CDU625

CD-ROM Drive Unit

CDU625
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User's Guide
Mode d'emploi
Bedienungsanleitung

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Owner's Record

The model and serial numbers are located on the top side of the drive. Record these numbers in the spaces provided below. Refer to them whenever you call upon your sales representative regarding this product.

Model No. _____   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.

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

COMPACT disc

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

COMPACT disc DIGITAL AUDIO

CAUTION	INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT IN DEN STRAHL BLICKEN, AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.
ADVARSEL	USYNLIG LASERSTRÅLING VED ÅBNING SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRALEN MED OPTISKA INSTRUMENT.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ TUIJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

This Label is located on the top of the drive.

Dieser Aufkleber befindet sich an der Oberseite des Gehäuses.

INFORMATION

You are cautioned that any changes or modifications not expressly approved in this manual could void your warranty covering this equipment.

Note: 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.

CLASS 1
LASER PRODUCT
_____
LASER KLASSE 1
PRODUKT

_____
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

This CD-ROM Drive Unit is classified as a CLASS 1 LASER PRODUCT.
The CLASS 1 LASER PRODUCT label is located on the top of the drive.

Bei diesem CD-ROM-Laufwerk CDU625 handelt es sich um ein Laser-Produkt der Klasse 1. Ein entsprechender Aufkleber mit der Beschriftung LASER KLASSE 1 PRODUKT befindet sich auf der Oberseite des Geräts.

Trademarks

- MS-DOS is a registered trademark of Microsoft Corporation.
- IBM PC, PC/XT, and PC/AT are registered trademarks of International Business Machines Corporation.
- HP Vectra is a registered trademark of the Hewlett-Packard Company.
- Molex is a registered trademark of Molex, Inc.
- AMP is a registered trademark of AMP, Inc.
- JAE is a registered trademark of Japan Aviation Electronics Industry, Ltd.

Contents

Introduction

Features

The CDU625 is an internal CD-ROM (Compact Disc Read-Only Memory) drive unit designed for use with an IBM PC, HP Vectra, or compatible computer. It can read as much as 650 Mbytes of digital data stored in a single CD-ROM disc.
The CDU625 has the following features:

General
- 5 1/4 inch half-height drive form factor.
- Embedded Fast-SCSI bus interface (SCSI-2).
- Selectable active termination by jumper setting.
- 256-kbyte buffer memory.
- Audio CD like drawer loading of a disc without using a caddy.
- Power loading and power eject of a disc. The disc can also be ejected manually.
- Housed in an airtight frame casing.
- Equipped with a parity on/off switch.

Supported disc formats
- Reads data in CD-ROM, CD-ROM XA, CD-I and CD-I Ready standard formats.
- Reads data in CD-BRIDGE format including PHOTO-CD.
- Reads standard CD-Digital Audio encoded discs.
- Reads VIDEO-CD and CD EXTRA (CD-PLUS) discs.
- Reads CD-ReWritable discs.

Performance
- Supports standard, quadruple and 12X-24X speed operations with real time error correction.
- Fast access time ensuring reliable high-speed data access.

Audio
- Outputs 16-bit digital audio data over the SCSI interface.
- Equipped with audio line output and headphones jack for audio CD playback.

Note:
The CDU625 is not equipped with an ADPCM audio circuitry required to support CD-ROM XA and CD-I compatible audio modes. In addition, the unit does not support the CD-I graphic decoding function; it has to be provided by the system.

Software Requirements for MS-DOS 6.x

To access data on CD-ROM discs, the appropriate device driver and MSCDEX (supplied with the host adapter) must be installed in your computer. See the manual that comes with the host adapter for details.
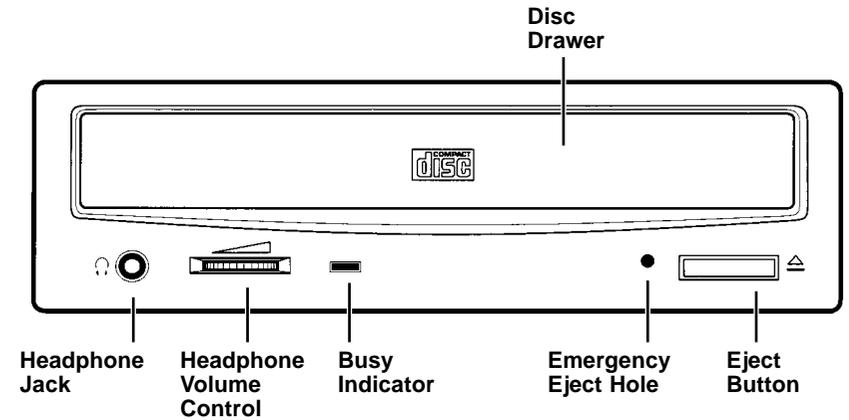
Example of System Setup

