

PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

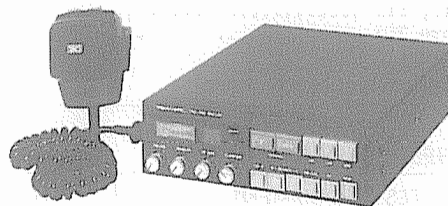
Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(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 TRC-480(21-1563)

MANUFACTURER'S SPECIFICATIONS

TRANSMITTER

Emission:	8A3, 4A3J
Frequency Coverage:	26.965 to 27.405 MHz
Power Output:	4 watts AM maximum 12 watts SSB (PEP)
Carrier Suppression:	55 dB or better
Intermodulation Distortion:	Below -25 dB (3rd)
Spurious Output:	-65 dB
Frequency Tolerance:	$\pm 0.0005\%$
Antenna Impedance:	50 ohms
Current Drain (13.8 volts DC):	AM: 2.5A maximum SSB: 2.5A, maximum
Microphone Sensitivity:	0.7 mV 50% Mod. AM 0.7 mV 4 watts PEP SSB
AMC Range:	60 dB 50 - 100% Mod. AM 60 dB 10 - 13.2 watts PEP SSB
Modulation Frequency Response:	-6 dB (450 Hz) (1 kHz = 0 dB) -6 dB (2.5 kHz)

RECEIVER

Frequency Coverage:	26.965 to 27.405 MHz
I.F.:	7.8 MHz
Sensitivity:	AM: $0.5\mu\text{V}$ or better for 10 dB (S + N/N) SSB: $0.25\mu\text{V}$ or better for 10 dB (S + N/N)
Selectivity:	More than 60 dB
Skirt Rejection (20 kHz):	AM: 80 dB SSB: 90 dB
Cross Modulation:	Better than 60 dB
Clarifier Range:	$\pm 1,000$ Hz
Overall Audio Fidelity:	AM: 450 - 2100 Hz SSB: 450 - 2500 Hz
IF Rejection Ratio:	80 dB
Image Rejection:	80 dB
Audio Output:	3.5 watts
Squelch:	Adjustable from $0.25\mu\text{V}$
Current Drain (13.8 V DC):	
At No Signal:	400 mA
At Max Output Power:	1200 mA

REALISTIC MODEL TRC-480 (21-1563)

Courtesy of the Manufacturer

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

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ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment.
 Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.
 Adjustments made with 13.8 volt DC input.
 Connect low sides of test equipment to ground unless specified otherwise.
 Connect 50-ohm dummy load or antenna before keying transmitter.
 Connect microphone.
 Suggested Alignment Tools: GC ELECTRONICS:
 T1 thru T5, T7 thru T13 9440
 L2 9300, 9302, 9304
 L7, L10, L11 8605, 9091, 9440
 TC1 thru TC5 5000, 8276, 9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (C19 at IC1 Pin 5).	Ch. 19	TC1	Adjust for 10.240MHz.
Input of DC meter to TP2 (Junction of R2 and R4).	Ch. 40	T1	Adjust for 4.00 volts. Check for approximately 2.00 volts on channel 1.
Input of frequency counter to TP3 (IC3, Pin 3).	Ch. 19, USB	L2	Adjust for 17.8875MHz.
Input of frequency counter to TP3 (IC3, Pin 3).	Ch. 19, AM	VR1	Adjust for 17.8850MHz.
Input of frequency counter to TP3 (IC3, Pin 3).	Ch. 19, LSB	VR2	Adjust for 17.8825MHz.
Input of frequency counter to TP3 (IC3, Pin 3).	Ch. 19, USB, XMT	VR3	Adjust for 17.8875MHz.
Input of oscilloscope to TP4 (T2 Secondary).	Ch. 19	T2	Adjust for maximum RF (.29 volts p-p typical). (See Figure 1.)
Input of frequency counter to TP12 (Junction of L17 and C118).	Ch. 19, AM	TC3	Adjust for 7.800MHz.
Input of frequency counter to TP12 (Junction of L17 and C118).	Ch. 19, LSB	TC4	Adjust for 7.8025MHz.
Input of frequency counter to TP12 (Junction of L17 and C118).	Ch. 19, USB	TC5	Adjust for 7.7975MHz.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
 Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting. Preset controls as follows, unless otherwise noted:
 RF Gain Maximum, Clarifier Midrange, Squelch MINIMUM.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP11 (Q19 Gate 1). 7.8MHz, 1000Hz @ 30% modulation.	Ch. 19 AM	T10, T11	Adjust for maximum output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19 AM	T9, T8, T7	Adjust for maximum output. Readjust T10 and T11 for maximum.
Input of oscilloscope to TP15 (D35 anode). Inject a 100pps, 1uSec. pulse width signal at antenna input.	Ch. 19 NB On	T12, T13	Adjust for maximum pulse amplitude. (800mV peak typical). (See Figure 2.)

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, no modulation, 50,000uV. Input of DC meter to TP16 (Q16 Collector).	Ch. 19 AM	VR9	RF AGC Adjust for approximately .55 volts.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation, output 300uV.	Ch. 19 AM Squelch Clockwise	VR12	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 50uV.	Ch. 19 AM	VR10	S METER Adjust for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

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

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input. Inject a 2400Hz, 10mV signal at mic input.	Ch. 19, USB, XMT	T3,T4,T5, L7,L10,L11	Adjust for maximum RF output.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19, AM, XMT	TC2	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 0-100mA DC meter at TP7 (Junction of L6 and C45).	Ch. 19, USB, XMT	VR6	DRIVER BIAS Adjust for 22mA.
Insert a 0-100mA DC meter at TP8 (Junction of L9 and C53).	Ch. 19, USB, XMT	VR7	FINAL BIAS Adjust for 29mA.
Input of RF wattmeter to antenna input.	Ch. 19, AM, XMT	VR14	AM POWER Adjust for 4.0 watts RF output maximum.
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 10mV signal at mic input.	Ch. 19, AM, XMT	VR13	AM AMC Adjust for 100% modulation maximum. (See Figure 3.)
Input of RF wattmeter to antenna input. No signal input.	Ch. 19, USB, XMT	VR11	CARRIER BALANCE Adjust for MINIMUM RF output.
Input of RF wattmeter to antenna input. Inject a 1000Hz, 5mV signal at mic input.	Ch. 19, USB, XMT	VR4	SSB MOD GAIN Adjust for 12 watts RF output maximum.
Input of RF wattmeter to antenna input. Inject a 3500Hz, 15mV signal at mic input.	Ch. 19, USB, XMT	VR5	SSB MOD GAIN Adjust for 12 watts RF output maximum.
Input of RF wattmeter to antenna input.	Ch. 19, AM, XMT	VR8	RF POWER METER Adjust so RF meter agrees with RF wattmeter.

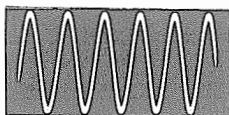


FIGURE 1

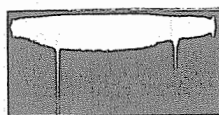


FIGURE 2

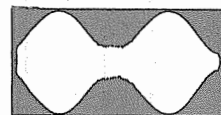
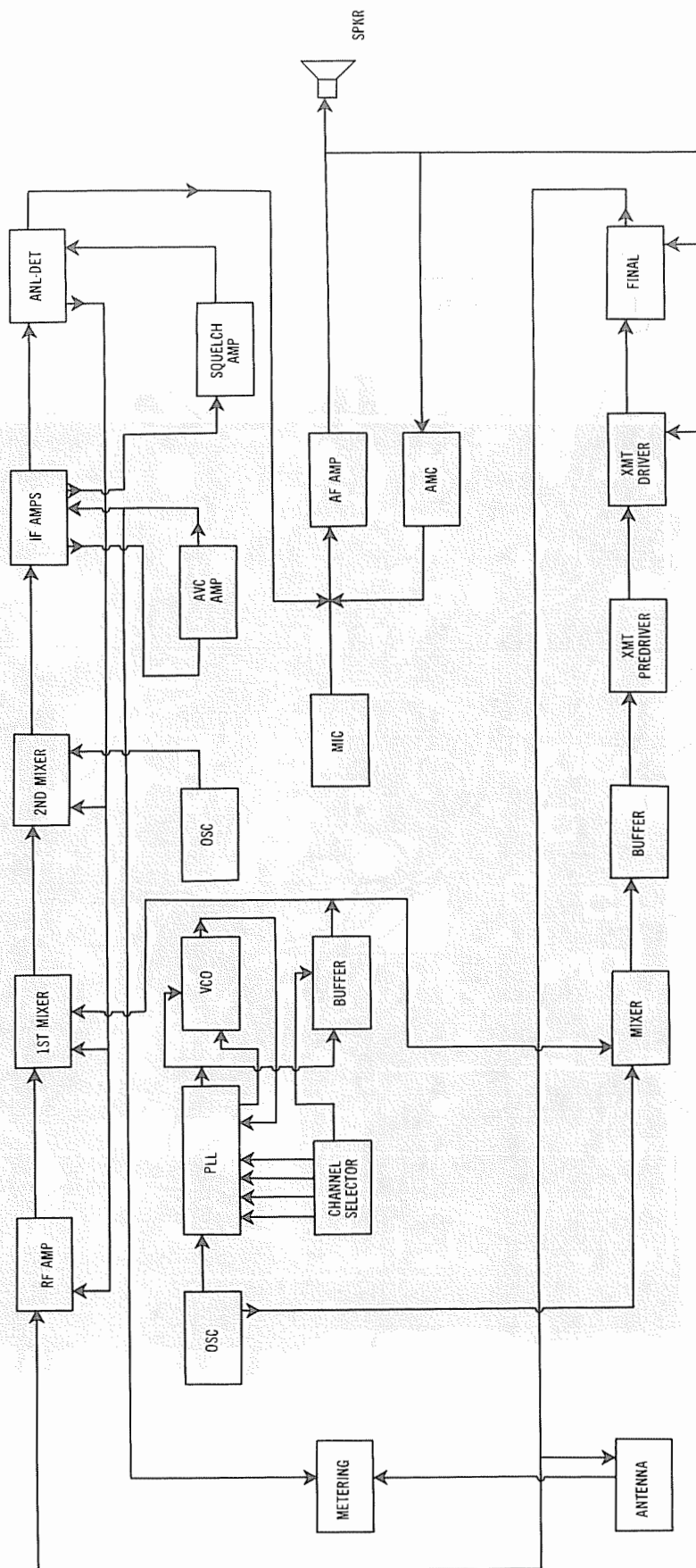
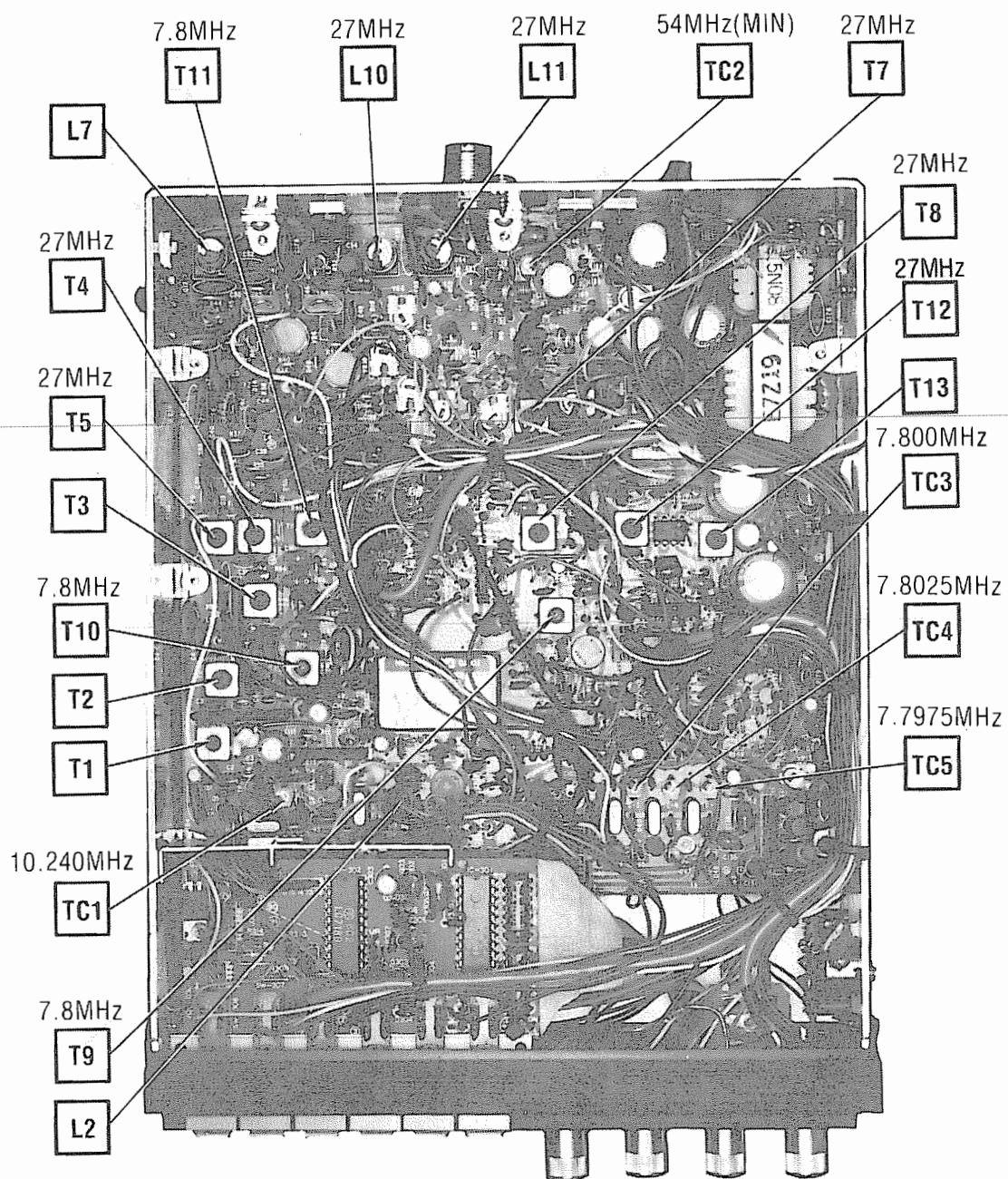


FIGURE 3

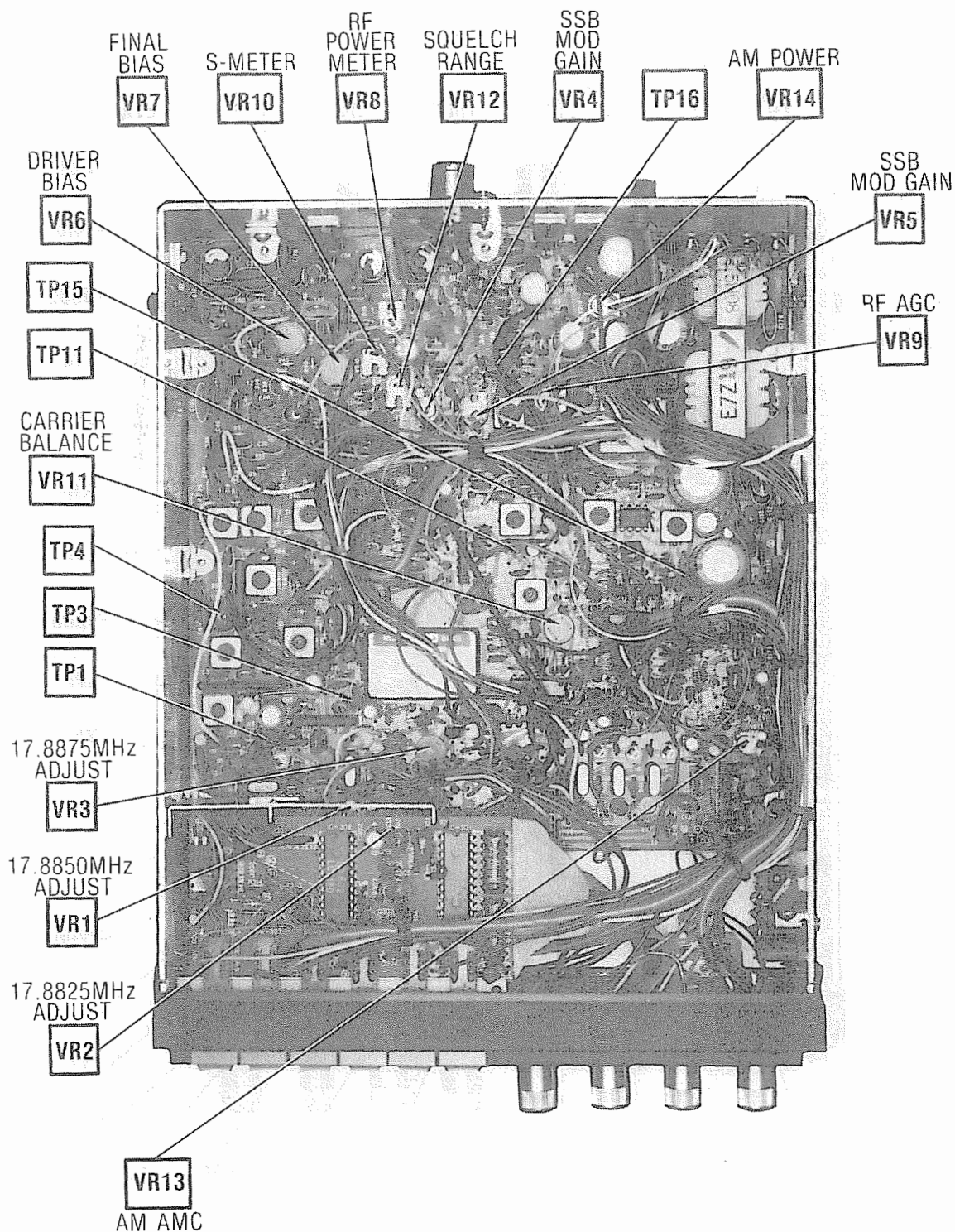
TRUTH CHART

C H A N N E L	1 = 6.13 Volts 0 = 0 Volts								VCO OUTPUT IN MHz AT TP4	VCO OUTPUT IN MHz AT IC1 PIN 2	VCO OUTPUT IN MHz AT
	CHANNEL INPUT CODES										
	IC1 PINS										
	10	11	12	13	14	15					
1	0	0	0	0	0	0			19.165	1.280	
2	0	0	0	0	0	1			19.175	1.290	
3	0	0	0	0	1	0			19.185	1.300	
4	0	0	0	1	0	0			19.205	1.320	
5	0	0	0	1	0	1			19.215	1.330	
6	0	0	0	1	1	0			19.225	1.340	
7	0	0	0	1	1	1			19.235	1.350	
8	0	0	1	0	0	1			19.255	1.370	
9	0	0	1	0	1	0			19.265	1.380	
10	0	0	1	0	1	1			19.275	1.390	
11	0	0	1	1	0	0			19.285	1.400	
12	0	0	1	1	1	0			19.305	1.420	
13	0	0	1	1	1	1			19.315	1.430	
14	0	1	0	0	0	0			19.325	1.440	
15	0	1	0	0	0	1			19.335	1.450	
16	0	1	0	0	1	1			19.355	1.470	
17	0	1	0	1	0	0			19.365	1.480	
18	0	1	0	1	0	1			19.375	1.490	
19	0	1	0	1	1	0			19.385	1.500	
20	0	1	1	0	0	0			19.405	1.520	
21	0	1	1	0	0	1			19.415	1.530	
22	0	1	1	0	1	0			19.425	1.540	
23	0	1	1	1	0	1			19.455	1.570	
24	0	1	1	0	1	1			19.435	1.550	
25	0	1	1	1	0	0			19.445	1.560	
26	0	1	1	1	1	0			19.465	1.580	
27	0	1	1	1	1	1			19.475	1.590	
28	1	0	0	0	0	0			19.485	1.600	
29	1	0	0	0	0	1			19.495	1.610	
30	1	0	0	0	1	0			19.505	1.620	
31	1	0	0	0	1	1			19.515	1.630	
32	1	0	0	1	0	0			19.525	1.640	
33	1	0	0	1	0	1			19.535	1.650	
34	1	0	0	1	1	0			19.545	1.660	
35	1	0	0	1	1	1			19.555	1.670	
36	1	0	1	0	0	0			19.565	1.680	
37	1	0	1	0	0	1			19.575	1.690	
38	1	0	1	0	1	0			19.585	1.700	
39	1	0	1	0	1	1			19.595	1.710	
40	1	0	1	1	0	0			19.605	1.720	

