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 3-5814A

MANUFACTURER'S SPECIFICATIONS

GENERAL

CHANNELS: 40 channels - PLL digital logic channel synthesizer circuitry
POWER REQUIREMENT: Consumption - 18 watts; Current drain - 1.3 amps (100% mod.) at 13.8 Volt DC
POWER SUPPLY: 12 Volts DC normal (Positive or Negative ground)
SEMICONDUCTORS: integrated circuits, transistor and diodes.
OPERATING TEMPERATURE RANGE: −30 to +50°C.
MICROPHONE: Dynamic with push-to-talk switch, 500 ohm.
BUILT-IN SPEAKER: 8 ohms impedance; 92mm (3½ inches) in size.
CONTROLS/FEATURES: Volume with ON-OFF switch, Microphone Gain, Channel selector switch, Delta tune switch, P.A./CB switch, Noise Blanker + ANL switches, TX (transmit) light, Antenna warning light, S/RF meter (receive-transmit), and Meter switch.
CONNECTORS; External speaker jack 3.5mm (8 ohms impedance), SO239 type antenna receptacle to match PL-259 coax plug (50 ohms impedance), PA Speaker Jack 3.5mm (8 ohms impedance), 12-volt DC power jack, separate power cable that allows quick disconnect, MIC Jack.

RECEIVER

SENSITIVITY: Better than 0.5uv for 500 MW audio output at MIN Squelch setting.
FREQUENCY COVERAGE: 26.965 to 27.405 MHz.
ADJACENT CHANNEL SELECTIVITY: Better than 55db.
AUDIO OUTPUT POWER: @ 10% DIST. better than 2.2 watts.
SPURIOUS REJECTION: Better than 40db.
IF FREQUENCIES: 455 kHz, 10.695 MHz.
SQUELCH RANGE (SENSITIVITY): 0.5 to 500 uv nominal.
IMAGE REJECTION RATIO: Better than 60db.
DELTA TUNE RANGE: Approximately ±1 kHz.

TRANSMITTER

FREQUENCY RESPONSE: 400 Hz to 2.5 kHz.
FREQUENCY COVERAGE: 26.965 to 27.405 MHz.
TRANSMIT POWER OUTPUT: 4 watts maximum as limited by FCC Regulations at 13.8 Volts DC.
MODULATION: Capable of 100% factory pre-set limit. 85-100%.
FREQUENCY TOLERANCE: Better than .005% MAX.

Courtesy of the Manufacturer

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

 Printed in U. S. of America 8CE673

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:
T6,T7,T8,T9	5009
T1 thru T5,L3	9440
L5,L9,L10	9340
CT1,CT2	5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter thru 47pF capacitor to jumper J4 (Base of Q8).	Ch. 19 Delta Tune 0	CT1	Adjust for 10.240MHz ±50Hz.
Input of DC meter to TP8 (Pin 9 of IC3).	Ch. 1	T1	Adjust for 2.0 volts ±.1 volt.
	Ch. 1, XMT	CT2	Adjust for 2.0 volts ±.1 volt.
Input of frequency counter to J5 (Junction C59, C60 & R29).	Ch. 1		Check for 16.270MHz. Repeat for all channels. (Channel frequency - 10.695MHz = frequency on counter).
Input of frequency counter to TP1 (Pin 9 of IC3).	Ch. 1 XMT		Check for 26.965MHz. Repeat for all channels. (Should indicate channel frequency)

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.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to J4 (Base of Q8). 455kHz,1000Hz @ 30% modulation.	Ch. 19 Squelch MINIMUM Delta Tune 0 ANL Off Noise Blanker Off	T9,T8,T7	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz,1000Hz @ 30% modulation.	Ch. 19, Squelch MINIMUM Delta Tune 0 ANL Off Noise Blanker Off	T6,T5, T4,T3	Adjust for maximum output. If necessary readjust T7, T8, and T9.

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 500uV.	Ch. 19, Delta Tune 0 ANL Off Noise Blanker Off	RV1	SQUELCH RANGE Set Squelch Control VR2 fully clockwise. Adjust RV1 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz,1000Hz @ 30% modulation. Output 100uV.	Ch. 19, Delta Tune 0 ANL Off Noise Blanker Off	RV3	S METER Adjust RV3 for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

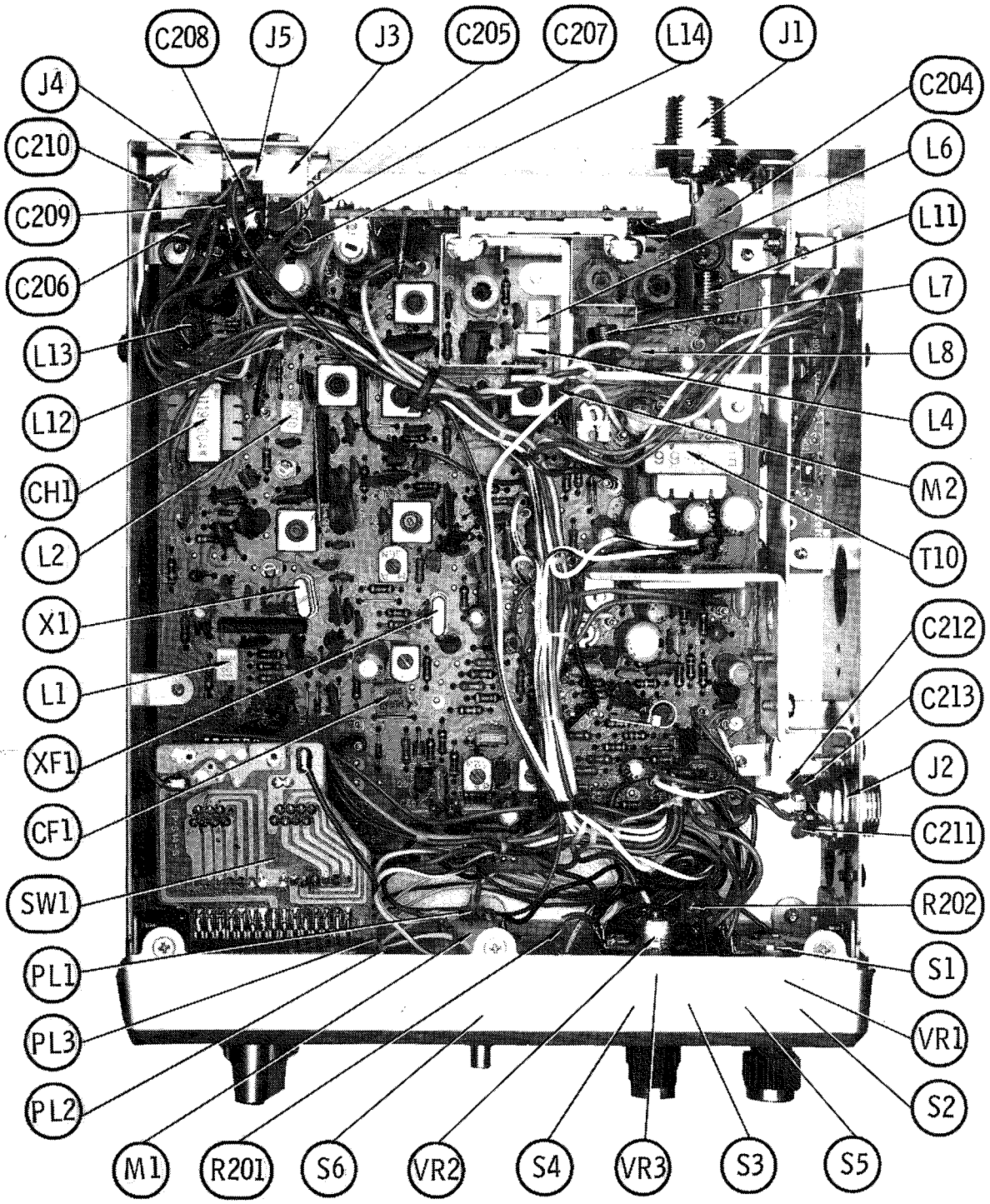
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector at all times.
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
RF Wattmeter (See Connection above)	Ch. 19	T2,L3, L5,L9,L10	Adjust for maximum.
	Ch. 19	L10	Adjust for 3.8 watts.

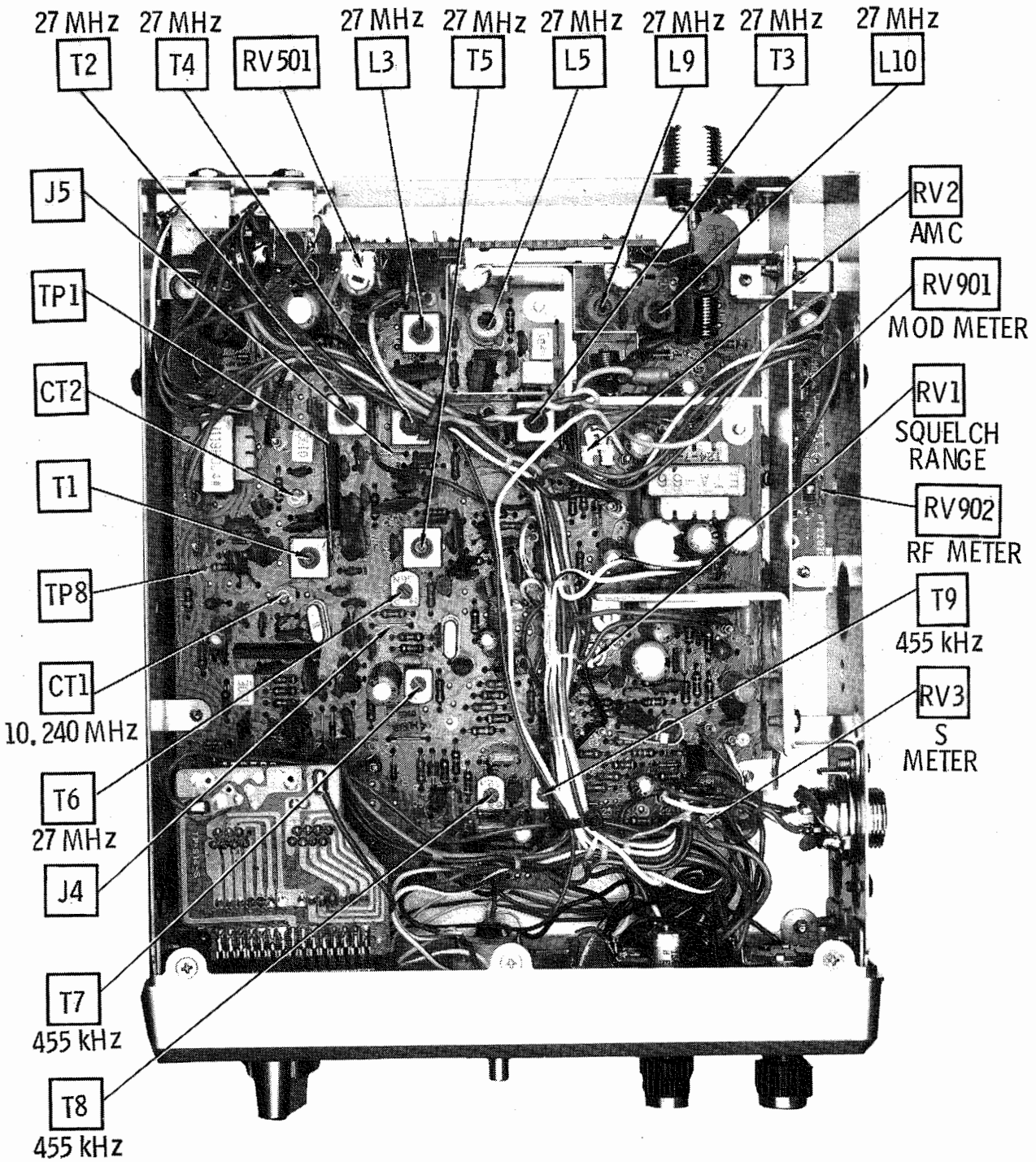
TRANSMITTER ADJUSTMENTS

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

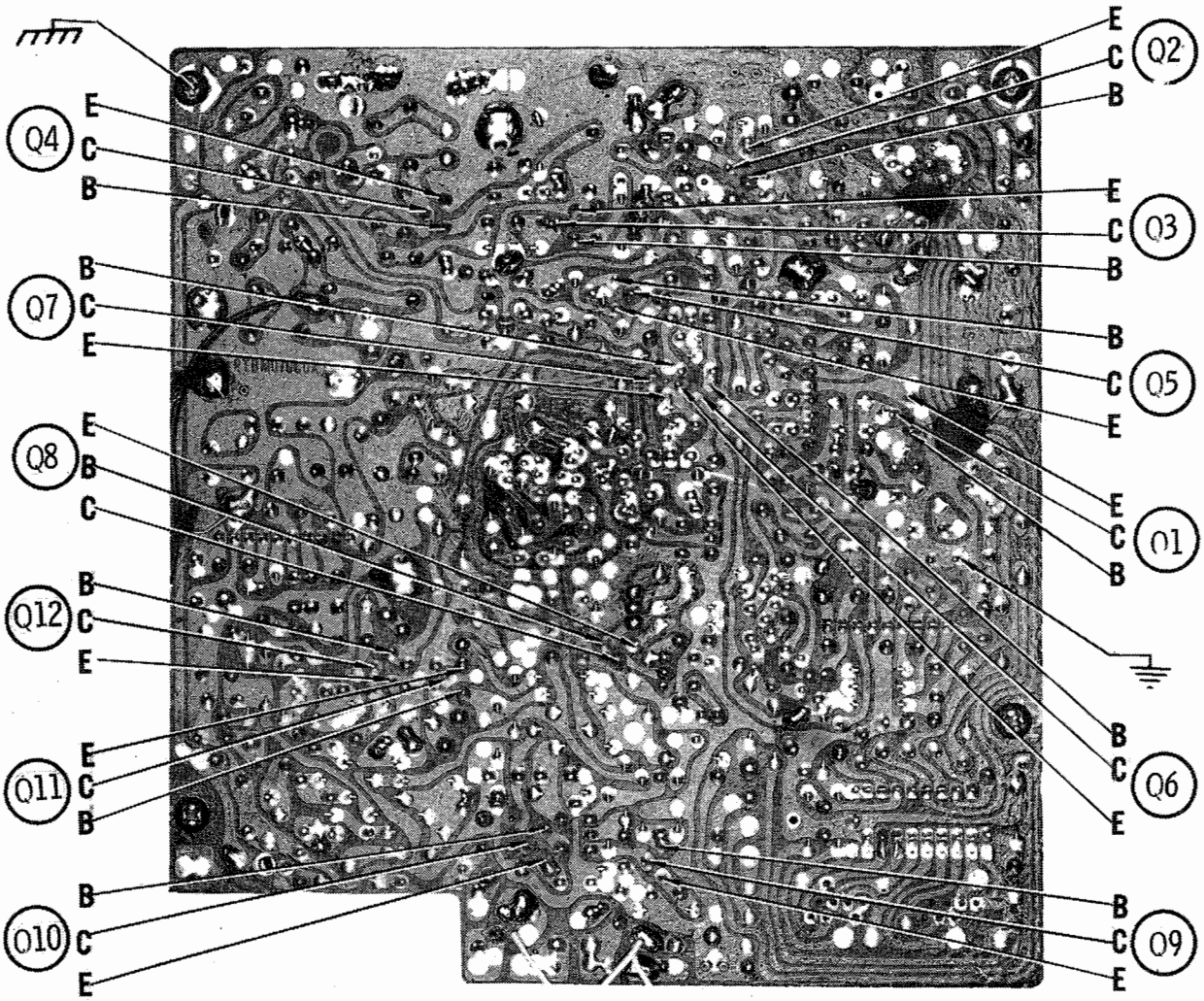
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 1000Hz, 20mV signal at MIC input.	Ch. 19, Mic Power Maximum	RV2	AMC Adjust RV2 for 90% modulation.
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.	Ch. 19, Meter Function - TX Power	RV902	RF PANEL METER Adjust RV902 so that RF panel meter agrees with RF wattmeter.
Modulation meter to antenna jack. Inject a 1000Hz signal at MIC input.	Ch. 19, Meter Function- Modulation Mic Maximum	RV901	MODULATION METER Adjust signal for 50% modulation. Adjust RV901 so modulation meter reads 50%.
Connect a 250 ohm, 25-watt non-inductive resistor to antenna connector.	Ch. 19	RV501	AWI Adjust RV501 so that AWI indicator lights.



