

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 609

MANUFACTURER'S SPECIFICATIONS

RECEIVER

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

TRANSMITTER

1. Frequency Range (MHz) : 26.965-27.405
2. RF Power Output : 4W
3. Modulation Capability : More than 80%
4. Spurious Suppression : More than 60dB
5. Frequency Tolerance : $\pm$ 0.005%

Courtesy of the Manufacturer

ROYCE MODEL 609

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. 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:

T101, T102.....9440

T601.....5009, 8728A, 8728

L303, T301, T302.....9091, 8728A, 8728

VC1, VC2.....8276, 5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (PLL Pin 1).	Ch. 1 Tune Midrange		Check for 10.240MHz.
Input of frequency counter to TP2 (P11 Pin 11).	Ch. 1 Tune Midrange		Check for 37.660MHz. Check all channels. (See Truth Chart for correct frequencies).
Input of frequency counter to TP3 (PLL Pin 14).	Ch. 1		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. RF Gain Maximum, Squelch MINIMUM, ANL Off, Tune Midrange

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP4. (Q101 Pin 12). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T601	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T102, T101, VR101	Adjust for maximum output. If necessary readjust T601.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
RF Gain Maximum, ANL Off, Tune Midrange, S/RF/CAL/SWR S/RF

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	VR102	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR104	SIG METER Adjust for 9 on SIG 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	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19	T301, T302, L303	Adjust for maximum.
	Ch. 19	L303	Adjust for 4 watts maximum.

TRANSMITTER ADJUSTMENTS

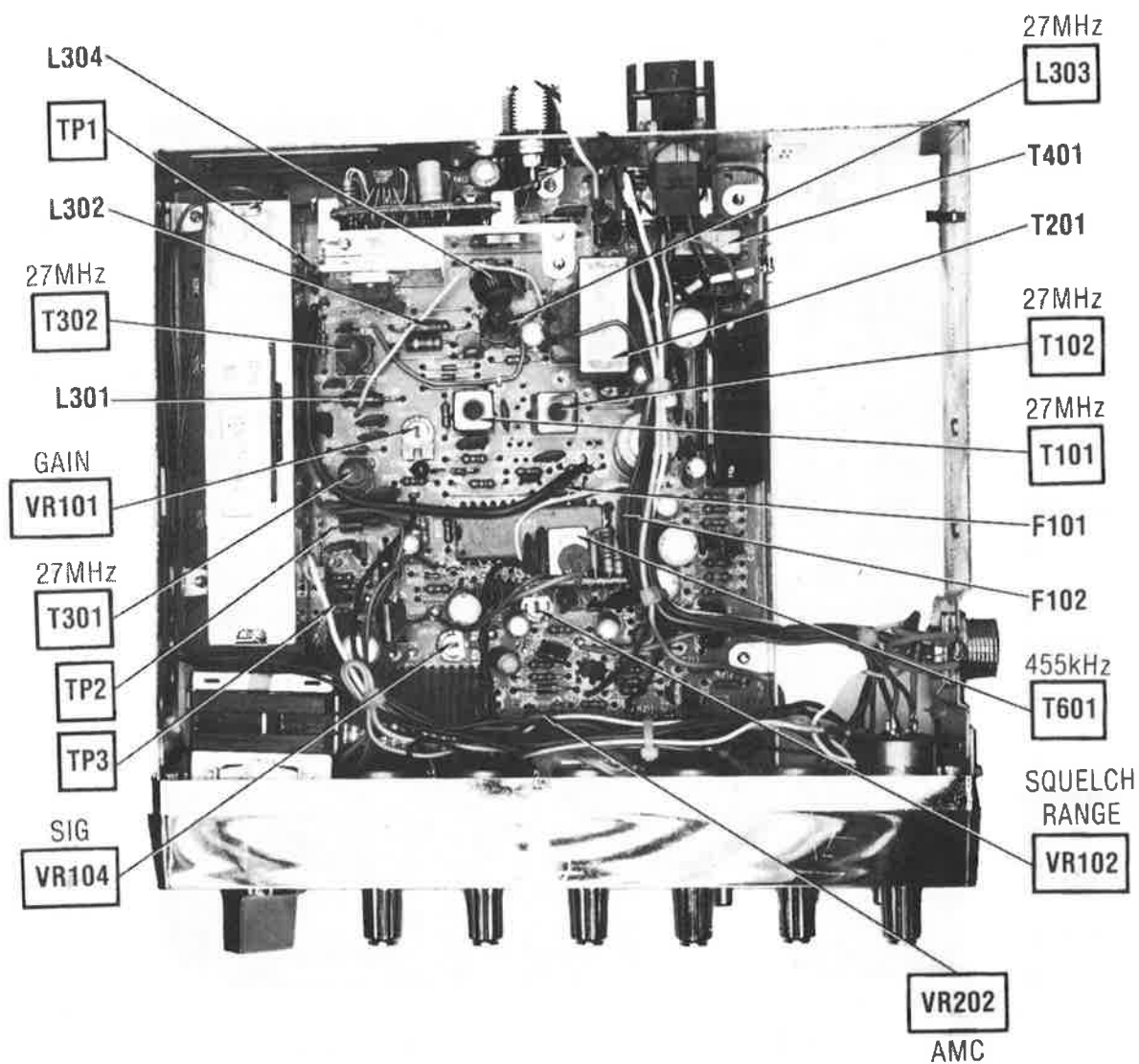
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See Page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna jack. Inject a 1000Hz, 100mV signal at MIC input.	Ch. 19	VR202	AMC Adjust VR202 for 100% modulation maximum.
Connect a 150 Ohm, 5-2att non-inductive resistor to antenna jack.	Ch. 19 S/RF/CAL/SWR S/RF	VR	AWI Adjust so AWI indicator just lights.
Connect a 50 Ohm, 5 watt non-inductive resistor to antenna jack.	Ch. 19	VC1	SWR S/RF/CAL/SWR CAL position. Adjust Calibration control to CAL on SWR scale of meter. S/RF/CAL/SWR to SWR position. Adjust VC1 for 1 on SWR scale of meter.
Connect a 150 Ohm, 5 watt non-inductive resistor to antenna input.	Ch. 19	VC2	SWR S/RF/CAL/SWR CAL position Adjust Calibration control to CAL on SWR scale of meter. S/RF/CAL/SWR to SWR position. Adjust VC2 for 3 on SWR scale of meter.

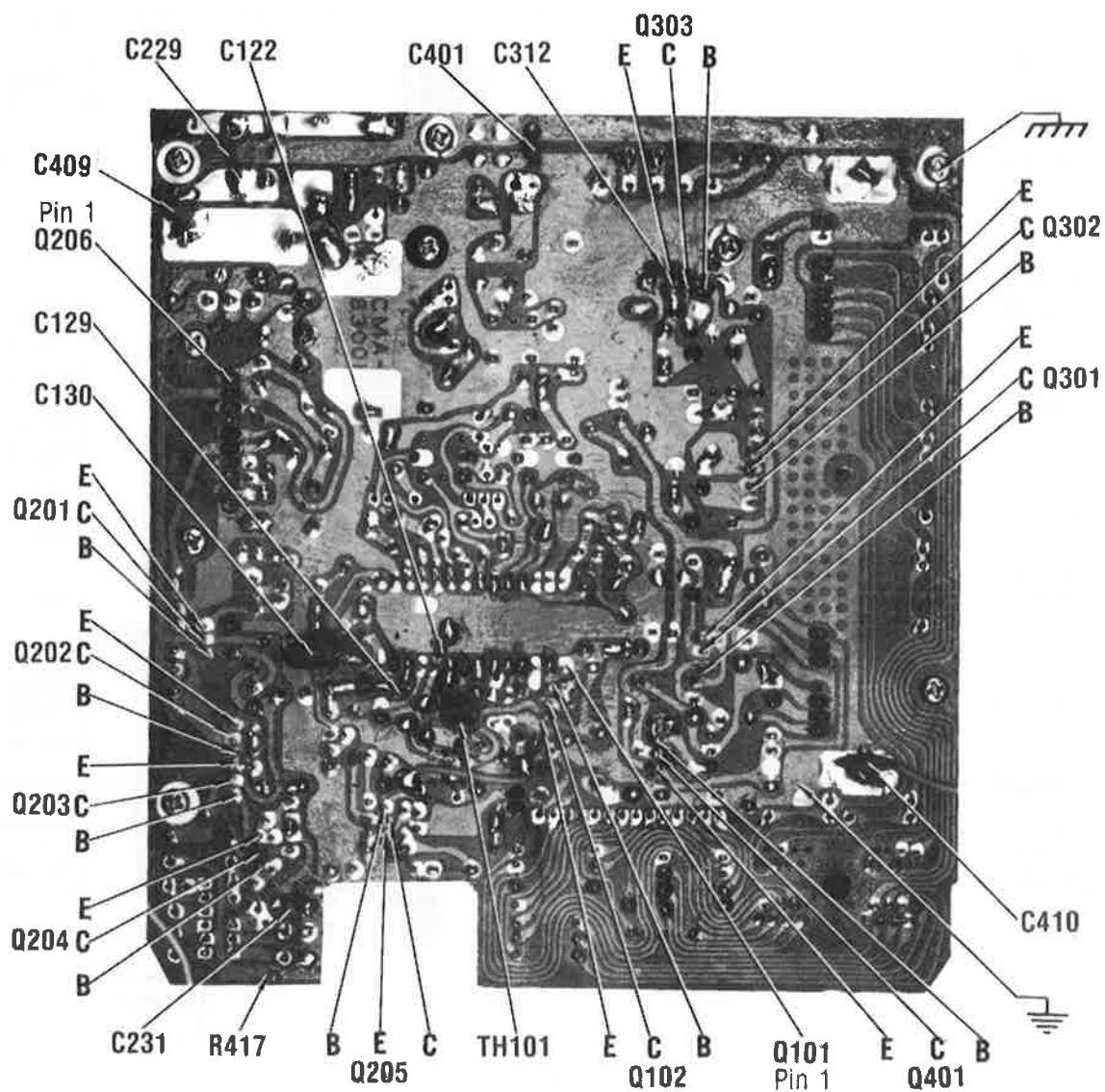
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TRUTH CHART

