

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 Centurion 40D

MANUFACTURER'S SPECIFICATIONS

Speaker, self-contained, 8 ohms, 2 W.

Microphone, Dynamic, 600 ohms, with phone plug and Press-to-Talk switch.

Antenna Connector, 50 ohms, Coaxial

RECEIVER

Sensitivity at 10 dB S + N/N -

AM	0.25 uV
SSB	0.15 uV

Squelch Sensitivity -

Threshold	0.15 uV
Maximum (Stop)	500 uV

Adjacent Channel Selectivity -

Better than 80 dB

Audio Output, 10% Distortion -

3.8 W

Audio Bandwidth (1 kHz / 0 dB) -
3 dB down

400 to 3000 Hz

Hum and Noise with no Signal -

3.8 mV

"S" Meter Sensitivity for -
a reading of S9

150 uV

Current Drain -

No Signal

AC	40W
DC	700 mA

At Maximum Audio Output -

AC	60 W
DC	1.6 Amperes

TRANSMITTER

RF Power Output -

AM	3.8 to 4.0 W
SSB	12 watts (PEP)

Frequency Range -

26.965 through
27.405 MHz

Microphone Output for 100% -
Modulation

4mV

AM Mode

Current Drain at 13.8 VDC -
No Modulation

AC	65 W
DC	1.8 Amperes

Maximum Modulation -

AC	100 W
DC	2.2 Amperes

Courtesy of the Manufacturer

COURIER MODEL Centurion 40D

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.
Adjust RT301 for 13.80 volts at TP11.
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 thru L7, L24, L26, L27, L6 thru L9(PLL)	9440
L12, L15, L19	8606, 9091, 9440
L28, L29, FT1	5000, 5009, 8276, 8728, 8728A, 9089
CT1, CT2, CT3, CT1(PLL), CT2(PLL), CT3(PLL)	5000, 8276, 9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter to TP6 (IC2 (PLL) Pin 10).	Ch. 19		Check for 10.240MHz.
Input of frequency counter to TP7 (IC2 (PLL) Pin 8).	Ch. 19	CT1 (PLL)	Adjust for 5.120MHz.
Input of frequency counter to TP2 (PLL) (L9 (PLL) Secondary)	Ch. 19, AM Clarifier Midrange	CT2 (PLL)	Adjust for 33.8535MHz.
Input of frequency counter to TP2 (PLL) (L9 (PLL) Secondary)	Ch. 19, LSB Clarifier Midrange	CT3 (PLL)	Adjust for 33.8565MHz.
Input of oscilloscope to TP2 (PLL) (L9 (PLL) Secondary).	Ch. 19, AM	L8, L9 (PLL)	Adjust for maximum RF. (600mV p-p typical). (See Figure 1.)
Input of DC meter to TP1 (PLL) (IC1 (PLL) Pin 4).	Ch. 1, AM	L7 (PLL)	Adjust for 2.00 volts. Check channel 40 for approximately 2.75 volts.
Input of oscilloscope to TP8 (L6 (PLL) Secondary).	Ch. 19, AM	L6 (PLL)	Adjust for maximum RF. (1.80 volts typical). (See Figure 2.)
Input of frequency counter to TP3 (TR4 Emitter).	Ch. 19, AM		Check for 7.3435MHz.
Input of frequency counter to TP9 (L8 Secondary).	Ch. 19, USB	CT1	Adjust for 7.8015MHz.
Input of frequency counter to TP9 (L8 Secondary).	Ch. 19, LSB	CT2	Adjust for 7.7985MHz.
Input of oscilloscope to TP9 (L8 Secondary).	Ch. 19, USB	L8	Adjust for maximum RF. (2.10 volts typical). (See Figure 3.)

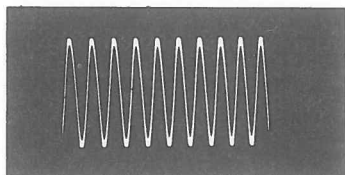


Figure 1

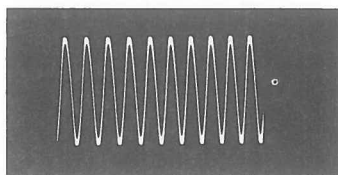


Figure 2

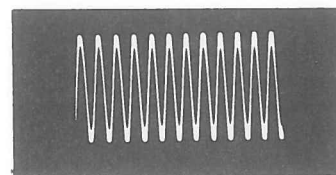


Figure 3

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
AGC limiting.
RF Gain Maximum, Clarifier Midrange, Squelch MINIMUM, Blanker Off, CB/PA CB, Tone High

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to TP10 (TR5 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19, AM	L28, L29, FT1	Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation	Ch. 19, AM	L3, L4, L5	Adjust for maximum audio output. Readjust L28, L29 and FT1 for maximum.
Output of signal generator to antenna input. 27.185MHz, USB 1000Hz @ 30% modulation.	Ch. 19, USB	L6, L7	Adjust for maximum audio output.
Input of oscilloscope to TP11 (TR1 Base). Inject a 100pps, 1uSec. pulse width signal at antenna input.	Ch. 19 Blanker On	L1, L2	Adjust for maximum pulse amplitude. (2.2 volts peak typical). (See Figure 4.)

RECEIVER ADJUSTMENTS

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, Blanker Off, CB/PA CB, Tone High

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, USB 1000Hz @ 30% modulation.	Ch. 19, USB	RT21	SSB SENS Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 1uV.	Ch. 19, AM Volume Maximum	RT2	AGC Adjust for 5.80 volts RMS (4.2 watts) audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 10uV.	Ch. 19, AM Volume Maximum RF Gain MINIMUM	RT1	RF GAIN RANGE Adjust for 4.30 volts RMS (2.3W) audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 1000uV.	Ch. 19, AM Squelch Maximum	RT12	AM SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, USB, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19, USB Squelch Maximum	RT11	SSB SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 100uV.	Ch. 19, AM	RT4	AM S METER Adjust for 9 on AM S scale of meter.
Output of signal generator to antenna input. 27.185MHz, USB, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19, USB	RT6	SSB S METER Adjust for 9 on SSB S scale of meter.

TRANSMITTER ALIGNMENT

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

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

See page 4 for channel frequencies.

SSB

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at mic input.	Ch. 19, USB XMT	L26, L24, L19, L15	Adjust for maximum RF output.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19, AM XMT	L12	Adjust for MINIMUM at 54MHz. (2nd harmonic).

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	TRANSCIVER	ADJUST	REMARKS
Insert a 0-150mA DC meter at TP12 (Junction of L16 and L17).	Ch. 19, USB XMT	RT20	FINAL BIAS Adjust for 35mA.
Input of RF wattmeter to antenna input.	Ch. 19, AM XMT	RT14	AM POWER Adjust for 4.0 watts RF output.
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 40mV signal at mic input.	Ch. 19, AM XMT	RT601	AM AMC Adjust for 100% modulation maximum. (See Figure 5.)
Input of RF wattmeter to antenna input.	Ch. 19, USB XMT No modulation	RT8	BALANCER Adjust for MINIMUM RF output.
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at mic input.	Ch. 19, USB XMT	CT3	SSB RF ALC Adjust for 12 watts RF output maximum.
Input of RF wattmeter to antenna input.	Ch. 19, AM XMT	RT15	TX METER Adjust so AM PWR meter agrees with RF wattmeter.
Input of frequency counter to antenna input.	Ch. 19, AM XMT	RT19	TX FREQ Adjust for 27.185MHz.

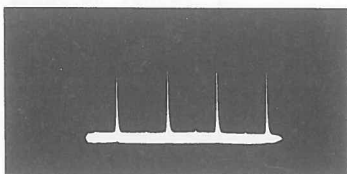


Figure 4

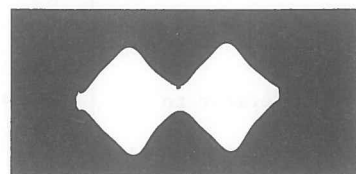
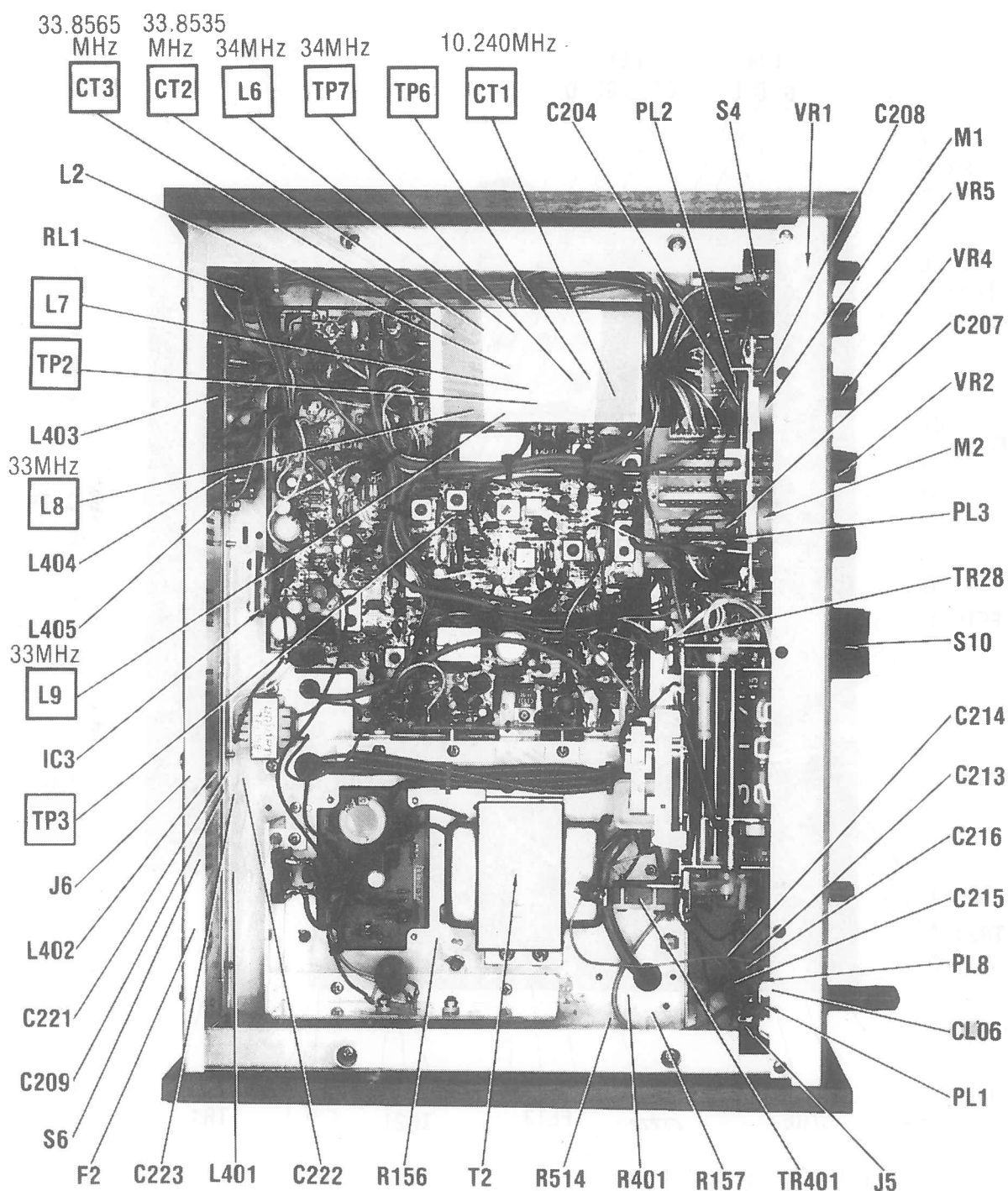


Figure 5

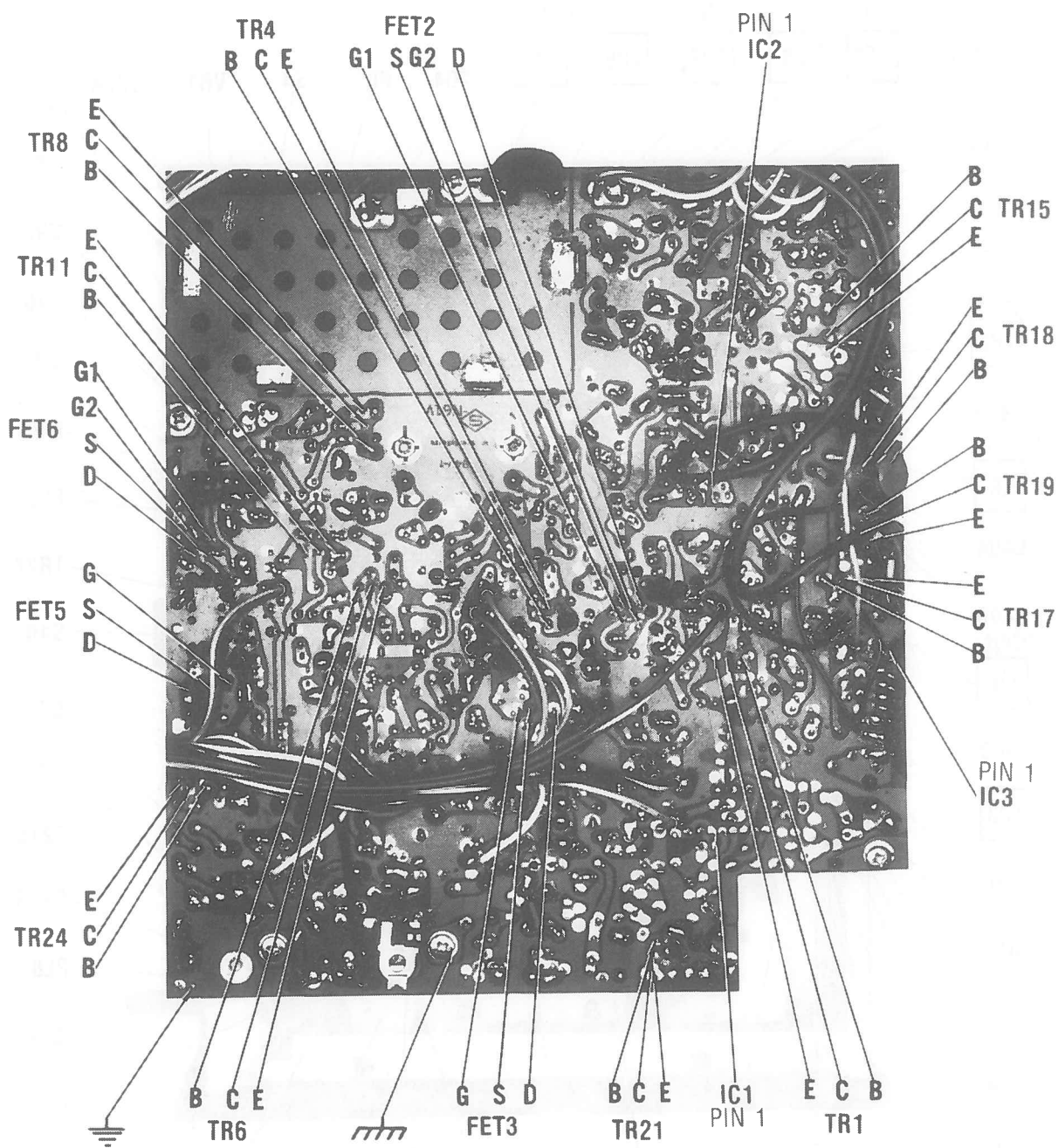
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TRUTH CHART

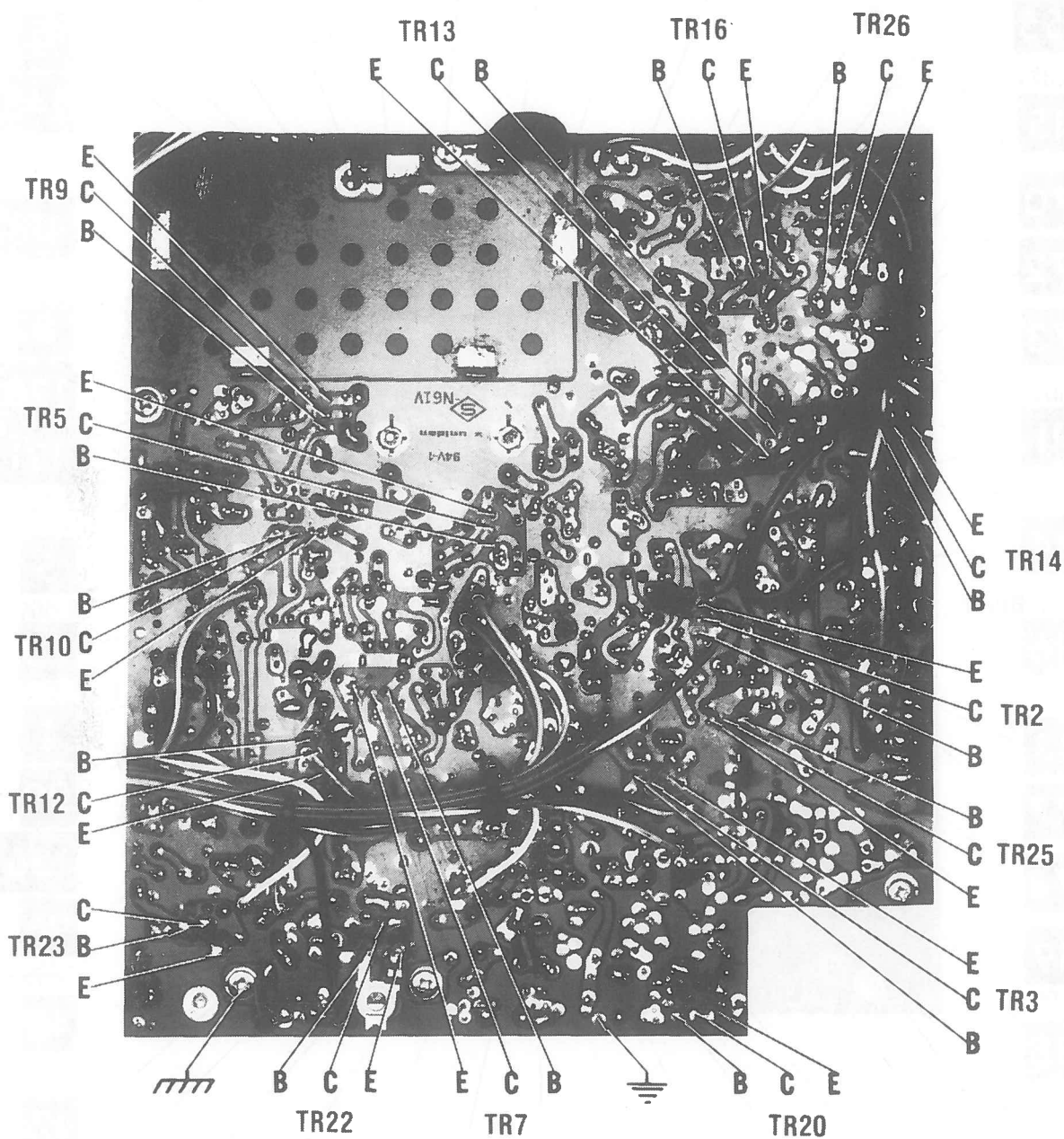
C H A N N E L	1 = 4.88 V								0 = 0V			AM, LSB VCO OUTPUT IN MHz AT TP8	USB VCO OUTPUT IN MHz AT TP8	VCO OUTPUT IN MHz AT TR2 (PLL) Collector
	IC2 (PLL) PINS													
	21	20	18	17	16	15	14	13						
1	0	1	0	1	0	0	0	1	34.7635	34.7665	.910			
2	0	1	0	1	0	0	1	0	34.7735	34.7765	.920			
3	0	1	0	1	0	0	1	1	34.7835	34.7865	.930			
4	0	1	0	1	0	1	0	1	34.8035	3 .8065	.950			
5	0	1	0	1	0	1	1	0	34.8135	34.8165	.960			
6	0	1	0	1	0	1	1	1	34.8235	34.8265	.970			
7	0	1	0	1	1	0	0	0	34.8335	34.8365	.980			
8	1	0	0	0	0	0	0	0	34.8535	34.8565	1.000			
9	1	0	0	0	0	0	0	1	34.8635	34.8665	1.010			
10	1	0	0	0	0	0	1	0	34.8735	34.8765	1.020			
11	1	0	0	0	0	0	1	1	34.8835	34.8865	1.030			
12	1	0	0	0	0	1	0	1	34.9035	34.9065	1.050			
13	1	0	0	0	0	1	1	0	34.9135	34.9165	1.060			
14	1	0	0	0	0	1	1	1	34.9235	34.9265	1.070			
15	1	0	0	0	1	0	0	0	34.9335	34.9365	1.080			
16	1	0	0	1	0	0	0	0	34.9535	34.9565	1.100			
17	1	0	0	1	0	0	0	1	34.9635	34.9665	1.110			
18	1	0	0	1	0	0	1	0	34.9735	34.9765	1.120			
19	1	0	0	1	0	0	1	1	34.9835	34.9865	1.130			
20	1	0	0	1	0	1	0	1	35.0035	35.0065	1.150			
21	1	0	0	1	0	1	1	0	35.0135	35.0165	1.160			
22	1	0	0	1	0	1	1	1	35.0235	35.0265	1.170			
23	1	0	1	0	0	0	0	0	35.0535	35.0565	1.200			
24	1	0	0	1	1	0	0	0	35.0335	35.0365	1.180			
25	1	0	0	1	1	0	0	1	35.0435	35.0465	1.190			
26	1	0	1	0	0	0	0	1	35.0635	35.0665	1.210			
27	1	0	1	0	0	0	1	0	35.0735	35.0765	1.220			
28	1	0	1	0	0	0	1	1	35.0835	35.0865	1.230			
29	1	0	1	0	0	1	0	0	35.0935	35.0965	1.240			
30	1	0	1	0	0	1	0	1	35.1035	35.1065	1.250			
31	1	0	1	0	0	1	1	0	35.1135	35.1165	1.260			
32	1	0	1	0	0	1	1	1	35.1235	35.1265	1.270			
33	1	0	1	0	1	0	0	0	35.1335	35.1365	1.280			
34	1	0	1	0	1	0	0	1	35.1435	35.1465	1.290			
35	1	0	1	1	0	0	0	0	35.1535	35.1565	1.300			
36	1	0	1	1	0	0	0	1	35.1635	35.1665	1.310			
37	1	0	1	1	0	0	1	0	35.1735	35.1765	1.320			
38	1	0	1	1	0	0	1	1	35.1835	35.1865	1.330			
39	1	0	1	1	0	1	0	0	35.1935	35.1965	1.340			
40	1	0	1	1	0	1	0	1	35.2035	35.2065	1.350			



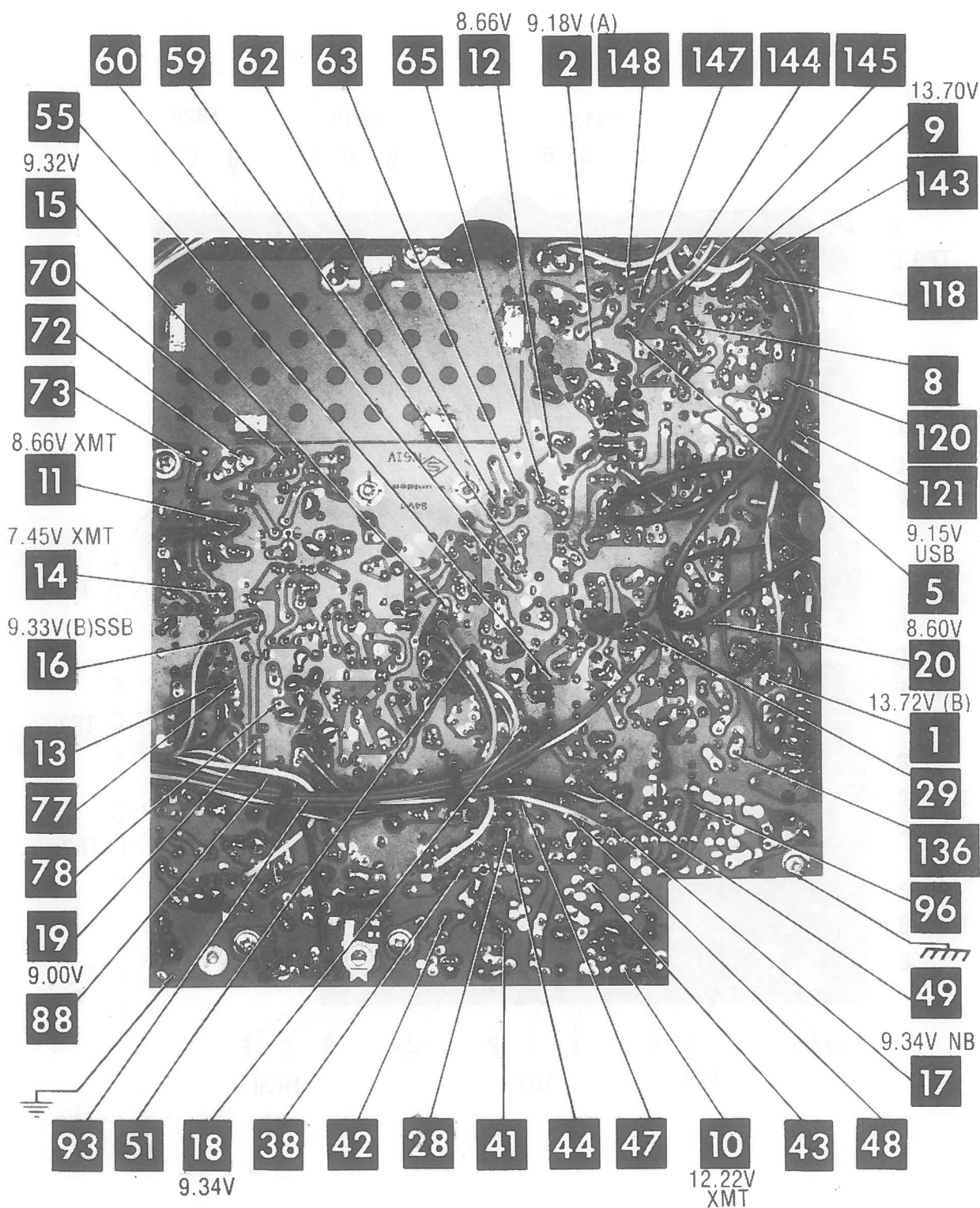
CHASSIS-TOP



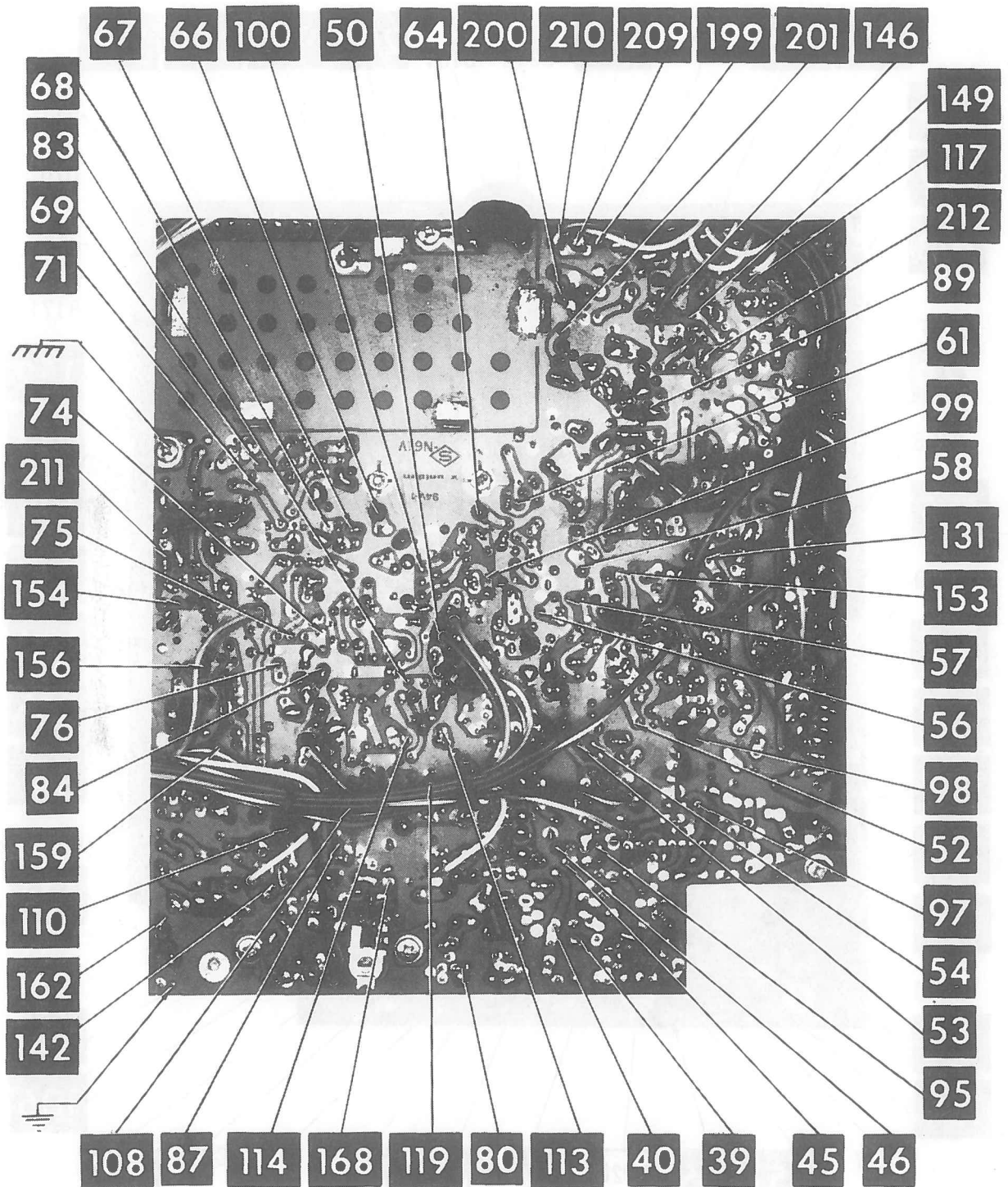
MAIN BOARD



MAIN BOARD

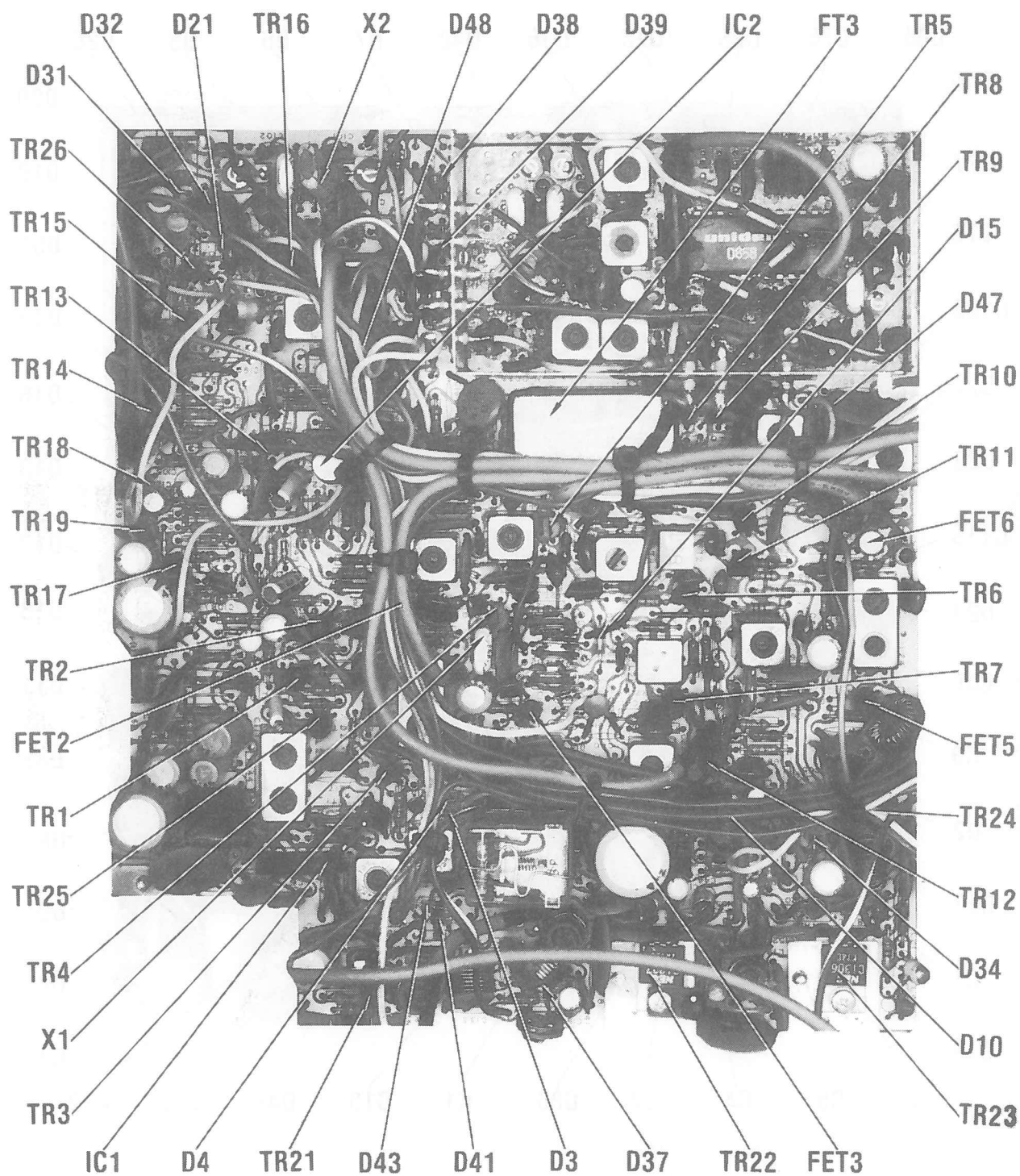


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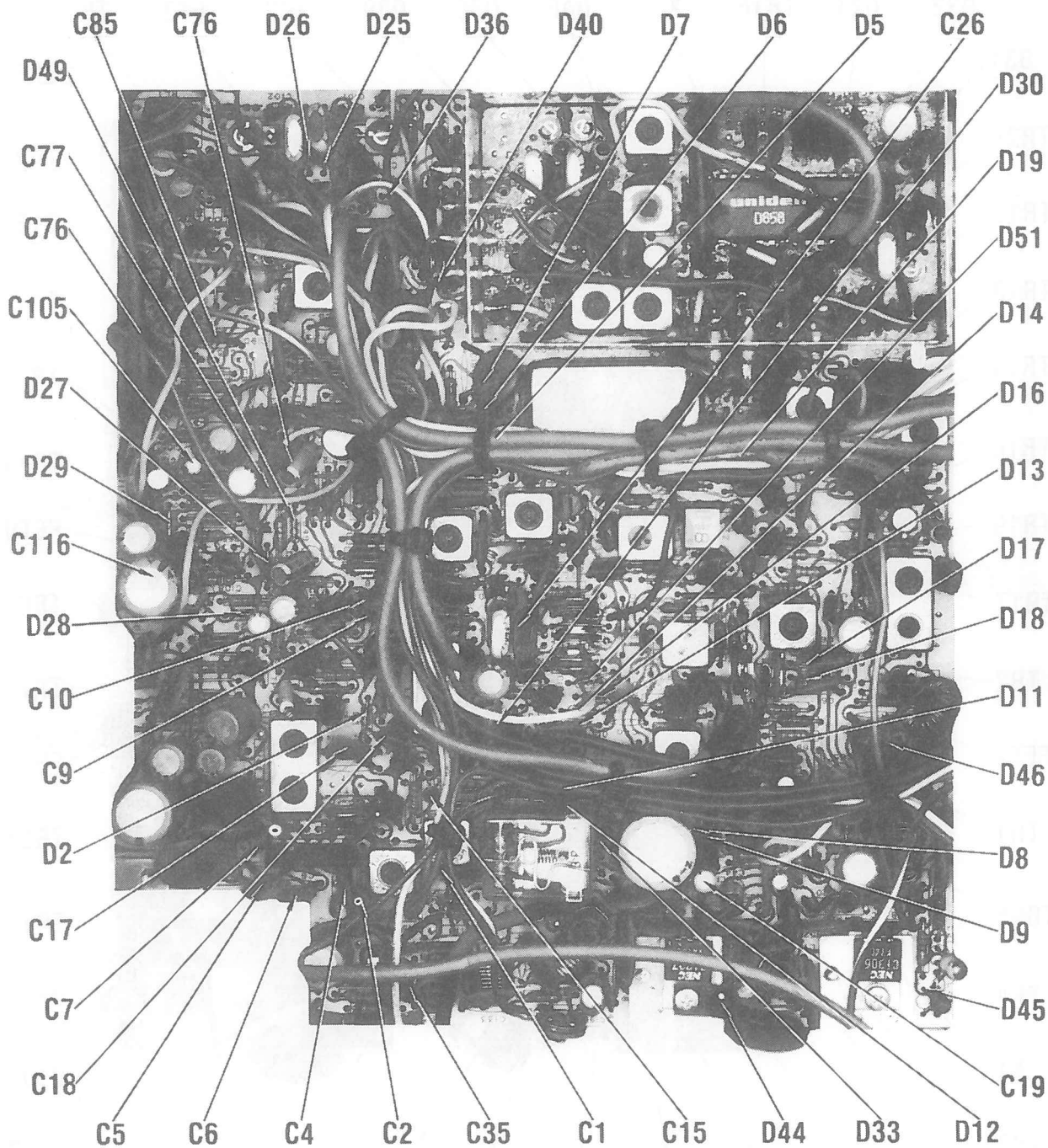


