

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 651

ROYCE MODEL 651

MANUFACTURER'S SPECIFICATIONS

GENERAL

- | | |
|---------------------------|--|
| 1. Frequency Range | : 26.965—27.405 MHz |
| 2. Power Supply | : 13.8 Volts DC |
| 3. Polarity of Battery | : Negative and Positive Ground |
| 4. Channels | : 40 channels. |
| 5. Semiconductors | : 9 Transistor, 16 Diodes, 5 IC, 1 LED. |
| 6. Self Contained Speaker | : 2-½", 8 ohms voice coil |
| 7. Microphone | : Dynamic microphone with push-to-talk switch, 500 ohms. |

RECEIVER

- | | |
|---------------------------|-------------------------------------|
| 1. Sensitivity | : 0.5 Microvolts for 10 dB S + N/N. |
| 2. Selectivity | : 5 kHz minimum at 6 dB down |
| 3. Adj. Channel Rejection | : More than 60 dB |
| 4. Audio Power Output | |
| at 8 ohms | : More than 2.5 W at 10% distortion |
| at 4 ohms | : More than 4 W at 10% distortion |
| 5. Audio fidelity | : 400—2000 Hz |
| (1 kHz = 0 dB, 6 dB down) | |
| 6. AGC figure of merit | : More than 80 dB |
| 7. Squelch Sensitivity | : 0.5—1000 Microvolts |

TRANSMITTER

- | | |
|--------------------------|-------------------|
| 1. RF Power Output | : 4 W |
| 2. Modulation Capability | : More than 80% |
| 3. Spurious Suppression | : More than 60 dB |
| 4. Frequency Tolerance | : ±0.005% |

Courtesy of the Manufacturer

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:

T101, T102, T301, T302, T501 thru T504.....	9440
L303.....	8728, 9304, 9089
T601.....	5000, 5009, 8276, 8728, 9089
VC501, VC502, C417, C319.....	5000, 8276, 9089

GC ELECTRONICS:

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (F501 output).	Ch. 19	VC502	Adjust for 10.240MHz.
Input of DC meter to TP2 (IC501 pin 6).	Ch. 40	T504	Adjust for 3.00 volts. Check for approx. 1.50 volts on channel 1.
Input of oscilloscope to TP3 (IC101 pin 21).	Ch. 19	VC501	Adjust for maximum RF (40mV p-p typical). (See Figure 1.)
Input of frequency counter to TP4 (IC501 pin 1).	Ch. 1		Check for 17.180MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP4 (IC501 pin 1).	Ch. 1 XMT		Check for 16.725MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP5 (T503 secondary).	Ch. 19 XMT	T501,T502 T503	Adjust for maximum RF (.2 volts p-p typical). (See Figure 2.)
Input of frequency counter to TP5 (T503 secondary).	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: Squelch MINIMUM, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to TP6 (IC101 pin 17). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T601	Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T102,T101	Adjust for maximum audio output. Readjust T601 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, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1uV.	Ch. 19 Volume Maximum	VR101	AGC Adjust for 2.00 volts RMS (.5 watt) audio output.

RECEIVER ADJUSTMENTS (Continued)

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	VR102	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR104	S METER Adjust for 9 on S 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	TRANSCIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19 XMT PWR Hi	T301, T302, L303	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19 XMT PWR Hi	C317, C319	Adjust for 4.0 watts RF output maximum.

TRANSMITTER ADJUSTMENTS

Connect a 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 30mV audio signal at mic input.	Ch. 19 XMT PWR Hi	VR202	HI PWR AMC Adjust for 90% modulation maximum. (See Figure 3.)
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 30mV audio signal at mic input.	Ch. 19 XMT PWR Lo	VR203	LO PWR AMC Adjust for 90% modulation maximum. (See Figure 4.)

MISCELLANEOUS ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
No signal input.	Ch. 19 Batt/Lite Chk-On	VR401	BATTERY METER At 12.5 volts DC input to battery power input jack, adjust so meter rests at leading edge of red area on BATT scale on meter.

ROYCE MODEL 651

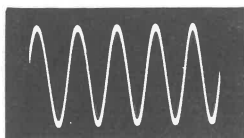


FIGURE 1

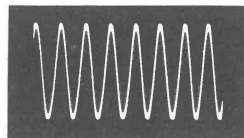


FIGURE 2

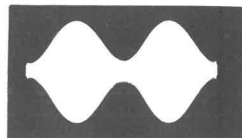


FIGURE 3

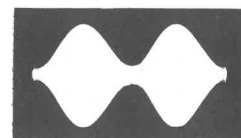
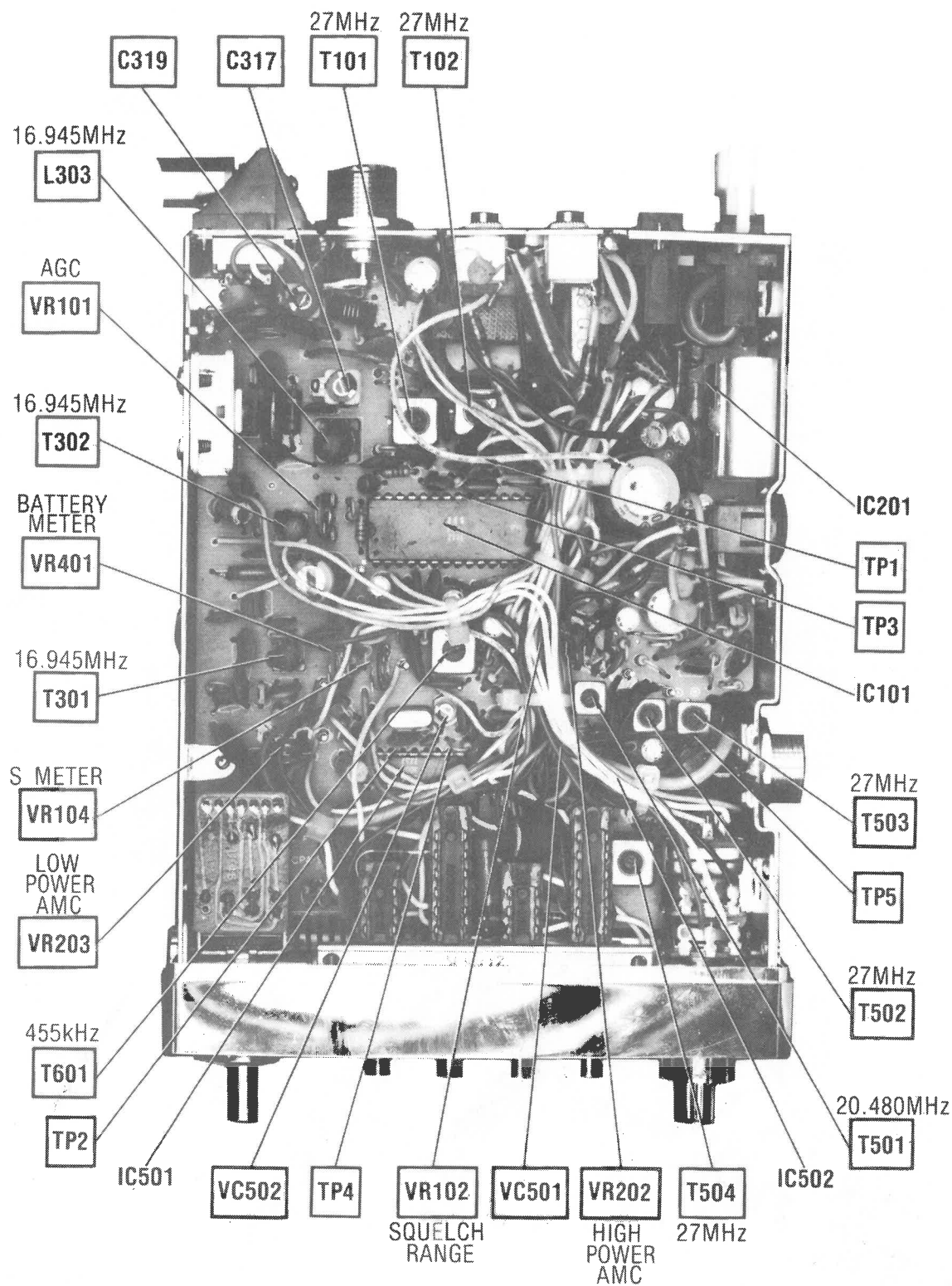


