

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.



MODEL GEN-680A

WARDS MODEL GEN-680A

MANUFACTURER'S SPECIFICATIONS

GENERAL	Semiconductors:	18 transistors, 16 diodes, 3 ICs and 2 LEDs
	Frequency Range:	26.965 MHz – 27.405 MHz (channels 1 through 40)
	Antenna Impedance:	50 ohms
	Modulation:	AM (Amplitude Modulation)
	Channel Display:	7-segment LED x 2
	Controls:	Power push switch
		Volume control (On Microphone)
		Variable Squelch control
		Automatic Noise Limiter (ANL) switch
		Fine Tuning
		RF Gain control
		SWR Calibration control
		Meter Function Selector
		PA push switch
		Channel Selector
	Connectors and Jacks:	Microphone connector
		SO-239 Antenna connector (50 ohms)
		Public Address Speaker jack (8 ohms)
		External Speaker jack (8 ohms)
	Speaker:	2-3/4 inch, 8 ohms
	Microphone:	Dynamic microphone (500 ohms) with Volume control
	Power Supply:	13.8 volts DC (Positive or Negative Ground)
	Dimensions:	7-1/8" (W) x 2-3/8" (H) x 8-1/4" (D)
		18 cm (W) x 6 cm (H) x 20.9 cm (D)
	Weight:	3 lbs. 5 oz. (1.5 kg.)

RECEIVER NOMINAL SPECIFICATIONS

Circuit:	PLL synthesized dual conversion superheterodyne
IF Frequency:	1st IF 10.695 MHz, 2nd IF 455 kHz
Sensitivity at S/N 10 dB:	0.5 micro-volt
Selectivity:	(±10 kHz) 60 dB
AGC:	80 dB
S/N at 1mV input:	50 dB
Audio Power Output:	3 watts
Audio Frequency Response:	300 – 2.5 kHz
Spurious Response:	–50 dB
Squelch Range:	1μV to 350μV
Current Drain (no signal):	330 mA

TRANSMITTER NOMINAL SPECIFICATIONS

RF Output Power:	4W maximum
Modulation Capability:	100% maximum
Spurious Response:	–70 dB

Courtesy of the Manufacturer

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

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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. Connect microphone.

Suggested Alignment Tools: GC ELECTRONICS:
 L1, L2, L3, T1, T2 5000,5009,8276,8728,9089
 L4, L5, L101, L103, L104, L105 9440
 L6, L7, L9 9300,9302,9304
 L102 5000,5009,8276,8728,9089
 TC101 5000,8276,9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope to TPK.	Ch. 19	L102	Adjust for maximum RF (250mV p-p typical). (See Figure 1.)
Input of frequency counter to TPK.	Ch. 19 Fine Tune Midrange	TC101	Adjust for 10.240MHz $\pm$ 50Hz.
Input of frequency counter to TPG.	Ch. 19 Fine Tune Midrange		Check for 10.240MHz $\pm$ 50Hz.
Input of frequency counter to TPE (IC101 Pin 4).	Ch. 19 Fine Tune Midrange		Check for 5.120MHz.
Input of DC meter to TPJ.	Ch. 1	L101	Adjust for 2.00 volts. Check for approximately 3.00 volts on Channel 40.
Input of frequency counter to TPD (IC101 Pin 17).	Ch. 1 Fine Tune Midrange		Check for .910MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TPD (IC101 Pin 17).	Ch. 1, XMT		Check for 1.365MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TPC (Q2 Emitter).	Ch. 19	L3	Adjust for maximum RF (20mV p-p typical). (See Figure 2.)
Input of frequency counter to TPC (Q2 Emitter).	Ch. 1 Fine Tune Midrange		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TPL.	Ch. 19, XMT	L103,L104, L105	Adjust for maximum RF (400mV p-p typical). (See Figure 3.)
Input of frequency counter to TPL.	Ch. 1, XMT		Check for 26.965MHz. Check all channels. (See Truth Chart for correct frequencies.)

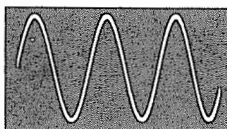


FIG. 1

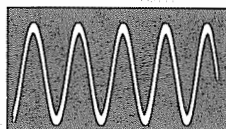


FIG. 2

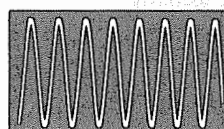


FIG. 3

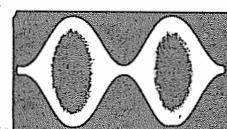


FIG. 4

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. Preset controls as follows, unless otherwise noted:
RF Gain Maximum, Fine Tune Midrange, Squelch MINIMUM, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TPA. 455kHz, 1000Hz @ 30% modulation.	Ch. 19 Fine Tune Midrange	T2,T1	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19 Fine Tune Midrange	L2,L1	Adjust for maximum output. Readjust T1 and T2 for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Preset controls as follows, unless otherwise noted:
RF Gain Maximum, Fine Tune Midrange, Squelch MINIMUM, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19 Squelch Maximum	VR1	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR2	SIGNAL METER Adjust for 9 on signal scale of meter.

WARDS MODEL GEN-680A

TRANSMITTER ALIGNMENT

Connect a 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
Input of RF wattmeter to antenna input.	Ch. 19	L4,L5	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19	L6,L7,L9	Adjust for 4.0 watts RF output maximum.

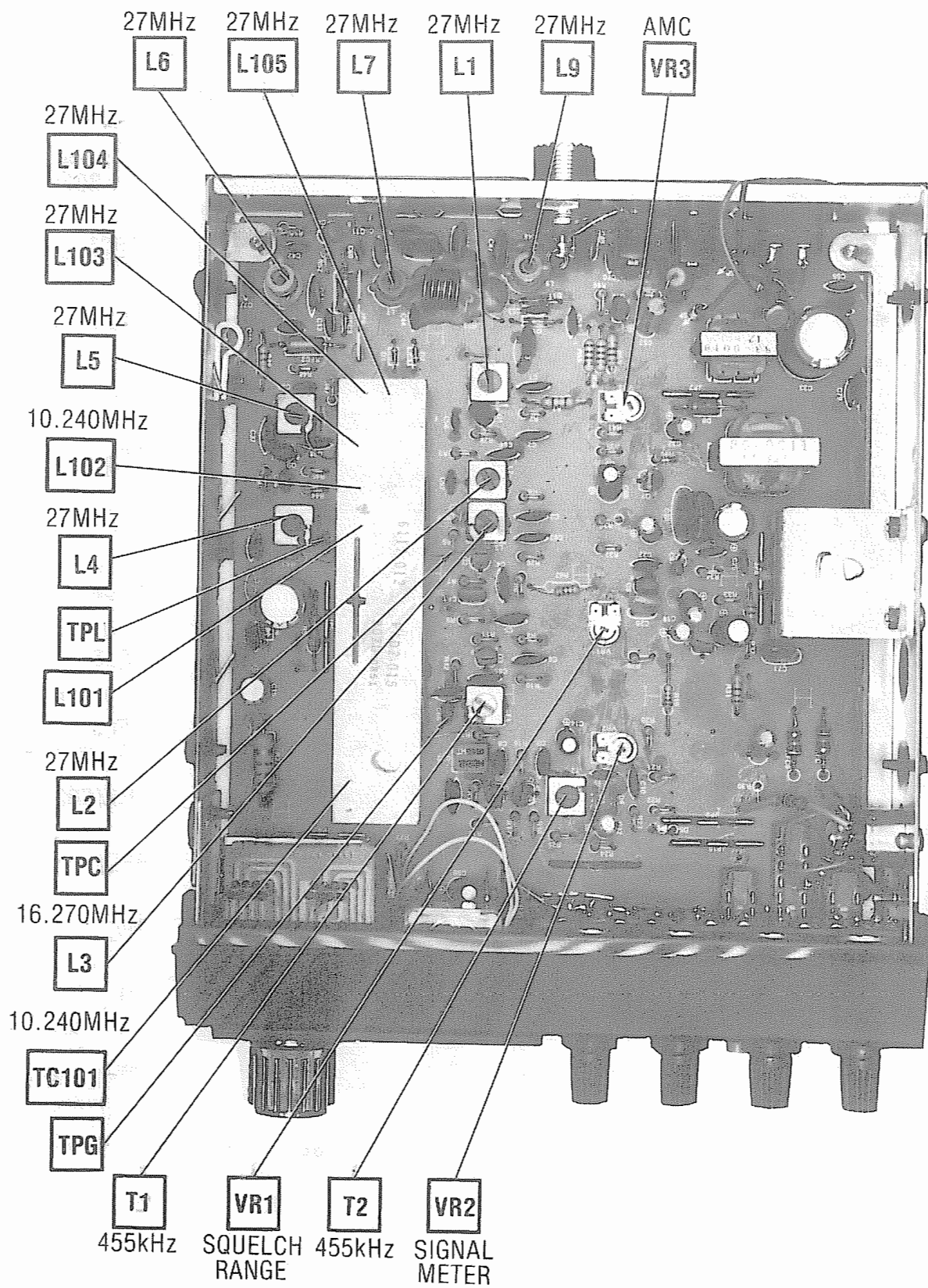
TRANSMITTER ADJUSTMENTS

Connect a 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

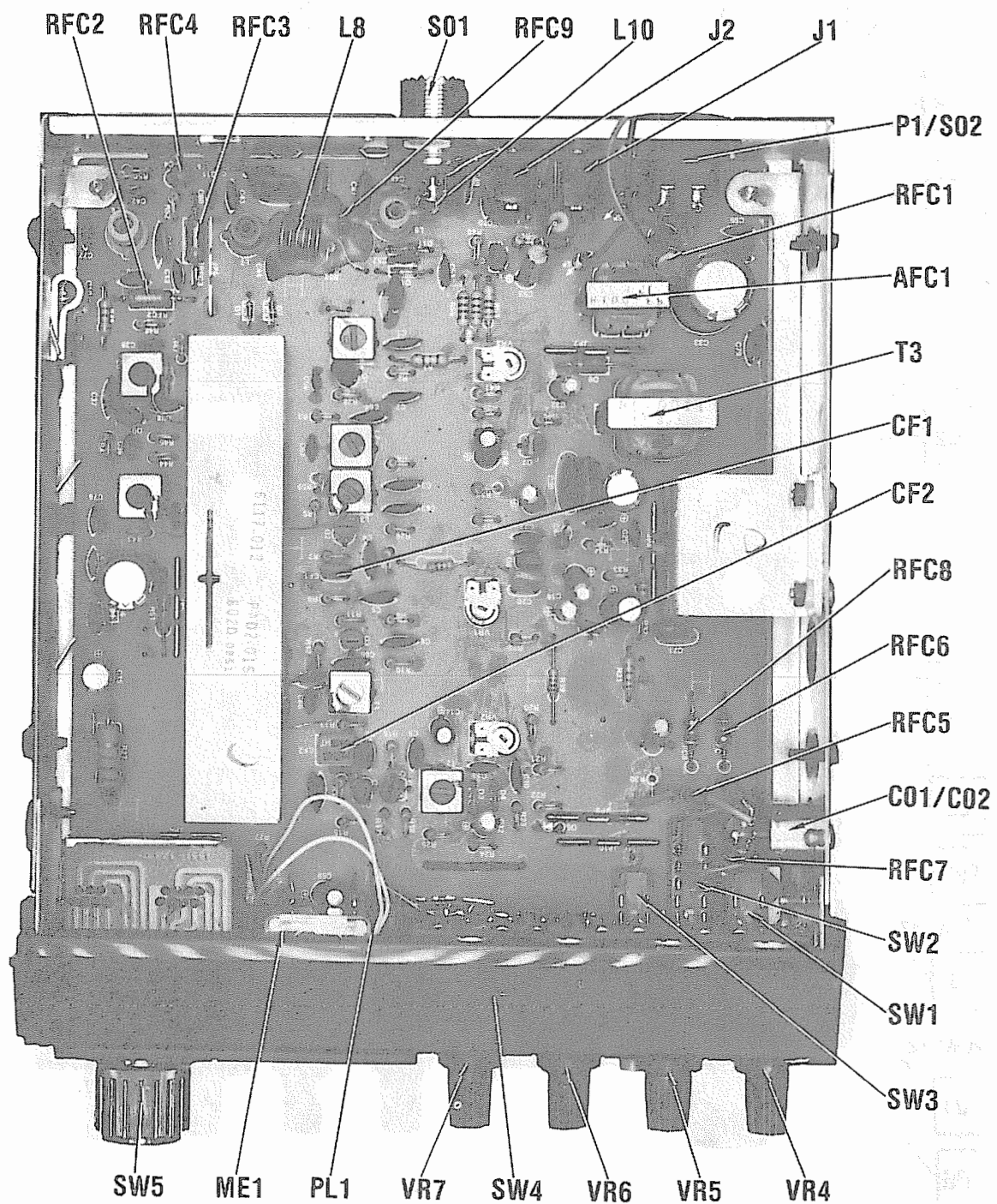
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 200mV audio signal at mic input.	Ch. 19	VR3	AMC Adjust for 95% modulation maximum. (See Figure 4.)