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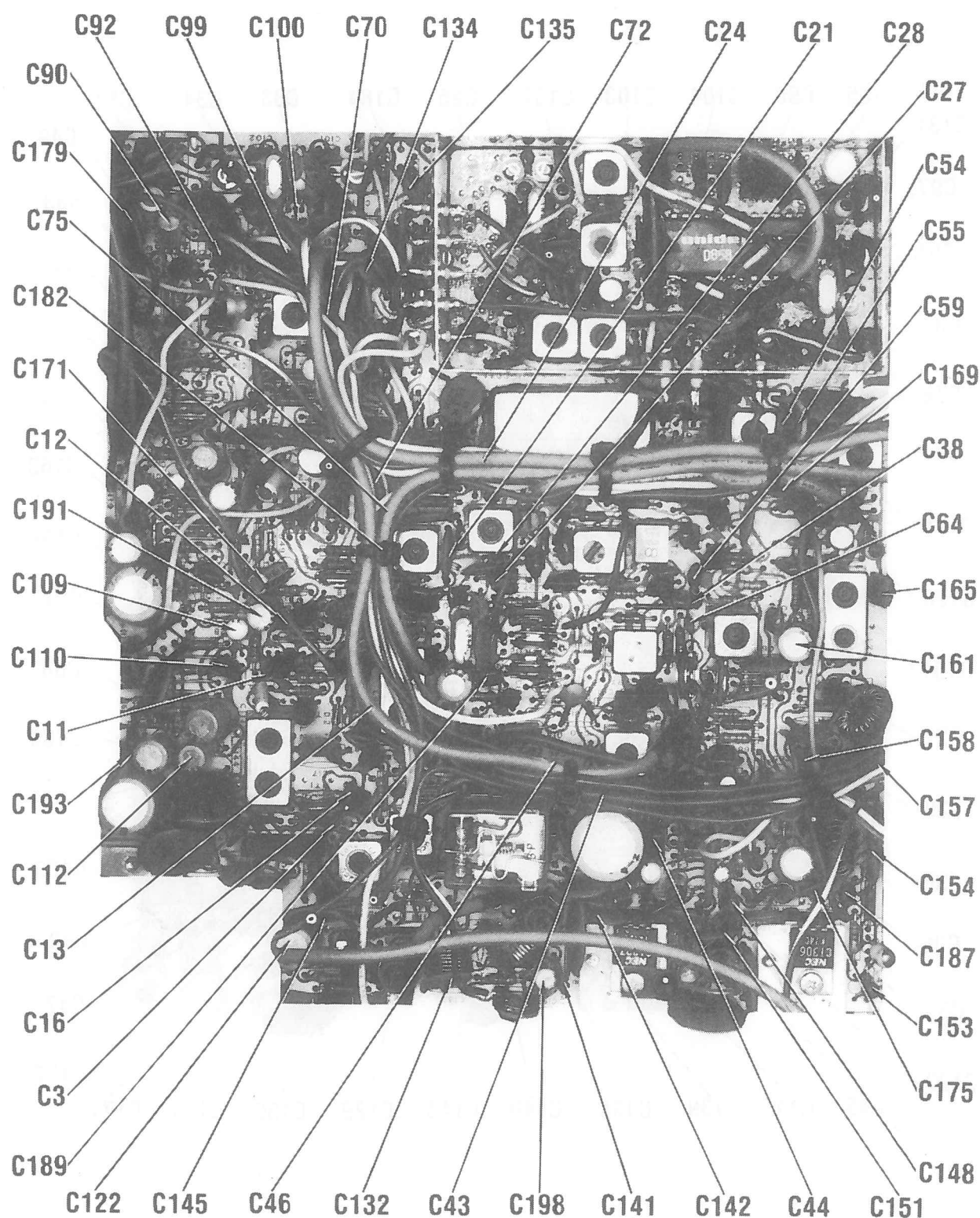




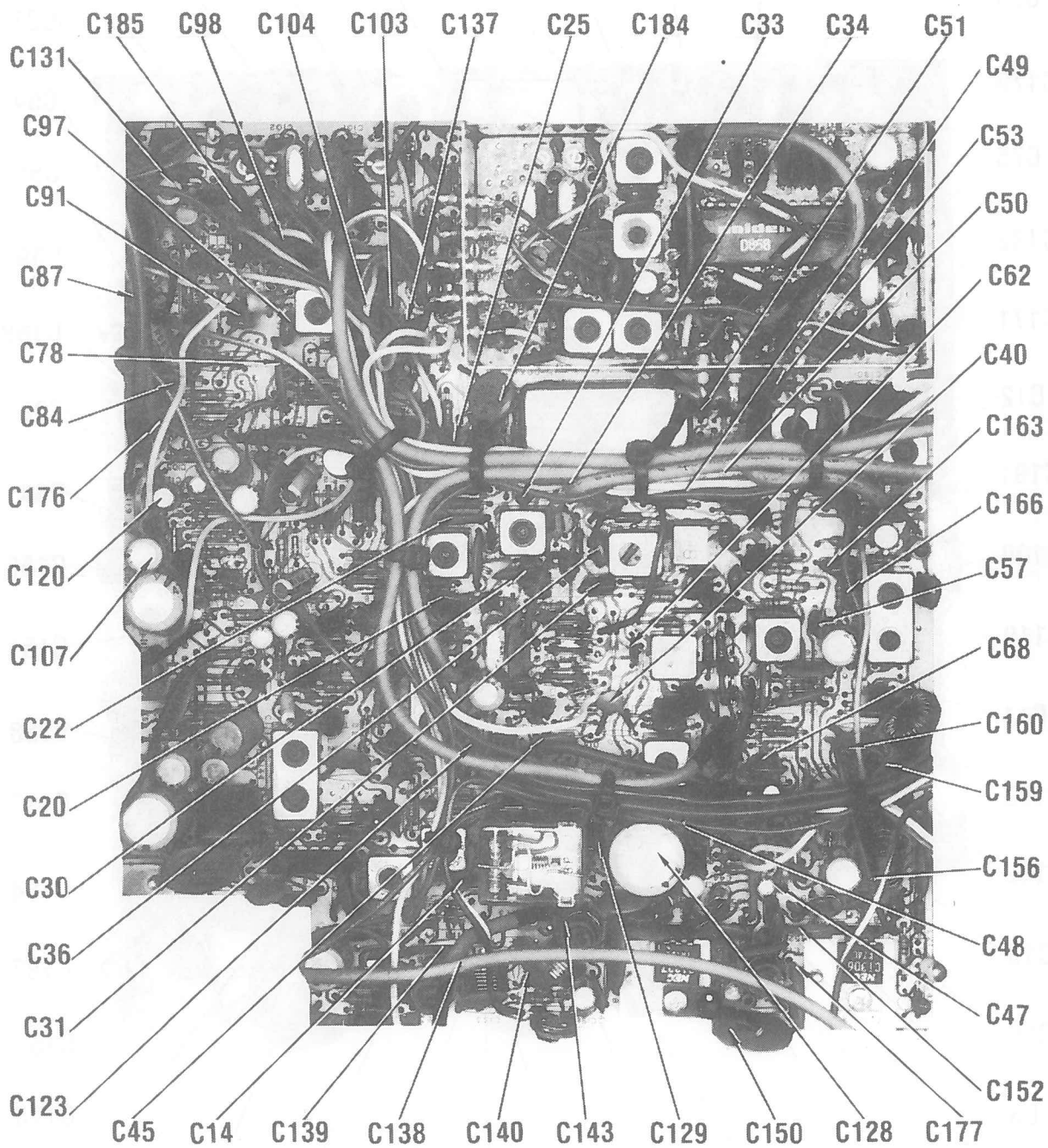
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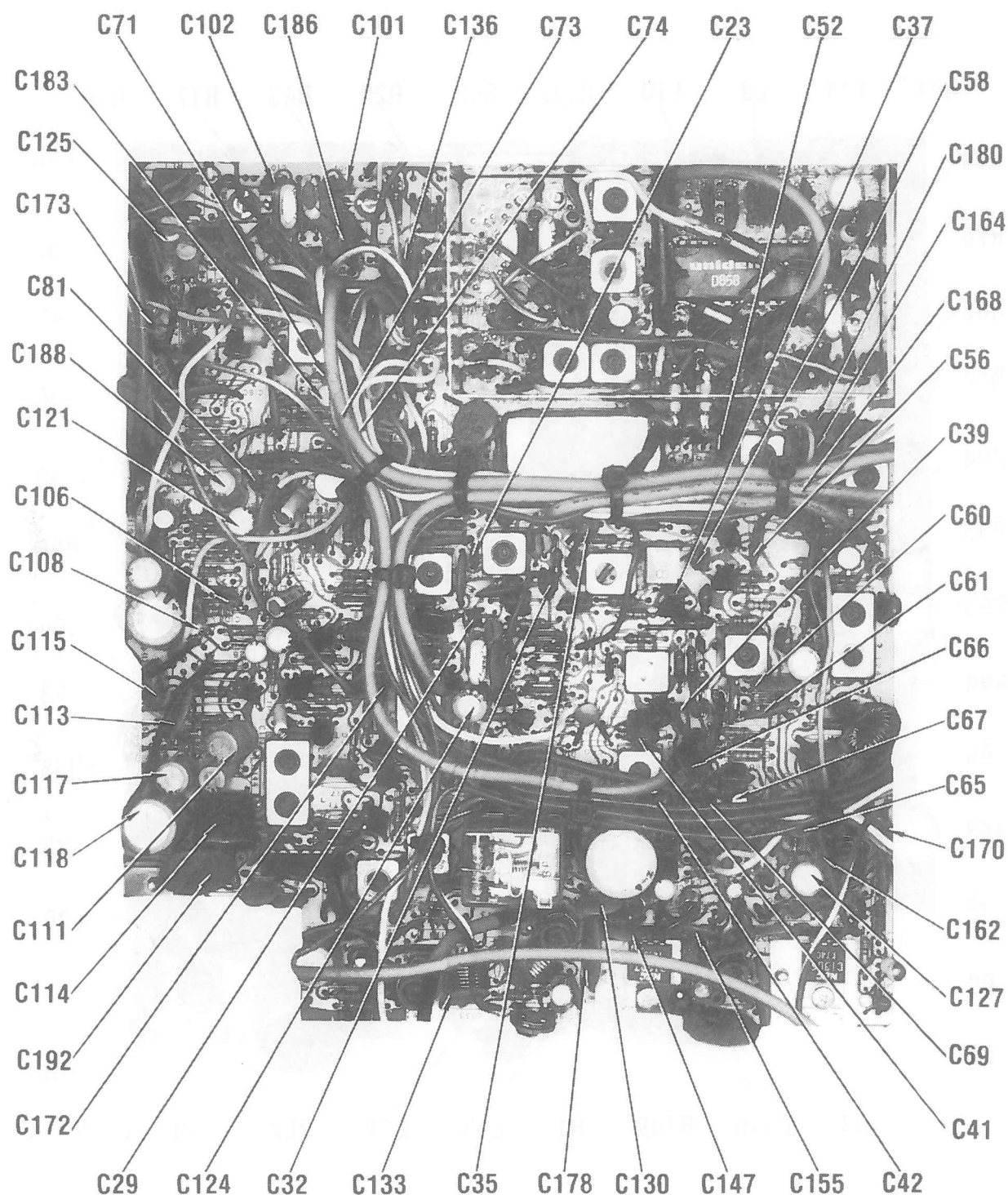
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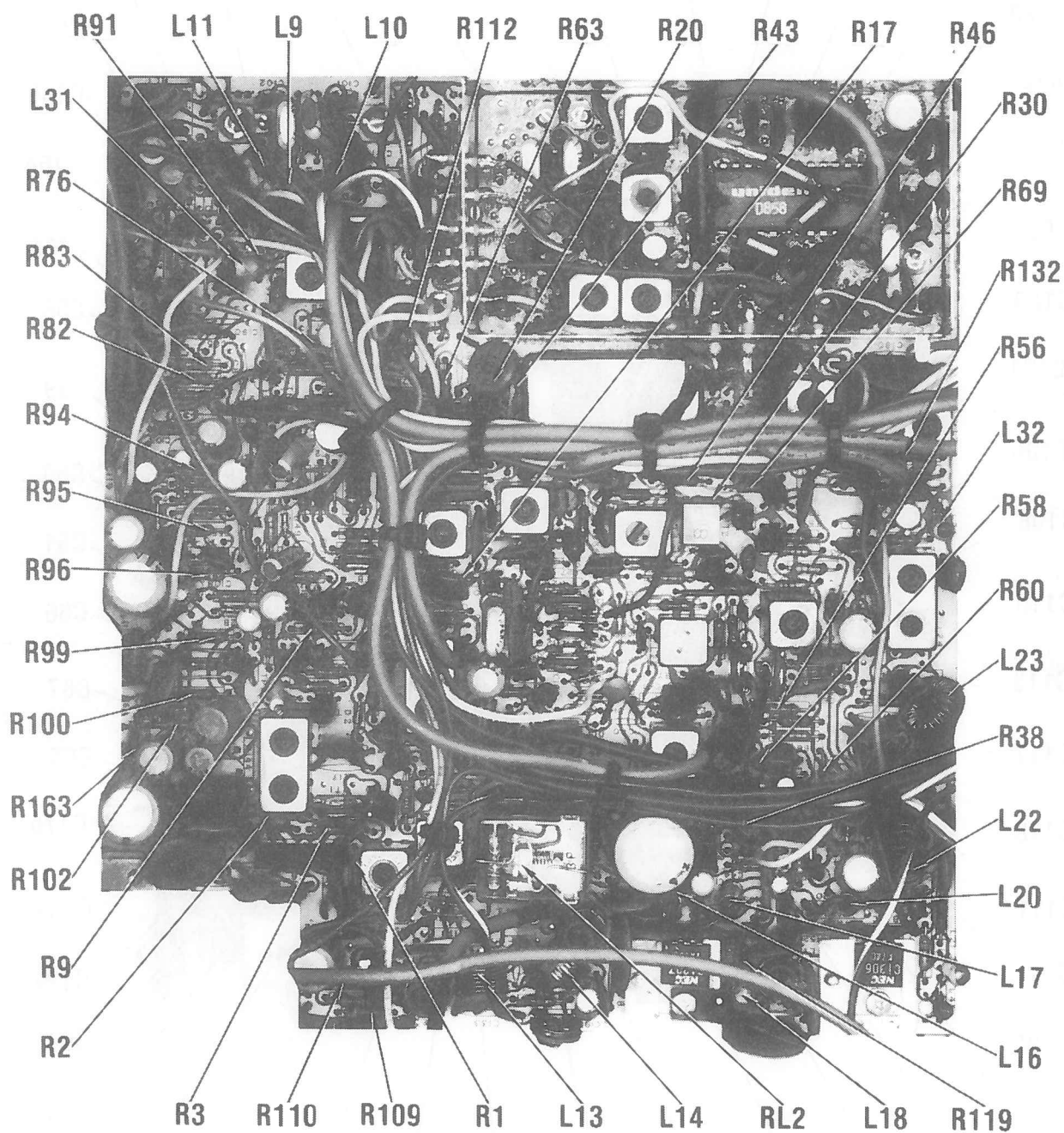
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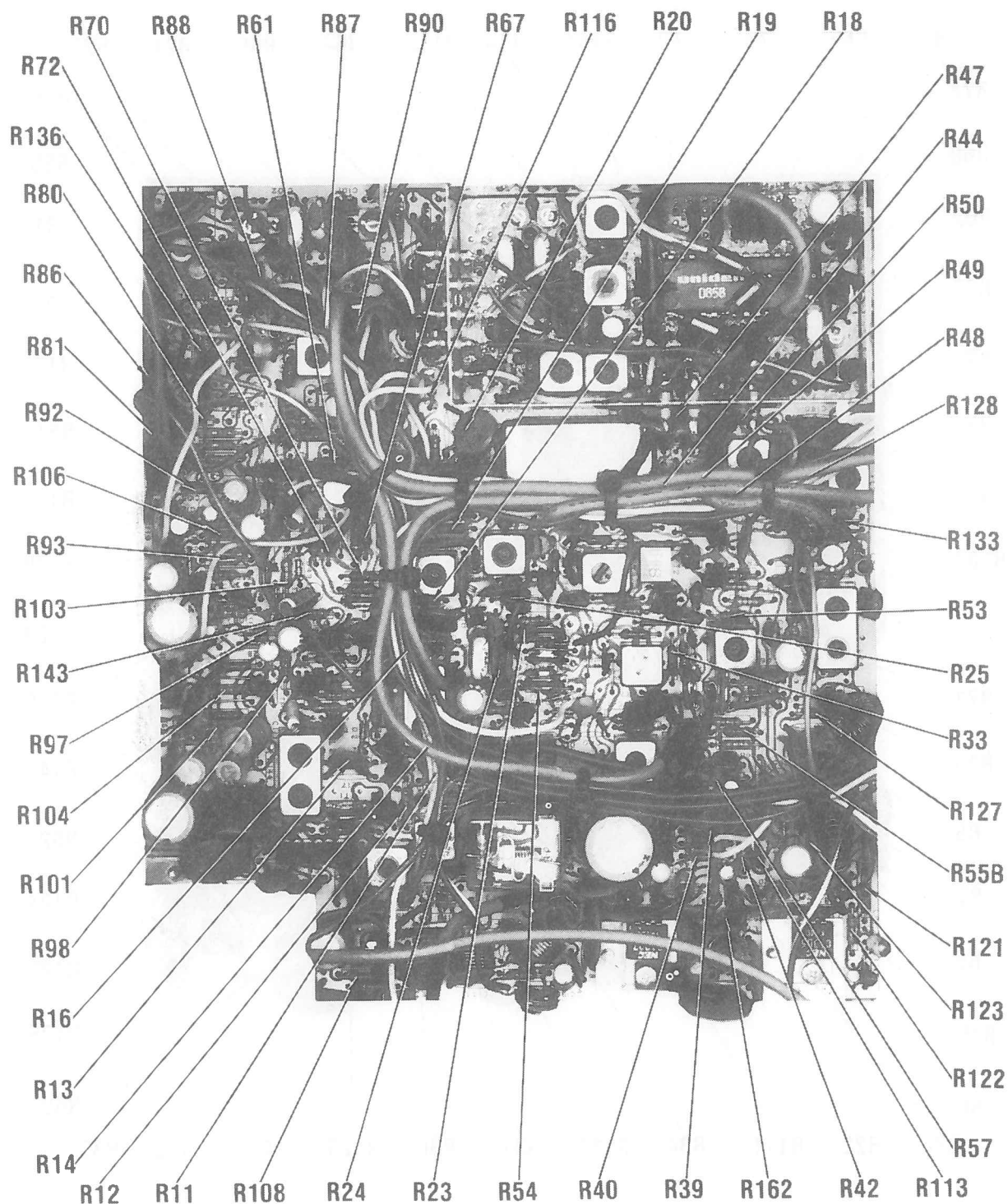
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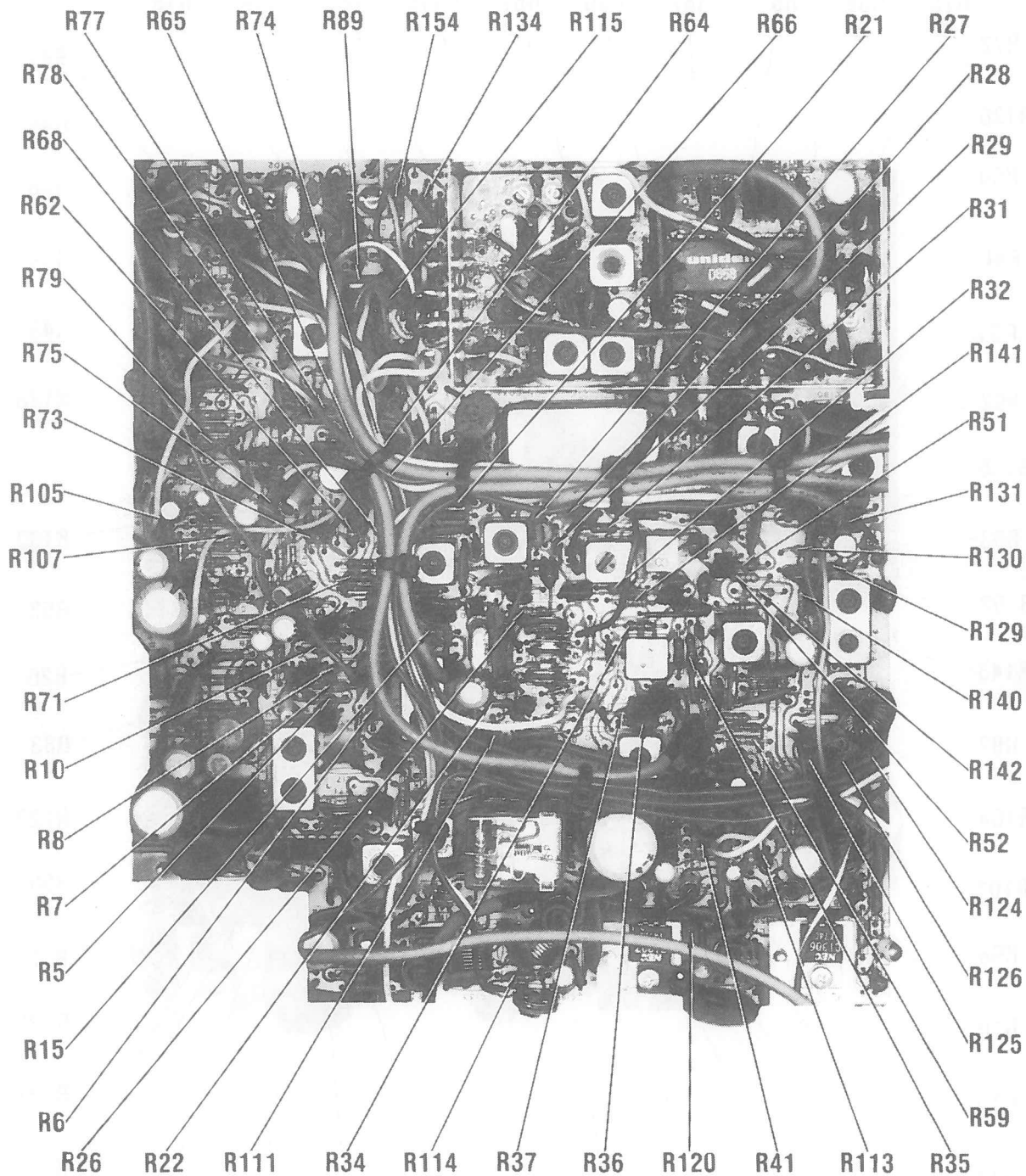
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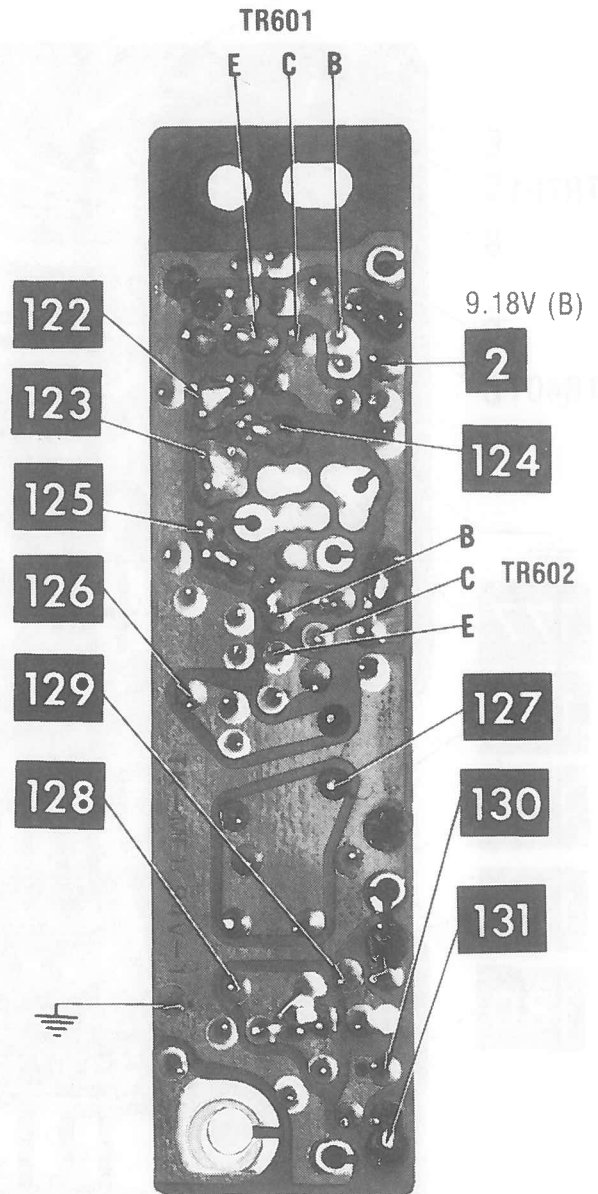
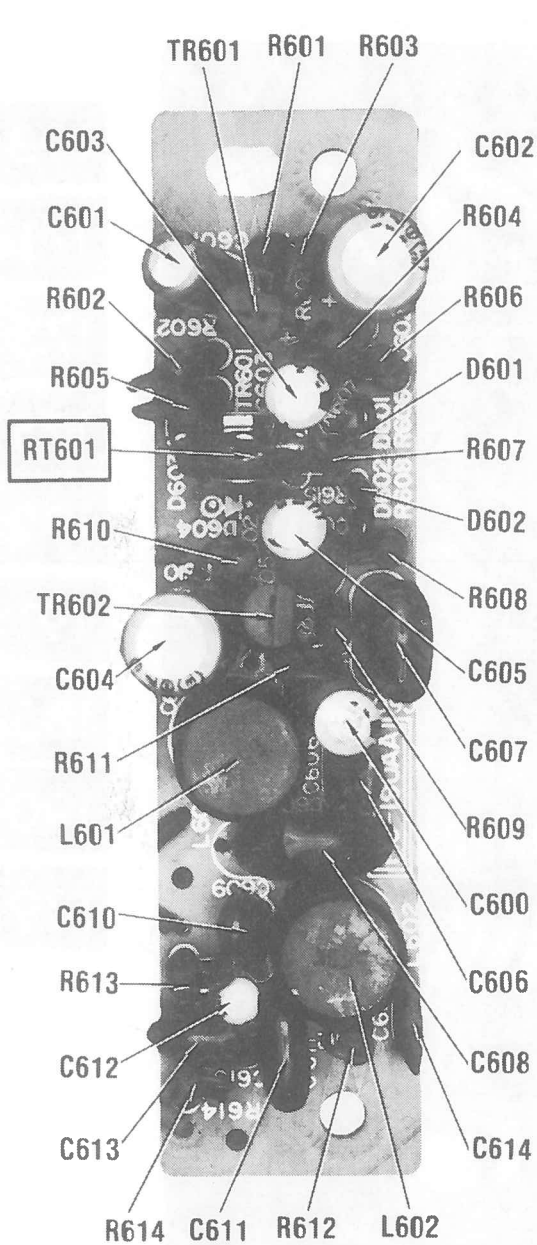
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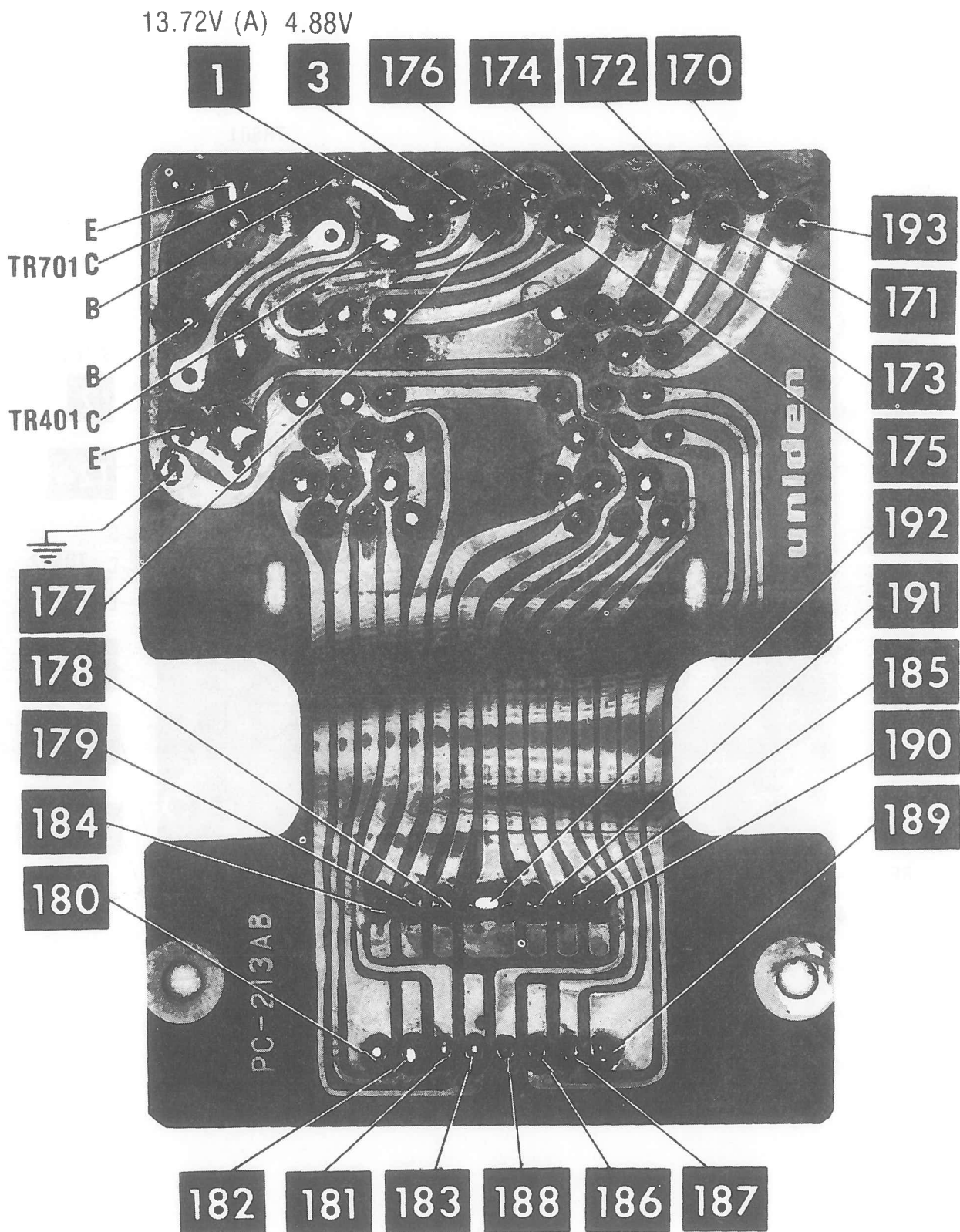
MAIN BOARD



