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 SB-520D

MANUFACTURER'S SPECIFICATIONS

GENERAL

Channels:	40 AM, 40 LSB, 40 USB
Frequency Range:	26.965 to 27.405 MHz
Frequency Control:	Phase Lock Loop(PLL) synthesizer
Frequency Tolerance:	0.005%
Operating Temperature Range:	-20°C to +50°C
Microphone:	Plug-in type: dynamic, 600 ohms
Input Voltage:	13.8V DC nom. (positive or negative ground) and 117V AC
Size:	330 (mm) x 127 (mm) x 292 (mm)
Weight:	13.3 Pounds (6 kg)
Antenna Connector	S0239
Semiconductors	48 transistors, 7 FET, 7 IC, 62 Diodes, 3 LEDs.
Meter:	Illuminated; indicates relative output, signal strength and standing wave ratio

TRANSMITTER

Power output	4 watts (AM) 12 watts PEP (SSB)
Frequency Response	300 – 2500 Hz
Output Impedance	50 ohms unbalanced
Output Indicator	TX indicator

RECEIVER

Sensitivity:	less than 0.5 μV for 10 dB (S+N) /N
Selectivity:	AM 65dB (10 KHz), SSB 65dB (10 KHz)
Image Rejection:	50 dB
Adjacent-Channel Rejection:	60 dB
I.F. Frequencies:	AM and SSB: 7.8 MHz
Squelch:	Adjustable; threshold less than 1 μV
Clarifier Range:	±1250 Hz
Audio output power:	3.5 watts into 8 ohms
Frequency Response:	350 to 2500 Hz
Distortion:	less than 10% at 3.5 watts output
Built-in-Speaker:	8 ohms, round

Courtesy of the Manufacturer

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

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.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Adjust RT301 for 13.8 volts at TP13.

Suggested Alignment Tools:	GC ELECTRONICS:
L1 thru L8, L16, L17, L24, L37, L39	9440
L27, L30, L32	5009
CT1 thru CT6	5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP10.	Ch. 19, AM Clarifier Midrange		Check for 10.240MHz.
Input of frequency counter thru 47pF to TP11.	Ch. 19, AM Clarifier Midrange	CT6	Adjust for 11.2850MHz.
	Ch. 19, USB Clarifier Midrange	CT4	Adjust for 11.2858MHz.
	Ch. 19, LSB Clarifier Midrange	CT5	Adjust for 11.2842MHz.
Input of RF VTVM To TP6.	Ch. 19, AM Clarifier Midrange	L24	Adjust for maximum RF voltage.
Input of DC meter to TP7.	Ch. 1, AM Clarifier Midrange	L17	Adjust for 2.0 volts.
Input of RF VTVM to TP8.	Ch. 19, AM Clarifier Midrange	L16	Adjust for maximum RF voltage.
Input of frequency counter to TP8.	Ch. 1, AM Clarifier Midrange		Check for 34.7650MHz. Check all channels. (Channel frequency + 7.8MHz = frequency on counter).
	Ch. 1, USB Clarifier Midrange		Check for 34.7675MHz. Check all channels. (Channel frequency + 7.8025MHz = frequency on counter).
	Ch. 1, LSB Clarifier Midrange		Check for 34.7625MHz. Check all channels. (Channel frequency + 7.7975MHz = frequency on counter).
Input of frequency counter to TP8.	Ch. 19, LSB, Xmit	VR9	Adjust for 34.9825MHz.
Input of frequency counter to TP9.	Ch. 19, USB	CT2	Adjust for 7.8025MHz.
	Ch. 19, LSB	CT3	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.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP12. 7.8MHz, 1000Hz @ 30% modulation.	Ch. 19, AM Squelch MIN RF Gain MAX Clarifier Midrange NB Off	L8,L7,L6,L5	Adjust for maximum output.

RECEIVER ALIGNMENT (Continued)

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19, AM Squelch MIN RF Gain MAX Clarifier Midrange NB Off	L4,L3	Adjust for maximum output. If necessary, readjust L5, L6, L7, and L8.
Output of signal generator thru .01uF to antenna jack. 24.1MHz, no modulation. Input of RF VTVM to TP5.	Ch. 19, AM NB On	L1,L2	Adjust for maximum RF voltage.

RECEIVER ALIGNMENT

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

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output 1uV.	Ch. 19, USB Squelch MIN RF Gain MAX Clarifier Midrange NB Off	CT1	Adjust CT1 for maximum audio.

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 250uV.	Ch. 19, AM Vol MAX Squelch MIN RF Gain MIN Clarifier Midrange NB Off	VR2	RF GAIN (RANGE) Adjust VR2 for .5 watts audio.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1uV.	Ch. 19, AM Vol MAX Squelch MIN RF Gain MAX Clarifier Midrange NB Off	VR5	AM RX GAIN Adjust VR5 for 1 watt audio.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 2000uV.	Ch. 19, AM RF Gain MAX Clarifier Midrange NB Off	VR3	SQUELCH RANGE Set squelch control VR404 fully clockwise. Adjust VR3 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19, AM RF Gain MAX Clarifier Midrange NB Off Squelch MIN	VR1	SIGNAL METER Adjust VR1 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.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Inject a 1000Hz, 20mV signal at mic input.	Ch. 19, USB	L39,L37, L32,L30	Adjust for maximum.
	Ch. 19, USB	CT7	Adjust for 12 watts maximum.

TRANSMITTER ALIGNMENT

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

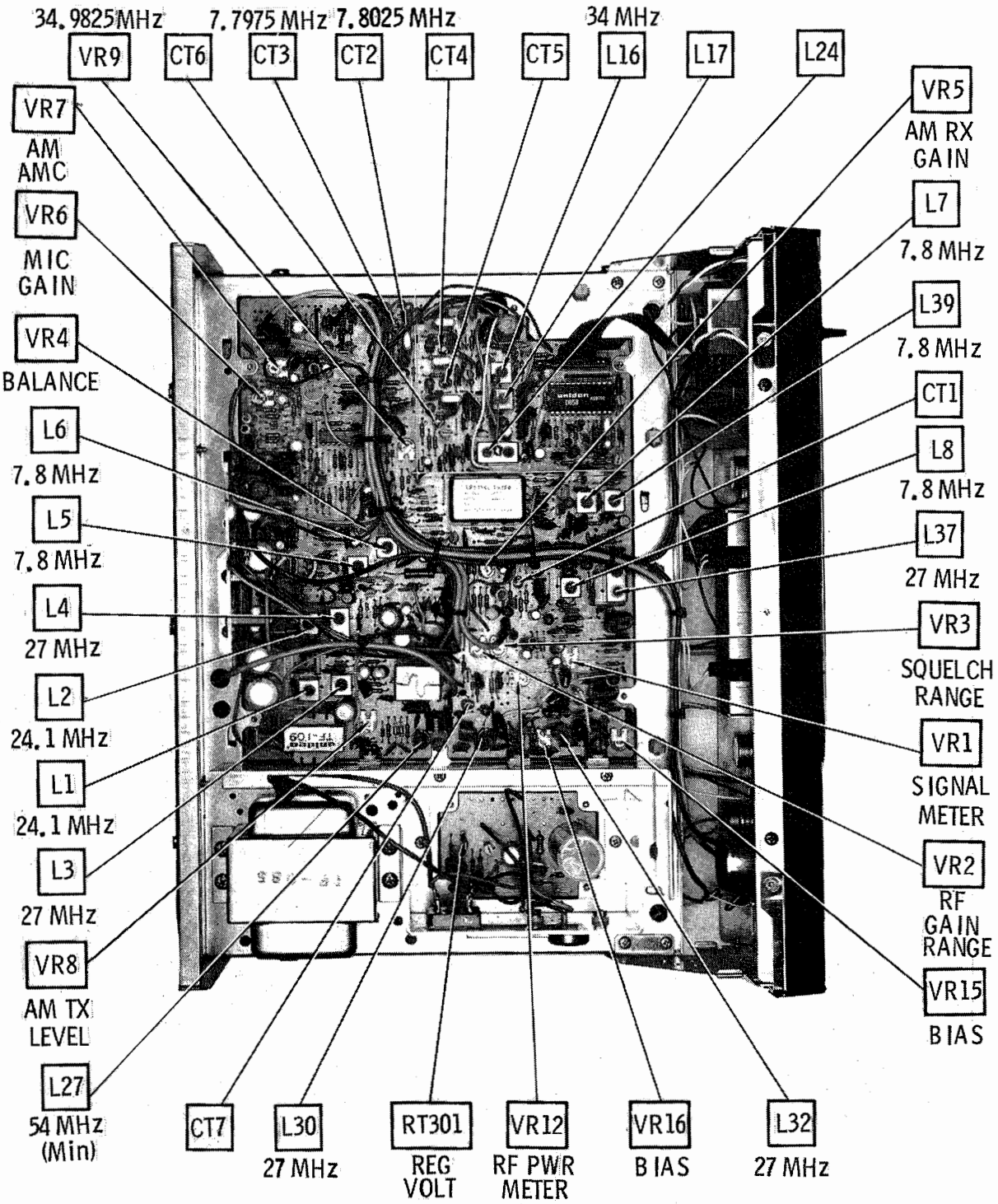
AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Tunable field strength meter set at 54MHz.	Ch. 19, AM	L27	Adjust for MINIMUM signal.

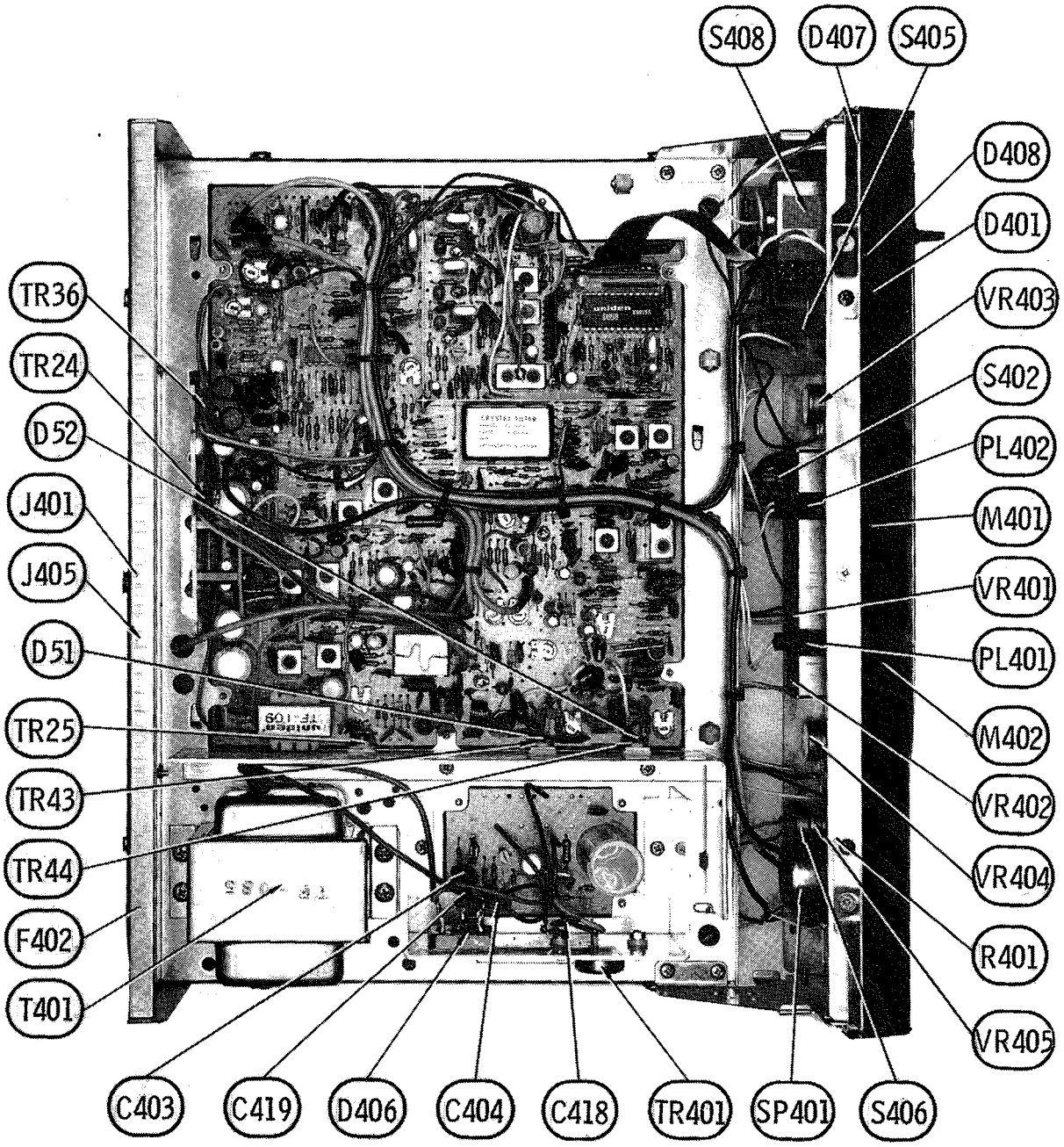
TRANSMITTER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
DC current meter to TP3 and TP4. No modulation.	Ch. 19, USB	VR15	BIAS Adjust VR15 for 60mA.
DC current meter to TP1 and TP2. No modulation.	Ch. 19, USB	VR16	BIAS Adjust VR16 for 50mA.
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector. No modulation.	Ch. 19, AM	VR8	AM TX LEVEL Adjust VR8 for 4 watts.
	Ch. 19, USB	VR4	BALANCE Adjust for MINIMUM RF.
Inject a 1000Hz, 1mV signal at mic input.	Ch. 19, USB	VR6	MIC GAIN Adjust VR6 for 12 watts RF. (CT7 must be properly adjusted.)
Modulation meter to antenna jack. Inject a 1000Hz, 10mV signal at mic input.	Ch. 19, AM	VR7	AM AMC Adjust VR7 for 100% modulation maximum.
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.	Ch. 19, AM	VR12	RF POWER METER Adjust VR12 so that RF power meter agrees with RF wattmeter.


34.9825MHz
7.7975 MHz
7.8025 MHz
34 MHz
VR9
CT6
CT3
CT2
CT4
CT5
L16
L17
L24
VR7
AM AMC
VR6
MIC GAIN
VR4
BALANCE
L6
7.8 MHz
L5
7.8 MHz
L4
27 MHz
L2
24.1 MHz
L1
24.1 MHz
L3
27 MHz
VR8
AM TX LEVEL
L27
54 MHz (Min)
VR5
AM RX GAIN
L7
7.8 MHz
L39
7.8 MHz
CT1
L8
7.8 MHz
L37
27 MHz
VR3
SQUELCH RANGE
VR1
SIGNAL METER
VR2
RF GAIN RANGE
VR15
BIAS
CT7
L30
27 MHz
RT301
REG VOLT
VR12
RF PWR METER
VR16
BIAS
L32
27 MHz

CHASSIS - TOP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D52
J401
J405
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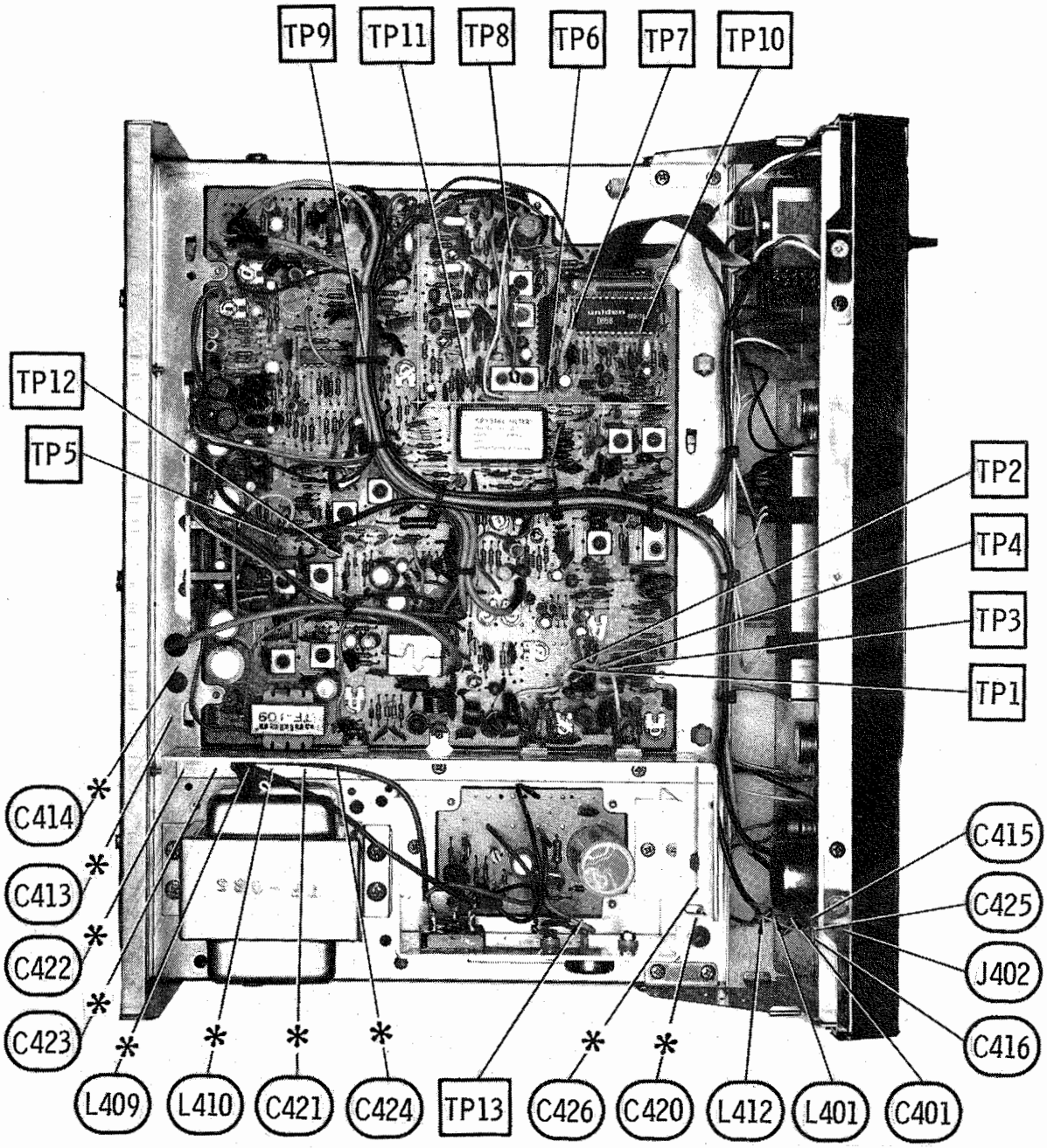
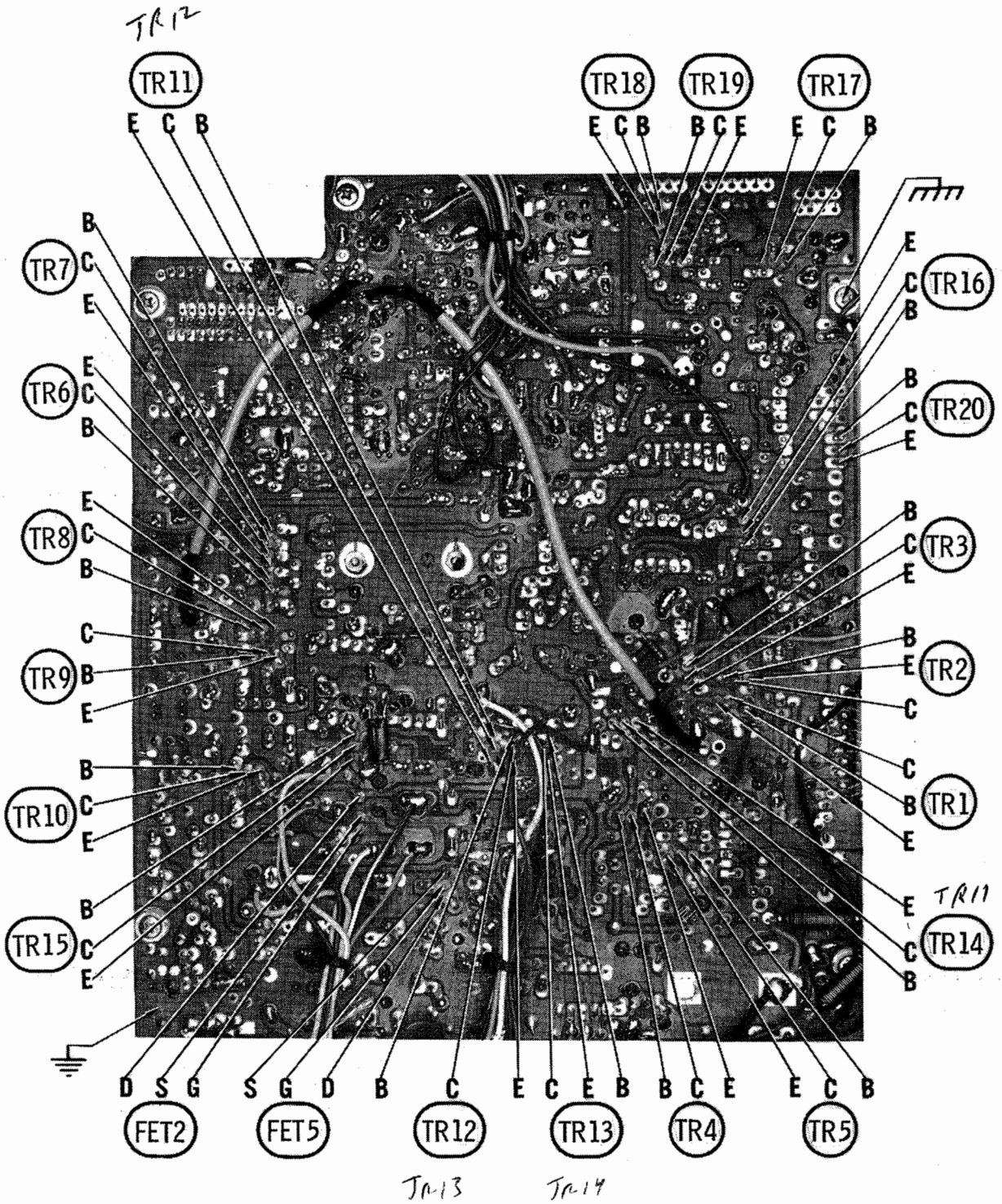
SP401
S406

