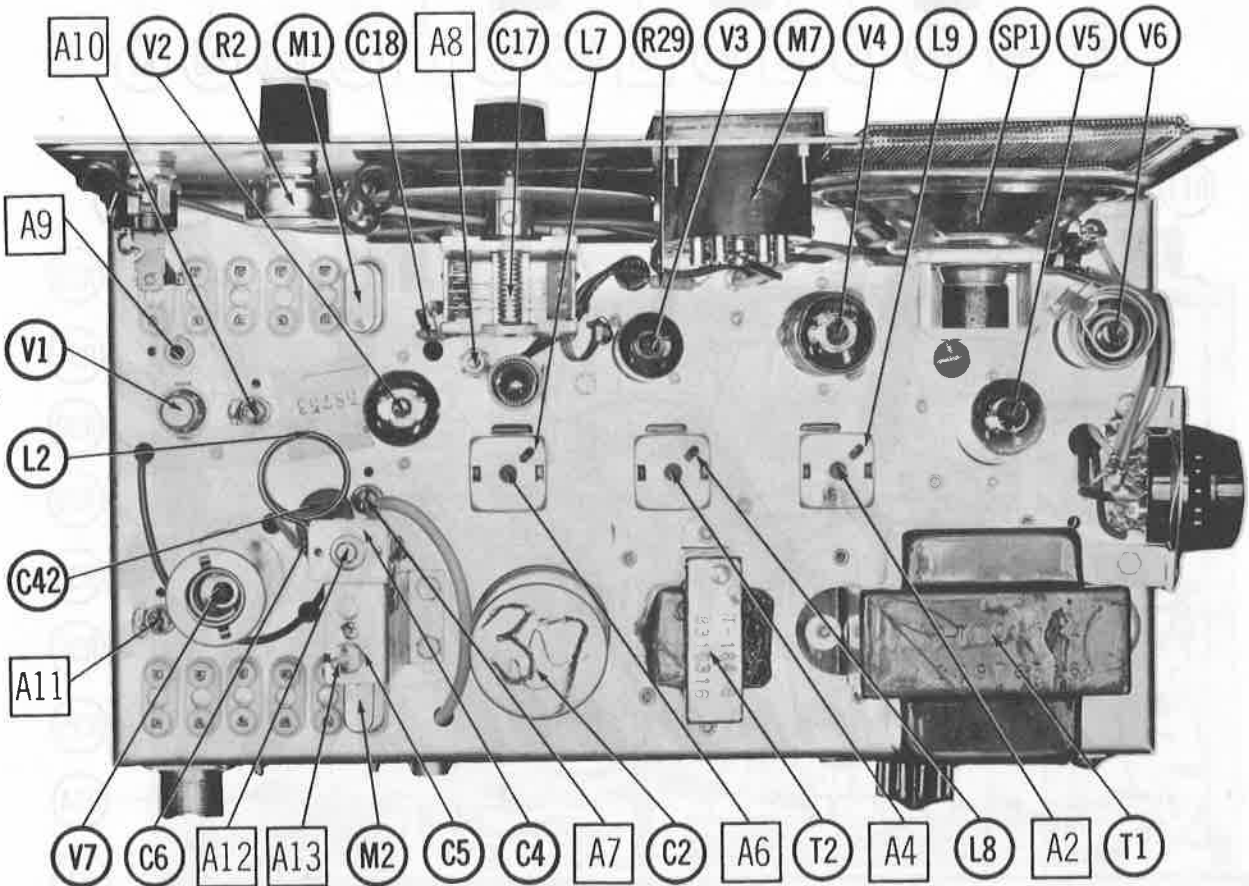


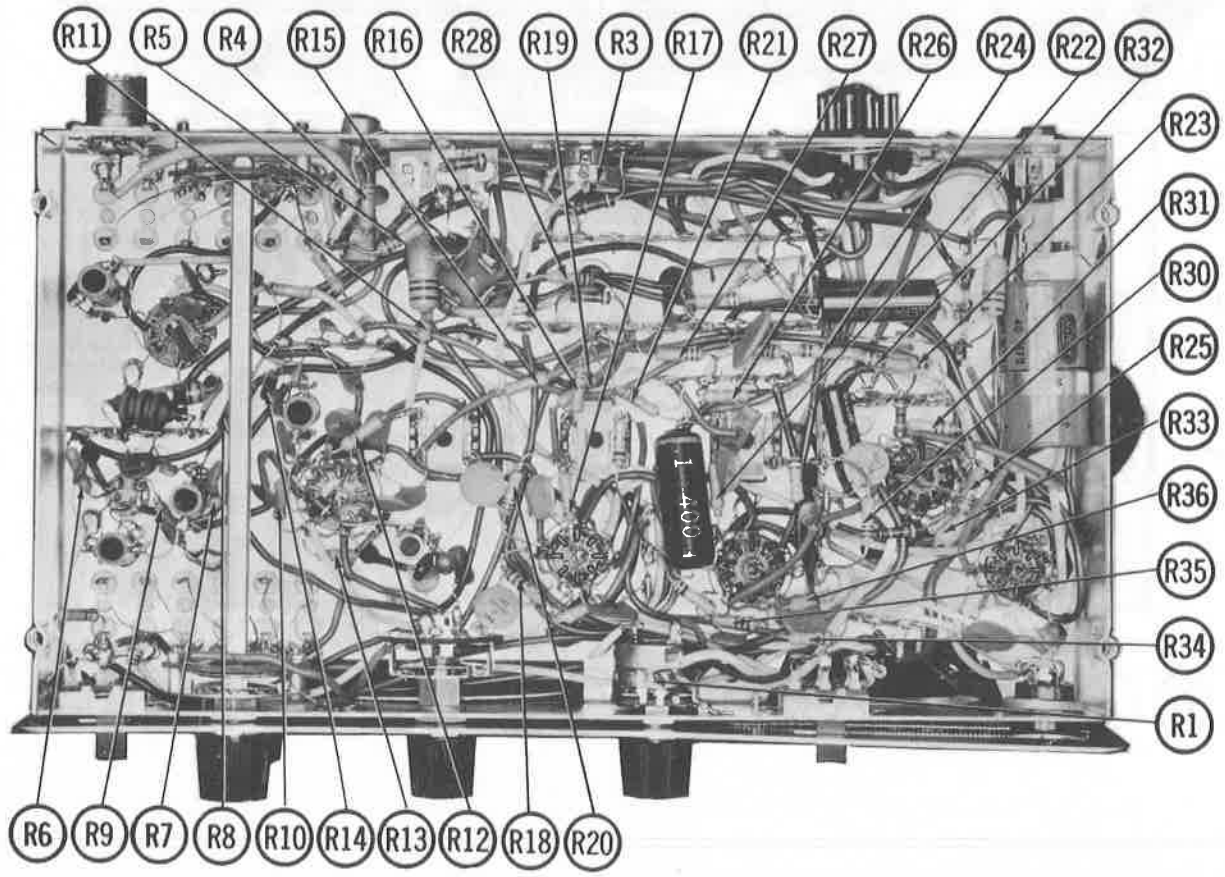
