

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 KCB-2320B

MANUFACTURER'S SPECIFICATIONS

GENERAL

Circuitry	24 Transistors, 1 IC 12 Diodes
Frequency Control	PLL (Phase Lock Loop) Frequency synthesizing system
Channels	23 channels all installed
Mode of Operation	AM
Power Source Voltage Range	11.5–14.5 V DC
Speaker	3" dynamic 8 ohm
Microphone	Dynamic 500 ohm
Power Source	DC 12.6 volts

RECEIVER SECTION

Receiving System	Dual conversion system
Sensitivity	0.7 μ V for 10 dB S/N
Selectivity	More than 45 dB down at ± 10 KHz
Delta Tune	About ± 1 KHz
Spurious Rejection	–40 dB
Audio Output Power	3.0 watts at 8 ohm
Squelch Range	0.7 μ V to 300 μ V
IF	1st 10.695 MHz 2nd 455 KHz

TRANSMITTER SECTION

Modulation System	High level class B
RF Output Power (at 13.8 V)	4 watts (F.C.C. Maximum)
Frequency Tolerance	$\pm 0.005\%$
Spurious Rejection	–50 dB

Courtesy of the Manufacturer

KRACO MODEL KCB-2320B

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

© 1977 Howard W. Sams & Co., Inc. Printed in U. S. of America 7CY621

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:

GC ELECTRONICS:

L112, T106 thru T109	5009
L106, L109, L110	9304
L103, L104, T101 thru T105, T111	9440
CT101	5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter to TP1.	Ch. 13		Check for 10.2392MHz +0.13kHz.
Input of frequency counter to TP2.	Ch. 1 Delta Tune - 0	CT101	Adjust for 37.65920MHz. +0.38kHz.
Input of VTVM to TP8.	Ch. 1	T101	Adjust for 1.5V $\pm$.1 volt.
Input of RF VTVM to TP3.	Ch. 13	T111	Adjust for maximum.
Input of frequency counter to TP4.	Ch. 13, Xmit		Check for 10.6942MHz +0.12kHz.

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	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP5. 455kHz, 1000Hz @ 30% modulation.	Ch. 13	T109, T108, T107	Adjust for maximum output.
Output of signal generator thru .01uF to TP3. 10.694200MHz, 1000Hz @ 30% mod. modulation.	Ch. 13	T106, L112	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation.	Ch. 13 Delta Tune - 0	T105, T104	Adjust for maximum output. Repeat above steps, if necessary.

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 500uV.	Ch. 13 Delta Tune - 0	RV101	SQUELCH RANGE Set squelch control VR2 fully clockwise. Adjust RV101 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 13	RV103	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.
Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See page 4 for channel frequencies.

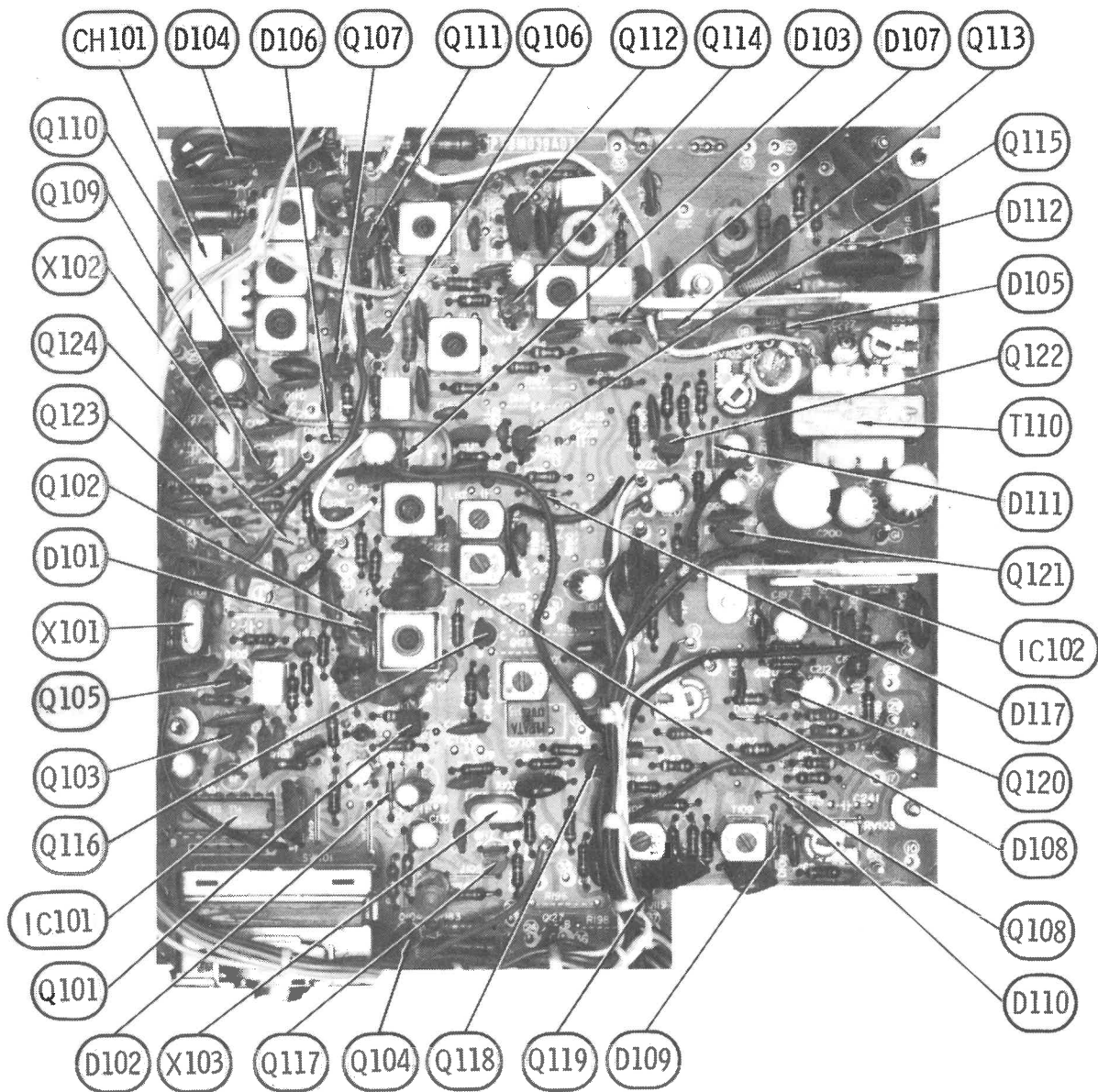
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 13	L103, L104, T102, T103, L106, L109, L110	Adjust for maximum output.
	Ch. 13	L110, L109	Adjust for 4 watts maximum.