MAIN BOARD

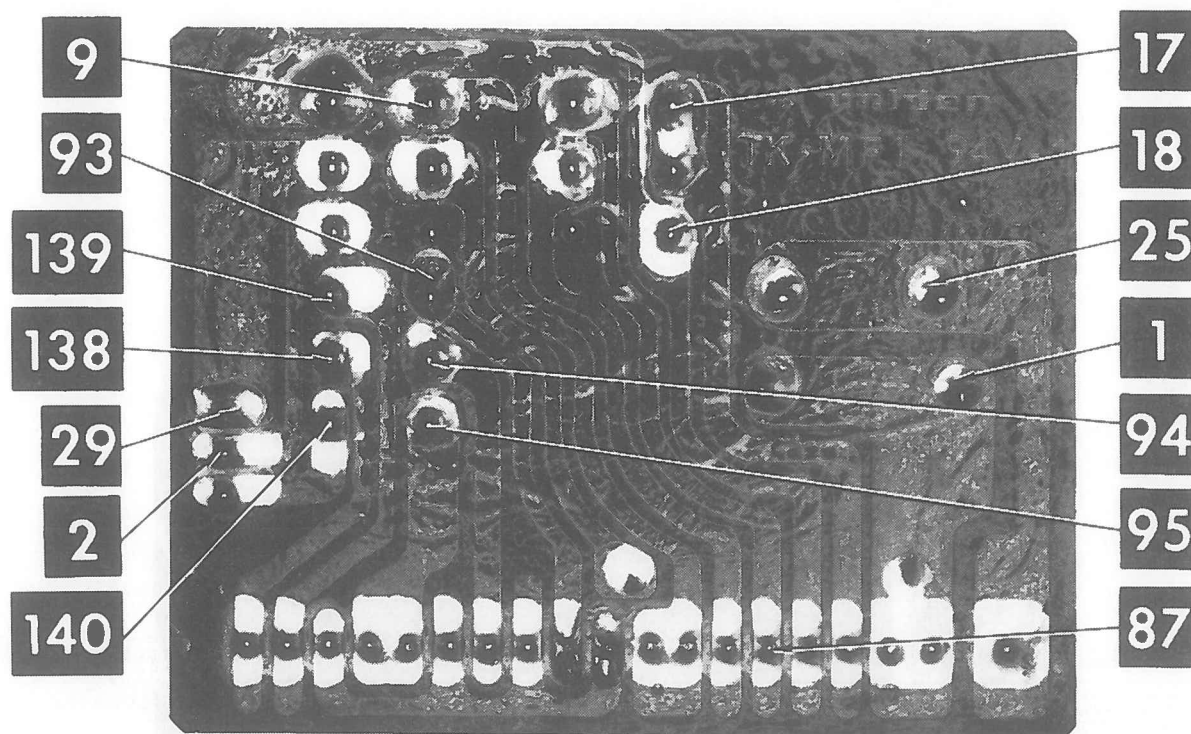


MIC AMP BOARD



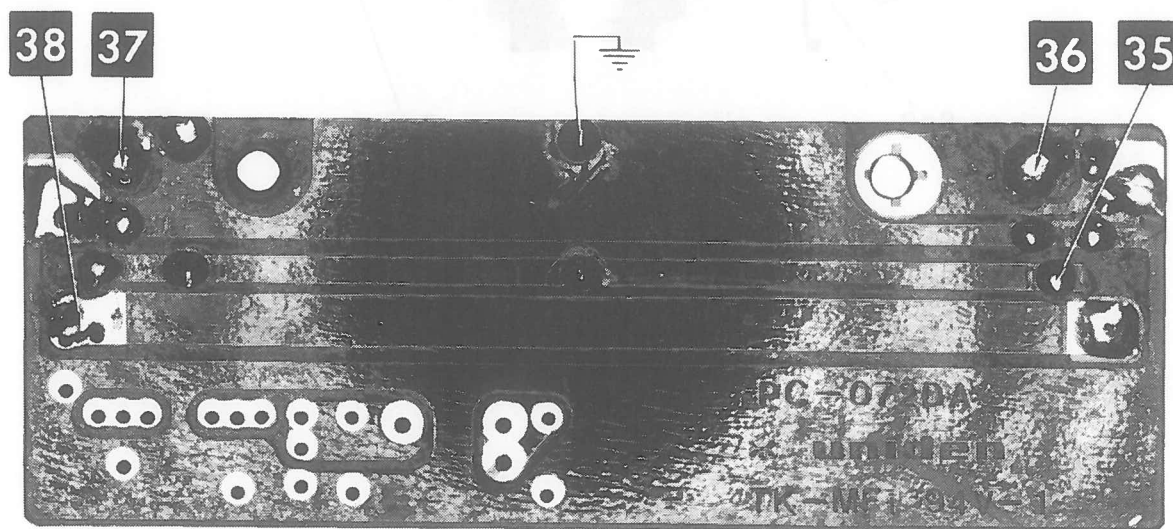
CHANNEL SELECT BOARD



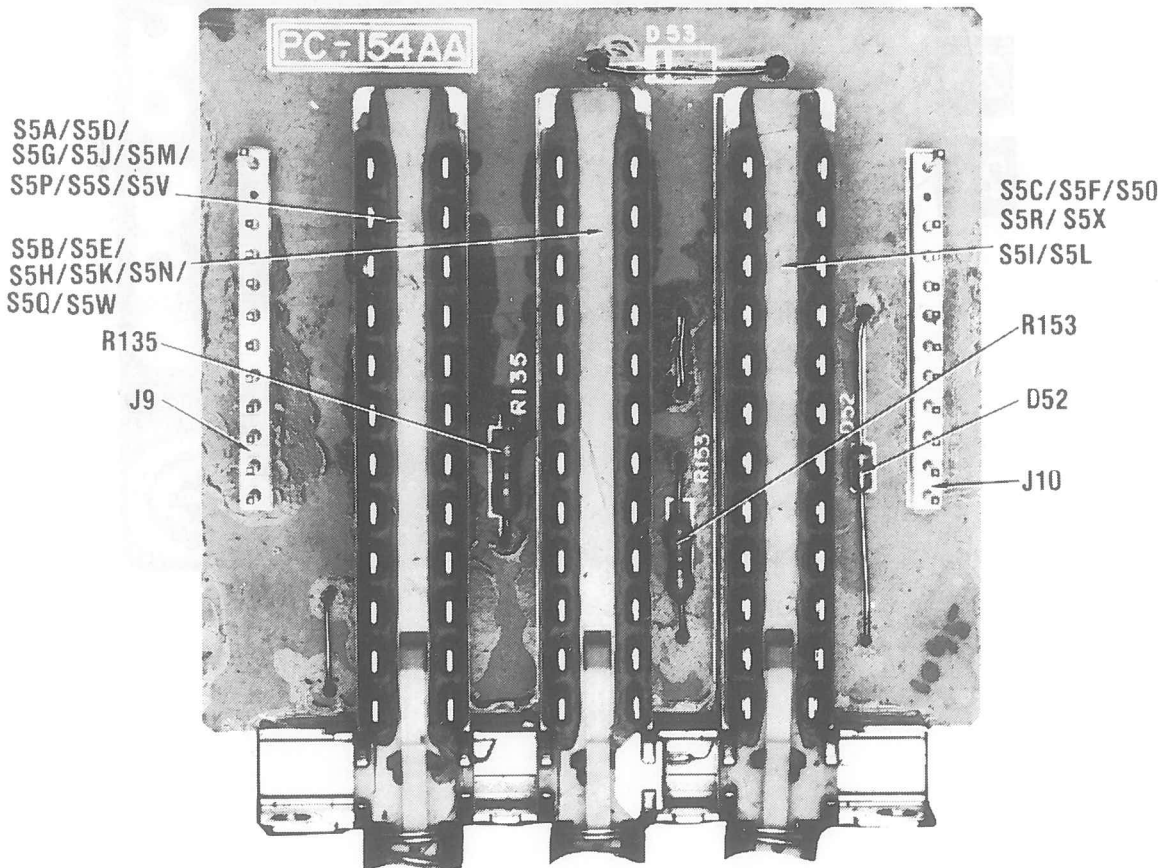
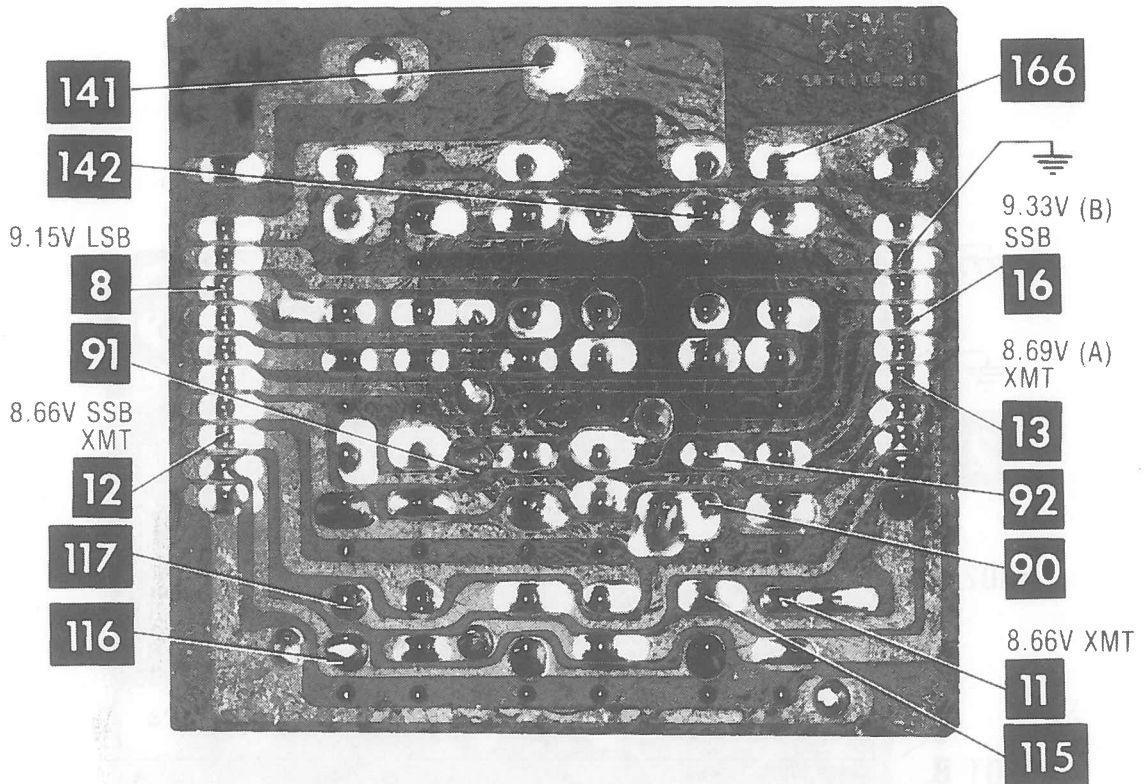


