The Max Owner's Manual

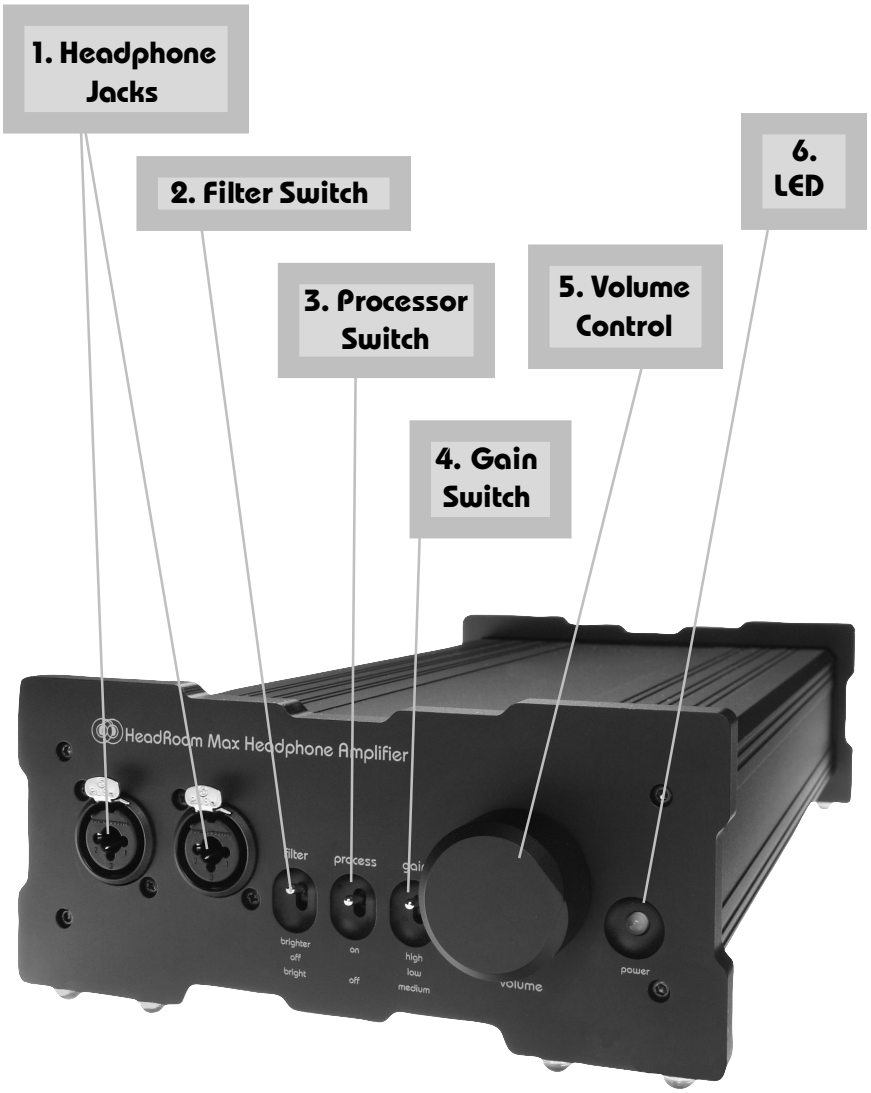
Headphone Amplifier
HeadRoom Corporation

Congratulations on your purchase of the magnificent HeadRoom Max headphone amplifier and processor. *This is it*, the world's most highly regarded headphone amp. You have *arrived*! Feels good, huh? The Max is guaranteed to provide a truly remarkable musical experience. You will hear a wonderful improvement in the ability of a high-quality headphone to resolve musical detail, deliver deep, tight bass, present a more natural stereo image, and most importantly, to express the emotion of the music. All of our amps are hand-built in Bozeman, Montana with high-quality components and plenty of TLC.

HeadRoom

obsessed headphone geeks at your service.

