



# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

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.



COBRA MODEL 89XLR

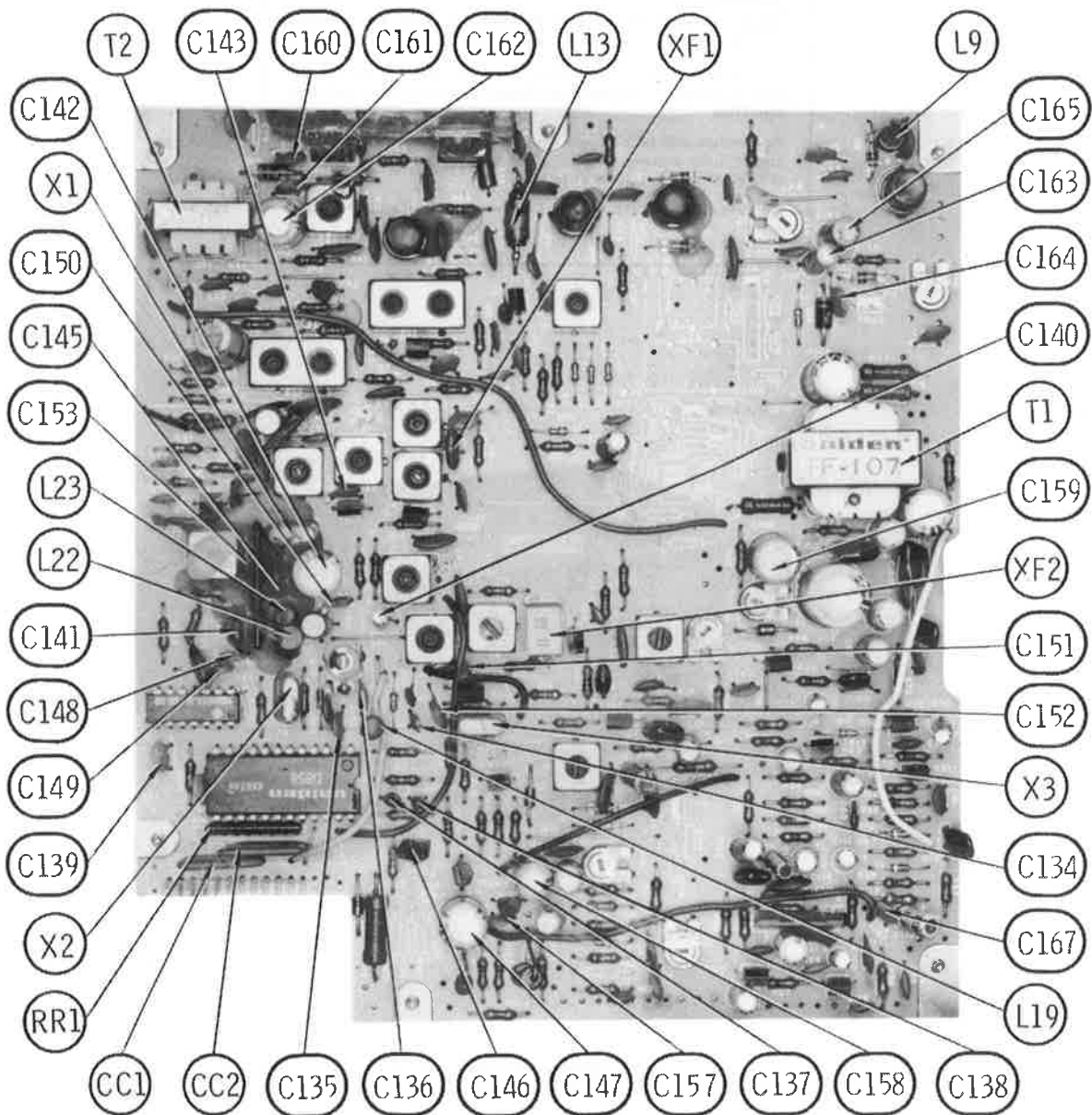
MODEL 89XLR

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

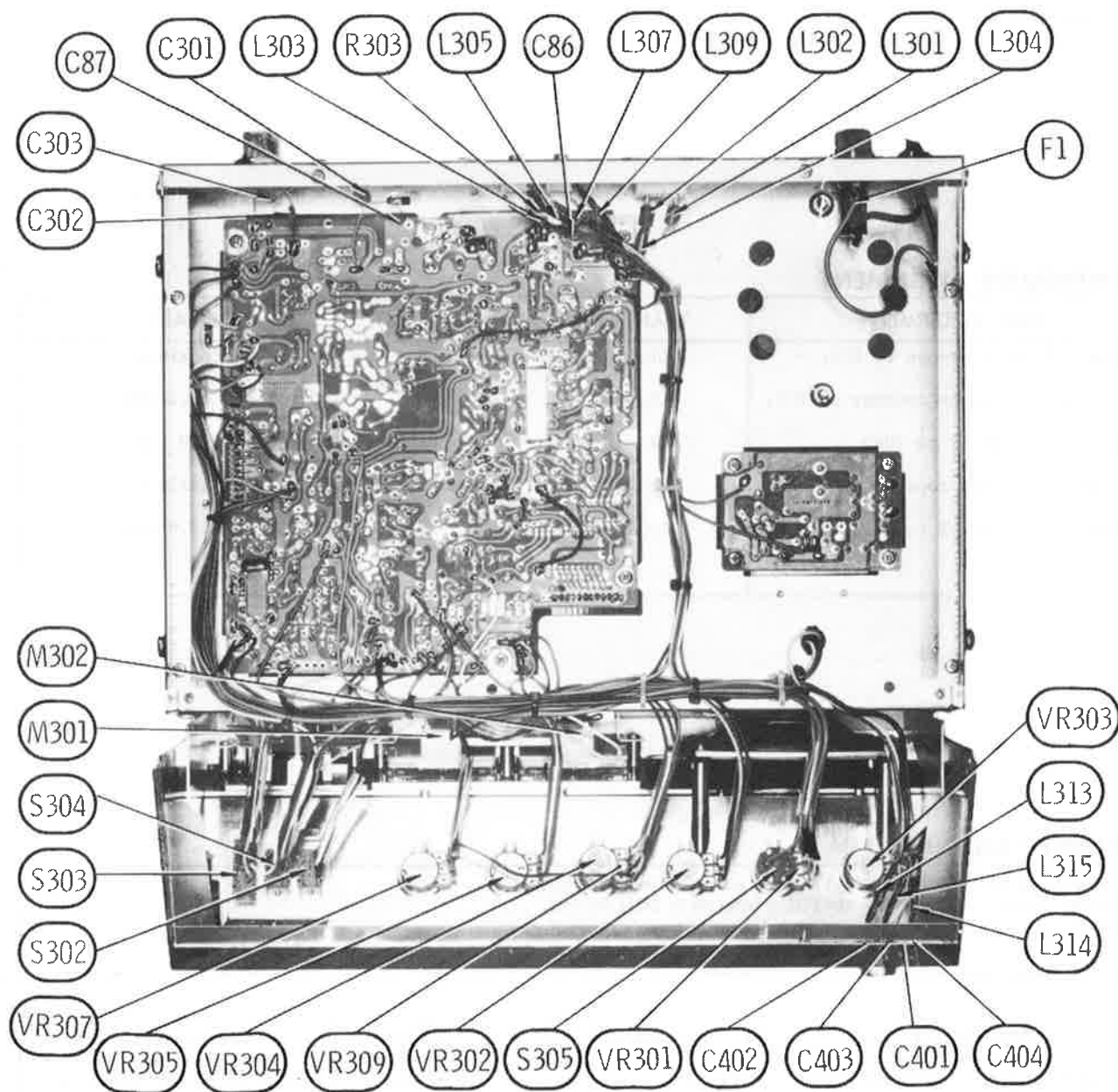
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7CE535



MAIN BOARD



CHASSIS-BOTTOM

## 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:  
L6,L7,L8,L10,L11,L12,L15.....5009  
L1,L2,L3,L4,L5,L16,L17,L18,L20,L21,L24.9440  
VC1.....5000

## SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of oscilloscope to TP1.	Ch. 19	L5	Adjust for maximum.
Input of frequency counter to TP1.	Ch. 19	VC1	Adjust for 10.240MHz.
Input of DC meter to TP5.	Ch. 19	L20	Adjust for 3.0 volts.
Input of oscilloscope to TP6.	Ch. 19	L21	Adjust for maximum.
Input of frequency counter to TP6.	Ch. 19	L24	Adjust for 37.880MHz.

## 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 TP10. 455kHz,1000Hz @ 30% modulation.	Ch. 19, Delta Tune-Mid Range RF Gain-Max	L8,L7,L6	Adjust for maximum output.
Output of signal generator thru .01uF to TP11. 10.695MHz,1000Hz @ 30% modulation.	Ch. 19	L4,L3	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz,1000Hz @ 30% modulation.	Ch. 19	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	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output .9uV.	Ch. 19 Delta Tune-Mid Range. RF Gain-Max Volume-Max	VR2	AGC Adjust VR2 for 2 volts audio.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 500uV.	Ch. 19	VR3	SQUELCH RANGE Set Squelch Control VR302 fully clockwise. Adjust VR3 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR1	S METER Adjust for 9 on S scale of meter.

## TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of oscilloscope to TP3.	Ch. 19	L18, L17	Adjust for maximum.
	Ch. 19	L16, L15, L12, L11	Adjust for maximum.
	Ch. 19	L12	Adjust for 3.8 watts.
Input of spectrum analyzer to antenna jack.	Ch. 19	L10	Adjust for MINIMUM at 54MHz.

