

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.



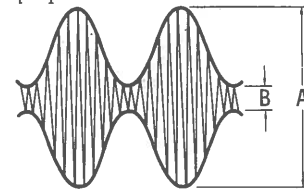
MODEL 63GTL

COBRA MODEL 63GTL

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:
 L1 thru L4, L15 thru L20 9440
 L5, L6, L7 5000, 5009, 8276, 8728, 8728A
 L11, L14 9440, 8728, 8728A
 CT1 5000, 8271, 8276



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

FIGURE 1

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP6 (IC1 Pin 13).	Ch. 19	CT1	Adjust for 10.240MHz.
Input of frequency counter to TP7 (IC1 Pin 10).	Ch. 19		Check for 5.120MHz.
Input of oscilloscope to TP8 (IC2 Pin 4).	Ch. 19	L20	Adjust for maximum RF.
Input of frequency counter to TP8 (IC2 Pin 4).	Ch. 19		Check for 15.360MHz.
Input of DC Meter to TP2.	Ch. 19	L19	Adjust for 1.90 volts.
Input of DC Meter to TP2.	Ch. 19 XMT		Check for 3.00 volts.
Input of frequency counter to TP3.	Ch. 1		Check for .910MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP3.	Ch. 1 XMT		Check for 1.365MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP5.	Ch. 19	L18	Adjust for maximum RF.
Input of frequency counter to TP5.	Ch. 1		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP9 (IC3 Pin 9).	Ch. 19 XMT	L17	Adjust for maximum RF output.
Input of frequency counter to TP9 (IC3 Pin 9).	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.
 Set generator output low enough to prevent AGC limiting.
 Preset front panel controls as shown, unless specified otherwise.
 Squelch MINIMUM, ANL Off, Volume Midrange.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP10 (FET2 Gate). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	L7, L6, L5	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	L4, L3, L2, L1	Adjust for maximum output. If necessary readjust L5, L6 and L7 for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Preset front panel controls as shown, unless specified otherwise.
Squelch MINIMUM, ANL Off, Volume 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	VOLUME RANGE Adjust for 1.40 volts RMS audio output (.25 watts).
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 700uV.	Ch. 19 Squelch Maximum	VR2	SQUELCH RANGE Adjust so that squelch just breaks.

TRANSMITTER ALIGNMENT

Connect 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	L16, L15, L14	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19	L11	Adjust for 4.0 watts RF output maximum.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19	L8	Adjust for MINIMUM at 54MHz (2nd harmonic).

TRANSMITTER ADJUSTMENTS

Connect 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.

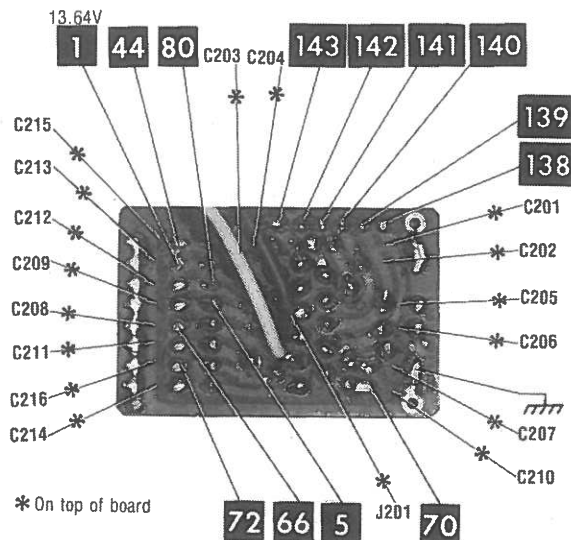
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 9mV. signal at Mic input.	Ch. 19	VR3	AMC Adjust for 95% modulation Maximum. See Figure 1.

COBRA MODEL 63GTL

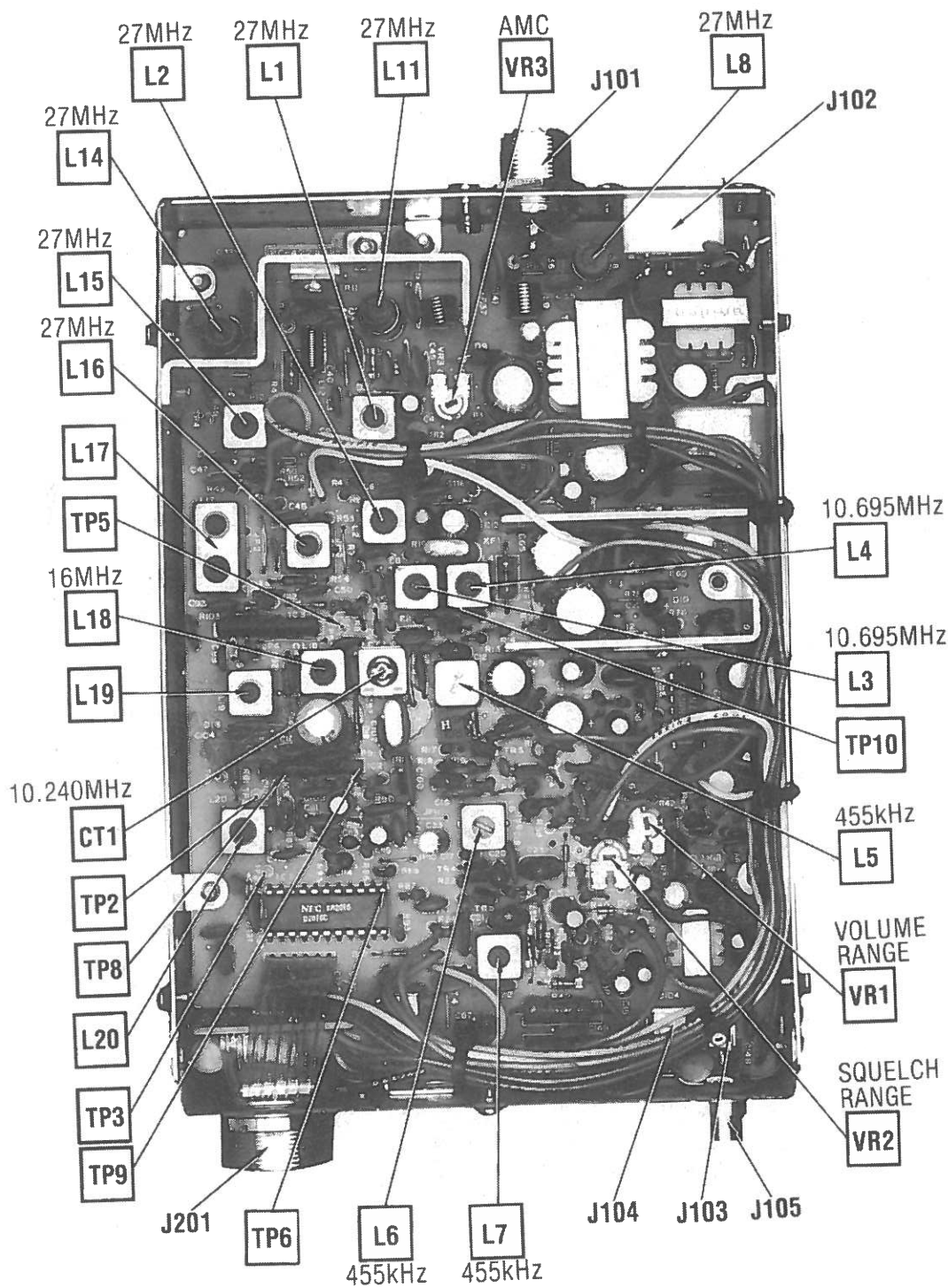
TRUTH CHART

C H A N N E L	1 = 5.00 Volts 0 = 0 Volts								REC DIVIDER INPUT IN MHz AT TP3	XMT DIVIDER INPUT IN MHz AT TP3	REC SYNTHESIZER OUTPUT IN MHz AT TP9	XMT SYNTHESIZER OUTPUT IN MHz AT TP9
	IC1 PROGRAM DIVIDER											
	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	
7	0	0	0	1	1	1			.980	1.435	16.340	27.025
8	0	0	1	0	0	0			1.000	1.455	16.360	27.035
9	0	0	1	0	0	1			1.010	1.465	16.370	27.055
10	0	1	0	0	0	0			1.020	1.475	16.380	27.065
												27.075
11	0	1	0	0	0	1			1.030	1.485	16.390	
12	0	1	0	0	1	0			1.050	1.505	16.410	27.085
13	0	1	0	0	1	1			1.060	1.515	16.420	27.105
14	0	1	0	1	0	0			1.070	1.525	16.430	27.115
15	0	1	0	1	0	1			1.080	1.535	16.440	27.125
												27.135
16	0	1	0	1	1	0			1.100	1.555	16.460	
17	0	1	0	1	1	1			1.110	1.565	16.470	27.155
18	0	1	1	0	0	0			1.120	1.575	16.480	27.165
19	0	1	1	0	0	1			1.130	1.585	16.490	27.175
20	1	0	0	0	0	0			1.150	1.605	16.510	27.185
												27.205
21	1	0	0	0	0	1			1.160	1.615	16.520	
22	1	0	0	0	1	0			1.170	1.625	16.530	27.215
23	1	0	0	0	1	1			1.200	1.655	16.560	27.225
24	1	0	0	1	0	0			1.180	1.635	16.540	27.255
25	1	0	0	1	0	1			1.190	1.645	16.550	27.235
												27.245
26	1	0	0	1	1	0			1.210	1.665	16.570	
27	1	0	0	1	1	1			1.220	1.675	16.580	27.265
28	1	0	1	0	0	0			1.230	1.685	16.590	27.275
29	1	0	1	0	0	1			1.240	1.695	16.600	27.285
30	1	1	0	0	0	0			1.250	1.705	16.610	27.295
												27.305
31	1	1	0	0	0	1			1.260	1.715	16.620	
32	1	1	0	0	1	0			1.270	1.725	16.630	27.315
33	1	1	0	0	1	1			1.280	1.735	16.640	27.325
34	1	1	0	1	0	0			1.290	1.745	16.650	27.335
35	1	1	0	1	0	1			1.300	1.755	16.660	27.345
												27.355
36	1	1	0	1	1	0			1.310	1.765	16.670	
37	1	1	0	1	1	1			1.320	1.775	16.680	27.365
38	1	1	1	0	0	0			1.330	1.785	16.690	27.375
39	1	1	1	0	0	1			1.340	1.795	16.700	27.385
40	0	0	0	0	0	0			1.350	1.805	16.710	27.395
												27.405

