



CAD-500-T

OPERATING MANUAL

NOTE:

Before installing your new CAD-500-T, please read this manual carefully as it will inform you of the CAD-500-T's specifications, proper installation and operation procedures. Also included in this manual are guidelines on how to properly service and care for your new CAD-500-T.

CAD-500-T

Congratulations! You have just purchased one of the finest amplifiers ever made. With five channels rated at 150 watts into 8 ohms and 250 watts into 4 ohms all channels driven, the CAD-500-T, Five Channel Amplifier, is the perfect foundation for your home theater system. In addition to the awesome power, the CAD-500-T delivers flawless reproduction of music detail and subtle special effects. The CAD-500-T's features include:

- Individual power transformer and supply for each of the five channels,
- Individual channels are selectable. You can use from one to five channels, individually,
- Thermal Protection circuits,
- DC offset protection,
- Matched Sanken, multiple emitter output transistors. Uses 6 per channel,

For the technically inclined, the following is an overview of the design characteristics of the amplifier.

The input of the amplifier is fed into a high quality op-amp for Balanced to Single-Ended conversion coupled to a 100 Khz low pass filter to prevent RF interference. This input circuit is connected to a constant current sourced differential style with a current mirror. The predrive circuit is constant current Single-Ended Class A. The output is a follower stage that uses special "designed for audio" high speed transistors that have excellent linearity characteristics. Each channel has its own 200% duty cycle power transformer and two - 15,000uF 63V filter capacitors. Special attention was paid to stabilization and speed of the amplifier to reduce transient intermodulation distortion.

The CAD-500-T has three protection circuits to prevent damage to your speaker and the 500-T.

1) A.C. Fuse - each channel is fused with a 1.5A for 220V to 240V and a 3A for 110V to 120V. The fuse is the short circuit and overload protection. Therefore, it is important to replace the fuse with the correct value.

2) Thermal - if a channel overheats its output is disconnected until it cools to a safe temperature.

3) DC offset - if an output device becomes defective, 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 CAD-500-T, 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 Cary Audio CAD-500-T amplifier.

SPECIFICATIONS

Operating the CAD-500-T amplifier is a simple procedure since each unit is designed for long term stability in virtually any home or commercial operating situation. Therefore, 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-500-T amplifier.

1.1 Caution Terms

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 to the equipment.

1.2 Specifications

This section describes the basic specifications of the CAD-500-T at the time of printing. Specifications are subject to change without notice or obligation.

POWER OUTPUT:	Class AB, 150 Watts - 8 ohms 250 Watts - 4 ohms
DAMPING FACTOR:	100 @ 8 ohms 50 @ 4 ohms
PEAK CURRENT:	21 amps
FREQUENCY RESPONSE:	20 to 20 kHz -.25 dB -3 dB @ 100 KHz
DIMENSIONS:	7"H x 18"W x 28"D - Allow 2"D for binding post and front panel switch
INPUT POWER REQUIREMENTS:	100, 110, 117, 220, 240, / 50-60Hz
POWER CONSUMPTION:	155 Watts - IDLE 1000 Watts - All channels driven into 8 ohms at full power 1800 Watts - All channels driven into 4 ohms at full power

NET WEIGHT:	130 lbs.
SHIPPING WEIGHT:	150 lbs.
INPUT IMPEDANCE:	95K ohms for single-ended 195K ohms for balanced
OUTPUT IMPEDANCE:	4 and 8 ohms
GAIN:	26 dB
THD:	@ 1 Khz and full power - .03%
NOISE:	93 dB below rated output
SENSITIVITY:	1.7 Volts for full output
COUPLING CAPACITORS:	Polypropylene
POWER SUPPLY CAPACITORS:	10 - 15,000 uF @ 63V
TRANSFORMERS:	5 - EI laminated core power transformer 200% duty cycle
WARM-UP TIME:	5 minutes
BREAK-IN PERIOD:	100 hours of music playing time
FINISH:	textured black with clear anodized face plate
AC CORD:	3 conductor shielded and detachable

1.3

Front Panel Features

POWER SWITCH:	Main power switch for all 5-channels.
LED 1-5:	Indicates channels operating. The LED will not light if the amp is in protect mode, if the fuse is blown, or if the channel is switched off. The CAD-500-T logo lights up with the main power switch on.

1.4

Rear Apron Features

AC INLET:	3-conductor detachable power cord connector
INPUTS:	5-signal input connections via shielded interconnect cables either single-ended or balanced

- OUTPUT:** Five 5-way copper binding posts provide output to the speaker system (4 or 8 ohm).
- FUSES:** 5 - AC power fuses. Never replace with any other value than 3 AMP SLOW BLOW! 250 VOLT! (1.5A for 220-240V)
- POWER SWITCHES:** Individual power switches for each channel
- RCA/XLR SWITCHES:** Select single-ended or balanced for each channel.