COBRA MODEL 89XLR

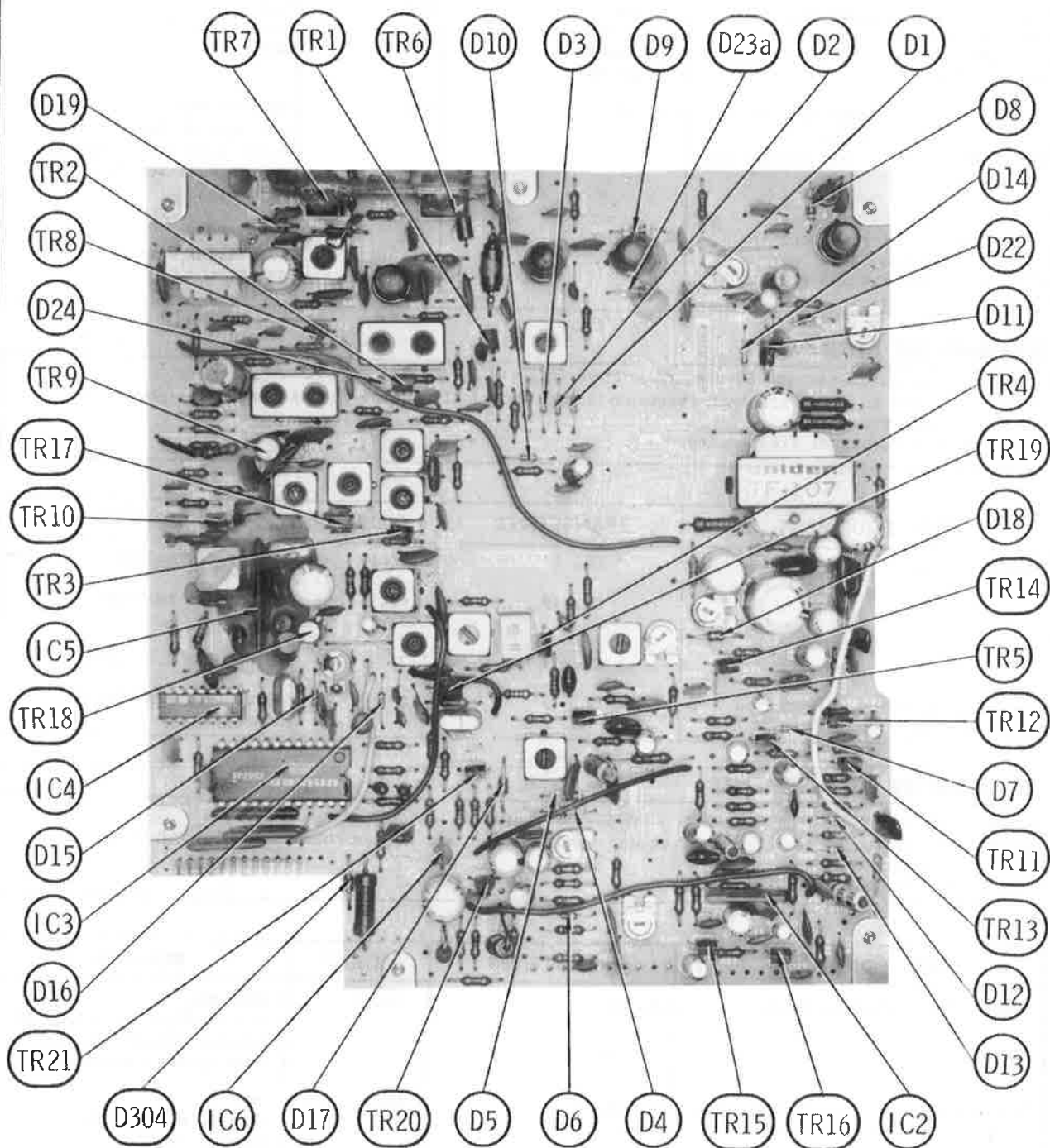
## TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

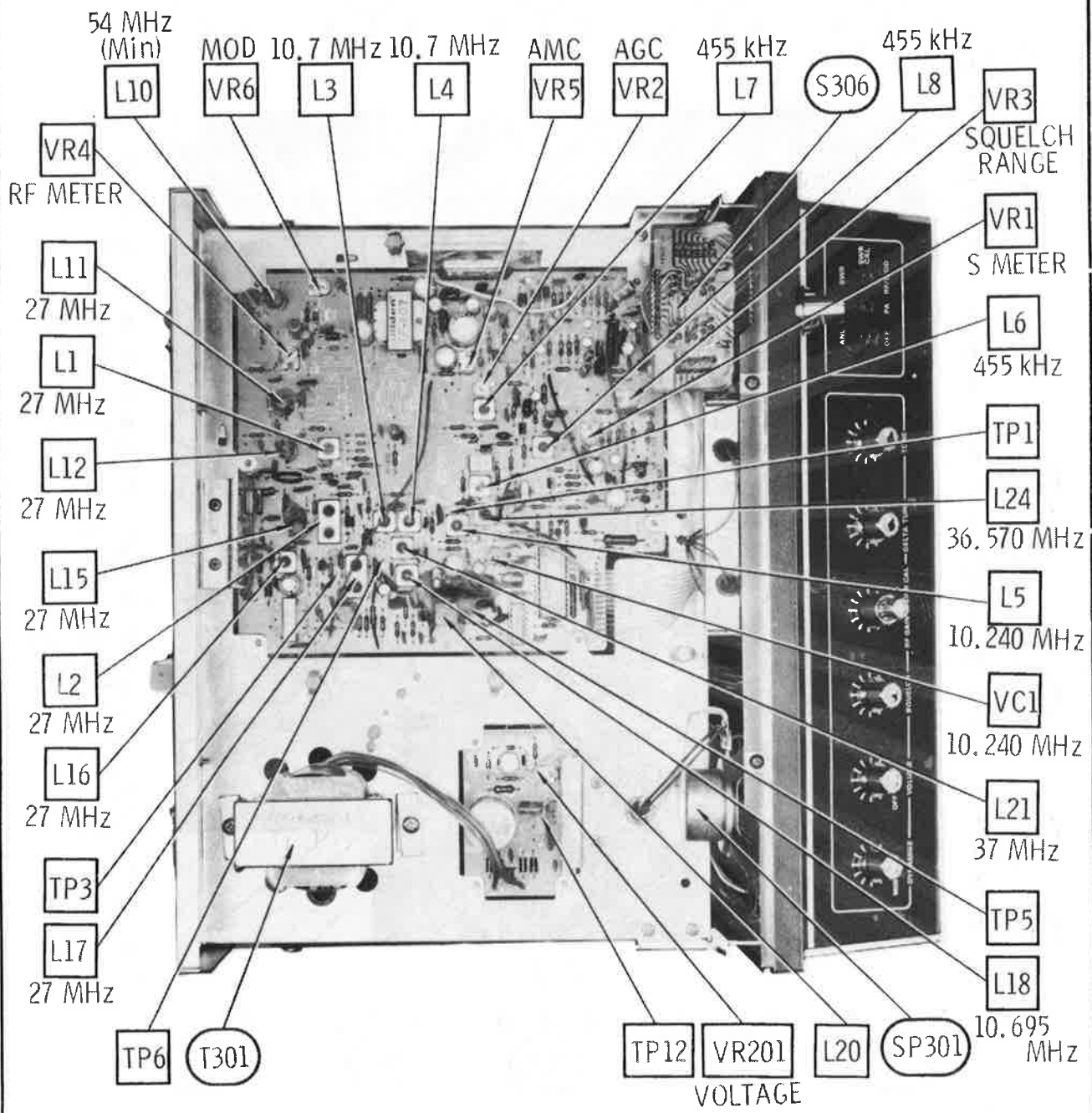
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of DC meter to TP12.	Ch. 19	VR201	VOLT REG Adjust VR201 for 13.8V DC. Voltage should not vary when keying transmitter.
Modulation meter to antenna jack. Inject a 1000Hz 10mV signal mike input.	Ch. 19, Dynamike-Max.	VR5	AMC Adjust VR5 for 95% modulation.
Modulation meter to antenna jack. Inject a 1000Hz 10mV signal mike input.	Ch. 19	VR6	MOD Adjust VR6 so that panel MOD meter agrees with external modulation meter.
	Ch. 19	VR4	RF PANEL METER Adjust VR4 so that RF Panel meter agrees with RF wattmeter.



