

CAD-572-SE

SINGLE-ENDED MONO-BLOCS

OPERATING MANUAL



CARY • AUDIO • DESIGN

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NOTE:

Before installing your new CAD-572-SE's, please read this manual carefully. This manual will inform you of the CAD-572-SE's specifications, proper installation procedures. Also included in this manual are guidelines on how to properly service and care for you new CAD-572-SE's.

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 material (except tubes and AF output transistors) or workmanship for:

Models CAD-211M, SLM-200 and the CAD-805, Five (5) years from date of original purchase.
Amplifiers and Preamplifiers, Three (3) years from the date of the original purchase.
Digital Products, One (1) year from original date of purchase.

During the warranty period, Cary Audio Design, Inc. or an authorized Cary Audio Design, Inc. service facility will provide free of charge both parts (except tubes and AF output transistors) 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, Inc. as soon as possible after the discovery of a possible defect:
 - (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 Design, Inc. 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 optimum performance from this product. Therefore, carefully read the Operating Manual. This warranty does not apply to any defect that Cary Audio Design, Inc. in its sole discretion determines is due to:

- (1) Improper maintenance or repair, including the installation of parts or accessories that does 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, Inc. 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, Inc. Under no circumstances is Cary Audio Design, Inc. 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, Inc. 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 Inc.'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 have other rights which vary from state to state.

Notes:

CAD-572-SE *SINGLE-ENDED MONO-BLOCS*

The new CAD-572-SE single-ended triode mono-blocs are equipped with the new Svetlana SV-572-3 tube. This is a brand new design and by all indications a tube that will last up to five years or more in the Cary Audio mono-bloc amplifiers. The basic design of the new CAD-572-SE is a time proven circuit used in many of the Cary Audio triode single-ended designs. These circuit topologies contribute to incredible reliability and enjoyment.

CAD-572-SE

For the technically minded, a review of the circuit is in order. The new CAD-572-SE mono-blocs operate in pure class A single-ended. The output stage features the new Svetlana SV-572-3, low-mu audio power triode. The new 572-3 features a thoriated-tungsten filament, hard glass envelope and a massive graphite anode. The 572-3 low-mu design allows for very low distortion in single-ended designs. The CAD-572-SE amplifiers are auto biasing. There is no need to ever worry about biasing the CAD-572-SE's. The output power is 20 watts class A single-ended triode. The output transformer in the new CAD-572-SE is an air gap design with full bias running on a continual basis. The output transformer in the CAD-572-SE is the most important component in the amplifier and has been specifically designed by Cary Audio Design for use in the 572's. We have taken the approach in the output transformer design to use oxygen free copper wire. The primary and secondary windings on portions of the output transformer are wound in a bi-filer process with the two inductors interleaving sixteen times. The bi-filer wind (two conductors wound at the same time) will yield the closest balance and coupling of any design currently utilized in vacuum tube output transformers. The E/I laminents used in the special output transformers on the CAD-572's are silicone impregnated hipersil steel contributing to the extremely low loss and a seductive midrange. The above process is similar to the single-ended design air-gap transformers found on all the Cary single-ended output transformers. A small amount (-2dB) of negative feedback is utilized to improve speaker damping. The CAD-572 original engineering design was done with zero feedback so you can be

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assured that the feedback circuit is **not** implemented to correct distortion and transient response. A drive signal is applied to the control grid of the 572-3 output tube from the 6SN7 driver tube. The input tube is a 6DN7 dual-triode configured in a anode current source configuration. This input driver tube is operating in a class A gain stage. The 6SN7 dual triode driver tube is also operating in a similar fashion. The cathodes of both the input 6DN7 and driver 6SN7 tubes are AC by-passed and coupled to ground.

The power supply in the CAD-572-SE's actually consists of four different supplies. The power transformer is designed to operate at a 200% continuous commercial service at the full rated 20 watt output level. The high voltage power supply section is a full wave bridge center tap configuration (not some cheap voltage doubler as used in many competitors amps) to a PI network. This high voltage section feeds the final output SV-572-3 tube through the air gapped output transformer. Another supply feeds a PI network medium voltage supply for the input and drive 6DN7 and 6SN7 tubes. There is an additional DC supply to supply DC to all the filaments of all the tubes in the amplifier. The DC filament supply will prevent AC ripple from capacitively being coupled to the electrodes of the input and output tubes.

A great deal of attention during design of the new CAD-572-SE's was concentrated on the "overload recovery" ability of the amplifier. The ability of an amplifier to instantly recover from clipping is much more important than is commonly believed. In the power war of amplifier manufactures the mentality is focused on high and then even higher power output to solve the clipping problem. When in reality the most critical aspect is how fast of a recovery an amplifier can achieve after overload. With the incredible dynamic range of live and in turn recorded music, even 2,000 watts of power is not enough. Most of the music being listened to in an average home listening room is only requiring about 3 watts of power. It is on the transients of loud low frequency program material that tremendous signal voltages will appear at the input of the amplifier. It is in this situation that the overload recovery ability of an amplifier is of critical concern. The CAD-572 extols its merits in the ability to handle transients and instantaneously recover from brief or even extended overloads. The 572-SE's will overload symmetrically at any frequency in the audio bandpass.

authorization number from the Customer Service Department. Cary Audio Design will assume no responsibility if the transportation company refuses to pay a damage claim due to improper packing or lack of insurance should the unit be lost in shipment.