To use the CD-ROM drive unit, the following components are required:

- Computer (IBM PC, PC/XT, PC/AT, HP Vectra, or equivalent)
- SCSI host adapter
- Floppy disk drive
- Interface cable (50 to 50 pin flat cable)
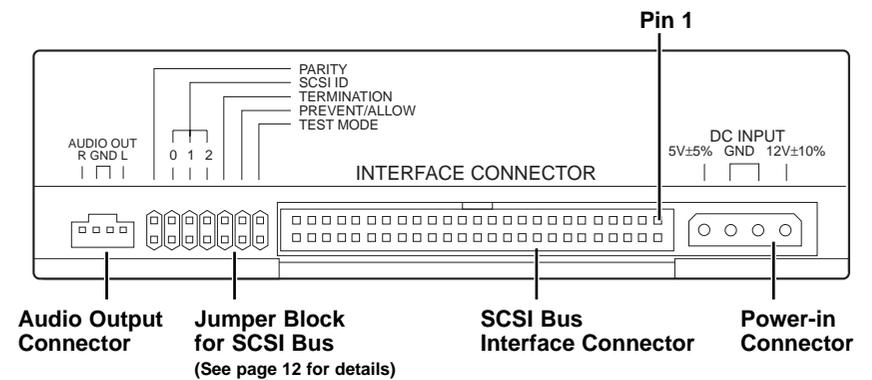- Software (Device driver, Utilities)

Location of Controls

Front Panel

The front panel controls are described in the illustration below.

Disc Drawer

Headphone Jack   **Headphone Volume Control**   **Busy Indicator**   **Emergency Eject Hole**   **Eject Button**

Rear Panel

The rear panel controls and connectors are described in the illustration below.

Pin 1

PARITY
SCSI ID
TERMINATION
PREVENT/ALLOW
TEST MODE

AUDIO OUT
R GND L

0 1 2

INTERFACE CONNECTOR

DC INPUT
5V±5%   GND   12V±10%

Audio Output Connector   **Jumper Block for SCSI Bus** (See page 12 for details)   **SCSI Bus Interface Connector**   **Power-in Connector**

Precautions

■ **Installation**

- Avoid placing the drive in a location subject to:
  – high humidity
  – high temperature
  – excessive dust
  – mechanical vibration
  – direct sunlight
- The drive can be used in either a horizontal or vertical position.
- Do not force the power cable. It is keyed to protect the drive.

■ **Operation**

- Do not move the drive when it is in use. Doing so may cause data error and damage the optical pick-up.
- Avoid exposing the drive to sudden changes in temperature as condensation may form on the lens inside the drive. Should the surrounding temperature suddenly rise while the drive is turned on, stop using the drive and leave the power on at least one hour before operating it or turning it off. Operating the drive immediately after a sudden increase in temperature may result in a malfunction.

■ **Transportation**

- Close the disc drawer before moving the drive.
- Keep the original packing materials. When you need to ship the drive to another location, repacking it in its original container will help you transport it safely.

Hardware Installation

Installing the Drive Unit into the Computer

As you go through this section, you may wish to refer to your computer's manual for a more detailed description of how to install internal drives.

Getting Started

Be sure to have the SCSI host adapter installed into your computer before attempting to install the drive.

- Prepare the necessary parts and tools that have not been supplied:
  – Screwdriver
  – Two mounting rails if your computer has mounting tracks.
- **Unplug the computer and disconnect the cables attached to the back for your own safety. Do not turn on the power of the computer before completing the entire installation process.**

Step 1: Opening the Computer

1 If your computer has its rear side covered by a plastic panel attached with plastic hook pad, pull it off.

2 Remove the cover mounting screws.

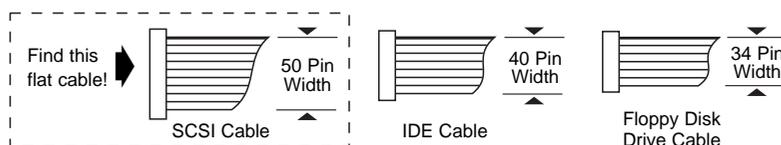**3** Remove the cover of the computer.
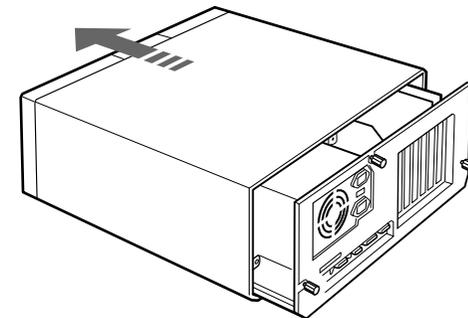
Step 2: SCSI Configuration

Locate the SCSI cable in your computer. One end of the cable is connected to the SCSI host adapter card as shown below.
The width of the SCSI cable should be 50 pin.