A Tour of Your Max HeadRoom Amp



1. The Headphone Jacks. The Neutrik headphone jacks on **The Max** clamp down tightly for optimum signal transfer. They will accomodate both a 1/4 and well as XLR connectors, and both are controlled by the same volume control.

2. The Filter Switch. The filter switch is used to compensate for the warming action of the processor. In the center position there is no filter in the circuit; generally this is preferred. But if the processor is causing too much bass or blurring of the central image, a mild high frequence boost filter can be turned on. The "bright" setting accentuates the highs at about 3 kHz; with the "brighter" setting the filter starts an octave earlier and catches some of the upper mids. Basically, set it to what ever sounds best to you.

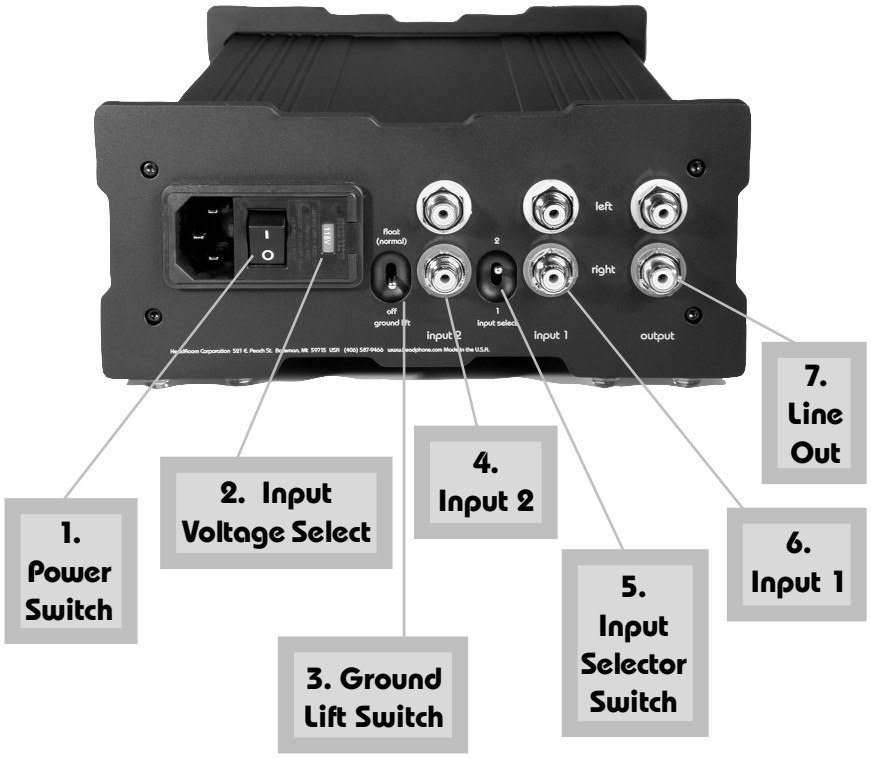
3. The Processor Switch. When switched toward PROCESS, the Audio Image Processor is engaged for normal stereo headphone listening. In the OFF position, the Processor is bypassed for listening to mono or binaural recordings. (This switch should be in the OFF position when using the headphone amp as a preamp. This is further explained later in the manual.)

4. The Gain Switch. A new feature on our Max, the 3-position Gain Switch accomodates various headphones' power needs. For instance, the Low Gain setting would be used for Grado headphones, allowing a larger range on the volume control pot. Experiementing with your headphones and the gain switch may help you to determine which setting you prefer. If have any questions regarding your headphones, feel free to call and ask us.

