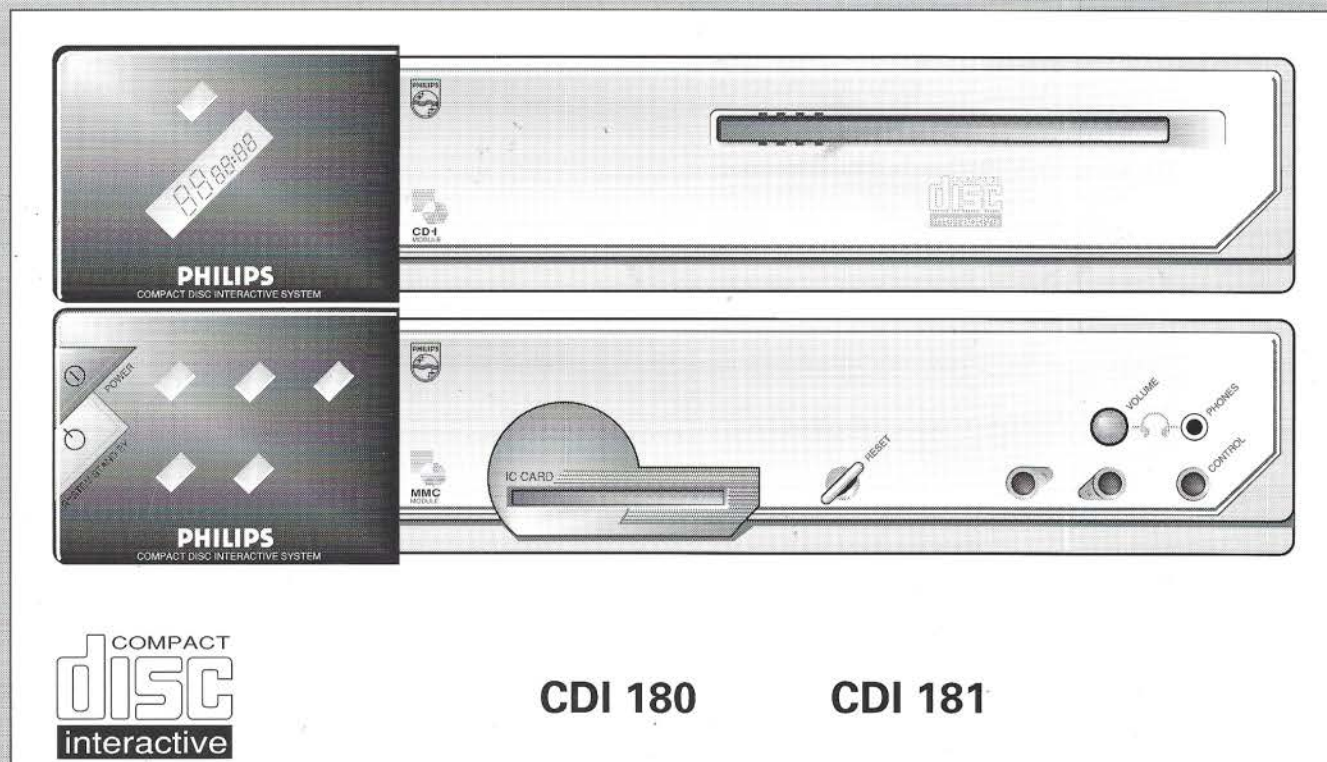


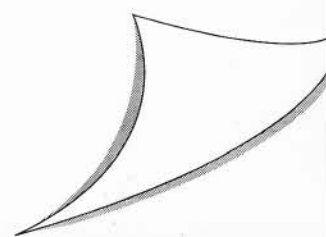


CD-I System Basic Configuration



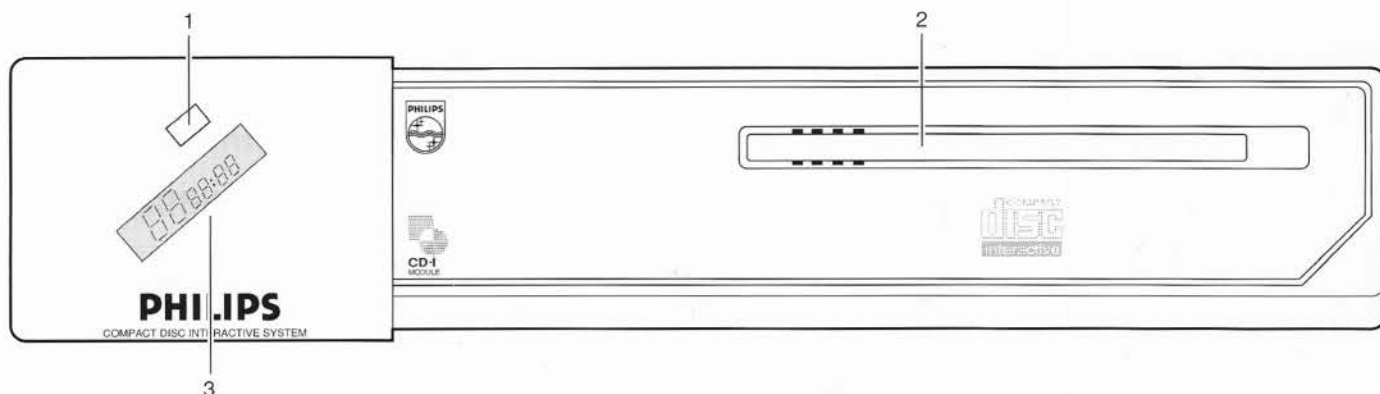
INSTALLATION AND OPERATION MANUAL

Open this flap to read
important instructions

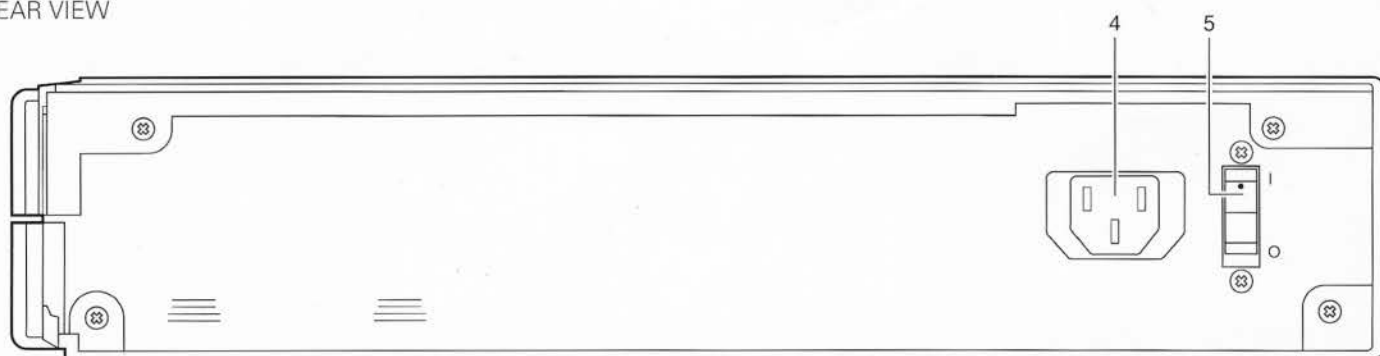


CDI 180 (PLAYER MODULE)

