

# Wheatfield Audio



## HA-1 Headphone Amplifier / Pre-Amp Owners Manual

**Contents**

Contents..... 2  
Safety ..... 3  
Unpacking, Setup, and Connection..... 4  
    Unpacking the amplifier ..... 4  
    Checking the tubes..... 4  
    Connecting the HA-1 ..... 4  
Listening with the HA-1 and headphones ..... 5  
About Headphones..... 5  
Using the HA-1 as a pre-amp ..... 5  
The Tubes ..... 6  
Wheatfield Audio’s Warranty ..... 6  
Tweaks ..... 7  
Specifications ..... 8  
Schematic Diagram..... 9

*Copyright 2000 Wheatfield Audio LLC. All rights reserved. Printed in USA 9/00*

Wheatfield Audio LLC  
Longmont, Colorado

[www.headphoneamp.com](http://www.headphoneamp.com)

## Safety

The HA-1 is a tube amplifier. As such, there are some safety precautions that you need to observe.

 **CAUTION:**     **HOT SURFACES. KEEP COMBUSTIBLES AWAY FROM TUBES. DO NOT BLOCK AIR FLOW AROUND AMPLIFIER.**

 **DANGER:**     **TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**

First, tubes get hot. Please ensure that there is adequate ventilation around your HA-1, and *never* place anything directly on top of the unit. If you place the HA-1 on shelves or in an equipment rack, make sure that there is plenty of space above it.

Also, make sure that you don't locate the amplifier near anything that could create a fire hazard. Don't place it near curtains, for example, or bedding, or anything else that is flammable. Make sure that there's nothing but air within a foot of the top of the amplifier.

Second, there are high voltages inside the chassis of the HA-1 – up to 200 Volts. Do not open the chassis of the HA-1 unless you are qualified to do so. If you have any doubts, don't do it – refer service to somebody that is familiar with working on tube equipment. And if you *do* open the chassis (to replace tubes, for example), make sure that it's been unplugged for at least a minute to minimize the risk of electric shock.

Like any electronic equipment, do not operate the HA-1 near water, or in any location where it is likely to get wet. If by some accident water or other liquid is spilled onto the amplifier, unplug it immediately. Take it to a competent service technician and have it checked out, dried off, and cleaned before plugging it back in.

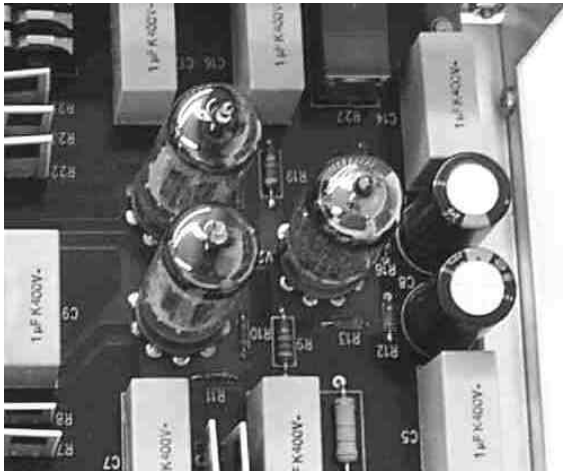
If for some reason the fuse on the HA-1 blows, replace it only with the same type of fuse that was originally installed. The HA-1 uses a slow-blow, 0.63A, 250V, 5x20 MM fuse.

## Unpacking, Setup, and Connection

### Unpacking the amplifier

Carefully unpack your HA-1 amplifier. Inside the package, you will find the amplifier, a power cord, and this manual (guess you already found *that*, huh?) It's always a good idea to save the original packing material.

### Checking the tubes



The HA-1 is shipped with the tubes pre-installed. Though we use some mighty tight tube sockets, it is a wise idea to check and make sure that the tubes haven't been jarred loose during shipment. If you look down through the slots on the top, you should see the three tubes installed in their sockets. If they look crooked (or if you just want to see what's inside), remove the outer case of the HA-1 by removing the seven cover screws, using a philips screwdriver. The tubes should look like they do in this picture.

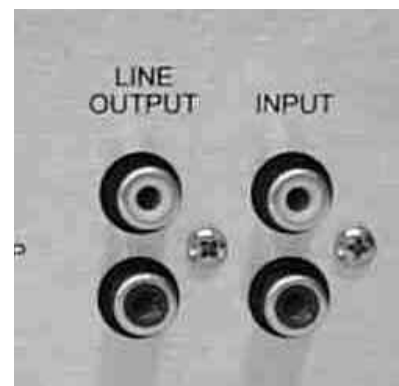
### Connecting the HA-1

Plug the power cord into the amplifier, and the other end into a wall outlet. Connect the audio inputs of the HA-1 to your CD player or other source, using standard RCA-type audio interconnect cables. Note that the input connectors are color-coded, red for the right channel and white for the left.

If you're using the HA-1 as a preamp, connect your power amplifier to the line outputs in a similar manner.

Plug your headphones into the connector on the front.

You're ready to listen!



***Listening with the HA-1 and headphones***

It's best to start out with the volume control knob turned all the way down (counter-clockwise) until you're familiar with the HA-1.

Turn the amp on, using the front panel power switch. It's OK to leave your headphones plugged in when you turn the amplifier on and off – there is very little turn-on/turn-off “thump” generated, since the amplifier warms up slowly.

Speaking of warm-up, the amplifier takes only a half minute or so to start working, though you may find that it takes a couple of minutes for the sound quality to reach its best.

Adjust the volume to your liking.

***About Headphones***

To get good sound from the HA-1, you need good headphones. Cheap headphones driven by the best of amplifiers will still sound like cheap headphones.