5. The Volume Control Big, beautiful, anodized, and aluminum. It feels and sounds as good as it looks. Go ahead...give it a twist. Oh, but there are a couple of important details about its use that we should point out. First, **we recommend turning the amp OFF or ALL THE WAY DOWN before plugging in or unplugging your headphones to avoid short-circuiting the amp.** Also, if you're switching between two or three pairs of headphones with different input impedance ratings, the volume setting will most likely need to be adjusted to achieve similar sound levels. When two pairs of headphones are plugged into the amp at the same time, we recommend using headphones with the same input impedance ratings. Otherwise, a dispute over volume level may ensue.

6. The LED. The LED simply indicates if your unit is on or off.

Rear Panel- Dual Input Option



1. The Power Switch. 1 is on, 0 is off... what more can we say?

2. Input Voltage Select. In most cases, the voltage indicator should read '115 volts' for use in the U.S. However, your voltage can be easily adjusted to suit your needs; call us for details on how to do this yourself.

3. The Ground Lift Switch. For normal use, the Ground Lift Switch should be on'float'. For use as a pre-amp, the Ground Lift should be off.

4. Input Two. This is where you would plug in a second source.

5. Input Selector Switch. This switch chooses Input One or Input Two.

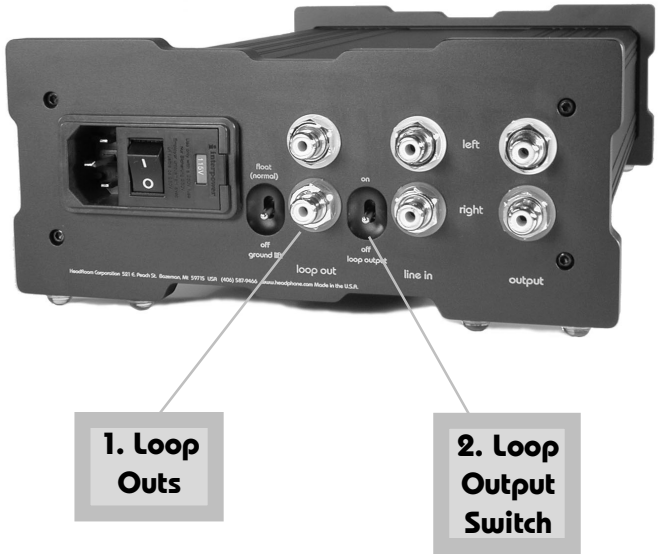
6. Input One. Your primary source gets hooked up here.

7. Line Out. If you are using The Max as a pre-amplifier, plug your outputs in here.

Rear Panel- Loop Out Option

Connect the cables from your audio source to the RCA inputs on the back of the amp. This connection can be made to any line-level audio source, like a CD player, tape deck, phono section or the tape loop of a preamp. Audio cables are usually color coded with the red connector representing the right channel. The left channel connector is usually either black or white.

When purchasing The Max HeadRoom, you are given a choice of having a loop out put or a second line out on the back of the amp. Most people will prefer to have a 2nd output, but if you have chosen to go with the 'Loop Out' option read on here.

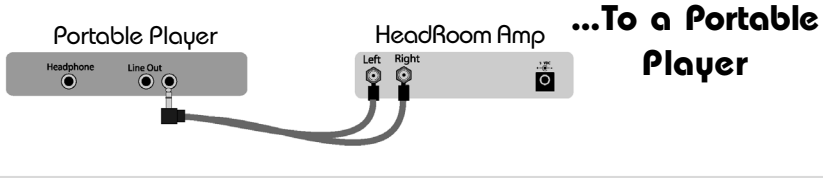


1. Loop Outs. The Loop Outs pass a signal directly in and out without any interference.

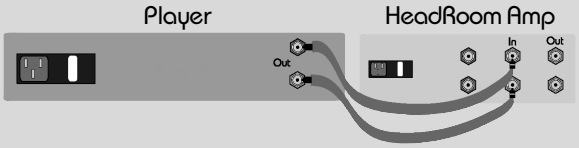
2. Loop Output Switch. With the loop output switch in the "on" position the line inputs are connected to the loop output. This feature allows you to use the record output of a preamp as the source for the headphone amp (which is really the best way to do it), and use the loop output as the source for a tape recorder. When not using the tape recorder, you can turn the loop output off to disconnect any performance degrading reactance of the tape deck input.

