



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 1-641

ROYCE MODEL 1-641

MANUFACTURER'S SPECIFICATIONS

RECEIVER

- | | | |
|------------------------------------|--|---------------------|
| 1. Sensitivity at S/N 10 dB | : AM.....0.7 μ V | SSB.....0.2 μ V |
| 2. Selectivity | : AM.....5KHz | SSB.....2.2KHz |
| 3. AGC Figure of Range | : 80 dB | |
| 4. Squelch Range | : 0.5 μ V – 500 μ V | |
| 5. Audio Output Power | : 4 Watts | |
| 6. Distortion at input 100 μ V | : 6 % | |
| 7. Audio Frequency Response | : 300 – 2200Hz | |
| 8. Supurious Response | : More than 45 dB supurious signal is required to produce the same amount of audio output as the desired receive signal. | |
| 9. IF Frequency | : 1st IF 10.695MHz and 2nd IF 455KHz | |
| 10. Current Drain no audio | : 650 mA (AC) | |

SSB TRANSMITTER

- | | |
|----------------------------------|-------------------|
| 1. RF Output Power | : 12 Watts PEP |
| 2. Carrier Suppression | : More than 40 dB |
| 3. Unwanted Sideband Suppression | : More than 60 dB |
| 4. Harmonic Suppression | : More than 60 dB |
| 5. Current Drain | : 1000 mA (AC) |

AM TRANSMITTER

- | | |
|--------------------------|-------------------|
| 1. RF Output Power | : 4 Watts |
| 2. Modulation Capability | : More than 75 % |
| 3. Harmonic Suppression | : More than 60 dB |
| 4. Current Drain | : 800 mA (AC) |

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 13.80-volt at TP1.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Suggested Alignment Tools: GC ELECTRONICS:
T7, T8, T9, T10 5009, 8728A, 8728
L1, L6, T14, T15 9091, 8728A, 8728
T1, T2, T3, T5, T6, T11, T12, T13 9440

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP2 (Pin 12 of PLL).	Ch. 19, USB or AM		Check for 10.240MHz.
	Ch. 19, LSB		Check for 11.150MHz.
Input of frequency counter to TP3 (Pin 1 of PLL).	Ch. 1, USB or LSB or AM Clarifier Midrange		Check for 37.660MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP4 (Pin 15 of PLL).	Ch. 19, USB or LSB		Check for 455kHz.

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.
Clarifier Midrange, Squelch MINIMUM, NB Switch Off.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP5 (D10, Cathode). 455kHz, 1000Hz @ 30% modulation.	Ch. 19, AM	T10, T7, T6	Adjust for maximum output. Recheck the alignment of T6 in transmit.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19, AM	T3, T2, T1	Adjust for maximum output. If necessary, readjust T6, T7 and T10.
Input of oscilloscope to TP6 (D8, Cathode). Output of signal generator thru .01uF to antenna jack. 24.300MHz no modulation.	Ch. 19, AM	T5	Adjust for maximum.

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.
Clarifier Midrange, Squelch MINIMUM, NB Switch Off.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP5 (D10, Cathode) 454kHz no modulation.	Ch. 19, USB	T9, T8, T7, T6	Adjust for maximum output. Recheck the alignment of T6 in transmit.
Output of signal generator thru .01uF to antenna jack. 27.186MHz no modulation.	Ch. 19, USB	T3, T2, T1	Adjust for maximum output. If necessary, readjust T6, T7, T8 and T9.

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 500uV.	Ch. 19, AM Squelch Maximum	VR2	SQUELCH RANGE Adjust so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19, AM Squelch MINIMUM	VR4	S METER Adjust for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

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

AM

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
	Ch. 19	T6, T11, T12, T13, T14, T15, L6, L1	Adjust for maximum.
	Ch. 19	L6, L1	Adjust for 4 watts maximum.

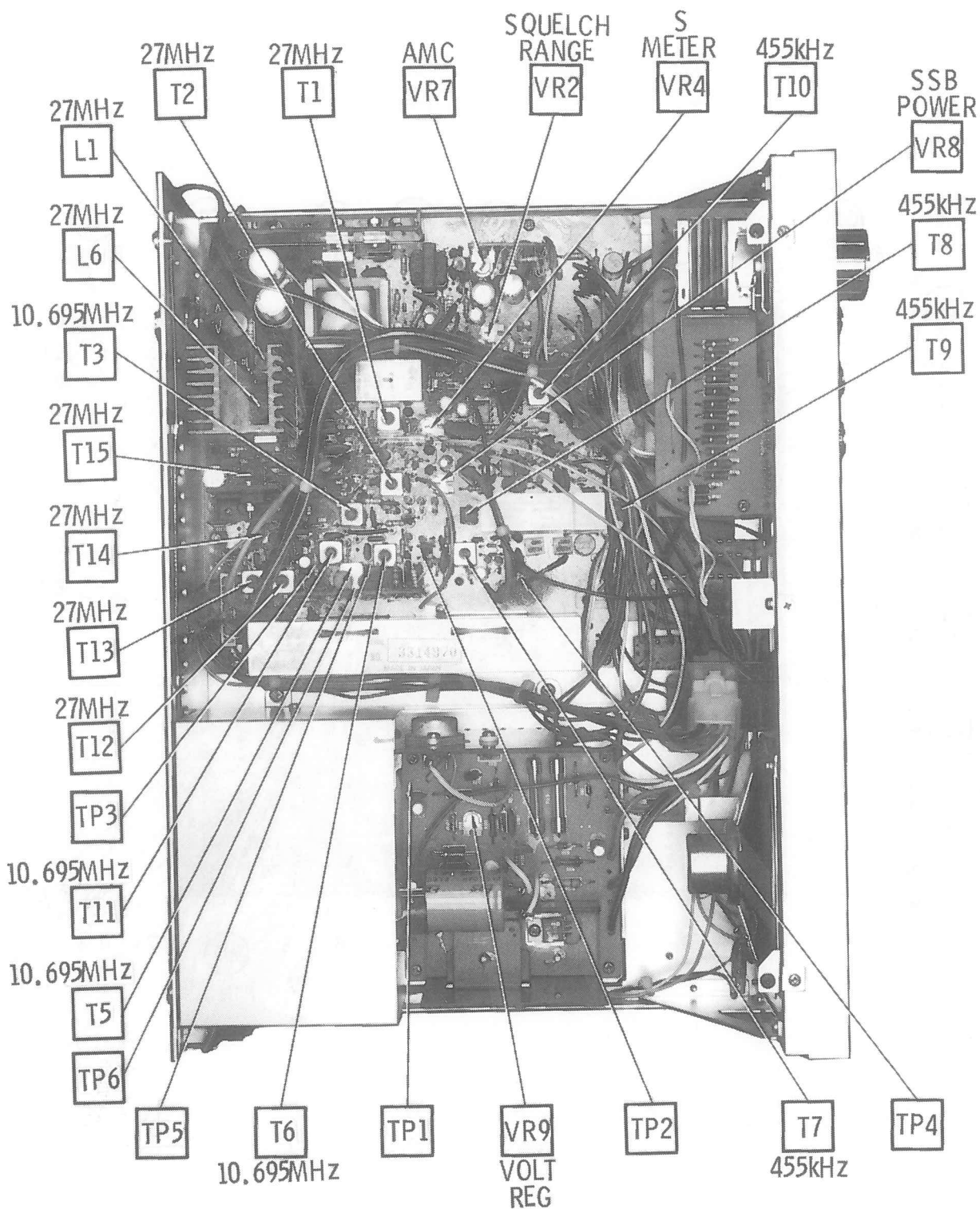
TRANSMITTER ADJUSTMENTS

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.

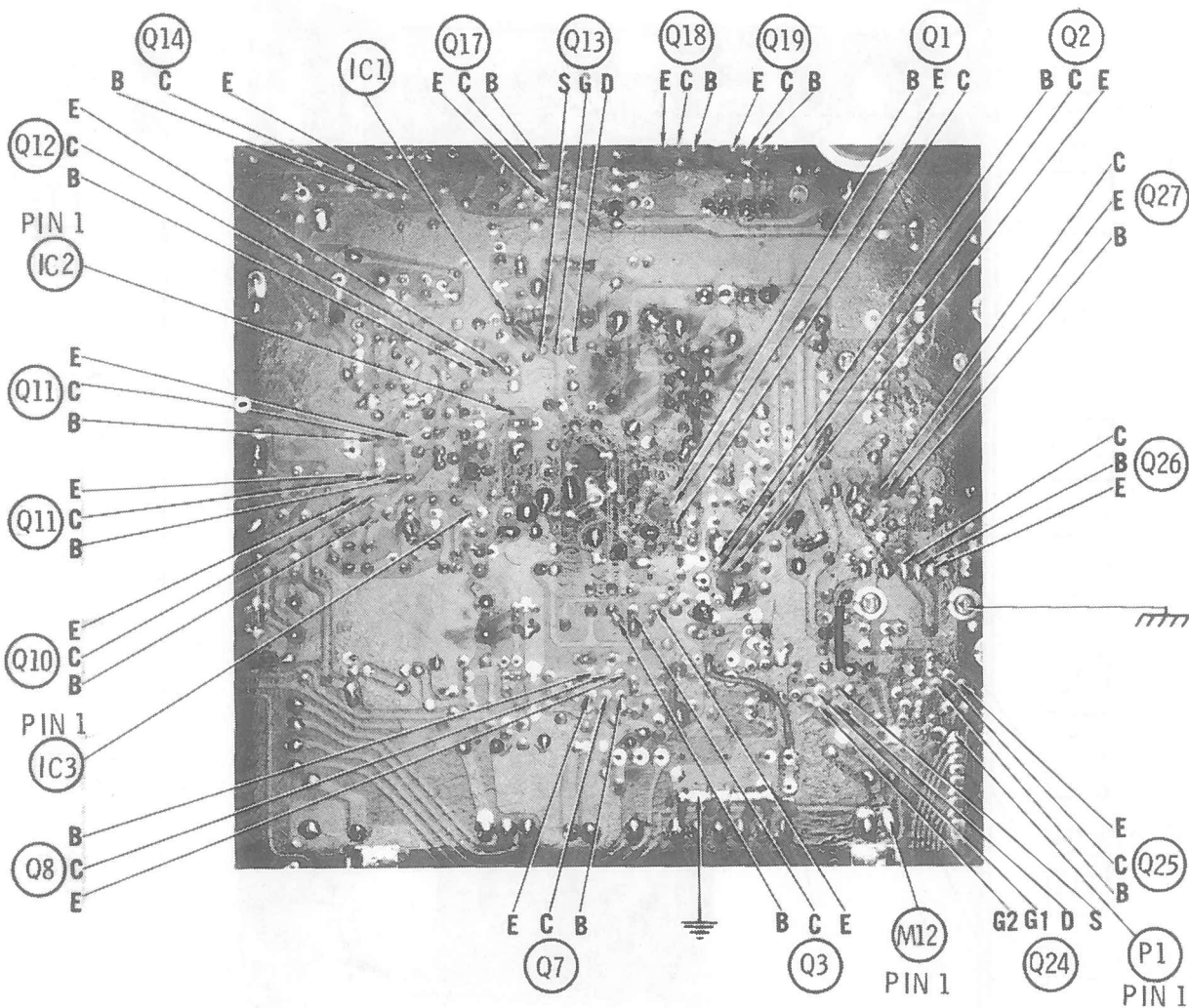
TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of DC meter to TP1 (Q21, Emitter).	Ch. 19	VR9	VOLT REG Adjust for 13.80 volts.
Connect an RF wattmeter and 50-ohm, 25 watt dummy load to antenna connector. Inject a 1000Hz, 20mV signal at Mic input.	Ch. 19	VR8	SSB POWER Adjust for 12 watts maximum.
Input of oscilloscope or modulation meter to antenna connector. Inject a 1000Hz, 20mV signal at Mic input.	Ch. 19	VR7	AMC Adjust for 100% modulation maximum.

TRUTH CHART

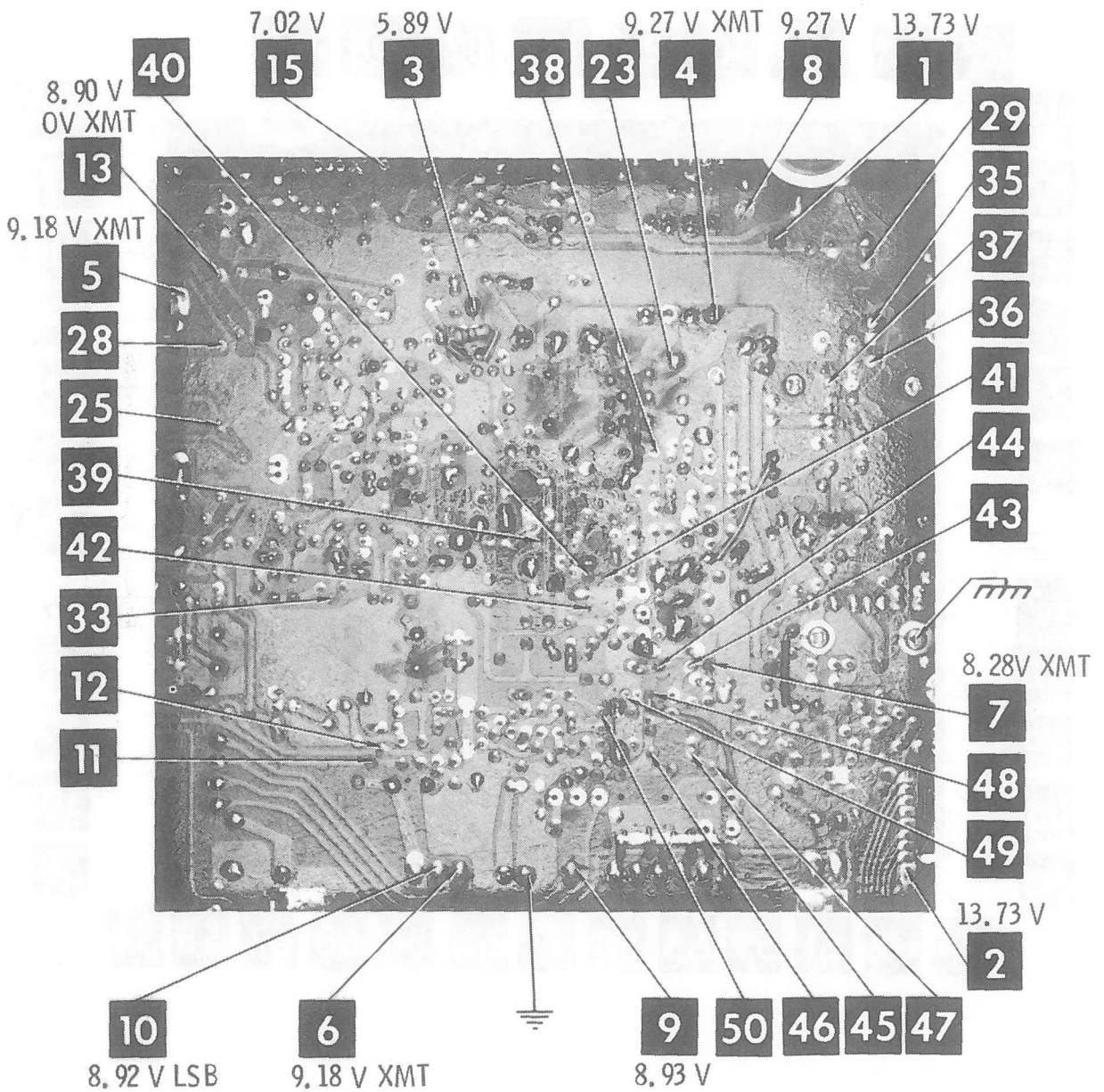
1 = 6.07 Volts 0 = 0 Volts									AM,USB,LSB (REC & XMT) SYNTHESIZER OUTPUT IN MHz AT TP3		
C H A N N E L	PLL										
	PINS										
	9	8	7	6	5	4					
1	0	0	0	0	0	0			37.660		
2	0	0	0	0	0	1			37.670		
3	0	0	0	1	1	0			37.680		
4	0	0	0	1	0	0			37.700		
5	0	0	0	1	0	1			37.710		
6	0	0	0	1	1	0			37.720		
7	0	0	0	1	1	1			37.730		
8	0	0	1	0	0	1			37.750		
9	0	0	1	0	1	0			37.760		
10	0	0	1	0	1	1			37.770		
11	0	0	1	1	0	0			37.780		
12	0	0	1	1	1	0			37.800		
13	0	0	1	1	1	1			37.810		
14	0	1	0	0	0	0			37.820		
15	0	1	0	0	0	1			37.830		
16	0	1	0	0	1	1			37.850		
17	0	1	0	1	0	0			37.860		
18	0	1	0	1	0	1			37.870		
19	0	1	0	1	1	0			37.880		
20	0	1	1	0	0	0			37.900		
21	0	1	1	0	0	1			37.910		
22	0	1	1	0	1	0			37.920		
23	0	1	1	1	0	1			37.950		
24	0	1	1	0	1	1			37.930		
25	0	1	1	1	0	0			37.940		
26	0	1	1	1	1	0			37.960		
27	0	1	1	1	1	1			37.970		
28	1	0	0	0	0	0			37.980		
29	1	0	0	0	0	1			37.990		
30	1	0	0	0	1	0			38.000		
31	1	0	0	0	1	1			38.010		
32	1	0	0	1	0	0			38.020		
33	1	0	0	1	0	1			38.030		
34	1	0	0	1	1	0			38.040		
35	1	0	0	1	1	1			38.050		
36	1	0	1	0	0	0			38.060		
37	1	0	1	0	0	1			38.070		
38	1	0	1	0	1	0			38.080		
39	1	0	1	0	1	1			38.090		
40	1	0	1	1	0	0			38.100		

