

O W N E R ' S M A N U A L



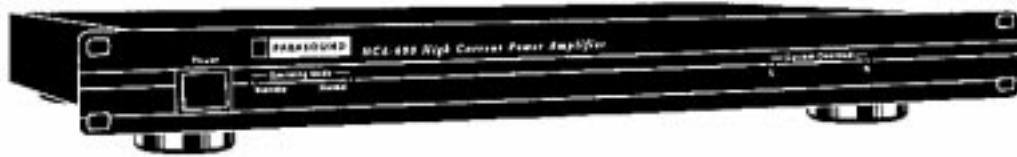
PARASOUND

HCA-600 High Current Power Amplifier

Congratulations on your purchase of this precision audio component and thank you for your selection of Parasound. Your HCA-600 is among the elite of the finest power amplifiers ever made. You have made an outstanding investment in your musical and home theater pleasure for years to come.

Every part, every direct-coupled circuit, has been painstakingly selected for optimum musical quality on the finest and most challenging music and loudspeaker loads. Take a look at the special features found near the end of this manual to fully appreciate its sophisticated design.

Convenient switching permits two operating modes: as a two channel stereo amplifier or a single channel monoblock amplifier.



The HCA-600 has greater operational flexibility and power than most other power amplifiers you may have encountered, so please take a few moments now to read these instructions thoroughly so you may fully understand the capabilities of your new Parasound power amplifier.

Unpacking

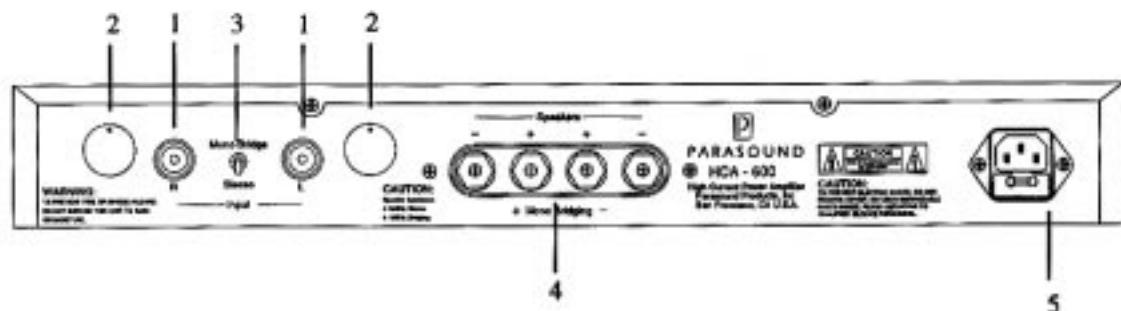
Save your carton and the packing inserts for future safe transport in case you move or your unit ever requires shipping for repair. Note, the white printed carton is not itself strong enough for safe shipping, so you absolutely must place it into the additional outer "overcarton" before shipment.

The AC cord is packed separately in the carton. This is a specially selected audiophile grade cord and is the only cord we recommend for use with your HCA-600. Please don't lose it.

Before you proceed, find the serial number which is located on the rear panel of your unit and record it here for future reference or in case of casualty loss or theft: _____

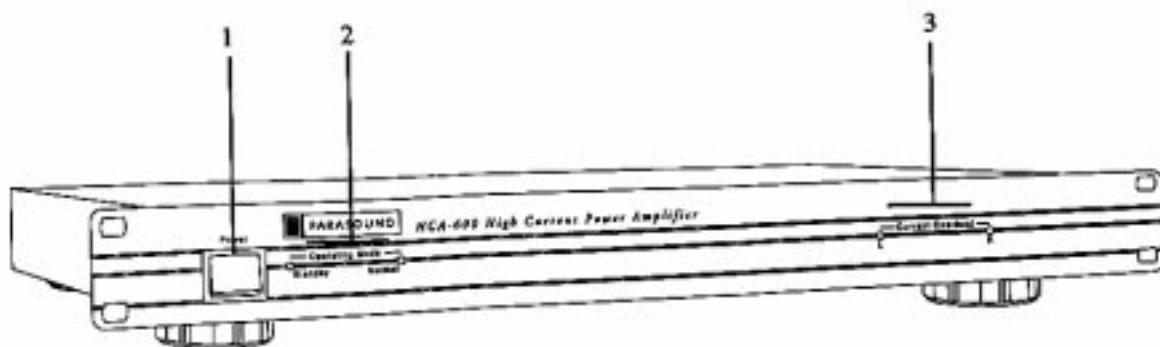
Rear Panel

1. Input Jacks
2. Input level controls
3. Mono bridge mode selector switch
4. Channels 1, 2 4 Ω - 8 Ω speaker terminals
5. AC cord connector



Front Panel

1. PowerSwitch
2. Standby-Operation LEDs
3. Current Overload LEDs



Placement of your HCA-600

Keep your Parasound HCA-600 out of direct sunlight and away from windows which could ever be left open to let in rain. It should be placed away from heat sources such as hot air ducts or radiators.

