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 619

MANUFACTURER'S SPECIFICATIONS

RECEIVER

1.	Frequency Range (MHz)	: 26.965—27.405
2.	Sensitivity	: 0.5μV for 10 dB S+N/N
3.	Selectivity	: 5 KHz minimum at 6 dB down
4.	Adj. channel rejection	: More than 60 dB
5.	Audio power output	
	at 8 ohms	: More than 2.5 W at 10% distortion
	at 4 ohms	: More than 4 W at 10% distortion
6.	Audio fidelity (1KHz=0dB, 6dB down)	: 400Hz—2000Hz
7.	AGC figure of merit	: More than 80 dB
8.	Squelch Sensitivity (Threshold)	: Less than 0.5 μV
9.	Spurious Rejection	: More than 45 dB

TRANSMITTER

1.	Frequency Range (MHz)	: 26.965—27.405
2.	RF Power Output	: 4 W
3.	Modulation Capability	: More than 80%
4.	Squrious Suppression	: More than 60 dB
5.	Frequency Tolerance	: ± 0.005%

Courtesy of the Manufacturer

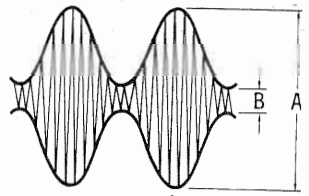
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

 9CE982

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment.
Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.
Adjust VR501 for 13.8 volts DC output at TP5 (Q502 Emitter).
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:
T101, T102	9440
T301, T302, L303	8728, 9304, 9089
T601	5000, 5009, 8276, 8728, 9089



Modulation Ratio = $\frac{A - B}{A + B}$ x 100 (%)

FIGURE 1

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (PLL Pin 1).	Ch. 19		Check for 10.240MHz.
Input of frequency counter to TP2 (PLL Pin 11).	Ch. 19		Check for 37.660MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP3 (PLL Pin 14).	Ch. 1, XMT		Check for 26.965MHz. Check all channels. (See Truth Chart for correct frequencies.)

RECEIVER ALIGNMENT

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP4 (Q101 Pin 17). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T601	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz,1000Hz @ 30% modulation.	Ch. 19	T102,T101	Adjust for maximum output. Readjust T601 for maximum.

ALIGNMENT (Continued)

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.185MHz,1000Hz @ 30% modulation. Output 1uV.	Ch. 19, Volume Maximum	VR101	RF GAIN RANGE Adjust for 2.00 volts RMS (.5 watt) audio output.
Output of signal generator thru .01uF to antenna input. 27.185MHz,1000Hz @ 30% modulation. Output 1000uV.	Ch. 19, Squelch Maximum	VR102	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator thru .01uF to antenna input. 27.185MHz,1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR104	SIGNAL METER Adjust for 9 on SIGNAL scale of meter.

TRANSMITTER ALIGNMENT

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19	T301,T302	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19	L303	Adjust for 4.0 watts RF output maximum.

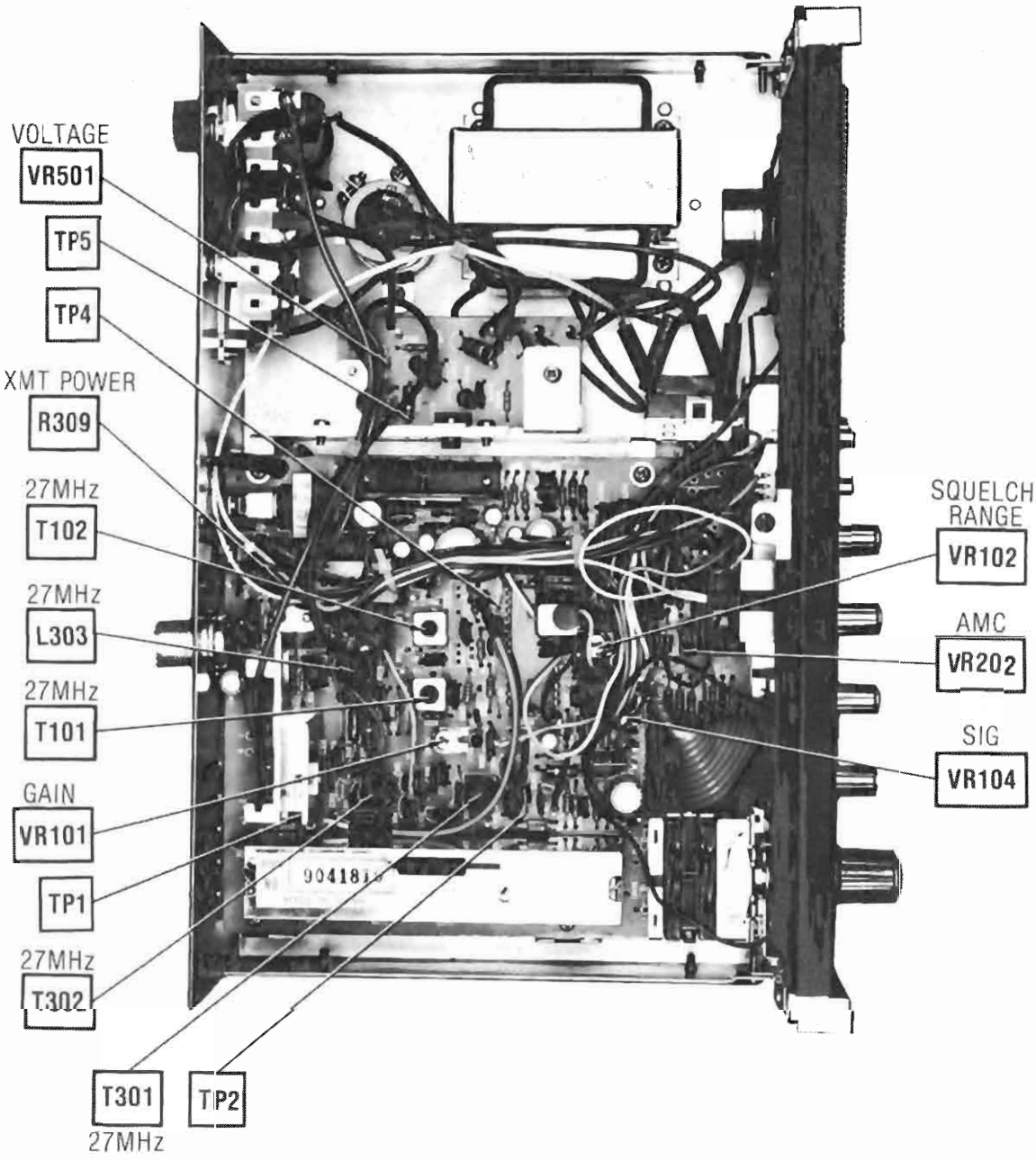
TRANSMITTER ADJUSTMENTS

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

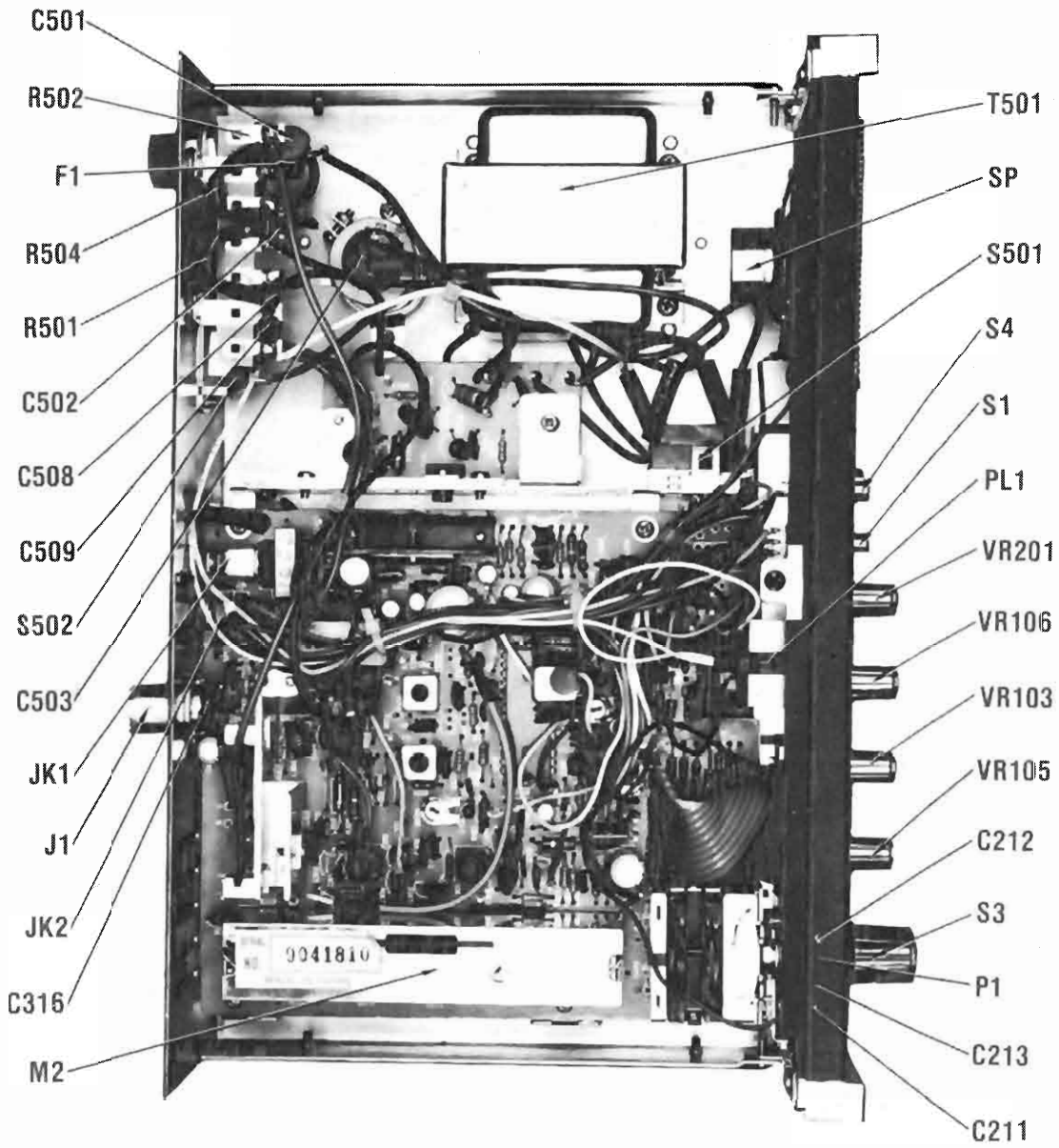
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 30mV audio signal at Mic input.	Ch. 19 Mic Gain Maximum	VR202	AMC Adjust for 90% modulation maximum. (See Figure 1.)
Input of RF wattmeter to antenna input.	Ch. 19 Mic Gain MINIMUM	R309	TRANSMIT POWER METER At 4.0 watts RF output, adjust so needle rests at leading edge of red area on Transmit Power scale of meter.

