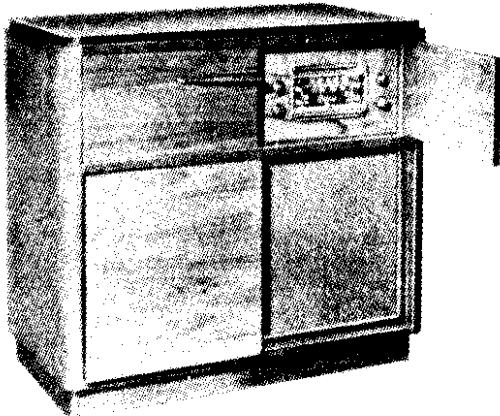
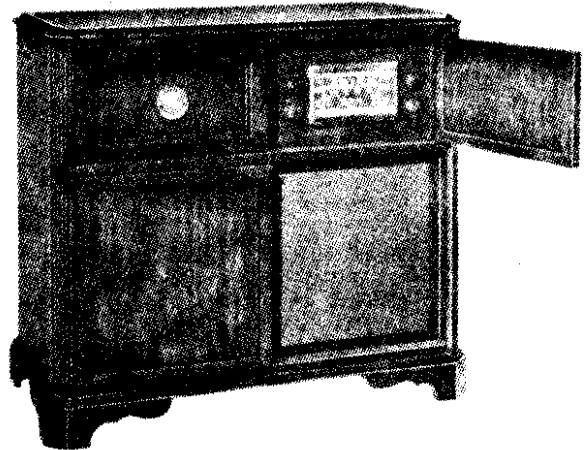


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MODEL 522
Modern style cabinet
Blonde oak
Mahogany
Walnut



MODEL 524
Traditional style cabinet
Mahogany finish

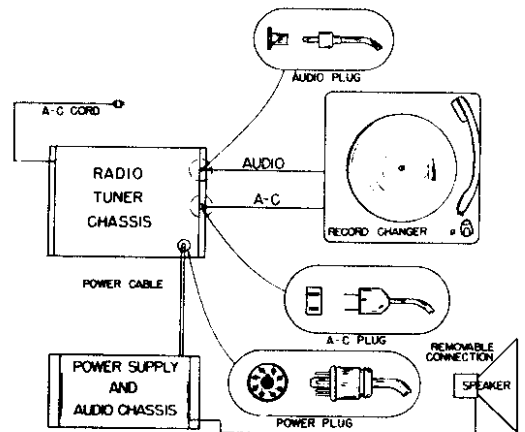
SPECIFICATIONS

The Hoffman Models 522 and 524 are 15 tube phonograph combination receivers for reception on the standard broadcast AM and FM radio frequencies. The sound is reproduced by a 12" PM speaker, and has an audio power output of 15 watts.

The record changer will automatically change and play up to twelve 10" records or ten 12" records. An optional record changer is available which will play either the standard 78 rpm records or the Long Playing 33 1/3 rpm records.

Connections are available at the rear of the radio tuner chassis for installation of a separate wire recorder, disc recorder, or 45 rpm record changer.

BLOCK DIAGRAM



MAJOR COMPONENTS

- Radio chassis 138
- Cabinet Model 522, Part No. 7523-1
Model 524, Part No. 7524-1
- Speaker 12" PM, Part No. 9015
Voice coil impedance, 3.2 ohms
- Record changer One of the following:
Webster Model 148, 78 rpm
Webster Model 149, 78 rpm
Webster Model 246, 78 and 33 1/3 rpm
V-M Corp. Model 400D, 78 and 33 1/3 rpm
- Dial Escutcheon Part No. 8080

ELECTRICAL AND MECHANICAL DATA

- Frequency Range (AM) 535 KC to 1650 KC
(FM) 88 MC to 108 MC
- Intermediate Frequency (AM) 455 KC, (FM) 10.7 MC
- Power Source.....117 volts AC, 60 cycles, 15 watts
- Output Impedance, Audio.....3.2 ohms at 400 cycles
- Power Output, Audio.....15 watts

TUBE COMPLEMENT

- 1 6BA6 AM RF Amplifier
- 1 6BE6 AM Oscillator—Converter
- 1 7F8 FM Oscillator—Converter
- 1 6BA6 AM-FM 1st IF Amplifier
- 1 6BA6 FM 2nd IF Amplifier
- 1 6AL5 FM Ratio Detector
- 1 6AT6 AM 2nd Det., AVC, 1st Audio (AM & FM)
- 1 6J5 2nd Audio Amplifier
- 1 6J5 Audio Phase Inverter
- 4 6K6GT Audio Power Output
- 1 5U4G Power Rectifier
- 1 6E5 Tuning Indicator

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ALIGNMENT PROCEDURE

NOTES

- 1—Before beginning alignment, the pointer must be set at the highest mark on the dial with the tuning condenser fully open.
- 2—The AM section should be completely aligned before beginning the FM alignment.
- 3—The set should be allowed to warm up 15 minutes before aligning.
- 4—An output meter should be connected across the speaker voice coil for AM alignment. Keep the volume control at maximum on AM and use as low a signal input as possible for AM and FM.
- 5—For AM and FM tracking, bend plates of the variable (RF Section) as required.
- 6—In FM alignment, care must be taken to set the receiver oscillator frequency 10.7 MC *above* the incoming signal frequency.
- 7—The dummy antenna for FM alignment is two 150 ohm composition resistors; one in series with each generator lead.

