harman/kardon
COMPACT DISC PLAYER
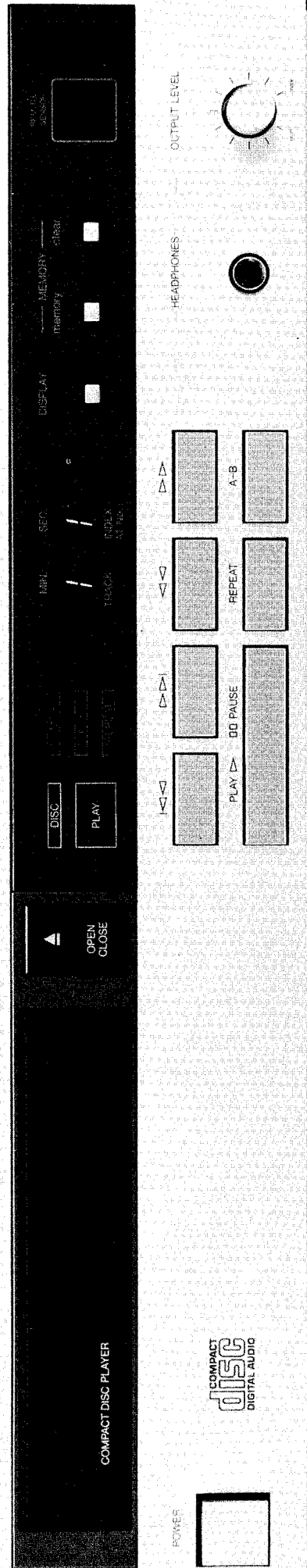
HD500

owner's manual

Congratulations on your purchase of the Harman Kardon HD500 Compact Disc Player.

In order to appreciate the full performance of this sophisticated unit, please be sure to read this owner's manual and use your CD player only in accordance with its instructions. Keep it in a safe place for future reference.

NOTICE

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for Class B computing devices in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particualr installation. If this equipment does cause interference to radio of television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

— reorient the receiving antenna of the radio or TV.
— relocate the CD player with respect to the radio or TV.
— move the CD player away from the radio or TV.
— plug the CD player into a different outlet so that the CD player and radio or TV are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV interference Problems"
This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

This unit employs an invisible semiconductor laser to pick up the digital signals on the disc. Do not remove the cabinet. It may cause laser radiation when the safety interlocks are out of action for fail.

Caution — Use of controls or adjustments or performance procedures other than those specified herein may result in hazardous radiation exposure.

This manual applies to champagne gold and black versions with this model HD500.
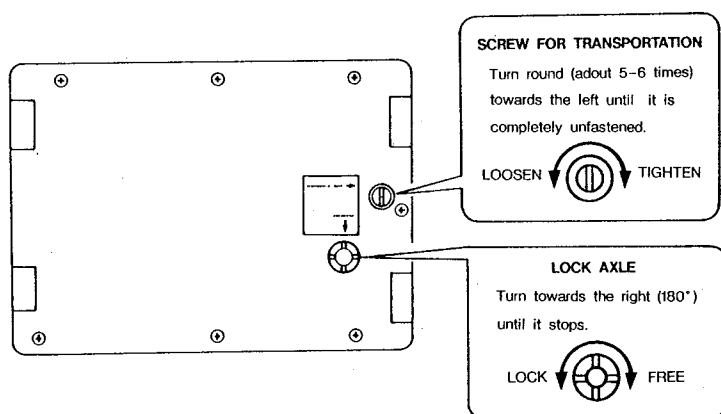
Performance Features

■ 3-Beam Laser

■ 16-Bit Linear Digital-to-Analog Converter with Digital Filter and 88.2kHz Sampling Frequency

■ 4-Pole Analog Filter for Excellent Phase Response

■ Ultrawideband, Discrete Analog Amplifiers for Low IM Distortion

■ Output Level Control

Convenience Features

■ Wireless Remote Control

■ 15-Track Programability

■ Auto Repeat

■ Section Repeat

■ Bi-Directional Track Skip

■ Bi-Directional Audible Cueing

■ Track/Time Display

IMPORTANT

SCREW FOR TRANSPORTATION

Turn round (adout 5-6 times) towards the left until it is completely unfastened.

LOOSEN ▼ TIGHTEN

LOCK AXLE

Turn towards the right (180°) until it stops.

LOCK ▼ FREE

Before plugging the unit in, be sure to loosen the transportation screw and the lock axle on the bottom of the unit with a screw driver.

Note:
● Place a cloth under the unit in order to prevent it from being scratched.
● Turn the unit upside down.
● The screw and lock axle can not be removed.
● Be sure to tighten them by the reverse procedure before transporting the unit.

