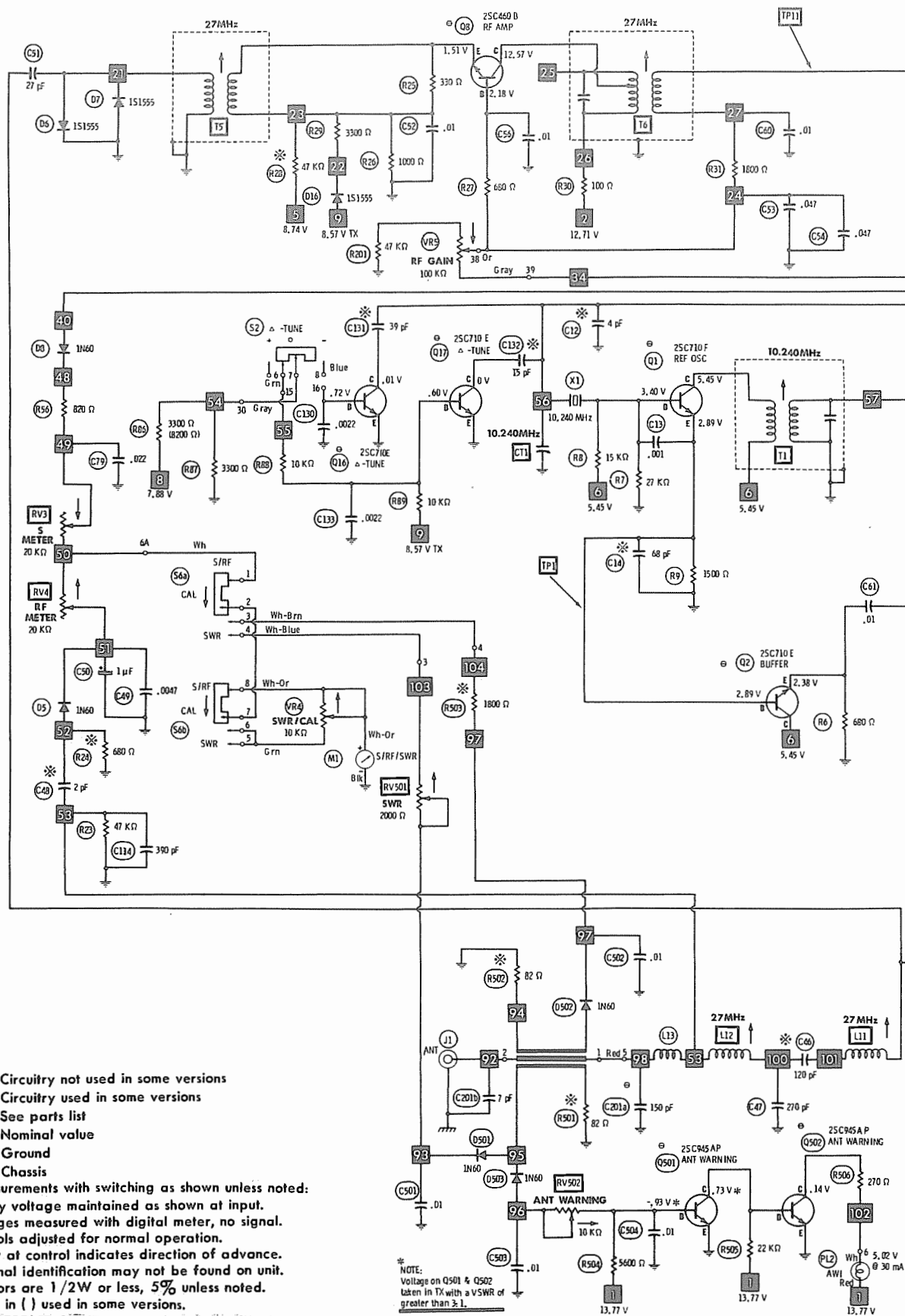
ANT. WARNING BOARD

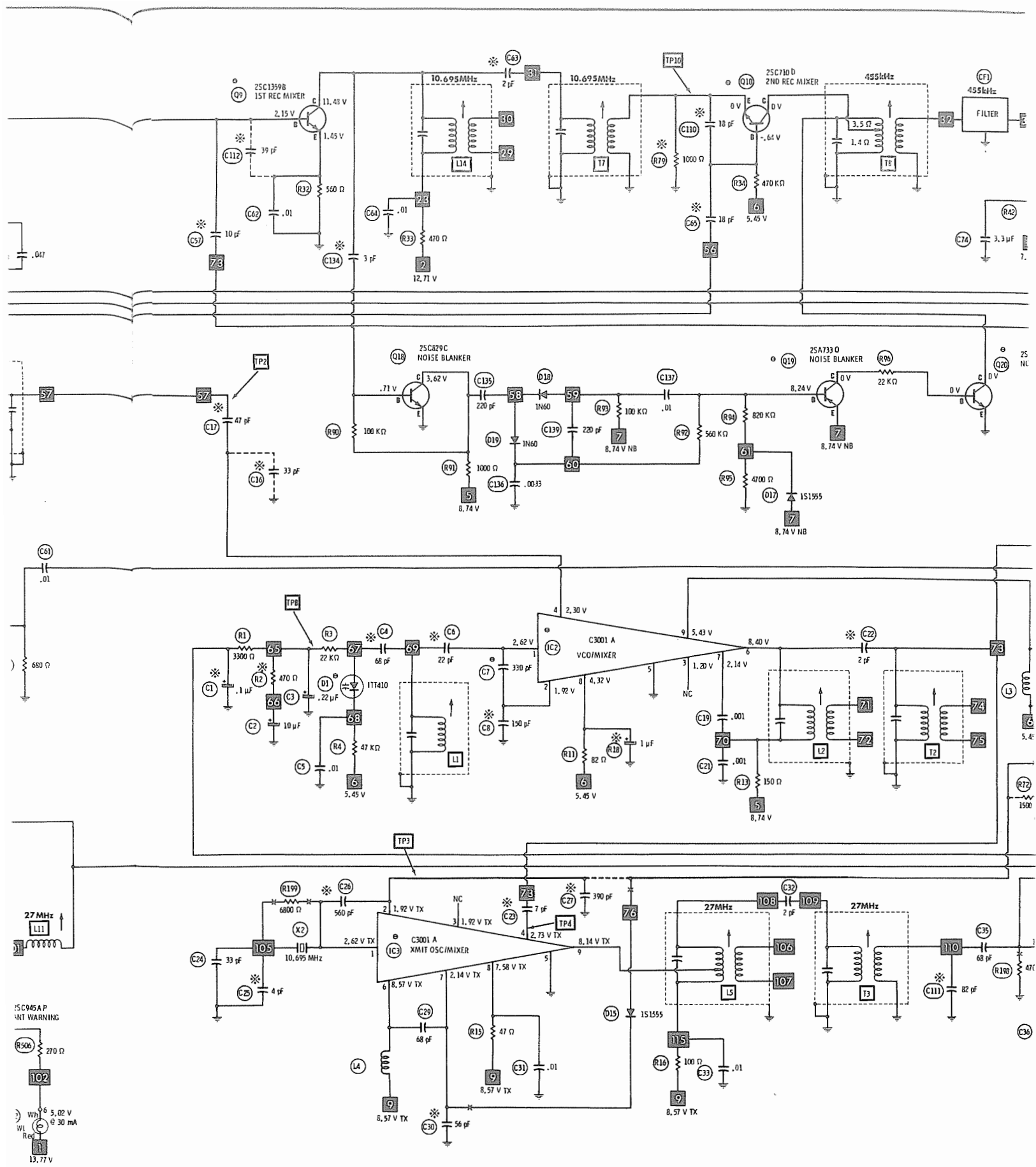


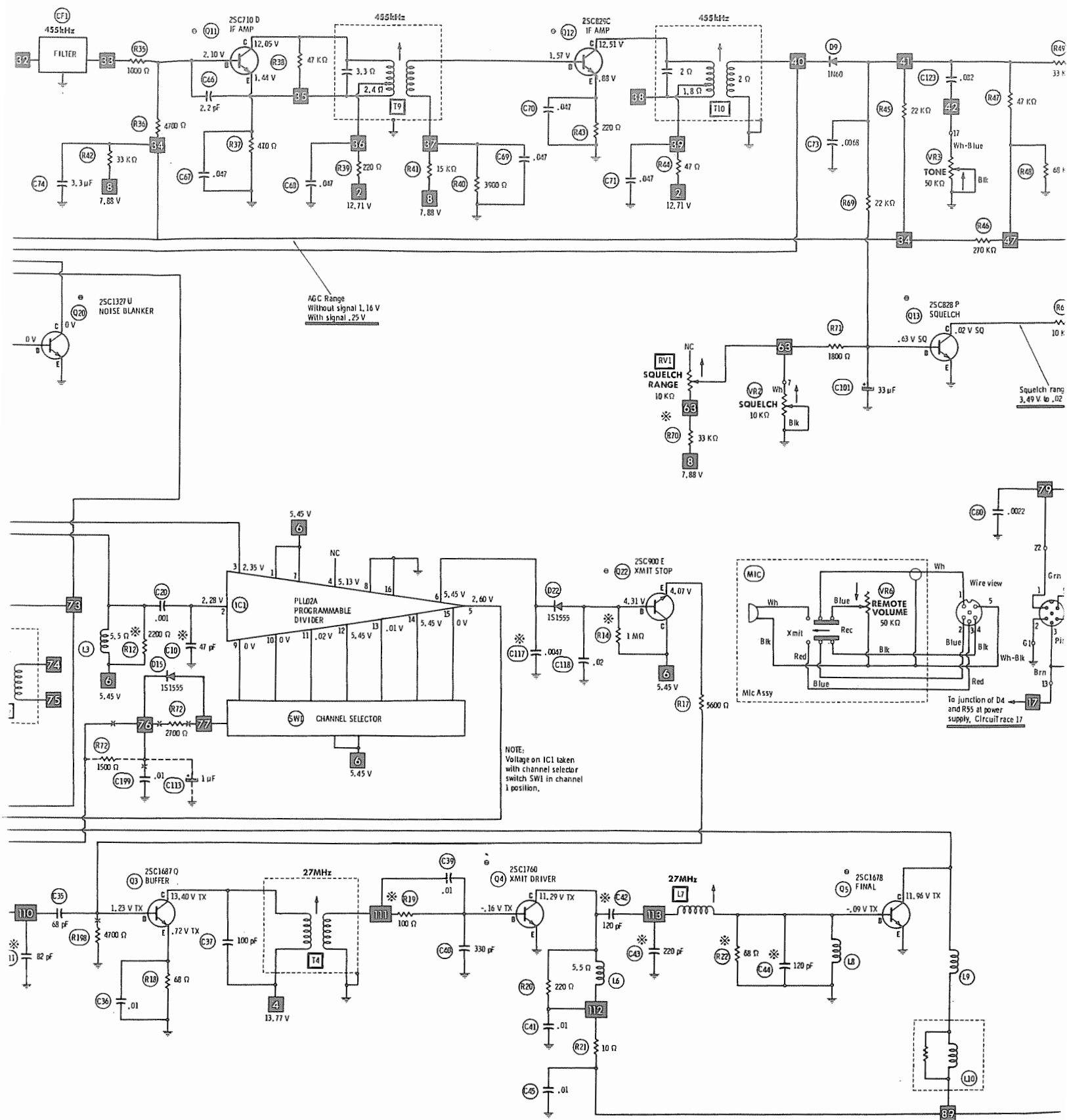
CHASSIS BOTTOM

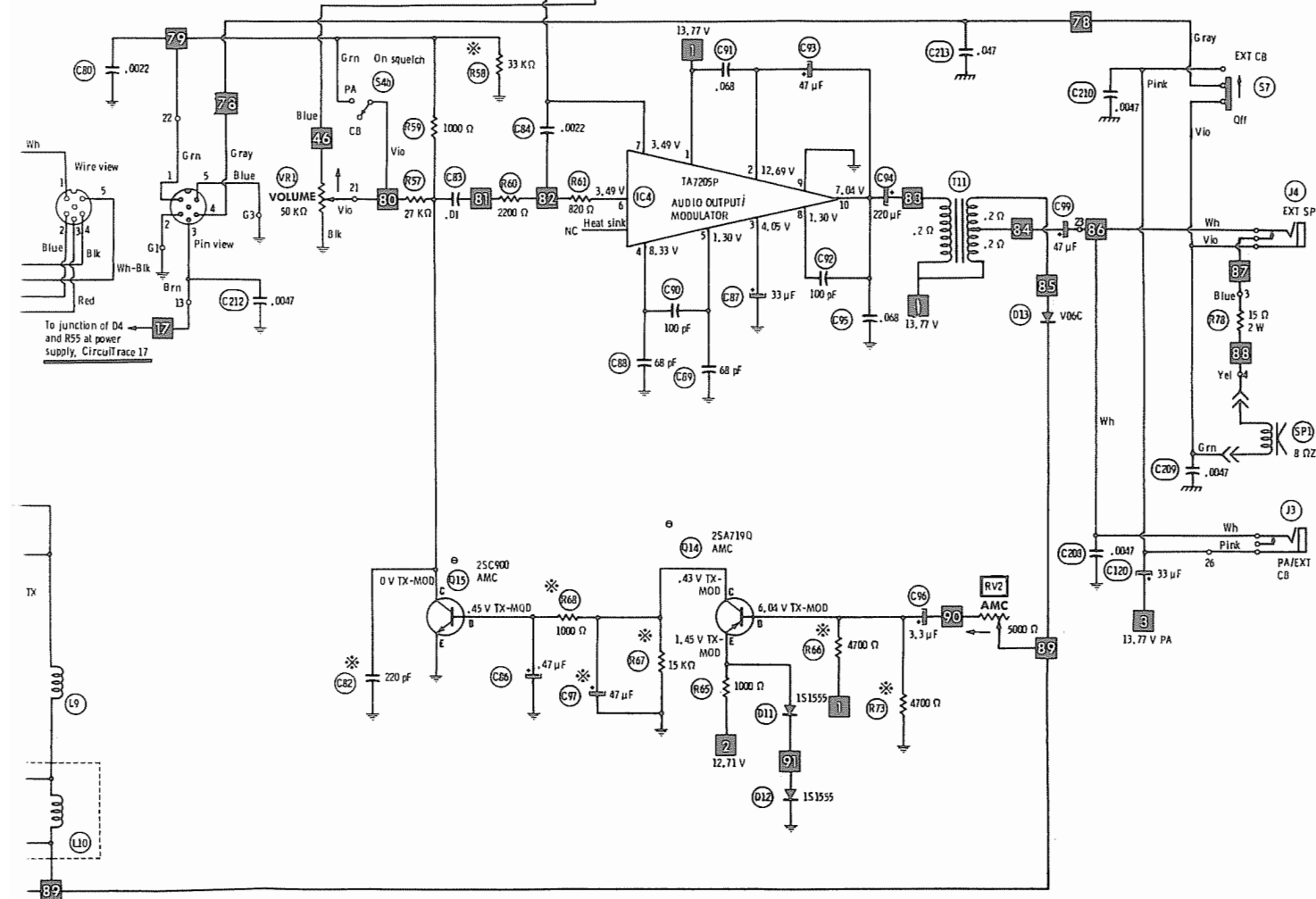


BLOCK DIAGRAM









Terminal Guides



Q1, Q2, Q10
Q11, Q12, Q13
Bottom view



Q3
Bottom view



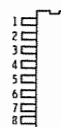
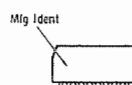
Q4
Empty view



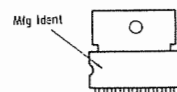

 E C B
 Q8
 Front view



Q9, Q13, Q14
Q15, Q16, Q17
Q19, Q20, Q21
Q501, Q502
Bottom view

IC1
Top. 11

No Ident



No Ident



14

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	ITT410		GE-90	D201		HEPR2503	RE 195	SK3126	RT-262	ECG610
D2	MZ205			WEP602			RE 105			ECG135
D3	RD9.1E		GEZD-9.1	WEP104	ZB9.1B		RE 114		RT-240	ECG139A
D4	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D5	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D6	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D7	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D9	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D10	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D11	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D12	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D13	V06C		GE-504A	5A40	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D14	1S1885		GE-504A	5A40	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D15	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D16	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D17	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D18	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D19	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D22	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D501	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D502	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D503	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
IC1	PLLO2A									
IC2	C3001A									
IC3	TA7310P									
IC4	TA7205P		GEIC-179	WEP949	PTC780			SK3231	TVCM-81	ECG1155
Q1	2SC710E,0		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q2	2SC710E,D		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q3	2SC1687Q		GE-20 *	TR-24 *	PTC121 *	HEPS0015 *	RE 13 *	SK3018 *	RT-107A *	ECG123A *
Q4	2SC1760		GE-276	WEP918					RT-310	ECG306
	2SC1846		GE-336	WEP918			RE 209			ECG306
	(1)(11)									
	2SC2036									
	(1)									
Q5	2SC1678		GE-322	WEP1678	PTC186		RE 203	SK3197	RT-146	ECG235
	(12)									
	2SC1306		GE-215	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	(1)(13)									
	2SC1974(1)		GE-337	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	2SC2075(1)									
Q6	2SC1318Q,R		GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
Q7	2SA719P,Q,R		GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA720 (1)		GE-272	TR-20 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-103A *	ECG298
Q8	2SC460B		GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
	2SC710 (1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC1047B,C(1)		GE-60 *	(IR)2SC829B	PTC132 *	HEPS0016 *	RE 28 *	SK3018 *	RT-107	ECG161 *
Q9	2SC1359B,C		GE-212	(IR)2SC380A0	PTC121 *	HEPS0014 *	RE 192	SK3038 *	RT-308	ECG199
	2SC710 (1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q10	2SC710D		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829 (1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839 (1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q11	2SC710D		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829 (1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q12	2SC829C,B		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC710 (1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q13	2SC828P		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC372 (1)		GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
	2SC945 (1)		GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q14	2SA719Q		GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA720 (1)		GE-372	TR-20 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-103A *	ECG298
	2SA564 (1)		GE-65	(IR)2SA564A	PTC103 *	HEPS0019 *	RE 193	SK3114	RT-303	ECG234
Q15	2SC900F		GE-62	(IR)2SC644	PTC139 *	HEPS0015 *	RE 192	SK3124	RT-302	ECG199
	2SC945P,Q(1)		GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q16	2SC710E,D		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829 (1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839 (1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q17	2SC710E,0		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829 (1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839 (1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q18	2SC829C		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q19	2SA733Q,P		GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
