



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.



XCB-12

MODEL XCB-12

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

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Printed in U. S. of America

7CY448

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
L3 thru L7, L13, L15 8728
L1, L2, L8, L10, L11, L12 9440

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Inputs of frequency counter and RF VTVM to L8 secondary.	Ch. 13	L8	Adjust for 37.750MHz at maximum.
Input of frequency counter to L8 secondary.	Ch. 17 Ch. 21 Ch. 1 Ch. 5 Ch. 9		Check for 37.800MHz. Check for 37.850MHz. Check for 37.600MHz. Check for 37.650MHz. Check for 37.700MHz.
Input of frequency counter to Q6 emitter.	Ch. 13 Delta Tune-center position. Ch. 14 Ch. 15 Ch. 16		Check for 10.180MHz. Check for 10.170MHz. Check for 10.160MHz. Check for 10.140MHz.
Input of frequency counter to Q17 emitter.	Ch. 13, Xmit Ch. 14, Xmit Ch. 15, Xmit Ch. 16, Xmit		Disconnect C405. Check for 10.635MHz. Check for 10.625MHz. Check for 10.615MHz. Check for 10.595MHz. Reconnect C405.

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. Scan-OFF.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP2. 455kHz, 1000Hz @ 30% modulation.	Ch. 13 Delta Tune-center position.	L7,L6,L5	Adjust for maximum output.
Output of signal generator thru .01uF to TP1. 10.635MHz, 1000Hz @ 30% modulation.	Ch. 13	L4,L3	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation.	Ch. 13 RF Gain (VR3)-MAX.	L2,L1	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 1000uV.	Ch. 13 Delta Tune-center position. RF Gain (VR3)-MAX.	RT2	SQUELCH RANGE Set squelch control VR2 fully clockwise. Adjust RT2 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 13	RT1	S METER Adjust RT1 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.

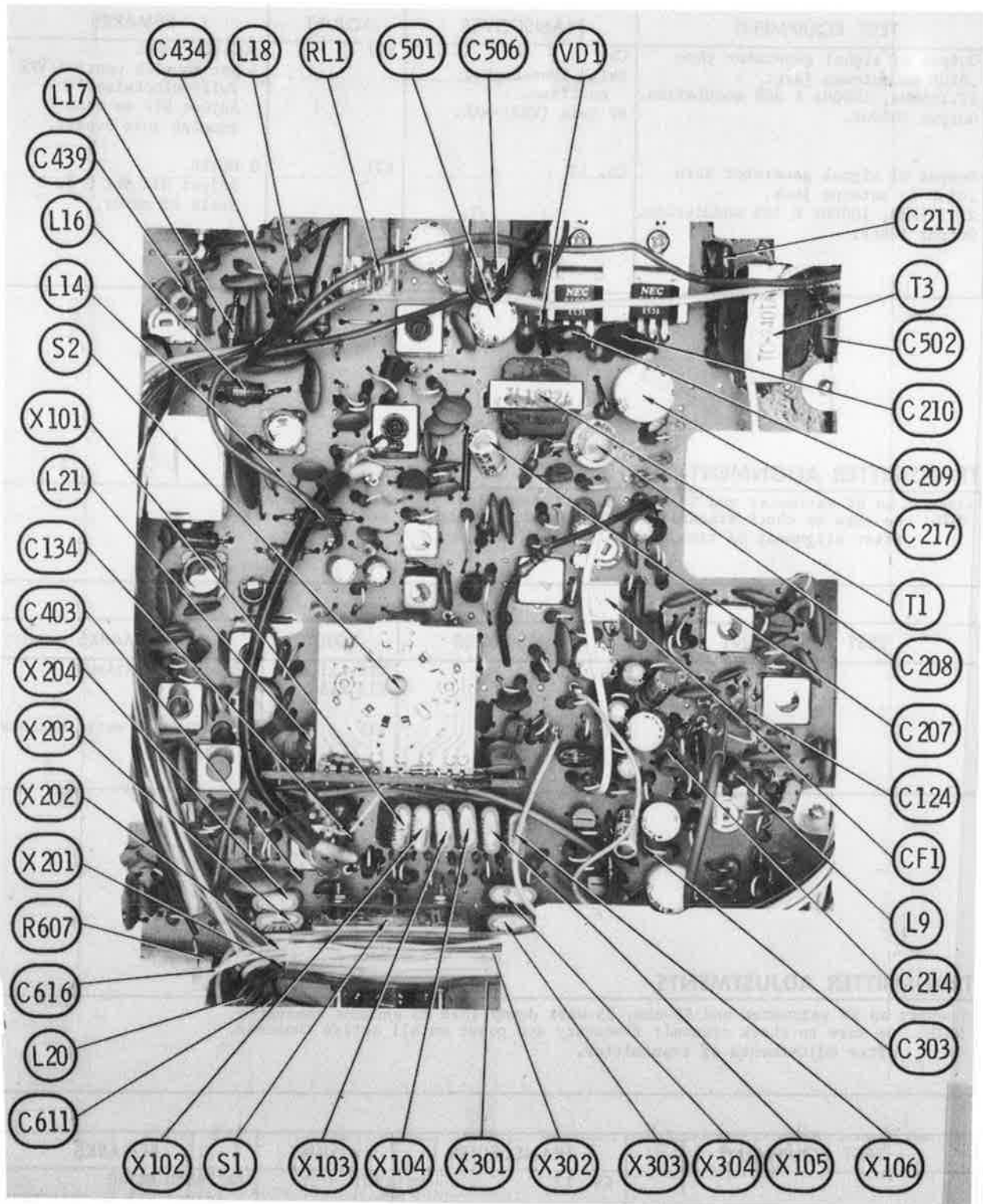
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 13	L10,L11,L12, L13,L15	Adjust for maximum.
	Ch. 13	L15	Adjust for 4 watts maximum.

TRANSMITTER ADJUSTMENTS

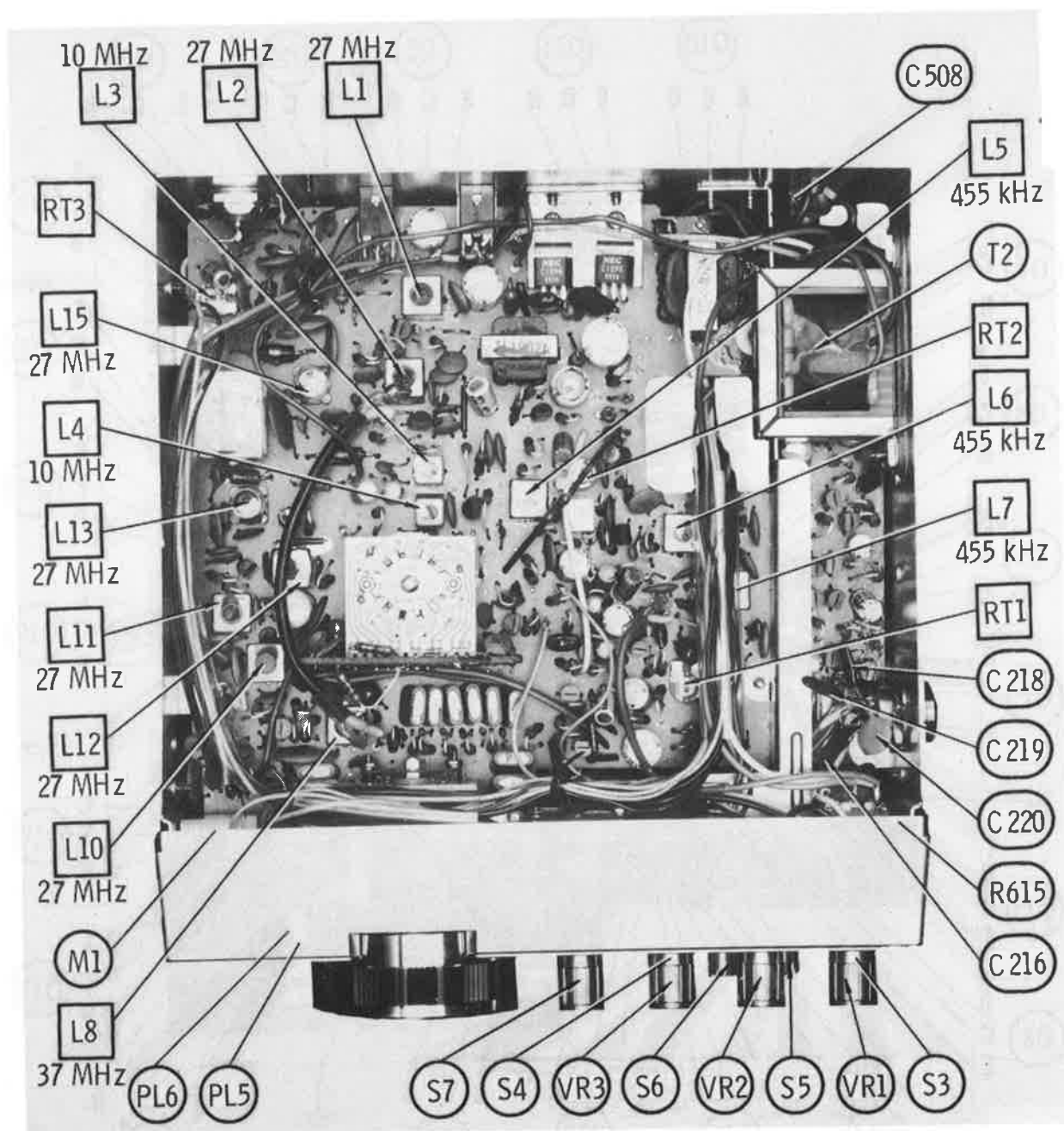
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustments of transmitter.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 13	RT3	RF PANEL METER Adjust RT3 so that panel RF meter agrees with RF wattmeter.