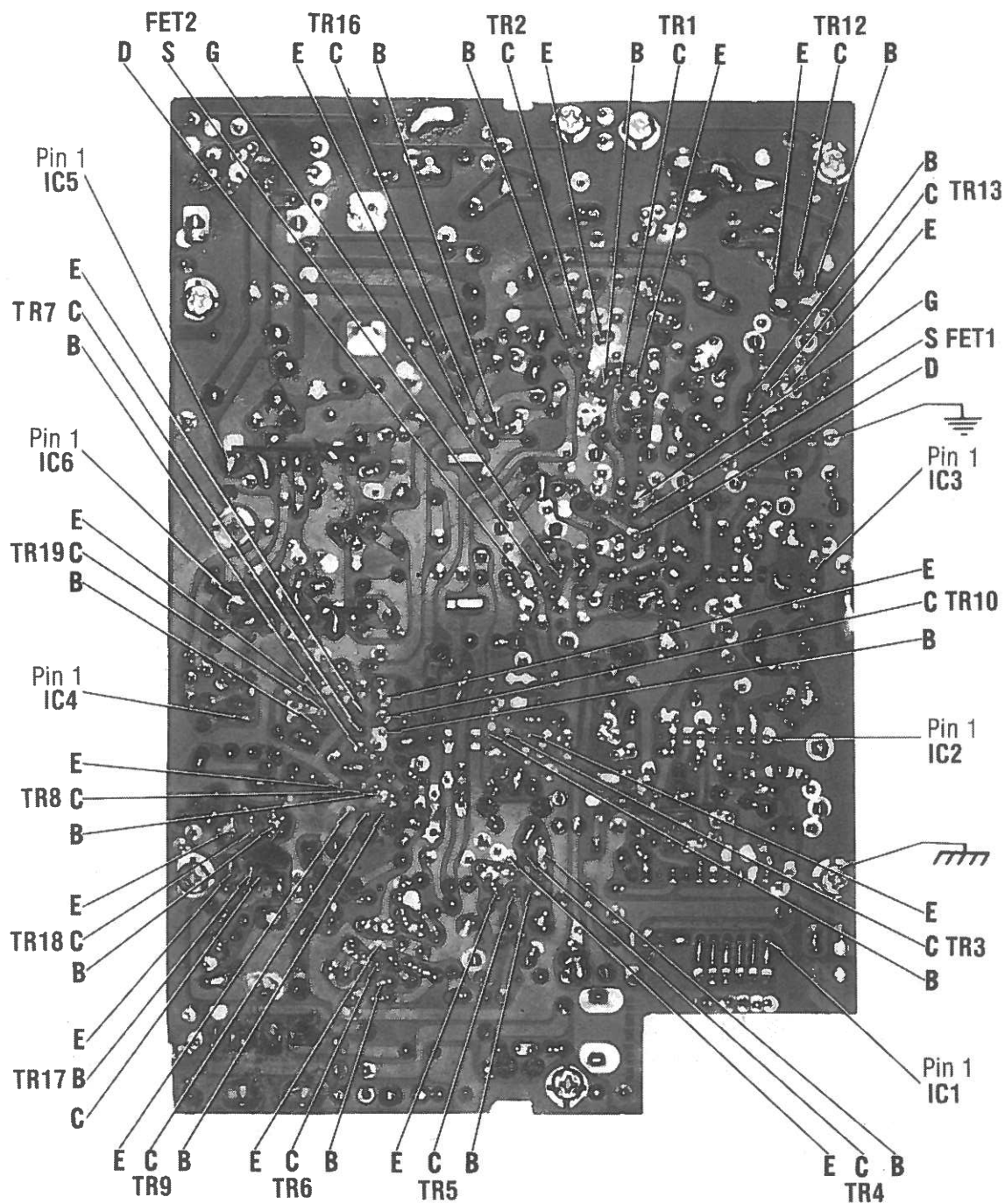
A Howard W. Sams CIRCUITRACE® Photo



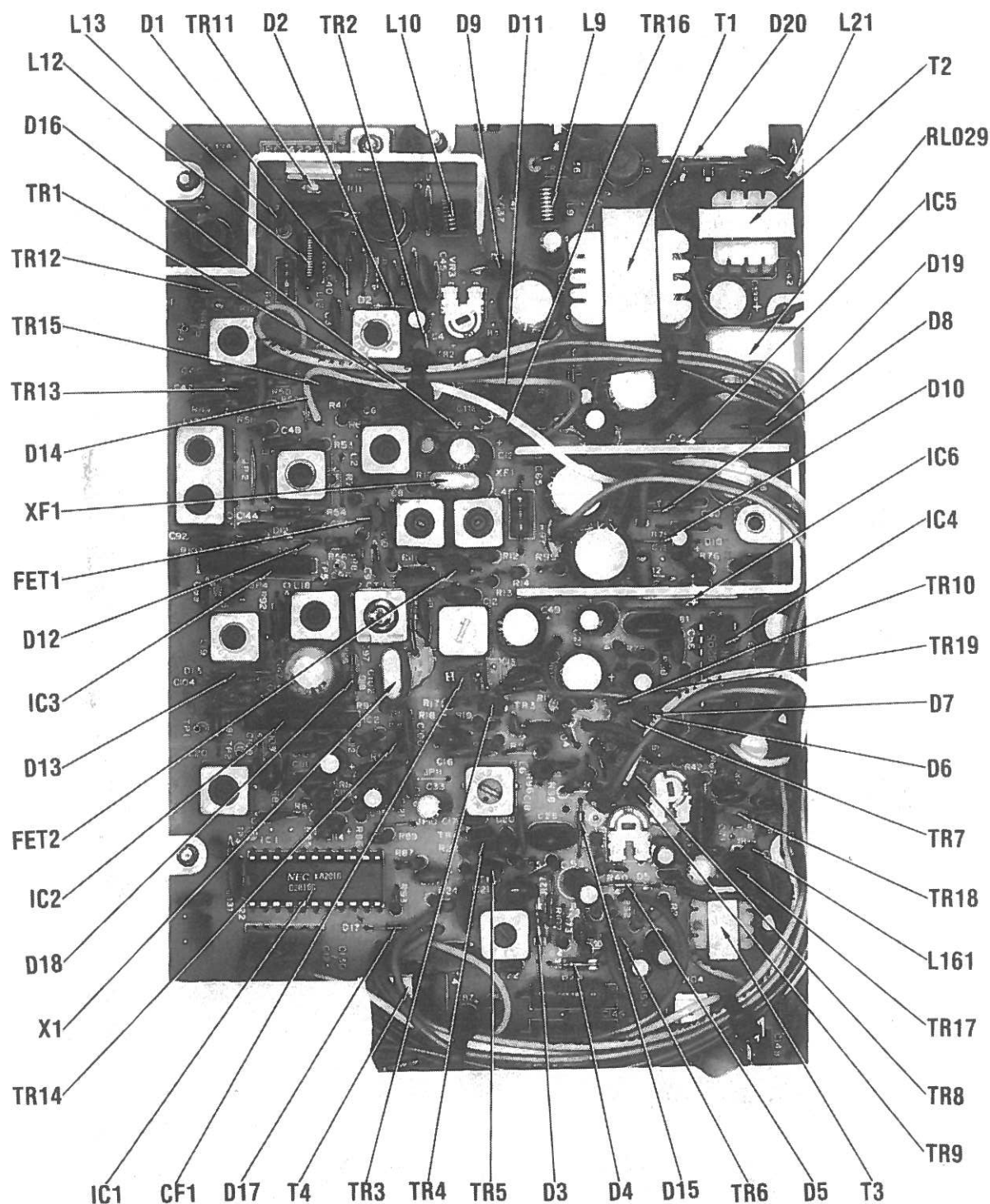
CH. SELECTOR BOARD



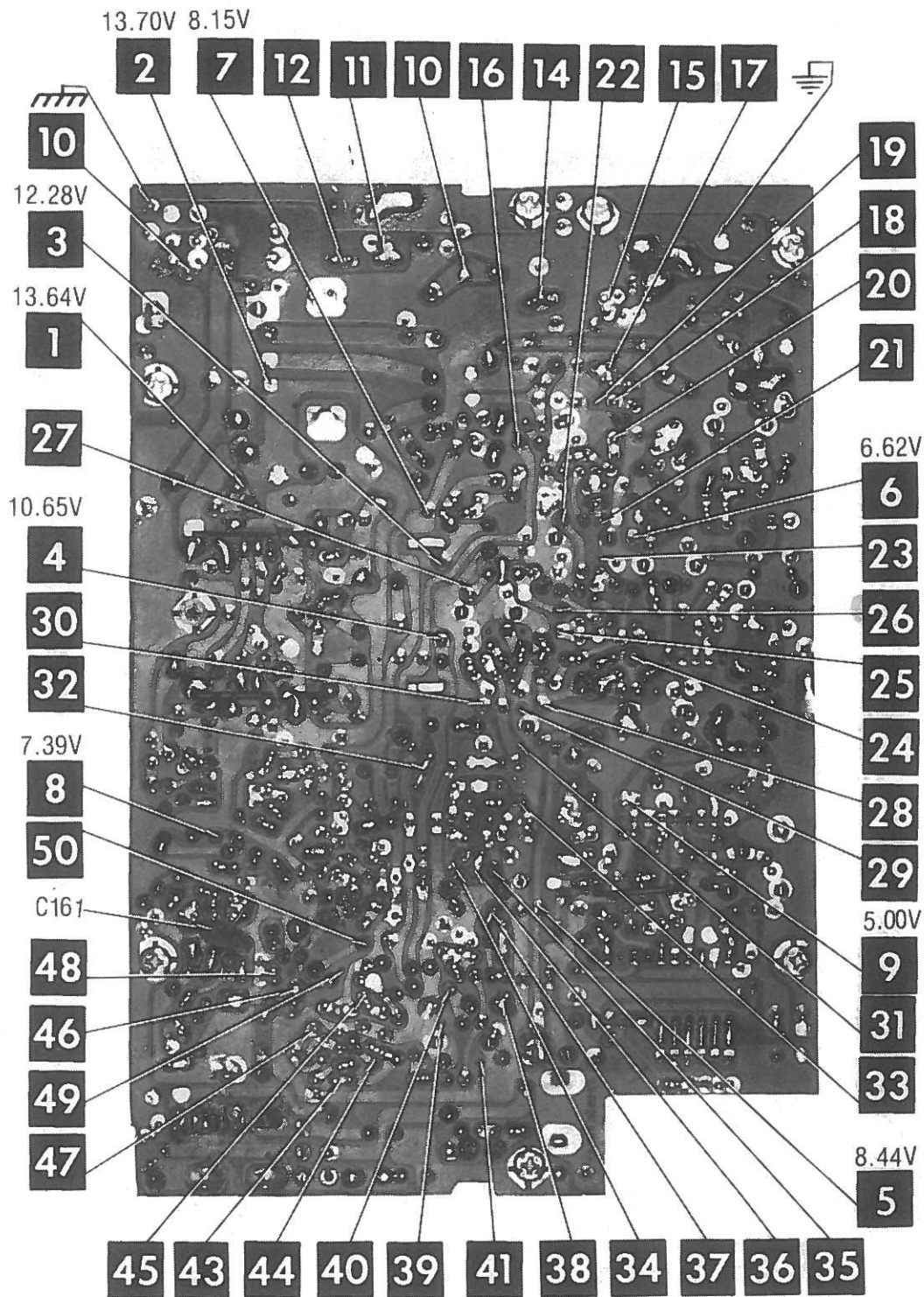
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