

CD-RW/DVD-ROM Drive

User's Guide



MPD-AP20U

Safety Regulations

WARNING

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Caution

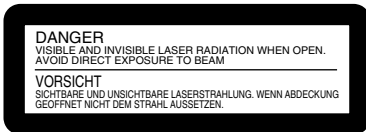
As the laser beam in this MPD-AP20U is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

The use of optical instruments with this product will increase eye hazard.

The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This label is located inside the cover and on the bottom of the drive.

Dieses Etikett befindet sich auf der CD-Schublade und auf der Innenseite der unteren Abdeckung.



The MPD-AP20U is classified as a CLASS 1 LASER PRODUCT.

The CLASS 1 LASER PRODUCT label is located on the bottom cover.

Bei diesem MPD-AP20U handelt es sich um ein Laser-Produkt der Klasse 1.

Das Etikett mit der Aufschrift LASER KLASSE 1 PRODUKT befindet sich auf der Unterseite des Gehäuses.



LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.

DANGER RADIATIONS VISIBLES ET INVISIBLES DU LASER EN CAS D'OUVERTURE.
EVITER TOUTE EXPOSITION DIRECTE AU FAISCEAU.

VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG
GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

ADVARSEL SYNLIG OG OSYNLIG LASERSTRÅLING VED ÅBNING, UNDGÅ UDSÆTTELSE
FOR STRÅLING.

ADVARSEL SYNLIG OG OSYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ
EKSPONERING FOR STRÅLEN.

VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD.
STRÅLEN ÄR FARLIG.

VARO! NÄKYVÄÄ JA NÄKYMÄTÖN AVATTAESSA OLET ALTTIINA
LASERSÄTEILYLLE, ÄLÄ KATSO SÄTEESEN.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note

If you have any questions about this product, you may call the telephone number listed in the “Product and Support Information” section. The telephone number below is not for customer service but only for official purposes.

Declaration of Conformity

Trade Name: SONY
Model No.: MPD-AP20U
Responsible Party: Sony Electronics Inc.
Address: 680 Kinderkamack Road, Oradell, NJ 07649 USA
Telephone No.: 201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

이 기기는 가정용으로 전자파 적합등록을 한 기기로서
주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

기기의 명칭 (모델명) : MPD-AP20U
인증받은자의 상호 : SONY KOREA
제조년월일 : 별도표시
제조사/제조국가 : SONY/MALAYSIA

CE Sicherheitsbestimmungen

Diese Ausrüstung erfüllt die Europäischen EMC-Bestimmungen für die Verwendung in folgender / folgenden Umgebung(en):

- Wohngegenden
- Gewerbegebiete
- Leichtindustriegeriete

(Diese Ausführung erfüllt die Bestimmungen der Norm EN55022, Klasse B.)

Caution

The mains plug on this equipment must be used to disconnect mains power.
Please ensure that the socket outlet is installed near the equipment and shall be easily accessible.

Achtung

Zur Trennung vom Netz ist der Netzstecker aus der Steckdose zu ziehen, welche sich in der Nähe des Gerätes befinden muß und leicht zugänglich sein soll.

For the Customers in the USA and Canada RECYCLING LITHIUM-ION BATTERIES

Lithium-Ion batteries are recyclable. You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you.

For more information regarding recycling of rechargeable batteries, call toll free 1-800-822-8837, or visit <http://www.rbrbc.org/>.



Caution

Do not handle damaged or leaking Lithium-Ion batteries.

Pour les utilisateurs aux Etats-Unis et au Canada RECYCLAGE DES ACCUMULATEURS AUX IONS DE LITHIUM

Les accumulateurs aux ions de lithium sont recyclables.
Vous pouvez contribuer à préserver l'environnement en rapportant les piles usées dans un point de collection et recyclage le plus proche.

Pour plus d'informations sur le recyclage des accumulateurs, téléphonez le numéro gratuit 1-800-822-8837 (Etats-Unis et Canada uniquement), ou visitez <http://www.rbrbc.org/>.




Avertissement

Ne pas utiliser des accumulateurs aux ions de lithium qui sont endommagés ou qui fuient.

Voor de Klanten in Nederland

- Dit apparaat bevat een vast ingebouwde batterij die niet vervangen hoeft te worden tijdens de levensduur van het apparaat.
- Raadpleeg uw leverancier indien de batterij toch vervangen moet worden. De batterij mag alleen vervangen worden door vakbekwaam servicepersoneel.
- Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).
- Lever het apparaat aan het einde van de levensduur in voor recycling, de batterij zal dan op correcte wijze verwerkt worden.



- Power-Burn and **Power-Burn**™ are trademarks of Sony Corporation.
- “Memory Stick” and  are trademarks of Sony Corporation.
- Microsoft, MS, MS-DOS and Windows are registered trademarks of Microsoft Corporation.
- Macintosh and Mac OS are registered trademarks of Apple Computer Inc.
- Other system and product names used herein are registered trademarks or trademarks of their respective manufacturers, although the™ and ®marks are not used in the text.

Before using this device, be sure to read the end-user license agreements for the software provided with your computer.

- Our product guarantee is valid only when the supplied accessories (including software) are used in the specified or recommended system environment, in accordance with this User’s Guide, and applies only to this portable CD-RW/DVD-ROM drive. Our customer service and user support apply only under these product guarantee conditions.
- Please note that we cannot accept responsibility for failure of the computer or other devices, incompatibility with special hardware, operating problems caused by improper installation of software, loss of data, discs or other accidental or incidental damage that might occur when using this product.
- The guarantee and user support for this product are valid only within the countries or sales regions specified on the warranty card.
- Copyright laws prohibit the copying of all or part of the supplied software and User’s Guide, or loaning the software, without obtaining permission of the copyright holder.
- We cannot accept responsibility for any direct or indirect financial damage or loss of profit that might occur when using the supplied software.
- The supplied software can only be used with this product.
- Specifications of the supplied software may be changed without notice in the interest of product improvement.

Please Record Responsibly

Before copying anything onto a CD-R or CD-RW disc, or “Memory Stick”, please be sure you are not violating copyright laws. Most software companies allow you to make a backup or archive copy of software. Check your software’s license agreement for details.

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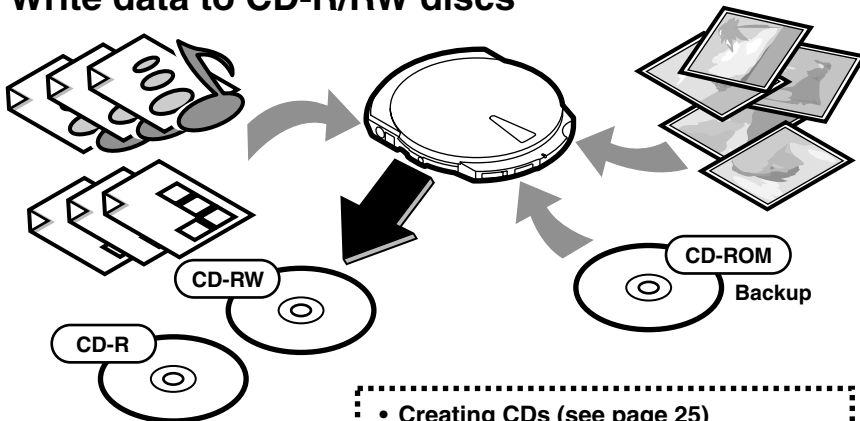
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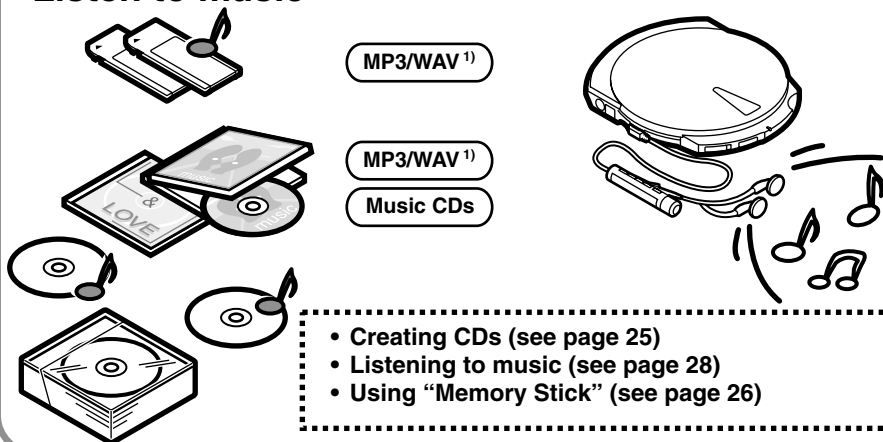
Features

The MPD-AP20U (hereafter, the “drive”) is an extremely versatile drive. Not only is it a CD-RW/DVD-ROM drive, it can also be used as a CD player, a “Memory Stick” reader/writer, and more!

Write data to CD-R/RW discs



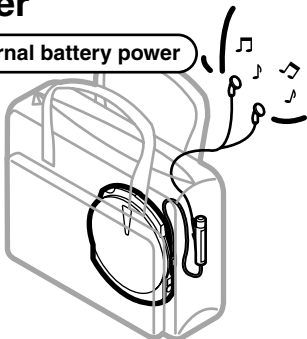
Listen to music



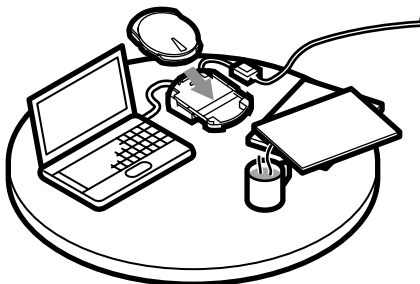
¹⁾ For details about MP3 and WAV files, see “Compatible discs and files” (page 33).

Using the drive under different power

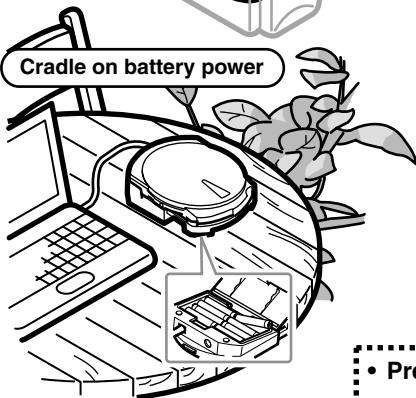
On internal battery power



Cradle on AC power



Cradle on battery power



Drive on AC power



- Preparation (see page 16)

Watching DVDs

Connect the drive to your computer and enjoy your favorite DVD-Video.

- Watching DVDs (see page 25)

Using “Memory Stick”

The drive comes standard with a “Memory Stick” slot.

- Using “Memory Stick” (see page 26)

Power management features

Depending on the status of the drive, the drive power is automatically turned on, off, or the internal battery recharged.

- Power (see page 34)

System Requirements

The following are the minimum system requirements to use the MPD-AP20U.

Windows computers

- CPU: Pentium II, 400 MHz or higher
- RAM: 64 MB or more
- Available hard disk space: 1 GB or more
- OS: Windows 98 Second Edition (Windows 98 SE)
 - Windows 2000 Professional, Service Pack 3 or later (Windows 2000)
 - Windows Millennium Edition (Windows Me)
 - Windows XP Home Edition or Professional (Windows XP)
- USB connector¹⁾
- If you are using Windows 98 SE, you need a CD-ROM drive or a connection to the Internet to install the device drivers

Macintosh computers

- Power Mac G3, G4, or G4 Cube; iMac, eMac, or iBook; PowerBook G3 or G4
- OS: Mac OS 9 or X ver. 10.1 (9.2.2 and 10.1.5 recommended)
- RAM: 64 MB or more
- USB connector¹⁾

Note

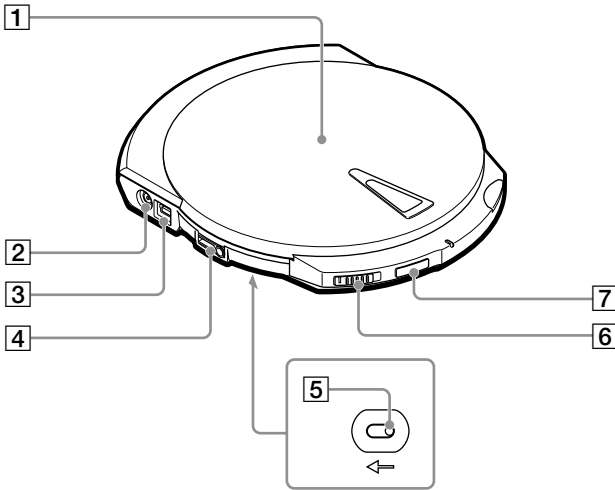
The requirement outlined above are the ones necessary for smooth writing to CD-R and CD-RW discs. When using the MPD-AP20U CD-RW/DVD-ROM drive features, make sure that your system meets the necessary requirements of the software that you are using. For details, refer to the appropriate software user's manual (on the software disc).