Q20	2SC1327U		GE-85 *	(IR)2SC945	PTC139 *	HEPS0024 *	RE 192	SK3124	RT-107A	ECG199
	2SC900 (1)		GE-62	(IR)2SC644	PTC139 *	HEPS0015 *	RE 192	SK3124	RT-302	ECG199
Q22	2SC900E,V		GE-62	(IR)2SC644	PTC139 *	HEPS0015 *	RE 192	SK3124	RT-302	ECG199
Q501	2SC945AP		GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828 (1)		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
Q502	2SC945AP		GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828 (1)		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199

* Lead configuration may vary from original. (12) Rating, 10 WATTS @ 3.0 AMP
 (1) Used in some versions. (13) Rating, 12 WATTS @ 3.0 AMP
 (11) Rating, 1.2 WATTS @ 1.0 AMP

PARTS LIST

(When ordering p

ELECTROLY

ITEM No.	
C1	.1
C2	10
C3	.22
C11	4.7
C18	1 50
C50	1 50
C72	10
C74	3.3
C76	1 50
C78	47
C85	3.9
C86	.47
C87	33
C93	47
C94	220
C96	3.3
C97	47
C99	47
C100	1000
C101	33
C120	33

CAPACITO

ITEM No.	R
C4	68 M
C5	.01
C6	22 M
C7	330
	220
C8	150
	120
C9	.047
C10	47
C12	4 NPK
C13	.001
C14	68 M
C15	.01
C17	47 M
C19	.001
C20	.001
C21	.001
C22	2
C23	7
C24	33 N
C25	4 N
C26	560
C27	390
C28	.01
C29	68
C30	56 N
C31	.01
C32	2
C33	.01
C35	68
C36	.01
C37	100
C38	.01
C39	.01
C40	330
C41	.01
C42	120
C43	220
C44	120
C45	.01
C46	120
C47	270
C48	2
C49	.0047
C51	27
C52	.01
C53	.047
C54	.047
C55	.047
C56	.01
C57	10
C58	.01
C59	.01

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C1	.1 10V			TOC104M050EL	QDT1-2	S050-R109
C2	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C3	.22 10V			TOC224M050EL	QDT1-10	SD50-R229
C11	4.7 10V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C18	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C50	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C72	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C74	3.3 25V		PC5-50	VTT3R3A50	QV1-23	EV-1318
C76	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C78	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C85	3.9 10V			TOC335M015FL	QDT1-41	SD15-3R39
C86	.47 10V			TOC474M050EL	QDT1-19	SD50-R479
C87	33 10V		PC30-25	VTT33B10	QV1-61	EV-1125
C93	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C94	220 10V		PC250-10	VTT220F10	QV1-115	EV-1140
C96	3.3 25V		PC5-50	VTT3R3A50	QV1-23	EV-1318
C97	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C99	47 25V		PC50-25	VTT47E25	QV1-75	EV-1326
C100	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C101	33 6.3V		PC30-25	VTT33B10	QV1-61	EV-1125
C120	33 16V		PC30-25	VTT33025	QV1-63	EV-1325

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C4	68 N150 10%		UK16-103		* MAG1611		10TCP-Q68
C5	.01				*		HY-420
C6	22 N150 10%						10TCP-Q22
C7	330 10%		DD-331	GP330	GP333		10TS-T33
	220 10%	(1)	DD-221		GP322		10TS-T22
C8	150 10%		DTZ-150		CN0315		10TCC-T15
	120 10%	(1)	DTZ-120		CN0312		10TCC-T12
C9	.047		UK25-503		MAG2515		HY-735
C10	47		DTZ-47	NP047	CN0447		10TCC-Q47
C12	4 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C13	.001 10% 50V			OPMS6D1	EWFA210	QF1-1	1PB-010
C14	68 N150 10%				*		10TCP-Q68
C15	.01		UK16-103		MAG1611		HY-420
C17	47 N150 10%				*		10TCP-Q47
C19	.001 10% 50V			DPMS6D1	EWFA210	QF1-1	1PB-010
C20	.001 10% 50V			DPMS6D1	EWFA210	QF1-1	1PB-010
C21	.001			C019FD102J03	SX210		MWC-102
C22	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C23	7		DTZ-6R8	NP06P8	CN0568		10TCC-V68
C24	33 N150 10%				*		10TCP-Q33
C25	4 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C26	560 10%			C019FD561J03	SX356		MWC-561
C27	390		DD-391	GP390	GP339		10TS-T39
C28	.01		UK16-103		MAG1611		HY-420
C29	68		DTZ-68	NP068	CN0468		10TCC-Q68
C30	56 N150 10%				*		10TCP-Q56
C31	.01		UK16-103		MAG1611		HY-420
C32	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C33	.01		UK16-103		MAG1611		HY-420
C35	68		DTZ-68	NP068	CN0468		10TCC-Q68
C36	.01		UK16-103		MAG1611		HY-420
C37	100 N150 10%				*		10TCP-Q10
C38	.01		UK16-103		MAG1611		HY-420
C39	.01 10% 50V			WMF1S1	EWFA110	QF1-91	1PB-S10
C40	330 10%		DD-331	GP330	GP333		10TS-T33
C41	.01		UK16-103		MAG1611		HY-420
C42	120 10%		DTZ-120		CN0312		10TCC-T12
C43	220 10%		DTZ-220				10TCC-T22
C44	120 10%		DTZ-120		CN0312		10TCC-T12
C45	.01		UK16-103		MAG1611		HY-420
C46	120 10%		DTZ-120		CN0312		10TCC-T12
C47	270 10%			CD15FD271J03	SX327	QW1-37	MWB-271
C48	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C49	.0047		DD-472	GP4700	GP247		5GA-D47
C51	27				CN0427		10TCC-Q27
C52	.01		UK16-103		MAG1611		HY-420
C53	.047		UK25-503		MAG2515		HY-735
C54	.047		UK25-503		MAG2515		HY-735
C55	.047 10%			DPMS2S47	EWFA1A17	QF1-171	1PB-S47
C56	.01		UK16-103		MAG1611		HY-420
C57	10		DTZ-10	NP010	CN0410		10TCC-Q10
C58	.01		UK16-103		MAG1611		HY-420
C59	.01		UK16-103		MAG1611		HY-420