FUNCTION SWITCH BOARD

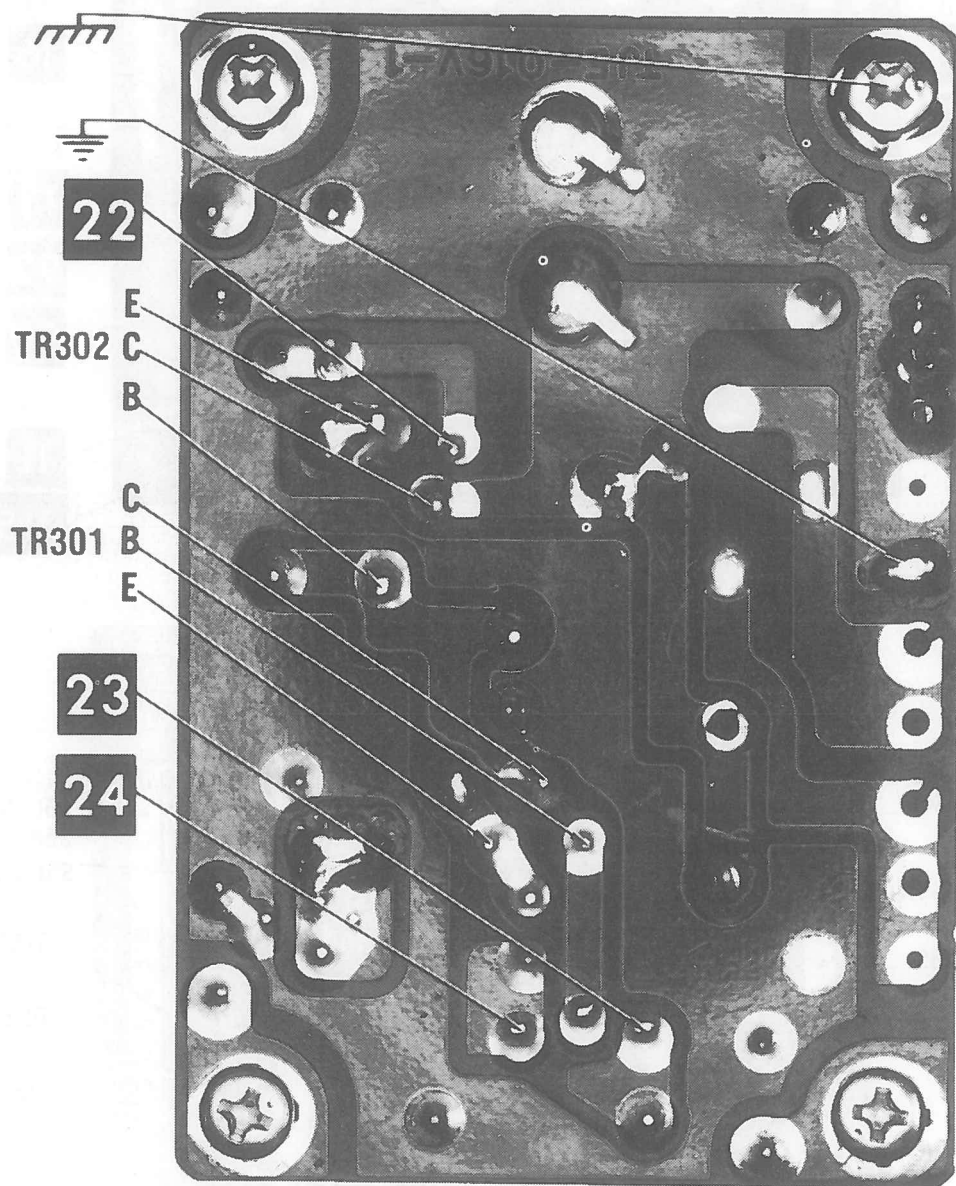
A Howard W. Sams CIRCUITRACE® Photo



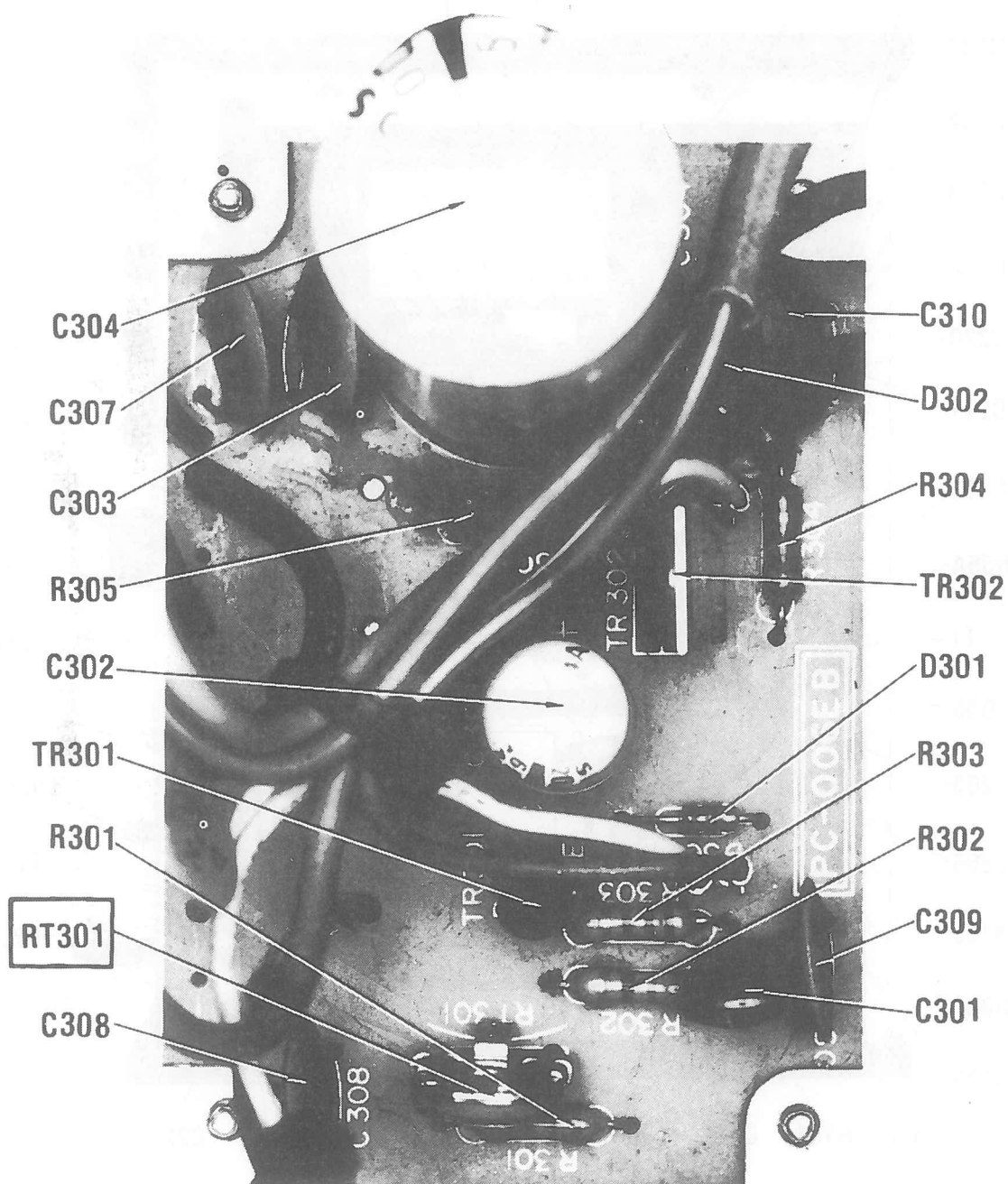
SWR BOARD



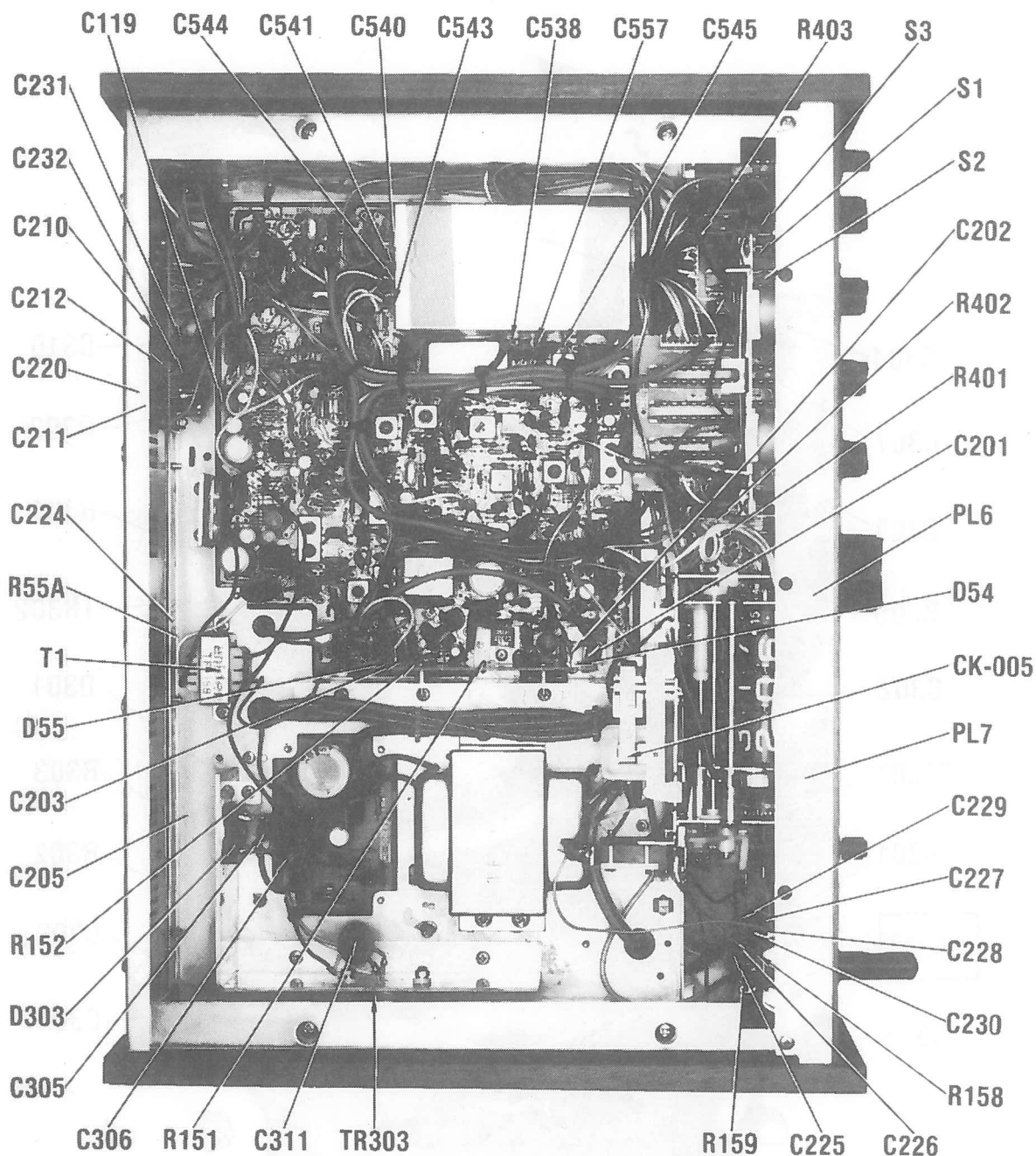
MODE SWITCH BOARD



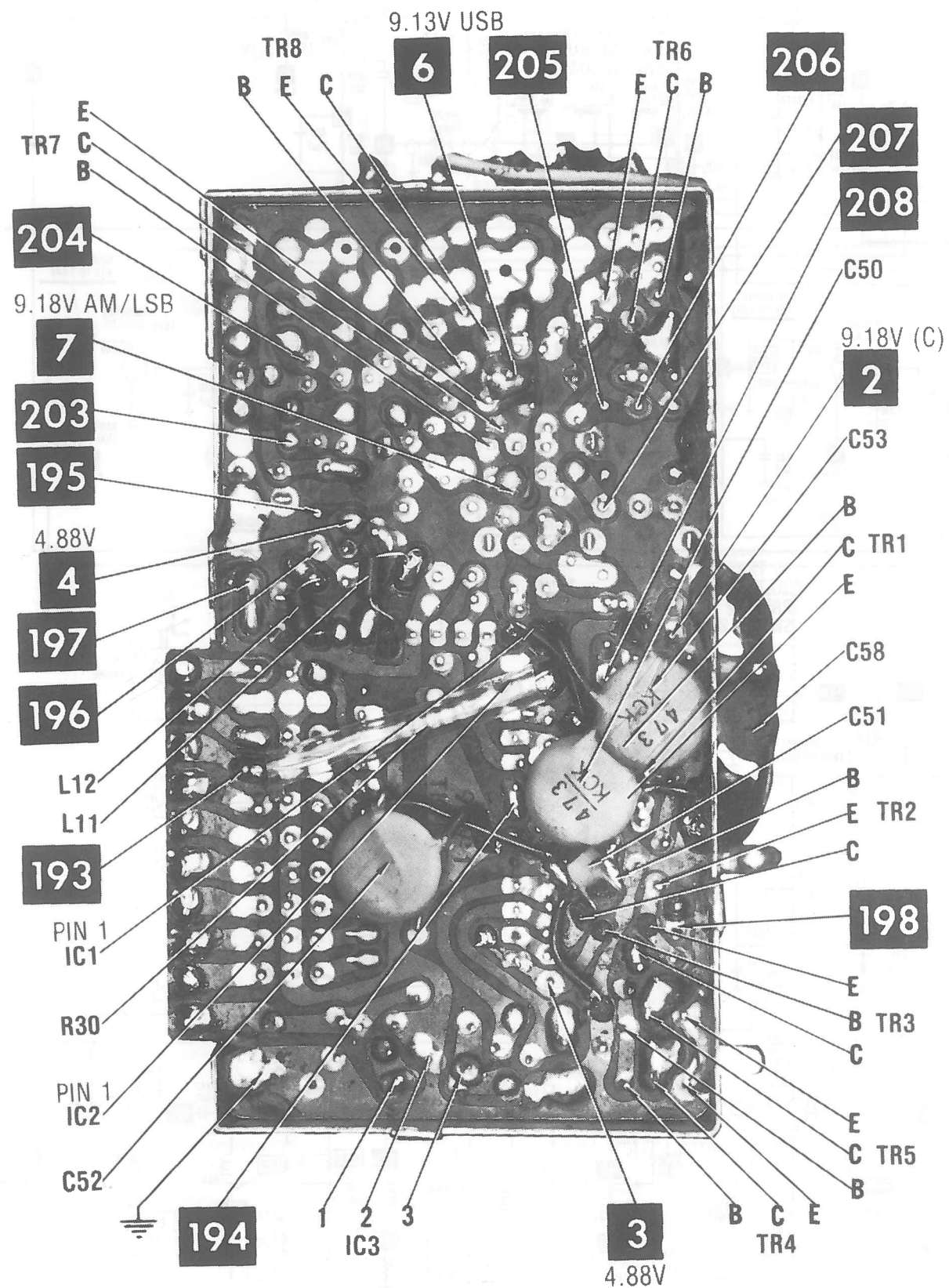
POWER SUPPLY BOARD



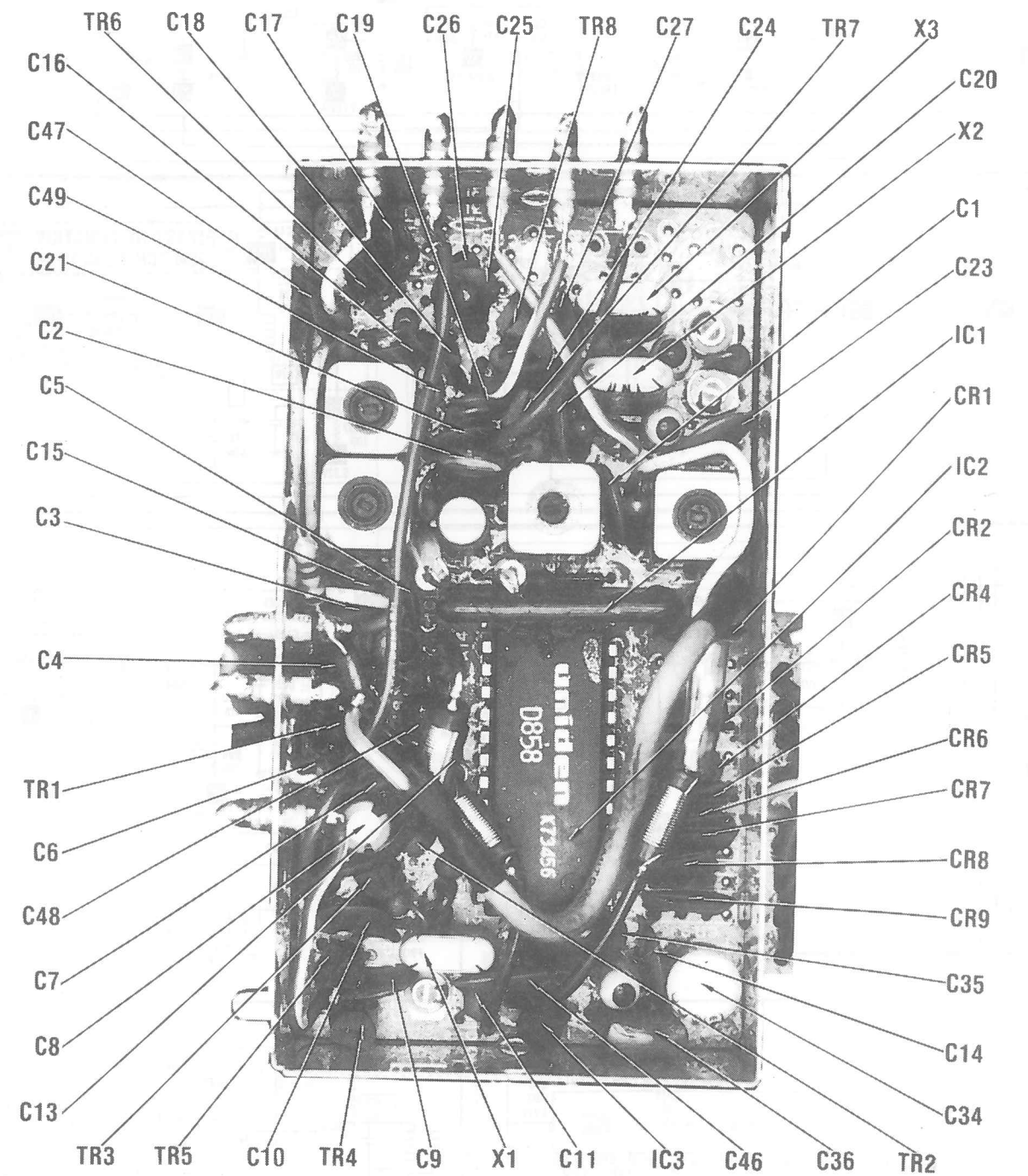
POWER SUPPLY BOARD



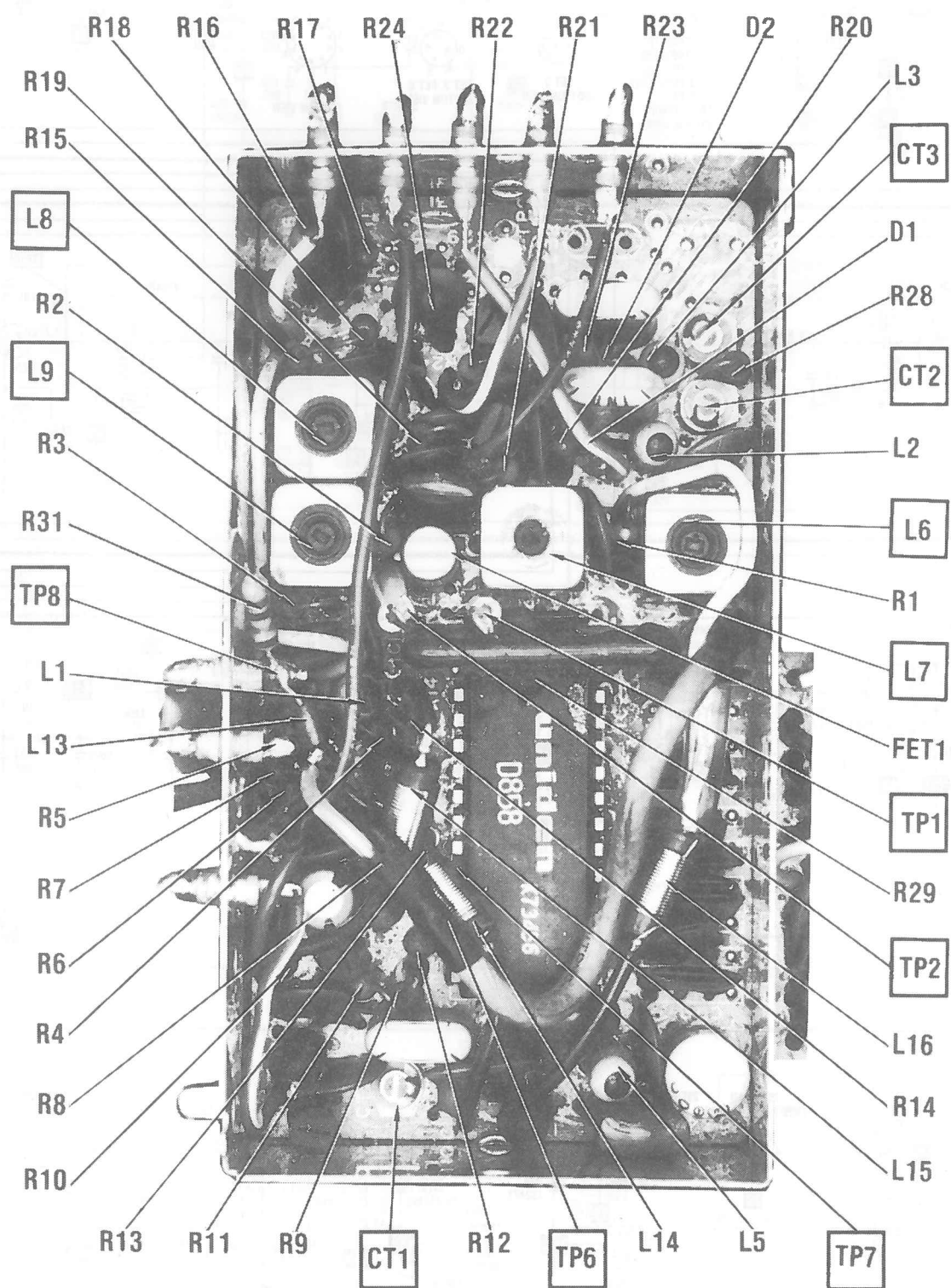
CHASSIS-TOP



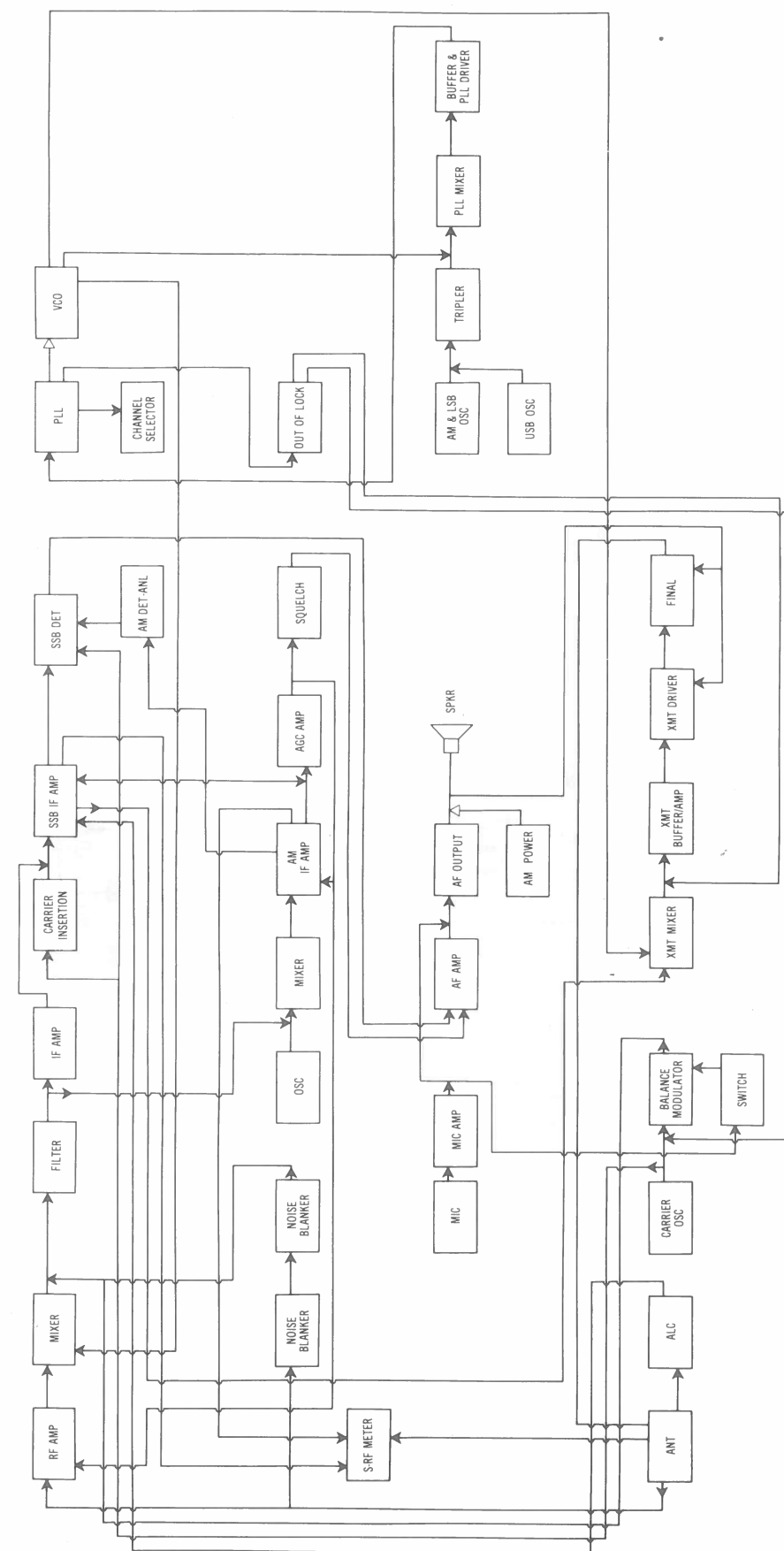
PLL BOARD



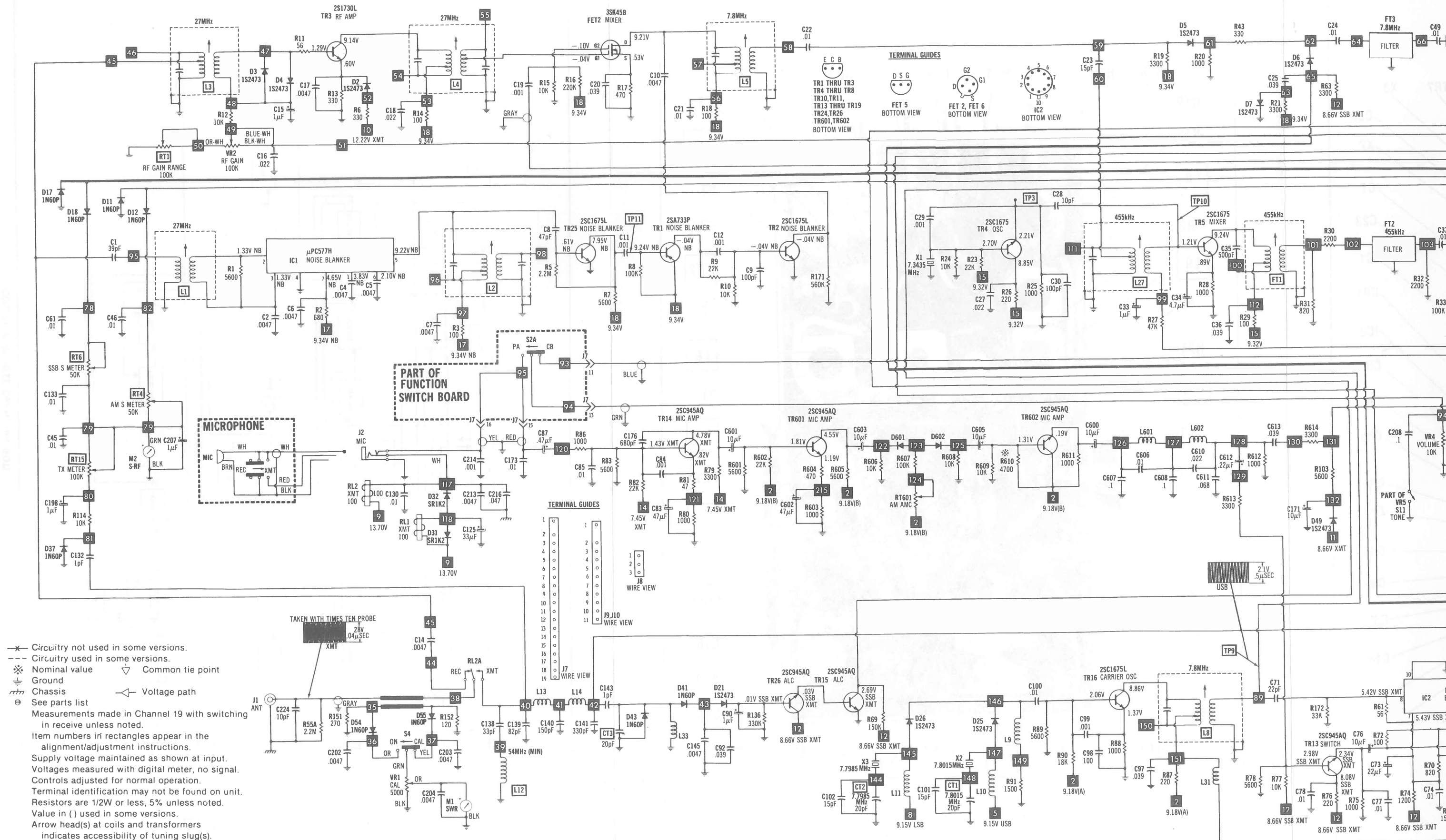
PLL BOARD



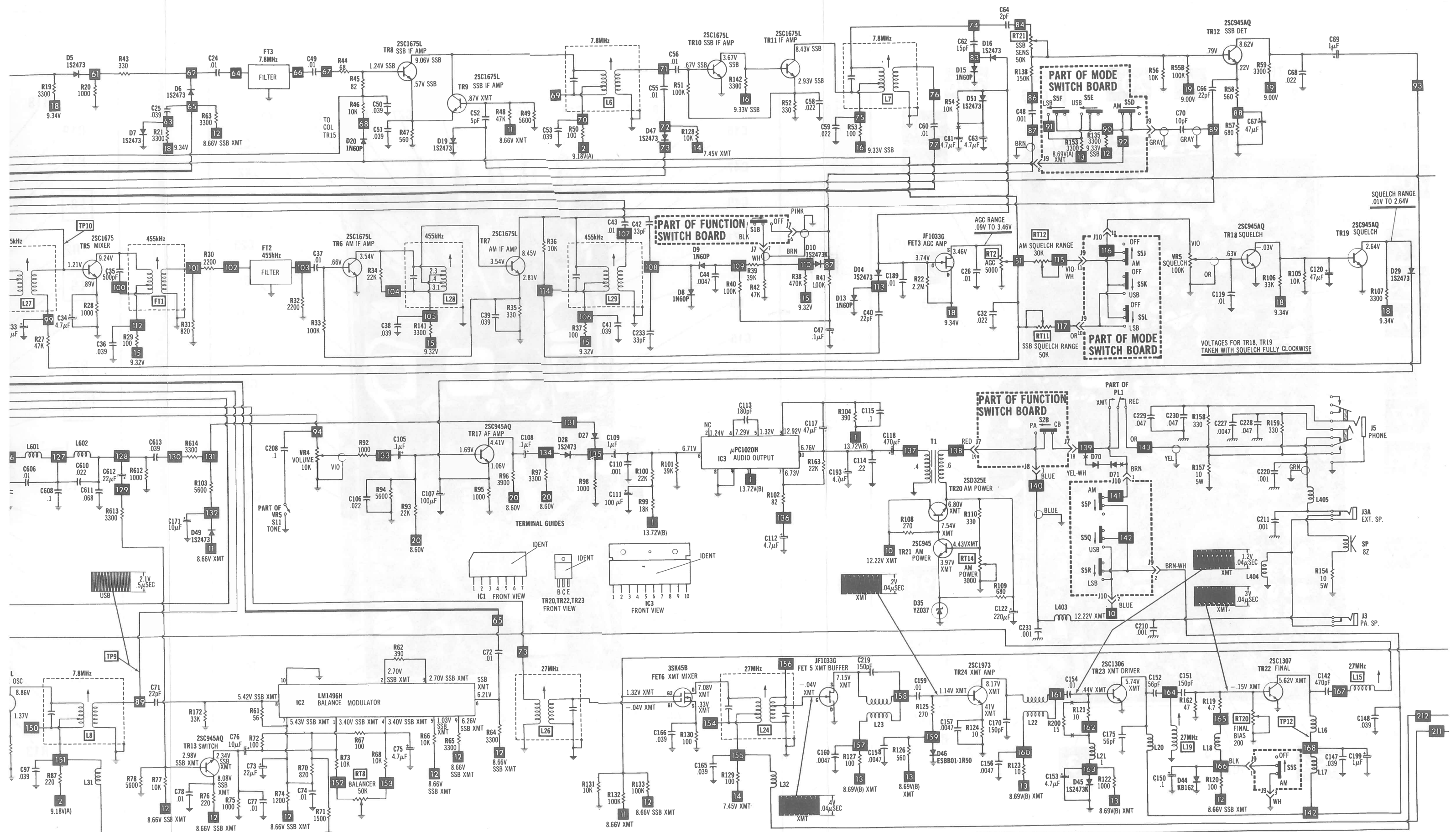
PLL BOARD



BLOCK DIAGRAM



MAIN SCHEMATIC



PARTS LIST AND DESCRIPTION

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

WIRING DATA

Cable (Speaker)(Unshielded).....	Use BELDEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELDEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELDEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8421 (Spiral Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8737 (Spiral Shield)(2 conductor)(AWG22)
Coax (Transmission Line)	Use BELDEN No. 8216 (RG-174/U, 50 ohms)
Microphone Cable (Coiled)	Use BELDEN No. 8497 (3 conductor-1 shielded) (6 ft.)(AWG22)
Microphone Cable (Coiled)	Use BELDEN No. 9466 (3 conductor-1 shielded)(6 ft.)(AWG28)
Microphone Cable (Coiled)	Use BELDEN No. 9468 (3 conductor-1 shielded)(6 ft.)(AWG31)
AC Power Cord (Black)	Use BELDEN No. 17236 (6 ft.)(3 conductors)
AC Power Cord (Black)	Use BELDEN No. 17238 (8 ft.)(3 conductors)
AC Power Cord (Gray)	Use BELDEN No. 17237 (6 ft.)(3 conductors)
AC Power Cord (Gray)	Use BELDEN No. 17239 (8 ft.)(3 conductors)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA						
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
	MAIN BOARD								
D2	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D3	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D4	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D5	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D6	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D7	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D8	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D9	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D10	1S2473K	2056-12	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D11	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D12	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D13	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D14	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D15	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D16	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D17	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D18	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D19	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D20	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D21	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D25	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D26	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D27	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D28	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D29	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D30	CZ-092	1042-18	GEZD-9.1	ZB9.1A	SK3060/139A	ECG139A	TM139/**	WEP1109/139	103-272
D31	SF1K2	1042-17	GE-504A	PTC201	SK3311	ECG116	TM116	WEP156	212-76-02
D32	SRIK2	1042-17	GE-504A	PTC201	SK3311	ECG116	TM116	WEP156	212-76-02
D33	SRIK2	1042-17	GE-504A	PTC201	SK3311	ECG116	TM116	WEP156	212-76-02
D34	CZ-092	1042-18	GEZD-9.1	ZB9.1A	SK3060/139A	ECG139A	TM139/**	WEP1109/139	103-272
D35	WZ-050	2056-11		ZM5.1B	SK3776/5010A	ECG5010A	TM5010	WEP1411/5010	103-279-10
D36	WZ-071	2058-03		ZM7.5B	SK3781/5015A	ECG5015A	TM5015	WEP1416/5015	103-29002
D37	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D38	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D39	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D40	WZ-061	1074-123		ZM6.2B	SK3779/5013A	ECG5013A	TM5013	WEP1414/5013	103-29008
D41	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D43	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D44	KB162			PTC301	SK3463/601	ECG601	TM601		
	KB162W	2095-06		PTC301	SK3463/601	ECG601	TM601		
D45	1S2473K	2056-12	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D46	ESBB-01-1R50	2057-07	GE-504A	PTC201	SK3311	ECG116	TM116	WEP156	212-76-02
D47	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D48	CZ-092	1042-18	GEZD-9.1	ZB9.1A	SK3060/139A	ECG139A	TM139/**	WEP1109/139	103-272
D49	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D51	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D54	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D55	1N60P	1042-13	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D301	WZ061	1074-123		ZM6.2B	SK3779/5013A	ECG5013A	TM5013	WEP1414/5013	103-29008
D302	BZ-162	1074-121	GEZD-16	ZB16B	SK3751/5075A	ECG5075A	TM5075A/**	WEP1160/5075A	103-29013
D601	1S2473K	2056-12	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D602	1S2473K	2056-12	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
FET2	3SK45B	2065-55	GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45		GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
FET3	JF1033G		GE-FET-2	PTC152	SK3116	ECG312*	TM312*	WEP920/312*	921-1067*
	JF1033	2056-75	GE-FET-2	PTC152	SK3116	ECG312*	TM312*	WEP920/312*	921-1067*
	ZSK33		GE-FET-2	PTC161	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
FET5	JF1033G		GE-FET-2	PTC152	SK3116	ECG312*	TM312*	WEP920/312*	921-1067*
	JF1033	2056-75	GE-FET-2	PTC152	SK3116	ECG312*	TM312*	WEP920/312*	921-1067*
	ZSK33		GE-FET-2	PTC161	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
FET6	3SK45B	2065-55	GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45		GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	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.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
IC1	UPC577H	2056-04	GEIC-140		SK3461/1082	ECG1082	TM1082	WEP939/1082	
	UPC577		GEIC-140		SK3461/1082	ECG1082	TM1082	WEP939/1082	
IC2	LM1496H	2056-05			SK3233/973	ECG973	TM973	WEP2067/973	221-Z9098
	LM1496				SK3233/973	ECG973	TM973	WEP2067/973	221-Z9098
IC3	UPC1020H	2056-06	GEIC-196	PTC810	SK3243/1160	ECG1160	TM1160	WEP2258/1160	
	UPC1020		GEIC-196	PTC810	SK3243/1160	ECG1160	TM1160	WEP2258/1160	
TR1	2SA733P	2056-10	GE-48	PTC127	SK3114/290	ECG159*	TM159*/**	WEP62/159*	121-Z9067
	2SA733		GE-48	PTC127	SK3114/290	ECG159*	TM159*/**	WEP62/159*	121-Z9067
TR2	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR3	2SC1730L	2056-08	GE-17*	PTC136*	SK3293/107	ECG316*	TM316*	WEP535/107	121-Z9093
	2SC1730		GE-17*	PTC136*	SK3293/107	ECG316*	TM316*	WEP535/107	121-Z9093
TR4	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR5	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR6	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR7	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR8	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR9	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR10	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR11	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR12	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR13	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR14	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR15	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR16	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR17	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR18	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR19	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR20	2SD325E	2057-08	GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325E1		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
TR21	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR22	2SC1307	2057-04	GE-216	PTC186	SK3239/236	ECG236	TM236	WEP840/236	121-Z9040
	2SC1307(1)	1042-08	GE-216	PTC186	SK3239/236	ECG236	TM236	WEP840/236	121-Z9040
TR23	2SC1306		GE-215	PTC186	SK3239/236	ECG235	TM235/**	WEP785/235	121-Z9039
TR24	2SC1973	2059-09	GE-285*	PTC143*	SK3849/293	ECG293	TM293	WEP912/293	121-Z9066
TR25	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR26	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR28	2SD325E	2057-08	GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325E1		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
TR301	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR302	2SC1096	2057-05	GE-28	PTC110	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
	2SC10963ZM		GE-28	PTC110	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR401	2SD325E	2057-08	GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
	2SD325E1		GE-28	PTC110	SK3197/235	ECG186	TM186/**	WEP745/152	121-Z9008
TR601	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR602	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR701	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
MODE SWITCH BOARD									
D52	1S2473	1074-118	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131

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.	MFRG. PART No.	REPLACEMENT DATA						
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D1 D2 FET1	PLL BOARD								
	1S2687D	2056-106			SK3325/612	ECG612	TM612		103-176
	1S2687D	2056-106			SK3325/612	ECG612	TM612		103-176
	3SK45B		GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45-B-09	2095-05	GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
IC1 IC2 IC3	UHC002	2056-104	GE-FET-4	PTC182*	SK3065/222	ECG222	TM222	WEP905/222	121-826
	UPD858								
	UPD858C	2056-105				ECG1198	TM1198	WEP2127/1198	
	78L05AV	2065-25	GEVR-100		SK3462/977	ECG977	TM977	WEP2127/1198	221-Z9044
	78L05		GEVR-100		SK3462/977	ECG977	TM977		221-Z9044
TR1 TR2 TR3	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR4 TR5 TR6	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945AQ	2056-07	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945AQ		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
TR7 TR8	2SC1675	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675L	2046-03	GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	2SC1675		GE-213	PTC132*	SK3124/289	ECG123AP*	TM123AP*	WEP773	121-Z9021*
	CHASSIS								
D303	S5VB10	2095-08	GEVR-206	PTC204(4)	SK3061/156(4)	ECG5313	TM516(4)	WEP1044	212-Z9000(4)
TR303	S5VB		GEVR-206	PTC204(4)	SK3061/156(4)	ECG5313	TM516(4)	WEP1044	212-Z9000(4)
	2SD188L	2057-06	GE-75	PTC118	SK3297/280	ECG130	TM130	WEP704/130	121-Z9011
	2SD188		GE-75	PTC118	SK3297/280	ECG130	TM130	WEP704/130	121-Z9011

* Lead configuration may vary from original.
/** Also available as exact type replacement.
(1) Used in some versions.
(4) Four required.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C8 C13 C34 C48	PLL BOARD					
	33 10V	2017-87	PC30-25	VTT33B10		EV-1225
	10 6.3V	2095-32		TDC106M025FL	QDT1-64	SD25-109
	100 10V	170-21-9	PC100-10	VTT100D10	QV1-93	EV-1131
	10 6.3V	2095-32		TDC106M025FL	QDT1-64	SD25-109
C15 C33 C34 C47 C63 C65 C67 C69 C73 C75 C76 C81 C83 C87 C90 C103 C105 C107 C108 C109 C111 C112 C116 C117 C118 C120 C121 C122 C124 C125 C127 C128 C153	MAIN UNIT					
	1 25V	2056-101		TDC105M035EL	QDT1-25	SD35-19
	1 25V	2056-101		TDC105M035EL	QDT1-25	SD35-19
	4.7 10V	2056-102		TDC475M010EL	QDT1-48	SD10-4R79
	.1 25V	1042-122		TDC104M050EL	QDT1-2	SD50-R109
C63 C65 C67 C69 C73 C75 C76 C81 C83 C87 C90 C103 C105 C107 C108 C109 C111 C112 C116 C117 C118 C120 C121 C122 C124 C125 C127 C128 C153	4.7 10V	2056-102		TDC475M010EL	QDT1-48	SD10-4R79
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
	22 16V	1074-38	PC25-25	VTT22B16	QV1-55	EV-1224
C75 C76 C81 C83 C87 C90 C103 C105 C107 C108 C109 C111 C112 C116 C117 C118 C120 C121 C122 C124 C125 C127 C128 C153	4.7 25V	1042-130	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
	4.7 10V	2056-102		TDC475M010EL	QDT1-48	SD10-4R79
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	.47 35V	2095-30		TDC474M050EL	QDT1-19	SD50-R479
C90 C103 C105 C107 C108 C109 C111 C112 C116 C117 C118 C120 C121 C122 C124 C125 C127 C128 C153	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	.1 25V	1042-122		TDC104M050EL	QDT1-2	SD50-R109
	100 10V	170-21-9	PC100-10	VTT100D10	QV1-93	EV-1131
	.1 25V	1042-122		TDC104M050EL	QDT1-2	SD50-R109
C109 C111 C112 C116 C117 C118 C120 C121 C122 C124 C125 C127 C128 C153	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
	100 10V	170-21-9	PC100-10	VTT100D10	QV1-93	EV-1131
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	470 16V	1042-124	PC500-16	VTT470K16	QV1-151	EV-1251
	47 16V	1042-128	PC50-16	VTT47D16	QV1-73	EV-1226
C118 C120 C121 C122 C124 C125 C127 C128 C153	470 16V	1042-124	PC500-16	VTT470K16	QV1-151	EV-1251
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
	220 16V	1000-26	PC250-25	VTT220H16	QV1-117	EV-1240
	100 10V	170-21-9	PC100-10	VTT100D10	QV1-93	EV-1131
C125 C127 C128 C153	33 16V	1000-24	PC30-25	VTT33B25	QV1-63	EV-1325
	100 10V	170-21-9	PC100-10	VTT100D10	QV1-93	EV-1131
	1000 16V	170-82-9	PC1000-16	VTT1000M16	QV1-183	EV-1261
	4.7 10V	2056-102		TDC475M010EL	QDT1-48	SD10-4R79

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C161	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C171	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
C183	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C188	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C191	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C193	4.7 16V	2095-31		TDC685M006EL	QDT1-54	SD6-6R89
C198	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
C199	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
C207	1 50V	1011-40	PC1-50	VTT1A50	QV1-11	EV-1615
C302	220 16V	1000-26	PC250-25	VTT220H16	QV1-117	EV-1240
C304	3300 25V	1037-13				EV-1490
C600	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
C601	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
C602	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C603	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
C604	47 10V	170-31-1	PC50-16	VTT47D16	QV1-73	EV-1226
C605	10 16V	1042-129	PC10-25	VTT10B25	QV1-41	EV-1222
C612	.22 25V	2095-29		TDC224M050EL	QDT1-10	SD50-R229

CAPACITORS

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
					Q-LINE	GENERAL LINE	
	PLL BOARD						
C1	.01 50V	2056-136	DPMS6S39 NP047 NP047	MAG5011	QFT2-159 QCC2-26 QCC2-26	1FT-S39 10TCC-047 10TCC-047	
C2	.039 50V 10%			M192P3939R8			
C3	47 50V 5%			CN0447			
C4	47 50V 5%			CN0447			
C5	.01 50V		DPMS6S39	MAG5011	QFT2-159	1FT-S39	
C6	.039 50V 10%			M192P3939R8			
C7	.01 50V			MAG5011			
C9	.01 50V			MAG5011			
C10	.01 50V		MAG5011				
C11	5pF 50V $\pm$.25		2056-118	NP010	CN0568		
C14	.01 50V				MAG5011		
C15	.01 50V				MAG5011		
C16	.01 50V				MAG5011		
C17	.01 50V			MAG5011			
C18	10 50V 5%			NP010	CN0410	QCC2-15	10TCC-010
C19	220 50V 10%			GP470	GP347	QCT2-35	10TCC-T22 10TS-T47
C20	470 50V 10%						
C21	.01 50V						
C23	.01 50V						
C24	.01 50V			NP010 GP470 WMF05P1 WMF05P1 NP0100	CN0410 GP347 M192P1049R8 M192P1049R8 CN0310	QCC2-15 QCT2-35 QFT2-215 QFT2-215	10TCC-T22 10TCC-010 10TS-T47 1FT-P10 1FT-P10 10TCC-T10
C25	220 50V 10%						
C26	10 50V 5%						
C27	470 50V 10%						
C35	.1 50V 10%	2056-118	DPMS2S47	CN0510 EWF1A147 CN0568	QF1-171	1PB-S47	
C36	.1 50V 10%						
C46	100 50V 5%						
C47	.01 50V						
C49	1pF 50V $\pm$.25		DPMS2S47 DPMS2S47	EWF1A147 EWF1A147 MAG5011	QF1-171 QF1-171	1PB-S47 1PB-S47	
C50	.047 50V						
C51	5pF 50V $\pm$.25						
C52	.047 50V						
C53	.047 50V		CZ-023 CZ-006 CZ-006 CZ-006 CZ-006 CZ-006 CZ-006 CZ-023 1042-53 1042-53 1042-53				
C58	.01 50V						
C538	3pF Feed thru						
C539	.001 Feed thru						
C540	.001 Feed thru						
C541	.001 Feed thru						
C543	.001 Feed thru						
C544	.001 Feed thru						
C545	.001 Feed thru						
C557	3pF Feed thru						
CT1	20pF Trimmer						
CT2	20pF Trimmer						
CT3	20pF Trimmer						
	MAIN UNIT						
C1	39 50V 5%		GP4700 GP4700 GP4700 GP4700 GP4700 GP4700 GP4700	CN0439	QCC2-26	10TCC-039 5GA-047 5GA-047 5GA-047 5GA-047 5GA-047 5GA-047	
C2	.0047 50V			GP247			
C3	.0047 50V			GP247			
C4	.0047 50V			GP247			
C5	.0047 50V		GP4700	GP247	QCT2-41 QCT2-41	5GA-047 10TCC-047 10TCC-T10 5GA-047	
C6	.0047 50V		GP4700	GP247			
C7	.0047 50V		GP4700	GP247			
C8	47 50V 5%		NP047	CN0447			
C9	100 50V 5%		NP0100	CN0310	QFT2-127 QFT2-127 QCT2-41 QFT2-159	1FT-S22 5GA-047 1FT-S22 10TS-D10	
C10	.0047 50V		GP4700	GP247			
C11	.001 50V		DPMS2S22	M192P2239R8			
C12	.001 50V		GP4700	GP247			
C13	.01 50V		DPMS2S22	M192P2239R8			
C14	.0047 50V		DPMS6S39	GP210	M192P3939R8		
C16	.022 50V 10%						
C17	.0047 50V						
C18	.022 50V 10%						
C19	.001 50V						
C20	.039 50V 10%						

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C21	.01 50V			MAG5011		
C22	.01 50V			MAG5011		
C23	15 50V 5%		NP015	CN0415		10TCC-015
C24	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C25	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C26	.01 50V			MAG5011		
C27	.022 50V 10%		DPMS2S22	M129P2239R8	QFT2-127	1FT-S22
C28	10 50V 5%		NP010	CN0410	OCC2-15	10TCC-010
C29	.001 50V 10%		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C30	100 50V 5%		NP0100	CN0310		10TCC-T10
C31	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C32	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C35	500 50V 10%		CD15F0511J03	SX351	QW1-43	MWB-511
C36	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C37	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C38	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C39	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C40	22 50V 5%		NP022	CN0422		10TCC-Q22
C41	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C42	33 50V 5%		NP033	CN0433	QCC2-22	10TCC-033
C43	.01 50V			MAG5011		
C44	.0047 50V 10%		WMF1D47	M192P4729R8	QFT2-63	1FT-D47
C45	.01 50V			MAG5011		
C46	.01 50V			MAG5011		
C48	.001 50V 10%		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C49	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C50	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C51	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C52	5pF 50V +.25	2056-136		CN0568		
C53	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C54	.01 50V			MAG5011		
C55	.01 50V			MAG5011		
C56	.01 50V			MAG5011		
C57	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C58	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C59	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C60	.01 50V			MAG5011		
C61	.01 50V			MAG5011		
C62	15 50V 5%		NP015	CN0415		10TCC-015
C64	2pF 50V +.25	2095-33		CN0522		
C66	22 50V 5%	2095-33		CN0522		
C68	.022 50V 10%		NP022	CN0422	QFT2-127	10TCC-022
C70	10 50V 5%		DPMS2S22	M192P2239R8	QCC2-15	1FT-S22
C71	22 50V 5%		NP010	CN0410		10TCC-Q10
C72	.01 50V		NP022	CN0422		10TCC-022
C74	.01 50V			MAG5011		
C77	.01 50V			MAG5011		
C78	.01 50V			MAG5011		
C84	.001 50V 10%		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C85	.01 50V			MAG5011		
C91	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-157	1FT-S22
C92	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C97	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
CV1	Trimmer 20pF	2042-53				
CV2	Trimmer 20pF	2042-53				
C98	100 50V 5%		NP0100	CN0310		10TCC-T10
C99	.001 50V 10%		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C100	.01 50V			MAG5011		
C101	15 50V 5%		NP015	CN0415		10TCC-015
C102	15 50V 5%		NP015	CN0415		10TCC-015
C104	.01 50V			MAG5011		
C106	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C110	.001 50V 10%		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C113	180 50V 10%					10TCC-T18
C114	.22 50V 10%		WMF05P22	M192P2249R8	QFT2-253	1FT-P22
C115	.1 50V 10%		WMF05P1	M192P1049R8	QFT2-215	1FT-P10
C119	.01 50V			MAG5011		
C123	.01 50V			MAG5011		
C129	.01 50V			MAG5011		
C130	.01 50V			MAG5011		
C131	.01 50V			MAG5011		
C132	1pF 50V +.25	2056-118		CN0510		
C133	.01 50V			MAG5011		
C134	.022 50V			M192P2239R8		192P2239R8
C135	.01 50V			MAG5011		
C136	.022 50V			M192P2239R8		192P2239R8
C137	.01 50V			MAG5011		
C138	33 50V 5%		NP033	CN0433	QCC2-22	10TCC-033
C139	82 50V 5%		NP082	CN0482		10TCC-082
C140	150 50V 10%			CN0315		10TCC-T15
C141	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C142	470 50V 10%		GP470	GP347	QCT2-35	10TS-T47
C143	1pF 50V +.25			CN0510		
C145	.0047 50V		GP4700	GP247		56A-D47
C147	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C148	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C150	.1 50V			MAG5001		
C151	150 50V 10%			CN0315		10TCC-T15
C152	56 50V 5%			CN0456		10TCC-056
C154	.01 50V			MAG5011		
C155	.01 50V			MAG5011		
C156	.0047 50V		GP4700	GP247		56A-D47
C157	.0047 50V		GP4700	GP247		56A-D47
C158	.0047 50V		GP4700	GP247		56A-D47
C159	.01 50V			MAG5011		
C160	.0047 50V		GP4700	GP247		56A-D47
C162	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C163	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39

