



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPARTS 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.



COBRA MODEL 28A

MODEL 28A

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

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Printed in U. S. of America

5CY249

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:	GC ELECTRONICS
L1, L2	9440
ALL Others	8290, 5000

RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
Adjustments made with 14-volt DC input.
Adjust volume control to obtain suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
High side thru .01uF to TP2, low side to ground.	455kHz, 1000Hz @ 30% modulation, output 10uV.	Any	T6, T7, T8	Adjust for maximum.
High side thru .01uF to TP1, low side to ground.	10MHz, 1000Hz @ 30% modulation, output 3uV.	Any	T4, T5, L1	Adjust for maximum.
High side thru .01uF to antenna jack, low side to ground.	27.085MHz, 1000Hz @ 30% modulation, output 0.5uV.	11	T3, T2, T1	Adjust for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
These adjustments made with 14-volt DC input.
Adjust volume control to obtain a suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
SQUELCH RANGE High side thru .01uF to antenna jack, low side to ground.	27.085MHz, 1000Hz @ 30% modulation, output 900uV.	11	R83	Set squelch control fully clockwise. Adjust so that squelch just breaks.
"S" METER High side thru .01uF to antenna jack, low side to ground.	27.085MHz, 1000Hz @ 30% modulation, output 100uV.	11	R25	Adjust for a panel meter reading of "S" 9.

TRANSMITTER

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 14-volt DC input.

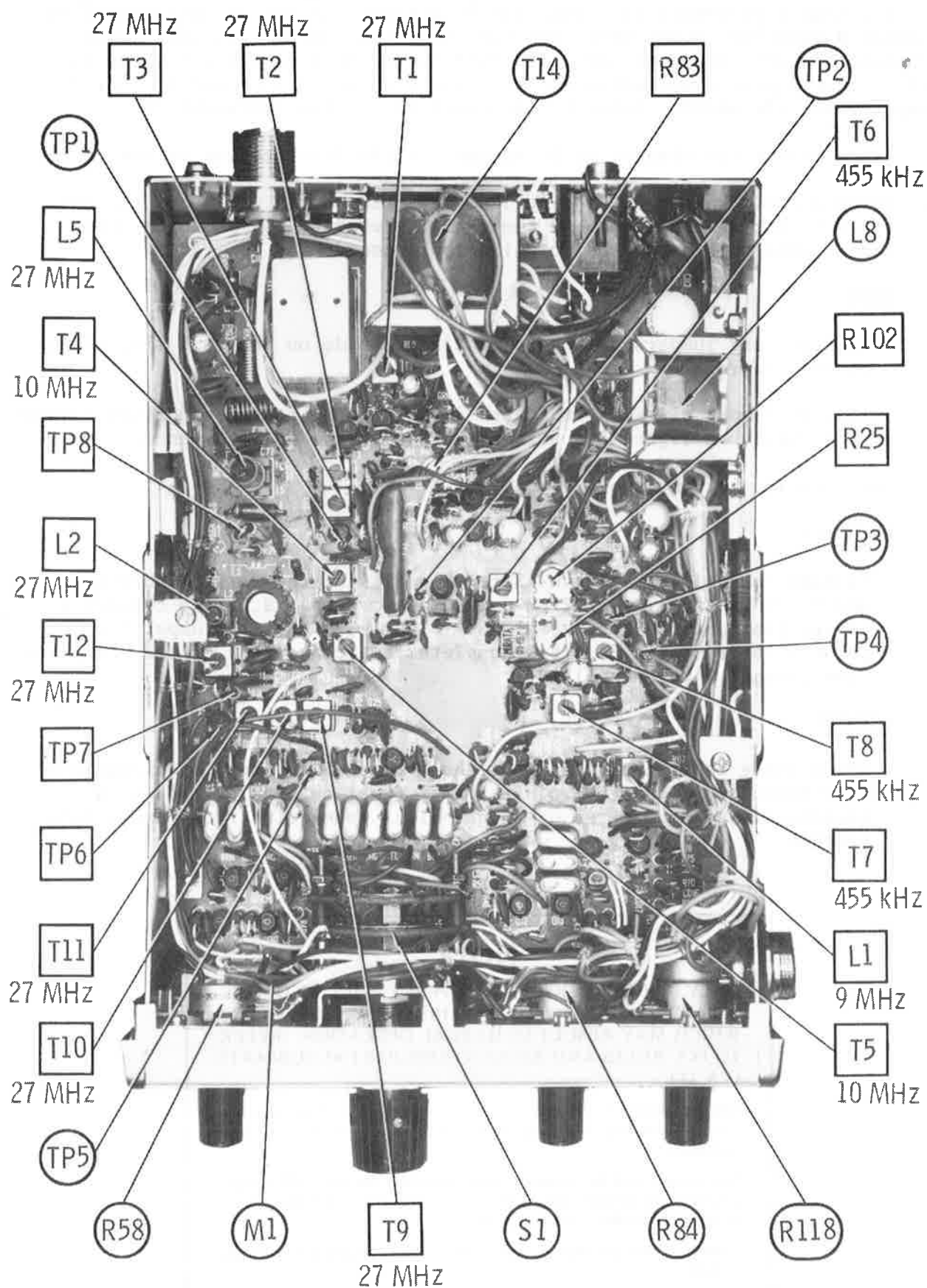
AM

INDICATOR	ADJUST	REMARKS
OSCILLATOR, MIXER, BUFFER, DRIVER, FINAL RF Wattmeter	T9, T10, T11	Remove TP8. CH. 9-Hold Switch-OFF. CH. 9-Scan Switch-OFF. Connect scope to TP6 and TP7. Channel selector to CH. 11. Key transmitter. Adjust for maximum.
FINAL INPUT POWER Remove jumper at TP8 and connect 0-1000 DC milliammeter between L4 and R105.	T12, L2, L5	Adjust for 5 watts (calculated).
FREQUENCY CHECK Frequency Counter.		Check all channels for correct frequencies.

TRANSMITTER ADJUSTMENTS

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 14-volt DC input.

INDICATOR	ADJUST	REMARKS
RF PANEL METER RF Wattmeter.	R102	Key transmitter. Adjust so that panel RF meter reads center scale.



COBRA MODEL 28A

PROCEDURE FOR SCAN-ALERT CHANNEL CONVERSION

It is a simple procedure to change the Scan-Alert channel on Cobra 28A from channel 9 scanning to any other desired channel scanning. No additional crystals or parts are required. The foil on the printed circuit board is cut 1, 2 or 3 places depending on the channel to be scanned and 1, 2 or 3 jumper wires are added. Refer to the chart and follow instructions.

1. First select the channel to be scanned in the first column of the chart.
2. Using a sharp knife, cut the foil on the printed circuit board as indicated in the second column of the chart. Refer to the photograph to locate these points on the actual circuit board.

NOTE:

All cuts and jumpers on the Cobra 28A are made on the foil side of the circuit board.

3. Solder in jumper wires as indicated in the third, fourth and fifth columns of the chart. A light wire such as #22 bell wire is recommended.
4. Modification is complete.

EXAMPLE:

To make channel 19 the Scan-Alert channel, cut the foil at points A, B and C. Connect a jumper from point M to crystal X9. Then connect a jumper from point O to crystal X3. Finally, connect a jumper from point N to crystal X13. This completes the conversion of the Scan-Alert from channel 9 to channel 19.

WARNING:

Since these modifications affect the frequency determining circuits of the transceiver, the FCC requires that these changes be made by a technician having a first or second class commercial radio operator's license.

