

SONY

CD-ROM Drive Unit

CDU-7101

Operating Instructions

OWNER'S RECORD

The model and serial numbers are located at the rear. Record the serial number in the space provided below. Refer to them whenever you call upon your sales representative regarding this product.

Model No. CDU-7101

Serial No. _____

WARNING

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.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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 the receiving antenna
- Relocate the equipment with respect to the receiver
- Move the equipment away from the receiver
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to subpart J of Part 15 of FCC Rules.

Connecting cable RK-B101

CAUTION

As the laser beam used in this CDU-7101 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.

This unit uses CD-ROM discs with the following mark.



When you use this unit as a CD player, use compact discs with the following mark.



CLASS 1
LASER PRODUCT
LASER KLASSE 1

This CD-ROM drive is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the bottom.

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Introduction

CDU-7101 disc drive unit is stand-alone type unit for CD-ROM (Compact Disc Read-Only Memory) which can store as much as 540 Mbytes of digital data.

The CDU-7101 has the following features:

- A half-height drive is used to create a slim unit.
- Fast access time (average, less than 0.5 sec.) assures high-speed reading operation.
- Two 40-pin Sony bus connectors.
Up to four drives can be connected in a daisy-chain through this Sony interface bus.
- Employs highly reliable connectors.
- Capable of audio playback and is provided with audio line outputs and headphone jack.
- A caddy is used for disc protection.
- Automatic loading of a caddy.
- Automatic locking of the optical pickup when a caddy is ejected. This ensures safety during transportation.
- A caddy can be ejected manually.

Host adapter that must be installed

Use the supplied host adapter CDB-231.

Software that must be installed in the host computer

To read data from CD-ROM discs that follow the High Sierra Group (HSG) logical format standard for CD-ROM, you can use the supplied software "Sony MS-DOS CD-ROM Extensions OPA-332-11". This software extends MS-DOS.

To read data from discs based on other formats, install the appropriate software in the host computer.

MS-DOS, MS-DOS CD-ROM Extensions are registered trademarks of Microsoft Corporation.

Example of system set-up

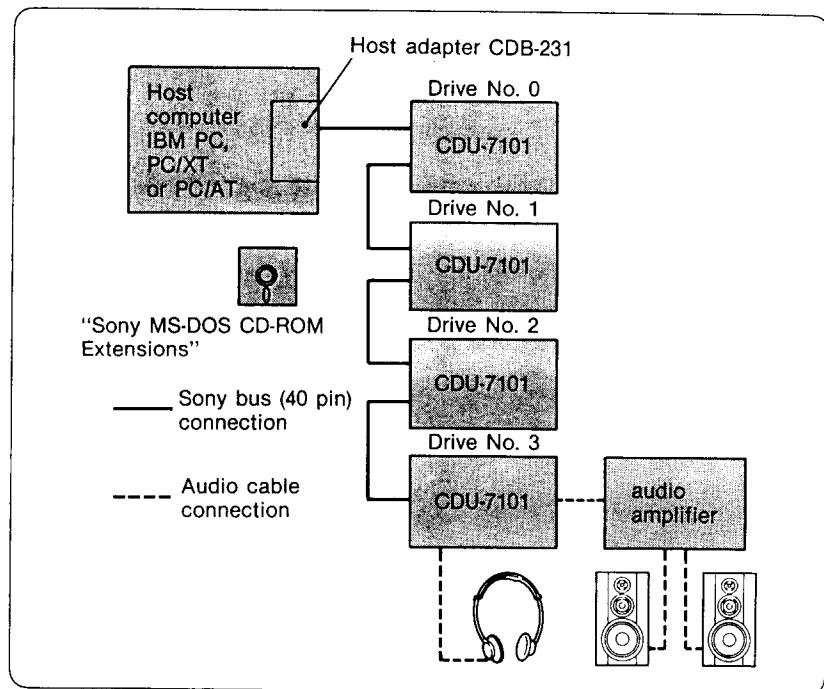
A system is composed of:

- a personal computer
- a CDU-7101
- a host adapter
- Extension software

Up to four drive units can be connected to one host adapter through 40-pin Sony bus interface in a daisy-chain.

CDU-7101, provided with the line outputs and headphone jack, is capable of audio playback.

Here is an example of system set-up. For instructions on connecting each unit, refer to "Setting up" on page 10-20.



IBM is a registered trademark of International Business Machines Corporation.

Precautions

Safety

- Operate the unit on 100–120V AC, 50/60Hz for U.S.A. model, or 220–240V AC, 50/60Hz for European model.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for extended period of time.
- To disconnect a cord, pull it out by the plug. Never pull the cord itself.

Installation

- Avoid placing the unit in a location subject to:
 - high humidity
 - high temperature
 - excessive dust
 - mechanical vibration
 - direct sunlight
- Always use the unit in horizontal position. Do not place the unit on its end.
- Do not place the unit on surfaces (rug, blankets) or near materials (curtains, draperies) that may block the ventilation slot.

Operation

- Do not move the drive unit during operation, or error may occur in reading operation.
- Avoid sudden changes in temperature as that may cause condensation inside the unit. Should the surrounding temperature suddenly rise while the drive is on, wait more than one hour to turn off the power. If you operate the unit right after a sudden increase in temperature, it may malfunction during reading.