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Safety Precautions

Be sure to observe the following precautions:
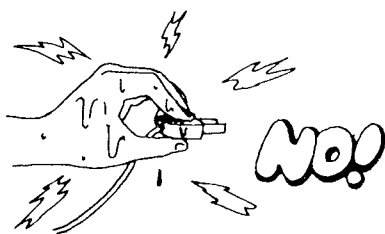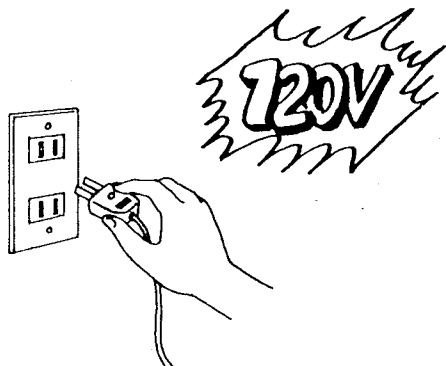
■ Power plug

Be sure to insert the power plug only into a 120V household wall outlet. Insert the plug firmly into the socket to avoid electric shocks. When removing the power plug from the wall socket, pull only on the plug head. Never pull the cord itself.

■ Do not open up the cabinet

To avoid electric shocks and fire hazards, do not open the cabinet and attempt to service or modify the unit yourself. Under no circumstances should the cabinet be opened.

■ Avoid touching with wet hands

To avoid the danger of electric shocks, do not touch the electric power cord with wet hands. Dry your hands thoroughly before handling the unit.
If you should accidentally spill water on the unit, contact your sales representative or the nearest authorized Harman Kardon service station.

■ Do not insert any foreign objects into the jacks or the ventilation openings of the unit.

■ Do not cover the ventilation openings

The upper and lower ventilation openings prevent the internal temperature from rising excessively. Therefore, do not place any objects where they will block the air flow from these openings.

■ Do not place the HD500

• Directly on top of high power amplifiers and other heat generating components.
• On top of carpets or blankets.
• In a place where the air flow is restricted.
• Inside an enclosed space while it is in operation.

Failure to observe the above can cause malfunctions and fires.

■ Unit placement

To prevent the unit from dropping, do not place the HD500 in an unstable location, such as uneven or tilted surfaces.
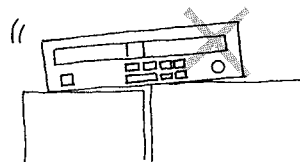
■ Leaving the unit unattended

When leaving the unit unattended for a long period of time, such as when you are vacationing, be sure to remove the power cord from the wall socket.

Unit Placement

■ **Place the unit as far away as possible from tuners and TV sets.**

This unit uses high frequency signals and therefore accidental signal leakage can cause reception interference in tuners and TV sets. If such should be the case, move the HD500 further away from the tuner or TV set. If you are using an indoor antenna, this should be replaced with an outdoor antenna.

■ Avoid the following locations since not only will they lower the quality of the unit, but are hazardous as well.

Locations:
● Subject to high temperatures (in excess of 113°F/45°C). (Be especially careful during summer time.)
● Subject to direct sunlight.
● Excessively cold (under 32°F/0°C.)
● Subject to high humidity.
● Close to heat sources.
● With excessive smoke and dust.
● Subject to vibrations.
● Tilted or uneven surfaces or other unstable positioning.
● Where strong magnetic fields are present.

Handling Compact Discs

Dirt, fingerprints, scratches and warps on a compact disc can cause noise. Observe the following precautions to keep your compact discs sounding their best.

■ **Handling compact discs**

Do not touch the playback surface (the rainbow colored side).
Do not attach adhesive tape, stickers, etc. to the disc label.
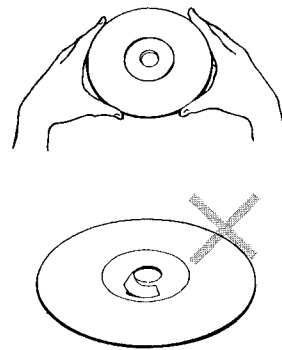
■ **Disc storage**

Avoid storing the discs in locations subject to high temperature, high humidity and direct sunlight. Also do not keep discs inside a closed vehicle as it is often subject to extreme temperatures.

■ **Disc care**

Before playing the disc, wipe off all dust, dirt and fingerprints on the playing surface with a soft cloth. Do not use benzine and record cleaners designed for analog records. Static prevention treatments can also damage compact discs and should therefore be avoided.
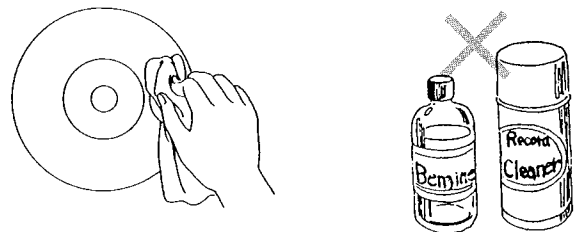
Only compact discs with the mark shown below can be used with the HD500.

