



# PHOTOFACT<sup>®</sup>



**TRADE NAME:** Hallmark Model 512  
**SUPPLIER:** Hallmark Instruments, Inc.  
 6612 Denton Drive  
 P. O. Box 10941, Dallas, Texas  
**TYPE SET:** 9 Tube Transceiver  
**POWER SUPPLY:** 110 - 120VAC, 60 Cycles (or)  
 12 Volt Storage Battery  
**RATING:** .54 Amp. @ 117VAC (or)  
 4.5 Amp. @ 12.6VDC  
**TUNING RANGE:** Any 12 CB Channels 1 thru 23

HALLMARK MODEL 512

## ALIGNMENT INSTRUCTIONS

### Suggested Alignment Tools:

A1 thru A4.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5.....	GENERAL CEMENT #8721, 8271, 8867
A6, A7, A8, A9.....	GENERAL CEMENT #8606, 8606L, 8869 WALSCO #2543, 2544, 2588
A10.....	GENERAL CEMENT #5000, 5003, 5066 WALSCO #2512, 2525, 2528

### RECEIVER ALIGNMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .1mfd to pin 7 (grid) of converter (V2), low side to chassis. Tune to 455KC.	Any	A1, A2, A3, A4	Adjust for maximum output.
Across antenna receptacle. Tune to channel frequency.	Center Channel Used.	A5, A6	Adjust for maximum output.

