



Liquid Fire™
Headphone Amplifier

Congratulations! You're now the owner of the Cavalli Audio Liquid Fire Headphone Amplifier!

Amplifier Break-In

Most amplifiers, especially amps with tubes, need at least 150 hours of continuous use, playing music, to reach their full sound signatures.

Your Cavalli Audio Amplifier has been playing music into a 32ohm load for at least _____ hours at near full volume. Confirmed by _____.

If this number is less than 150 hours we recommend that, when you're not listening, you leave the amp on continuously with your CD player in loop mode for enough hours to reach the 150 hour point. We have supplied a dummy load for you to do this. To use the load, first plug in headphones into the #2 jack and verify that you have sound. Then insert the dummy load into the #1 jack. Verify that you still have music. If you do, remove the headphones and turn the volume to approximately $\frac{3}{4}$ of its rotation. Leave the amp in this condition for as long as needed to reach 150 hours of full operation.

At this point - and not before this point – will the amplifier reach the level of performance enabling you to accurately judge its sound quality and to determine whether it meets your critical listening standard.

Before you judge the sound quality of the amp please follow this procedure!

Return Policy

If, within the first 14 days after delivery, you are not satisfied with your Liquid Fire Headphone Amplifier you may return it without penalty. Please contact Cavalli Audio at support@cavalliaudio.com. All you pay is the fully insured return shipping. All units returned must be accompanied by an authorization number issued by Cavalli Audio. Beyond 14 days after delivery, returning the amplifier will incur a %30 of the retail price restocking fee.

Important points to remember about the Cavalli Audio Liquid Fire headphone amplifier

The Liquid Fire is a unique blend of tubes and transistors. Unlike nearly all other hybrid amplifiers, the Liquid Fire is DC coupled from input to output. There are no coupling capacitors in the signal path. To achieve this, Cavalli Audio does not resort to running the tubes at low voltages to accommodate the transistor circuits. Instead the Liquid Fire has two completely separate, dual rail power supplies -- one high voltage supply specifically to enhance the performance of the tubes and another low voltage supply specifically to enhance the performance of the transistors.

The amp uses the tubes only for voltage gain, and transistors (MOSFETs) only for the power output section. Each channel has its own separate set of final regulators; thereby reducing or eliminating channel crosstalk through the power supplies. The power circuitry includes a tube-life-enhancing 20 second delay while the tubes warm up before applying high voltage from the rails. Once the rail voltages are applied the non-invasive protection circuitry we have built into your amp waits another 20 seconds before connecting the headphones. In an effort to provide further protection for your precious headphones, the Liquid Fire's output has twin tuned offset detectors -- one for each channel -- that disconnect the headphones virtually instantaneously if, for any reason, the DC at the output gets to a level even remotely dangerous to the ear speakers.

Power is controlled by a standby power circuit activated by a custom made Piezo power switch. Your Liquid Fire amplifier also includes engraved Perspex windows on the front panel so that you can enjoy the glow of the tubes while examining other internal circuitry.

Operation

Your Liquid Fire amplifier has been operated for at least 50 hours for quality control and to give the tubes and other parts an opportunity to break in. However, most amplifiers don't fully settle, open up, and "relax" until they are played for at least 100 to 150 hours of operation. The Liquid Fire also follows this timeline (see page 3). Your new amp will continue to improve with regard to bass impact, more open sound, warmth, and "sweetness," so we strongly recommend that you accumulate these important hours on your Liquid Fire headphone amplifier by playing it as much as possible so that you may fully enjoy its performance as soon as possible.

Your power inlet has been set for the voltage you specified.