MAIN BOARD



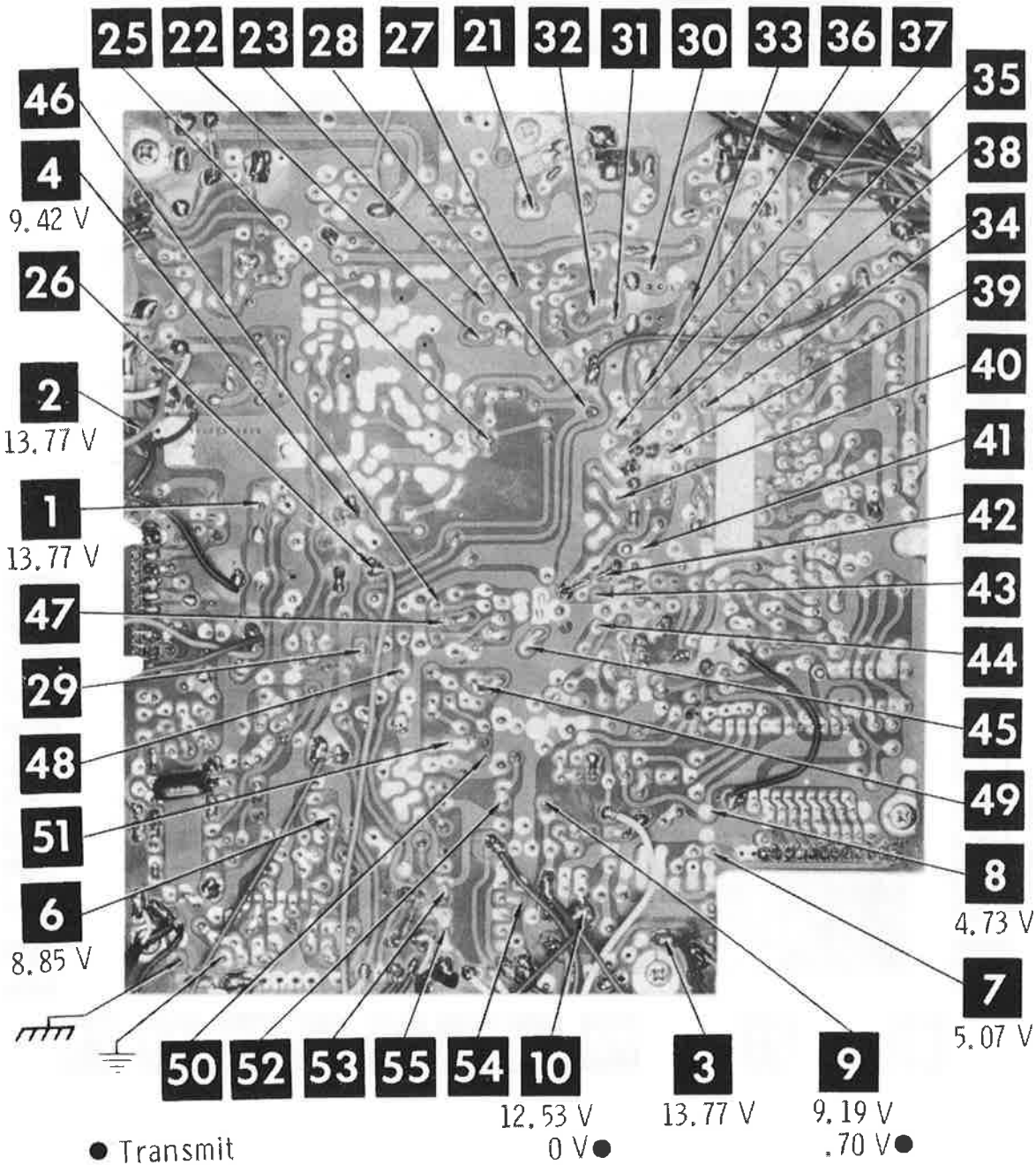
COBRA MODEL 89XLR

CHASSIS-TOP







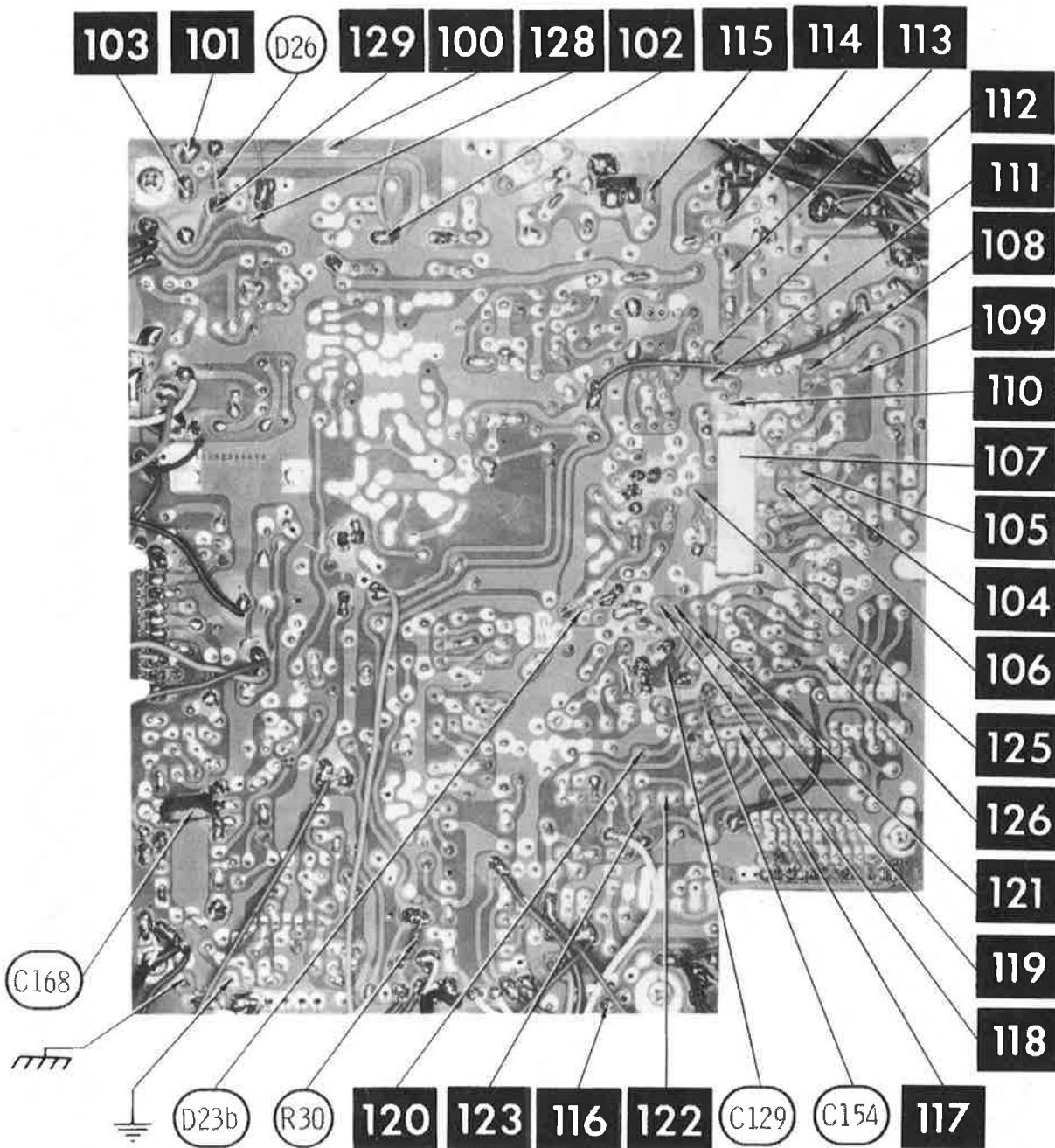


MAIN BOARD

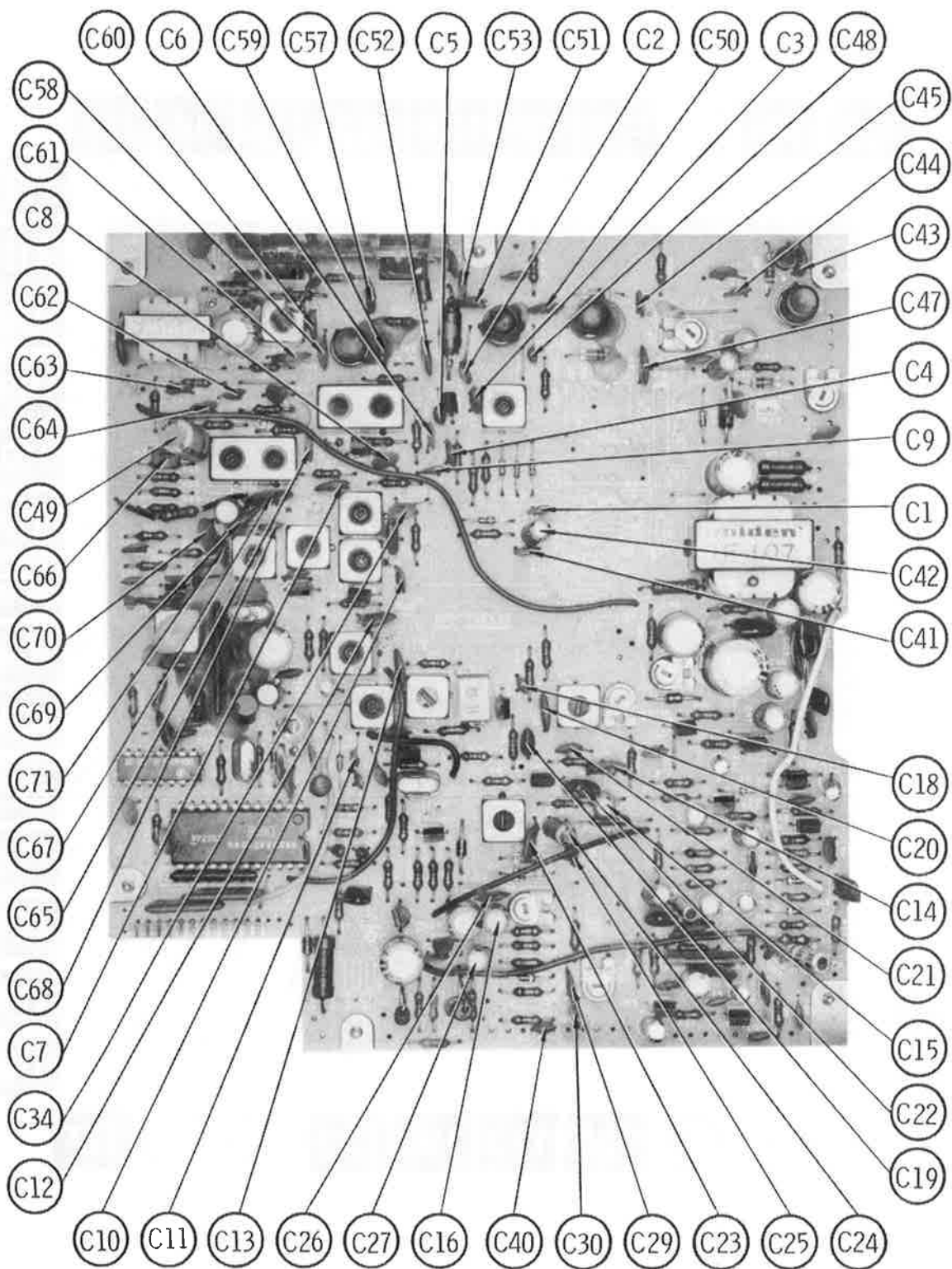