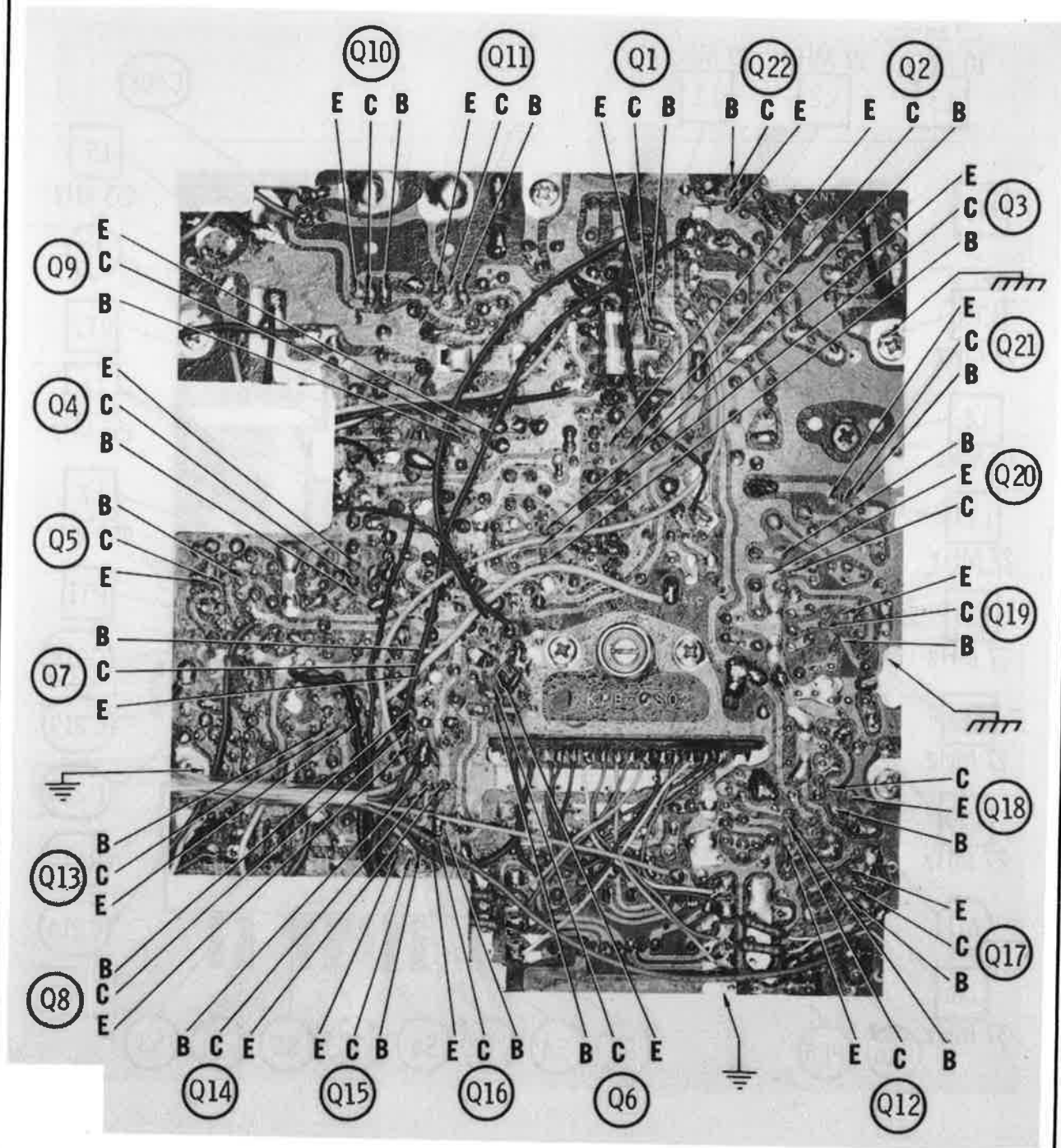
XTAL MODEL XCB-12



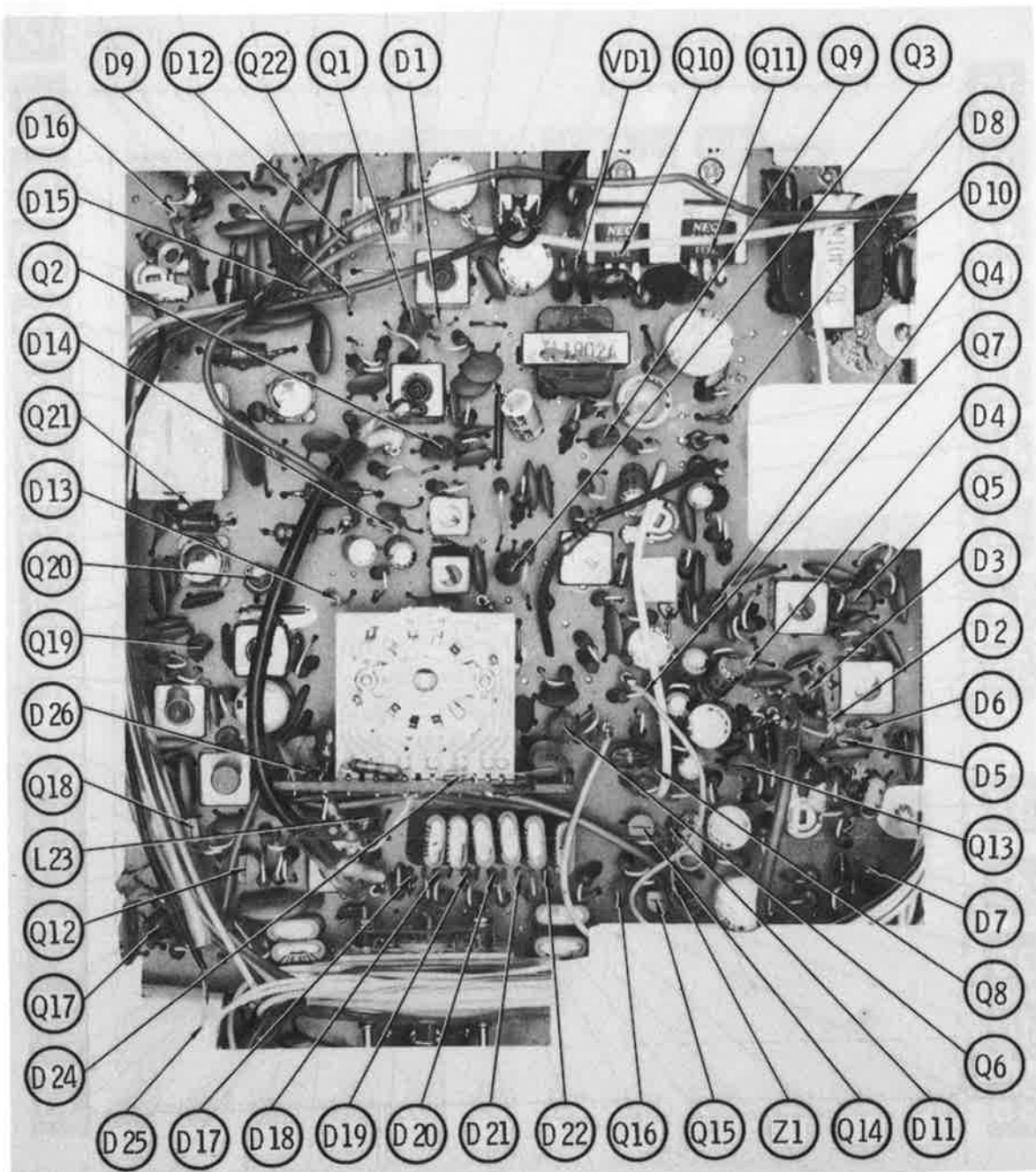
MAIN BOARD



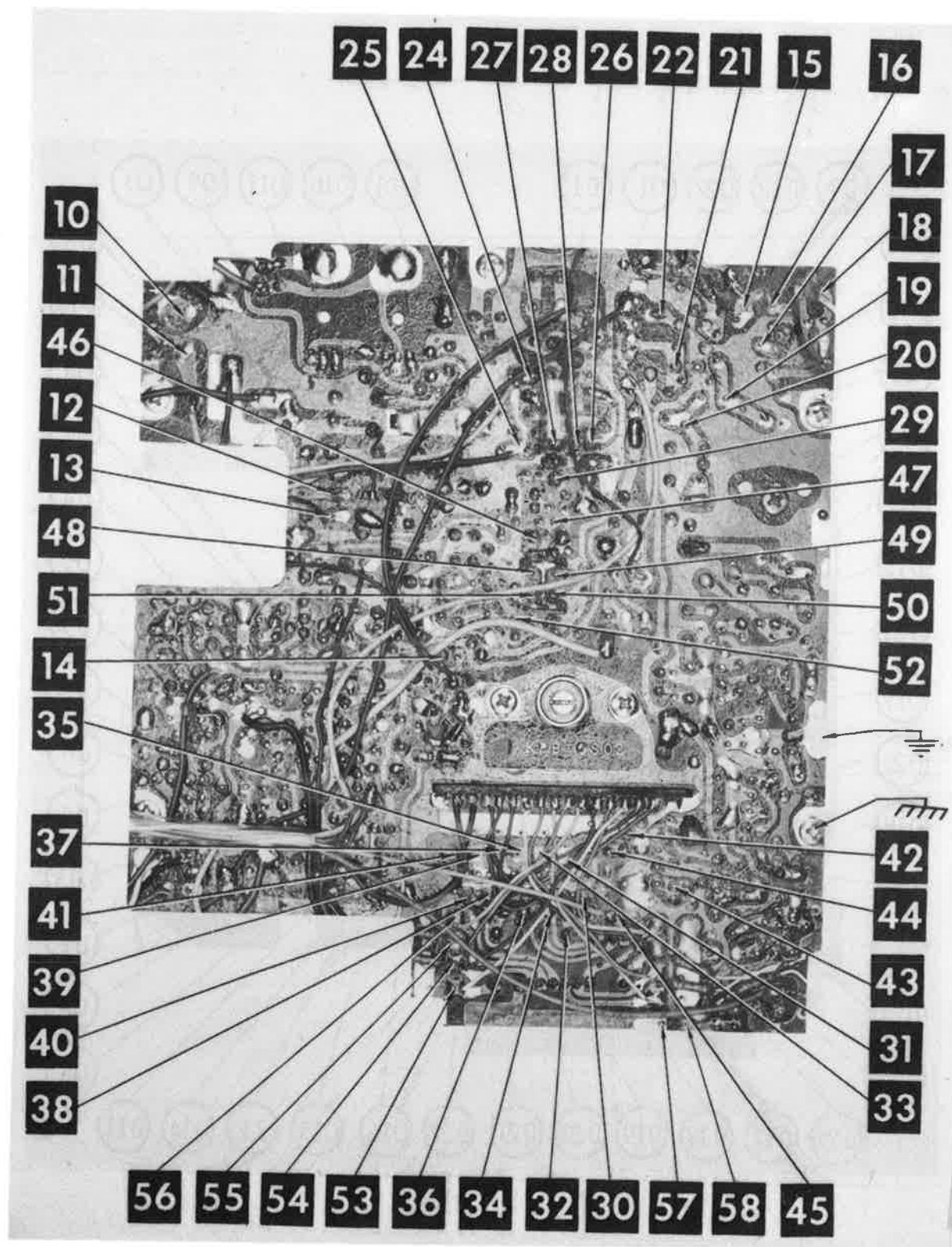