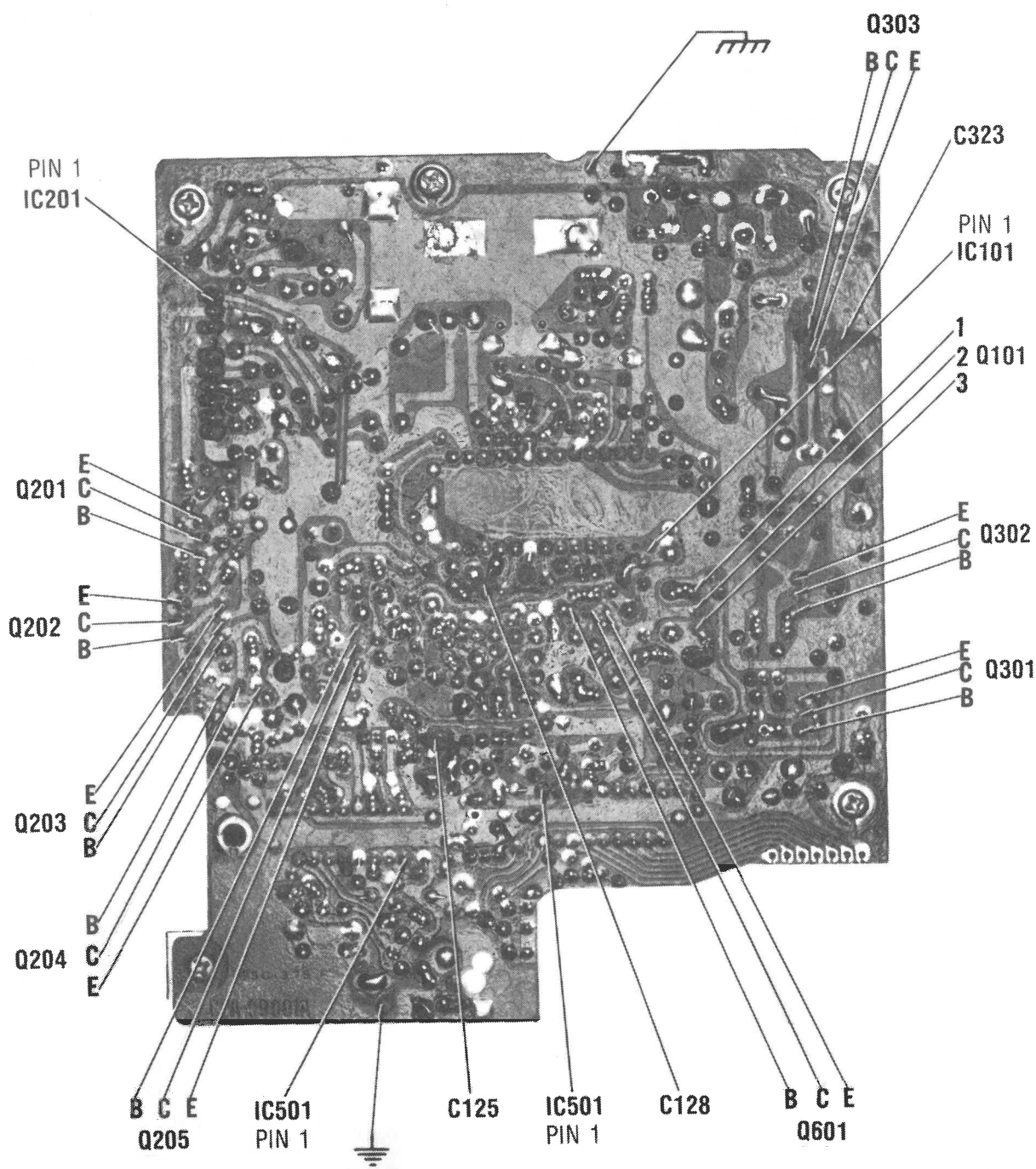
FIGURE 4

TRUTH CHART

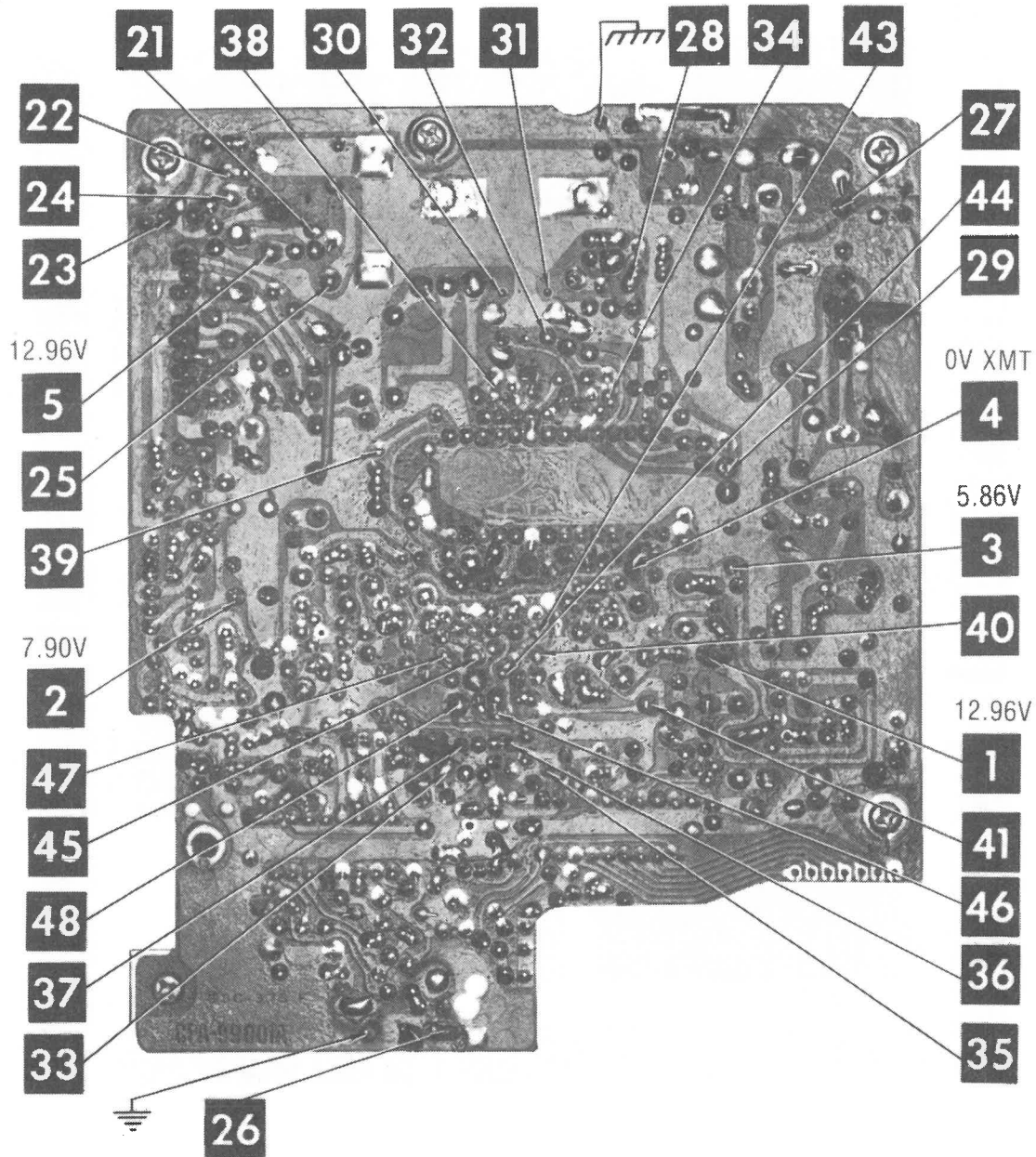
C H A N N E L	1 = 5.80 Volts 0 = 0 Volts								RECEIVE VCO OUTPUT IN MHz AT TP4	TRANSMIT VCO OUTPUT IN MHz AT TP4	TRANSMIT SYNTH OUTPUT IN MHz AT TP5
	CHANNEL INPUT CODES										
	PINS										
	11	12	13	14	15	16					
1	0	0	0	0	0	0			17.180	16.725	26.965
2	0	0	0	0	0	1			17.190	16.735	26.975
3	0	0	0	0	1	0			17.200	16.745	26.985
4	0	0	0	1	0	0			17.220	16.765	27.005
5	0	0	0	1	0	1			17.230	16.775	27.015
6	0	0	0	1	1	0			17.240	16.785	27.025
7	0	0	0	1	1	1			17.250	16.795	27.035
8	0	0	1	0	0	1			17.270	16.815	27.055
9	0	0	1	0	1	0			17.280	16.825	27.065
10	0	0	1	0	1	1			17.290	16.835	27.085
11	0	0	1	1	0	0			17.300	16.845	27.095
12	0	0	1	1	1	0			17.320	16.865	27.105
13	0	0	1	1	1	1			17.330	16.875	27.115
14	0	1	0	0	0	0			17.340	16.885	27.125
15	0	1	0	0	0	1			17.350	16.895	27.135
16	0	1	0	0	1	1			17.370	16.915	27.155
17	0	1	0	1	0	0			17.380	16.925	27.165
18	0	1	0	1	0	1			17.390	16.935	27.175
19	0	1	0	1	1	0			17.400	16.945	27.185
20	0	1	1	0	0	0			17.420	16.965	27.205
21	0	1	1	0	0	1			17.430	16.975	27.215
22	0	1	1	0	1	0			17.440	16.985	27.225
23	0	1	1	1	0	1			17.470	17.015	27.255
24	0	1	1	0	1	1			17.450	16.995	27.235
25	0	1	1	1	0	0			17.460	17.005	27.245
26	0	1	1	1	1	0			17.480	17.025	27.265
27	0	1	1	1	1	1			17.490	17.035	27.275
28	1	0	0	0	0	0			17.500	17.045	27.285
29	1	0	0	0	0	1			17.510	17.055	27.295
30	1	0	0	0	1	0			17.520	17.065	27.305
31	1	0	0	0	1	1			17.530	17.075	27.315
32	1	0	0	1	0	0			17.540	17.085	27.325
33	1	0	0	1	0	1			17.550	17.095	27.335
34	1	0	0	1	1	0			17.560	17.105	27.345
35	1	0	0	1	1	1			17.570	17.115	27.355
36	1	0	1	0	0	0			17.580	17.125	27.365
37	1	0	1	0	0	1			17.590	17.135	27.375
38	1	0	1	0	1	0			17.600	17.145	27.385
39	1	0	1	0	1	1			17.610	17.155	27.395
40	1	0	1	1	0	0			17.620	17.165	27.405