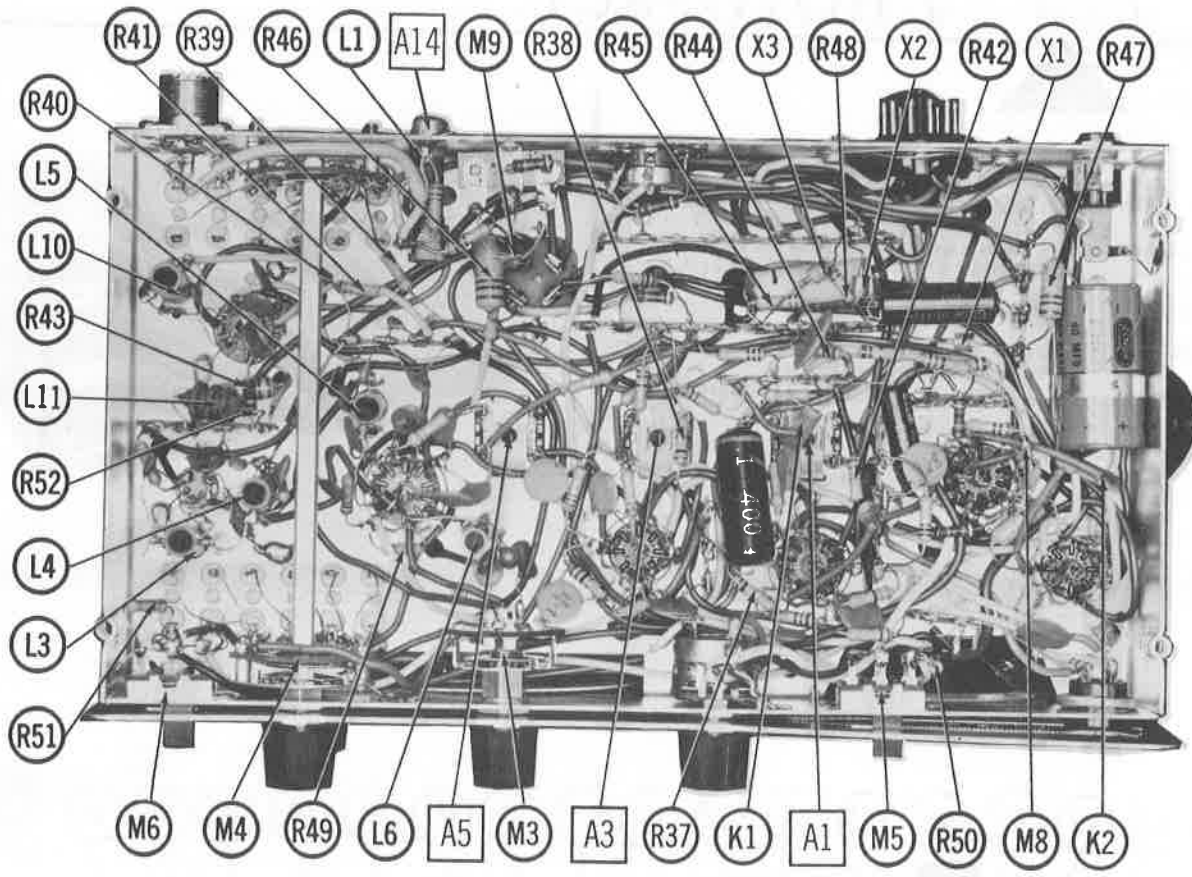
# PHOTOFACT®