TRANSMITTER ADJUSTMENTS

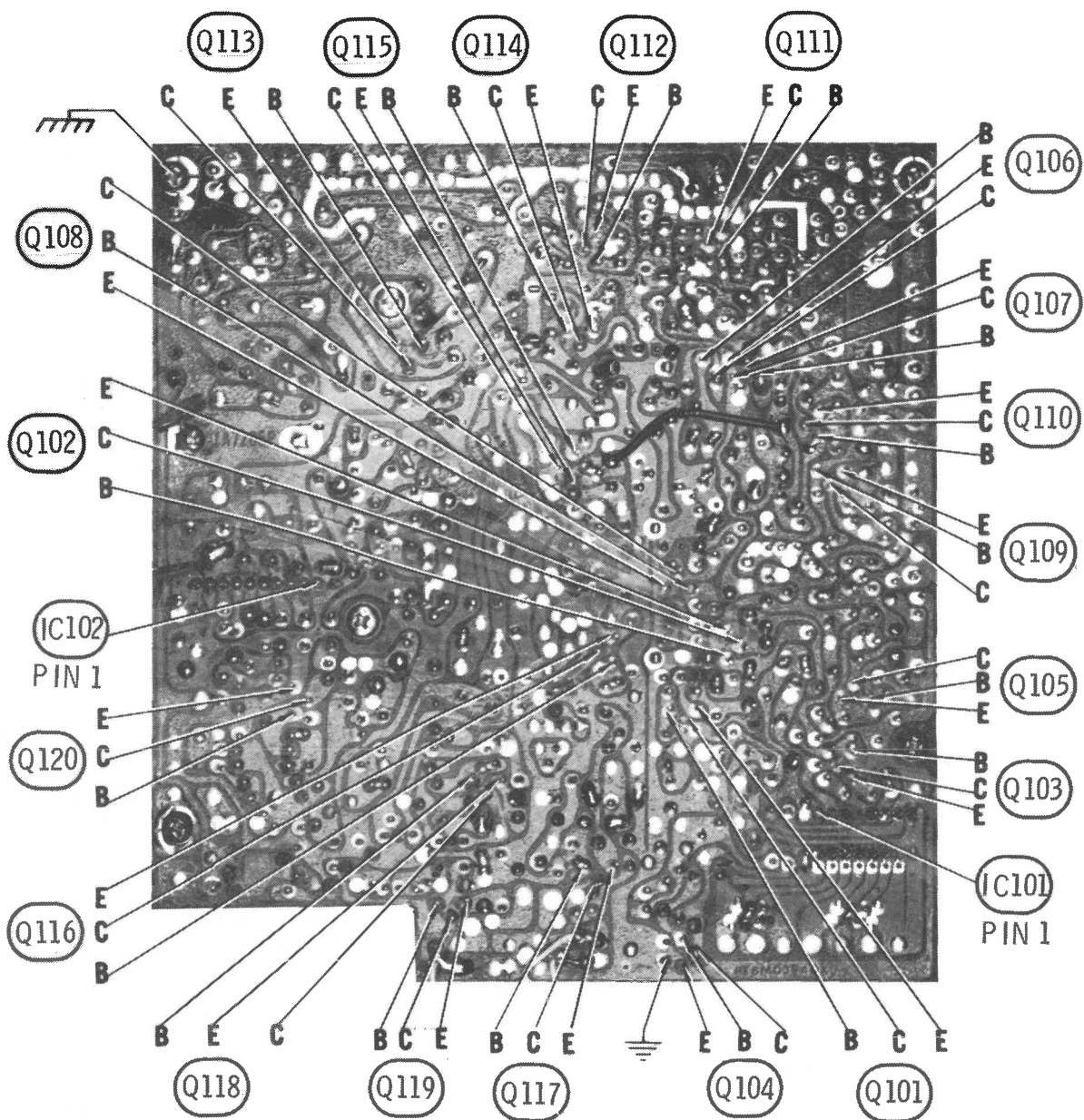
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 1000Hz signal at mic input.	Ch. 13	RV102	AF ALC Disconnect C209 to disable AF ALC. Adjust signal for overmodulation. Restore AF ALC operation. Adjust RV102 for 100% modulation maximum.
	Ch. 13	RV104	RF PANEL METER Adjust for 2/3 reading on power meter.

