



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 1-648

ROYCE MODEL 1-648

MANUFACTURER'S SPECIFICATIONS

GENERAL

- | | |
|--|---|
| 1. Semiconductors | : 23 transistors, 1 FET, 13 diodes, 3 integrated circuit |
| 2. Self-Contained Speaker | : 2-1/2 inch, 8 ohms voice coil |
| 3. Microphone | : Dynamic microphone with push-to-talk switch, 500 ohms |
| 4. Controls, Indicators and Connectors | : Volume control with power on-off switch
: Variable Squelch Control
: Channel Selector
: Illuminated channel indicator
: Illuminated S/RF power meter
: Push button PA/CB
: Coaxial type antenna connector
: Microphone connector
: DC power connector
: External Speaker Jack
: Public Address Speaker Jack |
| 5. Power Supply | : 13.8 Volts DC (positive or negative ground) |
| 6. Cabinet Description | : Plastic front with chrome plating |
| 7. Dimensions | : 7-15/16"(D) × 6-5/16"(W) × 2-7/32"(H) |

RECEIVER

- | | |
|--|----------------------------------|
| 1. Frequency Range (MHz) | : 26.965–27.405 |
| 2. Sensitivity | : 0.5μV for 10db S+N/N |
| 3. Selectivity | : 5KHz minimum at 6db down |
| 4. Adj. channel rejection | : More than 50 db |
| 5. Audio power output at 8 ohms | : More than 3W at 10% distortion |
| 6. Audio fidelity (1KHz=0db, 6db down) | : 400Hz–2000Hz |
| 7. AGC figure of merit | : More than 80db |
| 8. Squelch Sensitivity (Threshold) | : Less than 0.5μV |
| 9. Spurious Rejection | : More than 45db |

TRANSMITTER

- | | |
|--------------------------|------------------|
| 1. Frequency Range (MHz) | : 26.965–27.405 |
| 2. RF Power Output | : 4W |
| 3. Modulation Capability | : 100% |
| 4. Spurious Suppression | : More than 60db |
| 5. 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. Suggested Alignment Tools:

T3,T4.....	GC Electronics: 5009
T1,T2.....	9440
L4,T6,T7.....	8282

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (PLL unit, Pin 2)	Ch. 19		Check for 10.240MHz.
Input of frequency counter to TP2 (PLL unit, Pin 19).	Ch. 1		Check for 37.660MHz. Check all channels (Channel frequency + 10.695MHz = frequency on counter).
Input of frequency counter to TP3 (PLL unit, Pin 23).	Ch. 1, XMT		Check for 26.965MHz. Check all channels (Counter should indicate channel frequency).

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.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP1. (Q4, Base) 455kHz,1000Hz @ 30% modulation.	Ch. 19, Squelch MINIMUM	T4,T3	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz,1000Hz @ 30% modulation.	Ch. 19 Squelch MINIMUM	T2,T1	Adjust for maximum output. It may be necessary to readjust T3,T4.

TRANSMITTER ALIGNMENT

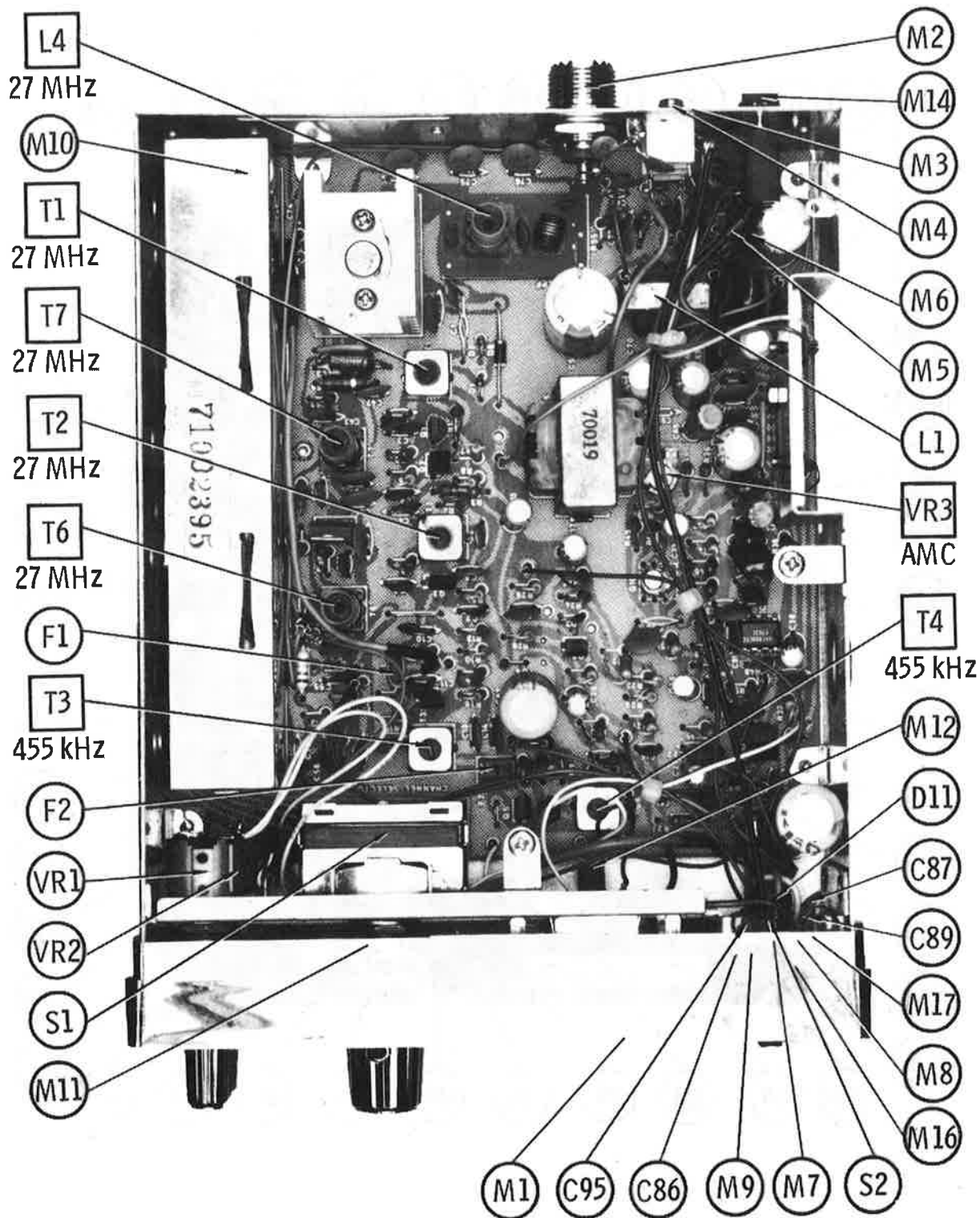
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector. NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter. See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 19	T6,T7,L4	Adjust for maximum.
	Ch. 19	L4	Adjust for 4 watts maximum.