Transportation

To avoid damage

- Keep the original packing materials.
- Before you transport the drive, remove the caddy from the drive unit and repack the drive unit as it was originally.

Cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which may damage the finish.

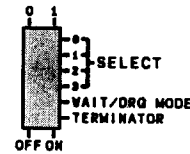
For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

If you have any questions about this unit, contact your sales representative.

Setting up

Setting DIP switches on the drive

Turn off the POWER switch before setting the DIP switches, or the drive not work correctly.



Assigning the Sony bus Drive number SELECT switches

Assign the drive number for each drive unit according to the table below. Drive number labels are supplied.

Do not set the same drive number setting for more than one drive. Trouble may occur both in the drive unit and in the host adapter.

Sony bus Drive number	SELECT			
	0	1	2	3
0	1	0	0	0
1	0	1	0	0
2	0	0	1	0
3	0	0	0	1

Note

To use more than one CD-ROM drive with the supplied software "Sony MS-DOS CD-ROM Extensions", specify the total number of CD-ROM drives when installing the software. For detail, refer to the installation manual of the software.

Assigning the WAIT/DRQ switch

Set this switch to DRQ unless otherwise instructed by the manual of the software.

When you use this drive as one of the logical units of SCSI bus, set the switch to DRQ.

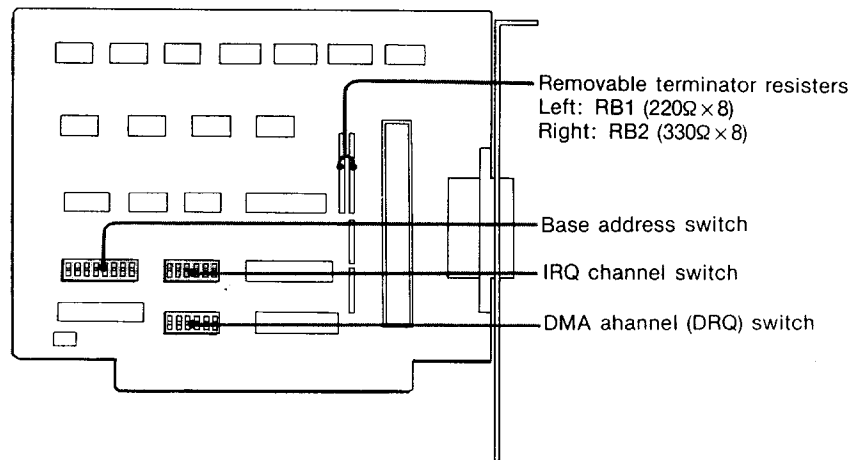
Assigning the TERMINATOR switch

When you connect one drive in your system, set this switch to ON.

When you connect more than one drive in a daisy-chain, set this switch to ON for the last drive and OFF for the other drives.

Setting DIP Switches on the host adapter

Your CD-ROM host adapter has three DIP switches for specifying the base address, DMA channel (DRQ) and IRQ channel.



Note for terminator resistors

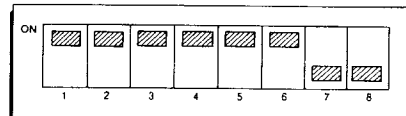
When you connect CDU-7101 to a host computer with an internal CD-ROM drive, remove these terminator resistors from the sockets.

Keep the terminator resistors for future use.

Base address

The base address switch is initially set to 300h.

Default setting

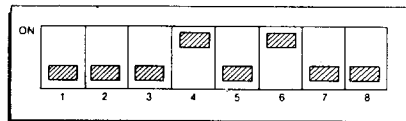


If you plan to use another base address, change the switch setting as shown below. You may select any fourth number between 300h and 3FCh.

The first two digits are determined by switches 3 to 8. The last digit is determined by switches 1 and 2.

Switch Digit	1	2	3	4	5	6	7	8
30—	—	—	ON	ON	ON	ON	OFF	OFF
31—	—	—	OFF	ON	ON	ON	OFF	OFF
32—	—	—	ON	OFF	ON	ON	OFF	OFF
33—	—	—	OFF	OFF	ON	ON	OFF	OFF
34—	—	—	ON	ON	OFF	ON	OFF	OFF
35—	—	—	OFF	ON	OFF	ON	OFF	OFF
36—	—	—	ON	OFF	OFF	ON	OFF	OFF
37—	—	—	OFF	OFF	OFF	ON	OFF	OFF
38—	—	—	ON	ON	ON	OFF	OFF	OFF
39—	—	—	OFF	ON	ON	OFF	OFF	OFF
3A—	—	—	ON	OFF	ON	OFF	OFF	OFF
3B—	—	—	OFF	OFF	ON	OFF	OFF	OFF
3C—	—	—	ON	ON	OFF	OFF	OFF	OFF
3D—	—	—	OFF	ON	OFF	OFF	OFF	OFF
3E—	—	—	ON	OFF	OFF	OFF	OFF	OFF
3F—	—	—	OFF	OFF	OFF	OFF	OFF	OFF
and								
—0h	ON	ON	—	—	—	—	—	—
—4h	OFF	ON	—	—	—	—	—	—
—8h	ON	OFF	—	—	—	—	—	—
—Ch	OFF	OFF	—	—	—	—	—	—

For example, to select 35Ch, set switches 3 to 8 for 35—, and switches 1 and 2 for —Ch.