Always place your unit horizontally. Do not place your unit directly on a carpet whose pile could interfere with air flow into its bottom vent openings. If you place your HCA-600 on the floor near your speakers, put its feet on a piece of wood to elevate it above the pile of the carpet. If you stack your components, it's better to place your HCA-600 alongside your other components.

Your HCA-600 operates with high idling, or bias, current to reduce higher-order harmonic distortion. This results in noticeably warm operation which could disturb components stacked on top of it. If it is inside a cabinet, allow ample ventilation. You may require a small external fan to ensure adequate ventilation within a cabinet. Very sensitive low-level sources placed too close to your HCA-600 might pick up some hum radiated from its power supply.

Rack Mounting your HCA-600

Your HCA-600 will occupy a single rack space (1 3/4 inches) when mounted in a standard 19" wide rack. Make sure you select heavy duty mounting bolts and nuts and use washers under the heads of the bolts to avoid scratching your amplifier's anodized front panel. It's safest if you don't attempt to hold your unit in place yourself while you attach the bolts and nuts.

The heat generated by your HCA-600 may require an external fan to assist air flow if you have another component mounted directly above it in the rack.

Making Connections

Before making any signal or speaker connections, make sure your power amplifier is turned off.

When making connections, make sure there is no strain or tension on input leads or speaker wires that could cause them to pull loose later on. You have several connection options, so please take care and do not rush.

Input Selections

Use the right and left channel RCA jacks for stereo operation. For bridged mono operation, use only the right channel input jack and leave the left channel jack disconnected.

Speaker Connections - general recommendations

You may use solid or stranded wire up to AWG 12, 1/4" spade lugs, banana or 3/4" (19mm) dual-banana plugs with the HCA-600 speaker terminals. If you use bare wire without plugs, make sure you strip off only enough insulation so the bared wire fits through the hole that runs sideways through the terminal's metal shaft. *Before inserting the wire, twist all its strands tightly to prevent strays that could cause a short circuit between + and - terminals.* You may want to "tin" the stripped wire with solder to prevent it from fraying.

Polarity

It is important to observe correct polarity. One side of the speaker wire will have some sort of mark: either printing, a raised ridge on the insulation or a different color of conductor. This permits you to know which wire you had connected to the + and which to the - speaker terminals so you can do exactly the same at the power amplifier terminals. Polarity is marked separately for both stereo and bridged connections.

Mono Speaker Connection

When you bridge the left and right channels, you connect your speakers to the combined bridged channels differently. You bridge by using only the left red + terminal and the right red + terminal. The red + terminals have alternate markings for bridged mono connection. In the bridged mode the right channel's red terminal becomes +, and the left channel's red terminal becomes -. Do not use either of the black - terminals. You may also use a single standard 3/4" (19mm) "dual banana" plug for the mono bridge connection to the two inner red + terminals.

Mono Bridge Switch

Simply select Mono (up) or Stereo (down) as marked on the rear panel. The power should be switched off before moving this switch. If you accidentally leave the Mono Bridge switch in the Mono (up) position, you will find stereo output will be very weak and distorted.

Safe Operation Note

You may use $4\ \Omega$ - $8\ \Omega$ rated speakers for stereo operation. Lower impedance loads are not recommended, as they may cause overheating and trigger one of the protection circuits.

You may use $4\ \Omega$ rated speakers for mono bridged operation only if you don't intend to run your HCA-600 at high levels for extended periods. We recommend an $8\ \Omega$ minimum mono load.

This $8\ \Omega$ restriction results from the mathematics of the bridging circuitry. In the bridge mode each channel of the amplifier functions for only the + or - half of the musical waveform. Thus, each channel "sees" only half of the speaker's impedance. Use of an $8\ \Omega$ speaker means that the load for each channel is $4\ \Omega$. For a $4\ \Omega$ speaker, the impedance would be only $2\ \Omega$ per channel.

Dual "Half-Stereo" Operation

For a sonically superior high power alternative to mono bridging, you can enjoy the best possible sound by using a pair of HCA-600s, and operating each unit on one channel rather than bridged mono. You will gain substantial reserve power, since only one channel is now drawing upon the power supply.