SCSI Host Adapter Card

Red Edge

SCSI Device

SCSI Device
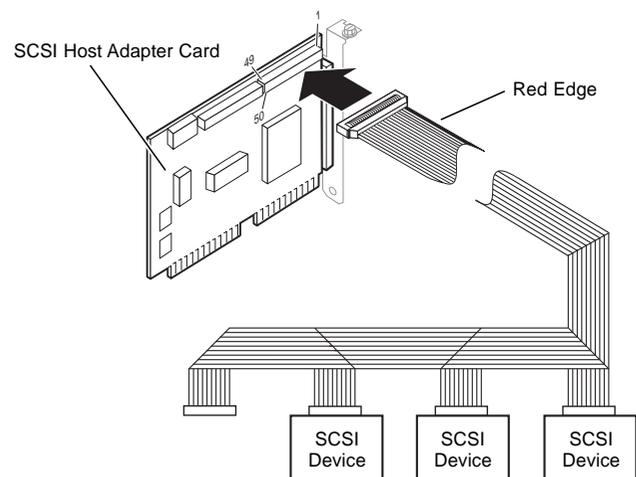
SCSI Device

Note:
Carefully locate the 50 pin SCSI cable. The following types of cables may be installed in your computer.

Find this flat cable!

50 Pin Width

SCSI Cable

40 Pin Width

IDE Cable

34 Pin Width

Floppy Disk Drive Cable

Note:
There may already be internal/external SCSI devices (like HDD, Scanner, CD-ROM) connected to the SCSI bus cable.
In this case you have to determine the SCSI ID# of each SCSI device.
This information will be required in Step 5 "Setting the Jumpers".
Refer to appropriate SCSI device manual to find out the already used SCSI ID# (0 ... 6).
In some cases, the SCSI host adapter is implemented on the computer's motherboard.

Step 3: Finding the Connector

The SCSI cable should have one or more connectors on the end opposite to SCSI host adapter card, as shown below. Trace the SCSI cable and find the connector not in use. We recommend using the SCSI connector which is located at the end of the SCSI cable.

SCSI host adapter connector

Pin 1 (red)

Opposite End
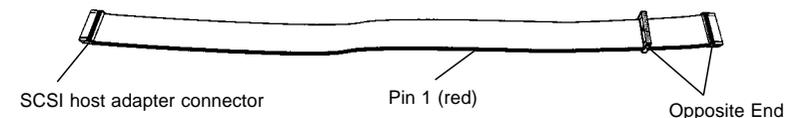
Note:
If the SCSI cable inside your computer does not have a SCSI connector free, please refer to "Additional Installation Cases" of chapter "Troubleshooting" on page 22.

Step 4: Choosing the Configuration

■ **SCSI ID selection**

● If you have not found any other SCSI device already connected to the SCSI bus, we recommend not changing the jumper position on the rear of the drive. In this case you can forward the installation process refering to Step 6 "Connecting the drive".

● If you found one or more SCSI devices already connected to the SCSI bus, you have to check whether the default SCSI ID# 3 (CD-ROM drive) was already assigned.
If SCSI ID# 3 has been already assigned to an other SCSI device, you need to change the SCSI ID# of your CD-ROM drive to a free one.
Do this by using the jumper part (ID Select) on the rear panel of the drive.

■ **Termination**

● If you connect the CD-ROM drive to the end of the SCSI cable, leave the termination of the drive activated.
● If the CD-ROM drive is not the last device at the SCSI cable, disable the termination of the drive by removing the jumper and make sure that the last device at the SCSI bus has a proper termination installed or activated.
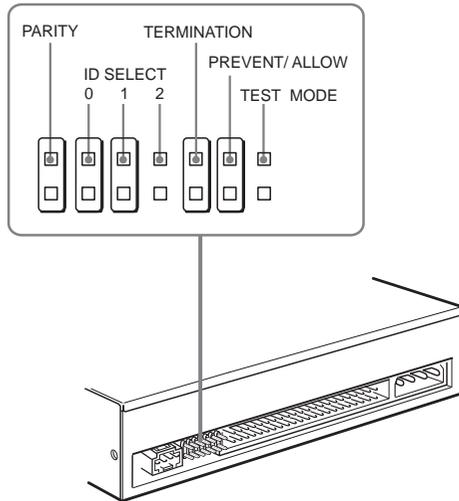
Note:
Be aware that only the last device at the SCSI bus needs to be terminated.

Step 5: Setting the Jumpers

Set the jumpers on the rear panel of the drive unit in accordance with the configuration of your computer system.

The jumpers are preset, as illustrated below, at the factory.

The recommended jumper for use is AMP Shunts (14227-1), JAE Short Socket (PS-2SH4-1) or equivalent.
The following table shows the function of each pair of jumper pins.