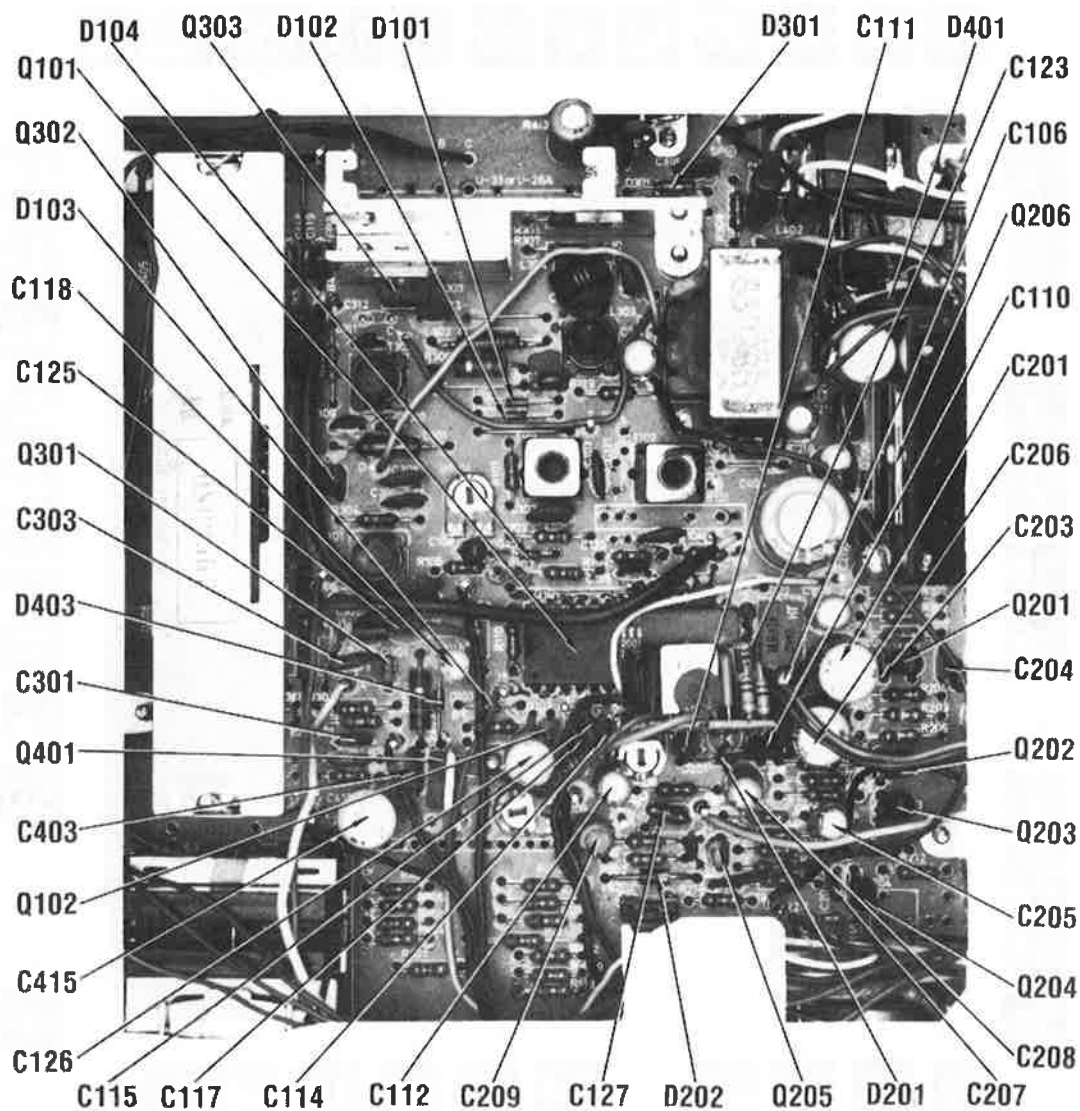
C H A N N E L	1 = 6.00 Volts 0 = 0 Volts PROGRAM DIVIDER							Rec SYNTHESIZER OUTPUT IN MHz AT TP2 (PLL, Pin 11)	XMT SYNTHESIZER OUTPUT IN MHz AT TP3 PLL, Pin 14)	
	PINS									
	3	4	5	6	7	8				
1	0	0	0	0	0	0		37.660	26.965	
2	0	0	0	0	0	1		37.670	26.975	
3	0	0	0	0	1	0		37.680	26.985	
4	0	0	0	1	0	0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



