

CAD-40M MKII

40 WATT CLASS A Mono-Blocks



Operating Manual

NOTE:

Before installing your new CAD-40M MKII, please read this manual carefully as it will inform you of the CAD-40M MKII specifications, proper installation procedures and operation procedures. Also included in this manual are guidelines on how to properly service and care for your new CAD-40M MKII.

CAD-40M MKII

CLASS "A" STEREO TUBE AMPLIFIER

CONGRATULATIONS! You have purchased one of the most exotic stereo audio amplifiers available. The CAD-40M MKII class A stereo amplifier redefines the characteristics and operating parameters of a true "high-end" amplifier. Careful design, parts selection, and proper circuit topologies, contribute to incredible reliability and enjoyment.

For the technically-minded, a review of the circuit is in order. Your new CAD-40M MKII operates in a class "A" mode utilizing auto cathode bias on the E34L output tubes. The E34L output tubes are operating in a push-pull configuration utilizing the simple but effective Tetrode/Pentode output circuit. Tetrode/Pentode output configuration provides greater output with extremely low distortion and improved transient response. The output transformer in your CAD-40M MKII is the most important component in the amplifier and it has been specifically designed by Cary Audio for use in the 40M MKII. Negative feedback is used to reduce the noise floor and improve the speaker damping characteristics. Only 4dB of feedback is utilized since the output transformer and circuit design was originally designed without feedback. The phase inverter is a self-balancing voltage gain design utilizing a 6SL7 twin triode. The power supply in the 40M MKII features a 150% duty cycle EI laminate power transformer. The high voltage section features full wave rectification (not cheap voltage doublers used in many amplifiers) to a PI-R capacitive network. To avoid AC hum, the input phase inverter 6SL7 tubes have 6 VDC filament voltage. This will prevent AC ripple voltage from capacitively being coupled to electrodes in the gain stage of the 6SL7s. The input signal from the rear panel RCA jack is direct coupled (DC) to the first grid of the 6SL7. There are no coupling capacitors in line with the input signal on the CAD-40M MKII. A block diagram of your new 40M MKII has been provided in this manual for your reference.

In the power war of amplifier manufacturers, the mentality is focused on high and then even higher power output to solve the problem of clipping. In reality, the problem of clipping is best overcome by reducing the length of recovery time following an "overload". Cary Audio Design, Inc. has concentrated on the problem of overload recovery, which has resulted in a recovery time so short you might never know it has occurred.

With the incredible dynamic range of live and, in turn, recorded music, even 2000 watts of power is not enough. Most of the music played in an average listening room only requires 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-40M MKII will overload symmetrically at any frequency in the audio pass. The 40M MKII 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 on the ability of the SLA to recover quickly when overloaded. If one were to monitor the high voltage rail voltage (430VDC) of an CAD-40M MKII 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 your new 40M MKII is amplifier stability. The CAD-40M MKII may be operated with no load (without speaker) without damage to the amplifier, output transformer, or tubes.

The most exciting feature of the CAD-40M MKII , aside from how compact and gorgeous it looks, is the delightful, sensual beauty of the music it recreates. You will immediately be struck by the incredible transparency and resolution of detail in the music. The 40M MKII's sensual nature is best revealed in the sense of life it displays in female vocalists.

Your new 40M MKII 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 discernible crossover notch at low levels, and also contributes to the freedom from listening fatigue. The CAD-40M MKII will draw you in even further as you realize how lucid and utterly uncolored neutrality reveals delicate nuances in the sound stage.

Enjoy the music and, of course, please read this complete manual for a complete understanding of trouble-free operation.

SPECIFICATIONS

Operating the CAD-40M MKII 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 CAD-40M MKII in operation.

The following definitions are applicable to this manual. It is important that you read all the definitions so that you can follow all operating directions explicitly.

<p style="text-align: center;">WARNING HAZARD PRESENTS PERSONAL INJURY OR DEATH</p> <p style="text-align: center;">CAUTION EQUIPMENT DAMAGE MAY OCCUR BUT NOT PERSONAL INJURY</p> <p style="text-align: center;">NOTE Proper performance of the amplifier can not be ensured if disregarded</p>
--

1.2 Specifications for CAD-40M MKII

The following section describes the CAD-40M MKII's basic specs. Specifications are subject to change without notice or obligation.

