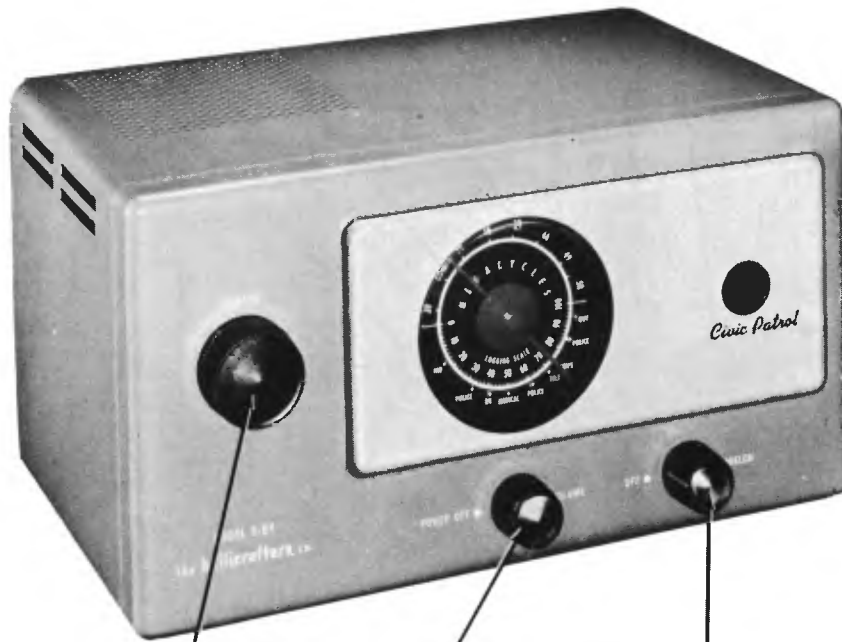




**HALLICRAFTERS
MODEL S-94**



TUNING

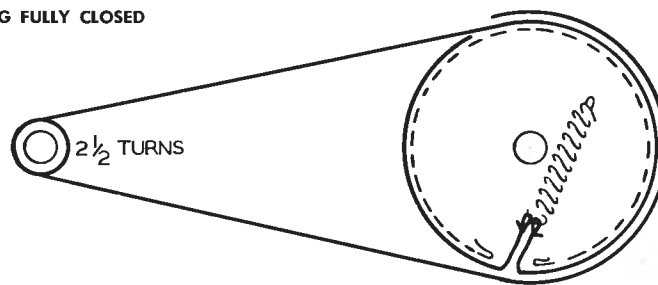
**POWER
ON-OFF
SWITCH
VOLUME
CONTROL**

**SQUELCH
ON-OFF
SWITCH
SQUELCH
CONTROL**

**HALLICRAFTERS
MODEL S-94**

TRADE NAME	Hallicrafters Model S-94 (Ch. Mark 1A)	
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Illinois	
TYPE SET	AC-DC Operated FM Superheterodyne Receiver	
TUBES (Eight)	Types 6BH6 RF Amp., 12A7 Mixer-Osc., 12BA6 1st. IF Amp., 12BA6 2nd. IF Amp., 12AL5 Ratio Det., 6BH6 AF Amp., 50L6 Output, 12AU7 Squelch	
POWER SUPPLY	105-125 Volts AC-DC	RATING .35 Amp. @ 117 Volts AC
TUNING RANGE-	FREQ. MOD. 30MC-50MC	