CHASSIS-BOTTOM



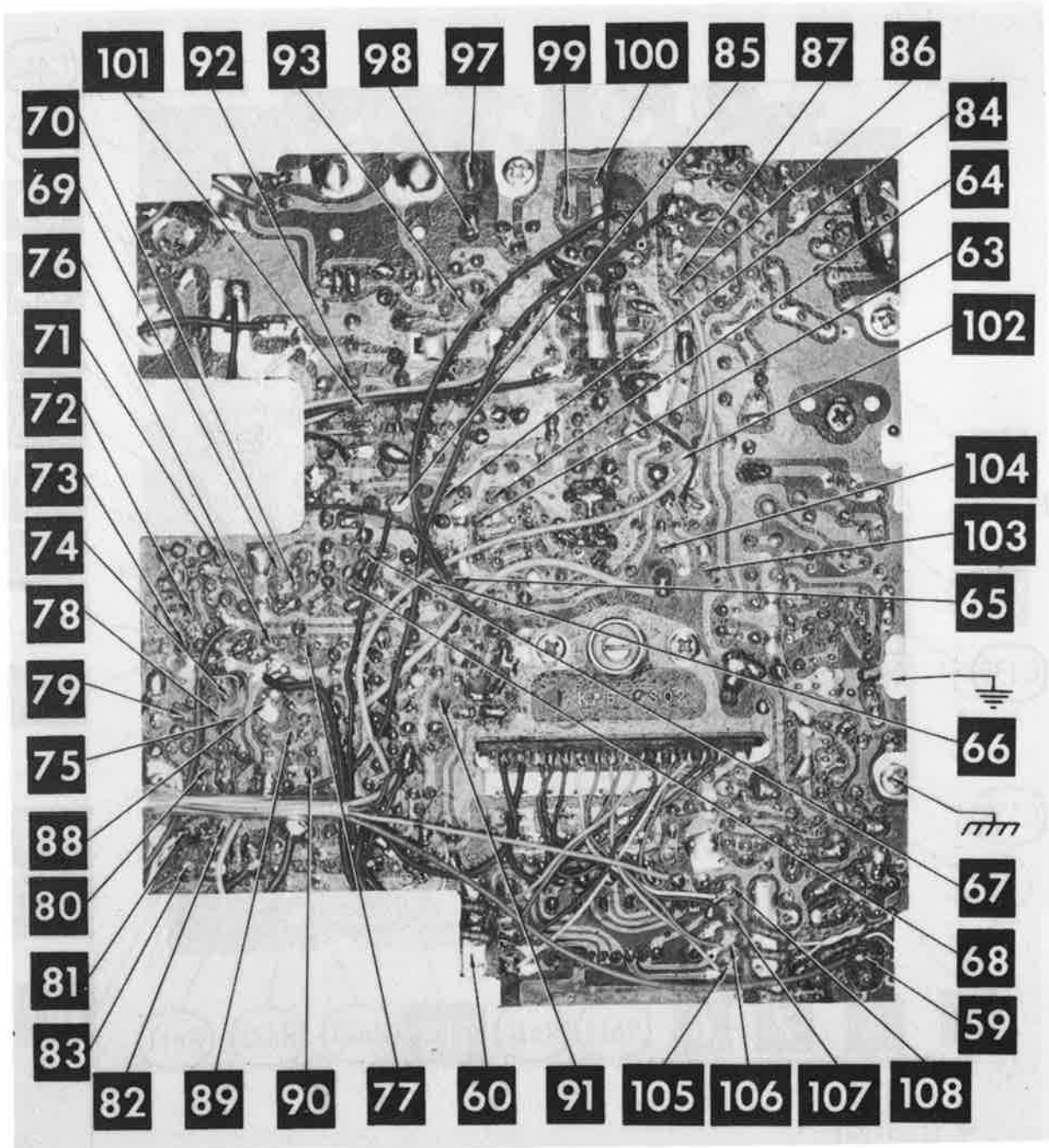
MAIN BOARD



MAIN BOARD

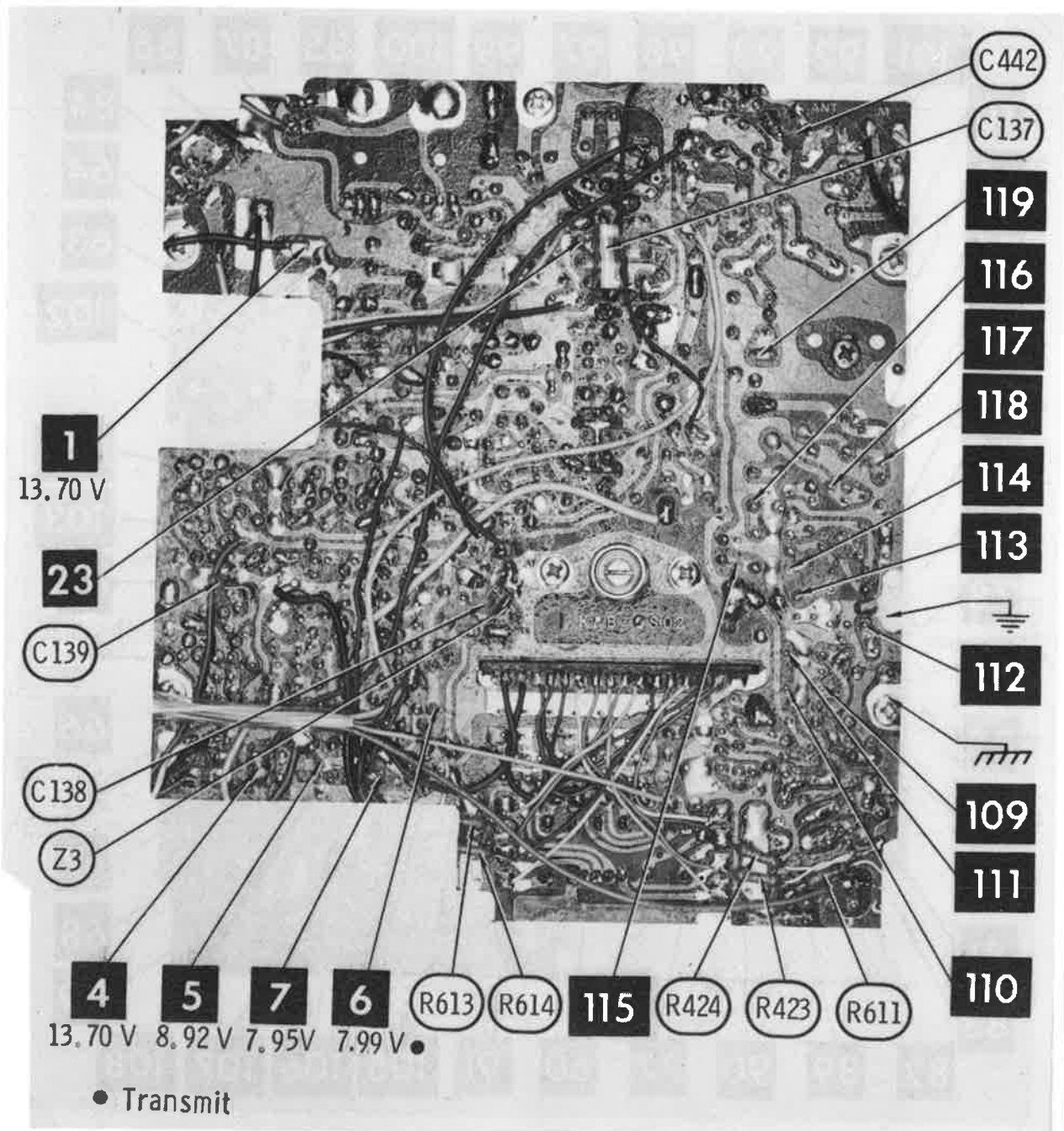


MAIN BOARD

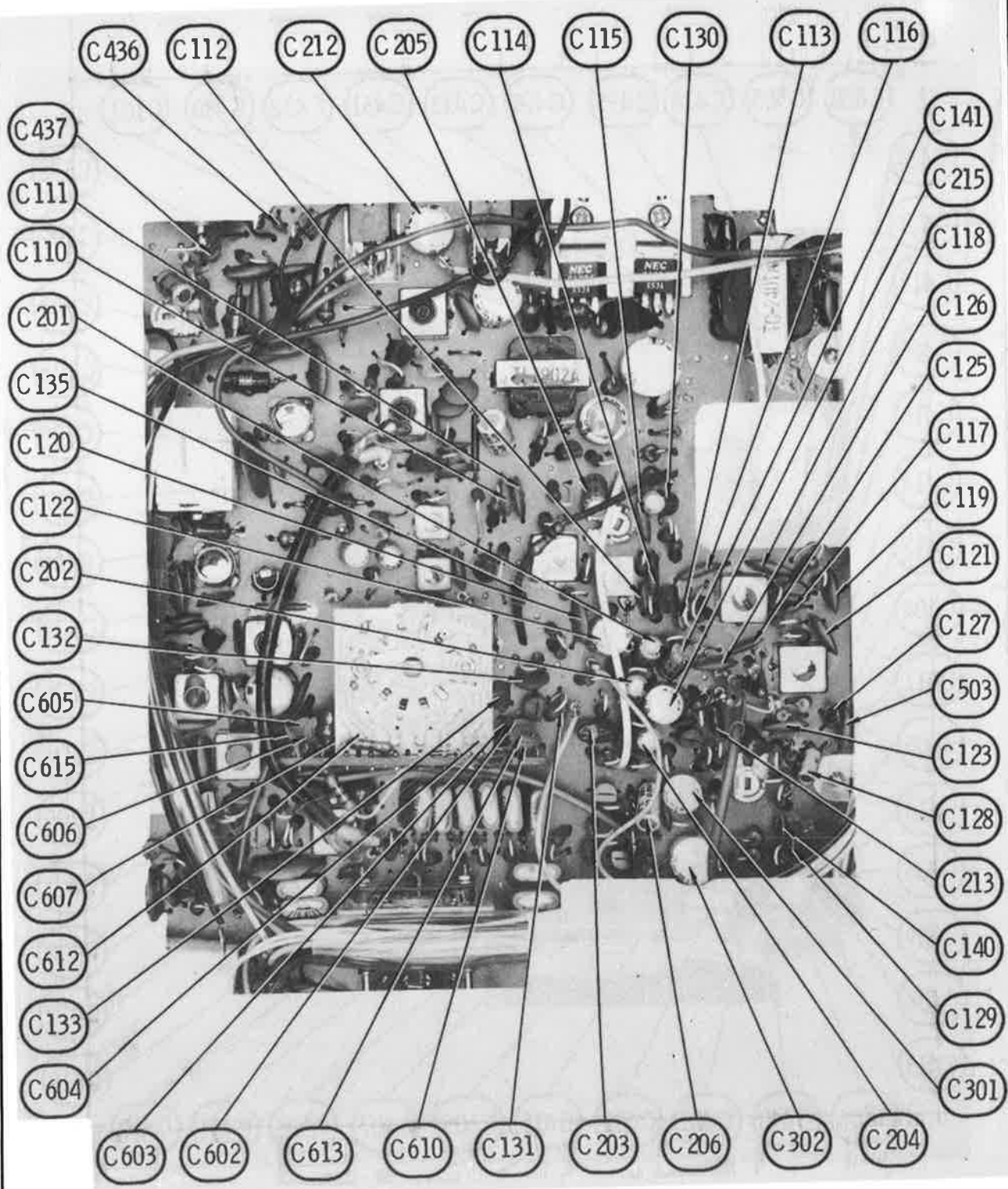