TRUTH CHART

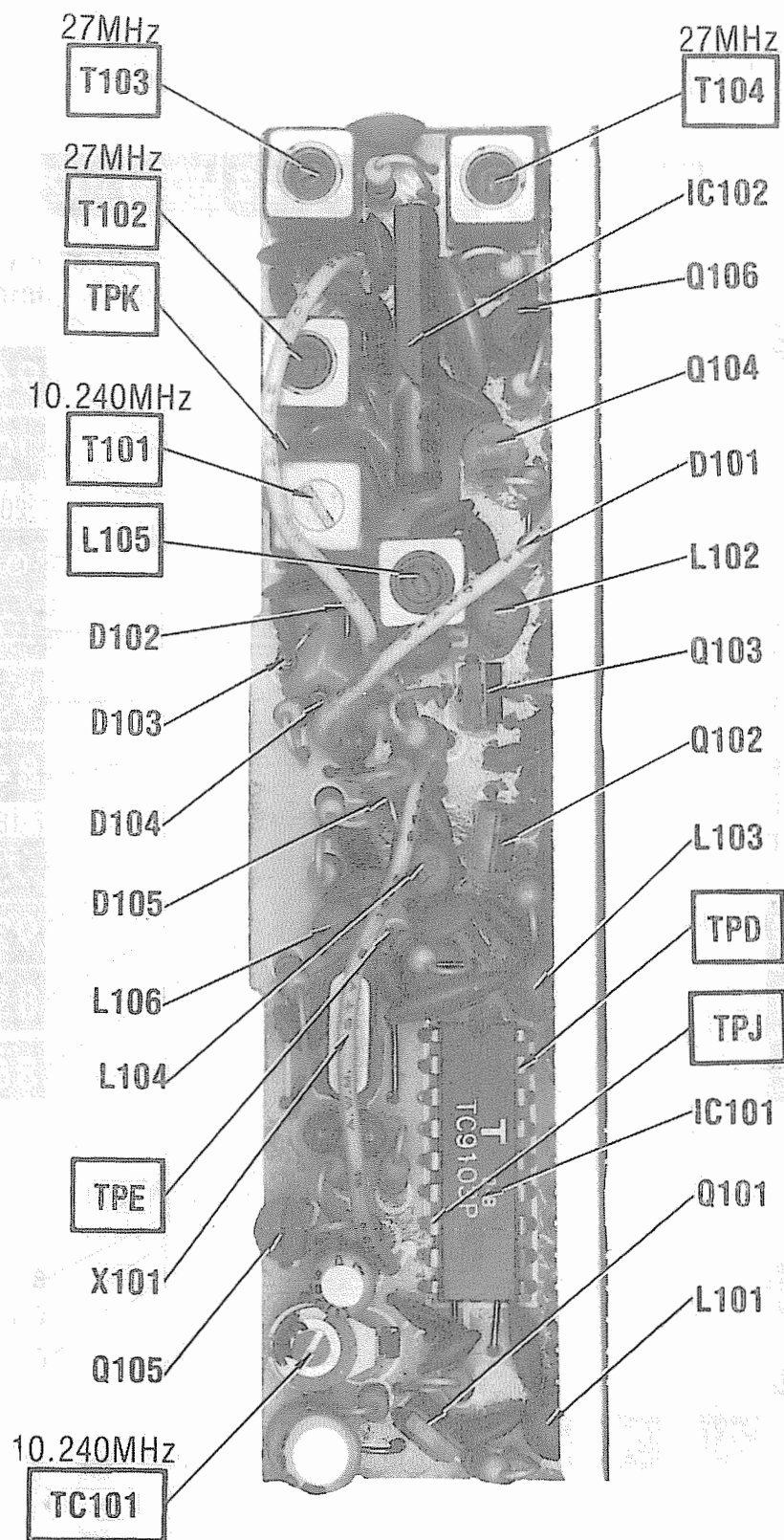
CHANNEL	CHANNEL INPUT CODES								REC DIVIDER INPUT IN MHz AT TPD	XMT DIVIDER INPUT IN MHz AT TPD	REC VCO OUTPUT IN MHz AT TPC	XMT SYNTH OUTPUT IN MHz AT TPL
	IC101 PINS											
	10	11	12	13	14	15						
1	0	0	0	0	0	0			.910	1.365	16.270	26.965
2	0	0	0	0	0	1			.920	1.375	16.280	26.975
3	0	0	0	0	1	0			.930	1.385	16.290	26.985
4	0	0	0	1	0	0			.950	1.405	16.310	27.005
5	0	0	0	1	0	1			.960	1.415	16.320	27.015
6	0	0	0	1	1	0			.970	1.425	16.330	27.025
7	0	0	0	1	1	1			.980	1.435	16.340	27.035
8	0	0	1	0	0	1			1.000	1.455	16.360	27.055
9	0	0	1	0	1	0			1.010	1.465	16.370	27.065
10	0	0	1	0	1	1			1.020	1.475	16.380	27.075
11	0	0	1	1	0	0			1.030	1.485	16.390	27.085
12	0	0	1	1	1	0			1.050	1.505	16.410	27.105
13	0	0	1	1	1	1			1.060	1.515	16.420	27.115
14	0	1	0	0	0	0			1.070	1.525	16.430	27.125
15	0	1	0	0	0	1			1.080	1.535	16.440	27.135
16	0	1	0	0	1	1			1.100	1.555	16.460	27.155
17	0	1	0	1	0	0			1.110	1.565	16.470	27.165
18	0	1	0	1	0	1			1.120	1.575	16.480	27.175
19	0	1	0	1	1	0			1.130	1.585	16.490	27.185
20	0	1	1	0	0	0			1.150	1.605	16.510	27.205
21	0	1	1	0	0	1			1.160	1.615	16.520	27.215
22	0	1	1	0	1	0			1.170	1.625	16.530	27.225
23	0	1	1	1	0	1			1.200	1.655	16.560	27.255
24	0	1	1	0	1	1			1.180	1.635	16.540	27.235
25	0	1	1	1	0	0			1.190	1.645	16.550	27.245
26	0	1	1	1	1	0			1.210	1.665	16.570	27.265
27	0	1	1	1	1	1			1.220	1.675	16.580	27.275
28	1	0	0	0	0	0			1.230	1.685	16.590	27.285
29	1	0	0	0	0	1			1.240	1.695	16.600	27.295
30	1	0	0	0	1	0			1.250	1.705	16.610	27.305
31	1	0	0	0	1	1			1.260	1.715	16.620	27.315
32	1	0	0	1	0	0			1.270	1.725	16.630	27.325
33	1	0	0	1	0	1			1.280	1.735	16.640	27.335
34	1	0	0	1	1	0			1.290	1.745	16.650	27.345
35	1	0	0	1	1	1			1.300	1.755	16.660	27.355
36	1	0	1	0	0	0			1.310	1.765	16.670	27.365
37	1	0	1	0	0	1			1.320	1.775	16.680	27.375
38	1	0	1	0	1	0			1.330	1.785	16.690	27.385
39	1	0	1	0	1	1			1.340	1.795	16.700	27.395
40	1	0	1	1	0	0			1.350	1.805	16.710	27.405