NOTE

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The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

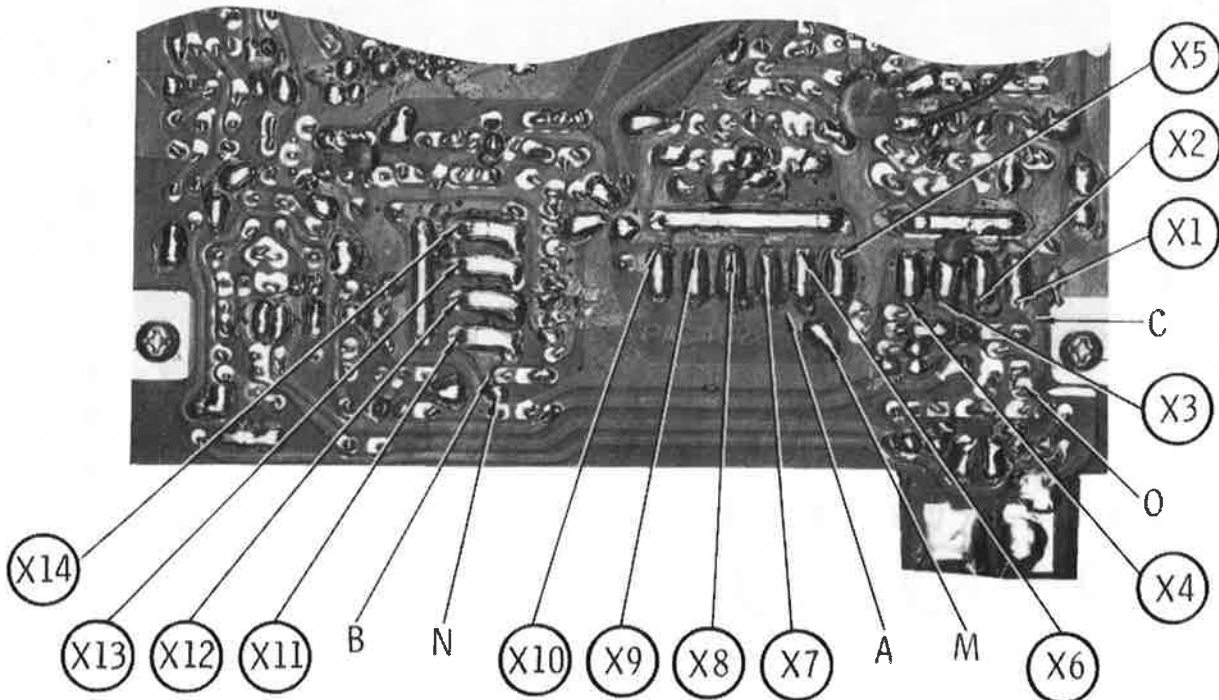
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

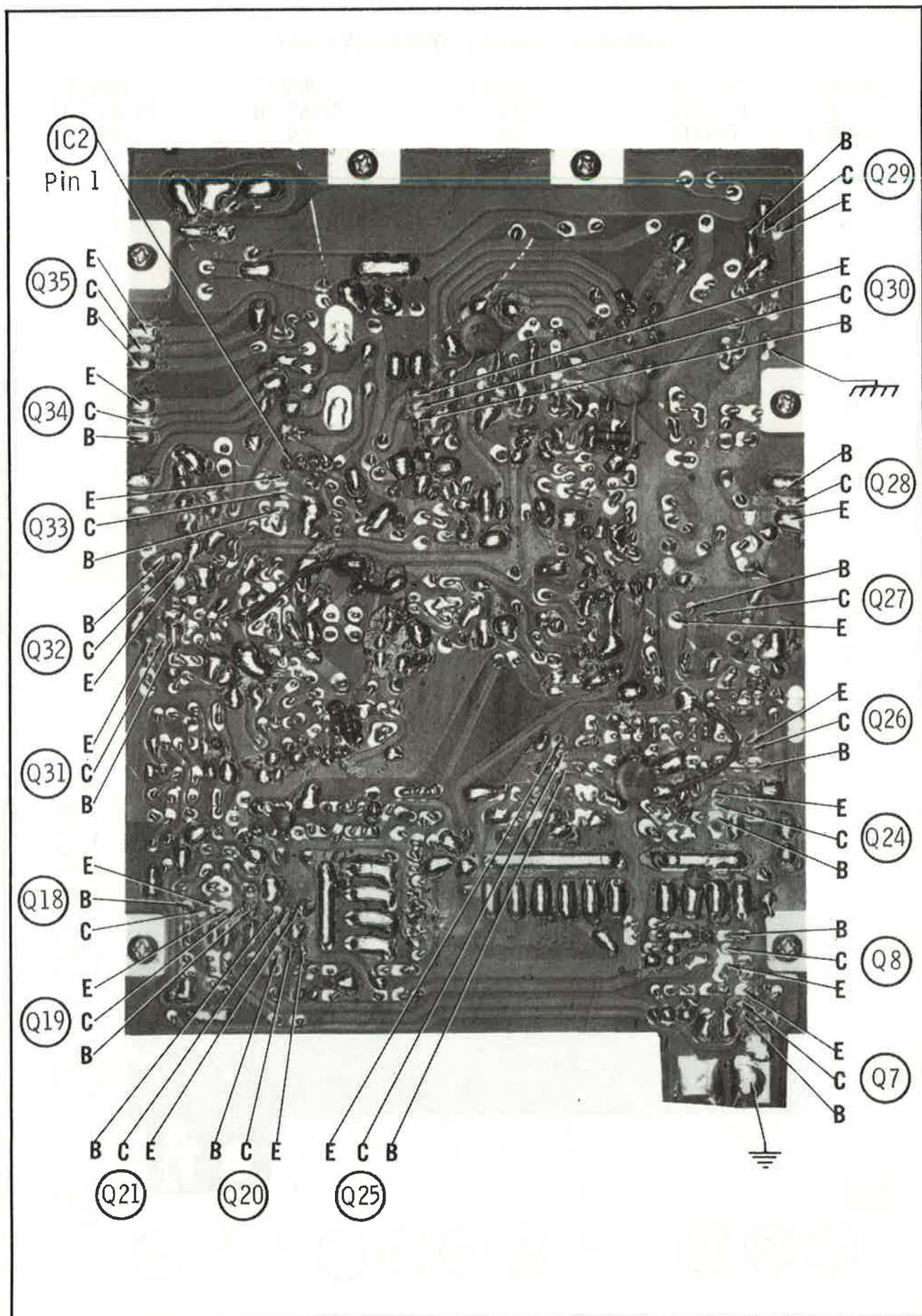
Connect either 50-ohm dummy load or the normally used antenna system.