Jumper	Function			
PARITY	ON Enables the SCSI bus parity check function. OFF Disables the SCSI bus parity check function.			
ID SELECT	Assigns the drive's SCSI ID. Select an ID number which is not used by other SCSI devices connected to the bus. ID numbers and corresponding jumper pin settings are as follows:			

ID number	Jumper pin settings		
	0	1	2
0	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7	ON	ON	ON

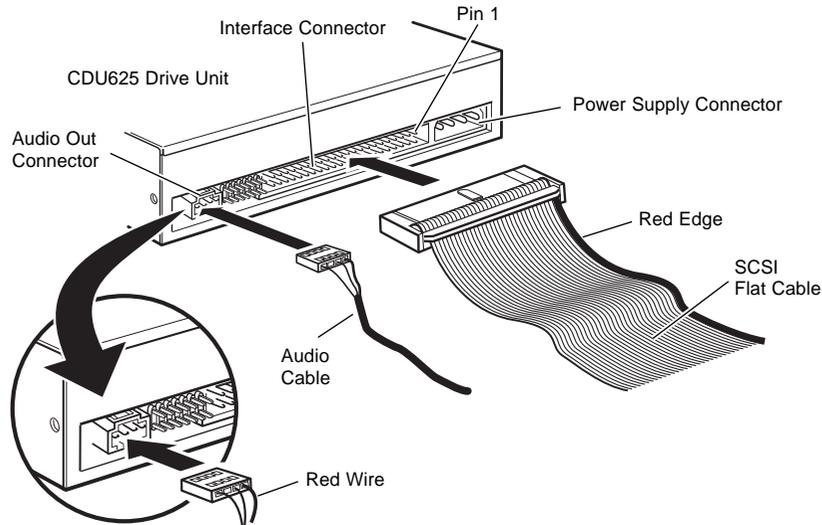| Jumper	Function
TERM	OFF Active terminator OFF ON Active terminator ON
PREVENT/ ALLOW	ON The disc drawer can be opened by pressing the eject button or by a software command. OFF The disc drawer cannot be opened either by the eject button or a software command.
TEST MODE	ON Enables TEST MODE OFF Enables Normal Operation

⬛ Factory Settings

Notes:
- The upper row of pins are ground.
- Remove the jumper to set to OFF and install the jumper to set to ON.
- ID SELECT, PREVENT/ALLOW, and TEST MODE are recognized only when the power is turned on or SCSI bus is reset.
- TEST MODE is reserved for factory use only. Do not put a jumper on TEST MODE pins. Doing so may cause an unexpected result.
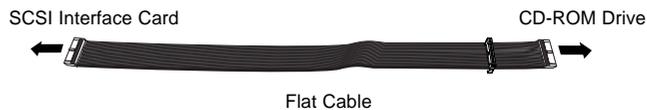
Step 6: Connecting the Drive

Attach one end of the flat cable (SCSI cable) to the connector on the rear of the CD-ROM drive.

Interface Connector   Pin 1

CDU625 Drive Unit

Audio Out
Connector

Power Supply Connector

Red Edge

SCSI
Flat Cable

Audio
Cable

Red Wire

Note

The red edge (Pin 1) of the flat cable should be positioned next to the power supply connector. It is important that this cable be connected firmly and correctly.

SCSI Interface Card   CD-ROM Drive

Flat Cable

If your computer has a Sound Card, connect the audio cable (not supplied) to the AUDIO OUT connector at the rear of the CD-ROM drive.

Sound Card   CD-ROM Drive

Audio Cable

Step 7: Mounting the Drive

Route the flat cable and audio cable through the drive bay from the front of the computer and insert the CD-ROM drive into the bay as shown. Secure the CD-ROM drive to the frame by using the prepared screws.

Mounting Screws

Flat Cable

Audio Cable
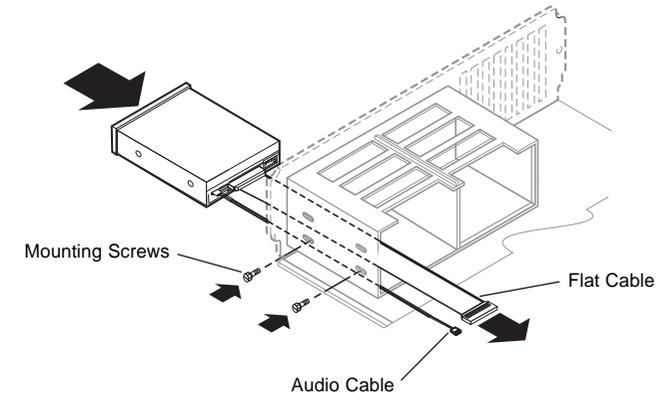
Note:
If you cannot secure the CD-ROM drive to the drive bay, you may need to install slide rails (not included) to the CD-ROM drive. Refer to your computer user's guide for additional information.