WARNINGS

MAKE NO ATTEMPT TO PUT THE CAD-572-SE 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 CHANGE TUBES OR 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-572-SE WILL RESULT IN TUBES OVERHEATING.

*****OBSERVE DIRECTIONS IN THIS MANUAL*****

NOTES:

The 572-SE will also yield faithful reproduction of extremely low frequencies at full output levels. Power transformer, power supply regulation and output transformer design and careful shaping of the overall frequency response curve all play a very important part in the ability of the CAD-572-SE to recover quickly when over loaded. If one were to monitor the high voltage rail voltage (750 VDC) at the anode to cathode of the SV-572-3 output tube during soft and also loud music passages it would be found there is no more than a volt or so change from soft to loud passages.

Another technical feature of the new CAD-572-SE amplifier is stability. The 572-SE's may be operated with no load (without speaker) without damage to the amplifier, output transformer or tubes.

The bias is completely automatic and self biasing on the CAD-572-SE. The SV-572-3 output tube has a separate cathode bias resistor network. You will never have to check and or set the bias on the new 572's.

The CAD-572-SE mono amplifiers are built on a textured painted steel chassis with champagne gold front panels. The amplifiers are built to perform year after year with trouble free operation. The CAD-5572-SE's are a classic example of the "CARY" sound.

SLP-50

The perfect companion to the CAD-572-SE mono-bloc amplifiers is the all new SLP-50 line stage preamplifier. The SLP-50 is built on a stainless steel chrome chassis with a champagne gold front panel and matching knobs. The circuit and parts selection contribute to an incredible listening experience.

For the technically minded, a review of the circuit is in order. The new SLP-50 preamplifier is a vacuum tube based line stage with 10 dB of gain. The class of operation is class A triode featuring a pair of 12AU7 tubes. The most interesting feature about the circuit is that the SLP-50 is the same gain stage used on the single-ended CAD-572-SE amplifiers. The 12AU7 tubes operate in an anode current source configuration.

The SLP-50 has three line level input jacks on the rear apron. From the jack the signal is routed to a gold plated selector switch on the front panel. The wiring used is all Teflon coated silver twisted pairs. After the switch the signal is routed to a dual 100K potentiometer. This is the volume control. A gold plated stepped attenuator may be ordered as an option or field installed. Once the audio signal level is set by the volume control it is directly coupled to one of the grids in the dual section triode 12AU7 tube. The cathode of the 12AU7 is biased through a 2 K resistor with a non-polarized 100 MFD capacitor bypassing the signal to ground. The anode of this first section is coupled to the other section of the 12AU7 in a anode source plate supply. This configuration will in essence give the gain stage an infinite resistance load to the power supply. The amplified signal is coupled through a 5.68 MFD output coupling capacitor to the output jacks on the rear of the SLP-50 preamplifier.

The power supply is very special in the SLP-50. The power transformer is wax impregnated in a steel enclosure on the top side of the chrome chassis. The power transformer used is rated at 400% continuous commercial duty cycle for this preamp application. Talk about being built bullet proof! The B+ supply is a center tap full wave DC supply feeding a Pi network supply with filter choke soothing. The filaments of the two 12AU7 gain tubes are regulated DC for a quite hum free operation. The filter caps used in the SLP-50 are film and foil. All resistors are 1% metal film and the .68 MFD output capacitor is oil filled.

Utilizing the input stage circuitry from the CAD-572-SE in the new SLP-50 yields an amazing offering in a Cary Audio Design line stage preamplifier.

3.3 Stand-By Operate Switch

In the down position the plate voltage will be in stand/by. Turning the switch to the "up" position will bring up the operating B+ voltage on the plates of the vacuum tubes. The BLUE LED will light when the unit is ready.

3.4 Break In Period

The tubes, capacitors and output transformers take approximately 100 hours of music playing to fully settle in for peak performance. The 572-SE's 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

<p style="text-align: center;">WARNING MAKE SURE AMPLIFIER IS UNPLUGGED FROM AC MAINS</p>

4.1 CAD-572-SE Care and Cleaning

The chassis of the 572-SE may be cleaned with a soft rag and Windex (or a similar window cleaner). The frequency of cleaning will be governed by how many hours the CAD-572-SE is operated and by operating environmental cleanliness.

4.2 Tube Replacement

If it becomes necessary to replace the tubes in the 572-SE amplifier, a matched set of tubes of the same brand should be used. A new tube kit is available from your Cary Audio dealer. You should get year's from the output tube with everyday usage and many, many years of use from the 6DN7 and 6SN7 input tube.