TRUTH CHART

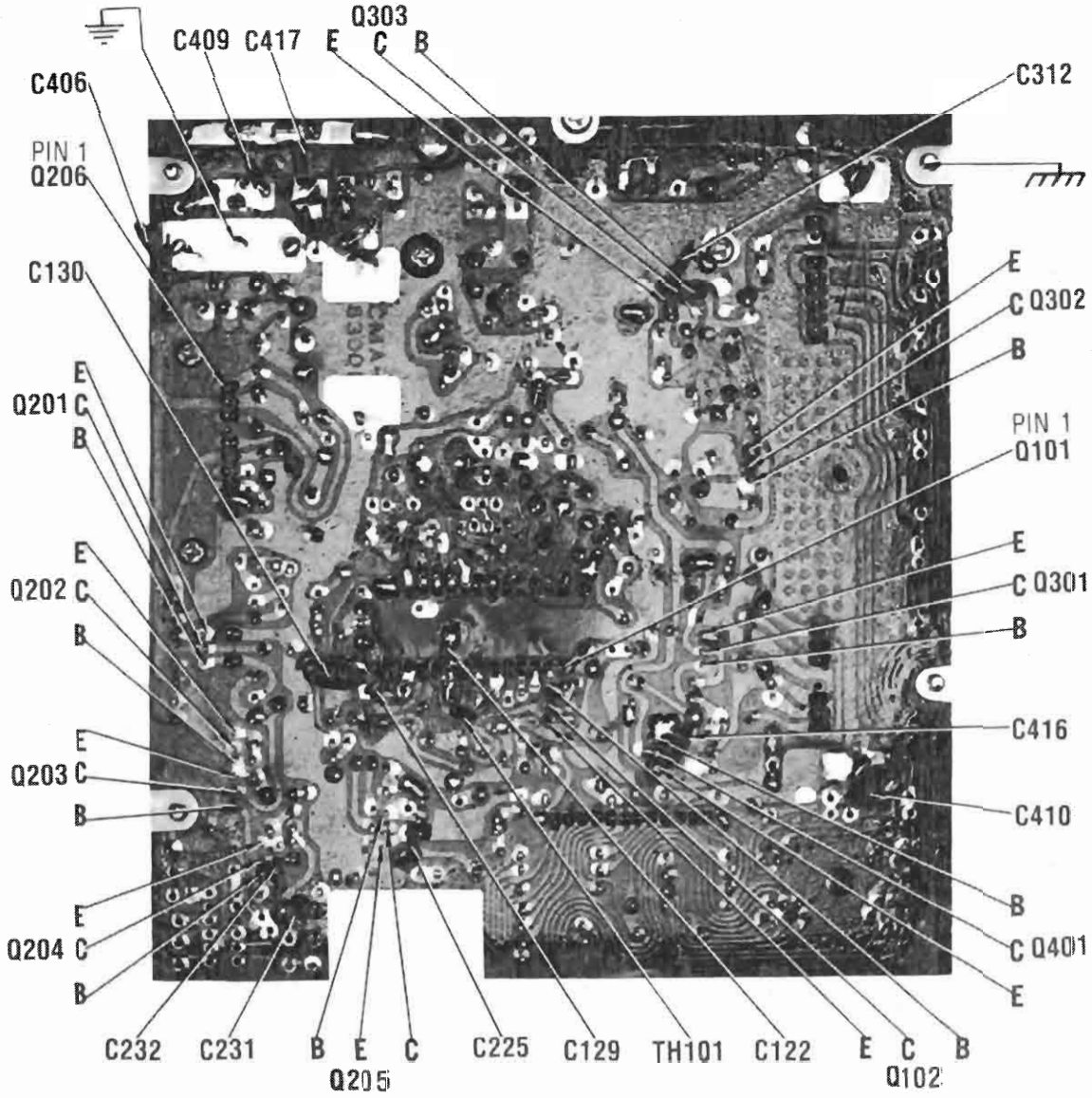
CHANNEL	1 = 6.00 Volts 0 = 0 Volts CHANNEL INPUT CODES PROGRAM DIVIDER PLL UNIT PINS 3	4	5	6	7	8			REC SYNTHESIZER OUTPUT IN MHz AT TP2	XMT SYNTHESIZER OUTPUT IN MHz AT TP3	
1	0	0	0	0	0	0			37.660	26.965	
2	0	0	0	0	0	1			37.670	26.975	
3	0	0	0	0	1	0			37.680	26.985	
4	0	0	0	1	0	0			37.700	27.005	
5	0	0	0	1	0	1			37.710	27.015	
6	0	0	0	1	1	0			37.720	27.025	
7	0	0	0	1	1	1			37.730	27.035	
8	0	0	1	0	0	1			37.750	27.055	
9	0	0	1	0	1	0			37.760	27.065	
10	0	0	1	0	1	1			37.770	27.075	
11	0	0	1	1	0	0			37.780	27.085	
12	0	0	1	1	1	0			37.800	27.105	
13	0	0	1	1	1	1			37.810	27.115	
14	0	1	0	0	0	0			37.820	27.125	
15	0	1	0	0	0	1			37.830	27.135	
16	0	1	0	0	1	1			37.850	27.155	
17	0	1	0	1	0	0			37.860	27.165	
18	0	1	0	1	0	1			37.870	27.175	
19	0	1	0	1	1	0			37.880	27.185	
20	0	1	1	0	0	0			37.900	27.205	
21	0	1	0	0	0	1			37.910	27.215	
22	0	1	0	0	1	0			37.920	27.225	
23	0	1	0	1	0	1			37.950	27.255	
24	0	1	0	0	1	1			37.930	27.235	
25	0	1	0	1	0	0			37.940	27.245	
26	0	1	0	1	1	0			37.960	27.265	
27	0	1	0	1	1	1			37.970	27.275	
28	1	0	1	0	0	0			37.980	27.285	
29	1	0	0	0	0	1			37.990	27.295	
30	1	0	0	0	1	0			38.000	27.305	
31	1	0	0	0	1	1			38.010	27.315	
32	1	0	0	1	0	0			38.020	27.325	
33	1	0	0	1	0	1			38.030	27.335	
34	1	0	0	1	1	0			38.040	27.345	
35	1	0	0	1	1	1			38.050	27.355	
36	1	0	1	0	0	0			38.060	27.365	
37	1	0	1	0	0	1			38.070	27.375	
38	1	0	1	0	1	0			38.080	27.385	
39	1	0	1	0	1	1			38.090	27.395	
40	1	0	1	1	0	0			38.100	27.405	


VOLTAGE
VR501
TP5
TP4
XMT POWER
R309
27MHz
T102
27MHz
L303
27MHz
T101
GAIN
VR101
TP1
27MHz
T302
T301
27MHz
TP2
SQUELCH
RANGE
VR102
AMC
VR202
SIG
VR104

CHASSIS - TOP

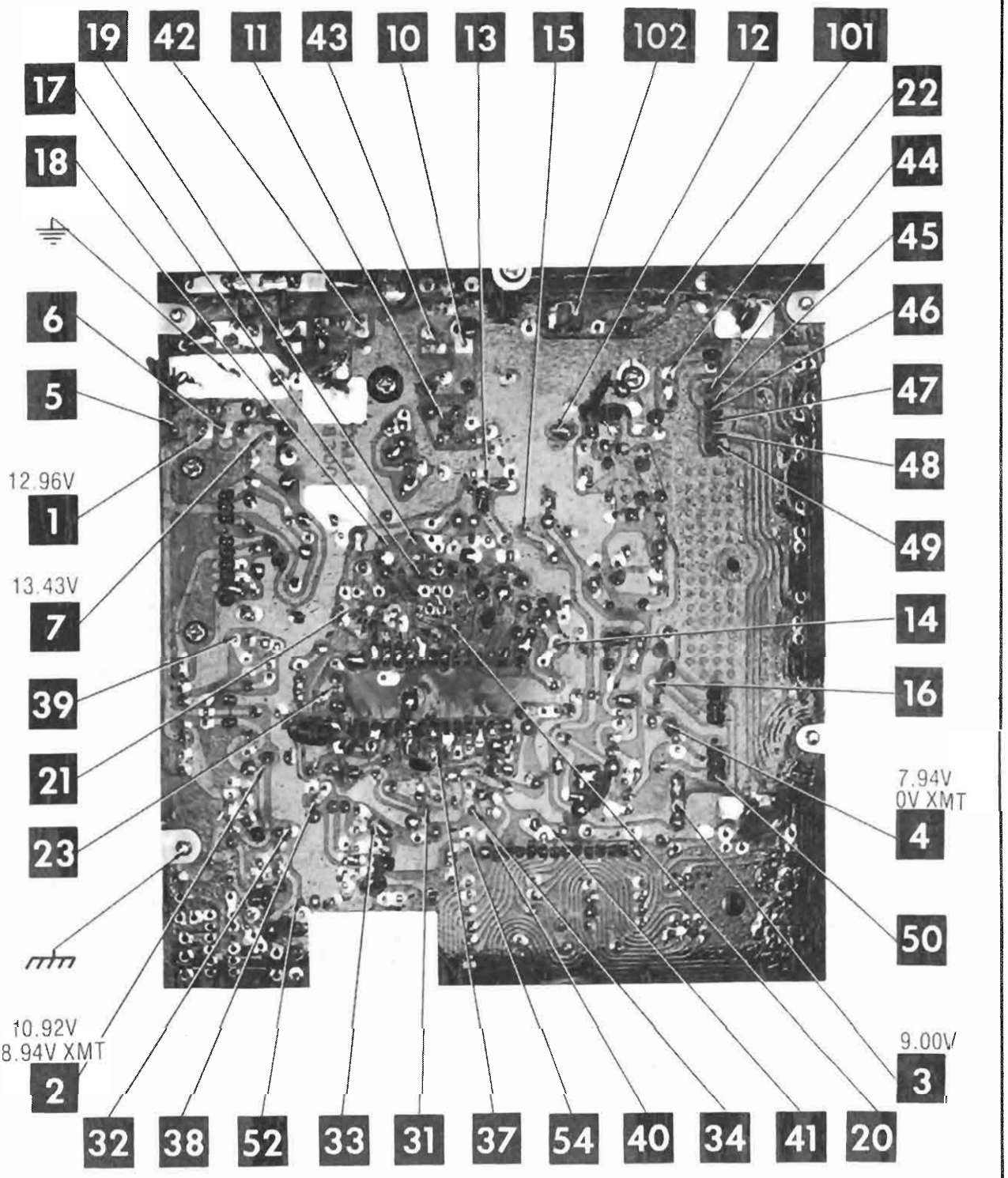

C501
R502
F1
R504
R501
C502
C508
C509
S502
C503
JK1
J1
JK2
C316
M2
T501
SP
S501
S4
S1
PL1
VR201
VR106
VR103
VR105
C212
S3
P1
C213
C211

