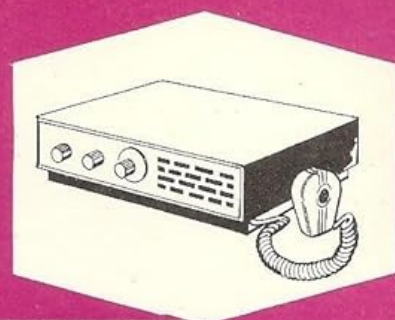
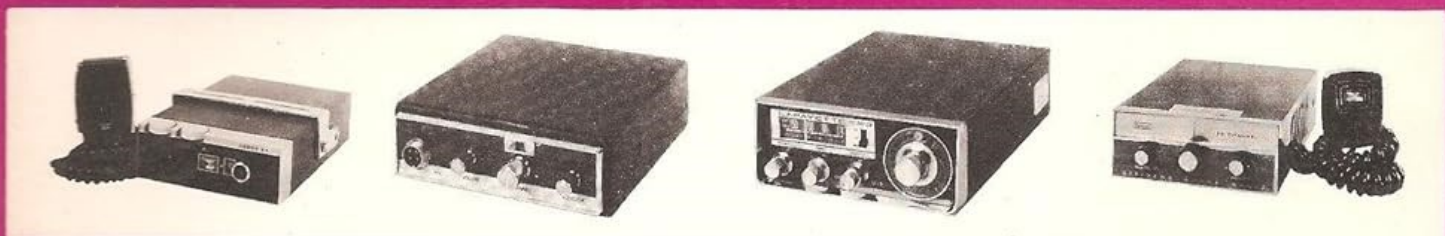


SAMS PHOTOFACT[®]



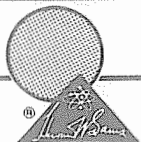
CB RADIO SERIES

CB-26
26
FEB 1970



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PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

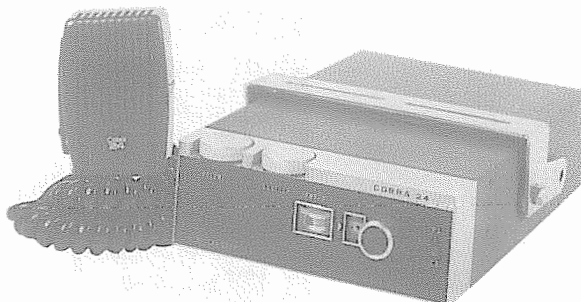
NOTE

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.



B & K MODEL COBRA 24

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:	GENERAL CEMENT #	WALSCO #
A1 thru A4, A7, A8.....	9087.....	2528
A5, A9, A13, A24	8276, 8277, 8290.....	2512, 2515, 2525
A6, A10, A11, A12, A14, thru A18	8606L, 9440	2501, 2544
A19 thru A23.....	8868, 9089	2541, 2587

RECEIVER

Connect AC VTVM to terminals of speaker. Turn volume control fully clockwise, turn Squelch control fully counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to Base of Q3 (2nd Rec. Mixer), low side to chassis. Tune to 455KC (Mod.).	Any	A1 thru A4	Adjust for maximum.
Frequency Meter or counter thru 5pf to Emitter of Q102 (Rec. Osc.)	Any	A5	Adjust only if all Rec. Osc. crystal frequencies are high or low.
Frequency meter or counter thru 5pf to Emitter of Q101 (Synthesizer).	Any	A9	Adjust only if all synthesizer crystal frequencies are high or low.
High side thru .01 to Antenna Receptacle, low side to chassis. Tune to 27.115MC (Mod.). (Channel 13).	13	A6, A7, A8, A10, A11, A12	Adjust for maximum.

TRANSMITTER

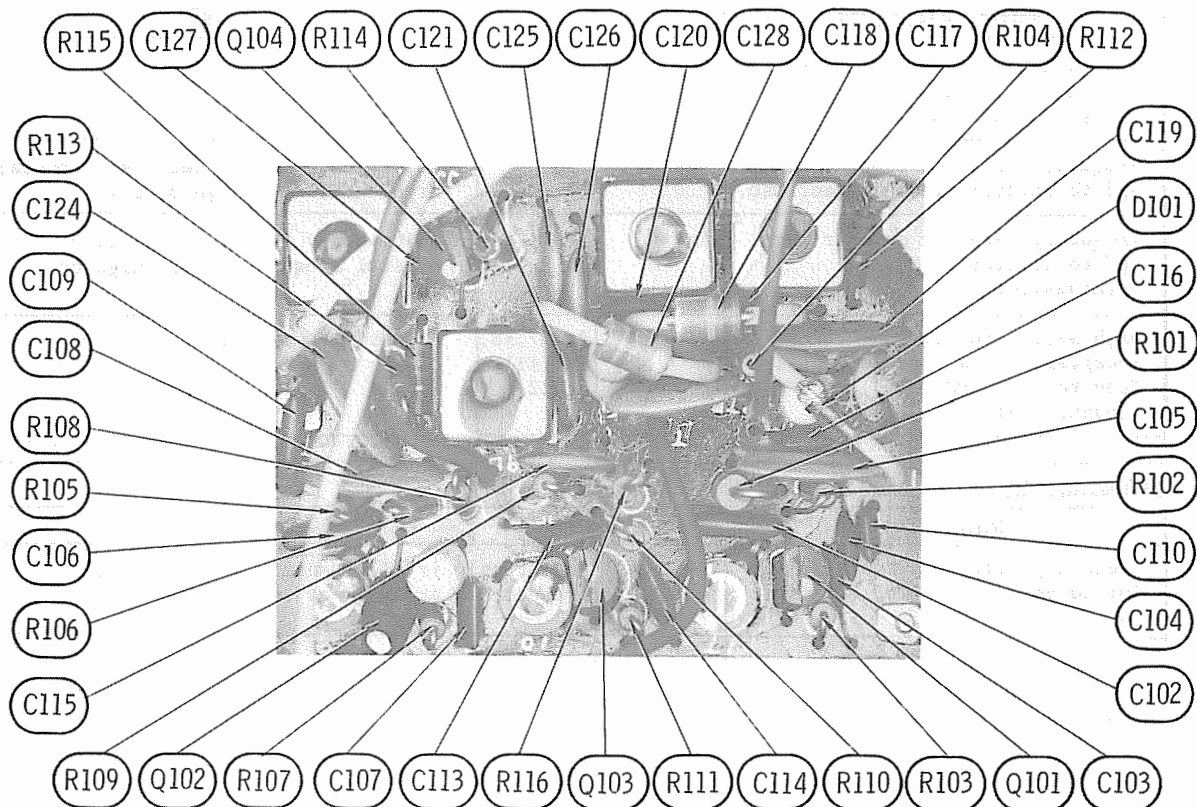
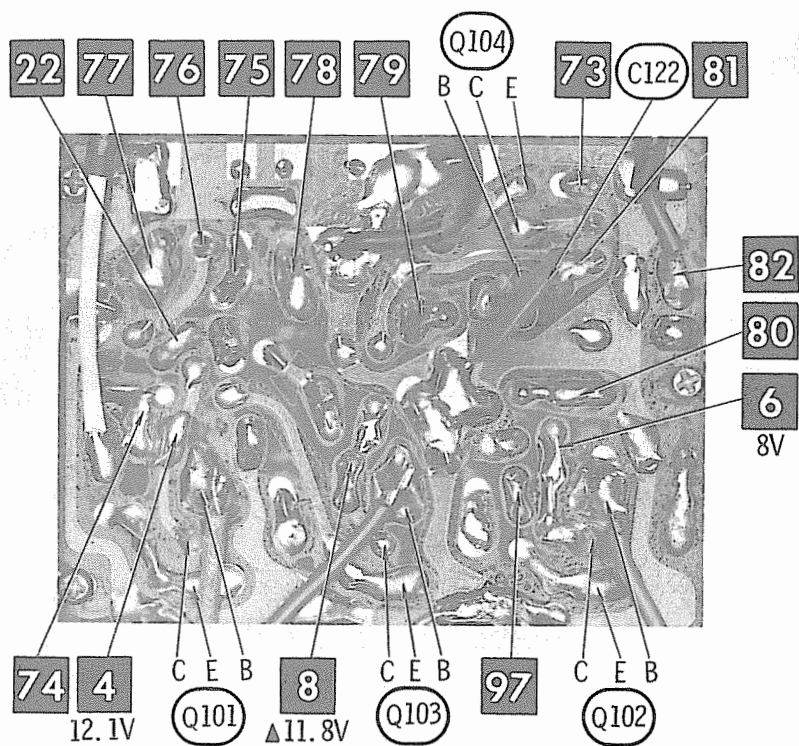
INDICATOR	ADJUST	REMARKS
Frequency Meter or Counter thru 5pf to Emitter of Q103 (Transmit Osc.)	A13	Adjust only if all Transmit Osc. crystal frequencies are high or low.
RF wattmeter or Field Strength Meter 0-500ma DC ohmmeter connected in collector of Q16.	A14 thru A23	Adjust for maximum. DC current should not exceed 370ma @ 13.5VDC.
TV set (Ch. 2).	A24	Adjust for MINIMUM interference.

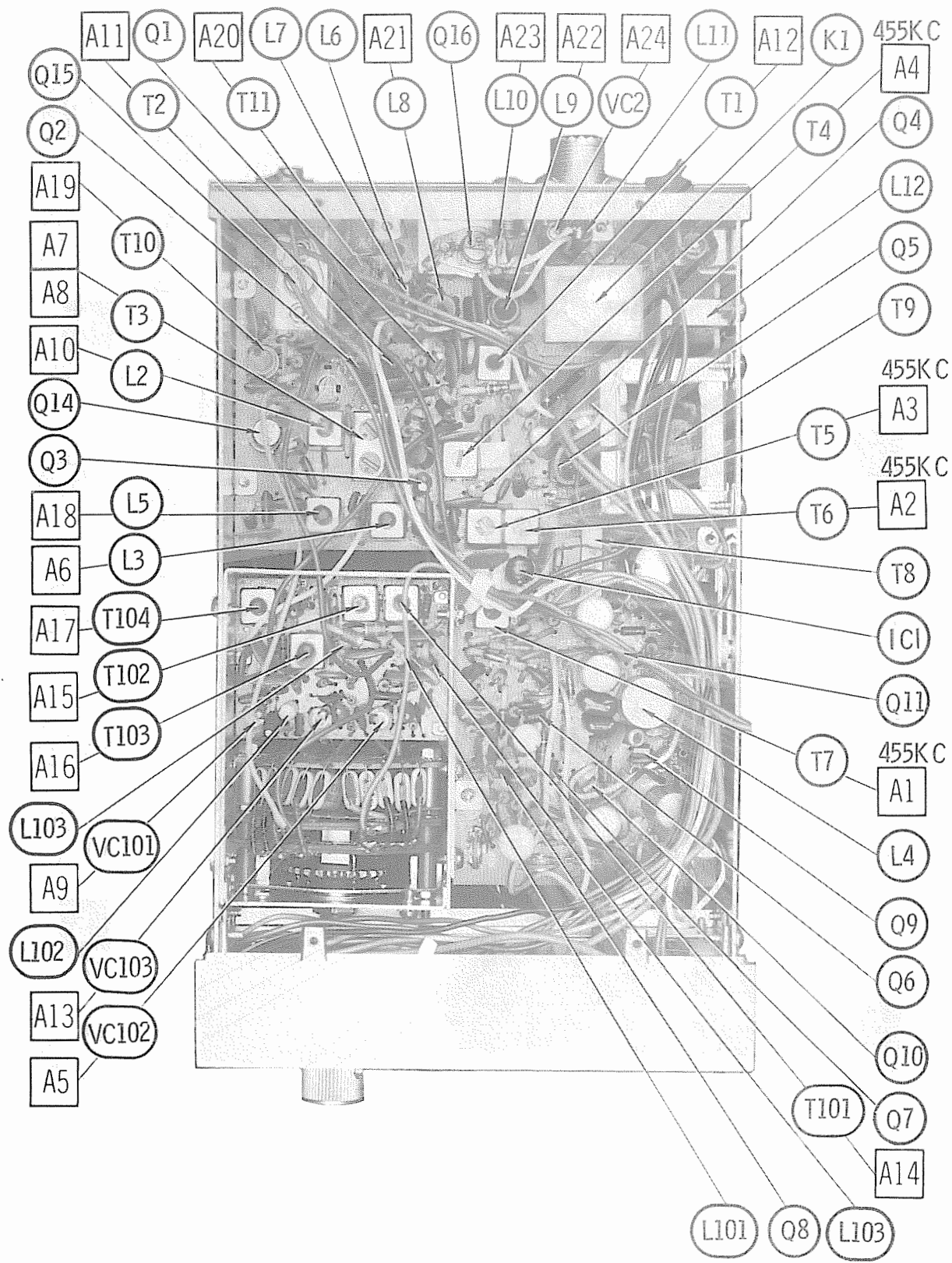
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

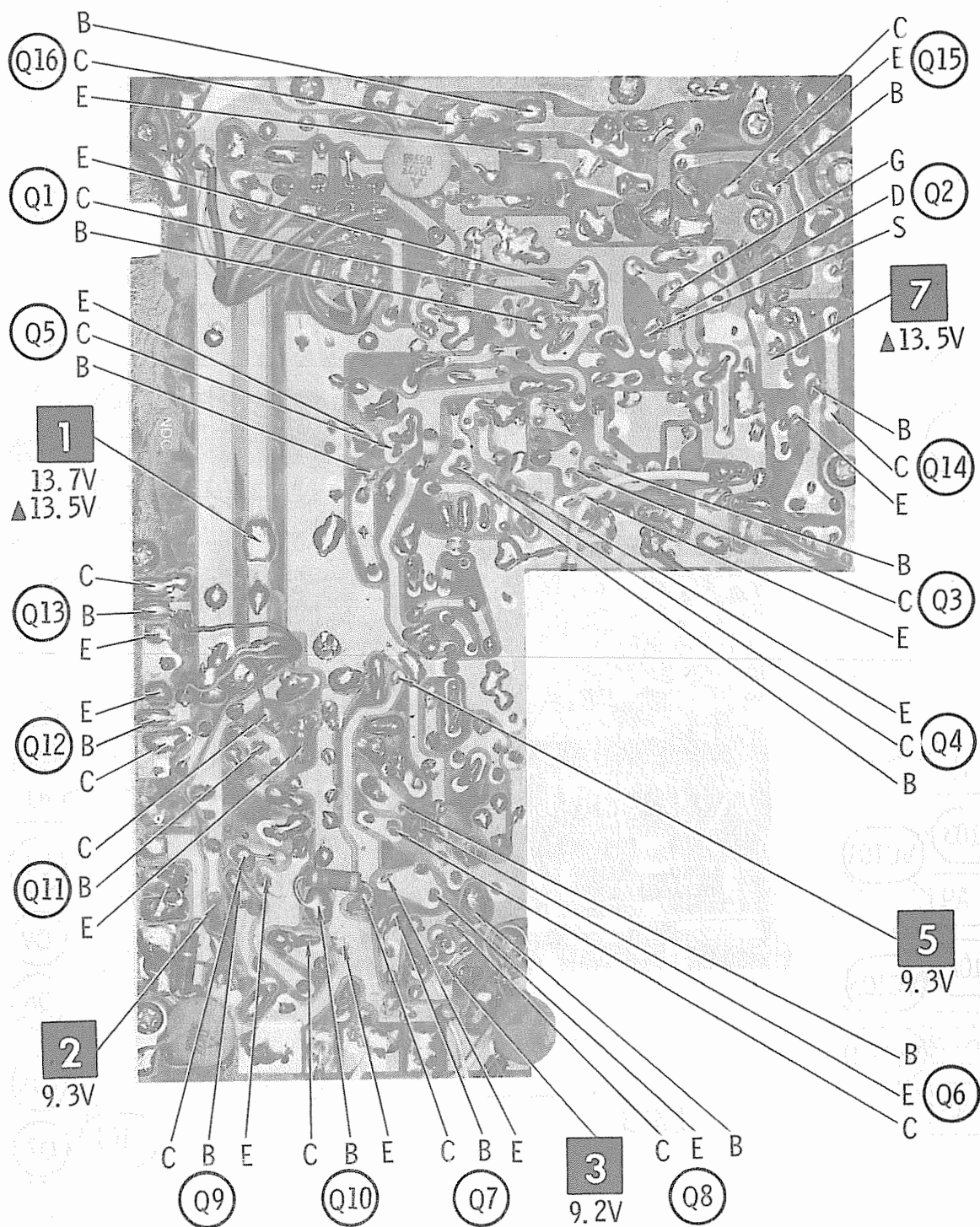
© 1970 Howard W. Sams & Co., Inc. Printed in U. S. of America

