

SAMS **PHOTOFACT[®]**

CB RADIO SERIES



CB-221

221

SEPTEMBER 1978

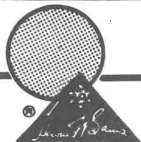


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HOWARD W. SAMS & CO., INC. Indianapolis, Indiana



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 1005002, GRANT

MANUFACTURER'S SPECIFICATIONS

RECEIVER

Sensitivity

SSB: Less than 0.25 μ V for 10 dB
(S+N)/N at greater than 1/2 watt of audio output.

AM: Less than 0.5 μ V for 10 dB.
(S+N)/N at greater than 1/2 watt of audio output.

Selectivity

SSB 6 dB @2.2 KHz, AM 6 dB @7.5 KHz.

Cross Modulation

More than 55 dB.

Image Rejection

More than 60 dB.

I.F. Frequency

AM: 455 KHz SSB: 7.8 MHz

AM and SSB RF Gain Control

Adjustable for optimum signal reception.

Automatic Gain Control

(AGC): Less than 10 dB change in audio output for inputs from 10 to 500,000 μ V.

Squelch

Adjustable; threshold less than 0.5 μ V.

Noise Blanker

RF type, effective on AM and SSB.

Clarifier Range

± 1.25 KHz.

Audio Output Power

3.5 watts minimum into 8 ohms.

Frequency Response

350 to 2500 Hz.

Distortion

Less than 10% at 3 watts output.

Built-in Speaker

8 ohms, round.

External Speaker (Not Supplied)

8 ohms; disables internal speaker when connected.

TRANSMITTER

Power Output

AM, 4 watts
SSB, 12 watts, P.E.P.

Modulation

High and low level Class B, Amplitude Modulation.

Intermodulation Distortion

SSB: 3rd and 5th order, more than -25 dB.
7th and 9th order, more than -35 dB.

SSB Carrier Suppression

More than -45 dB.

Unwanted Sideband

More than -45 dB.

Frequency Response

AM and SSB: 350 to 2500 Hz.

Output Impedance

52 ohms, unbalanced.

SSB Filter

7.8 MHz, crystal lattice type
6 dB @2.2 KHz
60 dB @4.6 KHz

Courtesy of the Manufacturer

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

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PRESIDENT MODEL 1005002, GRANT

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:
 L36, L38 9091,8728-A,8728
 CT1, CT2 8276,5000
 L3, L13, L15 5009,8728-A,8728
 L1, L2, L4 thru L10, L12, L14, L19 thru L23,
 L30, L31, L45 thru L48 9440

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter thru 47pF to TP20 (IC1 Pin 7).	Ch. 19, AM		Check for 10.240MHz.
Input of oscilloscope to TP21 (L21 Secondary).	Ch. 19, AM	L21	Adjust for maximum.
Input of frequency counter to TP21 (L21 Secondary).	Ch. 19, USB Clarifier Midrange	CT1	Adjust for 33.9765MHz.
	Ch. 19, AM Clarifier Midrange	L23	Adjust for 33.975MHz.
	Ch. 19, LSB Clarifier Midrange	L22	Adjust for 33.9735MHz.
Input of DC meter to TP9.	Ch. 40, AM Clarifier Midrange	L19	Adjust for 3.6 volts.
Input of oscilloscope to TP1.	Ch. 19, AM Clarifier Midrange	L20	Adjust for maximum.
Input of frequency counter to TP1.	Ch. 19, USB Clarifier Midrange		Check for 34.7665MHz. Check all channels. (See Truth Chart for correct frequencies.)
	Ch. 19, AM Clarifier Midrange		Check for 34.765MHz. Check all channels. (See Truth Chart for correct frequencies.)
	Ch. 19, LSB Clarifier Midrange		Check for 34.7635MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP10.	Ch. 1, AM		Check for .790MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP3.	Ch. 19, USB	CT2	Adjust for 7.8015MHz $\pm$ 5Hz -0Hz.
	Ch. 19, LSB	L30	Adjust for 7.7985MHz +0Hz -5Hz.
	Ch. 19, AM, XMT	L31	Disconnect TP7 and TP8. Adjust for 7.8000MHz $\pm$ 5Hz. Reconnect TP7 and TP8.
Input of frequency counter to TP22 (TR9 Emitter).	Ch. 19, AM		Check for 7.345MHz.
Input of frequency counter to antenna jack.	Ch. 19, AM, XMT	VR5	Adjust for 27.185MHz.

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.
RF Gain Maximum, Clarifier Midrange, Squelch MINIMUM, NB/ANL Off.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP23 (FET1 G1). 455kHz, 1000Hz @ 30% modulation.	Ch. 19, AM	L15,L13,L3	Adjust for maximum.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19, AM	L10,L9,L8, L7,L6,L5,L4	Adjust for maximum. If necessary, readjust L3, L13 and L15.
Input of oscilloscope to TP25 (D1 Cathode). Inject a 100pps, 1uSec. pulse width signal.	Ch. 19, AM NB/ANL On	L2,L1	Adjust for maximum.

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.
RF Gain Maximum, Clarifier Midrange, Squelch MINIMUM, NB/ANL Off.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP24 (TR15 Emitter). 7.8005MHz, no modulation.	Ch. 19, USB	L14,L12,L10, L9,L8,L7	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation.	Ch. 19, USB	L6,L5,L4	Adjust for maximum output. If necessary, readjust L7, L8, L9, L10, L12 and L14.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
RF Gain Maximum, Clarifier Midrange, Squelch MINIMUM, NB/ANL Off, MOD/S/RF S/RF.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19, AM Squelch Maximum	VR3	SQUELCH RANGE Adjust so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19, AM	VR1	AM SIGNAL METER Adjust for 9 on S scale of meter.
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output 100uV.	Ch. 19, USB	VR2	SSB SIGNAL METER Adjust for 9 on S scale of meter.

PRESIDENT MODEL 1005002, GRANT

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.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of spectrum analyzer or harmonic meter to antenna jack.	Ch. 19	L36	Adjust for MINIMUM at 54MHz.

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.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Inject a 1000Hz, 100mV signal at mic input.	Ch. 19, USB Mike Gain Maximum	L47,L48,L46, L45,L38	Set VR11 fully clockwise. Adjust for maximum. Readjust VR11. See Transmitter Adjustments.

TRANSMITTER ADJUSTMENTS

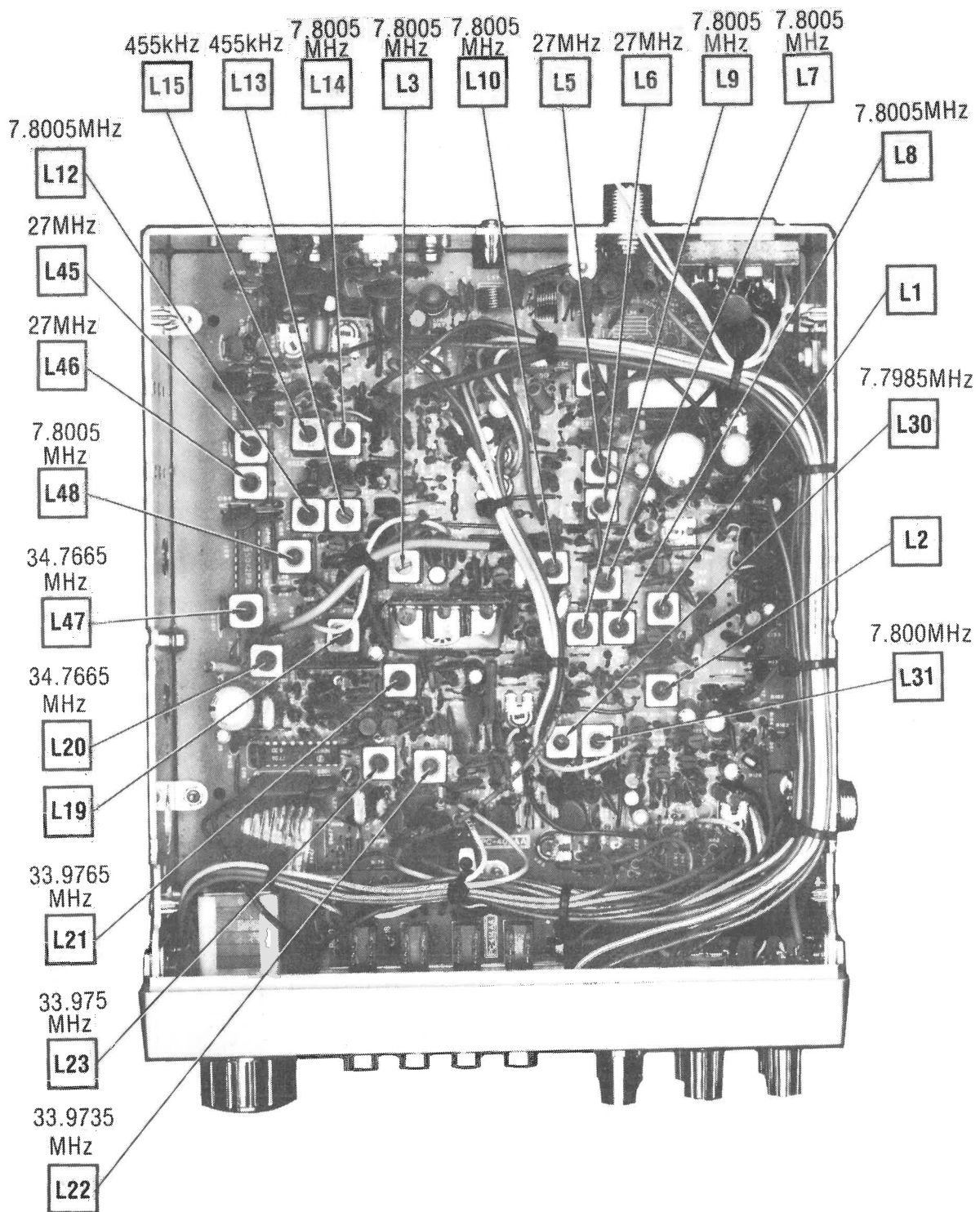
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
 NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
 See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope to antenna jack. No signal input.	Ch. 19, USB	VR4	BALANCE Adjust for MINIMUM RF.
Insert DC current meter at TP8. No signal input.	Ch. 19, USB	VR9	BIAS Adjust for 25mA.
Insert DC current meter at TP7. No signal input.	Ch. 19, USB	VR8	BIAS Adjust for 50mA.
Input of RF wattmeter to antenna jack. Inject a 1000Hz, 100mV signal at mic input.	Ch. 19, USB Mike Gain Maximum	VR11	SSB POWER Adjust for 11 watts.
Input of RF wattmeter to antenna jack. No signal input.	Ch. 19, AM	VR10	AM POWER Adjust for 3.8 watts.
Input of RF wattmeter to antenna jack.	Ch. 19, AM MOD/S/RF S/RF	VR6	TX PWR METER Adjust VR6 so that TX PWR meter agrees with RF wattmeter.
Input of oscilloscope or modulation meter to antenna connector. Inject a 1000Hz signal at mic input.	Ch. 19, AM MOD/S/RF Modulation Mike Gain Maximum	VR7	MOD METER Adjust audio level to obtain approximately 100% modulation. Adjust VR7 to read in the 100% area on MOD scale of meter.

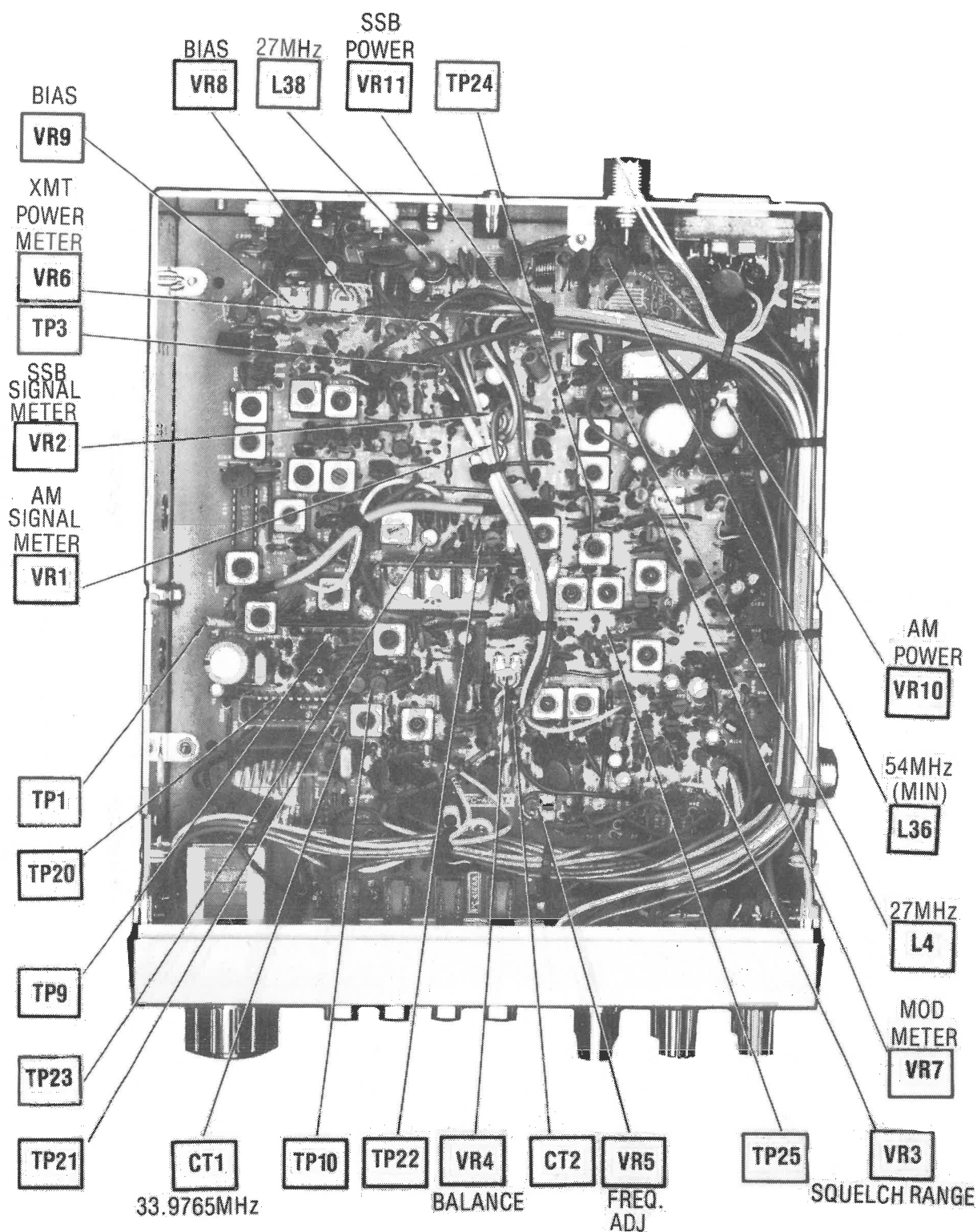
TRUTH CHART

C H A N N E L	1 = 8.05 Volts 0 = 0 Volts							USB REC & XMT SYNTHESIZER OUTPUT IN MHz AT TP1	AM REC & XMT SYNTHESIZER OUTPUT IN MHz AT TP1	LSB REC & XMT SYNTHESIZER OUTPUT IN MHz AT TP1	USB (REC & XMT), LSB (REC & XMT), AM (REC & XMT) DIVIDER INPUT IN MHz AT TP10	
	IC1 PROGRAM DIVIDER											
	PINS											
	11	12	13	14	15	16						
1	0	0	1	1	1	1			34.7665	34.765	34.7635	.790
2	0	1	0	0	0	0			34.7765	34.775	34.7735	.800
3	0	1	0	0	0	1			34.7865	34.785	34.7835	.810
4	0	1	0	0	1	1			34.8065	34.805	34.8035	.830
5	0	1	0	1	0	0			34.8165	34.815	34.8135	.840
6	0	1	0	1	0	1			34.8265	34.825	34.8235	.850
7	0	1	0	1	1	0			34.8365	34.835	34.8335	.860
8	0	1	1	0	0	0			34.8565	34.855	34.8535	.880
9	0	1	1	0	0	1			34.8665	34.865	34.8635	.890
10	0	1	1	0	1	0			34.8765	34.875	34.8735	.900
11	0	1	1	0	1	1			34.8865	34.885	34.8835	.910
12	0	1	1	1	0	1			34.9065	34.905	34.9035	.930
13	0	1	1	1	1	0			34.9165	34.915	34.9135	.940
14	0	1	1	1	1	1			34.9265	34.925	34.9235	.950
15	1	0	0	0	0	0			34.9365	34.935	34.9335	.960
16	1	0	0	0	1	0			34.9565	34.955	34.9535	.980
17	1	0	0	0	1	1			34.9665	34.965	34.9635	.990
18	1	0	0	1	0	0			34.9765	34.975	34.9735	1.000
19	1	0	0	1	0	1			34.9865	34.985	34.9835	1.010
20	1	0	0	1	1	1			35.0065	35.005	35.0035	1.030
21	1	0	1	0	0	0			35.0165	35.015	35.0135	1.040
22	1	0	1	0	0	1			35.0265	35.025	35.0235	1.050
23	1	0	1	1	0	0			35.0565	35.055	35.0535	1.080
24	1	0	1	0	1	0			35.0365	35.035	35.0335	1.060
25	1	0	1	0	1	1			35.0465	35.045	35.0435	1.070
26	1	0	1	1	0	1			35.0665	35.065	35.0635	1.090
27	1	0	1	1	1	0			35.0765	35.075	35.0735	1.100
28	1	0	1	1	1	1			35.0865	35.085	35.0835	1.110
29	1	1	0	0	0	0			35.0965	35.095	35.0935	1.120
30	1	1	0	0	0	1			35.1065	35.105	35.1035	1.130
31	1	1	0	0	1	0			35.1165	35.115	35.1135	1.140
32	1	1	0	0	1	1			35.1265	35.125	35.1235	1.150
33	1	1	0	1	0	0			35.1365	35.135	35.1335	1.160
34	1	1	0	1	0	1			35.1465	35.145	35.1435	1.170
35	1	1	0	1	1	0			35.1565	35.155	35.1535	1.180
36	1	1	0	1	1	1			35.1665	35.165	35.1635	1.190
37	1	1	1	0	0	0			35.1765	35.175	35.1735	1.200
38	1	1	1	0	0	1			35.1865	35.185	35.1835	1.210
39	1	1	1	0	1	0			35.1965	35.195	35.1935	1.220
40	1	1	1	0	1	1			35.2065	35.205	35.2035	1.230