Step 8: Connecting the Power Cable

Locate an available power supply cable inside your computer and connect it to the power supply connector on the rear of the CD-ROM drive as shown.

Power Supply
Connector

DC INPUT
5V±5% GND 12V±10%
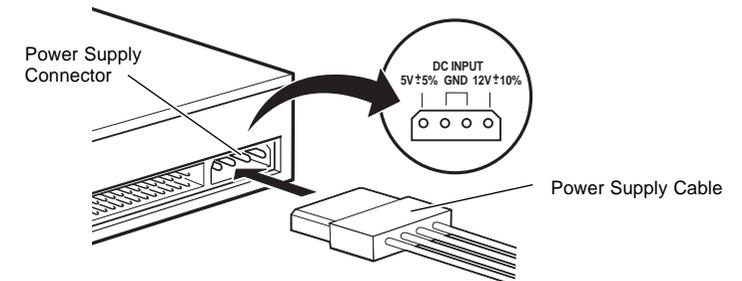
Power Supply Cable

Note:
The power supply connector is designed to fit only in one way. Do not attempt to force the cable in upside down, otherwise the CD-ROM drive will be damaged and the product warranty void.

Step 9: Installation Review

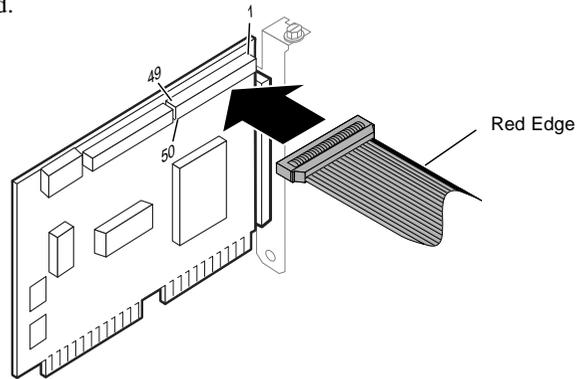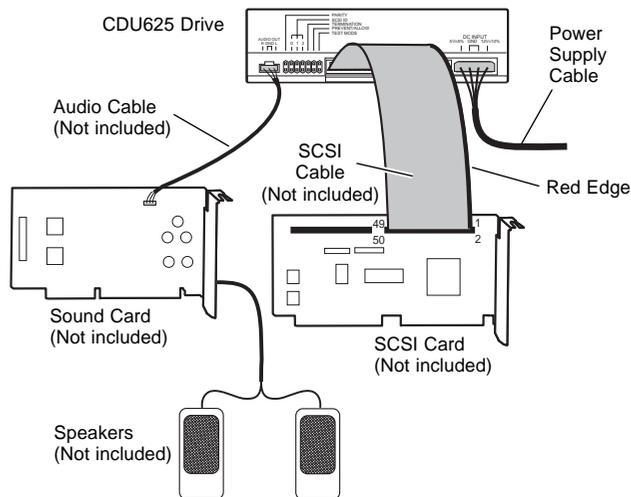Now we recommend to review the hardware installation process once more. Please check briefly the following steps:

- All connectors have to be connected properly.
- Every SCSI device has its unique SCSI ID number.
- The last SCSI device at the SCSI bus has proper termination installed or activated.

Red Edge

Notes

- The red edge of the flat cable must be closest to pin number 1 of the interface card connector.
- The following illustration is a sample system configuration of the CDU625 CD-ROM drive installation with a SCSI card.

CDU625 Drive

Power Supply Cable

Audio Cable (Not included)

SCSI Cable (Not included)

Red Edge

Sound Card (Not included)

SCSI Card (Not included)

Speakers (Not included)

Step 10: Closing the Computer

Replace the cover on the computer, be careful to reinstall all screws that were removed.
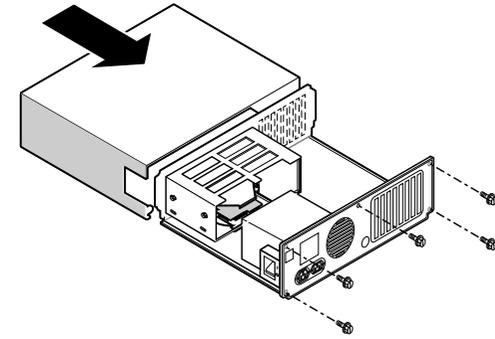
Now you have completed the hardware installation procedure.

Installing the Software Driver

MS-DOS 6.x

The MSCDEX (or equivalent) and a device driver for the CD-ROM drive are supplied with the host adapter. Install both the MSCDEX (or equivalent) and the device driver in order to use the CD-ROM drive. Refer to the manual supplied with the host adapter for instructions.