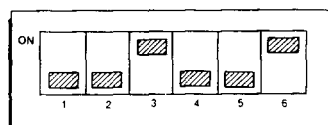
Note

When installing "Sony MS-DOS CD-ROM Extensions", customize the software to match these settings.

DMA channel (DRQ)

The DMA channel switch is initially set to DRQ3.

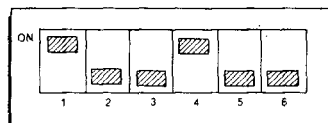
Default setting



If you plan to use another DMA channel (DRQ), change the switch setting as shown below.

Switch	1	2	3	4	5	6
DRQ1	ON	OFF	OFF	ON	OFF	OFF
DRQ2	OFF	ON	OFF	OFF	ON	OFF
DRQ3	OFF	OFF	ON	OFF	OFF	ON

For example, to select DRQ1, set the switch as follows.



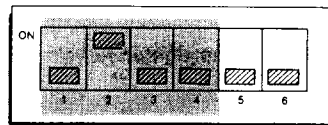
Note

When installing "Sony MS-DOS CD-ROM Extensions", customize the software to match these settings.

IRQ channel

The IRQ channel switch is initially set to IRQ3.

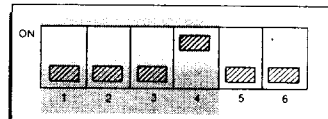
Default setting



If you plan to use another IRQ channel, change the switch setting as shown below. However, if you set <IRQ Channel> to <NO IRQ> when customizing SONYCDU, the switch setting will be ignored.

Switch IRQ	1	2	3	4
IRQ2	ON	OFF	OFF	OFF
IRQ3	OFF	ON	OFF	OFF
IRQ4	OFF	OFF	ON	OFF
IRQ5	OFF	OFF	OFF	ON

For example, to select IRQ5, set the switch as follows.



Note

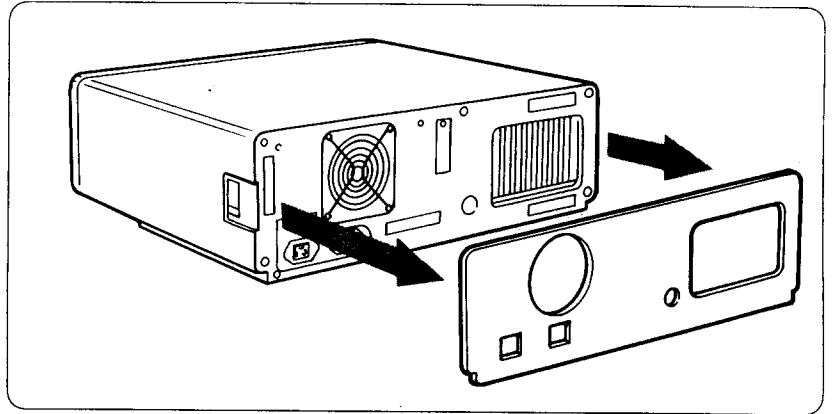
When installing "Sony MS-DOS CD-ROM Extensions", customize the software to match these settings.

Installing the host adapter into the computer

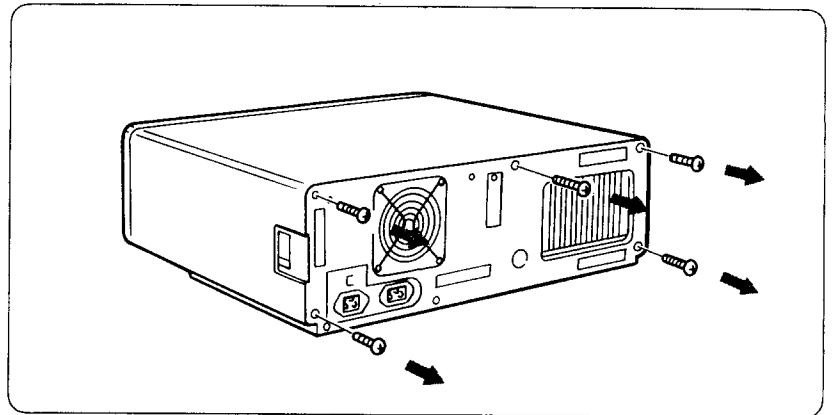
Disconnect the power cable of the computer from the AC outlet and disconnect the cables attached to the back of the computer to give yourself more room to work.

Make sure not to turn on the power of the computer before installations of the host adapter completes.

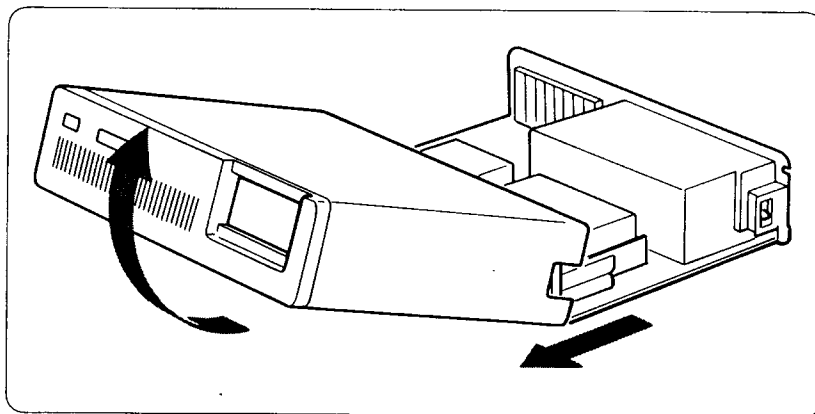
- 1 Your computer may have its rear side covered by a plastic panel attached with plastic fastener strips. Pull the panel off.