ALIGNMENT CHART

STEP NO.	BAND SWITCH POSITION	SIGNAL GENERATOR FREQ.	CONNECTION TO RECEIVER	DUMMY ANTENNA	DIAL SETTING	ADJUST	REMARKS
1	AM	455 KC Mod.	6BE6 Conv. Grid Pin 7	0.1 mfd	1600 KC	T2 Pri., Sec., T4 Pri., Sec.	Tuning gang wide open. Adjust trans. for max. output
2	AM	1600 KC Mod.	Ext. Ant. Clip	0.1 mfd	1600 KC	C10 BC Osc. Trimmer	Adjust for max. output
3	AM	1400 KC Mod.	Ext. Ant. Clip	0.1 mfd	1400 KC	C9, C8 RF Trimmer	Adjust for max. output
4	AM	600 KC Mod.	Ext. Ant. Clip	0.1 mfd	600 KC	T6 Sec.	Adjust for max. output
5	AM	600 KC Mod.	Ext. Ant. Clip	0.1 mfd	600 KC	See Note 5	See Note 5
6	AM	1000 KC Mod.	Ext. Ant. Clip	0.1 mfd	1000 KC	See Note 5	See Note 5
7	FM	10.7 MC CW	FM Ant. Terminals	0.1 mfd	107 MC	T1 Pri., Sec., T3 Pri., Sec. T5 Pri. only	Disconnect C23 at point A. Tune for maximum reading. VTVM from point A to chassis. See Ratio Det. Alignment.
8	FM	10.7 MC CW	FM Ant. Terminals	0.1 mfd	107 MC	T5 Sec.	Reconnect C23 to point A. Tune for zero reading, VTVM from resistor junction to point C. See Ratio Det. Alignment.
9	FM	107 MC CW	FM Ant. Terminals	300 ohms See Note 7	107 MC	C7 FM Osc. Trimmer	Adjust for max. with VTVM from point A to chassis. See Note 6.
10	FM	107 MC CW	FM Ant. Terminals	300 ohms See Note 7	107 MC	C6 FM RF Trimmer	Adjust for max. with VTVM from point A to chassis.
11	FM	98 MC CW	FM Ant. Terminals	300 ohms	98 MC	See Note 5	Adjust for max. with VTVM from point A to chassis.
12	FM	88 MC CW	FM Ant. Terminals	300 ohms	88 MC	See Note 5	Adjust for max. with VTVM from point A to chassis.

RATIO DETECTOR ALIGNMENT

TUNING T5 PRIMARY

(T1 and T3 should be tuned before tuning T5.)
Locate the ratio detector test points A, B, and C on the schematic diagram. Solder two 100,000 ohm composition resistors in series from point "A" to chassis. Connect a VTVM from point "A" to chassis and feed 10.7 MC CW into the FM antenna terminals. Adjust T5 primary (bottom slug) for maximum reading, setting the generator output to give about one volt meter reading. (An insulated aligning tool should be used for this adjustment.) Condenser C23 should be disconnected at point "A" during IF and ratio detector primary adjustments. This prevents any stored charge on C23 from causing a time lag in the VTVM reading, and giving misleading peak indications.

TUNING T5 SECONDARY

Reconnect C23 to point "A." Connect the VTVM probe

to point "C" and the VTVM common or ground lead to the junction of the two 100,000 ohm resistors. Tune T5 secondary until the meter reading reverses polarity. Set the slug at this zero point.

CHECKING BAND WIDTH

Connect the signal generator to the grid of the 2nd FM IF tube. Set the generator to 100,000 microvolts at 10.7 MC CW. Shift the generator frequency above and below 10.7 MC and record the frequencies at which the maximum positive and negative meter readings are obtained. The difference between these two readings is the bandwidth of the ratio detector and should be 250 to 300 KC.

Remove the two 100,000 ohm resistors before beginning the FM RF alignment.

