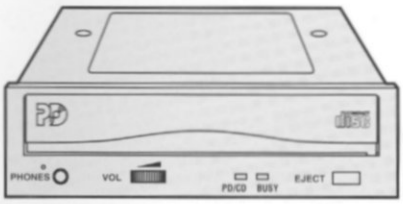
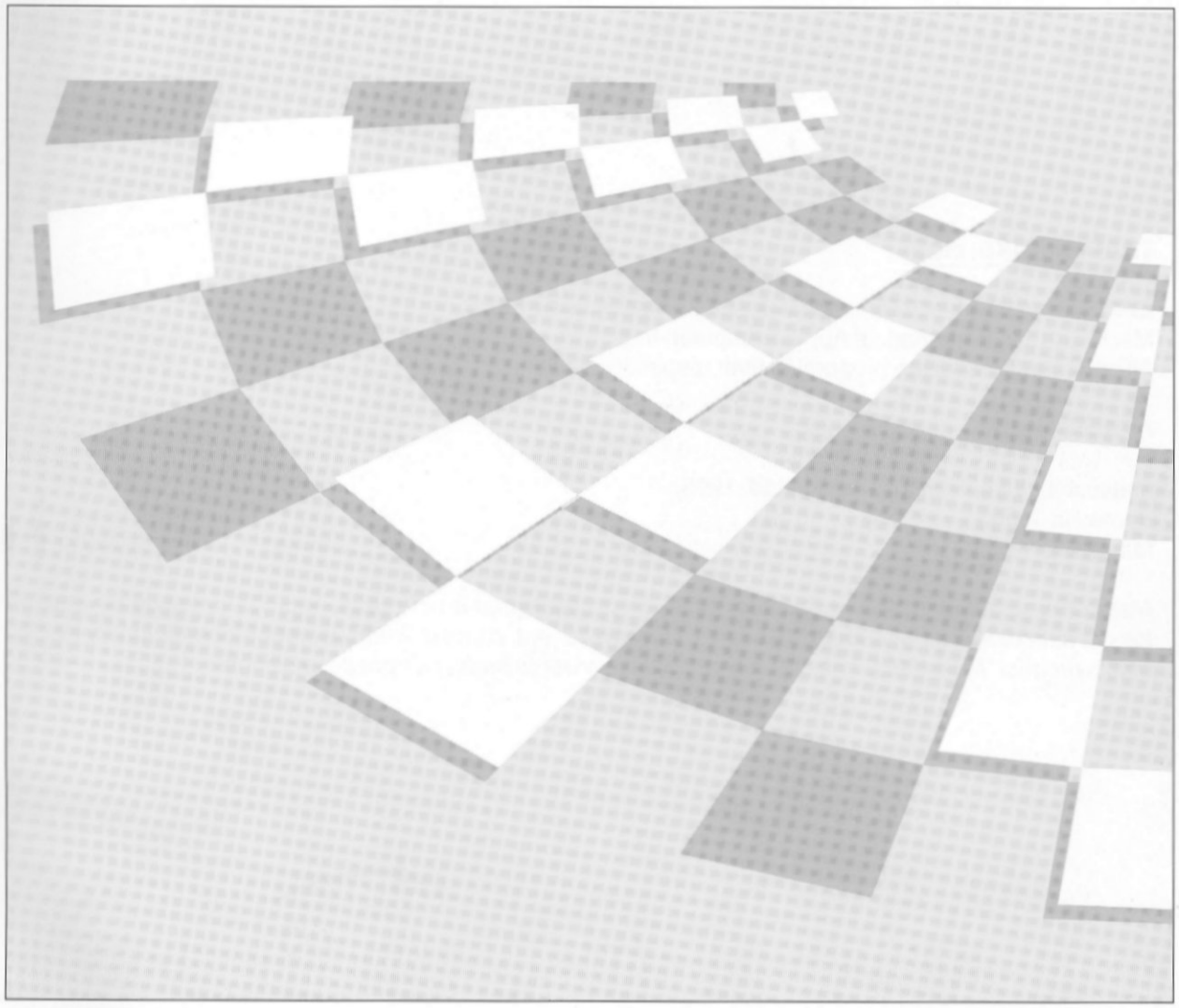
Panasonic



PD/CD-ROM Drive

Instruction Manual

Model LF-1004AB



PD

TRADEMARKS, etc.

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Matsushita Electric Industrial Co., Ltd. 1995
Printed in Japan
May 1995

Matsushita Electric Industrial Co., Ltd. herewith declares that it will not be liable in any way for any loss of data or any other damage, whether direct or indirect, caused by the operation or malfunctioning of this product. Make back-ups of important data in order to protect it from possible loss.

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IMPORTANT SAFETY NOTICE

•FEDERAL COMMUNICATIONS COMMISSION (FCC) RADIO FREQUENCY INTERFERENCE STATEMENT

Class B Digital Device

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.

FCC Warning:
To assure continued FCC emission limit compliance, use only the provided internal cables and the shielded external interface cable when connecting this device to the computer.
Also, any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

(For U.S.A.)

●INDUSTRY CANADA (IC) STATEMENT OF CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATION

Notification:
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Notification:
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

(For CANADA)

LASER PRODUCT

Class I LASER Product

- This equipment is certified to comply with DHHS Rule 21 CFR Chapter I, Subchapter J in effect as of date of manufacture. (For U.S.A.)