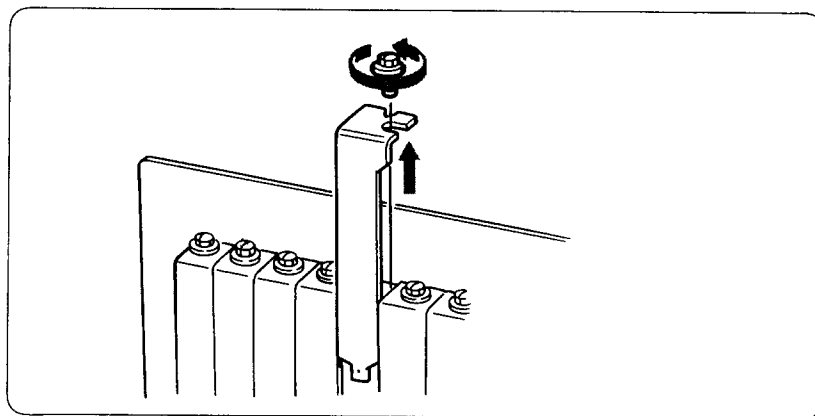
- 2 Remove the cover mounting screws—all of which are at the back of the computer.



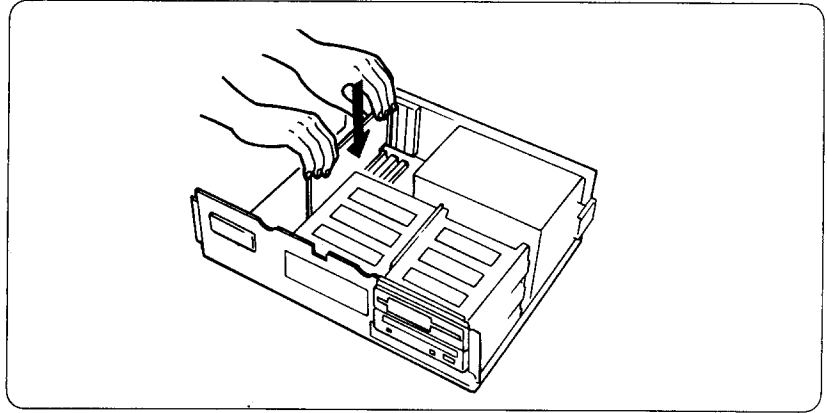
3 Remove the cover of the computer.



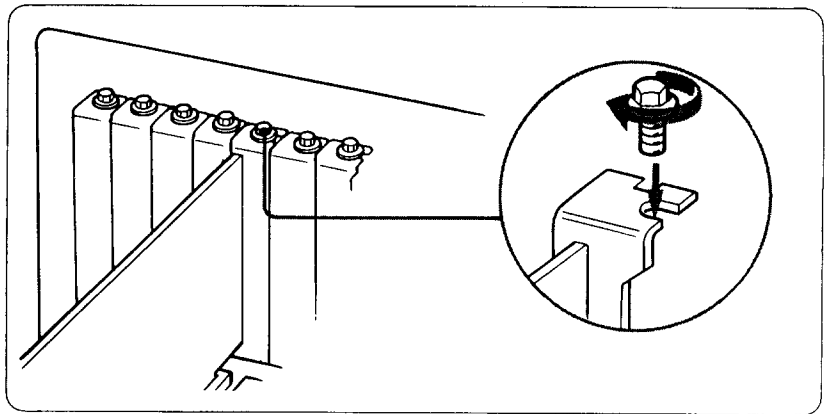
4 Remove the cover of an empty expansion slot.



- 5** Hold the host adapter by its top corners, slide it into the support bracket, and press it firmly into the expansion slot at the bottom.



- 6** Secure the host adapter with the screw you removed in step 4.

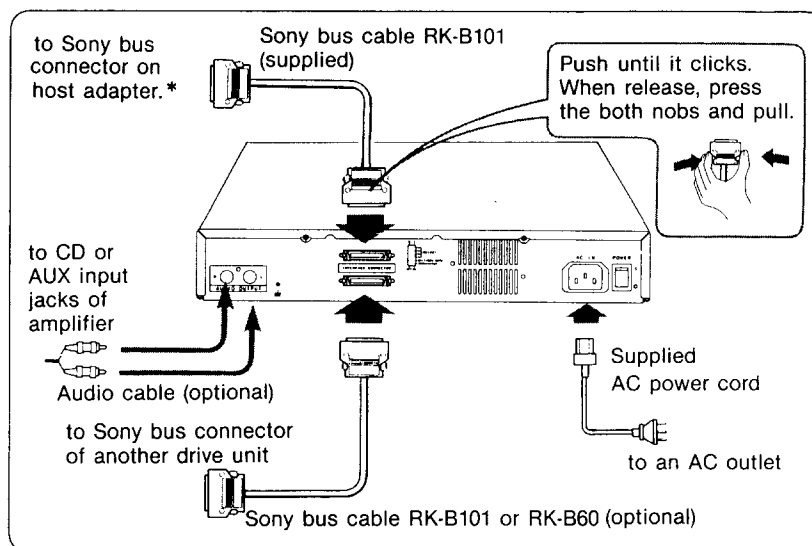


- 7** Slide the host computer's cover on and fasten the cover mounting screws at the back of the unit.

