



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



MODEL Stalker XII

MANUFACTURER'S SPECIFICATIONS

GENERAL

Channels	40
Frequency Range	26.965 MHz to 27.405 MHz
Frequency Control	PLL Synthesized
Antenna Impedance	50 ohm
Power Input	117V AC or 13.8V DC
Accessories	DC power cord, detachable dynamic microphone, microphone hanger
Size	15"(W) x 12"(D) x 5-1/2"(H)
Weight	12 pound

TRANSMITTER

Output Power	4 watts
Emission Type	6A3
Hum and Noise	Better than -50 dB
Frequency Tolerance	0.002%
Modulation Percentage (Peak)	100%
Spurious Emission	Better than -70 dB

RECEIVER

Sensitivity at 10 dB S+N/N	0.5 μ V
Sensitivity for 500 mW Audio Output	0.5 μ V
Hum and Noise @ 1mV input	40 dB
Squelch Threshold	0.5 μ V
Squelch Deepest Point	1000 μ V
"S" Meter S-9	100 μ V
Delta Tune	± 1.5 kHz
Maximum AF Output Power	4 watts
AF Output Power @ 10% Distortion	3 watts
Selectivity BW @6 dB Down	6 kHz
Adjacent Channel Rejection	Better than -60 dB
Image Rejection	Better than -70 dB
Speaker Impedance	16 ohms

PUBLIC ADDRESS

Output Power @ 10% Distortion	3.0 watts
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Courtesy of the Manufacturer

TEABERRY MODEL Stalker XII

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

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ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period. Adjust VR201 for 13.8 volts DC output at TP10 (TR201 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:
 L1,L2,L3,L4,L5,L17 thru L21,L23,L24,L25 9440
 L6,L7,L8 5000,5009,8276,8728,9089
 L10,L13,L16 8728,9304,9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope to TP6 (L23 Secondary).	Ch. 19	L23	Adjust for maximum RF (720mV p-p typical). (See Figure 1.)
Input of frequency counter to TP6 (L23 Secondary).	Ch. 19 Delta Tune Midrange	L21	Adjust for 10.240MHz.
Input of frequency counter to TP9 (IC4 Pin 10).	Ch. 19 Delta Tune Midrange		Check for 5.120MHz.
Input of DC meter to TP4 (Junction of R70 and R71).	Ch. 1	L20	Adjust for 1.30 volts. Check for approximately 2.10 volts on channel 40.
Input of DC meter to TP4 (Junction of R70 and R71).	Ch. 1, XMT		Check for approximately 2.10 volts. Check for approximately 3.30 volts on channel 40.
Input of oscilloscope to TP5 (IC4 Pin 22).	Ch. 19	L19	Adjust for maximum RF (550mV p-p typical). (See Figure 2.)
Input of frequency counter to TP5 (IC4 Pin 22).	Ch. 1 Delta Tune Midrange		Check for .910MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP5 (IC4 Pin 22).	Ch. 1, XMT		Check for 1.365MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP2 (L18 Secondary).	Ch. 19	L18	Adjust for maximum RF (108mV p-p typical). (See Figure 3.)
Input of frequency counter to TP2 (L18 Secondary).	Ch. 1 Delta Tune Midrange		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP1 (TR12 Base).	Ch. 19, XMT	L24,L25	Adjust for maximum RF (530mV p-p typical). (See Figure 4.)
Input of frequency counter to TP1 (TR12 Base).	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, Tone Fully Clockwise, ANL/NB Off, Delta Tune Midrange.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP11 (TR4 Gate). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	L8,L7,L6	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	L5,L4,L3,L2, L1	Adjust for maximum output. Readjust L6, L7 and L8 for maximum.

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, Tone Fully Clockwise, ANL/NB Off, Delta Tune Midrange.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output .5uV.	Ch. 19 Volume Maximum	VR1	IF GAIN 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	VR3	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	VR2	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, XMT	L17,L16	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19, XMT	L13	Adjust for 4.0 watts RF output maximum.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19, XMT	L10	Adjust for MINIMUM at 54MHz (2nd harmonic).

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, 100mV audio signal at mic input.	Ch. 19, XMT Mic Gain Maximum	VR6	AMC Adjust for 100% modulation maximum. (See Figure 5.)
Input of RF wattmeter to antenna input.	Ch. 19, XMT Mic Gain MINIMUM	VR4	RF PWR METER At 4.0 watts RF output, adjust so RF PWR meter agrees with RF wattmeter.
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz audio signal at mic input.	Ch. 19, XMT Mic Gain Maximum	VR5	MOD METER Set generator output for 100% modulation. Adjust VR5 for 100% on MOD scale of meter.

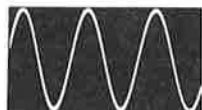


FIGURE 1

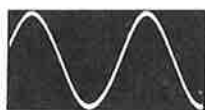


FIGURE 2

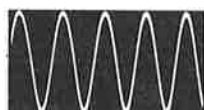


FIGURE 3

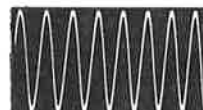


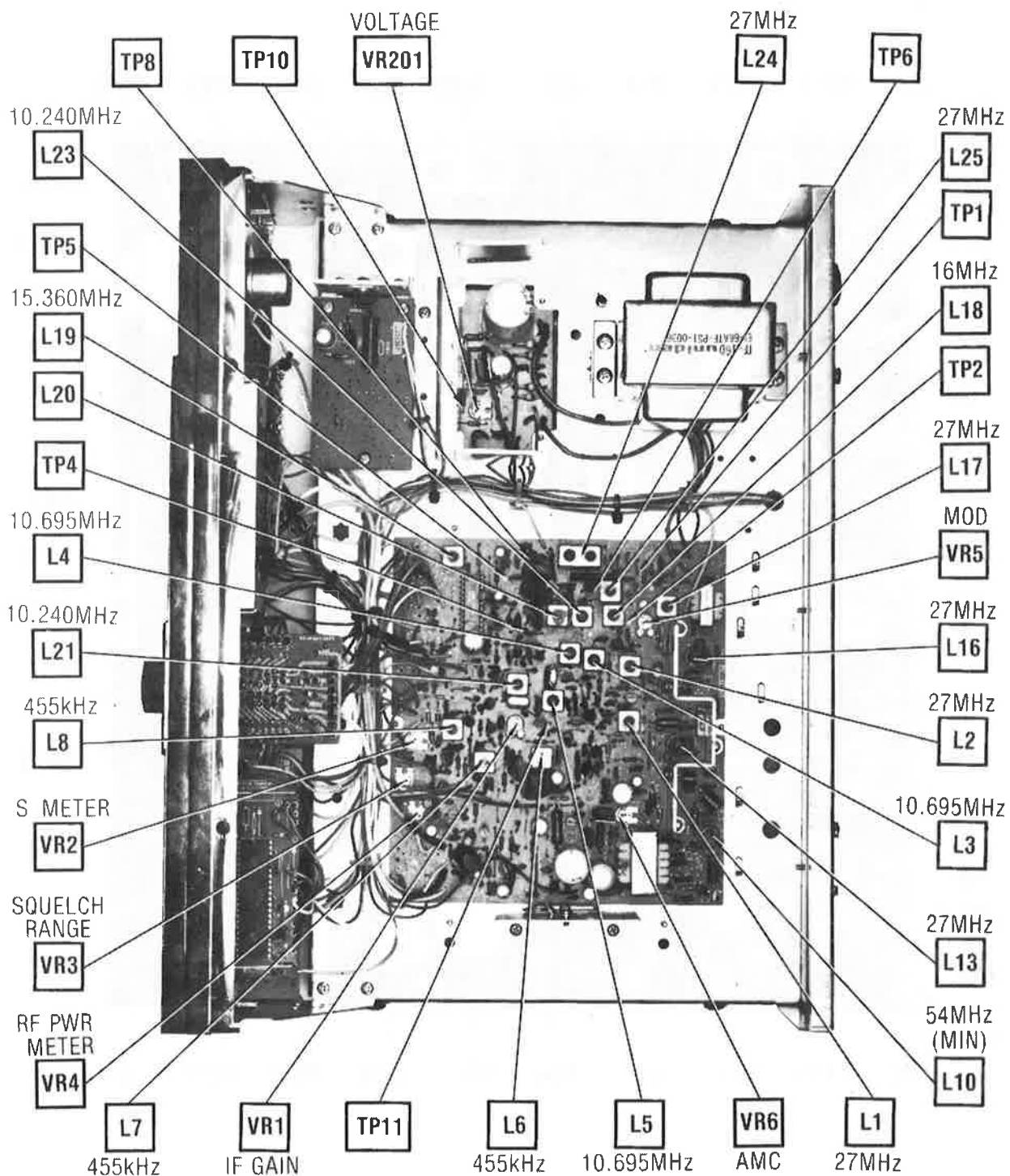
FIGURE 4



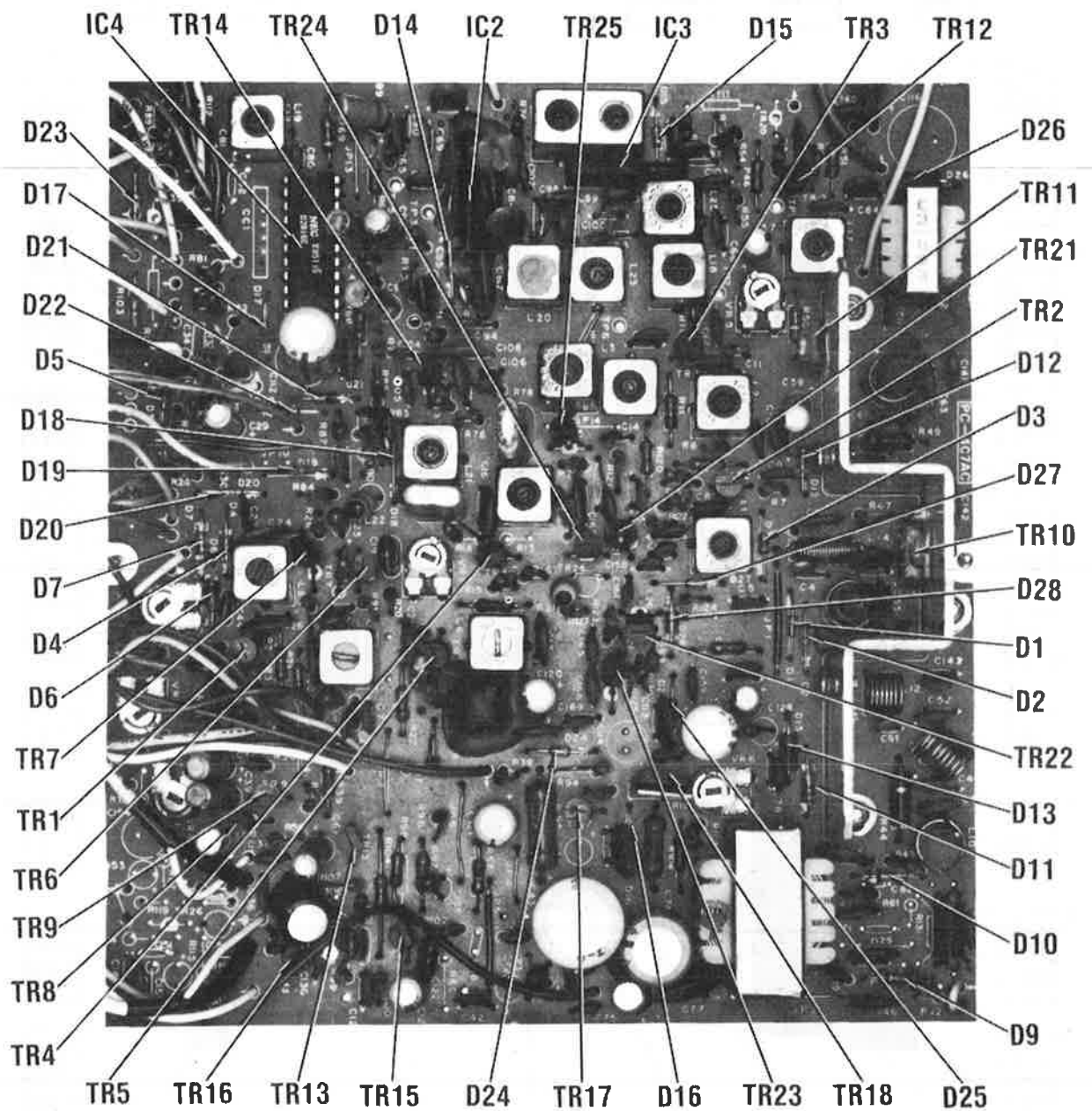
FIGURE 5

TRUTH CHART

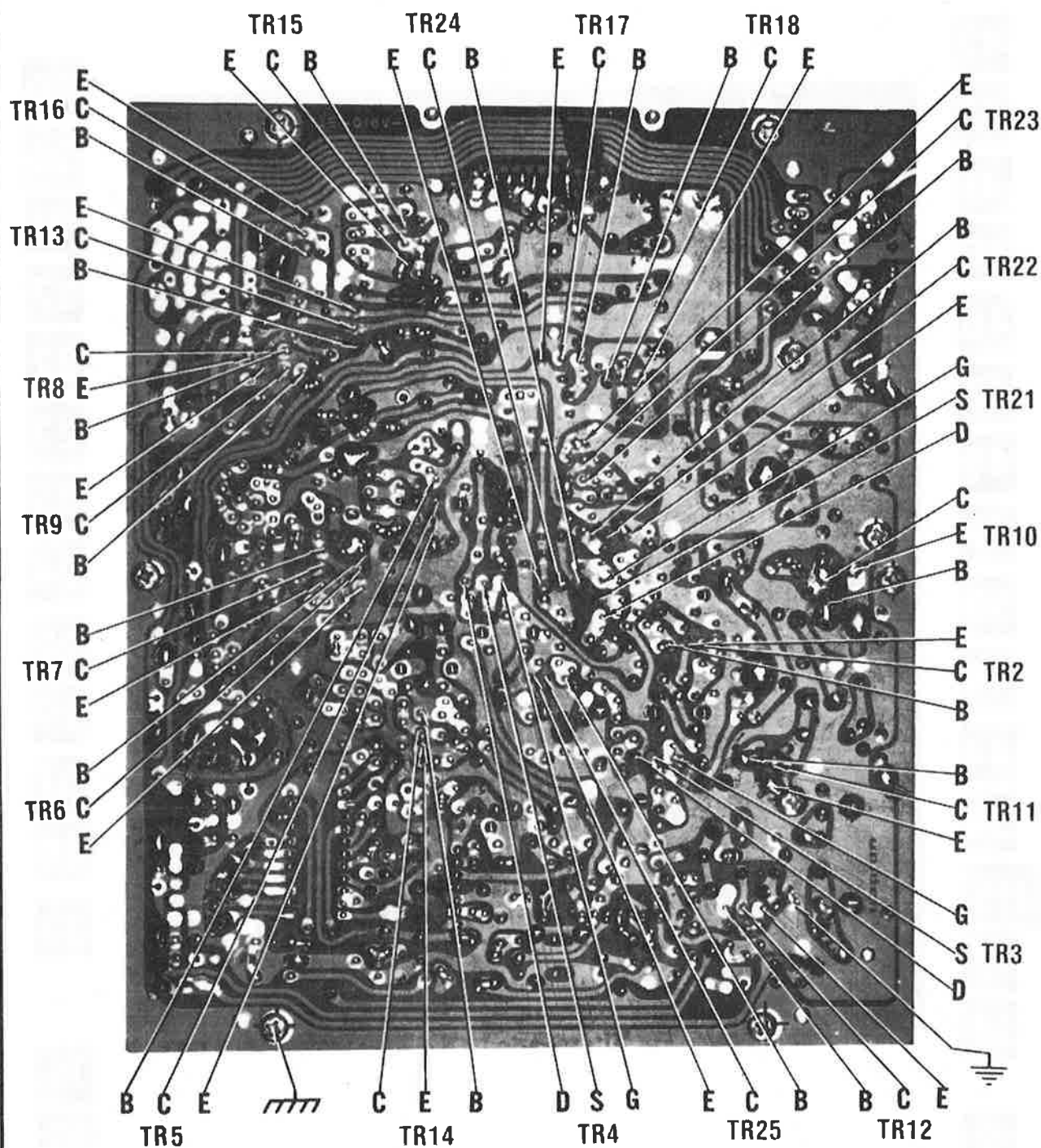
CHANNEL	1 = 4.70 Volts 0 = .50 Volts								REC DIVIDER INPUT IN MHz AT TP5	XMT DIVIDER INPUT IN MHz AT TP5	REC VCO OUTPUT IN MHz AT TP2	XMT SYNTH OUTPUT IN MHz AT TP1
	CHANNEL INPUT CODES											
	IC4 PINS											
	6	5	4	3	2	1						
1	0	0	0	0	0	1			.910	1.365	16.270	26.965
2	0	0	0	0	1	0			.920	1.375	16.280	26.975
3	0	0	0	0	1	1			.930	1.385	16.290	26.985
4	0	0	0	1	0	0			.950	1.405	16.310	27.005
5	0	0	0	1	0	1			.960	1.415	16.320	27.015
6	0	0	0	1	1	0			.970	1.425	16.330	27.025
7	0	0	0	1	1	1			.980	1.435	16.340	27.035
8	0	0	1	0	0	0			1.000	1.455	16.360	27.055
9	0	0	1	0	0	1			1.010	1.465	16.370	27.065
10	0	1	0	0	0	0			1.020	1.475	16.380	27.075
11	0	1	0	0	0	1			1.030	1.485	16.390	27.085
12	0	1	0	0	1	0			1.050	1.505	16.410	27.105
13	0	1	0	0	1	1			1.060	1.515	16.420	27.115
14	0	1	0	1	0	0			1.070	1.525	16.430	27.125
15	0	1	0	1	0	1			1.080	1.535	16.440	27.135
16	0	1	0	1	1	0			1.100	1.555	16.460	27.155
17	0	1	0	1	1	1			1.110	1.565	16.470	27.165
18	0	1	1	0	0	0			1.120	1.575	16.480	27.175
19	0	1	1	0	0	1			1.130	1.585	16.490	27.185
20	1	0	0	0	0	0			1.150	1.605	16.510	27.205
21	1	0	0	0	0	1			1.160	1.615	16.520	27.215
22	1	0	0	0	1	0			1.170	1.625	16.530	27.225
23	1	0	0	0	1	1			1.200	1.655	16.560	27.255
24	1	0	0	1	0	0			1.180	1.635	16.540	27.235
25	1	0	0	1	0	1			1.190	1.645	16.550	27.245
26	1	0	0	1	1	0			1.210	1.665	16.570	27.265
27	1	0	0	1	1	1			1.220	1.675	16.580	27.275
28	1	0	1	0	0	0			1.230	1.685	16.590	27.285
29	1	0	1	0	0	1			1.240	1.695	16.600	27.295
30	1	1	0	0	0	0			1.250	1.705	16.610	27.305
31	1	1	0	0	0	1			1.260	1.715	16.620	27.315
32	1	1	0	0	1	0			1.270	1.725	16.630	27.325
33	1	1	0	0	1	1			1.280	1.735	16.640	27.335
34	1	1	0	1	0	0			1.290	1.745	16.650	27.345
35	1	1	0	1	0	1			1.300	1.755	16.660	27.355
36	1	1	0	1	1	0			1.310	1.765	16.670	27.365
37	1	1	0	1	1	1			1.320	1.775	16.680	27.375
38	1	1	1	0	0	0			1.330	1.785	16.690	27.385
39	1	1	1	0	0	1			1.340	1.795	16.700	27.395
40	0	0	0	0	0	0			1.350	1.805	16.710	27.405



