



Solid State Power Amplifiers

Cinema 2 - Cinema 5 - Cinema 7B

Owner's Manual

NOTE: Before installing your new component, please read this manual carefully as it will inform you of the specifications, proper installation and operation procedures. Also included in this manual are guidelines on how to service and care for your new Cary Audio Design product.

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INTRODUCTION

Congratulations!

You have just purchased one of the finest solid state power amplifiers made. Whether two, five or seven channels, your Cinema power amplifier is the perfect foundation for your home stereo or theater system. In addition to the awesome power, the Cinema power amplifier delivers flawless reproduction of musical detail and subtle special effects.

The Cinema Series solid state power amplifier features include:

- Remote trigger (works with + 4.2 to + 32 Volts DC, see page 5)
- Short circuit protection
- Thermal Protection circuits
- DC offset protection
- Matched 50 MHz multiple emitter output transistors
- Soft start circuit prevents "Brown outs" when amplifier is turned on

The following is an overview of the design characteristics of our solid state power amplifiers:

The input of the amplifier is fed into a high quality Burr-Brown op-amp for Balanced to Single-Ended conversion. This input circuit is connected to a constant current source, differential style with a current mirror. The pre-drive circuit is constant current Single-Ended Class A. The output is a follower stage that uses special "designed for audio" high speed power transistors that have excellent linearity characteristics. The power supply consists of an 800, 1,000 or 1400 VA toroidal power transformer and either two or four 33,000 uFd @ 80V electrolytic capacitors or 6 x 10,000 uFd @ 63V in the Cinema 7B. Special attention was paid to circuit stabilization and speed of the amplifier to reduce transient inter-modulation (TIM) distortion.

The Cinema Series power amplifiers have three protection circuits to prevent damage to your speaker and the power amplifier.

- AC Fuse - Fused with a 3.5A/7.5A for 240V and a 7.5A/15A for 120V.
- Thermal protection - if a channel overheats its output is disconnected until it cools down to a safe operating temperature.
- DC offset sensor - If an amplifier malfunction or signal source malfunction occurs, the potential exists for providing DC voltage to the loudspeaker. If this happens, the channel will automatically shut down. No damage can occur.

In building the Cinema Series power amplifiers significant effort has been focused on building an amplifier that delivers outstanding mechanical performance, is easy to use, and has sonic properties that will delight the most demanding customer. Thank you for choosing Cary Audio Design and enjoy your new power amplifier.

**Short circuit protection activates if load impedance is about 1.6 ohms or less. Constant tripping of short circuit can degrade output transistors. To reset protection, turn the amplifier off, wait 10 seconds, then turn the amplifier on.*

SPECIFICATIONS

This section describes the basic specifications of the Cinema 2, 5 and 7B power amplifiers at the time of printing. Specifications are subject to change without notice or obligation. When the following cautionary terms are used in this manual, these definitions apply:

WARNING

Electrical hazard! Misuse or failure to follow instructions properly may result in personal injury or death!

CAUTION

No risk or personal injury; however, misuse or failure to follow instructions may result in damage to equipment.

NOTE

No risk of personal injury or equipment damage; however, misuse or failure to follow instructions may prevent proper performance of the equipment.

RATED POWER OUTPUT

Cinema 2, 5	200 watts/channel - 8 ohms, Class A/B 350 watts/channel - 4 ohms
Cinema 7B	100 watts/channel - 8 ohms Class A/B 160 watts/channel - 4 ohms

DAMPING FACTOR

>100 @ 8 Ohms

PEAK CURRENT

Cinema 2, 5 - 35 amps
Cinema 7B - 20 amps

FREQUENCY RESPONSE

Cinema 2, 5	10 to 50 kHz +/-0.1 dB
Cinema 7B	5 Hz to 40 kHz +/-0 dB @ 1 watt 5 Hz to 100 kHz +/-3 dB @ 1 watt

INPUT POWER

117 or 234 VAC @ 50/60 Hz, depending on market

REQUIREMENTS

POWER CONSUMPTION

Idling with no signal input:
Cinema 2 - 90 Watts, Cinema 5 - 155 Watts, Cinema 7B - 115 Watts

All channels, 8-ohm load, full power:
Cinema 2 - 1000 Watts, Cinema 5 - 2500 Watts, Cinema 7B - 1700 Watts