FRONT VIEW

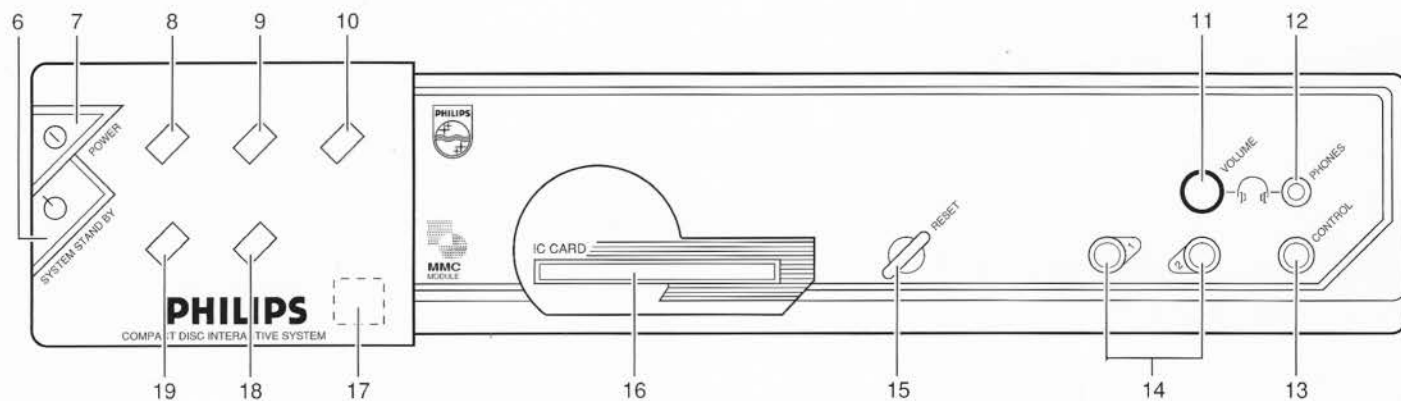


REAR VIEW

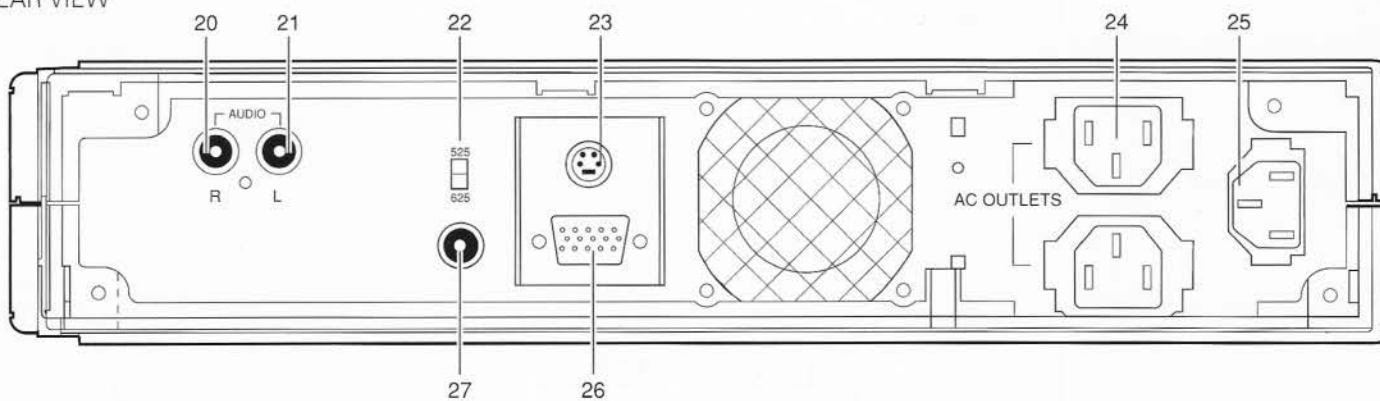


CDI 181 (MMC-MODULE)

FRONT VIEW



REAR VIEW



WARNING

This equipment generates, uses and radiates radio frequency energy and if not installed and used in accordance with this instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to subpart J of part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

IMPORTANT

This product was FCC certified under test conditions that included use of shielded cables and connectors between system components. It is important that you use shielded cables to reduce the possibility of causing interference to radios, television sets and other electronic devices. If you have any problems contact your dealer.

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to the possibility of eye damage.

CAUTION

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DISC LOADING WARNING

DO NOT LOAD ANY TYPE OF DISC INTO THE CD-I PLAYER WITHOUT FIRST PUTTING IT INTO THE CADDY, AS THIS WILL DAMAGE THE DISC HANDLING MECHANISM AND/OR THE DISC.



**CLASS 1
LASER PRODUCT**

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1 INTRODUCTION

Welcome to Compact Disc Interactive (CD-I), the latest application of optical disc technology. CD-I is an exciting new interactive multi-media system which connects to a TV, Monitor and/or Hi-Fi to provide education, entertainment and information.

CD-I is based on a worldwide accepted standard which means that all discs made to the standard can be played on this system.

Your CD-I system is an integrated system which can handle sound, video-graphics, text and computer information.

The CD-I player can play both CD-I discs and normal audio CDs (also the audio 'tracks' of CD-Video discs).

The Multi-Media Controller module (or MMC module) CDI 181 is necessary to control all inputs and outputs from your CD-I system.

This manual must be used to install your CD-I system safely and quickly, and will show you the basic operation of the system.

Unpacking

The following accessories are provided with this CD-I system (player CDI 180 and MMC CDI 181):

CDI 180:

- Mains (AC) interconnection cable
- 3 Cinch (RCA) cable links
- 3 Empty caddies
- Side cover

CDI 181:

- Mains (AC) power supply cable
- Control cable
- CVBS video cable (for USA version only)
- Stereo audio cable (for USA version only)
- Remote control (type 22 ER 9050)
- 3 Batteries for remote control (type R6, LR6 or AA)
- RS 232-C connector block, and side end-cap
- Mouse (type 22 ER 9010)

Safety instructions

Your CD-I player and the Multi-Media Controller (MMC) module are advanced electronic systems. The following safety instructions must be followed before using them:

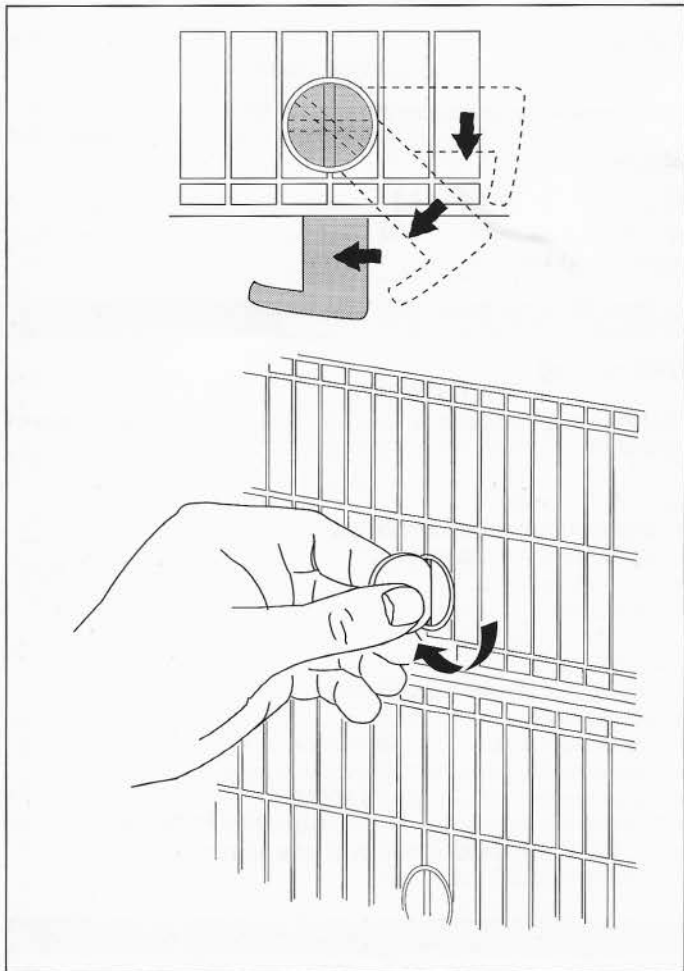
- Check if your mains (AC) supply voltage is the same as that given on the type plate on the rear of the CD-I player and Multi-Media Controller module. If your mains (AC) supply voltage is different consult your CD-I dealer.
- Make sure that air can circulate freely through the ventilation openings of the CD-I system.
- Do not place the CD-I system near a heat source (e.g. a heating system radiator), or in direct sunlight.
- Do not use liquids near the CD-I system; if a liquid is accidentally spilled into the system, switch it off and consult your dealer.
- Never attempt to repair the CD-I system yourself. Always consult a qualified service technician. (*Note: There are dangerous voltages inside the CD-I system*).

SEE WARNING INSIDE THE FRONT COVER FOR LASER SAFETY.

2 INSTALLATION

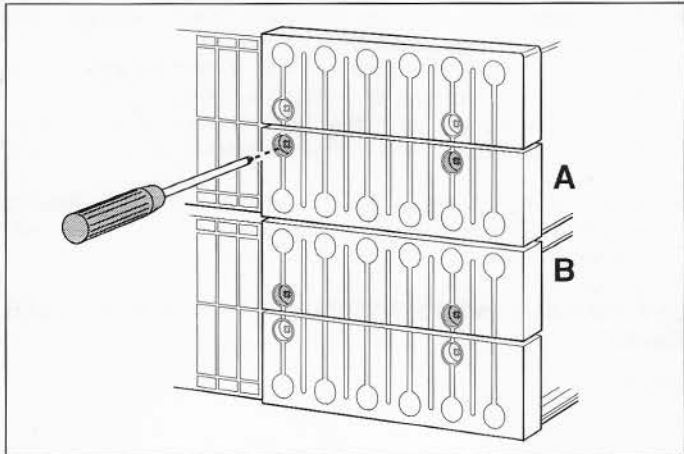
Installing the CD-I system

- Put the MMC module on a flat stable surface.
- Put the CD-I player on top of the MMC module and fasten the two units together by turning the slots located on both sides of the CD-I player using a coin. This action engages the hooks in the MMC module.