How to Hook Up Your Max Amplifier

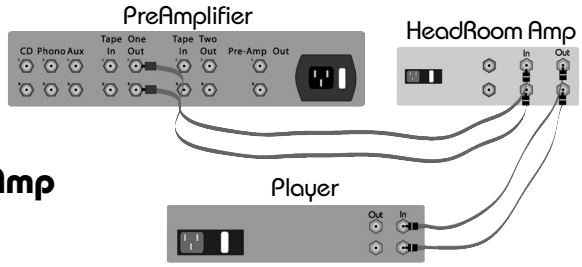
Connect the cables from your audio source to the RCA inputs on the back of the amp. This connection can be made to any line-level audio source, like a CD player, tape deck, phono section or the tape loop of a preamp. Audio cables are usually color coded with the red connector representing the right channel. The left channel connector is usually either black or white.



...To a Portable Player

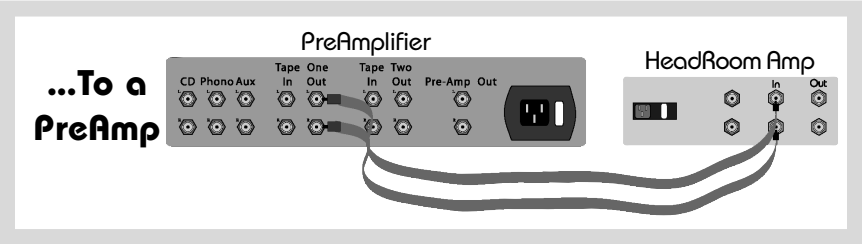


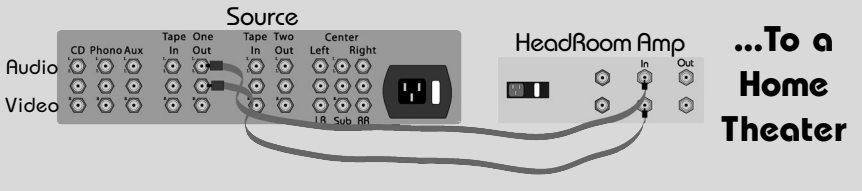
...To a Player

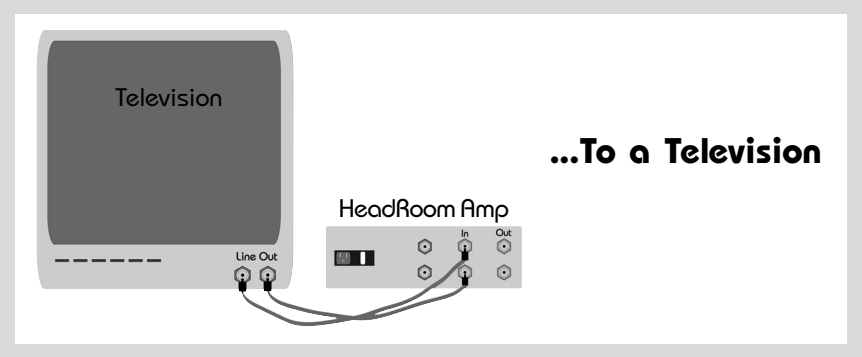


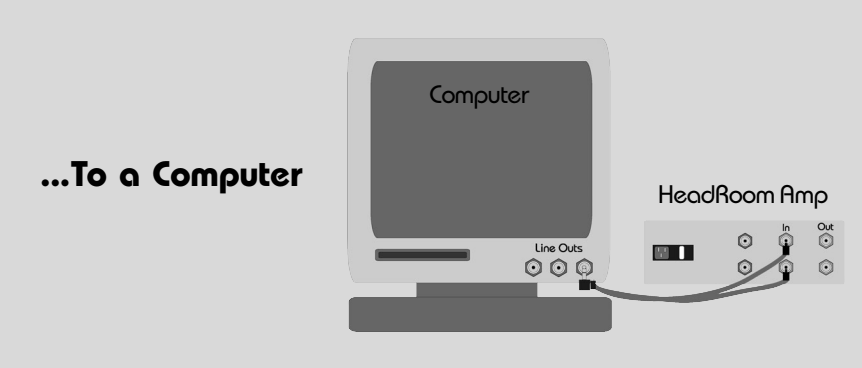
...As a PreAmp