TUNING GANG FULLY CLOSED



DIAL CORD STRINGING

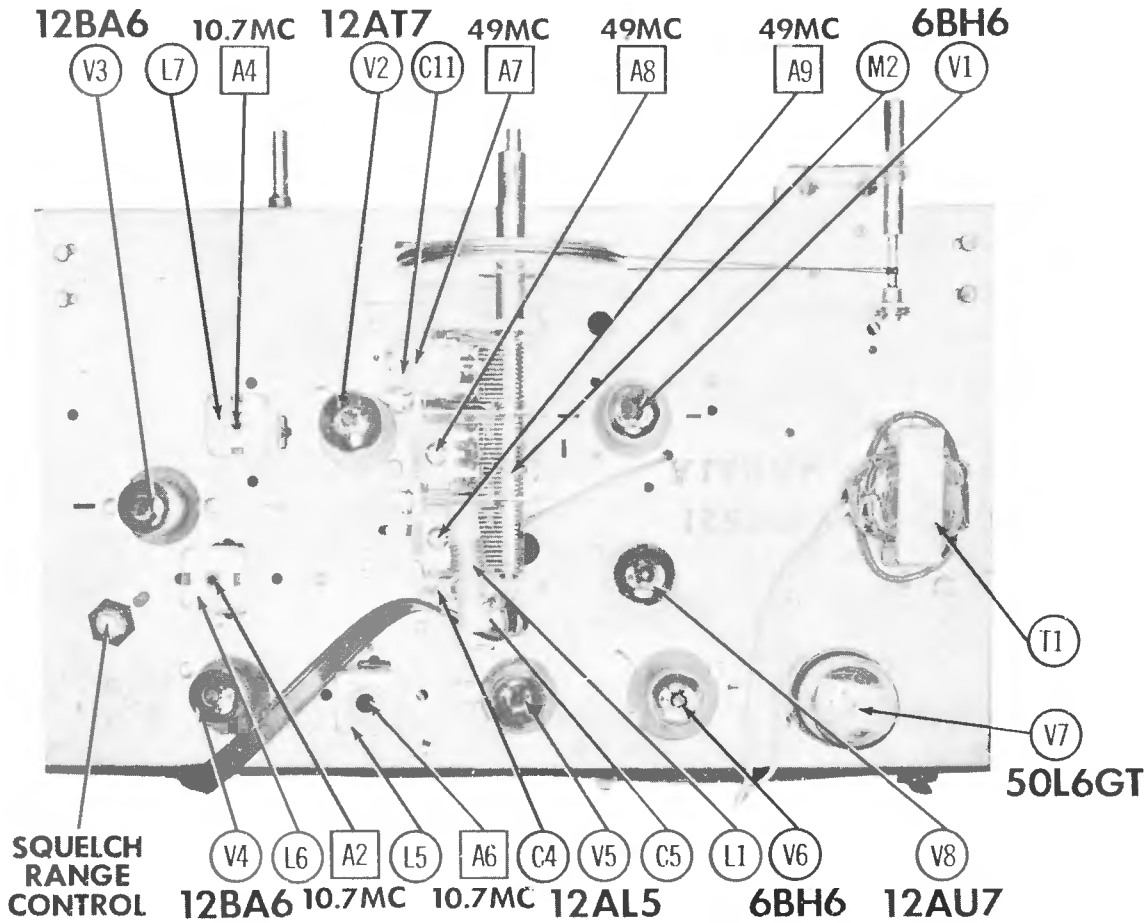
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS TUBES (GENERAL ELECTRIC, SYLVANIA)

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		NOTES
		Ballifraters PART No.	STANDARD REPLACEMENT	
V1	RF Amplifier	6BH6	6BH6	
V2	Mixer-Osc.	12AT7	12AT7	
V3	1st. IF Amp.	12BA6	12BA6	
V4	2nd. IF Amp.	12BA6	12BA6	
V5	Ratio Det.	6BH6	6BH6	
V6	AF Amp.	50L6GT	50L6GT	
V7	Output	12AU7	12AU7	
V8	Squelch	12AU7	12AU7	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	VOLT	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	
C1A	60	150	45B091	BBRQ3515C	WQ250	[CDB-442 TD-50-150	FMT-333 FM-1540
B	40	150					
C	40	150					
D	20	25	45C097		TC42	TD-10-150	FM-1512
C2	10	150	45B192		TC302	TD-2-50	MMT-0505
C3	2	50					TVA-1406 TVA-1301