CHASSIS-BOTTOM



CHASSIS-BOTTOM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E
C
B
Q7
B
C
E
Q8
E
B
C
Q12
B
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Q11
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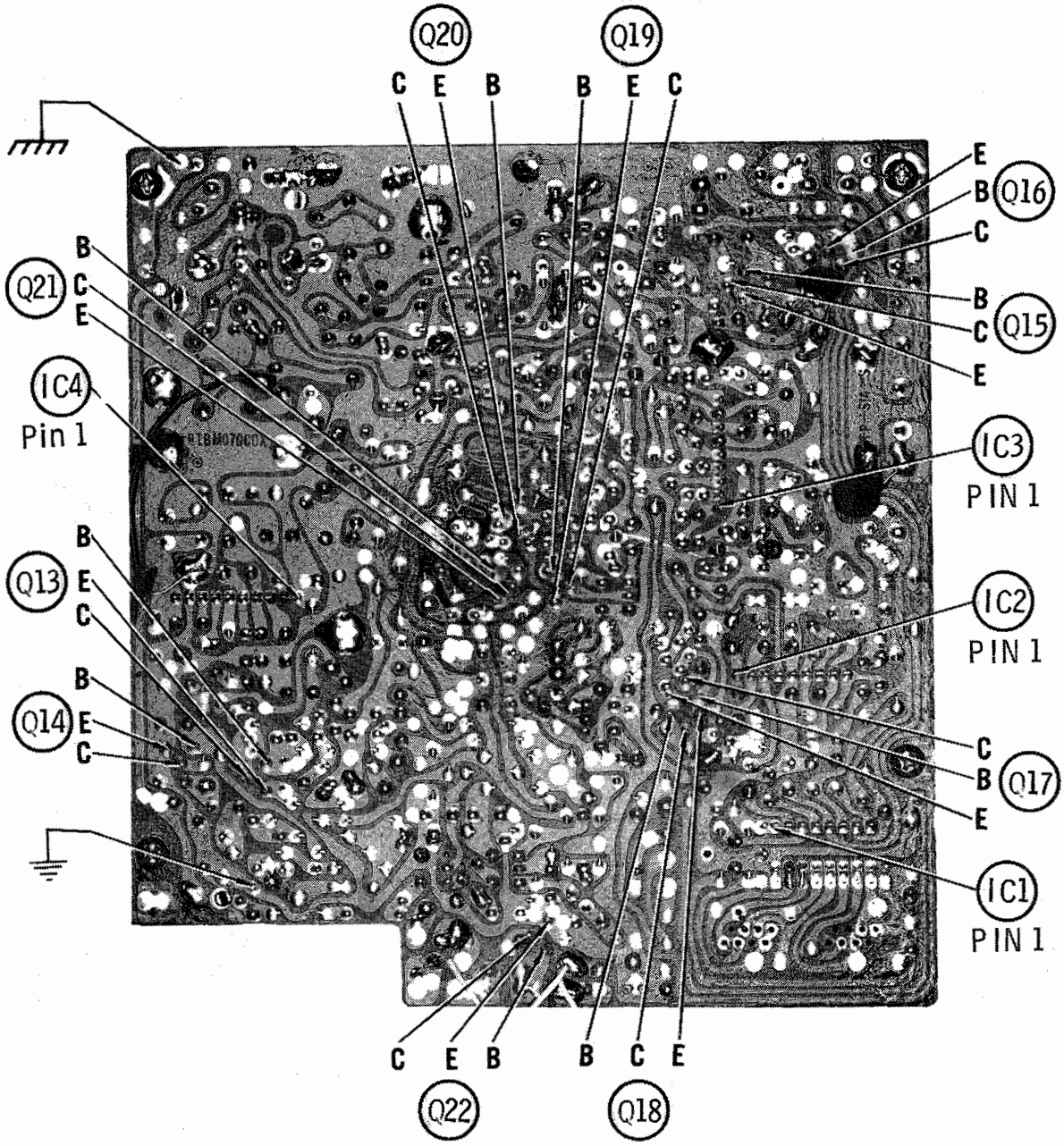
C
B
Q10
B
C
E
Q2
E
C
B
Q3
E
C
B
Q5
B
C
E
Q1
E
C
B
Q6
B
C
E
Q9
B
C
E

MAIN BOARD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C E B
Q19
B E C
E
B
C
Q16
B
C
Q15
E
Q21
B
C
E
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Pin 1
IC3
PIN 1
Q13
B
E
C
IC2
PIN 1
Q14
B
E
C
C
B
Q17
E
IC1
PIN 1
C E B
Q22
B C E
Q18

MAIN BOARD

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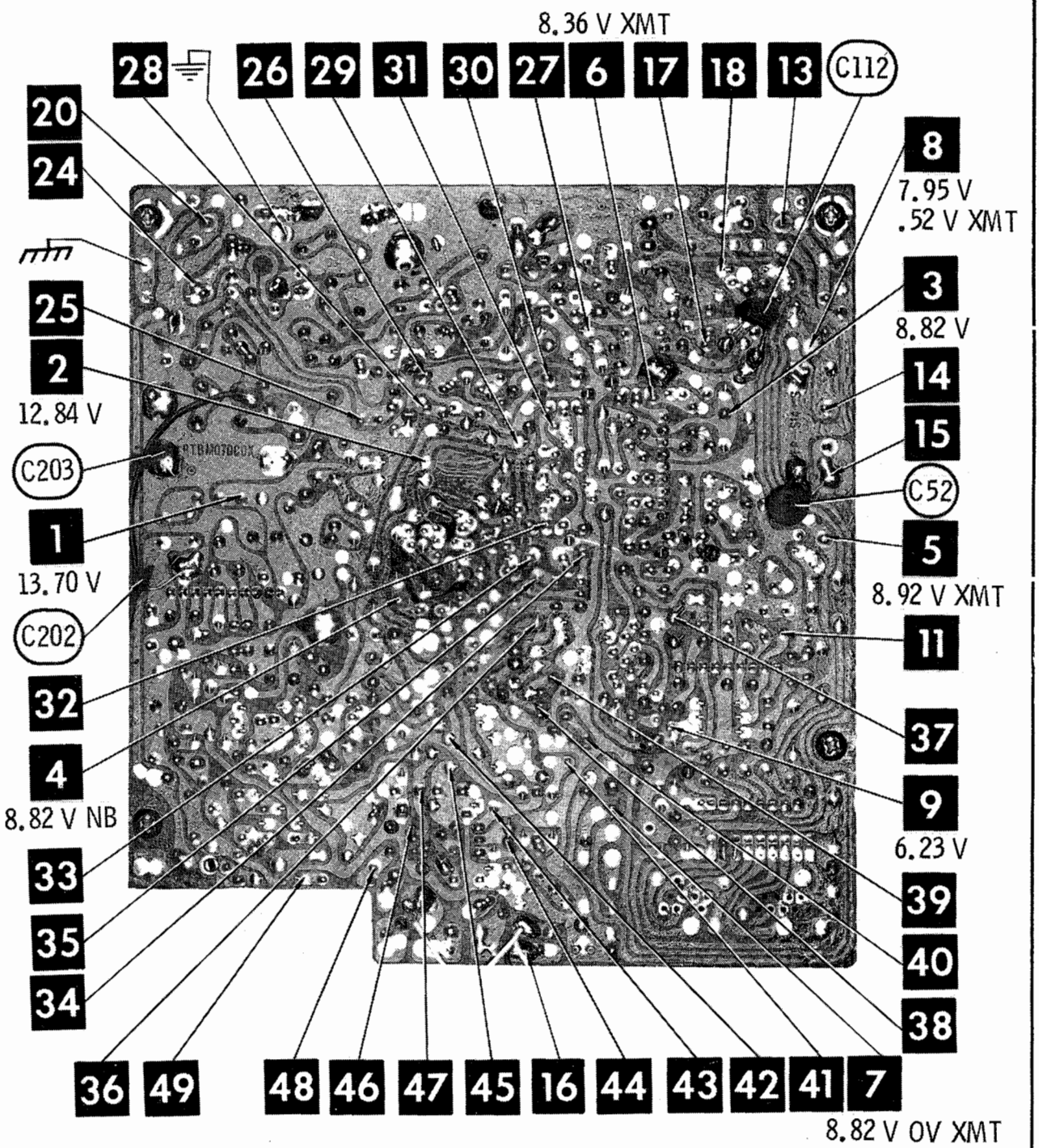