This equipment is classified as a Class I LASER product and there is no hazardous LASER radiation with the safety protection.

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

- Do not open the top cover of the drive and never touch the internal parts in order to avoid EXPOSURE TO INVISIBLE LASER RADIATION.
- When the power switch is On, do not place your eyes close to the front panel opening door and other openings to look into the inside of the drive.

LASER Specification

Class I LASER Product
Wave Length: 775–820 nm
Laser Power: No hazardous radiation is emitted with the safety protection.

PRODUIT LASER

Produit LASER de Classe I

- Cet appareil est certifié conforme à l'ordonnance DHHS 21 CFR, Chapitre I, Sous-chapitre J en vigueur à la date de fabrication. (Pour les E-U)

Cet appareil est classé comme produit LASER de classe I et il n'émet pas de rayonnement LASER dangereux avec la protection de sécurité.

> **Attention:**
> L'utilisation de commandes ou les réglages ou l'exécution de procédures autres que ceux spécifiés ci-après peuvent entraîner un risque d'exposition à un rayonnement dangereux.

- Ne pas ouvrir le couvercle supérieur du lecteur et ne jamais toucher les pièces internes pour éviter tout risque D'EXPOSITION AU RAYONNEMENT LASER INVISIBLE.
- Lorsque l'appareil est sous tension, ne pas approcher les yeux de la porte d'ouverture du panneau avant ni des autres orifices pour regarder à l'intérieur du lecteur.

Spécification LASER

Produit LASER de classe I
Longueur d'onde: 775–820 nm
Puissance du laser: Aucun rayonnement dangereux n'est émis avec la protection de sécurité.

IMPORTANT SAFETY INSTRUCTIONS

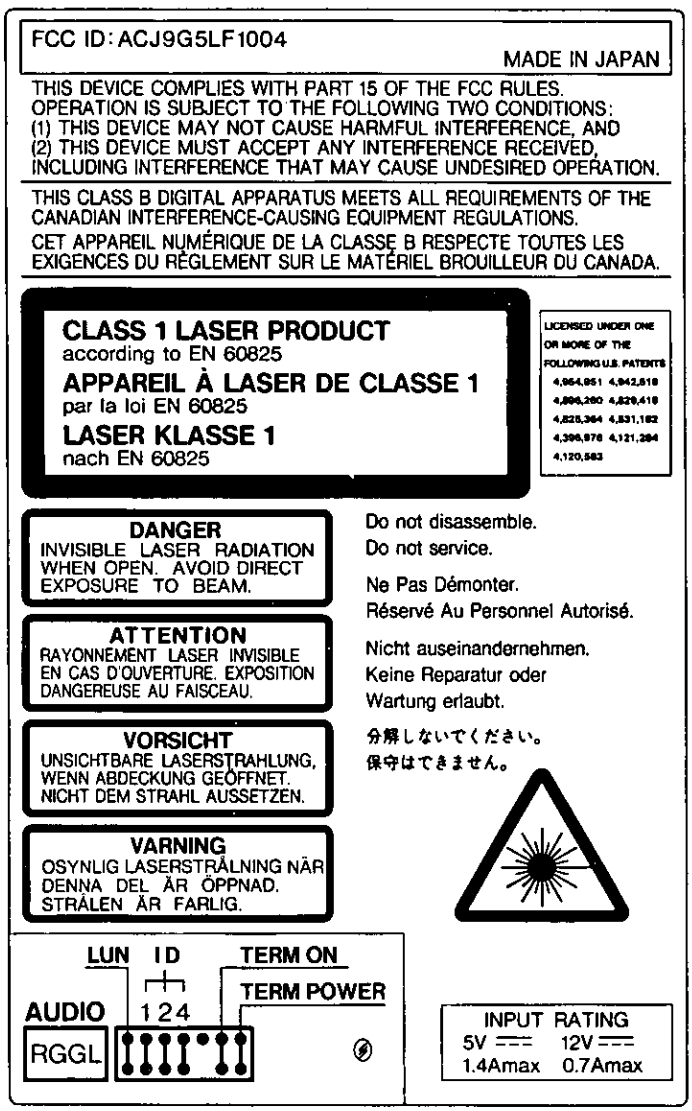
1. Read all of these instructions.
2. Save these instructions for later use.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short cut parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
9. Except as explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing those covers that are marked "Do Not Remove" or "Do Not Disassemble" may expose you to dangerous voltage points or other risks. Refer all servicing in those compartments to service personnel.
10. Turn off this product and refer servicing to qualified service personnel under the following conditions:
    A. If liquid has been spilled into the product.
    B. If the product has been exposed to rain or water.
    C. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
    D. If the product has been dropped or the cabinet has been damaged.
    E. If the product exhibits a distinct change in performance, indicating a need for service.

SAFETY LABELS

The following labels are used in this product to remind you of safety precautions.
Please read it and follow the instruction.

Caution Labels on the Drive Unit

The user should not remove the drive unit's cover. These caution labels are affixed to the installed drive unit in this drive.
The serviceman should not disassemble and service the installed drive unit in this drive because the drive contains non-serviceable parts. Please check that these following labels are affixed to the top of the installed drive unit.