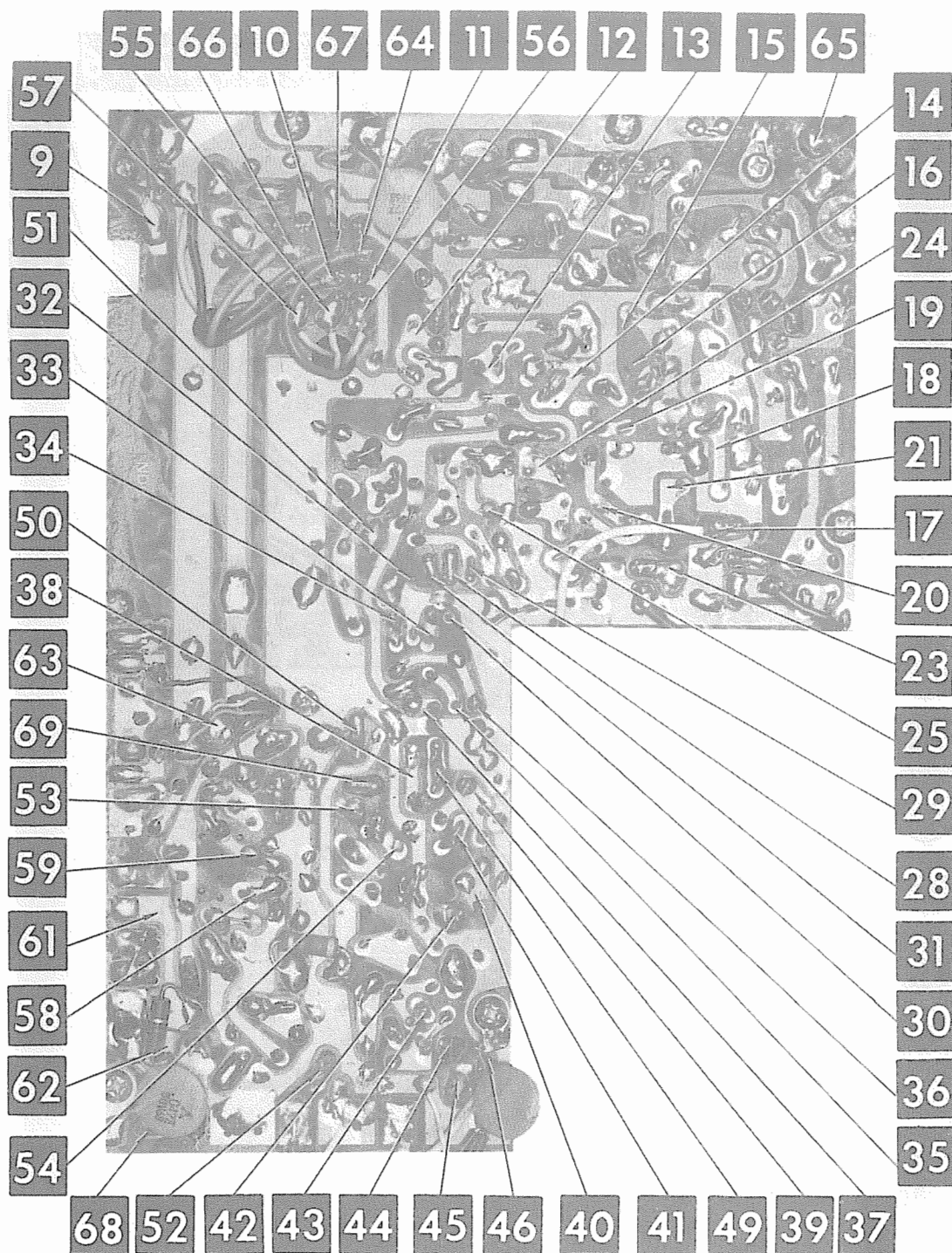
TY714

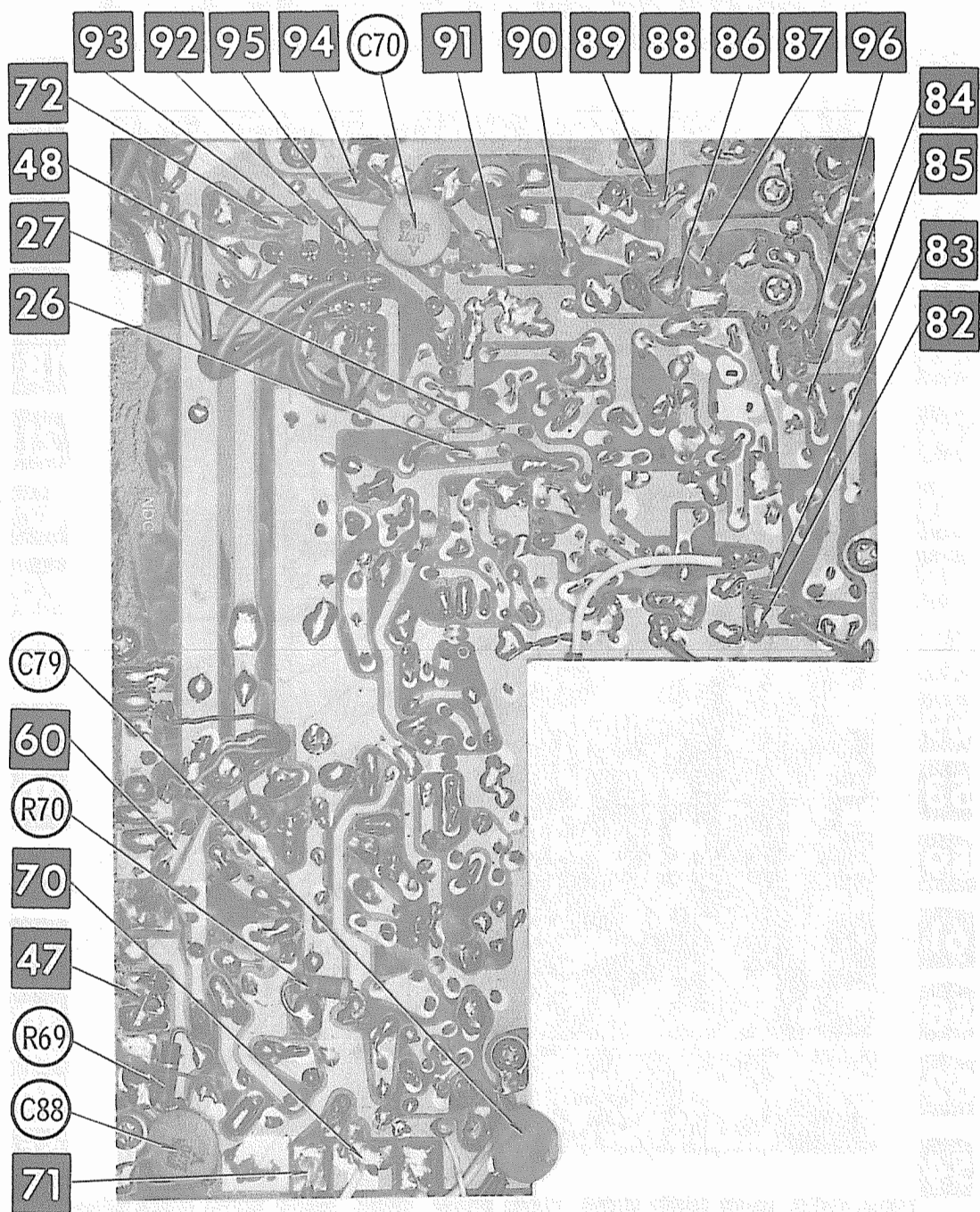
B & K MODEL COBRA 24

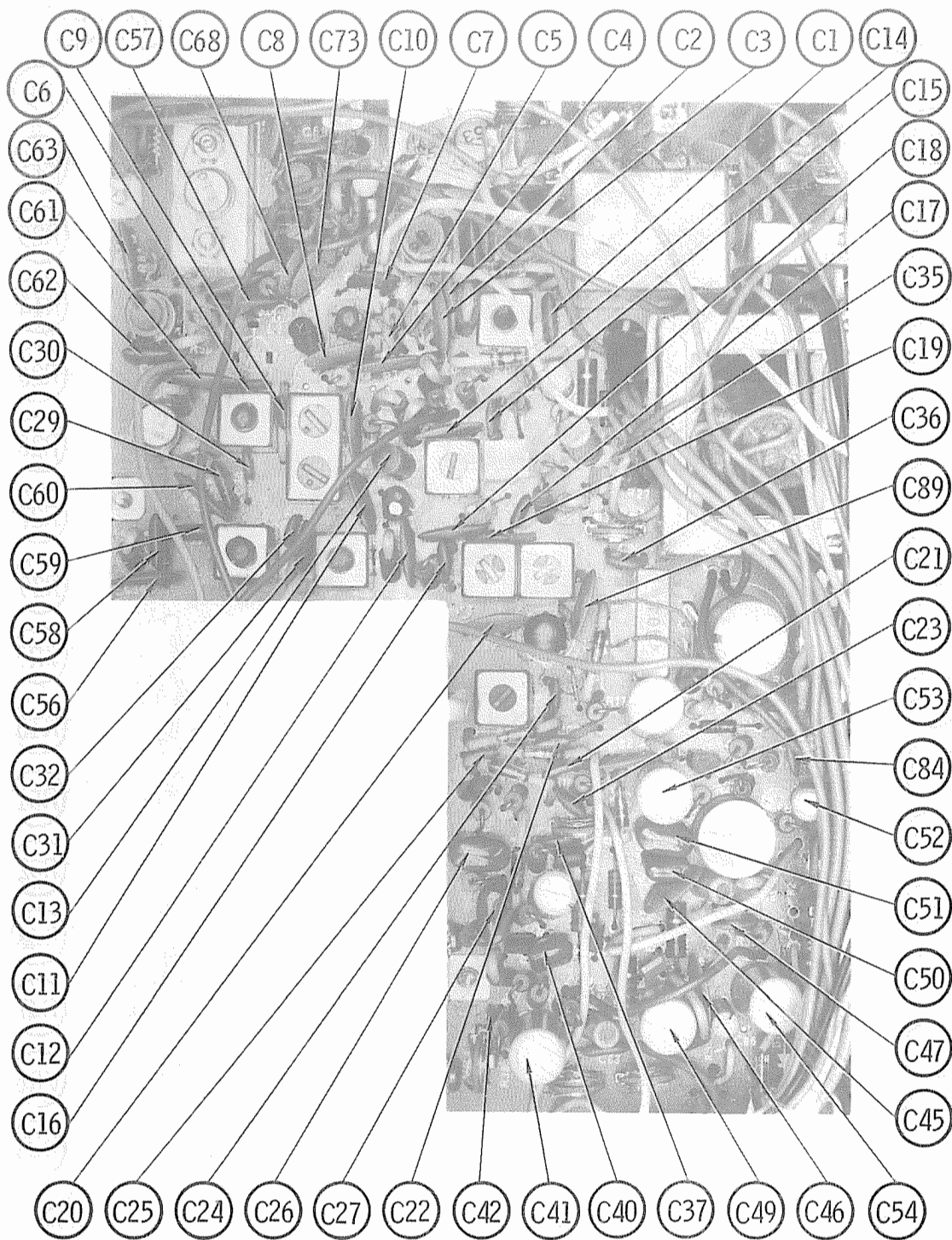


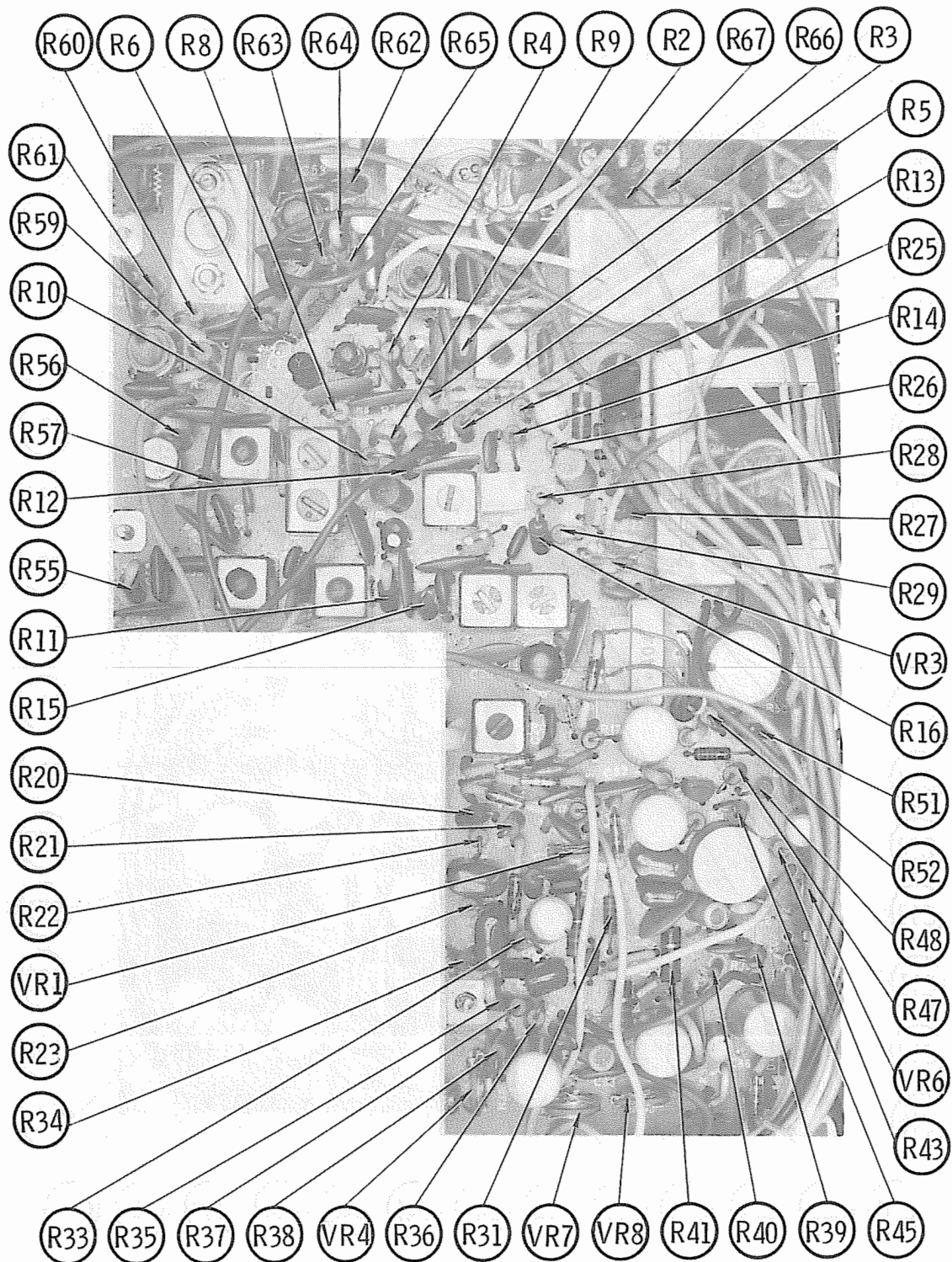


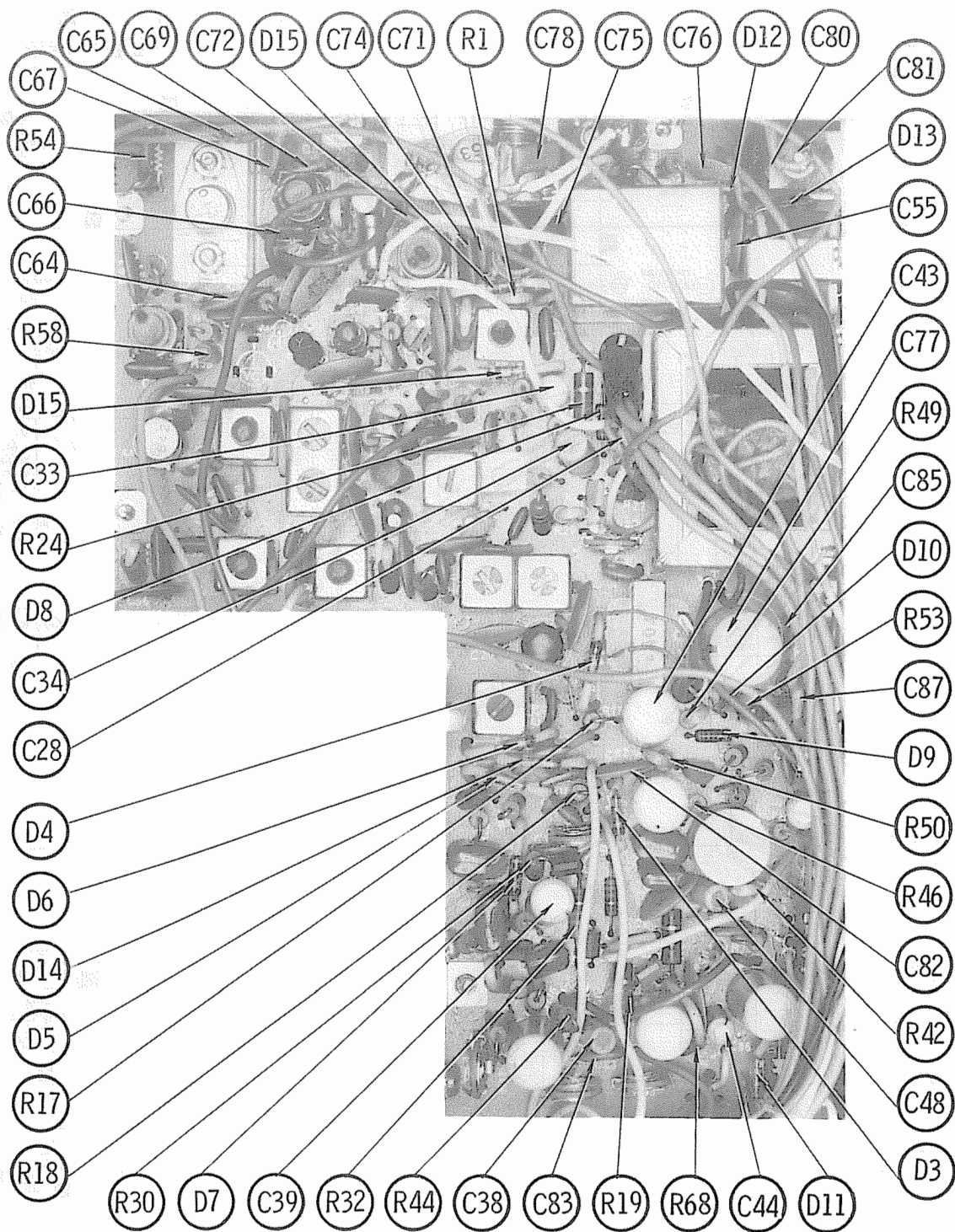


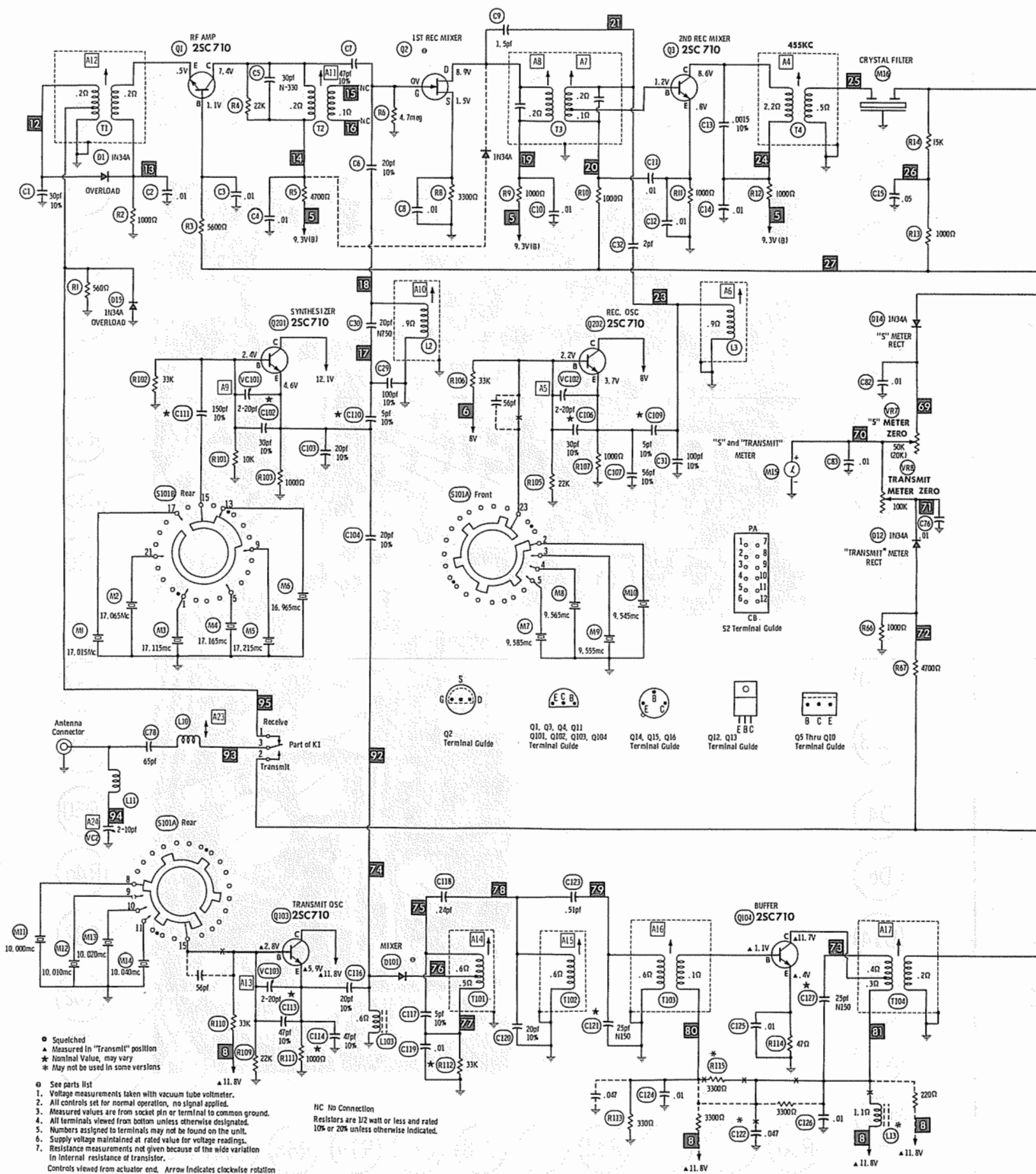


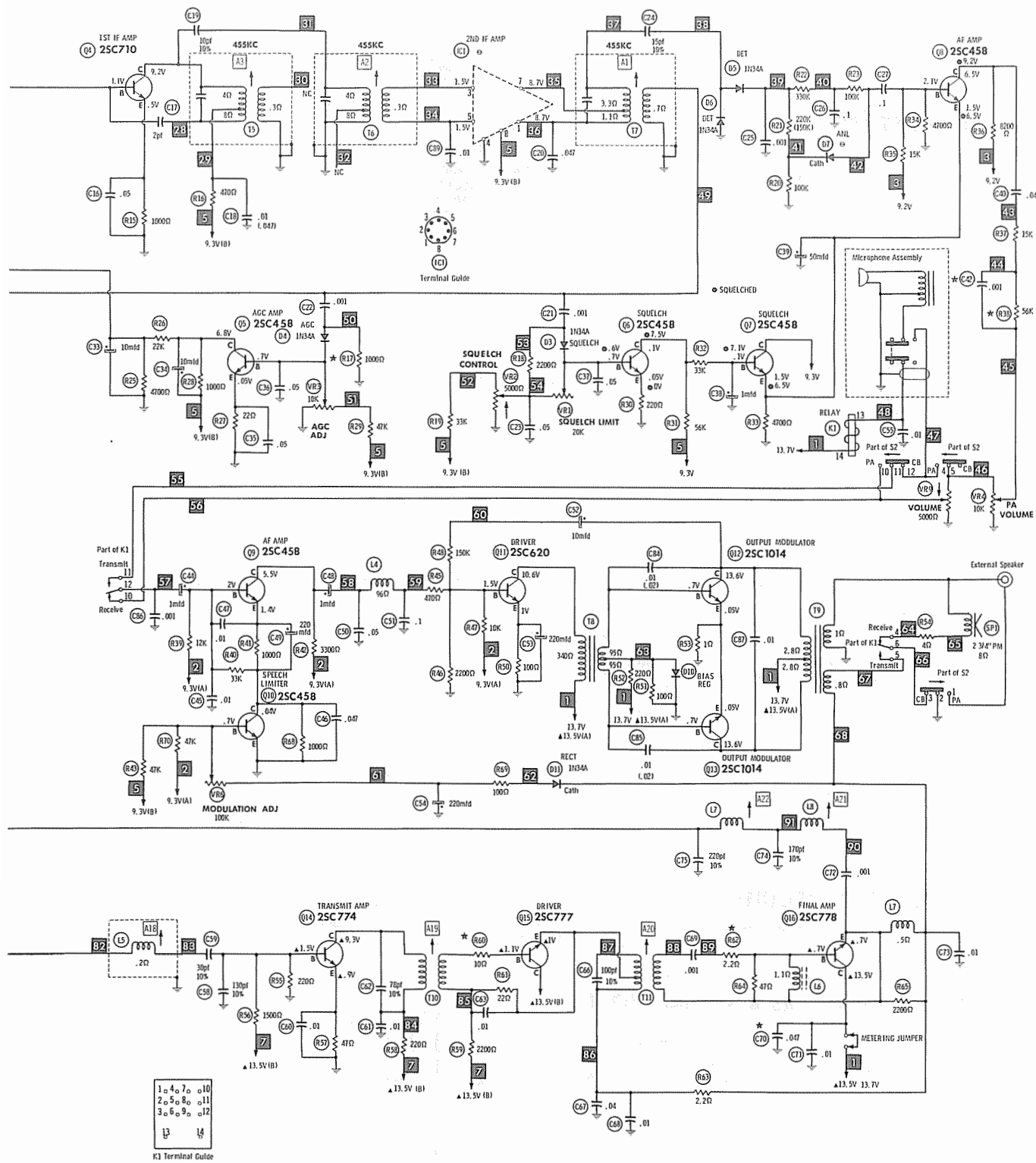












PARTS LIST AND DESCRIPTION

(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
Shielded Antenna Lead	8524 (Stranded) Available in 12 Colors
	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)
	8496 3-Conductor, 1 Shielded, for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TRANSISTORS

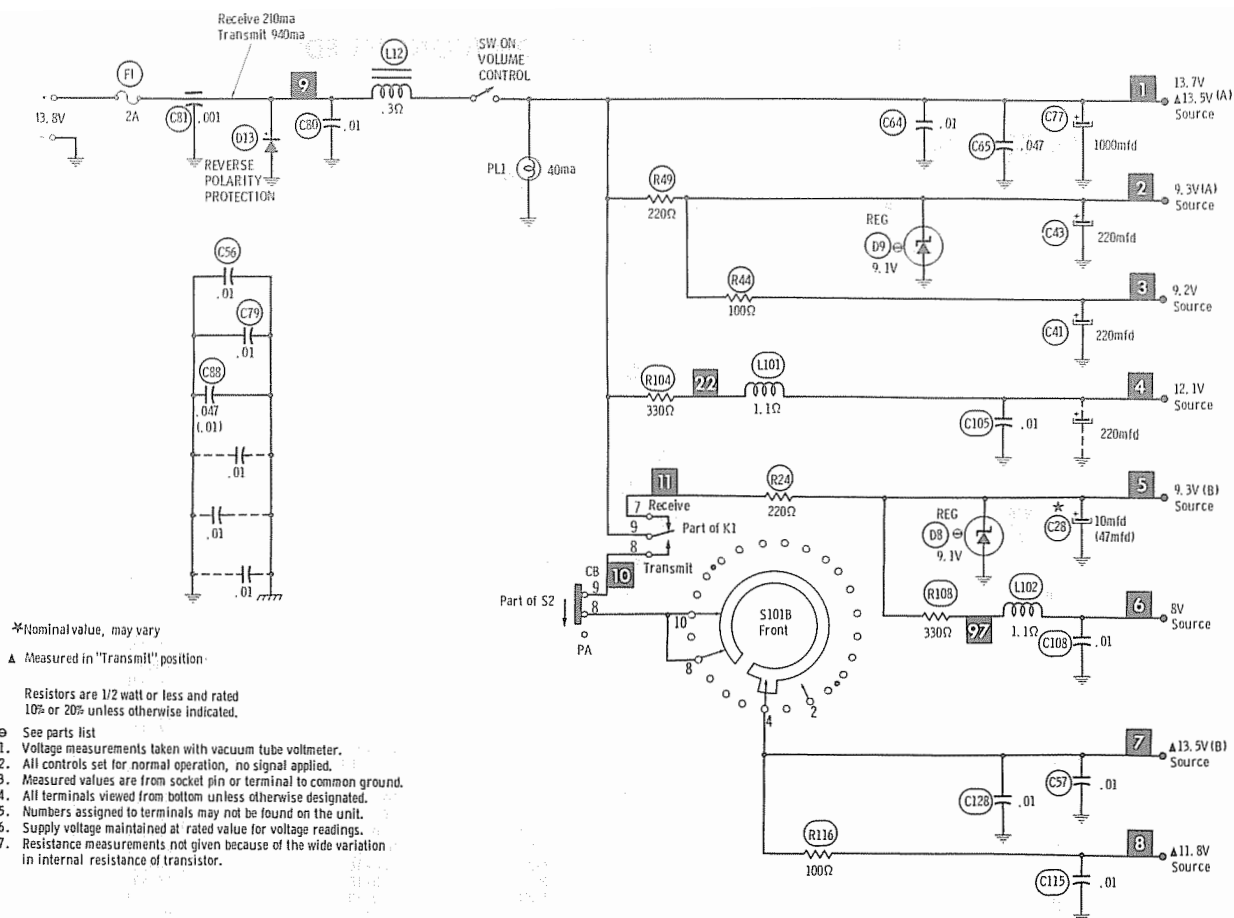
ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFG. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	2SC710 (2SC460)	RF Amp	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q2	2SK119	1st Rec Mixer		GE-FET-1	FE-100	HEP802		ECG 132
Q3	2SC710 (2SC460)	2nd Rec Mixer	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q4	2SC710 (2SC709) (2SC460)	1st IF Amp	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q5	2SC458 (2SC619) (2SD77) (2SD186)	AGC Amp	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q6	2SC458 (2SC619) (2SD77) (2SD186)	Squelch	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q7	2SC458 (2SC619) (2SD77) (2SD186)	Squelch	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q8	2SC458 (2SC619) (2SD77) (2SD186)	AF Amp	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q9	2SC458 (2SC619) (2SD77) (2SD186)	AF Amp	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q10	2SC458 (2SC619) (2SD77) (2SD186)	Speech Limiter	176-016-9-001	GE-10	TR-21	HEP53	SK3020	ECG 123
Q11	2SC620 (2SC458)	Driver	176-017-9-001	GE-18	TR-25	HEP243	SK3020	ECG 128
Q12	2SC1014	Output - Mod.	172-006-9-001			HEP245	SK3041	ECG 152
Q13	2SC1014	Output - Mod.	172-006-9-001			HEP245	SK3041	ECG 152
Q14	2SC774 (2SC163)	Xmtr Amp	176-018-9-001					
Q15	2SC777 (2SC608)	Xmtr Driver	172-007-9-001		TR-25			
Q16	2SC778 (2SC609)	Xmtr Final	172-008-9-001		TR-25			
Q101	2SC710 (2SC460)	Synthesizer Osc.	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q102	2SC710 (2SC455)	Rec. Osc.	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q103	2SC710 (2SC455)	Xmtr Osc.	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108
Q104	2SC710 (2SC460)	Buffer	176-014-9-001	GE-17	TR-22	HEP56	SK3018	ECG 108

INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFG. PART No.	REMARKS
IC1	2nd IF Amp		

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFG. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
D1	1N34A	1N34AS	1N34A	ECG 109		
D3	1N34A	1N34AS	1N34A	ECG 109		
D4	1N34A	1N34AS	1N34A	ECG 109		
D5	1N34A	1N34AS	1N34A	ECG 109		
D6	1N34A	1N34AS	1N34A	ECG 109		
D7	1S848	GE-509	8D10 or 5A10-D	ECG 125	SK3033	
D8	1N960	GEZD-9.1	1ZM9.1-T10	ECG 139		
D9	1N960	GEZD-9.1	1ZM9.1-T10	ECG 139		
D10	MV3					
D11	1N34A	1N34AS	1N34A	ECG 109		
D12	1N34A	1N34AS	1N34A	ECG 109		
D13		GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D14	1N34A	1N34AS	1N34A	ECG 109		
D15	1N34A	1N34AS	1N34A	ECG 109		
D101	1S180	GE-504A	8D4 or 5A4-D	ECG 116 ECG 117	SK3030 or SK3031	Zener Zener



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with **CIRCUITRACE**
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B & K MODEL COBRA 24

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		B & K PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C28	10 16V	022-046-9-001	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C33	10 16V	022-044-9-001	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C34	10 16V	022-044-9-001	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C38	1 16V	022-045-9-001	BCD50003	EP15-2	PC1-100	MT1-1	MTV1CB50	TE-1148
C39	50 15V	022-046-9-001	BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1160
C41	220 16V	022-047-9-001	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C43	220 16V	022-047-9-001	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C44	1 15V	022-045-9-001	BCD50003	EP15-2	PC1-100	MT1-1	MTV1CB50	TE-1148
C48	1 16V	022-045-9-001	BCD50003	EP15-2	PC1-100	MT1-1	MTV1CB50	TE-1148
C49	220 16V	022-047-9-001	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C52	10 16V	022-044-9-001	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C53	220 16V	022-047-9-001	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C54	220 16V	022-047-9-001	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C77	1000 15V	022-048-9-001	PRS1230	EA15-1000	WBR1000-16	QT1-32	TC1501A	TL-1166.5

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	30 10%		TTP-01	TC2-30	MGP01	CCT0-300	TA110	10TCC-Q30
C2	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C3	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C4	.01			CK-103		CCD-103	TA110	TG-S10
C5	30 N330	#020-055-9-001	ADM-10-200	TCA-33	CD15ED220J03	*	*	10TCS-Q30
C6	20 10%		ADM-15-470	CPR-20J	CD15E470J500	DM-10-220	SX420	MS-42
C7	47 10%		TTP-01	CPR-47J	MGP01	DM-15-470J	SX447	424MC47R0J501
C8	.01			CK-103		CCD-103	TA110	TG-S10
C9	1.5	#023-008-9-001						
C10	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C11	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C12	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C13	.0015 10%			DD-152		CCD-152	GP215	10TS-D15

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	.01	#023-009-9-001	TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C15	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C16	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C17	2					DM-10-020		
C18	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C19	10 10%		ADM-10-100		CD15CD100J03	DM-10-100	SX410	MS-41
C20	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C21	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C22	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C23	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C24	15 10%		ADM-10-150			DM-10-180	SX415	MS-415
C25	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C26	.1		TTP-1	CK-104			TA010	TG-P10
C27	.1		TTP-1	CK-104			TA010	TG-P10
C29	100 10%		ADM-10-101	CPR-100J	CD15FD101J03	DM-10-101	SX310	MS-31
C30	30 N750			TCN-30				10TCU-Q30
C31	100 10%		NPO-DI 100	DTZ-100	NPO100	CCT0-101	CN0310	10TCC-T10
C32	2 ±.5pf							
C35	.05	#023-009-9-001	TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C36	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C37	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C40	.04			DD-403			GP140	
C42	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C45	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C46	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C47	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C50	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C51	.1		TTP-1	CK-104			TA010	TG-P10
C55	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C56	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C57	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C58	130 10%		ADM-10-131	CPR-130J		DM-10-131	SX313	MS-313
C59	30 10%		ADM-10-300	CPR-30J	CD15ED330J03	DM-10-300	SX430	MS-43
C60	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C61	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C62	.78		ADM-10-750	CPR-75J	CD15ED750J03	DM-10-750	SX475	MS-475
C63	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C64	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C65	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C66	100 10%		ADM-10-101	CPR-100J	CD15FD101J03	DM-10-101	SX310	MS-31
C67	.04			DD-403			GP140	
C68	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C69	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C70	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C71	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C72	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C73	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C74	170 10%		ADM-10-181	CPR-180J	CD15FD181J03	DM-10-181	SX318	MS-318
C75	220 10%		ADM-10-221	CPR-220J	CD15FD221J03	DM-10-221	SX322	424ME2200J501
C76	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C78	65 10%		ADM-15-680	CPR-68J	CD15E680J500	DM-15-680J	SX468	424MC680J501
C79	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C80	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C81	.001	#033-006-9-001						
C82	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C83	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C84	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C85	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C87	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C88	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C89	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C102	30 10%		ADM-10-300	CPR-30J	CD15ED330J03	DM-10-300	SX430	MS-430
C103	20 10%		ADM-10-200	CPR-20J	CD15ED220J03	DM-10-220	SX420	MS-42
C104	20 10%		ADM-10-200	CPR-20J	CD15ED220J03	DM-10-220	SX420	MS-42
C105	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C106	30 10%		ADM-10-300	CPR-30J	CD15ED330J03	DM-10-300	SX430	MS-43
C107	56 10%		ADM-15-560	CPR-56J	CD15E560J500	DM-15-560J	SX456	424MC560J501
C108	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C109	5 10%				CD15CD050D03	DM-10-050	SX550	MS-55
C110	5 10%				CD15CD050D03	DM-10-050	SX550	MS-55
C111	150 10%		ADM-15-151	CPR-150J	CD15F151J500	DM-15-151J	SX315	424MC1500J501
C113	47 10%		ADM-15-470	CPR-47J	CD15E470J500	DM-15-470J	SX447	424MC470J501
C114	47 10%		ADM-15-470	CPR-47J	CD15E470J500	DM-15-470J	SX447	424MC470J501
C115	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C116	20 10%		ADM-10-200	CPR-20J	CD15ED220J03	DM-10-220	SX420	MS-42
C117	5 10%				CD15CD050D03	DM-10-050	SX550	MS-55
C11	.24pf 10%	#020-061-9-001						
C119	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C120	20 10%		ADM-10-200	CPR-20J	CD15ED220J03	DM-10-220	SX420	MS-42
C121	25 N150					*	*	10TCP-Q25
C122	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C123	.51pf 10%							
C124	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C125	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C126	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C127	25 N150					*	*	10TCP-Q25
C128	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
VC2	2-10pf							
VC101	2-20pf							
VC102	2-20pf							
VC103	2-20pf							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

B & K Part Number.