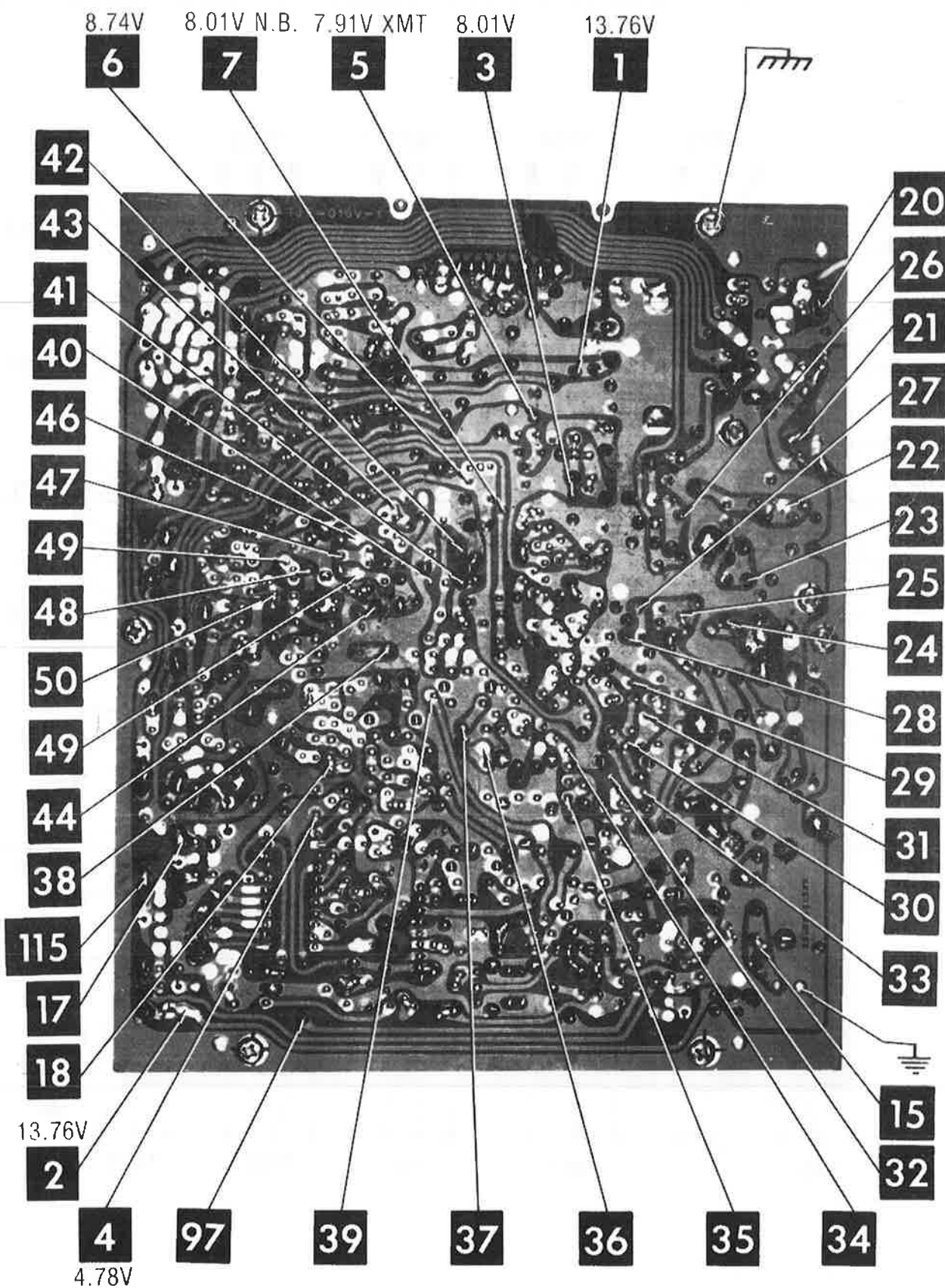
CHASSIS - TOP



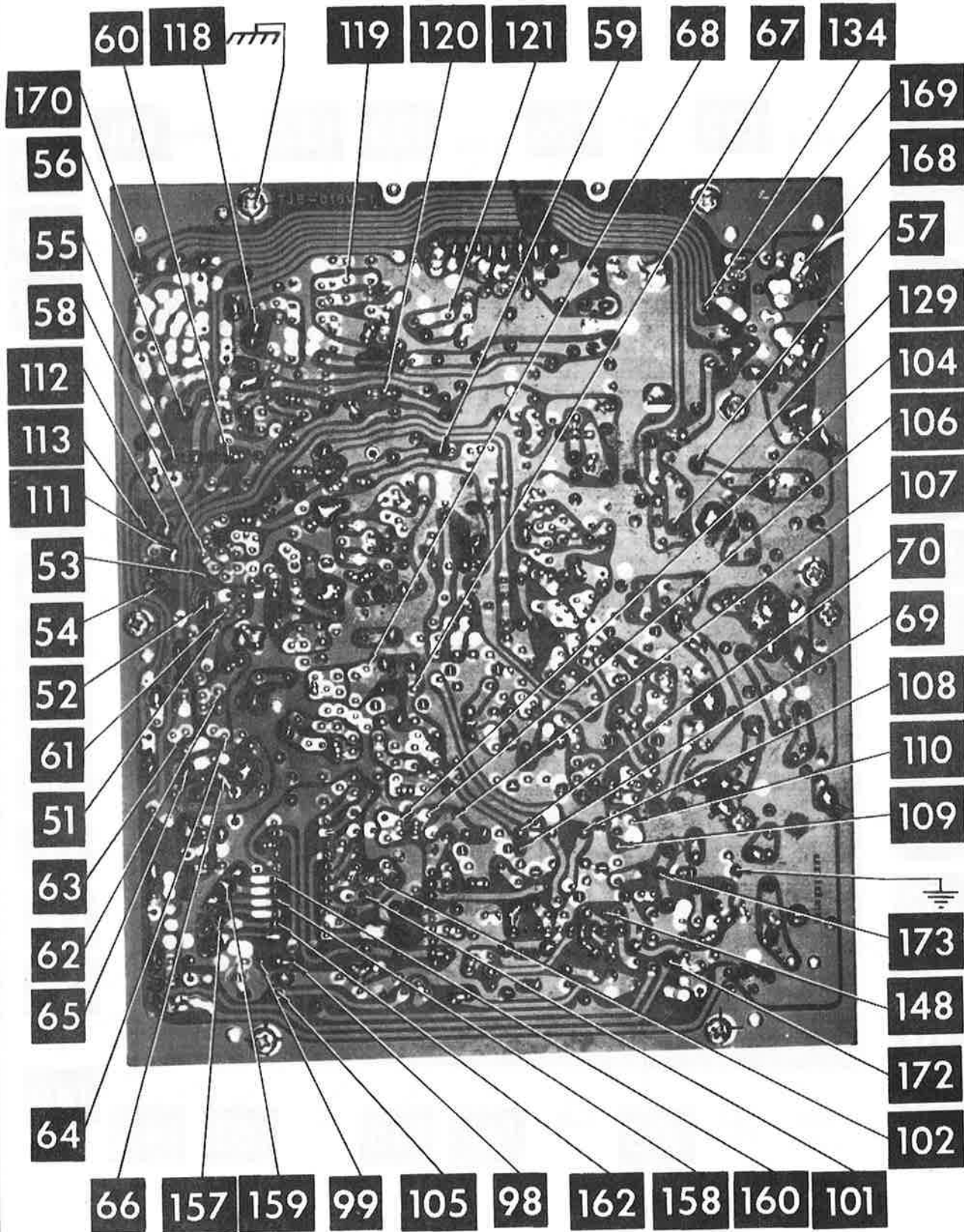
MAIN BOARD



MAIN BOARD

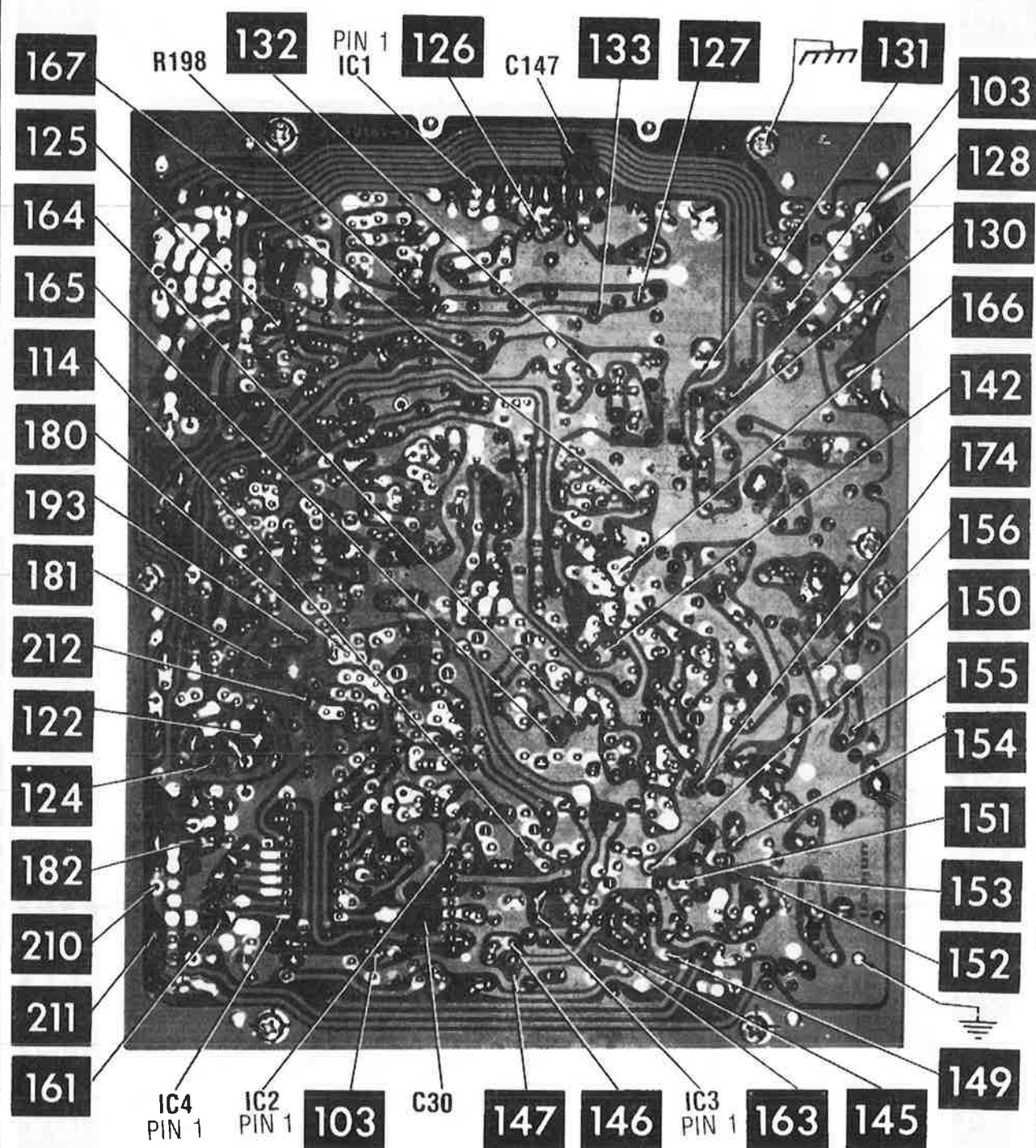


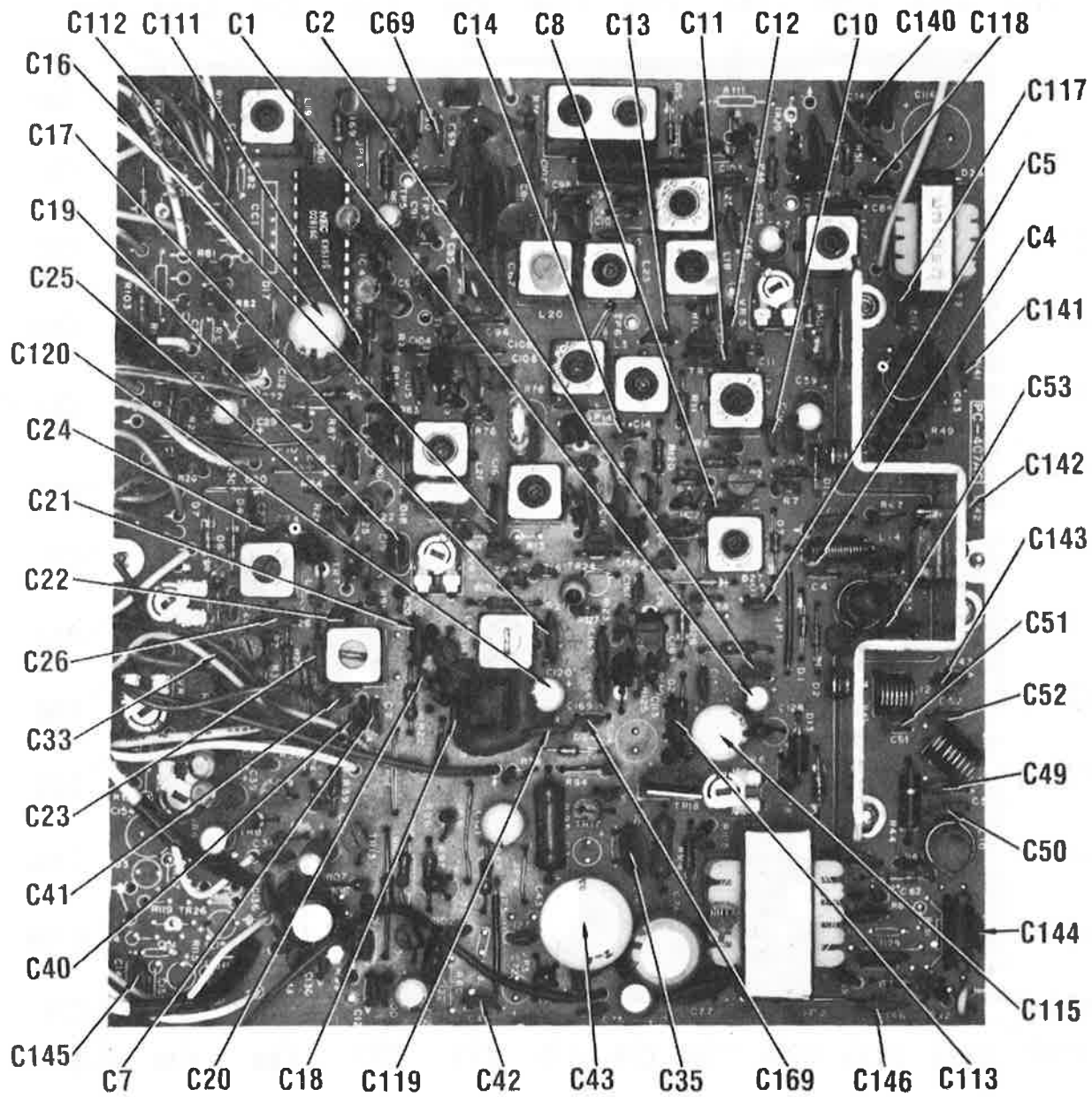
MAIN BOARD



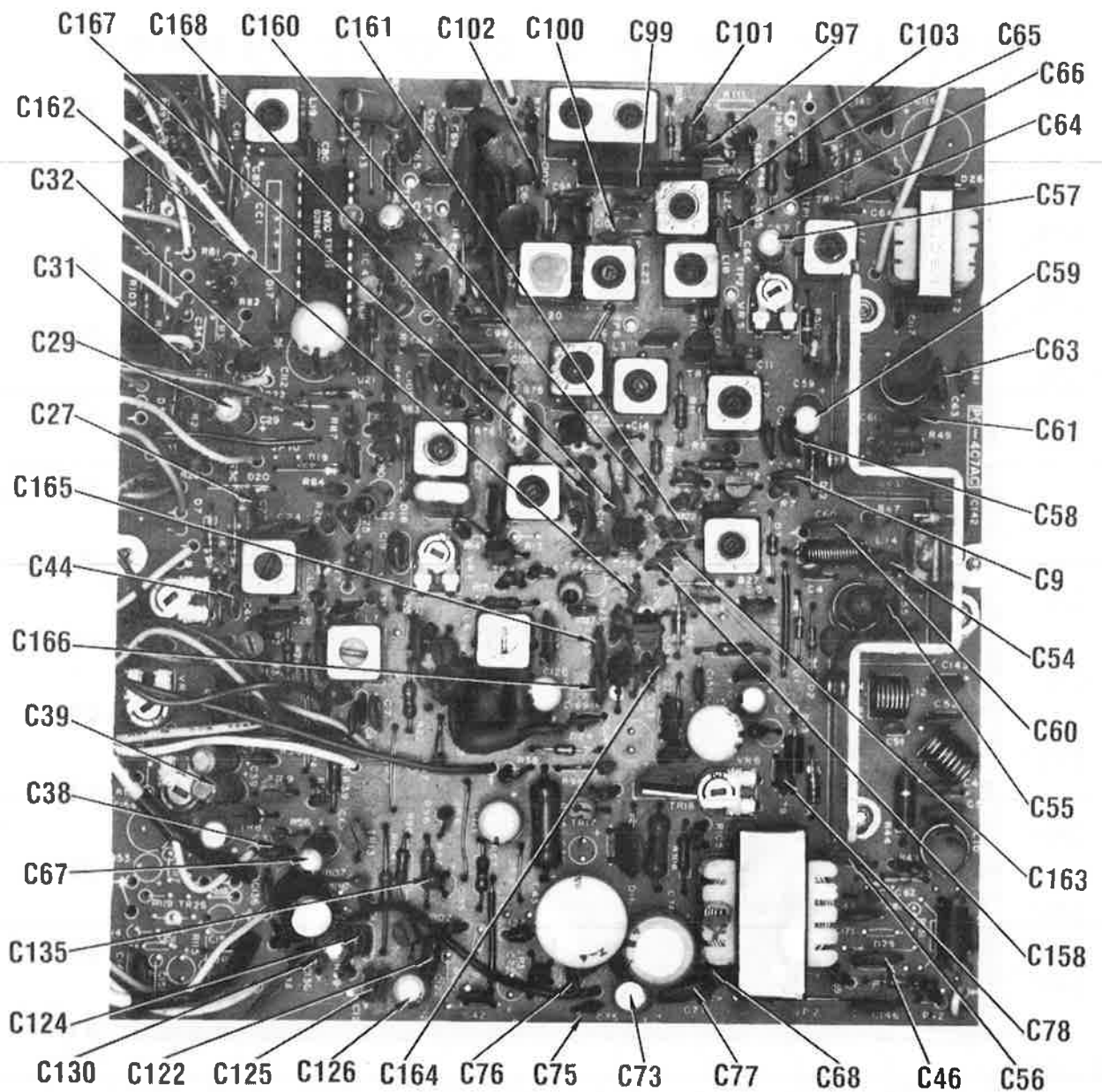
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MAIN BOARD

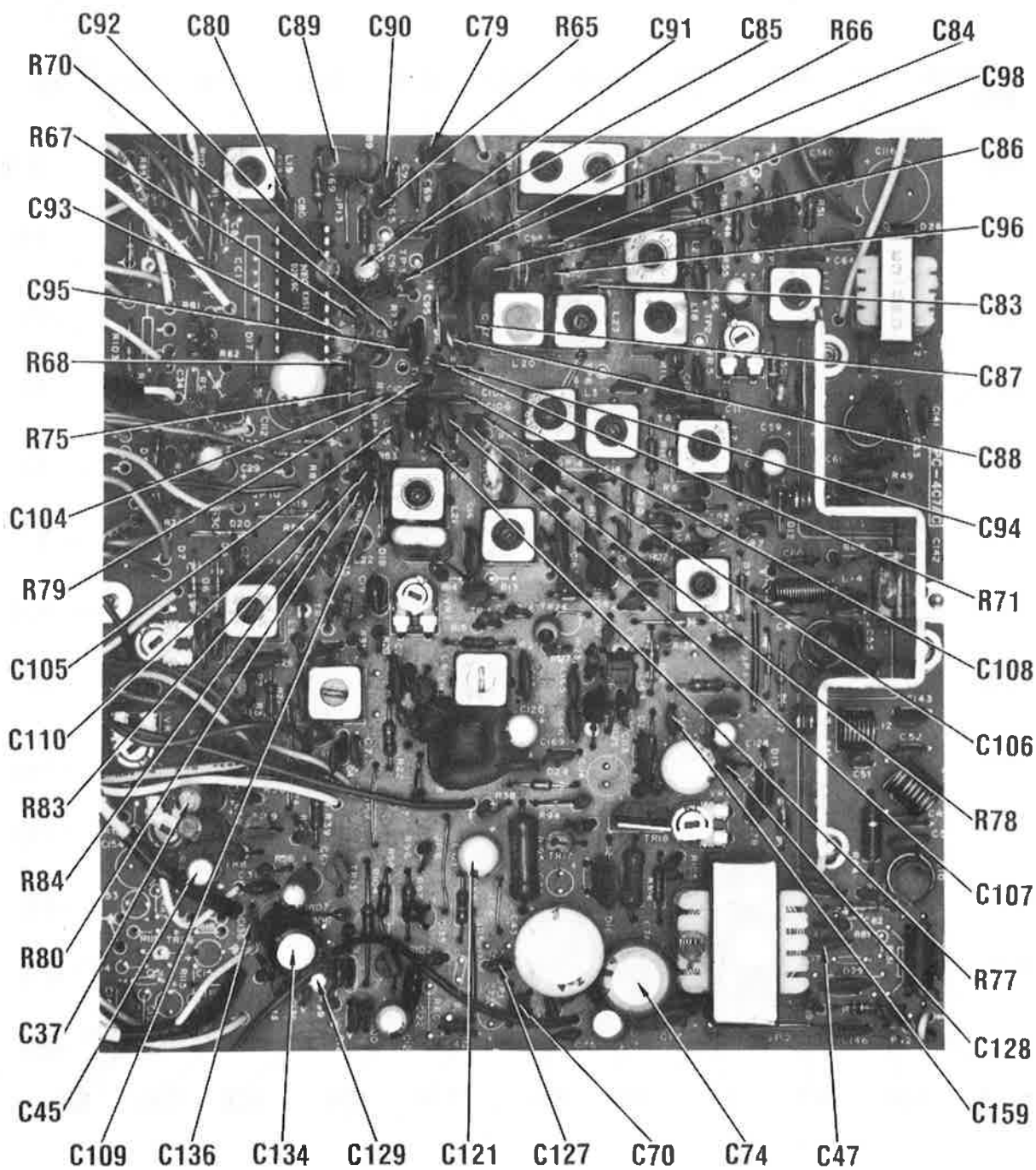




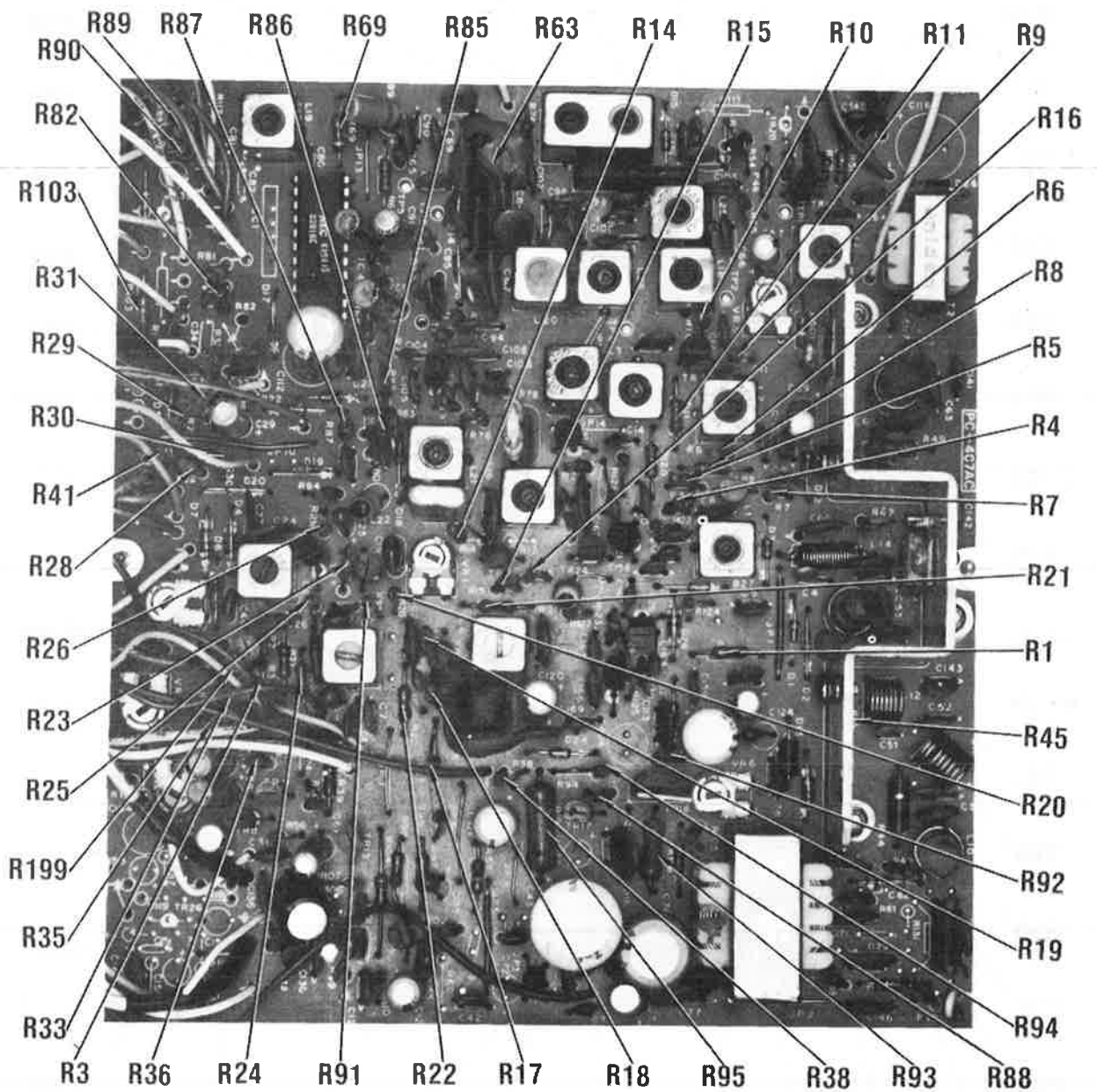
MAIN BOARD



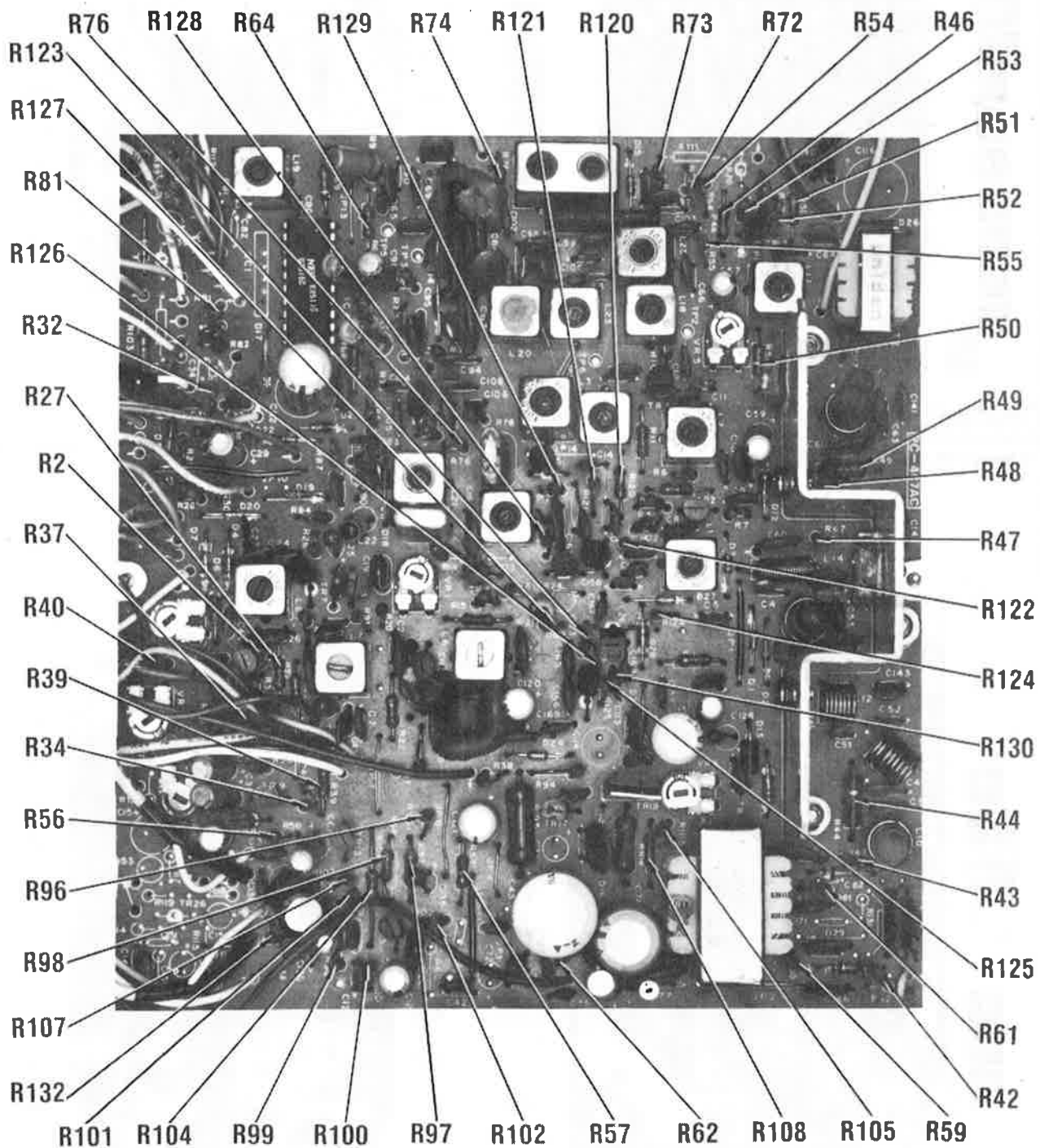
MAIN BOARD



MAIN BOARD

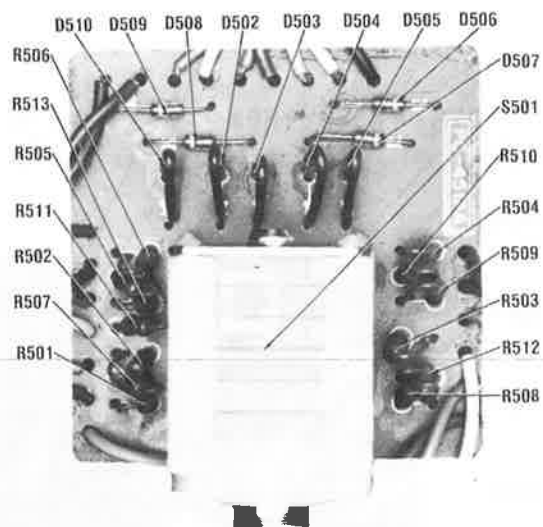
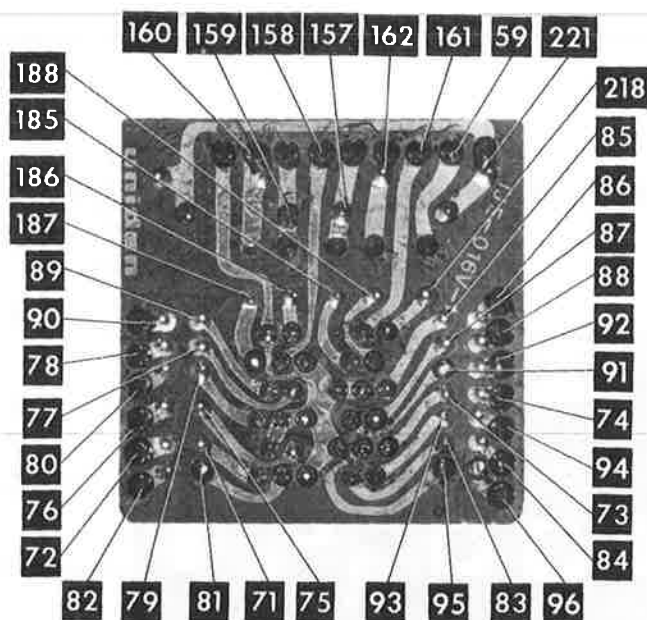