¹⁾ This drive supports Hi-Speed USB (USB 2.0-compliant), which yields a much higher data transfer rate than USB 1.1. Connecting the drive to a computer equipped with a USB 1.1-compliant USB connector can be the cause of problems when playing back DVD-Video, for example. For details, see "Watching DVDs" (page 25).

Name and Function of Parts

Drive

Left



1 Cover

2 Power connector

Used to connect the AC power adapter (provided).

Note

To avoid the risk of fire, electric shock, or malfunction, only use the supplied AC power adapter to connect the drive.

3 USB connector

Used to connect the USB cable (provided).

4 Ⓜ/REMOTE jack

Used to connect the remote control (provided).

5 Manual ejection lever (located on the bottom of the drive)

Used when the drive is off and you want to open the cover. Push the lever in the direction of the arrow to open.

6 LOCK switch

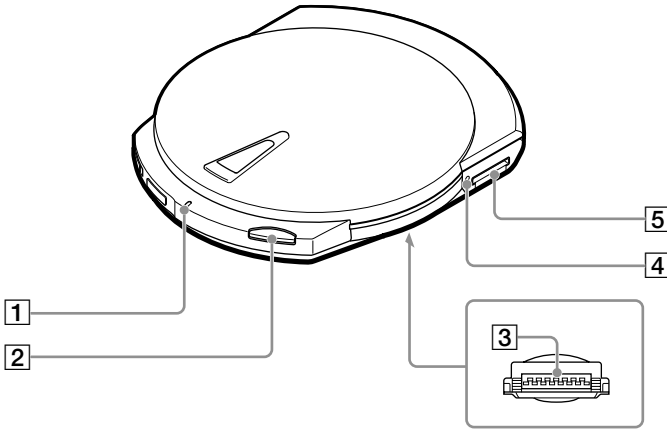
Used to lock the EJECT and SOUND buttons. For example, even if you press the EJECT button when listening to music, the cover does not open. Slide the switch in the direction of the arrow to lock the buttons.

7 SOUND button

Used to adjust the playback tone according to the type of music that you are listening to. For details, see “Adjusting the tone (SOUND function)” (page 47).

Continued

Right



1 CHARGE/BUSY indicator

The CHARGE/BUSY indicator changes color as follows according to the drive status.

- Drive connected to computer
Power on, idle: **Green**
During disc access: **Orange**
- Drive not connected to computer
Battery charging: **Red**

Note

The drive is not equipped with a power button. The drive automatically manages its power status depending on its state (i.e. on, off, recharge). For details, see “Power” (page 34).

2 EJECT button

Used to open the cover.

Important

To prevent the cover from being accidentally opened during operation, the drive is equipped with a powered ejection mechanism. Therefore, when the drive is off, the cover does not open. Also, depending on the software that you are using, when you press the EJECT button, there may be a lag of a few seconds before the cover opens. For details, see “Ejecting a disc from the drive” (page 23).

3 Cradle connector (located on the bottom of the drive)

Used to connect to the cradle.
A cover protects the connector.

4 “Memory Stick” busy indicator

The indicator lights orange when the drive is accessing data on a “Memory Stick”.

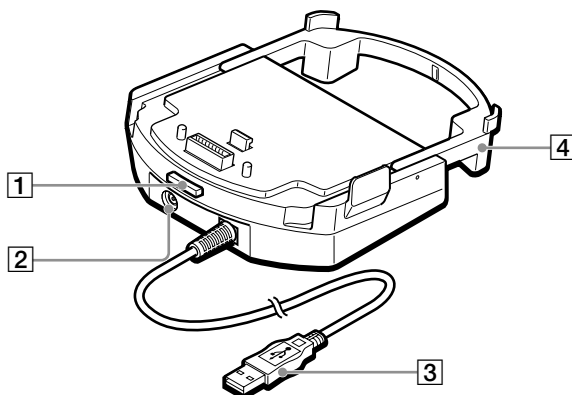
Note

Do not eject the “Memory Stick” from the drive when the indicator above is lit.

5 “Memory Stick” slot

Used to insert “Memory Stick”.

Cradle



1 Release button

Used to remove the drive from the cradle.

2 Power connector

Used to connect the AC power adapter (provided).

Note

To avoid the risk of fire, electric shock, or malfunction, only use the supplied AC power adapter to connect the drive.

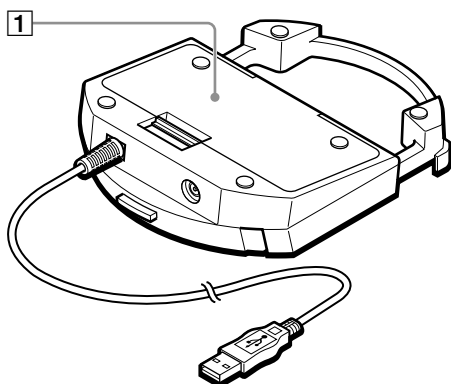
3 USB connector

Used to connect to the USB port of your computer.

4 Extension

You can fold the extension when you are not using the cradle.

Bottom



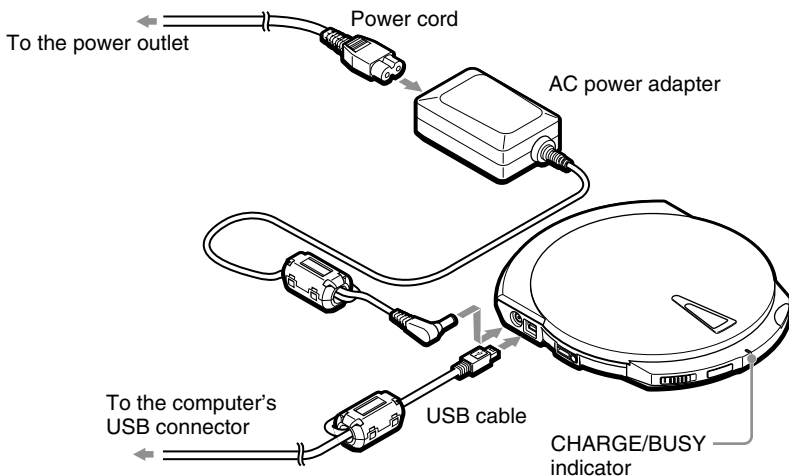
1 Battery case

Open the lid to insert batteries. For details, see “Inserting batteries into the cradle” (page 35).

Using the Drive When Connected to the Power Outlet

Connecting the drive

Connect the drive to the power outlet and to your computer as follows.



When you connect the drive as illustrated here, the drive comes on and the CHARGE/BUSY indicator lights green.

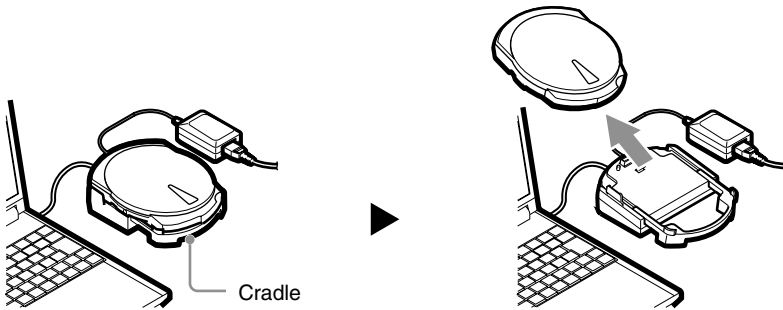
You can now use the drive with your computer.

Using the drive on internal power

The drive is equipped with an internal battery, enabling you to use the drive on internal power without being connected to a power outlet. However, before you can do this, you need to charge the battery. For details, see “Charging the internal battery” (page 20).

Using the Drive on the Cradle

If you carry the drive with you as well as use it with your computer often, using the cradle is extremely convenient. If you connect your computer and the drive through the cradle, you can take the drive with you whenever you want. Then, all you need to do is set the drive on the cradle when you want to use it with your computer – no reconnections necessary.

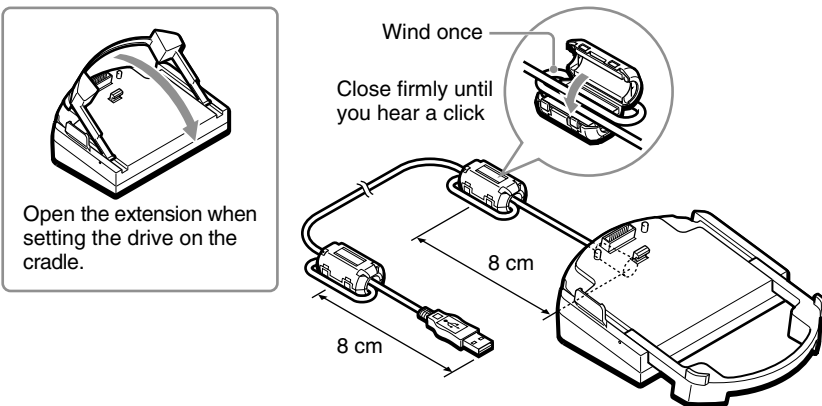


1 Attaching the ferrite clamp

You need to attach the provided ferrite clamps at both ends of the cradle's USB cable.

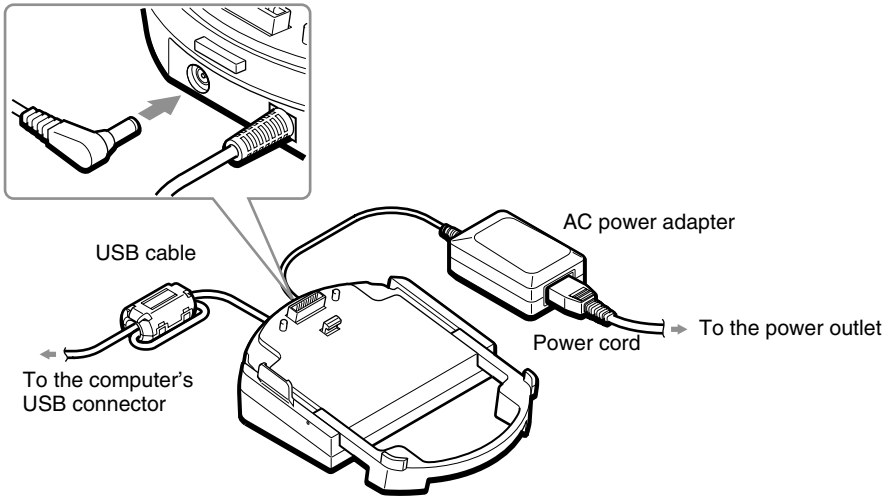
Note

Ferrite clamps serve to reduce the noise generated by cables in compliance with local standards. Make sure that the clamps are properly attached.



2 Connecting the cradle

Connect the cradle to the power outlet and to your computer as follows.