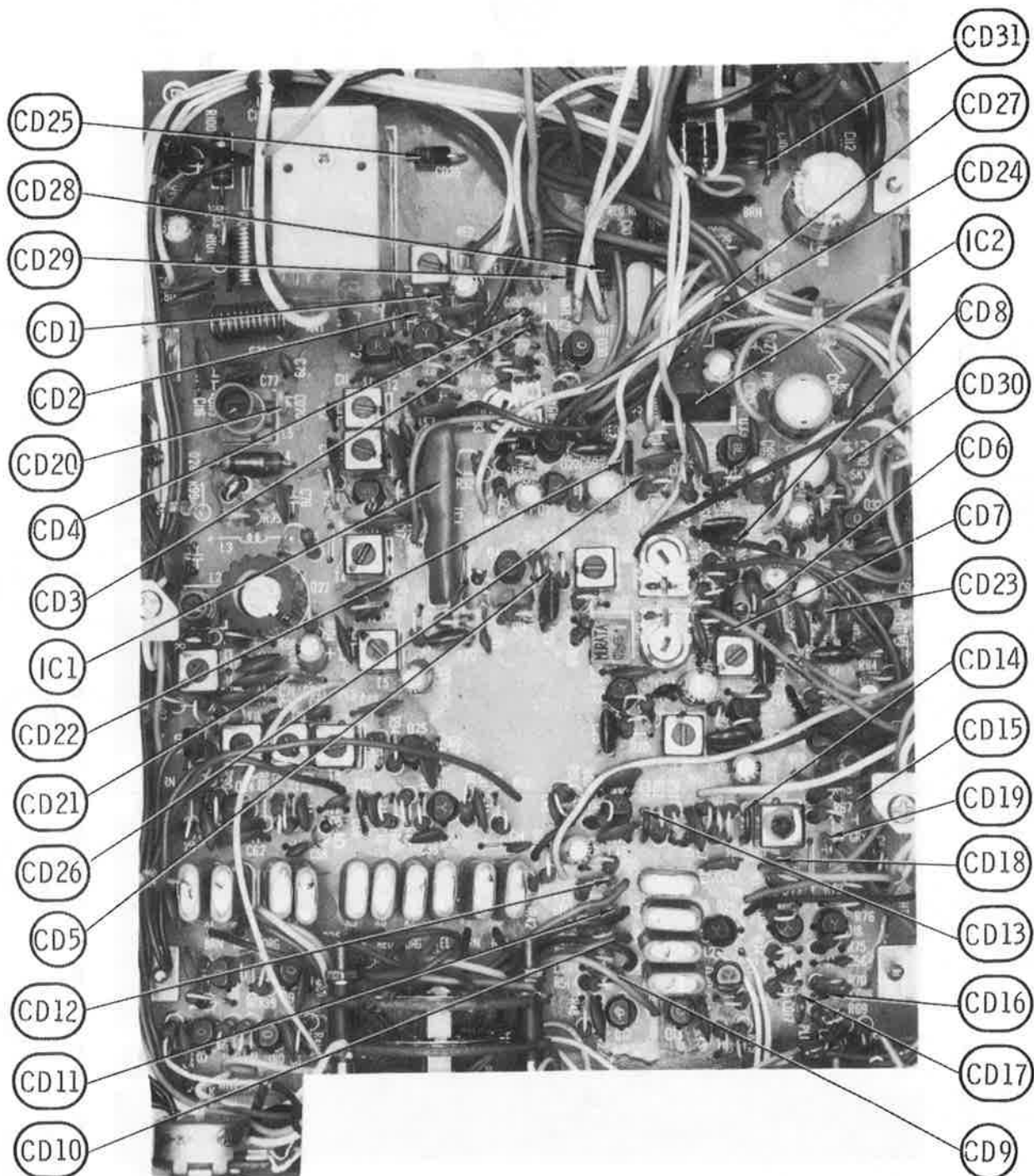
SCAN-ALERT CHANNEL CONVERSION CHART

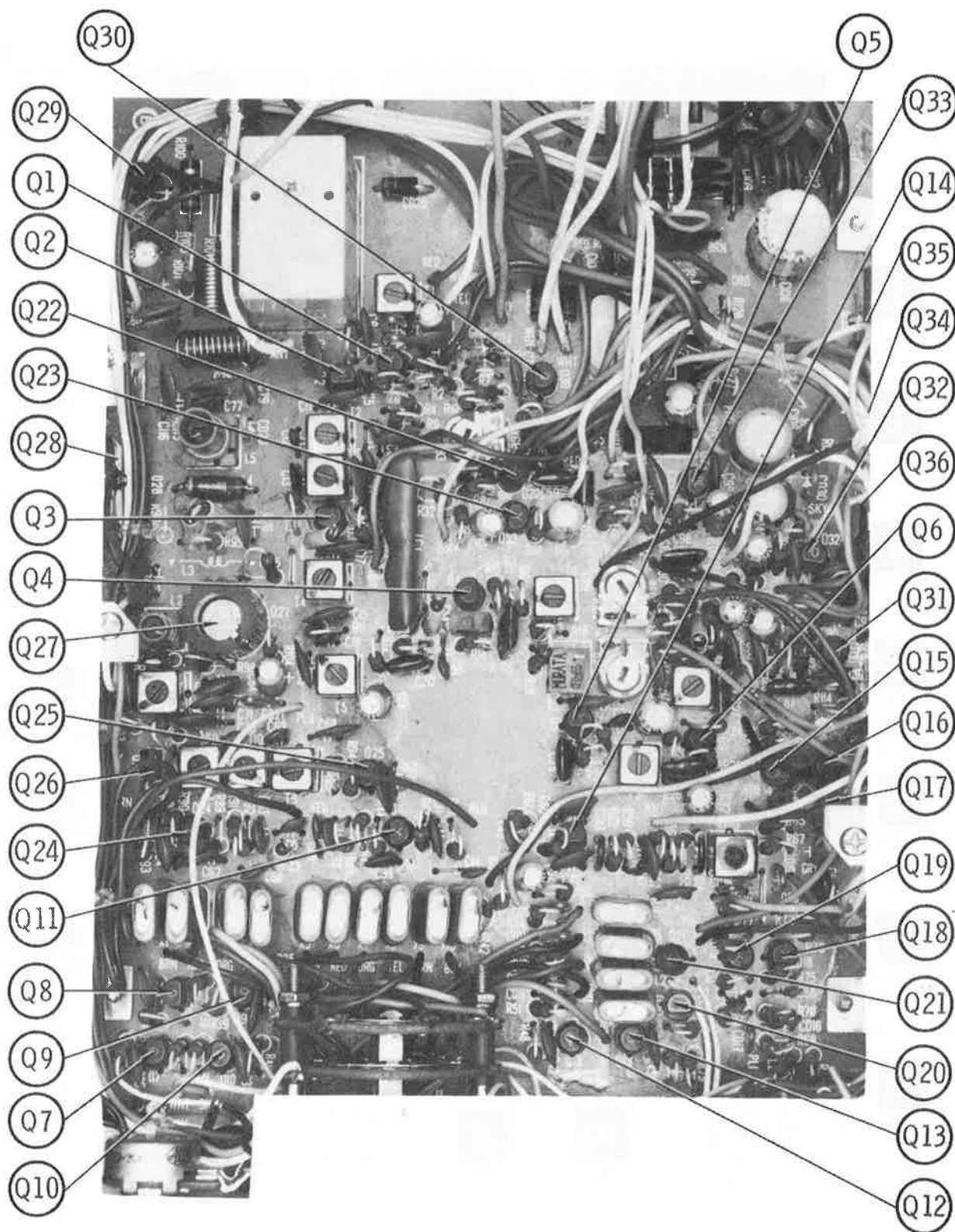
CHANNEL TO BE SCANNED	CUT FOIL AT THESE POINTS	CONNECT POINT "M" TO	CONNECT POINT "N" TO	CONNECT POINT "O" TO
1	A	X5		
2	A, B & C	X5	X12	X2
3	A, B & C	X5	X13	X3
4	A, B & C	X5	X14	X4
5	A	X6		
6	A, B & C	X6	X12	X2
7	A, B & C	X6	X13	X3
8	A, B & C	X6	X14	X4
9	A, B & C	X7	X11	X1
10	B & C		X12	X2
11	B & C		X13	X3
12	B & C		X14	X4
13	A	X8		
14	A, B & C	X8	X12	X2
15	A, B & C	X8	X13	X3
16	A, B & C	X8	X14	X4
17	A	X9		
18	A, B & C	X9	X12	X2
19	A, B & C	X9	X13	X3
20	A, B & C	X9	X14	X4
21	A	X10		
22	A, B & C	X10	X12	X2
23	A, B & C	X10	X14	X4