KRACO MODEL KCB-2320B



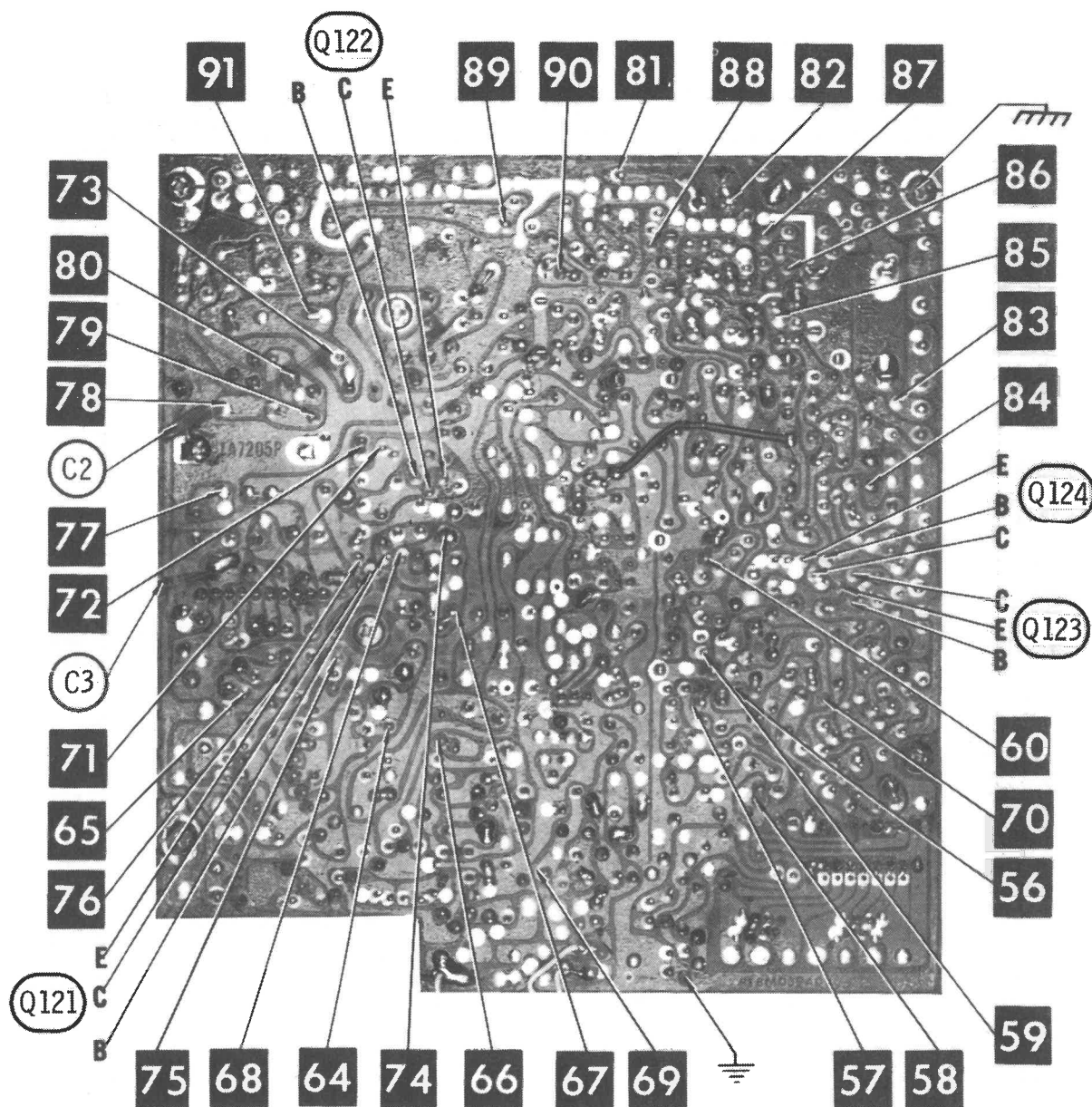
MAIN BOARD



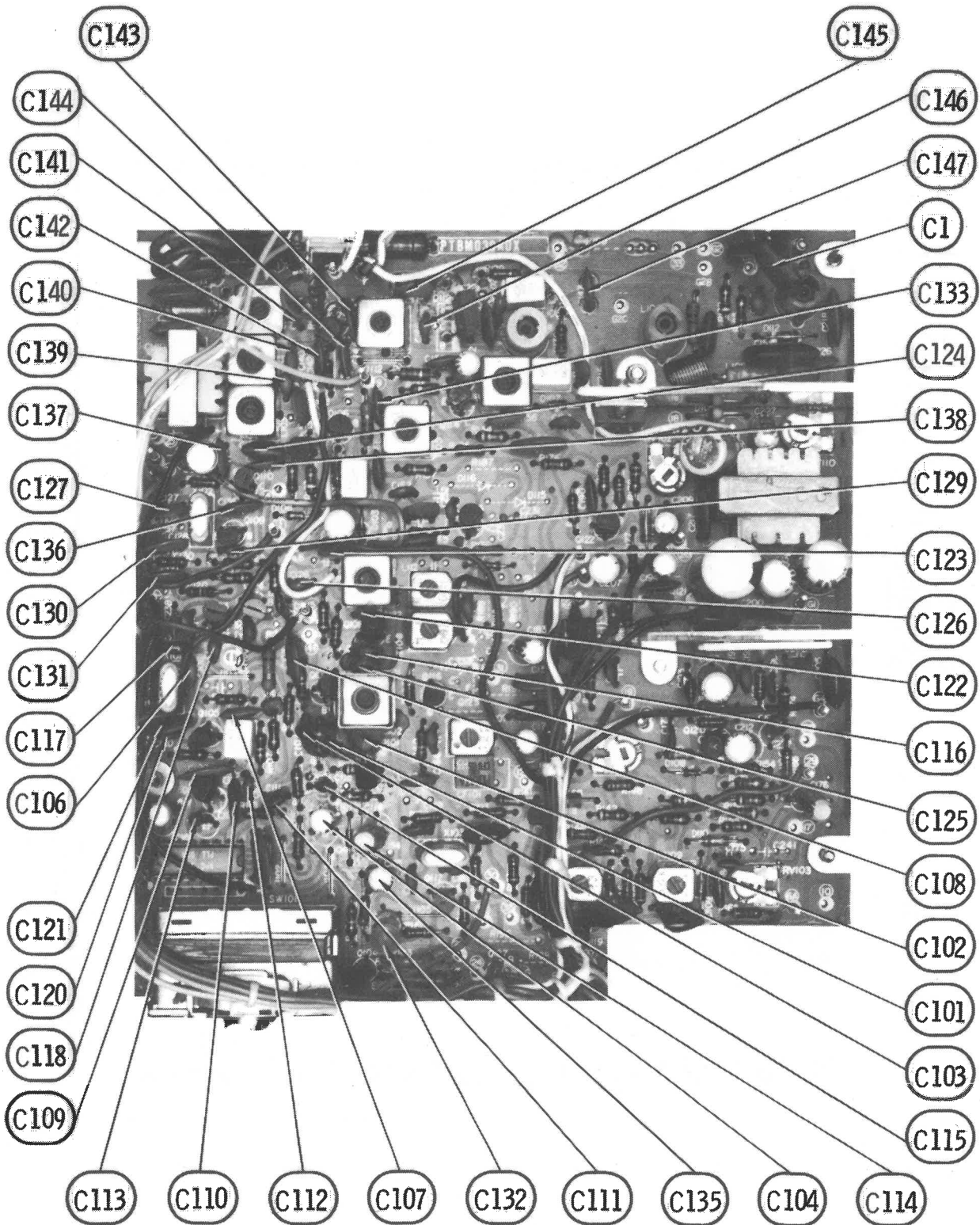
MAIN BOARD



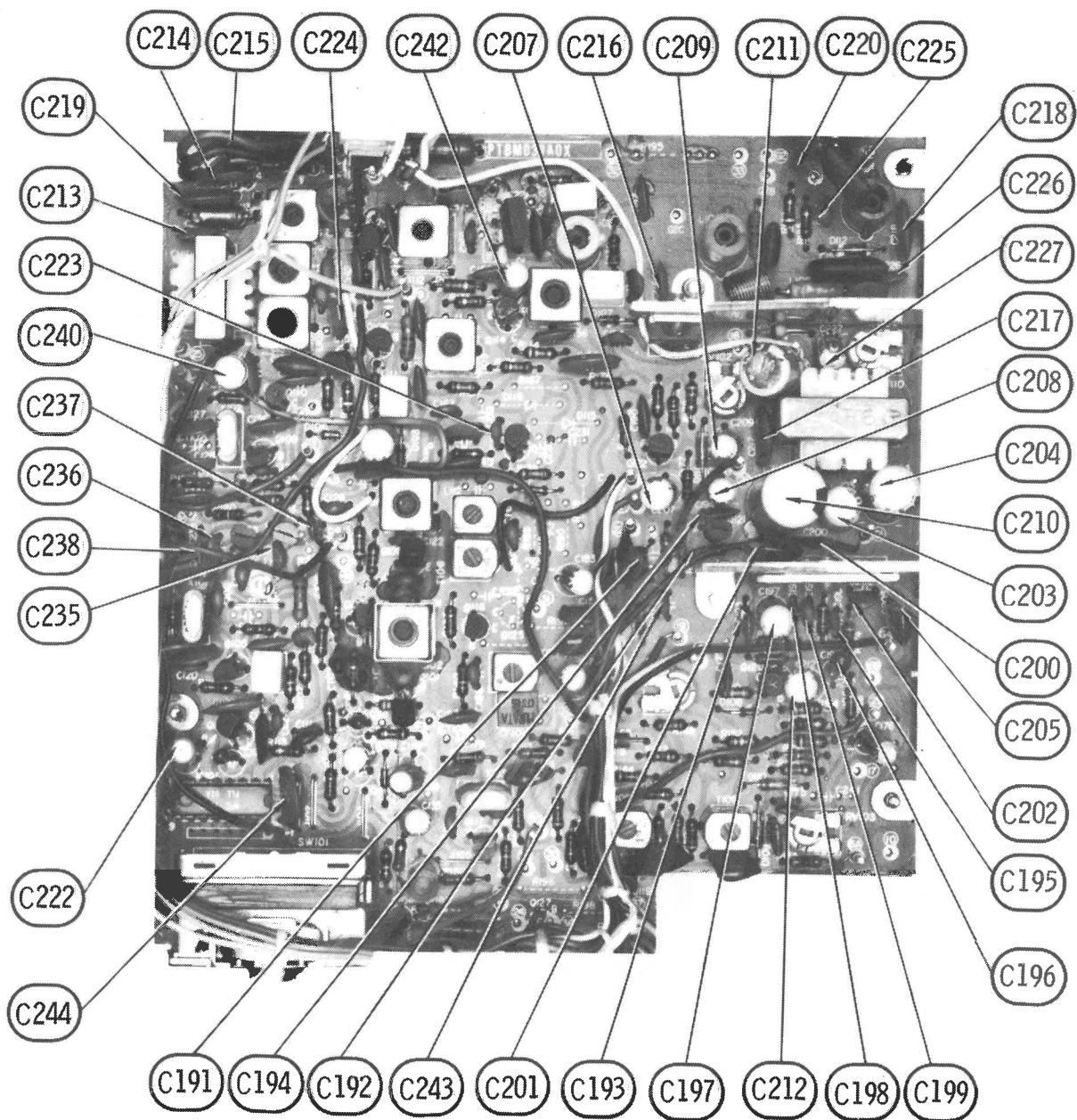
73



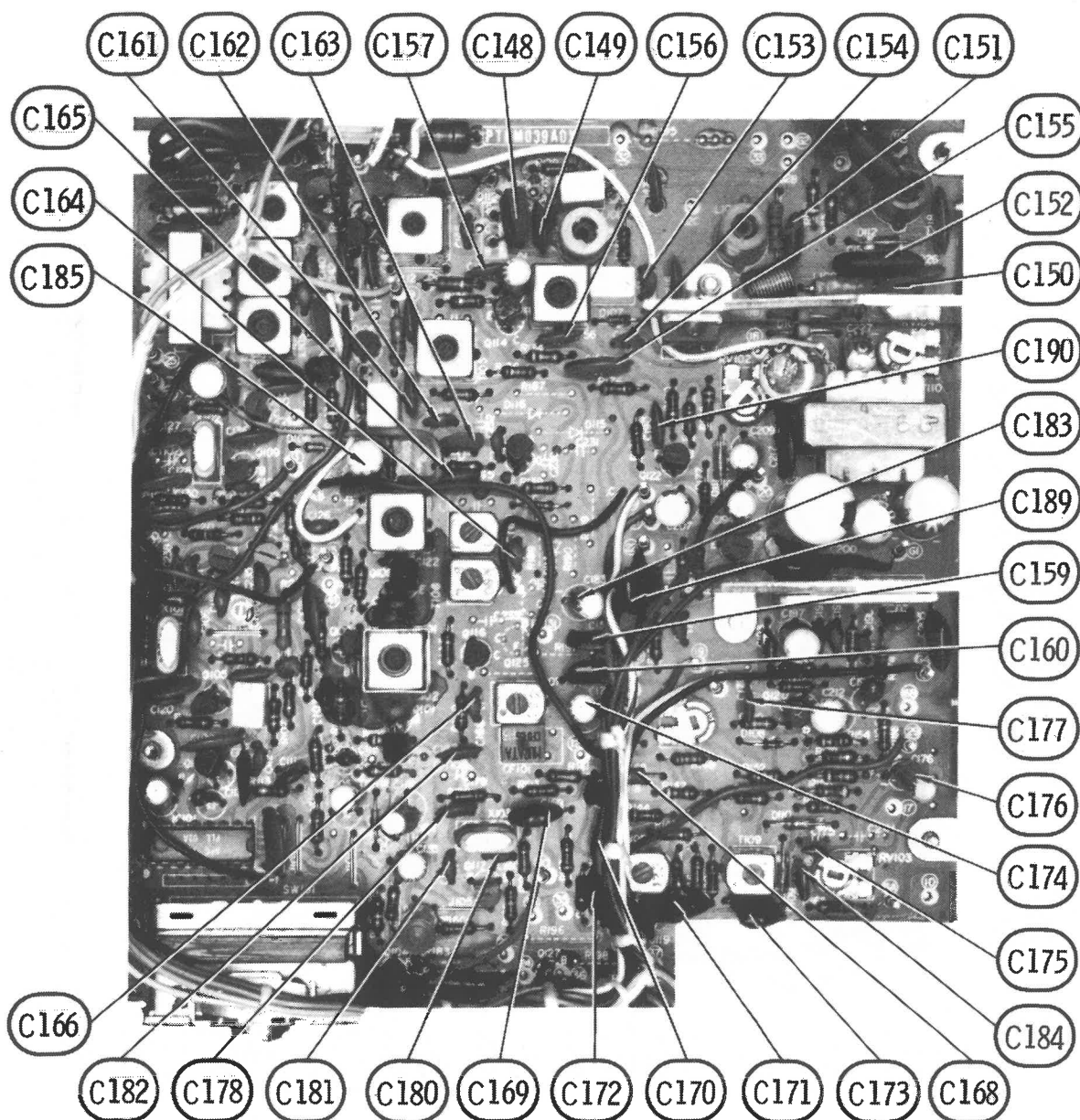
MAIN BOARD



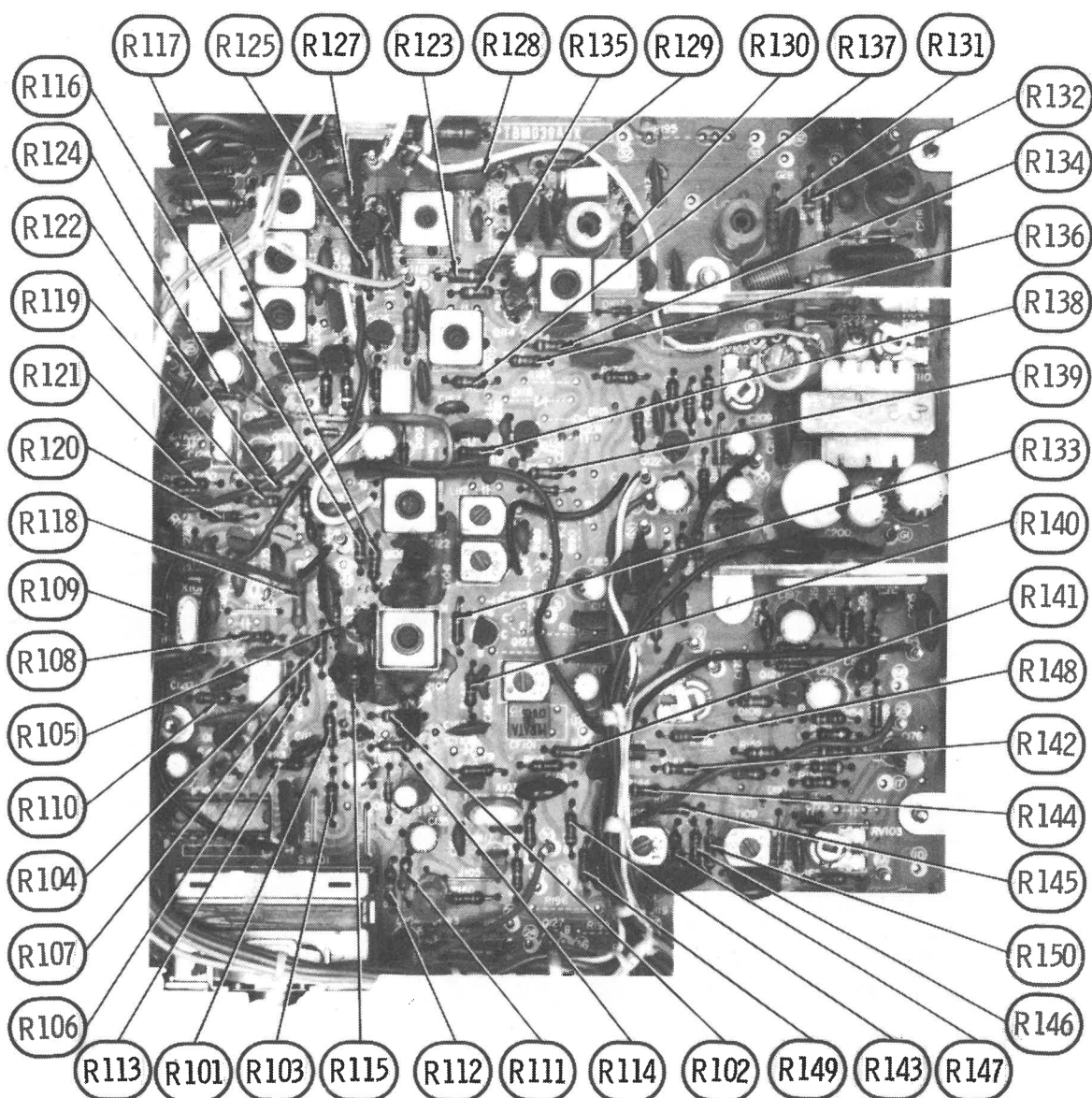
MAIN BOARD



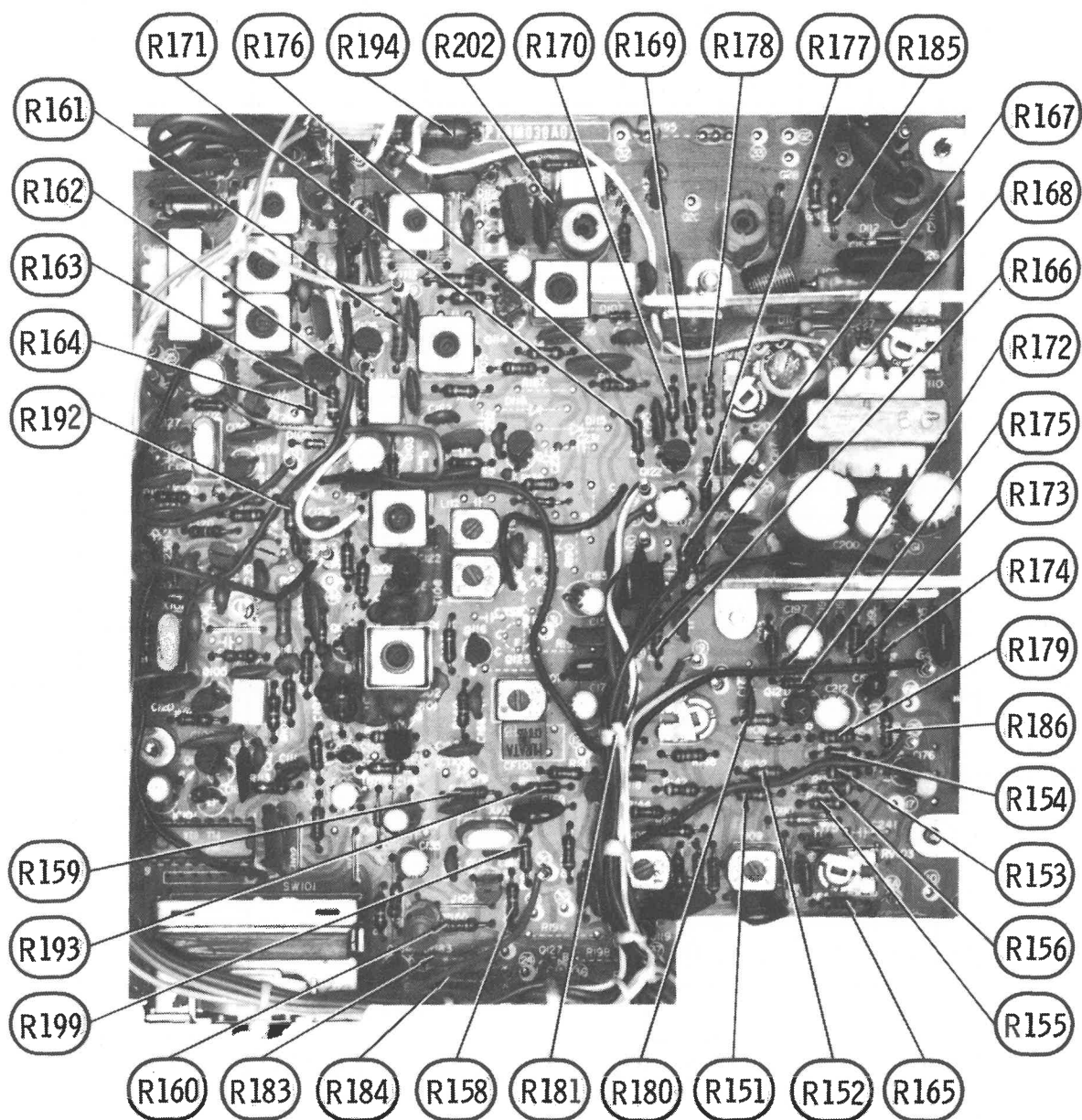
MAIN BOARD



MAIN BOARD



MAIN BOARD