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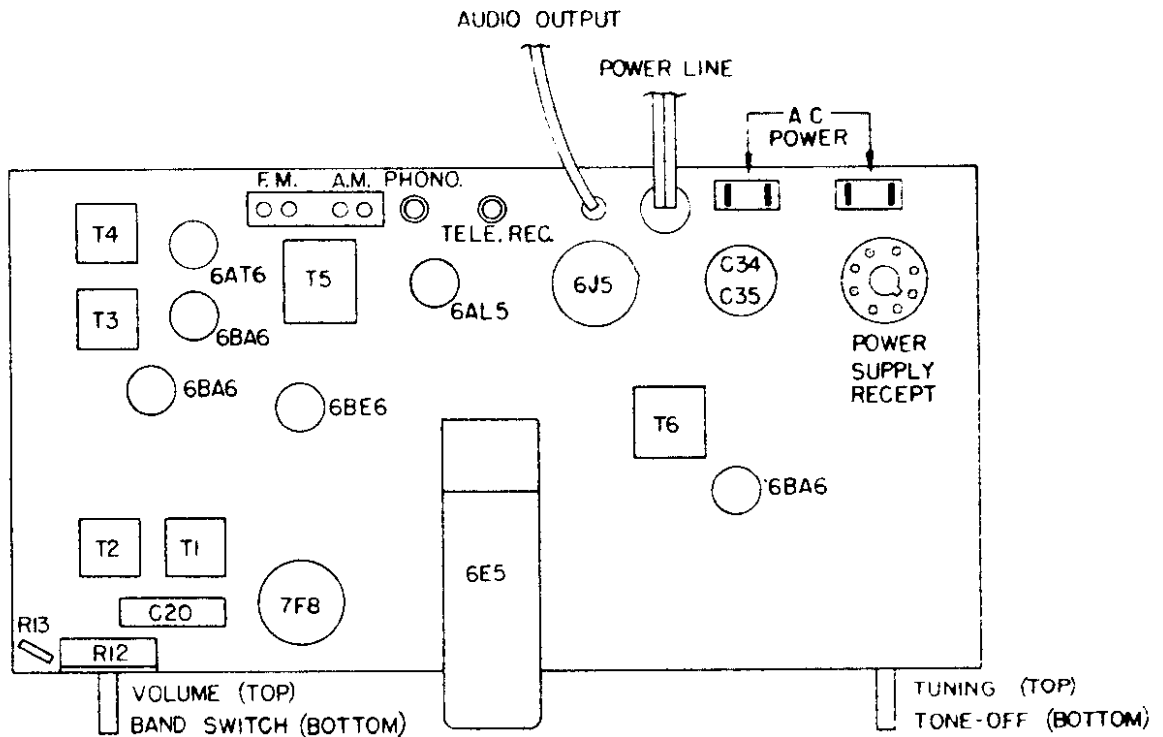
SOCKET VOLTAGES

Tube	Circuit	1	2	3	4	5	6	7	8	Band Switch
6BA6	AM RF Amp.	-.73*	G	6.2ac	G	232	168	.4	—	AM
6BE6	AM Osc. Conv.	-1.0*	0	G	6.2ac	222	104	-.55*	—	AM
7F8	FM Osc. Conv.	0	G	216	0	3.6	225	6.2ac	0	FM
6BA6	FM-AM IF	-.55*	G	G	6.2ac	217	115	1.0	—	FM-AM
6BA6	FM 2nd IF	0	G	G	6.2ac	212	96	1.1	—	FM-AM
6AL5	Ratio Det.	0	-.2*	G	6.2ac	-.1*	NC	0	—	FM
6AT6	AM Det.-1st AF	0	G	G	6.2ac	-.7*	G	48	—	AM
6J5	2nd AF Amp.	G	6.2ac	70	NC	0	NC	G	2.8	AM
6J5	Phase Invert.	G	6.2ac	140	NC	55	67'	G	70	AM
6K6	Audio Output	NC	6.2ac	290	270	0	NC	G	22	AM
5U4	Rectifier	NC	4.9ac'	NC	320ac	NC	320ac	NC	300	AM
6E5	Tuning Ind.	6.1ac	205*	-9.4*	255	G	G	—	—	FM-AM

All voltages measured to chassis unless otherwise noted.
 DC voltages measured with 20,000 ohm/volt meter.
 AC voltages measured with 1000 ohm/volt meter.
 All measurements made with signal input to receiver.

*—Measured with VTVM.
 G—Terminal grounded to chassis.
 '—Tie point for R2-R3.
 '—Measured from pin 2 to 8.

