



OWNER'S MANUAL

SLP-98

Vacuum Tube Preamplifier

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.

TABLE OF CONTENTS

Important Safety Instructions	2
Specifications	5
Features	7
Installation	
Unpacking	8
Warranty Card	8
Placement	8
Power Requirements.....	8
Cables	8
Operation	
Power Switch	9
Selector Switch	9
Operate Mode	9
Monitor Tape	9
Listening Level	9
Input Level	9
Service and Care	
Tube Replacement	10
Factory Service	10
Non-Warranty Repairs	10
Diagrams	
Tube Placement Cart	11
Amplifier-Speaker Connection.....	11
Remote Control.....	12
Limited Warranty	13

IMPORTANT SAFETY INSTRUCTIONS

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION: To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Please refer to qualified personnel for service.

ALERT: The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the component.

1. **READ ALL INSTRUCTIONS:** All the safety and operating instructions of your Cary Audio equipment should be read before power is applied to the equipment.
2. **RETAIN OWNER'S MANUAL:** These safety and operating instructions should be retained for future reference.
3. **HEED WARNING:** All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS:** All operating and use instructions should be followed.
5. **CLEANING:** Unplug the unit from the wall outlet before cleaning. The unit should be cleaned only as recommended by the manufacturer.
6. **ATTACHMENTS:** Do not use attachments not recommended by the unit manufacturer as they may cause hazards.
7. **WATER AND MOISTURE:** Do not use the unit near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool.
8. **ACCESSORIES:** Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child, an adult, or damage to the unit. Mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
9. **VENTILATION:** Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. The top or bottom panel openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. The unit should not be installed in a built-in location such as a bookcase or rack unless proper ventilation is provided. There should be free space of at least 6 inches (16cm) above the unit and an opening behind the unit.
10. **GROUNDING OR POLARIZATION:** The unit may be equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you cannot insert the plug fully into the outlet, try reversing the plug. If the plug should fail to fit, contact a licensed electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
11. **POWER SOURCES:** The unit should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your unit dealer or local power company.
12. **POWER CORD PROTECTION:** Power supply cords should be routed so that they are unlikely to be walked on or pinched by items placed on or against them. Pay close attention to cords where they enter a plug, or a convenience receptacle, and the point where they exit from the unit.
13. **OUTDOOR ANTENNA GROUNDING:** If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, NSI/NFPA 70, 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.

IMPORTANT SAFETY INSTRUCTIONS

14. **LIGHTNING:** For added protection for the unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
15. **POWER LINES:** An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, take extreme care to keep from touching such power lines or circuits as contact with them might be fatal.
16. **OVERLOADING:** Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
17. **OBJECT AND LIQUID ENTRY:** Never push objects of any kind into the unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.
18. **SERVICING:** Do not attempt to service the unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. **REPLACEMENT PARTS:** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
20. **SAFETY CHECK:** Upon completion of any service or repairs to the unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.
21. **WALL OR CEILING MOUNTING:** The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
22. **HEAT:** The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.
23. **IMPORTANT SAFETY NOTE:** Before connecting a new component such as the DVD 7 to your audio or home theater system it is always good practice to make certain that all components are turned off, and preferably unplugged from their AC power source. Many modern electronics products feature automatic turn-on circuits that may be activated during an installation, causing the potential for damage to electronic components and/or speakers. Such damage is not covered by product warranties and Cary Audio specifically disclaims responsibility for any such damage.

Power Cord: The removable power cord that is shipped with the player is specifically designed to be used with this product. Other AC cords may be used, so 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 power does not come on, contact your authorized service representative.

Wiring: Cables that run inside of walls should have the appropriate markings to indicate compliance with, 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, or a licensed electrician or low-voltage contractor.

Do Not Open the Cabinet: There are no user serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your warranty. 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 for further instructions.

24. **RECORDING COPYRIGHT:** Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.
25. **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.

IMPORTANT SAFETY INSTRUCTIONS

26. FCC INFORMATION FOR USER:

CAUTION: ANY changes or modifications not expressly approved by the party responsible for compliance 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.