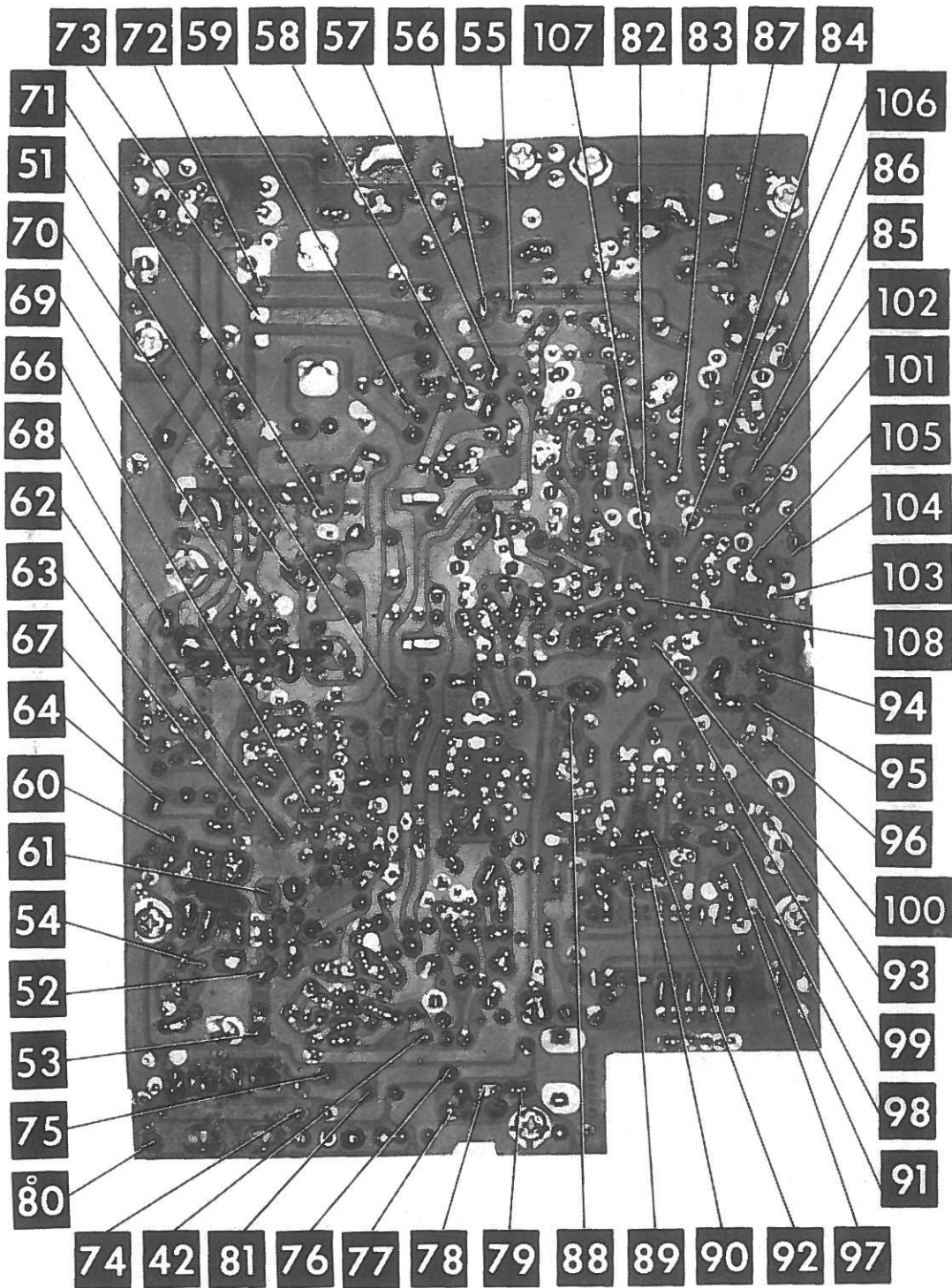
MAIN BOARD



MAIN BOARD

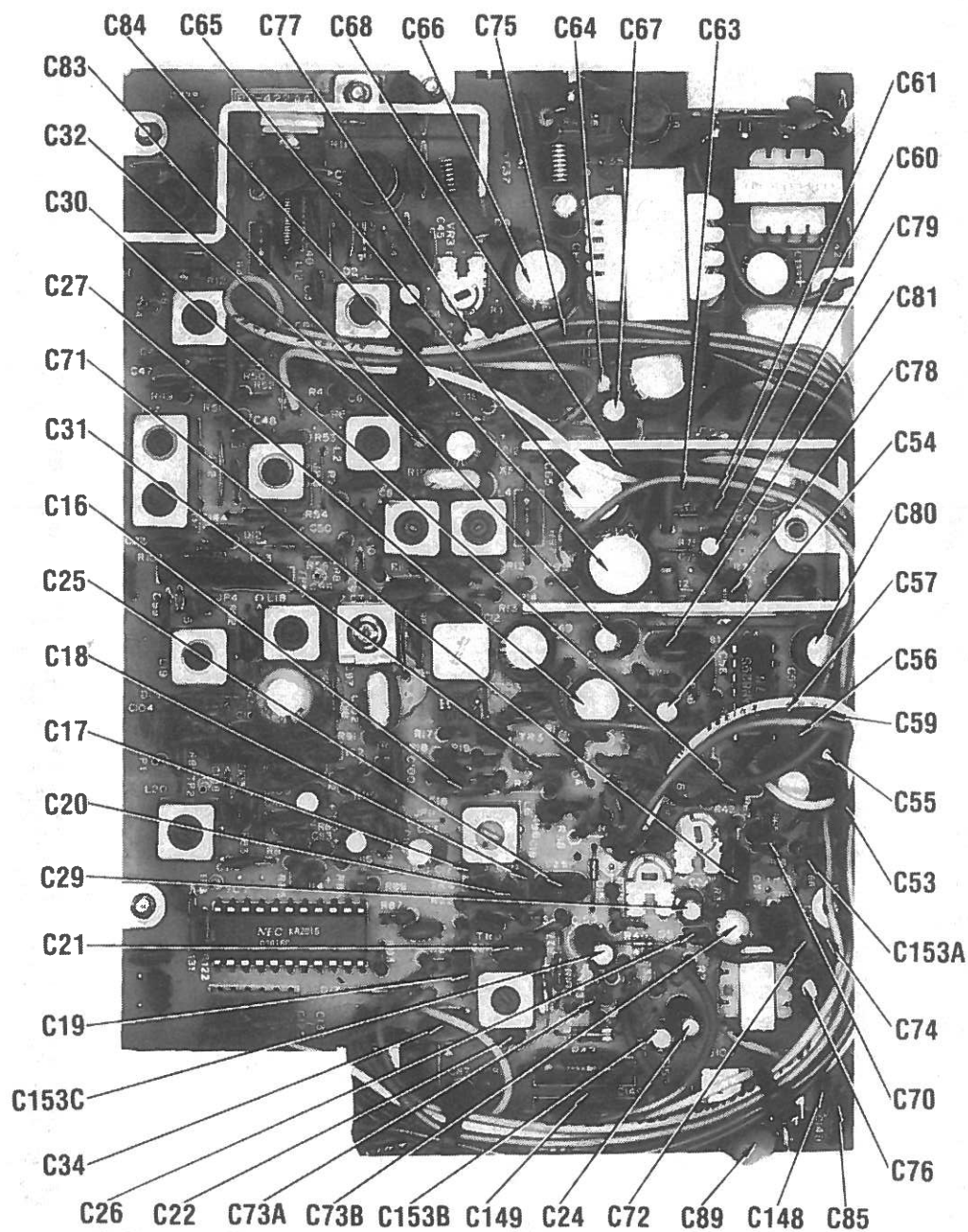


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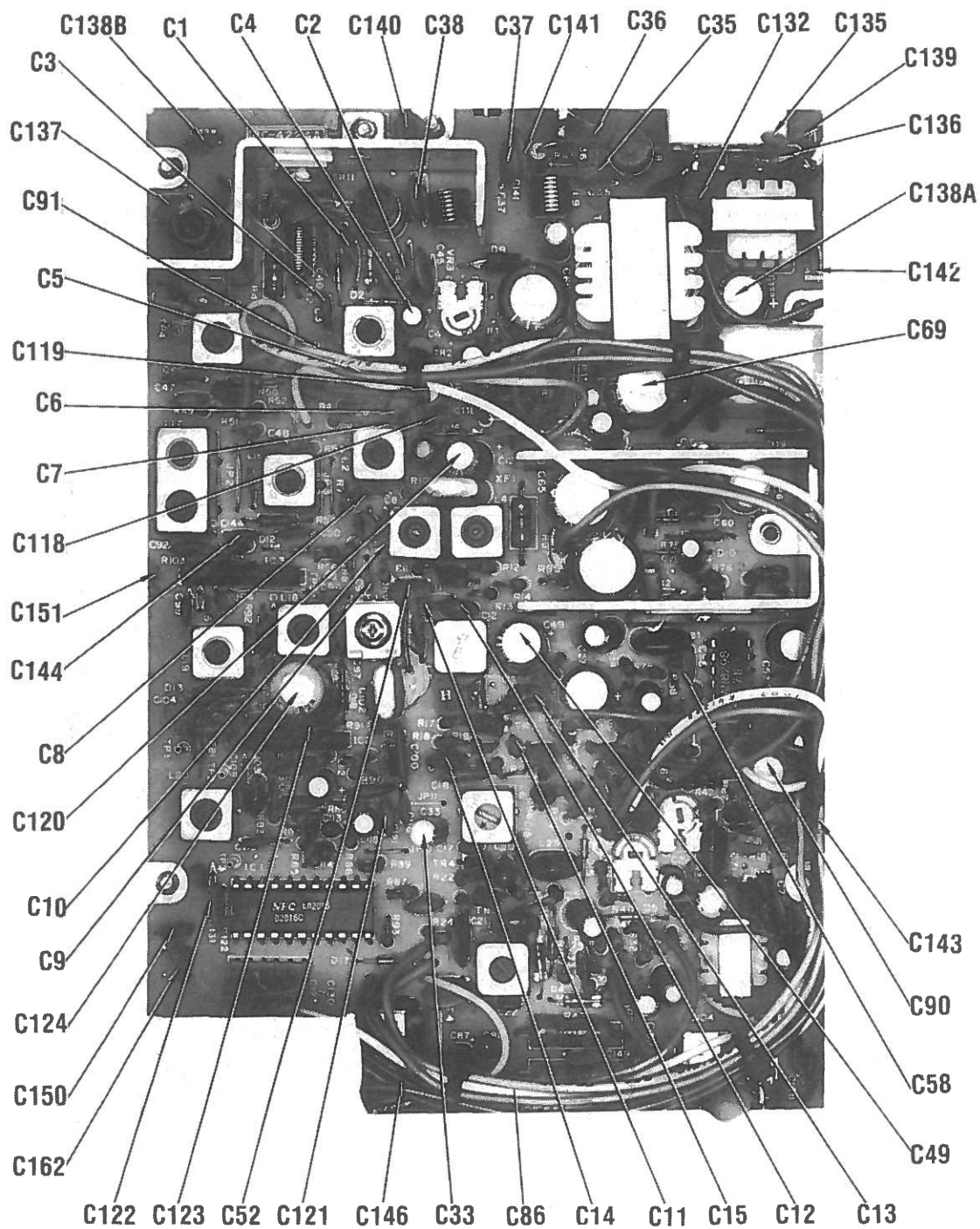