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

			REPLACEMENT DATA					
ITEM No.	RATING	MFR. PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
						Q-LINE	GENERAL LINE	
C60	.01	(1)	UK16-103	NP02P2	MAG1611	QF1-171	HY-420	
C61	.01		UK16-103		MAG1611		HY-420	
C62	.01		UK16-103		MAG1611		HY-420	
C63	2		DTZ-2R2		CN0522		10TCC-V22	
C64	.01		UK16-103		MAG1611		HY-420	
C65	18 N150 10%		DTZ-2R2		*		10TCP-Q18	
C66	2.2				CN0522		10TCC-V22	
C67	.047 10% 50V				NP02P2		QF1-171	1PB-S47
C68	.047 10% 50V				OPMS2S47		QF1-171	1PB-S47
C69	.047 10% 50V				DPMS2S47		QF1-171	1PB-S47
C70	.047 10% 50V				OPMS2S47		QF1-171	1PB-S47
C71	.04 10% 50V				OPMS2S47		QF1-171	1PB-S47
C73	.0068 10% 50V				WMF1D68		QF1-73	1PB-D68
C75	.0022 5% 50V				DTZ-100		M192P2229R8	192P2229R8
C77	100 10%		CN0310	10TCC-T10				
C79	.022 10% 50V		M192P2239R8	192P2239R8				
C80	.0022		GP222	10TS-D22				
C82	220		GP322	10TS-T22				
C83	.01 10% 50V		DD-221	QF1-91	1PB-S10			
C84	.0022			GP222	10TS-D22			
C88	68			WMF1S1	CN0468	10TCC-Q68		
C89	68			NP068	CN0468	10TCC-Q68		
C90	100			NP0100	CN0310	10TCC-T10		
C91	.068 10% 50V			WMF1S68	QF1-195	1PB-S68		
C92	100 10%			NP0100	CN0310	10TCC-T10		
C95	.068 10% 50V			WMF1S68	QF1-195	1PB-S68		
C106	.047			UK25-503	MAG2515	HY-735		
C107	.047			UK25-503	MAG2515	HY-735		
C110	18 N150			DTZ-82	*	10TCP-Q82		
C111	82 10%				NP082	CN0482	10TCC-Q82	
C112	39		CN0439		10TCC-Q39			
C114	390		GP390		GP339	10TS-T39		
C117	.0047 10% 50V		M192P4729R8		192P4729R8			
C118	.02		UK50-223	MAG5012	192P8239R8			
C123	.082 10% 50V			M192P8239R8	10TS-D22			
C130	.0022			GP222	10TCP-Q39			
C131	39 N150 10%			*	10TCC-Q15			
C132	15 N150			*	10TS-D22			
C133	.0022		DTZ-3R3	GP222	10TCC-V33			
C134	3			CN0533	10TCC-T22			
C135	220 10%			GP3300	GP233	5GA-D33		
C136	.0033				MAG1611	HY-420		
C137	.01				DTZ-220	10TCC-T22		
C139	220 10%				UK16-103	HY-420		
C199	.01		DTZ-150		10TCC-T15			
C201a	150 10%		DTZ-6R8		CN0315	10TCC-V68		
C201b	7		NP06P8	CN0568	HY-420			
C202	.01			UK16-103	MAG1611	HY-420		
C203	.01			UK16-103	MAG1611	HY-420		
C204	.01			UK16-103	MAG1611	HY-420		
C205	.047			UK25-503	MAG2515	HY-735		
C206	.01			UK16-103	MAG1611	HY-420		
C207	.01			UK16-103	MAG1611	HY-420		
C208	.0047			DD-472	GP247	5GA-D47		
C209	.0047			DD-472	GP247	5GA-D47		
C210	.0047			DD-472	GP247	5GA-D47		
C211	.0047			DD-472	GP247	5GA-D47		
C212	.0047		DD-472	GP247	5GA-D47			
C213	.047		UK25-503	GP247	5GA-D47			
C501	.01		UK16-103	MAG2515	HY-735			
C502	.01		UK16-103	MAG1611	HY-420			
C503	.01		UK16-103	MAG1611	HY-420			
C504	.01		UK16-103	MAG1611	HY-420			
CT1		13-123069	UK16-103	MAG1611	HY-420			

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

(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RV1	Squelch Range	10K	13-164132	T-10K (3)	C-103 (3)	MTC14L4	U201R1038
RV2	AMC	5000	13-164146				
RV3	S Meter	20K	13-164134				
RV4	RF Meter	20K	13-164134				
RV501	SWR	2000	77-164001				
RV502	Antenna Warning	10K	77-164002				
VR1	Volume/Power Switch	50K	13-160138				
VR2	Squelch/PA Switch	10K	77-166001				
VR3	Tone	50K	13-165041				
VR4	SWR/CAL	10K	13-165042				
VR5	RF Gain	100K	13-165044				
VR6	Remote Volume	50K					

(3) For horizontal mounting, bend the two outside terminals to fit PC board. Use jumper to connect center terminal to PC Board.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	VCO Input	77-176001	10MB003M68LT		
L2	VCO	13-090405			
L3	RF Choke	13-178210			
L4	RF Choke	77-176002			
L5	Harm Suppressor (27MHz)	77-176003			
L6	RF Choke	13-176564			
L17	Xmit Driver (27MHz)	13-176508			
L8	RF Choke	13-178210			
L9	RF Choke	13-176567			
L10	RF Choke	13-176565			
L11	Final Amp (27MHz)	13-176509			
L12	Antenna Match (27MHz)	13-176510			
L13	RF Choke	77-176004			
L14	Rec Mixer (10.695MHz)	13-176615			
L15	RF Choke	13-178210	1DDB002S60E3 10MB005S69C3 10CB001M68JV 10CP005M67G9 ETR03336903 ETR033469C3 ET1012269G3		
L16	RF Choke	13-178209			
L17	RF Choke	13-178209			
T1	REF Osc (10.240MHz)	77-094001			
T2	VCO	71-094002			
T3	Xmit Osc (27MHz)	13-094232			
T4	Xmit Buffer (27MHz)	13-094233			
T5	Rec Antenna (27MHz)	13-094234			
T6	Rec RF (27MHz)	77-094003			
T7	Rec Mixer (10.695MHz)				
T8	IF (455kHz)	13-090371			
T9	IF (455kHz)	13-090375			
T10	IF (455kHz)	13-090372			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
CH1	1.28 A	.12	.48mH	13-178208 ELA-16 (1)	TR523		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T11	2	1 8 2 .5	13-096200 ETA-66 (1)	TR723		(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3 5/8" PM 8 Ohms	13-060117	3A0528R	

MIDLAND MODEL 77-888

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFR. PART No.	CTS KNIGHTS PART No.	CHANNEL	ITEM No.	CRYSTAL FREQUENCY IN MHz	MFR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X1	10.240	77-128001	CA60W10240	Ref Osc	X2	10.695	77-128002		Xmit Osc

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MIC	13-038099										

MISCELLANEOUS

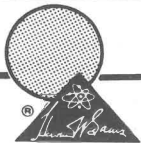
ITEM No.	PART NAME	PART No.	NOTES
CF1	Ceramic Filter	77-179001	455kHz
J1	Jack	13-159220	Antenna
J3	Jack	13-153-168	PA/EXT CB
J4	Jack	13-153-168	Ext Speaker
J5	Jack	13-159-235	Power
M1	Meter	77-200001	S/R/F/SWR
PL1	Lamp	13-201076	Channel Indicator
PL2	Lamp	13-201078	AWI
PL3	Lamp		Meter
PL4	Lamp	13-201077	TX
SW1	Switch	77-180001	Channel Select
S1	Switch		Power (Part of Volume Control)
S2	Switch	13-183234	Delta Tune
S3	Switch	13-183236	ANL
S4	Switch		PA/CB (Part of Squelch Control)
S5	Switch	13-183236	NB
S6	Switch	13-183234	S/R/F/SWR-Cal
S7	Switch	13-183236	EXT CB

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Top	77-010001	Escutcheon	77-0110001
Cabinet, Bottom	77-013001	Knob, Control	13-110198
Panel, Front	13-010327	Knob, Channel Selector	13-115141

WIRING DATA

General-use Hook-up Wire (available in 5 colors)	BELDEN No. 8523	Coiled Microphone Cable	
Shielded Hook-up Wire (spiral wrapped)	BELDEN No. 8421	3-conductor (1 shielded) 23AWG	BELOEN No. 9471 (5')
(braided)	BELDEN No. 8401		BELDEN No. 8497 (6')
Speaker Cable (available in 4 colors)	BELDEN No. 8782		BELDEN No. 9472 (7-1/2')
Bonding Strap	BELDEN No. 8672		28AWG BELDEN No. 9466 (6')
AC Power Cord	(6') BELDEN No. 17106		31AWG BELDEN No. 9468 (10')
	(9') BELDEN No. 17109	4-conductor (unshielded) 23AWG	BELDEN No. 8415 (6')
		5-conductor (1 shielded) 28AWG	BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')



PHOTOFACT[®] with CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

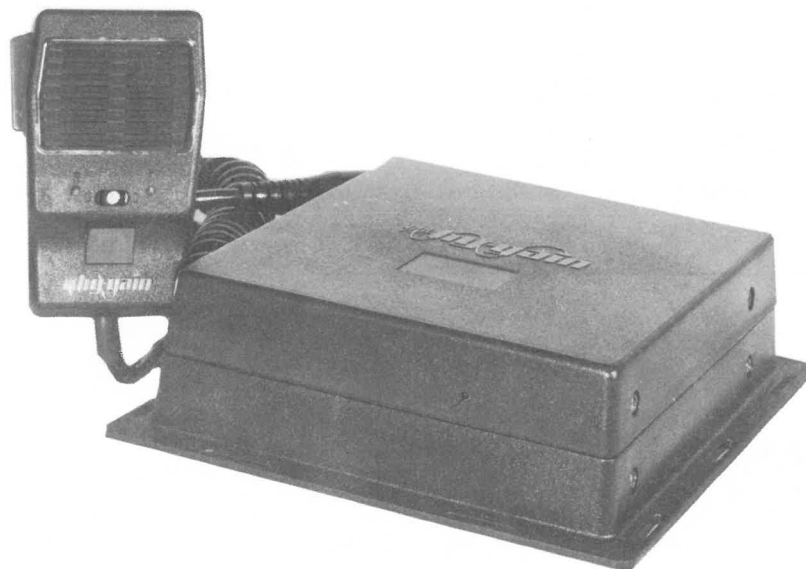
NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.
(Refer to FCC Rules and Regulations Part 95, Subpart 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.



HY-GAIN MODEL 2679

MODEL 2679 (Hy-Gain 9)

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.

Adjustments made with 13.8-volt DC input.

Connect low sides of test equipment to ground unless specified otherwise.

Connect 50-ohm dummy load or antenna before keying transmitter.

Suggested Alignment Tools: GC ELECTRONICS

L112, T106 thru T1095009

L106, L109, L1109304

L103, L104, T101 thru T1059440

C1195000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1.	Ch. 1		Check for 10.240MHz.
Input of frequency counter to TP2.	Ch. 1		Disconnect C103 from Q102 Base. Check for 11.8066MHz. Reconnect C103.
Input of frequency counter to TP3.	Ch. 1	C119	Check for 37.660MHz.
Input of DC meter to TP7.	Ch. 1		Check for 5.0V to 5.5V.
Input of DC meter to TP8.	Ch. 1	T101	Adjust for 1.5V $\pm$.1V.
Input of RF VTVM to TP5.	Ch. 1	T111	Adjust for maximum.
Input of frequency counter to TP4.	Ch. 1, Xmit		Check for 10.695MHz.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.

Adjust volume control to obtain a suitable indication.

Set generator output low enough to prevent AGC limiting.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP6. 455kHz, 1000Hz @ 30% modulation.	Ch. 13	T109, T108, T107	Adjust for maximum output.
Output of signal generator thru .01uF to TP5. 10.695MHz, 1000Hz @ 30% modulation.	Ch. 13	T106, L112	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation.	Ch. 13	T105, T104	Adjust for maximum output. Repeat above steps if necessary.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 13	RV101	SQUELCH RANGE Turn squelch control R417 to midposition. Adjust RV101 so that squelch just breaks.

TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 13	L103, L104, T102, T103, L106, L109, L110	Adjust for maximum.
	Ch. 13	L110, L109	Adjust for 4 watts maximum.