COURIER MODEL Centurion 400

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C164	.01 50V			MAG5011		
C165	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C166	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C168	.01 50V			MAG5011		
C169	.01 50V			MAG5011		
C170	150 50V 10%			CN0315		10TCC-T15
C172	.01 50V			MAG5011		
C173	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C175	56 50V 5%			CN0456		10TCC-n56
C176	680 50V 10%		GP680	GP368		10TS-T68
C177	.1 50V			MAG5001		
C178	.1 50V			MAG5001		
C179	.1 50V			MAG5001		
C180	.1 50V			MAG5001		
C181	.1 50V			MAG5001		
C182	.01 50V			MAG5011		
C184	.01 50V			MAG5011		
C185	.022 50V			M192P2239R8		192P2239R8
C186	.022 50V			M192P2239R8		192P2239R8
C187	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C189	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C192	.1 50V			MAG5001		
C201	.0047 50V		GP4700	GP247		5GA-D47
C202	.0047 50V		GP4700	GP247		5GA-D47
C203	.0047 50V		GP4700	GP247		5GA-D47
C204	.0047 50V		GP4700	GP247		5GA-D47
C205	.001 50V			GP210	0CT2-41	10TS-D10
C206	.0047 50V		GP4700	GP247		5GA-D47
C208	.1 50V			MAG5001		
C209	.022 50V			M192P2239R8		192P2239R8
C210	.001 50V			GP210	QCT2-41	10TS-D10
C211	.001 50V			GP210	QCT2-41	10TS-D10
C212	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C213	.0047 50V		GP4700	GP247		5GA-D47
C214	.001 50V			GP210	QCT2-41	10TS-D10
C215	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C216	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C217	.0047 50V		GP4700	GP247		5GA-D47
C218	.0047 50V		GP4700	GP247		5GA-D47
C219	150 50V 10%			CN0315		10TCC-T15
C220	.001 50V			GP210	0CT2-41	10TS-D10
C221	.022 50V			M192P2239R8		192P2239R8
C222	.022 50V			M192P2239R8		192P2239R8
C223	.001 50V			GP210	QCT2-41	10TS-D10
C224	10 50V 5%		NP010	CN0410	QCC2-15	10TCC-D10
C225	.0047 50V		GP4700	GP247		5GA-D47
C226	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C227	.0047 50V		GP4700	GP247		5GA-D47
C228	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C229	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C230	.0047 50V		GP4700	GP247		5GA-D47
C231	.047 50V		DPMS2S47	EWFA1A47	QF1-171	1PR-S47
C232	.001 50V			GP210	QCT2-41	10TS-D10
C233	33 50V 5%		NP033	CN0433	QCC2-22	10TCC-D33
C301	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C303	.01 50V			MAG5011		
C305	.01 50V			MAG5011		
C306	.01 50V			MAG5011		
C307	.01 50V			MAG5011		
C308	.1 50V 10%			MAG5001		
C309	.01 50V			MAG5011		
C310	.01 50V			MAG5011		
C311	.1 50V			MAG5001		
C606	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C607	.1 50V 10%			MAG5001		
C608	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C609	.1 50V 10%			MAG5001		
C610	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C611	.068 50V 10%		WMF1S68	EWFA1A68	QF1-195	1PR-S68
C613	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C614	.0047 50V		GP4700	GP247		5GA-D47

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFR. PART No.	MALLORY PART No.	TRW PART No.
RT1	RF Gain Range	100K		RVA0911V104(2)	X260R104B(2)
RT2	AGC	5000		RVA0911V502(2)	X260R502R(2)
RT4	AMS Meter	50K		RVA0911V503(2)	X260R503R(2)
RT6	SSB S Meter	50K		RVA0911V503(2)	X260R503B(2)
RT8	Balancer	50K		RVA0911V503	X260R503R
RT11	SSB Squelch Range	50K		RVA0911V503(2)	X260R503B(2)
RT12	AM Squelch Range	30K		RVA0911V503(2)	X260R503R(2)
RT14	AM Power	3000		RVA0911V502(2)	X260R502R(2)
RT15	TX Meter	100K		RVA0911V104(2)	X260R104B(2)
RT19	XMT Freq	10K		RVA0911V103(2)	X260R103R(2)
RT20	Final Bias	200		MTC22L1	X201R251B
RT21	SSB SENS	50K		RVA0911V503(2)	X260R503B(2)

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFGR. PART No.	MALLORY PART No.	TRW PART No.
RT301	Voltage	200		MTC22L1	X201R251B
RT601	AM AMC	100K		RVA0911V104(2)	X260R104B(2)
VR1	CAL	5000	2095-60	U26	BUI,CF10,SS5,DC1
VR2	RF Gain	100K	1042-96	U41	BUI,CF13,SS5,DC1
VR3	Clarifier	20K	2065-20	U26	BUI,CF62,SS5,DC1
VR4	Volume	10K	1074-18	U18	BUI,CF61,SS5,DC1
VR5	Squelch/Switch	100K	1074-19		BUI,CF13,SS20,K

(2) Cut off one of the end terminals and bend to fit P.C. Board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	WORKMAN PART No.			MFGR. PART No.	WORKMAN PART No.
R11	56 5% 1/2W Metal Oxide			R401	22 5% 1/2W Carbon Film		22-2056
R120	100 5% 1/2W Carbon Film		22-2072	R154	10 10% 5W Cement		24-3030
				R157	10 10% 5W Cement		24-3030

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
	PLL BOARD				
L1	PLL Mixer (100uH)	1079-09		9250-104	LZ-001
L2	RF Choke (470uH)	1079-08		9250-474	LZ-001
L3	RF Choke (470uH)	1079-08		9250-474	LZ-001
L5	RF Choke (470uH)	1079-08		9250-474	LZ-001
L6	PLL (34MHz)	2095-12			LA-195
L7	PLL (34MHz)	2095-11			LA-161
L8	Tripler (33MHz)	2095-10			LA-160
L9	Tripler (33MHz)	2095-09			LA-112
L14	RF Choke	1080-25		4594	LD-018
L15	RF Choke	1080-25		4594	LD-018
L16	RF Choke	1080-25		4594	LD-018
	MAIN UNIT				
FT1	AM IF (455kHz)	1042-49		CBS603-4TCC	FL-007
L1	Noise Blanker	1080-11		CBS740-T	LA-029
L2	Noise Blanker	2056-16			LA-155
L3	RF Amp (27MHz)	2056-15			LA-152
L4	RF Amp (27MHz)	2056-17			LA-156
L5	Mixer (7.8MHz)	1042-29		CBS512-7TC	LA-038
L6	IF Amp SSB (7.8MHz)	1042-29		CBS512-7TC	LA-038
L7	IF Amp SSB (7.8MHz)	2056-14		CBS511-7TC	LA-096
L8	Carrier Osc (7.8MHz)	1042-29		CBS512-7TC	LA-038
L9	RF Choke (470uH)	1079-08		9250-474	LZ-001
L10	RF Choke (470uH)	1079-08		9250-474	LZ-001
L11	RF Choke (470uH)	1079-08		9250-474	LZ-001
L12	TVI Trap (54MHz)	1045-24		CB305	LC-019
L13	Pi	2056-22			LE-051
L14	Pi	2056-22			LE-051
L15	Final (27MHz)	1045-24		CB305	LC-019
L16	RF Choke	1080-25		4594	LD-018
L17	RF Choke	1080-25		4594	LD-018
L18	RF Choke (1uH)	2056-23			LZ-002
L19	XMT Driver (27MHz)	1079-06		CB304	LC-018
L20	RF Choke	1080-25		4594	LD-018
L21	RF Choke (1uH)	2056-23			LZ-002
L22	XMT Amp	2056-21			LD-057
L23	XMT Buffer	2056-18			LD-057
L24	XMT Mixer (27MHz)	2056-18			LA-157
L26	XMT Mixer (27MHz)	1042-29		CBS512-7TC	LA-038
L27	AM IF (455kHz)	2056-14			LA-096
L28	AM IF (455kHz)	2056-19			LA-162
L29	AM IF (455kHz)	1080-72			LA-040
L31	RF Choke (100uH)	1079-09		9250-104	LZ-001
L32	RF Choke (100uH)	1079-09		9250-104	LZ-001
L33	RF Choke (6.8uH)	2095-14			LZ-002
L401	RF Choke	2056-20			LD-013
L402	RF Choke	2056-20			LD-013
L403	RF Choke	2095-13			LD-089
L404	RF Choke	2095-13			LD-089
L405	RF Choke	2095-13			LD-089
L601	Pi (68mH)	2095-16			LZ-015
L602	Pi (56mH)	2095-15			LZ-015

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	WORKMAN PART No.
F1	3A Quick-Acting	2095-75	2095-79	AGC3	HRK	312003	150145
F2	3A Quick-Acting	2095-75	2095-78	AGC3	HKP	312003	342001AL

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFRG. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	7.6	12.8	2095-17			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFRG. PART No.	QUAM PART No.	
SP	3" X 5" CM, 8 Ohm		35A0528	

TRANSFORMER (Power)

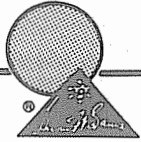
ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFRG. PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	120V AC @ 720mA AC	18.96V AC @ 4.2A AC	2056-09			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
L11	Ferrite Bead	2057-77	LD-077
L12	Ferrite Bead	2057-77	LD-077
L13	Ferrite Bead	2057-77	LD-077
X1	Crystals	2049-05	10.240MHz
X2	Crystals	2056-95	11.2845MHz
X3	Crystals	2056-96	11.2855MHz
	MAIN UNIT		
FT2	Ceramic Filter	1042-50	FL-020
FT3	Crystal Filter	1042-84	FL-006
J1	Jack		Antenna
J3	Jack		PA SP
J3A	Jack		External Speaker
J5	Jack	Phone	
M	Motor		Clock
M1	Meter	1074-23	SWR
M2	Meter	1074-24	S/RF
PL1	Pilot Lamp	2095-70	
PL2	Pilot Lamp	2095-71	
PL3	Pilot Lamp	2095-72	
PL6	Pilot Lamp	2095-73	
PL7	Pilot Lamp	2095-73	
PL8	Pilot Lamp	2095-74	
RL1	Relay	2056-31	
RL2	Relay	2095-61	(RF-002)
S1	Switch	2057-22	(PWR/N.B./PA-CB)
S2	Switch	2057-22	(PWR/N.B./PA-CB)
S3	Switch	2057-22	(PWR/N.B./PA-CB)
S4	Switch	2057-23	(CAL-SWR)
S5	Switch	2057-21	(Mode Sw.)
S6	Switch	2056-24	(AC-DC)
X1	Crystals	1042-81	7.3435MHz
X2	Crystals	1042-83	7.8015MHz
X3	Crystals	1042-82	7.7985MHz
	Switch	2095-58	Channel
	Microphone	2026-32	

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

ITEM	PART No.	ITEM	PART No.
Knob, CAL	1074-138	Knob, For Clock (B)	1074-70
Knob, Channel	1074-67	Knob, Volume	1074-68
Knob, For Clock (A)	1074-69	Knob, Power On/Off	1074-92



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 7001 (79-007)

MANUFACTURER'S SPECIFICATIONS

Electrical Specifications.

General:

Voltage 13.8 V, Positive/
Negative Ground
Operating Range
10 V to 16 V

Frequency Stability... $\pm 0.005\%$

Temperature Range... -30° to $+50^{\circ}$ C
(Per FCC Part 15)

Humidity 5-90%

Vibration EIA Standard RS-424

Shock EIA Standard RS-424

Receiver (AM):

Sensitivity
Less than 0.7 μ v for 10 dB SN +N to N

Automatic Gain Control Figure of Merit
80 dB

Audio Squelch Sensitivity
Threshold Less than 10 dB SN+N to N
Tight: 100 μ v minimum, 500 μ v
maximum

Adjacent Channel Selectivity and
Desensitization
60 dB (Two-generator method)

Spurious Response Attenuation
60 dB (excluding image at 50 dB)

Audio Power Output
3 W @ 10% distortion (load impedance
8 ohms resistive)

Audio Frequency Response (1 KHz, 0 dB
reference)
300 Hz @ -6 dB
1000 Hz @ 0 dB
3000 Hz @ -6 dB

Hum and Noise, Squelched
-45 dB

Noise Limiting
Provided with Switchable ANL

S Meter Sensitivity at "S-9"
100 μ v

RF Gain Range
30 dB

Antenna Input Impedance
50 ohms, unbalanced

Transmitter (AM):

Carrier Power, No Modulation
4 W maximum, 3.6 minimum

Conducted Spurious Emissions
-65 dB

Radiated Spurious Emissions
(Complies with FCC Part 95)

Audio Frequency Harmonic Distortion
10% maximum @ 80%

Audio Frequency Response (1 KHz, 0 dB
reference)
300 Hz @ -6 dB
1000 Hz @ 0 dB
3000 Hz @ -6 dB
6 dB/octave falling above 3000 Hz

Hum and Noise
-40 dB

Output Impedance
50 ohms, unbalanced

Output Protection
Withstands for 5 minutes all VSWR
around Smith Chart at 20:1 without
damage or failure

Output Stability
Does not exceed FCC Limits For
Spurious Emissions when operated
into a mismatch load with 5:1 VSWR at
any point on the Smith Chart

Controls: Off/AF gain control, Squelch
control, RF gain control, Microphone
Gain control, CB/PA switch, Hi/Lo
Tone switch, ANL-Off switch,
S/RF/PWR Meter, Green color
Numerical LED Channel indicator,
Rotary Analog-Numerical Channel
selector

Jacks and Connections: 4-pin/screw-type
Microphone Connector, 50-ohm
antenna, 8-ohm external speaker, PA
speaker

MIDLAND MODEL 7001 (79-007)

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:

T1, T2, T3, T5, thru T9, VCO	GC ELECTRONICS: 9440
T4, T10, T11, T12	5000, 5009, 8276, 8728, 8728A, 9089
L10, L14, L16	8282, 9304, 8728, 8728A
CT1 thru CT7	5000, 8276, 9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (IC1 Pin 14).	Ch. 19	CT7	Adjust for 10.240MHz +50Hz.
Input of frequency counter to TP4 (Junction of L6 and C39).	Ch. 19, USB	CT4	Adjust for 10.696MHz +50Hz.
Input of frequency counter to TP4 (Junction of L6 and C39).	Ch. 19, XMT	CT5	Adjust for 10.6935MHz +50Hz.
Input of frequency counter to TP4 (Junction of L6 and C39).	Ch. 19, LSB	CT6	Adjust for 10.691MHz +50Hz.
Input of frequency counter to TP3 (IC3 Pin 4).	Ch. 19, USB Clarifier Midrange	CT1	Adjust for 20.936MHz +50Hz.
Input of frequency counter to TP3 (IC3 Pin 4).	Ch. 19, AM Clarifier Midrange	CT2	Adjust for 20.9335MHz +50Hz.
Input of frequency counter to TP3 (IC3 Pin 4).	Ch. 19, LSB Clarifier Midrange	CT3	Adjust for 20.9310MHz +50Hz.
Input of DC meter to TP2 (IC1 Pin 19).	Ch. 40	VCO	Adjust for 4.00 volts +.1V. Check channel 1 for 1.80 volts to 2.20 volts.
Input of frequency counter to TP5 (T3 Secondary).	Ch. 1, AM		Check for 37.6585MHz. Check all channels. (See Truth Chart for correct frequencies.)

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. Squelch MINIMUM, RF Gain Maximum, Clarifier Midrange, NB/ANL Off, Tone High, RF ATT Out.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation	Ch. 19, AM	T8, T9, T10, T11, T12	Adjust for maximum output.

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of DC meter to AGC (025 drain).	Ch. 19, USB	RV4	AGC Adjust for 1.40 volts.
Input of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 100,000uV Input of oscilloscope to speaker voice coil.	Ch. 19, AM	RV4	AGC If necessary adjust for MINIMUM audio distortion.
Input of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 1000uV.	Ch. 19, AM Squelch Maximum	RV5	SQUELCH RANGE Adjust so squelch just breaks.
Input of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation Output 100uV.	Ch. 19, AM	RV3	S METER Adjust for 9 on signal scale of meter.

TRANSMITTER ALIGNMENT

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

SSB

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at Mic input.	Ch. 19, USB XMT	T1, T2, T3, T11, T4, T5, T6	Adjust for maximum RF output.
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at Mic input.	Ch. 19, USB XMT	T7, L10, L14, L16	Adjust for maximum RF output.
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at Mic input.	Ch. 19, USB XMT	L10	Adjust clockwise for 14.0 watts RF output.

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	TRANSCIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19, USB XMT	RV6, RV7	CARRIER BALANCE Adjust for MINIMUM RF

MIDLAND MODEL 7001 (79-007)

TRANSMITTER ADJUSTMENTS (Continued)

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of DC meter to TP7 (Q14 Base).	Ch. 19, USB XMT	RV1	output. FINAL BIAS Adjust for .54 volts.
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at Mic input.	Ch. 19, USB XMT	RV8	SSB MOD Adjust for 13.0 watts RF output.
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at Mic input.	Ch. 19, USB XMT	RV10	SSB ALC Adjust for 11 watts RF output.
Input of RF wattmeter to antenna input.	Ch. 19, AM XMT	VR1	AM POWER Adjust for 3.75 watts RF output.
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 100mV signal at Mic input.	Ch. 19, AM XMT	RV9	AM MOD Adjust for 100% modulation maximum. (See Figure 1.) Reduce signal to 10mV and check for 85% to 95% modulation.
Input of RF wattmeter to antenna input.	Ch. 19, AM XMT	RV2	POWER METER Adjust so power meter agrees with RF wattmeter.
Connect a 250 ohm 25W dummy load to antenna connector. Set power supply voltage to 16.0 volts.	Ch. 19, AM XMT	RV501	AWI Adjust so AWI indicator just turns off.

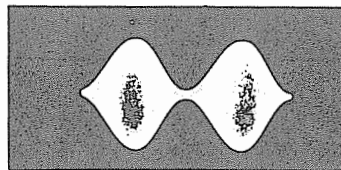
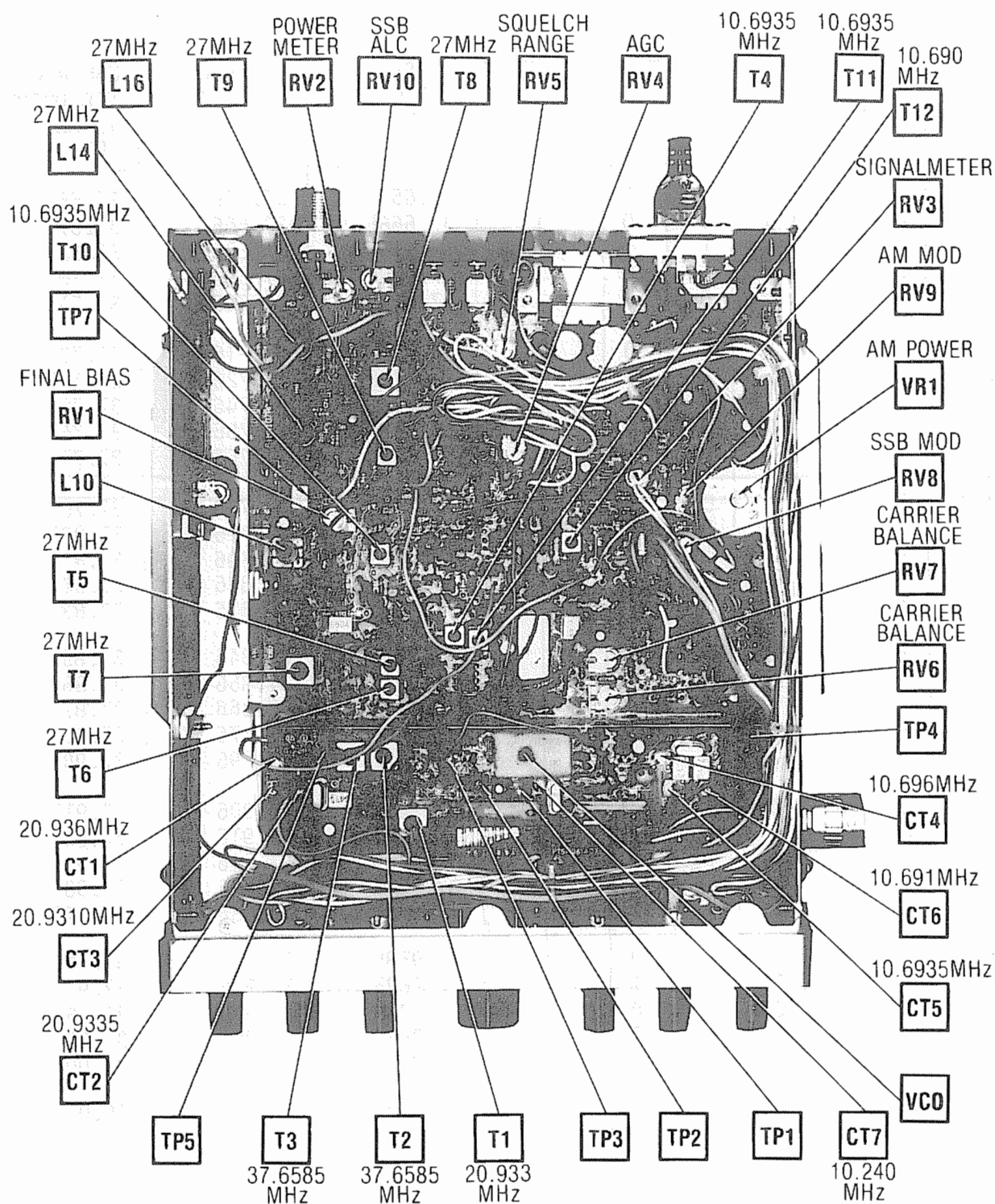


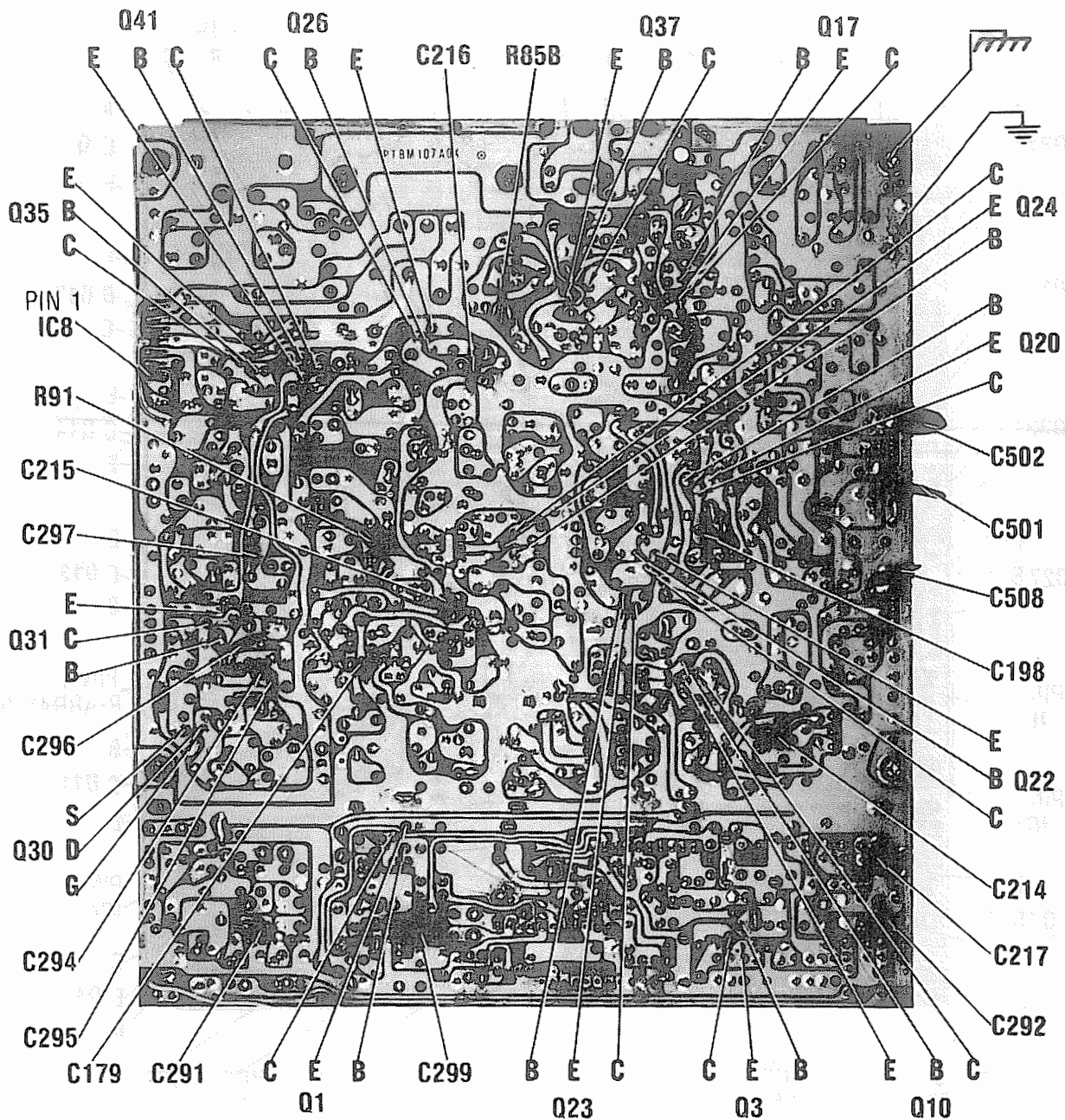
Figure 1



CHASSIS-OVERALL

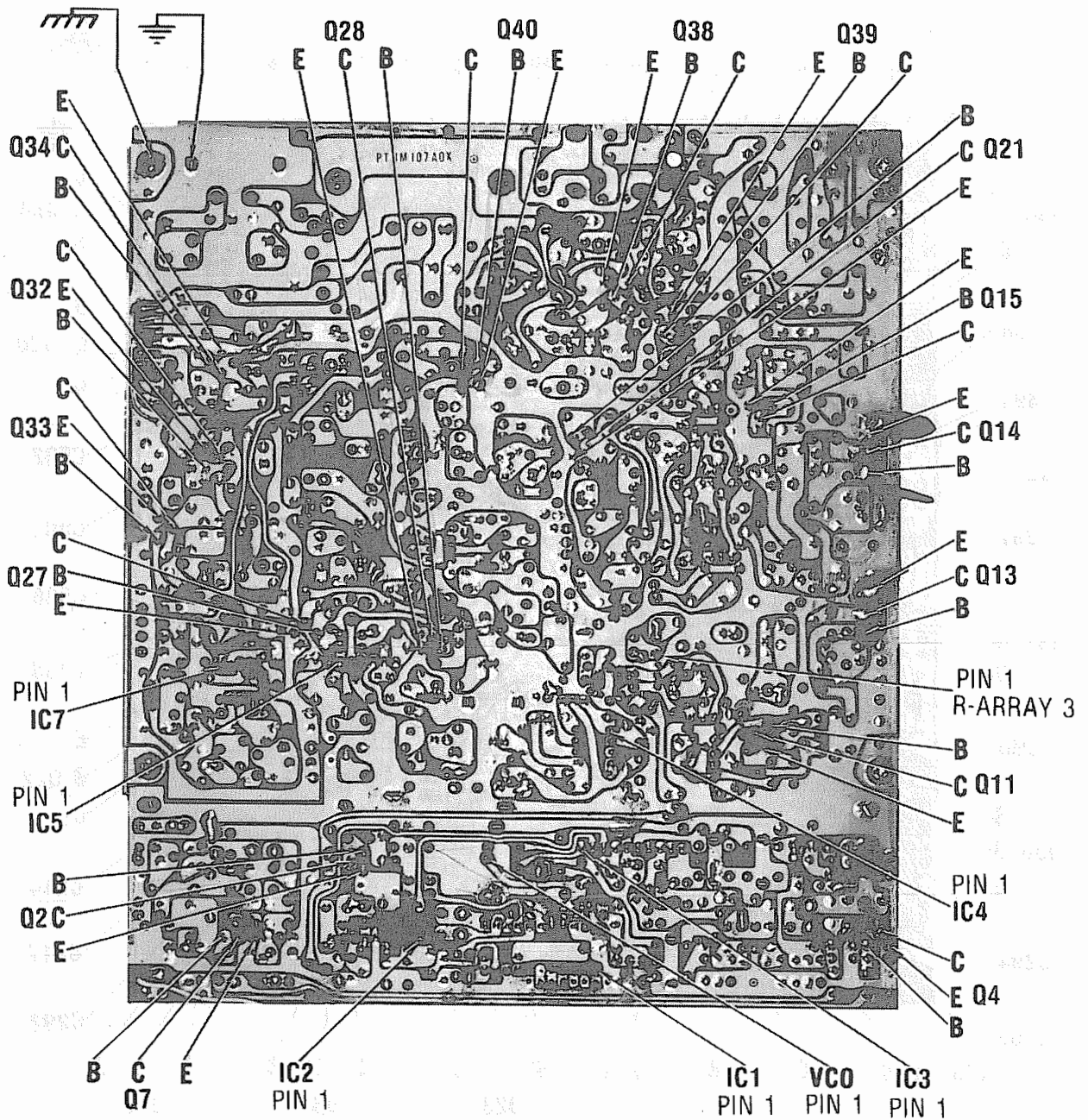
TRUTH CHART

C H A N N E L	1 = 5.24 Volts 0 = .03 Volts								AM REC VCO OUTPUT IN MHz AT TP5	LSB REC VCO OUTPUT IN MHz AT TP5	USB REC VCO OUTPUT IN MHz AT TP5
	IC1 PINS										
	6	5	4	3	2	1					
1	0	0	0	0	0	1			37.6585	37.656	37.661
2	0	0	0	0	1	0			37.6685	37.666	37.671
3	0	0	0	0	1	1			37.6785	37.676	37.681
4	0	0	0	1	0	0			37.6985	37.696	37.701
5	0	0	0	1	0	1			37.7085	37.706	37.711
6	0	0	0	1	1	0			37.7185	37.716	37.721
7	0	0	0	1	1	1			37.7285	37.726	27.731
8	0	0	1	0	0	0			37.7485	37.746	37.751
9	0	0	1	0	0	1			37.7585	37.756	37.761
10	0	1	0	0	0	0			37.7685	37.766	37.771
11	0	1	0	0	0	1			37.7785	37.776	37.781
12	0	1	0	0	1	0			37.7985	37.796	37.801
13	0	1	0	0	1	1			37.8085	37.806	37.811
14	0	1	0	1	0	0			37.8185	37.816	37.821
15	0	1	0	1	0	1			37.8285	37.826	37.831
16	0	1	0	1	1	0			37.8485	37.846	37.851
17	0	1	0	1	1	1			37.8585	37.856	37.861
18	0	1	1	0	0	0			37.8685	37.866	37.871
19	0	1	1	0	0	1			37.8785	37.876	37.881
20	1	0	0	0	0	0			37.8985	37.896	37.901
21	1	0	0	0	0	1			37.9085	37.906	37.911
22	1	0	0	0	1	0			37.9185	37.916	37.921
23	1	0	0	0	1	1			37.9485	37.946	37.951
24	1	0	0	1	0	0			37.9285	37.926	37.931
25	1	0	0	1	0	1			37.9385	37.936	37.941
26	1	0	0	1	1	0			37.9585	37.956	37.961
27	1	0	0	1	1	1			37.9685	37.966	37.971
28	1	0	1	0	0	0			37.9785	37.976	37.981
29	1	0	1	0	0	1			37.9885	37.986	37.991
30	1	1	0	0	0	0			37.9985	37.996	38.001
31	1	1	0	0	0	1			37.0085	38.006	38.011
32	1	1	0	0	1	0			38.0185	38.016	38.021
33	1	1	0	0	1	1			38.0285	38.026	38.031
34	1	1	0	1	0	0			38.0385	38.036	38.041
35	1	1	0	1	0	1			38.0485	38.046	38.051
36	1	1	0	1	1	0			38.0585	38.056	38.061
37	1	1	0	1	1	1			38.0685	38.066	38.071
38	1	1	1	0	0	0			38.0785	38.076	38.081
39	1	1	1	0	0	1			38.0885	38.086	38.091
40	0	0	0	0	0	0			38.0985	38.096	38.101

