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 VIKING 4740 (242-4740)

MANUFACTURER'S SPECIFICATIONS

RECEIVER

Sensitivity	
AM	10 dB (S+N)/N at 0.5 (1.0)*μV input
SSB	10 dB (S+N)/N at 0.35 (0.5)*μV input
Selectivity	4.5 kHz minimum bandwidth at -6 dB and 30 kHz maximum bandwidth at -60 dB
Spurious Rejection	50 dB
Audio Output Power	2 watts with less than 10% distortion at 1000μV, 1000 Hz
Tight Squelch	
AM	50 (30)*μV minimum and 2000μV maximum (NB on)
SSB	25 (15)*μV minimum and 1000μV maximum (NB on)
Squelch Sensitivity	3 dB or less signal change for 40 dB quieting at 1μV
AGC Characteristics	
AM	Flat within ±6 dB from 250,000 to 5μV with 15 dB ±4 rolloff from 5 to 0.5μV
SSB	Flat within +2/-8 dB from 250,000 to 5μV with 15 dB ±4 rolloff from 5 to 0.5μV
Speaker Impedance	8 ohms
Receiver Incremental Tune	±1350 maximum ±600 Hz minimum

TRANSMITTER

Emission	
AM	6A3
SSB	3A3J
RF Power Output	
AM	3 watts minimum/4 watts maximum at 13.8 VDC
SSB	8 watts PEP minimum/12 watts PEP maximum at 13.8 VDC
RF Spurious and Harmonic Attenuation	50 dB
Audio Frequency Response	
AM	+2/-16 dB from 300 to 3000 Hz
SSB	+2/-20 dB from 300 to 3000 Hz
Modulation	80 (70%)* minimum positive and negative
Carrier Suppression	
SSB	40 dB
Unwanted Sideband Suppression	
SSB	50 dB

* MINIMUM PERFORMANCE SPECIFICATIONS are shown in parenthesis if other than NOMINAL value

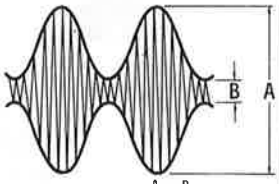
Courtesy of the Manufacturer

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.
Adjustments made with 13.8-volt DC input.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Connect microphone.

Suggested Alignment Tools:	GC ELECTRONICS:
T1,L3 thru L6, T401 thru T407, T501 thru T504, T601, T602, T701, T702	9440
T704, T705	9300,9302,9304
T703, T706	5000,5009,8276,8728,8728A
C604, C617, C713, C746	5000, 8276



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

FIGURE 1

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP8 (IC2 Pin 3).	Ch. 19 AM Fine Tune Midrange	L5	Adjust for 10.000MHz.
Input of frequency counter to TP8 (IC2 Pin 3).	Ch. 19 USB Fine Tune Midrange	L6	Adjust for 9.9987MHz.
Input of oscilloscope to TP7 (Q6 Gate 2).	Ch. 19	T1	Adjust for maximum RF output.
Input of DC meter to TP6 (junction of R13 & R16).	Ch. 1	L3	Adjust for 3.00 volts.
Input of oscilloscope to TP9 (junction of C11 & C411).	Ch. 19	L4	Adjust for maximum RF output.
Input of oscilloscope to TP3 (junction of C702 & C410).	Ch. 19	T403	Adjust for maximum RF output.
Input of frequency counter to TP9 (junction of C11 & C411).	Ch. 1 AM Fine Tune Midrange		Check for 19.1650MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP9 (junction of C11 & C411).	Ch. 1 USB Fine Tune Midrange		Check for 19.1675MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP9 (junction of C11 & C411).	Ch. 1 LSB Fine Tune Midrange		Check for 19.1625MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP10 (IC2 Pin 2).	Ch. 1 AM Fine Tune Midrange		Check for .8350MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP10 (IC2 Pin 2).	Ch. 1 USB Fine Tune Midrange		Check for .8299MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP10 (IC2 Pin 2).	Ch. 1 LSB Fine Tune Midrange		Check for .8349MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP5 (Q604 Emitter).	Ch. 19 USB	T601	Adjust for 7.7975MHz.
Input of frequency counter to TP5 (Q604 Emitter).	Ch. 19 LSB	C604	Adjust for 7.8025MHz.
Input of frequency counter to TP5 (Q604 Emitter).	Ch. 19 AM XMT		Check for 7.8025MHz.
Input of frequency counter to antenna input.	Ch. 19 AM XMT	R110	Adjust for 27.185MHz.

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.
Fine Tune midrange, RF Gain maximum, Squelch MINIMUM, NB off.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP11 (Q404 base). 7.8MHz, 1000Hz @ 30% modulation.	Ch. 19	T503,T502, T501	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T404,T402, T401	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Input of oscilloscope to TP2 (CR406 cathode).	Ch. 19	T405,T406, T407	Set generator for 10db signal to noise plus noise ratio of receiver. Inject a 100pps, 1uSec. pulse width, signal at antenna input. Switch noise blanker on. Adjust for maximum amplitude of pulses.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Fine Tune midrange, RF Gain maximum, Squelch MINIMUM, NB off.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	R544	AGC Set volume R307 for 0db. Decrease generator output to 50uV. Adjust so that audio does not drop more than 10db.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 5uV.	Ch. 19	R532	AUDIO LEVEL Set volume R307 for 0db. Decrease generator output to .5uV. Adjust so that audio drops 15db.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 250uV.	Ch. 19 Squelch Maximum	R301	SQUELCH RANGE Adjust so that squelch just breaks.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	R523	S METER Adjust for 9 on S scale of meter.

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.
Fine Tune midrange, RF Gain maximum, Squelch MINIMUM, NB off.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP11 (Q404 base). 7.8MHz, no modulation.	Ch. 19	T504	Adjust for maximum output. If necessary, readjust T501 for maximum.
Output of signal generator thru .01uF to antenna input. 27.186MHz, no modulation.	Ch. 19	T404,T402, T401,T501	Adjust for maximum output.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Fine Tune midrange, RF Gain maximum, Squelch MINIMUM, NB off.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.186MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	R529	S METER Adjust for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

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

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter and 50-ohm, 25-watt dummy load to antenna input.	Ch. 19	T701,T702, T703,T704, T705,T706	Adjust for 4.0 watts RF output maximum.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19	C746	Adjust for MINIMUM at 54MHz (2nd harmonic).
Input of oscilloscope to TP12 (Q704 base).	Ch. 19	C713	Do not transmit. Adjust for MINIMUM response at 15.60MHz.

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.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 20mV signal at mic input.	Ch. 19	R212	AMC Adjust for 90% modulation maximum. See Figure 1.
Input of RF wattmeter and 50-ohm, 25-watt dummy load to antenna input.	Ch. 19	R728	RF METER Adjust so that RF meter agrees with RF wattmeter.

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
Input of oscilloscope, RF wattmeter and 50-ohm, 25-watt dummy load to antenna input.	Ch. 19 No modulation.	T602,C617, R609	Adjust for MINIMUM RF output.

TRANSMITTER ADJUSTMENTS

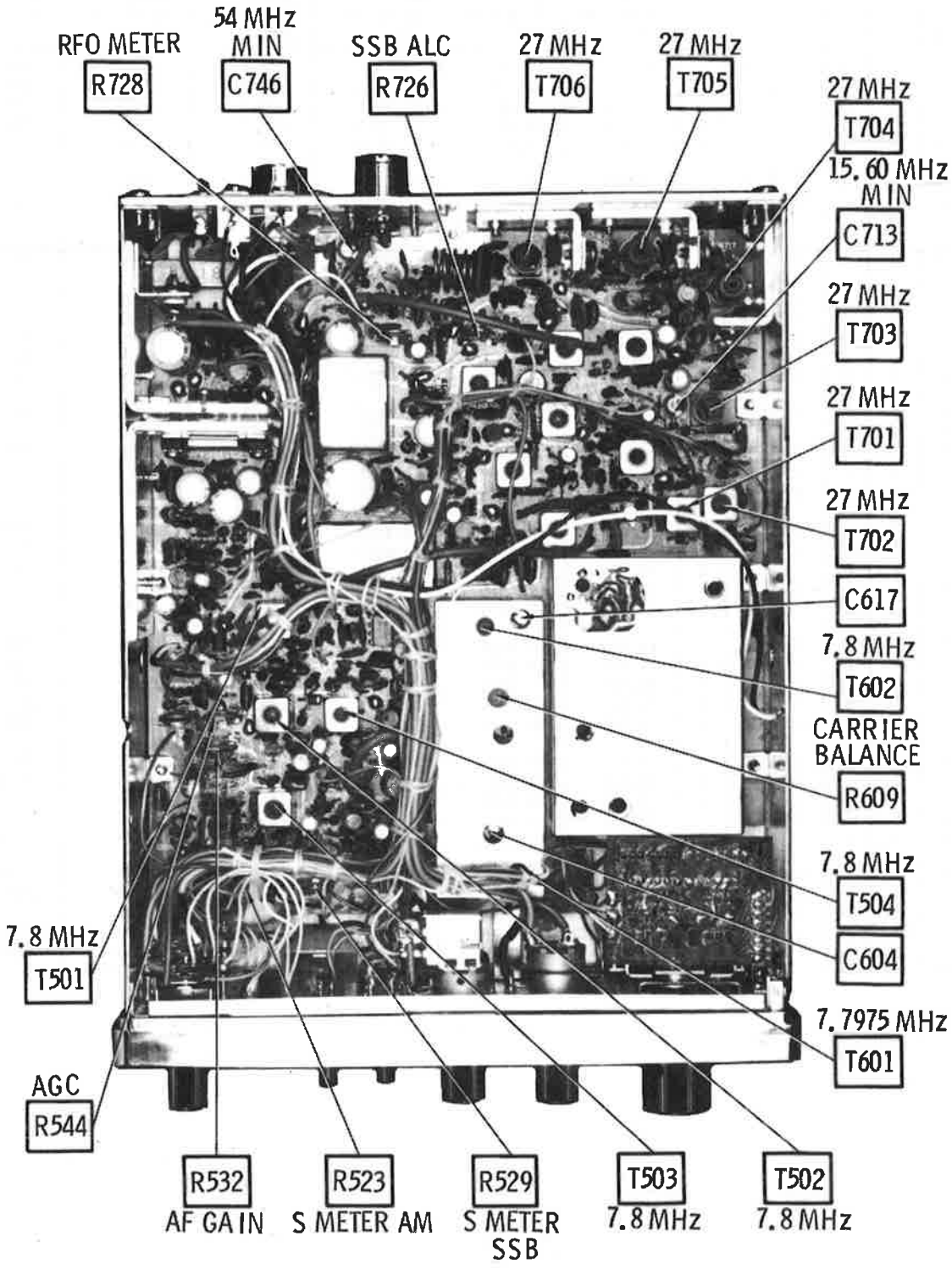
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter and 50-ohm, 25-watt dummy load to antenna input. Inject a 1000Hz, 20mV signal at mic input.	Ch. 19	R726	SSB ALC Adjust for 12.0 watts PEP RF output maximum.

TRUTH CHART

CHANNEL	1 = 5.00 Volts 0 = 0 Volts IC2 PROGRAM DIVIDER PINS 8	9	10	11	12	13	14	AM REC SYNTH OUTPUT IN MHz AT TP9	USB REC & XMT SYNTH OUTPUT IN MHz AT TP9	LSB REC & AM XMT SYNTH OUTPUT IN MHz AT TP9	AM DIVIDER INPUT IN MHz AT TP10	USB DIVIDER INPUT IN MHz AT TP10	LSB DIVIDER INPUT IN MHz AT TP10
1	1	0	1	0	0	1	1	19.165	19.1675	19.1625	.8350	.8299	.8349
2	1	0	1	0	0	1	0	19.175	19.1775	19.1725	.8250	.8199	.8249
3	1	0	1	0	0	0	1	19.185	19.1875	19.1825	.8150	.8099	.8149
4	1	0	0	1	1	1	1	19.205	19.2075	19.2025	.7950	.7899	.7949
5	1	0	0	1	1	1	0	19.215	19.2175	19.2125	.7850	.7799	.7849
6	1	0	0	1	1	0	1	19.225	19.2275	19.2225	.7750	.7699	.7749
7	1	0	0	1	1	0	0	19.235	19.2375	19.2325	.7650	.7599	.7649
8	1	0	0	1	0	1	0	19.255	19.2575	19.2525	.7450	.7399	.7449
9	1	0	0	1	0	0	1	19.265	19.2675	19.2625	.7350	.7299	.7349
10	1	0	0	1	0	0	0	19.275	19.2775	19.2725	.7250	.7199	.7249
11	1	0	0	0	1	1	1	19.285	19.2875	19.2825	.7150	.7099	.7149
12	1	0	0	0	1	0	1	19.305	19.3075	19.3025	.6950	.6899	.6949
13	1	0	0	0	1	0	0	19.315	19.3175	19.3125	.6850	.6799	.6849
14	1	0	0	0	0	1	1	19.325	19.3275	19.3225	.6750	.6699	.6749
15	1	0	0	0	0	1	0	19.335	19.3375	19.3325	.6650	.6599	.6649
16	1	0	0	0	0	0	0	19.355	19.3575	19.3525	.6450	.6399	.6449
17	0	1	1	1	1	1	1	19.365	19.3675	19.3625	.6350	.6299	.6349
18	0	1	1	1	1	1	0	19.375	19.3775	19.3725	.6250	.6199	.6249
19	0	1	1	1	1	0	1	19.385	19.3875	19.3825	.6150	.6099	.6149
20	0	1	1	1	0	1	1	19.405	19.4075	19.4025	.5950	.5899	.5949
21	0	1	1	1	0	1	0	19.415	19.4175	19.4125	.5850	.5799	.5849
22	0	1	1	1	0	0	1	19.425	19.4275	19.4225	.5750	.5699	.5749
23	0	1	1	0	1	1	0	19.455	19.4575	19.4525	.5450	.5399	.5449
24	0	1	1	1	0	0	0	19.435	19.4375	19.4325	.5650	.5599	.5649
25	0	1	1	0	1	1	1	19.445	19.4475	19.4425	.5550	.5499	.5549
26	0	1	1	0	1	0	1	19.465	19.4675	19.4625	.5350	.5299	.5349
27	0	1	1	0	1	0	0	19.475	19.4775	19.4725	.5250	.5199	.5249
28	0	1	1	0	0	1	1	19.485	19.4875	19.4825	.5150	.5099	.5149
29	0	1	1	0	0	1	0	19.495	19.4975	19.4925	.5050	.4999	.5049
30	0	1	1	0	0	0	1	19.505	19.5075	19.5025	.4950	.4899	.4949
31	0	1	1	0	0	0	0	19.515	19.5175	19.5125	.4850	.4799	.4849
32	0	1	0	1	1	1	1	19.525	19.5275	19.5225	.4750	.4699	.4749
33	0	1	0	1	1	1	0	19.535	19.5375	19.5325	.4650	.4599	.4649
34	0	1	0	1	1	0	1	19.545	19.5475	19.5425	.4550	.4499	.4549
35	0	1	0	1	1	0	0	19.555	19.5575	19.5525	.4450	.4399	.4449
36	0	1	0	1	0	1	1	19.565	19.5675	19.5625	.4350	.4299	.4349
37	0	1	0	1	0	1	0	19.575	19.5775	19.5725	.4250	.4199	.4249
38	0	1	0	1	0	0	1	19.585	19.5875	19.5825	.4150	.4099	.4149
39	0	1	0	1	0	0	0	19.595	19.5975	19.5925	.4050	.3999	.4049
40	0	1	0	0	1	1	1	19.605	19.6075	19.6025	.3950	.3899	.3949



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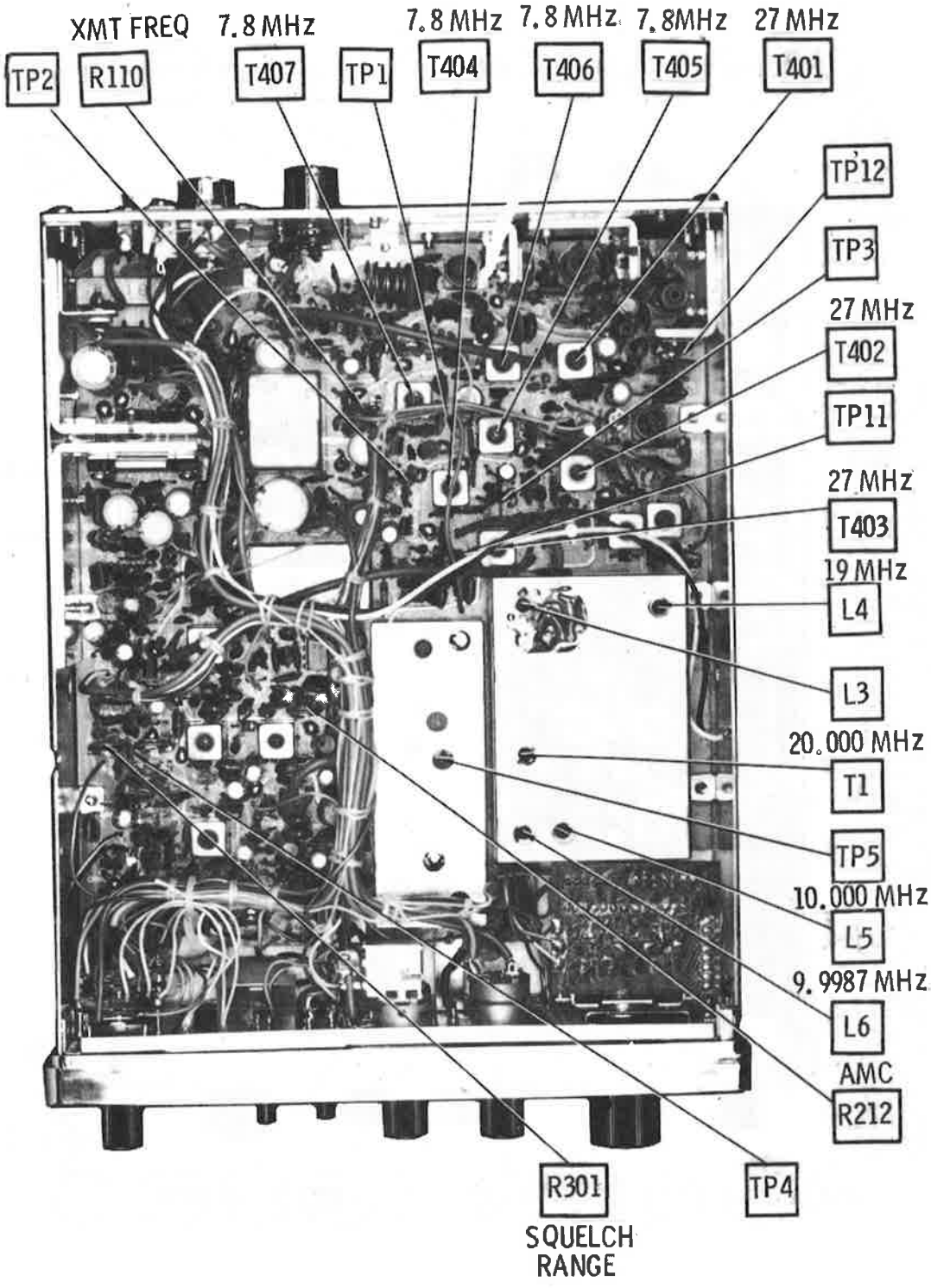