TUBE AND TRIMMER CONDENSER LOCATIONS

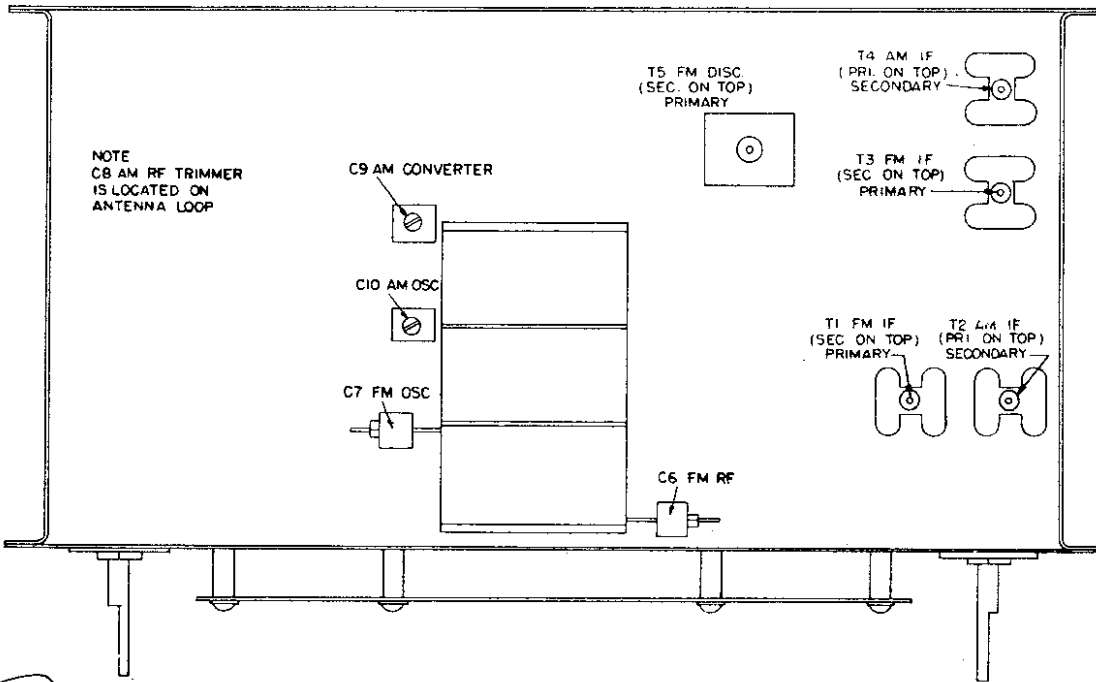


TOP VIEW OF CHASSIS

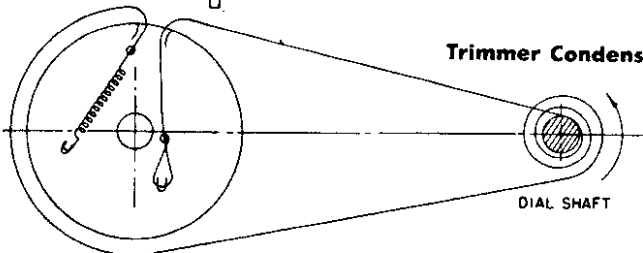
Tube Locations—Top View of Tuner Section