### TRANSMITTER ALIGNMENT

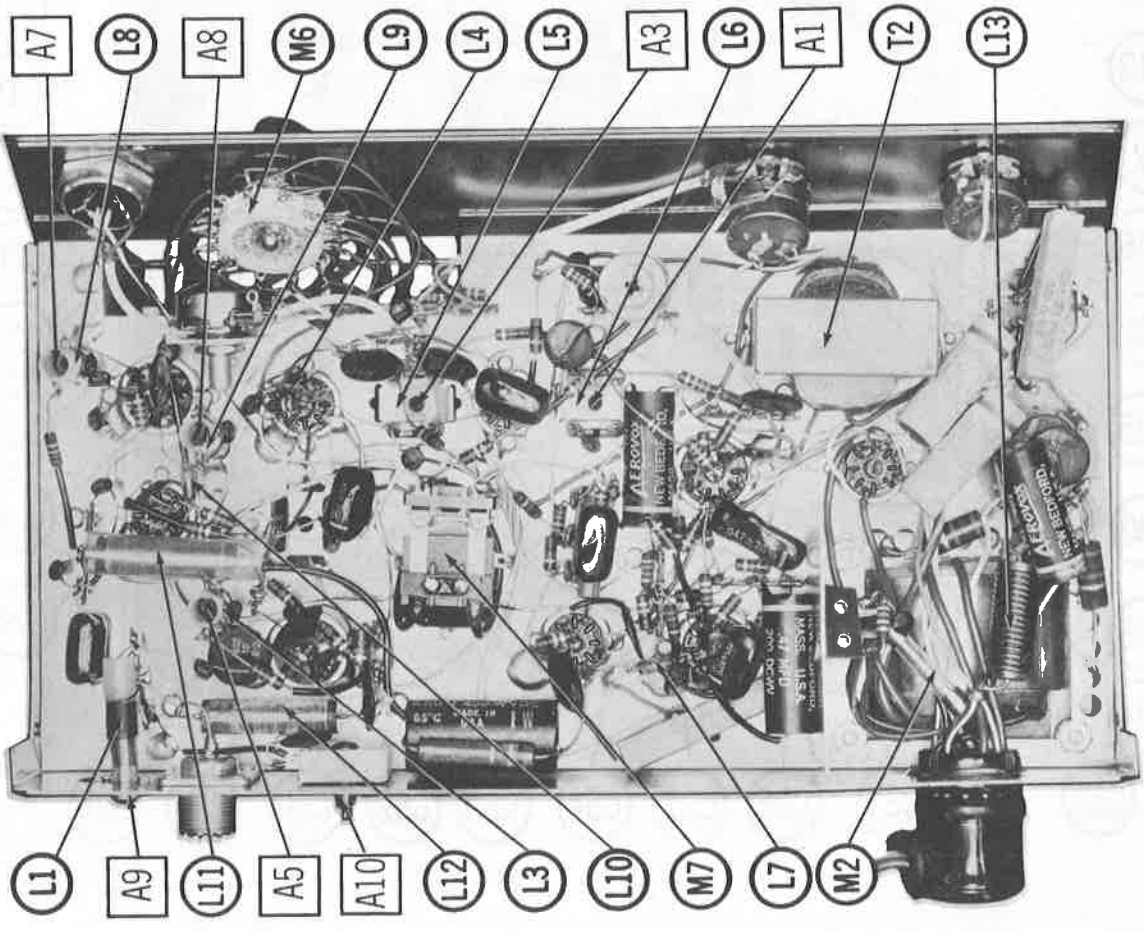
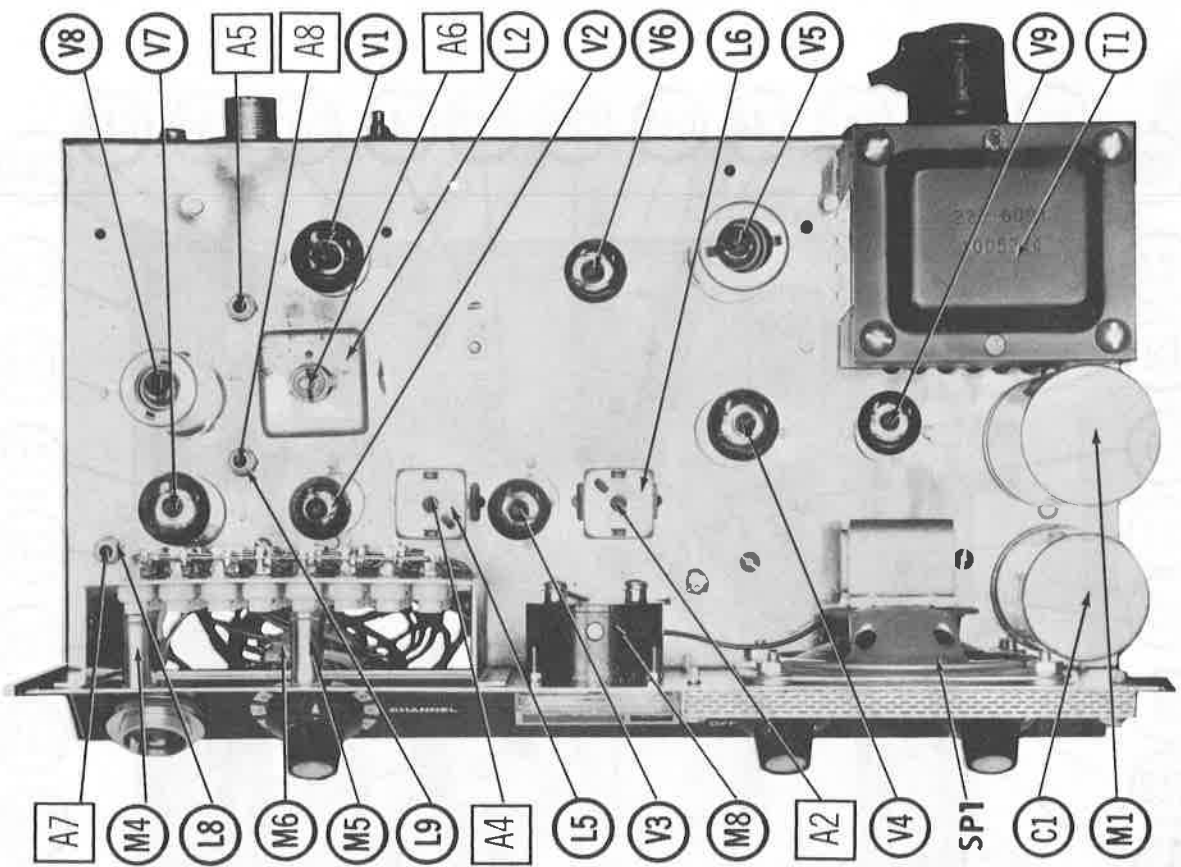
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