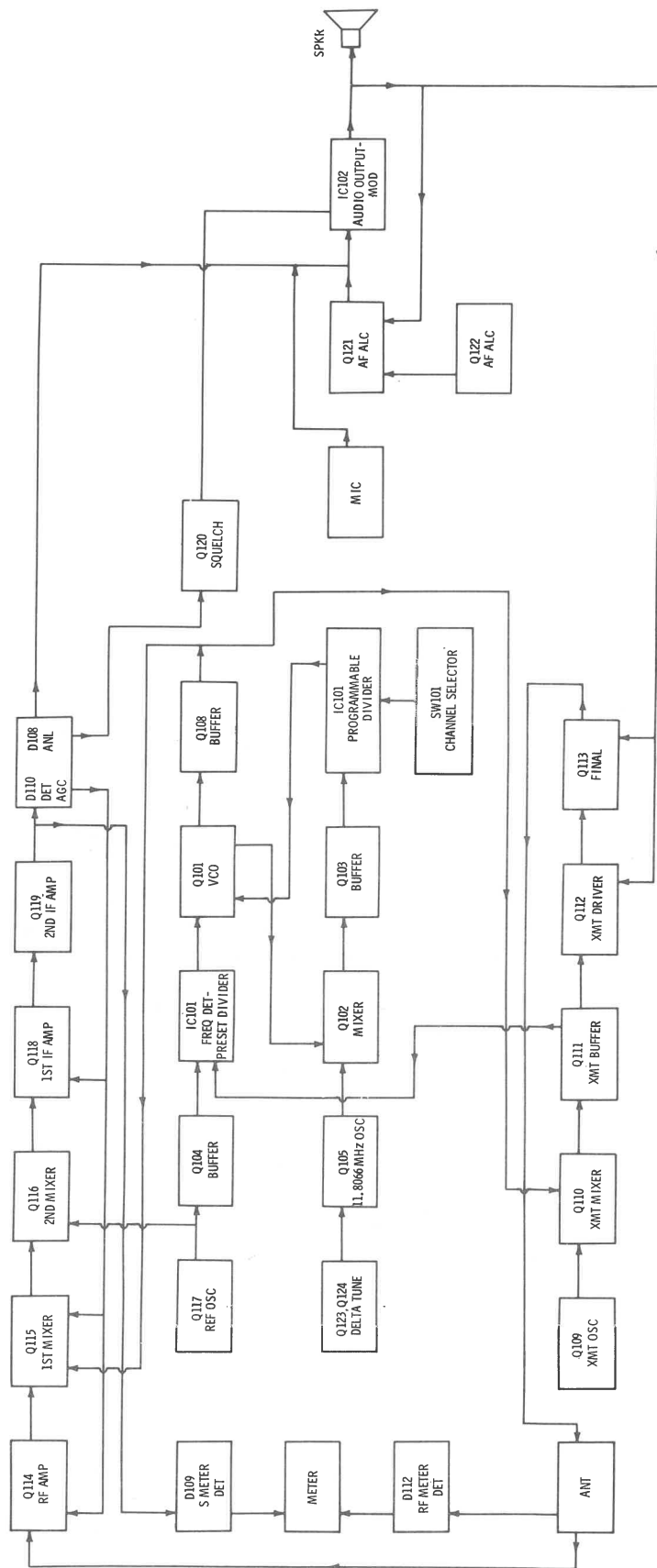


MAIN BOARD

TRUTH CHART

1 = 5.32 Volts 0 = 0 Volts

C H A N N E L	IC101 PROGRAM DIVIDER							REC & XMT VCO OUTPUT IN MHz AT TP2	
	PINS								
	11	12	13	14	15				
1	0	0	0	0	0			37.6592	
2	0	0	0	0	1			37.6692	
3	0	0	0	1	0			37.6792	
4	0	0	1	0	0			37.6992	
5	0	0	1	0	1			37.7092	
6	0	0	1	1	0			37.7192	
7	0	0	1	1	1			37.7292	
8	0	1	0	0	1			37.7492	
9	0	1	0	1	0			37.7592	
10	0	1	0	1	1			37.7692	
11	0	1	1	0	0			37.7792	
12	0	1	1	1	0			37.7992	
13	0	1	1	1	1			37.8092	
14	1	0	0	0	0			37.8192	
15	1	0	0	0	1			37.8292	
16	1	0	0	1	1			37.8492	
17	1	0	1	0	0			37.8592	
18	1	0	1	0	1			37.8692	
19	1	0	1	1	0			37.8792	
20	1	1	0	0	0			37.8992	
21	1	1	0	0	1			37.9092	
22	1	1	0	1	0			37.9192	
23	1	1	1	0	1			37.9492	