AC CORD: 3 conductor shielded-detachable

AC POWER

REQUIREMENTS: 117 volts AC 50/60 HZ
250 watts operate
90 watts in stand-by (option)
220 volts AC 50/60 Hz
250 watts operate
90 watts in stand-by (option)

BREAK-IN PERIOD: 100 hours of music playing time

CAPACITORS: Polystyrene and polypropylene

CIRCUIT TYPE: Push-pull in pure Class "A"

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

FREQUENCY

RESPONSE: (at one watt output)
-10Hz to 30,000Hz +/- 0.75dB
(at full power output)
-15Hz to 23,000Hz +/- 0.5 dB

FINISH: Nickel chrome-plated stainless steel

INPUT IMPEDANCE: 100,000 ohms

INPUT SENSITIVITY: 1.5 volts for full output

NOISE AND HUM: 80dB below rated output

POWER OUTPUT: 1 KHz sine wave
12.5 volts RMS across 4 ohms = 39 watts
18 volts RMS across 8 ohms = 40 watts

POWER SUPPLY
CAPACITORS: 2-1200 MFD @ 450 VDC, 223 Joules

RESISTORS: 1% metal film

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

TUBES: 1-6SL7 predriver
2-6CA7 beam power output

WARM-UP TIME: 3 minutes

WEIGHT: 25 pounds

1.3 Front Panel Features

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

LED'S: RED indicates high voltage DC on. The Red LED will not light with unit is in stand-by
GREEN indicates filament voltage on

STAND-BY SWITCH: Turns B+ high voltage on

1.3 Rear Apron Features

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!

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

INPUT: Signal input connection via shielded interconnect cable

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

TO INSTALL THE TUBES, REFER TO PAGE 10 OF THIS MANUAL AND READ INSTRUCTIONS CAREFULLY!

INSTALLATION

This section describes the unpacking and installation procedures for the CAD-40M MKII mono-blocks.

WARNING
**MAKE NO ATTEMPT TO PUT THE CAD-40M MKII IN SERVICE WITHOUT
THE BOTTOM PLATE ATTACHED - CONTACT WITH VOLTAGE IN THE
CAD-40M MKII 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 40M MKII 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. **Failure to register warranty will limit the warranty to one year.** Keep your original sales slip. It is your record of the exact transaction date. It is a good idea to keep the sales slip with the packing cartons. Retain all packing material in good condition because, in the event your 40M MKII needs servicing, you will want to repackage with high quality packing products.

2.4 Amplifier Placement

In general, the location of your new 40M MKII amplifier is not critical. The best placement for 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 your CAD-40M MKII clear of books, papers, or other equipment, to prevent overheating damage .

2.5 Power Requirements

The CAD-40M MKII is designed to operate from house current mains. The design voltage is 117VAC at 50/60Hz (the foreign units design voltage is 220/240VAC at 50/60Hz).

2.6 Cables

The speaker cables from the output posts of the CAD-40M MKII 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 CAD-40M MKII. In general, heavy gauge #16 wire is suitable for distances up to 10 feet; while #12 should be used for distances of up to 25 feet. Most audio dealers will have proper speaker cable in stock for this purpose.

Signal amplifier input connections are 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.

OPERATION

Your new 40M MKII is ready for operation after the speaker, interconnect cables and all the tubes have been installed. Refer to the tube outline drawing inserted in this manual for tube placement.

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 glow. Wait 30 seconds, then flip the stand-by switch to the operate position. The Red LED will light.

3.3 Stand-By Switch

This is the most convenient feature on the CAD-40M MKII amplifier. This switch is located on the front 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 CAD-40M MKII 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 CAD-40M MKII 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 CAD-40M MKII 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.

<p style="text-align: center;">WARNING MAKE SURE AMPLIFIER IS UNPLUGGED FROM AC MAINS FOR ANY SERVICE OR CLEANING!</p>

SERVICE AND CARE

The chassis of the CAD-40M MKII may be cleaned with a soft rag and Windex (or similar window cleaner). The frequency of cleaning will be governed by how many hours the amplifier is operated and by operating environmental cleanliness.

4.2 Tube Replacement

If it becomes necessary to replace the tubes in the 40M MKII 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 many years of use out of the input and output tubes with everyday usage

4.3 Factory Service

Careful consideration has been given to the design of your CAD-40M MKII amplifier to keep maintenance problems to a minimum. However, it is possible that some problems may arise which can not be cured by tube substitution. At this point we suggest that you contact our Customer Service Department (phone: (919) 481-4494). A service technician will discuss the problem with you in great detail. Should the problem require servicing, the service technician will assign to you a return authorization number (RMA). **DO NOT RETURN YOUR CAD-40M MKII WITHOUT FIRST HAVING RECEIVED AN RMA.**

4.4 Company Disclaimer

Cary Audio Design, Inc. will not assume responsibility if the transportation company refuses to pay a damage claim which has resulted from improper packing by shipper. Cary Audio Designs, Inc. will not assume responsibility if your unit is not insured and is subsequently lost in shipment.