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

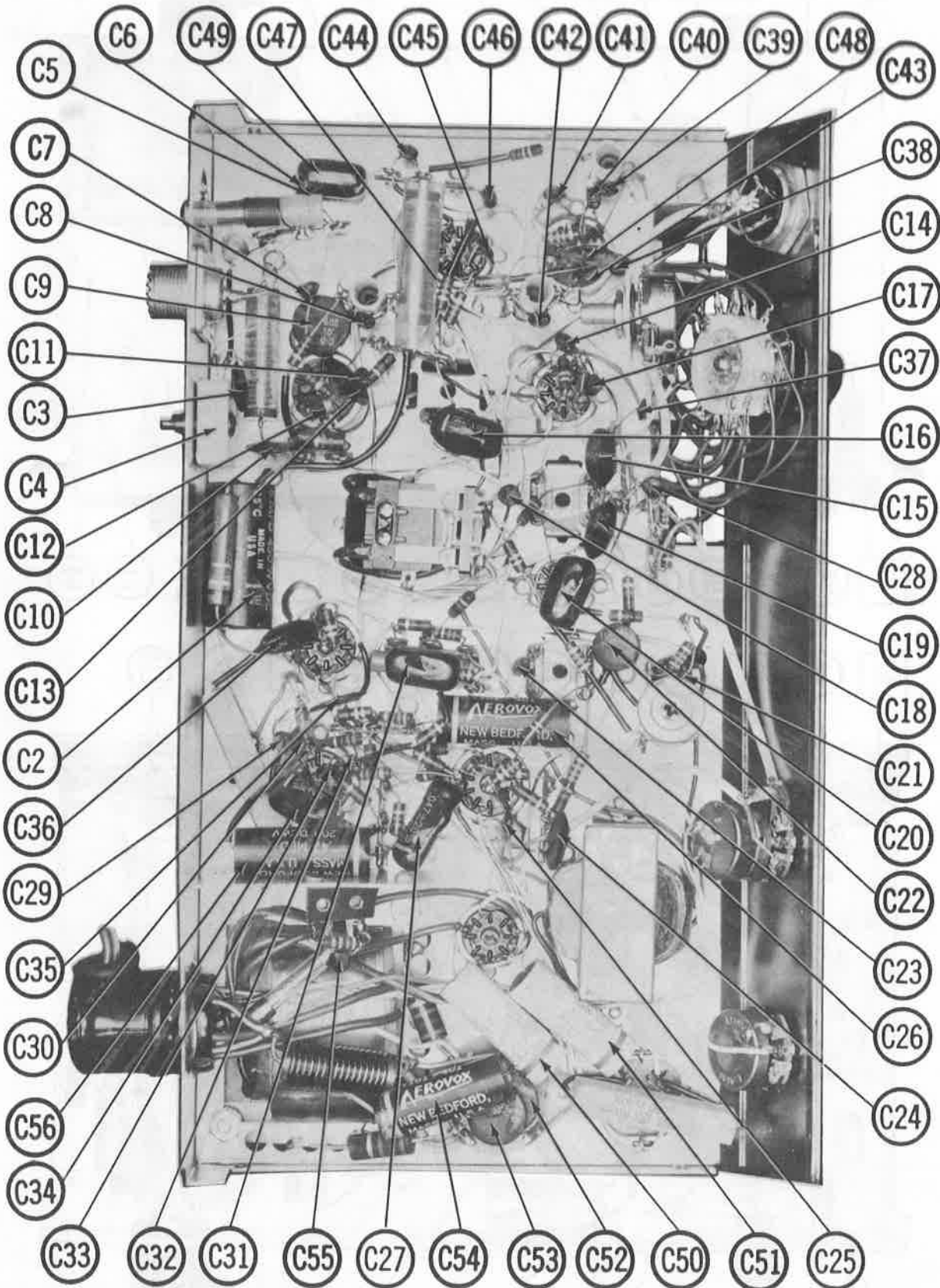
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