CHASSIS - BOTTOM



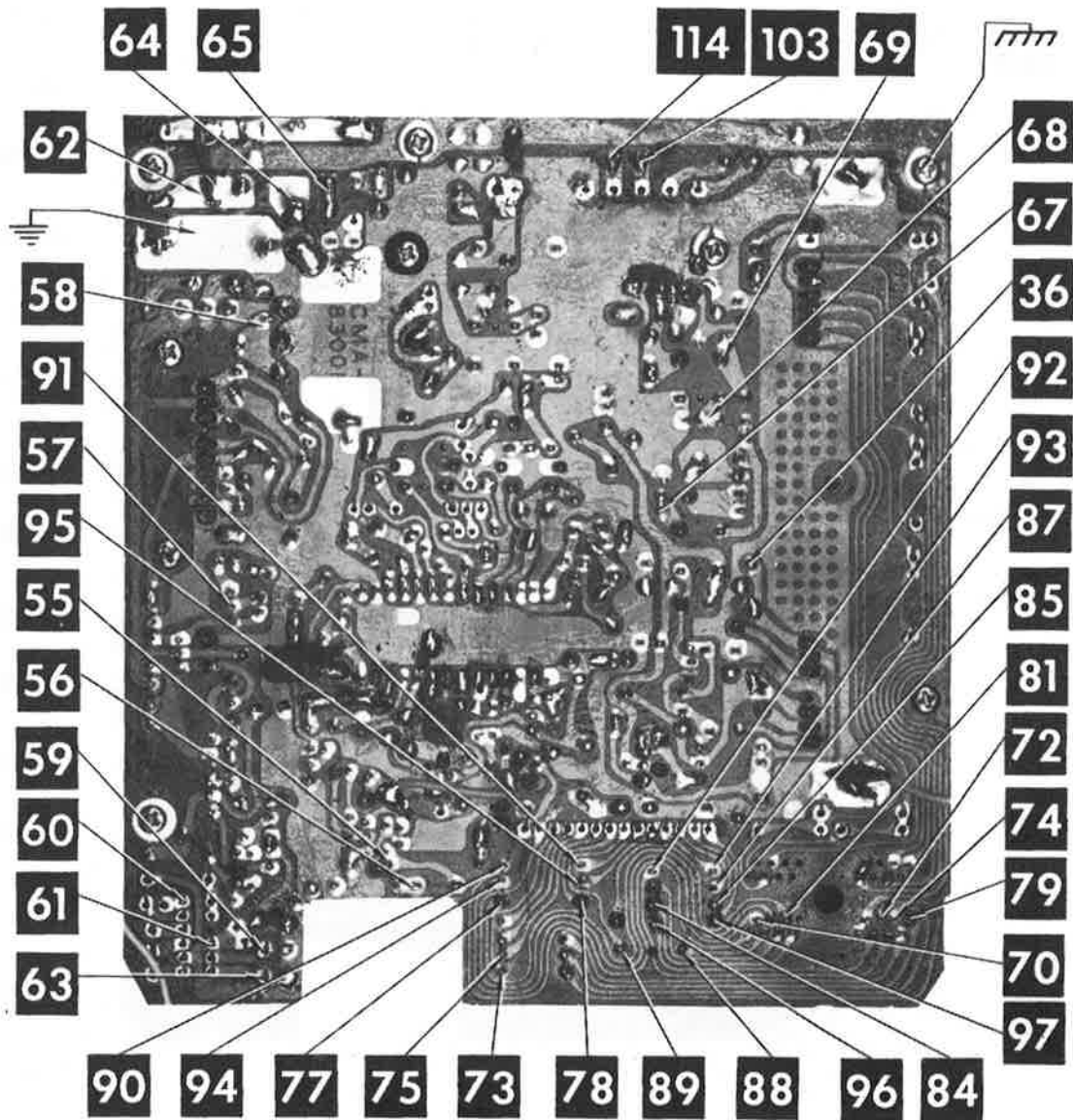
MAIN BOARD



MAIN BOARD

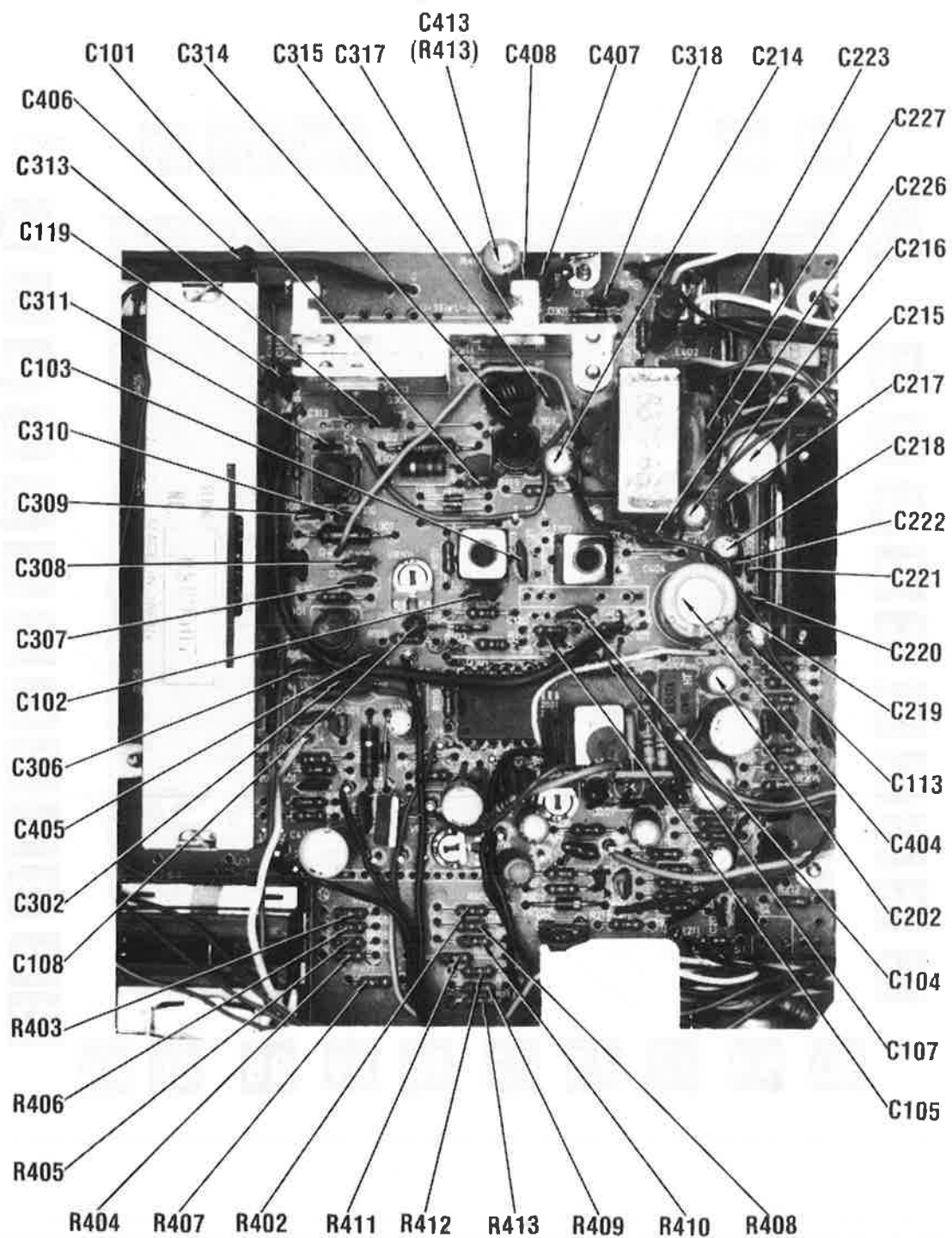


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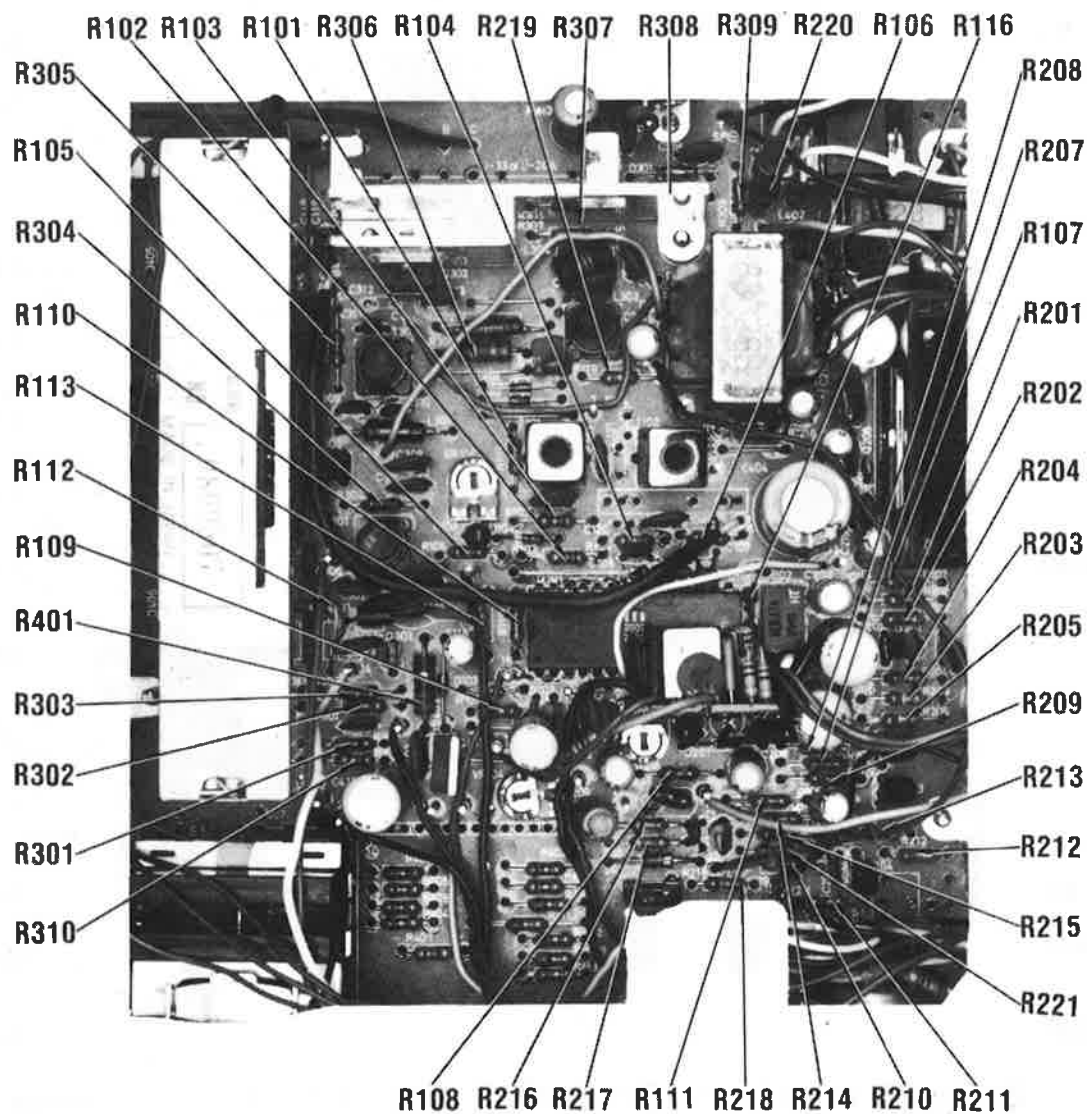