CHASSIS - TOP



* Located on bottom of chassis

CHASSIS - TOP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TR18
TR19
TR17
B C E
TR7
TR16
TR6
TR20
TR8
TR3
TR9
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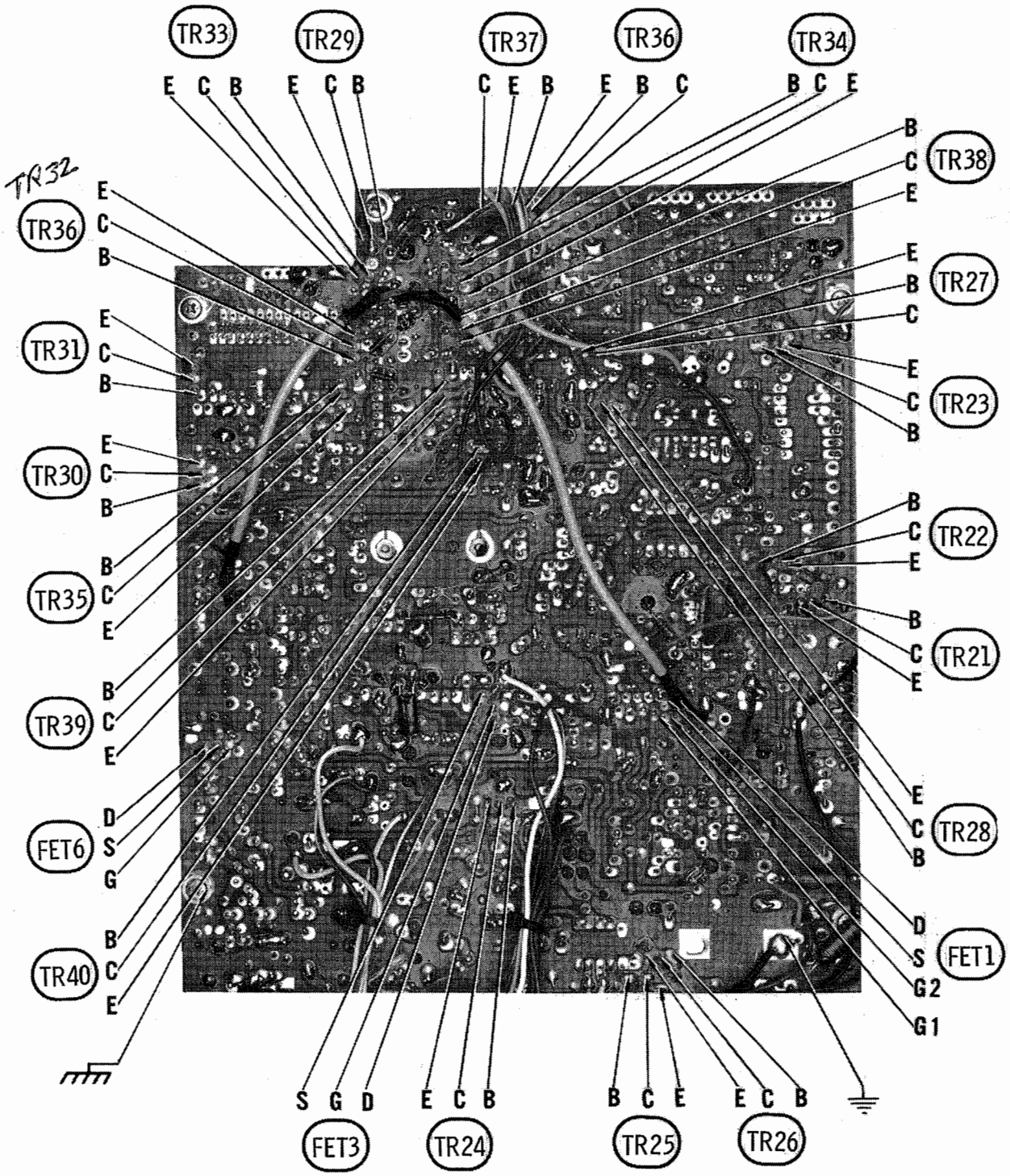
TR10
TR1
TR15
TR14
TR11
D S G
S G D
B
C
E
FET2
FET5
TR12
TR13
TR4
TR5
TR13
TR14

MAIN BOARD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E C B
TR29
E C B
TR37
C E B
TR36
E B C
TR34
B C E
TR32
TR36
E C B
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TR27
E B C
TR31
E C B
TR23
E C B
TR30
E C B
TR22
B C E
TR35
B C E
TR21
B C E
TR39
B C E
TR28
E C B
FET6
D S G
FET1
D S G2 G1
TR40
B C E
FET3
S G D
TR24
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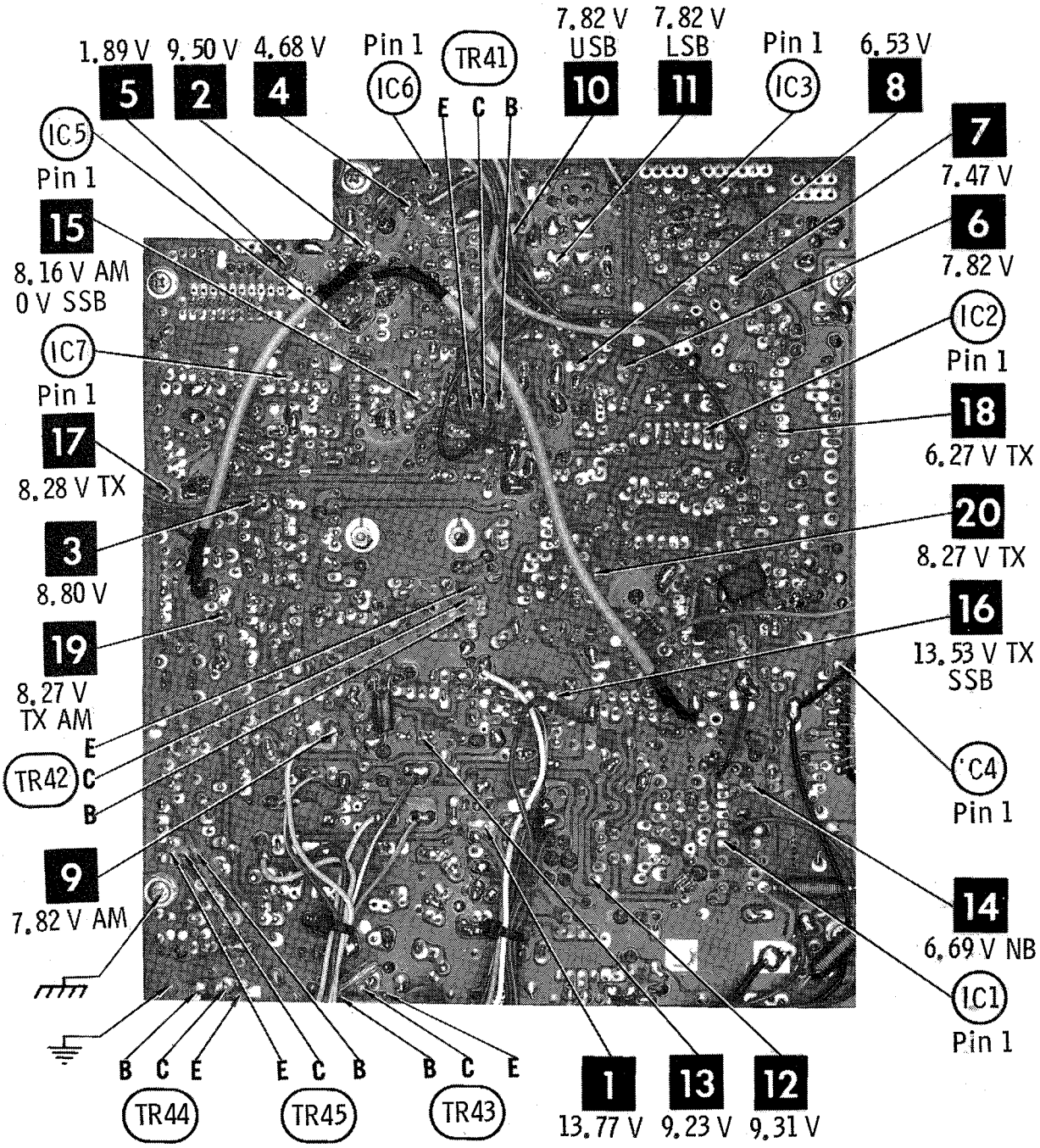
TR25
B C E
TR26
E C B

MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo



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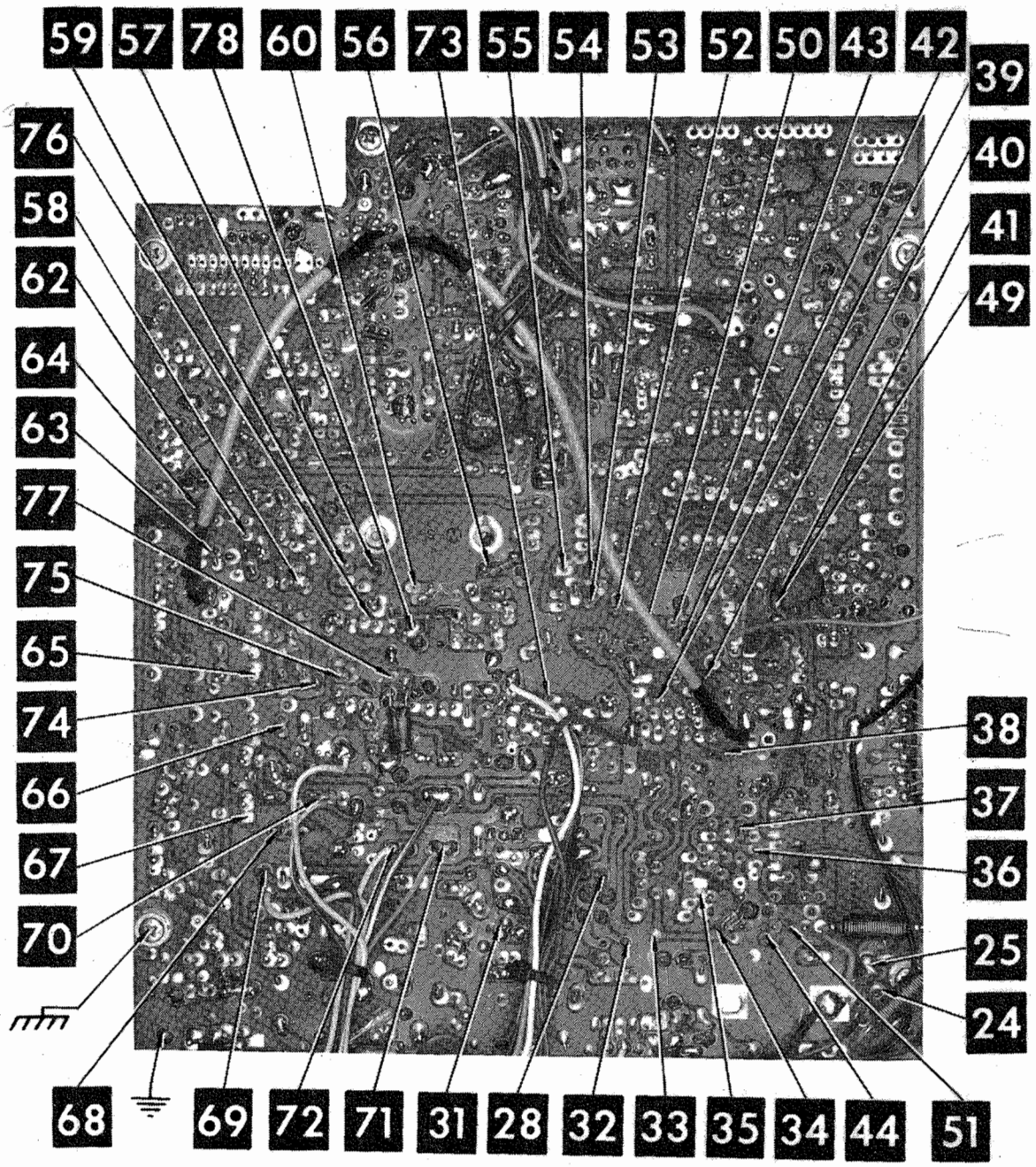
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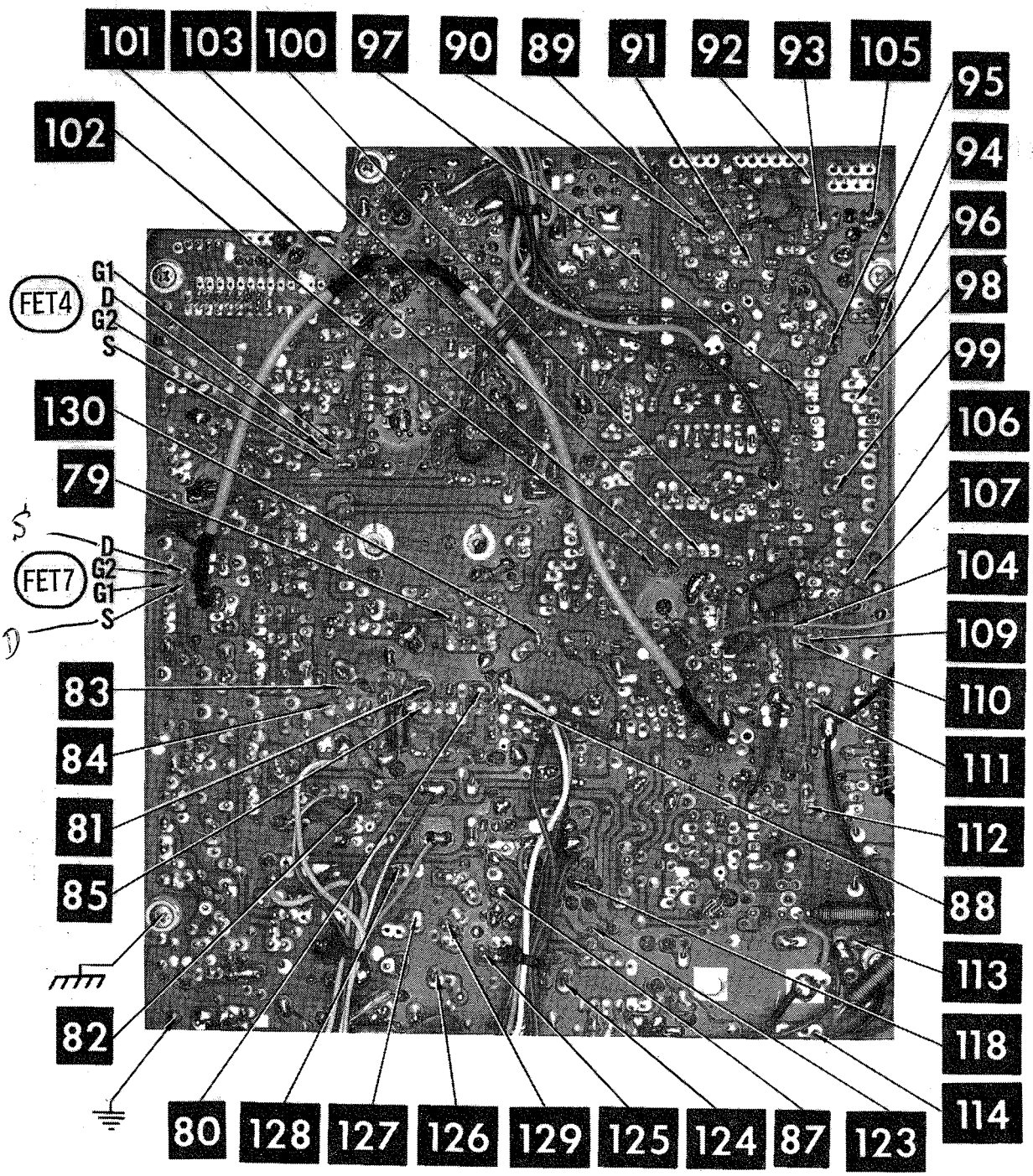
MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo



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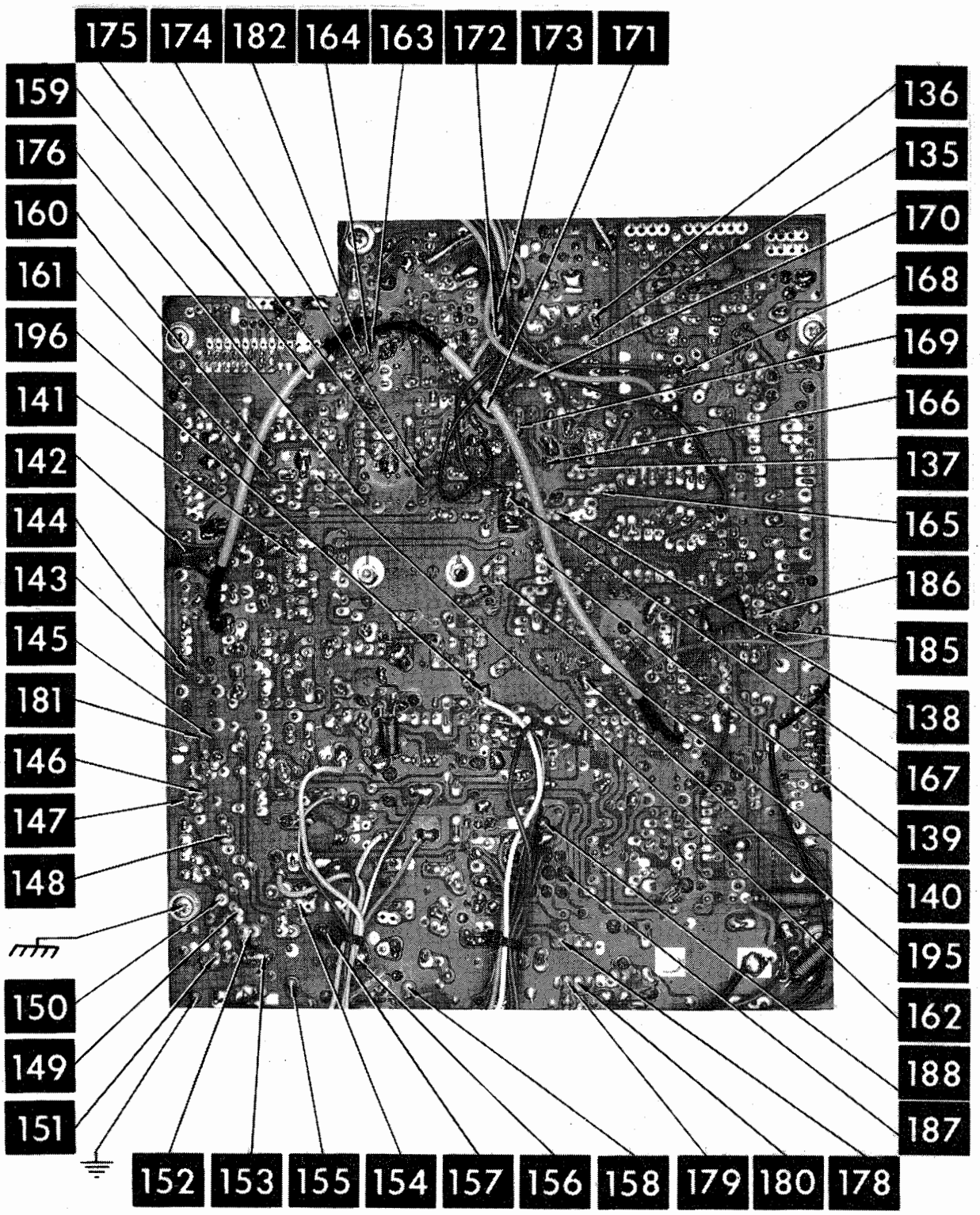
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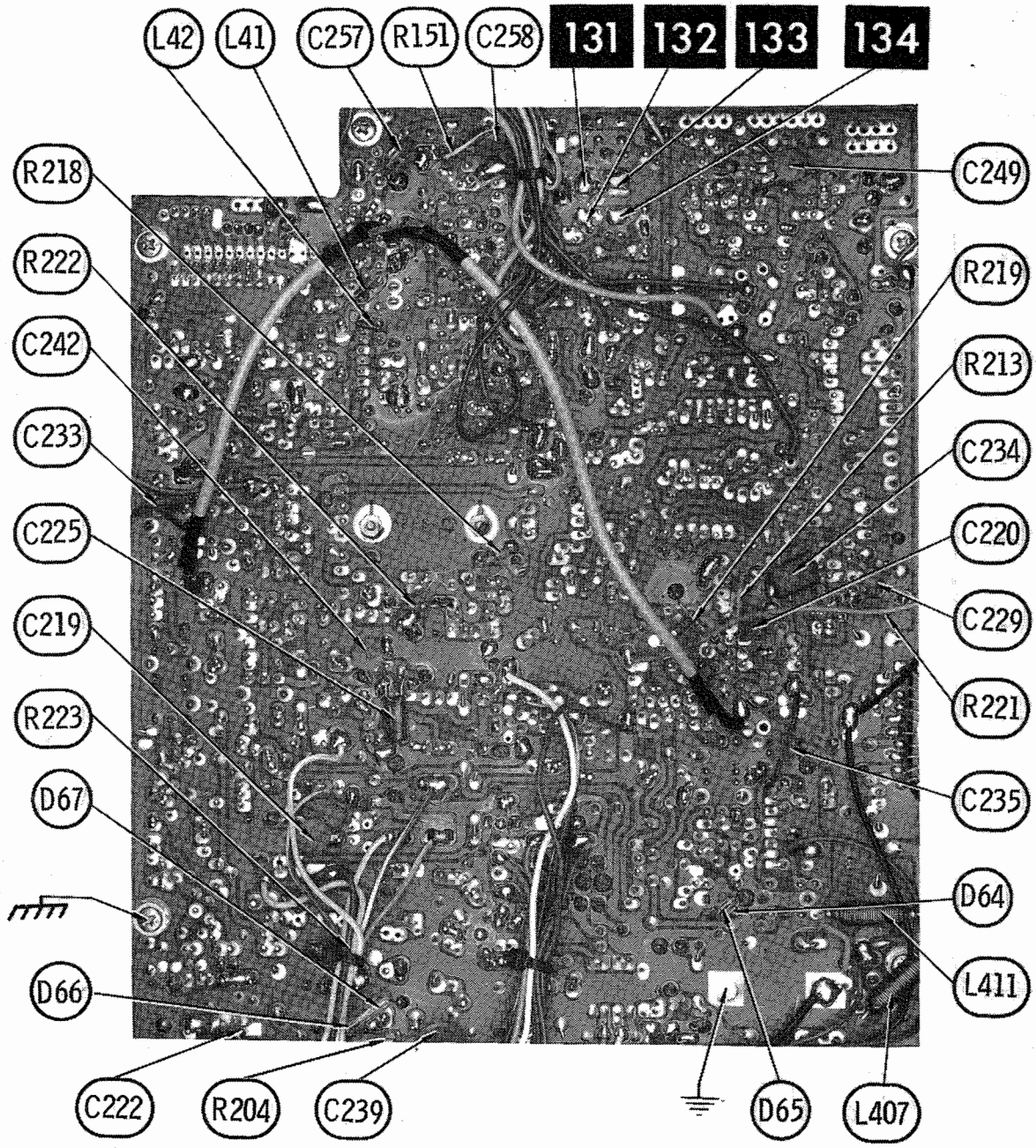
MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo



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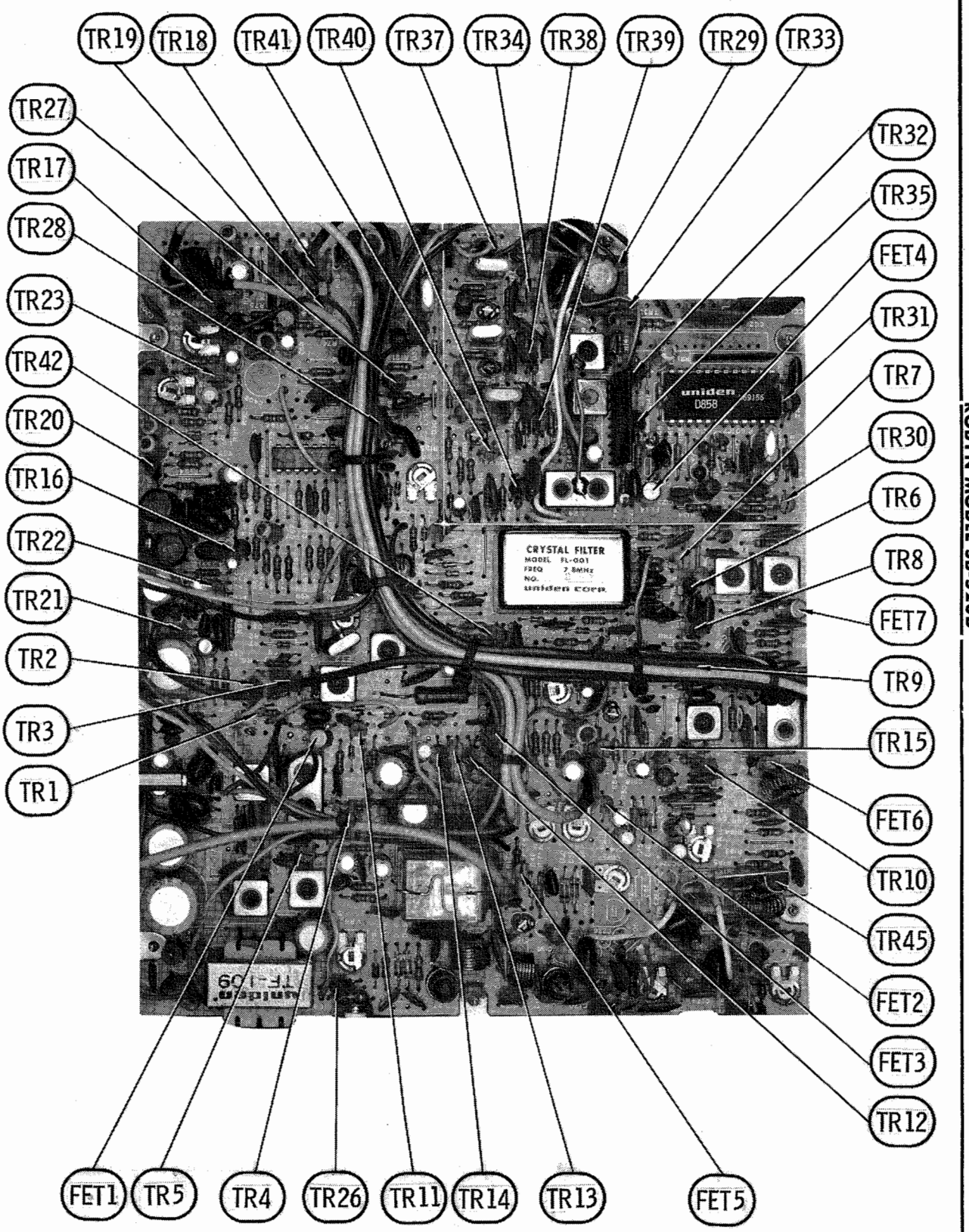
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TR15
FET6
TR10
TR45
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FET3
TR12
FET1
TR5
TR4
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TR11
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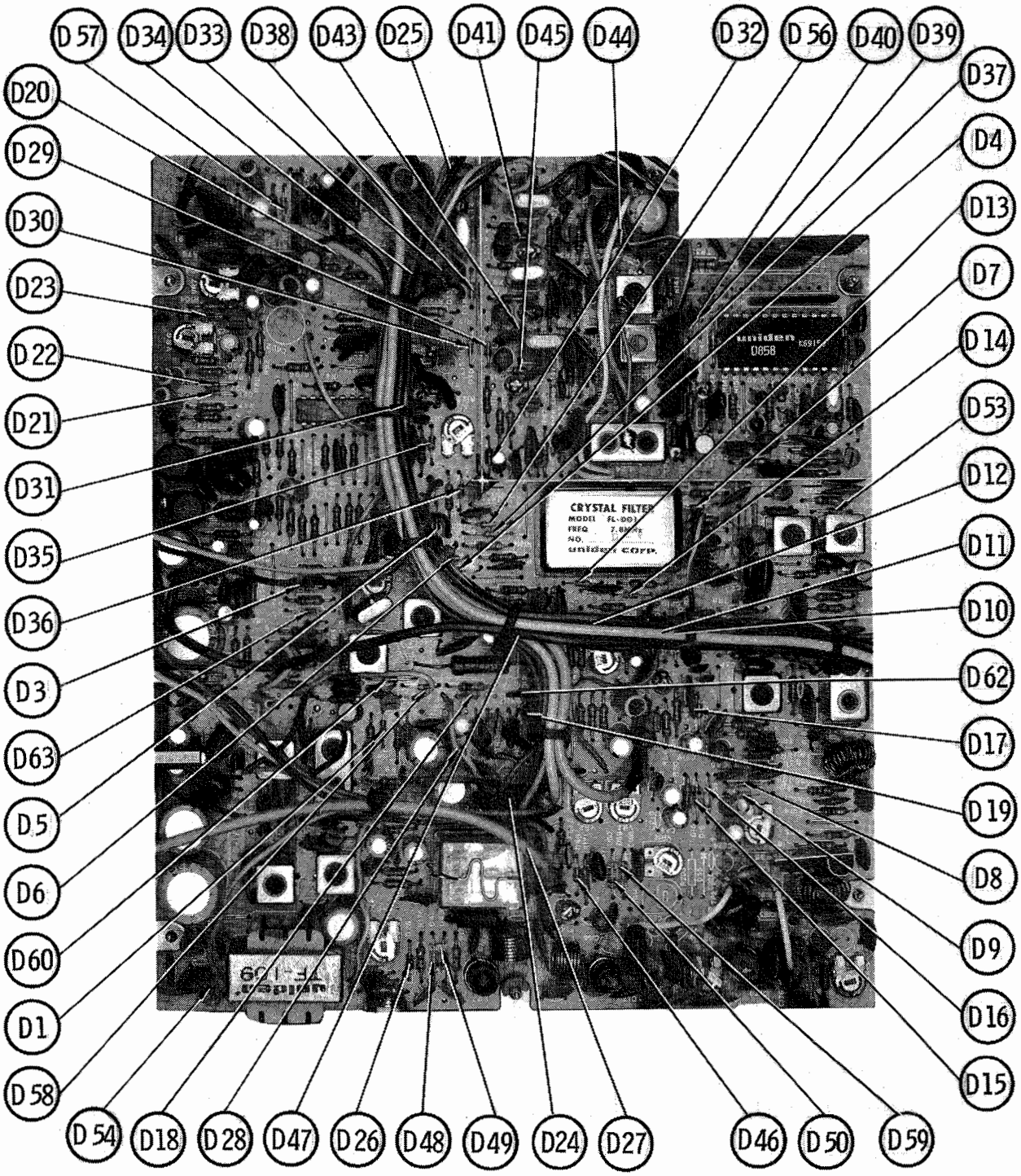
FREQ 7.8MHz
NO.
uniden corp.
uniden
D858
TF-109

MAIN BOARD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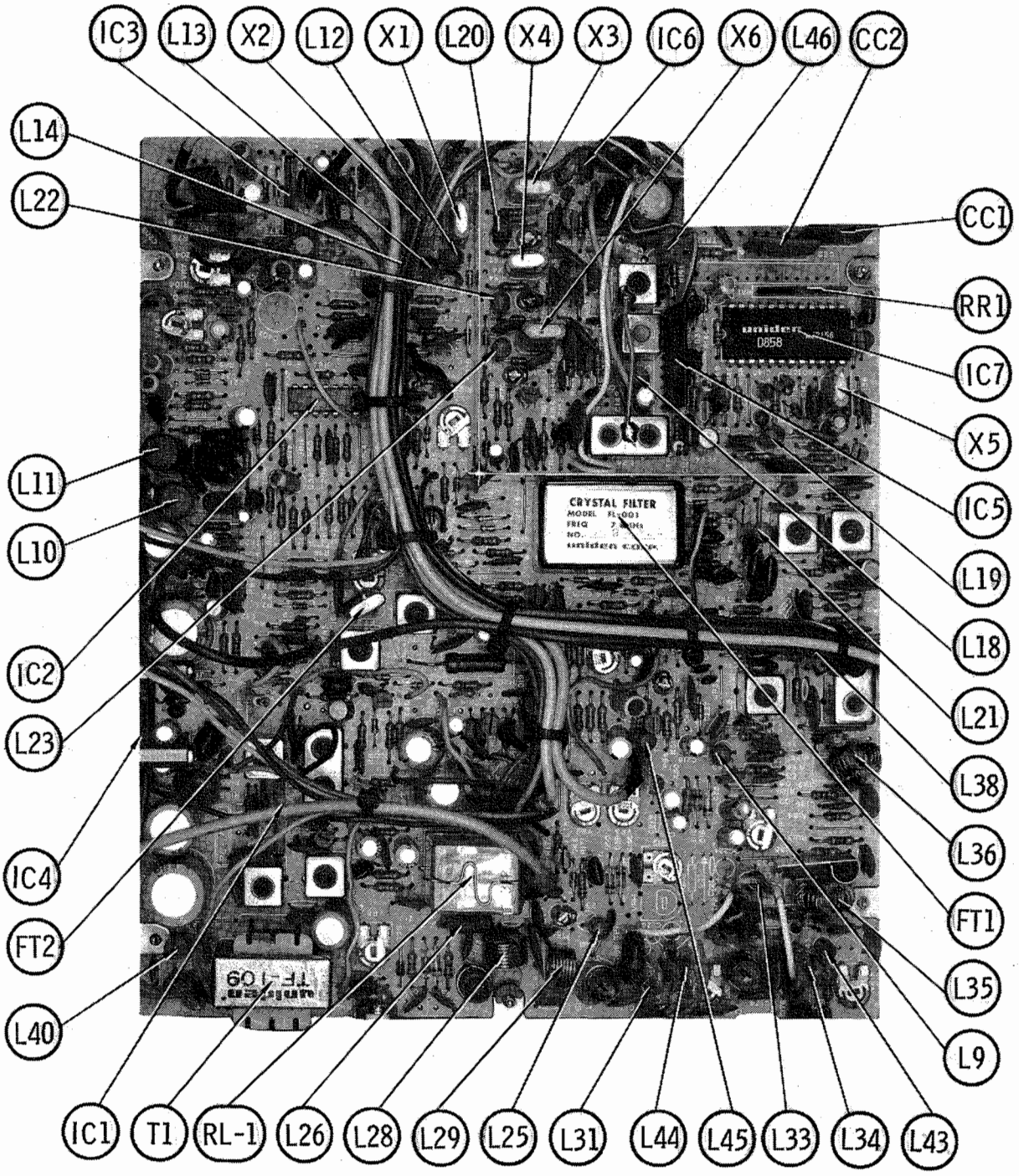
D59
CRYSTAL FILTER

MAIN BOARD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FT2
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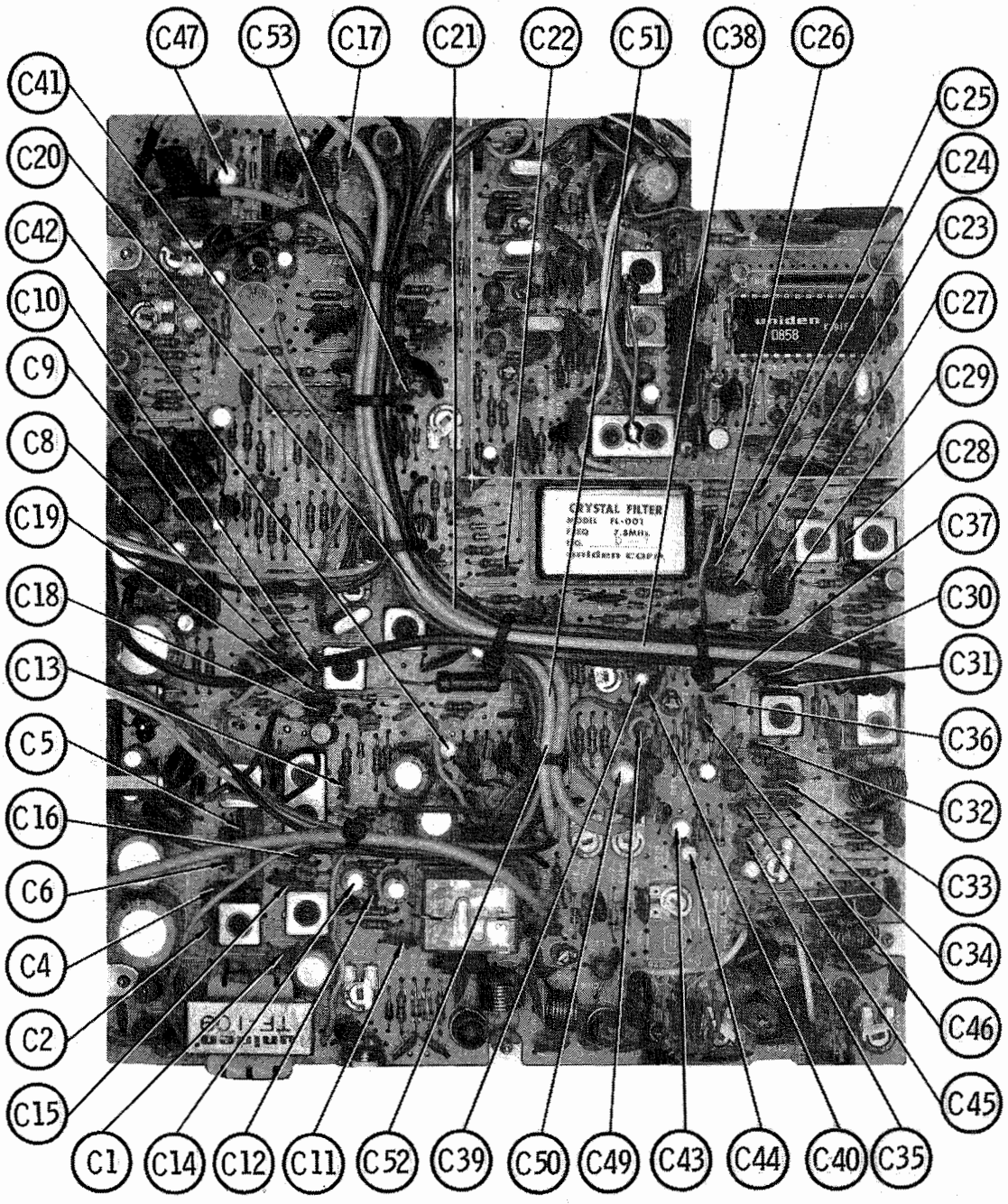
D858

MAIN BOARD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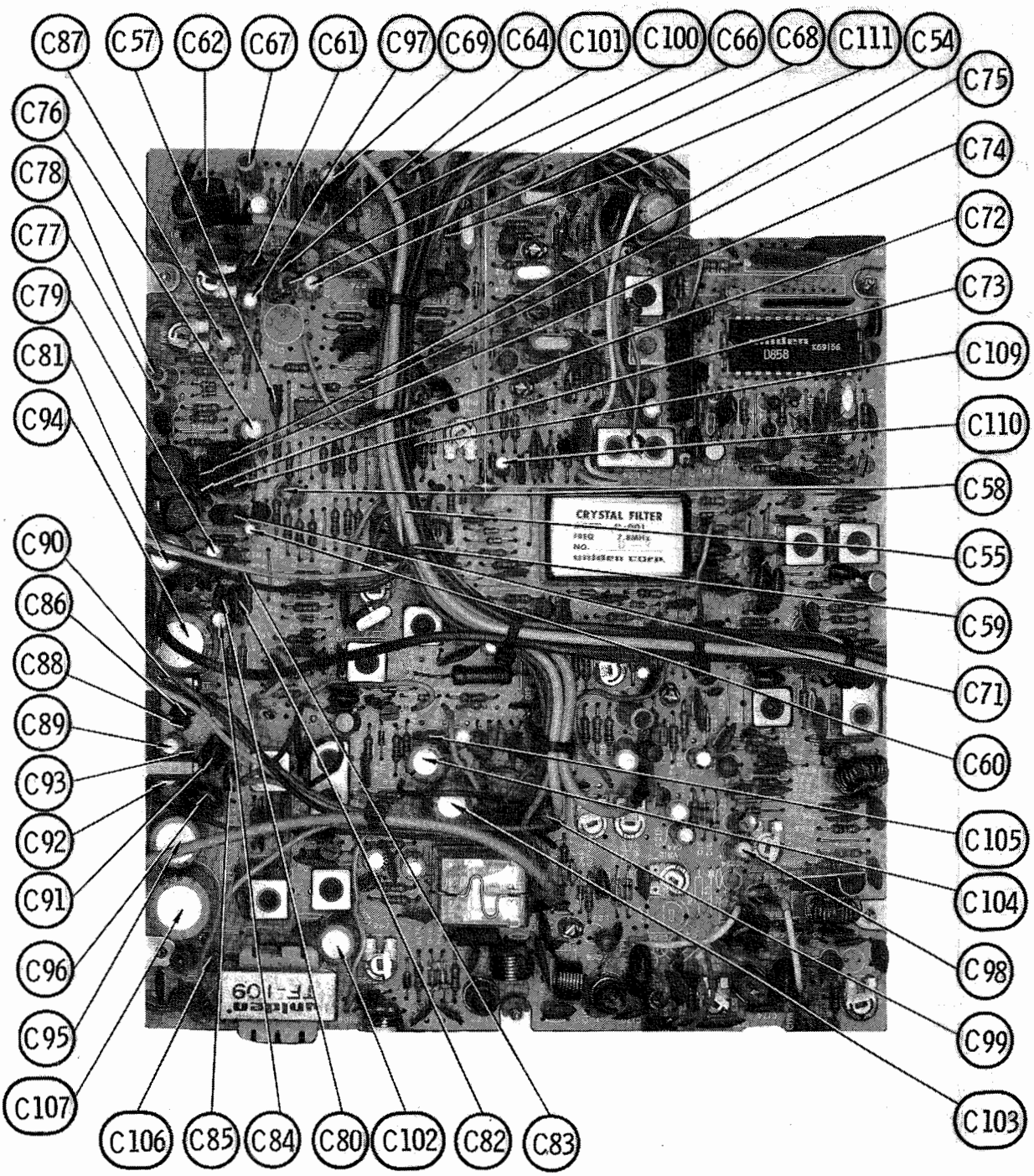
CRYSTAL FILTER

