



PS AUDIO

Owner's Reference

Owner's Reference GCHA Headphone Amplifier

Instructions for use



GCHA Headphone Amplifier

Document 15-044-21-1

4826 Sterling Drive, Boulder, CO 80301

PH: 720.406.8946 service@psaudio.com www.psaudio.com

Introduction i

©2005 PS Audio International Inc. All rights reserved.

Important Safety Instructions



Read these instructions
Heed all warnings
Follow all instructions



WARNING. TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

Clean only with a dry cloth.

Do not place flammable material on top of or beneath the component.

All PS Audio components require adequate ventilation at all times during operation. Rack mounting is acceptable where appropriate.

Do not remove or bypass the ground pin on the end of the AC cord. This may cause RFI (radio frequency interference) to be induced into your playback setup and is potentially unsafe. All PS products ship with a grounding type plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Unplug this apparatus during lightning storms or when unused for long periods of time.

When making connections to this or any other component, make sure all components are off. Turn off all systems' power before connecting the PS Audio component to any other component. Make sure all cable terminations are of the highest quality.

There are no fuses inside this product.

THERE ARE NO USER-SERVICEABLE PARTS INSIDE ANY PS AUDIO PRODUCT. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL

Please contact your authorized dealer, distributor, or PS Audio if you have any questions not addressed in this reference manual.

This product is manufactured in the United States of America. PS Audio® is a registered trademark of PS Audio International Inc., and is restricted for use by PS Audio International, Inc., its subsidiaries, and authorized agents.



The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the papers with the appliance.



The lightning flash with arrowhead within a triangle is intended to tell the user that parts inside the product are a risk of electric shock to persons.



Introduction	IV
Getting Started	1
Quick Start Guide	2 - 3
Questions and Answers	4 - 5
Troubleshooting	6 - 7
Warranty	8 - 9
Service	10 - 11





PS AUDIO

Introduction

Owner's Reference GCHA Headphone Amplifier

Thank you for your purchase of the PS Audio GCHA Headphone Amplifier.

What will it do?

The GCHA is a high-end headphone amplifier designed for audiophile listening. It is based on PS Audio's unique Gain Cell Technology.

The GCHA contains a Gain Cell's preamplifier stage and a Class A biased output stage. The GCHA can accept audio signals from any analog source or digital audio from your USB-compliant computer.

No attenuators inside

A unique feature of the GCHA is the volume control itself: which does not attenuate the audio signal in the traditional manner, rather, the level of the GCHA is adjusted by controlling the gain of amplifiers inside the GCHA.

In a traditional headphone amplifier, an audio signal is presented to the amplifier at full signal level. The headphone amplifier then attenuates, or reduces, that input signal to reach the desired listening level with headphones. While this conventional method of controlling the volume is an acceptable practice, it does have drawbacks: the attenuators cause degradation of the audio signal. The GCHA solves this problem by use of the PS Gain Cell technology. Gain Cells have adjustable gain and need no attenuation of the input signal to achieve desired listening levels. Instead, the front panel volume control is a gain adjustment, rather than an attenuator. The removal of any attenuators in the signal path has a sonic advantage over conventional technologies.

What you can expect

You should expect unrivaled sonic qualities, with low noise, high performance audio being delivered to your headphones.



Getting Started

Owner's Reference GCHA Headphone Amplifier

Location	<p>Once your new GCHA is unpacked, you'll need to find a convenient place to set it.</p> <p>There are several ways to mount the GCHA: on a shelf next to the preamplifier, CD or DVD player, or on a desk or table near your computer.</p>
Isolation	<p>The GCHA can benefit from aftermarket isolation devices such as cones, spikes and Sorbothane pads.</p>
Power Cables	<p>Once you have chosen the location for the GCHA you can use the supplied AC power cord to connect it to the AC wall receptacle to get started, or you can use an aftermarket power cord and receptacle.</p> <p>We strongly recommend the use of a PS Audio xStream Power™ AC cable and a PS Power Port™ AC receptacle to feed the GCHA power. While the supplied power cable is adequate for the task of setup it is not going to provide the best performance. Choosing any xStream Power cable will make a significant performance improvement over the stock power cable. An xStream Plus would be our recommendation.</p>
Use a Power Plant	<p>It is further recommended that you power the GCHA with a PS Audio Power Plant if possible, or a UPC-200 or Ultimate Outlet if not. Power conditioning with the appropriate equipment will further the benefits of the GCHA headphone amplifier.</p>
Audio interconnects	<p>Connections from the analog audio source should be through high quality audio interconnects with proper shielding. Using inexpensive, off-the-shelf audio interconnects should be avoided if you expect the full benefits of this high-end audio amplifier to be available. We would recommend using audio interconnects less than 3 meters in length. PS designs and sells a line of reference quality audio interconnects that are highly recommended. Please see your PS dealer for details.</p>
USB cable	<p>Connections from the computer to the USB input of the GCHA should use a high quality, properly shielded USB-2.0 cable. Each GCHA has a supplied and approved USB cable included.</p>

