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MHA200

Tube Headphone Amplifier

Owner's Manual



Important Safety Information is supplied in a separate document “Important Additional Operation Information Guide”

Inside the Box

Besides all the protective packaging you should find:

- A literature pack including this manual
- An AC Power Cord
- An MHA200 Headphone Amplifier

Taking it out of the Box

The easiest way to remove the MHA200 from its shipping carton is to:

- Open the top of the box
- Remove and read this manual
- Gently turn the box over with the flaps extended outward
- Lift the box upward to reveal the foam encased MHA200
- Carefully remove the MHA200 from the packaging

Where to Put it

Place the MHA200 upright on a sturdy flat surface that can support its weight with adequate open space. Cool operation ensures the longest possible operating life for any electronic instrument. Always allow air to flow through the ventilation holes on the bottom of the amplifier and space for the warm air to escape at the top.

Allow at least 19 inches (48.3cm) above the top; 4 inches (10.2cm) for the Rear and Sides; allow 1/2 inch (1.3cm) below the Power Amplifier so the airflow is not obstructed. Do not remove the feet.

For dimensions see “Dimensions” on page 6.

DO THIS FIRST

Removal of Foam Inserts over Vacuum Tubes

IMPORTANT!

REMOVE THE FOAM INSERTS OVER THE VACUUM TUBES PRIOR TO CONNECTING THE A.C. POWER SUPPLY CORD.

- To prevent damage to the Tubes during shipping, there are special foam inserts surrounding the Tubes of the Power Amplifier
- **The Foam Inserts must be removed** from the MHA200 before connecting the AC Power Supply Cord to the Power Amplifier
- **Failure to do so has the potential of a Fire Hazard, resulting in damage to the MHA200 and the surrounding environment**
- **Follow these instructions for removal of the packing foam** before connecting the AC Power Supply Cord to the MHA200

To remove the protective foam, it is necessary to temporarily remove the two Tube Covers. To remove each Tube Cover:

- Use a Phillips Head #2 screw driver to remove the two screws that hold the Tube Cover (see Figure 01)
- Pull the Tube Cover upward off of the Tube Cover Retaining Posts (see Figure 02)
- Pull the protective foam straight up off the Vacuum Tubes (see Figure 02)

- Replace the Tube Cover
- Replace the two screws to secure the cover to the Tube Cover Retaining Posts (see Figure 01)

Save the protective foam and warning label for possible future use.

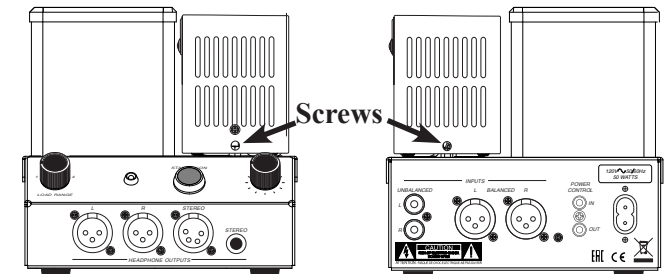


Figure 01– Tube cover screws

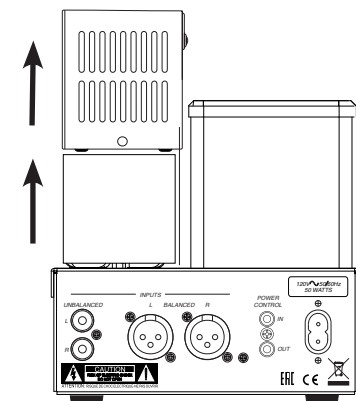


Figure 02– Lift Tube Cover and foam up

The MHA200 is a McIntosh Vacuum Tube Amplifier designed and crafted for one purpose- to power your headphones with the best possible sound.

- **Output stage is a Push-Pull pure Class-A triode**
- **Only Headphone Amplifier with Unity Coupled Output Transformers and Proprietary Push-pull configuration technology**
- **Guaranteed 500mW power for ALL loads from 32 to 600 Ohm**

Thank you from all of us at McIntosh

You have invested in a precision instrument that will provide you with many years of enjoyment. Please take a few moments to familiarize yourself with the features and instructions to get the maximum performance from your equipment.