MAIN BOARD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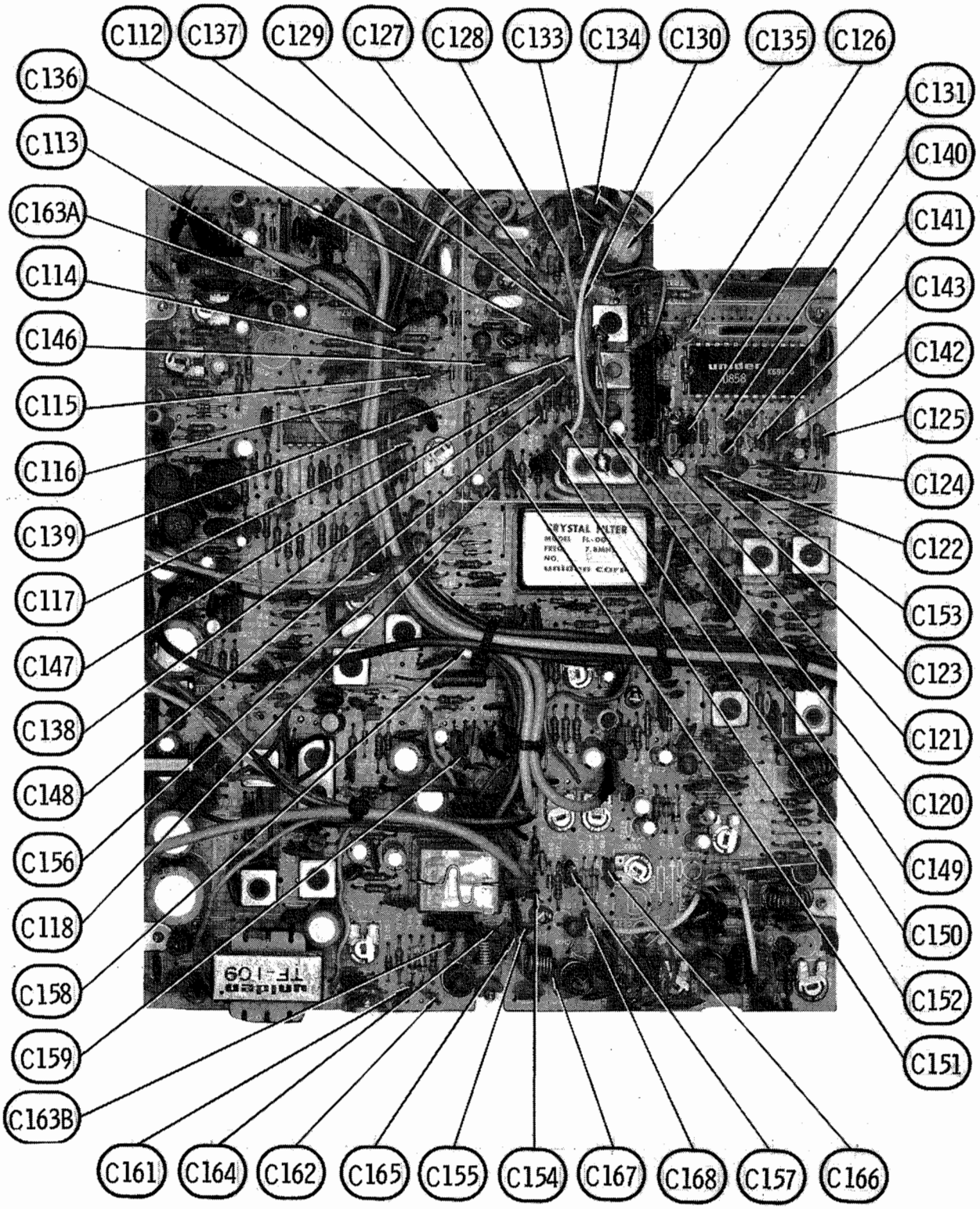
D858

MAIN BOARD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C118
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C158
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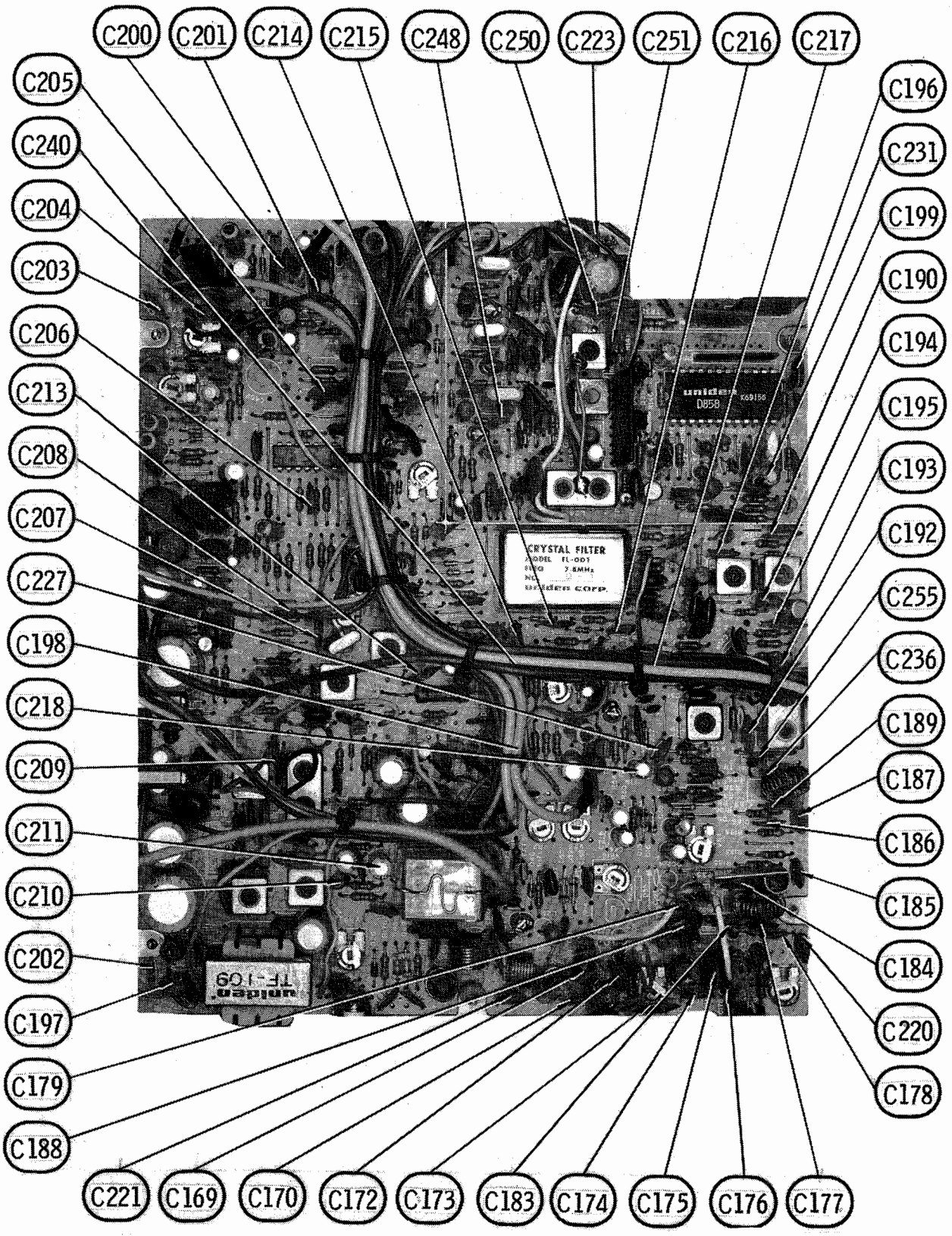
MAIN BOARD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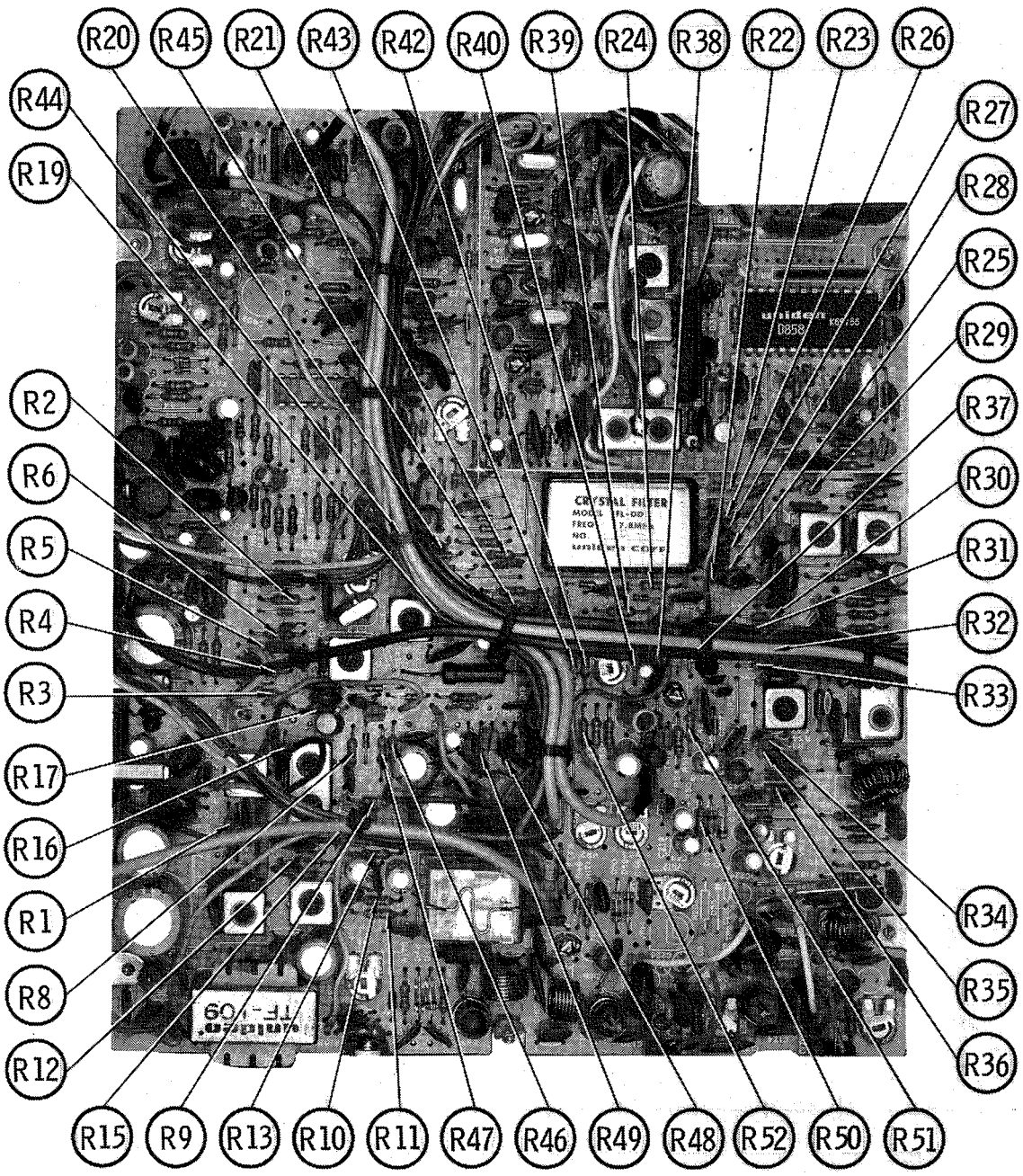
CRYSTAL FILTER
unidea
TF-109

MAIN BOARD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R44
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R8
R12
R34
R35
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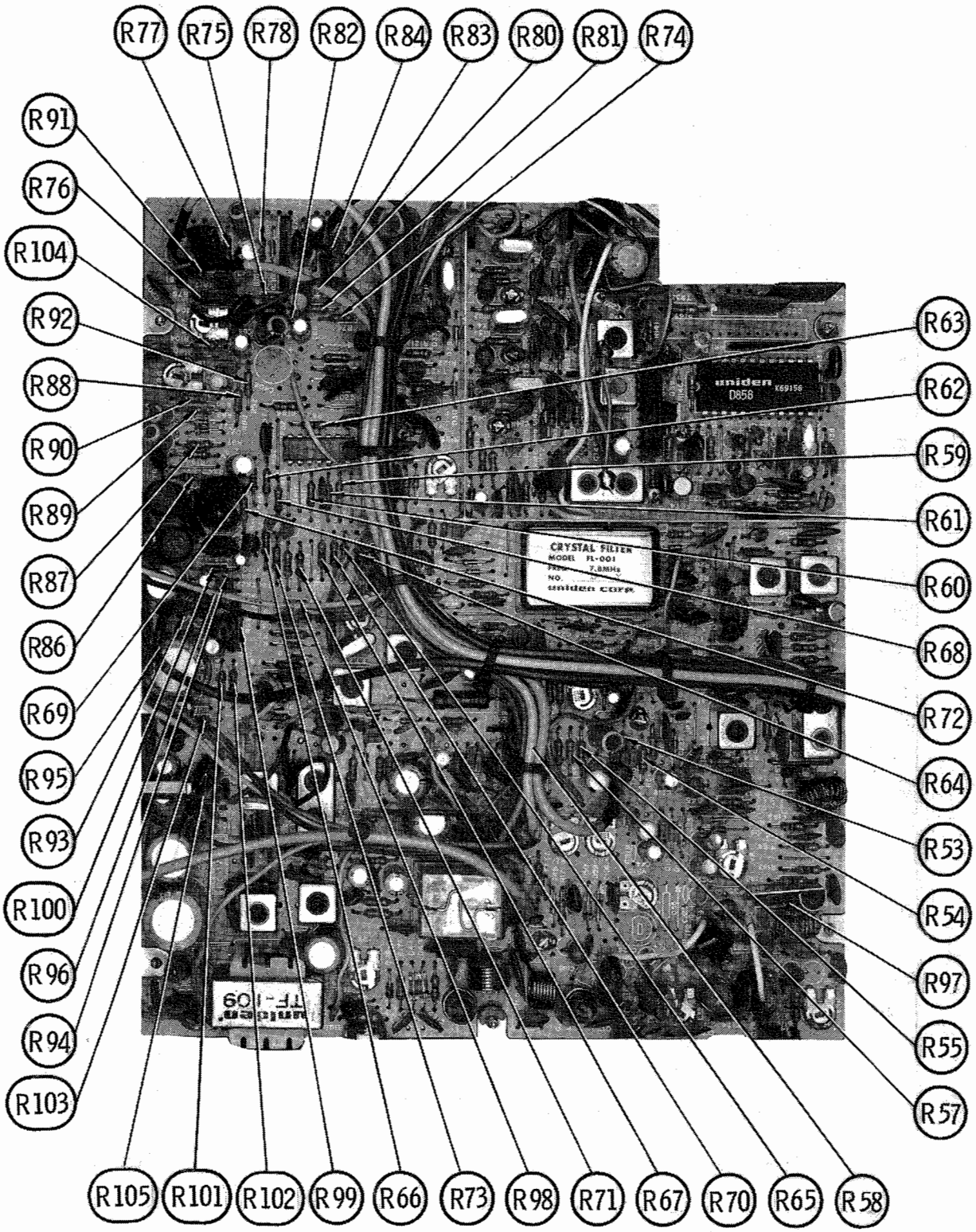
R11
R47
R46
R49
R48
R52
R50
R51

MAIN BOARD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R62
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R60
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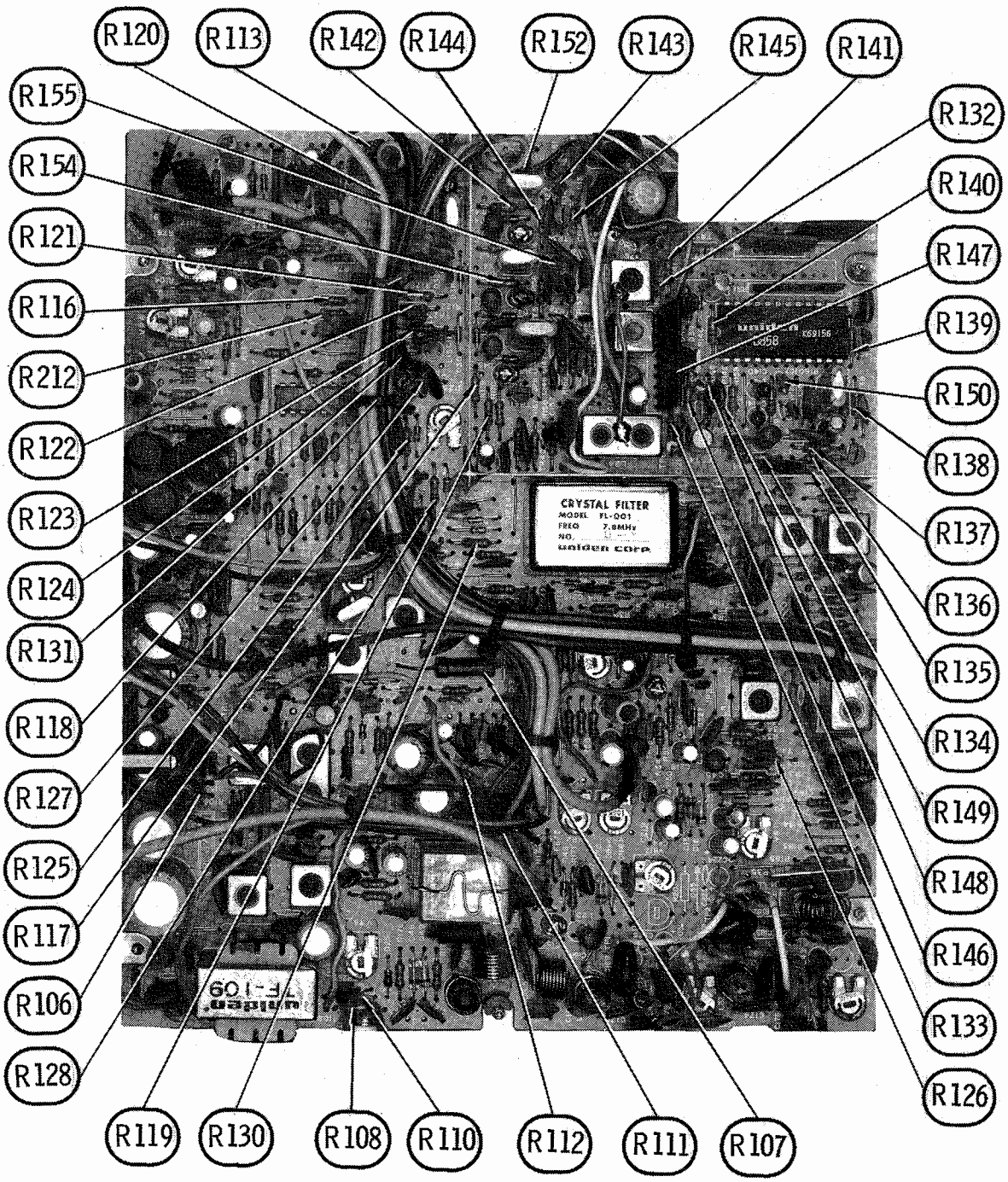
R54
R97
R55
R57
R105
R101
R102
R99
R66
R73
R98
R71
R67
R70
R65
R58
CRYSTAL FILTER
MODEL FL-001
7.8MHz
uniden corp.
uniden
D858
TF-109

MAIN BOARD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R144
R152
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R154
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R116
R212
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R127
R125
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R106
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R132
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R150
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R136
R135
R134
R149
R148
R146
R133
R126
R119
R130
R108
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R112
R111
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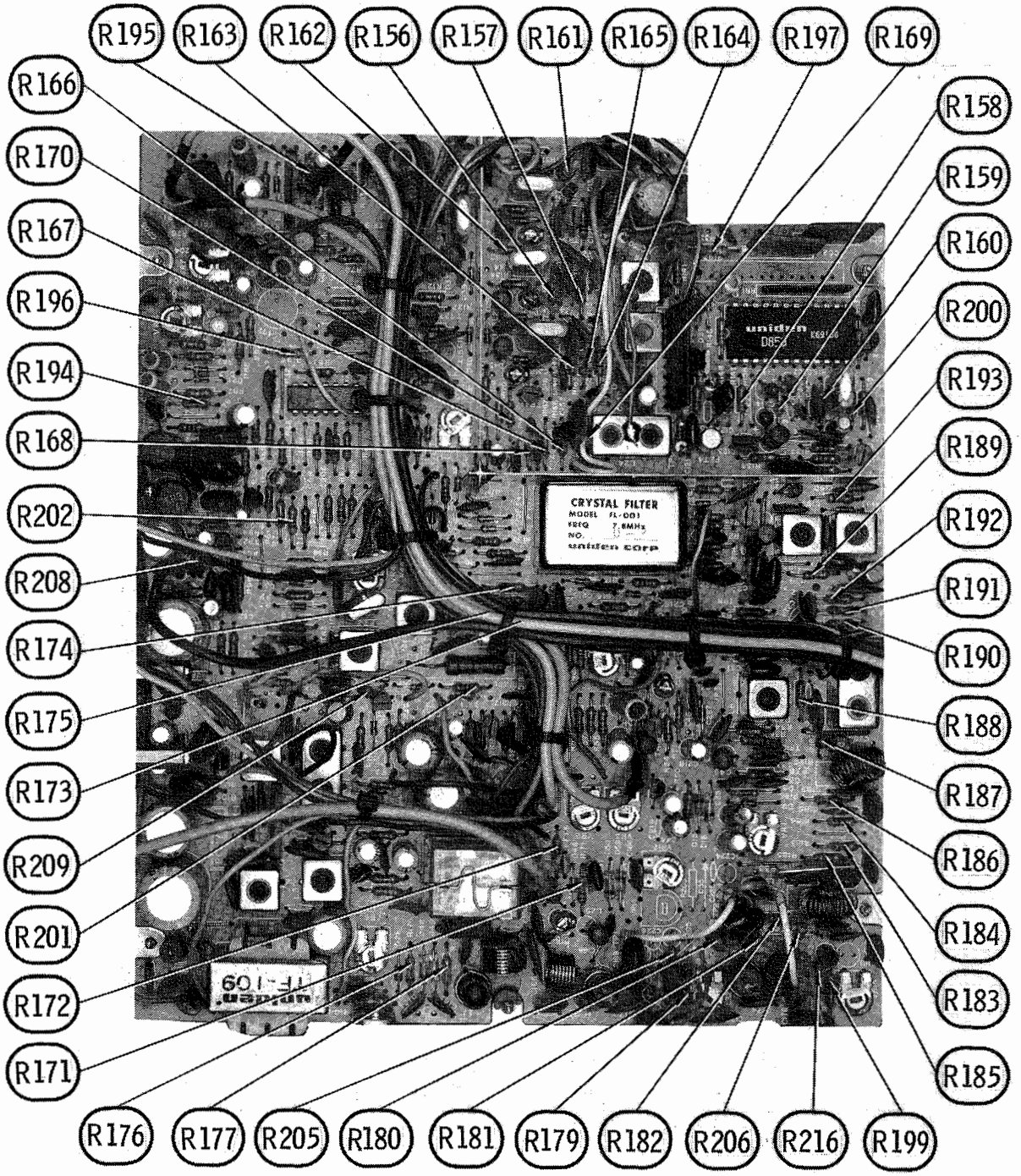
CRYSTAL FILTER
MODEL FL-001
FREQ 7.8MHz
NO.
TF-109