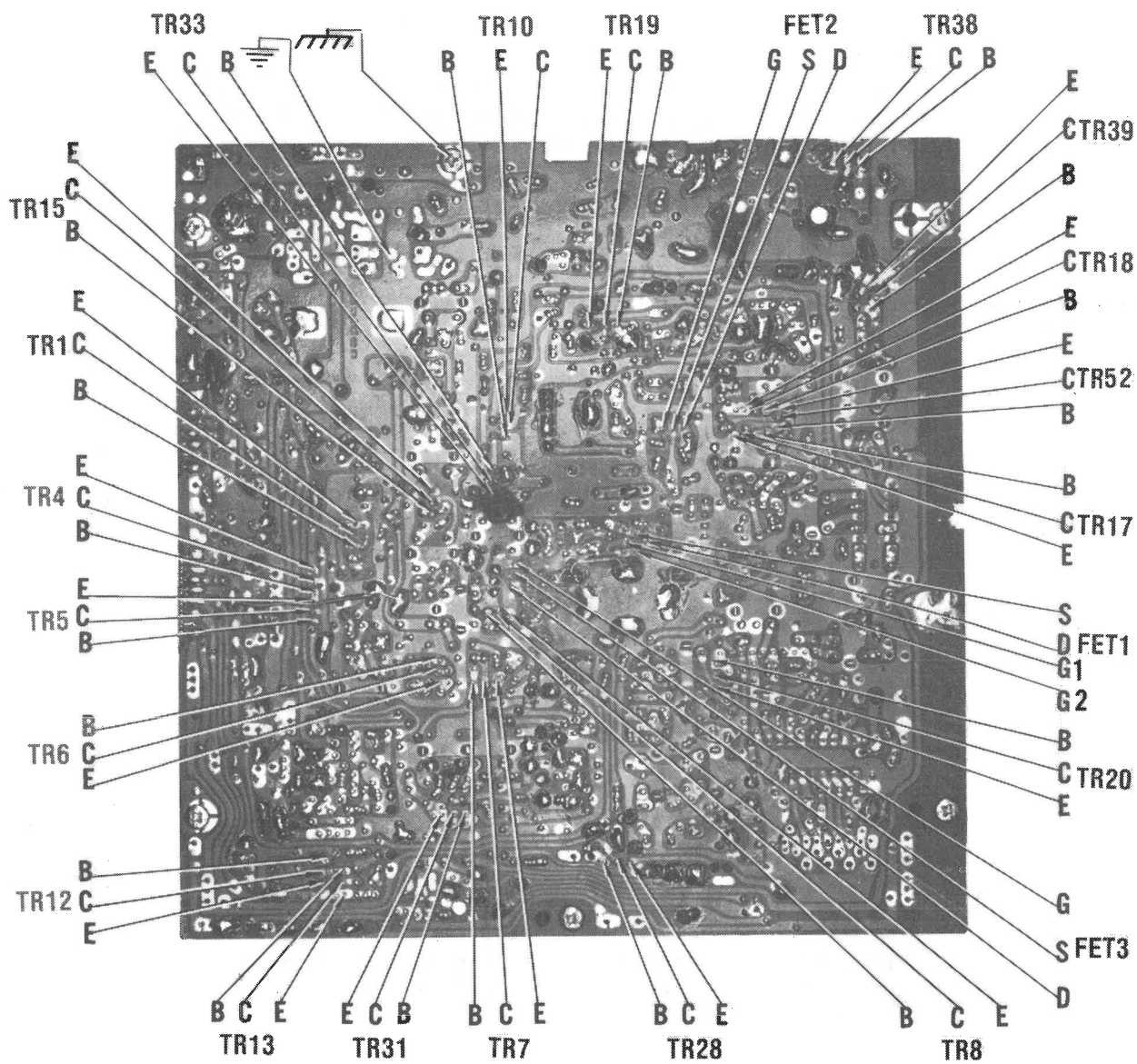
PRESIDENT MODEL 1005002, GRANT



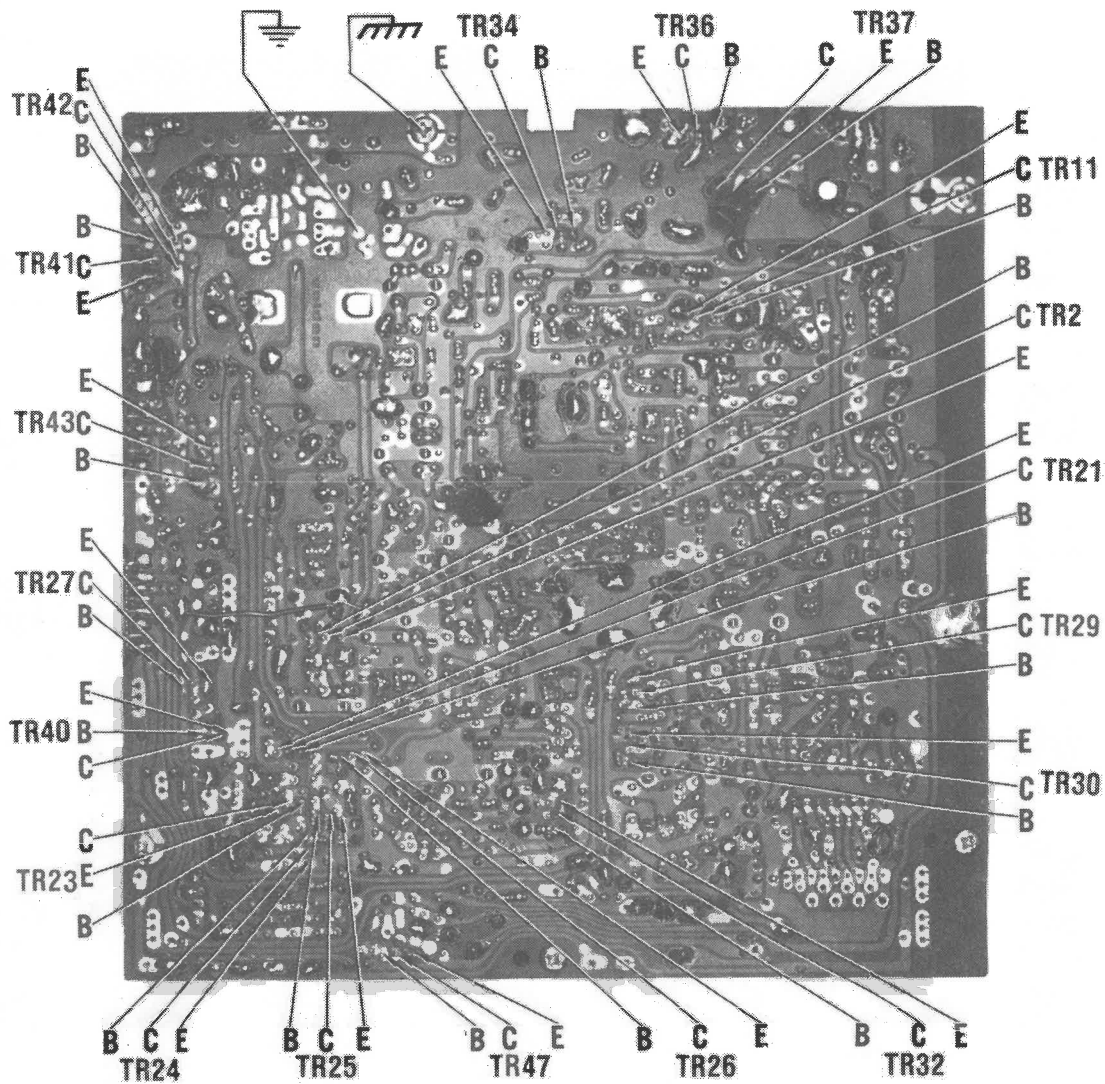
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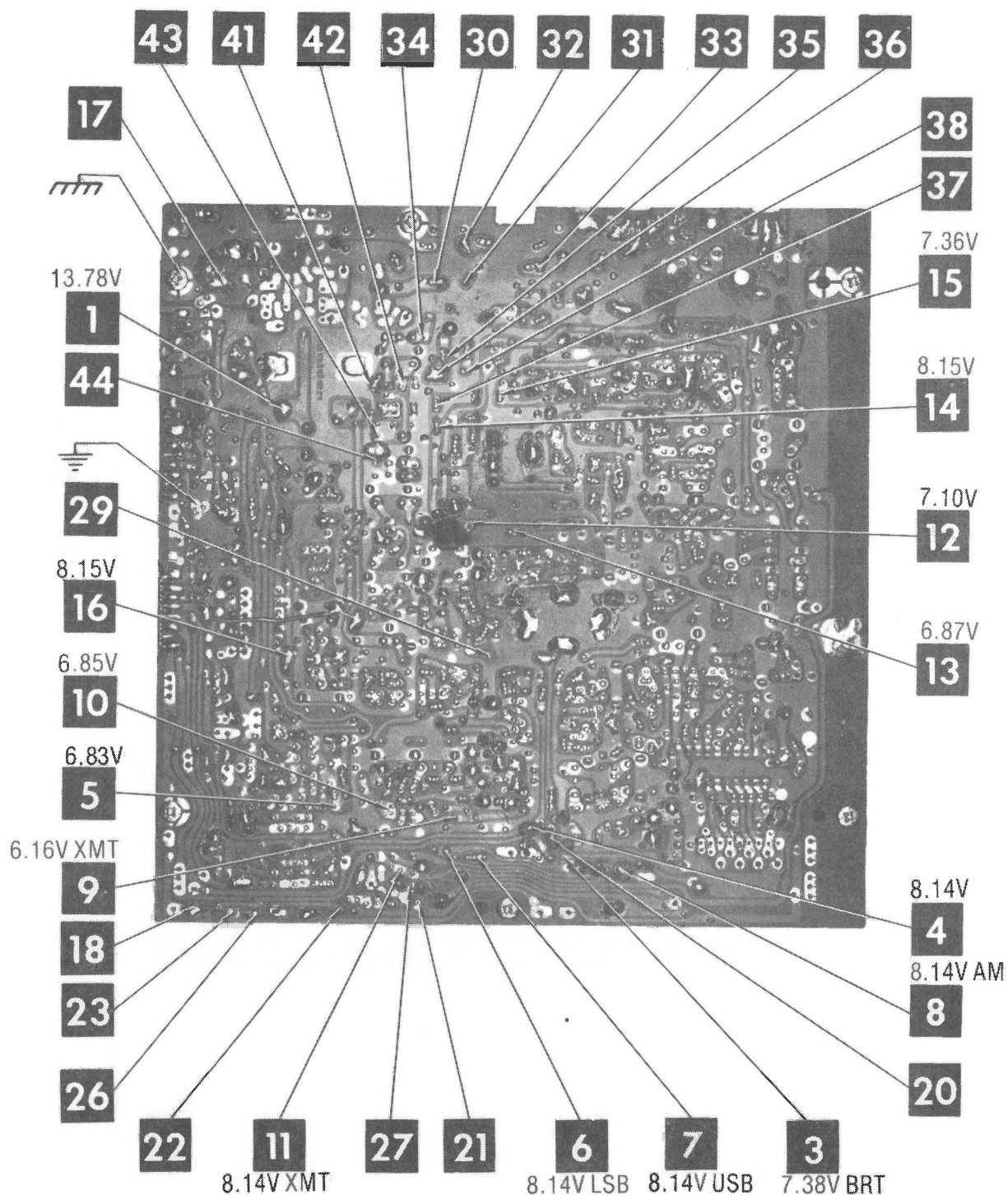
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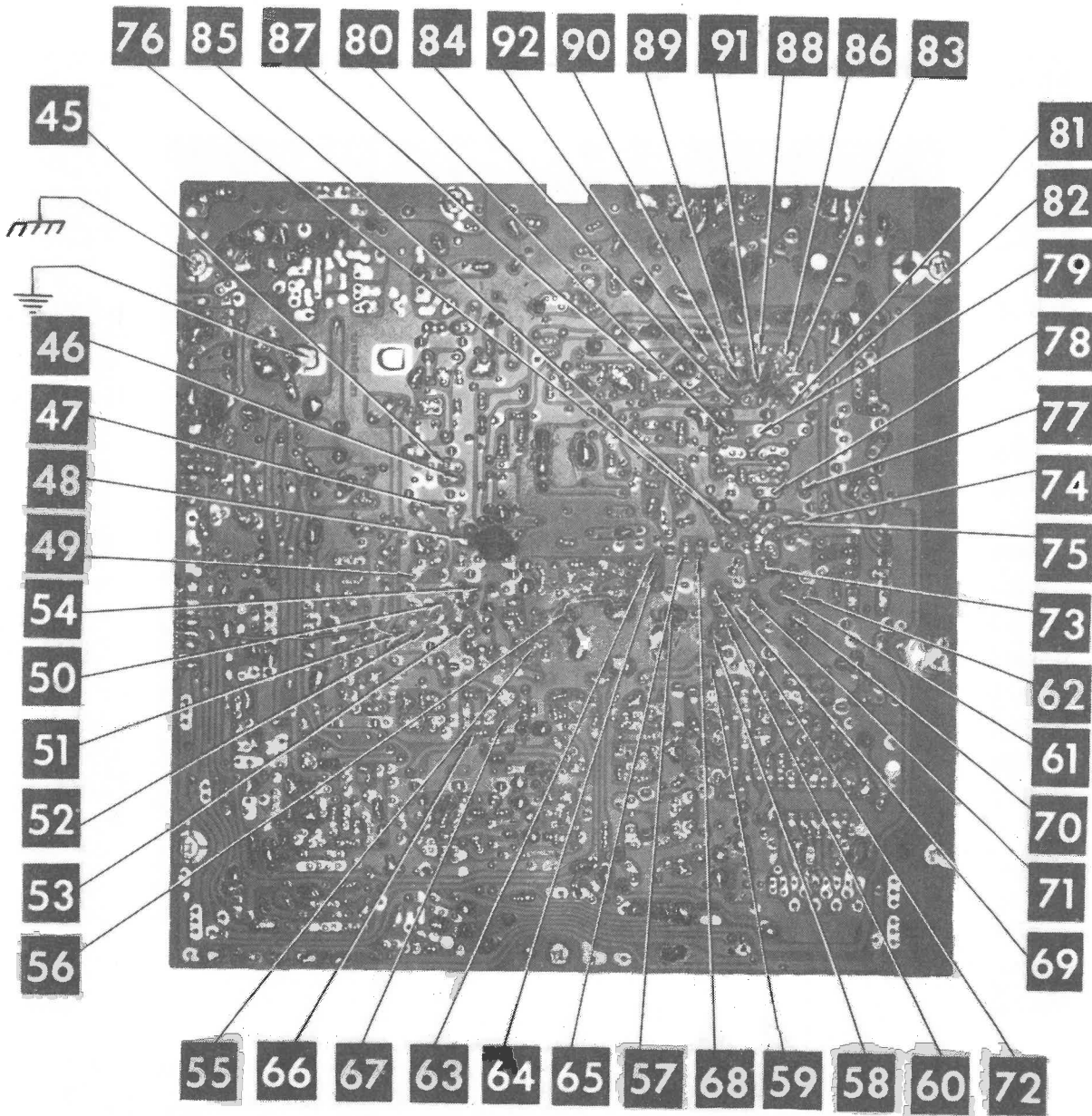
MA IN BOARD