MAIN BOARD

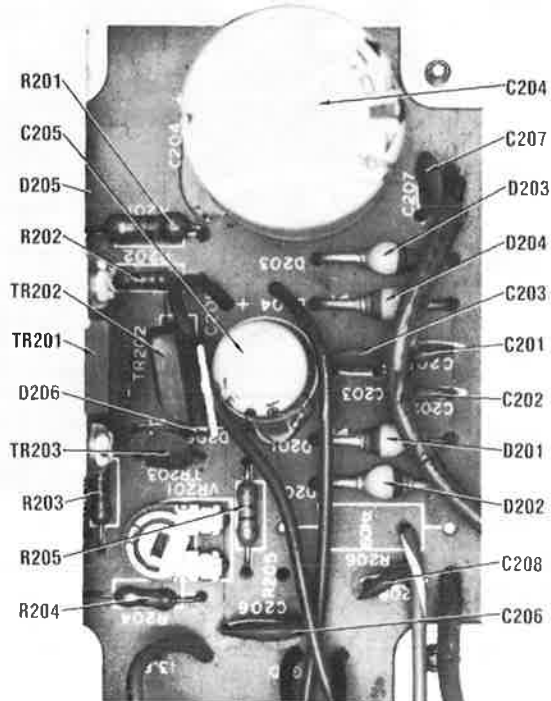
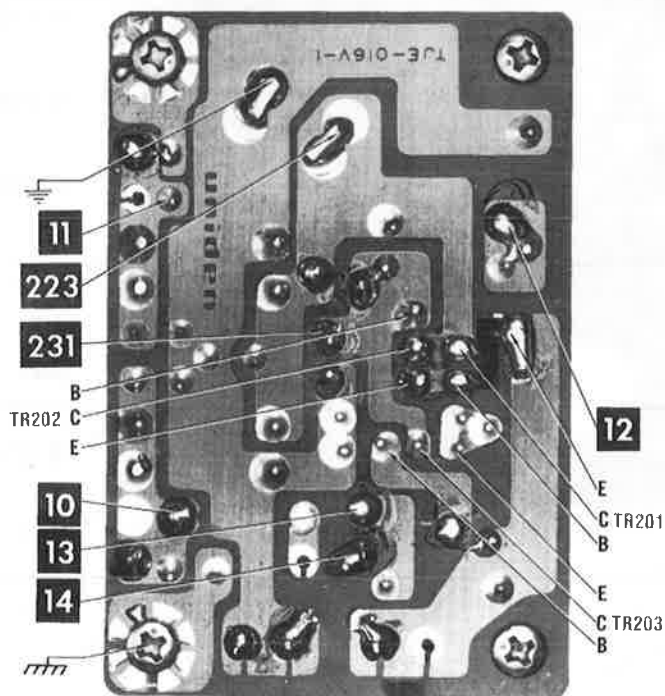


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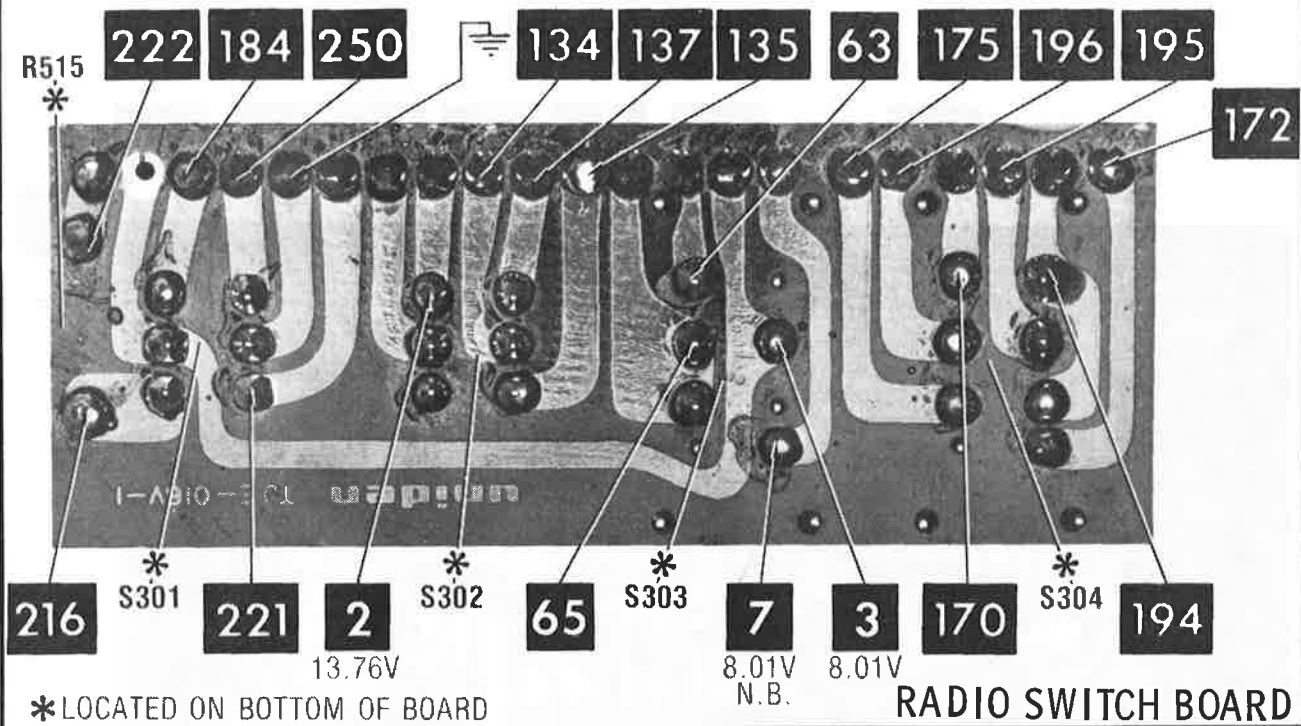
MAIN BOARD



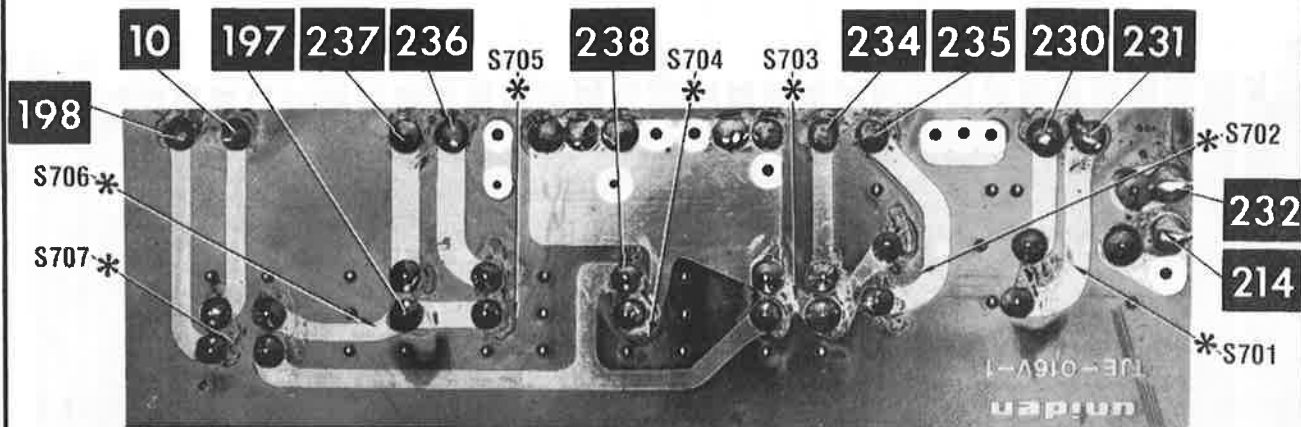
CHANNEL SWITCH BOARD



AC POWER SUPPLY BOARD

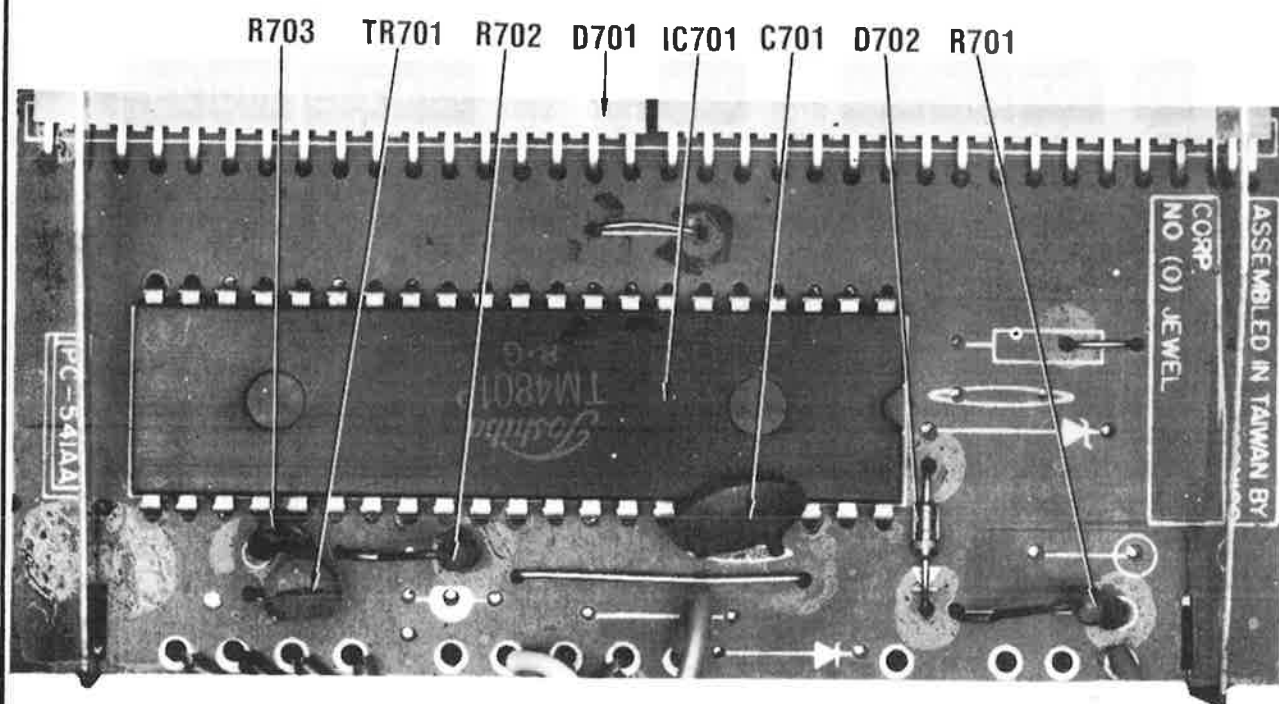
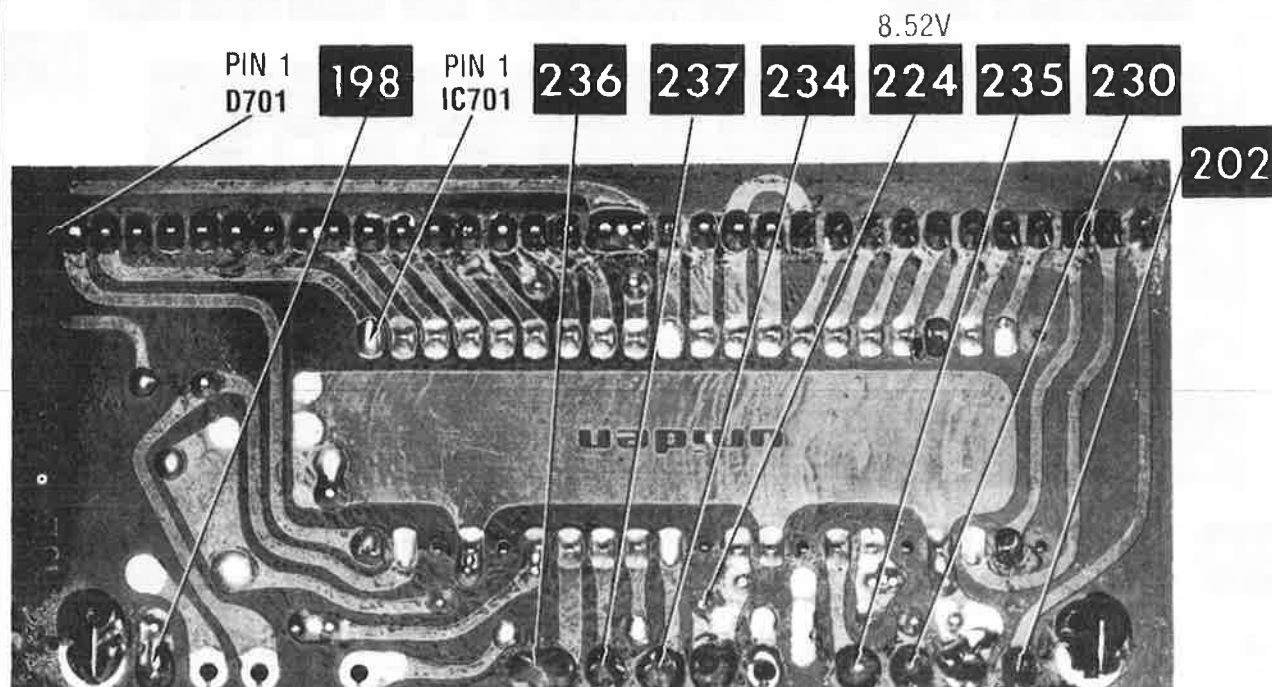


RADIO SWITCH BOARD

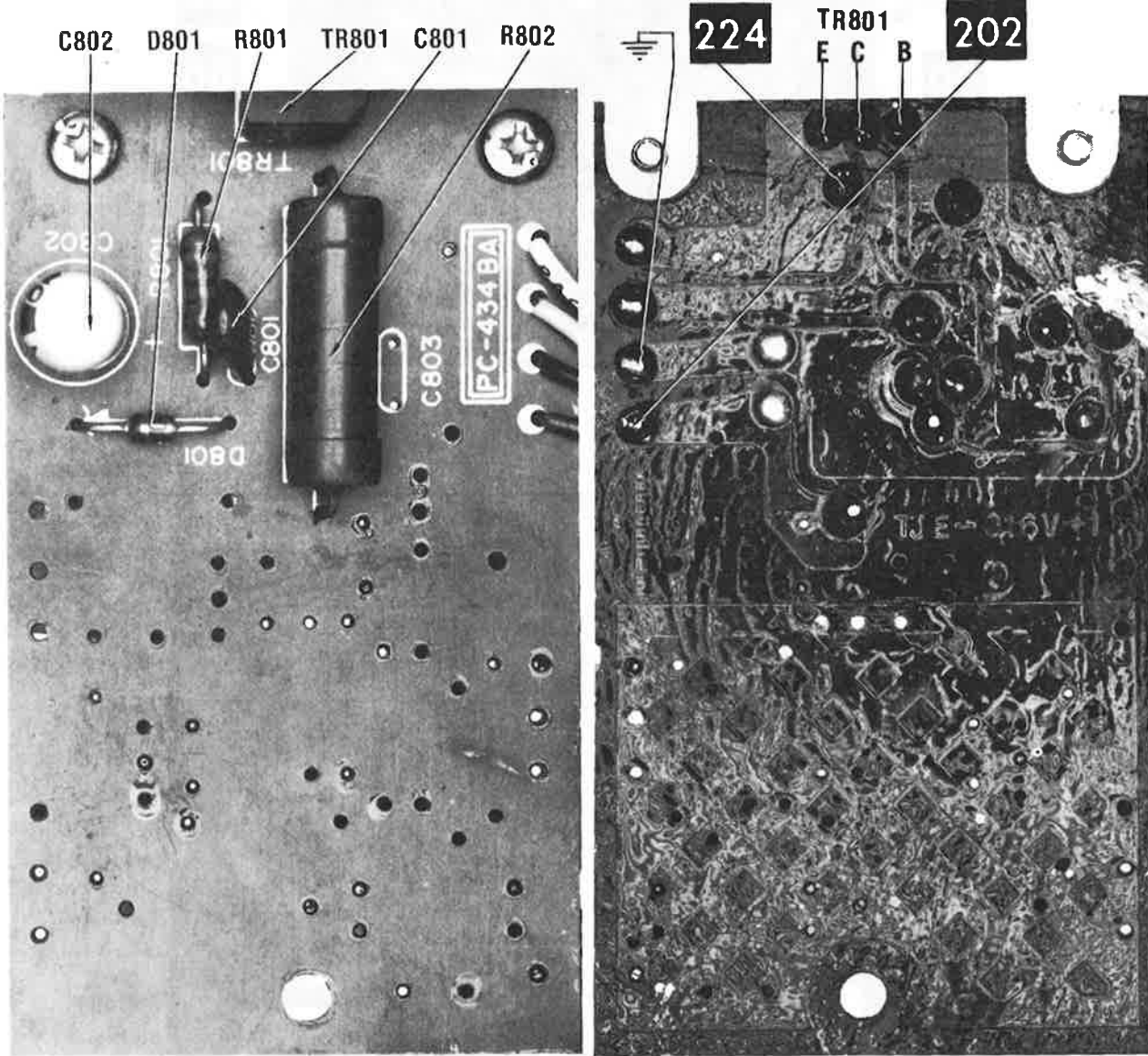


CLOCK SWITCH BOARD

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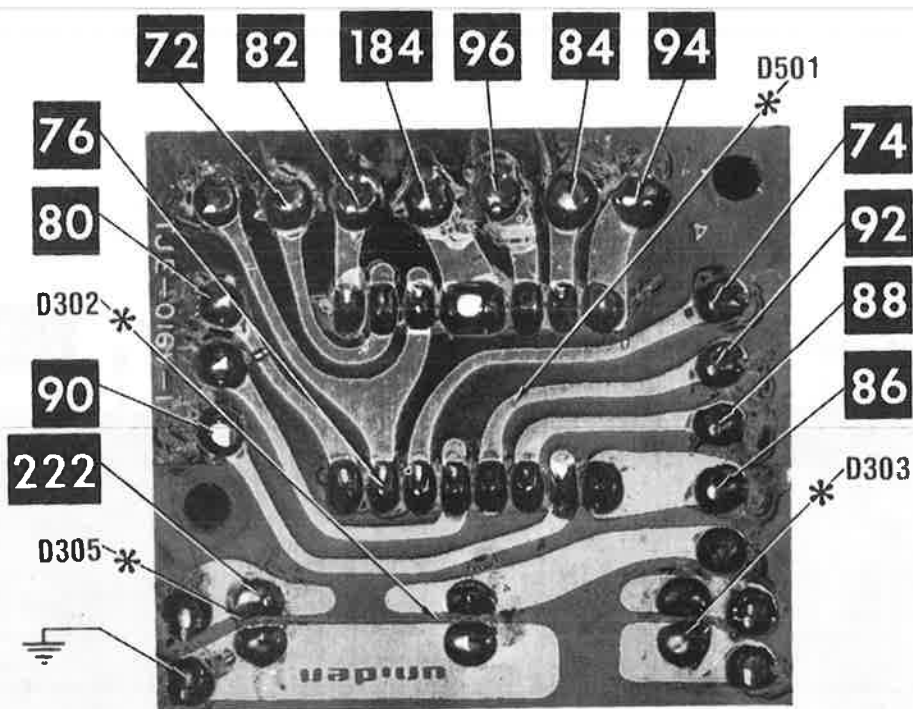


CLOCK BOARD



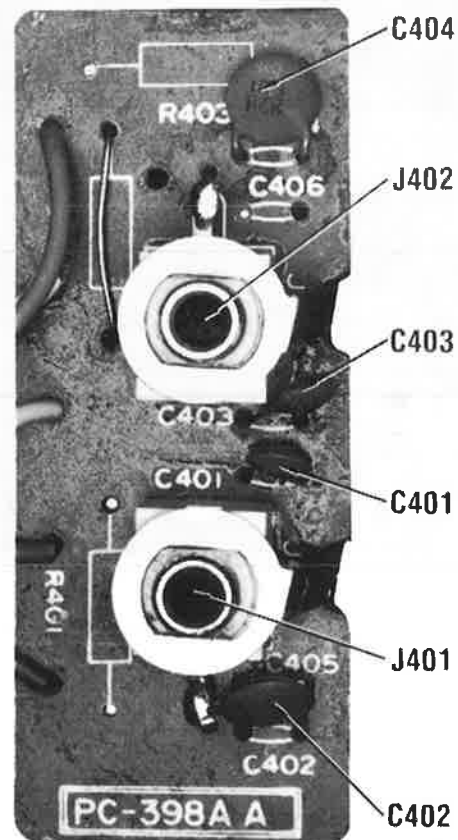
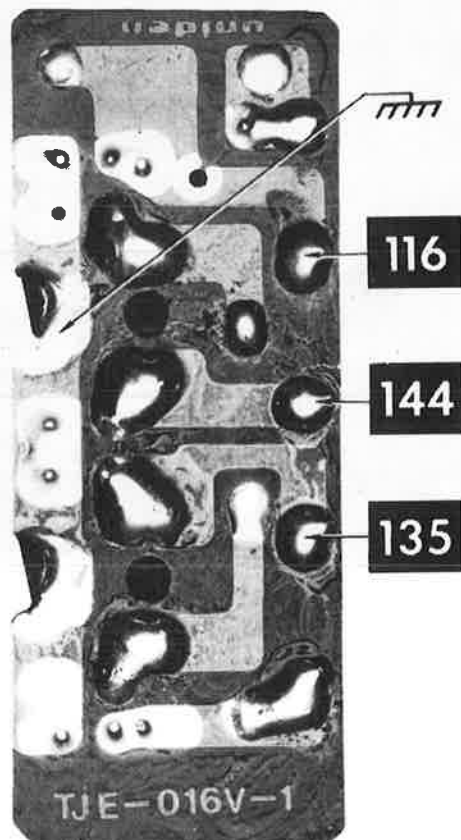
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CLOCK VOLTAGE REGULATOR BOARD