HY-GAIN MODEL 2679

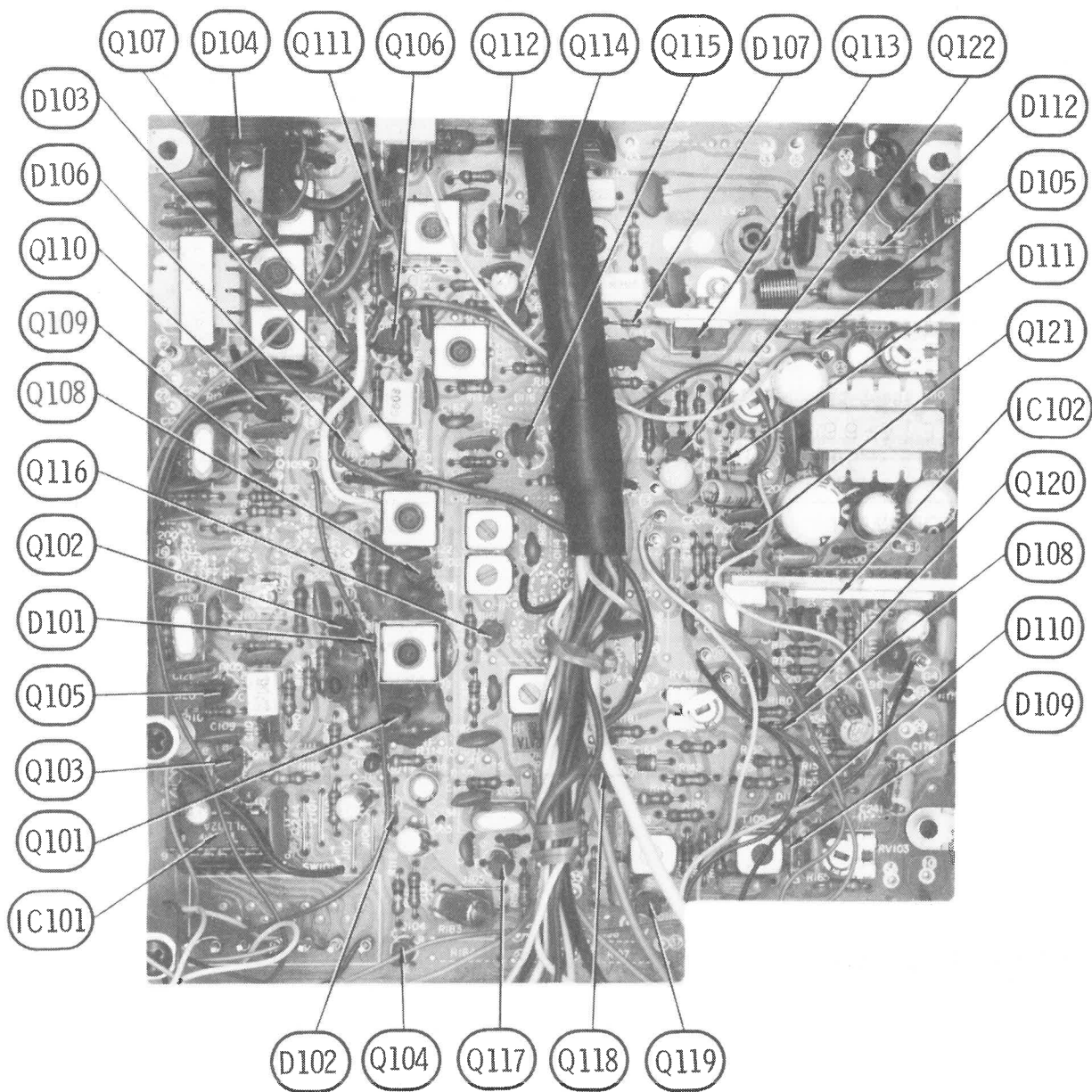
TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after adjustments of transmitter.

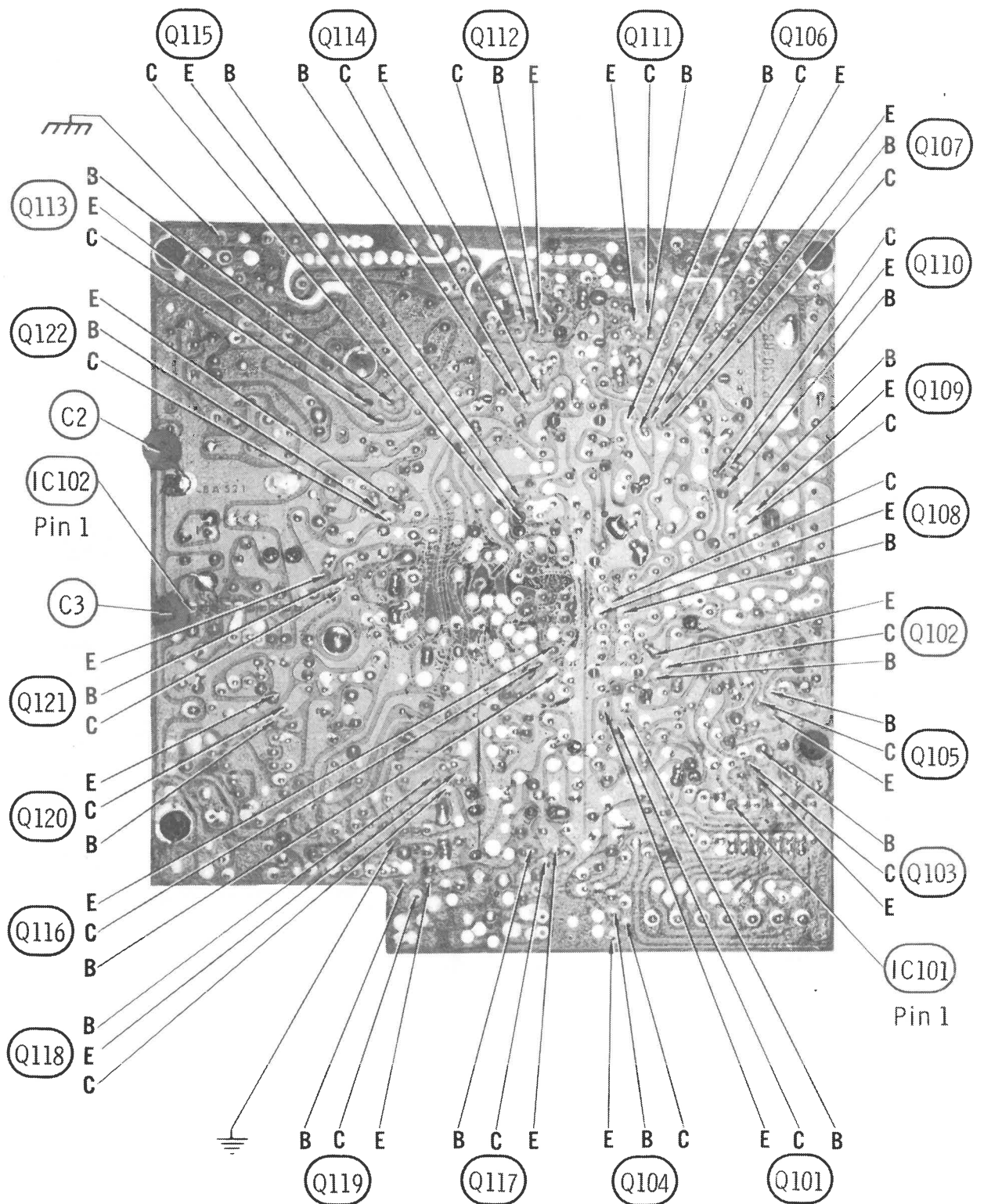
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 1000Hz signal at Mic input.	Ch. 13	RV102	AMC Disconnect C209 to disable AMC. Adjust signal for overmodulation. Restore AMC operation. Adjust RV102 for 100% modulation maximum.