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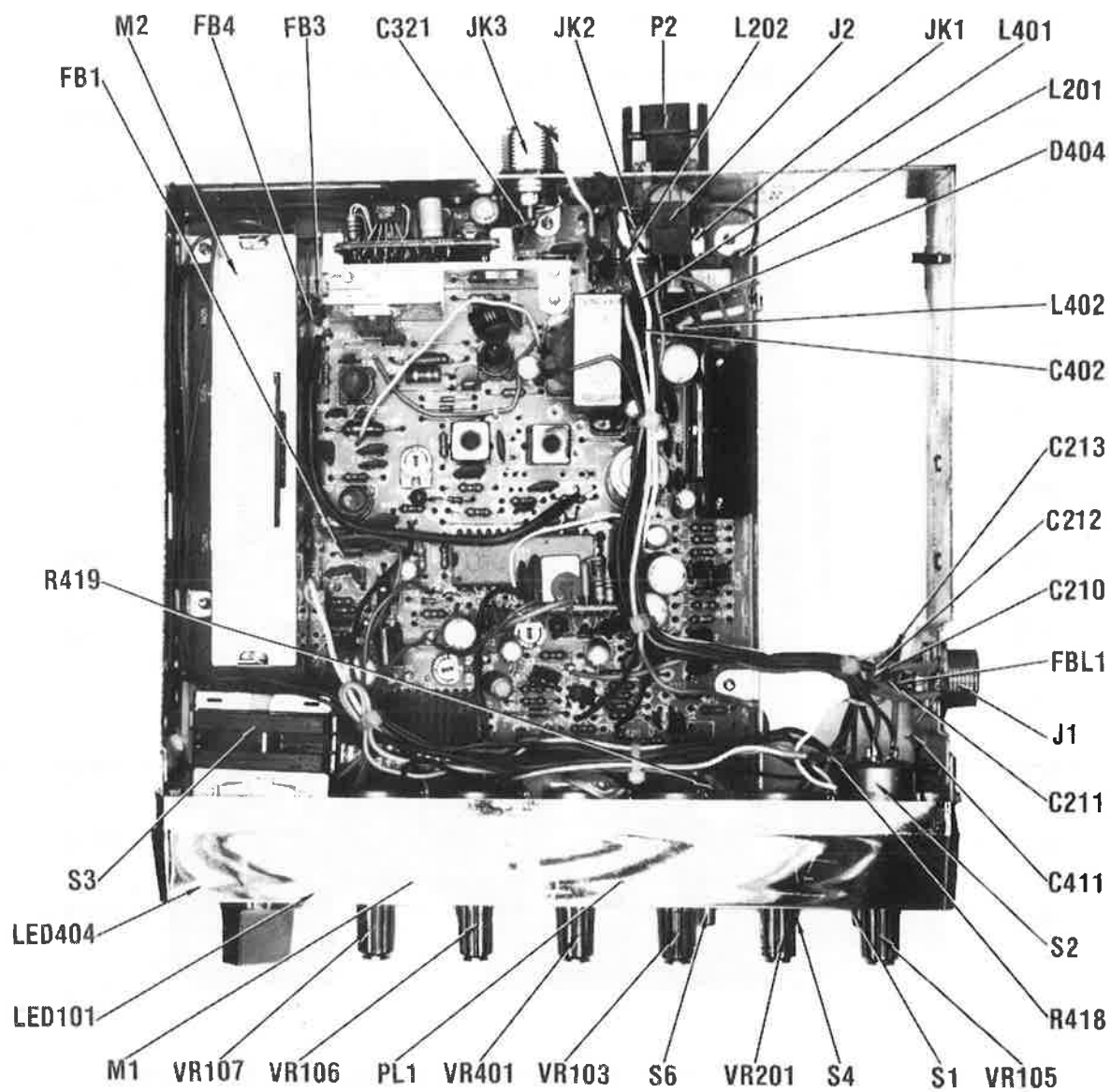
MAIN BOARD