SAFETY PRECAUTIONS

This drive incorporates many sensitive optical components. To ensure optimum performance at all times, avoid using this drive under the following conditions:

- In a location where cigarette smoke, humidity and air pollution are prevalent.
- While transporting in a closed vehicle or other location where ventilation is insufficient and the temperature could exceed 45°C (113°F).
- Where there are significant temperature or humidity changes.
- For long periods of time in direct sunlight.
- Near a heat outlet or heating appliance.
- When placed on an uneven, unstable or soft surface.
- Locations prone to vibration or shock.
- Near appliances generating strong magnetic fields.

Do not move the drive when the cartridge is in the drive.

Never attempt to remove the cabinet screws or make any adjustments. Serious harm to both the user and equipment may result.

PRECAUTIONS DE SECURITE

Le lecteur renferme un grand nombre de composants optiques sensibles. Pour garantir des performances optimales en tout temps, éviter d'utiliser le lecteur dans les conditions suivantes:

- Dans des endroits habituellement chargés de fumée de cigarette, humidité et pollution atmosphérique.
- En transport dans un véhicule fermé ou tout autre endroit où la ventilation est insuffisante et où la température peut dépasser 45°C (113°F).
- Dans des endroits soumis à des variations importantes de température ou d'humidité.
- Exposé en plein soleil pendant longtemps.
- Près d'une bouche de chaleur ou d'un appareil de chauffage.
- Sur une surface irrégulière, instable ou molle.
- Endroits sujets aux vibrations ou aux chocs.
- A proximité d'appareils engendrant des champs magnétiques puissants.

Ne pas déplacer le lecteur lorsque la cartouche se trouve à l'intérieur.

Ne jamais tenter de retirer les vis du coffret ni d'effectuer des réglages. Cela pourrait avoir de graves conséquences, tant pour l'utilisateur que pour le matériel.

DISK DISPOSAL

Caution:
This Optical Disk contains tellurium which may be considered hazardous.
Check and follow your local regulations before Disposal.

IMPORTANT NOTICE

FOR USER IN U.S.A.

Included with this booklet is a questionnaire which requests important information required by the U.S. Center for Devices and Radiological Health.

It should be filled out by the end-user/purchaser of this equipment—not the reseller.

If you are the end-user and this questionnaire card is missing, please call Panasonic at 1-800-PANA SYS and another will be promptly mailed to you.
Please also call 1-800-PANA SYS, if you require technical support. This technical support hotline is available 7 days a week, 24 hours a day.

Introduction

Congratulations on your purchase of Panasonic's PD/CD-ROM drive! Before using the drive, please be sure to read through these instructions in order to acquaint yourself with the proper procedures for its operation Keep the instructions in a safe place for future reference

Some features of this dual-purpose unit are listed below

PD

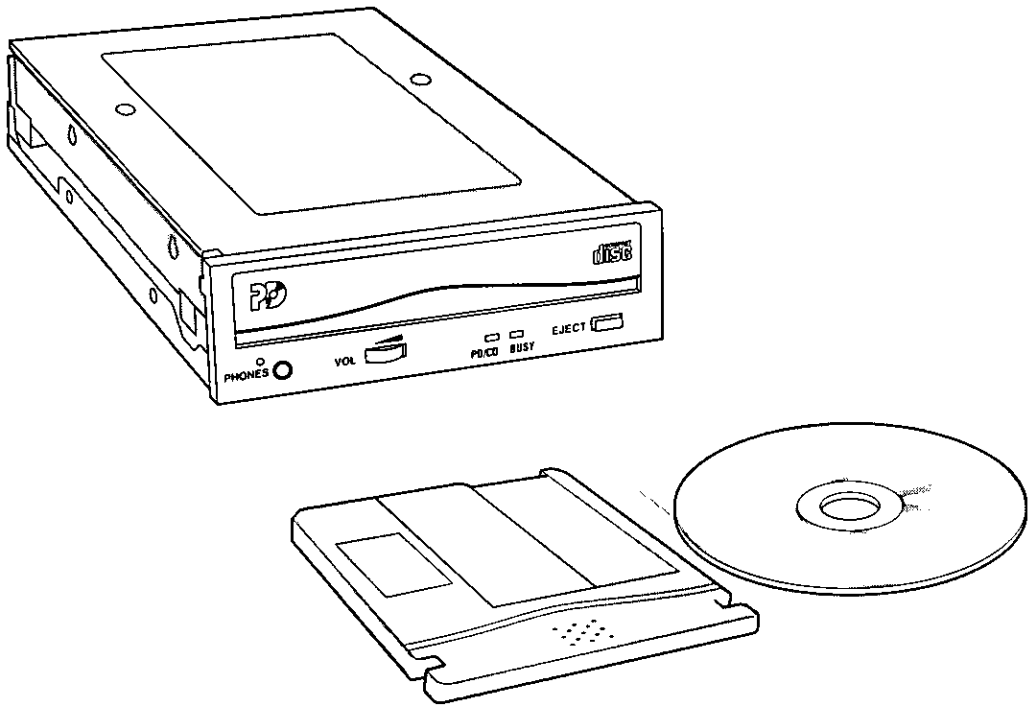
—Unlimited, removable storage of 650 MB/disk (single-sided)
—Direct overwrite with phase change technology
—High speed read and write cache system

CD-ROM

—4X Speed
—Caddy not required for CD-ROM
— Also plays 8 cm discs

Supported Formats
—Kodak PhotoCD
—Video CD
—CD-DA
—CD-I FMV

- ***Automatic tray loading handles CD and PD disks***
- ***Supports MS-DOS/Windows 3.1 for PC and System 7 for Macintosh***



