



## Digital/Analog Converter



## MDA5000 Owner's Manual

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HDCD System manufactured under license from Pacific Microsonics, Inc. This product is covered by one or more of the following: U. S. Patent No. 5,479,168; 5,638,074; 5,640,161; 5,808,574; 5,838,274; 5,854,600; 5,864,311; 5,872,531, and Australia Patent No. 669,114 with other patents pending.

**WARNING - TO REDUCE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

**NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**

To prevent the risk of electric shock, do not remove bottom cover. No user serviceable parts inside.

## IMPORTANT SAFETY INSTRUCTIONS!

**PLEASE READ THEM BEFORE OPERATING THIS EQUIPMENT.**

### **General:**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. **Warning: To reduce risk of fire or electrical shock, do not expose this equipment to rain or moisture. This unit is capable of producing high sound pressure levels. Continued exposure to high sound pressure levels can cause permanent hearing impairment or loss. User caution is advised and ear protection is recommended when playing at high volumes.**
6. Disconnect this equipment when unused for long periods of time.
7. Only use attachments/accessories specified by the manufacturer.

### **Installation:**

8. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
9. Do not install near any heat sources such as radiators, heat ducts or other equipment that produce heat.
10. Do not use this equipment near water.
11. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids are placed on the equipment.
12. Do not mount this product with an unstable bracket as the equipment may fall, causing serious injury to a person, and serious damage to the product.

### **Connection:**

13. Route DC power cords so that they are not likely to be pinched by items placed upon or against them, paying particular attention to the point where they enter the instrument.

### **Care of Equipment:**

14. Clean only with dry cloth.
15. Do not permit objects or liquids of any kind to be pushed, spilled and/or fall into the equipment through enclosure openings.

### **Repair of Equipment:**

16. Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.
17. Do not attempt to service beyond that described in the operating instructions. All other service should be referred to qualified service personnel.
18. When replacement parts are required, be sure the service technician has used replacement parts specified by McIntosh or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
19. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

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## Thank You

Your decision to own this McIntosh MDA5000 Digital/Analog Converter ranks you at the very top among discriminating music listeners. You now have “The Best.” The McIntosh dedication to “Quality,” is assurance that you will receive many years of musical enjoyment from this unit.

Please take a short time to read the information in this manual. We want you to be as familiar as possible with all the features and functions of your new McIntosh.

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## Please Take A Moment

The serial number, purchase date and McIntosh dealer name are important to you for possible insurance claim or future service. The spaces below have been provided for you to record that information:

**Serial Number:** \_\_\_\_\_

**Purchase Date:** \_\_\_\_\_

**Dealer Name:** \_\_\_\_\_

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## Technical Assistance

If at any time you have questions about your McIntosh product, contact your McIntosh dealer who is familiar with your McIntosh equipment and any other brands that may be part of your system. If you or your dealer wish additional help concerning a suspected problem, you can receive technical assistance for all McIntosh products at:

McIntosh Laboratory, Inc.  
2 Chambers Street  
Binghamton, New York 13903  
Phone: 607-723-1545  
Fax: 607-723-3636

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## Customer Service

If it is determined that your McIntosh product is in need of repair, you can return it to your dealer. You can also return it to the McIntosh Laboratory Service Repair department. For assistance on factory repair return procedure, contact the McIntosh Repair Department at:

McIntosh Laboratory, Inc.  
2 Chambers Street  
Binghamton, New York 13903  
Phone: 607-723-3515  
Fax: 607-723-1917

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## General Notes

- 1. The MDA5000 Digital/Analog Converter Operation is fully Automatic and requires no selection or adjustment on the part of the user. When a CD that has been specially encoded with a High Definition Compatible Digital® Signal is received, the MDA5000 will automatically decode the additional information.*
- 2. For additional connection information, refer to the owner's manual(s) for any component(s) connected to the MDA5000 Digital/Analog Converter.*
- 3. The MDA5000 Digital/Analog Converter is designed to Automatically Switch Power On and Off with the rest of the Audio System. In order for the automatic power switching to function, there needs to be a connection between the Control Center and the Converter.*
- 4. An Automatic Digital Input Selector is built into the MDA5000 . It will accommodate up to three source devices with digital outputs to be connected to the converter. The MDA5000 can only decode one input source at a time. If the MDA5000 receives more than one digital signal simultaneously, the Automatic Digital Input Selector will not function properly.*

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## Introduction

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Now you can take advantage of traditional McIntosh standards of excellence in the MDA5000 Digital/Analog Converter. The built-in HDCD<sup>®</sup> Circuitry with Eight Time Over-Sampling provides the ultimate performance from Compact Discs. The MDA5000 reproduction is sonically transparent and absolutely accurate. The McIntosh Sound is “The Sound of the Music Itself.”