MA IN BOARD

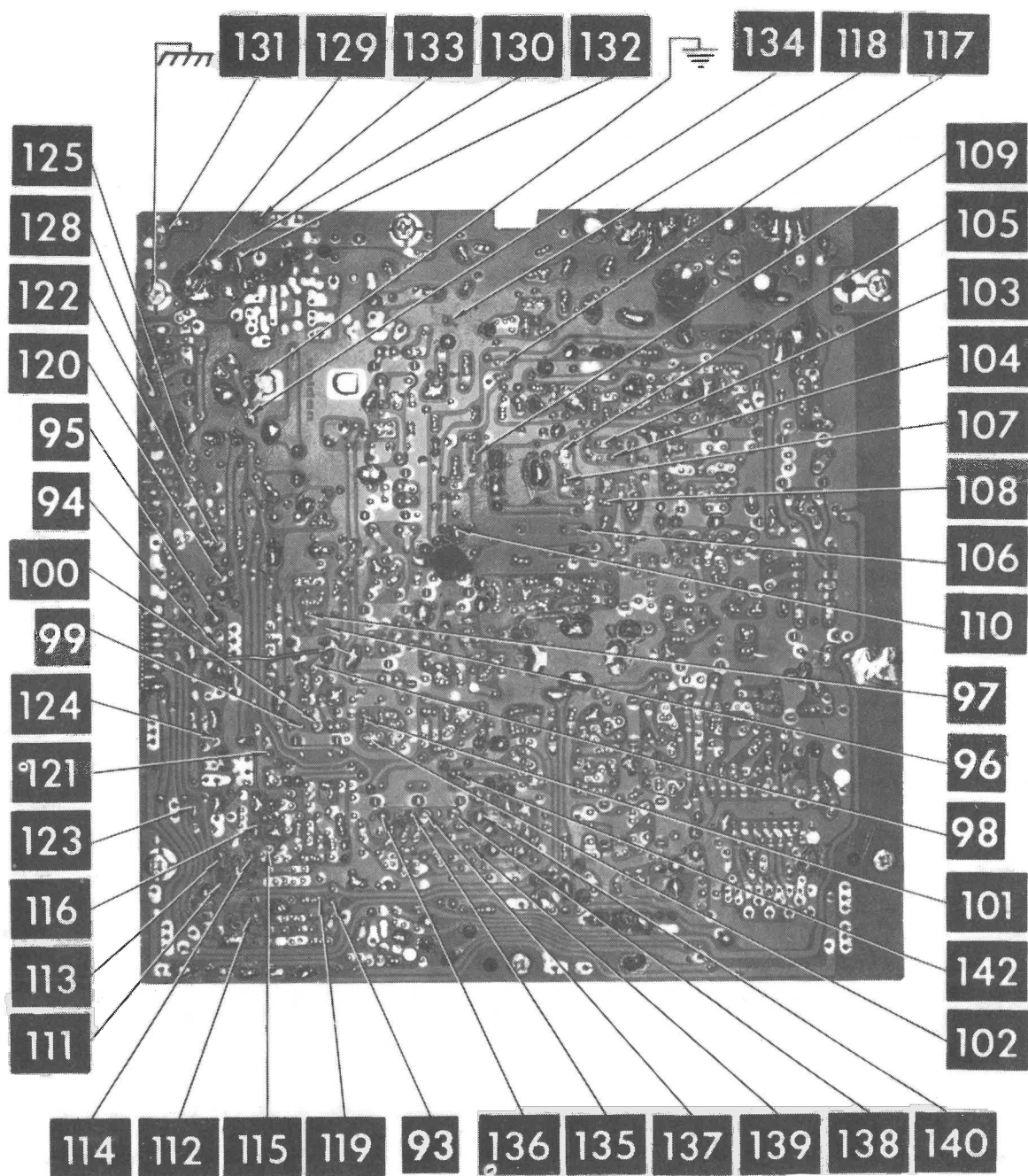


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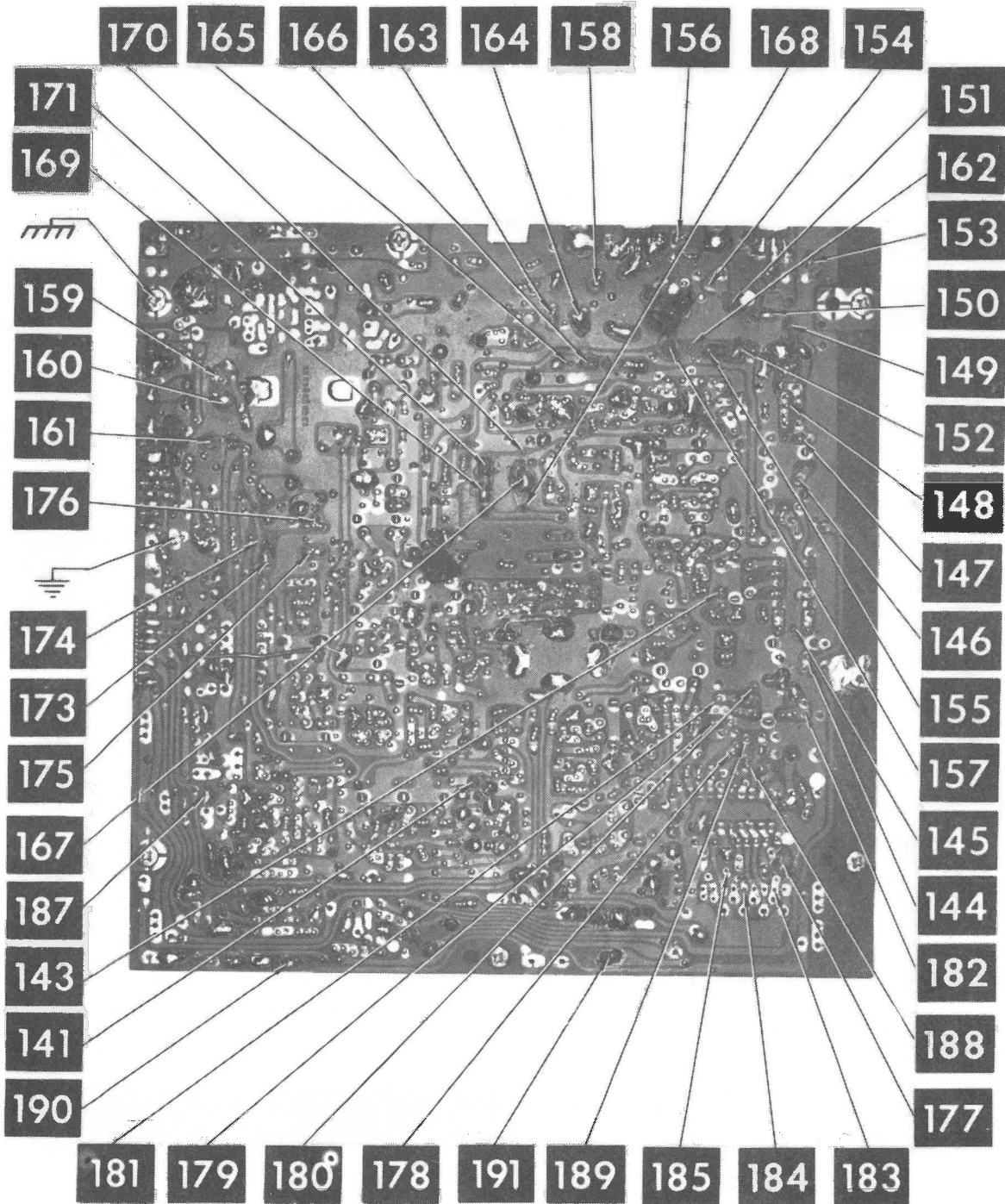
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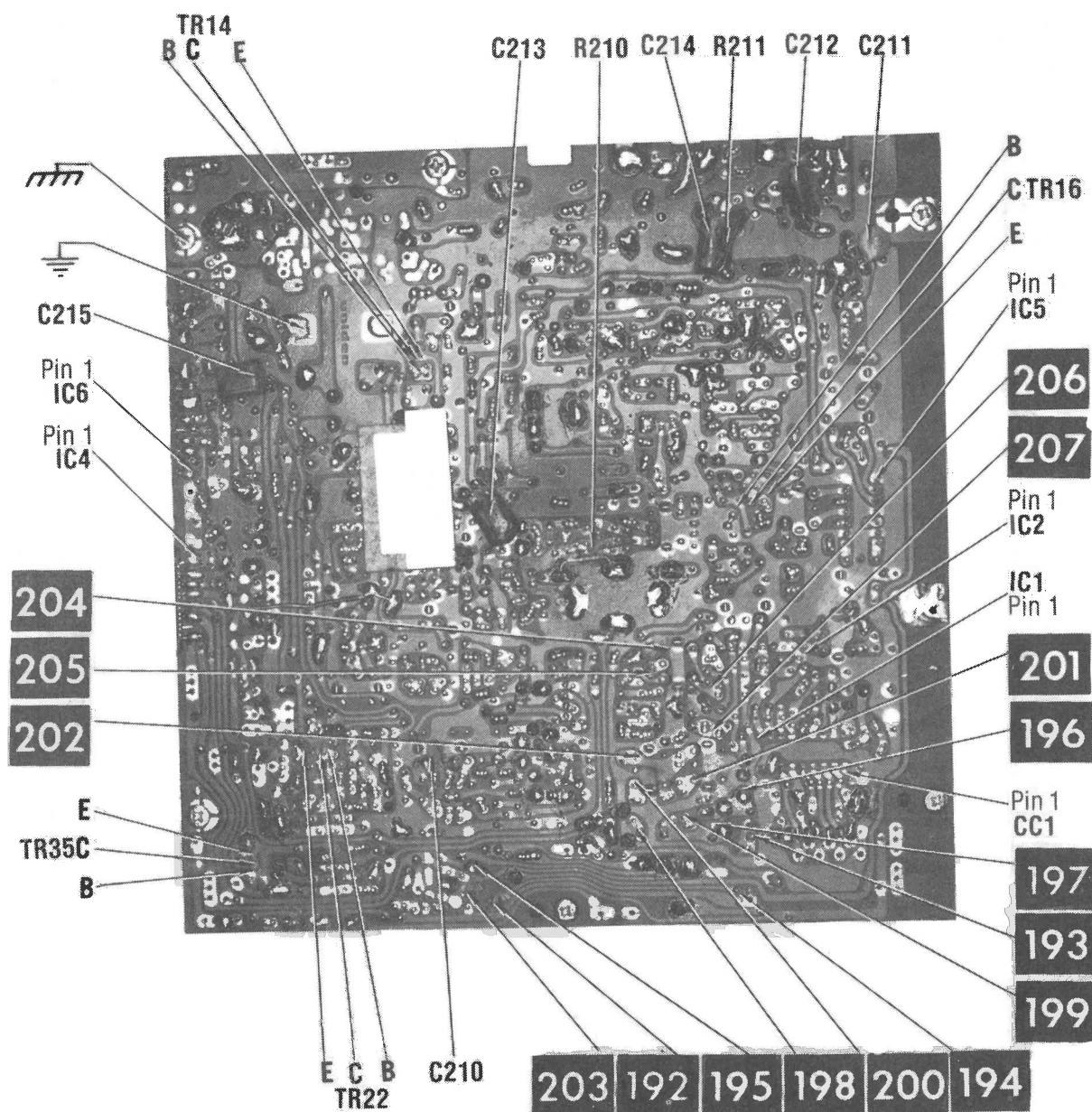