How about another helpful feature: **The Max** can double as a very good sounding, dual-source, active preamp. Make sure the Processor, Filter, and Ground Lift switches are in the OFF position when listening through speakers to avoid goofing up your imaging and frequency response.
To hook it up, all you have to do is run a pair of interconnects from the line-level RCA output jacks on the back of **The Max** to a power amplifier.


...To a PreAmp
PreAmplifier
CD Phono Aux
Tape One In
Out
Tape Two In
Out
Pre-Amp Out
HeadRoom Amp
In
Out

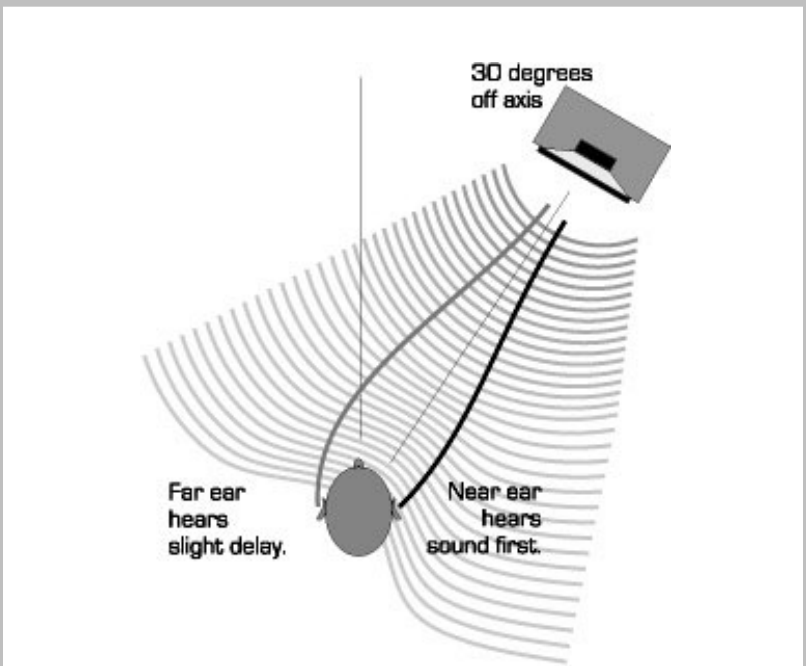

Source
Audio
Video
CD Phono Aux
Tape One In
Out
Tape Two In
Out
Center
Left
Right
L R Sub R R
HeadRoom Amp
In
Out
...To a Home Theater