MAIN BOARD


R195
R163
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R156
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R196
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R209
R186
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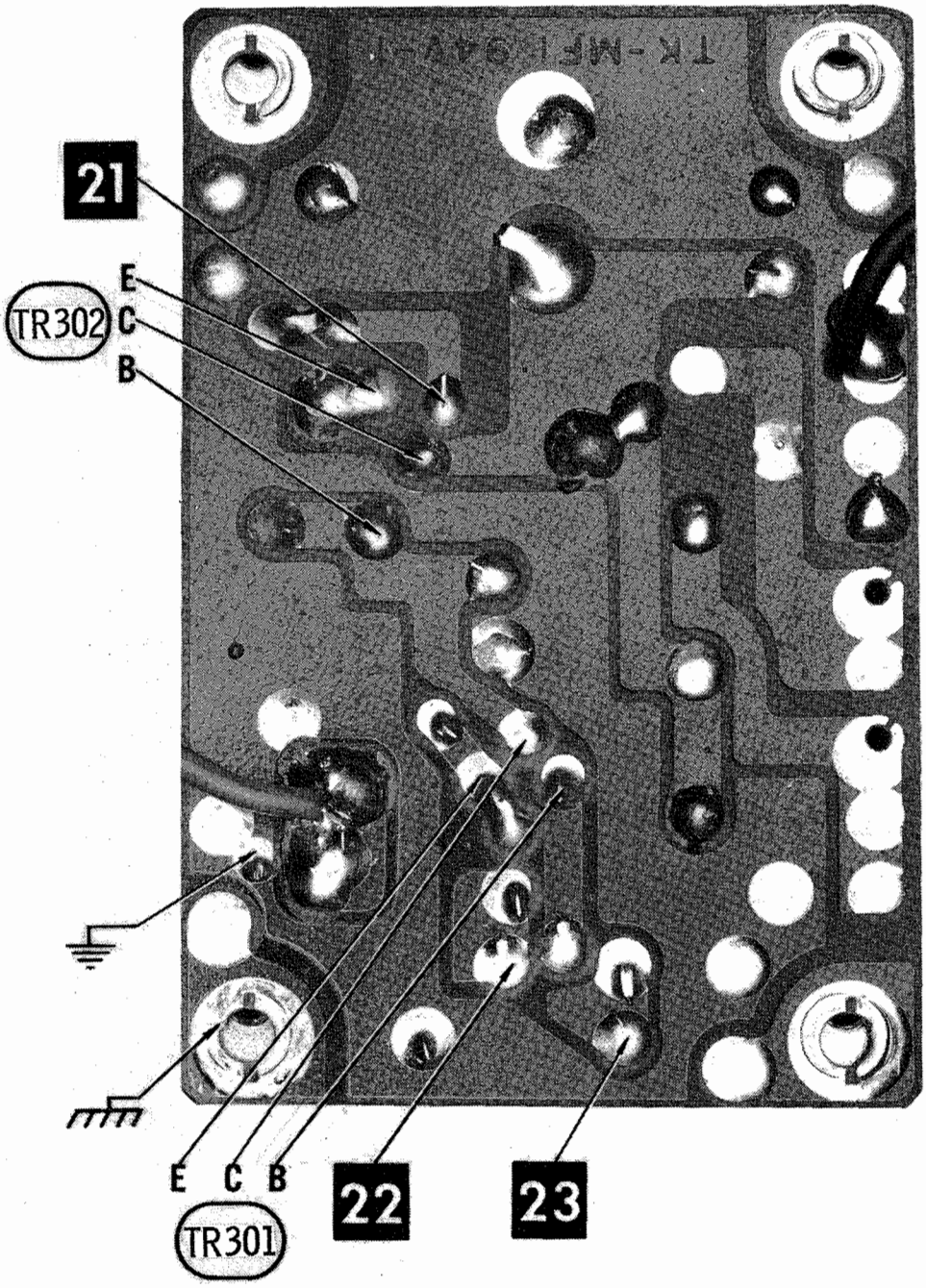
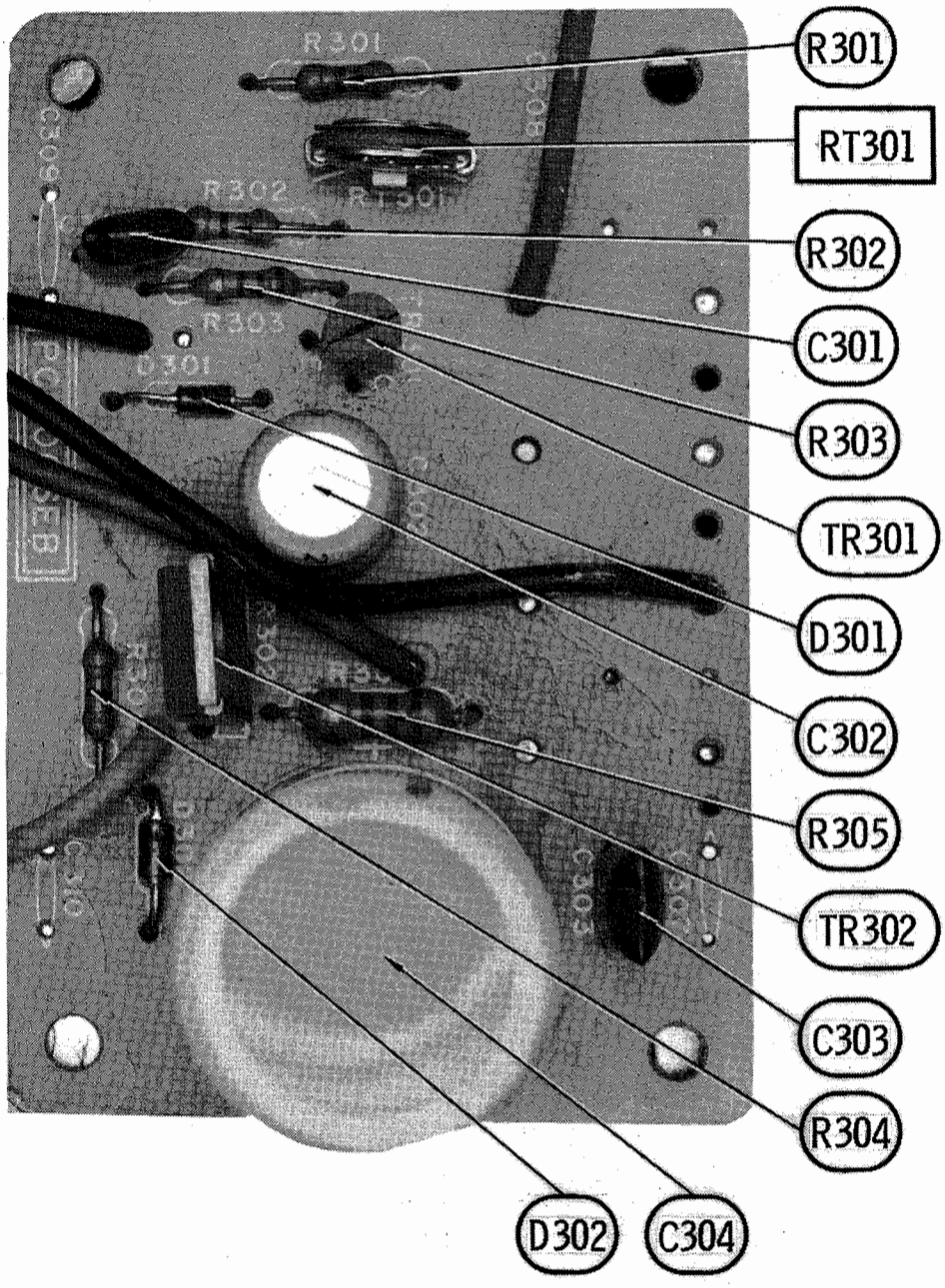
R184
R172
R183
R171
R185
R176
R177
R205
R180
R181
R179
R182
R206
R216
R199
CRYSTAL FILTER
MODEL FL-001
FREQ 7.8MHz
NO.
unidan corp

MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo

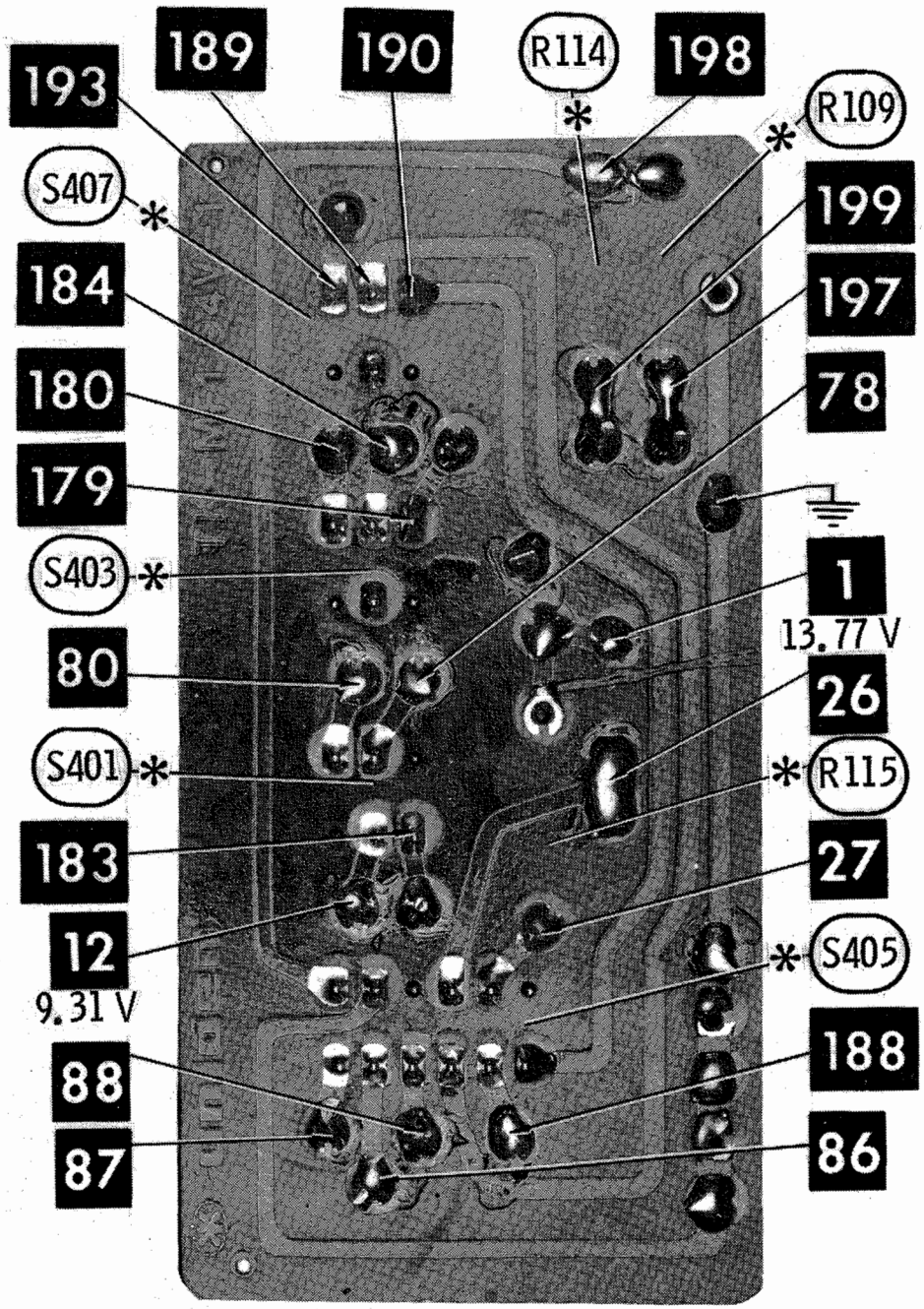


VOLT. REGULATOR BOARD



VOLT. REGULATOR BOARD

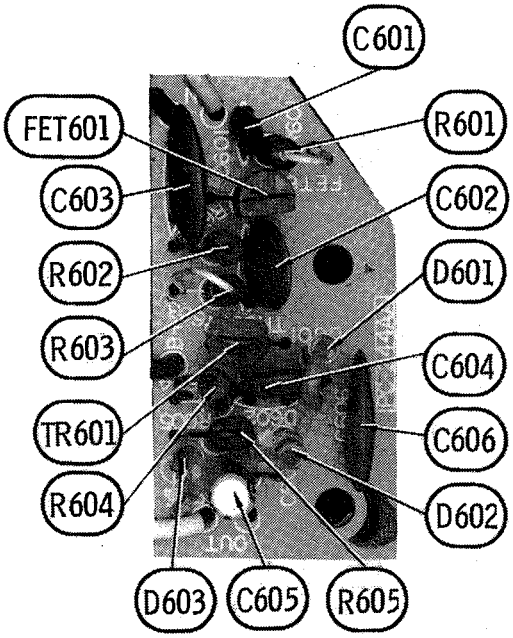
A Howard W. Sams CIRCUITRACE® Photo

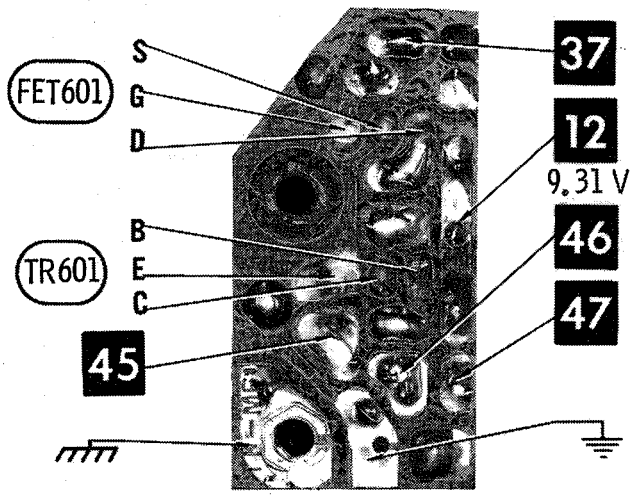


* Mounted on top of board.