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	RESIST-ANCE	REPLACEMENT DATA				
			MFRG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
VR1	Squelch Limit	20K	008-114-9-001	T-20K		X201R253B	MTC24L1
VR2	Squelch	5000	008-112-9-001				
VR3	AGC Adjust	10K	008-115-9-001	T-10K		X201R103B	MTC14L1
VR4	"PA" Volume	10K	008-115-9-001	T-10K		X201R103B	MTC14L1
VR6	Modulation Adjust	100K	008-116-9-001	T-100K		X201R104B	MTC15L1
VR7	"S" Meter Adjust	50K		T-50K		X201R503B	MTC54L1
	"S" Meter Adjust	20K	008-114-9-001 (1)	T-20K		X201R253B	MTC24L1
VR8	Transmit Zero, Adjust	100K	008-116-9-001	T-100K		X201R103B	MTC15L1
VR9	Volume/Switch	5000	008-113-9-001				

(1) May be used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L2	Synthesizer	046-004-9-001			
L3	Rec. Osc.	046-005-9-001			
L5	Harmonic Suppressor	046-006-9-001			
L6	RF Choke (33uh)	041-039-9-001		74F335AI	
L7	RF Choke (2.2uh)	041-040-9-001		74F226AP	T812
L8	Antenna Matching	044-019-9-001			
L9	Antenna Tuning	044-020-9-001			
L10	Antenna Matching	044-021-9-001			
L11	TVI Trap (1uh)	041-001-9-005	19-2009	4602	T806
L101	RF Choke (33uh)	041-039-9-001		74F335AI	
L102	RF Choke (33uh)	041-039-9-001		74F335AI	
L103	RF Choke (23uh)	041-041-9-001	19-2019	4626	T863
L104	RF Choke (33uh)	041-039-9-001		74F335AI	
T1	Antenna Matching	066-006-9-001			
T2	RF Output	066-007-9-001			
T3	1st Receive Mixer	060-004-9-001			
T4	Input IF	060-005-9-001	16-9026 (1)	2066 (1)	
T5	Interstage IF	060-006-9-001	16-9027	2067	
T6	Interstage IF	060-007-9-001	16-9027	2067	
T7	Output IF	060-008-9-001	16-9028	2068	
T10	RF Interstage	066-008-9-001			
T11	Driver	066-009-9-001			
T101	Xmtr Mixer				
T102	Harmonic Suppressor				
T103	Buffer				
T104	RF Interstage				

(1) Remove C13

FILTER

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
L4		96	140mh	042-007-9-001				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
L12	940ma	.3	2.2mh	042-008-9-001				

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T8	1.4	1 CT		061-014-9-001					

B & K MODEL COBRA 24

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. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T9	32	8	061-015-9-001					
		SEC. 2						
		.8 DC Resistance						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	2 3/4" PM 8 ohms	580-004-9-001		

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	3AG 2A	191-251-3-002	742-009-9-001	AGC2	HDJ	312002	155020	

MISCELLANEOUS

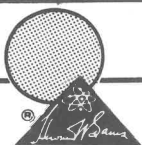
ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	441-005-9-001	
M1	Crystal	132-003-9-006	17.015MC (Channels 5,6,7,8)
M2	Crystal	132-003-9-007	17.065MC (Channels 9,10,11,12)
M3	Crystal	132-003-9-008	17.115MC (Channels 13,14,15,16)
M4	Crystal	132-003-9-009	17.165MC (Channels 17,18,19,20)
M5	Crystal	132-003-9-010	17.215MC (Channels 21, 22, 23)
M6	Crystal	132-003-9-005	16.965MC (Channels 1,2,3,4)
M7	Crystal	132-003-9-004	9.585MC (Channels 4,8,12,16,20,23)
M8	Crystal	132-003-9-003	9.565MC (Channels 3,7,11,15,19)
M9	Crystal	132-003-9-002	9.555MC (Channels 2,6,10,14,18,22)
M10	Channel	132-003-9-001	9.545MC (Channels 1,5,9,13,17,21)
M11	Crystal	132-003-9-011	10.000MC (Channels 1,5,9,13,17,21)
M12	Crystal	132-003-9-012	10.010MC (Channels 2,6,10,14,18,22)
M13	Crystal	132-003-9-013	10.020MC (Channels 3,7,11,15,19)
M14	Crystal	132-003-9-014	10.040MC (Channels 4,8,12,16,20,23)
M15	Meter (200ma)	320-024-9-001	
M16	Filter, Ceramic	140-005-9-001	
S2	Switch, CB-PA	084-020-9-001	
S101	Switch, Selector	083-084-9-001	

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

ITEM	PART No.	ITEM	PART No.
Knob, Volume & Squelch	751-062-9-001	Knob, Selector	751-063-9-001

ACCESSORIES

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



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.



CITI-FONE MODEL 19

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1,A2,A3,A5,A6.....GENERAL CEMENT #8276,8277,8290.....WALSCO #2512, 2515, 2525
 A4,A10 thru A14.....GENERAL CEMENT #8868, 9089.....WALSCO #2541, 2587
 A7, A8, A9.....GENERAL CEMENT #8606L, 9440WALSCO #2501, 2544

CITI-FONE MODEL 19

RECEIVER

Connect an AC VTVM across speaker terminals. Adjust Volume to obtain suitable reading. Squelch Control fully counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to Base of Q4 (2nd Rec Mix.), low side to chassis. Tune to 455KC (Mod.).	Any	A1,A2, A3	Adjust for maximum.
High side thru .01mfd to Antenna Connector, low side to chassis. Tune to 27.085MC (Mod.). (Ch. 11).	11	A4 thru A9	"

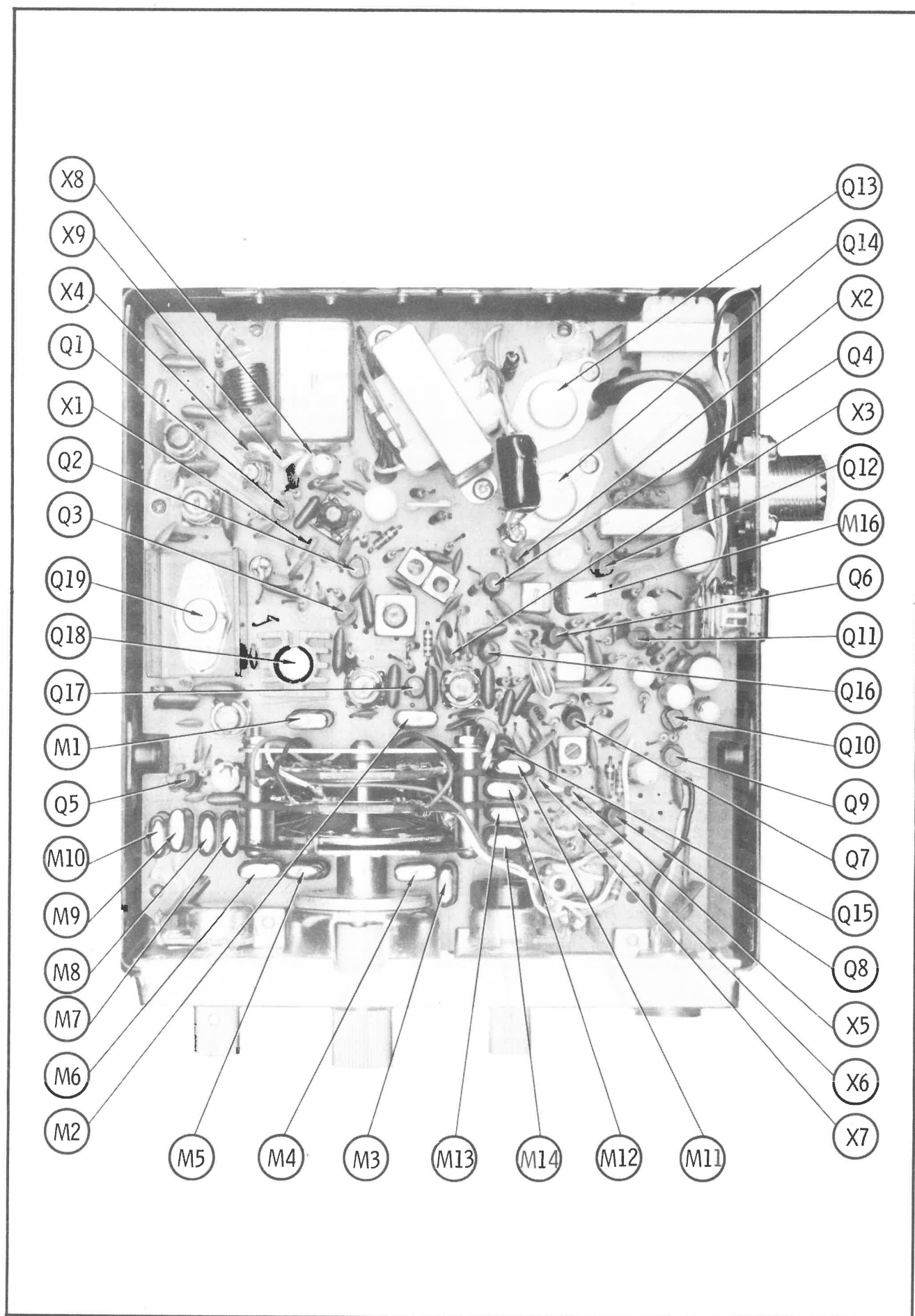
TRANSMITTER

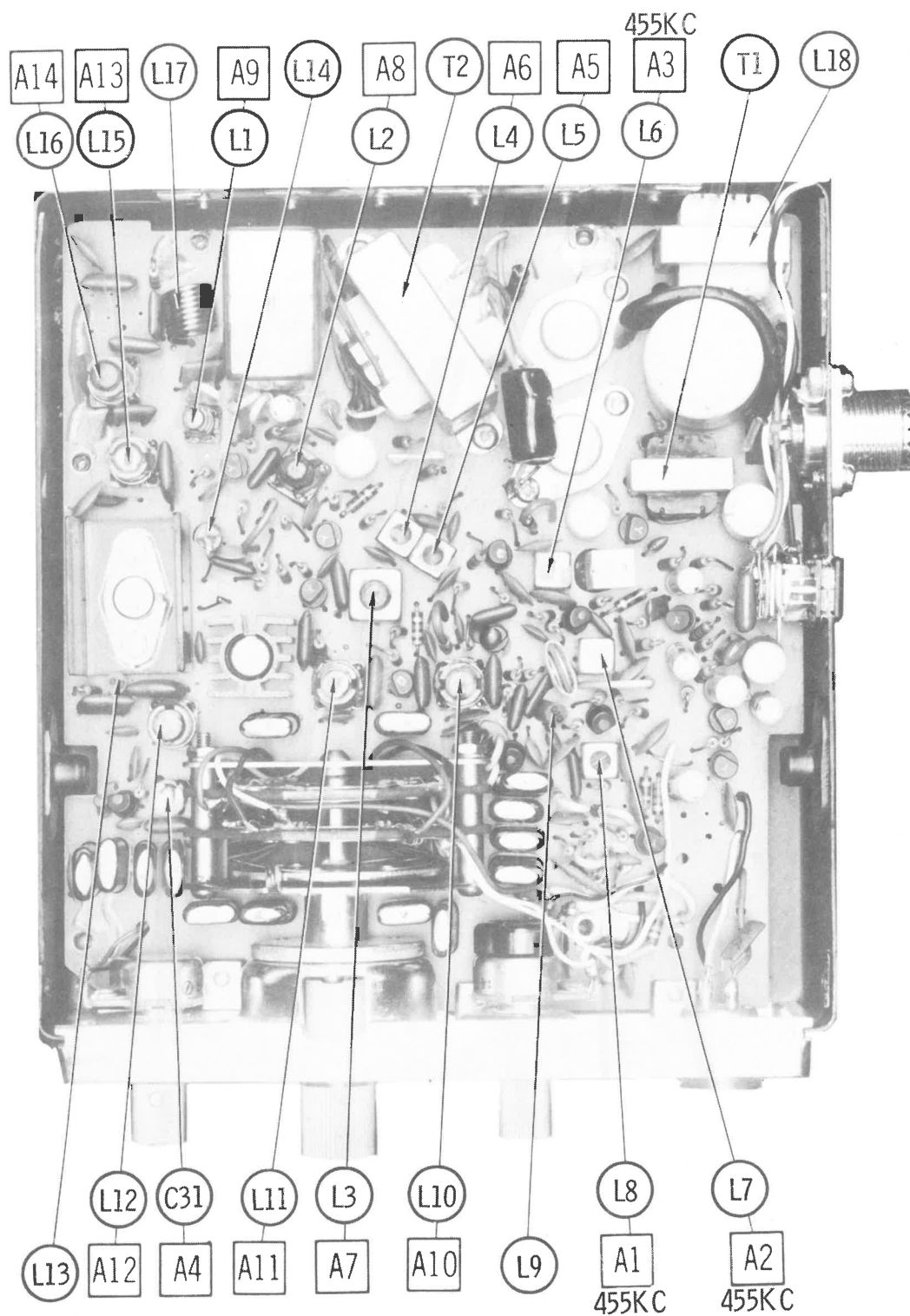
INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength Meter and a 0-500ma current meter.	A10 thru A14	Connect 0-500ma meter to Q19 Collector Circuit at point $\diamond$. Adjust for maximum. Meter current should not exceed 470ma.

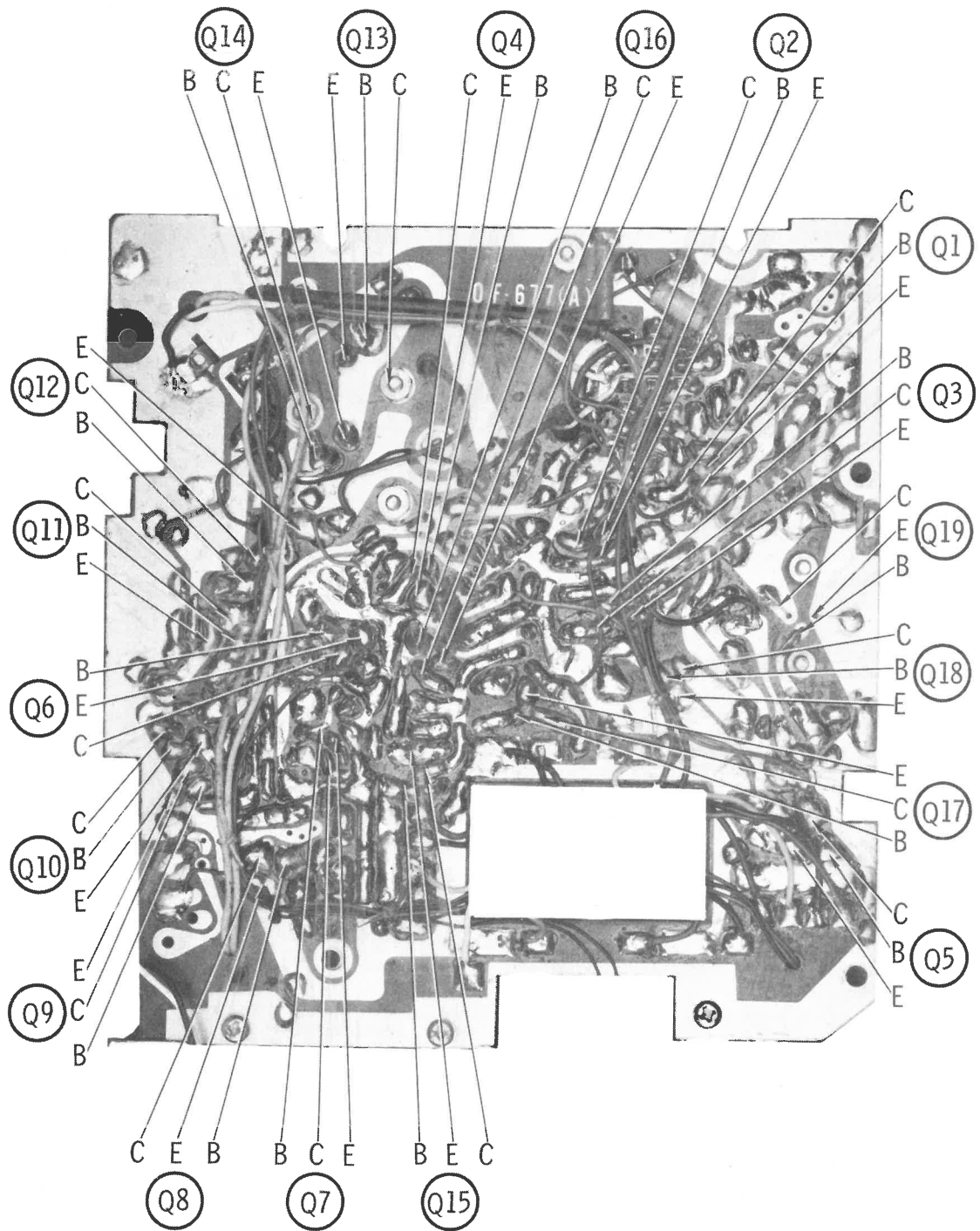
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

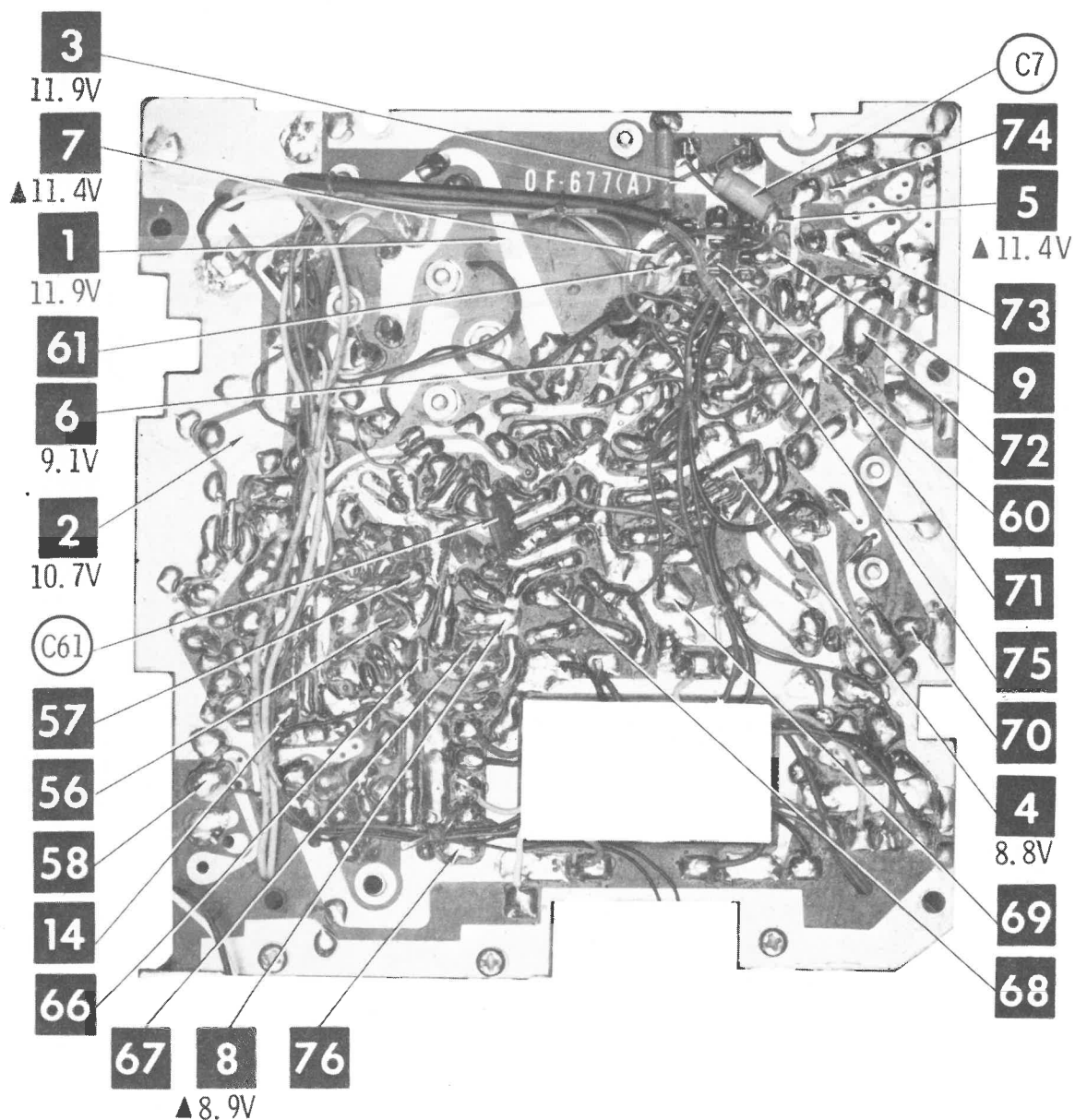
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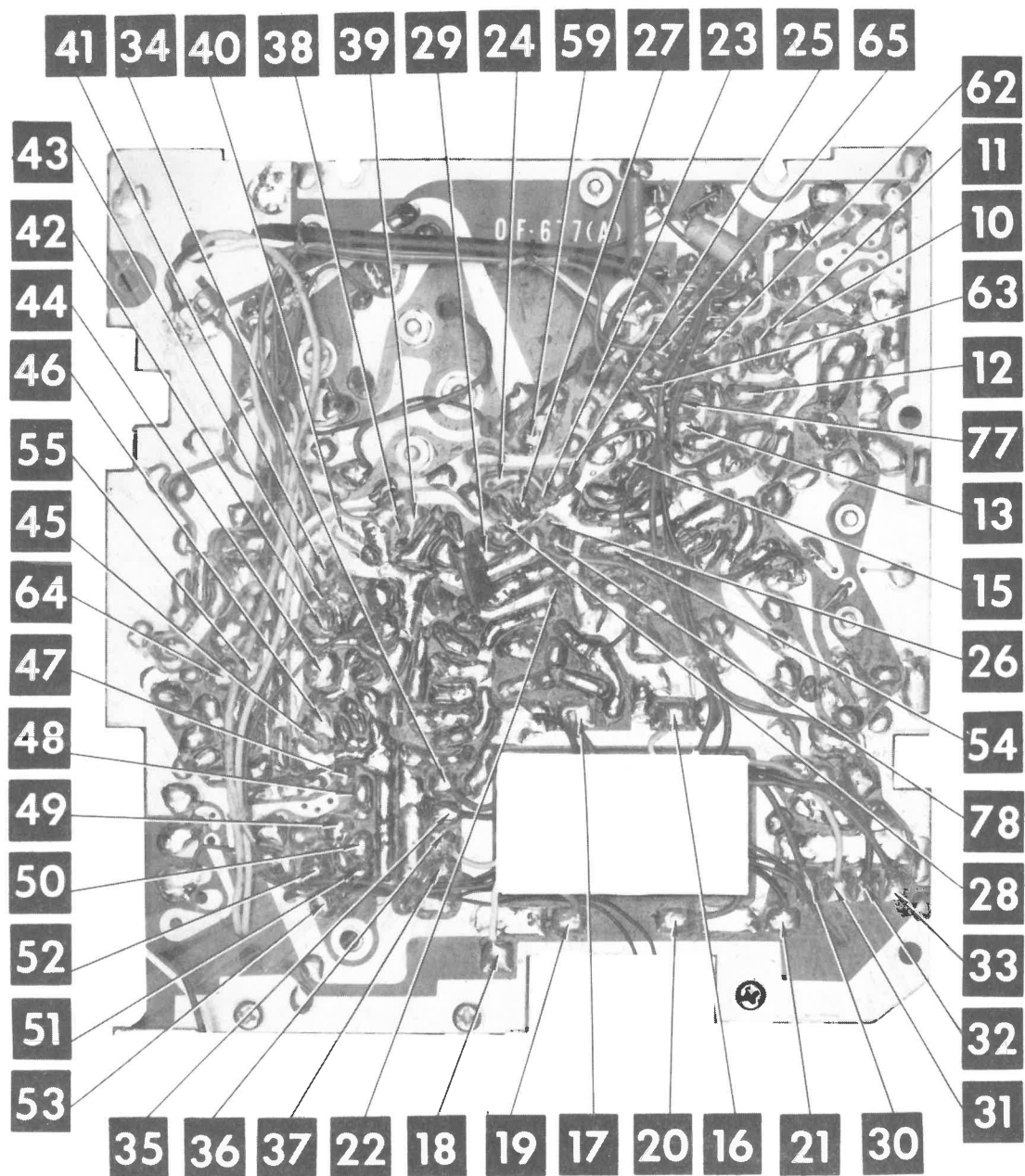
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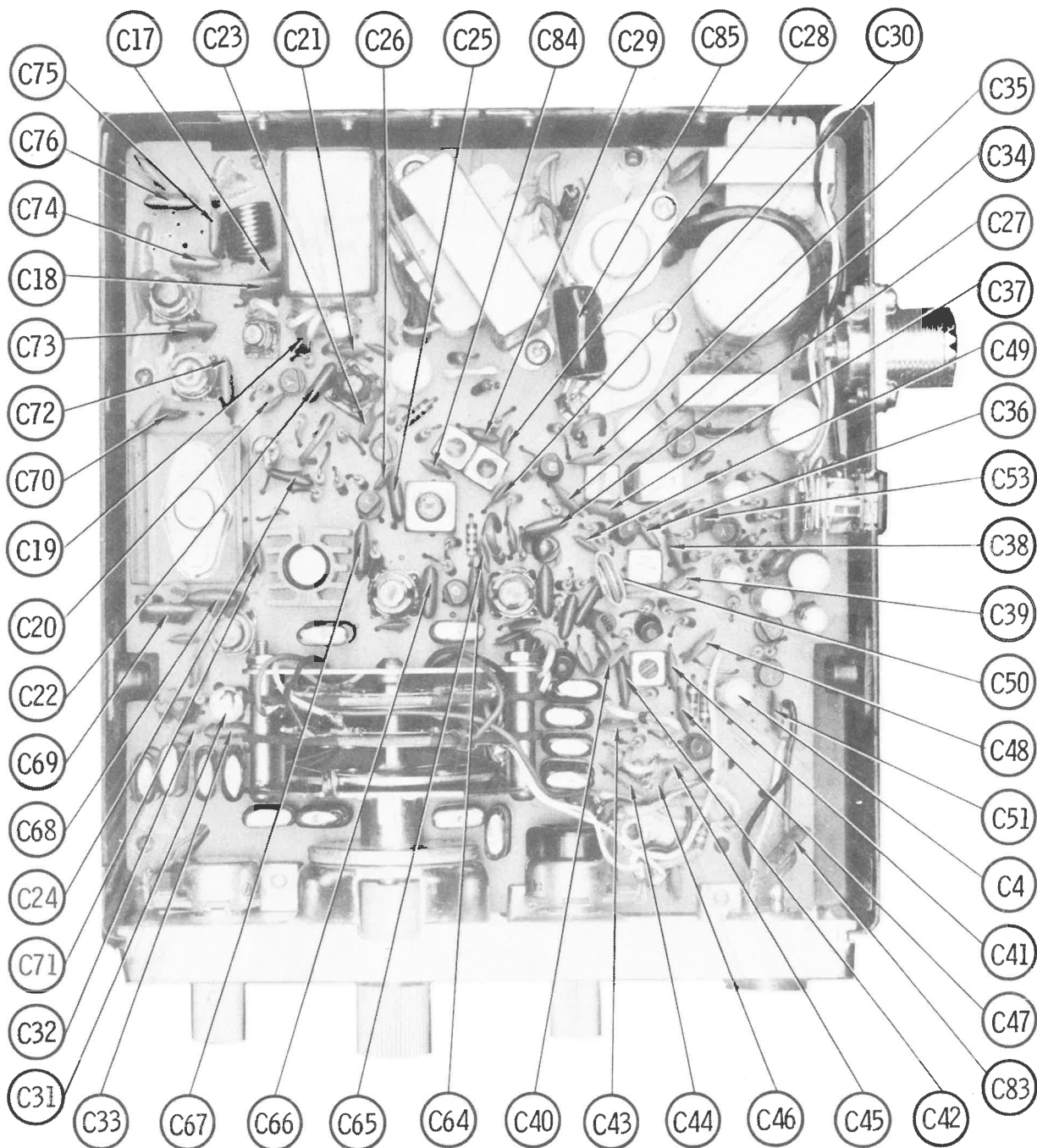