INPUT IMPEDANCE

Cinema 2, 5	44 K ohms for single-ended RCA inputs
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Cinema 7B	91 K ohms, XLR inputs 44 K ohms, single-ended RCA inputs
OUTPUT IMPEDANCE	4 to 16 ohms
GAIN	27 dB
THD	< 0.05 %, 20 Hz-20 kHz
NOISE	> 100 dB below rated output, A-weighted
SENSITIVITY	1.42 Volts for full output
POWER SUPPLY CAPACITORS	
Cinema 2, 5	4 or 2 - 33,000 μ Fd @ 80 Volts
Cinema 7B	6 - 10,000 μ Fd @ 63 Volts
POWER TRANSFORMERS	1 - Toroidal, 200% duty cycle
BREAK-IN PERIOD	100 hours of music playing time
FINISH	Textured black chassis with silver anodized aluminum faceplate standard (black faceplate optional)
AC CORD	3 conductor shielded and detachable
DIMENSIONS:	Cinema 2 - 6.25" H x 17.75" W x 14.5" D Cinema 5 - 6.25" H x 17.75" W x 19.75" D Cinema 7B - 6.25" H x 17.75" W x 18.5" D Allow 2" D for binding post and front panel switch
WEIGHT	Cinema 2 - 40 lbs. Cinema 5 - 80 lbs. Cinema 7B - 66 lbs.

FEATURES

Front Panel

POWER SWITCH	Main power switch for all channels
LED 2, 5, 7	Indicates channels operating - The LED's will not light if the power amplifier is in protection mode or if the fuse is blown

Rear Apron Features

AC INLET	3 conductor detachable power cord connector
INPUTS	7, 5, or 2 signal input connections via shielded interconnect cables either single-ended RCA or XLR balanced
OUTPUT	7, 5, or 2, 5-way binding posts provide output to the speaker system (4 or 8 ohm)
FUSES	AC power fuse. Only replace with 15 AMP (Cinema-5), 10 AMP (Cinema 7B) or 7 AMP (Cinema-2) SLOW BLOW Fuse @ 250 VOLT! 7.5A/3.5A for 220V (Cinema 5, Cinema 2)
RCA/XLR SWITCHES	Select single-ended or balanced operation for each channel
REMOTE TRIGGER	1/8" connection jack - Set the front panel Main Power switch to OFF to use the remote turn on/turn off feature with the remote trigger controlled by an external switch

INSTALLATION

This section describes the unpacking and installation procedures for your new component.

Unpacking

All Cary Audio Design shipping containers have been specially designed to protect their contents and special care has been taken to prevent damage under normal shipping conditions. Mishandling should be evident upon inspection of the shipping container. If shipping damage is found after visual inspection, take care not to destroy the evidence. If necessary, document the damage with photographs and contact the transport carrier immediately.

Carefully remove your new component from its packing carton and examine it closely for signs of shipping damage. We strongly recommend saving all original packing cartons to protect your component from damage should you wish to store it or ship it for after-sales service.

Warranty Card

IN THE USA: If you are the original purchaser of a new unit from an AUTHORIZED CARY AUDIO DESIGN DEALER, please fill out the enclosed warranty registration card and return it to Cary Audio Design within 15 days of your purchase. Cary Audio Design also suggests that you keep your original packing cartons in case you ever need to ship the unit when moving to a new home. Warranty restrictions apply. Consult the warranty section at the end of this manual for details. Please be certain to keep a copy of the original sales receipt from your AUTHORIZED CARY AUDIO DESIGN DEALER to validate the warranty if ever needed. The warranty is for the original purchaser only and does not transfer to any subsequent owner.

OUTSIDE THE USA: Your local Authorized Cary Audio Design Distributor will make his own warranty policy for your country. Please check with them for the terms of warranty for your new amplifier.

Placement

The Cinema amplifiers are designed for use inside climate controlled rooms. It must be protected from the elements and temperature extremes. For example, avoid placing the unit in extremely hot locations such as near radiators or other heating units. Avoid installation where it might be damp or wet to avoid potential shock hazards.