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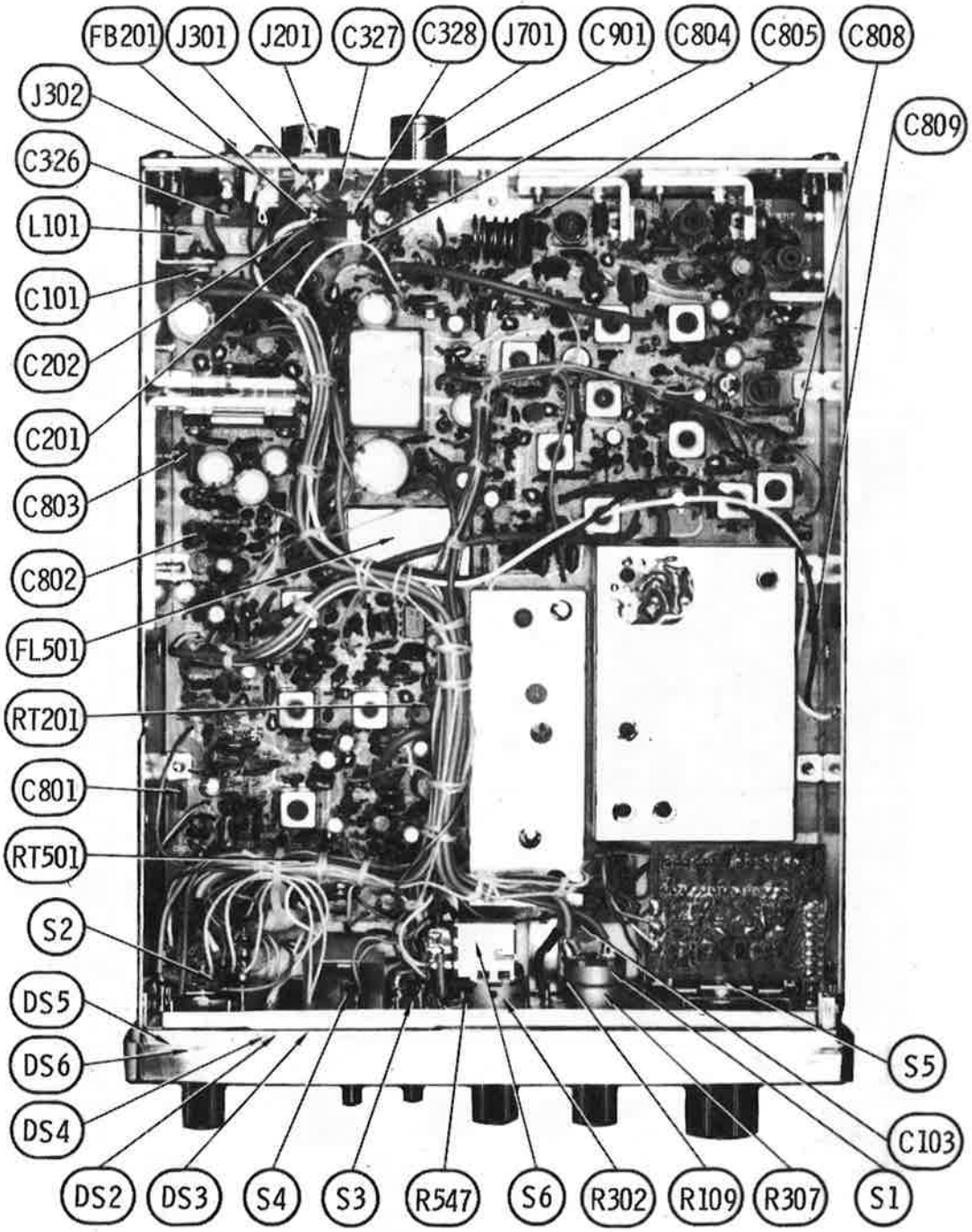

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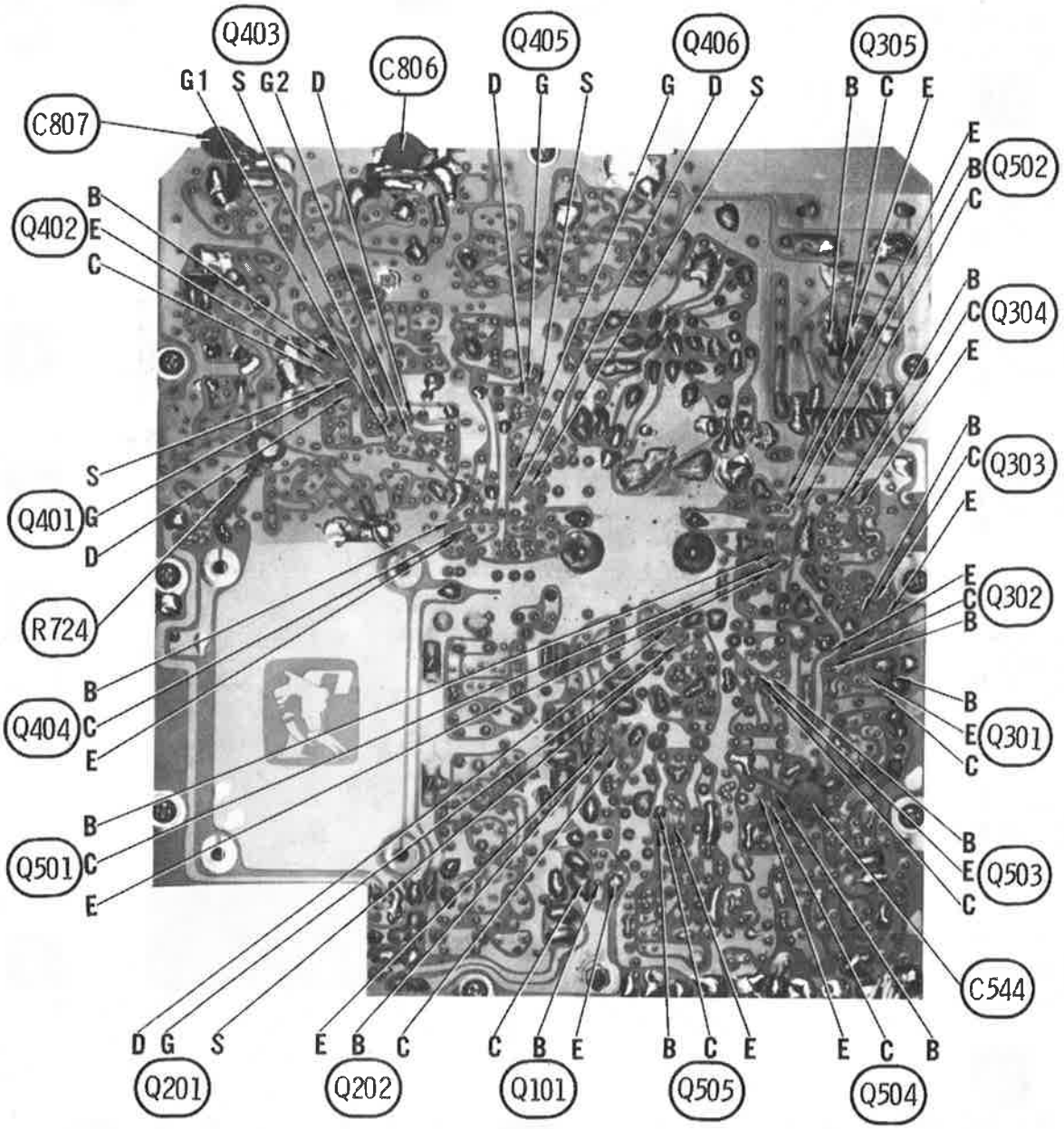
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MAIN BOARD

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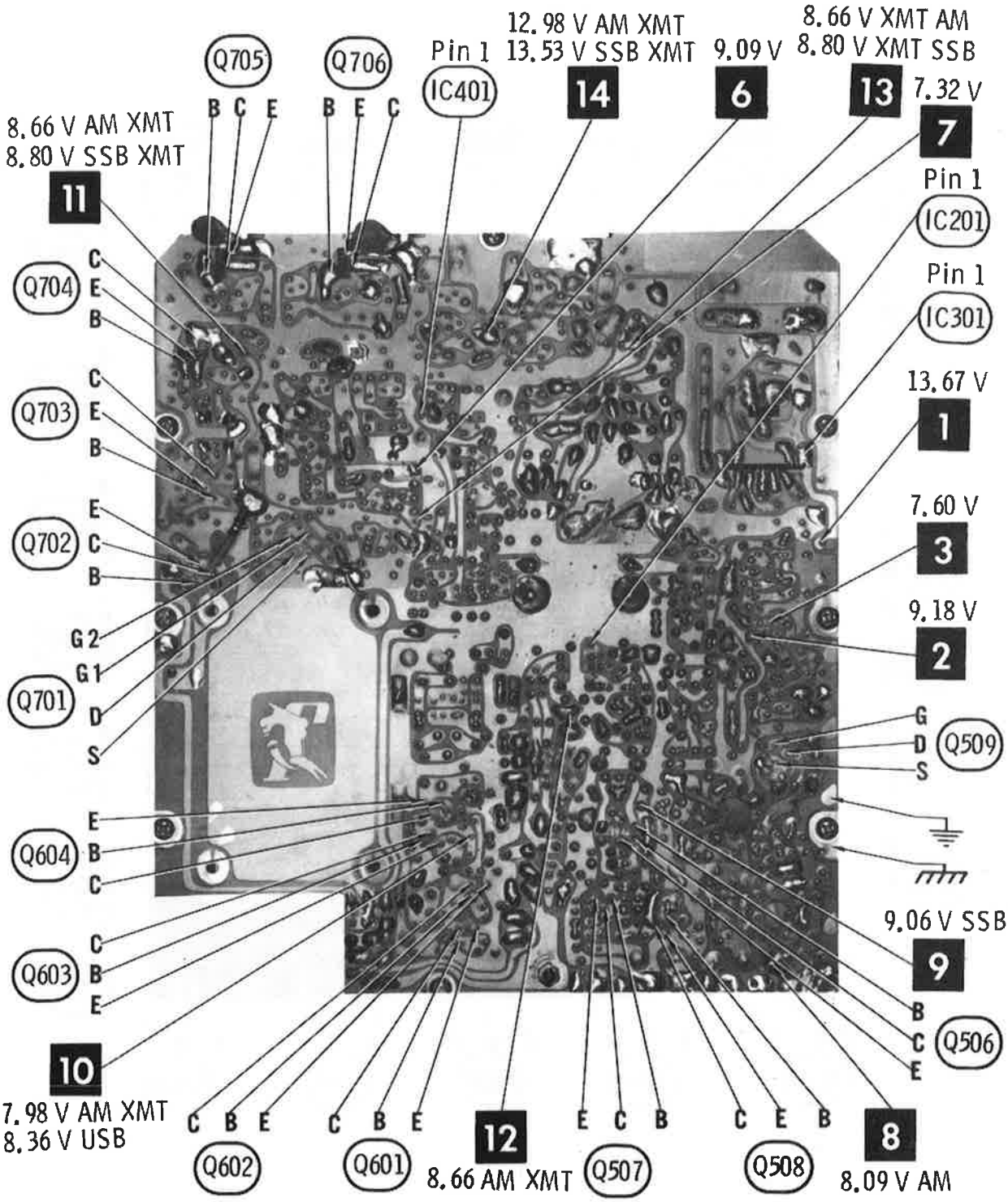

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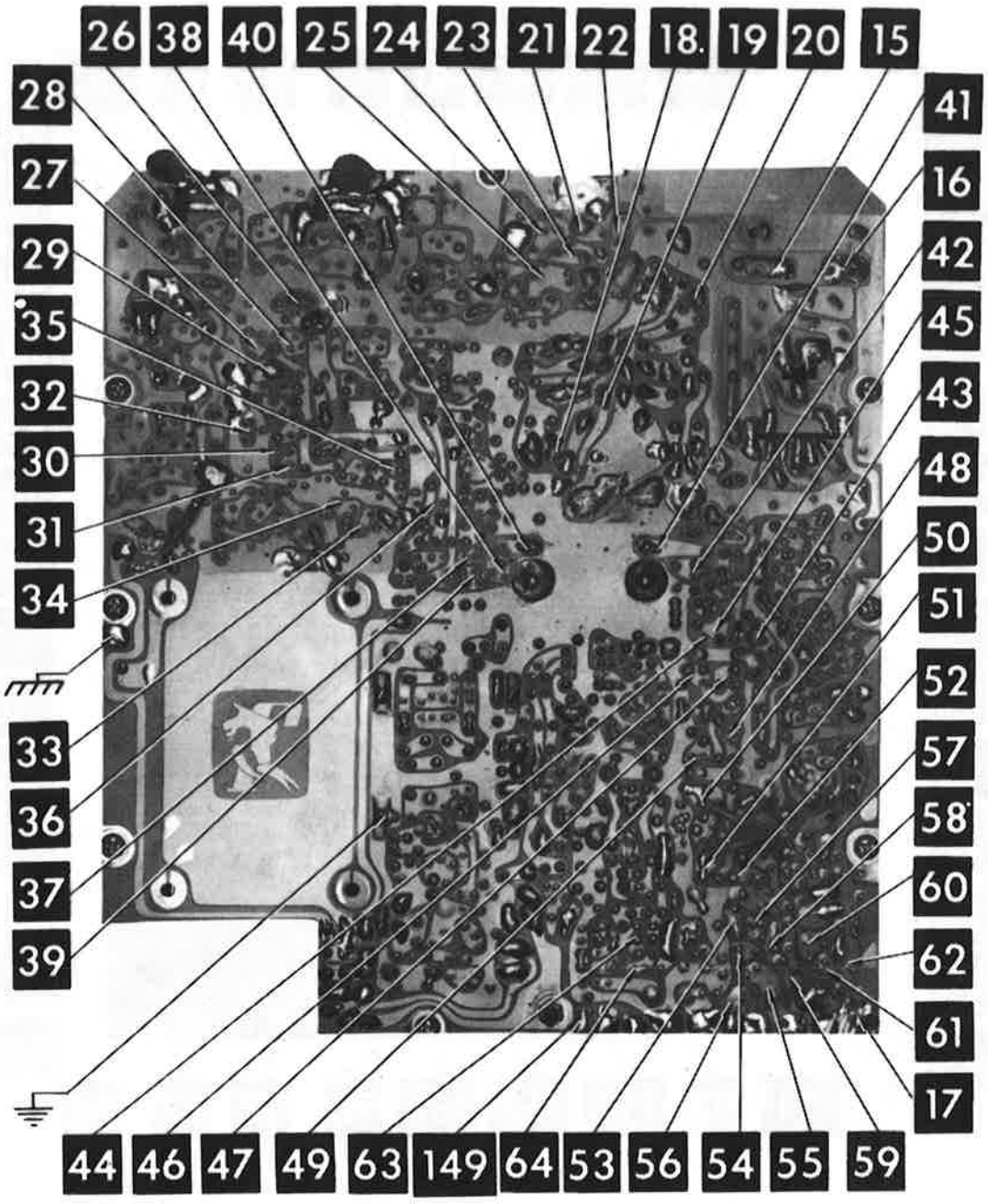
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MAIN BOARD

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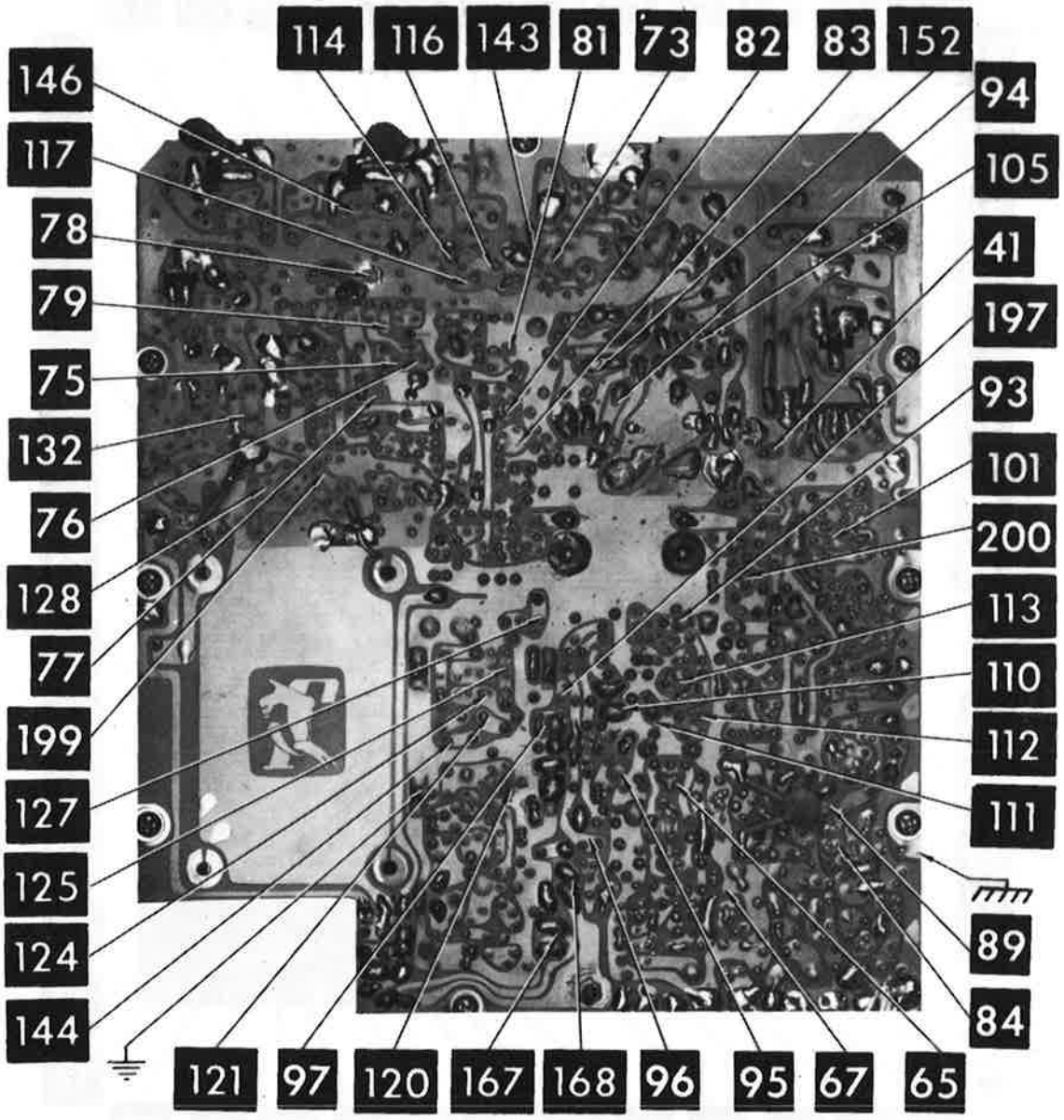