Windows® 95/NT

The installation under Windows is very easy. Just make sure Windows has detected your SCSI host adapter. In this case the CD-ROM drive is automatically detected and the software driver will be installed by the operating system.

Note:
For questions regarding the installation of the SCSI host adapter, see the manual supplied with this device.
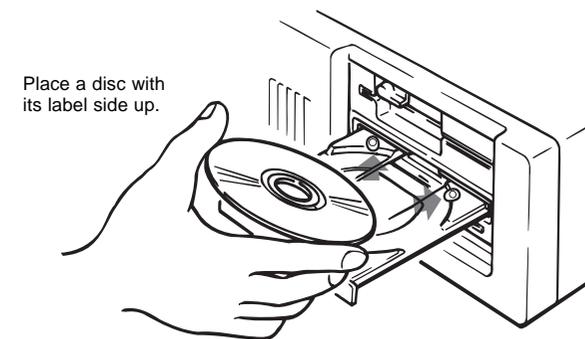
Operating the Drive

This section describes how to start the drive and eject a disc.

Starting the Drive

1 Turn on the power of your computer.

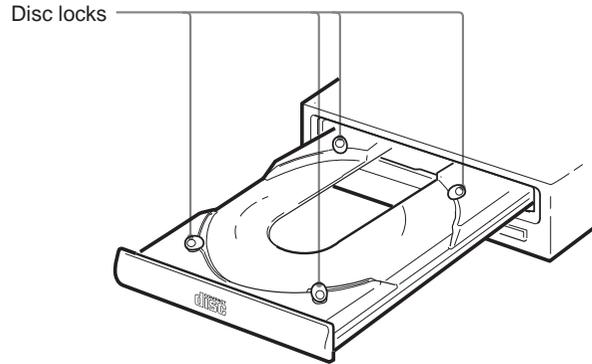**2** Press the eject button.
The drawer comes out automatically.

Press the eject button.
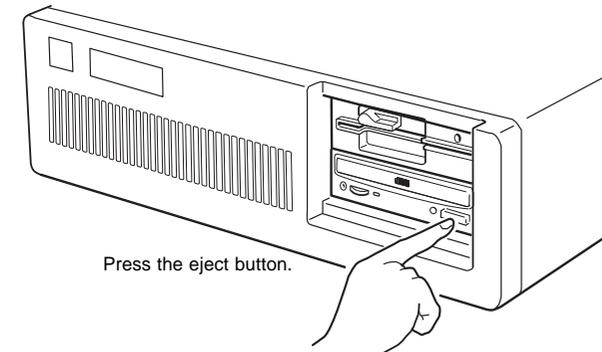
3 Place a disc in the drawer with its label side up.

Place a disc with its label side up.

Note:

When the drive is set up in vertical position, use the appropriate disc locks to prevent your disc from falling.

Disc locks

4 Gently push the drawer or press the eject button to close the drawer. The drive may begin reading the Table of Contents (TOC) data when it accepts the disc. The busy indicator lights up in amber while the drive is reading the TOC.

For subsequent drive operations, follow the instructions provided with the application software you are using.
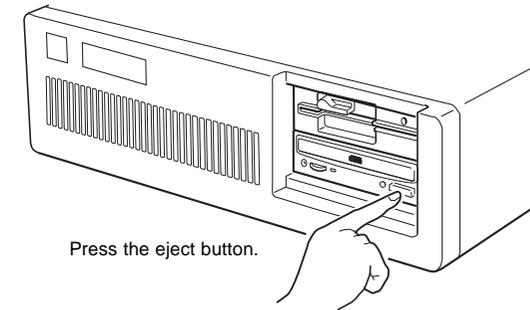
Note:

The busy indicator stays lit in amber if:
– the disc is not properly placed on the loading tray
– a malfunction occurs.

In either case, eject the disc and place it in the loading tray again making sure that it sits properly in the tray. If doing this does not solve the problem and the busy indicator still remains lit in amber, consult your dealer or qualified service personnel.

Caution: Do not forcibly close the disc drawer. Applying excessive force may damage the loading mechanism. The tray's mechanism is designed to operate with a "feather touch".

Ejecting the Disc

To eject the disc, press the eject button on the front panel. The drawer comes out automatically.

Press the eject button.

Note:

The eject button does not work if it is disabled by:
- the software you are using
- the PREVENT/ALLOW jumper

■ **Opening the drawer manually in an emergency**

You can open the drawer manually when it fails to come out by means of the eject button or software commands. To do this, follow the procedure below:

1 Turn off the power of your computer.

2 Insert a pointed object, such as a paper clip, into the emergency eject hole and push.

Insert a pointed object to the emergency eject hole. (Push not too vehement!)