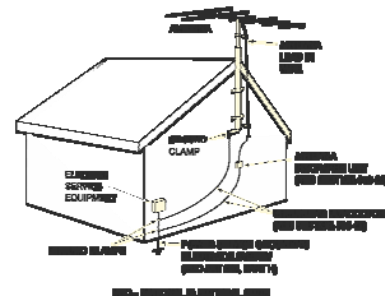
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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.

27. 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 so as to provide protection against built up static charges and voltage surges, Section 810 of the national Electrical Code, ANSI/NFP A70 (in Canada, part 1 of the Canadian Electrical Code) provides information with respect to 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.



Keep Antenna Clear of High Voltage Power Lines or Circuits

An 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.

SPECIFICATIONS

This section describes the basic specifications of the SLP 98 preamplifier 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.**

CIRCUIT	Class A Triode
INPUT IMPEDANCE	47,000 ohms phono section with user option on lower resistance
OUTPUT IMPEDANCE	800 ohms
GAIN	1.2 millivolt input = 1 volt output phono stage = 43 dB 110 millivolt input = 1 volt output line stage = 20 dB
RIAA CURVE	1,000Hz = 0dB 20Hz = +20dB 20,000Hz = - 20.5 dB
SIGNAL/NOISE RATIO	-88 dB
RESISTORS	1% metal film
CAPACITORS	Polystyrene and polypropylene
POWER TRANSFORMER	200% duty cycle on all transformers enclosed in separate power pack
TUBES	2 - 6SN7 buffer cathode followers 2 - 6SN7 line stage 2 - 12AX7 (ECC83) phono section 2 - 12AU7 (ECC82) phono section output buffer
POWER SUPPLY	Full wave rectification, center-tapped, pi-network featuring a filter choke
AC POWER REQUIREMENTS	100/130 volts AC @ 50/60Hz 200/245 volts AC @ 50/60Hz
WIRE	EE Teflon Silver

SPECIFICATIONS

INPUT AND OUTPUT JACKS	Gold plated with Teflon® insert
DUTY CYCLE	Continuous duty all modes 24 hours per day
WARM-UP TIME	5 minutes
BREAK IN TIME	100 hours of playing time
DIMENSIONS	5" H x 12.5" W x 12" D
WEIGHT	22 lbs.

FEATURES

Front Panel

POWER OFF SWITCH	Rotary 3 position: off, stand-by, operate
SELECTOR	5 Position rotary switch controlling input selection
LEFT BLUE LED	Indicates AC power "ON"
OPERATE MUTE	Mutes output of preamplifier
TAPE MONITOR	By-passes all inputs to activate incoming tape recorder signals
RIGHT BLUE LED	Indicates SLP 98 in tape monitor function
LISTENING LEVEL	Master dual volume control equally controlling input signal to line section preamplifier
INPUT LEVEL LEFT	Individual control of left channel level feeding to master listening level volume control
INPUT LEVEL RIGHT	Individual control of right channel level feeding to master listening level volume control

Rear Apron

PHONO	These jacks are to be used with moving magnet or high output moving coil cartridges with a recommended minimum output of 1.4 millivolts
AUX.-CD-TUNER-TAPE	These are line level inputs
GND	Ground lug for turntable chassis
MONITOR	For use with tape recorders that employ a third head to monitor a tape as it is being recorded (may be used as a flat frequency response line input)
TAPE OUT	Constant output of selected input signal for recording independent of volume control setting on SLP 98
DUAL OUTPUTS	1-Connect directly to input of power amps
AC	Multi-conductor power cord to be plugged into SLP 98 external power pack

CAUTION

- **NEVER REMOVE / INSERT AC LINE CORD WHEN THE UNIT IS ON.**

INSTALLATION

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

WARNING

- **MAKE NO ATTEMPT TO PUT THE AMPLIFIER IN SERVICE WITHOUT THE BOTTOM PLATE ATTACHED - CONTACT WITH VOLTAGE IN THE SLP 98 CAN BE FATAL.**

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 amplifier 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 SLP 98 is designed for use inside 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.