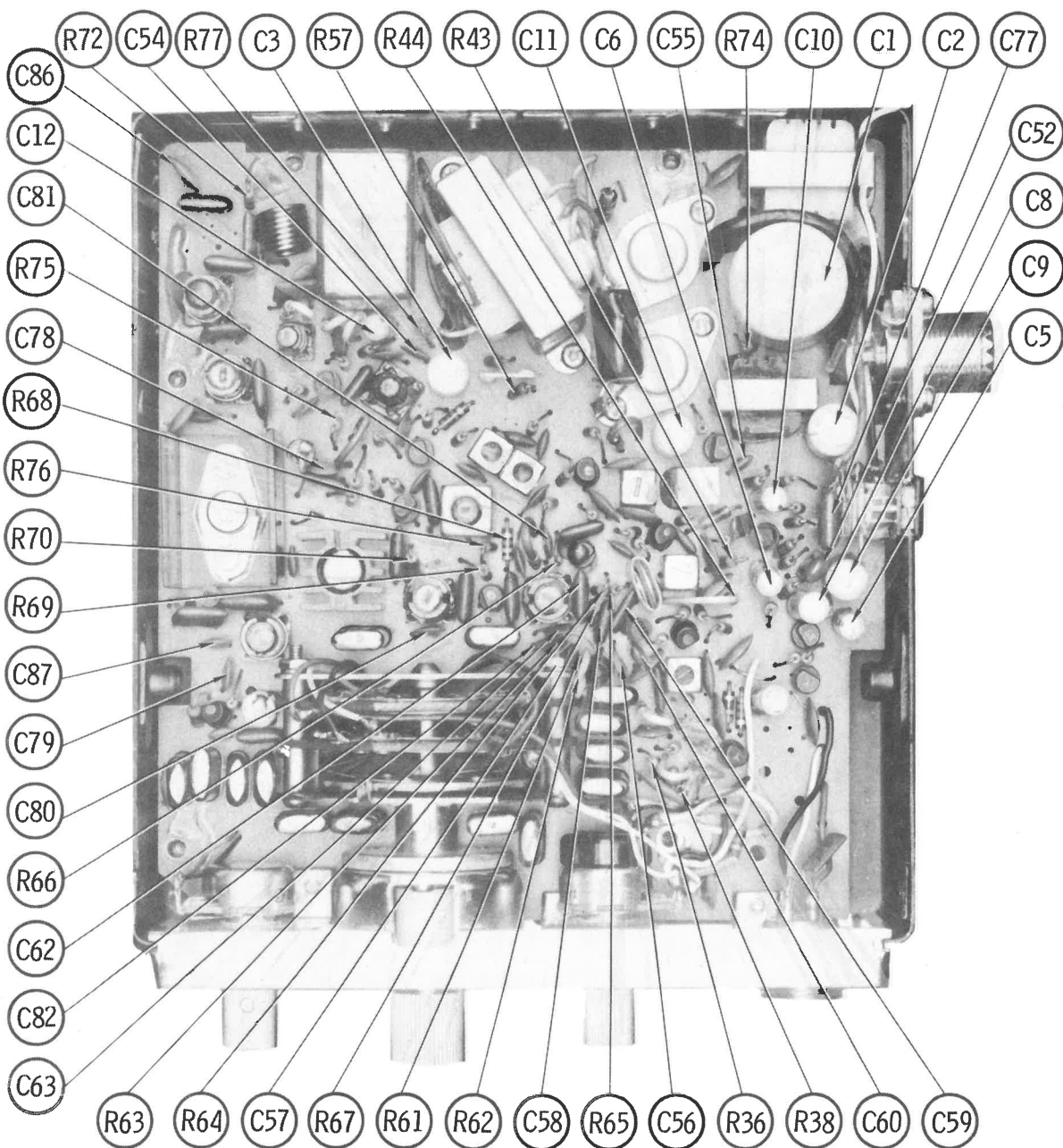






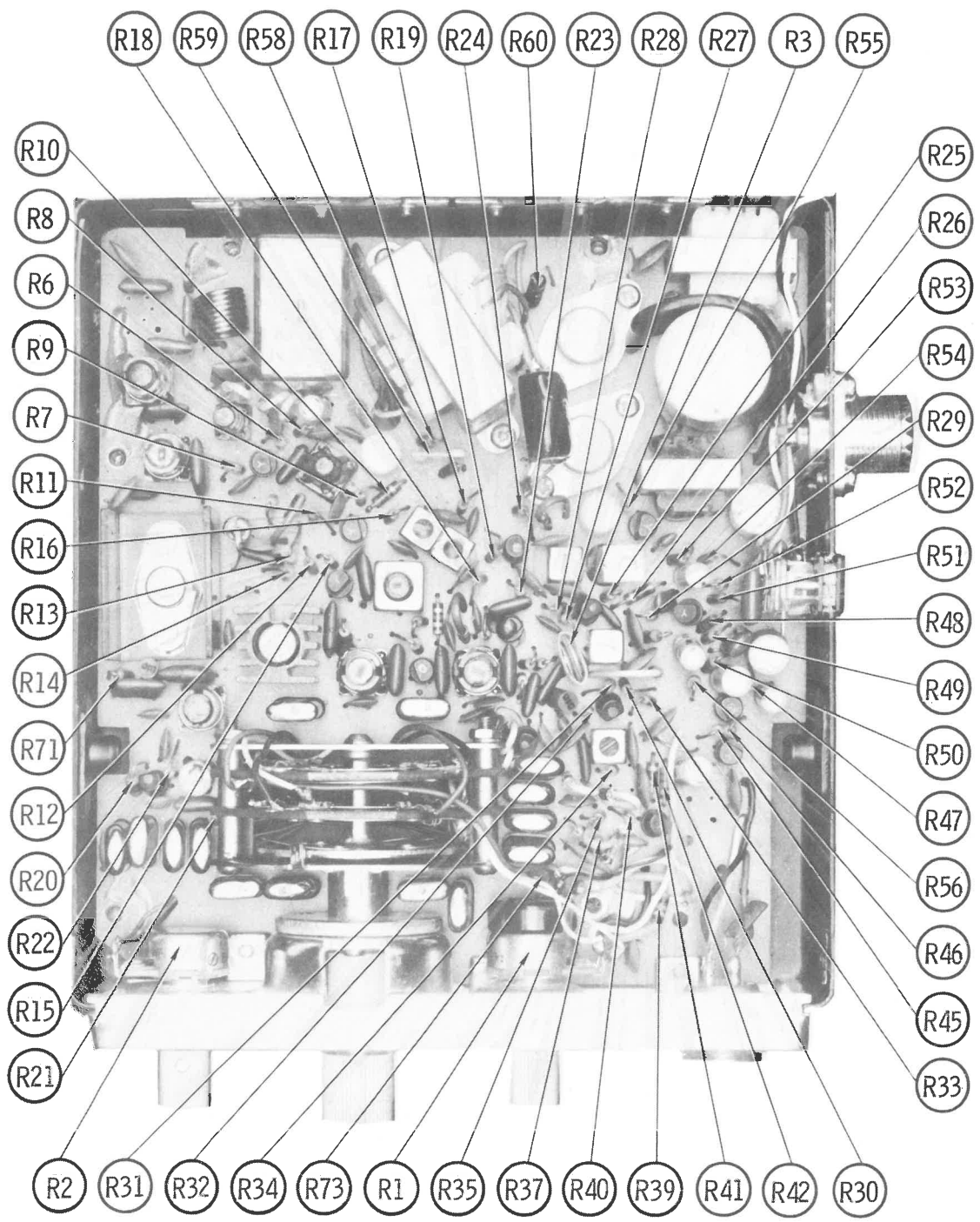


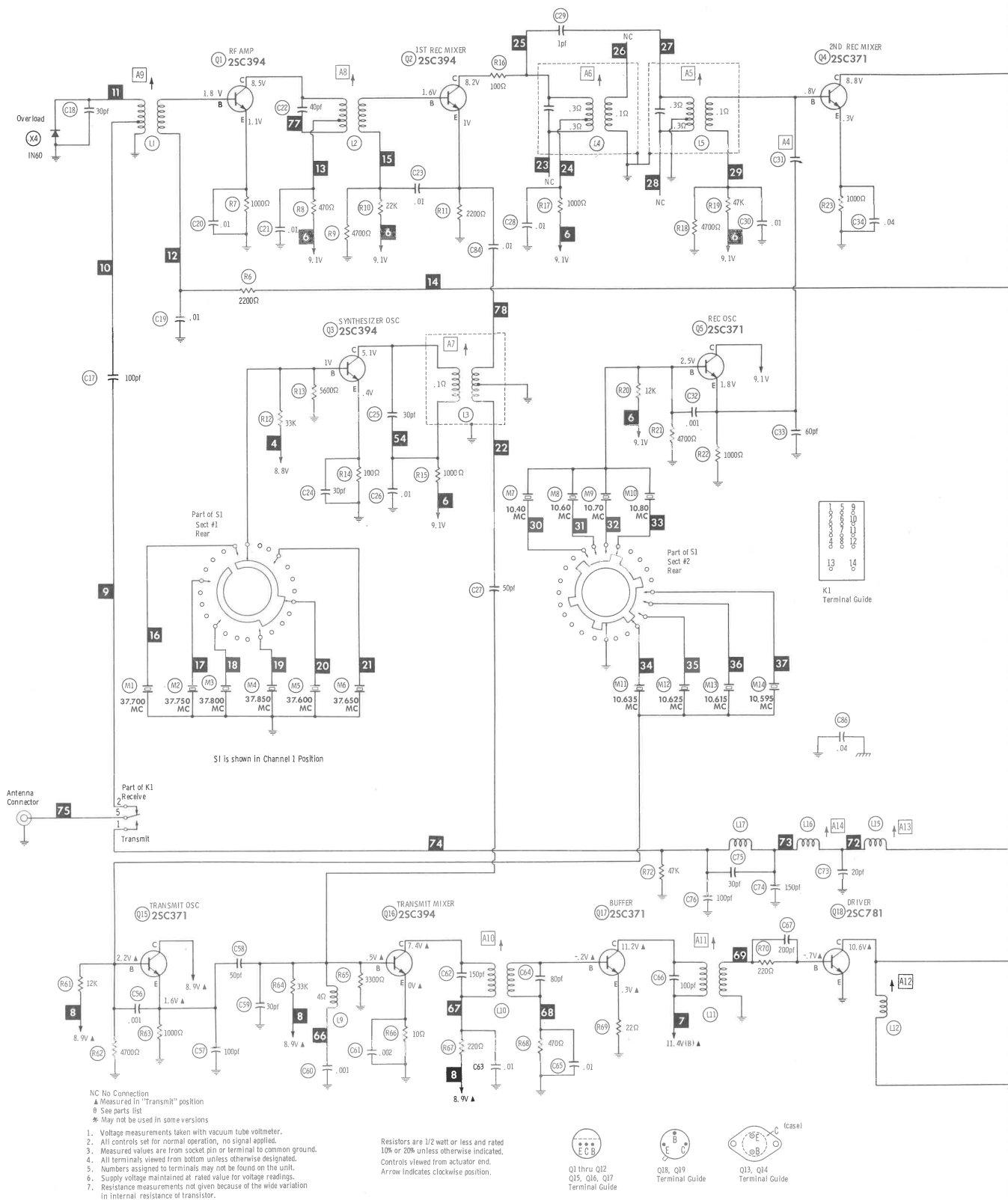
CITI-FONE MODEL 19





CITI-FONE MODEL 19





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)
	8496 3-Conductor, 1 Shielded, for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
X1	2SC394	RF Amp		GE-17	TR-22	HEP53	SK3018	ECG 108
Q2	2SC394	1st Rec. Mixer		GE-17	TR-22	HEP53	SK3018	ECG 108
Q3	2SC394	Synthesizer Osc		GE-17	TR-22	HEP53	SK3018	ECG 108
Q4	2SC371	2nd Rec. Mixer		GE-17	TR-22	HEP50	SK3018	ECG 108
Q5	2SC371	Rec. Osc.		GE-17	TR-22	HEP50	SK3018	ECG 108
Q6	2SC371	1st IF Amp		GE-17	TR-22	HEP50	SK3018	ECG 108
Q7	2SC371	2nd IF Amp		GE-17	TR-22	HEP50	SK3018	ECG 108
Q8	2SC372	AGC Amp		GE-20	TR-21	HEP55	SK3018	ECG 108
Q9	2SC372	Squelch		GE-20	TR-21	HEP55	SK3018	ECG 108
Q10	2SA495	Squelch		GE-21	TR-19	HEP52	SK3025	ECG 129
Q11	2SC372	AF Amp		GE-20	TR-21	HEP55	SK3018	ECG 108
Q12	2SC735	Driver		GE-10	TR-21	HEP53	SK3020	ECG 123A
Q13	2SB463	Output - Modulator						ECG 131
Q14	2SB463	Output - Modulator						ECG 131
Q15	2SC371	Xmtr Osc.		GE-17	TR-22	HEP50	SK3018	ECG 108
Q16	2SC394	Xmtr Mixer		GE-17	TR-22	HEP53	SK3018	ECG 108
Q17	2SC371	Xmtr Buffer		GE-17	TR-22	HEP50	SK3018	ECG 108
Q18	2SC781	Xmtr Driver						
Q19	2SC799	Xmtr Final						

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	1N960B	GEZD-9.1	1ZM9.1	ECG 139		Zener
X2	1N960B	GEZD-9.1	1ZM9.1	ECG 139		Zener
X3	1N960B	GEZD-9.1	1ZM9.1	ECG 139		Zener
X4	1N60	1N60	1N60	ECG 109		
X6	1N60	1N60	1N60	ECG 109		
X7		1N34AS	1N34A	ECG 109		
X8	1N60	1N60	1N60	ECG 109		
X9	1N60	1N60	1N60	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		CITI-FONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000 25V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C2	200 15V		BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1133
C3	47 10V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C4	10 16V		BCD25005	EP15-5	PC100-5	MT1-3	MTV5CB50	TE-1152
C5	4.7 16V		BCD50003	EP15-5	PC5-100	MT1-3	MTV3CB50	TE-1150
C6	3.3 16V		BCD50001	EP15-2	PC1-100	MT1-1	MTV1CB50	TE-1148
C7	1 16V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C8	10 16V		BCD25035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1159
C9	33 16V		BCD50003	EP15-5	PC5-100	MT1-3	MTV3CB50	TE-1150
C10	3.3 16V		BCD25035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1159
C11	33 16V		BCD50003	EP15-5	PC5-100	MT1-3	MTV3CB50	TE-1150
C12	3.3 16V							

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C17	100		GPD X5F101K	DM-101	JBZ601YP101K	CCD-101	GP310	10TS-T10
C18	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C19	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C20	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C21	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C22	40		ADM-15-390	CPR-39J	CD15E390J500	DM-15-390J	SX439	MS-439
C23	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C24	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C25	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C26	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C27	50		ADM-15-500		CD10E500J500	DM-15-500J		MS-45
C28	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C29	1		NPO-DI 1.0	TCZ-1			CNO510	10TCC-V10
C30	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C31								
C32	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C33	60		ADM-15-62	CPR-62J	CD15E620J500	DM-15-620J	SX462	424MC62RQJ501
C34	.04			DD-403			GP140	
C35	.04			DD-403			GP140	
C36	2		NPO-DI 2.2	DTZ-2R2	NPO2P2		CNO522	10TCC-V22
C37	.04			DD-403			GP140	
C38	.04			DD-403			GP140	
C39	.04			DD-403			GP140	
C40	.04			DD-403			GP140	
C41	.04			DD-403			GP140	
C42	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C43	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C44	.1		TTP-1	CK-104			TA010	TG-P10
C45	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C46	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C47	.04			DD-403			GP140	
C48	.04			DD-403			GP140	
C49	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C50	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C51	.04			DD-403			GP140	
C52	.02		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C53	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C54	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C55	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C56	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C57	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C58	50		ADM-15-510		CD15E510J500	DM-15-510J		424MC51RQJ501
C59	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C60	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C61	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C62	150		ADM-15-151	CPR-150J	CD15F151J500	DM-15-151J	SX315	424MC1500J501
C63	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C64	80		ADM-15-820	CPR-82J	CD15E820J500	DM-15-820J	SX482	424MC82RQJ501
C65	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C66	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C67	200		ADM-15-201	CPR-200J	CD15F201J500	DM-15-201J	SX320	424ME2000J501
C68	250		ADM-15-251		CD10E251J500	DM-15-251J		MS-325
C69	200		ADM-15-201	CPR-200J	CD15F201J500	DM-15-201J	SX320	424ME2000J501
C70	10		ADM-15-100		CD15C100J500	DM-15-100J	SX410	MS-41
C71	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C72	150		ADM-15-151	CPR-150J	CD15F151J500	DM-15-151J	SX315	424MC1500J501
C73	20		ADM-15-200	CPR-20J	CD15E200J500	DM-15-200J	SX420	MS-42
C74	150		ADM-15-151	CPR-150J	CD15F151J500	DM-15-151J	SX315	424MC1500J501
C75	30		ADM-15-300	CPR-30J	CD15E300J500	DM-15-300J	SX430	MS-43
C76	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C77	.04			DD-403			GP140	
C78	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C79	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C80	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C81	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C82	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C83	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C84	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C85	1mfd		V1612W1		DPMS2P5	2DP-5-504	PVC205	2PS-P50
C86	.04			DD-403			GP140	
C87	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10

CITI-FONE MODEL 19

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.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	5000					
R2	Squelch	50K					
R3	Squelch Limit	100K		T-100K (1)		X201R104B (1)	MTC15L1 (1)

(1) Cut off one of the end terminals and bend to fit "PC" Board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.			IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R59	41 Ohm (Cold)								

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	Rec Antenna				
L2	Rec RF				
L3	Synthesizer Osc.				
L4	Input IF				
L5	Interstage IF				
L6	Interstage IF				
L7	Rec Interstage IF		16-9034	8515	
L8	Rec Output IF		16-9035	8811	
L9	RF Choke		19-2009	8812	T806
L10	Xmtr Mixer			74F106AP	
L11	Xmtr Buffer				
L12	Xmtr Driver				
L13	RF Choke		12-2009	74F106AP	T806
L14	RF Choke		19-1000	4602	T855
L15	Final Amp				
L16	Pi Network				
L17	Pi Output (8 turns)				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L18	750ma	.7	8mh						

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	1.8	1							

TRANSFORMER (Audio Output)

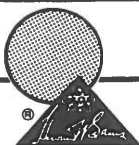
ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	72	8						
		SEC.2						
		1.4 DC Resistance						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3" PM 8 ohms			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Crystal		37.700MC
M2	Crystal		37.750MC
M3	Crystal		37.800MC
M4	Crystal		37.850MC
M5	Crystal		37.600MC
M6	Crystal		37.650MC
M7	Crystal		10.140MC
M8	Crystal		10.160MC
M9	Crystal		10.170MC
M10	Crystal		10.180MC
M11	Crystal		10.635MC
M12	Crystal		10.625MC
M13	Crystal		10.615MC
M14	Crystal		10.595MC
M15	Crystal Filter		455KC



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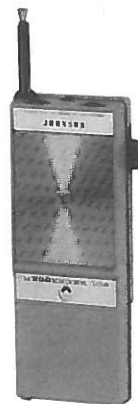
NOTE

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.



JOHNSON MODEL MESSENGER 109 (242-109)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 Thru A6.....GENERAL CEMENT #8868, 9089.....WALSCO #2541, 2587
 A7, A8, A9, A12, A13, A14.....GENERAL CEMENT #86Q6L, 9440.....WALSCO #2501, 2544
 A10, A11.....GENERAL CEMENT #8606, 8869, 9295.....WALSCO #2543, 2544, 2588

RECEIVER

Connect an AC VTVM across speaker voice coil. Set volume control to midrange, set squelch control fully counterclockwise.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to base of Q2 (mixer), low side to chassis. Tune to 455KC (Mod).	Any	A1 Thru A6	Adjust for maximum.
	Any	A7	Connect RF VTVM to emitter of Q2. Adjust through the peak RF reading to 0.125 ± 0.025 volts. Check for oscillator starting and uniform injection voltage on other channels if available.
High side thru .01mfd to antenna jack, low side to chassis. Tune to 27.085 MC (Mod) Channel 11.	11	A8, A9	Adjust for maximum.

