

Westinghouse

Models HF100BN, HF101BN,
Chassis V-2500-1

CIRCUIT INFORMATION

The V 2500-1 amplifier circuit, used in models HF100BN and HF101BN, is shown in figure 2.

An audio signal of about .7 volts is amplified to about 6 watts through a straightforward amplifier circuit. A 12AX7 serves as audio amplifier and phase inverter to drive the 6V6 push-pull output tubes. This output stage is operated class AB₁.

Degeneration, for improved fidelity, is obtained through the use of unbypassed cathode resistors and the inverse feedback loop through R116.

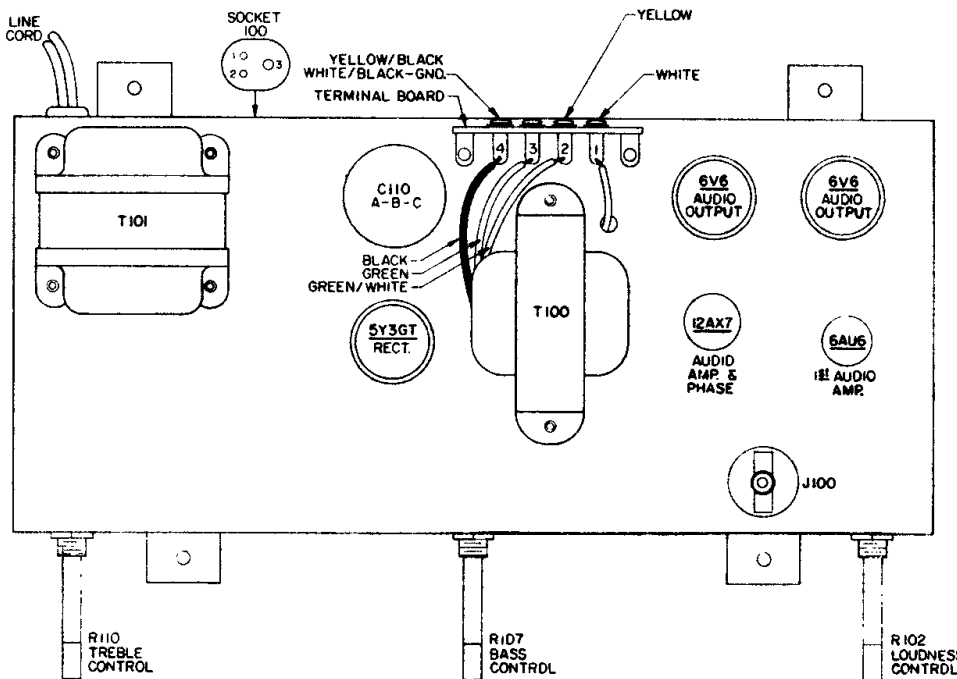
A 2.7 ohm resistor is used in series with the 6AU6 heater to reduce hum.

The impedance of each speaker voice coil is 12.8 ohms. If a replacement speaker is required, use the correct Westinghouse replacement speaker listed in the parts list.

When operating the amplifier with speakers disconnected (during tests), connect four 50 ohm, 2 watt resistors in parallel across output terminals 2 and 4.

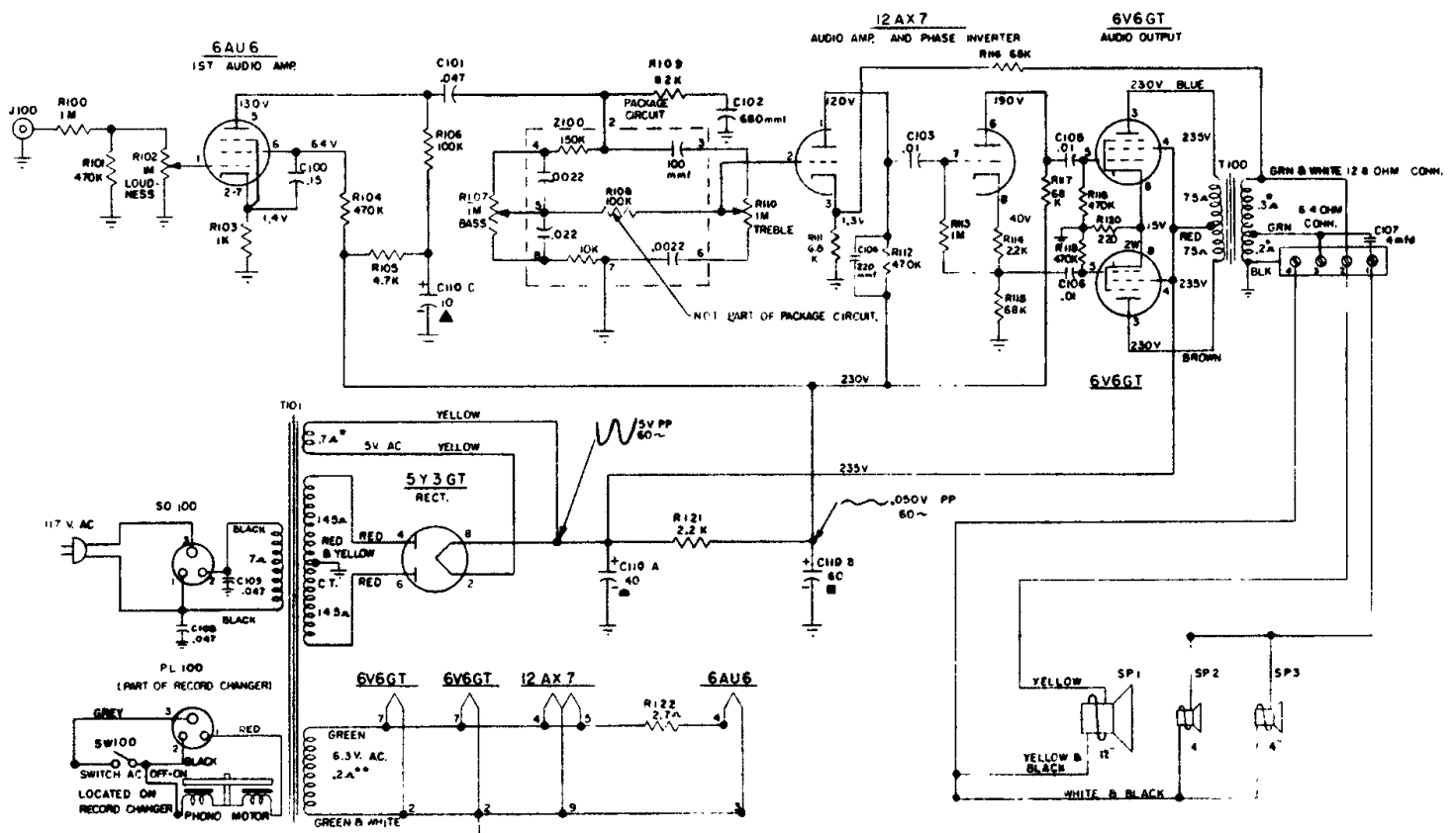
The function of C107 is to pass only high frequencies to the parallel high frequency speakers.