Television
Line Out
HeadRoom Amp
In
Out
...To a Television


...To a Computer
Computer
Line Outs
HeadRoom Amp
In
Out

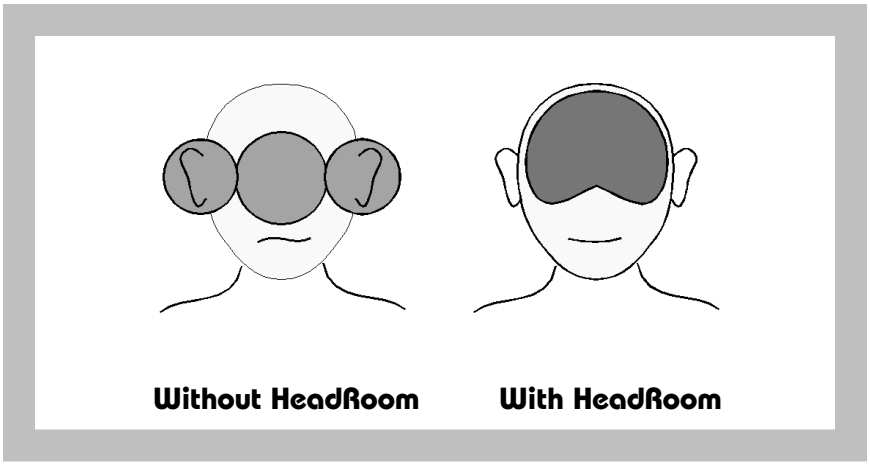
Why does your HeadRoom amp have a processor?

The Processor switch engages and disengages the headphone audio image processing circuit. Headphone audio imaging is not very good; typically the image is a blob on the left, a blob on the right, and a blob in the middle. The HeadRoom audio image processor provides the natural acoustic cross-feed normally heard from the left speaker to the right ear, and from the right speaker to the left ear. Adding the cross-feed signal gives your brain enough information to build up the stable and natural audio image needed to have a quality listening experience.



The end result is a subtle but important change in the sound. If you want you hear it more dramatically, remove either the left or right input, then as you switch the processor in and out you can hear the sound move from one ear only to a slightly forward and up position that synthesizes the sound of a speaker. Most people should just switch it on and not worry about it.

About the Processor



The image processor itself is a two-stage active filter with all-pass delay and frequency response characteristics that model those normally heard when listening to speakers. It amounts to about a 300 uSec delay and a relatively flat frequency response out to about 2 kHz. The interactions between mono and difference components of the stereo signal and the chaotic nature of the music signal cause the actual frequency response changes added by the processor to be unpredictable. However, in general turning the processor on "warms" the sound. The more mono component in the signal the warmer it gets. (See filter switch.)

How can the processor be tested?

If you have already tried out the Processor, you have probably noticed that there isn't a huge difference in the sound when switching the Processor on and off. If you would like a more obvious demonstration of the effect of the Processor, just unplug one of the RCA inputs to **The Max** and listen for a few moments with the Processor off. Now switch the Processor on and hear the difference. [*pause for experimentation*] See, it really *is* doing something dramatic!

And Now a Word About Your Hearing

People have a natural tendency to listen to music on headphones at much louder levels than they would on speakers. If you hope to avoid permanent hearing damage, it's important to be careful not to listen at extremely loud levels or to listen for too long at moderately loud levels. Because HeadRoom amps must be capable of driving even the most inefficient dynamic headphones to satisfactory listening levels, the amps are able to drive headphones of average and high efficiencies to *very* high levels. As a result, you may not be listening at a safe level even though the volume control on the amp is less than half way up. Generally speaking, when listening to headphones, you should only turn up the volume to the point at which the sound isn't too quiet.

The most common hearing damage caused by prolonged or excessively loud sound is called tinnitus. It manifests itself as a sustained ringing in the ears and can become a permanent condition. If you find that your ears are ringing or that there is a sensation of pressure or fatigue, give them a rest for a couple of days (or until they feel fresh). These symptoms are your body telling you that your ears need a break. Should you choose to ignore these symptoms, you are risking permanent hearing damage. As a general rule, sound pressure levels under 80 decibels will not damage hearing, even if listened to continually. On the other hand, anything over 100 decibels may cause permanent damage fast. Sound pressure levels anywhere in between can also be damaging. The louder the sound, the shorter the exposure time required to cause permanent damage.