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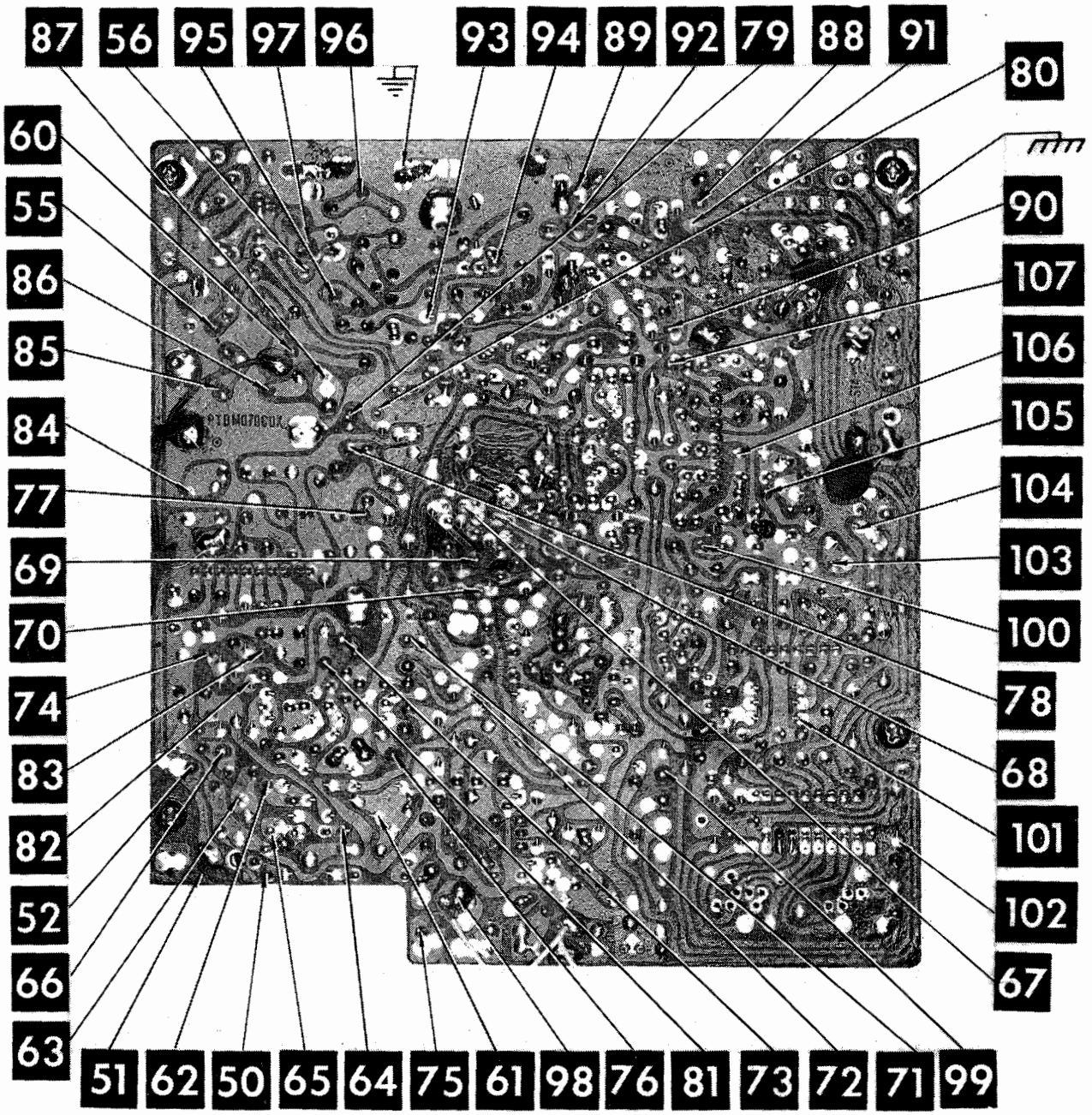
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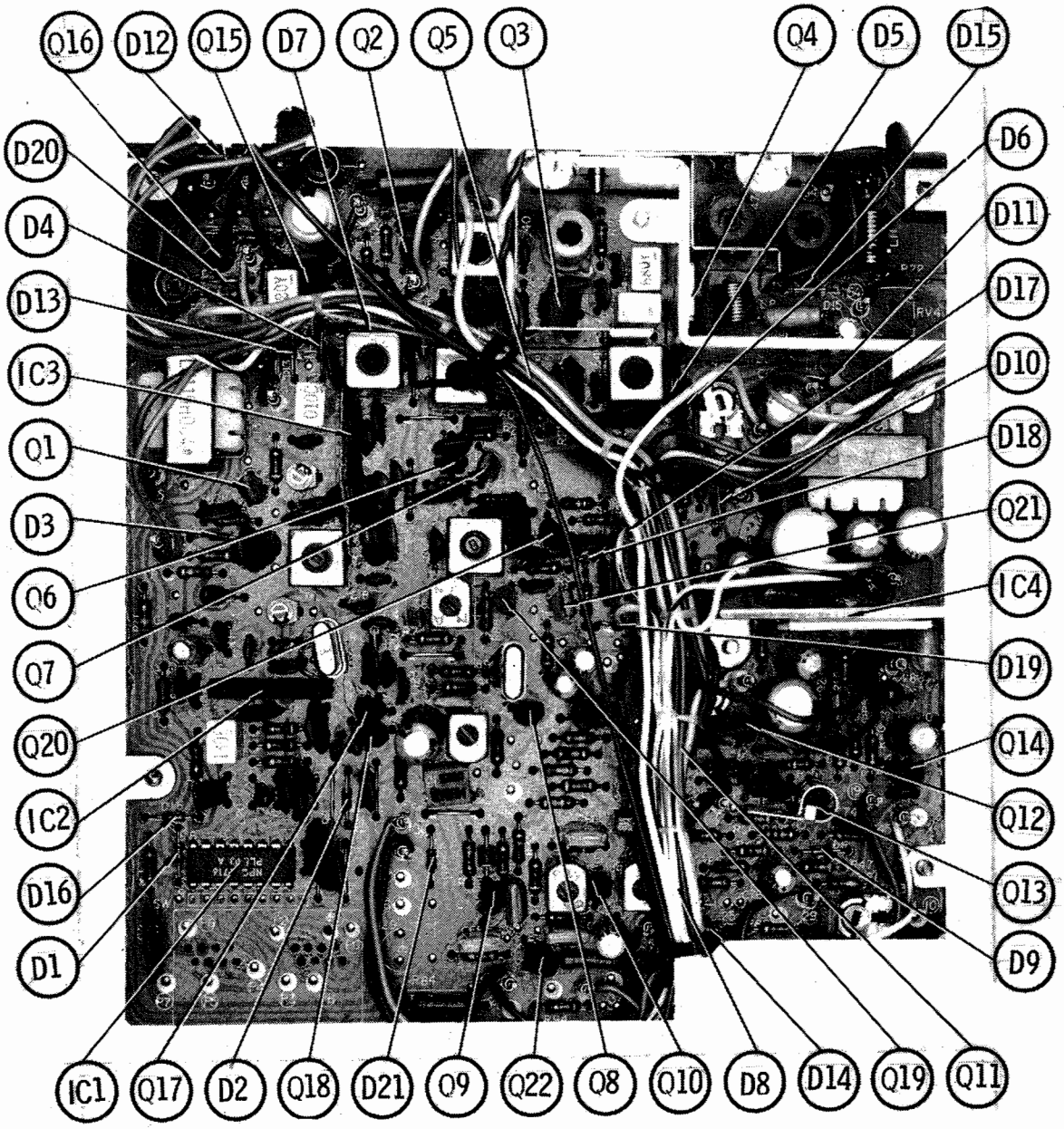
MAIN BOARD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D7
Q2
Q5
Q3
Q4
D5
D15
D20
D6
D4
D11
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D17
IC3
D10
Q1
D18
D3
Q21
Q6
IC4
Q7
D19
Q20
Q14
IC2
Q12
D16
Q13
D1
D9
IC1
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D2
Q18
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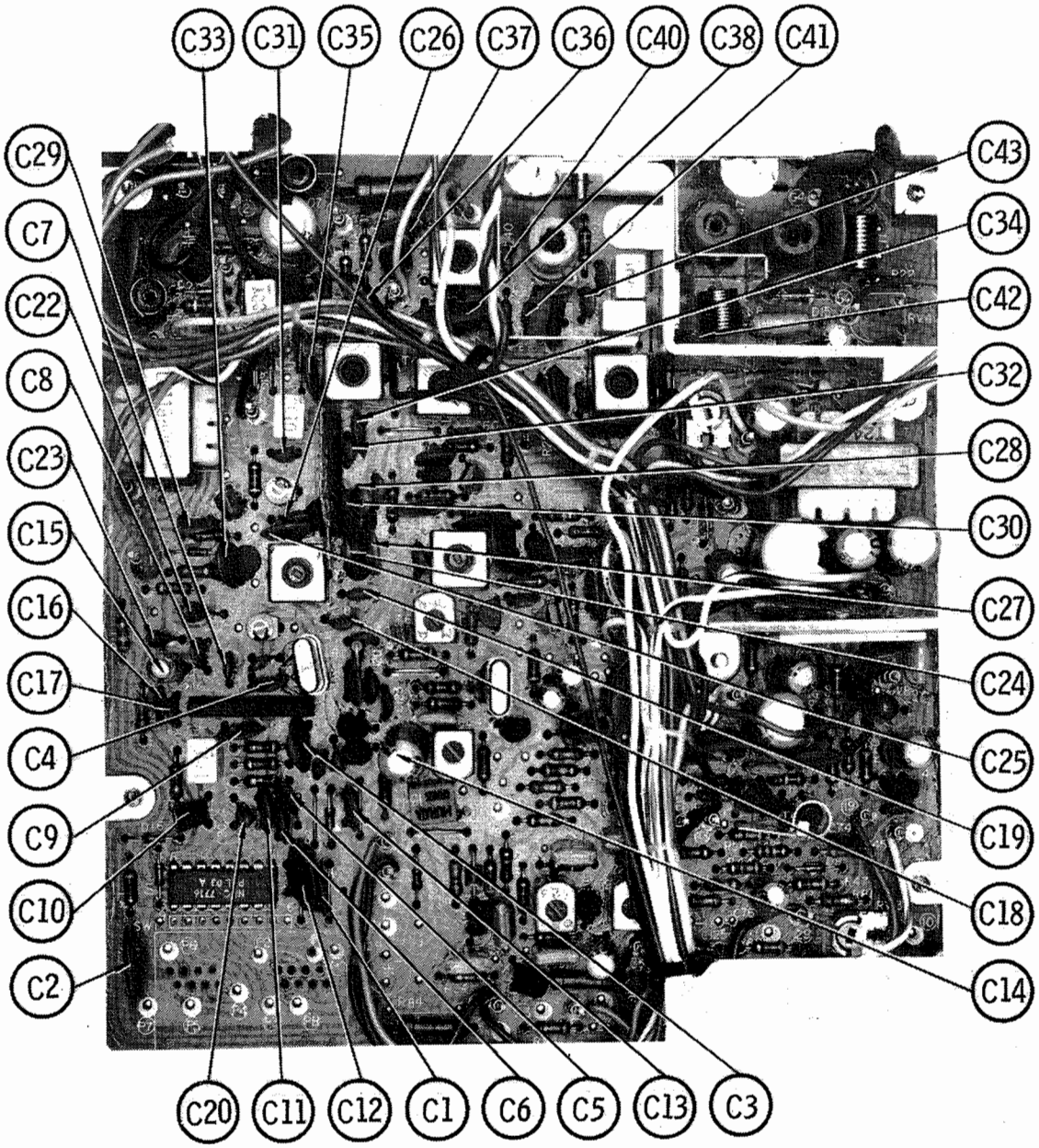
Q9
Q22
Q8
Q10
D8
D14
Q19
Q11

MAIN BOARD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C17
C4
C9
C10
C2
C43
C34
C42
C32
C28
C30
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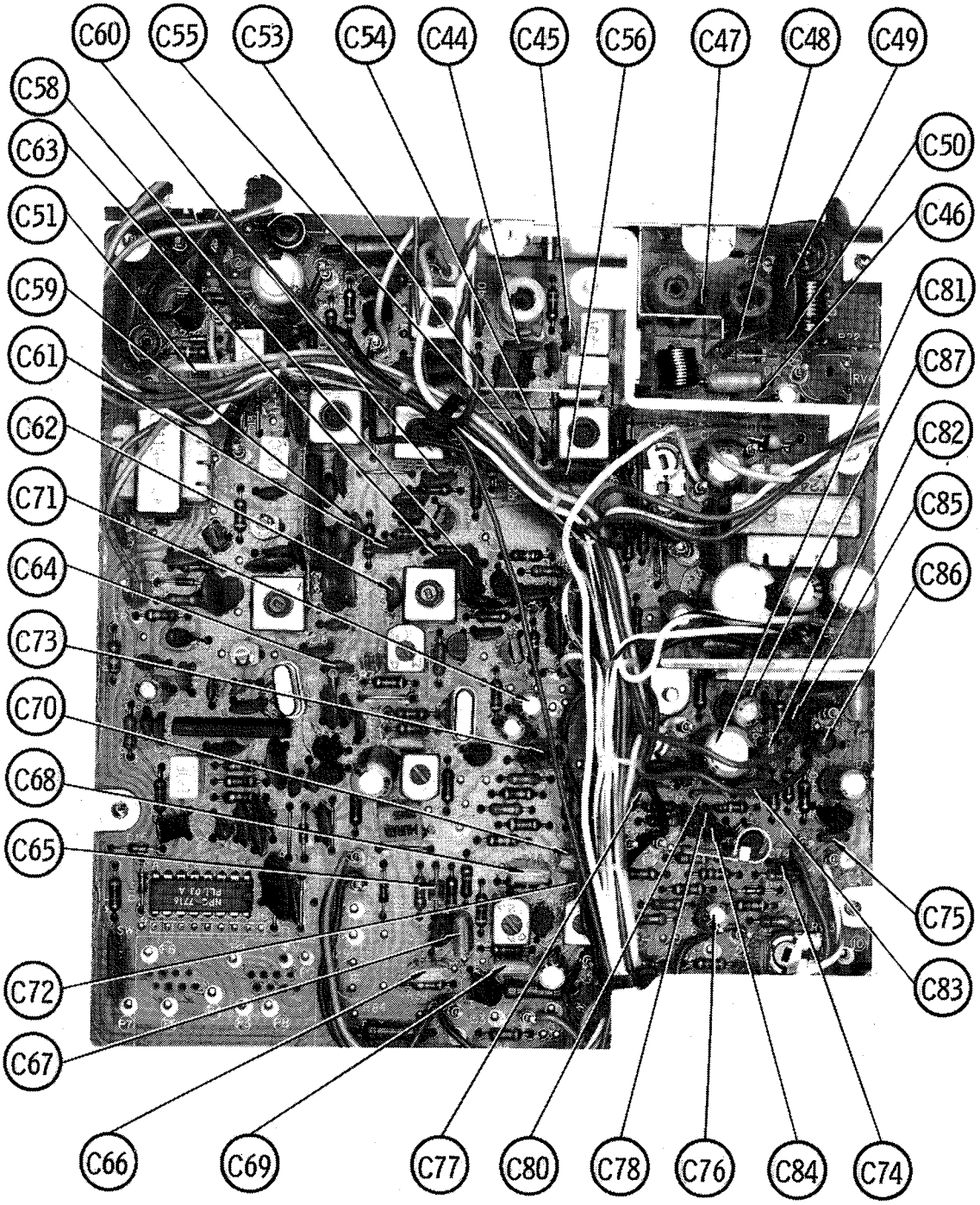
C6
C5
C13
C3

MAIN BOARD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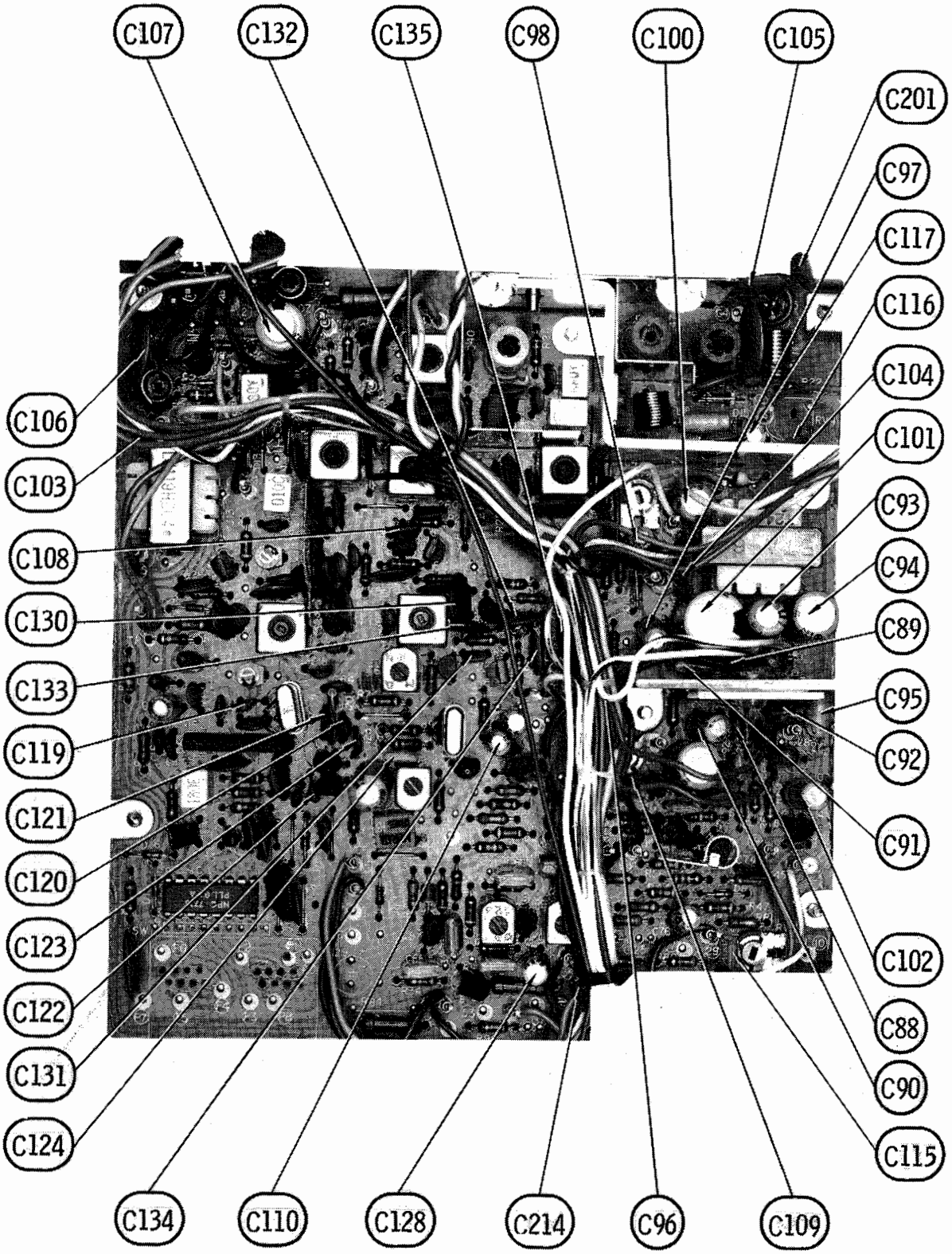
C85
C86
C75
C83