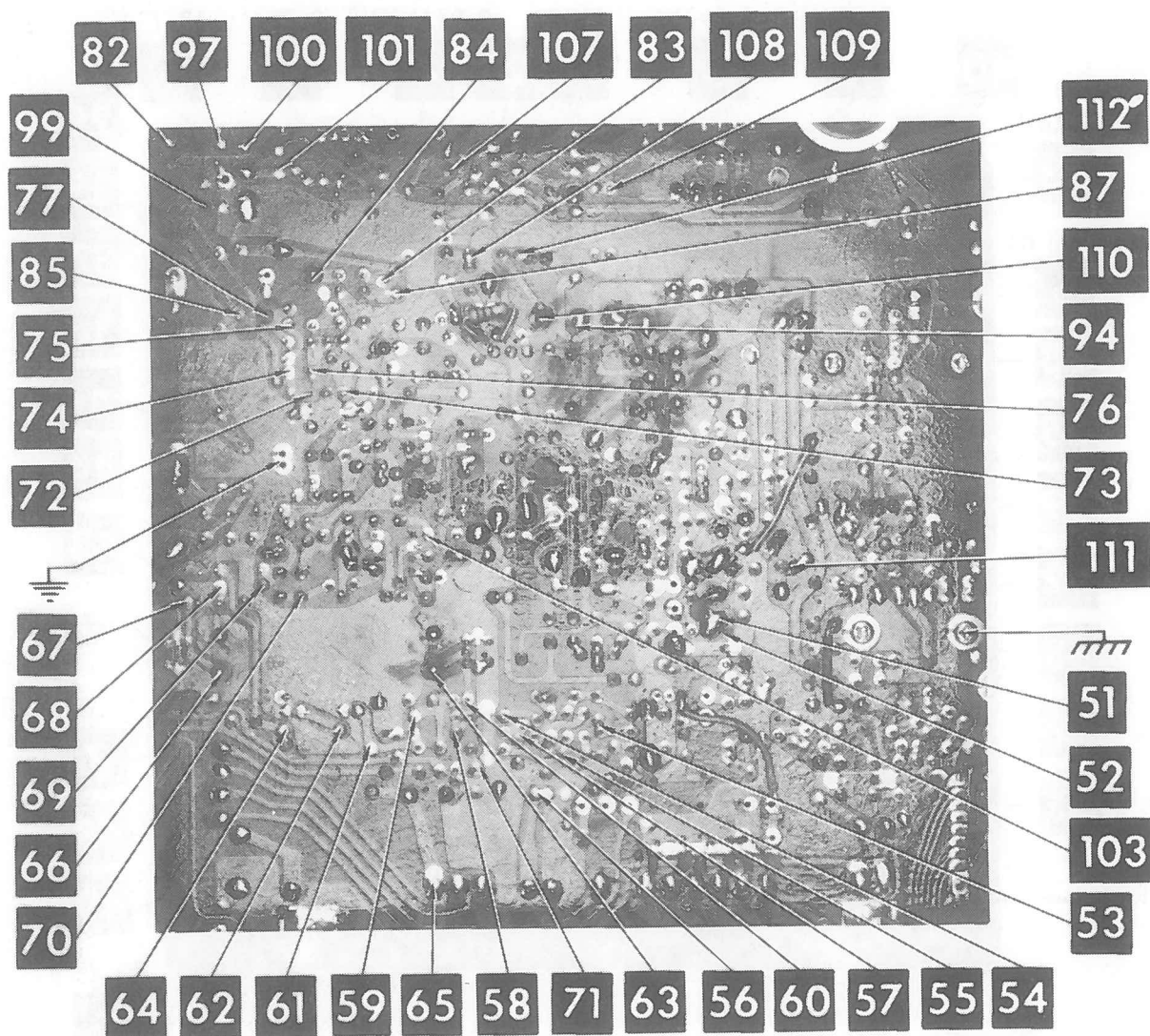


CHASSIS-TOP

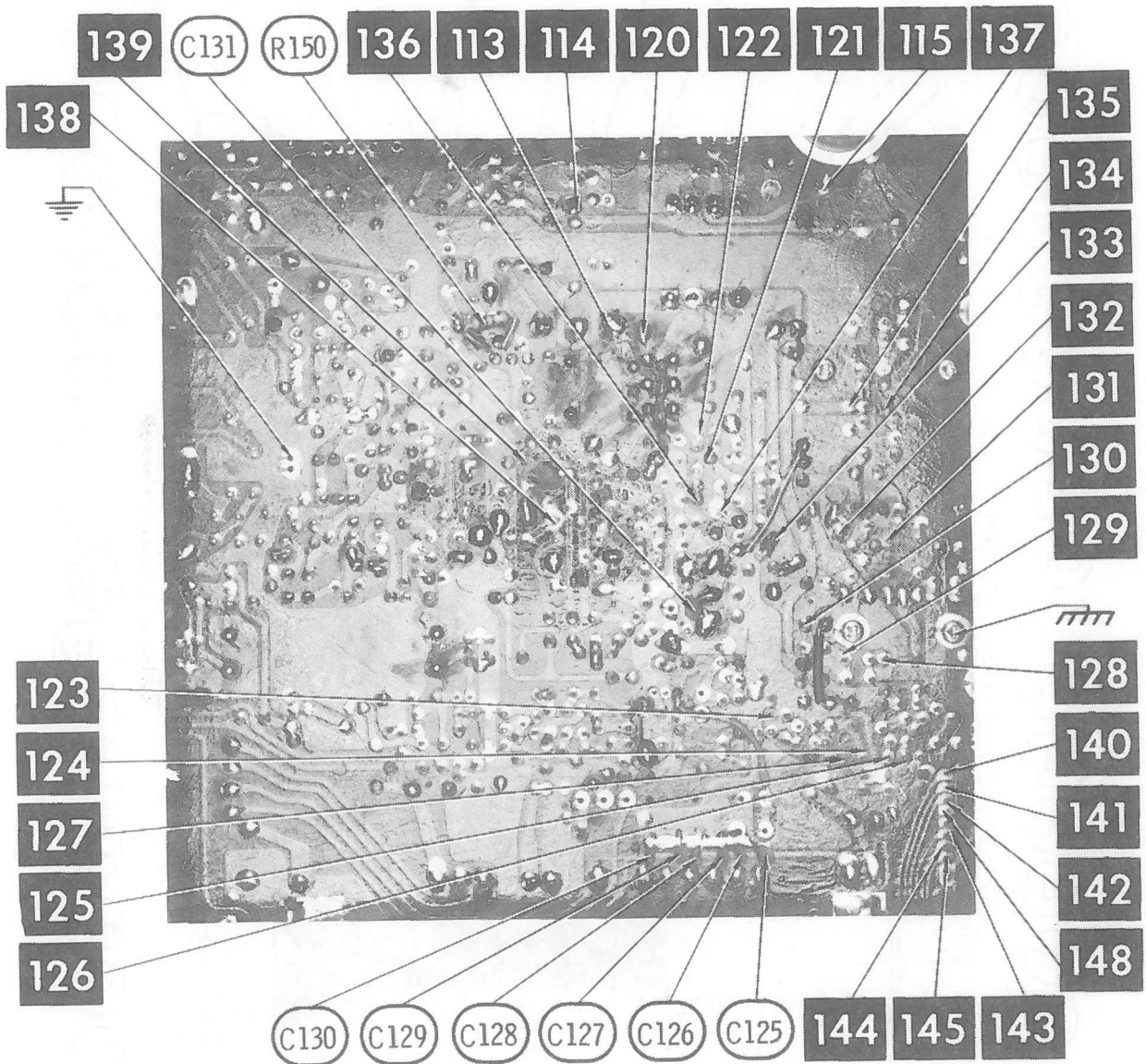


MAIN BOARD



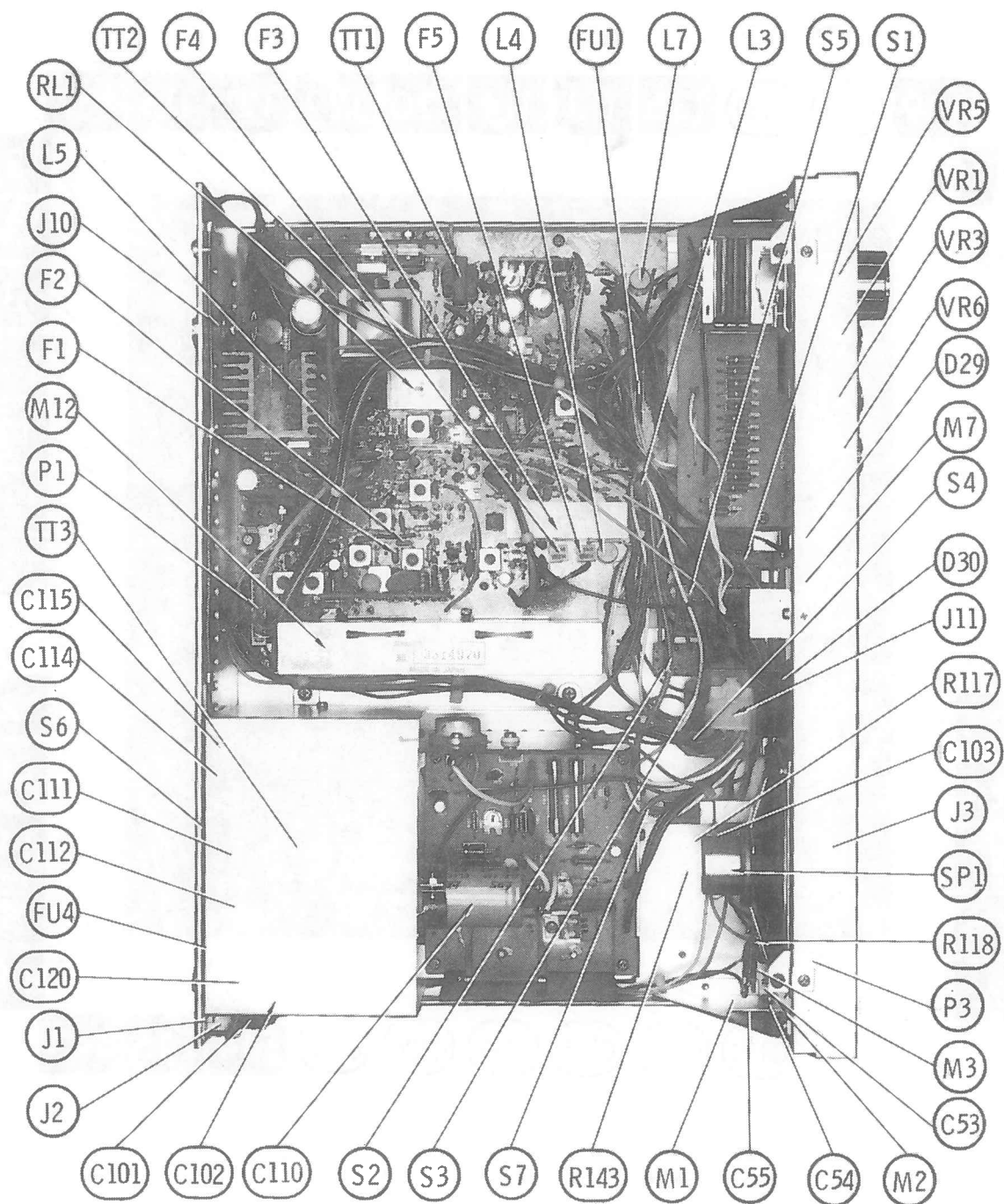


MAIN BOARD

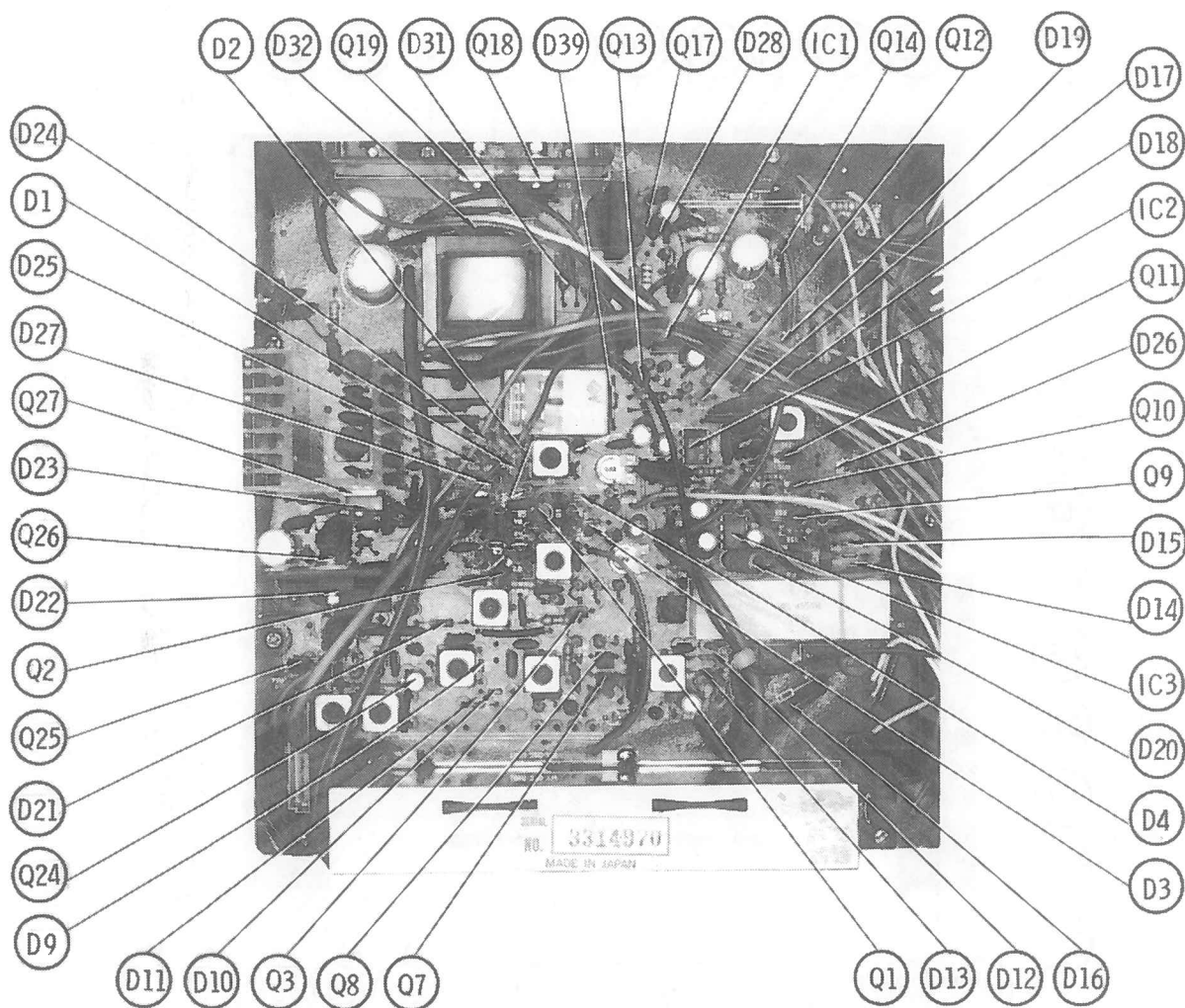