- 8** Remount the rear plastic panel if your computer has one.

Connecting the drive

Before making connections and setting the DIP switches, be sure to turn off the power of the CD-ROM drive unit.



* You can connect to another drive unit in a daisy-chain, using RK-B101 or RK-B60.

Notes

- Up to 4 Sony bus units can be connected to one host adapter through the Sony bus in a daisy-chain.
- The total length of the Sony bus cables connected to one host adapter should not exceed 3 meters.
- Assign the Sony Drive No. using the SELECT switch on the rear. Refer to the page 10.

Installing the "Sony MS-DOS CD-ROM Extensions"

Install the software to access CD-ROM discs that follow the High Sierra Group (HSG) logical format standard for CD-ROM.

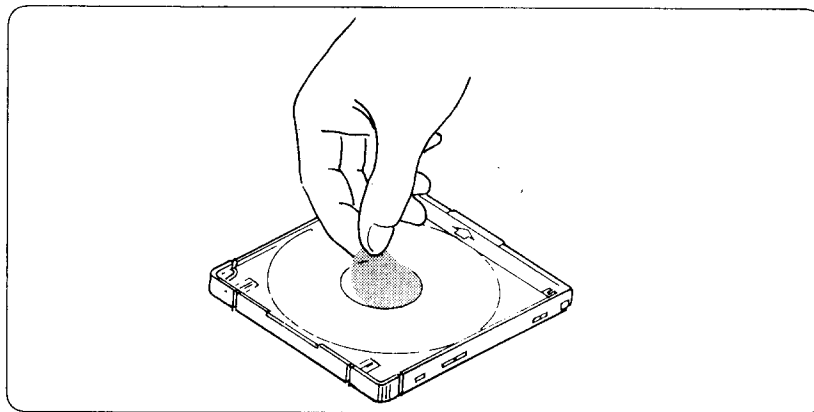
This software is designed to extend MS-DOS on IBM PC, PC/XT or PC/AT.

Customize the software to match the switch setting of DIP switches on the drives and on the host adapter. For details, refer to the installation manual of the software.

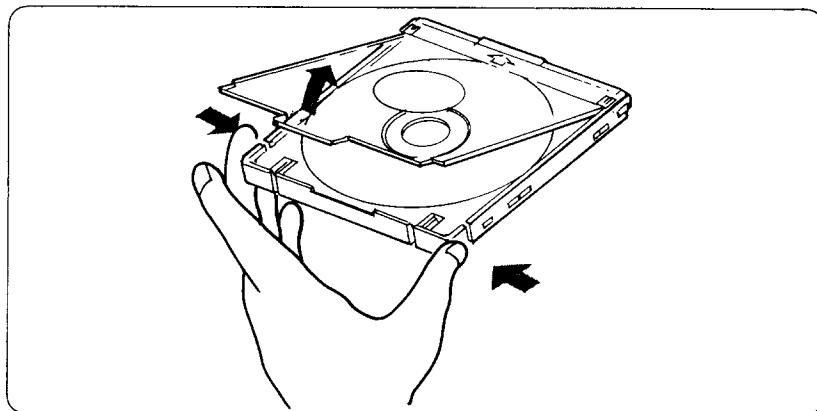
Handling Discs and Caddies

Use

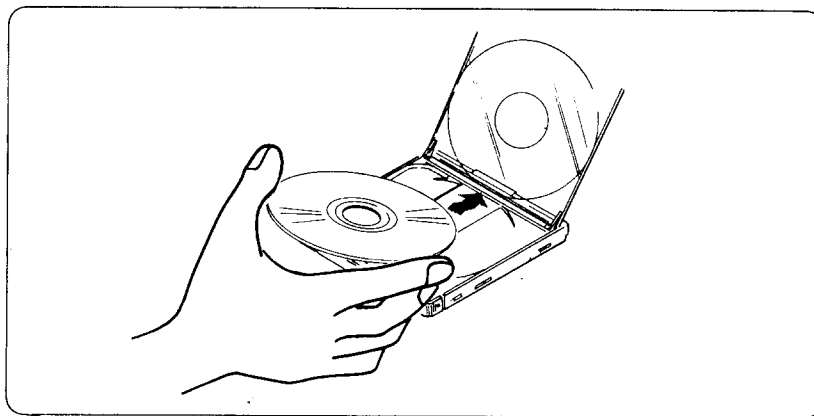
- 1 If there is a protective film on the lid of the caddy, remove it before using the caddy.



- 2 To open the lid of the caddy, press the tabs on both its sides.