INSTALLATION

This section describes the unpacking and installation procedures for the CAD-500-T amplifier.

2.1 Unpacking

All 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 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 CAD-500-T from its packing carton and examine it closely for signs of shipping damage. It is recommended to save all original packing cartons to protect your amplifier from damage should you wish to store it or ship it for after-sales service. Remove the clamps from the top of the wooden crate with a flat screwdriver. Insert the screwdriver between the wood and the clamp and pry outward. Remove the top cover of the crate and roll it over upside down. Then lift the crate off of the amplifier.

2.2 Warranty Card

If you were the original purchaser of this unit and you purchased it in the United States, you should fill out the enclosed warranty registration card and return it to Cary Audio Design within 10 days of your purchase. Cary Audio Design also suggests that you keep your original packing cartons in case you need to ship the unit. Warranty restrictions apply. Consult the warranty section of this manual for details.

2.3 CAD-500-T Placement

The CAD-500-T is 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. Its location among the user's audio components is not critical; however, certain precautions must be taken.

2.4 Power Requirements

The CAD-500-T is designed to operate from residential or commercial current mains. The design voltage is 117 VAC at 50/60Hz (Foreign units 234 VAC at 50/60Hz).

2.5 Cables

The speaker cables from the output posts of the CAD-500-T to the speaker system can be any convenient length your set-up requires. Select speaker cables of sufficient size to preserve the outstanding performance capabilities of your CAD-500-T. Heavy gauge #16 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.

2.6 Interconnects

Signal input connect is made via the input jack on the rear of the CAD-500-T either single-ended or balanced. The interconnect cables from the output of the preamplifier can be any convenient length your 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 binding posts during operation. You may be shocked.
Do not short the binding post. Damage may occur or the fuse may blow.
Do not parallel or "bridge" the outputs. This will damage the amplifier.**

OPERATION

Your new CAD-500-T is ready for operation after the speaker and interconnect cables have been installed.

3.1 Off-On Power Switch

Select the channels you wish to use. Flip the rear power switch up. Turn the main power switch on the front panel to the "ON" position.

3.2 Break In Period

The transistors and capacitors take approximately 100 hours of music playing to fully settle in for peak performance. The CAD-500-Ts may seem sterile or thin sounding right out of the box. After the first couple of hours you will notice increased depth and tighter bass. This break in period defies all engineering theory, but is true with most audio amplifiers.

SERVICE AND CARE

The CAD-500-T chassis may be cleaned with a soft towel and Windex® (or a similar window cleaner). The frequency of cleaning will be governed by the number of hours the CAD-500-T is operated and by operating environmental cleanliness.

4.1 Factory Service

Careful consideration has been given to the design of your CAD-500-T to keep maintenance problems to a minimum. If problems do arise then 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 at phone number (919) 481-4494 to describe your problem in detail. **Do not return the CAD-500-T to the factory without a Return Authorization Number from the Customer Service Department.** Cary Audio Design will assume no responsibility if the transportation company refuses to pay damage claim due to your improper packing or lack of insurance should the unit be lost in shipment.

Non-Warranty Repairs

Cary Audio Design will provide repair service for its products charging on a time and expense basis for the repairs.

WARNINGS

Make no attempt to put the CAD-500-T 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 CAD-500-T will result in overheating

PROPRIETARY RIGHTS: Cary Audio Design has proprietary right in the design and components of its units. While the purchaser is entitled to use the unit for its intended purpose, use of the unit for copying, imitation, or reverse engineering is a violation of these proprietary rights and is forbidden.

CAD-500-T TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Hum or "Buzzing" through speakers	-Ground loop	-Install 2-pin adapter on A.C. cord to float the ground.
	-Intermittent or poor connection of interconnect ground	-Replace interconnect
	-RCA/XLR Switch not in correct position	-If using balanced inputs, make sure switch is toward XLR connector and vice versa for RCA in.
Reduced Output	-RCA/XLR Switch not in correct position	-If using balanced inputs, make sure switch is toward XLR connector and vice versa 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.