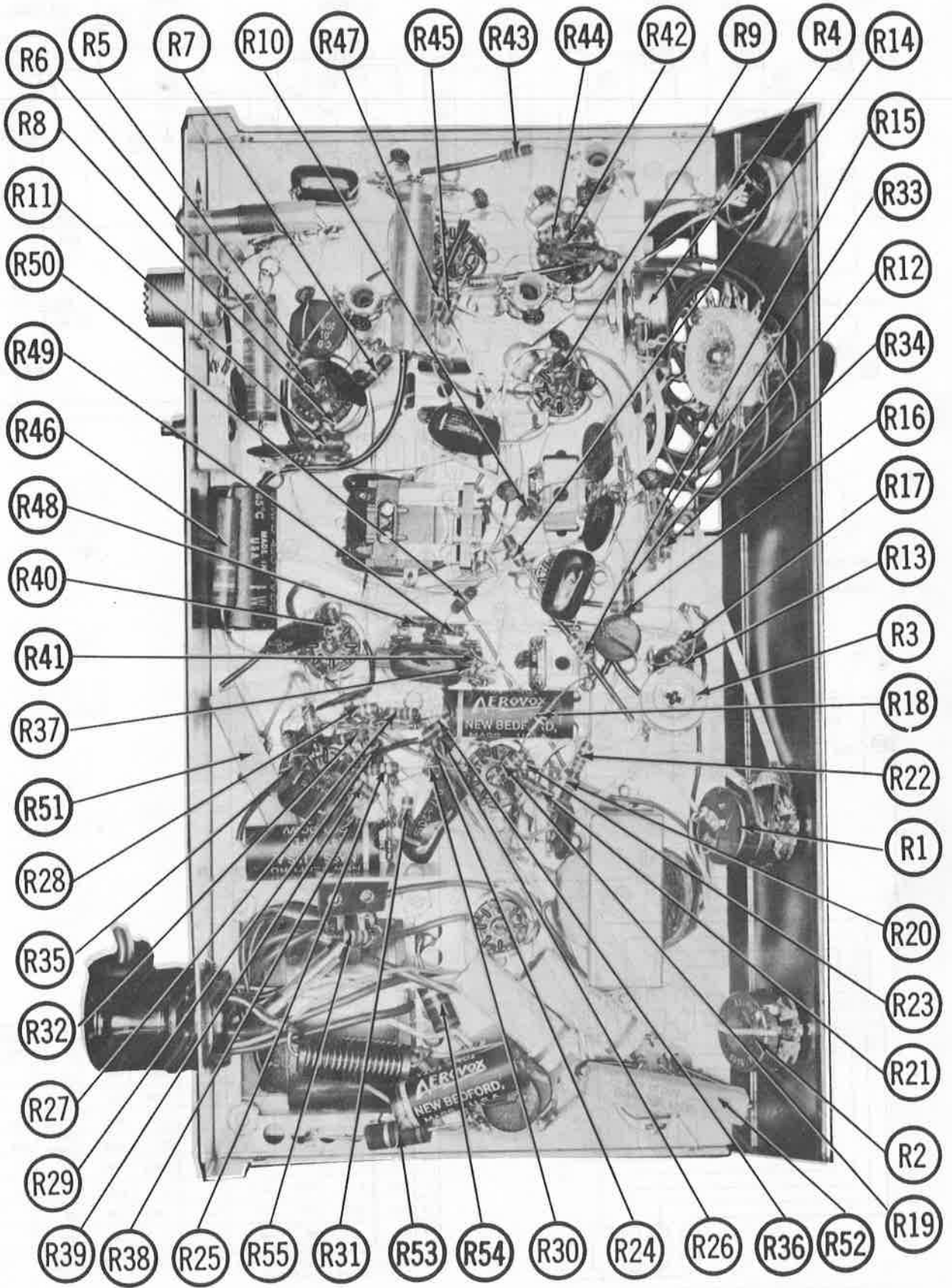
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Connect dummy load to antenna receptacle. Use Wattmeter or field strength meter.	Center Channel Used.	A7	Key transmitter. Adjust for maximum output. Set A7 just below peak. Key transmitter several times to be sure oscillator starts on all channels.
"	"	A8, A9, A10	Key transmitter. Adjust for maximum output.