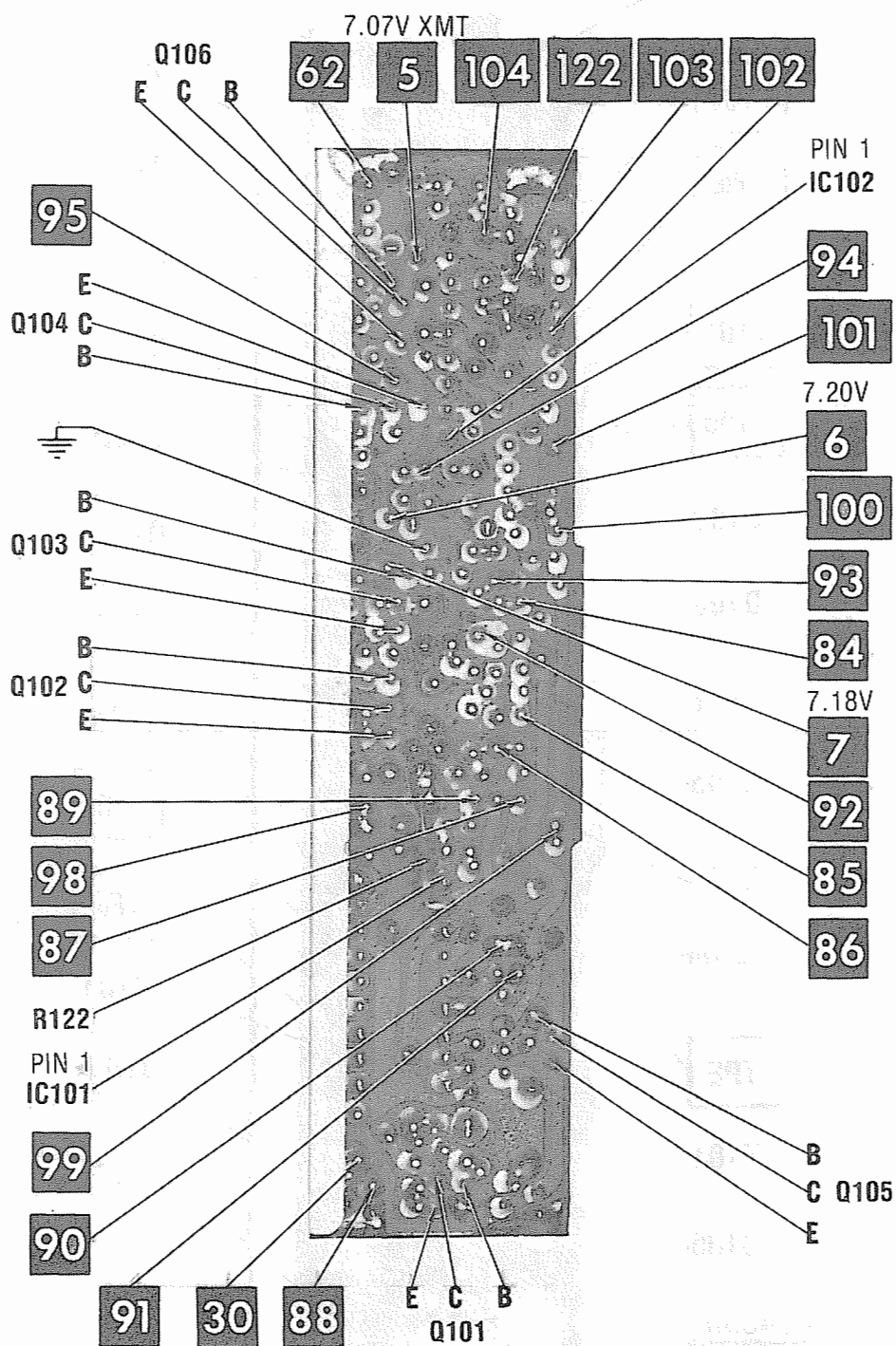
CHASSIS - BOTTOM



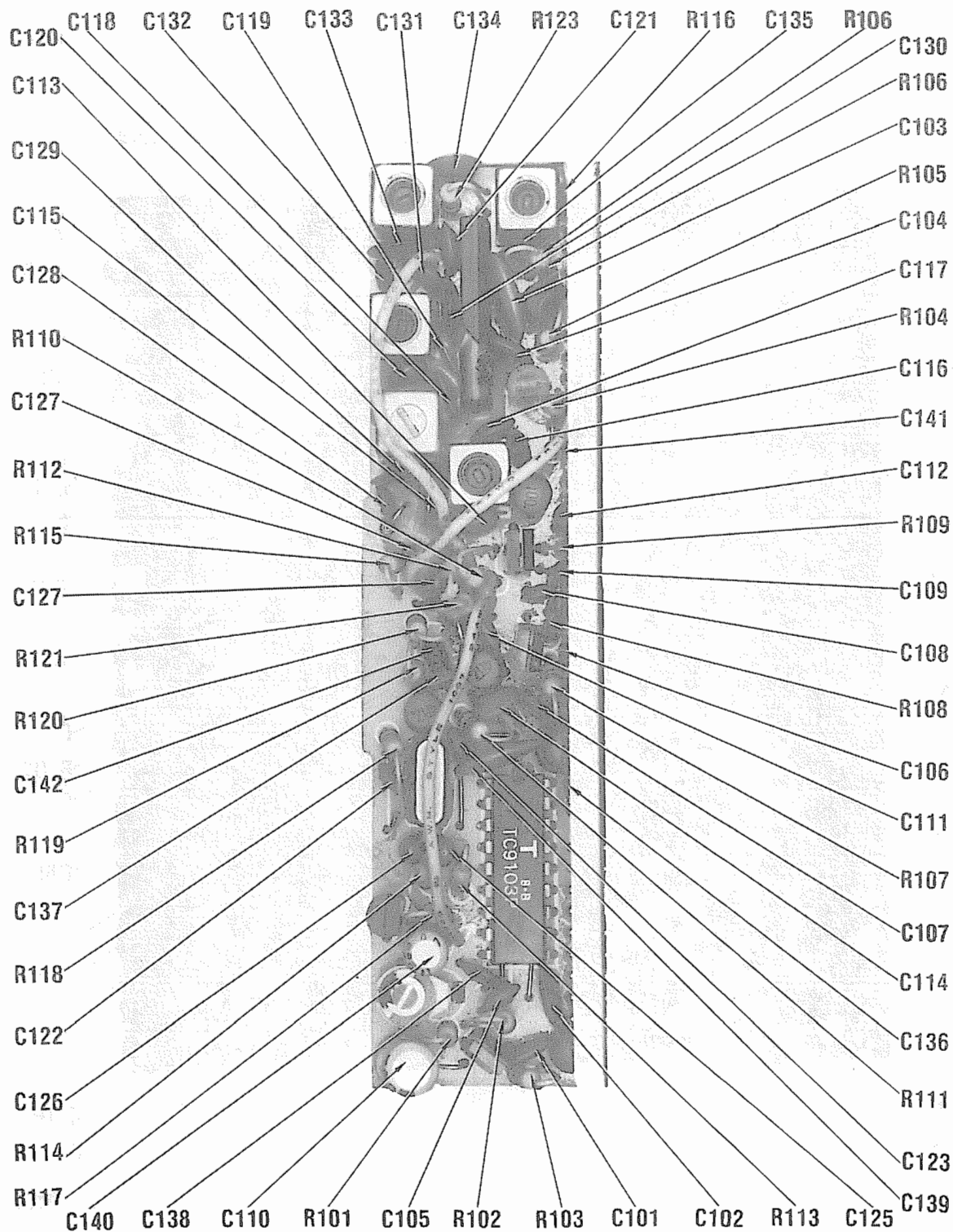
CHASSIS - BOTTOM



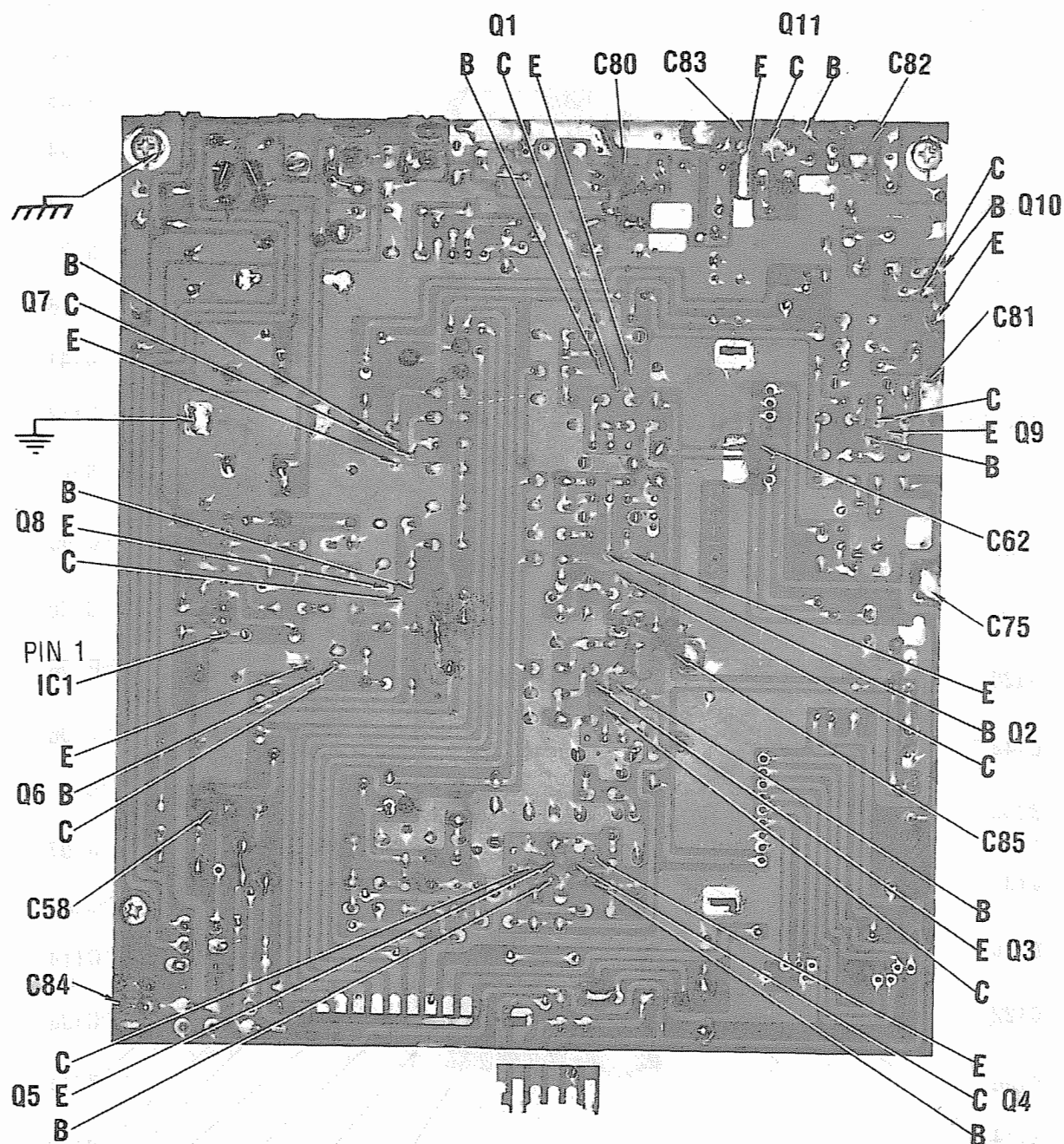
PLL BOARD



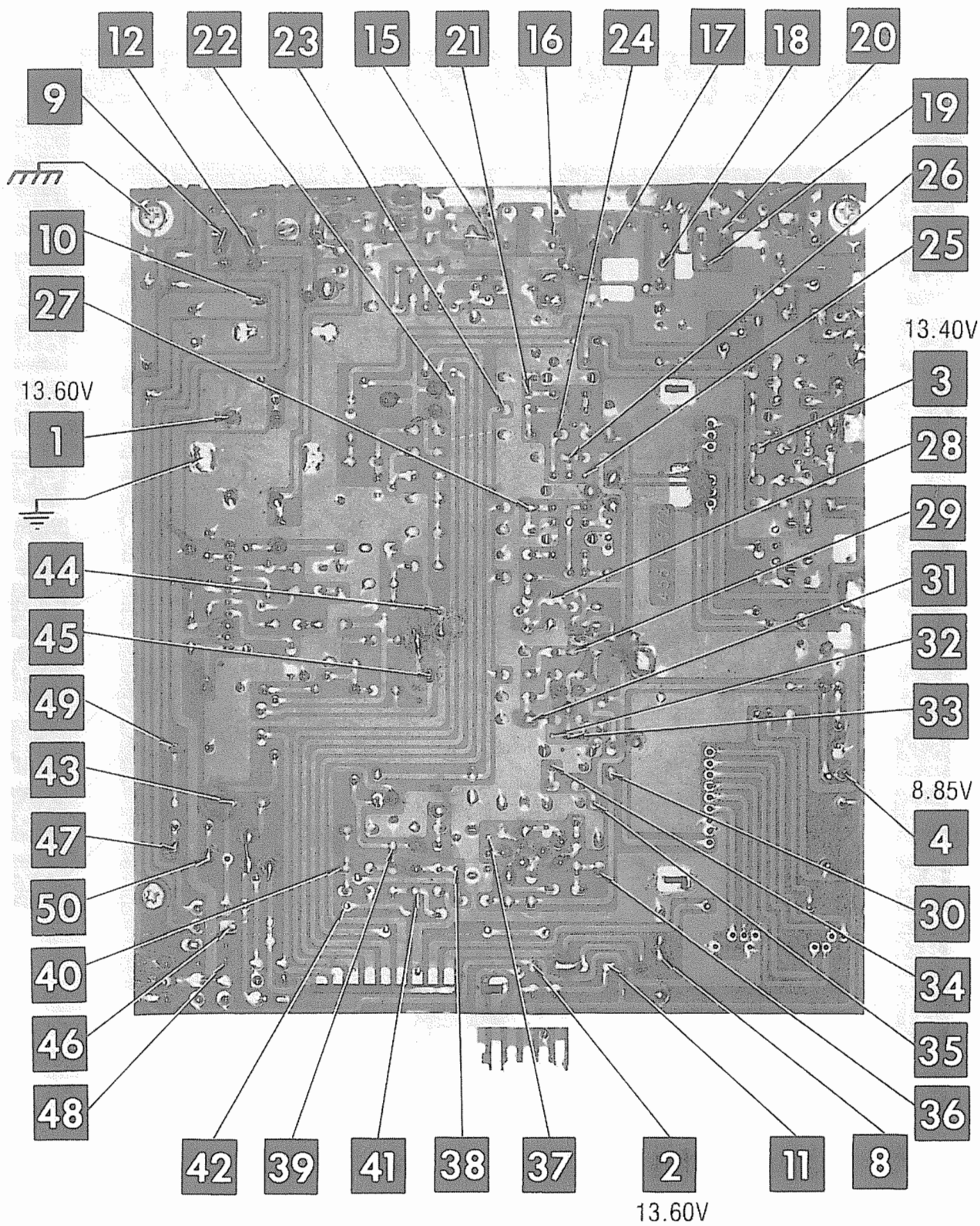
PLL BOARD



PLL BOARD