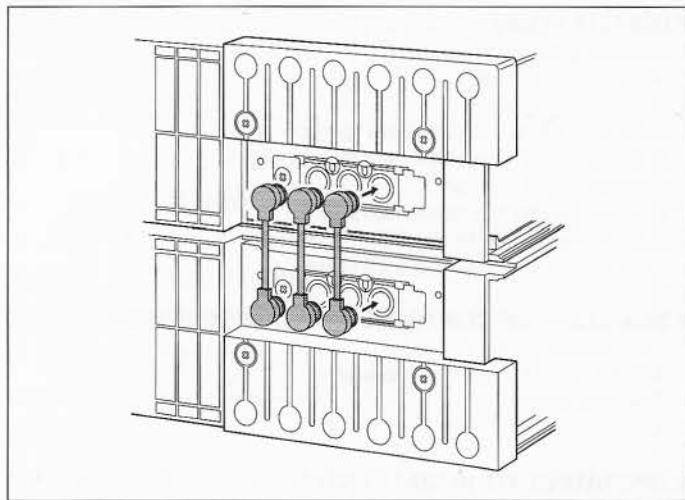


Note: When the CD-I system is installed in a cabinet an unobstructed space of 5 cms (2 inches) is required around the system to ensure proper ventilation.

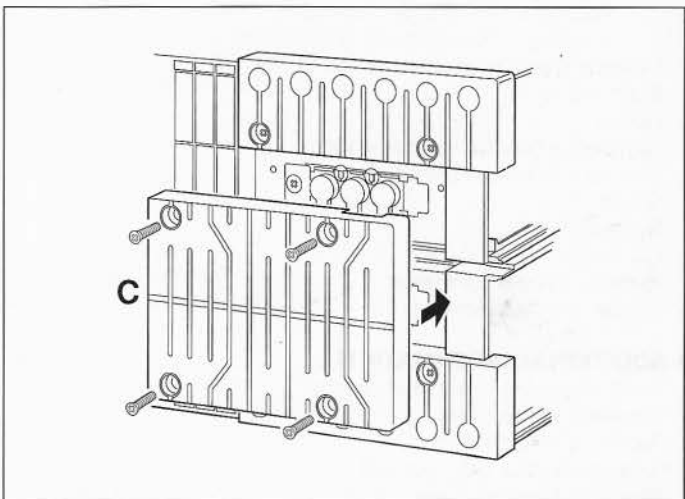
- Remove the lower end-cap (A) of the connectors from the CD-I player and the upper end-cap (B) of the MMC module and keep the screws for later use.



- Find the three Cinch (RCA) cable links supplied. Connect (in turn) the CLOCK sockets, the DO sockets, and the RS sockets of the CD-I player and the MMC module, using the three Cinch (RCA) cable links.



- Find and then attach the side cover (C) using the screws which have been removed.

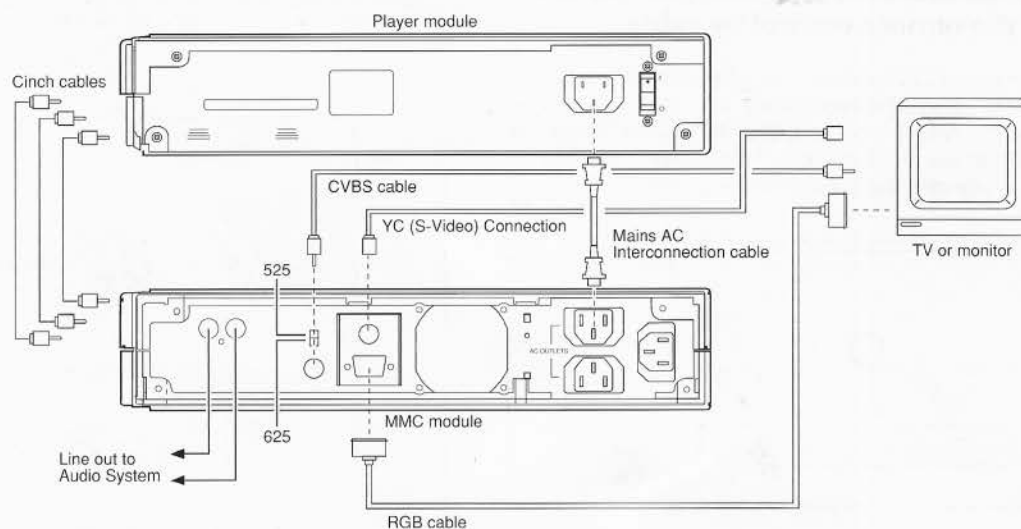


- Connect the mains (AC) interconnection cable between the upper AC OUTLET (24) of the MMC module and the AC inlet (4) of the CD-I player. (See flap)

Note: If the system has to be transported, both units must be disconnected. The hooks are not for transportation. For protection of the connectors, replace the endcaps.

You can place your TV set or monitor next to the CD-I system. It is also possible to put the monitor on top of the CD-I player.

CONNECTIONS



Note: The power must be switched off before connecting or disconnecting the units.

Video connections

- Select either 525 or 625 lines using the switch (22) on the rear panel of the MMC module (see flap).

Note: Switching from 625 to 525 lines or vice versa is only effective after a power down or reset.

525 lines (NTSC)

Connect your TV or monitor to either:

- the RGB output socket
- the Y/C (S-Video) output socket
- the VIDEO (CVBS) output socket (yellow).

The RGB output provides the best quality video. The Y/C (S-Video) output provides a better quality video signal compared to the broadcast television quality of the CVBS output.

North America and Japan use the '525-line' television system (NTSC).

625 lines (PAL, SECAM)

Connect your TV or monitor to

- the RGB output socket.

These connections are on the MMC module. The one you use depends on the input sockets provided on your TV or monitor.

Note: Not connectable to 15 pin VGA Connector.

Use the included CVBS cable (USA version only), or order the interface cable SBC 1134 for a TV or monitor with a Euroconnector.

Europe and many other countries use the '625-line' television system (PAL or SECAM). Check the TV or monitor manual or contact your dealer.

If you are using your TV or monitor for audio reproduction, connect the two Cinch (RCA) connectors - Red (Right channel -20) and White (Left channel-21) on the back of the MMC module with the stereo audio cable or a Euroconnector cable to the TV or monitor.

Otherwise, connect the Hi-Fi system via the two Cinch (RCA) connectors, Red (Right channel) and White (Left channel) on the back of the MMC module.

Note: Do not connect the Cinch (RCA) outputs on the MMC module to the phono inputs of the Hi-Fi system.

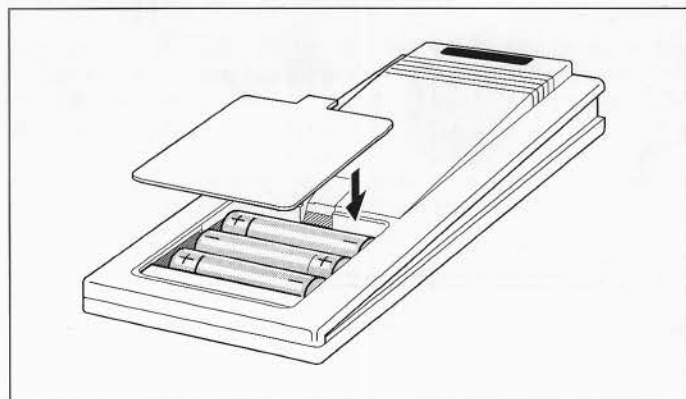
Headphones can be connected via the PHONES socket (12) on the front of the MMC module (see flap).

Inserting batteries in the remote control

The CD-I remote control uses three 1.5 volt batteries. (We recommend alkaline batteries type R6, LR6 or AA.)

- Remove the cover plate from the battery compartment located at the back of the remote control.
- Insert the 3 batteries in the battery compartment as shown.
- Replace the cover plate.

Note: The battery life is approximately 20 hours of continuous use.



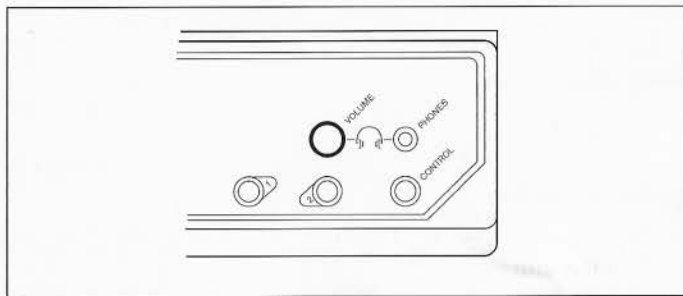
Audio connections

Audio reproduction can be heard via your TV and/or monitor or via your Hi-Fi system.