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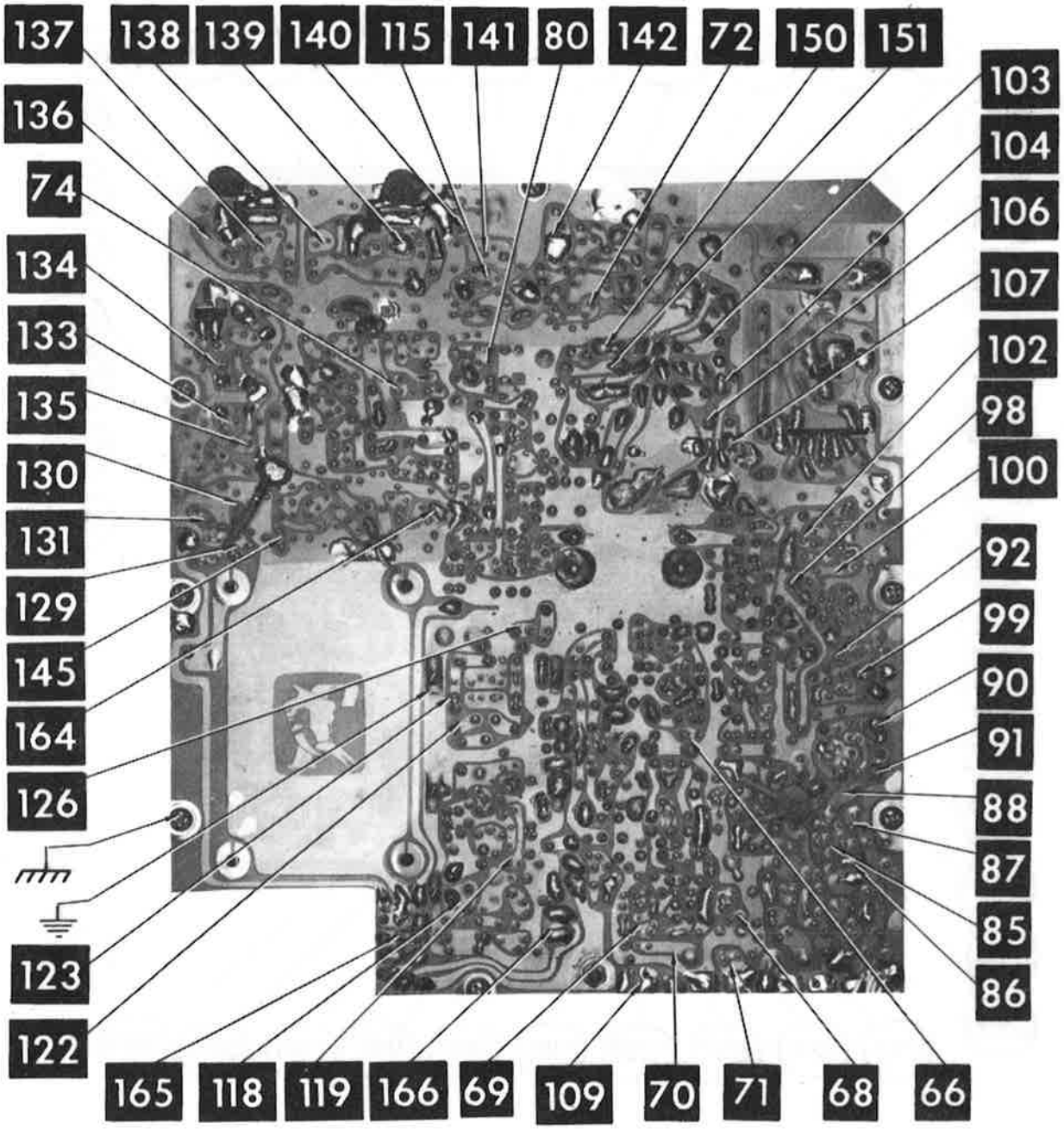
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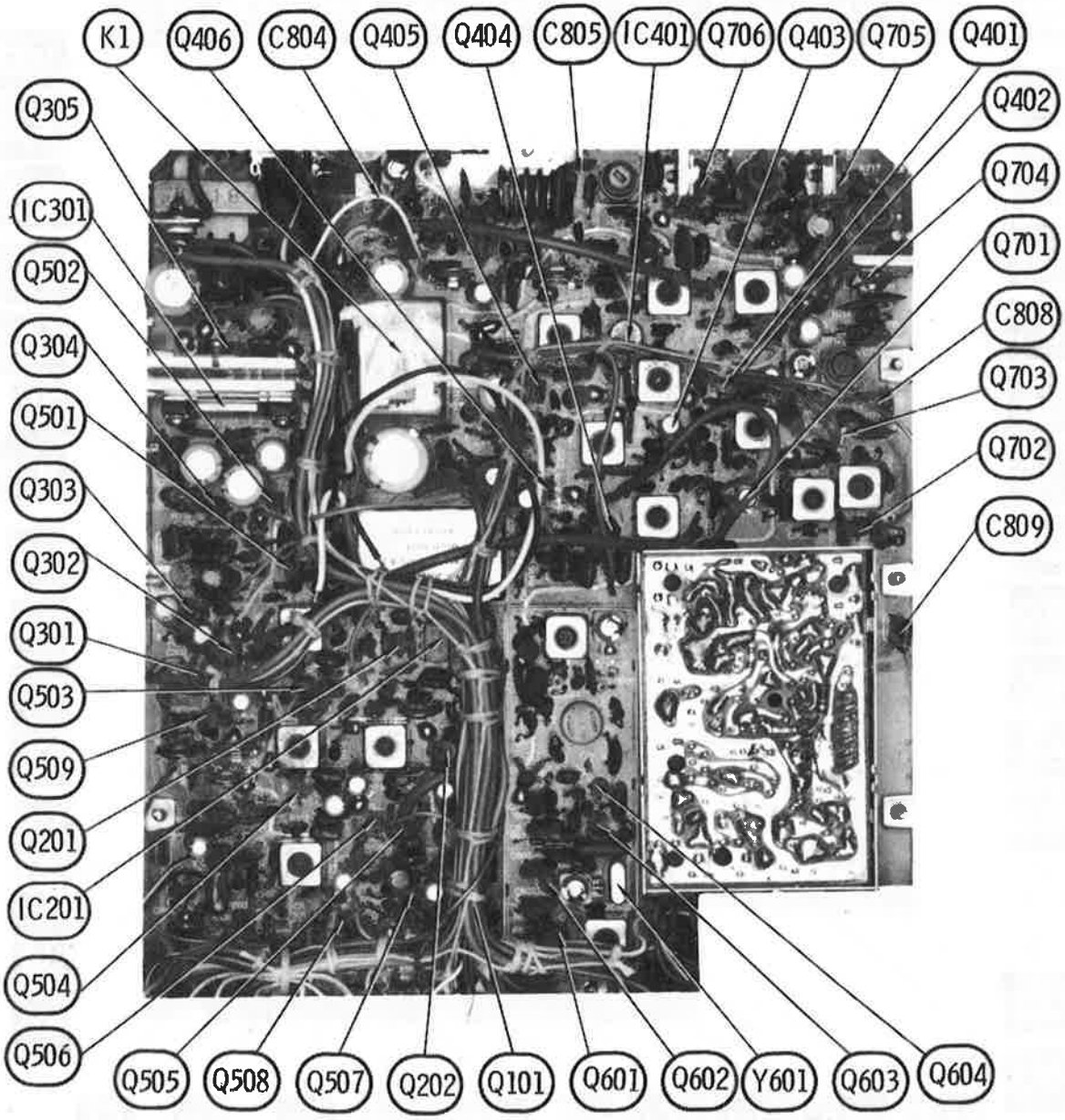
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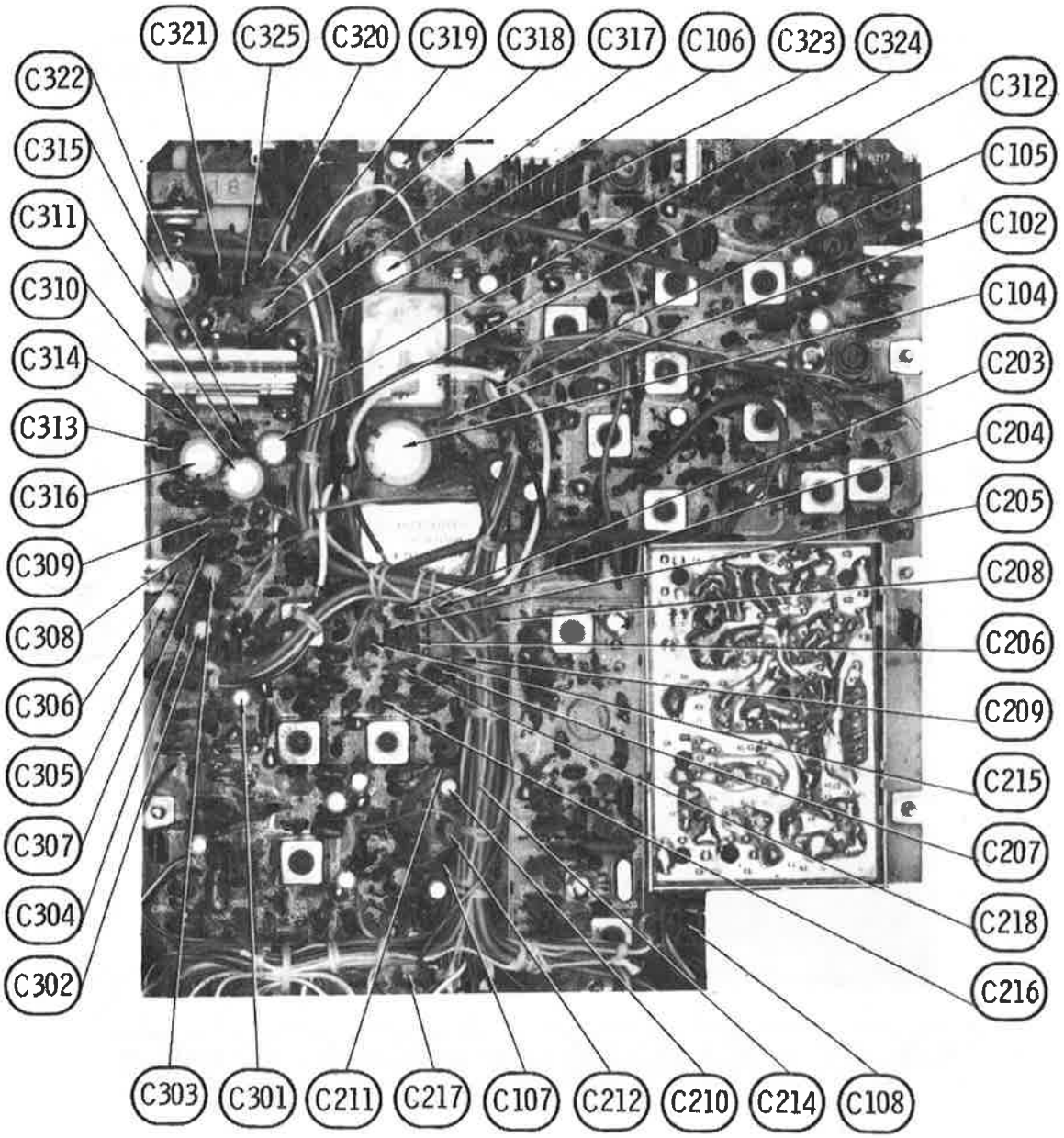
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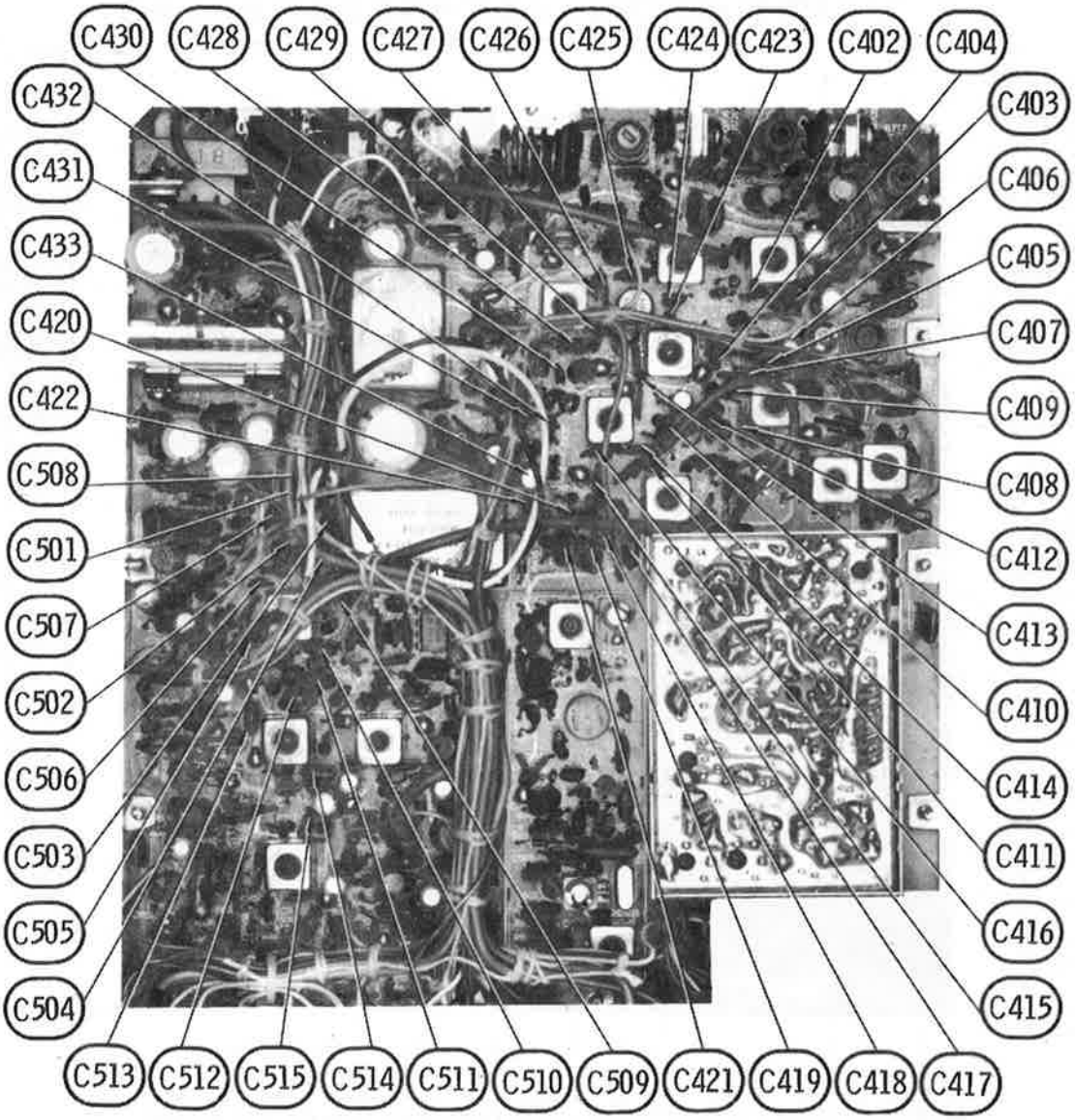
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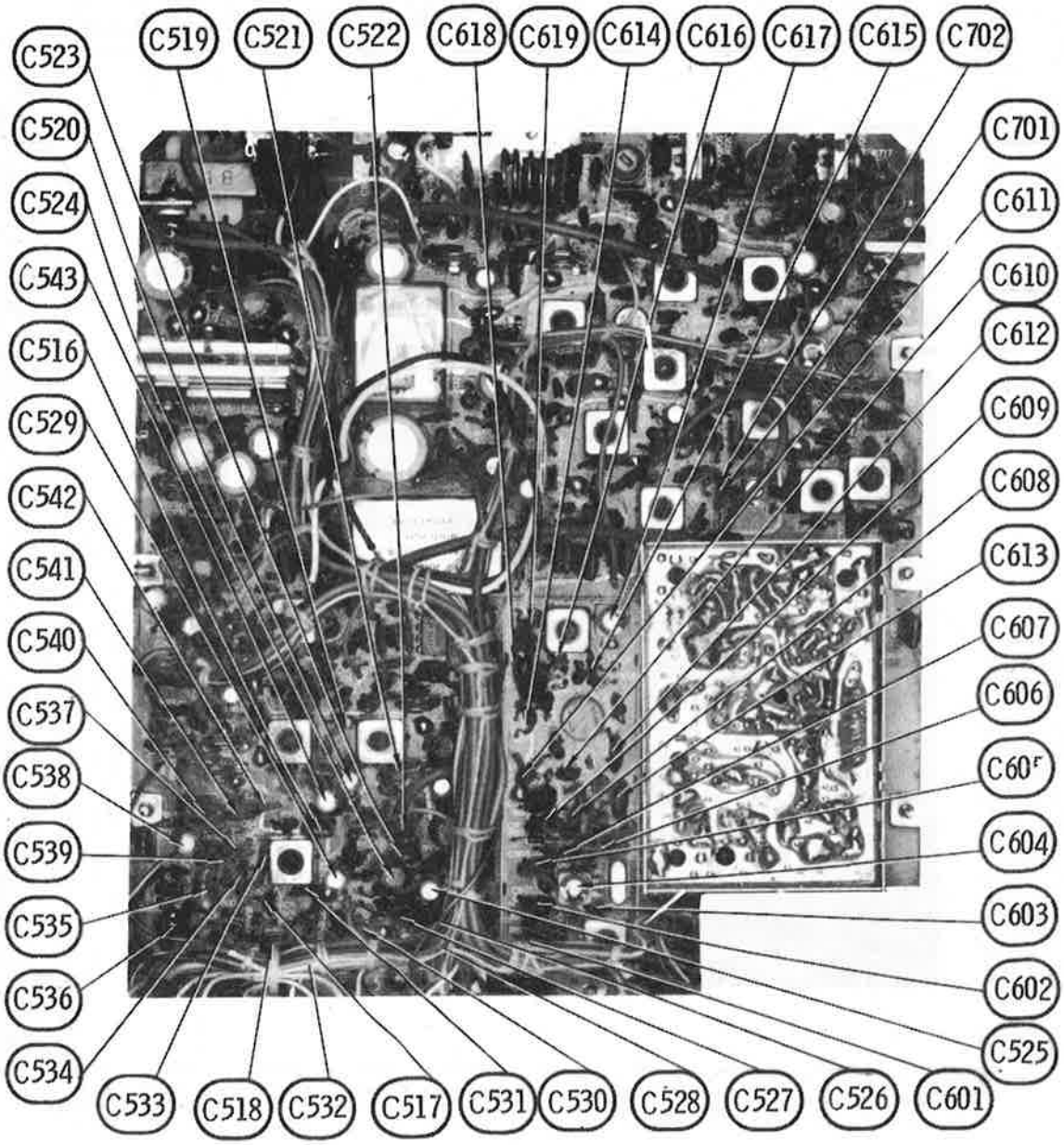
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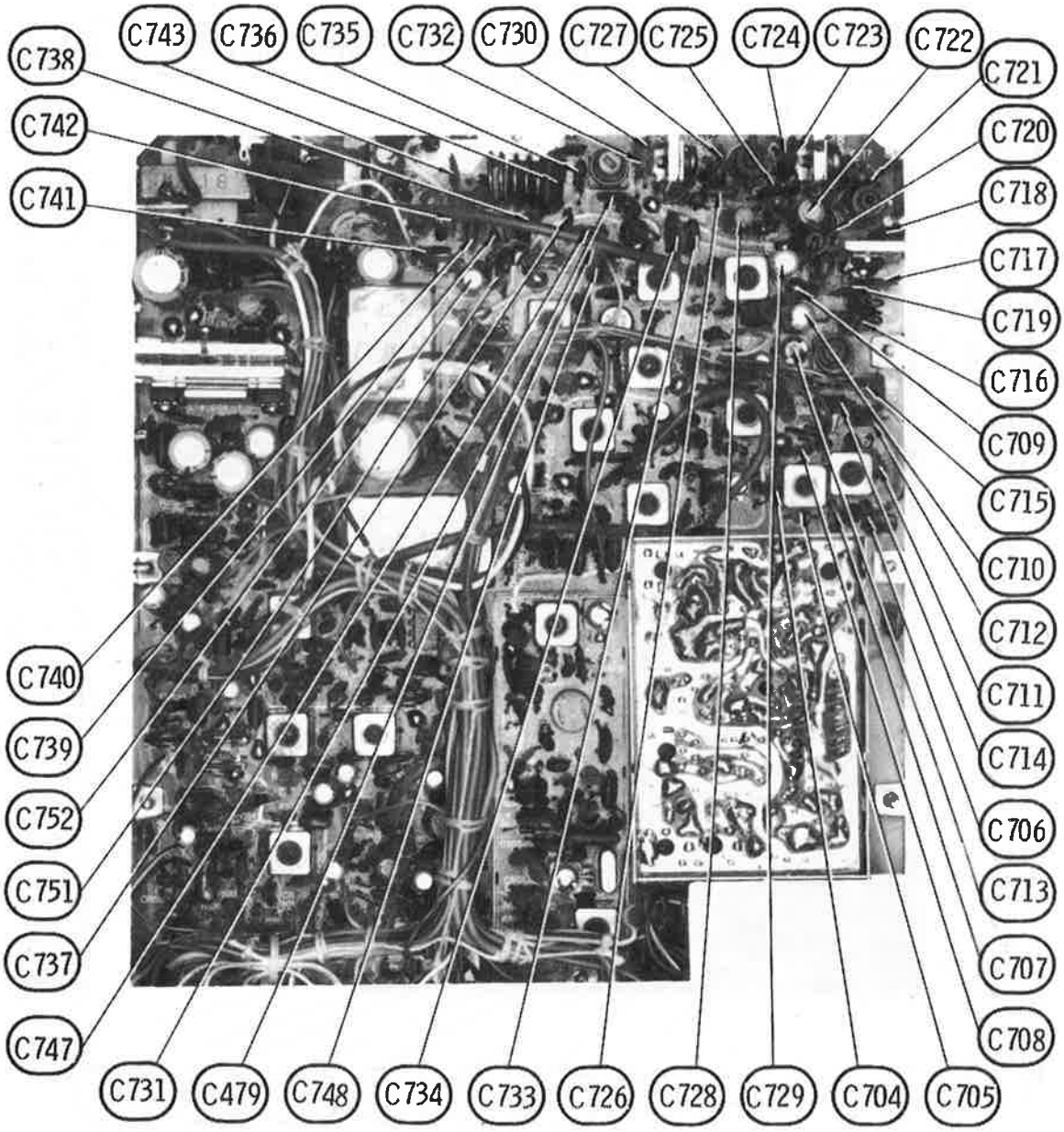
MAIN BOARD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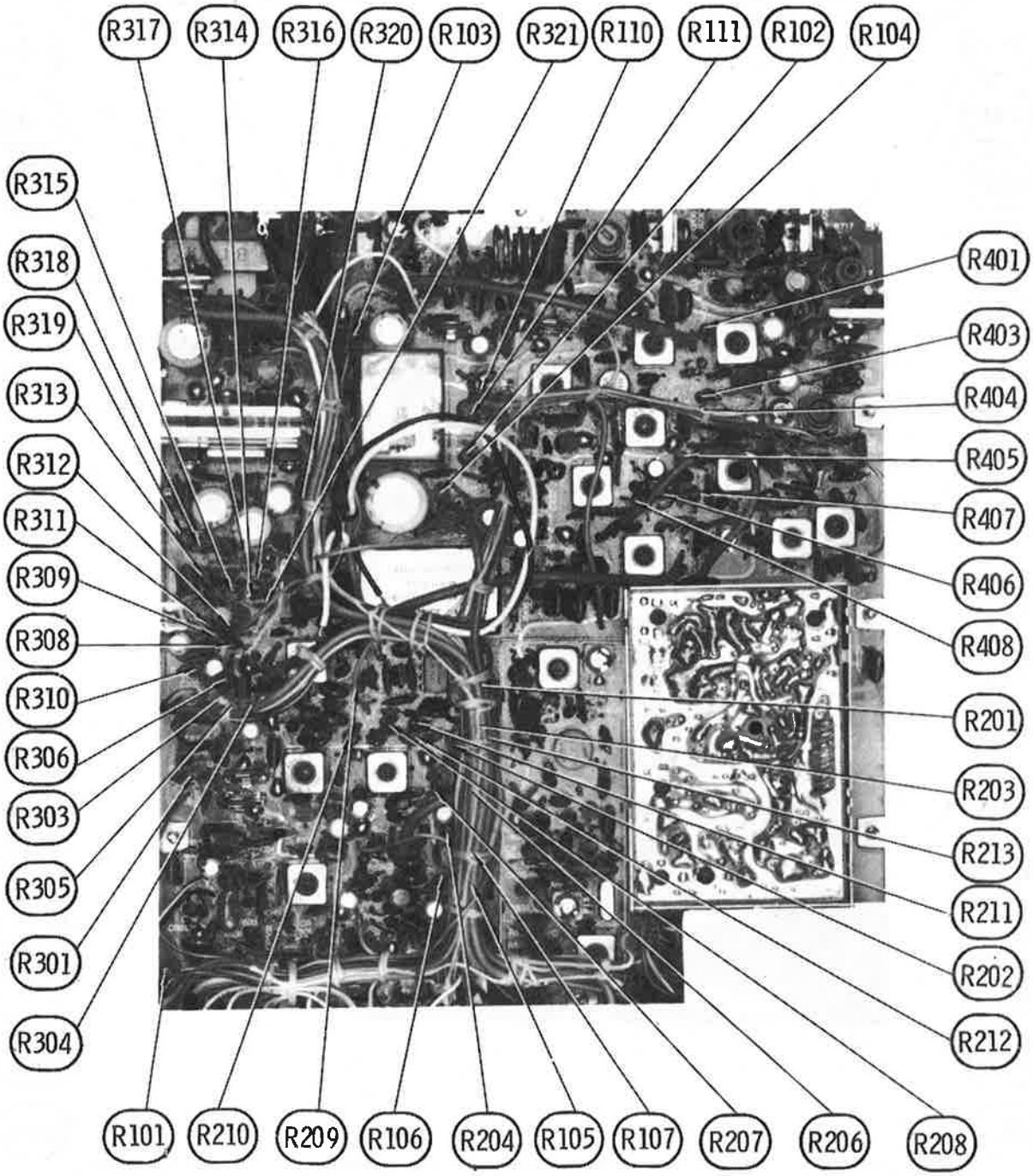
C736
C735
C732
C730
C727
C725
C724
C723
C722
C738
C742
C741
C721
C720
C718
C717
C719
C716
C709
C715
C710
C712
C711
C714
C706
C713
C707
C708
C740
C739
C752
C751
C737
C747
C731
C479
C748
C734
C733
C726
C728
C729
C704
C705