ROYCE MODEL 1-641

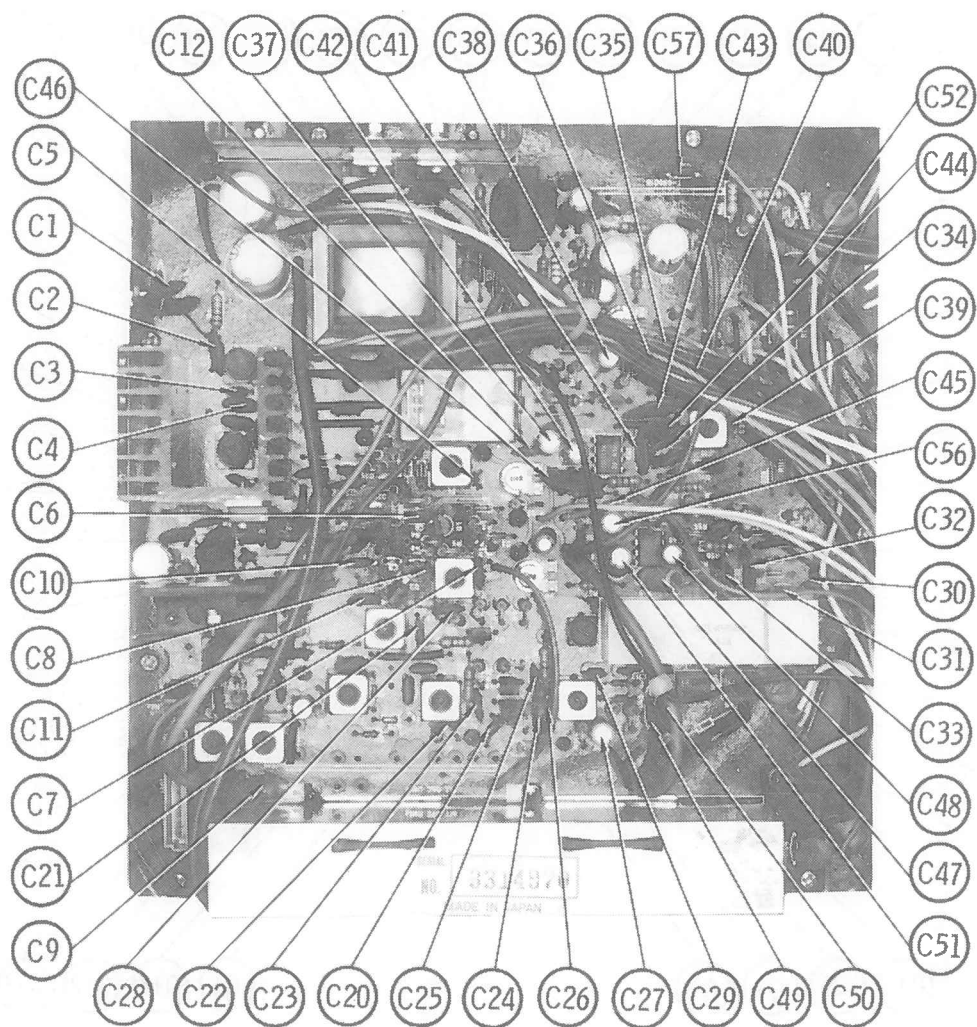
MAIN BOARD



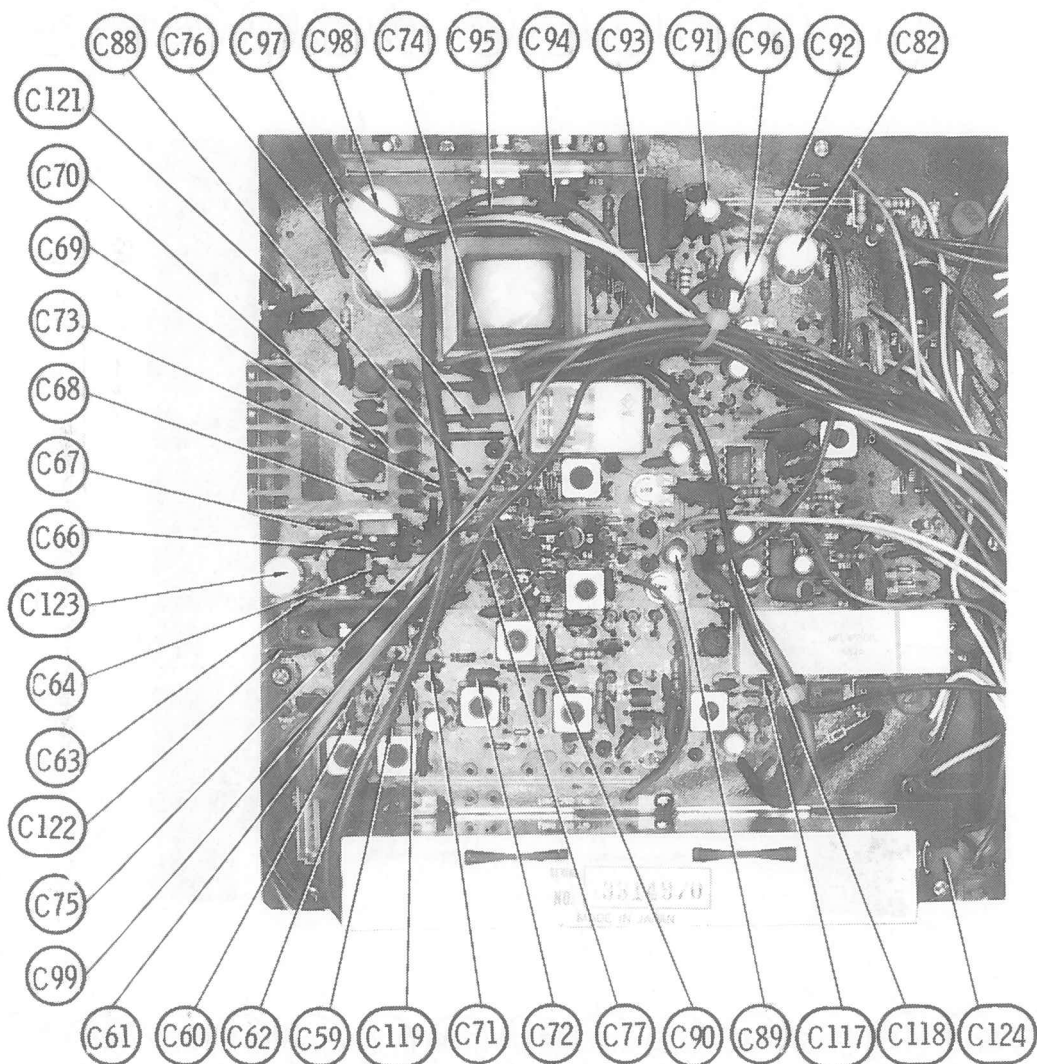
CHASSIS-TOP



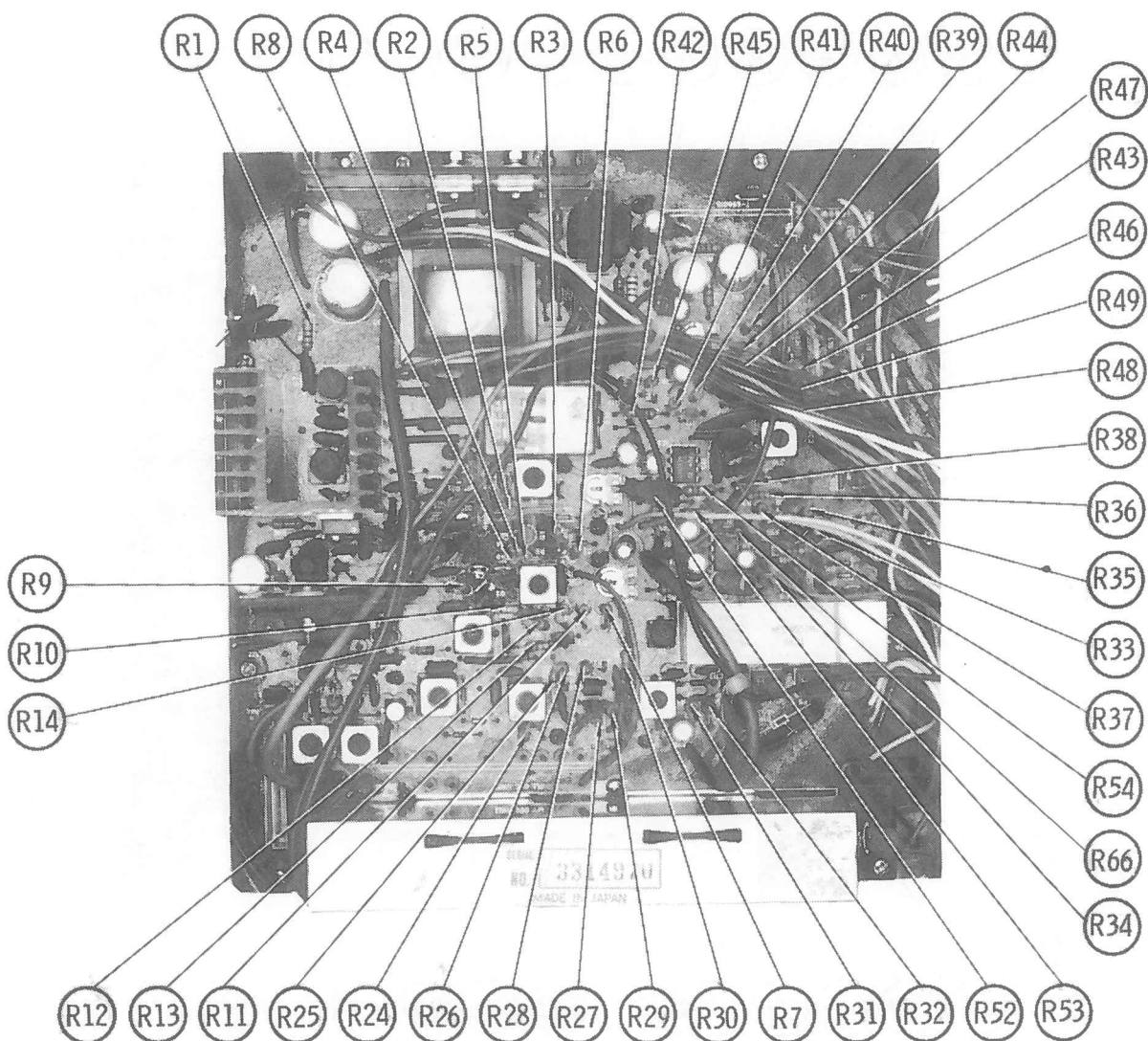
MAIN BOARD



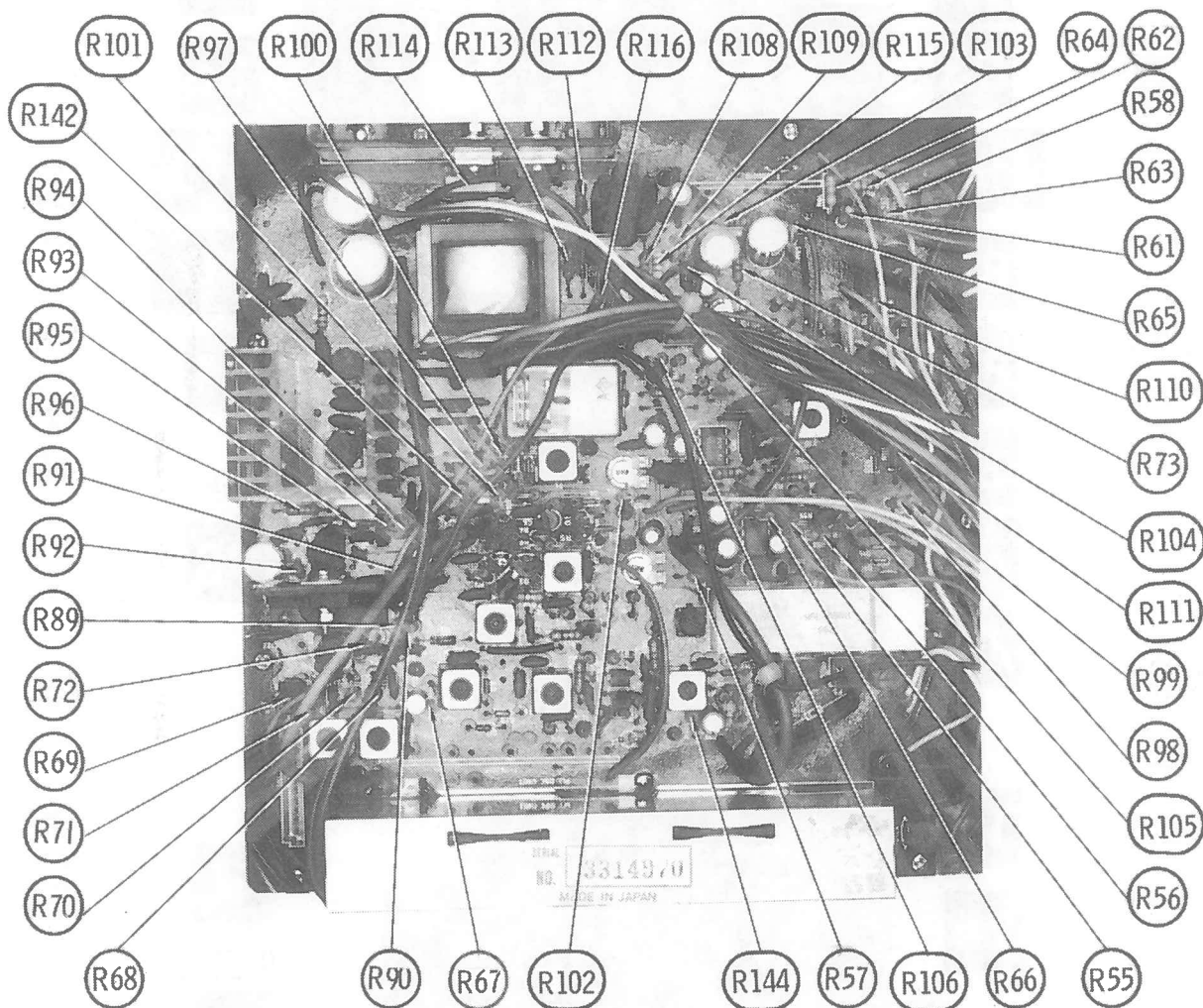