MAIN BOARD



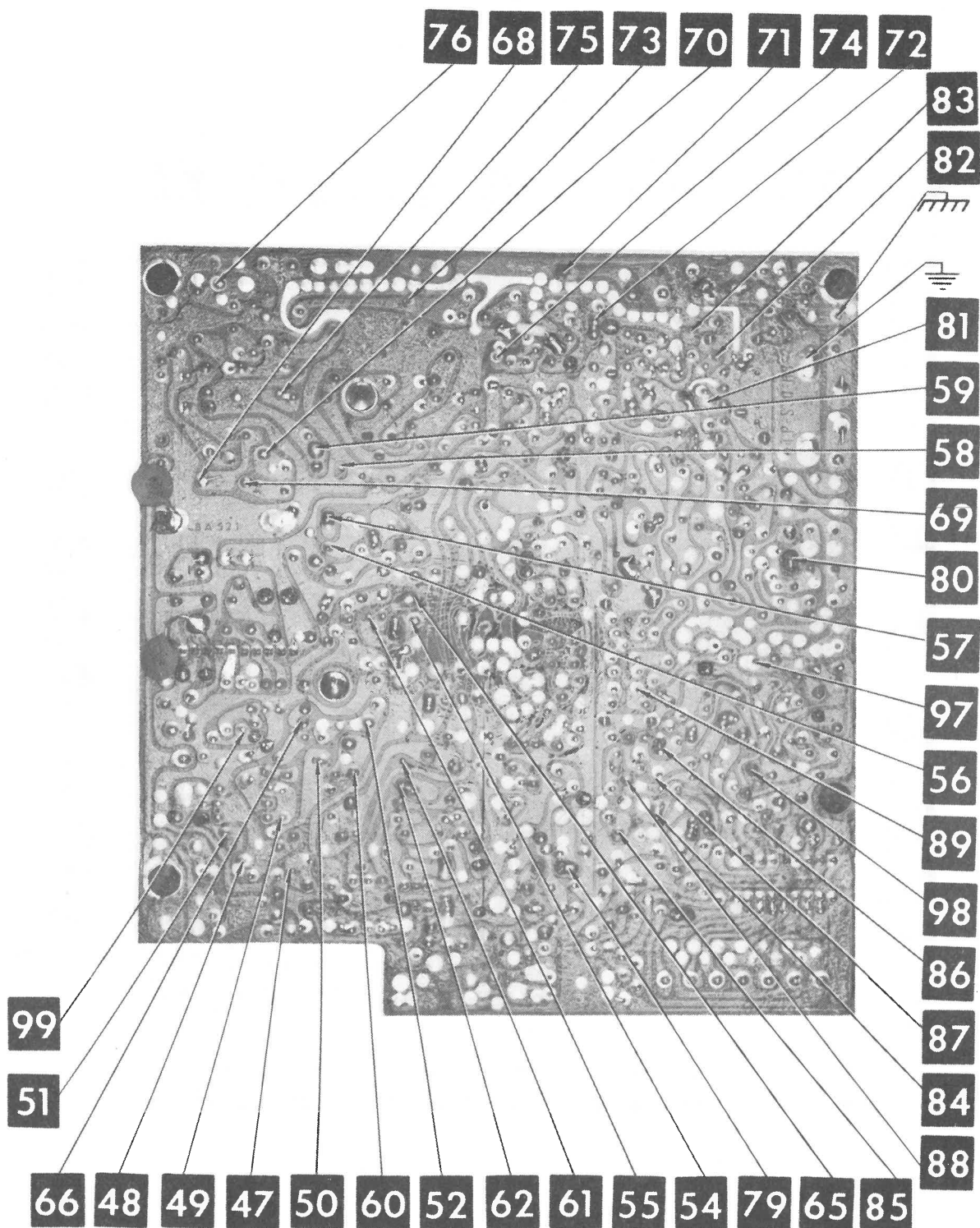


MAIN BOARD



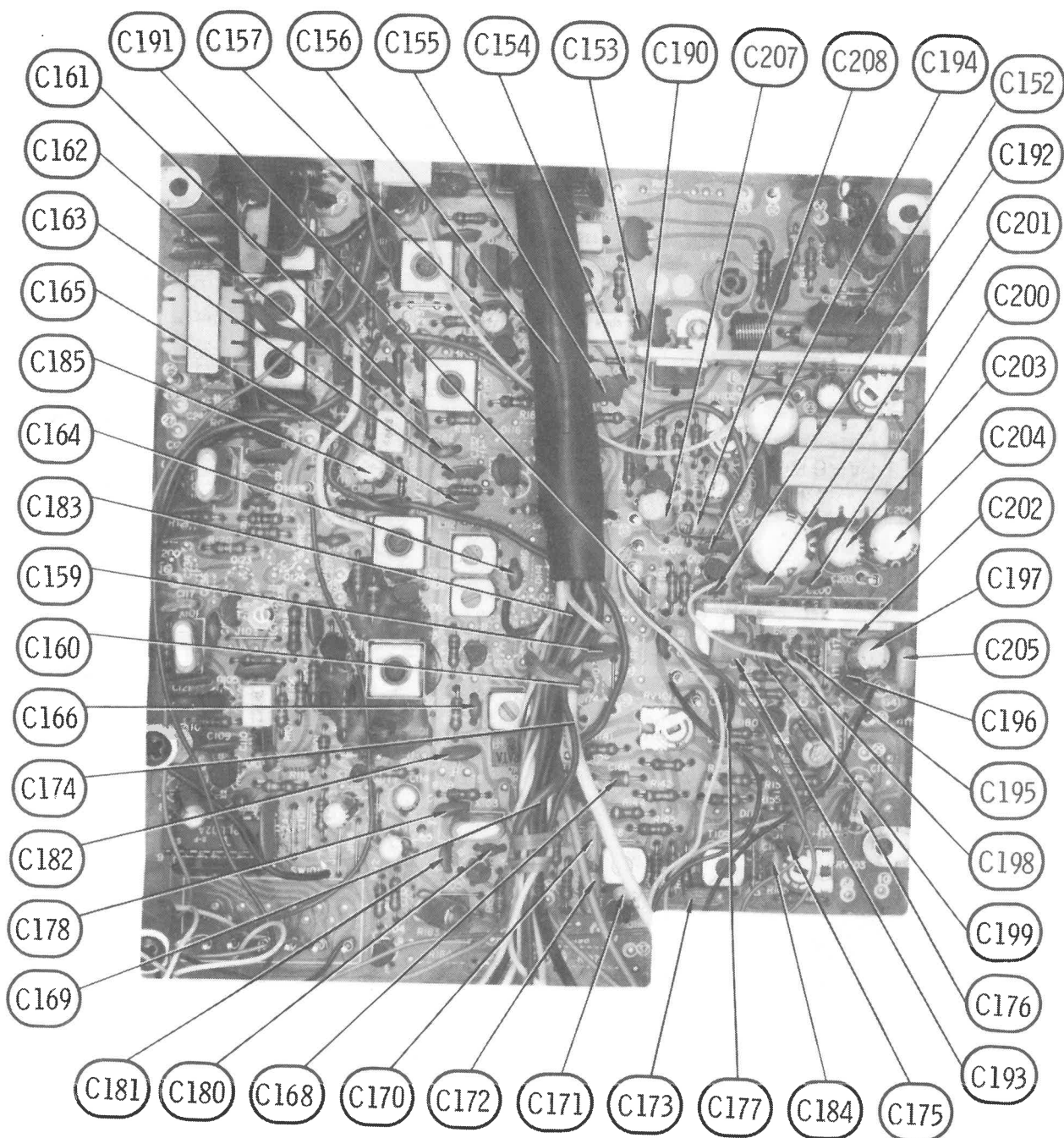
HY-GAIN MODEL 2679

MAIN BOARD

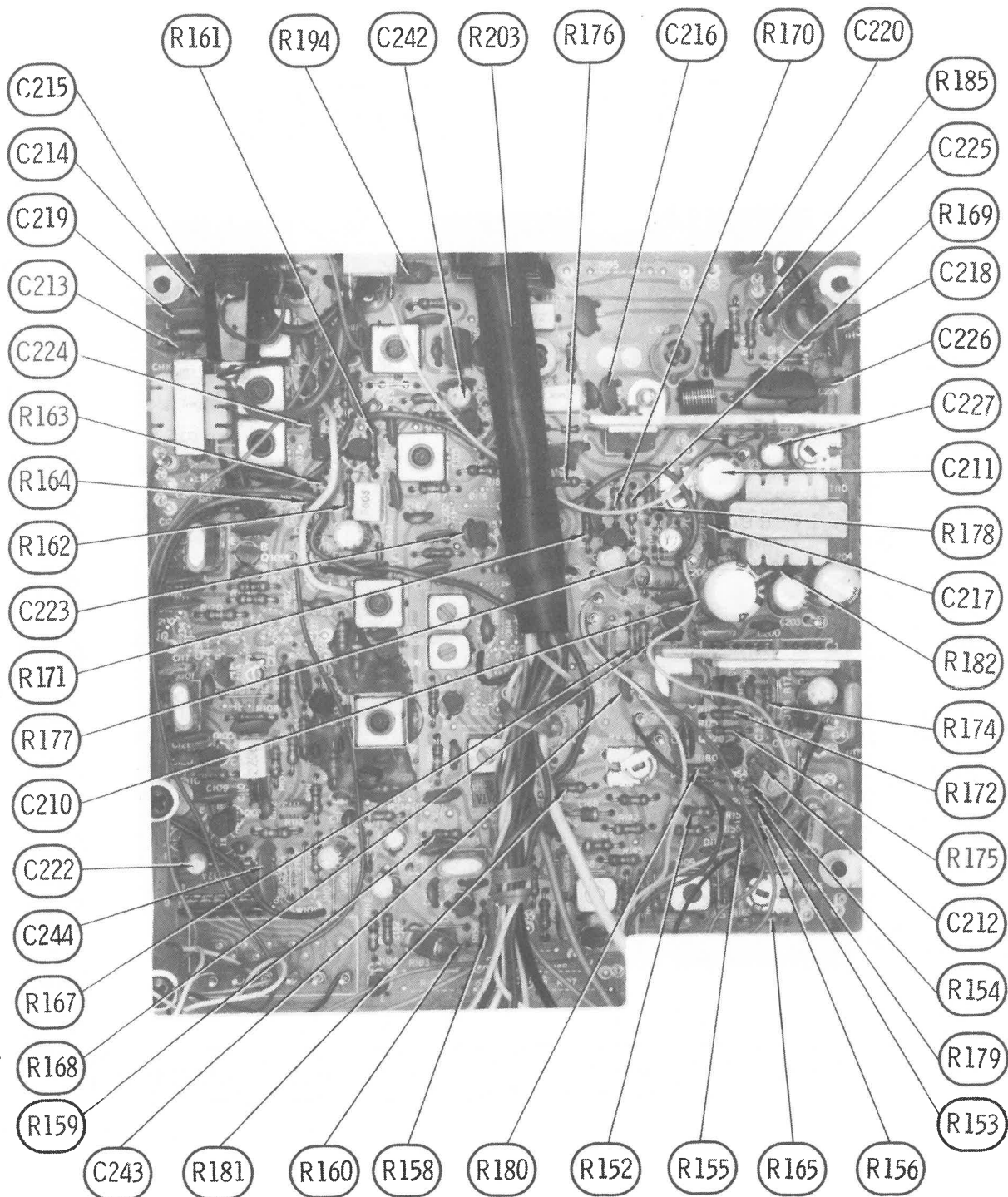


MAIN BOARD

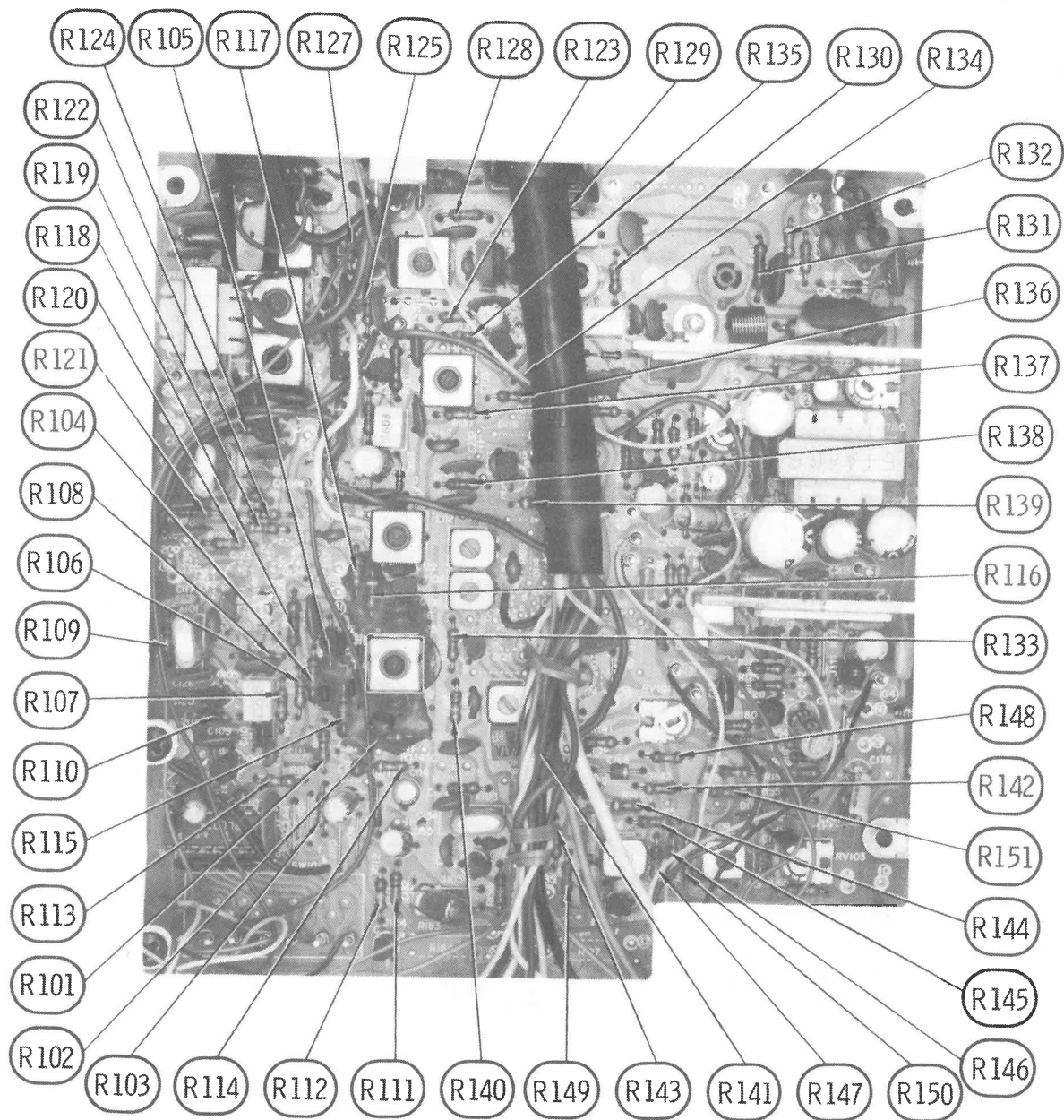




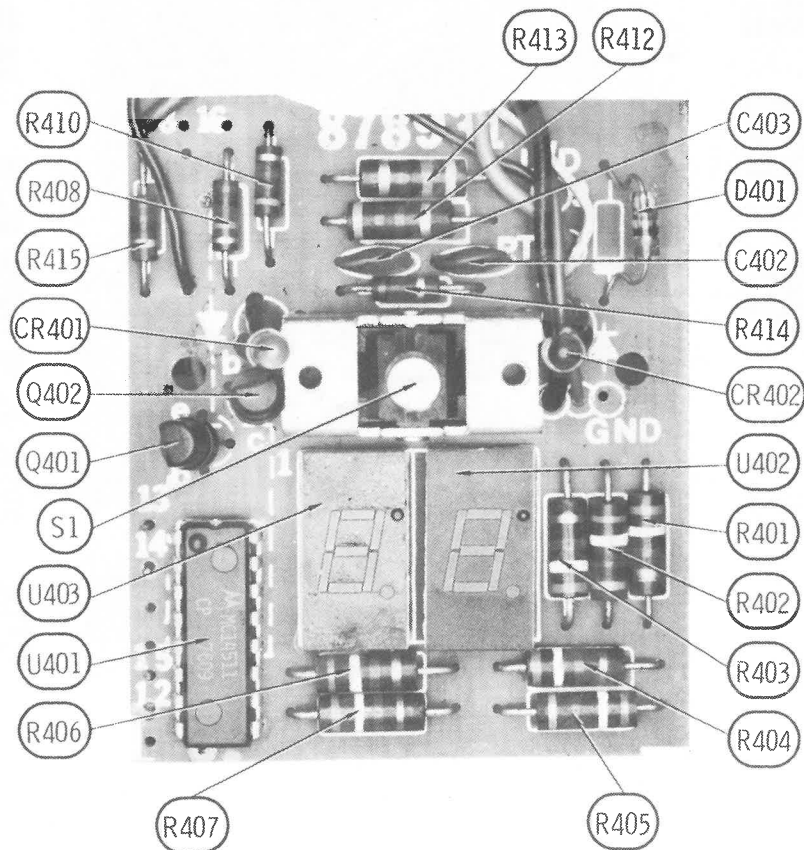
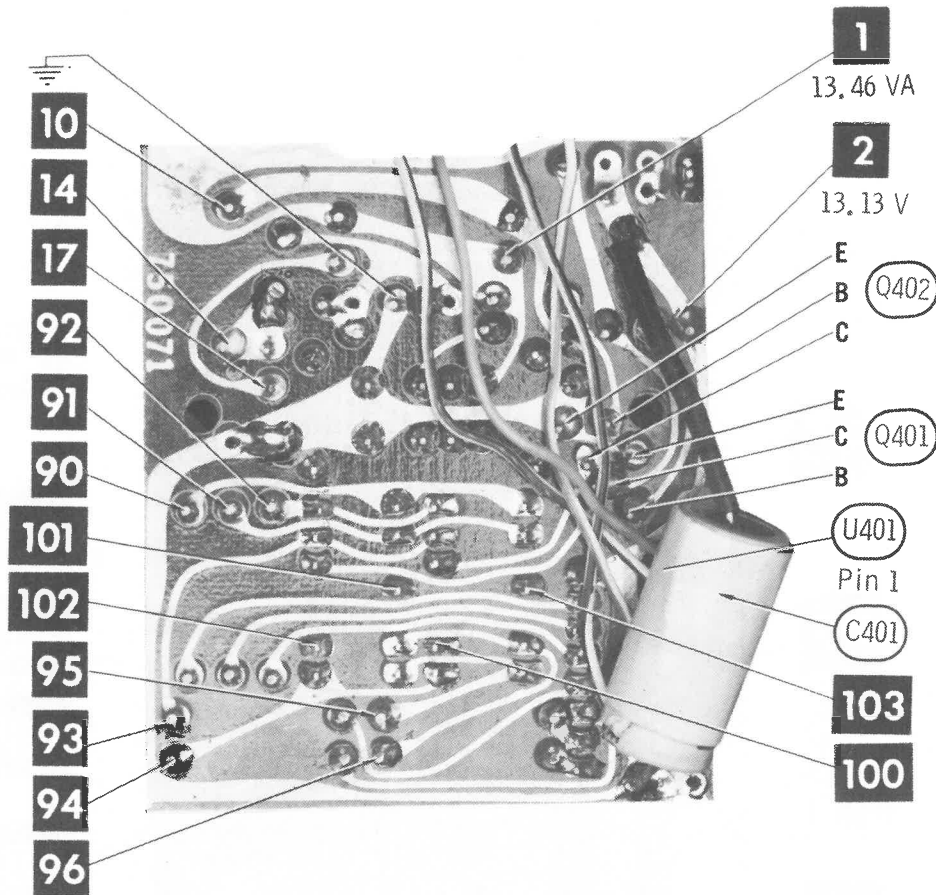
MAIN BOARD