Power Requirements

The SLP 98 is designed to operate from house current mains. The design voltage is 117 VAC at 50/60Hz (Foreign units 234 VAC at 50/60Hz).

Cables

The interconnect cables from the output jacks of the SLP 98 to the input jacks on the basic amplifiers can be any convenient length your set-up requires. The choice of a high quality interconnect cable is important. Most audio dealers will have proper speaker cable in stock for this purpose.

OPERATION

Your new SLP 98 is ready for operation after all the tubes and interconnect cables have been installed. The SLP 98 is provided with functional, useful front panel controls with a logical layout. The listening level is conveniently located in the center. Connect the SLP 98 to the power pack with the custom power transfer cable. Plug AC mains into the power pack and flip the power switch up. The output of the SLP 98 is inverting. Connect your speaker wire out of phase ((+) to (-) and (-) to (+)) on both channels.

Power Switch

The power switch located at the far left on the SLP 98 front panel functions in the following manner:

OFF	Removes all AC voltages from the SLP 98 preamp deck.
STAND-BY	Provides DC voltage through individual regulators to flow to the filaments of the preamplifier stage. (The SLP 98 may be left in the stand-by position at all times to keep the SLP 98 in a warmed-up, ready- to operate mode without B+ potential. Operating in this fashion gives peak performance after only a few minutes of operating time).
OPERATE	Brings up full potential DC voltage within one minute.

Selector Switch

The 5-position rotary switch connects a choice of input program source, both channels simultaneously with proper amplification (or in the case of phono) RIAA equalization for phono input. All program sources are selected by this switch.

Operate Mode

To listen to music the operate switch must be in the UP position; when the switch is DOWN the output is muted.

Monitor Tape

In the "Up" position, the rear monitor jack serves as the input source. This function is very useful with tape decks utilizing a third head to monitor the recording directly from the tape. In the "Up" position, the blue LED indicator light will appear.

Listening Level

The gain of both left and right channels is controlled simultaneously by this control. The control potentiometer is of such high quality that the tracking error is less than 0.5dB from 0 to -60dB. The program source remains in balance over the entire range of this control. The taper rate of the volume control has been chosen to provide a slow increase in gain over the first half of rotation and a more rapid gain increase above 12:00.

Input Level - Right and Left

The two potentiometers control independently the input level to each channel of the SLP 98. The input level controls on a SLP 98 take the place of an individual dual balance control used on many preamplifiers. Also, these controls may be used to reduce the overall gain of each channel on the SLP 98.

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 preamplifier. 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.

Tube Replacement

If it becomes necessary to replace the tubes in the preamp the same brand should be used. A new tube kit is available from Cary Audio Design. Although tube life varies depending on the nature and degree of use, under normal operating condition for home use, the tubes in the SLP 98 should last several years and may last much longer.

Factory Service

Careful consideration has been given to the design of this product to keep maintenance problems to a minimum. 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 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 for the first hour and \$95 per hour thereafter. Parts used for repairs as well as return shipping are additional. This may change 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