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP	VOLT	REPLACEMENT DATA						NOTES
			Ballifraters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIC PART No.	MALLORY PART No.	
C4	330		47CA2531K/D	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C5	330		47CA2531K/D	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C6	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C7	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C8	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C9	4.7		47A160-6	N750-S150	TCN-50	TN15	N750K-500	NT-5447	5GA-Q5
C10	100		47X25UK10K	N750-S100	TCN-100	TN22	N750L-101	ZT-5847	5TCCB-V17
C11	7-95		44A125	822-BN	822-BN	TN22	TS2A-7	DT-587-N	5TCC-U-T1
C12	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C13	33		47X25CJ330J	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C14	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C15	10000		47A224	BPD-001	DD-103	K082	8L-01	DC-51L	5HK-S1
C16	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C17	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C18	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C19	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C20	100		47X25UK10K	N750-S100	TCN-100	TN22	N750L-101	NT-581	5TCC-U-T1
C21	100		47X25UK10K	N750-S100	TCN-100	TN22	N750L-101	NT-581	5TCC-U-T1
C22	1000		47A230	BPD-001	DD-102	K089	801-001	DC-521	5HK-D1
C23	10000		47A224	BPD-01	DD-103	K082	8L-01	DC-51L	5HK-S1
C24	330		47CA2531K/D	BPD-01	DD-103	K082	8L-01	DC-51L	5HK-S1
C25	330		47A224	BPD-01	DD-103	K082	8L-01	DC-51L	5HK-S1
C26	10000		47A224	BPD-01	DD-103	K082	8L-01	DC-51L	5HK-S1
C27	10000		47A224	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C28	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C29	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C30	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C31	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C32	5000		47A168	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C33	5000		47A166	BPD-005	DD-502	K080	6L-005	DC-525	5HK-D5
C34	1	800	46BR413L5	pe66P1	DD-504	CUB6P1		PT801	6TMC-P1

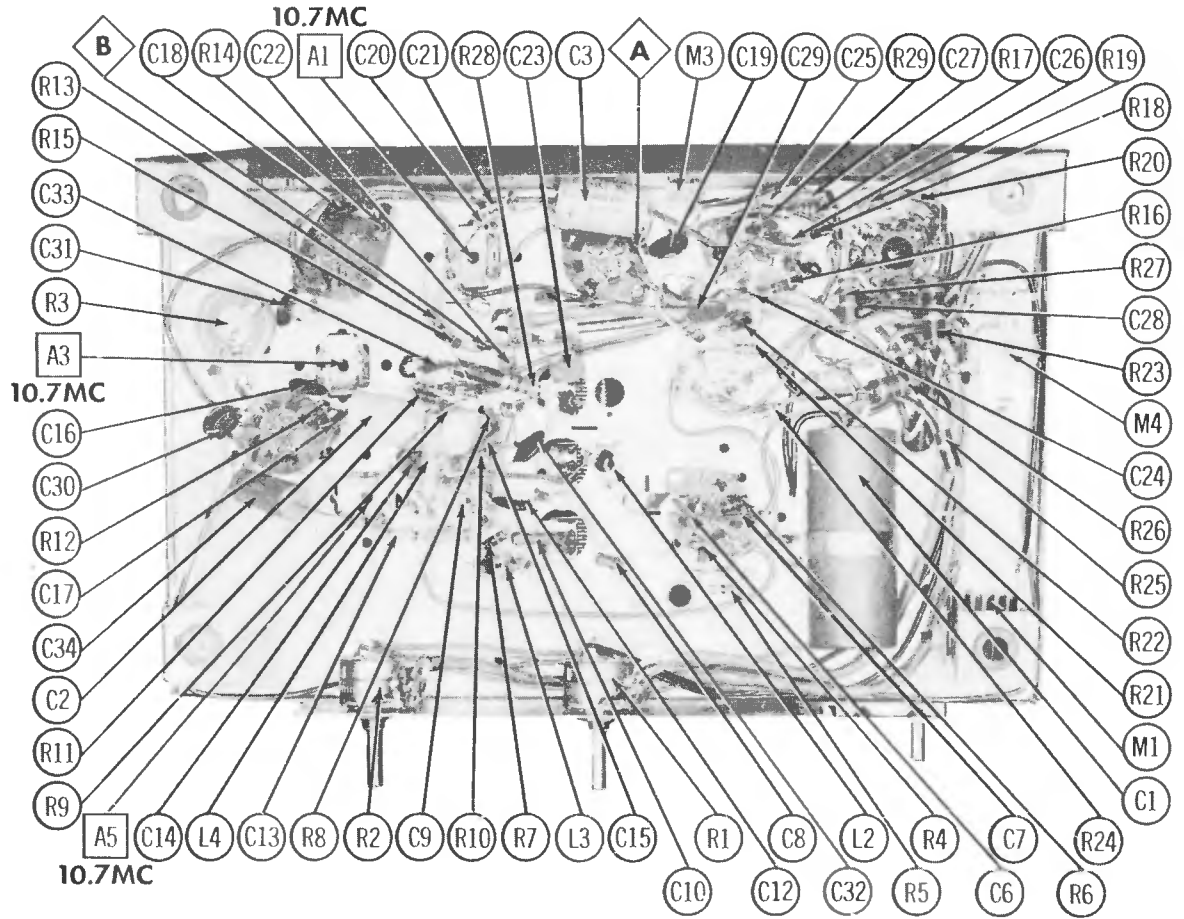
Note 1. When C20 is 220MMF, C21 is not used.