XTAL MODEL XCB-12

MAIN BOARD

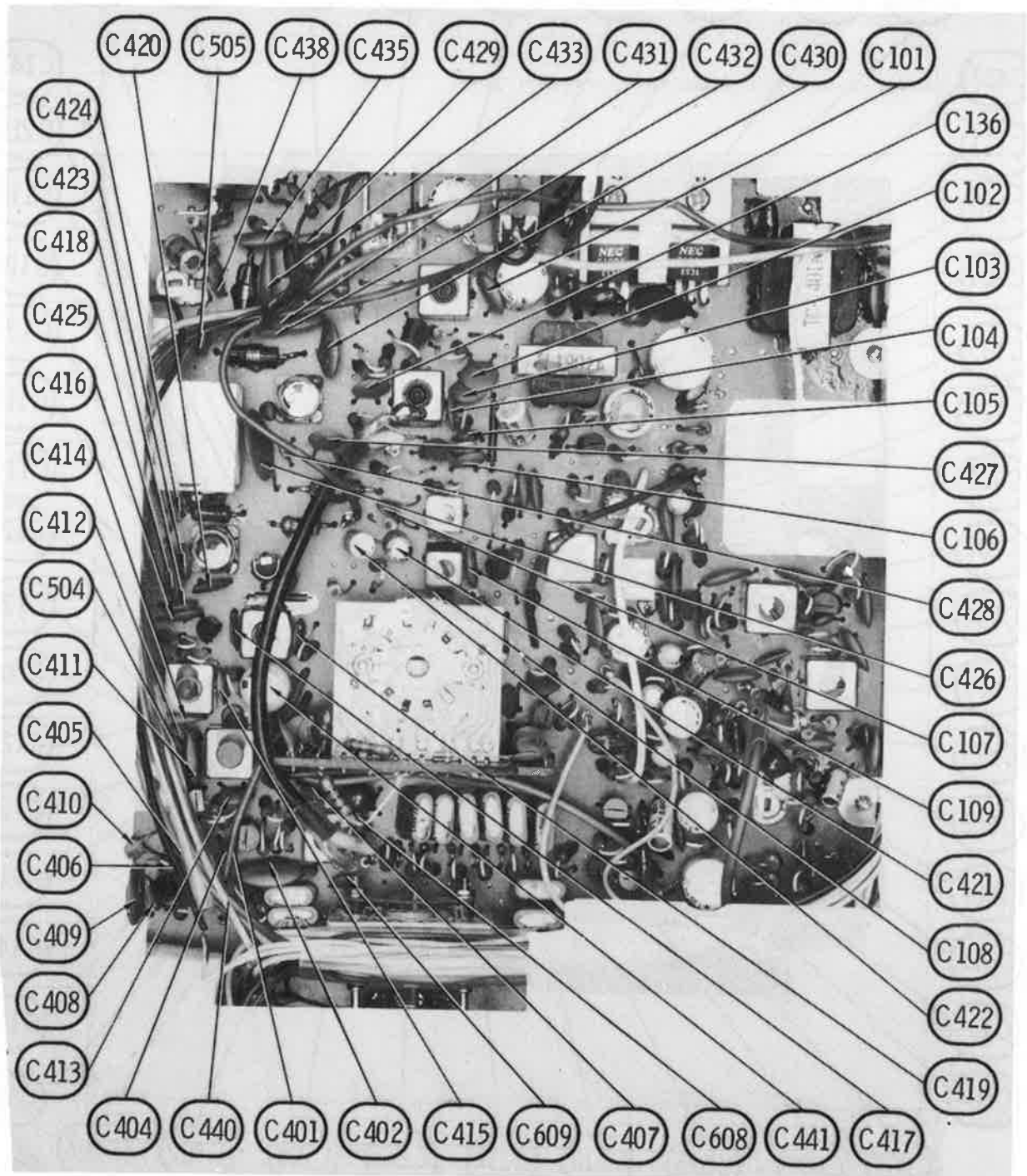


MAIN BOARD

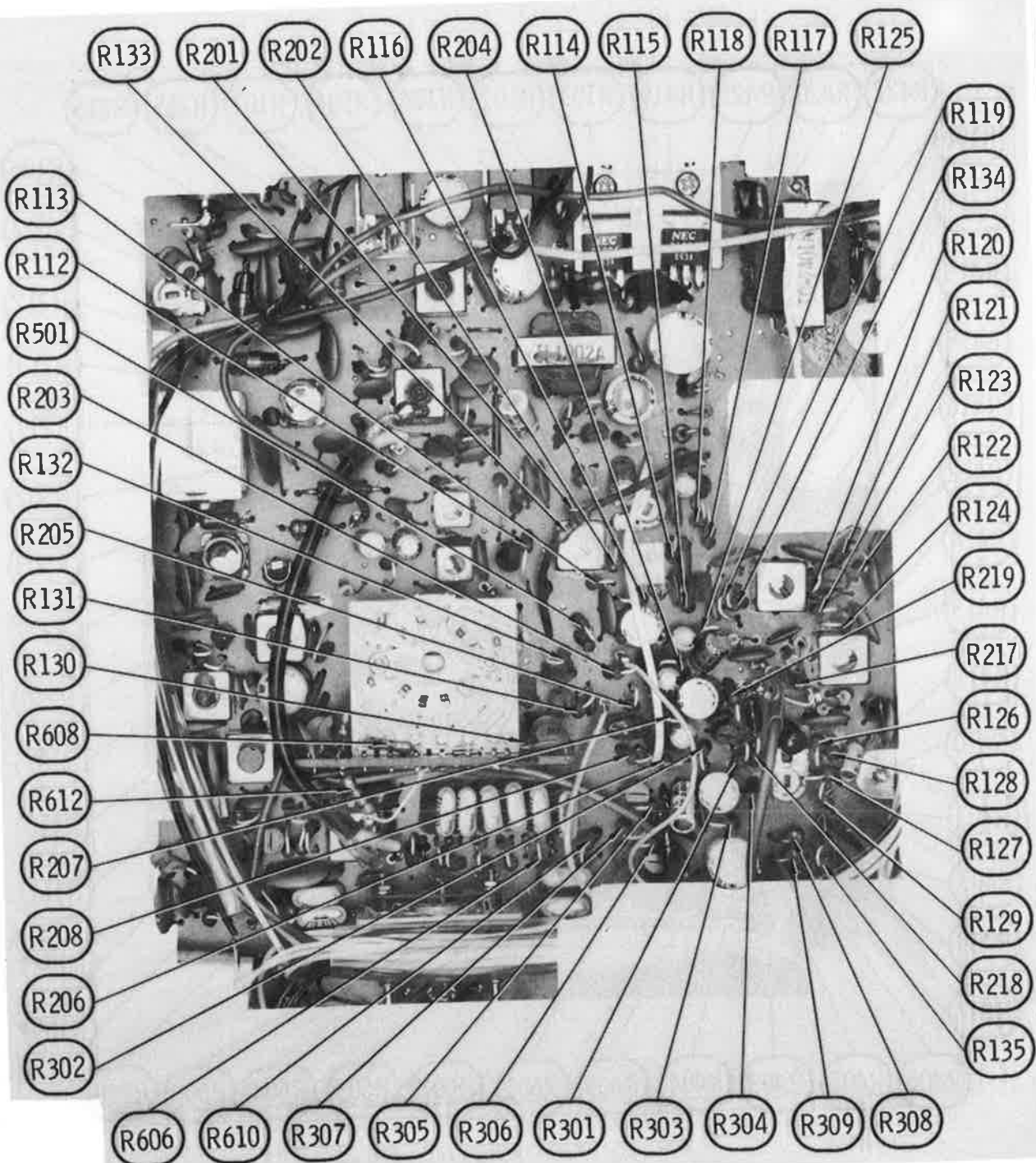


XTAL MODEL XCB-12