MAIN BOARD


R317
R314
R316
R320
R103
R321
R110
R111
R102
R104
R315
R318
R319
R313
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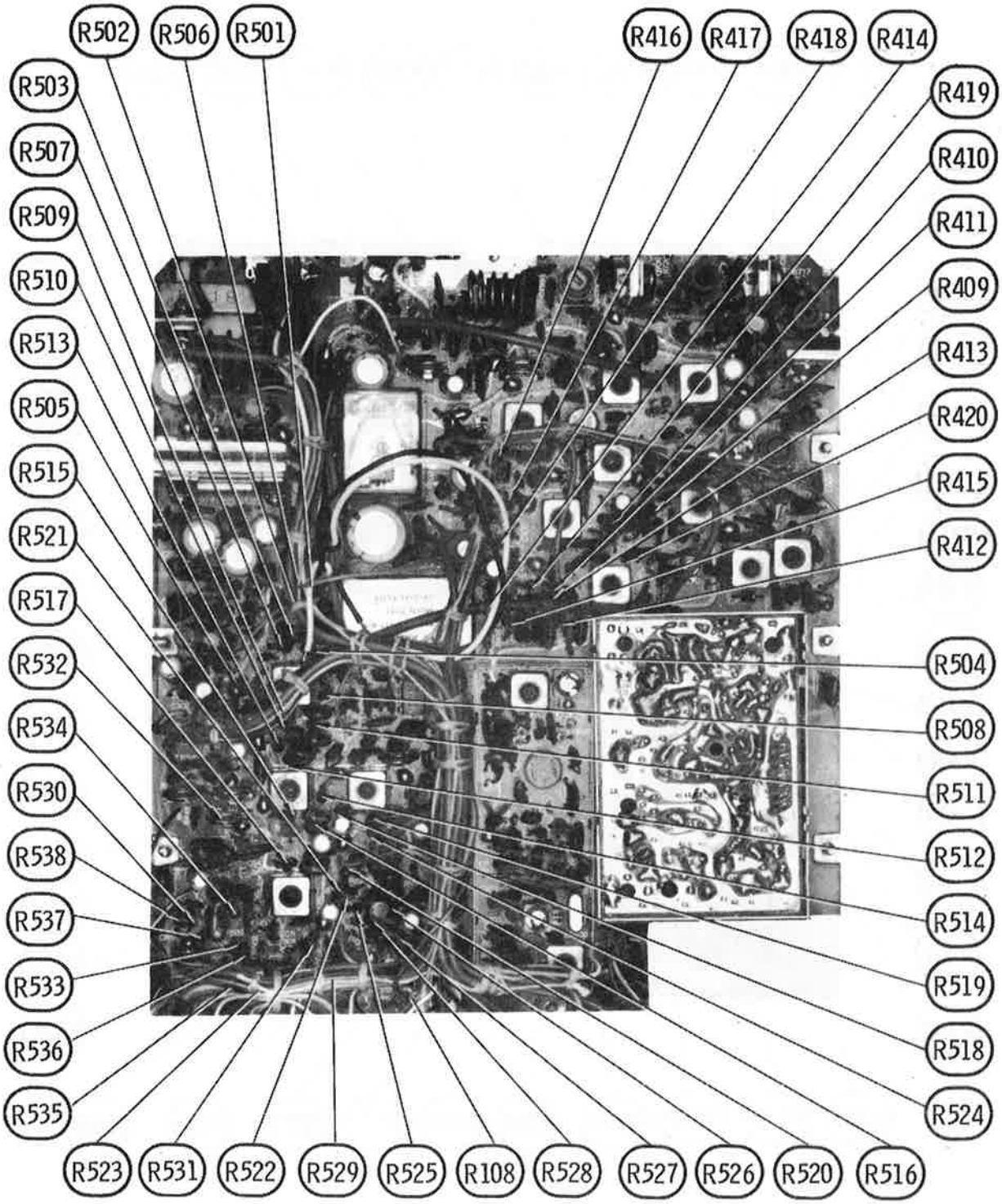
R311
R309
R308
R310
R306
R303
R305
R301
R304
R401
R403
R404
R405
R407
R406
R408
R201
R203
R213
R211
R202
R212
R101
R210
R209
R106
R204
R105
R107
R207
R206
R208

MAIN BOARD


R502
R506
R501
R416
R417
R418
R414
R503
R419
R507
R410
R509
R411
R510
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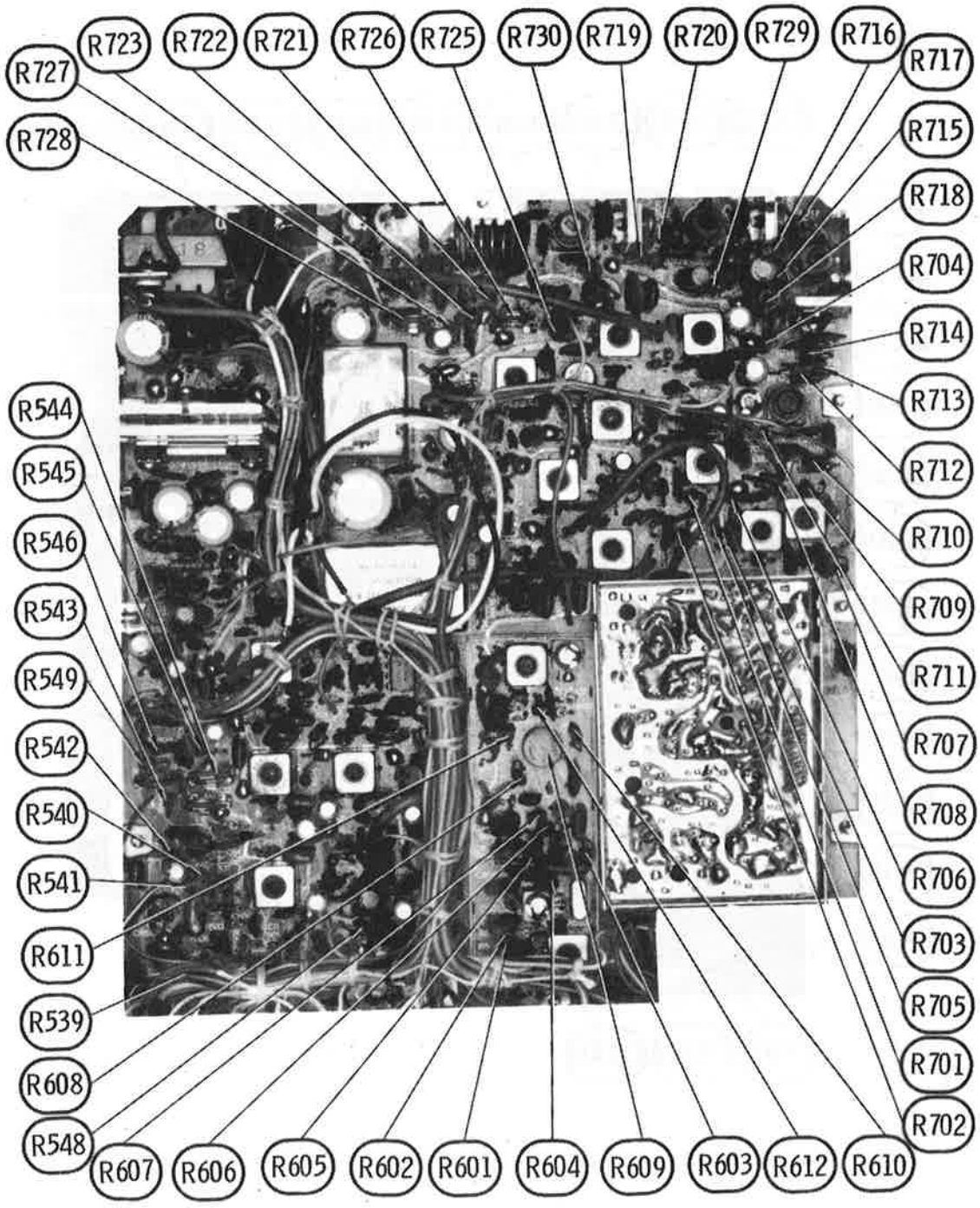
R513
R413
R505
R420
R515
R415
R521
R412
R517
R532
R504
R534
R508
R530
R511
R538
R512
R537
R514
R533
R519
R536
R518
R535
R524
R523
R531
R522
R529
R525
R108
R528
R527
R526
R520
R516

MAIN BOARD


R723
R722
R721
R726
R725
R730
R719
R720
R729
R716
R727
R728
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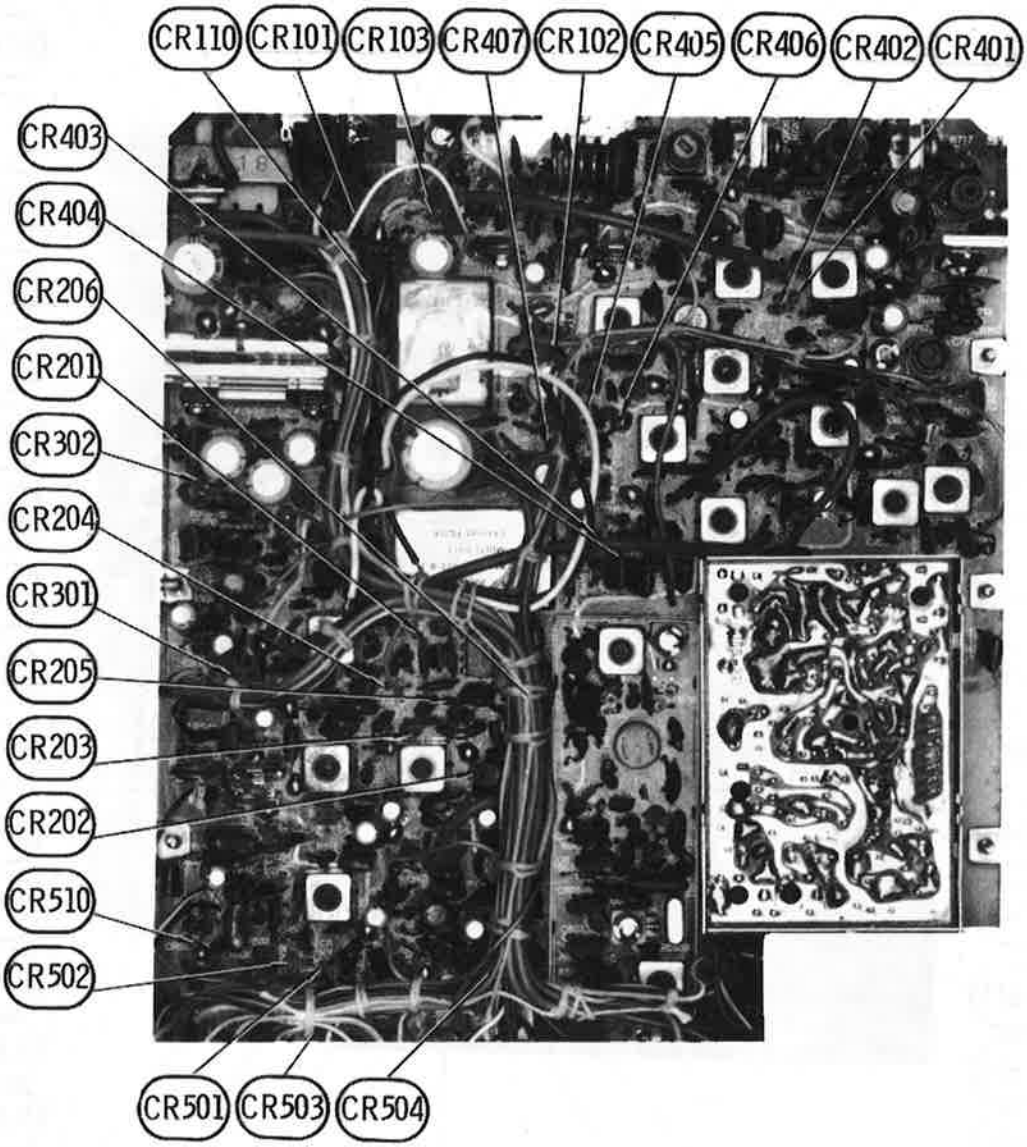
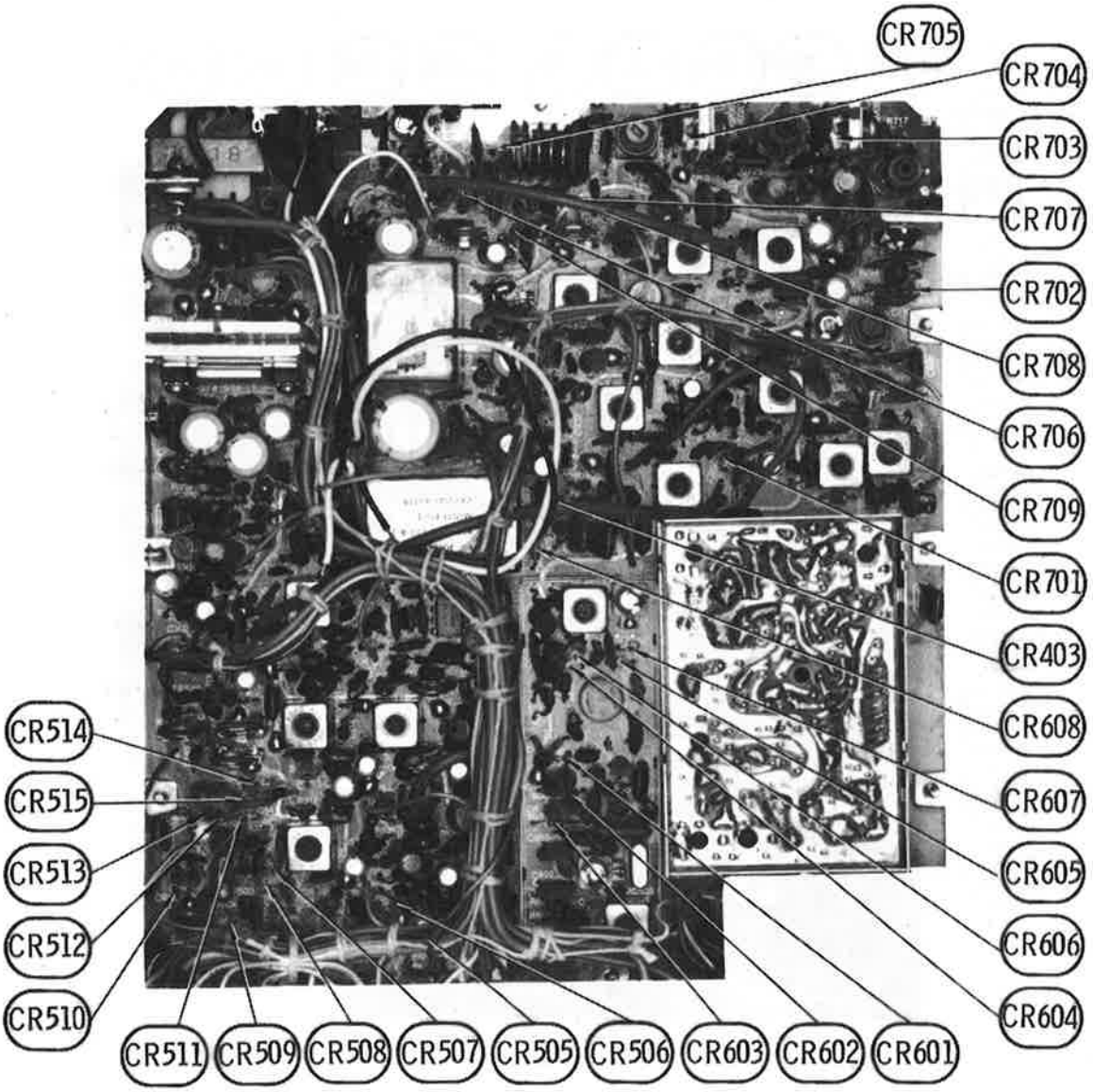
R715
R718
R704
R714
R713
R712
R710
R709
R711
R707
R708
R706
R703
R705
R701
R702
R544
R545
R546
R543
R549
R542
R540
R541
R611
R539
R608
R548
R607
R606
R605
R602
R601
R604
R609
R603
R612
R610