MAIN BOARD



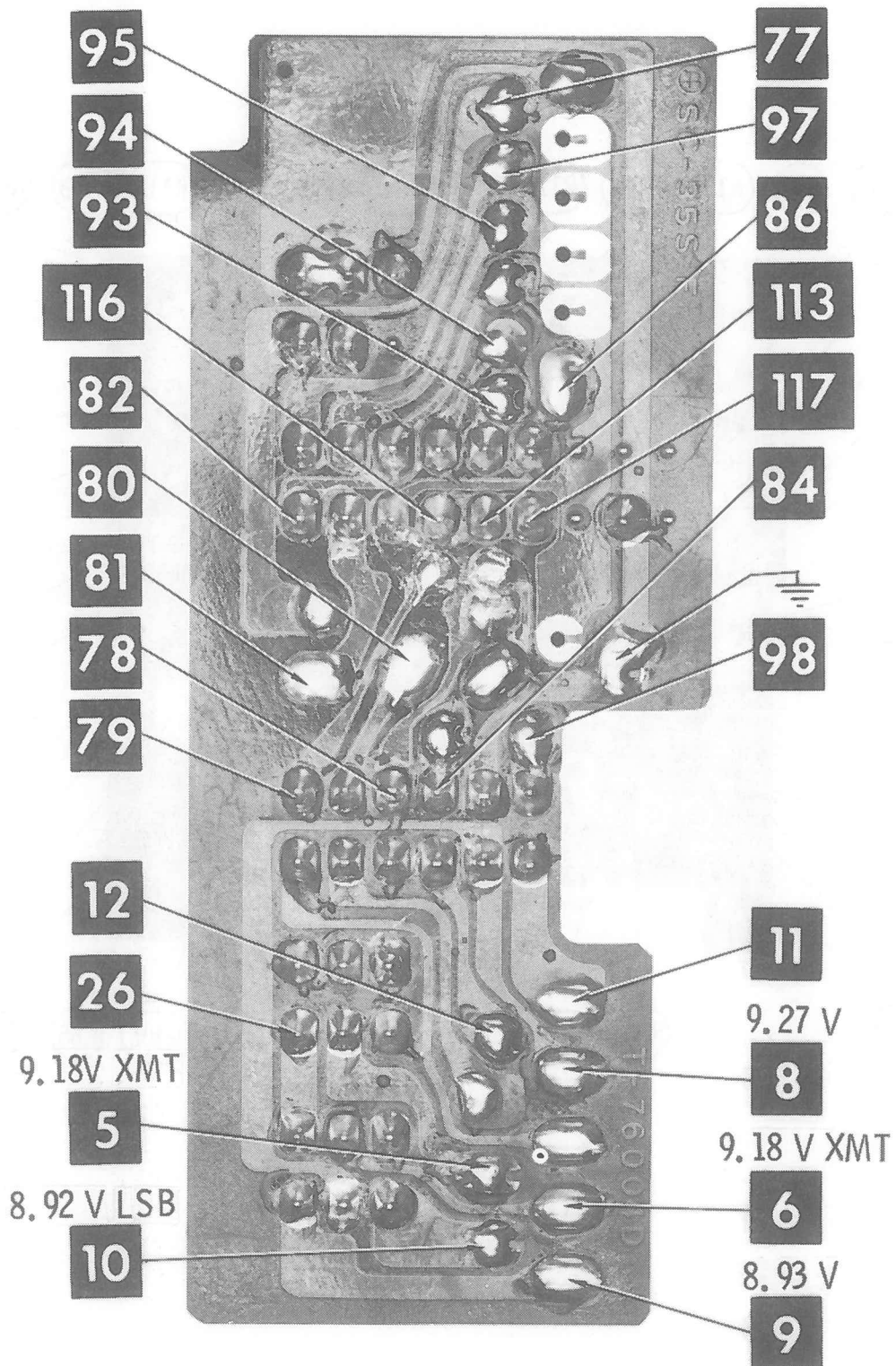
MAIN BOARD



MAIN BOARD

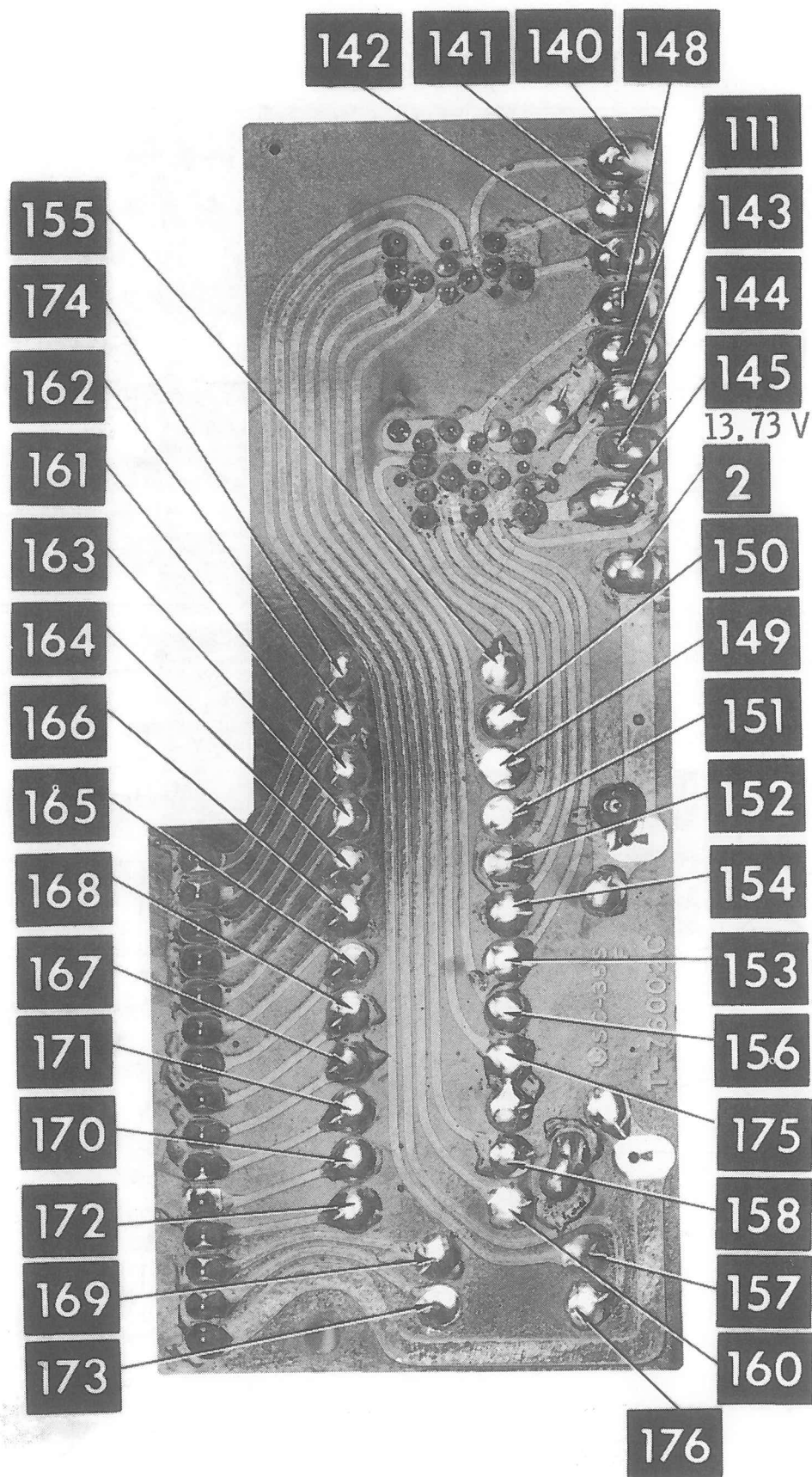


MAIN BOARD

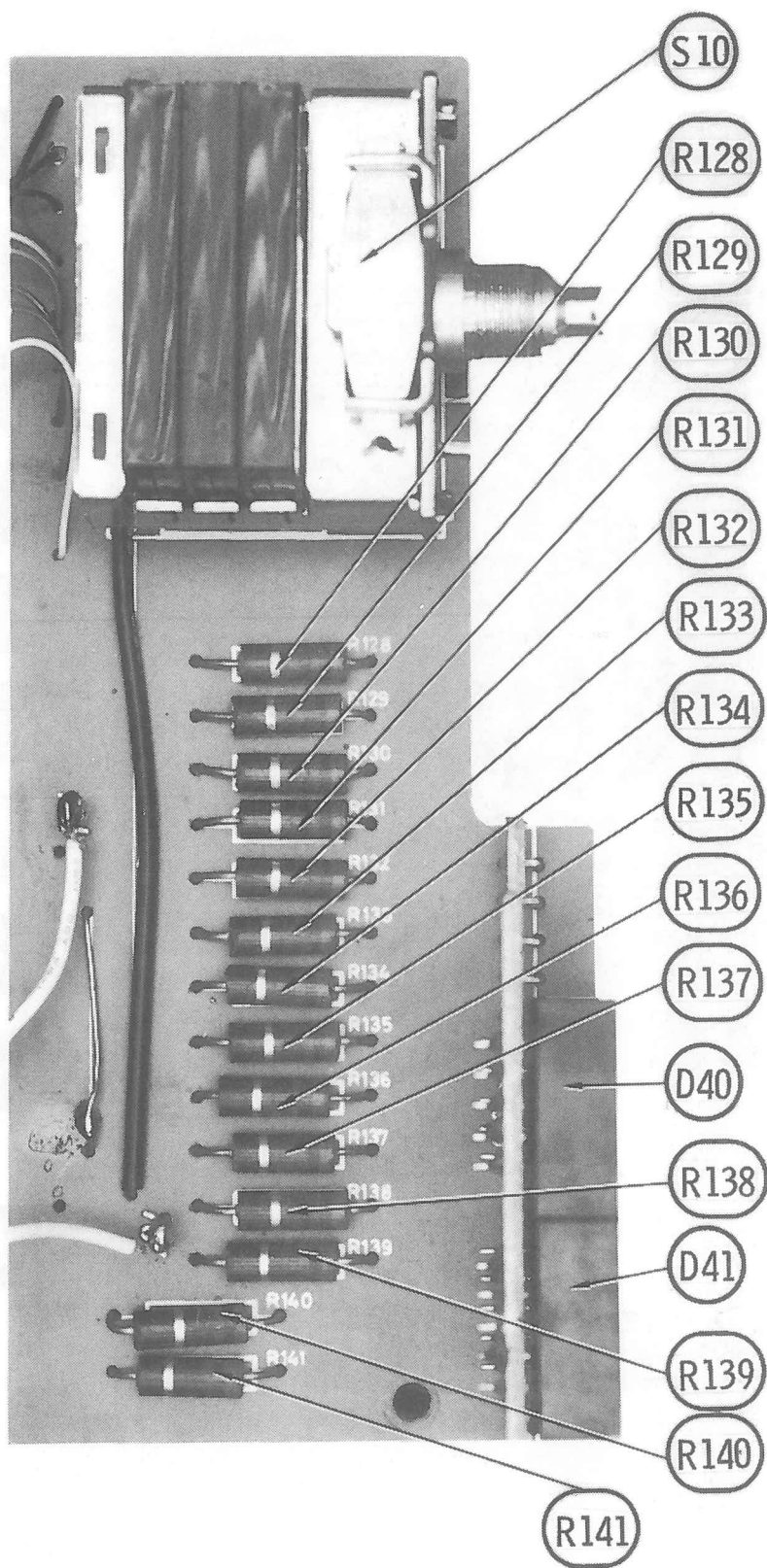


MODE SWITCH BOARD