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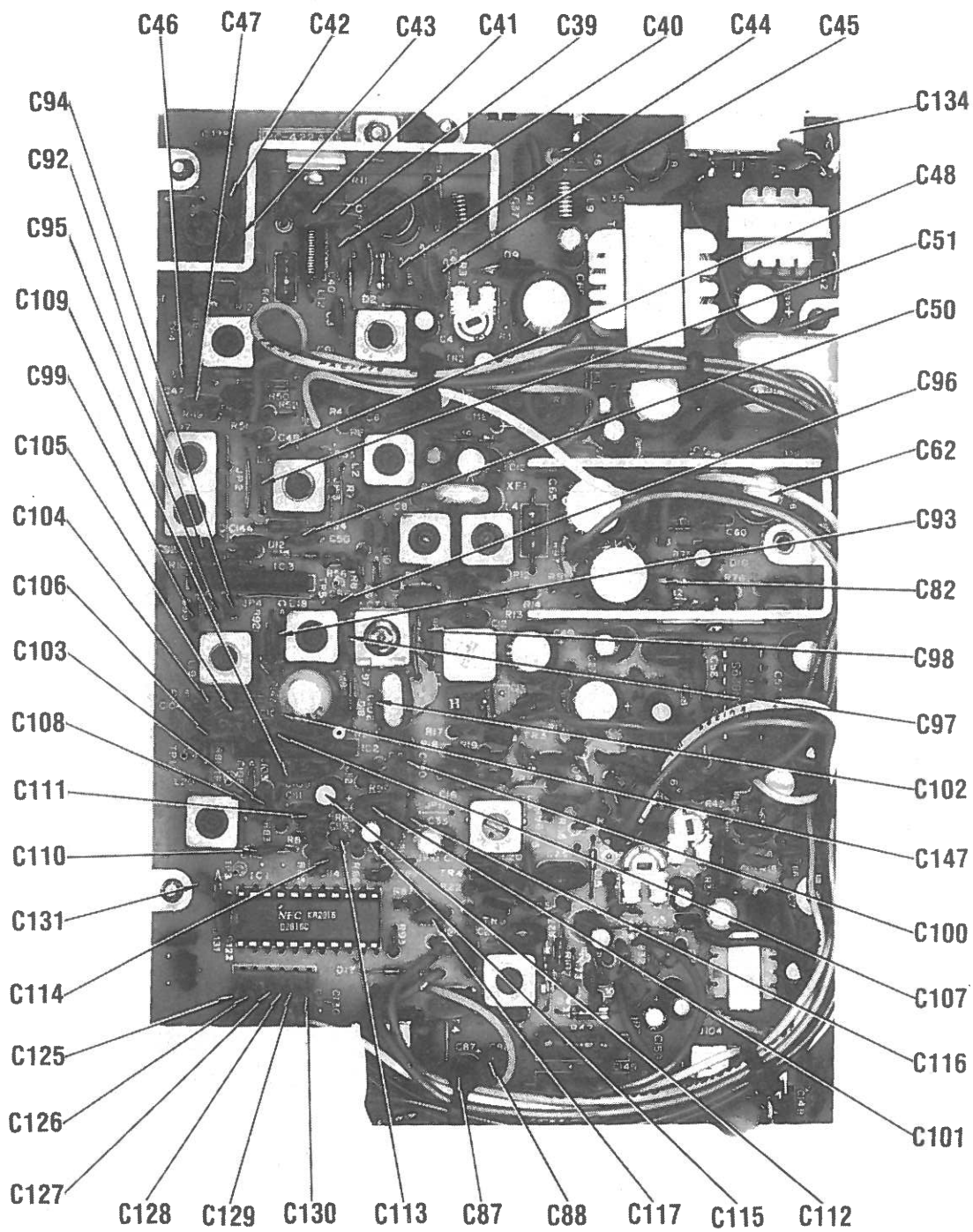
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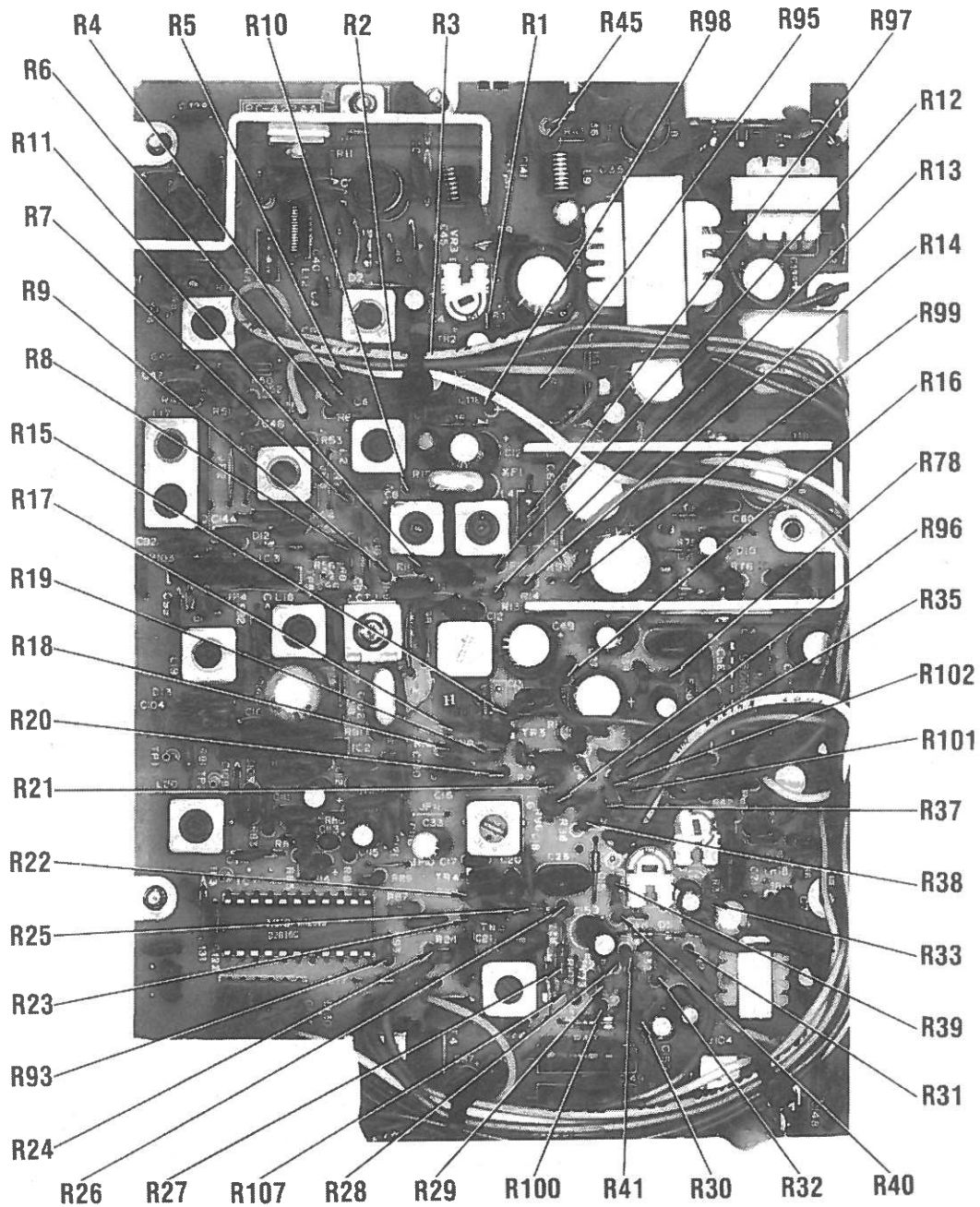
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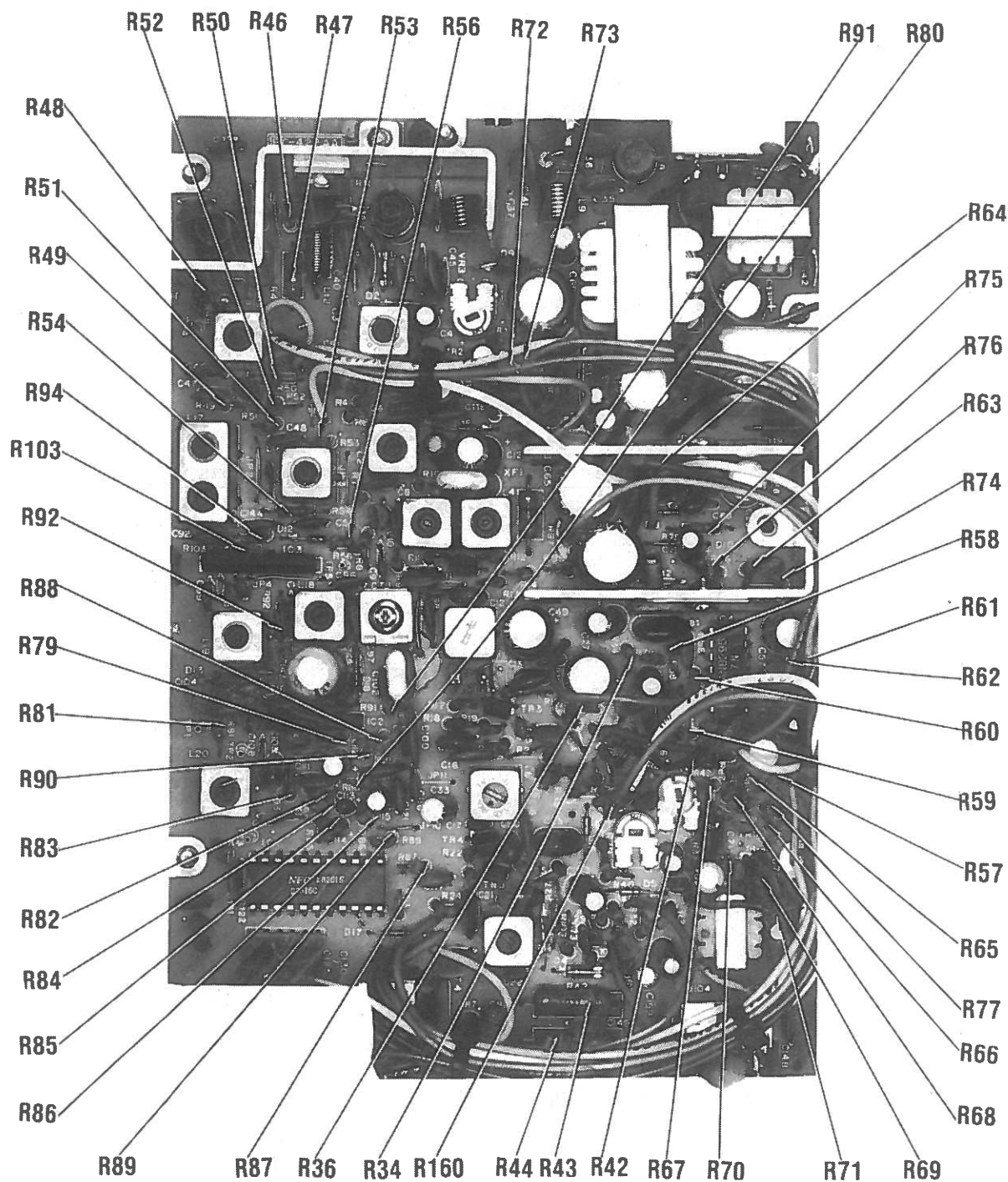
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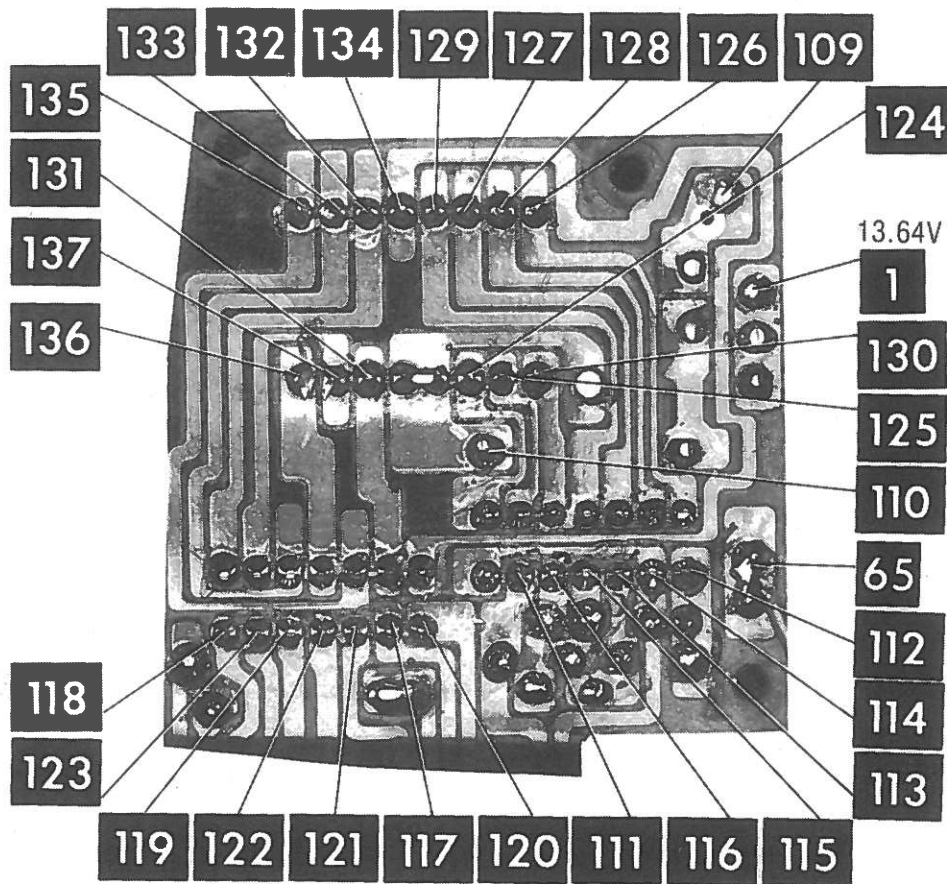
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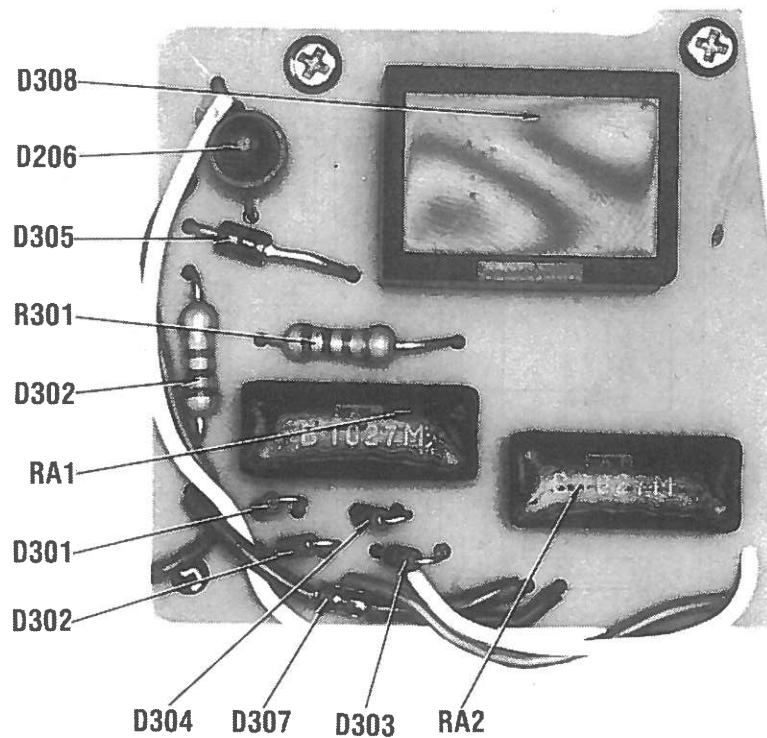
MAIN BOARD