Use PD cartridges bearing this logo only

Use CD-ROM discs bearing this logo only

Use compact discs bearing this logo only

System Requirements

- **Computer**
  Macintosh or Power Macintosh series

- **Operating System**
  System 6.0.5 or later

- **Extension**
  Quick Time, version 1.6

- **Computer**
  IBM PC/AT or Compatible

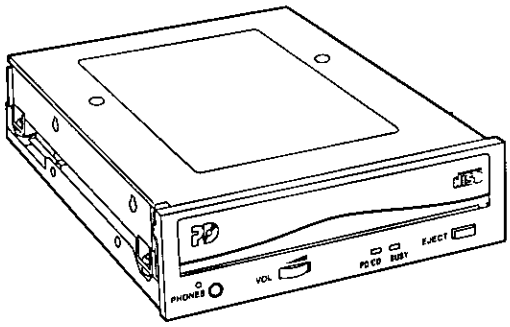
- **Operating System**
  DOS Ver. 4.0 or later
  Windows 3.1

- **Memory**
  640K RAM minimum

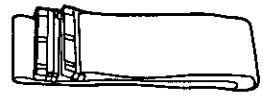
- **SCSI Interface Board**
  See list of recommended SCSI host adapters on page 24 of this manual.

Kit Contents

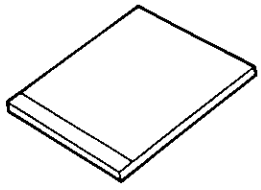
Before using your PD/CD-ROM drive, check that the items shown below were packed with the unit If any of these items are missing or defective, please contact the dealer from whom you purchased the drive



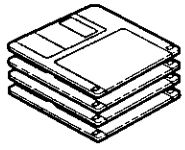
PD/CD-ROM drive (main unit)



Internal SCSI cable

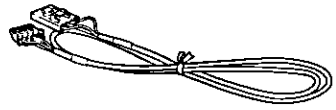


CD-ROM



3.5 inch floppy disk

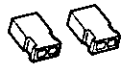
- MS-DOS/Windows device driver for IBM PC/AT or compatible (3)
- System 7 device driver for Macintosh series (1)



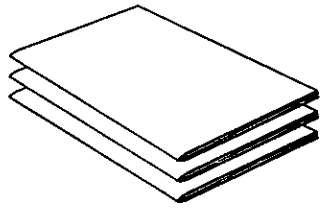
Internal audio cable

Attachment screw (4)

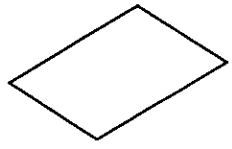
Emergency ejection pin



Jumper pin (2)



- **Instruction manual**
- **Device Driver Installation Manual for MS-DOS/ Windows 3.1**
- **Device Driver Installation Manual for Macintosh**

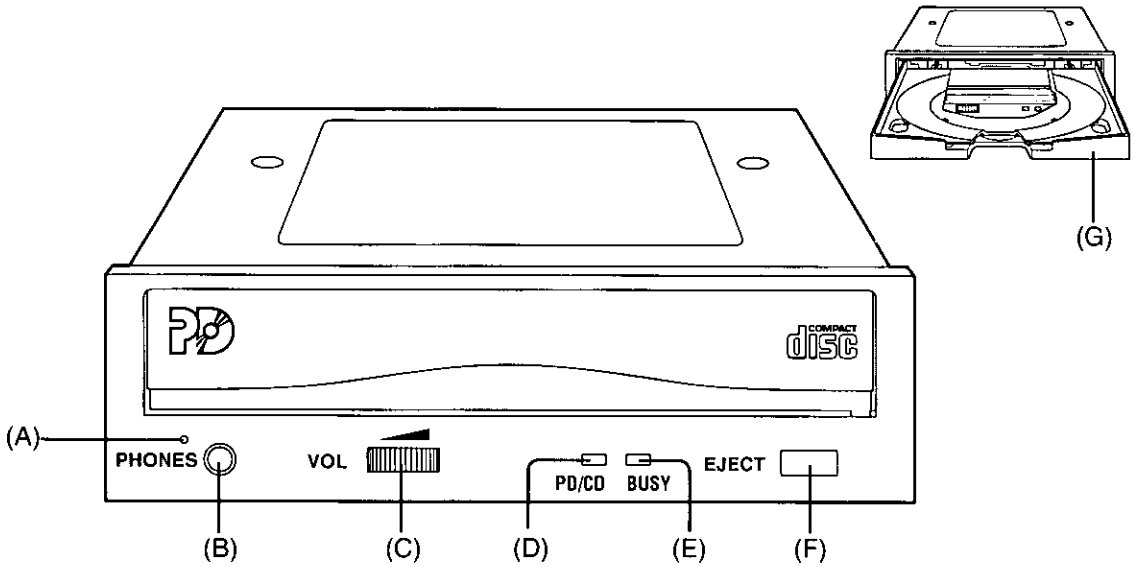


Warranty card

PLEASE read this instruction manual through to the end so that you can obtain in advance any items necessary for your intended applications