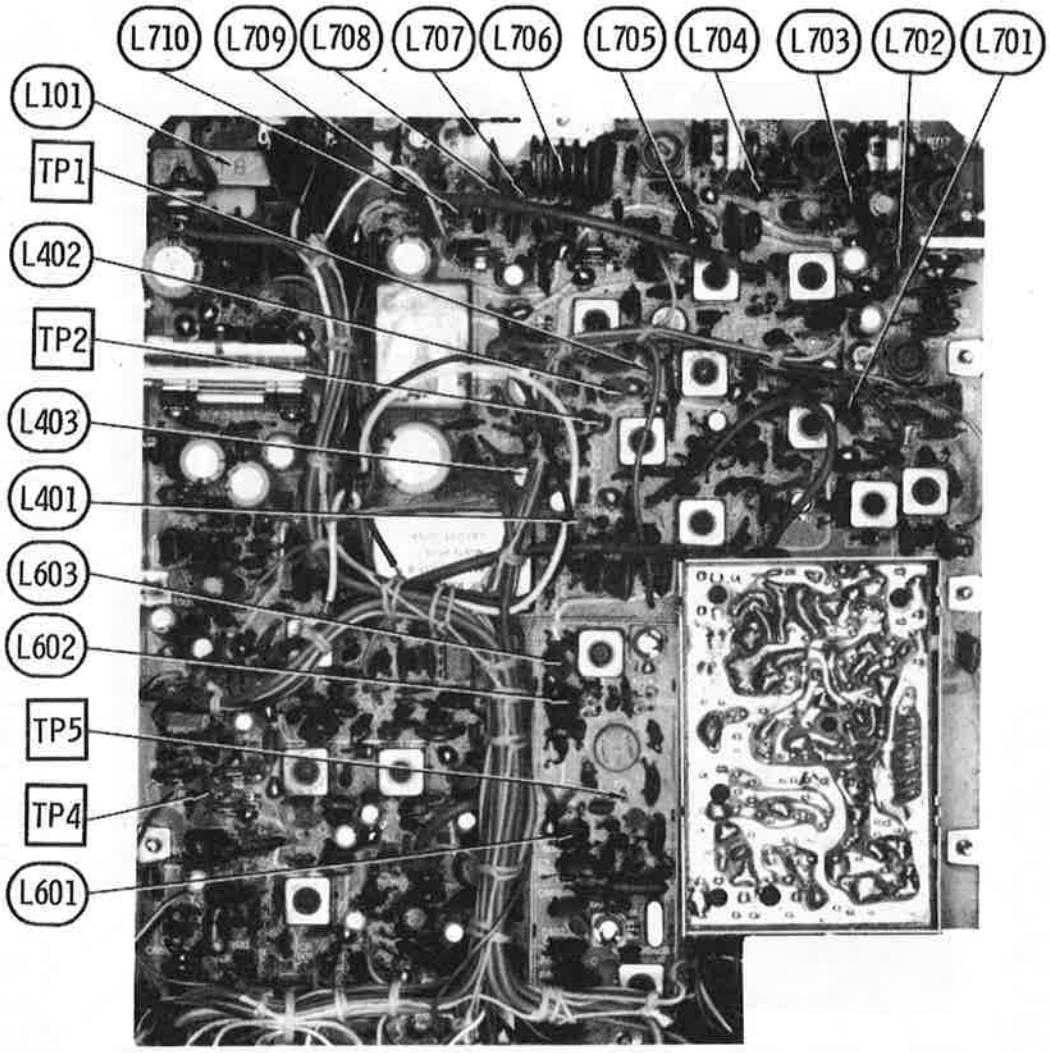
MAIN BOARD


CR110
CR101
CR103
CR407
CR102
CR405
CR406
CR402
CR401
CR403
CR404
CR206
CR201
CR302
CR204
CR301
CR205
CR203
CR202
CR510
CR502
CR501
CR503
CR504

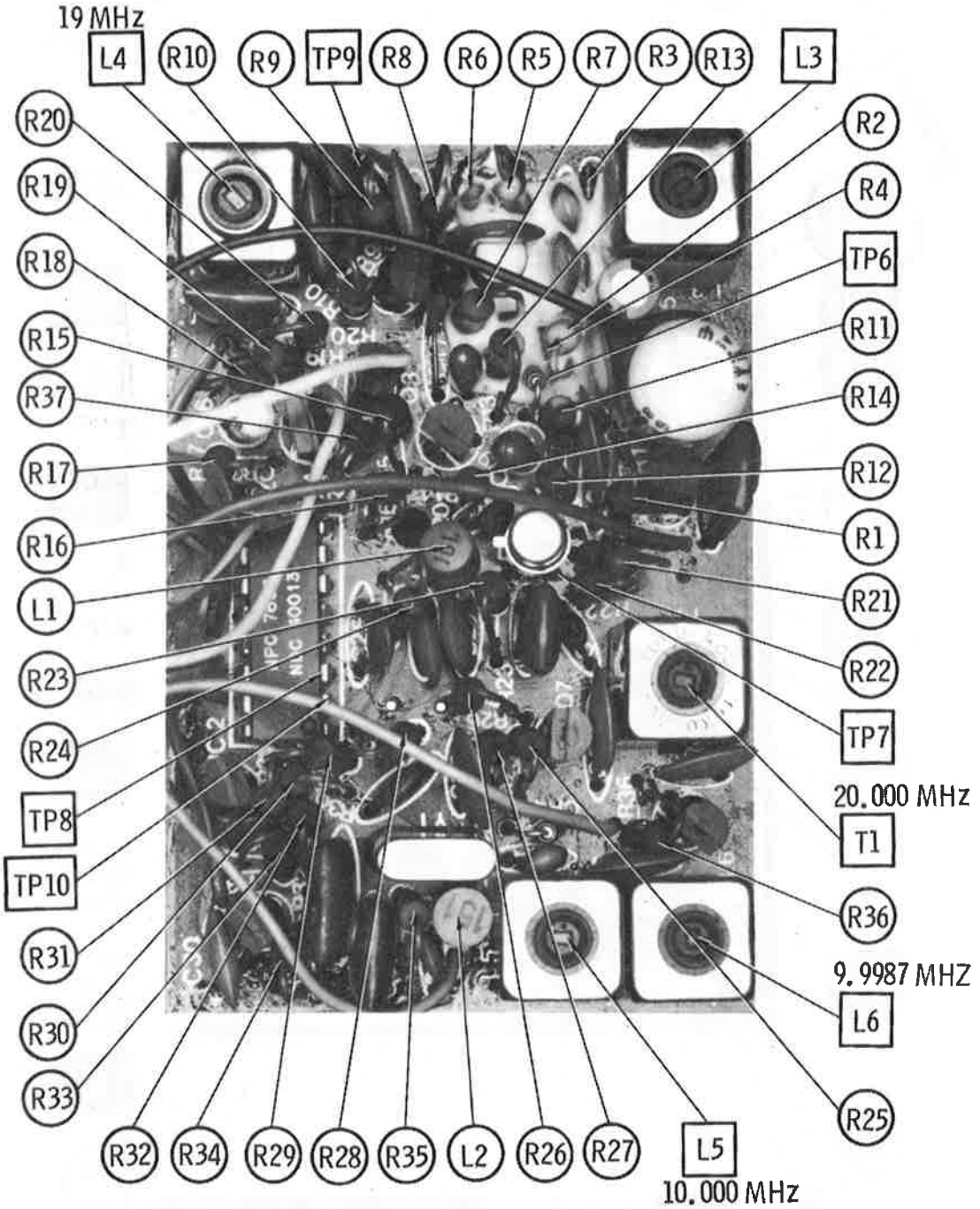
MAIN BOARD


CR705
CR704
CR703
CR707
CR702
CR708
CR706
CR709
CR701
CR403
CR608
CR607
CR605
CR606
CR604
CR514
CR515
CR513
CR512
CR510
CR511
CR509
CR508
CR507
CR505
CR506
CR603
CR602
CR601

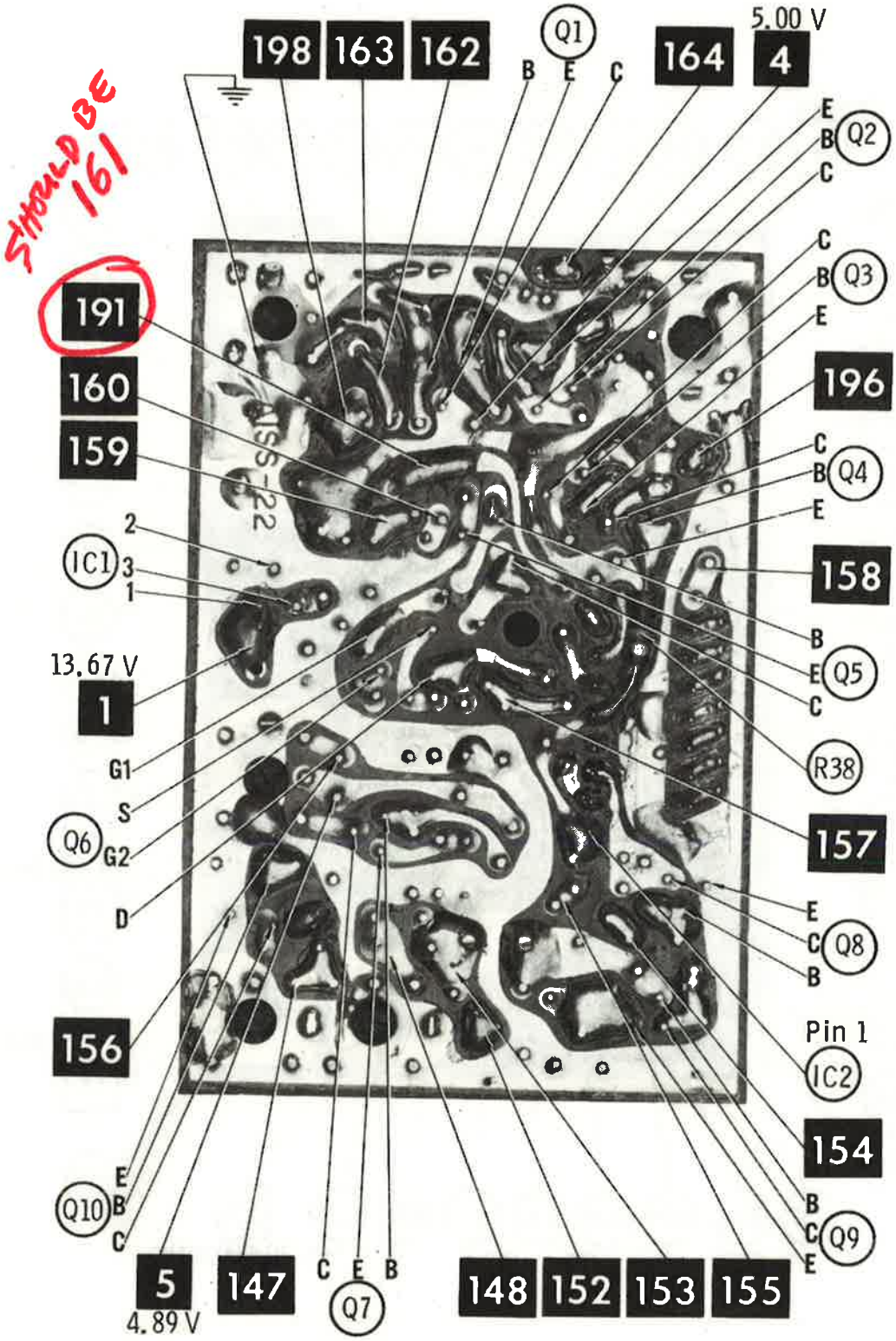
MAIN BOARD


L710
L709
L708
L707
L706
L705
L704
L703
L702
L701
L101
TP1
L402
TP2
L403
L401
L603
L602
TP5
TP4
L601

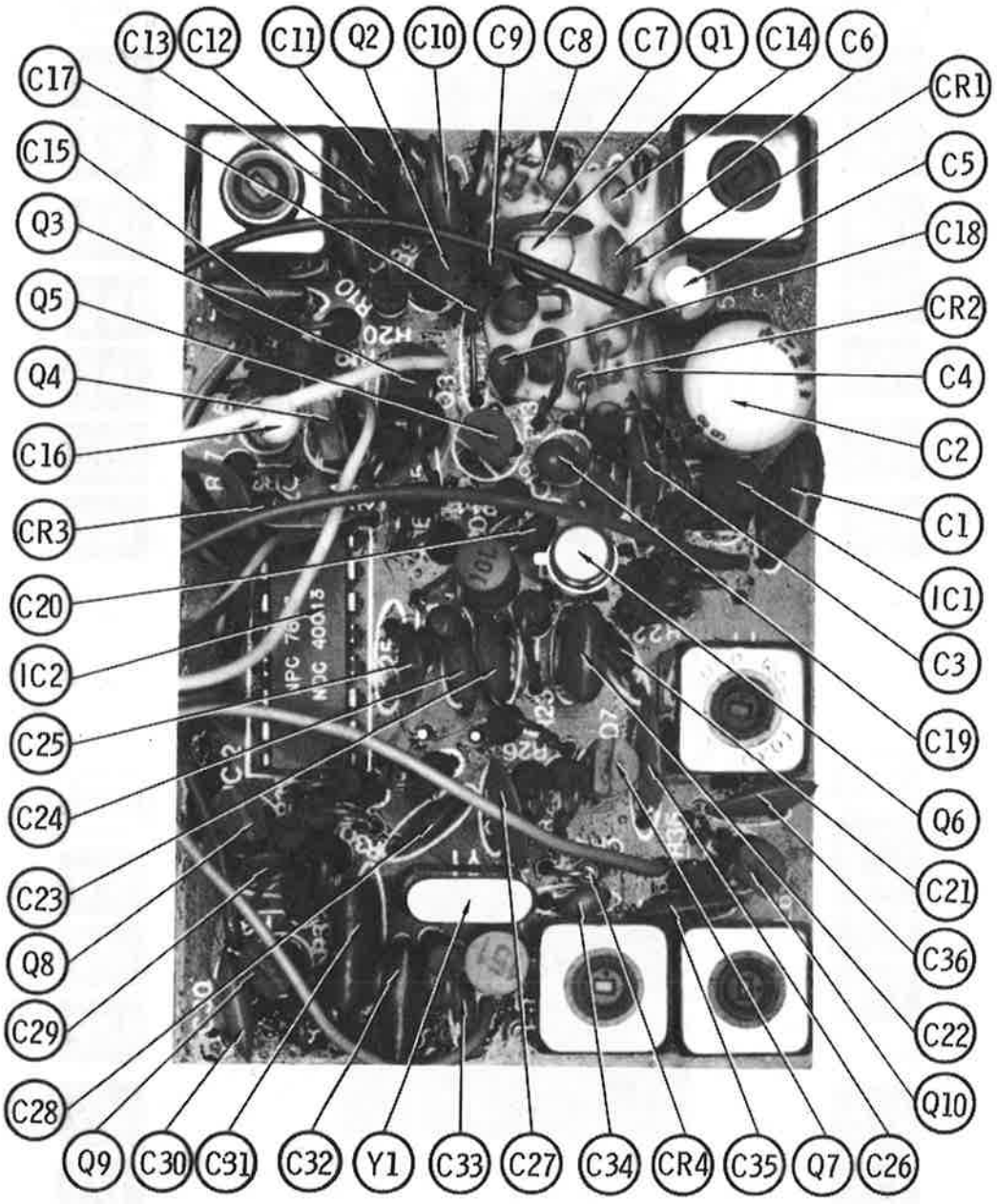
MAIN BOARD


19 MHz
L4
R10
R9
TP9
R8
R6
R5
R7
R3
R13
L3
R20
R19
R18
R15
R37
R17
R16
L1
R23
R24
TP8
TP10
R31
R30
R33
R32
R34
R29
R28
R35
L2
R26
R27
L5
10.000 MHz
R2
R4
TP6
R11
R14
R12
R1
R21
R22
TP7
20.000 MHz
T1
R36
9.9987 MHZ
L6
R25

PLL BOARD

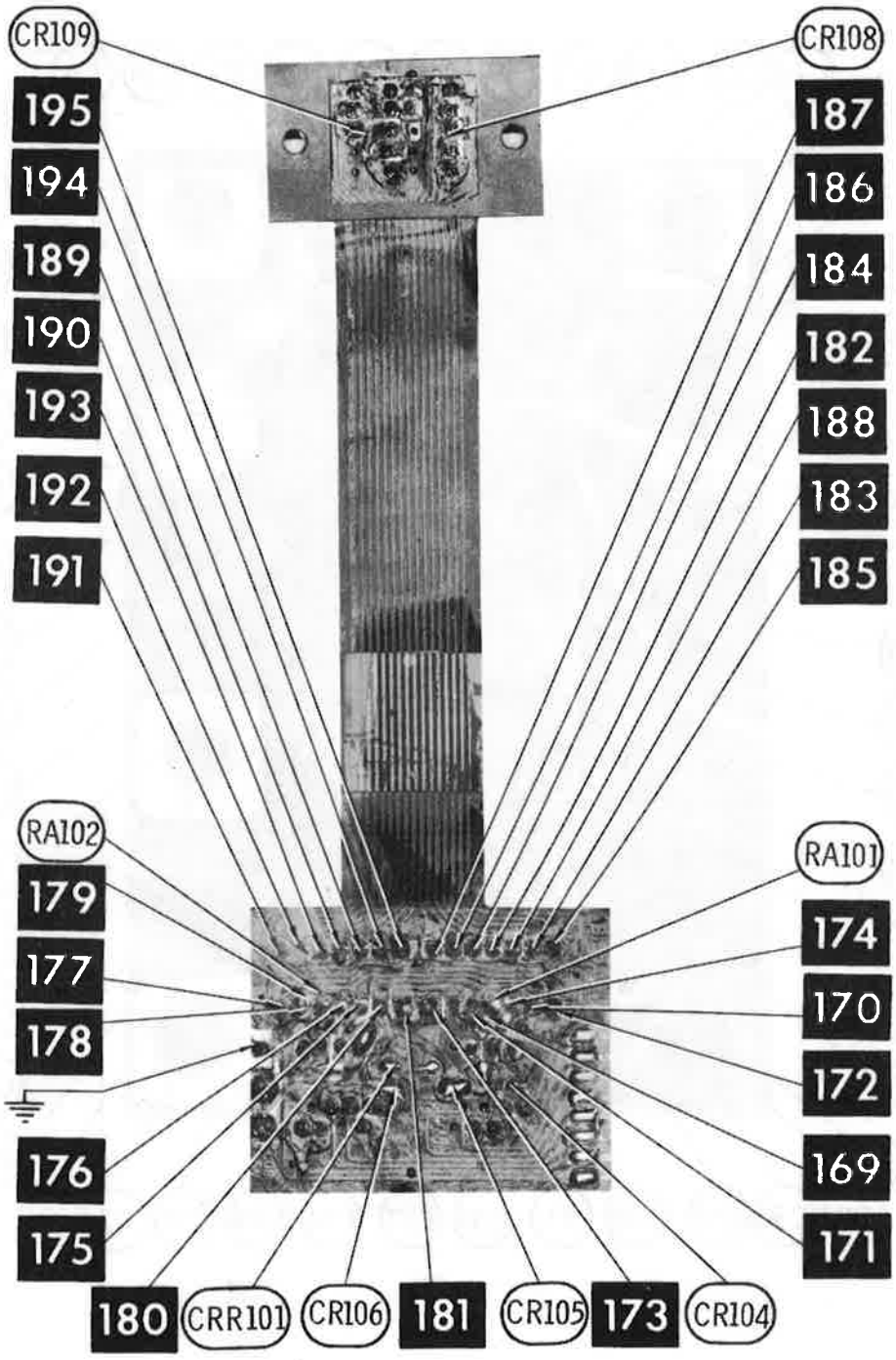

198
163
162
Q1
B E C
164
5.00 V
4
SHOULD BE
161
191
160
159
2
IC1
3
1
13.67 V
1
G1
S
Q6
G2
D
156
E
B
Q10
C
5
4.89 V
147
C E B
Q7
148
152
153
155
E
B Q2
C
C
B Q3
E
196
C
B Q4
E
158
B
E Q5
C
R38
157
E
C Q8
B
Pin 1
IC2
154
B
C Q9
E