WARNINGS

MAKE NO ATTEMPT TO PUT THE CAD-40M MKII 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.

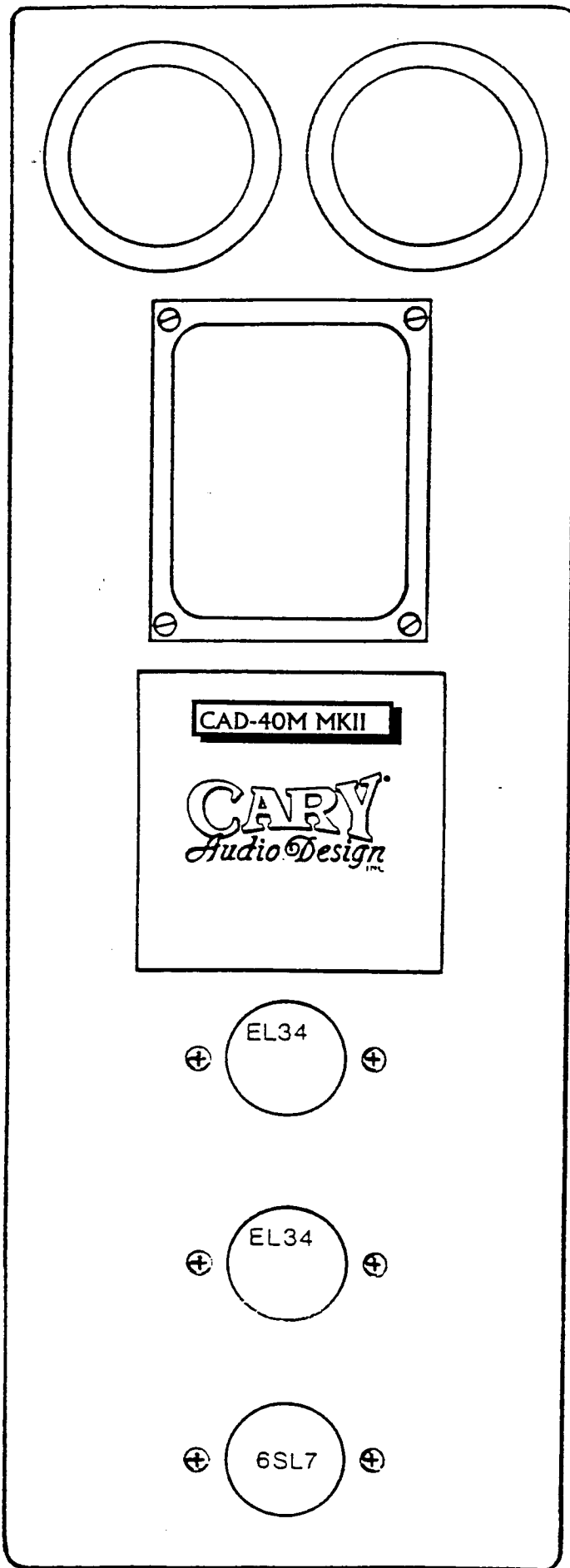
CAUTIONS

NEVER REMOVE/INSERT AC PLUG WHEN THE UNIT IS ON OR WHEN THE AC POWER SWITCH IS IN THE "ON" POSITION.

OBSTRUCTION OF THE TOP PORTION OF THE CAD-40M MKII WILL RESULT IN TUBES OVERHEATING.

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

REAR



FRONT

CAD-40M MKII TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
<p>"Hum" or "Buzz" through speakers</p>	<p>Ground loop</p> <p>Intermittent or poor connection of interconnect ground</p>	<p>Install 2-pin adapter on AC cord to float the ground</p> <p>Replace interconnect</p>
<p>"Popping" or "spitting" through the speakers</p>	<p>Noisy Tube</p>	<p>If the noise is in one channel, swap the tubes one at a time to the opposite mono-block until the noise swaps channels. Replace noisy tube</p>
<p>AC fuse blows</p>	<p>line voltage surge</p> <p>Shorted output tube</p>	<p>Replace fuse with 3A slow blow only</p> <p>If the fuse continues to blow, swap output tubes to opposite mono-block. If the problem follows the tube, replace the shorted tube</p>