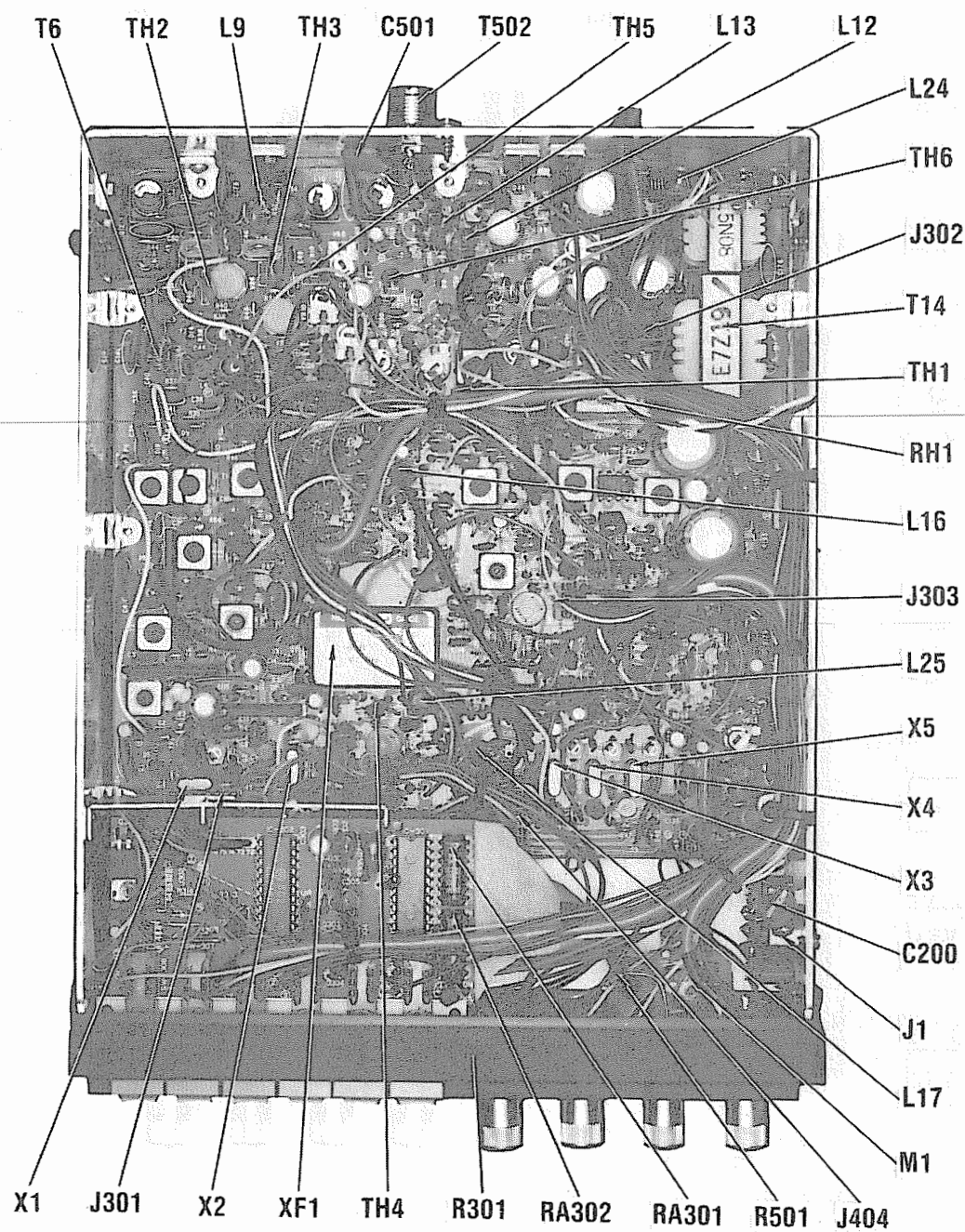




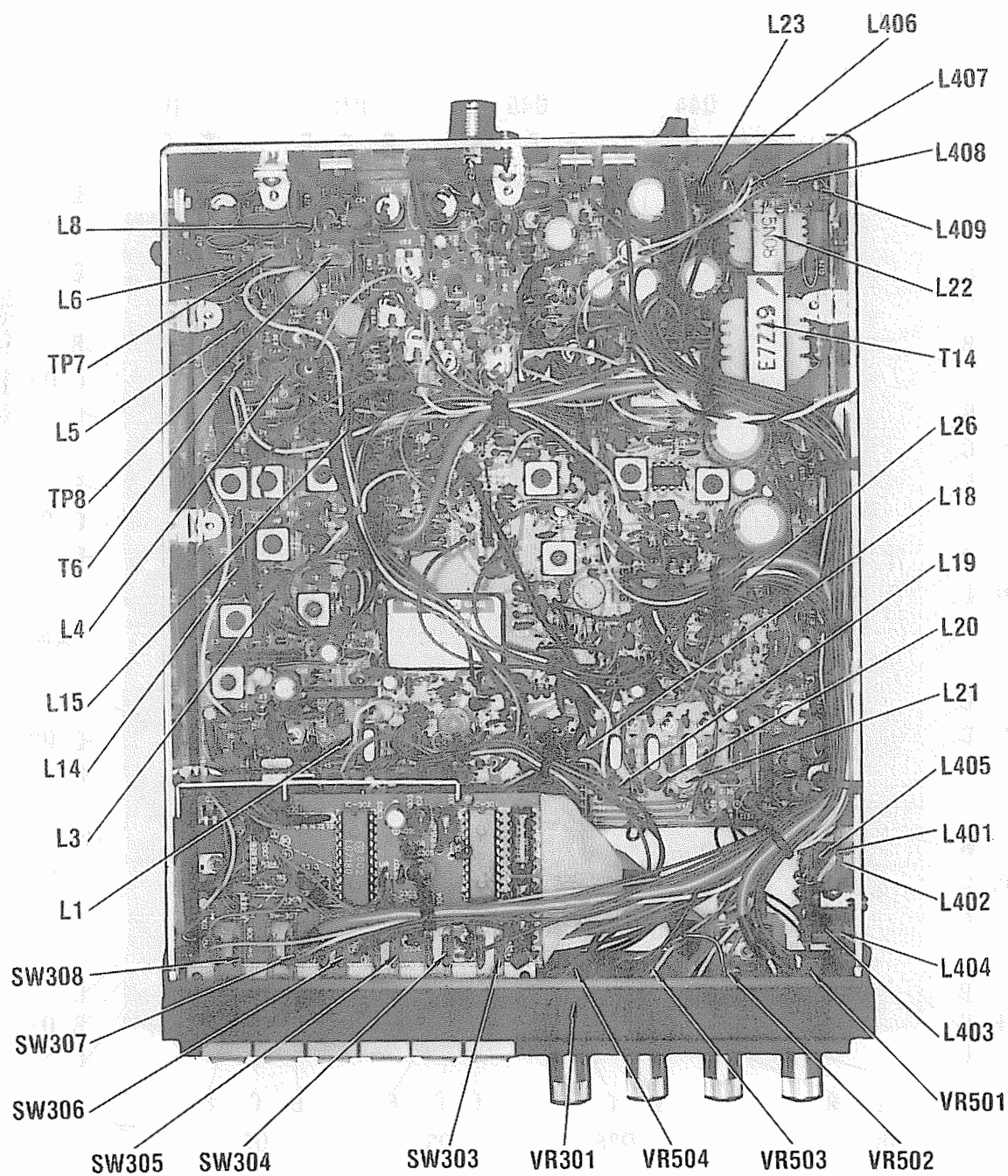
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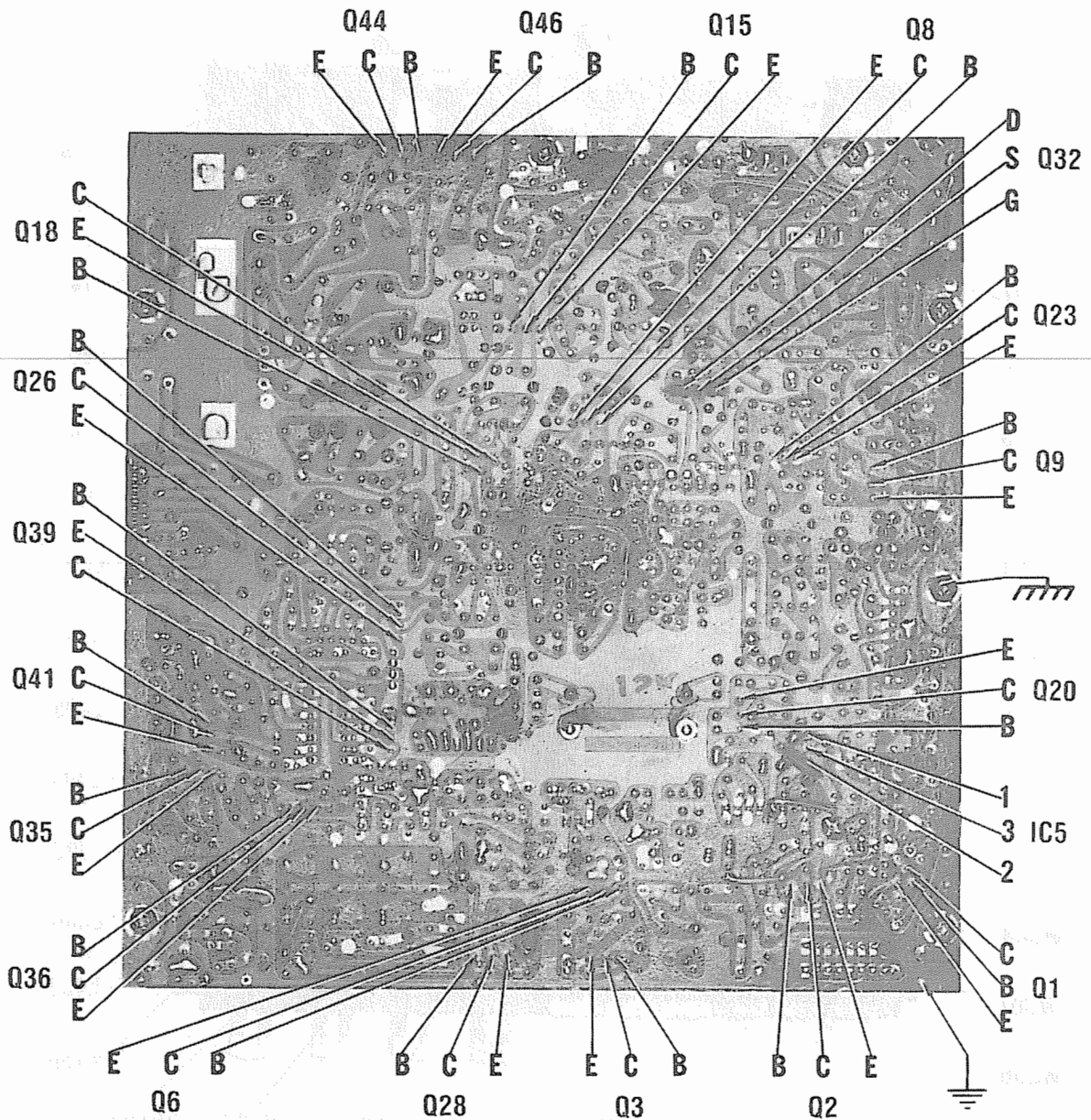
CHASSIS-BOTTOM