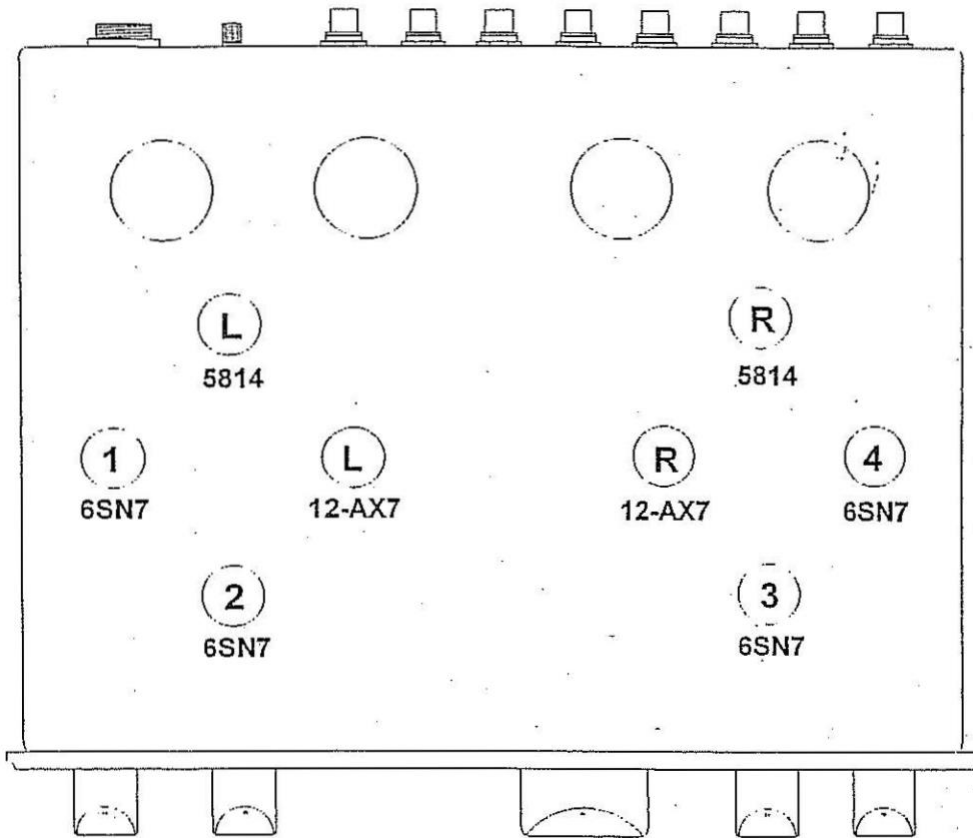
- **MAKE NO ATTEMPT TO PUT THE SLP 98 IN SERVICE OUTSIDE OF THE CABINET – CONTACT WITH HIGH VOLTAGES FOUND IN THE UNIT CAN BE FATAL.**
- **COMPLETELY REMOVE AC POWER PLUG FROM THE WALL AND ALLOW 30 MINUTES FOR THE HIGH VOLTAGE CAPACITORS TO DISCHARGE THROUGH BLEEDER RESISTORS BEFORE ATTEMPTING TO CHANGE TUBES OR CLEAN THE INSIDE TO THE PREAMPLIFIER.**

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 COMPONENT WILL RESULT IN TUBES OVERHEATING.**

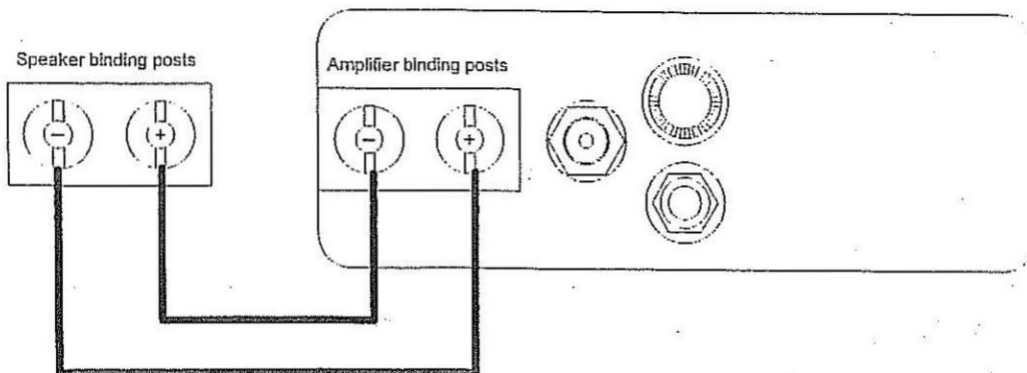
DIAGRAMS

Tube Placement Chart



Amplifier – Speaker Connection

- The SLP 98 (line and phono) preamplifier is phase inverting.
- This will require you to connect the positive speaker terminal to the negative binding post on your amplifier. The negative speaker terminal will connect to the positive binding post on your amplifier.



DIAGRAMS

Remote Control

See Remote Control insert included in original box.

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

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