SWITCH BOARD

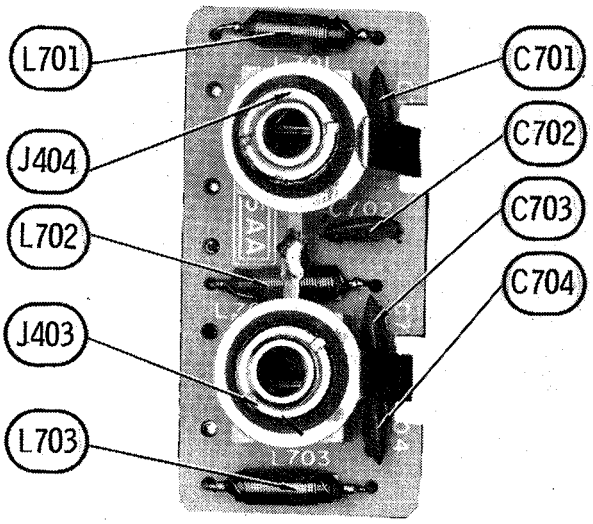
A Howard W. Sams CIRCUITRACE® Photo

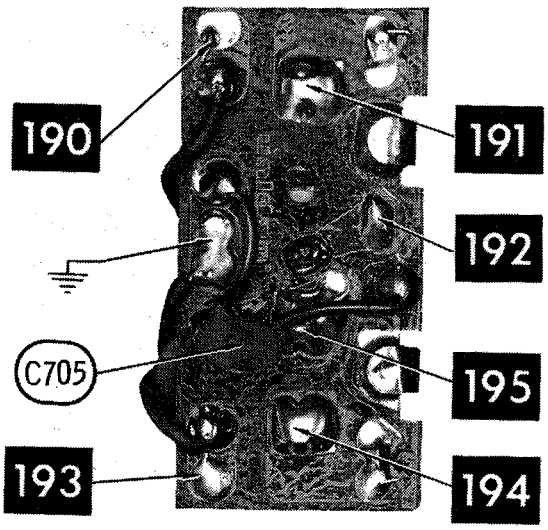




NOISE BLANKER BOARD

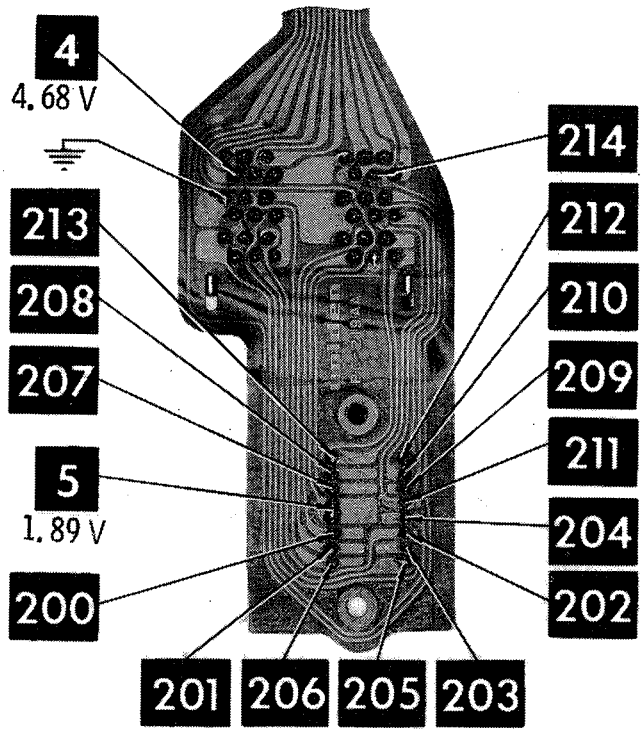
A Howard W. Sams CIRCUITRACE® Photo



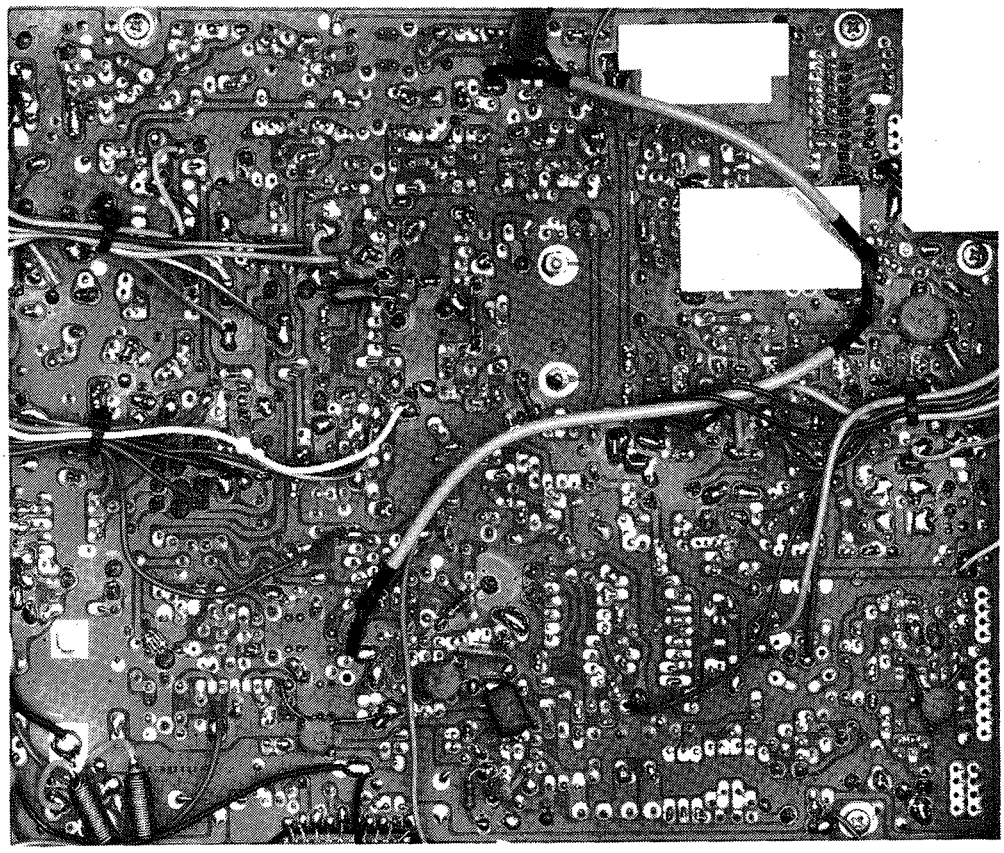


PA-EXT SPEAKER BOARD

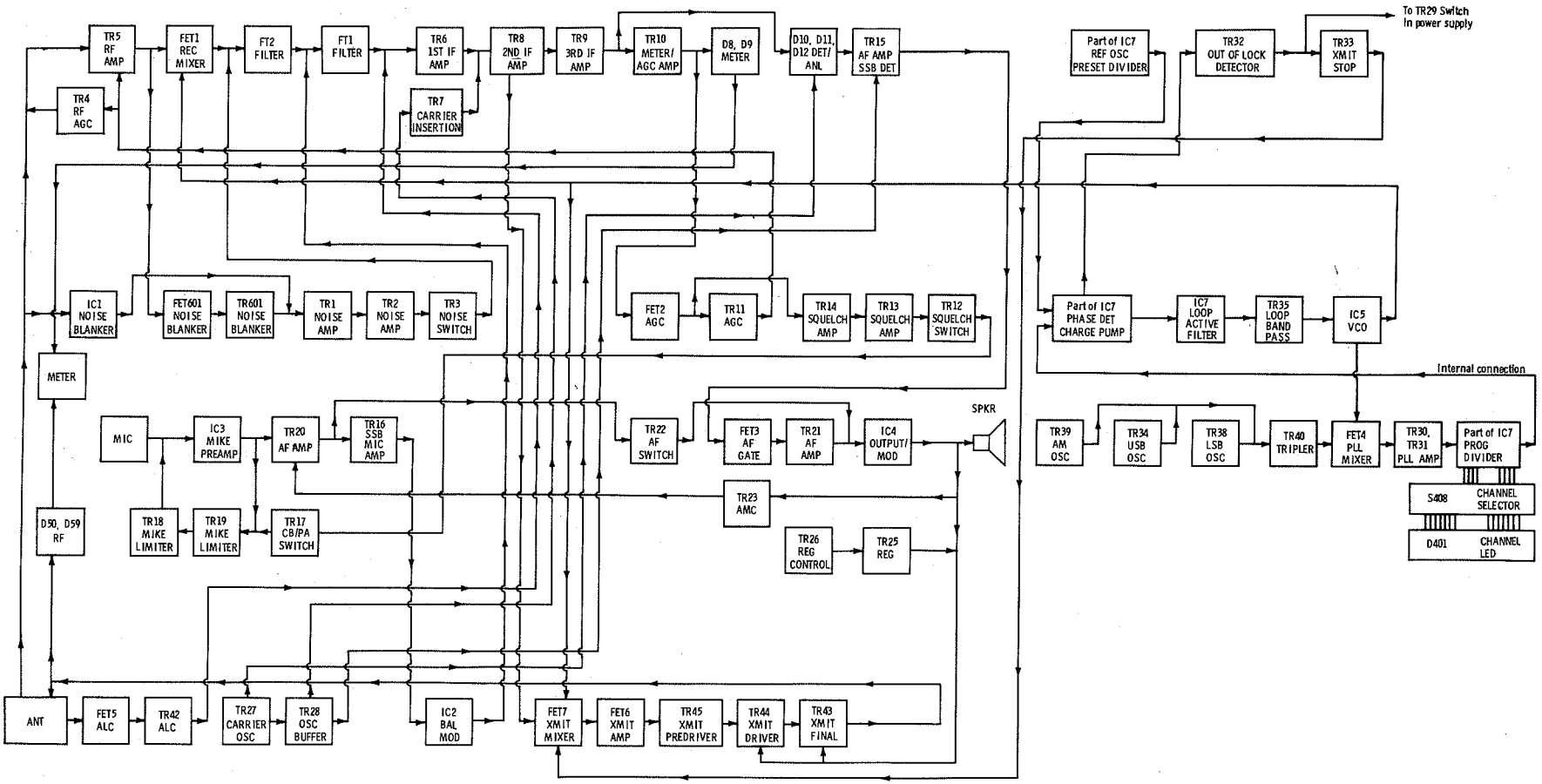
A Howard W. Sams CIRCUITRACE® Photo



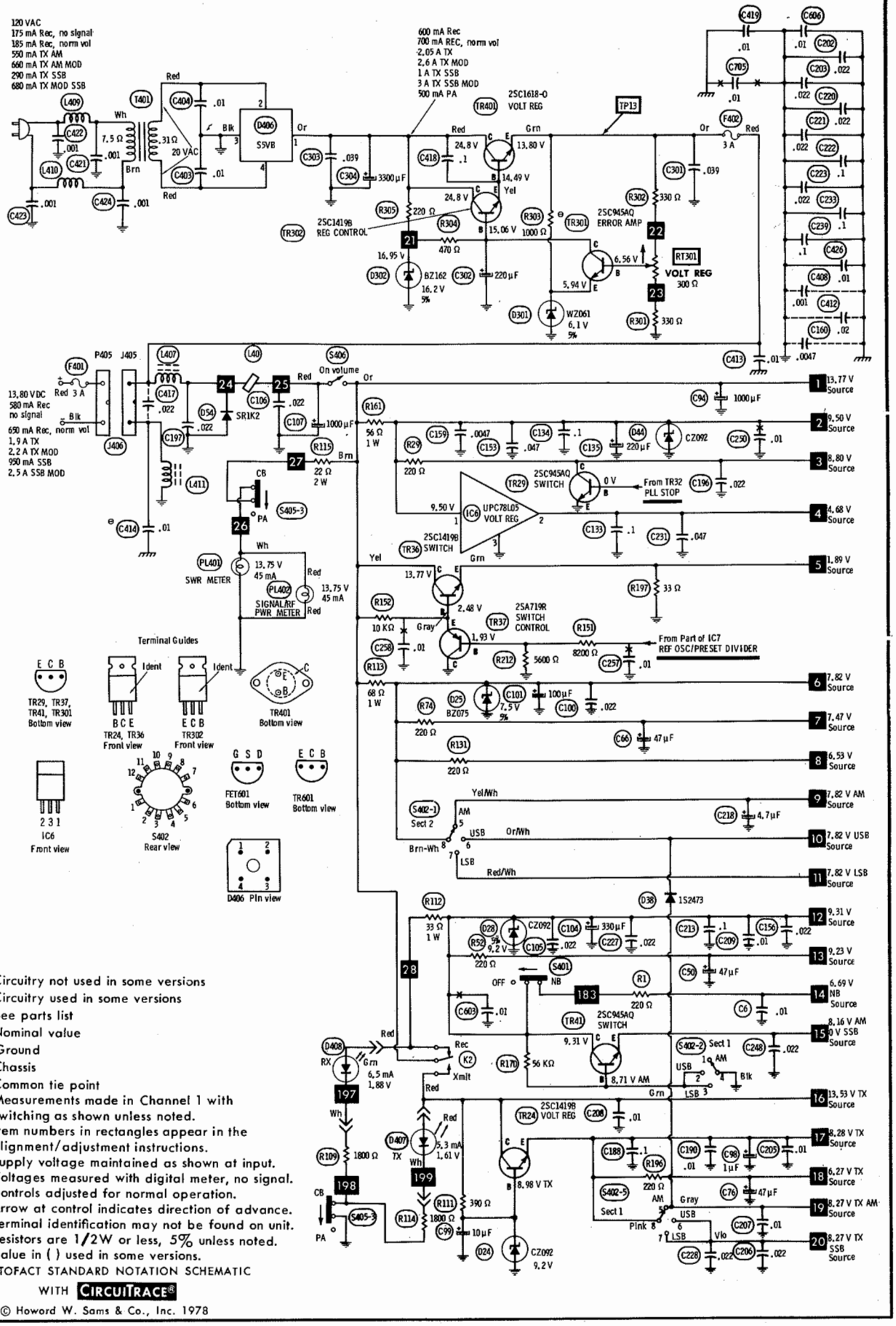
CH. SELECTOR LED BOARD



SHIELD LOCATION



BLOCK DIAGRAM



A PHOTOFACT STANDARD NOTATION SCHEMATIC

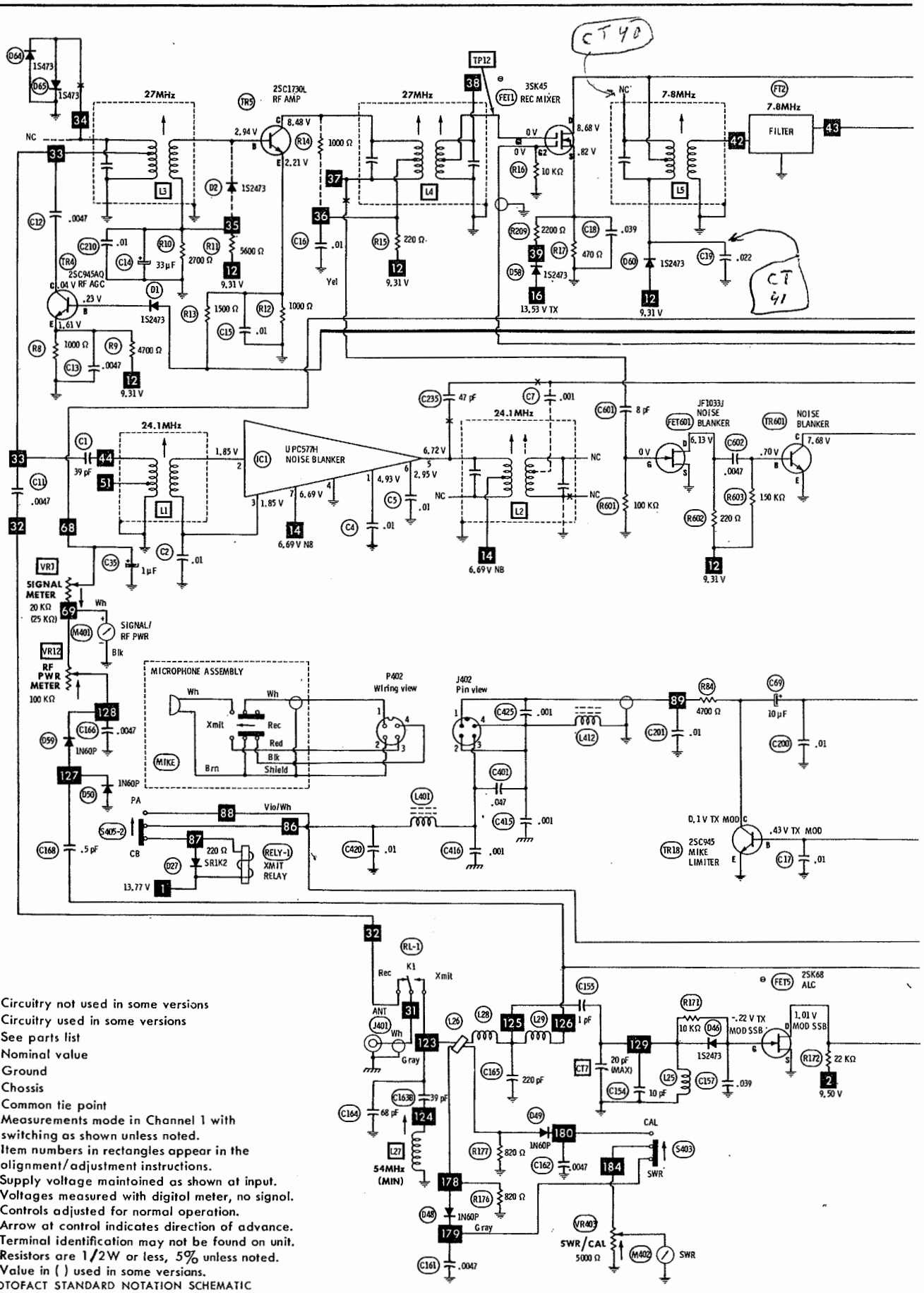
WITH CIRCUITRACE®

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D2	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D3	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D4	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D5	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D6	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D7	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D9	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK310D	RT-218	ECG177
D10	1N60P	DG1N60	1N60(7)	1N60 (7)	PTC206M(6)	HEPR9135(7)	RE 86(6)	SK3088(7)	RT-263(7)	ECG110(6)
D11	1N60P	DG1N60								
D12	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D13	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D14	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D15	1N60P	DG1N60	1N60(7)	1N60 (7)	PTC206M(6)	HEPR9135(7)	RE 86(6)	SK3088(7)	RT-263(7)	ECG110(6)
D16	1N60P	DG1N60								
D17	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D18	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D19	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D20	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D21	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D22	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D23	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D24	CZ092	DZ0921	GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D25	BA075	DZ0750	GEZD-7.5		ZB7.5B		RE 111		RT-239	ECG138A
D26	DA-087	DZ0871					RE 105			ECG135A
D27	SR1K2	DR2100	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D28	CZ092	DZ0921	GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D29	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D30	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D31	WZ061	WZ0610	GEZD-6.2		ZB6.2B		RE 109		RT-237	ECG137A
D32	WZ061	WZ0610	GEZD-6.2		ZB6.2B		RE 109		RT-237	ECG137A
D33	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D34	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D35	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D36	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D37	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D38	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D39	1S2473	OS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D40	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D41	1S2687D	DC2687				HEPR2502				ECG612
D43	1S2687D	DC2687				HEPR2502				ECG612
D44	CZ092	DZ0921	GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D45	1S2687D	DC2687				HEPR2502				ECG612
D46	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D47	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D48	1N60P	DG1N60	1N60(7)	1N60 (7)	PTC206M(6)	HEPR9135(7)	RE 86(6)	SK3088(7)	RT-263(7)	ECG110(6)
D49	1N60P	DG1N60								
D50	1N60P	DG1N60	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D51	MV1Y	DVMV1Y			PTC301		RE 250			ECG601
D52	MC1Y	DVMV1Y			PTC301		RE 250			ECG601
D53	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D54	SR1K2	DR2100	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D56	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D57	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D58	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D59	1N60P	DG1N60	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D60	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D63	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D64	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D65	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D66	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D67	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D301	WZ061	DZ0610					RE 108			ECG5070A
D302	BZ162	DZ1621	GEZD-16		ZB16B		RE 122		RT-246	ECG5075A
D406	S5VB10	DBVB10								ECG5304
D601	1N60	DG1N60	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D602	1N60	DG1N60	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D603	1S2473	DS2473	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
FET1	3SK45	QFK45B	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
	3SK45B	QFK45B(1)	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
FET2	JF1033G	QF1033	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
	JF1033	QF1033(1)	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
FET3	2SK68A,M	QF68AM	GE-FET-1	FE-100	PTC151	HEPF0010	RE 46	SK3112	RT-176	ECG133
	2SK684	QF68AM(1)	GE-FET-1	FE-100	PTC151	HEPF0010	RE 46	SK3112	RT-176	ECG133
FET4	3SK45	QFK45B	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
	3SK45B	QFK45B(1)	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
FET5	2SK68	QF68AM	GE-FET-1	FE-100	PTC151	HEPF0010	RE 46	SK3112	RT-176	ECG133
	2SK69A,M	QF68AM(1)	GE-FET-1	FE-100	PTC151	HEPF0010	RE 46	SK3112	RT-176	ECG133
FET6	JF1033G	QF1033	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
	JF1033	QF1033(1)	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
FET7	3SK45	QFK45B	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
	2SK45B	QFK45B(1)	GE-FET-4	WEP905	PTC182	HEPF2004	RE 199	SK3050	RT-181	ECG222
FET601	JF1033J	QF1033	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
IC1	UPC577H	NR577H	GEIC-140	WEP939			RE 341-IC			ECG1082
IC2	MC1496N	NB496N				HEPC6050G				
	MC1496A	NB496A(1)				HEPC6050G				

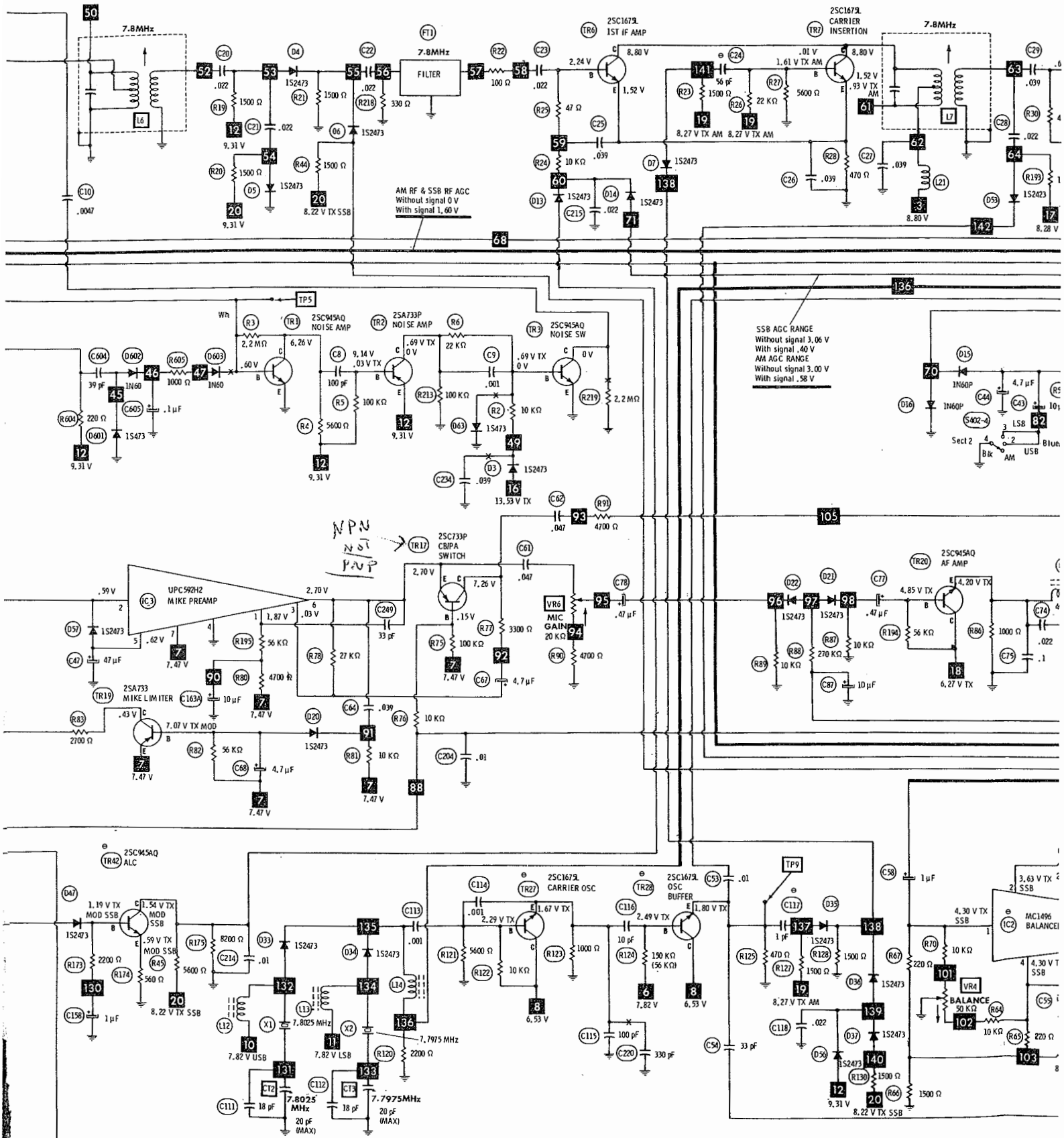


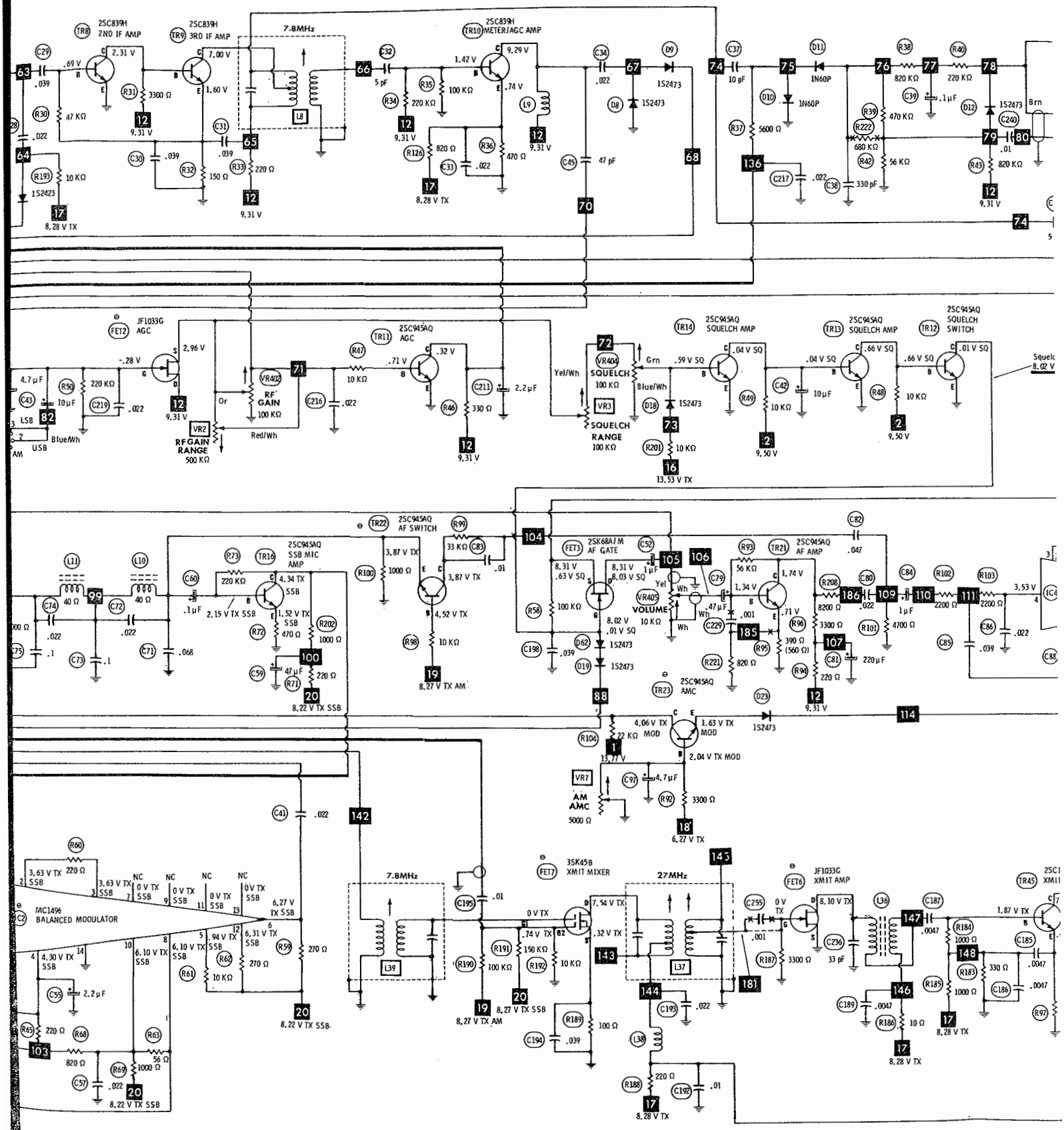
- Circuitry not used in some versions
- Circuitry used in some versions
- See parts list
- Nominal value
- Ground
- Chassis
- Common tie point