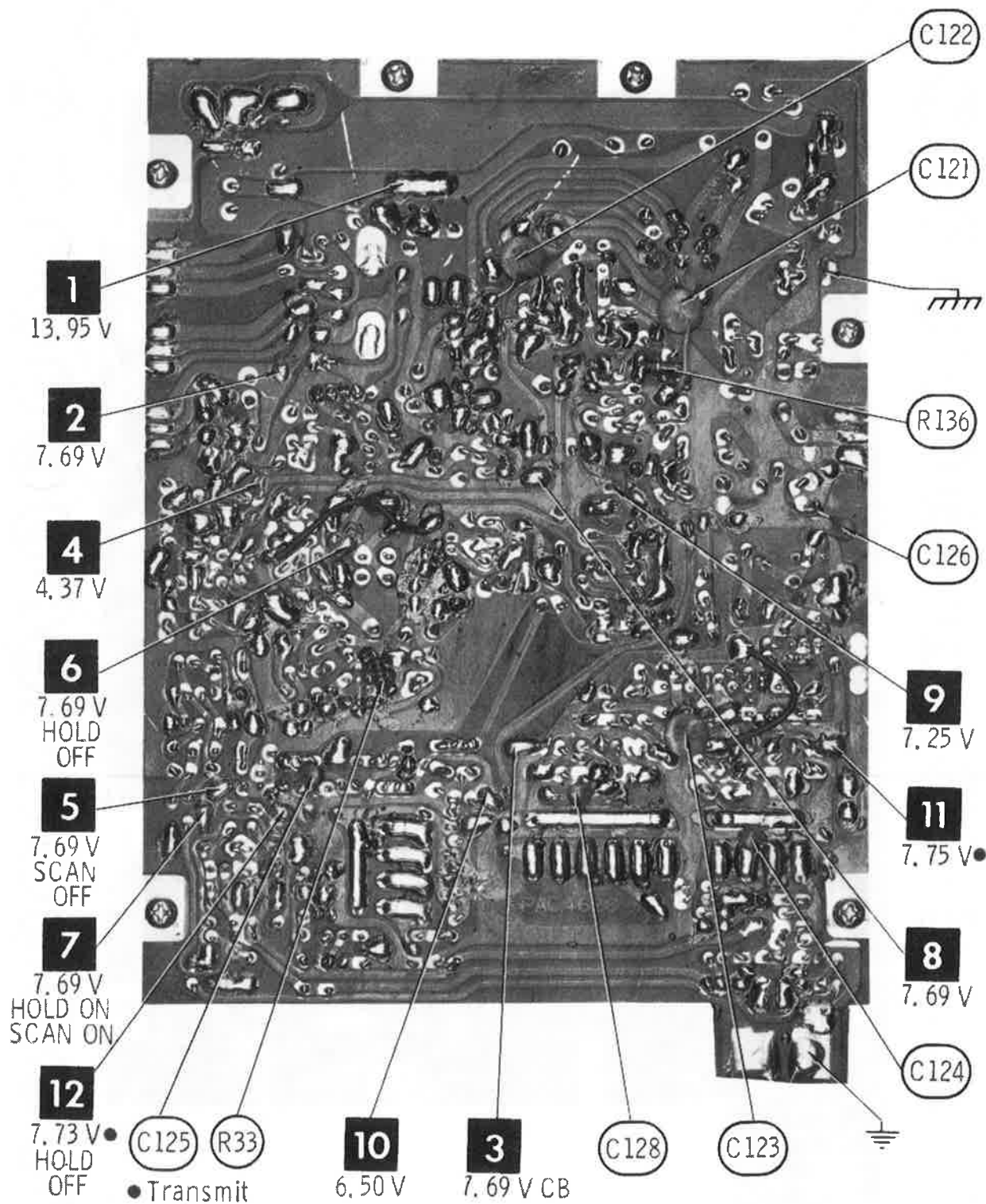
COBRA MODEL 28A











PARTS LIST AND DESCRIPTION

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

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 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 8491 4-Conductor (2 shielded, 2 unshielded) Neoprene
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 inch)

SEMICONDUCTORS (Select replacement transistor for best results)

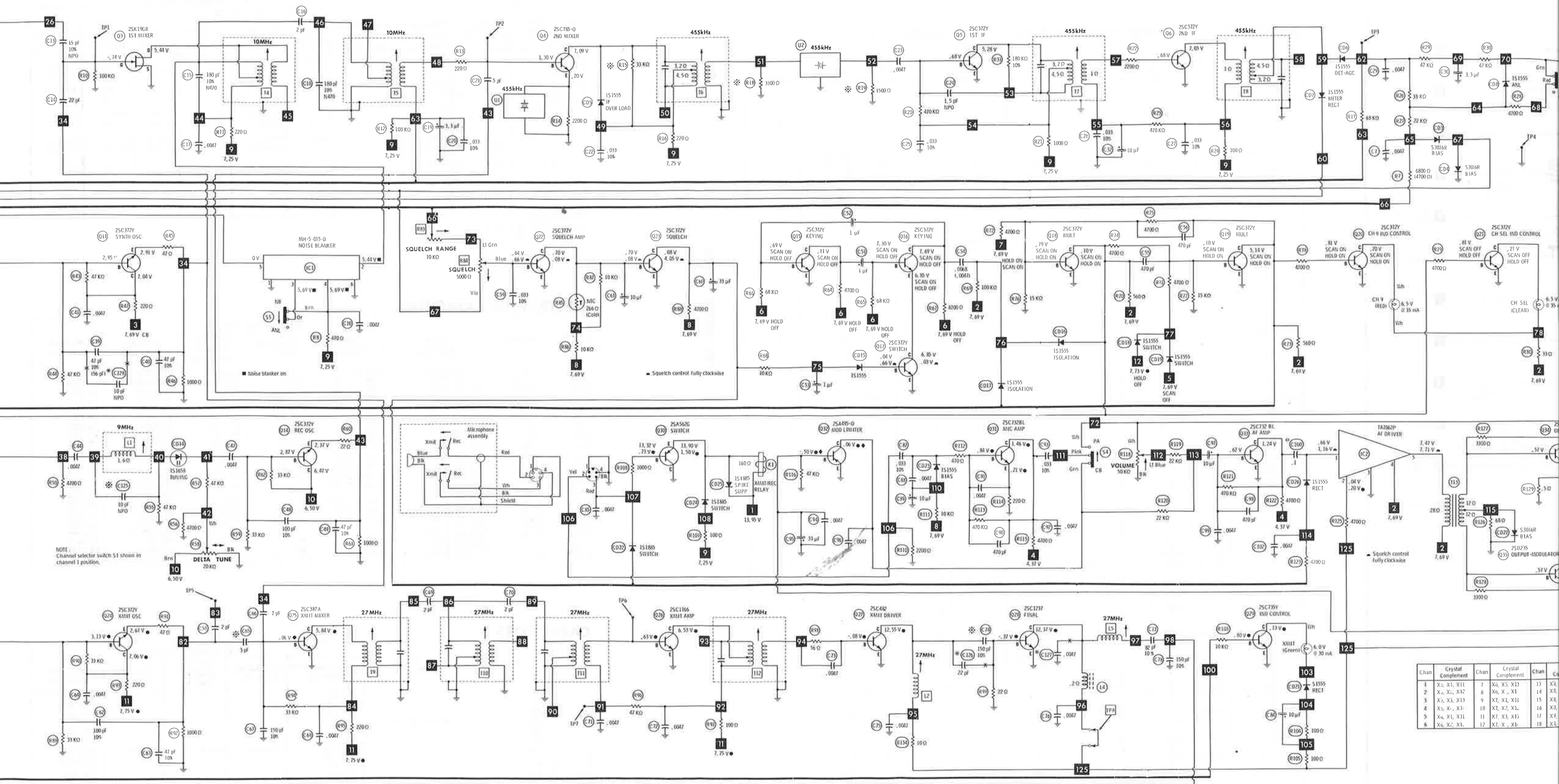
ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
CD1	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD2	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD3	S3016R	151-030-9-006	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
CD4	S3016R	151-030-9-006	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
CD5	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD6	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD7	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD8	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD9	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD10	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD11	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD12	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD13	02Z6.2A 6.2V Zener	152-047-9-001	GEZD-6.8	Z1206	ZB6.8	HEPZ0409	RE 110	SK3058	RT-238	ECG5071
CD14	1S1658	151-030-9-004	GE-90	D201		HEPR2503		SK3126	RT-262	
CD15	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD16	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD17	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD18	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD19	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD20	1S1553	151-042-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD21	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD22	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
CD23	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
CD24	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
CD25	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
CD26	1S1555	151-030-9-001	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D27	S3016R	151-030-9-006	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D28	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D29	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D30	02Z8.2A 8.2V Zener	152-042-9-001	GEZD-8.2	Z1208	ZB8.2	HEPZ0411	RE 112	SK3136	RT-257	ECG5072
D31	1S1885	151-030-9-005	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
IC1	MH-5-015-D	307-059-9-001								
IC2	TA7062P	307-007-9-002								ECG1102
Q1	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (IR)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q2	2SC784R 2SC784(1)	176-026-9-001	GE-20 GE-17	TR-69 TR-69	PTC121 PTC132	HEPS0016 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
Q3	2SK19GR	182-021-9-001	GE-FET-2	FE-100	PTC152	HEPF0021	RE 45	SK3116	RT-175	ECG132
Q4	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107