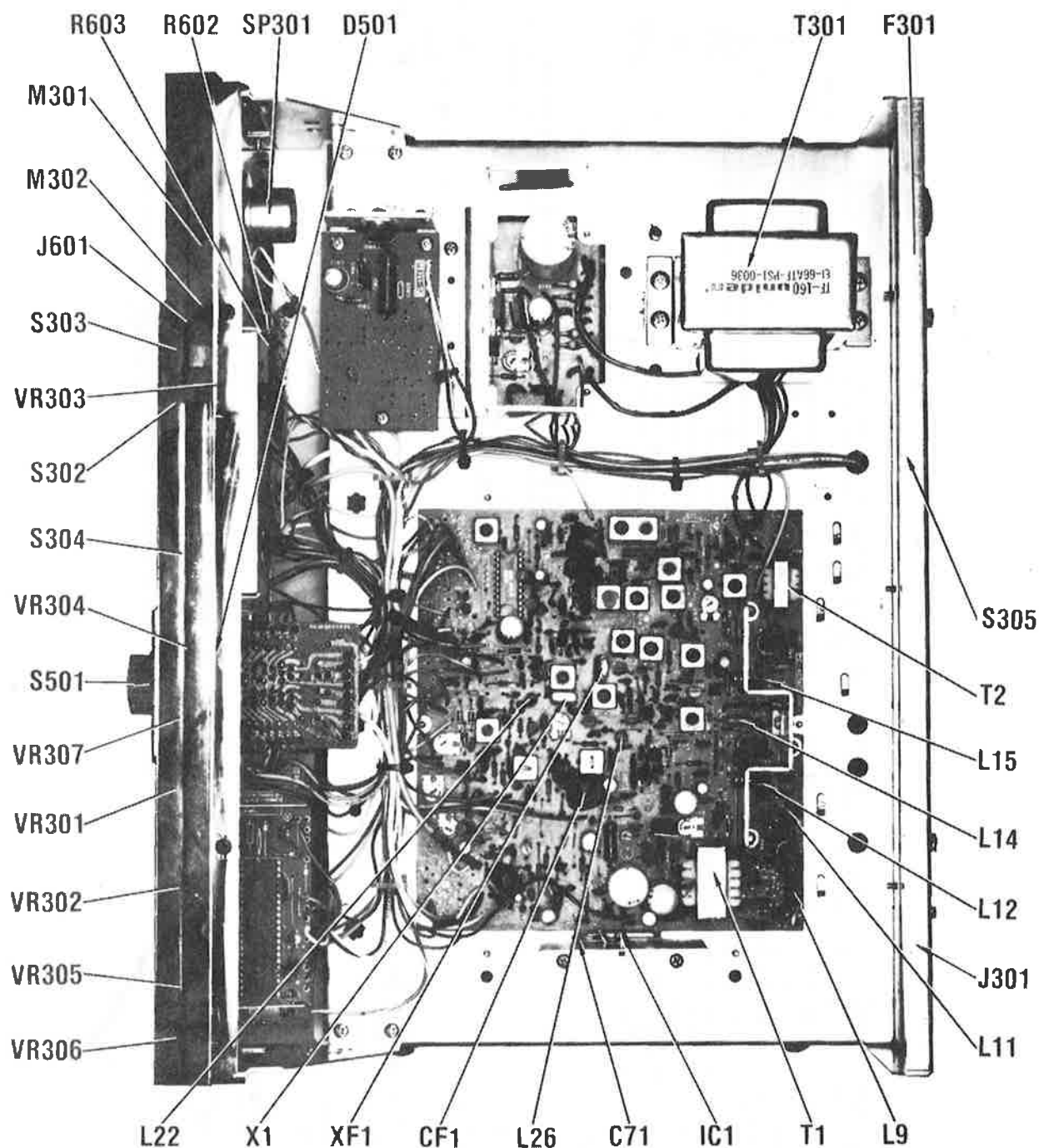


* LOCATED ON OTHER SIDE OF BOARD

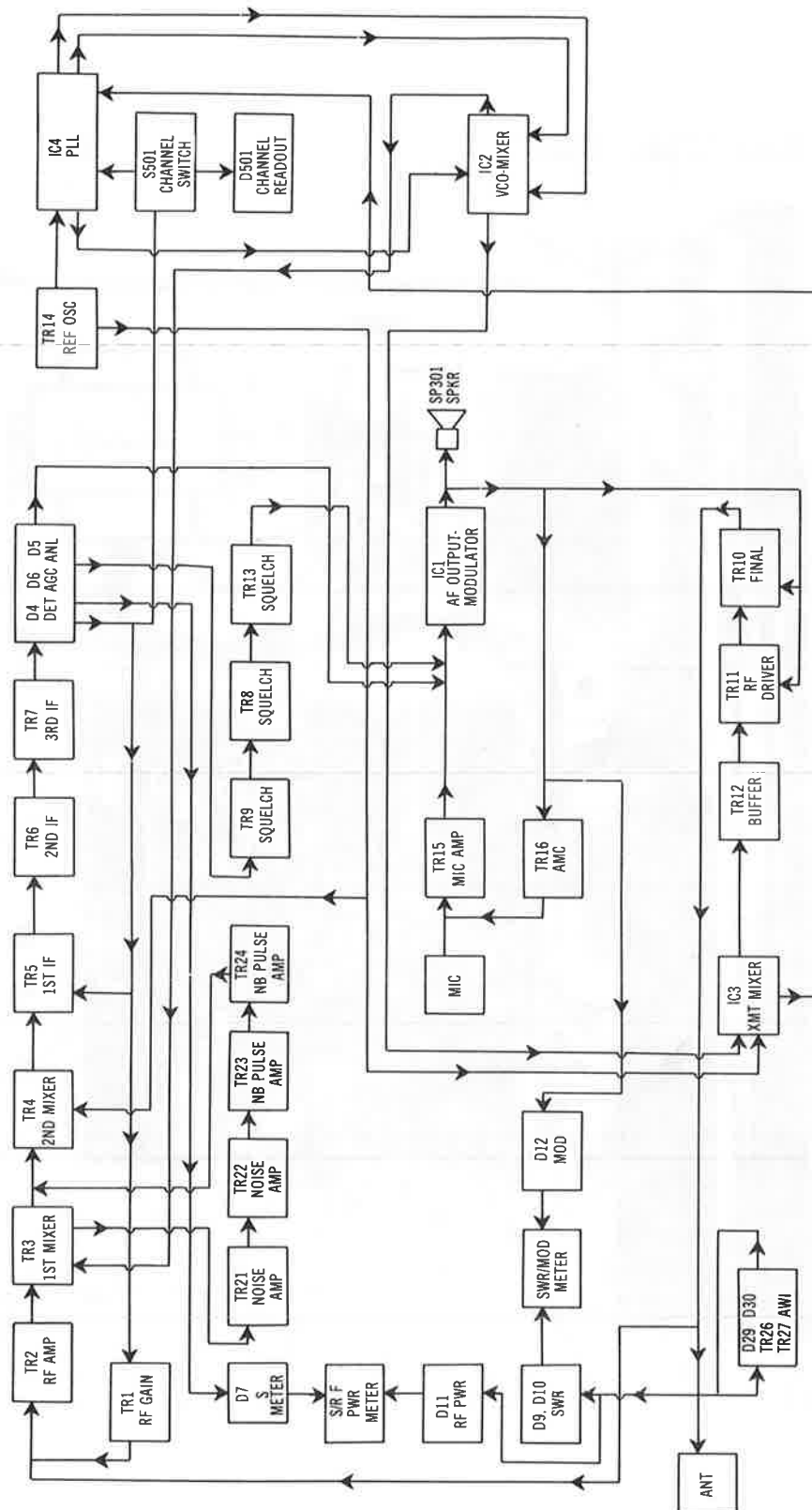
LED BOARD



EXTERNAL JACK BOARD



CHASSIS-TOP



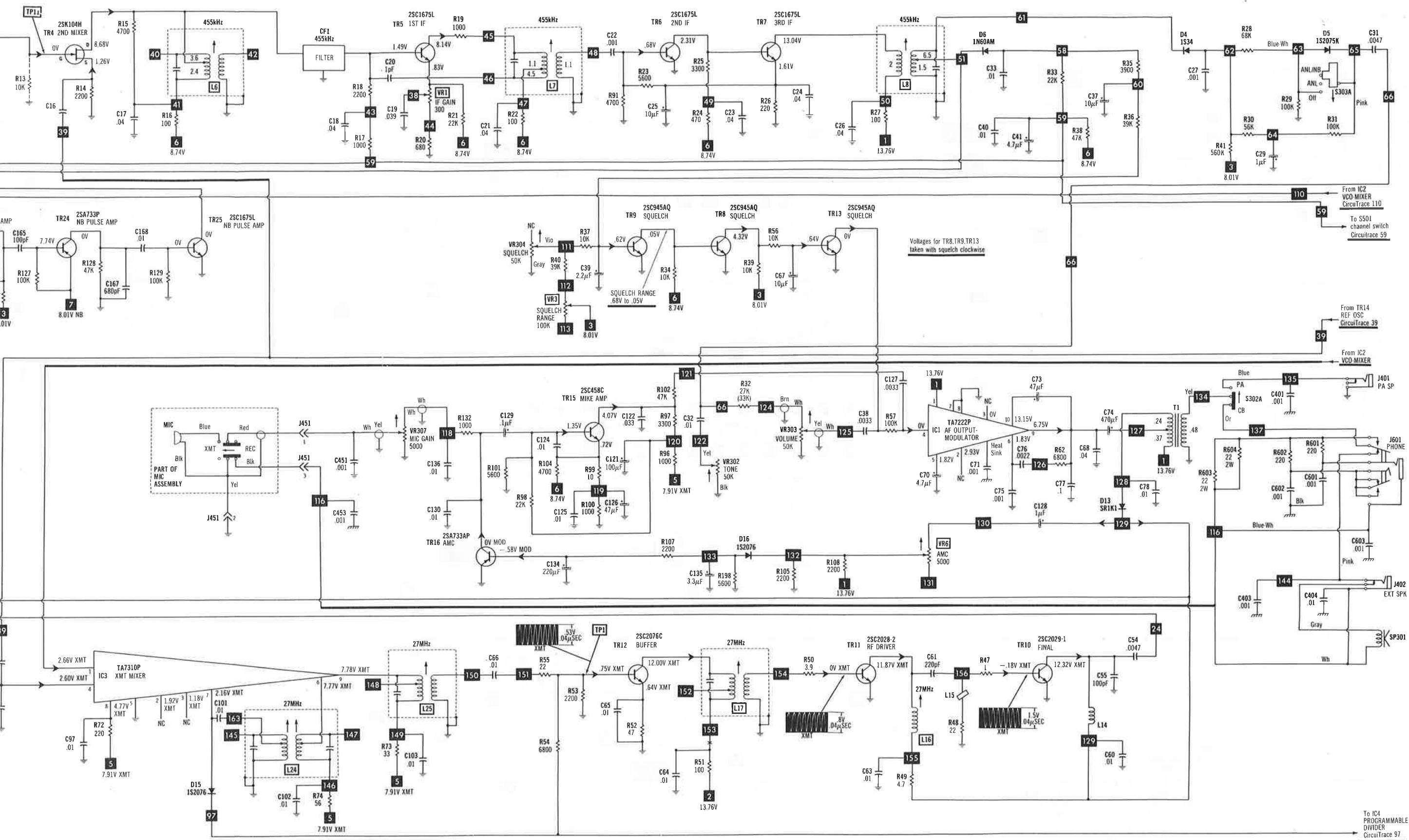
BLOCK DIAGRAM

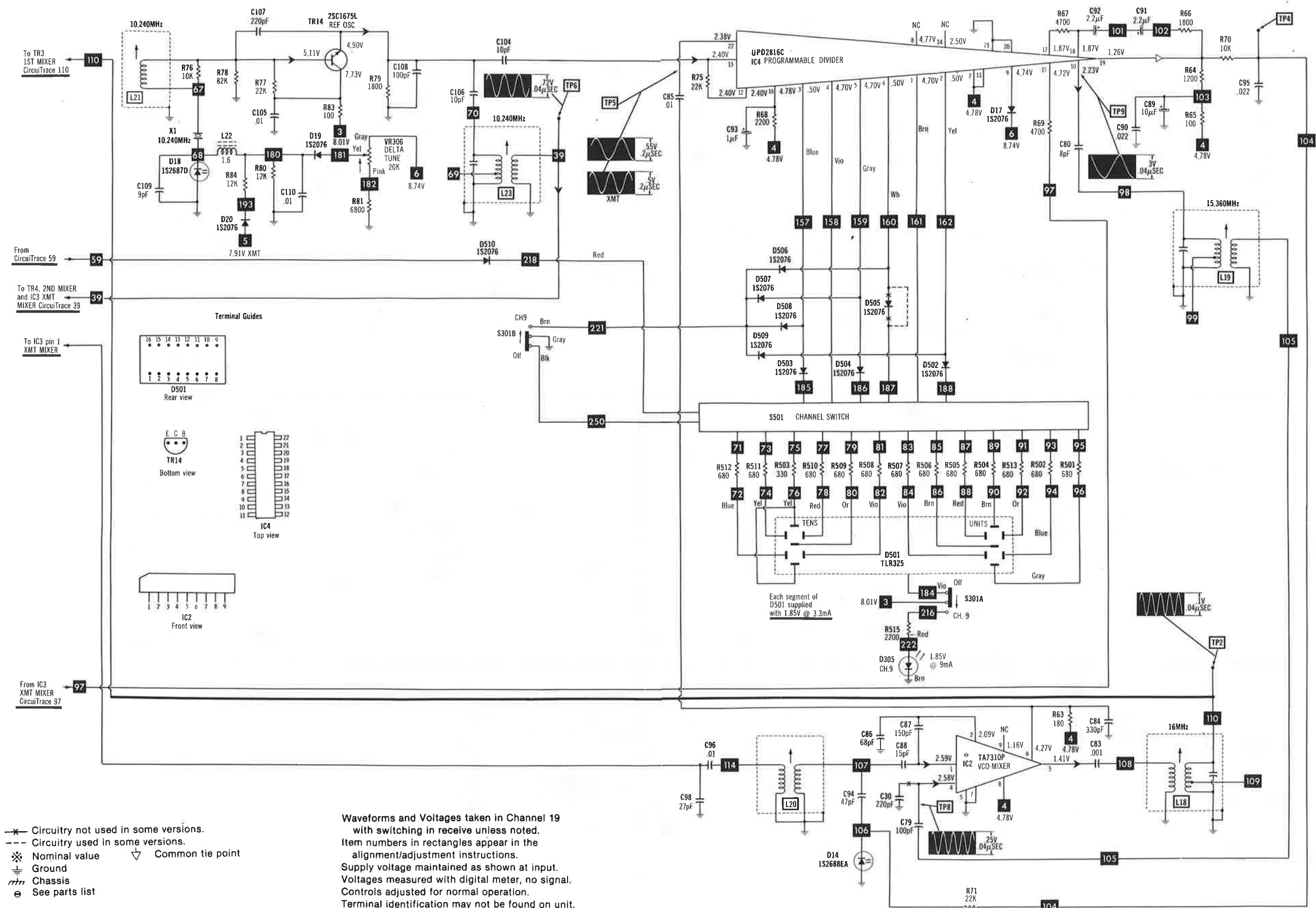


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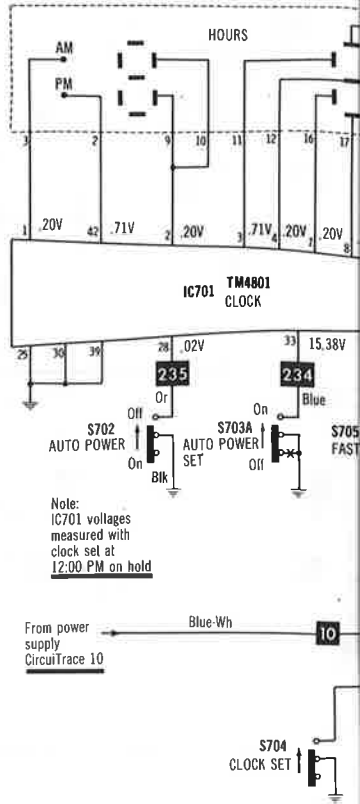


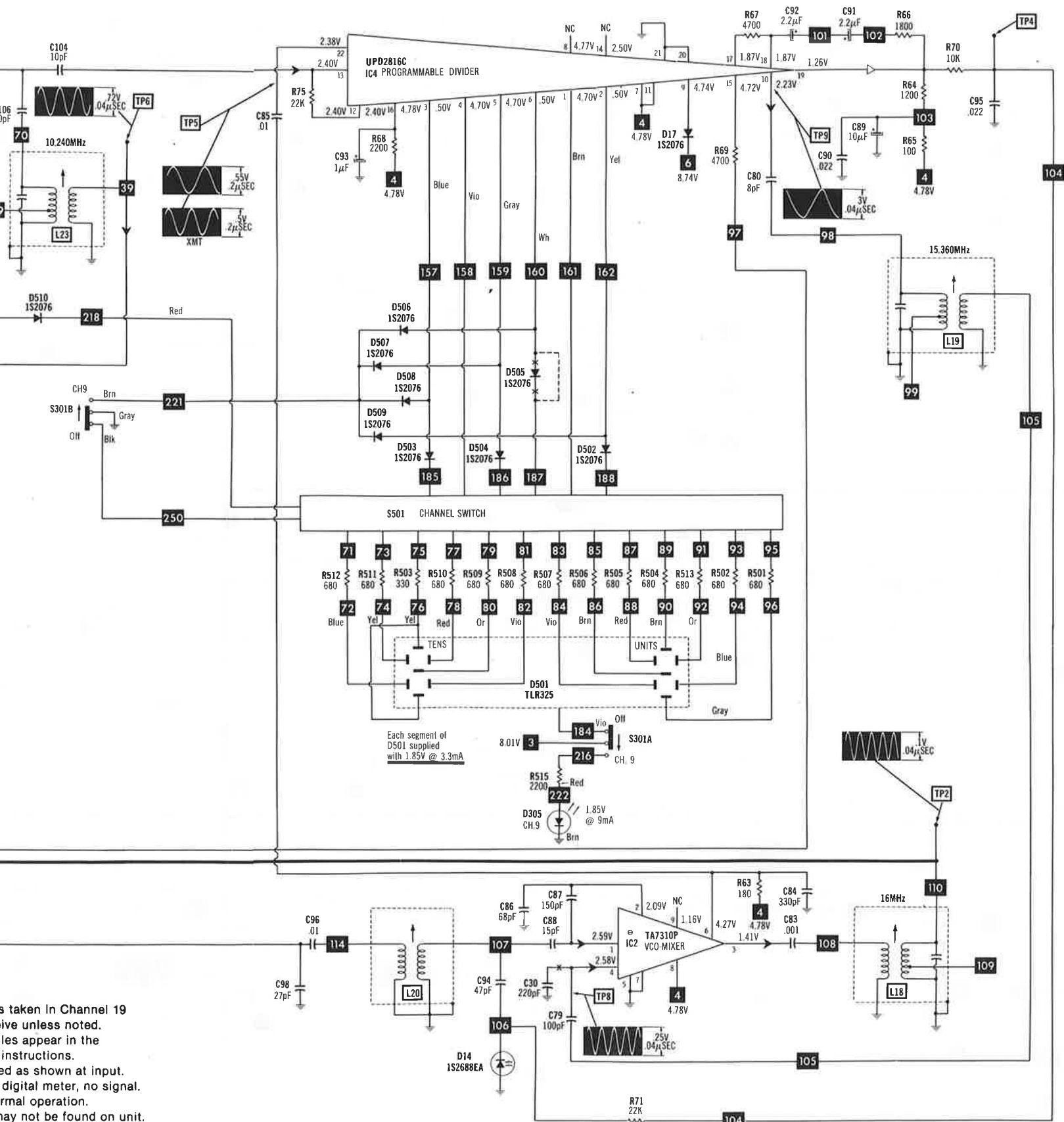


- ✖ Circuitry not used in some versions.
- Circuitry used in some versions.
- ✱ Nominal value ▽ Common tie point
- ⊥ Ground
- ⏏ Chassis
- ⦿ See parts list

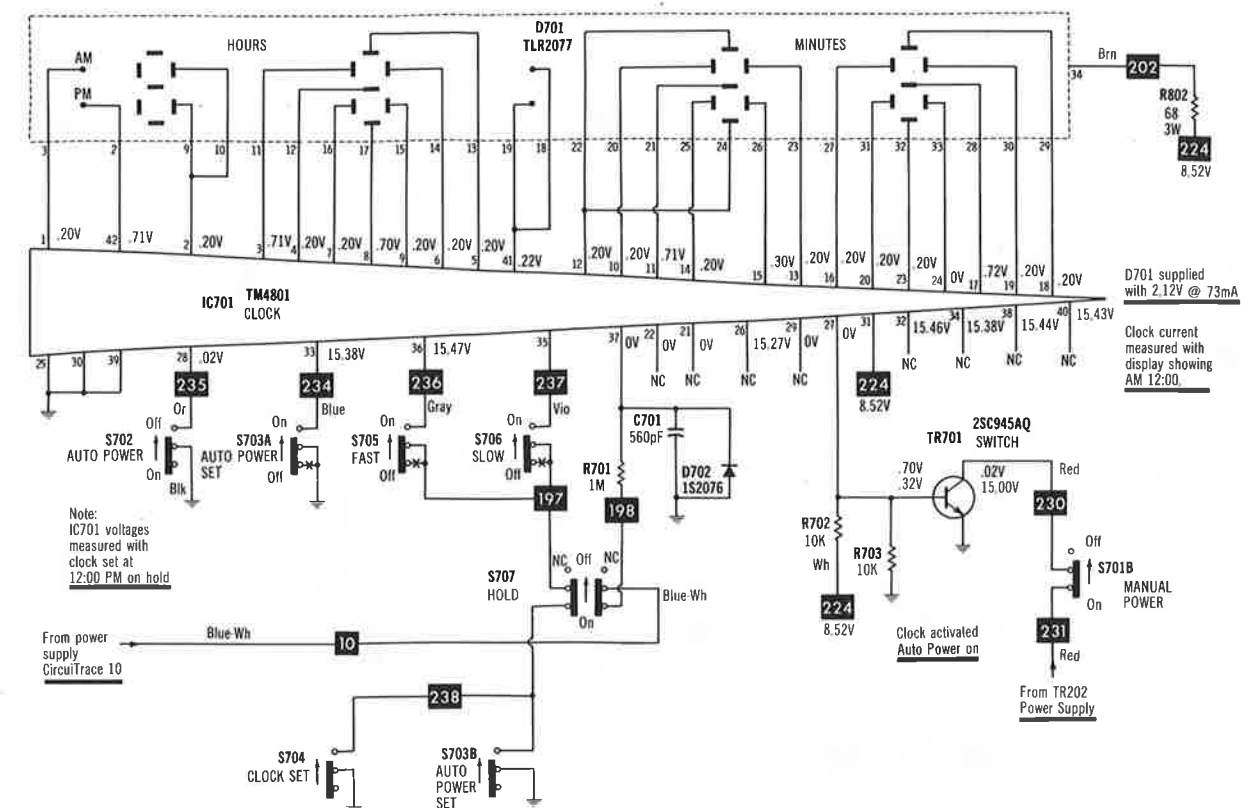
Waveforms and Voltages taken in Channel 19 with switching in receive unless noted. Item numbers in rectangles appear in the alignment/adjustment instructions. Supply voltage maintained as shown at input. Voltages measured with digital meter, no signal. Controls adjusted for normal operation. Terminal identification may not be found on unit. Resistors are 1/2W or less, 5% unless noted. Value in () used in some versions. Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).

PLL SCHEMATIC

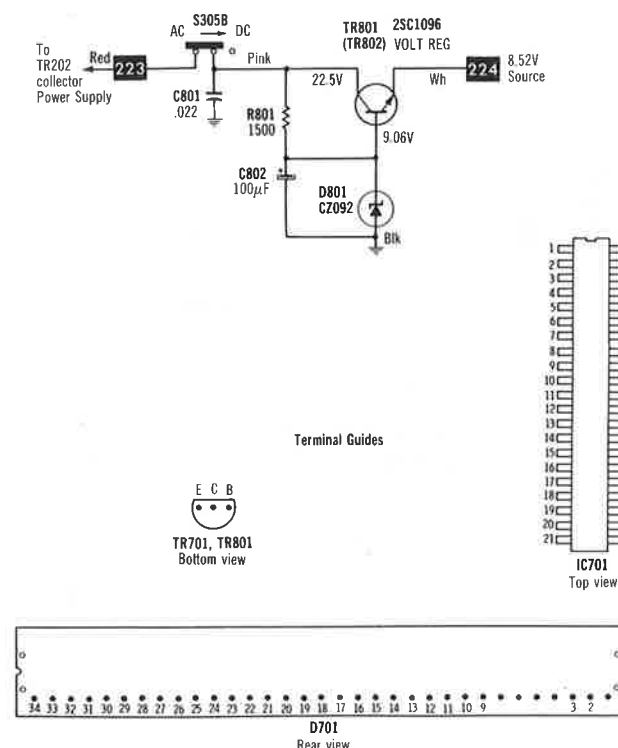




PLL SCHEMATIC



CLOCK SCHEMATIC



TEABERRY MODEL Stalker XII

PARTS LIST AND DESCRIPTION

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

WIRING DATA

Cable (Speaker)(Unshielded).....	Use BELDEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELDEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELDEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8421 (Spiral Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8737 (Spiral Shield)(2 conductor)(AWG22)
Microphone Cable (Coiled).....	Use BELDEN No. 9466 (3 conductor-1 shielded)(6 ft.)(AWG28)
AC Power Cord.....	Use BELDEN No. 17109 (9 ft.)(2 conductors)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D1	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D2	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D3	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D4	1S34	DDAY051001	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-Z9001
D5	1S2075K	DDAY063001	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D6	1N60AM	DDAY001001	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D7	1N60AM	DDAY001001	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D9	1N60P	DDAY001002	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D10	1N60P	DDAY001002	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D11	1N60AM	DDAY001001	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D12	1N60AM	DDAY001001	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D13	SRTK1	DDAY002001	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D14	1S2688EA	DDAY006003	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D15	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D16	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D17	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D18	1S2687D	DDAY067001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D19	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D20	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D21	XZ-051	DDAY020004	GEZD-5.1	PTC201	REN 116	SK3056/135A	ECG135A	TM4733A	WEP1103/135A	103-Z9006
D22	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D23	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D24	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D25	XZ-086	DDAY020005	GEZD-8.7	PTC201	REN 5073	SK3749/5073A	ECG5073A	TM5073A	WEP1155/5073A	212-76-02
D26	SRTK1	DDAY002001	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D27	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D28	1N60AM	DDAY001001	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D201	GM-3Y	DDAY105002	GE-512	PTC204	REN 156	SK3051/156	ECG156	TM156	WEP4008/156	212-Z9000
D202	GM-3Y	DDAY105002	GE-512	PTC204	REN 156	SK3051/156	ECG156	TM156	WEP4008/156	212-Z9000
D203	GM-3Y	DDAY105002	GE-512	PTC204	REN 156	SK3051/156	ECG156	TM156	WEP4008/156	212-Z9000
D204	GM-3Y	DDAY105002	GE-512	PTC204	REN 156	SK3051/156	ECG156	TM156	WEP4008/156	212-Z9000
D205	BZ162	DDAY009003	GEZD-16	PTC214	REN 5075	SK3751/5075A	ECG5075A	TM5075A/**	WEP1160/5075A	103-Z9013
D206	WZ071	DDAY008002	GE-514	PTC214	REN 177	SK3781/5015A	ECG5015A	TM5015	WEP1416/5015	103-Z9002
D502	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D503	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D504	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D505	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D506	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D507	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D508	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D509	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D510	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D702	1S2076	DDAY069001	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-131
D801	CZ092	DDAY069001	GEZD-9.1	PTC214	REN 139	SK3060/139A	ECG139A	TM139/**	WEP1109/139	103-272
IC1	TA7222P	DDEY146001	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
IC2	TA7310P	DDEY109001	GE-61*	PTC132*	REN 229*	SK3132	ECG229*	TM229*	WEP784	121-Z9021*
IC3	TA7310P	DDEY109001	GE-FET-2	PTC161	REN 132*	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
IC4	UPD2816C	DDEY147001	GE-FET-2	PTC161	REN 132*	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
IC701	TM4801P	DDEY148001	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR1	2SC945AQ	DDBY224003	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR2	2SC1674L	DDBY225002	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR3	2SK198L	DDCY001002	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR4	2SK104H	DDCY011001	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR5	2SC1675L	DDBY259001	GE-333	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP785/235	121-Z9039
TR6	2SC1675L	DDBY259001	GE-333	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP785/235	121-Z9039
TR7	2SC1675L	DDBY259001	GE-333	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP785/235	121-Z9039
TR8	2SC945AQ	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR9	2SC945AQ	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR10	2SC2029/1	DDBY257001	GE-333	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP785/235	121-Z9039
TR11	2SC2028/2	DDBY256002	GE-270	PTC180	REN 295	SK3253/295	ECG295	TM295	WEP755/195A*	121-Z9066
TR12	2SC2076D	DDBY270001	GE-210	PTC121*	REN 295	SK3122	ECG295	TM295	WEP784	121-880
TR13	2SC2076C	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR14	2SC1675L	DDBY259001	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR15	2SC458C	DDBY273001	GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9065

TEABERRY MODEL Stalker XII

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
TR16	2SA733AP	DDBY003001	GE-48	PTC127	REN 294	SK3114/290	ECG294	TM294/**	WEP911/290	121-Z9067
TR17	2SA733P		GE-48	PTC127	REN 294	SK3114/290	ECG294	TM294/**	WEP911/290	121-Z9067
TR18	2SA733P	DDBY003001	GE-48	PTC127	REN 294	SK3114/290	ECG294	TM294/**	WEP911/290	121-Z9067
TR18	2SC1096L		GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR21	2SC10963ZL	DDBY227002	GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR22	2SK198L	DDCY001002	GE-FET-2	PTC161	REN 132*	SK3834/132	ECG312*	TM312*	WEP920/312*	921-1067*
TR22	2SC1675L	DDBY259001	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR23	2SC945AQ	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR24	2SA733AP		GE-48	PTC127	REN 294	SK3114/290	ECG294	TM294/**	WEP911/290	121-Z9067
TR25	2SA733P	DDBY003001	GE-48	PTC127	REN 294	SK3114/290	ECG294	TM294/**	WEP911/290	121-Z9067
TR201	2SC1675L	DDBY259001	GE-213	PTC132*	REN 229*	SK3122	ECG229*	TM229*	WEP773	121-Z9021*
TR202	2S0586R	DDBY412001					ECG380	TM380		
TR202	2SC1096L	DDBY227002	GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR202	2SC10963ZL		GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR203	2SC945AQ	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR701	2SC945AQ	DDBY224003	GE-212	PTC121*	REN 199	SK3124/289	ECG199	TM199/**	WEP1945	121-972*
TR801	2SC1096L	DDBY227002	GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008
TR801	2SC10963ZL		GE-28	PTC110	REN 186A	SK3248	ECG186A	TM186A/**	WEP1096	121-Z9008

* Lead configuration may vary from original.
/** Also available as exact type replacement.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C1	10 16V	CEL2311000	PC10-25	VTT10B25	QV1-41	EV-1222
C25	10 6.3V	CSE2901006		TDC106M025FL	QDT1-64	SD25-109
C29	1 50V	CEL2811090	PC1-50	VTT1A50	QV1-11	EV-1615
C37	10 16V	CEL2311000	PC10-25	VTT10B25	QV1-41	EV-1222
C39	2.2 50V	CEL2512290	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C41	4.7 16V	CSE2314796		TDC475M035FL	SD35-4R79	QDT1-49
C43	1000 16V	CEL2311020	PC1000-16	VTT100M16	QV1-183	EV-1261
C45	4.7 25V	CEL2514790	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C57	2.2 50V	CEL2512290	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C59	1 50V	CEL2811090	PC1-50	VTT1A50	QV1-11	EV-1615
C67	10 16V	CEL2311000	PC10-25	VTT10B25	QV1-41	EV-1222
C70	4.7 16V	CSE2314796		TDC475M035FL	SD35-4R79	QDT1-49
C73	47 10V	CEL2114700	PC50-16	VTT47D16	QV1-73	EV-1226
C74	470 16V	CEL2314710	PC500-16	VTT470K16	QV1-151	EV-1251
C89	10 16V	CEL2311000	PC10-25	VTT10B25	QV1-41	EV-1222
C91	2.2 50V	CEL2512290	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C92	2.2 50V	CEL2512290	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C93	1 50V	CEL2811090	PC1-50	VTT1A50	QV1-11	EV-1615
C112	470 6.3V	CEL2904710	PC500-16	VTT470K16	QV1-151	EV-1251
C115	220 16V	CEL2112210	PC250-25	VTT220H16	QV1-117	EV-1240
C120	47 10V	CEL2114700	PC50-16	VTT47D16	QV1-73	EV-1226
C121	100 10V	CEL21101010	PC100-10	VTT100D10	QV1-93	EV-1131
C126	47 10V	CEL2114700	PC50-16	VTT47D16	QV1-73	EV-1226
C128	1 25V	CSE2511096		TDC105M035EL	SD35-19	QDT1-2
C129	.1 16V	CAA2311086		TDC104M050EL	QDT1-2	SD50-R109
C134	220 6.3V	CEL2902210	PC250-10	VTT220F10	QV1-115	EV-1140
C135	3.3 16V	CSE2313396		TDC335M035FL		SD35-3R39
C204	2200 35V	CCZY048001	WBR2000-50*	TC50200B*	QV1-648*	TVA-1318.3*
C205	220 16V	CEL2312210	PC250-25	VTT220H16	QV1-117	EV-1240
C802	100 10V	CEL21101010	PC100-10	VTT100D10	QV1-93	EV-1131

*Axial replacement used as a radial device.