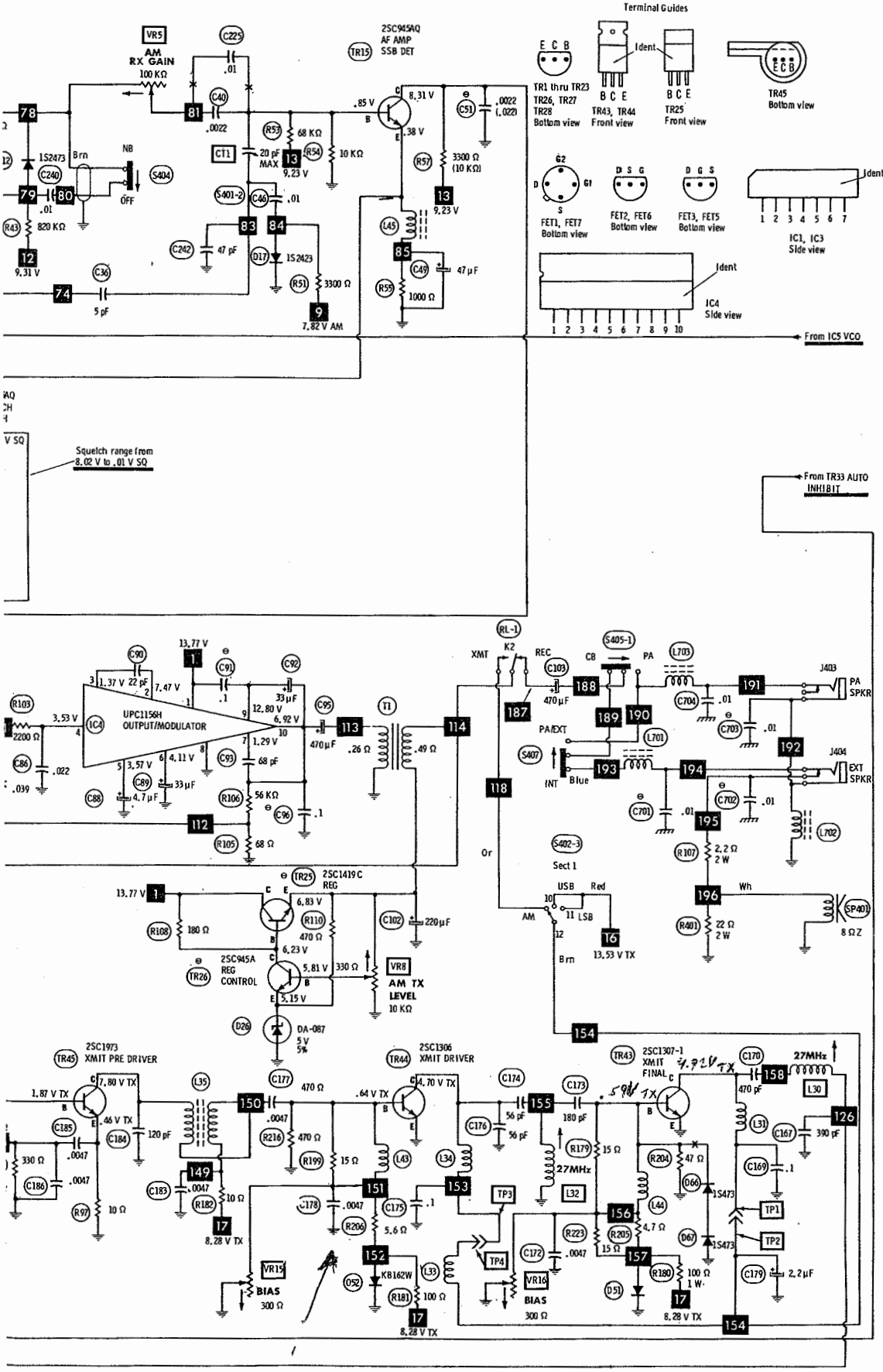
Measurements mode in Channel 1 with switching as shown unless noted.
Item numbers in rectangles appear in the olignment/adjustment instructions.
Supply voltage maintoined as shown at input.
Voltages measured with digitol meter, no signol.
Controls adjusted for normal operation.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 5% unless noted.
Value in ( ) used in some versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

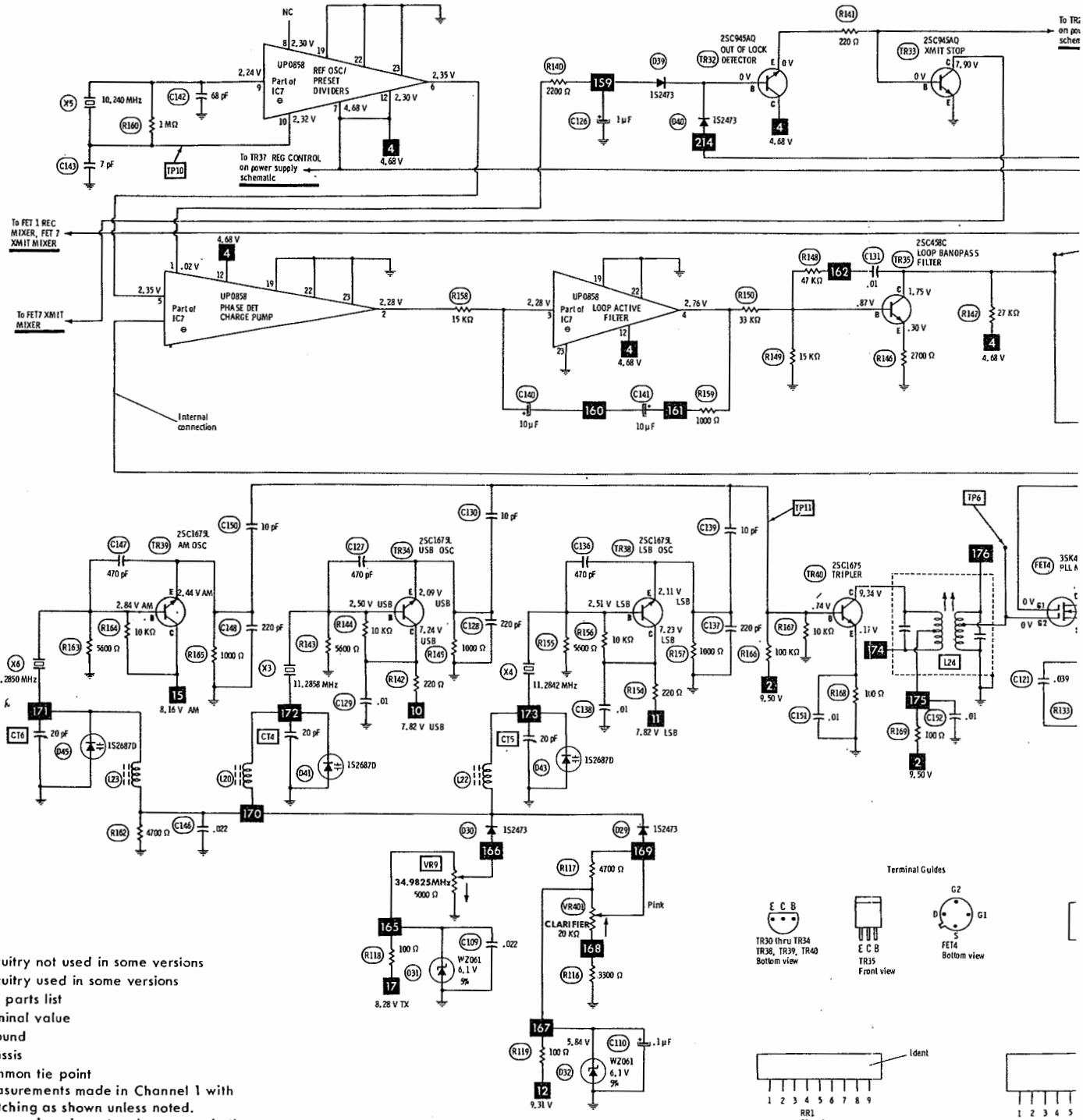
WITH CIRCUITRACE®


7.8MHz
FILTER
2SC1675L 1ST IF AMP
2SC1675L CARRIER INSERTION
AM RF & SSB RF AGC
Without signal 0 V
With signal 1.60 V
SSB AGC RANGE
Without signal 3.06 V
With signal .40 V
AM AGC RANGE
Without signal 3.00 V
With signal .58 V
2SC945AQ NOISE AMP
2SA733P NOISE AMP
2SC945AQ NOISE SW
2SC733P CB/PA SWITCH
UPC592H2 MIKE PREAMP
2SA733 MIKE LIMITER
2SC945AQ AF AMP
2SC945AQ ALC
2SC1675L CARRIER OSC
2SC1675L OSC BUFFER
MIC GAIN 20 KΩ
BALANCE 50 KΩ
7.8025 MHz
7.7975MHz
LSB
USB
AM
NPN NOT PNP


TR8 2SC839H 2ND IF AMP
TR9 2SC839H 3RD IF AMP
7.8MHz
TR10 2SC839H METER/AGC AMP
1S2473
FET2 JF1033G AGC
RF GAIN 100 KΩ
RF GAIN RANGE 500 KΩ
TR11 2SC945AQ AGC
TR14 2SC945AQ SQUELCH AMP
TR13 2SC945AQ SQUELCH AMP
TR12 2SC945AQ SQUELCH SWITCH
VR404 SQUELCH 100 KΩ
VR3 SQUELCH RANGE 100 KΩ
LSB
USB
AM
Blue/Wh
Red/Wh
Yel/Wh
Grn
TR22 2SC945AQ AF SWITCH
TR16 2SC945AQ SSB MIC AMP
FET3 2SK68A/M AF GATE
TR21 2SC945AQ AF AMP
VR405 VOLUME 10 KΩ
TR23 2SC945AQ AMC
VR7 AM AMC 5000 Ω
MC1496 BALANCED MODULATOR
FET7 3SK45B XMIT MIXER
27MHz
FET6 JF1033G XMIT AMP
TR45 2SC1
L8
L9
L10
L11
L36
L37
L38
L39
8.28 V TX
8.27 V TX AM
8.27 V TX SSB
8.22 V TX SSB
6.27 V TX
13.53 V TX
9.31 V
9.50 V



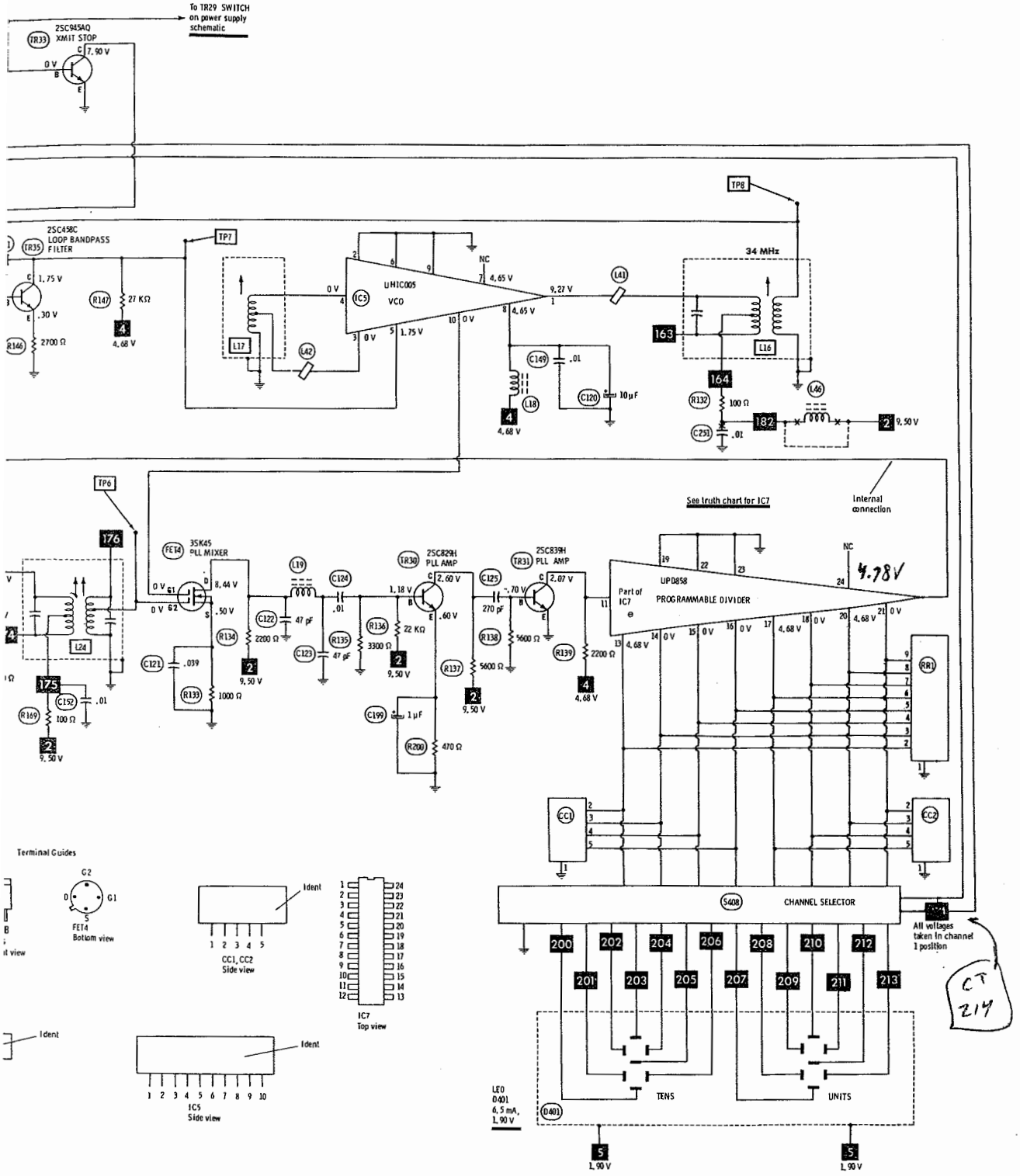
ROBYN MODEL SB-520D



- Circuitry not used in some versions
- Circuitry used in some versions
- ⊖ See parts list
- ※ Nominal value
- Ground
- Chassis
- ▽ Common tie point

Measurements made in Channel 1 with switching as shown 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.
Arrow at contral indicates direction of advance.
Terminal identification may not be faund on unit.
Resistors are 1/2W or less, 5% unless noted.
Volue in ( ) used in same versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE®


To TR29 SWITCH on power supply schematic
TR33 2SC945AQ XMIT STOP
TR35 2SC458C LOOP BANDPASS FILTER
TP7
TP8
TP6
IC5 UHIC005 VCO
34 MHz
L41
L42
L16
L17
L18
L46
C149 .01
C120 10µF
C251 .01
R132 100 Ω
R147 27 KΩ
R146 2700 Ω
163
164
182
FE14 3SK45 PLL MIXER
TR30 2SC829H PLL AMP
TR31 2SC839H PLL AMP
L19
L24
C121 .039
C122 47 pF
C123 47 pF
C124 .01
C125 270 pF
C152 .01
C199 1µF
R133 1000 Ω
R134 2200 Ω
R135 3300 Ω
R136 22 KΩ
R137 5600 Ω
R138 5600 Ω
R139 2200 Ω
R169 100 Ω
R200 470 Ω
175
176
See truth chart for IC7
Internal connection
Part of IC7
UPD858 PROGRAMMABLE DIVIDER
4.78V
RR1
CC1
CC2
S408 CHANNEL SELECTOR
All voltages taken in channel 1 position
200 201 202 203 204 205 206 207 208 209 210 211 212 213
TENS
UNITS
D401
LED D401 6.5 mA, 1.90 V
Terminal Guides
FET4 Bottom view
CC1, CC2 Side view
IC7 Top view
IC5 Side view
Ident

TRUTH CHART

1 = 4.68 Volts 0 = 0 Volts											
CHANNEL	IC7 PROGRAM DIVIDER 10MHz Pin 2, 6 AM, USB, LSB,/ Rec & Xmit 5.120MHz Pin 8 AM, USB, LSB,/ Rec & Xmit PINS								AM REC VCO OUTPUT IN MHz AT TP8	USB REC & XMIT, AM XMIT VCO OUTPUT IN MHz AT TP8	LSB REC & XMIT VCO OUTPUT IN MHz AT TP8
	21	20	18	17	16	15	14	13			
1	0	1	0	1	0	0	0	1	34.765	34.7675	34.7625
2	0	1	0	1	0	0	1	0	34.775	34.7775	34.7725
3	0	1	0	1	0	0	1	1	34.785	34.7875	34.7825
4	0	1	0	1	0	1	0	1	34.805	34.8075	34.8025
5	0	1	0	1	0	1	1	0	34.815	34.8175	34.8125
6	0	1	0	1	0	1	1	1	34.825	34.8275	34.8225
7	0	1	0	1	1	0	0	0	34.835	34.8375	34.8325
8	1	0	0	0	0	0	0	0	34.855	34.8575	34.8525
9	1	0	0	0	0	0	0	1	34.865	34.8675	34.8625
10	1	0	0	0	0	0	1	0	34.875	34.8775	34.8725
11	1	0	0	0	0	0	1	1	34.885	34.8875	34.8825
12	1	0	0	0	0	1	0	1	34.905	34.9075	34.9025
13	1	0	0	0	0	1	1	0	34.915	34.9175	34.9125
14	1	0	0	0	0	1	1	1	34.925	34.9275	34.9225
15	1	0	0	0	1	0	0	0	34.935	34.9375	34.9325
16	1	0	0	1	0	0	0	0	34.955	34.9575	34.9525
17	1	0	0	1	0	0	0	1	34.965	34.9675	34.9625
18	1	0	0	1	0	0	1	0	34.975	34.9775	34.9725
19	1	0	0	1	0	0	1	1	34.985	34.9875	34.9825
20	1	0	0	1	0	1	0	1	35.005	35.0075	35.0025

TRUTH CHART

1 = 4.68 Volts 0 = 0 Volts

CHANNEL	IC7 PROGRAM DIVIDER 10MHz Pin 2, 6 AM, USB, LSB,/ Rec & Xmit 5.120MHz Pin 8 AM, USB, LSB,/ Rec & Xmit PINS								AM REC VCO OUTPUT IN MHz AT TP8	USB REC & XMIT, AM XMIT VCO OUTPUT IN MHz AT TP8	LSB REC & XMIT VCO OUTPUT IN MHz AT TP8
	21	20	18	17	16	15	14	13			
21	1	0	0	1	0	1	1	0	35.015	35.0175	35.0125
22	1	0	0	1	0	1	1	1	35.025	35.0275	35.0225
23	1	0	1	0	0	0	0	0	35.055	35.0575	35.0525
24	1	0	0	1	1	0	0	0	35.035	35.0375	35.0325
25	1	0	0	1	1	0	0	1	35.045	35.0475	35.0425
26	1	0	1	0	0	0	0	1	35.065	35.0675	35.0625
27	1	0	1	0	0	0	1	0	35.075	35.0775	35.0725
28	1	0	1	0	0	0	1	1	35.085	35.0875	35.0825
29	1	0	1	0	0	1	0	0	35.095	35.0975	35.0925
30	1	0	1	0	0	1	0	1	35.105	35.1075	35.1025
31	1	0	1	0	0	1	1	0	35.115	35.1175	35.1125
32	1	0	1	0	0	1	1	1	35.125	35.1275	35.1225
33	1	0	1	0	1	0	0	0	35.135	35.1375	35.1325
34	1	0	1	0	1	0	0	1	35.145	35.1475	35.1425
35	1	0	1	1	0	0	0	0	35.155	35.1575	35.1525
36	1	0	1	1	0	0	0	1	35.165	35.1675	35.1625
37	1	0	1	1	0	0	1	0	35.175	35.1775	35.1725
38	1	0	1	1	0	0	1	1	35.185	35.1875	35.1825
39	1	0	1	1	0	1	0	0	35.195	35.1975	35.1925
40	1	0	1	1	0	1	0	1	35.205	35.2075	35.2025