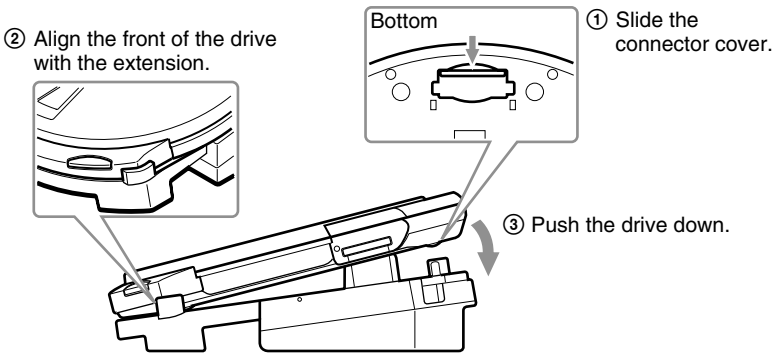


Using the cradle with batteries

If you insert batteries (rechargeable) into the cradle battery case, you can use the cradle without connecting it to the power outlet. For details, see "Power" (page 34).

3 Setting the drive on the cradle

Set the drive on the cradle as follows.

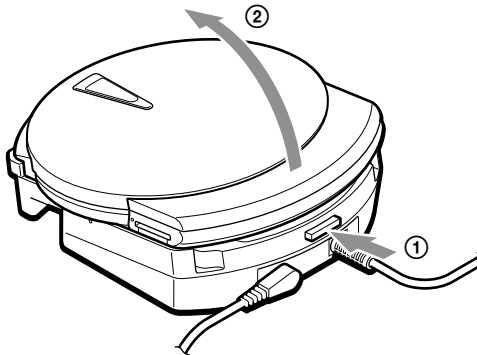


When you set the drive on the cradle as illustrated here, the drive comes on and the CHARGE/BUSY indicator lights green.

You can now use the drive with your computer.

Removing the drive from the cradle

Press the cradle's release button, then remove the drive from the cradle.



Using the Drive on Internal Power

Charging the internal battery

When the drive is connected to a power outlet, it automatically charges the internal battery. Be sure to charge the internal battery after buying the drive or after an extended period of disuse. When the internal battery is completely depleted, it takes approximately 4 hours to fully charge it.

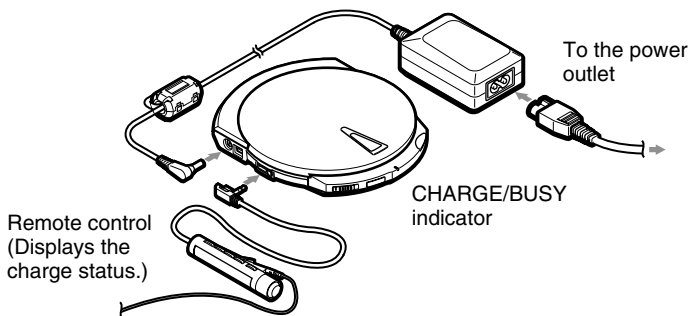


- If you recharge the internal battery after using it, charge time may be shorter than 4 hours.
- The internal battery is also charged when you set the drive on the cradle and the cradle is connected to the power outlet.
- For details about the internal battery, see “Power” (page 34).

1 Connect the drive to the power outlet.

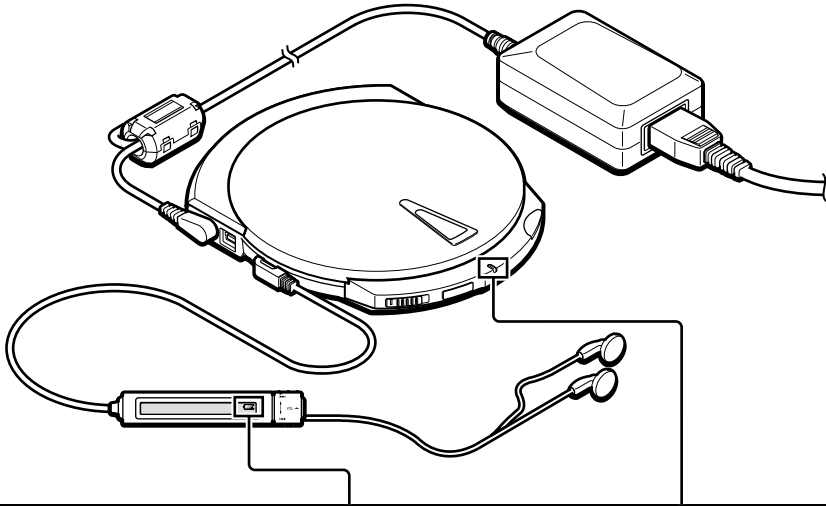
Charging starts.


(The internal battery is charged in the background during operation.)




When the internal battery is fully charged, charging stops.

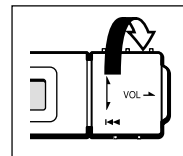
Confirming the charge status



	Connected to your computer	Not connected to your computer
Charging	 (The charge indicator is animated to simulate charging.)	The indicator lights red.
Upon reaching full charge	(The indicator disappears.)	The indicator goes off.

Verifying the internal battery charge

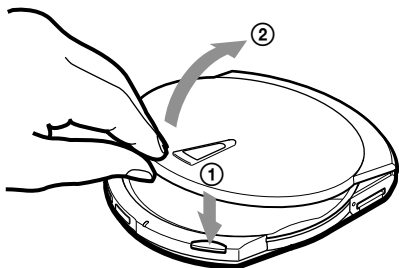
When you disconnect the AC power adapter from the drive and turn the control knob (right), the current internal battery charge appears on the remote control display. When the internal battery is fully charged,  appears on the display.



Using Discs

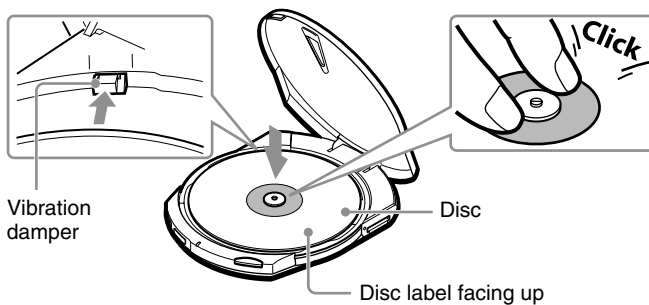
Inserting a disc into the drive

- 1 Press the EJECT button to open the cover.



- 2 Insert the disc.

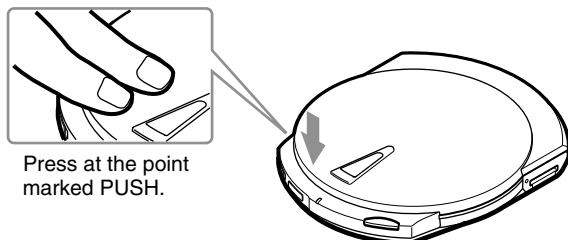
Press down on the center portion of the disc until you hear a click.



Note

Be sure that the edge of the disc fits under the ridge at the top of the spring-loaded vibration damper located at the left rear of the disc compartment. (See the illustration above.)

- 3 Close the cover.

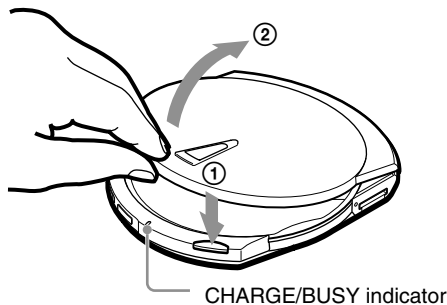


Ejecting a disc from the drive

Note

Do not attempt to eject a disc from the drive when the CHARGE/BUSY indicator is orange (data on the disc is being accessed).

- 1 Press the EJECT button to open the cover.



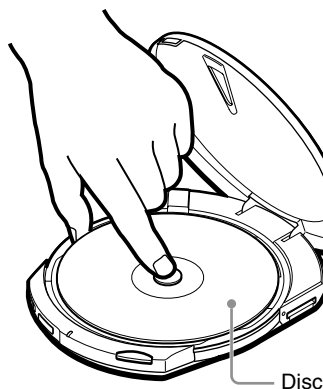
With a **Windows computer**, you can also open the cover by right-clicking the drive icon and clicking Eject on the shortcut menu.

With a **Macintosh computer**, you can also open the cover by moving the disc icon to the [Trash] icon.



- Depending on the status of your computer and the drive, there may be a lag of a few seconds before the cover open. Sometimes, you may have to eject the disc from the software, rather than open the drive by pressing the EJECT button.
- Except when writing to a disc, if the EJECT button is ineffective, you can open the drive by pushing the manual ejection lever on the bottom of the drive in the direction of the arrow.

- 2 Remove the disc.
Press on the hub while lifting the disc to remove it.



Continued

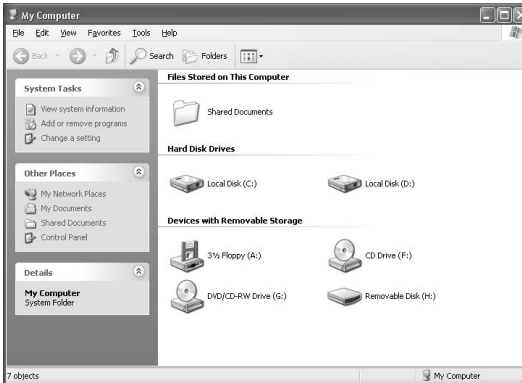
Accessing disc data from your computer

Perform the following procedure to view files and folders on discs.

With Windows

1 Open [My Computer].

The [My Computer] window appears.



Example: Windows XP [My Computer] window

2 Double-click the icon below.



DVD/CD-RW Drive (G:)



The drive letter assigned to the drive depends on your computer. (In the example, “G”.)

The folders and/or files on the disc are displayed.

With Macintosh

When you insert a disc into the drive, a disc icon appears on the desktop of your Macintosh computer. Double-click this icon to display the files and/or folders on the disc.

Creating CDs (Using the Provided Software)

You can use the programs on the software disc accompanying the drive to write data to CD-R/RW discs or create music CDs. For details about the installation procedures, various functions and operation procedures, refer to the software manuals¹⁾.



Windows XP and Mac OS X computers have built-in CD writing functions that you can use instead of the provided writing software. For details, refer to your operating system Help.

Watching DVDs (Using the Provided Software)

You can use the programs on the software disc accompanying the drive to watch DVD-Video discs. For details about the installation procedures, various functions and operation procedures, refer to the software manuals¹⁾.

USB 1.1 connectors

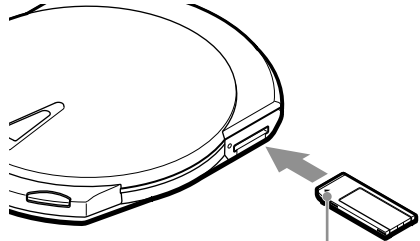
When you connect the drive to a USB 1.1-compliant connector, video and audio may be choppy during playback. This occurs because playback is limited by the lower data transfer rate of USB 1.1, it is not a malfunction of the drive. If you connect the drive to a USB 2.0-compliant (Hi-Speed USB) connector, you are certain to experience smoother playback of DVDs.

¹⁾ Software manuals: refers to the “Software Quick Start Guide”, as well as the user’s guide and Help for each program on the software disc.

Using “Memory Stick”

Inserting a “Memory Stick” into the drive

- 1 Push the “Memory Stick” into the “Memory Stick” slot until it is fully inserted.



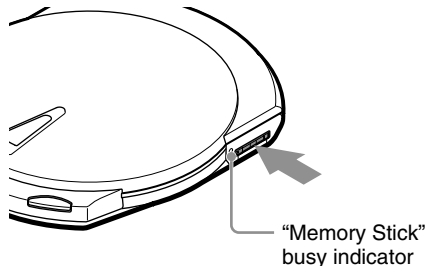
Insert the “Memory Stick” in the direction of the ▲ until you hear a click.