Approx. 40 mm
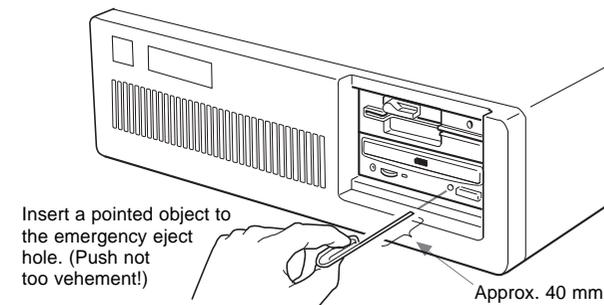
After removing a disc from the drive unit, consult your dealer or qualified service personnel.

Troubleshooting

If you encounter problems installing or operating the CD-ROM drive, please review the following.

Verify the following:
- The installation procedures described in this manual have been properly followed.
- The items contained in the "Checklist" below have been confirmed.
- Go to the section "Additional Installation Cases" on page 23 and refer to the appropriate case.

## Checklist

Verify the following:
- The power cable is connected properly to the CD-ROM drive. For details see chapter "Hardware Installation", step 8 on page 15. If properly connected, you are able to open and close the tray of the CD-ROM drive by pushing the Eject button (Make sure that PREVENT/ALLOW jumper is enabled).
- The SCSI cable connector is connected properly to the drive and to the host adapter. Check the position of pin 1 at each side of the cable. See step 6 on page 14.
- The SCSI ID# of the CD-ROM drive is unique to the SCSI bus. Compare all other SCSI devices (internal/external) on the SCSI bus. For details see chapter "Hardware Installation", step 2 to step 5 in this manual.
- Check all other jumpers at the rear of your CD-ROM drive. We recommend using the default settings for

DEVICE TYPE	jumper present
PREVENT/ALLOW	jumper present
TEST MODE	jumper not present

The jumpers are preset at the factory, as below illustrated (default ID = 3).
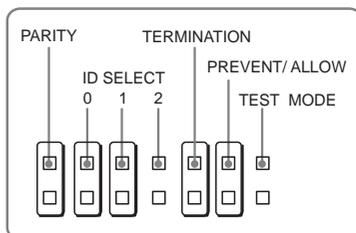
- The termination at the SCSI bus has been properly installed or activated. Both ends of the SCSI bus need to be terminated. For details refer to step 4, Termination, on page 11.

If you still have problems running or installing your CD-ROM drive, please contact our hotline or your local computer dealer.

Additional Installation Cases

■ No free SCSI connector present

If other SCSI devices occupy all connectors at the SCSI bus cable, either remove a device before installing the CD-ROM or use another SCSI cable with an additional connector. To purchase this cable, contact your local computer dealer.

Service Contacts in Europe

If you require further support or service please contact your local technical support professionals.

For Europe (German or English) please contact the hotline at:

Tel.: +49 (0) 2389 - 951047
(Monday – Thursday, 8:00 am – 4:30 pm / Friday, 8:30 am – 2:00 pm)

Fax: +49 (0) 2389 - 2921

BBS: +49 (0) 221 - 9561167

All this information and more can be downloaded from the internet. Simply access the following address:

http://www.sony-cp.com

Specifications

■ General

Host interface	SCSI-2
Disc	
Acceptable discs	CD-Digital Audio
	CD EXTRA
	CD-ROM mode-1 data
	CD-ROM mode-2 data
	CD-ROM XA (readable)
	Audio-combined CD-ROM
	CD-I (readable)
	CD-I Ready (readable)
	CD BRIDGE
	PHOTO CD (single and multisession)
	VIDEO-CD
	CD-ReWritable (readable)
Disc diameter	12 cm or 8 cm

■ Drive performance

Data transfer rate	
Sustained rate	150 kbytes/s (1X CLV mode)
	600 kbytes/s (4X CLV mode)
	1800 – 3600 kbytes/s (12X – 24X P-CAV mode)
Burst rate	5 Mbytes/s (asynchronous)
	20 Mbytes/s (synchronous)
Random access time	90 ms (typical/12X – 24X P-CAV mode)

■ Reliability

Read error rate (includes retry, with a standard disc)

L-EC on	1 block /10^{12} bits
L-EC off	1 block /10^{9} bits

■ Audio

Output level	
Line out	0.75 V at 47 kΩ
Headphone	0.55 V at 32 Ω

■ Environmental conditions

Operating	
Temperature	5 °C to 50 °C (41 °F to 122 °F)
Humidity	10 % to 90 % (Max wet bulb 29 °C)
Atmosphere	Non-condensing
Non-operating/Storage	
Temperature	–30 °C to 50 °C (–22 °F to 122 °F)
Humidity	10 % to 90 %
Atmosphere	Non-condensing

