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# WOO AUDIO WA2

## Stereo Headphone & Pre Amplifier

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Single-Ended, Class-A, Output Transformer-Less (OTL)



## OWNER'S MANUAL

**Please review this manual before operating your WOO AUDIO™ product.**

# Important Safety Information



**CAUTION:** These amplifiers are shipped without the vacuum tubes installed. It is necessary to install the tubes first. The tubes must be installed correctly or *serious damage that is not covered by the warranty will result.*



**Turn off immediately in the event of malfunction**  
Should you notice smoke or an unusual smell coming from the equipments, turn it off immediately. Continued operation could result in injury.



**Do not disassemble**  
High voltage circuit. Touching the product's internal parts could result in injury. In the event of malfunction, the product should be repaired only by a qualified technician.



**Keep out of children**  
Failure to observe this precaution could result in injury



**WARNING:** Failure to follow these instructions could result in fire, electric shock, or other injury or damage.

# Table of Contents

<b>IMPORTANT SAFETY INFORMATION</b>	<b>2</b>
<b>TABLE OF CONTENTS</b>	<b>3</b>
<b>OVERVIEW</b>	<b>4</b>
<b>QUICK INSTALLATION</b>	<b>5</b>
<b>OPERATION</b>	<b>9</b>
<b>COMPATIBLE TUBES</b>	<b>11</b>
<b>FAQ - FREQUENTLY ASKED QUESTIONS</b>	<b>12</b>
<b>WARRANTY AND SERVICE</b>	<b>13</b>
<b>REVIEWS</b>	<b>14</b>
<b>PRODUCT SPECIFICATION</b>	<b>15</b>

# Overview

Thank you for choosing a Woo Audio product. The WA2 is finely hand-crafted amplifier that delivers uncompromised performance and superior listening experience.

- ❖ Point-to-Point wiring
- ❖ Two 6AS7 / 6080 power tubes
- ❖ Two 6922 / 6DJ8 drive tubes
- ❖ Two EZ80 rectification tubes
- ❖ Pseudo-dual power supply
- ❖ One pair of pre-amp RCA output
- ❖ Four pairs of selectable RCA inputs
- ❖ One TRS (1/4" or 6.35mm) stereo headphone jack
- ❖ Full aluminum die-cast chassis, anodized finish
- ❖ Whole aluminum volume knobs and power switch button
- ❖ 120 watts toroidal power transformer
- ❖ Individual filter choke and rectifier per channel
- ❖ Silver plated Teflon wires
- ❖ Alps potentiometer and power switch

# Quick Installation

## What's in the box?



- ① WA2 amplifier
  - ② One matched pair of 6922 rectifier tubes
  - ③ One matched pair of EC80 rectifier tubes
  - ④ One matched pair of 6080 power tubes
- 
- ❖ The actual tubes may look different.
  - ❖ Compatible tubes may be included instead of the ones illustrated above.
  - ❖ Power cord and interconnection cable are not included.

## Installing the power tubes:

Note: avoid oil or smudge on the tube glass; clean hands before installation.

1. Find the correct tube for the socket. There is a label below each tube socket that indicates a standard tube for the amplifier. For example, a 6080 tube should install on the “6080” labeling socket. You **MUST** use the compatible tube or serious damage may occur to the amplifier. See Compatible Tube section for all the approved direct substitute tubes.
2. Align the tube guide pin to the socket as below.



Tube socket guide pin indicator



Guide pin shows on the bottom of a tube.

3. Hold the tube base firmly then squeeze it into the socket slowly. Be sure to apply force perpendicular to the tube socket; never insert the tube at an angle. Apply slight rocking motion for the tube, which is harder to insert; never apply circular motion. Apply pressure from the top of the tube if needed.

### Tube to tube



Do no insert a tube at an angle

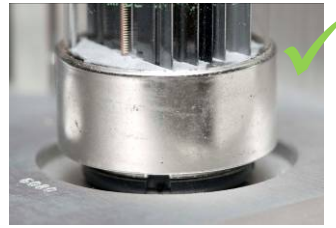


Insert a tube perpendicular to the socket.