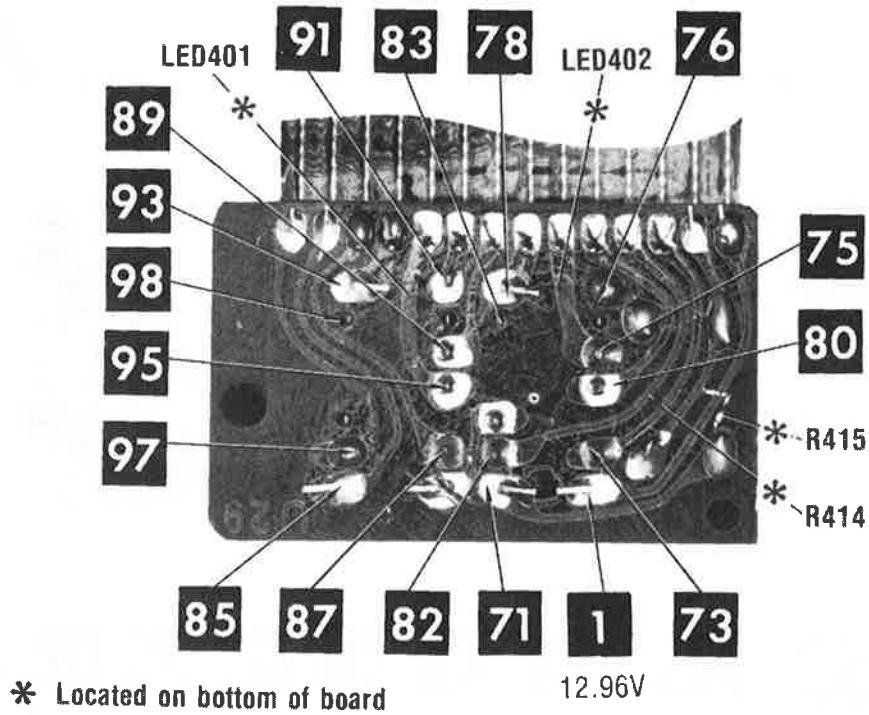
MAIN BOARD



MAIN BOARD



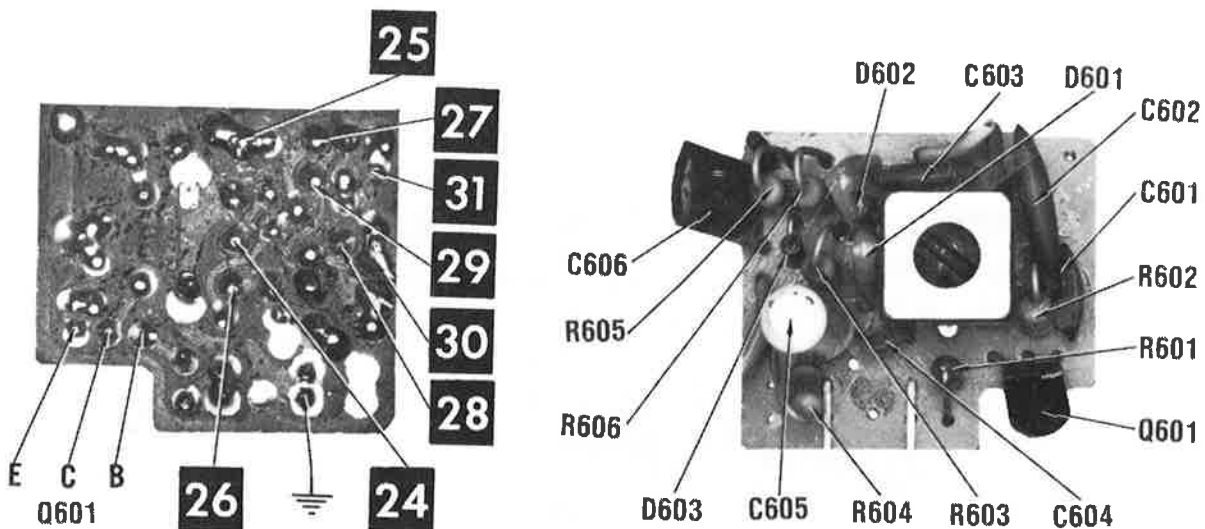
CHASSIS - BOTTOM



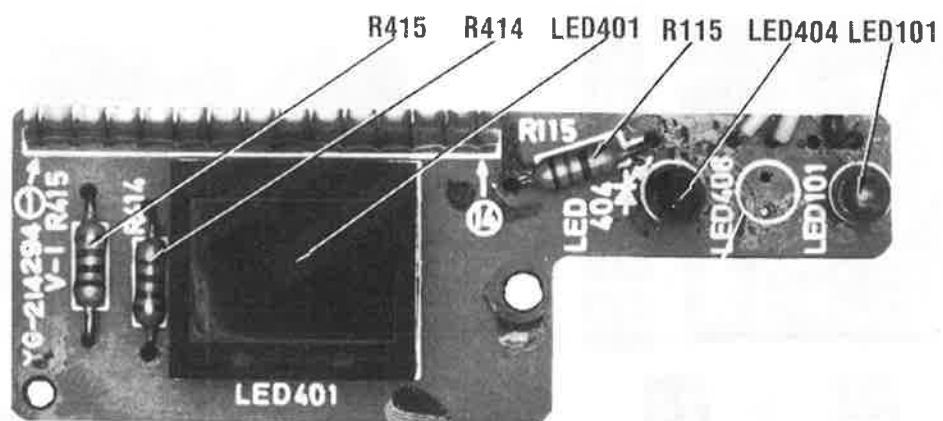
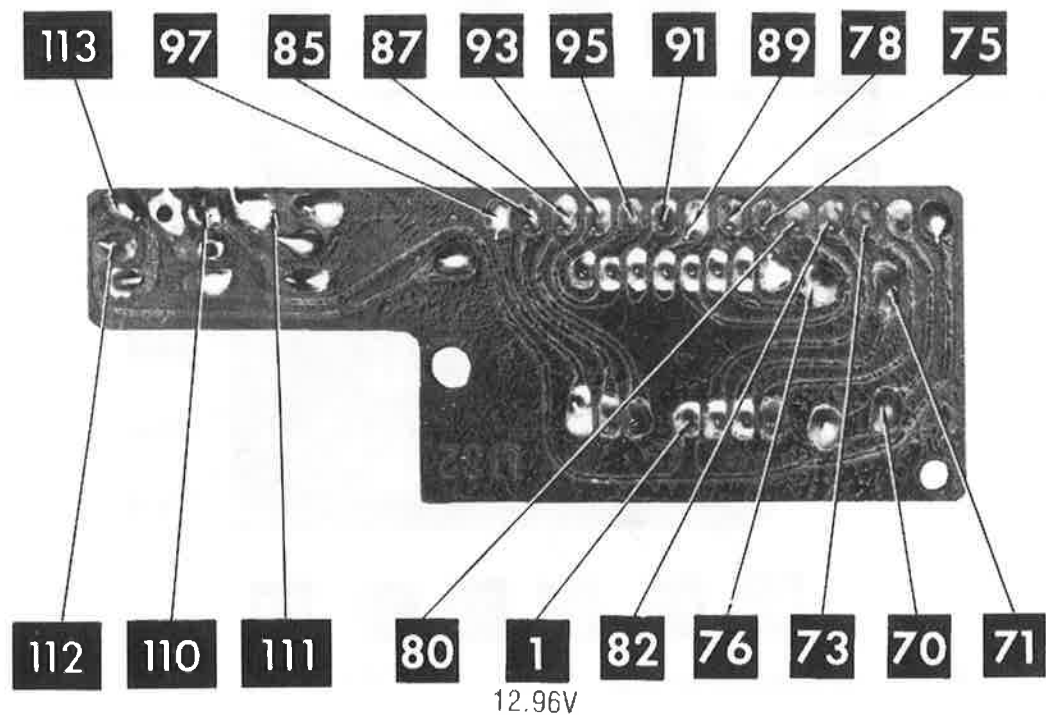
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LED BOARD