PLL BOARD

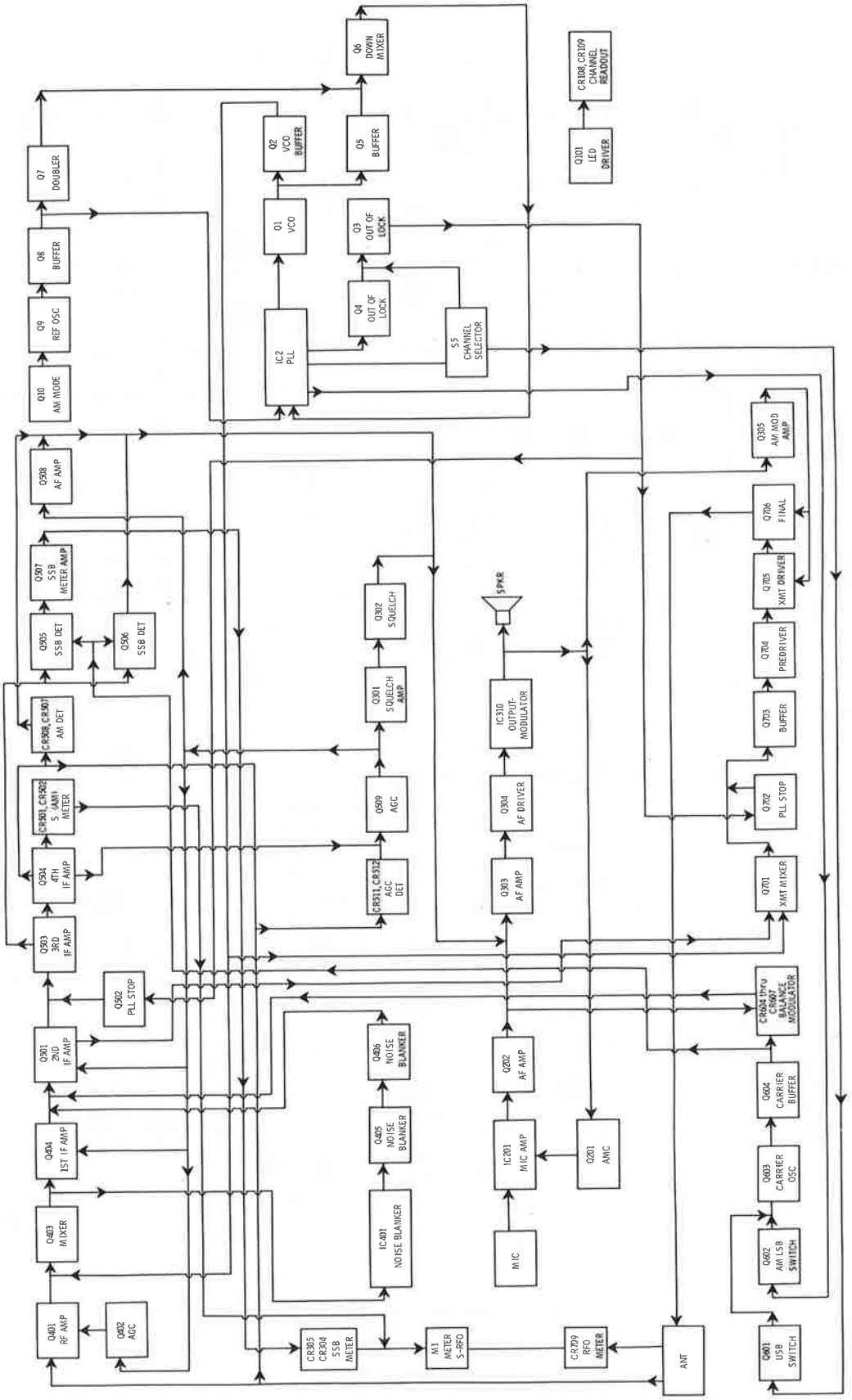

C13
C12
C11
Q2
C10
C9
C8
C7
Q1
C14
C6
C17
C15
Q3
Q5
Q4
C16
CR3
C20
IC2
C25
C24
C23
Q8
C29
C28
Q9
C30
C31
C32
Y1
C33
C27
C34
CR4
C35
Q7
C26
CR1
C5
C18
CR2
C4
C2
C1
IC1
C3
C19
Q6
C21
C36
C22
Q10

PLL BOARD

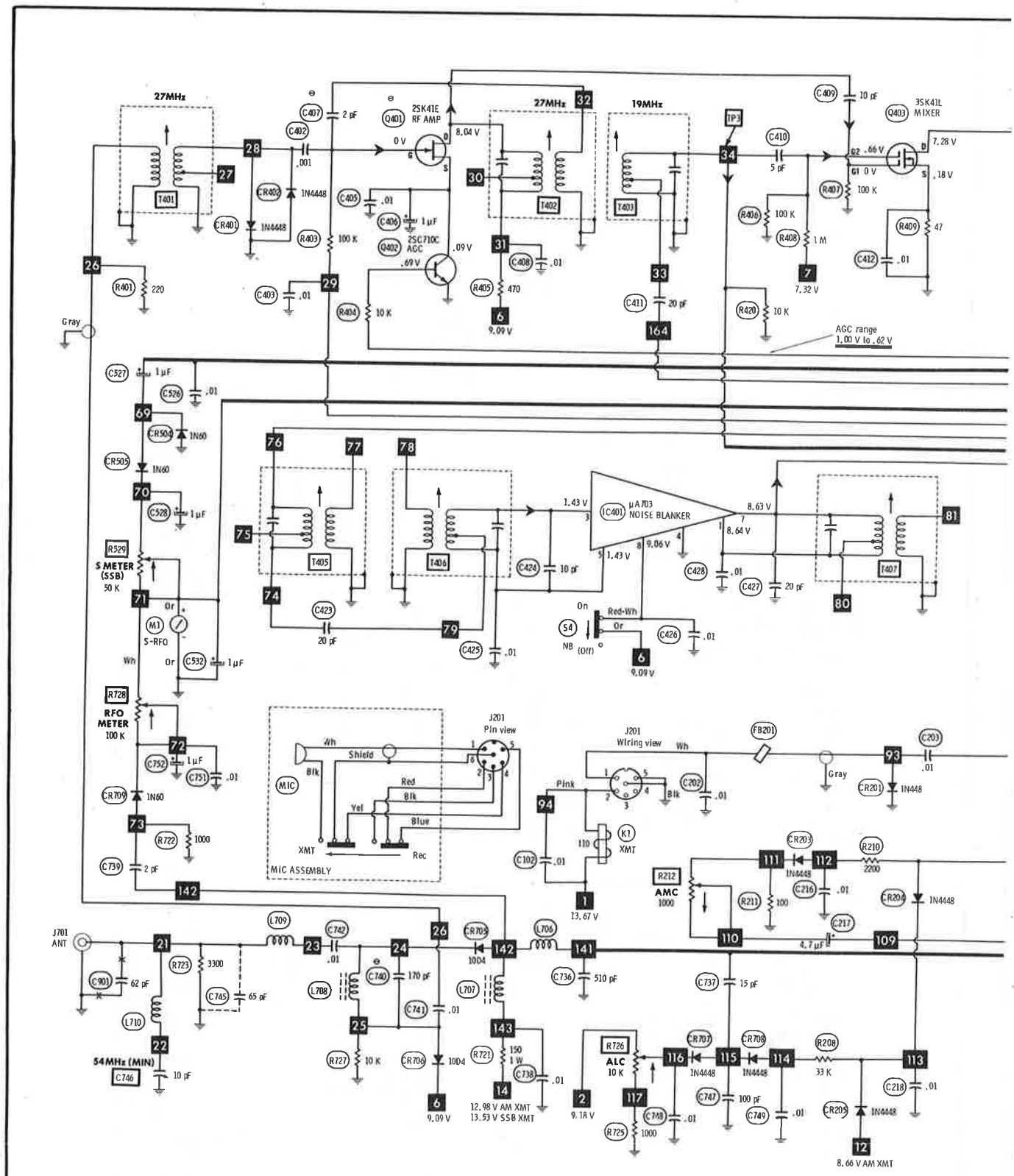
A Howard W. Sams CIRCUITRACE Photo



CH. SELECTOR & READOUT BOARD



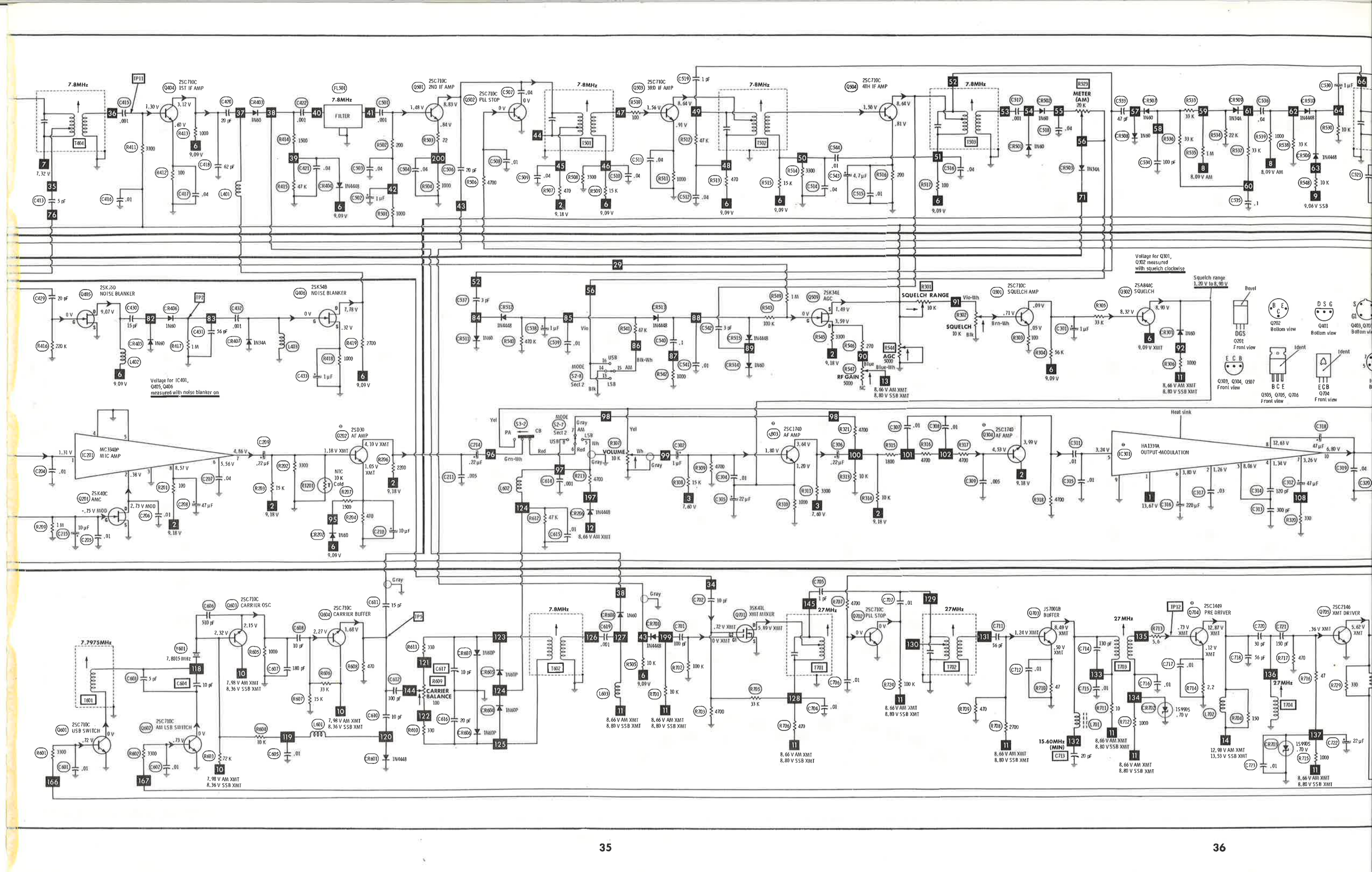
BLOCK DIAGRAM

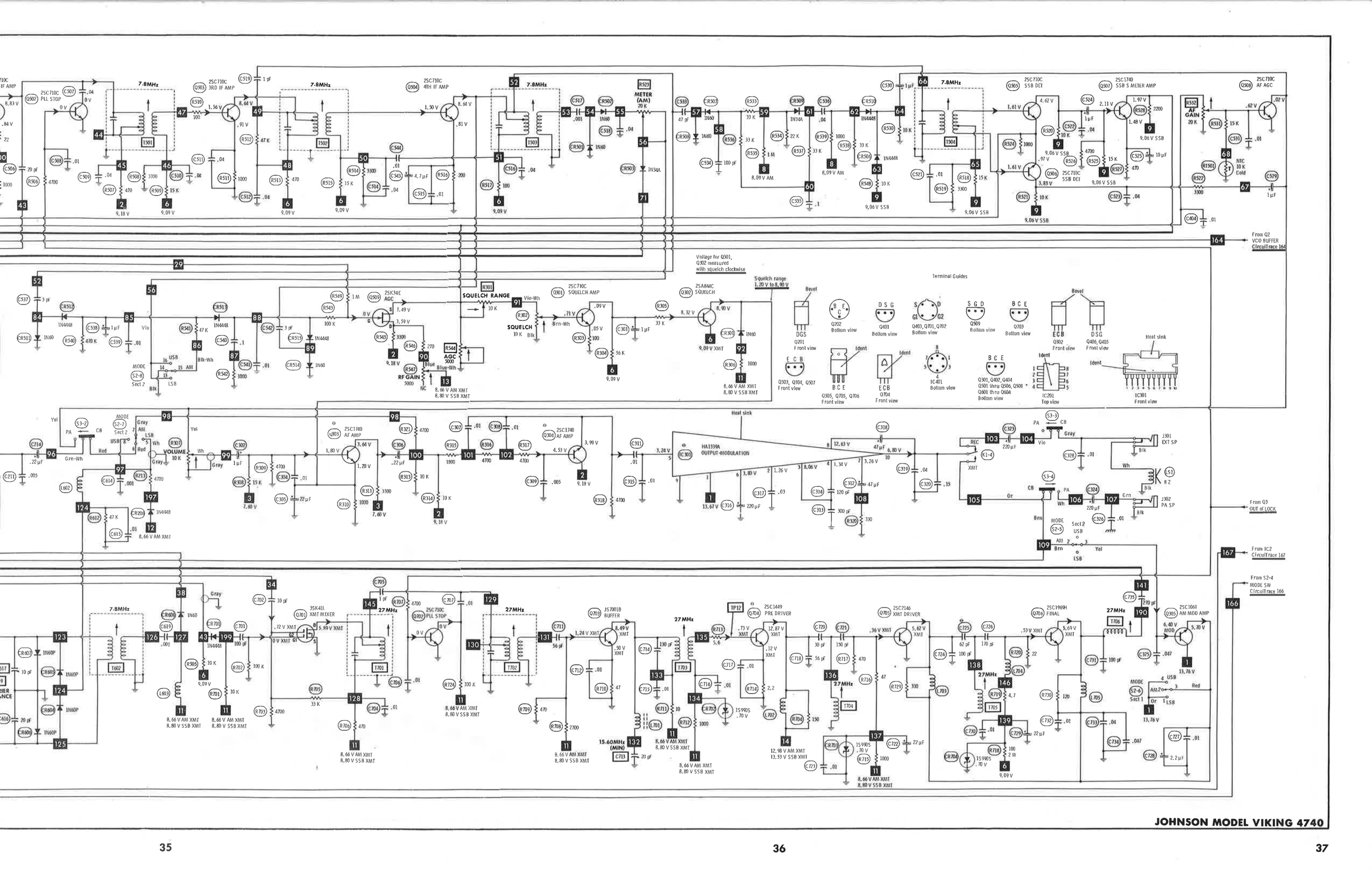


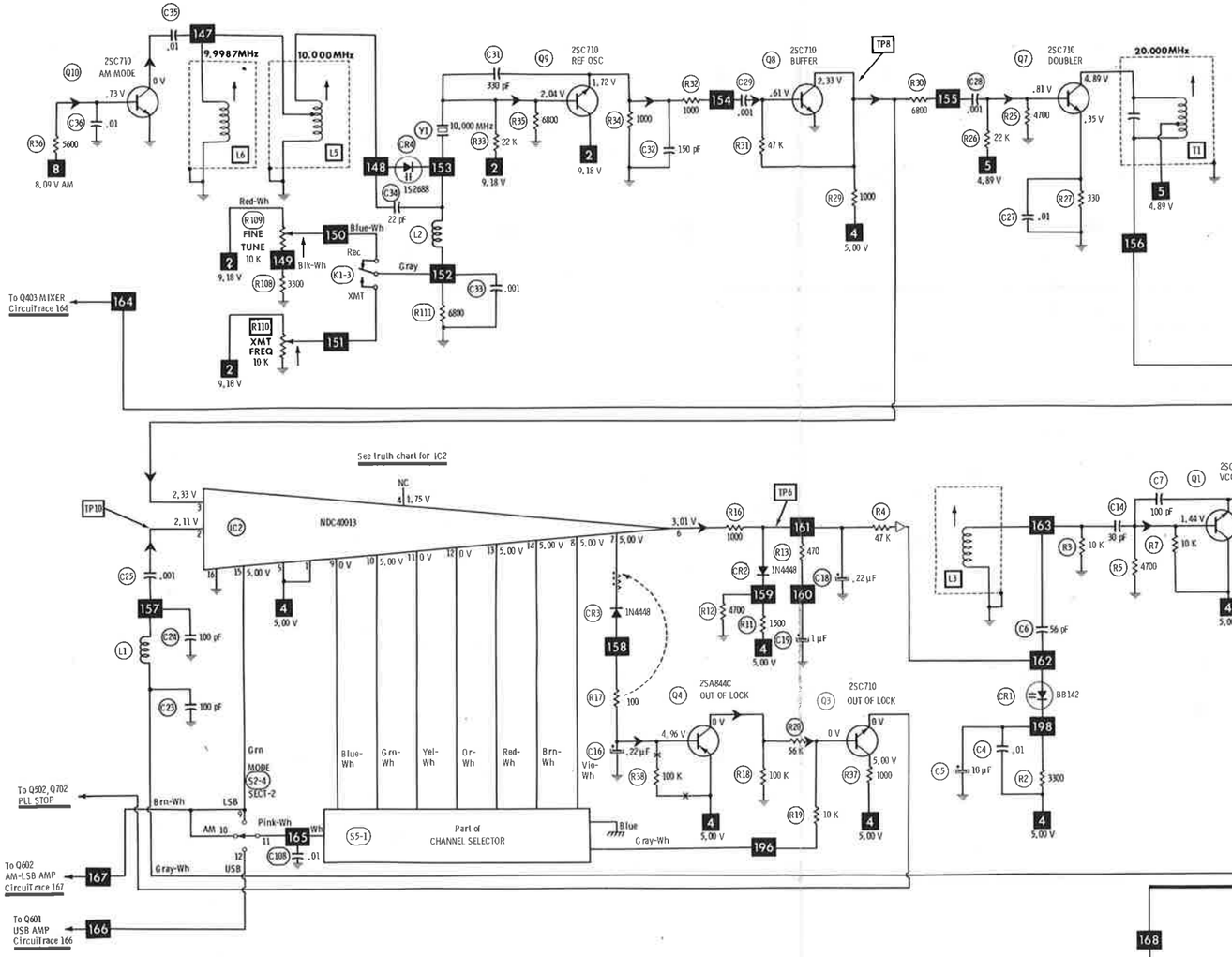
— Circuitry not used in some versions
--- Circuitry used in some versions
⊖ See parts list
※ Nominal value
⏚ Ground
Chassis
▽ Common tie point

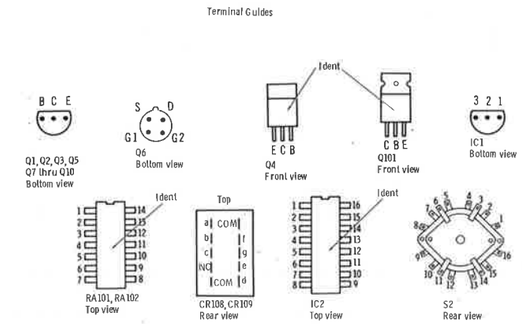
A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE®

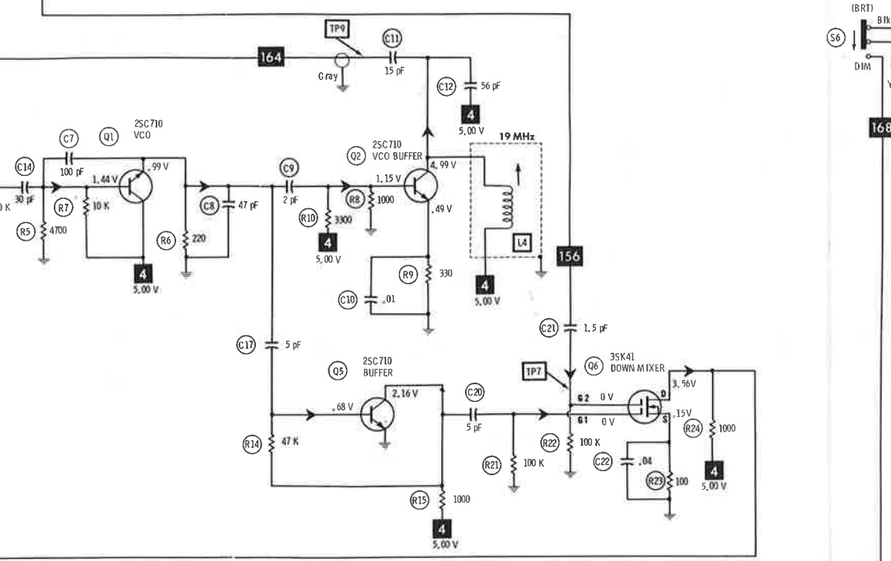
Measurements made in Channel 1 with switching as shown unless noted.
Item numbers in rectangles appear in the alignment/adjustment instructions.
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates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