If you need further technical assistance, please contact your dealer who may be more familiar with your particular setup including other brands. You can also contact McIntosh with additional questions or in the unlikely event of needing service.

McIntosh Laboratory, Inc.

2 Chambers Street
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Customer Service: (607) 723-3515

Fax: (607) 724-0549

Email: support@mcintoshlabs.com

Website: mcintoshlabs.com

Make a Note

For future reference, you can jot down your serial number and purchase information here. We can identify your purchase from this information if the occasion should arise.

Serial Number:	
Purchase Date:	
Dealer Name:	

Table of Contents

Inside the Box	2
Taking it out of the Box	2
Where to Put it	2
Removal of Foam Inserts over Vacuum Tubes	2
Thank you from all of us at McIntosh	3
Make a Note	3
Making Connections	4
The Inputs on the Back	4
Balanced or Unbalanced Input	4
Trigger Input	4
Trigger Output	4
The Knobs on the Front	4
The Left Knob (Load)	4
The Right Knob (Volume)	4
Connecting Headphones	5
The Power Button and Standby LED	5
Dimensions	6
Re-packing the MHA200	6
Technical Specifications	7

List of Figures

Figure 01– Tube cover screws	2
Figure 02– Lift Tube Cover and foam up	2
Figure 03– Rear Panel	4
Figure 04– XLR cable	4
Figure 05– RCA Cable	4
Figure 06– Power control (trigger) mini plug	4
Figure 07– Front View	5
Figure 08– 3-pin XLR wiring	5
Figure 09– 4-pin XLR wiring	5
Figure 10– Tube locations	5

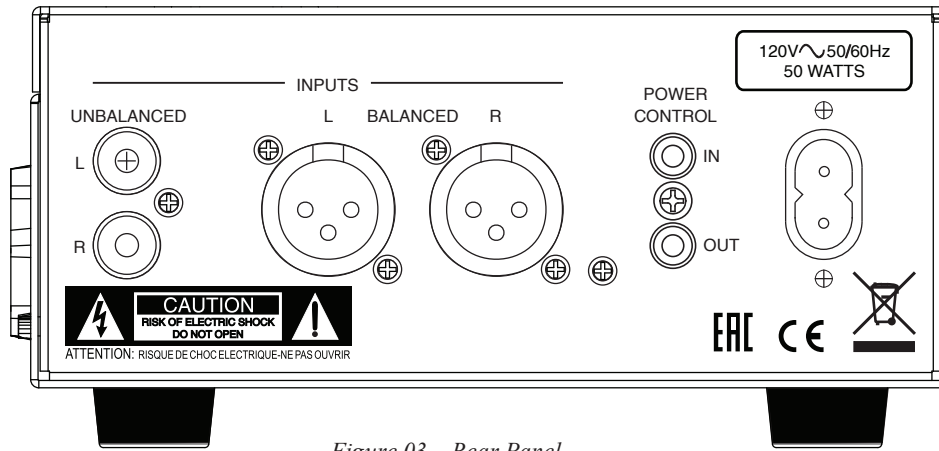


Figure 03– Rear Panel

Making Connections

The Inputs on the Back

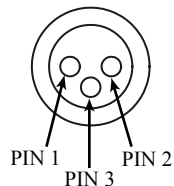
- One Pair of Unbalanced RCA Jacks
- One Pair of Balanced XLR Female Connectors
- One Power Control (Trigger) Input
- One Power Control (Trigger) Output
- One AC Power Inlet

Balanced or Unbalanced Input

The BALANCED INPUT allows a source to be connected using Balanced (XLR) cables (see Figure 03.)

The Unbalanced Input accepts RCA/Phono Plugs (see Figure 05.)

Choose either Balanced or Unbalanced as an Input source for the MHA200. Connecting both is not optimal.



PIN 1: Shield/Ground
PIN 2: + Signal
PIN 3: - Signal

Figure 04– XLR cable



Figure 05– RCA Cable

You may wish to use a fixed output source and control the volume solely with the MHA200 Volume Knob. You may use a variable volume source and use the source (a preamplifier for example) to control volume. In this case the Volume Knob of the MHA200 can be left at unity gain with the notch at 12 o'clock (at the top).