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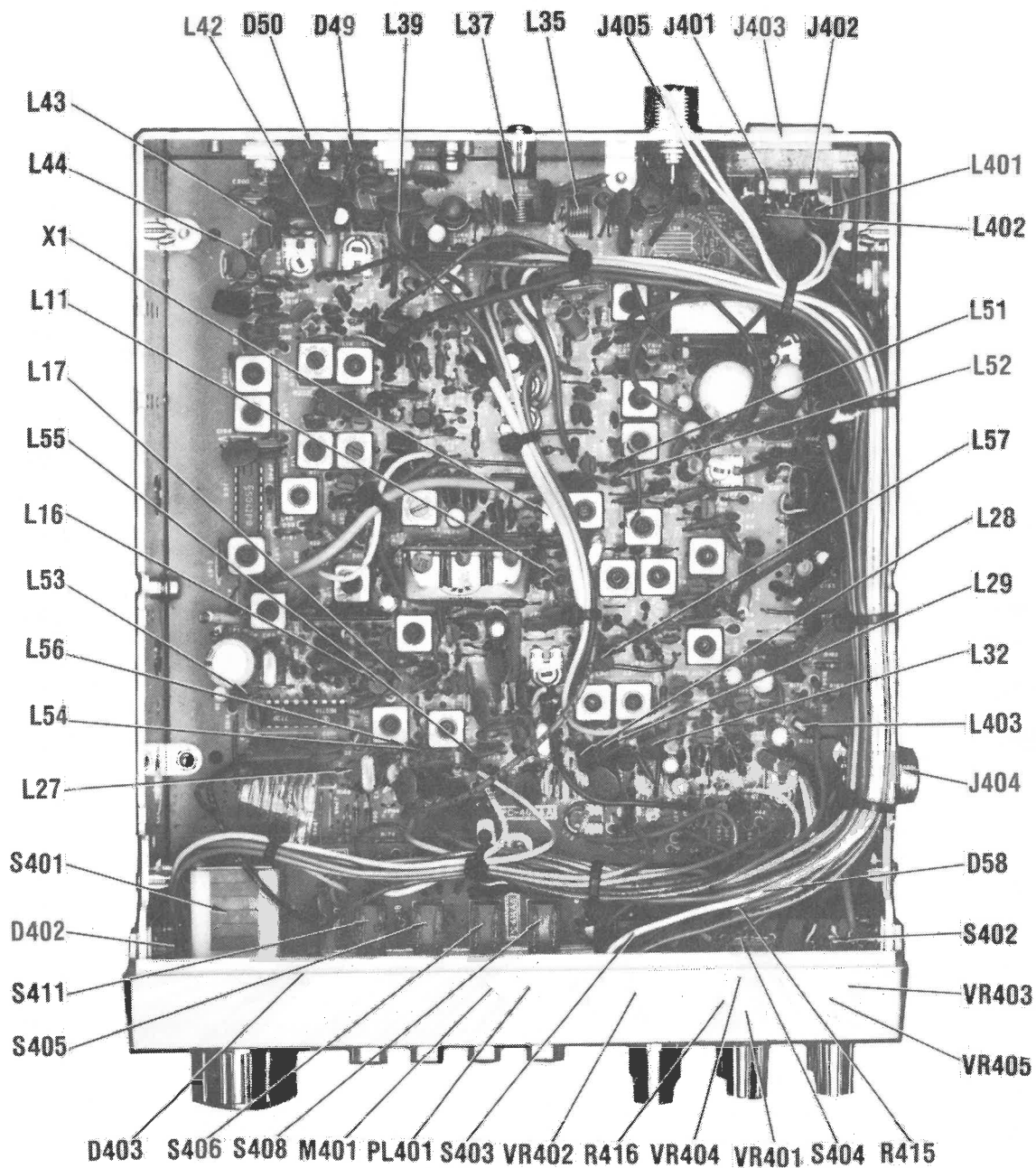
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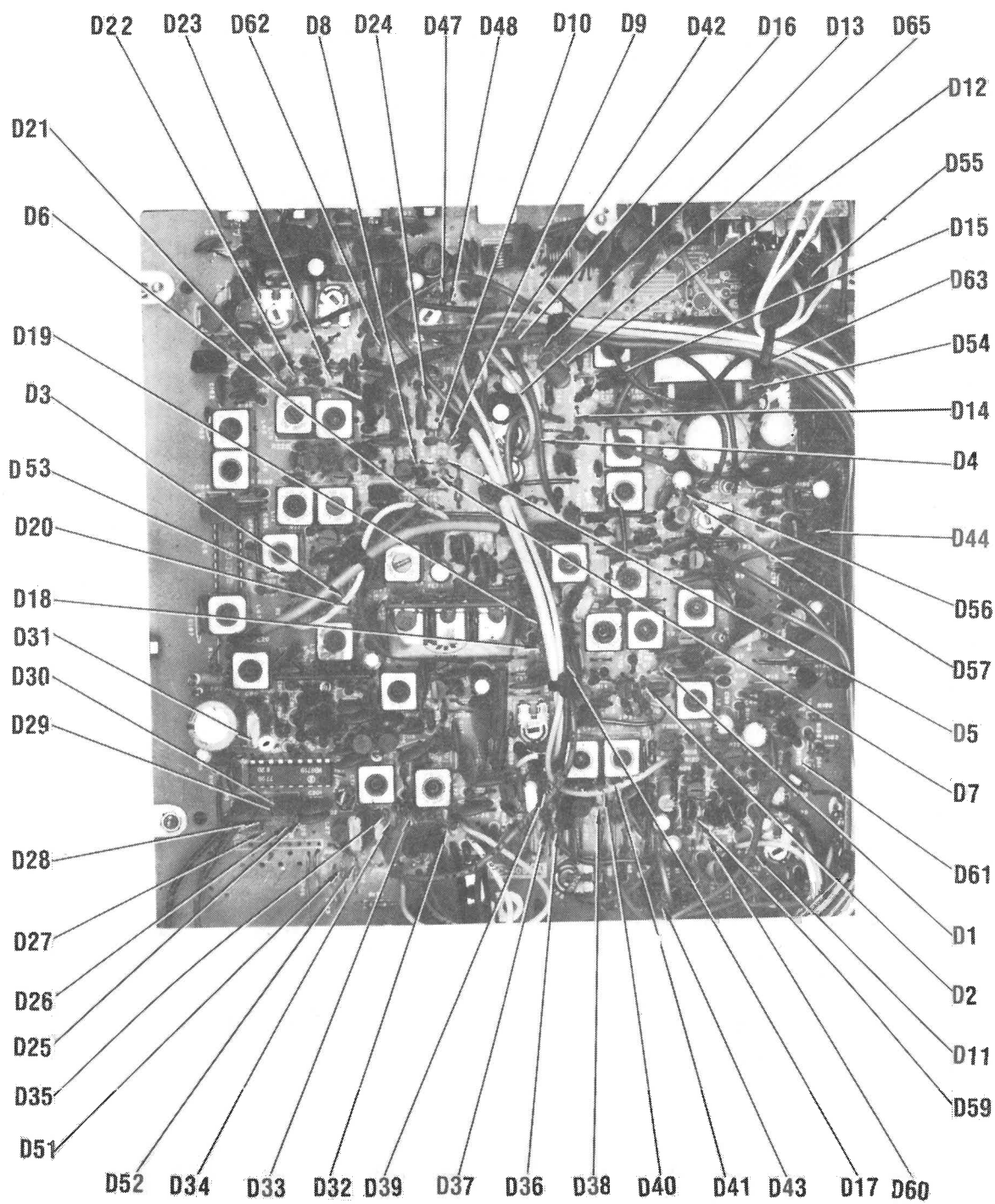
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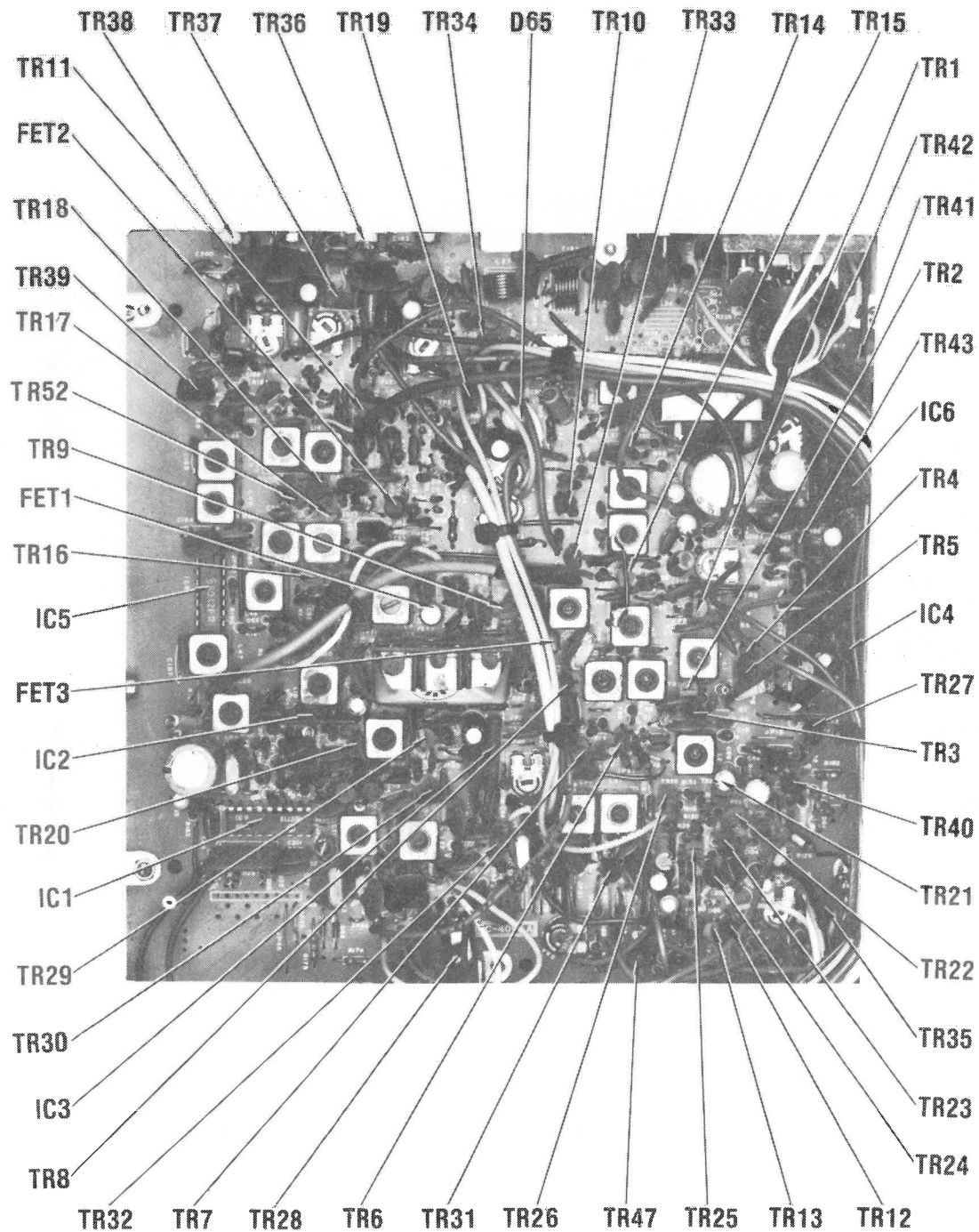
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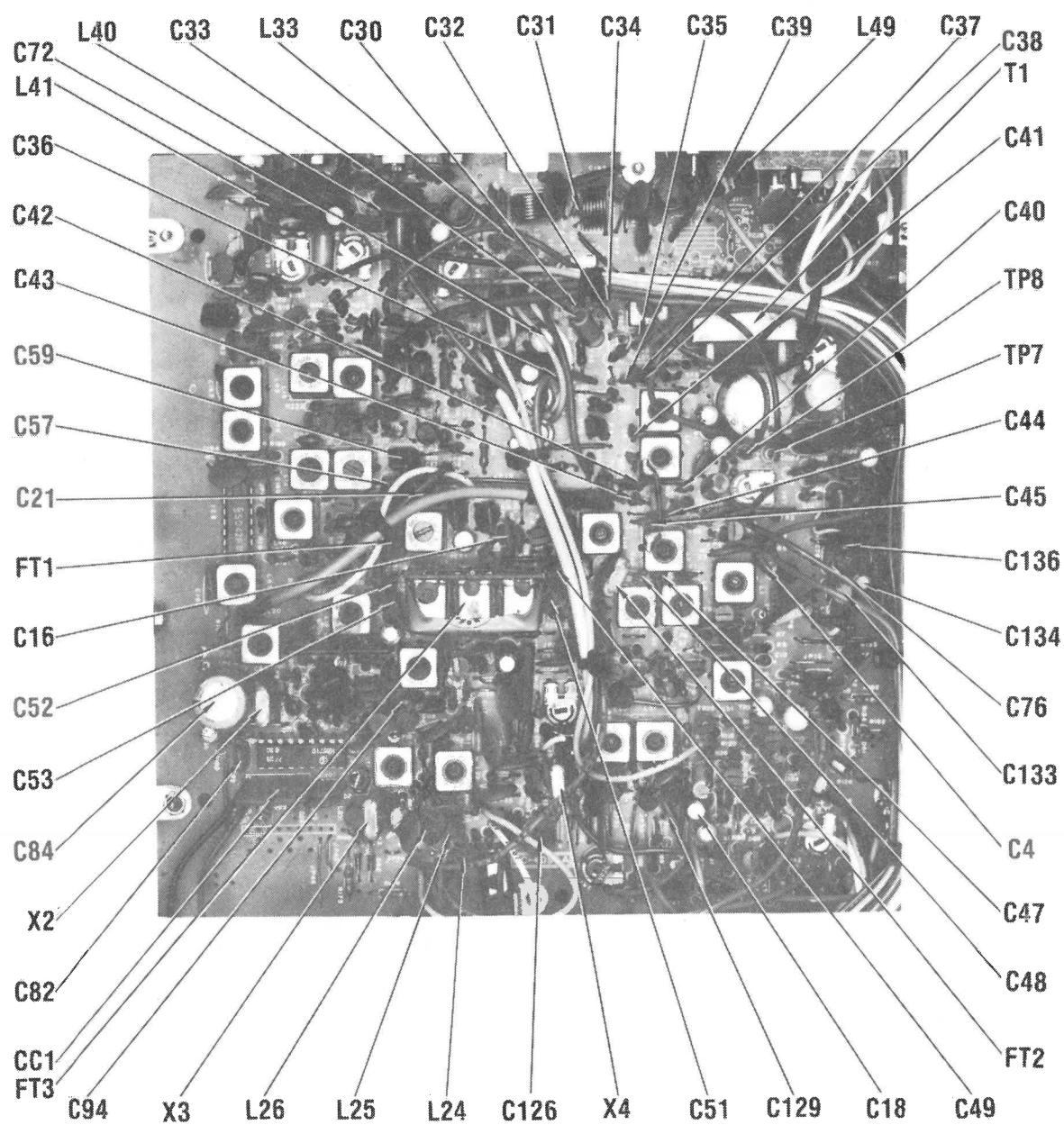
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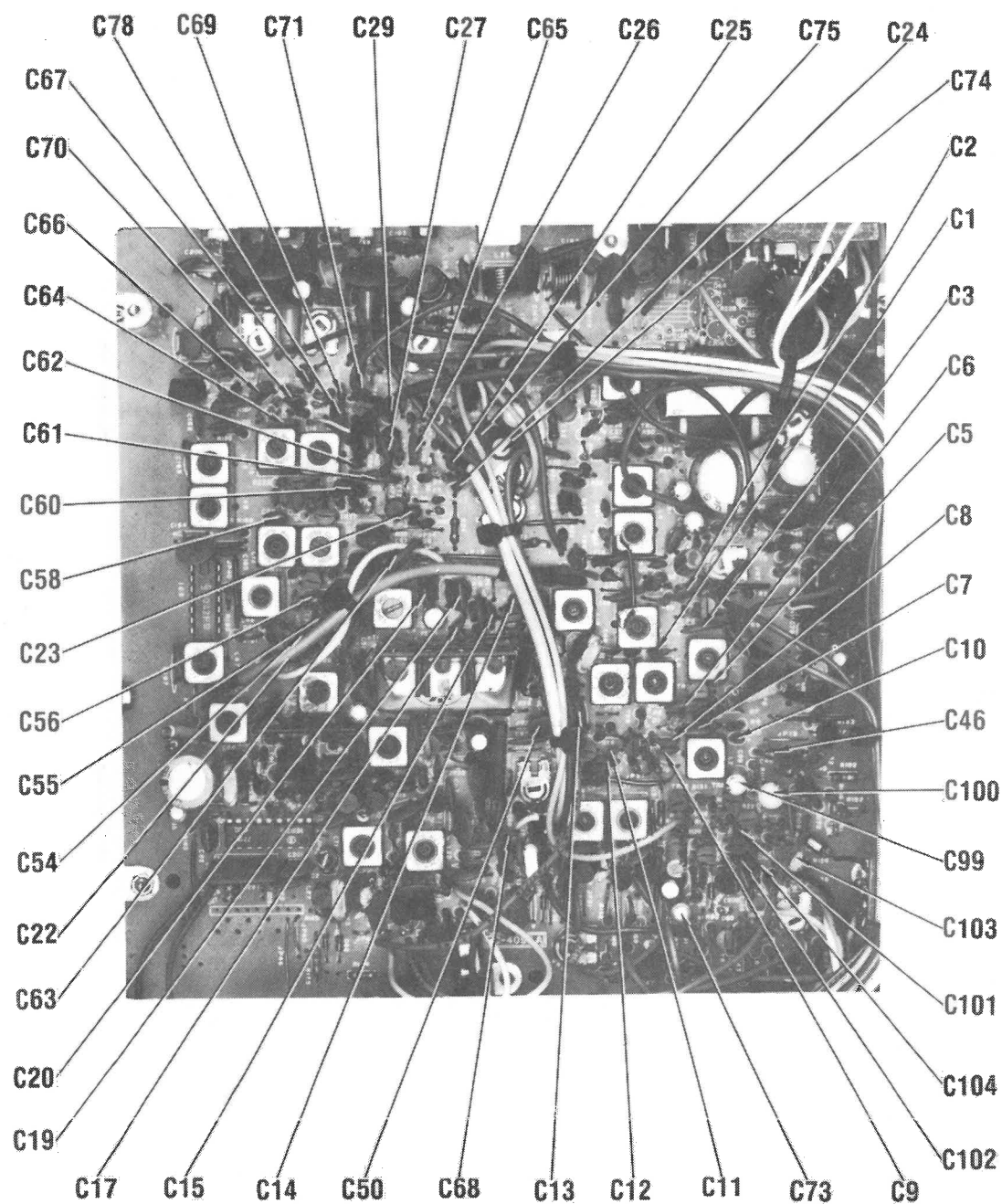
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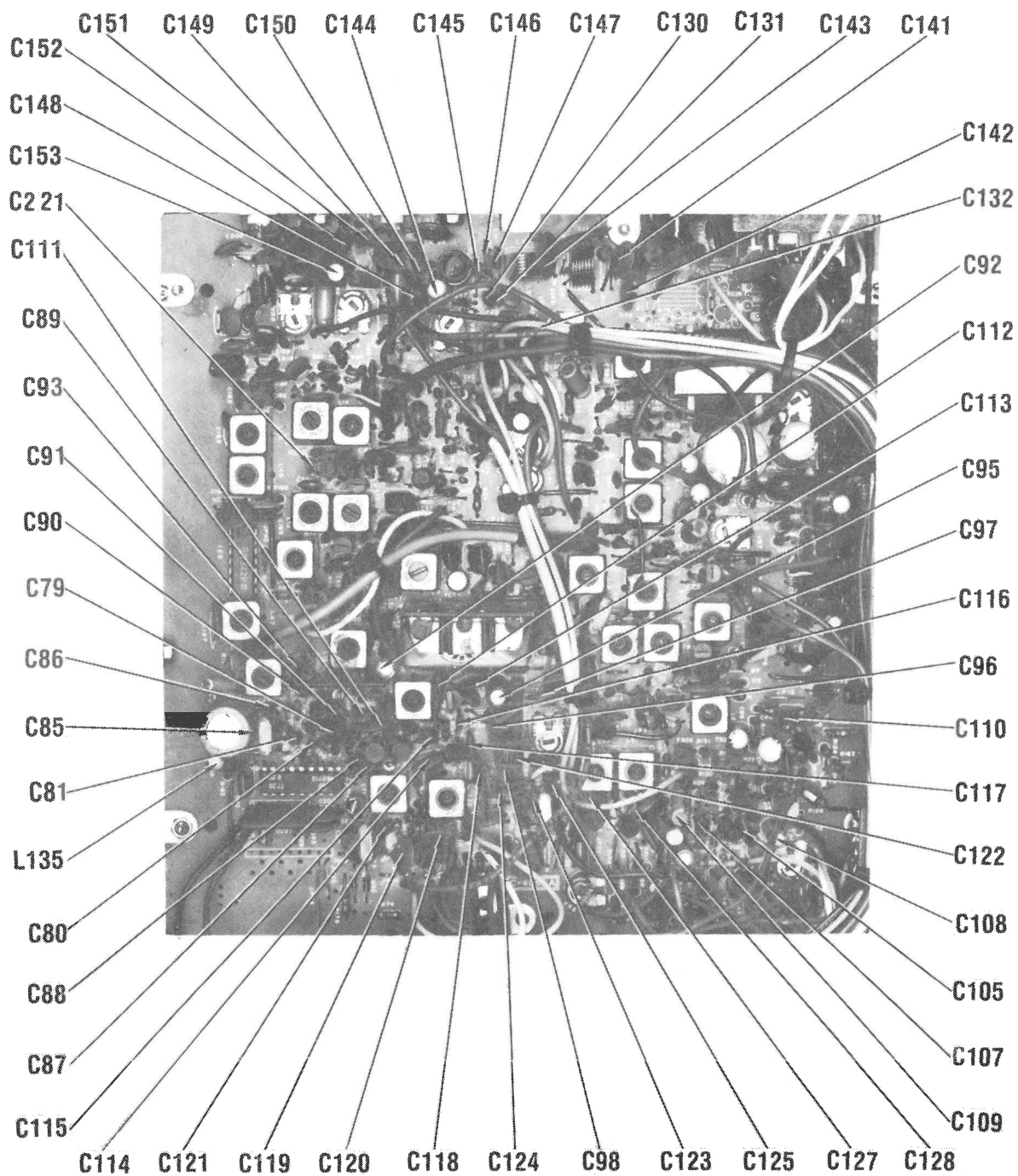
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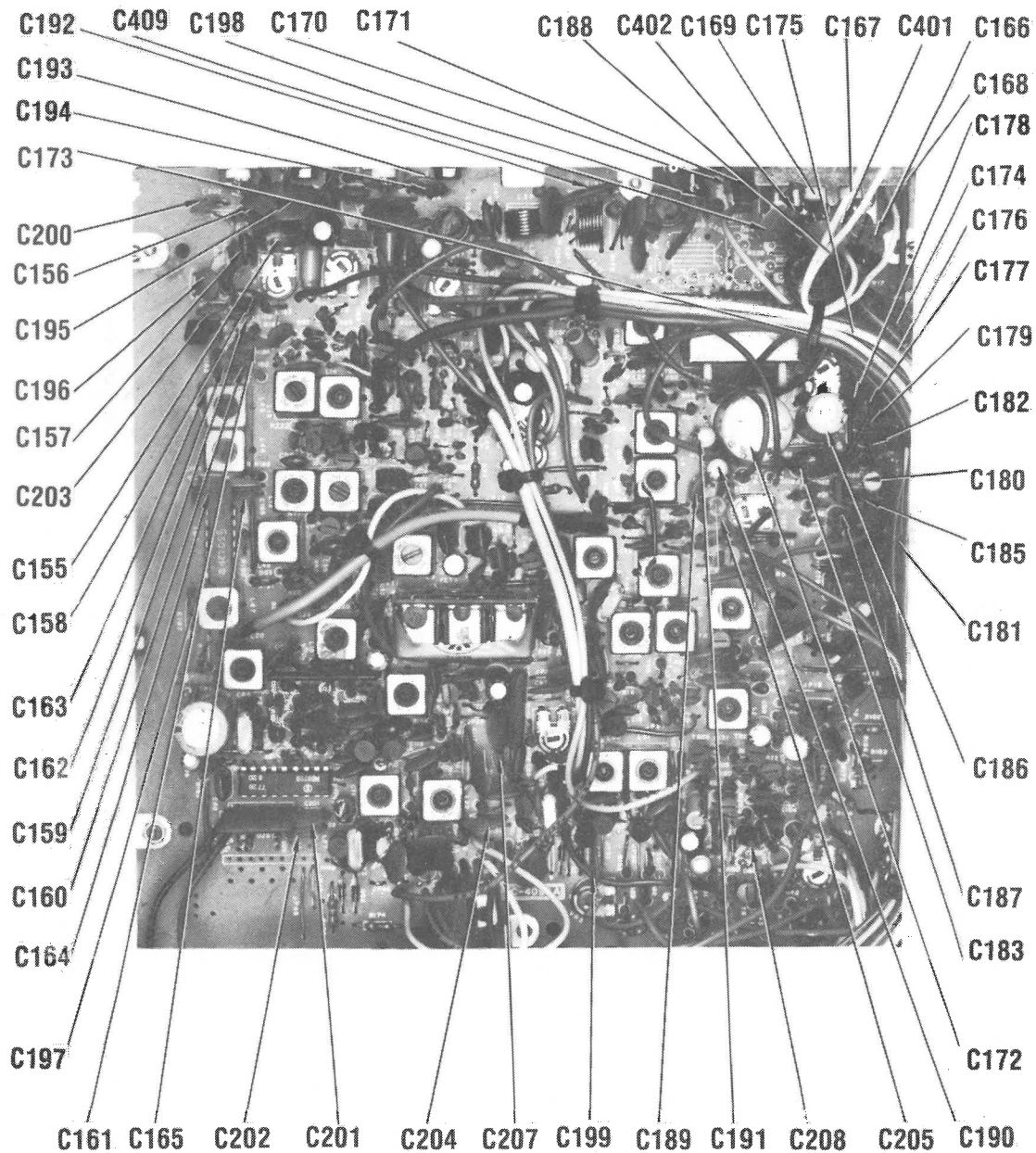
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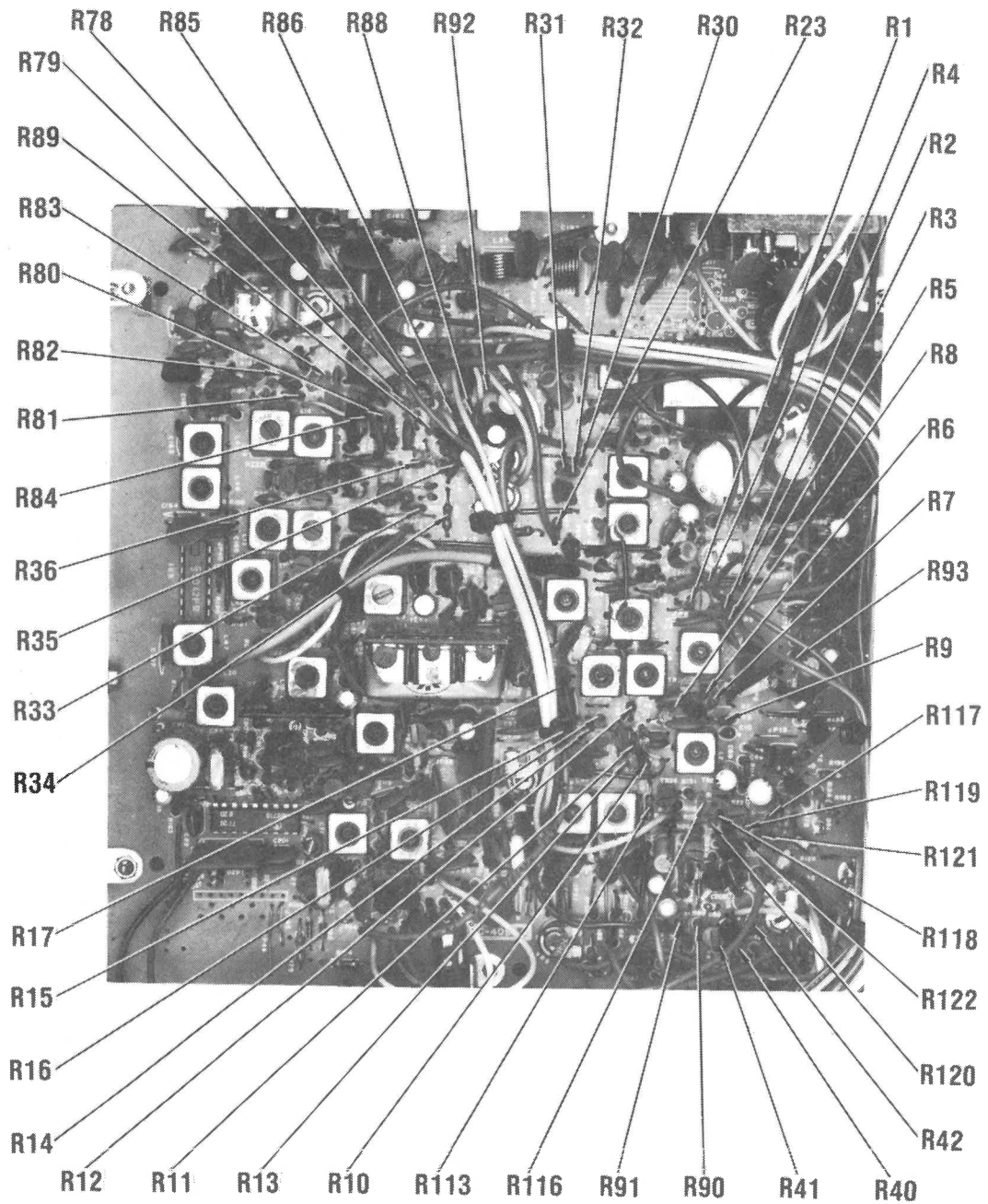
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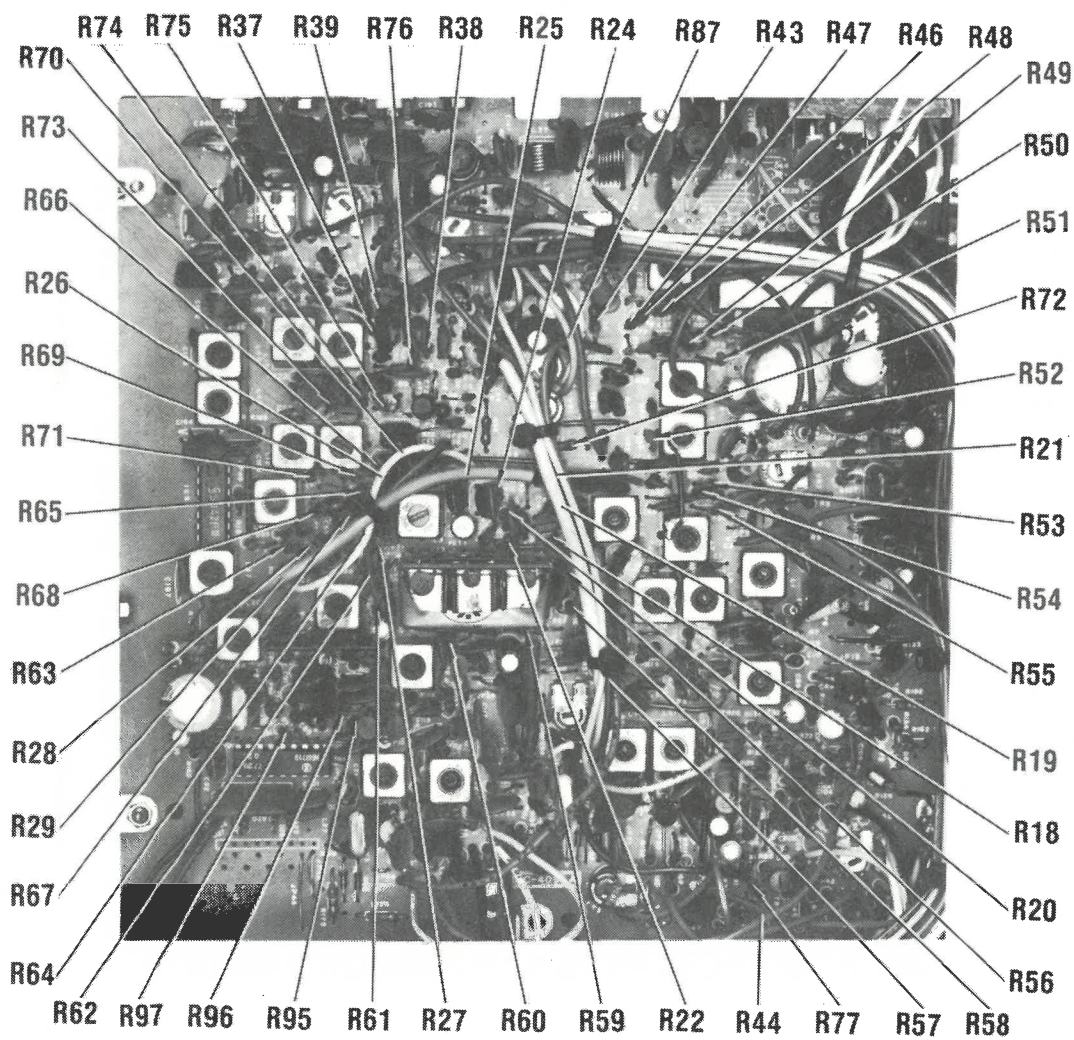
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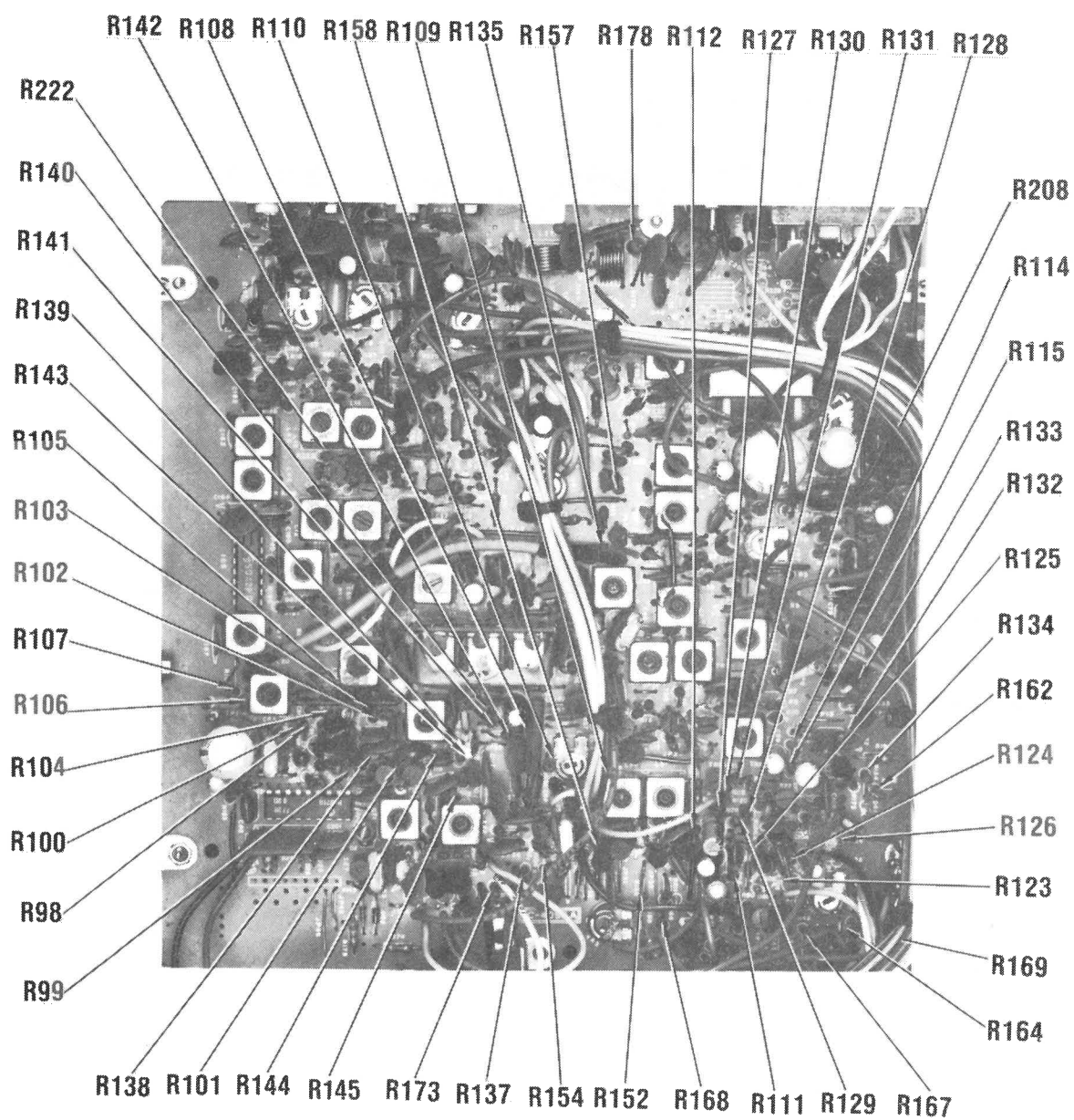
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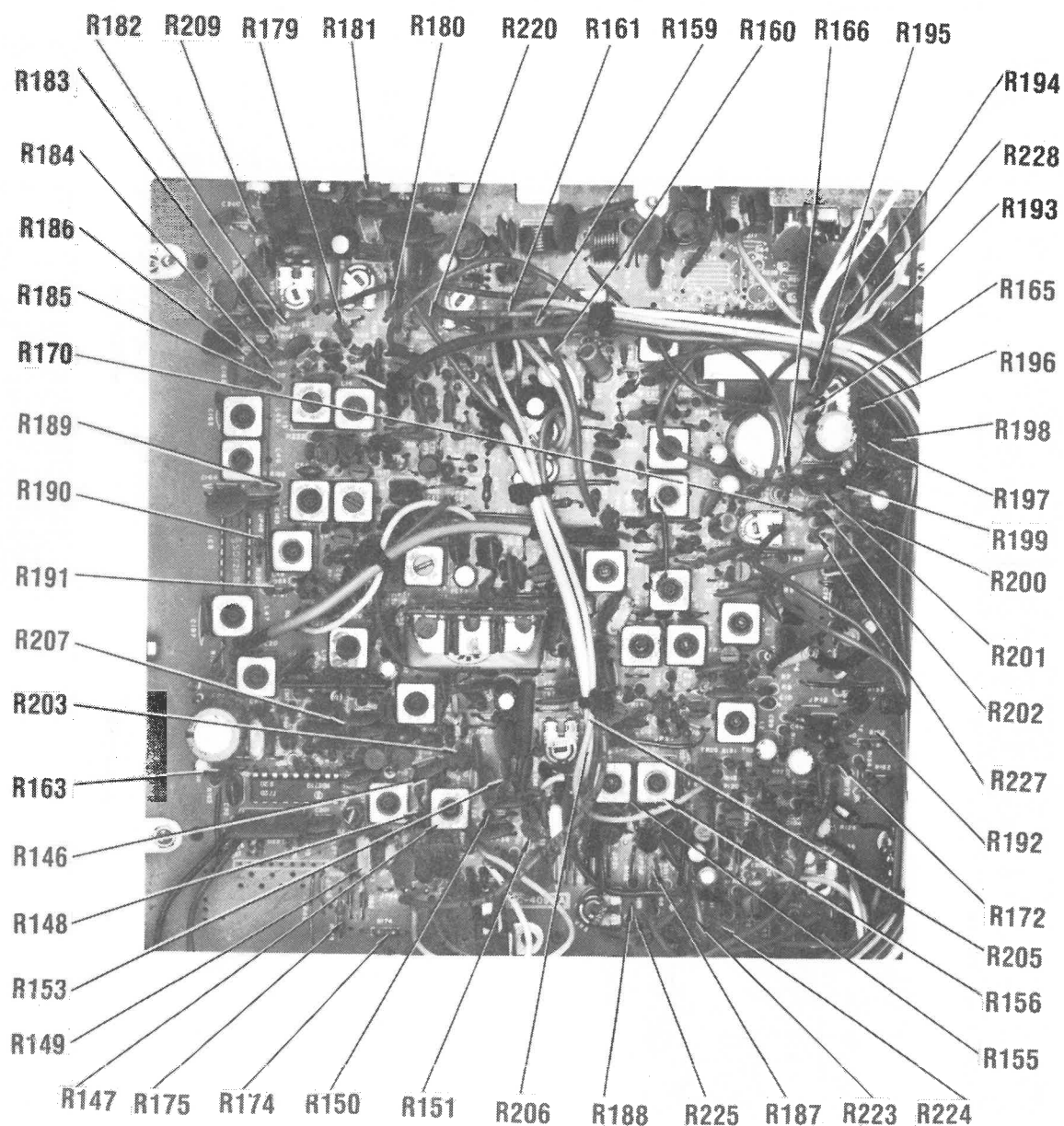
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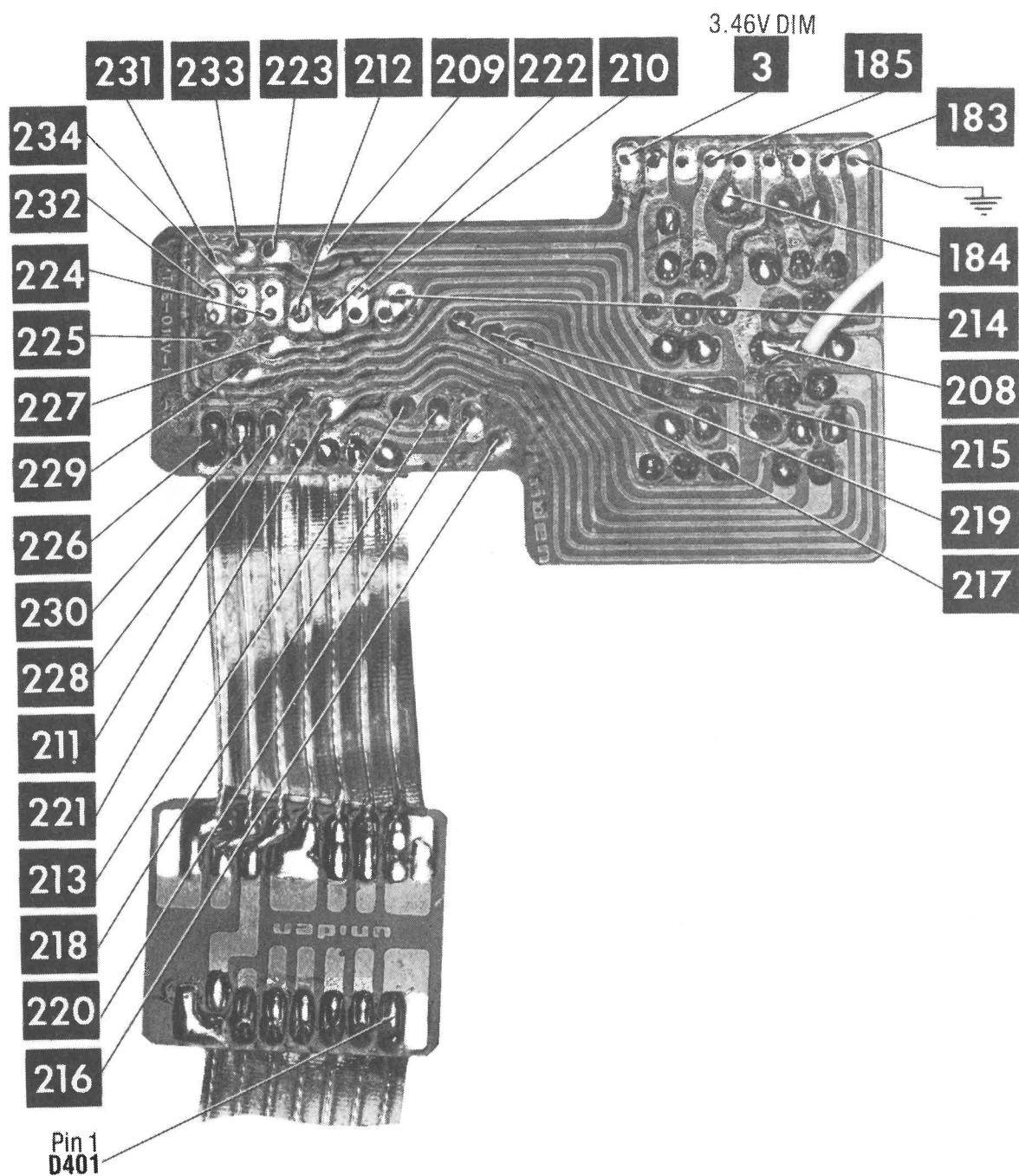
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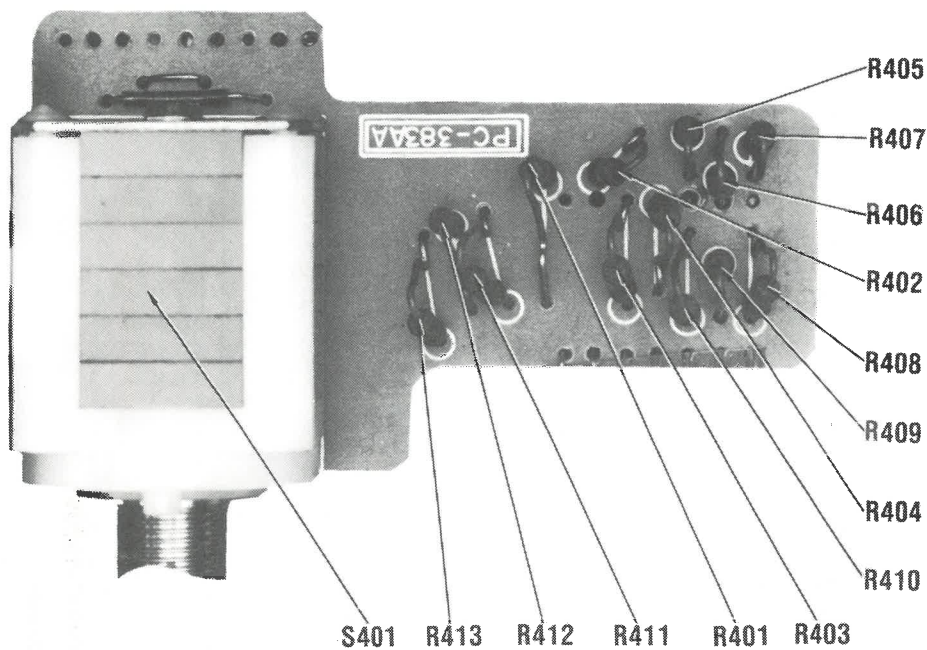
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MAIN BOARD