CHASSIS - TOP

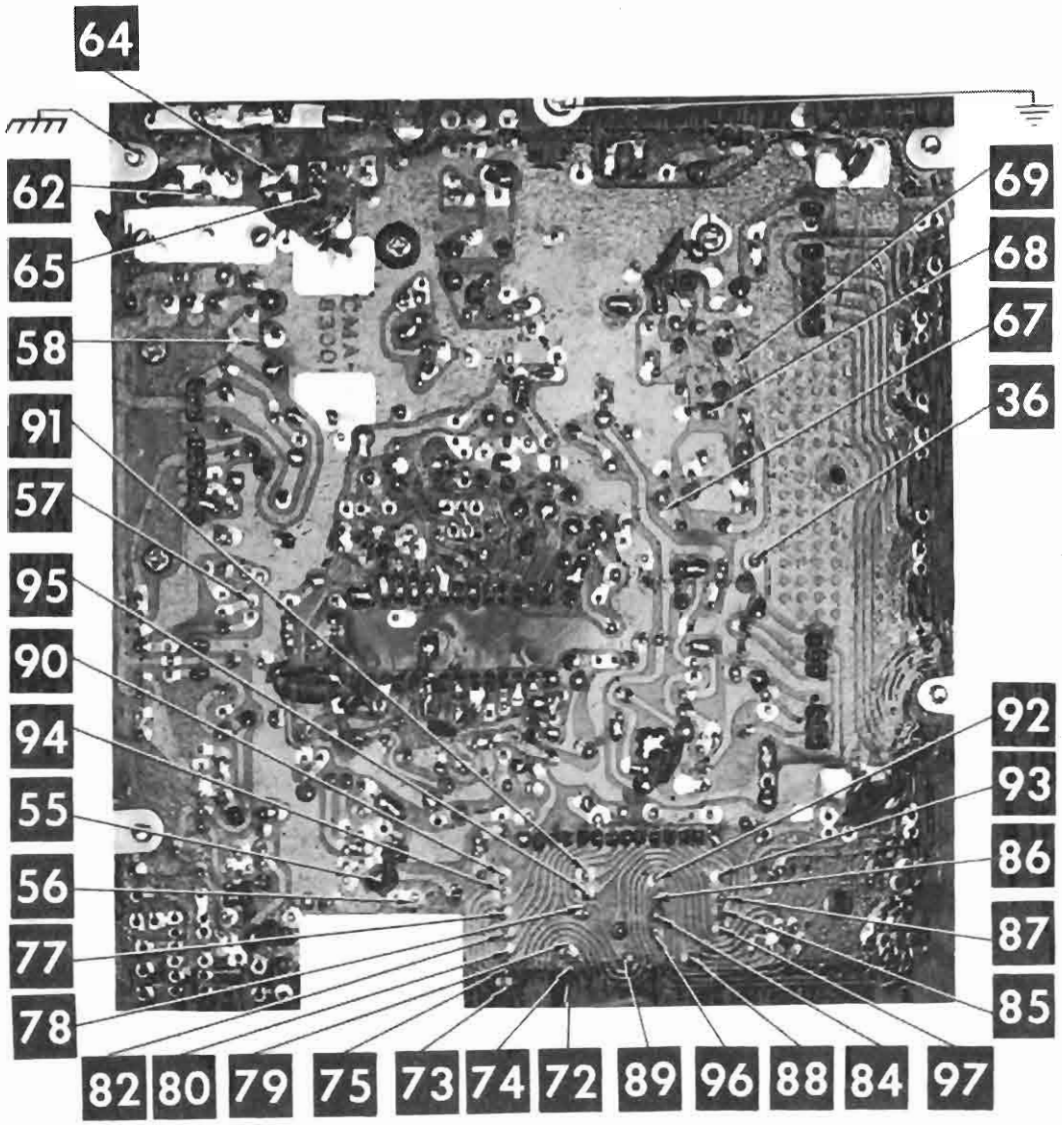

Q303
E C B
C409 C417
C406
C312
PIN 1
Q206
C130
E
C Q302
B
E
Q201 C
B
PIN 1
Q101
E
Q202 C
B
E
C Q301
B
C416
E
Q203 C
B
C410
B
E
Q204 C
B
C Q401
E
C232 C231 B E C C225 C129 TH101 C122 E C B
Q205
Q102

MAIN BOARD

A Howard W. Sams CIRCUITRACE Photo



MAIN BOARD


64
62
65
58
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77
78
82
80
79
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96
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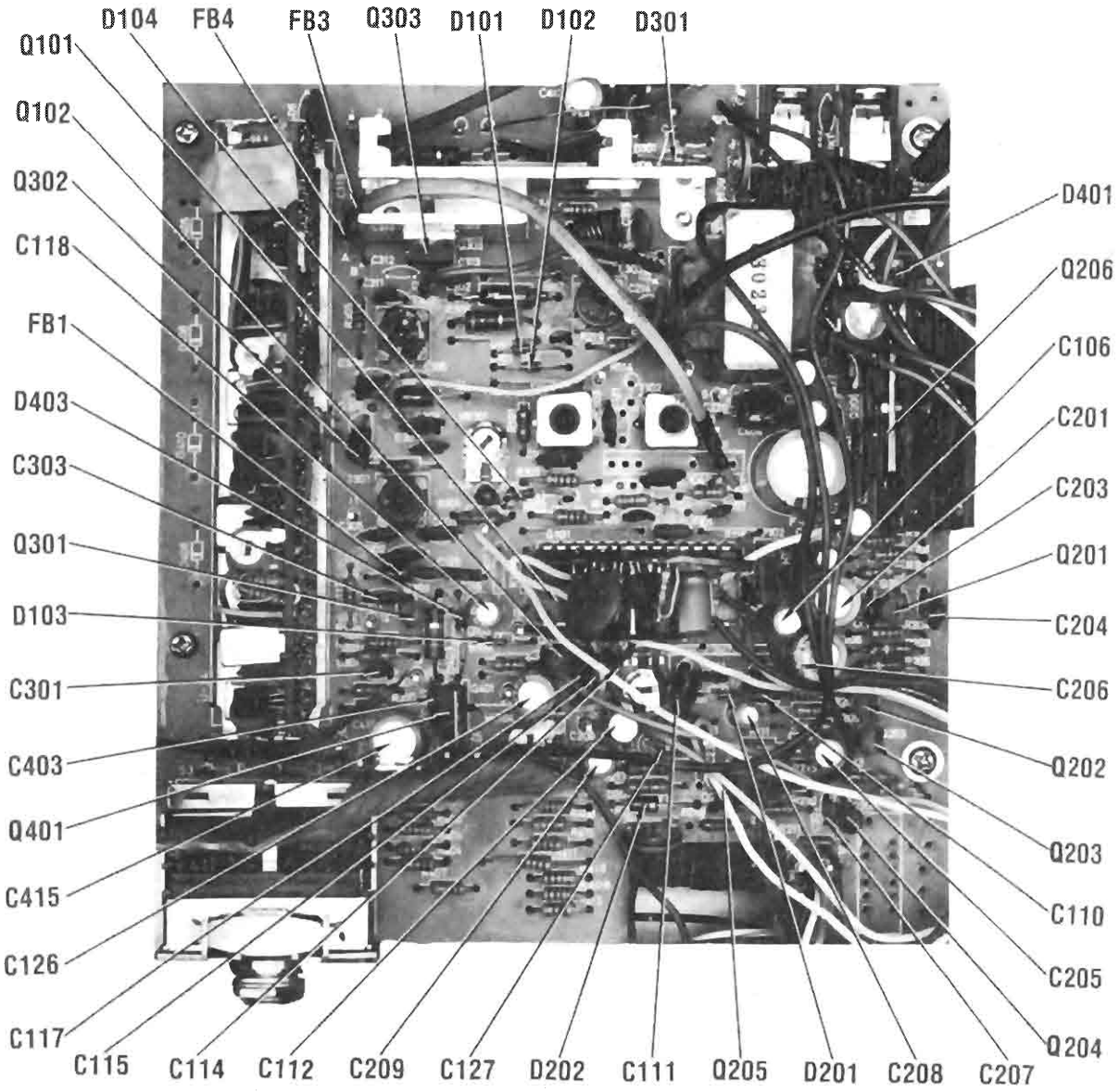
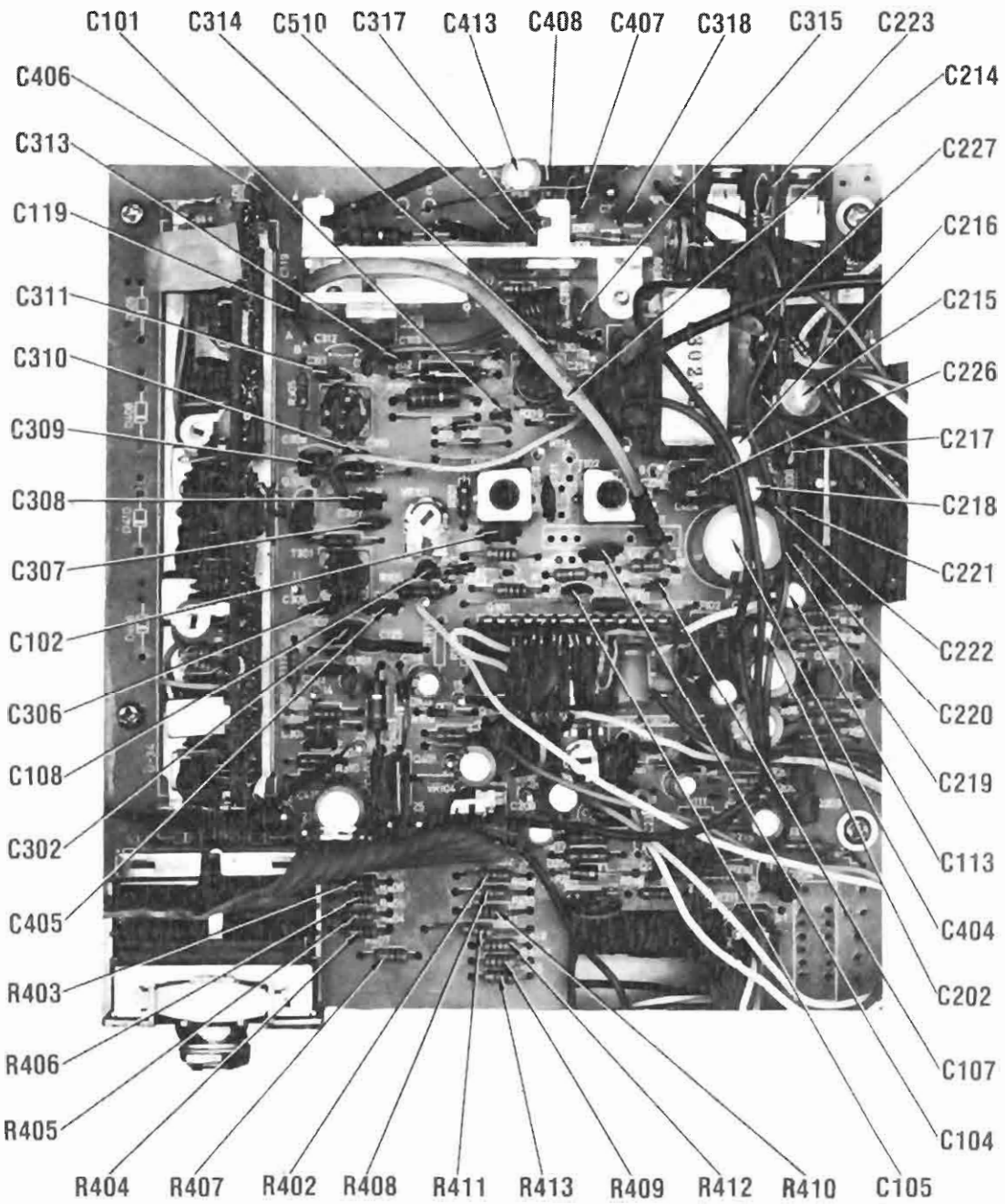
69