Ejecting a “Memory Stick” from the drive

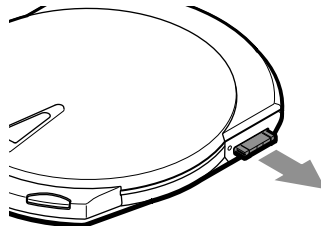
Note

Do not attempt to eject a “Memory Stick” from the drive when the “Memory Stick” busy indicator is orange (data on the “Memory Stick” is being accessed).

- 1 Push the “Memory Stick”.



- 2 Move your hand away and remove the “Memory Stick”.
When you move your hand away, “Memory Stick” partially comes out so that you can remove it.



With Macintosh computers, even if you eject the “Memory Stick” from the drive, the icon corresponding to the “Memory Stick” drive remains on your desktop. Move it to the [Trash].

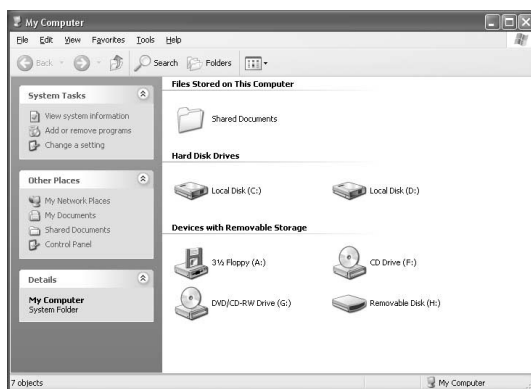
Accessing “Memory Stick” data from your computer

Perform the following procedure to view files and folders on “Memory Stick”.

With Windows

1 Open [My Computer].

The [My Computer] window appears.



Example: Windows XP [My Computer] window

2 Double-click the icon below.



The drive letter assigned to the drive depends on your computer. (In the example, “H”.)

The folders and/or files on the “Memory Stick” are displayed.

With Macintosh

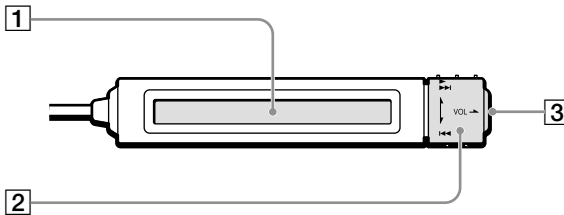
When you insert a “Memory Stick” into the drive, an icon appears on the desktop of your Macintosh computer. Double-click this icon to display the files and/or folders on the “Memory Stick”.

Listening to Music (Using the Drive as a CD Player)

You must use the remote control when using the drive as a CD player.

Remote control part names and functions

Front



1 Display

Displays information such as the remaining charge of the internal battery, number and elapsed time of the current track, etc. (Page 33)

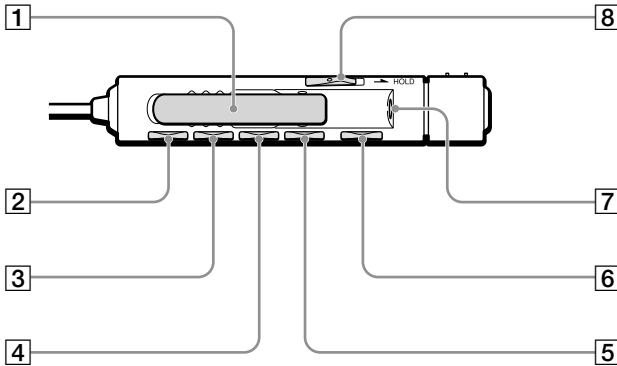
2 Control knob

Allows you to start playback, control the volume, etc. (Page 32)

3 ■ (stop) button

Press to stop playback. (Page 32)

Back



1 Clip

2 DISPLAY button

Press to change the information displayed. (Page 46)

3 PLAY MODE button

Press to change the playback mode. (Page 40)

4 RPT/ENT (Repeat/Enter) button

Press to enter repeat mode or when programming tracks. (Page 40)

5 SOUND button

Press to adjust the playback tone according to the type of music that you are listening to. (Page 47)

6 || (pause) button

Press to pause playback. (Page 32)

7 Headphone jack

Connect your headphones to this jack.

8 HOLD switch

Locks the controls on the remote control to prevent accidental use. (Page 48)

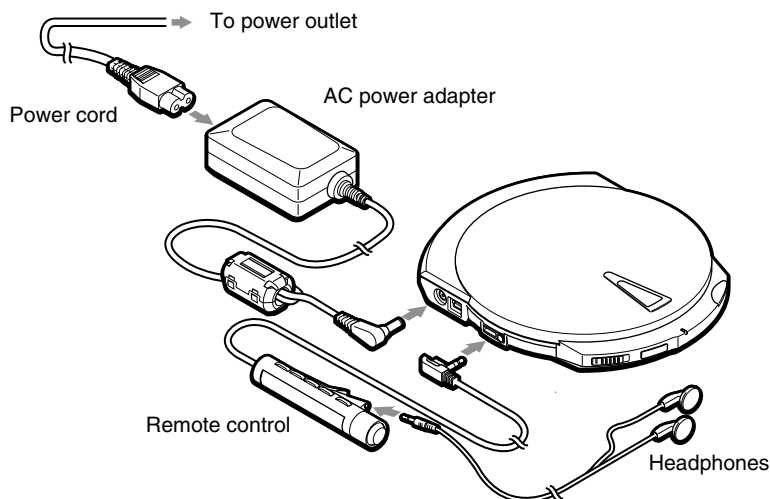
Note

You may not be able to use the remote control provided with this drive with other CD players. Further, we do not guarantee proper operation of the drive if you use it with another remote control.

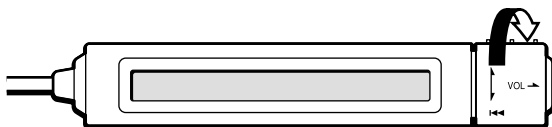
Starting playback and adjusting the volume

You can listen to music on a disc or “Memory Stick” with headphones. You can also use the drive on internal power (for details, see “Power” (page 34)).

- 1 Connect the remote control and headphones.



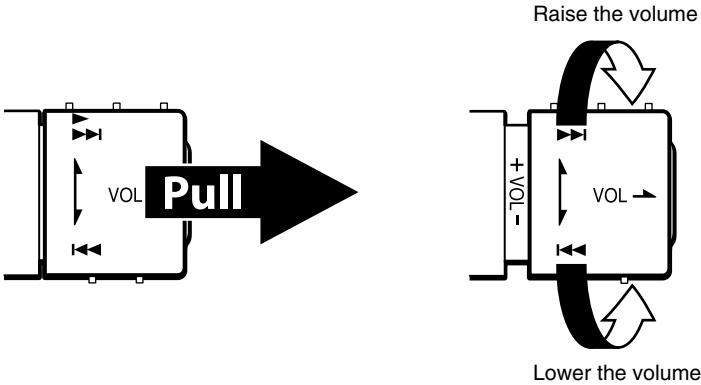
- 2 Insert the disc or “Memory Stick” into the drive.
You can insert any CD, or “Memory Stick”/disc containing MP3 files into the drive.
- 3 Turn the control knob on the remote control.
Playback starts.



- For details about compatible discs and files, see “Compatible discs and files” (page 33). For details about how to select files, see “Listening to Music Files” (page 38).
- If you disconnect the remote control during playback, playback stops.

Adjusting the volume



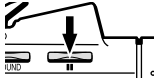

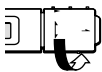
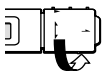
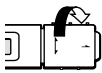



You can adjust the volume by pulling the control knob of the remote control and turning it.



If you are unable to raise the volume and AVLS appears on the display of the remote control, repeatedly press the remote control SOUND button until the display shows AVLS OFF. For details, see “Limiting Volume (AVLS function)” (page 48).

Using the remote control

This section outlines the basic operations possible with the remote control.

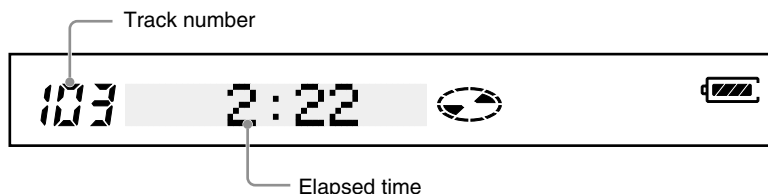
What do you want to do?	Procedure
Start playback (from the previous track)	
Start playback (from the first track)	 Maintain turned until playback of the first track starts.
Pause playback/ Resume playback	 Press
Stop playback (during playback or pause)	 Press
Return to the beginning of the current track (during playback or pause)	 Turn once
Return to previous tracks (during playback or pause)	 Turn successively ¹⁾
Go to the next track (during playback or pause)	 Turn once ²⁾
Go to succeeding tracks (during playback or pause)	 Turn successively ²⁾
Rewind (during playback or pause)	 Maintain turned
Fast Forward (during playback or pause)	 Maintain turned

¹⁾ If you are on the first track during repeat playback, returns to the last track.

²⁾ If you are on the last track during repeat playback, goes to the first track.

Remote control display

During playback, the remote control display shows the number and elapsed time of the current track.



When listening to music files (MP3, WAV)

When you start playback the title of the song appears briefly (if there is no title information, the file name appears), followed by the elapsed time. If the title of the song is long, it scrolls across the display.

Remote control display backlight

The backlight of the remote control display comes on when you use the remote control and automatically goes off a few seconds after you finish using it.

Compatible discs and files

You can play back the following discs and files with the drive.

- Commercially sold music CDs
- Original music CDs (discs in CD-DA format written to CD-R/RW discs)
- Music files written to CD-R/RW (MP3, WAV files)
- Music files written to DVD-R/RW (MP3, WAV files)
- Music files stored on “Memory Stick” (MP3, WAV files)



- Depending on the device used for recording, the settings of the writing software, and the media type, you may not be able to play back some recordings with the drive.
- For details about the types of music files that you can play back with the drive, see “Music Files” (page 52).

MP3

MP3 stands for MPEG Audio Layer 3 and is audio compression technology. An audio file compressed in the MP3 format is called an MP3 file. Because the compression ratio of MP3 files is very high, you can write more than 100 five-minute tracks to a CD-R disc.

WAV

Default Windows file format in which sounds are saved as waveforms. Unlike MP3 files, WAV files are uncompressed, so their sound quality is better. However, they are also 10 times larger than MP3 files.

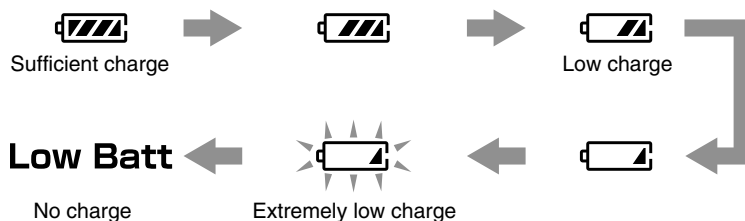
Power

You can use the drive with the following power sources. Power management varies according to the type of power supply, as illustrated below.

	Drive	Cradle	Power management
AC power	✓	✓	The internal battery is charged in the background.
Internal battery	✓	×	Depending on its state, the drive is turned on or off.
Batteries (rechargeable)	×	✓	Depending on its state, the drive is turned on or off.

Remaining charge indicator

To be able to verify the remaining charge of the internal battery, you must first connect the remote control. As the charge of the internal battery decreases, the indicator on the remote control display changes as follows:



Notes

- When you want to verify the remaining charge of the internal battery, be sure that the drive is not connected to the AC power adapter. When the drive is connected to the AC power adapter, the remaining charge indicator does not appear on the remote control display.
- The remaining charge indicator is only a gauge. It is not meant to accurately reflect the remaining charge of the internal battery. (In other words, one bar does not represent a quarter of the internal battery charge).
- The remaining charge indicator may change depending on the operating status of the drive.