MAIN BOARD



COBRA MODEL 63GTL



MIC AMP BOARD



PARTS LIST AND DESCRIPTION

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

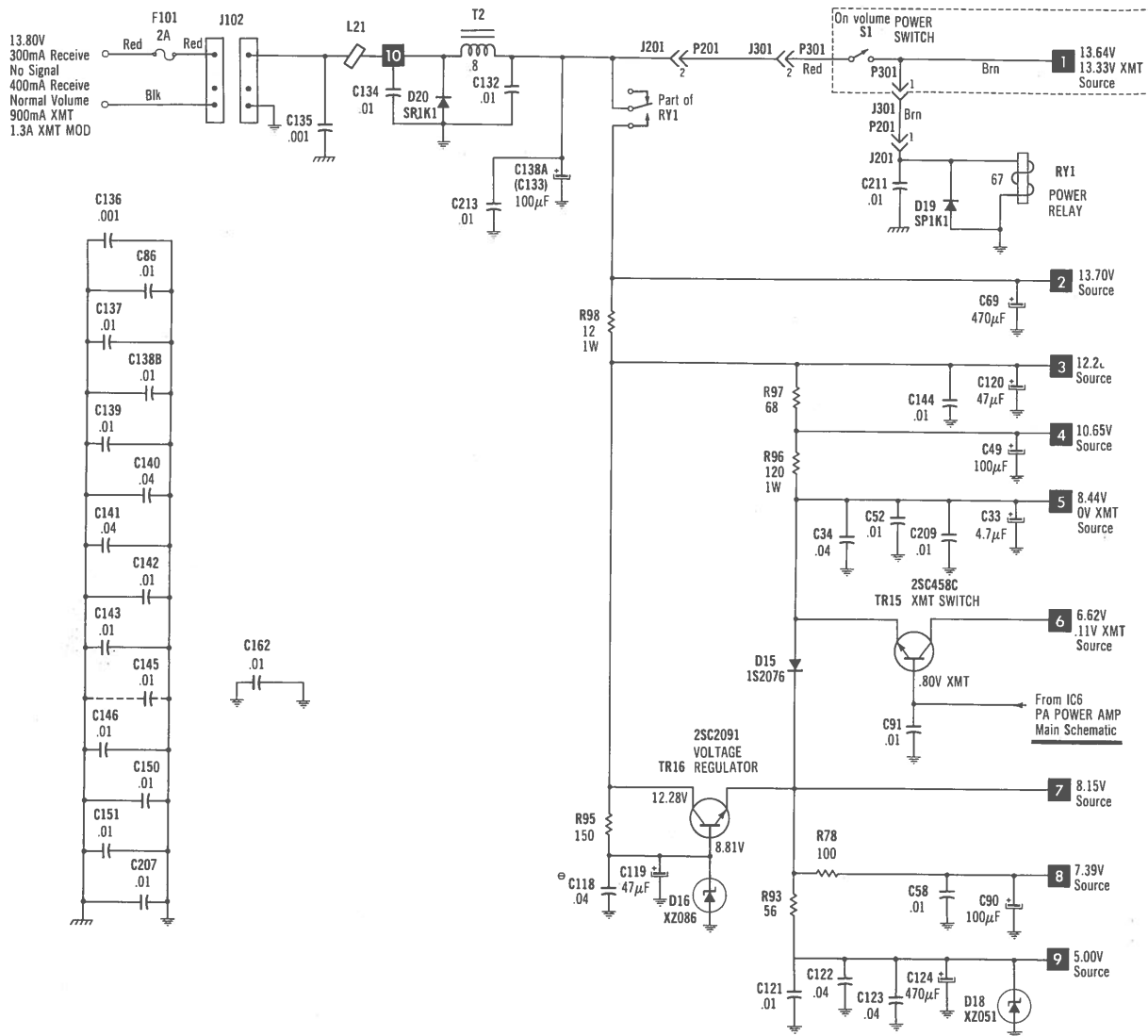
WIRING DATA

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

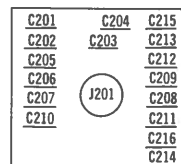
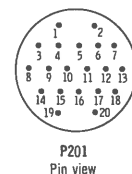
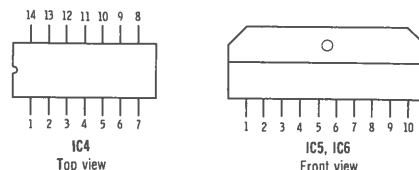
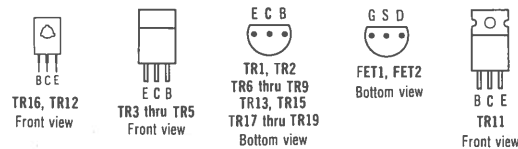
SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. 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.
D1	MC301				HEPR2500				ECG610			
	1S2186				HEPR2500				ECG610			
	BA244				HEPR2500				ECG610			
	BA243				HEPR2500				ECG610			
D2	MC301				HEPR2500				ECG610			
	1S2180				HEPR2500				ECG610			
	BA244				HEPR2500				ECG610			
	BA243				HEPR2500				ECG610			
D3	1N60AM		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	121-29001
D4	1N60AM		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	121-29001
D5	1S207SK		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473K		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D6	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D7	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D8	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D9	SR1K-1		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	1N4004	WEP156	212-76-02
D10	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D11	1N60AM		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	1N60	WEP134	121-29001
D12	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D13	1S2688EA		GE-514	PTC214	HEPR0602	REN 177	SK3126	RT-218	ECG613	1N4148	WEP925	103-281
D14	1S2076		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	WG713		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D15	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D16	XZ-086		GEZD-8.7		HEPR0602	REN 5073		RT-218	ECG5075	1N4148	WEP1155	
D17	1S2076		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	WG713		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177		WEP1062	103-131
	1S1588		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1S2473		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
	1N4448		GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D18	XZ-051		GEZD-5.1		HEP20406	REN 116	SK3056	RT-235	ECG116	1N4733A	WEP1103	
D19	SR1K-1		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	1N4004	WEP156	212-76-02
D20	SR1K-1		GE-504A	PTC201	HEPR0052	REN 116	SK3030	RT-213	ECG116	1N4004	WEP156	212-76-02
D301			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D302			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D303			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D304			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D305			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D307			GE-514	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
FET1	2SK104H		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			121-756
	2SK19		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			121-756
FET2	2SK104H		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			121-756
	2SK19		GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312			121-756
IC1	UPD2816C					REN 1192	SK3445		ECG1192			
IC2	TA7310P					REN 1192	SK3445		ECG1192			
	AN103					REN 1192	SK3445		ECG1192			
IC3	TA7310P					REN 1192	SK3445		ECG1192			
	AN103					REN 1192	SK3445		ECG1192			
IC4	AN8295											
IC5	TA7222P											
IC6	TA7222P											
TR1	2SC1674L		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	2SC535	WEP956*	
	2SC1674		GE-61	PTC132*	HEPS0010*	REN 107	SK3246	RT-308	ECG229*	2SC535	WEP956*	
	2SC930		GE-60*	PTC132*	HEPS0016*	REN 229	SK3018	RT-308	ECG229*	2SC930	WEP956*	121-29021*
	2SC784		GE-60*	PTC132*	HEPS0008*	REN 229*	SK3122	RT-187	ECG229*	2SC784	WEP784	121-883*
	2SC1342		GE-61*	PTC132	HEPS0014*	REN 229*	SK3018*	RT-108A*	ECG229*		WEP956*	121-29021*