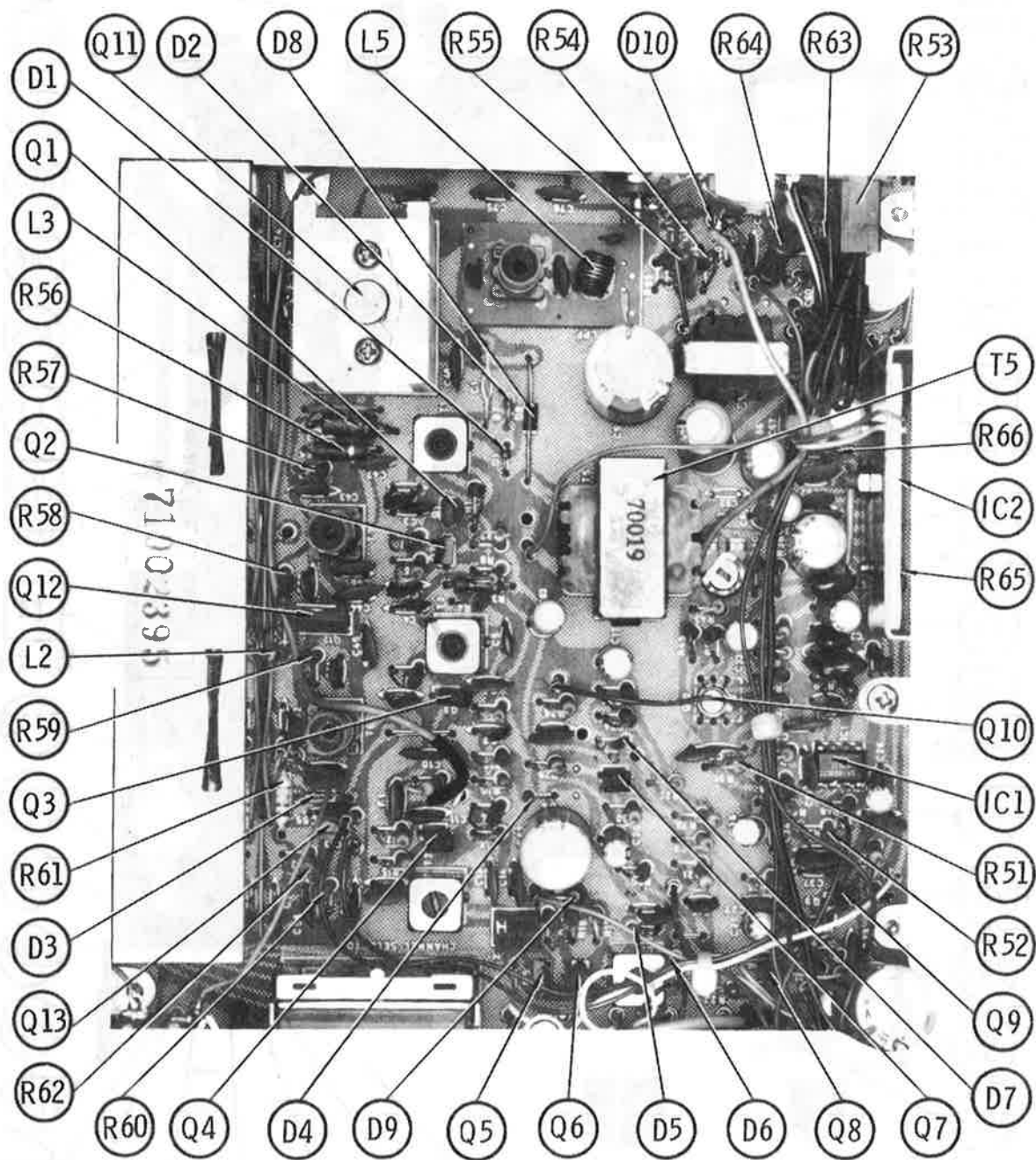
TRANSMITTER ADJUSTMENTS

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.

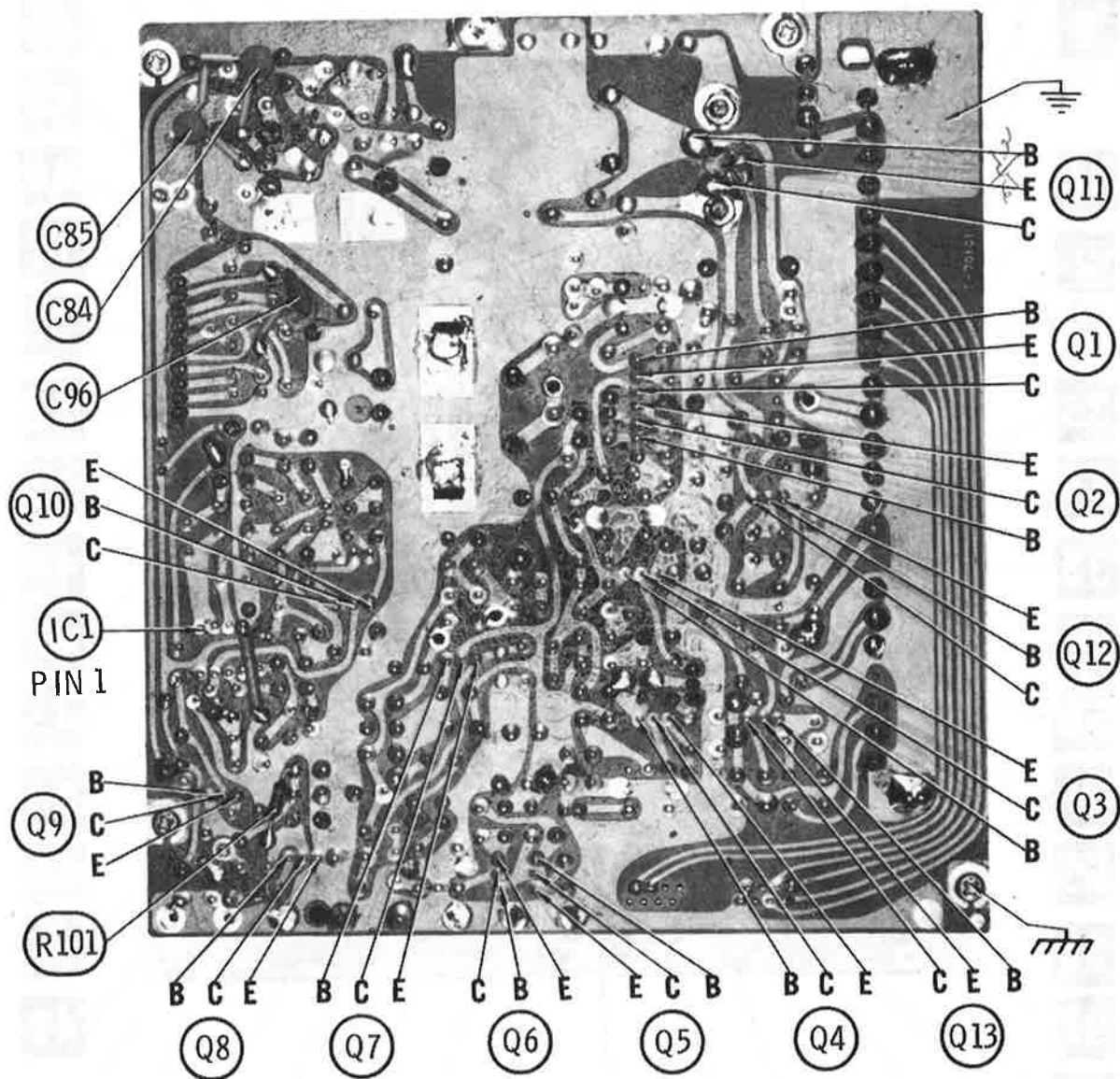
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 1000Hz,20mV signal at MIC input.	Ch. 19	VR3	AMC Adjust VR3 for 90% modulation.