Disposing of the internal battery

The internal battery used in this drive is a lithium ion polymer battery. Therefore when the time comes to throw away the drive, we ask that you dispose of the internal battery according to your region's regulations on battery disposal.

Inserting batteries into the cradle

You can use the cradle under rechargeable battery power (8 batteries necessary). Doing so allows to use the drive for extended periods of time without connecting it to a power outlet.

Compatible batteries (sold separately)

● Rechargeable batteries

AA nickel metal hydride (Ni-MH) batteries

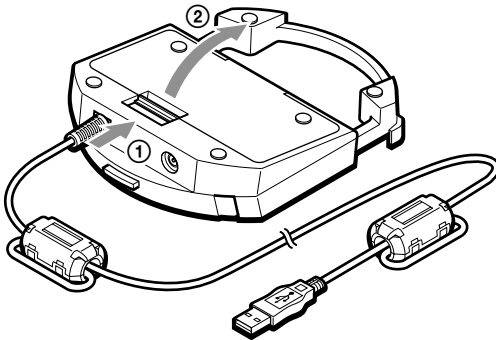
AA nickel cadmium (Ni-Cd) batteries

Notes

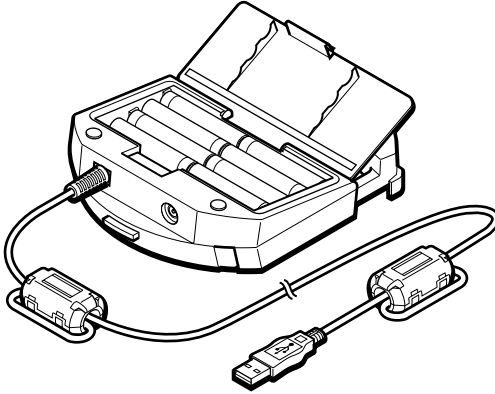
- The cradle is not a battery charger. To recharge batteries, use a proper battery charger (sold separately).
- The cradle does not support any type of dry cell batteries.

Inserting batteries

- 1 Open the lid of the battery case on the bottom of the cradle.



2 Insert eight batteries into the battery case.



Notes

- Be sure to look at the indications inside the battery case for the proper positioning of the batteries.
- Be sure to use similar batteries (i.e. do not use rechargeable and dry cells batteries together).
- Because the batteries may leak, remove the batteries from the cradle and store them if you do not intend to use the cradle on battery power for an extended period of time.
- When you replace the batteries, be sure to replace the eight batteries. Mixing new and old batteries may cause them to leak.

Battery life

The following is the approximate playback life and number of discs that can be written using the drive under battery power.

Playback battery life

	CD-DA ¹⁾	MP3 files ¹⁾	DVD-Video ²⁾
Internal battery	approx. 4 hours	approx. 10 hours	approx. 1.5 hours
When internal battery and cradle batteries are used together			
Ni-MH batteries	approx. 12 hours	approx. 30 hours	approx. 5 hours
Ni-Cd batteries	approx. 9 hours	approx. 22 hours	approx. 3.5 hours

¹⁾ When all playback is performed in the same playback mode

²⁾ 1-sided, double layered disc

Number of discs that can be written

	CD-R ³⁾	CD-RW ³⁾
Internal battery	approx. 9 discs	approx. 8 discs
When internal battery and cradle batteries are used together		
Ni-MH batteries	approx. 26 discs	approx. 21 discs
Ni-Cd batteries	approx. 14 discs	approx. 10 discs

³⁾ The number of discs that can be consecutively written is based on writing to 650 MB discs, at the maximum write speed, with a 480 Mbps transfer rate

Notes

- The data above represents the battery life of fully charged batteries (internal or rechargeable).
- Actual battery life varies on operating conditions.

Listening to Music Files

The basic operations necessary to listen to music files (MP3, WAV files) are the same as when listening to a music CD. For details about these operations, see “Listening to Music (Using the Drive as a CD Player)” (page 28).

This section explains the functions and operations specific to music files.



To learn more about the types of music files compatible with the drive, see “Music Files” (page 52).

Selecting folders and files

Selecting a folder

- 1 During music file playback, press the remote control DISPLAY button until “/<folder name>” appears on the remote control display.
- 2 Turn the control knob **⏮** or **⏭** to select the desired folder. Playback of the files in the selected folder starts.

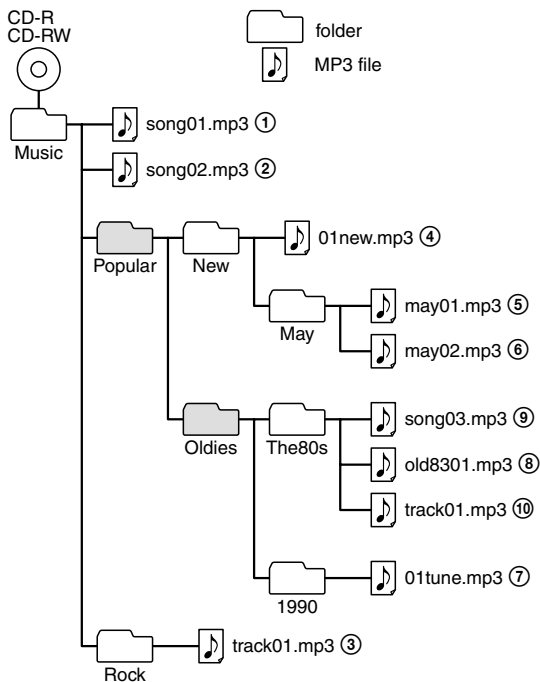
Selecting a file

- 1 During MP3 playback, if the remote control display does not already display the current track elapsed time or name, press the DISPLAY button.
- 2 Turn the control knob **⏮** or **⏭** to select the desired file. Playback of the selected file starts.

Folder organization and playback order

Under normal playback conditions, the contents of folders are played back in the folder organization order, high-level folders first. Similarly, the files in folders are played back in alphabetical order.

For example, with the following folder organization, playback is performed from 1 to 10.

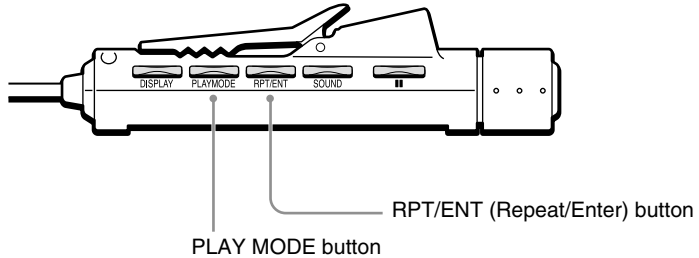


Notes

- If you insert a disc and a “Memory Stick” into the drive at the same time, the contents of the disc are played back first.
- In the case of music CDs, the disc is recognized as one folder and the tracks as files.
- Folders that do not contain music files are skipped.
- The drive can display file and folder names of up to 64 alphanumeric characters (Joliet extension).
- To be able to listen to the files in a folder in the desired order, we suggest that you perform the following:
 - There should be no more than 256 files per folder.
 - Only use the alphanumeric characters (uppercase or lowercase) in folder and file names.
 - Name the files so that the desired playback order is reflected by the first 8 characters (or less).
Example: Track01VaporTrails.mp3

Advanced Playback

You can play back your music with a variety of features accessible with the remote control PLAY MODE and RPT/ENT buttons.



PLAY MODE button

Press it during playback to change the playback mode.

Normal playback (all)



Listen to all the tracks in a folder (folder)¹⁾



Listen to one track only (single)



Listen to all the tracks in random order (all) SHUF



Listen to all the tracks in a folder in random order (folder) SHUF¹⁾



Listen to selected tracks in the desired order
PGM

RPT/ENT button

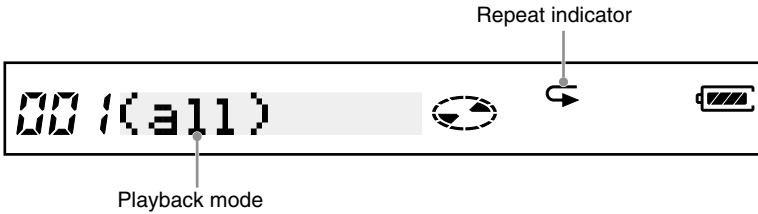
- Press it after selecting a playback mode with the PLAY MODE button to loop playback.
- Press it to select tracks when creating a program.

¹⁾ A music CD is considered to be a single folder.

Loop playback (Repeat)

You can loop the playback of every playback mode of the drive. For example, if you are listening to music in normal playback mode, pressing the RPT/ENT button results in all the tracks on your disc to be repeated. Similarly, in folder playback, all the tracks in the folder are repeated.

Pressing the RPT/ENT button during playback.



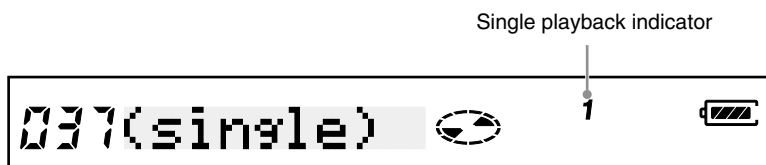
Listening to all the files in a folder (Folder playback)

Press the PLAY MODE button repeatedly until “(folder)” appears on the remote control display.



Listening to one track only (Single playback)

Press the PLAY MODE button repeatedly until “(single)” appears on the remote control display.



Listening to all the track in random order (Shuffle playback)

Press the PLAY MODE button repeatedly until “(all)” and “SHUF” appear on the remote control display.



Listening to all the track in a folder in random order (Folder shuffle)

Press the PLAY MODE button repeatedly until “(folder)” and “SHUF” appear on the remote control display.



Listening to selected tracks in the desired order (Program)

You can program up to 64 tracks in the order of your choice.

- 1 During playback, press the PLAY MODE button repeatedly until “*PROGRAM*” appears on the remote control display.



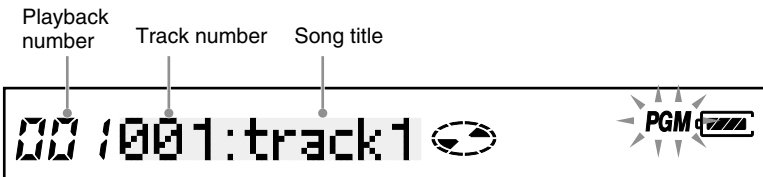
If there is a playlist on the disc or “Memory Stick” in the drive, press the remote control PLAY MODE button repeatedly until the name of the playlist appears on the remote control display. Then, turn the control knob ►/►► until “*PROGRAM*” appears on the remote control display.

“PGM” flashes



- 2 Press the RPT/ENT button.
Program the desired tracks.

- 3 Turn the control knob ◀◀ or ►/►► until you reach the desired track.



The “Song title” part of the display changes depending on the information accompanying songs and files.

- 4 Press the RPT/ENT button to select the track.
The playback number becomes “002” and you can select another track.



- 5 Repeat steps 3 to 4 to select other tracks.
- 6 Press and hold the RPT/ENT button until playback starts.
Listen to the tracks that you programmed.

Confirming the contents of the program

When creating a program

- 1 Before performing step 6 above, press the RPT/ENT button repeatedly.
Each time that you press the RPT/ENT button, the track and playback numbers are displayed.

When playing back the programmed tracks

- 1 Press the PLAY MODE button repeatedly until “PGM” blinks on the remote control display.
- 2 Press the RPT/ENT button repeatedly.
Each time that you press the RPT/ENT button, the track and playback numbers are displayed.

Notes

- After you program the 64th track in step 4 above, the track number of the first track that you programmed appears instead of “000”.
- If you program more than 64 tracks, the program is overwritten from playback number one.

Listening to a playlist

If a playlist exists on the disc or “Memory Stick” that you are using, you can use it with the drive to listen to the music files according to their order in the playlist.



To be able to use this function, you need to save a playlist (extension: m3u) to disc or “Memory Stick” before you insert them into the drive. For details, see “Playlist files” (page 53).