- 1) Insert the power cord.
- 2) Press the **standby switch** on the **power inlet at the rear of the amplifier**. The **power switch on the front panel should light red**. The heater and output LEDs should be completely **off**.
- 3) Pushing the power switch turns the amp on (see notes below about “The Power Switch”). The amplifier will “awaken” and prepare itself for safe operation in the following sequence (refer to enclosed diagram):
 - a) Heaters turn on and the Heater Warm-Up LED glows red -- 20 second delay in process to protect vacuum tubes.
 - b) After 20 seconds:
 - i. Rail voltages are applied.
 - ii. The vacuum tube “heater LED” glows yellow.
 - iii. Printed circuit board LEDs light up indicating rail power in circulation.
 - iv. The “Headphone Connect LED” glows red. 20 second delay in process to protect your headphones.
 - c) After 20 seconds the output delay LED glows yellow, announcing that YOUR CAVALLI AUDIO LIQUID FIRE HEADPHONE AMPLIFIER IS NOW READY FOR YOUR ENJOYMENT!

Important notes:

- Due to the extreme levels of resolving capability of the Liquid Fire, you will likely notice changes in the amp’s performance in the first half-hour or so after turn on, even after considerable break in – this is normal. All audio components are subject to this “wake up” period, though few will demonstrate this phenomenon as acutely as the Liquid Fire. This is simply another aspect of living with extreme audio performance. Enjoy!
- In order to insure product as well as vacuum tube longevity the power circuitry in your Liquid Fire headphone amplifier will not let you cycle the power on and off rapidly. If you turn off the power, the amp will safely recycle through the entire 40 second start up. This prevents damage that may be caused by sudden changes to and improper cycling of the power ... or in case of unexpected occurrences like power outages, accidental power disconnect, etc.
- If your amplifier does not follow this startup sequence or if the output relay LED never turns yellow, this indicates a problem. Please contact Cavalli Audio customer service at service@cavalliaudio.com.

Headphone Outputs

The Liquid Fire Headphone Amplifier is equipped with two output jacks. The upper “Number 1” jack is connected directly to the output of the amplifier. The lower “Number 2” jack is connected to the output through series resistors, one per channel. **NOTE: if you selected zero ohms for jack #2 this section does not apply to your amplifier.**

For high impedance headphones, such as Sennheiser, you will normally use the Number 1 jack since these headphones require the full output voltage swing of the amp to achieve high volumes.

For many low impedance headphones such as fine headphones like the Audio Technica AD2000 it is recommended that the user choose the Number 2 jack. The Number 2 jack will have a reduced output voltage which, when using a high output source (such as a CD player or high-output phono stage), will allow you to enjoy a wider effective range on your volume control before reaching high sound levels.

For low impedance planar magnetic headphones such as the Audez-e LCD-2s or the HiFiMAN HE series choice of jacks will depend on your other equipment and listening tastes.

There will be, of course, be some users who prefer to listen very loudly to low impedance headphones. In this case, just plug them into the Number 1 jack to use the maximum output of the amp. **WARNING: DUE TO THE EXTREMELY NATURAL SOUND OF THE CAVALLI AUDIO LIQUID FIRE, THE LISTENER MAY NOT EXPERIENCE EXTREME VOLUME LEVELS AS “LOUD.” WE VALUE YOU AS A CUSTOMER, AND DO NOT WISH FOR YOU TO DAMAGE YOUR EARS BY LISTENING AT EXTREME LEVELS. PLEASE BE AWARE OF THIS PHENOMENON SO YOU MAY ENJOY YOUR MUSIC FOR DECADES TO COME!**

Take some time to experiment with the two jacks and your headphone(s) to see which combinations you like best.

Extended On Time (Please Read This)

The Liquid Fire amplifier will benefit from some warm up time, about a half hour to an hour. We do not recommend, however, that you leave the amp on for extended periods of time when not listening. Leaving the amp constantly on will shorten component life, including tube life, and will not (after the initial break-in period) benefit the sonic character of the amp. We do not recommend, for example, turning the amp on Friday evening and turning it off Sunday evening if you plan on listening for only a few hours each day.



Liquid Fire Headphone Amplifier Controls, Jacks, and Indicators



Replacing Tubes

The Liquid Fire uses four 6922/6DJ8 tubes. Replacing tubes can be a fun part of the pastime! Please be aware, however, that Cavalli Audio will not warranty products damaged by use of tubes not supplied, tested, and approved by us.