## Performance Features

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- **HDCD<sup>®</sup> Decoder with 24 Bit 8 Times Over-Sampling Digital Filter**

The MDA5000 is equipped with a powerful 24 Bit digital signal processor. This digital signal processor can provide automatic HDCD decoding and 8 times over sampling digital filter function for both CD and HDCD. The HDCD decoder provides a wider dynamic range when the HDCD disc is used.

- **HDCD<sup>®</sup> Indicator**

The MDA5000 is equipped with a HDCD Indicator. The indicator will be lit when the HDCD Digital Audio Signal is present at input.

- **Selected Grade 24 Bit Digital-to-Analog Converter**

The MDA5000 is equipped with a selected grade 24 Bit Digital-to-Analog Converter per channel. This advanced Digital-to-Analog Converter can provide low-distortion, low-noise and high fidelity sound.

- **Digital Interface Receiver**

The MDA5000 is equipped with a low jitter clock recovery digital interface receiver. A very clean recovered clock from the incoming signal is used in the converter to maintain the sound quality.

- **Two Coaxial and One Optical Digital Audio Input with Automatic Switching**

The MDA5000 has two coaxial and an optical digital audio input. All inputs are monitored continuously and switched automatically.

- **Gold Plated Terminals**

McIntosh provides gold plated input and output terminals on the MDA5000 for superior corrosion resistance.