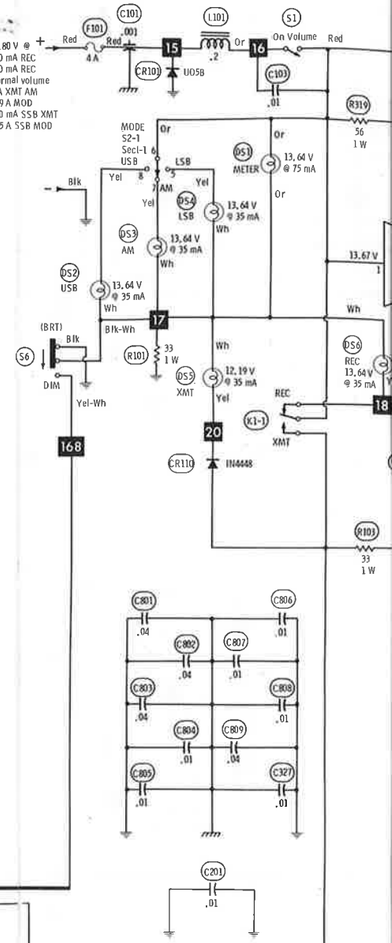

7.8MHz
TP11
Q404 2SC710C 1ST IF AMP
FL501
FILTER
Q501 2SC710C 2ND IF AMP
Q502 2SC710C PLL STOP
Q503 2SC710C 3RD IF AMP
Q504 2SC710C 4TH IF AMP
METER (AM) 20 K
T404
1501
1502
1503
Q405 2SK30D NOISE BLANKER
Q406 2SK54B NOISE BLANKER
TP2
Voltage for IC401, Q405, Q406 measured with noise blanker on
Voltage for Q301, Q302 measured with squelch clockwise
Squelch range 1.20 V to 8.90 V
R301 SQUELCH RANGE 10 K
R302 SQUELCH 10 K
Q301 2SC710C SQUELCH AMP
Q302 2SA844C SQUELCH
R544 AGC 5000
RF GAIN 5000
MODE S2-8 Sect 2
USB
LSB
AM
VOLUME 10 K
8.66 V AM XMT
8.80 V SSB XMT
Bevel
DGS Q201 Front view
Q202 Bottom view
D S G Q401 Bottom view
E C B Q303, Q304, Q507 Front view
B C E Q305, Q705, Q706 Front view
ECB Q704 Front view
Ident
IC201 MC3340P MIC AMP
Q201 2SK40C AMC
Q202 2SD30 AF AMP
NTC 10 K Cold
Q803 2SC1740 AF AMP
Q804 2SC1740 AF AMP
IC301 HA1339A OUTPUT-MODULATION
Heat sink
Q601 2SC710C USB SWITCH
Q602 2SC710C AM LSB SWITCH
Q603 2SC710C CARRIER OSC
Q604 2SC710C CARRIER BUFFER
Y601 7.8015 MHz
7.7975MHz
CARRIER BALANCE 100
Q701 3SK41L XMT MIXER
Q702 2SC710C PLL STOP
Q703 JS7001B BUFFER
Q704 2SC1449 PRE DRIVER
Q705 2SC2146 XMT DRIVER
27MHz
15-60MHz (MIN)
IC1 MC3340P MIC AMP
IC2 HA1339A OUTPUT-MODULATION
Q1 2SK40C AMC
Q2 2SD30 AF AMP
Q3 2SC1740 AF AMP
Q4 2SC1740 AF AMP
Q5 2SC710C USB SWITCH
Q6 2SC710C AM LSB SWITCH
Q7 2SC710C CARRIER OSC
Q8 2SC710C CARRIER BUFFER
Y1 7.8015 MHz
7.7975MHz
Q9 3SK41L XMT MIXER
Q10 2SC710C PLL STOP
Q11 JS7001B BUFFER
Q12 2SC1449 PRE DRIVER
Q13 2SC2146 XMT DRIVER
CARRIER BALANCE 100
27MHz
15-60MHz (MIN)

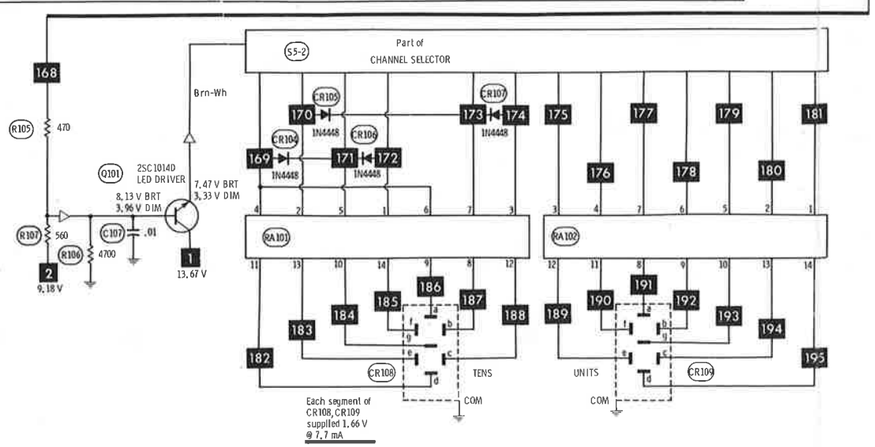

7.8MHz
2SC710C PLL STOP
2SC710C 3RD IF AMP
2SC710C 4TH IF AMP
METER (AM) 20 K
2SC710C SSB DET
2SC1740 SSB S METER AMP
2SC710C AF AGC
AF GAIN 20 K
NTC 10 K Cold
From Q2 VCO BUFFER CircuitTrace 164
SQUELCH RANGE 10 K
SQUELCH 10 K
2SC710C SQUELCH AMP
2SA844C SQUELCH
Voltage for Q301, Q302 measured with squelch clockwise
Squelch range 1.20 V to 8.90 V
2SK34E AGC
RF GAIN 5000
AGC 5000
MODE S2-8 Sect 2
USB
LSB
AM
VOLUME 10 K
2SC1740 AF AMP
HA1339A OUTPUT-MODULATION
IC301
J301 EXT SP
J302 PA SP
L51 8 Z
From Q3 OUT of LOCK
From IC2 CircuitTrace 167
From S2-4 MODE SW CircuitTrace 166
3SK41 XMT MIXER
2SC710C PLL STOP
JS7001B BUFFER
2SC1449 PRE DRIVER
2SC2146 XMT DRIVER
2SC1969H FINAL
2SC1061 AM MOD AMP
27MHz
15.60MHz (MIN)
Terminal Guides
Bevel
Q201 Front view
Q202 Bottom view
Q401 Bottom view
Q403, Q701, Q702 Bottom view
Q509 Bottom view
Q703 Bottom view
Q302 Front view
Q406, Q405 Front view
Q303, Q304, Q507 Front view
Q305, Q705, Q706 Front view
Q704 Front view
IC401 Bottom view
Q301, Q402, Q404 Q501 thru Q506, Q508 * Q601 thru Q604 Bottom view
IC201 Top view
IC301 Front view
Heat sink
Ident











→✕← Circuitry not used in some versions
--- Circuitry used in some versions
Θ See parts list
✱ Nominal value
⏚ Ground
Chassis
▽ Common tie point

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Arrow at control indicates direction of advance.
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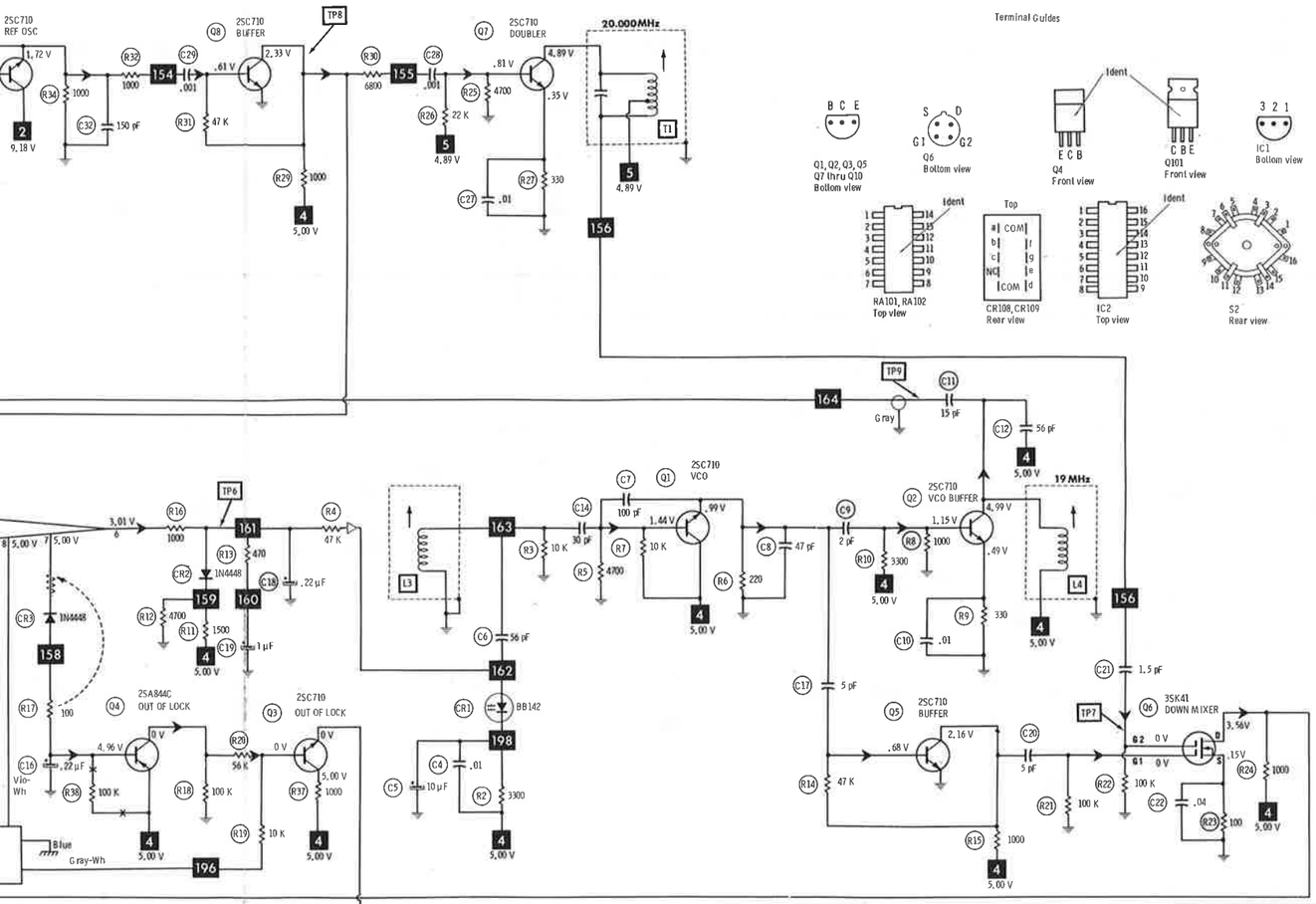
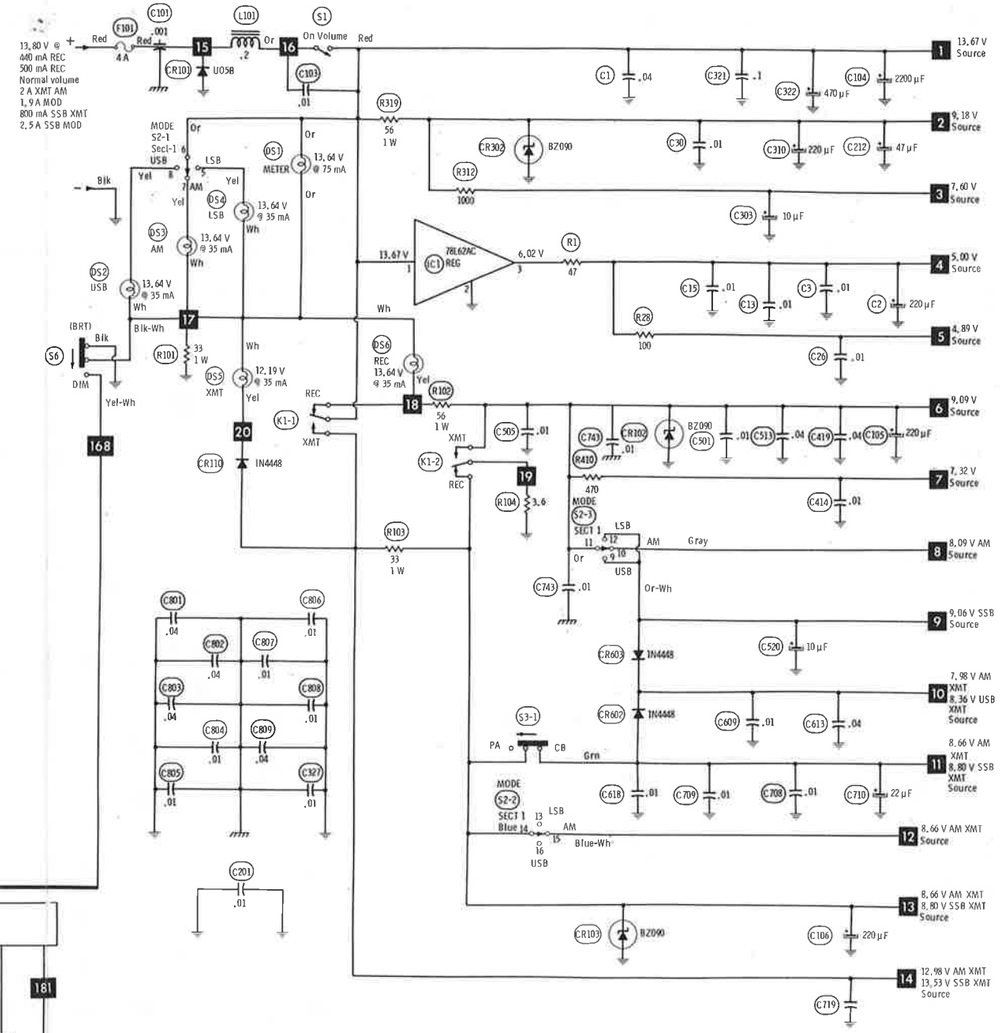
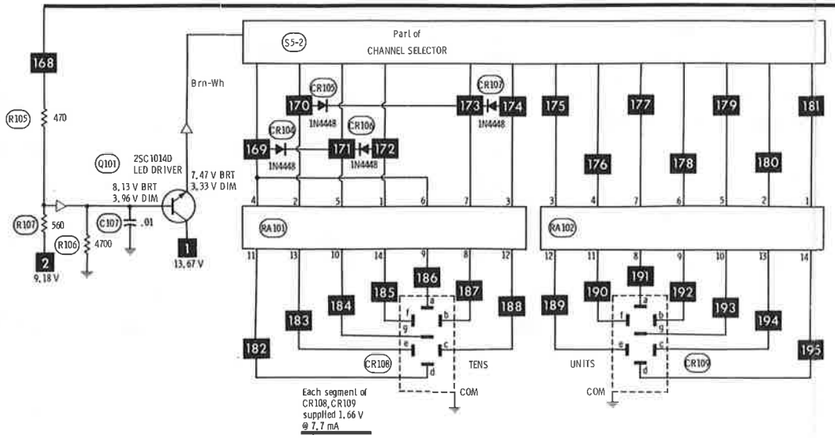
Resistors are 1/2W or less, 5% unless noted.
Value in ( ) used in some versions.



Terminal Guides





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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.	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.
CR1	BB142				HEPR2502	REN 612			ECG612			ZEN-452
	MV201	022-2823-501			HEPR2502	REN 612			ECG612			ZEN-452
CR2	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR3	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR4	1S2688	022-2823-503				REN 614	SK3126	RT-262	ECG613			103-280
CR101	U05B	022-2823-001	GE-512	PTC204	HEPR0098	REN 156	SK3051	RT-201	ECG156		WEP4008	
CR102	BZ090	022-2823-002	GEZD-9.1	ZB9.1B		REN 139		RT-240	ECG139A	1N4739A	WEP1109	103-272
CR103	BZ090	022-2823-002	GEZD-9.1	ZB9.1B		REN 139		RT-240	ECG139A	1N4739A	WEP1109	103-272
CR104	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR105	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR106	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR107	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR110	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR201	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR202	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR203	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR204	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR205	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR206	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR301	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR302	BZ090	022-2823-002	GEZD-9.1	ZB9.1B		REN 139		RT-240	ECG139A	1N4739A	WEP1109	103-272
CR401	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR402	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR403	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR404	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR405	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR406	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR407	1N34A	022-2823-006	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	1N34A	WEP134	ZEN-430
CR501	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR502	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR503	1N34A	022-2823-006	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	1N34A	WEP134	ZEN-430
CR504	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR505	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR506	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR507	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR508	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR509	1N34A	022-2823-006	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	1N34A	WEP134	ZEN-430
CR510	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR511	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR512	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR513	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR514	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR515	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR601	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR602	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR603	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR604	1N60P	022-2823-502	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR605	1N60P	022-2823-502	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR606	1N60P	022-2823-502	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR607	1N60P	022-2823-502	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR608	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
CR701	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR702	1S990S	022-2823-010										
CR703	1S990S	022-2823-010										
CR704	1S990S	022-2823-010										
CR705	10D4	022-2823-011	GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	1N4004	WEP156	212-76-02
CR706	10D4	022-2823-011	GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	1N4004	WEP156	212-76-02
CR707	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR708	1N4448	523-1000-883	GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
CR709	1N60	022-2823-003	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	ZEN-430
IC1	78L62AC											
	78L06AC	022-2844-701										
IC2	NDC40013	022-2844-502										
IC201	MC3340P											
	MC3340	022-2844-702										
IC301	HA1339A		GEIC-64				SK3708		ECG1169			
		022-2844-703	GEIC-64				SK3708		ECG1169			
IC401	UA703		GEIC-12	PTC743	HEPC6001	REN 703A	SK3157	TVCM-44	ECG703A	UA703A	WEP500	221-32
		022-2844-002	GEIC-12	PTC743	HEPC6001	REN 703A	SK3157	TVCM-44	ECG703A	UA703A	WEP500	221-32
Q1	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q2	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q3	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q4	2SA844C		GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*		WEP60*	
	2SA844		GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*		WEP60*	
		022-2876-501	GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*		WEP60*	
Q5	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q6	3SK41		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
		022-2876-013	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
Q7	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q8	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q9	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q10	2SC710		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q101	2SC1014D		GE-273	PTC193		REN 300	SK3464	RT-137	ECG300	2SC482*	WEP1014	
		022-2876-701	GE-273	PTC193		REN 300	SK3464	RT-137	ECG300	2SC482*	WEP1014	
Q201	2SK40C		GE-FET-1	PTC151	HEPF0010	REN 133	SK3112	RT-176	ECG133		WEP801	ZEN-123
		022-2876-502	GE-FET-1	PTC151	HEPF0010	REN 133	SK3112	RT-176	ECG133		WEP801	ZEN-123
Q202	2SD30		GE-59	PTC134		REN 103A			ECG103A		WEP641B	
	2SD187		GE-59	PTC134	HEPG6011	REN 103A	SK3010	RT-119	ECG103A	2SD187	WEP641B	
		022-2876-702	GE-59	PTC134	HEPG6011	REN 103A	SK3010	RT-119	ECG103A	2SD187	WEP641B	
Q301	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*