MAIN BOARD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C201
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C116
C104
C101
C93
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C92
C91
C102
C88
C90
C115
C109
C96
C214
C128
C110
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C122
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C120
C121
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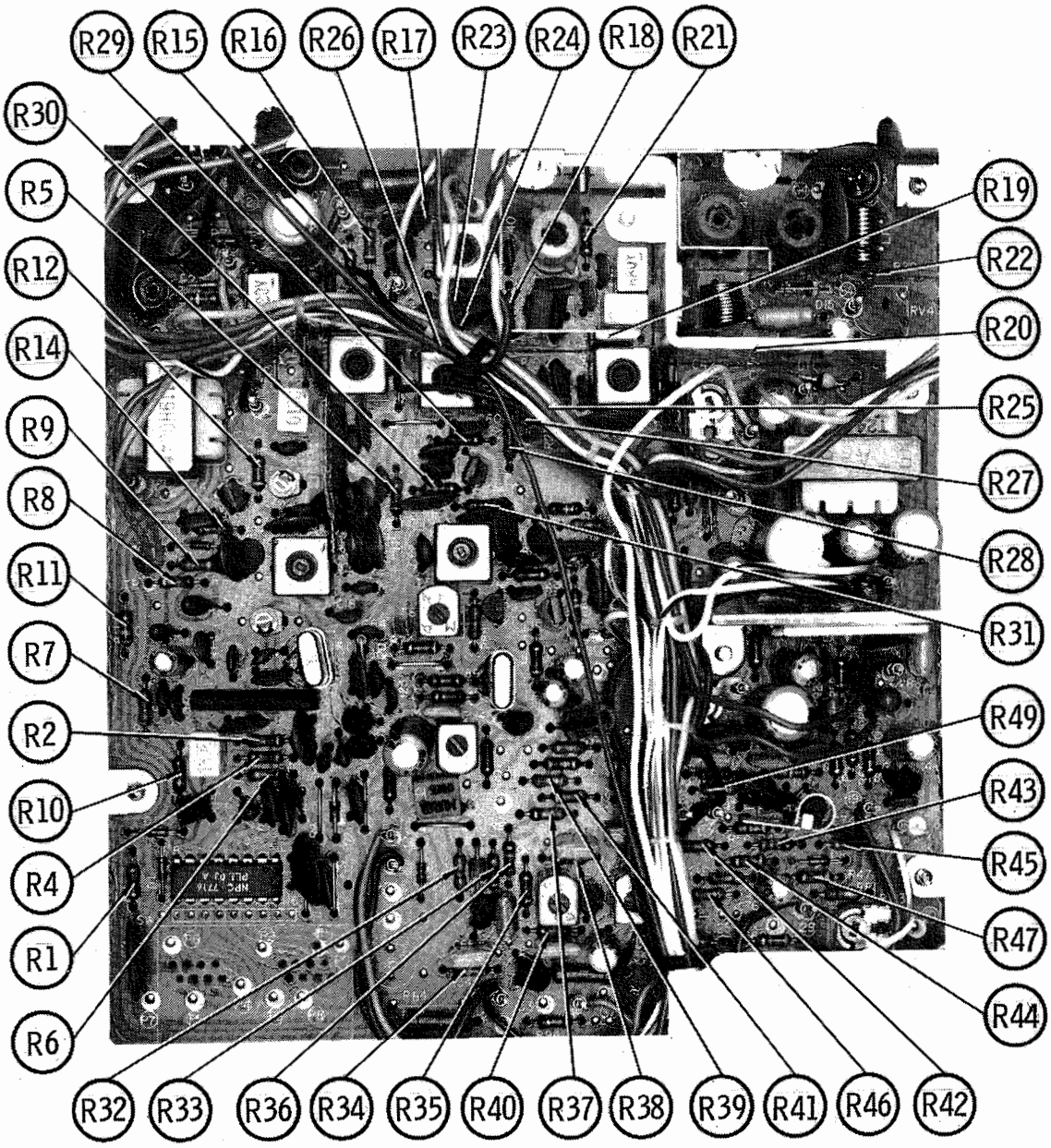
C133
C130
C108
C103
C106

MAIN BOARD


R29
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R26
R17
R23
R24
R18
R21
R30
R5
R12
R14
R9
R8
R11
R7
R2
R10
R4
R1
R6
R19
R22
R20
R25
R27
R28
R31
R49
R43
R45
R47
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R33
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R35
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R38
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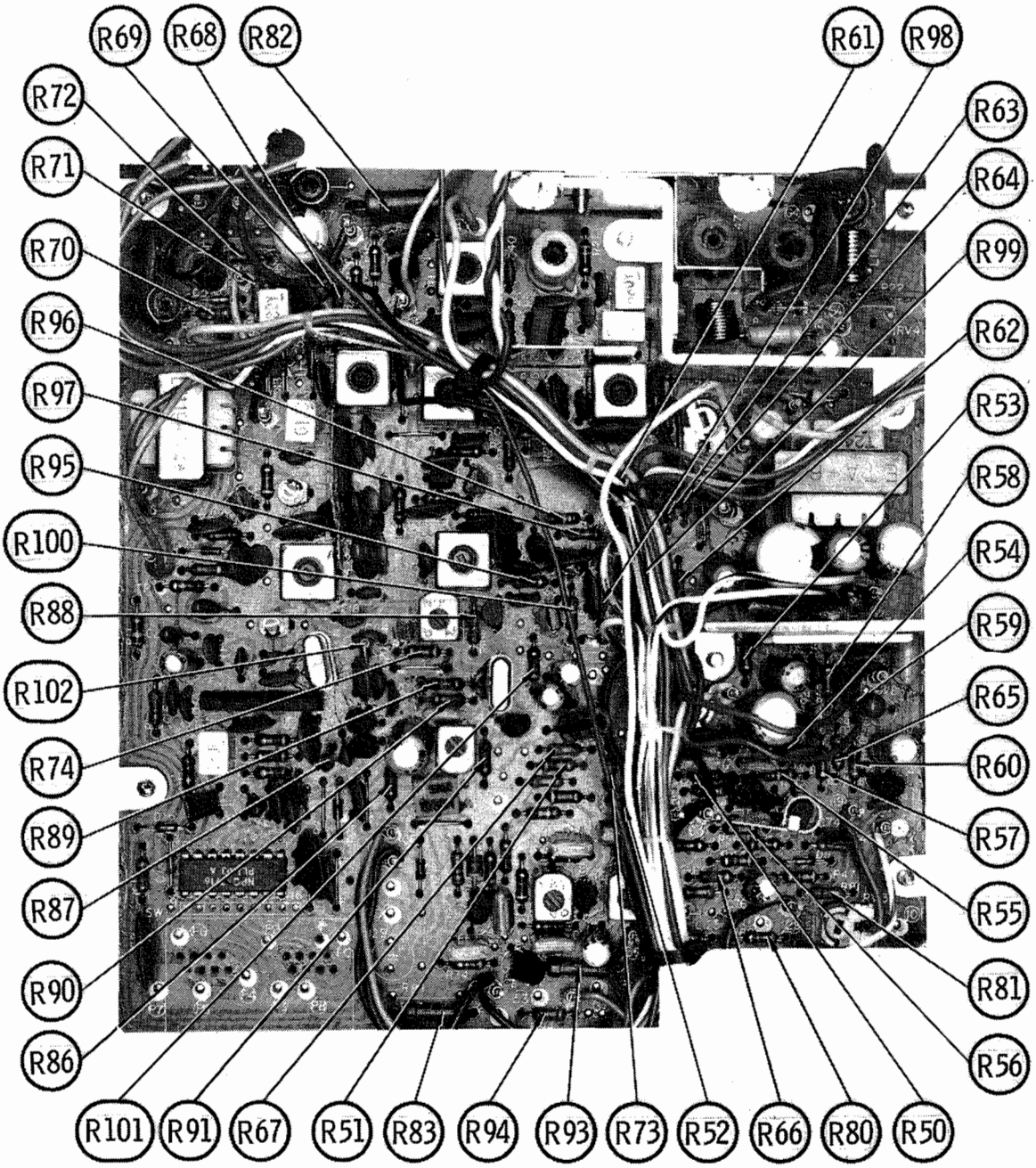
R41
R46
R42

MAIN BOARD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R100
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R86
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R101
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R73
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R80
R50

MAIN BOARD

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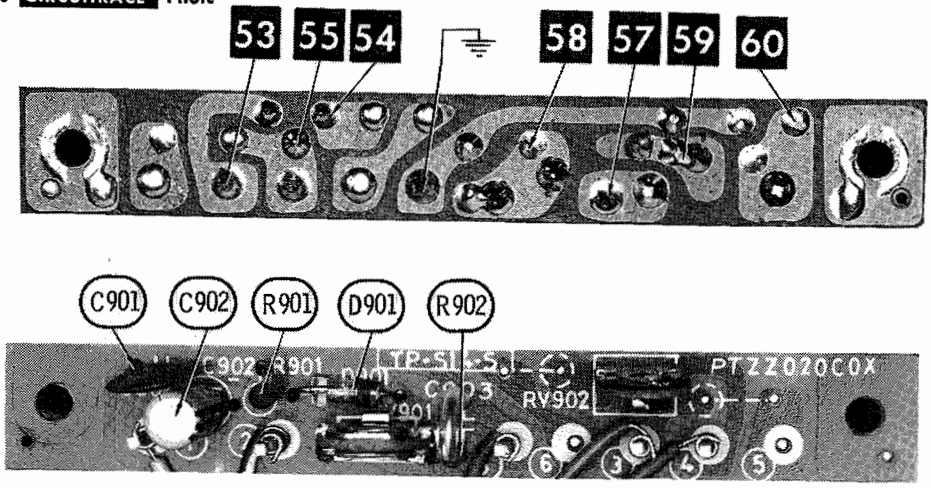

METER BOARD

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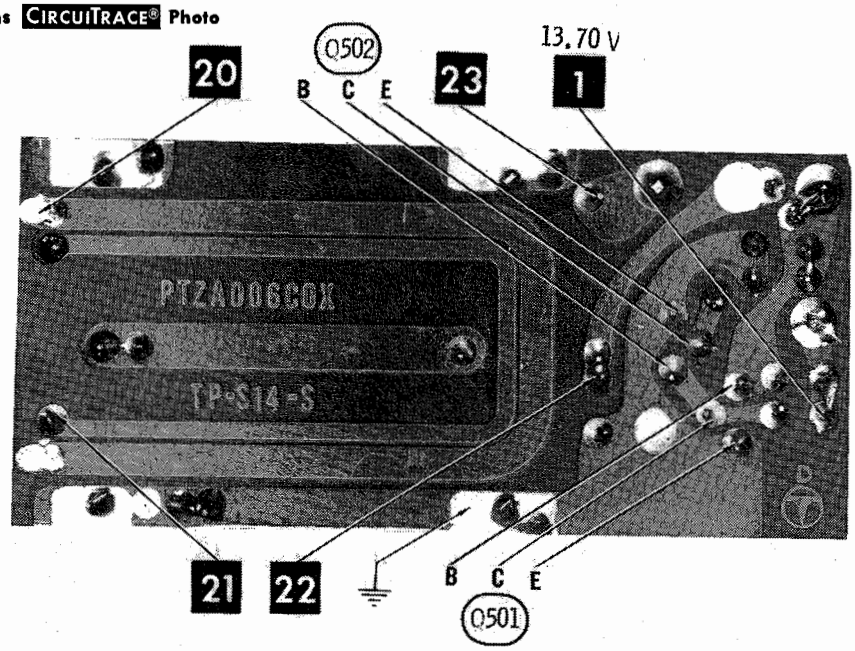

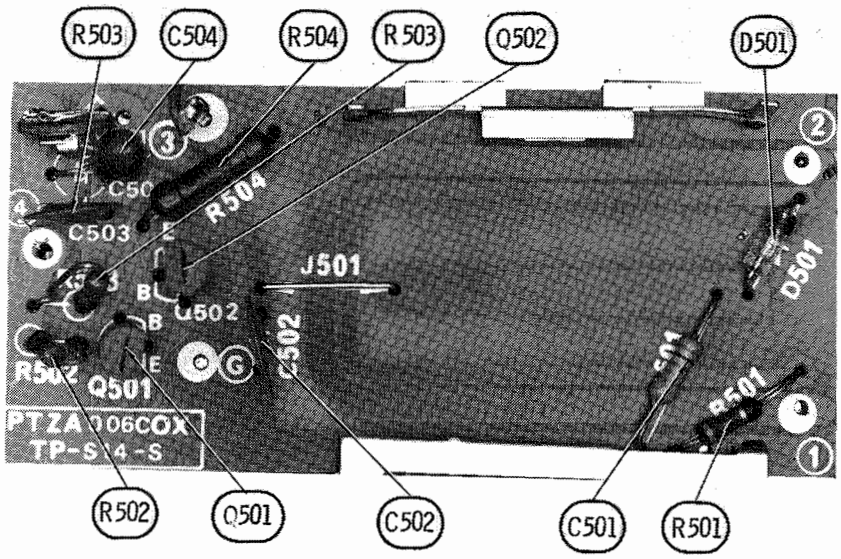

ANTENNA WARNING BOARD

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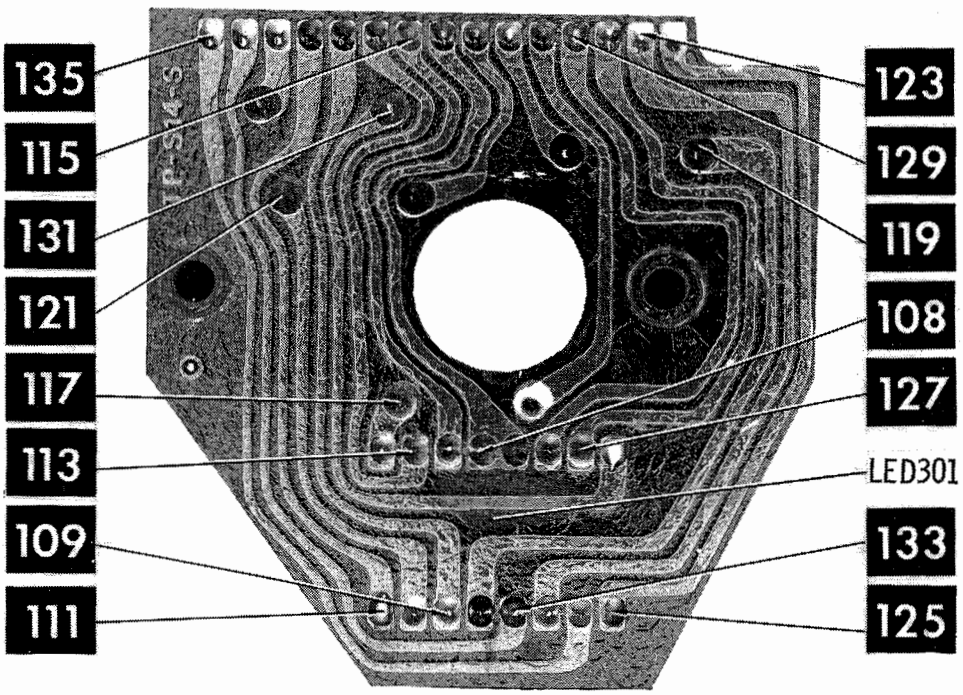