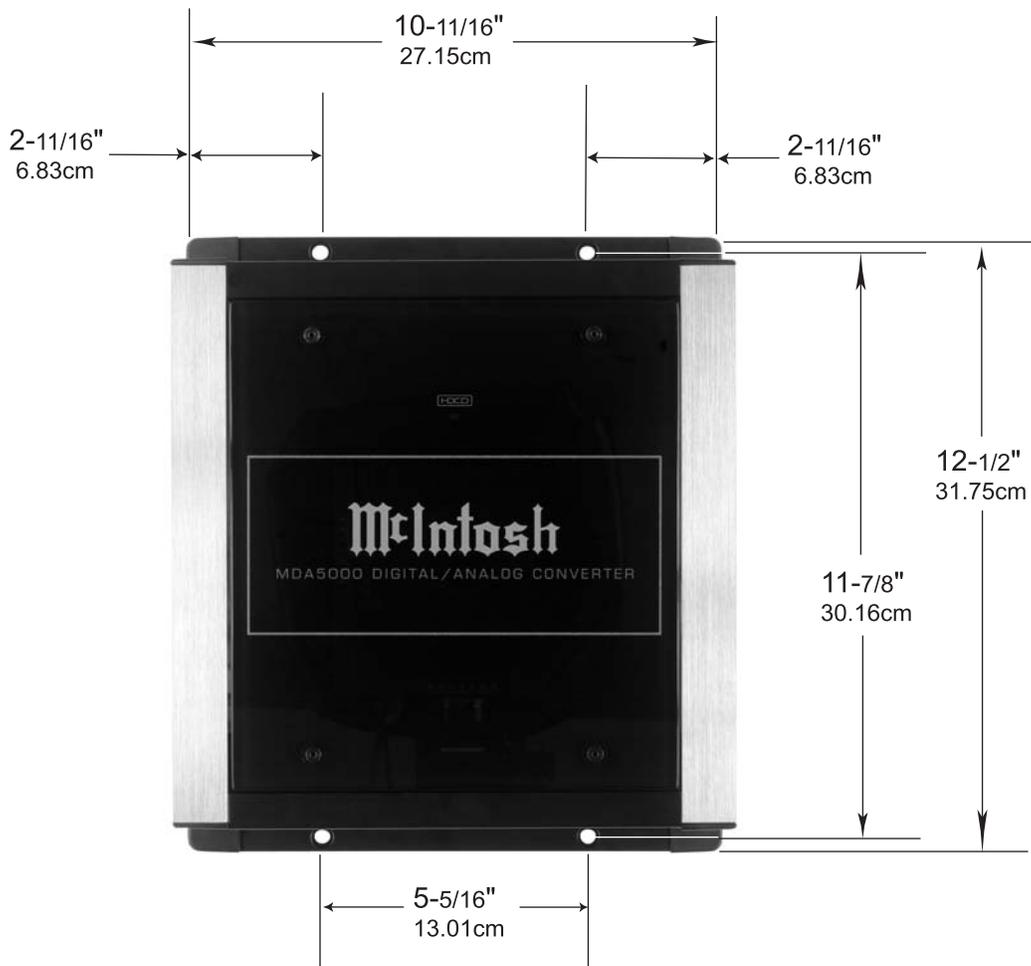
- **Superior Construction**

The famous McIntosh Design, an Illuminated Glass Top Panel together with a Extruded Aluminum Chassis help to insure superior performance and long term reliability which is very important in the automotive environment.

**Dimensions**

The following dimensions can assist in determining the best location for your MDA5000. There is additional information on the next page pertaining to installing the MDA5000 into your vehicle.

**Top View of the MDA5000**



**Side View of the MDA5000**



### Installation

It is recommended that a professional who is skilled in all aspects of installation and operation install the MDA5000 and any associated mobile audio equipment.

#### Converter Ventilation

Always provide adequate ventilation for the MDA5000 and be sure to provide at least 1 inch clearance at the sides with the fins.

The Digital/Analog Converter can be mounted vertically or horizontally and may be located under a seat if adequate clearance is available. The preferred installation method is to mount it directly to the vehicle frame using the hardware supplied with the MDA5000.

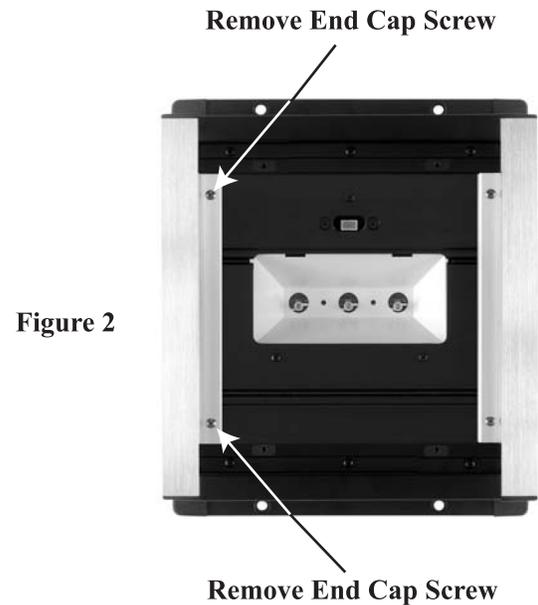
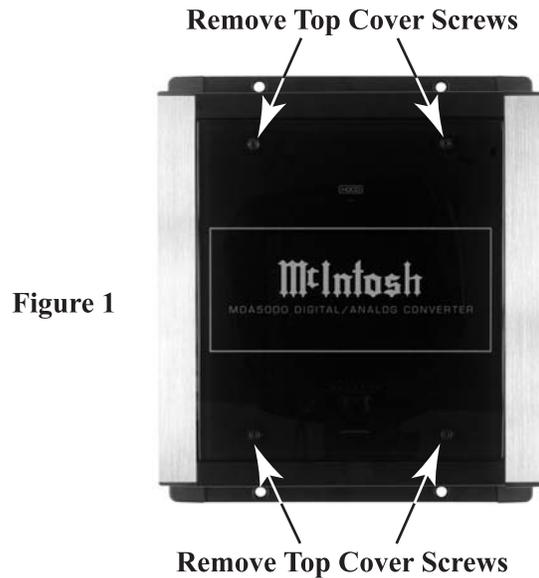
It is not recommended that the Digital/Analog Converter be mounted under the hood or in a location where it will be directly exposed to the elements.