CHASSIS-BOTTOM

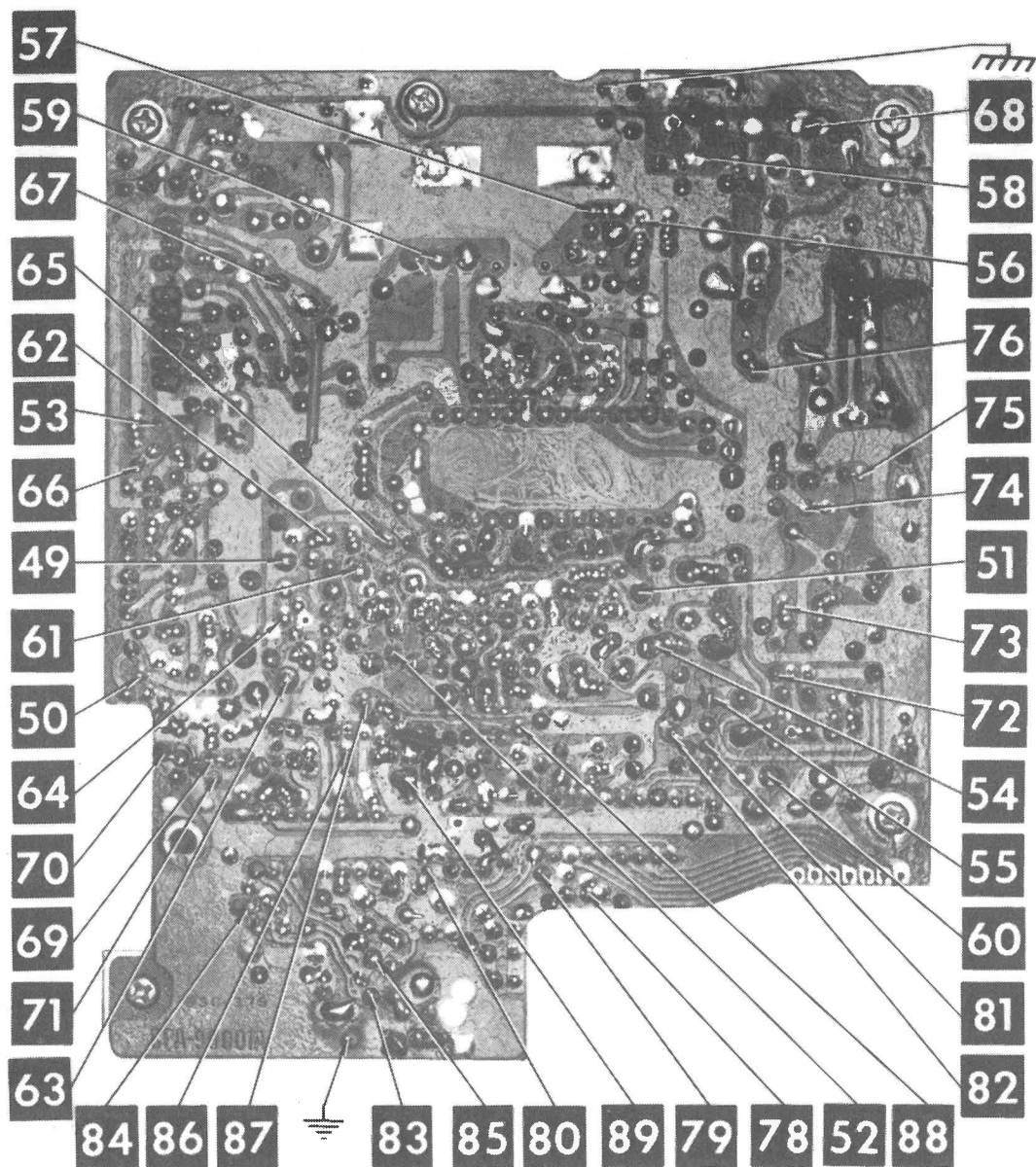


MAIN BOARD

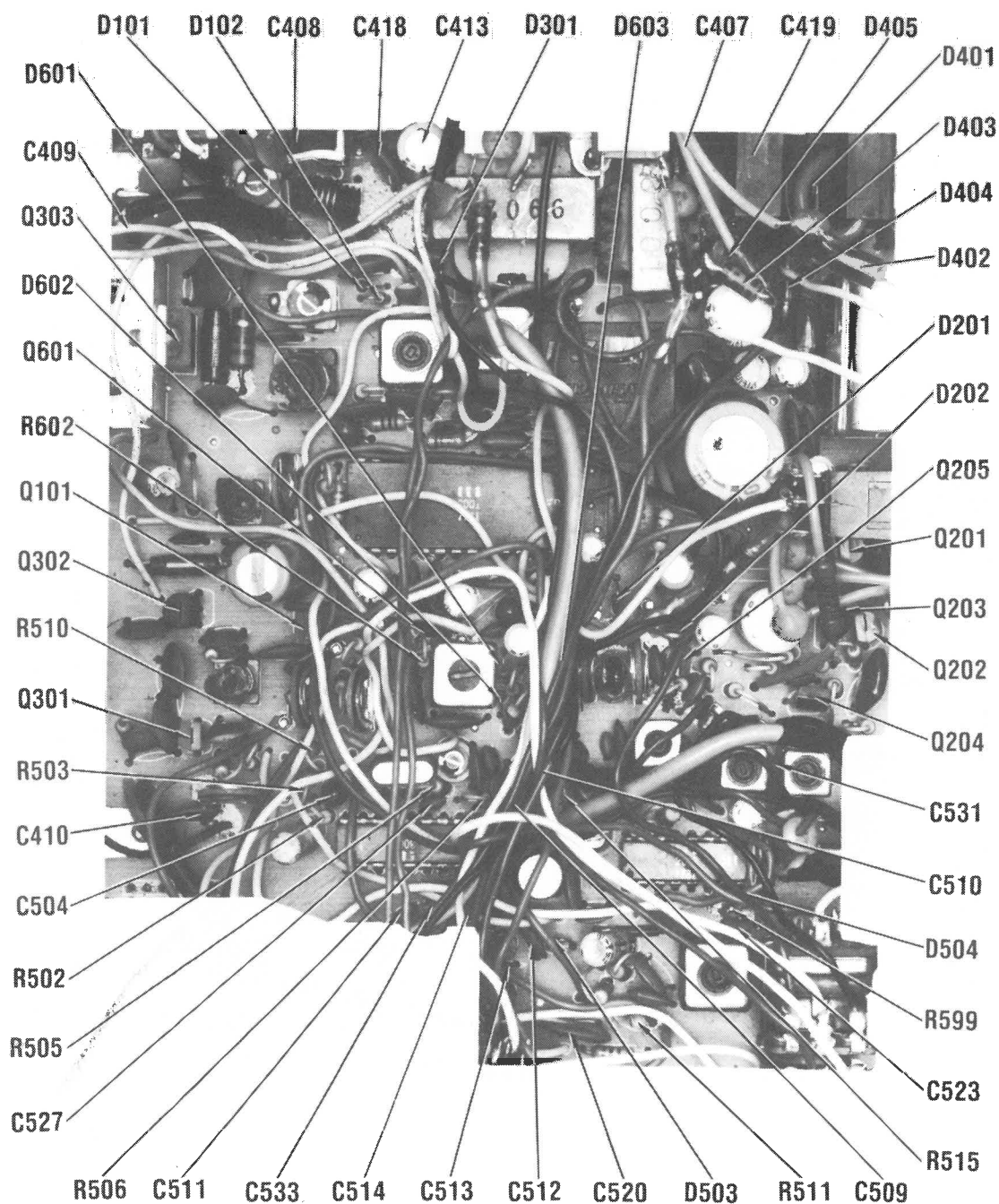


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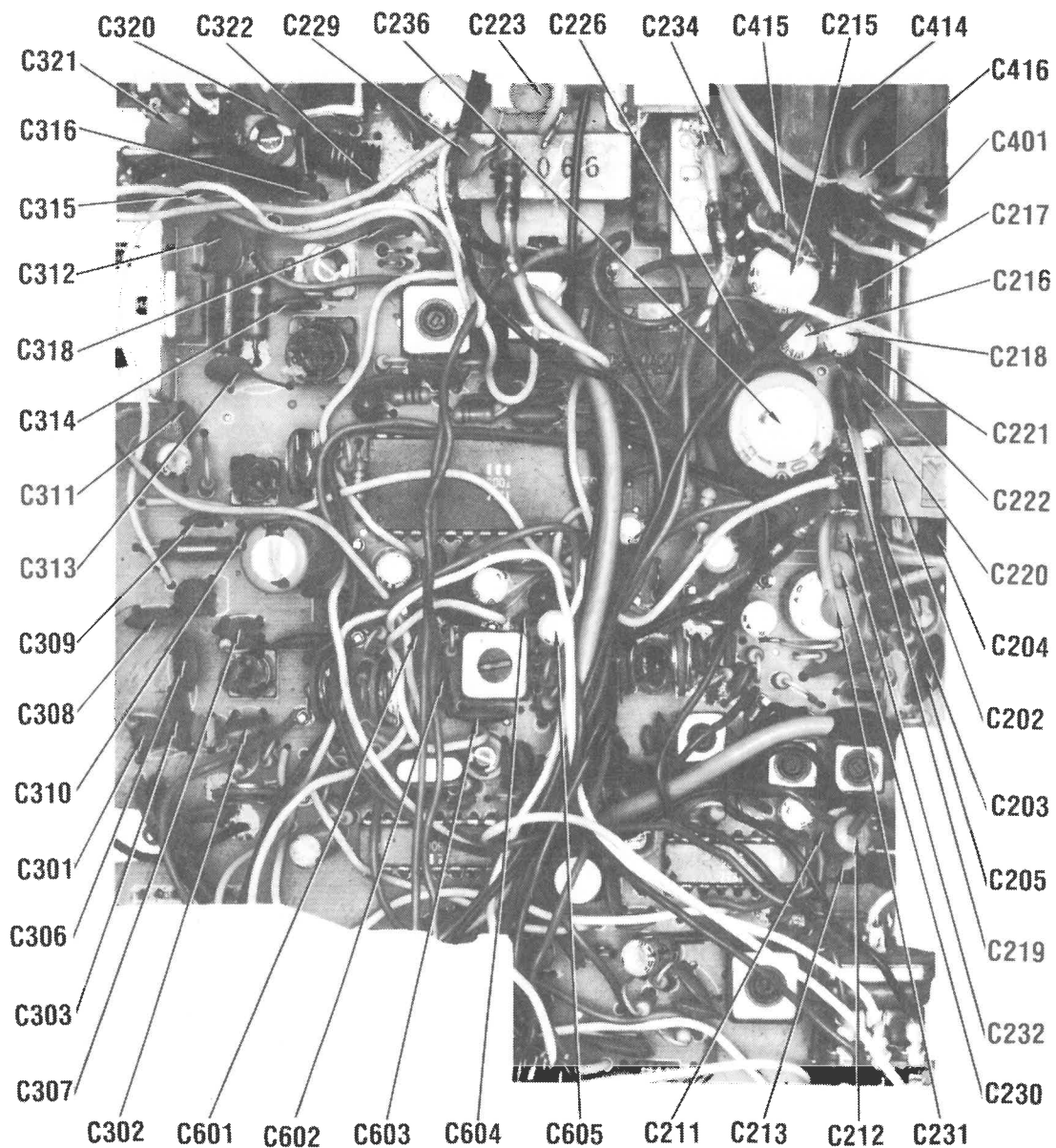
MAIN BOARD