READOUT BOARD

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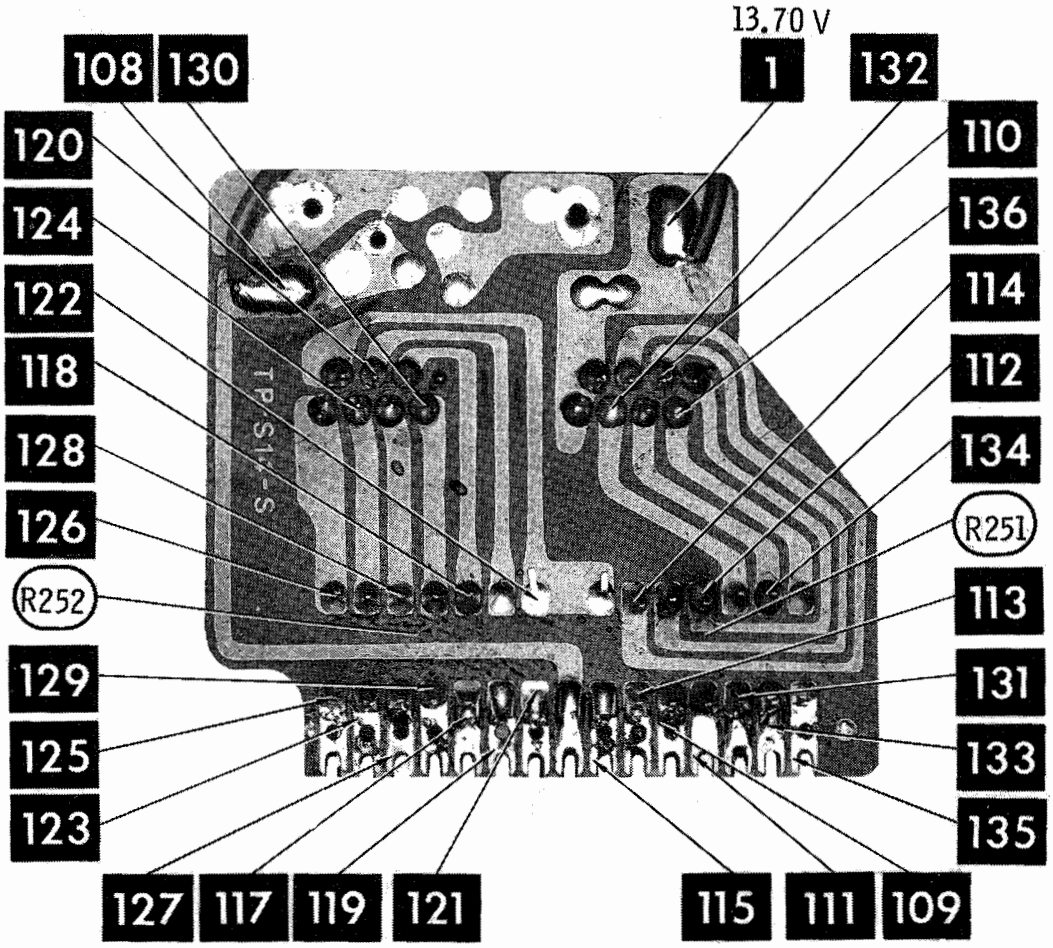
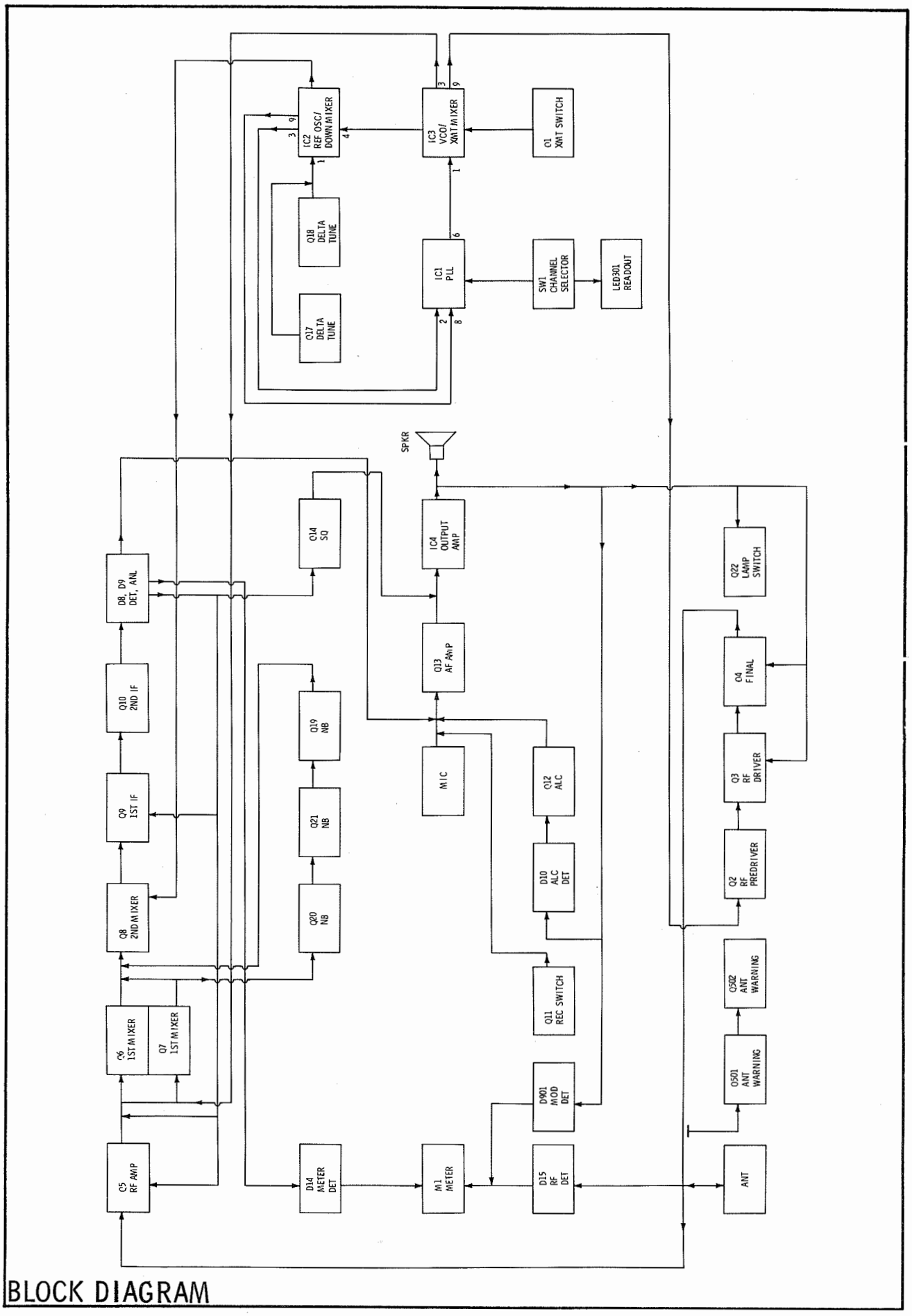


CH. SELECTOR BOARD



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION

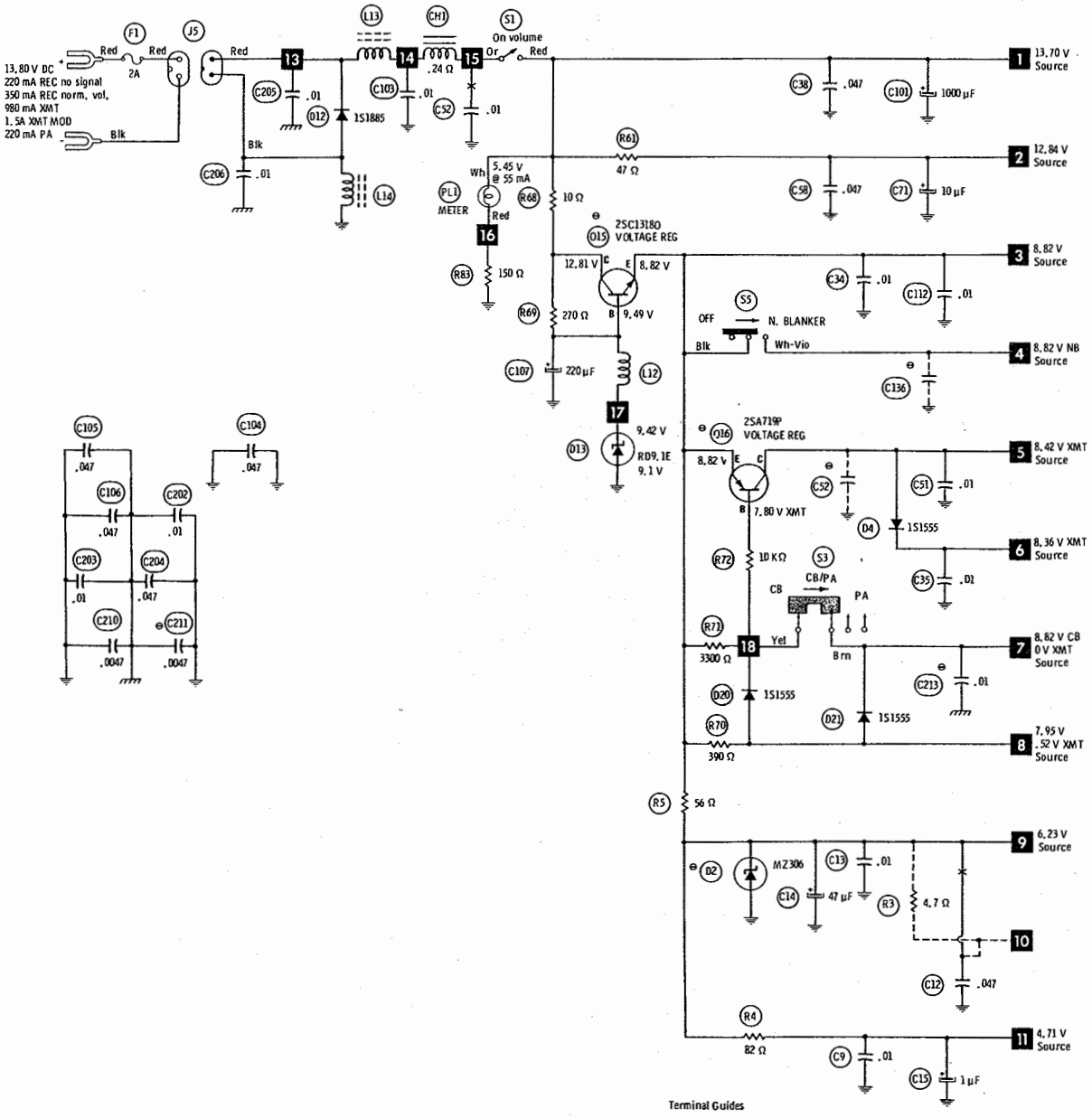
(When ordering parts, state Model, Part Number, and Description.)

WIRING DATA

General-use Hook-up Wire (available in 5 colors)	BELDEN No. 8523	Coiled Microphone Cable	
Shielded Hook-up Wire (spiral wrapped)	BELDEN No. 8421	3-conductor (1 shielded) 23AWG	BELDEN No. 9471 (5')
(braided)	BELDEN No. 8401		BELDEN No. 8497 (6')
Speaker Cable (available in 4 colors)	BELDEN No. 8782		BELDEN No. 9472 (7-1/2')
Bonding Strap	BELDEN No. 8672	28AWG	BELDEN No. 9466 (6')
AC Power Cord (6')	BELDEN No. 17106	31AWG	BELDEN No. 9468 (10')
(9')	BELDEN No. 17109	4-conductor (unshielded) 23AWG	BELDEN No. 8415 (6')
		5-conductor (1 shielded) 28AWG	BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	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	1S1555	RT5217	GE-300	D200	PTC214	HEPR06D2	RE 52	SK3100	RT-218	ECG177
D2	MZ306						RE 108			ECG5070A
	MZ306C	EA16X163					RE 108			ECG5070A
D3	ITT-410	EA16X106	GE-90	D201	PTC311	HEPR2503	RE 195	SK3126	RT-262	ECG610
	BB122	(1)	GE-90	D201	PTC311	HEPR2503	RE 195	SK3126	RT-262	ECG610
	MC201	(1)	GE-90	D201	PTC311	HEPR2503	RE 195	SK3126	RT-262	ECG610
D4	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D5	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D6	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D7	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D9	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D10	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D11	V06C	EA57X14	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D12	1S1885	RV1189	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D13	RD9.1E	EA16X137	GEZD-9.1	Z1209	Z89.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D14	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D15	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D16	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D17	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D18	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D19	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D20	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D21	1S1555	RT5217	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D501	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D901	1N60	EA16X48	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
IC1	PLL03A	EA33X8501								
	PLL03(1)									
IC2	C3001A	EA33X8394								ECG1192
	TA7310P	EA33X8392(1)								ECG1192
IC3	C3001A	EA33X8394								ECG1192
	TA7310P	EA33X8392(1)								ECG1192
IC4	TA7205P	EA33X8396	GEIC-179	WEP949	PTC780		RE 357-IC	SK3231	TVCM-81	ECG1155
Q1	2SC710D	EA15X364	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q2	2SC710D	EA15X364	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q3	2SC1846Q	(14)	GE-336				RE 209			ECG306
	2SC1846	EA15X383(1)	GE-336				RE 209			ECG306
	2SC1760	EA15X380(1)	GE-276	WEP1014			RE 224		RT-310	ECG306
	2SC2036	(1)	GE-276	WEP1014			RE 224		RT-310	ECG306
Q4	2SC1974C		GE-337	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	2SC1974	(1)	GE-337	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	2SC1306	EA15X381 (1)(13)	GE-215	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	2SC2075	(1)	GE-215	WEP1306	PTC186		RE 203	SK3197	RT-146	ECG235
	2SC1678	(1) (15)	GE-322	WEP1678	PTC186		RE 203	SK3197	RT-146	ECG235
Q5	2SC460B		GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
	2SC460A	RT6204(1)	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
	2SC460	(1)	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
	2SC1047	RT8527(1)	GE-60 *	(IR)2SC829B	PTC132 *	HEPS0016 *	RE 28 *	SK3018 *	RT-107	ECG161 *
Q6	2SC710D	EA15X364	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q7	2SC710D	EA15X364	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC710	(1)	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q8	2SC710D	EA15X364	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC710	(1)	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC829B	RT6732(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q9	2SC710D	EA15X364	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC710	(1)	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC829B	RT6732(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q10	2SC828B	RT6732	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC710D	EA15X364(1)	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
	2SC710	(1)	GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q11	2SC828B		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828R	EA15X325(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC945Q	EA15X404(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q12	2SA564R		GE-65	(IR)2SA564A	PTC103 *	HEPS0019 *	RE 193	SK3114	RT-303	ECG234
	2SA564	RV2353(1)	GE-65	(IR)2SA564A	PTC103 *	HEPS0019 *	RE 193	SK3114	RT-303	ECG234
	2SA733P	EA15X385(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
	2SA733	(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294



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 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.