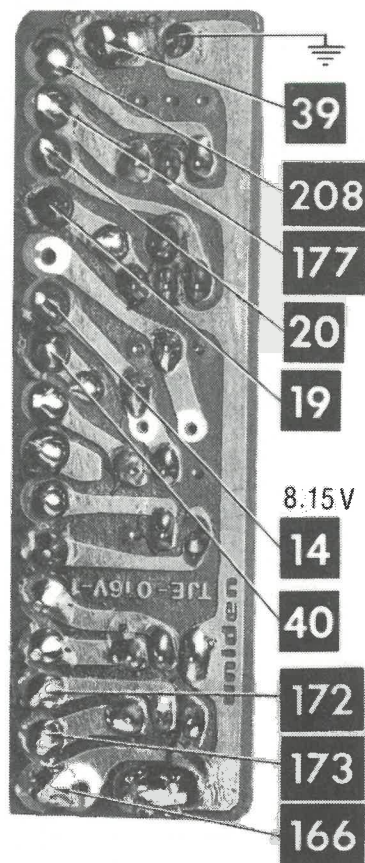
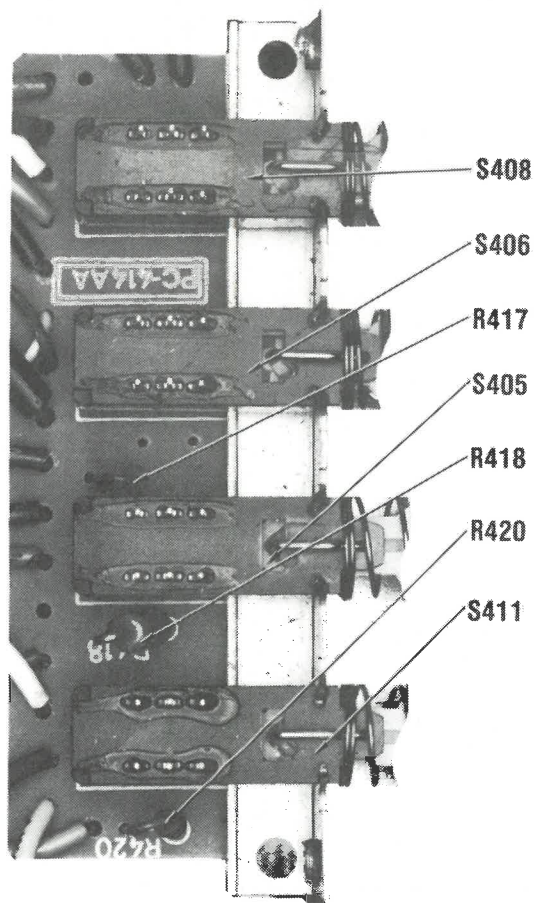