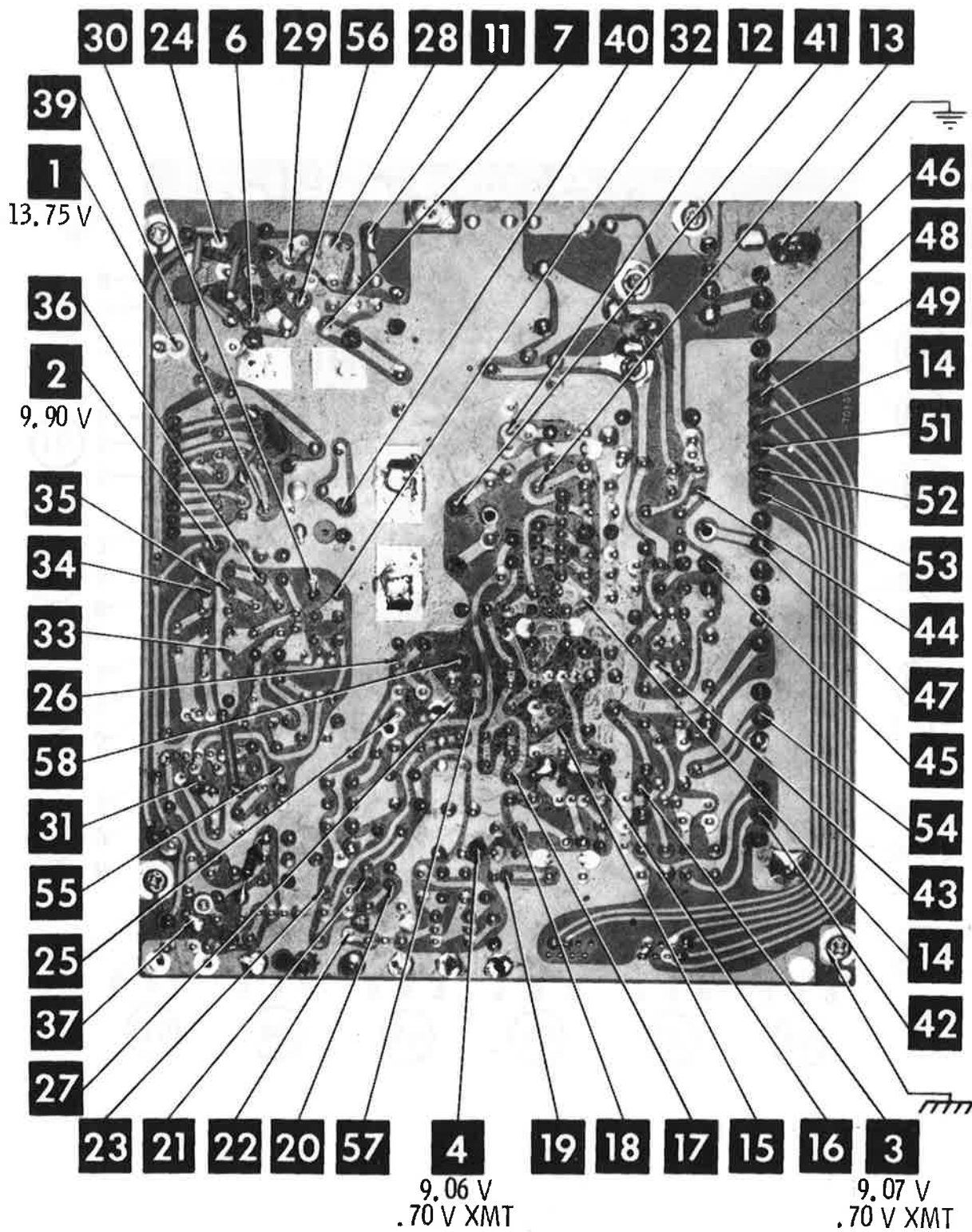
MAIN BOARD



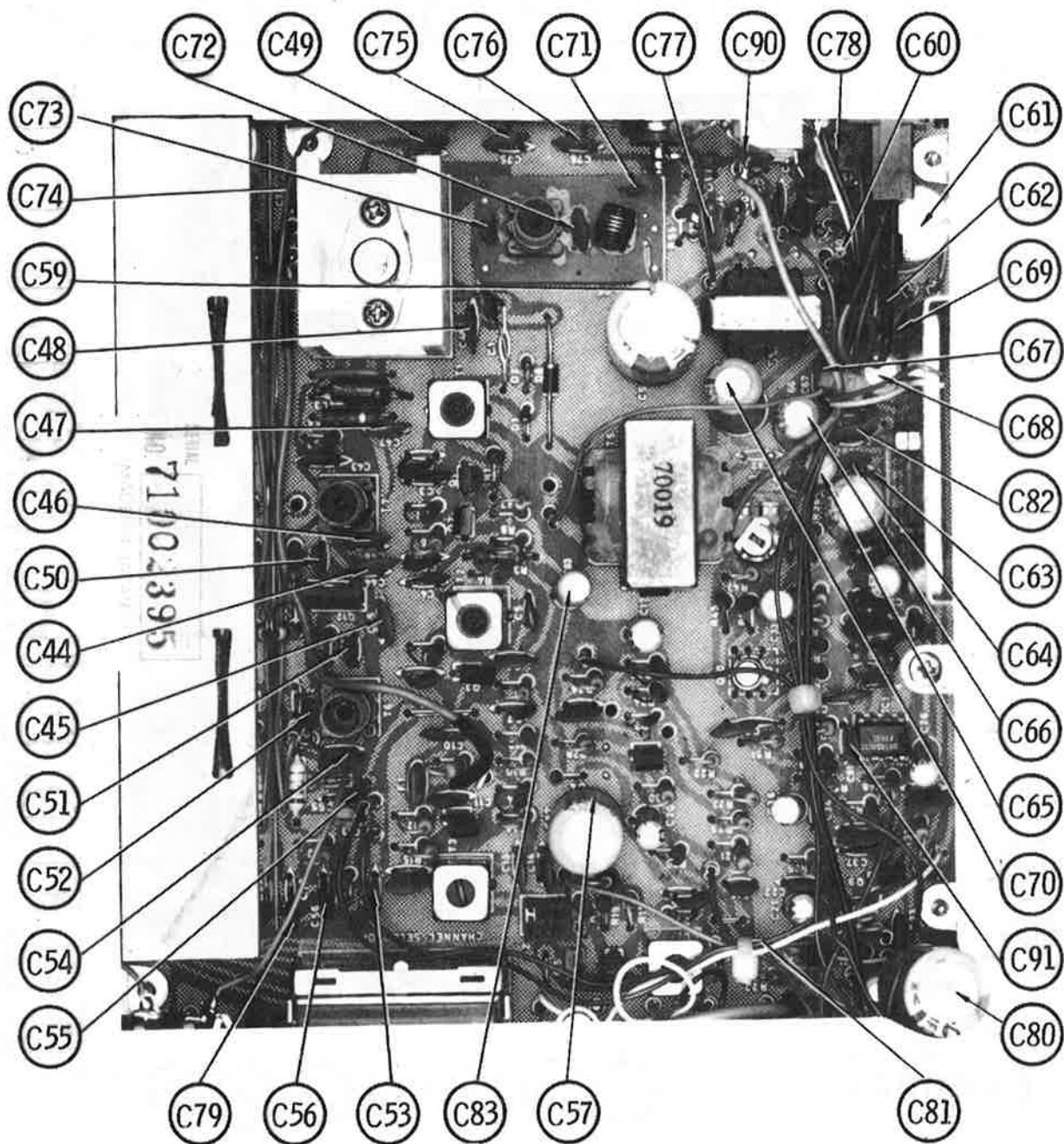
MAIN BOARD



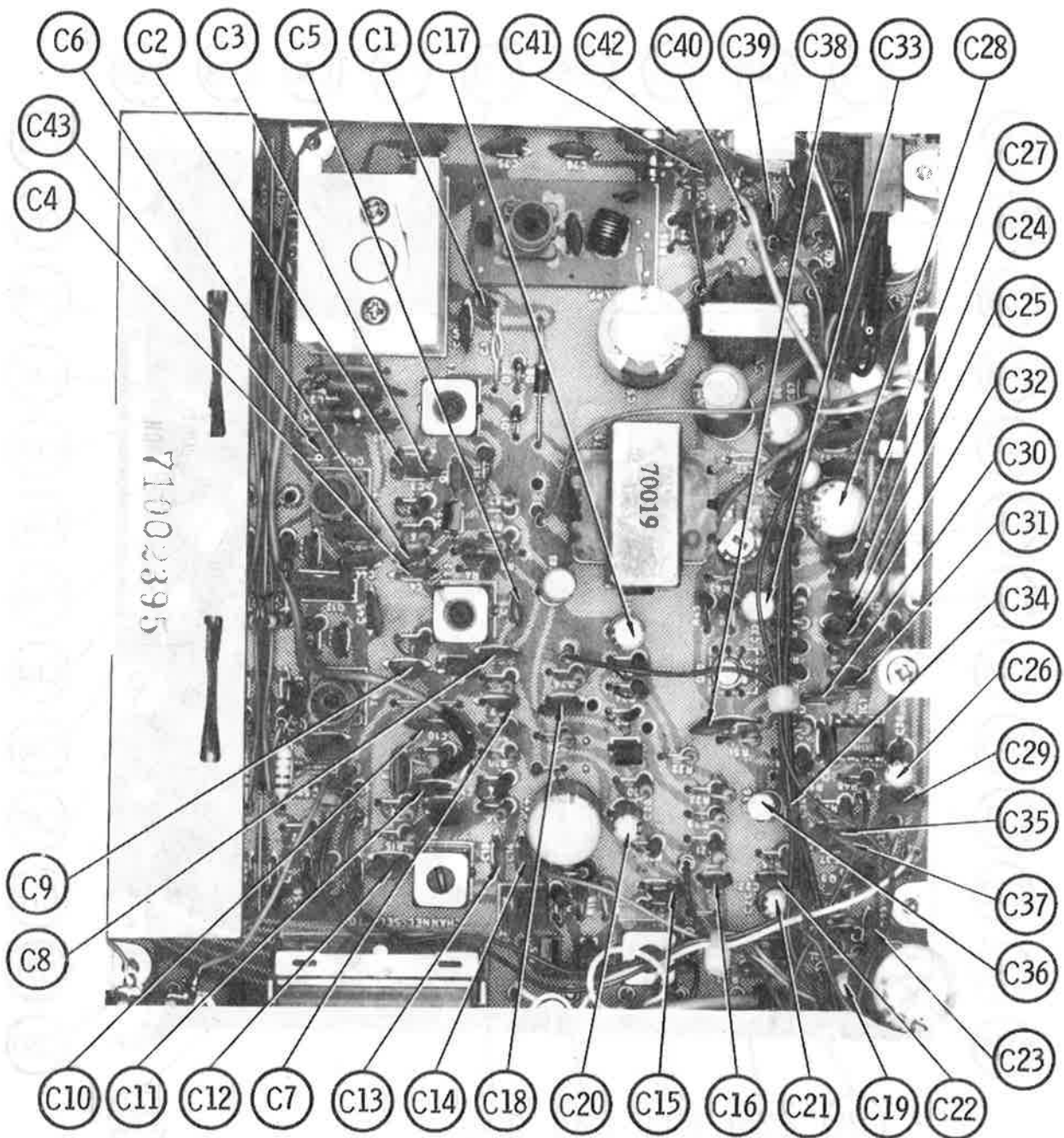
ROYCE MODEL 1-648



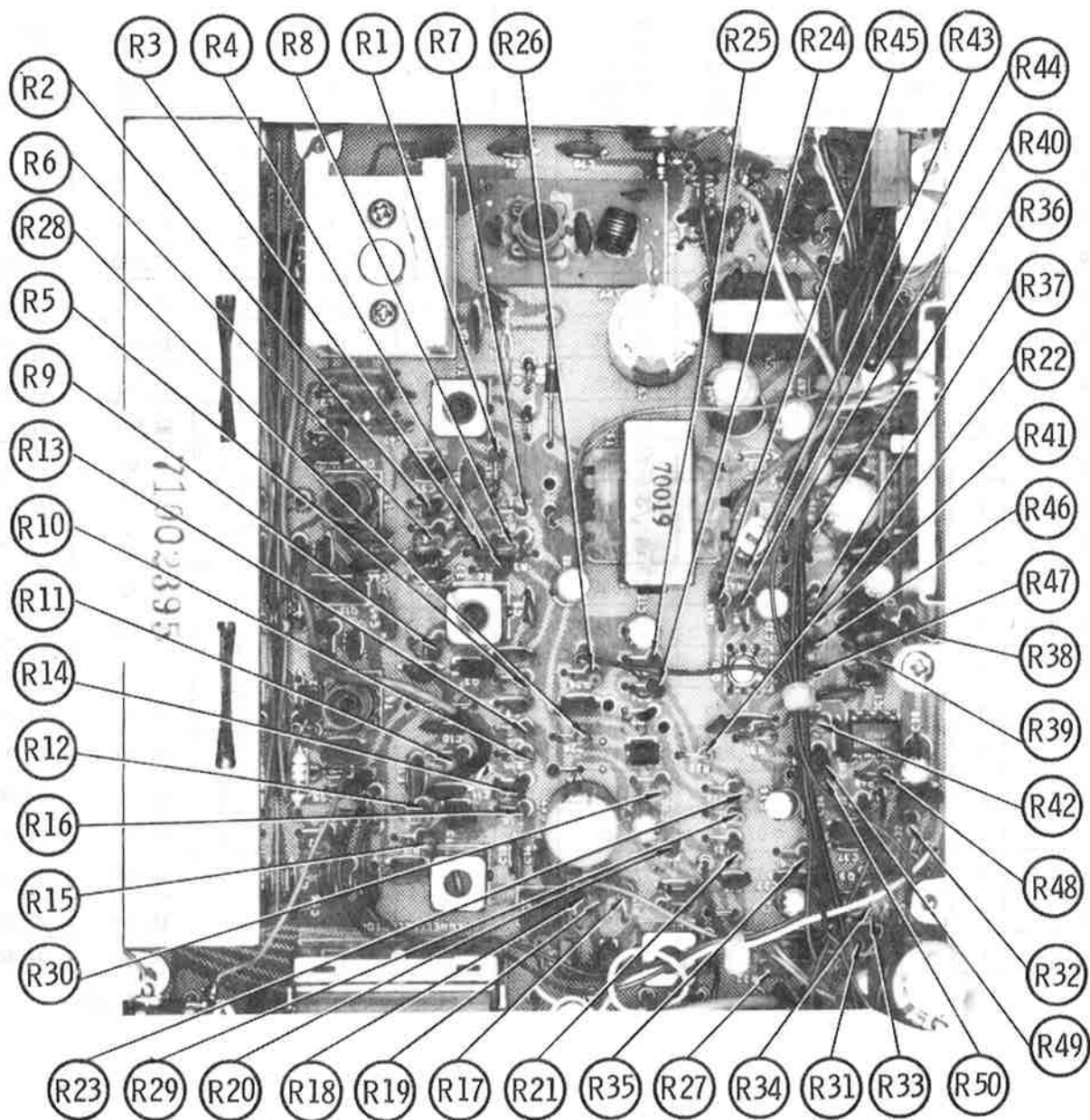
MAIN BOARD



MAIN BOARD



MAIN BOARD

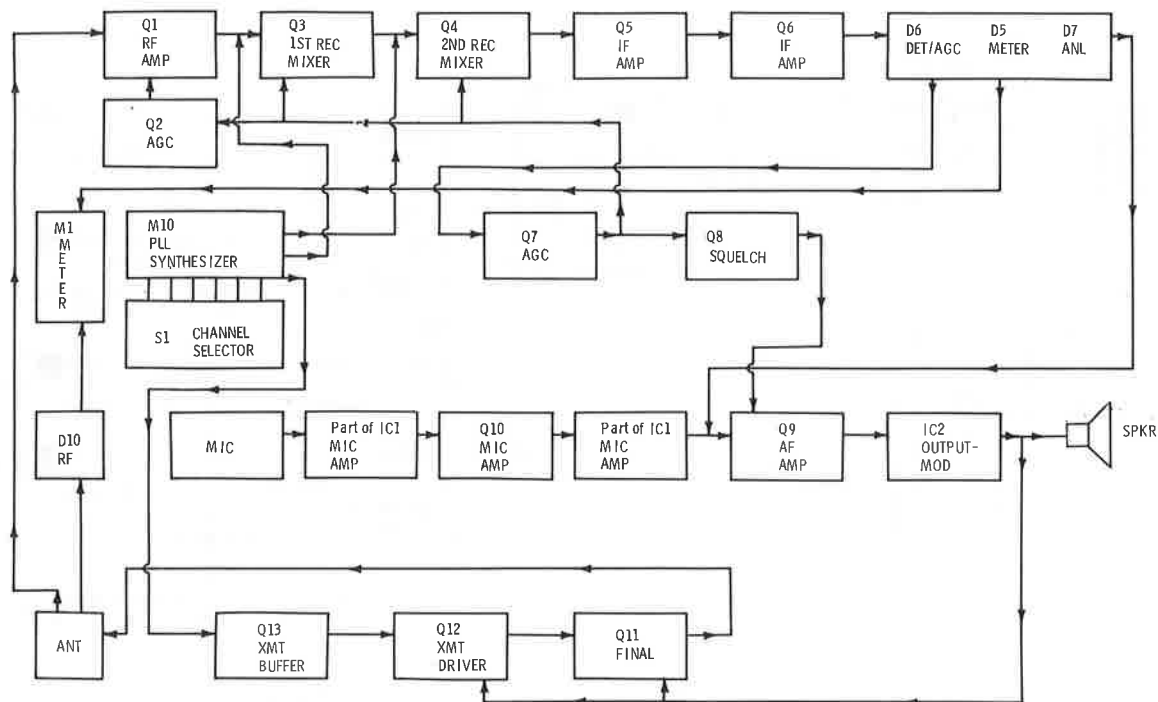


MAIN BOARD

TRUTH CHART

1 = <u>5.97</u> Volts 0 = <u>0</u> Volts								
C H A N N E L	PLL UNIT						REC VCO OUTPUT IN MHz AT TP2	XMT VCO OUTPUT IN MHz AT TP3
	PINS							
	5	6	7	8	9	10		
1	0	0	0	0	0	0	37.660	26.965
2	0	0	0	0	1	0	37.670	26.975
3	0	0	0	0	0	1	37.680	26.985
4	0	0	0	1	0	0	37.700	27.005
