



OWNER'S MANUAL

CAD 211 FE

Mono Power Amplifier

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

IMPORTANT SAFETY INSTRUCTIONS

Important Safety Instructions	2
Introduction	4
Specifications	5
Features	6
Installation	
Unpacking	7
Warranty Card	7
Placement	7
Power Requirements	7
Speaker Cables	7
Interconnect Cables	8
Operation	
On-Off Power Switch	9
Standby Toggle Switch	9
Break In Period	9
Service and Care	
Replacing Vacuum Tubes	10
Factory Service	10
Non-Warranty Repairs	11
Troubleshooting Guide	12
Diagrams	13
Limited Warranty	15

IMPORTANT SAFETY INSTRUCTIONS

WARNING: The triangle with the lightning flash symbol displayed on the unit advises the user of dangerous un-insulated voltage inside the product's enclosure.

CAUTION: To reduce the risk of electric shock, do not remove the cover. There are no user-serviceable parts inside; it is recommended that only qualified personnel service this component.



ALERT: The triangle with the exclamation point symbol on the component suggests that the owner refer to important operating and maintenance instructions in the owner's manual.

1. **OWNER'S MANUAL:** Before powering up the equipment, read all safety and operating instructions and follow them as instructed. Retain the safety and operating instructions for future reference.
2. **ATTACHMENTS:** Use only those attachments recommended by the unit manufacturer, as others may cause hazards.
3. **ACCESSORIES:** Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing injury to a person or damage to the unit. Mount the unit according to the manufacturer's instructions with the suggested mounting accessory.
4. **WALL OR CEILING MOUNTING:** Mount the unit to a wall or ceiling only in the manner recommended by the manufacturer.
5. **WATER AND MOISTURE:** Do not use the unit near water (for example, near a swimming pool, bath tub, wash bowl, kitchen sink, or laundry tub) or in a damp environment (like a basement or outside in the rain).
6. **OBJECT AND LIQUID ENTRY:** Do not push objects of any kind into the unit through openings as they could touch dangerous voltage points and short-out parts, possibly resulting in a fire or electric shock. Avoid spilling liquid of any kind on the unit. If water or any metal object (such as a paper clip, coin, or staple) accidentally falls inside the unit, disconnect it from the AC power source immediately and contact Cary Audio Design for further instructions.
7. **HEAT:** Position the unit away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.
8. **VENTILATION:** Slots and openings in the cabinet create ventilation to protect the component from overheating. These openings on the top and bottom panels must remain unobstructed. Allow at least 6 inches (16cm) of clearance above the unit and an opening behind the unit for airflow. Do not place the unit on a bed, sofa, rug, built-in bookcase, or rack without adequate ventilation.
9. **GROUNDING OR POLARIZATION:** As a safety feature, the unit may be equipped with a polarized alternating current line plug in which one blade is wider than the other. This plug will fit into the power outlet only one way. If you cannot insert the plug fully into the outlet, try reversing the plug. If the plug still will not fit, contact a licensed electrician to update your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
10. **POWER SOURCES:** Operate the unit only from the power source indicated on the marking label. If you are unsure of the type of power supplied to your home, consult your unit dealer or local power company.
11. **POWER CORD PROTECTION:** Arrange power supply cords so that they do not suffer from foot traffic or pinching by items placed on or against them. Pay close attention to cords where plug enter the AC outlet and where they exit from the unit.
12. **LIGHTNING:** For added protection during a lightning storm or when the component is idle for long periods of time, unplug the unit from the wall outlet and disconnect the antenna or cable system. This will help protect the unit from lightning and power line surge damage.
13. **POWER LINES:** Do not locate an outside antenna system in the vicinity of overhead power lines or other electric light or power circuits. When installing an outside antenna system, take extreme care to avoid touching the power lines or circuits; contact with them could be fatal.
14. **OVERLOADING:** Do not overload wall outlets, extension cords, or integral convenience receptacles as this increases the risk of fire or electric shock.