Once you have decided on the location and chosen the appropriate power, audio and USB cables, you are ready to install the GCHA into your system or your desktop.

Connect to an AC power source

Plug the GCHA into the AC power source using the AC power cable you selected. It is advisable to use as short a power cable as possible to the GCHA.

Once the GCHA has been connected to the power source, make sure that power source is energized and providing AC power to the GCHA.



Avoid switched outlets

If you are using an AC wall receptacle to power the GCHA, make sure the AC receptacle is not a switched outlet. Switched outlets are those outlets that can be turned on/off with the wall switch. It is advisable to leave the GCHA powered at all times.

Make sure the GCHA is on

Once the GCHA has been powered, turn the front panel gain control clockwise to turn the unit "on". Once it is "on", note the blue light on the front panel of the GCHA, under the logo, should be lit. Your GCHA Headphone Amplifier should now be ready to connect.

Insert the GCHA into the system by first connecting the GCHA to the source. The choices are an analog audio source or a digital audio source from a computer, or both. Analog audio sources would include the RCA single ended output of a CD player, DVD player, tuner, phono preamplifier, or outputs of a preamplifier. Digital sources would be any USB style output from a computer.

Choose analog or digital or both

If you are using analog sources, you may connect directly to the analog input of the GCHA. If you are using a computer, plug in the USB cable at this time. If you are using both, plug both analog and digital in at this time.

Turn the Gain Control off

Turn the front panel Gain Control (volume control) fully counter clockwise to mute the outputs before plugging headphones into the GCHA. Note: this switch only controls the output and does not turn the power to the unit on or off.

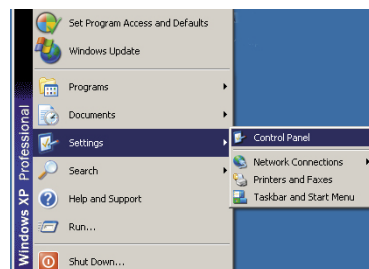
Plug the headphones in

Plug in your headphones to the front panel, making sure the front panel level control is turned down. The headphones should be 16 Ohms or higher impedance to work properly.

If you are using a computer

If you are using a computer to play music from, please note that the GCHA is designed to work seamlessly and automatically with Windows XP®. The GCHA should also work with other versions of Windows such as Windows 2000® and Apple Macintosh computers®. No special drivers are needed or included.

With your computer on and the GCHA plugged in, plug the USB cable into your computer. Windows XP will automatically recognize the GCHA after a short delay and will automatically install the driver. No driver discs are necessary.



It should not be necessary to reboot your computer once the GCHA is connected, however, first time users of the GCHA may need to reboot or otherwise instruct the computer to install the new USB device if the unit does not install automatically when plugged in.

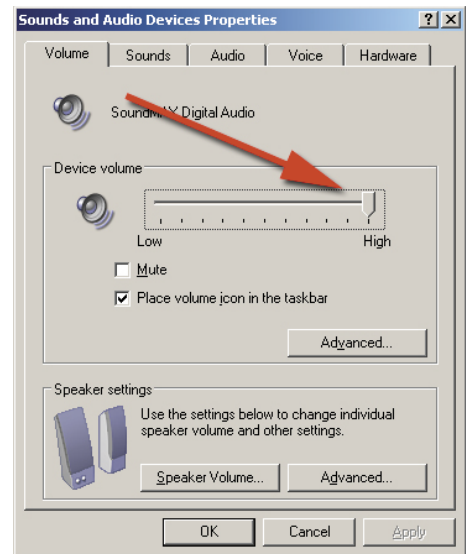
Computer system volume all the way up

Once the system recognizes the GCHA as the USB sound device, it will be necessary to make sure the computer's internal volume control is turned up all the way. On most Windows XP systems, look for the small speaker icon in the lower right hand side of the computer's screen in an area known as the System Tray. If the icon is not visible, follow these instructions: go to Start -> Settings -> Control Panel. Open the Windows Control panel.