5	0	0	0	1	1	0	37.710	27.015
6	0	0	0	1	0	1	37.720	27.025
7	0	0	0	1	1	1	37.730	27.035
8	0	0	1	0	1	0	37.750	27.055
9	0	0	1	0	0	1	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	0	1	37.800	27.105
13	0	0	1	1	1	1	37.810	27.115
14	1	0	0	0	0	0	37.820	27.125
15	1	0	0	0	1	0	37.830	27.135
16	1	0	0	0	1	1	37.850	27.155
17	1	0	0	1	0	0	37.860	27.165
18	1	0	0	1	1	0	37.870	27.175
19	1	0	0	1	0	1	37.880	27.185
20	1	0	1	0	0	0	37.900	27.205

1 = <u>5.97</u> Volts 0 = <u>0</u> Volts								
C H A N N E L	PLL UNIT						REC VCO OUTPUT IN MHz AT TP2	XMT VCO OUTPUT IN MHz AT TP3
	PINS							
	5	6	7	8	9	10		
21	1	0	1	0	1	0	37.910	27.215
22	1	0	1	0	0	1	37.920	27.225
23	1	0	1	1	1	0	37.950	27.255
24	1	0	1	0	1	1	37.930	27.235
25	1	0	1	1	0	0	37.940	27.245
26	1	0	1	1	0	1	37.960	27.265
27	1	0	1	1	1	1	37.970	27.275
28	0	1	1	0	0	0	37.980	27.285
29	0	1	0	0	1	0	37.990	27.295
30	0	1	0	0	0	1	38.000	27.305
31	0	1	0	0	1	1	38.010	27.315
32	0	1	0	1	0	0	38.020	27.325
33	0	1	0	1	1	0	38.030	27.335
34	0	1	0	1	0	1	38.040	27.345
35	0	1	0	1	1	1	38.050	27.355
36	0	1	1	0	0	0	38.060	27.365
37	0	1	1	0	1	0	38.070	27.375
38	0	1	1	0	0	1	38.080	27.385
39	0	1	1	0	1	1	38.090	27.395
40	0	1	1	1	0	0	38.100	27.405