COMPACT disc DIGITAL AUDIO

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Handling Precautions

■ Dew formation

Window frames inside a warm room during winter will rapidly accumulate dew on the surface. This unit features a precision lens element. This lens element is also subject to dew formation under the following circumstances:

- When subject to sudden changes in temperature.
- When the room in which the unit placed is subject to high humidity.
- When moving the unit suddenly from a cold to a warm place.

The HD500 will not be able to correctly read the programs under these circumstances, and the player will not operate properly. In such cases, after turning the power switch on, wait for 20 to 30 minutes before operating the unit.

■ Do not remove the cabinet

This unit uses an invisible laser pickup to detect the signals recorded on the compact disc. The HD500 has been designed so that the laser rays will not radiate outside. To avoid laser exposure in case the safety interlocks are defeated or out of action, do not remove the cabinet.

■ Be careful of the laser pickup

Although you cannot see it from the outside, a laser pickup is located under the disc tray and a precision lens is built in it. Since the laser pickup, including the lens element, is especially sensitive to dust, keep the disc tray closed when not in use. Also do not put your hand inside the unit.

Unit Care

■ Wipe off the cabinet with a soft, dry cloth

Do not apply alcohol, benzine, paint thinners, insecticides, other chemicals and adhesive tape to the cabinet, as these can remove the luster of the cabinet and can also impair the finish. Avoid chemically treated cloth as well.

Household AC wall outlet

Amplifier or Receiver
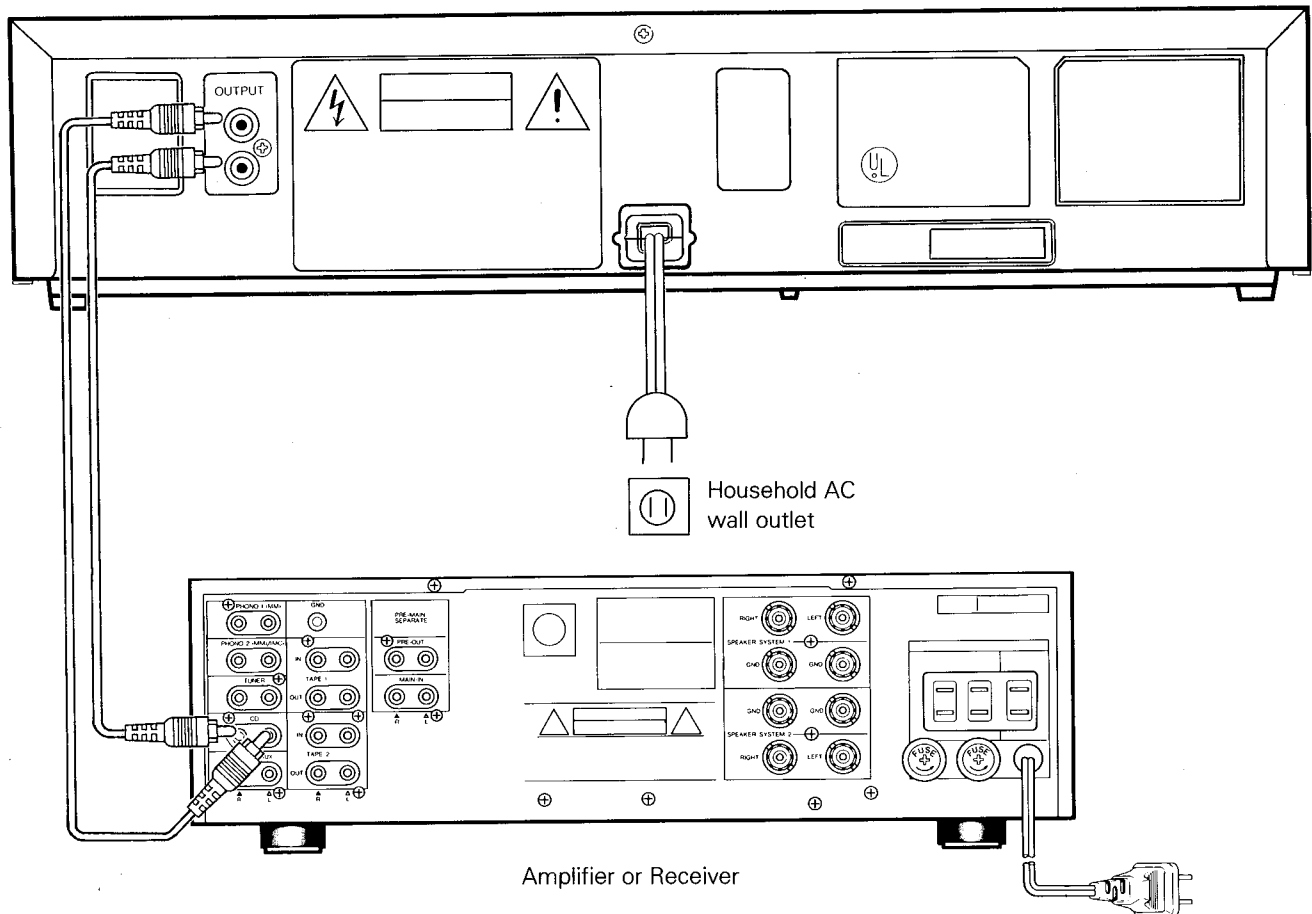
1. Using the supplied shielded cords with RCA-type plugs, connect the left (L) and right (R) OUTPUT jacks on the rear panel of the unit to the left (L) and right (R) input jacks (CD or AUX) or the TAPE playback jacks on the rear panel of the amplifier or receiver.
2. Plug the power cord of the HD500 into the convenience AC outlet on the rear panel of the amplifier or a household AC outlet.