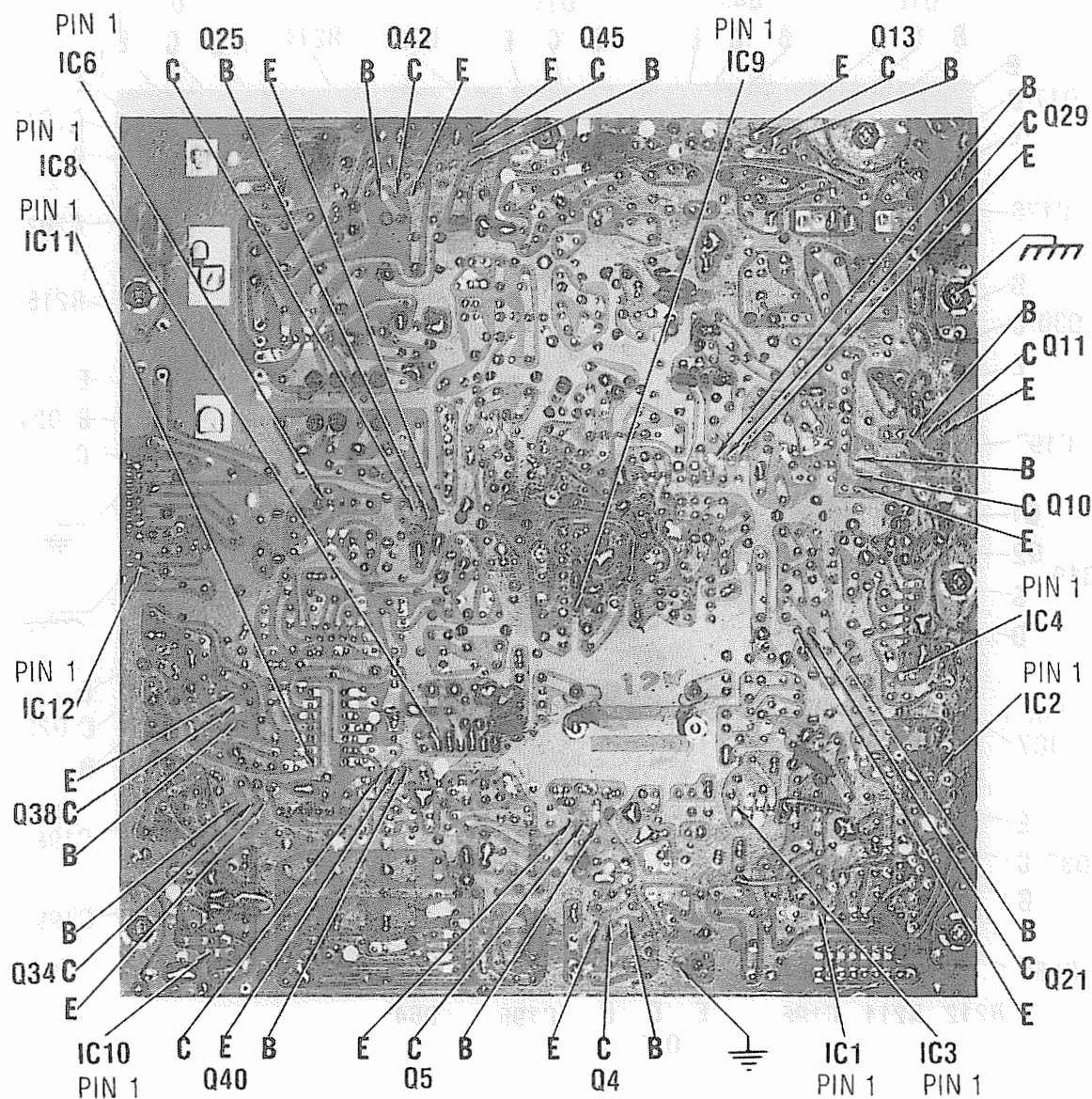
CHASSIS-BOTTOM



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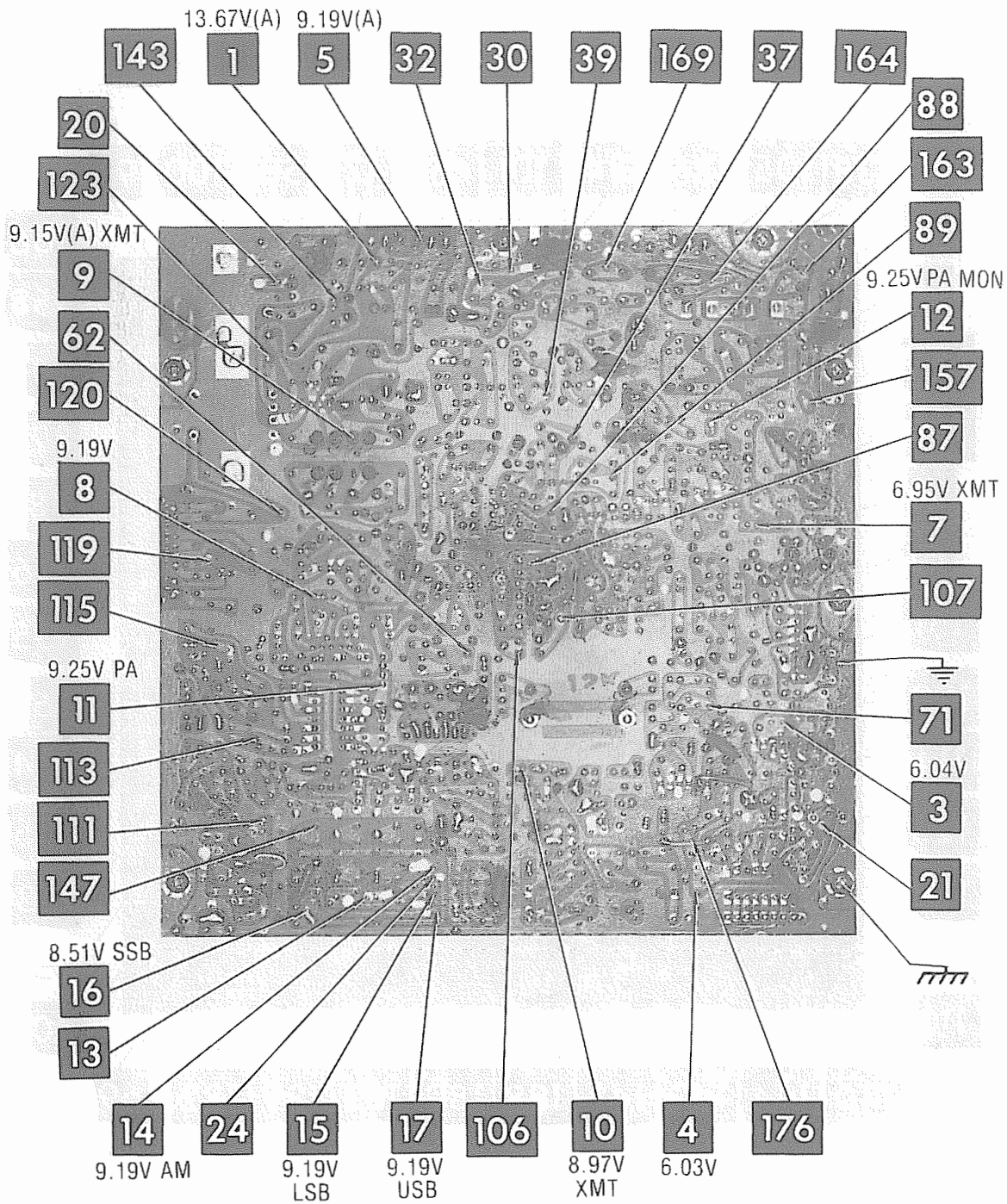


MAIN BOARD



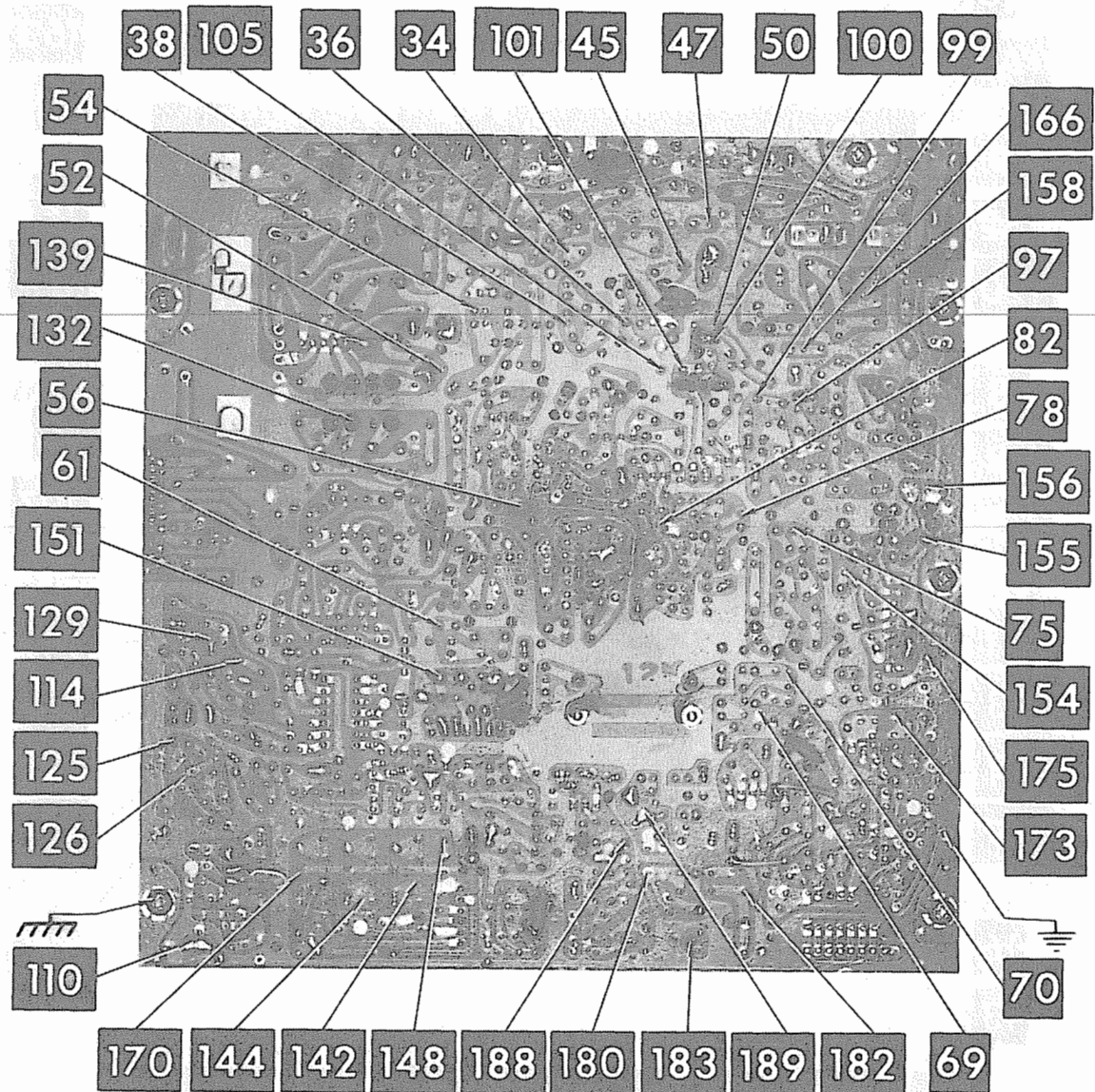
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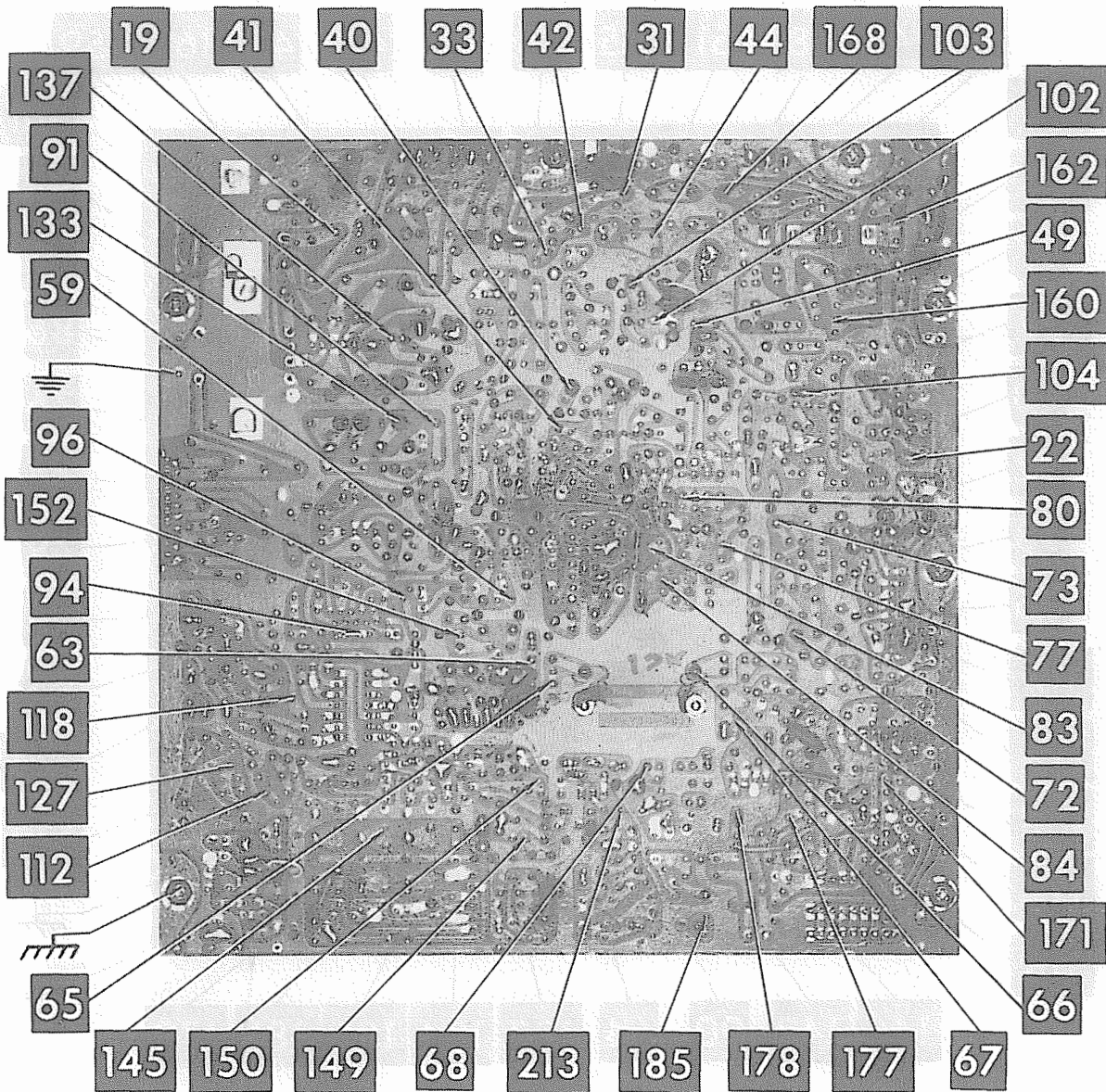


REALISTIC MODEL TRC-480 (21-1563)

MAIN BOARD

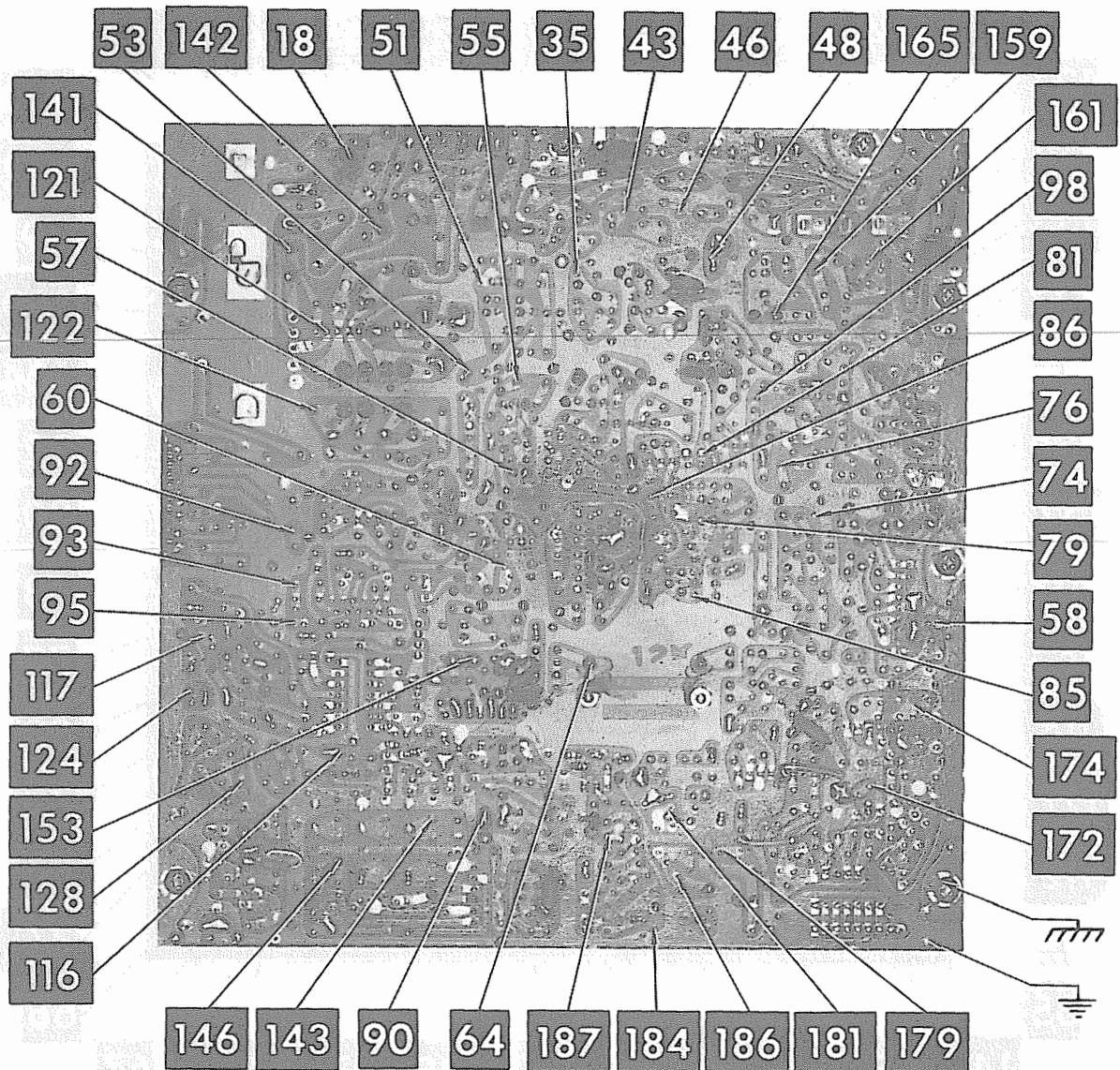


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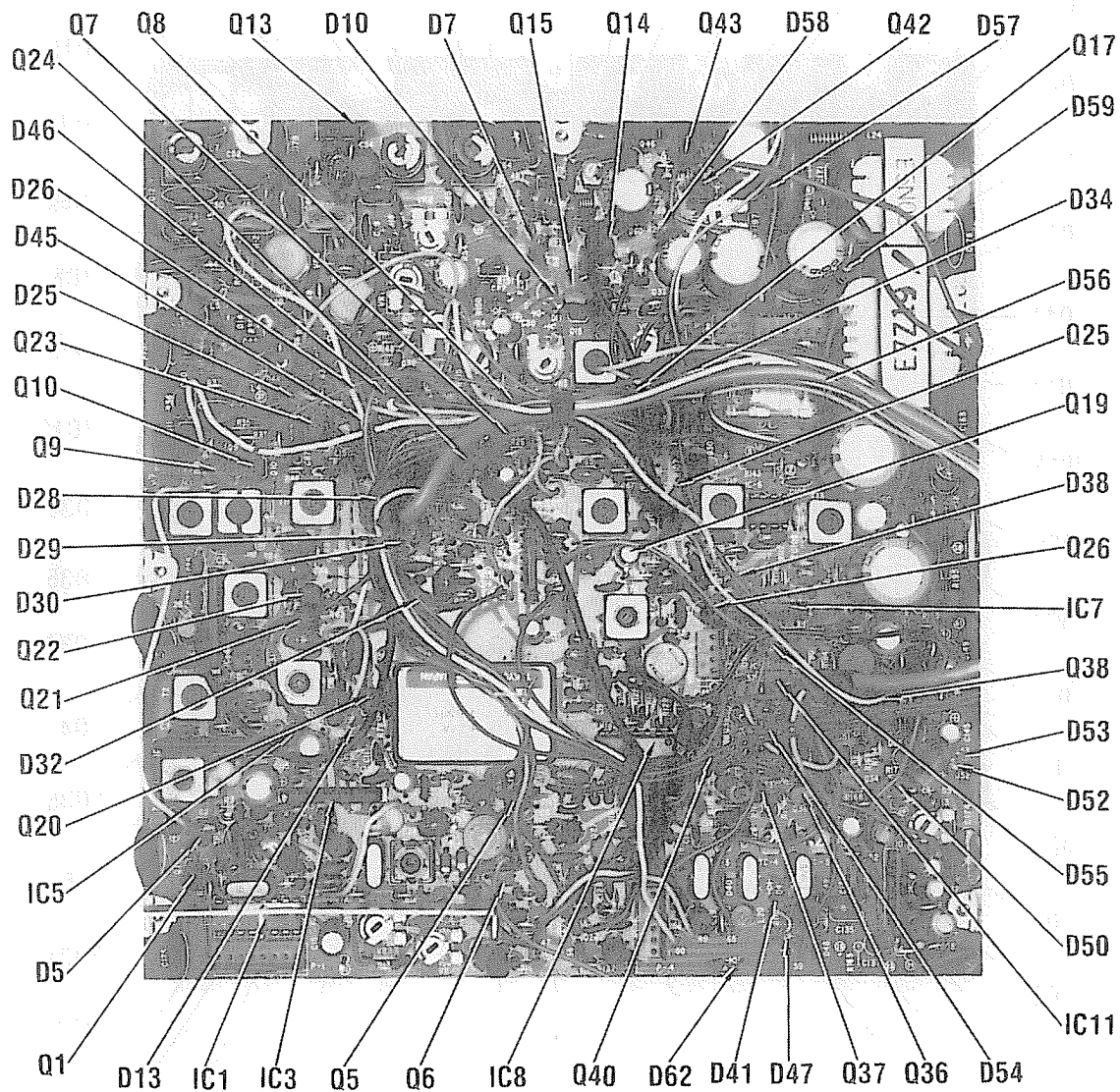