BLOCK DIAGRAM

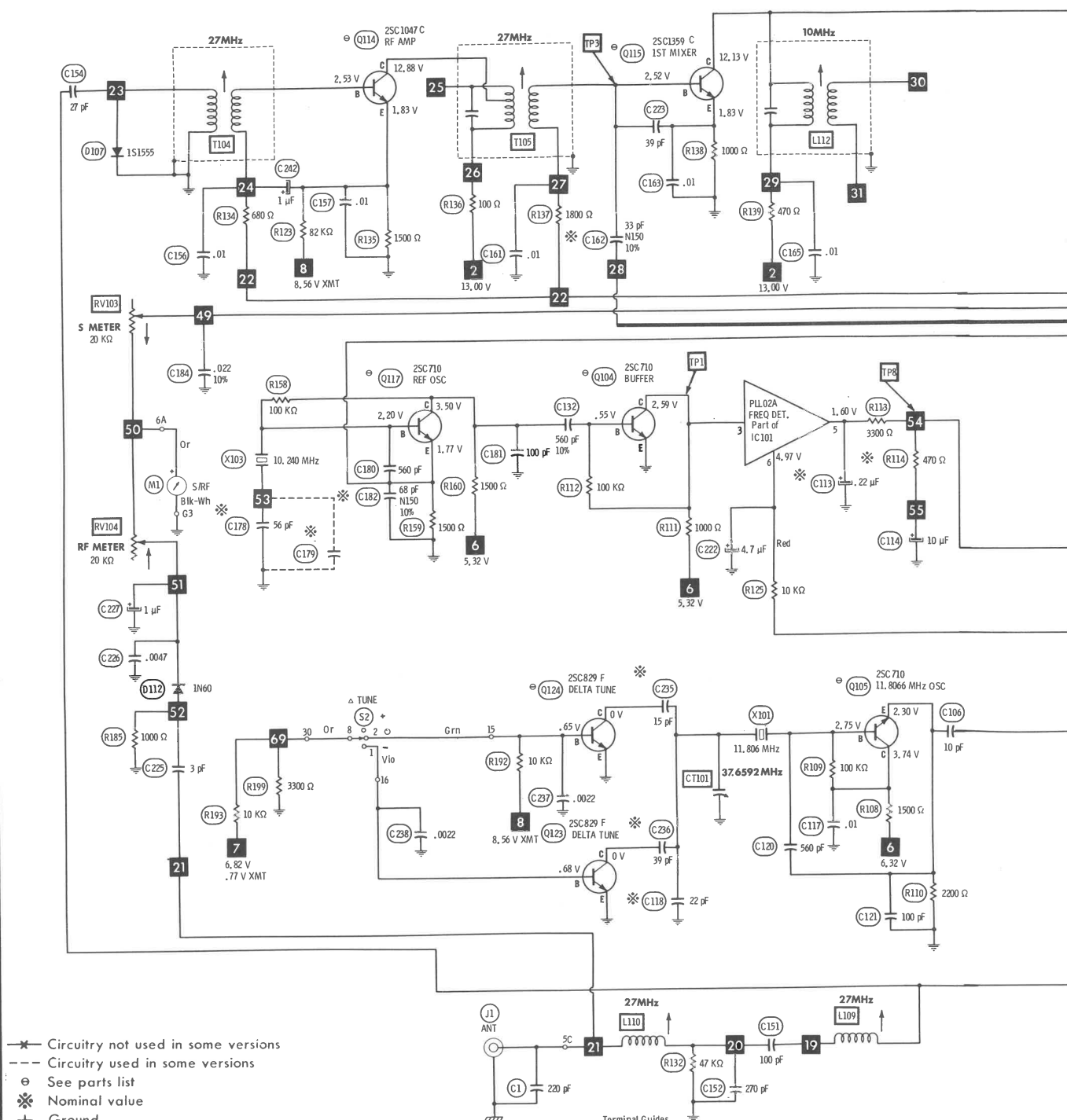


(When ordering parts, state Model, Part Number, and Description.)

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')

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.
D101	ITT410 BB142(1)		GE-90 GE-90	D201 D201 WEP602	PTC311 PTC311	HEPR2503 HEPR2503	RE 195 RE 195 RE 105	SK3126 SK3126	RT-262 RT-262	ECG610 ECG610 ECG135
D102	MZ205						RE 114		RT-240	ECG139A
D103	RD9.1E		GEZD-9.1		ZB9.1B				RT-213	ECG116
D104	1S1885		GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-215	ECG116
D105	V06G		GE-504A	5A6D	PTC202	HEPRO054	RE 49	SK3017A	RT-218	ECG177
D106	1S1555		GE-300	D200	PTC214	HEPRO0602	RE 52	SK3100	RT-218	ECG177
D107	1S1555		GE-300	D200	PTC214	HEPRO0602	RE 52	SK3100	RT-218	ECG177
D108	1S1555		GE-300	D200	PTC214	HEPRO0602	RE 52	SK3100	RT-218	ECG177
D109	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D110	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D111	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D112	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D117	1S1555		GE-300	D200	PTC214	HEPRO0602	RE 52	SK3100	RT-218	ECG177
IC101	PLL02A						RE 360-IC			ECG1167
IC102	TA7205P		GEIC-179	WEP949	PTC780		RE 357-IC	SK3231	TVCM-81	ECG1155
Q101	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710D(1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q102	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710D(1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q103	2SC829D		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC710(1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC829(1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839(1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q104	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710D(1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829(1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839(1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q105	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC710D(1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829(1)		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839(1)		GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q106	2SC1318R		GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
	2SC1318(1)		GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
	2SC1318Q(1)		GE-210 *	TR-21 *	PTC178	HEPS0015 *	RE 17 *	SK3122	RT-302	ECG128 *
Q107	2SA719P		GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719(1)		GE-269	TR-28 *	PTC103 *	HEPS0019 *	RE 26 *	SK3114	RT-305	ECG290
	2SA719Q(1)		GE-269	TR-28 *	PTC103 *	HEPS0				

KRACO MODEL KCB-2320B



A PHOTOFACT STANDARD NOTATION SCHEMATIC
 WITH CIRCUITRACE[®]
 © Howard W. Sams & Co., Inc. 1977



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.
Q117	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q118	2SC710D		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829C		GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q119	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC829C	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q120	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q121	2SC372Y	(1)	GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
Q122	2SC372	(1)	GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
Q123	2SC828P,Q	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC828P	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC945	(1)	GE-212	(IR)2SC945	PTC121 *	HEPS0015 *	RE 192	SK3124	RT-107A	ECG199
Q124	2SC828	(1)	GE-61 *	(IR)2SC828A	PTC121 *	HEPS0015 *	RE 192	SK3122	RT-302	ECG199
	2SC372	(1)	GE-61 *	(IR)2SC372	PTC121 *	HEPS0015 *	RE 13 *	SK3122	RT-308	ECG123A *
	2SC839F	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q125	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
	2SC839	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
Q126	2SC839F	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *
	2SC710	(1)	GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC829	(1)	GE-20 *	(IR)2SC829B	PTC121 *	HEPS0015 *	RE 9 *	SK3122	RT-308	ECG229 *
Q127	2SC839	(1)	GE-61 *	(IR)2SC644	PTC132 *	HEPS0015 *	RE 13 *	SK3018 *	RT-308	ECG123A *

- * Lead configuration may vary from original.
(1) Used in some versions.
(12)950 MW @ 500 mA
(13)12 W @ 3 AMP.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C104	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C113	.22 50V			TDC224M050EL	QDT1-10	SD50-R229
C114	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C115	.1 50V			TDC104M050EL	QDT1-2	SD50-R109
C135	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C174	3.3 25V		PC5-50	VTT3R3A50	QV1-23	EV-1318
C176	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C183	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C185	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C196	3.9 25V			TAC395K025P05	QDT1-46	SD50-3R99
C197	33 6.3V		PC30-25	VTT33D25	QV1-63	EV-1325
C203	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C204	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C207	33 6.3V		PC30-25	VTT33D25	QV1-63	EV-1325
C208	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C209	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C210	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C211	47 25V		PC50-25	VTT47E25	QV1-75	EV-1326
C212	33 6.3V		PC30-25	VTT33B10	QV1-61	EV-1125
C222	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C227	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615
C240	33 16V		PC30-25	VTT33D25	QV1-63	EV-1325
C242	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615