MAIN BOARD

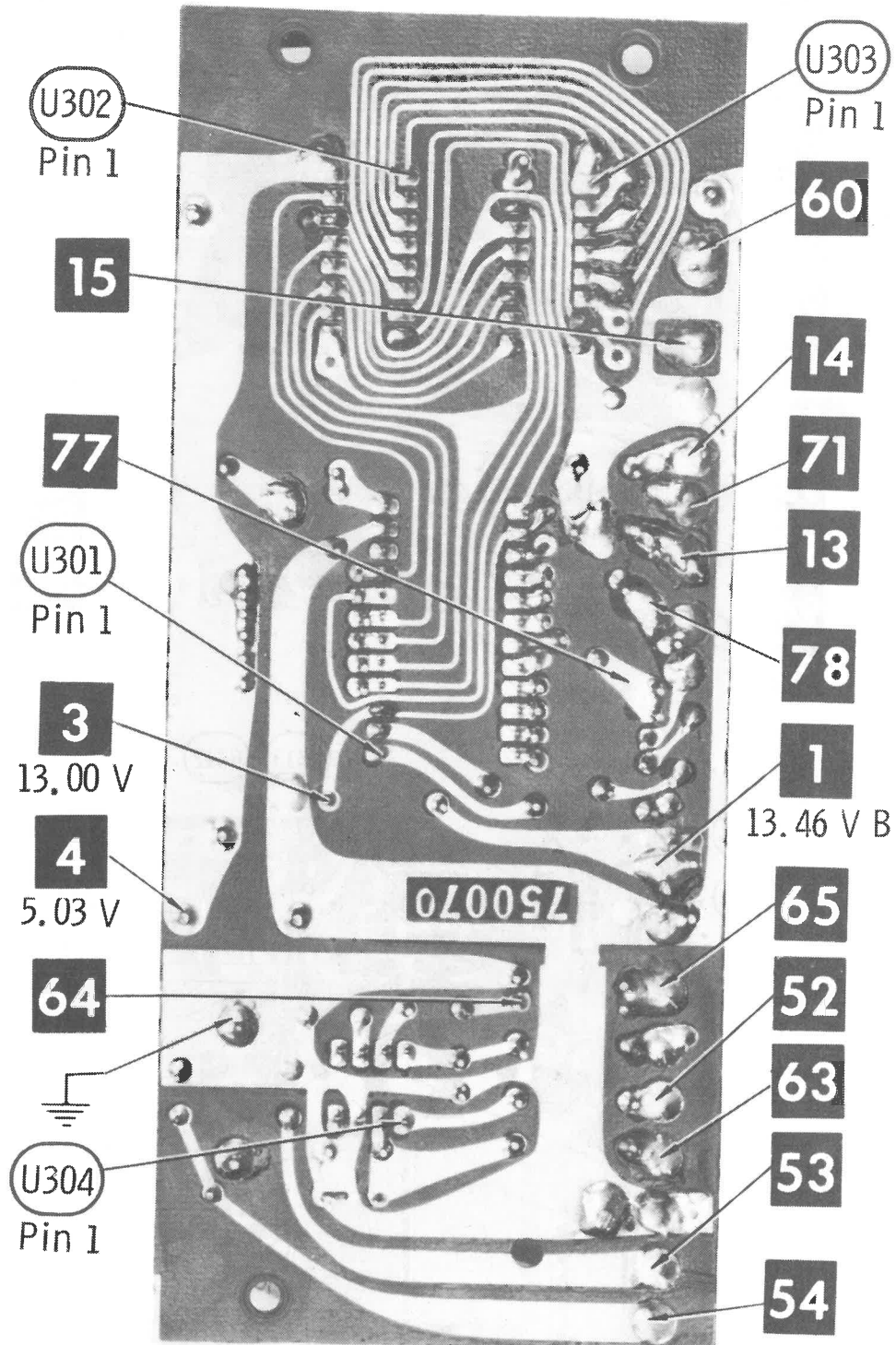


MAIN BOARD

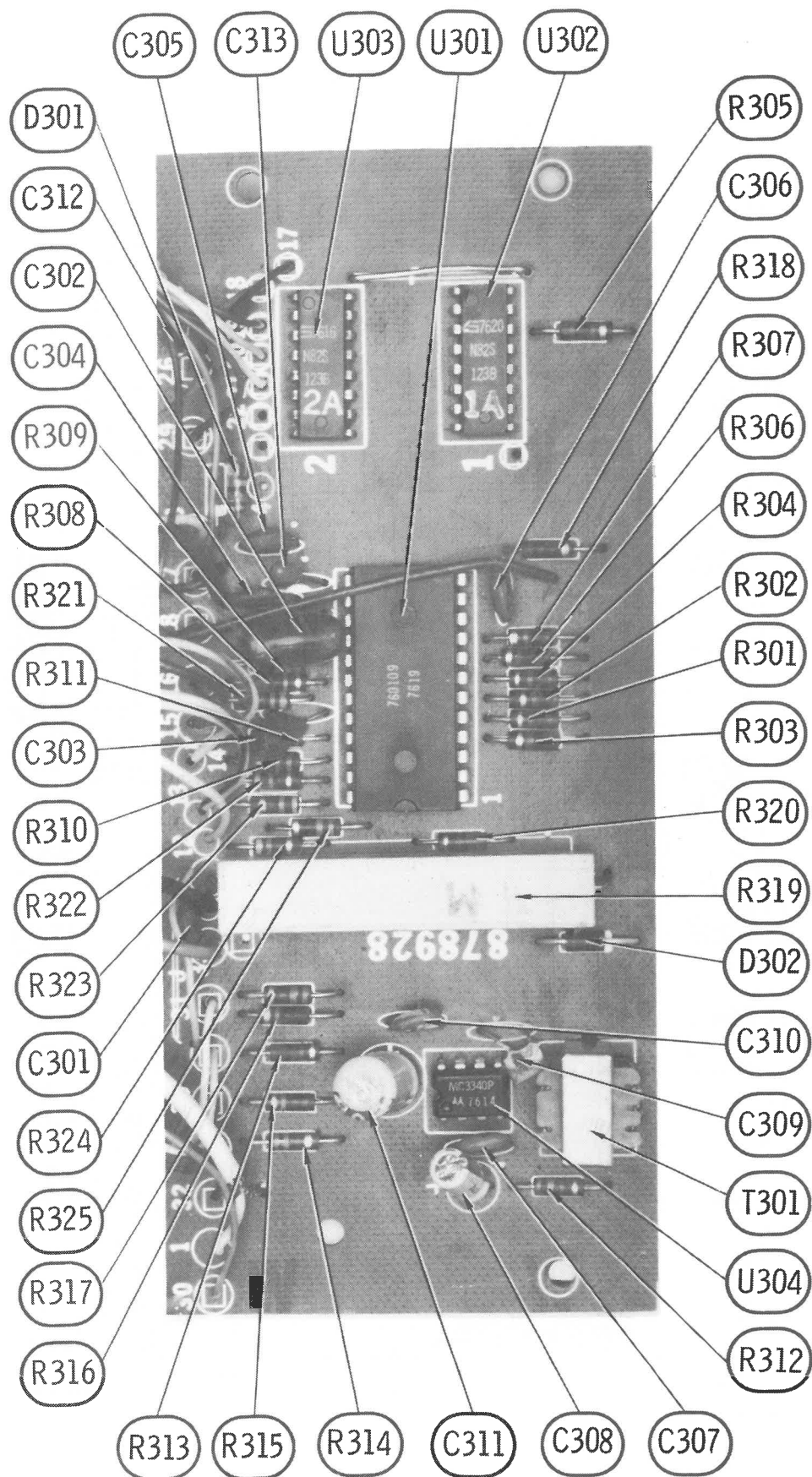


MIC. BOARD

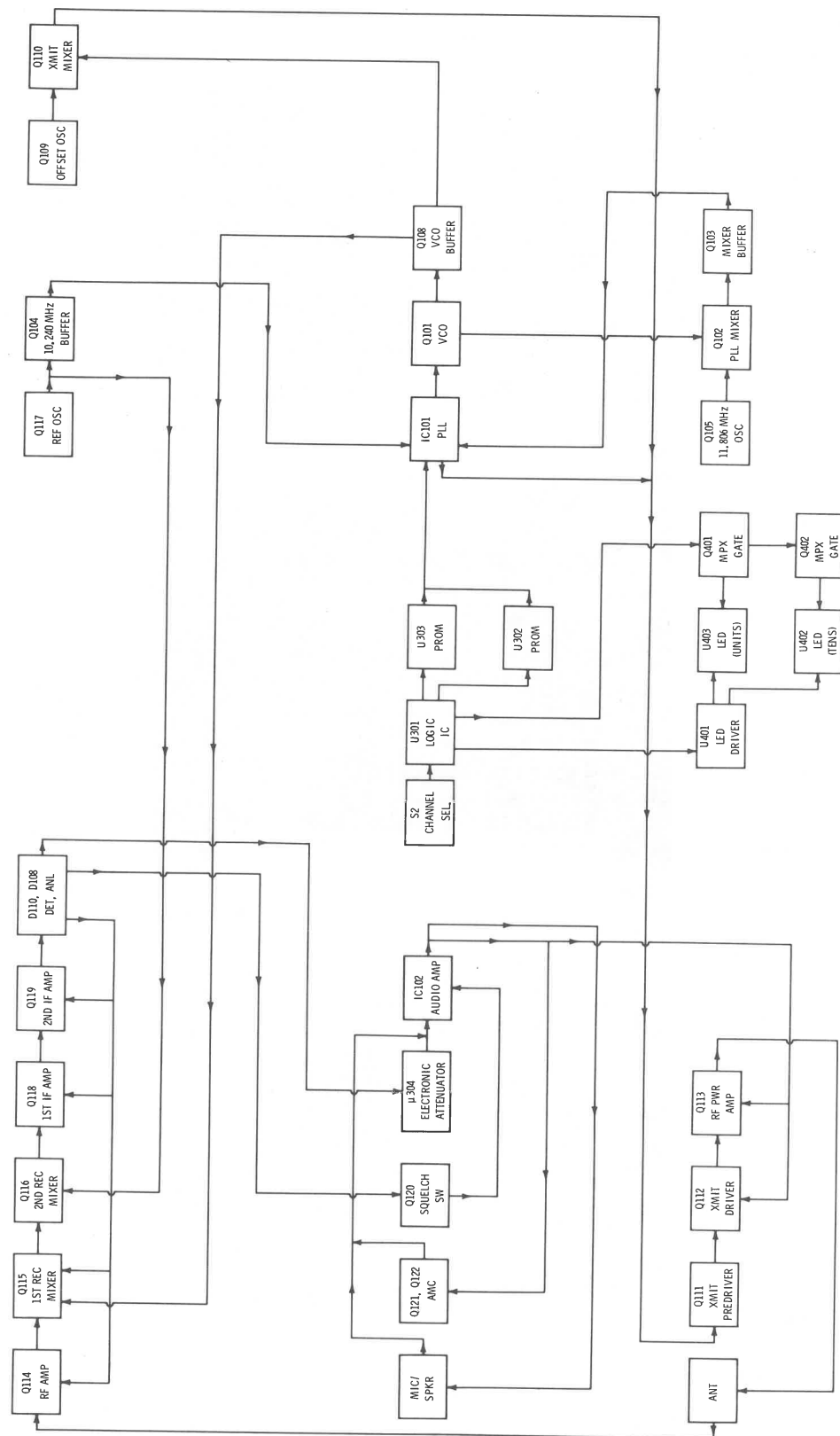
HY-GAIN MODEL 2679



CH. SELECTOR BOARD



CH. SELECTOR BOARD



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D101	ITT410	QD-CTT410XQ	GE-90	D201		HEPR2503	RE 195	SK3126	RT-262	ECG610
D102	BB142		GE-90	D201		HEPR2503	RE 195	SK3126	RT-262	ECG610
D103	MZ205	QD-ZM205KE					RE 105			ECG135A
D104	KD9.1E	QD-ZRD9EXAA	GEZD-9.1		ZB9.1B		RE 114		RT-240	ECG139A
D105	1S1885	QD-SS1885XT	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D106	V06C	QD-SV06CXXB	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D107	1S1555	QD-SS1555XT	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D108	1S1555	QD-SS1555XT	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D109			GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D110	1N60	QD-G1N60XXT	GE-300	D200	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D111	1N60	QD-G1N60XXT	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D112			GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D301	1N270	765722	1N34AS	1N34A	PTC207	HEPR9134A	RE 47	SK3087	RT-200	ECG109
D302	1N5338B	760309								ECG109
D401	1N270	765722	1N34AS	1N34A	PTC207	HEPR9134A	RE 47	SK3087	RT-200	ECG109
IC101	PLL02A	QQ-0PLL02A0								ECG1167
IC102	BA521	QQ-MBA521AX								ECG1166
Q101	2SC710D	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q102	2SC710D	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q103	2SC829D	QT-C0829XBN	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q104	2SC710D	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q105	2SC710D	QT-C0810XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q106	2SC1318R	QT-C1318XAN	GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
	2SC1318Q	QT-C1318XAN (1)	GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
Q107	2SA719R	QT-A0719XAN	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719Q	QT-A0719XAN (1)	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
Q108	2SC1359B	QT-C1359XAN	GE-212	(IR)2SC380A	PTC121 *	HEPS0014 *	RE 192	SK3038 *	RT-308	ECG199
Q109	2SC710B	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q110	2SC710D	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q111	2SC1687	QT-C1687XAN	GE-20 *	TR-24 *	PTC121 *	HEPS0015 *	RE 13 *	SK3018 *	RT-107A *	ECG123A *
Q112	2SC1760	QT-C1760XAS	GE-276						RT-310	ECG306
	2SC1760-3	QT-C1760XAS (1)	GE-276						RT-310	ECG306
Q113	2SC1306	QT-C1306YZA	GE-215	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
Q114	2SC1047B	QT-1047SAN	GE-60 *	(IR)2SC829B	PTC132 *	HEPS0016 *	RE 28 *	SK3018 *	RT-107	ECG161 *
Q115	2SC1359B	QT-C1359XAN	GE-212	(IR)2SC380A	PTC121 *	HEPS0014 *	RE 192	SK3038 *	RT-308	ECG199