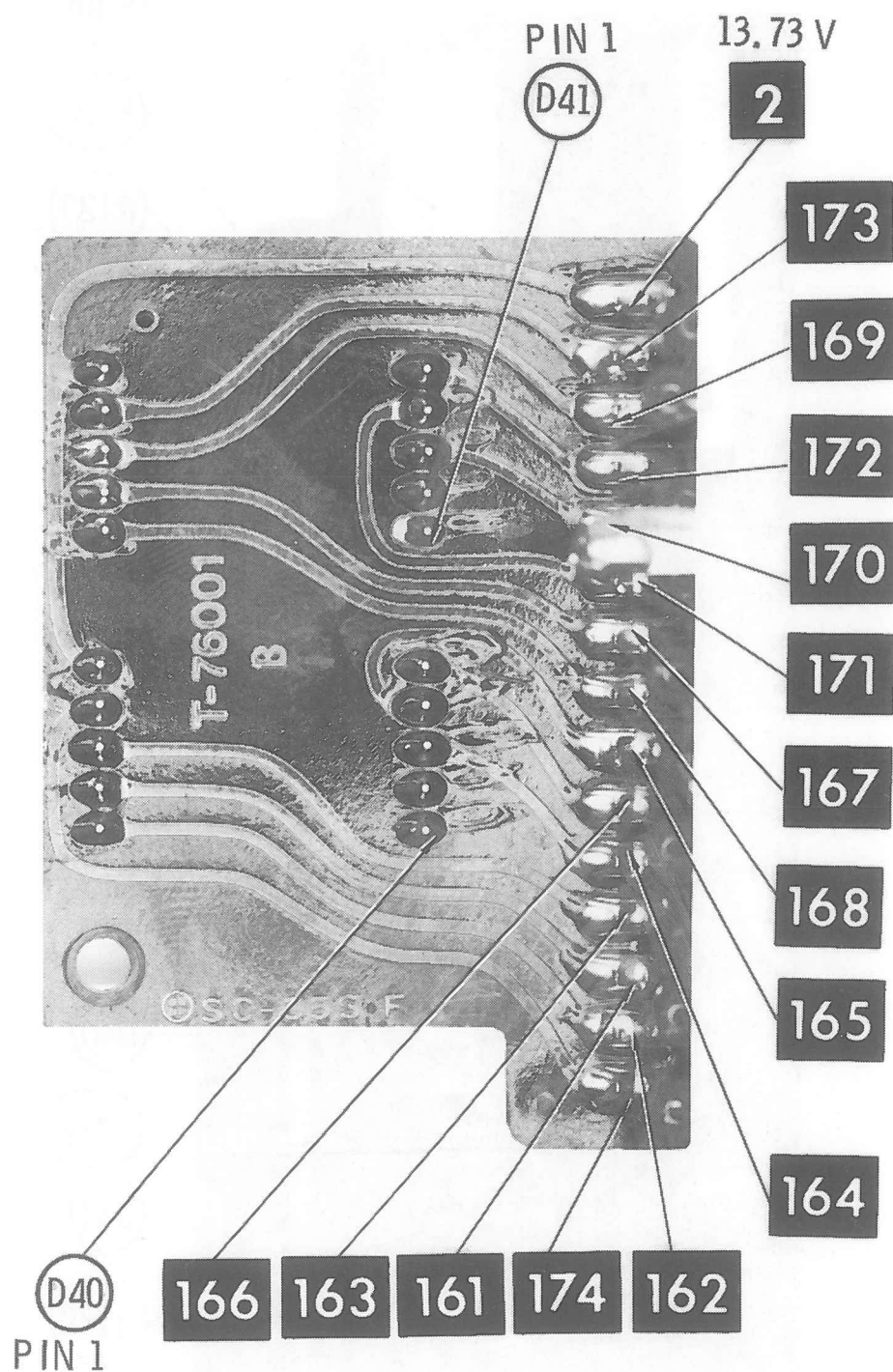




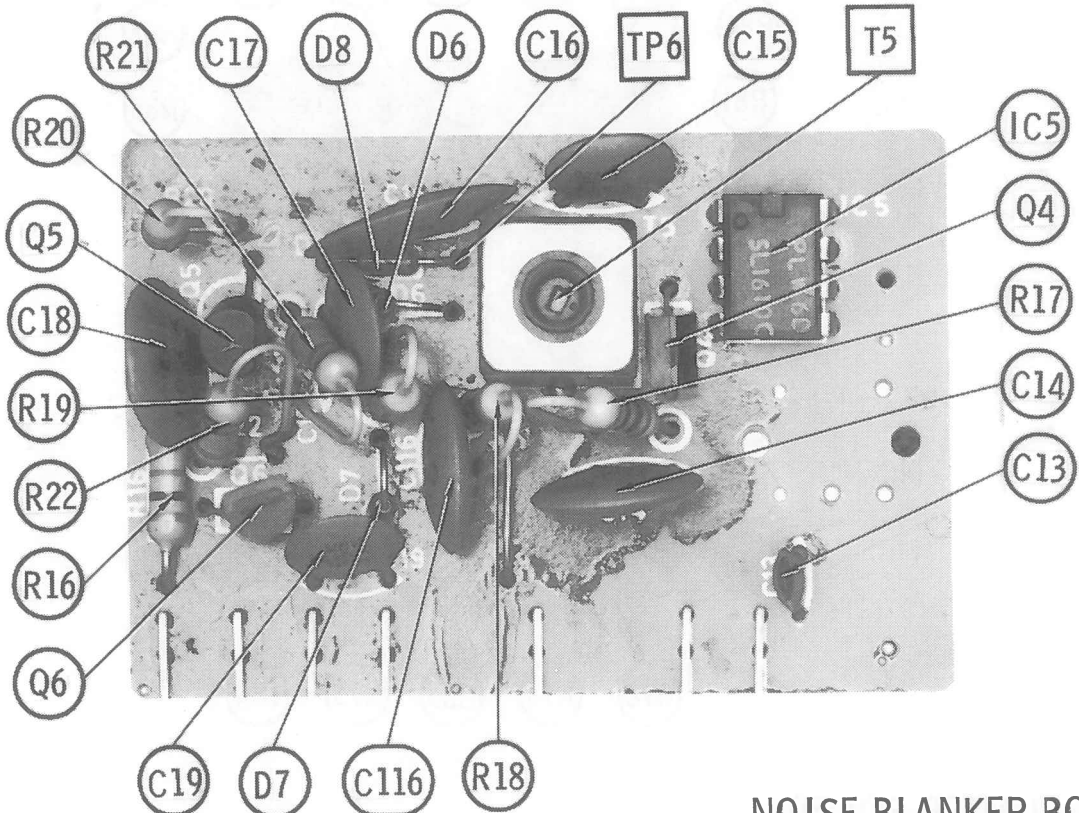
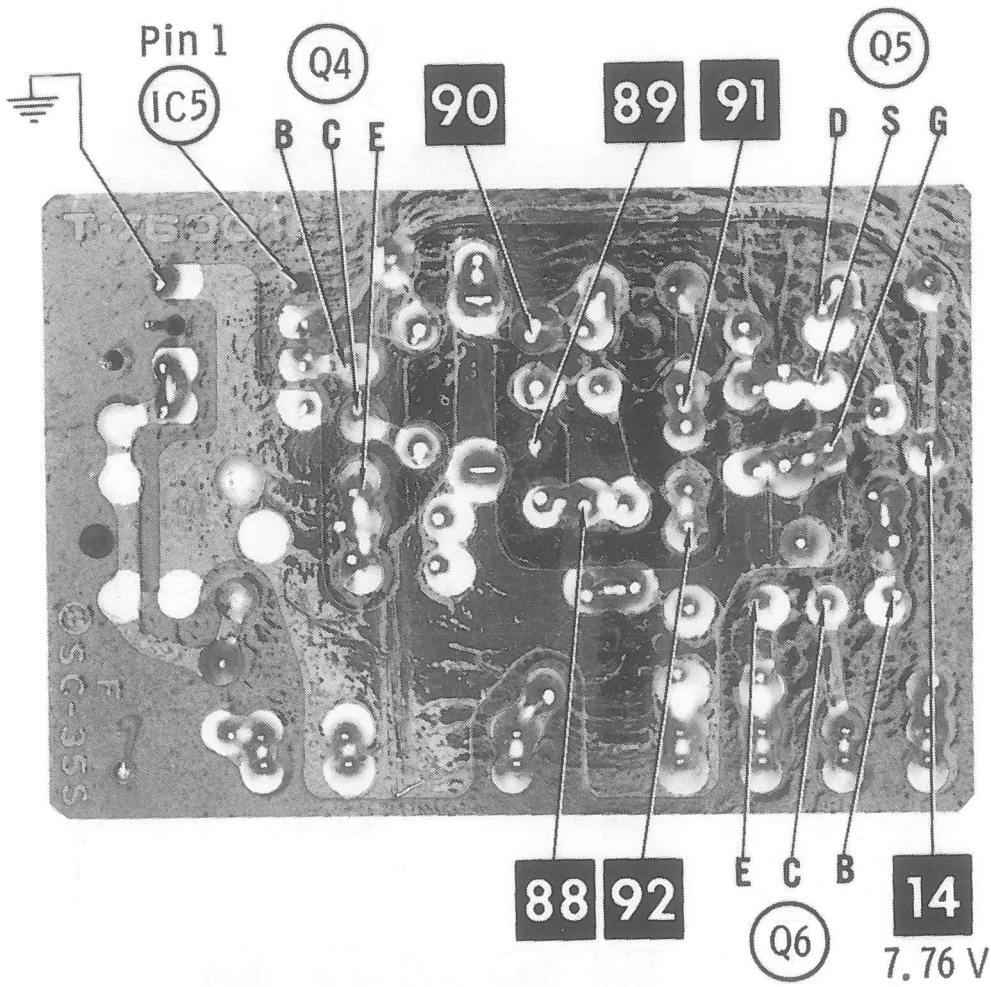
LED BOARD



LED BOARD

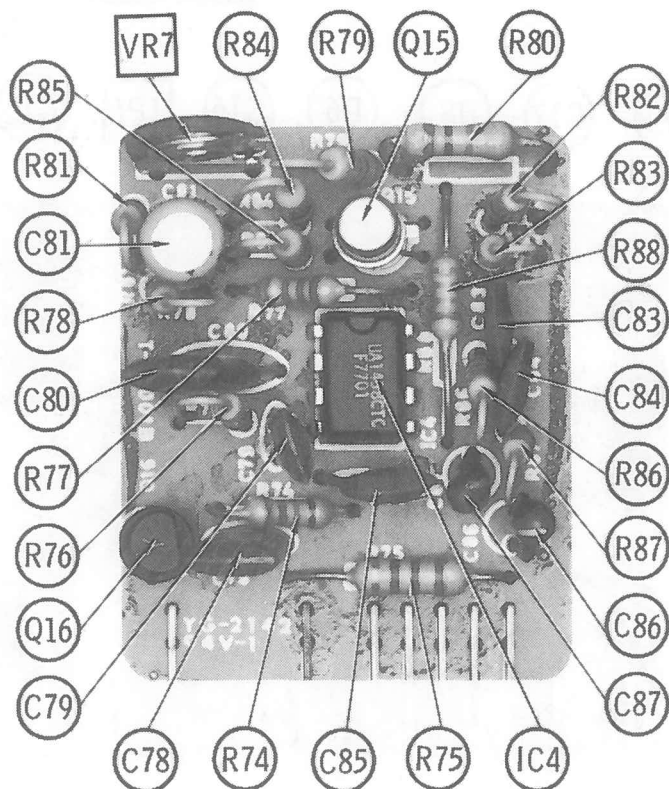
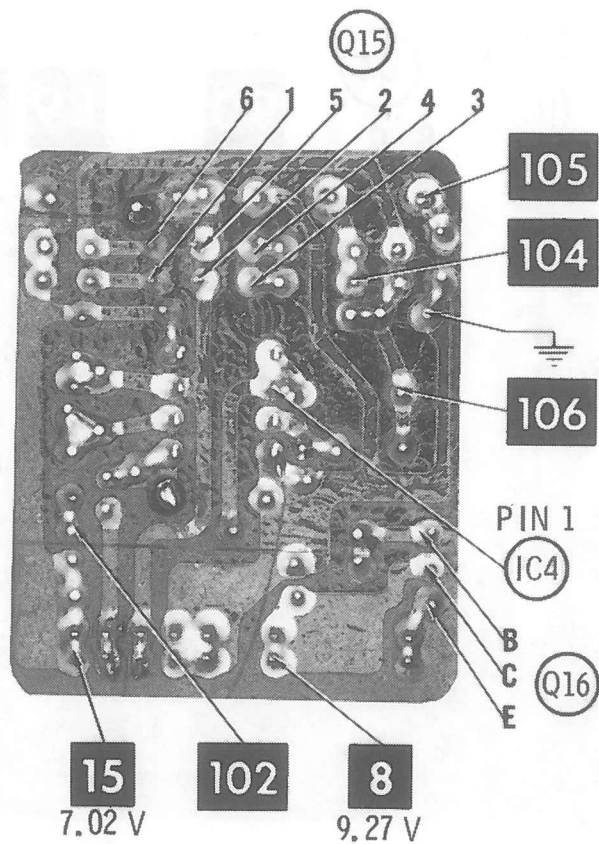