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	220 10%		DD-221		GP322		10TS-T22
C2	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C3	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C101	18 NPO 50V				CN0418		10TCC-Q18
C102	22 50V		DTZ-22	NP022	CN0422		10TCC-Q22
C103	1 NPO 50V				CN0510		10TCC-V10
C106	10 50V		DTZ-10	NP010	CN0410	QC2-141	10TCC-Q10
C107	.01 50V		DC-103	MGP01	TA110		TG-S10
C108	330 N750 5% 50V		DTN-330	N330	CN7333		10TCU-T33
C109	330 N750 5% 50V		DTN-330	N330	CN7333		10TCU-T33
C110	.001 10% 50V			DPMS6D1	EWFA210	QFT2-1	1FT-D10
C111	.01 10% 50V			WMF1S1	EWFA1110	QFT2-91	1FT-S10
C112	39 50V				CN0439		10TCP-Q39
C116	15 50V		DTZ-15	NP015	CN0415	QC2-141	10TCC-Q15
C117	.01 10% 50V		DC-103	MGP01	TA110		TG-S10
C118	22 N150 50V				*		10TCP-Q22
C120	560 50V		DD-561		GP356		10TS-T56
C121	100 N150 10% 50V				*		10TCP-T10
C122	15 50V		DTZ-15	NP015	CN0415	QC2-141	10TCC-Q15
C123	.01 50V		DC-103	MGP01	TA110	QW1-27	TG-S10
C124	100 10% 500V			CD15FD101J03	SX310		MMA-101
C125	33 50V		DTZ-33	NP033	CN0433		10TCC-Q33
C126	12 N150 50V				*		10TCP-Q12
C127	56 N150 10% 50V				*		10TCP-Q56
C129	560 50V		DD-561		GP356		10TS-T56
C130	82 N150 10% 50V				*		10TCP-Q82
C131	.01 50V			WMF1S1	EWFA1110	QFT2-91	1FT-S10
C132	560 10% 50V		DD-271	GP270	GP327		10TS-T27
C133	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C136	220 10% 50V		DD-221		GP322		10TS-T22
	270 50V	(1)	DD-271	GP270	GP327		10TS-T27
C137	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C138	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C139	2 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C140	2 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C141	68 50V		DD-680	GP68	GP468		10TS-Q68
C142	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C143	100 N150 10% 50V				*		10TCP-T10
C144	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C145	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C146	470 50V		DD-471	GP470	GP347		10TS-T47
C147	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C148	120 10% 50V		DTZ-120		CN0312		10TCC-T12
C149	220 10% 50V		DD-221		GP322		10TS-T22
C150	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C151	100 10% 500V			CD15FD101J03	SX310	QW1-27	MMA-101
C152	270 10% 500V			CD15FD271J03	SX327	QW1-37	MWB-271
C153	82 10% 50V		DD-820		GP482		10TS-Q82
C154	27 50V				CN0427		10TCC-Q27
C155	.047 50V		UK50-503		MAG5015		
C156	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C157	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C159	.047 50V		UK50-503		MAG5015		
C160	.047 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C161	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C162	33 N150 10% 50V				*		10TCP-Q33
C163	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C164	2 50V		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C165	.01 50V		DC-103	MGP01	TA110		TG-S10
C166	10 50V		DTZ-10	NP010	CN0410		10TCC-Q10
C168	2.2 500V						
C169	.47 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C170	.047 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C171	.047 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C172	.047 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C173	.047 10% 50V				EWFA1A147	QFT2-171	1FT-S47
C175	.0047 50V			WMF1047	M192P4729R8	QFT2-63	1FT-D47
C177	.0022 10% 50V			DPMS6D22	M192B2229R8	QFT2-27	1FT-D22
C178	56 N150 10% 50V				*		10TCP-Q56
C179		(1)					

PARTS LIST AND

(When ordering parts, state A

CAPACITORS (con

ITEM No.	RATING
C180	560 50V
C181	100 50V
C182	68 N150 10%
C184	.022 10% 50V
C189	.0022 10% 50V
C190	.01 50V
C191	.022 10% 50V
C192	220 10% 50V
C193	.01 10% 50V
C194	.01 50V
C195	.0022 50V
C198	68 50V
C199	68 50V
C200	100 50V
C201	.068 10% 50V
C202	100 10% 50V
C205	.068 10% 50V
C213	.01 50V
C214	.01 50V
C215	.01 50V
C216	.01 50V
C217	.047 50V
C218	.047 50V
C219	.047 50V
C220	.047 50V
C223	39 50V
C224	.01 50V
C225	3 500V
C226	.0047 50V
C230	7 50V
C231	100 50V
C232	.0033 50V
C233	330 50V
C235	15 N150 50V
C236	39 N150 10% 50V
C237	.0022 10% 50V
C238	.0022 10% 50V
C243	100 10%
C244	.047 50V
CT101	20

- *Not normally in distribut
(1) Used in some versions.

CONTROLS (All v

ITEM No.	FUNCTION
RV101	Squelch Range
RV102	AF ALC
RV103	S Meter
RV104	RF Meter
VR1	Volume/Switch
VR2	Squelch

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPRAGUE PART No.	SYLVANIA PART No.
RT-308 *	ECG123A *
RT-308 *	ECG123A *
RT-308 *	ECG229 *
RT-308 *	ECG123A *
RT-308 *	ECG229 *
RT-308 *	ECG123A *
RT-308 *	ECG229 *
RT-308 *	ECG123A *
RT-308 *	ECG229 *
RT-308 *	ECG123A *
RT-308 *	ECG199
RT-302	ECG199
RT-308	ECG123A *
RT-107A	ECG199
RT-302	ECG199
RT-308	ECG123A *
RT-107A	ECG199
RT-302	ECG199
RT-308	ECG123A *
RT-302	ECG199
RT-308	ECG123A *
RT-308 *	ECG229 *
RT-308	ECG123A *
RT-308	ECG123A *
RT-308 *	ECG123A *
RT-308	ECG229 *
RT-308	ECG123A *
RT-308	ECG123A *

SPRAGUE PART No.	
-LINE	GENERAL LINE
11	EV-1222
-10	SD50-R229
11	EV-1222
-2	SD50-R109
11	EV-1222
23	EV-1318
11	EV-1615
11	EV-1222
73	EV-1226
-46	SD50-3R99
53	EV-1325
73	EV-1226
117	EV-1240
53	EV-1325
41	EV-1222
11	EV-1615
183	EV-1260
75	EV-1326
51	EV-1125
27	EV-1319
11	EV-1615
53	EV-1325
11	EV-1615

