



SLM-100

OPERATING MANUAL

NOTE:

Before installing your new SLM-100's, please read this manual carefully. This manual will inform you of the SLM-100's specifications, proper installation procedures and operation procedures. Also included in this manual are guidelines on how to properly service and care for your new SLM-100's.

<p>SLM-100 100 WATT MONO-BLOCKS</p>

INTRODUCTION

CONGRATULATIONS! You have purchased one of the most exotic audio amplifiers available. The KT-88 beam tetrode tubes in the SLM-100's are REAL beam power audio tubes. These output tubes offer far greater linearity and lower distortion than a pentode audio output tube.

The SLM-100's are constructed to the highest commercial standards utilizing a grain oriented stainless steel, nickel chrome plated chassis (chrome is optional). All resistors are 1% metal film and the audio coupling capacitors are made of polypropylene. Each SLM-100 is hand wired point to point. The high voltage DC power supply contains four computer grade electrolytic capacitors for a total of 2200 MFD. The SLM-100 utilizes a pair of 6SN7 tubes as the predriver and phase inverter, and of course, the famous KT-88A tetrode output tubes in a push-pull output configuration. The output transformer is an ultralinear design specifically designed by Cary Audio for use in the SLM-100's. This output transformer is the most important component in the entire amplifier. All SLM-100 amplifiers 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 SLM-100's, aside from how gorgeous they look, is the delightful, sensual beauty of the music they recreate. The first thing that will strike you about your new SLM-100 mono blocks is the incredible transparency and resolution of detail in the music. The SLM-100's sensual nature is best revealed in the sense of life they display in female vocalists.

These mono blocks present 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 discernible crossover notch at low levels, and also contributes to the freedom from listening fatigue. The SLM-100's 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 SLM-100 amplifiers 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 SLM-100's 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 SLM-100's basic specs. Specifications are subject to change without notice or obligation.

DIMENSIONS: 6"H x 10"W x 20"D

WEIGHT: 40 Lbs.

CIRCUIT TYPE: Push-Pull in Class AB

POWER OUTPUT: 1KHz sign wave
20 volts RMS across 4 ohms=100 watts
30 volts RMS across 8 ohms=113 watts

INPUT SENSITIVITY: .750 volts for full output

OUTPUT IMPEDANCE: 8 ohms standard (can be changed internally to 4 ohms)

INPUT IMPEDANCE: 150,00 ohms

NOISE AND HUM: 80dB below rated output

FREQUENCY RESPONSE: (at one watt output): 9Hz to 30,000Hz + 0 - 0.75dB
(at full power output): 15Hz to 23,000Hz + .5 - 0.5dB

TUBES: 1-6SN7 predriver, 1-6SN7 phase inverter,
4-KT-88 beam power output tubes

TRANSFORMERS: 1-EI laminated core power transformer
1-Special ultralinear output transformer
150% duty cycle on all transformers

RESISTORS: 1% metal film

CAPACITORS: polypropylene (oil filled optional)

POWER SUPPLY CAPACITORS: 4-1200 MFD @ 450VDC, 223 Joules

AC CORD: 3 conductor shielded

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

WARM-UP TIME: 3 minutes

BREAK-IN PERIOD: 100 hours of music playing time

FINISH: Black baked epoxy (Optional: Nickel chrome plated
stainless steel)

1.3 Front Panel Features

- AC-ON SWITCH: Turns AC power on in the "up" position. The Green LED indicates filament voltage is on for warm-up.
- STAND-BY SWITCH: Turns high voltage on in the "up" position. The Red LED indicates B+ high voltage is on.

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=-

CAUTION
EQUIPMENT DAMAGE MAY OCCUR WITH IMPROPER FUSES

- 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 value than 3 AMP SLOW BLOW!
250 VOLT!

- TUBE FUSE: Never replace with any other value than 1/2 AMP FAST BLOW!
250 VOLT!