- 1 During playback, press the remote control PLAY MODE button until the playlist file name appears on the remote control display.



- 2 If there are several playlists on your media, turn the control knob ►/►► until the desired playlist appears on the remote control display.



- 3 Press the remote control RPT/ENT button to set the playlist. Playback starts from the first track in the playlist.

Advanced Playback Functions

Displaying track information

You can use the DISPLAY button to display such information as:

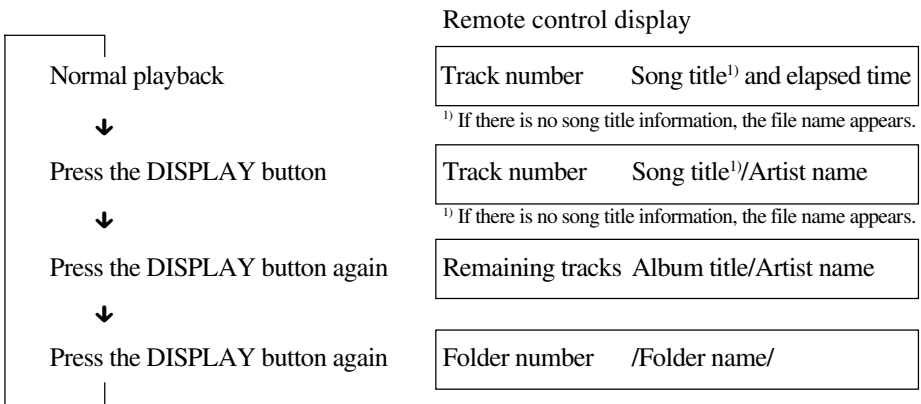
- CD-TEXT. CD-TEXT is essentially text information on the music CD such as album titles, artist names, and song titles.
- The file and folder names of an music files, and MP3 file ID3 tags (album titles, artist names, and song titles).



For details about ID3 tags, see page 53.

Press the DISPLAY button during playback

Each time that you press the button, the remote control display changes as follows:



Notes

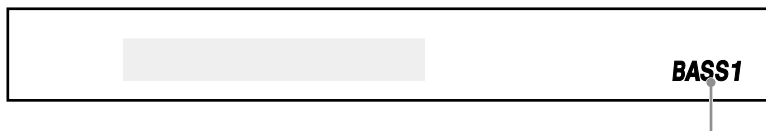
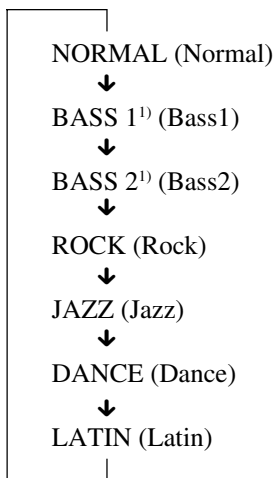
- During folder playback, the track number and remaining tracks in the folder are displayed.
- Only alphanumeric characters can be displayed.
- When a disc contains text information incompatible with this drive or no text information, the information may be incorrectly displayed or not displayed at all.
- In the case of music CDs, the folder name is “*CDDA*” is displayed instead of the folder name.
- During playlist playback, the folder name is the playlist file name.
- During program playback, the folder name is “*PROGRAM*”.

Adjusting the tone (SOUND function)

You can adjust the playback tone according to the type of music you are listening to.

Press the SOUND button of the remote control or on the drive itself.

Each time that you press the button, the remote control display changes as follows:



“BASS 1” and “BASS 2” are displayed here.

Note

If your music sounds distorted, lower the volume.

¹⁾ These two settings boost the bass of your music upon output. BASS 2 is stronger than BASS 1.

Limiting the volume (AVLS function)

The AVLS function automatically limits the volume to a certain level to avoid sounds that are painfully loud and the potential danger from not being able to hear sounds of your surroundings.

Press the SOUND button repeatedly until “AVLS ON” appears on the remote control display.

Trying to raise the volume above the set level

When the AVLS¹⁾ function is active, it is not possible to raise the volume above a certain level.



Appears when you attempt to raise the volume above the set level.

To deactivate the function, press the SOUND button repeatedly until “AVLS OFF” appears on the remote control display.

Note

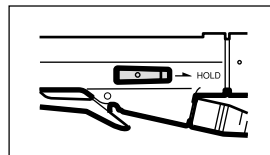
Using the SOUND and AVLS functions at the same time may distort your music. If so, lower the volume.

¹⁾ AVLS: Automatic volume limiter system

Preventing accidental operation (HOLD function)

You can prevent accidental operation of the remote control buttons by using the HOLD function.

Slide the HOLD switch in the direction of the arrow.



Returning the remote control to its normal operation mode

Slide the HOLD switch back to its original position.

Note

“HOLD” does not appear on the remote control display, even when the function is in effect.

CDs and DVDs

Compatible discs

You can use the following disc types with the drive.

Disc Type	Symbol
DVD-ROM	
DVD-Video	
DVD+R ¹⁾ (Read Only)	
DVD+RW ¹⁾ (Read Only)	
DVD-R ¹⁾ (Read Only)	
DVD-RW ¹⁾ (Read Only)	
CD-R	
CD-RW	 
CD-ROM	

Disc Type	Symbol
Music CD	
CD Extra	 
Video CD	 
CD TEXT	 

¹⁾ The drive can only read these discs. Depending on the discs, devices, and settings used in writing the discs, the drive may not be able to read some discs.

Notes

- Only use round discs with the drive. Using odd-shaped discs (stars, hearts, etc.) can damage the drive.
- We do not guarantee proper operation when writing to or playing back 99-minute discs.
- We do not guarantee proper operation when writing to 8 cm discs.

CD-R and CD-RW discs

Use the provided writing software to write to CD-R and CD-RW discs. To be able to play back CD-R and CD-RW discs with other CD players and CD-ROM drives, you must make the appropriate settings in the writing software before writing.

For details about writing to discs, refer to the software manuals¹⁾.

CD-R discs

Data can be written to this type of disc only once. Once it has been written, data cannot be deleted. However, if you use the track-at-once writing method, you can add data to the CD-R up to 99 times (this is dependant on the remaining space on the disc). Also, if you use the disc-at-once writing method, music CDs created on CD-R discs can be played back with most CD players.

CD-RW discs

Data can be repeatedly written to and deleted from this type of disc. Typically, a new CD-RW disc can be rewritten about 1,000 times. Further, if you use the Fixed packet writing method, you can write and delete files individually, making using a CD-RW as easy as using a floppy disc. However, music CDs created on CD-RW discs cannot be played back with most CD players unless they CD-RW compatible.

¹⁾ Software manuals: refers to the “Software Quick Start Guide”, as well as the user’s guide and Help for each program on the software disc.

High speed CD-RW discs

The drive can write to High Speed CD-RW discs. Data written to High Speed CD-RW discs can be read by common CD-ROM drives.

Note

CD-R/RW drives that do not display the High Speed CD-RW logo cannot be used to write to High Speed CD-RW discs. When writing or appending data to such discs with a CD-R/RW drive other than this one, be sure that the drive displays the High Speed CD-RW logo. Also, always set the writing speed to that specified for the particular High Speed CD-RW disc that you are using.

Writing speed

When writing to CD-R and CD-RW discs, use the writing speed specified on the disc. You can change the writing speed through the writing software.

Reading discs

CD-R and CD-RW discs created with the drive can be read by most CD-ROM drives. However, some older CD-ROM drives may not be able to read CD-RW discs. Also, CD-R music discs created with the drive can be played back with most CD players, but playback is not guaranteed for all CD players or automobile CD players. Further, due to variations in disc quality and various characteristics specific to manufacturers, certain CD-ROM drives and CD players may on occasion be incapable of playing back certain CD-R and CD-RW discs.

Recommended discs

We recommend using Sony recording media products with the CD-R/RW drive.

CD-R: Sony 650 MB and 700 MB

CD-R discs

CD-RW: Sony 650 MB CD-RW discs

DVD-Video playback and region codes (region numbers)

The playback of DVD-Video (DVD discs) is protected and controlled by region codes¹⁾.

To be able to play back DVD-Video with the drive, the region code on the DVD, the region code of the drive, and the region code of the DVD-Video software must all match.

DVD-Video playback and region codes

With the drive, the region code can be set up to five times, including the initial assignment (RPC Phase 2 standard). The drive's region code is set through the DVD-Video software.

Important

After setting the region code five times (including the initial setting), the setting becomes permanent and can no longer be changed. Thereafter, you are only be able to play DVD-Video whose region code matches the one set the fifth time.

Note

Do not attempt to make unauthorized changes to the region code. Any problems that result from doing so is not under warranty.

¹⁾ Region Playback Control standard (RPC standard)

“Memory Stick”

On “Memory Sticks”

“Memory Stick” is a new compact, portable and versatile IC recording medium with a data capacity that exceeds a floppy disk. “Memory Stick” is specially designed to share digital data with other “Memory Stick” compatible products. Because it is removable, “Memory Stick” can also be used for external data storage.

Compatible “Memory Stick”

You can use the following types of “Memory Stick” with the drive.

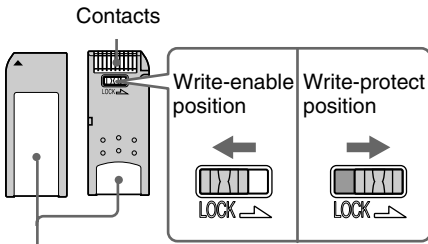
- “Memory Stick”: standard blue “Memory Stick”.
- “MagicGate Memory Stick”: White “Memory Stick” incorporating copyright protection technology (MagicGate²⁾).



Because the drive does not support the MagicGate standard, data recorded with the drive is not subject to MagicGate copyright protection.

Protecting data on “Memory Stick”

To prevent the accidental loss of important data, use the write-protect switch on the “Memory Stick”. When you slide the switch to the write-protect position, you can read data on a “Memory Stick”, but it is impossible to write or delete data.



Place the label here

If an error message appears

If an error occurs when reading or writing to a “Memory Stick” and a message appears indicating that data may be lost, it means that the “Memory Stick” may be write-protected. In this case, slide the write-protect switch as illustrated above to remove the protection. No data is erased from the “Memory Stick” if this occurs.

Music Files

Compatible music files

To play back music files with the drive you must fulfill the following conditions.

Files Formats

- MP3 (MPEG 1 Audio Layer 3, 44.1 kHz, 32 Kbps to 320 Kbps)
File name extension: mp3
- RIFF WAV MPEG (PCM, 44.1 kHz, 16 bits, 2 channels)
File name extension: wav
- Playlist (M3u format)
File name extension: m3u

Notes

- Files name extensions must be either mp3 or wav.
- If you affix an extension to a file that does not match its actual format, the drive cannot play it back. For example, if you affix the extension mp3 to a file that is not an MP3 file, it will not be played back by the drive.

Media

- CD-R
- CD-RW
- DVD-R¹⁾
- DVD-RW¹⁾
- “Memory Stick”

Formats

- ISO 9660 Level 1
- ISO 9660 Level 2
- ISO 9660 Joliet
- UDF (Ver. 1.02, 1.5)
- FAT (“Memory Stick” only)

¹⁾ The drive can only read these discs. Depending on the discs, devices, and settings used in writing the discs, the drive may not be able to read some discs.

Number of usable folders and files

- Number of playable folders: max. 512
- Number of playable files in shuffle playback: max. 2048

Encoders and writing software settings

When encoding MP3 files, we recommend that you use constant bit rate encoding, at a compression rate of 128 Kbps, and a sampling rate of 44.1 kHz.

Note on saving files to media

When you insert a disc or “Memory Stick” into the drive, it searches for all the files on the media. The more folders or non-music files on the media, the slower playback starts (or continues). Therefore, we recommend not to create unnecessary folders or save non-music files on media that you want to use with the drive.