2 INSTALLATION

Connecting the remote control by cable

If the position of your CD-I system makes it difficult to operate the remote control using infra-red, then the remote control can be connected to the MMC module CONTROL port (13) via the control cable supplied. First ensure the MMC module is switched off or in standby, before connecting.



When required, control devices other than the remote control can be connected at the MMC CONTROL port.

Note: When the remote control is connected by cable it is powered by the MMC module.

Connecting a mouse

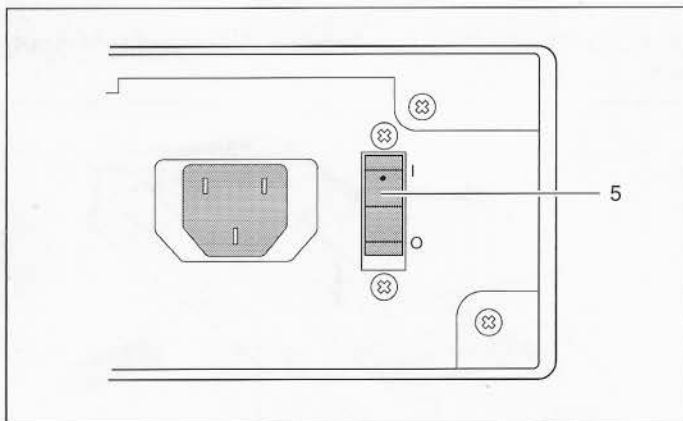
- Insert the mouse connector in port 1 (14). If a second mouse is to be used, connect it to port 2 (14).

Connecting to the power supply

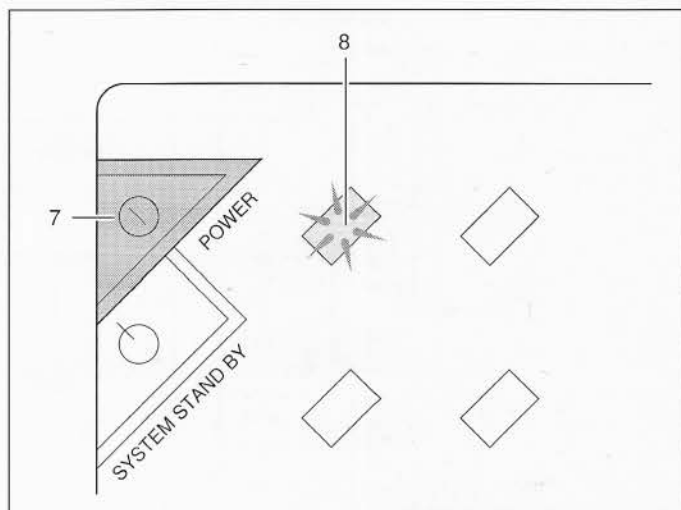
- Connect the mains power supply cable between the AC inlet (25) at the back of the MMC module and the wall AC power socket (see flap).

Switching power to the CD-I system

- Set the power switch on the back of the CD-I player (5) to on (I). In normal operation it is recommended to leave the switch in this position.



- Press the MMC POWER switch (7) to on and check if the green power indicator (8) lights.



Getting started: playing a CD-I disc

- Switch on your TV or monitor and Hi-Fi System (if used).
- Switch on the power to the MMC module and CD-I player by pressing the POWER switch on the MMC module (7) and check the green power indicator (8) is lit.
- Insert the caddy with a CD-I disc into the caddy slot and remove the empty caddy. The disc is now loaded.
- Use the remote control or mouse to select CD-I from the menu on screen.

The CD-I system starts to play the CD-I application from the disc. You control the play sequence by pointing the cursor and selecting from menus that are displayed on your TV or monitor.

For information on how to operate your CD-I System see page 11.

3 SUMMARY OF CONTROLS AND CONNECTIONS

CDI 180 (PLAYER MODULE)

See flap (front view).

1. **Power indicator**
Lights "green" when power is applied (normally via the MMC module).
2. **Caddy slot**
Used to insert the disc by means of the caddy.
3. **Player display indicator**
Shows the status of the CD-I player.

Player display indications:
"-----" if no disc loaded, flashes during disc read in.

When a disc is read in, the following are displayed depending on the type of CD disc.

00 00:00

Total number of tracks and running time of a Compact Disc or audio part of CD Video.

CD-I

When a CD-I disc has been loaded or,

CD-I:DA

When a CD-I disc also containing Digital Audio tracks has been loaded.

DATA

When another type of data disc has been loaded (not playable by CD-I system).

While playing the display will show:

PLAY

When a CD-I, CD-DA or CD-V disc is being played.

See flap (rear view).

4. **AC inlet**
For connecting the CD-I player to the upper AC power outlet of the MMC module.
5. **Power switch**
Switches power on or off to the CD-I player. "I" is on, "O" is off.

CDI 181 (MMC-MODULE)

See flap (front view).

6. **SYSTEM STANDBY switch**
Pressing this switch puts the MMC module into or takes it out of, the standby condition.
7. **POWER switch**
Switches power on or off to the MMC and any AC connected modules.
8. **Power indicator**
Lights "green" when power is applied.
9. **Standby indicator**
Lights "red" when the system is in standby.
10. **IR received indicator**
Lights "orange" when the IR receiver receives a signal from the remote control.

11. VOLUME control

Sets sound level when listening via headphones (push first to cause control knob to pop out, then turn to adjust the volume level).

12. PHONES socket

For connecting stereo headphone.

13. CONTROL port

For connecting the remote control and/or other suitable control devices using a control cable.

14. 1 and 2

For connecting a mouse or another suitable control device.

15. RESET key

If control of program is lost, pressing this key returns system to initial state.

16. IC card slot

For inserting the Personal Memory Card (if required by the CD-I application).

17. Infra Red receiver

Receives infra red (IR) signals from the remote control.

18. CD-DA indicator

Lights "green" when a CD-DA track is read by the CD-I player.

19. CD-I indicator

Lights "green" when a CD-I track is read by the CD-I player.

See flap (rear view).

20. Audio output (R)

For connecting the MMC module to the right channel of your HI-FI system.

21. Audio output (L)

For connecting the MMC module to the left channel of your HI-FI system.

22. 525/625 Lines selector

For setting the display format to television standard.

23. Video output Y/C (S-Video)

For connecting the MMC module to a display via an Y/C (S-Video) cable.

24. AC outlets

For providing power to the CD-I player and to another system module, via the mains (AC) interconnection cable.

25. AC inlet

For providing power to the system via the mains (AC) power supply cable.

26. Video output (RGB)

For connecting the MMC module to a display via an RGB cable.

27. Video output (CVBS)

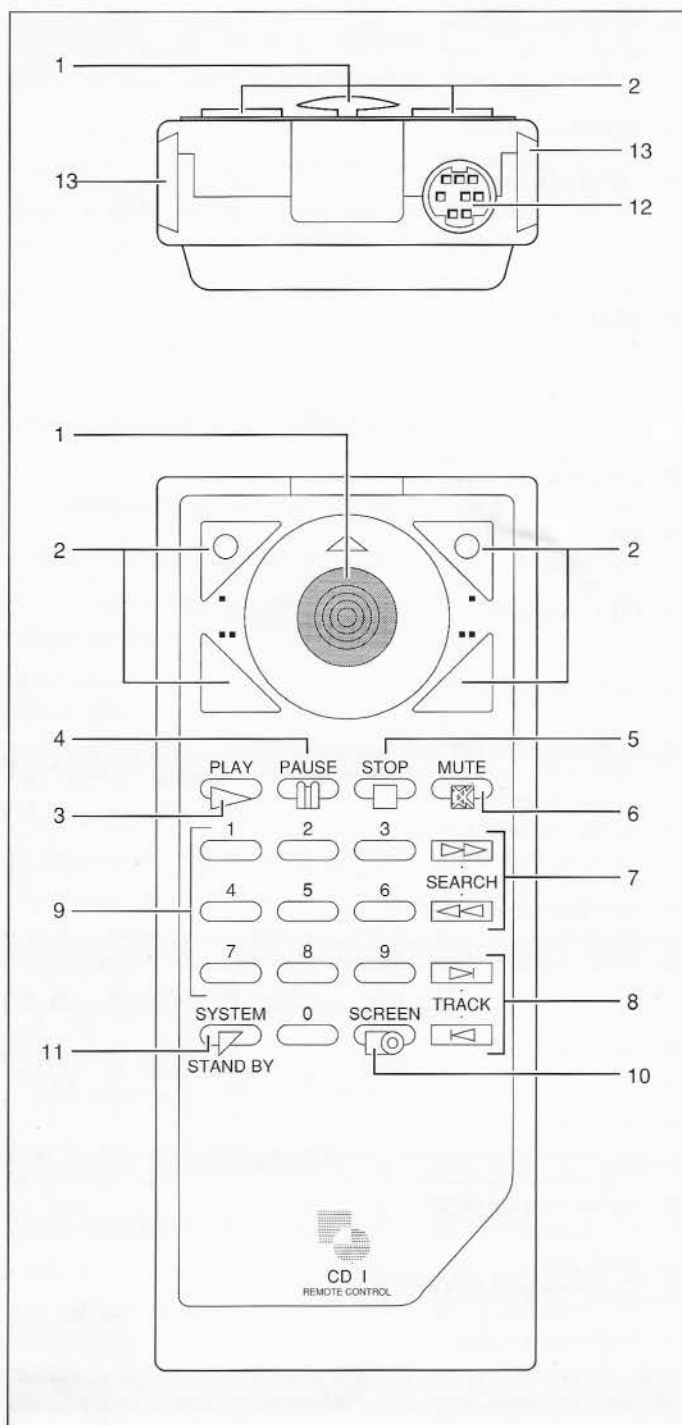
For connecting the MMC module to a display via the CVBS video cable.