#### Removing the Glass Panel

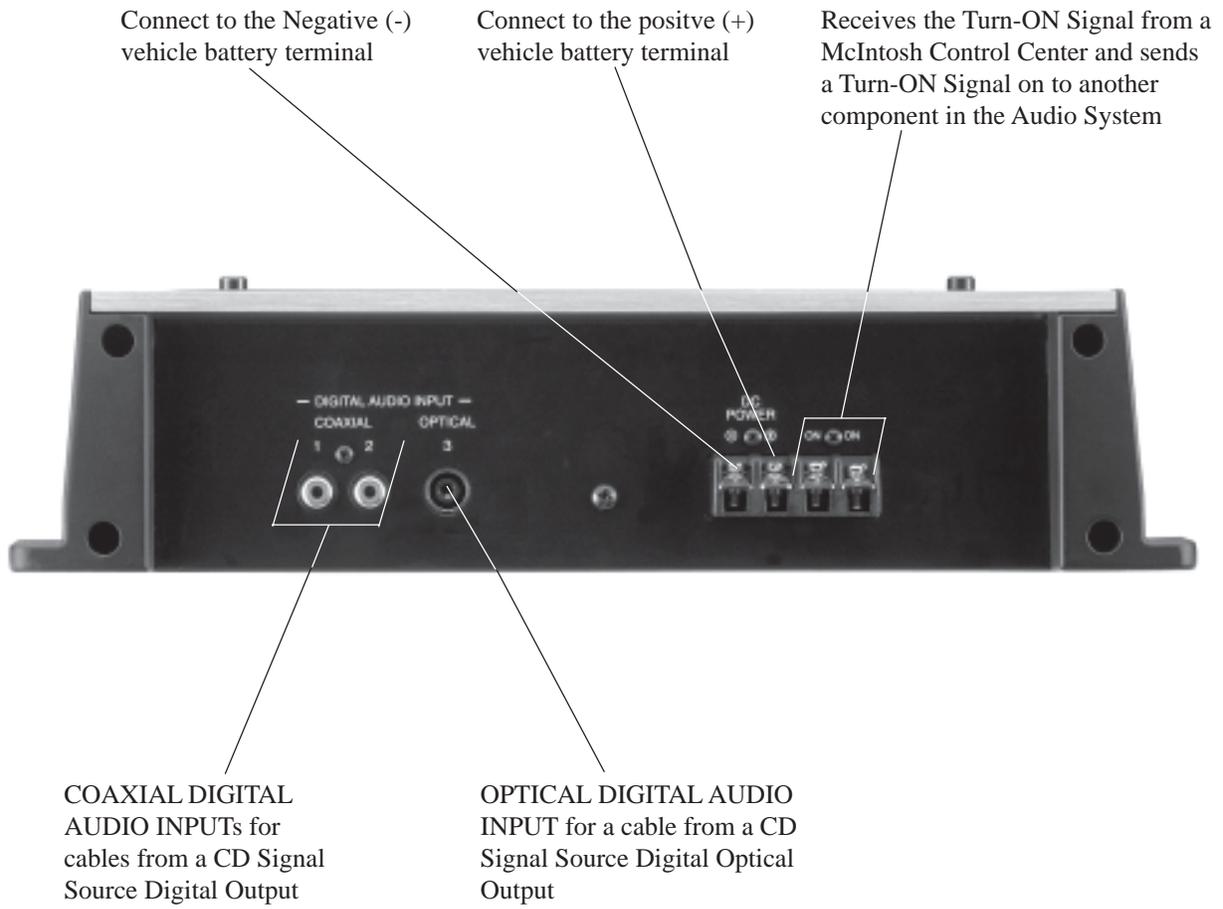
To access the MDA5000 Terminal Block Connections, remove the glass panel by removing the four hex bolts with the supplied 3/32" hex key. See figure 1. Attach the supplied suction cup to the top center of the glass panel and carefully raise it high enough to put your hand under. Temporarily place the removed glass panel in a safe place; remove the suction cup and save it for future use.

#### Removing the End Cap

To access the MDA5000 Connecting Terminal Block, remove the Glass Panel first (the above step) and then remove the Phillips Screws holding the Left Side End Cap of the Digital/Analog Converter and lift the End Cap off. See figure 2.



## Side Panel Cooling and Connections



### How to Connect

The McIntosh MDA5000 is intended to be utilized in an Audio System that can support a separate outboard Digital to Analog Converter.

1. Connect a wire from the Control Center Amp On to either MDA5000 ON Connectors on the left side of the Digital to Analog Converter.