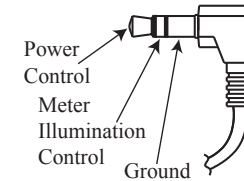
Trigger Input

The Trigger Input can be connected to other McIntosh equipment using a 3.5mm stereo mini phone plug to receive a +12 Volt/0 Volt signal for power control (see Figure 06). When a signal is received, the MHA200 will power on.

Trigger Output

The Trigger Out is an output that can be connected to other McIntosh equipment using a 3.5mm stereo mini phone plug to send a +12 Volt/0 Volt signal

for power control. This will enable additional equipment to be powered on and off when the MHA200 is powered on or off.



Connect components for Power Control using a 3.5mm stereo mini plug.

Figure 06– Power control (trigger) mini plug

AC Power

Use the included AC Power Cord to connect the MHA200 to a working AC outlet. Make sure the Voltage matches the value printed above the AC Connector on the right side of the rear of the unit.

The Knobs on the Front

The Left Knob (Load)

The Left Knob, aka the Load Knob, allows you to impedance match the MHA200 with your headphones. Set the Left Knob to the value closest to the impedance value specified by your headphone manufacturer. The options are:

- 32 ohms
- 100 ohms
- 250 ohms
- 600 ohms

There is no need to be exact since the impedance rating of a headphone is an average of the varying impedance across the frequency range. Choosing a value above your headphone's impedance, will result in louder output (and visa versa).

The Right Knob (Volume)

Turn clockwise for more volume and counter-clockwise for less volume.

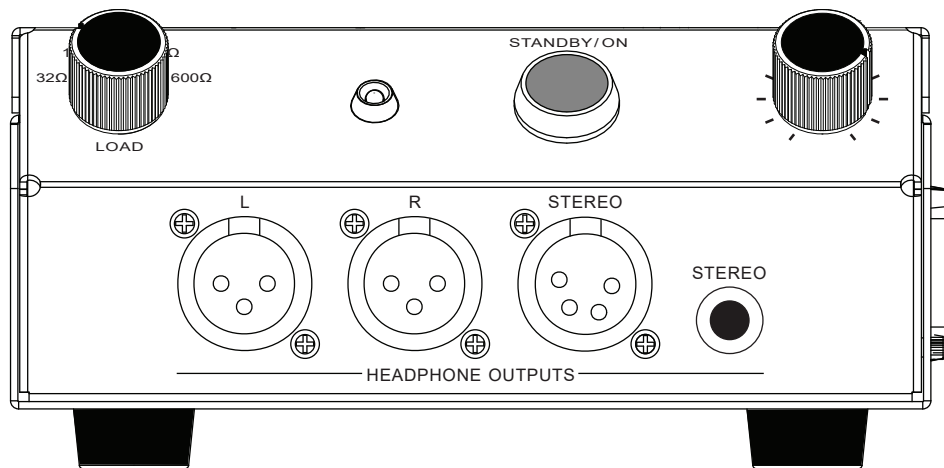


Figure 07– Front View

The center indented position is unity gain. If your connected source is a variable output and you will be using the source (a preamplifier for example) to control the volume, then set the Right Knob to unity gain.

When using a fixed output source, you will use the Right Knob to control the Volume. **To avoid damaging headphones and ears, do not start the MHA200 at a high volume.** If the starting volume is above unity gain, the MHA200 will ramp up to this volume rather than starting suddenly.

Connecting Headphones

There are three ways to connect your headphones to the MHA200:

- 1/4" 3-conductor (stereo) phone plug
- One pair of 3-pin male XLR plugs
- One 4-pin male XLR connector (Neutrik NC4MX)

1/4" Stereo plug provides an unbalanced connection. This is a common connector for headphones (along with the smaller 1/8" plug). The next two solutions may require replacing the original jack.

With **3-pin XLR** connectors, there is a separate jack for left and right. See Figure 08 for proper wiring.