CH. SELECTOR BOARD



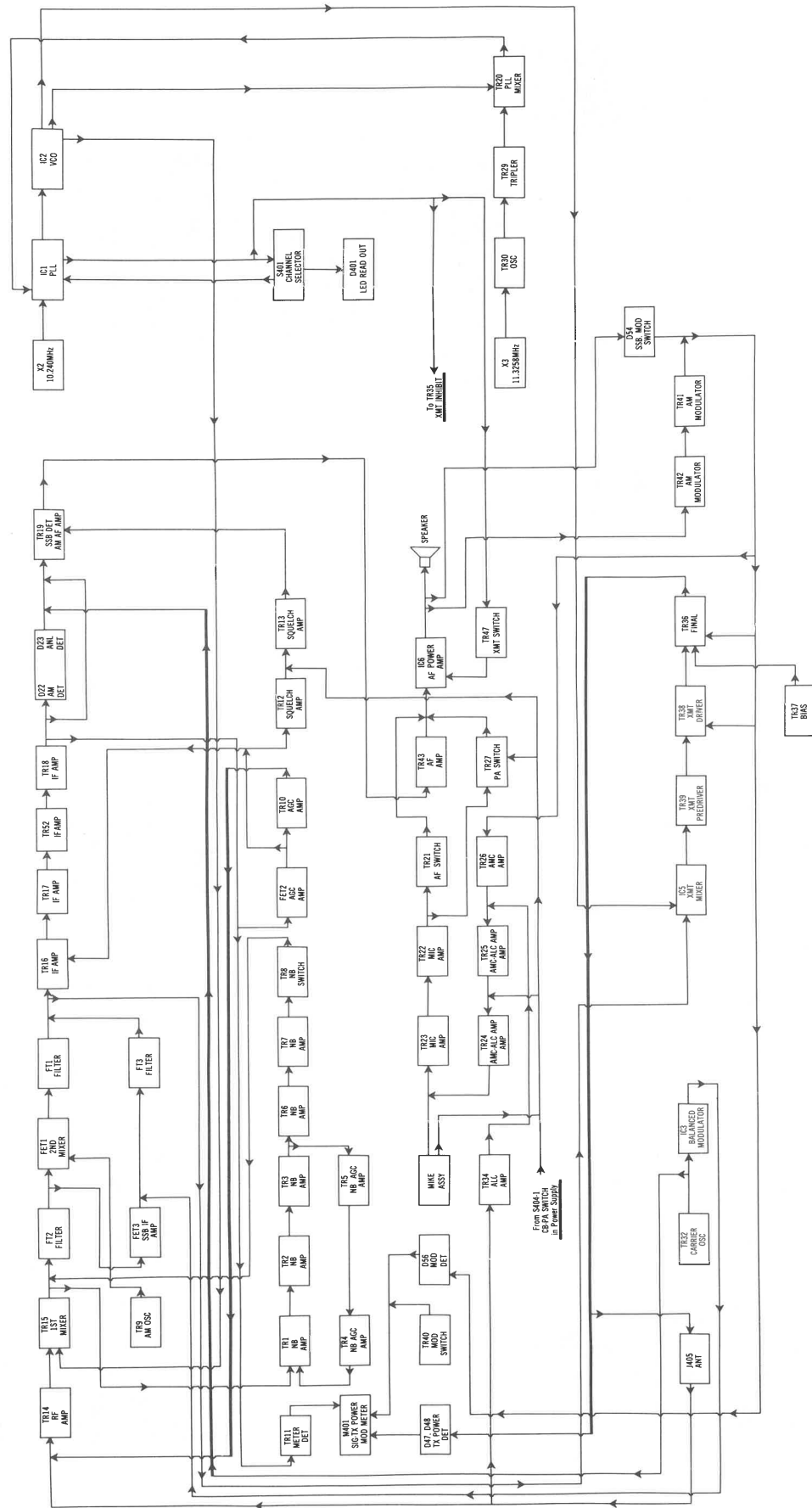
CH. SELECTOR BOARD

A Howard W. Sams CIRCUITRACE[®] Photo

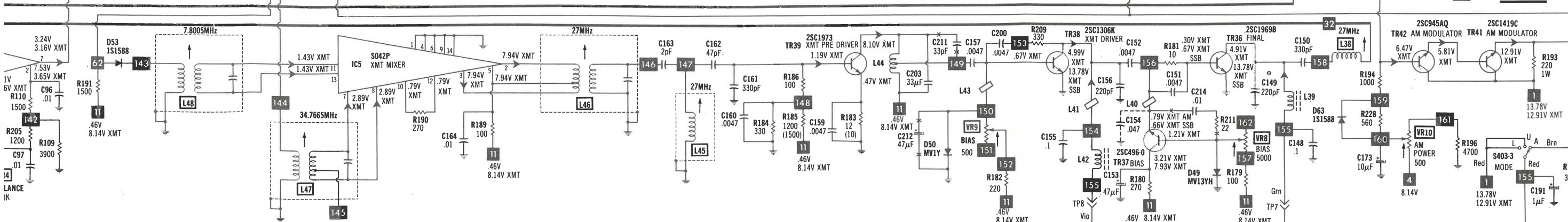
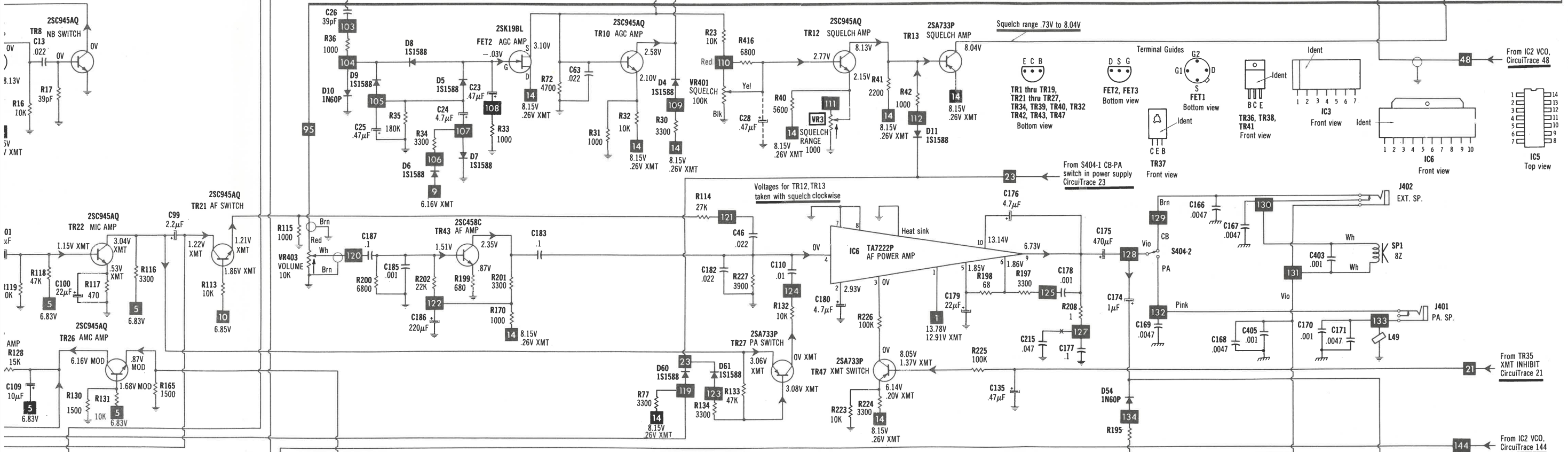
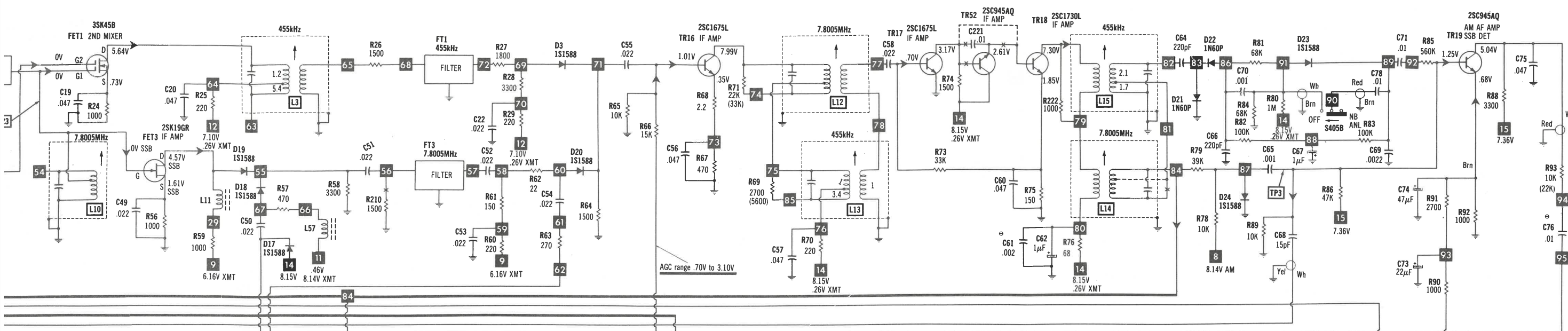


MODE SWITCH BOARD

PRESIDENT MODEL 1005002, GRANT



BLOCK DIAGRAM



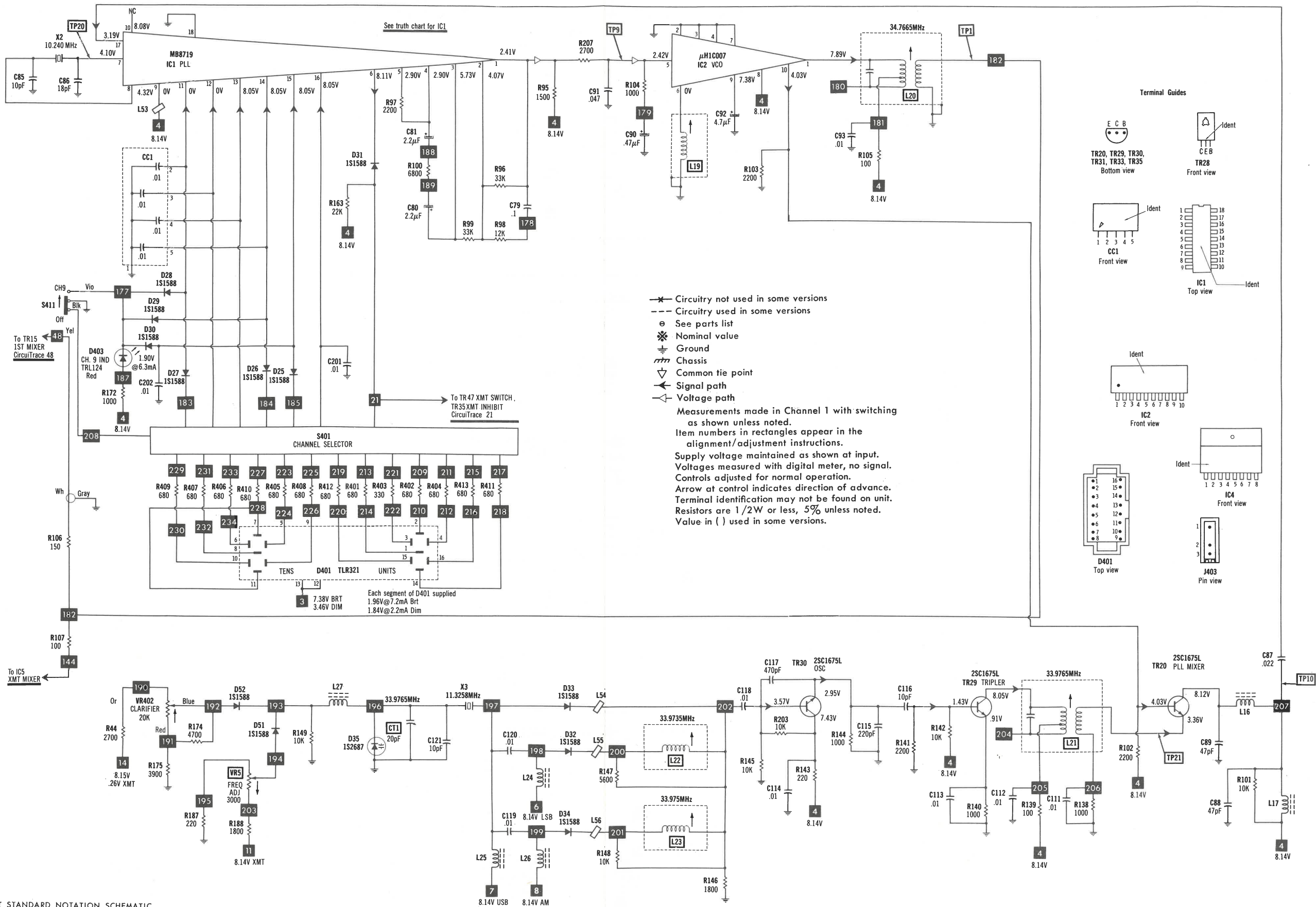
WIRING DATA

General-use Hook-up Wir
Shielded Hook-up Wire
Speaker Cable (availabl
Bonding Strap
AC Power Cord

SEMICONDUCTORS (Se

ITEM No.	TYPE No.	MFG. PART No.
D1	1N60P	2000-318
D2	1N60P	2000-318
D3	1N60P	2000-318
D4	1S1588	2000-332
D5	1S1588	2000-332
D6	1S1588	2000-332
D7	1S1588	2000-332
D8	1S1588	2000-332
D9	1S1588	2000-332
D10	1N60P	2000-318
D11	1N60P	2000-318
D12	1N60P	2000-318
D13	MC301	2000-341
D14	1S2186	2000-341
D15	1S2186	2000-341
D16	1S2186	2000-341
D17	1S2186	2000-341
D18	1S2186	2000-341

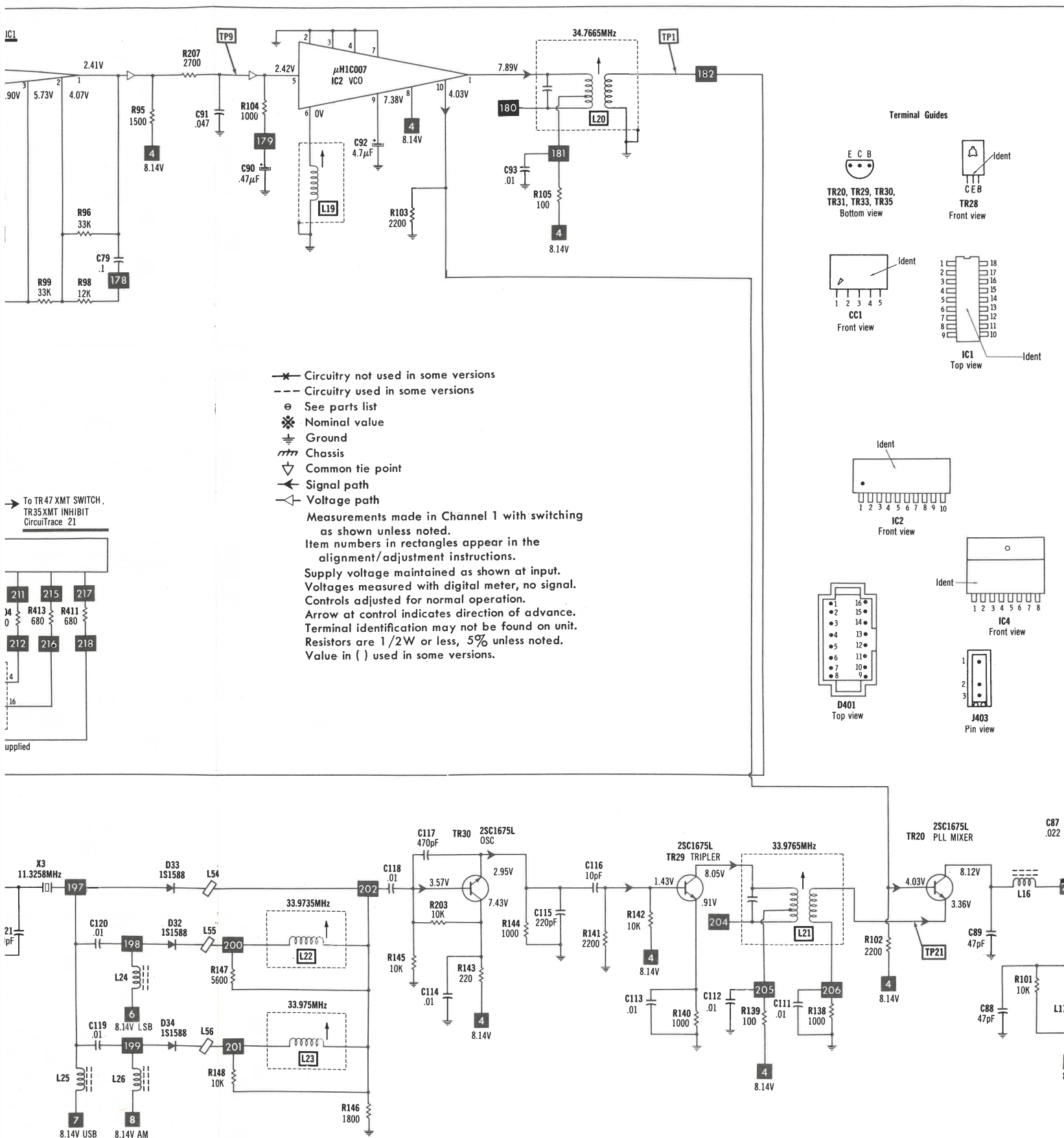
PRESIDENT MODEL 1005002, GRANT



A PHOTOFAC TANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE®

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

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA										ZENITH PART No.
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.		
D19	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925	103-131	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062		
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
D20	1S2473	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925	103-131	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062		
	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109	WEP134		
D22	1N60P	2000-318	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109	WEP134	103-29001	
	1N60		PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109	WEP134			
D23	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925	103-29001	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062		
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
D24	1S2473	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925	103-131	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062		
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
D25	1S2472	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925	103-131	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062		
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
D26	1S953	2000-332	GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131	
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG6519	TM519	WEP925		
	1S2472		GE-514	PTC214	HEPR060								

PRESIDENT MODEL 1005002, GRANT

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D42	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D43	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D44	SR1K2	2000-320	GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	TM116	WEP156	212-76-02
	10D1		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	TM116	WEP156	
D47	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D48	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D49	MV13YH	2000-342		PTC302		REN 601	SK3463		ECG601			
D50	MV1Y	2000-339		PTC301								
D51	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D52	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D53	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D54	1N60P	2000-318	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109	WEP134	103-Z9001
	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109	WEP134	
	SR1K2		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	TM116	WEP156	
	10D1		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	TM116	WEP156	
D55	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D56	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D57	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D58	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D59	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D60	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D61	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D62	1S1588	2000-318	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D63	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
D65	1S1588	2000-332	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-131
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S2472		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	
	1S953		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	
FET1	3SK458	2000-102	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	121-826
	3SK45		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	
	3SK40		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	
	3SK41		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	
	3N201		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	121-826