AC input (to the power transformer primary) is connected to 1 and 3 of the socket, SO 100; the AC on-off switch is located on the record changer.



VOLTAGE GAIN MEASUREMENTS

An audio signal generator and VTVM are required for voltage gain measurements. To measure over-all amplifier gain, proceed as follows: 1) Disconnect speaker. Connect four 50 ohm, 2 watt resistors in parallel across terminals 2 and 4. 2) Set loudness control, R102, to maximum loudness. 3) Set bass control, R107, and treble control, R110, to mid-range. 4) Connect generator output to J100. Set generator for 1Kc, at about .7 volts output. 5) Connect VTVM across output terminals 2 and 4. Approximate correct voltage reading is 8 volts.



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Models HF104DP, HF105DP, HF106DP,
Chassis V-2501-1

AMPLIFIER CIRCUIT INFORMATION

Input

Two input jacks, J100A and J100B, are provided. SW100 selects the input signal fed to the 12AU6 1st audio amplifier. The output from the phono pick-up is fed to J100B; other audio signals may be fed to J100A.

1st audio amplifier

To minimize hum, the first audio amplifier heater receives direct current, fed from the cathode circuit of the push-pull output stage. R101 is unbypassed to provide degeneration for improved fidelity.

Equalizer

Package circuit Z101 contains the record equalization capacitors and resistors. Equalization is selected by SW101 to modify the amplifier response, adapting the response to the type of record being played. Equalization positions are as follows:

R1AA: Compensates for R1AA recording curve.

LP: Compensates for standard 33 1/3 RPM records.

EUR: In this position, Z101 is switched out of the circuit. European records usually require this setting.

78: Compensates for older 78 RPM records.

Tone controls

Except for R106, the tone control fixed resistors and capacitors are contained within packaged circuit Z100. Tone control characteristics are as follows:

BASS: Provides up to 20 db boost at 40 cycles.

TREBLE: Provides up to 15 db boost at 15,000 cycles.

Audio amplifier and phase inverter stage

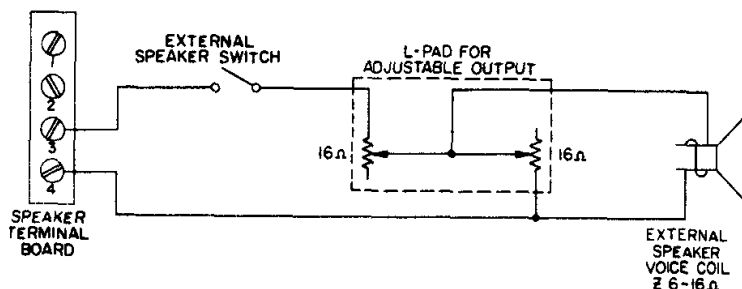
A 12AX7 is used as audio amplifier and phase inverter. Inverse feedback voltage is fed to the cathode of the audio amplifier (pin 3) to provide additional improvement in fidelity and stability. Grid drive to one 6L6 output tube is fed from the plate (pin 6); grid drive to the other 6L6 is fed from the junction of R111 and R112 in the cathode circuit of the phase inverter.

Audio output stage

The 6L6 push-pull audio output tubes operate class AB₁. R118 and R119 prevent oscillation (ringing). The 12AU6 heater serves as part of the common cathode resistor for the 6L6 tubes. (This circuit arrangement provides DC for the 12AU6 heater).

Output circuit

Normal DC resistance across the primary and secondary of T100 is shown in figure 1. Output impedance, between terminals 2 and 4 is 12.8 ohms; impedance between terminals 3 and 4 is 6.4 ohms. C108 is the cross-over capacitor which passes the high frequencies to the paralleled high frequency speakers.



EXTERNAL SPEAKER CONNECTION, WITH SWITCH AND L PAD ATTENUATOR