COBRA MODEL 63GT



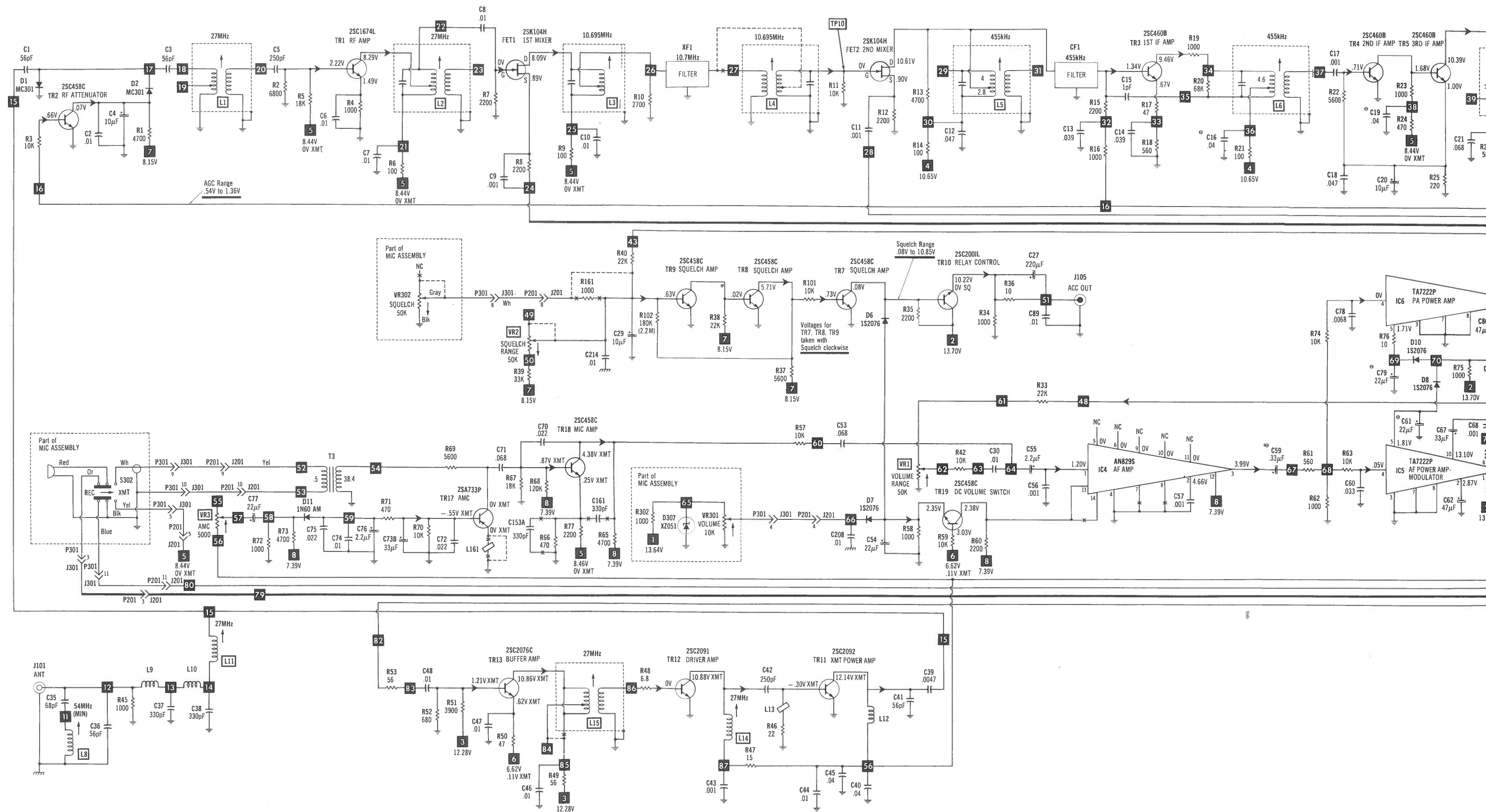
Terminal Guides

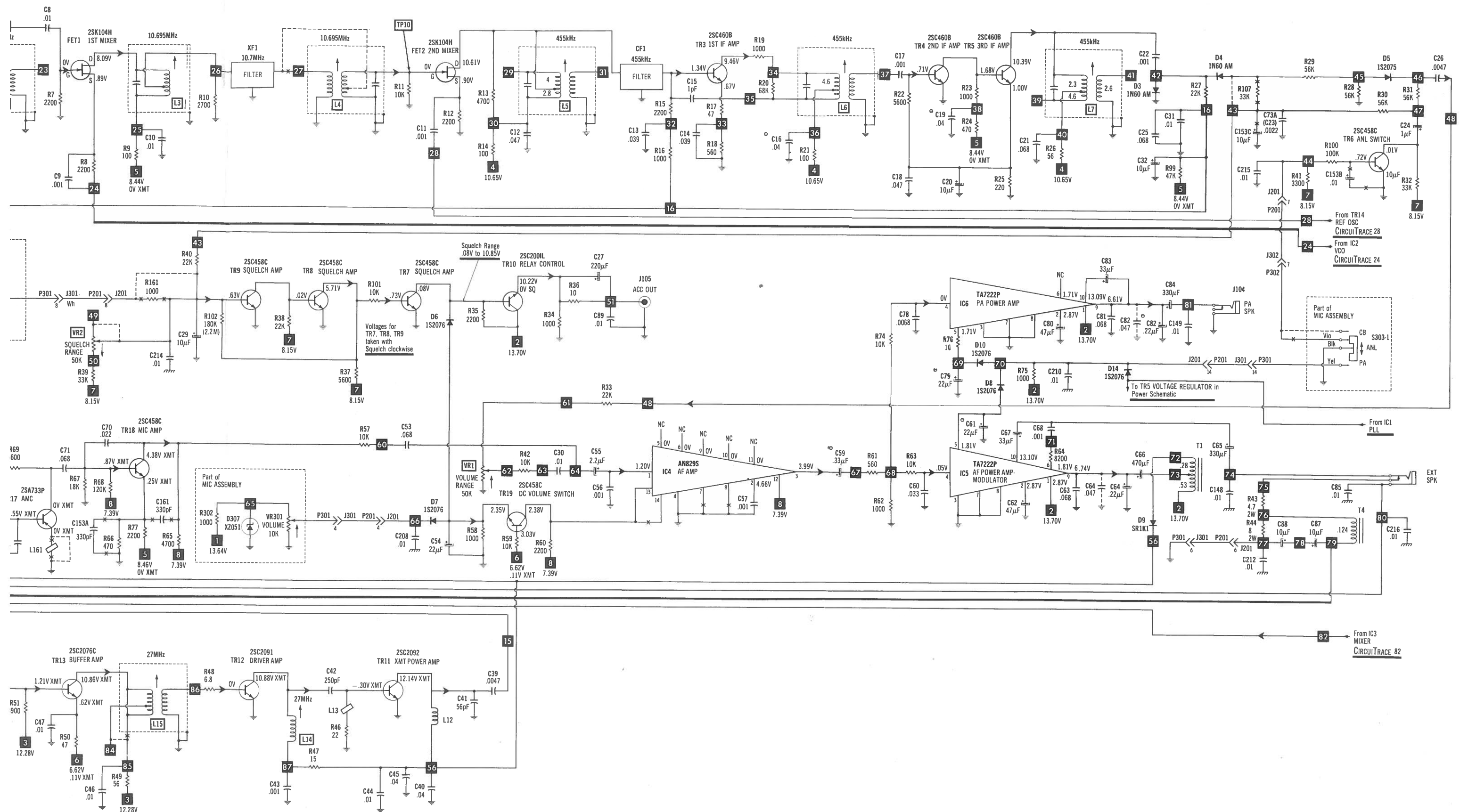


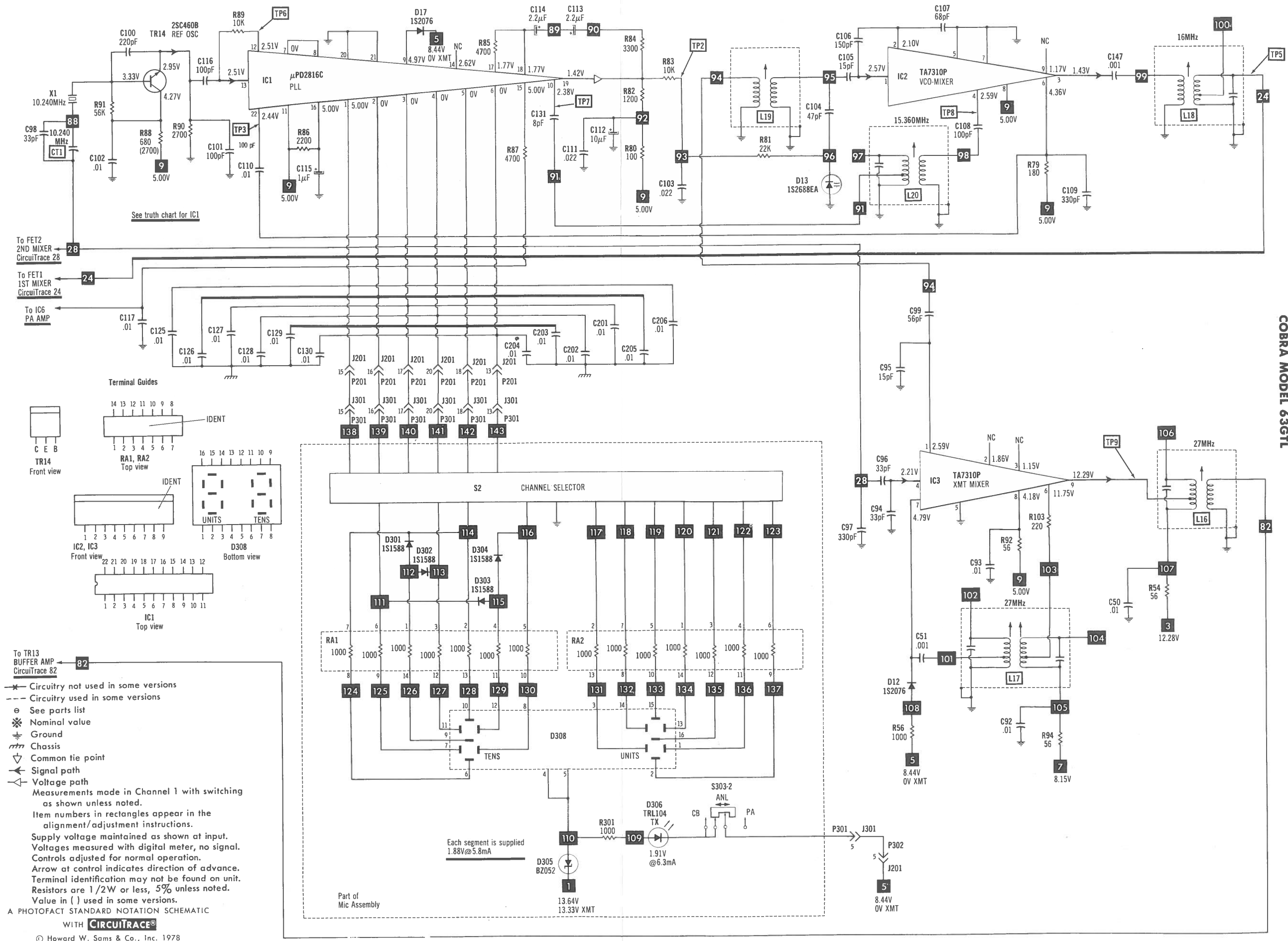
— Circuitry not used in some versions
 --- Circuitry used in some versions
 e See parts list
 * Nominal value
 ⊥ Ground
 ~ Chassis
 ▽ Common tie point
 → Signal path
 ⚡ Voltage path
 Measurements made in Channel 1 with switching as shown unless noted.
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC
 WITH **CircuitTrace®**

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* Circuitry not used in some versions
 --- Circuitry used in some versions
 e See parts list
 * Nominal value
 G Ground
 Chassis
 Common tie point
 Signal path
 Voltage path
 Measurements made in Channel 1 with switching as shown unless noted.
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
 WITH **CIRCUITRACE®**

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

			REPLACEMENT DATA
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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.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
TR18	2SC458C		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	2SC458	WEP458	121-Z9000*
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	2SC458	WEP458	121-Z9000*
	2SC945		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	2SC945	WEP1945	121-Z9000
	2SC1815		GE-212	PTC121*	HEPS0014*	REN 199	SK3122	RT-308	ECG229*	2SC930	WEP66	121-Z9000
	2SC1359		GE-212	PTC121*	HEPS0014*	REN 199	SK3122	RT-308	ECG229*	2SC930	WEP66	121-Z9000
TR19	2SC536		GE-212	PTC121*	HEPS0016*	REN 199	SK3124	RT-107A	ECG199	2SC945	WEP536	121-972
	2SC458C		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	2SC458	WEP458	121-Z9000*
	2SC458		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3122	RT-187	ECG289	2SC458	WEP458	121-Z9000*
	2SC945		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	2SC945	WEP1945	121-Z9000
	2SC1815		GE-212	PTC121*	HEPS0014*	REN 199	SK3122	RT-308	ECG229*	2SC930	WEP66	121-Z9000
	2SC1359		GE-212	PTC121*	HEPS0014*	REN 199	SK3122	RT-308	ECG229*	2SC930	WEP66	121-Z9000
	2SC536		GE-212	PTC121*	HEPS0016*	REN 199	SK3124	RT-107A	ECG199	2SC945	WEP536	121-972

* Lead configuration may vary from original.

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA						
ITEM No.	RATING	MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C4	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222
C20	10 16V	027-033-9-003		TDC106M025FL	QDT1-64	SD25-109
C24	1 50V	022-157-9-002	PC1-50	VTT1A50	QV1-11	EV-1615
C27	220 10V	022-171-9-002	PC250-10	VTT220F10	QV1-115	EV-1140
C29	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222
C32	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222
C33	4.7 25V	022-157-9-003	PC5-50	VTT4R7B50	QV1-27	EV-1319
C49	100 16V	022-159-9-009	PC100-16	VTT100F16	QV1-95	EV-1230
C54	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224
C55	2.2 25V	022-158-9-002	PC2-100	VTT2R2A50	QV1-19	EV-1517