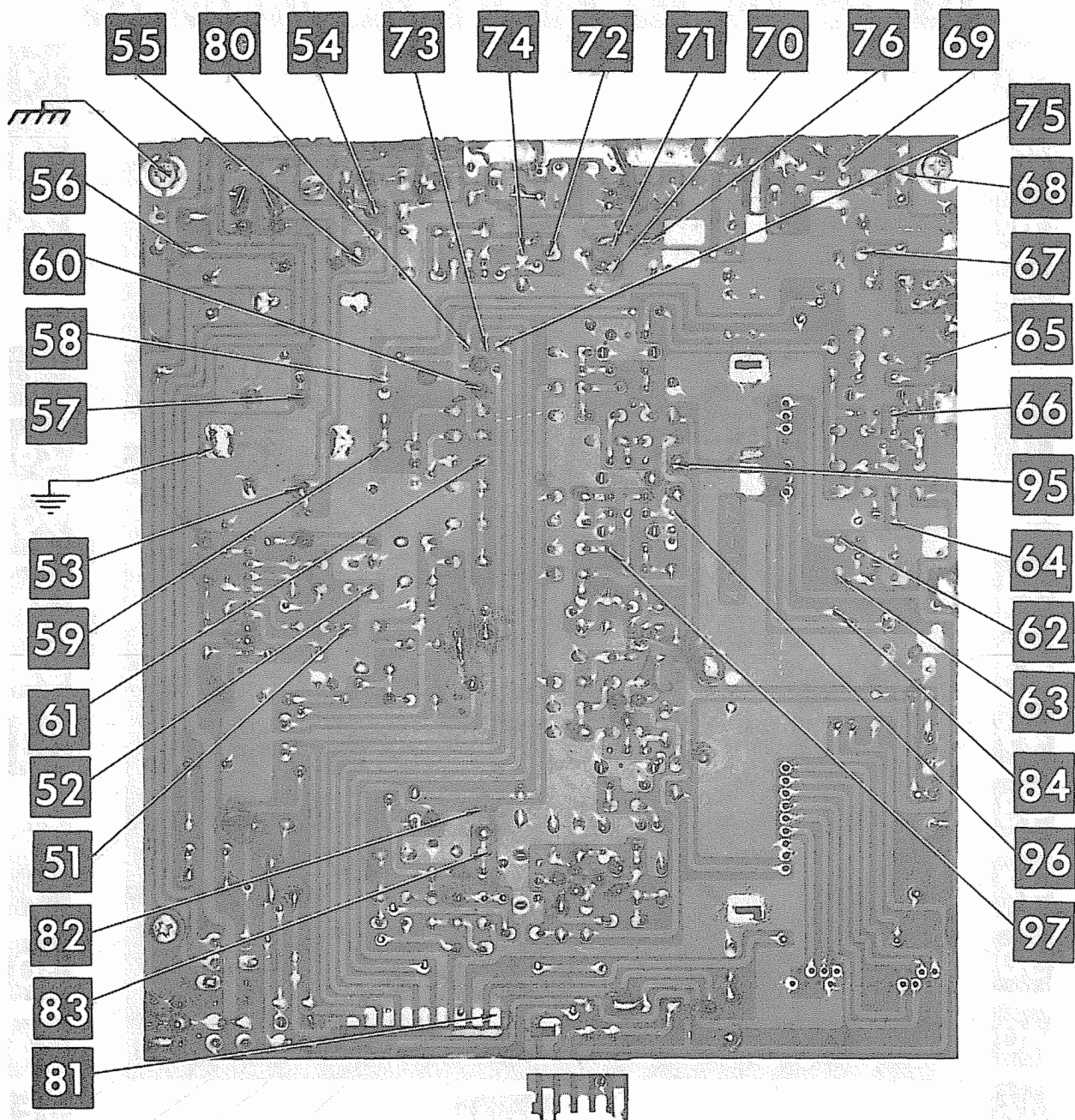


MAIN BOARD

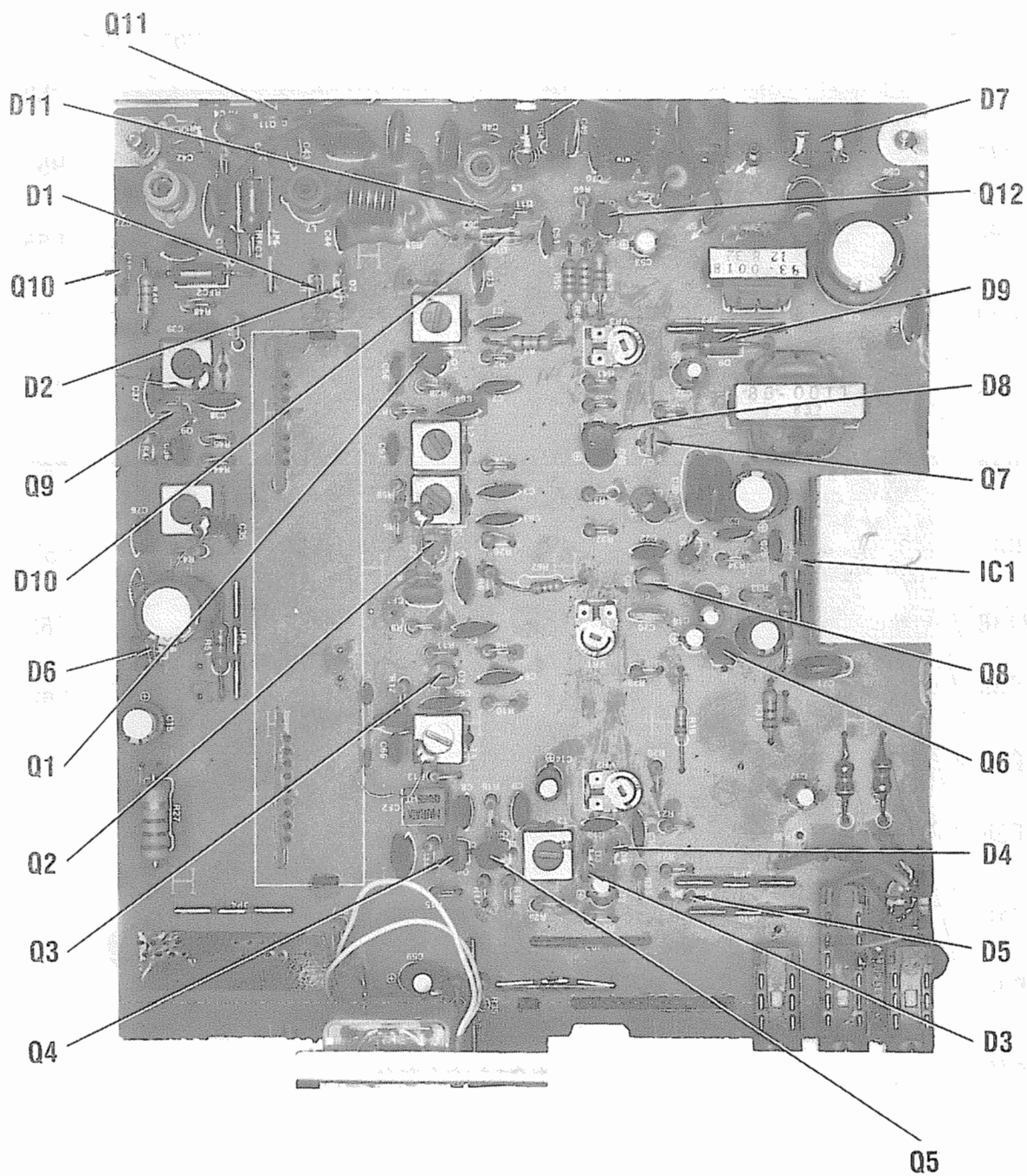


WARDS MODEL GEN-680A

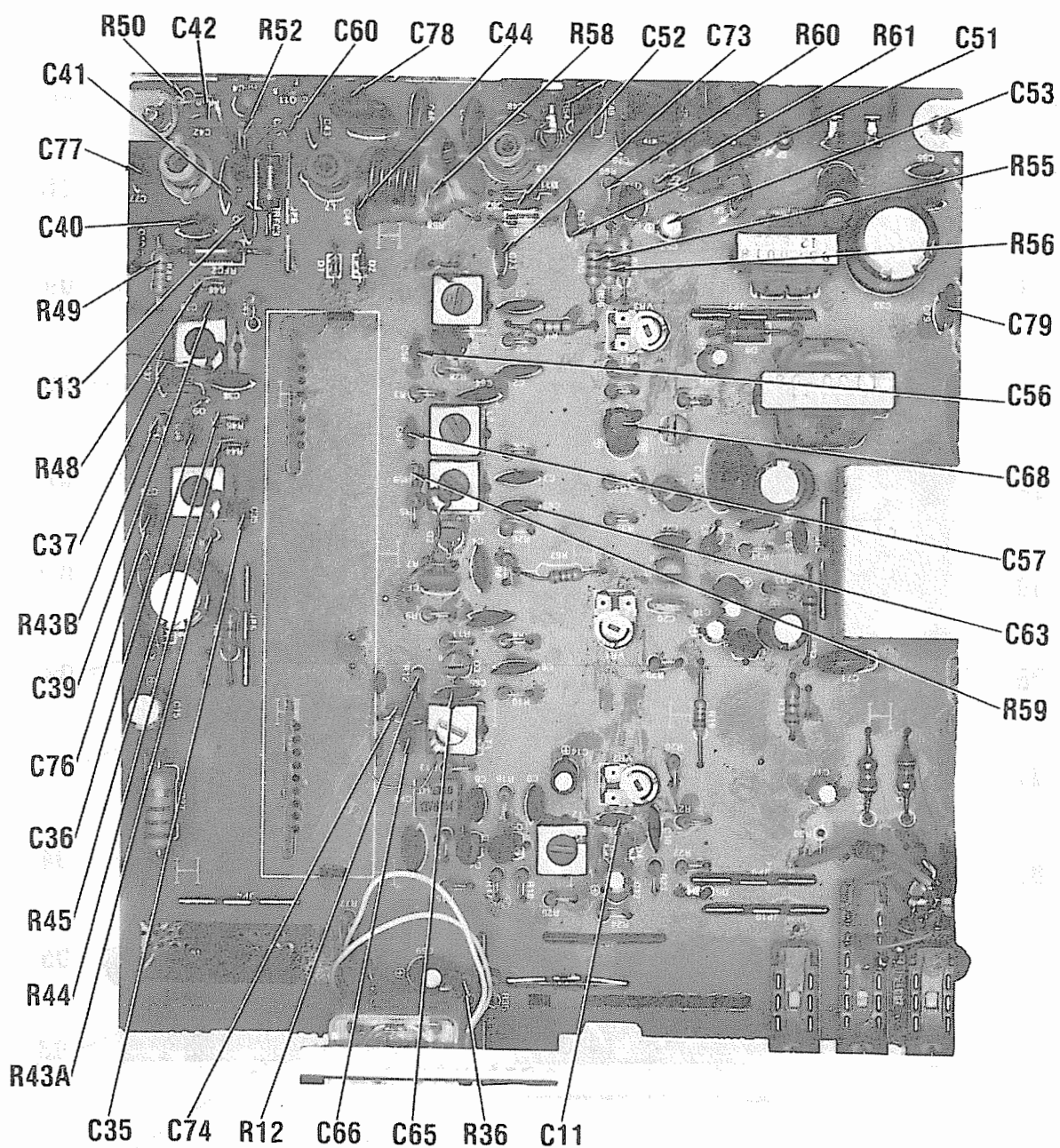
MAIN BOARD



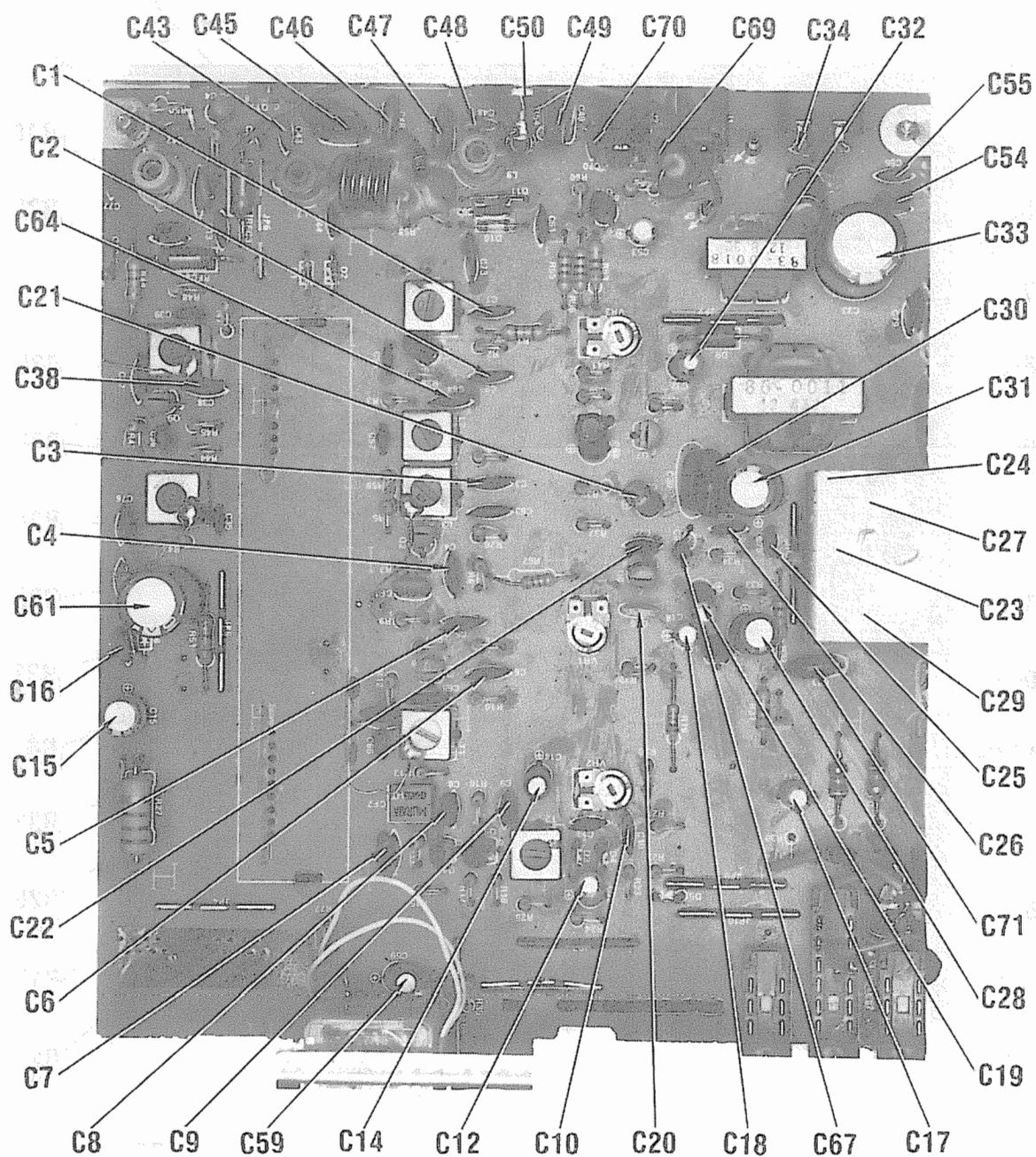
MAIN BOARD