MAIN BOARD

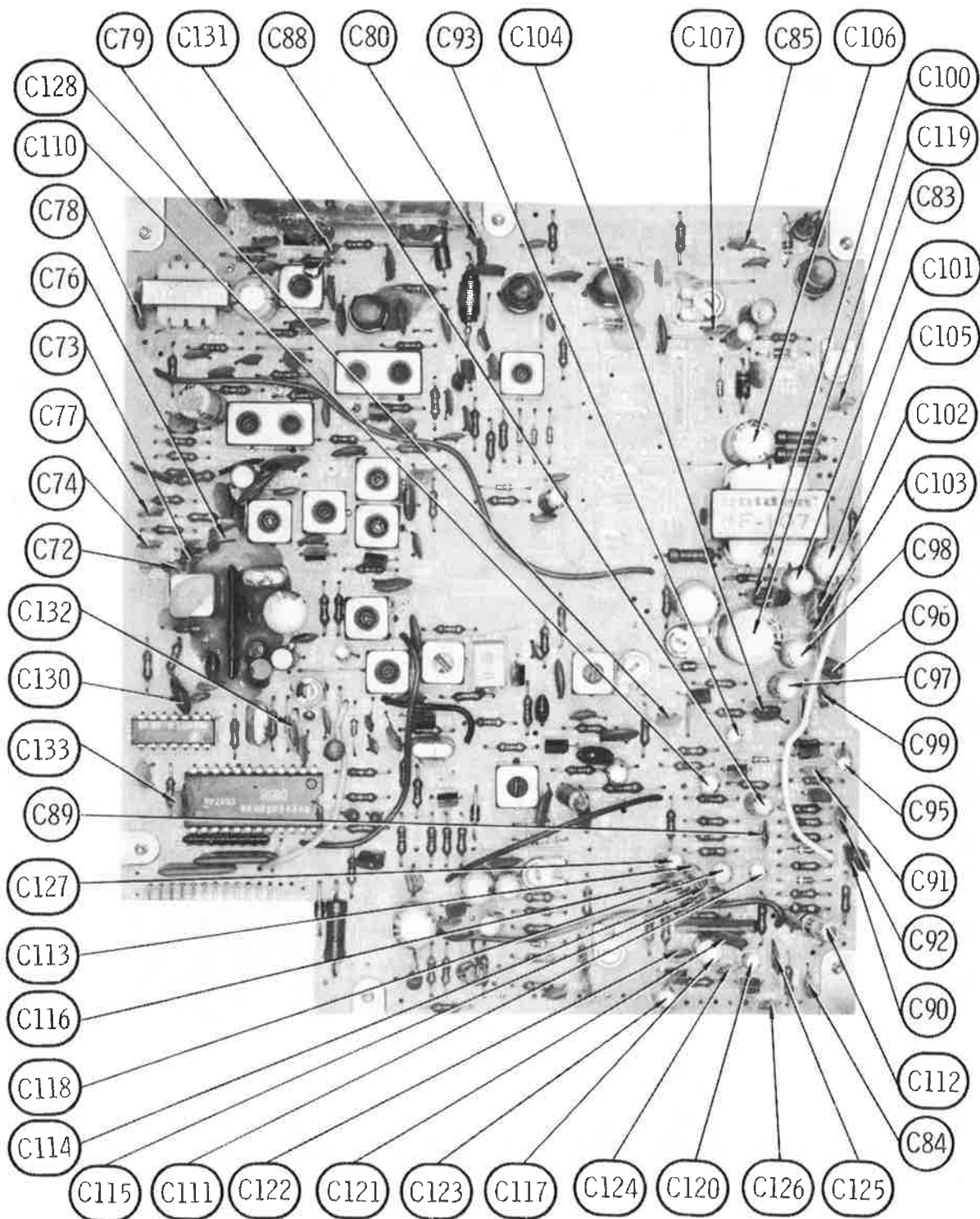
COBRA MODEL 89X1R



MAIN BOARD

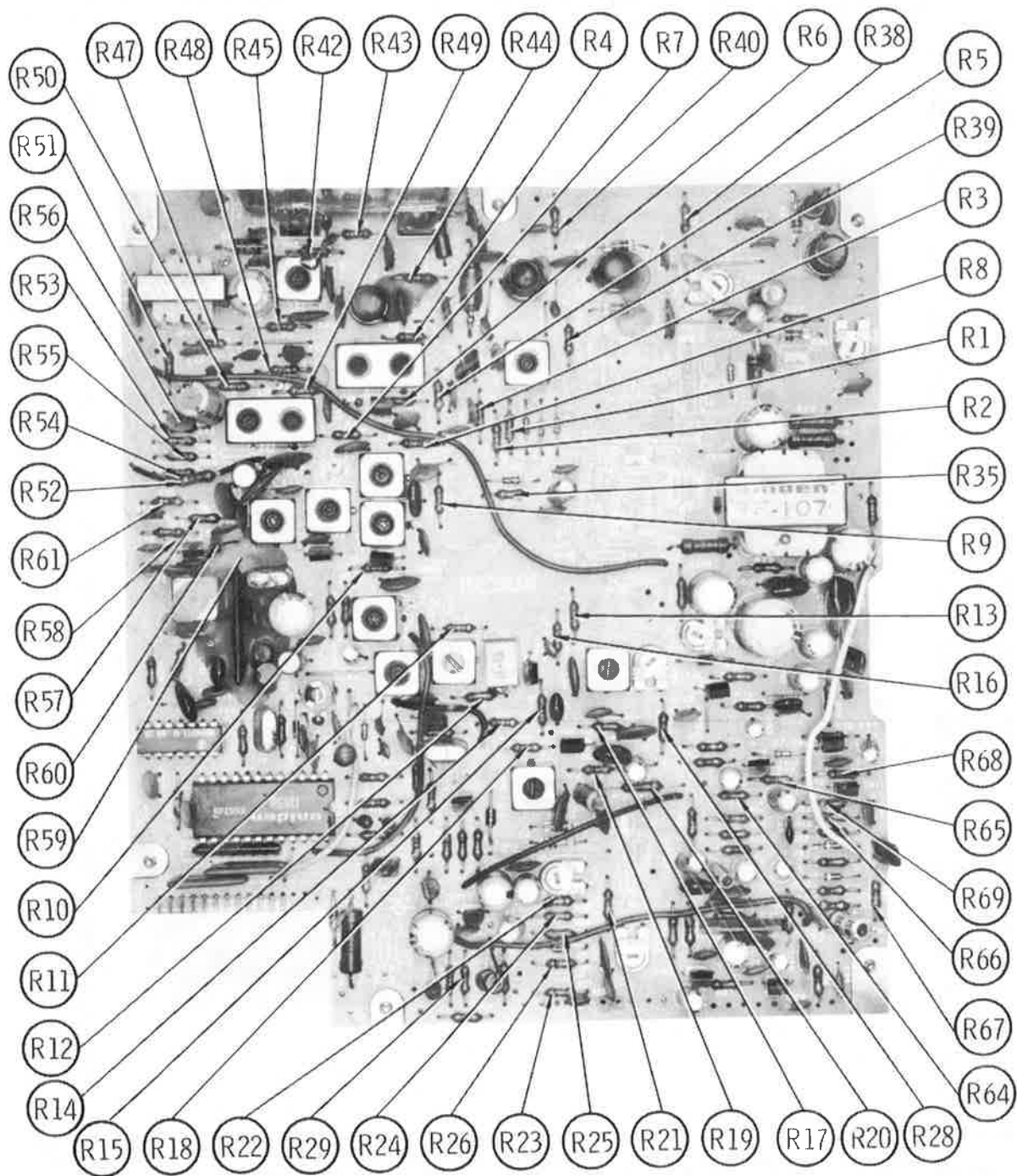


MAIN BOARD



