

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

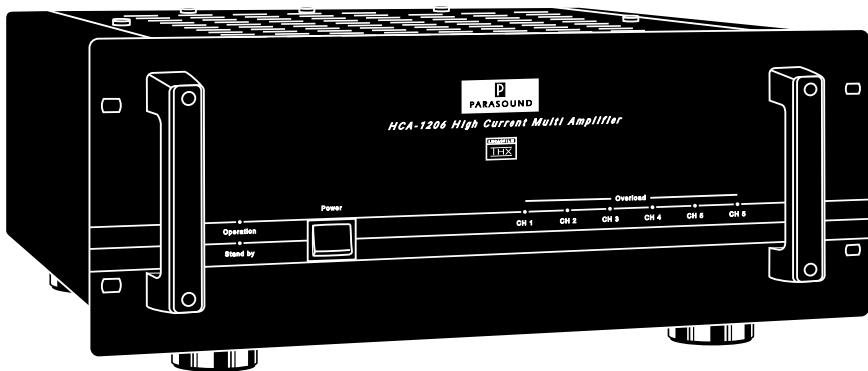


PARASOUND

*HCA-1206 High Current Multi Amplifier*



Congratulations on your purchase of this precision audio component and thank you for your selection of Parasound. Your HCA-1206 was designed by renowned circuit designer John Curl to meet or surpass the stringent standards required by Lucasfilm for use in THX Home Cinema systems. Each part within your HCA-1206 has been painstakingly selected for optimum sound quality on even the most challenging music and film soundtracks. Please take a few moments to read these instructions so you may fully understand the capabilities of your new Parasound power amplifier.



## Unpacking Your HCA-1206

The HCA-1206 is packed in two strong cardboard cartons. To unpack the amplifier, open both cartons and carefully remove the HCA-1206 from its inner carton. You may use its rear handles to facilitate removal from the carton. Take care not to cut or scratch yourself on the exposed extruded metal heatsinks on either side of the unit. Save your cartons and the packing inserts for safe transport in case you move or if the unit ever requires shipping for repair. Due to the massive weight of the HCA-1206, the inner white printed carton is not strong enough for safe shipping by itself. You absolutely must place it into the additional outer over-carton before shipment.

The audiophile grade AC cord is packed separately in the carton. This is the only cord we recommend for use with your HCA-1206. Please do not 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: \_\_\_\_\_

## Placement of Your HCA-1206

Place your HCA-1206 away from heat sources such as hot air ducts or radiators. Make sure that your cabinet or shelf can support its enormous weight. 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 or heat sinks. If you place your HCA-1206 on the floor near your speakers, elevate it above the pile of the carpet. If you stack your components, it is better to place your HCA-1206 alongside other components.

## Rack Mounting Your HCA-1206

Your HCA-1206 can be mounted into a standard EIA 3 unit 19" 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. Do not attempt to hold your unit in place yourself while you attach the bolts and nuts. Have a strong helper support the unit as it is being attached to the rack. The heat generated by the HCA-1206 may require a fan to assist air flow and if you have another component mounted directly above it in the rack.

## Ventilation Requirements for Your HCA-1206

Your Parasound power amplifier is designed to operate with high idling, or bias, current to reduce higher-order harmonic distortion. This bias optimization is characteristic of all Parasound power amplifiers and is perfectly normal, but it results in noticeably warm operation even when no signal is present. While many other amplifiers manufacturers have chosen to bias their amplifiers at a lower level to run cooler, we bias our amplifiers so the output transistors are allowed to operate in a much more linear region. Although the amplifier may run a little warmer than other amplifiers, we feel the resulting sonic improvements are significant and justified.

However, to insure safe and reliable operation, it is very important that the amplifier has plenty of ventilation to prevent overheating and automatic shut down from the thermal protection circuitry.

Please observe the following guidelines when installing your Parasound power amplifier:

1. If you are not using a fan, allow *at least* six inches on each side and above the amplifier, and *do not* close off the front with a door or panel.
2. If you are enclosing the amplifier in an equipment cabinet, use a fan and draw in cool air or exhaust warm air. In either case, two vent holes are required: one for intake and one for exhaust.
3. Do not place the amplifier on carpeting which will obstruct the air flow from the bottom of the amplifier.
4. If you plan on stacking amplifiers, you *must* use a fan.

