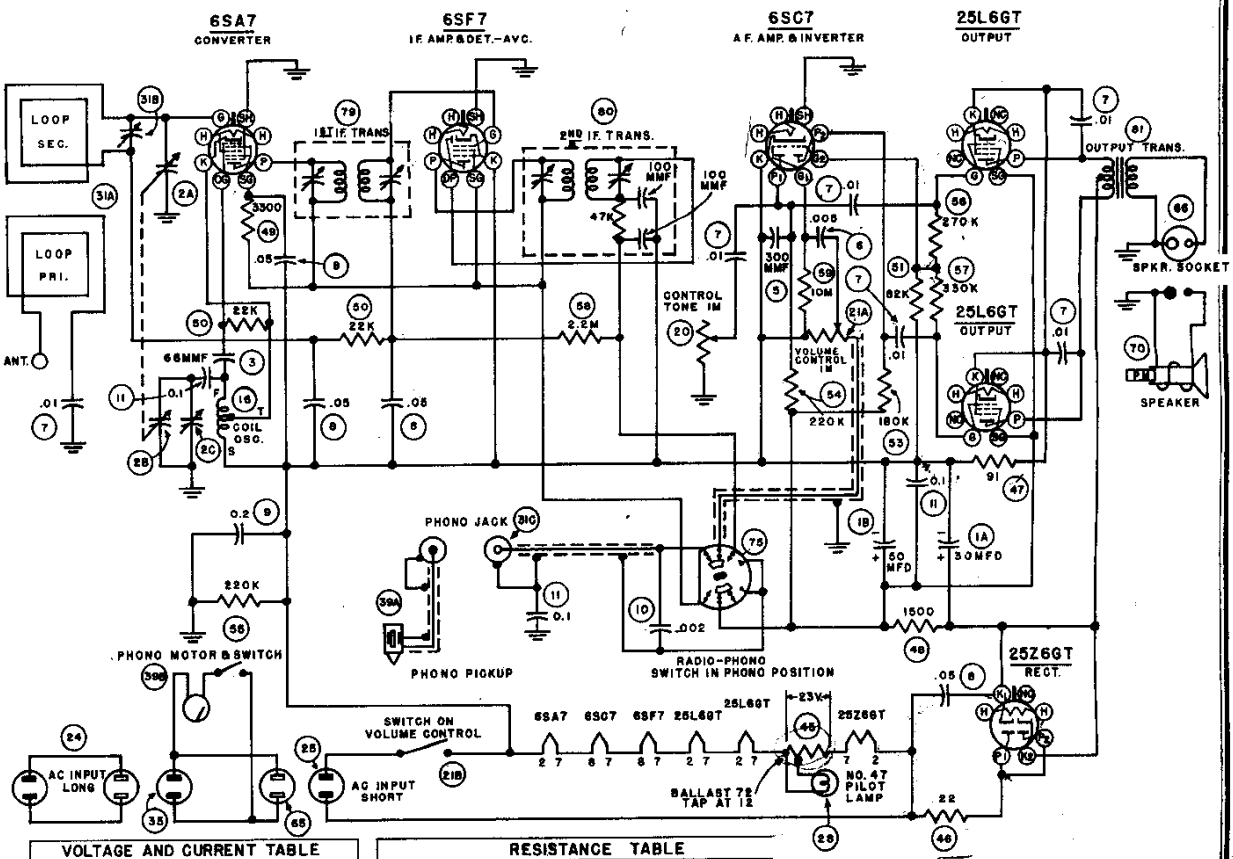
Westinghouse Electric Corp.

Model: H-122	Chassis:	Year: Pre 1949
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 15 - WESTINGHOUSE 15-5
Riders Volume 15 - WESTINGHOUSE 15-6
Riders Volume 15 - WESTINGHOUSE 15-7
Riders Volume 17 - CHANGES 17-9

WESTINGHOUSE ELECTRIC CORP.