To replace the tubes:

1. Turn off the amp.
2. Turn off the standby switch.
3. Remove the power cord.
4. Wait at least one hour for all the voltages inside the cabinet to discharge.
5. Remove the top cover by first removing the six screws holding it in place.
6. Slide the cover back about three inches, enough to clear the tubes.
7. Remove the old tubes and insert the new ones. Make sure all tube pins are securely seated in their proper socket receptacles.
8. Replace the cover and power cord.
9. Turn on the standby switch and power up the amp. New tubes need at least 100 hours of operation before they begin to sound normal. Generally, new tubes will sound “thin” and perhaps a bit strident for about 50 hours; relaxing and filling out from there. As lower notes are achieved, added warmth and liquidity may be perceived, as well as fullness and more open sound to your favorite music. Enjoy the transition!

Tube Matching

It is not necessary to closely match tubes in the Liquid Fire. That said, there are conditions where the internal circuitry of the amp cannot compensate for tubes that are very widely mismatched.

You can see if tubes are severely mismatched by looking at the two sets of LEDs just behind the windows (not the two pairs farther back). These LEDs should be about the same brightness. If they are noticeably different, then there is a wide mismatch between two of the triode sections. If the tubes were labeled 1 through 4 going left to right, then try replacing or swapping 1 and 3 until you get nearly the same brightness. If, after this step, you are still encountering an imbalance, contact us at support@cavalliaudio.com.

The Front Panel Power Switch

Your Liquid Fire Headphone Amplifier is equipped with a Piezo power switch. Piezo switches virtually never wear out from either mechanical or electrical failure. However, Piezo switches operate differently from mechanical switches and touch switches. The action of a Piezo switch is somewhere in between a touch switch and a mechanical switch.

Touch switches require only a touch to the sensitive surface of the switch to cause it to respond. Touch switches, obviously, are sensitive to nearly any kind of touch and will sometimes activate even when you don't want them to. A mechanical pushbutton switch requires that you cause the switch mechanism to make some amount of travel as you push it.

A Piezo switch is similar to a touch switch in that there is no detectable mechanical travel, but there must be some small deflection of the front face of the switch. Thus, a Piezo switch feels like a touch switch where you must apply some small amount of pressure to activate the switch. This pressure is low, but not zero. Take some time to understand and feel how your Piezo switch works and then it should operate without issues for the life of your amplifier.

What about those tweaky things like cables, power cords, better feet and such, that I've heard so much about?

Everyone has an opinion on this one, and we can say without a doubt that at this level of performance *every* change makes a difference. The extent to which this change is an *improvement* is, of course, the subject of much debate. Such is the nature of high-performance audio. We have found that, due to the extreme resolving capability of the Liquid Fire, varying your selection of items such as aftermarket power cords, resonance control products, interconnect cables, and headphone cables will very likely result in changes to the sonic result perceived through your choice of headphones.

One of our closely-held opinions with regard to the entire matter of "What makes 'better sound' better?" can be summed up in a few short words – "if the musical result of the change MOVES YOU, then it is worth considering. If not, spend those discretionary funds obtaining more of your favorite music!"

OK, so now comes that time when we require you to read some verbiage written in legalese. If you understand all of it, you're probably an attorney. If you don't understand all of it, you're one of the rest of us who doesn't like reading this any more than we like requiring that you read it....but here it is.....

Warranty

All Cavalli Audio-made products come with a 1-year warranty for parts and labor. Tubes are warranted for 90 days. Warranty does not include fully insured shipping costs to Cavalli Audio. Warranties are not transferable unless pre-authorized in writing by Cavalli Audio. If the repair is due to customer damage, negligence, bad tubes or tubes not provided for this amp by Cavalli Audio, repairs will be charged as parts and labor, which will be quoted before work is performed. **For warranty support please contact support@cavalliaudio.com or, if purchased from one of our authorized retail outlets, please contact the authorized retailer from whom you purchased it.**

Any modifications to this product which have not received written factory approval nullify all claims and void the warranty. Should a modified product be returned to the factory for repair the owner will be required to pay all necessary charges for the repair in addition to those charges required to return the product to its original configuration.