©John F. Rider

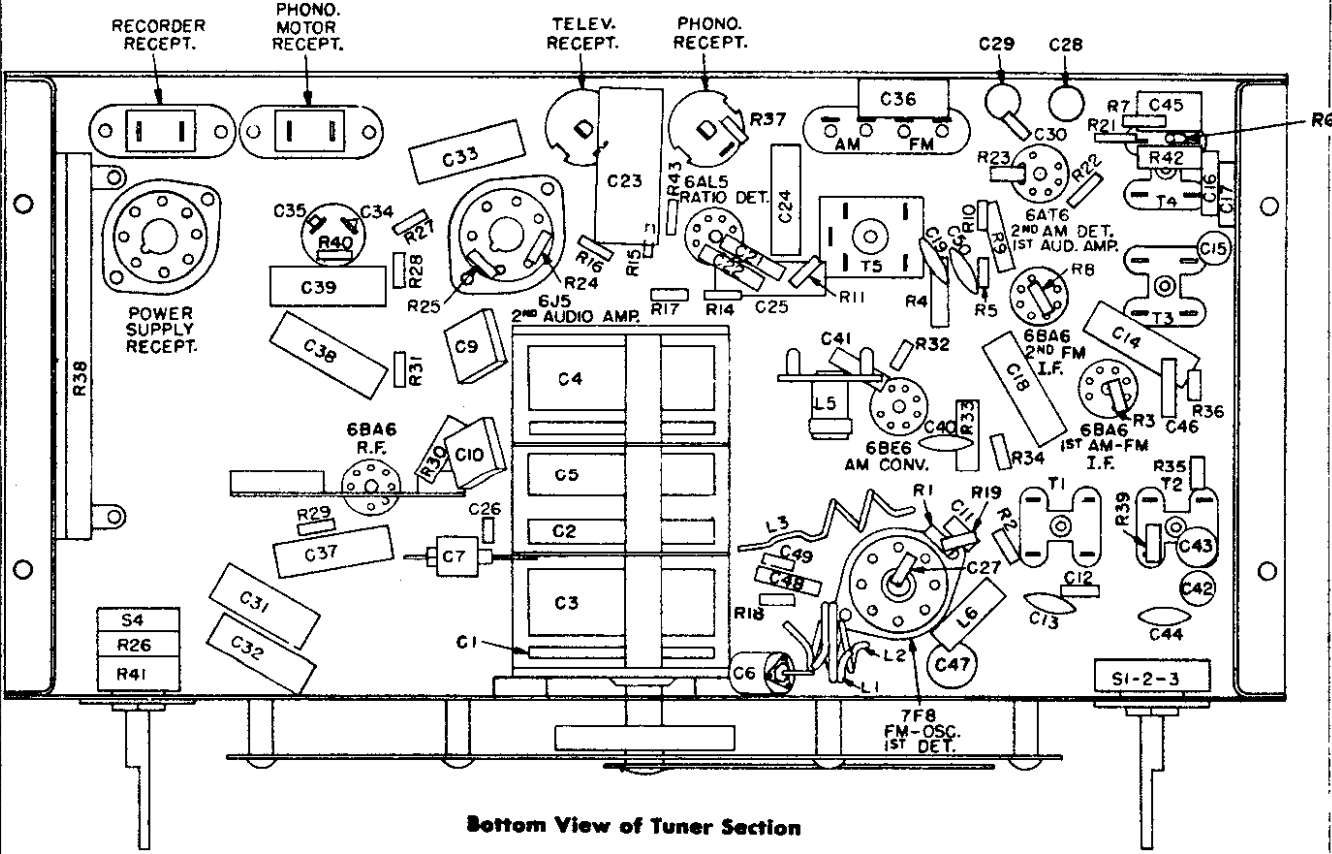
MODELS 522,
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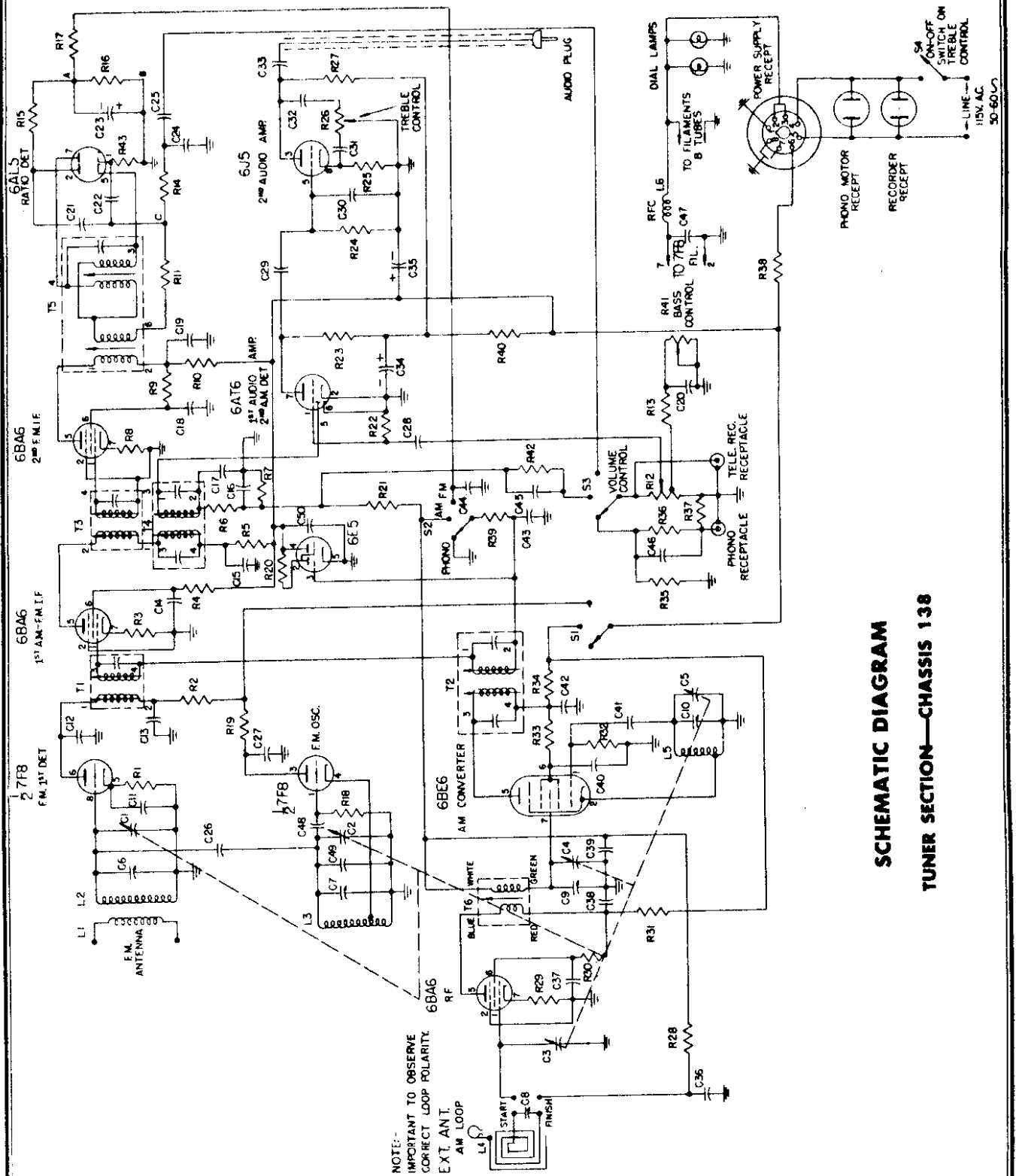
Trimmer Condenser Location—Bottom View of Tuner Section