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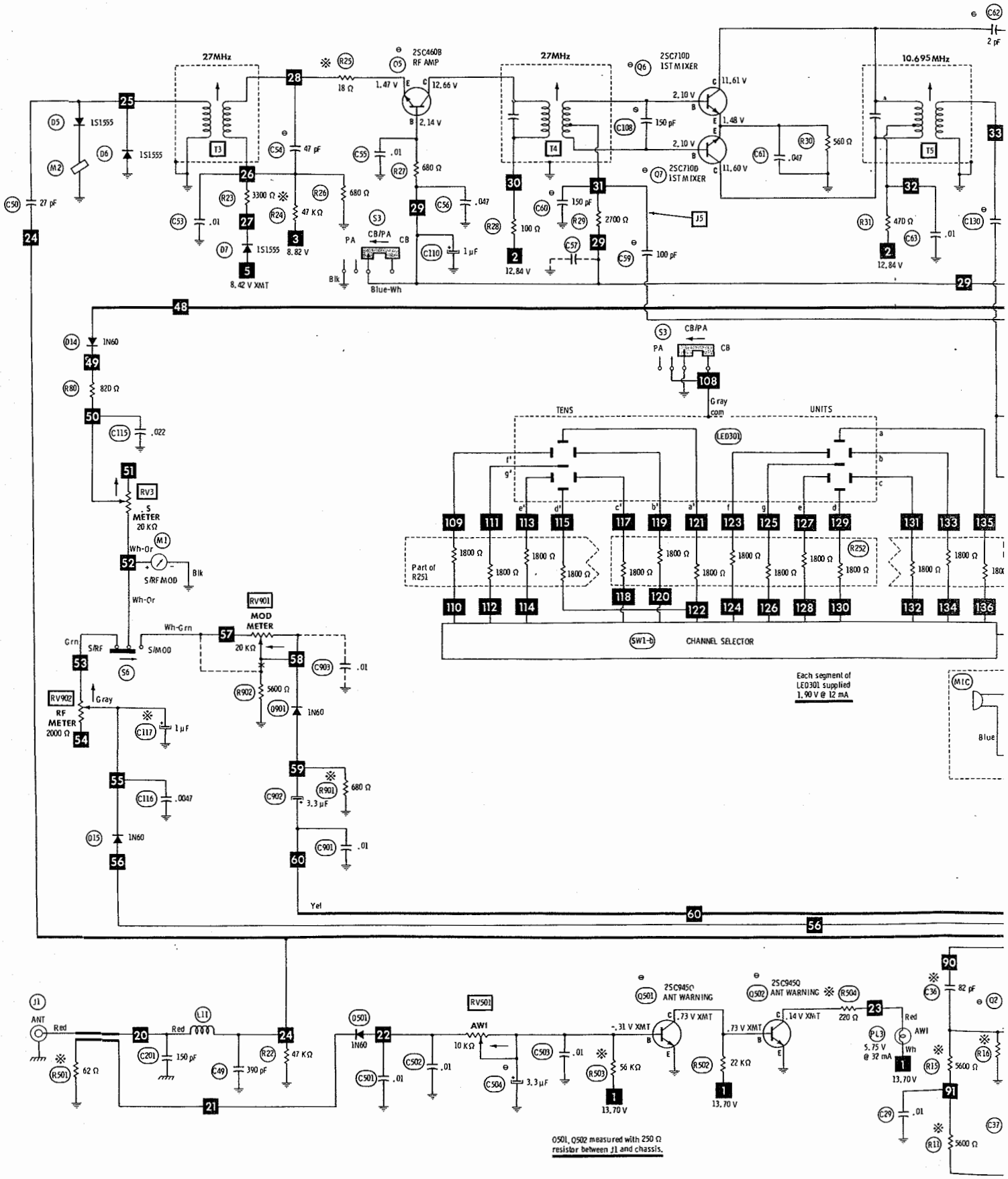
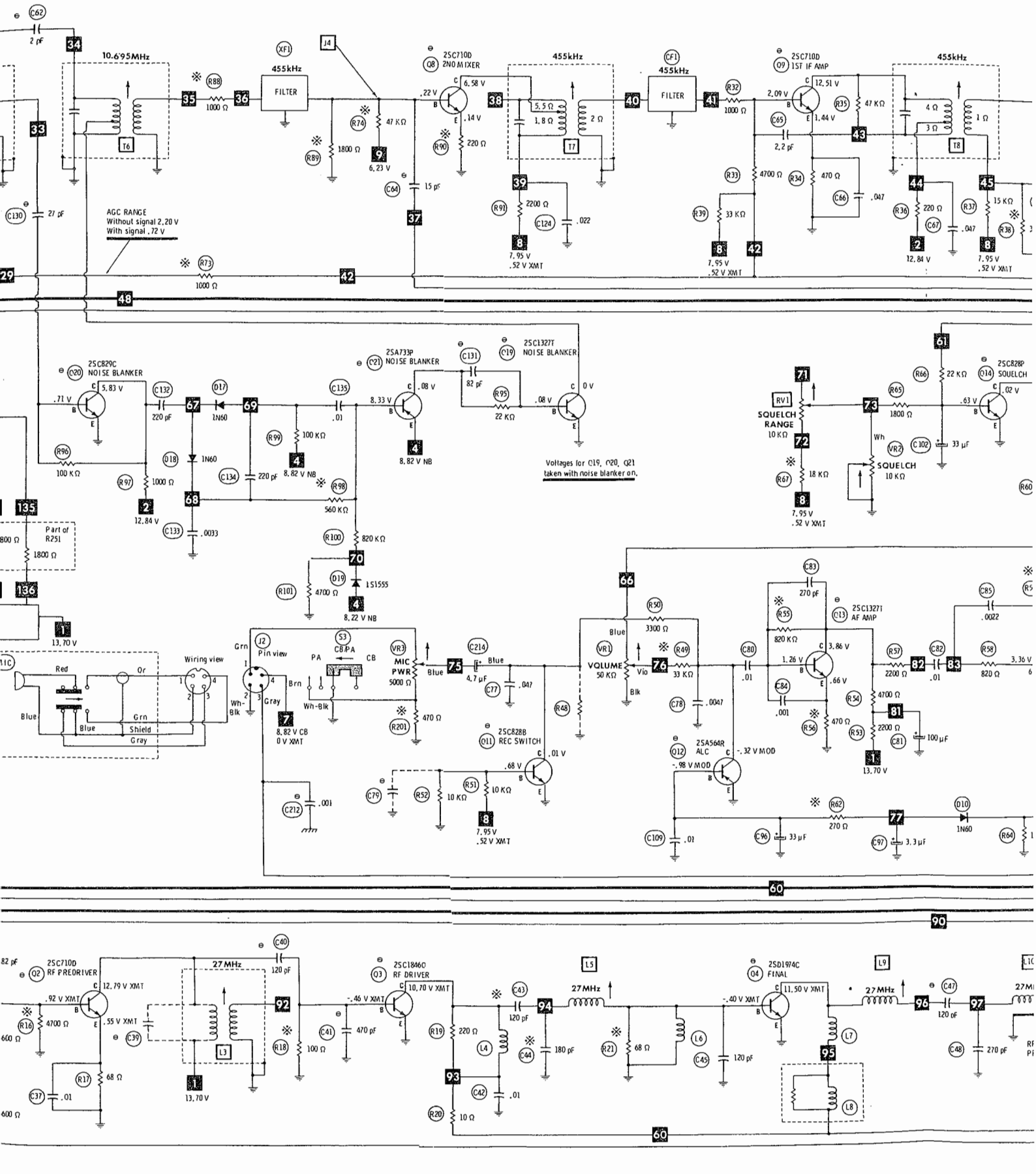
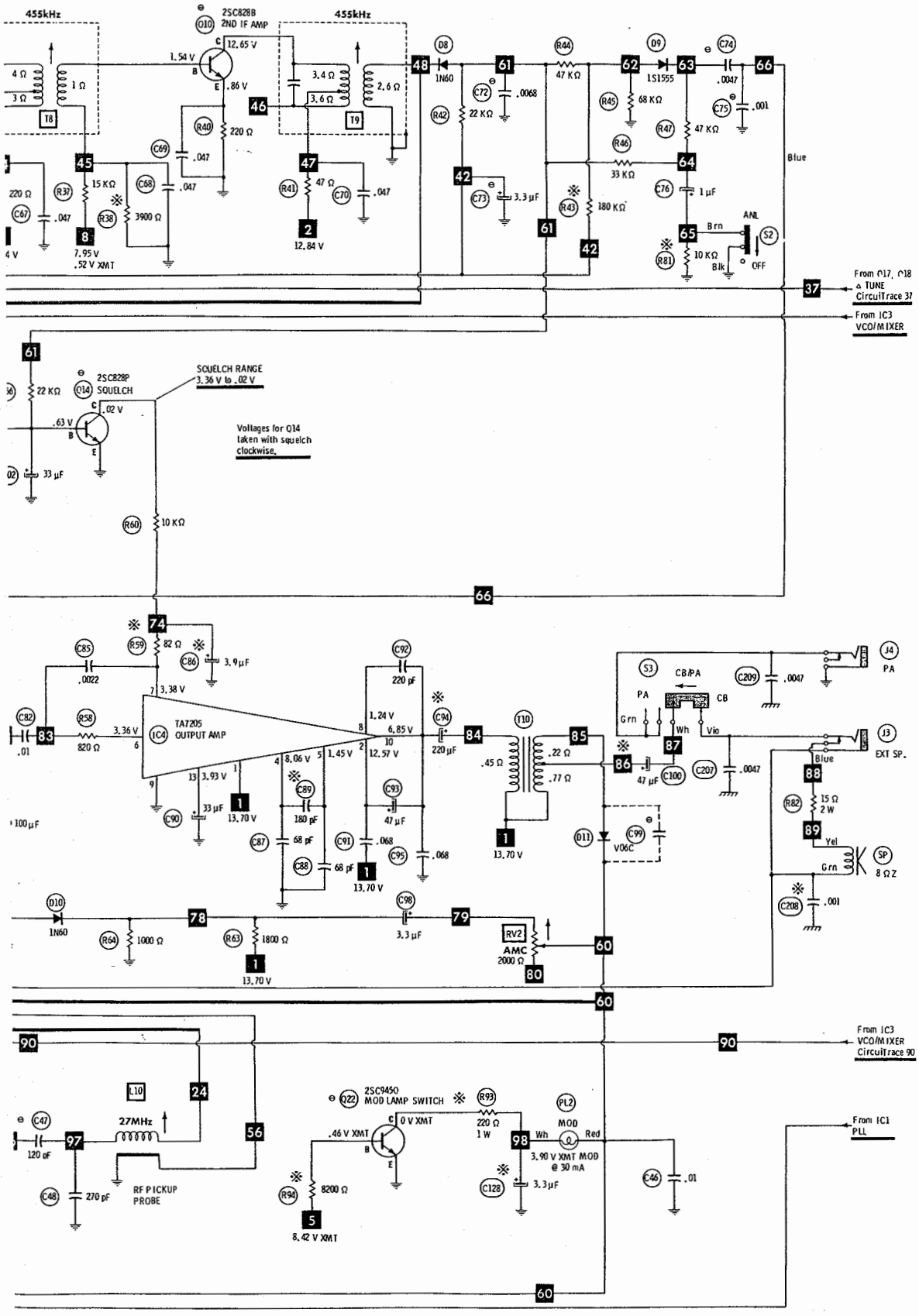
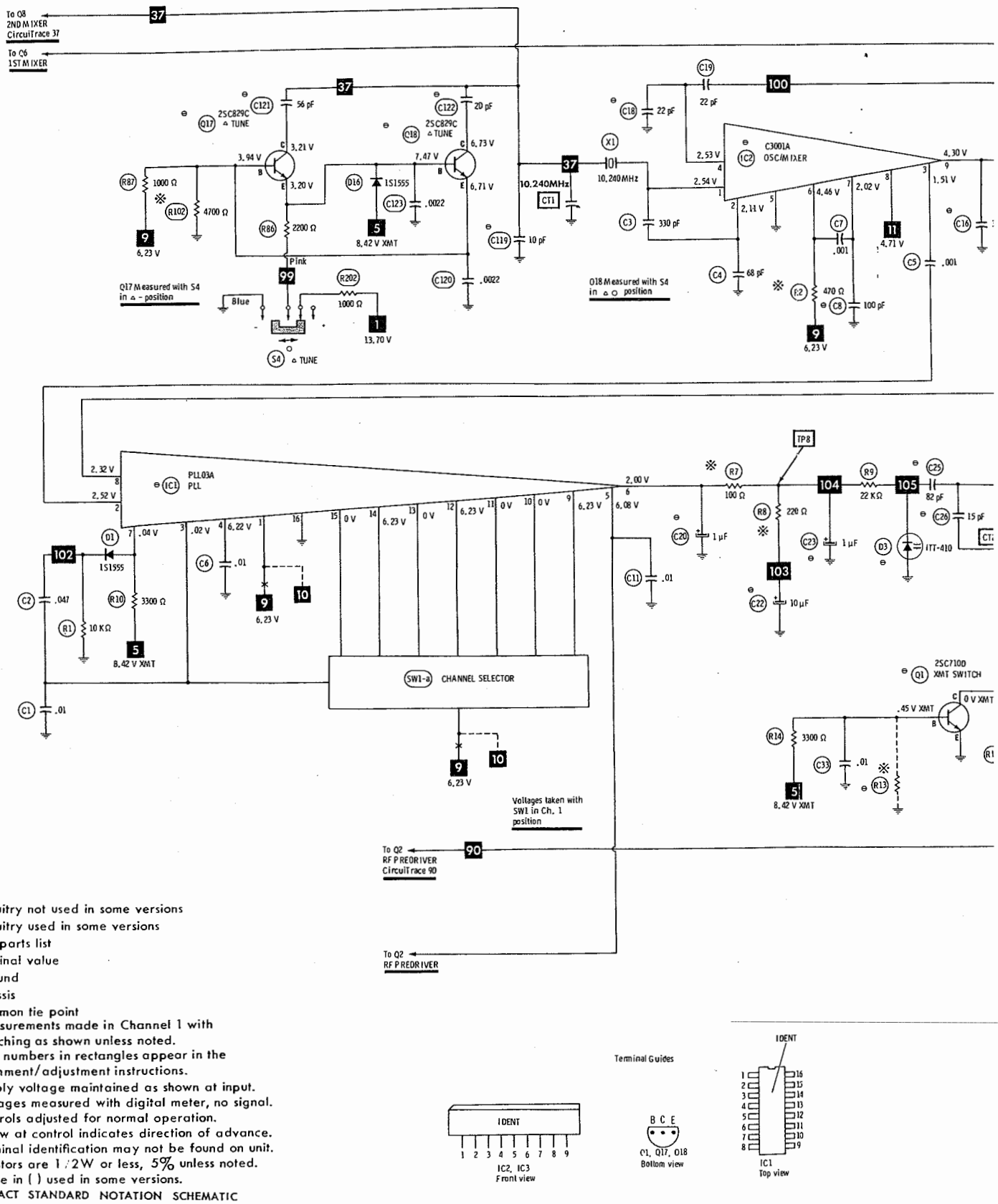
WITH CIRCUITRACE®


27MHz
2SC460B RF AMP
27MHz
2SC710D 1ST MIXER
10.695MHz
2SC710D 1ST MIXER
1S1555
1S1555
1S1555
1N60
1N60
1N60
1N60
S METER 20 KΩ
MOD METER 20 KΩ
RF METER 2000 Ω
RV501 AWI 10 KΩ
2SC945Q ANT WARNING
2SC945Q ANT WARNING
TENS
UNITS
LED301
Part of R251
CHANNEL SELECTOR
Each segment of LED301 supplied 1.90 V @ 12 mA
CB/PA
PA
CB
S/RF
S/MOD
S/RF MOD
Gray com
Wh-Or
Wh-Grn
Grn
Red
Yel
Blk
Blue-Wh
Blue
ANT
AWI
Wh
Q501, Q502 measured with 250 Ω resistor between J1 and chassis.