MAIN BOARD

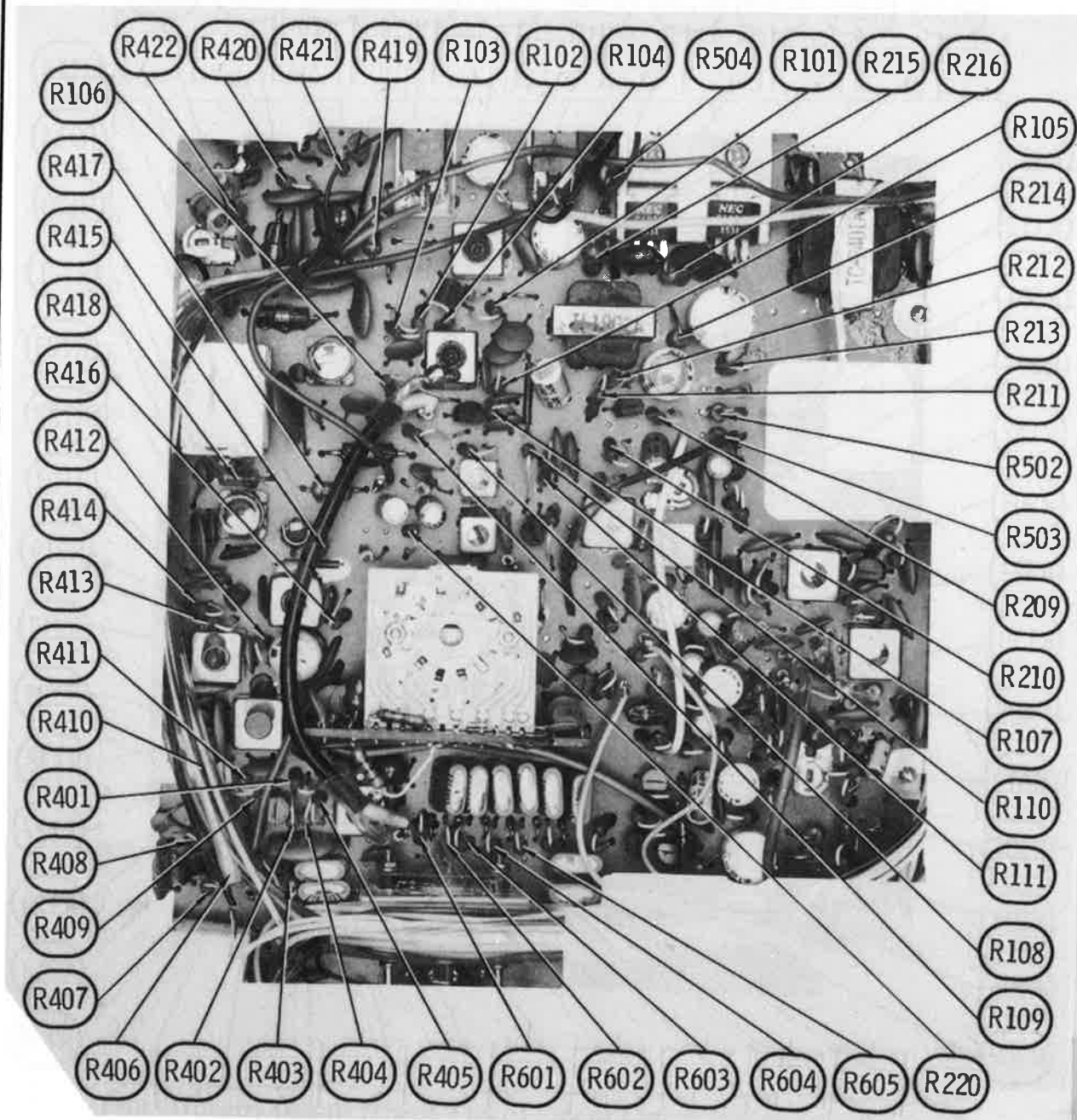


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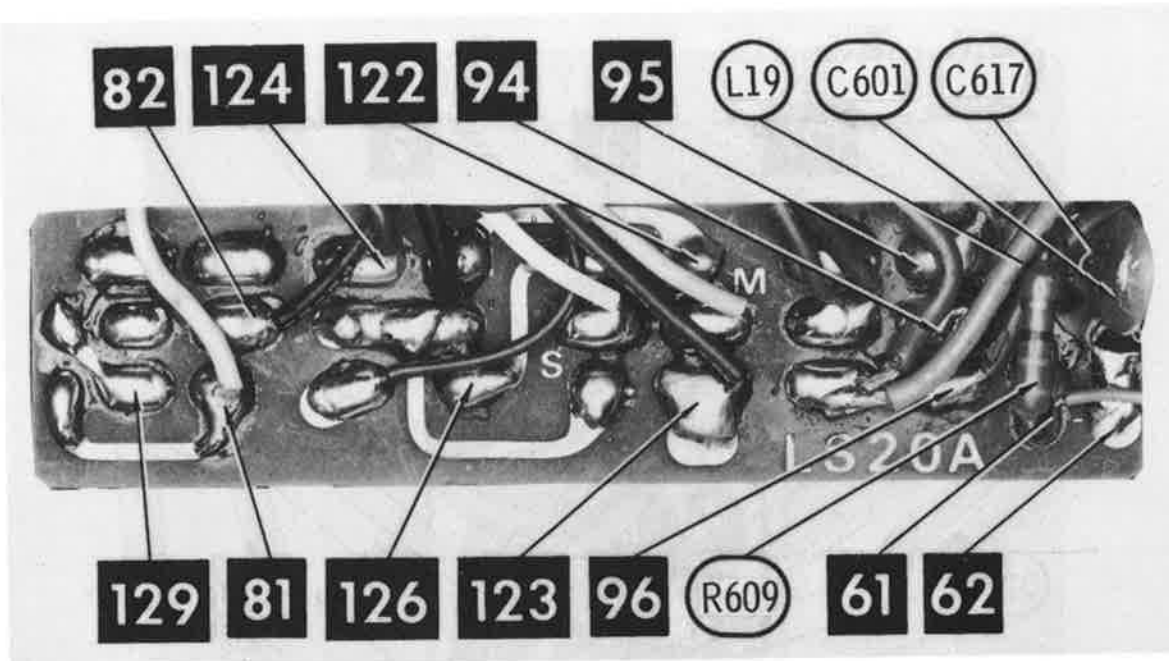