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
FET2	2SK19BL 2SK19 JF1033 2N233B 2SK33 2SK55	2000-105	GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2	PTC161 PTC161 PTC161 PTC161 PTC161 PTC161	HEPF0021 HEPF0021 HEPF0021 HEPF0021 HEPF0021 HEPF0021	REN 132 REN 132 REN 132 REN 132 REN 132 REN 132	SK3448 SK3448 SK3448 SK3448 SK3448 SK3448	RT-175 RT-175 RT-175 RT-175 RT-175 RT-175	ECG312 ECG312 ECG312 ECG312 ECG312 ECG312	TM312 TM312 TM312 TM312 TM312 TM312		
FET3	2SK19GR 2SK19 JF1033 2N233B 2SK33 2SK55	2000-108	GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2	PTC161 PTC161 PTC161 PTC161 PTC161 PTC161	HEPF0021 HEPF0021 HEPF0021 HEPF0021 HEPF0021 HEPF0021	REN 132 REN 132 REN 132 REN 132 REN 132 REN 132	SK3448 SK3448 SK3448 SK3448 SK3448 SK3448	RT-175 RT-175 RT-175 RT-175 RT-175 RT-175	ECG312 ECG312 ECG312 ECG312 ECG312 ECG312	TM312 TM312 TM312 TM312 TM312 TM312		
IC1	MB8719	2000-030										
IC2	UHC007	2000-029							ECG1249			
IC3	AN612	2000-031										
IC4	MB3756	2000-033										
IC5	S042P	2000-034										
IC6	TA7222P	2000-032										
TR1	2SC1675L 2SC1675 2SC460 2SC839 2SC1674 2SC1730 2SC1675L 2SC1675 2SC460 2SC839 2SC1674 2SC1730	2000-213	GE-213 GE-213 GE-61* GE-61* GE-61 GE-17* GE-213 GE-213 GE-61* GE-61* GE-61 GE-17*	PTC132* PTC132* PTC136* PTC132* PTC132* PTC136* PTC132* PTC132* PTC136* PTC132* PTC132* PTC136*	HEPS0025* HEPS0025* HEPS0014* HEPS0015* HEPS0010* HEPS0025* HEPS0025* HEPS0014* HEPS0015* HEPS0010* HEPS0025* HEPS0015*	REN 123A* REN 123A* REN 107 REN 123A* REN 107 REN 107 REN 123A* REN 123A* REN 107 REN 107 REN 107 REN 107	SK3246 SK3246 SK3122 SK3444 SK3246 SK3018* SK3246 SK3246 SK3122 SK3444 SK3246 SK3018* SK3018*	RT-308 RT-308 RT-134 RT-308 RT-308 RT-107A RT-308 RT-308 RT-134 RT-308 RT-308 RT-107A RT-107A	ECG229* ECG229* ECG107 ECG123A* ECG229* ECG316* ECG229* ECG229* ECG107 ECG123A* ECG229* ECG316* ECG316*	TM229* TM229* TM107/** TM123A/** TM229* TM316* TM229* TM229* TM107/** TM123A/** TM229* TM316* TM316*	WEP956* WEP956* WEP460 WEP736* WEP956* WEP535 WEP956* WEP956* WEP460 WEP736* WEP956* WEP535 WEP535	121-Z9021 121-Z9021 121-522 121-Z9000A* 121-29021 121-972* 121-29021 121-29021 121-522 121-Z9000A* 121-29021 121-972* 121-972*
TR2	2SC1675L 2SC1675 2SC460 2SC839 2SC1674 2SC1730 2SC1730L 2SC1730 2SC1675 2SC1674 2SC460 2SC839 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740	2000-213	GE-213 GE-213 GE-61* GE-61* GE-61 GE-17* GE-213 GE-213 GE-61* GE-61* GE-61 GE-17* GE-213 GE-213 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212	PTC132* PTC132* PTC136* PTC132* PTC132* PTC136* PTC132* PTC132* PTC136* PTC132* PTC132* PTC136* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121*	HEPS0025* HEPS0025* HEPS0014* HEPS0015* HEPS0010* HEPS0025* HEPS0025* HEPS0014* HEPS0015* HEPS0010* HEPS0014* HEPS0015* HEPS0009* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015*	REN 123A* REN 123A* REN 107 REN 123A* REN 107 REN 107 REN 123A* REN 123A* REN 107 REN 107 REN 107 REN 199 REN 199 REN 123A* REN 199 REN 199 REN 199 REN 199 REN 199 REN 199 REN 123A* REN 123A* REN 123A* REN 123A* REN 123A*	SK3246 SK3246 SK3122 SK3444 SK3246 SK3018* SK3246 SK3246 SK3122 SK3444 SK3246 SK3122 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122 SK3124	RT-308 RT-308 RT-134 RT-308 RT-308 RT-107A RT-308 RT-308 RT-134 RT-308 RT-308 RT-302 RT-302 RT-107A RT-187 RT-302 RT-302 RT-302 RT-302 RT-302 RT-109* RT-107A RT-107A RT-187 RT-308 RT-302 RT-109*	ECG229* ECG229* ECG107 ECG123A* ECG229* ECG316* ECG229* ECG229* ECG107 ECG123A* ECG229* ECG316* ECG199 ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199 ECG199	TM229* TM229* TM107/** TM123A/** TM229* TM316* TM229* TM229* TM107/** TM123A/** TM229* TM316* TM199/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/** TM199/**	WEP956* WEP956* WEP460 WEP736* WEP956* WEP535 WEP956* WEP956* WEP460 WEP736* WEP956* WEP535 WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736* WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736*	121-Z9021 121-Z9021 121-522 121-Z9000A* 121-29021 121-972* 121-29021 121-29021 121-522 121-Z9000A* 121-29021 121-972* 121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972 121-972
TR3	2SC1730 2SC1730L 2SC1730 2SC1675 2SC1674 2SC460 2SC839 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740	2000-214	GE-17* GE-17* GE-17* GE-213 GE-61 GE-61* GE-61* GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62	PTC136* PTC136* PTC136* PTC132* PTC132* PTC136* PTC132* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC121*	HEPS0025* HEPS0025* HEPS0025* HEPS0025* HEPS0010* HEPS0015* HEPS0010* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015*	REN 107 REN 107 REN 107 REN 123A* REN 107 REN 107 REN 107 REN 199 REN 199 REN 123A* REN 199 REN 199 REN 199 REN 199 REN 199 REN 199 REN 123A* REN 199 REN 199 REN 123A*	SK3018* SK3018* SK3018* SK3246 SK3246 SK3122 SK3444 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122	RT-107A RT-107A RT-107A RT-308 RT-308 RT-134 RT-308 RT-308 RT-308 RT-187 RT-302 RT-302 RT-302 RT-109* RT-107A RT-107A RT-187 RT-308 RT-302 RT-109*	ECG316* ECG316* ECG316* ECG229* ECG229* ECG107 ECG123A* ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199 ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199	TM316* TM316* TM316* TM229* TM229* TM107/** TM123A/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/**	WEP956* WEP956* WEP535 WEP956* WEP956* WEP460 WEP736* WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736* WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736*	121-972* 121-972* 121-972* 121-29021 121-29021 121-522 121-Z9000A* 121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972 121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972
TR4	2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740	2000-235	GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62	PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC121*	HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015*	REN 199 REN 199 REN 123A* REN 123A* REN 199 REN 199 REN 199 REN 199 REN 199 REN 123A* REN 123A* REN 123A* REN 123A* REN 123A*	SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122	RT-107A RT-107A RT-187 RT-308 RT-302 RT-302 RT-302 RT-109* RT-107A RT-107A RT-187 RT-308 RT-302 RT-109*	ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199 ECG123A* ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199	TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/** TM123A/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/**	WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736* WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736*	121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972 121-29000A* 121-972 121-972 121-773 121-29000A* 121-972 121-972
TR5	2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740	2000-235	GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62	PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC121*	HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015*	REN 199 REN 199 REN 123A* REN 123A* REN 199 REN 199 REN 199 REN 199 REN 199 REN 123A* REN 123A* REN 123A* REN 123A* REN 123A*	SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122 SK3124 SK3124 SK3122 SK3444 SK3124 SK3444 SK3122	RT-107A RT-107A RT-187 RT-308 RT-302 RT-302 RT-302 RT-109* RT-107A RT-107A RT-187 RT-308 RT-302 RT-109*	ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199 ECG199 ECG123A* ECG199 ECG199 ECG289 ECG123A* ECG199 ECG199	TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/** TM199/** TM123A/** TM199/** TM199/** TM289/** TM123A/** TM199/** TM199/**	WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736* WEP1945 WEP1945 WEP458 WEP372 WEP66 WEP828 WEP736*	121-972 121-972 121-773 121-29000A* 121-972 121-972 121-972 121-29000A* 121-972 121-972 121-773 121-29000A* 121-972 121-972
TR6	2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740 2SA733P 2SA733 2SA495 2SA564 2SC945AQ 2SC945A 2SC458 2SC372 2SC900 2SC828 2SC1740	2000-235	GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62 GE-212 GE-212 GE-210* GE-61* GE-62 GE-61* GE-62	PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC139* PTC121* PTC121* PTC121* PTC139* PTC139* PTC139* PTC121*	HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0015* HEPS0009* HEPS0015* HEPS0015* HEPS0015* HEPS0015*	REN 199 REN 199 REN 123A* REN 123A* REN 199 REN 199 REN 199 REN 199 REN 199 REN 123A* REN 123A* REN 123A* REN 123A* REN 123A*	SK3124 SK3124 SK3122 SK3444 SK312					

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

SEMICONDUCTORS (Select replacement transistor for best security/quality)												
ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
TR13	2SA733P	2000-218	GE-48	PTC127	HEPS0019*	REN 294	SK3138	RT-303	ECG294	TM294/**	WEP916	121-952
	2SA733		GE-48	PTC127	HEPS0019*	REN 294	SK3138	RT-303	ECG294	TM294/**	WEP916	121-952
	2SA495		GE-221*	PTC103*	HEPS0013*	REN 159*	SK3466	RT-303	ECG159*	TM159*/**	WEP495	121-Z9003
	2SA564		GE-65	PTC103*	HEPS0019*	REN 234	SK3114	RT-303	ECG234	TM234	WEP564	121-879
TR14	2SC1674L	2000-240	GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1674		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1675		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1730		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
TR15	2SC1342	2000-213	GE-61*	PTC132	HEPS0014*	REN 229*	SK3018*	RT-108A*	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1856		GE-86	PTC121	HEPS0010	REN 108	SK3018	RT-107	ECG108	TM123A*/**	WEP710	121-Z9021*
	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	TM229*/**	WEP956*	121-Z9021
	2SC930		GE-60*	PTC132*	HEPS0016*	REN 229	SK3018	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
TR16	2SC1675L	2000-213	GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1674L		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1675		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-522
TR17	2SC839	2000-213	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A*/**	WEP736*	121-Z9000A*
	2SC1674		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1730		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
	2SC1675L		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
TR18	2SC1675L	2000-213	GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-522
	2SC839		GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A*/**	WEP736*	121-Z9000A*
	2SC1674		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
TR19	2SC945AQ	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0009*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A*/**	WEP372	121-Z9000A*
TR20	2SC900	2000-213	GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1675L		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
TR21	2SC945AQ	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0009*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A*/**	WEP372	121-Z9000A*
TR22	2SC900	2000-235	GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR23	2SC945A	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR24	2SC1740	2000-218	GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
TR25	2SC372	2000-218	GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR26	2SC945AQ	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR27	2SC900	2000-218	GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR28	2SC945A	2000-241	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR29	2SC828	2000-218	GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR30	2SC458	2000-218	GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3444	RT-308	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR31	2SC1740	2000-218	GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
TR32	2SC372	2000-218	GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR33	2SC945AQ	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
TR34	2SC900	2000-218	GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC828		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR35	2SC945A	2000-218	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC139*	HEPS0015*	REN						

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
TR29	2SC1675L	2000-213	GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1675		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-522
	2SC839		GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SC1674		GE-61*	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP535	121-Z9021
TR30	2SC1730	2000-213	GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP956*	121-Z9021
	2SC1675L		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP535	121-972*
	2SC1675		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-Z9021
	2SC839		GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
TR31	2SC1674	2000-213	GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1730		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
TR32	2SC372	2000-213	GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP372	121-Z9000A*
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG199	TM199/**	WEP736*	121-Z9000A*
	2SC1675L		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
TR33	2SC1675	2000-213	GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-522
	2SC839		GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SC1674		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1730		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
TR34	2SC945AQ	2000-235	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP372	121-Z9000A*
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP66	121-972
TR35	2SC828	2000-213	GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG199	TM199/**	WEP736*	121-Z9000A*
	2SC1675L		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1675		GE-213	PTC132*	HEPS0025*	REN 123A*	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC460		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	TM107/**	WEP460	121-522
TR36	2SC839	2000-213	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SC1674		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	TM229*	WEP956*	121-Z9021
	2SC1730		GE-17*	PTC136*	HEPS0025*	REN 107	SK3018*	RT-107A	ECG316*	TM316*	WEP535	121-972*
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR37	2SC458	2000-235	GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP372	121-Z9000A*
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG199	TM199/**	WEP736*	121-Z9000A*
TR38	2SC1969B	2000-242	GE-216	PTC186	HEPS0015*	REN 236	SK3197	RT-158	ECG236	TM236	WEP840	121-Z9040
	2SC1969		GE-216	PTC186	HEPS0015*	REN 236	SK3197	RT-158	ECG236	TM236	WEP840	121-Z9040
	2SC496-0		GE-57	PTC163	HEPS0000	REN 295	SK3253	RT-162	ECG295	TM295/**	WEP880	121-Z9040
	2SC496		GE-336	PTC904	HEPS0000	REN 295	SK3253	RT-162	ECG295	TM295/**	WEP880	121-Z9040
	2SD471		GE-268	PTC144*	HEPS3001*	REN 289	SK3124	RT-114*	ECG289	TM289	WEP913	121-773
TR39	2SC1306K	2000-211	GE-215	PTC186	HEPS3062	REN 235	SK3197	RT-146	ECG235	TM235/**	WEP910	121-773
	2SC1306		GE-215	PTC186	HEPS3062	REN 235	SK3197	RT-146	ECG235	TM235/**	WEP785	121-Z9039
	2SC2020		GE-329	PTC110	HEPS3062	RE 203	SK3239	RT-146	ECG235	TM235/**	WEP785	121-Z9039
	2SC2184		GE-329	PTC110	HEPS3062	RE 203	SK3239	RT-146	ECG235	TM235/**	WEP785	800-364
	2SC2166		GE-215	PTC186	HEPS3062	REN 235	SK3197	RT-146	ECG235	TM235	WEP785	800-364
TR40	2SC1973	2000-215	GE-335	PTC186	HEPS3062	REN 235	SK3197	RT-146	ECG235	TM235	WEP785	121-Z9039
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG315	TM315	WEP922	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP372	121-Z9000A*
TR41	2SC900	2000-216	GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SC1419C		GE-66	PTC167	HEPS5027	REN 152	SK3054	RT-197	ECG152	TM152	WEP745	121-987-02
	2SC1419		GE-66	PTC167	HEPS5027	REN 152	SK3054	RT-197	ECG152	TM152	WEP745	121-987-02
TR42	2SD325	2000-218	GE-28	PTC110	HEPS5027	REN 186	SK3197	RT-197	ECG186	TM186/**	WEP751	121-Z9008
	2SC1096		GE-28	PTC110	HEPS5027	REN 186	SK3197	RT-197	ECG186A	TM186A/**	WEP1096	121-Z9008
	2SC235		GE-66	PTC154	HEPS3061	REN 152	SK3054	RT-197	ECG152	TM152/**	WEP745	121-987-02
	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC945A		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR43	2SC458	2000-235	GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC372		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP372	121-Z9000A*
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP828	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
TR44	2SC458C	2000-203	GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC945		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG123A*	TM123A/**	WEP372	121-Z9000A*
	2SC828		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP66	121-972
TR45	2SC1740	2000-218	GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG199	TM199/**	WEP828	121-972
	2SC458C		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	TM289/**	WEP458	121-773
	2SC945		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
	2SC900		GE-62	PTC139*	HEPS0015*	REN 199	SK3124	RT-302	ECG123A*	TM123A/**	WEP372	121-Z9000A*
TR46	2SC828	2000-218	GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC372		GE-61*	PTC139*	HEPS0015*	REN 199	SK3444	RT-302	ECG199	TM199/**	WEP66	121-972
	2SC1740		GE-62	PTC121*	HEPS0015*	REN 199	SK3122	RT-109*	ECG199	TM199/**	WEP828	121-972
	2SA733P		GE-48	PTC127	HEPS0019*	REN 294	SK3138	RT-303	ECG123A*	TM123A/**	WEP736*	121-Z9000A*
	2SA733		GE-48	PTC127	HEPS0019*	REN 294	SK3138	RT-303	ECG294	TM294/**	WEP916	121-952
TR47	2SA495	2000-203	GE-221*	PTC103*	HEPS0013*	REN 159*	SK3466	RT-303	ECG294	TM294/**	WEP916	121-952
	2SA495		GE-221*	PTC103*	HEPS0013*	REN 159*	SK3466	RT-303	ECG159*	TM159/**	WEP495	121-Z9003
	2SA564		GE-65	PTC103*	HEPS0013*	REN 234	SK3114	RT-303	ECG159*	TM159/**	WEP495	121-Z9003
	2SC945AQ		GE-212	PTC121*	HEPS0015*							