CH. DISPLAY BOARD

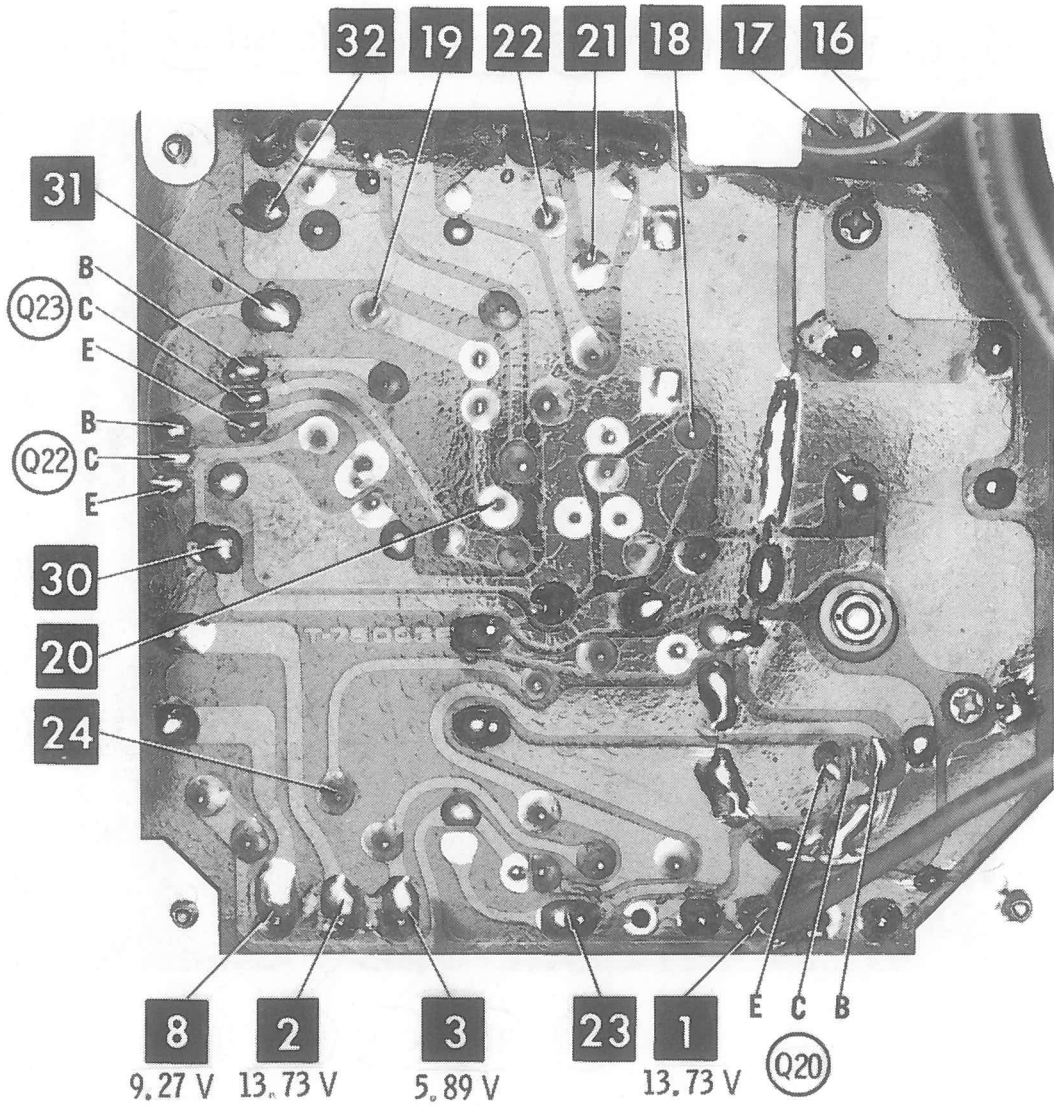


NOISE BLANKER BOARD

ROYCE MODEL 1-641

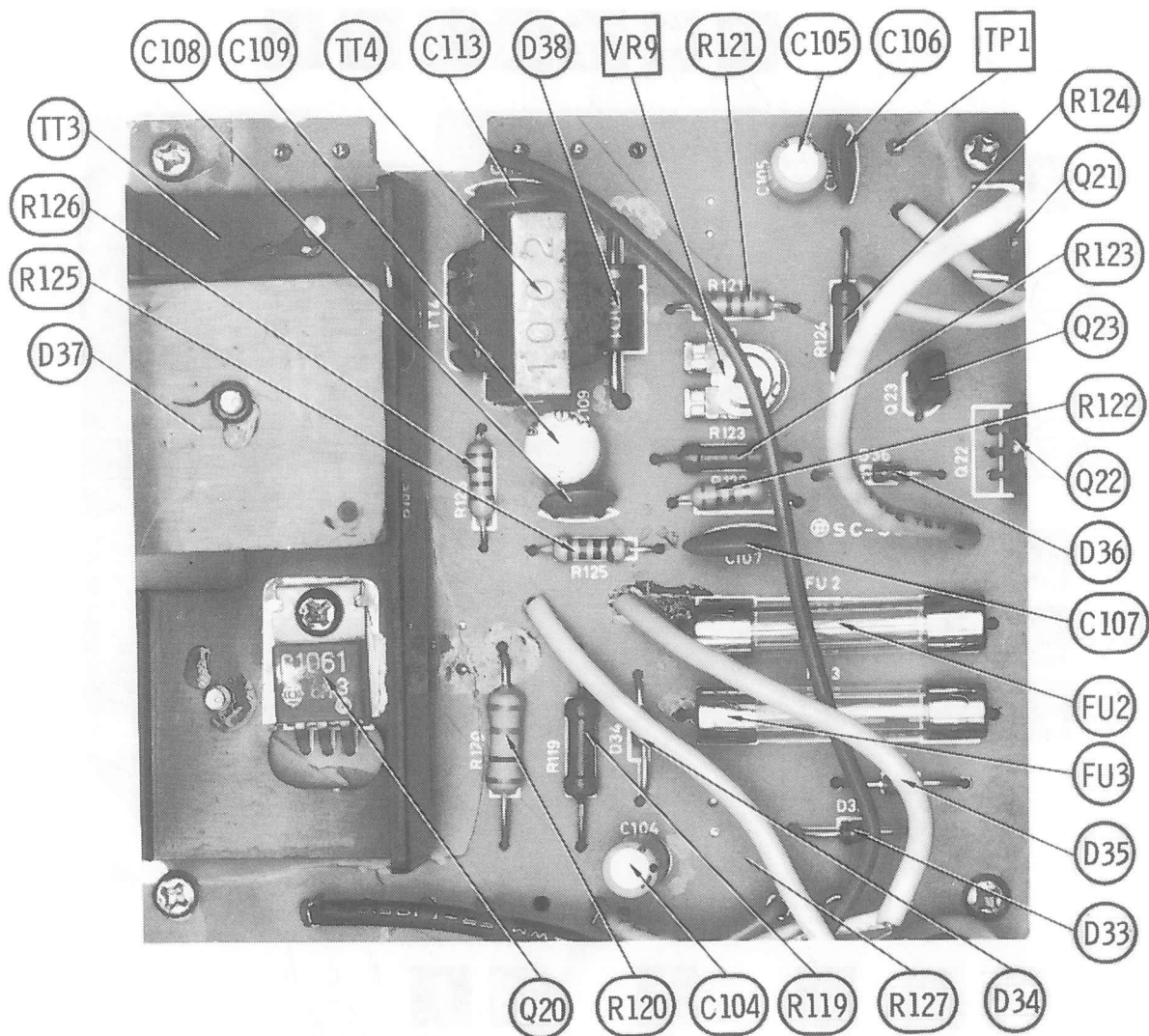


MIC LIMITER BOARD

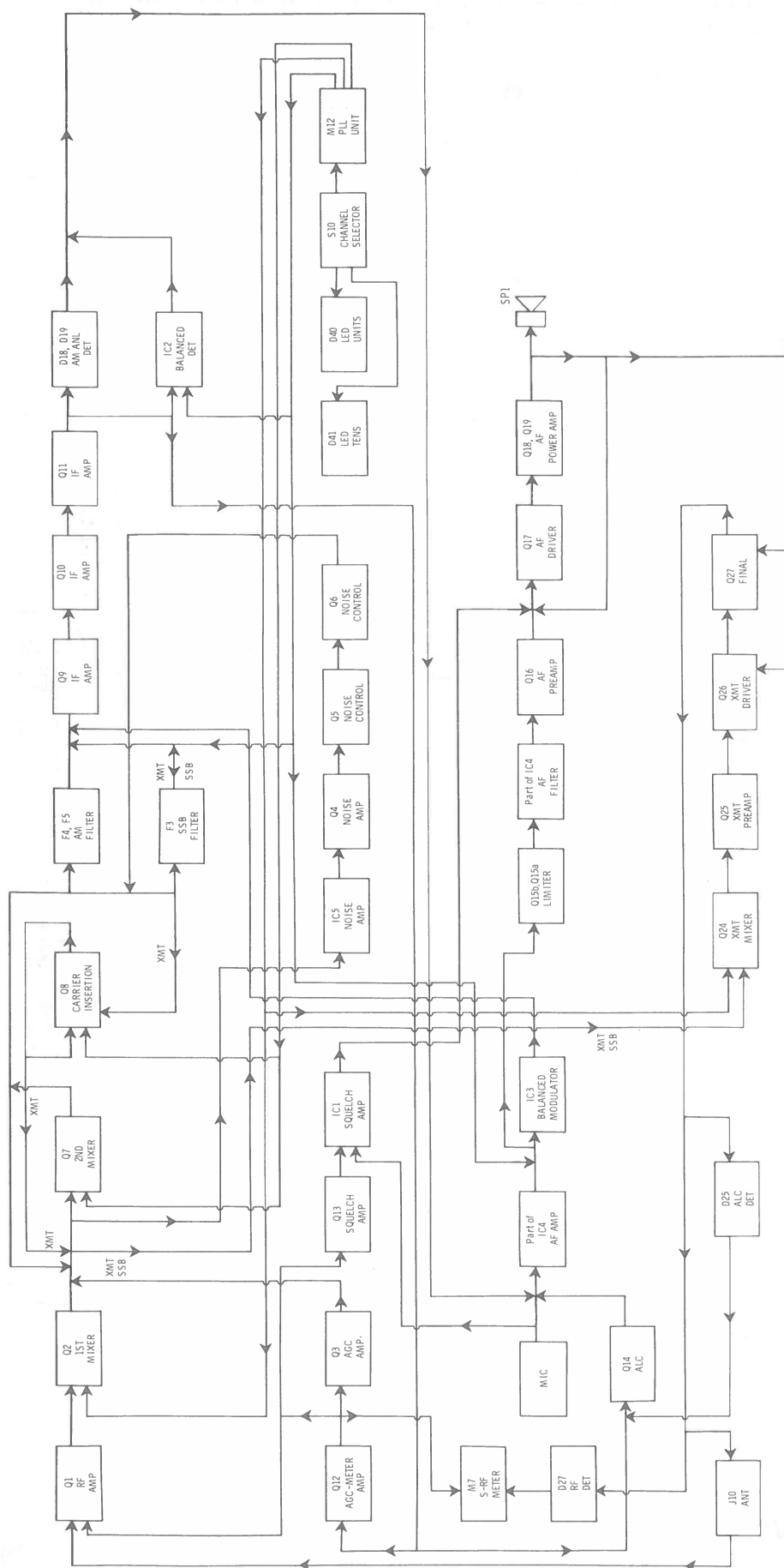


ROYCE MODEL 1-641

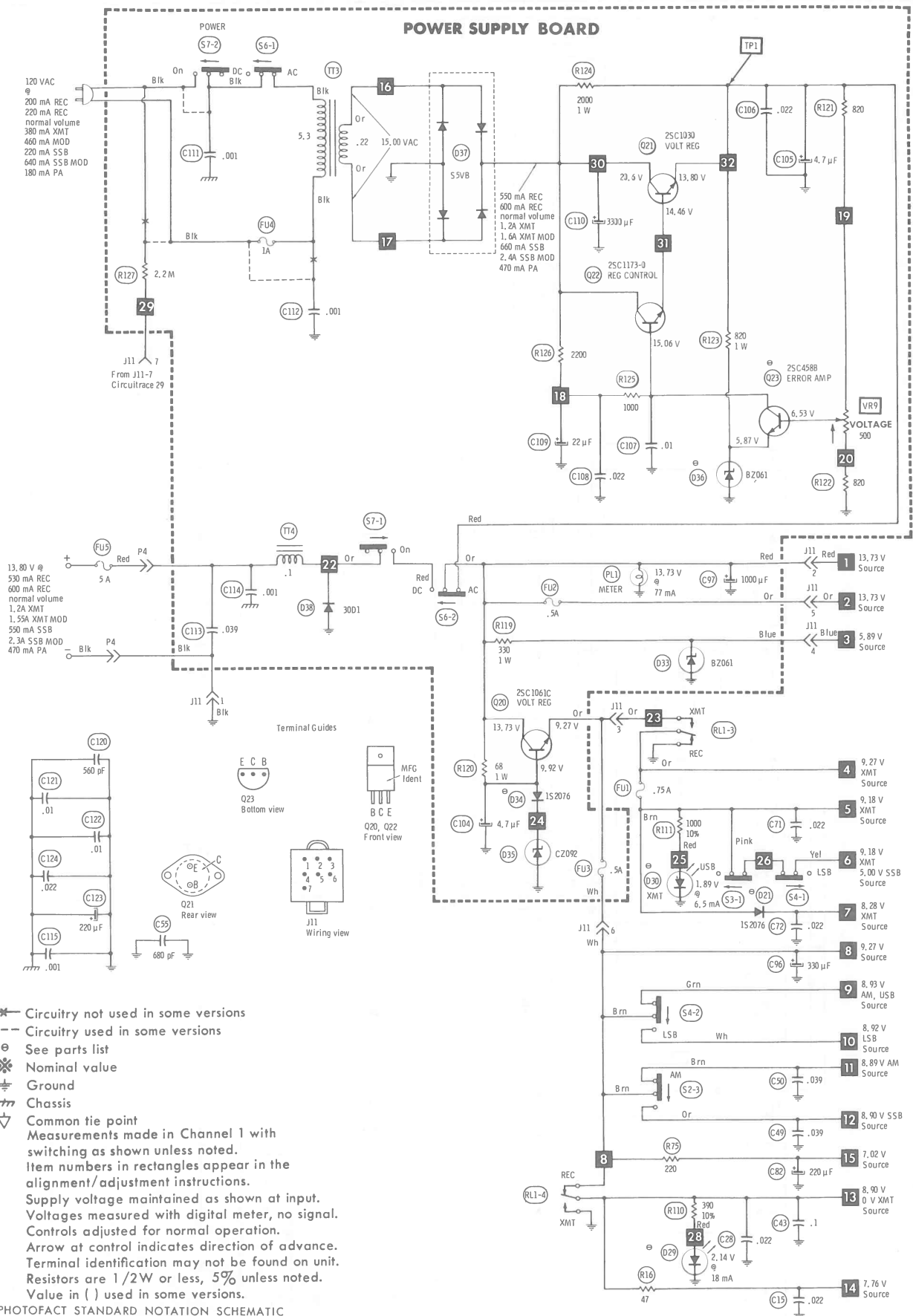
POWER SUPPLY BOARD



POWER SUPPLY BOARD



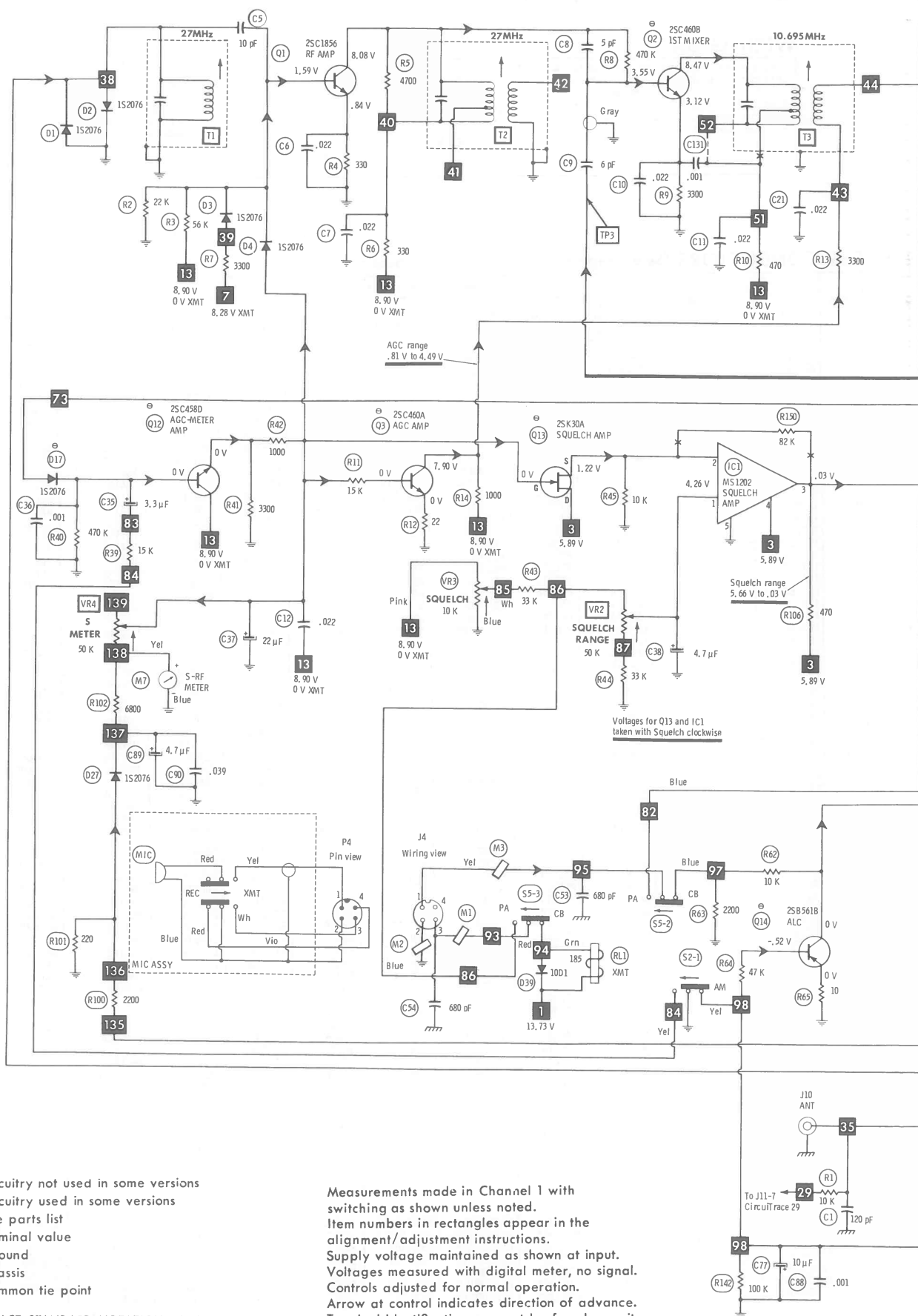
POWER SUPPLY BOARD



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

[illegible]

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	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D2	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D3	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D4	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D6	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D7	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D8	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D9	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D10	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D11	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D12	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D13	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D14	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D15	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D16	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D17	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D18	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D19	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D20	1S2075K		GE-300	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG177		WEP1062	
D21	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D22	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D23	STV-3H		GE-90		HEPR2503	REN 614		RT-262	ECG614		WEP200	ZEN-453
D24	STV-3H		GE-90		HEPR2503	REN 614		RT-262	ECG614		WEP200	ZEN-453
D25	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D26	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D27	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D28	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D31	1S2076		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148	WEP925	
D32	1S1588		GE-514	PTC214	HEPRO602	REN 177	SK3100	RT-218	ECG519	1N4148		