CONTROLS

ITEM No.	RESIST. ANCE	RATING	REPLACEMENT DATA				INSTALLATION NOTES	
			Ballifraters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.		MALLORY PART No.
R1A	2Meg		25B115	AB-76	A47-2Meg-Z	Q13-139	U-55	Volume
B	Shaft		Not Req.	AK-9	RS-2	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWE-12	76-1	U-26	Attach to R1A
R2A	50KΩ		25B114	AB-34		Q14-123	U-34	Squelch
B	Shaft		Not Req.	AK-9		Not Req.	Not Req.	Attach to R2A
C	Switch		Not Req.	KB-1		76-1	U-26	Attach to R2A
R3A	500Ω	1	25A113	V-126	A43-750	W-150	R19DL	Squelch Range
B	Shaft		Not Req.	FKS-1/4		Not Req.	Not Req.	Attach to R3A

PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW



RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallicrafters PART No.	IRC PART No.		Hallicrafters PART No.	IRC PART No.	OHMS	WATT	
R4	10K Ω		23X20X103K	BTS-10K	R17	270K Ω		23X20X274K	BTS-270K	
R5	10K Ω		23X20X103K	BTS-10K	R18	1Meg		23X20X105K	BTS-1Meg	
R6	100 Ω		23X20X101K	BTS-100	R19	470K Ω		23X20X474K	BTS-470K	
R7	10K Ω		23X20X103K	BTS-10K	R20	100 Ω		23X20X101K	BTS-100	
R8	1000 Ω		23X20X102K	BTS-1000	R21	270K Ω		23X20X274K	BTS-270K	
R9	1000 Ω		23X20X102K	BTS-1000	R22	1200 Ω		23X20X122K	BTS-1200	
R10	1000 Ω		23X20X102K	BTS-1000	R23	10K Ω		23X40X103K	BTS-10K	
R11	100 Ω		23X20X101K	BTS-100	R24	470 Ω		23X40X471K	BTS-470	
R12	1000 Ω		23X20X102K	BTS-1000	R25	15 Ω		23X30X150K	BWA-470	
R13	1000 Ω		23X20X102K	BTS-1000	R26	220 Ω		23X40X221K	BWL-270	
R14	1000 Ω		23X20X102K	BTS-1000	R27	470 Ω		24BW271E	BWL-270	
R15	47K Ω		23X20X473K	BTS-47K	R28	270 Ω		23X20X271K	BTS-100	
R16	2.2Meg		23X20X225K	BTS-2.2Meg	R29	100 Ω		23X20X101K	BTS-100	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA		ITEM No.	RATING		REPLACEMENT DATA		NOTES
	PR	SEC	Hallicrafters PART No.	Merit PART No.		Stencor PART No.	Thordarson PART No.	Triad PART No.		
T1	2.4K Ω	1.98 Ω	55B127 58A127 ①	A-2902 ②	A-3925 ②	22S82 ②				① Alternate audio output transformer. ② Drill new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		ITEM No.	RATING		REPLACEMENT DATA		NOTES
	SIZE	FIELD	Hallicrafters PART No.	QJAM PART No.		RCA TYPE No. <th>Merit PART No.</th> <th>Miller PART No.</th>	Merit PART No.	Miller PART No.		
SP1	5"	PM	3.2 Ω	85C120	5A1	228S1				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		ITEM No.	RATING		REPLACEMENT DATA		NOTES
		PR	SEC.	Hallicrafters PART No.	Meissner PART No.		Merit PART No.	Miller PART No.			
L1	FM Am. Coil	0 Ω		51A1930							Tapped
L2	FM RF Coil	0 Ω		51A1928							Tapped