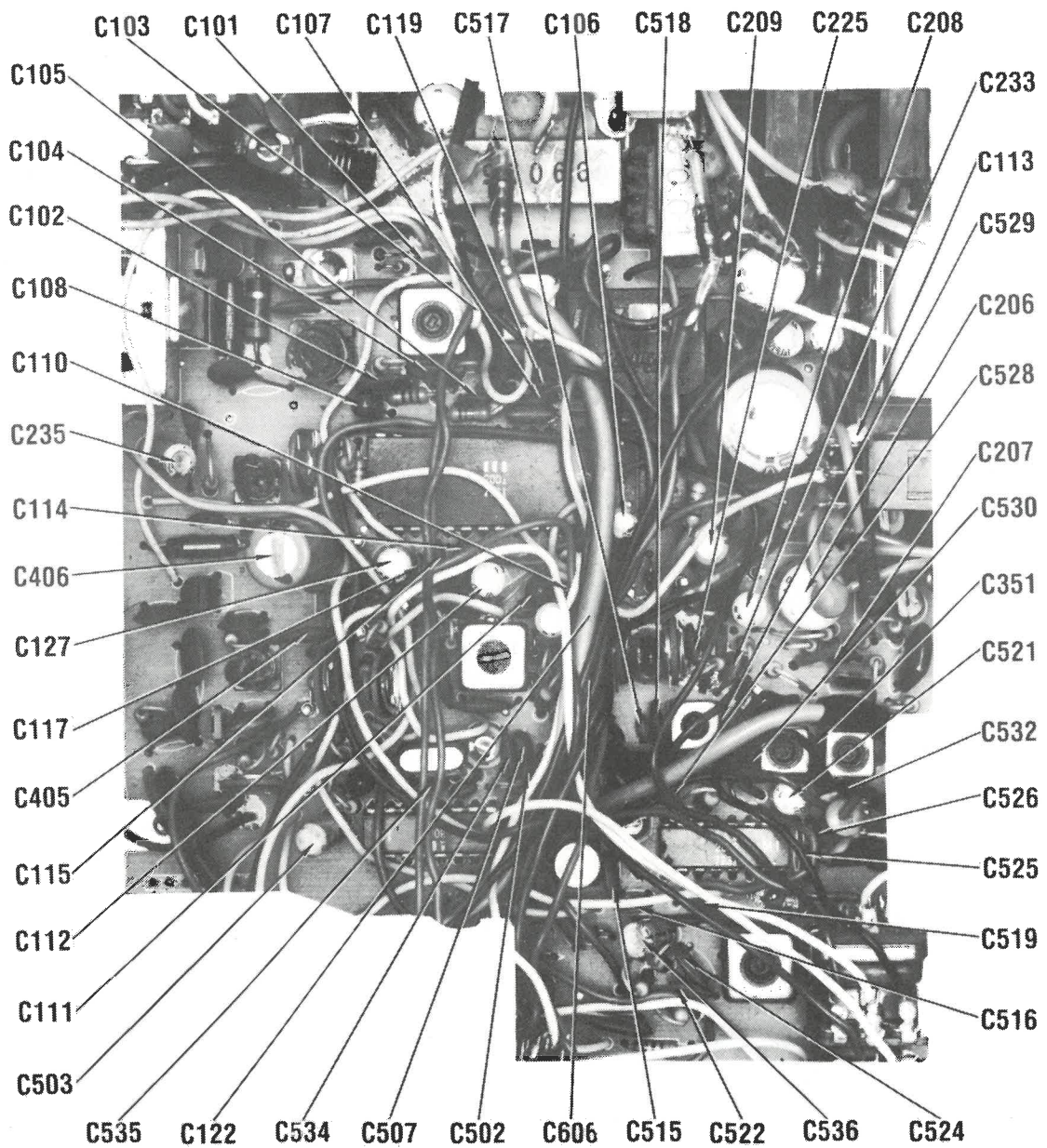
MAIN BOARD



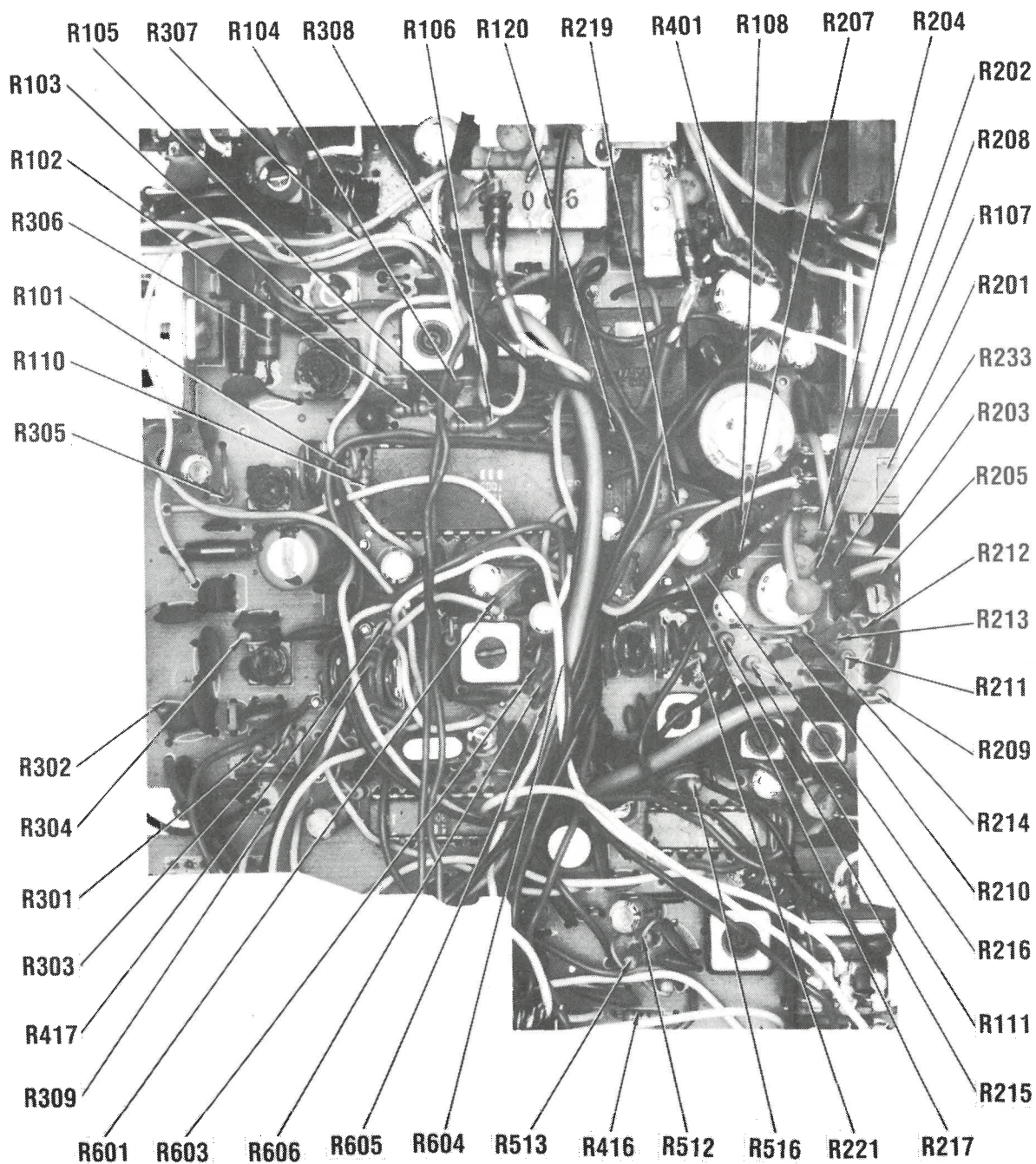
MAIN BOARD



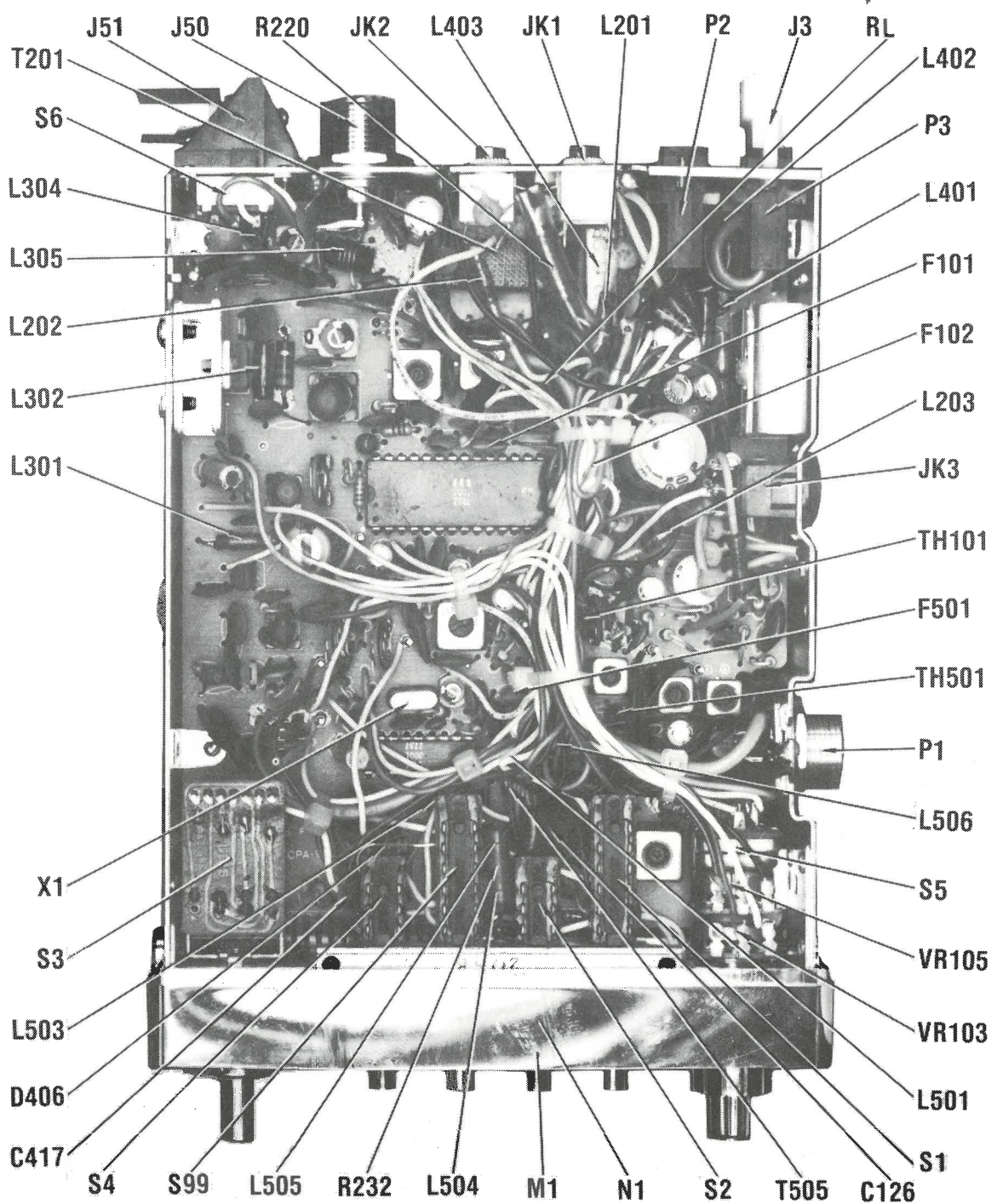
MAIN BOARD



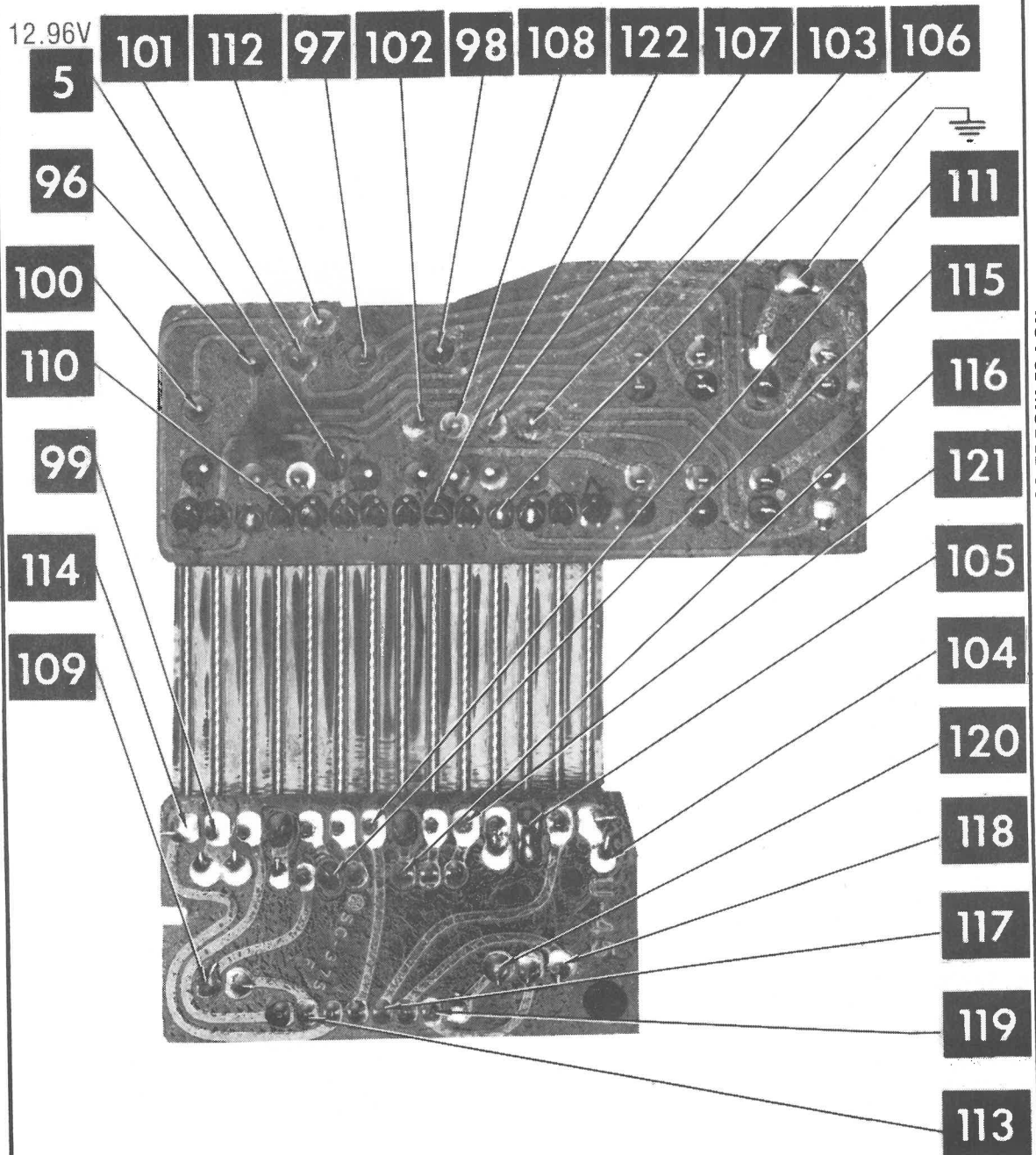
MAIN BOARD



MAIN BOARD

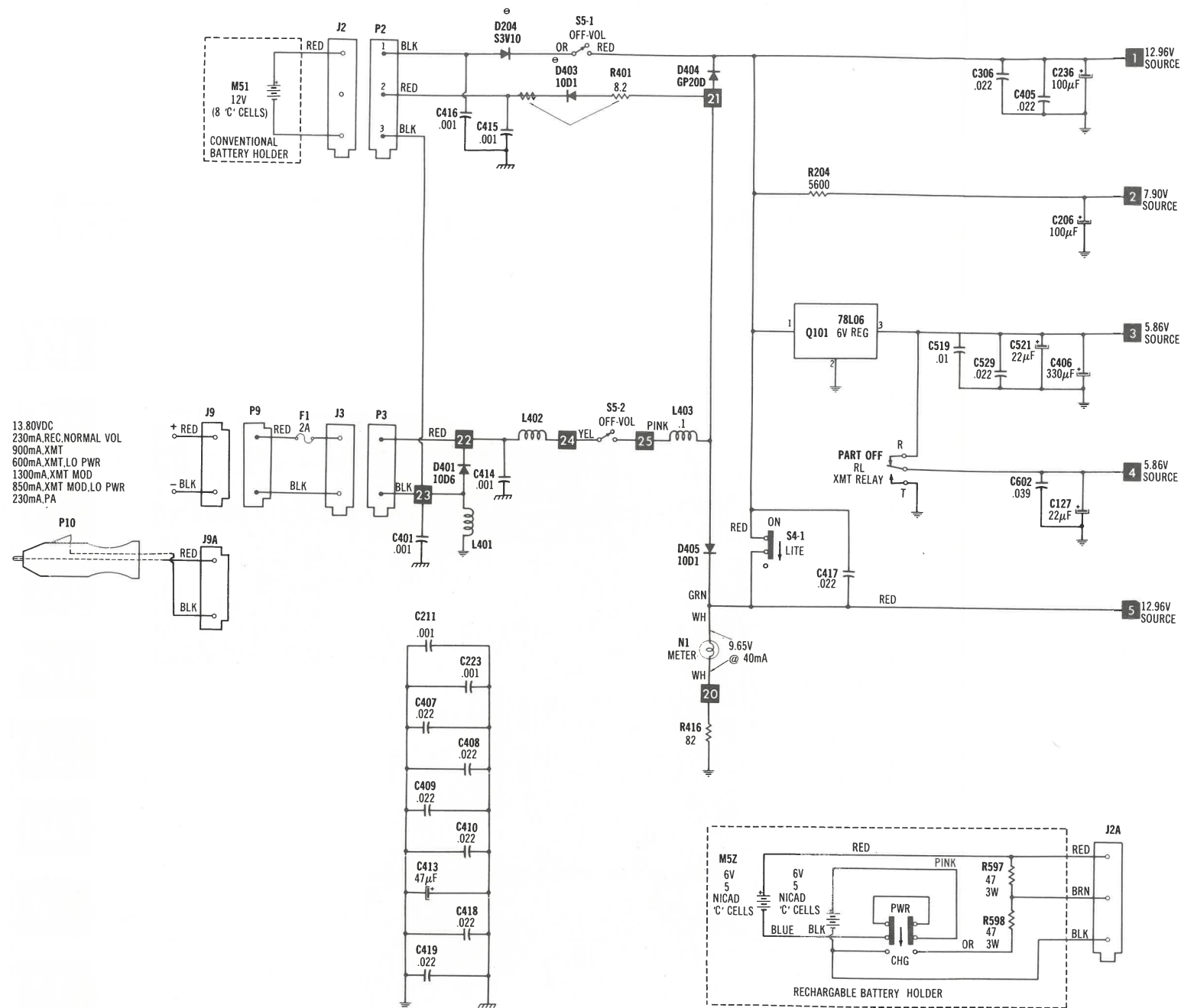


