

SLA 70

Instruction Manual



CARY
Audio Design™

PROPRIETARY RIGHTS: Cary Audio Design, INC. has proprietary rights 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.

October 17, 1990 ©

The Cary Audio Design SLA-70 is a compact 35 watt per channel vacuum tube stereo audio power amplifier. The SLA-70 is constructed to the highest commercial standards utilizing a grain oriented stainless steel, nickel chrome plated chassis. All resistors are 1% metal-film and the audio coupling capacitors are made of polypropylene. Each SLA-70 amplifier is hand wired point to point. The high voltage DC power supply contains two 1100 MFD electrolytic capacitors for a total of 2200 MFD. The SLA uses a pair of EL-34 (6550's for an upgrade to 40+ watts) output tubes per channel driven by the famous 6SL7GT dual triode input tube. The SLA utilizes two 5AR4/GZ34 tubes in the full wave rectifier power supply. This brings the total to: 4-EL-34's (6550's), 2-6SL7GT's and 2-5AR4/GZ34's vacuum tubes to power your new SLA-70. Every SLA-70 amplifier is tested at its specified power input and output levels and should require a minimum of maintenance through years of operations. All SLA-70's are burned in at the factory for a 48 hour period. This burn-in period will assure you of a trouble free amplifier, right out of the box.

The most exciting feature of the SLA-70, aside from how gorgeous it looks, is the delightful, sensual beauty of the music it recreates. The first thing that strikes you about your new SLA-70 is its incredible transparency and resolution of detail in the music. The SLA's sensual nature is best revealed in the sense of life it displays in female vocalists. This amp presents music with such presence and directness, you'll be drawn into the music hour after musically satisfying hour. This is the result of circuit techniques, which eliminate any discernable crossover notch at low levels, and also contributes to the freedom from listening fatigue. The SLA-70 will draw you in even further as you realize how lucid and utterly uncolored neutrality reveals delicate nuances in the sound stage.

Specifications

Operating the SLA-70 stereo 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 Cary Audio Design SLA-70 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 SLA-70 basic specs. Specifications are subject to change without notice or obligation.

DIMENSIONS: 6"H x 13"W x 12"D

WEIGHT: 28lbs.

CIRCUIT TYPE: Push-Pull Amplification in Class A

POWER OUTPUT: 1KHz sign wave
12 volts RMS across 4 ohms = 36 watts
16.5 volts RMS across 8 ohms = 34 watts

Specifications

INPUT SENSITIVITY: 1.5 volts for full output

INPUT IMPEDENCE: 100,000 ohms

NOISE AND HUM: 80dB below rated output

FREQUENCY RESPONSE (at one watt output):
20Hz to 30,000Hz + 0 - 0.75dB

DAMPING FACTOR: Greater than 35

TUBES: 2-6SL7 pre-driver phase inverter
4-EL-34 push-pull output circuit
2-5AR4 high voltage rectifiers

TRANSFORMERS: 1-EI laminated core power transformer
2-EI laminated core output transformers
100% duty cycle on all transformers

RESISTORS: 1% metal film

CAPACITATORS: Polystyrene and polypropylene

POWER SUPPLY CAPACITATORS: Two 1100 MFD @ 450VDC
Total 2200 MFD-223 joules

AC CORD: 3 conductor shielded

AC POWER REQUIREMENTS: 117 volts AC 50/60 Hz
220 watts operate
90 watts in stand by (option)
234 volts AC 50/60 Hz
220 watts operate
90 watts in Stand by (option)

Specifications

WARM-UP TIME: 3 minutes

BREAK-IN PERIOD: 100 hours of music playing time

FINISH: Nickel chrome plated stainless steel

1.3 Front Panel Features

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

LED: indicates high voltage DC on (with stand-by switch option the LED will not light with unit in stand-by)

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 = -

GND: For "audio-purists" this should be connected to an earth ground rod via the shortest lead possible — this is not essential for proper operation. The earth ground will help insure immunity to RF interference and AC ground loops.

