Wheatfield Audio

HA-2
Tube Headphone Amplifier

What it is – and isn't

The Wheatfield Audio HA-2 is a vacuum-tube OTL (Output Transformer-Less) headphone amplifier. It uses two tubes, each of which has two sections (one for each channel) plus a rectifier tube in the power supply.

The first tube, a 6SN7 dual triode, acts as a class-A voltage amplifier. The second, a 6AS7G dual triode, acts as a class-A cathode follower. There is no negative feedback.

The output impedance of the amplifier is approximately 100 ohms. It is designed to drive high-quality headphones of 100 ohms impedance or greater, such as those from Sennheiser, AKG, or Beyer Dynamic. Although the HA-2 will drive lower impedance headphones (like Grados), distortion levels are higher, so we don't recommend the HA-2 for such use.

The gain of the amplifier is limited. This was done to minimize noise and distortion. But don't confuse limited *gain* with limited *output power*; the HA-2 can deliver about a half watt of power into a pair of Sennheiser HD-580's… which are rated for 80 milliwatts maximum. We hope that you don't want to damage your hearing anyway….

This isn't *really* high-end HI-FI equipment

No blue LED's.

No chrome-plated transformers.

No faux-marble paint job.

No machined-aluminum volume control knob.

The sad fact is, most high-end HI-FI equipment is as much about hype and appearance as it is about sound.

Not so with the Wheatfield Audio HA-2 headphone amp. We use expensive components where it will make an audible difference – but we don't waste money (*your* money) where it doesn't matter.

Not that the HA-2 is *ugly* – let's just call it's design "classic".

Why tubes?

From an engineering perspective, even the best tube amplifiers are technically inferior to solid-state amplifiers. They introduce more noise and distortion, and have poorer frequency response than even an inexpensive solid-state amp.

So what's all this hype about tubes?

Tubes sound different.

Most audiophile-types think tubes sound better.

Perhaps it's because tube amplifiers are more "musical" – meaning that the imperfections that tube amplifiers introduce are more like the sounds that are produced by musical instruments than those producers by solid-state amps. Or because tubes don't "clip" off music peaks abruptly.

Frankly, it doesn't matter why tube amps sound better. Listen for yourself.

Listen to tube sound without taking out a second mortgage

You can spend over $30,000 on a tube stereo amp.

Who can afford this stuff?

If you want to experience music in a way that you've never done before, you don't have to spend all that much money.

Buy yourself a decent pair of headphones and a Wheatfield Audio HA-2 headphone amp. Hook it up to a reasonable-quality CD player. And listen.

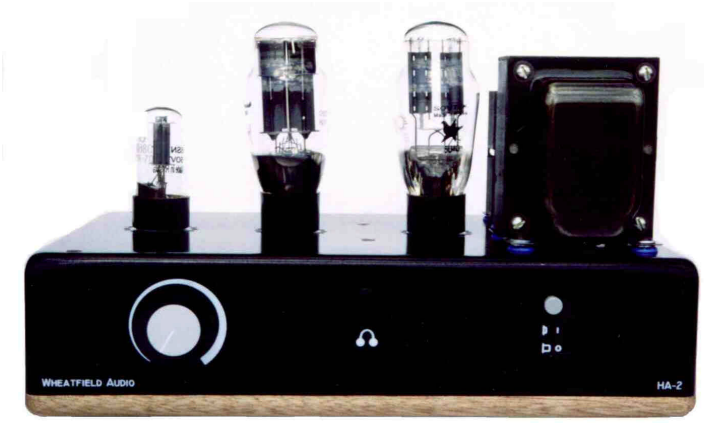
We think you'll be amazed. OK, at least pleasantly surprised.

And you'll only have to spend a few *hundred* dollars.

Who knows, you may be so moved by the experience that you *will* buy that $30,000 amp….