The HA-1 is designed to drive any high-quality headphones of at least 30 ohms impedance. Pretty much all of the headphones made by Sennheiser, AKG, Grado, Sony, and Beyerdynamic fit into this category.

The HA-1 will drive headphones of lower impedance, but we don't recommend it. The mismatch of impedance between the amplifier and such headphones introduces larger amounts of distortion.

You can't hurt the amplifier by plugging in any type of headphones.

***Using the HA-1 as a pre-amp***

Using the line outputs provided on the HA-1, your headphone amplifier can double as an excellent all-triode, zero-feedback pre-amp. It has more than enough gain, and a low enough output impedance, to drive even the most difficult power amplifier.

When there are headphones plugged in to the front panel jack, the line outputs are muted.

Occasionally, the switch contacts on the headphone jack can become dirty, resulting in no output from one or both line output with the headphones unplugged. If this happens, blow the dust out of the jack, and repeatedly plug in and unplug your headphones. This should remove any contamination from the switch contacts.

### ***Replacing Tubes***

Tubes don't last forever, so you can expect to replace the tubes from time to time. We have operated the HA-1 for more than 2500 hours, with no noticeable degradation of the tubes. We expect that the tubes will last between 4,000 and 10,000 hours before needing replacement. That's about an hour of listening per day, for ten to twenty years.

Of course, your mileage may vary. If you do notice degradation of the sound, or a lowering of the volume, it may be time to replace the tubes.

You can replace the tubes yourself. Just find a high-end Hi-Fi shop that sells tubes, or look on the internet – there are a number of companies that sell tubes on-line for very reasonable prices.

You don't have to use tubes made by the same manufacturer as those shipped with the amplifier – any tube with the same type number is OK. Certain equivalent replacement types are fine, too. For example:

7044	can be replaced with	7119, E182CC
ECC82	can be replaced with	12AU7, 12AU7A, 5814, 6189, CV4003

### ***Wheatfield Audio's Warranty***

Your HA-1 amplifier is warranted to be free of defects for a period of one year after you receive it. If anything fails during that time, *including the tubes*, we will fix it for free. Contact the dealer from which you bought the HA-1 for directions on how and where to return it.

After the one year warranty period, contact the dealer that sold you your HA-1 if you have a problem. He can either fix it or arrange to get it back to us to fix.

***Tweaks***

We think that the HA-1 is a fine amplifier, right out of the box. It was designed with what we believe is an optimal combination of components.

That being said, many audiophiles are never satisfied with any piece of equipment until they've "tweaked" it in their own special way.

We don't recommend that you make changes to the amplifier. If you choose to modify the amp or change any components, your warranty is void, so you're on your own.

We will make one exception to this rule, however. That exception is the tubes.

You may replace the tubes with others **OF THE SAME OR ELECTRICALLY EQUIVALENT TYPE** if you desire, without endangering your warranty.

We use some very high quality tubes in the HA-1. Specifically:

The voltage amplifier tube is a JJ/Tesla ECC82, a current production type that is among the best ECC82/12AU7 types available – better than many NOS American 12AU7's. However, if you are a connoisseur of 12AU7 types, or are just curious if you can hear the difference between the JJ and a Telefunken or RCA "clear top", go ahead and give it a spin.

The output tubes are a special NOS computer triode, the 7044. We have secured a good quantity of these tubes, but they are no longer manufactured. NOS 7044 tubes are available in the marketplace from a couple of manufacturers. If you'd like to try something different, the 7119 and E182CC tubes are acceptable substitutes, and are easier to find than 7044's. There is a good supply of Amperex 7119 tubes in the marketplace, and you may find other European brands of E182CC tubes (though many will be made by Amperex).

## **Specifications**

*Note: Specifications listed are typical, and are derived from measurements on actual amplifiers. There will be some variation from one amplifier to the next. Specifications are subject to change without notice.*

### **Description**

Single-ended, OTL, class-A triode amplifier

Single voltage amplifier stage, single cathode follower stage

DC-coupled input; capacitor-coupled output.

### **General**

Input impedance: 50k ohms

Input connections: Unbalanced, gold-plated RCA

Tube complement: 1x ECC82 (12AU7), 2x 7044

Power supply: Silicon rectifier, 3-stage RC filter

Power requirement: 117V, 60 Hz, 50W

Dimensions: 9.5" W x 4" H x 7.5" D

Weight: TBD

Warranty: One year on all parts, including tubes

### **As a Headphone Amplifier**

Frequency Response (+/- 3dB) :  
600 ohm load: <9Hz - 250kHz  
32 ohm load: 12Hz - 250kHz

THD+N (1kHz, 1V RMS out, 100 ohm load): <0.12%

Noise: TBD

Maximum output voltage (5% THD):  
600 ohm load: 13V RMS  
32 ohm load: 1.5V RMS

Output impedance: Approx. 35 ohms

Output connection: Standard ¼" stereo headphone jack

### **As a Pre-Amp**

Frequency Response (10k ohm load) :  
<9Hz - 250kHz +/- 3 dB  
<9Hz - 95kHz +/- 1 dB

THD+N (1kHz, 1V RMS out, 10k ohm load): <0.18%

Noise: TBD

Maximum gain: 28 dB

Maximum output voltage (5% THD):  
10k ohm load: 15V RMS  
600 ohm load: 8V RMS

Output impedance: Approx. 35 ohms

Output connections: Unbalanced, gold-plated RCA



**Wheatfield Audio**

***Schematic Diagram***

**HA-1 Owners Manual**