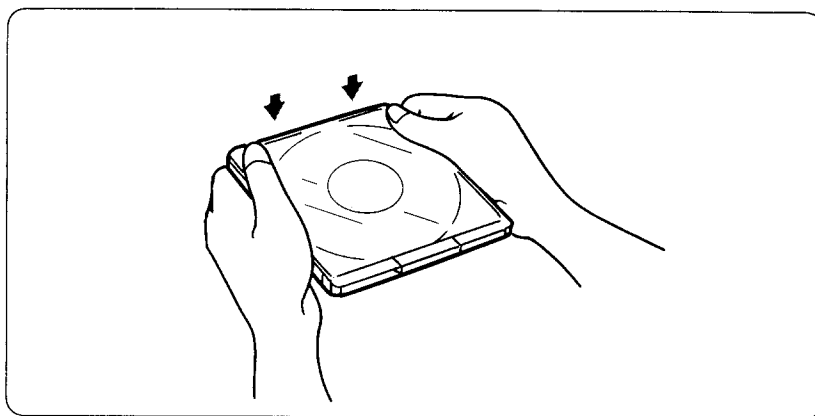


- 3** Put a disc into the caddy with label upward. Be sure to place the disc beneath the **edge of a caddy**.



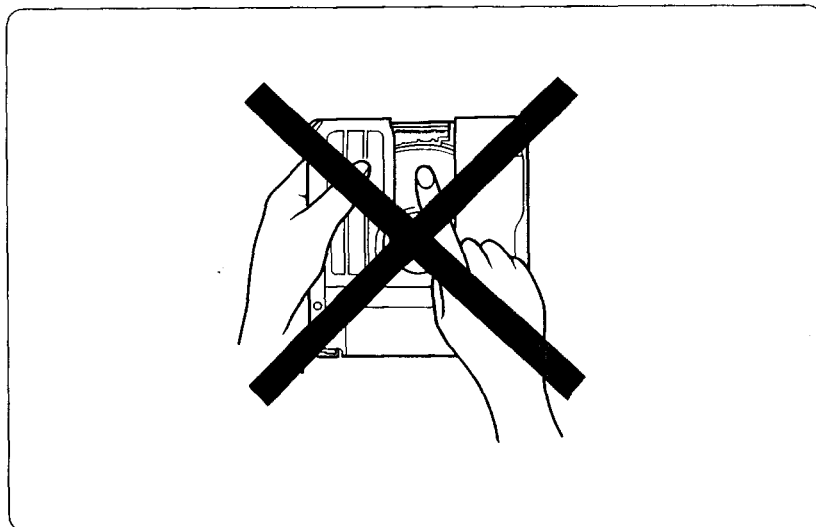
Do not touch the surface of the disc.

- 4** Close the lid firmly.



Precaution

- Do not drop the disc or the caddy, or subject them to shock.
- The caddy is designed so that the shutter automatically opens when it is installed in the drive unit. Do not open the shutter manually and touch the disc.



- The caddy is precisely adjusted at the factory. Do not disassemble it.

Storage

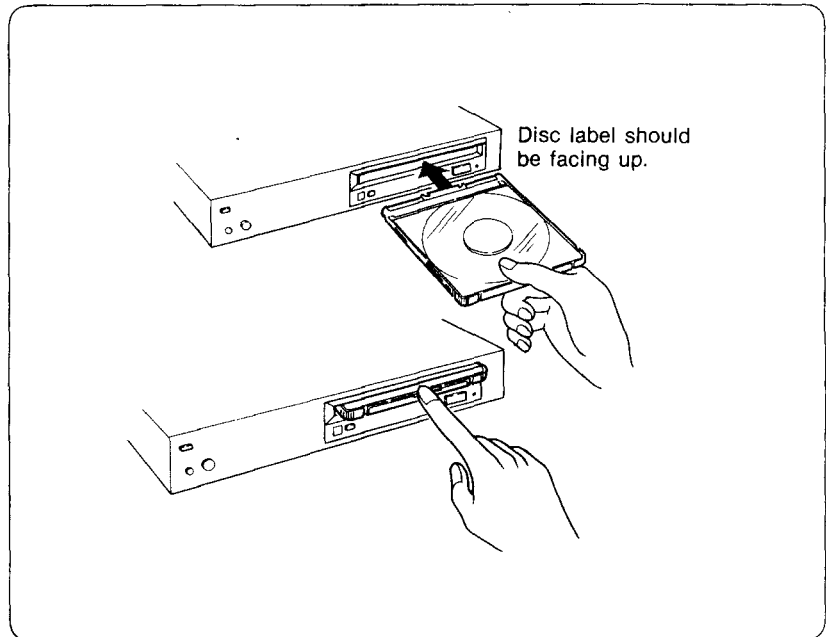
- Remove the caddy from the drive unit for transportation.
- Do not put the disc and the caddy in a location subject to:
 - dust
 - direct sunlight
 - high temperature
 - humidity

Operation

Make sure that the software is installed in the host computer before starting operation of the unit.

To start-up the unit

- 1 Turn on the POWER switch at the rear of the unit.
- 2 Insert the caddy into the caddy insertion slot as illustrated. The caddy is loaded automatically.



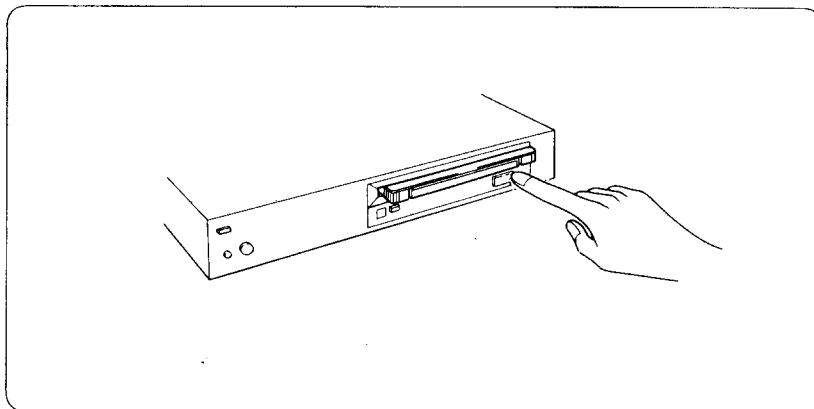
The drive starts reading the Table of Contents (TOC).
The BUSY indicator lights up while the TOC is being read.