XTAL MODEL XCB-12

MAIN BOARD



MAIN BOARD

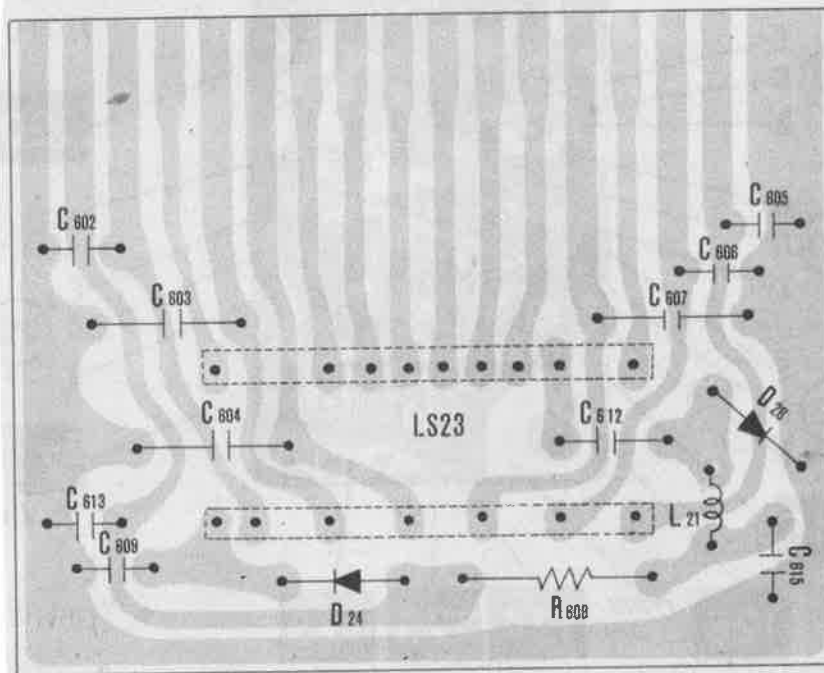


SWITCH BOARD

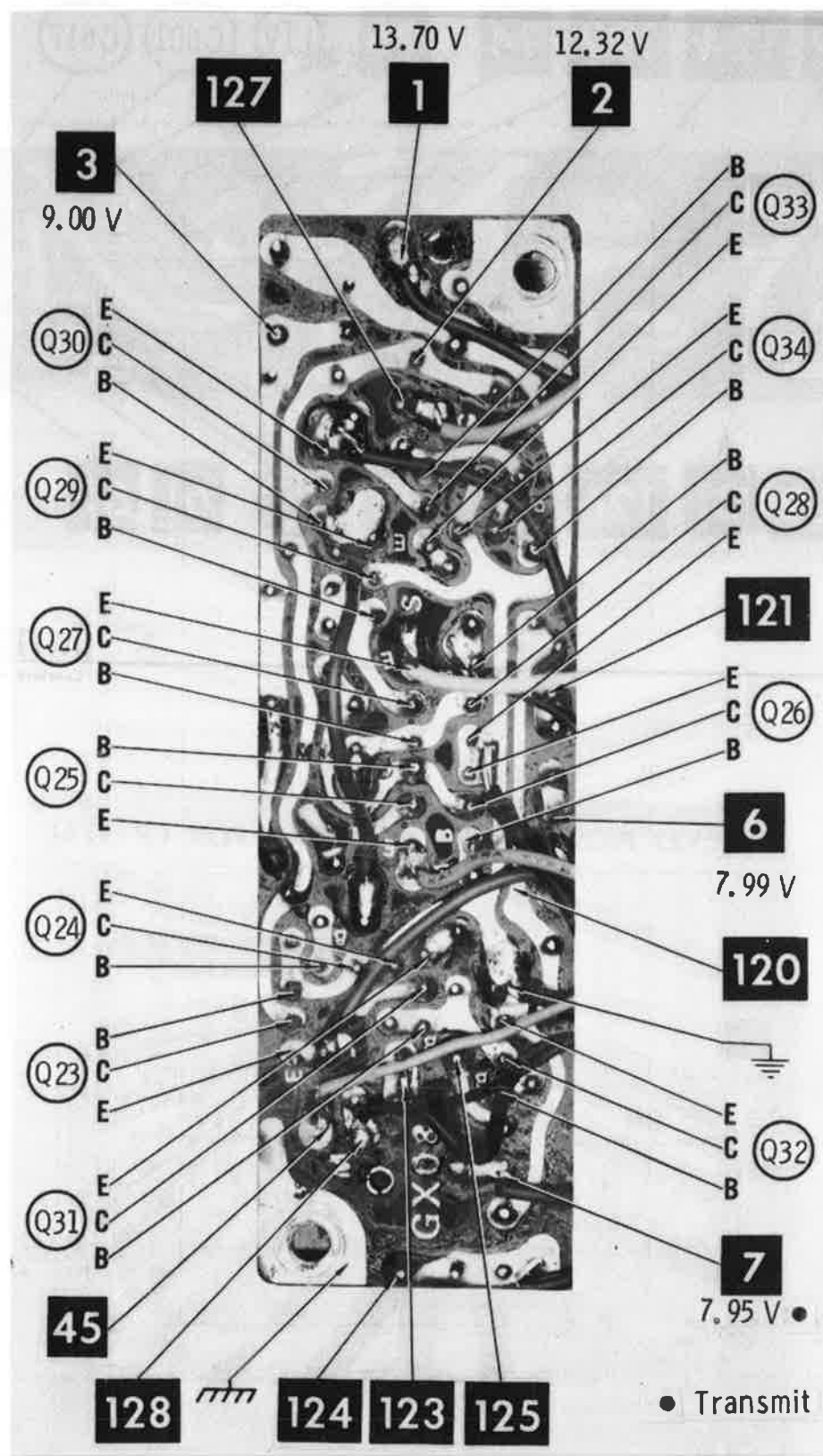
Courtesy of the Manufacturer

XTAL MODEL XCB-12

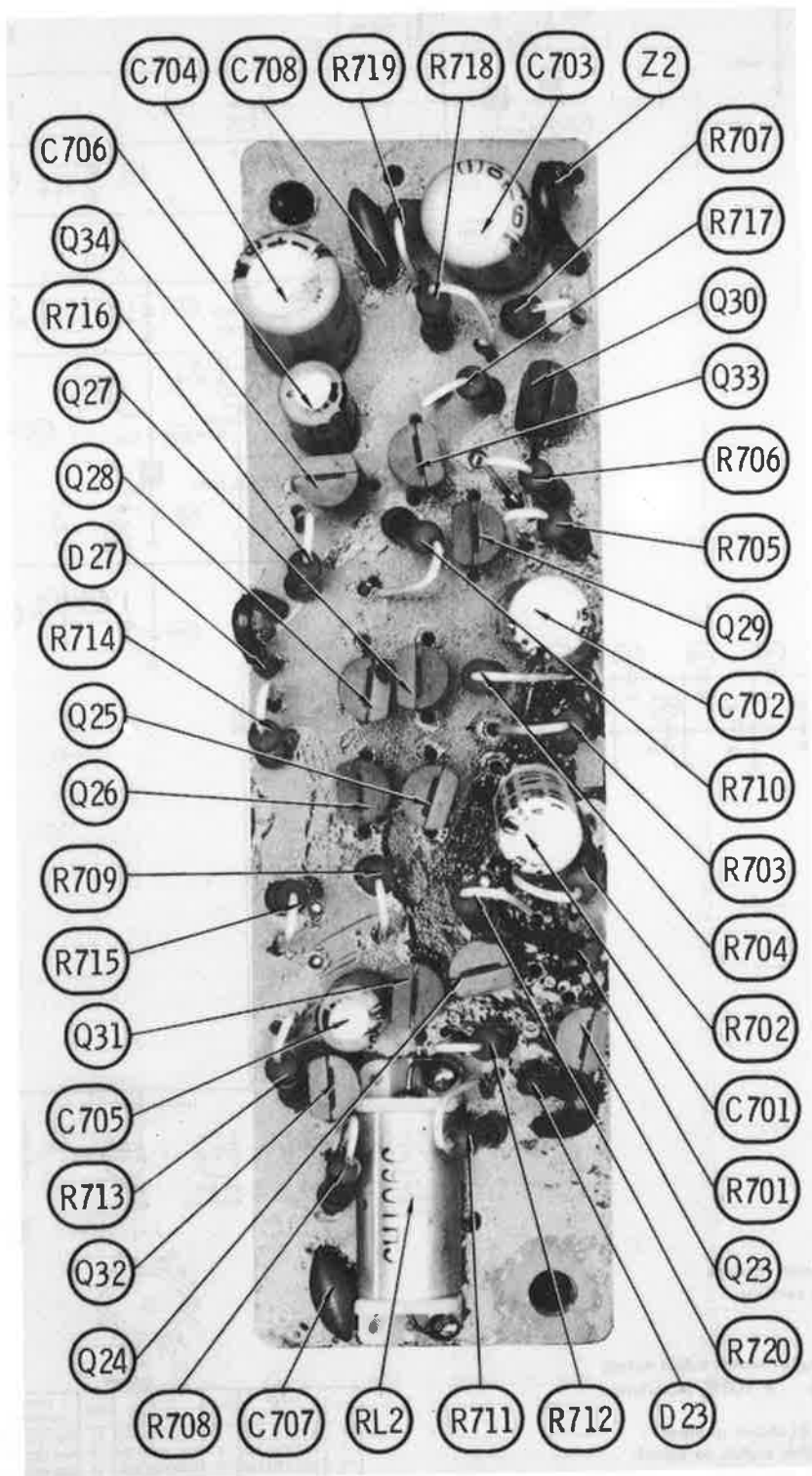
KPB-LS23 PRINTED CIRCUIT BOARD FOR CRYSTAL



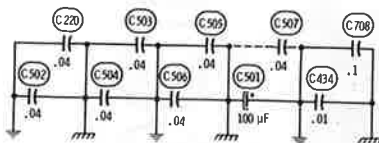
CRYSTAL BOARD

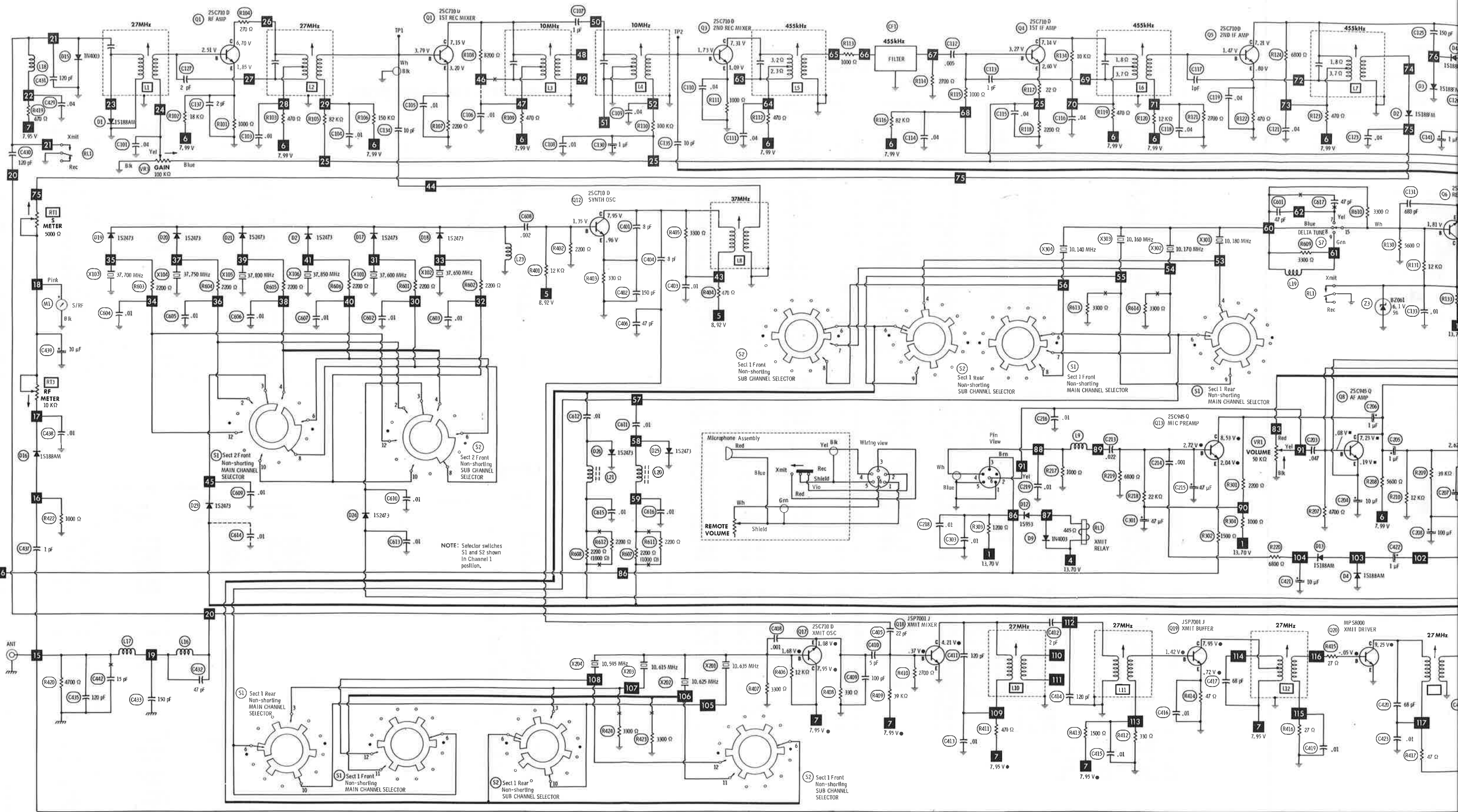


SCAN BOARD



SCAN BOARD







PARTS LIST AND DESCRIPTION

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

PARTS LIST AND DE

(When ordering parts, state Mode

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFG. 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	1S188AM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D2	1S188FM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D3	1S188FM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D4	1S188FM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D5	1S188FM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D6	1S188FM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D7	1S945		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D8	1N4003		GE-504A	5A4D	PTC201	HEPRO053	RE 49	SK3016	RT-214	ECG116
D9	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D10	1N4003		GE-504A	5A4D	PTC201	HEPRO053	RE 49	SK3016	RT-214	ECG116
D11	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D12	1S945		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D13	1S188AM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D14	1S188AM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D15	1N4003		GE-504A	5A4D	PTC201	HEPRO053	RE 49	SK3016	RT-214	ECG116
D16	1S188AM		1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D17	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D18	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D19	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D20	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D21	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D22	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D23	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D24	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D25	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D26	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
D27	1S2473		GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG177
PL5	SLP114B									
PL6	SLP114B									
Q1	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q2	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q3	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q4	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q5	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q6	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q7	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q8	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q9	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q10	2SC1096K(10)		GE-28	TR-55	PTC110	HEPS5027	RE 42	SK3054	RT-166	ECG186A
Q11	2SC1096K(10)		GE-28	TR-55	PTC110	HEPS5027	RE 42	SK3054	RT-166	ECG186A
Q12	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q13	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q14	2SD327V		GE-47	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-114	ECG123A
Q15	2SD327V		GE-47	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-114	ECG123A
Q16	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q17	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q18	JSP7001J		GE-20	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG123A
Q19	JSP7001J		GE-20	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG123A
Q20	MPS8000		GE-219	TR-65	PTC191	HEPS3001	RE 79A	SK3048	RT-306	ECG195A
Q21	MPSU31(11)					HEPS3043	RE 204		RT-310	ECG302
	2SC1306		GE-215		PTC186		RE 203	SK3197	RT-146	ECG235
	(1) (12)									
	2SC1909		GE-215		PTC186					
	(1) (13)									
Q22	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q23	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q24	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q25	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q26	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q27	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q28	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q29	2SA733P		GE-65	TR-20	PTC103	HEPS0019	RE 26	SK3138	RT-126A	ECG294
Q30	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q31	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q32	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q33	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q34	2SC945Q		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
VD1	VD1120				PTC301					
Z1	BZ090		GEZD-9.1		ZB9.1B		RE 114		RT-240	ECG139
Z2	BZ090		GEZD-9.1		ZB9.1B		RE 114		RT-240	ECG139
Z3	BZ06T		GEZD-6.2		ZB6.2B		RE 109		RT-237	ECG137