While you will not obtain the full 150 watts at $8\ \Omega$ available in mono bridging, you can obtain approximately 80 watts at $8\ \Omega$, or 100 watts at $4\ \Omega$. The audio signal is not required to travel through the additional phase inverter circuits required for mono bridging, and the resulting clarity will more than compensate for the slightly lower available power.

Unlike mono bridged operation, with Dual Half-Stereo operation, you also have the option of using speaker loads of $4\ \Omega$ or higher.

For Dual Half-Stereo, simply connect only one channel's input and output of each HCA-600. Leave the Mono Bridge switch in its Stereo (down) position. Leave the other channel of both amplifiers disconnected. It doesn't matter which stereo channel you use on each amplifier.

Use Good Speaker Wire

For best results you should never use speaker wire thinner than 16 gauge to avoid constricting the sound stage and deteriorating bass response. You may also wish to experiment with audiophile-grade speaker wire and interconnects. Each will have a different characteristic sound and some may be more compatible with the sonic signature of your various components.

Detachable AC Line Cord

Before you attach the AC cord, make sure the HCA-600 power switch is in its off position.

The HCA-600 includes an audiophile-grade detachable AC cord. We recommend that you use only this cord and try to make direct connection to the AC wall outlet. Connection to a flimsy extension cord will seriously impair the sound reproduction of the HCA-600. We do not recommend you connect the amplifier to the accessory AC outlet on your preamplifier. The current draw exceeds the ratings of most preamplifier's power switches and power cords and could cause premature failure of the switch, not to mention degradation of the sound.

If you use an external AC line conditioner/surge suppressor, make sure it can handle the full continuous required by the amplifier (about 5 amperes). If you want the very best sound possible, you might consider having a licensed electrician run a dedicated AC power line for your HCA-600. This will isolate it from most of the power line interference caused by older wiring and household appliances.

While 3 pin grounded AC cords are standard on most high end components, sometimes it becomes necessary to reverse the polarity of the AC plug to reduce hum. In this case, you may use a 3 pin to 2 pin AC plug adaptor, or "cheater plug," which is readily available at low cost from any hardware store.

If you believe your system has a hum problem, the first step is to reverse the AC plugs of your other components, one by one, starting with the preamplifier. In many cases, this will eliminate the problem. If this fails, it may be necessary to reverse the direction of the HCA-600's AC plug. Please do not cut off its 3rd ground pin; you may need it again if you change components. The preferable way is to purchase the "cheater" with only two pins which can insert in either way in the wall outlet. This will not compromise the sound quality of your system.

Operating your HCA-600

Power Switch

Press the upper side to turn the unit on; press the lower side to turn the unit off.

Standby/Operation LEDs

The red Standby LED will come on red whenever you first turn the unit on. It will light for about four to five seconds while the amplifier circuits are stabilizing before the protection relays start to energize. At this time the red LED will turn off and the green Operate LED will come on to signal normal operation is available. It will also light up red whenever there is a short circuit or fault which triggers the protection circuits. Whenever the red LED illuminates, no sound can be heard. If the red Standby LED lights up during operation, it could indicate that more DC than its servos can block is present at the input, an overload, a short circuited speaker line or possible internal fault. The protection circuits automatically reset. Turn the unit off for at least 5 minutes while you check your connections, then try again. If the red LED continues to glow, you should contact your Dealer, Installer or Parasound Technical Service for further advice.

Current Overload LEDs

The Current Overload LEDs for left and right channels will only illuminate if the unit is driven past its maximum current capacity. These LEDs are not clipping indicators. The LEDs signal you when you are exceeding the limits of your amplifier. It's usually a sign that your speaker load impedance is too low, resulting in too much current draw. In virtually all imaginable listening situations, with recommended loads, you'll probably never see these LEDs illuminate.

Level Controls

The HCA-600 will sound best with its level controls set to maximum where they are effectively out of the audio signal path. However, if your preamplifier has very high gain, and its volume control cannot track properly for left-right channel balance near its minimum position, it may be necessary to reduce the input level control settings on the HCA-600.

We deliberately have located the level controls on the rear panel, so they can be set once and forgotten, out of the reach of curious children or guests.

"Breaking-in" your HCA-600

Like other great power amplifiers, the HCA-600 requires at least 72 hours of continuous operation after it is first turned on to sound its best. This gives the materials in various circuit components a chance to "form" so audio signals achieve greater definition, smoothness and transparency.

Although the unit will sound spectacular when you first operate it, you will find it worthwhile to listen again after a few days and you'll discover details in your music and videos you may not have guessed were there.