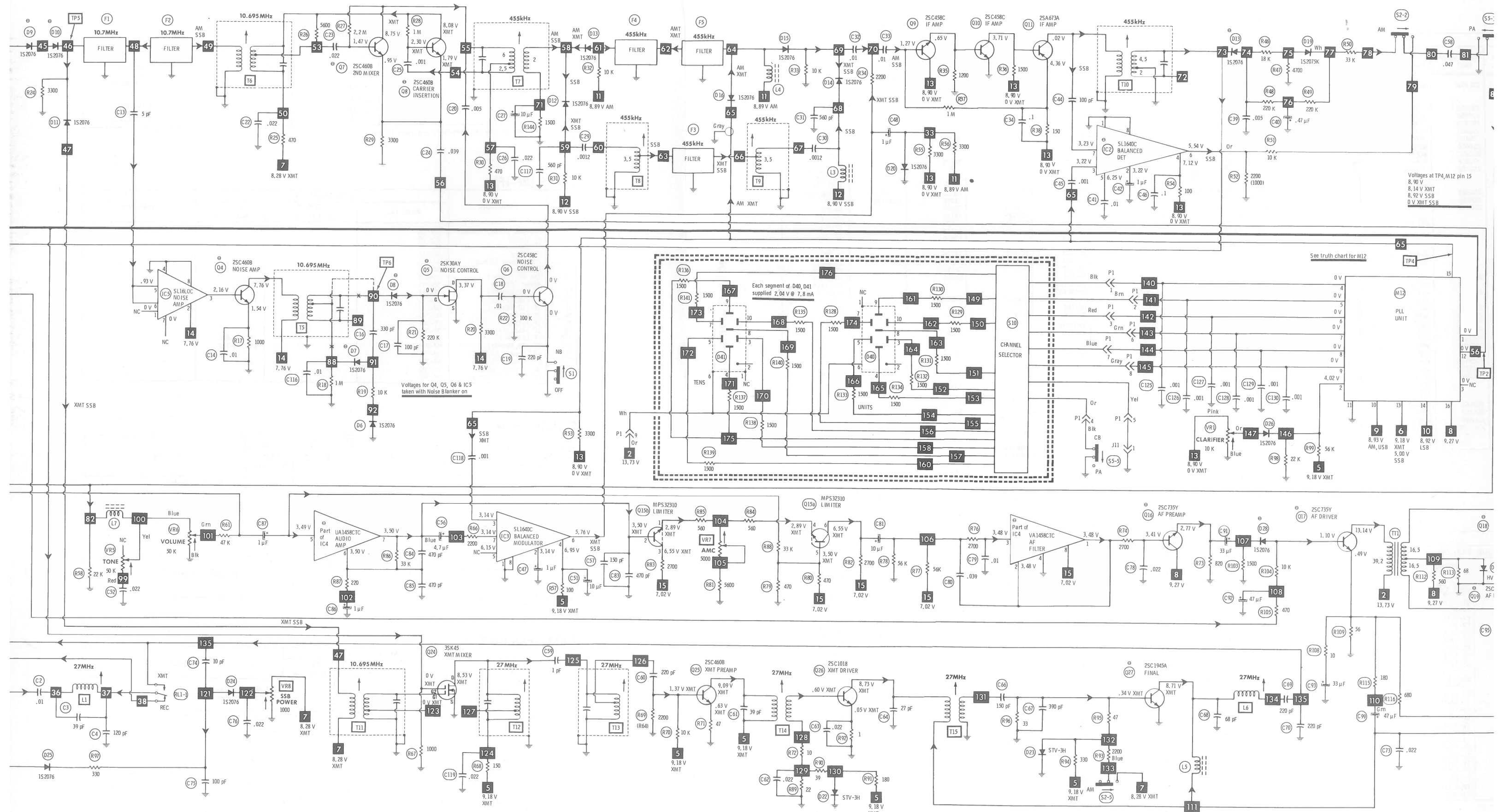
- X— Circuitry not used in some versions
- Circuitry used in some versions
- ⊕ See parts list
- * Nominal value
- ⊥ Ground
- ⏏ Chassis
- ▽ Common tie point

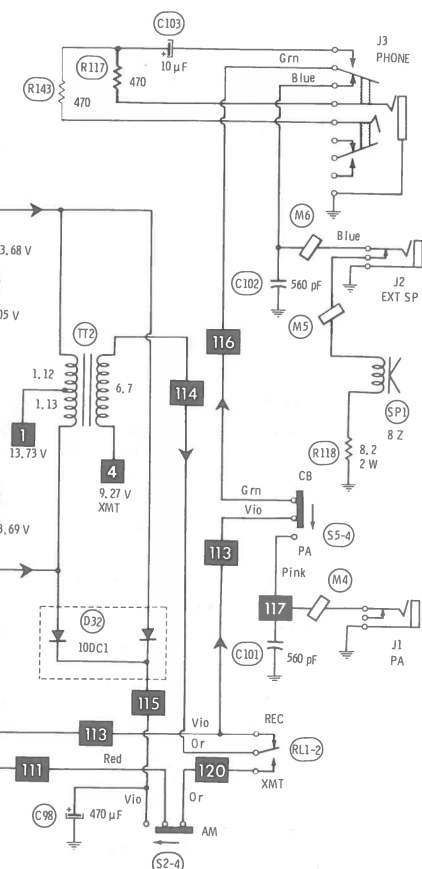
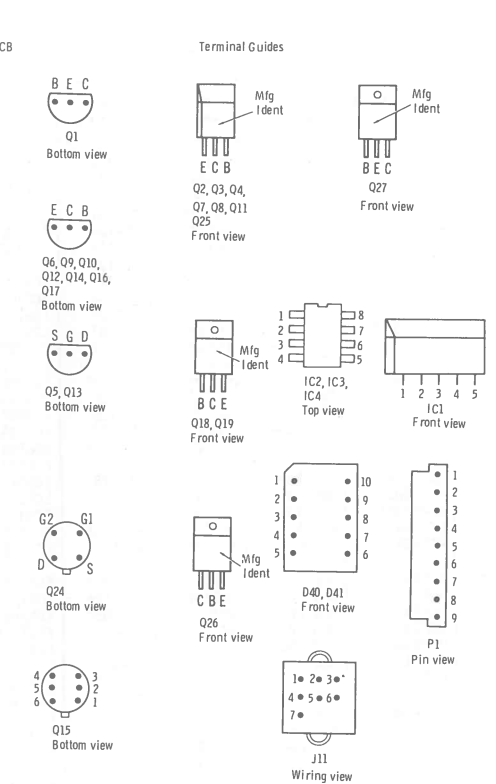
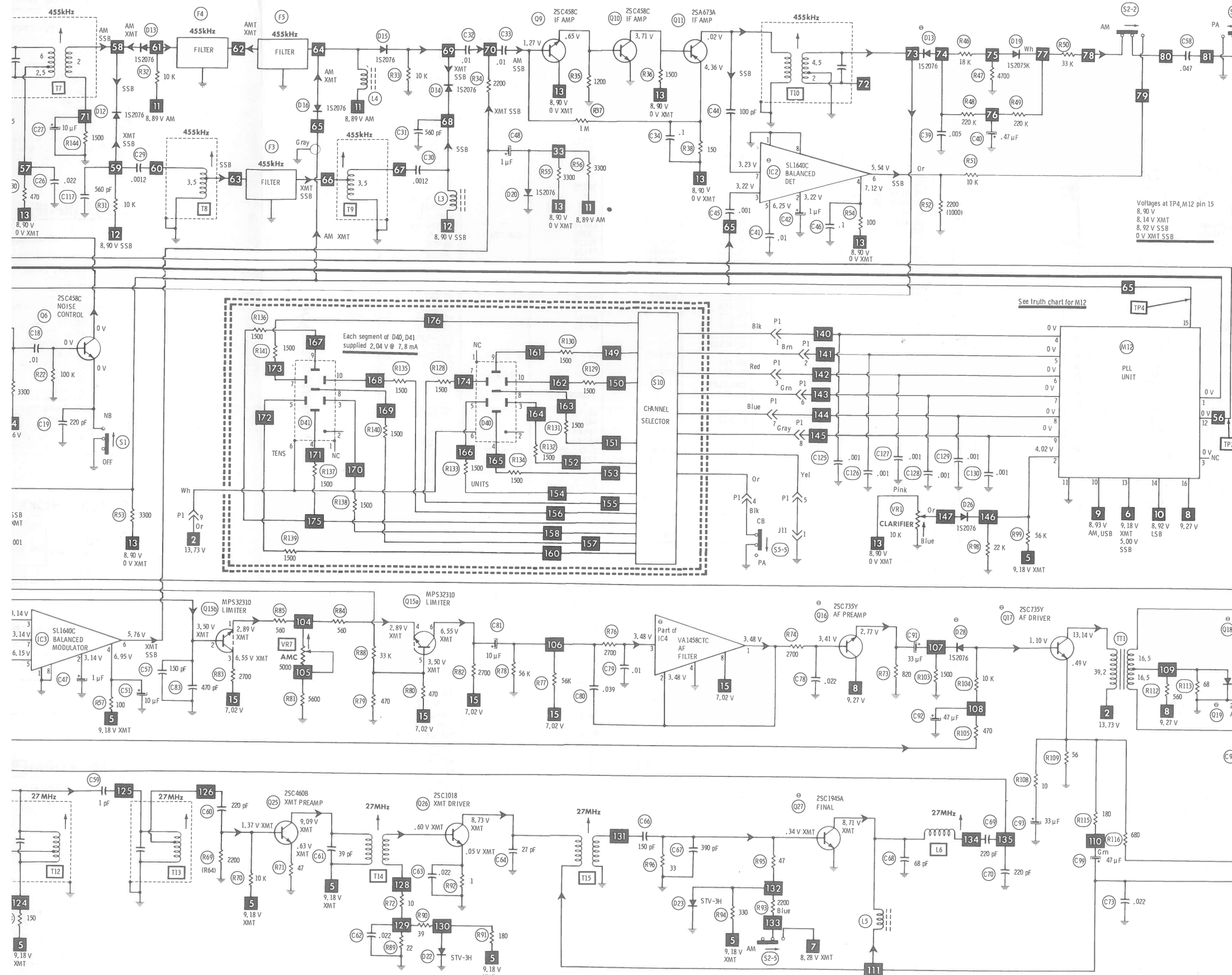
A PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE**®

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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.





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.
Q5	2SC460 2SK30AY 2SK30		GE-61* GE-FET-2 GE-FET-2	PTC136* PTC161 PTC161	HEPS0014* HEPF0021 HEPF0021	REN 107 REN 132 REN 132	SK3122 SK3448 SK3448	RT-134 RT-175 RT-175	ECG107 ECG312 ECG312	2SC460	WEP460	121-722 ZEN-123 ZEN-123
Q6	2SC458C		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3124	RT-187	ECG289	2SC458	WEP458	121-722 ZEN-123
Q7	2SC460B 2SC460A		GE-61* GE-61*	PTC136* PTC136*	HEPS0014* HEPS0014*	REN 107 REN 107	SK3122 SK3122	RT-134 RT-134	ECG107 ECG107	2SC460 2SC460	WEP460 WEP460	121-722 121-722
Q8	2SC460 2SC460B 2SC460A		GE-61* GE-61* GE-61*	PTC136* PTC136* PTC136*	HEPS0014* HEPS0014* HEPS0014*	REN 107 REN 107 REN 107	SK3122 SK3122 SK3122	RT-134 RT-134 RT-134	ECG107 ECG107 ECG107	2SC460 2SC460 2SC460	WEP460 WEP460 WEP460	121-722 121-722 121-722
Q9	2SC458C		GE-61*	PTC136*	HEPS0014*	REN 107	SK3122	RT-134	ECG107	2SC460	WEP460	121-722
Q10	2SC458C		GE-210*	PTC121*	HEPS0009*	REN 123A*	SK3124	RT-187	ECG289	2SC458	WEP458	121-722 121-722
Q11	2SC458C 2SA673C 2SA673		GE-210* GE-269 GE-269	PTC121* PTC103* PTC103*	HEPS0009* HEPS0026* HEPS0026*	REN 123A* REN 290 REN 290	SK3124 SK3114 SK3114	RT-187 RT-115* RT-115*	ECG289 ECG290 ECG290	2SC458	WEP458 WEP911 WEP911	121-722 121-722 121-722
Q12	2SA561 2SA562 2SC458D 2SC1335 2SC711		GE-269 GE-269 GE-210* GE-210* GE-260	PTC103* PTC103* PTC121* PTC121* PTC161	HEPS0012* HEPS0012* HEPS0009* HEPS0025* HEPF0021	REN 290 REN 290 REN 123A* REN 199 REN 132	SK3114 SK3114 SK3124 SK3020*	RT-106 RT-106 RT-187 RT-107A	ECG290 ECG290 ECG289 ECG199	2SA562 2SA562 2SC458	WEP911 WEP911 WEP458 WEP66 WEP766	121-986 121-986 121-722 121-722 ZEN-127
Q13	2SK30A 2SK30 2SK40		GE-FET-2 GE-FET-2 GE-FET-2	PTC161 PTC161 PTC161	HEPF0021 HEPF0021 HEPF0021	REN 132 REN 132 REN 132	SK3448 SK3448 SK3448	RT-175 RT-175 RT-175	ECG312 ECG312 ECG312			ZEN-123 ZEN-123 ZEN-123
Q14	2SB561B 2SB561		GE-82 GE-82	PTC161 PTC161	HEPS0019 HEPS0019	RE 26 RE 26	SK3114 SK3114	RT-126A RT-126A	ECG159 ECG159		WEP62 WEP62	ZEN-123 ZEN-123 ZEN-123
Q15	MPS32210											
Q16	2SC735Y 2SD467		GE-210* GE-243*	PTC123* PTC178	HEPS0014* HEPS3001*	REN 289 REN 289	SK3122 SK3024*	RT-308* RT-114*	ECG6289 ECG128*	2SC735	WEP735A WEP59*	ZEN-127 121-1014
Q17	2SC735Y 2SD467		GE-210* GE-243*	PTC123* PTC178	HEPS0014* HEPS3001*	REN 289 REN 128	SK3122 SK3024*	RT-308* RT-114*	ECG6289 ECG128*	2SC735	WEP735A WEP59*	ZEN-127 121-1014
Q18	2SC1061C 2SC1061		GE-66 GE-66	PTC154 PTC154	HEPS3061 HEPS3061	REN 152 REN 152	SK3054 SK3054	RT-197 RT-197	ECG152 ECG152	2SC1061 2SC1061	WEP745 WEP745	921-1009 921-1009
Q19	2SC1061C 2SC1061		GE-66 GE-66	PTC154 PTC154	HEPS3061 HEPS3061	REN 152 REN 152	SK3054 SK3054	RT-197 RT-197	ECG152 ECG152	2SC1061 2SC1061	WEP745 WEP745	921-1009 921-1009
Q20	2SC1061C 2SC1061		GE-66 GE-66	PTC154 PTC154	HEPS3061 HEPS3061	REN 152 REN 152	SK3054 SK3054	RT-197 RT-197	ECG152 ECG152	2SC1061 2SC1061	WEP745 WEP745	921-1009 921-1009
Q21	2SC1030		GE-14	PTC119	HEPS7002	REN 280	SK3027	RT-131	ECG280	2SC1061	WEP704	921-1009
Q22	2SC1173-0 2SC1173		GE-215 GE-215	PTC186 PTC186		REN 236 REN 236	SK3197 SK3197	RT-160 RT-160	ECG236 ECG236	2SC1173 2SC1173	WEP840 WEP840	
Q23	2SCK58B 2SC711		GE-210* GE-260	PTC121* PTC182	HEPS0009* HEPF2007	REN 123A* REN 222	SK3124 SK3065	RT-187 RT-181	ECG289 ECG277 ECG222	2SC458	WEP458 WEP766 WEP905	121-722 ZEN-123 121-826
Q24	3SK45		GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222			
Q25	2SC460B 2SC460A 2SC460		GE-61* GE-61* GE-61*	PTC136* PTC136* PTC136*	HEPS0014* HEPS0014* HEPS0014*	REN 107 REN 107 REN 107	SK3122 SK3122 SK3122	RT-134 RT-134 RT-134	ECG107 ECG107 ECG107	2SC460 2SC460	WEP460 WEP460	121-722 121-722 121-722
Q26	2SC1018		GE-236	PTC192		REN 299	SK3298	RT-143	ECG299	2SC1018	WEP1018	
Q27	2SC1945A 2SC1945	(12) (12)	GE-216 GE-216	PTC186 PTC186		REN 236 REN 236	SK3197 SK3197	RT-158 RT-158	ECG236 ECG236		WEP840 WEP840	

* Lead configuration may vary from original.