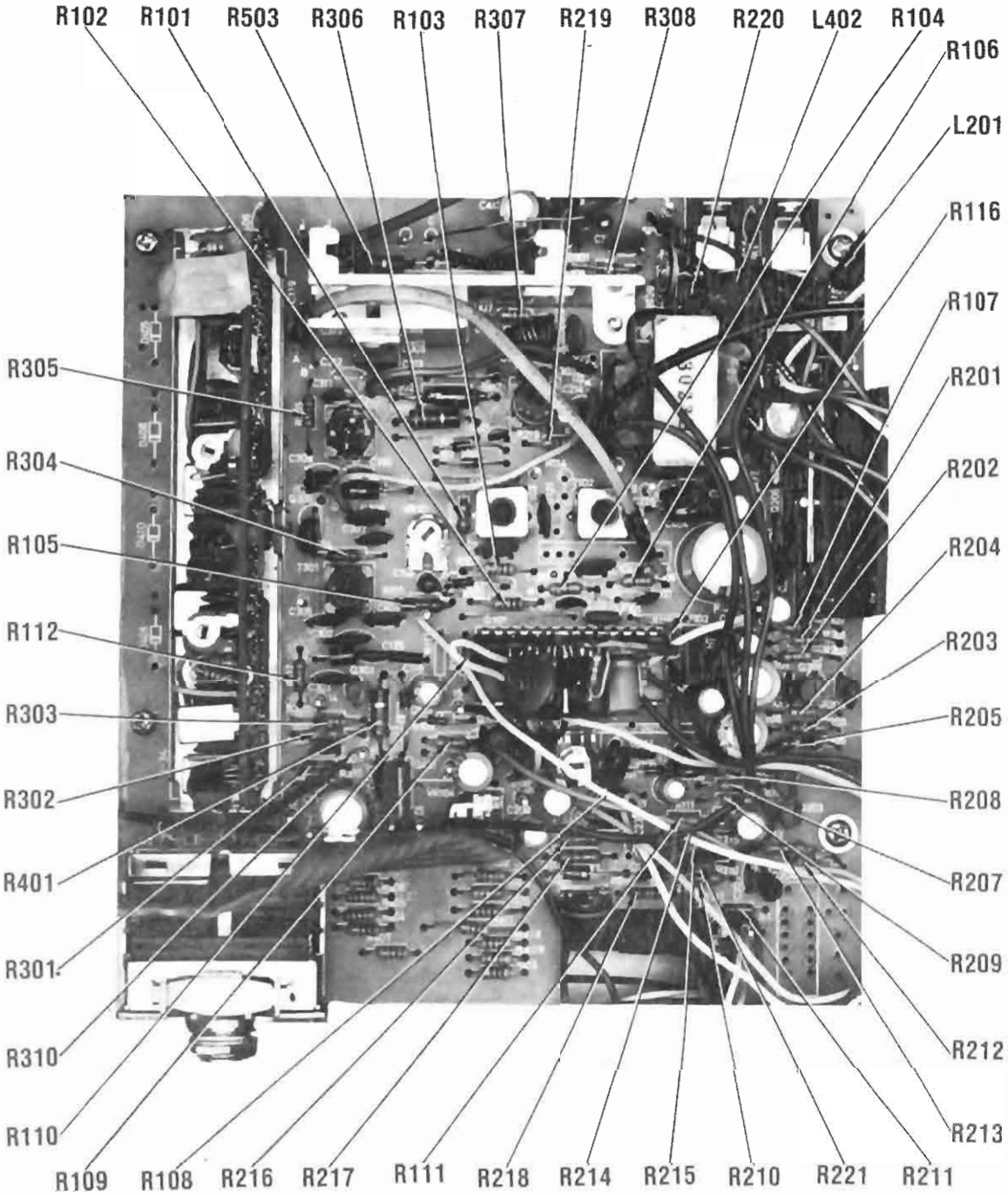
MAIN BOARD


D104
FB4
FB3
Q303
D101
D102
D301
Q101
Q102
Q302
C118
FB1
D403
C303
Q301
D103
C301
C403
Q401
C415
C126
C117
C115
C114
C112
C209
C127
D202
C111
Q205
D201
C208
C207
D401
Q206
C106
C201
C203
Q201
C204
C206
Q202
Q203
C110
C205
Q204

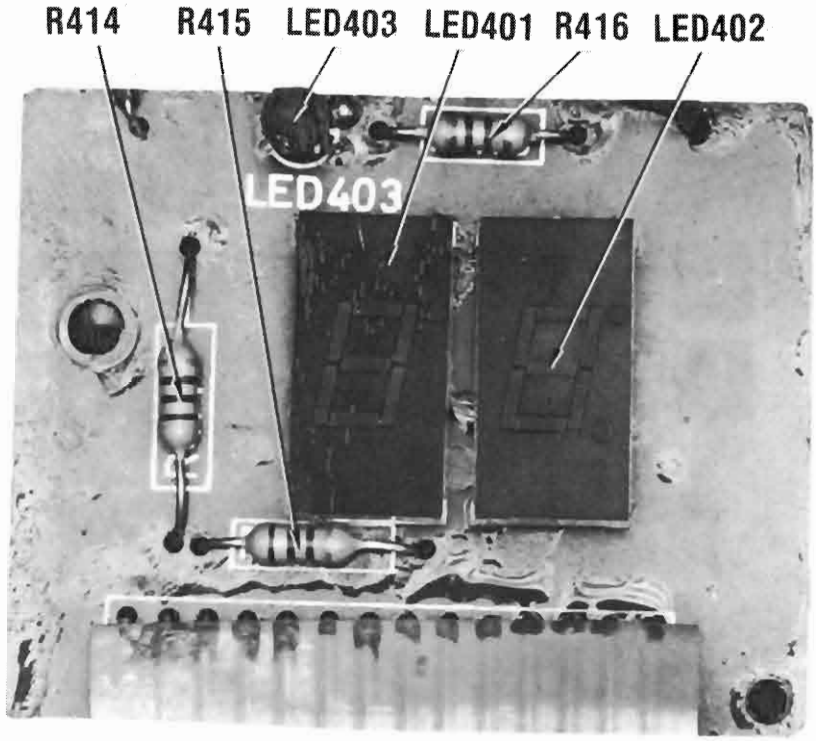
MAIN BOARD

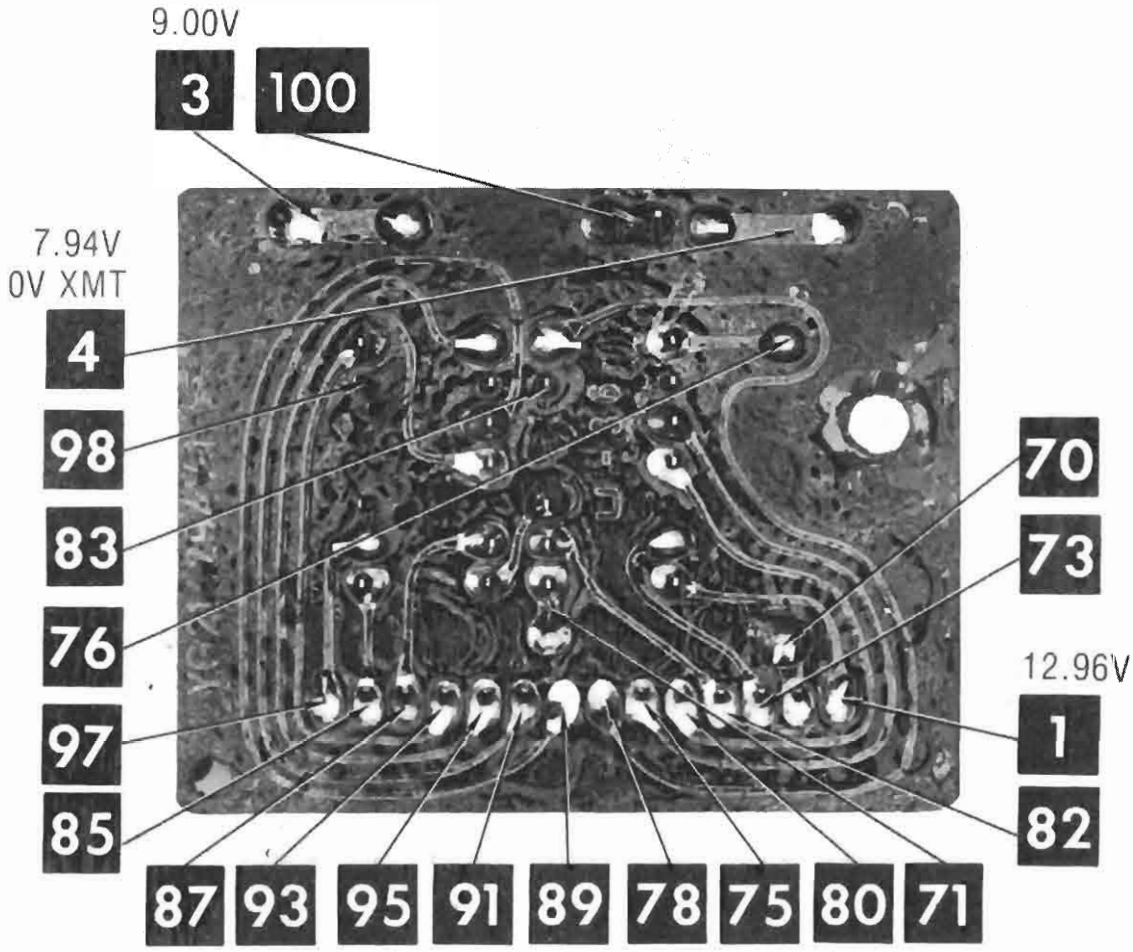

C101
C314
C510
C317
C413
C408
C407
C318
C315
C223
C406
C214
C313
C227
C119
C216
C311
C215
C310
C226
C309
C217
C308
C218
C307
C221
C102
C222
C306
C220
C108
C219
C302
C113
C405
C404
R403
C202
R406
C107
R405
C104
R404
R407
R402
R408
R411
R413
R409
R412
R410
C105