1

4.3 Factory Service

Careful consideration has been given to the design of your CAD-572-SE amplifier to keep maintenance problems to a minimum. However, it is possible that some problems may arise which cannot be cured by tube substitution. At this point we suggest that you contact our Customer Service Department, phone number 1-919-481-4494, to describe your problem in detail. Do not return the amplifier to the factory without a return

2.4 Amplifier Placement

In general, the location of your new CAD-572-SE amplifier is not critical. The best placement in your system is near the speaker system with short lengths of speaker cables. Certain precautions must be taken to ensure optimum performance. Avoid extremely hot locations such as near radiators or other heating units. Keep the top of the 572-SE's clear of books, paper or other equipment to protect against overheating.

2.5 Power Requirements

The CAD-572-SE designed to operate from house current mains. The design voltage is 117VAC at 50/60 Hz. (Foreign units 234 VAC at 50.60Hz)

2.6 Cables

The speaker cables from the output posts of the CAD-572-SE 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 572-SE. 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.

OPERATION

Signal input connection is made via the input jack on the rear of the amplifier located next to the output binding posts. 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.

3.1 Operation

Your new CAD-572-SE's are ready for operation after the speaker, interconnect cables and the three tubes have been installed. Tube positions are listed on the sheet in the front of this manual.

3.2 AC On Power Switch

Simply flip the AC rocker switch up to the ON position (the blue LED will light). Observe that all tubes are lit (filaments).

SPECIFICATIONS

Operating the CAD-572-SE mono-bloc amplifier is a simple procedure since each unit is designed for long term stability in virtually any home 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 putting your new CAD-572-SE Cary Audio Design amplifiers in operation.

The following definitions are applicable to this manual. These definitions must be followed explicitly.

WARNING
HAZARD PRESENTS PERSONAL INJURY OR DEATH

Caution
EQUIPMENT DAMAGE MAY OCCUR BUT NOT PERSONAL INJURY

Note
Proper performance of the amplifier cannot be ensured if disregarded

1.2 Specifications

The following section describes the CAD-572-SE basic specs. Specifications are subject to change without notice or obligation.

DIMENSIONS: 7"H x 5.5"W x 19"D

WEIGHT: 28 Lb..

CIRCUIT TYPE: Single-End Triode Amplification in Class A

POWER OUTPUT: 20 Watts Triode
15 Watts under 1% distortion

INPUT SENSITIVITY: .750 volt for full output

INPUT IMPEDANCE: 150,000 ohms

NOISE AND HUM: 70dB below rated output

FREQUENCY RESPONSE (at one watt output): 15Hz to 23,000Hz + 0 - 0.75dB

TUBES: 1-6DN7 input tube, 1- 6SN7 driver tube, 1- SV-572-3 output tube

TRANSFORMERS: 1-EI laminated core power transformer
1-Special air gap output transformer
2-Air gap filter chokes
200% duty cycle on all transformers

RESISTORS: 1% metal film

CAPACITORS: Polystyrene, polypropylene and oil filled

POWER SUPPLY CAPACITORS: 2-1200 MFD @ 450VDC
3- 20 MFD @ 1200 VDC film & foil

AC CORD: 3 conductor 14 gauge

AC POWER REQUIREMENTS: 117 volts AC 50/60 Hz
222 watts operate
220 volts AC 50/60 Hz
222 watts operate

WARM-UP TIME: 3 minutes

BREAK-IN PERIOD: 100 hours of music playing time

FINISH: Stainless steel chrome plated, Aluminum Face Plate

1.3 Front Panel Features

AC-ON ROCKER SWITCH: Turns AC power on in the "up" position.

STAND-BY/OPERATE: Turns on B+ plate voltage in the "up" position

1.4 Rear Apron Features

INPUT: Signal input connection via shielded interconnect cable

OUTPUT: The 5-way binding posts provide the output to the speaker system.
Red=+, Black=-

AC: 3 conductor power cord

AC power fuse: Use only 2 Amp slo/bo

CAUTION
USE OF ANY OTHER PROTECTION FUSE CAN DAMAGE UNIT

AC FUSE: AC power fuse. Never replace with any other fuse than 2 AMP SLOW BLOW! 250 VOLT!

CAUTION
NEVER REMOVE/INSERT AC LINE CORD WHEN THE UNIT IS ON

INSTALLATION

This section describes the unpacking and installation procedures for the CAD-572-SE amplifier.

WARNING
MAKE NO ATTEMPT TO PUT THE CAD-572-SE AMPLIFIER IN SERVICE WITHOUT THE BOTTOM PLATE ATTACHED - CONTACT WITH VOLTAGE IN THE CAD572-SE CAN BE FATAL!!!

2.2 Unpacking

All shipping containers have been specifically 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-572-SE amplifier 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.

2.3 Warranty Card

Fill out the enclosed warranty registration card and return to Cary Audio Design within 10 days of original purchase. Keep your original sales slip with the packing cartons should you ever need it for reference. **Failure to register warranty will limit the warranty to one year.**