INITIAL SETUP & REAR PANEL CONNECTIONS

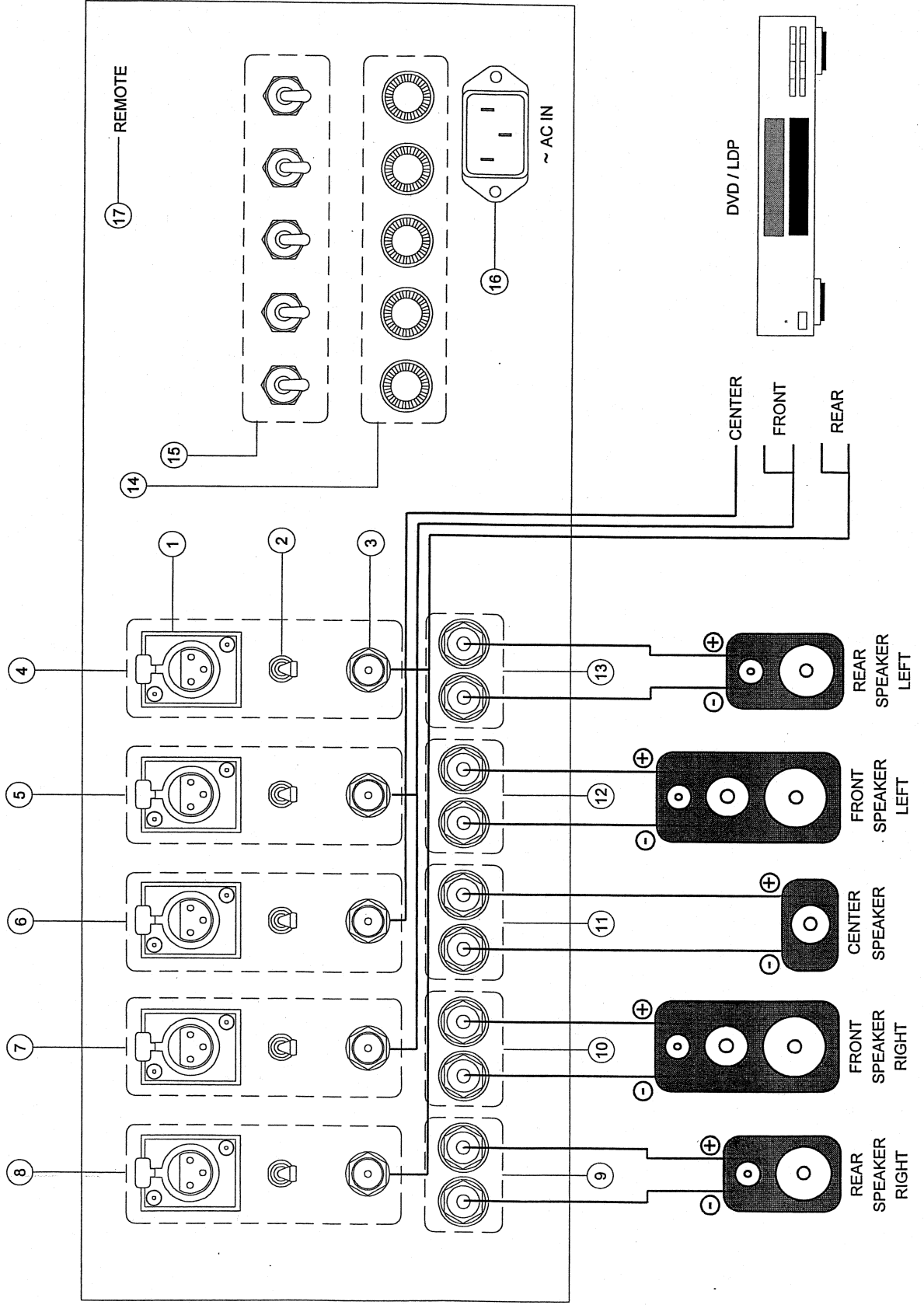
Make connections as shown below. Do not plug in the AC power until all connections are completed

Before connection:

- Turn the power off and disconnect AC cord from the wall socket.

After connection:

- Insert the power cord into the wall socket.
- Turn on desired channels at the rear of the amplifier.
- Turn on Main Power Switch at the front of the amplifier.