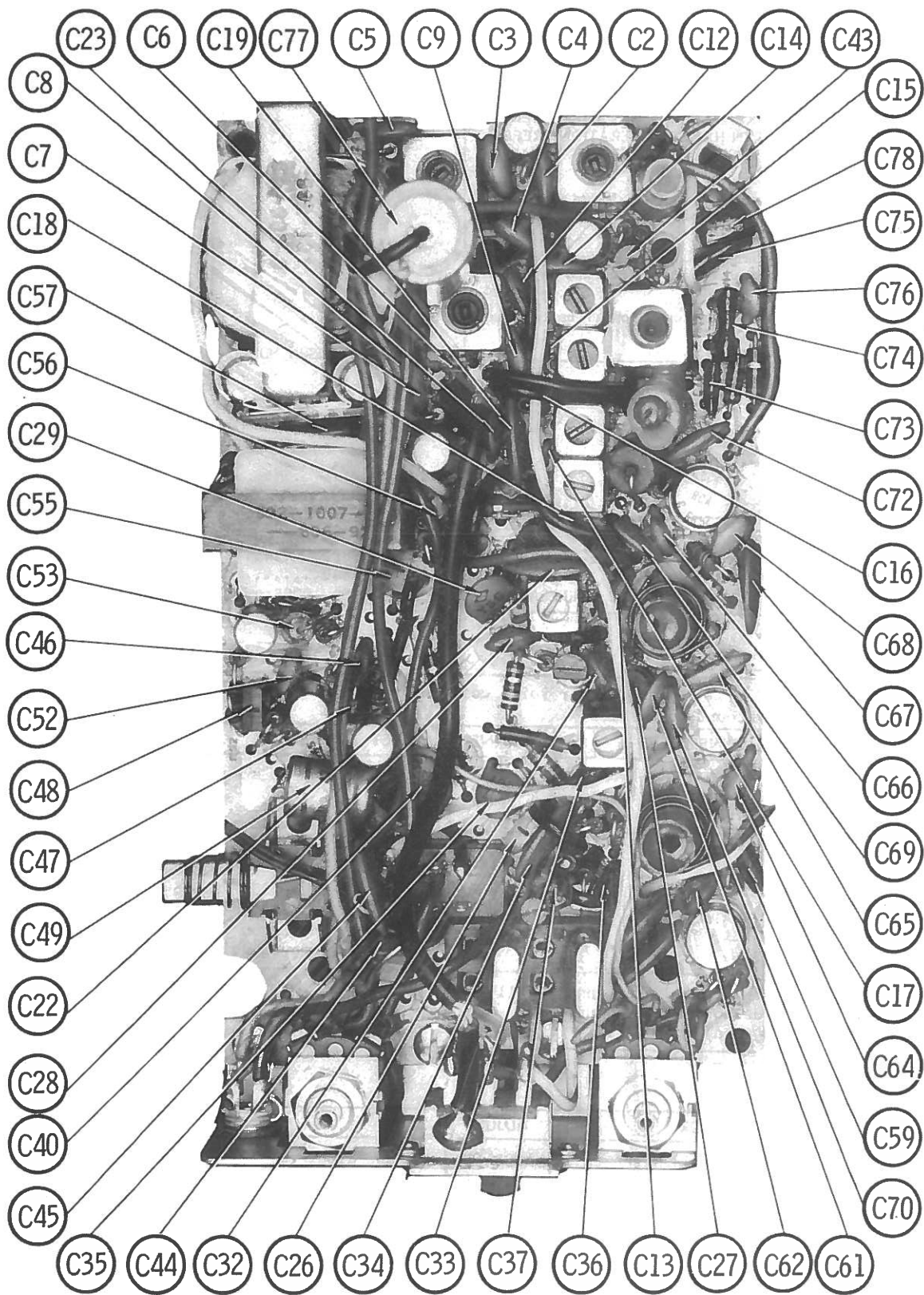
TRANSMITTER

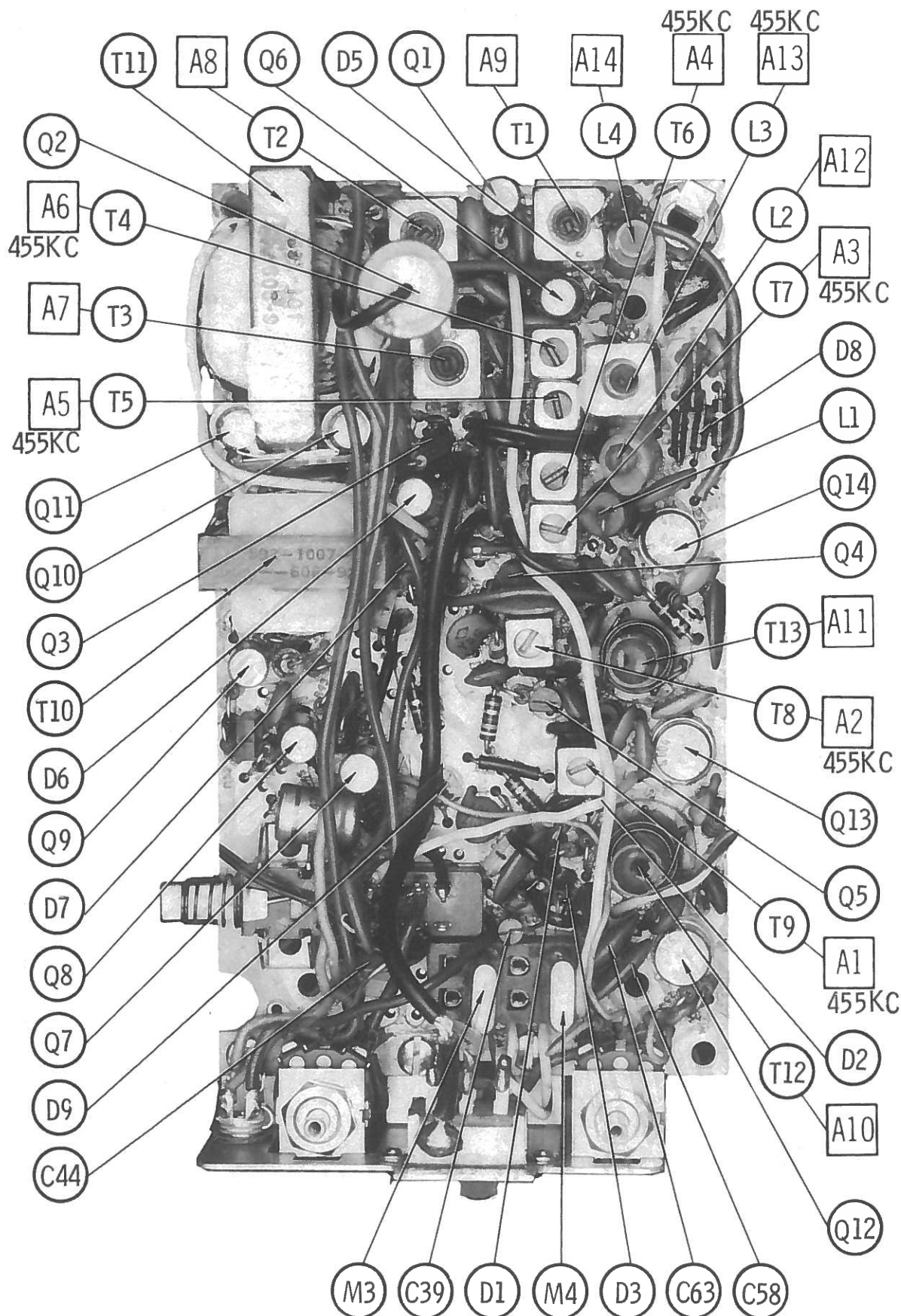
INDICATOR	ADJUST	REMARKS
RF wattmeter or field strength meter.	A10, A11, A12, A13, A14	Adjust A10 for oscillator starting on both channels and absence of distortion during modulation. Adjust A11 thru A14 for maximum.
0-500ma meter.	A13	Insert meter in collector of Q14 (Final Amp) at point Δ . Readjust A13 for 240ma.

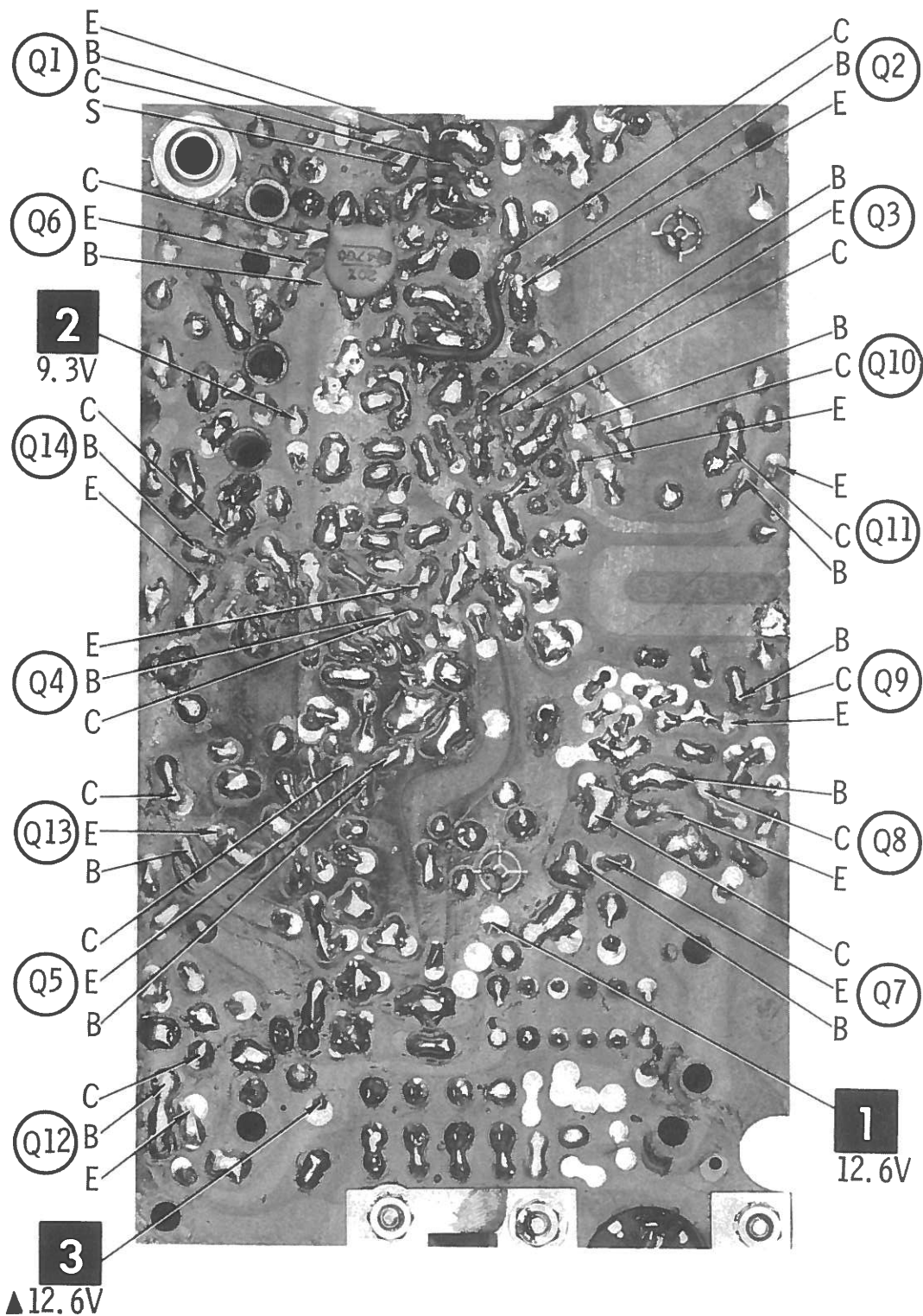
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

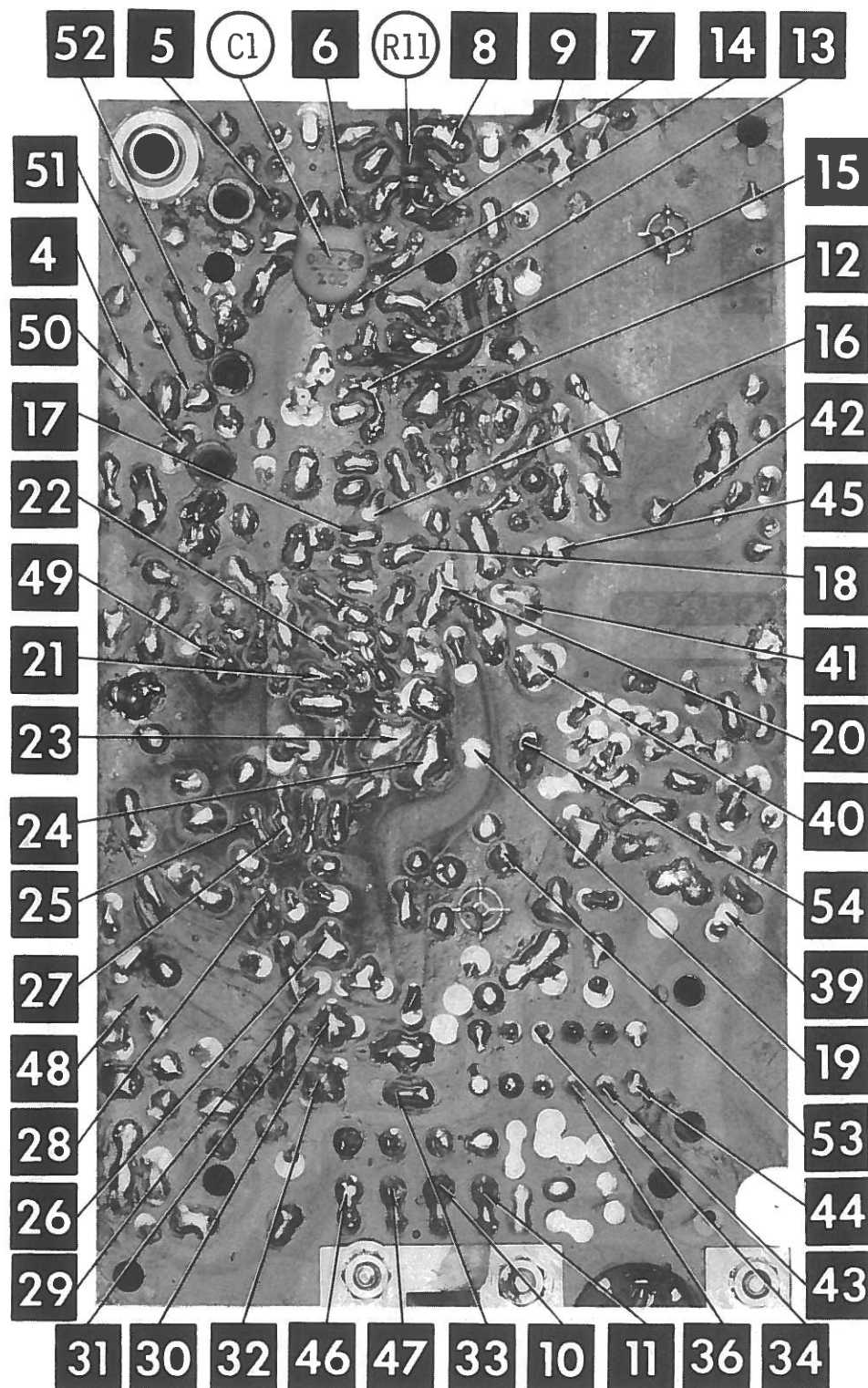
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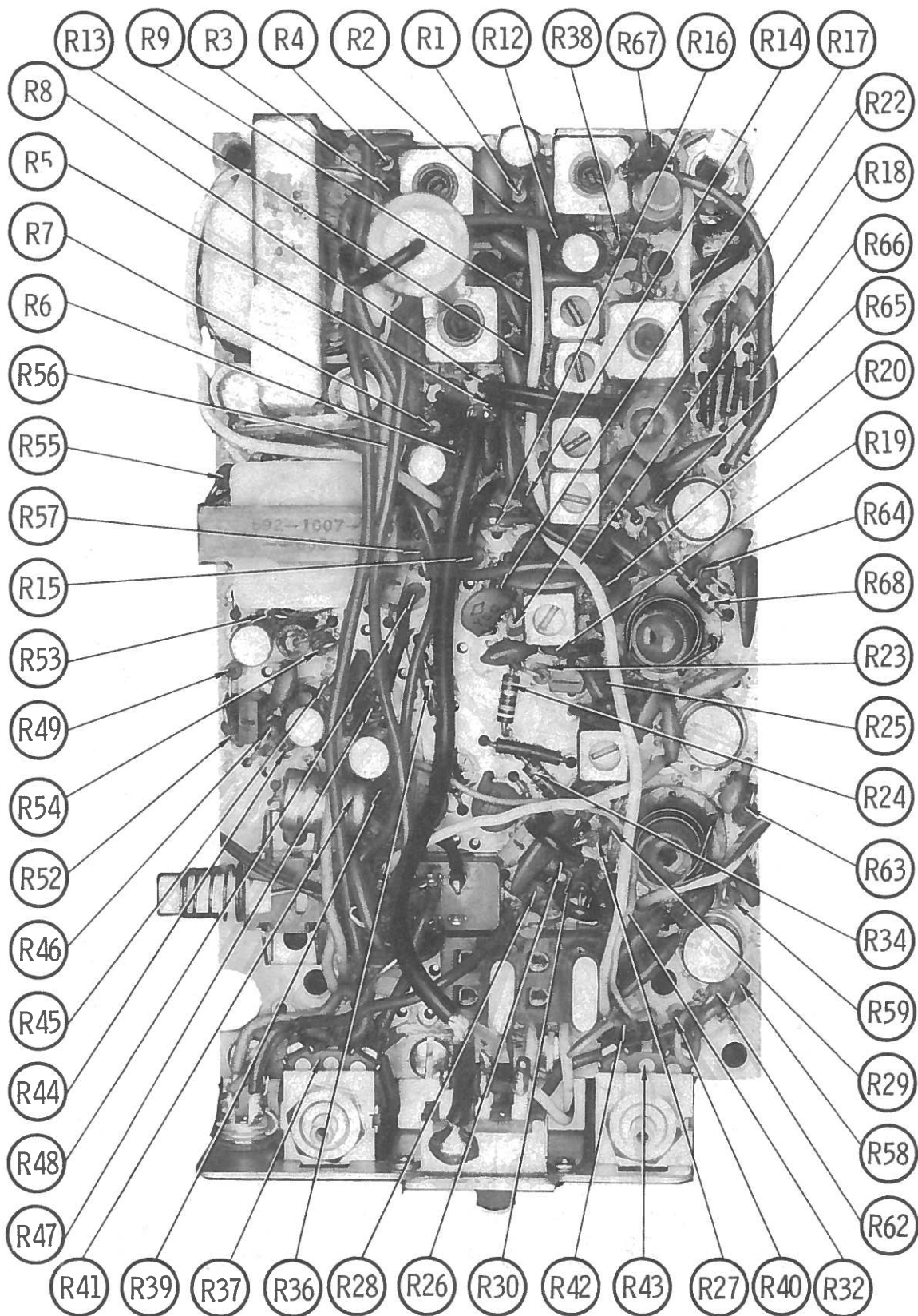
JOHNSON MODEL MESSENGER 109











PARTS LIST AND DESCRIPTION

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

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	3020	RF Amp	576-0003-020	GE-17	TR-21	HEP55	SK3018	ECG 108
Q2	3011	Mixer	576-0003-011	GE-17	TR-21	HEP55	SK3018	ECG 108
Q3	3011	Rec Osc	576-0003-011	GE-17	TR-21	HEP55	SK3018	ECG 108
Q4	3011	1st IF Amp	576-0003-011	GE-20	TR-21	HEP54	SK3018	ECG 123
Q5	3011	2nd IF Amp	576-0003-011	GE-20	TR-21	HEP54	SK3018	ECG 123
Q6	1004	Voltage Reg	576-0001-004	GE-18	TR-25	HEP243	SK3024	ECG 128
Q7	2013	Squelch	576-0002-013	GE-8	TR-09		SK3010	ECG 103
Q8	1003	AF Amp	576-0001-003	GE-2	TR-05	HEP636	SK3004	ECG 102
Q9	1009	Driver	576-0001-009	GE-2	TR-05	HEP254	SK3004	ECG 102
Q10	2012	Output-Modulator	576-0002-012	GE-2	TR-05	HEP254	SK3004	ECG 102
Q11	2012	Output-Modulator	576-0002-012	GE-2	TR-05	HEP254	SK3004	ECG 102
Q12	4006	Xmtr Osc	576-0001-006	GE-17	TR-21	HEP55	SK3018	ECG 108
Q13	4004	Driver	576-0004-004	GE-17	TR-21		SK3018	ECG 108
Q14	4013	Final Amp	576-0004-013	GE-17	TR-21		SK3018	ECG 108

POWER RECTIFIERS & SIGNAL DIODES

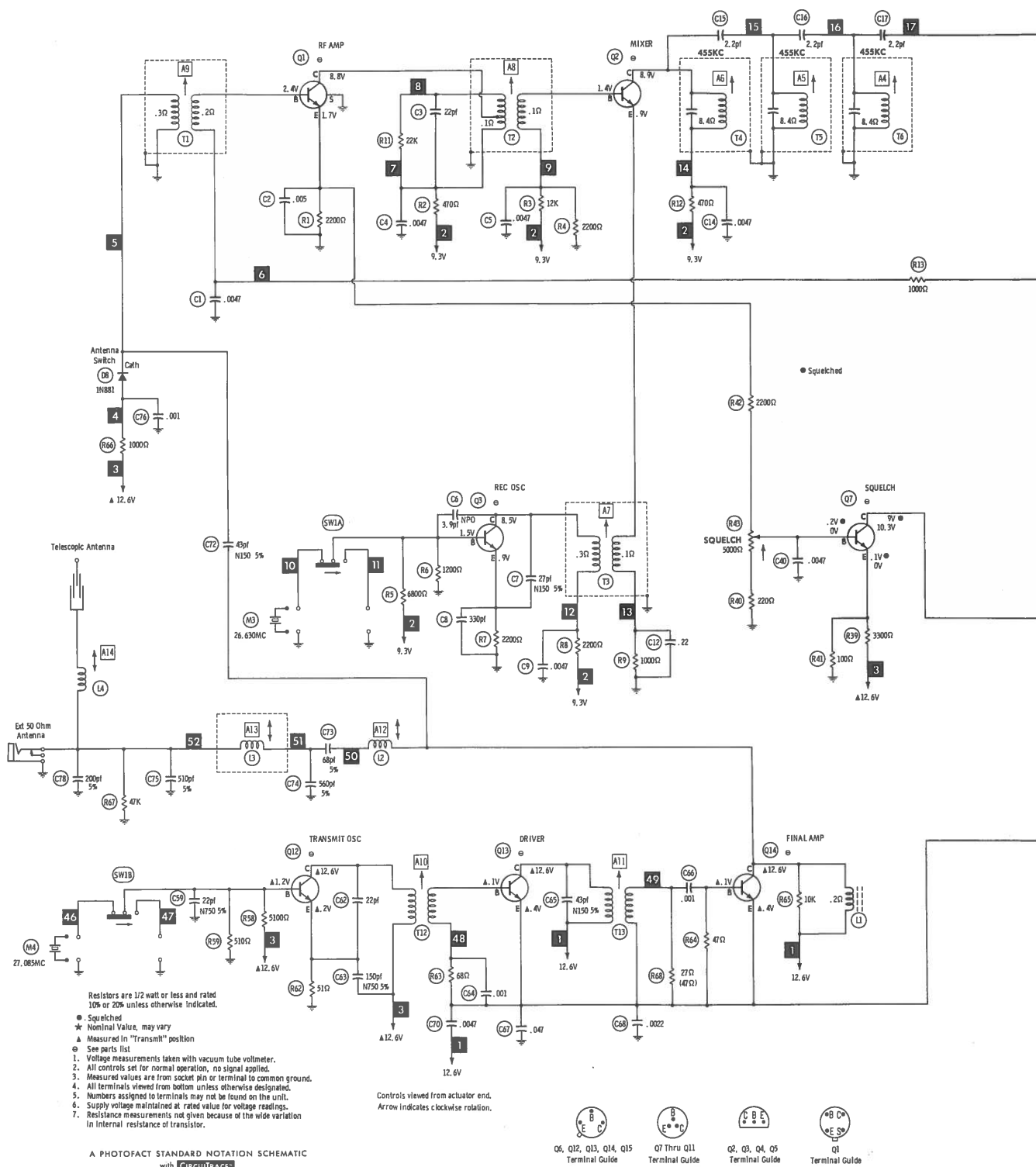
ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
D1	1N295	1N60	1N60	ECG 109		10V Zener
D2	1N295	1N60	1N60	ECG 109		
D3	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D4	523-1000-881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D5	523-2005-100		Z-1110 or 12M10-T10	ECG 140		
D6	1N2326					
D7	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D8	1N881	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D9	523-2005-100		Z-1110 or 12M10-T10	ECG 140		
D10	523-4001-001		18DB2A			

ELECTROLYTIC CAPACITORS

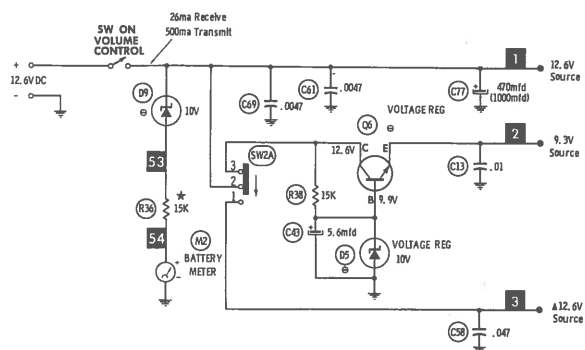
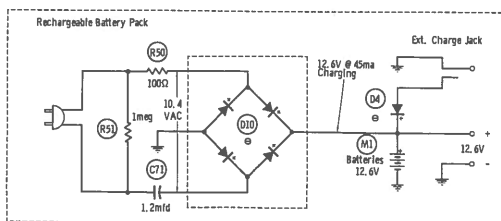
ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C26	5.6 15	510-2023-569		EP15-5	TYR13BF565K	MT1-3	TIM565K035P04	
C36	1 35	510-2005-109		EA50-2	TYR13BF105K	MT1-1	TAS105K035P0C	196D105K0035DB
C39	1 35	510-2005-109		EA50-2	TYR13BF105K	MT1-1	TAS1005K035P0C	196D105K0035DB
C43	5.6 35	510-2005-569		EA50-5	TYR13BF565K	MT1-3	TAS565K035P0C	
C47	22 15	510-2003-220	CRE461A	EA15-25	AL25-16	MT1-10	MTA20D30	TE-1157
C48	5.6 15	510-2023-569		EP15-5	TYR13BF565K	MT1-3	TIM565K035P0Y	
C49	47 25	510-4008-006	CRE617A	EA30-50	BR50-25	MT1-16.5	MTA50E25	TE-1307
C53	56 6		CRE418A	EA6-50	AL50-16	MT1-19	MTA5006	TE-1133.5
	68 10	510-2045.680						
C55	1 35	510-2025-109		EA50-2	TYR13BF105K	MT1-1	TAS105K035P0C	196D105K0035DB
C77	470 25		PRS1290	EA30-500	WBR500-35	QT1-30A	TC2505B	TL-1217
	1000 16	510-4006-005						

(CONTINUED ON PAGE 60)

JOHNSON MODEL MESSENGER 109



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JOHNSON MODEL MESSENGER 109

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C2	.005 50V		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C3	22 5%		NPO-DI22	DTZ-22	CY601CG220K	CCTD-220	CN0422	10TCC-Q22
C4	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C5	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C6	3.9 NPO +.5 5%				NP03P9			10TCC-V39
C7	27 N150 200V							10TCP-Q27
C8	330 10% 200V		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33
C9	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF-247	10TS-D47
C12	.22 3V			UK-224			MAG3022	HY-125
C13	.01 50V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C14	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C15	2.2 P100 +.5	#510-3161-229						
C16	2.2 P100 +.5	#510-3161-229						
C17	2.2 P100 +.5	#510-3161-229						
C18	1			TCZ-1			CN0510	10TCC-V10
C19	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C22	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C23	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C27	1		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C28	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C29	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C32	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C33	150 5%		ADM-15-151	CPR-150J	CF15F151J500	DM-15-151J	SX315	424MC1500J501
C34	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C35	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C37	.02 16V		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C40	.0047 16V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C44	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C45	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C46	.01 16V		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C52	.022 16V		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C56	.22 10% 50V		V1612P22		DMF1P22	1DP-3-224	PVC1022	225P2249R75
C57	.33 50V		V1612P33		DMF1P33	1DP-4-334	PVC1033	225P3349R75
C58	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C59	22 N750 5%		N750-DI22	DTN-22	CZ601UJ220K	CCTN-220	CN7422	10TCU-Q22
C61	.0047 50V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C62	22 N750 5%		N750-DF22	DTN-22	CZ601UJ220K	CCTN-220	CN7422	10TCU-Q22
C63	150 N750 5%		N750-DI150	DTN-150		CCTN-151	CN7315	10TCU-T15
C64	.001 50V		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C65	43 N150 5%	#510-3016-430						10TCP-Q47
C66	.001 16V		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C67	.047 16V		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C68	.0022 16V		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C69	.0047 16V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C70	.0047 16V		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C71	1.2mfd	#510-1003-125 (1)						
C72	43 N150 5%	#510-3016-430						10TCP-Q47
C73	68 5%		ADM-15-680	CPR-68J	CD15E680J500	DM-15-680J	SX468	424MC680J501
C74	560 5%		ADM-19-561	CPR-560J	CD19F561J500	DM-16-561J	SX356	424ME560J501
C75	510 5%		ADM-15-511	CPR-510J	CD15F511J500	DM-16-511J	SX351	424ME510J501
C76	.001 50V		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C78	200 5%		ADM-15-200	GPR-200J	CD15F201J500	DM-15-201J	SX320	424ME200J501

(1) Critical Size

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

ITEM No.	FUNCTION	RESIST- ANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.
R16 R37	Bias Volume/Switch	470 Ohm 10 K	562-0014-471 562-0018-002 (562-0018-2)			
R43	Squelch	5000 Ohm	562-0018-001 (562-0018-1)			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R28	12K (Cold)			023-2042-005

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (13 uh)	542-3003-001		72F125AP	
L2	Output Series	542-1006-002			
L3	P1 Network	542-1006-001			
L4	Antenna Peaking	542-1008-007			
T1	Antenna Matching	592-5015-001			
T2	Rec. RF	592-5015-002			
T3	Rec. Osc	592-5015-003			
T4	Input IF	592-5020-002			
T5	Interstage IF	592-5020-002			
T6	Interstage IF	592-5020-002			
T7	Interstage IF	592-5020-003	16-9034 (1)	8811 (1)	
T8	Interstage IF	592-5020-004	16-9034	8811	
T9	Output IF	592-5020-004	16-9035	8812	
T12	Xmtr Osc	592-5014-001			
T13	Xmtr Driver	592-5014-002			

(1) Clip Primary Tap Pin

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T10	2	1		592-1007-004					

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T11	256 Ohm	16 Ohm	592-1017-001					
		SEC 2						
		1.7 Ohm DC Resistance						

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	2-3/4" PM 16 Ohm	589-1003-001		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

BATTERIES

ITEM No.	VOLTAGE	MFR. PART No.	REPLACEMENT DATA		NOTES
			EVEREADY	MALLORY	
M1	12.6V	503-0002-001	5/BH500T		2 Required

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Meter, Battery	554-0010-001	When ordering, specify Part No. 519-0011-301 (Ch.1), thru Part No. 519-0011-323 (Ch.23) When ordering, specify Part No. 519-0011-001 (Ch.1) thru Part No. 519-0011-023 (Ch.23)
M3	Crystal, Rec		
M4	Crystal, Xmtr		
SW1	Switch Sel	583-3003-001	
SW2	Switch Xmtr-Rec	583-4003-001	
	Antenna, Telescopic	022-1793-001	

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

ITEM	PART No.	ITEM	PART No.
Cabinet, Front (Complete)	023-2343-001	Knob, Squelch	032-0159-001
Cabinet, Back (Complete)	023-2340-001	Knob, Xmtr-Rec	032-0158-001
Knob, Volume	032-0159-002	Cabinet, Battery	032-0168-001

ACCESSORIES

ITEM	MFR. PART No.	REMARKS
Battery Pack Assembly (less case)	023-2406-001	

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. 8499 Single-Conductor Shielded (Neoprene) 8498 Single-Conductor Shielded (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)



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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.