Removal or alteration of original Cavalli Audio serial numbers voids the factory warranty. **Product with altered or missing serial numbers will be considered counterfeit product.** Cavalli Audio will not repair or in any way indemnify any counterfeit or cloned product.

Now that you've read all that, and we assume that you have, in fact, read the above essential verbiage, we're hoping and trusting that you have found reading this owner's document to have been both useful and entertaining; enhancing your ability to enjoy your Cavalli Audio Liquid Fire headphone amplifier. Now, GET BACK TO ENJOYING YOUR MUSIC!

Standard Warranty Limitations

EXCEPT FOR THE EXPRESS WARRANTIES STATED HEREIN, CAVALLI AUDIO MAKES NO OTHER REPRESENTATIONS OR WARRANTIES AND CAVALLI AUDIO HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, FITNESS FOR A PARTICULAR PURPOSE, PERFORMANCE, SATISFACTORY QUALITY, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. IN ADDITION, CAVALLI AUDIO DOES NOT WARRANT THAT THE PRODUCT WILL SATISFY YOUR REQUIREMENTS, IS WITHOUT DEFECT OR ERROR, OR THAT THE OPERATION OF THE PRODUCT WILL BE UNINTERRUPTED. BECAUSE IT MAY NOT BE POSSIBLE FOR CAVALLI AUDIO TO KNOW THE EXACT PURPOSES FOR WHICH CUSTOMER ACQUIRED THIS PRODUCT, CUSTOMER ASSUMES FULL RESPONSIBILITY FOR CUSTOMERS INSTALLATION, USE AND THE RESULTS OF THAT USE.

Limitation of Liability

IN NO EVENT WILL CAVALLI AUDIO OR ITS SUPPLIERS BE LIABLE TO CUSTOMER FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE, INCIDENTAL, OR INDIRECT DAMAGES OF ANY KIND ARISING OUT OF THE USE OF OR INABILITY TO USE THE PRODUCT, INCLUDING LOST PROFITS, LOSSES ASSOCIATED WITH BUSINESS INTERRUPTION, LOSS OF USE OF THE PRODUCT, LOSS OF DATA, COSTS OF RE-CREATING LOST DATA, OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS, EVEN IF CAVALLI AUDIO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY. IN NO EVENT WILL CAVALLI AUDIO'S AGGREGATE LIABILITY FOR ANY CLAIM, WHETHER IN CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF USE OF THE PRODUCT THAT EXCEEDS THE TOTAL FEES PAID BY CUSTOMER FOR THE APPLICABLE PRODUCT AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY.

If you have any questions or comments, please contact us at sales@cavalliaudio.com or at info@cavalliaudio.com. We look forward to hearing from you!

For Your Protection

Ventilation: In order to improve sound quality, your Liquid Fire amplifier runs **warm** and thus requires free air circulation of **at least 6" around the top and sides** of the product. Never place the amplifier in an enclosed space with restricted air flow. Never place it near another source of heat. Excessive heat **will** shorten the life of the product.

Water and moisture: **NEVER** use the Liquid Fire amplifier near water. **NEVER** handle the amplifier while in contact with water. **NEVER** let the amplifier come into contact with water. **NEVER** spill water or other liquids into it.

Power Sources: Make sure that the voltage/frequency stated on the back label on your amplifier is compatible the line/mains voltage in your location.

Grounding: The electrical ground in this amplifier is an important safety feature. **Do not defeat ground with special plugs, power cords, etc. Doing so will void your warranty.**

Power Cords: If you use your own power cord, use one that meets the standards of your location.

Power and Signal: Cables should never be connected or disconnected with equipment powered up. Failure to heed this warning may damage or destroy equipment.

Servicing: To reduce the risk of fire, electrical shock or other injuries, the user should not attempt to service the device beyond replacing tubes. All other servicing must be referred to **authorized** service personnel.



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