CHASSIS-BOTTOM



ROYCE MODEL 651

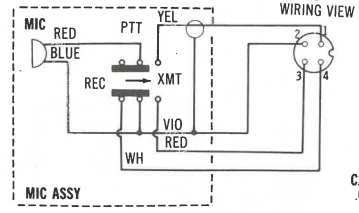
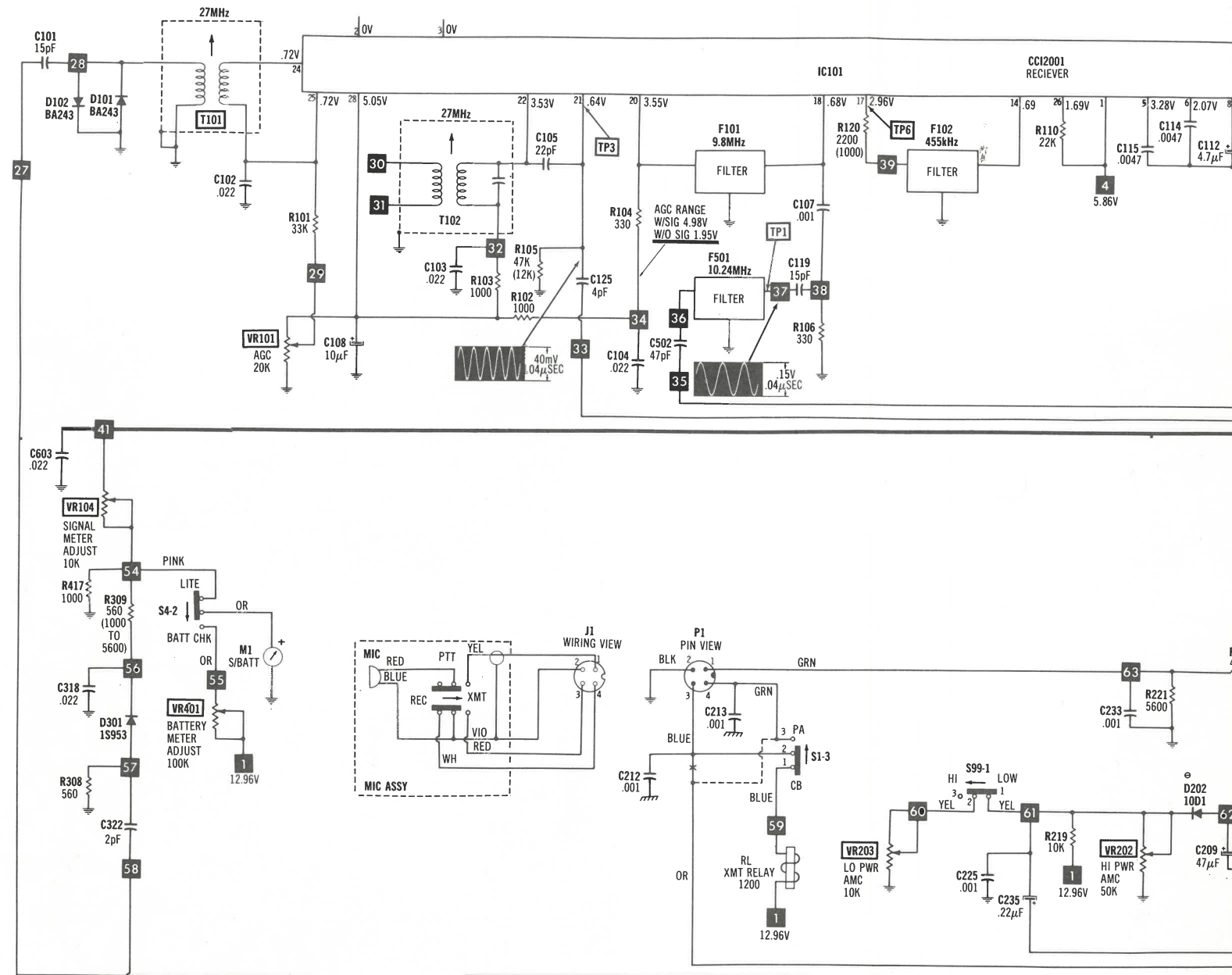
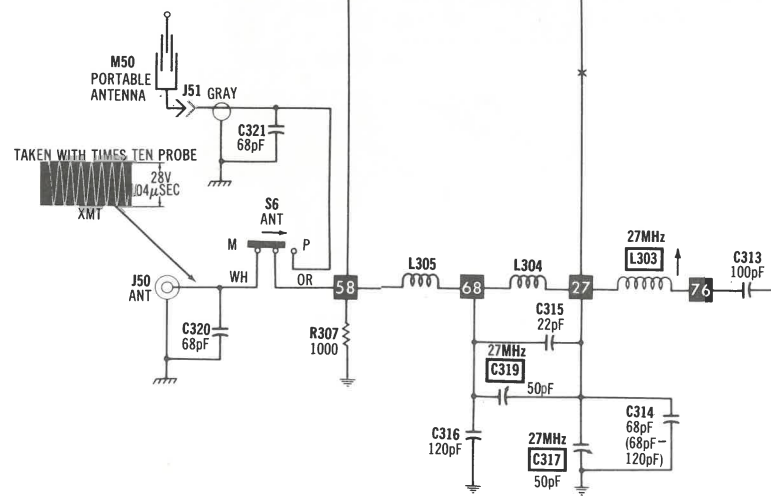
CHANNEL DISPLAY BOARD



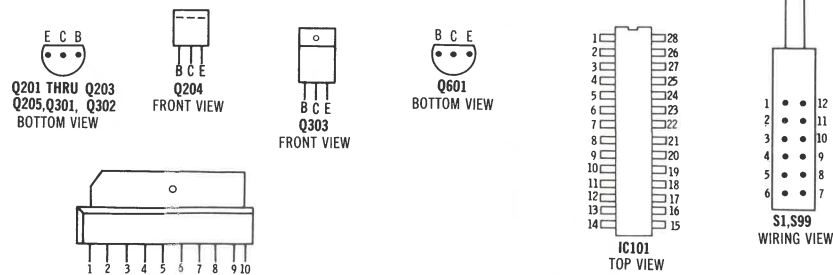
— Circuitry not used in some versions.
--- Circuitry used in some versions.