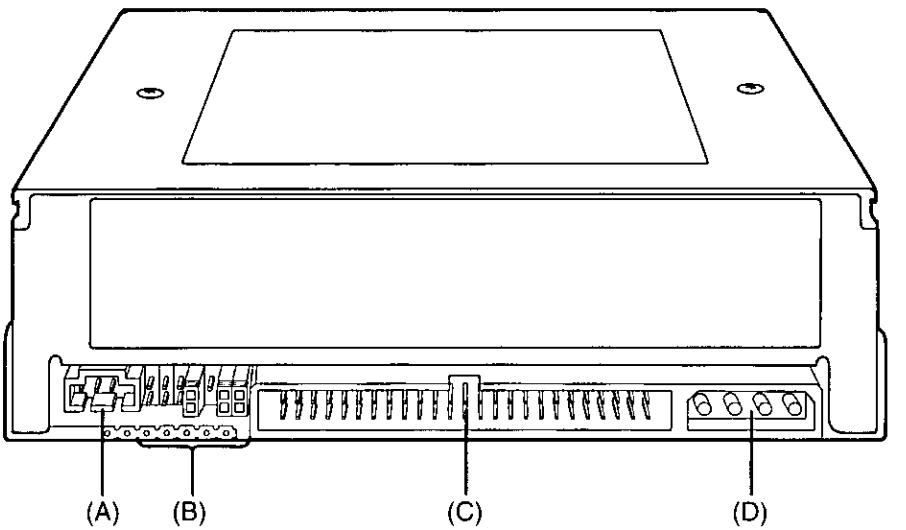
Parts and Functions

Front Panel



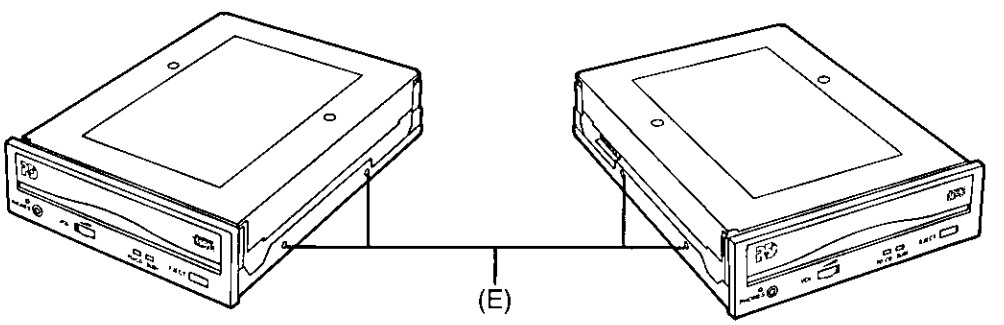
(A) EMERGENCY EJECTION HOLE—Use this when the shutter will not open. Turn off the drive's power, and insert the emergency ejection pin (included) into this hole. When the tray moves forward, pull it out with your hands. Do not use the pin under normal circumstances.
(B) HEADPHONE JACK—for plugging in headphones equipped with a stereo mini jack or speakers.
(C) VOLUME CONTROL—for adjusting the volume of the sound from the headphones or speakers.
(D) PD/CD IDENTIFICATION LAMP—this lights up orange when a PD cartridge is inside the drive; it lights up green when a CD disc is inside.
(E) BUSY LAMP—this lights up when the drive is being accessed.
Green: CD or CD-ROM play
PD cartridge read/write when write cache is OFF
PD cartridge read when write cache is OFF
Orange: PD cartridge write when write cache is ON
(F) EJECT BUTTON—for opening and closing the tray.
(G) TRAY—the PD cartridges, CDs and CD-ROMs are placed on this tray.

Rear Panel



(A) AUDIO OUTPUT CONNECTOR—for connecting the internal audio cable (included).
(B) JUMPER CONNECTOR—for setting the drive's SCSI ID, LUN, TERMINATOR and TERM POWER.
(C) SCSI CONNECTOR—for connecting the internal SCSI cable (included).
(D) POWER SUPPLY CONNECTOR—for connecting the power cable.

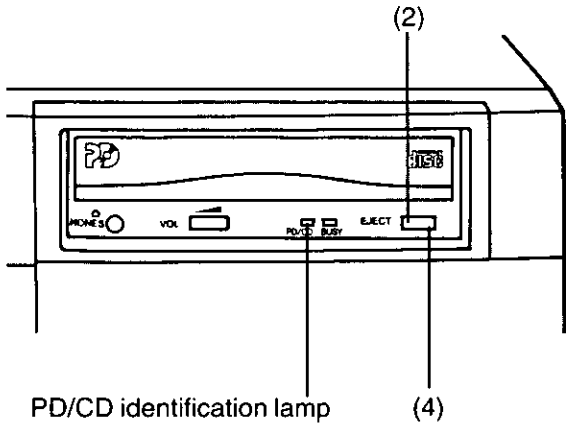
Right Panel ***Left Panel***

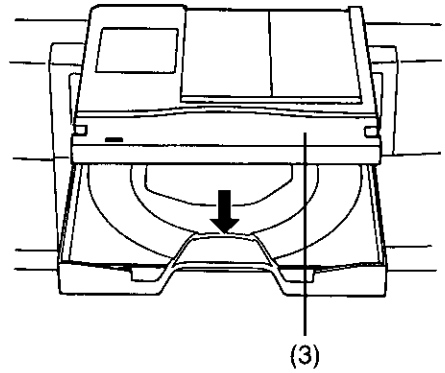


(E) ATTACHMENT SCREW HOLES—when securing the PD/CD-ROM drive to a personal computer to other device, secure the drive with the provided attachment screws into the areas as indicated.