Remote control

The function is to provide a CD-I control facility to move the cursor to where you want on the TV or monitor screen. The remote control combines control functions for playing CD-I discs, CD-DA discs and CD-I system functions.

Note: When using the remote control without the control cable, point it at the IR receiver (17) on the MMC module.

3 SUMMARY OF CONTROLS AND CONNECTIONS



For play control of the CD-I system and CD-I discs:

1. Joystick

Cursor control device which controls the speed and direction of cursor movement on the TV or monitor screen.

2. Action keys

Two pairs of keys which initiate the function, i.e. command or icon at which the cursor is pointing.

For the play control of CD-DA discs:

NOTE: these keys do not function while playing CD-I discs.

3. PLAY key

Press this key to start disc playback.

4. PAUSE key

Press this key to interrupt disc playback, playback is stopped temporarily at that position. To resume playback, press the Play key.

5. STOP key

Press this key to stop playback.

6. MUTE key

Press this key to get in pause. Press again to resume playback.

7. SEARCH keys

Fast forward

When this key is held pressed during playback, the player searches forward at high speed.

Fast reverse

When this key is held pressed during playback the player searches backward at high speed.

8. TRACK keys

Next track key

Each time this key is pressed during playback, one track is skipped in the forward direction, and playback is started from that track.

Previous track key

Each time this key is pressed during playback, one track is skipped in the backward direction, and playback is started from that track.

9. 0-9 digit keys

For entering numbers (not used for playing CD-DA or CD-V discs).

10. SYSTEM key

Pressing this key reduces brightness of the TV or monitor screen. Press any other mode/action key to restore brightness to its previous level.

For control of the CD-I system:

11. SYSTEM STANDBY key

Controls the switching of the CD-I player system from the power-on mode into the standby mode or from standby mode into the power-on mode.

12. Control cable connector

Connects the CD-I remote control with the MMC module via the control cable.

13. Side attachment slot

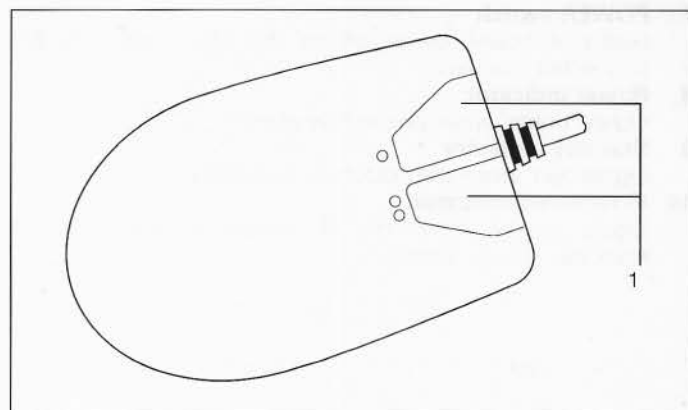
Fixes remote control to other controls, if used.

Mouse

Moving the mouse moves the cursor around the screen.

1. Two action keys

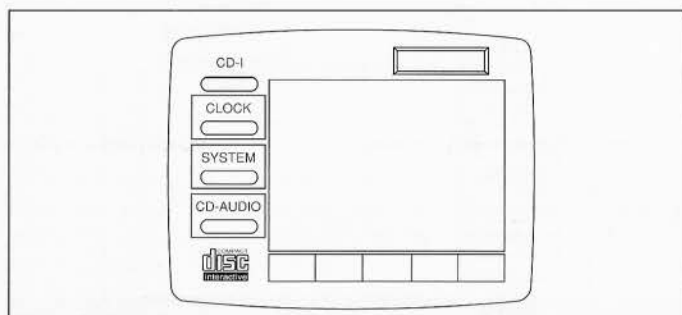
For initiating the function, i.e. command/icon at which the cursor is pointing.



Switching on

- Switch on your monitor or TV and, if used, Hi-Fi system.
- Either, press the POWER switch on the front of the MMC module. Check the green power indicator lights.
- Or, if the red standby indicator is on press the SYSTEM STANDBY switch on the MMC module. Check the green power indicator lights.

The display on your monitor or TV shows the following main menu.



However, before proceeding a few other operating instructions should be known.

Switching to system standby

(if system is in power on mode)

- Press the SYSTEM STANDBY switch on the MMC module or the SYSTEM STANDBY switch on the remote control unit. You can now control switch-on from the remote control. The red standby indicator lights on the MMC module.

Switching off

To switch power off completely.

- Press the POWER switch on the front of the MMC module to OFF. The green power indicator on the CD-I player and MMC module will go out. If in system standby mode, the red standby indicator will go out.

Loading of CD-I discs

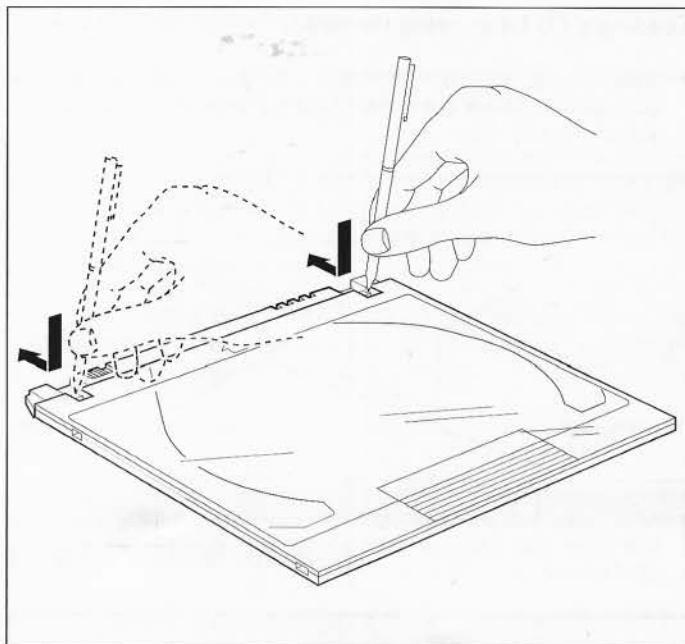
WARNING: Do not load any type of disc without first putting it into a caddy, as this will damage the disc loading mechanism and/or the disc.

Your CD-I player requires a CD-I disc to be loaded with a caddy. If the disc is not supplied in a caddy proceed as follows:

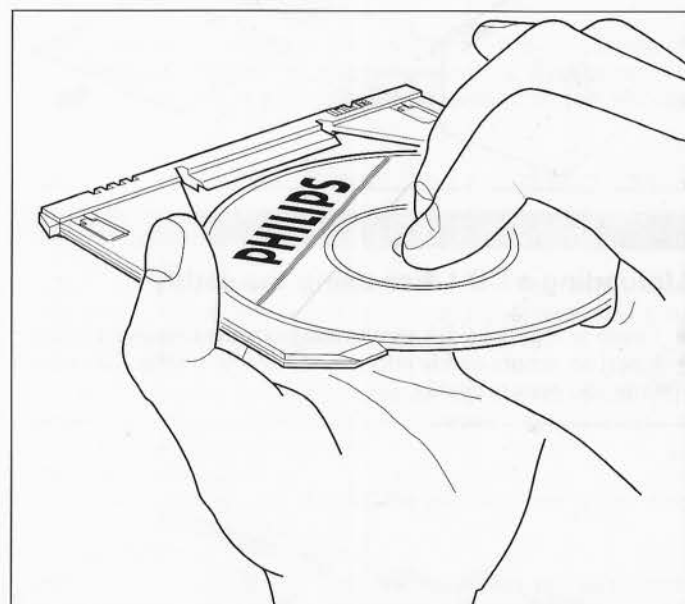
Putting a CD-I disc in the caddy

- Either disengage the hooks of the disc holder using a ballpoint pen (for example), and pull out the disc holder.
- Or remove the disc holder from the caddy using the loading tool (if supplied).