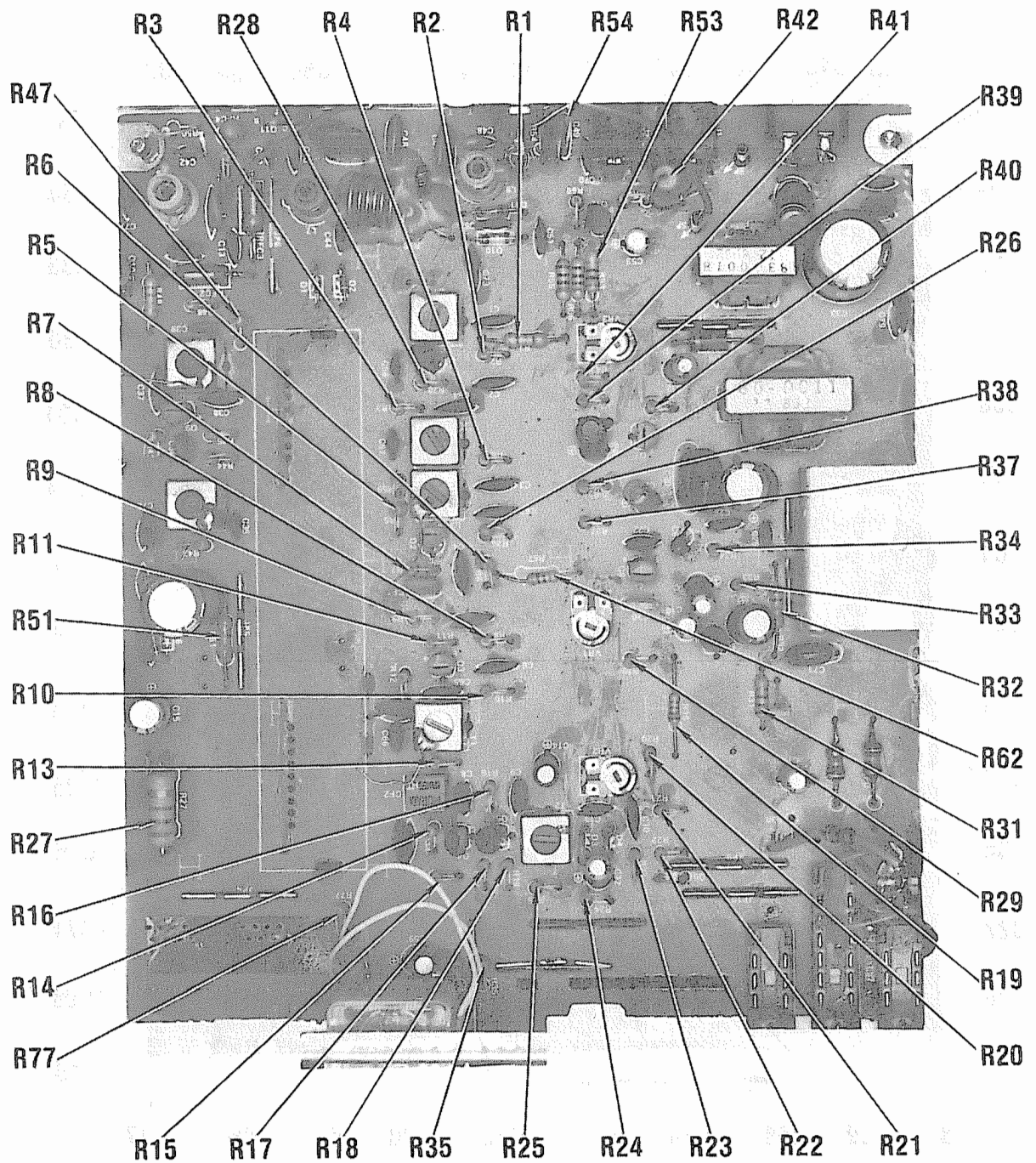
MAIN BOARD



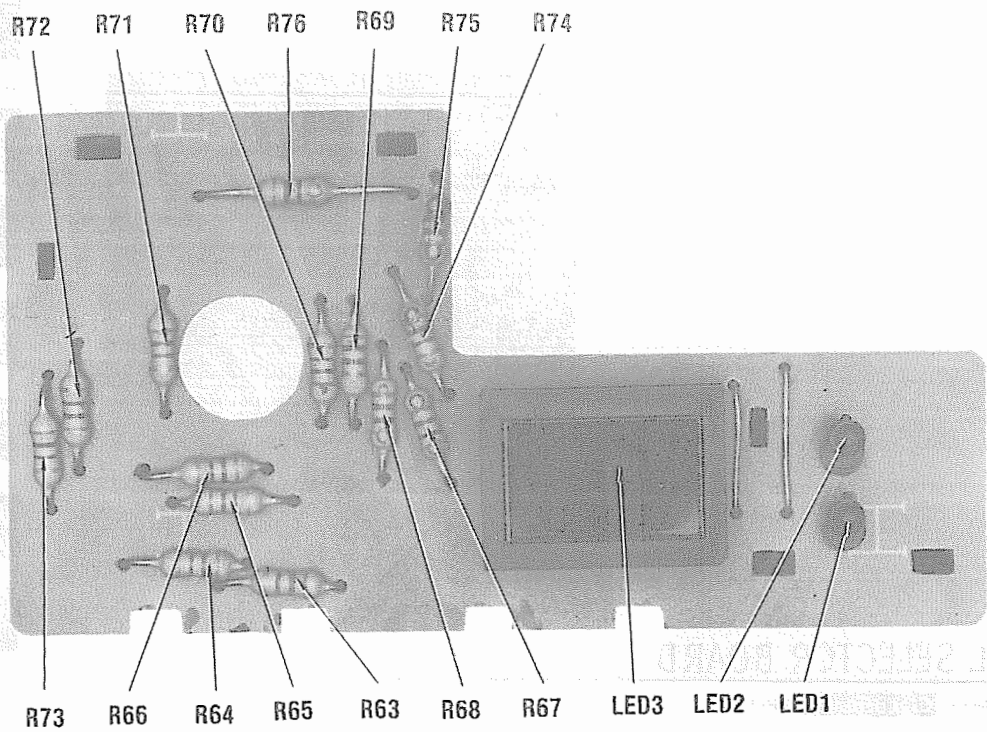
MAIN BOARD



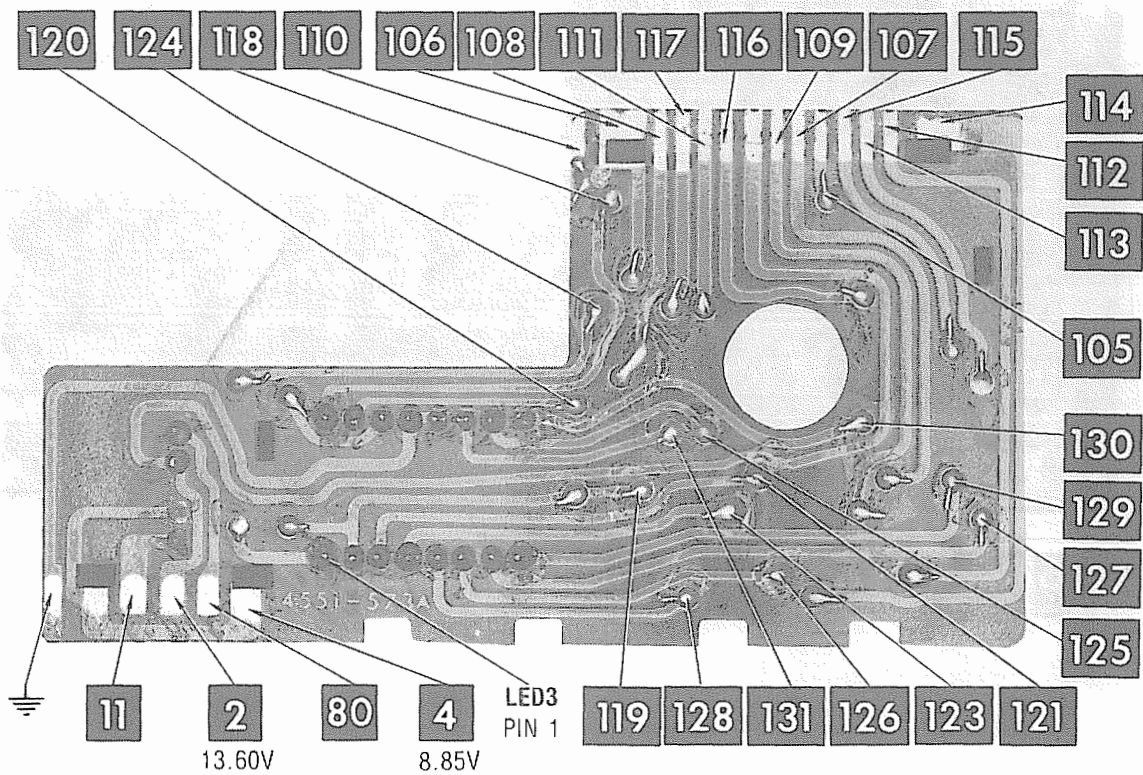
MAIN BOARD



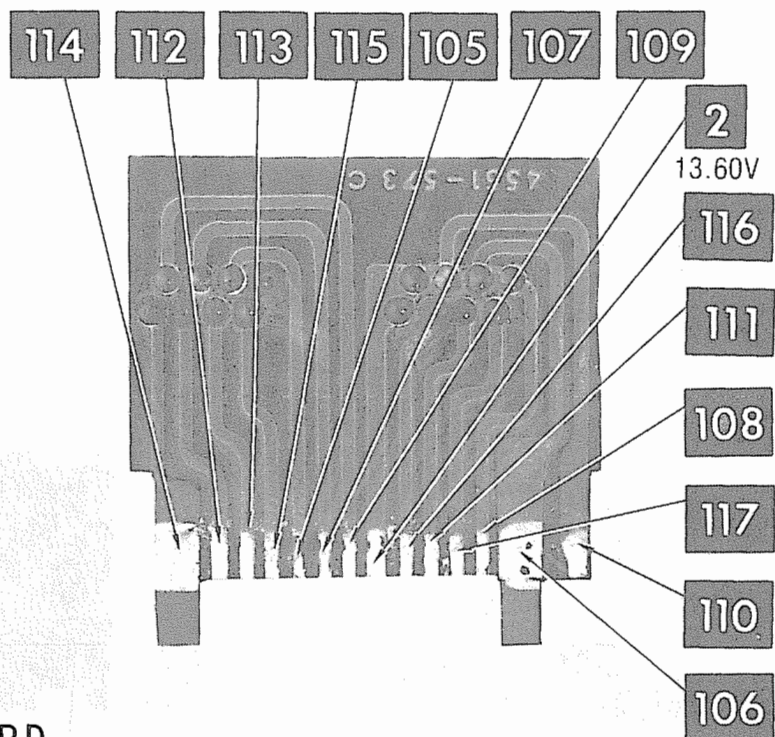
MAIN BOARD



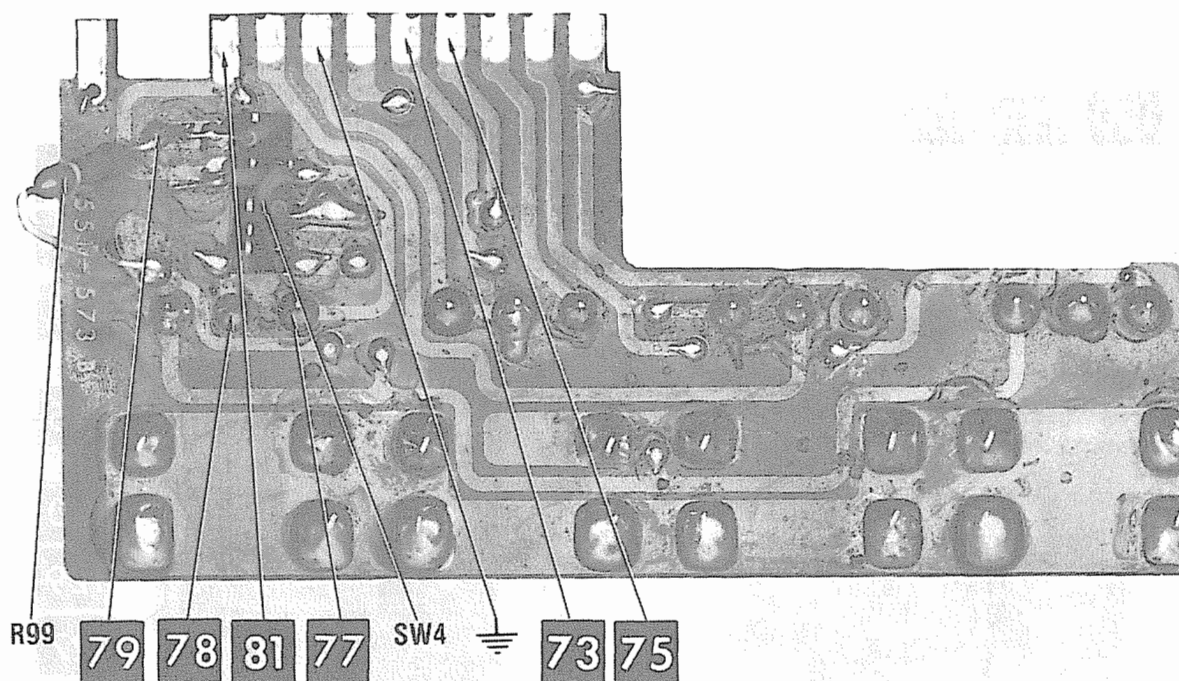