CAUTION

EQUIPMENT DAMAGE MAY OCCUR WITH IMPROPER FUSES

TUBE FUSE: This is an overcurrent protection fuse for the output tubes. Never replace with any other valve than 1/2 AMP FAST BLOW! 250 VOLT

AC: 3 conductor shielded power cord to AC power mains

CAUTION

USE OF ANY OTHER PROTECTION FUSE CAN DAMAGE UNIT

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

STAND-BY: This is an option — in the up position the SLA-70 is in the operate mode. In the down position the high voltage B+ power supply is turned off and the front panel LED will not light

CAUTION

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

2.1 Installation

This section describes the unpacking and installation procedures for the SLA-70 amplifier

WARNING

MAKE NO ATTEMPT TO PUT THE SLA-70 AMPLIFIER IN SERVICE WITHOUT THE BOTTOM PLATE ATTACHED — CONTACT WITH VOLTAGE IN THE SLA-70 CAN BE FATAL!!!

2.2 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 SLA-70 stereo 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, Inc. 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.**

2.4 Amplifier Placement

In general, the location of your new SLA-70 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 SLA-70 clear of books, paper or other equipment to protect against overheating.

2.5 Power Requirements

The SLA-70 is designed to operate from house current mains. The design voltage is 117 VAC at 50/60Hz. (Foreign units 234 VAC at 50/60Hz)

2.6 Cables

The speaker cables from the output posts of the SLA-70 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 SLA-70. 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.

Signal input connection is made via the input jack on the rear of the SLA-70 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 SLA-70 is ready for operation after the speaker and interconnect cables have been installed.

3.2 AC On Power Switch

Simply push the rocker switch up to the ON position. The RED LED on the front panel will light after about 30 seconds as the B+ high voltage comes up. Observe that all 8 tubes are lit (filaments).

3.3 Stand-By Switch (Optional)

This is a most convenient optional feature on the SLA-70 amplifier. This switch is located on the rear apron of the amplifier. In the "UP" position, the amplifier is ready to operate. In the "DOWN" position (provided the front panel AC switch is in the on position), only the tube filaments are operating. You may wish to leave your SLA-70 amp turned on in the stand-by mode 24 hours a day. When you wish to listen to music simply flip the stand-by switch in the up position. Under these conditions the SLA-70 is always warmed up and ready for peak performance.

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 SLA-70 will 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.

WARNING
MAKE SURE AMPLIFIER IS UNPLUGGED FROM AC MAINS.

4.1 SLA-70 Care and Cleaning

The chassis of the SLA-70 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 SLA-70 is operated and by operating environment cleanliness.

4.2 Tube Replacement

If it becomes necessary to replace the tubes in the SLA-70 amplifier, a matched quad set of output tubes of the same brand should be used. A new tube kit is available from Cary Audio Design, Inc. You should get a year or more from the output tubes with everyday usage and many, many years of use from the 6SL7 input tubes and 5AR4/GZ34 rectifier tubes.

4.3 SLA-70 "TWEAKS"

If you are technically inclined with an electronic background and would like to elevate your new SLA-70 to an even greater performance level without voiding the warranty, write to the Cary Audio service department. Mention the serial number of your unit and ask for the SLA series "TWEAK Bulletin."

4.4 Factory Service

Careful consideration has been given to the design of your SLA-70 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 SLA-70 to the factory without a return authorization number from the Customer Service Department. Cary Audio Design, Inc. will assume 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.

WARNINGS

**MAKE NO ATTEMPT TO PUT THE SLA-70 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 SLA-70 WILL RESULT IN TUBES OVERHEATING.

!!OBSERVE DIRECTIONS IN THIS MANUAL!!