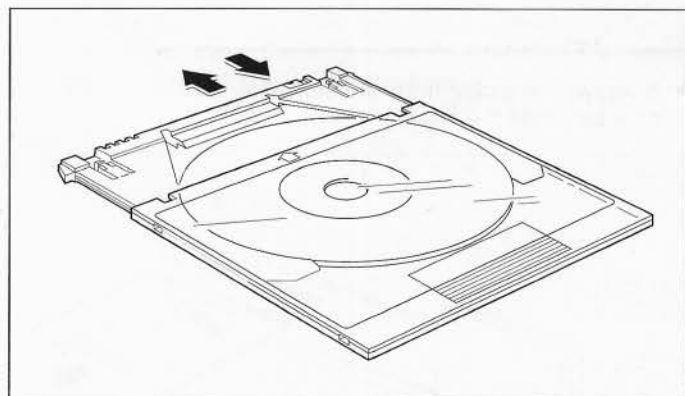
Note: Also load CD-DA and CD-V discs into a caddy as described.



Remove the disc holder from the caddy (notches to the right).



Hold the disc in the centre and place it into the disc holder with the disc label upwards (notches to the left).

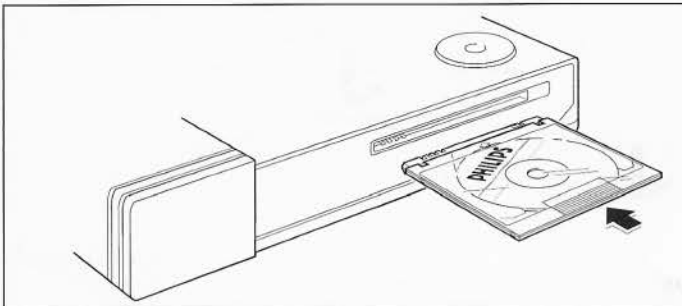


Insert the disc holder into the caddy.

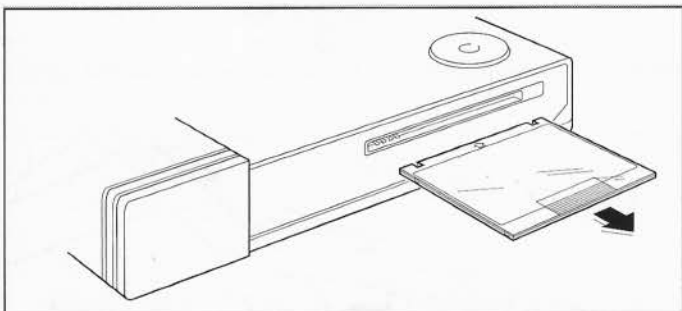
4 OPERATING YOUR CD-I SYSTEM

Loading a CD-I disc using the caddy

- Insert the caddy with the disc into the caddy slot on the CD-I player. Make sure that the four notches on the caddy are on the left side.

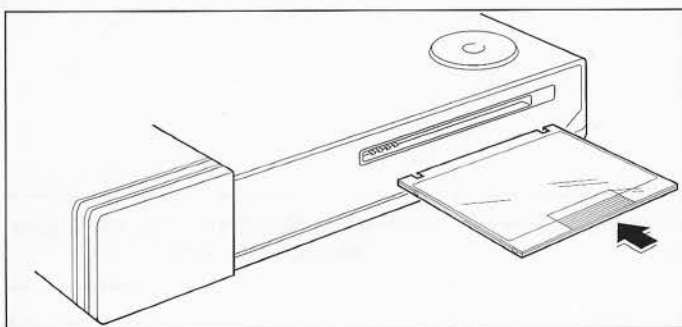


- After you hear a 'click' remove the empty caddy from the slot. The disc and the disc-holder are now loaded into the CD-I player.

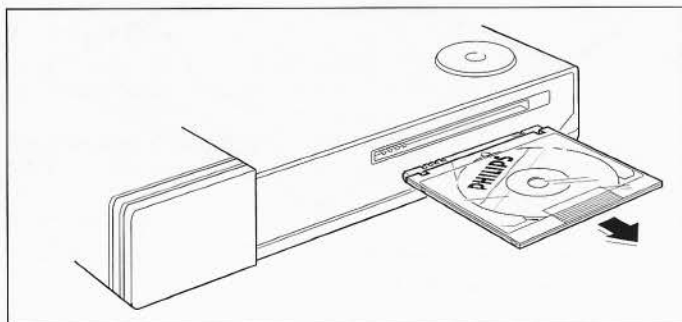


Unloading a CD-I disc using the caddy

- Finish or Exit the CD-I application from the displayed menu.
- Insert an empty caddy into the caddy slot on the CD-I player, until you hear a 'click'.



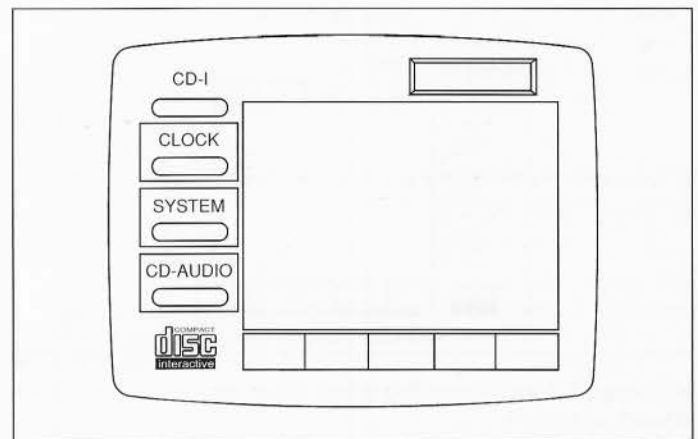
- Remove the caddy from the slot. (The disc and holder will now be inside the caddy.)



Note: If you try to unload a disc while a disc is playing you may disturb the normal operation of the system. If this accidentally happens you must press the RESET key to return to the main menu.

Main menu

There are 4 items in the main menu that can be selected, these are: CD-I, Clock, System and CD audio.



The left side of the main menu is always present to allow you to change options at any time.

Cursor

When a cursor is displayed, it can be moved around the screen by means of the remote control, the mouse or another control device. Pressing the action key(s) marked with one dot initiates the command/icon at which the cursor is pointing. Pressing the key(s) marked with two dots will result in application dependent actions.

To select a function or command

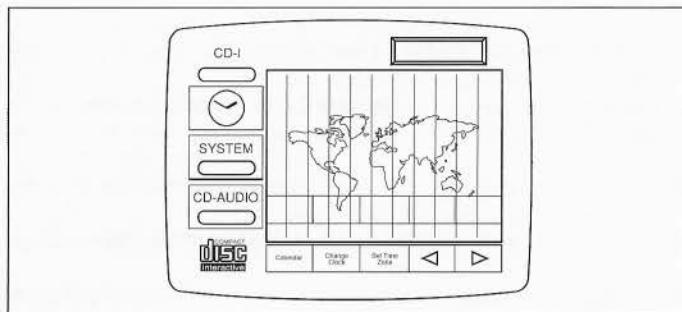
- Move the cursor onto the item to be selected, using the remote control, mouse or another control device.
- Press the action key on the remote control (or mouse).

Playing a CD-I application disc

- Load a disc (using the caddy) into the caddy slot on the CD-I player.
The CD-I player display panel will indicate that a CD-I disc has been loaded.
- Select [CD-I] at the main menu using the remote control or mouse.
- Press the action key on the remote control or mouse. The CD-I application disc will then take control of all the functions of the CD-I system, and will supply any information necessary to interact with the application.
- The CD-I application will display the necessary control functions for running the application. It will also provide a "STOP" or "EXIT" command/icon to end the application and to return to the main menu.

Clock

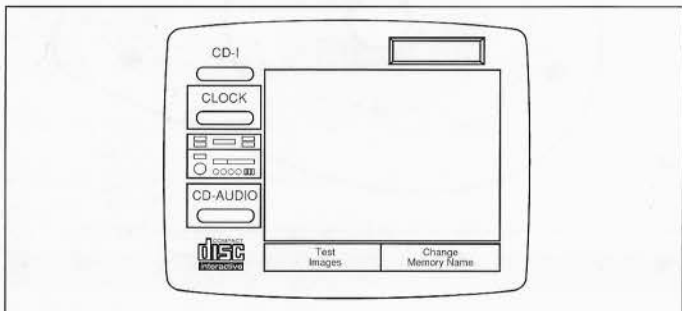
If [CLOCK] is selected at the main menu then the following is shown:



From this screen you can view a world time display, set your own time zone, adjust time/date, and view calendars. The functions are self explanatory and can be operated by using the mouse or the remote control.