## Minimum Impedance Precautions

You may connect loudspeakers with a 4  $\Omega$  or 8  $\Omega$  nominal impedance for unbridged operation. Your HCA-1206 is capable of driving speakers with occasional impedance dips well below 2  $\Omega$ . However, Lower nominal impedance loads are not recommended and may cause overheating.

The HCA-1206 is designed for a minimum 8  $\Omega$  nominal impedance for each speaker connected to bridged channels 3+4 or 5+6. Use of lower impedance at high listening levels may cause overheating or trigger one of the amplifier's protection circuits.

These restrictions result 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  $\Omega$ . And for a 4  $\Omega$  speaker, it would result in only 2  $\Omega$ .

## HCA-1206 Front and Rear Panel Controls

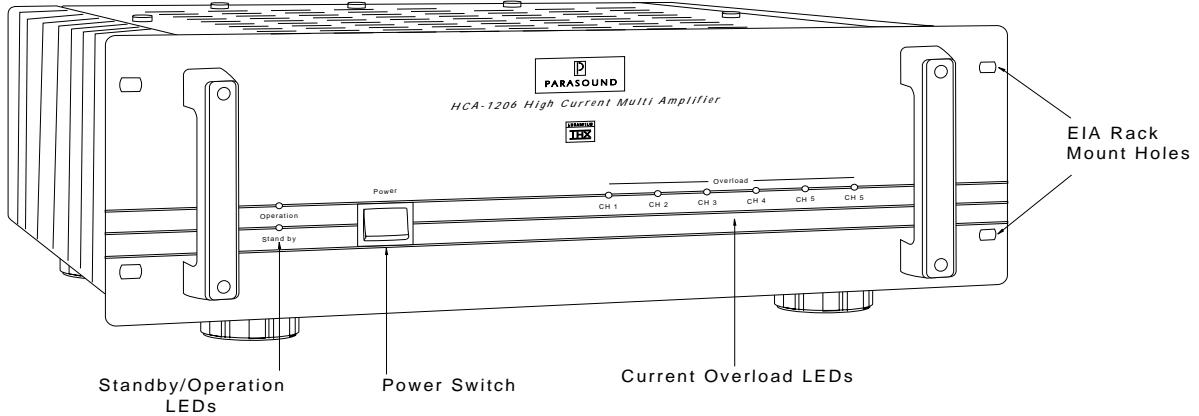


Figure #1 HCA-1206 Front Panel Controls

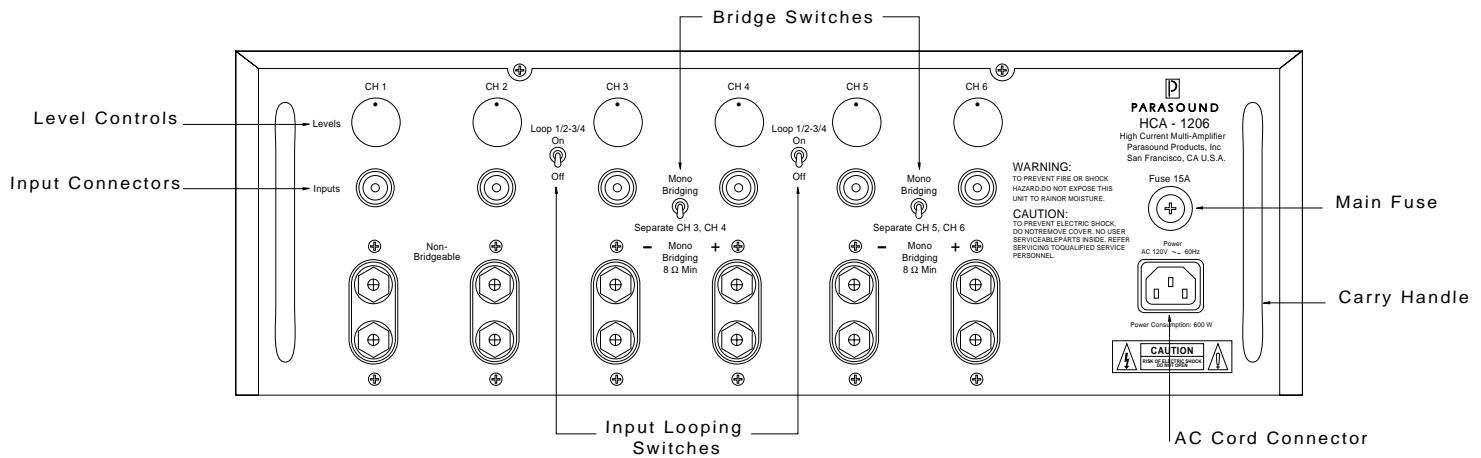


Figure #2 HCA-1206 Front Panel Controls

## **Input Connections and Switch Settings for the HCA-1206**

*Refer to Figure #2*

### **Six Channel Operation**

The six channel mode of your HCA-1206 can power the six speakers required for a complete home theater: Front left and right, surround left and right, center channel, and subwoofer. Connect each output from your surround processor to the corresponding input connector of your HCA-1206.