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

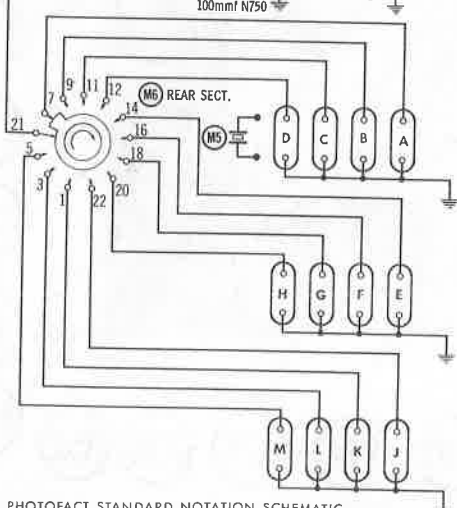
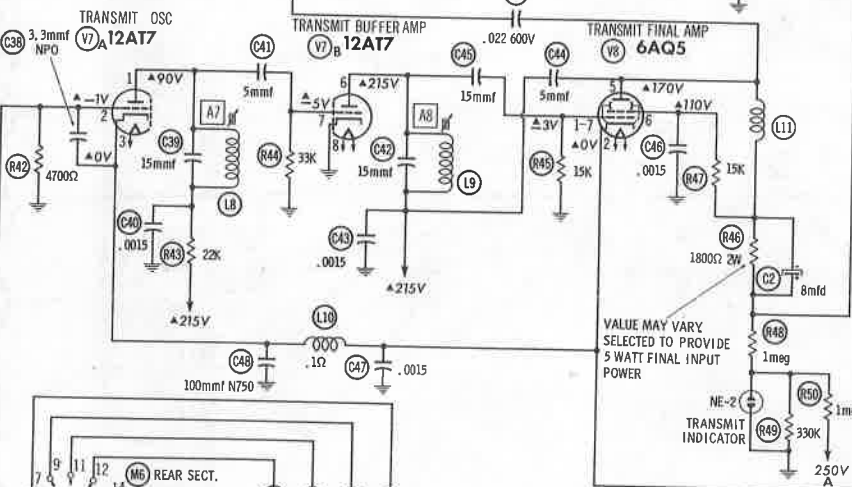
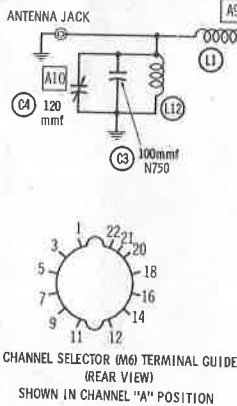
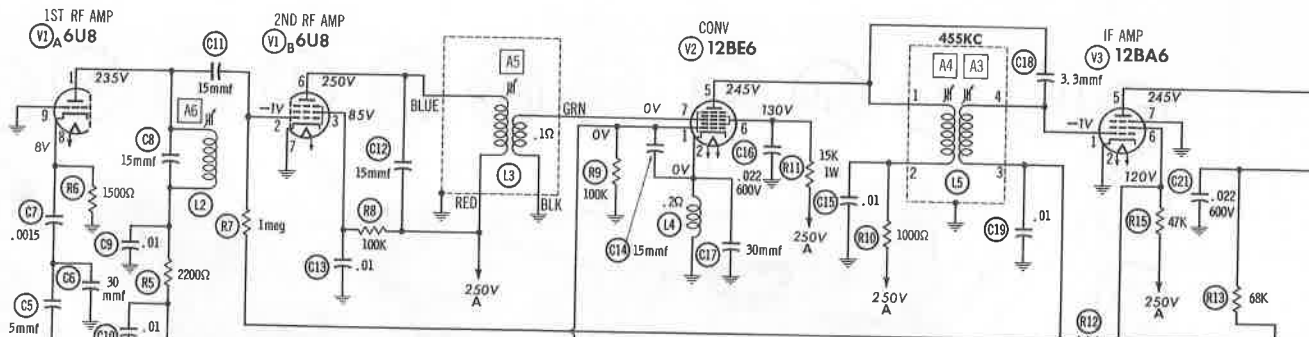