System

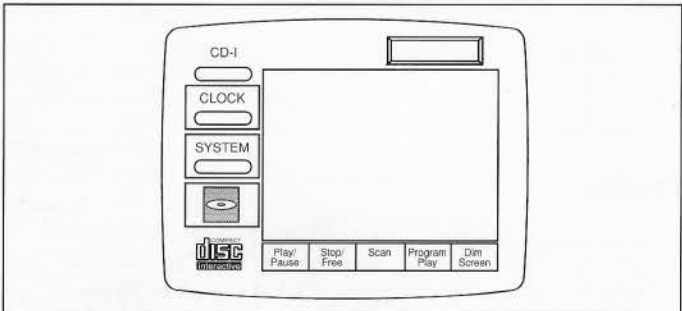
If [SYSTEM] is selected at the main menu then the following is shown:



The selectable items are self explanatory.

CD-Audio

If [CD-AUDIO] is selected at the main menu then the following is shown:



To play CD-Digital Audio discs

After selecting CD-Audio on the main menu, you have two options of how to play CD-Digital Audio (CD-DA) discs.

One option is to use the function keys underneath the cursor controls on the remote control. If a Hi-Fi System is used for audio reproduction, the video display need not be switched on. The remote control functions are explained in the section on remote control, pages 9 and 10.

The other option is to select CD-Audio functions from the screen menu using the joystick on the remote control or mouse. (See: screen menu functions, below.)

Note: The audio 'tracks' of CD-Video discs may also be played using this method.

Remote control functions

See summary of controls and connections on pages 9 and 10.

Screen menu functions

When using the CD-Audio menu you can control the playing of CD-Digital Audio discs with the mouse or the joystick on the remote control. These functions are equivalent to the remote control keys.

Additionally, if you select [Program Play] a number of options are displayed:

- [Change Disc Program]
Select the track number you want from the disc index with the cursor. Press the action key to add your selection into the program memory, repeat for further entries.
- [Auto Repeat]
To automatically repeat the disc being played, press the action key once to activate the Auto repeat feature. Press it again to deactivate this feature.
- [Shuffle Tracks]
Press the action key to "shuffle" the playing order of the disc you have selected.
- [Sleep/Wake up]
Selection of Sleep or Wake up feature allows you to change the timers to either pause or resume playing the disc. To do this select + or - and hold down the action key to speed up the timer. Release the action key to stop the timer.
- [Change Track Times]
Select the start or stop time with the cursor. Then select + or - and hold down the action key to speed up the timer. Release the action key to stop the timer.

Note: After playing the last track, the CD-I player automatically stops and shows on the display the total number of tracks and the total playing time.

5 ADDITIONAL INFORMATION

Fault check list (trouble shooting)

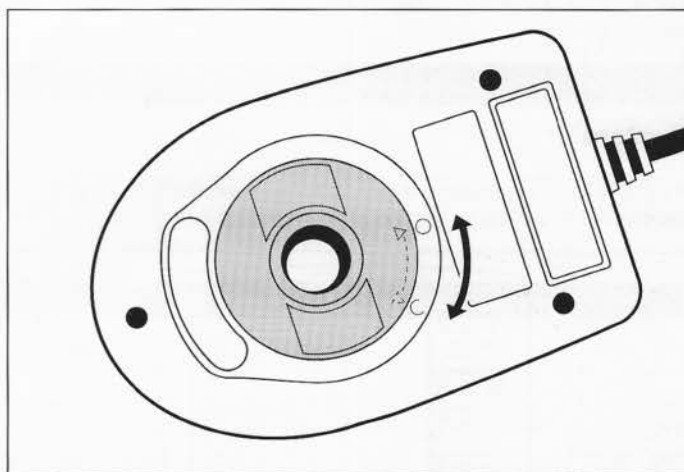
If you suspect that your CD-I system is faulty, first consult this check list. You may find that you have overlooked something simple. Under no circumstances should you attempt to repair the system yourself as this will invalidate the warranty.

1. After pressing the POWER switch, the power indicators do not light.
 - The key is not pressed far enough.
 - One of the plugs of the lead is not connected or is not making contact.
 - There is no supply at the mains (AC) socket. Plug in another electrical appliance and check if that works.
2. Caddy cannot be inserted into the caddy slot.
 - There is already a disc loaded.
 - The caddy is held upside down.
3. The disc is being played (indicated by the track number or elapsed time indication moving on regularly) when connecting the audio system, but there is no sound.
 - The amplifier is not switched on.
 - The position of the amplifier source selector switch does not correspond with the input to which the player is connected.
 - The amplifier or the loudspeakers connected to it are not working. Check with another sound source to see if it is the case.
 - The connection between the system and the amplifier is broken.
 - The MUTE key on the remote control has been pressed.
4. Distorted sound from the Hi-Fi system.
 - Audio connections must not be made to the Hi-Fi Phono input jacks.
5. There is no video display.
 - The TV or monitor is not switched on.
 - The position of the video source selector switch (if present) does not correspond with the input to which the player is connected.
 - The TV or monitor is not connected.
6. The video picture is vertically rolling and/or there is only a black and white picture displayed.
 - Check whether the 525/625 lines selector is at the correct position; if not, switch over and reset the system.
 - The line selector is set to 625 lines and the Y/C (S-Video) or CVBS outputs are used. (In the 625 lines mode only the RGB output can be used.)
7. Cursor is not responding to remote control.
 - Check the batteries and/or connection cable, then reset the system.
 - Infra red path is obstructed.
8. Cursor is not responding to mouse.
 - Check the connection cable and reset the system.
9. System does not respond after taking out a disc.
 - Disc application must be exited before taking out the disc or the system must be reset.

Cleaning the mouse

In order to ensure optimal operation of the mouse, periodic cleaning is necessary. This operation is very simple, by the following steps.

1. Turn the mouse upside down in your hand with the cable pointing towards your right side.
2. Place two fingers on either side of the roller opening on the bottom of the mouse and rotate the triangle mark from "c" to "o".
3. Hold one hand under the mouse and turn it over so that the retainer and ball drop into your hand.
4. Use a clean, soft, and dry cloth to wipe the ball clean. Never use a cleaning fluid or tissue.
5. Gently wipe inside the mouse housing to remove any dust or dirt.
6. Replace the ball in its housing, then re-insert the retainer and lock it by turning the triangle mark from position "o" to "c".



Technical information

CD-I Player modules:

CDI 180/20
CDI 180/25
CDI 180/31
CDI 180/37

CD-I Multi Media Controller modules:

CDI 181/20
CDI 181/25
CDI 181/31
CDI 181/37

Physical:

- Dimensions (wxhxd):
 - CDI 180: 362 x 75 x 362 mm (14 1/6 x 3 x 14 1/6 inch)
 - CDI 181: 362 x 75 x 362 mm (14 1/6 x 3 x 14 1/6 inch)
 - Mouse: 64 x 99 x 39 mm (2 1/2 x 3 x 1 1/2 inch)
 - Remote control: 70 x 25 x 163 mm (2 3/4 x 1 x 6 1/2 inch)

- Weight:

CDI 180:	5.5 kg	12.1 lb
CDI 181:	6.0 kg	13.2 lb
Mouse:	0.1 kg	0.22 lb
Remote control:	0.1 kg	0.22 lb