PD Operation

To insert a PD cartridge:





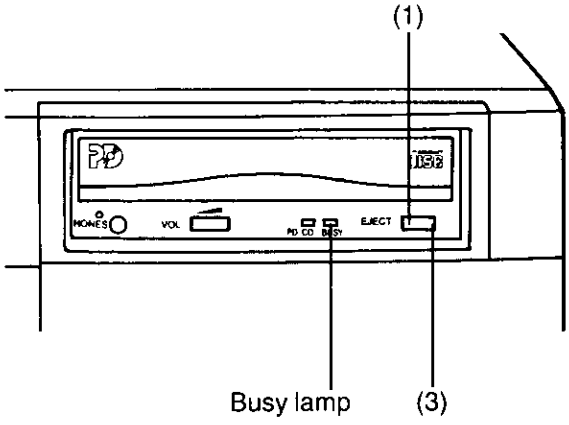
(1) Turn on the personal computer.

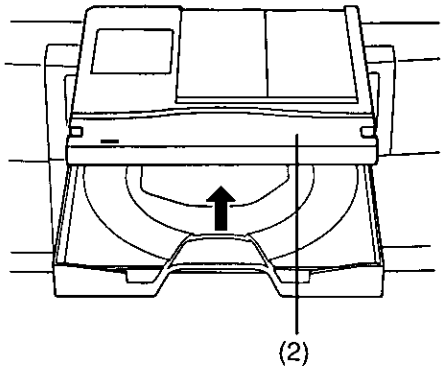
(2) Press the eject button to open the tray.

(3) Place the PD cartridge with its label side facing up, into the tray.

(4) Gently push the tray or press the eject button to close the tray (the PD/CD identification lamp lights up orange).

To remove a PD cartridge:





(1) Press the eject button to open the tray

(2) Remove the PD cartridge

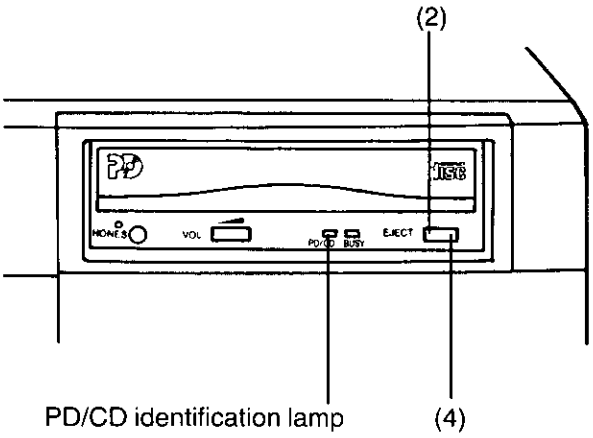
(3) Gently push the tray or press the eject button to close the tray

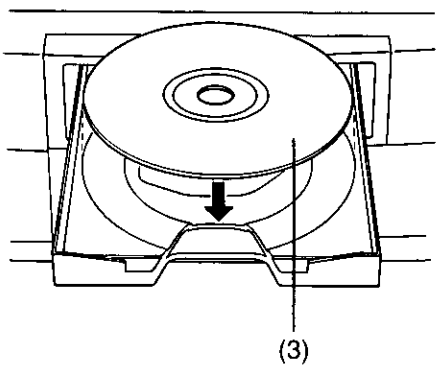
(4) Press the power switch to OFF

- DO NOT turn off the power or remove a PD cartridge while the busy lamp is lighted The data on the cartridge may be destroyed or the data may not be saved properly
- DO NOT place a PD cartridge and CD or CD-ROM on the tray at the same time The cartridge and CD or CD-ROM may be scratched

CD and CD-ROM Operation

To insert a CD or CD-ROM disc:

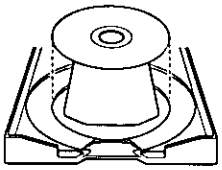




(1) Turn on the personal computer.

(2) Press the eject button to open the tray.

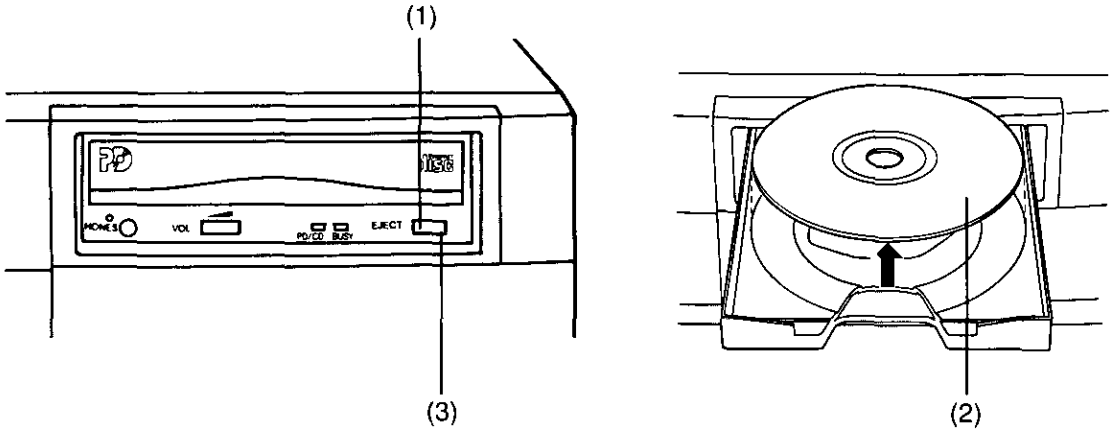
(3) Place the CD or CD-ROM with its label side facing up, into the tray.