REALISTIC MODEL TRC-480 (21-1563)

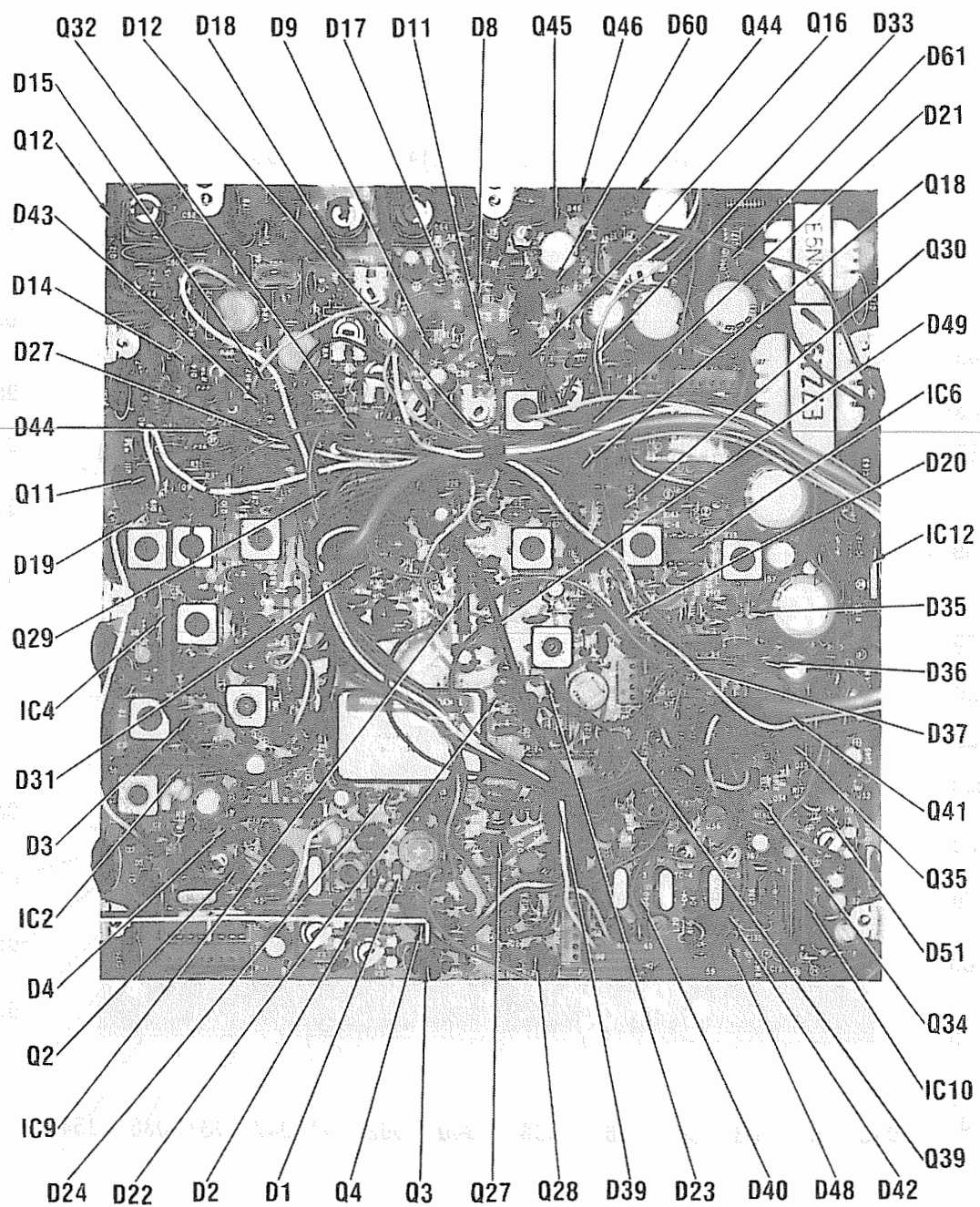
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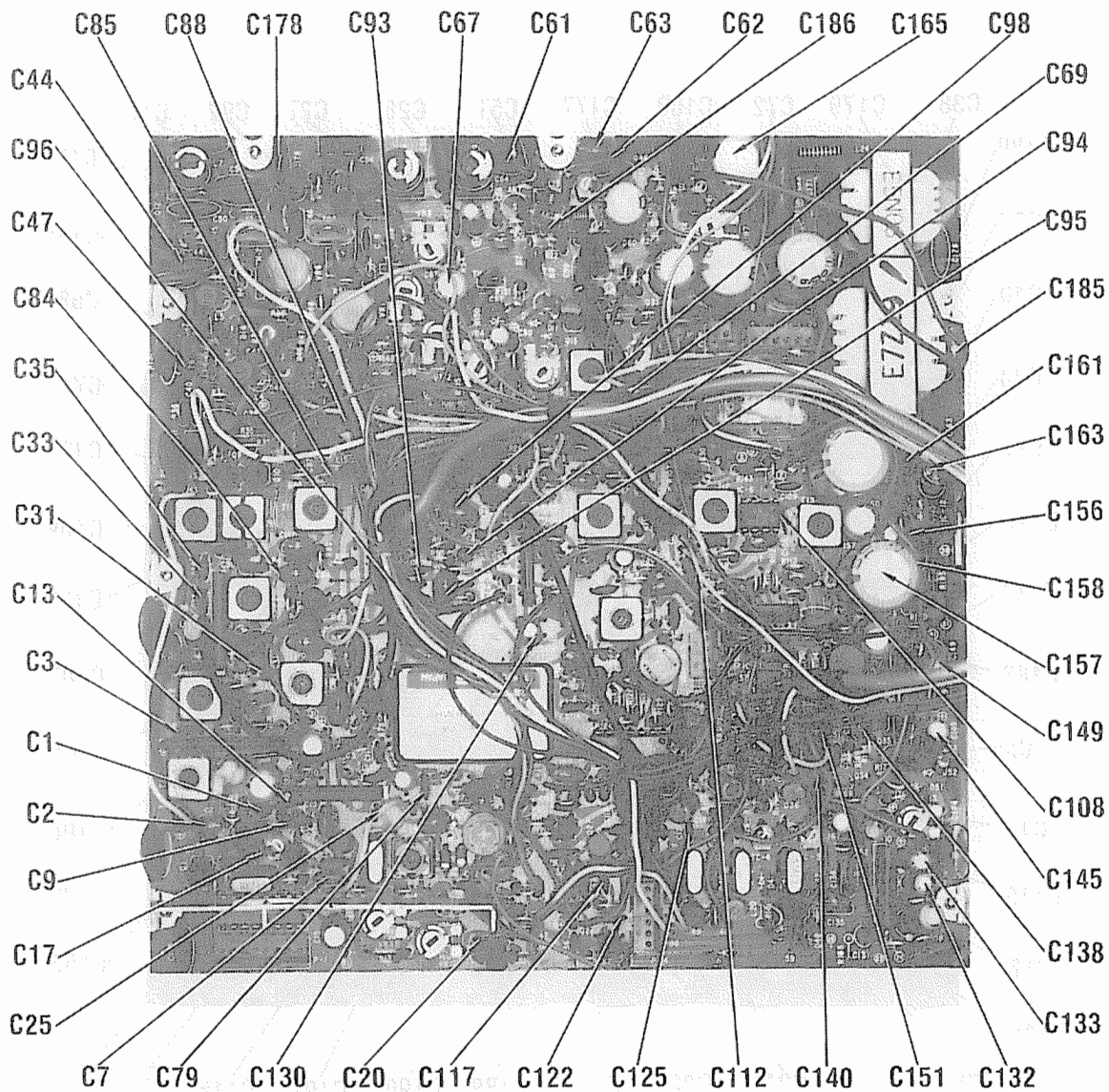
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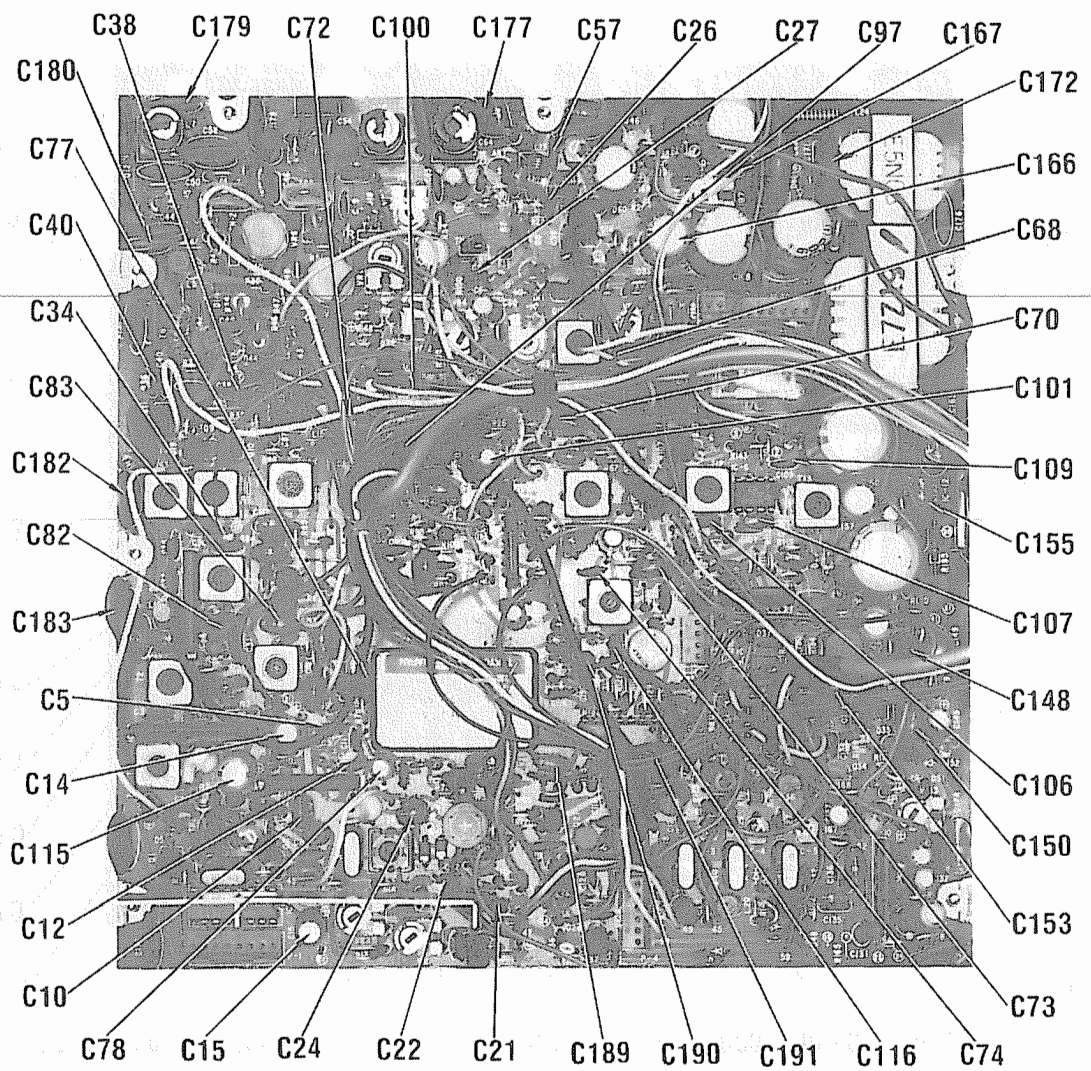
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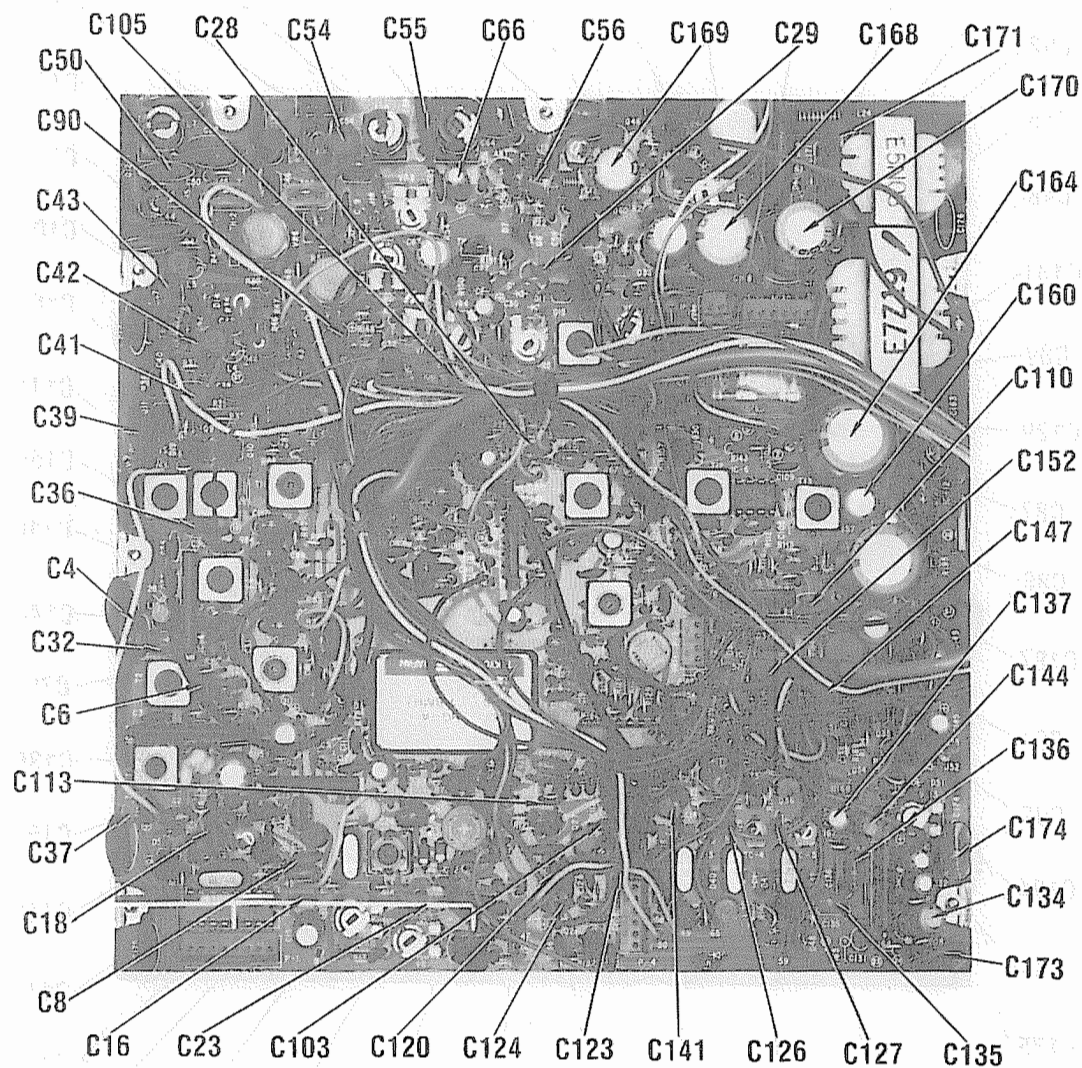
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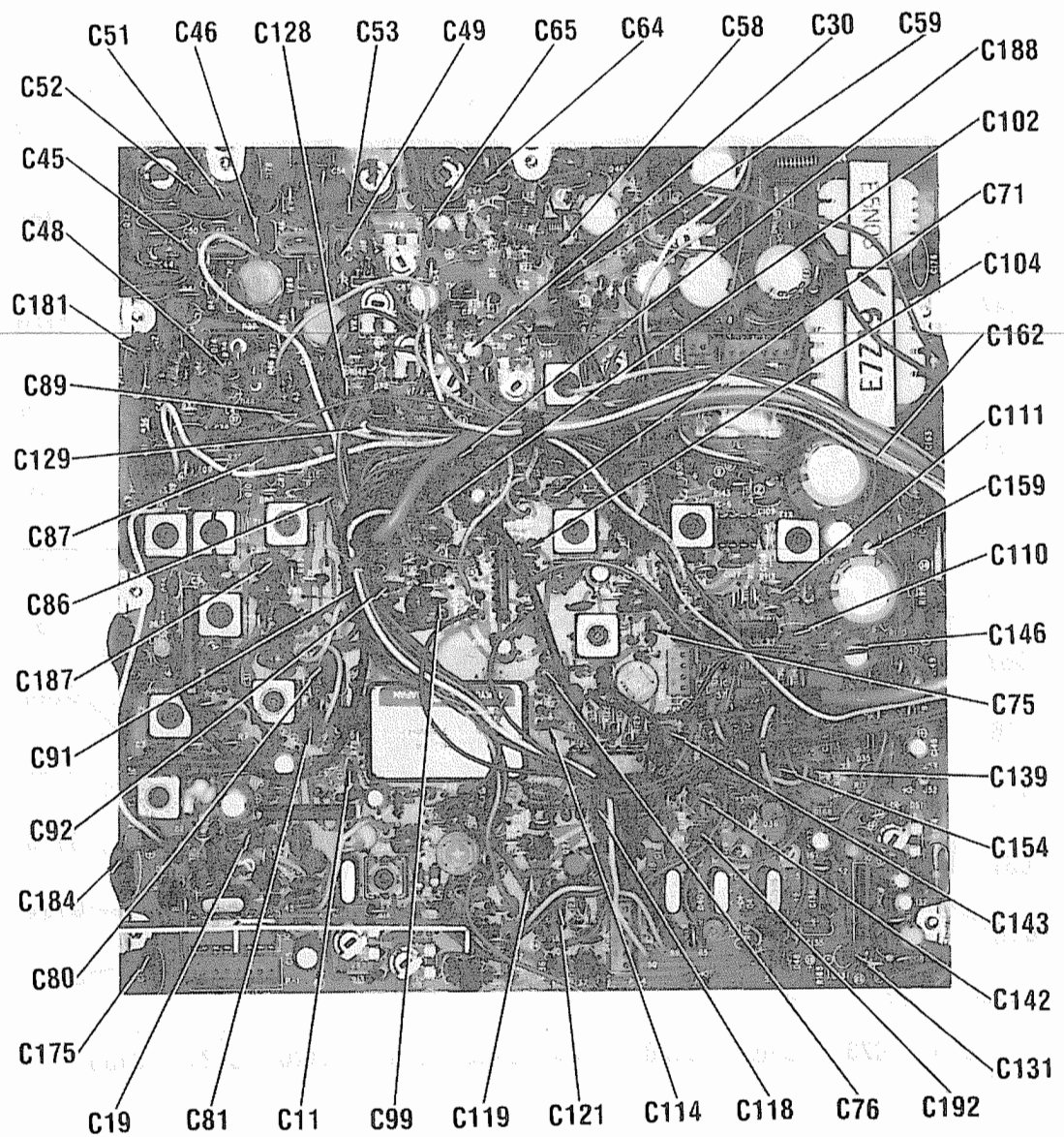
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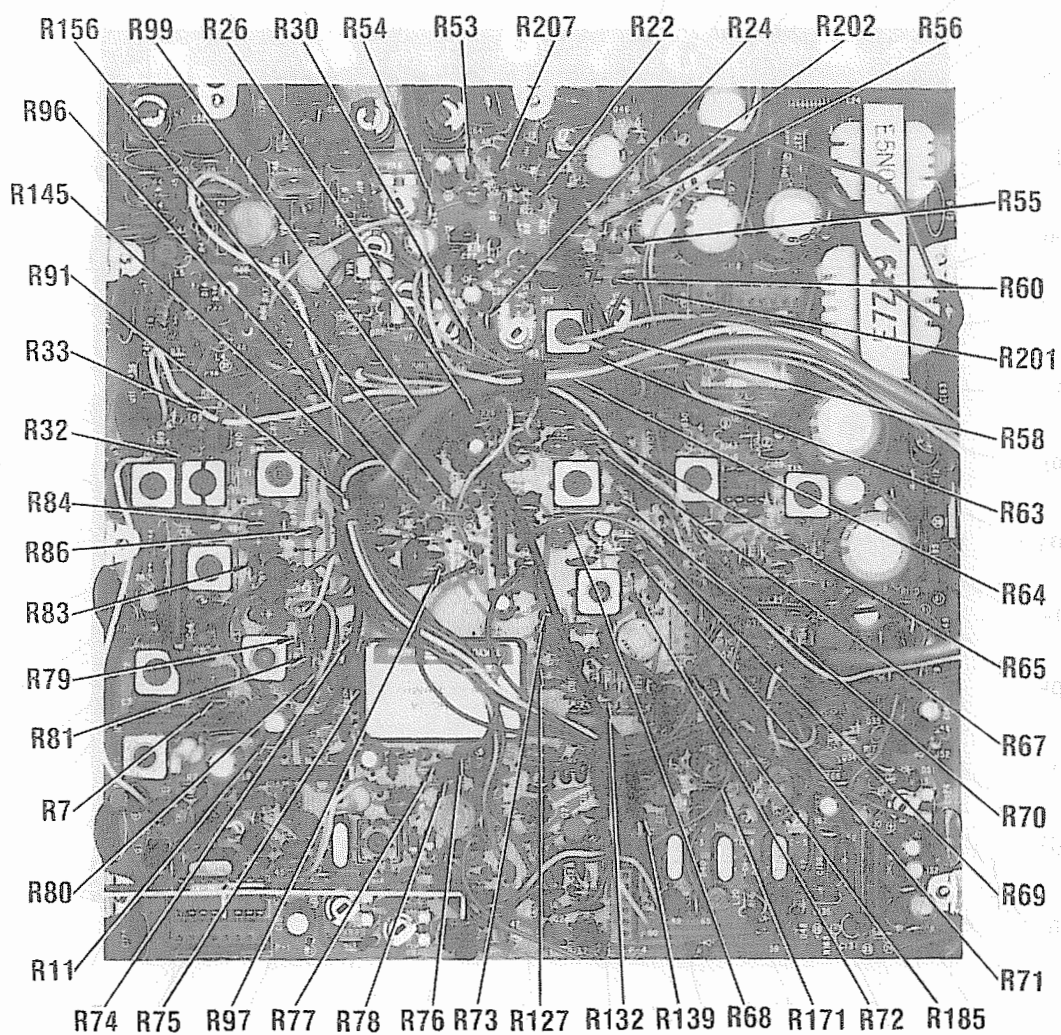