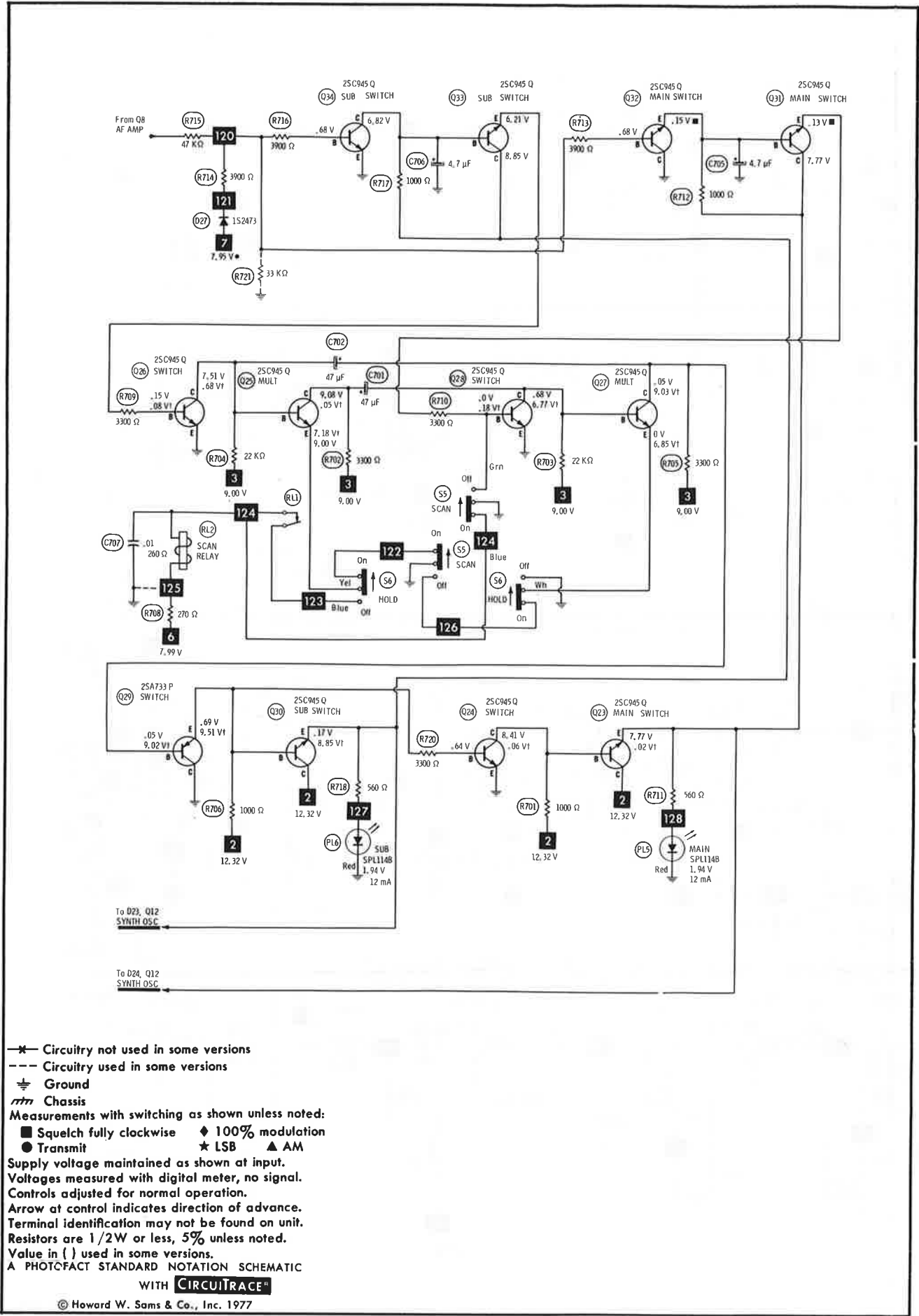
(1) Used in some versions.
(10) Rating, 10 Watt @ 2.0 Amp.
(11) Rating, 1.0 Watt @ 500mA.
(12) Rating, 12 Watt @ 3 Amp.
(13) Rating, 10 Watt @ 3.0 Amp.

ELECTROLYTIC CAPA

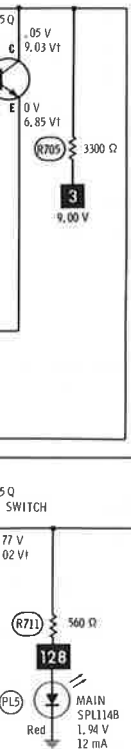
ITEM No.	RATING
C122	47 16V
C128	.22 25V
C130	1 50V
C141	1 50V
C201	4.7 35V
C202	4.7 35V
C204	10 16V
C205	1 50V
C206	1 50V
C207	22 16V
C208	100 16V
C212	47 16V
C215	47 16V
C217	470 16V
C301	47 16V
C302	100 16V
C421	10 16V
C422	1 50V
C439	10 16V
C441	220 16V
C501	100 16V
C701	47 10V
C702	47 10V
C703	47 16V
C704	47 16V
C705	4.7 50V
C706	4.7 35V

CAPACITORS

ITEM No.	RATING
C101	.04
C102	.01
C103	.01
C104	.01
C105	.01
C106	.01
C107	1
C108	.01
C109	.04
C110	.04
C111	.04
C112	.005 10%
C113	1
C114	.04
C115	.04
C116	.04
C117	1
C118	.04
C119	.04
C120	.04
C121	.04
C123	.04
C124	22
C125	150 10%
C126	.04
C127	.0022
C129	.01
C131	680 10%
C132	47 10%
C133	.01
C134	10 NPO
C135	10 NPO
C136	.01
C137	2
C138	22
C139	7



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



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	1S188AM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D2	1S188FM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D3	1S188FM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D4	1S188FM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D5	1S188FM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D6	1S188FM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D7	1S945		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	1N4003		GE-504A	5A4D	PTC201	HEPR0053	RE 49	SK3016	RT-214	ECG116
D9	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D10	1N4003		GE-504A	5A4D	PTC201	HEPR0053	RE 49	SK3016	RT-214	ECG116
D11	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D12	1S945		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D13	1S188AM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D14	1S188AM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D15	1N4003		GE-504A	5A4D	PTC201	HEPR0053	RE 49	SK3016	RT-214	ECG116
D16	1S188AM		1N344S	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D17	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D18	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D19	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D20	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D21	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D22	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D23	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D24	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D25	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D26	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D27	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
PL5	SLP1148									
PL6	SLP1148									
Q1	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q2	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q3	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q4	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q5	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q6	2SC710D		GE-211	(IR)2SC710	PTC115	HEPS0016	RE 13	SK3018	RT-308	ECG123A
Q7	2SC9450		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q8	2SC9450		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192	SK3124	RT-107A	ECG199
Q9	2SC9450		GE-212	(IR)2SC945	PTC121	HEPS0015	RE 192</			

- (1) Used in some versions.
(10) Rating, 10 Watt @ 2.0 Amp.
(11) Rating, 1.0 Watt @ 500mA.
(12) Rating, 12 Watt @ 3 Amp.
(13) Rating, 10 Watt @ 3.0 Amp.

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

ITEM No.	RATING	REPLACEMENT DATA			
		MFGR. PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C122	47 16V		PC50-16	VTT47D16	EV-1226
C128	22 25V			TDC224M050EL	SD50-R229
C130	1 50V		PC1-50	VTT1B63	EV-1615
C141	1 50V		PC1-50	VTT1B63	EV-1615
C201	4.7 35V		PC5-50	VTT4R7A50	EV-1519
C202	4.7 35V		PC5-50	VTT4R7A50	EV-1519
C204	10 16V		PC10-25	VTT10A25	EV-1222
C205	1 50V		PC1-50	VTT1B63	EV-1615
C206	1 50V		PC1-50	VTT1B63	EV-1615
C207	22 16V		PC25-25	VTT22A16	EV-1224
C208	100 16V		PC100-16	VTT100F16	EV-1230
C212	47 16V		PC50-16	VTT47D16	EV-1226
C215	47 16V		PC50-16	VTT47D16	EV-1226
C217	470 16V		PC500-16	VTT470J16	EV-1250
C301	47 16V		PC50-16	VTT47D16	EV-1226
C302	100 16V		PC100-16	VTT100F16	EV-1230
C421	10 16V		PC10-25	VTT10A25	EV-1222
C422	1 50V		PC1-50	VTT1B63	EV-1615
C439	10 16V		PC10-25	VTT10A25	EV-1222
C441	220 16V		PC250-25	VTT220G16	EV-1240
C501	100 16V		PC100-16	VTT100F16	EV-1230
C701	47 10V		PC50-16	VTT47D16	EV-1226
C702	47 10V		PC50-16	VTT47D16	EV-1226
C703	47 16V		PC50-16	VTT47D16	EV-1226
C704	47 16V		PC50-16	VTT47D16	EV-1226
C705	4.7 50V		PC5-50	VTT4R7A50	EV-1519
C706	4.7 35V		PC5-50	VTT4R7A50	EV-1519