The **4-pin XLR** connector uses a single plug for both left and right channels. See Figure 09 for proper wiring.

The Power Button and Standby LED

The Standby LED glows red when the MHA200 is connected to AC Power and in Standby Mode. To power the MHA200 on, press the Power Button.

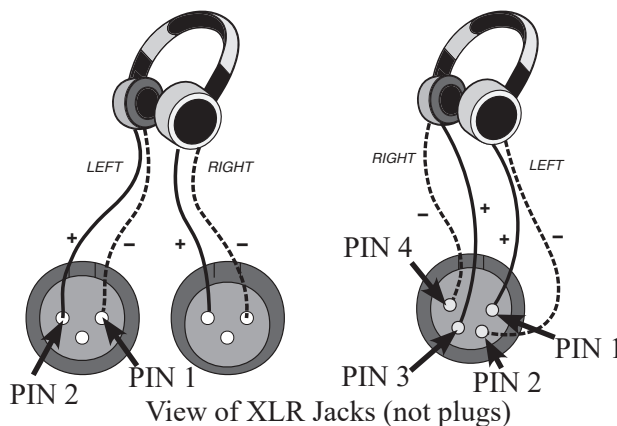


Figure 08– 3-pin XLR wiring Figure 09– 4-pin XLR wiring

The Tubes will flash green during the tube warm-up phase. The Power Button will have no effect during tube warm-up. When the tubes are ready, they will glow a steady green. The Standby LED is off when the MHA200 is on.

To power down the MHA200, press the power button again.

If the MHA200 is being controlled by another device through Power Control (see “Trigger Input” on page 4), the Power Button will have no effect.

THE MHA200 will **automatically power off** after approximately 30 minutes of receiving no input signal if not being controlled by another device through Power Control.

About Those Tubes

The MHA200 features four tubes that can be seen glowing. These tubes (two 12AT7 and two 12BH7 to be precise) are expertly incorporated into the amplifier circuit to provide warm detailed playback. The 12AT7s are used in the Driver stage and the 12BH7s are used for the Power stage. Tubes should be replaced by trained McIntosh authorized technicians. The tube locations are shown in Figure 10.

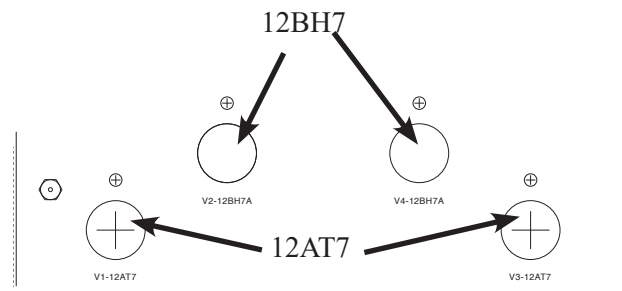
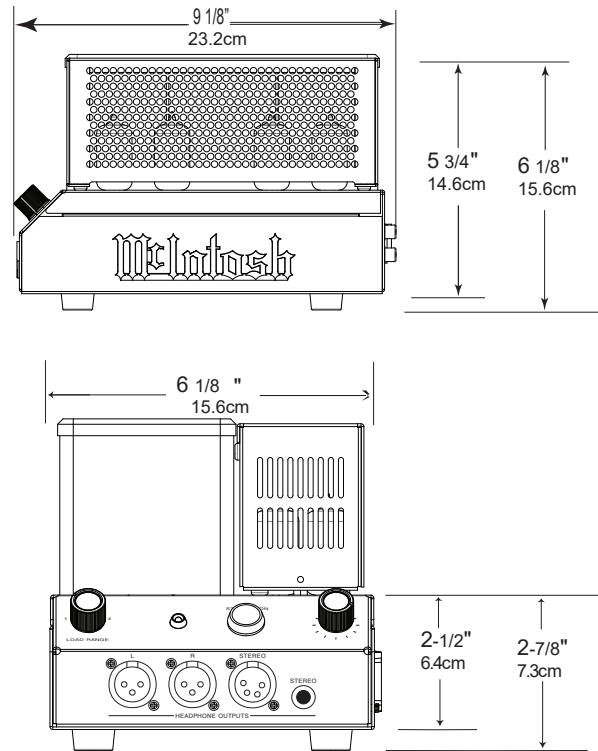