Maintaining your HCA-600

The HCA-600 requires no periodic maintenance and has no user serviceable parts inside. Do not remove the top cover to avoid risk of electric shock. To keep it clean use only a soft cloth and never use any solvents or abrasives. Fingerprints may be removed with a soft cloth moistened only with a few drops of water.

The amplifier has corrosion-free gold plated input jacks, but each year it is a good idea to twist the input plugs to preserve perfect signal transfer by removing corrosion which might have accumulated on the connecting plugs themselves. *Make sure the unit is turned off while you do this.*

Fuse

The HCA-600 has one external 4 ampere fuse which may blow as a result of an internal fault condition. This protects the unit from possible damage to internal parts. Never replace this fuse with a larger value. Substitution of a larger fuse may create serious stress or damage to internal parts and will void your warranty.

In Case of Trouble

If you suspect a problem with this unit, first recheck all your connections. If only one channel is inoperative, the trouble may be caused by another component or even a defective hookup cable. However, if the same channel is at fault when you reverse the Left and Right channel pair cables to your HCA-600 (turn it off before moving wires), it may indicate trouble within the power amplifier itself. We suggest you contact your authorized Parasound Dealer or Installer, or call Parasound Technical Service if you suspect a problem. We may be able to suggest other diagnostic tests you can easily perform yourself and which will save you a lot of trouble.

If it is determined that the HCA-600 should be returned to Parasound or an Authorized Warranty Center for inspection and possible servicing, call for the location of a Warranty Center near you. If you choose to send it to Parasound, you must call or write to obtain a Return Authorization number. You will be asked to repack the unit in its original styrofoam packing and both of its cardboard cartons for proper protection in transit. We will give you shipping instructions.

We must refuse units that arrive without the correct Return Authorization number, a suitable shipping carton or that have evidence of improper internal packing. We cannot accept collect shipments. After repair under warranty, the unit will be returned to you prepaid.

Parasound HCA-600 Specifications

Continuous Power Output - Stereo

60 watts RMS x 2, 20 Hz-20 kHz, 8 Ω, both channels driven
75 watts RMS x 2, 20 Hz-20 kHz, 4 Ω, both channels driven

Continuous Power Output - Mono

150 watts RMS, 20 Hz-20 kHz, 8 Ω

Current Capacity

15 amps peak per channel

Slew Rate

> 130 V/μsecond

Frequency Response

5 Hz-100 kHz, +0/-3 dB at 1 watt

Total Harmonic Distortion

< 0.06 % at full power; < 0.03 % typical levels

TIM

Unmeasurable

IM Distortion

< 0.04 %

Dynamic Headroom

> 1.5 dB

Interchannel Crosstalk

> 80 dB at 1 kHz
> 63 dB at 20 kHz

Input Impedance

33 kΩ

Input Sensitivity

0.8 V for full output

S/N Ratio

> 105 dB, input shorted, IHF A-weighted

Damping Factor

> 800 at 20 Hz

Dimensions

19" wide x 1 3/4" high x 13" deep (2 3/8" high with feet)

Weight

14 lbs. net

Special Features

- Independent power supplies for each channel
- Dual mono circuit board layout
- Massive 400 VA toroid power transformer
- 14,000 uF computer-grade capacitors in power supply
- Multiple polystyrene film bypass capacitors in power supply
- Cascode Class A input stages with matched J-FET pairs
- Hand-picked complementary transistors in high voltage driver stage
- 2 complementary pairs of 10 ampere 30 MHz output transistors
- Output transistors direct-coupled to speakers without LC networks
- DC servo direct-coupled audio circuits with 0.8 Hz rolloff
- High-bias Class A/AB operation
- Gold-plated metal structure RCA input jacks
- Multiple temperature sensors and silver-cadmium relay protection

Specifications and features subject to change without notice.

Parasound Limited Warranty (USA only)

Your Parasound HCA-600 amplifier is covered by a limited warranty against defects in materials and workmanship for a period of two years from date of purchase. This warranty is provided by the Parasound dealer where the unit was purchased. Warranty repair will be performed only when your purchase receipt is presented to validate your ownership, date of purchase and authorized status of the selling dealer. Defective parts will be repaired or replaced without charge by your authorized dealer's store or the location designated by your dealer that is authorized to service Parasound equipment. Additional information is available by calling or writing to the Service Manager, Parasound Products, Inc. at the address below. Charges for unauthorized service and transportation costs are not reimbursable under this warranty.

This warranty becomes void if the product has been damaged by alteration, misuse, accident or neglect. Alteration includes any removal, obscuration or defacement of its serial number. This warranty becomes void if unit has been connected or operated contrary to printed instructions. The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from the failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of this expressed warranty.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary state by state.



PARASOUND

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