Power Requirements

The Cinema amplifiers are designed to operate from residential or commercial AC current mains. The design voltage is 117 VAC at 50/60Hz for USA. (Export units 234 VAC at 50/60Hz or 117 VAC at 50/60 Hz)

Cables

The speaker cables from the output posts of the Cinema amplifier to the speaker system can be any length, as your speaker set-up requires. Select speaker cables of sufficient size to preserve the outstanding performance capabilities of your Cinema amplifier. Heavy gauge #14 wire is suitable for distances up to 10 feet, #12 for 25 feet. Most audio dealers will have proper speaker cable in stock for this purpose. Consult your Authorized Cary Audio Design dealer for advice about wire.

Interconnects

Signal input connections are made via the input jack on the rear of the Cinema amplifier, either single-ended or balanced. The interconnect cables from the output of the processor can be any convenient length your installation set-up requires. The choice of a high quality interconnect cable is important. Once again, your audio dealer will have the proper cables in stock for this purpose.

WARNING

Do not touch the speaker output binding posts during normal operation. You may be shocked.
Do not short-circuit the speaker output binding posts. Damage may occur or the fuse may blow.
Do not parallel or "bridge" the speaker output binding posts as this will damage the amplifier.

OPERATION

Your new Cinema Series power amplifier is ready for operation after installing the AC power cord, speaker and interconnect cables. Make sure the RCA/XLR switch is in the proper input selector position for your particular installation.

On-Off Power Switch

Push the main power switch on the front panel to the "ON" position for normal use. (Set it to OFF for remote turn on/off operation and it will be turned on and off by the trigger in the surround sound processor.) When turned on, LED's for each channel will light up. (Cinema 2 - 2, Cinema 5 - 5 and Cinema 7B - 7). You are ready at this point to play music or start the movie. Flip the main power switch to OFF for normal shut down, and at this time one LED will light up for "standby" mode. This LED is located above the ON/OFF switch.

Break In Period

The transistors and capacitors take approximately 100 hours of music playing to fully settle in for peak performance. The power amplifier will sound good right out of the box and continue to improve as it goes through 'break in.' After a couple of hours of play, you will notice increased depth and tighter bass.

SERVICE AND CARE

The chassis may be cleaned with a soft towel and Windex® (or a similar window cleaner). Spray it on the cleaning cloth to moisten it, not on the component. Do not use solvents or harsh chemicals to clean the amplifier. They may remove the labels from the chassis. The frequency and need of cleaning will be governed by operating environmental conditions. Avoid letting the component become dusty or wet. A 'feather duster' type cleaner will also work well for cleaning the component.

Factory Service

Careful consideration has been given to the design of this product to keep maintenance problems to a minimum. If problems arise, refer to the troubleshooting guide at the end of this manual. If the problem is not easily solved, we suggest that you contact our Customer Service Department by phone at (919) 355-0010, 1–5 pm Eastern Standard Time, to describe your problem in detail. Do not return the component to the factory without a Return Authorization Number (**RA**) from the Customer Service Department.

Cary Audio Design assumes no responsibility if the transportation company refuses to pay a damage claim due to your improper packing or lack of insurance should the unit be lost in shipment. We strongly suggest using the original packing cartons for shipping any Cary Audio Design component.

Non-Warranty Repairs

Cary Audio Design will provide repair service for its products charging on a time and expense basis. At this time, the standard non warranty service bench fee is \$125 with all parts used for repair charged extra. This may change with time and is not a quote for service. Please call us at 919-355-0010 for more information about out of warranty service and repair fees.

WARNINGS

- **Make no attempt to put the amplifier in service outside of the cabinet - Contact with high voltages found in the unit can be fatal.**
- **Completely remove AC power plug from the wall and allow 30 minutes for the high voltage capacitors to discharge through bleeder resistors before attempting to clean the inside of the amplifier.**

CAUTIONS

- **Never remove/insert AC plug when the unit is on or the AC power switch is in the "ON" position**
- **Obstruction of the top portion of the amplifier will result in overheating**

AWARDS

All of the Cinema Series amplifiers are derived from the CAD 500 T power amplifier that sold for \$8,000 as a multichannel audiophile power amplifier. We firmly believe that you will enjoy music as well as movies with our Cinema Series power amplifiers. Thank you for your support of Cary Audio Design and our Cinema Series product line. We suggest that a Cary Cinema DVD player or a Cinema surround processor preamplifier would be a great match for your Cinema Series power amplifier.