L3	FM Osc. Coil	0 Ω		51A1828							8.2 Microhenries, IRC part #CL-1
L4	F11, Choke	6.1 Ω		53A333	19-1005				4612		
L5	1st. FM IF	1 Ω		50C519	16-3487				FM-254	1463	
L6	2nd. FM IF	1 Ω		50C517	16-3487				FM-254	1463	
L7	Ratio Det.	3.8 Ω	.3 Ω	50C518	17-3492				FM-255	1465	Tertiary winding-.7 Ω

SELENIUM RECTIFIER

ITEM No.	RATING		REPLACEMENT DATA		ITEM No.	RATING		REPLACEMENT DATA		NOTES
	CURRENT	VOLTAGE	Hallicrafters PART No.	Federal PART No.		International PART No.	Mallory PART No.	Sarkes Tarian PART No.		
M1	1.14ADC		27A158	1005A	RS150	6S150	5P1	150		

MISCELLANEOUS

ITEM No.	PART NAME		REPLACEMENT DATA		ITEM No.	PART NAME		REPLACEMENT DATA		NOTES
	Hallicrafters PART No.	Notes	Federal PART No.	International PART No.		Hallicrafters PART No.	Notes	Federal PART No.	International PART No.	
M2	Tuning Gap.		48D348							
M3	Switch		60A243							
M4	Relay		21B193							
	Cabinet		40C174							
	Knob		15B802							
	Knob		15B816							
	Dial		83C510							
	Dial Pointer		82A277							
	Dial Window		22B345							

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Squelch control to "off".
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer, if available. If not, connect a .01MFD capacitor in series with low side of signal generator and B-.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 470K Ω ($\pm 1\%$) resistors in series from point \diamond to chassis. Junction of these resistors is alignment point \diamond as shown on schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod)	Point of non-interference	DC probe to point \diamond . Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"	"	DC probe to point \diamond . Common to point \diamond .	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference	Vert. Amp. to point \diamond . Low side to chassis.	A1, A2, A3, A4, A5	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
2.	"	"	"	"	Vert. Amp. to point \diamond . Low side to point \diamond .	A6	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2, SLIGHTLY retouch A5 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	270 Ω Carbon Resistor	High side thru 270 Ω to terminal "A" antenna. Low side to terminal "G".	49MC	49MC	DC probe to point \diamond . Common to chassis.	A7, A8, A9	Adjust in order given for maximum deflection. Rock tuning gang while adjusting A9.
4.	"	"	33MC	33MC	"		Check for calibration and tracking. Not necessary unless osc. coil has been replaced.