PARTS LAYOUT



MODELS 522,
524, Ch. 138

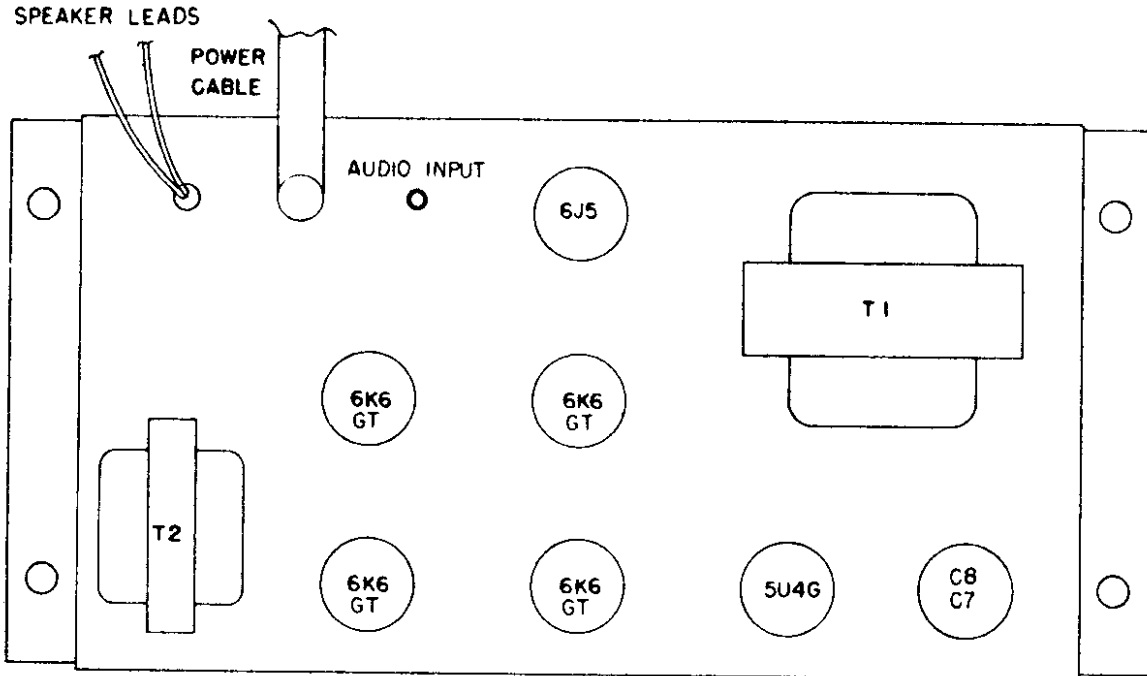


SCHEMATIC DIAGRAM

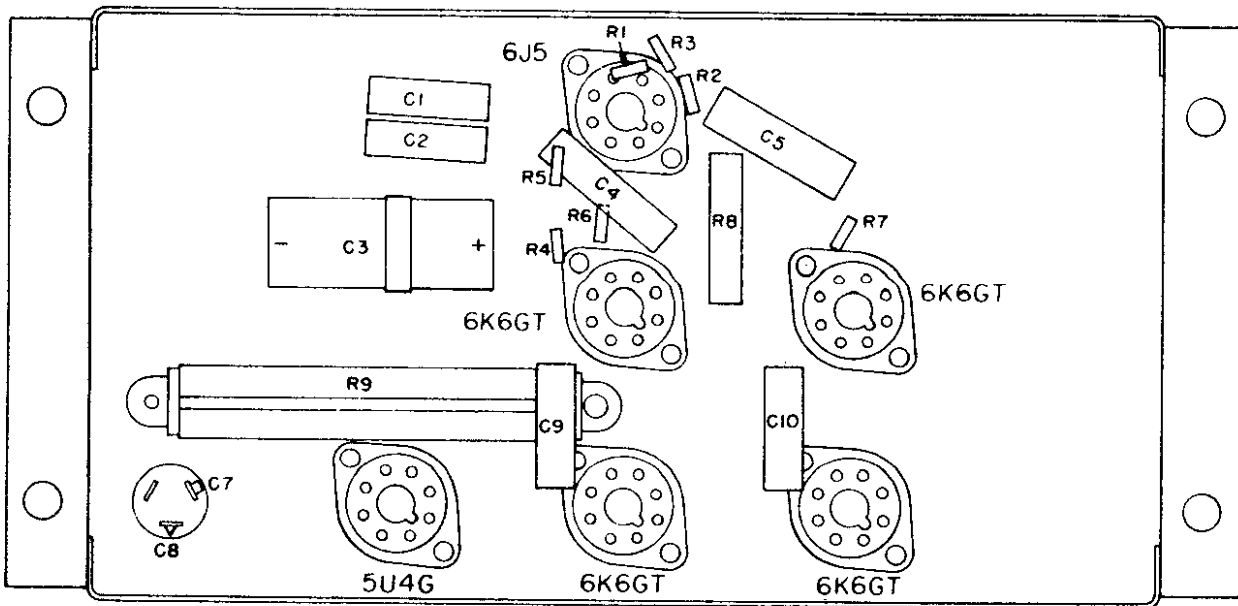
TUNER SECTION—CHASSIS 138

MODELS 522,
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POWER