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

TO INSTALL THE TUBES, REFER TO PAGE 9 OF THIS MANUAL AND READ INSTRUCTIONS CAREFULLY!

INSTALLATION

This section describes the unpacking and installation procedures for the SLM-100 mono-blocks.

WARNING

MAKE NO ATTEMPT TO PUT THE SLM-100 AMPLIFIER IN SERVICE WITHOUT THE BOTTOM PLATE ATTACHED - CONTACT WITH VOLTAGE IN THE SLM-100 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 SLM-100 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 it 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 SLM-100 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 SLM-100 clear of books, paper or other equipment to protect against overheating.

2.5 Power Requirements

The SLM-100 is designed to operate from house current mains. The design voltage is 117VAC at 50/60Hz. (Foreign units 220 VAC at 50/60Hz)

2.6 Cables

The speaker cables from the output posts of the SLM-100 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 SLM-100. 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 connections are made via the input jack on the rear of the SLM-100 located on the opposite side 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 SLM-100 is ready for operation after the speaker, interconnect cables and all the tubes have been installed. **See page 9 for tube positions.**

3.2 AC On Power Switch

Simply push the AC rocker switch up to the ON position. The Green LED on the front panel will light. Observe that all tubes are lit (filaments). Allow the filaments to warm-up for 2 to 3 minutes then push the standby/operate switch up to the operate position. Warming up the filaments before switching to operate can extend the life of your tubes.

3.3 Stand-By Switch

This is the most convenient feature on the SLM-100 amplifier. This switch is located on the front 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 SLM-100 amps 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 SLM-100 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 SLM-100 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.

3.5 Bias Adjustment

Refer to page 9 for bias adjustment instructions. The bias is factory pre-set, but it is recommended to check it due to differences in A.C. line voltages from one place to another. Also check and re-adjust bias whenever replacing output tubes. The bias value, 175mA, is for all four tubes and is the proper setting for other tubes such as EL34's, KT99's, and 6550's. The bias may be checked once every two to three months. There will be small fluctuations in bias current due to fluctuations in the A.C. line voltage. Larger fluctuations (approximately 40 MA) may indicate you have a defective output tube.

NOTE: When using a digital or analog VOM (Volt-Ohm Meter) make sure it is set for D.C. miliamps not D.C. voltage. Improper use of the VOM can give you false readings and possibly damage the output tubes.

WARNING

**MAKE SURE AMPLIFIER IS UNPLUGGED FROM AC MAINS
FOR ANY SERVICE OR CLEANING!!!**

SERVICE AND CARE

4.1 SLM-100 Care and Cleaning

The chassis of the SLM-100 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 SLM-100 is operated and by operating environmental cleanliness.

4.2 Tube Replacement

If it becomes necessary to replace the tubes in the SLM-100 amplifier, a matched set of tubes of the same brand should be used. A new tube kit is available from Cary Audio Design, Inc. You should get 2 to 3 years from the output tubes with everyday usage and 3 to 4 years of use from the 6SN7 input tubes.

4.3 Factory Service

Careful consideration has been given to the design of your SLM-100 amplifier to keep maintenance problems to a minimum. However, it is possible that some problems may arise which cannot be cured by the 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 SLM-100 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 SLM-100 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.