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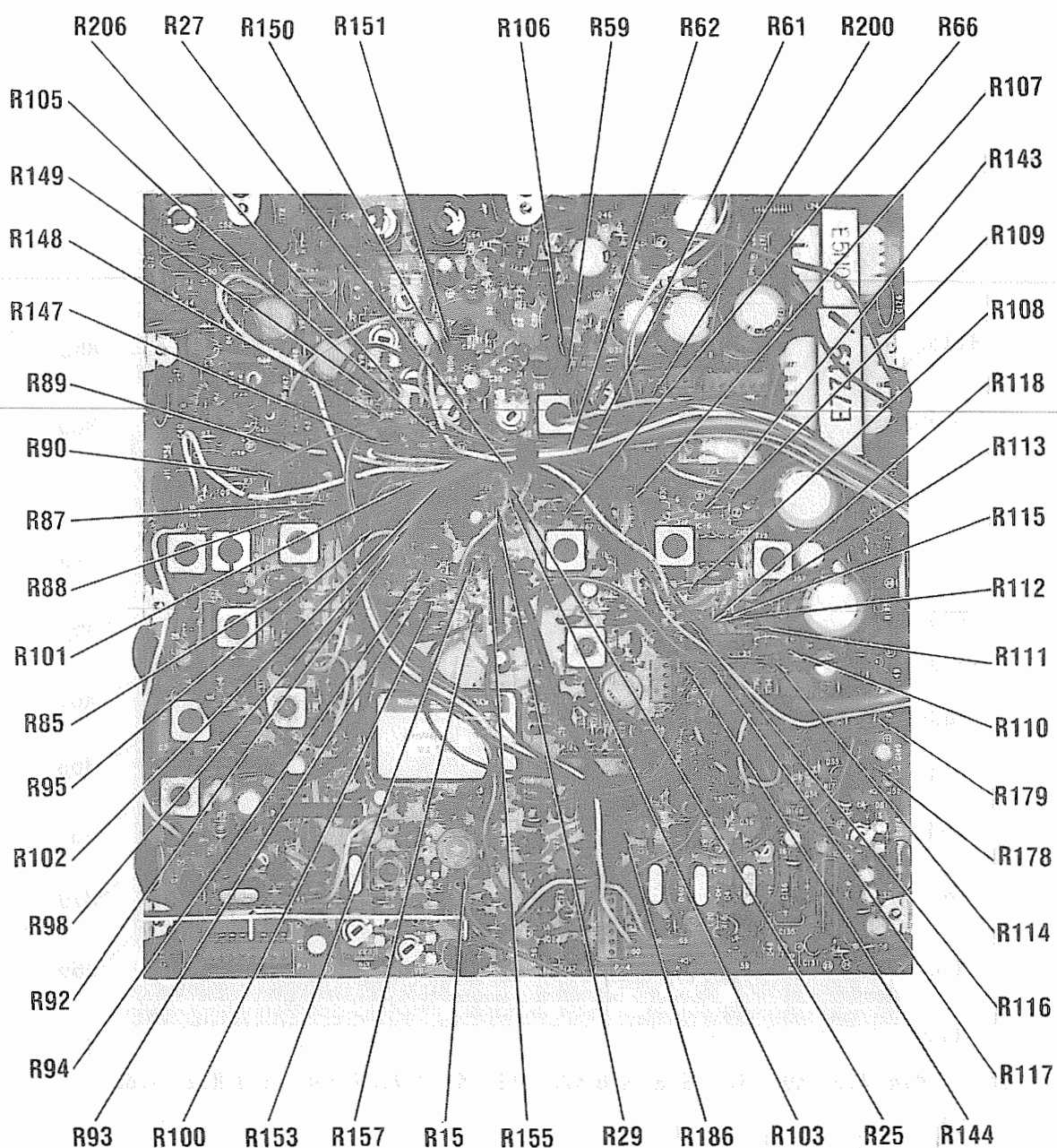
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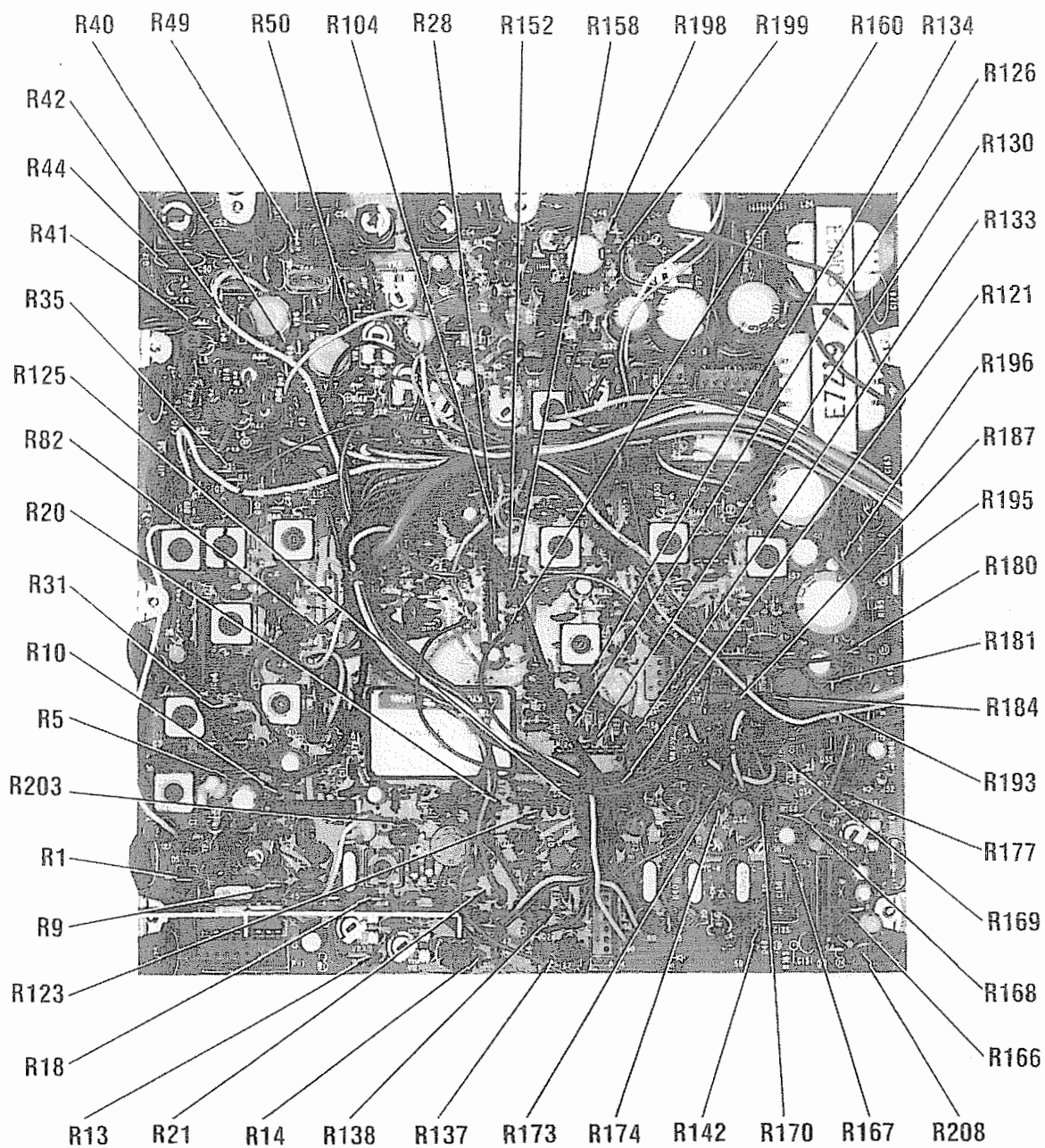
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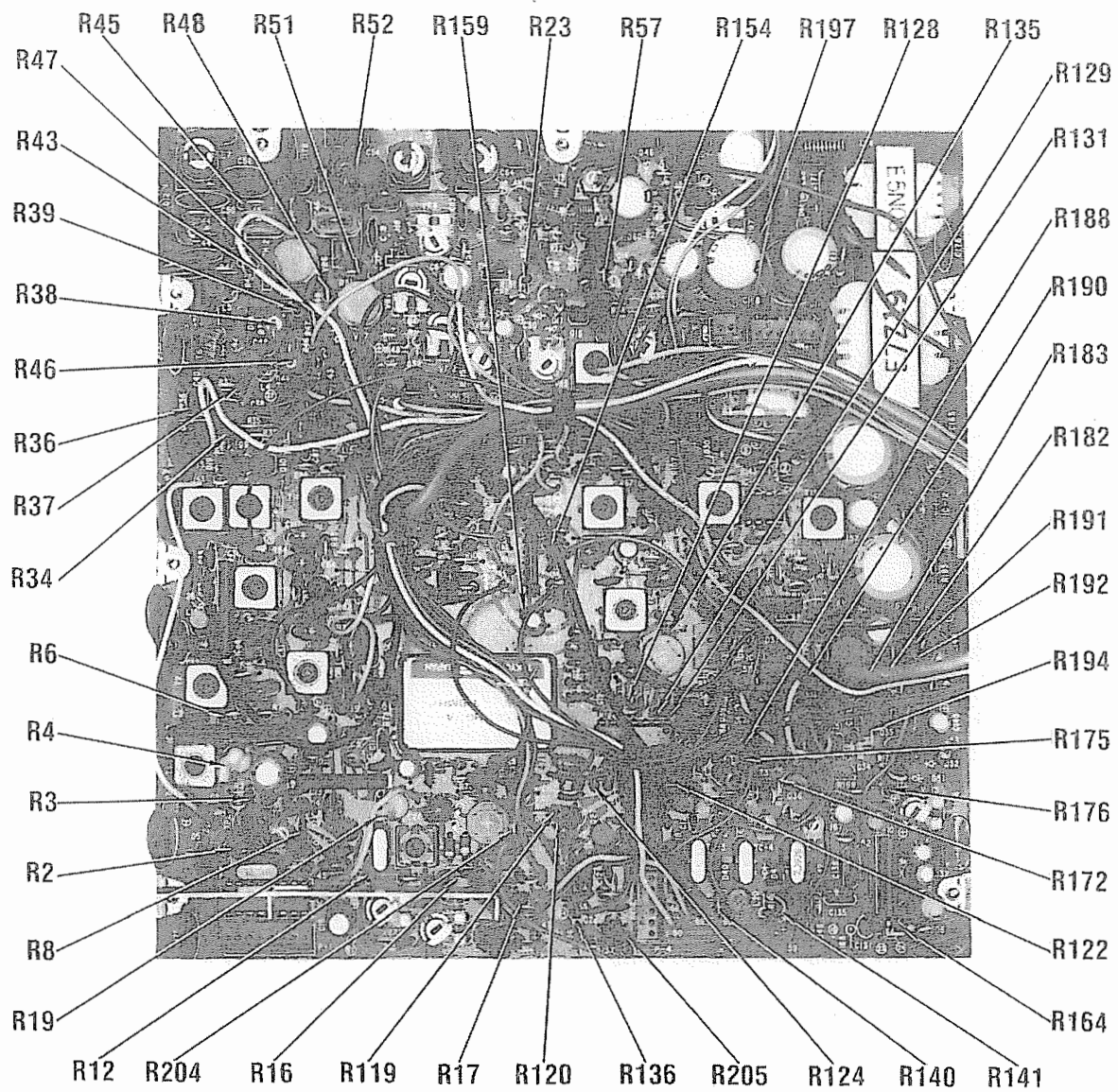
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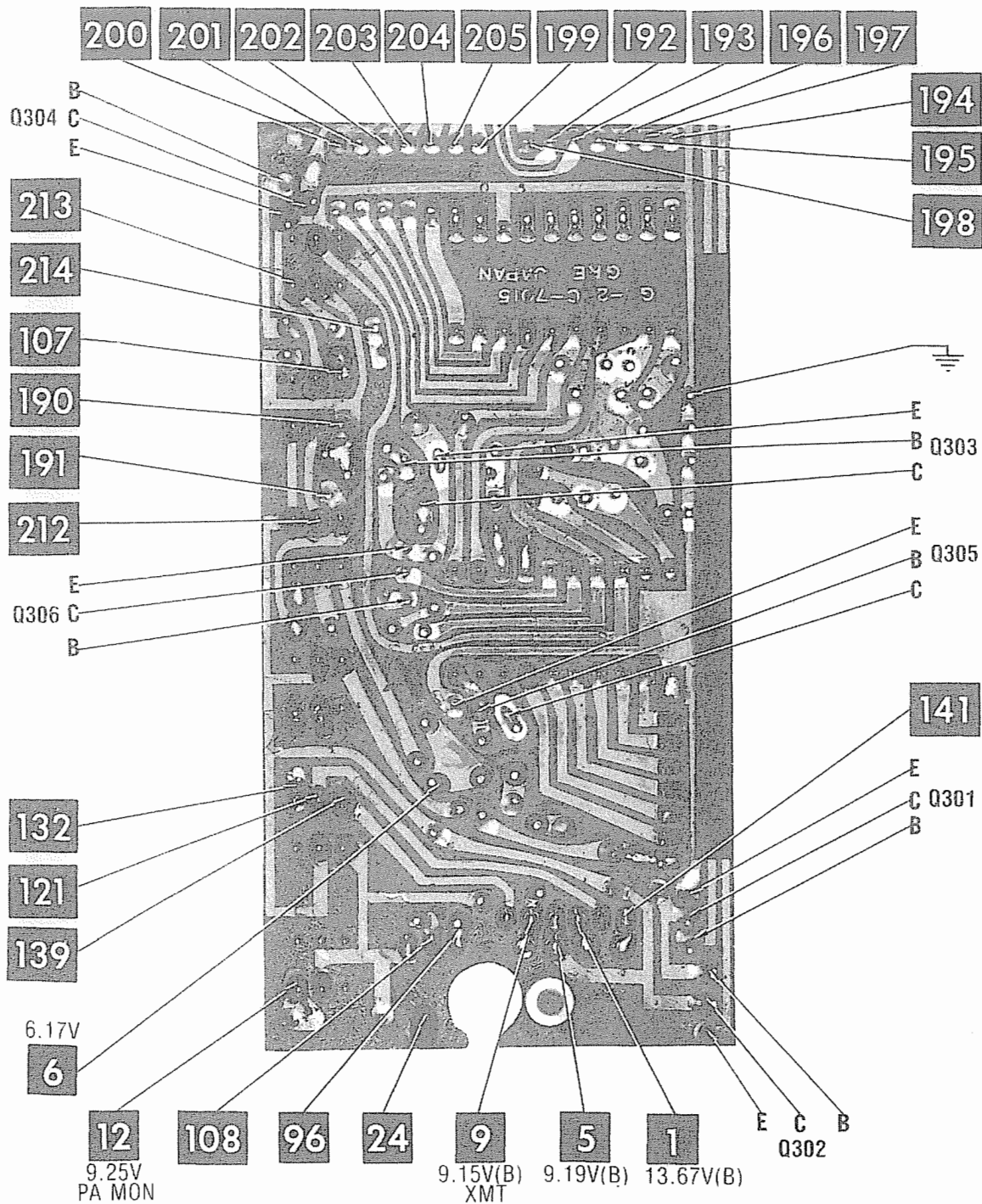
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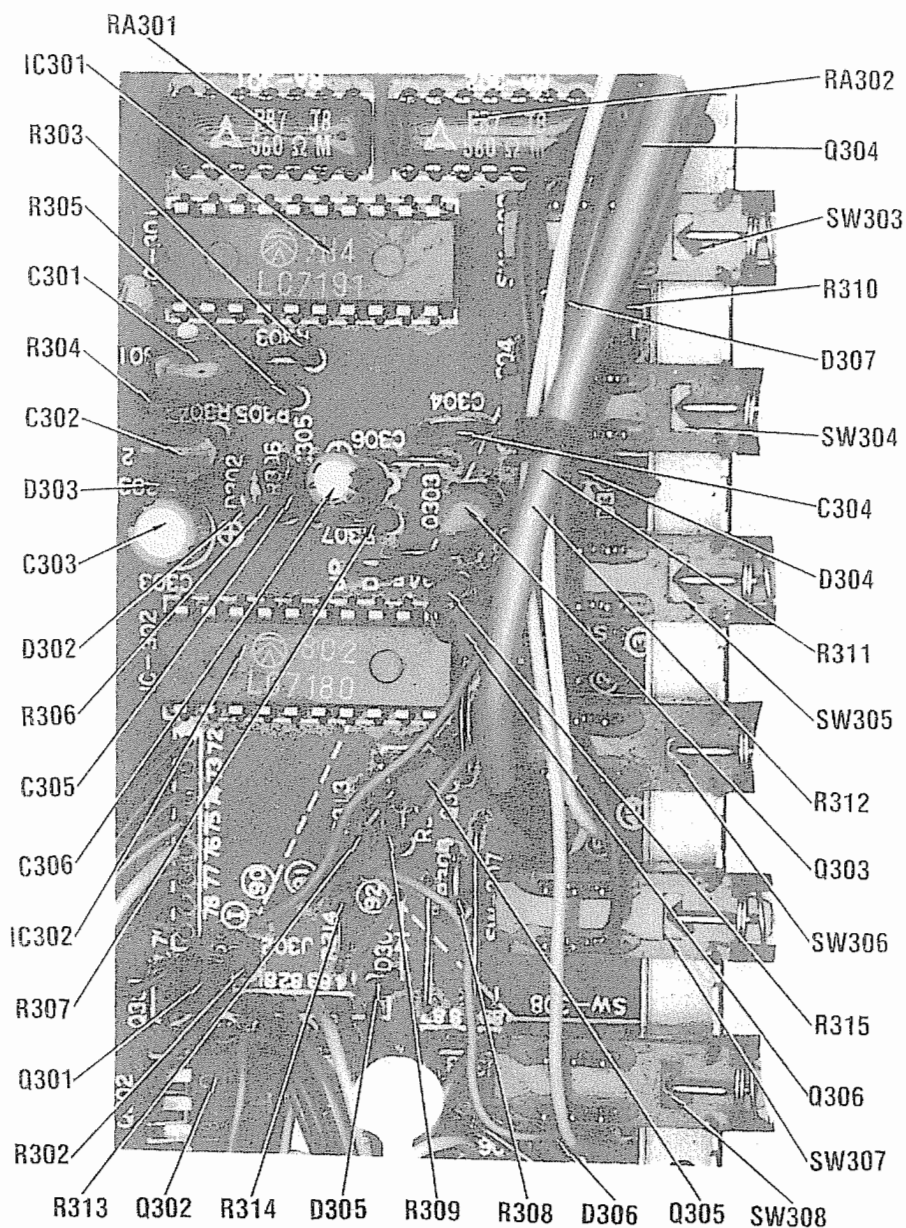
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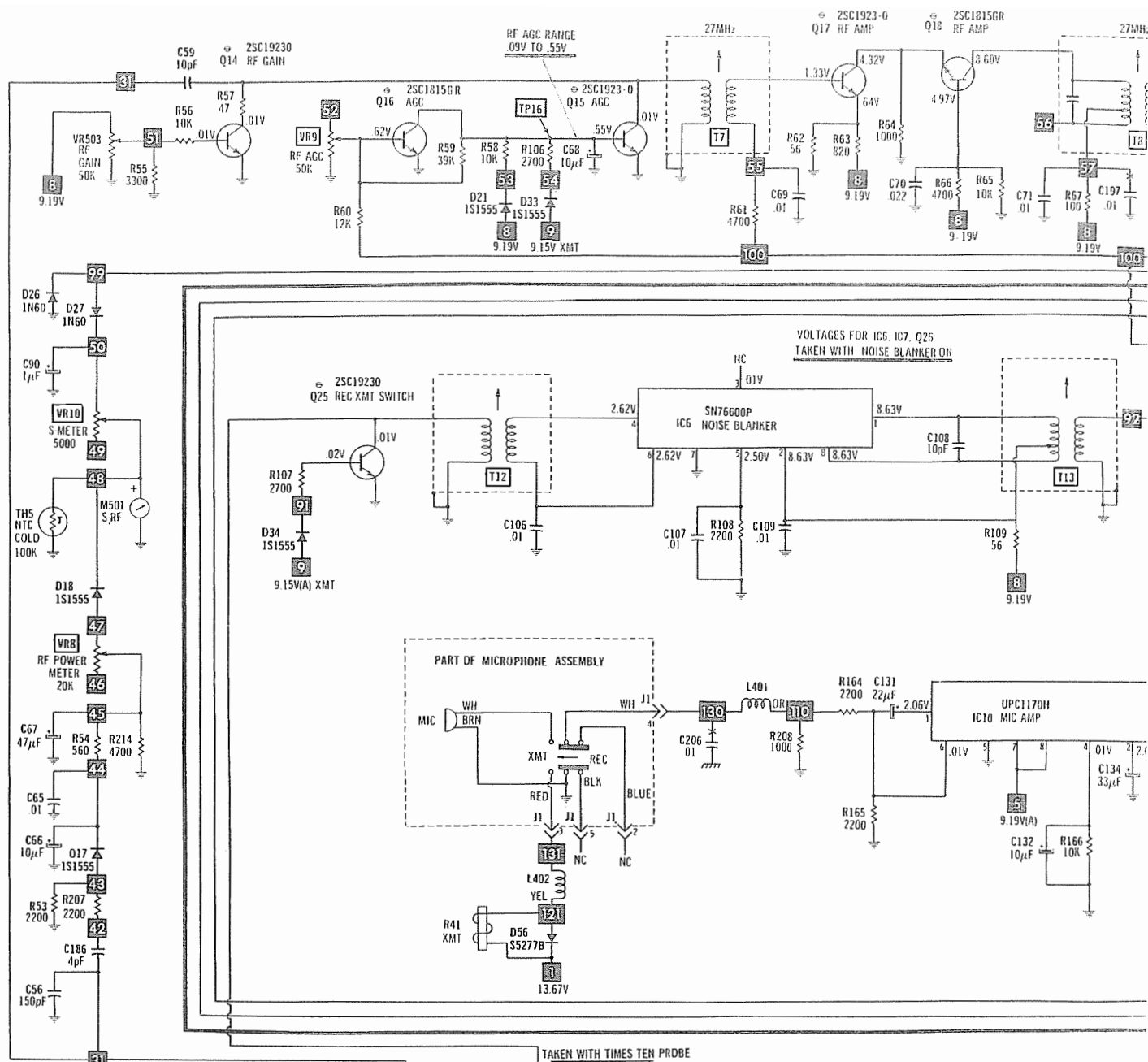
MA IN BOARD



