

# **SLP-90**

## **OPERATING MANUAL**

**NOTE:**

Before installing your new SLP-90, please read this manual carefully as it will inform you of the SLP-90's specifications, proper installation procedures and operation procedures. Also included in this manual are guidelines on how to properly service and care of your new SLP-90.

## INTRODUCTION

The Cary Audio Design, Inc. SLP-90 is a control center for your high-end stereo and video system. The SLP-90 is used in conjunction with basic power amplifiers. An ideal match in amplifiers for the SLP-90 are any of the Cary Audio Design stereo or mono-block amplifiers. The Cary Cad-300b stereo triode amplifier was the amplifier used mainly during the design of the SLP-90. The SLP-90 is available in two versions. One is full featured with a built-in phono stage. The other version (SLP-90L) is an active line stage only.

One of the most exciting features of the SLP-90 is the method of input selection and tape monitor loop control. On a double sided, plated through PC board are seven gold plated DPDT 12 volt DC relays. These relays serve two functions. The first is a method to select the five inputs being fed to the preamp, and the second is to provide a purely resistive load source to the input when a particular source is not in use. The tape monitor loop also functions with DC relay control. One example of the benefit of this selector method is as follows: the audiophile is listening to a phono source and the FM tuner, video and CD player are feeding signals into the SLP-90. All but the phono source in this example would be active with all other inputs resistively terminated. This, of course, eliminates any bleed through or cross talk. Another fantastic feature of this input selection system is the elimination of the bundle of long input leads from the rear panel to a front panel selector switch. The SLP-90 system keeps all the input wires in a straight, short path.

Without any reservations or debate, point-to-point hand wiring of audio equipment sounds the best. The electronic portion of the SLP-90 preamplifier is just that...point-to-point hand wired with the care of fine jewelry.

Operating the SLP-90 preamplifier is a simple procedure since each unit is designed for long term stability in virtually any home operating situation. The SLP-90 is a sophisticated electronic instrument despite the straight-forward design and minimal user required adjustment, therefore, damage may result if the unit is operated outside the parameters outlined in this owner's manual. Please read this manual carefully before putting your new Cary Audio Design, Inc. SLP-90 preamplifier in operation.

## **SPECIFICATIONS**

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 of personal injury; however, misuse or failure to follow instructions may result in damage of equipment.

### **Note**

No risk of personal injury or equipment damage; however, misuse or failure to follow instructions may prevent proper performance of the equipment.

## **1.2 Specifications**

This section describes the basic specifications of the SLP-90 at the time of printing. Specifications are subject to change without notice or obligation.

<b>DIMENSIONS:</b>	12-1/2"W X 5"H X 12"D
<b>WEIGHT:</b>	22 lbs.
<b>CIRCUIT TYPE:</b>	Class A Triode
<b>INPUT IMPEDANCE:</b>	47,000 ohms phono section with user option on lower resistance 50,000 ohms line stage
<b>OUTPUT IMPEDANCE:</b>	800 ohms
<b>GAIN:</b>	1.2 millivolt input = 1 volt output phono stage 110 millivolt input = 1 volt output line stage
<b>RIAA CURVE:</b>	1,000 Hz = 0 dB 20 Hz = +20 dB 20,000 Hz = -20.5 dB

**SIGNAL/NOISE RATIO:** -88 dB

**RESISTORS:** 1% metal film

**CAPACITORS:** Polystyrene and polypropylene

**POWER TRANSFORMERS:** 200% duty cycle on all transformers enclosed in separate power pack.

**POWER SUPPLY:** Individual high voltage tube rectification for each channel. Separate regulated DC filament voltage for each channel.

**AC POWER REQUIREMENTS:** 100-130 volts AC / 50-60 Hz at 50 watts  
200-245 volts AC / 50-60 Hz at 50 watts

**WIRE:** EE Teflon Silver

**WARM-UP TIME:** 5 minutes

**INPUT AND OUTPUT JACKS:** Gold plated with Teflon insert

**DUTY CYCLE:** Continuous duty all modes 24 hours per day

### **1.3 Front Panel Features**

**POWER SWITCH:** Rotary 3 position: off, stand-by, operate

**SELECTOR:** 5 position rotary switch controlling DC voltage on relay input board

**RED LED:** Indicates AC power "on"

**OPERATE MUTE:** Removes signal input from preamplifier gain stage

**TAPE MONITOR:** By-passes all inputs to activate incoming tape recorder signals

**GREEN LED:** Indicates SLP-90 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

#### **1.4 Rear Apron Features**

**PHONO:** These jacks are to be used with moving magnet or high output moving coil cartridges with a recommended minimum output of 0.7 millivolts