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C2	.01 50V	CCR2H11505		MAG5011		10TCR-Q15
C4	15 N220 50V 10%			*		
C5	.01 50V			MAG5011		
C7	.01 50V			MAG5011		
C8	220 50V 10%			GP322		10TS-T22
C9	.01 50V			MAG5011		
C10	.01 50V			MAG5011		
C11	.01 50V			MAG5011		
C12	.01 50V			MAG5011		
C13	.01 50V			MAG5011		
C14	2 NPO 50V $\pm$.25	CCB2H12091				
C16	.04 25V			GP140		5GA-S40
C17	.04 25V			GP140		5GA-S40
C18	.04			GP140		5GA-S40
C19	.039 50V 10%	CCG2H11091	DPMS6S39	M192P3939R8	QFT2-159	1FT-S39
C20	1 50V $\pm$.25					
C21	.04 25V			GP140		5GA-S40
C22	.001 50V		DPMS6D1	EWFA210	QFT2-1	1FT-D10
C23	.04 25V			GP140		5GA-S40
C24	.04 25V			GP140		5GA-S40
C26	.04 25V			GP140		5GA-S40
C27	.001 50V		DPMS6D1	EWFA210	QFT2-1	1FT-D10
C30	220			GP322		10TS-T22

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C31	.0047 50V	CCRZ815605 CCGZ812091	WMF1D47	M192P4729R8	QFT2-63	1FT-D47
C32	.01 50V		WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C33	.01 50V		WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C35	.04 25V			GP140		5GA-S40
C38	.0033 50V		WMF1D33	M192P3329R8	QFT2-43	1FT-D33
C40	.01 50V		WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C42	.01 50V			MAG5011		
C44	.01 50V		WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C46	.04 25V			GP140		5GA-S40
C47	.04 25V			GP140		5GA-S40
C49	56 50V 10%	CCRZ815605 CCGZ812091		GP456		10TS-Q56
C50	56 N220 50V 10%			*		10TCR-Q56
C51	2 50V +.25			GP322		10TS-T22
C52	220 50V 10%			GP333	QCT2-33	10TS-T33
C53	330 50V 10%		GP330	GP247		5GA-D47
C54	.0047 50V		GP4700	GP310	QCT2-24	10TS-T10
C55	100 50V 10%		GP100	GP140		5GA-S40
C56	.04 25V			MAG5011		
C58	.01 50V			MAG5011		
C60	.01 50V			GP322		10TS-T22
C61	220 50V 10%	CCGZ818092		MAG5011		
C63	.01 50V			MAG5011		
C64	.01 50V			MAG5011		
C65	.01 50V			MAG5011		
C66	.01 50V			MAG5011		
C68	.04 25V			GP140		5GA-S40
C69	.01 50V			MAG5011		
C71	.001 50V			GP210	QCT2-41	10TS-D10
C75	.001 50V			GP210	QCT2-41	10TS-D10
C76	.0022 50V		DPMS6022	M192P2229R8	QFT2-27	1FT-D22
C77	.1 25V	CCRZ816805 CCRZ811515 CCRZ811505		MAG2501	QC1-231	HY-750
C78	.01 50V			MAG5011		
C79	100 50V 10%		GP100	GP310	QCT2-24	10TS-T10
C80	8 50V +.5					10TCC-V82
C83	.001 50V			GP210	QCT2-41	10TS-D10
C84	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C85	.01			MAG5011		
C86	68 N220 10%			*		10TCR-Q68
C87	150 N220 5%			*		10TCR-T15
C88	15 N220 50V 10%			*		10TCR-Q15
C90	.022 25V	CCRZ811015 CCDZ819092			QC1-173	HY-725
C94	47 N750 50V 10%		N47	CN7447		10TCU-Q47
C95	.022 50V		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C96	.01 50V			MAG5011		
C97	.01 50V			MAG5011		
C98	27 NPO 50V 10%			CH0427		10TCC-Q27
C99	100 50V 10%		GP100	GP310	QCT2-24	10TS-T10
						10TCC-Q39
C100	39 50V 10%	CCRZ811015 CCDZ819092		CN0439		
C101	.01 50V			MAG5011		
C102	.01 50V			MAG5011		
C103	.01 50V			MAG5011		
C104	10 NPO 50V 10%		NP010	CN0410	QCC2-15	10TCC-Q10
C105	.01 50V			MAG5011		
C106	10 NPO 50V 10%		NP010	CN0410	QCC2-15	10TCC-Q10
C107	220 50V 10%			GP322		10TS-T22
C108	100 N220 10%			*		10TCR-T10
C109	9 N220 50V +.5					
C110	.01 50V	CCRZ811015 CCDZ819092		MAG5011		
C111	.04 25V			GP140		5GA-S40
C113	.04 25V			GP140		5GA-S40
C117	.01 50V			MAG5011		
C118	.01 50V			MAG5011		
C119	.04 25V			GP140		5GA-S40
C122	.033 50V		DPMS6S33	M192P3339R8	QFT2-149	1FT-S33
C124	.01 50V		WMF1S1	EWFA1A110	QFT2-91	1FT-S10
C125	.01 50V			MAG5011		
C127	.0033 50V		WMF1D33	M192P3329R8	QFT2-43	1FT-D33
C130	.01 50V	CCRZ811015 CCDZ819092		MAG5011		
C136	.01 50V			MAG5011		
C140	.01 50V			MAG5011		
C141	.01 50V			MAG5011		
C142	.01 50V			MAG5011		
C143	.01 50V			MAG5011		
C144	.01 50V			MAG5011		
C145	.01 50V			GP140		5GA-S40
C146	.04 25V			GP140		5GA-S40
C147	.04 25V			GP210	QCT2-41	10TS-D10
C158	.001 50V	CCRZ811015 CCDZ819092		MAG5011		
C159	.01 50V			MAG5011		
C160	.01 50V			MAG5011		
C161	.01 50V			GP210	QCT2-41	10TS-D10
C162	.001 50V					

TEABERRY MODEL Stalker XII

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C163	22 50V 10%		NP022	CN0422		10TCC-Q22
C164	.001 50V			GP210		10TS-D10
C165	100 50V 10%		GP100	GP310	QCT2-41	10TS-T10
C166	150 50V 10%			GP315	QCT2-24	10TS-T15
C167	680 50V 10%		GP680	GP368		10TS-T68
C168	.01 50V			MAG5011		
C169	.01 50V			MAG5011		
C201	.01 50V			MAG5011		
C202	.01 50V			MAG5011		
C203	.01 50V			MAG5011		
C206	.04 25V			GP140		5GA-S40
C207	.01 50V			MAG5011		
C208	.01 50V			MAG5011		
C401	.001 50V			GP210	QCT2-41	10TS-D10
C402	.01 50V			MAG5011		
C403	.001 50V			GP210	QCT2-41	10TS-D10
C404	.01 50V			MAG5011		
C701	560 50V 10%			GP356		10TS-T56
C801	.022 50V		0PMS2S22	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		
			MFR. PART No.	MALLORY PART No.	TRW PART No.
VR1	IF Gain	300	RRVY189001	RVA0911H501	U260R501B
VR2	S Meter	30K	RRVY189013	RVA0911H503	U260R503B
VR3	Squelch Range	100K	RRVY189008	RVA0911H104	U260R104B
VR4	RF Power Meter	20K	RRVY189006	RVA0911H253	U260R253B
VR5	MOD	50K	RRVY189007	RVA0911H503	U260R503B
VR6	AMC	500	RRVY189002	RVA0911H501	U260R501B
VR201	Voltage	500	RRVY189002	RVA0911H501	U260R501B
VR301	RF Gain	1000	RRVY287001		
VR302	Tone	50K	RRVY333001		
VR303	Volume	50K	RRVY340001 (RV340) (6)		
VR304	Squelch	50K	RRVY333001		
VR305	SWR CAL	5000	RRVY340001 (RV340) (6)		
VR306	Delta Tune	20K	RRVY331001		
VR307	Mic Gain	5000	RRVY074001		
			RRVY159001 (RV159) (6)		
			RRVY039001		
			RRVY157001 (RV157) (6)		
			RRVY293001		
			RRVY341001 (RV341) (6)		

(6) Matched pair.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		MFR. PART No.	WORKMAN PART No.			MFR. PART No.	WORKMAN PART No.
R802	68 3W 10%	RSJZ306805					

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Receive Antenna (27MHz)	LLAY029001	LA-029	CBS740-T	
L2	RF Amp (27MHz)	LLAY138001	LA-138		
L3	Mixer (10.695MHz)	LLAY277001			
L4	Mixer (10.695MHz)	LLAY180001	LA-180	CBS715-TC	
L5	Mixer (10.695MHz)	LLAY274001	LA-274		
L6	IF (455kHz)	LLAY106001	LA-106	8517	
L7	IF (455kHz)	LLAY204001	LA-204		
L8	IF (455kHz)	LLAY207001	LA-207		
L10	TVI Trap (54MHz)	LLCY018001		CB304	
L11	RF Choke	LLCY072001 (1)			
		LLEY089001			
L12	Pi Filter	LLEY093001 (1)			
		LLEY088001			
L13	Loading Final (27MHz)	LLEY092001 (1)			
		LLCY019001		CB305	
L14	RF Choke	LLCY073001 (1)			
		LLDY012001		4588	
L16	RF Driver (27MHz)	LLDY033001 (1)			
		LLCY018007		CB304	
		LLCY072001 (1)			
L17	Buffer (27MHz)	LLAY208001	LA-208		
L18	Mixer (16MHz)	LLAY201001	LA-201		
L19	Down Osc (15.360MHz)	LLAY166001	LA-166		
L20	VCO	LLAY275001	LA-275		
L21	Reference Oscillator (10.240MHz)	LLAY217001			

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.	
L22	RF Choke	LLZY001013			
L23	Reference Oscillator (10.240MHz)	LLZY016025(1) LLAY182001	LA-182		
L24	Xmt Mixer (27MHz)	LLAY198001	LA-198		
L25	Xmt Mixer (27MHz)	LLAY088001		CBS717-TC	
L26	RF Choke	LLZY001001 LLZY016013(1)			

(1) Alternate used in some versions.

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.	
T2	1.2A	.14	.85mH	TTFY017001	TR507		

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	6.25	1 16 2 12.25	TTFY120001			

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T301	120V AC @ 480mA AC	18.50V AC @ 2.5A AC	TTFY15001		PCB-5(1)	(1) Requires new mounting holes.

(1) Part of DC power cord.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP301	3" PM, 16 Ohms	A5PY031001		

TEABERRY MODEL Stalker XII

PARTS LIST AND DESCRIPTION (CONTINUED)

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

FUSE DEVICES

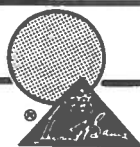
ITEM No.		DESCRIPTION	REPLACEMENT DATA						
			PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
			DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F301	2A Quick-acting	ZFSY012004	FH-002	AGC2	HKP	312002	342014A	FG2-2	
F302	2A Quick-acting	ZFSY012004	(1)	AGC2	HRK	312002	150145	FG2-2	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	FFLY009001	455kHz (Ceramic) (FL-009)
D302	LED	DDAY116001	Receive (TLG124A) (1.90V @ 11mA)
D303	LED	DDAY100001	Xmt (TLR124) (1.34V @ 3.0mA)
D305	LED	DDAY100001	Ch. 9 (TLR124) (1.85V @ 9mA)
D501	LED	DDAY082001	Channel Indicator (TLR325) (Each segment of D501 supplied with 1.85V @ 3.3mA)
D701	LED	DDAY107001	Clock (TLR2077) (Each segment of D701 supplied with 2.12V @ 73mA)
J301	Jack	JJKY035001	Antenna
J302	Jack	JJKY052001	DC Power
J401	Jack	JJKY010001	PA Speaker
J402	Jack	JJKY010001	External Speaker
J451	Jack	JJKY058001	Microphone
J601	Jack	JJKY005002	Phone
L9	Ferrite Bead	LLDY071001	LD-071
L15	Ferrite Bead	LLDY087001	LD-087
M301	Meter	ZMTY188001	S/R/F, MT-188
M302	Meter	ZMTY187001	MOD/SWR, MT-187
PL301	Lamp	UPLY068005	S/R/F (13.76V @ 45mA)
PL302	Lamp	UPLY068004	MOD/SWR (13.76V @ 45mA)
S301	Switch	SSWY117001	Ch. 9
S302	Switch	SSWY117001	PA/CB
S303	Switch	SSWY116001	ANL/NB
S304	Switch	SSWY116001	SWR/SWR CAL % MOD
S305	Switch	SSWY099001	AC/DC
S501	Switch	SSRY152001	Channel Selector
S701	Switch	SSWY183001	Manual Power
S702	Switch	SSWY183001	Auto Power
S703	Switch	SSWY183001	Auto Power Set
S704	Switch	SSWY183001	Clock Set
S705	Switch	SSWY183001	Fast
S706	Switch	SSWY183001	Slow
S707	Switch	SSWY183001	Hold
X1	Crystal	QQXY074001	10.240MHz (QX-074)
XF1	Filter	FFLY055001	10.7MHz (FL-055)
	Cord	WMZY022001	AC Power, WZ-022
	Cord	WZDZ070101	DC Power, W-070101
	Microphone	AMKY076001	MK-076
	P.C. Board	PPCY451011	Channel Switch
	P.C. Board	PPCY541011	Clock
	P.C. Board	PPCY434021	Clock AVR
	P.C. Board	PPCY443011	Clock Switch
	P.C. Board	PPCY542021	LED
	P.C. Board	PPCY407013	Main
	P.C. Board	PPCY544011	Microphone
	P.C. Board	PPCY311011	Phone
	P.C. Board	PPCY410013	Power Supply
	P.C. Board	PPCY398011	Speaker Jack
	P.C. Board	PPCY545011	Switch

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

ITEM	PART No.	ITEM	PART No.
Cover, Bottom	MDBP204592	Panel, Front	MDMP107377
Cover, Top	MDBP204583	Panel, Front Display	MDAP407389
Chassis	MDBP106298	Panel, Front Display	MDAP407390
Knob (7 used)	MDMP402181	Panel, Rear	MDBP206088
Knob, Channel Selector	MDMP406425	Optical Filter, Clock	MDAP407391
Knob, Pushbutton (7 used)	MDMP404046	Optical Filter, Display	MDAP404097



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

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

(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



MODEL 4001 (77-004)

MANUFACTURER'S SPECIFICATIONS

Receiver (AM):

Sensitivity

Less than 0.7 μ v for 10 dB SN +N to N

Automatic Gain Control Figure of Merit
80 dB

Audio Squelch Sensitivity

Threshold Less than 10 dB SN+N to N

Tight 100 μ v minimum, 500 μ v
maximum

Adjacent Channel Selectivity and
Desensitization

60 dB (Two-generator method)

Spurious Response Attenuation

60 dB (excluding image at 50 dB)

Audio Power Output

3 W @ 10% distortion (load impedance
8 ohms resistive)

Audio Frequency Response (1 KHz 0 dB
reference)

300 Hz @ -6 dB

1000 Hz @ 0 dB

3000 Hz @ -6 dB

Hum and Noise Squelched

-45 dB

Noise Limiting

Provided with Switchable ANL

S Meter Sensitivity at S-9

100 μ v

RF Gain Range

30 dB

Antenna Input Impedance

50 ohms unbalanced

Transmitter (AM):

Carrier Power No Modulation

4 W maximum 3.6 minimum

Conducted Spurious Emissions

-65 dB

Radiated Spurious Emissions

(Complies with FCC Part 95)

Audio Frequency Harmonic Distortion

10% maximum @ 80%

Audio Frequency Response (1 KHz 0 dB
reference)

300 Hz @ -6 dB

1000 Hz @ 0 dB

3000 Hz @ -6 dB

6 dB octave falling above 3000 Hz

Hum and Noise

-40 dB

Output Impedance

50 ohms unbalanced

Output Protection

Withstands for 5 minutes all VSWR
around Smith Chart at 20:1 without
damage or failure

Output Stability

Does not exceed FCC Limits For
Spurious Emissions when operated
into a mismatch load with 5:1 VSWR at
any point on the Smith Chart

Controls: Off/AF gain control Squelch
control RF gain control Microphone
Gain control CB/PA switch Hi/Lo
Tone switch ANL-Off switch
S/RF/PWR Meter Green color
Numerical LED Channel indicator
Rotary Analog-Numerical Channel
selector

Jacks and Connections: 4-pin/screw-type
Microphone Connector 50-ohm
antenna 8-ohm external speaker PA
speaker

Accessories Included: 500-ohm push-to-talk
microphone with coil cord and screw-
on, 4-pin connector Microphone clip
Mounting bracket and hardware
Owners manual FCC forms 505,
555-B, Part 95

Courtesy of the Manufacturer

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

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MIDLAND MODEL 4001 (77-004)

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:

L101 thru L104, L108, L203, L204, L301 thru L304..... 9440

L105, L106, L107..... 5000, 5009, 8276, 8728, 8728A, 9089

L305, L306..... 8728, 8728A, 9091

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP11 (IC202 Pin 12).	Ch. 19		Check for 10.240MHz. $\pm 100\text{Hz}$.
Input of DC meter to TP1 (IC202 Pin 17).	Ch. 40, XMT	L203	Adjust for 5.00 volts. Check for approximately 2.11 volts on channel 1.
Input of DC meter to TP1 (IC202 Pin 17).	Ch. 40		Check for approximately 2.03 volts. Check for approximately .56 volts on channel 1.

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:

Squelch MINIMUM, RF Gain Maximum, Mic Gain Maximum, ANL Off, NB Off, CB/PA CB.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP22 (Q104 drain) 455kHz, 1000Hz @ 30% modulation.	Ch. 19	L107, L106, L105	Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz, @ 30% modulation	Ch. 19	L204, L104, L103, L108, L102, L101	Adjust for maximum audio output. Readjust L105, L106 and L107 for maximum.

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:

Squelch MINIMUM, RF Gain Maximum, Mic Gain Maximum, ANL Off, NB Off, CB/PA CB.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 500uV.	Ch. 19 Squelch Maximum	RV101	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	RV103	SIGNAL METER Adjust for 9 on signal scale of meter.

TRANSMITTER ALIGNMENT

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

TEST EQUIPMENT	TRANSCIEVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19, XMT	L301,L302, L303,L304, L305,L306	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19, XMT	L306	Adjust for 4.0 watts RF output maximum.

TRANSMITTER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCIEVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Injects a 1000Hz, 20mV audio signal at Mic input.	Ch. 19, XMT	RV201	AMC Adjust for 85% modulation. (See Figure 1.)
Connect a 150 ohm, non-inductive, 5 watt dummy load to antenna input.	Ch. 19, XMT	RV301	AWI Adjust until AWI light comes on.
Input of RF wattmeter to antenna input.	Ch. 19, XMT	RV202	RF POWER Adjust so power meter agrees with RF wattmeter.

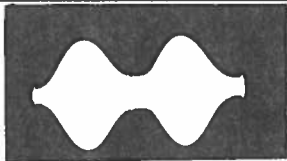
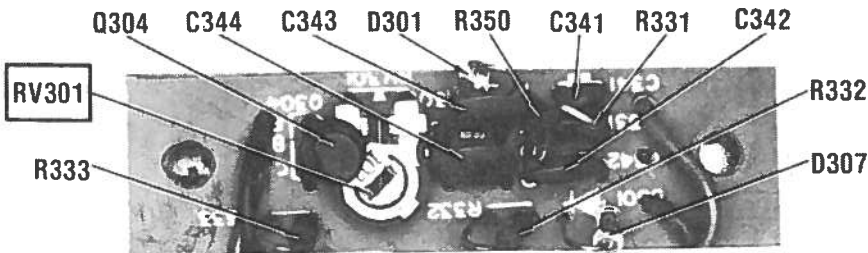
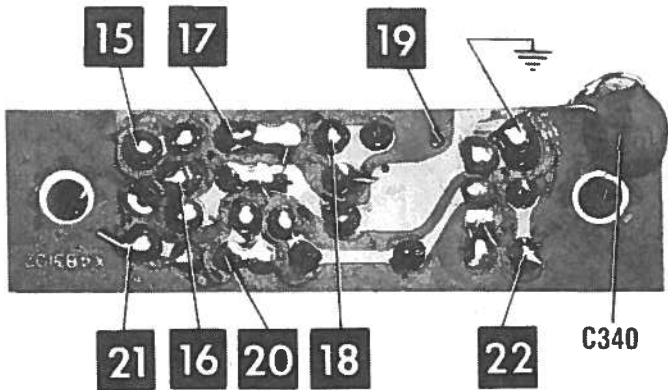


FIGURE 1.