VOLTAGE AND CURRENT TABLE

ALL VOLTAGES ARE MEASURED FROM THE NEGATIVE SIDE OF THE DUAL FILTER CAPACITOR USING A 20,000 OHMS PER VOLT METER. ALL CURRENTS ARE MEASURED FROM TOP OF TUBE SOCKETS USING A BREAK-IN ADAPTER. LINE VOLTAGE 117 V.A.C. SIGNAL VOLTAGE ZERO.

TUBE	SOCKET TERMINAL K		SG	P	I_K ma.
6SA7	ZERO		65	82	
6SC7	ZERO			NO.1-44 NO.2-30	
6SF7	ZERO		82	82	
25L6GT	5.4		82	120	60
25Z6GT	125				84

READINGS SHOULD APPROXIMATE THE ABOVE WITHIN 20 PERCENT.

RESISTANCE TABLE

ITEM	PRIMARY OHMS	SECONDARY OHMS	REMARKS
31A	1/8	1/2	"
16	"T" TO "S" - 1/2	"T" TO "F" - 3 1/2	"F" TO "S" - 4 1/2 OHMS
79	28	28	
80	19	19	
80		47,000	INCLUDES INTERNAL RESISTOR IN SERIES WITH SECONDARY.
81	285		PLATE TO PLATE
81		1/2	PLUGS REMOVED FROM SPEAKER SOCKET
70		3.2	PLUGS REMOVED FROM SPEAKER SOCKET

Pilot Lamp: (1) ..... Westinghouse No. 47, 6.3 volts, .15 ampere

Frequency Range:

Standard Broadcast ..... 550 to 1600 kc
Intermediate Frequency ..... 455 kc

Phonograph Specifications:

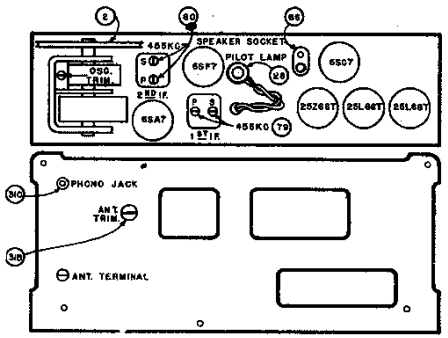
1. Automatic record changer, single button control.
2. Plays either 12 ten-inch or 10 twelve-inch records automatically.
3. Balanced tone arm.
4. Voltage and frequency of motor - 105 - 120 volts, 50 - 60 cycles, single phase a.c.
5. Type of cartridge - high impedance crystal.
6. Type of needle - straight shank steel or semi-permanent sapphire.

Record Changer: General Instrument Model 205

Alignment Procedure

The overall sensitivity and selectivity of these models is affected to a great extent by the alignment of the i-f and r-f circuits. In general, a complete realignment of both circuits is unnecessary. If realignment is required, however, the following procedure must be used:

1. Disconnect the receiver from the 105-120 volt power source.
2. Remove the rear cover - loop assembly as outlined above.
3. Pull off the four knobs at the front of the cabinet.
4. Remove the pilot lamp socket from the speaker bracket. Remove the speaker plug from its socket. This socket is located at the front of the chassis near the 6SC7 tube.
5. To release the chassis, remove the two screws from the bottom of the cabinet.
6. Reconnect the speaker. Place the power plug in the 105-120 volt a-c or d-c convenience outlet and set the controls on the front as follows:
   a. Volume control and a-c switch - full on.
   b. Radio-phonograph switch - in RADIO position (extreme counter clockwise).
   c. Tone control - HIGH position (extreme clockwise).
   d. Tuning dial - 1600 kc position.
7. Connect the signal generator to the control grid of the 6SF7 i-f amplifier tube through a series capacitor of 0.1 mfd. Adjust the signal generator for an output frequency of 455 kc; keep the signal reduced to avoid a.v.c. action.
8. Connect an a-c output meter across the speaker voice coil; place the meter range switch on the highest output scale position for the preliminary adjustments.
9. Using an alignment tool, adjust the secondary trimmer of the second i-f transformer for the maximum output indication on the meter. As the circuits come into alignment, it will be necessary to further reduce the test signal amplitude in order to prevent a.v.c. action. Always use the lowest range on the meter which will give at least one-half scale deflection. Adjust the primary trimmer of the second i-f transformer for maximum output indication.
10. Connect the signal generator output to the control grid of the 6SA7 mixer tube, and adjust in turn, the secondary and primary trimmers of the first i-f transformer for maximum output indication.
11. Leave the signal generator connected to the control grid of the 6SA7 mixer tube. Reduce the test signal to the lowest perceptible value and carefully "peak" each adjustment in Steps 9 and 10 for maximum output indication.
12. Connect the signal generator to the antenna terminal on the back cover - loop assembly through a capacitor of approximately 200 mmfd.; adjust the signal generator to an output frequency of 1615 kc. Rotate the tuning condenser until the minimum capacity stop is reached, and adjust the oscillator trimmer for the maximum response on the output meter.
13. Disconnect the signal generator test lead from the antenna terminal. Turn attenuator on the signal generator for full output. Adjust the signal generator for 1400 kc. Bring the output lead near, but do not connect to, the loop antenna. Tune in the test signal as accurately as possible on the radio. If the test signal is too strong, move the lead farther away. Adjust the antenna trimmer for maximum output on the meter.
    Note: The antenna trimmer must be readjusted after the chassis is replaced in the cabinet as the metal chassis and speaker affect the inductance of the loop.
14. Check on radio stations at selected points for calibration and sensitivity.



The foregoing alignment procedure is condensed in the following table as a convenience for the service technician.

Steps	Connect Signal Generator to—	Adjust Signal Generator to—	Tune Radio Dial to—	Adjust
1	6SF7 control grid through 0.1 mfd. capacitor	455 kc	1600 kc	secondary trimmer of 2nd i-f transformer for maximum output
2	6SF7 control grid through 0.1 mfd. capacitor	455 kc	1600 kc	primary trimmer of 2nd i-f transformer for maximum output
3	6SA7 control grid through 0.1 mfd. capacitor	455 kc	1600 kc	secondary trimmer of 1st i-f transformer for maximum output
4	6SA7 control grid through 0.1 mfd. capacitor	455 kc	1600 kc	primary trimmer of 1st i-f transformer for maximum output
5	antenna terminal through 200 mmfd. capacitor	1615 kc	gang at minimum	trimmer of oscillator section, tuning capacitor for maximum output
6	radiated signal (no actual connection)	1400 kc	1400 kc	antenna trimmer for maximum output

Power Supply Polarity:

When the receiver is operated on 105-120 volts 60 cycles a.c., a slight hum may be heard if the power plug is inserted in such a manner that the "hot" side of the supply line is connected nearest to the chassis. To eliminate this trouble, reverse the plug in the convenience outlet.

When operated on direct current, the set will not function at all if the power plug polarity is reversed with respect to the line voltage. If it does not function within one minute after it is turned on, reverse the plug.

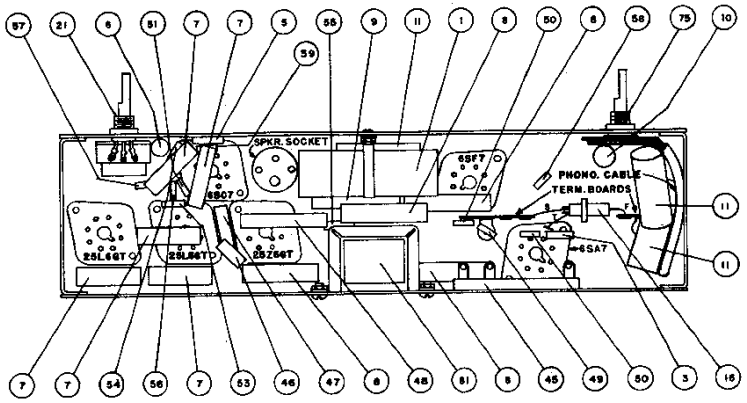
Ground Connection:

The use of an external ground is not recommended for two reasons: First, the r-f circuits are returned to ground through the a-c or d-c supply line; second, the radio chassis is connected to one side of the supply line through a 220,000 ohm resistor and a capacitor of 0.2 mfd. If the power plug is inserted in such a manner that the "hot" side of the supply line is connected nearest to the chassis, the use of an external ground would place the 105-120 volt supply voltage directly across the resistor-capacitor combination. This might cause a loud hum or, under certain conditions, actual damage to the receiver.

PARTS LIST FOR H-122 AND H-130

When ordering parts specify model number of set in addition to part number and description of part.

Item No.	Part No.	Description of Part
1	V-3304	Capacitor, electrolytic
1A	Part of Item 1	Capacitor, 30 mfd.
1B	Part of Item 1	Capacitor, 50 mfd.
2	V-3535	Capacitor, variable two-gang
2A	Part of Item 2	Capacitor, loop tuning
2B	Part of Item 2	Capacitor, oscillator tuning
2C	Part of Item 2	Capacitor, oscillator trimmer
3	RCM20A680M	Capacitor, 68 mmfd.
5	RCM20A301M	Capacitor, 300 mmfd.
6	RCP10W6502A	Capacitor, .005 mfd.
7	RCP10W4103A	Capacitor, .01 mfd.
8	RCP10W4503A	Capacitor, .05 mfd.
9	RCP10W4204K	Capacitor, 0.2 mfd.
10	RCP10W6202A	Capacitor .002 mfd.
11	RCP10W4104A	Capacitor, 0.1 mfd.
16	V-3382	Coil, oscillator
20	V-3303	Control, tone
21	V-3298	Control, volume and switch
21A	Part of Item 21	Control, variable resistor
21B	Part of Item 21	Control, switch
24	V-3392	Cord, power a.c. long (H-122 only)
25	V-3372-122	Cord, power short (H-122 only)
25	V-3372-130	Cord, power (H-130 only)
28	Westinghouse No. 47	Light, pilot
31	V-3660	Loop, antenna (H-122 only)
31	V-3666	Loop, antenna (H-130 only)
31A	Part of Item 31	Loop, winding
31B	Part of Item 31	Loop, trimmer
31C	Part of Item 31	Phono socket
35	V-3379	Receptacle
39A		Phonograph pickup (See Service Notes, V-3269-2 Record Changer)
39B		Phonograph motor and switch (See Service Notes, V-3269-2 Record Changer)
45	V-3311	Resistor, ballast
46	RC20AE220M	Resistor, 22 ohms ½ watt
47	RC30AE910J	Resistor, 91 ohms 1 watt
48	RC40AE152M	Resistor, 1,500 ohms 2 watts
49	RC10AE332M	Resistor, 3,300 ohms ¼ watt
50	RC10AE223M	Resistor, 22,000 ohms ¼ watt
51	RC10AE823K	Resistor, 82,000 ohms ¼ watt
53	RC20AE184K	Resistor, 180,000 ohms ½ watt
54	RC20AE224K	Resistor, 220,000 ohms ½ watt
55	RC10AE224M	Resistor, 220,000 ohms ¼ watt
56	RC10AE274K	Resistor, 270,000 ohms ¼ watt
57	RC10AE334K	Resistor, 330,000 ohms ¼ watt
58	RC10AE225M	Resistor, 2.2 megohms ¼ watt
59	RC10AE106M	Resistor, 10 megohms ¼ watt
65	V-3398-1	Socket, regular a.c. power
66	V-3299	Socket, speaker
70	V-3291	Speaker, 6" PM
75	V-3301	Switch, radio phono
79	V-3328	Transformer, 1st i-f
80	V-3329	Transformer, 2nd i-f