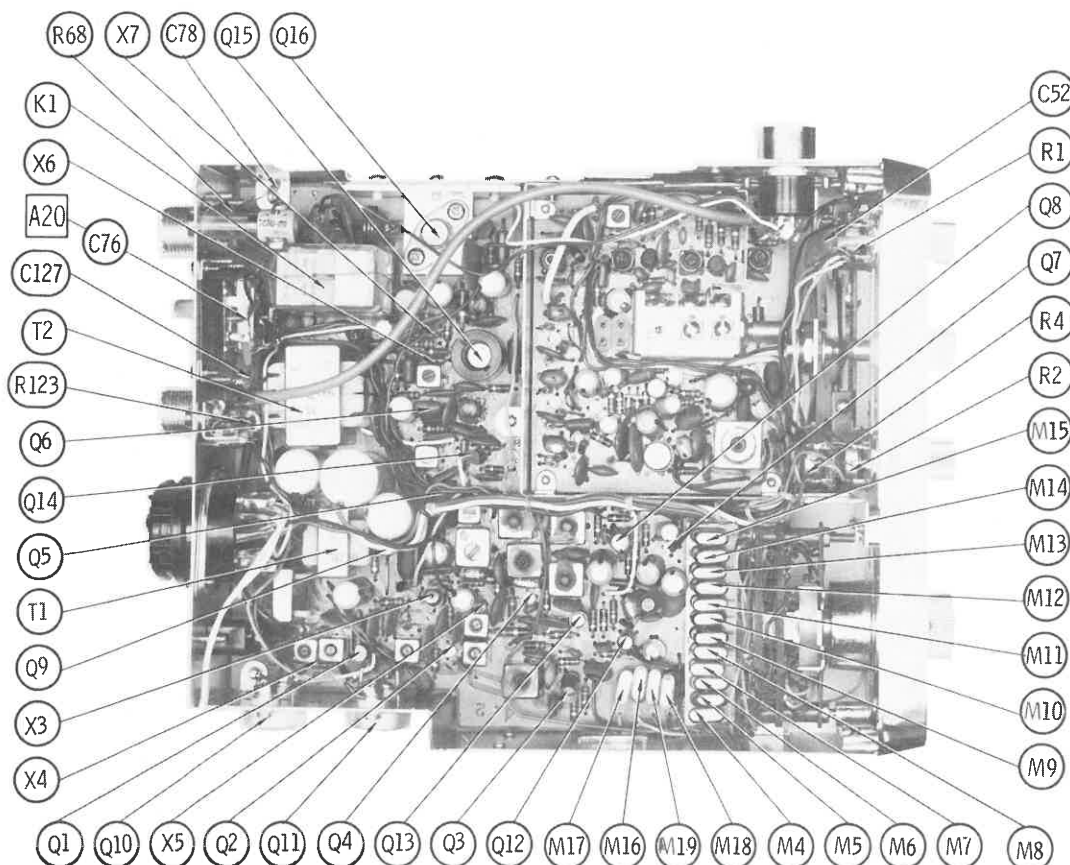
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

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



LAFAYETTE MODEL TELSAT 150 (99-3215WX)

LAFAYETTE MODEL TELSAT 150



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

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TY672

C B

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

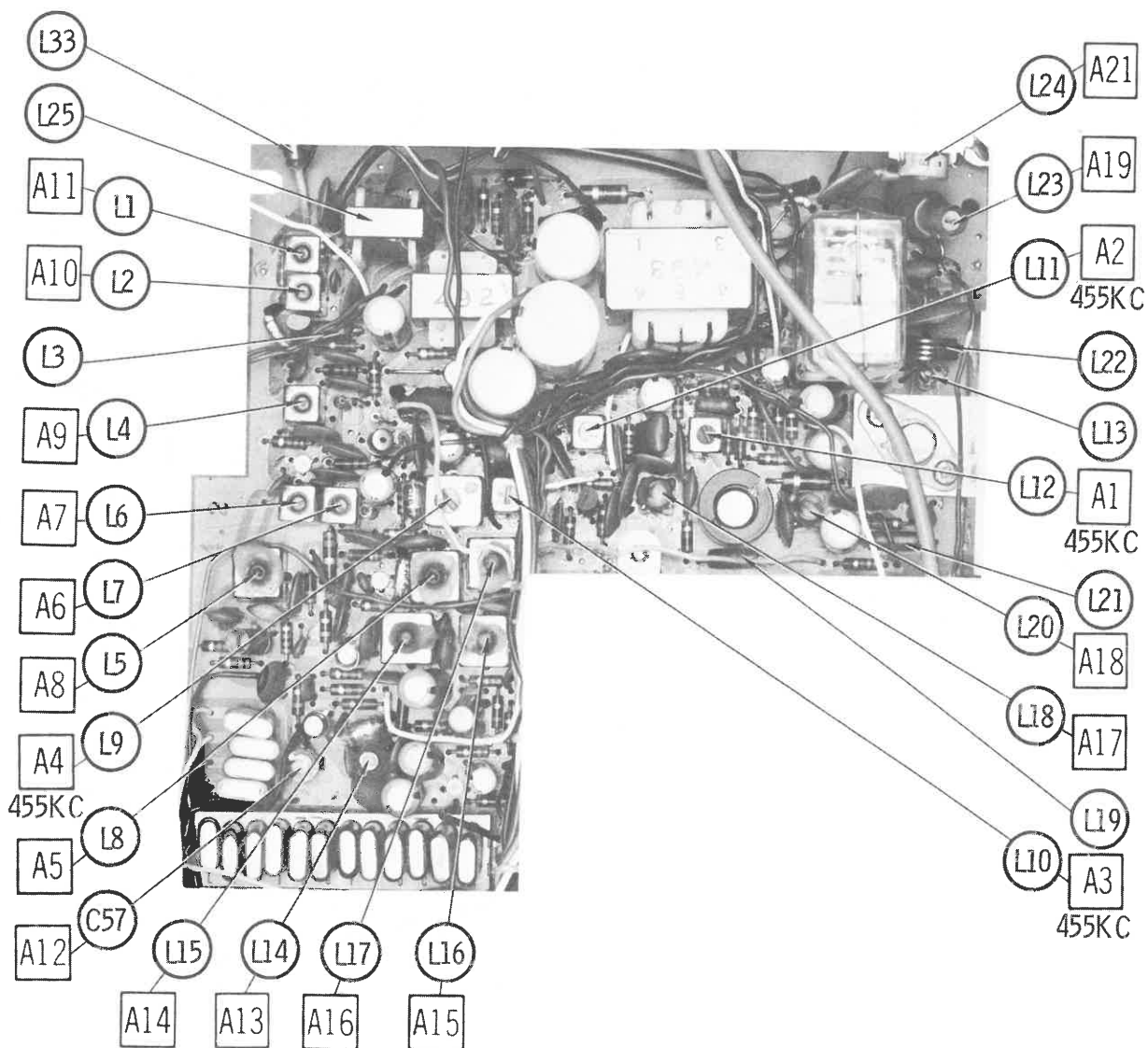
A1 thru A4....GENERAL CEMENT # 089,8987.....WALSCO #2531-X,2541,2587
 A5 thru A11, GENERAL CEMENT #9440.....WALSCO #2501
 A13 thru A19,A21
 A12,A20.....GENERAL CEMENT #8605.....WALSCO #2505

RECEIVER

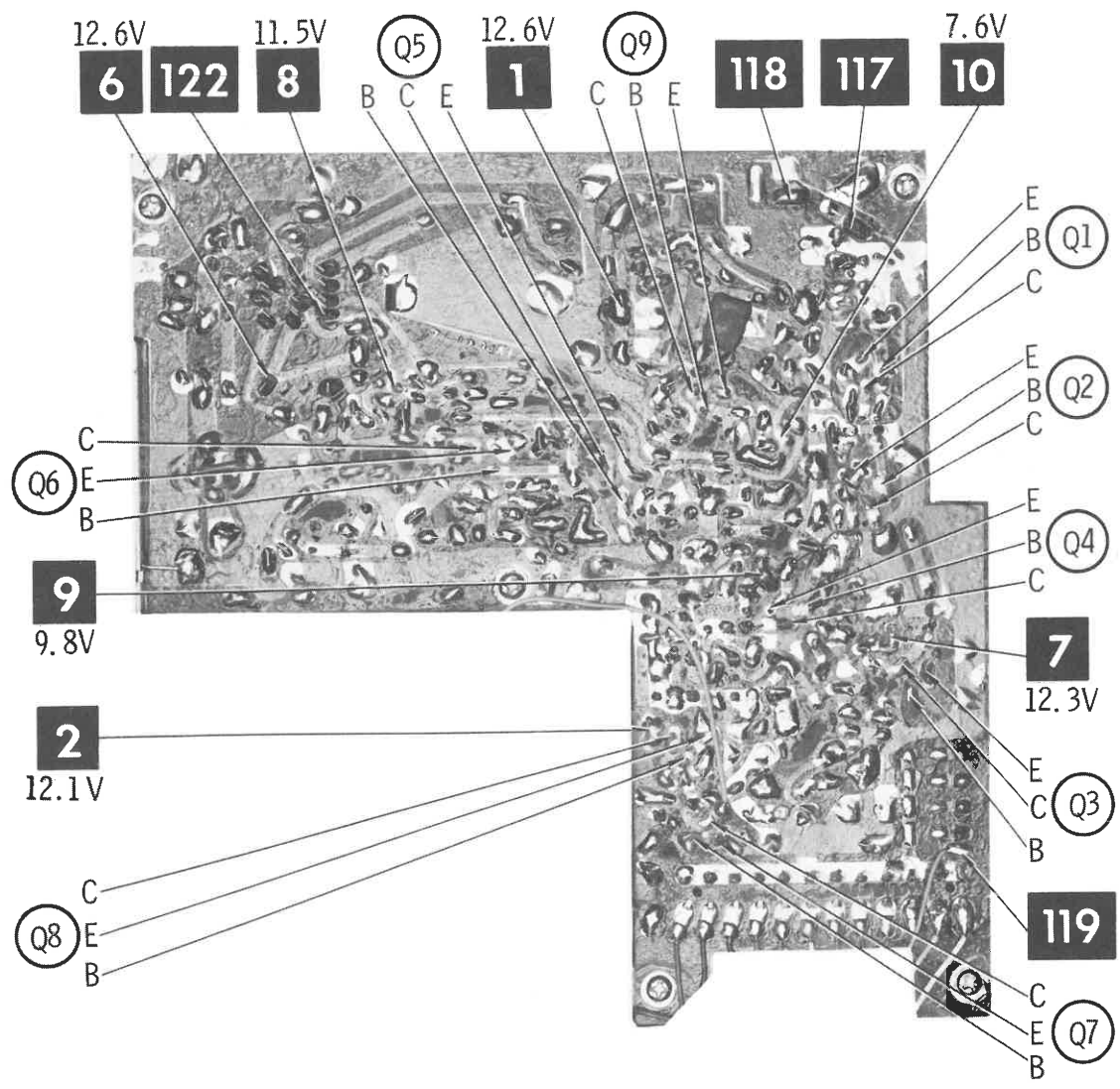
Connect an AC VTVM across speaker terminals. Turn Volume up to obtain a suitable reading on meter. Squelch Control fully counterclockwise.			
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to cathode of X5 (2nd Rec. Mixer), low side to chassis Tune to 455KC (Mod.).	Any	A1,A2, A3,A4	Adjust for maximum. Keep Signal Gen. Output to obtain 9.5V reading on AC VTVM.
Connect a DC VTVM from Emitter of Q4 (Rec. Osc.), low side to ground.	Any	A5	Adjust for approximately 2 volts.
High side thru .01mfd to Base of Q2, (1st Rec. Mixer), low side to ground. Tune to 11.285MC (Mod.).	Any	A6,A7	Adjust for maximum. Keep Generator output to approximately .5V on AC VTVM.
Connect a DC VTVM from Emitter of Q3 (Synthesizer Osc.) to ground.	Any	A8	Adjust for 2.3V
Connect High side thru .01mfd to antenna connector. Low side to chassis. Tune to 27.115MC (CH13).	13	A9,A10, A11	Adjust for maximum. Keep generator output to produce approximately .5V on Meter.

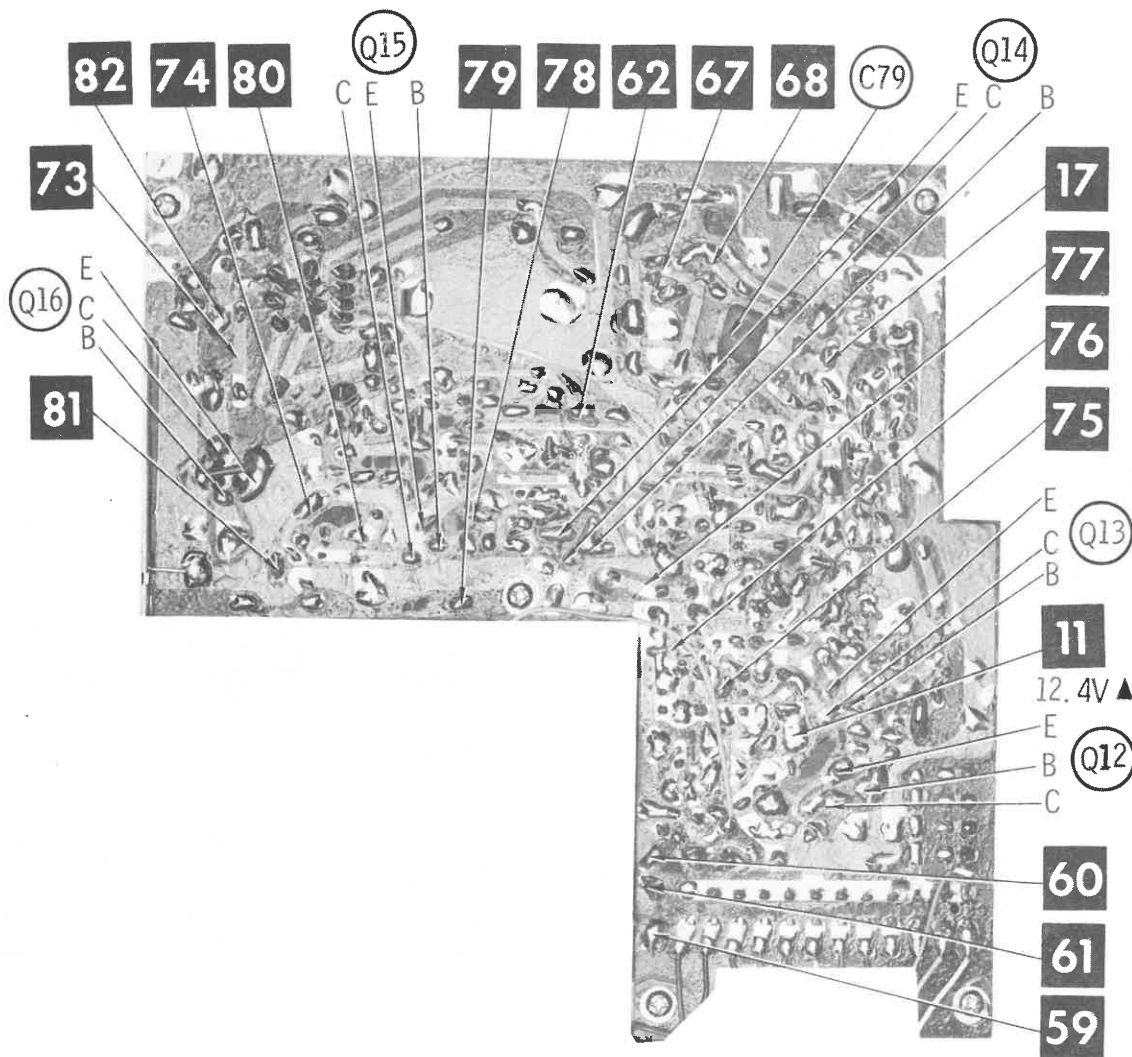
TRANSMITTER

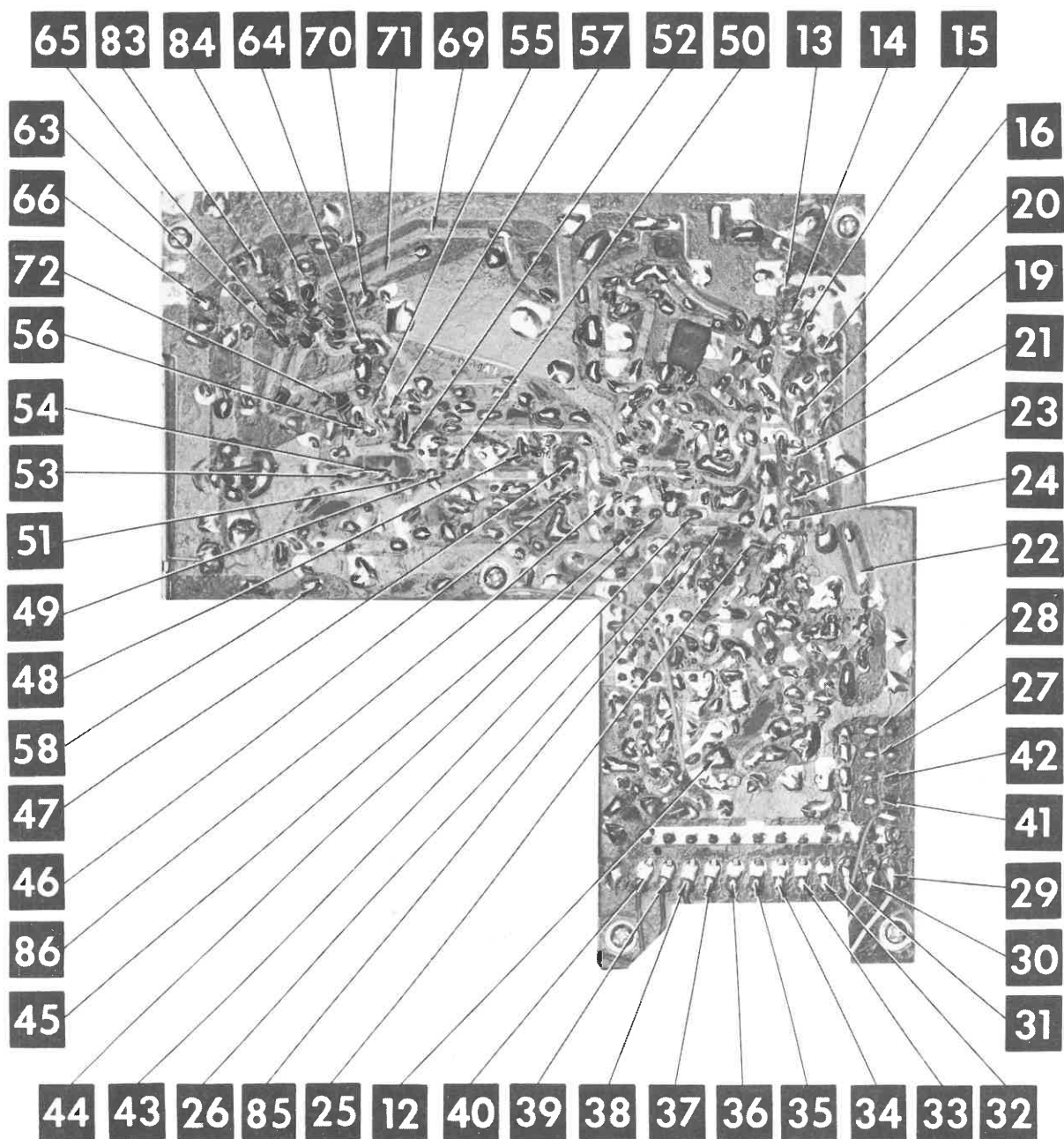
INDICATOR	ADJUST	REMARKS
RF Wattmeter or Field Strength Meter.	A13 thru A20	Adjust for equal power output on all channels. NOTE: A17 is critical adjustment. L22 can be adjusted by expanding or compressing coil turns.
Frequency Meter	A12	Overall frequency adjust. Adjust <u>only</u> if all frequencies are high or low.
TV tuned to Ch. 2.	A21	Adjust for MINIMUM interference.