MIDLAND MODEL 4001 (77-004)

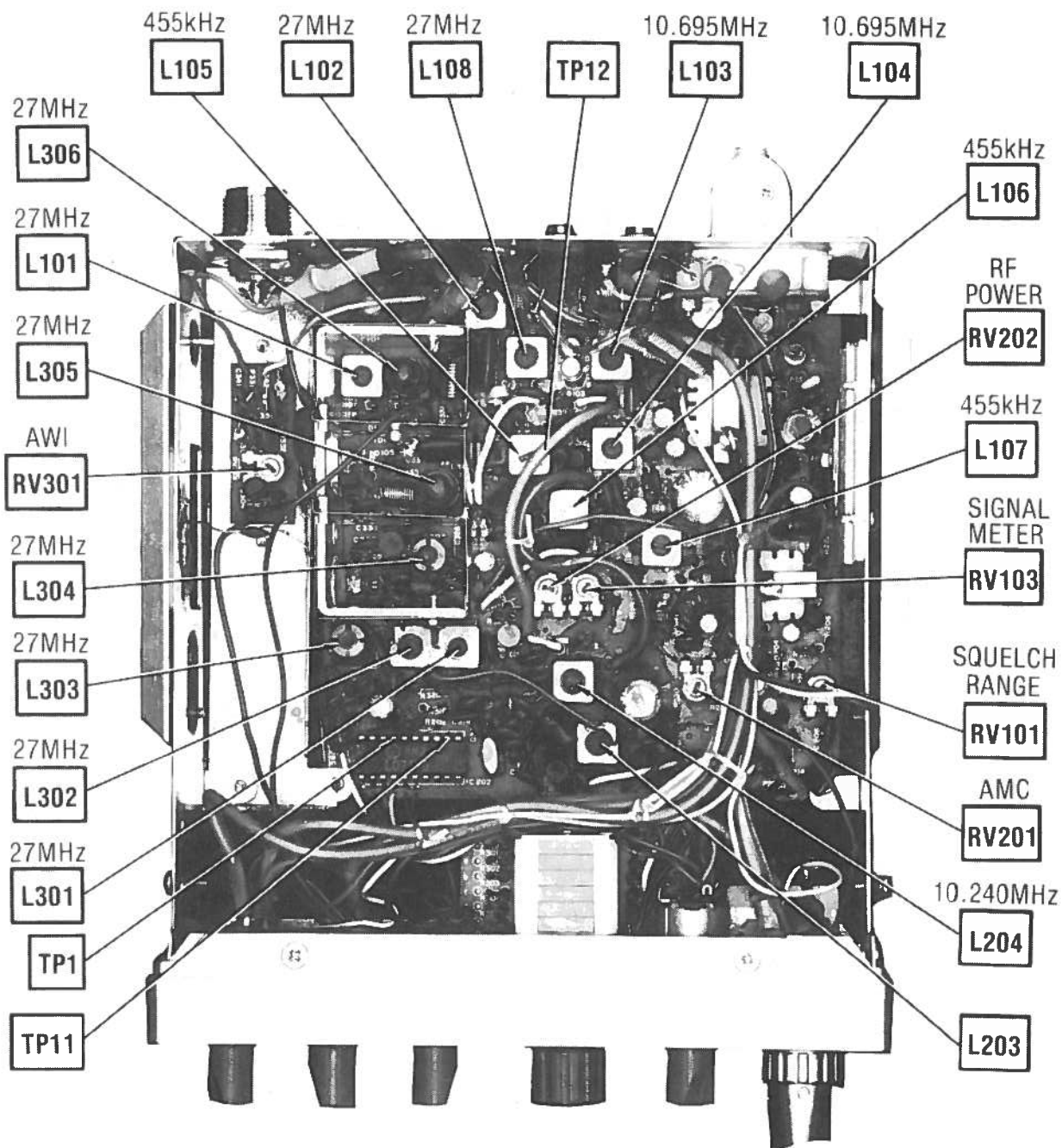
A Howard W. Sams CIRCUITRACE Photo



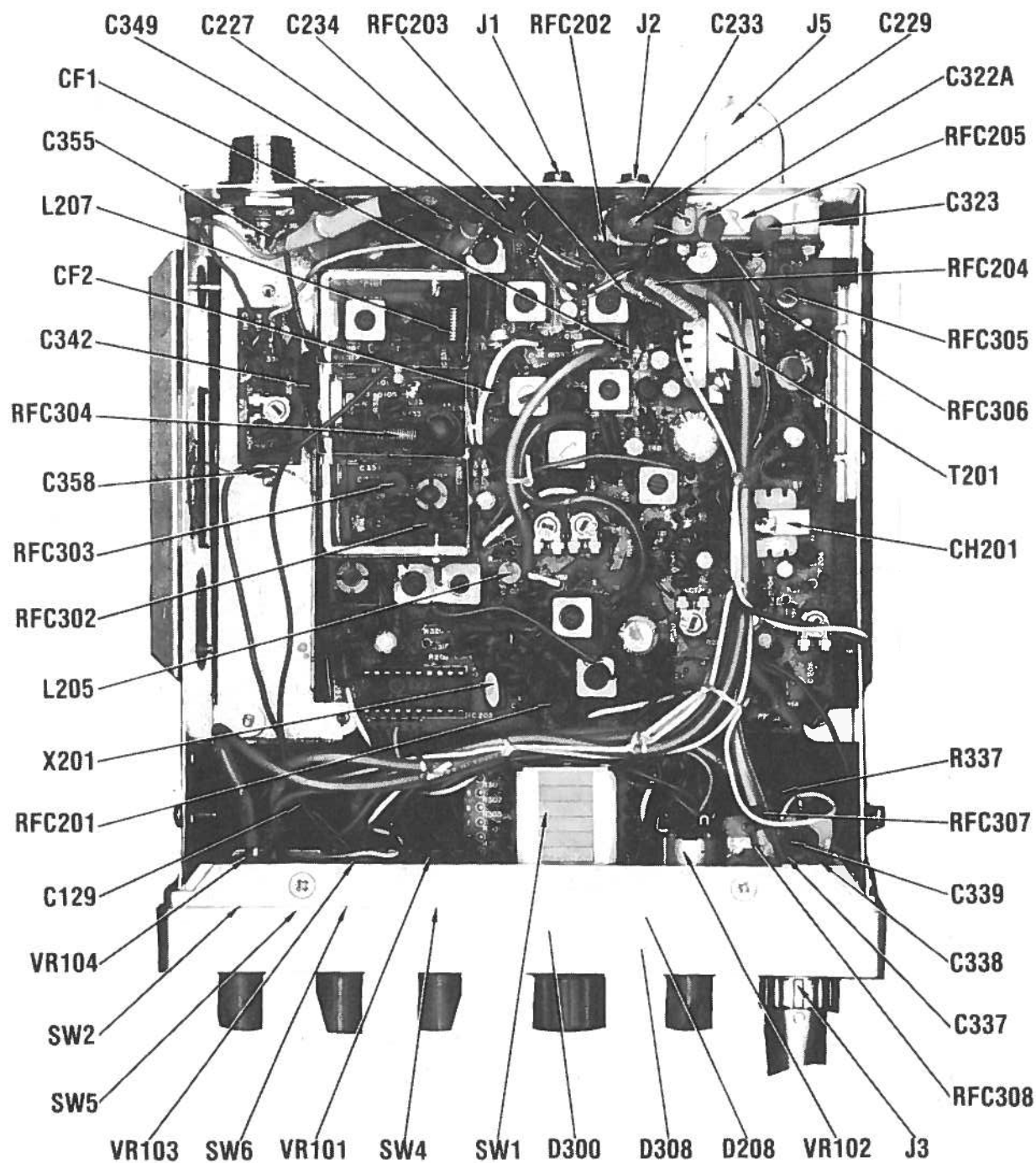
AWI BOARD

TRUTH CHART

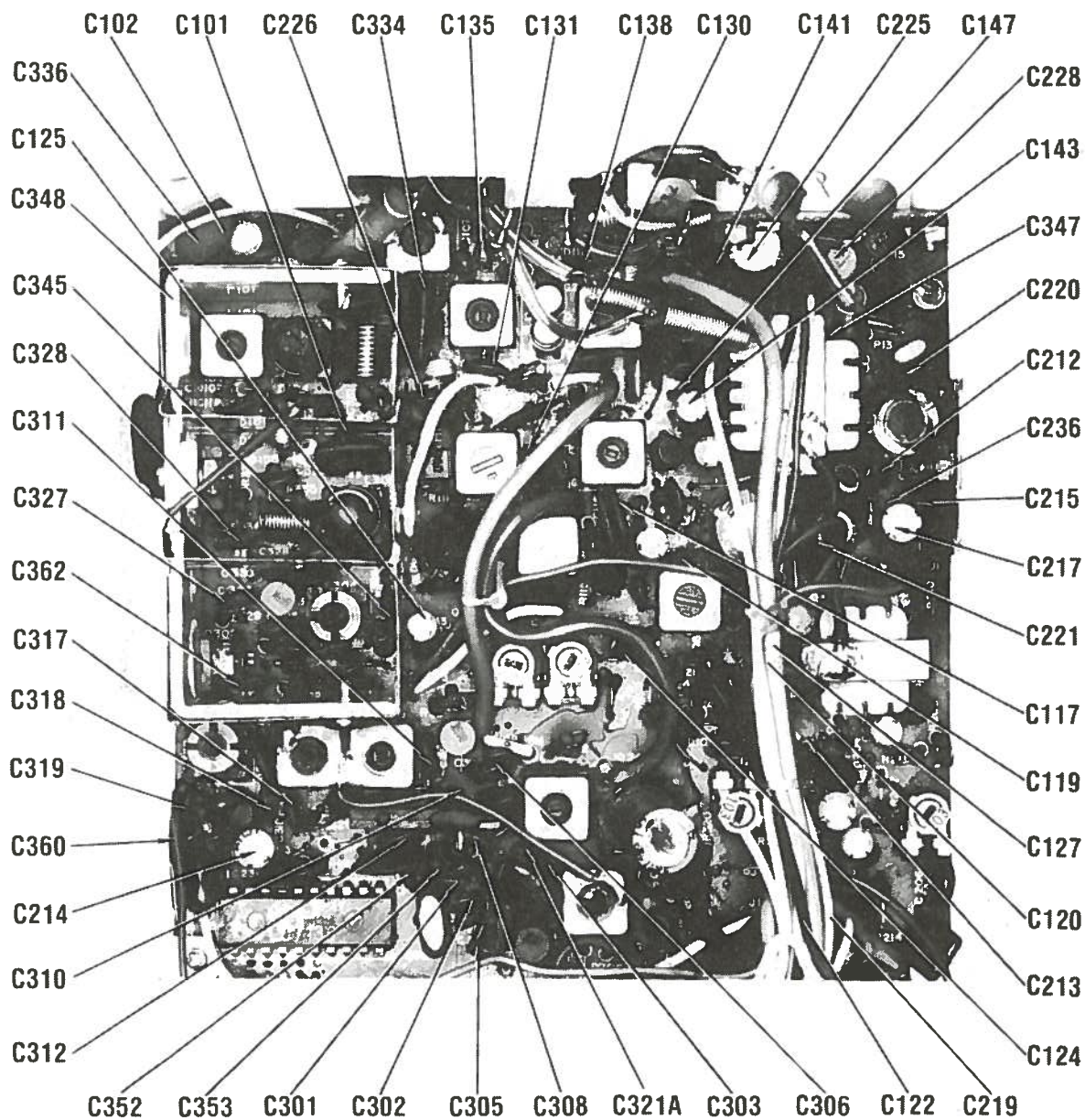
C H A N N E L	1 = 8.13 Volts 0 = 0 Volts								REC VCO OUTPUT IN MHz AT IC203 Pin 1	XMT VCO OUTPUT IN MHz AT IC203 Pin 1	
	IC202 PINS										
	6	5	4	3	2	1					
1	0	0	0	0	0	1			16.270	16.725	
2	0	0	0	0	1	0			16.280	16.735	
3	0	0	0	0	1	1			16.290	16.745	
4	0	0	0	1	0	0			16.310	16.765	
5	0	0	0	1	0	1			16.320	16.775	
6	0	0	0	1	1	0			16.330	16.785	
7	0	0	0	1	1	1			16.340	16.795	
8	0	0	1	0	0	0			16.360	16.815	
9	0	0	1	0	0	1			16.370	16.825	
10	0	1	0	0	0	0			16.380	16.835	
11	0	1	0	0	0	1			16.390	16.845	
12	0	1	0	0	1	0			16.410	16.865	
13	0	1	0	0	1	1			16.420	16.875	
14	0	1	0	1	0	0			16.430	16.885	
15	0	1	0	1	0	1			16.440	16.895	
16	0	1	0	1	1	0			16.460	16.915	
17	0	1	0	1	1	1			16.470	16.925	
18	0	1	1	0	0	0			16.480	16.935	
19	0	1	1	0	0	1			16.490	16.945	
20	1	0	0	0	0	0			16.510	16.965	
21	1	0	0	0	0	1			16.520	16.975	
22	1	0	0	0	1	0			16.530	16.985	
23	1	0	0	0	1	1			16.560	17.015	
24	1	0	0	1	0	0			16.540	16.995	
25	1	0	0	1	0	1			16.550	17.005	
26	1	0	0	1	1	0			16.570	17.025	
27	1	0	0	1	1	1			16.580	17.035	
28	1	0	1	0	0	0			16.590	17.045	
29	1	0	1	0	0	1			16.600	17.055	
30	1	1	0	0	0	0			16.610	17.065	
31	1	1	0	0	0	1			16.620	17.075	
32	1	1	0	0	1	0			16.630	17.085	
33	1	1	0	0	1	1			16.640	17.095	
34	1	1	0	1	0	0			16.650	17.105	
35	1	1	0	1	0	1			16.660	17.115	
36	1	1	0	1	1	0			16.670	17.125	
37	1	1	0	1	1	1			16.680	17.135	
38	1	1	1	0	0	0			16.690	17.145	
39	1	1	1	0	0	1			16.700	17.155	
40	0	0	0	0	0	0			16.710	17.165	



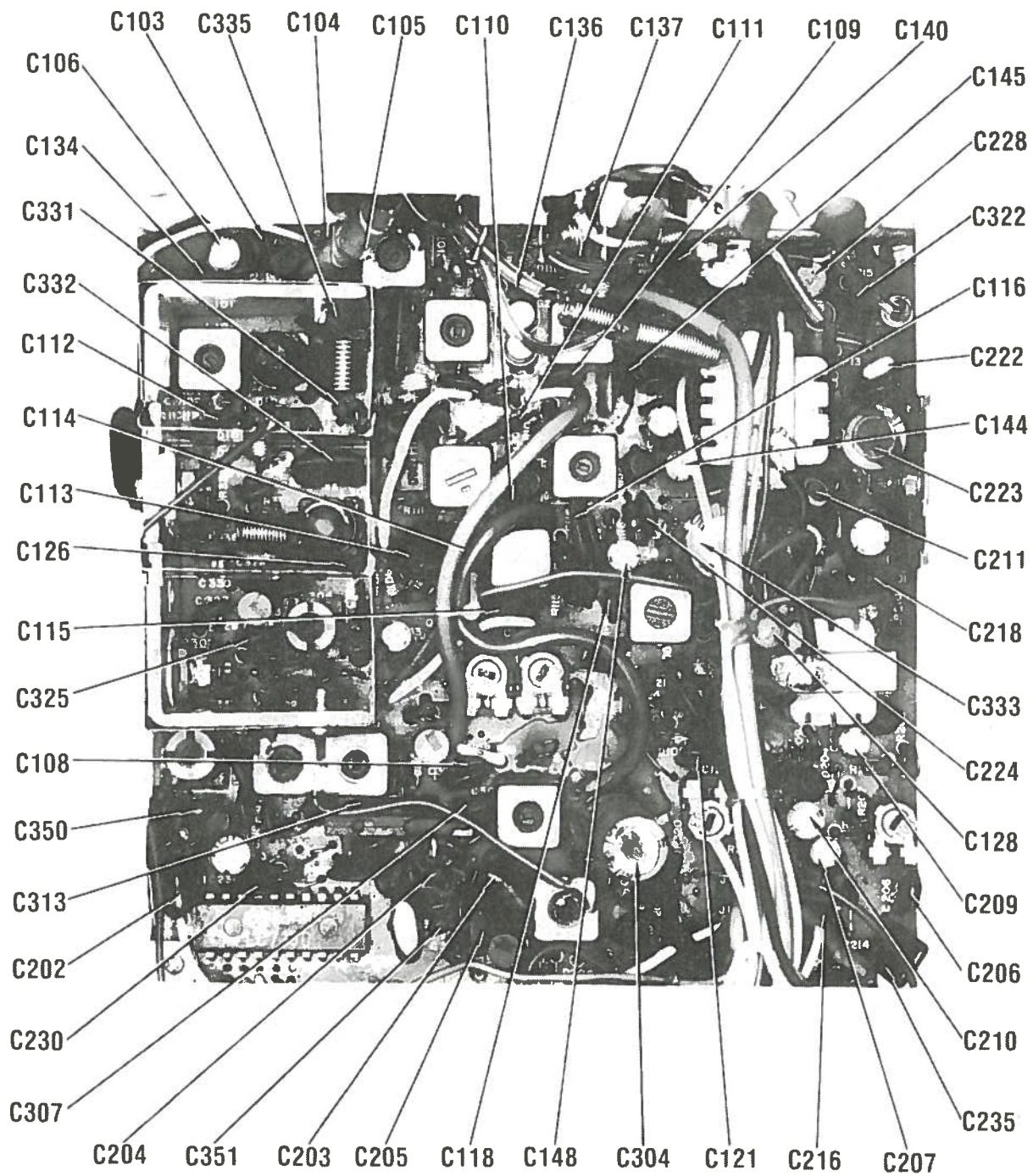
CHASSIS-BOTTOM



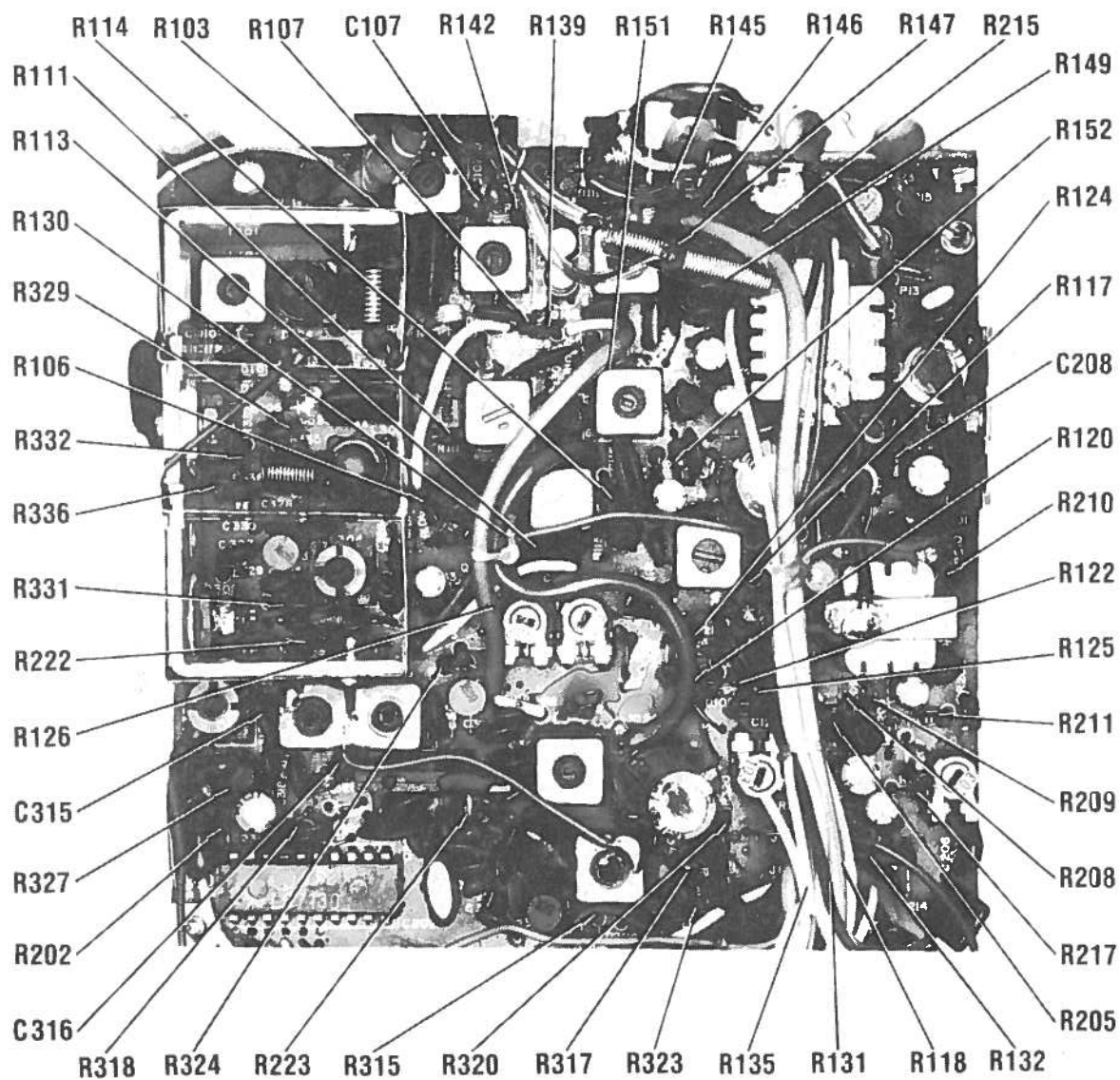
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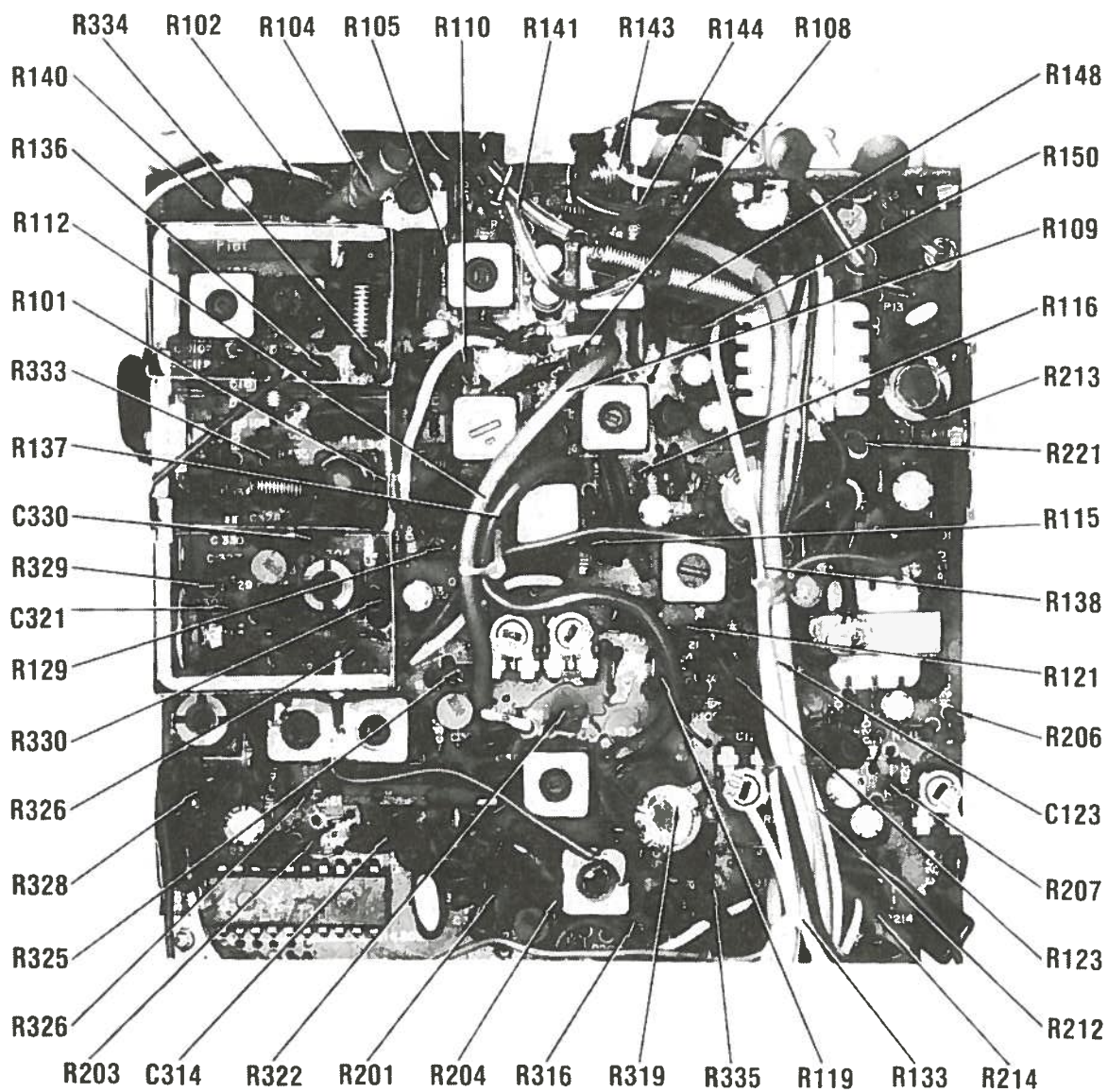
MAIN BOARD