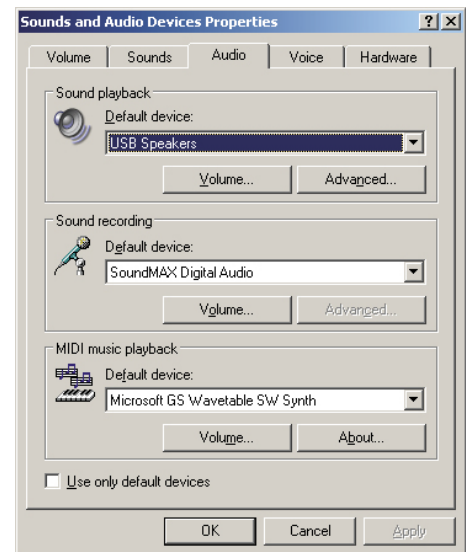
Make the GCHA the default device

From the Control Panel, choose Sounds, Speech and Audio Devices. Open this dialog box and adjust the system volume all the way up. If you do not adjust the system volume up, the GCHA may not have enough volume to satisfy your listening requirements. WAV and CD should be up as well.



You may have to tell the computer to make the GCHA the default USB device, although typically this will happen automatically. The GCHA is recognized by the computer as USB Speakers or USB Composite Device. Go to Start -> Settings -> Control Panel. Open the Windows Control panel. From the Control Panel, choose Sounds, Speech and Audio Devices -> Choose Sounds and Audio Devices -> Choose Audio -> Choose USB Speakers as the default device.

At this point, you can place a CD or DVD (if your computer has a CD or DVD drive built in) into your computer's disc drive and it should play automatically through the GCHA once you turn the volume control on the GCHA to a reasonable level. You can also play music recorded on your computer's hard drive, using a program like Windows Media Player to select the music, or stream live sound via Real Time Player.



Input Selection

The GCHA will automatically choose the digital USB input if there is a signal present. Once the Windows Media Player or the CD or DVD player, built into the computer, is stopped, the GCHA should switch back to the analog audio inputs.

At this point you should be ready to enjoy the benefits of high end audio played through the GCHA Headphone Amplifier.



PS AUDIO

Questions And Answers

Owner's Reference GCHA Headphone Amplifier

Should the unit be on all the time?

The GCHA is best left powered on at all times. The power consumed is negligible and keeping it powered on will make sure the internal AC capacitors stay charged and the amplifier and Gain Cells sound their best whenever you are ready to listen to music.

There is no harm in leaving the unit on at all times as the lifespan of the GCHA will be unaffected.

Are there any internal fuses?

There is a user replaceable internal fuse inside the GCHA. However, this fuse should not be replaced without first consulting the factory service center for advice. It would be unusual for this fuse to blow and may indicate something is wrong with the unit.

Which headphones?

The GCHA will power any headphone made with 16 Ohm or higher impedance. Most headphones have considerably higher impedance than the minimum 16 Ohm.

Caution listening too loudly

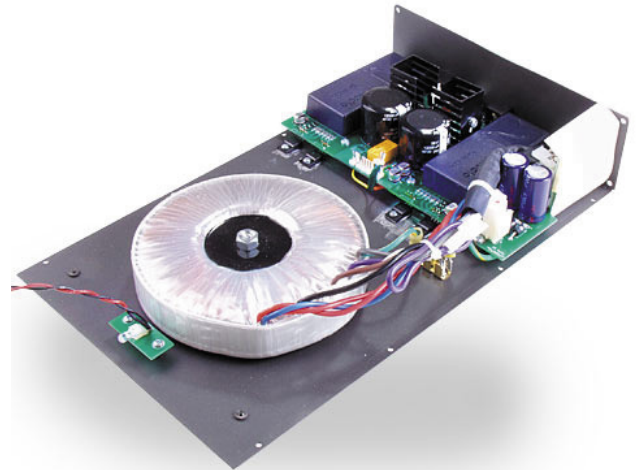
Note that listening to headphones at extremely loud listening levels may damage your hearing. Enjoy your music, enjoy the superb dynamics of this high-end piece of equipment, but protect your ears. Hearing damage from overly loud music is typically irreversible.