10.695MHz
455kHz
FILTER
2SC710D
2N0 MIXER
2SC710D
1ST IF AMP
AGC RANGE
Without signal 2.20 V
With signal .72 V
2SC829C
NOISE BLANKER
2SA733P
NOISE BLANKER
2SC1327T
NOISE BLANKER
Voltages for Q19, Q20, Q21
taken with noise blanker on.
2SC828P
SQUELCH
SQUELCH RANGE
10 KΩ
SQUELCH
10 KΩ
Part of R251
1800 Ω
Wiring view
Pin view
CB PA
PA
CB
MIC PWR
5000 Ω
VOLUME
50 KΩ
2SC828B
REC SWITCH
2SA564R
ALC
2SC1327T
AF AMP
27MHz
2SC710D
RF PREDRIVER
2SC1846D
RF DRIVER
2SD1974C
FINAL


455kHz
2SC828B
2ND IF AMP
Q10
455kHz
12.65 V
1.54 V
.86 V
4 Ω
3 Ω
1 Ω
T8
T9
3.4 Ω
3.6 Ω
2.6 Ω
R40
220 Ω
C69
.047
45
15 KΩ
R37
220 Ω
C67
.047
C68
.047
R38
3900 Ω
8
7.95 V
.52 V XMT
47
R41
47 Ω
C70
.047
2
12.84 V
48
D8
1N60
61
C72
.0068
R42
22 KΩ
42
C73
3.3 µF
R44
47 KΩ
62
D9
1S1555
63
C74
.0047
66
R45
68 KΩ
C75
.001
R47
47 KΩ
R46
33 KΩ
64
Blue
C76
1 µF
R43
180 KΩ
61
42
65
Brn
ANL
S2
R81
10 KΩ
Blk
OFF
From Q17, Q18
Δ TUNE
CircuiTrace 37
37
From IC3
VCO/MIXER
61
Q14
2SC828P
SQUELCH
SQUELCH RANGE
3.36 V to .02 V
.02 V
.63 V
Q2
33 µF
Voltages for Q14
taken with squelch
clockwise.
R60
10 KΩ
66
74
R59
82 Ω
C86
3.9 µF
C85
.0022
7
3.38 V
C82
.01
83
R58
820 Ω
3.36 V
6
IC4
TA7205
OUTPUT AMP
9
13
3.93 V
1
C90
33 µF
100 µF
1
13.70 V
4
8.06 V
5
1.45 V
C89
180 pF
C87
68 pF
C88
68 pF
1
13.70 V
8
1.24 V
6.85 V
10
12.57 V
C92
220 pF
C94
220 µF
C93
47 µF
C91
.068
C95
.068
84
T10
.45 Ω
.22 Ω
.77 Ω
1
13.70 V
85
D11
V06C
C99
S3
CB/PA
PA
CB
Grn
Wh
Vio
C209
.0047
J4
PA
86
87
47 µF
C100
C207
.0047
J3
EXT SP.
Blue
88
R82
15 Ω
2 W
89
Yel
SP
8 Ω Z
Grn
C208
.001
D10
1N60
78
R64
1000 Ω
R63
1800 Ω
1
13.70 V
C98
3.3 µF
79
RV2
AMC
2000 Ω
80
60
90
90
From IC3
VCO/MIXER
CircuiTrace 90
L10
24
27MHz
C47
120 pF
97
56
C48
270 pF
RF PICKUP
PROBE
Q22
2SC945Q
MOD LAMP SWITCH
R93
220 Ω
1 W
0 V XMT
.46 V XMT
PL2
MOD
Wh
Red
98
3.90 V XMT MOD
@ 30 mA
R94
8200 Ω
5
8.42 V XMT
C128
3.3 µF
C46
.01
From IC1
PLL
60


To Q8
2ND MIXER
CircuiTrace 37
To Q6
1ST MIXER
37
C121
56 pF
Q17
2SC829C
△ TUNE
C122
20 pF
Q18
2SC829C
△ TUNE
3.94 V
3.21 V
3.20 V
7.47 V
6.73 V
6.71 V
R87
1000 Ω
R102
4700 Ω
R86
2200 Ω
D16
1S1555
C123
.0022
9
6.23 V
5
8.42 V XMT
Pink
99
R202
1000 Ω
Blue
1
13.70 V
S4
△ TUNE
Q17 Measured with S4 in △ - position
C120
.0022
C119
10 pF
37
10.240MHz
CT1
X1
10.240MHz
C19
22 pF
100
C18
22 pF
C3
330 pF
C4
68 pF
C7
.001
C8
100 pF
C5
.001
C16
11
4.71 V
IC2
C3001A
OSC/MIXER
2.53 V
2.54 V
2.11 V
4.46 V
2.02 V
4.30 V
1.51 V
F2
470 Ω
9
6.23 V
Q18 Measured with S4 in △ ○ position
IC1
PLL03A
PLL
2.32 V
2.52 V
.04 V
.02 V
6.22 V
0 V
6.23 V
0 V
6.23 V
0 V
0 V
6.23 V
2.00 V
6.08 V
D1
1S1555
102
C2
.047
R1
10 KΩ
R10
3300 Ω
C6
.01
9
6.23 V
10
5
8.42 V XMT
C1
.01
SW1-a
CHANNEL SELECTOR
9
6.23 V
10
Voltages taken with SW1 in Ch. 1 position
C11
.01
C20
1 μF
R7
100 Ω
TP8
R8
220 Ω
103
C22
10 μF
104
R9
22 KΩ
105
C25
82 pF
C26
15 pF
C23
1 μF
D3
ITT-410
Q1
2SC710D
XMT SWITCH
0 V XMT
.45 V XMT
R14
3300 Ω
C33
.01
R13
5
8.42 V XMT
To Q2
RF PREDRIVER
CircuiTrace 90
90
To Q2
RF PREDRIVER
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 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
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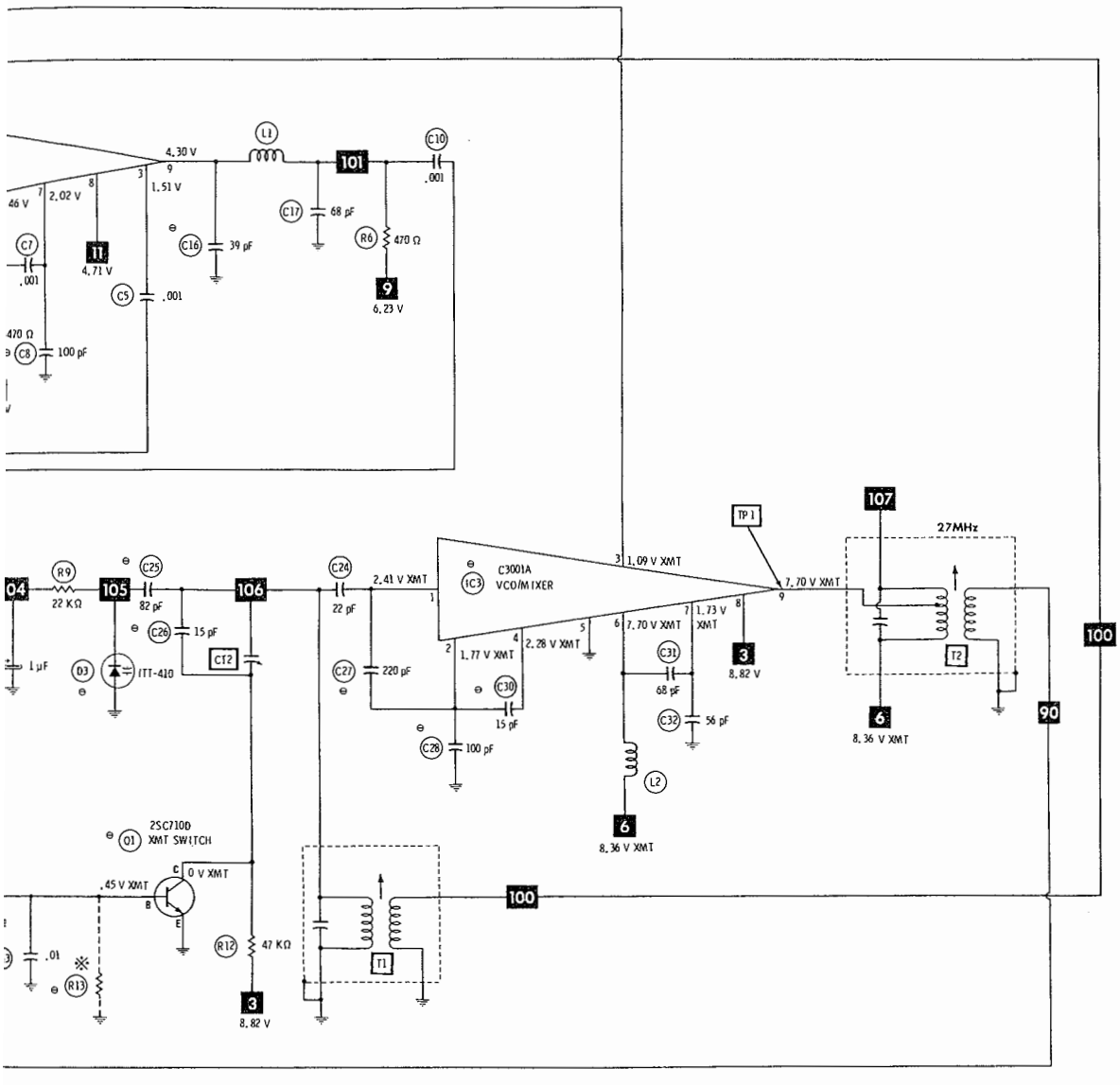
IDENT
1 2 3 4 5 6 7 8 9
IC2, IC3
Front view
Terminal Guides
B C E
Q1, Q17, Q18
Bottom view
IDENT
1 2 3 4 5 6 7 8
16 15 14 13 12 11 10 9
IC1
Top view


4.30 V
1.51 V
2.02 V
4.71 V
6.23 V
.001
68 pF
39 pF
470 Ω
100 pF
22 KΩ
82 pF
15 pF
ITT-410
22 pF
220 pF
2.41 V XMT
C3001A
VCO/MIXER
1.09 V XMT
7.70 V XMT
1.73 V XMT
1.77 V XMT
2.28 V XMT
68 pF
56 pF
8.82 V
8.36 V XMT
27MHz
2SC710D
XMT SWITCH
0 V XMT
.45 V XMT
47 KΩ
.01
1 µF
100
90
101
105
106
107
TP 1
T1
T2
L1
L2

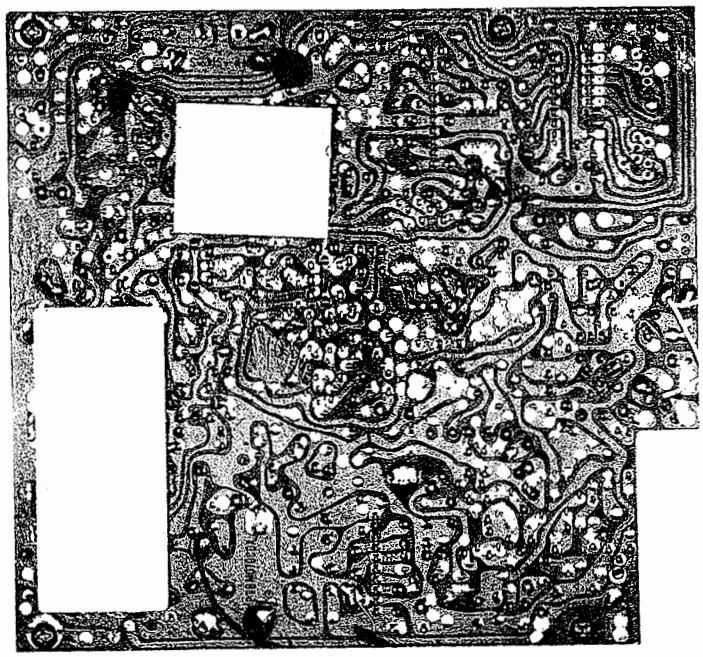
TRUTH CHART

1 = 6.23 Volts 0 = 0 Volts

CHANNEL	IC1 PROGRAM DIVIDER PINS 9	10	11	12	13	14	15	REC VCO OUTPUT IN MHz AT J5	XMT VCO OUTPUT IN MHz AT TP1
1	1	0	0	1	0	1	0	16.270	26.965
2	1	0	0	1	0	0	1	16.280	26.975
3	1	0	0	1	0	0	0	16.290	26.985
4	1	0	0	0	1	1	0	16.310	27.005
5	1	0	0	0	1	0	1	16.320	27.015
6	1	0	0	0	1	0	0	16.330	27.025
7	1	0	0	0	0	1	1	16.340	27.035
8	1	0	0	0	0	0	1	16.360	27.055
9	1	0	0	0	0	0	0	16.370	27.065
10	0	1	1	1	1	1	1	16.380	27.075
11	0	1	1	1	1	1	0	16.390	27.085
12	0	1	1	1	1	0	0	16.410	27.105
13	0	1	1	1	0	1	1	16.420	27.115
14	0	1	1	1	0	1	0	16.430	27.125
15	0	1	1	1	0	0	1	16.440	27.135
16	0	1	1	0	1	1	1	16.460	27.155
17	0	1	1	0	1	1	0	16.470	27.165
18	0	1	1	0	1	0	1	16.480	27.175
19	0	1	1	0	1	0	0	16.490	27.185
20	0	1	1	0	0	1	0	16.510	27.205

1 = 6.23 Volts 0 = 0 Volts

CHANNEL	IC1 PROGRAM DIVIDER PINS 9	10	11	12	13	14	15	REC VCO OUTPUT IN MHz AT J5	XMT VCO OUTPUT IN MHz AT TP1
21	0	1	1	0	0	0	1	16.520	27.215
22	0	1	1	0	0	0	0	16.530	27.225
23	0	1	0	1	1	0	1	16.560	27.255
24	0	1	0	1	1	1	1	16.540	27.235
25	0	1	0	1	1	1	0	16.550	27.245
26	0	1	0	1	1	0	0	16.570	27.265
27	0	1	0	1	0	1	1	16.580	27.275
28	0	1	0	1	0	1	0	16.590	27.285
29	0	1	0	1	0	0	1	16.600	27.295
30	0	1	0	1	0	0	0	16.610	27.305
31	0	1	0	0	1	1	1	16.620	27.315
32	0	1	0	0	1	1	0	16.630	27.325
33	0	1	0	0	1	0	1	16.640	27.335
34	0	1	0	0	1	0	0	16.650	27.345
35	0	1	0	0	0	1	1	16.660	27.355
36	0	1	0	0	0	1	0	16.670	27.365
37	0	1	0	0	0	0	1	16.680	27.375
38	0	1	0	0	0	0	0	16.690	27.385
39	0	0	1	1	1	1	1	16.700	27.395
40	0	0	1	1	1	1	0	16.710	27.405