In the case of an 8 cm CD or CD-ROM, align it with the inside groove.

(4) Gently push the tray or press the eject button to close the tray (the PD/CD identification lamp lights up green).

To remove a CD or CD-ROM disc:



(1) Press the eject button to open the tray.

(2) Remove the CD or CD-ROM.

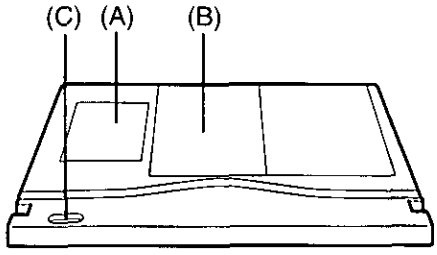
(3) Gently push the tray or press the eject button to close the tray.

(4) Press the power switch to OFF.

- DO NOT place a PD cartridge and CD or CD-ROM on the tray at the same time. The cartridge and CD or CD-ROM may be scratched.

PD Cartridge Handling

The PD cartridge is already inside its own case (which you do not remove).

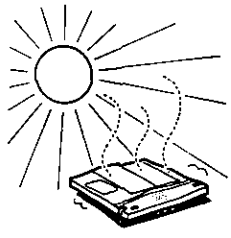


(A) Space for affixing label
(B) Shutter
(C) Write protect switch—this prevents data from being erased or rewritten in error

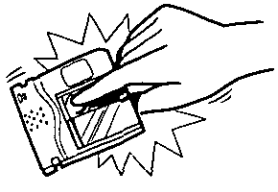
NOTE:
To safeguard against the loss of important data, make it a habit to back up data regularly as you do with hard or floppy disk data.

DO NOT leave in a dirty/dusty location.

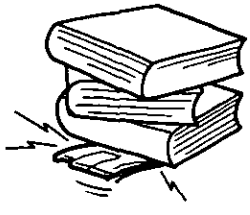
DO NOT leave in direct sunlight, high temperatures or high humidity.



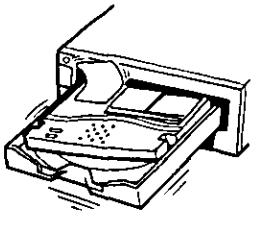
DO NOT open the shutter and touch the disk inside.



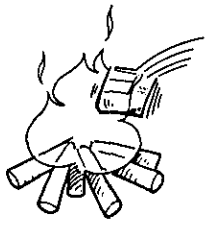
DO NOT stack any items on top of the disk.



DO NOT re-use labels.

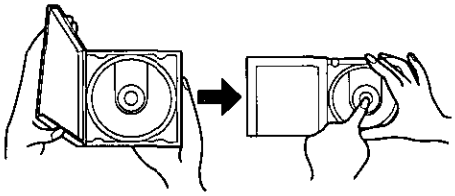


DO NOT incinerate the cartridge.
Dispose of the cartridge correctly.

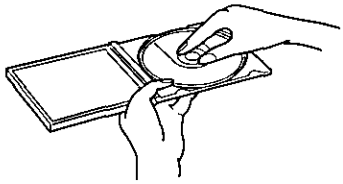


CD and CD-ROM Disc Handling

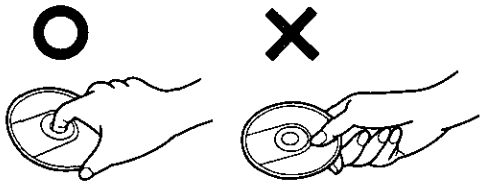
To remove a disc from its case, press down on the center holder and lift the disc out.



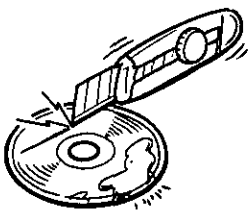
- To put the disc back in its case, press down on the label side so that the disc will go over the center holder.



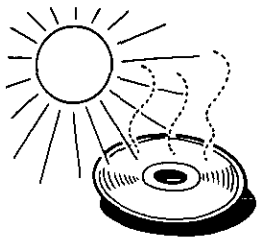
- When holding a disc, DO NOT touch the disc surface.



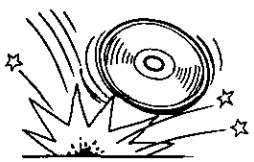
DO NOT scratch or mark the disc.



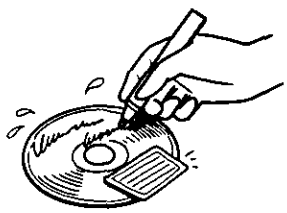
DO NOT leave in direct sunlight.



DO NOT drop or bend.



DO NOT write or stick paper on the front panel.