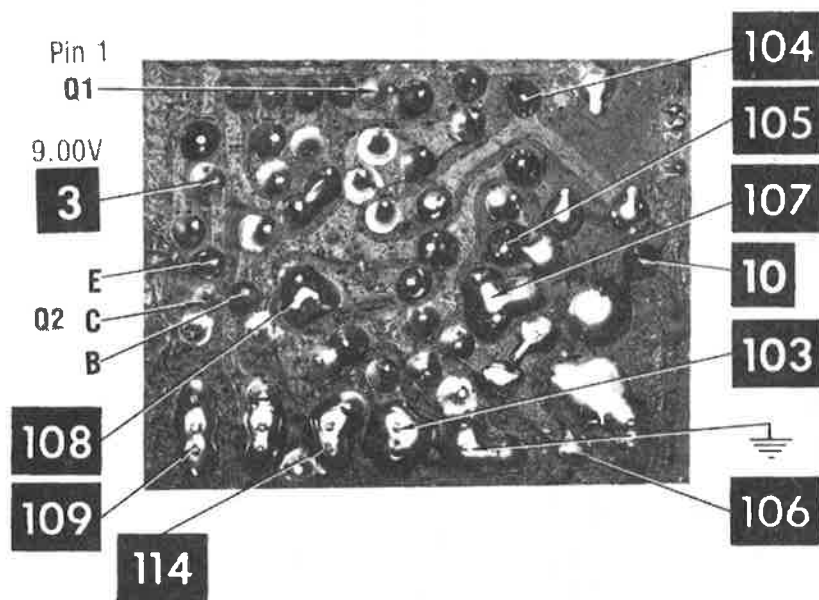
A Howard W. Sams **CIRCUITRACE** Photo



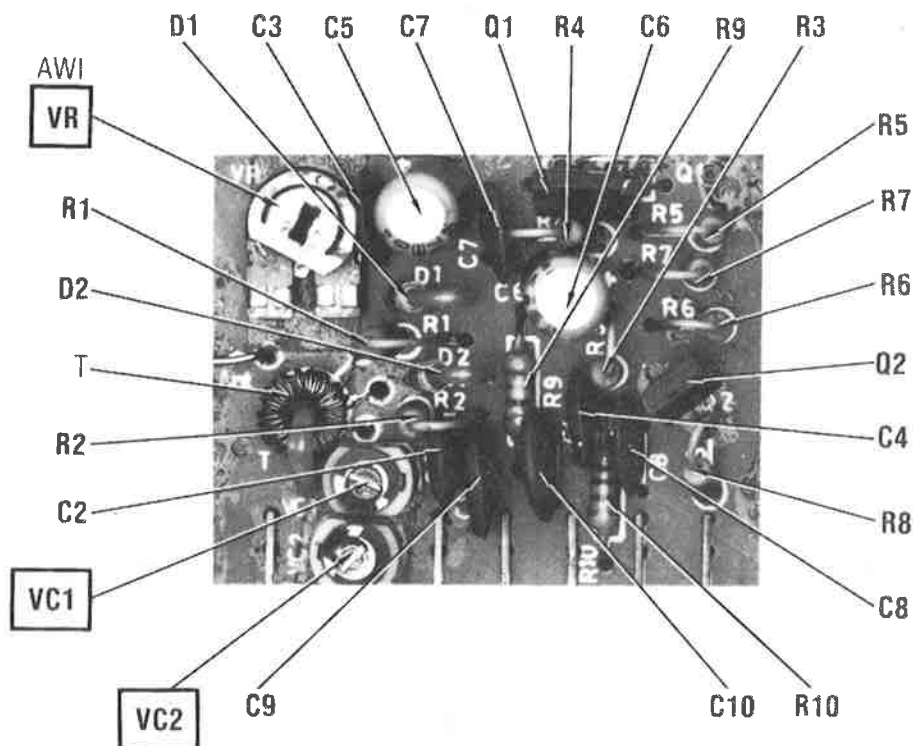
IF AMP & ANL BOARD



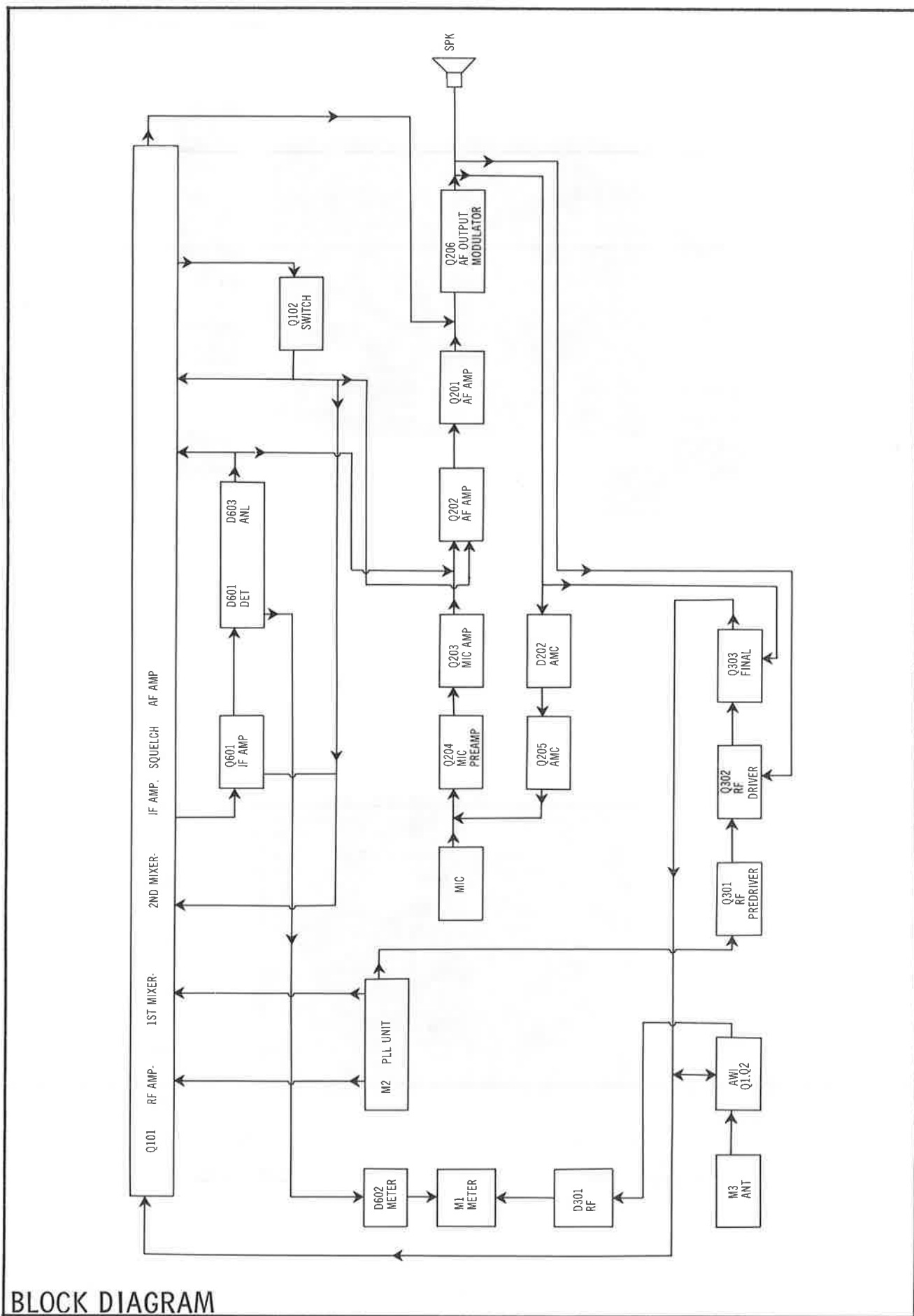
LED BOARD



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ANT. WARNING BOARD



PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results)

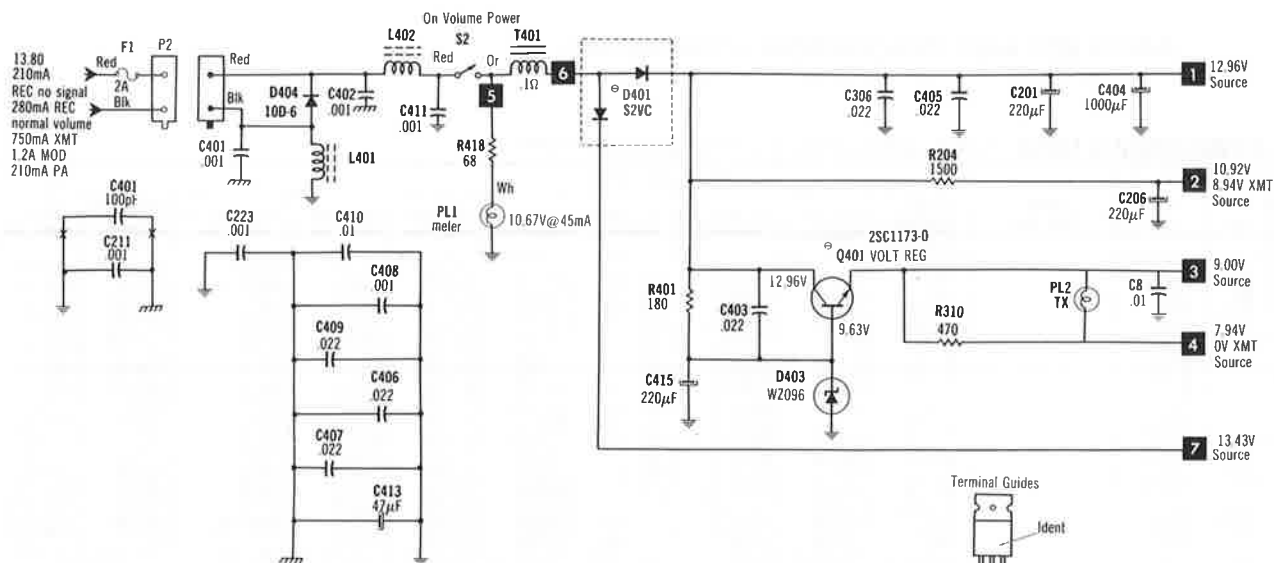
ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D1	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D2	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D101	BA243		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
	BA244		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
	MC301		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D102	BA243		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
	BA244		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
	MC301		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D103	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D104	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D201	1S2076		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1S1588		GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
D302	10D1		GE-504A	PTC201	HEPR0052	REN 116	SK3111	RT-213	ECG116	TM116	WEP156	212-76-02
D301	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D401	10DC1		GE-504A(2)	PTC201(2)	HEPR0052(2)	REN 116(2)	SK3111(2)	RT-213(2)	ECG116(2)	TM116(2)	WEP157(2)	212-76-02(2)
	S2VC		GE-504A(2)	PTC201(2)	HEPR0052(2)	REN 116(2)	SK3111(2)	RT-213(2)	ECG116(2)	TM116(2)	WEP157(2)	212-76-02(2)
	S2VC10		GE-504A(2)	PTC201(2)	HEPR0052(2)	REN 116(2)	SK3111(2)	RT-213(2)	ECG116(2)	TM116(2)	WEP157(2)	212-76-02(2)
D403	WZ096		GEZD-10	ZB108		REN 140	SK3061	RT-241	ECG140A	TM140/**	WEP1110	103-Z9010
D404	10D-6		GE-504A	PTC202	HEPR0054	REN 116	SK3113	RT-215	ECG116	TM116	WEP158	212-76-02
D601	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D602	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D603	1S2075K		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
Q1	2SC1583											
Q2	2SA673B		GE-269	PTC103*	HEPS0026*	REN 290	SK3114	RT-115*	ECG290	TM290	WEP911	121-1019
Q101	2001											
	CCI2001											
Q102	2SD467B		GE-243*	PTC178	HEPS3001*	REN 128*	SK3020	RT-114*	ECG128*	TM128*	WEP59*	121-792
	2SD467C		GE-243*	PTC178	HEPS3001*	REN 128*	SK3020	RT-114*	ECG128*	TM128*	WEP59*	121-792
Q201	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458D		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q202	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458D		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q203	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458D		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q204	2SA844C		GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*	TM129*	WEP564	121-Z9005
	2SA844D		GE-244*	PTC103*	HEPS0019*	REN 129*	SK3114	RT-126A*	ECG129*	TM129*	WEP564	121-Z9005
Q205	2SC561B		GE-11	PTC115*	HEPS0011*	REN 108*	SK3018*	RT-113*	ECG108*	TM108*	WEP56*	121-522
Q206	M51513L											
Q301	2SC1908E		GE-20*	PTC136*	HEPS0015*	REN 229	SK3124*	RT-107A*	ECG229*	TM229*	WEP535*	121-Z9021*
	2SC1908		GE-20*	PTC136*	HEPS0015*	REN 229	SK3124*	RT-107A*	ECG229*	TM229*	WEP535*	121-Z9021*
Q302	2SC2086		GE-47*	PTC143*	HEPS3001*	REN 293*	SK3124		ECG293*	TM293*	WEP914	
Q303	2SC2166		GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	TM235	WEP736*	121-Z9039
Q401	2SC1173-0		GE-215	PTC110		REN 236	SK3197	RT-160	ECG236	TM236/**	WEP745	121-Z9040
	2SC1173Y		GE-215	PTC110		REN 236	SK3197	RT-160	ECG236	TM236/**	WEP745	121-Z9040
	2SC458C		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*
Q601	2SC458D		GE-210	PTC121*	HEPS0009*	REN 289	SK3122	RT-187	ECG289	TM289/**	WEP458	121-Z9000A*

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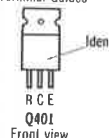
* Lead configuration may vary from original.
/** Also available as exact type replacement.
(2) Two required.

ELECTROLYTIC CAPACITORS

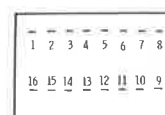
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		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C5	.47 50V		PC1-50	VTT47A63	QV1-3	EV-1610
C6	.47 50V		PC1-50	VTT47A63	QV1-3	EV-1610
C106	4.7 25V		PC5-50	VTT47B50	QV1-27	EV-1319
C108	10 10V			TDC106M025FL	QDT1-64	SD25-109
C111	10 10V			TDC106M025FL	QDT1-64	SD25-109
C112	4.7 25V		PC5-50	VTT47B50	QV1-27	EV-1319
C113	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C118	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C126	100 10V		PC100-10	VTT100E10	QV1-93	EV-1130
C201	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C202	.22 50V NP					
C205	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C206	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C208	.1 50V NP					
C209	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C214	.22 50V NP					
C215	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C216	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C218	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C404	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C413	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C415	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C605	.47 50V		PC1-50	VTT47A63	QV1-3	EV-1610