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

		REPLACEMENT DATA					
ITEM No.	RATING	MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
					Q-LINE	GENERAL LINE	
C10	.22 35V	1800-324	PC50-16	TDC224M050EL	QDT1-10	SD50-R229	
C18	47 10V			VTT47D16	QV1-73	EV-1226	
C23	.47 50V			TDC474M050EL	QDT1-19	SD50-R479	
C24	4.7 10V			TDC475M010EL	QV1-48	SD10-4R79	
	.47 50V	1800-611		TDC474M050EL	QDT1-19	SD50-R479	
C25	.47 50V	1800-611	PC1-50	TDC474M050EL	QDT1-19	SD50-R479	
C28	.47 50V	1800-301		VTT47A63	QV1-3	EV-1610	
C29	.22 35V			TDC224M050EL	QDT1-10	SD50-R229	
C33	1 50V	1800-302		VTT1A50	QV1-11	EV-1615	
C36	.1 35V		PC1-50	TDC104M050EL	QDT1-2	SD50-R109	
C62	1 25V	1800-606		TDC105M035EL		SD35-19	
C67	1 25V	1800-606		TDC105M035EL		SD35-19	
C72	22 16V			VTT22B16	QV1-55	EV-1224	
C73	22 10V	1800-331	PC25-25	VTT22B16	QV1-55	EV-1224	
C74	47 10V	1800-324	PC50-16	VTT47D16	QV1-73	EV-1226	
C80	2.2 25V	1800-603		TDC225M035FL		SD35-2R29	
C81	2.2 25V	1800-603		TDC225M035FL		SD35-2R29	
C84	1000 10V	1800-332	PC1000-16	VTT1000L10	QV1-179	EV-1160	
C90	.47 50V	1800-611		TDC474M050EL	QDT1-19	SD50-R479	
C92	4.7 25V	1800-304		PC5-50	VTT47B50	QV1-27	EV-1319
C95	47 10V	1800-324		PC50-16	VTT47D16	QV1-73	EV-1226
C99	2.2 25V	1800-303	PC2-100	VTT2R2A50	QV1-19	EV-1517	
C100	22 16V		PC25-25	VTT22B16	QV1-55	EV-1224	
C101	.1 35V			TDC104M050EL	QDT1-2	SD50-R109	
C103	10 16V	1800-306	PC10-25	VTT10B25	QV1-41	EV-1222	
C104	.47 50V	1800-611		TDC474M050EL	QDT1-19	SD50-R479	
C108	.47 50V	1800-301	PC1-50	VTT47A63	QV1-3	EV-1610	
C109	10 16V	1800-306	PC10-25	VTT10B25	QV1-41	EV-1222	
C133	10 16V	1800-306	PC10-25	VTT10B25	QV1-41	EV-1222	
C134	10 16V	1800-306	PC10-25	VTT10B25	QV1-41	EV-1222	
C135	.47 50V	1800-301	PC1-50	VTT47A63	QV1-3	EV-1610	
C144	1 50V	1800-302	PC1-50	VTT1A50	QV1-11	EV-1615	
C153	47 10V	1800-324	PC50-16	VTT47D16	QV1-73	EV-1226	
C172	1000 25V	1800-333	WBR1000-25*	VTT1000M25	QV1-185	EV-1360	
C173	10 16V	1800-306	PC10-25	VTT10B25	QV1-41	EV-1222	
C174	1 50V	1800-302	PC1-50	VTT1A50	QV1-11	EV-1615	
C175	470 10V		PC500-16	VTT470K16	QV1-149	EV-1150	
C176	47 10V	1800-324	PC50-16	VTT47D16	QV1-73	EV-1226	
C179	22 6V	1800-610		TDC226M015FL	QDT1-82	SD15-229	
C180	4.7 25V	1800-304	PC5-50	VTT47B50	QV1-27	EV-1319	
C181	10 25V	1800-330	PC10-25	VTT10B25	QV1-43	EV-1322	
C186	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240	
C190	.47 50V	1800-301	PC1-50	VTT47A63	QV1-3	EV-1610	
C191	1 50V	1800-302	PC1-50	VTT1A50	QV1-11	EV-1615	
C205	.47 50V	1800-301	PC1-50	VTT47A63	QV1-3	EV-1610	
C212	47 10V	1800-324	PC50-16	VTT47D16	QV1-73	EV-1226	

*Axial replacement for radial device.

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	15 NPO 5% 50V		DTZ-15	NP015	CN0415		10TCC-Q15
C2	33 NPO 50V		DTZ-33	NP033	CN0433		10TCC-Q33
C3	.022 50V		DC-253	MGP025	TA125		TG-S25
C4	.022 50V		DC-253	MGP025	TA125		TG-S25
C5	.022 50V		DC-253	MGP025	TA125		TG-S25
C6	.022 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C7	.022 50V		DC-253	MGP025	TA125		TG-S25
C8	.022 50V		DC-253	MGP025	TA125		TG-S25
C9	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C11	82 N750 10% 50V		DD-102G	GP1000	CN7482		10TCU-Q82
C12	.001 50V		DTN-100	N100	GP210	QC2-81	5GA-D10
C13	100 N750 10% 50V		DC-253	MGP025	CN7310		10TCU-T10
C14	.022 50V		DD-102G	GP1000	TA125		TG-S25
C15	.001 50V		DTN-100	N100	GP210	QC2-81	5GA-D10
C16	100 N750 10% 50V		DC-253	MGP025	CN7310		10TCU-T10
C17	.022 50V		DTN-100	N100	TA125		TG-S25
C19	100 N750 10% 50V		DTN-100	N100	CN7310		10TCU-T10
C20	.047 50V			DPMS2S47	EWFI1A147	QFT2-171	1FT-S47
C21	.047 10% 50V			DPMS2S47	EWFI1A147	QFT2-171	1FT-S47
C22	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C26	.022 50V		DC-253	MGP025	TA125		TG-S25
C27	39 NPO 5% 50V		DC-253	MGP025	CN0439		10TCC-Q39
C30	.022 50V		DD-102G	GP1000	TA125	QC2-81	TG-S25
	.001 50V				GP210		5GA-D10

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
C31	12 NPO 50V	1800-112			CN0412		10TCC-Q12
C32	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C34	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C35	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C37	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C38	4 NPO 50V						
C39	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C40	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
	56 NPO 50V		DD-560		GP456	QC2-81	10TS-Q56
C41	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C42	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C43	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C44	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C45	100 N750 10% 50V		DTN-100	N100	CN7310		10TCU-T10
C46	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C47	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C48	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C49	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C50	.022 50V		DC-253	MGP025	TA125		TG-S25
C51	.022 50V		DC-253	MGP025	TA125		TG-S25
C52	.022 50V		DC-253	MGP025	TA125		TG-S25
C53	.022 50V		DC-253	MGP025	TA125		TG-S25
C54	.022 50V		DC-253	MGP025	TA125		TG-S25
C55	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C56	.047 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S22
C57	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S22
C58	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C59	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C60	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C61	.022 50V		DC-253	MGP025	TA125		TG-S25
	.047 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C63	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C64	220 N750 10% 50V		DTN-22	N22	CN7422		10TCU-Q22
C65	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C66	220 N750 10% 50V		DTN-22	N22	CN7422		10TCU-Q22
C68	15 NPO 5% 50V		DTZ-15	NP015	CN0415		10TCC-Q15
C69	.002 10% 50V			DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C70	.001 50V			DPMS6D1	EWFA1A210	QFT2-1	1FT-D10
C71	.001 50V			DPMS6D1	EWFA1A210	QFT2-1	1FT-D10
C75	.047 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C76	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C78	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C79	.1 10% 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10
C82	.047 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C85	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C86	18 NPO 5% 50V				CN0418		10TCC-Q18
C87	.022 50V		DC-253	MGP025	TA125		TG-S25
C88	47 NPO 5% 50V		DTZ-47	NP047	CN0447		10TCC-Q47
C89	47 NPO 5% 50V		DTZ-47	NP047	CN0447		10TCC-Q47
C91	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C93	.01 50V		UK50-103		MAG5011		
C94	.047 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C96	.01 50V		UK50-103		MAG5011		
C97	.01 50V		UK50-103		MAG5011		
C98	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C102	.0047 10% 50V	1800-009		WMF1D47	M192P4729R8	QFT2-63	1FT-D47
C105	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C106	.01 50V		UK50-103		MAG5011		
C107	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C110	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C111	.01 50V		UK50-103		MAG5011		
C112	.01 50V		UK50-103		MAG5011		
C113	.01 50V		UK50-103		MAG5011		
C114	.01 50V		UK50-103		MAG5011		
C115	220 10% 50V		DD-221		GP322		10TS-T22
C116	10 NPO 50V	1800-116	DTZ-10	NP010	CN0410		10TCC-Q10
C117	470 50V		DD-471	GP470	GP347		10TS-T47
C118	.01 50V		UK50-103		MAG5011		
C119	.01 50V		UK50-103		MAG5011		
C120	.01 50V		UK50-103		MAG5011		
C121	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C122	100 N220 5% 50V				*		10TCR-T10
C123	220 10% 50V		DD-221		GP322		10TS-T22
C124	.022 50V		DC-253	MGP025	TA125		TG-S25
C125	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C126	.01 50V	1800-121	UK50-103		MAG5011		
C127	82 NPO 5% 50V		DTZ-82	NP082	CN0482		10TCC-Q82
C128	27 NPO 5% 50V				CN0427		10TCC-Q27
C129	.01 50V		UK50-103		MAG5011		
C130	1 NPO 50V				CN0510		10TCC-V10
C131	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C132	.0047 50V		DD-472	GP4700	GP247	QFT2-171	5GA-D47
C136	.047 10% 50V			DPMS2S47	EWFA1A147		1FT-S22
C141	68 NPO 5% 50V		DTZ-68	NP068	CN0468		10TCC-Q68
C142	39 NPO 5% 50V				CN0439		10TCC-Q39
C143	180 N220 5% 50V	1800-116			*		10TCR-T18
C145	1 NPO 50V				CN0510		10TCC-V10
C146	390 N750 10% 50V		DTN-390				10TCU-T39
C147	47 NPO 5% 50V		DTZ-47	NP047	CN0447	QFT2-215	10TCC-Q47
C148	.1 10% 50V			WMF05P1	EWFO5010		1FT-P10
C149	220 N220 10% 50V				*		10TCR-T22
	120 N220 50V				*		10TCR-T12
C150	330 N750 10% 50V		DTN-330	N330	CN7333		10TCU-T33
C151	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C152	470 N750 10% 50V		DTN-470				10TCU-T47
C154	.047 50V	1800-121		DPMS2S47	EWFA1A110	QFT2-171	1FT-S10
C155	.1 10% 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10

PRESIDENT MODEL 1005002, GRANT

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
C156	220 N750 10% 50V		DTN-220	N220	CN7322		10TCU-T22
C157	330 N750 50V		DTN-330	N330	CN7333		10TCU-T33
C158	.0047 50V		DD-472	GP4700	GP247	QFT2-171	5GA-D47
C159	.0047 50V		DD-472	DPMS2S47	EWFA1A147		1FT-S10
C160	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C161	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C162	330 N750 10% 50V		DTN-330	N330	CN7333		10TCU-T33
C163	47 NPO 5% 50V		DTZ-47	NP047	CN0447		10TCC-Q47
C164	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C165	.01 50V		UK50-103		MAG5011		
C166	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C167	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C168	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C169	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C170	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C171	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C177	.1 10% 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10
C178	.001 50V			DPMS6D1	EWFA1A210	QFT2-1	1FT-D10
C182	.022 50V			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C183	.1 10% 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10
C185	.001 50V			DPMS6D1	EWFA1A210	QFT2-1	1FT-D10
C187	.1 10% 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10
C188	.047 50V		UK50-503		MAG5015		
C189	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C192	.1 50V		CK-104		MAG5001		
C193	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C194	.022 50V		DC-253	MGP025	TA125		TG-S25
C195	.1 50V		CK-104		MAG5001		
C196	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C197	.022 50V		DC-253	MGP025	TA125		TG-S25
C198	.01 50V		UK50-103		MAG5011		
C199	.01 50V		UK50-103		MAG5011		
C200	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C201	.01 50V		UK50-103		MAG5011		
C202	.91 50V		UK50-103		MAG5011		
C203	33 NPO 5% 50V		DTZ-33	NP033	CN0433		10TCC-Q33
C204	.022 50V		DC-253	MGP025	TA125		TG-S25
C207	47 NPO 5% 50V		DTZ-47	NP047	CN0447		10TCC-Q47
C208	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C210	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C211	33 NPO 5% 50V		DTZ-33	NP033	CN0433		10TCC-Q33
C213	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C214	.01 50V			WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C215	.047 10% 50V			DPMS2S47	EWFA1A147	QFT2-171	1FT-S47
C401	.022 50V		DC-253	MGP025	TA125		TG-S25
C402	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C403	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C404	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C405	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C406	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C407	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C409	.01 50V		UK50-103		MAG5011		
CC1	(1)	1800-103					
CT1	20	1800-203					
CT2	20	1800-203					

* Not normally in distributor's stock. Available thru distributor on order to manufacturer. (1) Consists of four capacitors.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR1	AM Signal Meter	5000	1900-201			U260R502B
VR2	AM Signal Meter	20K	1900-204(6)			
VR2	SSB Signal Meter	5000	1900-201			U260R502B
VR2	SSB Signal Meter	20K	1900-204(6)			
VR3	Squelch Range	1000	1900-220			U260R102B
VR4	Balance	10K	1900-203			U260R103B
VR5	Frequency Adj	3000	1900-215			U260R503B
VR6	Xmt Power Meter	100K	1900-211			U260R104B
VR7	MOD Meter	10K	1900-203			U260R103B
VR7	MOD Meter	50K	1900-202(6)			
VR8	Bias	5000	1900-201			U260R502B
VR9	Bias	500	1900-205			U260R501B
VR10	AM Power	5000	1900-201			U260R502B
VR11	SSB Power	10K	1900-203			U260R103B
VR401	Squelch/Power Switch	100K	1900-139			
VR402	Clarifier	20K	1900-126			
VR403	Volume/CB-PA Switch	10K	1900-137			
VR404	RF Gain	1000	1900-124			
VR405	Mike Gain	1000	1900-138			

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

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	Input Blanker (7.8MHz)	2200-022	LA-038	CBS512-7TC	
L2	Blanker Amp (7.8MHz)	2200-029	LA-179		
L3	Rec IF (455kHz)	2200-002	LA-163		
L4	Rec Antenna (27MHz)	2200-071	LA-261		
L5	Rec RF (27MHz)	2200-070	LA-260		
L6	Rec RF (27MHz)	2200-069	LA-259		
L7	Rec Mixer (7.8MHz)	2200-068	LA-268		
L8	Rec IF (7.8MHz)	2200-067	LA-257		
L9	Rec IF (7.8MHz)	2200-098	LA-268		
L10	Rec IF (7.8MHz)	2200-099	LA-269		
L11	RF Choke (100uH)	2200-202	LZ-012	CB305	
L12	Rec IF (7.8MHz)	2200-501	LA-270		
L13	Rec IF (455kHz)	2200-502	LA-272		
L14	Rec IF (7.8MHz)	2200-503	LA-271		
L15	Rec IF (455kHz)	2200-094	LA-264		
L16	RF Choke (100uH)	2200-202	LZ-012		
L17	RF Choke (470uH)	2200-040	LZ-012		
L19	VCO	2200-072	LA-216		
L20	VCO Buffer (35MHz)	2200-055	LA-195		
L21	Tripler (34MHz)	2200-074	LA-256		
L22	Loop Oscillator	2200-093	LA-273	CB305	
L23	Loop Oscillator	2200-097	LA-267		
L24	RF Choke (470uH)	2200-040	LZ-012		
L25	RF Choke (470uH)	2200-040	LZ-012		
L26	RF Choke (470uH)	2200-040	LZ-012		
L27	RF Choke (470uH)	2200-040	LZ-012		
L28	RF Choke (470uH)	2200-040	LZ-012		
L29	RF Choke (470uH)	2200-040	LZ-012		
L30	Carrier Osc. (7.8MHz)	2200-096	LA-266		
L31	Carrier Osc. (7.8MHz)	2200-095	LA-265		
L32	RF Choke (470uH)	2200-040	LZ-012	CB305	
L33	RF Choke (100uH)	2200-202	LZ-012		
L35	Pi Filter	2200-038	LE-051		
L36	TVI Trap (54MHz)	2200-034	LC-019		
L37	Pi Filter	2200-038	LE-051		
L38	Final (27MHz)	2200-034	LC-019		
L39	RF Choke	2200-080	LD-098		
L42	RF Choke	2200-080	LD-098		
L44	Xmt Predriver	2200-061	LD-096		
L45	Xmt Mixer (27MHz)	2200-079	LA-254		
L46	Xmt Mixer (27MHz)	2200-078	LA-220	LA-160	
L47	Xmt Mixer Input (35MHz)	2200-028	LA-219		
L48	Xmt Mixer Input (7.8MHz)	2200-077	LZ-012		
L57	RF Choke (470uH)	2200-040	LD-013		
L401	RF Choke	2200-035	LD-013		
L402	RF Choke	2200-035	LD-013		
L403	RF Choke	2200-059	LD-089		

PRESIDENT MODEL 1005002, GRANT

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.	
T1	2.8A	.194	2.25mH	TF-151(1) 2300-004(2) TF-147(1)(2)			(1) Number on unit. (2) Alternate part.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP401	3 1/2" PM, 8 Ohms	3100-007 92P09(1)	3A0528	(1) Number on unit.

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	WORKMAN PART No.
F401	4A Quick Acting			AGC4	HDJ	311004	150145

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	3200-004	18-032	18-034	18-010		1	2	5	3	NC	4

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
D401	LED Display	2000-306	Channel Readout
D402	LED	2000-343	TX/RX Indicator (Red, 1.90V @ 6.3mA) (Green, 2.12V @ 15.4mA)
D403	LED	2000-347	CH. 9 Indicator
FT1	Filter	2200-302	Ceramic, 455kHz
FT2	Filter	2200-310	Crystal, 7.8MHz
FT3	Filter	2200-311	Crystal, 7.8MHz
J401	Jack	1100-021	PA Speaker
J402	Jack	1100-021	External Speaker
J403	Jack	1100-003	DC Power
J404	Connector	1100-022	Microphone
J405	Connector	1100-002	Antenna
L40	Ferrite Bead	2200-052	LD-087
L41	Ferrite Bead	2200-108	LD-101
L43	Ferrite Bead	2200-052	LD-087
L49	Ferrite Bead	2200-103	LD-077
L51	Ferrite Bead	2200-103	LD-077
L52	Ferrite Bead	2200-103	LD-077
L53	Ferrite Bead	2200-103	LD-077
L404	Ferrite Bead	2200-103	LD-077
L405	Ferrite Bead	2200-103	LD-077
M401	Meter	2900-001	SIG/TX PWR-MOD
PL401	Lamp		Meter Illumination (12.08V @ 35mA)
S401	Switch	3000-117	Channel Selector
S402	Switch		Power (Part of Volume Control)
S403	Switch	3000-111	Mode Selector
S404	Switch		CB/PA (Part of Squelch Control)
S405	Switch	(1)	NB/ANL
S406	Switch	(1)	Brite
S408	Switch	(1)	MOD
S411	Switch	(1)	CH. 9
X1	Crystal	2100-014	7.345MHz
X2	Crystal	2100-001	10.240MHz
X3	Crystal	2100-015	11.3258MHz
X4	Crystal	2100-016	7.800MHz
	Power Cord	2700-001	DC
	Printed Circuit Board	3500-026	Channel Switch
	Printed Circuit Board	3500-027	LED
	Printed Circuit Board	3500-029	Microphone Connector
	Printed Circuit Board	3500-033	Push Switch

(1) Part of Push Switch Assembly Part Number 3000-011.

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

ITEM	PART No.	ITEM	PART No.
Cover, Bottom	3300-123	Knob, Channel Selector	1300-001
Cover, Top	3300-122	Knob, Control	1300-002
Front Panel	3400-508	Knob, Mode Switch	1300-004
		Push-button	1300-003