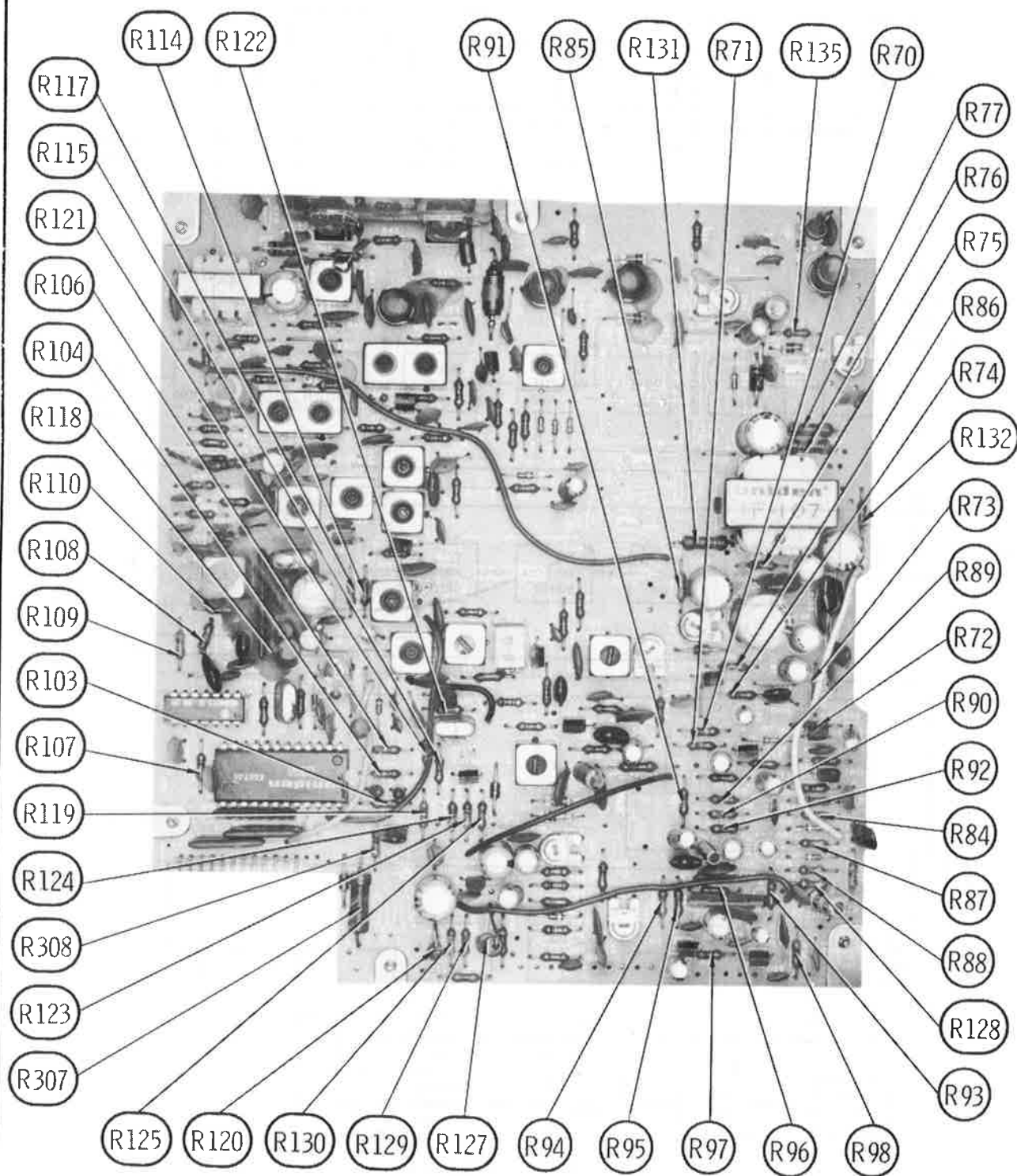
MAIN BOARD



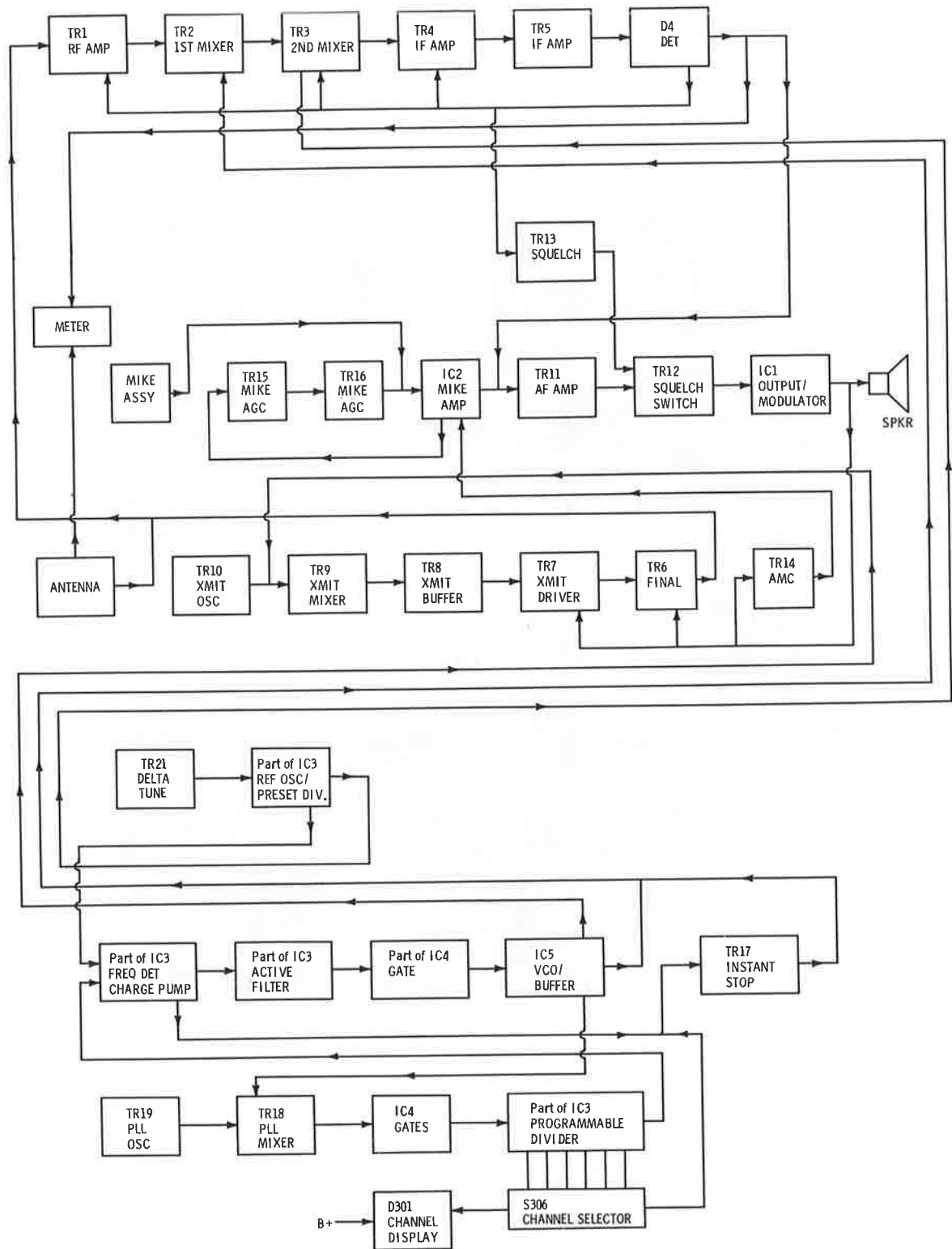


MAIN BOARD

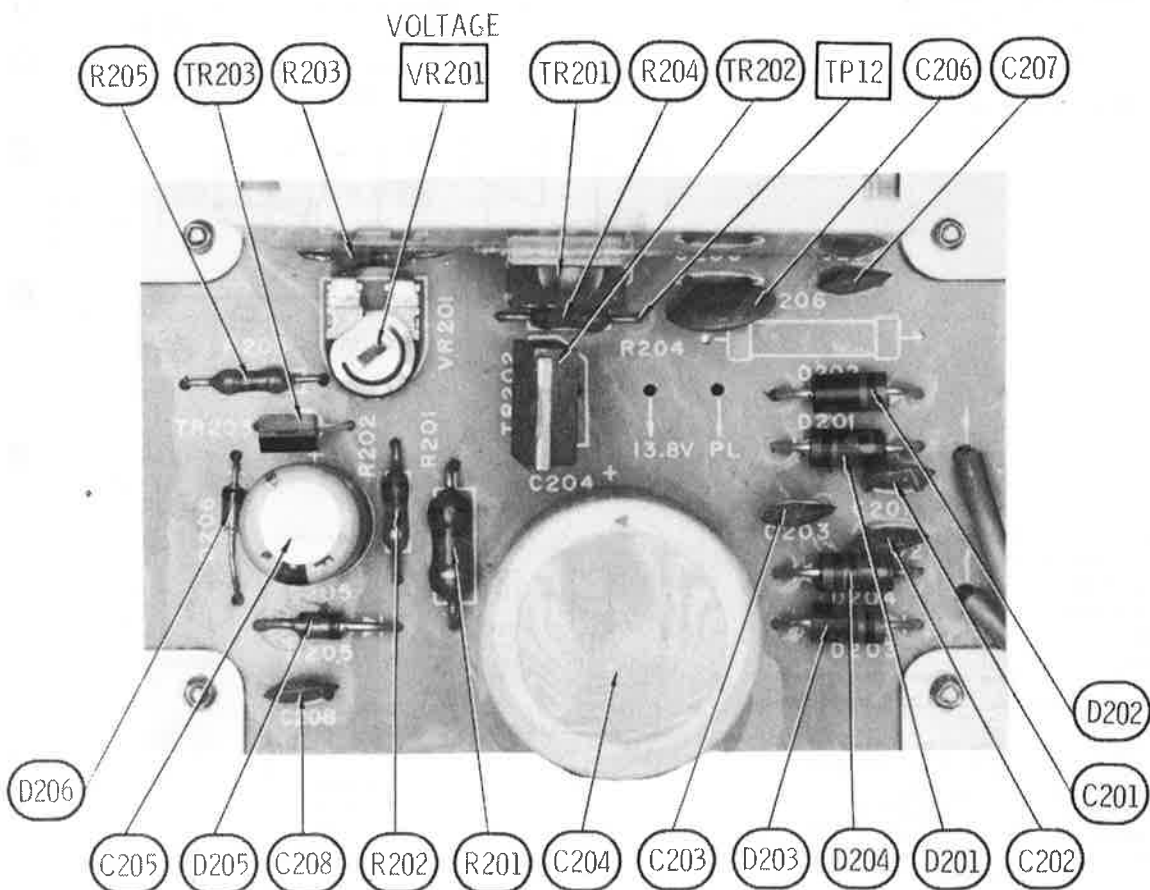
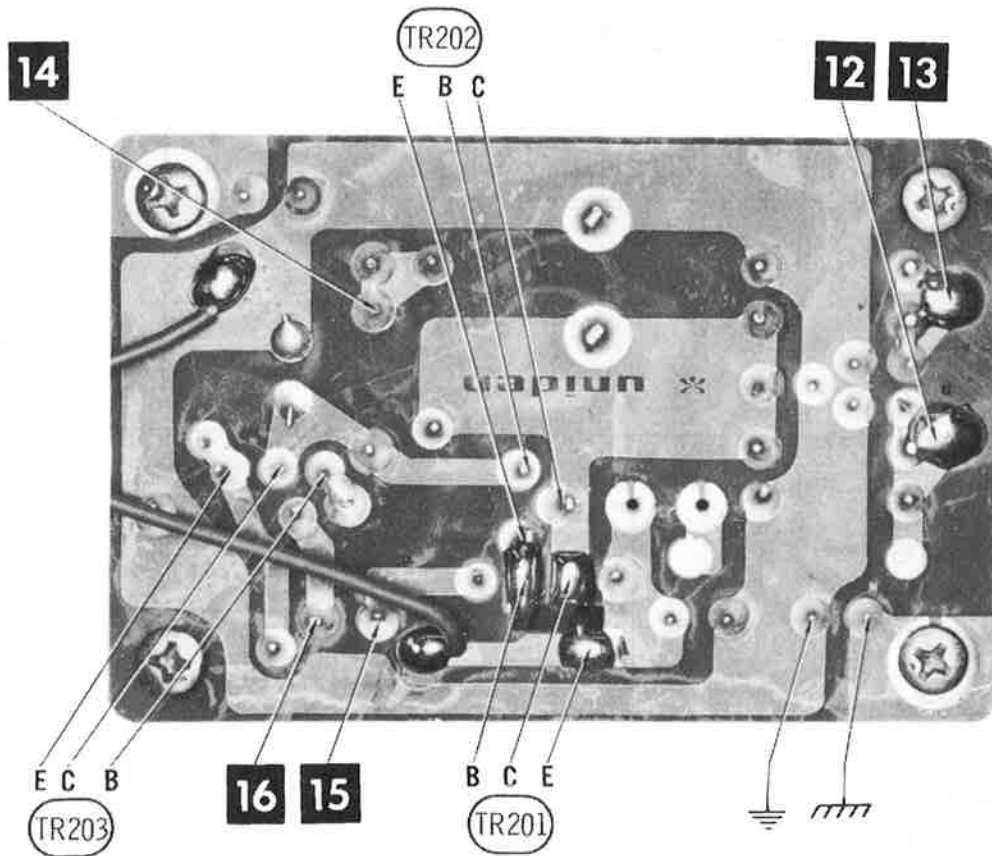