**AUX-CD-TUNER-TAPE:** These are line level inputs requiring flat frequency response

**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-90

**OUTPUT:** Connect directly to input of power amps

**AC:** Multi-conductor power cord to be plugged into SLP-90 external power pack

<p style="text-align: center;"><b>CAUTION</b> <b>NEVER REMOVE/INSERT AC LINE CORD WHEN THE UNIT IS "ON"</b></p>
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#### **INSTALLATION AND UNPACKING**

This section describes the unpacking and installation procedures for the SLP-90 preamplifier.

**WARNING**  
**MAKE NO ATTEMPT TO PUT THE PREAMP IN SERVICE OUTSIDE OF THE**  
**CABINET - CONTACT WITH VOLTAGE IN THE SLP-90 CAN BE FATAL!!!**

## **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 SLP-90 preamplifier 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 preamplifier from damage should you wish to store it or ship it for after-sales service.

## **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 to Cary Audio Design, Inc. within 10 days of your purchase. Cary Audio Design, Inc. 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 SLP-90 Placement**

The SLP-90 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.

## **2.4 Power Requirements**

The SLP-90 is designed to operate from house current mains. The design voltage is 117 VAC at 50/60 Hz. (Foreign units 234 VAC at 50/60 Hz.)

## **2.5 Cables**

The interconnect cables from the output jacks of the SLP-90 to the input jacks on the basic amplifiers can be any convenient length your set-up requires. The best installation is with a Cary mono-block amplifier next to each speaker. The choice of a high quality interconnect cable is important. Most audio dealers will have proper interconnect cable in stock for this purpose.

## **OPERATION**

Your new SLP-90 is ready for operation after all the interconnect cables have been installed. The SLP-90 is provided with functional, useful front panel controls with a logical layout. The listening level is conveniently located in the center.

### **3.1 Power Switch**

The power switch located at the far left on the SLP-90 front panel functions in the following manner:

- "Off" - Removes all AC voltages from the SLP-90 preamp deck
- "Stand-By" - Provides DC voltage through individual regulators to flow to the filaments of the preamplifier stage (The SLP-90 may be left in the stand-by position at all times to keep the SLP-90 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" - Turns on filaments of the 6ca4 full wave rectifier tubes which in turn brings up full potential DC voltage within one minute.

### **3.2 Selector Switch**

This 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. As you switch from source to source input you will hear the clicking of the DC relays on the input board. This click is normal and proper.

### **3.3 Operate Mute**

This toggle switch controls DC voltage to a master DPDT relay. You will hear a slight click for the relay when the switch is utilized and this is normal.

### **3.4 Monitor Tape**

Once again, this toggle switch controls DC voltage to the tape monitor input relay. 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 Green LED indicator light will appear.

### **3.5 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 .5 dB from 0 to -60 dB. 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.

### **3.6 Input Level - Left and Right**

These two potentiometers control independently the input level to each channel of the SLP-90. The input level controls on an SLP-90 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-90.



## **CARE AND CLEANING**

The stainless steel nickel-chrome plated chassis on the SLP-90 may be cleaned with Windex™ and a paper towel. If the SLP-90 has been operated in an extremely dusty or humid environment, automobile chrome polish may also be used to bring up the original luster of the chrome finish. The black front face plate may be restored to factory fresh condition by spraying and buffing utilizing Armorall™. The tubes may be cleaned with Windex™. The frequency of cleaning will be governed by how many hours the SLP-90 is operated and by the operating environment.

### **4.1 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, Inc. Although tube life varies depending on the nature and degree of use, under normal operating conditions for home use, the tubes in the SLP-90 should last several years and may last much longer.

### **4.2 Factory Service**

Careful consideration has been given to the design of your SLP-90 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 at phone number (919) 481-4494 to describe your problem in detail. Do not return the SLP-90 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 damage claim due to your improper packing or lack of insurance should the unit be lost in shipment.