TRADE NAME : Lafayette Model HE-90  
 SUPPLIER : Lafayette Radio Electronics Corp.  
 111 Jericho Turnpike, Syosset, L. L., N. Y.  
 TYPE SET : 7 Tube Transceiver  
 POWER SUPPLY : 110 - 120 Volts AC, 50-60 Cycles (or)  
 6 (or) 12 Volt Storage Battery  
 RATING : 48 Watts, .55 Amp. @ 117 VAC (Receive)  
 TUNING RANGE : Any 6 CB Channels 1 thru 23  
 Receiver may be continuously tuned.



LAFAYETTE MODEL HE-90

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



# ALIGNMENT INSTRUCTIONS

**Suggested Alignment Tools:**

A1 thru A6.....	GENERAL CEMENT #5097, 8727, 8607 WALSCO #2515
A7, A8, A9, A10, A11, A13, A14.....	GENERAL CEMENT #8282, 8606, 8606L WALSCO #2526, 2543, 2544
A12.....	GENERAL CEMENT #5000, 5003, 5066 WALSCO #2512, 2525, 2528

**RECEIVER ALIGNMENT**

Connect output meter across voice coil.  
Output of signal generator should be no higher than necessary to obtain an output indication.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .01mfd to pin 2 of V2 (mixer), low side to chassis. Tune to 1650KC (400% Mod.).	Any	A1 thru A6	Adjust for maximum output.
High side thru .01mfd to antenna receptacle, low side to chassis. Tune to channel frequency.	11 (27.085MC)	A7	Set crystal-tune switch to crystal position. Adjust A7 until a signal is heard. This is not a sharp adjustment and should be set in the middle of the range. Check operation on lowest and highest channels used and readjust A7 as required.
"	11	A8	Set crystal-tune to tune position. Set tuning dial on Channel 11. Turn A8 all the way in (clockwise) then back out until a signal is heard. A8 will peak at several locations. Use the lowest peak. (slug most in the coil).
"	11	A9	Disconnect one end of R8 to remove voltage from plate of V1. With the output of the signal generator turned to maximum, adjust A9 for MINIMUM deflection. Reconnect R8.
"	11	A10	Adjust for maximum deflection.