WARDS MODEL GEN-680A



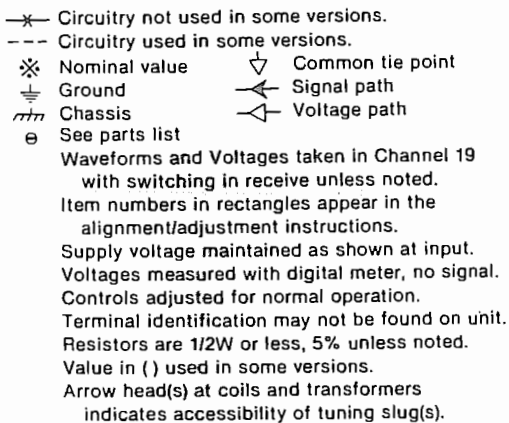
CHANNEL READOUT BOARD



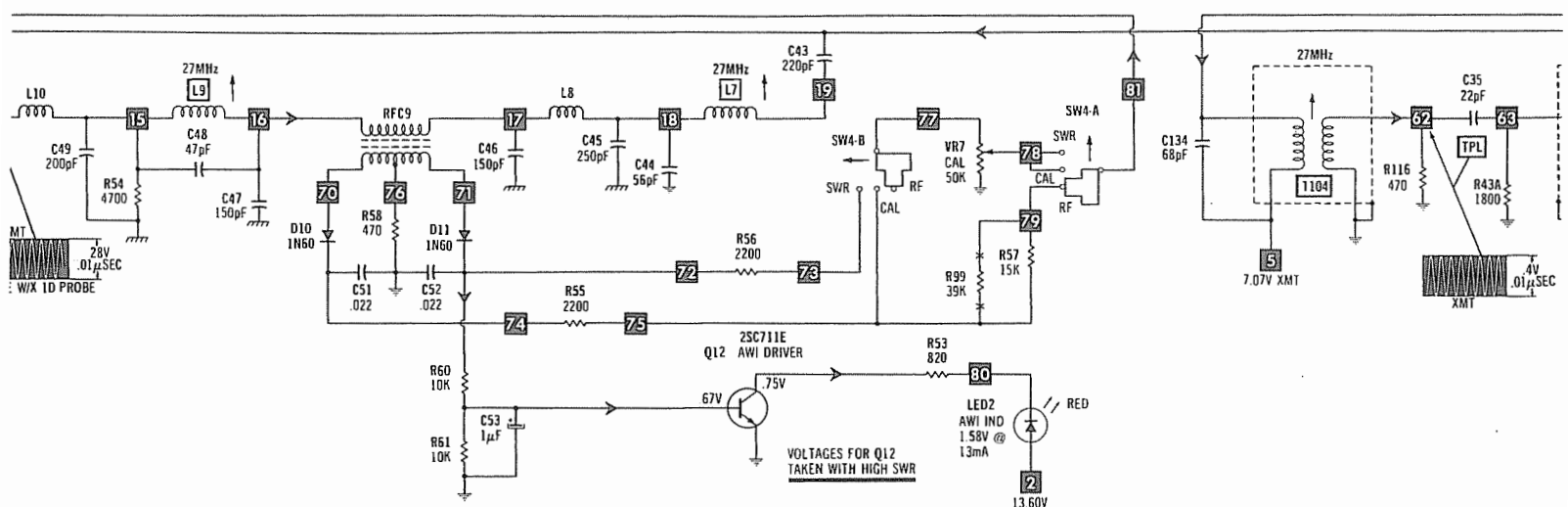
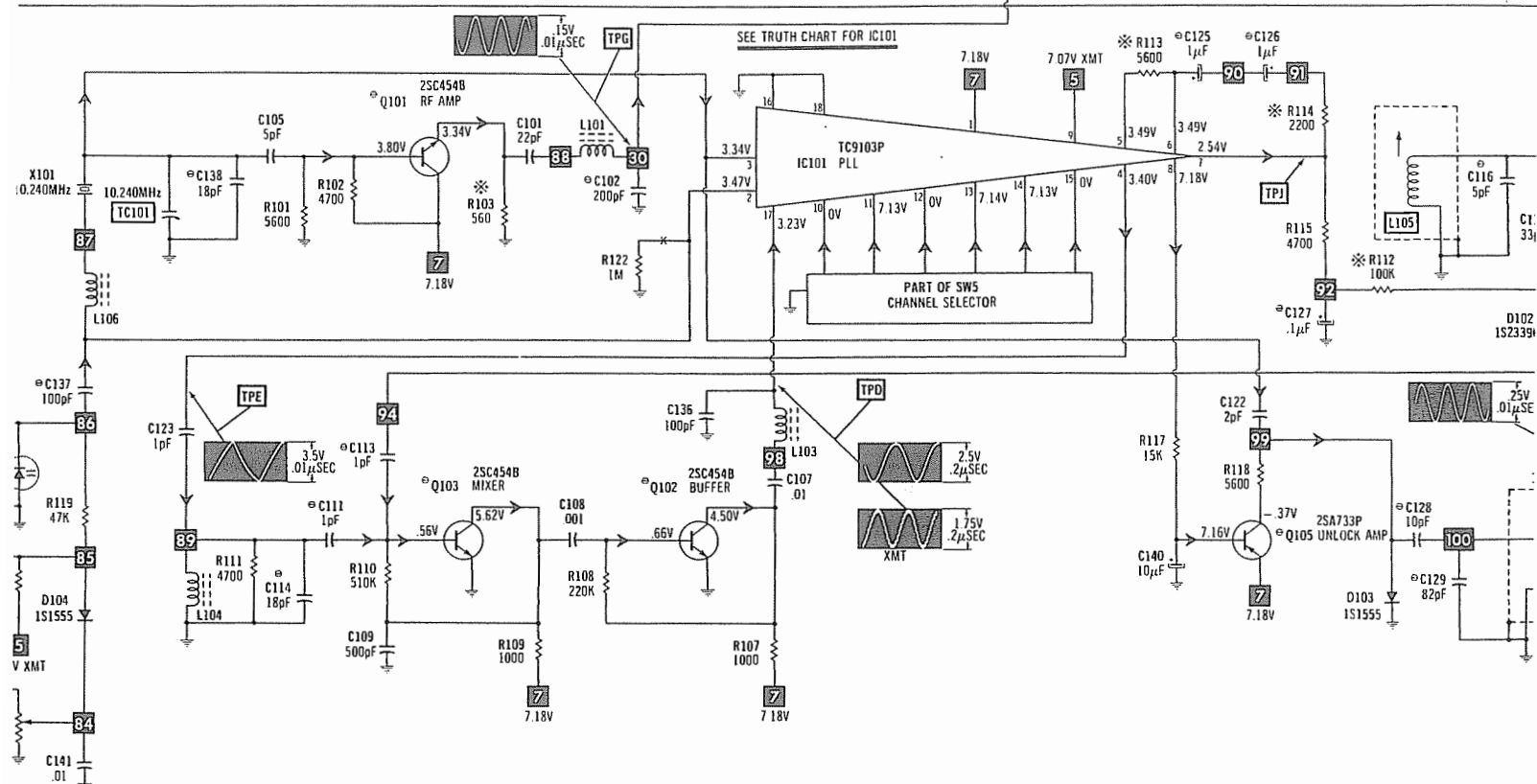
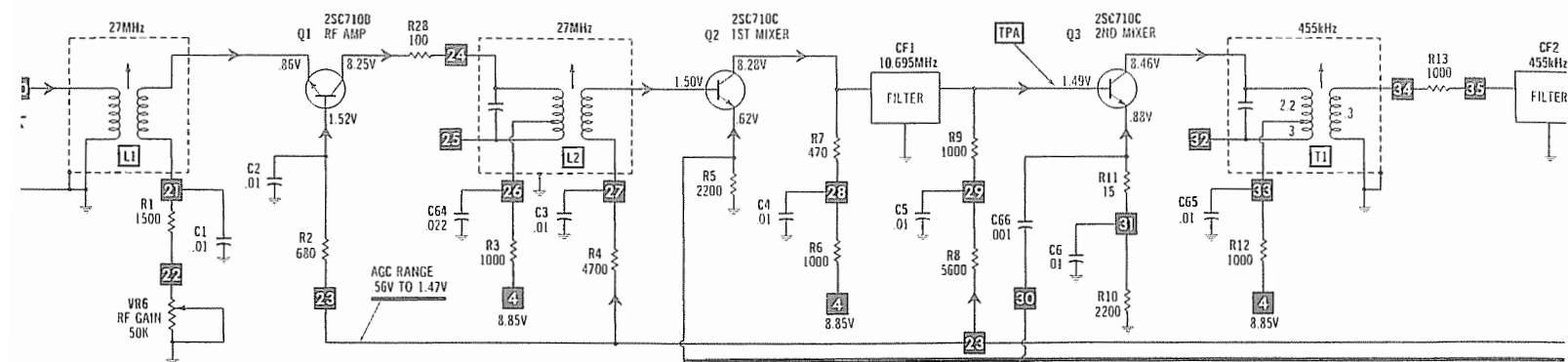
CHANNEL SELECTOR BOARD