### **Non-Warranty Repairs**

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

### **WARNINGS**

**MAKE NO ATTEMPT TO PUT THE SLP-90 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 CAPACITOR TO DISCHARGE THROUGH BLEEDER RESISTORS BEFORE ATTEMPTING TO CHANGE TUBES OR CLEAN THE INSIDE OF THE PREAMPLIFIER**

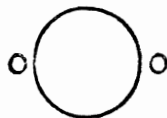
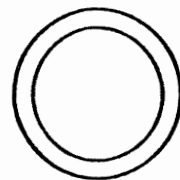
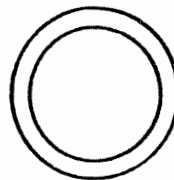
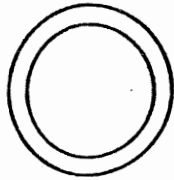
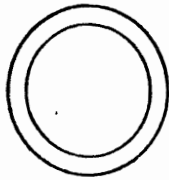
### **CAUTIONS**

**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 SLP-90 WILL RESULT IN TUBES OVERHEATING.**

**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.

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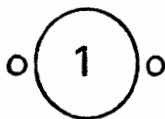


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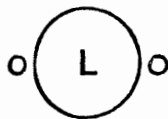


6CA4

tubes



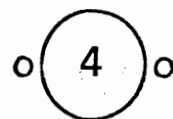
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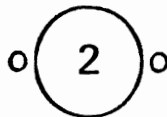
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WITH METAL  
COVER