The caddy will be ejected if the enclosed disc is upside-down, if it is not properly nested in the caddy, or if any other conditions prevent the drive from reading the disc.

- 3 When the BUSY indicator goes off, the unit is ready to receive the command from the host computer.
- 4 From here on, follow the instructions provided by the software.

To eject a caddy

Press the EJECT button on the drive unit.

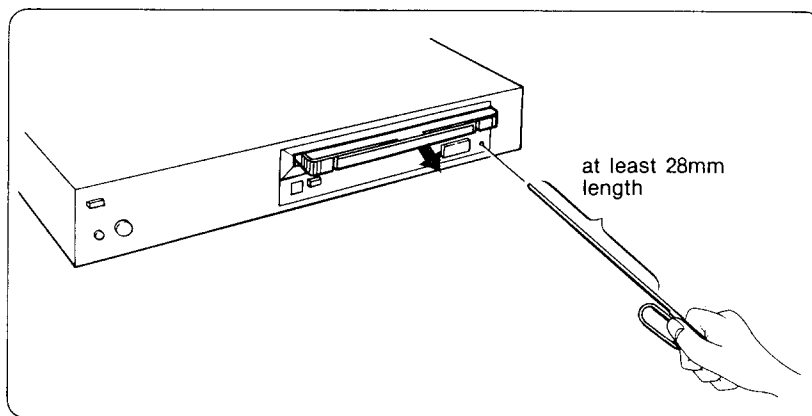


Note

If the eject button is disabled by the software, the button does not function.

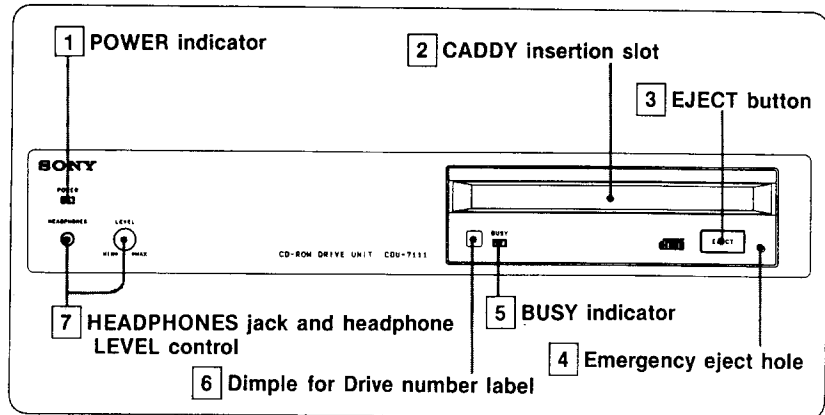
To eject a caddy manually

- 1 First, turn off the power of the drive unit.
- 2 Insert a steel rod (about 1.2mm diameter) into the emergency eject hole and push hard.



Parts Identification

Front panel



1 POWER indicator

Lights up when the POWER switch on the rear panel is turned on.
Goes off when the POWER switch is turned off.

2 Caddy insertion slot

Accepts caddies loaded with CD-ROM discs. For instructions on the insertion and ejection of a caddy, refer to pages 24, 25.

3 EJECT button

Ejects the caddy inserted in the drive unit.

4 Emergency eject hole

Hole in which a rod can be inserted to eject a caddy manually.

5 BUSY indicator

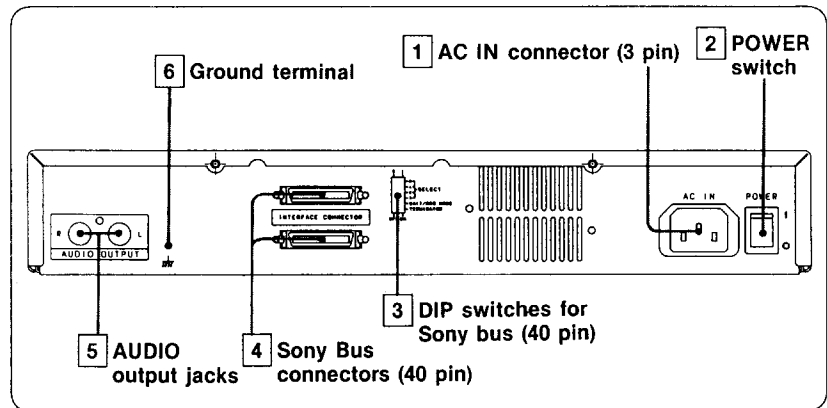
Lights up when data is read from the disc. Flickers during seek operation.

6 Dimple for Drive No. label

The supplied Drive number label may be stuck on here.

7 HEADPHONES jack and headphone LEVEL control

Rear panel



1 AC IN connector (3 pin)

Connect to an AC power source with supplied AC power cord.

2 POWER switch

Set this switch to "I" to turn on this CD-ROM drive unit. To turn it off, set this switch to "O".