SHIELD LOCATION

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.
Q13	2SC1327T	EA15Y386	GE-85 *	(IR)2SC945	PTC139 *	HEPS0024 *	RE 192	SK3124	RT-107A	ECG199
	2SC1327	(1)	GE-85 *	(IR)2SC945	PTC139 *	HEPS0024 *	RE 192	SK3124	RT-107A	ECG199
	2SC900	EA4025(1)	GE-62	(IR)2SC644	PTC139 *	HEPS0015 *	RE 192	SK3124	RT-302	ECG199
	2SC945Q	EA15X404(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q14	2SC828P		GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828R	EA15X325(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC945Q	EA15X404(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC372	EA15X180(1)	GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
Q15	2SC1318Q	EA15X378	GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
	2SC1318	(1)	GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
Q16	2SA719P		GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719Q	EA15X395(1)	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719	(1)	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA720	(1)	GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
Q17	2SC829C	RT6733	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC710D	EA15X364(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC839	RT5900(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q18	2SC829C	RT6733	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC710D	EA15X364(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC839	RT5900(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q19	2SC1327T	EA15X386	GE-85 *	(IR)2SC945	PTC139 *	HEPS0024 *	RE 192	SK3124	RT-107A	ECG199
	2SC1327	(1)	GE-85 *	(IR)2SC945	PTC139 *	HEPS0024 *	RE 192	SK3124	RT-107A	ECG199
	2SC900	EA4025(1)	GE-62	(IR)2SC644	PTC139 *	HEPS0015 *	RE 192	SK3124	RT-302	ECG199
Q20	2SC829C	RT6733	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q21	2SA733P	EA15X385	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
	2SA733	(1)	GE-48	TR-31	PTC103 *	HEPS0019 *	RE 26 *	SK3138	RT-303	ECG294
Q22	2SC945Q	EA15X404	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q501	2SC945Q	EA15X404	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828R	EA15X325(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828	(1)	GE-35	TR-61	PTC118	HEPS5020	RE 29	SK3115	RT-139	ECG162
Q502	2SC945Q	EA15X404	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828R	EA15X325(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199

* Lead configuration may vary from original.
(1) Used in some versions.
(13) 12 WATTS @ 3A
(14) 1.2 WATTS @ 1A
(15) 10 WATTS @ 3A

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	47 25V	EA31X213	PC50-25	VTT47E25	QV1-75	EV-1326
C15	1 50V	EA31X204	WBR1-50	TT50X1	QE1-11	TVA-1300
C20	1 35V	EA31X254		TDC105M035EL		SD35-19
C22	10 10V	EA31X249	PC10-25	VTT10B25	QV1-41	EV-1222
C23	1 35V	EA31X254		TDC105M035EL		SD35-19
C71	10 16V	EA31X246	PC10-25	VTT10B25	QV1-41	EV-1222
C73	3.3 25V	EA31X260	PC5-50	VTT3R3A50	QV1-23	EV-1318
C76	1 50V	EA31X204	PC1-50	VTT1A50	QV1-11	EV-1615
C81	100 16V	EA31X235	PC100-16	VTT100F16	QV1-95	EV-1230
C86	3.9 25V	EA31X261				SD50-3R99
C90	33 6.3V	RT5269	PC30-25	VTT33B10	QV1-61	EV-1125
C93	47 16V	EA2510	PC50-16	VTT47D16	QV1-73	EV-1226
C94	220 16V	RT5047	PC250-25	VTT220H16	QV1-117	EV-1240
C96	33 10V	RT2315	PC30-25	VTT33B10	QV1-61	EV-1125
C97	3.3 25V	EA31X260	PC5-50	VTT3R3A50	QV1-23	EV-1318
C98	3.3 25V	EA31X260	PC5-50	VTT3R3A50	QV1-23	EV-1318
C100	47 25V	RT4632	PC50-25	VTT47E25	QV1-75	EV-1326
C101	1000 16V	EA31X200	PC1000-16	VTT1000L16	QV1-183	EV-1260
C102	33 6.3V	RT5269	PC30-25	VTT33B10	QV1-61	EV-1125
C107	220 10V	EA2777	PC200-10	VTT220F10	QE1-477	TVA-1130.6
C110	1 50V	EA31X204	PC1-50	VTT1A50	QV1-11	EV-1615
C117	1 50V	EA31X204	PC1-50	VTT1A50	QV1-11	EV-1615
C128	3.3 25V	EA31X260	PC5-50	VTT3R3A50	QV1-23	EV-1318
C214	4.7 25V	EA31X211	PC5-50	VTT4R7B50	QV1-27	EV-1319
C504	3.3 25V	EA31X261	PC5-50	VTT3R3A50	QV1-23	EV-1318
C902	3.3 50V	EA31X239	PC5-50	VTT3R3A50	QV1-25	EV-1618

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	.01		UK16-103		MAG1611		HY-420
C2	.047		UK16-503		MAG1615		HY-635
C3	330		DD-331	GP330	GP333		10TS-T33
C4	68 N150 10%	EA18X173					
C5	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C6	.01		UK16-103		MAG1611		HY-420
C7	.001 10% 50V			DPMS6D1	EWF1A210	QF1-1	1PB-D10
C8	100		DTZ-100	NP0100	CN0310		10TCC-T10
C9	.01		UK16-103		MAG1611		HY-420
C10	.001 10% 50V			DPMS6D1	EWF1A210	QF1-1	1PB-D10
C11	.01		UK16-103		MAG1611		HY-420
C12	.047		UK16-503		MAG1615		HY-635
C13	.01		UK16-103		MAG1611		HY-420
C16	39				CN0439		10TCC-Q39
C17	68		DTZ-68	NP068	CN0468		10TCC-Q68
C18	22		DTZ-22	NP022	CN0422		10TCC-Q22
C19	22		DTZ-22	NP022	CN0422		10TCC-Q22
C24	22 N150	EA18X151					10TCP-Q22
C25	82 N150 10%	EA18X234					10TCP-Q82
C26	15 N150	EA18X152					10TCP-Q15
C27	220		DTZ-220				10TCC-T22
C28	100		DTZ-100	NP0100	CN0310		10TCC-T10
C29	.01		UK16-103		MAG1611		HY-420
C30	15		DTZ-15	NP015	CN0415		10TCC-Q15
C31	68		DTZ-68	NP068	CN0468		10TCC-Q68
C32	56				CN0456		10TCC-Q56
C33	.01		UK16-103		MAG1611		HY-420
C34	.01		UK16-103		MAG1611		HY-420
C35	.01		UK16-103		MAG1611		HY-420
C36	82		DTZ-82	NP082	CN0482		10TCC-Q82
C37	.01		UK16-103		MAG1611		HY-420
C38	.047		UK16-503		MAG1615		HY-635
C39		(1)					
C40	120		DTZ-120		CN0312		10TCC-T12
C41	470		DD-471	GP470	GP347		10TS-T47
C42	.01		UK16-103		MAG1611		HY-420
C43	120		DTZ-120		CN0312		10TCC-T12
C44	180		DTZ-180				10TCC-T18
C45	120		DTZ-120		CN0312		10TCC-T12
C46	.01		UK16-103		MAG1611		HY-420
C47	120		DTZ-120		CN0312		10TCC-T12
C48	270		DTZ-270				10TCC-T27
C49	390		DD-391	GP390	GP339		10TS-T39
C50	27				CN0427		10TCC-Q27
C51	.01		UK16-103		MAG1611		HY-420
C52	.01		UK16-103		MAG1611		HY-420
C53	.01		UK16-103		MAG1611		HY-420
C54	47		DTZ-47	NP047	CN0447		10TCC-Q47
C55	.01		UK16-103		MAG1611		HY-420
C56	.047		UK16-503		MAG1615		HY-635
C58	.047		UK16-503		MAG1615		HY-635
C59	100		DTZ-100	NP0100	CN0310		10TCC-T10
C60	150		DTZ-150		CN0315		10TCC-T15
C61	.047		UK16-503		MAG1615		HY-635
C62	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C63	.01		UK16-103		MAG1611		HY-420
C64	15		DTZ-15	NP015	CN0415		10TCC-Q15
C65	2.2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C66	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C67	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C68	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C69	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C70	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C72	.0068 10% 50V			WMF1D68	EWF1A268	QF1-73	1PB-D68
C74	.0047 10% 50V			WMF1D47	EWF1A247	QF1-57	1PB-D47
C75	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C77	.047 10% 50V			DPMS2S47	EWF1A147	QF1-171	1PB-S47
C78	.0047		DD-472	GP4700	GP247		5GA-D47
C80	.01 10% 50V			WMF1S1	EWF1A110	QF1-91	1PB-S10
C82	.01 10% 50V			WMF1S1	EWF1A110	QF1-91	1PB-S10
C83	270		DTZ-270				10TCC-T27
C84	.001 10% 50V			DPMS6D1	EWF1A210	QF1-1	1PB-D10
C85	.0022		DD-222		GP222	QC2-97	5GA-D22
C87	68		DTZ-68	NP068	CN0468		10TCC-Q68
C88	68		DTZ-68	NP068	CN0468		10TCC-Q68
C89	180		DTZ-180				10TCC-T18
C91	.068 10% 50V			WMF1S68	EWF1A168	QF1-195	1PB-S68
C92	220		DTZ-220				10TCC-T22
C95	.068 10% 50V			WMF1S68	EWF1A168	QF1-195	1PB-S68
C103	.01		UK16-103		MAG1611		HY-420
C104	.047		UK16-503		MAG1615		HY-635
C105	.047		UK16-503		MAG1615		HY-635
C106	.047		UK16-503		MAG1615		HY-635
C108	150		DTZ-150		CN0315		10TCC-T15
C109	.01		UK16-103		MAG1611		HY-420
C112	.01		UK16-103		MAG1611		HY-420
C115	.022 10% 50V				M192P2239R8		192P2239R8
C116	.0047		DD-472	GP4700	GP247		5GA-D47
C119	10 N150						10TCP-Q22
C120	.0022		DD-222		GP222	QC2-97	5GA-D22

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
C121	56 N150 10%	EA18X207					10TCP-Q56
C122	20 N150	EA18X159					10TCP-Q20
C123	20		DTZ-20	NP020	CN0420		10TCC-Q20
C124	.022 10% 50V				M192P2239R8		192P2239R8
C130	27				CN0427		10TCC-Q27
C131	82		DTZ-82	NP082	CN0482		10TCC-Q82
C132	220		DTZ-220				10TCC-T22
C133	.0033 10% 50V				M192P3329R8		192P3329R8
C134	220		DTZ-220				10TCC-T22
C135	.01		UK16-103		MAG1611		HY-420
C201	150		DTZ-150		CN0315		10TCC-T15
C202	.01		UK16-103		MAG1611		HY-420
C203	.01		UK16-103		MAG1611		HY-420
C204	.047		UK16-503		MAG1615		HY-635
C205	.01		UK16-103		MAG1611		HY-420
C206	.01		UK16-103		MAG1611		HY-420
C207	.0047		DD-472	GP4700	GP247		5GA-D47
C208	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C209	.0047		DD-472	GP4700	GP247		5GA-D47
C210	.0047		DD-472	GP4700	GP247		5GA-D47
C211	.0047		DD-472	GP4700	GP247		5GA-D47
C212	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C213	.0047		DD-472	GP4700	GP247		5GA-D47
C501	.01		UK16-103		MAG1611		HY-420
C502	.01		UK16-103		MAG1611		HY-420
C503	.01		UK16-103		MAG1611		HY-420
C901	.01		UK16-103		MAG1611		HY-420
CT1	20	EA30X52					
CT2	20	EA30X52					

(1) Value varies, replace with original value.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RV1	Squelch Range	10K	EA49X330				
RV2	AMC	2000	EA49X331				
RV3	S Meter	20K	EA49X332				
RV501	AWI	10K	EA49X356				
RV901	Mod Meter	20K	EA49X396	T-20K	C-253	MTC24L1	X201R253B
RV902	RF Meter	2000	EA49X397				
VR1	Volume	50K	EA49X392				
VR2	Squelch	10K	EA49X394 (18)				
VR3	Mic Power	5000					

(18) Includes VR2 and VR3.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R251	Resistor Network		EA62X167 (1)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R252	Resistor Network		EA62X167 (1)

(1) Consists of seven 1800-Ohm resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	RF Choke (18uH)	EA36X334			
L2	RF Choke (1uH)	EA36X335			
L3	RF Predrive (27MHz)	EA36X248			
L4	RF Choke (2.2uH)	EA36X237			
L5	RF Drive (27MHz)	EA36X238			
L6	RF Choke (68uH)	EA36X239			
L7	RF Choke (.55uH)	EA36X245			
L8	RF Choke (1uH)	EA36X240			
L9	Final (27MHz)	EA36X241			
L10	Antenna Match (27MHz)	EA36X242			
L11	Pi Filter (.4uH)	EA36X336			
L12	RF Choke (68uH)	EA36X239			
L13	RF Choke (1.15uH)	EA36X263			
L14	RF Choke (1.15uH)	EA36X263			
T1	VCO	EA36X337	10DB003MDF		
T2	VCO (27MHz)	EA36X260	10CB002M60FV		
T3	REC Antenna (27MHz)	EA36X249	ETR033369C3		
T4	Rec RF (27MHz)	EA36X339	10CM003MEF		
T5	Harmonic Suppressor (10.695MHz)	EA36X340	10MA018MEF		
T6	Rec Mixer (10,695MHz)	EA61X204	57A		
T7	IF (455kHz)	EA61X188	096		
T8	IF (455kHz)	EA61X189	096T		
T9	IF (455kHz)	EA61X190	860		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
CH1	1.5A	.24	3.72mH	EA36X356 LJ119H004W (1)			(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE			REPLACEMENT DATA			NOTES
	PRI.	SEC.		MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
		1	2				
T10	2.88	8	13.52	EA64X30 ETA-66 (1)	TR723	MCB-16	(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	3 1/2" PM 8 ohms	EA95X127	3A05Z8R	

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
F1	2A 250V	EA68X64		AGC2	HDJ	312002	150145	FG2-2

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	EA68X123B	18-032	18-034	18-010	18-092	1	2	4	3	NC	2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Ceramic Filter	EA36X332	455kHz
J1	Jack	EA41X155	Antenna
J2	Jack	EA41X176	Mic
J3	Jack	EA41X135	External Speaker
J4	Jack	EA41X135	PA
J5	Jack	EA41X136	Power
LED301	Led		Channel Display
M1	Meter	EA62X165	S/RF/Mod
PL1	Lamp	EA41X178	Meter (5.45V @ 55mA)
PL2	Lamp	EA41X145	Mod (3.90V @ 30mA)
PL3	Lamp	EA41X179	AWI (5.75V @ 32mA)
S1	Switch		Power (Part of Volume Control)
S2	Switch	EA39X225	AM
S3	Switch	EA55X133	PA/CB/PA/CB
S4	Switch	EA39X227	Delta Tune
S5	Switch	EA39X225	N. Blanker
S6	Switch	EA39X226	S/RF, S/Mod
SW1	Switch	EA55X141	Channel Selector
X1	Crystal	EA75X6	10.240MHz
XF1	Ceramic Filter	EA36X333	455kHz 10.695MHz
	Printed Circuit Board	EA93X317	Main, w/components
	Printed Circuit Board	EA93X320	Switch,w/components
	Printed Circuit Board	EA93X322	Led,w/components
	Printed Circuit Board	EA93X323	AWI, w/components
	Printed Circuit Board	EA93X324	Mod Meter,w/components
	Power Cord	EA68X119	DC (2 Pin)
	Power Cord	EA68X118	DC (Lighter Plug)

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

ITEM	PART No.
Cabinet, Top	EA43X544
Cabinet, Bottom	EA98X545
Escutcheon	EA89X263
Holder, Microphone	EA68X65

ITEM	PART No.
Knob, Channel Select	EA43X728
Knob, Mic Gain	EA43X730
Knob, Squelch	EA43X729
Knob, Volume	EA43X727