81	V-3297	Transformer, output
	V-3219S-1	Cord, dial drive
	V-3343	Pointer assembly
	V-3321	Rail, pointer
	V-3335	Socket, pilot light
	V-3246S	Socket
	V-3248S	Spring, dial drive
	V-1109-1	Cabinet (radio section H-122 only)
	V-1110-1	Cabinet (less radio section H-122 only)
	V-1111-2	Cabinet (H-130 only)
	V-3425	Dial (H-122 only)
	V-3647-2	Dial (H-130 only)
	V-3413	Knob, tone (H-122 only)
	V-3262-2	Knob, tone (H-130 only)
	V-3413	Knob, tuning (H-122 only)
	V-3262-2	Knob, tuning (H-130 only)
	V-3331-1	Knob assembly, volume (H-122 only)
	V-3667-2	Knob assembly, volume (H-130 only)
	V-3331-2	Knob assembly, radio-phono (H-122 only)
	V-3667-4	Knob assembly, radio-phono (H-130 only)
	V-3333S-1	Medallion

Power Output:

Undistorted (radio) ..... 3 watts
Undistorted (phonograph) .....3.5 watts
Maximum ..... 5 watts

Loudspeaker:

Type .....6⅝" dia. P.M. dynamic
Voice Coil Impedance .....3.2 ohms

Power Supply Rating:

H-122 combination .....105 - 120 volts, 50 - 60 cycles a.c.
H-130 or radio section of H-122 only .....105 - 120 volts d.c. or 105 - 120 volts, 50 - 60 cycles a.c.

Power Consumption:

H-122 combination .....150 watts
H-130 or radio section of H-122 .....60 watts

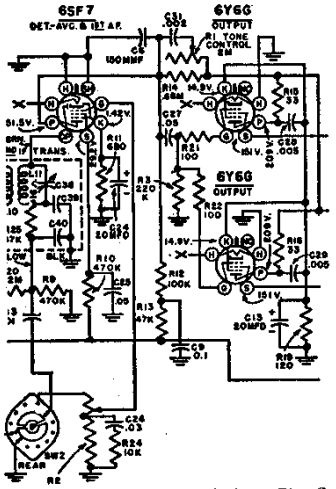
Special Provisions:

H-130: Phonograph, FM, and television sound input connection at rear of cabinet
H-122: FM and television sound input connection at rear of cabinet

WESTINGHOUSE H-104, H-105, H-107, H-108

In later productions of Westinghouse Models H-104, H-105, H-107, H-108 the tone-control circuit was modified to provide greater tonal range. In chassis incorporating this change, the chassis number was changed from V-2102 to V-2102-1. This change is shown in the accompanying diagram. The same two components that comprised the tone-control circuit in the early production models, C31 (0.002-μf) and tone control R1 (2 megohms), are also used in the later revised models. The former tone-control circuit was removed from the connection it had to the volume control, R2, and wired to the plate circuit of the 6SF7 first audio tube as follows:

One end of capacitor C31 is connected to the plate of the 6SF7 tube and the other end to the variable arm of the tone control, R1. One end of the tone control is connected between resistors R14 and R15, or between resistors R14 and R16, (since R14 is tied to one end of either of the other resistors), and the other end of the tone control left open. The schematic with the original tone control circuit is found on *page 15-1* of *Rider's Volume XV*.



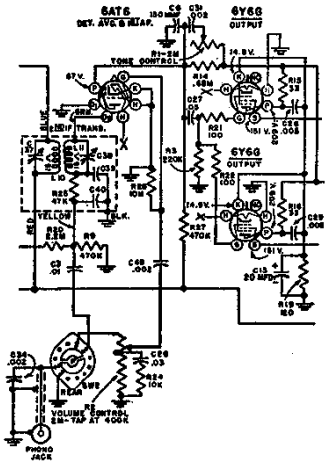
Courtesy Westinghouse Elec. Corp.