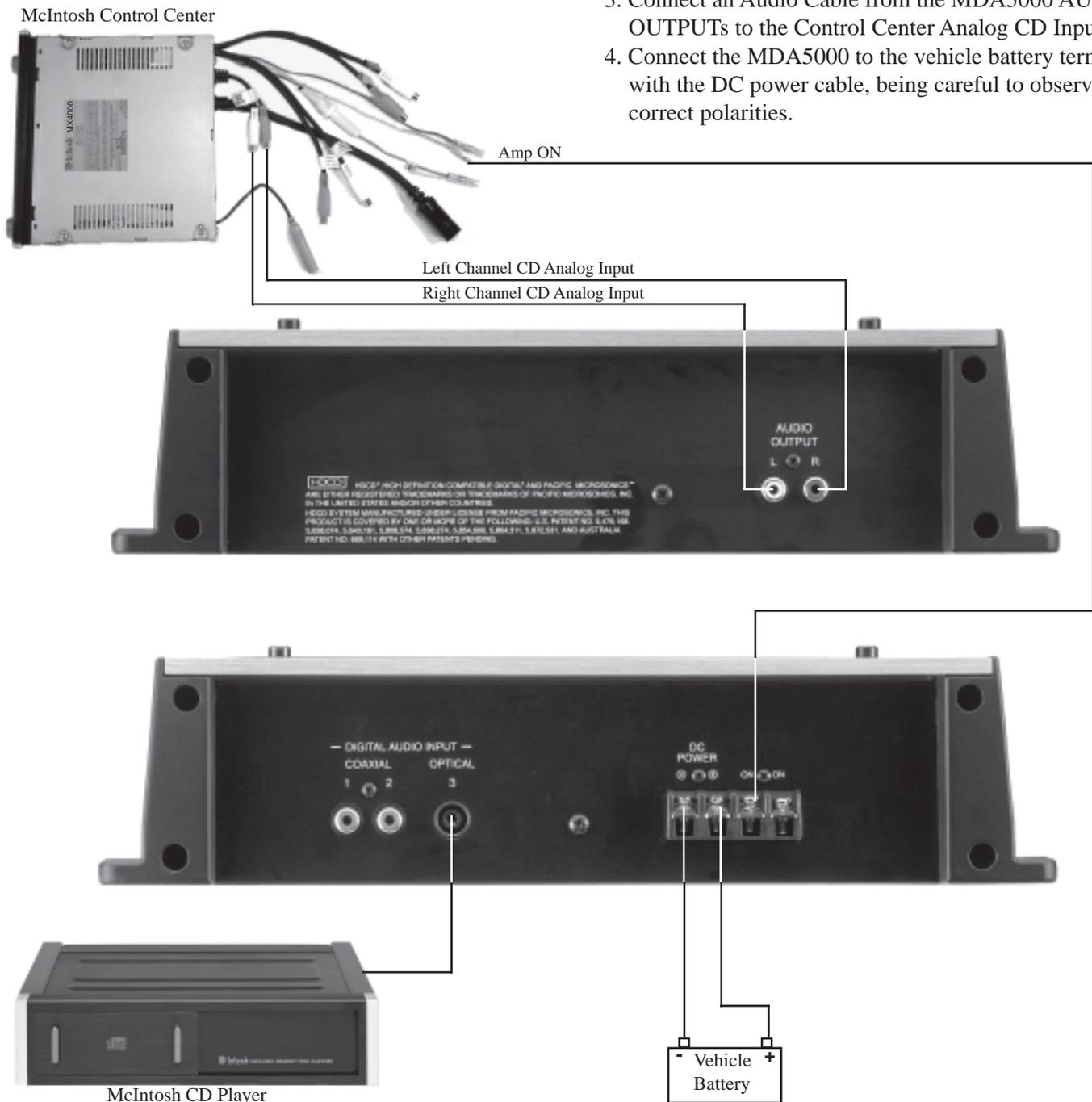
*Note: All cables should be connected to the Digital to Analog Converter before connecting the DC power*

*cables to the battery. The second ON Connector provides the Power On Signal for another component in the Audio System.*