Notes on connection
- Turn off the power switch and disconnect the power cords of all components before making connections.
- Make sure that the left and right jacks of the HD500 are properly connected to the left and right jacks, respectively, of the amplifier or receiver.
- To avoid incomplete connections, be sure that the shielded cords with RCA-type plugs are fully inserted into the corresponding jacks.
- Do not connect the output of the CD player to the phonograph input of the amplifier.

Volume Setting

The digital recording format of compact discs enable them to accurately reproduce all peaks contained in the music signals without noise. Therefore, if attempting to adjust the volume setting as you would for analog record players and cassette tape recorders, by listening to the noise level, the sudden unexpected surge in the amplifier power may harm your speakers. Avoid excessively high volume setting.

harman/kardon HD500

COMPACT DISC PLAYER
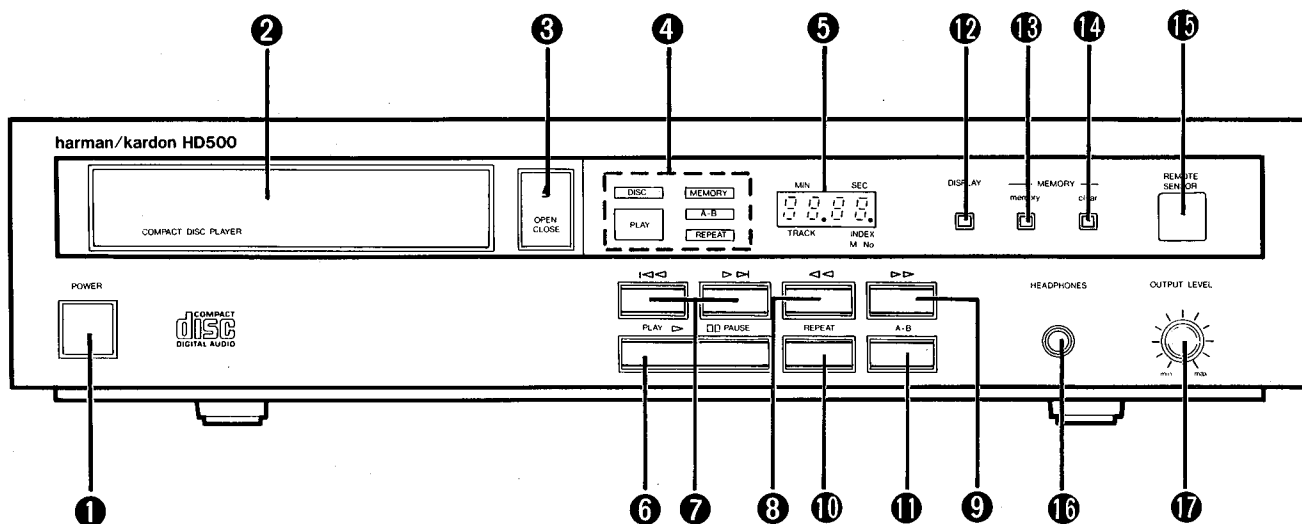
❶ POWER SWITCH
Press this switch to turn the power of the main unit on and off. Pressing it once will turn the power on, and pressing it once again will turn the power off.

❷ DISC TRAY
By pressing the OPEN/CLOSE button, the tray onto which the discs are loaded will slide out. (See page 9 for details of loading compact discs.)