Playlist files

A playlist is a file on a disc or “Memory Stick” that determines the playback order of specific music files on the media. You can create playlists with basic tools such as text editors. Simply create a file with an m3u extension, where you specify the music file paths (their locations on the media and names), then write it to a disc or save it on a “Memory Stick” containing the music files.

Note

The drive only recognizes the following path delimiters: “\”, “/”, and “¥”.

Examples of playlists

• Complete paths

The path is specified from the root of the media to the file location.

```
\Music\Popular\New\01new.mp3  
\Music\Popular\New\May\may01.mp3
```

• Relative paths

The path is specified from the folder where the playlist is saved.

```
\New\01new.mp3  
New/May/may01.mp3
```

MP3 file ID3 tags

The ID3 tag is basically text information appended to MP3 files. This text information consists of album titles, artist names, song titles, etc.

Note

The drive supports ID3 tag format version 1.0, 1.1, 2.2¹⁾, or 2.3¹⁾. If you use any other version, the text information does not appear properly on the remote control display.

¹⁾ Version 2.2 unsynchronized, compressed, or encrypted frames are not supported.

Hi-Speed USB

This drive supports Hi-Speed USB (USB 2.0-compliant), which yields a much higher data transfer rate than that of USB 1.1. Connecting the drive to a computer equipped with a Hi-Speed USB connector or PCI adapter card provides the highest possible drive reading/writing performance¹⁾.

- You must connect the drive to a USB connector that supports Hi-Speed USB. (Your computer must be equipped with a Hi-Speed USB compliant PCI adapter or PC card.)
- The USB EHCI (Enhanced Host Controller Interface) device driver²⁾ must be installed on your computer.
- You must use a Hi-Speed USB compatible USB cable. (One is provided with the drive.)

When writing to discs

When you write to a disc, we recommend that you set the writing speed to match the transfer speed of your USB 1.1-compliant product (usually 8× or less).

- ¹⁾ When using a DVD-ROM drive, the maximum transfer rate of 10800 KB/s
- ²⁾ The USB EHCI device driver is supplied with currently available PCI adapter cards that supports Hi-Speed USB. Microsoft also released the USB EHCI device driver for Windows XP. For details, contact your adapter dealer or consult the Microsoft Corporation Web site.

Removing the Device Driver

With a Windows XP/Me/2000 (SP3 or later) computer

Because these operating system come standard with the device driver, there is no need to remove it.

With a Windows 98 Second Edition computer

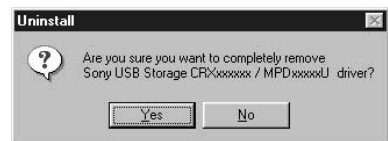
There is an uninstaller on the provided software disc. Use it to remove the device driver.

- 1** Insert the software disc into the CD-ROM drive of your computer.
- 2** Open the USB folder on the software disc, then double-click “UNINST.EXE”.



UNINST.EXE


The following dialog box opens.



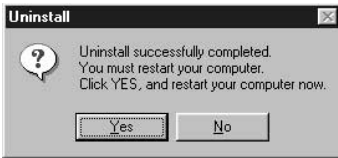
If you inserted the software disc into the drive, copy “UNINST.EXE” to your hard disk before performing this procedure.

- 3** Click [Yes].
The following dialog box opens.



- 4** Stop the device with the icon () on the taskbar, then disconnect the USB cable from your computer.

- 5** Click [OK].
The following dialog box opens.



- 6** Click [Yes].
Your computer restarts.

With a Macintosh computer

Mac OS 9

To remove the drive from your computer, delete the “MPD-AP20U Bus”, “MPD-AP20U Shim”, “MPD-AP20U USB” system extension installed at the same time as the writing software.

Mac OS X (ver. 10.1)

Because this operating system comes standard with writing software, there is no need to remove the device driver.

Usage Notes

Important precautions

- Never move or lift the drive when it is connected to your computer. Specifically, do not subject the unit to vibrations or physical shocks while writing to a disc.
- Do not use any AC adapter other than the one provided. Using a different adapter could damage the drive.
- Do not bend the USB cable sharply, especially near the connectors. Doing so may damage the cable or cause poor contact.

Operation and storage conditions

Avoid using or storing the drive in a hot or humid environment, or where it may be subjected to severe vibrations or in direct sunlight.

Operation

Place the drive (or cradle) on a level surface when it is connected to your computer.

Shipping

- Keep the packing materials. They may be necessary if you ever need to ship the drive.
- Before shipping the drive, be sure that there is no disc in the drive.

Condensation

Avoid sudden temperature changes as much as possible. Do not attempt to use the drive immediately after moving it from a cold to a warm location, or room temperature rises suddenly, as condensation may form within the drive. If you experience a sudden temperature change during operation, halt operation immediately and wait approximately one hour before resuming operation of the drive.

Lens

Do not touch or look directly into the lens inside the cover. To prevent dust from accumulating on the lens, always keep the cover closed except when inserting or removing a disc.

Internal battery

- The internal battery is partially charged upon shipment, but we recommend that you charge it completely before using the drive on internal power.
- The internal battery gradually loses its charge even when it is not in use. If you do not use the drive for a day or two, we recommend that you charge the internal battery before using the drive on internal power.
- Charge the internal battery at an ambient temperature of 5 to 35°C. If the internal temperature of the drive exceeds 45°C, charging of the internal battery stops automatically.
- If you do not use the internal battery for an extended period of time, it should be charged, then discharged completely before being stored, and so once a year to maintain its usability.




Connection to a USB hub

Connect the drive directly to the USB connector of your computer. Operation through a USB hub (including keyboard USB hubs) cannot be guaranteed.

Disconnection from your computer

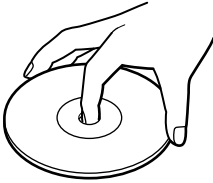
The drive can be connected and disconnected to your computer while it is on. However, before disconnecting the drive with Windows, you must click the taskbar icon and perform the procedure to stop and remove the hardware.

The appearance of the taskbar icon varies depending on your version of Windows (see below). Click the icon and follow the instructions on the screen to stop and remove the drive. With Windows XP, Windows Me, and Windows 2000, it is necessary to stop both the disc and “Memory Stick” devices.

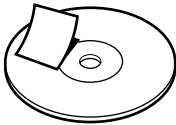
- Windows XP: 
- Windows Me and Windows 2000: 
- Windows 98 SE: 

Handling discs

- Only handle discs by the edges. Never touch the recording surface.



- Do not write on discs (except with a felt-tip marker), or paste labels on them.



- Do not store discs in dusty, dirty, or humid locations, in direct sunlight, or near heat-generating devices.
- Avoid spilling liquid on discs.
- To protect important data, always keep discs in their protective cases.

DVD-Video discs playback

The playback conditions for DVD-Video discs are sometimes determined by software manufacturers. Because the drive plays back discs as determined by the software manufacturer, some drive functions may not always work as expected. When playing back DVD-Video discs, refer to the instructions accompanying each disc.

“Memory Stick” handling notes

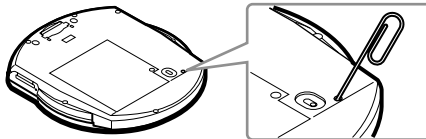
Make sure that you take the following precautions when handling “Memory Stick” to ensure the safety of your data.

- “Memory Stick” are formatted at the time of manufacture. There is no need to reformat them. Formatting a “Memory Stick” with your computer may cause access problems when inserting it into other “Memory Stick” compatible devices.
- To use a “Memory Stick” formatted with a computer, reformat it with a “Memory Stick” compatible device.
- “Memory Stick” compatible devices require the “MemoryStick.ind” file on the “Memory Stick”. Do not delete this file.
- Do not attempt to defragment or compress the “Memory Stick” drive.
- Data may be lost if:
 - A “Memory Stick” is removed from the drive or the computer is turned off while reading or writing data.
 - A “Memory Stick” is subjected to an electrostatic discharge or electrostatic noise.
- When affixing labels to “Memory Stick”, only use “Memory Stick” labels. Do not use other types of labels.
- When storing or carrying a “Memory Stick”, keep it in its original case.
- Avoid touching the connector or making it come in contact with metallic objects.
- Do not drop, bend, or submit “Memory Stick” to external shock.
- Do not disassemble or modify “Memory Stick”.
- Avoid dropping liquids on “Memory Stick”.

Troubleshooting

If you are experiencing problems with the drive, verify the following items before contacting us for assistance. If you cannot resolve the problem after verifying these items, contact your dealer or our customer service department.

Problem	Cause/Solution
The drive is not detected by the computer, or it behaves incorrectly or intermittently.	<ul style="list-style-type: none">→ If you are using the drive on internal power, the remaining charge of the internal battery may be low. Connect the drive to the AC power adapter and recharge the internal battery.→ The AC power adapter or USB cable may not be properly connected. Verify that the connectors are firmly mated at the drive and computer ends. See the "Quick Start Guide" to confirm that the connections are correct.→ The USB interface card may not be set up correctly. Refer to the instructions provided with the USB interface card and perform the setup procedure again.→ With computers running Windows 98 SE or Mac OS 9.x, the device drivers may not be properly installed. Uninstall the device drivers (page 54), then follow the instructions outlined in the "Quick Start Guide" to reinstall the device drivers.
Windows 2000 does not detect the "Memory Stick" reader/writer of the drive.	<ul style="list-style-type: none">→ If Windows 2000 is not updated to Service Pack 3 (or later), you cannot use the "Memory Stick" reader/writer. For details, refer to the "Quick Start Guide".
The drive does not come on (the CHARGE/BUSY indicator does not light green even if the drive is connected to the computer).	<ul style="list-style-type: none">→ The drive may be malfunctioning for an unspecified reason. Insert a pin-like object (such as a paper clip) into the emergency reset hole next to the manual ejection lever at the base of the drive.



Problem	Cause/Solution
<p>The drive does not respond to remote control commands or NO MEDIA appears on the remote control display even if you insert a disc.</p>	<ul style="list-style-type: none"> → When the HOLD function is in use, slide the HOLD switch on the remote control in the opposite direction indicated by the arrow. (For details, see page 48.) → When the control knob is pulled out, it serves as the volume control. Push it back. → You cannot use the remote control when the drive is connected to your computer. If you want to use the drive as a CD player, disconnect it from the computer. If you want to use the drive as a CD player while it is connected to your computer, use a player installed on your computer to listen to music. → If you are using the drive on internal power, the remaining charge of the internal battery may be low. Connect the drive to the AC power adapter and recharge the internal battery. → Confirm that the disc that you are trying to play back contains files compatible with the drive. (For details, see page 52.) → The disc that you are trying to play back may not be "finalized". Therefore, you may not be able to play it back or playback may take some time to start. → Because of the disc, device used in creating the disc, and settings at the time of creation, you may not be able to play back some discs with the drive. → The drive may be malfunctioning for an unspecified reason. Insert a pin-like object (such as a paper clip) into the emergency reset hole next to the manual ejection lever at the base of the drive. (See illustration on the previous page.) → If, after performing the above, you are still unable to play back discs, see the item titled "After inserting a disc, the audio skips or data cannot be read".
<p>After inserting a disc, the audio skips or data cannot be read.</p>	<ul style="list-style-type: none"> → The disc may be inserted with the label side facing down. Discs must be inserted label side up. → The disc may be incompatible with this drive. See "Compatible discs" on page 49. → The disc or the drive lens may be dirty. If the lens is dirty, contact your retailer or repair service center nearest you. → The disc may be scratched. Try a different disc to determine whether the drive is operating normally. → There may be dust or other foreign objects on the drive turntable. If so, wipe it clean. → Condensation may have formed in the drive or on the disc. If the disc surface or the drive lens appears to be fogged, remove the disc and wait approximately one hour for the condensation to evaporate.