SQUELCH RANGE CONTROL ADJUSTMENT

The squelch range control has been preset, but after replacement of squelch tube, relay or components it should be reset
Set volume control to maximum.
Squelch range control fully clockwise.
Squelch control (on front of set) fully counter clockwise (but not "off").
Tune to noisy part of band where there is no signal.
Slowly rotate squelch range control (counter clockwise) until noise is just squelched.
Rotate control 65 $^{\circ}$ (counter clockwise) beyond point of squelch.

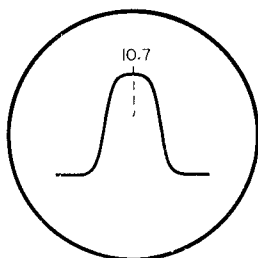


FIG. 1

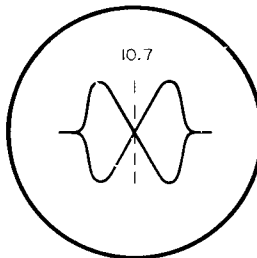
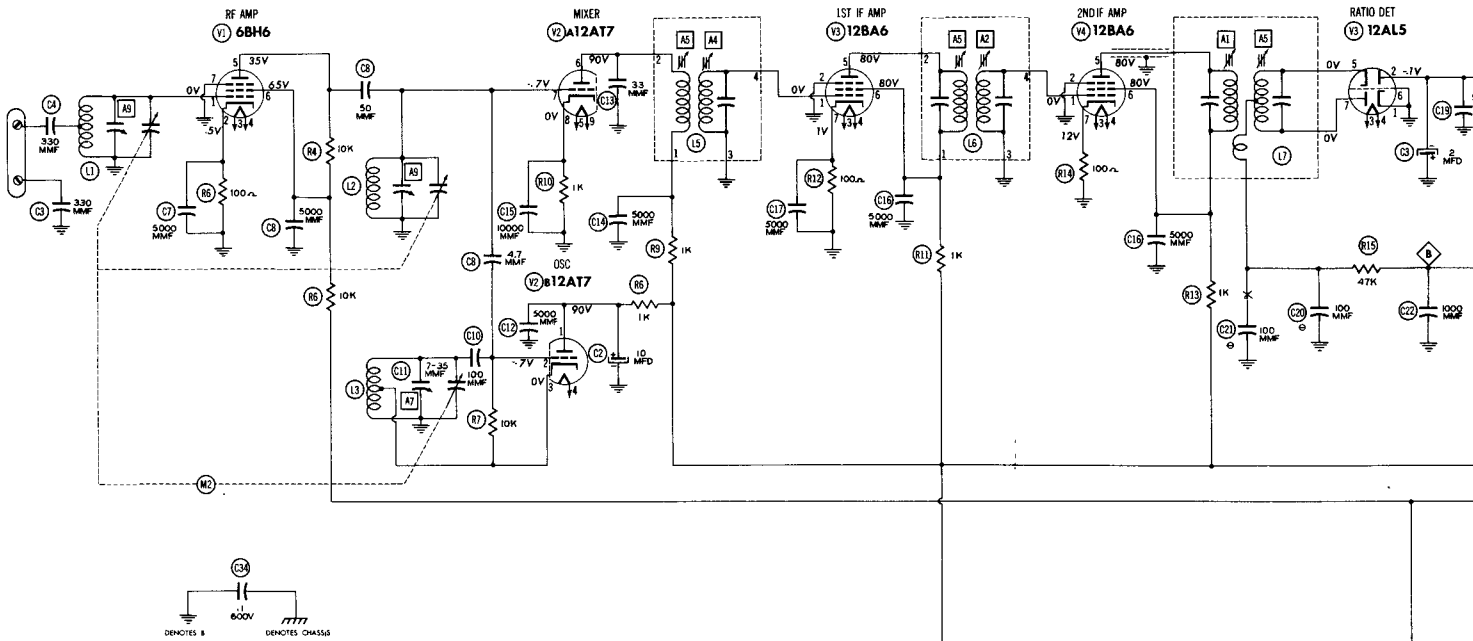
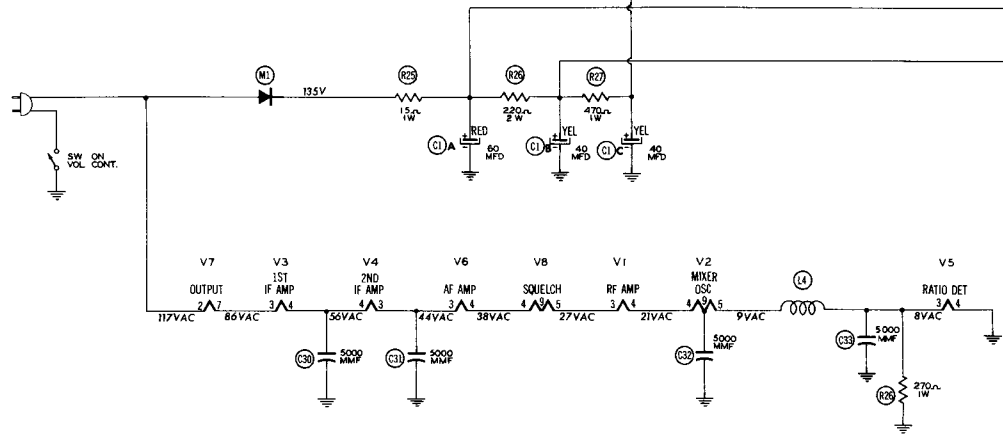