MAIN BOARD

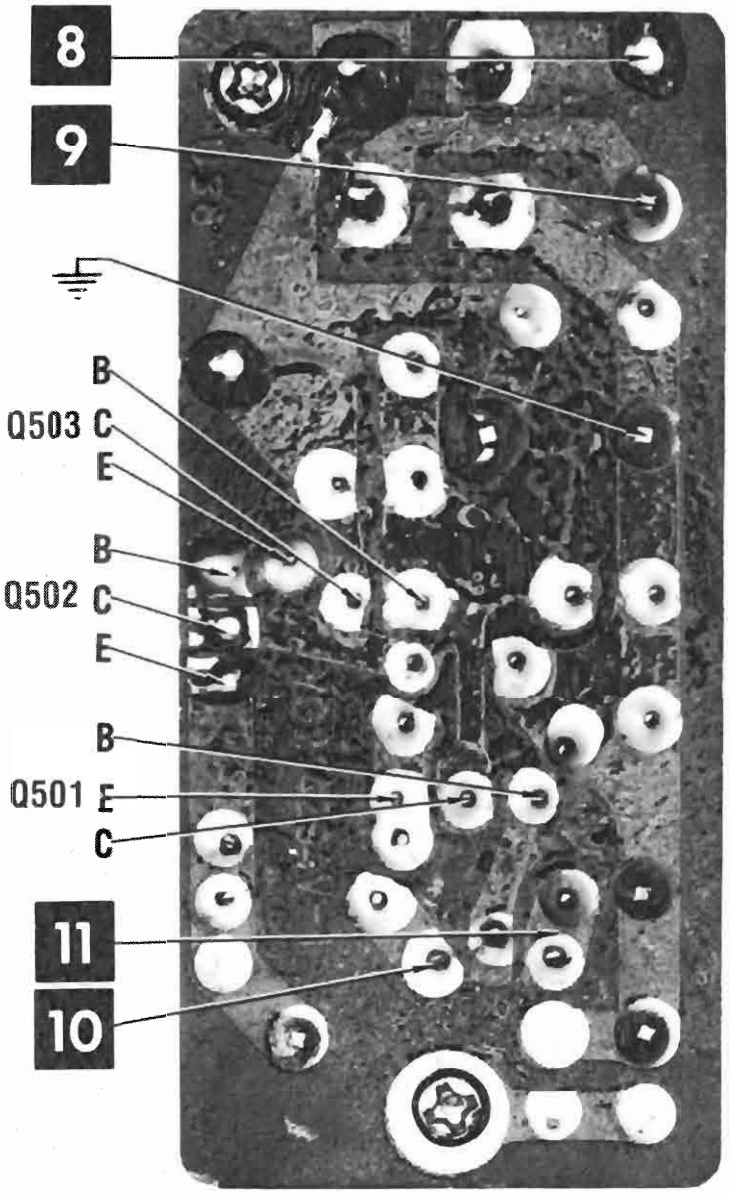

R102
R101
R503
R306
R103
R307
R219
R308
R220
L402
R104
R106
L201
R116
R107
R201
R202
R204
R203
R205
R208
R207
R209
R212
R213
R211
R221
R210
R214
R215
R218
R111
R217
R216
R108
R109
R110
R301
R401
R302
R303
R112
R105
R304
R305

MAIN BOARD

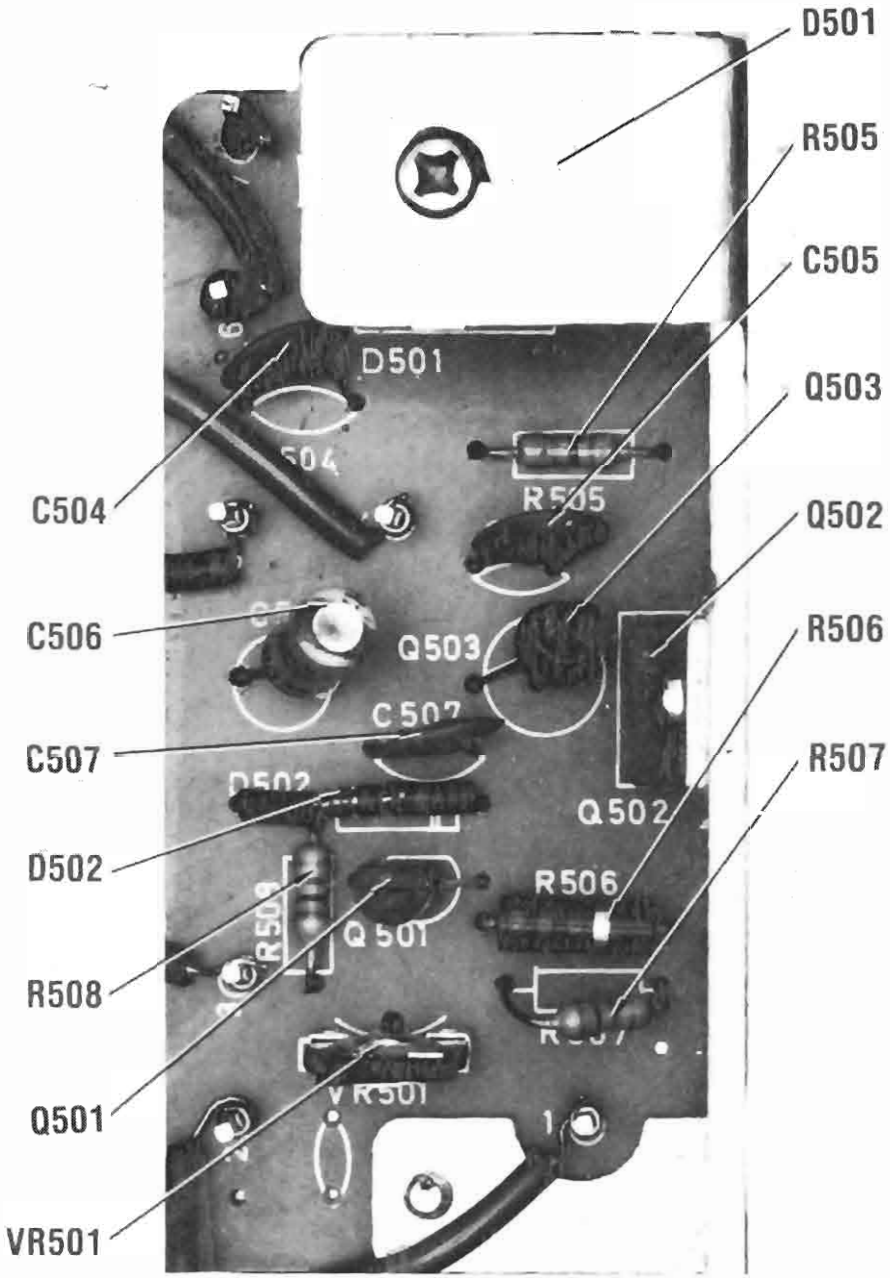




READOUT BOARD



POWER SUPPLY BOARD



POWER SUPPLY BOARD

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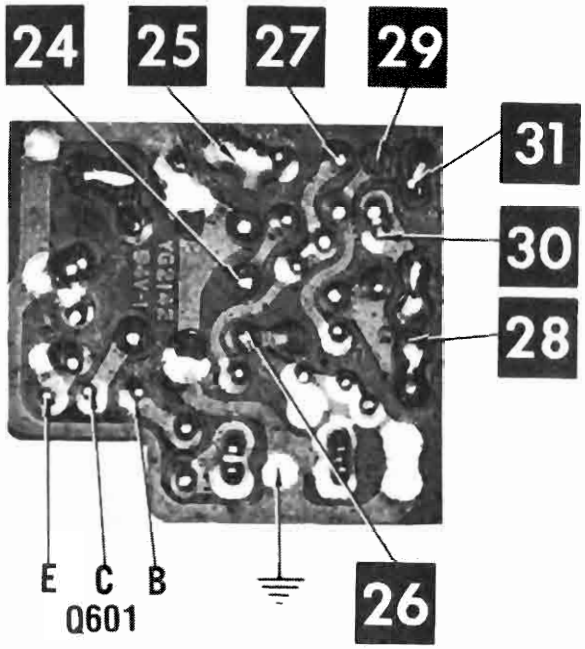
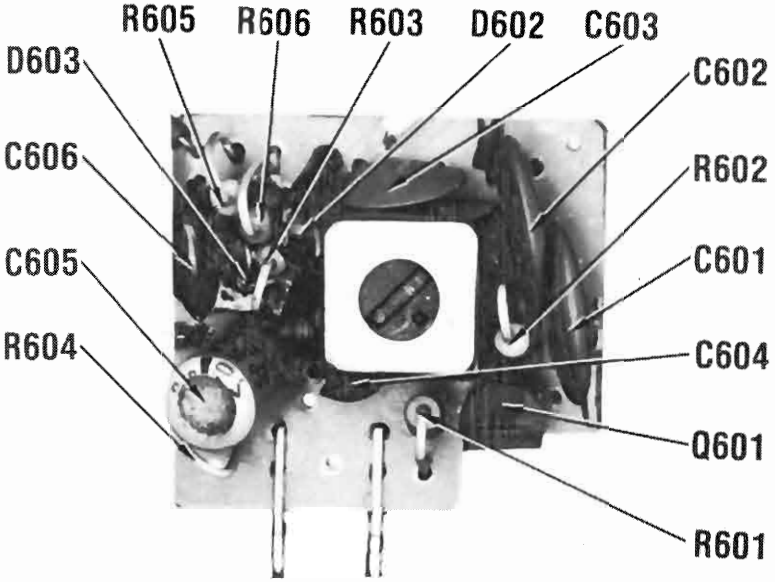
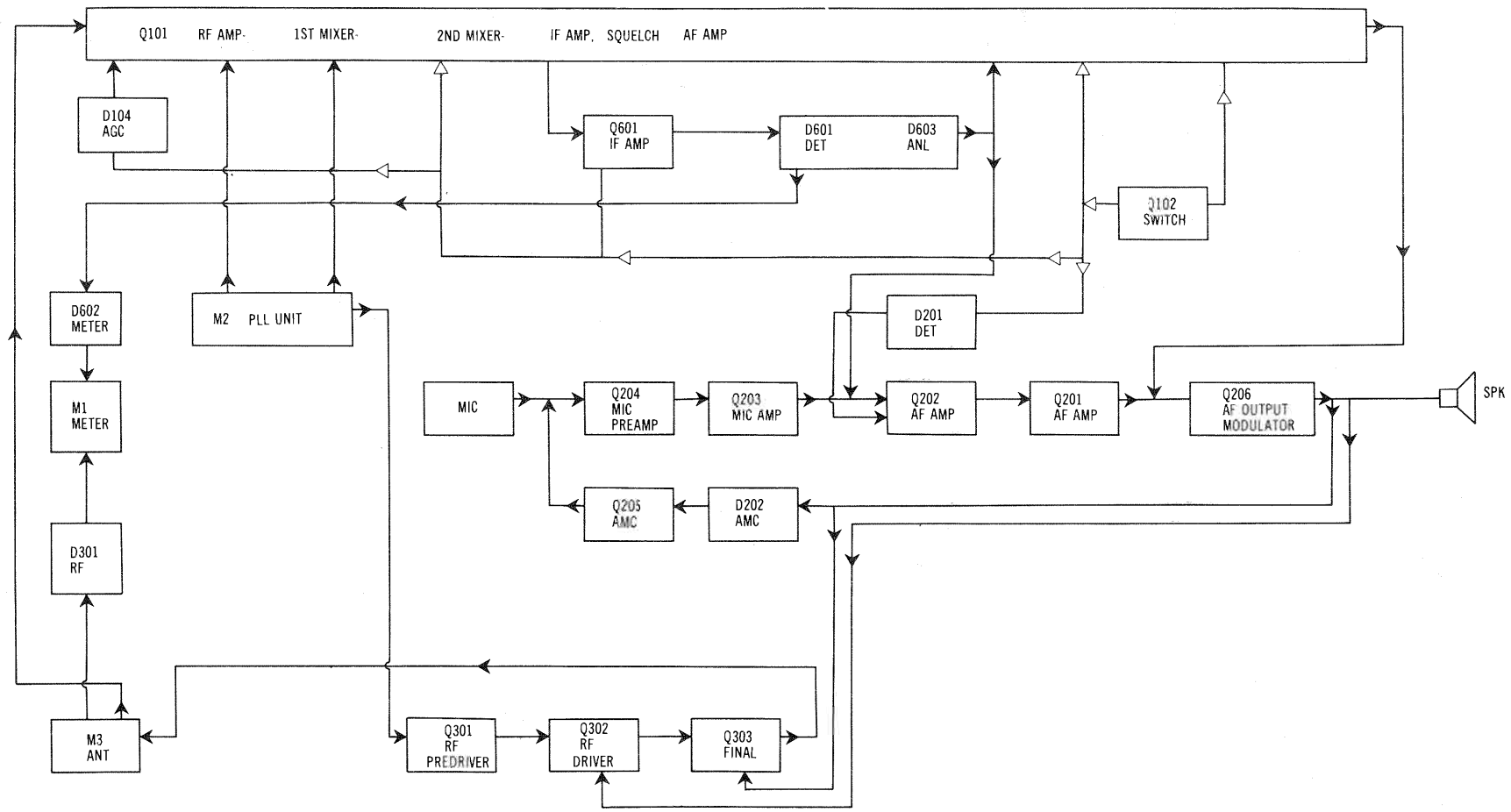
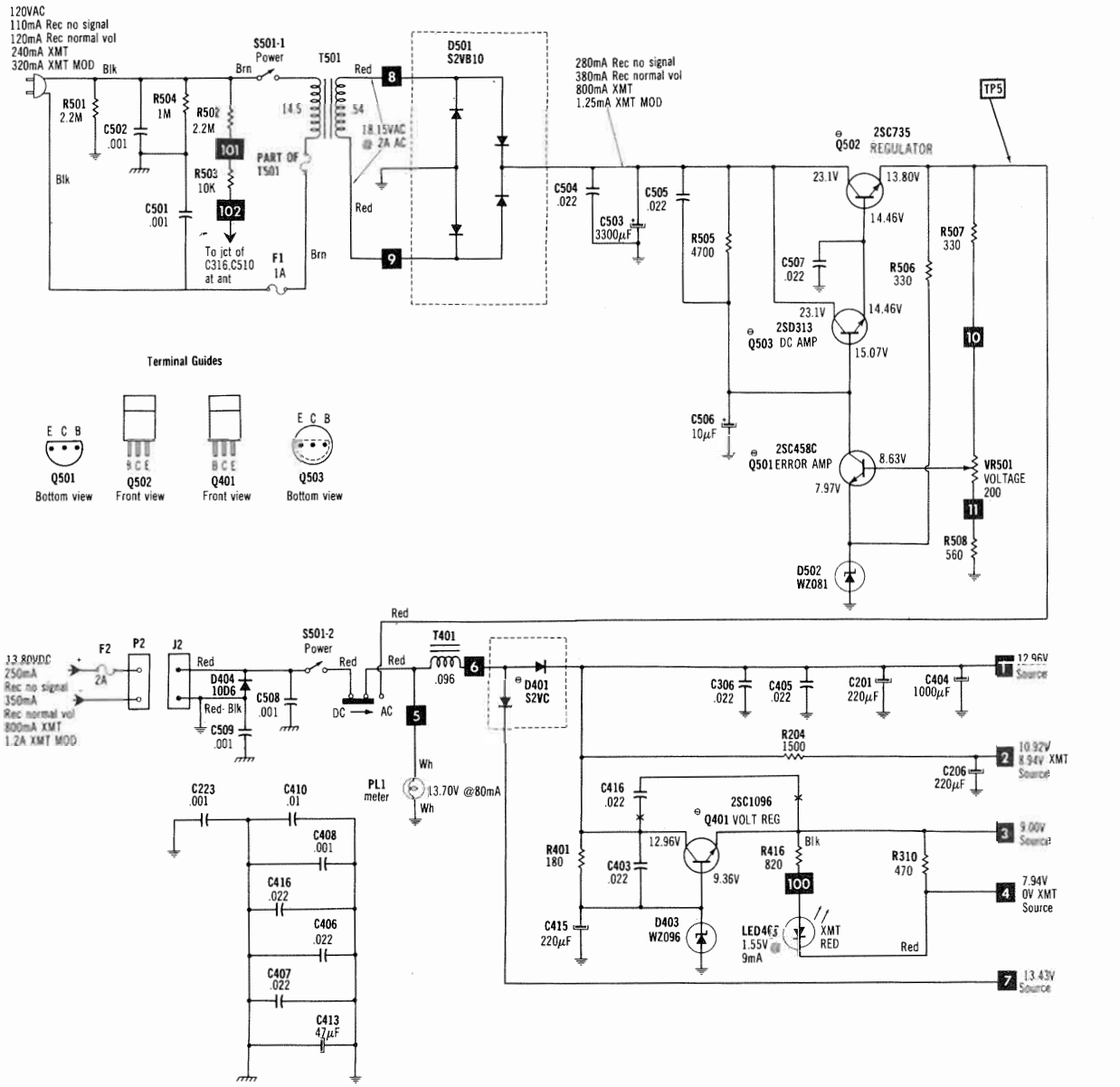