Tone-control circuit in Westinghouse chassis V-2102-1 showing changes.

Westinghouse H-104A, H-105A, H-107A, H-108A

These models are modified versions of the same model numbers without the suffix A, the service data for which appears on *page 15-1 of Rider's Volume XV* and changes in the June, 1947 issue of SUCCESSFUL SERVICING. The chassis number of the models carrying the suffix A is V-2102-2.

The major difference in this latest chassis is the substitution of a 6AT6 tube for the 6SF7 detector, avc, and first a-f amplifier. This necessitates the introduction of C48, (0.002 μf, 600 volts) between the control-grid of the 6AT6 and the movable arm of the volume control. The cathode and one end of the heater are connected to ground and to a 10,000-ohm resistor, R28, the other side of which goes to C48. R27, a 470,000-ohm, 0.25-watt resistor has been substituted for R12 and R13, thus eliminating C9 (0.1 μf). These changes are shown in the accompanying partial schematic, in which it should also be noted that now there is 67 volts on the plate of the 6AT6 instead of 51.5 as in the case of the 6SF7.

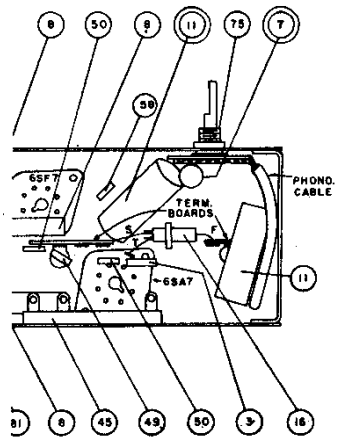


Modified Westinghouse chassis V-2102-2, showing changes due to use of 6AT6.

WESTINGHOUSE H-122, H-130

The following changes have been made in Westinghouse Models H-122 and H-130 that bear serial numbers higher than 1500:

1. The capacitor, item No. 7, was changed in value from 0.002-μf to 0.01-μf and its item number was also changed from 7 to 10. This capacitor connects across the phono-input cable at the radio-phono switch.
2. The 0.1-μf capacitor, item No. 11, which was previously connected between the shield of the phono-input cable and ground, now connects between the phono-input cable and the common negative line. Its physical location, looking at the bottom view of the chassis, was moved from the right side of the radio-phono switch to the left side. The diagram for this physical change is shown in the accompanying diagram.



Courtesy Westinghouse Elec. Corp.

Bottom view of the chassis of Westinghouse Models H-122 and H-130 showing new location of capacitor No. 11.

The original schematic for these models is illustrated on *page 15-5* of *Rider's Volume XV* and the chassis layout is shown on *page 15-7*.

Automatic 640, Series B

The schematic of this model is the same as the 640 shown on *page 15-7 of Rider's Volume XV* except for the change from octal type to loctal type tubes.

This model uses the 14Q7, 14A7, 14B6, 50A5, and 35Y4 in place of the 12SA7GT, 12SK7GT, 12SQ7GT, 50L-6GT, and 35Z5GT tubes.

Automatic 650

This model is similar to the 650 shown on *pages 15-4 and 15-7 of Rider's Volume XV* except for the following change: The 20,000 resistor in the oscillator grid circuit of the 12SA7GT now is connected directly to ground instead of to the cathode of that tube.

Belmont 8A510

This model is the same as the 8A59 shown on *pages 15-8 to 15-12 of Rider's Volume XV*, except for the addition of four parts.

The two miscellaneous parts of the removable tuner assembly are:

1. Part No. A-2J-7176—cam locking spring.
2. Part No. A-2J-7627-1—retainer spring.

The miscellaneous part added to the main chassis is part A-19A-11539 which is a plug on the speaker leads.

The final addition is an alternate record changer which can be used with this model. Part C-201-12545-1 is a Detrola Changer model 550, which is shown on *pages RCD.CH.15-1 to 15-10 of Rider's Volume XV*.