**TRANSMITTER ALIGNMENT**

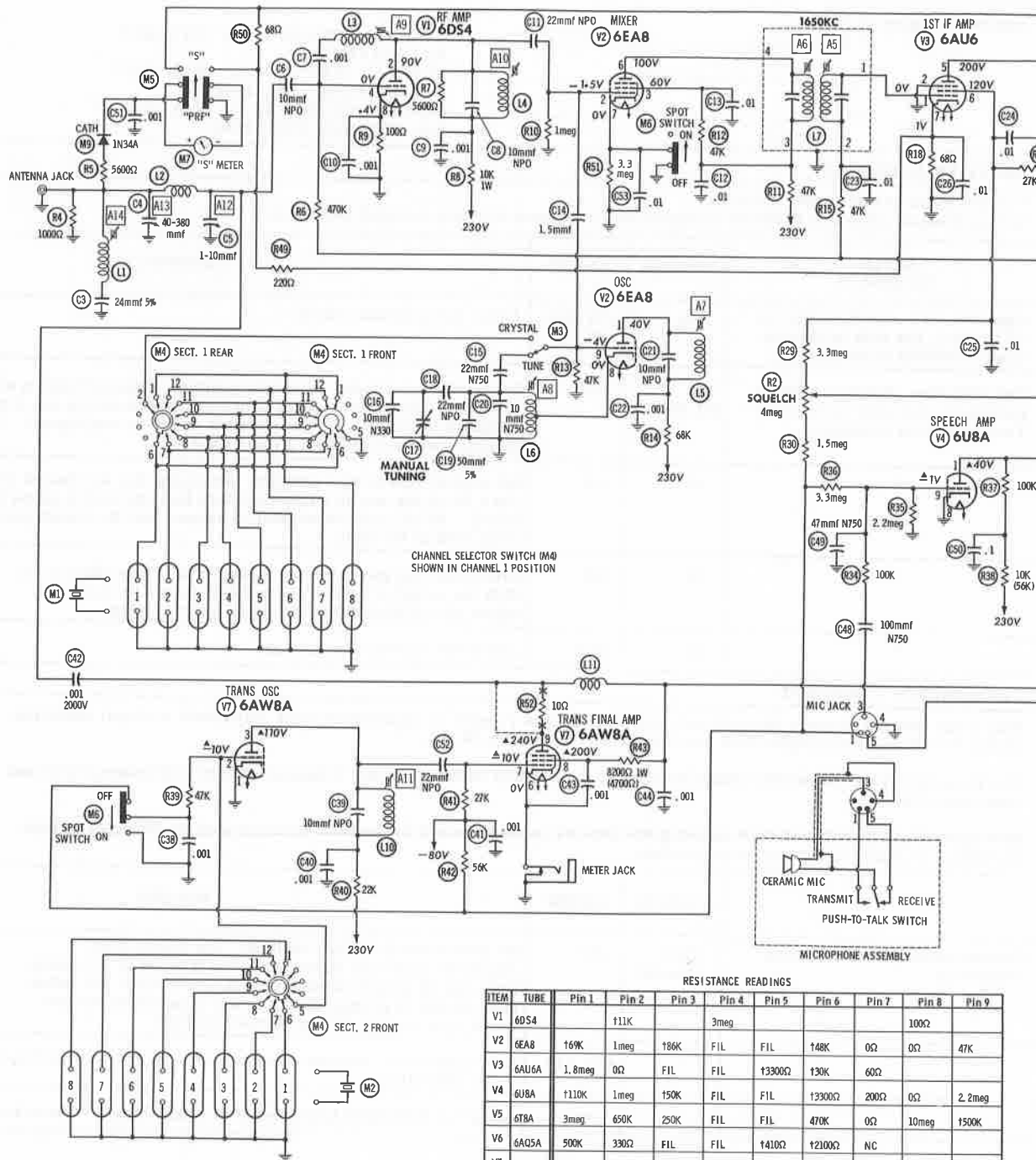
Only those persons properly licensed are permitted to make repairs or adjustments which may result in illegal operation. (Refer to FCC rules and regulations Part 19, Subpart D, Section 19.71).

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.

	CHANNEL	ADJUST	REMARKS
Connect dummy load to antenna receptacle.	Used Channel	A11	Set meter switch to PRF position. Key transmitter. Adjust for maximum deflection on the front panel RF meter. Note rate of dropoff on each side of peak and set just below peak on side of gradual dropoff. Key transmitter several times to be sure oscillator starts each time.
"	"	A12, A13	Key transmitter. Alternately adjust A12 and A13 for maximum meter deflection.
		A14	Adjust for MINIMUM interference on lower three TV channels.