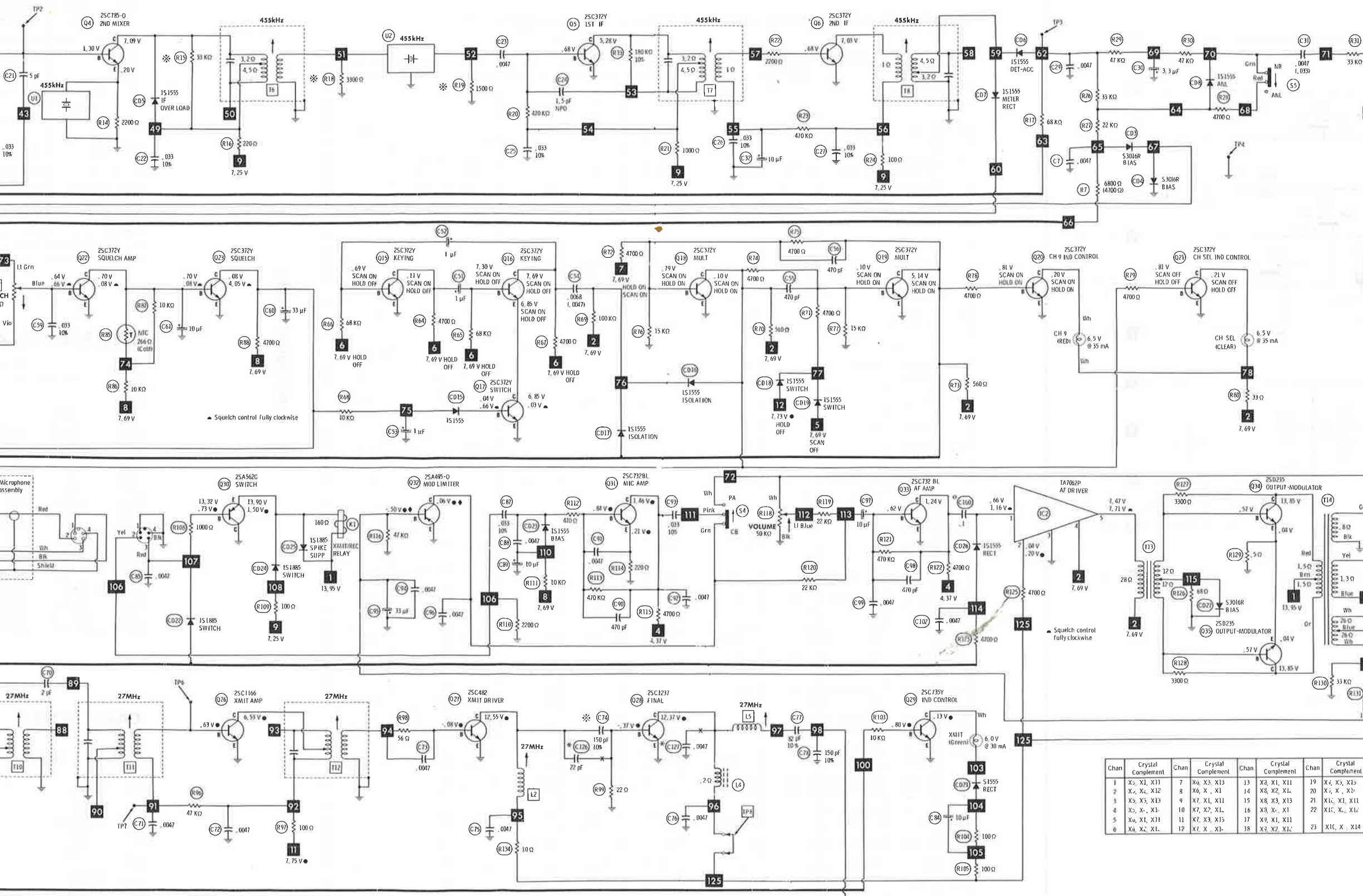
(CONTINUED ON PAGE 21)

COBRA MODEL 28A

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**
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SEE NOTES ON PAGE 20



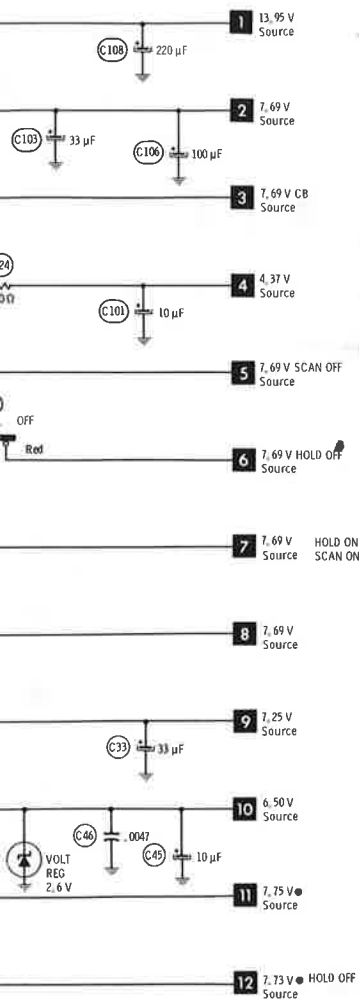


Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement
1	X1, X1, X11	7	X4, X3, X13	13	X8, X1, X11	19	X1, X3, X13
2	X2, X2, X12	8	X6, X, X1	14	X8, X2, X14	20	X1, X, X12
3	X3, X5, X13	9	X7, X1, X11	15	X8, X3, X13	21	X1C, X1, X11
4	X2, X, X1	10	X7, X2, X14	16	X8, X, X1	22	X1C, X, X14
5	X4, X1, X11	11	X7, X3, X13	17	X9, X1, X11	23	X1C, X, X14
6	X4, X2, X14	12	X7, X, X1	18	X3, X2, X12		