If you are using your HCA-1206 in the six channel mode, we suggest the following progression of channel priorities. This is an easy way to remember what you connected to each channel for setting levels or troubleshooting:

#### **Recommended Input Connections for Six Channel Operation**

Use INPUTS 1 and 2 for your front left and right channels  
Use INPUTS 3 and 4 for your left and surround right channels  
Use INPUTS 5 for your center channel  
Use INPUTS 6 for your passive subwoofer

#### **Switch Settings for Six Channel Operation:**

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions and both MONO BRIDGE switches in their SEPARATE positions.

### **Four and Five Channel Operation**

In addition to six channel operation, you can use your HCA-1206 in a variety of other configurations depending upon your needs. Below are examples of four and five channel operation.

#### **Input Connections for Four Channel Operation**

Use INPUTS 1 and 2 for your front left and right channels  
Use INPUTS 3 and 4 bridged mono for your center channel  
(Connect the center output of your processor to INPUT 4 only)  
Use INPUTS 5 and 6 bridged mono for your subwoofer  
(Connect the subwoofer output of your processor to INPUT 6 only.)  
Use an additional amplifier for your surround channels

#### **Switch Settings for Four Channel Operation:**

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions  
Set the MONO BRIDGE switch for channel 3/4 in the MONO BRIDGING position  
Set the MONO BRIDGE switch for channel 5/6 in the MONO BRIDGING position

#### **Input Connections for Five Channel Operation**

Use INPUTS 1 and 2 for your Front left and right channels  
Use INPUTS 3 and 4 for your left and right surround channels  
Use INPUTS 5 and 6 bridged mono for your center channel  
(Connect the center output of your processor to INPUT 6 only)

#### **Settings for Five Channel Operation:**

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions  
Select the MONO BRIDGE switch for channel 3/4 in the SEPARATE position  
Select the MONO BRIDGE switch for channel 5/6 in the MONO BRIDGING position  
Use a powered subwoofer or an additional amplifier for a passive subwoofer

## **Multi-Zone Stereo Operation**

You can switch your HCA-1206 to reproduce a single stereo source through up to three pairs of stereo channels via input cables connected to channels 1 and 2 input jacks only. This permits a neater and less confusing hookup. It eliminates the requirement for two or four "Y" adapters in order to split your preamplifier's single pair of stereo outputs to feed the 3 pairs of HCA-1206 power amplifier input jacks.

When you switch the LOOP 1/2 > 3/4 Switch for channels 3 and 4 to its ON position, these channels receive the internally paralleled looped input signals from the same cables connected to the inputs of channels 1 and 2. Input 1 loops over to channel 3. Input 2 loops over to channel 4.

The Loop 1/2 > 5/6 Switch for Channels 5 and 6 offers the same internal paralleling convenience. Input 1 loops over to Channel 5. Input 2 loops over to Channel 6.

## **Speaker Connections to the HCA-1206**

Refer to Figure #2

### **Five-Way Binding Posts**

The five-way binding posts on the rear panel of your HCA-1206 will accept banana or dual banana plugs, most 1/4" spade lugs, or up to AWG 12 bare solid or stranded wire.

### **Polarity**

It is important to observe correct speaker connection polarity to prevent phase cancellation. 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.

### **Banana Plugs**

Banana plugs offer the most convenient connection to the speaker terminals. They also have a large amount of surface contact into the speaker terminal. For these reasons, we recommend the use of banana plugs in most applications. However, you may want to use the "gas tight" connection provided by spade lugs or bare wire.

### **Spade Lugs**

If you prefer to use speaker cable with spade lugs, make sure you do not permit the lug to rotate as the terminal is tightened. Do not overtighten the speaker terminal onto the spade lug. The limited warranty does not cover terminals that are sheared off as a result of overtightening.