LAFAYETTE MODEL HE-90



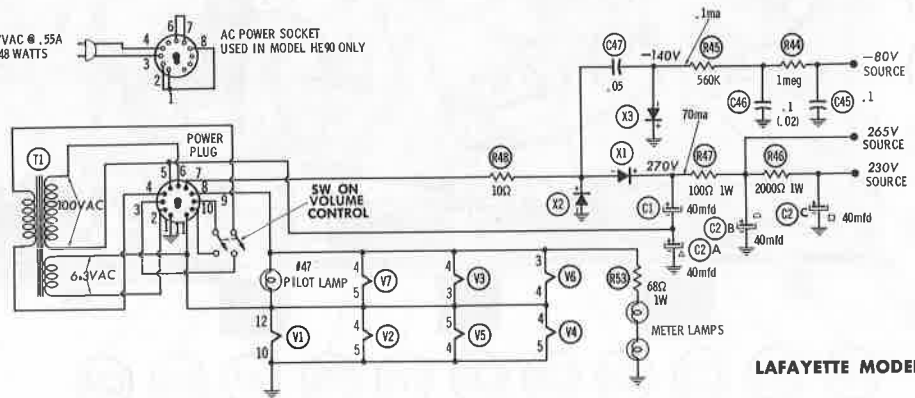
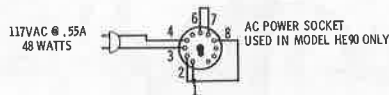
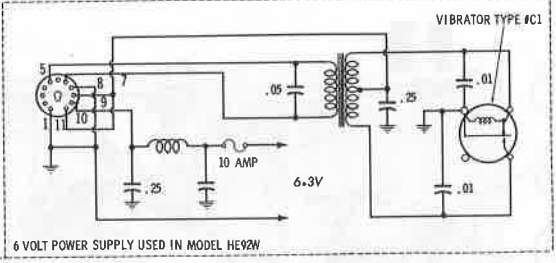
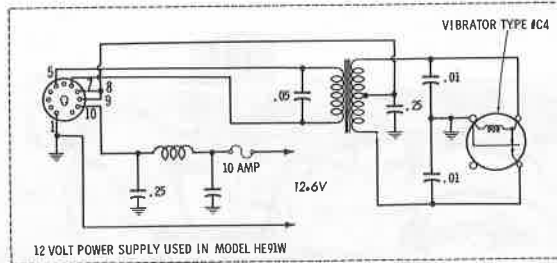
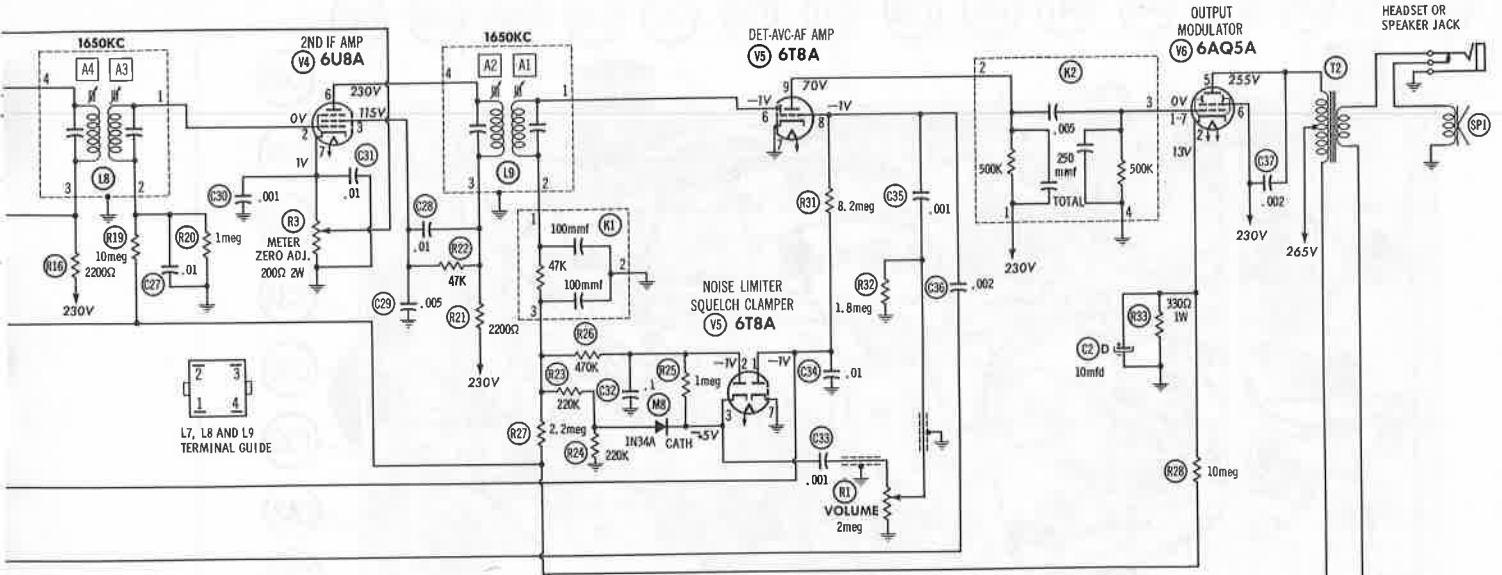
RESISTANCE READINGS