(12) 20 watts @ 6 amps.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
					Q-LINE	GENERAL LINE	
C27	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322	
C35	3.3			TAC335K025P04	QDT1-43	SD50-3R39	
C37	22 16V		PC25-25	VTT22B16	QV1-55	EV-1224	
C38	4.7 50V		PC5-50	VTT4R7B50	QV1-29	EV-1519	
C40	.47 50V		PC1-50	VTT4R7A63	QV1-3	EV-1610	
C42	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615	
C47	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615	
C48	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615	
C51	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322	
C56	4.7 50V		PC5-50	VTT4R7B50	QV1-29	EV-1519	
C77	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322	
C81	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322	
C82	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240	
C86	1 10V			TDC105M035EL		SD35-19	
C87	1 10V			TDC105M035EL		SD35-19	
C89	4.7 50V		PC5-50	VTT4R7B50	QV1-29	EV-1519	
C91	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325	
C92	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226	
C93	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325	
C96	330 10V		WBR300-35*	VTT330G10	QV1-131	EV-1145	
C97	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260	
C98	470 25V		WBR500-25*	VTT470M25	QV1-153	EV-1350	
C99	47 25V		PC50-25	VTT47C25	QV1-75	EV-1326	
C103	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222	
C104	4.7 50V		PC5-50	VTT4R7B50	QV1-29	EV-1519	
C105	4.7 50V		PC5-50	VTT4R7B50	QV1-29	EV-1519	
C109	22 35V		PC30-50	VTT22G63	QV1-59	EV-1624	
C110	3300 35V		AA0145A			TVLU-1129	
C123	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240	

*Axial replacement for radial device.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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	120 10%			CD15FD121J03	SX312	QW1-29	MWA-121
C2	.01 10%						10TS-S10
C3	39		CW15C103K				MWA-390
C4	120 10%			CD15ED390J03	SX439	QW1-17	MWA-121
C5	10 NPO			CD15FD121J03	SX312	QW1-29	10TCC-Q10
C6	.022		DTZ-10	NP010	CN0410		TG-S25
C7	.022		DC-253	MGPO25	TA125		TG-S25
C8	5 NPO		DC-253	MGPO25	TA125		10TCC-V47
C9	6 NPO		DTZ-4R7	NP04P7	CN0547		
C10	.022						
C11	.022		DC-253	MGPO25	TA125		TG-S25
C12	.022		DC-253	MGPO25	TA125		TG-S25
C13	5 NPO		DC-253	MGPO25	TA125		TG-S25
C14	.01 10%		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C15	.022		CW15C103K				10TS-S10
C16	330 N220 10%		DC-253	MGPO25	TA125		TG-S25
C17	100 N220 10%				*		10TCR-T33
C18	.01 10%				*		10TCR-T10
C19	220 N750 10%		CW15C103K				10TS-S10
C20	.005		DTN-220	N220	CN7322		10TCU-T22
C21	.022		DC-502	MGPO05	TA250	QC2-123	TG-D50
C22	.022		DC-253	MGPO25	TA125		TG-S25
C23	.022		DC-253	MGPO25	TA125		TG-S25
C24	.039		DC-253	MGPO25	TA125		TG-S25
C25	.001				GP140		5GA-S40
C26	.022		DD-102		GP210		10TS-D10
C27	.022		DC-253	MGPO25	TA125		TG-S25
C28	.022		DC-253	MGPO25	TA125		TG-S25
C29	.0012 10%		DD-122		GP212		10TS-D12
C30	.0012 10%		DD-122		GP212		10TS-D12
C31	560		DD-561		GP356		10TS-T56
C32	.01 10%		CW15C103K				10TS-S10
C33	.01 10%		CW15C103K				10TS-S10
C34	.1 50V			WMFD5P1	ENWF05010	QFT2-215	1FT-P10
C35	.001				GP210		10TS-D10
C36	.005		DD-102	MGPO05	TA250	QC2-123	TG-D50
C37			DC-502				
C41	.01 10%		CW15C103K				10TS-S10
C43	.1		CK-104		MAG5001		
C44	100 N220 10%				*		10TCR-T10
C45	.001		DD-102		GP210		10TS-D10
C46	.1		CK-104		MAG5001		
C49	.039				GP140		5GA-S40
C50	.039				GP140		5GA-S40
C52	.022				GP140		1FT-S10
C53	680 10%			DPMS2S22	ENW1A122	QFT2-127	MWC-681
C54	680 10%			CD19FD681J03	SX368		MWC-681
C55	680 10%			CD19FD681J03	SX368		MWC-681
C56	680 10%			CD19FD681J03	SX368		MWC-681
C57	150 N750 10%			N150	CN7315	QFT2-171	10TCU-T15
C58	.047 50V		DTN-150	DPMS2S47	ENW1A147		1FT-S47
C59	1 10%				CN0510		10TCC-V10
C60	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C61	39 NPO 10%				CN0439		10TCC-Q39
C62	.022		DC-253	MGPO25	TA125		TG-S25
C63	.022		DC-253	MGPO25	TA125		TG-S25
C64	27 N750				CN7427		10TCU-Q27
C65	150 N750 10%		DTN-150	N150	CN7315		10TCU-T15
C67	390 N750 10%		DTN-390				10TCU-T39
C68	68						
C69	220 10%			CD15ED680J03	SX468	QW1-23	MWA-680
C70	220 10%			CD15FD221J03	SX322	QW1-35	MWA-221
C71	.022			CD15FD221J03	SX322	QW1-35	MWA-221
C72	.022		DC-253	MGPO25	TA125		TG-S25
C73	.022		DC-253	MGPO25	TA125		TG-S25
C74	10 N750		DC-253	MGPO25	TA125		TG-S25
C75	100 N220 10%		DTN-10	N10	CN7410		10TCU-Q10
C76	.022				*		10TCR-T10
C77	.022		DC-253	MGPO25	TA125		TG-S25
C78	.022			DPMS2S22	ENW1A122	QFT2-127	1FT-S22
C79	.01			WMF1S1	ENW1A110	QFT2-91	1FT-S10
C80	.039				M192P3939R8	qFT2-159	1FT-S39
C83	470		DD-471	GP470	GP347		10TS-T47
C84	470		DD-471	GP470	GP347		10TS-T47
C85	470		DD-471	GP470	GP347		10TS-T47
C88	.001		DD-102		GP210		10TS-D10
C90	.039				GP140		5GA-S40
C94	.022		DC-253	MGPO25	TA125		TG-S25
C95	.022		DC-253	MGPO25	TA125		TG-S25
C101	560			CD19FD561J03	SX356		MWC-561
C102	560			CD19FD561J03	SX356		MWC-561
C106	.022				TA125		TG-S25
C107	.01 10%		DC-253	MGPO25	TA125		10TS-S10
C108	.022		CW15C103K				TG-S25
C111	.001 125V		DC-253		TA125		10TS-D10
C112	.001 125V		DD-102		GP210		10TS-D10
C113	.039		DD-102		GP210		10TS-D10
C114	.001		DD-102		GP140		5GA-S40
C115	.001		DD-102		GP210		10TS-D10
C116	.01 10%		DD-102		GP210		10TS-D10
C117	560		CW15C103K				10TS-S10
C118	.001		DD-561		GP356		10TS-T56
C119	.022		DD-102		GP210		10TS-D10
C120	560		DC-253	MGPO25	TA125		TG-S25
C121	.01			CD19FD561J03	SX356		MWC-561
C122	.01		UK50-103		MAG5011		
C124	.022		UK50-103		MAG5011		
C125	.001		DC-253	MGPO25	TA125		TG-S25
C126	.001		DD-102		GP210		10TS-D10
C127	.001		DD-102		GP210		10TS-D10
C128	.001		DD-102		GP210		10TS-D10
C129	.001		DD-102		GP210		10TS-D10
C130	.001		DD-102		GP210		10TS-D10
C131	.001		DD-102		GP210		10TS-D10

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

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	120 10%			CD15FD121J03	SX312	QW1-29	MMA-121
C2	.01 10%						10TS-S10
C3	39		CW15C103K	CD15ED390J03	SX439	QW1-17	MMA-390
C4	120 10%			CD15FD121J03	SX312	QW1-29	MMA-121
C5	10 NPO		DTZ-10	NP010	CN0410		10TCC-Q10
C6	.022		DC-253	MGP025	TA125		TG-S25
C7	.022		DC-253	MGP025	TA125		TG-S25
C8	5 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C9	6 NPO						
C10	.022		DC-253	MGP025	TA125		TG-S25
C11	.022		DC-253	MGP025	TA125		TG-S25
C12	.022		DC-253	MGP025	TA125		TG-S25
C13	5 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C14	.01 10%		CW15C103K		TA125		10TS-S10
C15	.022		DC-253	MGP025	*		TG-S25
C16	330 N220 10%				*		10TCR-T33
C17	100 N220 10%						10TCR-T10
C18	.01 10%		CW15C103K				10TS-S10
C19	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C20	.005		DC-502	MGP005	TA250	QC2-123	TG-D50
C21	.022		DC-253	MGP025	TA125		TG-S25
C22	.022		DC-253	MGP025	TA125		TG-S25
C23	.022		DC-253	MGP025	TA125		TG-S25
C24	.039		DC-253	MGP025	GP140		5GA-S40
C25	.001		DD-102		GP210		10TS-D10
C26	.022		DC-253	MGP025	TA125		TG-S25
C28	.022		DC-253	MGP025	TA125		TG-S25
C29	.0012 10%		DD-122		GP212		10TS-D12
C30	.0012 10%		DD-122		GP212		10TS-D12
C31	560		DD-561		GP356		10TS-T56
C32	.01 10%		CW15C103K				10TS-S10
C33	.01 10%		CW15C103K				10TS-S10
C34	.1 50V			WMF05P1	EWFO5010	QFT2-215	1FT-P10
C36	.001		DD-102		GP210		10TS-D10
C39	.005		DC-502	MGP005	TA250	QC2-123	TG-D50
C41	.01 10%		CW15C103K				10TS-S10
C43	.1		CK-104		MAG5001		10TCR-T10
C44	100 N220 10%				*		10TS-D10
C45	.001		DD-102		GP210		5GA-S40
C46	.1		CK-104		MAG5001		5GA-S40
C49	.039				GP140		1FT-S10
C50	.039				GP140	QFT2-127	MWC-681
C52	.022			DPMS2S22	EWFI1A122		MWC-681
C53	680 10%			CD19FD681J03	SX368		MWC-681
C54	680 10%			CD19FD681J03	SX368		MWC-681
C55	680 10%			CD19FD681J03	SX368		MWC-681
C57	150 N750 10%		DTN-150	N150	CN7315	QFT2-171	10TCU-T15
C58	.047 50V			DPMS2S47	EWFI1A147		1FT-S47
C59	1 10%				CN0510		10TCC-V10
C60	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C61	39 NPO 10%				CN0439		10TCC-Q39
C62	.022		DC-253	MGP025	TA125		TG-S25
C63							

ROYCE MODEL 1-641

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR1	Clarifier	10K	09-055			
VR2	Squelch Range	50K	01-521			
VR3	Squelch	10K	09-055			U260R503B
VR4	S Meter	50K	01-521			
VR5	Tone	50K	09-083			U260R503B
VR6	Volume	50K	09-020			
VR7	AMC	5000	01-513			
VR8	SSB Power	1000	01-510			X260R502B(2)
VR9	Volt Reg.	500	01-525			U260R102B U260R501B

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Antenna Tuning (27MHz)	02-059			
L3	RF Choke	02-109			
L4	RF Choke	02-109			
L5	RF Choke	02-058			
L6	Final Load (27Mhz)	02-072			
L7	RF Choke	02-109			
T1	Rec RF (27MHz)	02-054			
T2	Mixer (27Mhz)	02-012		CBS708-TC	
T3	IF (10.695MHz)	02-013		CBS508-1TC	
T5	IF (10.695MHz)	02-013		CBS508-1TC	
T6	IF (10.695MHz)	02-056			
T7	IF (455kHz)	02-073			
T8	IF (455kHz)	02-052			
T9	IF (455kHz)	02-052			
T10	IF (455kHz)	02-017			
T11	IF (10.695MHz)	02-013		CBS506-4TC	
T12	XMT Preamp (27MHz)	02-055		CBS508-1TC	
T13	XMT Preamp (27MHz)	02-055			
T14	XMT Driver (27MHz)	02-022			
T15	XMT Driver (27MHz)	02-060			

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
TT4	2.3A	.1	1.45mH	1002(1)	TR509		(1) Number on unit.

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
TT1	1	1		02-126 1001(1)	TR612		(1) Number on unit.

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
TT2	32	8	02-141 76022(1) 02-136(2)			(1) Number on unit. (2) Used in some versions.

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
TT3	120V AC @ 640mA AC	15.00V AC @ 4.32A AC	ETT76021(1)			(1) Number on unit.

A D.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
	2SC460	WEP460	121-722 ZEN-123 ZEN-123
	2SC458	WEP458	121-29000*
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC458	WEP458	121-29000*
	2SC458	WEP458	121-29000*
		WEP911	121-774
		WEP911	121-774
	2SA562	WEP911	121-986
	2SA562	WEP911	121-986
	2SC458	WEP458	121-29000*
		WEP66	ZEN-127
		WEP766	
		WEP62	
		WEP62	
	2SC735	WEP735A	ZEN-127
		WEP59*	121-1014
	2SC735	WEP735A	ZEN-127
		WEP59*	121-1014
	2SC1061	WEP745	921-1009
	2SC1061	WEP745	921-1009
	2SC1061	WEP745	921-1009
	2SC1061	WEP745	921-1009
	2SC1061	WEP745	921-1009
	2SC1061	WEP745	921-1009
		WEP704	
	2SC1173	WEP840	
	2SC1173	WEP840	
	2SC458	WEP458	121-29000*
		WEP766	
		WEP905	121-826
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC460	WEP460	121-722
	2SC1018	WEP1018	
		WEP840	
		WEP840	

AGUE	PART No.
	GENERAL LINE
	EV-1322
	SD50-3R39
	EV-1224
	EV-1519
	EV-1610
	EV-1615
	EV-1615
	EV-1615
	EV-1322
	EV-1519
	EV-1322
	EV-1322
	EV-1240
	SD35-19
	SD35-19
	EV-1519
	EV-1325
	EV-1226
	EV-1325
	EV-1145
	EV-1260
	EV-1350
	EV-1326
	EV-1222
	EV-1519
	EV-1519
	EV-1624
	TLU-1129
	EV-1240

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	2 1/2" X 4" 8 Ohms	06-007 SP-030F(1)		(1) Number on unit.

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
FU1	.75A Quick Acting			GJV3/4		318.750		
FU2	.5A Quick Acting			GJV1/2		318.500		
FU3	.5A Quick Acting			GJV1/2		318.500		
FU4	1A Quick Acting			AGC1	HPK	312.001	342038L	F61-2
FU5	5A Quick Acting			AGC5	HDJ	311005	150145	F65-2

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	21-001	18-032	18-034	18-010	18-092	1	2	3	NC	NC	2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
D29	LED		Rec 2.14V @ 18mA
D30	LED		XMT 1.89V @ 6.5mA
D40	LED		Channel Display 2.04V @ 7.8mA
D41	LED		Channel Display 2.04V @ 7.8mA
F1	Filter	01-902	10.7MHz Ceramic
F2	Filter	01-902	10.7MHz Ceramic
F3	Filter	01-909	455kHz
F4	Filter	01-901(01-907)	455kHz
F5	Filter	01-901(01-907)	455kHz
J1	Jack	10-003A	PA
J2	Jack	10-003A	External Speaker
J3	Jack	10-008	Phone
J4	Jack	10-001	Mic
J10	Jack	10-002	Antenna
M7	Meter	05-010	S/Rf
M12	Module	12-014	PLL
PL1	Lamp	07-001	Meter
RL1	Relay	15-002	XMT
S1	Switch	09-145	NB
S2	Switch	09-145	AM
S3	Switch	09-145	UBS
S4	Switch	09-145	LSB
S5	Switch	09-145	CB/PA
S6	Switch	09-154	AC/DC
S7	Switch	09-151	Power
S10	Switch	09-118	Channel Selector

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

ITEM	PART No.	ITEM	PART No.
Button, Black	19-640	Knob, Control	19 611
Button, Chrome	19-641	End Panels	19-127A
Case, Top	19-127B	Face Plate	19-214A
Knob, Channel	19-622		

ROYCE MODEL 1-641