Input Selection

The GCHA will automatically switch back to the analog inputs when no digital signal is present. This means once the Windows Media Player or the CD or DVD player, built into the computer, is stopped, the GCHA will switch back to the analog audio inputs.

Placement?

Placement of the GCHA is not critical for most components. In most cases, it may be placed as close to or as far away from the system or the computer, as need be. However, it may not be advisable to place the GCHA too close to a CRT computer monitor. The large transformer inside the GCHA may cause some slight color shift in CRT monitors if placed too close. We would recommend keeping the GCHA at least one to two feet away from any CRT monitor. LCD screens are fine.



Hum may also be an issue with the GCHA if placed too close to a sensitive piece of equipment such as a phono preamplifier or turntable. The GCHA has an exceptionally large power transformer inside. This transformer can generate a fairly large magnetic field which can induce hum into sensitive equipment in close proximity.

Isolation?

Isolation through the use of spikes, cones or Sorbothane feet is recommended for the GCHA if space and budget allows. Isolation of any piece of high-end stereo and theater equipment is always recommended wherever practical.



PS AUDIO

Questions And Answers

Owner's Reference GCHA Headphone Amplifier

What voltages
can I run GCHA
on?

The GCHA is specific to your country's voltage. Do not use the GCHA on a voltage higher than it is rated for. For instance, do not take a 120 volt rated GCHA and attempt to use it in a 220 volt country. Failure to observe this cautionary note will void your warranty. If you need to operate the GCHA at a voltage other than the voltage it was designed for, contact your dealer, distributor or the factory for help.

The GCHA should generate a bit of heat, especially on the bottom of the unit. This is normal. The GCHA will remain warm to the touch even when the front panel Gain Control is in the off position.

Turning the unit
on/off

We do not recommend removing power to the GCHA. We recommend leaving the GCHA powered at all times.

The front panel gain control on the GCHA also serves as the on/off switch. Turning the gain control fully counter clockwise you will feel a "click". The front panel blue LED should shut off and the GCHA output will be muted. This does not remove power from the GCHA and it will remain on. We recommend leaving the GCHA powered up at all times.

The GCHA will not power up

If the GCHA Headphone Amplifier does not power up there are several possibilities: the unit is not getting AC power or the front panel gain control is in the off position.

No AC in

If you suspect the unit is not getting power, test the receptacle feeding the GCHA power to see if there is power. The easiest way to do this is by using a lamp that you have previously verified works. Regardless of the receptacle's type, that of a wall receptacle, a power conditioner, Power Plant or AC source of any kind, plug the lamp into the receptacle and verify there is AC power.

Check the line cord

Another possibility is the line cord. Swap line cords and make sure the unit has power. Sometimes the line cord feeding the GCHA is not functioning properly.

Switched outlets

If the GCHA loses power mysteriously, chances are pretty good that you have the GCHA connected to a switched receptacle on the wall or the back of a receiver or a power conditioner. Switched AC receptacles are those receptacles that are controlled by a wall mounted power switch and are typically intended to be used to power on/off a lamp in the room. Most times these receptacles are unmarked and inadvertent switching on or off of the power switch can cause a lot of headaches trying to track down the reason your new equipment does not power up. Most switched receptacles are on the top AC receptacle in a two gang box. Always use the lower receptacle on the wall port if you are unsure.



If you have determined the GCHA does power on, after performing the above tests, turn to the service section of this manual for details on receiving service.

Problems with computers

If you are having problems connecting your computer to the GCHA, there are several possibilities:

- The computer does not recognize the USB device
- The computer recognizes multiple USB device possibilities
- The computer uses Windows 98 or older operating software
- The volume control in the computer is turned down

Does not recognize the USB

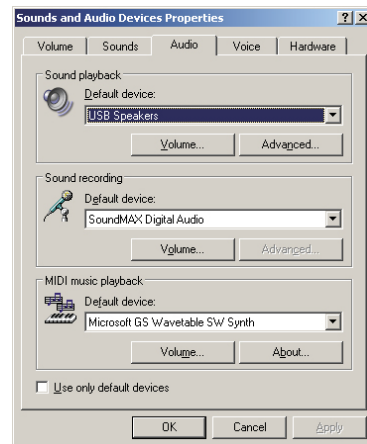
If the computer does not recognize the GCHA as a USB device, leave the GCHA plugged in to its power, leave the USB cable connected to the computer and reboot the computer. The computer should open the Found New Hardware dialog and install the USB device. If it does not recognize there is new hardware, then either it has been installed (therefore the hardware is no longer "new")

or you need to manually install the new hardware. To manually install the hardware on a Windows XP or Windows 2000 operating system, right click My Computer -> Choose Properties -> Choose Hardware -> Choose Device Manager -> Choose Universal Serial Bus Controllers (USB) -> Choose USB Composite Device -> Right Click on the device -> Choose Install or, if it is already installed, choose Update Driver. Make sure the GCHA has power.