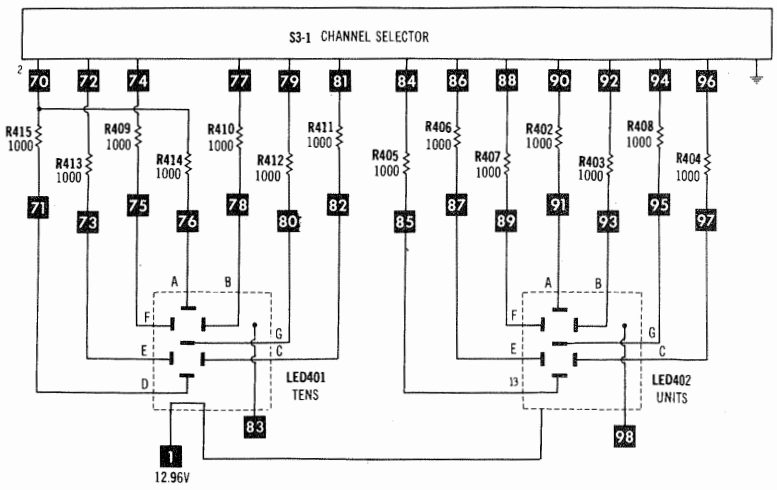


IF AMP/ANL BOARD



BLOCK DIAGRAM





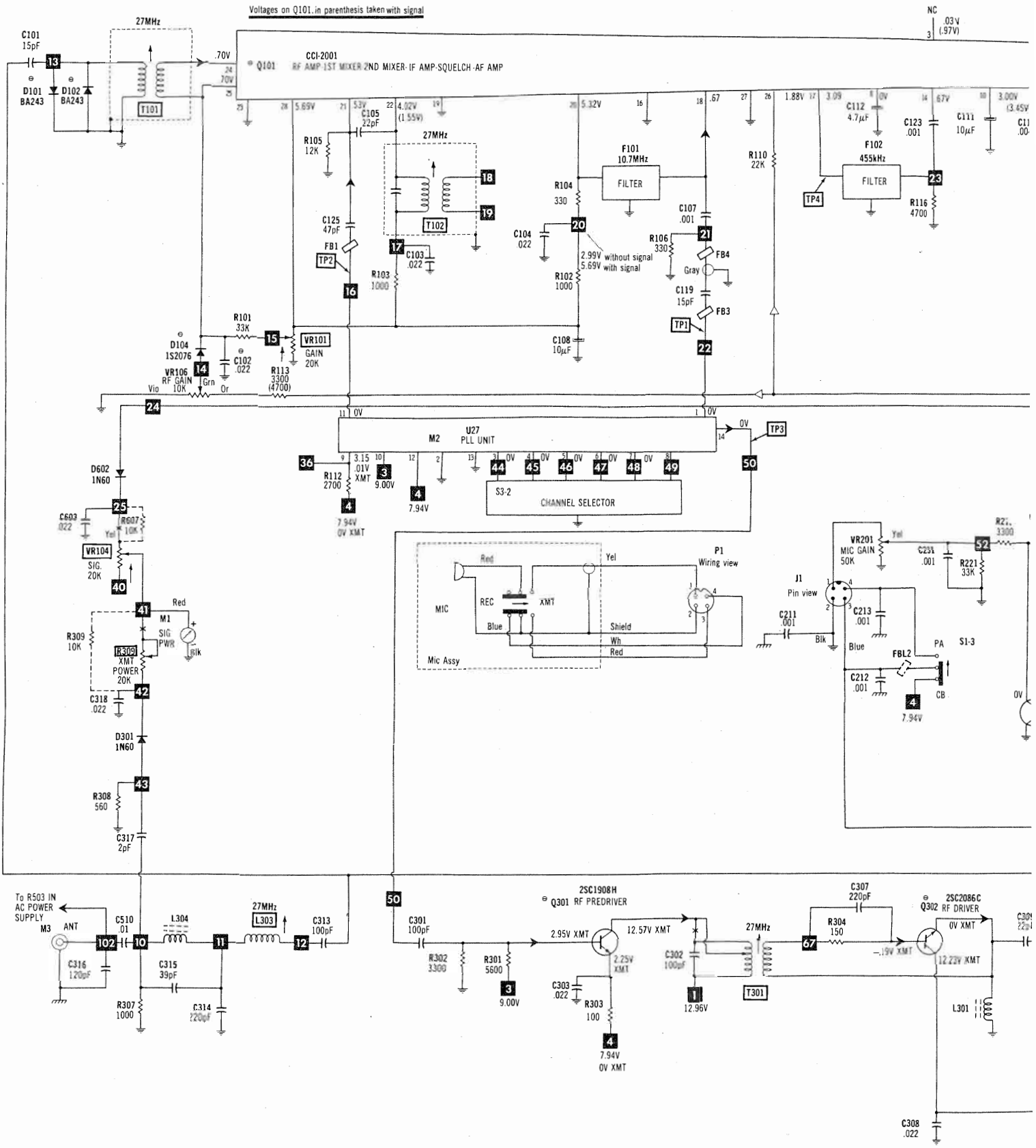
Each segment of LED401, LED402 supplied 1.60V@11mA