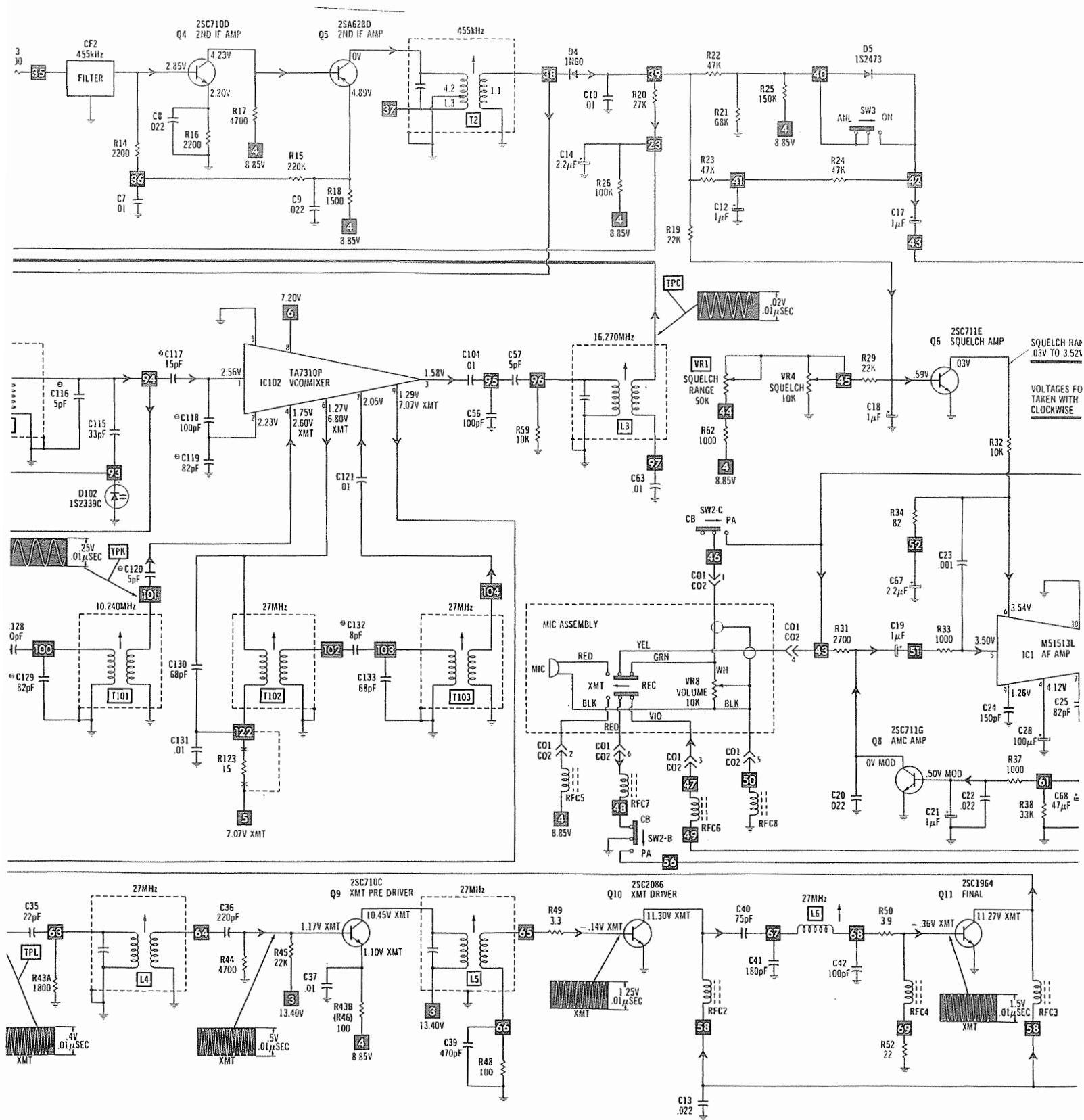


CB CONTROL BOARD

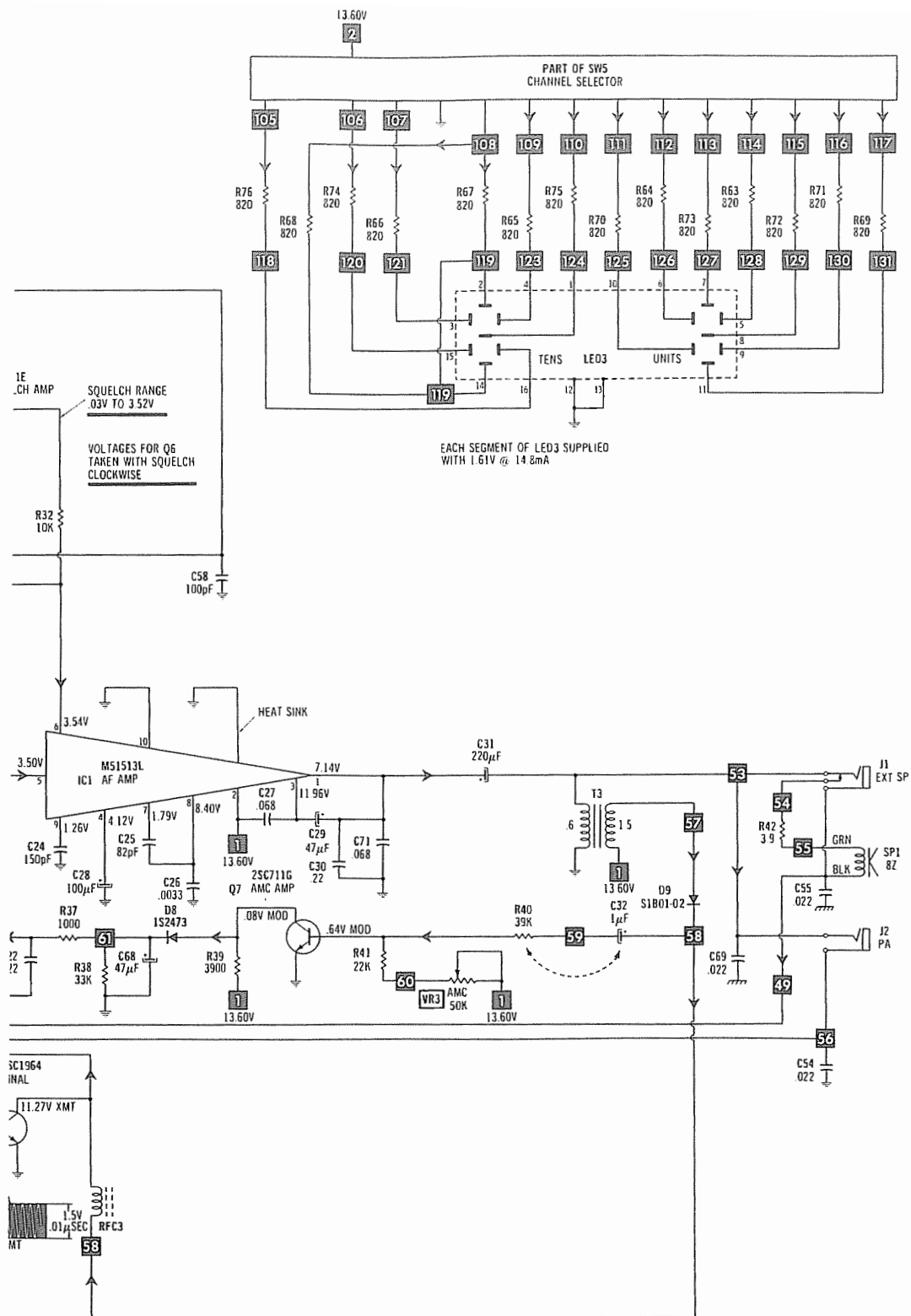


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MAIN CB SCHEMATIC



PARTS LIS

(When ordering)

WIRING I

General-use Hoc
Shielded Hook-t

Speaker Cable (
Bonding Strap
AC Power Cord

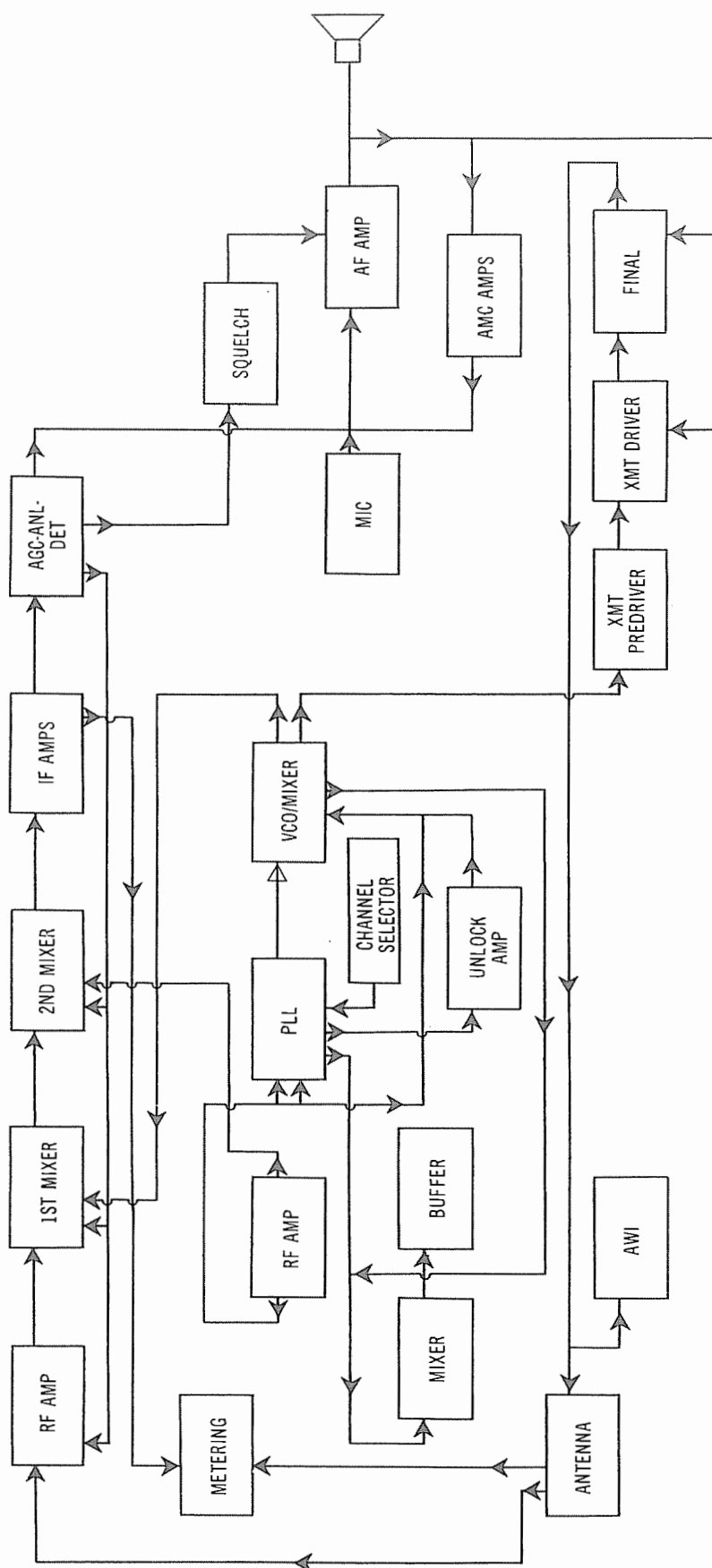
SEMICOND

ITEM No.	TYPE No.
D1	1S2473
D2	1S2473
D3	1N60
D4	1N60
D5	1S2473
D6	HZ309B
D7	51B01-02
D8	1S2473
D9	51B01-02
D10	1N60
D11	1N60
D101	R0082
D102	1S2339-C
D103	1S1555
D104	1S1555
D105	1S2339
IC1	H51513L
IC101	TC9103P
IC102	TA7310P
Q1	2SC710B
Q2	2SC710C
Q3	2SC710C
Q4	2SC710D
Q5	2SA628D
Q6	2SC711E
Q7	2SC711G
Q8	2SC711G
Q9	2SC710C
Q10	2SC2086
Q11	2SC1964
Q12	2SC711E
Q101	2SC454B
Q102	2SC454
Q103	2SC454B
Q104	2SC454B
Q105	2SC2120-0
Q106	2SC2120
	2SA733P
	2SA733
	2SA733P
	JA105D

* Lead configu
/** Also availat

ELECTROL

ITEM No.	R.
C12	1
C14	2.2
C15	100
C17	1
C18	1
C19	1
C21	1
C28	100
C29	47
C31	220
C32	1
C33	100
C53	1
C59	33
C61	100
C67	2.2
C68	47
C110	47
C112	10
C125	1
C126	1
C127	.1
C140	10



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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	4-conductor (unshielded) 23AWG	BELDEN No. 8415 (6')
	(9') BELDEN No. 17109	5-conductor (1 shielded) 28AWG	BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA								
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D1	1S2473	1S2473	GE-514	PTC214	REN 177	SK3100	RT-218	ECG519	TH519	WEP925	103-287
D2	1S2473	1S2473	GE-514	PTC214	REN 177	SK3100	RT-218	ECG519	TH519	WEP925	103-287
D3	1N60	1N60	1N60	PTC206	REN 109	SK3088	RT-263	ECG109	TH109/**	WEP134	103-29001
D4	1N60	1N60	1N60	PTC206	REN 109	SK3088	RT-263	ECG109	TH109/**	WEP134	103-29001
D5	1S2473	1S2473	GE-514	PTC214	REN 177	SK3100	RT-218	ECG519	TH519	WEP925	103-287
D6	MZ309B	MZ309B	GE20-9.1	Z89.10	REN 139	SK3060	RT-240	ECG139A	TH139/**	WEP1109	103-272
D7	51B01-02	51B01-02	GE-504A	PTC201	REN 116	SK3311	RT-213	ECG116	TH116	WEP156	212-76-02
D8	1S2473	1S2473	GE-514	PTC214	REN 177	SK3100	RT-218	ECG519	TH519	WEP925	103-287
D9	51B01-02	51B01-02	GE-504A	PTC201	REN 116	SK3311	RT-213	ECG116	TH116	WEP156	212-76-02
D10	1N60	1N60	1N60	PTC206	REN 109	SK3088	RT-263	ECG109	TH109/**	WEP134	103-29001
D11	1N60	1N60	1N60	PTC206	REN 109	SK3088	RT-263	ECG109	TH109/**	WEP134	103-29001
D101	R0082	R0082	GE20-8.2	Z88.2B	REN 5072	SK3136	RT-257	ECG5072A	TH5072/**	WEP1108	
D102	1S2339-C	1S2339-C						ECG610			
D103	1S1555	1S1555	GE-300	PTC214	REN 177	SK3100	RT-218	ECG177	TH177	WEP1062	103-131
D104	1S1555	1S1555	GE-300	PTC214	REN 177	SK3100	RT-218	ECG177	TH177	WEP1062	103-131
D105	1S2339	1S2339						ECG610			
IC1	M51513L	M51513L						ECG1256			
IC101	TC9103P	TC9103P									
IC102	TA7310P	TA7310P			REN 1192	SK3445		ECG1192	TH123A/**	WEP2120	
Q1	2SC7108	2SC710	GE-211*	PTC132	REN 123A*	SK3122	RT-308*	ECG123A*	TH123A/**	WEP710	121-29000A
Q2	2SC710C	2SC710	GE-211*	PTC132	REN 123A*	SK3122	RT-308*	ECG123A*	TH123A/**	WEP710	121-29000A
Q3	2SC710C	2SC710	GE-211*	PTC132	REN 123A*	SK3122	RT-308*	ECG123A*	TH123A/**	WEP710	121-29000A
Q4	2SC7100	2SC710	GE-211*	PTC132	REN 123A*	SK3122	RT-308*	ECG123A*	TH123A/**	WEP710	121-29000A
Q5	2SA628D	2SA628	GE-82*	PTC103*	REN 159*	SK3114	RT-303	ECG159*	TH159/**	WEP62	121-29003
Q6	2SC711E	2SC711	GE-62*	PTC121	REN 199*	SK3245	RT-302*	ECG199*	TH199/**	WEP372*	121-972
Q7	2SC711G	2SC711	GE-62*	PTC121	REN 199*	SK3245	RT-302*	ECG199*	TH199/**	WEP372*	121-972
Q8	2SC711G	2SC711	GE-62*	PTC121	REN 199*	SK3245	RT-302*	ECG199*	TH199/**	WEP372*	121-972
Q9	2SC710C	2SC710	GE-211*	PTC132	REN 123A*	SK3122	RT-308*	ECG123A*	TH123A/**	WEP710	121-29000A
Q10	2SC2086	2SC2086	GE-47*	PTC143*	REN 293*	SK3842		ECG293*	TH293*	WEP914	
Q11	2SC1964	2SC1964	GE-215	PTC186	REN 235	SK3197	RT-146	ECG235	TH235	WEP785	121-29040
Q12	2SC711E	2SC711	GE-62*	PTC121	REN 199*	SK3245	RT-302*	ECG199*	TH199/**	WEP372*	121-972
Q101	2SC454B	2SC454	GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
	2SC454		GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
Q102	2SC454B	2SC454	GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
	2SC454		GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
Q103	2SC454B	2SC454	GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
	2SC454		GE-210	PTC115*	REN 289	SK3124	RT-187	ECG289	TH289/**	WEP454	121-29000A*
Q104	2SC2120-0	2SC2120	GE-243*	PTC143*	REN 128*	SK3024*	RT-114*	ECG128	TH128*	WEP59*	121-792*
	2SC2120		GE-243*	PTC143*	REN 128*	SK3024*	RT-114*	ECG128	TH128*	WEP59*	121-792*
Q105	2SA733P	2SA733	GE-48	PTC127	REN 294	SK3114	RT-303	ECG294	TH294/**	WEP911	121-952
	2SA733		GE-48	PTC127	REN 294	SK3114	RT-303	ECG294	TH294/**	WEP911	121-952
Q106	2SA733P		GE-48	PTC127	REN 294	SK3114	RT-303	ECG294	TH294/**	WEP911	121-952
	JA1050	JA1050	GE-82	PTC103	REN 159	SK3114*	RT-126A	ECG159	TH159	WEP62	121-29003

* Lead configuration may vary from original.