FIG. 2



SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

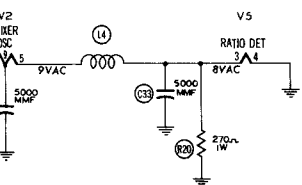
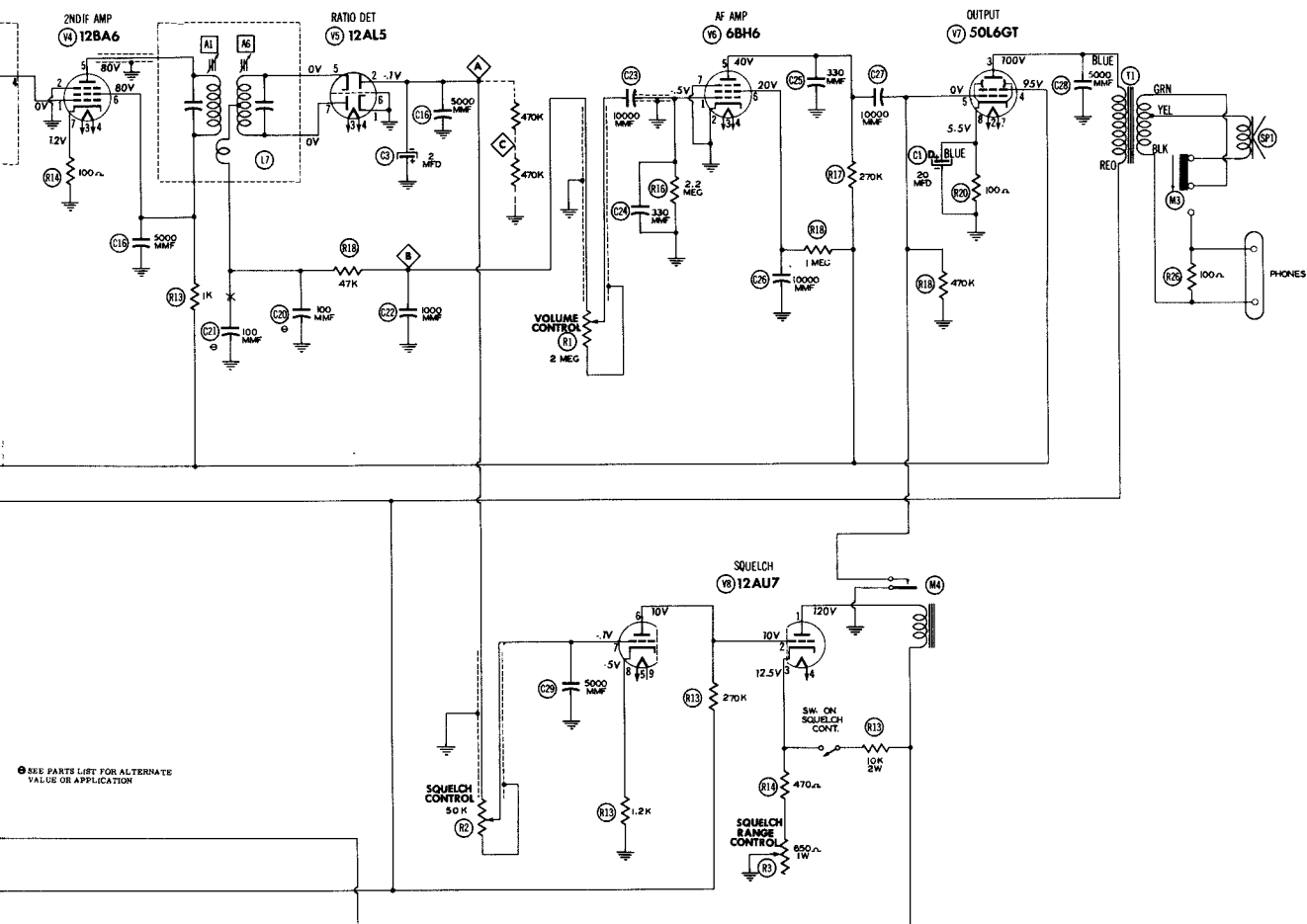