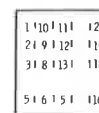
Terminal Guides



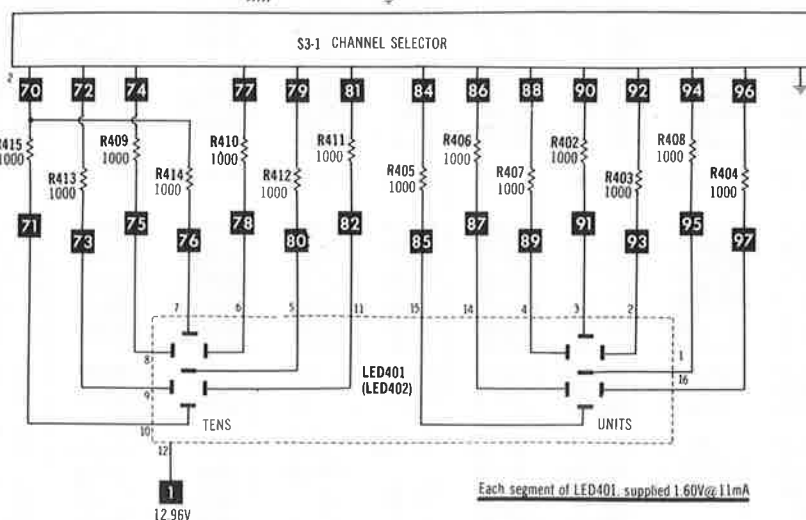
Terminal Guides



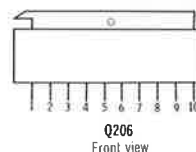
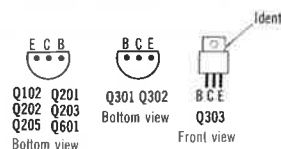
LED401 Rear view



S6 Wiring view



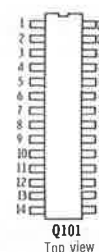
Each segment of LED401, supplied 1.60V@11mA



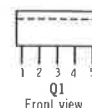
Q206 Front view



S1 Rear view



Q101 Top view



Q1 Front view

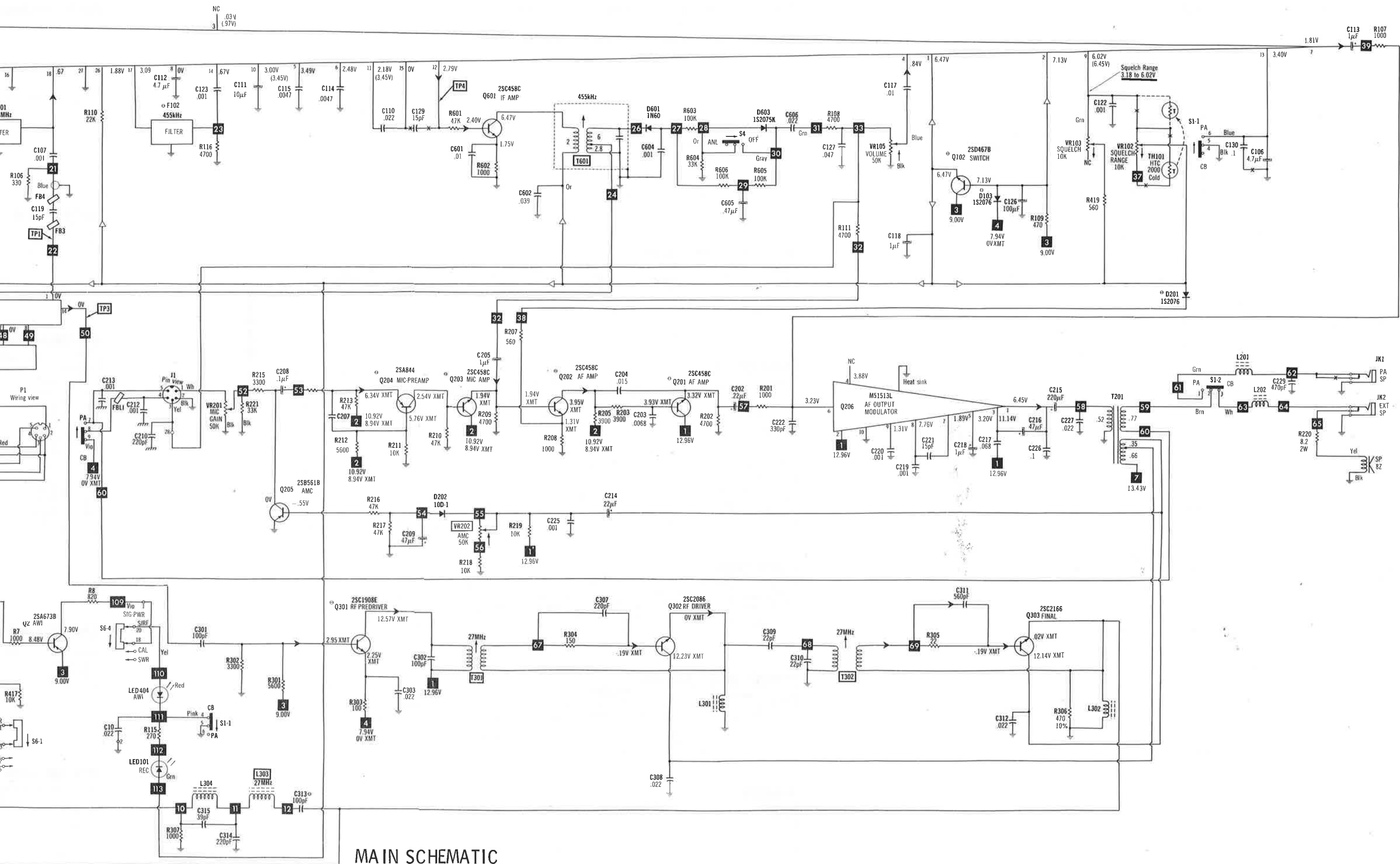
- ✱ Circuitry not used in some versions
- Circuitry used in some versions
- Chassis
- Common tie point
- Signal path
- Voltage path
- Measurements made in Channel 1 with switching as shown unless noted.
- Item numbers in rectangles appear in the alignment/adjustment instructions.
- Supply voltage maintained as shown at input.
- Voltagcs 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 PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE®

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POWER SUPPLY SCHEMATIC





PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C2	68 N330 10%		DC-103	* MGP01	* TA110	* QC2-141	10TCR-Q68
C3	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C4	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C7	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C8	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C9	.022		DC-253	MGP025	TA125		TG-S25
C10	.022		DC-253	MGP025	TA125		TG-S25
C101	15 N220			*	*	*	10TCR-Q15
C102	.022		DC-253	MGP025	TA125		TG-S25
C103	.022		DC-253	MGP025	TA125		TG-S25
C104	.022		DC-253	MGP025	TA125		10TCC-Q22
C105	22 NPO 10%		DTZ-22	NP022	CN0422		10TS-D10
C107	.001		DD-102		GP210	QFT2-127	GP210
C110	.022 50V 10%		DD-472	DPMS2S22	M192P2239R8		1FT-S22
C114	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C115	.0047 10%			GP4700	GP247	QFT2-91	5GA-D47
C117	.01 50V 10%			WMF1S1	M192P1039R8	*	1FT-S10
C119	15 N220			*	*	*	10TCR-Q15
C122	.001		DD-102		GP210		10TS-D10
C123	.001		DD-102		GP210		10TS-D10
C125	47 N220 10%			*	M192P4739R8	QFT2-171	10TCR-Q47
C127	.047 50V 10%			DPMS2S47	*	*	1FT-S47
C129	15 N220				M192P1049R8	QFT2-215	10TCR-Q15
C130	.1 50V 10%			WMF05P1	M192P6829R8	QFT2-73	1FT-P10
C203	.0068 50V 10%			WMF1D68	M192P1539R8	QFT2-105	1FT-D68
C204	.015 50V 10%			WMF1S15	GP356		1FT-S15
C207	560		DD-561				10TS-T56
C210	220		DTZ-220				10TCC-T22
C211	.001		DD-102		GP210		10TS-D10
C212	.001		DD-102		GP210		10TS-D10
C213	.001		DD-102		GP210		10TS-D10
C217	.068 50V 10%		DD-102		GP210		10TS-D10
C219	.001		DD-102		GP210		10TS-D10
C220	.001		DD-102		GP210		10TCR-Q15
C221	15 N220			*	*	*	10TS-T33
C222	330		DD-331	GP330	GP333	QFT2-215	GP210
C223	.001		DD-102		GP210		10TS-D10
C225	.001		DD-102		GP210		10TS-D10
C226	.1 50V 10%			WMF05P1	M192P1049R8		1FT-P10
C227	.022		DC-253	MGP025	TA125		TG-S25
C229	470		DD-471	GP470	GP347		10TS-T47
C231	.001		DD-102		GP210		10TS-D10
C301	100 10%		DTZ-100	NP0100	CN0310		10TCC-T10
C302	56				CN0456		10TCC-Q56
C303	.022		DC-253	MGP025	TA125		TG-S25
C306	.022		DC-253	MGP025	TA125		TG-S25
C307	220 N75 5%		DTN-220	N220	CN7322		10TCU-T22
C308	.022		DC-253	MGP025	TA125		TG-S25
C309	22 NPO 10%		DTZ-22	NP022	CN0422		10TCC-Q22
C310	22 N750		DTN-22	N22	CN7422		10TCU-Q22
C311	560		DD-561		GP356		10TS-T56
C312	.022		DC-253	MGP025	TA125		TG-S25
C313	100 N750 10%		DTN-100	N100	CN7310		10TCU-T10
C314	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C315	3.9 N220 10%			*	*	*	10TCR-V39
C316	120		DTZ-120		CN0312		10TCC-T12
C317	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C318	.022		DC-253	MGP025	TA125		TG-S25
C321	22 N750		DTN-22	N22	CN7422		10TCU-Q22
C401	100 N750 5%		DTN-100	N100	CN7310		10TCU-T10
C402	.001		DD-102		GP210		10TS-D10
C403	.022		DC-253	MGP025	TA125		TG-S25
C405	.022		DC-253	MGP025	TA125		TG-S25
C406	.022		DC-253	MGP025	TA125		TG-S25
C407	.022		DC-253	MGP025	TA125		TG-S25
C408	.001		DD-102		GP210		10TS-D10
C409	.022		DC-253	MGP025	TA125	QC2-141	TG-S25
C410	01 10%		DC-103	MGP01	TA110		TG-S10
C411	.001		DD-102		GP210		10TS-D10
C415	220		DTZ-220				10TCC-T22
C601	.01 10%		DC-103	MGP01	TA110	QC2-141	TG-S10
C602	.039				M192P3939R8		192P3939R8
C603	.022		DC-253	MGP025	TA125		TG-S25
C604	.001		DD-102		GP210		10TS-D10
C606	.022 50V 10%			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22