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

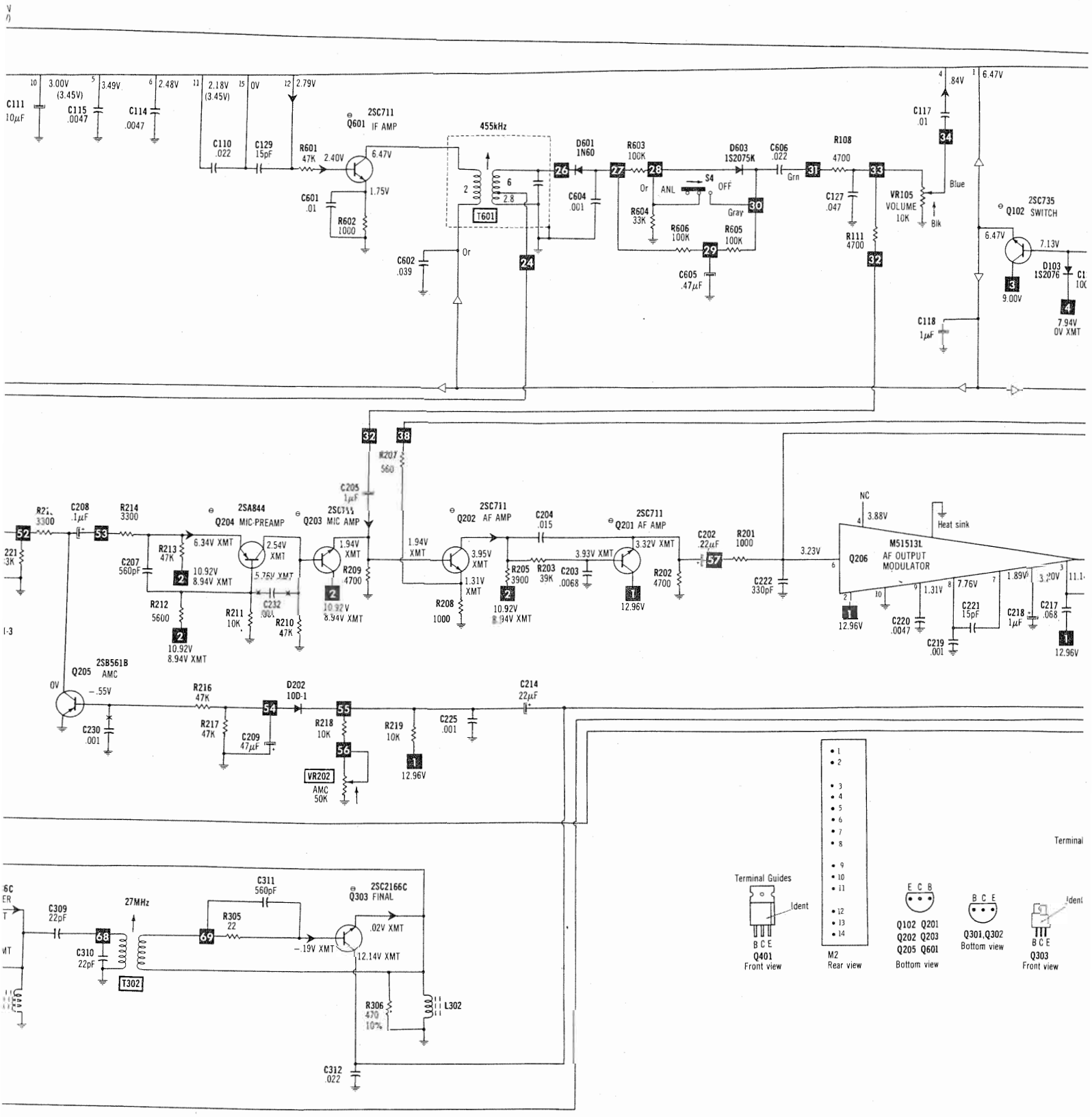
Measurements made in Channel 1 with switching as shown unless noted.
Item numbers in rectangles appear in the alignment/adjustment instructions.
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates 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®

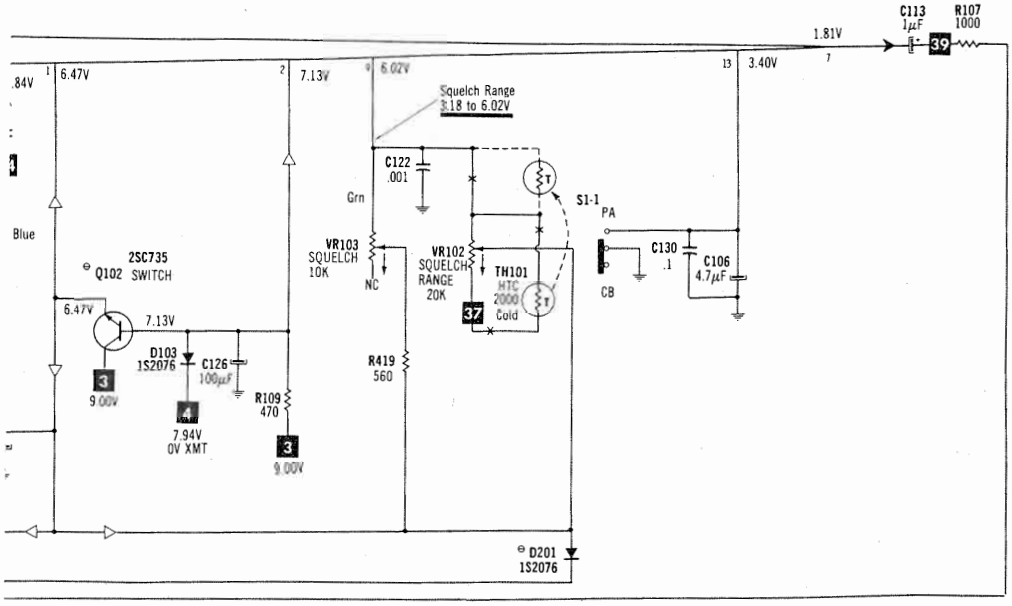
POWER SUPPLY SCHEMATIC

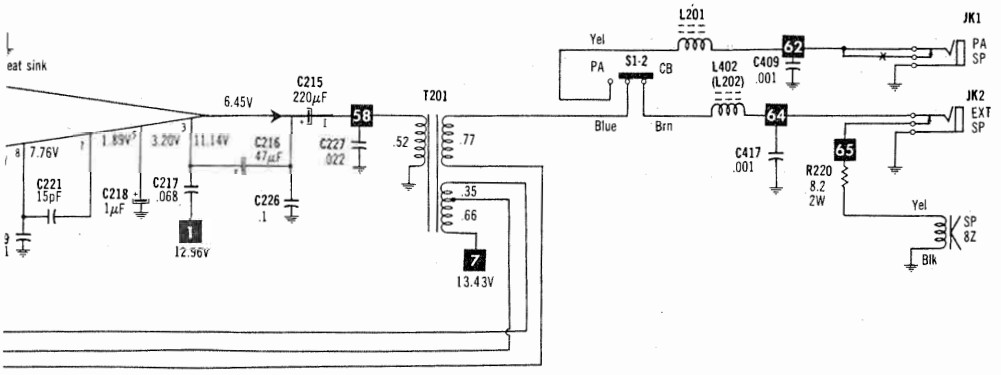

Voltages on Q101. in parenthesis taken with signal
27MHz
C101 15pF
D101 BA243
D102 BA243
T101
.70V
Q101
CCI-2001
RF AMP·1ST MIXER·2ND MIXER·IF AMP·SQUELCH·AF AMP
NC
.03V (.97V)
5.69V
5.3V
4.02V (1.55V)
C105 22pF
R105 12K
27MHz
T102
C125 47pF
FB1
TP2
C103 .022
R103 1000
5.32V
F101 10.7MHz
FILTER
R104 330
C104 .022
2.99V without signal
5.69V with signal
R102 1000
C107 .001
R106 330
FB4
Gray
C119 15pF
FB3
TP1
C108 10μF
.67
1.88V
R110 22K
3.09
C112 4.7μF
C123 .001
C111 10μF
3.00V (3.45V)
F102 455kHz
FILTER
TP4
R116 4700
R101 33K
D104 1S2076
C102 .022
VR106 RF GAIN 10K
Vio
Grn
Or
R113 3300 (4700)
VR101 GAIN 20K
U27
M2
PLL UNIT
TP3
R112 2700
3.15
.01V XMT
9.00V
7.94V
7.94V 0V XMT
S3-2
CHANNEL SELECTOR
D602 1N60
C603 .022
R607 10K
VR104 SIG. 20K
R309 10K
M1
SIG PWR
Red
Blk
R309 XMT POWER 20K
C318 .022
D301 1N60
R308 560
C317 2pF
Mic Assy
MIC
REC
XMT
Blue
Red
Yel
Shield
Wh
Red
P1
Wiring view
VR201 MIC GAIN 50K
Yel
C231 .001
R221 33K
J1
Pin view
C211 .001
C213 .001
Blk
Blue
PA
S1-3
FBL2
C212 .001
CB
7.94V
0V
To R503 IN AC POWER SUPPLY
M3
ANT
C510 .01
L304
27MHz
L303
C313 100pF
C316 120pF
C315 39pF
R307 1000
C314 220pF
C301 100pF
2SC1908H
Q301 RF PREDRIVER
2.95V XMT
12.57V XMT
2.25V XMT
R302 3300
R301 5600
9.00V
C303 .022
R303 100
7.94V 0V XMT
C302 100pF
12.96V
T301
27MHz
C307 220pF
R304 150
2SC2086C
Q302 RF DRIVER
0V XMT
.19V XMT
12.22V XMT
L301
C308 .022

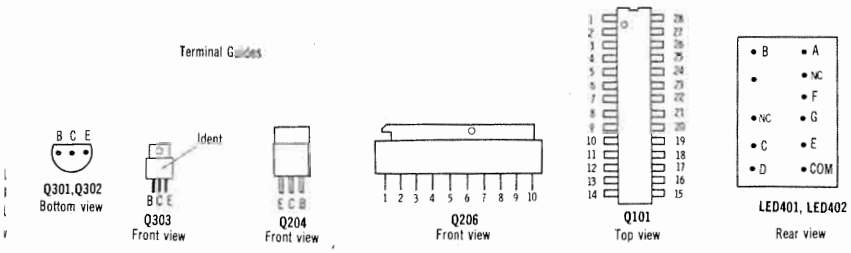
MA



MAIN CB SCHEMATIC


C113
1μF
R107
1000
1.81V
39
.84V
6.47V
7.13V
6.02V
3.40V
Squelch Range
3.18 to 6.02V
C122
.001
Grn
S1-1
PA
Blue
2SC735
Q102 SWITCH
VR103
SQUELCH
10K
NC
VR102
SQUELCH
RANGE
20K
TH101
HTC
2000
Cold
37
C130
.1
C106
4.7μF
CB
6.47V
7.13V
D103
1S2076
C126
100μF
R419
560
3
9.00V
4
7.94V
0V XMT
R109
470
3
9.00V
D201
1S2076


eat sink
L201
Yel
JK1
PA
SP
PA
S1-2
CB
L402
(L202)
C409
.001
62
Blue
Brn
64
JK2
EXT
SP
C215
220μF
6.45V
58
T201
7.76V
1.89V
3.20V
11.14V
C216
47μF
C227
.022
.52
.77
C221
15pF
C218
1μF
C217
.068
C226
.1
.35
.66
1
12.96V
7
13.43V
C417
.001
65
R220
8.2
2W
Yel
SP
8Z
Blk


Terminal Guides
B C E
Q301,Q302
Bottom view
Ident
B C E
Q303
Front view
E C B
Q204
Front view
1 2 3 4 5 6 7 8 9 10
Q206
Front view
Q101
Top view
B
A
NC
F
NC
G
C
E
D
COM
LED401, LED402
Rear view