BLOCK DIAGRAM

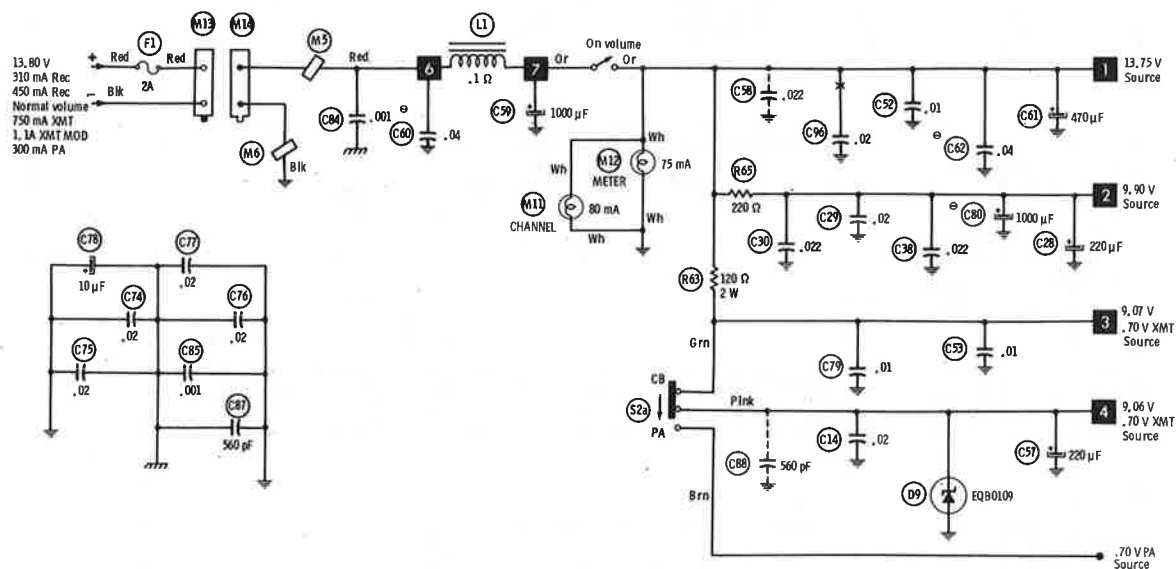
ROYCE MODEL 1-648

PARTS LIST AND DESCRIPTION

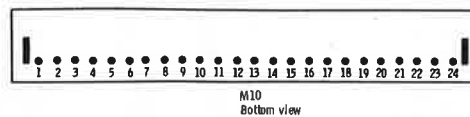
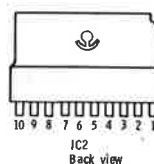
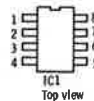
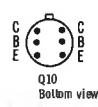
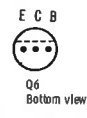
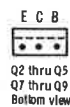
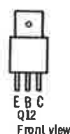
(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	BA243		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D2	BA243		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D3	1S2076		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
	1S1555(1)		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D4	HV-46		GE-90	D201	PTC311	HEPR2503	RE 195	SK3126	RT-262	ECG610
D5	1S2076		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
	1S1555(1)		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D6	1S2076		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
	1S1555(1)		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D7	1S2075K		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
	1S2075(1)		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	10E-1		GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
	W03B(1)		GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D9	EQB01-09		GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
	C2094(1)		GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D10	1S2076		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D11	10E1		GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
IC1	UA1458CTE									
	MC1458V(1)									
IC2	M51513L									
Q1	2SC1856		GE-20	TR-24	PTC132	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q2	2SC458C		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC458D(1)		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC711F(1)		GE-62 *	(IR) 2SC644	PTC121 *	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q3	2SC460B		GE-61 *	(IR) 2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
	2SC710C(1)		GE-211 *	(IR) 2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q4	2SC458C		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC711E(1)		GE-62 *	(IR) 2SC644	PTC121 *	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q5	2SC458B		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC711D(1)		GE-62 *	(IR) 2SC644	PTC121 *	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q6	2SA561Y		GE-269	TR-31	PTC103 *	HEPS0012 *	RE 197 *	SK3114	RT-106	ECG290
	2SA561(1)		GE-269	TR-31	PTC103 *	HEPS0012 *	RE 197 *	SK3114	RT-106	ECG290
	2SA844C(1)		GE-244 *	TR-30 *	PTC103 *	HEPS0019 *	RE 18 *	SK3114	RT-126A *	ECG129 *
	2SA562Y(1)		GE-269	TR-31	PTC103 *	HEPS0012 *	RE 197 *	SK3114	RT-106	ECG290
	2SA495Y(1)		GE-221 *	(IR) 2SA495	PTC103 *	HEPS0013 *	RE 26 *	SK3114	RT-303	ECG159 *
Q7	2SC459C		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC459D(1)		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC711F(1)		GE-62 *	(IR) 2SC644	PTC121 *	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q8	2SC458B		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
	2SC711D(1)		GE-62 *	(IR) 2SC644	PTC121 *	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q9	2SC458C		GE-210 *	(IR) 2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *



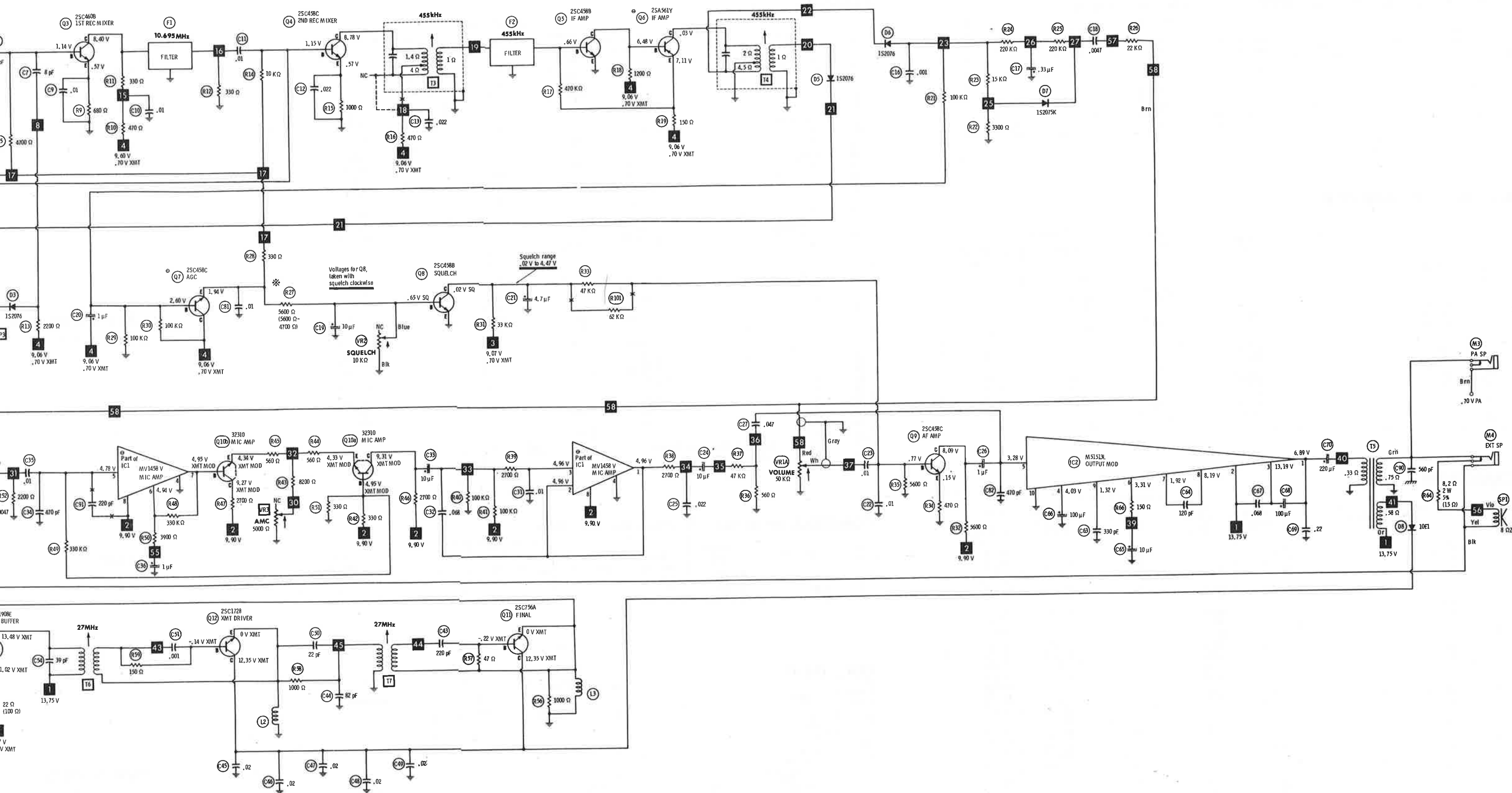
Terminal Guides



- *— Circuitry not used in some versions
 - Circuitry used in some versions
 - ⊙ See parts list
 - * Nominal value
 - ⊥ Ground
 - ⏏ Chassis
 - ▽ Common tie point
- 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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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.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
Q10	2SC711E(1)		GE-62 *	(IR)2SC644	PTC121	HEPS0024 *	RE 192 *	SK3124 *	RT-302 *	ECG199 *
Q11	2SC756A		GE-46	WEP909	PTC158		RE 206		RT-306F	ECG282
Q12	2SC1728H		GE-275	WEP918			RE 204		RT-310	ECG302
Q13	2SC1728(1)		GE-275	WEP918			RE 204		RT-310	ECG302
	2SC1908E		GE-20 *	TR-21 *	PTC136 *	HEPS0015 *	RE 9 *	SK3124 *	RT-107A *	ECG107 *
	2SC1908(1)		GE-20 *	TR-21 *	PTC136 *	HEPS0015 *	RE 9 *	SK3124 *	RT-107A *	ECG107 *

* Lead configuration may vary from original.
(1) Used in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C17	.33 50V			TDC334M050EL	QDT1-14	SD50-R339
C19	10 16V			VTT10B25	QV1-41	EV-1222
C20	1 50V			PC1-50	QV1-11	EV-1615
C21	4.7 25V			PC5-50	QV1-27	EV-1319
C24	10 16V			PC10-25	QV1-41	EV-1222
C26	1 50V			PC1-50	QV1-11	EV-1615
C28	220 16V			PC250-25	QV1-117	EV-1240
C33	10 16V			PC10-25	QV1-41	EV-1222
C36	1 50V			PC1-50	QV1-11	EV-1615
C57	220 16V			PC250-25	QV1-117	EV-1240
C59	1000 16V			PC1000-16	QV1-183	EV-1260
C61	470 16V			PC500-16	QV1-151	EV-1250
C65	10 16V			PC10-25	QV1-41	EV-1222
C66	100 10V			PC10-25	QV1-41	EV-1222
C68	100 16V			PC10-25	QV1-41	EV-1222
C70	220 16V			PC250-25	QV1-117	EV-1240
C78	10 16V			PC10-25	QV1-41	EV-1222
C80	1000 16V			PC1000-16	QV1-183	EV-1260
C83	10 16V			PC10-25	QV1-41	EV-1222

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	22 N220 10%				*		10TCR-Q22
C2	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C3	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C4	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C5	22 N220 10%				*		10TCR-Q22
C6	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C7	8 NPO						
C8	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C9	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C10	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C11	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C12	.022		DC-203	MGP02	TA120	QC2-157	TG-S20
C13	.022		DC-203	MGP02	TA120	QC2-157	TG-S20
C14	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C15	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C16	.001		DD-102		GP210		10TS-D10
C18	.0047 10%		DD-472	GP4700	GP247		5GA-D47
C22	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C23	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C25	.022 10%				M192P2239R8	QFT2-127	1FT-S22
C27	.047 10%				EWF1A147	QFT2-171	1FT-S47
C29	.02				DPMS2S47	QC2-157	TG-S20
C30	.022		DC-203	MGP02	TA120	QC2-157	TG-S20
C31	.01		DC-203	MGP02	TA120	QC2-157	TG-S20
C32	.068				WMF1S1	QFT2-91	1FT-S10
C34	470 N750 10%				WMF1S68	QF1-195	1PB-S68
C35	.01		DTN-470				10TCU-T47
C37	.0047 10%		DC-103	MGP01	TA110	QC2-141	TG-S10
C38	.022		DD-472	GP4700	GP247		5GA-D47
C39	.01		DC-203	MGP02	TA120	QC2-157	TG-S20
C40	10		DC-103	MGP01	TA110	QC2-141	TG-S10
C41	2 NPO		DTZ-10	NPO10	CNO410		10TCC-Q10
C42	120 N750 5%		DTZ-2R2	NPO2P2	CNO522		10TCC-V22
C43	220 N750 10%		DTN-120				10TCU-T12
			DTN-220	N220	CN7322		10TCU-T22

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C44	82 N220 10%				*		10TCR-Q82
C45	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C46	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C47	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C48	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C49	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C50	22 N220 10%				*		10TCR-Q22
C51	.001		DD-102		GP210		10TS-D10
C52	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C53	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C54	39 N220 10%				*		10TCR-Q39
C55	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C56	68 N750 10%		DTN-68	N68	CN7468		10TCU-Q68
C58	.022	(1)	DC-203	MGP02	TA120	QC2-157	TG-S20
C60	.04				GP140		5GA-S40
	.033	(1)			MAG50133		
C62	.04	(1)	UK50-333		GP140		5GA-S40
	.033	(1)			MAG50133		
C63	330 N750 10%				CN7333		10TCU-T33
C64	120 N750 10%		DTN-330	N330			10TCU-T12
C67	.068		DTN-120				1PB-S68
C69	.22 10%				WMF1S68	QF1-195	1FT-P22
C71	39				WMF05P22	QFT2-253	10TCC-Q39
C72	220 5%				CN0439		
C73	100						
C74	.02		DD-101	GP100	GP310		10TS-T10
C75	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C76	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C77	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C79	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C81	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C82	470		DD-471	GP470	GP347		10TS-T47
C84	.001 10%		DD-102		GP210		10TS-D10
C85	.001 10%		DD-102		GP210		10TS-D10
C86	560		DD-561		GP356		10TS-T56
C87	560		DD-561		GP356		10TS-T56
C88	560		DD-561		GP356		10TS-T56
C89	560		DD-561		GP356		10TS-T56
C90	560		DD-561		GP356		10TS-T56
C91	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C95	560		DD-561		GP356		10TS-T56
C96	.02		DC-203	MGP02	TA120	QC2-157	TG-S20

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1	Volume/Switch	50K	09-017				
VR2	Squelch	10K	09-064				
VR3	AMC	5000					

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	RF Choke	02-48	ETC49170		
	RF Choke	02-064 (1)	SP0408-100K (1)		
L3	RF Choke	02-011	ETC4056		
L4	Final Amp (27MHz)	12-012			
L5	Antenna Match	12-012			
T1	Rec Antenna (27MHz)	02-016	ETC15089	CBS774	
T2	Rec RF (27MHz)	02-012	ETC15061	CBS708-TC	
T3	IF (455kHz)	02-061	ETC70196		
T4	IF (455kHz)	02-017	ETC15090	CBS506-4TC	
T6	XMT Buffer (27MHz)	02-022	ETC20105		
	XMT Buffer (27MHz)	02-062 (1)	ETC70197 (1)		
T7	XMT Driver (27MHz)	02-045	ETC49167		
	XMT Driver (27MHz)	02-063 (1)	ETC70198 (1)		

(1) Used in some versions.