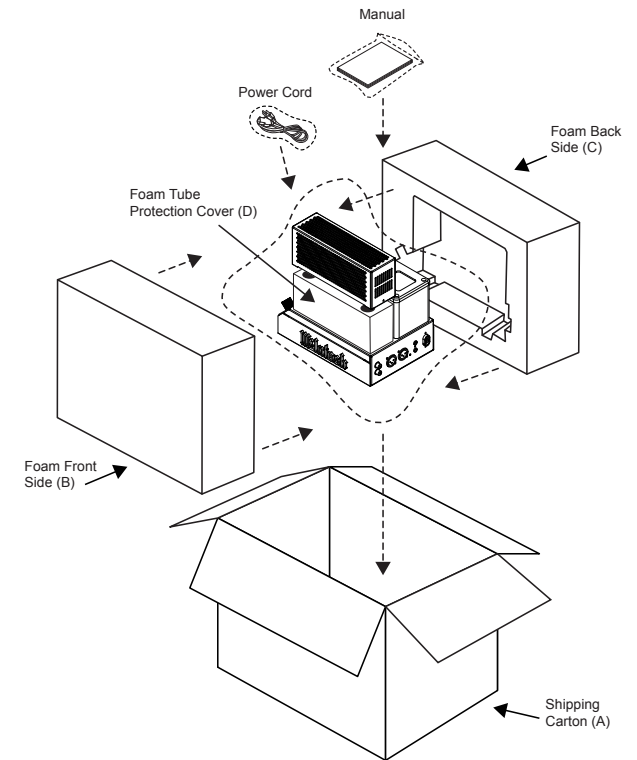
Figure 10– Tube locations

Dimensions



Re-packing the MHA200

When shipping the MHA200, it is highly recommended that the unit be packed as it was originally shipped to avoid damage. Failure to properly pack the unit will likely result in damage. If you need any of the packing material, you can contact McIntosh Customer Service.



Quantity	Part Number	Description
1	034621	Shipping Carton (A)
1	034618	Foam Pad Front (B)
1	034619	Foam Pad Back (C)
1	034620	Foam Tube Cover (D)

Technical Specifications

Power Output

32 Ohm Load 500mW
100 Ohm Load 500mW
250 Ohm Load 500mW
600 Ohm Load 500mW

Output Load Impedance

32 , 100 , 250 , 600

Rated Power Band

20Hz to 20kHz

Total Harmonic Distortion

0.5%

Dynamic Headroom

1dB 8 ohm load
1.3dB 4 ohm load

Frequency Response

+0, -0.5dB from 20Hz to 20,000Hz

Input Sensitivity (for rated output)

1.0 Vrms Unbalanced
2.0 Vrms Balanced

A-Weighted Signal to Noise Ratio

94dB unbalanced

Voltage gain

12dB 32 Ohm
17dB 100 Ohm
21dB 250 Ohm
25dB 600 Ohm

Trigger Output

12VDC, 50mA maximum

Power Requirements

Refer to the rear panel of the MHA200 for the correct Voltage. The MHA200 is factory configured for one of the following AC Voltages:

100 Volts, 50/60Hz at 50 watts
110 Volts, 50/60Hz at 50 watts
120 Volts, 50/60Hz at 50 watts
220 Volts, 50/60Hz at 50 watts
230 Volts, 50/60Hz at 50 watts
240 Volts, 50/60Hz at 50 watts
Standby Power, less than 0.5 watts

Field AC Voltage conversion of the MHA200 is not possible.

Dimensions

Width 6-1/8 inches (15.6cm)
Height 5-3/4inches (14.6cm) including feet
Depth 9-1/8 inches (23.2cm) including antenna

Weight

10.5 pounds (4.8 kg) net
12.0 pounds (5.5 kg) in shipping carton

Shipping Carton Dimensions

Width 12 inches (30.5cm)
Height is 10 inches (25.4cm)
Depth is 9-1/2 inches (24.1cm)



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