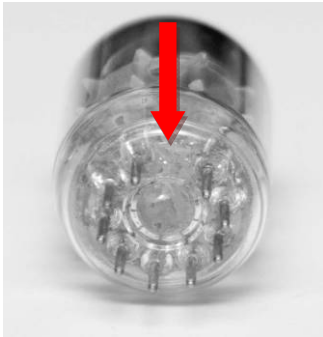


Hold base firmly.

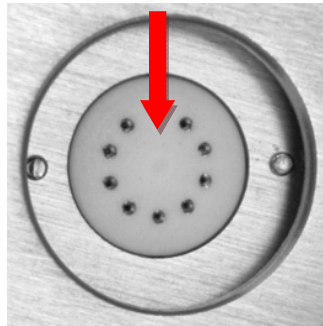
4. Check installation. The tube pins should be inserted fully into the tube socket receptacles.



### Installing driver and rectifier tubes:



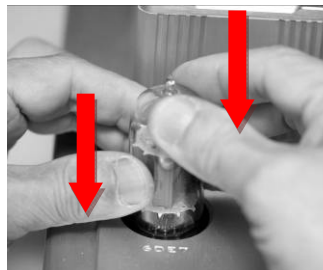
Bottom of the tube



Align the tube to the socket



Insert the tube perpendicular to the socket



Use both hands if needed

### Selecting AC voltage:

WARNING: failure to select the correct voltage will result in damage of the amp.



Switch to label "115" for AC100 to 125V voltage.



Switch to label "230" for AC210 to 240V voltage.

## Installing the power cord:

Plug the power cord into the AC inlet. See ① in the below diagram. The AC inlet socket is a standard IEC type. You will need to obtain the correct type for your region.



U.S.



European



U.K.

## Installing the source input:

Plug the RCA interconnection cable into the RCA connectors; see ④ in the below diagram.

## Back panel diagram:



① AC inlet

② AC voltage selection switch

④ RCA inputs, 4 pairs



# Operation

## DO NOT

- Turn on the amp before properly installing **ALL** tubes.
- Use tubes that are not approved by Woo Audio.
- Turn on the equipment without checking the correct AC voltage setting.
- Remove any tubes or the DC cord while the amp is operating
- Touch tubes (**extremely hot**) after warm-up.
- Leave the amps running unattended. To use the amps safely, please allow it to cool down for every 8 hours of continuous play time.

## DO

- Place the amp away from any wireless or frequency-emitting devices such as mobile phones, PDAs and radios, to avoid noise interference.
- Keep away from water or excessive moisture.
- Turn off the amp if its sound is abnormal.
- Allow a minimum of 2 inches of air clearance for heat dissipation.
- Allow approximately 5 minutes of warm-up.
- Allow the tubes to cool down before replacing them.

## Turning the amplifier on:

1. Turn the volume knob to the lowest position.
2. Insert a headphone into phone jack ①.
3. Press the power switch ④ to a locking position. The LED will light.
4. Observe that all tubes light gradually.
5. Let the tubes warm up for at least 1 minute before turning up the volume.

## Front panel diagram:



- ① Headphone output
- ② Inputs switch for 4 inputs
- ③ Volume control
- ④ Power switch
- ⑤ Power LED indicator

## Break-in period:

It is recommended to allow the amplifier to operate 150+ hours so that peak performance can be realized. An effective way to break-in the amp is to run the amp normally with music playing. Please do not leave the amp running continuously.

# Compatible Tubes

	Model	Adapter	Comment
Driver	6922 *	No	
	6DJ8	No	
	6N1P	No	
	7308	No	
	E188CC	No	
	E88CC	No	
	E288CC	No	
	ECC88	No	
	CCa	No	
Rectifier	EZ80 *	No	
	6CA4	No	
	6V4	No	
	EZ81	No	
	U709	No	
Power	6080 *	No	
	421A	No	Greater power. Western Electric branded.
	5998	No	Greater power
	6AS7	No	
	6H13C	No	
	6N5P	No	
	7236	No	Greater power
	2399	No	
	6520	No	

\* The most current chart can be found in this document:

<http://tinyurl.com/4wbv5qn>

# FAQ - Frequently Asked Questions

## **There is abnormal sound right after turning on the amplifier.**

This is normal from a cold start as the tubes are warming up to get into the proper working state. The noise will disappear gradually.