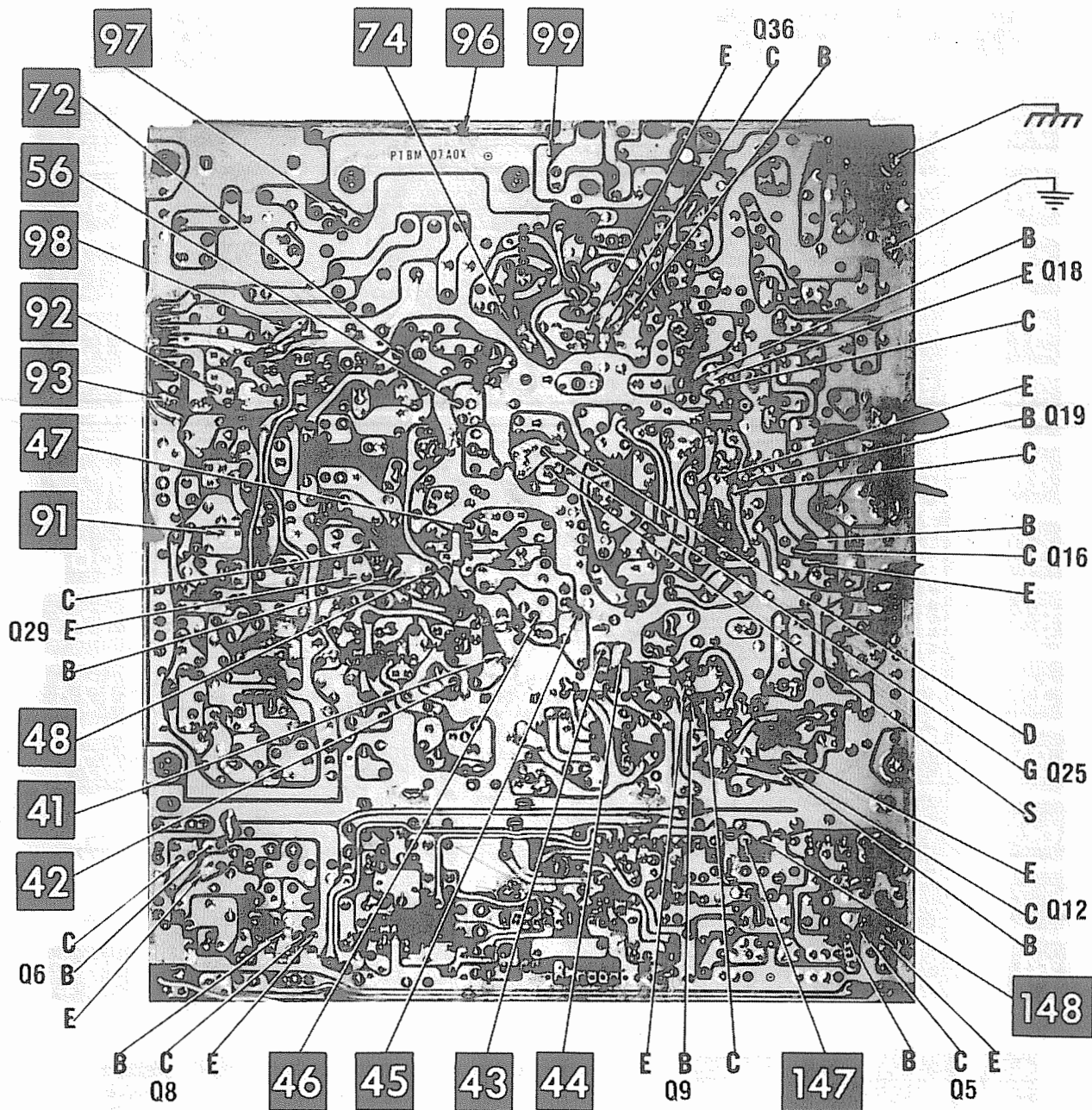


MIDLAND MODEL 7001 (79-007)

MAIN BOARD

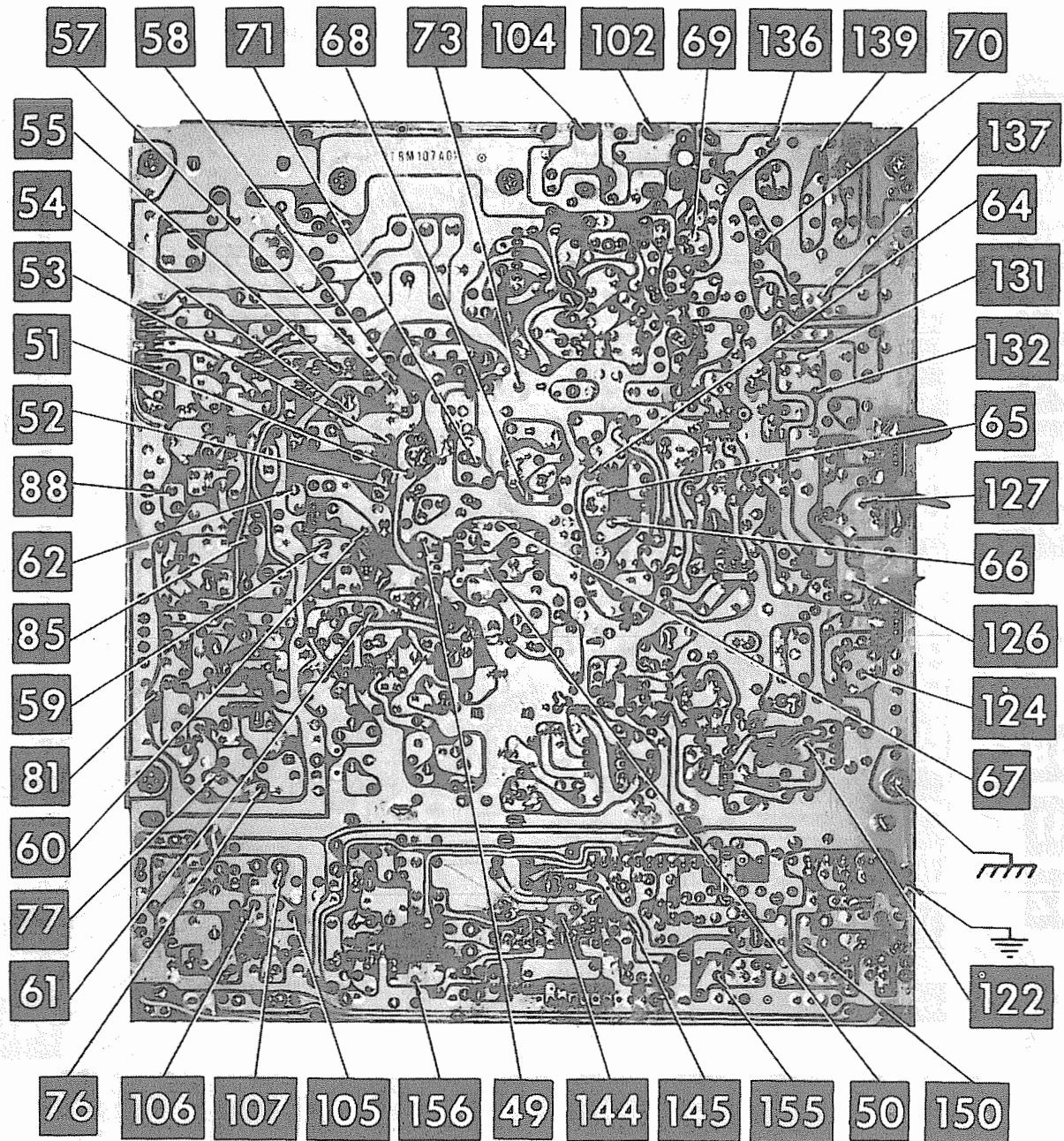


MAIN BOARD

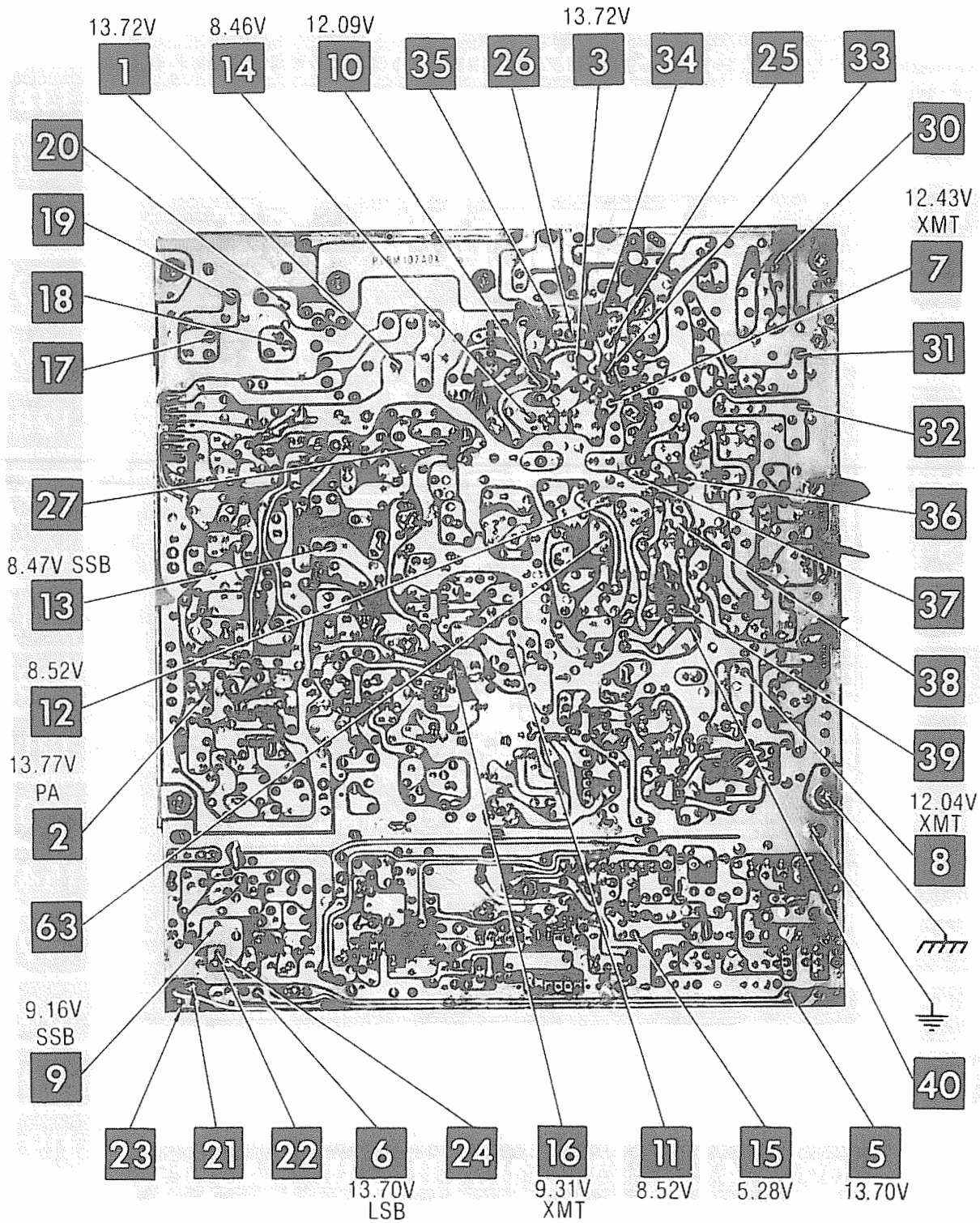


MIDLAND MODEL 7001 (79-007)

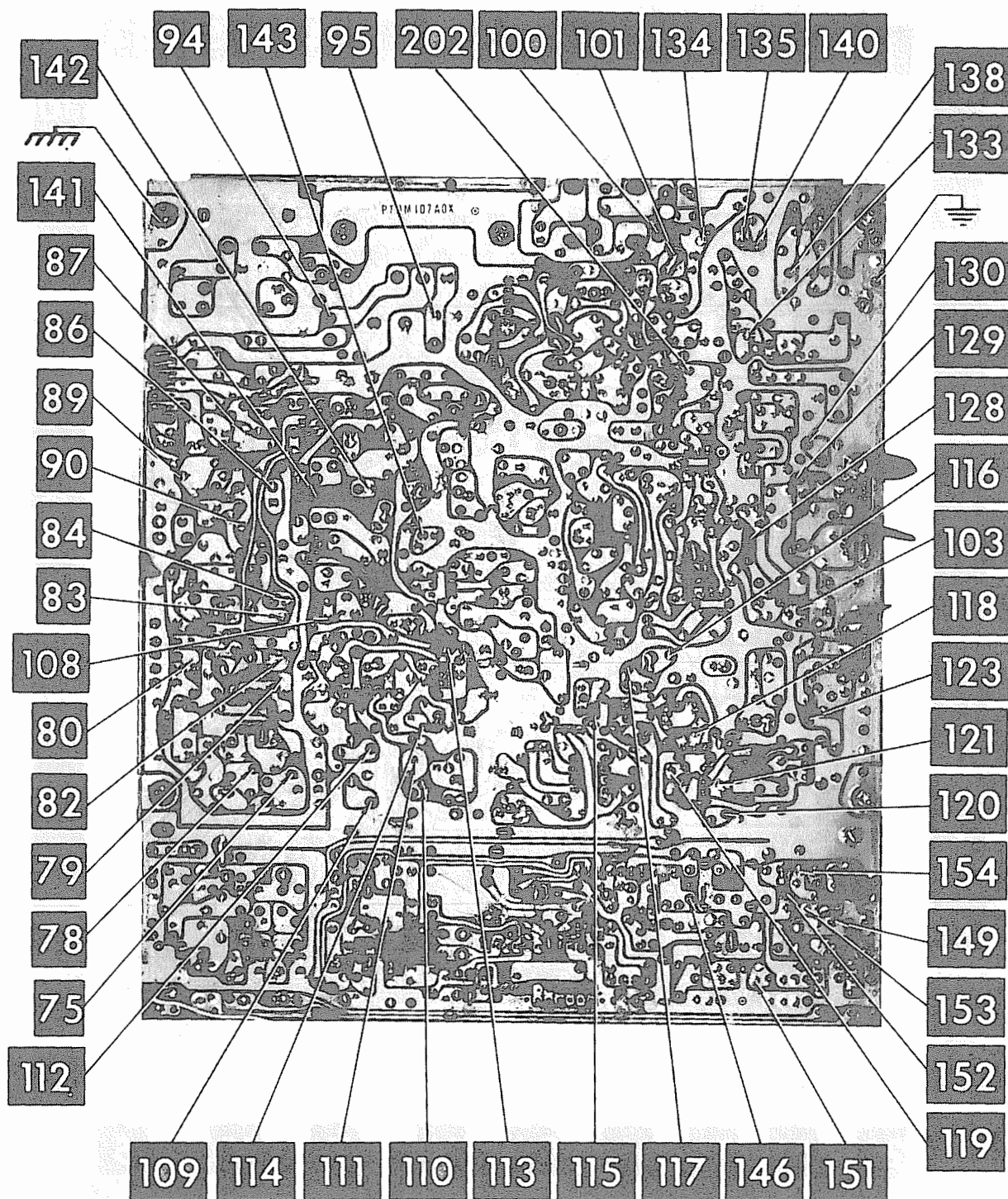
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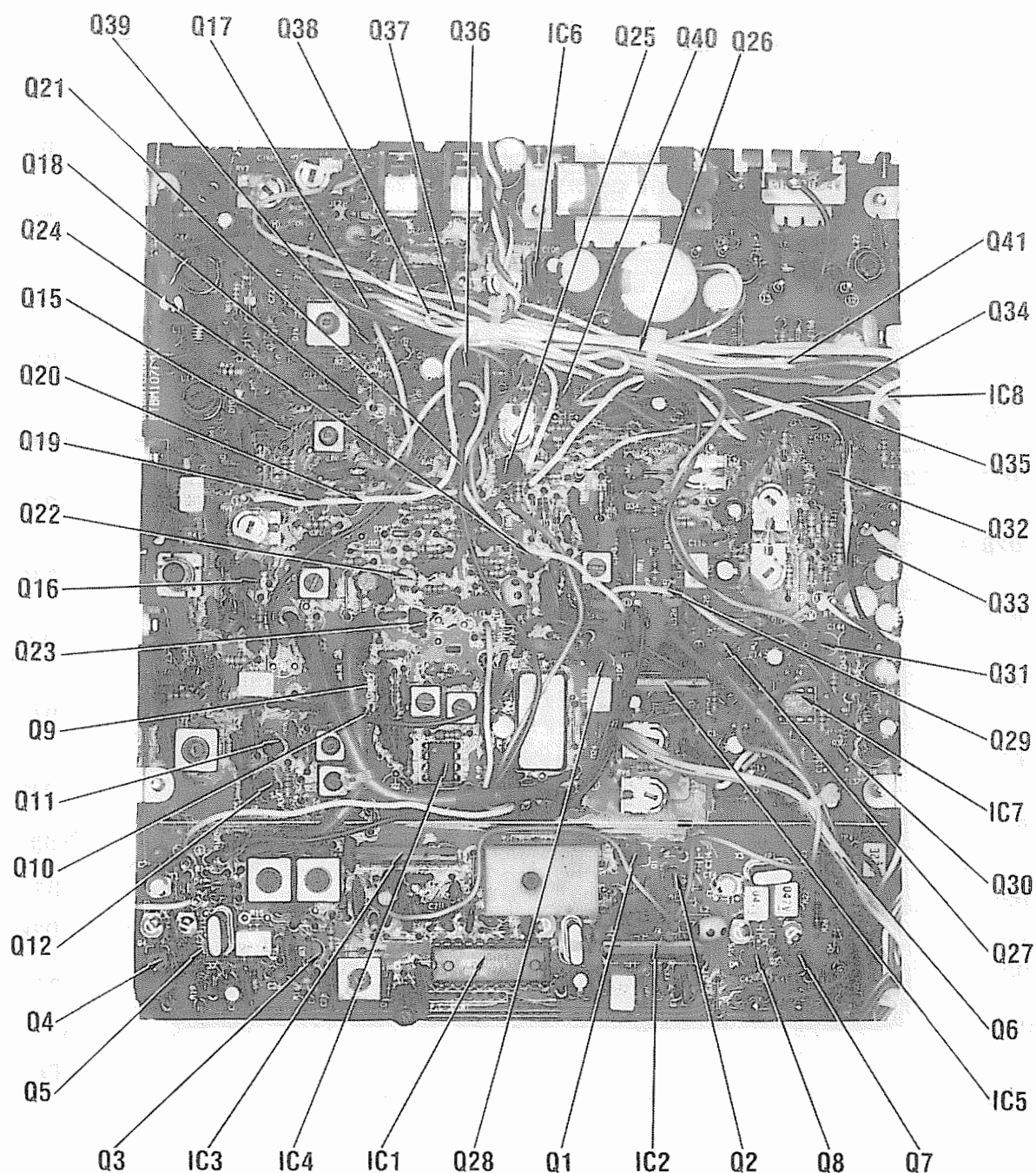
MAIN BOARD



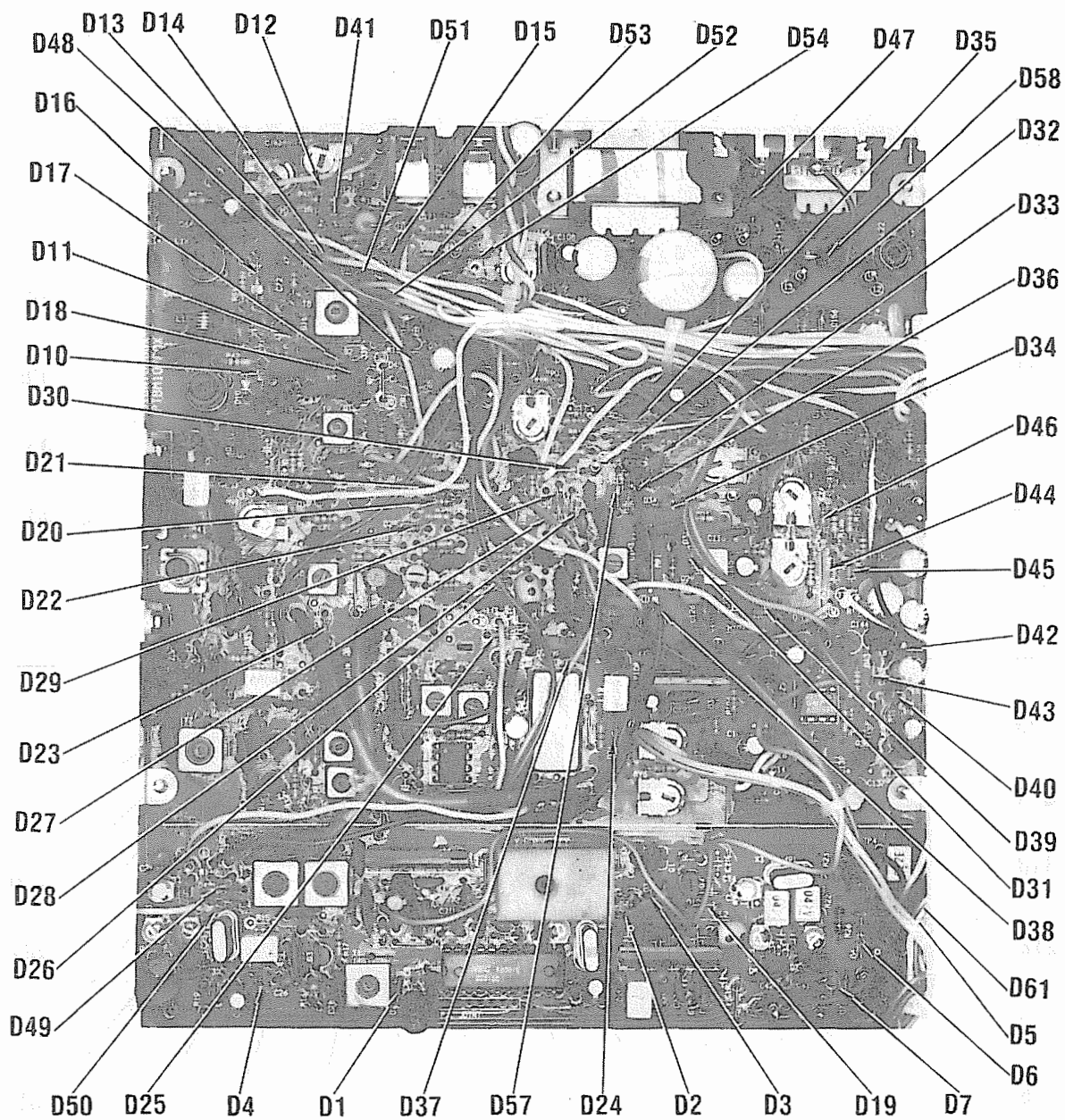
MIDLAND MODEL 7001 (79-007)



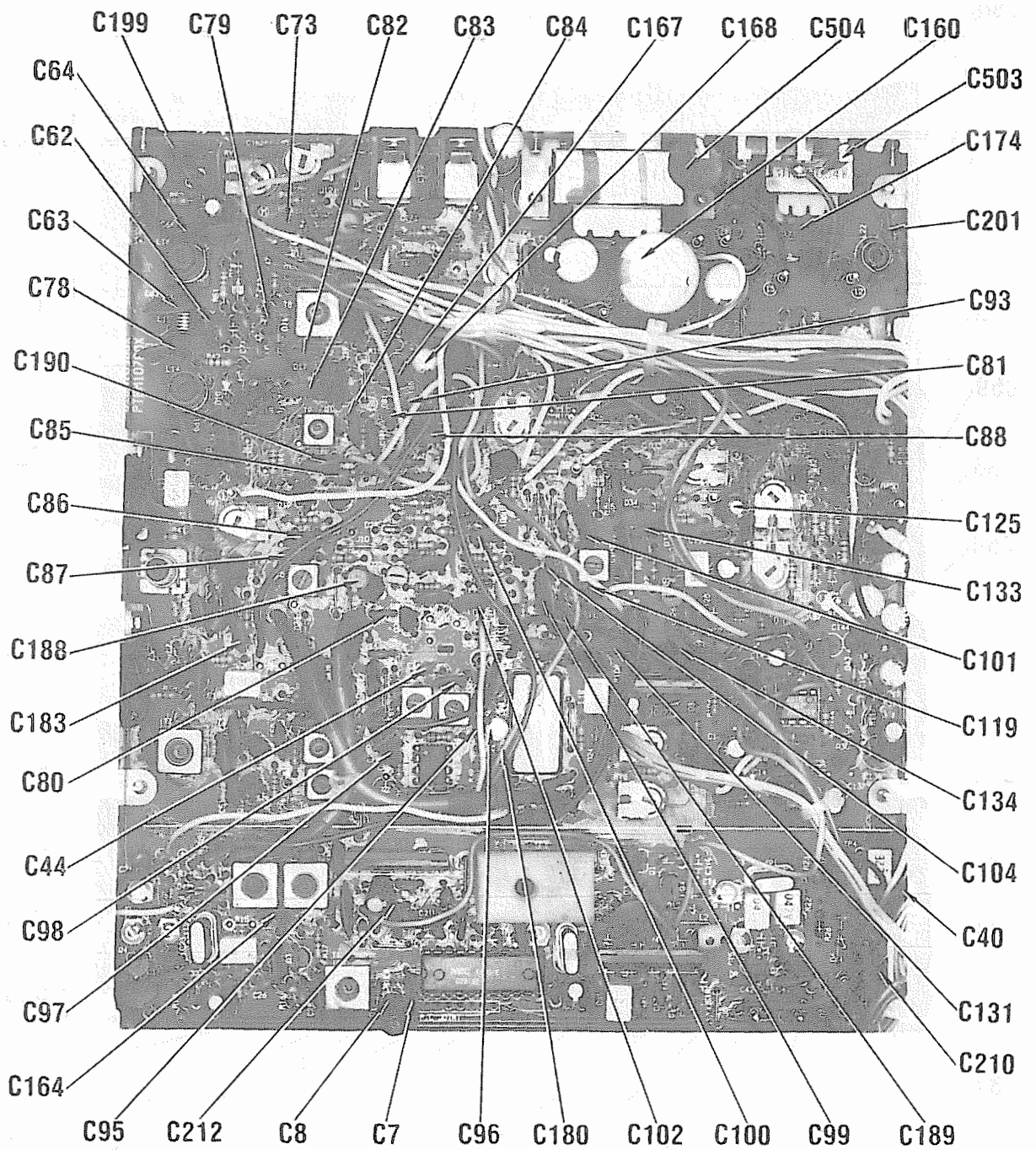
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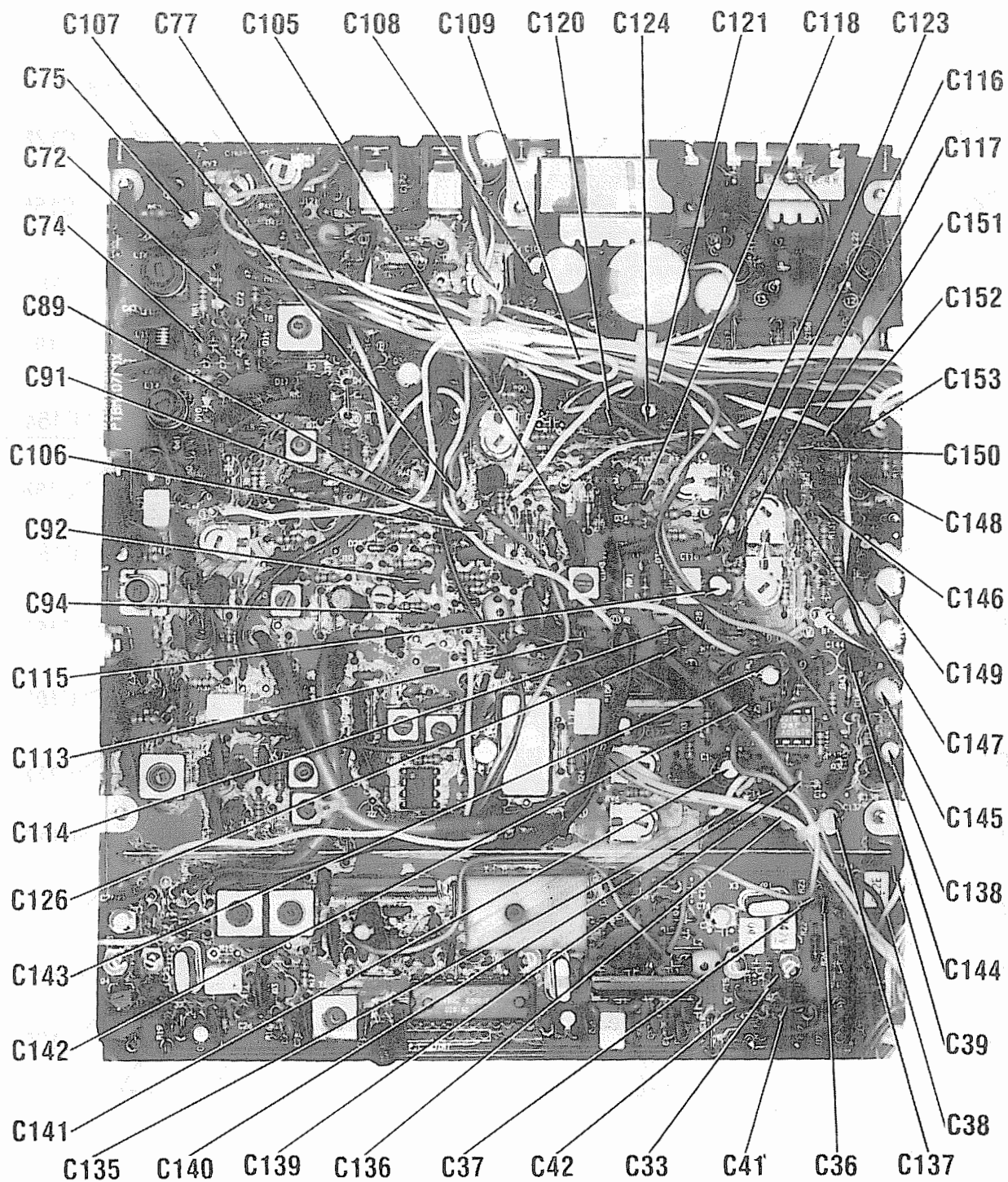
MAIN BOARD



MAIN BOARD

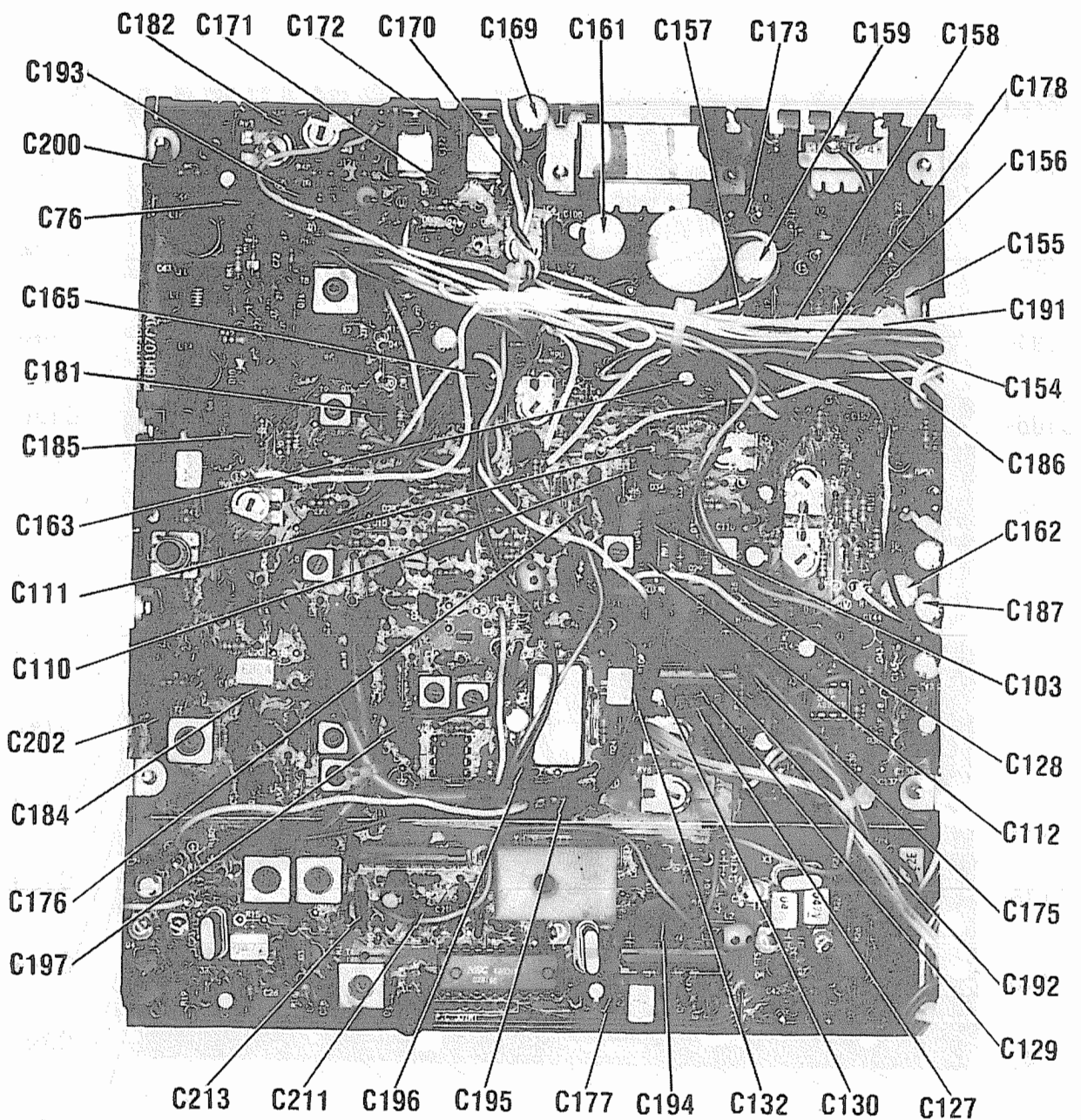


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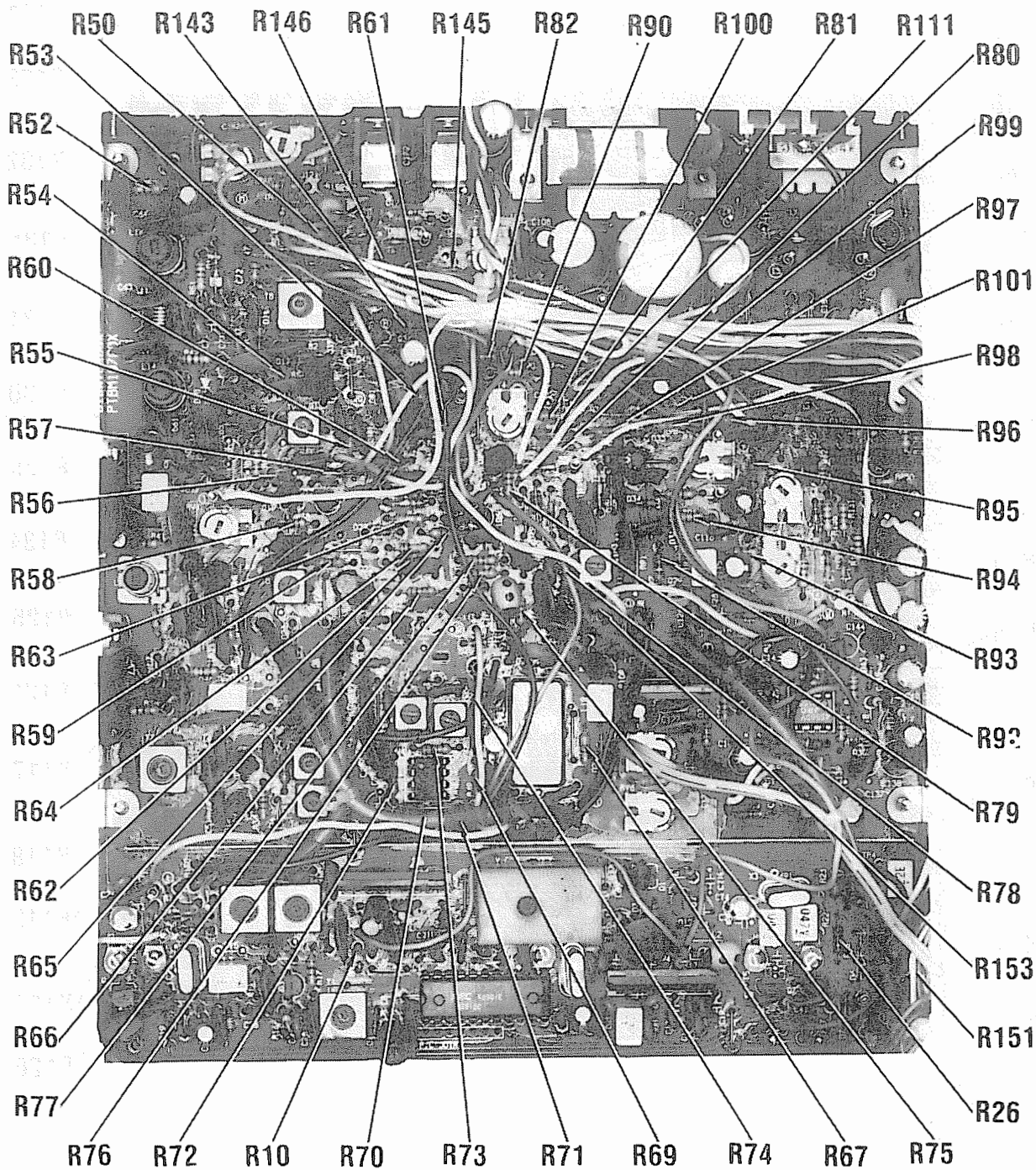