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 three (3) years from the date of the original 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 of:
 - (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 performance from the product. Therefore, carefully read the Instruction Manual. This warranty does not apply to any defect that Cary Audio Design, Inc. in its sole discretion determines is due:

- (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 the original purchase.

Foreign Purchasers

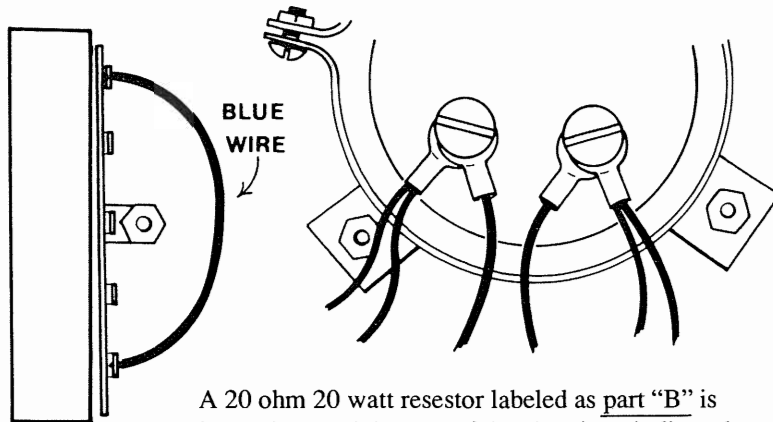
Cary Audio Design, Inc. warrants its merchandise to purchasers in the United States for use in the United States. It provides no other warranties. If you are a foreign purchaser, consult with your dealer to determine whether your dealer provides any warranty.

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 also have other rights which vary from state to state.

Service Notes

REAR



PART B

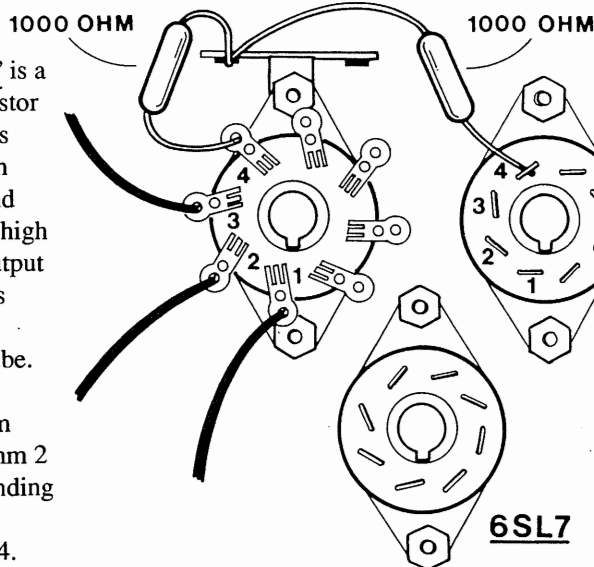
20 OHM
20 Watt

A 20 ohm 20 watt resistor labeled as part "B" is located toward the rear of the chassis as indicated on the pictorial. This resistor is part of the output tube bias circuit. On stock SLA-70 amplifiers there is a blue wire jumpered across this resistor. If the SLA-70 is to be equipped with 6550 or KT88 tubes in the output cut this blue wire.

Blue wire jumper for this following tubes: EL34, 6CA7, 6L6GC, 5881, KT-66.

Remove blue jumper wire for the following tubes: 6550, KT-88.

PART A



A balancing resistor labeled as part "A" is a 1000 ohm 2 watt 1% resistor. This resistor has two important functions. First this is part of an equalizing circuit on the screen grids of each of the output tubes. Second and most important is the function as a high voltage protection fuse. If one of the output tubes forms an internal screen short this fuse resistor will crack and eliminate voltage to the screen of the defective tube. If such an occurrence should take place simply unsolder the defective 1000 ohm resistor and replace with a new 1000 ohm 2 watt 1% resistor. Next replace the offending output tube that plugged into the socket where part "A" was connected to pin #4.

FRONT

SLA 70