❸ OPEN/CLOSE BUTTON
Press this button to open or close the DISC TRAY. Press it once to make the DISC TRAY slide out, and again to make the DISC TRAY slide in.

❹ FUNCTION DISPLAY

| DISC |

Flashes when DISC TRAY is opened or closed. The indicator will light up when the disc has been correctly loaded and the unit is in the standby mode. It will continue to be lit during playback.

| REPEAT |

Lights when repeat playback has been programmed.

| A-B |

Lights during repetition of one section of the disc.

| PLAY |

Lights during playback, or blinks when in pause.

| MEMORY |

Lights during memory playback.

❺ TIME/TRACK DISPLAY
Displays elapsed playback time from the beginning of the program being played, or displays the track and index number during playback.

❻ PLAY/PAUSE BUTTON
Press this button to start playback. Pressing this button during playback activates the pause mode. Playback continues when this button is pressed again. Playback stops if this button is held down for more than two seconds.

❼ PROGRAM SELECTION (SKIP) BUTTONS
(⊲⊲ , ⊳⊳)

⊲⊲: Pressing this button once skips playback backward to the beginning of the present program. Holding the button down skips playback backward to the beginning of previous programs.

⊳⊳: Pressing this button once skips playback forward to the beginning of the next program. Holding the button down skips playback forward to the beginning of subsequent programs.

❽ REVERSE BUTTON (⊲⊲)
Pressing this button starts low speed reverse. Holding the button down longer than three seconds changes the reverse mode to high speed. Sound can be heard at a reduced level in this mode.

❾ FAST-FORWARD BUTTON (⊳⊳)
Pressing this button starts low speed fast-forwarding. Holding the button down longer than three seconds changes the fast-forward mode to high speed. Sound can be heard at a reduced level in this mode.

⑩ REPEAT BUTTON

Pressing this button enables continuous repeat play-back of the disc. Pressing this button again disables the repeat playback mode.

⑪ A—B REPEAT BUTTON

Use this button to specify the beginning and end points for section repetition.

⑫ DISPLAY BUTTON

Press to change the display. When pressed, display is switched between the elapsed playback time of a track and the program and index number.

⑬ MEMORY BUTTON

Used to program the memory for non-sequential play-back of disc tracks.

⑭ MEMORY CLEAR BUTTON

Pressing this button clears the entire contents of the memory.

⑮ REMOTE CONTROL SENSOR
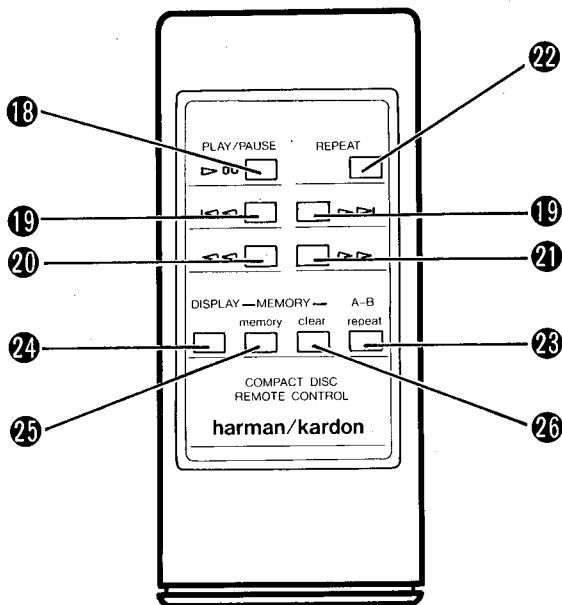
Receives signals from the supplied remote control unit.

⑯ HEADPHONES JACK

Connect the headphone plug to this jack for private listening.

⑰ OUTPUT LEVEL CONTROL

This control adjusts the volume level of the rear panel OUTPUT jacks and the HEADPHONES jack. Volume increases when turned to the right.

Remote Control

⑱ PLAY/PAUSE BUTTON

Same as ⑥.

⑲ PROGRAM SELECTION BUTTON ($\lvert\triangleleft\triangleleft$, $\triangleright\triangleright\rvert$)

Same as ⑦.

⑳ REVERSE BUTTON ($\triangleleft\triangleleft$)

Same as ⑧.

㉑ FAST—FORWARD BUTTON ($\triangleright\triangleright$)

Same as ⑨.

㉒ REPEAT BUTTON

Same as ⑩.

㉓ A—B REPEAT BUTTON

Same as ⑪.

㉔ DISPLAY BUTTON

Same as ⑫.

㉕ MEMORY BUTTON

Same as ⑬.

㉖ MEMORY CLEAR BUTTON

Same as ⑭.