MIDLAND MODEL 7001 (79-007)

MAIN BOARD

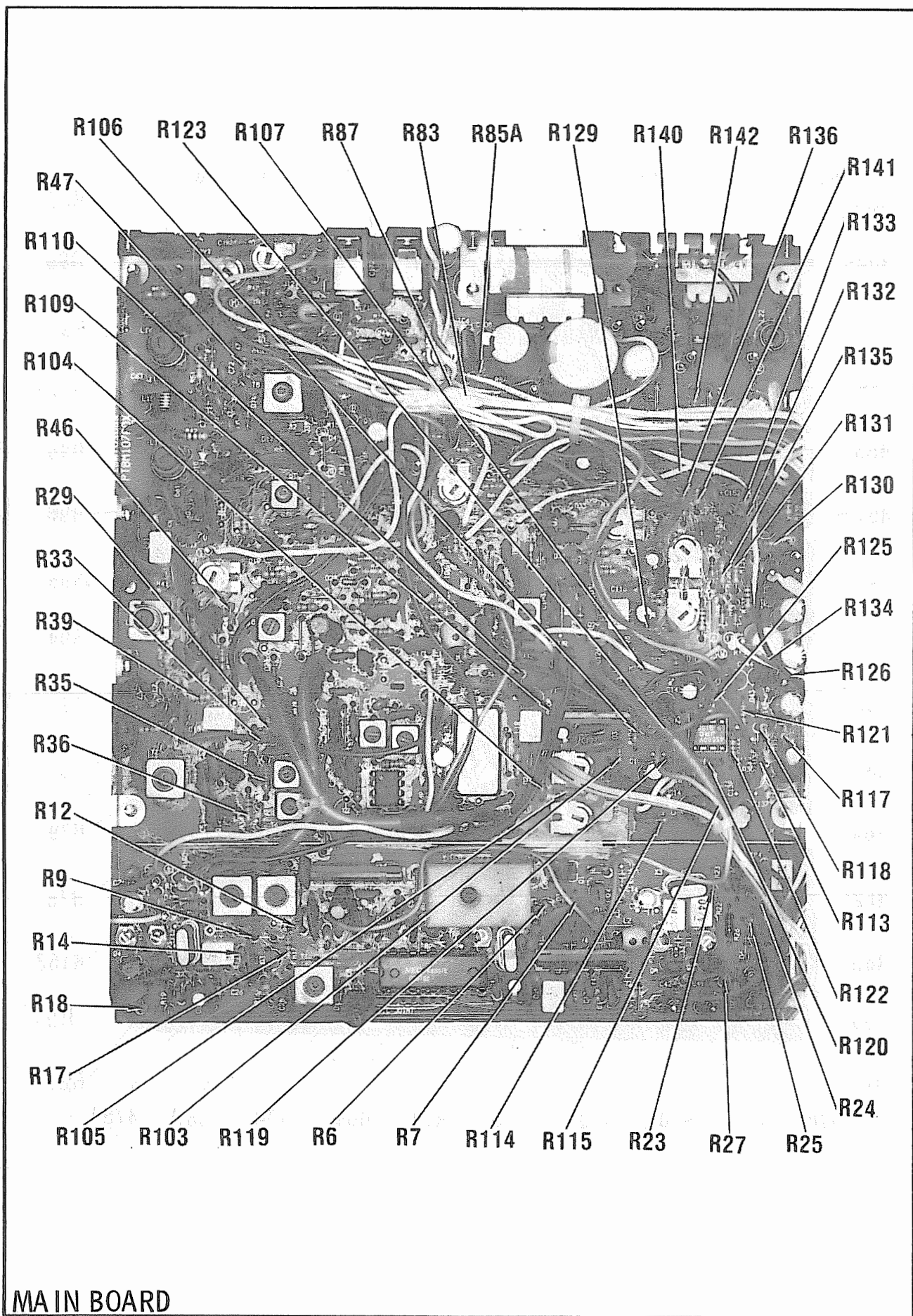


MAIN BOARD

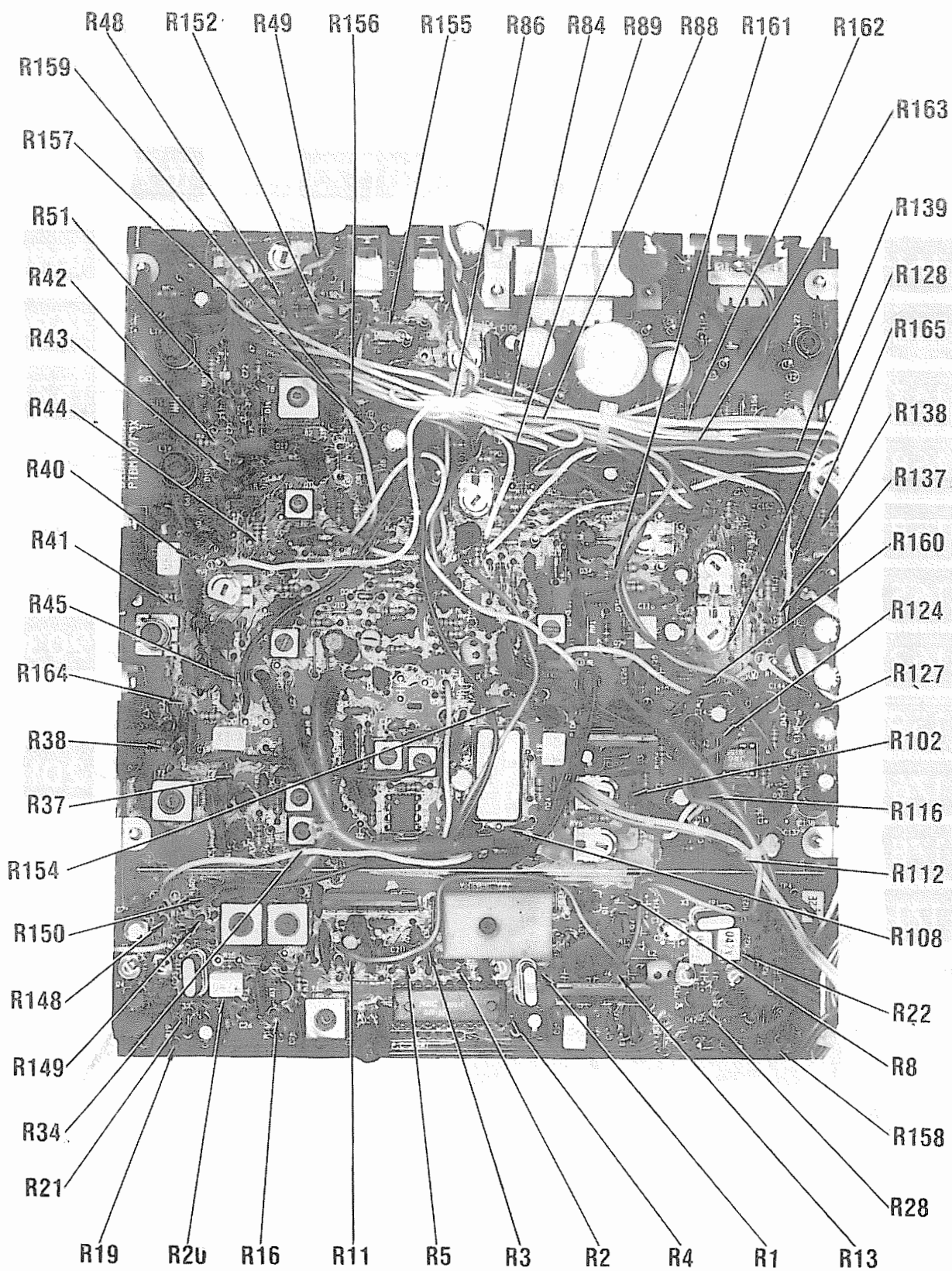


MIDLAND MODEL 7001 (79-007)

MAIN BOARD

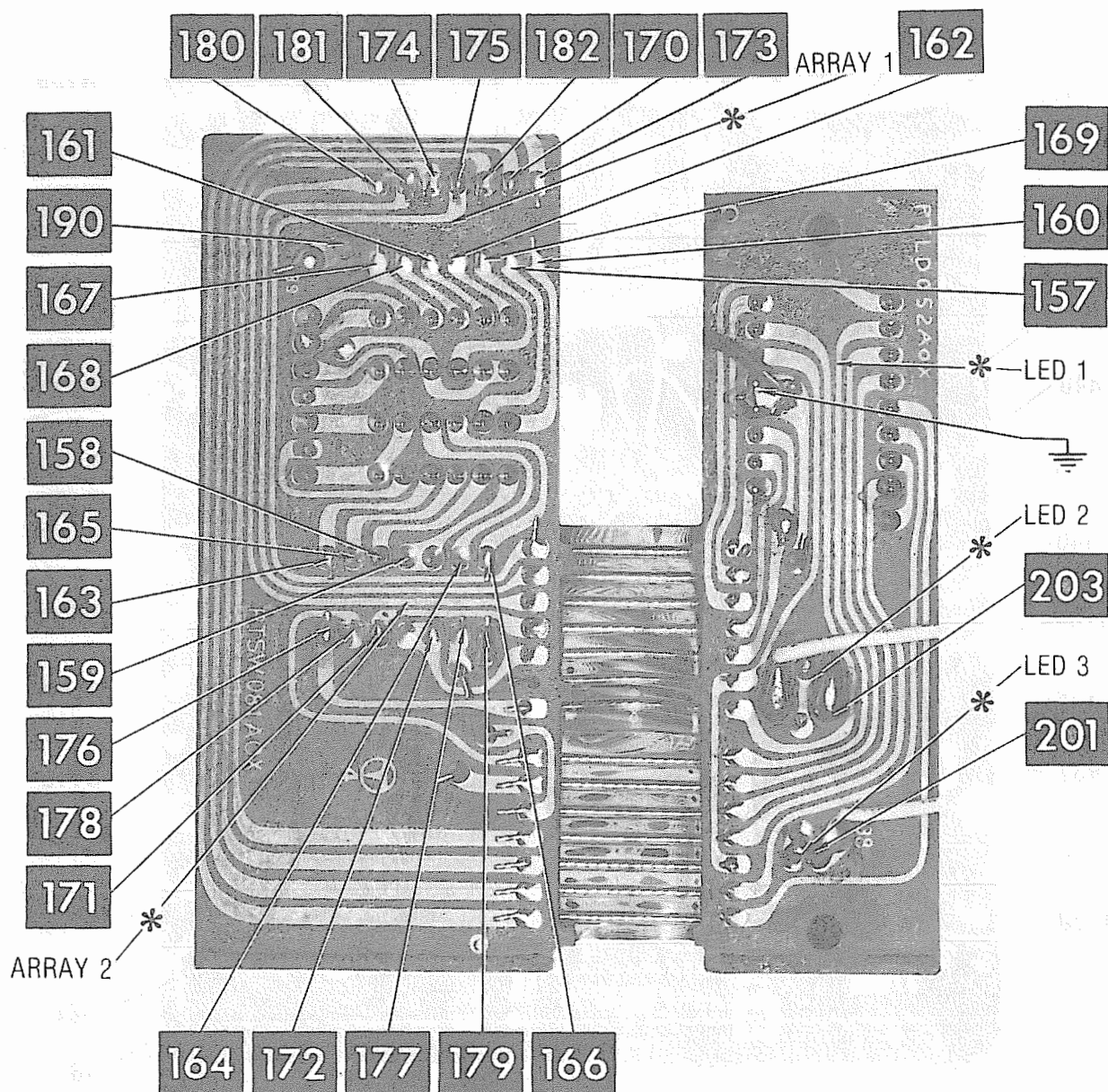


MAIN BOARD



MIDLAND MODEL 7001 (79-007)

MAIN BOARD



* COMPONENT LOCATED ON OTHER SIDE OF BOARD

CHANNEL SELECTOR BOARD

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA		
			MALLORY PART No.	SPRAGUE PART No.	
				Q-LINE	GENERAL LINE
C105	.0047 50V		GP247		5GA-047
C110	.01 50V		MAG5011		
C112	6 N150 50V		*		10TCP-V68
C113	33 N150 50V 10%		*		10TCP-Q33
C114	33 N150 50V		*		10TCP-Q33
C116	.0022 50V		GP222	QCT2-46	10TS-022
C117	.01 10% 50V		M192P1039RB	QFT2-91	1FT-S10
C118	.01 50V		MAG5011		
C119	22 N150 50V		*		10TCP-Q22
C120	.0047 50V		GP247		5GA-047
C123	220 50V		GP322		10TS-T22
C124	.022 50V		M192P2239RB		192P2239RB
C126	8 50V		CN0410	QCC2-15	10TCC-Q10
	3 50V		CN0533		10TCC-V33
C127	100 N150 50V 10%		*		10TCP-T10
	220 50V		GP322		10TS-T22
C129	.01 50V		MAG5011		
C131	.01 50V		MAG5011		
C132	100 N150 50V		*		10TCP-T10
C133	.01 50V		MAG5011		
C134	.01 50V		MAG5011		
C135	.0047 50V		GP247		5GA-047
C139	.015 50V		MAG50115		192P2239RB
C140	.022 50V		M192P2239RB		10TCC-T27
C147	270 50V 10%				192P2239RB
C150	.022 50V		M192P2239RB		
	.01 50V		MAG5011		
C152	.0022 50V		GP222	QCT2-46	10TS-022
C155	.068 50V 10%		EWFA1A16B	QF1-195	1PB-S68
C157	.068 50V 10%		EWFA1A16B	QF1-195	1PB-S68
C158	.01 50V		MAG5011		
	.068 36V		EWFA1A16B	QF1-195	1PB-S68
C164	.47 50V		MAG12047	QC1-257	HY-380
	.047 50V		EWFA1A147	QF1-171	1PB-S47
C167	.01 50V		MAG5011		
C170	.01 50V		MAG5011		
C171	.01 50V		MAG5011		
C172	.001 50V		GP210	QC2-81	5GA-010
C173	.01 50V		MAG5011		
C174	.047 50V		MAG5015		
C176	10 N150 50V		*		10TCP-Q10
C177	68 N150 50V 10%		*		10TCP-Q68
C178	.01 50V		MAG5011		
C179	.0047 50V		GP247		5GA-047
	.047 50V		MAG5015		10TCP-T15
C180	10 N150 50V		*		
C181	.01 50V		MAG5011		
C182	.01 50V		MAG5011		
C183	.01 50V		MAG5011		
C184	.047 50V		MAG5015		
C185	.047 50V		MAG5015		
C190	100 N150 50V 10%		*		10TCP-T15
C191	.0022 50V		GP222	QCT2-46	10TS-022
C192	.01	(1)			
C193	.01 50V		MAG5011		
C194	.047 50V		MAG5015		
C195	.047 50V		MAG5015		
C196	.047 50V		MAG5015		
C197	.047 50V		MAG5015		
C198	.047 50V		MAG5015		
C199	.047 50V		MAG5015		
C200	.047 50V		EWFA1A147	QF1-171	1PB-S47
C201	.047 50V		EWFA1A147	QF1-171	1PB-S47
C202	.047 50V		EWFA1A147	QF1-171	1PB-S47
C203	.047 50V		EWFA1A147	QF1-171	1PB-S47
C204	.047 50V		EWFA1A147	QF1-171	1PB-S47
C205	.01 50V		MAG5011		
C206	.01 50V		MAG5011		
C210	.047 50V		EWFA1A147	QF1-171	1PB-S47
	.01 50V		MAG5011		
C211	.047 50V		EWFA1A147	QF1-171	1PB-S47
C212	.047 50V		EWFA1A147	QF1-171	1PB-S47
C213	.047 50V		EWFA1A147	QF1-171	1PB-S47
C214	.047 50V		EWFA1A147	QF1-171	1PB-S47
C215	.01 50V		MAG5011		
C216	.01 50V		MAG5011		
C217	.01 50V		MAG5011		
C218	.0022 50V		GP222	QCT2-46	10TS-022
C291	18 50V		CN0418		10TCC-Q18
C292	18 50V		CN0418		10TCC-Q18
C294	.001 50V		GP210	QCT2-41	10TS-010
C295	.0047 50V		GP247		5GA-047
C296	.0047 50V		GP247		5GA-047
C297	.0022 50V		GP222	QCT2-46	10TS-022
C501	.047 50V		EWFA1A147	QF1-171	1PB-S47
	.01 50V		MAG5011		
C503	.047 50V		EWFA1A147	QF1-171	1PB-S47
	.01 50V		MAG5011		
C504	.047 50V		EWFA1A147	QF1-171	1PB-S47
	.01 50V		MAG5011		
C505	.01 50V		MAG5011		
C506	.01 50V		MAG5011		

MIDLAND MODEL 7001 (79-007)

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA		
			MALLORY PART No.	SPRAGUE PART No.	
				Q-LINE	GENERAL LINE
C507	.001 50V		GP210	QCT2-41	10TS-010
C508	.047 50V		EWFA147	QF1-171	1PB-547
C510	.047 50V		EWFA147	QF1-171	1PB-547
	.001 50V		GP210	QCT2-41	10TS-010
CT1	Trimmer 10pF	79-123004			
CT2	Trimmer 20pF	79-123004			
CT3	Trimmer 25pF	79-123004			
CT4	Trimmer 10pF	79-123004			
CT5	Trimmer 20pF	79-123004			
CT6	Trimmer 25pF	79-123004			
CT7	Trimmer 25pF	79-123005			

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

(1) Not used in some models.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFR. PART No.	MALLORY PART No.	TRW PART No.
RV1	Final Bias	300	79-164023		
RV2	Power Meter	20K	79-164022	RVA0911H253	U260R253B
RV3	Signal Meter	10K	79-164020	RVA0911H103	U260R103B
RV4	AGC	2000	79-164021	RVA0911H252	U260R252B
RV5	Squelch Range	10K	79-164020	RVA0911H103	U260R103B
RV6	Carrier Balance	20K	79-164020	RVA0911H103	U260R103B
RV7	Carrier Balance	1000	79-164019	RVA0911H102	U260R102B
RV8	SSB Modulator	20K	79-164022	RVA0911H253	U260R253B
RV9	AM Modulator	1000	79-164019	RVA0911H102	U260R102B
RV10	SSB ALC	10K	79-164020	RVA0911H102	U260R103B
RV501	AWI	20K	79-164024	RVA0911V253	X260R253B
VR1	AM Power	6 10W WW	79-164029		
VR2	AF Gain/Power Switch	50K	79-164028		
VR3	Squelch	50K	79-164026		
VR4	Clarifier	50K	79-164026		
VR5	RF Gain	50K	79-164027		
VR6	Mic Gain	5000	79-164025		

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		MFR. PART No.	WORKMAN PART No.			MFR. PART No.	WORKMAN PART No.
R-Array 1	Resistor Array	(1)		R-Array 3	Resistor Array	(1)	
R-Array 2	Resistor Array	(1)					

(1) Includes 7, 1000 ohm Resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	RF Choke	79-178027	022E		
L2	RF Choke (150uH)	79-176048			
L3	RF Choke	79-178027	047Z		
L4	RF Choke	79-178028	047V		
L5	RF Choke	79-178028	047V		
L6	RF Choke	79-178027			
L7	RF Choke	79-178025			
L8	RF Choke	79-176038			
L9	RF Choke	79-178025			
L10	XMT Driver	79-176043			
L11	RF Choke	79-176048	680A		
L12	RF Choke	79-178024			
L13	RF Choke	79-176038			
L14	Final (27MHz)	79-176045			
L15	RF Choke	79-176037			
L16	XMT Antenna (27MHz)	79-176044			
L17	RF Choke (150uH)	79-178026			
L18	RF Choke	79-176048	680A		
L19	RF Choke	79-176048	680A		
L20	RF Choke	79-176048	680A		
L21	RF Choke	79-178023			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF) (cont)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS		
		PART No.	OTHER IDENTIFICATION	MILLER PART No.			
L22	RF Choke	79-178023	10DB002S				
T1	Osc (20.933MHz)	79-176046					
T2	Mixer (37.658MHz)	79-090018					
T3	Mixer (37.658MHz)	79-176047					
T4	Mixer (10.690MHz)	79-090016	07CA007S				
T5	XMT Mixer (27MHz)	79-176039					
T6	XMT Mixer (27MHz)	79-176040					
T7	XMT Preamp (27MHz)	79-176042					
T8	Rec Antenna (27MHz)	79-090019	10CN004S				
T9	Rec RF (27MHz)	79-176041	07MA008S				
T10	IF (10.6935MHz)	79-090016					
T11	IF (10.691MHz)	79-090016	07MA0029				
T12	IF (10.690MHz)	79-090017					

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA				
		PART No.		BUSS PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	3A Quick-Acting		79-034006	AGC3	HRK	FG3-2

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
CH1	2.95A	.23	3.3mH	79-178029			

TRANSFORMER

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T13	6.4	18.5	79-090015			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3 1/2" PM, 8 Ohm	79-060003	3A05Z8	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
J1	Jack	79-153003	Antenna PA Speaker External Speaker DC Power Mic
J2	Jack	79-153001	
J3	Jack		
J4	Jack	79-153002	
J5	Jack	76-153004	
LED1	LED	79-202004	Meter Channel Select USB/LSB/AM PA/CB
LED2	LED	79-202003	
LED3	LED	79-202005	
MCF1	Filter		
M1	Meter	79-200004	
PL1	Lamp		
SW1	Switch	79-180008	
SW2	Switch	79-180009	
SW3	Switch	79-183004	

MIDLAND MODEL 7001 (79-007)

PARTS LIST AND DESCRIPTION (CONTINUED)

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

MISCELLANEOUS (cont)

ITEM No.	PART NAME	PART No.	NOTES
SW4	Switch	79-183004	NB/ANL
SW5	Switch	79-183004	Tone
SW6	Switch	79-183004	Dim
SW7	Switch	79-183004	RF Antenna
VCO	Block	79-075008	VCO
X1	Crystal	79-128013	10.240MHz
X2	Crystal	79-128015	10.4667MHz
X3	Crystal	79-128016	10.691MHz
	Microphone	79-038004	
	P.C. Board	79-070006	LEO Display, W/O Comp.
	P.C. Board	79-070007	Antenna Warning, W/O Comp.
	P.C. Joint	79-070009	
	P.C. Joint	79-070010	
	P.C. Board	79-075010	LEO Display
	P.C. Board	79-075011	Antenna Warning W/Comp.

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

ITEM	PART No.	ITEM	PART No.
Cover, Top	79-011004	Knob, VR	79-115007
Cover, Bottom	79-011005	Panel, Front	79-018001
Knob, Channel	79-115008	Panel, Rear	79-013006

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

* Lead configuration may vary from original.
/** Also available as exact type replacement.

* Axial replacement for radial device.

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

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.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D45	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D46	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D47	GP25G	05-141025	GE-512	PTC204	SK3051/156	ECG156	TM156	WEP4008/156	212-Z9000
D48	RD9E	05-540091	GEZD-8.7		SK3749/5073A	ECG5073A	TM5078	WEP1155/5073	
D49	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D50	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D51	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D52	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D53	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D54	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D57	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D58	RA1Z	05-540001	GE-504A	PTC201	SK3311	ECG116	TM116	WEP156	212-76-02
D61			GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D62			GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D501	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
IC1	UPD2816C	02-392816			SK3381				
IC2	C3001-0 TA7310P	02-257310	GEIC-326		SK3445/1192	ECG1192		WEP2120/1192	221-Z9061
IC3	C3001-0 TA7310P	02-257310	GEIC-326		SK3445/1192	ECG1192		WEP2120/1192	221-Z9061
IC4	SN76600P SN76600	02-276600	GEIC-217		SK3234/746	ECG746	TM746	WEP2024/746	221-Z9028
IC5	AN612	02-010612	GEIC-217		SK3234/746	ECG746	TM746	WEP2024/746	221-Z9028
IC6	MS1204	02-151204				ECG1249		WEP2263/1249	221-Z9068
IC7	455BCV 455BD	02-455804							
IC8	UPC1182H UPC1182	02-301182			SK3923				
Q1	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q2	2SA733AQ 2SA733	01-030733	GE-48	PTC127	SK3114/290	ECG159*	TM159/**	WEP62/159*	121-Z9067
Q3	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q4	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q5	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q6	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q7	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q8	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q9	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q10	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q11	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q12	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q13	2SC2166	01-032166	GE-215	PTC186	SK3197/235	ECG235	TM235	WEP785/235	121-Z9039
Q14	2SC1969	01-031969	GE-216	PTC186	SK3239/236	ECG236	TM236	WEP840/236	121-Z9040
Q15	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q17	2SC900U 2SC900	01-030900	GE-62	PTC139*	SK3899	ECG199	TM199/**	WEP66/199	121-972*
Q18	2SC1973	01-031973	GE-285*	PTC143*	SK3849/293	ECG293	TM293	WEP912/293	121-972*
Q19	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q20	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q21	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q22	2SA733AQ 2SA733	01-030733	GE-48	PTC127	SK3114/290	ECG159*	TM159/**	WEP62/159*	121-Z9067
Q23	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q24	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q25	2SK34	01-070034	GE-FET-2*	PTC161*	SK3448	ECG312*	TM312*	WEP920/312*	921-1067*
Q26	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q27	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q28	2SC900U 2SC900	01-030900	GE-62	PTC139*	SK3899	ECG199	TM199/**	WEP66/199	121-972*
Q29	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q30	2SK136Q 2SK136	01-070136	GE-FET-2*	PTC161*	SK3448	ECG312*	TM312*	WEP920/312*	921-1067*
Q31	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-Z9000A*
Q32	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q33	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q34	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

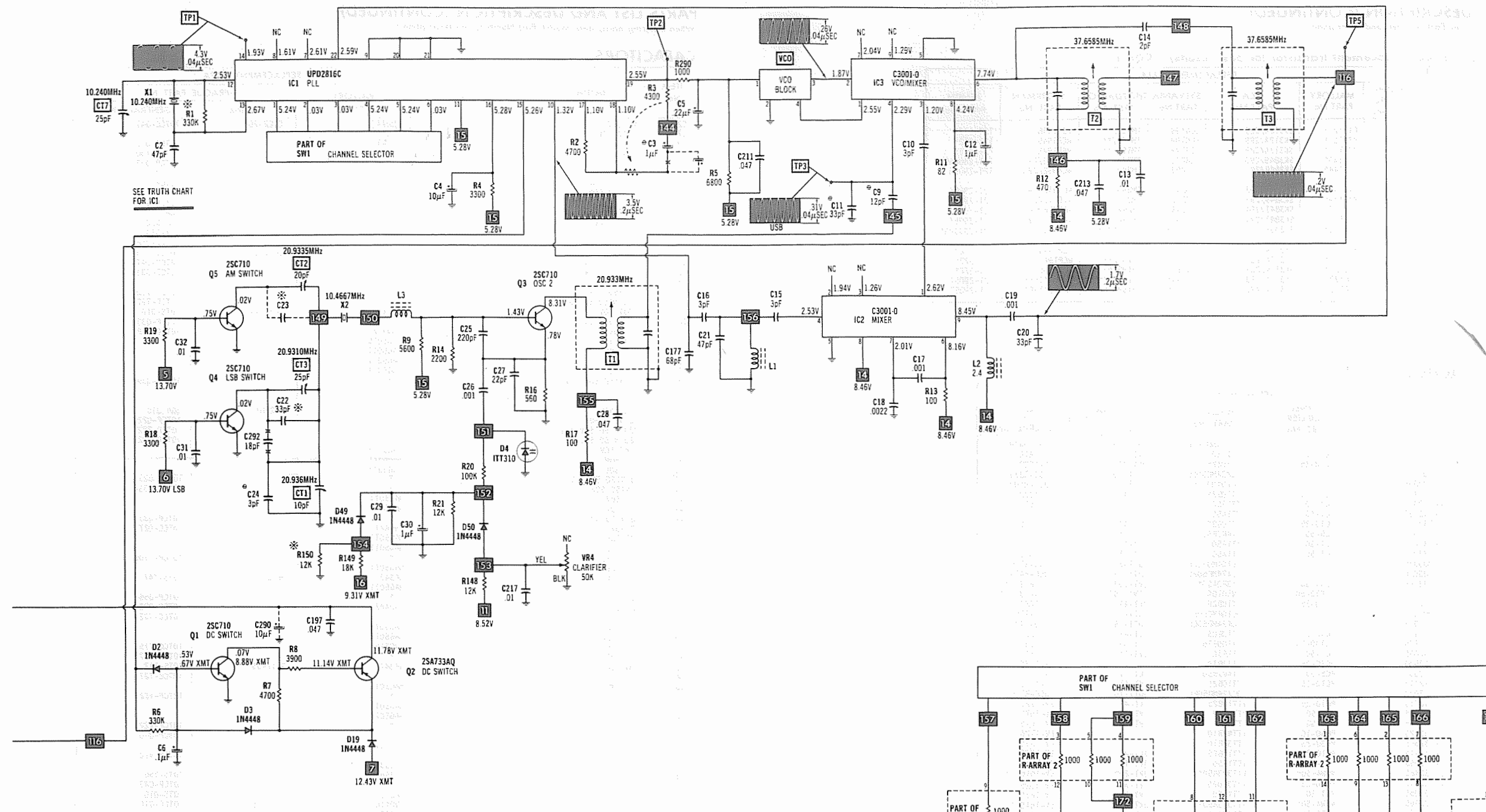
ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA						
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZEN PART
Q35	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q36	2SC945 2SC1383R 2SD471	01-040471	GE-212 GE-47	PTC121* PTC144*	SK3124/289 SK3849/293	ECG199 ECG293	TM199/** TM293	WEP1945 WEP912/293	121-972* 121-29
Q37	2SC1383R 2SD471	01-040471	GE-47	PTC143*	SK3849/293	ECG293	TM293	WEP912/293	121-29
Q38	2SA683R 2SB564	01-020564	GE-67	PTC177	SK3841/294	ECG294	TM294	WEP916/294	121-29
Q39	2SC710	01-030710	GE-211*	PTC132*	SK3356	ECG107*	TM107/**	WEP710	121-29
Q40	2SC945AP 2SC945A	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
Q41	2SC945 2SA733AQ 2SA733	01-030733	GE-212 GE-48	PTC121* PTC127	SK3124/289 SK3114/290	ECG199 ECG159*	TM199/** TM159/**	WEP1945 WEP62/159*	121-972* 121-29

* Lead configuration may vary from original.