SUPPLY AND AUDIO SECTION



Tube Locations—Top View of Chassis

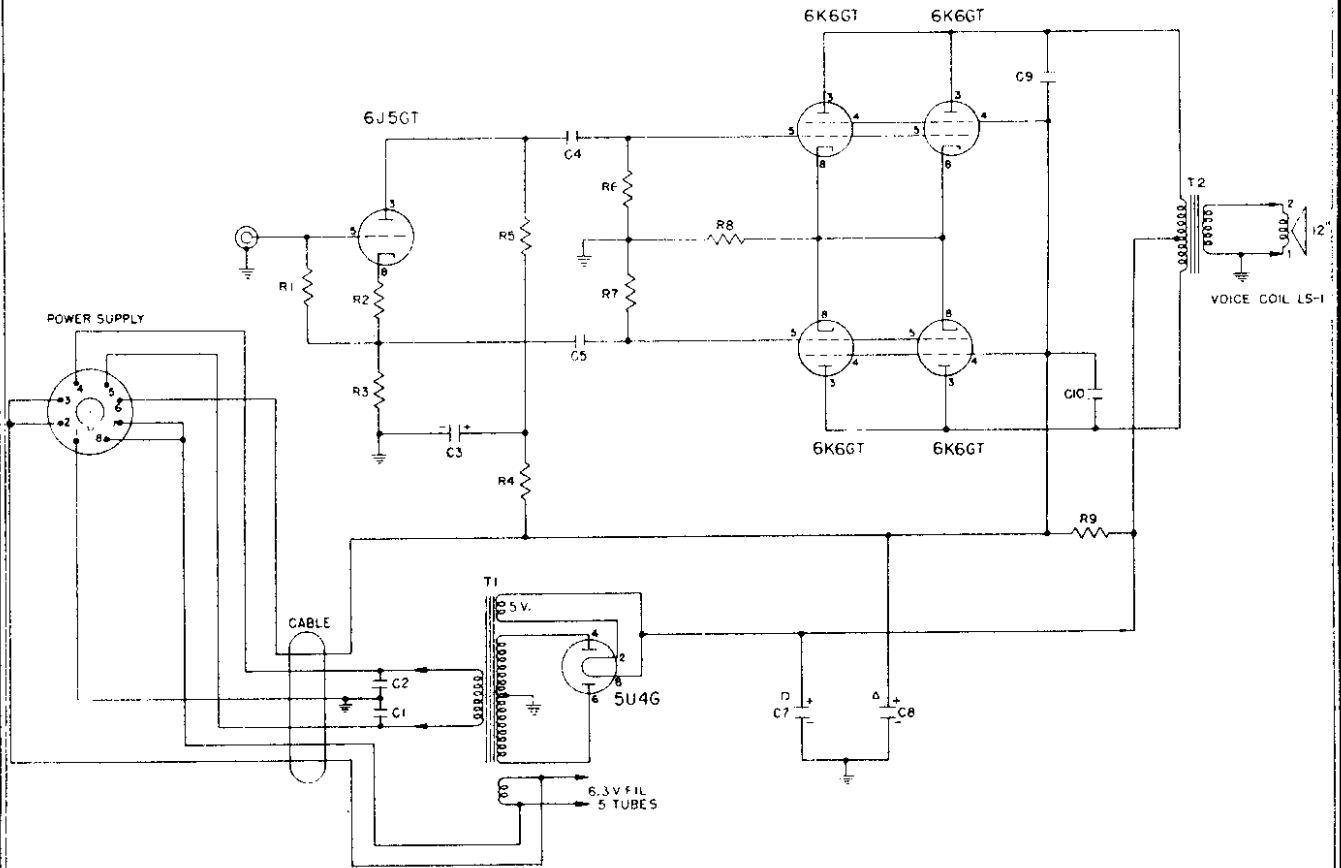


Parts Layout—Bottom View of Chassis

MODELS 522,
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SCHEMATIC DIAGRAM