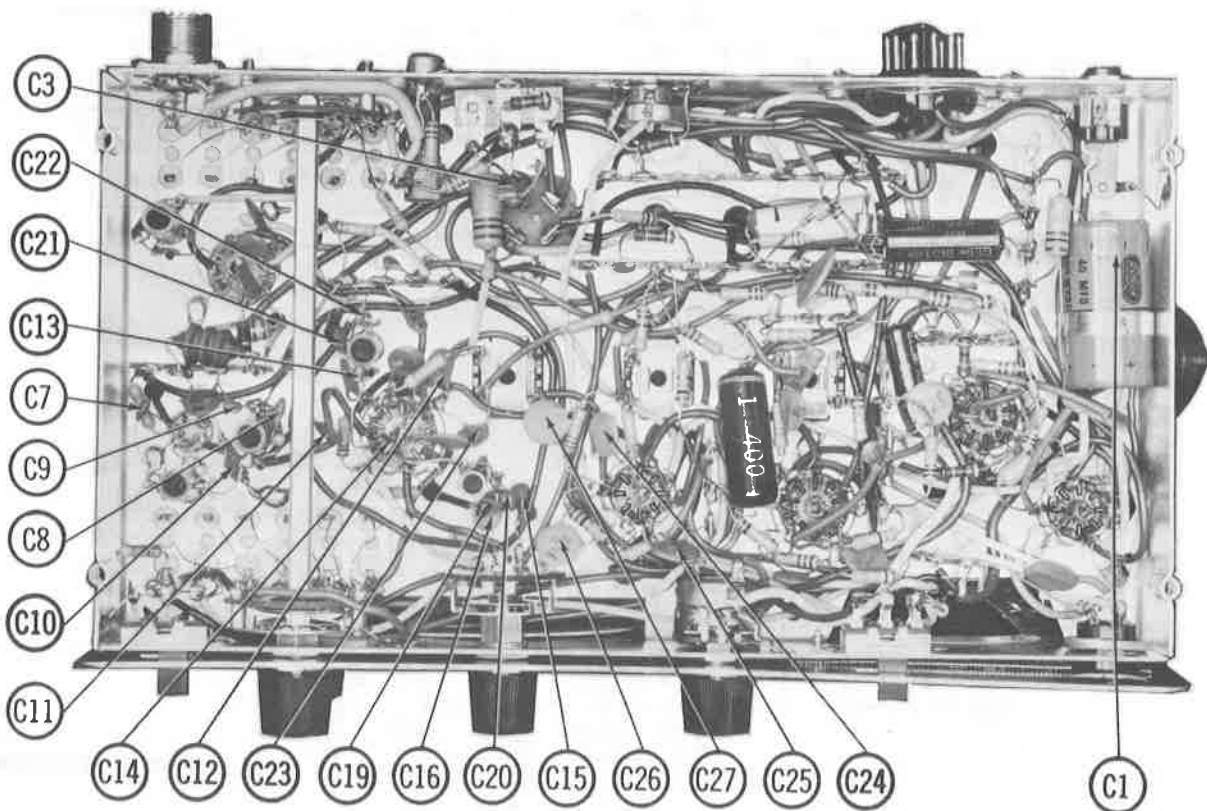
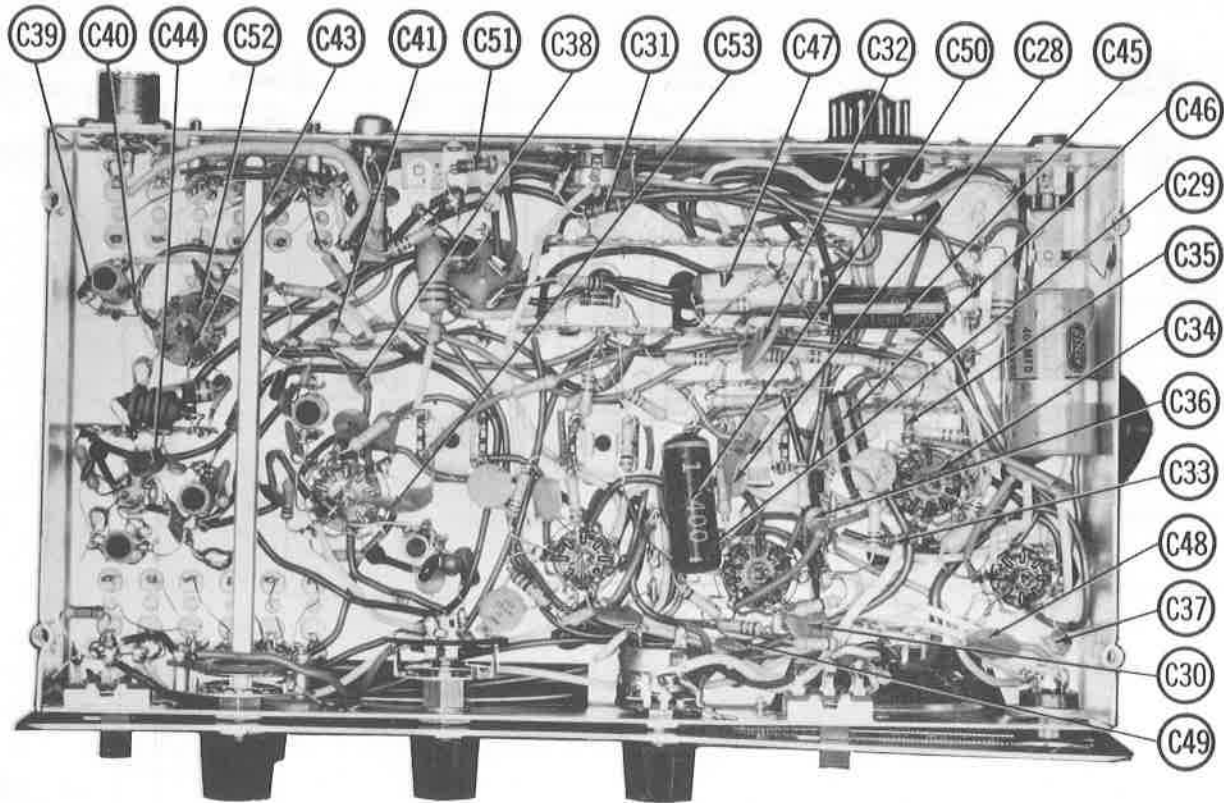
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DS4		†11K		3meg				100Ω	
V2	6EA8	169K	1meg	186K	FIL	FIL	148K	0Ω	0Ω	47K
V3	6AU6A	1.8meg	0Ω	FIL	FIL	†3900Ω	130K	60Ω		
V4	6U8A	†110K	1meg	150K	FIL	FIL	†3900Ω	200Ω	0Ω	2.2meg
V5	6T8A	3meg	650K	250K	FIL	FIL	470K	0Ω	10meg	1500K
V6	6AQ5A	500K	330Ω	FIL	FIL	1410Ω	†2100Ω	NC		
V7	6AW8A	0Ω	▲47K	†2200Ω	FIL	FIL	0Ω	▲85K	†8500Ω	1600Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.  
 † MEASURED FROM OUTPUT OF X1 NC NO CONNECTION  
 ▲ MEASURED IN "TRANSMIT" POSITION.