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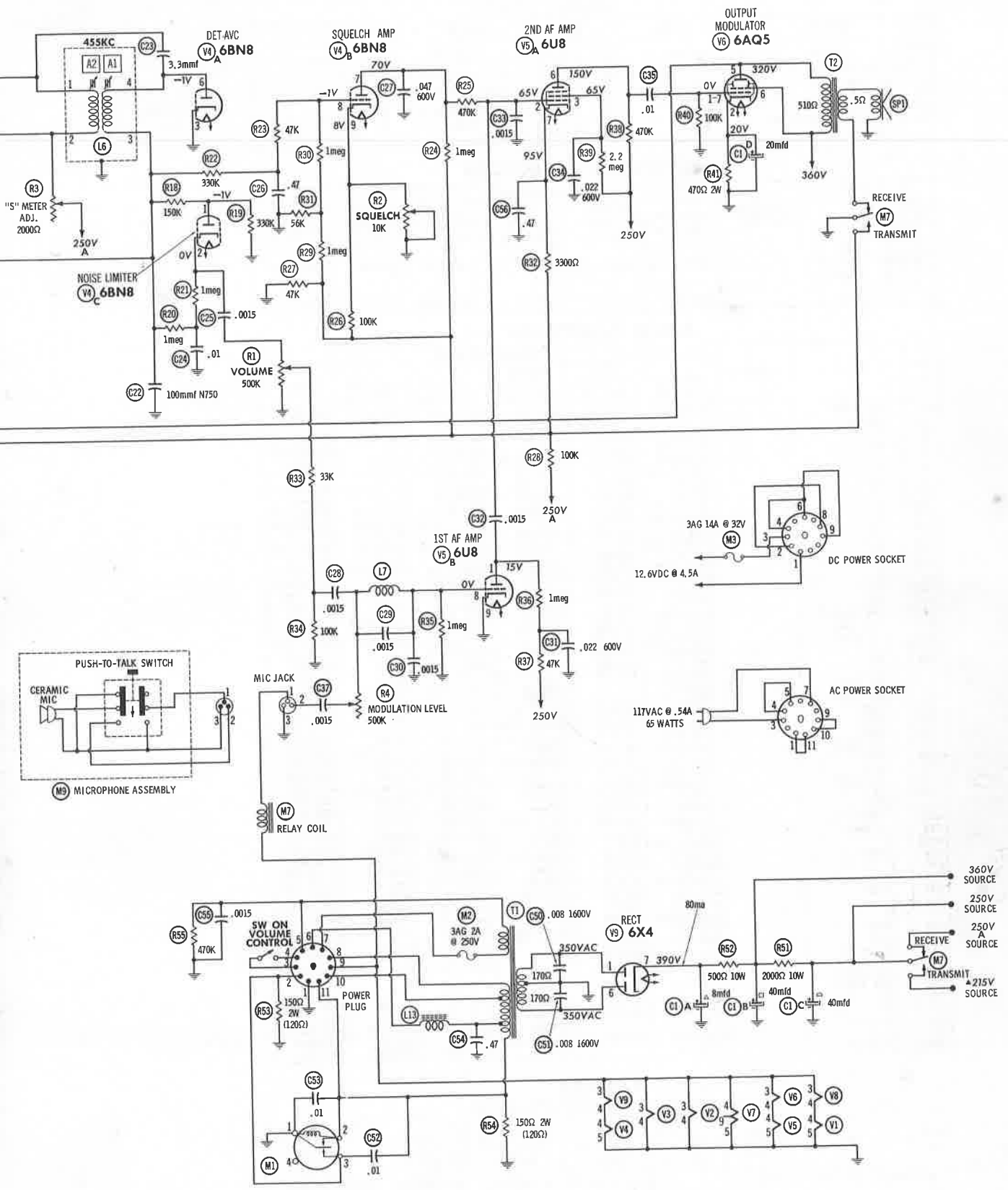