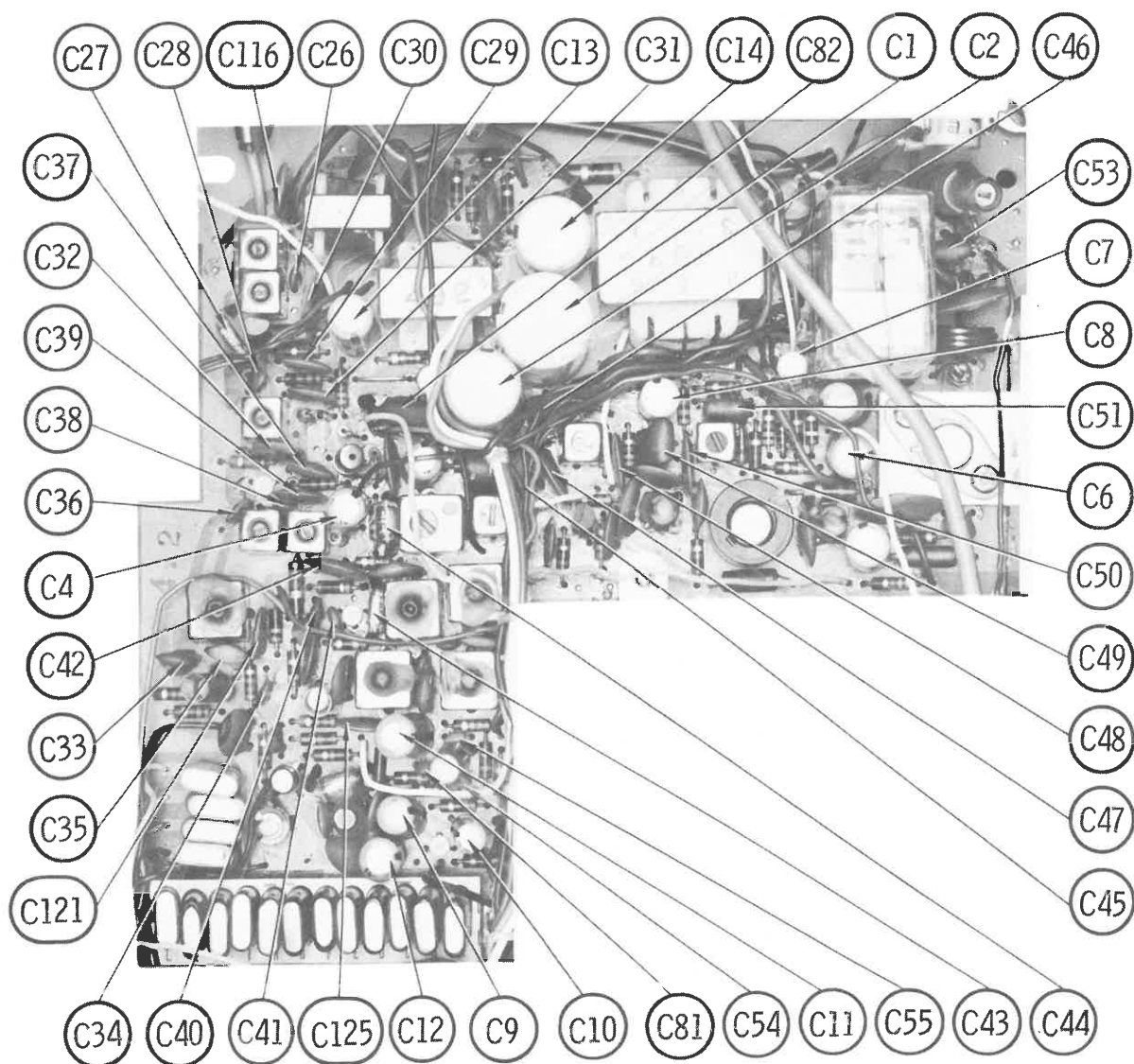


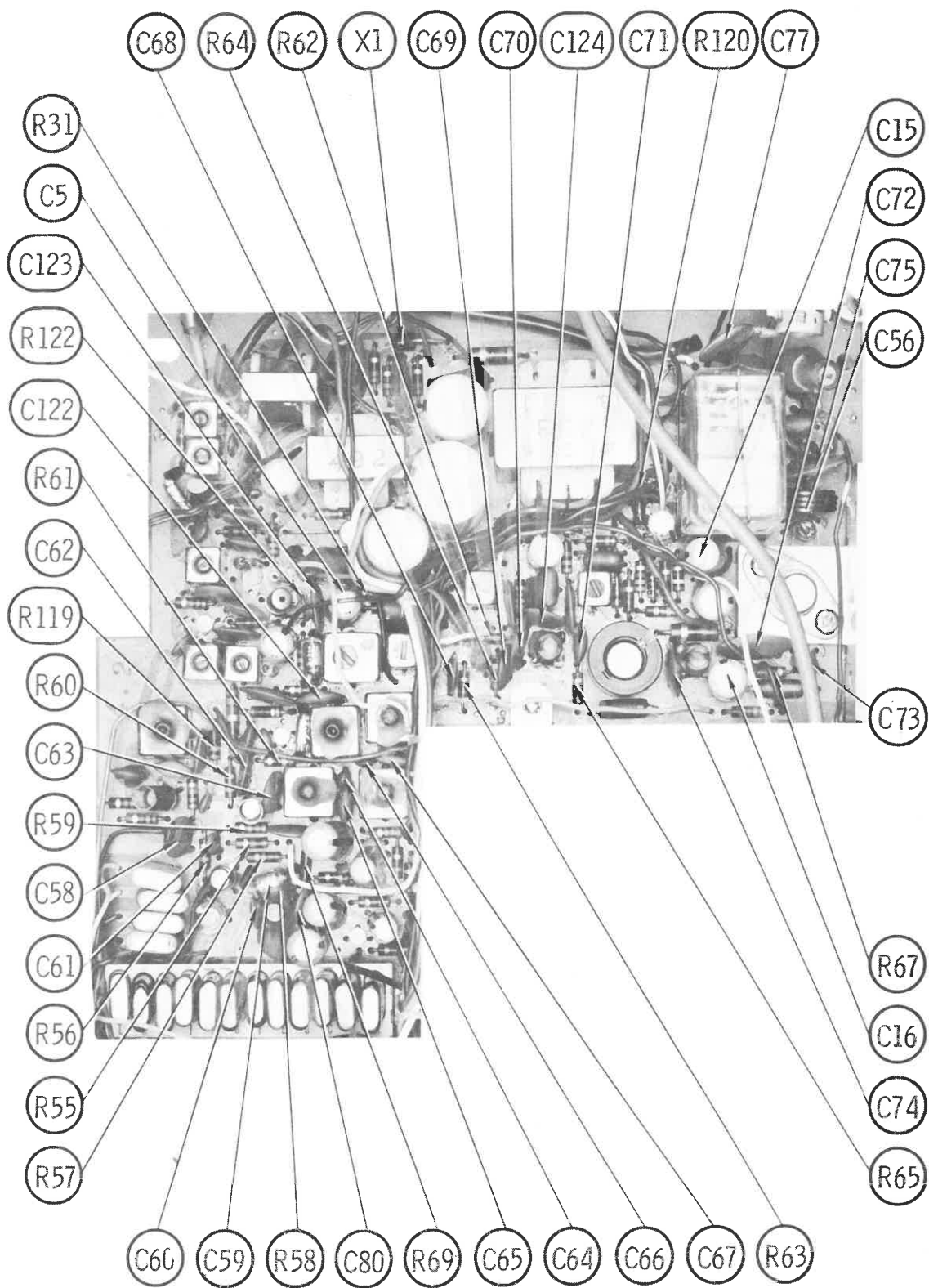
LAFAYETTE MODEL TELSAT 150

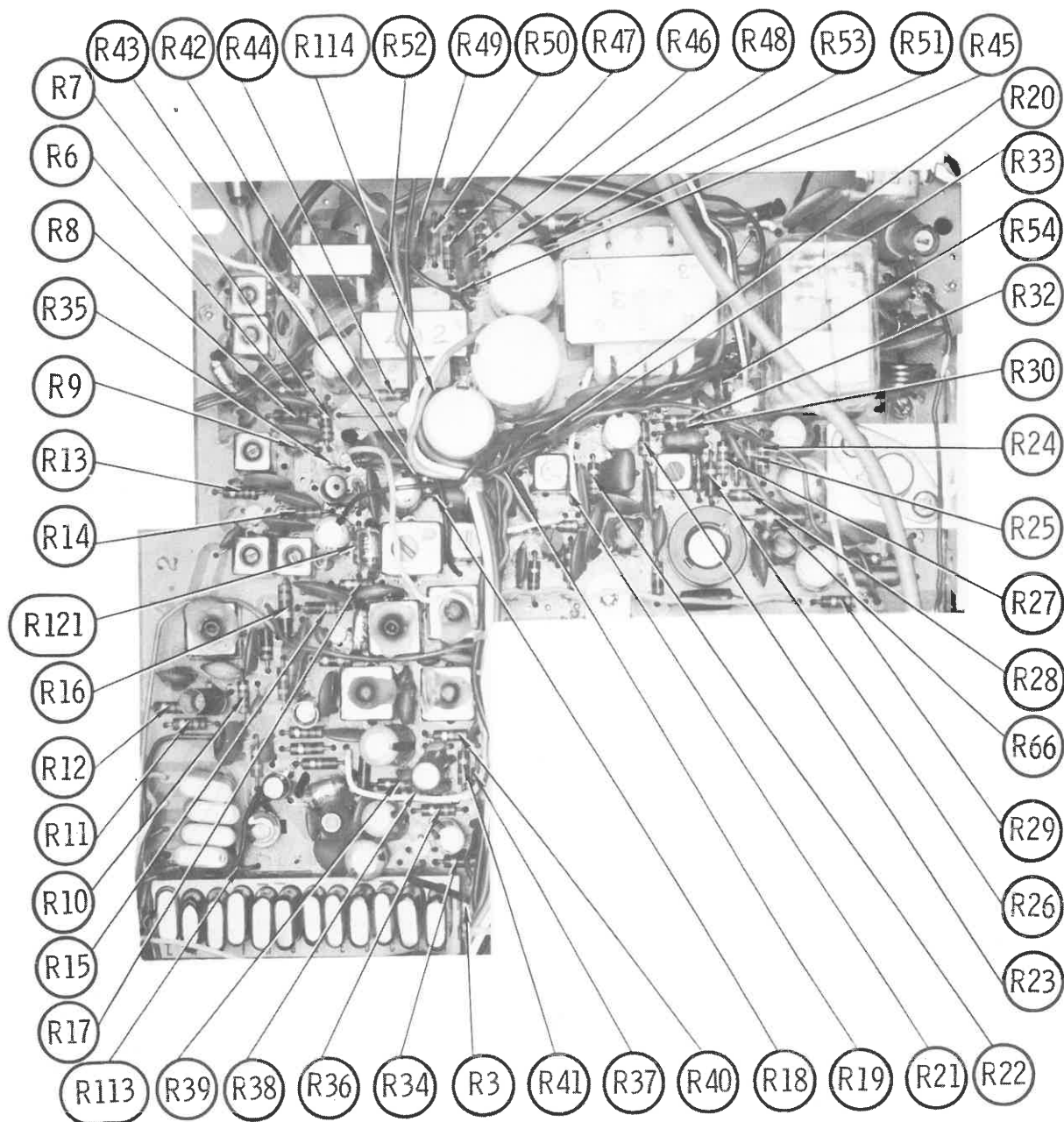












VHF

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A22,A23GENERAL CEMENT #9296,9297,9300.....WALSCO #2510,2548,2547
 A24,A25.....GENERAL CEMENT #8868,8987,9089.....WALSCO #2531-X,2541,2587
 A26,A27,A28.....GENERAL CEMENT #9440.....WALSCO #2501
 A29,A30,A31.....GENERAL CEMENT #8605.....WALSCO #2505

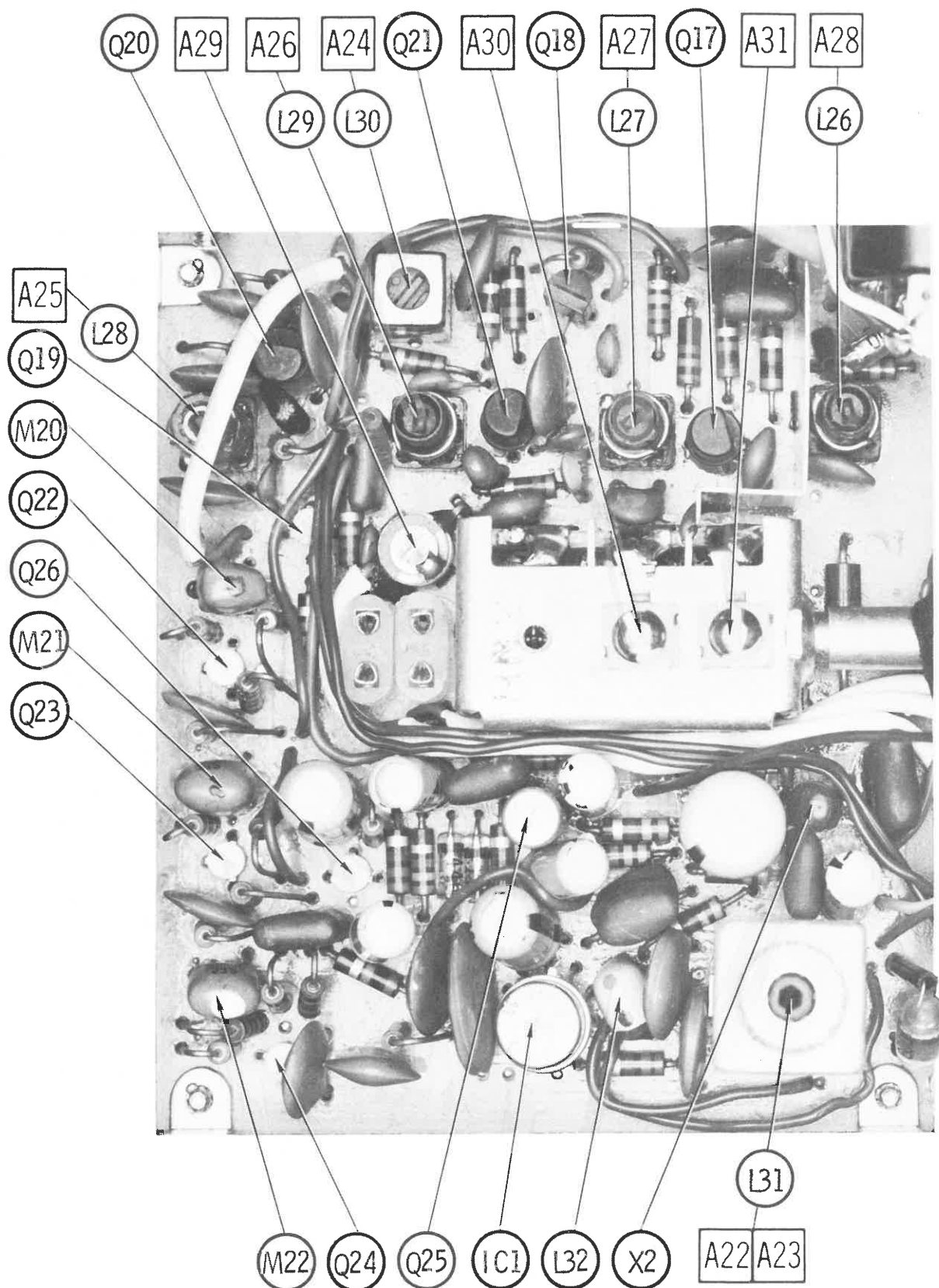
Insert Crystal into Crystal Socket. Set Xtal-Manual Switch (S3) to X1.

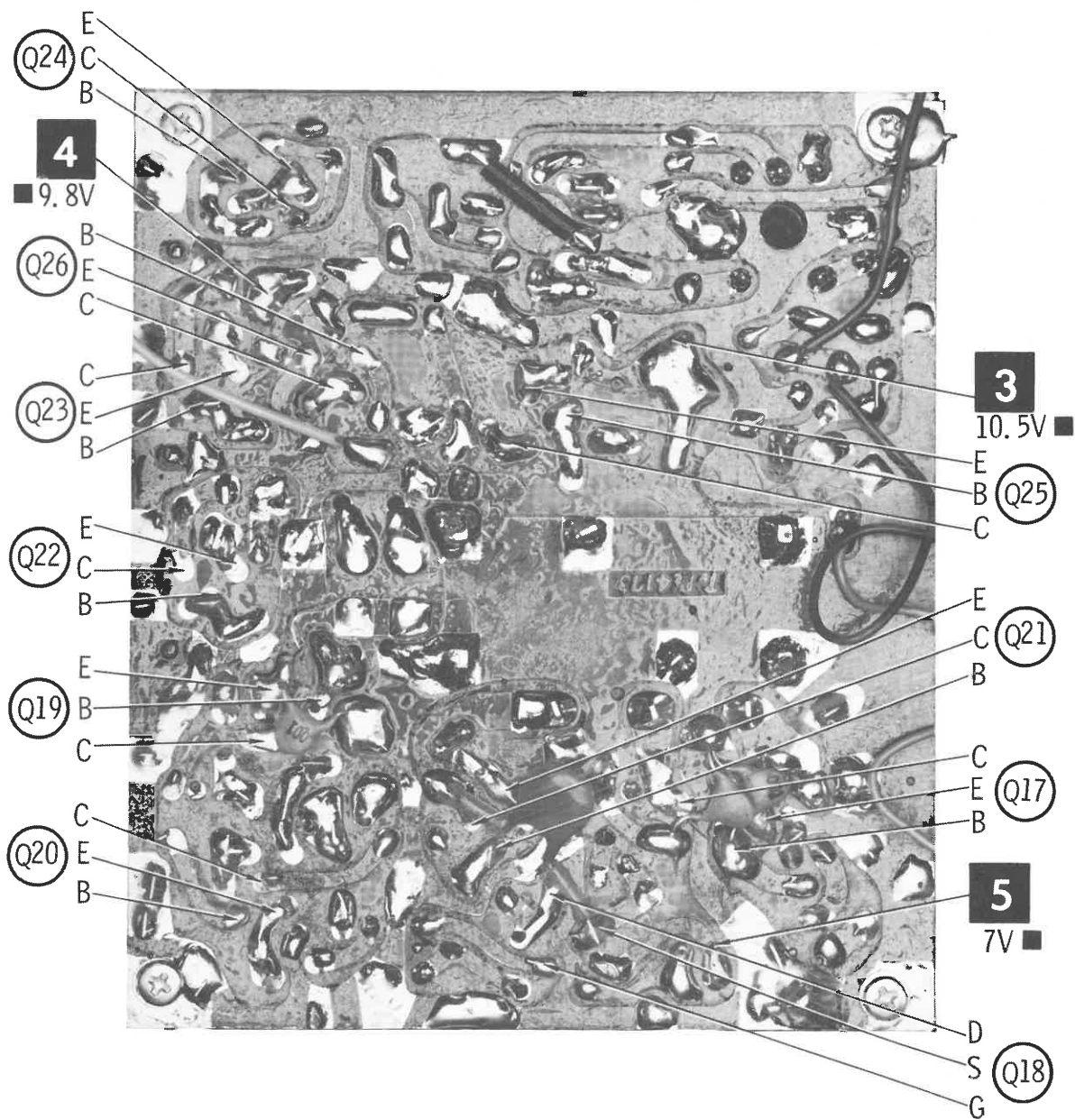
FM SIGNAL GEN.	XTAL-MANUAL SETTING	INDICATOR	ADJUST	REMARKS
	X1	DC VTVM from emitter of Q19 to ground.	A25	Adjust for .95VDC. Set Xtal-Manual switch to Manual, key Transmitter several times to ensure proper oscillator starting.

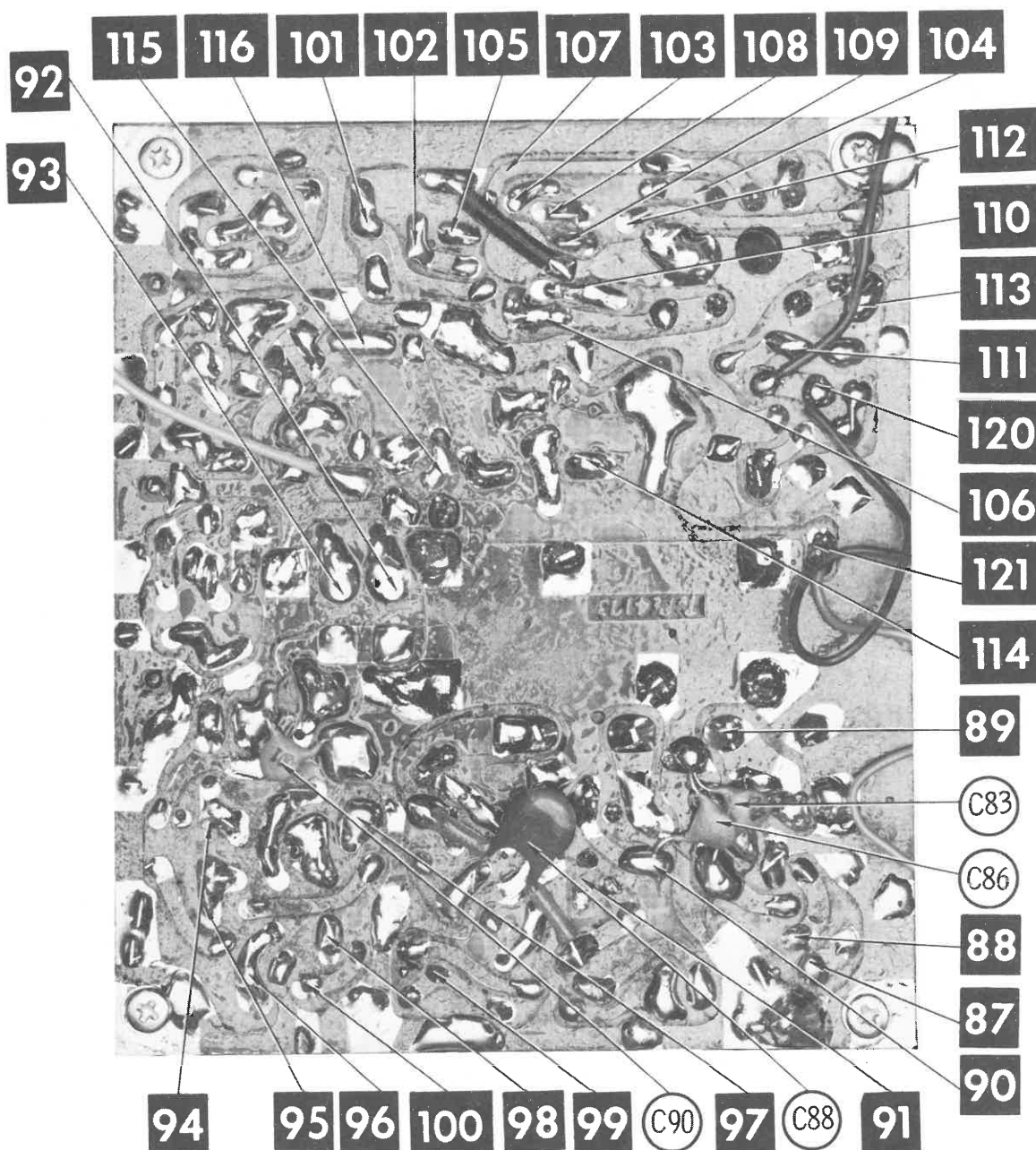
	X1 or Manual	Background Noise	A22,A23	Adjust A22 (Bottom) to SECOND peak. Adjust A23 (Top) for maximum noise.
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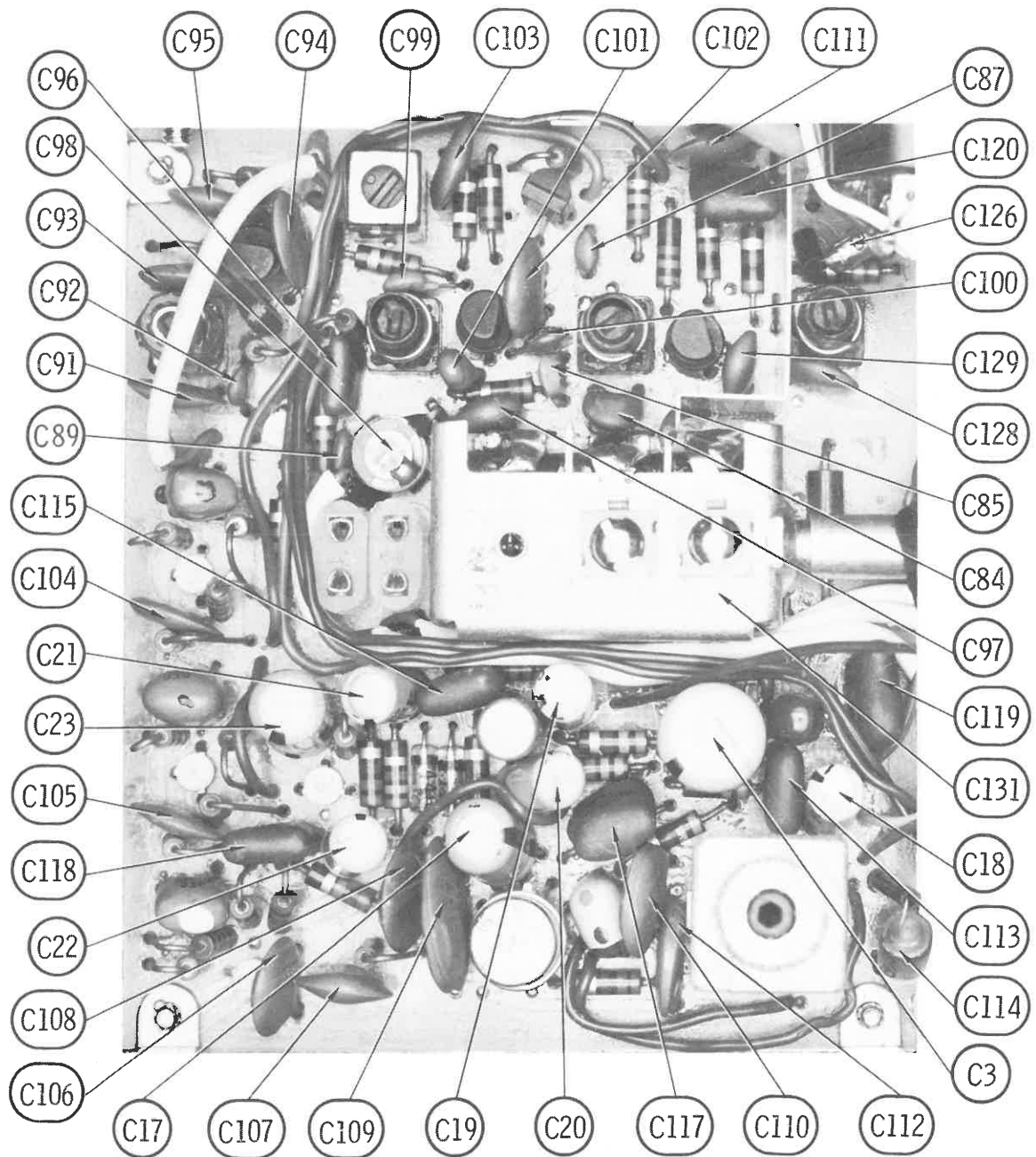
High side thru .01mfd to antenna connector, low side to chassis. Tune to 150MC (Mod.).	Manual	AC VTVM across speaker Terminals.	A24 A26, A27,A28	Adjust for maximum. Adjust A26 for maximum signal and MINIMUM noise on center peak. Keep generator output low.
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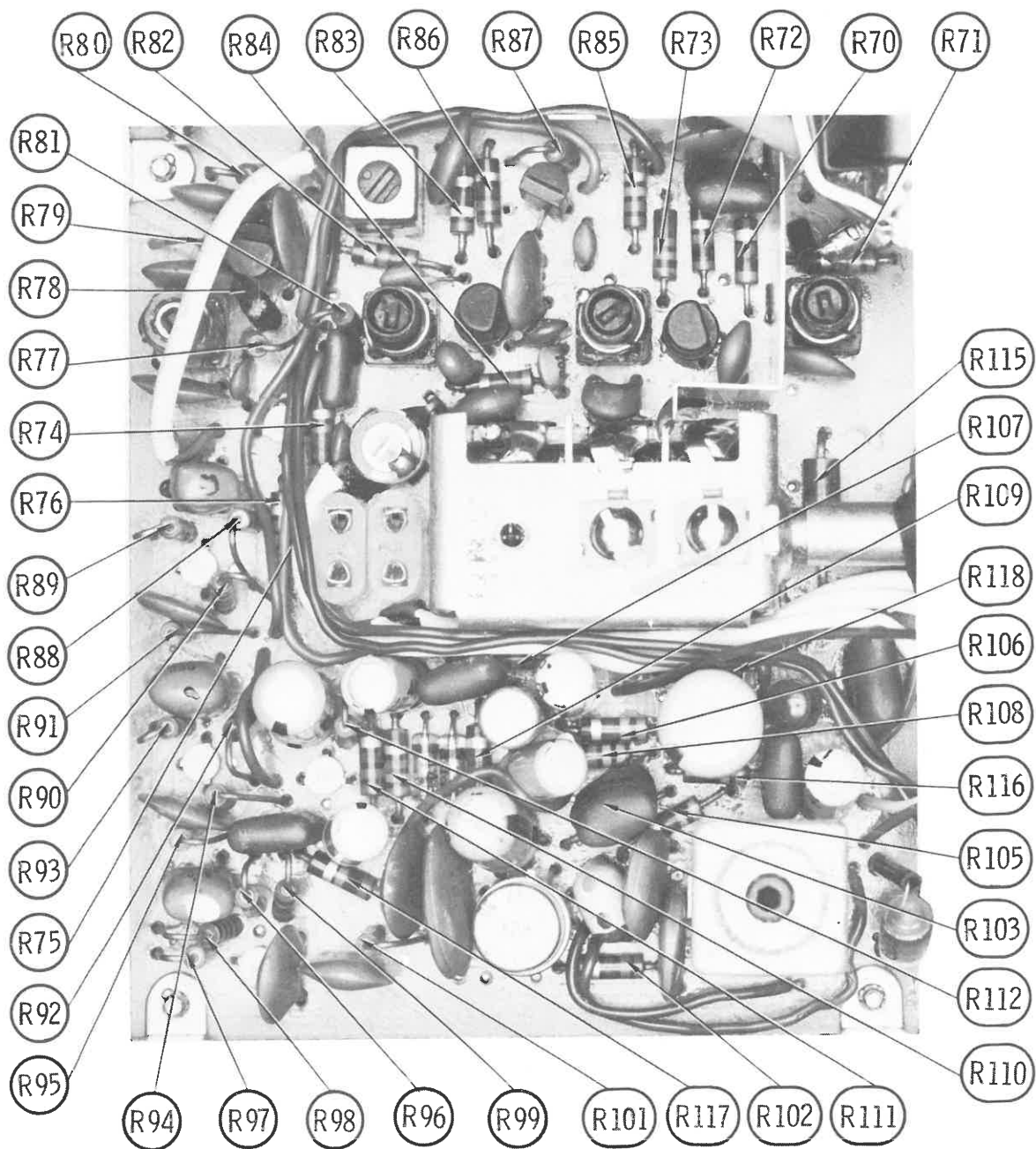
High side thru .01mfd to antenna connector, low side to chassis. Tune to 174MC (Mod.).	Manual	"	A29,A30, A31	Adjust for maximum signal and MINIMUM noise on center peak. Keep generator output low.
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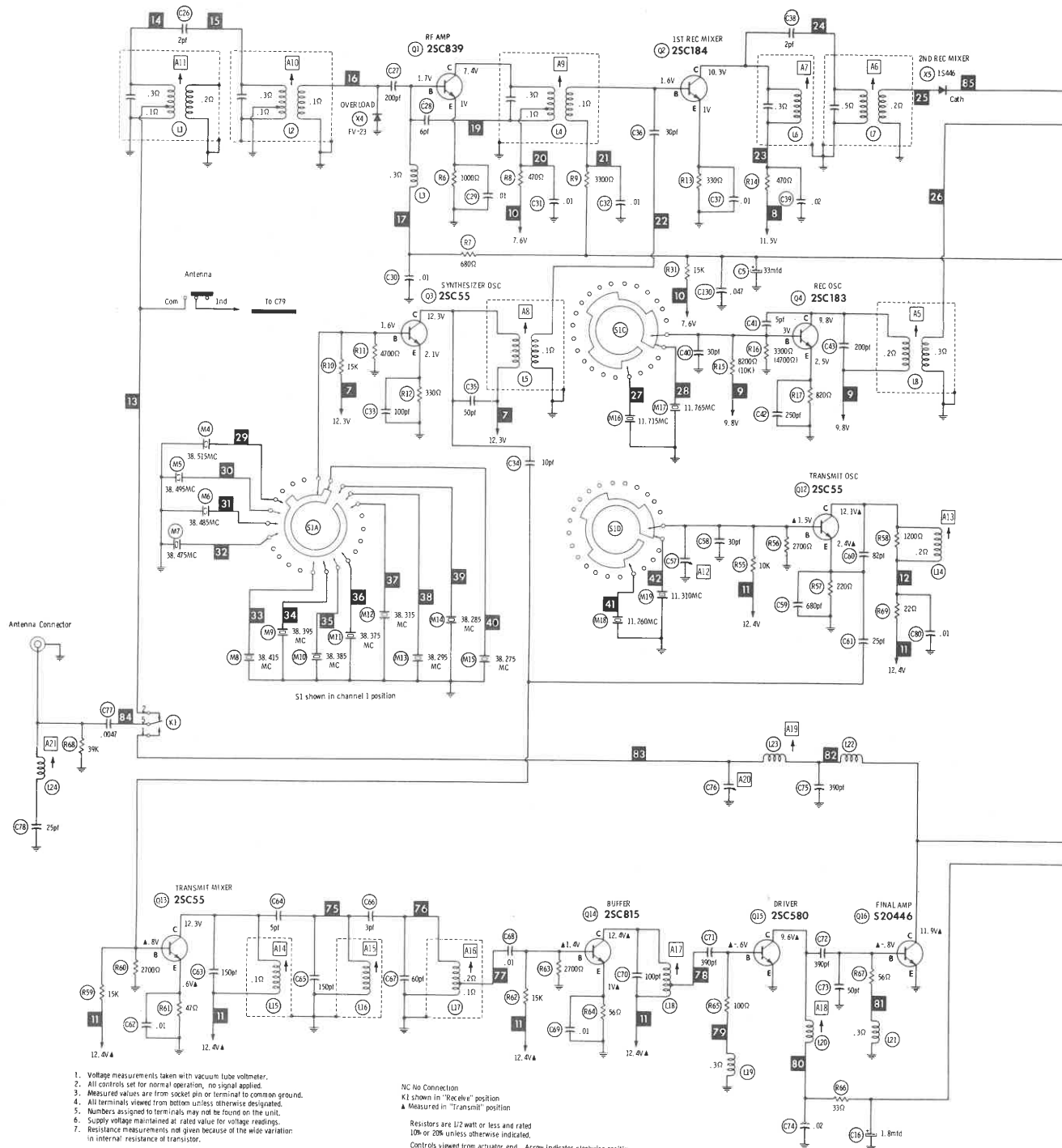