3 DIP switches for Sony bus (40 pin)

Refer to page 10 for assignment and setting.

4 Sony Bus connectors (40 pin)

Connect to Sony host adapter using a Sony bus cable, or to another drive.

5 AUDIO output jacks

Connect to CD or AUX input jacks of amplifier using an audio cable.

6 Ground terminal

Connecting to the host computer or an amplifier may reduce audio noise.

Specifications

Disc

Disc	
Applicable disc	CD-ROM Mode-1 data disc CD-ROM Mode-2 data disc CD-Audio disc Audio-combined disc
Disc diameter	12 cm
Rotational speed (Depends on the disc.)	
Innermost track	530 rpm at CLV = 1.4 meter/sec
Outermost track	200 rpm at CLV = 1.2 meter/sec

Drive performance

Data transfer rate	
Sustained rate	150 kilo byte/sec
Burst rate	600 kilo byte/sec
Access time	
Full stroke	0.8 sec (typical)
Average (1/3 stroke)	0.5 sec (typical)
Interface cable length	3 m (maximum)

Reliability

Read error rate (includes retry)	
L-EC on	1 Block/ 10^{12} bits
L-EC off	1 Block/ 10^9 bits
Preventive maintenance	Not required

Audio

Output level	
Line out	2.0 V at 50 k Ω
Headphone	0.45 V at 32 Ω (at maximum volume)

Environmental condition

Operating

Temperature	5 to 45°C
Humidity	15 to 90%
Absolute humidity	30 grams/m ³ (maximum wet bulb temperature is 29°C) Noncondensing

Non-operating/Transportation

Temperature	-30 to 55°C
Humidity	15 to 90%
Atmosphere	Noncondensing

Vibration

Operating	0.1 G ₀ -p at 5 to 300 Hz
Non-operating	2 G ₀ -p at 5 to 300 Hz
Transportation	0.015 G ² /Hz @ 5 to 50 Hz (with standard package)

Shock

Operating	0.4 G ₀ -p at 11ms half sign wave
Non-operating	40 G ₀ -p at 11ms half sign wave
Transportation	76 cm drop (with standard package)

General

Power requirement	100-120 V AC, 50/60 Hz for U.S.A. model 220-240 V AC, 50/60 Hz for European model
Power consumption	0.27 A for U.S.A model 0.17 A for European model
Weight	5.4 Kg (11 lb 15 oz)
Dimension (with projection)	355×61×337 mm (w/h/d) (14×2½×13⅜ inches)

Laser use

Type: Semiconductor laser GaAlAs

Wave length: 780 nm

Output power: 0.6 mW

Design and specifications are subject to change without notice.

Supplied accessories

Sony bus cable RK-B101 (1)

Caddy OPA-1000 (1)

Drive number label (1)

AC power cord (1)

Sony interface card CDB-231 for IBM PC, PC/XT or PC/AT

Sony MS-DOS CD-ROM Extensions OPA-332-11 for IBM PC, PC/XT or PC/AT

Optional accessories

Sony interface card CDB-231 for IBM PC, PC/XT or PC/AT

Sony bus cable RK-B101, RK-B60

Caddy OPA-1011

Sony MS-DOS CD-ROM Extensions OPA-332-11 for IBM PC, PC/XT or PC/AT

Note

This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

Zu Ihrer Sicherheit

VORSICHT

Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

ACHTUNG

Da der interne Laserstrahl in Ihre Augen eindringen und Verletzungen verursachen kann, darf das Gehäuse nicht selbst geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

Die Verwendung von Brillen, Kontaktlinsen usw. vergrößert die Gefahr.

Zur besonderen Beachtung

Zur Sicherheit

- Betreiben Sie das Gerät entweder an 100–120 V Wechselspannung, 50/60 Hz (USA-Version) oder 220–240 V Wechselspannung, 50/60 Hz (Europa-Version).
- Sollte ein fester Gegenstand oder Flüssigkeit in das Geräteinnere gelangen, trennen Sie das Gerät von der Wandsteckdose ab und lassen Sie es von einem Fachmann überprüfen, bevor Sie es weiter verwenden.
- Zum Abziehen des Kabels fassen Sie stets am Stecker und niemals am Kabel selbst an.

Zur Aufstellung

- Stellen Sie das Gerät weder auf einer weichen Unterlage (z.B. Decke, Teppich) noch in der Nähe von Vorhängen, Tapeten usw. auf, da hierdurch die Ventilationsöffnungen blockiert werden können.

Zur Reinigung

Verwenden Sie zur Reinigung des Gehäuses, des Bedienungspultes und der Bedienungselemente ein trockenes, weiches Tuch oder ein weiches, leicht mit mildem Haushaltsreiniger angefeuchtetes Tuch. Lösemittel wie Alkohol oder Benzin dürfen nicht verwendet werden, da diese die Gehäuseoberfläche angreifen.

Laser

Typ: Halbleiterlaser GaAlAs

Wellenlänge: 780 nm

Ausgangsleistung: 0,6 mW

Strahldivergenz: $53,4^\circ \pm 1,5^\circ$

Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß das CDU-7101 in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funkentstört ist. Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Corporation

Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

Hinweis

Dieses Gerät erfüllt bezüglich Störstrahlungsunterdrückung die EWG-Richtlinien 76/889 und 82/499.

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.