* Nominal value ▽ Common tie point
⊥ Ground
Chassis
⊕ See parts list

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).

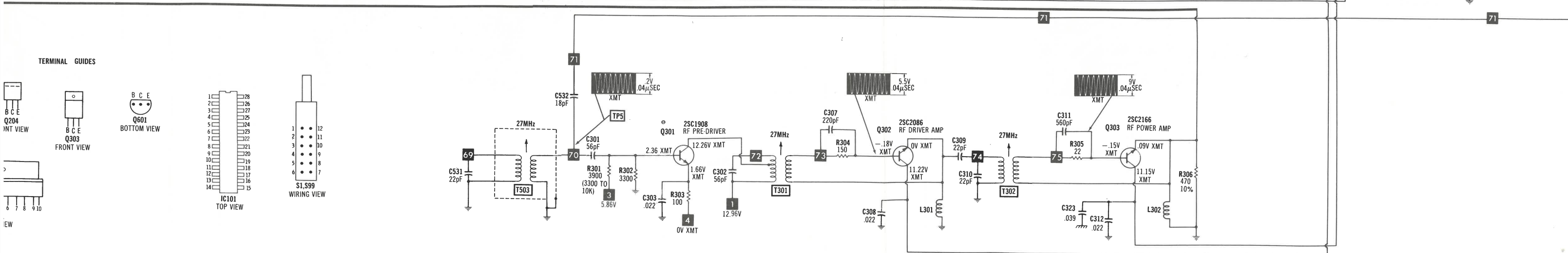
A PHOTOFAC STANDARD NOTATION SCHEMATIC WITH **CIRCUITRACE**
© Howard W. Sams & Co., Inc. 1979