15. **REPLACEMENT PARTS:** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or those having the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock or other hazards.
16. **SAFETY CHECK:** Upon completion of any service or repairs to the unit, ask the service technician to perform safety checks to ensure the unit is in proper operating condition.
17. **IMPORTANT SAFETY NOTE:**
 - Before connecting a new product such as the CD 303T to your audio or home theater system, turn off all other equipment (preferably unplugging them from the AC power source). Many audio components feature automatic turn-on circuits that may activate during an installation, potentially causing damage to electronic components and/or speakers. This type of damage is not covered by product warranties, and Cary Audio specifically disclaims responsibility for any such damage.
 - **Power Cord:** The removable power cord provided with your player was specifically designed for use with this product, but other AC cords may be used. Consult your dealer for advice on AC power cords and high quality wire in your system.
 - **AC Fuse:** The fuse is located inside the chassis and is not user serviceable. If the unit does not power up, contact an authorized service representative
 - **Wiring:** Cables running inside walls should have the appropriate markings to indicate compliance and listing by the UL, CSA or other standards required by the UL, CSA, NEC or your local building code. Questions about cables inside of walls should be referred to a qualified custom installer, a licensed electrician, or low-voltage contractor.
18. **RECORDING COPYRIGHT:** Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.
19. **NOTE TO CATV SYSTEM INSTALLER:** This reminder is provided to call the CATV system installer's attention to article 820-40 of the NEC, ANSI/NFPA 70, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.



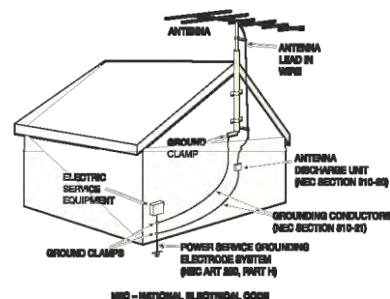
20. **FCC INFORMATION FOR USER:**

- **CAUTION:** Any changes or modifications not expressly approved by Cary Audio Design could void the user's authority to operate the equipment.
- **NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.
- These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy, and if not installed and used in accordance with the instructions it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from where the receiver is connected.



21. **OUTDOOR ANTENNA INSTALLATION/SAFE ANTENNA AND CABLE CONNECTION:**

- If an outside antenna or cable system is connected to the equipment, be sure the antenna or cable system is grounded in order to provide protection against built-up static charges and voltage surges. Article 810 of the National Electrical Code, ANSI/NFPA 70 (in Canada, Part 1 of the Canadian Electrical Code) provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.
- Outside antenna system should be located well away from power lines, electric light or power circuits and where it will never come into contact with these power sources if it should happen to fall. When installing an outside antenna, extreme care should be taken to avoid touching power lines, circuits or other power sources as this could be fatal. Because of the hazards involved, antenna installation should be left to a professional.



INTRODUCTION

Congratulations!

You have just purchased one of the most outstanding amplifiers ever made. After 17 years of continuous production we proudly announce the CAD 211 Founder's Edition! Operating the amplifier is a simple procedure. Each unit is designed for long term stability in virtually any home operating situation. Note that if the unit is operated outside the parameters outlined in this owner's manual, damage may result. Please read this manual carefully before operating your new CAD 211 FE power amplifier.

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.**

SPECIFICATIONS

This section describes the basic specifications of the 211 FE amplifier at the time of printing. Specifications are subject to change without notice or obligation.

POWER OUTPUT	70 Watts Class A operation, 110 watts Class AB2, up to 150 watts class B
FREQUENCY RESPONSE	20 to 20 kHz \pm 0.5 dB
AC POWER REQUIREMENTS	100, 110, 117, 220, 240, / 50-60 Hz, set by market
POWER CONSUMPTION	280 watts – Operation, 76 watts – Standby
INPUT IMPEDANCE	100,000 ohms (100k \bullet), Balanced 200,000 ohm (200k \bullet),
OUTPUT IMPEDANCE	4, 8 and 16 ohm speaker connection terminals
NOISE	> 80 dB below rated output
SENSITIVITY	2.0 Volt @ zero feedback for full output
COUPLING CAPACITORS	Cardas Gold Film and Foil
POWER SUPPLY CAPACITORS	4-1500 μ Fd @ 450V
TRANSFORMERS	1 - EI Laminated core power transformer 1 - Special air-gap output transformer 200% duty cycle on all transformers
TUBE COMPLIMENT <i>In each amplifier chassis</i>	1 – 6CA7 current source tube 1 - 6SL7 input tube 2 - 300B driver tube 2 - 845 output tube
WARM-UP TIME	5 minutes, after initial break in period
BREAK-IN PERIOD	100 hours of music playing time
FINISH	Jaguar 'Anthracite Black' chassis standard, other auto colors available.
AC CORD	3 conductor cord, Detachable
DIMENSIONS	10" H x 12.25" W x 24" D (25.4 x 31.2 x 61 cm)
WEIGHT	90 lbs. (38.6 kg.)
SHIPPING WEIGHT	126 lbs. (47.7 kg.)