5 ADDITIONAL INFORMATION

- Cable lengths (approx):
 - Mouse: 120 cm (48 inch)
 - CVBS (CDI 181/37 only): 200 cm (80 inch)
 - IIC Connection cable: 180 cm (curled) (72 inch (curled))
- Performance (according to full functional specification CD-I standard):
 - Storage capacity: Disc; 640 Mbyte (approx)
CD-I 181; 1 Mbyte RAM, 8 Kbyte non-volatile RAM, 512 Kbyte ROM
 - Access time: < 0.8 sec (average)
- Environmental:
 - Ambient temperature:
 - Operating; 5 to 40 °C (41 to 104 °F)
 - Storage; -20 to +60 °C (-4 to +140 °F)
- Relative humidity:
 - Operating; 0 to 85%
 - Storage; 0 to 90%
- Mechanical noise: < 45 dBA
- Power supply:
 - Mains (AC) voltage and frequency:
 - CDI 180; see the type plate at the rear of the player.
 - CDI 181; see the type plate at the rear of the player.
 - Mouse; from CDI 181 (DC)
 - Remote control; from CDI 181 (DC) or 3 R6, LR6 or AA batteries (DC)
- Power consumption:
 - CDI 180; 20 Watt (approx)
 - CDI 181; 40 Watt (approx)
- Safety requirements: UL, CSA and IEC
- Audio specifications (typical) for CD-DA:
 - Number of channels: 2
 - Frequency range: 20 Hz - 20 kHz
 - Amplitude linearity: +/- 0.5 dB
 - Signal to noise ratio: > 87 dB
 - Dynamic range: > 85 dB
 - Channel separation (1kHz): > 76 dB
 - Total harmonic distortion: < -80 dB
 - Wow and flutter: quartz control precision
 - Digital/analogue conversion: 256-fold over sampling with digital filter and twin 16-bit D/A converters.
- Video specifications:
 - System: 625 lines; RGB (PAL, SECAM)
525 lines; RGB, Y/C (S-Video), CVBS (NTSC)
 - Signal to noise ratio (RGB): > 47 dB
 - Y/C (S-Video) and CVBS: > 45 dB

Connections

Connections between CD-I player and Multi-Media Controller module:

- Digital Input (Cinch/RCA): HCMOS TTL levels
- Clock Input (Cinch/RCA): 22.5792 MHz, HCMOS TTL levels
- RS Control output (Cinch/RCA): according to proprietary RS with RSX protocol version specification.
- Power supply outlet

Connections on Multi-Media Controller module.

- Audio output (2 x Cinch/RCA): 2 Vrms typical at 10 kohms
- RGB output (D shell-15): 1 Vpp, 75 ohm

RGB video connector pins:

- 1 red
- 2 green
- 3 blue
- 4 status RGB
- 5 no connection
- 6 red ground
- 7 green ground
- 8 blue ground
- 9 no connection
- 10 ground
- 11 no connection
- 12 no connection
- 13 C sync (TTL)
- 14 no connection
- 15 C sync

- Y/C (S-Video) output (Y/C mini DIN): 1Vpp, 75 ohm

- Y/C (S-Video) connector pins:

- 1 Y ground
- 2 C ground
- 3 Y out
- 4 C out
- E F ground

- CVBS output (Cinch/RCA): 1Vpp, 75 ohm

- Remote control input (mini DIN 8 pin)

- Headphone (stereo 3.5 mm socket)

- 2 mouse inputs (mini DIN 9-pin)

- CPU bus : board edge 2 x 50 pin

- IC Card interface: 40 pin

- 1 power supply inlet

- 2 power supply outlets

Extending your CD-I system

A number of options are available to extend the basic functions of your CD-I system. The use of the features are completely dependent of the application on your CD-I disc. Your CD-I system has been designed to work with the following options.

A personal memory card can be inserted in the MMC module. It contains a battery back up memory module, e.g., for use as an extension of the built-in NV-RAM, (Non-Volatile Random Access Memory)

An RS 232-C connector block will extend your CD-I system with a RS 232-C serial interface that can be used to connect a modem, printer or can be used as a port to another device (application dependent).

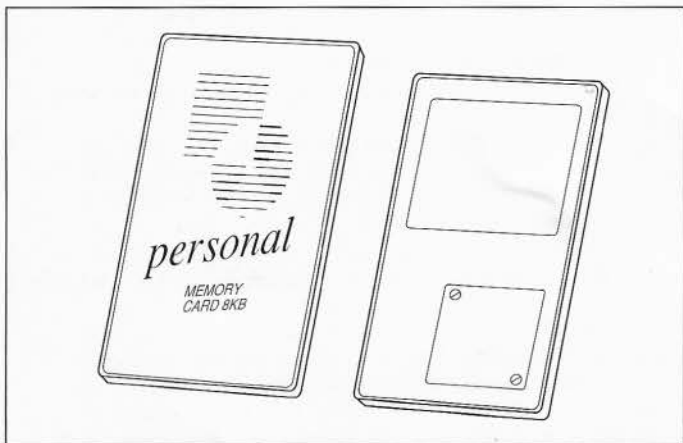
The CD-I expansion module CDI 182 with the same exterior design as the CD-I Player and the MMC module, provides full access to the video, audio, text and data processing capabilities of the CD-I MMC module.

5 ADDITIONAL INFORMATION

Personal Memory Card

The Personal Memory Card (not included) can be used as a removable exchangeable extension of the "Non-Volatile Memory". The use of this card depends on the instructions included with the disc.

Note: It is recommended to use Personal Memory Card 22ER9120 or equivalent.



RS 232-C connector block

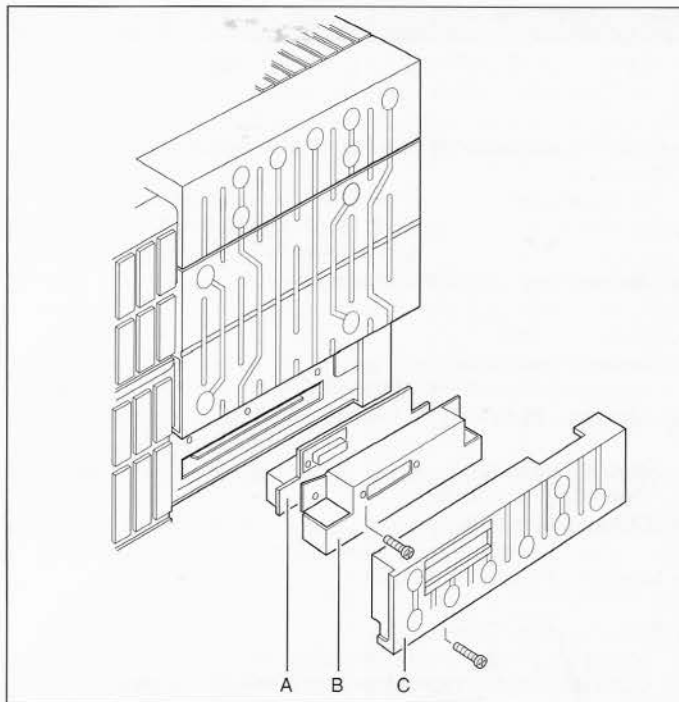
The RS 232-C connector block (included), when installed provides a serial interface to your CD-I system. This serial interface can be used to connect a modem or it can be used as a port to another data processing system. The CD-I system includes only basic support functions for the use of this interface in CD-I applications. The function of this interface is fully dependent of the CD-I application on disc. Further details on it will be found in the application or disc manual.

Note: This RS 232-C connector block cannot be used if the expansion module is connected.

Installation and use

WARNING: For installation of the RS 232-C connector block the CD-I system must be disconnected from the mains (AC) sockets.

1. Remove the lower side endcap of the MMC module by removing the screws.
2. Push the RS 232-C connector (A) firmly onto the CPU bus interface on the MMC module.
3. Mount the metal plate (B) with the studs on the chassis of the MMC module. This is required to prevent interference with other electronic equipment.
4. For the protection of the interface, you have to screw the RS 232-C side endcap (C) to the MMC module.



- Connector:
D-sub 9 pin Male type
- Pin assignment

No.	Name	
1	-	-
2	Receive data	input
3	Transmit data	output
4	-	-
5	Signal Ground	-
6	-	-
7	Request to send	output
8	Clear to send	input
9	-	-

Expansion module CDI 182

Your CD-I system can be extended to a highly versatile audio, video and data processing system by using the expansion module. This module has the same exterior design and size as the CD-I player/MMC, and includes one or two floppy disk drives, a parallel printer interface and an RS 232-C serial interface.

For connection to peripheral equipment the expansion module provides a parallel output interface and RS 232-C serial interface. The RS 232-C serial interface can be used to connect a modem or as a port to another data processing system. The parallel output interface supports the use of printers with Centronics interface. To expand the system further, two slots for extension boards are provided. These slots are connected to the CPU bus signals from the microprocessor in the MMC module.

The installation and use of this expansion module is described in the installation and operation manual of the CD-I expansion module. For professional use of the complete system, a Technical Manual can be requested via your dealer or address below:

Philips International B.V.
Interactive Media Systems
PO Box 218
5600MD, Eindhoven
The Netherlands

- GB IDENTITY CARD** This card, together with the terms of guarantee (to be provided by your dealer), forms the full certificate of guarantee for this appliance.
- D GERÄTE-KENNKARTE** Diese Karte ist, zusammen mit den Garantiebestimmungen, die Ihr Händler Ihnen aushändigt, Ihr Garantieschein für dieses Gerät.
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PHILIPS



For further information contact your dealer or the national Philips Organisation.

For the USA this is:
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