### **Bare Wire**

If you use bare wire without plugs, make sure you strip off only enough insulation so the bared wire fits into 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 or adjacent channel terminals. If you have a soldering iron, it is a good idea to "tin" the bare wire with solder to keep it from unraveling and prevent oxidation.

## **Mono Bridging — Channels 3+4 and 5+6**

When you bridge channels 3+4 and/or 5+6, your speakers are connected to the bridged channels differently. You bridge by using the red + terminals of the adjacent channel pairs only. Note that bridged connections are made horizontally rather than vertically and the upper red + terminals have separate markings for bridging. In the bridged mode, channel 4 (and/or 6) output is positive and channel 3 (and/or 5) output is negative.

Unbridged speaker connections can be made with standard 3/4" (19 mm) dual banana plugs. However internal space required by the high current protection relays prevent the bridged terminal pair spacing to be close enough to accept 3/4" (19 mm) dual banana plugs. Single banana plugs, spade lugs, or bare wire termination are required.

Select MONO BRIDGING (up) or SEPARATE (down) as marked on the rear panel. Switch the power off before moving either of these switches. If you accidentally leave either switch in the mono bridge position, the stereo output will be very weak and distorted.

For bridged operation of channels 3+4, use only the input jack and level control for channel 4. For bridged operation of channels 5+6, use only the input jack and level control for channel 6.

## **Use Good Speaker Wire**

For best results, you should never use speaker wire thinner than 16 AWG and keep the length of speaker wire as short as possible to maintain a high damping factor and avoid deteriorating bass response. You may also wish to experiment with audiophile-grade speaker wire and interconnects.

The benefits of these are debated among audio hobbyists, and we cannot guarantee you will always hear an audible improvement.

## **AC Power Connections and Audiophile-Grade AC Cord**

Before you attach the AC cord, make sure the HCA-1206 power switch is in its off position. Your HCA-1206 includes a detachable audiophile-grade AC cord. We recommend that you use only this cord and make a direct connection to the AC wall outlet.

Do not 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.

If you use an external AC line conditioner/surge suppressor, make sure it can handle the full power required by the amplifier. If you want the very best sound possible, you might consider having a licensed electrician run a dedicated AC power line for your HCA-1206. 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 "lift" the ground or 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 a low cost from any hardware store. This will not compromise the sound quality of your system.

## Operating Your HCA-1206

*Refer to Figure #2*

### 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 six 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. 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 is present than its servos can handle, a short circuited speaker line, or possible internal fault. Once the problem has been corrected, the protection circuits will automatically reset. Turn the unit off for at least 10 minutes while you check your connections, then try again. If the red LED continues to glow, contact your Dealer, Installer or Parasound Technical Service for further advice.

### Current Overload LEDs

The current overload LEDs for channels 1 through 6 will only illuminate if the unit is driven continuously at or past its maximum current capacity. These LEDs will indicate overload of the power supply just before the onset of audible distortion. In virtually all imaginable listening situations, these LEDs will rarely illuminate.

### Level Controls

Each channel has a separate input level control. The HCA-1206 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-1206. We deliberately have located the controls on the rear panel, so they can be set once and forgotten.

### Burning-in your HCA-1206

Like other great power amplifiers, the HCA-1206 requires at least 72 hours of continuous operation after it is first turned on to sound its best. This gives the materials in various parts 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-1206

Your HCA-1206 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 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-1206 has one external 15 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-1206 (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-1206 should be returned to Parasound for inspection and possible servicing, you must first call or write to obtain a Return Authorization number. You will also be asked to repack the unit in its original packing and both of its cardboard cartons for proper protection in transit.

Units that arrive without the correct Return Authorization number, without a suitable shipping carton or evidence of improper internal packing will be refused. We cannot accept collect shipments. After repair under warranty, the unit will be returned to you prepaid. If we found no problem with the unit, we will return the unit with collect charges for return shipping charges.