PARTS LIST AND

(When ordering parts, state M

FILTER CHOKE

ITEM No.	RATINGS		IN (C
	CURRENT (Measured)	DC RES.	
L1	1.1A	.1	

TRANSFORMER (Au

ITEM No.	IMPEDANCE		
	PRI.	SEC.	
T5	3.92	1 2 8 23.1	

SPEAKER

ITEM No.	TYPE
SP1	2 1/2" PM 8 Ohms

FUSE DEVICES

ITEM No.	DESCRIPTION
F1	2A Fast Acting

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
3124 *	RT-302 *	ECG199 *
	RT-306F	ECG282
	RT-310	ECG302
3124 *	RT-107A *	ECG107 *
3124 *	RT-107A *	ECG107 *

SPRAGUE PART No.	
Q-LINE	GENERAL LINE
QDT1-14	SD50-R339
QV1-41	EV-1222
QV1-11	EV-1615
QV1-27	EV-1319
QV1-41	EV-1222
QV1-11	EV-1615
QV1-117	EV-1240
QV1-41	EV-1222
QV1-11	EV-1615
QV1-117	EV-1240
QV1-183	EV-1260
QV1-151	EV-1250
QV1-41	EV-1222
QV1-41	EV-1222
QV1-41	EV-1222
QV1-117	EV-1240
QV1-41	EV-1222
QV1-183	EV-1260
QV1-41	EV-1222

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	GENERAL LINE
C44	82 N220 10%		DC-203	MGP02	TA120	QC2-157	10TCR-Q82
C45	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C46	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C47	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C48	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C49	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C50	22 N220 10%				*		10TCR-Q22
C51	.001		DD-102		GP210		10TS-D10
C52	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C53	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C54	39 N220 10%				*		10TCR-Q39
C55	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C56	68 N750 10%		DTN-68	N68	CN7468		10TCU-Q68
C58	.022	(1)	DC-203	MGP02	TA120	QC2-157	TG-S20
C60	.04				GP140		5GA-S40
	.033	(1)	UK50-333		MAG50133		
C62	.04				GP140		5GA-S40
	.033	(1)	UK50-333		MAG50133		
C63	330 N750 10%		DTN-330	N330	CN7333		10TCU-T33
C64	120 N750 10%		DTN-120				10TCU-T12
C67	.068			WMF1S68	EWF1A168	QF1-195	1PB-S68
C69	.22 10%			WMF05P22	EWF05022	QFT2-253	1FT-P22
C71	39				CN0439		10TCC-Q39
C72	220 5%						
C73	100		DD-101	GP100	GP310		10TS-T10
C74	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C75	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C76	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C77	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C79	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C81	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C82	470		DD-471	GP470	GP347		10TS-T47
C84	.001 10%		DD-102		GP210		10TS-D10
C85	.001 10%		DD-102		GP210		10TS-D10
C86	560		DD-561		GP356		10TS-T56
C87	560		DD-561		GP356		10TS-T56
C88	560		DD-561		GP356		10TS-T56
C89	560		DD-561		GP356		10TS-T56
C90	560		DD-561		GP356		10TS-T56
C91	220 N750 10%		DTN-220	N220	CN7322		10TCU-T22
C95	560		DD-561		GP356		10TS-T56
C96	.02		DC-203	MGP02	TA120	QC2-157	TG-S20

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

DATA		
Y No.	SPRAGUE PART No.	
	Q-LINE	GENERAL LINE
	QC2-141	10TCR-Q22
	QC2-141	TG-S10
	QC2-141	TG-S10
	QC2-141	TG-S10
	QC2-157	10TCR-Q22
	QC2-157	TG-S20
	QC2-141	TG-S10
	QC2-157	TG-S20
	QC2-141	TG-S10
	QC2-157	TG-S20
	QC2-157	TG-S20
	QC2-157	TG-S20
	QC2-141	TG-S10
	QC2-141	10TS-D10
	QC2-141	5GA-D47
	QC2-141	TG-S10
	QC2-141	TG-S10
	QFT2-127	1FT-S22
	QFT2-171	1FT-S47
	QC2-157	TG-S20
	QC2-157	TG-S20
	QFT2-91	1FT-S10
	QF1-195	1PB-S68
	QC2-141	10TCU-T47
	QC2-141	TG-S10
	QC2-141	5GA-D47
	QC2-157	TG-S20
	QC2-141	TG-S10
	QC2-141	10TCC-Q10
	QC2-141	10TCC-V22
	QC2-141	10TCU-T12
	QC2-141	10TCU-T22

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

ITEM No.	FUNCTION	RESIST- ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1	Volume/Switch	50K	09-017				
VR2	Squelch	10K	09-064				
VR3	AMC	5000					

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	RF Choke	02-48	ETC49170		
L3	RF Choke	02-064 (1)	SP0408-100K (1)		
L4	RF Choke	02-011	ETC4056		
L5	Final Amp (27MHz)	12-012			
T1	Antenna Match	12-012			
T2	Rec Antenna (27MHz)	02-016	ETC15089	CBS774	
T3	Rec RF (27MHz)	02-012	ETC15061	CBS708-TC	
T4	IF (455kHz)	02-061	ETC70196		
T6	IF (455kHz)	02-017	ETC15090	CBS506-4TC	
T7	XMT Buffer (27MHz)	02-022	ETC20105		
	XMT Buffer (27MHz)	02-062 (1)	ETC70197 (1)		
	XMT Driver (27MHz)	02-045	ETC49167		
	XMT Driver (27MHz)	02-063 (1)	ETC70198 (1)		

(1) Used in some versions.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
L1	1.1A	.1	1.1mH	02-127 1002 (1)	TR509		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T5	3.92	1 2 8 23.1	02-144 70019 (1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP1	2 1/2" PM 8 Ohms	06-002	25A05Z8R	

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 Fast Acting			AGC2	HDJ	312002	150145
							FG2-2

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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	21-004	18-032	18-034	18-010	18-092	1	2	3	4	NC	2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
F1	Filter		10.695MHz
F2	Filter		455kHz
M1	Meter	05-021	S/RF
M2	Jack	10-002	Antenna
M3	Jack	10-003A	PA Speaker
M4	Jack	10-003A	External Speaker
M10	PLL Unit	12-013	
M11	Lamp	07-001	Channel (13.75V @ 80mA)
M12	Lamp	07-001	Meter (13.75V @ 75mA)
M13	Cord	08-015	DC Power
M14	Jack	10-016	DC Power
M16	Jack	10-001	Microphone
S1	Switch	09-120	Channel Selector
S2	Switch	09-152	PA/CB

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

ITEM	PART No.	ITEM	PART No.
Case, Main	19-147	Knob, Volume	19-610
Panel, Front	19-222	Knob, Channel Selector	19-627
Mic Hanger	11-021	Button, PA/CB	19-639
Mounting Bracket (Mobile)	14-014	Disc, Channel	19-722

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')

ROYCE MODEL 1-648