Make the GCHA the default device

If the device is properly installed yet no sound is coming through the GCHA, you may have to tell the computer to make the GCHA the default USB device. The GCHA is known to the computer as USB Speakers. Go to Start -> Settings -> Control Panel. Open the Windows Control panel. Or, from the My Computer Icon, double click and open the Control Panel.

From the Control Panel, choose Sounds, Speech and Audio Devices -> Choose Sounds and Audio Devices -> Choose Audio -> Choose USB Speakers as the default device.



Older operating systems

If your computer is running an older version of the Window's operating system, the GCHA may not be compatible with the unit. The GCHA should work on any computer operating system that supports USB devices. However, it was designed specifically to work with later versions of Windows such as Windows 2000 and Windows XP. Macintosh computers have been USB compliant for many years and should not pose a problem connecting the GCHA.

Check the volume in the computer

If the GCHA is properly connected to the computer and being recognized by the computer, yet no sound comes out when you play a disc in the computer's disc drive, check to make sure the volume control on the computer is turned up to 100%. To check, Go to Start -> Settings -> Control Panel. Open the Windows Control panel.

From the Control Panel, choose Sounds, Speech and Audio Devices. Open this dialog box and adjust the system volume all the way up. If you do not adjust the system volume up, the GCHA may not have enough volume to satisfy your listening requirements.

If the analog inputs do not play

If the GCHA will not select and play the analog audio inputs, check to make sure the USB music is no longer playing. The GCHA will default to the USB connection if both the analog inputs and the USB inputs are connected and playing. To test, remove the USB input and the GCHA should switch automatically to the analog audio inputs. If it does not, leave the USB cable unplugged and remove power to the GCHA. Wait a few minutes and then restore power to the GCHA, thus resetting the GCHA's internal microprocessor. This should remedy the problem.

Check the preamp volume

If you are using a preamplifier to feed the GCHA, the preamplifier's volume must be at a medium level, similar to the level you would play your system loudly. If the preamp's volume is too low, the GCHA will not receive enough signal to work with.



Warranty

Owner's Reference GCHA Headphone Amplifier

TERMS AND CONDITIONS

PS Audio warrants the product designated herein to be free of manufacturing defects in material and workmanship, subject to the following conditions, for a period of three (3) years from the date of purchase by the original purchaser or date of shipment to the authorized PS Audio dealer, whichever comes first.

Conditions

This Warranty is subject to the following conditions and limitations: the Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, abused, or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than PS Audio or an authorized PS Audio repair center.

- a. The product must be packaged and returned to PS Audio or an authorized PS Audio repair center by the customer at his or her sole expense in the original packing material. PS Audio will pay return freight of its choice for original purchasers.
- b. Return Authorization Number (RA Number) is required before any product is returned to our factory for any reason. This number must be visible on the exterior of the shipping container for PS Audio to accept the return. Units shipped to us without a Return Authorization Number or without a visible RA Number on the exterior of the shipping container will be returned to the sender, freight collect.
- c. RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT.

PS Audio reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

Remedy

In the event the product fails to meet this Warranty and the above conditions have been met, the purchaser's sole remedy under this Limited Warranty shall be to return the product to PS Audio or an authorized PS Audio repair center where the defect will be repaired without charge for parts or labor.

Transfer of Warranty

This Warranty is for the benefit of the original purchaser of the covered product and may be transferred to a subsequent purchaser of the product.

Extended warranty policies:

1. By submitting the registration card, via mail or internet, within 90 days of purchase, the warranty period will be extended to 5-years from the date of purchase.
2. If outside of the 90-day window of purchase, a 2-year extended warranty can be



Warranty

Owner's Reference GCHA Headphone Amplifier

purchased for any PS Audio product within the original 3-year warranty period for a fee of \$50.

3. To qualify for the extended warranty the Product must be purchased through an authorized PS Audio dealer or distributor and you must present a written receipt.
4. All of the policies of the extended warranty are the same as the limited warranty

Miscellaneous

This warranty does not cover the cost of custom installation, customer instruction, setup adjustments or signal reception problems.