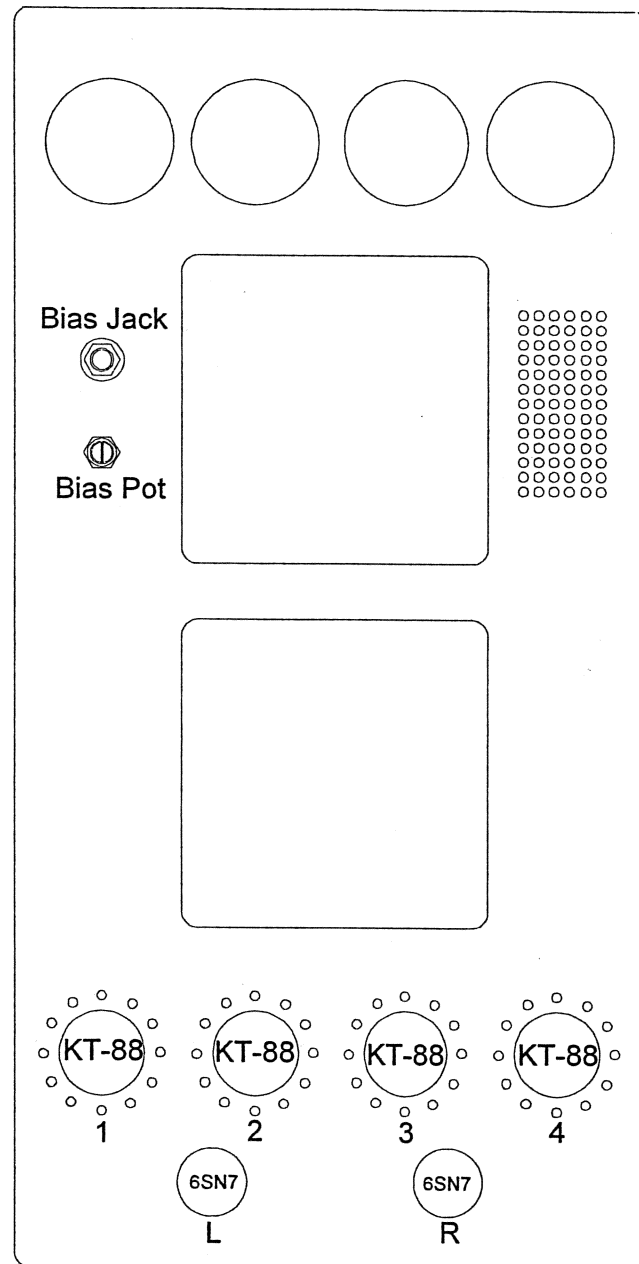
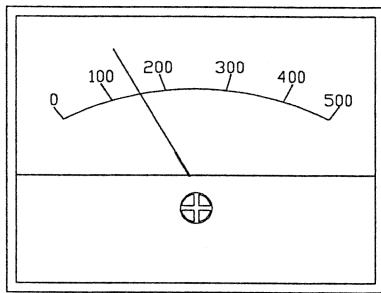
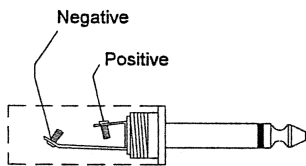
CAUTIONS

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 SLM-100 WILL RESULT IN TUBES OVERHEATING.

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

SLM - 100 Bias Adjustment & Tube Placement



Insert meter plug into bias jack.
Adjust for 175mA reading on VOM or DC current meter.
Readjust to 175mA after SLM - 100 is warmed up for
10 minutes. Remove plug and enjoy the music!

Note: Bias is factory preset; Bias should be reset when installing replacement output tubes.

SLM-100 TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Hum or "Buzzing" through speakers	-Ground loop -Intermittent or poor connection of interconnect ground	-Install 2-pin adaptor on A.C. cord to float the ground. -Replace interconnect
"Popping" or "Spitting" noise through speaker	-Noisy Tube -Intermittent output tube (1/2 amp fuse may blow on a regular basis)	-If noise is in one channel, swap one section of tubes at a time until the noise swaps channels. Replace noisy tube. Start with 6SN7 tubes. -Check bias, if high or fluctuating rapidly one of the output tubes may have an intermittent short. The defective tube may sometimes be found by lightly tapping the output tube with a pencil and observing the current meter. (The speaker should be removed from the amp while trouble shooting this type of problem.)
AC fuse blows	-Line voltage surge	-Replace fuse with 3 amp slow blow only!
Bias is reading zero	-Blown 1/2 amp fuse -Bias Plug wire broken -Meter fuse blown	-Replace fuse -Replace wire -Replace Fuse inside meter
		-

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.



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