- When changing the batteries of the remote control, insert the batteries with their polarity aligned according to the diagram on the back of the battery case.
- 2 AA size (UM-3) batteries are recommended.

Loading Compact Discs

1. Press the POWER switch to turn on the power.
2. Press the OPEN/CLOSE button to slide out the DISC TRAY.
3. Place the disc label facing up.
   Center the disc on the tray.
4. Press the OPEN/CLOSE button to close the DISC TRAY.

   Pressing the PLAY button even when the DISC TRAY is open, closes the tray and begins playback from the first program.

Disc

Disc Tray

Disc label facing up
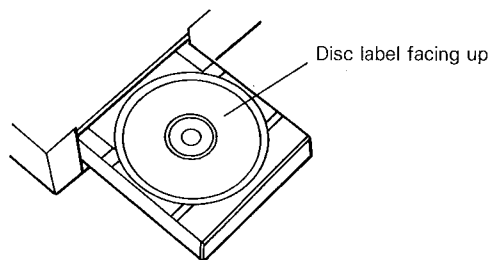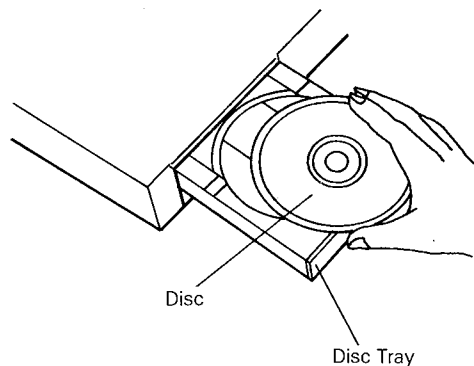
CAUTION

Wait until the disc holder is completely open before loading the compact disc. Failure to observe this precaution can result in damage to the disc.

To prevent fingerprints from getting on the disc, handle it only by the edges or center, as shown in the illustration below.
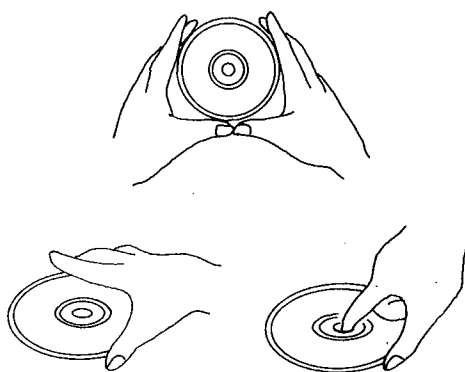
Playing a Disc

1. Press the POWER switch.

Blinks for a few seconds.

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │     0       │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

2. Press the OPEN/CLOSE button.
   (DISC TRAY opens)

3. Carefully insert disc.
   (Label side up)

4. Press the OPEN/CLOSE button.

Blinks when reading disc contents.

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │     0       │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```
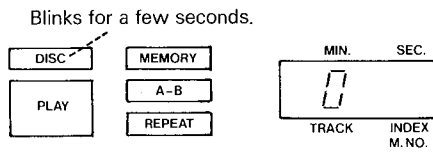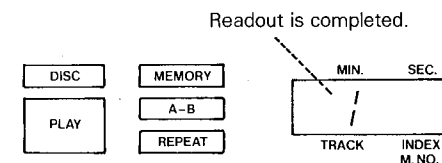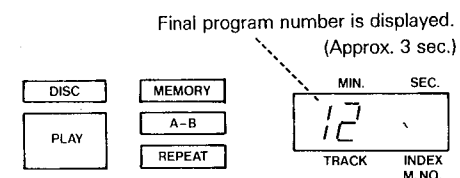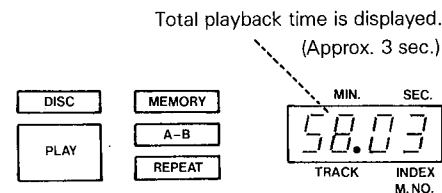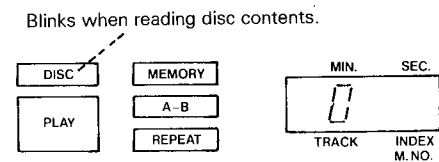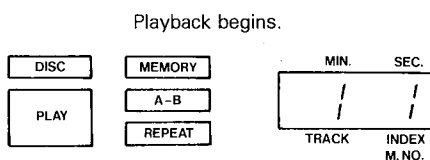
Total playback time is displayed.
(Approx. 3 sec.)

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │  58.03      │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

Final program number is displayed.
(Approx. 3 sec.)

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │  12         │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

Readout is completed.

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │     1       │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

5. Press the PLAY/PAUSE button.

Playback begins.

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │   1     1   │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

- The DISC TRAY will also close if step 5, pressing the PLAY/PAUSE button, is carried out instead of step 4. In this case, the unit will directly commence playback from the beginning of the first program.