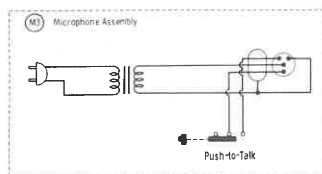
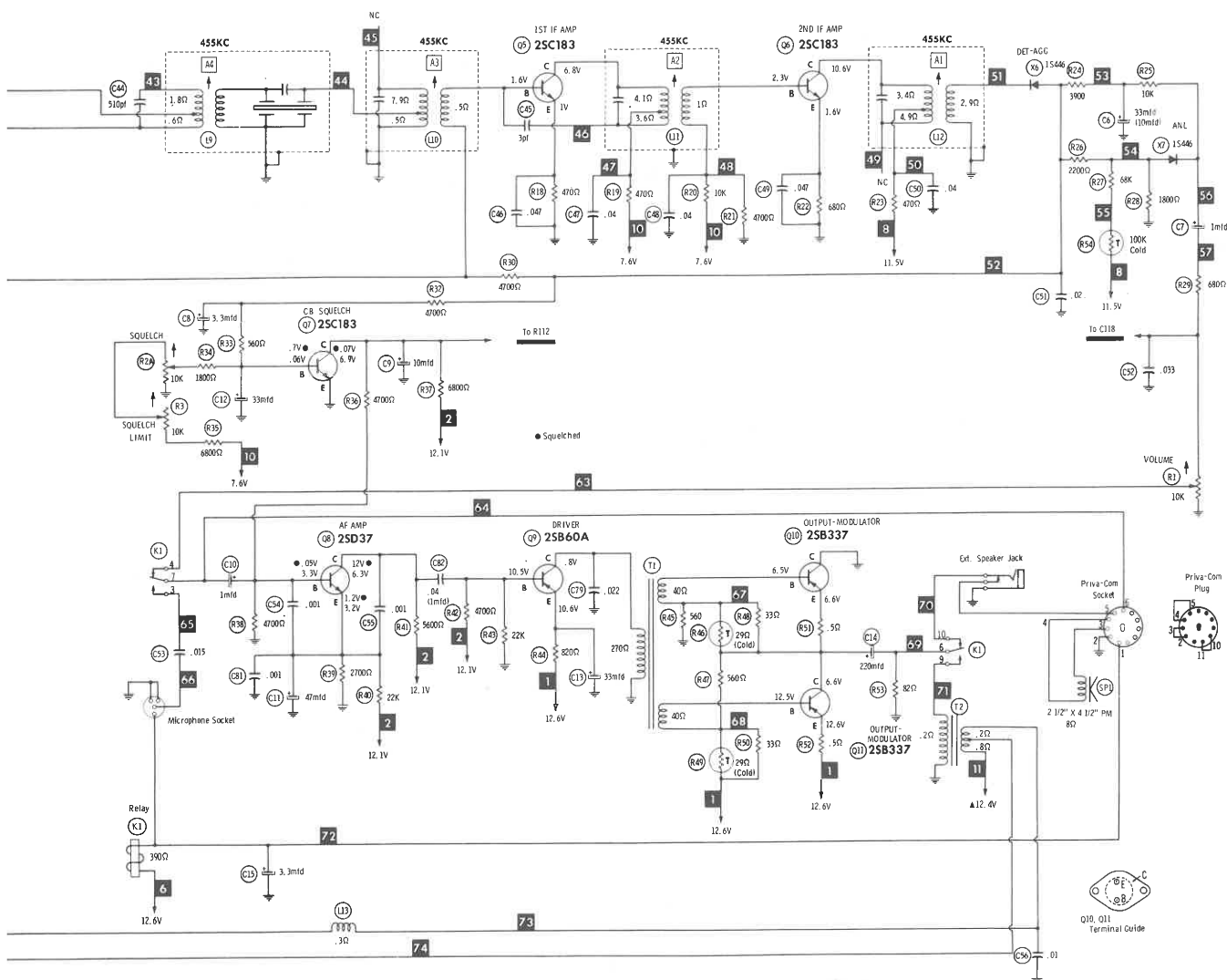






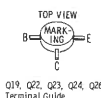
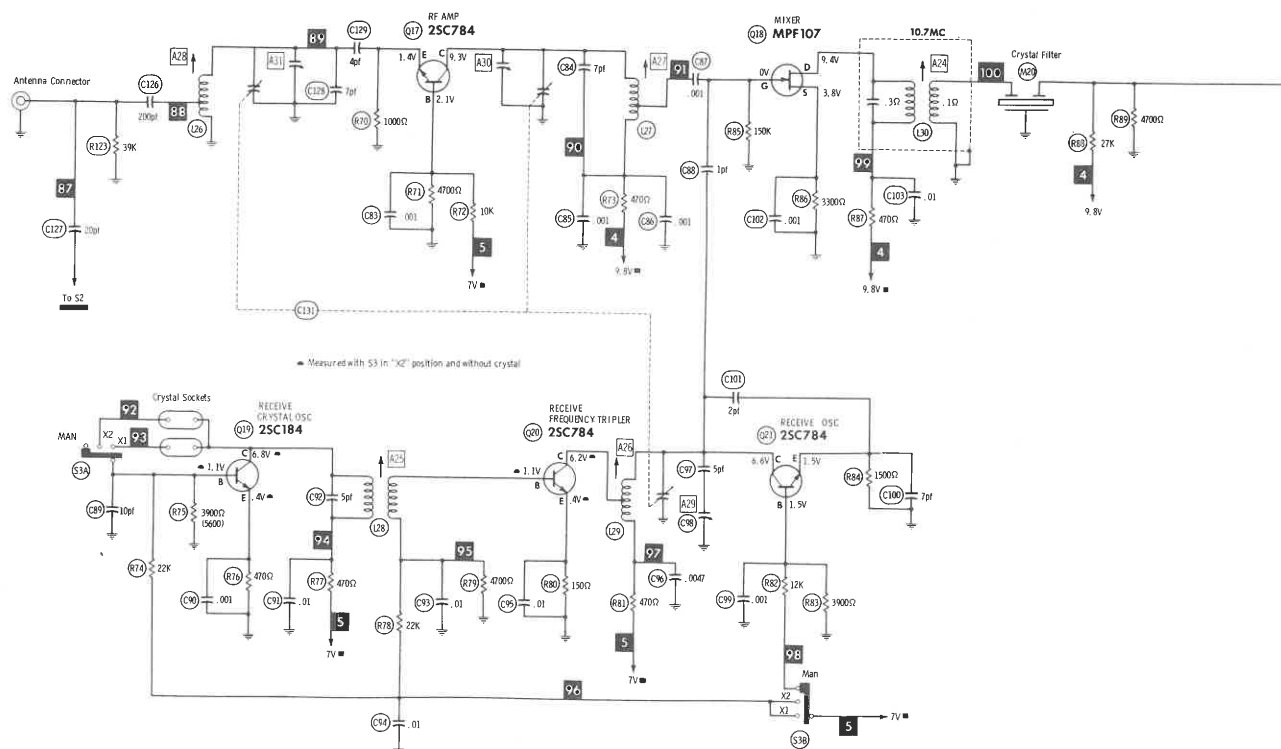






Q2, Q4 thru Q7
Terminal Guide





- Controls viewed from actuator end. Arrow indicates clockwise rotation.
- ▲ Measured in "Transmit" position
VHF Voltages measured with S3 in "Man" position.
Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
- ① See parts list
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found on the unit.
6. Supply voltage maintained at rated value for voltage readings.
7. Resistance measurements not given because of the wide variation in internal resistance of transistor.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**
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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)
		8496 3-Conductor, 1 Shielded, for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No.	7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No.	8661 (3/8 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	2SC839	RF Amp		GE-20	TR-21	HEP728	SK3018	ECG 108
Q2	2SC184	1st Rec. Mixer		GE-20	TR-21	HEP56	SK3018	ECG 108
Q3	2SC55	Synthesizer Osc.		GE-17	TR-22	HEP50	SK3018	ECG 108
Q4	2SC183	Rec. Osc	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q5	2SC183	1st IF Amp	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q6	2SC183	2nd IF Amp	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q7	2SC183	Squelch	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q8	2SD37	AF Amp	1349-17	GE-8	TR-09	HEP641	SK3010	ECG 101
Q9	2SB60A	Driver	1007-17	GE-2	TR-05	HEP250	SK3004	ECG 102
Q10	2SB337	Output - Modulator	1559-17	GE-3	TR-16	HEP232	SK3009	ECG 104
Q11	2SB337	Output - Modulator	1559-17	GE-3	TR-16	HEP232	SK3009	ECG 104
Q12	2SC55	Xmtr Osc.	1009-17	GE-17	TR-22	HEP50	SK3018	ECG 108
Q13	2SC55	Xmtr Mixer	1009-17	GE-17	TR-22	HEP50	SK3018	ECG 108
Q14	2SC815	Buffer						
Q15	2SC580	Driver	1010-17					
Q16	S20446	Final Amp.						
Q17	2SC784	RF Amp	1792-17	GE-17	TR-22	HEP56	SK3018	ECG 108
Q18	MPF107	Mixer	1859-17	GE-FET-1	FE-100			ECG 132
Q19	2SC184	Rec.Crystal Osc.		GE-20	TR-21	HEP56	SK3018	ECG 108
Q20	2SC784	Rec.Freq.Tripler	1792-17	GE-17	TR-22	HEP56	SK3018	ECG 108
Q21	2SC784	Rec. Osc.	1792-17	GE-17	TR-22	HEP56	SK3018	ECG 108
Q22	2SC183	1st IF Amp	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q23	2SC183	2nd IF Amp	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q24	2SC183	3rd IF Amp	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108
Q25	2SB60	Squelch Amp	1005-17	GE-2	TR-05	HEP250	SK3004	ECG 102
Q26	2SC183	Squelch	1210-17	GE-20	TR-22	HEP56	SK3018	ECG 108

INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFGR. PART No.	REMARKS
IC1	IF Amp & Ratio Detector	1909-17	

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	FV-22	GE-504A	8D4	ECG 117		Zener 6.2V Zener 7.5V
X2	FV-21	GE-2D-6.2	1ZM6.2-T10	ECG 137		
X3	FV-23		1ZM7.5-T10	ECG 138		
X4	1S446	1N34AS	1N34A	ECG 109		
X5	1S446	1N34AS	1N34A	ECG 109		
X6	1S446	1N34AS	1N34A	ECG 109		
X7	1S446	1N34AS	1N34A	ECG 109		
X8	1S446	1N34AS	1N34A	ECG 109		
X9	1S446	1N34AS	1N34A	ECG 109		

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		LAFAYETTE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000 16V	2454-12	PRS1230	EA15-1000	WBR1000-16	QT1-32	TC1501A	TL-1166.5
C2	220 16V	2745-12	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C3	47 16V	1006-12	BCD25050	EP15-50	PC50-16	MT1-16.5	MTV50CB15	TE-1160
C4	10 16V	2658-12	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C5	33 6.3V	2656-12	BCD12035	EP6-25	PC50-25	MT1-13	MTV30CB25	TE-1093
C6	33 10V	2801-12	BCD12035	EP15-25	PC50-25	MT1-13.5	MTV30CB25	TE-1159
C7	1 25V	1840-12	BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C8	3.3 50V	2867-12	BCD50003	EP50-5	PC5-100	MT1-3	MTV3CB50	TE-1302
C9	10 10V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1128
C10	1 25V	1840-12	BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C11	47 10V		BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1133
C12	33 10V	2801-12	BCD12035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1159
C13	33 16V	2627-12	BCD25035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1159
C14	220 16V	2745-12	BCD20200	EA15-250	PC200-16	QT1-28	MTV200CK15	TL-1164
C15	3.3 50V	2867-12	BCD50003	EP50-5	PC5-100	MT1-3	MTV3CB50	TE-1302
C16	1.8 25V	2381-12	BCD50002	EP30-2	PC2-100	MT1-1	MTV2CB50	TE-1201
C17	10 10V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1128
C18	1 25V	1840-12	BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C19	1 25V	1840-12	BCD50001	EP30-2	PC1-100	MT1-1	MTV1CB50	TE-1200
C20	1 50V	1805-12	BCD50001	EP50-2	PC1-100	MT1-1	MTV1CB50	TE-1300
C21	.68 25V				TYR13BF684K		TAS684K035P0A	196D684X0035 DB
C22	.47 25V	2253-12			TYR13BF474K		TAS474K035P0A	196D474X0035 DB
C23	10 10V		BCD25010		PC10-50	MT1-5	MTV10CB50	TE-1121

LAFAYETTE MODEL TELSAT 150

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C26	2		NPO-DI 2.2	DTZ-2R2	NPO2P2		CNO522	10TCC-V22
C27	200			CPR-200J	CD15F201J500	DM-15-201J	SX320	424ME2000J501
C28	6							10TCC-V56
C29	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C30	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C31	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C32	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C33	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C34	10		NPO-DI 10	DTZ-10	NP010	CCT0-100	CNO410	10TCC-Q10
C35	50		NPO-DI 50	DTZ-50	NP050	CCT0-510	CNO450	10TCC-Q50
C36	30			TCZ-30		CCT0-300		10TCC-Q30
C37	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C38	2		NPO-DI 2.2	DTZ-2R2	NPO2P2		CNO522	10TCC-V22
C39	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C40	30			TCZ-30		CCT0-300		10TCC-Q30
C41	5		NPO-DI 4.7	DTZ-4R7	NPO4P7		CNO547	10TCC-V47
C42	250		GPD X5F251K	DD-251		CCD-251	GP325	10TS-T25
C43	200			CPR-200J	CD15F201J500	DM-15-201J	SX320	424ME2000J501
C44	510			CPR-560J	CD19F561J500	DM-16-561J	SX356	424ME5600J501
C45	3		NPO-DI 3.0					10TCC-V30
C46	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C47	.04			DD-403			GP140	
C48	.04			DD-403			GP140	
C49	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C50	.04			DD-403			GP140	
C51	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C52	.033		TTP-03	CK-303		CCD-303	GP130	TG-S30
C53	.015		GPD X5U153P	DD-153	BYT601ZU153Z	CCD-153	GP115	10TS-S15
C54	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C55	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C56	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C57		#2866-12						
C58	30			TCZ-30		CCT0-300		10TCC-Q30
C59	680			CPR-680J	CD19F681J500	DM-16-681J	SX368	424ME6800J501
C60	82		GPD X5F820K	DD-820	JBZ601YP820K	CCD-820	GP482	10TS-Q82
C61	25		NPO-DI 25	DTZ-25			CNO425	10TCC-Q25
C62	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C63	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C64	5		NPO-DI 5.0		NP05			10TCC-V50
C65	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C66	3		NPO-DI 3.0					10TCC-V30
C67	60		GPD X5F560K	DD-560		CCD-560	GP456	10TS-Q56
C68	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C69	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C70	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C71	390		GPD X5F391K	DD-391		CCD-391	GP339	10TS-T39
C72	390		GPD X5F391K	DD-391		CCD-391	GP339	10TS-T39
C73	50		GPD X5F500K	DD-500	JBZ601YP500K	CCD-500	GP450	10TS-Q50
C74	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C75	390		GPD X5F391K	DD-391		CCD-391	GP339	10TS-T39
C76		#2536-12						
C77	.047		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C78	25		NPO-DI 25	DTZ-25			CNO425	10TCC-Q25
C79	.022							

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS(cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C80	.01	#2865-12	TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C81	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C82	.04			DD-403			GP140	
C83	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C84	7		NPO-DI 6.8	DTZ-6R8	NP06P8		CN0568	10TCC-V68
C85	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C86	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C87	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C88	1		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C89	10		NPO-DI 10	DTZ-10	NP010	CCT0-100	CN0410	10TCC-Q10
C90	.001		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C91	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C92	5		NPO-DI 5.0		NPO5			10TCC-V50
C93	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C94	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C95	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C96	.0047		GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47
C97	5		NPO-DI 5.0		NP05			10TCC-V50
C98								
C99	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C100	7		NPO-DI 6.8	DTZ-6R8	NP06P8		CN0568	10TCC-V68
C101	2		NPO-DI 2.2	DTZ-2R2	NP02P2		CN0522	10TCC-V22
C102	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C103	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C104	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C105	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C106	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C107	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C108	.04			DD-403			GP140	
C109	.1		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C110	.04			DD-403			GP140	
C111	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C112	.04			DD-403			GP140	
C113	.022		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C114	600			CPR-620J	CD19F621J500	DM-16-621J	SX362	424ME6200J501
C115	.018		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C116	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C117	.033		V1612S33		DMF1S33	1DP-1-333	PVC1133	225P33391
C118	.022		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C119	.022		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C120	.022		GPD Z5U203P	DD-203		CCD-203	GP120	10TS-S20
C121	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C122	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C123	.04			DD-403			GP140	
C124	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C125	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C126	200		GPD X5F201K	DD-201	GP200	CCD-201	GP320	10TS-T20
C127	20		NPO-DI 20	DTZ-20	NP020	CCT0-200	CN0420	10TCC-Q20
C128	7		NPO-DI 6.8	DTZ-6R8	NP06P8		CN0568	10TCC-V68
C129	4				NP03P9			10TCC-V39
C130	.047				MGP05			TGL-S50
C131		#2869-12	TTP-05	CK-503		CCD-503	TA150	

Lafayette Part Number.

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.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	10K	1525-11 (SGK81d)				
R2A	CB Squelch	10K	1526-11 (K83M)				
B	VHF Squelch	10K		T-10K (1)		X201R103B (1)	MTCL4L1 (1)
R3	Squelch Limit	10K	2269-13				

(1) Cut off one of the end terminals and bend to fit "PC" Board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R54	100K (Co1d)		FS-305	
R46	29 (Co1d)		FR-31	

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R49	29 (Co1d)		FR-31	

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Amp	1888-24			
L2	RF Amp	1888-24			
L3	RF Choke (2.2uh)	1472-23		74F226AP	T812
L4	RF Amp	1889-24			
L5	Synthesizer Osc.	1893-24			
L6	Input IF	1892-24			
L7	Interstage IF	1891-24			
L8	Oscillator	1894-24			
L9	Interstage IF	1332-24	(1)		
L10	Interstage IF	1890-24	16-9034	8811	
L11	Interstage IF	1887-24	16-9034	8811	
L12	Output IF	1886-24	16-9035	8817	
L13	RF Choke (2.2uh)	1472-23		74F226AP	T812
L14	Xmtr. Osc.	2157-23			
L15	Xmtr. Mixer	1896-24			
L16	Harmonic Suppressor	1896-24			
L17	Buffer	1895-24			
L18	Driver	2151-23			
L19	RF Choke (2.2uh)	1472-23			
L20	RF Interstage	2152-23			
L21	RF Choke (2.2uh)	1472-23			
L22	Ant. Matching (4 turns)	2150-23			
L23	Pi Filter	2149-23			
L24	TVI Trap	2148-23		4201	
L26	VHF Antenna	2156-23			
L27	VHF RF	2155-23			
L28	VHF Osc	2153-23			
L29	Tripler	2154-23			
L30	Input IF			8856 (2)	
L31	Ratio Detector	1885-24			
L32	RF Choke (680uh)			72F684AP	
L33	RF Choke (1.5uh)		19-2010	4606	T857

(1) Includes Filter

(2) Cut off unused pin.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L25	.32A	.1	.21mh	1573-15					

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T1	2.1	1	1	1574-15					

TRANSFORMER

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MFR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	.2	1 Tapped @ .2	1572-15					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	2 1/2" x 4 1/2" PM 8 ohm	1072-36	35A0528	

LAFAYETTE MODEL TELSAT 150

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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	1.5 Amp			AGC 1-1/2	RCM	31201.5	155000	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	1015-37	
M1	Lamps, VHF Pilot		
M2	Lamp		
M3	Assembly, Microphone	1010-34	
M4	Crystal		38.515MC Channels 20 & 23
M5	Crystal		38.495MC Channel 19
M6	Crystal		38.485MC Channels 18 & 22
M7	Crystal		38.475MC Channels 17 & 21
M8	Crystal		38.415MC Channels 12 & 16
M9	Crystal		38.395MC Channels 11 & 15
M10	Crystal		38.385MC Channels 10 & 14
M11	Crystal		38.375MC Channels 9 & 13
M12	Crystal		38.315MC Channels 4 & 8
M13	Crystal		38.295MC Channels 3 & 7
M14	Crystal		38.285MC Channels 2 & 6
M15	Crystal		38.275MC Channels 1 & 5
M16	Crystal		11.715MC Channels 5,6,7,8,13,14,15,16,21,22,23
M17	Crystal		11.765MC Channels 1,2,3,4,9,10,11,12,17,18,19,20
M18	Crystal		11.260MC Channels 5,6,7,8,13,14,15,16,21,22,23
M19	Crystal		11.310MC Channels 1,2,3,4,9,10,11,12,17,18,19,20
S1	Switch, Selector	1632-14	
S2	Switch, Antenna	1633-14	
S3	Switch, Manual-Crystal	1634-14	

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

ITEM	PART No.	ITEM	PART No.
Dial Glass	3473-20	Knob, Selector	1646-18
Dial Pointer	5623-10	Knob, Tuning	1647-18
Cabinet, Top	3468-10	Knob, VHF - CB	1648-18
Cabinet, Bottom	3469-10	Knob, Volume	1649-18
Cabinet, Front	3460-10		

DIAL CORD STRINGING—FRONT VIEW