FEATURES

Top Panel

.....
OFF-ON TOGGLE SWITCH

Turns AC power on in the rear position
The output tube will not light at this point

.....
STANDBY SWITCH

Turns the filament of the output tube on in the rear position
.....

Rear Apron Features

.....
INPUT

Signal input connection via shielded RCA interconnect cable or balanced input via XLR (pin 1= GND, pin 2 +, pin 3 -)

.....
OUTPUT

Three 5-way binding posts provide output to the speaker system (4, 8 or 16 ohm connections)

.....
FUSE

AC power fuse. Never replace with any other value than 4 AMP SLOW BLOW FUSE! 250 VOLT!

.....
TUBE FUSE

Never replace with any other fuse than 1/2 amp FAST BLOW FUSE!
.....

INSTALLATION

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

Unpacking

All Cary Audio Design shipping crates 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 CAD 211 FE is designed for use in homes. 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. Its location among the user's audio components is not critical; however, certain precautions must be taken. Avoid moisture, direct sunlight, and dusty areas.

Power Requirements

The CAD 211 FE is designed to operate from house current AC mains. The design voltage is 117 Volts AC at 50/60Hz (Foreign units 234 Volts AC at 50/60Hz).

Speaker Cables

The speaker cables from the output posts of the CAD 211 FE to the speaker system can be any length that your setup requires. Select speaker cables of sufficient size to preserve the outstanding performance capabilities and sound quality of your new power amplifiers.

Heavy duty #14 gauge wire is suitable for distances up to 15 feet; #10 gauge is good for 25-30 feet. Most audio dealers have high performance speaker cable in stock for this purpose. We strongly urge you to try several types to find the best ones for your combination of components and speakers.

INSTALLATION

Interconnect Cables

Signal input connection is made via the RCA input jack on the rear of the amplifier located next to the output binding posts. The input interconnect cables from the output of the preamplifier can be any length your installation requires. A shielded high quality interconnect cable is important to reduce chances for hum or interference. Ask your Authorized Cary Audio Design audio dealer for advice.

WARNING!

- **Page 10 shows correct tube placement positions, and 300B tube bias settings. Page 11 shows 300B tube pin configuration. FAILURE TO INSTALL THE TUBES CORRECTLY WILL DAMAGE THE UNIT. Watch the tube pins carefully on the 300B tube during installation as it is possible to force the tube to plug in 'wrong' during installation. The 300B tube has no 'safety key' center pin on the tube to prevent incorrect installation. It has two large pins and two slightly smaller pins. Please look carefully at the tube pins and the tube socket holes to note the two different size connections prior to installation. Incorrectly plugging in the 300B driver tube will possibly damage the amplifier and is not covered by the manufacturer's warranty.**

OPERATION

Your new amplifier is ready for operation after the speaker cables, interconnect cables and the tubes have been installed.

On-Off Power Switch

Push the AC toggle switch toward the rear, to the "ON" position. The 6SL7 input tubes, 6CA7 current source, and the 300B driver tubes will light up in this setting.

Standby Toggle Switch

Push the toggle switch toward the rear of the unit to operate. The installed 845 output tubes will light up.

Break In Period

The tubes, capacitors and the output transformers take approximately 100 hours of music playing to fully settle in for peak performance. Small imperfections in the tube surfaces will 'boil off' during the break in period as well. The amplifier will sound good right out of the box but it will improve as break in occurs. After the first couple of hours you will notice increased depth and tighter bass. This break in period is true with most high performance audio amplifiers.