Problem	Cause/Solution
Cannot eject the disc.	<ul style="list-style-type: none"> → If the LOCK switch on the front of the drive is in the locked position, move it to the other position. → While writing is in progress, you cannot remove the disc by pressing the EJECT button. Remove the disc by following the instructions of the writing software that you are using. Refer to the manual provided with the writing software. → The computer may be hung. Restart your computer. → If the disc cannot be ejected despite the above, push the manual ejection lever in the direction of the arrow to open the cover.
An error occurs when writing to a disc.	<ul style="list-style-type: none"> → If the drive is connected to a USB hub (including keyboard hubs), reconnect the drive directly to a USB port on the computer. → If a low write speed is selected, change to a higher speed. Depending on the media being used, higher writing speeds may work better. Changing the writing speed is done through the writing software. → If the computer has a slow CPU, you may need to use a slower writing speed. → Disable any screensaver that may be running on the computer. → Close any software that may be running, other than the writing software. Other software running while writing data can cause the data transfer rate to drop considerably, which can cause the writing process to fail (buffer underrun). → Close any resident disc or other utilities that are supposed to accelerate disc access. → In some cases, file fragmentation on the hard disk can cause problems. Defragment the hard disk. Use "Disk Defragmenter" found in the [Accessories], [System Tools] or another suitable program. → If on-the-fly writing (copying data disc to disc from a CD-ROM drive to the drive) is enabled, disable it. Instead, copy the data to the hard disk first, and then write from the hard disk to the drive. Write errors are more likely to occur with on-the-fly writing.

Problem	Cause/Solution
Created music CDs are noisy (noise is mixed into the played sound).	<ul style="list-style-type: none"> → Refer to the FAQ or troubleshooting sections of the writing software manual to change the writing software settings. → Some computers generate more noise than others, so using a different computer may allow creating noise-free music CDs.
Playback starts from where you stopped. (Resume function)	→ The resume function is active. To start playback from the first track, turn the control knob in the ►/▶▶ direction until playback starts, or open the cover of the drive.
During playback of a disc containing music files, the disc does not rotate, but you can hear your music normally.	→ The drive is designed to stop the rotation of discs during playback to reduce power consumption. This is not a malfunction.
When you close the cover of the drive, the disc starts to rotate.	→ The drive is reading the information on the disc. This is not a malfunction.
A problem occurs when the computer starts, or the writing software does not operate properly.	→ If the writing software provided with the drive is installed on a computer with packet writing-based writing software already installed, the writing software may not operate correctly. The other packet writing software should be uninstalled beforehand. Note that packet writing software comes preinstalled on some computers, so check your system to see if it is present.
Writing software other than the supplied program has been installed, but does not work.	→ Some writing software or versions of writing software may be incompatible with the drive. For details, contact the manufacturer or reseller of the writing software. Sometimes you can solve the problem by upgrading or downloading a later version of the software.
Although the drive operated normally in the past, operation became unstable at some point.	→ If operation becomes unstable after a particular program is installed, uninstall that program. If this resolves the problem, refrain from using or reinstalling that program.
No sound is output from the drive headphones when playing music CDs or files.	→ When you connect the drive to your computer, you cannot listen to music with through the headphone jack of the drive.

Problem	Cause/Solution
No sound is output from the computer speakers when playing music CDs or files.	<p>→ The sound output destination is determined by Windows settings.</p> <ul style="list-style-type: none"> • If using Windows XP, on the [Start] menu, click [Control Panel]. In [Control Panel], click [Performance and Maintenance], then click [System]. In the [System Properties] dialog box, click the [Hardware] tab, then click the [Device Manager] button. In the [Device Manager] window, double-click [DVD/CD-ROM drives], then double-click [SONY CD-RW MPD-AP20U USB Device]. In the properties dialog box to enable CD audio from the computer speakers, click the [Properties] tab, then select the “Enable digital CD audio for this CD-ROM device” check box. • If using Windows Me or Windows 2000, on the [Start] menu, point to [Settings], then click [Control Panel]. In [Control Panel], double-click [System]. In the [System Properties] dialog box, click the [Device Manager] tab. (If using Windows 2000, click the [Hardware] tab, and then the [Device Manager] button to display the [Device Manager] window.) To enable CD audio from the computer speakers, double-click [CD-ROM], double-click the drive, click the [Properties] tab, and select the “Enable digital CD audio for this CD-ROM device” check box. • If using Windows 98 SE, on the [Start] menu, point to [Settings], then click [Control Panel]. In [Control Panel], double-click [Multimedia]. In the [Multimedia Properties] dialog box, click the [CD Music] tab. To enable CD audio from the computer speakers, select the “Enable digital CD audio for this CD-ROM device” check box. • If using a Macintosh computer, music CDs cannot be played through the computer speakers. We recommend that you use the CD-ROM or DVD-ROM drive of your Macintosh computer to play music CDs. • Some computers cannot play music from an external drive through their speakers.
The “Batt NG” message appeared on the remote control display.	<p>→ The internal battery may need to be replaced. To replace the internal battery, we ask that you contact your dealer or our customer service department. (See page 67.)</p>
The “Hi Temp” message appeared on the remote control display.	<p>→ Make sure that the ambient temperature where you are using the drive is within the operating temperature range specified on page 64.</p> <p>→ If this message appears when you are charging the internal battery, disconnect the AC power adapter from the drive and wait until the drive cools down before resuming the operation.</p>
The internal battery does not charge or can only be used for a short period of time.	<p>→ Battery operation time is reduced at low temperatures.</p> <p>→ The internal battery may need to be replaced. To replace the internal battery, we ask that you contact your dealer or our customer service department. (See page 67.)</p>

Warranty Card & After Sales Service

Warranty card

- A warranty card should be provided with this product at the place of purchase.
- Please read the warranty card, fill in the specified information, and retain it for future reference.
- The warranty period is one year from the date of purchase.

Note

The warranty and technical support service are valid only in the countries or sales regions specified on the warranty card.

After sales service

Repairs under warranty

We provide repair services as described in this manual and on the warranty card. Please contact your supplier or repair service provider for details.

Repairs outside warranty

If operation can be restored by repair, we will repair the drive for a charge.

Repair requirements

If the drive needs repair, return it together with all supplied accessories (USB cable and AC power adapter) to your place of purchase or repair service provider.

- If you return the drive to your place of purchase or repair service provider because of damage resulting from misuse or other causes, you will be responsible for all repair-related expenses, including shipping and handling and product adjustments.

Specifications

Speed

Write speed

24 × maximum (CD-R)

10 × maximum (CD-RW)

Read speed

24 × maximum (CD-ROM)

8 × maximum (DVD-ROM)

Discs

Compatible discs

CD-ROM DVD-ROM

CD-ROM XA DVD-Video

Photo CD CD-DA

CD-R CD-RW

DVD+R¹⁾ DVD+RW¹⁾

DVD-R¹⁾ DVD-RW¹⁾

Video CD CD Extra (CD+)

CD TEXT

Disc diameter: 12 cm

8 cm (CD-DA reading
only)

¹⁾ The drive can only read these discs. Depending on the discs, devices, and settings used in writing the discs, the drive may not be able to read some discs.

Writing methods

Track-at-once

Disc-at-once

Session-at-once

Fixed packet writing

Drive

Data transfer rate

Maximum: 10800 KB/s

(DVD-ROM 8 ×²⁾)

Access time

Average (random stroke): 160 ms

²⁾ The maximum data transfer rate varies according to the performance of your computer.

Buffer underrun error protection

Power-Burn™ technology

Laser

CD

Type

GH0780MA6CS

Wavelength

780 nm

Output power

200 mW (pulse)

100 mW (CW)

DVD

Type

GH6D407B5A

GH6D407B5A1

Wavelength

650 nm

Output power

6.3 mW

Operating environment/Storage environment

Operating temperature

5 °C to 35 °C

Interfaces

Drive interface

Hi-Speed USB (USB 2.0-compliant)³⁾

³⁾ Used in connecting to your computer using the USB cable provided with the drive.

Buffer capacity

8 MB

“Memory Stick” slot

Write speed

Up to 1.5 MB/s⁴⁾

Read speed

Up to 2.45 MB/s⁴⁾

⁴⁾ Maximum read and write speeds depend on the performance of your computer and the type of “Memory Stick” used.

Power supply/Miscellaneous

Power supply

External power jack: rated DC 10 V

AC adapter: AC-CRX20

(rated input AC 100 V - 240 V)

Power consumption

10 W (charging)

7.5 W (not charging)

Size

Approximately 136.4 × 22 × 159 mm

(5.4 × 0.9 × 6.3 in.)

(W × H × D)

Mass

Approximately 330 g (0.7 lb, drive only)

Internal battery (Li-ion)

Recharge time approx. 4 hours^{5), 6)}

Operation

CD-DA

Playback approx. 4 hours⁶⁾

MP3 disc

Playback approx. 10 hours⁶⁾

DVD-Video

Playback approx. 1.5 hours⁶⁾

CD-R

Writing approx. 9 discs⁷⁾

CD-RW

Writing approx. 8 discs⁷⁾

⁵⁾ General indication of the amount of time required to fully charge the battery from the completely discharged condition at 23 °C.

⁶⁾ Actual charging and playback times depend on the ambient temperature, operating conditions, and the type of disc.

⁷⁾ The number of discs that can be consecutively written is based on writing to 650 MB discs, at the optimum write speed, with a 480 Mbps transfer rate. Writing time may vary depending on your computer, the disc quality, and the remaining charge of the internal battery.

Cradle

Power supply

External power jack: rated DC 10 V
AC adapter: AC-CRX20
(rated input AC 100 V-240 V)

Compatible batteries (all sold separately)⁸⁾

Nickel Cadmium (Ni-Cd) rechargeable batteries⁹⁾

Nickel Metal Hydride (Ni-MH) rechargeable batteries⁹⁾

Size

Approximately 132.3 × 43.5 × 158.5 mm (5.2 × 1.7 × 6.2 in.)
(W × H × D)

Mass

Approximately 160 g (0.4 lb, cradle only)

⁸⁾ You cannot use dry cell batteries.

⁹⁾ You cannot use the cradle to recharge batteries.

The specifications and appearance of the product are subject to change without notice.

Product and Support Information

Sony global sites information

Products purchased in the USA:*

<http://www.sony.storagesupport.com/>

Products purchased in Canada:

<http://www.sony.ca/>

Products purchased in Australia or New Zealand:

<http://www.sony.com.au/support.asp>

Products purchased in Europe:*

<http://www.sonyisstorage.com/support>

Products purchased in Hong Kong:*

<http://www.sony.com.hk/Electronics/cp>

Products purchased in China:*

<http://www.sony.com.cn/electronics/edmh/default1.html>

Products Purchase in Singapore:

<http://www.sony.com.sg/asianit/>

Products purchased in Taiwan:*

<http://www.sony.com.tw/stwn/cpd/index.htm>

Products purchased in Korea:*

<http://www.sony.co.kr/cp>

Products purchased in Brazil:

<http://www.sonybrasil.com.br>

Products purchased in the Middle East:

<http://www.sony-middleeast.com>

* Local Web sites for computer peripheral products

About the Bundled Writing Software

Detailed information about the supplied

writing software is available on the Web sites of the software manufacturers and software distributors.

Customer Services for Media Products

Sony Electronics Inc., New Jersey,
U.S.A. Sony of Canada Ltd., Ontario,
Canada

<http://www.mediabysony.com/>

Sony France S.A. Customer Service
40465 Pontonx sur l'Adour France
<http://www.sony-europe.com/>

Technical support

Please consult the above sources before calling with questions about using MPD-AP20U, or with technical questions about the drive or the supplied software. If using telephone or e-mail support, please have the following information available:

- Model number: MPD-AP20U
- Serial number
- Date and place of purchase
- Computer maker and model number
- Computer specifications (CPU speed, memory size, OS version, etc.)
- Writing software used (version, etc.)

Local technical support service is available in the following sales regions:

For products purchased in the USA (Sony Electronics Inc):

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- Toll Free: 1-800-588-3847
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For products purchased in Canada (Sony of Canada Limited):

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- E-mail Address: it_help@sony.ca

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