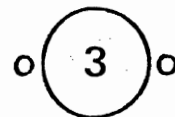
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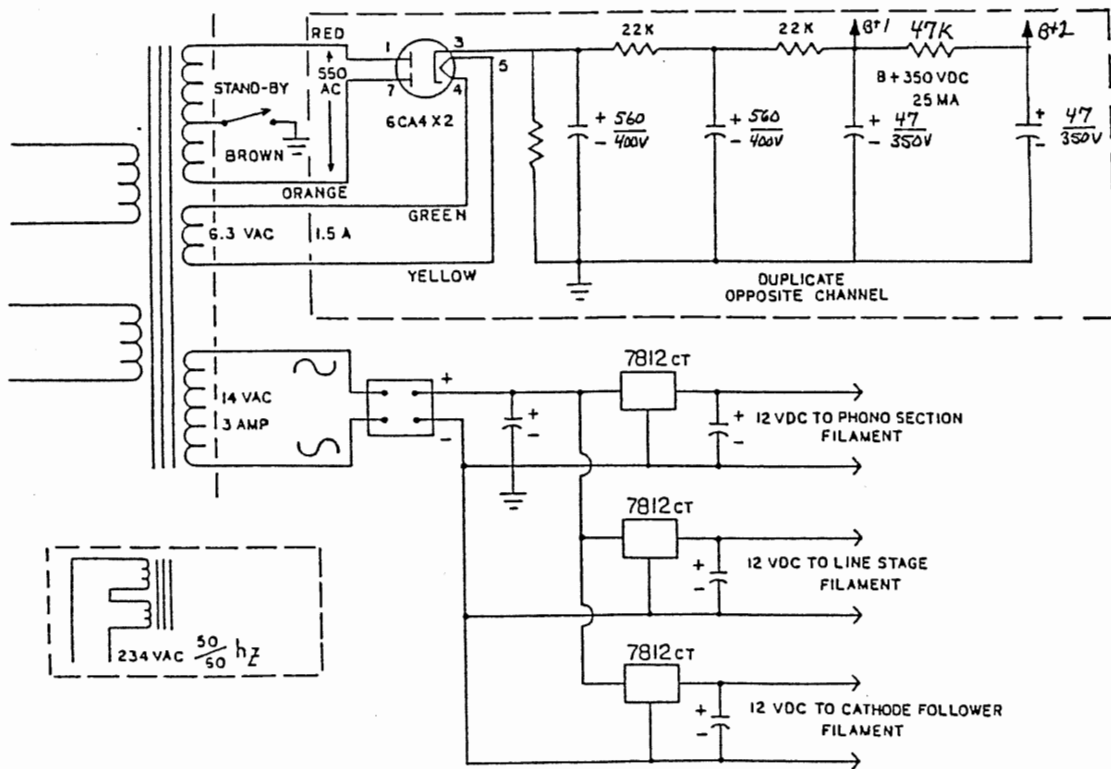
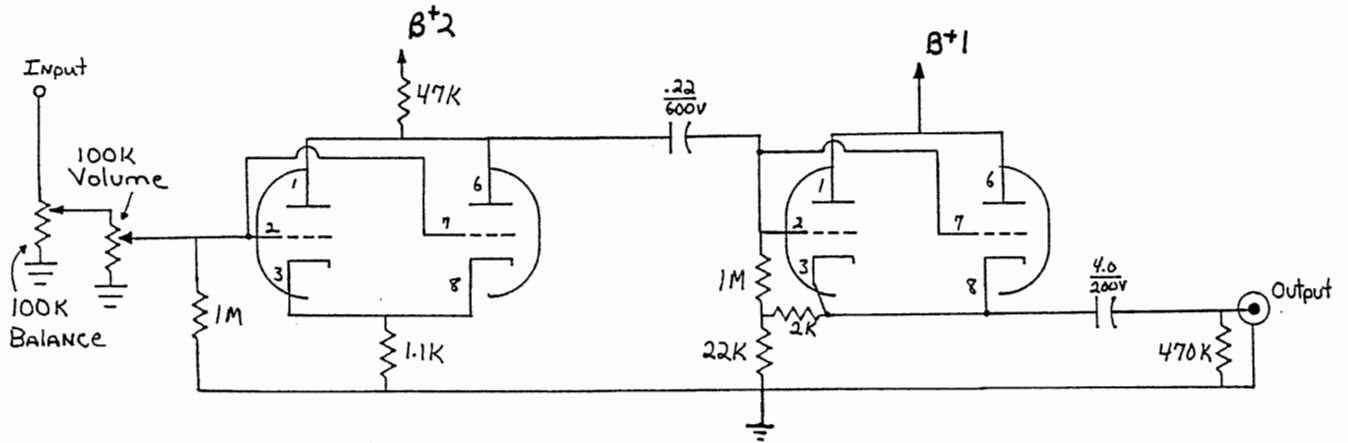
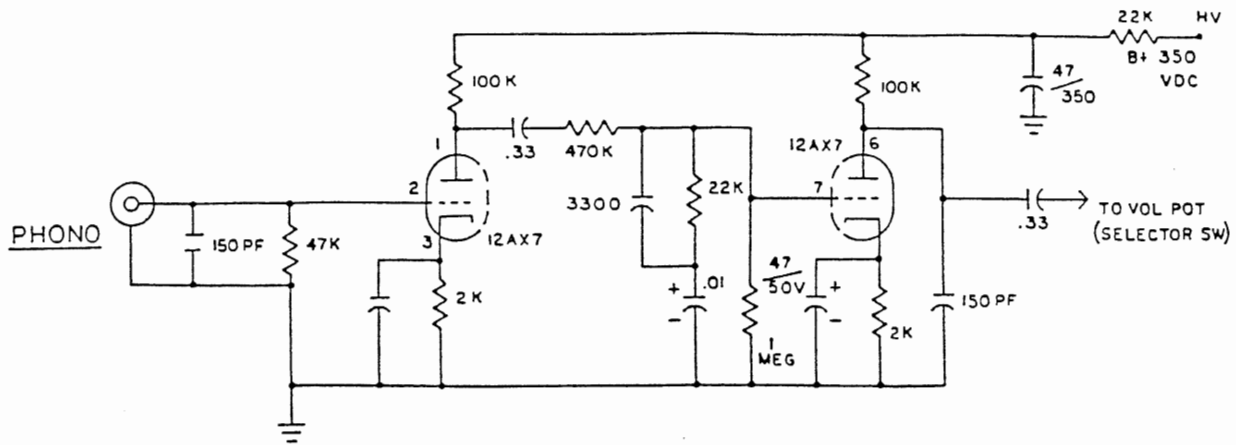


12AU7A

front

IF YOUR UNIT WAS  
PURCHASED AFTER  
5/20/93 YOU  
SHOULD HAVE FOUR  
12 AU7A TUBES WITH  
UNIT.

SLP-90



POWER SUPPLY SECTION

CAD SLP-90  
SCHEMATIC DRAWING  
4-1-94

## 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.