Now, don't fool yourself into thinking that you either have full-blown tinnitus or you don't have it at all—you can get a slight case. For example, you might only notice your ears ringing in bed at night. Once you have a slight case of tinnitus, your ears are much more susceptible to further damage. So, if you get tinnitus, it's important to be much more careful about exposure to loud sounds. Now that we've told you to be careful, don't blame us if you blow it. If you have any more questions about hearing damage, call a doctor. Sorry to sound so sobering, but a lifetime of musical enjoyment requires ears in tiptop shape.

Five-Year Product Warranty

The Max amplifier carries a five-year parts and labor product warranty. If you have any problems with your headphone listening system, please **first** call us at 1-800-828-8184. We will try to diagnose the problem over the phone, which can save both of us considerable time, effort and money. If the equipment must be returned for repair, we will authorize a return for you. HeadRoom is the only authorized service center for HeadRoom products, either in or out of warranty. If a unit is under warranty, there is no cost for the repair labor, parts, or shipping from HeadRoom back to you (i.e., You're responsible for paying the shipping charges to get the product to us). For units out of warranty, repairs are billed on a time and parts basis, plus shipping costs. When we receive the equipment, we will initiate repairs quickly (usually within three working days) and return the unit to you, or call you with an assessment of the problem.

30-day Satisfaction Guaranty

Unless specifically stated, all HeadRoom purchases come with a 30-day satisfaction guaranty. We do this because we want to give you the opportunity to change your mind after you get to hear the products you bought. We're very glad to give you this option, and we want you to use it if you aren't happy with your purchase, but we also want you to be aware of the conditions under which we can provide you this guaranty:

- Please return all packages to 2020 Gilkerson Drive, Bozeman, MT 59715
- Assuming all conditions are met, we are willing to refund the entire purchased amount for products returned. We do not refund shipping charges.
- If you are experiencing trouble with a headphone amp or a headphone system, please email Sales at sales@headphone.com to troubleshoot the problem. This can save all of us considerable time, effort, and money.
- If you are doing a partial return, you will be refunded the cost to you of the products returned. If you purchased a package system at a discount and are keeping some of the items in the package, your refund will be adjusted based on the retail price of the equipment you are keeping. In other words, we don't give full-price refunds on products purchased at a discount.
- If you are doing a partial return and exchange for other product, you will be eligible for all discounts that would apply to the set of products that you end up keeping.
- Products must be returned to us within 30 days of the date you receive the product. SO if you think you might want to return something to us, listen right away; it's amazing how many people say the went out of the country and didn't have a chance to listen before they left.
- Products must be in as new condition. This means that they are not only in pristine cosmetic condition and functioning perfectly, but that they are repacked with ALL materials (plastic bags, warranty cards, tie wraps, and ANY other little bit or piece that came with the product) just as you received it. Please use the original box it was received in (or another that is comparable); and please don't send your headphones back in JUST the headphone box!
- If a product is returned within 30-days, but is not in as new condition, we will charge you a 15% restocking fee PLUS any labor and materials required to return the product to as new condition.
- Return packages shipped to us must be sent "signature required" and insured, otherwise they are sent back at your own risk!
- Products returned to us after the 30-day period, or which require more cost to repair than the wholesale value of the product will simply be returned to the customer.

We want you to know that we're not hard cases about this; the vast majority of returns are refunded.

Upgrading Your Max

The stepped attenuator is an available upgrade for the Max. The Max comes equipped with the Nobel potientiometer, and its performance is very good—but not perfect. In order to elevate performance to as near perfection as possible, we offer a stepped attenuator. The stepped attenuator uses a range of discrete resistors switched into the circuit to attenuate the signal. We start with a Swiss made Elma 24-position switch. Then we disassemble it and remove the stock circuit boards and replace them with our custom made boards which allows us to mount the precision thin film resistor right on the contact boards. The gold plating on the contacts on these boards is about 4 times thicker than on normal contact boards. The result is, what we believe to be, the finest stepped attenuator in the audio world today. Please call us for details if you think you may be interested in this upgrade!

Contacting HeadRoom

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