- To Temporarily Halt Playback
  Pressing the PLAY/PAUSE button causes the unit to enter the pause mode. The PLAY indicator will blink. Pressing the PLAY/PAUSE button again defeats the pause mode and re-enters the play mode.
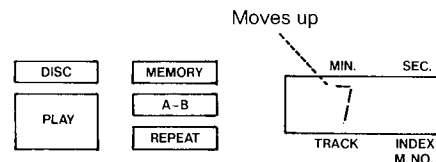
- Stopping Playback
  When the PLAY/PAUSE button is pressed for more than 2 seconds, the disc stops turning and the unit enters the ready mode.

- Removing a disc
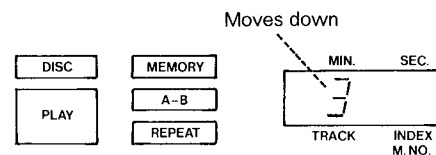 Pressing the OPEN/CLOSE button opens the DISC TRAY.

Desired Program Playback

This feature allows you to move forward or backward directly to a desired program, skipping the rest. This function can be activated from any mode (disc set, play, pause).

1. To skip forward, press the ▷▷| button until the desired track appears in the DISPLAY.

Moves up

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │     7       │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

2. To skip backward, press the |◁◁ button until the desired track appears in the DISPLAY.

Moves down

```
┌ DISC ┐  ┌ MEMORY ┐     MIN.    SEC.
│      │  ├  A-B  ─┤    ┌─────────────┐
│ PLAY │  ├ REPEAT ┤    │     3       │
└      ┘  └        ┘    └─────────────┘
                        TRACK   INDEX
                                M.NO.
```

- When the DISC TRAY is open, the track number is set using the ▷▷| or |◁◁ buttons, and the operation will be carried out when the DISC TRAY is closed using the PLAY/PAUSE button.
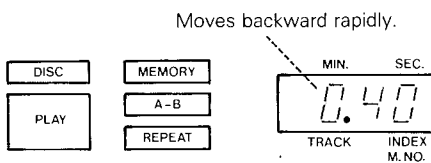
Audible Search

This feature can allows you to search either forward of backward to find a desired location. In addition, low volume audio can be heard.

1. To search forward, press and hold the ▷▷ button.

Moves forward rapidly.

DISC	MEMORY
PLAY	A-B
	REPEAT

MIN. SEC.

1.32

TRACK   INDEX
        M. NO.
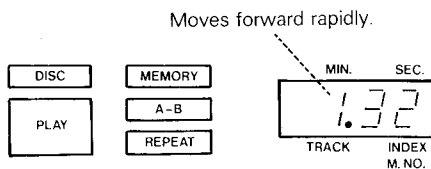
2. To search backward, press and hold the ◁◁ button.

Moves backward rapidly.

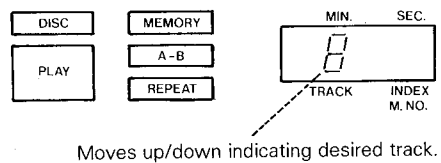| DISC	MEMORY
PLAY	A-B
	REPEAT

MIN. SEC.

0.40

TRACK   INDEX
        M. NO.

- Rapid, non-audible search, both fast-forward and backward, can be activated from pause mode.
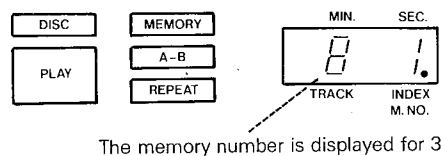
Programming the Memory

This feature allows you to select certain desirable programs, in any order, for playback, automatically skipping the rest. A maximum of 15 programs can be entered into the memory.

1. Pressing the PLAY/PAUSE button for more than 2 seconds changes the mode to the stop mode.

2. Press the ▷▷� or �◁◁ button until the desired track is displayed.

DISC	MEMORY
PLAY	A-B
	REPEAT

MIN. SEC.

8
8

TRACK   INDEX
        M. NO.

Moves up/down indicating desired track.

3. Press the MEMORY button.

DISC	MEMORY
PLAY	A-B
	REPEAT

MIN. SEC.

8   *1.*

TRACK   INDEX
        M. NO.

The memory number is displayed for 3 seconds.

The MEMORY indicator blinks for approx. 3 seconds when the memory is being registered.

4. Repeat steps 2 and 3.

A maximum of 15 tracks can be entered into the memory.
(Full is displayed when a 16th entry is attempted.)