■ Dimensions and Mass

Dimensions	Approx. 146 x 41.4 x 208 mm (w/h/d)
Mass	Approx. 0.88 kg

■ Power requirement

Voltage	+5 V DC ± 5 % and +12 V DC ± 10 %
Ripple	+5 V DC: ≤ 100 mVpp
	+12 V DC: ≤ 200 mVpp
Current	+5 V DC: 1000 mA (typical)
	+12 V DC: 1800 mA (typical)

■ Connectors

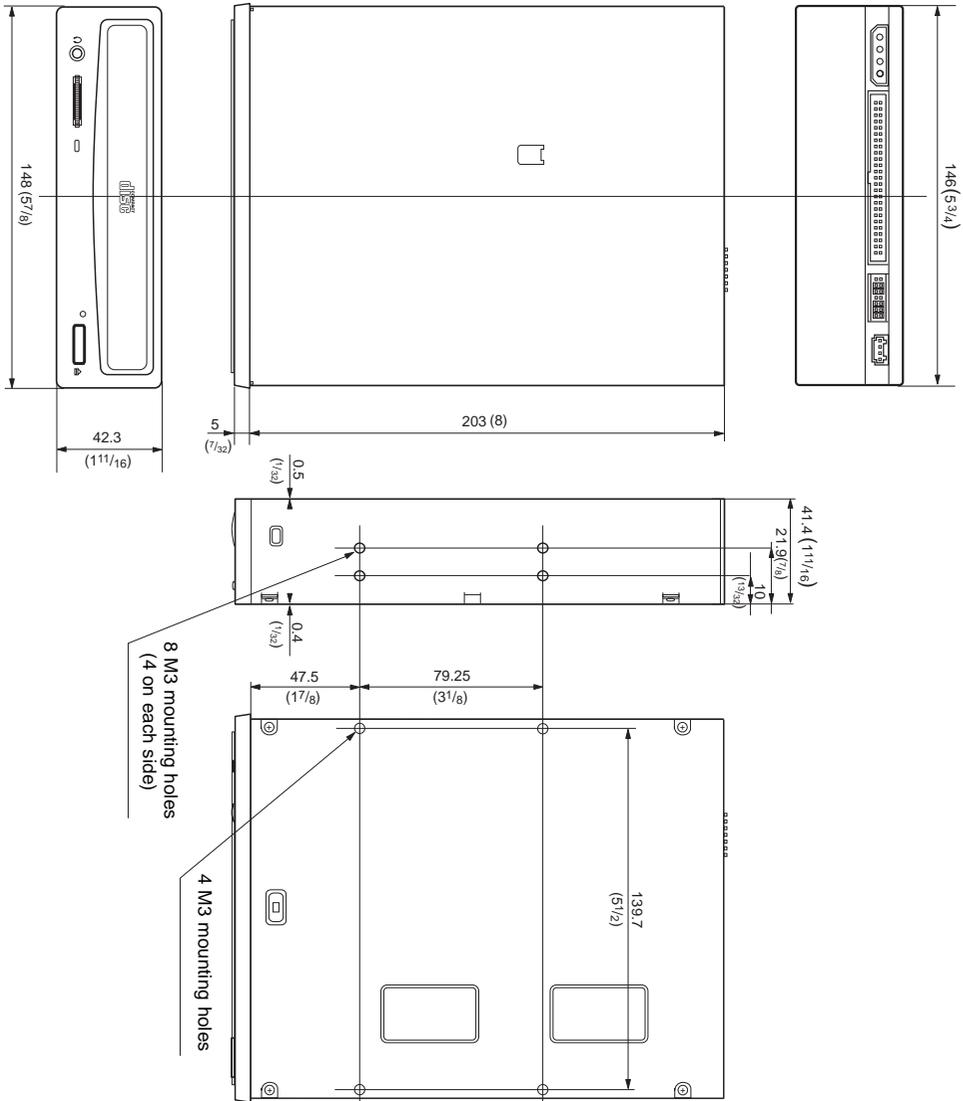|	
(with DC INPUT connector)	AMP 179376-1 or equivalent
AUDIO OUT connector	Molex 70066C or G, 700400C or G
	and 70430C or G, or equivalent

■ Laser

Type	Semiconductor laser GaAlAs
Wave length	780 nm

■ Dimension diagram

Important:

The overhang of the screws should not exceed 6.0 mm from the surface of the side panels or the bottom plate.

148 (5⁷/₈)

146 (5³/₄)

42.3 (1¹¹/₁₆)

5 (⁷/₃₂)

203 (8)

0.5 (¹/₃₂)

41.4 (1¹¹/₁₆)

21.9(⁷/₈)

10 (¹³/₃₂)

0.4 (¹/₃₂)

8 M3 mounting holes (4 on each side)

47.5 (1⁷/₈)

79.25 (3¹/₈)

4 M3 mounting holes

139.7 (5¹/₂)

Design and specifications are subject to change without notice.