## **Parasound HCA-1206 Specifications**

**Continuous Power Output**

> 135 watts RMS x 6, 20 Hz - 20 kHz, 8  $\Omega$ , all channels driven  
> 200 watts RMS x 6, 20 Hz - 20 kHz, 4  $\Omega$ , all channels driven

**Continuous Power Output - Bridged**

> 350 watts RMS, 20 Hz - 20 kHz, 8, each bridged channel, 3+4, 5+6

**Current Capacity**

30 amperes peak, per channel

**Slew Rate**

> 130 V/ $\mu$ second

**Frequency Response**

12 Hz - 120 kHz, +0/-3 dB

**Total Harmonic Distortion**

< 0.07% at full power  
< 0.03% typical levels

**IM Distortion**

< 0.04%

**TIM**

Unmeasureable

**Dynamic Headroom**

> 2 dB

**Interchannel Crosstalk**

> 75 dB at 1 kHz  
> 56 dB at 20 kHz

**Input Impedances**

50 k $\Omega$  per channel, without looping inputs 1/2 to Ch. 3/4 or Ch. 5/6  
25 k $\Omega$  per channel, if looping inputs 1/2 to either Ch. 3/4 or Ch. 5/6  
17 k $\Omega$  per channel, if looping inputs 1/2 to both Ch. 3/4 and Ch. 5/6

**Input Sensitivity**

1.0 V THX Reference Level

**S/N Ratio**

> 118 dB, input shorted, IHF A-weighted

**Damping Factor**

> 800 at 20 Hz

**Dimensions**

19" wide x 7" high x 18.5" deep (7 5/8" high with feet)

**Weight**

71 lbs. net

**Special Features**

- Designed by John Curl
- THX certified by Lucasfilm Ltd.
- Massive Encapsulated 1.7 kVA Power Transformer with Separate Windings for Each Channel
- 120,000 uF Computer-grade Capacitors in the Power Supply
- Multiple Polystyrene Film Bypass Capacitors to Smooth the Power Supply
- Independent Power Supplies for Each Channel
- Separate Regulated Power Supplies for Driver Stage
- Cascode Class A Input Stages with Matched Complementary J-FET Pairs
- Hand Picked Complementary MOSFETS in High Voltage Driver Stages
- 12 Complementary Pairs of Beta-Matched 50 MHz, 15 Ampere Output Transistors
- Output Transistors Direct-Coupled to Speakers Without LRC Networks
- Linear Tracking, Instantaneous Acting DC Servos
- High-Bias Class A/AB Operation
- Gold-Plated Metal Structure RCA Input Jacks
- Multiple Temperature Sensors and Silver-Cadmium Relay Protection
- FR-4 Glass Epoxy Circuit Boards, Double-Sided for Precision
- Custom Designed Audiophile-Grade AC Power Cord
- Configurable for Multi-Channel Home Theater, Multi-Zone Stereo, Biamp or Triamp Operation

### Rewiring Your HCA-1206 for 220 V - 240 V 50 Hz Operation

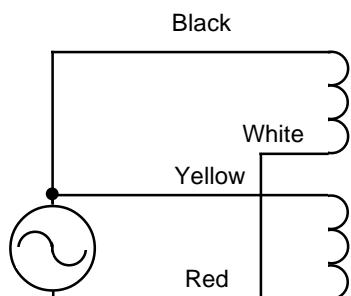
The amplifier may be rewired for operation abroad. This involves changing several wires on the power transformer. Please refer this conversion to a skilled electronics technician to avoid personal injury or possible harm to the amplifier. There are hazardous high voltages present inside the chassis even after the power is turned off and the AC cord has been disconnected.

As it is supplied for 110 V-120 V operation, the red and white transformer primary wires are connected together. The yellow and black primary wires are also connected together. The 120 V AC source is then connected to the black/yellow and red/white wires.

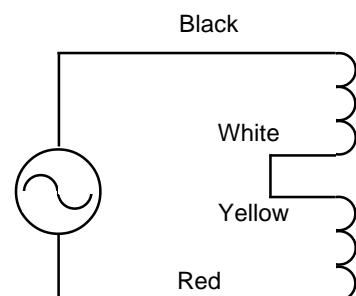
To convert to 220 V-240 V operation, disconnect the white wire from the red wire and disconnect the black wire from the yellow wire. Next, connect the yellow and white wires together. The 220 V AC source is then connected to the black and red wires.

When you change the voltage from 120 V to 220 V, be sure to change the main fuse from 8 amps to 4 Amps

It is quite normal for the power transformer to run a little hotter during 50 Hz operation. This is well within its safety limits and is no cause for concern.



110/120 V Operation



220/240 V Operation

## **Parasound Limited Warranty (USA only)**

Your Parasound HCA-1206 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**  
*affordable audio for the critical listener*

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