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 as 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.

Replacing Vacuum Tubes

If it becomes necessary to replace the tubes, the same brand as installed new should be used. A complete new tube kit is available from Cary Audio Design. Although useful tube life varies depending on the nature and degree of use, under normal home use, the 845 output tube and the 300B driver tube should last many years in the CAD 211 FE. The 6SL7 input tubes should last even longer.

NOTE:

- Any current production or New Old Stock (NOS) types of 845, 6SL7 or 300B tubes will work fine in the CAD 211 Founder's Edition amplifier. The voltages are fine for all available types.

WARNING

- **Make sure the amplifier is unplugged 30 minutes from the AC mains before replacing the tubes to avoid risk of shock and high heat from the 845 tube.**

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 trouble-shooting 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.

SERVICE AND CARE

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.

WARNING

- **Make no attempt to put the CAD 211 FE in service outside of the cabinet or with the cabinet open! Contact with the high voltages found inside the unit can be fatal! Remove the AC power plug from the wall and allow 30 minutes for the high voltage capacitors to discharge through bleeder resistors before attempting to change the tubes or to clean the inside the amplifier.**

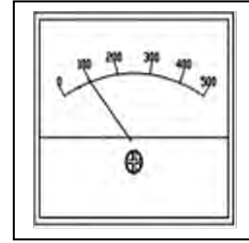
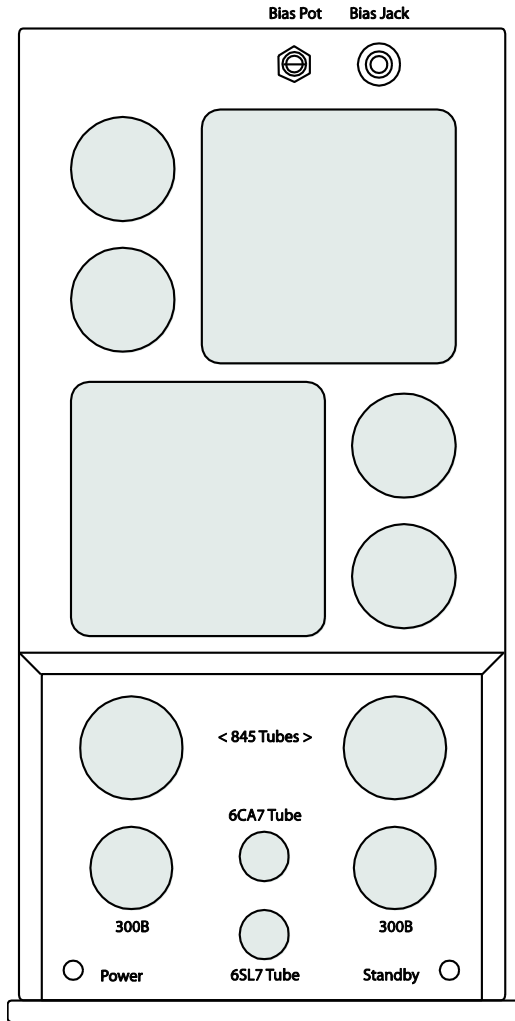
CAUTION

- **Never remove or insert the 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 the tubes overheating.**

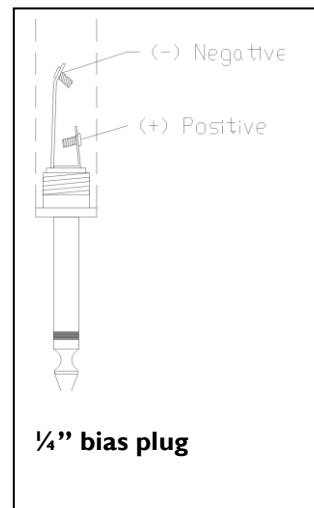
TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Hum or "Buzzing" in speakers	Ground loop 300B tube with high plate current too high Intermittent or poor connection of interconnect	Install 2-pin adapter on AC cord to float the ground Check bias of 845's. If high, readjust to proper bias setting of 100 mA Replace bad interconnect cable
"Popping" or "Spitting" noise	Noisy tube Check bias of output tubes	If noise is in one channel through the speaker, swap one section of tubes at a time until the noise swaps channels. Replace the noisy tube. If high or fluctuating rapidly, replace output tube
AC fuse blows	Line voltage surge	Replace fuse
Tube fuse blows	Shorted tube (300B & 845 have separate fuses.)	Replace tube