The Cinema 5 power amplifier has been named the Multichannel Power Amplifier of the Year for *The Perfect Vision* magazine in 2003. It was also chosen for an Editor's Choice Award by *The Absolute Sound* magazine for 2003! With an award winning amplifier like this in the family, you can rest assured that you have purchased the right power amplifier for your home cinema system!



TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Hum or "Buzzing" through the speakers	Ground loop	Install 2-pin adapter on AC cord to float the ground
	Intermittent or poor connection of interconnect ground	Replace interconnect ground
	RCA/XLR Switch not in correct position	If using balanced inputs, make sure switch is toward XLR connector and toward RCA jack for RCA in
Reduced Output	RCA/XLR Switch not in correct position	If using balanced inputs, make sure switch is toward XLR connector and toward RCA jack for RCA in
AC fuse blows	Overload	Playing very loud into very low impedance. Replace fuse
	Short at output	Make sure (+) and (-) of binding post are not shorted
LED out	Protection circuit activated	Turn power off. Wait 10 seconds and turn back on

UNITED STATES LIMITED WARRANTY

Cary Audio Design warrants to the original United States purchaser for use in the United States, that Cary Audio Design vacuum tube or solid state power amplifiers, surround sound processors or preamplifiers shall be free from defects in parts or workmanship for three (3) years from the date of the original purchase. Vacuum tubes, if any are used in the component, are offered a 90 day from purchase date exchange policy against defects with the exception of the CAVT 300B vacuum tube which has a (1) one year from purchase date exchange policy. Any digital drive design, whether a Cary Audio Design CD or SACD player or a Cary Cinema DVD player, has a limited one year parts and labor warranty against defects in manufacture. This is a limited warrant, for the original purchaser only and does not transfer to any subsequent owner.

During the limited warranty period, Cary Audio Design or an authorized Cary Audio Design service facility will provide free of charge both parts and labor necessary to correct any defects in material or workmanship.

To obtain such warranty service, the original purchaser must:

1. Complete and send in the warranty Registration Card within 15 days of purchase.
2. If claiming service the owner must send a fully filled in copy of the original sales receipt along with any unit sent in for service showing the AUTHORIZED CARY AUDIO DESIGN DEALER'S name, the new selling price, the buyer's name, e-mail or phone number and address on the receipt. Blank receipts will NOT validate the limited warranty for service.
3. Notify Cary Audio Design as soon as possible after the discovery of a possible defect and submit the following information to determine eligibility for warranty:
 - (a) The model number and serial number;
 - (b) A fully filled in copy of the original sales receipt showing the original selling price, purchasers name and address filled in by an AUTHORIZED CARY AUDIO DESIGN DEALER with the original date of purchase shown on the form;
 - (c) a detailed description of the problem.
4. Deliver the product to Cary Audio Design or the nearest authorized service facility or ship with all freight and insurance charges prepaid, in its original packing container or equivalent, to Cary Audio.

Correct maintenance, repair and use are important to obtain performance from this product. Therefore, please carefully read the Operating Manual. This warranty does not apply to any defect that Cary Audio Design in its sole discretion determines is due to:

1. Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and the specifications of the original parts.
2. Misuse, abuse, neglect or improper installation.
3. Accidental or incidental damage.

WARRANTY DISCLAIMER

Except for the express warranties stated herein, Cary Audio Design disclaims all other warranties including, without limitation, all implied warranties of merchantability and fitness for a particular purpose. The

foregoing constitutes Cary Audio Design's entire obligation with respect to this product, and the original purchaser and any user or owner shall have no other claim for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives legal rights and you may also have other rights, which vary from state to state.

EXCLUSIVE REMEDY

Notwithstanding the foregoing, the purchaser's exclusive remedy for any breach of warranty, express or implied, is limited to the repair or replacement of the defective unit or the refund of the purchase price, at the option of Cary Audio Design. Under no circumstances is Cary Audio Design liable for incidental or consequential damages. Any implied warranties imposed by law terminate one (1) year from the date of purchase.

INTERNATIONAL PURCHASERS (Export markets)

Cary Audio Design warrants its merchandise to purchasers within the United States exclusively for use within the United States of America. It provides no other warranties, expressed or implied. If you are living outside the USA, please consult with your local dealer or distributor to determine the details of your local warranty.



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