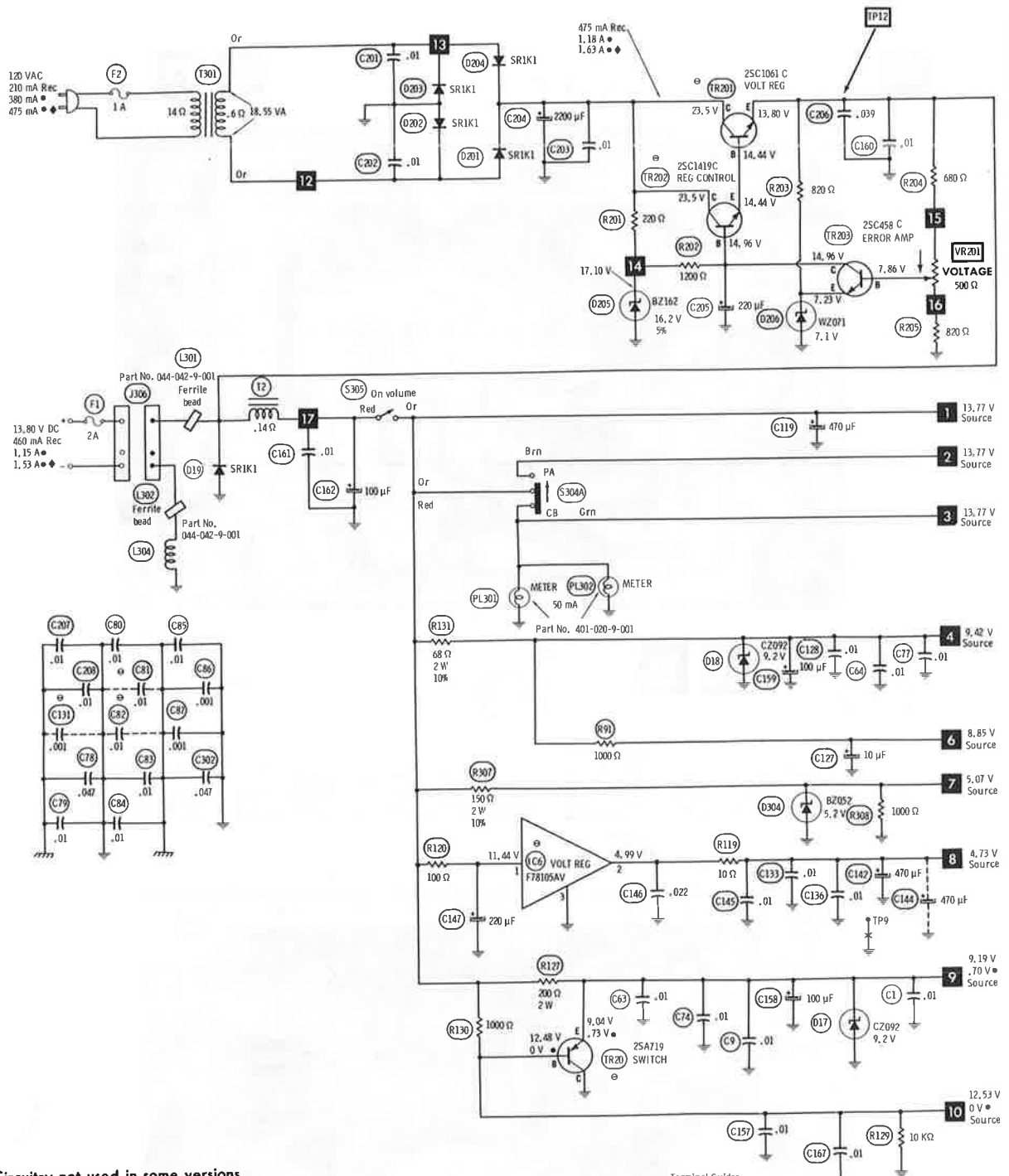
MAIN BOARD



**BLOCK DIAGRAM**



POWER SUPPLY BOARD



— Circuitry not used in some versions

--- Circuitry used in some versions

⊙ See parts list

\* Nominal value

⊕ Ground

Chassis

Measurements with switching as shown unless noted:

■ Squelch fully clockwise ◆ 100% modulation

● Transmit

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.

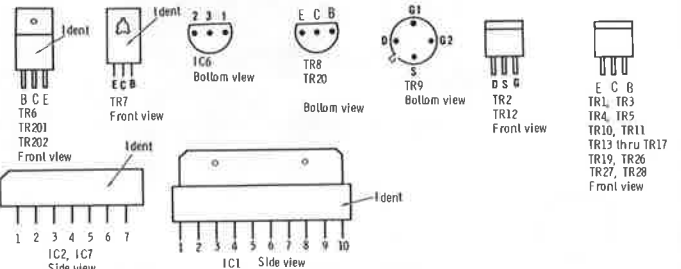
Resistors are 1/2W or less, 5% unless noted.

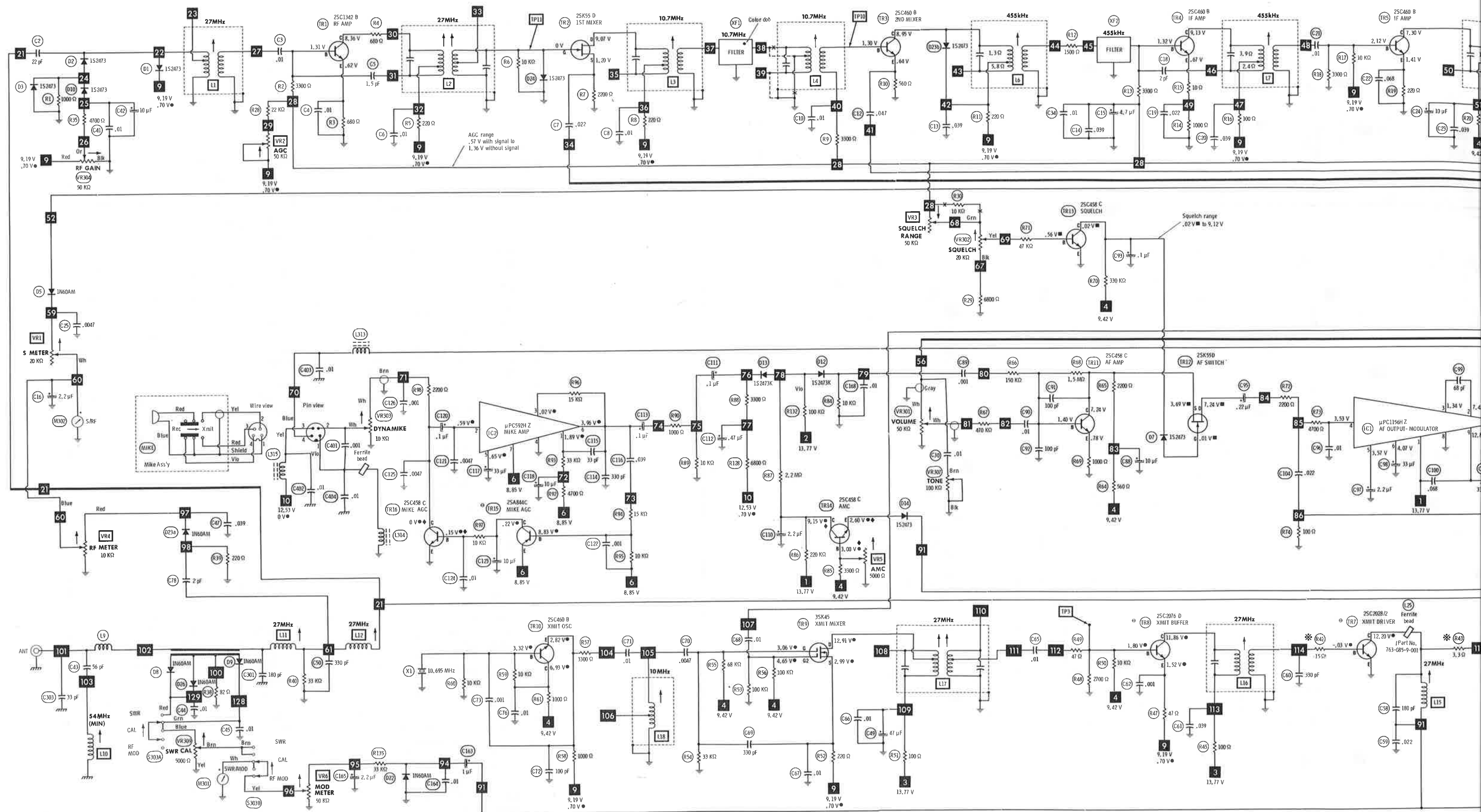
Value in ( ) used in some versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

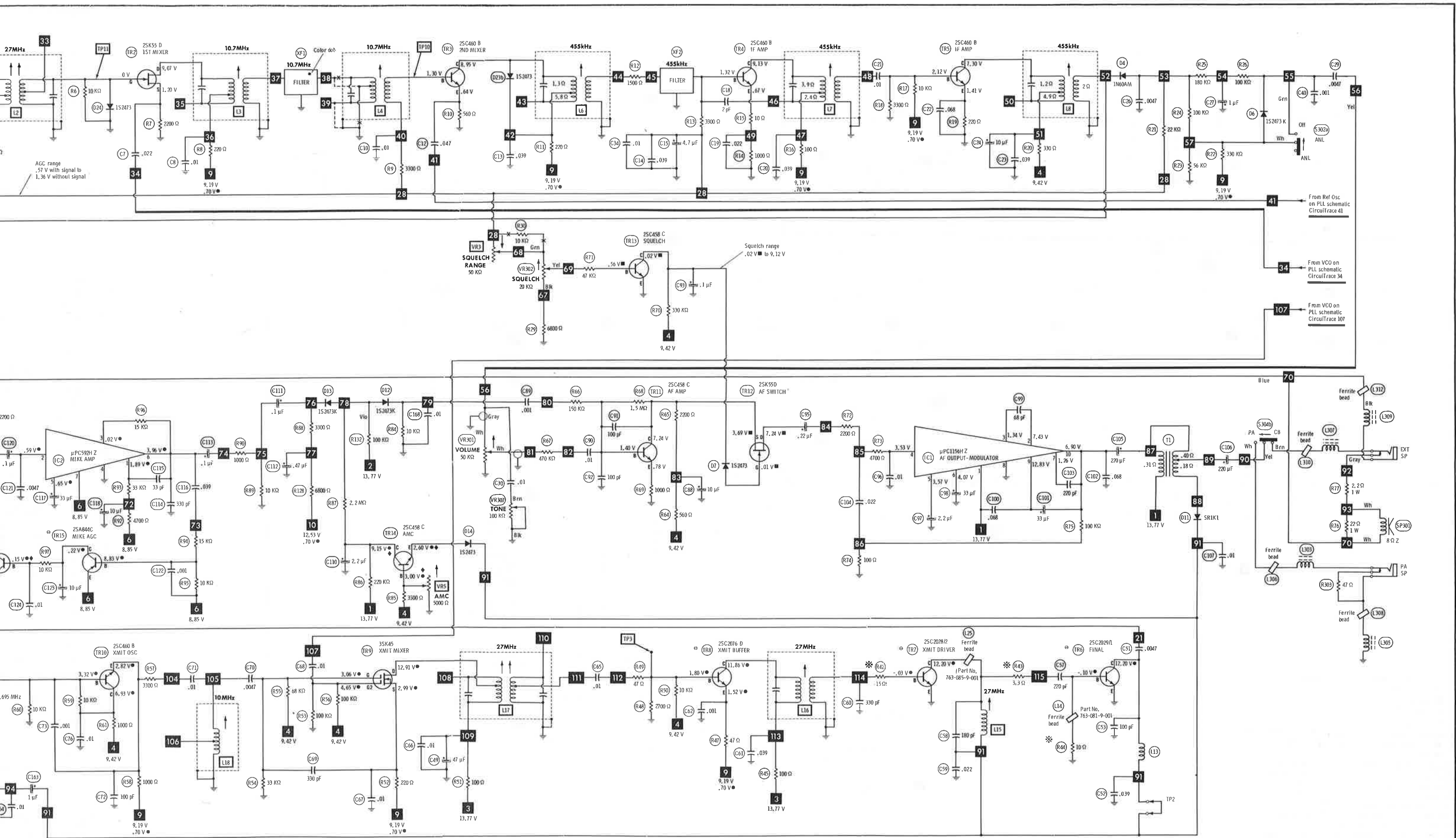
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# PARTS LIST AND (When ordering parts, state