RESISTANCE READINGS										
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	14700Ω	2.7meg	†100K	FIL	FIL	†2500Ω	0Ω	1500Ω	0Ω
V2	12BE6	100K	.2Ω	FIL	FIL	†3500Ω	†17K	.1Ω		
V3	12BA6	1.6meg	0Ω	FIL	FIL	†2500Ω	147K	0Ω		
V4	6BN8	280K	2.2meg	0Ω	FIL	FIL	320K	†1.1meg	500K	8000Ω
V5	6U8	†1meg	†1.6meg ▲1.5meg	†2meg	FIL	FIL	†470K	†100K ▲3300Ω	1meg	0Ω
V6	6AQ5	100K	470Ω	FIL	FIL	†1100Ω	†500Ω	100K		
V7	12AT7	▲†25K	4700Ω	▲.1Ω	FIL	FIL	▲†2500Ω	33K	0Ω	FIL
V8	6AQ5	15K	▲0Ω	FIL	FIL	†3200Ω	†18K	15K		
V9	6X4	170Ω	NC	NC	TP	NC	170Ω	150K		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.  
 ▲ MEASURED IN "TRANSMIT" POSITION. TP TIE POINT NC NO CONNECTION  
 † MEASURED FROM PIN #7 OF V9.

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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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.

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# PARTS LIST AND DESCRIPTION

## TUBES

ITEM No.	USE	REPLACEMENT DATA		
		HALLMARK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.
V1	RF Amp.	6U8		
V2	Converter	12BE6		
V3	IF Amp.	12BA6		
V4	Detector-Noise Limiter-Squelch	6BN8		
V5	AF Amp. -Speech Amp.			6U8
V6	Output-Modulator			6AQ5
V7	Trans. Osc. -Buffer			12AT7
V8	Final RF Amp.			6AQ5
V9	Rectifier			6X4

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HALLMARK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	8	450							
B	40	450							
C	40	450							
D	20	25							
C2	3	450							
				AFH4-78-10	D0640	KC4-21	TMQ-4547	FP-429	TVL-4736
				PRS1715	BR8-450	QT1-4	TD-8-450	TC-71	TVA-1704

## FIXED 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.
C3	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C4	120mmf							
C5	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C6	30		NPO-DI 33	TCZ-30	C10Q3C	CCTO-300		10TCC-Q30
C7	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C8	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C12	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C17	30		NPO-DI 33	TCZ-30	C10Q3C	CCTO-300		10TCC-Q30
C18	3.3		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C21	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C22	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C23	3.3		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C26	.47 400V		P488N-P5		CUB4P5	4DP-5-504	GEM-405	4PS-P50
C27	.047 600V		P688N-047	DD-503	PM6S47	6DP-3-473	GEM-6147	6TM-S47
C28	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C29	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C30	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C31	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C32	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C33	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C34	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C38	3.3 NPO		NPO-SI 3	DD-3R3	C10V3C	CCTO-3R3	GP533	10TS-V33
C39	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C40	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C41	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C42	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C43	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C44	5		NPO-DI 5	TCZ-5	C10V5C	CCTO-050	CNO-547	10TCC-V50
C45	15		ADM-15-150	TCZ-15	C10Q15C	CM-15-150J	CNO-415	10TCC-Q15
C46	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C47	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C48	100 N750		N750-DI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C49	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C50	.008 1800V							
C51	.008 1800V							
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	.47 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2PS-P50
C55	.0015		BPD-0015	DD-152	LA10D15-C4	CCD-152	B-215	10TS-D15
C56	.47 200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2PS-P50

## CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			HALLMARK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	500K		F2-500K, SU204, KR-2 or (B-60-S)	A47-500K-Z RS-2, SWE-20	Q13-133, PQ, 78-2 or (BU2, CF25, SS5, WF)*	UA55A, SL2500, US-42 or (RU55A, SL38, SL2500, US-42) or (U48, US-27)
R2	Squelch	10K		F1-10K, SU204 or (B-14)	A47-10K-S RS-2	Q11-116, PQ or (BU1, CF9, SS5, DC1) *	UA14L, SL2500 or (RU14L, SL38, SL2500) or (U20)
R3	"S" Meter Adjust	2000Ω 2W			U39-2000		
R4	Modulation Level	500K		F2-500K, SU204 or (B-60)	A47-500K-Z RS-2	Q13-133, PQ or (BU1, CF25, SS5, DC1) *	UA55A, SL2500 or (RU55A, SL38, SL2500) or (U48)

\* "SNAPTROL"

# PARTS LIST AND DESCRIPTION (CONTINUED)

## RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R51	3000Ω 10W	PW10-200	10W-SQ-200		R52	500Ω 10W	PW10-500	10W-SQ-500	

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HALLMARK PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna		BC-562	4604	RTC-8516	T856	
L2	Bandpass		TV-118	6171-A	RTC-8609	T216	
L3	Bandpass						
L4	Cath. Choke(1uh)		BC-562	4604	RTC-8516	T976	
L5	1st IF		BC-352	12-C1	RTC-8632	T623	
L6	2nd IF		BC-352	12-C2	RTC-8633	T623	
L7	RF Choke (1uh)		BC-562	4604	RTC-8516	T976	
L8	Trans. Osc.		TV-118	6171-A	RTC-8609	T216	
L9	Buffer Plate		TV-118	6171-A	RTC-8609	T216	
L10	RF Choke (1uh)		BC-562	4604	RTC-8516	T976	
L11	RF Choke (24uh)		BC-565	4609	RTC-8519	T863	
L12	RF Choke (24uh)		BC-565	4609	RTC-8519	T863	
L13	Hash Filter		BC-537	5219	RTC-9181	T983	

## TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	HALLMARK PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @.540A (or) 12.6V DC @ 4.5A	700VCT @.080A	12.7V @3.1A	222-6001					

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HALLMARK PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	4800Ω	3-4Ω		A-3019	A-8092	26849	S-5Z	

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		HALLMARK PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-4Ω	35B995	3A07	

## VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				HALLMARK PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6	115v		8301	G1601	

## FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						
			HALLMARK PART No.		LITTELFUSE PART No.		BUSS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER	
M2	3AG	2A 250V P/T			318002 (3AG 2A 250V P/T)			GJV-2	
M3	3AG	14A 32V	①		312014 (3AG 14A 32V)	155020		AGC-14	HDJ

① DC Operation only.

## MISCELLANEOUS

ITEM No.	PART NAME	HALLMARK PART No.	NOTES
M4	Crystal		Receiver (order by frequency & channel desired) Transmit (order by frequency & channel desired) Crystal Selector (Receive) Crystal Selector (Transmit) Receive-Transmit  Includes Push-to-talk Switch
M5	Crystal		
M6A	Switch		
B	Switch		
M7	Relay		
M8	"S" Meter		
M9	Microphone Ass'y.		

## 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.)

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