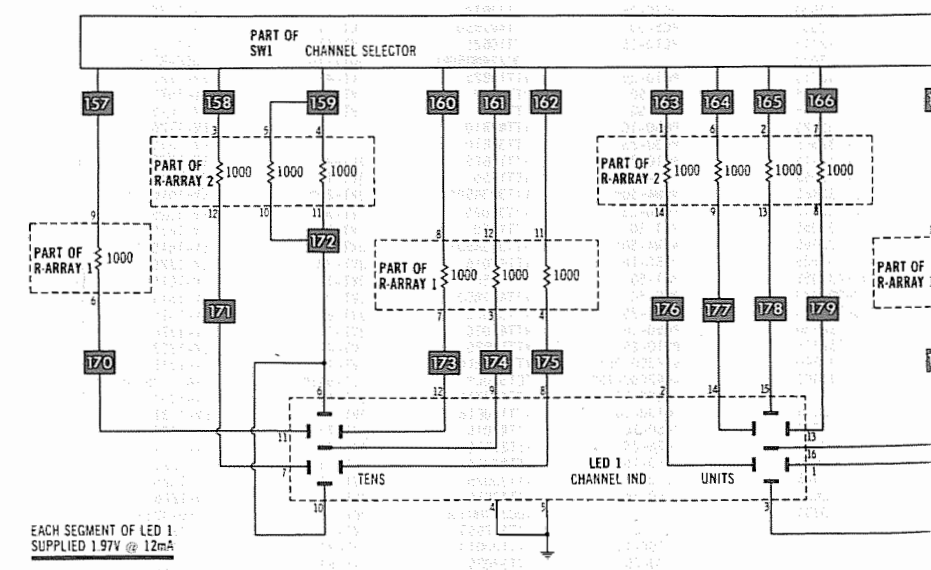
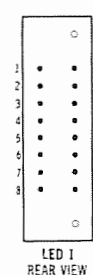
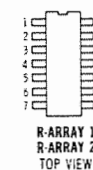
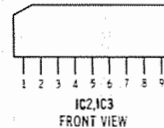
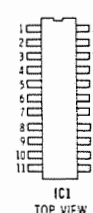
** Also available as exact type replacement.

ELECTROLYTIC CAPACITORS

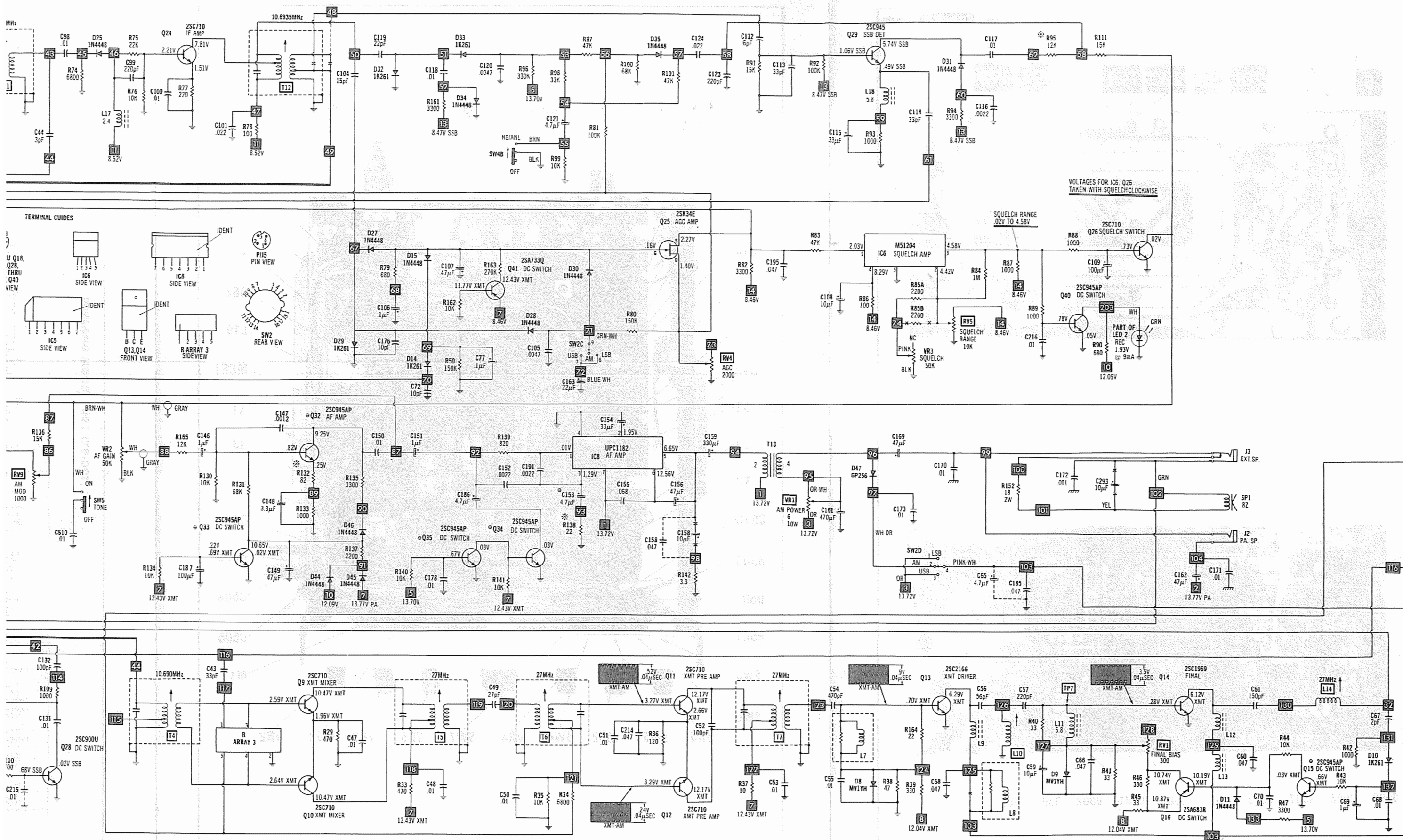
ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C3	.47 35V	03-003026		TDG474M050EL	Q0T1-19	SD50-R479
	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C4	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C5	.22 35V	03-003030		TDG224M050EL	Q0T1-10	SD50-R229
C6	.1 35V	03-003035		TDG104M050EL	Q0T1-2	SD50-R109
C8	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C12	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C30	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C59	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C65	4.7 50V	00-132610	PC5-50	VT4R7B50	QV1-31	EV-1619.1
C69	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C75	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C77	.1 35V	03-003035		TDG104M050EL	Q0T1-2	SD50-R109
C81	.47 35V	03-003026		TDG474M050EL	Q0T1-19	SD50-R479
C93	3.3 25V	00-132465	NLW4-50*	VT3R3A50*	QV1-25*	EV-1618.1*
C96	.10 16V NP		WNP10-50	TCN5010A	QEN1-187	TVAN-1304.1
	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C106	.1 35V	03-003035		TDG104M050EL	Q0T1-2	SD50-R109
C107	.47 35V	03-003026		TDG474M050EL	Q0T1-19	SD50-R479
C108	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C109	100 16V	00-132175	PC100-16	VT1100E16	QV1-95	EV-1231
C111	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C115	33 6.3V	00-132500	PC30-25	VT33B10	QV1-31	EV-1225
C121	4.7 25V	00-132600	PC5-50	VT4R7B50	QV1-31	EV-1619.1
C125	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C128	.22 35V	03-003030		TDG224M050EL	Q0T1-10	SD50-R229
C130	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C136	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C137	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C138	47 6.3V	00-132620	PC50-10	VT47B10	QV1-73	EV-1226
C141	33 10V	00-132505	PC30-25	VT33B10	QV1-31	EV-1225
C142	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C143	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C144	3.3 25V	00-132465	NLW4-50*	VT3R3A50*	QV1-25*	EV-1618.1*
C145	33 16V	00-132510	PC30-25	VT33B25	QV1-63	EV-1325
C146	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C148	3.3 25V	00-132465	NLW4-50*	VT3R3A50*	QV1-25*	EV-1618.1*
C149	47 10V	00-132625	PC50-16	VT47B16	QV1-73	EV-1226
C151	.1 50V	00-132055	PC1-50	VT1A50	QV1-11	EV-161.5
C153	4.7 16V	03-003020	PC5-50	VT4R7B50	QV1-31	EV-1619.1
C154	33 16V	00-132510	PC30-25	VT33B25	QV1-63	EV-1325
C156	47 16V	00-132630	PC50-16	VT47B16	QV1-73	EV-1226
C158	.10 16V	00-132115	PC10-25	VT110B25	QV1-41	EV-1222
C159	330 16V	00-132540	WBR300-35*	VT330H16	QV1-133	EV-1245
C160	2200 16V	00-132400	WBR2000-16*	TC1520C*	QE1-643*	TWA-1175.3*
C161	470 16V		PC500-16	VT470K16	QV1-151	EV-1251
	100 16V	00-132175	PC100-16	VT1100E16	QV1-95	EV-1231
C162	47 16V	00-132630	PC50-16	VT47B16	QV1-73	EV-1226
C163	22 16V	00-132300	PC25-25	VT22B16	QV1-55	EV-1224
C165	47 10V	00-132625	PC50-16	VT47B16	QV1-73	EV-1226
C168	33 16V	00-132505	PC30-25	VT33B25	QV1-63	EV-1325
C169	47 16V	00-132630	PC50-16	VT47B16	QV1-73	EV-1226
C175	.22 35V	03-003030		TDG224M050EL	Q0T1-10	SD50-R229
C186	4.7 25V		PC5-50	VT4R7B50	QV1-31	EV-1619.1
C187	100 6.3V		PC100-10	VT1100B10	QV1-93	EV-1131
C188	33 16V		PC30-25	VT33B25	QV1-63	EV-1325
C189	33 16V		PC30-25	VT33B25	QV1-63	EV-1325
C290	.10 16V		PC10-25	VT110B25	QV1-41	EV-1222
C293	.10 16V		PC10-25	VT110B25	QV1-41	EV-1222
C299	33 16V		PC30-25	VT33B25	QV1-63	EV-1325
C502	4.7 25V	00-132600	PC5-50	VT4R7B50	QV1-31	EV-1619.1

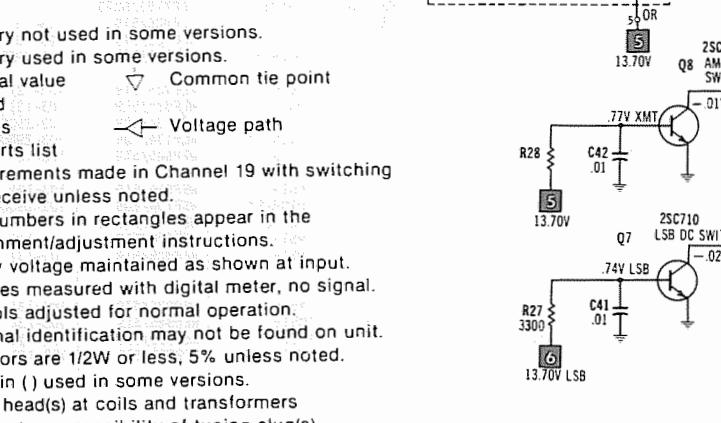
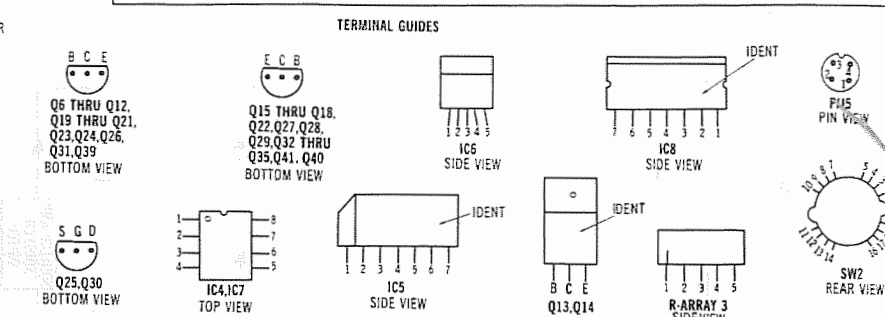
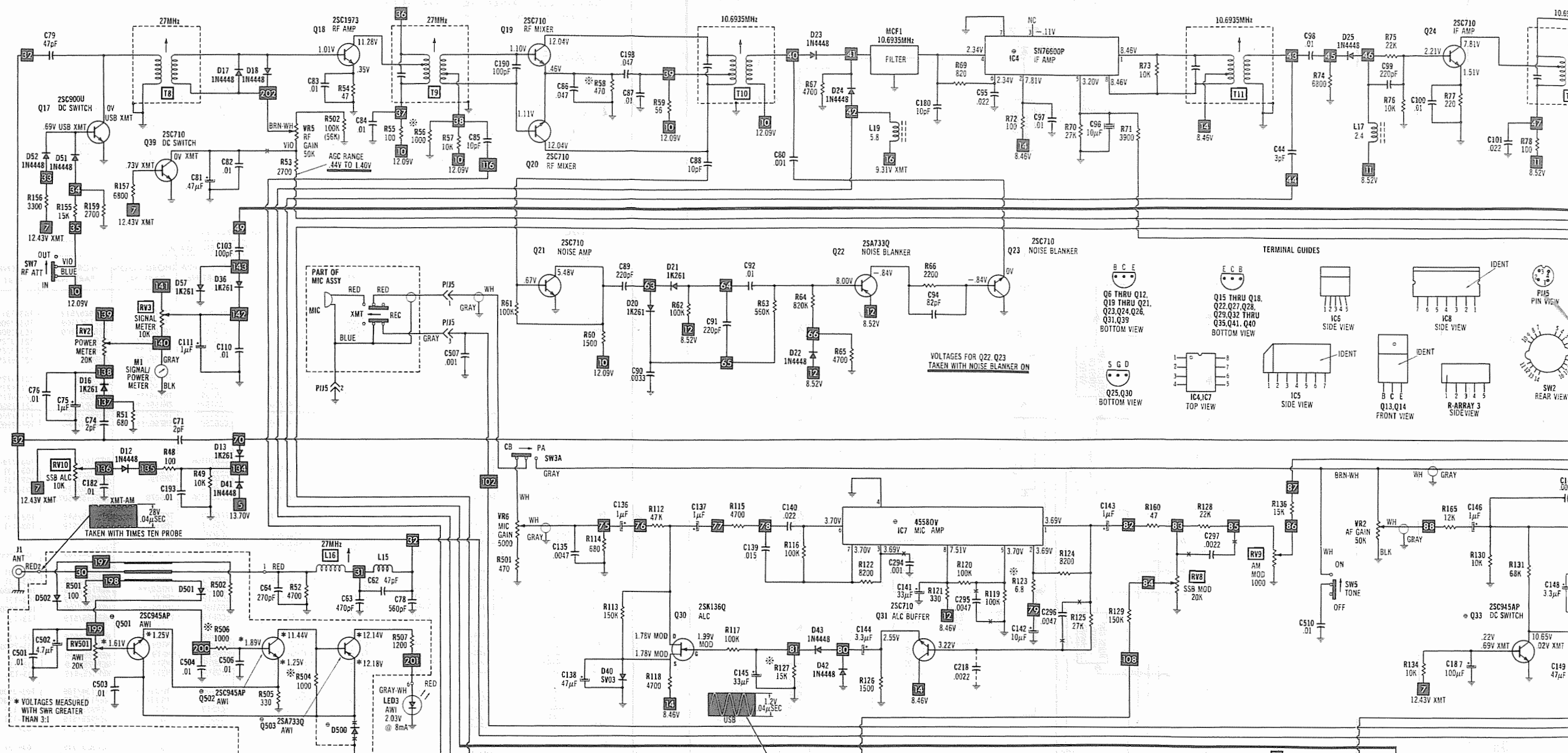


- Circuitry not used in some versions.
 - - - Circuitry used in some versions.
 - ⊗ Nominal value
 - ⊕ Common tie point
 - ⊕ Ground
 - ⊕ Chassis
 - ⊕ See parts list
 - ⊕ Voltage path
- Measurements made in Channel 19 with switching in receive unless noted.
- Item numbers in rectangles appear in the alignment/adjustment instructions.
- Supply voltage maintained as shown at input.
- Voltages measured with digital meter, no signal.
- Controls adjusted for normal operation.
- Terminal identification may not be found on unit.
- Resistors are 1/2W or less, 5% unless noted.
- Value in () used in some versions.
- Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).
- A PHOTOFAC STANDARD NOTATION SCHEMATIC
- WITH **CIRCUITRACE**
- © Howard W. Sams & Co., Inc. 1980

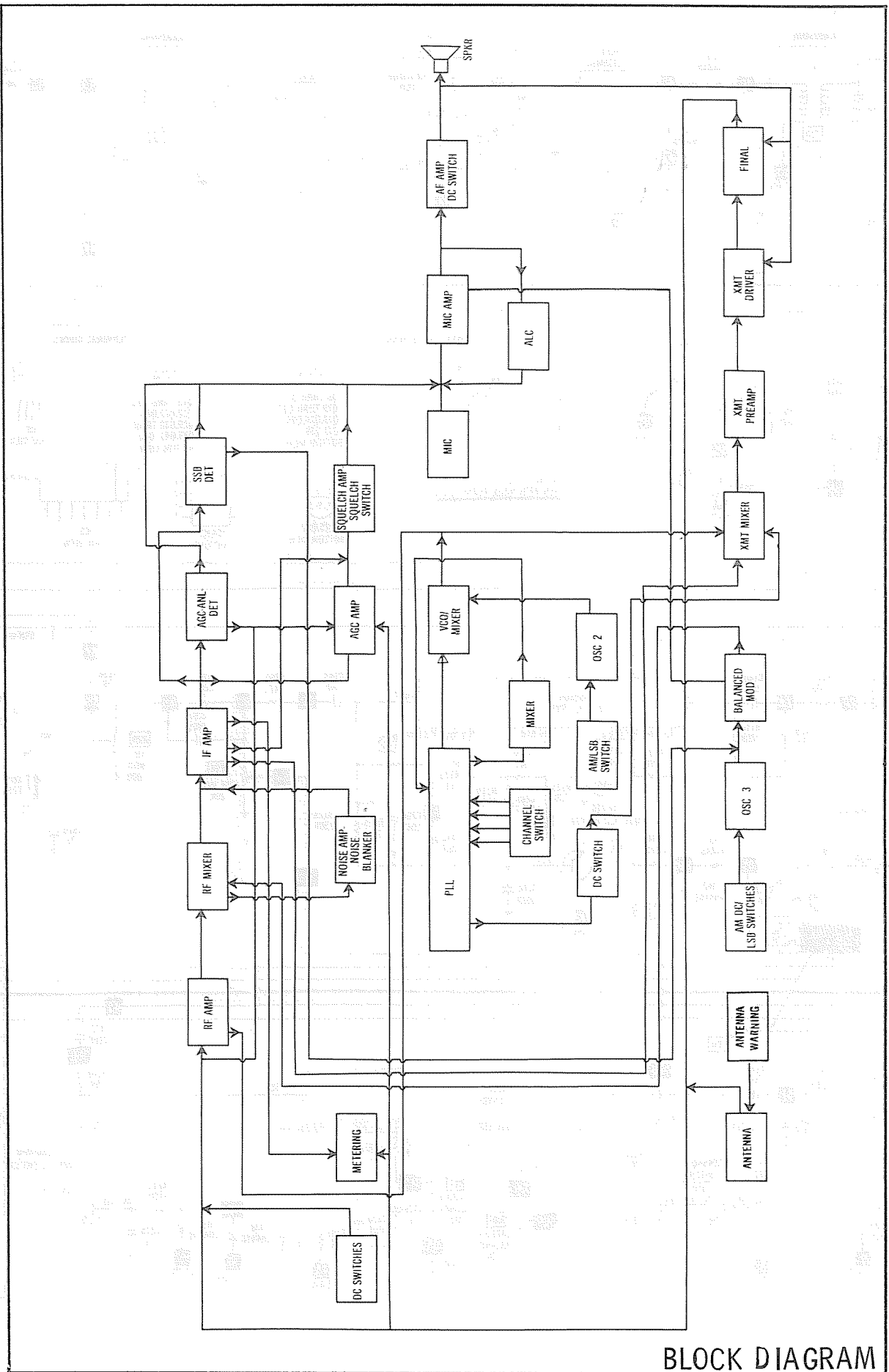
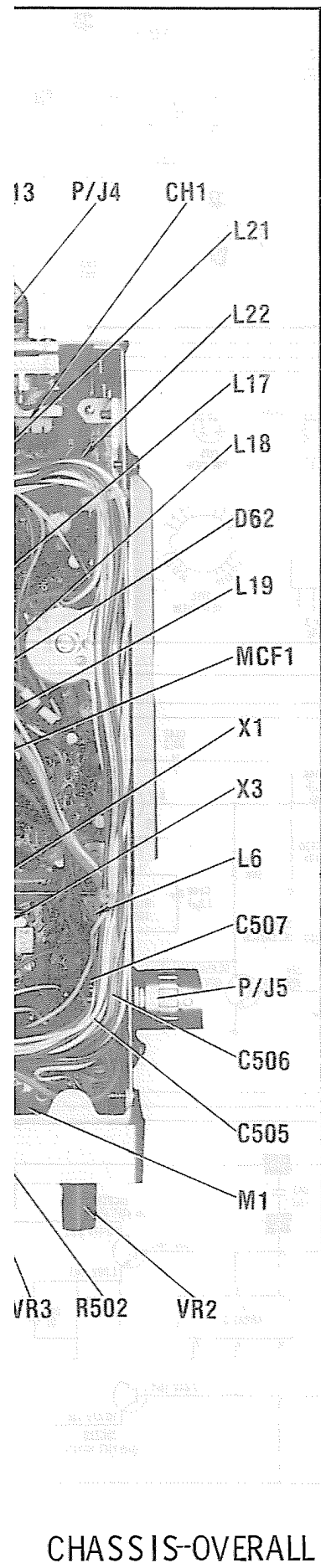


PLL SCHEMATIC





--- Circuitry not used in some versions.
 --- Circuitry used in some versions.
 * Nominal value
 Ground
 Chassis
 See parts list
 Measurements made in Channel 19 with switching in receive unless noted.
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.
 Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).



PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

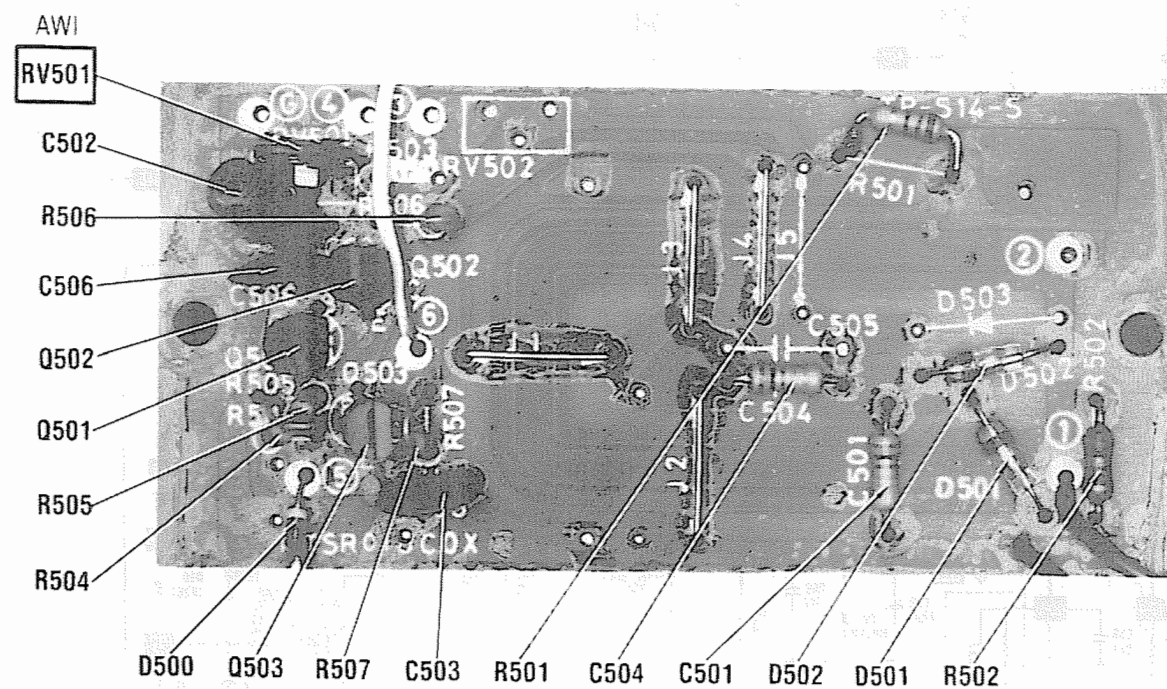
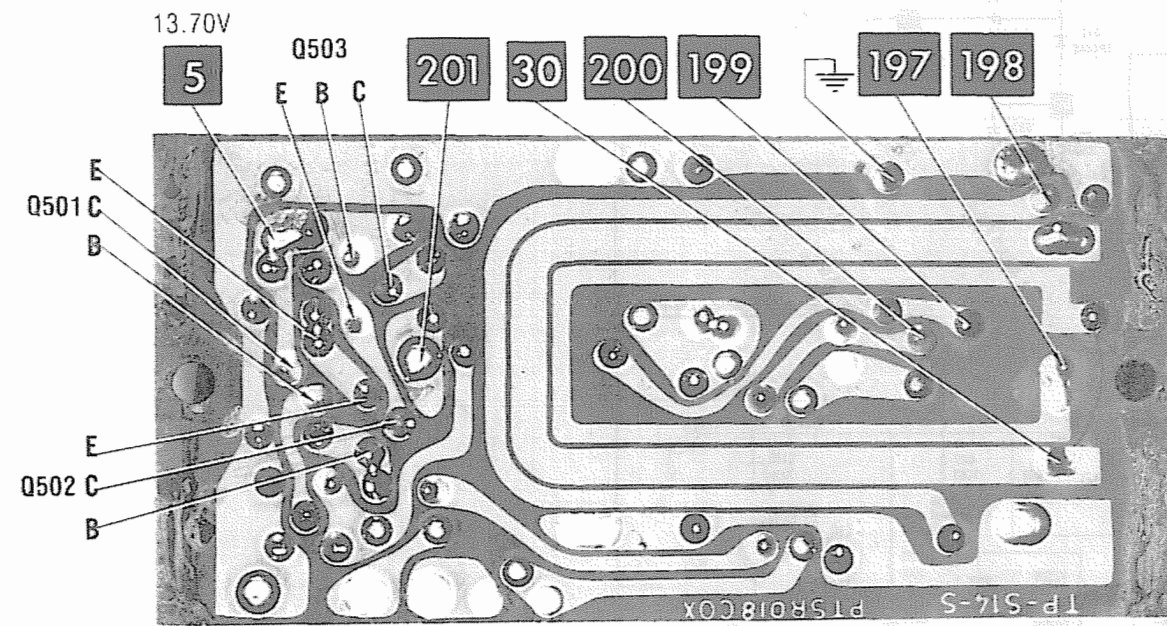
WIRING DATA

Cable (Speaker) (Unshielded).....	Use Belden No. 8782 (AWG24) (4 colors)
Shielding Strap.....	Use Belden No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use Belden No. 8524 (AWG22) (13 colors)
Hook-up Wire (Shielded).....	Use Belden No. 8401 (Braided Shield) (1 conductor) (AWG25)
	Use Belden No. 8421 (Spiral Shield) (1 conductor) (AWG25)
	Use Belden No. 8737 (Spiral Shield) (2 conductor) (AWG22)
Coax (Transmission Line)	Use Belden No. 8215 (RG-174/U, 50 ohms)
Microphone Cable (Coiled)	Use Belden No. 8497 (3 conductor-1 shielded) (6 ft.) (AWG22)
Microphone Cable (Coiled)	Use Belden No. 9466 (3 conductor-1 shielded) (6 ft.) (AWG23)
Microphone Cable (Coiled)	Use Belden No. 9468 (3 conductor-1 shielded) (6 ft.) (AWG31)

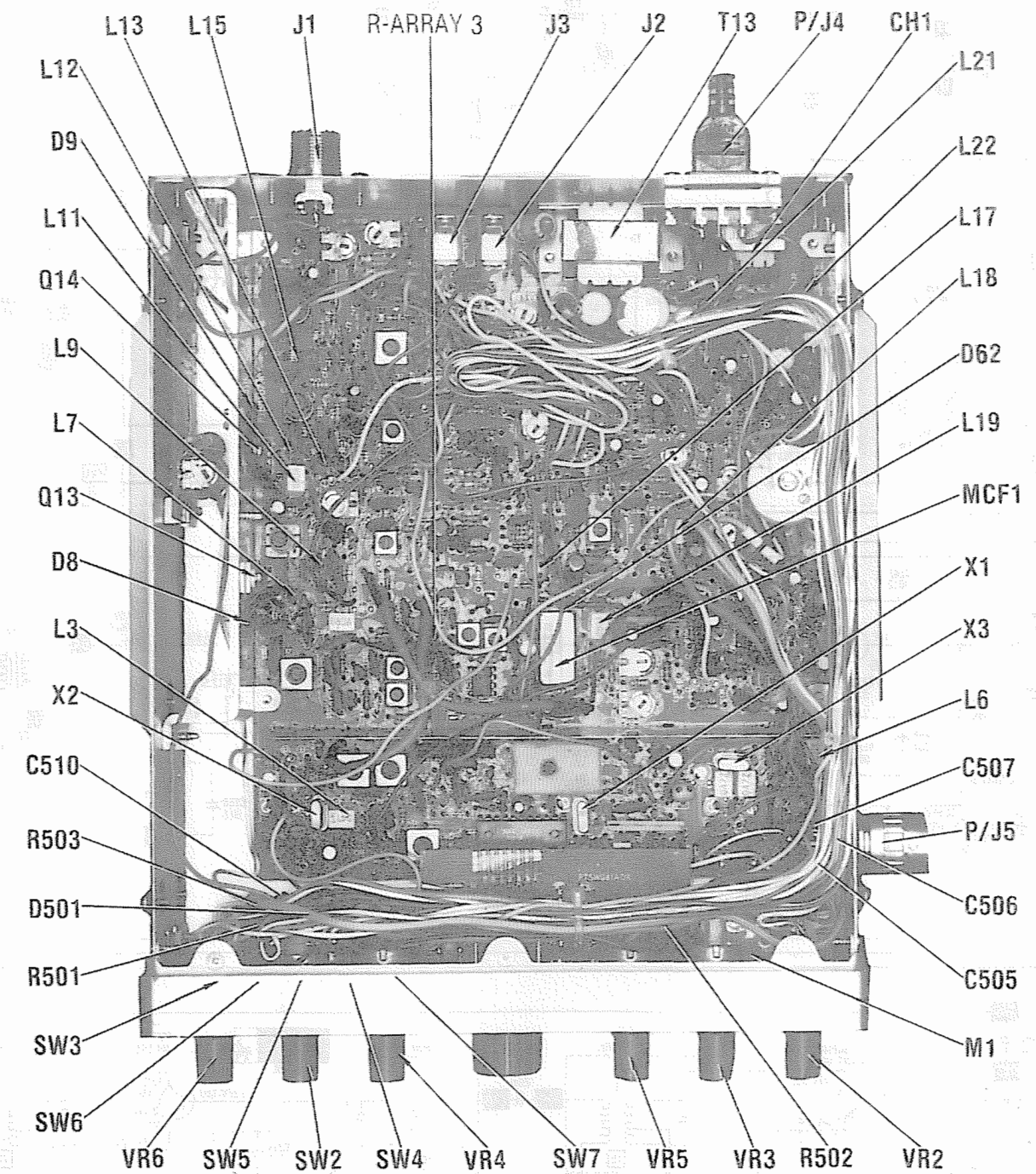
SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA						
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
AWI BOARD									
D500			GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D501	1N60	05-170060	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D502	1N60	05-170060	1N60	PTC206	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
Q501	2SC945AP		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC828	01-030828	GE-61*	PTC139*	SK3122	ECG199	TM199/**	WEP828	121-972*
Q502	2SC945AP		GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC945	01-030945	GE-212	PTC121*	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
	2SC828	01-030828	GE-61*	PTC139*	SK3122	ECG199	TM199/**	WEP828	121-972*
Q503	2SA7330		GE-48	PTC127	SK3114/290	ECG159*	TM159/**	WEP62/159*	121-Z9067
	2SA733	01-010733	GE-48	PTC127	SK3114/290	ECG159*	TM159/**	WEP62/159*	121-Z9067
	2SA719	01-010719	GE-269	PTC103*	SK3114/290	ECG290	TM290/**	WEP911/290	121-Z9003*
MAIN CHASSIS									
D1	M2205XE	05-480205		ZMS-1B	SK3776/5010A	ECG5010A		WEP1411/5010	103-279-10
D2	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D3	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D4	1T7310	05-200310	GE-90		SK3327/614	ECG614		WEP200/614	103-219
D5	RD9E	05-540091	GEZD-8.7		SK3749/5073A	ECG5073A	TM5078	WEP1155/5073	
D6	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D7	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D8	MV1YH	05-470000		PTC301	SK3463/601	ECG601			
D9	MV1YH	05-470000		PTC301	SK3463/601	ECG601			
D10	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D11	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D12	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D13	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D14	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D15	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D16	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D17	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D18	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D19	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D20	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D21	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D22	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D23	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D24	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D25	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D26	RD9E	05-540091	GEZD-8.7		SK3749/5073A	ECG5073A	TM5078	WEP1155/5073	
D27	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D28	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D29	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D30	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D31	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D32	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D33	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D34	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D35	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D36	1K261	05-190261	1N34AS	PTC207	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D37	RD9E	05-540091	GEZD-8.7		SK3749/5073A	ECG5073A	TM5078	WEP1155/5073	
D38	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D39	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D40	SV03	05-780003		PTC302	SK3864/605	ECG605			
D41	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D42	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D43	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131
D44	1N4448	05-174448	GE-514	PTC214	SK3100/519	ECG519	TM519	WEP925/519	103-131

MIDLAND MODEL 7001 (79-007)



AWI BOARD



CHASSIS-OVERALL