DIAGRAMS



Set the 845 tube bias to 100 mA DC Current



The 211FE is equipped with a built in bias meter on the front of the chassis. The adjustment pot is located at the back of the chassis along with a bias jack for an external meter. Check the 845 tube bias current and adjust for a 100 mA reading. The meter is marked "SET" at the 100mA mark. Check and readjust to 100 mA again after the CAD 211FE amplifier is warmed up for 10 minutes.

Note:

- **Bias is factory preset to 100 mA. Bias should be reset when installing a new replacement 845 tube.**

The LARGE pair of 300B tube pins should be installed toward the front of the CAD 211 FE amplifier tube socket. Look carefully at the tube pins to be sure that you insert them correctly. It is possible to force the tube pins into the socket the wrong way if you are not careful! If you install the tube wrong you will probably damage the amplifier and the tube. This damage will not be covered by the manufacturers warranty for a new amplifier. If you have any doubts about this, have the 300B tube installed by your dealer.

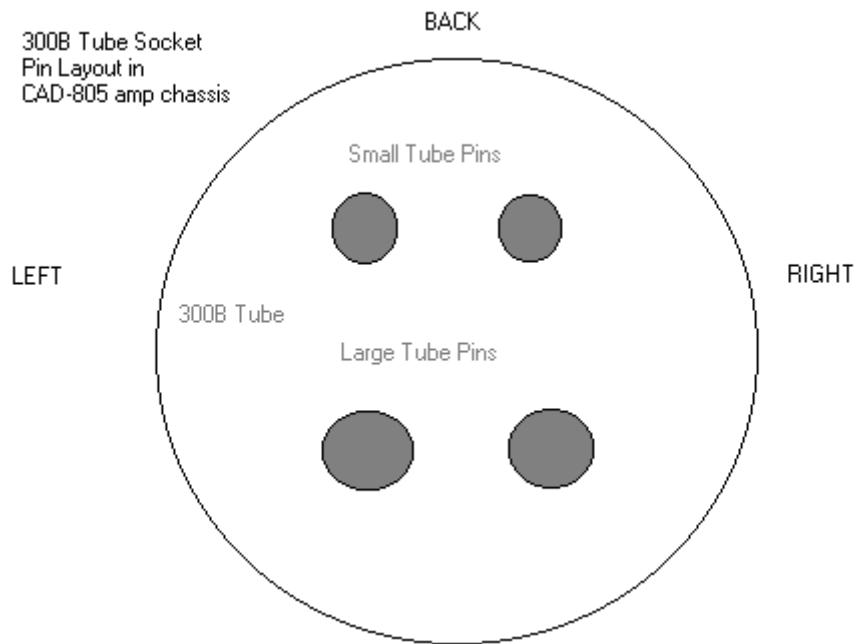
DIAGRAMS

300B Tube Pin Layout

The LARGE pair of 300B tube pins should be installed toward the front of the CAD 211 FE amplifier 300B tube sockets. LOOK CAREFULLY at the tube pins to be sure that you insert them correctly. It is possible to force the tube pins into the socket the wrong way if you are not careful! If you install the tube wrong you will probably damage the amplifier and the tube. This damage will not be covered by the manufacturers warranty for a new amplifier. If you have any doubts about this, have the 300B tube installed by your dealer. If you will look carefully at the pins and install the large pins to the front of the socket all will be fine! These 300B tube pin installation instructions are valid for the 211 FE only.

300B Tube Socket Pin Layout in the CAD 211 FE Amp Chassis

The LARGE pair of tube pins should be installed toward the front of the CAD 211 FE amplifier tube socket. LOOK CAREFULLY at the tube pins to be sure you insert them correctly. It is possible to force the tube pins to plug in the wrong way in the socket! PLEASE BE CAREFUL INSTALLING THE 300B TUBE! If you install the tube wrong it will certainly blow a fuse and it may damage the amplifier. Correct placement is easy after looking carefully at the pin sizes and the pin socket hole sizes in the tube socket.