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D101	BA243		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	BA244		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	MC301		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D102	BA243		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	BA244		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	MC301		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D103	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D104	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D201	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D202	10D1		GE-504A	PTC201	HEPR0052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
D301	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D401	S2VC		GE-510(2)	PTC205(2)	HEPR0078(2)	REN 125(2)	SK3081(2)	RT-201(2)	ECG125(2)	TM125(2)	WEP170(2)	212-Z9000(2)
	S2VCR		GE-510(2)	PTC205(2)	HEPR0078(2)	REN 125(2)	SK3081(2)	RT-201(2)	ECG125(2)	TM125(2)	WEP170(2)	212-Z9000(2)
D403	WZ096		GEZD-9.1	Z89.1B		REN 139	SK3060	RT-240	ECG139A	TM139/**	WEP1109	103-272
D404	1006		GE-504A	PTC201	HEPR0052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
D501	S2VB10		GEBR-206						ECG5314			
D502	WZ081		GEZD-8.2	Z88.2B		REN 5072	SK3136	RT-257	ECG5072A	TM5072/**	WEP1108	
D601	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D602	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D603	1S2075K		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
Q101	CCI-2001											
Q102	2SC735		GE-210	PTC123*	HEPS0014*	REN 289	SK3122	RT-308*	ECG289	TM289/**	WEP735A	121-Z9000A*
	2SB467		GE-210	PTC123*	HEPS0014*	REN 289	SK3122	RT-308*	ECG289	TM289/**	WEP735A	121-Z9000A*
Q201	2SC711		GE-62*	PTC121	HEPS0024*	REN 199*	SK3245	RT-302*	ECG199*	TM199*/**	WEP372*	121-972
	2SC458		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q202	2SC711		GE-62*	PTC121	HEPS0024*	REN 199*	SK3245	RT-302*	ECG199*	TM199*/**	WEP372*	121-972
	2SC458		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q203	2SC711		GE-62*	PTC121	HEPS0024*	REN 199*	SK3245	RT-302*	ECG199*	TM199*/**	WEP372*	121-972
	2SC458		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q204	2SA733		GE-48	PTC127	HEPS0019*	REN 294	SK3138	RT-303	ECG294	TM294/**	WEP911	121-952
Q205	2SA695		GE-272	PTC103	HEPS0019	REN 298	SK3450	RT-126A	ECG298	TM298	WEP62	121-Z9003
	2SB561B		GE-244	PTC103	HEPS0019	REN 159	SK3466	RT-126A	ECG159	TM159	WEP62	121-Z9003
Q206	M51513L								ECG1256			
Q301	2SC1908H		GE-20*	PTC136*	HEPS0015*	REN 229	SK3124	RT-107A*	ECG229*	TM229*	WEP535*	121-Z9021*
	2SC1908		GE-20*	PTC136*	HEPS0015*	REN 229	SK3124	RT-107A*	ECG229*	TM229*	WEP535*	121-Z9021*
Q302	2SC2086C		GE-47*	PTC143*	HEPS3001*	REN 293*	SK3842		ECG293*	TM293*	WEP914	
	2SC2086		GE-47*	PTC143*	HEPS3001*	REN 293*	SK3842		ECG293*	TM293*	WEP914	
Q303	2SC2166C		GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	TM235	WEP736*	121-Z9039
	2SC2166		GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	TM235	WEP736*	121-Z9039
Q401	2SC1096		GE-28	PTC110	HEPS3041	REN 186A	SK3192	RT-166	ECG186A	TM186A/**	WEP1096	121-Z9008
	2SC1173		GE-215	PTC110		REN 236	SK3197	RT-160	ECG236	TM236/**	WEP745	121-Z9040
Q501	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3124	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458		GE-210	PTC121*	HEPS0009*	REN 289	SK3124	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q502	2SC735		GE-210	PTC123*	HEPS0014*	REN 289	SK3122	RT-308*	ECG289	TM289/**	WEP735A	121-Z9000A*
	2SD526		GE-210	PTC123*	HEPS0014*	REN 289	SK3054	RT-308*	ECG289	TM289/**	WEP735A	121-Z9000A*
Q503	2SD313		GE-241	PTC154		REN 196	SK3054	RT-154	ECG196	TM196	WEP745	121-987-02
	2SC735		GE-210	PTC123*	HEPS0014*	REN 289	SK3122	RT-308*	ECG289	TM289/**	WEP735A	121-Z9000A*
Q601	2SC711		GE-62*	PTC121	HEPS0024*	REN 199*	SK3245	RT-302*	ECG199*	TM199*/**	WEP372*	121-972
	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3124	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*

(11) ±5% Tol.

* Lead configuration may vary from original.
/** Also available as exact type replacement.
(2) Two required.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFGR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C106	4.7 16V		PC5-50	VT14R7B5C	QV1-31	EV-1619.1
C108	10 10V			TDC106M025FL	QDT1-64	SD25-109
C111	10 10V			TDC106M025FL	QDT1-64	SD25-109
C112	4.7 25V		PC5-50	VT14R7B5C	QV1-31	EV-1619.1
C113	1 50V		PC1-50	VT11A50	QV1-11	EV-1615
C118	1 50V		PC1-50	VT11A50	QV1-11	EV-1615
C126	100 10V		PC100-10	VT1100E10	QV1-93	EV-1131
C201	220 16V		PC250-25	VT1220H16	QV1-117	EV-1240
C202	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C205	1 50V		PC1-50	VT11A50	QV1-11	EV-1615
C206	220 16V		PC250-25	VT1220H16	QV1-117	EV-1240
C208	.1 50V			TDC104M050EL	QDT1-2	SD50-R109
C209	47 10V		PC50-16	VT147D16	QV1-73	EV-1226
C214	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C215	220 16V		PC250-25	VT1220H16	QV1-117	EV-1240
C216	47 10V		PC50-16	VT147D16	QV1-73	EV-1226
C218	1 50V		PC1-50	VT11A50	QV1-11	EV-1615
C404	1000 16V		PC1000-16	VT11000L16	QV1-183	EV-1261
C413	47 16V		PC50-16	VT147D16	QV1-73	EV-1226
C415	220 16V		PC250-25	VT1220H16	QV1-117	EV-1240
C503	3300 35V					EV-1490
C506	10 16V		PC10-25	VT110B25	QV1-41	EV-1222
C605	.47 50V		PC1-50	VT1R47A63	QV1-3	EV-1610

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
C101	15 N220				*		10TCR-Q15
C102	.022				M192P2239R8		192P2239R8
C103	.022				M192P2239R8		192P2239R8
C104	.022				M192P2239R8		192P2239R8
C105	22 NPO 10%		DTZ-22	NP022	CN0422		10TCC-022
C107	.001		DD-102		GP210		10TS-D10
C110	.022 50V 10%			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C114	.0047		DD-472	GP4700	GP247		5GA-D47
C115	.0047		DD-472	GP4700	GP247		5GA-D47
C117	.01 50V 10%			WMF1S1	M192P1039R8	QFT2-91	1FT-S10
C119	15 N220				*		10TCR-015
C122	.001		DD-102		GP210		10TS-D10
C123	.001		DD-102		GP210		10TS-D10
C125	47 N220				*		10TCR-047
C127	.047 50V 10%			DPMS2S47	M192P4739R8	QFT2-171	1FT-S47
C129	15 N220				*		10TCR-Q15
C130	.1 50V 10%						
C203	.0068 50V 10%			WMF1D68	M192P6829R8	QFT2-85	1FT-D82
C204	.015 50V 10%			WMF1S15	M192P1539R8	QFT2-105	1FT-S15
C207	560		DD-561		GP356		10TS-T56
C211	.001		DD-102		GP210		10TS-D10
C212	.001		DD-102		GP210		10TS-D10
C213	.001		DD-102		GP210		10TS-D10
C217	.068 50V 10%			WMF1S68	EWF1A168	QF1-195	1P8-S68
C219	.001		DD-102		GP210		10TS-D10
C220	.0047		DD-472	GP4700	GP247		5GA-D47
C221	15 N220						
C222	300		DD-301	GP300	GP330		10TS-T30
C223	.001		DD-102		GP210		10TS-D10
C225	.001		DD-102		GP210		10TS-D10
C226	.1 50V 10%			WMF05P1	M192P1049R8	QFT2-215	1FT-P10
C227	.022				M192P2239R8		192P2239R8
C231	.001		DD-102		GP210		10TS-D10
C232	.001		DD-102		GP210		10TS-D10
C301	100 N750 10%		DTN-100	N100	CN7310		10TCU-T10
C302	100 N220						
C303	.022				M192P2239R8		192P2239R8
C306	.022				M192P2239R8		192P2239R8
C307	220 N750		DTN-220	N220	CN7322		10TCU-T22
C308	.022				M192P2239R8		192P2239R8
C309	22 NPO		DTZ-22	NP022	CN0422		10TCC-Q22
C310	22 N750		DTN-22	N22	CN7422		10TCU-022
C311	560		DD-561		GP356		10TS-T56
C312	.022				M192P2239R8		192P2239R8
C313	100 N750		DTN-100	N100	CN7310		10TCU-T10
C314	220 N750		DTN-220	N220	CN7322		10TCU-T22
C315	39 N220				*		10TCR-039
C316	120 N750		DTN-120				10TCU-T12
C317	2		DTZ-2R2	NP02P2	CN0S22		10TCC-V22
C318	.022				M192P2239R8		192P2239R8
C403	.022				M192P2239R8		192P2239R8
C405	.022				M192P2239R8		192P2239R8
C406	.022				M192P2239R8		192P2239R8
C407	.022				M192P2239R8		192P2239R8
C408	.001		DD-102		GP210		10TS-D10
C409	.001		DD-102		GP210		10TS-D10
C410	.01		UK50-103		MAG5011		
C416	.022				M192P2239R8		192P2239R8
C417	.001		DD-102		GP210		10TS-D10
C501	.001 125V AC		CI-102		UAC210		125L-D10
C502	.001 125V AC		CI-102		UAC210		125L-D10
C504	.022				M192P2239R8		192P2239R8
C505	.022				M192P2239R8		192P2239R8
C507	.022				M192P2239R8		192P2239R8
C508	.001		DD-102		GP210		10TS-D10
C509	.001		DD-102		GP210		10TS-D10
C510	.01		UK50-103		MAG5011		
C601	.01		UK50-103		MAG5011		
C602	.039				M192P3939R8		192P3939R8
C603	.022				M192P2239R8		192P2239R8
C604	.001		DD-102		GP210		10TS-D10
C606	.022 50V 10%			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R309	XMT Power	20K				UJ60R253B
VR101	Gain	20K				UJ60R253B
VR102	Squelch Range	20K				UJ60R253B
VR103	Squelch	10K				
VR104	SIG	20K				UJ60R253B
VR105	Volume	10K				
VR106	RF Gain	10K				
VR201	Mic Gain	50K				
VR202	AMC	50K		T-50K(2)	MTC54L1(2)	X201R503B(2)
VR501	Voltage	200		T-200(2)	MTC22L1(2)	X201R251B(2)

(2) Cut off one of the end terminals and bend to fit PC board.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	WORKMAN PART No.
TH101	2000 Cold NTC		FR-1014

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L201	RF Choke				
L202	RF Choke				
L301	RF Driver				
L302	Final				
L303	Loading Final				
L304	Pi Filter				
T101	Antenna Tuning				
T102	RF Amplifier (27MHz)				
T301	RF Predriver (27MHz)				
T302	RF Driver (27MHz)				
T601	IF Amplifier (455kHz)				

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.	
T401	1.25A	.096	1.3mH	1002(1)	TR509		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE			REPLACEMENT DATA			NOTES
	PRI.	SEC.		MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	22	1 8	2 20	83023B (1)			(1) Number on unit.

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T501	120V AC @ .32A	18.15V AC @ 1.25A DC	ETT-71018B(1)		(2) PCB-3	(1) Number on unit. (2) Requires new mounting holes.

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.	
SP	3" PM 8 Ohms		30A05Z8R	

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	1A 125V Quick Acting			/AGC1	HRK	312001	341001A	FG1-2
F2	2A 250V Quick Acting			/AGC2	HDJA	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		18-032	18-034	18-010	18-092	1	2	3	4	NC	2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
F101	Filter		10.7MHz
F102	Filter		455kHz
LED401	LED		Tens
LED402	LED		Units
LED403	LED		Transmitter (1.55' @ 9mA)
M1	Meter		Signal Power
S1	Switch		PA/CB
S3	Switch		Channel Selector
S4	Switch		ANL On/Off
S501	Switch		Power On/Off
S502	Switch		AC/DC

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')