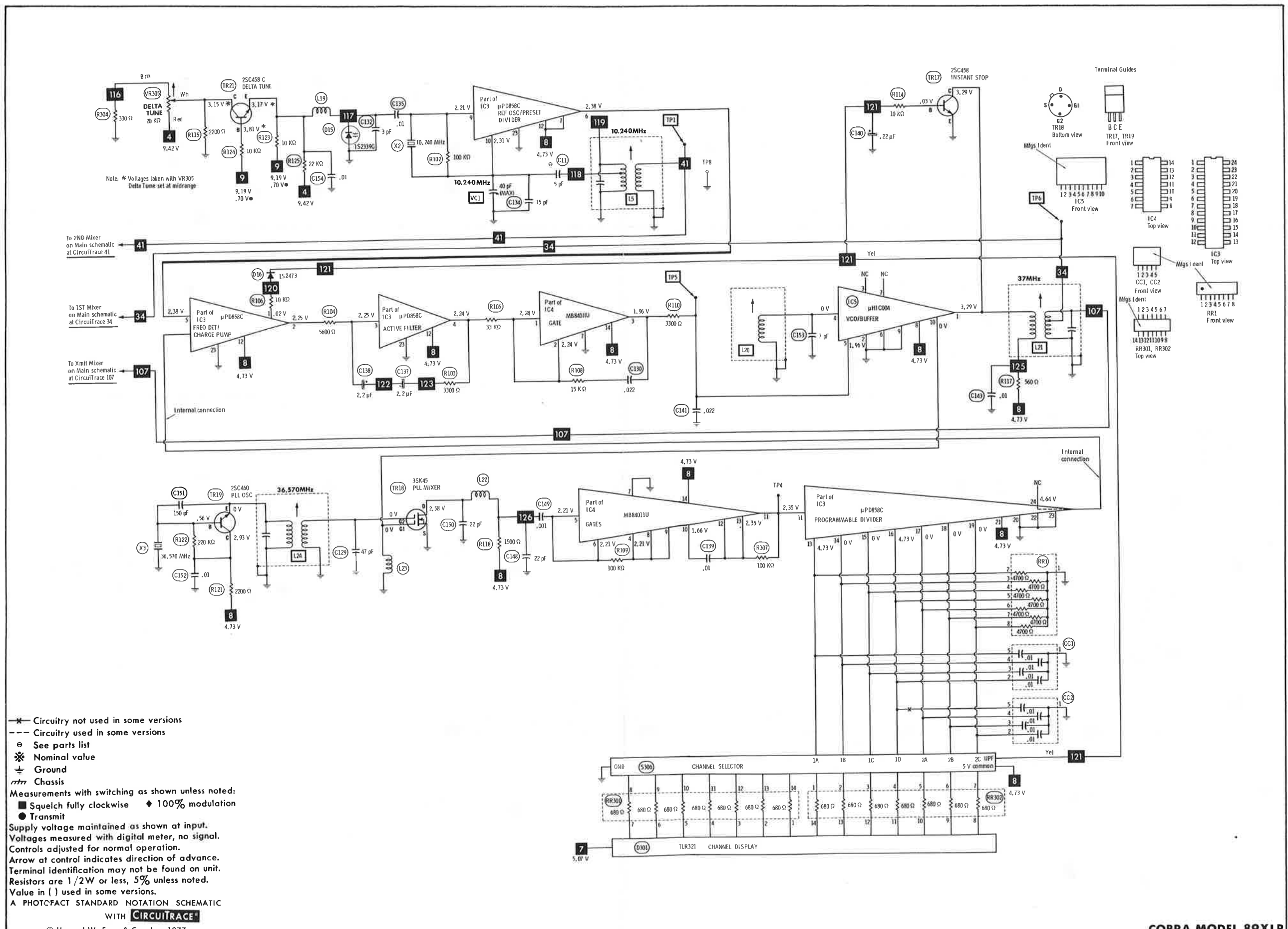
## WIRING DATA

General-use Hook-up Wire  
Power Cord, 2-Wire ...  
Shielded Antenna Lead  
Coiled Microphone Cable  
Bonding Strap .....

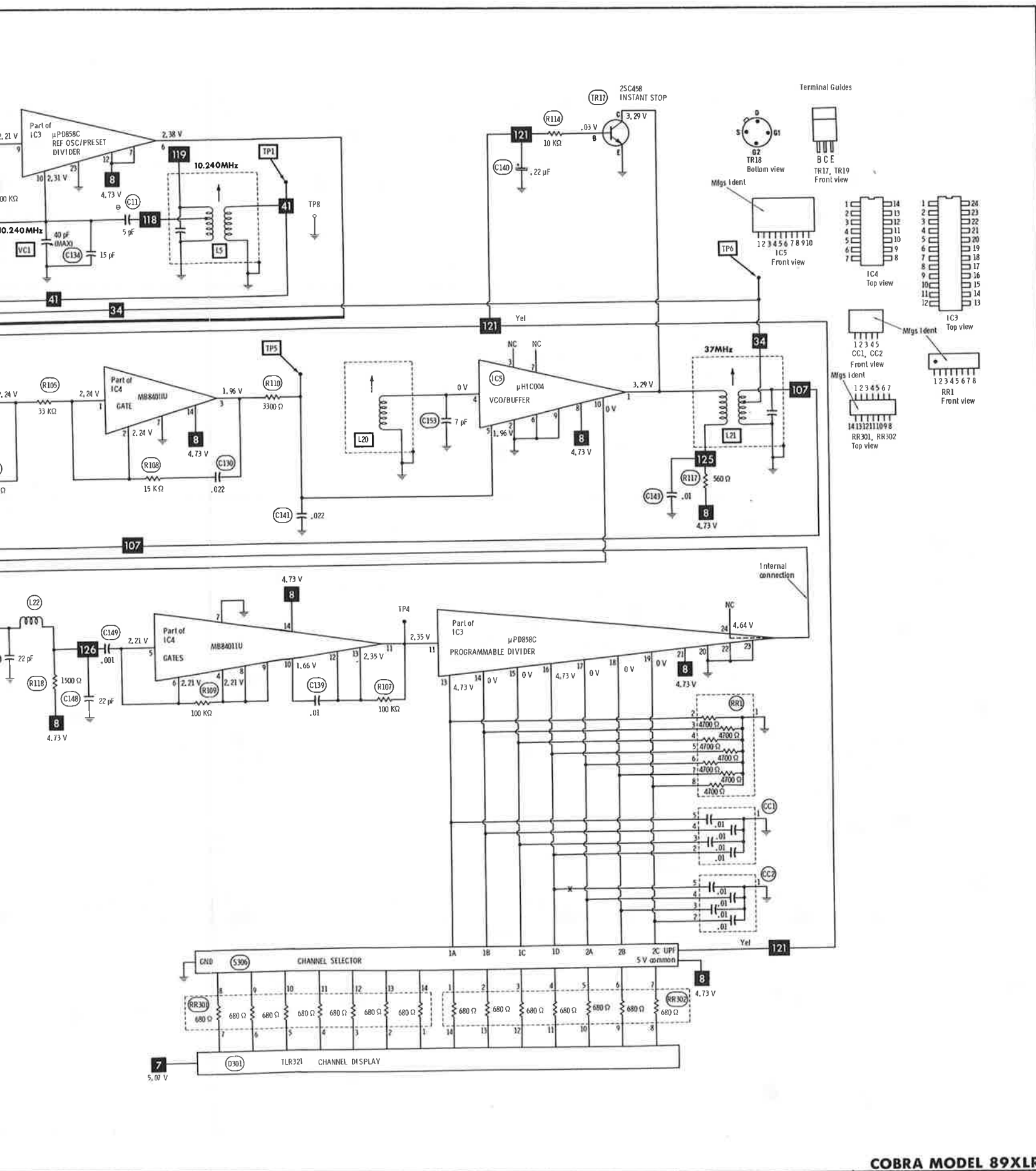
## SEMICONDUCTOR

ITEM No.	TYPE No.	MFR. PART No.
D1	1S2473	151-035-9-0
D2	1S2473	151-035-9-0
D3	1S2473	151-035-9-0
D4	1N60AM	150-012-9-0
D5	1N60AM	150-012-9-0
D6	1S2473-K	150-066-9-0
D7	1S2473	150-035-9-0
D8	1N60AM	150-012-9-0
D9	1N60AM	150-012-9-0
D10	1S2473	151-035-9-0
D11	SR1K-1	151-040-9-0
D12	1S2473-K	150-066-9-0
D13	1S2473-K	150-066-9-0
D14	1S2473	151-035-9-0
D15	1S2339-G	029-016-9-0
D16	1S2473	151-035-9-0
D17	CZ-092	152-082-9-0
D18	CZ-092	152-082-9-0
D19	SR1K-1	150-035-9-0
D22	1N60AM	150-012-9-0
D23a	1N60AM	150-012-9-0
D23b	1N60AM	150-012-9-0
D24	1S2473	151-035-9-0
D26	1S2473	151-035-9-0
D201	SR1K-1	151-040-9-0
D202	SR1K-1	151-040-9-0
D203	SR1K-1	151-040-9-0
D204	SR1K-1	151-040-9-0
D205	BZ-162	152-057-9-0
D206	WZ-071	152-075-9-0
D304	BZ-052	152-082-002
IC1	UPC1156H	307-112-9-0
IC2	UPC592HZ	307-113-9-0
IC3	UPD858C	307-095-9-0
IC4	MB84011-U	308-113-9-0
IC5	UHC-004	307-113-9-0
IC6	DE-087	307-113-9-0
TR1	NJM78L05A	176-074-9-0
TR2	2SC1342B	182-045-9-0
TR3	2SK55D	176-072-9-0
TR4	2SC460B	176-072-9-0
TR5	2SC460B	176-072-9-0
TR6	2SC2092	176-074-9-0
TR7	2SC2091	176-074-9-0
TR8	2SC2076D	176-060-9-0
	(10)	(1)
	2SC2076CB	176-060-9-0
TR9	3SK45B	182-038-9-0
TR10	2SC460B	176-072-9-0
TR11	2SC458C	176-048-9-0
TR12	2SK55D	182-045-9-0
TR13	2SC458C	176-048-9-0
TR14	2SC458C	176-048-9-0
TR15	2SA844C	177-025-9-0
TR16	2SC458C	176-048-9-0
TR17	2SC458C	176-048-9-0
TR18	3SK45(10)	182-042-9-0
	3SK45B09	(1)
TR19	2SC460B	176-072-9-0
TR20	2SA719(10)	177-025-9-0
	2SA673C	(1)
TR21	2SC458C	176-048-9-0
TR201	2SC1061C	172-044-9-0
	2SC1061	(1)
TR202	2SC1419C	176-055-9-0
TR203	2SC458C	176-048-9-0

\* Lead configuration may  
(1) Used in some versions.  
(10) Number on unit.  
(11) Rating, 12 WATT @ 3 AMP  
(12) Rating, 5 WATT @ 1 AMP