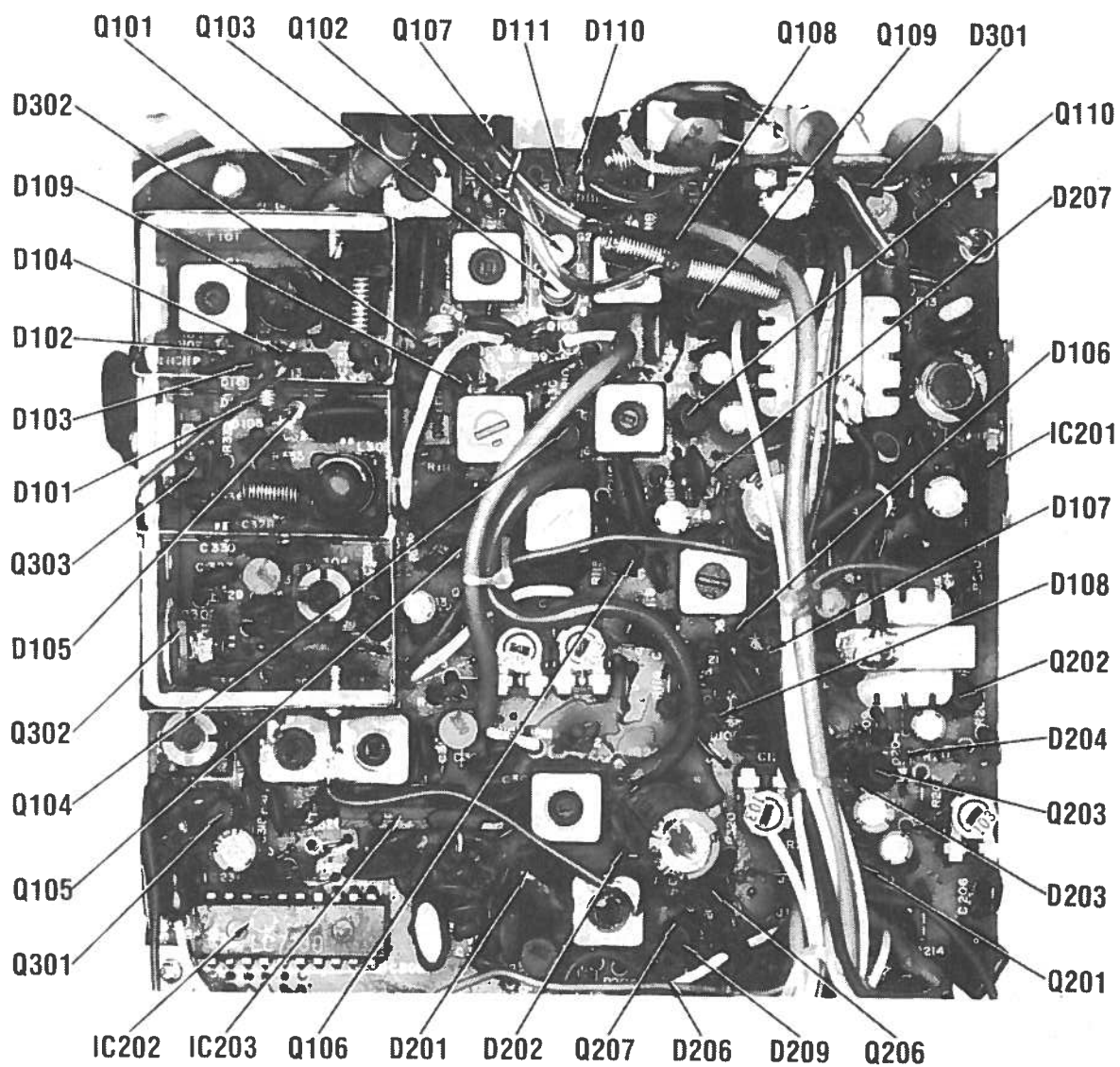
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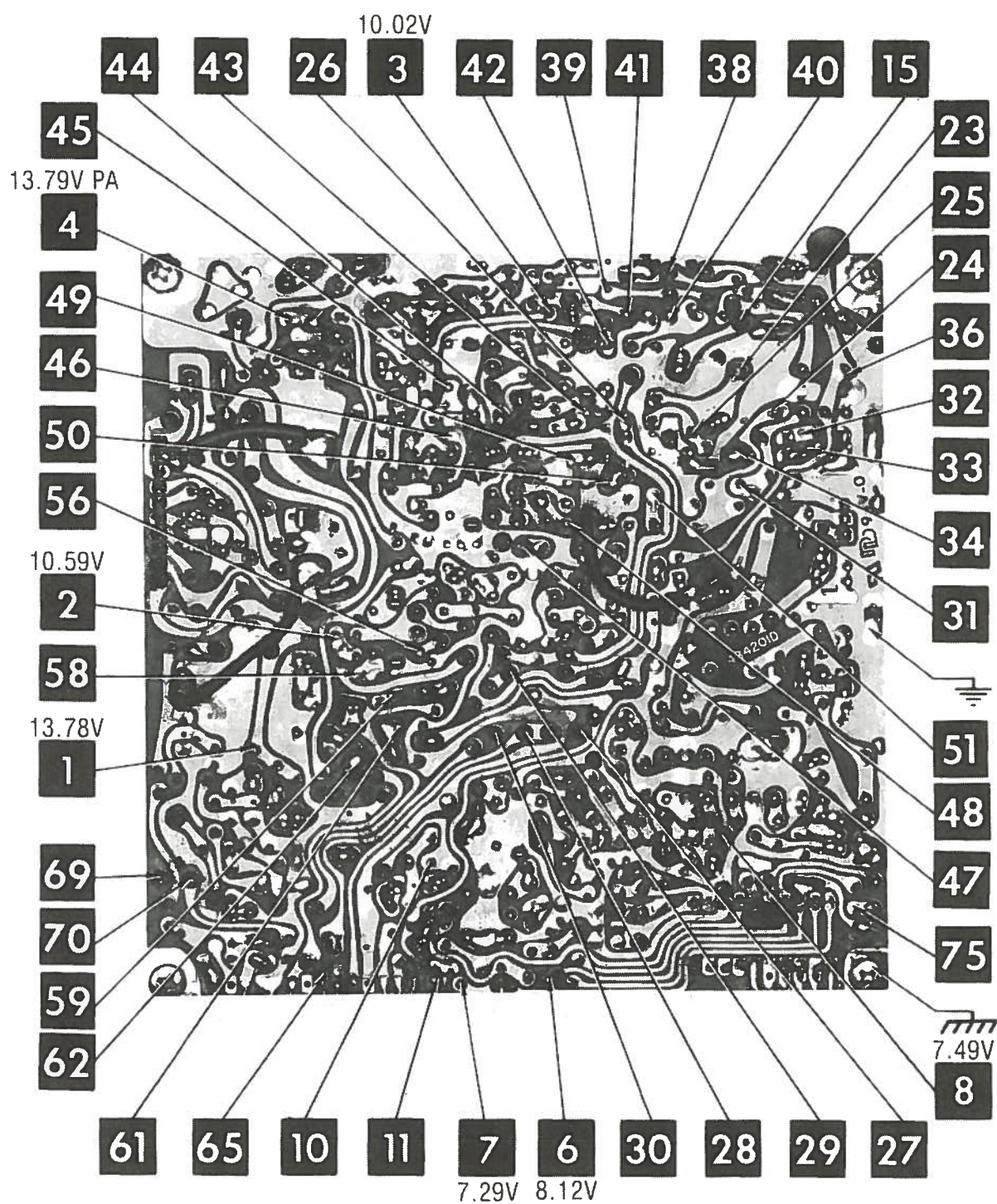
MAIN BOARD



MAIN BOARD

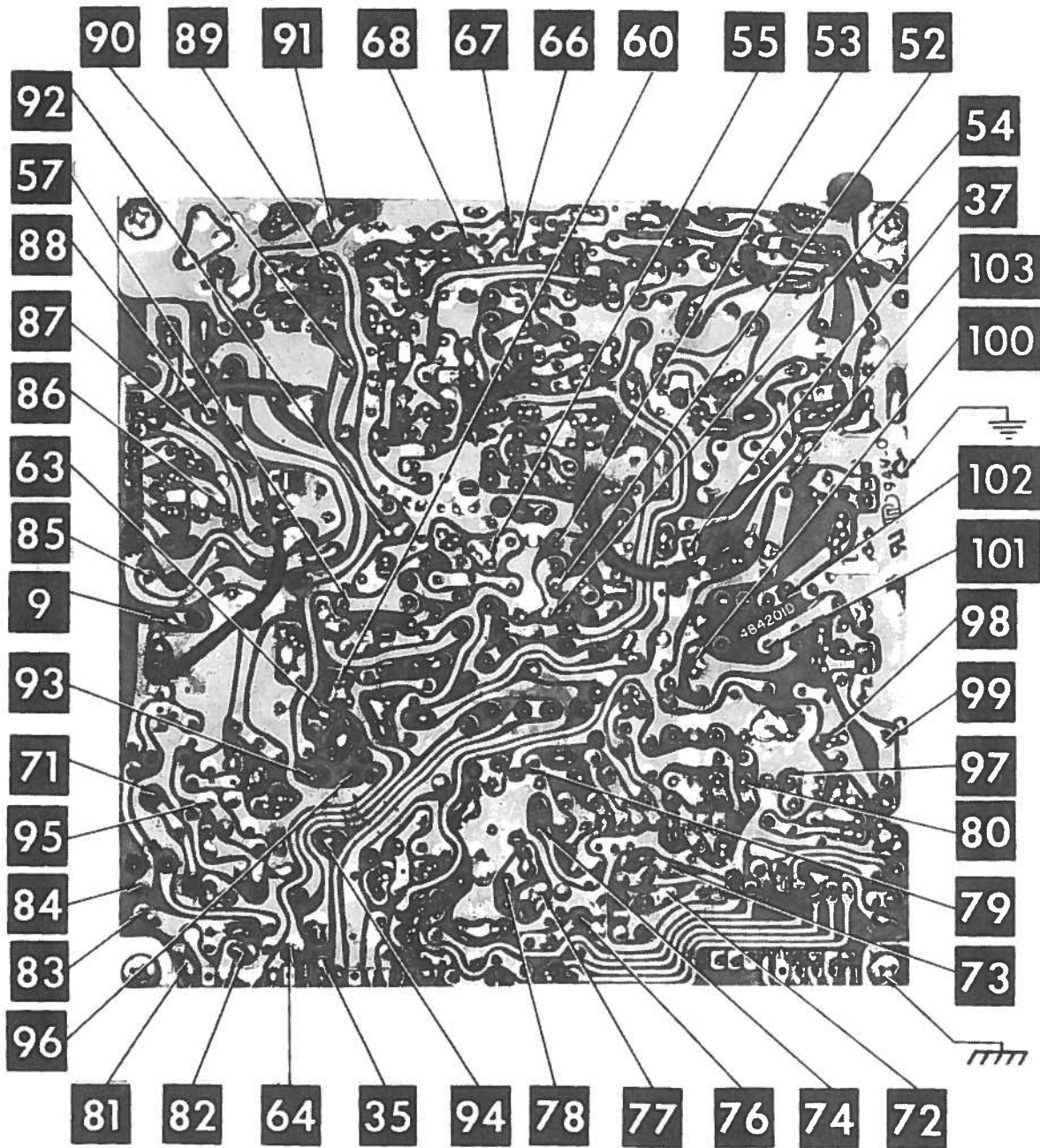


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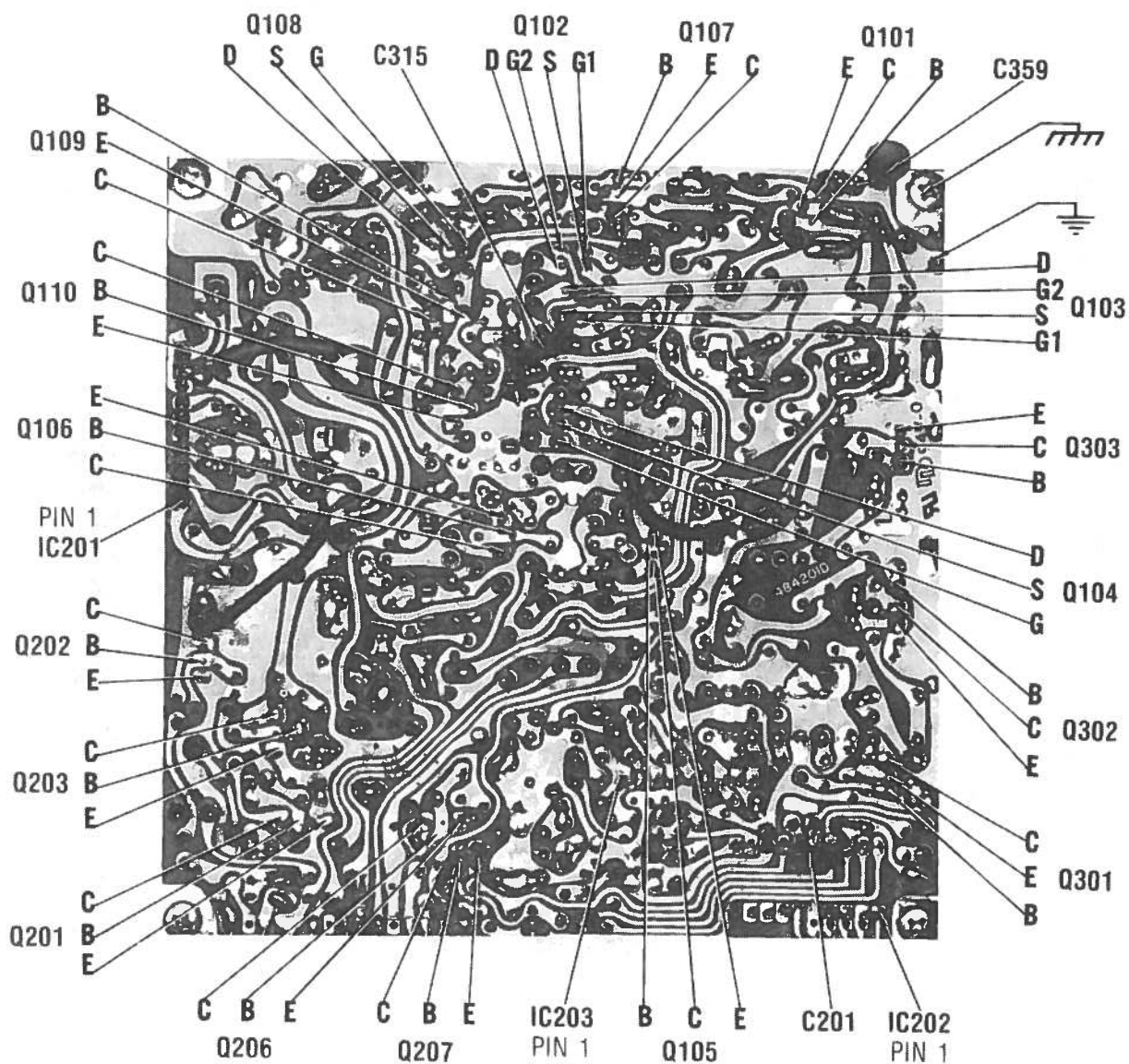


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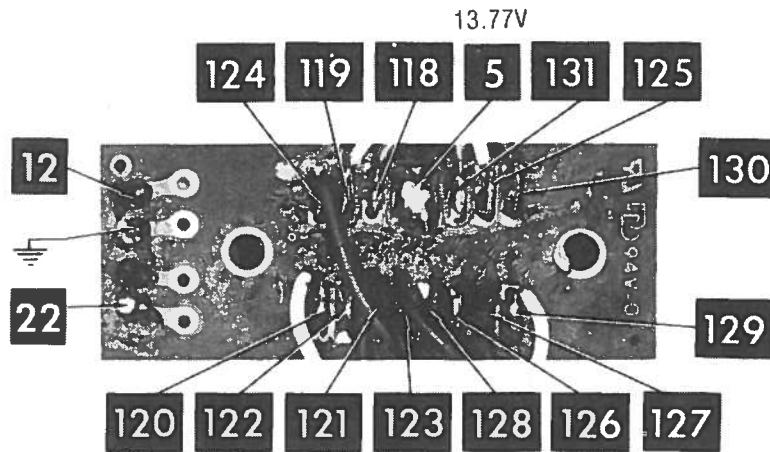
MIDLAND MODEL 4001 (77-004)



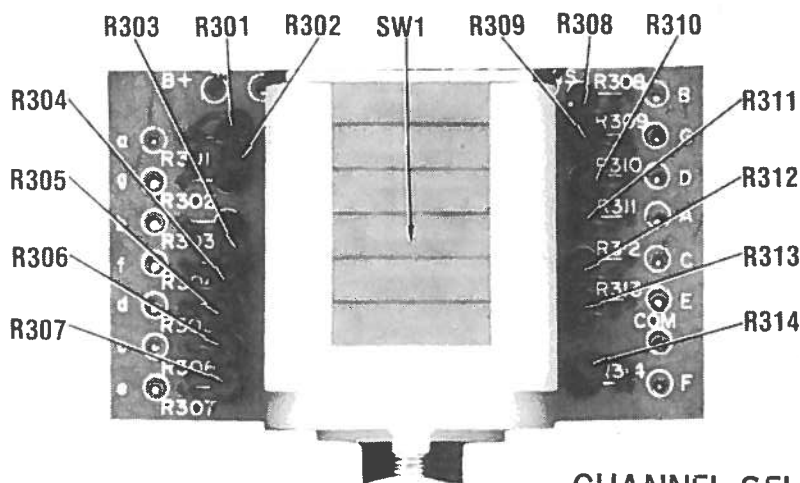
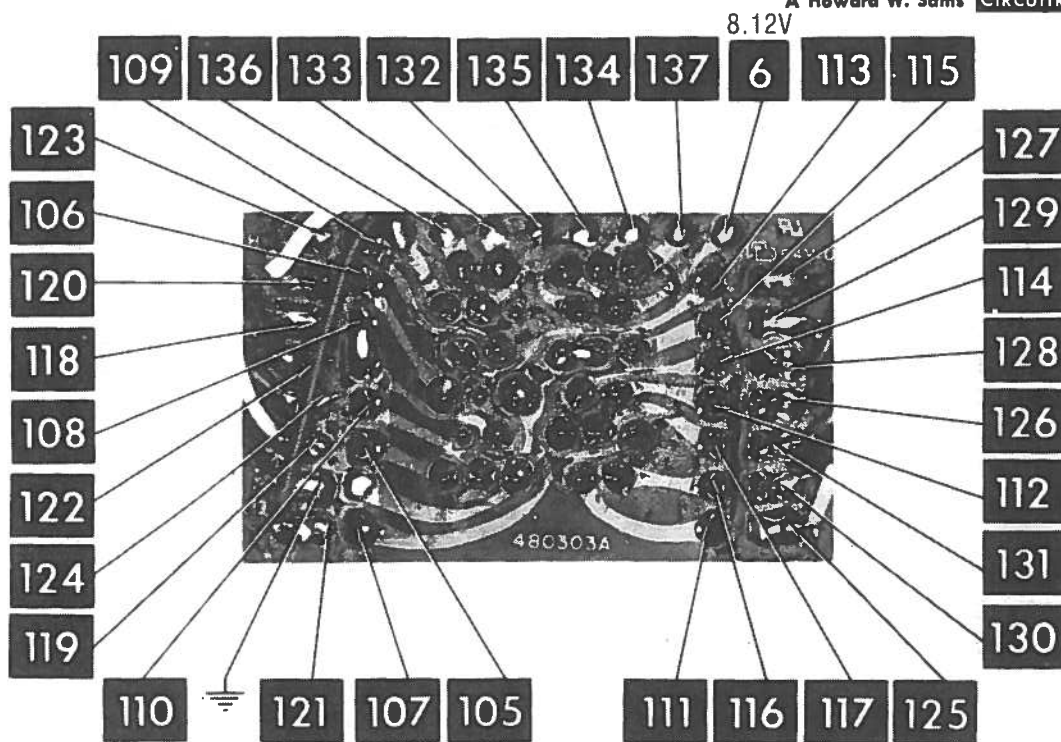
MAIN BOARD



MAIN BOARD

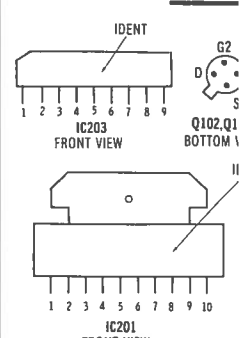
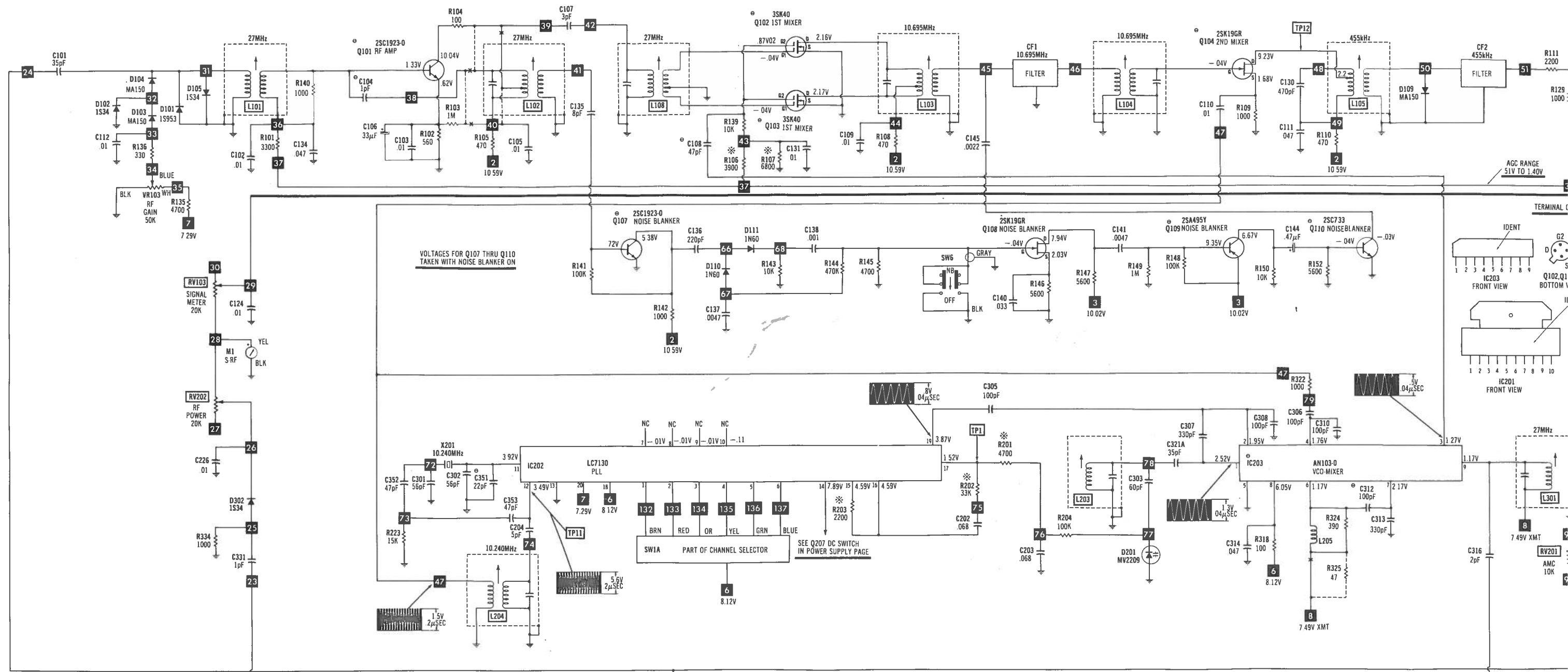


LED BOARD

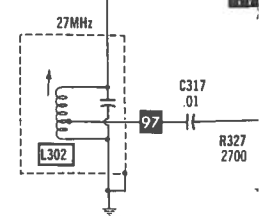
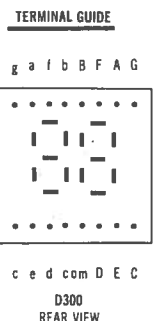
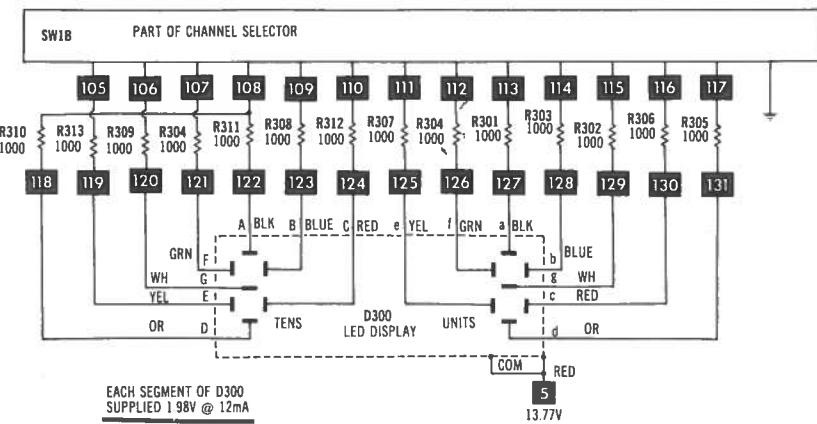
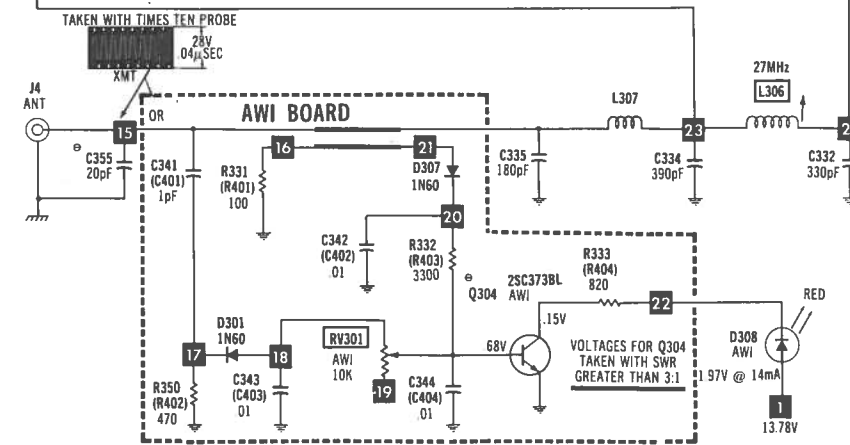


CHANNEL SELECTOR BOARD

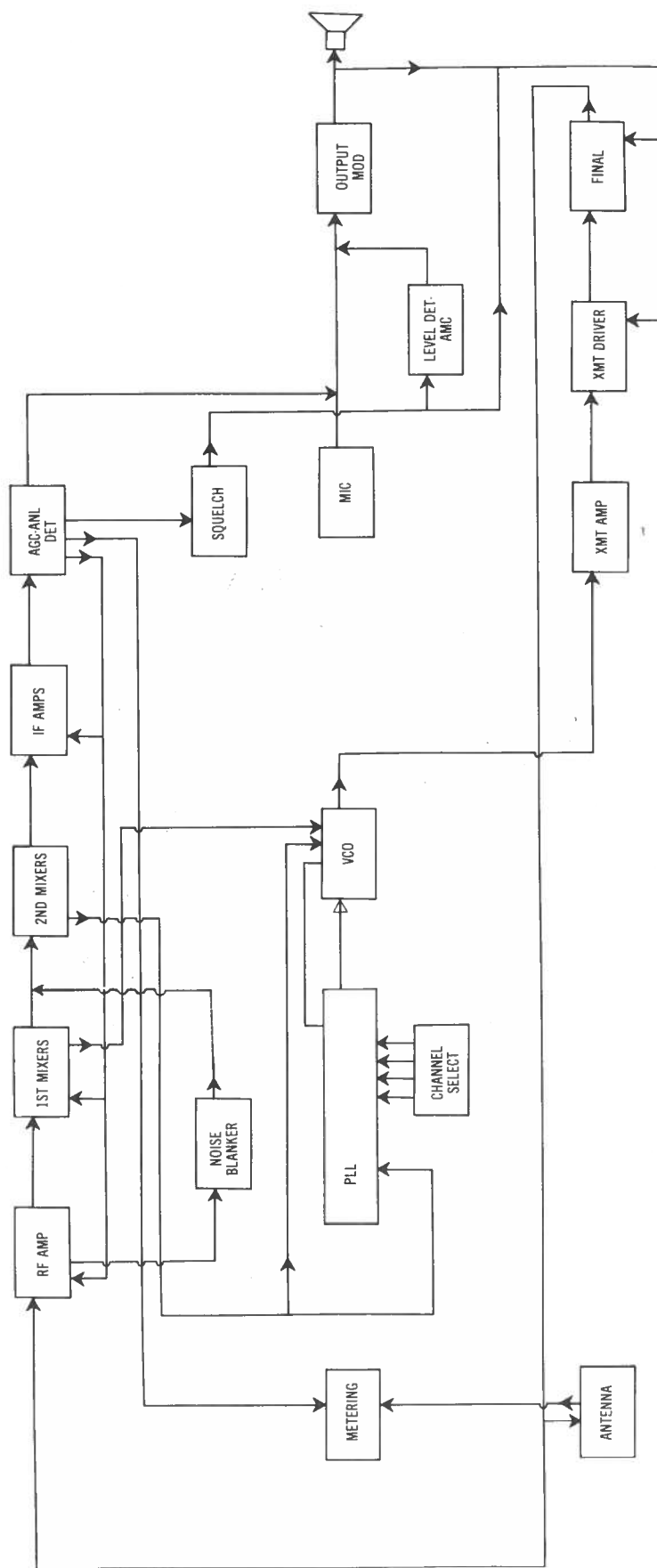
MIDLAND MODEL 4001 (77-004)