FMIF = 10.7 MC

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±1% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Item	Tube
V 1	6BH6
V 2	12A7
V 3	12BA6
V 4	12BA6
V 5	12AL5
V 6	6BH6
V 7	50L8G
V 8	12AU7

ALL MEASUREMENTS
CONTROL SET
↑ MEASURED
† SQUELCH R
†† SQUELCH



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BH6	0Ω	100Ω	37Ω	31Ω	†20KΩ	†10KΩ	0Ω		
V 2	12AT7	†1.6KΩ	10KΩ	0Ω	31Ω	19Ω	†1.6KΩ	0Ω	1KΩ	25Ω
V 3	12BA6	1Ω	0Ω	79Ω	67Ω	†1.6KΩ	†1.6KΩ	100Ω		
V 4	12BA6	1Ω	0Ω	55Ω	67Ω	†1.6KΩ	†1.6KΩ	100Ω		
V 5	12AL5	0Ω	50KΩ	13Ω	0Ω	2Meg	0Ω	2Meg		
V 6	6BH6	2.2Meg	0Ω	55Ω	49Ω	†270KΩ	†1Meg	0Ω		
V 7	50L6GT	TP	129Ω	†400Ω	†700Ω	0Ω	TP	79Ω	100Ω	
V 8	12AU7	†1KΩ	†270KΩ	†1.1KΩ	49Ω	37Ω	†270KΩ	††0Ω	1.2KΩ	43Ω

ALL MEASUREMENTS TAKEN WITH SQUELCH RANGE CONTROL AT MAXIMUM CLOCKWISE POSITION AND SQUELCH CONTROL SET AT MAXIMUM COUNTER CLOCKWISE POSITION UNLESS DESIGNATED OTHERWISE.

† MEASURED FROM OUTPUT OF M1.

† SQUELCH RANGE CONTROL AT MAXIMUM COUNTER CLOCKWISE POSITION.

†† SQUELCH CONTROL AT MAXIMUM CLOCKWISE POSITION.