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

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR	AWI	10K	01-516			U260R103B
VR101	Gain	20K	01-518			U260R253B
VR102	Squelch Range	10K	01-516			U260R103B
	Squelch Range	20K	01-518(6)			U260R253B
VR103	Squelch	10K	09-053			
VR104	SIG Meter	10K	01-516			U260R103B
VR105	Volume/Power Switch	50K	09-023			
VR106	RF Gain	10K	09-064			
VR107	Tune	10K	09-064			
VR201	Mic Gain	50K	09-086			
VR202	AMC	50K	01-520	T-50K(2)	MTC54L1(2)	X260R503B(2)
VR401	Calibration	50K	09-088			

(2) Cut off one of the end terminals and bend to fit PC board.
(6) Alternate part, may be used in some versions.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
TH101	2200 Cold NTC						

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L201	RF Choke	02-075	ETC83202		
L202	RF Choke	02-075	ETC83202		
L301	RF Choke	02-070	AMPL-06		
L302	RF Choke	02-011	ETC4D56B		
L303	Final Loading (27MHz)	02-068	AMPL-04		
L304	RF Choke	02-079	ETC83199		
L401	RF Choke	02-011	ETC4D56B		
L402	RF Choke	02-011	ETC4D56B		
T1	AWI	02-080	ETC20196		
T101	Rec RF (27MHz)	02-016	ETC15089	CBS774	
T102	RF Amp (27MHz)	02-012	ETC15061		
T301	RF Driver (27MHz)	02-045	ETC49167		
T302	Final (27MHz)	02-065	AMPL-01		
T601	IF (455kHz)	02-073	ETC73194		

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	
T401	900mA	.1	1.45mH	02-127 1002B(1)		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	5.12	1 28.88 2 8	02-042 83023B(1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	3 1/2" PM 8 Ohms	06-006	3A05Z8	

PARTS LIST AND

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

FUSE DEVICES

ITEM No.	DESCRIPTION
F1	2A Quick Acting

MICROPHONE

ITEM No.	MFGR. PART No.	
Mic	21-011	

MISCELLANEOUS

ITEM No.	PART NAME
F101	Filter
F102	Filter
FB11	Ferrite Bead
J2	Jack
JK1	Jack
JK2	Jack
JK3	Jack
LED101	LED
LED401	LED
LED404	LED
M1	Meter
M2	PLL
PL1	Lamp
PL2	Lamp
S1	Switch
S2	Switch
S3	Switch
S4	Switch
S6	Switch Cord

CABINETS & CA

ITEM
Cabinet Bottom
Cabinet Top
Knob, Channel

WIRING DATA

General-use Hook-up Wire
Shielded Hook-up Wire (sp
Speaker Cable (available
Bonding Strap
AC Power Cord

ART No.

GENERAL LINE

10TCR-Q68
TG-S10
TG-S10
TG-S10
TG-S10
TG-S25
TG-S25
10TCR-Q15
TG-S25
TG-S25
TG-S25
10TCC-Q22
10TS-D10
1FT-S22
5GA-D47
5GA-D47
1FT-S10
10TCR-Q15
10TS-D10
10TS-D10
10TCR-Q47
1FT-S47
10TCR-Q15
1FT-P10
1FT-D68
1FT-S15
10TS-T56
10TCC-T22
10TS-D10
10TS-D10
10TS-D10

10TS-D10
10TS-D10
10TCR-Q15

10TS-T33
10TS-D10
10TS-D10
1FT-P10
TG-S25
10TS-T47
10TS-D10
10TCC-T10
10TCC-Q56
TG-S25
TG-S25
10TCU-T22
TG-S25
10TCC-Q22
10TCU-Q22
10TS-T56
TG-S25
10TCU-T10
10TCU-T22
10TCR-V39
10TCC-T12
10TCC-V22
TG-S25
10TCU-Q22
10TCU-T10
10TS-D10
TG-S25
TG-S25
TG-S25
TG-S25
10TS-D10
TG-S25
TG-S10
10TS-D10

10TCC-T22
TG-S10
192P3939R8
TG-S25
10TS-D10
1FT-S22

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR	AWI	10K	01-516			U260R103B
VR101	Gain	20K	01-518			U260R253B
VR102	Squelch Range	10K	01-516			U260R103B
	Squelch Range	20K	01-518(6)			U260R253B
VR103	Squelch	10K	09-053			
VR104	SIG Meter	10K	01-516			U260R103B
VR105	Volume/Power Switch	50K	09-023			
VR106	RF Gain	10K	09-064			
VR107	Tune	10K	09-064			
VR201	Mic Gain	50K	09-086			
VR202	AMC	50K	01-520	T-50K(2)	MTC54L1(2)	X260R503B(2)
VR401	Calibration	50K	09-088			

(2) Cut off one of the end terminals and bend to fit PC board.
(6) Alternate part, may be used in some versions.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
TH101	2200 Cold NTC						

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L201	RF Choke	02-075	ETC83202		
L202	RF Choke	02-075	ETC83202		
L301	RF Choke	02-070	AMPL-06		
L302	RF Choke	02-011	ETC4D56B		
L303	Final Loading (27MHz)	02-068	AMPL-04		
L304	RF Choke	02-079	ETC83199		
L401	RF Choke	02-011	ETC4D56B		
L402	RF Choke	02-011	ETC4D56B		
T1	AWI	02-080	ETC20196		
T101	Rec RF (27MHz)	02-016	ETC15089	CBS774	
T102	RF Amp (27MHz)	02-012	ETC15061		
T301	RF Driver (27MHz)	02-045	ETC49167		
T302	Final (27MHz)	02-065	AMPL-01		
T601	IF (455kHz)	02-073	ETC73194		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T401	900mA	.1	1.45mH	02-127 1002B(1)			(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	5.12	1 28.88 2 8	02-042 83023B(1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	3 1/2" PM 8 Ohms	06-006	3A05Z8	

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.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	WORKMAN PART No.
F1	2A Quick Acting			AGC2	HDJ	312002	150145 F62-2

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
Mic	21-011									

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
F101	Filter	01-902	9.8MHz
F102	Filter	01-903	455kHz
FBL1	Ferrite Bead	02-074	Ferrite Bead
J2	Jack	10-016	DC Power
JK1	Jack	10-003	PA Speaker
JK2	Jack	10-003	Extension Speaker
JK3	Jack	10-002	Antenna
LED101	LED	6D-4-5056D	Receive Indicator (Green) (16mA @ 2.12V)
LED401	LED	S62-N62-02	Channel Readout (1.94V @ 11mA per segment)
LED404	LED	6D-4-505RD	AWI (Ref) (9.5mA @ 1.53V)
M1	Meter	05-019	Signal/Power/SWR
M2	PLL	12-019	
PL1	Lamp	07-001	Meter (10.67V @ 45mA)
PL2	Lamp	07-010	Transmit
S1	Switch	09-128	PA/CB
S2	Switch		Power On/Off (Part of Volume Control)
S3	Switch	09-119	Channel Selector
S4	Switch	09-137	ANL On/Off
S6	Switch Cord	09-135	Signal/Power/Calibration/SWR
		08-015	DC Power

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

ITEM	PART No.	ITEM	PART No.
Cabinet Bottom	19-152A	Knob, Control	19-610
Cabinet Top	19-152	Panel, Front	19-227
Knob, Channel	19-629		

WIRING DATA

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