Q116	2SC829C	QT-C0829XBN	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q117	2SC710D	QT-C0710XBE	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q118	2SC829C	QT-C0829XBN	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q119	2SC829C	QT-C0829XBN	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q120	2SC372Y	QT-C0372XAY	GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
Q121	2SC828Q	QT-C0828XDN	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828P	QT-C0828XAN (1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
Q122	2SC828P	QT-C0828XAN	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
Q401	2N3414	760251	GE-20	TR-24	PTC123	HEPS0034	RE 13	SK3124	RT-102	ECG123A
Q402	2N3414	760251	GE-20	TR-24	PTC123	HEPS0034	RE 13	SK3124	RT-102	ECG123A
U301	760109	760109								
U302	760104	760104								
U303	760077	760077								
U304	MC3340P	760105								
U401	MC14511	760106								

* Lead configuration may vary from original.

(1) Used in some versions.

HY-GAIN MODEL 2679

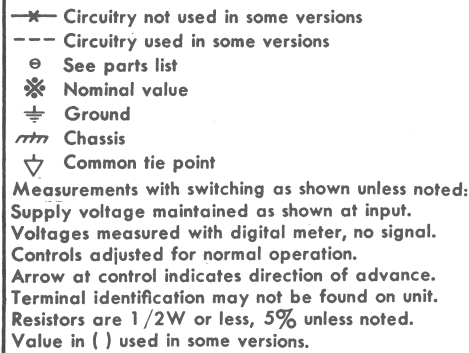
ELECTROLYTIC CAPACITORS

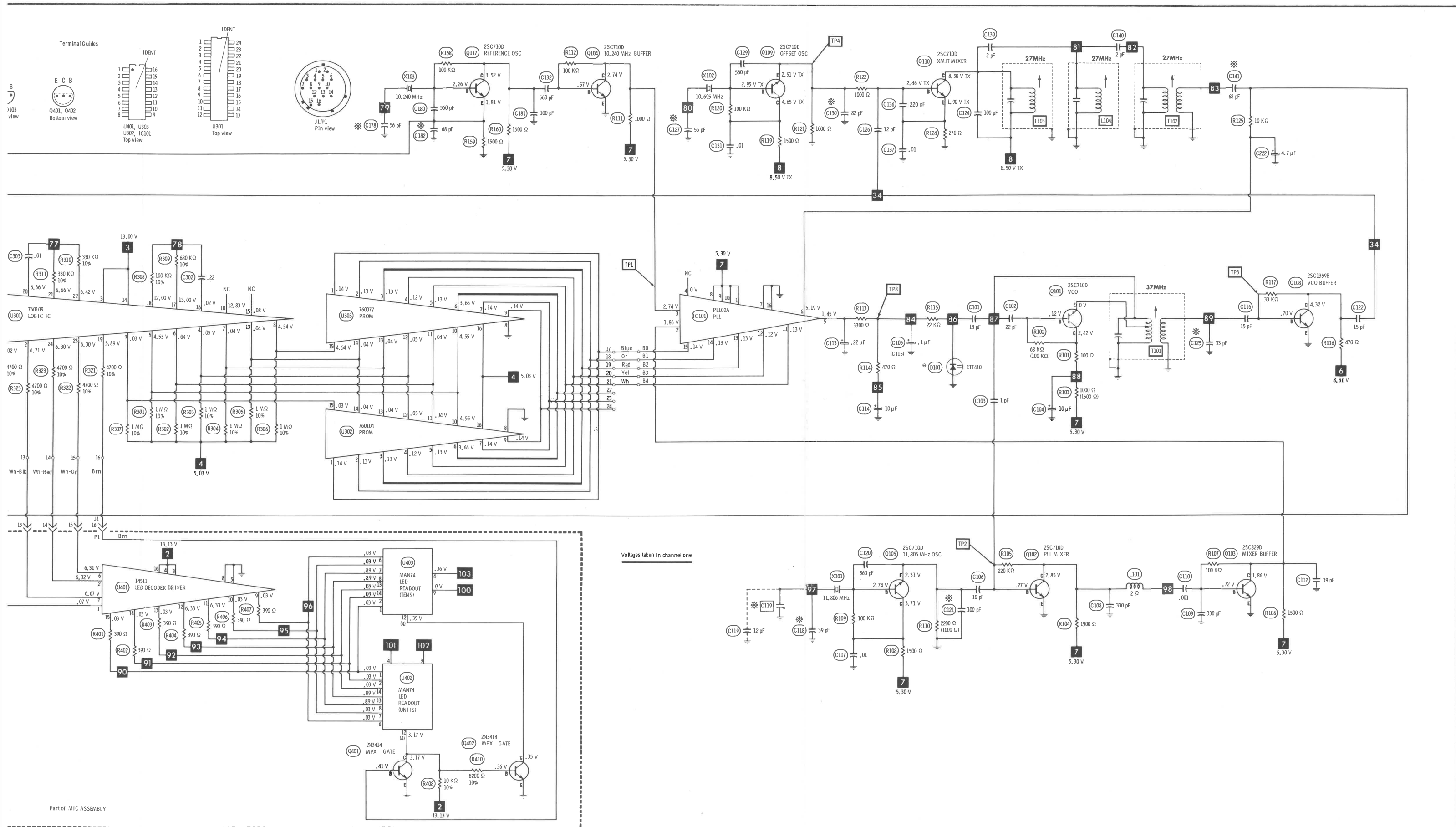
ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C104	10 16V	CE-ED100ALN	PC10-25	VTT10B25	QV1-41	EV-1222
C105	.1 50V	(1)		TDC104M050EL	QDT1-2	SD50-R109
C113	.22 50V	CE-ECR22ZMN		TDC224M050EL	QDT1-10	SD50-R229
C114	10 16V	CE-ED100ZMN	PC10-25	VTT10B25	QV1-41	EV-1222
C115	.1 50V	CE-EGR105MN(1)		TDC104M050EL	QDT1-2	SD50-R109
C135	10 16V	CE-ED100ALN	PC10-25	VTT10B25	QV1-41	EV-1222
C174	3.3 25V	CE-EE3R3ALN	PC5-50	VTT3R3A50	QV1-23	EV-1318
C176	1 50V	CE-EG010ALN	PC1-50	VTT1A50	QV1-11	EV-1615
C183	10 16V	CE-ED100ALN	PC10-25	VTT10B25	QV1-41	EV-1222
C185	47 10V	CE-EC470ALN	PC50-16	VTT47D16	QV1-73	EV-1226
C196	5.6 25V	CS-SE5R6MDH				
C197	33 6.3V	CE-EB330ALN	PC30-25	VTT33B10	QV1-61	EV-1125
C203	47 16V	CE-ED470ALN	PC50-16	VTT47D16	QV1-73	EV-1226
C204	220 16V	CE-AD221ZLS	PC250-25	VTT220H16	QV1-117	EV-1240
C207	33 6.3V	CE-EB330ALN	PC30-25	VTT33B10	QV1-61	EV-1125
C208	10 16V	CE-ED100ALN	PC10-25	VTT10B25	QV1-41	EV-1222
C209	1 50V	CE-EG010ALN	PC1-50	VTT1A50	QV1-11	EV-1615
C210	1000 16V	CE-ED100ZUN	WBRI000-16	TT15X1000B	QV1-591	TVA-1163
C211	47 25V	CE-AE470ZLS	PC50-25	VTT47E25	QV1-75	EV-1326
C212	33 6.3V	CE-EB330ALN	PC30-25	VTT33B10	QV1-61	EV-1125
C220	4.7 25V	CE-EE4R7SMN	PC5-50	VTT4R7B50	QV1-27	EV-1319
C227	1 50V	CE-EG010ALN	PC1-50	VTT1A50	QV1-11	EV-1615
C24J2	1 50V	CE-EG010ALN	PC1-50	VTT1A50	QV1-11	EV-1615
C308	.1 16V	720144		TDC104M050EL	QDT1-2	SD50-R109
C311	47 16V	722347	PC50-16	VTT47D16	QV1-73	EV-1226
C313	1 25V	722226	PC1-50	VTT1A50	QV1-9	EV-1315
C401	330 16V	722358	WBR300-35	VTT330H16	QV1-133	EV-1245

(1) Used in some versions.