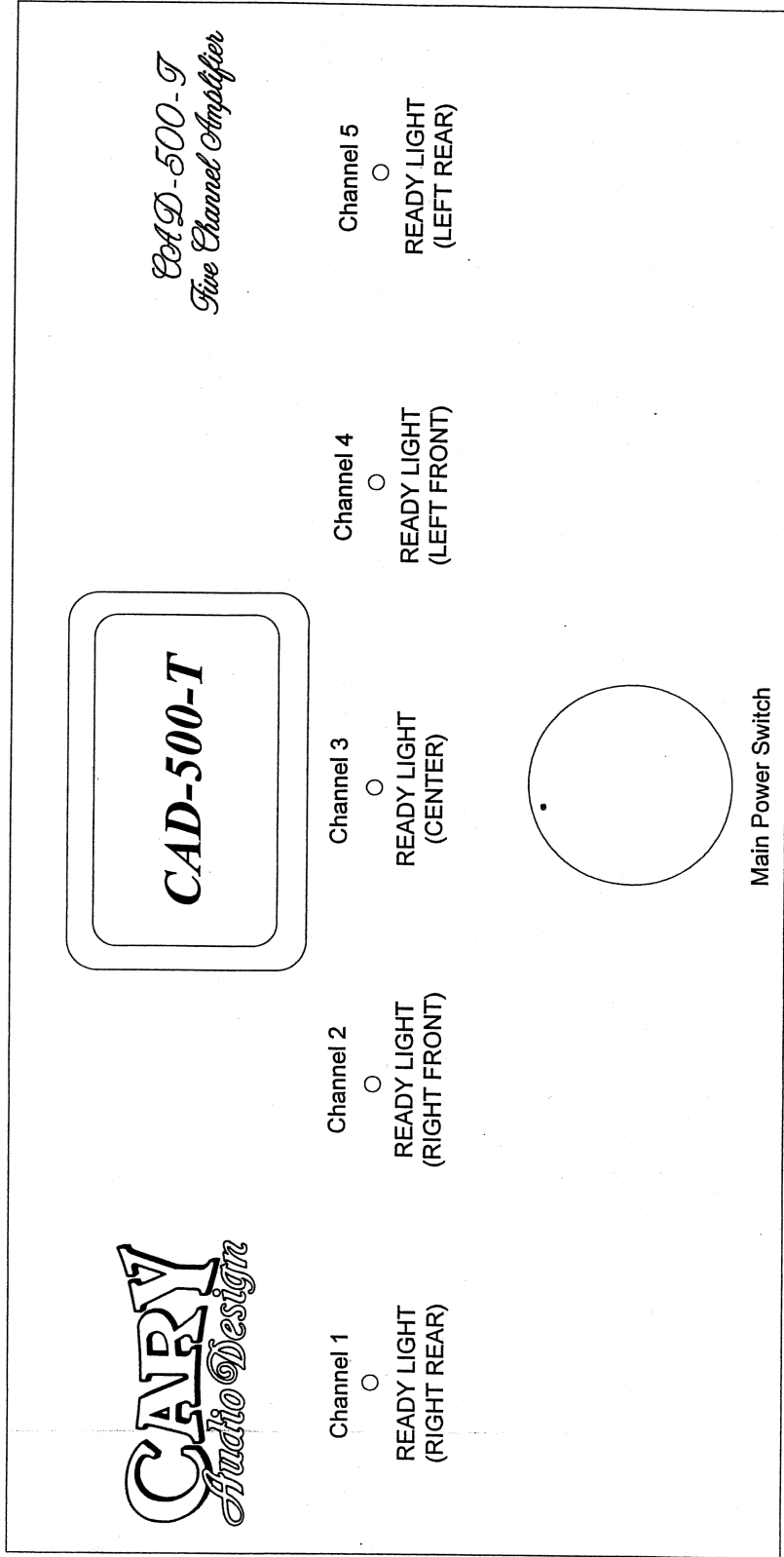
REAR PANEL FUNCTIONS

1. Balanced input connector (XLR type)
2. Balanced / single-ended toggle switch
3. Single-ended input connector (RCA type)
4. Left rear channel input
5. Left front channel input
6. Center channel input
7. Right front channel input
8. Right rear channel input
9. Right rear speaker terminals
10. Right front speaker terminals
11. Center speaker terminals
12. Left front speaker terminals
13. Left rear speaker terminals
14. Fuses for each channel (3A @ 110/117 VAC, 1.5A @ 220/234 VAC)
15. Power switches for each channel
16. AC inlet
17. Future remote feature

FRONT PANEL FEATURES

Before turning on Main Power:

- Make sure all rear panel connections and settings are made.



UNITED STATES LIMITED WARRANTY

Cary Audio Design, Inc. warrants to the original United States purchaser for use in the United States, that this product shall be free from defects in or workmanship for three (3) years from the date of the original purchase.

During the 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 defects in material or workmanship.

To obtain such warranty service, the original purchaser must:

- (1) Complete and send in the warranty Registration Card.
- (2) Notify Cary Audio Design as soon as possible after the discovery of a possible defect and submit the following:
 - (a) The model number and serial number;
 - (b) The identity of the seller and the approximate date of purchase;
 - (c) A detailed description of the problem, including details on the electrical connection in the associated equipment and the list of such equipment.
- (3) Deliver the product to Cary Audio Designs or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and the shipping charges prepaid.

Correct maintenance, repair and use are important to obtain performance from this product. Therefore, 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.

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.

FOREIGN PURCHASERS

Cary Audio Design warrants its merchandise to purchasers in the United States for use in the United States. It provides no other warranties. If you are a foreign purchaser, consult with your dealer to determine whether your dealer provides any warranty.

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.

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