HA-2

Front View

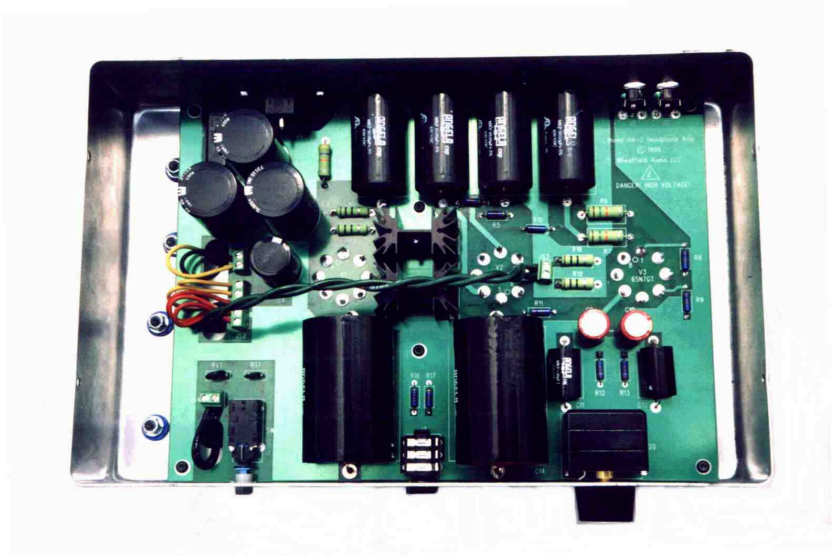


HA-2

Rear View

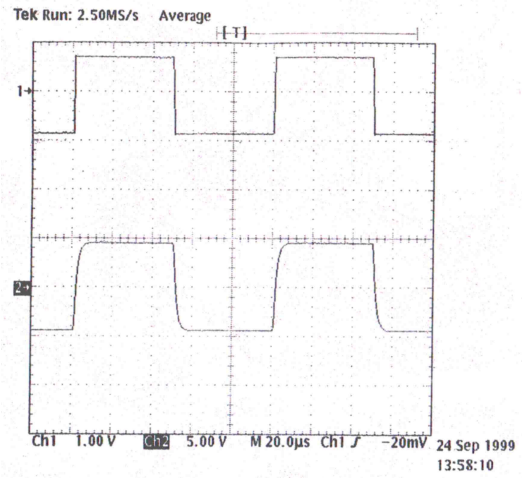
HA-2

Underside Of Chassis And PCB



Signal integrity

Note the near-perfect response to a 10kHz square wave… no overshoot or ringing. Compare this to a transformer-coupled amplifier!



10kHz square wave, into 620 ohm load
Top trace: Input, 1V/division
Bottom trace: Output, 5V/division
Volume control at approximately 80%

Parts is parts…

Take a look at the picture on the opposite page. Compare it to other so-called "high-end" Hi-Fi equipment. You may notice some differences.

For example….

- ALPS 40mm "black beauty" volume control
- Massive, audiophile-type "fast" polypropylene output capacitors
- Polypropylene power supply capacitors for good sound, combined with electrolytic capacitors for low ripple
- Riken-ohm audiophile carbon-film resistors
- Elna Cerafine bias bypass capacitors, paralleled with polypropylene "fast" capacitors
- Silver-plated ceramic tube sockets

Simplicity

The design goal of the HA-2 Headphone Amp was simple: the best sonic performance possible, at a price that average folk can afford.

- Components are placed for the best electrical characteristics, not to "look cool"
- Expensive frills – those that don't affect the sound – were left out
- All components are mounted on one circuit board, eliminating inconsistent and expensive hand-wiring

HA-2 Headphone Amplifier

Specifications

Description
Single-ended, OTL, class-A triode amplifier
Single voltage amplifier stage, single cathode follower stage DC-coupled input; capacitor-coupled output.

Tube complement
1 - Sovtek 6SN7GT voltage amplifier (one section per channel)
1 - Sovtek 6AS7G cathode follower (one section per channel)
1 – Sovtek 5U4G rectifier

Power supply
Full-wave tube rectifier
Capacitor-input filter with choke, using electrolytic and polypropylene capacitors
AC filament supply

Dimensions
13" wide x 8.5" deep x 8" tall (including tubes)

Power requirements
120VAC 60Hz only
100 Watts

Output Impedance
100 Ohms

Maximum output level
(1kHz, 5% THD)
620 ohm load: 13V RMS / 36V P-P
270 ohm load: 10.5V RMS / 30V P-P

Rated Maximum continuous output power
(1kHz, 5% THD)
620 ohm load: 270mW
270 ohm load: 400mW

Total Harmonic Distortion
(1kHz, 1V RMS out)
620 ohm load: < TBD %
270 ohm load: < TBD %

Voltage Gain
620 ohm load: 17dB
270 ohm load: 15dB

Frequency Response
(+/- 3dB)
620 ohm load: ~10Hz – 75kHz
270 ohm load: ~15Hz – 75kHz

Ripple and Noise
< 3.5mV RMS

Note: Specifications are subject to change without notice.

Wheatfield Audio HA-2 Tube Headphone Amplifier

Available exclusively from:

(800) 828-8184

www.headphone.com

Wheatfield Audio LLC
Andale, Kansas

www.headphoneamp.com