This warranty does not cover cosmetic damage or any damage due to accident, misuse, abuse, negligence or modification of, or to any part of the Product, without initial express consent from PS Audio. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by PS Audio to service the Product.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

To locate the servicer or dealer nearest you, or for service assistance or resolution of a service problem, or for product information or operation, call or email PS Audio.

ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. THE WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER. Some states do not allow limitations on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Inquiries regarding the above Limited Warranty may be sent to the following address: PS Audio International, Inc., 4826 Sterling Drive, Boulder, Colorado 80301 ATTN: Customer Service; Email: customerservice@psaudio.com; Voice 720-406-8946; FAX: 720-406-8967.

Outside the US

PS Audio has authorized distribution in many countries of the world. In each country, the authorized importing retailer or distributor has accepted the responsibility for warranty of products sold by that retailer or distributor. Warranty service should normally be obtained from the importing retailer or distributor from whom you purchased your product. In the unlikely event of service required beyond the capability of the importer, PS Audio will fulfill the conditions of the warranty. Such product must be returned at the owner's expense to the PS Audio factory, together with a photocopy of the bill of sale for that product, a detailed description of the problem, and any information necessary for return shipment.



If you require service in North America

In the unlikely event there is a problem with your PS Audio component, please contact your dealer, distributor, or the PS Audio corporate research center to discuss the problem before you return the component to our California manufacturing facilities for repair. Products shipped to either the factory or the corporate research facilities will be refused and returned freight collect if not accompanied by a PS Audio Service Department issued return authorization number (RA Number).

Obtain an RA number

Return authorization numbers must be prominently displayed on the outside of the box and an accompanying letter describing the problem and re-listing the RA number must be inside the box to qualify for service.

If you are transferring your warranty, you must first contact PS Audio or your dealer or distributor for details.

To contact the PS Audio Service Department:

Contact information

TELEPHONE 720-406-8946
HOURS Monday-Friday, 9:00 am to 5:00 pm MST
FAX 720-406-8967
E-MAIL service@psaudio.com
WEBSITE <http://www.psaudio.com>

If you are in the United States or Canada

If you are in the United States or Canada use the following procedure:

1. Obtain a Return Authorization Number (R/A number) and shipping address from the PS Audio Service Department.
2. Insure and accept all liability for loss or damage to the product during shipment to the PS Audio factory and ensure all freight (shipping) charges are prepaid.

The product may also be hand delivered to the California or Colorado facilities if arrangements with the Service Department have been made in advance. Proof of purchase will be required for warranty validation at the time of hand delivery.

Use original packing

Use the original packaging to ensure the safe transit of the product to the factory, dealer, or distributor. PS Audio may, at its discretion, return a product in new packaging and bill the owner for such packaging if the product received by PS Audio was boxed in nonstandard packaging or if the original packaging was so damaged to the point it was unusable. If PS Audio determines that new packaging is required, the owner will be notified before the product is returned.

To purchase additional packaging, please contact your authorized PS Audio dealer, distributor, or the PS Audio Service Department for assistance.

If you are outside the US or Canada

If you are outside the United States or Canada and require service you must contact your country's dealer or distributor for instructions. PS Audio warranties its products (see warranty section) worldwide.

Service for PS Audio products outside the United States and Canada is handled through your country's distributor or dealer.

1. Obtain a Return Authorization Number (R/A number) and shipping address from your dealer or distributor's Service Department.
2. Insure and accept all liability for loss or damage to the product during shipment to the dealer or distributor's Service Department and ensure all freight (shipping) charges are prepaid.

If you have problems

If you feel your country's dealer or distributor is either unwilling or unable to service your PS Audio products, please contact our service department at service@psaudio.com or at the above contact numbers to discuss the situation.

Voltage changes

Voltage changes to match your country's voltage and frequency requirements to your PS Audio product are possible only through your dealer, your country's authorized PS Audio distributor or the factory. Units purchased outside your country of residence will not be changed to the appropriate voltage unless prior arrangements have been made at the time of purchase. Please refer any questions to your dealer or distributor or by contacting the PS Audio service department.

Your PS Audio product serial number is:

Your serial number

Please fill in the dealer or distributor's information from where you originally purchased the unit.

Your purchase information

Date of purchase



PS AUDIO

Notes

Owner's Reference GCHA Headphone Amplifier