ITEM No.	RATING	MFG. PART No.	REPLACEMENT DATA			
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C101	.04					
C102	.01					
C103	.01		UK50-103	MGP01	MAG5011	TG-S10
C104	.01		UK50-103	MGP01	MAG5011	TG-S10
C105	.01		UK50-103	MGP01	MAG5011	TG-S10
C106	.01		UK50-103	MGP01	MAG5011	TG-S10
C107	1				CN0510	10TCC-V10
C108	.01				MAG5011	TG-S10
C109	.04		UK50-103	MGP01		
C110	.04					
C111	.04					
C112	.005 10%					
C113	1					
C114	.04				CN0510	10TCC-V10
C115	.04					
C116	.04					
C117	1					
C118	.04				CN0510	10TCC-V10
C119	.04					
C120	.04					
C121	.04					
C123	.04					
C124	22					
C125	150 10%		DTZ-22	NP022	CN0422	10TCC-Q22
C126	.04		DD-151		GP315	10TS-T15
C127	.0022			DPMS6D22	M192P2229R8	192P2229R8
C129	.01			WMF1S1	EWFI1A110	1PB-S10
C131	680 10%			GP680	GP368	10TS-T68
C132	47 10%		DD-681			
C133	.01					
C134	10 NPO		UK50-103	MGP01	MAG5011	TG-S10
C135	10 NPO		DTZ-10	NP010	CN0410	10TCC-Q10
C136	.01		DTZ-10	NP010	CN0410	10TCC-Q10
C137	2		UK50-103	MGP01	MAG5011	TG-S10
C138	22		DTZ-2R2	NP02P2	CN0522	10TCC-V22
C139	7		DTZ-22	NP022	CN0422	10TCC-Q22
			DTZ-6R8	NP06P8	CN0568	10TCC-V68

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.
C140	.01			WMF1S1	EWFA1A110	1PB-S10
C203	.047			DPMS4S47	EWFA1A147	1PB-S47
C209	.039				M192P3939R8	192P3939R8
C210	.039				M192P3939R8	192P3939R8
C211	.039				M192P3939R8	192P3939R8
C213	.022				M192P2239R8	192P2239R8
C214	.001			DPMS2S22		
C216	.01			DPMS6D1	EWFA2A210	1PB-D10
C218	.01			WMF1S1	EWFA1A110	1PB-S10
C219	.01			WMF1S1	EWFA1A110	1PB-S10
C220	.04			WMF1S1	EWFA1A110	1PB-S10
C303	.01		UK50-503	MGP05	MAG5015	TG-S50
C401	8		UK50-103	MGP01	MAG5011	TG-S10
C402	150 5% NPO		DTZ-6R8	NPO6P8	CN0568	10TCC-V68
C403	.01		DTZ-150		CN0315	10TCC-T15
C404	8		UK50-103	MGP01	MAG5011	TG-S10
C405	22		DTZ-6R8	NPO6P8	CN0568	10TCC-V68
C406	47 10% NPO		DTZ-22	NPO22	CN0422	10TCC-Q22
C407	.01		UK50-103	MGP01	MAG5011	TG-S10
C408	.001 10%		DD-102		GP210	10TS-D10
C409	100 5% NPO		DTZ-100	NPO100	CN0310	10TCC-T10
C410	5		DTZ-4R7	NPO4P7	CN0547	10TCC-V47
C411	120 5% NPO		DTZ-120		CN0312	10TCC-T12
C412	2		DTZ-2R2	NPO2P2	CN0522	10TCC-V22
C413	.01		UK50-103	MGP01	MAG5011	TG-S10
C414	120 5% NPO		DTZ-120		CN0312	10TCC-T12
C415	.01		UK50-103	MGP01	MAG5011	TG-S10
C416	.01		UK50-103	MGP01	MAG5011	TG-S10
C417	68 5% NPO					
C418	.01		UK50-103	MGP01	MAG5011	TG-S10
C419	.01		UK50-103	MGP01	MAG5011	TG-S10
C420	68 5% NPO					
C423	.01		UK50-103	MGP01	MAG5011	TG-S10
C424	680 10%		DD-681	GP680	GP368	10TS-T68
C425	100 5% NPO		DTZ-100	NPO100	CN0310	10TCC-T10
C426	200 5% NPO		DTZ-200			10TCC-T20
C427	.01		UK50-103	MGP01	MAG5011	TG-S10
C428	22		DTZ-22	NPO22	CN0422	10TCC-Q22
C429	.04		UK50-503	MGP05	MAG5015	TG-S50
C430	120 5% NPO		DTZ-120			10TCC-T12
C431	120 5% NPO		DTZ-120			10TCC-T12
C432	47 10% NPO					
C433	150 5% NPO		DTZ-150		CN0315	10TCC-T15
C434	.01		UK50-103	MGP01	MAG5011	TG-S10
C435	120 5% NPO		DTZ-120			10TCC-T12
C436	5		DTZ-4R7	NPO4P7	CN0547	10TCC-V47
C437	1				CN0510	10TCC-V10
C438	.01		UK50-103	MGP01	MAG5011	TG-S10
C440	.01		UK50-103	MGP01	MAG5011	TG-S10
C442	15		DTZ-15	NPO15	CN0415	10TCC-Q15
C502	.04		UK50-503	MGP05	MAG5015	TG-S50
C503	.04		UK50-503	MGP05	MAG5015	TG-S50
C504	.04		UK50-503	MGP05	MAG5015	TG-S50
C505	.04		UK50-503	MGP05	MAG5015	TG-S50
C506	.04		UK50-503	MGP05	MAG5015	TG-S50
C507	.04		UK50-503	MGP05	MAG5015	TG-S50
C508	.002					
C601	47 5% NPO					
C602	.01		UK50-103	MGP01	MAG5011	TG-S10
C603	.01		UK50-103	MGP01	MAG5011	TG-S10
C604	.01		UK50-103	MGP01	MAG5011	TG-S10
C605	.01		UK50-103	MGP01	MAG5011	TG-S10
C606	.01		UK50-103	MGP01	MAG5011	TG-S10
C607	.01		UK50-103	MGP01	MAG5011	TG-S10
C608	.002 10%					
C609	.01		UK50-103	MGP01	MAG5011	TG-S10
C610	.01		UK50-103	MGP01	MAG5011	TG-S10
C611	.01		UK50-103	MGP01	MAG5011	TG-S10
C612	.01		UK50-103	MGP01	MAG5011	TG-S10
C613	.01		UK50-103	MGP01	MAG5011	TG-S10
C614	.01		UK50-103	MGP01	MAG5011	TG-S10
C615	.01		UK50-103	MGP01	MAG5011	TG-S10
C616	.01		UK50-103	MGP01	MAG5011	TG-S10
C617	47					
C707	.01		UK50-103	MGP01	MAG5011	TG-S10
C708	.1					

XTAL MODEL XCB-12

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RT1	S Meter	5000	EVN-K4AA00B53	T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
RT2	Squelch Range	5000	EVN-K4AA00B53				
RT3	RF Meter	10K	EVN-KK4AA00B14				
VR1	Volume/Switch	50K	EVH-C1GK30A54				
VR2	Squelch	5000	EVH-C1A30B53				
VR3	RF Gain	100K	EVH-CTAK30B15				

(2) Cut off one of the end terminals and bend to fit PC board.

COILS (RF-IF)

		REPLACEMENT DATA			REMARKS
ITEM No.	FUNCTION	PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Ant (27MHz)	CRV104	CRV104		
L2	Rec RF (27MHz)	CRV105	CRV105		
L3	Rec Mixer (10MHz)	FS1703	FS1703		
L4	Rec Mixer (10MHz)	FS1703			
L5	IF (455kHz)	AS1103			
L6	IF (455kHz)	ASV104			
L7	IF (455kHz)	ASL104	AS1104		
L8	Synth Osc (37MHz)	CRV101	AS1104		
L9	RF Choke	CHV10A	CTV101 CTV103		
L10	Harmonic Suppressor (27MHz)	CTV18A			
L11	Xmit Mixer (27MHz)	CTV101			
L12	Xmit Buffer (27MHz)	CTV102			
L13	Xmit Driver (27MHz)	CTV103			
L14	RF Choke	CHL16A			
L15	Final Amp (27MHz)	CTV105			
L16	RF Choke	CHL16A			
L17	Pi Filter	CHL18A			
L18	RF Choke	CHL16B3R3			
L19	RF Choke	CHL16B3R3			
L20	RF Choke	CHL08A			
L21	RF Choke	CHL08A			
L23	RF Choke	CHL14A			

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.	
T3	1.12A	.4	3.5mH	TC2401A	TR560		

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	2	1		T11902A	TR660		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
			MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	32	1 8	2 (2) TM4102A TM4102B (1)	TR810		(1) Number on unit. (2) DC resistance 1 ohm.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3" PH, 8 Ohms	S-8G30A	30A05Z8R	

XTAL MODEL XCB-12

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	5A			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											

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL	ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X101	37.600		DASW37.600	1,2,3,4	X202	10.625		DB90W10.625	2,6,10,14,18,22
X102	37.650		DASW37.650	5,6,7,8	X203	10.615		DB90W10.615	3,7,11,15,19
X103	37.700		DASW37.700	9,10,11,12	X204	10.595		DB90W10.595	4,8,12,16,20,23
X104	37.750		DASW37.750	13,14,15,16	X301	10.180		DC90W10.180	1,5,9,13,17,21
X105	37.800		DASW37.800	17,18,19,20	X302	10.170		DC90W10.170	2,6,10,14,18,22
X106	37.850		DASW37.850	21,22,23	X303	10.160		DC90W10.160	3,7,11,15,19
X201	10.635		DB90W10.635	1,5,9,13,17,21	X304	10.140		DC90W10.140	4,8,12,16,20,23

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	CFU455H	(455kHz)
M1	Meter	D16A69R	S/Rf
RL1	Relay	MZ12	Xmit/Rec (445 Ohms)
RL2	Relay	CHL06CA	Scan/Off (260 Ohms)
S1	Switch	ESR-E143K0Z	Main Channel Selector
S2	Switch	ESR-N24S-15AE	Sub Channel Selector
S3	Switch Assembly	SUB42-222A	ANL/(On-Off)
S4			PA/CB
S5			Scan/(Sub Channel)
S6			Hold/(Sub Channel)
S7	Switch	ESR-E143K30Z	Delta Tune
	Printed Circuit Board		Main (KPB-CS02) (KPB-CS03)
	Printed Circuit Board		Crystal Board (LS23)
	Printed Circuit Board		Scanning Board (KPB-GX08)
	Printed Circuit Board		Push Switch Board (KPB-LS20A)

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 13 Colors
	8524 (Stranded) Available in 13 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 Lowest-loss (RG-8/U Type)
	8237 Low-loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3-Conductor (1 shielded for Press-to-Talk) Neoprene