## **Can I change headphone while the amplifier is on?**

Yes, but you must first minimize the volume.

## **No sound is coming out of the headphone.**

- Check that all tubes are properly installed.
- Check that the source is properly installed and is working fine.
- Check that the source switch is on the correct position.
- Check headphone connection.

## **There is noticeable noise coming from the headphone.**

- Remove all sources from the amp to check if the noise disappears. If it does, the noise is coming from the source.
- Place the amp away from other electronic devices to check whether those were causing the noise.
- Place the amp in a different location to check if the noise is coming from the AC line.
- Remove all tubes, clean tube pins, and then reinstall them again.
- Replace some or all tubes.

## **The sound is abnormal or distorted.**

Replace tubes to see if they have deteriorated.

## **The LED and the tubes do not light.**

Check if the fuse is burnt. See the following instruction on how to replace a fuse. The fuse type is 2 or 3A, slo-blo.



Insert a small flat screwdriver into the fuse door which is located on the AC inlet.



Release the fuse door by pulling it out.



The fuse holder is released from the AC inlet.



The fuse is held by a clip.

# Warranty and Service

Woo Audio warrants this product free from defects in materials and workmanship for 1 year from the original date of purchase. The tubes are warranted for 30 days unless otherwise stated. In the event that your Woo Audio product requires servicing, please contact us directly to get a return instruction. If the equipment needs to be shipped back, please use the original packaging and include a copy of the sales purchase along with a detailed explanation of the problem(s).

Send service inquiry to [woaudio@gmail.com](mailto:woaudio@gmail.com)

**Any modification not authorized by WOO AUDIO will void this warranty.**

# Reviews

*“[The WA2] has iron-fisted control of any headphone I throw at it, and most importantly – it communicates with me and my emotions.– xenithon@head-fi*

*“Woo 22 balanced headphone amp which, with the premium tube upgrades, presents the most effortless, immediate presentation of sound I have heard from any headphone system, or perhaps any stereo system.” – **Positive Feedback, issue 54***

*“The Sennheiser HD800 headphones and the Woo Audio WA22 integrated headphone amp configured in fully balanced configuration is one of the best audio systems I have heard. Tremble and midrange performance are as good or better than any headphone or two-channel standalone system I have experienced. Bass is very satisfying and will only be bettered by the very best fullrange speaker and subwoofer systems.” –*

**6Moon**

*“I have since tried HD 800’s with the prototype Woo Audio WA 22 amp (which is tube rather than solid state apm that has variable output impedance). The WA 22 takes the sense of vividness up a notch, mostly by making the midrange contrast level higher, while introducing minimal if any deleterious side effects. The mostly subtractive errors noted above are still there, but they are diminished in the overall presentation. This gets me to the level of really, really liking the HD 800s. The HD 800s are so good that I could easily live with them over the long haul. (page 115).” – **Playback Guide to fully sized headphones***

# Product Specification

Model:	WA2
Headphones Impedance:	26-600 Ohms
Input Impedance:	100 Kilo-Ohms
Frequency Response:	8 Hz - 100 KHz, -3dB
Power Output:	310mW @32Ω 400mW @60Ω 550mW @120Ω 640mW @300Ω 480mW @600Ω (with 6080 tube)
Signal/Noise:	95 dB
THD:	<= 0.8%
Voltage:	AC 110/220 - 240V, 50/60 Hz, switchable
External Dimension, end to end measurement, same for both units:	5.5" (H) x 13 (W) x 9" (D)
Weight:	17 pounds

**Woo Audio is committed to continuously improve its products. We reserve the right to improve the design without notice.**