SWITCH BOARD



SWITCH BOARD



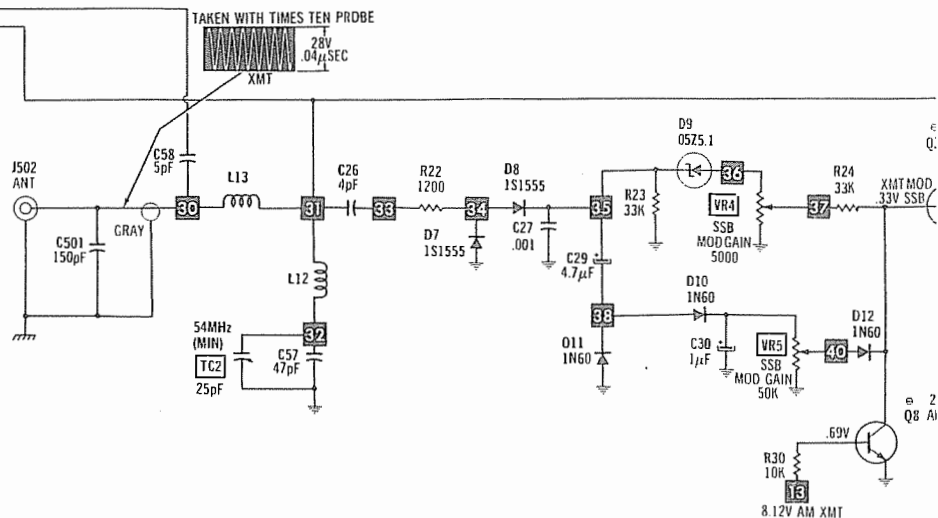
- ✖ Circuitry not used in some versions.
- Circuitry used in some versions.
- ✱ Nominal value
- ▽ Common tie point
- ⊥ Ground
- ⏏ Chassis
- Ⓢ See parts list

Waveforms and Voltages taken 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).

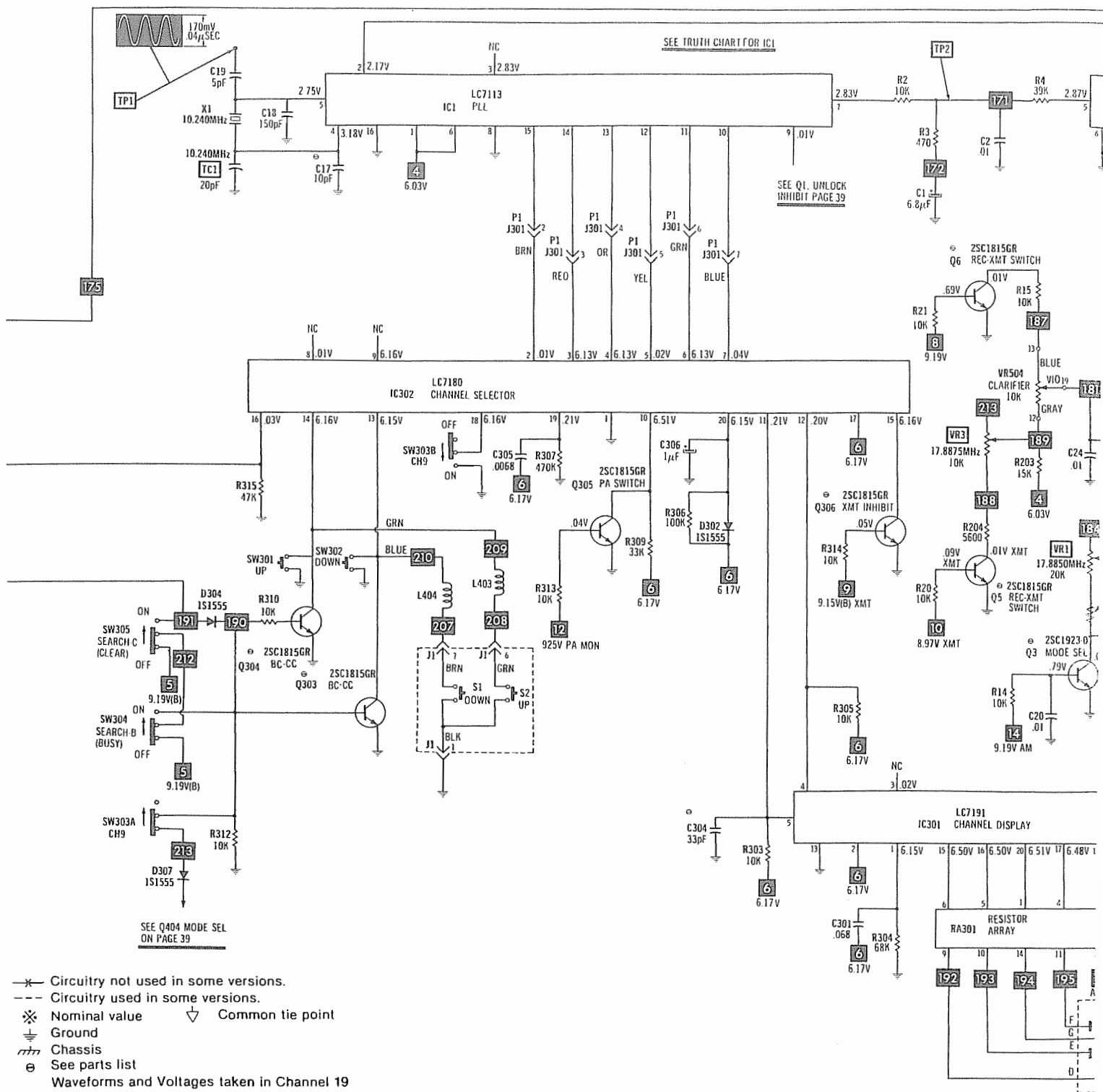
A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE**

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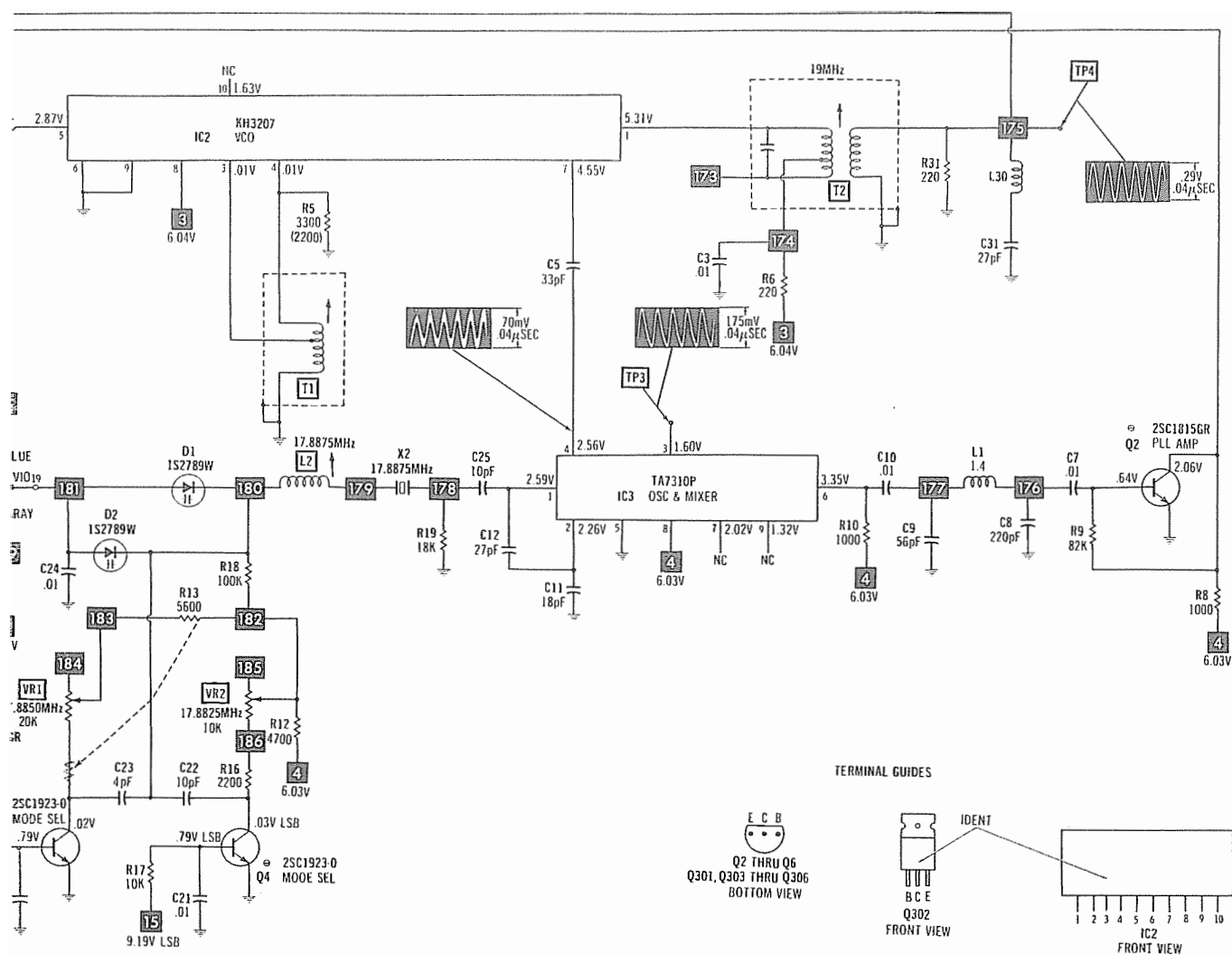
- ✕ Circuitry not used in some versions.
 - Circuitry used in some versions.
 - ⊗ Nominal value ▽ Common tie point
 - ⊥ Ground
 - ⏏ Chassis
 - ⊕ See parts list
- Waveforms and Voltages taken in Channel 19 with switching in receive unless noted. Item numbers in rectangles appear in the alignment/adjustment 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 PHOTOFACT STANDARD NOTATION SCHEMATIC WITH **CIRCUITAGE**