** Also available as exact type replacement.

WARDS MODEL GEN-680A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C12	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C14	2.2 50V	CE2.2U50V50-10	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C15	100 10V	CE100U10V100-10	PC100-10	VTT100E10	QV1-93	EV-1131
C17	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C18	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C19	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C21	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C28	100 10V	CE100U10V100-10	PC100-10	VTT100E10	QV1-93	EV-1131
C29	47 16V	CE47U16V50-10	PC50-16	VTT47D16	QV1-73	EV-1226
C31	220 16V	CE220U16V50-10	PC250-25	VTT220H16	QV1-117	EV-1240
C32	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C33	1000 16V	CE1000U16V50-10	PC1000-16	VTT1000L16	QV1-183	EV-1261
C53	1 50V	CE1U50V100-10	PC1-50	VTT1A50	QV1-11	EV-1615
C59	33 10V	CE33U10V50-10	PC30-25	VTT33B10		EV-1225
C61	1000 10V	CE1000U10V50-10	PC1000-16	VTT1000L10	QV1-179	EV-1161
C67	2.2 25V	CE2.2U25V20		TDC225W35FL		SD35-2R29
C68	47 10V	CE47U10V50-10	PC50-16	VTT47D16	QV1-73	EV-1226
C110	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C112	10 16V	CT10U25V20		TDC106H025FL	QDT1-64	SD25-109
C125	1 35V			TDC105H035EL		SD35-19
C126	1 35V			TDC105H035EL		SD35-19
C127	.1 35V			TDC104H05DEL	QDT1-2	SD50-R109
C140	10 16V	CE10U16V50-10	PC10-25	VTT10B25	QV1-41	EV-1222

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	.01 50V	CH.068U50V20	UK50-103		MAG5011		
C2	.01 50V		UK50-103		MAG5011		
C3	.01 50V		UK50-103		MAG5011		
C4	.01 50V		UK50-103		MAG5011		
C5	.01 50V		UK50-103		MAG5011		
C6	.01 50V		UK50-103		MAG5011		
C7	.01 50V		UK50-103		MAG5011		
C8	.022 25V		UK25-223				HY-725
C9	.022 25V		UK25-223				HY-725
C10	.01 50V		UK50-103		MAG5011		
C11	.022 25V	CH.22U50V20	UK25-223				HY-725
C13	.022 25V		UK25-223				HY-725
C16	.022 25V		UK25-223				HY-725
C20	.022 50V 10%		UK25-223		H192P2239RB		192P2239RB
C22	.022 25V		UK25-223				HY-725
C23	.001 50V		00-102		GP210		10TS-010
C24	150 50V		0TZ-150		CH0315		10TCC-T15
C25	82 50V 10%		0TZ-82	HP002	CH0482		10TCC-Q82
C26	.0033 50V		00-332	GP3300	GP233	QC2-107	5GA-033
C27	.068 50V	CH.22U50V20		WMF05P22	H192P2249RB	QFT2-253	1FT-P22
C30	.22 50V						HY-725
C34	.022 25V		UK25-223				10TCC-Q22
C35	.22 50V		0TZ-22	HP022	CH0422		10TCC-T22
C36	.220 50V		0TZ-220				
C37	.01 50V		UK50-103		MAG5011		10TS-T47
C38	.01 50V		UK50-103		MAG5011		10TCC-Q75
C39	470 50V		DD-471	GP470	GP347		10TCR-T18
C40	75 NPO 50V 5%		0TZ-75	NP075	CH0475		10TCC-T10
C41	180 H220 50V 5%	CC180P50V10			*		10TCC-T22
C42	100 50V 10%		0TZ-100	NP0100	CH0310		10TCC-Q56
C43	220 50V 10%		0TZ-220				10TCC-Q56
C44	56 NPO 50V 5%				CH0456		MMA-271
C45	250 50V			C015F0271J03	SX327	QW1-37	MMA-151
C46	150 50V 10%			C015F0151J03	SX315	QW1-31	MMA-151
C47	150 50V 10%			C015F0151J03	SX315	QW1-31	MMA-151
C48	47 H220 50V 5%	CC47P50V5			*		10TCR-Q47
C49	200 50V 5%			C015F0201J03	SX320	QW1-34	MMA-201
C50	39 50V				CH0439		10TCC-Q39
C51	.022 25V		UK25-223				HY-725
C52	.022 25V		UK25-223				HY-725
C54	.022 25V		UK25-223				HY-725
C55	.0047 50V		DD-472	GP4700	GP247		5GA-047
C56	.022 25V		UK25-223				HY-725
C57	100 50V		0TZ-100	NP0100	CH0310	QW1-2	10TCC-T10
C58	5 50V	CH.068U50V20		CD15CD050003			MMA-050
C60	100 50V 10%		0TZ-100	NP0100	CH0310	QW1-14	10TCC-T10
C62	.022 25V		UK25-223	CD15ED300J03	SX430		MMA-300
C63	.01 50V		UK50-103				HY-725
C64	.01 50V		UK50-103		MAG5011		
C65	.022 25V		UK25-223		MAG5011		HY-725
C66	.01 50V		UK50-103				10TS-010
C69	.001 50V		DD-102		GP210		HY-725
C70	.022 25V		UK25-223				HY-725
C71	.068 50V	CH.068U50V20					HY-725
C73A	.022 25V		UK25-223				HY-725
C74	.022 25V		UK25-223				HY-725
C75	.022 25V		UK25-223				HY-725
C76	.022 25V		UK25-223				HY-725
C77	.022 25V		UK25-223				HY-725
C78	.022 25V		UK25-223				HY-725
C79	.022 25V		UK25-223				HY-725
C80	.022 25V		UK25-223				HY-725
C81	.022 25V		UK25-223				HY-725
C82	.022 25V	CH.068U50V20	UK25-223				HY-725
C83	.022 25V		UK25-223				HY-725
C84	.022 25V		UK25-223				HY-725
C85	.022 25V		UK25-223				HY-725
C101	.22 50V		0TZ-22	NP022	CH0422		10TCC-Q22
C102	200 50V		0TZ-200				10TCC-T20
C103	.1 50V		CK-104		MAG5001		
C104	.01 50V		UK50-103		MAG5011		
C105	5 50V			CD15CD050003		QW1-2	MMA-050
C106	.01 50V		UK50-103		MAG5011		
C107	.01 50V		UK50-103		MAG5011		
C108	.001 50V		DD-102		GP210		10TS-010
C109	500 50V		DD-501	GP500	GP350		10TS-T50
C111	1 50V	CH.068U50V20			CH0510		10TCC-V10
C113	1 50V				CH0510		10TCC-V10
C114	18 50V				CH0418		10TCC-Q18
C115	33 N750 50V		0TN-33	N33	CH7433		10TCU-Q33
C116	15 NPO 50V		0TZ-15	NP015	CH0415		10TCC-Q15
C117	15 N750 50V		0TN-15	N15	CH7415		10TCU-Q15
C118	100 50V		0TZ-100	NP0100	CH0310		10TCC-T10
C119	82 50V		0TZ-82	NP082	CH0482		10TCC-Q82
C120	5 50V			CD15CD050003		QW1-2	MMA-050
C121	.01 50V		UK50-103		MAG5011		
C122	2 50V	CH.068U50V20	0TZ-2R2	NP02P2	CH0522		10TCC-V22
C123	1 50V				CH0510		10TCC-V10
C128	10 50V		0TZ-10	NP010	CH0410		10TCC-Q10
C129	82 NPO 50V		0TZ-82	NP082	CH0482		10TCC-Q82
C130	68 NPO 50V		0TZ-68	NP068	CH0468		10TCC-Q68
C131	.01 50V		UK50-103		MAG5011		
C132	8 NPO			CD15CD080D03		QW1-5	MMA-080
C133	68 NPO		0TZ-68	NP068	CH0468		10TCC-Q68
C134	68		0TZ-68	NP068	CH0468		10TCC-Q68
C135	.01 50V		UK50-103		MAG5011		
C136	100	CH.068U50V20	0TZ-100	NP0100	CH0310		10TCC-T10
C137	100		0TZ-100	NP0100	CH0310		10TCC-T10

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.
C138	18 NPO	116			CH0418	10TCC-Q18
C139	.1	457	CK-104		MAG5001	
C141	.01 50V	451	UK50-103		MAG5011	
C142	3 NPO	105	DTZ-3R3	HP03P3	CH0533	10TCC-V33
	5	517		CD15CD050D03		12A-050
TC101	Trimmer	J35495				QW1-2

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA			
			MFR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR1	Squelch Range	50K	J25778			U260R503B
VR2	Signal Meter	10K	J25783			U260R103B
VR3	AMC	50K	J25778			U260R503B
VR4	Squelch	10K	J25825			
			1030168(5)			
VR5	Fine Tune	10K	J25825			
			1030168(5)			
VR6	RF Gain	50K	J25826			
			5030368(5)			
VR7	CAL	50K	J25826			
			5030368(5)			
VR8	Volume	10K		B16-115		

(5) Number on unit.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec RF (27MHz)	J611376	5933006783AV		
L2	RF Amp (27MHz)	J611379			
L3	Buffer (16.270MHz)	J611380	5933008783AV		
L4	Xmt Amp (27MHz)	J611271	59330041382HE		
L5	Predriver (27MHz)	J611271	5933004137UKC		
L6	Driver (27MHz)	J611375			
L7	Loading Final (27MHz)	J611376			
L8	Pi Filter	J611333			
L9	Antenna Matching (27MHz)	J611377			
L10	Pi Filter	J611334			
L101	RF Choke	J611396			
L102	RF Choke	J611397			
L103	RF Choke	J611398			
L104	RF Choke	J611399			
L105	VCO	J611400			
L106	RF Choke				
RFC1	RF Choke	J611260			
RFC2	RF Choke	J611330			
RFC3	RF Choke	J611331			
RFC4	RF Choke	J611335			
RFC5	RF Choke	J611381			
RFC6	RF Choke	J611381			
RFC7	RF Choke	J611381			
RFC8	RF Choke	J611381			
RFC9	RF Choke	J611382			
T1	Mixer (455kHz)	J62738	5553001782LV	2067	
T2	IF Amp (455kHz)	J62907	5553025782LV		
T101	UnLock Amp (10.240MHz)	J62920	EK145		
T102	Xmt Mixer (27MHz)	J62920	EK143		
T103	Xmt Mixer (27MHz)	J62920	EK143		
T104	Buffer (27MHz)	J62920	EK143		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
AFC1	1.5A	1.1	.85mH	J62855 83-0018(1)			(1) Number on unit.

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	1	2.6		J11501 86-0011(1)			(1) Number on unit.

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" PH, 8 Ohms	J10176	3A0528	

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
FU1	3A Quick Acting	J18544		AGC3	HRK	312003	150145	FG3-2

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	J63363				18-106							

Microphone includes volume control. (Only volume control for unit.)

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	J307	10.695MHz
CF2	Filter	J308	455kHz
C01	Jack	J26911	Microphone
J1	Jack	J63357	Extension Speaker
J2	Jack	J63357	PA Speaker
LED1	LED	SR1050	TX Indicator (1.58V @ 13mA)
LED2	LED	SR1050	AWI Indicator (1.58V @ 13mA)
LED3	LED	LPA4022	Channel Readout, Tens, Units (1.61V @ 14.8mA Each Segment)
ME1	Meter	J1382	Signal/SWR/RF Power
P1	DC Cord	J92100	W/Plug
PL1	Lamp	(1)	Meter (10.90V @ 27.5mA)
SW1	Switch	J12655	On/Off
SW2	Switch	J12656	CB/PA
SW3	Switch	J12655	AHL/On
SW4	Switch	J12653	SWR/CAL/RF
SW5	Switch	J12654	Channel Select
S01	Jack	J26856	Antenna
S02	Jack	J26827	DC Interlock
X101	Crystal		10.240MHz
	P.C. Board	J56552	Main
	P.C. Board	J56600	Control
	P.C. Board	J56601	Channel Readout
	P.C. Board	J56602	Channel Selector Switch
	PLL Unit	J35489	Assembly, Complete

(1) Part of ME1.

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Bottom	J70800	Knob, RF Gain	J501120
Cabinet, Top	J70799	Knob, Squelch	J501120
Chassis Assembly	J381235	Panel, Front Assembly	J70801
Knob, Channel Selector	J501161	Pushbutton, AHL	J501162
Knob, Calibration	J501120	Pushbutton, PA	J501162
Knob, Fine Tune	J501120	Pushbutton, Power	J501162

WARDS MODEL GEN-680A