ITEM No.	RATING
C1	.0047
C3	.0047
C4	.0047
C5	22 N470
C6	.0047
C7	.0047
C8	10 NPO
C9	5
C10	.0047
C11	.0047
C12	1 NPO
C13	15 10% NPO
C14	22
C15	180 10% N470
C16	2
C17	.0047
C18	180 10% N470

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



ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
Q5	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q6	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q7	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q8	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q9	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q10	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q11	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q12	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q13	2SC7850 2SC785(1)	176-037-9-001	GE-20 GE-20	TR-71 TR-71	PTC132 PTC132	HEPS0020 HEPS0016	RE 9 RE 9	SK3018 SK3018	RT-108 RT-108	ECG107 ECG107
	2SC372(1)	176-029-9-001	GE-20	(1R)2SC372	PTC139	HEPS0015	RE 13	SK3018	RT-105	ECG123A
Q14	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q15	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q16	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q17	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q18	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q19	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q20	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-001	GE-20 GE-20	TR-24 (1R)2SC372	PTC139 PTC139	HEPS0015 HEPS0015	RE 13 RE 13	SK3018 SK3018	RT-105 RT-105	ECG123A ECG123A
Q21	2SC372Y 2SC372(1)	176-042-9-003 176-029-9-00								

COBRA MODEL 28A

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

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
Q30	2SA562G 2SA562	177-006-9-002	GE-21 GE-21	TR-30 TR-30	PTC103 PTC103	HEPS0012 HEPS0012	RE 26 RE 26	SK3114 SK3114	RT-106 RT-106	ECG159 ECG159
Q31	2SC732BL 2SC732(1)	176-031-9-002	GE-20 GE-20	TR-21 TR-21	PTC123 PTC121	HEPS0024 HEPS0024	RE 13 RE 13	SK3124 SK3020	RT-102 RT-102	ECG123A ECG123A
Q32	2SA4950 2SA495	177-006-9-001	GE-21 GE-21	TR-30 (1R) 2SA495	PTC103 PTC103	HEPS0013 HEPS0013	RE 26 RE 26	SK3114 SK3114	RT115 RT-106	ECG159 ECG159
Q33	2SC732BL 2SC732	176-031-9-002	GE-20 GE-20	TR-21 TR-21	PTC123 PTC121	HEPS0024 HePS0024	RE 13 RE 13	SK3124 SK3020	RT-102 RT-102	ECG123A ECG123A
Q34	2SD235	172-010-9-001 (3)	GE-66	TR-92	PTC110	HEPS5000	RE 21	SK3054	RT-197	ECG152
Q35	2SD235	172-010-9-001 (3)	GE-66	TR-92	PTC110	HEPS5000	RE 21	SK3054	RT-197	ECG152
Q36	2SD235	172-010-9-001 (3)	GE-66	TR-92	PTC110	HEPS5000	RE 21	SK3054	RT-197	ECG152

- (1) Alternate
- (2) Rating 600mw @ 600mA
- (3) Rating 1.5 Watt @ 3 Amp

ITEM No.	RATING	REPLACEMENT DATA					
		MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C19	3.3 50V	022-076-9-002	RME-B-J-005	EP50-5	PC5-50	VTT3R3A50	EW-1519
C30	3.3 50V	022-076-9-002	RME-B-J-005	EP50-5	PC5-50	VTT3R3A50	EW-1519
C32	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C33	33 16V	022-076-9-005	ME-3-E-035	EP15-25	PC30-25	MTV30CB25	EW-1325
C45	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C51	1 50V	022-076-9-001	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EW-1615
C52	1 50V	022-076-9-001	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EW-1615
C53	1 50V	022-076-9-001	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EW-1615
C60	33 16V	022-076-9-005	ME-3-E-035	EP15-25	PC30-25	MTV30CB25	EW-1325
C61	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C83	1 50V	022-076-9-001	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EW-1615
C84	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C89	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C95	33 3V	027-005-9-001				TDC336M010F1	S06-339
C97	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C101	10 16V	022-076-9-003	RME-B-E-010	EP15-10	PC10-25	VTT10A25	EW-1222
C103	33 16V	022-076-9-005	ME-3-E-035	EP15-25	PC30-25	MTV30CB25	EW-1325
C104	33 3V	027-005-9-001				TDC336M010F1	S06-339
C106	100 16V	022-091-9-001	RME-E-E-100	EP15-100	PC100-16	VTT100F16	EW-1230
C107	100 10V	022-076-9-010	RME-E-D-100	EP15-100	PC100-10	VTT100E10	EW-1130
C108	220 25V	022-076-9-011	RME-K-G-250	EP30-250	PC250-25	VTT220H25	EW-1345

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCOT PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.0047	031-030-9-007	CCD-472	DTZ-10	NP010	CN0410	10TS-D47
C3	.0047		CCD-472				10TS-D47
C4	.0047		CCD-472				10TS-D47
C5	22 N470						
C6	.0047		CCD-472				10TS-D47
C7	.0047		CCD-472				10TS-D47
C8	10 NPO		CCTO-100				10TCC-Q10
C9	5		CCTO-050				10TCC-V50
C10	.0047		CCD-472				10TS-D47
C11	.0047		CCD-472				10TS-D47
C12	1 NPO	020-088-9-005		DTZ-15	NP015	CN0510	10TCC-V10
C13	15 10% NPO		CCTO-150	DTZ-22	NP022	CN0415	10TCC-Q15
C14	22		CCTO-220			CN0422	10TCC-Q22
C15	180 10% N470			DTZ-2R2	NP02P2	CN0522	10TCC-V22
C16	2		CCTO-2R2				10TS-D47
C17	.0047	020-088-9-005	CCD-472				
C18	180 10% N470						