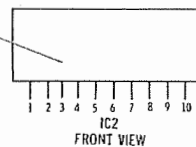
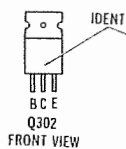
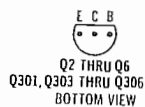
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PLL SCHEMATIC

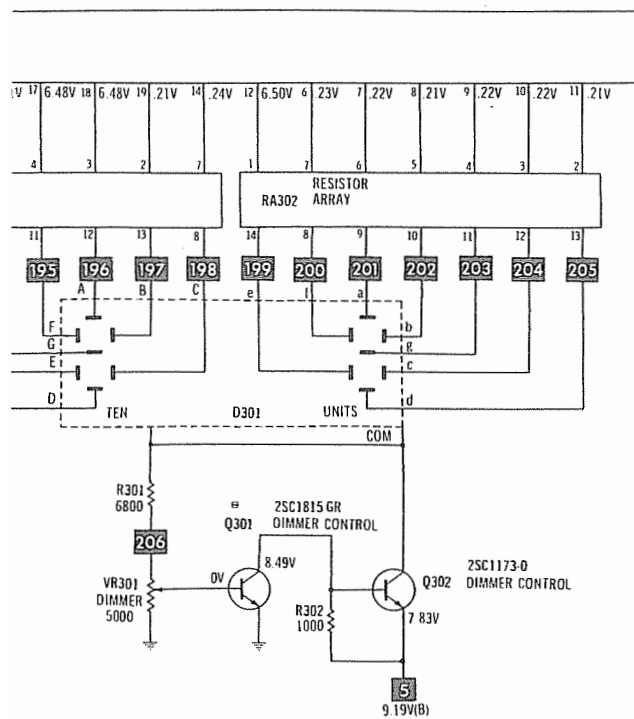
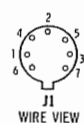
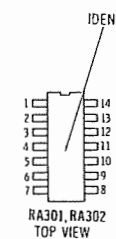
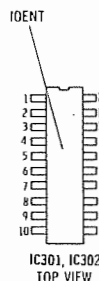
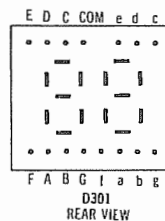
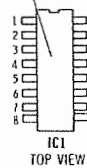
EACH SEGMENT FOR D301
SUPPLIED 1.93V @ 6mA



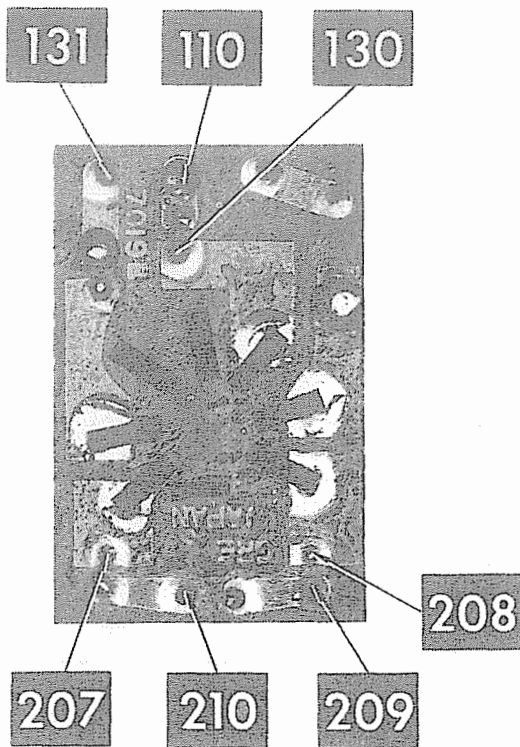
TERMINAL GUIDES



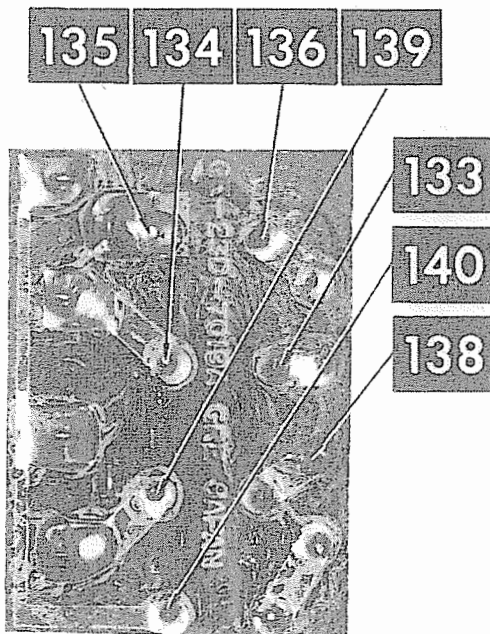
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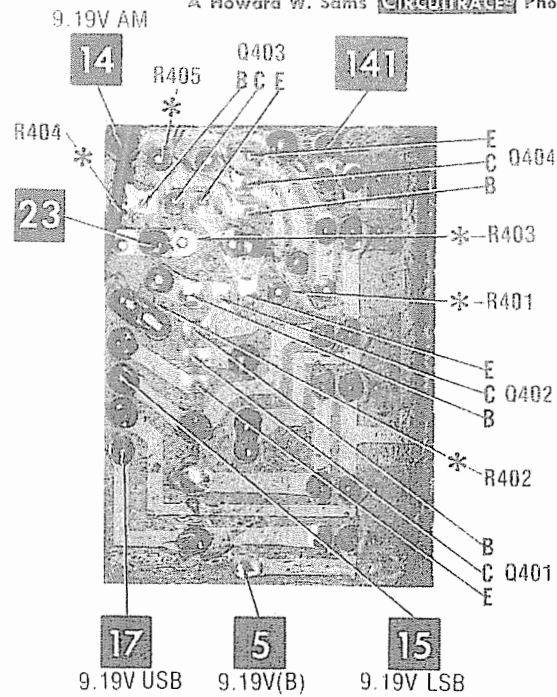




MIC JACK BOARD

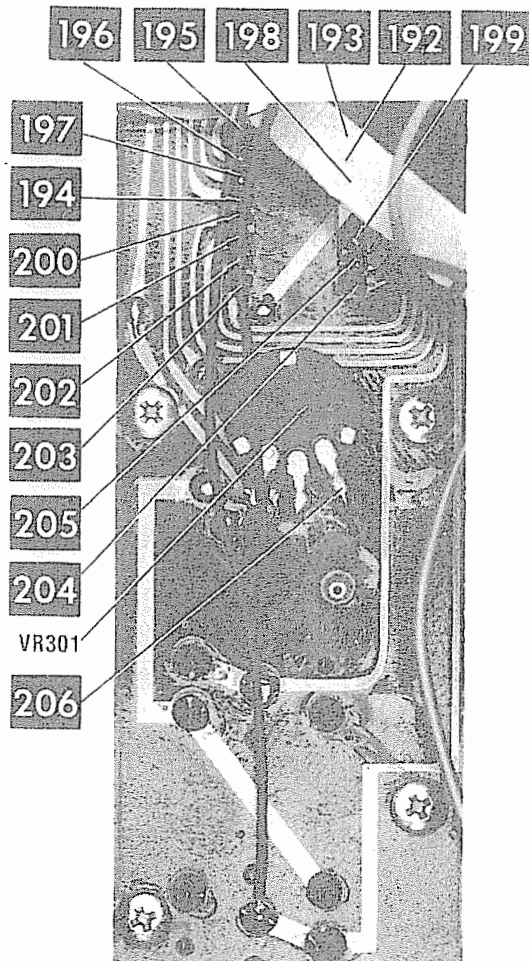


JACK BOARD



*LOCATED ON OTHER SIDE OF BOARD

MODE SELECTOR BOARD



LED BOARD

PARTS
(When order SEMICON)

ITEM No.	TYL No.
D1	1527B
D2	1527B
D3	0526
D4	0526
D5	15155
D7	15155
D8	15155
D9	0525
D10	1N60
D11	1N60
D12	1N60
D13	15155
D14	5527
D15	5527
D16	1Z33
D17	15155
D18	15155
D19	15155
D20	1515
D21	1515
D22	1N60
D23	1N60
D24	1N60
D25	1515
D26	1N60
D27	1N60
D28	1515
D29	1N6C
D30	1N6C
D31	1N6C
D32	1515
D33	1515
D34	1515
D35	1N6C
D36	1N6C
D37	1515
D38	1N6C
D39	1515
D40	1515
D41	1515
D42	1515
D43	1515
D44	1515
D45	1N6C
D46	1N6C
D47	1515
D48	1515
D49	1515
D50	1515
D51	052
D52	1N6
D53	1N6
D54	151
D55	151
D56	552
D57	151
D58	HZ4
D59	3B2
D60	052
D61	552
D62	151
D64	151
D302	151
D303	052
D304	151
D305	151
D306	151
D307	151
IC1	LC
IC2	KH
IC3	TA
IC4	TA
IC5	TA
IC6	SH
IC7	TA
IC8	TA
IC9	MC
IC10	LM
IC11	TA
IC12	UP
IC301	TC
	MC
	TA
	LC

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA								ITEM No.
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.	
D1	1S2789W	DX-1196		PTC311			ECG611	TM611		103-146	1C300 Q1
D2	1S2789W	DX-1196		PTC311			ECG611	TM611		103-146	
D3	05Z6.2L	DX-1194	GEZD-6.2	ZB6.2B	REN 137	SK3058/137A	ECG137A	TM137A/**	WEP1154/137A	103-29008	
D4	05Z6.2L	DX-1194	GEZD-6.2	ZB6.2B	REN 137	SK3058/137A	ECG137A	TM137A/**	WEP1154/137A	103-29008	
D5	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D7	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q3
D8	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D9	05Z6.1L	DX-1193	GEZD-5.1			SK3056/135A	ECG135A	TM4733A	WEP1103/135A	103-29006	
D10	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D11	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D12	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	Q5
D13	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D14	5S2778	DX-1131	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02	
D15	5S2778	DX-1131	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02	
D16	1Z33-A	DX-1195	GEZD-33	ZB33A	REN 147	SK3095/147A	ECG147A	TM147/**	WEP1122/147	103-29004	
D17	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q8
D18	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D19	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D20	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D21	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D22	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	Q29
D23	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D24	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D25	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D26	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D27	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	Q35
D28	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D29	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D30	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D31	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D32	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q37
D33	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D34	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D35	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D36	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D37	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q40
D38	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D39	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D40	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D41	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D42	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q42
D43	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D44	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D45	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D46	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D47	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q46
D48	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D49	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D50	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D51	05Z5.1L	DX-1193	GEZD-5.1			SK3056/135A	ECG135A	TM4733A	WEP1103/135A	103-29006	Q30 Q30
D52	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D53	1N60	DX-0161	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001	
D54	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D55	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D56	5S2778	DX-1131	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02	Q10 Q11 Q12
D57	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D58	H74C2	DX-1228		ZM4.3B		SK3774/5008A	ECG5008A	TM5008	WEP1408/5008	103-279-08	
D59	3B761	DX-1229	GE-512	PTC204	REN 156	SK3051/156	ECG156	TM156	WEP4008/156	212-29000	
D60	05Z10L	DX-1034	GEZD-10	ZB10B	REN 140	SK3061/140A	ECG140A	TM140A/**	WEP1110/140A	103-29010	
D61	5S2778	DX-1131	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02	Q15
D62	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D64	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D302	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D303	05Z6.2L	DX-1194	GEZD-6.2	ZB6.2B	REN 137	SK3058/137A	ECG137A	TM137A/**	WEP1154/137A	103-29008	
D304	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	Q18
D305	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D306	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
D307	1S1555	DX-0270	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131	
1C1	LC7113										
1C2	KH3207										Q19 Q20
1C3	TA7310P										
1C4	TA7310P				REN 1192	SK3445/1192	ECG1192	TM1192	WEP2120/1192	221-29061	
1C5	TA78L009P				REN 1192	SK3445/1192	ECG1192	TM1192	WEP2120/1192	221-29061	
1C6	SN76600P		GE-217			SK3234/746	ECG746	TM746	WEP2024/746	221-29028	
1C7	TA78										Q23
1C8	TA58										
1C8	MC1496P						ECG973D	TM973D			
1C9	LM1496H						ECG973D	TM973D			
1C9	TA78										
1C10	TA58										Q25
1C10	UPC1170H										
1C11	TC4066BP, P					SK4066	ECG4066B				
1C11	MC14066					SK4066	ECG4066B				
1C12	TA7222P, AP					SK3726					
1C301	LC7191										

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.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
IC302	LC7180									
Q1	2SA1015Y		GE-82	PTC103	REN 159	SK3114/290	ECG159	TM159	WEP62/159	121-29003
	2SA495Y		GE-221*	PTC103*	REN 159*	SK3114/290	ECG159*	TM159*/**	WEP495	121-29003*
Q2	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q3	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q4	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q5	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q6	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q7	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q8	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q28	2SC372Y		GE-61*	PTC121*	REN 123A*	SK3245/199	ECG123A*	TM123A*/**	WEP372	121-29000A*
	2SC1815Y		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
Q29	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q30	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q32	2SK19GR		GE-FET-2	PTC161	REN 132*	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
Q34	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q35	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q36	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q37	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q38	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q39	2SA1015Y		GE-82	PTC103	REN 159	SK3114/290	ECG159	TM159	WEP62/159	121-29003
	2SA495Y		GE-221*	PTC103*	REN 159*	SK3114/290	ECG159*	TM159*/**	WEP495	121-29003*
Q40	2SA1015Y		GE-82	PTC103	REN 159	SK3114/290	ECG159	TM159	WEP62/159	121-29003
	2SA495Y		GE-221*	PTC103*	REN 159*	SK3114/290	ECG159*	TM159*/**	WEP495	121-29003*
Q41	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q42	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q43	2SC509-0,Y		GE-81*	PTC123*	REN 289	SK3124/289	ECG289	TM289	WEP910/289	121-29065
Q44	2SD525-0,Y		GE-66	PTC167	REN 152	SK3440/291	ECG152	TM152	WEP745/152	121-987-03
Q45	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q46	2SD234-0,Y		GE-66	PTC154	REN 152	SK3054/196	ECG152	TM152	WEP745/152	121-987-03
Q301	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q302	2SC1173-0		GE-215	PTC110	REN 236	SK3197/235	ECG236	TM236/**	WEP745/152	121-29040
Q303	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q9	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q10	2SC735-0,Y		GE-210	PTC123*	REN 289	SK3122	ECG289	TM289/**	WEP735A	121-29065
Q11	2SC2086		GE-47*	PTC143*	REN 293*	SK3842	ECG293*	TM293*	WEP914/297	121-29066
Q12	2SC23930		GE-216	PTC186	REN 236	SK3197/235	ECG236	TM236	WEP840/236	121-29040
Q13	2SC23940		GE-216	PTC186	REN 236	SK3197/235	ECG236	TM236	WEP840/236	121-29040
Q14	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q15	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q16	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q17	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q18	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*
Q19	3SK59GR		GE-FET-4	PTC182*	REN 222	SK3050/221	ECG222	TM222	WEP905/222	121-826
Q20	2SC372Y		GE-61*	PTC121*	REN 123A*	SK3245/199	ECG123A*	TM123A*/**	WEP372	121-29000A*
	2SC1815Y		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
Q21	2SC372Y		GE-61*	PTC121*	REN 123A*	SK3245/199	ECG123A*	TM123A*/**	WEP372	121-29000A*
	2SC1815Y		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
Q22	2SC372Y		GE-61*	PTC121*	REN 123A*	SK3245/199	ECG123A*	TM123A*/**	WEP372	121-29000A*
	2SC1815Y		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
Q23	2SC372Y		GE-61*	PTC121*	REN 123A*	SK3245/199	ECG123A*	TM123A*/**	WEP372	121-29000A*
	2SC1815Y		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
Q24	2SC732GR		GE-62	PTC139*	REN 199	SK3245/199	ECG199	TM199/**	WEP66/199	121-972*
Q25	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q26	2SC1923-0		GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021*
	2SC784-0		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q27	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TM199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TM199/**	WEP373	121-972*

REALISTIC MODEL TRC-480 (21-1563)

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.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
Q304	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q305	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q306	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q401	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q402	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q403	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*
Q404	2SC1815GR		GE-62	PTC136	REN 199	SK3245/199	ECG199	TH199	WEP66/199	121-972*
	2SC373		GE-212	PTC121*	REN 199	SK3245/199	ECG199	TH199/**	WEP373	121-972*