POWER SUPPLY AND AUDIO SECTION—CHASSIS 138



PARTS LIST—POWER SUPPLY AND AUDIO SECTION

Symbol	Description			Hoffman Number
C1, C2	.01 Mfd.	600V	Paper	4103
C3	10 Mfd.	450V Tub.	Electro	4203
C4, C5	.05	400V	Paper	4101
C6, C7, C8	20/45V, 20/450V, 20/450V		Electro	4200
C9, C10	.001	600 V	Paper	4104
R1	1 Meg.	20%	1/2 Watt	4513
R2	2200 Ohms	20%	1/2 Watt	4512
R3, R5	47000 Ohms	10%	1/2 Watt	4559
R4	10000 Ohms	20%	1/2 Watt	4515
R6, R7	.22 Meg.	20%	1/2 Watt	4500
R8	220 Ohms	20%	3 Watt	4706
R9	1500 Ohms	5%	6 1/2 Watt	4701
LS1	Loudspeaker 12" P.M.			9044
T1	Power Transformer			5001
T2	Output Transformer			5108

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RADIO TUNER SECTION PARTS LIST

Symbol	Description	Hoffman Part No.
C1, C2, C3, C4, C5	3 Gang AM, FM (1 Section unused)	4411
C6, C7	Trimmers (FM Section)	4318
C8, C9, C10	Trimmers (AM Section)	4313
C11, C27	1000 Mmf	4025
C12	10 Mmf ± 10% Ceramic Hi-K	4027
C13, C19, C40, C44, C47, C50	5000 Mmf Ceramic Hi-K	4029
C14, C15, C18, C25, C28, C33, C37, C38, C42	.01 Mfd 400V Paper	4112
C16, C17, C21, C22	270 Mmf ± 20% Mica	4001
C20	.02 Mfd 400V Paper	4106
C23	5 Mfd 50V Electrolytic	4209
C24	.002 Mfd 600V Paper	4118
C29, C32	.005 Mfd 600V Paper	4102
C30	470 Mmf ± 20% Mica	4003
C31, C36, C39, C43	.05 Mfd 200V Paper	4100
C34, C35	20-20 Mfd 450V Electrolytic	4200
C41, C45	100 Mmf ± 20% Mica	4000
C46, C48	22 Mmf ± 10% N150 Ceramic	4021
C49	5 Mmf ± 10% N750 Ceramic	4028
R1	1,200 Ohm ± 20% 1/2W	4553
R2, R5, R10, R19, R31, R34	1,500 Ohm ± 20% 1/2W	4534
R4, R9, R30	33,000 Ohm ± 20% 1W	4556
R6, R14, R40	47,000 Ohm ± 20% 1/2W	4504
R7	.68 Meg ± 20% 1/2W	4555
R11	120 Ohm ± 10% 1/2W	4546
R12	.5 Meg Vol. Control, tapped	4814
R13	6800 Ohm ± 10% 1/2W	4557
R15, R43	560 Ohm ± 10% 1/2W	4507
R16	15,000 Ohm ± 20% 1/2W	4521
R17, R28, R35, R39	.22 Meg ± 20% 1/2W	4500
R18, R32	22,000 Ohm ± 20% 1/2W	4501
R20, R42	1 Meg ± 20% 1/2W	4513
R21, R22	2.2 Meg ± 20% 1/2W	4502
R23, R24	.47 Meg ± 20% 1/2W	4506
R25	2,700 Ohm ± 10% 1/2W	4519
R26, R41	.5 Meg Dual Bass & Treble Controls	4813
R27	100,000 Ohm ± 20% 1/2W	4511
R33	15,000 Ohm ± 20% 1W	4539
R36, R37	4.7 Meg ± 20% 1/2W	4544
R38	500 Ohm ± 10% 5W	4700
L1	FM Antenna Primary	5258
L2	FM Antenna Secondary	5248
L3	FM Oscillator Coil	5247
L4	AM Loop Antenna	5279
L5	AM Oscillator Coil	5282
L6	RFC Filament Choke	5266
T1	FM 1st IF Transformer	5284
T2	AM 1st IF Transformer	5286
T3	FM 2nd IF Transformer	5285
T4	AM 2nd IF Transformer	5287
T5	FM Discriminator (Ratio Detector)	5288
T6	AM RF Interstage Transformer	5289
S1, S2, S3	Band Change Switch (3 Pole - 3 Position Rotary)	6002
S4	Power Switch on Bass & Treble Control (Part of 4813)	
	Knob, Dual (Bass-Treble) (Specify Color)	3584
	Knob, Single (Specify Color)	3583
	Plug, Audio Output (Single prong)	6203
	Plug, Power Supply	6212
	Pointer, Dial	518
	Receptacle, Phono	6121
	Receptacle, Power Outlet	6108
	Socket, Octal	6105
	Socket, Miniature	6118
	Socket, Octal	6103
	Socket, Pilot Lamp	6110
	Spring, Dial	9507
	Strip, Antenna Terminal	424
	Tuning Dial Backplate	2217