Front of the tube socket installed on the CAD 211 FE chassis

LIMITED WARRANTY

Cary Audio Warrants to the original United States purchaser for use in the United States the Following Cary Audio Products for the Periods Indicated:

1. Power Amplifiers, Integrated Amplifiers, Surround Sound Processors, and Preamplifiers have a three (3) year parts and labor warranty from the date of the original purchase from Cary Audio.
2. CD or SACD players, DVD players, or Music Servers have an eighteen (18) month parts and labor warranty from the date of the original purchase from Cary Audio.
3. Vacuum tubes, if any are used in the component, are offered a 90-day exchange policy against defects with the exception of the CAVT 300B vacuum tube that has a one (1) year exchange policy from the date of the original purchase from Cary Audio.

What is Covered and What is Not Covered

Except as specified below, this warranty covers parts and labor to correct all defects in materials and workmanship. The following are not covered by the warranty:

1. Damage, deterioration, malfunction or failure to meet performance specifications resulting from:
 - a. Accident, acts of nature, misuse, abuse, neglect or unauthorized product modifications
 - b. Improper installation, removal or maintenance, or failure to follow instructions supplied with the product.
 - c. Repair or attempted repair by anyone not authorized by Cary Audio to repair the product.
 - d. Any shipment of the product (claims must be presented to the carrier).
 - e. Any cause other than a product defect.
2. Cleaning, initial set-up, check-ups with no defects found, or charges incurred for installation, removal or reinstallation of the product.
3. Any product, on which the serial number has been defaced, modified or removed.
4. Batteries.
5. Accessories, including but not limited to, batteries, cables, mounting hardware and brackets, cleaning accessories, antenna and detachable power cords.
6. Warranty is void if purchase was made from anyone other than an authorized Cary Audio dealer.

Who May Enforce the Warranty?

This warranty extends to products purchased directly from Cary Audio or an authorized Cary Audio dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

To obtain such warranty service, the original purchaser must complete and send in the Warranty Registration Card within 15 days of purchase.

LIMITED WARRANTY

What Will We Pay For?

We will pay for all labor and material expenses for items covered by the warranty. Payment of shipping charges is discussed in the next section of this warranty.

How You Can Get Service?

In the event that the owner needs to return the unit to Cary Audio for service or repair of a possible defect, he must follow the following steps:

1. Contact Cary Audio at 919-355-0010 to obtain a Return Merchandise Authorization (RMA) number prior to shipping; include this number with the package
2. Submit a copy of the original sales receipt; blank receipts will not validate the limited warranty for service by Cary Audio. The original sales receipt must contain the following information:
 - a. The authorized Cary Audio dealer's name
 - b. The date of purchase
 - c. The unit's sales price
 - d. The buyer's name and address
 - e. Describe in detail the problem.
 - f. Note the unit's model number and serial number.
3. Deliver by either of these methods:
 - a. With all freight and insurance charges prepaid and in its original packing container or equivalent, ship the component to Cary Audio, 1020 Goodworth Drive Apex, NC 27539.
 - b. Hand-deliver the product to Cary Audio (address noted above) or the nearest authorized service facility.

Limitation of Implied Warranties

All implied warranties, including warranties of merchantability and fitness for particular purchase, are limited in duration to the length of this warranty.

Exclusion of Damages

Cary Audio's liability for any defective product is limited to repair or replacement of the product at Cary Audio's option. Cary Audio shall not be liable for damage to other products caused by any defects in Cary Audio products, damages based upon inconvenience or loss of use of the product, or any other damages, whether incidental, consequential, or otherwise.

LIMITED WARRANTY

How State Law Relates to the Warranty

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the 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 which vary from state to state.

International Purchasers (Export Markets)

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

CARY AUDIO DESIGN

1020 Goodworth Drive, Apex, NC 27539
phone 919-355-0010
fax 919-355-0013
www.caryaudio.com