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PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA					
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
						Q-LINE	GENERAL LINE	
C1	220 5%	(1)	UK16-103 UK16-103	CD15FD221J03	SX322	QW1-35	MWA-221	
C2	.01				MAG1611		HY-420	
C3	.01				MAG1611		HY-420	
C101	18 NPO		DTZ-22	NP022	CN0418		10TCC-Q18	
C102	22				CN0422		10TCC-Q22	
C103	1 NPO				CN0510		10TCC-V10	
C106	10		DTZ-10 UK16-103	NP010	CN0410		10TCC-Q10	
C107	.01				MAG1611		HY-420	
C108	330 10%				GP333		10TS-T33	
C109	330 10%		DD-331 DD-331	GP330 GP330	GP333	QF1-1	10TS-T33	
C110	.001 10% 50V				DPMS6D1		1PB-D10	
C111	.01 10% 50V				WMF1S1		1PB-S10	
C112	39		DTZ-15	NP015 WMF1S1	EWFA1A210	QF1-91	10TCC-Q39	
C116	15				EWFA1A110		10TCC-Q15	
C117	.01 10% 50V				CN0439		1PB-S10	
C118	39 N150		DD-561 DTZ-100 DTZ-15 UK16-103	NP015 NP015	CN0415	QF1-91	10TCP-Q39	
C119								
C120	12						GP356	
C121	560	CC-CB120KPM CC-CB560KPM	DD-561	NP0100 NP015	CN0310	10TCC-T10		
C122	100 10%				CN0415	10TCC-Q15		
C123	15				MAG1611	HY-420		
C124	.01	CC-CB101KPM	DTZ-33	CD15FD101J03 NP033	SX310	QW1-27	MWA-101	
C125	100 10%				CN0433		10TCC-Q33	
C126	33						10TCP-Q12	
C127	12 N150	DD-561	DD-561	GP356			10TCP-Q56	
C129	56 N150						10TS-T56	
C130	560						10TCP-Q82	
C131	82 N150	CC-CB820KPM	UK16-103	CD19FD561J03	MAG1611		HY-420	
C132	.01				SX356		MWC-561	
C133	560 10%				MAG1611		HY-420	
C136	220 10%	UK16-103 DTZ-220 UK16-103 UK16-103	DTZ-2R2	NP02P2	MAG1611		10TCC-T22	
C137	.01				MAG1611		HY-420	
C138	.01				MAG1611		10TCC-V22	
C139	2	DTZ-2R2 DD-680 UK16-103	NP02P2 NP02P2	GP68	CN0522	QW1-27 QW1-37	10TCC-V22	
C140	2						10TS-Q68	
C141	68 10%						HY-420	
C142	.01	CC-CB101KPM	UK16-103 UK16-103 DD-471	GP470	MAG1611		10TCP-T10	
C143	100 N150 10%				MAG1611		HY-420	
C144	.01				GP347		10TS-T47	
C145	.01	UK16-103 DTZ-120 DD-221 UK16-103	GP470	MAG1611 CNO312 GP322	MAG1611		HY-420	
C146	470				CN0312		10TCC-T12	
C147	.01				GP322		10TS-T22	
C148	120 10%	UK16-103	CD15FD101J03 CD15FD271J03 NP082	SX310 SX327 CN0482 CN0427	MAG1611	QW1-27 QW1-37	HY-420	
C149	220 10%				SX327		MWB-271	
C150	.01				NP082		10TCC-Q82	
C151	100 10%	DTZ-82	UK12-503 UK16-103 UK16-103 UK12-503	CN0427	MAG1215		10TCC-Q27	
C152	270 10%				MAG1611		HY-350	
C153	82 10%				MAG1611		HY-420	
C154	27	UK12-503	UK16-103 UK16-103 UK12-503	MAG1215	MAG1611	QF1-171	HY-420	
C155	.047				UK12-503		HY-350	
C156	.01				UK16-103		HY-420	
C157	.01	UK16-103	UK16-103	MAG1611	MAG1611		HY-420	
C159	.047				UK12-503		HY-350	
C160	.047 10% 50V				UK16-103		1PB-S47	
C161	.01	CC-CB330KPM	UK16-103	DPMS2S47	MAG1611	QF1-171	HY-420	
C162	33 N150						10TCP-Q33	
C163	.01						HY-420	
C164	2	UK16-103 DTZ-2R2 UK16-103	DTZ-2R2	NP02P2	MAG1611		10TCC-V22	
C165	.01				MAG1611		HY-420	
C166	10				CN0410		10TCC-Q10	
C168	2.2	DTZ-10 DTZ-2R2	NP010 NP02P2	CN0522	CN0522	QF1-171	10TCC-V22	
C169	.047 10% 50V				EWFA1A147		1PB-S47	
C170	.047 10% 50V				DPMS2S47		QF1-171	
C171	.047 10% 50V	UK16-103	DPMS2S47	EWFA1A147	EWFA1A147	QF1-171	1PB-S47	
C172	.047 10% 50V				DPMS2S47		1PB-S47	
C173	.047 10% 50V				DPMS2S47		1PB-S47	
C175	.0047 10% 50V	CC-CB560KPM	UK16-103	DPMS2S47	EWFA1A147	QF1-171	1PB-S47	
C177	.033 10% 50V				M192P4729R8		192P4729R8	
C178	56 N150				M192P3339R8		192P3339R8	
C180	560	CC-CB680KPM	DD-561	NP0100	GP356		10TS-T56	
C181	100				CN0310		10TCC-T10	
C182	68 N150						10TCR-Q68	
C184	.022 10% 50V	UK16-103	UK16-103	WMF1S1	M192P2239R8	QF1-91	192P2239R8	
C190	.01				MAG1611		HY-420	
C191	.022 10%				M192P2239R8		192P2239R8	
C192	150 10%	DTZ-150	DTZ-150	WMF1S1	CN0315		10TCC-T15	
C193	.01 10% 50V						EWFA1A110	1PB-S10
C194	.01				UK16-103		MAG1611	HY-420
C195	390	DD-391	GP390	GP339	GP339		10TS-T39	
C198	68 10%				NP068		CN0468	10TCC-Q68
C199	68 10%				NP068		CN0468	10TCC-Q68
C200	390	DD-331	GP330	WMF1S68	GP333	QF1-195	10TS-T33	
C201	.068 10% 50V				EWFA1A168		1PB-S68	
C202	.022 10% 50V				M192P2239R8		192P2239R8	
C205	.068 10% 50V	UK16-103	UK16-103	WMF1S68	EWFA1A168	QF1-195	1PB-S68	
C213	.01						MAG1611	HY-420
C214	.01				UK16-103		MAG1611	HY-420
C215	.01	UK16-103	UK16-103	MAG1611			HY-420	
C216	.01	UK16-103	UK16-103	MAG1611			HY-420	
C217	.047	UK12-503	UK12-503	MAG1215			HY-350	

HY-GAIN MODEL 2679

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C218	.047		UK12-503		MAG1215		HY-350
C219	.047		UK12-503		MAG1215		HY-350
C220	.047		UK12-503		MAG1215		HY-350
C223	39				CN0439		10TCC-Q39
C224	.01		UK16-103		MAG1611		HY-420
C225	3		DTZ-3R3	NP03P3	CN0533		10TCC-V33
C226	.0047		DD-472	GP4700	GP247		5GA-D47
C243	100 10%		DTZ-100	NP0100	CN0310		10TCC-T10
C244	.047		UK12-503		MAG1215		HY-350
C301	.01 25V		UK25-103		MAG2511		HY-520
C302	.22 100V			DPMS2P22	EWFI A022	QF1-253	1PB-P22
C303	.01 10% 100V			WMF1S1	EWFI A110	QF1-91	1PB-S10
C304	.01 25V		UK25-103		MAG2511		HY-520
C305	.01 25V		UK25-103		MAG2511		HY-520
C306	.01 25V		UK25-103		MAG2511		HY-520
C307	.01 25V		UK25-103		MAG2511		HY-520
C309	.0022		DD-222		GP222	QC2-97	5GA-D22
C310	.1 12V		UK25-104		MAG2501		HY-750
C312	.01 25V		UK25-103		MAG2511		HY-520
C402	.01 25V		UK25-103		MAG2511		HY-520
C403	.01 25V		UK25-103		MAG2511		HY-520

(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
R416	Volume/Switch	20K	722340				
R417	Squelch	10K	722339				
RV101	Squelch Range	10K	RP-GNB10301				
RV102	AMC	2000	RP-GNB20201				
RV103	S Meter	20K					
RV104	RF Meter	20K					

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.
R319	30 10W	10W-SQ30	722348				

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L101	RF Choke	LF-220KD01N			
L103	Xmit Mixer (27MHz)	TR-10CD004S			
L104	Xmit Mixer (27MHz)	TR-10CD005S			
L105	RF Choke	LF-2R2KD01N			
L106	Xmit Driver (27MHz)	TR-A5CZ001M			
L107	RF Choke	LF-680KD01N			
L108	RF Choke	LD-ADX3825M			
L109	Antenna Match (27MHz)	TR-A5CZ002M			
L110	Antenna Load (27MHz)	TR-A5CZ003M			
L111	RF Choke	LF-680KD01N			
L112	Rec Mixer (10.7MHz)	TR-07MB008N			
L113	Line Choke	LD-ADB4024B			
L114	Line Choke	LD-ADB4024B			
L116	RF Choke	LA-1KE1011A			
T101	VCO (37MHz)	TR-10DA002T			
T102	Xmit Mixer (27MHz)	TR-10CB001S			
T103	Xmit Predriver (27MHz)	TR-10CP005S			
T104	Rec Antenna (27MHz)	TR-10MP003T			
T105	Rec RF (27MHz)	TR-10CA005S			
T106	Rec Mixer (10.7MHz)	TR-07MB008N			
T107	IF (455kHz)	TR-07LA004N			
T108	IF (455kHz)	TR-07LA005N			
T109	IF (455kHz)	TR-07LA023N			
T111	Rec RF (37MHz)	TR-10MB003T			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
CH101	2.15A	.116	.48mH	LF-119H001Y ELA-16 (1)	TR523		(1) Number on unit

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T110	2	1 8 2 .5	TR-G25B001W ETA-66 (1)			(1) Number on unit

HY-GAIN MODEL 2679

TRANSFORMER

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T301	.15	1		730036 80TL001 (1)			(1) Number on unit

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
S	2 1/4" PM 8 ohms	730035	22A05Z16	

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	3A 250V Quick-Acting	710029	710027	AGC3		312003	FG3-2

PARTS LIST AND DESCRIPTION (CONTINUED)

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

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MIC											

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL	ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X101	11.806MHz	XA-S1B4001N	CC140M11806	11.806MHz Osc	X103	10.240MHz	XA-S1B3001N	CA95M10240	Reference Osc
X102	10.695MHz	XA-S1B3002N	CC140M10695	Offset Osc.					

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF101	Filter	FB-R455A08M	455kHz
CR401	LED	760310	Rec.(Green)
CR402	LED	760079	Xmit(Red)
S1	Switch	700326	Rec/Xmit
S2	Switch	700325	UP/Down
U402	LED	760107	Digital Readout
U403	LED	760107	Digital Readout
	Printed Circuit Board	PT-BN036A0X	Main (Less Components)
	Printed Circuit Board	AP-TBM036JT	Main (W/Components)
	Printed Circuit Board	750070	Channel Select (Less Components)
	Printed Circuit Board	878928	Channel Select (W/Components)
	Printed Circuit Board	750071	Microphone (Less Components)
	Printed Circuit Board	878931	Microphone (W/Components)
	Plug	650080	Microphone
	Jack	650065	Antenna
	Jack	650076	Speaker

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Top	460092	Case, Microphone (Rear)	460153
Cabinet, Bottom	460093	Knob, Volume/Squelch	460098
Case, Microphone (Front)	460156	Button, Push-To-Talk	460153

WIRING DATA

General-use Hook-up Wire (available in 5 colors)	BELDEN No. 8523	Coiled Microphone Cable	
Shielded Hook-up Wire (spiral wrapped)	BELDEN No. 8421	3-conductor (1 shielded)	23AWG BELDEN No. 9471 (5')
(braided)	BELDEN No. 8401		BELDEN No. 8497 (6')
Speaker Cable (available in 4 colors)	BELDEN No. 8782		BELDEN No. 9472 (7-1/2')
Bonding Strap	BELDEN No. 8672		28AWG BELDEN No. 9466 (6')
AC Power Cord	(6') BELDEN No. 17106		31AWG BELDEN No. 9468 (10')
	(9') BELDEN No. 17109	4-conductor (unshielded)	23AWG BELDEN No. 8415 (6')
		5-conductor (1 shielded)	28AWG BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')