COBRA MODEL 89XLR



COBRA MODEL 89XLR

## 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 13 Colors
Power Cord, 2-Wire .....	Use BELDEN No. 8524 (Stranded) Available in 13 Colors
Shielded Antenna Lead .....	Use BELDEN No. 17106 (Plastic) -6 feet
	17109 (Plastic) -9 feet
	Use BELDEN No. 8214 Low-loss (RG-8/U Type)
	8237 Low-loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58/U)
Coiled Microphone Cable .....	Use BELDEN No. 8497 3-Conductor (1 shielded for Press-to-Talk) Neoprene
Bonding Strap .....	Use BELDEN No. 8491 4-Conductor (2 shielded, 2 unshielded) Neoprene
	8661 (3/8 inch)

### SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	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	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D2	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D3	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D4	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D5	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D6	1S2473-K	150-066-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D7	1S2473	150-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D8	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D9	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D10	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D11	SR1K-1	151-040-9-003	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D12	1S2473-K	150-066-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D13	1S2473-K	150-066-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D14	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D15	1S2339-G	029-016-9-001	GE-90	D201	PTC214	HEPR2503	RE 195	SK3126	RT-262	ECG519
D16	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D17	CZ-092	152-082-9-001	GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D18	CZ-092	152-082-9-001	GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D19	SR1K-1	150-035-9-001	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D22	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D23a	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D23b	1N60AM	150-012-9-001	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D24	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D26	1S2473	151-035-9-001	GE-300	D200	PTC214	HEPRO602	RE 52	SK3100	RT-218	ECG519
D201	SR1K-1	151-040-9-003	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D202	SR1K-1	151-040-9-003	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D203	SR1K-1	151-040-9-003	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D204	SR1K-1	151-040-9-003	GE-504A	5A4D	PTC201	HEPRO052	RE 49	SK3030	RT-213	ECG116
D205	BZ-162	152-057-9-001	GEZD-16	Z1207	ZB16B	HEPZ0410	RE 122	SK3059	RT-246	ECG5075
D206	WZ-071	152-075-9-001	GEZD-7.5	Z1207	ZB7.5A	HEPZ0406	RE 111	SK3056	RT-239	ECG138
D304	BZ-052	152-082-002	GEZD-5.1	Z1203						
IC1	UPC1156H	307-112-9-001								
IC2	UPC592HZ	307-113-9-004								
IC3	UPD858C	307-095-9-004								
IC4	MB84011-U	308-113-9-001								
IC5	UHC-004	307-113-9-002								
IC6	DE-087	307-113-9-003								
TR1	2SC1342B	176-074-9-001	GE-61 *	TR-24 *	PTC136 *	HEPS0014 *	RE 9 *	SK3018 *	RT-108A *	ECG229 *
TR2	2SK55D	182-045-9-001	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
TR3	2SC460B	176-072-9-005	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
TR4	2SC460B	176-072-9-006	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
TR5	2SC460B	176-072-9-005	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
TR6	2SC2092	176-074-9-003	GE-215	WEP1306	PTC186	HEPS0014 *	RE 203	SK3197	RT-146	ECG235
TR7	2SC2091	176-074-9-002	GE-270		PTC180					
TR8	2SC2076D	176-060-9-004	GE-210	(IR)2SC829B	PTC121	HEPS0015	RE 13	SK3122	RT-308	ECG123A
	2SC2076CB	176-060-9-004	GE-210	(IR)2SC829B	PTC121	HEPS0015	RE 13	SK3122	RT-308	ECG123A
TR9	3SK45B	182-038-9-001	GE-FET-4	WEP905	PTC181	HEPF2004	RE 199	SK3050	RT-181	ECG222
TR10	2SC458C	176-072-9-005	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
TR11	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR12	2SK55D	182-045-9-001	GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175	ECG312
TR13	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR14	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR15	2SA844C	177-025-9-002	GE-21	TR-54	PTC103	HEPS0019	RE 18	SK3114	RT-126A	ECG129
TR16	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR17	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR18	3SK45(10)	182-042-9-001	GE-FET-4	WEP905	PTC181	HEPF2004	RE 199	SK3050	RT-181	ECG222
	3SK45B09	182-042-9-001	GE-FET-4	WEP905	PTC181	HEPF2004	RE 199	SK3050	RT-181	ECG222
TR19	2SC460B	176-072-9-005	GE-61 *	(IR)2SC460B	PTC136 *	HEPS0014 *	RE 9	SK3018 *	RT-134	ECG107
TR20	2SA719(10)	177-025-9-001	GE-269	TR-28 *	PTC103 *	HEPS5013 *	RE 26 *	SK3114	RT-126A *	ECG159 *
	2SA673C	177-025-9-001	GE-269	TR-30	PTC103 *	HEPS5013 *	RE 26 *	SK3114	RT-126A *	ECG159 *
TR21	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *
TR201	2SC1061C	172-044-9-001	GE-66	TR-76	PTC154					
	2SC1061	172-044-9-001	GE-66	TR-76	PTC154					
TR202	2SC1419C	176-055-9-004	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG152
TR203	2SC458C	176-048-9-002	GE-210 *	(IR)2SC458B	PTC121 *	HEPS0009 *	RE 13 *	SK3124	RT-187	ECG123A *

\* Lead configuration may vary from original.  
 (1) Used in some versions.  
 (10) Number on unit.  
 (11) Rating, 12 WATT @ 3 AMP  
 (12) Rating, 5 WATT @ 1 AMP

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR302	Squelch	20K	008-308-9-001 RV-049 (5)				
VR303	Dynamike	10K	008-187-9-002 RV-005 (5)	F2-10K (1), SSK012		RU14A,SL36,SL3250	BU1 (1),CF61, SS1,DC1
VR304	RF Gain	20K	008-312-9-002 RV-214 (5)				
VR309	SWR Cal	50K	008-210-9-004	F1-25K (1), SSK012		RU253L,SL36, SL3250	BU1 (1),CF11, SS1,DC1
VR305	Delta Tune	50K		F1-100K (1) SSK012		RU15L,SL36,SL3250	BU1 (1),CF13, SS1,DC1
VR307	Tone	100K	008-283-9-001 RV-048 (5)				

(1) Enlarge mounting hole.

(3) For horizontal mounting, bend the two outside terminals to fit PC board. Use jumper to connect center terminal to PC Board.

(5) Number on unit.

### 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.
RR1	4700		527-076-9-001 (1)	R302	680		527-076-9-002 (2)
RR301	680		527-076-9-002 (2)				

(1) Consists of seven 4700 Ohm resistors.

(2) Consists of seven 680 Ohm resistors

### COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Antenna (27MHz)	066-017-9-001			
L2	Rec RF (27MHz)	060-024-9-012			
L3	IF (10.7MHz)	060-024-9-001			
L4	IF (10.7MHz)	060-024-9-002			
L5	Ref Osc (10.24MHz)	060-024-9-003			
L6	IF (455kHz)	060-022-9-001			
L7	IF (455kHz)	060-024-9-004			
L8	IF (455kHz)	060-024-9-005			
L9	RF Choke	044-042-9-002			
L10	TVI Trap (54MHz)	044-028-9-004			
L11	Antenna Matching (27MHz)	044-028-9-005			
L12	Final (27MHz)	041-056-9-003			
L13	RF Choke	044-028-9-003			
L15	Xmit Driver (27MHz)	044-028-9-004			
L16	Xmit Buffer (27MHz)	060-024-9-010			
L17	Xmit Mixer (27MHz)	060-024-9-006			
L18	Xmit Osc (10.695MHz)	060-024-9-011			
L19	RF Choke (33uH)	041-090-9-002			
L20	VCO	060-024-9-008			
L21	VCO (37MHz)	060-024-9-009			
L22	RF Choke (100uH)	041-062-9-002			
L23	RF Choke (1.5uH)	041-090-9-001			
L24	PLL Osc (36MHz)	060-024-9-007			
L303	RF Choke	044-045-9-001			
L304	RF Choke	044-028-9-003			
L305	RF Choke	044-045-9-001			
L307	RF Choke	044-045-9-001			
L309	RF Choke	044-045-9-001			
L313	RF Choke	044-045-9-001			
L314	RF Choke	044-045-9-001			
L315	RF Choke	044-045-9-001			

### 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.	
T2	1.53A	.14	1.62mH	044-028-9-006 TF-017 (1)	TR507		(1) Number on unit.

### TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	67	1 8 2 54	061-031-9-001 TF-107 (1)			(1) Number on unit.

COBRA MODEL 89XLR

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

### TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T301	120V AC @ 475mA AC	18.55V AC @ 2.93A AC	065-134-9-001 TF-103 (1)			(1) Number on unit.

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP301	2" X 4" PM 8 Ohms	580-015-9-001		

### 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	2Amp (DC)	191-251-3-002	427-022-9-001 (1)	AGC2	HDJ	312002	150145	FG2-2
F2	1Amp (AC)	191-251-3-001	742-025-9-001	AGC1	HKP	312001	341001AL	FG1-2

(1) Includes DC Cord.

### 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	562-018-9-001	18-032	18-034	18-010	18-092	2	1	3	4	NC	1

### CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X1	10.695	133-014-9-002	CC90W10695	Xmit Osc
X2	10.240	133-014-9-001		Ref Osc

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X3	36.570	133-014-9-003		PLL Osc

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
D301	LED	158-014-9-001	Channel Display
L14	Ferrite Bead	763-085-9-001	
L25	Ferrite Bead	763-085-9-001	
L301	Ferrite Bead	044-042-9-001	
L302	Ferrite Bead	044-042-9-001	
L306	Ferrite Bead		
L308	Ferrite Bead		
L310	Ferrite Bead		
L312	Ferrite Bead		
M301	Meter	320-088-9-001	SWR/MOD
M302	Meter	320-089-9-001	S/Rf
S302	Switch	084-055-9-001	ANL
S303	Switch	084-058-9-001	SWR/CAL/Rf/MOD
S304	Switch	084-055-9-001	PA/CB
S305	Switch		Power (on Volume Control)
S306	Switch	083-223-9-001	Channel Selector
XF1	Filter	140-018-9-001	10.7MHz
XF2	Filter	140-018-9-002	455kHz
	Flat Cable	426-022-9-001	
	Printed Circuit Board	302-238-9-001	Main (PC-198AA)
	Printed Circuit Board	302-242-9-001	Power Supply
	Printed Circuit Board	302-239-9-001	Mike (PC-181AA)
	Printed Circuit Board	302-241-9-001	Channel Selector (PC-206AA)

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Cover	253-057-9-001	Knob, Control	751-095-9-002
Cabinet, Bottom	252-022-9-001	Knob, SWR/CAL	751-147-9-001
Mike Hanger	741-074-9-001	Knob, RF Gain	751-147-9-002
Front Panel	255-151-9-001	Knob, Channel Selector	751-147-9-003