C59	.33 16V			TDC334M050EL	QDT1-14	SD50-R339
	2.2 25V	022-158-9-002	PC2-100	VTT2R2A50	QV1-19	EV-1517
C61	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224
	4.7 16V	027-026-9-004		TDC475M035FL	QDT1-49	SD35-4R79
C62	47 16V	022-164-9-002	PC50-16	VTT47D16	QV1-73	EV-1226
C64	.22 16V			TDC224M050EL	QDT1-10	SD50-R229
C65	330 16V	022-158-9-003	WBR300-35*	VTT330H16	QV1-133	EV-1245
C66	470 16V	022-076-9-008	PC500-16	VTT470K16	QV1-151	EV-1250
C67	33 10V	022-158-9-005	PC30-25	VTT33B10	QV1-61	EV-1125
C69	470 16V	022-076-9-008	PC500-16	VTT470K16	QV1-151	EV-1250
C73B	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325
C76	2.2 25V	022-158-9-002	PC2-100	VTT2R2A50	QV1-19	EV-1517
C77	2.2 25V	022-158-9-002	PC2-100	VTT2R2A50	QV1-19	EV-1517
C79	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224
	10 16V	027-033-9-003	PC50-16	TDC106M025FL	QDT1-64	SD25-109
C80	47 16V	022-164-9-002		VTT47D16	QV1-73	EV-1226
C82	.22 16V			TDC224M050EL	QDT1-10	SD50-R229
C83	33 10V	022-158-9-005	PC30-25	VTT33B10	QV1-61	EV-1125
C84	330 16V	022-158-9-003	WBR300-35*	VTT330H16	QV1-133	EV-1245
C87	10 16V	027-033-9-003		TDC106M025FL	QDT1-64	SD25-109
C88	10 16V	027-033-9-003		TDC106M025FL	QDT1-64	SD25-109
C90	100 10V	022-157-9-008	PC100-10	VTT100E10	QV1-93	EV-1130
C112	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222
C113	2.2 16V	027-033-9-001		TDC225M035FL		SD35-2R29
C114	2.2 16V	027-033-9-001		TDC225M035FL		SD35-2R29
C115	1 50V	022-157-9-002	PC1-50	VTT1A50	QV1-11	EV-1615
C119	47 16V	022-164-9-002	PC50-16	VTT47D16	QV1-73	EV-1226
C120	47 16V	022-164-9-002	PC50-16	VTT47D16	QV1-73	EV-1226
C124	470 6.3V	022-158-9-008	PC500-16	VTT470K16	QV1-149	EV-1150
C138A	100 16V	022-157-9-009	PC100-16	VTT100F16	QV1-95	EV-1230
C153B	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222
C153C	10 16V	022-157-9-004	PC10-25	VTT10825	QV1-41	EV-1222

* Axial replacement for radial device.

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	56 N220 5% 50V	020-208-9-002	UK50-103		* MAG5011		
C2	.01 50V				* GP325		5GA-T25
C3	56 N220 5% 50V	020-208-9-002	DD-251		MAG5011		
C5	250 50V		UK50-103		MAG5011		
C6	.01 50V		UK50-103		MAG5011		
C7	.01 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C8	.01 50V		UK50-103		MAG5011		
C9	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C10	.01 50V		UK50-103	DPMS2547	EW1A147	QFT2-171	1FT-S47
C11	.001 50V		DD-102G	DPMS6S39	M192P3939R8	QFT2-159	1FT-S33
C12	.047 10% 25V			DPMS6S39	M192P3939R8	QFT2-159	1FT-S33
C13	.039 10% 25V				CN0510		10TCC-V10
C14	.039 10% 25V						5GA-S40
C15	1 50V						1FT-D10
C16	.04	020-207-9-012	CW20C393K	DPMS6D1	EW1A210	QFT2-1	HY-735
C17	.001 25V				MAG2515		5GA-S40
C18	.047 25V		UK25-503				1PB-S68
C19	.04	020-207-9-012	CW20C393K	WMF1S68	EW1A168	QF1-195	1FT-D10
C21	.068 10% 25V			DPMS6D1	EW1A210	QFT2-1	1PB-S68
C22	.001 25V			WMF1S68	EW1A168	QF1-195	1FT-D47
C25	.068 25V			WMF1D47	M192P4729R8	QFT2-63	1FT-S10
C26	.0047 10%			WMF1S1	EW1A110	QFT2-91	
C30	.01 25V						