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCOPART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C20	.033 10%	033-017-9-001	6DP-3-333	DTZ-1R5	DPMS6S33	EW6133	6PS-S33
C21	5		CCTO-050				10TCC-V50
C22	.033 10%		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C23	.0047		CCD-472				10TS-D47
C24	1.5 NPO				NP01P5	CN0515	10TCC-V15
C25	.033 10%		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C26	.033 10%		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C27	.033 10%		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C28	.0047		CCD-472				10TS-D47
C29	.0047		CCD-472				10TS-D47
C31	.0047		CCD-472		DPMS6S33	EW6133	10TS-D47
C35	.0047		CCD-472				10TS-D47
C36	.0047		CCD-472				10TS-D47
C37	.0047		CCD-472				10TS-D47
C38	.0047		CCD-472				10TS-D47
C39	56 (1)		CCTO-560	DTZ-47	NP047	CN0456	10TCC-Q56
C40	47 10%		CCTO-470			CN0447	10TCC-Q47
C41	.0047		CCD-472				10TS-D47
C42	.0047		CCD-472				10TS-D47
C43	.0047		CCD-472				10TS-D47
C44	.0047		CCD-472				10TS-D47
C46	.0047		CCD-472				10TS-D47
C47	.0047		CCD-472				10TS-D47
C48	100 10%		CCD-101	DD-101	GP100	GP310	10TS-T10
C49	47 10%		CCTO-470	DTZ-47	NP047	CN0447	10TCC-Q47
C54	.0068		1MDF-1-682	CPJ-682	DPMS6D68	EW1A268	1PB-D68
C55	470		CCD-471	DD-471	GP470	GP347	10TS-T47
C56	470		CCD-471	DD-471	GP470	GP347	10TS-T47
C58	2		CCTO-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C59	.033 10%		6DP-3-333	DD-101	DPMS6S33	EW6133	6PS-S33
C62	100 10%		CCD-101		GP100	GP310	10TS-T10
C63	47 10%		CCTO-470		NP047	CN0447	10TCC-Q47
C64	.0047		CCD-472				10TS-D47
C65	3		CCTO-3R3	DTZ-3R3	NP03P3	CN0533	10TCC-V33
C66	7		CCTO-6R8	DTZ-6R8	NP06P8	CN0568	10TCC-V68
C67	150 10%		CCTO-151	DTZ-150		CN0315	10TCC-T15
C68	.0047		CCD-472			10TS-D47	
C69	2		CCTO-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C70	2		CCTO-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C71	.0047		CCD-472	DTZ-150			10TS-D47
C72	.0047		CCD-472				10TS-D47
C73	.0047		CCD-472				10TS-D47
C74	150 10%		CCTO-151			CN0315	10TCC-T15
C75	.0047		CCD-472				10TS-D47
C76	.0047		CCD-472				10TS-D47
C77	82 10%		CCD-820	DD-820		GP482	10TS-Q82
C78	150 10%		CCTO-151	DTZ-150		CN0315	10TCC-T15
C79	10		CCTO-100	DTZ-10	NP010	CN0410	10TCC-Q10
C80	220 10%		CCD-221	DD-221		GP322	10TS-T22
C81	150 10%		CCTO-151	DTZ-150		CN0315	10TCC-T15
C82	.0047		CCD-472	DD-471			10TS-D47
C85	.0047		CCD-472		DPMS6S33	EW6133	10TS-D47
C87	.033 10%		6DP-3-333				6PS-S33
C88	.0047		CCD-472				10TS-D47
C90	470		CCD-471		GP470	GP347	10TS-T47
C91	.0047		CCD-472				10TS-D47
C92	.0047		CCD-472				10TS-D47
C93	.033 10%		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C94	.0047		CCD-472				10TS-D47
C96	.0047		CCD-472				10TS-D47
C98	470		CCD-471		GP470	GP347	10TS-T47
C99	.0047		CCD-472				10TS-D47
C100	.1 (Vari-Cap)		CCD-472	DD-471			10TS-D47
C102	.0047		CCD-472				10TS-D47
C109	.0047		CCD-472				10TS-D47
C110	.0047		CCD-472				10TS-D47
C111	.0047		CCD-472				10TS-D47
C112	.0047		CCD-472				10TS-D47
C116	.0047		CCD-472				10TS-D47
C117	.0047		CCD-472				10TS-D47
C118	.0047		CCD-472				10TS-D47
C119	.0047		CCD-472				10TS-D47
C120	.0047		CCD-472	DTZ-3R3			10TS-D47
C121	.0047		CCD-472				10TS-D47
C122	.0047		CCD-472				10TS-D47
C123	.0047		CCD-472				10TS-D47
C124	3		CCTO-3R3		NP03P3	CN0533	10TCC-V33
C125	10 NPO		CCTO-100		NP010	CN0410	10TCC-Q10
C126	22		CCTO-220		NP022	CN0422	10TCC-Q22
C127	.0047		CCD-472				10TS-D47
C128	10 NPO		CCTO-100	DTZ-10	NP010	CN0410	10TCC-Q10

(1) May be 47pF when C128 is used.

COBRA MODEL 28A

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.
R25	"S" Meter	50K	008-158-9-013				
R58	Delta Tune	20K	008-158-9-015				
R83	Squelch Range	10K	008-158-9-012				
R84	Squelch	5000	008-158-9-005				
R102	RF Meter	200K	008-158-9-014				
R118	Volume/Switch	50K	008-158-9-007				

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R85	266 Cold NTC 2500 @ 25°C		004-099-9-002	R132	39 3W WW		006-005-5-390

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	OSC (9MHz)	044-025-9-003	L1906		
L2	Driver (27MHz)	044-025-9-004	L1905		
L4	RF Choke	042-013-9-002	L1998		
L5	Final (27MHz)	044-025-9-002	L1101		
L6	Pi Network	044-025-9-005	L1904		
L7	Pi Network	044-025-9-005	L1904		
T1	Receive Antenna (27MHz)	066-015-9-004	L1790		
T2	Receive RF Input (27MHz)	066-015-9-014	L1642		
T3	Receive RF Output (27MHz)	066-015-9-014	L1642		
T4	Receive Mixer Input (10MHz)	066-015-9-015	L1643		
T5	Receive Mixer Output (10MHz)	066-015-9-015	L1643		
T6	IF Input (455kHz)	060-014-9-004	D10753		
T7	IF Interstage (455kHz)	060-014-9-004	D10753		
T8	IF Output (455kHz)	060-014-9-004	D10753		
T9	Xmit Mixer Output (27MHz)	066-013-9-006	L1503		
T10	Harmonic Filter	066-013-9-009	L1505		
T11	Xmit Amp Input (27MHz)	066-013-9-009	L1505		
T12	Xmit Amp Output (27MHz)	066-013-9-009	L1505		

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.	
L8	1000mA	.2	2.6mH	042-013-9-003 9013 (1)			(1) Number on unit.

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T13	2	1		068-008-9-001 8786 (1)			(1) Number on unit.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T14	32	8	061-025-9-001 7509 (1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	2 1/4" X 6 1/4" PM 16 ohms	580-012-9-001		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	2A Fast Acting	191-251-3-002	742-028-9-001	AGC2	HDJ	312.002	145150
							FG2-2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
U1	Ceramic Filter	140-010-9-001	BFB455L (455kHz)
U2	Ceramic Filter	140-010-9-002	CFU455I (455kHz)
K1	Relay	441-006-9-001	(4C-2P) 12V 160 ohm
M1	Meter	320-035-9-001	(200uA) S/RF
S1	Switch	083-121-9-001	Channel Selector
S2	Switch	084-023-9-001	Hold
S3	Switch	084-023-9-001	Scan
S4	Switch	084-023-9-001	CB/PA
S5	Switch	084-023-9-001	ANL
X1	Crystal	132-022-9-011	10.000MHz
X2	Crystal	132-022-9-012	10.010MHz
X3	Crystal	132-022-9-013	10.020MHz
X4	Crystal	132-022-9-014	10.040MHz
X5	Crystal	132-022-9-001	16.965MHz
X6	Crystal	132-022-9-002	17.015MHz
X7	Crystal	132-022-9-003	17.065MHz
X8	Crystal	132-022-9-004	17.115MHz
X9	Crystal	132-022-9-005	17.165MHz
X10	Crystal	132-022-9-006	17.215MHz
X11	Crystal	132-022-9-007	9.545MHz
X12	Crystal	132-022-9-008	9.555MHz
X13	Crystal	132-022-9-009	9.565MHz
X14	Crystal	132-022-9-010	9.585MHz