5. Press the PLAY/PAUSE button to begin memory playback.

- When clearing the memory, press the MEMORY CLEAR button.
- If the ▷▷⏤ or ⏤◁◁ button are pressed during memory playback, only those tracks registered in the memory will be skipped. The contents of the memory may be verified by doing this while in the pause mode.

Repeat Playback

This feature allows you to repeat all tracks on the disc, or the programs selected in memory. To activate, press the REPEAT button.
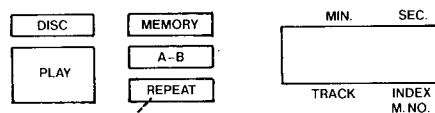
Repeat indicator lights up.

To release repeat function, press the REPEAT button again.

Repeat One Section of the Disc

1. During playback, press the A—B REPEAT button at the beginning of the desired section. The A—B indicator blinks, and the starting point for repeat playback is set.
2. Press the A—B REPEAT button again during playback at the end of the desired section. The A—B indicator will remain lit, and the end point for repeated playback is set. The set section will be repeated continuously.
3. To discontinue an A—B repeat, press the REPEAT button.

Timer Playback

When the disc is set and the power is turned on, playback will begin automatically. In this way, operation of this unit together with a timer allows playback to begin automatically from a desired time.

Operational Range of Remote Control Unit

Use the remote control unit within the range shown in the diagram below.

Remote control unit
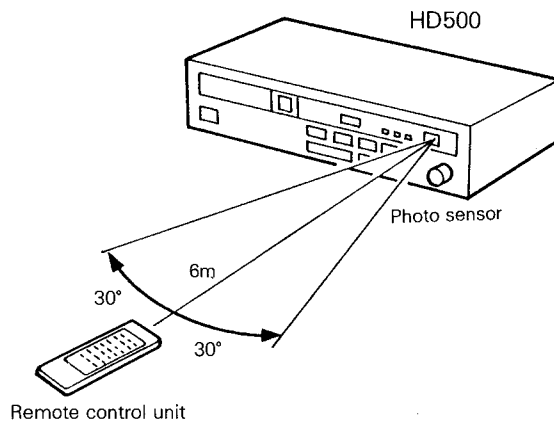
TROUBLESHOOTING CHECKLIST

Check items listed below before requesting repair service. This may prove time saving in the long run.

Problem	Cause	Remedy
The unit will not play although the disc has been loaded.	• The disc has been loaded upside down. • The disc is dirty. • The disc is scratched. • The disc is excessively warped. • Condensation has formed on the disc or optical head. • The disc does not conform to the appropriate standards.	• Reinsert the disc. • Clean the disc. • Replace the disc with a new one. • Replace the disc with a new one. • Wait for 20—30 minutes before operating the unit. • Use a different disc.
Certain portions of the disc do not play.	• The disc is dirty. • The disc is scratched.	• Clean the disc. • Skip over the scratched portion during playback.
The sound is distorted.	• Check the amplifier and CD player connections.	• Connect the amplifier and player together correctly.
Nothing happens when function keys are pressed. The display has characters that are neither numbers or letters.		• Turn the power off and then back on again.

System: Compact Disc Digital Audio
SignalDetection: 3-Beam Semiconductor Laser
Error Correction: CIRC system
Sampling Frequency: 44.1kHz
Quantization: 16 Bit Linear
Channels: 2 Channel Stereo
Frequency Response: 4 — 20,000 Hz ±0.5dB
Total Harmonic Distortion: 0.01% (1kHz)
Dynamic Range: 94dB
Signal-to-Noise Ratio: 100dB
Channel Separation: 83dB (1kHz)
Wow & Flutter: Immeasurable
Line Output Level/Load Impedance: Variable, Max. 2.4V/10k Ohms
Headphone Output Level/Load Impedance: 25mW/32 Ohms
Power Requirements: AC 120V, 60Hz
Power Consumption: 20 Watts
Dimensions (W x H x D):   17-1/2" x 4-1/16" x 13-3/16"
                                                 (443 x 103 x 335 mm)
Weight: 12.8lbs. (5.8kg)
Accessories: Stereo Connecting Cords
                                                 Remote Control
                                                 AA Battery (x2)

All specifications and features subject to change without notice.

Warranty and After-sale Service

● Please find the description of our warranty policy enclosed with this unit.
● Read it carefully and keep it in a safe place.
●The warranty period is one year from the date of purchase. Your bill of sale identifies this date. Therefore, it is important that you also keep the bill of sale for the length of the warranty period.
● If this unit does not operate normally, first check this unit by yourself following the instructions provided in TROUBLESHOOTING CHECKLIST in the manual.

● If a problem persists even though you have done as suggested in the checklist, consult your authorized Harman Kardon service station.
● Repair within the warranty term is made according to the prescriptions specified in the warranty card. For details, refer to the warranty card.