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	220 10%		DD-221		GP322		10TS-T22
C2	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C3	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C101	18 NPO 50V				CN0418		10TCC-Q18
C102	22 50V		DTZ-22	NPO22	CN0422		10TCC-Q22
C103	1 NPO 50V				CN0510		10TCC-V10
C106	10 50V				CN0410		10TCC-Q10
C107	.01 50V		DTZ-10	NPO10	TA110	QC2-141	TG-S10
C108	330 N750 5% 50V		DC-103	MGP01	TA110		10TCU-T33
C109	330 N750 5% 50V		DTN-330	N330	CN7333		10TCU-T33
C110	.001 10% 50V		DTN-330	DPMS6D1	EWFI A210	QFT2-1	
C111	.01 10% 50V			WMF1S1	EWFI A110	QFT2-91	
C112	39 50V				CN0439		10TCC-Q39
C116	15 50V		DTZ-15	NPO15	CN0415		10TCC-Q15
C117	.01 10% 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C118	22 N150 50V				*		10TCP-Q22
C120	560 50V		DD-561		GP356		10TS-T56
C121	100 N150 10% 50V				*		10TCP-T10
C122	15 50V		DTZ-15	NPO15	CN0415		10TCC-Q15
C123	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C124	100 10% 500V			CD15FD101J03	SX310	QW1-27	MWA-101
C125	33 50V		DTZ-33	NPO33	CN0433		10TCC-Q33
C126	12 N150 50V				*		10TCP-Q12
C127	56 N150 10% 50V				*		10TCP-Q56
C129	560 50V		DD-561		GP356		10TS-T56
C130	82 N150 10% 50V				*		10TCP-Q82
C131	.01 50V			WMF1S1	EWFI A110	QFT2-91	1FT-S10
C132	560 10% 50V		DD-271	GP270	GP327		10TS-T27
C133	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C136	220 10% 50V		DD-221		GP322		10TS-T22
	270 50V		DD-271	GP270	GP327		10TS-T27
C137	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C138	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C139	2 50V		DTZ-2R2	NPO2P2	CN0522		10TCC-V22
C140	2 50V		DTZ-2R2	NPO2P2	CN0522		10TCC-V22
C141	68 50V		DD-680	GP68	GP468		10TS-Q68
C142	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C143	100 N150 10% 50V				*		10TCP-T10
C144	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C145	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C146	470 50V		DD-471	GP470	GP347		10TS-T47
C147	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C148	120 10% 50V		DTZ-120		CN0312		10TCC-T12
C149	220 10% 50V		DD-221		GP322		10TS-T22
C150	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C151	100 10% 500V			CD15FD101J03	SX310	QW1-27	MWA-101
C152	270 10% 500V			CD15FD271J03	SX327	QW1-37	MWB-271
C153	82 10% 50V		DD-820		GP482		10TS-Q82
C154	27 50V				CN0427		10TCC-Q27
C155	.047 50V		UK50-503		MAG5015		
C156	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C157	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C159	.047 50V		UK50-503		MAG5015		
C160	.047 10% 50V				EWFI A147	QFT2-171	1FT-S47
C161	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C162	33 N150 10% 50V				*		10TCP-Q33
C163	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C164	2 50V		DTZ-2R2	NPO2P2	CN0522		10TCC-V22
C165	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C166	10 50V		DTZ-10	NPO10	CN0410		10TCC-Q10
C168	2.2 500V						
C169	.47 10% 50V				EWFI A147	QFT2-171	1FT-S47
C170	.047 10% 50V				EWFI A147	QFT2-171	1FT-S47
C171	.047 10% 50V				EWFI A147	QFT2-171	1FT-S47
C172	.047 10% 50V				EWFI A147	QFT2-171	1FT-S47
C173	.047 10% 50V				EWFI A147	QFT2-171	1FT-S47
C175	.0047 50V			WMF1047	M192P4729R8	QFT2-63	1FT-D47
C177	.0022 10% 50V			DPMS6D22	M192B2229R8	QFT2-27	1FT-D22
C178	56 N150 10% 50V				*		10TCP-Q56
C179							

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
C180	560 50V		DD-561		GP356		10TS-T56
C181	100 50V		DD-101	GP100	GP310		10TS-T10
C182	68 N150 10%				*		10TCP-Q68
C184	.022 10% 50V				M192P2239R8	QFT2-127	1FT-S22
C189	.0022 10% 50V				GP222		10TS-D22
C190	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C191	.022 10% 50V				M192P2239R8	QFT2-127	1FT-S22
C192	220 10% 50V		DD-221		GP322		10TS-T22
C193	.01 10% 50V				EWFI A110	QFT2-91	1FT-S10
C194	.01 50V		DC-103	WMF1S1	TA110	QC2-141	TG-S10
C195	.0022 50V			MGP01	GP222		10TS-D22
C198	68 50V		DD-680	GP68	GP468		10TS-Q68
C199	68 50V		DD-680	GP68	GP468		10TS-Q68
C200	100 50V		DD-101	GP100	GP310		10TS-T10
C201	.068 10% 50V				EWFI A168	QF1-195	1PB-S68
C202	100 10% 50V		DD-101	WMF1S68	GP310		10TS-T10
C205	.068 10% 50V			GP100	EWFI A168	QF1-195	1PB-S68
C213	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C214	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C215	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C216	.01 50V		DC-103	MGP01	TA110	QC2-141	TG-S10
C217	.047 50V		UK50-503		MAG5015		
C218	.047 50V		UK50-503		MAG5015		
C219	.047 50V		UK50-503		MAG5015		
C220	.047 50V		UK50-503		MAG5015		
C223	39 50V				CN0439	QC2-141	10TCC-Q39
C224	.01 50V		DC-103	MGP01	TA110		TG-S10
C225	3 500V		DTZ-3R3	NPO3P3	CN0533		10TCC-V33
C226	.0047 50V				GP222		10TS-D22
C230	7 50V		DTZ-6R8	NPO6P8	CN0568		10TCC-V68
C231	100 50V		DD-101	GP100	GP310	QFT2-43	10TS-T10
C232	.0033 50V			WMF1D33	M192P3329R8		1FT-D33
C233	330 50V		DD-331	GP330	GP333		10TS-T33
C235	15 N150 50V				*		10TCP-Q15
C236	39 N150 10% 50V				*		10TCP-Q39
C237	.0022 10% 50V				M192P2229R8	QFT2-27	1FT-D22
C238	.0022 10% 50V				M192P2229R8	QFT2-27	1FT-D22
C243	100 10%		DD-101	DPMS6D22	GP310		10TS-T10
C244	.047 50V		UK50-503	GP100	MAG5015		
CT101	20						

*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.
RV101	Squelch Range	10K					
RV102	AF ALC	2000					
RV103	S Meter	20K					
RV104	RF Meter	20K					
VR1	Volume/Switch	50K					
VR2	Squelch	10K					

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.	
L101	RF Choke (22uH)		LF-220KD01N		
L103	Harmonic Suppressor (27MHz)		TR-10CD004S		
L104	Harmonic Suppressor (27MHz)		TR-10D005S		
L105	RF Choke (2.2uH)		LF-2R2KD01N		
L106	XMT Driver (27MHz)		TR-A5CZ001M		
L107	RF Choke (68uH)		LF-680KD01N		
L108	RF Choke		LD-ADX3825M		
L109	Final Amp (27MHz)		TR-A5CZ002M		
L110	Antenna Match (27MHz)		TR-A5CZ003M		
L111	RF Choke (68uH)		LF-680K01N		
L112	Rec Mixer (10MHz)		TR-07MB008N		
L113	RF Choke		LD-ADB4024B		
L114	RF Choke		LO-ADB4024B		
L116	RF Choke		LA-1KE1011A		
T101	VCO (17MHz)		TR-10DA002T		
T102	XMT Mixer (27MHz)		TR-10CB001S		
T103	XMT Buffer (27MHz)		TR-10CP005S		
T104	Rec Antenna (27MHz)		TR-10MP003T		
T105	Rec RF (27MHz)		TR-10CA005S		
T106	Rec Mixer (10MHz)		TR-07MB008N		
T107	IF (455kHz)		TR-07LA004N		
T108	IF (455kHz)		TR-07LA005N		
T109	IF (455kHz)		TR-07LA023N		
T111	VCO Kuffer (17MHz)		TR-07MB003T		

KRACO MODEL KCB-2320B

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.	
CH101	1.1A	.12	.48mH	ELA-16 (1)	TR523		(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T110	2.88	1 2 8 13.5	ETA-66 (1)	TR723	MCB-16	(1) Number on unit.

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.	
SP1	3" PM 8 ohms		30A05Z8R	

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 Fast Acting			AGC2	HDJ	312002	150145	FG2-2

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MIC		18-032	18-034	18-010	18-092	1	2	4	3	NC	2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF101	Filter		455kHz (FB-R455A08M)
J1	Jack		Antenna (YJ-C02S002Z)
J2	Jack		Ext. Sp. (YJ-T03S003Z)
J3	Jack		PA Sp. (YJ-T03S003Z)
M1	Meter		S/Rf (ZM-J2028N02)
P4	Jack		Microphone (YJ-Z04S002Z)
PL1	Lamp		Channel (12.00V @ 30mA)
PL3	Lamp		Meter Illumination (4.78V @ 60mA)
SW101	Switch		Channel Selector (SR-0724103H)
S1	Switch		Switch (Part of Volume Control)
S2	Switch		Delta Tune (SR-0303102E)
S3	Switch		ANL (ST-020201ZM)
S4	Switch		PA/CB
X101	Crystal		11.806MHz (XA-S1B4001N)
X102	Crystal		10.695MHz (XA-S1B3002N)
X103	Crystal		10.240MHz (XA-S1B3001N)
	Power Cord		DC (AC-DC028GEA)