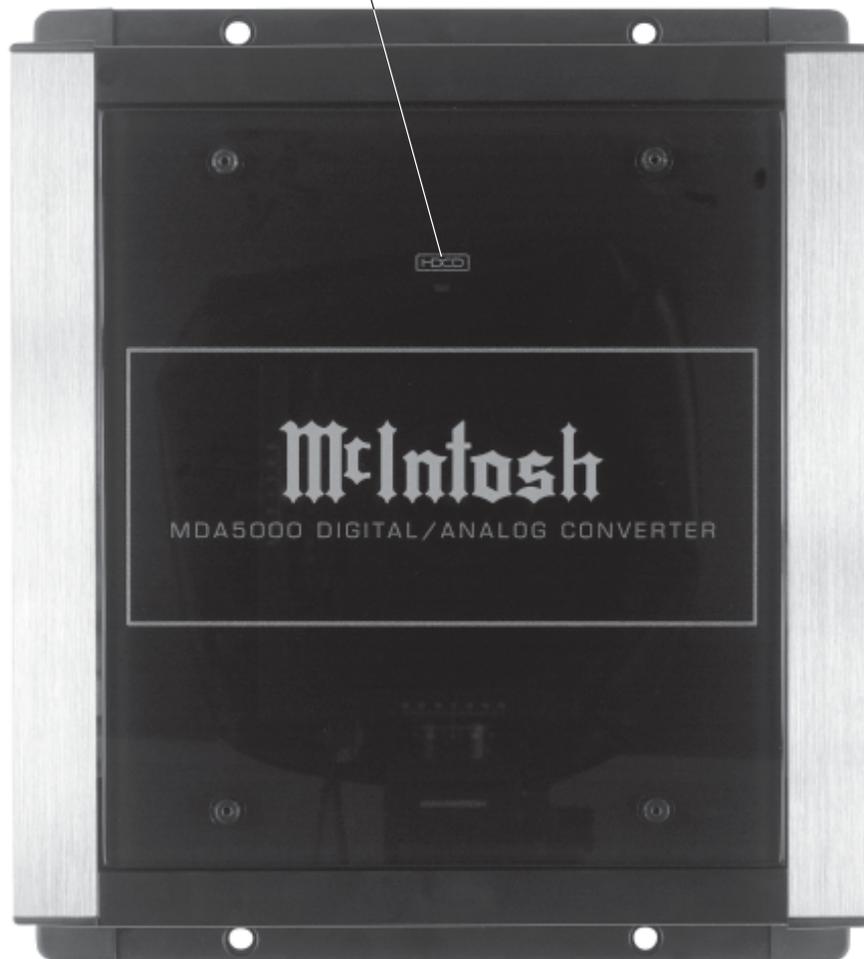
2. Using the Optical Cable that was supplied with the CD Player, connect it from the CD Players Digital Optical Output to the MDA5000 OPTICAL DIGITAL AUDIO INPUT (3).

*Note: An optional connection method is to use one of the COAXIAL DIGITAL AUDIO INPUT (1 or 2) connectors.*

3. Connect an Audio Cable from the MDA5000 AUDIO OUTPUTS to the Control Center Analog CD Input.
4. Connect the MDA5000 to the vehicle battery terminals with the DC power cable, being careful to observe the correct polarities.



**HDCD** LED lights  
when the MDA5000  
is receiving a HDCD®  
Digital Audio Signal



### Analog Audio Specifications

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#### Output Voltage

3.2 ( $\pm 0.1$ ) Volts RMS (CD Mode)  
6.4 ( $\pm 0.2$ ) Volts RMS (HDCD Mode)

#### Total Harmonic Distortion

0.005% (1,000Hz)

#### Dynamic Range

Better than 98dB (1,000Hz)

#### Frequency Response

+0, -0.5dB from 20Hz to 20,000Hz

#### A-Weighted Signal To Noise Ratio

Better than 110dB

#### Channel Separation

Better than 105dB (1,000Hz)

#### Output Impedance

600 ohms

### Digital Audio Specifications

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#### Digital to Analog Conversion

24 bit

#### Digital Filter

8 Times Over Sampling

#### Sampling Frequency

44,100Hz

#### Analog Filter

2nd Order Butterworth Filter

#### Digital Inputs (Digital Audio Interface Format)

Coaxial 0.5V p-p/75 ohm (Inputs 1 and 2)  
Optical (Input 3)

### General Specifications

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#### Power Requirements

14 Volts DC (10.8V to 15.6V allowable), 0.65 Amps

#### Overall Dimensions

10-11/16 inches (27.15cm) wide, 3.0 inches (7.6cm) high, 12-1/2 inches (31.75cm) depth