COBRA MODEL 63GTL

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C31	.01 50V	020-207-9-012 020-180-9-015 020-208-9-002	UK50-103		MAG5011		
C34	.04		CW20C393K		*		5GA-S40
C35	68 N220 10% 50V				*		10TCR-Q68
C36	56 N220 5% 50V	020-207-9-012 020-208-9-002	DD-331	GP330	GP333		10TS-T33
C37	330 50V		DD-331	GP330	GP333		10TS-T33
C38	330 50V		DD-472	GP4700	GP247		5GA-D47
C39	.0047 25V		CW20C393K		*		5GA-S40
C40	.04						
C41	56 N220 10% 50V						
C42	250 50V		DD-251		GP-325		5GA-T25
C43	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
	.01		UK50-103		MAG5011		
C44	.01 50V	020-207-9-012	UK50-103		MAG5011		
C45	.04		CW20C393K				5GA-S40
C46	.01 50V		UK50-103		MAG5011		
C47	.01 50V		UK50-103		MAG5011		
C48	.01 50V		UK50-103		MAG5011		
C50	.01 50V		UK50-103		MAG5011		
C51	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C52	.022 50V		UK25-223				HY-725
C53	.068 25V			WMF1S68	EWFA168	QF1-195	1PB-S68
C56	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C57	.001 25V	020-205-9-005 020-205-9-004	DPMS6D1		EWFA210	QFT2-1	1FT-D10
C58	.01 50V		UK50-103		MAG5011		
C60	.0033 25V			WMF1D33	M192P3329R8	QFT2-43	1FT-D33
C63	.068 10% 25V			WMF1S68	EWFA168	QF1-195	1PB-S68
C64	.047 25V		UK25-503		MAG2515		HY-735
C68	.001 25V		DPMS6D1		EWFA210	QFT2-1	1FT-D10
C70	.0022 10% 25V		DPMS6D22		M192P2229R8	QFT2-27	1FT-D22
C71	.068 25V		WMF1S68		EWFA168	QF1-195	1PB-S68
C72	.022		UK25-223				HY-725
C73A	.0022 10%		UK25-223	DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C74	.01 50V	020-207-9-006 020-207-9-008 020-196-9-001	UK50-103		MAG5011		HY-725
C75	.022		UK25-223				1FT-D68
C78	.0068 10% 25V			WMF1D68	EWFA268	QFT2-73	1PB-S68
C81	.068 25V			WMF1S68	EWFA168	QF1-195	HY-735
C82	.047 25V		UK25-503		MAG2515		
C85	.01 50V		UK50-103		MAG5011		
C86	.01 50V		UK50-103		MAG5011		
C89	.01 50V		UK50-103		MAG5011		
C91	.01 50V		UK50-103		MAG5011		
C92	.01 50V		UK50-103		MAG5011		
C93	.01 50V	020-207-9-012 020-207-9-012 020-207-9-012	UK50-103		MAG5011		
C94	33 50V		DTZ-33	NPO33	CN0433		10TCC-Q33
C95	15 50V		DTZ-15	NPO15	CN0415		10TCC-Q15
C96	33 NPO 5%		DTZ-33	NPO33	CN0433		10TCC-Q33
	10 50V		DTZ-10	NPO10	CN0410		10TCC-Q10
C97	330 50V		DD-331	GP330	GP333		10TS-T33
C98	33 NPO 10% 50V		DTZ-33	NPO33	CN0433		10TCC-Q33
C99	56 10% 50V		DD-560		GP456		10TS-Q56
C100	220 N220 10% 50V				*		10TCR-T22
C101	100 N220 5% 50V				*		10TCR-T10
C102	.01 50V	020-207-9-006 020-207-9-008 020-196-9-001	UK50-103		MAG5011		HY-725
C103	.022		UK25-223				10TCU-Q47
C104	47 N750 10% 50V		DTN-47	N47	CN7447		10TCR-Q15
C105	15 N220 50V				*		10TCR-T15
C106	150 N220 10% 50V				*		10TCR-Q68
C107	68 N220 10% 50V				*		10TS-T10
C108	100 10% 50V		DD-101	GP100	GP310		10TS-T33
C109	330 10% 50V		DD-331	GP330	GP333		
C110	.01 50V		UK50-103		MAG5011		
C111	.022		UK25-223				HY-725
C116	100 10% 50V	020-207-9-012	DTZ-120		CN0312		10TCC-T12
C117	.01 50V		UK50-103		MAG5011		
C118	.04		CW20C393K				5GA-S40
C121	.01 50V		UK50-103		MAG5011		
C122	.04		CW20C393K				5GA-S40
C123	.04		CW20C393K				5GA-S40
C125	.01 50V		UK50-103		MAG5011		
C126	.01 50V		UK50-103		MAG5011		
C127	.01 50V		UK50-103		MAG5011		
C128	.01 50V		UK50-103		MAG5011		
C129	.01 50V	020-207-9-012	UK50-103		MAG5011		
C130	.01 50V		UK50-103		MAG5011		
C131	8 10% 50V						
C132	.01 50V		UK50-103		MAG5011		
C134	.01 50V		UK50-103		MAG5011		
C135	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C136	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C137	.01 50V		UK50-103		MAG5011		
C138B	.01 50V		UK50-103		MAG5011		
C139	.01 50V		UK50-103		MAG5011		
C140	.04	020-207-9-012	CW20C393K				5GA-S40
	.01 50V		UK50-103		MAG5011		
C141	.04		CW20C393K				5GA-S40
C142	.01 50V		UK50-103		MAG5011		
C143	.01 50V		UK50-103		MAG5011		
C144	.01 50V		UK50-103		MAG5011		
C145	.01 50V		UK50-103		MAG5011		
C146	.01 50V		UK50-103		MAG5011		
C147	.001 50V		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C148	.01 50V		UK50-103		MAG5011		
C149	.01 50V	020-207-9-012	UK50-103		MAG5011		
C150	.01 50V		UK50-103		MAG5011		
C151	.01 50V		UK50-103		MAG5011		
C153A	330		DD-331	GP330	GP333		10TS-T33
C161	330		DD-331	GP330	GP333		10TS-T33
C162	.01 50V		UK50-103		MAG5011		
C201	.01 50V		UK50-103		MAG5011		
C202	.01 50V		UK50-103		MAG5011		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS(cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C203	.01 50V	028-052-9-001	UK50-103		MAG5011		
C204	.01 50V		UK50-103		MAG5011		
C205	.01 50V		UK50-103		MAG5011		
C206	.01 50V		UK50-103		MAG5011		
C207	.01 50V		UK50-103		MAG5011		
C208	.01 50V		UK50-103		MAG5011		
C209	.01 50V		UK50-103		MAG5011		
C210	.01 50V		UK50-103		MAG5011		
C211	.01 50V		UK50-103		MAG5011		
C212	.01 50V		UK50-103		MAG5011		
C213	.01 50V		UK50-103		MAG5011		
C214	.01 50V		UK50-103		MAG5011		
C215	.01 50V		UK50-103		MAG5011		
C216	.01 50V		UK50-103		MAG5011		
CT1	50						

*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			
			MFR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR1	Volume Range	50K	008-316-9-002			U260R503B
VR2	Squelch Range	50K	008-316-9-002			U260R503B
VR3	AMC	5000	008-316-9-004			U260R502B
VR301	Volume/Power Switch	10K		B16-216		
VR302	Squelch	50K		B16-119		

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
RA1	Resistor Network		(1)	RA2	Resistor Network		(1)

(1) Consists of seven 1K ohm resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Antenna (27MHz)	060-023-9-001	LLAY029001	CBS740-T	
L2	Rec RF (27MHz)	046-024-9-001	LLAY138001		
L3	Rec IF (10.695MHz)	060-024-9-002	LLAY181001		
L4	Rec IF (10.695MHz)	046-025-9-002	LLAY274001		
L5	Rec IF (455kHz)	060-019-9-002	LLAY106001	8517	
L6	IF Amp (455kHz)	046-024-9-003	LLAY204001		
L7	IF Amp (455kHz)	046-024-9-004	LLAY276001		
L8	TVI Trap (54MHz)	041-056-9-003	LLCY018001	CB304	
L9	Pi Filter	041-104-9-002	LLEY089001		
L10	Pi Filter	041-104-9-001	LLEY088001		
L11	Final Tuning (27MHz)	041-088-9-001	LLCY019001	CB305	
L12	RF Choke	041-069-9-004	LLDY012001	4588	
L14	XMT Driver (27MHz)	041-056-9-003	LLCY018001	CB304	
L15	XMT Buffer (27MHz)	060-029-9-004	LLAY208001		
L16	XMT Mixer (27MHz)	066-019-9-002	LLEY088001	CBS717TC	
L17	XMT Mixer (27MHz)	060-029-9-001	LLAY198001		
L18	VCO/Mixer (16MHz)	046-024-9-002	LLAY201001		
L19	VCO	046-025-9-003	LLAY275001		
L20	Tripler (15.360MHz)	066-025-9-005	LLAY166001		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	1.3A	.8	.86mH	042-021-9-001 TF-083(1)			(1) Number on unit.

CHOKE (Audio Output)

ITEM No.	INDUCTANCE	REPLACEMENT DATA			NOTES
		MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	13mH	061-040-9-001 TF-135(1)			(1) Number on unit.

COBRA MODEL 63GTL

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CHOKE (IMPEDANCE MATCHING)

ITEM No.	INDUCTANCE	REPLACEMENT DATA			NOTES
		MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T4	.91mH	042-028-9-001 TF-137(1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
	1 1/2" PM 8 Ohms	PM-10005		Also used as Mic element.

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	2A Quick Acting	191-251-3-002		AGC2	HDJ	312002	150145	FG2-2

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
Mic	562-026-9-001(1)										

(1) Complete head assembly not including cable or connector.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	140-009-9-001	455kHz
D306	LED		TX Indicator, 1.31V @ 6.3mA
D308	LED		Channel Readout, each segment 1.88V @ 5.8mA
J101	Connector	772-027-9-001	Antenna
J102	Receptacle	762-020-9-001	DC Power
J103	Jack	773-086-9-001	EXT.
J104	Jack	773-086-9-001	PA
J105	Jack	773-091-9-001	External Accessory Control
J201	Jack	772-042-9-001	MIC
L13	Ferrite Bead	040-048-9-003	
L21	Ferrite Bead	044-051-9-001	
L161	Ferrite Bead	044-048-9-003	
P201	Plug	763-112-9-028	MIC
RY1	Relay	441-022-9-002	DC Power
S1	Switch		Power (Part of volume control)
S2	Switch	763-112-9-023	Channel Selector
S302	Switch	763-112-9-027	XMT/REC
S303	Switch	763-112-9-024	PA/CB/ANL
X1	Crystal	132-027-9-001	10.240MHz
XF1	Crystal Filter	143-009-9-001	10.695MHz
	Cord	350-010-9-001	DC Power
	PC Board	302-321-9-001	Main
	PC Board	302-322-9-001	Microphone Connector

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

ITEM	PART No.	ITEM	PART No.
MAIN UNIT		MICROPHONE	
Case, Bottom	272-133-9-002	Button, PTT	763-112-9-003
Case, Top	272-133-9-001	Case, Back	763-112-9-002
Chassis, Main	257-105-9-001	Case, Front	763-112-9-001
Chassis, Front	258-035-9-001	Knob, Channel	763-112-9-006
		Knob, Control	763-112-9-007