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.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
IC3	UPC592A2	NA92H2								ECG1195
IC4	UPC1156H	NA156H								ECG1194
IC5	UHIC005	NRC005								ECG1204
IC6	UPC78L05	ND8L05					RE 387-IC			ECG977
IC7	UPD858	NC858C								ECG1198
	UPD858C	NC858C(1)								
TR1	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR2	2SA733P	QTA733	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
	2SA733	QTA733(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
TR3	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR4	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR5	2SC1730L	QS1730	GE-17 *	TR-24 *	PTC136 *	HEPS0025 *	RE 9	SK3018 *	RT-107A	ECG107
	2SC1730	QS1730(1)	GE-17 *	TR-24 *	PTC136 *	HEPS0025 *	RE 9	SK3018 *	RT-107A	ECG107
TR6	2SC1673L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR7	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR8	2SC839H	QSC839	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC839	QSC839(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A
TR9	2SC839H	QSC839	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC839	QSC839(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
TR10	2SC839H	QSC839	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC839	QSC839(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
TR11	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR12	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR13	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR14	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR15	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR16	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR17	2SA733P	QTA733	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
	2SA733	QTA733(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
TR18	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR19	2SA733P	QTA733	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
	2SA733	QTA733(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
TR20	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR21	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR22	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR23	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR24	2SC1419B	QS1419	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
	2SC1419	QS1419(1)	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
TR25	2SC1419B	QS1419	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
	2SC1419	QS1419(1)	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
TR26	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR27	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR28	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR29	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR30	2SC839H	QSC839	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC839	QSC839(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
TR31	2SC839H	QSC839	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC839	QSC839(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
TR32	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR33	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR34	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR35	2SC458C	QSC458	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC458	QSC458(1)	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR36	2SC1419B	QS1419	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
	2SC1419	QS1419(1)	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
TR37	2SA719Q	QTA719	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719	QTA719(1)	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
TR38	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR39	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR40	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
TR41	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR42	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
TR43	2SC1307-1	QS1307(11)	GE-216	WEP1307	PTC186		RE 201	SK3197	RT-158	ECG236
	2SC1307	QS1307(1)	GE-216	WEP1307	PTC186		RE 201	SK3197	RT-158	ECG236
TR44	2SC1306	QS1306(12)	GE-215	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
TR45	2SC1973	QS1973	GE-335	WEP922				SK3250		ECG315
TR301	2SC945AQ	QSC945	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	QSC945(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
TR302	2SC1419B	QS1419	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
	2SC1419	QS1419(1)	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
TR401	2SC1618	QS1618	GE-14	TR-59	PTC140	HEPS7004	RE 19	SK3027	RT-131	ECG130
	2SC1618B	QS1618(1)	GE-14	TR-59	PTC140	HEPS7004	RE 19	SK3027	RT-131	ECG130
TR601	2SC1675L	QS1675	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *
	2SC1675	QS1675(1)	GE-213	TR-33	PTC139 *	HEPS0025 *	RE 13 *	SK3124	RT-308	ECG229 *

* Lead configuration may vary from original.
(1) Used in some versions.
(6) Matched pair.
(7) Two required - select matched pair.
(11) 25 WATTS @ 8 AMPS.
(12) 12 WATTS @ 3 AMPS.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFGR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C14	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325
C35	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C39	.1 25V			TDC104M050EL	QDT1-2	SD50-R109
C42	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C43	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C44	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C47	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C49	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C50	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C52	1 25V			TDC105M035EL		SD35-19
C55	2.2 50V		PC2-100	VTT2R2A50	QV1-19	EV-1517
C58	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C59	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C60	.1 25V			TDC104M050EL	QDT1-2	SD50-R109
C66	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C67	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C68	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C69	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C76	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C77	.47 50V		PC1-50	VTTR47A63	QV1-3	EV-1610
C78	.47 50V		PC1-50	VTTR47A63	QV1-3	EV-1610
C79	.47 50V		PC1-50	VTTR47A63	QV1-3	EV-1610
C81	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C84	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C87	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C88	4.7 25V			TDC475K035FL		SD35-4R79
C89	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325
C92	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325
C94	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C95	470 16V		PC500-16	VTT470K16	QV1-151	EV-1250
C97	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C98	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C99	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C101	100 10V		PC100-10	VTT100E10	QV1-93	EV-1130
C102	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C103	470 10V		PC500-16	VTT470K16	QV1-149	EV-1150
C104	330 10V		WBR300-35	VTT330G10	QV1-131	EV-1145
C107	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C110	.1 25V			TDC104M050EL	QDT1-2	SD50-R109
C120	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C126	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C135	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C140	10 6.3V			TDC106M025FL	QDT1-64	SD25-109
C141	10 6.3V			TDC106M025FL	QDT1-64	SD25-109
C158	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C163A	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C179	2.2 25V		PC2-100	VTT2R2A50	QV1-19	EV-1517
C199	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C211	2.2 50V		PC2-100	VTT2R2A50	QV1-19	EV-1517
C218	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C302	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C304	3300 25V		WBR3000-35	TC2530		TVA-1214
C605	.1 16V			TDC104M050EL	QDT1-2	SD50-R109

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	39 NPO 5%				CN0439		10TCC-Q39
C2	.01 10%		UK50-103		MAG5011		
C4	.01 10%		UK50-103		MAG5011		
C5	.01 10%		UK50-103		MAG5011		
C6	.01 10%		UK50-103		MAG5011		
C7	.001	(1)					
C8	100		DTZ-100	NP0100	CN0310		10TCC-T10
C9	.001		DD-102		GP210		10TS-D10
C10	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C11	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C12	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C13	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C15	.01 10%		UK50-103		MAG5011		
C16	.01 10%		UK50-103		MAG5011		
C17	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C18	.39 10%			WMF05P39	EWF05039	QFT2-281	1FT-P39
C19	.022		UK25-223				HY-725
C20	.022		UK25-223				HY-725
C21	.022		UK25-223				HY-725
C22	.022		UK25-223				HY-725
C23	.022 10%				M192P2239R8	QFT2-127	1FT-S22
C24	56 NPO 5%				CN0456		10TCC-Q56
C25	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C26	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C27	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C28	.022 10%		UK25-223				HY-725
C29	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C30	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C31	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C32	5 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C33	.022		UK25-223				HY-725
C34	.022		UK25-223				HY-725
C36	5 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C37	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C38	330 N750 10%		DTN-330	N330	CN7333		10TCU-T33
C40	.0022 50V 10%				M192P2229R8	QFT2-27	1FT-D22
C41	.022		UK25-223				HY-725
C45	47 NPO 5%		DTZ-47	NP047	CN0447		10TCC-Q47
C46	.01 10%		UK50-103		MAG5011		
C51	.0022 50V 10% .022					QFT2-27	1FT-D22
C53	.01 10%		UK50-103		MAG5011		
C54	33 NPO 5%		DTZ-33	NP033	CN0433		10TCC-Q33
C57	.022		UK25-223				HY-725
C61	.047 10%			DPMS247	EWF1A147	QFT2-171	1FT-S47
C62	.047 10%						
C64	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C71	.068			WMF1S68	EWF1A168	QF1-195	1PB-S68
C72	.022 10%				M192P2239R8	QFT2-127	1FT-S22
C73	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C74	.022 10%					QFT2-127	1FT-S22
C75	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C80	.022 10%				M192P2239R8	QFT2-127	1FT-S22
C82	.047 10%			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C83	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C85	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C86	.022 10%				M192P2239R8	QFT2-127	1FT-S22
C90	22 NPO 5%		DTZ-22	NP022	CN0422		10TCC-Q22
C91	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C93	68 NPO 5%		DTZ-68	NP068	CN0468		10TCC-Q68
C96	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C100							
C100	.022		UK25-223				HY-725
C105	.022		UK25-223				HY-725
C106	.022		UK25-223				HY-725
C109	.022		UK25-223				HY-725
C111	18 NPO 5%				CN0418		10TCC-Q18
C112	18 NPO 5%				CN0418		10TCC-Q18
C113	.001		DD-102		GP210		10TS-D10
C114	.001		DD-102		GP210		10TS-D10
C115	100 NPO 10%		DTZ-100	NP0100	CN0310		10TCC-T10
C116	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C117	1 NPO				CN0510		10TCC-V10
C118	.022		UK25-223				HY-725
C121	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C122	47 NPO 10%		DTZ-47	NP047	CN0447		10TCC-Q47
C123	47 NPO 10%		DTZ-47	NP047	CN0447		10TCC-Q47
C124	.01 10%		UK50-103		MAG5011		
C125	270		DTZ-270				10TCC-T27
C127	470		DD-471	GP470	GP347		10TS-T47
C128	220		DTZ-220				10TCC-T22
C129	.01 10%		UK50-103		MAG5011		
C130	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C131	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C133	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C134	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C136	470		DD-471	GP470	GP347		10TS-T47
C137	220		DTZ-220				10TCC-T22
C138	.01 10%		UK50-103		MAG5011		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C139	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C142	68 NPO 5%		DTZ-68	NP068	CN0468		10TCC-Q68
C143	7 NPO		DTZ-6R8	NP06P8	CN0568		10TCC-V68
C146	.022		UK25-223				HY-725
C147	470		DD-471	GP470	GP347		10TS-T47
C148	220		DTZ-220				10TCC-T22
C149	.01 10%		UK50-103		MAG5011		
C150	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C151	.01 10%		UK50-103		MAG5011		
C152	.01 10%		UK50-103		MAG5011		
C153	.047		UK25-503		MAG2515		HY-735
C154	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C155	1 NPO				CN0510		10TCC-V10
C156	.022		UK25-223				HY-725
C157	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C159	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C160	.0047	(1)					
C161	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C162	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C163B	39 NPO 5%				CN0439		10TCC-Q39
C164	68 NPO 5%		DTZ-68	NP068	CN0468		10TCC-Q68
C165	220 NPO 10%		DTZ-220				10TCC-T22
C166	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C167	390 N750 10%		DTN-390				10TCU-T39
C168	.5 NPO ±.25						
C169	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C170	470 N750 10%		DTN-390				10TCU-T39
C172	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C173	180 NPO 10%		DTZ-180				10TCC-T18
C174	56 NPO 5%				CN0456		10TCC-Q56
C175	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C176	56 NPO 5%				CN0456		10TCC-Q56
C177	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C178	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C183	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C184	120 NPO 10%		DTZ-120		CN0312		10TCC-T12
C185	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C186	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C187	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C188	.1			WMF05P1	EWF05010	QFT2-215	1FT-P10
C189	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C190	.01 10%		UK50-103		MAG5011		
C192	.01 10%		UK50-103		MAG5011		
C193	.022		UK25-223				HY-725
C194	.039 10%				GP140		5GA-S40
C195	.01 10%		UK50-103		MAG5011		
C196	.022		UK25-223				HY-725
C197	.022		UK25-223				HY-725
C198	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C200	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C201	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C202	.022		UK25-223				HY-725
C203	.022		UK25-223				HY-725
C204	.01 10%		UK50-103		MAG5011		
C205	.01 10%		UK50-103		MAG5011		
C206	.022		UK25-223				HY-725
C207	.01 10%		UK50-103		MAG5011		
C208	.01 10%		UK50-103		MAG5011		
C209	.01 10%		UK50-103		MAG5011		
C210	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C213	.1		CK-104		MAG5001		
C214	.01 10%		UK50-103		MAG5011		
C215	.022		UK25-223				HY-725
C216	.022		UK25-223				HY-725
C217	.022		UK25-223				HY-725
C219	.022		UK25-223				HY-725
C220	.022	(1)	UK25-223				HY-725
C221	.022		UK25-223				HY-725
C222	.1		UK50-103		MAG5011		
C223	.022		UK25-223				HY-725
C225	.01 50V 10%	(1)		WMF1S1	EWF1A110	QFT2-91	1FT-S10
C227	.022		UK25-223				HY-725
C228	.022	(1)					
C229	.001	(1)	DD-102		GP210		10TS-D10
C231	.047 10%			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C233	.1		UK50-103		MAG5011		
C234	.039				M192P3939R8	QFT2-159	1FT-S39
C235	47 NPO 5%	(1)	DTZ-47	NP047	CN0447		10TCC-Q47
C236	33 NPO 5%		DTZ-33	NP033	CN0433		10TCC-Q33
C239	.1		UK50-103		MAG5011		
C240	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C242	47 NPO 5%		DTZ-47	NP047	CN0447		10TCC-Q47
C248	.022		UK25-223				HY-725
C249	33 NPO 5%		DTZ-33	NP033	CN0433		10TCC-Q33
C250	.01	(1)	UK50-103		MAG5011		
C251	.01	(1)	UK50-103		MAG5011		
C255	.001	(1)	DD-102		GP210		10TS-D10
C257	.01 10%	(1)	UK50-103		MAG5011		
C258	.01 10%	(1)	UK50-103		MAG5011		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C301	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C303	.039 10%				M192P3939R8	QFT2-159	1FT-S39
C401	.047 10%			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C403	.01 10%		UK50-103		MAG5011		
C404	.01 10%		UK50-103		MAG5011		
C408	.001	(1)					
C412	.02	(1)					
C413	.01 10%		UK50-103		MAG5011		
C414	.01 10%		UK50-103		MAG5011		
C415	.001		DD-102		GP210		10TS-D10
C416	.001		DD-102		GP210		10TS-D10
C417	.022	(1)					
C418	.1		CK-104		MAG5001		
C419	.01 10%		UK50-103		MAG5011		
C420	.01 10%		UK50-103		MAG5011		
C421	.001 125VAC		C1-102		UAC210		125L-D10
C422	.001 125VAC		C1-102		UAC210		125L-D10
C423	.001 125VAC		C1-102		UAC210		125L-D10
C424	.001 125VAC		C1-102		UAC210		125L-D10
C425	.001		DD-102		GP210		10TS-D10
C426	.01 10%		UK50-103		MAG5011		
C601	8 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C602	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C603	.01 10%	(1)	UK50-103		MAG5011		
C604	39 NPO 5%				CN0439		10TCC-Q39
C606	.01 10%		UK50-103		MAG5011		
C701	.01		UK50-103		MAG5011		
C702	.01		UK50-103		MAG5011		
C703	.01		UK50-103		MAG5011		
C704	.01		UK50-103		MAG5011		
C705	.01	(1)	UK50-103		MAG5011		
CC1		(2) NN0111					
CC2		(2)					
CT1	20	510055					
CT2	20						
CT3	20						
CT4	20						
CT5	20						
CT6	20						

(1) Used in some versions.
(2) Consists of four capacitors.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RT301	Volt Reg	300	RS3013	T-300	C-500	MTC32L1	X201R351B
VR1	Signal Meter	20K	RS2033				U260R253B
	Signal Meter	25K	RS2533(6)				
VR2	RF Gain (Range)	500K	RS5043				U260R504B
VR3	Squelch Range	100K	RS1043				U260R104B
VR4	Balance	50K	RS5033				U260R503B
VR5	AM RX Gain	100K	RS1043				U260R104B
VR6	Mic Gain	20K	RS2033				U260R253B
VR7	AM AMC	5000	RS5023				U260R502B
VR8	AM TX Level	10K	RS1033				U260R103B
VR9	34.9825MHz	5000	RS5023				U260R502B
VR12	RF Power Meter	100K	RS1043				U260R104B
VR15	Bias	300	RS3013				U260R501B
VR16	Bias	300	RS3013				U260R501B
VR401	Clarifier	20K	510019(5)	F1-20K (1), SSK012	A47-20K-S (1), KSS-3	RU24L,SL36,SL1500	BU1 (1),CF62, SS1,DC1
RV402	RF Gain	100K	520015	F1-100K (1), SSK012	A47-20K-S (1), KSS-3	RU15L,SL36,SL1500	BU1 (1),CF13, SS1,DC1
VR403	SWR/CAL	5000	510020(5)	F1-5000 (1), SSK012	A47-5000-S (1), KSS-3	RU53L,SL36,SL1500	BU1 (1),CF8, SS1,DC1
VR404	Squelch	100K	520015	F1-100K (1), SSK012	A47-100K-S (1), KSS-3	RU15L,SL36,SL1500	BU1 (1),CF13, SS1,DC1
VR405	Volume/Switch	10K	520016(5)	F2-10K (1), SSK012,KR1	A47-10K-Z (1), KSS-3,SWE-12	RU14A,SL36, SL1500,US41	BU1 (1),CF61, SS1,GC

(1) Enlarge mounting hole.
(5) Number on unit.
(6) Alternate part, may be used in some versions.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
RR1	Resistor Network		(1) NN4278

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.

(1) Consists of eight 4700-ohm resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Noise Blanker (24.1MHz)	LL0050	LA1527135		
L2	Noise Blanker (24.1MHz)	LL0054	LA0606722		
L3	Rec Antenna (27MHz)	LL0053	LA0297215		
L4	RF Amp (27MHz)	LL0055	LA1567225		
L5	Rec Mixer (7.8MHz)	LL0075	LA1787215		
L6	Rec Mixer (7.8MHz)	LL0057	LA1977135		
L7	Carrier Insertion (7.8MHz)	LL0051	LA0387135		
L8	IF Amp (7.8MHz)	LL0052	LA0967135		
L9	RF Choke (470uH)	LL0072			
L10	Pi Filter (56mH)	LL0073			
L11	RF Choke (68mH)	LL0074			
L12	RF Choke (470uH)	LL0072			
L13	RF Choke (470uH)	LL0072			
L14	RF Choke (470uH)	LL0072			
L16	VCO (34MHz)	LL0060	LA1957215		
L17	Loop Bandpass	LL0059	LA191723N		
L18	RF Choke (470uH)	LL0072			
L19	Pi Filter (100uH)	LL0071			
L20	RF Choke (470uH)	LL0072			
L21	RF Choke (470uH)	LL0072			
L22	RF Choke (470uH)	LL0072			
L23	RF Choke (470uH)	LL0072			
L24	Tripler	LL0058	LA1907225		
L25	RF Choke (470uH)	LL0072			
L27	TVI Trap (54MHz)	LL0061			
L28	Antenna Match	LL0069			
L29	RF Choke	LL0069			
L30	Xmit Final	LL0062			
L31	RF Choke	LL0064			
L32	Xmit Driver (27MHz)	LL0061			
L33	RF Choke	LL0064			
L34	RF Choke	LL0064			
L35	Xmit Predriver	LL0066			
L36	Xmit Amp	LL0066			
L37	Xmit Mixer (27MHz)	LL0056	LA1577225		
L38	RF Choke	LL0072			
L39	Xmit Mixer (7.8MHz)	LL0051	LA0387135	CB 512-7Tc	
L43	RF Choke (1uH)	LL0070			
L44	RF Choke (1uH)	LL0070			
L45	RF Choke (470uH)	LL0072			
L46	RF Choke	LL0072			
L401	RF Choke	LL0065			
L407	RF Choke	LL0067			
L409	RF Choke	LL0076			
L410	RF Choke	LL0066 = 26			
L411	RF Choke	LL0065 = L3			
L412	RF Choke	LL0076 = 65			
L701	RF Choke	LL0078			
L702	RF Choke	LL0078			
L703	RF Choke	LL0078			

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	5.12	8	520043			

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T401	120V AC @ 680mA	19.25V AC @ 4.68A AC	520044			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP401	2 3/4" PM, 8 Ohms	520040		(1) Number on unit.

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F401	3A Quick Acting	510026	520025	AGC3	HDJ	312003	150145	FG3-2
F402	3A Quick Acting	510026	510078	AGC3	HKP	312003	342001L	FG3-2

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MIC	510037	18-032	18-034	18-010	18-092	1	2	3	NC	NC	4

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
D401	LED	DNR321	Channel Indicator
D407	LED	DLR702	TX Indicator
D408	LED	DPG103	RX Indicator
FT1	Filter	510024	7.8MHz
FT2	Filter	520021	7.8MHz
J401	Socket	510045	Antenna
J402	Socket	110030	Microphone
J405	Socket	110015	DC Power
L26	Ferrite Bead	LL0077	
L40	Ferrite Bead	LL0063	
L41	Ferrite Bead	LL0063	
L42	Ferrite Bead	LL0068	
M401	Meter	520031	Signal-RF Power
M402	Meter	520032	SWR
P402	Plug	110047	Microphone
P405	Plug	510039	DC Power
PL401	Lamp	510010	SWR Meter (13.75V @ 45mA)
PL402	Lamp	510010	Signal/RF Power Meter (13.75V @ 45mA)
RELY-1	Relay	510040	Xmit
S402	Switch	510049	AM-USB-LSB
S403	Switch		CAL-SWR
S404	Switch	520042	NB
S405	Switch		PA-CB
S407	Switch		PA-EXT-INT
S408	Switch	510048	Channel Selector
X1	Crystal	XA8025	7.8025MHz
X2	Crystal	XA7975	7.7975MHz
X3	Crystal	XE2858	11.2858MHz
X4	Crystal	XE2842	11.2842MHz
X5	Crystal	XD2400	10.240MHz
X6	Crystal	XE2850	11.2850MHz

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

ITEM	PART No.
Front Panel	520024
Knob, Channel Selector	510029

ITEM	PART No.
Knob, Control	510030
Microphone Hanger	510038

WIRING DATA

General-use Hook-up Wire (available in 5 colors) BELDEN No. 8523
Shielded Hook-up Wire (spiral wrapped) . . . . . BELDEN No. 8421
(braided) . . . . . BELDEN No. 8401
Speaker Cable (available in 4 colors) . . . . . BELDEN No. 8782
Bonding Strap . . . . . BELDEN No. 8672
AC Power Cord . . . . . (6') BELDEN No. 17106
(9') BELDEN No. 17109

Coiled Microphone Cable
3-conductor (1 shielded) 23AWG BELDEN No. 9471 (5')
BELDEN No. 8497 (6')
8ELDEN No. 9472 (7-1/2')
28AWG BELDEN No. 9466 (6')
31AWG BELDEN No. 9468 (10')
4-conductor (unshielded) 23AWG BELDEN No. 8415 (6')
5-conductor (1 shielded) 28AWG BELDEN No. 9467 (6')
BELDEN No. 9465 (7-1/2')