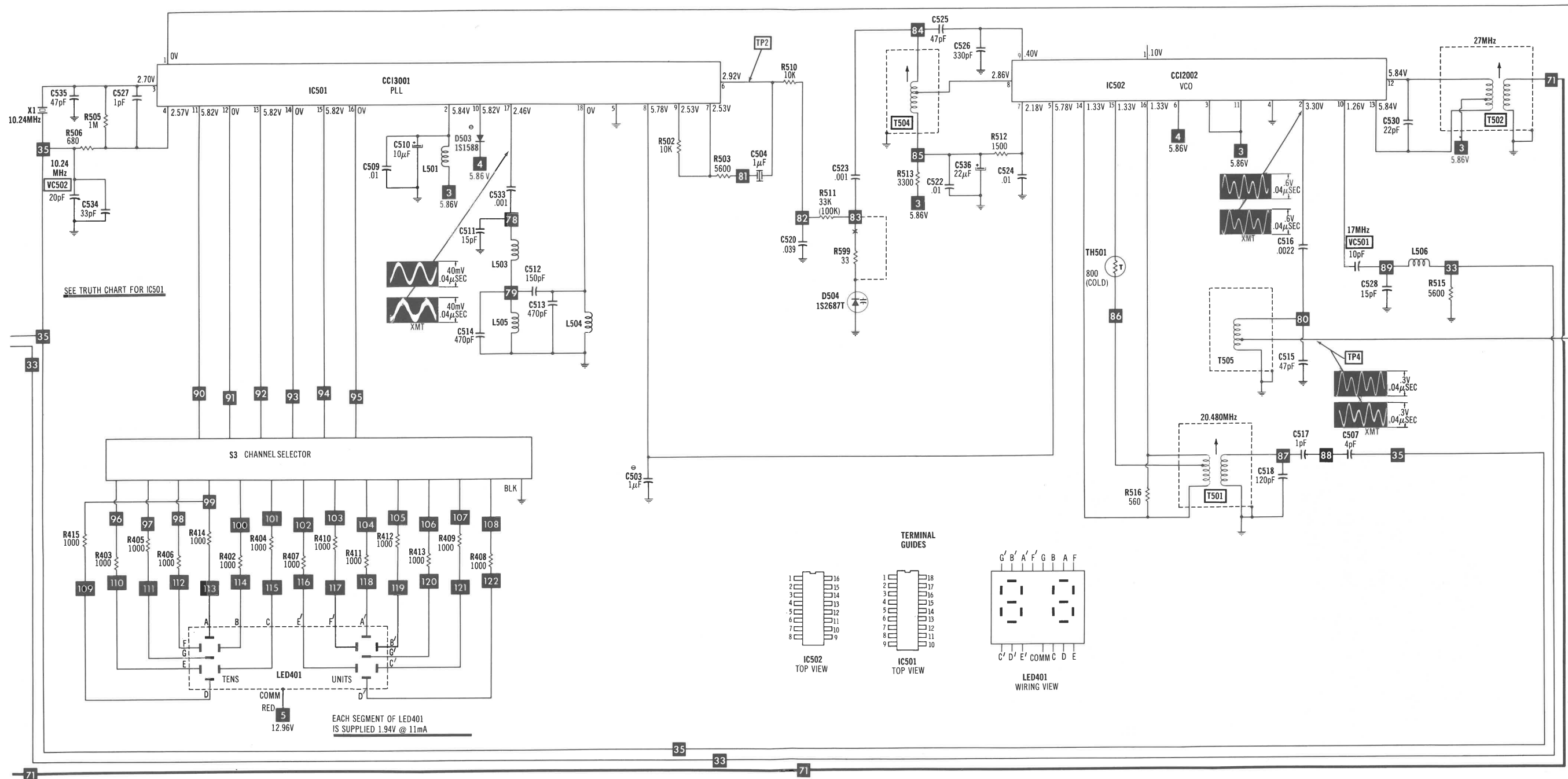


TERMINAL GUIDES



MAIN SCHEMATIC





—X— Circuitry not used in some versions.
 --- Circuitry used in some versions.
 ※ Nominal value ▽ Common tie point
 ⊥ Ground
 ⏏ Chassis
 Ⓢ See parts list

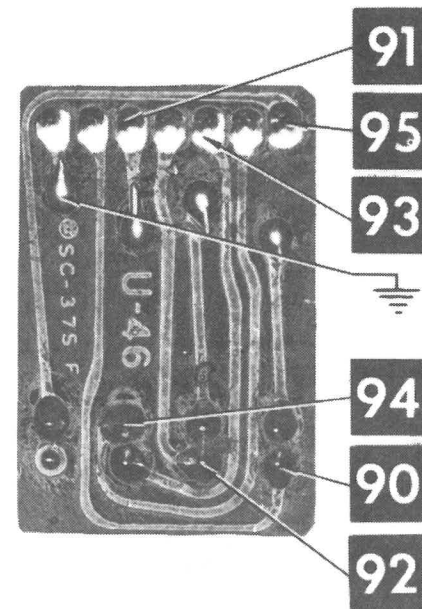
A PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE

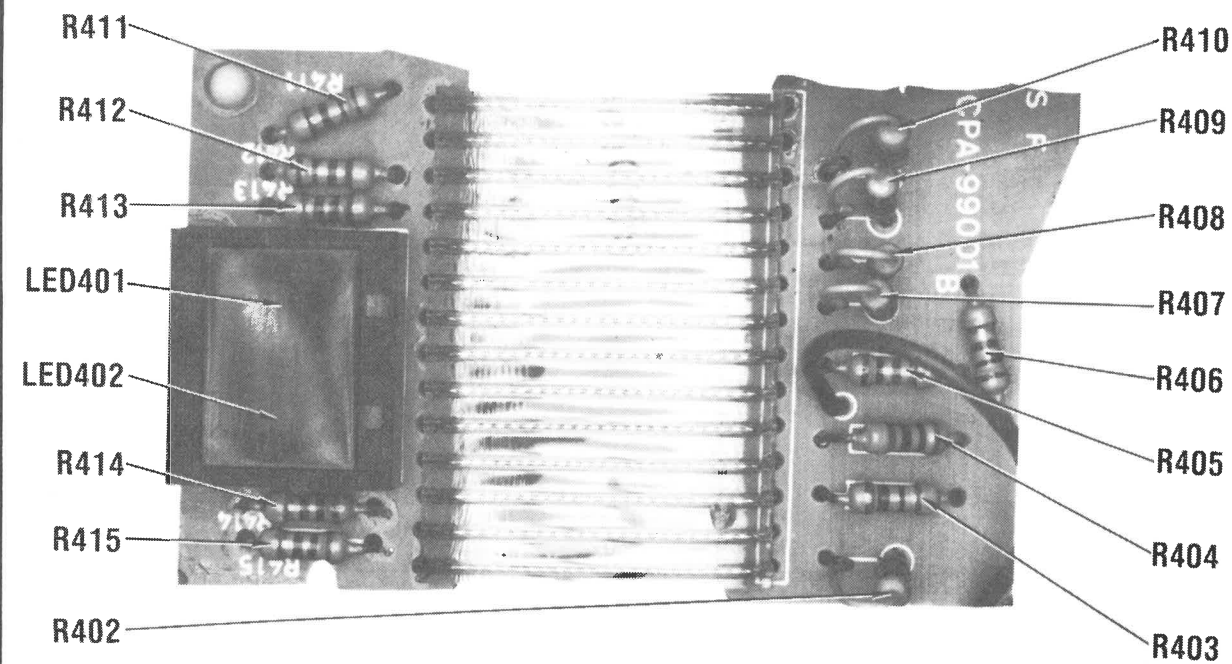
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ROYCE MODEL 651

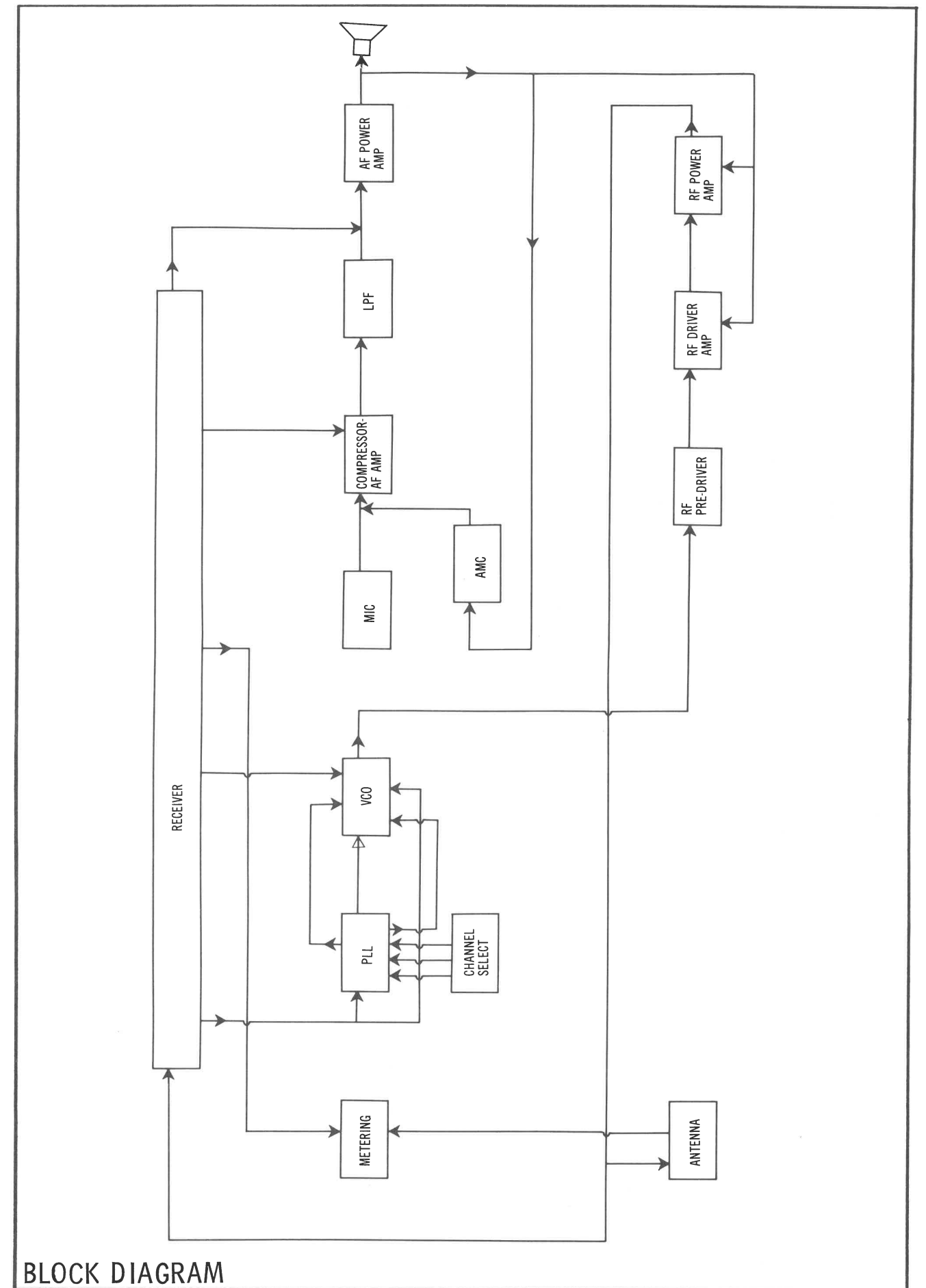
114



CHANNEL SELECTOR BOARD



LED BOARD



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. 8491 (4 conductor-2 shielded)(6 ft.)(AWG23)