* Circuitry not used in some versions.
 --- Circuitry used in some versions.
 * Nominal value ▽ Common tie point
 ⊥ Ground
 ≡ Chassis
 See parts list
 Waveforms and Voltages taken in Channel 19 with switching in receive unless noted. Item numbers in rectangles appear in the alignment/adjustment instructions. Supply voltage maintained as shown at input. Voltages measured with digital meter, no signal. Controls adjusted for normal operation. Terminal identification may not be found on unit. Resistors are 1/2W or less, 5% unless noted. Value in () used in some versions. Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).
 A PHOTOFACIT STANDARD NOTATION SCHEMATIC WITH **CIRCUITRACE**







BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION

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

WIRING DATA

Cable (Speaker)(Unshielded).....	Use BELDEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELDEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELDEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8421 (Spiral Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8737 (Spiral Shield)(2 conductor)(AWG22)
Coax (Transmission Line).....	Use BELDEN No. 8216 (RG-174/U, 50 ohms)
Coax (Transmission Line).....	Use BELDEN No. 8259 (RG-58A/U, 50 ohms)
Coax (Transmission Line).....	Use BELDEN No. 8219 (RG-58A/U, 50 ohms) (Low Loss)
Microphone Cable (Coiled).....	Use BELDEN No. 9468 (3 conductor-1 shielded)(6 ft.)(AWG31)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D101	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
D102	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D103	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D104	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D105	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D106	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D107	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D108	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D109	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
D110	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
D111	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
D201	MV2209	05-472209			REN 614	SK3126	ECG613	TM613	WEP200/613	103-281
	SVC251	05-780251			REN 614	SK3126	ECG613	TM613	WEP200/613	103-281
D202	MZ8.6	05-480086	GEZD-8.7		REN 5073	SK3749/5073A	ECG5073A	TM5073A	WEP1155/5073A	
D203	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D204	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D206	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D207	1N4002	05-001100	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	MR9602	05-174002	GE-504A	PTC201	REN 116	SK3312	ECG116	TM116	WEP156	212-76-02
		05-429602	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D209	MA150	05-330150	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S953	05-180953	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1555	05-181555	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D301	1N4002	05-001100	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	MR9602	05-174002	GE-504A	PTC201	REN 116	SK3312	ECG116	TM116	WEP156	212-76-02
		05-429602	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D302	1S34	05-180034	1N34AS	PTC207	REN 109	SK3087	ECG109	TM109/**	WEP134/109	103-29001
	1N60	05-170060	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-29001
	K1A7205P	02-437205	GE1C-179	PTC780	REN 1155	SK3231/1155	ECG1155	TM1155	WEP949/1155	221-29051
	K1A7205AP		GE1C-179	PTC780	REN 1155	SK3231/1155	ECG1155	TM1155	WEP949/1155	221-29051
IC201	LA4422	02-124422	GE1C-179	PTC780	REN 1155	SK3231/1155	ECG1155	TM1155	WEP949/1155	221-29051
IC202	LC7130	02-507130								
	AN103-0									
	AN103	02-010103			REN 1192	SK3445/1192	ECG1192	TM1192	WEP2120/1192	221-29061
	K1A7310P	02-437310			REN 1192	SK3445/1192	ECG1192	TM1192	WEP2120/1192	221-29061
Q101	2SC1923-0	01-031923	GE-61	PTC132	REN 229	SK3132	ECG229	TM229	WEP784	121-29021
	MPS9426		GE-61	PTC121*	REN 229	SK3246/229	ECG229	TM229	WEP956/229	121-29068
	2SC784Y		GE-60*	PTC132*	REN 229*	SK3246/229*	ECG229*	TM229*/**	WEP784	121-29021*
Q102	3SK40		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK40L		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45B	01-080045	GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
Q103	3SK73		GE-FET-4*	PTC182*	REN 222*	SK3065/222*	ECG222*	TM222*	WEP905/222*	121-826*
Q103	3SK40		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK40L		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45B	01-080045	GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
	3SK45		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826*
Q103	3SK73		GE-FET-4*	PTC182*	REN 222*	SK3065/222*	ECG222*	TM222*	WEP905/222*	121-826*

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
Q104	2SK19GR 2SK19 2SK49 JF10335 2SC373 2SC373(1) MPS9623	01-070019	GE-FET-2 GE-FET-2 GE-FET-2 GE-FET-2 GE-212 GE-212 GE-20	PTC161 PTC161 PTC161 PTC161 PTC121* PTC121* PTC136	REN 132* REN 132* REN 132* REN 132* REN 199 REN 199 REN 123A	SK3834/132 SK3834/132 SK3834/132 SK3834/132 SK3245/199 SK3245/199 SK3444/123A	ECG312* ECG312* ECG312* ECG312* ECG199 ECG199 ECG123A	TM312* TM312* TM312* TM312* TM199/** TM199/** TM123A	WEP920/312* WEP920/312* WEP920/312* WEP920/312* WEP373 WEP373 WEP736/123A	921-1067* 921-1067* 921-1067* 921-1067* 121-972* 121-972* 121-Z9000A
Q105	2SC372Y 2SC373H 2SC372Y MPS9623 2SC1923-0 2SC1923 MPS9426	01-030372	GE-61* GE-212 GE-61* GE-61* GE-20 GE-61 GE-61	PTC121* PTC121* PTC121* PTC121* PTC136 PTC132 PTC121*	REN 123A* REN 199 REN 123A* REN 123A* REN 123A REN 229 REN 229	SK3245/199 SK3245/199 SK3245/199 SK3444/123A SK3132 SK3132 SK3246/229	ECG123A* ECG199 ECG123A* ECG123A* ECG123A ECG229 ECG229	TM123A/** TM199/** TM123A/** TM123A TM229 TM229 TM229	WEP372 WEP373 WEP372 WEP736/123A WEP784 WEP784 WEP956/229	121-Z9000A* 121-972* 121-Z9000A* 121-Z9000A* 121-Z90021 121-Z9021 121-Z9068
Q106	2SK19GR 2SK19 2SK495Y 2SK495 MPS9681	01-070019	GE-FET-2 GE-FET-2 GE-221* GE-221* GE-82	PTC161 PTC161 PTC103* PTC103* PTC103	REN 132* REN 132* REN 159* REN 159* REN 159	SK3834/132 SK3834/132 SK3114/290 SK3114/290 SK3466/159	ECG312* ECG312* ECG159* ECG159* ECG159	TM312* TM312* TM159/** TM159/** TM159	WEP920/312* WEP920/312* WEP495 WEP495 WEP62/159	921-1067* 921-1067* 121-Z9003* 121-Z9003* 121-Z9003
Q107	2SC733GR 2SC733 MPS9631 2SC373 2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-20 GE-212 GE-61* GE-62* GE-62*	PTC139* PTC139* PTC136 PTC121* PTC121* PTC139* PTC136	REN 199 REN 199 REN 123A REN 199 REN 123A* REN 199 REN 199*	SK3245/199 SK3245/199 SK3444/123A SK3245/199 SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG123A ECG199 ECG123A* ECG199 ECG199*	TM199/** TM199/** TM123A TM199/** TM123A/** TM199/** TM199*	WEP66/199 WEP66/199 WEP736/123A WEP373 WEP372 WEP66/199 WEP66/199*	121-972* 121-972* 121-Z9000A 121-972* 121-Z9000A* 121-972* 121-972
Q108	2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-62*	PTC139* PTC139* PTC136	REN 199 REN 199 REN 199*	SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG199*	TM199/** TM199/** TM199*	WEP66/199 WEP66/199 WEP66/199*	121-972* 121-972* 121-972
Q109	2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-62*	PTC139* PTC139* PTC136	REN 199 REN 199 REN 199*	SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG199*	TM199/** TM199/** TM199*	WEP66/199 WEP66/199 WEP66/199*	121-972* 121-972* 121-972
Q201	2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-62*	PTC139* PTC139* PTC136	REN 199 REN 199 REN 199*	SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG199*	TM199/** TM199/** TM199*	WEP66/199 WEP66/199 WEP66/199*	121-972* 121-972* 121-972
Q202	2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-62*	PTC139* PTC139* PTC136	REN 199 REN 199 REN 199*	SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG199*	TM199/** TM199/** TM199*	WEP66/199 WEP66/199 WEP66/199*	121-972* 121-972* 121-972
Q203	2SC733GR 2SC733 MPS9634C,D	01-030733	GE-62 GE-62 GE-62*	PTC139* PTC139* PTC136	REN 199 REN 199 REN 199*	SK3245/199 SK3245/199 SK3854/123AP	ECG199 ECG199 ECG199*	TM199/** TM199/** TM199*	WEP66/199 WEP66/199 WEP66/199*	121-972* 121-972* 121-972
Q206	2SC509Y 2SC509 MPS9418 2SC495Y 2SC495 MPS9681	01-030509	GE-81* GE-81* GE-63 GE-221* GE-221* GE-82	PTC123* PTC123* PTC178* PTC103* PTC103* PTC103	REN 289 REN 289 REN 297* REN 159* REN 159* REN 159	SK3124/289 SK3124/289 SK3854/123AP SK3114/290 SK3114/290 SK3466/159	ECG289 ECG289 ECG297* ECG159* ECG159* ECG159	TM289 TM289 TM297* TM159/** TM159/** TM159	WEP910/289 WEP910/289 WEP914/297* WEP495 WEP495 WEP62/159	121-Z9065 121-Z9065 921-340 121-Z9003* 121-Z9003* 121-Z9003
Q301	2SC388A MPS9426BC	01-030388	GE-61* GE-61	PTC101* PTC121*	REN 233* REN 229	SK3132 SK3246/229	ECG233* ECG229	TM233* TM229	WEP535/107 WEP956/229	121-722* 121-Z9068
Q302	2SC1957 2SC2314 2SC1678	01-031957 01-032314	GE-270 GE-270 GE-322	PTC180 PTC180 PTC186	REN 295 REN 295 REN 235	SK3253/295 SK3253/295 SK3197/235	ECG295 ECG295 ECG235	TM295 TM295 TM235	WEP913/295 WEP913/295 WEP785/235	121-880 121-880 121-Z9039
Q303	2SC2078 2SC1306 2SC495T	01-032078 01-031306	GE-215 GE-215 GE-270	PTC186 PTC186 PTC180	REN 235 REN 235 REN 295	SK3197/235 SK3239/236 SK3253/295	ECG235 ECG235 ECG295	TM235 TM235/** TM295	WEP785/235 WEP785/235 WEP913/295	121-Z9039 121-Z9039 121-880
AWI BOARD										
D301	1N60 1S34 05-180034	05-70060 05-180034	1N60 1N34AS	PTC206 PTC207	REN 109 REN 109	SK3088 SK3087	ECG109 ECG109	TM109/** TM109/**	WEP134/109 WEP134/109	103-Z9001 103-Z9001
D307	1N60 1S34 05-180034	05-170060 05-180034	1N60 1N34AS	PTC206 PTC207	REN 109 REN 109	SK3088 SK3087	ECG109 ECG109	TM109/** TM109/**	WEP134/109 WEP134/109	103-Z9001 103-Z9001
Q304	2SC373BL 2SC373 MPS9600H	01-030373	GE-212 GE-212 GE-20	PTC121* PTC121* PTC136	REN 199 REN 199 REN 123A	SK3245/199 SK3245/199 SK3444/123A	ECG199 ECG199 ECG123A	TM199/** TM199/** TM123A	WEP373 WEP373 WEP736/123A	121-972* 121-972* 121-Z9000A

* Lead configuration may vary from original.
/** Also available as exact type replacement.

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA						
ITEM No.	RATING	MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C106	33 10V	00-132500	PC30-25	VTT33B10		FV-1225
C123	2.2 50V	00-132265	PC2-100	VTT2R2A50	QV1-21	FV-1617.1
C125	3.3 50V	00-132460	NLW4-50	VTT3R3A50	QV1-25	FV-1618.1
C128	33 16V	00-132510	PC30-25	VTT33D25	QV1-63	EV-1325
C143	10 16V	00-132085	PC10-25	VTT10R25	QV1-41	EV-1222
C144	.47 50V	00-132575	PC1-50	VTT1R47A63	QV1-3	EV-1610
C148	1 50V	00-132035	PC1-50	VTT1A50	QV1-11	EV-1615
C207	10 16V	00-132085	PC10-25	VTT10R25	QV1-41	EV-1222
C209	4.7 25V	00-132595	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C210	47 10V	00-132620	PC50-16	VTT47D16	QV1-73	EV-1226
C211	10 16V	00-132100	PC10-25	VTT10R25	QV1-41	EV-1222
C213	1 50V	00-132055	PC1-50	VTT1A50	QV1-11	EV-1615
C214	33 16V	00-132510	PC30-25	VTT33D25	QV1-63	EV-1325
C217	33 10V	00-132505	PC30-25	VTT33B10		EV-1225
C221	47 16V	00-132630	PC50-16	VTT47D16	QV1-73	EV-1226
C222	.47 16V	03-007051		TDC474M050EL	QDT1-19	SD50-R479
C223	220 16V	00-132380	PC250-25	VTT220H16	QV1-117	EV-1240
C225	100 16V	00-132175	PC100-16	VTT100E16	QV1-95	EV-1231
C228	47 16V	00-132630	PC50-16	VTT47D16	QV1-73	EV-1226
C304	220 16V	00-132380	PC250-25	VTT220H16	QV1-117	EV-1240
C333	1000 16V	00-132210	PC1000-16	VTT1000M16	QV1-183	EV-1261

BOLD LISTING INDICATES LOCATION OF PART

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS

ENITH
RT No.

1067*
1067*
1067*
1067*
972*
972*
Z9000A
Z9000A*
972*
Z9000A*
Z9000A*
Z9021
Z9021
Z9068
1067*
1067*
Z9003*
Z9003*
Z9003
972*
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Z9000A
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Z9000A*
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972
Z9065
Z9065
340
Z9003*
Z9003*
Z9003
Z22*
Z9068
880
880
Z9039
Z9039
Z9039
880
Z9001
Z9001
Z9001
Z9001
972*
972*
Z9000A

MIDLAND MODEL 4001 (77-004)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C101	35 50V			CN0439		10TCC-Q39
C102	.01 50V			MAG5011		
C103	.01 50V			MAG5011		
C104	1 50V			CN0510		10TCC-V10
C105	.01 50V			MAG5011		
C107	3 50V		NP03P3	CN0533		10TCC-V33
C108	47 50V		NP047	CN0447	QCC2-26	10TCC-Q47
C109	.01 50V			MAG5011		
C110	.01 50V			MAG5011		
C111	.047 50V			MAG5015		
C112	.01 50V			MAG5011		
C113	.047 50V			MAG5015		
C114	3 50V		NP03P3	CN0533		10TCC-V33
C115	.047 50V			MAG5015		
C116	.047 50V			MAG5015		
C117	.047 50V			MAG5015		
C118	2 50V		NP02P2	CN0522		10TCC-V22
C119	.047 50V			MAG5015		
C120	.0068 50V 5%		WMF1D68	EWFA1268	QFT2-73	1FT-D68
C121	.022 50V 5%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C122	100 50V 10%		NP0100	CN0310		10TCC-T10
C124	.01 50V 10%		WMF1S1	EWFA1110	QFT2-91	1FT-S10
C126	.01 50V			MAG5011		
C127	.01 50V			MAG5011		
C129	.01 50V 10%		WMF1S1	EWFA1110	QFT2-91	1FT-S10
C130	470 50V 5%		CD15FD471J03	SX347	QW1-42	MWB-471
C131	.01 50V			MAG5011		
C134	.047 50V			MAG5015		
C135	8 N220 50V				*	10TCR-V82
C136	220 50V 5%					10TCC-T22
C137	.0047 50V 5%		WMF1D47	M192P4729R8	QFT2-63	1FT-D47
C138	.001 50V 5%		DPMS6D1	EWFA1210	QFT2-1	1FT-D10
C140	.033 50V 10%		DPMS6S33	M192P3339R8	QFT2-149	1FT-S33
C141	.0047 50V 5%		WMF1D47	M192P4729R8	QFT2-63	1FT-D47
C145	.0022 50V 5%		DONS6D22	M192P2229R8	QFT2-27	1FT-D22
C147	.01 50V			MAG5011		
C201	.01 50V			MAG5011		
C202	.068 50V 10%		WMF1S68	EWFA1168	QF1-195	1PB-S68
C203	.068 50V 10%		WMF1S68	EWFA1168	QF1-195	1PB-S68
C204	5 50V		NP06P8	CN0568		10TCC-V68
C205	.01 50V			MAG5011		
C206	.022 50V 5%		DPMS2S22	M192P2239R8	QFT2-127	1FT-S22
C208	.047 50V 10%		DPMS2S47	EWFA1147	QFT2-171	1FT-S47
C212	.0022 50V 5%		DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C215	220 50V 5%					10TCC-T22
C216	.0022 50V 5%		DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C218	.068 50V		WMF1S68	EWFA1168	QF1-195	1PB-S68
C219	.0068 50V 5%		WMF1D68	EWFA1268	QFT2-73	1FT-D68
C220	100 50V 10%		NP0100	CN0310		10TCC-T10
C224	.01 50V			MAG5011		
C226	.01 50V			MAG5011		
C227	.01 50V			MAG5011		
C229	.01 50V			MAG5011		
C230	.047 50V			MAG5015		
C231	.01 50V			MAG5011		
C233	.01 50V			MAG5011		
C234	.01 50V			MAG5011		
C235	.047 50V 10%		DPMS2S47	EWFA1147	QFT2-171	1FT-S47
C236	68 50V 10%		NP068	CN0468		10TCC-Q68
C301	56 50V			CN0456		10TCC-Q56
C302	56 50V			CN0456		10TCC-Q56
C303	60 NPO 50V		NP068	CN0468		10TCC-Q68
C305	100 50V 10%		NP0100	CN0310		10TCC-T10
C306	100 50V 10%		NP0100	CN0310		10TCC-T10
C307	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C308	100 50V 10%		NP0100	CN0310		10TCC-T10
C311	.01 50V			MAG5011		
C310	100 50V 10%		NP0100	CN0310		10TCC-T10
C312	100 50V 10%		NP0100	CN0310		10TCC-T10
C313	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C314	.047 50V			MAG5015		
C315	.047 50V			MAG5015		
C316	2 50V		NP02P2	CN0522		10TCC-V22
C317	.01 50V			MAG5011		
C318	.01 50V			MAG5011		
C319	.01 50V			MAG5011		
C321A	36 50V			CN0439		10TCC-Q39
C321	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C322A	.01 50V			MAG5011		
C322	.01 50V			MAG5011		
C323	.01 50V			MAG5011		
C324	.01 50V			MAG5011		
C325	100 50V 10%		NP0100	CN0310		10TCC-T10
C326	.01 50V			MAG5011		
C327	220 50V 5%					10TCC-T22
C328	330 50V 10%		GP330	GP333	QCT2-33	10TS-T33
C329	100 50V 10%		NP0100	CN0310		10TCC-T10
C330	.01 50V			MAG5011		
C331	1 50V			CN0510		10TCC-V10
C332	330 50V 10%		CD15FD331J03	SX333	QW1-39	MWB-331
C334	390 50V 10%		CD15FD391J03	SX339	QW1-41	MWB-391
C335	180 50V 10%		CD15FD181J03	SX318	QW1-33	MWA-181
C336	.047 50V			MAG5015		
C337	.022 50V		MGP025	TA125		TG-S25

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C338	.022 50V		MGP025	TA125		TG-S25
C339	.022 50V		MGP025	TA125		TG-S25
C340	.01 50V			MAG5011		
C341	.01 50V			MAG5011		
C342	.047 50V			MAG5015		
C343	.047 50V			MAG5015		
C344	18 50V			CN0418		10TCC-018
C345	.01 50V			MAG5011		
C346	5 50V		NP06P8	CN0568		10TCC-V68
C347	.01 50V			MAG5011		
C348	.01 50V			MAG5011		
C349	.01 50V			MAG5011		
C350	100 50V 10%		NP0100	CN0310		10TCC-T10
C351	5 50V		NP06P8	CN0568		10TCC-V68
	22 50V		NP022	CN0422		10TCC-Q22
C352	47 50V		NP047	CN0447	QCC2-26	10TCC-Q47
C353	47 50V		NP047	CN0447	QCC2-26	10TCC-Q47
C354	.01 50V			MAG5011		
C355	20 50V		CD15ED20QJ03	SX420	QW1-10	MWA-200
C3574	.01 50V			MAG5011		
C358	.01 50V			MAG5011		
C359	.01 50V			MAG5011		
C360	.047 50V			MAG5015		
C361	.047 50V			MAG5015		
C362	.01 50V			MAG5011		
C375	.01 50V			MAG5011		
AWI BOARD						
C341	1 50V			CN0510		10TCC-V10
C342	.01 50V			MAG5011		
C343	.01 50V			MAG5011		
C344	.01 50V			MAG5011		

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFR. PART No.	MALLORY PART No.	TRW PART No.
RV101	Squelch Range	10K	77-164017	RVA0911H103	U260R1038
RV103	Signal Meter	20K	77-164016	RVA0911H253	U260R2538
RV201	AMC	10K	77-164017	RVA0911H103	U260R1038
RV202	RF Power	20K	77-164016	RVA0911H253	U260R2538
RV301	AWI	10K	77-164017	RVA0911H103	U260R1038
VR101	Squelch	10K	77-160016		
VR102	AF Gain/Power Switch	50K	77-160011		
VR103	RF Gain	50K	77-166013		
VR104	Mic Gain	50K	77-166013		

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L101	Receive Antenna (27MHz)	77-090014			
L102	RF Amp (27MHz)	77-090015	340006A		
L103	Mixer (10.695MHz)	77-090016	340007B		
L104	Mixer (10.695MHz)	77-090028	340007A		
L105	IF (455kHz)	77-090017	340008A		
L106	IF (455kHz)	77-090018	340009		
L107	IF (455kHz)	77-090019	340010		
L108	RF Amp (27MHz)	77-176068	340003		
L203	VCO	77-176055	340007A		
L204	Ref. Osc. (10.240MHz)	77-090028	045K		
L205	RF Choke (.45uH)	77-178034			
L301	Mixer (27MHz)	77-176065			
L302	Mixer (27MHz)	77-090021			
L303	XMT Amp (27MHz)	77-090022			
L304	XMT Driver (27MHz)	77-090023			
L305	Final (27MHz)	77-176052			
L306	Antenna Matching (27MHz)	77-176053			
L307	RF Choke (27MHz)	77-176051			
RFC201	RF Choke (25uH)	77-178024	250K		
RFC202	RF Choke (1uH)	77-178045			
RFC203	RF Choke (1uH)	77-178045			
RFC204	RF Choke (1uH)	77-178045			
RFC205	RF Choke (1uH)	77-178045			
RFC302	RF Choke (1uH)	77-178030			
RFC303	RF Choke (6.8uH)	77-178025	6R8K	70F686A1	
RFC304	RF Choke (.5uH)	77-178032			
RFC305	RF Choke (10uH)	77-178027			
RFC306	RF Choke (10uH)	77-178027			
RFC307	RF Choke (22uH)	77-178044			
RFC308	RF Choke (22uH)	77-178044			

BOLD LISTING INDICATES LOCATION OF PART

MIDLAND MODEL 4001 (77-004)

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.	
CH301	1.5A	.07	.520mH	77-178023			

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	5	16 2 26	77-096007			

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			MFGR. PART No.	QUAM PART No.	
SP	3" PM	8 Ohms	77-060002	30A0528R	

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	1.5A Quick-Acting			AGC1 1/2	HRK	31201.5	150145	FG 1 1/2-2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	77-179013	10.695MHz (Ceramic)
CF2	Filter	77-179012	455kHz (Ceramic)
D208	LED	77-202023	XMT (1.87V @ 6mA)
D300	LED	77-202022	Channel Indicator (Each segment of D300 supplied with 1.98V @ 12mA)
D308	LED	77-202023	AWI (1.97V @ 14mA)
J1	Jack	77-153005	Speaker
J2	Jack	77-153005	PA Speaker
J4	Jack	77-153007	Antenna
J5	Jack	77-153002	DC Power (w/Lug Plate)
M1	Meter	77-153002	S/R/F
PL1	Lamp	77-200013	Meter (5.08V @ 58mA)(Part of M1)
SW1	Switch	77-180015	Channel Selector
SW2	Switch	77-183018	PA/CB
SW4	Switch	77-183018	Off/ANL
SW5	Switch	77-183018	Filter/Out
SW6	Switch	77-183018	NB/Off
X201	Crystal	77-128005	10.240MHz (HC-18/0)
	Cord	77-034012	DC Power
	Microphone	77-038019	
	P.C. Board	77-070034	AWI
	P.C. Board	77-070021	Channel Selector
	P.C. Board	77-075053	LED Display Assembly

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

ITEM	PART No.	ITEM	PART No.
Case, Bottom	77-011012	Escutcheon	77-011018
Case, Top	77-011011	Knob, Channel Selector	77-115028
Chassis, Front	77-010047	Knob, Control (4 used)	77-115027
Chassis, Main	77-015002	Lens, LED	77-020052