* 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
C1	6.8 10V			TOC686M025FL	QDT1-55	5025-6R89
C14	33 16V		PC30-25	VTT33025	QV1-63	EV-1325
C15	33 16V		PC30-25	VTT33025	QV1-63	EV-1325
C29	4.7 16V			TOC475M035FL		5035-4R79
C30	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C37	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C66	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C67	47 16V		PC50-16	VTT47016	QV1-73	EV-1226
C68	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C78	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C90	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C94	.1 35V			TOC104M050EL	QDT1-2	5050-R109
C100	47 10V		PC50-16	VTT47016	QV1-73	EV-1226
C101	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C104	4.7 16V			TOC475M035FL		5035-4R79
C115	100 10V		PC100-10	VTT100D10	QV1-93	EV-1131
C128	2.2 16V			TOC225M035FL		5035-2R29
C129	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C130	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C131	22 6.3V			TOC226M015FL	QDT1-82	5015-229
C132	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C133	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C134	33 16V		PC30-25	VTT33025	QV1-63	EV-1325
C137	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C141	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C142	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C143	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C144	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C145	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C146	47 16V		PC50-16	VTT47016	QV1-73	EV-1226
C149	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C157	1000 16V		PC1000-16	VTT1000M16	QV1-183	EV-1261
C159	4.7 35V		PC5-50	VTT47016	QV1-31	EV-1619.1
C160	100 10V		PC100-10	VTT100D10	QV1-93	EV-1131
C162	47 10V		PC50-16	VTT47016	QV1-73	EV-1226
C164	1000 16V		PC1000-16	VTT1000M16	QV1-183	EV-1261
C165	470 16V		PC500-16	VTT470K16	QV1-151	EV-1251
C166	220 10V		PC250-10	VTT220F10	QV1-115	EV-1140
C168	470 16V		PC500-16	VTT470K16	QV1-151	EV-1251
C169	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C170	1000 16V		PC1000-16	VTT1000M16	QV1-183	EV-1261
C303	33 16V		PC30-25	VTT33025	QV1-63	EV-1325
C306	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C2	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C3	.01 50V			MAG5011		
C4	150 NPO 50V 10%			CN0315		10TCC-T15
C5	33 NPO 50V 10%		NPO33	CN0433	QCC2-22	10TCC-Q33
C6	.01 50V			MAG5011		
C7	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C8	220 50V 10%					10TCC-T22
C9	56 NPO 50V 10%			CN0456		10TCC-Q56
C10	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C11	18 NPO 50V 10%			CN0418		10TCC-Q18
C12	27 NPO 50V 10%			CN0427		10TCC-Q27
C13	.01 50V			MAG5011		
C16	.01 50V			MAG5011		
C17	10 N220 50V +.5			*		10TCR-Q10
C18	150 N220 50V 10%			CN0315		10TCC-T15
C19	5 NPO 50V +.25			CN0547		
C20	.01 50V			MAG5011		
C21	.01 50V			MAG5011		
C22	10 N470 50V +.5			*		10TCT-Q10
C23	4 N470 50V +.25			*		10TCT-Y47
C24	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C25	10 M750 50V $\pm .5$			*		10TCU-A10
C26	4 50V $\pm .25$			CH0547		
C28	.01 50V			MAG5011		
C27	.001 50V			GP210	QCT2-41	10TS-010
C28	.01 50V			MAG5011		
C31	27 50V 10%			CH0427		10TCC-Q27
C32	15 50V 10%			CH0415		10TCC-Q15
C33	.01 50V		NP015	MAG5011		
C34	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C35	3 50V $\pm .25$			CN0533		
C36	.01 50V			MAG5011		
C38	.01 50V			MAG5011		
C39	220 50V 10%					10TCC-T22
C40	.001 50V 10%		OPMS601	M192P10292	QFT2-1	1FT-010
C41	68 NPO 50V 10%		NP068	CN0468		10TCC-Q68
C42	.01 50V			MAG5011		
C43	.01 50V			MAG5011		
C44	100 NPO 50V 10%		NP0100	CN0310		10TCC-T10
C45	.01 50V			MAG5011		
C46	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C47	100 NPO 50V 10%		NP0100	CN0310		10TCC-T10
C48	.01 50V			MAG5011		
C49	.01 50V			MAG5011		
C50	68 NPO 50V 10%		NP068	CN0468		10TCC-Q68
C51	180 NPO 50V 10%					10TCC-T18
C52	100 NPO 50V 10%		NP0100	CH0310		10TCC-T10
C53	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C54	250 250V 5%		C015F0271J03	SX327	QW1-37	MMA-271
C55	330 250V 5%		C015F0131J03	SX313	QW1-30	MMA-131
C56	470 500V 10%		GP470	GP347	QCT2-35	10TS-T47
C57	150 250V 5%		C015F0151J03	SX315	QW1-31	MMA-151
C57	47 50V 10%		NP047	CH0447	QCC2-26	10TCC-Q47
C58	5 50V $\pm .25$			CH0566		
C59	10 50V $\pm .5$			*		10TCC-Q10
C61	100 NPO 50V 10%		NP0100	CN0310		10TCC-T10
C62	220 NPO 50V 10%					10TCC-T22
C63	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C64	.01 50V			MAG5011		
C65	.01 50V			MAG5011		
C69	.01 50V			MAG5011		
C70	.022 50V 10%		OPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C71	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C72	5 50V $\pm .25$			CN0566		
C73	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C74	.01 50V			MAG5011		
C75	.01 50V			MAG5011		
C76	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C77	220 50V 10%					10TCC-T22
C79	.01 50V			MAG5011		
C80	.039 50V 10%		OPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C81	.039 50V 10%		OPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C82	68 50V 10%		NP068	CN0468		10TCC-Q68
C83	.039 50V 10%		OPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C84	.039 50V 10%		OPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C85	8 NPO 50V $\pm .5$			*		10TCC-VB2
C86	.01 50V			MAG5011		
C87	.022 50V 10%		OPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C88	47 50V 10%		NP047	CH0447	QCC2-26	10TCC-Q47
C89	.022 50V 10%		OPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C91	22 NPO 50V 10%		NP022	CN0422		10TCC-Q22
C92	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C93	10 NPO 50V $\pm .5$			*		10TCC-Q10
C95	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C96	47 NPO 50V 10%		NP047	CH0447	QCC2-26	10TCC-Q47
C97	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C98	.022 50V 10%		OPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C99	22 NPO 50V 10%		NP022	CN0422		10TCC-Q22
C102	150 50V 10%			CN0315		10TCC-T15
C103	150 50V 10%			CN0315		10TCC-T15
C105	.0056 50V 10%			M192P5629R8		192P5629R8
C106	.01 50V			MAG5011		
C107	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C108	10 50V $\pm .5$			*		10TCC-Q10
C109	.01 50V			MAG5011		
C110	220 50V 10%					10TCC-T22
C111	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C112	100 50V 10%		NP0100	CN0310		10TCC-T10
C113	.01 50V			MAG5011		
C114	.01 50V			MAG5011		
C116	.01 50V			MAG5011		
C117	.01 50V			MAG5011		
C118	100 50V 10%		NP0100	CN0310		10TCC-T10
C119	82 50V 10%		NP082	CN0482		10TCC-Q82
C120	82 50V 10%		NP082	CN0482		10TCC-Q82
C121	56 50V 10%			CN0456		10TCC-Q56
C122	20 50V 10%		NP020	CN0420	QCC2-19	10TCC-Q20
C123	.001 50V 10%		OPMS601	M192P10292	QFT2-1	1FT-010
C124	39 N220 50V 10%			CN0439		10TCC-Q39
C125	18 50V 10%			CN0418		10TCC-Q18
	12 50V 10%			CN0412		10TCC-Q12
	18 50V 10%			CN0418		10TCC-Q18
	12 50V 10%			CN0412		10TCC-Q12
	18 50V 10%			CN0418		10TCC-Q18
C127	12 50V 10%			CN0412		10TCC-Q12
	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C135	.047 50V 10%		OPMS2S47	M192P4739R8	QFT2-171	1FT-S47
C136	.033 50V 10%		OPMS6S33	M192P3339R8	QFT2-149	1FT-S33
C139	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C140	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C147	.022 50V 10%		OPMS2S22	M192P2239R8	QFT2-127	1FT-S22

REALISTIC MODEL TRC-480 (21-1563)

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
C148	.056 50V 10%		WMF1S56	M192P5639R8	QFT2-185	1FT-S56
C150	.047 50V 10%		DPMS2S47	M192P4739R8	QFT2-171	1FT-S47
C151	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C152	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C153	.033 50V 10%		DPMS6S33	M192P3339R8	QFT2-149	1FT-S33
C154	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C155	.047 50V 10%		DPMS2S47	M192P4739R8	QFT2-171	1FT-S47
C156	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C156	100 NPO 50V 10%		NPO100	CN0310		10TCC-T10
C161	220 NPO 50V 10%					10TCC-T22
C163	.22 50V 10%		WMF05P22	M192P2249R8	QFT2-253	1FT-P22
C167	.01 50V			MAG5011		
C171	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C172	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C173	.1 25V			MAG2501	QC1-231	HY-750
C174	.1 50V 10%		WMF05P1	M192P1049R8	QFT2-215	1FT-P10
C175	.1 25V			MAG2501	QC1-231	HY-750
C176	.1 50V 10%		WMF05P1	M192P1049R8	QFT2-215	1FT-P10
C177	.1 25V			MAG2501	QC1-231	HY-750
C178	.1 25V			MAG2501	QC1-231	HY-750
C179	.1 25V			MAG2501	QC1-231	HY-750
C180	.1 25V			MAG2501	QC1-231	HY-750
C181	.1 25V			MAG2501	QC1-231	HY-750
C182	.1 25V			MAG2501	QC1-231	HY-750
C183	.1 25V			MAG2501	QC1-231	HY-750
C184	.1 25V			MAG2501	QC1-231	HY-750
C185	.1 50V 10%		WMF051P1	M192P1049R8	QFT2-215	1FT-P10
C186	4 50V +.25			CN0547		
C187	.039 50V 10%		DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C188	.1 50V 10%		WMF051P1	M192P1049R8	QFT2-215	1FT-P10
C189	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C190	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C191	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C192	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C193	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C194	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C195	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C196	.01 50V 10%		WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C197	.01 50V			MAG5011		
C198	.047 50V		DPMS2S47	EW1A147	QF1-171	1PB-S47
C199	.047 50V		DPMS2S47	EW1A147	QF1-171	1PB-S47
C200	.01 50V			MAG5011		
C201	.01 50V			MAG5011		
C202	.01 50V			MAG5011		
C301	.068 50V 10%			MAG50168		
C302	.022 50V 10%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C304	33 NPO 50V 10%		NPO33	CN0433	QCC2-22	10TCC-Q33
C305	.0068 50V 10%		WMF1D68	M192P6829R8	QFT2-73	1FT-068
C501	150 50V 10%			CN0315		10TCC-T15
TC1	20 Trimmer	C-0965				
TC2	20 Trimmer	C-0966				
TC3	20 Trimmer	C-0965				
TC4	20 Trimmer	C-0965				
TC5	20 Trimmer	C-0965				

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFR. PART No.	MALLORY PART No.	TRW PART No.
VR1	17.8850MHz	20K	P-6530	RVA0911H253	U260R253R
VR2	17.8825MHz	10K	P-6531	RVA0911H103	U260R103B
VR3	17.8875MHz	10K	P-6446	RVA0911H103	U260R103B
VR4	SSB Mod Gain	5000	P-6456	RVA0911H502	U260R502B
VR5	SSB Mod Gain	50K	P-6457	RVA0911H503	U260R503B
VR6	Driver Bias	50K	P-0836	RVA0911H503	U260R503B
VR7	Final Bias	50K	P-0836	RVA0911H503	U260R503B
VR8	RF Power Meter	20K	P-6530	RVA0911H253	U260R253B
VR9	RF AGC	50K	P-6457	RVA0911H503	U260R503B
VR10	S Meter	5000	P-6456	RVA0911H502	U260R502B
VR11	Carrier Balance	100	P-1351		
VR12	Squelch Range	20K	P-6530	RVA0911H253	U260R253B
VR13	AM AMC	20K	P-6530	RVA0911H253	U260R253B
VR14	AM Power	500	P-6455	RVA0911H501	U260R501B
VR501	Dimmer	5000	S-9102		
VR502	Volume/Power Switch	10K	P-6538		
VR502	Squelch	50K	P-6539		
VR503	RF Gain	50K	P-6540		
VR504	Clarifier	10K	P-6541		

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.
TH1	100 NTC Cold	T-1207	FR1022	TH5	100K NTC Cold	T-1210	
TH2	25 NTC Cold	T-1138	FR1011	TH6	4K NTC Cold	T-1012	
TH3	25 NTC Cold	T-1138	FR1011	RA301	Resistor Arrays	RX-0109(1)	
TH4	100K NTC Cold	T-1012		RA302	Resistor Arrays	RX-0109(1)	

(1) Consists of seven 560 ohm resistors.

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	RF Choke (100uH)	CB-2427			
L2	Clarifier (17.889MHz)	CA-4999			
L3	RF Choke (0.66uH)	CB-2190			
L4	RF Choke (270uH)	CB-2429			
L5	RF Choke (180uH)	CB-2428			
L6	RF Choke	CB-2195			
L7	XMT Driver (27MHz)	CA-3931			
L8	RF Choke (180uH)	CB-2428			
L9	RF Choke	CB-2195			
L10	Final Loading (27MHz)	CA-7968			
L11	Antenna Matching (27MHz)	CA-7968			
L12	RF Choke	CA-3488			
L13	RF Choke	CA-3488			
L14	RF Choke (3.3uH)	C-0904			
L15	RF Choke (470uH)	C-0835			
L16	RF Choke (100uH)	CB-2427			
L17	RF Choke (10uH)	CB-2196			
L18	RF Choke (470uH)	C-0835			
L19	RF Choke (470uH)	C-0835			
L20	RF Choke (470uH)	C-0835			
L21	RF Choke (470uH)	C-0835			
L23	RF Choke	CB-2170			
L24	RF Choke	CB-2170			
L25	RF Choke (470uH)	C-0835			
L26	RF Choke (33mH)				
L401	RF Choke (10uH)	CB-2196			
L402	RF Choke (10uH)	CB-2196			
L403	RF Choke (10uH)	CB-2196			
L404	RF Choke (10uH)	CB-2196			
L405	RF Choke	CA-3182			
L406	RF Choke	CA-3182			
L407	RF Choke	CA-3182			
L408	RF Choke	CA-3182			
L409	RF Choke	CA-3182			
T1	VCO	CA-5001			
T2	VCO Output (19MHz)	CA-5000	K573		
T3	XMT, Mixer (27MHz)	CA-3885	TKXC15950		
T4	Bandpass Filter (27MHz)	CA-3885	TKXC15950		
T5	Bandpass Filter (27MHz)	CA-3885	TKXC15950		
T6	XMT Driver (27MHz)	TA-0715			
T7	RF Amp (27MHz)	CA-3811			
T8	RF Amp (27MHz)	CA-4998			
T9	IF (7.6MHz)	CA-3809	TKAC17912		
T10	IF (7.6MHz)	CA-3809	TKAC17912		
T11	IF (7.6MHz)	CA-3810	TKAC17919		
T12	Noise Blanker	CA-3738			
T13	Noise Blanker	CA-3738			

REALISTIC MODEL TRC-480 (21-1563)

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.	
L22	2.9A	.244	2.2mH				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T14	3.56	8				
		SEC. 2				
		8				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP1	3 1/2" PM, 8 Ohm		3A0528	

PARTS LIST AND DESCRIPTION (CONTINUED)

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

FUSE DEVICES

ITEM No.		DESCRIPTION		REPLACEMENT DATA						
				PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
F1	4A Quick-Acting	4A	GE-23E-7482	MTH4	HRK	312-004	150145			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
D301	LED	L-0880	Channel Indicator (Each segment supplied 1.93V @ 6mA) AM (1.95V @ 7mA) LSB (1.95V @ 7mA) USB (1.95V @ 7mA)
D401	LED	L-0983	
D402	LED	L-0983	
D403	LED	L-0983	
J1	Plug		
J301	Connector	J-6671	
J302	Connector	J-6674	
J303	Connector	J-6672	
J401	Connector	J-6674	
J405	Connector	J-6670	
J501	Jack	J-6682	Mic
J502	Jack	J-6487	Antenna
J503	Jack	J-0840	External Speaker
J504	Jack	J-0840	PA/Speaker
M501	Meter	M-0415	S/Rf
PL1	Lamp		Rec (Meter) (8.45V @ 36mA)
PL2	Lamp		Xmit (Meter) (6.95V @ 30mA)
RY1	Relay	R-8088	
S1	Switch		Down Channel (Part of Mic)
S2	Switch		Up Channel (Part of Mic)
SW301	Switch	S-9101	Up
SW302	Switch	S-9101	Down
SW303	Switch	S-7409	Ch. 9, Search, (A & B), NB/ANL, PA, MON (Assembly)
thru SW308			
SW401	Switch		AM
SW402	Switch		LSB
SW403	Switch		USB
X1	Crystal	MX-2382	10.240MHz
X2	Crystal	MX-2383	17.8875MHz
X3	Crystal	MX-2384	7.800MHz
X4	Crystal	MX-2385	7.8025MHz
X5	Crystal	MX-2386	7.7975MHz
XF1	Filter (7.8MHz)	C-0964	
	P.C. Board	X-8045	Ch. Control
	P.C. Board	X-8047	LED
	P.C. Board	X-8044	Main
	P.C. Board	X-8049	Mic Jack
	P.C. Board	X-8048	PA/External Speaker Jack
	Power Cord	GE-230-7246	OC
	Microphone	M-2299	

WIRING DATA

Cable (Speaker)(Unshielded).....	Use BELOEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELOEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELOEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELOEN 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. 9467 (5 conductor-1 shielded)(6 ft.)(AWG28)