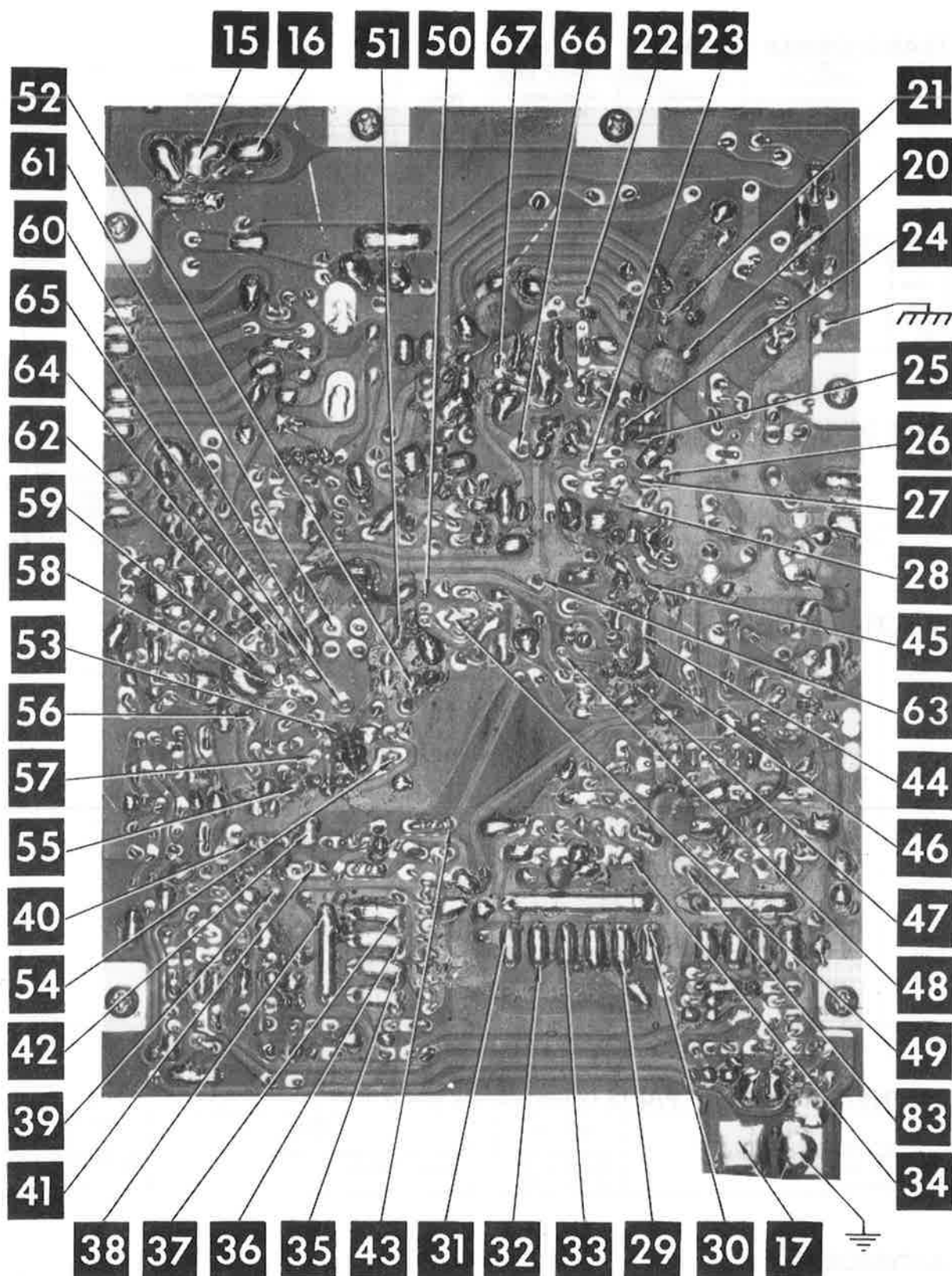
CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

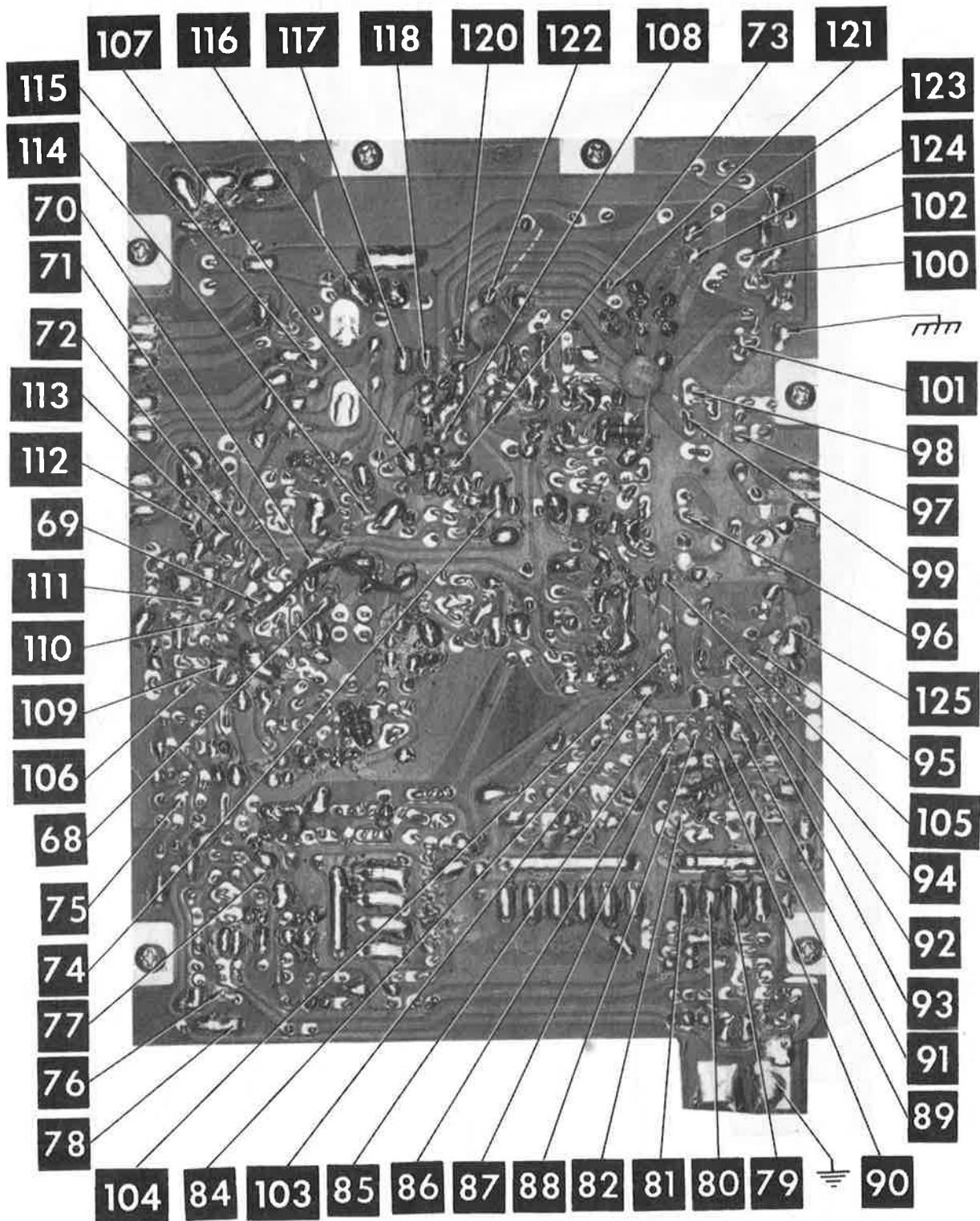
ITEM	PART No.	ITEM	PART No.
Sub panel (For Channel & Delta)	254-015-9-001	Knob, Volume/Squelch/Delta	751-082-9-002
Sub panel (Volume & Squelch)	254-015-9-002	Channel Indicator	380-153-9-001
Knob, Channel	751-082-9-001		

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone	562-003-9-001	Dynamic

COBRA MODEL 28A





COBRA MODEL 28A