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.	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.
Q302	2SA844C		GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*		WEP60*	
		022-2876-501	GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*		WEP60*	
Q303	2SC1740		GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
	2SC372Y		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	2SC372	WEP372	121-Z9000*
	2SC1647		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	2SC535	WEP956*	
		022-2876-003	GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
Q304	2SC1740		GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
	2SC372Y		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	2SC372	WEP372	121-Z9000*
	2SC1647		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	2SC535	WEP956*	
		022-2876-003	GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
Q305	2SC1061		GE-66	PTC167	HEPS3061	REN 152	SK3054	RT-197	ECG152	2SC1061	WEP745	921-1009
Q401	2SK41E		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
	2SK19Y		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
		022-2876-503	GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
Q402	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q403	3SK41L		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
	3SK45B		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
		022-2876-013	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
Q404	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q405	2SK55D		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
		022-2876-006	GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
Q406	2SK54B		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
		022-2876-504	GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
Q501	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q502	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q503	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q504	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q505	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q506	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q507	2SC1740		GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
	2SC372Y		GE-61*	PTC121*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	2SC372	WEP372	121-Z9000*
	2SC1647		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	2SC535	WEP956*	
		022-2876-003	GE-62	PTC121*	HEPS0015*	REN 123A*	SK3122	RT-109*	ECG123A*		WEP736*	121-972
Q508	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q509	2SK34E		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
		022-2976-505	GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			ZEN-123
Q601	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q602	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q603	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q604	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q701	3SK41L		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
		022-2876-013	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222		WEP905	121-826
Q702	2SC710C		GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
		022-2876-007	GE-211*	PTC132	HEPS0016*	REN 123A*	SK3444	RT-308*	ECG123A*	2SC710	WEP710	121-Z9000*
Q703	JSP7001B		GE-20*	PTC121*	HEPS0015*	REN 123A	SK3444	RT-308	ECG229*	2SC829	WEP829	ZEN-127
		022-2876-703	GE-20*	PTC121*	HEPS0015*	REN 123A	SK3444	RT-308	ECG229*	2SC829	WEP829	ZEN-127
Q704	2SC1449		GE-270	PTC180		REN 295	SK3253	RT-162	ECG295		WEP913	
		022-2876-010	GE-270	PTC180		REN 295	SK3253	RT-162	ECG295		WEP913	
Q705	2SC2146		GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	2SC1306	WEP785	
		022-2876-704	GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	2SC1306	WEP785	
Q706	2SC1969H		GE-216	PTC186		REN 236	SK3197	RT-158	ECG236		WEP840	
		022-2876-506	GE-216	PTC186		REN 236	SK3197	RT-158	ECG236		WEP840	

* Lead configuration may vary from original.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFGR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C2	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C5	10 16V	022-2810-013	PC10-25	VTT10B25	QV1-41	EV-1222
C16	.22 16V	022-2810-014		TDC224M050EL	QDT1-10	SD50-R229
C18	.22 35V			TDC224M050EL	QDT1-10	SD50-R229
C19	1 25V	510-2045-109		TDC105M035EL		SD35-19
C104	2200 16V	022-2810-021				
C105	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C106	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C208	47 16V	022-2810-015	PC50-16	VTT47D16	QV1-73	EV-1226
C209	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C210	10 16V	022-2810-013	PC10-25	VTT10B25	QV1-41	EV-1222
C212	47 16V	022-2810-015	PC50-16	VTT47D16	QV1-73	EV-1226
C214	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C215	10 10V			TDC106M025FL	QDT1-64	SD25-109
C217	4.7 25V	022-2810-019	PC5-50	VTT4R7B50	QV1-27	EV-1319
C301	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C302	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C303	10 16V	022-2810-013	PC10-25	VTT10B25	QV1-41	EV-1222
C305	22 16V		PC25-25	VTT22B16	QV1-55	EV-1224
C306	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C310	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C312	47 16V	022-2810-015	PC50-16	VTT47D16	QV1-73	EV-1226
C316	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C318	47 16V	022-2810-015	PC50-16	VTT47D16	QV1-73	EV-1226
C322	470 16V	022-2810-018	PC500-16	VTT470K16	QV1-151	EV-1250
C323	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA				
		MFGR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C324	220 16V	022-2810-017	PC250-25	VTT220H16	QV1-117	EV-1240
C406	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C433	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C502	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C520	10 16V	022-2810-013	PC10-25	VTT10B25	QV1-41	EV-1222
C524	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C525	10 16V	022-2810-013	PC10-25	VTT10B25	QV1-41	EV-1222
C527	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C528	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C529	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C530	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C532	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C538	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615
C543	4.7 25V	022-2810-019	PC5-50	VTT4R7B50	QV1-27	EV-1319
C710	22 16V	022-2810-023	PC25-25	VTT22B16	QV1-55	EV-1224
C722	22 16V	022-2810-023	PC25-25	VTT22B16	QV1-55	EV-1224
C728	2.2 25V		PC2-100	VTT2R2A50	QV1-19	EV-1517
C729	22 16V	022-2810-023	PC25-25	VTT22B16	QV1-55	EV-1224
C752	1 50V	022-2810-009	PC1-50	VTT1A50	QV1-11	EV-1615

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	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C3	.01 50V		UK50-103		MAG5011		
C4	.01 50V		UK50-103		MAG5011		
C6	56 10% 50V		DD-560		GP456		10TS-Q56
C7	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C8	47 N750 50V		DTN-47	N47	CN7447		10TCU-Q47
C9	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C10	.01 50V		UK50-103		MAG5011		
C11	15 50V			CD15CD150J03		QW1-8	MWA-150
C12	56 10% 50V		DD-560		GP456		10TS-Q56
C13	.01 50V		UK50-103		MAG5011		
C14	30 N750 50V	510-0002-300			*		10TCU-Q30
C15	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C17	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C20	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C21	1.5 NPO 50V		DTZ-1R5	NP01P5	CN0515		10TCC-V15
C22	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C23	100 10% 50V		DD-101	GP100	GP310		10TS-T10
C24	100 10% 50V		DD-101	GP100	GP310		10TS-T10
C25	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C26	.01 50V		UK50-103		MAG5011		
C27	.01 50V		UK50-103		MAG5011		
C28	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C29	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C30	.01 50V		UK50-103		MAG5011		
C31	330 10% 50V			CD15FD331J03	SX333	QW1-39	MWA-331
C32	150 10% 50V			CD15FD151J03	SX315	QW1-31	MWA-151
C33	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C34	22 N750 50V		DTN-22	N22	CN7422		10TCU-Q22
C35	.01 50V		UK50-103		MAG5011		
C36	.01 50V		UK50-103		MAG5011		
C101	.001	022-2810-20					
C102	.01 50V		UK50-103		MAG5011		
C103	.01 50V		UK50-103		MAG5011		
C107	.01 50V		UK50-103		MAG5011		
C108	.01 50V		UK50-103		MAG5011		
C201	.01 50V		UK50-103		MAG5011		
C202	.01 50V		UK50-103		MAG5011		
C203	.01 50V			WFM1S1	EWF1A110	QFT2-91	1FT-S10
C204	.01 50V		UK50-103		MAG5011		
C205	.01 50V		UK50-103		MAG5011		
C206	.01 50V		UK50-103		MAG5011		
C207	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C211	.005 10% 50V				M192P4729R8	QFT2-63	1FT-D47
C216	.01 50V		UK50-103		MAG5011		
C218	.01 50V		UK50-103		MAG5011		
C304	.01 50V		UK50-103		MAG5011		
C307	.01 50V			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C308	.01 50V			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C309	.005 10% 50V				M192P4729R8	QFT2-63	1FT-D47
C311	.01 50V			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C313	300 10% 50V			CD15FD301J03	SX330	QW1-38	MWA-301
C314	120 NPO 50V		DTZ-120		CN0312		10TCC-T12
C315	.01 50V		UK50-103		MAG5011		
C317	.03 10% 50V					QFT2-148	1FT-S30
C319	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C320	.15 10% 50V			WMF05P15	EWF05015		431P1549R5
C321	.1 10% 50V			WMF05P1	EWF05010	QFT2-215	1FT-P10
C325	.047 50V			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C326	.01 50V		UK50-103		MAG5011		
C327	.01 50V		UK50-103		MAG5011		
C328	.01 50V		UK50-103		MAG5011		
C402	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C403	.01 50V		UK50-103		MAG5011		
C404	.01 50V		UK50-103		MAG5011		
C405	.01 50V		UK50-103		MAG5011		
C407	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C408	.01 50V		UK50-103		MAG5011		
C409	10 50V			CD15CD100J03		QW1-6	MWA-100
C410	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47

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
C411	20 50V		DTZ-	NP020	CN0420		10TCC-Q20
C412	.01 50V		UK50-103		MAG5011		
C413	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C414	.01 50V		UK50-103		MAG5011		
C415	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C416	.01 50V		UK50-103		MAG5011		
C417	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C418	62 10% 50V			CD15ED620J03	SX462	QW1-22	MWA-620
C419	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C420	20 50V		DTZ-20	NP020	CN0420		10TCC-Q20
C421	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C422	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C423	20 50V		DTZ-20	NP020	CN0420		10TCC-Q20
C424	10 50V			CD15CD100J03		QW1-6	MWA-100
C425	.01 50V		UK50-103		MAG5011		
C426	.01 50V		UK50-103		MAG5011		
C427	20 50V		DTZ-20	NP020	CN0420		10TCC-Q20
C428	.01 50V		UK50-103		MAG5011		
C429	20 50V		DTZ-20	NP020	CN0420		10TCC-Q20
C430	15 NPO 50V		DTZ-15	NP015	CN0415		10TCC-Q15
C431	56 10% 50V		DD-560		GP456		10TS-Q56
C432	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C501	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C503	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C504	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C505	.01 50V		UK50-103		MAG5011		
C506	20 50V		DTZ-20	NP020	CN0420		10TCC-Q20
C507	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C508	.01 50V		UK50-103		MAG5011		
C509	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C510	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C511	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C512	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C513	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C514	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C515	.01 50v		UK50-103		MAG5011		
C516	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C517	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C518	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C519	1 10% 50V				CN0510		10TCC-V10
C521	.01 50V		UK50-103		MAG5011		
C522	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C523	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C526	.01 50V			WMF1S1	EWF1A147	QFT2-91	1FT-S10
C531	.01 50V		UK50-103		MAG5011		
C533	47 10% 50V		DTZ-47	NP047	CN0447		10TCC-Q47
C534	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C535	.1 10% 50V			WMF05P1	EWF05Q10	QFT2-215	1FT-P10
C536	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C537	3 NPO 50V		DTZ-3R3	NP03P3	CN0533		10TCC-V33
C539	.01 50V		UK50-103		MAG5011		
C540	.1 10% 50V			WMF05P1	EWF05Q10	QFT2-215	1FT-P10
C541	.01 50V		UK50-103		MAG5011		
C542	3 NPO 50V		DTZ-3R3	NP03P3	CN0533		10TCC-V33
C544	.01		UK50-103		MAG5011		
C601	.01 50V		UK50-103		MAG5011		
C602	.01 50V		UK50-103		MAG5011		
C603	5 NPO 50V		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C604	10	022-2812-004					
C605	.01 50V		UK50-103		MAG5011		
C606	510 10% 50V			CD15FD511J03	SX351	QW1-43	MWA-511
C607	180 NPO 50V		DTZ-180				10TCC-T18
C608	10 50V			CD15CD100J03		QW1-6	MWA-100
C609	.01 50V		UK50-103		MAG5011		
C610	10 50V			CD15CD100J03		QW1-6	MWA-100
C611	15 NPO 50V		DTZ-15	NP015	CN0415		10TCC-Q15
C612	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C613	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C614	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C615	.01 50V		UK50-103		MAG5011		
C616	20 N750 50V		DTN-20	N20	CN7420		10TCU-Q20
C617	10	022-2812-004					
C618	.01 50V		UK50-103		MAG5011		
C619	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C701	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C702	10 NPO 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C704	.01 50V		UK50-103		MAG5011		
C705	1 10% 50V				CN0510		10TCC-V10
C706	.01 50V		UK50-103		MAG5011		
C707	.01 50V		UK50-103		MAG5011		
C708	.01 50V		UK50-103		MAG5011		
C709	.01 50V		UK50-103		MAG5011		
C711	56 10% 50V		DD-560		GP456		10TS-Q56
C712	.01 50V		UK50-103		MAG5011		
C713	20	022-2812-003					
C714	130 NPO 50V	510-3013-131					
C715	.01 50V		UK50-103		MAG5011		
C716	.01 50V		UK50-103		MAG5011		
C717	.01 50V		UK50-103		MAG5011		
C718	56 10% 50V		DD-560		GP456		10TS-Q56
C719	.01 50V		UK50-103		MAG5011		
C720	30 10% 50V	510-3013-300			*		10TCC-Q30
C721	150 10% 50V			CD15FD151J03	SX315	QW1-31	MWA-151
C723	.01 50V		UK50-103		MAG5011		
C724	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C725	62 10% 50V			CD15ED620J03	SX462	QW1-22	MWA-620
C726	170 10% 50V			CD15FD161J03	SX316	QW1-32	MWA-161
C727	.01 50V		UK50-103		MAG5011		
C730	.01 50V		UK50-103		MAG5011		
C731	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C732	.01 50V		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
C733	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C734	.047 50V		UK50-503		MAG5015		
C735	270 5% 50V			CD15FD271J03	SX327	QW1-37	MWB-271
C736	510 10% 50V			CD15FD511J03	SX351	QW1-43	MWA-511
C737	15 NPO 50V		DTZ-15	NP015	CN0415		10TCC-Q15
C738	.01 50V		UK50-103		MAG5011		
C739	2 NPO 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C740	170 10% 50V			CD15FD161J03	SX316	QW1-32	MWA-161
	100 50V		DD-101	GP100	GP310		10TS-T10
C741	.01 50V		UK50-103		MAG5011		
C742	.01 50V		UK50-103		MAG5011		
C743	.01 50V		UK50-103		MAG5011		
C745	65 50V			CD15ED620J03	SX462	QW1-22	MWA-620
C746	10	022-2812-004					
C747	100 NPO 50V		DTZ-100	NP0100	CN0310		10TCC-T10
C748	.01 50V		UK50-103		MAG5011		
C749	.01 50V		UK50-103		MAG5011		
C751	.01 50V		UK50-103		MAG5011		
C801	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C802	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C803	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C804	.01 50V		UK50-103		MAG5011		
C805	.01 50V		UK50-103		MAG5011		
C806	.01 50V		UK50-103		MAG5011		
C807	.01 50V		UK50-103		MAG5011		
C808	.01 50V		UK50-103		MAG5011		
C809	.04 10% 50V				M192P3939R8	QFT2-159	1FT-S39
C901	62 10%			CD15ED620J03	SX462	QW1-22	MWA-620

* 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	RESIST-ANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R109	Fine Tune	10K	022-2862-004			
R110	XMT Frequency	10K	022-2862-012	T-10K	MTC14L1	X201R104B
R212	AMC	1000	022-2862-006	T-1000	MTC13L1	X201R102B
R301	Squelch Range	10K	022-2862-012	T-10K	MTC14L1	X201R104B
R302	Squelch/Dim. Switch	10K	022-2862-701			
R307	Volume/Power Switch	10K	022-2862-001			
R523	S Meter AM	20K	022-2862-008	T-20K(2)	MTC24L1(2)	X201R253B(2)
R529	S Meter SSB	50K	022-2862-702	T-50K(2)	MTC54L1(2)	X201R503B(2)
R532	AF Gain	20K	022-2862-008	T-20K(2)	MTC24L1(2)	X201R253B(2)
R544	AGC	5000	022-2862-013	T-5000(2)	MTC53L1(2)	X201R502B(2)
R547	RF Gain	5000	022-2862-003			
R609	Carrier Balance	100	022-2862-703			
R726	ALC	10K		T-10K	MTC14L1	X201R104B
R728	RFO Meter	100K	022-2862-009	T-100K(2)	MTC15L1(2)	X201R104B(2)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
RA101	Resistor Network		022-2844-704(1)
RA102	Resistor Network		022-2844-704(1)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
RT201	10K Cold		022-2869-005
RT501	10K Cold		022-2869-005

(1) Consists of seven 470-ohm resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	RF Choke (100uH)	022-2842-501			
L2	RF Choke (150uH)	022-2842-003			
L3	VCO	022-2842-503	Z368N		
L4	VCO Buffer (19MHz)	022-2842-504	C354N		
L5	Fine Tune SSB (10MHz)	022-2842-505	Y369N		
L6	Fine Tune AM (9.9987MHz)	022-2842-701	Y388N		
L401	RF Choke (470uH)	022-2842-002			
L402	RF Choke (470uH)	022-2842-002			
L403	RF Choke (130mH)	022-2842-702	K69		
L601	RF Choke (22uH)				
L602	RF Choke (22uH)				
L603	RF Choke (150uH)	022-2842-003			
L701	Trap (15.60MHz)	022-2842-703			
L702	RF Choke (.65uH)	022-2842-006			
L703	RF Choke (.65uH)	022-2842-006			
L704	RF Choke (1.2uH)	022-2842-008			
L705	RF Choke (.22uH)	022-2842-005			
L706	Ant Matching	022-2842-007	C997N		
L707	RF Choke (22uH)	542-3002-002		74F225AI	
L708	RF Choke (22uH)	542-3002-002		74F225AI	
L709	RF Choke (.22uH)	022-2842-005			
L710	RF Choke (.85uH)	022-2842-704			
T1	Doubler (20MHz)	022-2892-501	Z177ZT	CBS133-TC	
T401	Rec Ant (27MHz)	022-2892-502	C365ZT		
T402	Rec RF (27MHz)	022-2892-003	C187AT		
T403	VCO Buffer (19MHz)	022-2892-501	Z177ZT	CBS133-TC	
T404	Rec Mixer (7.8MHz)	022-2892-002	S183AT	CBS516-7TC	
T405	Input Blanker	022-2892-002	S183AT	CBS516-7TC	
T406	Noise Blanker	022-2892-002	S183AT	CBS516-7TC	
T407	Noise Blanker	022-2892-002	S183AT	CBS516-7TC	
T501	Rec IF (7.8MHz)	022-2892-002	S183AT	CBS516-7TC	
T502	Rec IF (7.8MHz)	022-2892-002	S183AT	CBS516-7TC	

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF) (cont)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
T503	Rec IF (7.8MHz)	022-2892-001	S190AT	CBS517-7TC	
T504	SSB Det (7.8MHz)	022-2892-005	Z185ZT	CBS519-7TC	
T601	Offset Osc (7.7975MHz)	022-2892-503	Y372NT		
T602	Carrier Buffer (7.8MHz)	022-2892-007	S111DT	CBS771	
T701	XMT Mixer (27MHz)	022-2892-014	C181ZT	CBS136-TC	
T702	PLL Stop (27MHz)	022-2892-015	C182ZT	CBS706-TC	
T703	XMT Buffer (27MHz)	022-2892-016			
T704	Predriver (27MHz)		C979N		
T705	Driver (27MHz)	022-2892-018			
T706	Final Tuning (27MHz)	022-2892-019			

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.	
L101	2.5A	.2	1.98mH	022-2842-001 K-18(1)	TR555		(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS1	3" PM, 8 Ohms	022-2889-001	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
F101	4A Quick Acting	534-0003-026	534-1004-005	AGC-4	HDJ	312004	150145	

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	023-2708-111	18-032	18-034	18-010	18-099	1	To Connector Case	2	NC	NC	5

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CR108	LED Display	549-4002-011	Channel Indicator
CR109	LED Display	549-4002-011	Channel Indicator
DS1	Lamp	022-2849-001	Meter (13.65V @ 35mA)
DS2	Lamp	022-2849-002	USB (13.65V @ 35mA)
DS3	Lamp	022-2849-002	LSB (13.65V @ 35mA)
DS4	Lamp	022-2849-002	AM (13.65V @ 35mA)
DS5	Lamp	022-2849-003	XMT (12.19V @ 35mA)
DS6	Lamp	022-2849-002	REC (13.65V @ 35mA)
FB201	Ferrite Bead	517-2001-001	
FL501	Filter	022-2832-501	7.8MHz
J201	Jack	515-1003-001	Microphone
J301	Jack	022-2815-001	External Speaker
J302	Jack	022-2815-001	PA Speaker
J701	Jack	515-3003-001	Antenna
K1	Relay	022-2867-001	XMT/REC
M1	Meter	022-2854-001	S/RFO
S1	Switch		Power (Part of Volume Control)
S2	Switch	022-2883-002	Mode
S3	Switch	022-2883-003	PA/CB
S4	Switch	022-2883-003	NB
S5	Switch	022-2883-701	Channel Selector
S6	Switch		Dim (Part of Squelch Control)
Y1	Crystal	022-2820-701	10.000MHz
Y601	Crystal	022-2820-702	7.8015MHz
	Printed Circuit Board	022-2835-703	Channel Selector
	Printed Circuit Board	022-2835-701	Main
	Printed Circuit Board	022-2835-702	PLL

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

ITEM	PART No.
Bezel	022-2832-701
Cabinet	022-2817-703
Chassis, Main	022-2817-701

ITEM	PART No.
Knob, Channel Selector	547-0014-001
Knob, Control	022-2832-706
Plate, Rear	022-2817-702

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')
BELDEN 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')