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	BA243		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	BA244		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MC301		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D102	BA243		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	BA244		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	MC301		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D201	1S2076		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
	1S1588		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
	1S953		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D202	10D1		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	SR1K-2		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D301	1S953		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1588		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
	1S2076		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
D401	10D6		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D402	S3V10		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	GP20D		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	U05B		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D403	10D1		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	SR1K-2		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	GP20D		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	U05B		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D404	GP20D		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	U05B		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D405	10D1		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	SR1K-2		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D406	10D1		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
	SR1K-2		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D503	1S1588		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
	1S953		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S2076		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
D504	1S26871		GE-90		REN 614		ECG614	TM614	WEP200/614	103-219
D601	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134/109	103-Z9001
D602	1S953		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
	1S1588		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
	1S2076		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
IC101	CC12001									
IC201	M51513L						ECG1257	TM1257		
IC501	CC13001									
IC502	CC12002									
Q101	78L06						ECG988	TM988		
	UA78L62AW						ECG988	TM988		
Q201	2SC458C		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
Q202	2SC458C		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
Q203	2SC458C		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
Q204	2SA844C		GE-244*	PTC103*	REN 129*	SK3114/290	ECG129*	TM129*	WEP564	121-Z9005
	2SA844D		GE-244*	PTC103*	REN 129*	SK3114/290	ECG129*	TM129*	WEP564	121-Z9005
Q205	2SB561B		GE-269	PTC103*	REN 290	SK3114/290	ECG290	TM290/**	WEP911/290	121-1019
	2SB561		GE-269	PTC103*	REN 290	SK3114/290	ECG290	TM290/**	WEP911/290	121-1019
Q301	2SC1908E		GE-20*	PTC136*	REN 229*	SK3124/289	ECG229*	TM229*	WEP535*	121-Z9021*
	2SC1908		GE-20*	PTC136*	REN 229*	SK3124/289	ECG229*	TM229*	WEP535*	121-Z9021*
Q302	2SC2086		GE-47*	PTC143*	REN 293*	SK3842	ECG293*	TM293*	WEP914/297	
Q303	2SC2166		GE-215	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP736/123A*	121-Z9039
Q601	2SC458C		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*
	2SC458		GE-210	PTC121*	REN 289	SK3124/289	ECG289	TM289/**	WEP458	121-Z9000A*

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

ROYCE MODEL 651

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C106	4.7 25V		PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C108	10 10V			TDC106M025FL	QDT1-64	SD25-109
C111	10 10V			TDC106M025FL	QDT1-64	SD25-109
C112	4.7 25V		PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C113	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C127	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224
C202	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C206	100 16V		PC100-16	VTT100F16	QV1-95	EV-1231
C208	.1 50V			TDC104M050EL	QDT1-2	SD50-R109
C209	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
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
C235	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C236	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1261
C406	330 10V		WBR300-35*	VTT330G10	QV1-131	EV-1145
C413	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C503	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
	10 10V		PC10-25	VTT10B25	QV1-41	EV-1222
C504	1 10V NP		WNP1-50	TCN501A	QEN1-10	TVAN-1200
C510	10 10V			TDC106M025FL	QDT1-64	SD25-109
C521	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224
C536	22 10V		PC25-25	VTT22B16	QV1-55	EV-1224

* Axial replacement for 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
C101	15 N220 50V			*		10TCR-Q15
C102	.022 50V			M192P2239R8		192P2239R8
C103	.022 50V			M192P2239R8		192P2239R8
C104	.022 50V			M192P2239R8		192P2239R8
C105	22 50V		NP022	CN0422		10TCC-Q22
C107	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C110	.022 50V			M192P2239R8		192P2239R8
C114	.0047 50V		GP4700	GP247		5GA-D47
C115	.0047 50V		GP4700	GP247		5GA-D47
C117	.01 50V			MAG5011		
C119	15 N220 50V			*		10TCR-Q15
C122	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C125	47 50V		NP047	CN0447		10TCC-Q47
C126	.1 50V			MAG5001		
C128	15 50V		NP015	CN0415		10TCC-Q15
C203	.0068 50V		GP6800	GP268		5GA-D68
C204	.039 50V			M192P3939R8		192P3939R8
C205	.047 50V			EWFA1A47	QF1-171	1PB-S47
C207	560 50V		DPM52S47	GP356		10TS-T56
C211	.001 50V			GP210		10TS-D10
C212	.001 50V			GP210		10TS-D10
C213	.001 50V			GP210		10TS-D10
C217	.068 50V			MAG50168		
C219	.0047 50V		GP4700	GP247		5GA-D47
C220	.01 50V			MAG5011		
C221	15 50V		NP015	CN0415		10TCC-Q15
C222	330 50V		GP330	GP333		10TS-T33
C223	.001 50V			GP210		10TS-D10
C225	.001 50V			GP210		10TS-D10
C226	.1 50V			MAG5001		
C229	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C230	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C231	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C232	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C233	.001 50V			GP210		10TS-D10
C234	.001 50V		DPM56D1	M192P10292	QFT2-1	1FT-D10
C301	56 50V			CN0456		10TCC-Q56
C302	56 50V			CN0456		10TCC-Q56
C303	.022 50V			M192P2239R8		192P2239R8
C306	.022 50V			M192P2239R8		192P2239R8
C307	220 50V					10TCC-T22
C308	.022 50V			M192P2239R8		192P2239R8
C309	22 50V		NP022	CN0422		10TCC-Q22
C310	22 50V		NP022	CN0422		10TCC-Q22
C311	560 50V			GP356		10TS-T56
C312	.022 50V			M192P2239R8		192P2239R8
C313	100 50V		NP0100	CN0310		10TCC-T10
C314	68 50V		NP068	CN0468		10TCC-Q68
C315	22 50V		NP022	CN0422		10TCC-Q22
C316	120 50V			CN0312		10TCC-T12
C317	50 Trimmer					
C318	.022 50V			M192P2239R8		192P2239R8
C319	50 Trimmer					
C320	68 50V		NP068	CN0468		10TCC-Q68
C321	68 50V		NP068	CN0468		10TCC-Q68
C322	2 50V		NP02P2	CN0522		10TCC-V22
C323	.039 50V			M192P3939R8		192P3939R8
C401	.007 50V		GP6800	GP268		5GA-D68
C405	.022 50V			M192P2239R8		192P2239R8
C407	.022 50V			M192P2239R8		192P2239R8
C408	.022 50V			M192P2239R8		192P2239R8
C409	.022 50V			M192P2239R8		192P2239R8
C410	.022 50V			M192P2239R8		192P2239R8

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
C414	.001 50V			GP210		10TS-D10
C415	.001 50V			GP210		10TS-D10
C416	.001 50V			GP210		10TS-D10
C417	.001 50V			GP210		10TS-D10
C418	.022 50V			M192P2239R8		192P2239R8
C419	.022 50V			M192P2239R8		192P2239R8
C502	4 50V		NP04P7	CN0547		10TCC-V47
C503	1 50V			CN0510		10TCC-V10
C507	4 50V		NP04P7	CN0547		10TCC-V47
C509	.01 50V			MAG5011		
C511	15 50V		NP015	CN0415		10TCC-Q15
C512	150 50V			CN0315		10TCC-T15
C513	470 50V		GP470	GP347		10TS-T47
C514	470 50V		GP470	GP347		10TS-T47
C515	47 50V		NP047	CN0447		10TCC-Q47
C516	.0022 50V			GP222		10TS-D22
C517	1 50V			CN0510		10TCC-V10
C518	120 50V			CN0312		10TCC-T12
C519	.01 50V			MAG5011		
C520	.039 50V			M192P3939R8		192P3939R8
C522	.01 50V			MAG5011		
C523	.001 50V			GP210		10TS-D10
C524	.01 50V			MAG5011		
C525	47 50V		NP047	CN0447		10TCC-Q47
C526	330 50V		GP330	GP333		10TS-T33
C527	1 50V			CN0510		10TCC-V10
C528	15 50V		NP015	CN0415		10TCC-Q15
C529	.022 50V			M192P2239R8		192P2239R8
C530	22 50V		NP022	CN0422		10TCC-Q22
C531	22 N470 50V			*		10TCT-Q22
C532	18 50V			CN0418		10TCC-Q18
C533	.001 50V			GP210		10TS-D10
C534	33 50V		NP033	CN0433		10TCC-Q33
C535	47 50V		NP047	CN0447		10TCC-Q47
C601	.01 50V			MAG5011		
C602	.039 50V			M192P3939R8		192P3939R8
C603	.022 50V			M192P2239R8		192P2239R8
C604	.001 50V			GP210		10TS-D10
C606	.022 50V			M192P2239R8		192P2239R8
VC501	10 Trimmer					
VC502	20 Trimmer					

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

ROYCE MODEL 651

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.
VR101	AGC	20K	(18)	MTC24L1	X201R253B
VR102	Squelch Range	20K		MTC24L1(2)	X201R253B(2)
VR103	Squelch	10K			
VR105	Volume/Power Switch	10K			
VR104	Signal Meter	10K		MTC14L1(2)	X201R103B(2)
VR202	Hi Power AMC	50K		MTC54L1(2)	X201R503B(2)
VR203	Lo Power AMC	10K		MTC14L1(2)	X201R103B(2)
VR401	Battery Meter	100K		MTC15L1(2)	X201R104B(2)

(2) Cut off one of the end terminals and bend to fit P.C. Board.

(18) Includes VR103, VR105 and Power Switch.

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.
TH501	800 Cold NTC			TH101	1750 Cold NTC		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L201	RF Choke				
L202	RF Choke				
L301	RF Choke				
L302	RF Choke				
L303	Antenna Loading (27MHz)				
L304	Pi Filter				
L305	RF Choke				
L401	RF Choke				
L402	RF Choke				
L501	RF Choke				
L503	RF Choke				
L504	RF PLL				
L505	RF Choke				
L506	RF Choke				
T101	Rec RF (27MHz)				
T102	Rec RF (27MHz)				
T301	RF Pre-Driver (27MHz)				
T302	RF Driver (27MHz)				
T501	Down Osc. (20.480MHz)				
T502	Mixer (27MHz)				
T503	Mixer (27MHz)				
T504	VCO				
T505	Osc (17MHz)				
T601	IF (455kHz)				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
L403	1.3A	.1	1.3mH	1002B(1)	TR509		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	11.5	1 2 8 2.4	99025(1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	2 1/2" PM 8 Ohms		25A05Z8R	

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	2A Quick Acting			AGC2	HRK	312-002	150145	FG2-2	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
LED401	LED		Channel Readout (Each segment of LED401 supplied 1.94V @ 11mA)
F101	Filter		9.8MHz
F102	Filter		455kHz
F501	Filter		10.24MHz
M1	Meter		S/Battery
N1	Lamp		9.65V @ 40mA
RL	Relay		XMT (1200 ohms)
S1	Switch		PA/CB
S2	Switch		On/Off
S4	Switch		Lite/Battery
S6	Switch		M/P
S99	Switch		Hi/Low
X1	Crystal		10.24MHz