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.

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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# PARTS LIST 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) 8258 (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.)

## TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.	6DS4	V5	Det. -AVC-AF Amp. -ANL	6T8
V2	Receiver Mixer-Osc.	6EA8	V6	Output - Modulator	6AQ5A
V3	1st IF Amp.	6AU6	V7	Trans. Osc. -Final Amp.	6AW8A
V4	2nd IF Amp. -Speech Amp.	6U8A			

## POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.070A	SR846-2	1N2070	1N1763	40H
X2	.070A	SR846-2	1N2070	2N1763	40H
X3	.0001A	SR846-2	1N2070	2N1763	40H

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Lafayette PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	40	200	E238-1	PRS1580	BR4025	QT1-14	TD-40-250	TC58	TVA-1511
C2A	▲40	350	E237-1	AFH3-43 PRS1580	C0340 BR4035	XC4-22	TMT-3700 TD-40-350	FP425	TVLS-4624.5* TVA-1611
B	▲40	350							
C	■40	200							
D	10	50							

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

## 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	24 5%	#V-235A-5	NPO-DI 10 BPD-001 NPO-DI 10 BPD-001 BPD-001 NPO-DI 22 BPD-01 BPD-01 NPO-SI 1.5 N750-DI 22	DTZ-10 DD-102 DTZ-10 DD-102 DD-102 DTZ-22 DD-103 DD-103 TCZ-1R5 DTN-22 TCA-10	C10Q1C BYA10D1 C10Q1C BYA10D1 BYA10D1 C10Q22C BYA10S1 BYA10S1 C10V15C C10Q22U	CCTO-100 CCD-102 CCTO-100 CCD-102 CCD-102 CCTO-220 CCD-103 CCD-103 CNO-515 CCTN-220	CNO-410 B-210 CNO-410 B-210 B-210 CNO-422 B-110 B-110 CNO-515 CN7-422	10TCC-Q10 5HK-D10 10TCC-Q10 5HK-D10 5HK-D10 10TCC-Q22 5HK-S10 5HK-S10 10TCC-V15 10TCU-Q22 10TCS-Q10
C4	40-380							
C5	1-10							
C6	10 NPO							
C7	.001							
C8	10 NPO							
C9	.001							
C10	.001							
C11	22 NPO							
C12	.01							
C13	.01							
C14	1.5							
C15	22 N750							
C16	10 N330							
C17								
C18	22 NPO							
C19	50 5%							
C20	10 N750							
C21	10 NPO							
C22	.001							
C23	.01							
C24	.01							
C25	.01							
C26	.01							
C27	.01							
C28	.01							
C29	.005							
C30	.001							
C31	.01							
C32	.1 50V							
C33	.001							
C34	.01							
C35	.001							
C36	.002							
C37	.002							
C38	.001							
C39	10 NPO							
C40	.001							
C41	.001							
C42	.001 2000V							
C43	.001							
C44	.001							
C45	.1 200V							
C46	.1 200V							
C47	.05 200V							
C48	100 N750							
C49	47 N750							
C50	.1 400V							
C51	.001							
C52	22 NPO							
C53	.01							

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

# Lafayette Part Number.

† Alternate Value.

# PARTS LIST AND DESCRIPTION (CONTINUED)

## CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			Lafayette PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	2meg	V-329-4	F2-2meg, SU204, KR-1 or (B-76, KR-1)	A47-2meg-Z, FS-3, SWE-12	Q13-139, 76-1, or (BU1, CF26, SS1, GC)*	UA26A, SF1000, US-41 or (RU26A, SL38, SF1000, US-41 or (U55, US-26)
R2	Squelch	4meg	V-339-1	F1-4meg, SU204, AK-31 or (B-84, AK-31)	A47-4meg-S, FS-3	QCB1①, B11-240, TM5 or (BU2, CF22, SS14, DC1)*	UA36L, SF1000, or (RU36L, SL38, SF1000) or (U67, EB-247)
R3	Meter Zero Adjust	200Ω 2W	P325-3			W11-100, SK5, or (BU1, WF1, SS9)*	

\* "SNAPTROL"

① Use QCB1 instead of Tab Mount Plate in TM5.

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Lafayette PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	54MC Trap	C-191-2 ①					① 7 Turns #36 Wire
L2	Antenna Load	C-194-1					
L3	Neutralizing	C-1016-1					
L4	RF Coil	C-180-2					
L5	Receiver Osc. Plate	C-180-2					
L6	Receiver Osc. Cath	O-189-4					
L7	1st IF	I-110-5					
L8	2nd IF	I-110-5					
L9	3rd IF	I-110-5					
L10	Transmitter Osc.	O-180-2	TV-118	6171-A	RTC-8609	T216	
L11	RF Choke (.5MH)	C-185-12					

## TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @.550A	100VAC @.070A DC	6.3VAC @2.4A	PT-1015-2					

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Lafayette PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	10.2K Tap @ 4000Ω	3-4Ω	T-184-6					

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Lafayette PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	S719-1	3A05	

## COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Lafayette PART No.	REPLACEMENT DATA
K1	Diode RF Filter	47K, 100mmf, 100mmf	C209-1	Aerovox PA-97 Centralab PC-50
K2	Audio Coupling	500K, 500K, 250mmf, .005mf	2066-1	Sprague D-1 Aerovox PA-112-1 Centralab PC-70 Mallory MS-111 Sprague T-3

## MISCELLANEOUS

ITEM No.	PART NAME	Lafayette PART No.	NOTES
M1	Crystal		Receive (order by channel and frequency)
M2	Crystal		Transmit (order by channel and frequency)
M3	Switch	8111-3	Tune-Crystal
M4	Switch	BS-876-1	Channel Selector
M5	Switch		Meter (S-P RF)
M6	Switch		Spot Calibrate (Off-On)
M7	Meter	8109	"S" or RF Indicating
M8	Squeich Rectifier		1N34A
M9	Meter Rectifier		1N34A
	Microphone	M-879-1	Includes Push-to-Talk switch

## CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - Tuning	K4005-21	Cabinet	C9185-1
Knob - With Reference Dot	K4005-22	Speaker Grille	SG-9184-1
Front Panel	FP9183-1	Dial Scale	DS-917A-4