#### Weight

9.3 pounds (4.2Kg) net, 12.4 pounds (5.6Kg) in shipping carton

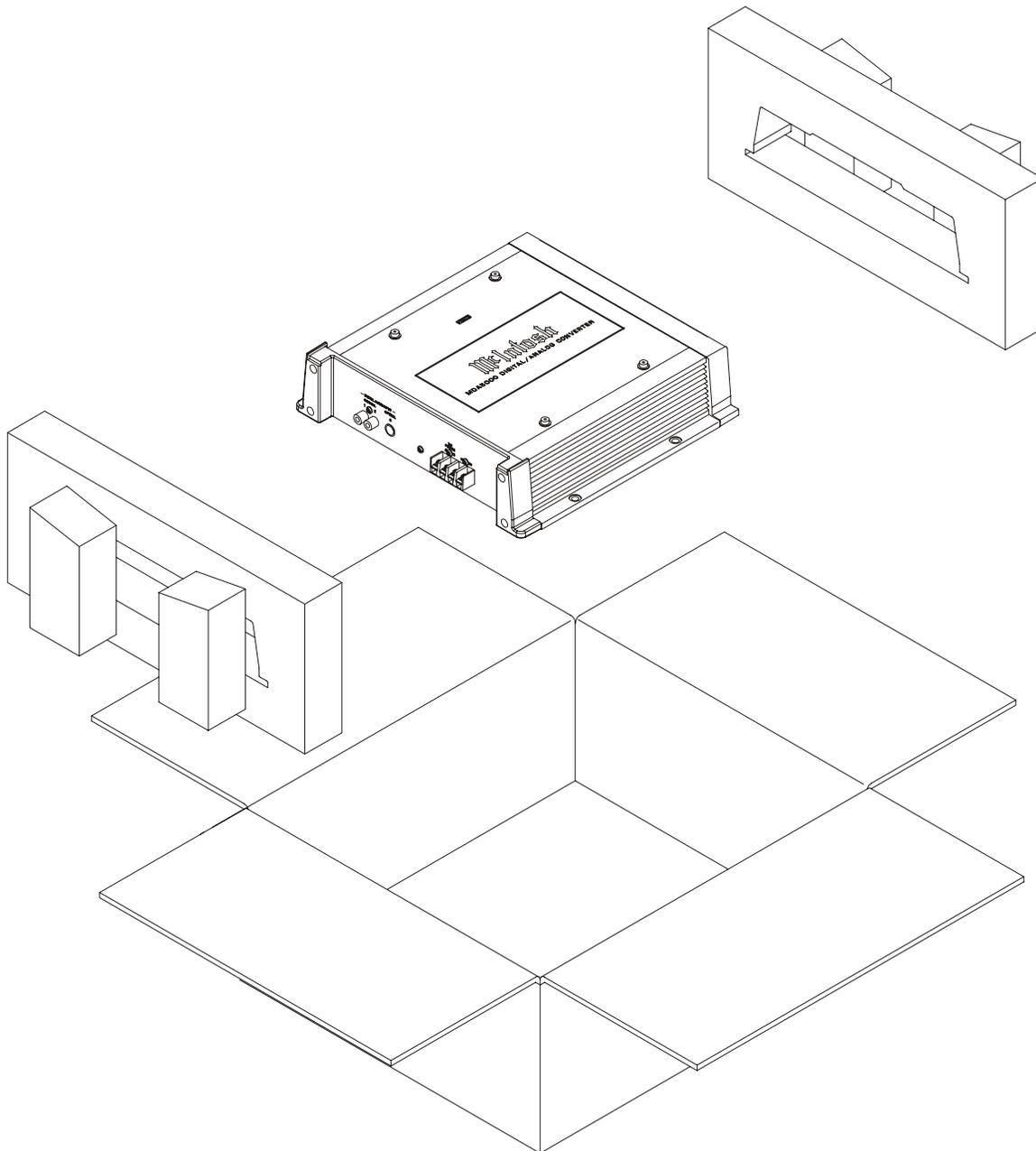
## Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as shown below, failure to do so will result in shipping damage.

Make sure that the Top Glass Panel is firmly secured to the chassis using the supplied hex head screws.

Use the original shipping carton and interior parts only if they are all in good serviceable condition. If a shipping carton or any of the interior part(s) are needed, please call or write Customer Service Department of McIntosh Laboratory. Please see the Part List for the correct part numbers.

<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	034143	Shipping carton only
2	034132	End cap (Foam pad)





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The continuous improvement of its products is the policy of McIntosh Laboratory Incorporated who reserve the right to improve design without notice.

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