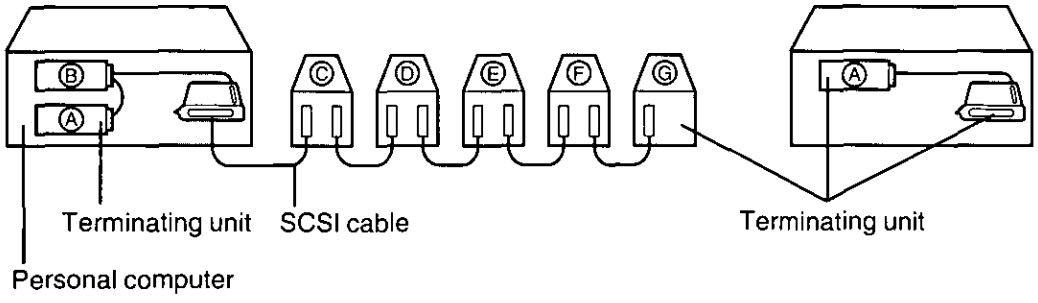


Before Operation

This drive conforms to the SCSI standard. A SCSI host adapter is therefore required to connect the drive with a personal computer.
SCSI: an acronym for "Small Computer System Interface". This is a standard that governs connections between personal computers and peripheral devices.

NOTE:
No more than 7 SCSI units can be connected to a computer. Also, the total length of the SCSI cable from the personal computer to the last unit MUST NOT exceed 6 meters.

<Example 1> **<Example 2>**



- (A) through (G) are SCSI units.

Installing the SCSI Host Adapter

The drive must be connected to a SCSI host adapter. If the SCSI host adapter is not installed inside your personal computer, you must install it by following the instructions that accompany the adapter.

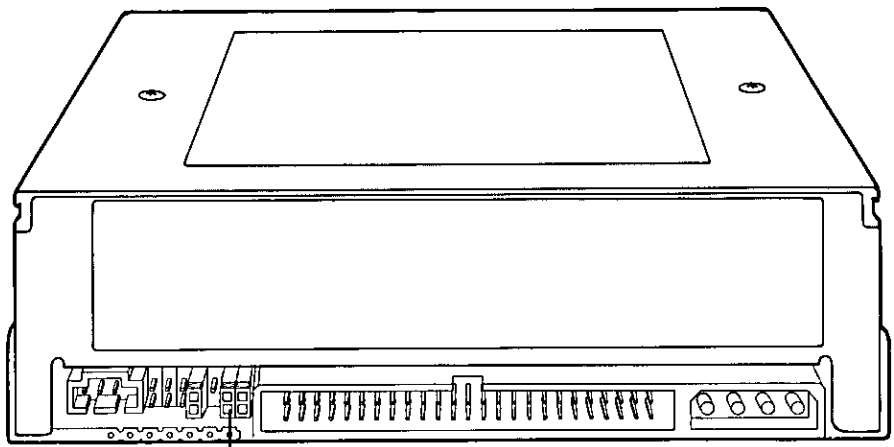
After completing the connections, check that the personal computer starts up properly.

Recommended SCSI host adapters (for desktop personal computers):

- Macintosh series: already installed
- IBM PC/AT or compatible:

Adaptec	AVA-1505, AHA-151x, AHA-152x, AHA-154x, AHA-164x
Always	AL-500
BusLogic	BT545
Future Domain	TMC-1650MCD, TMC-850

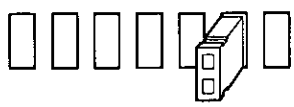
CorelSCSI for PD, the Device Driver software included with the PD/CD-ROM Drive includes an ASPI manager and supports the host adapters listed above. If a host adapter not listed above is installed, a separate ASPI manager program may be required.



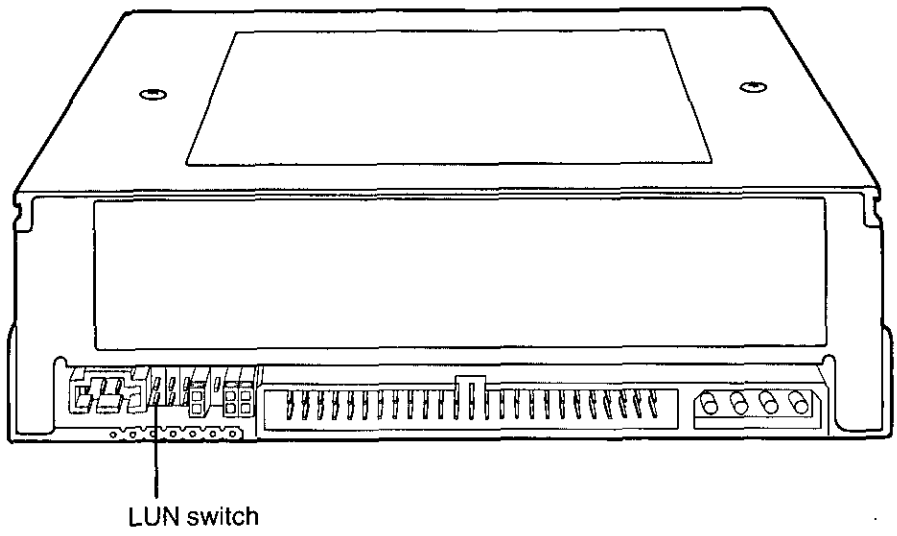
Terminator Setting

A terminator refers to a terminating resistance. The terminators must be set properly when SCSI units (including the drive) have been connected to the personal computer. The factory default setting is ON.

- When the drive is connected at the terminating end:



- When the drive is connected between SCSI units:

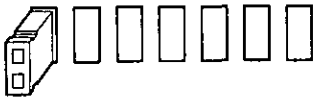


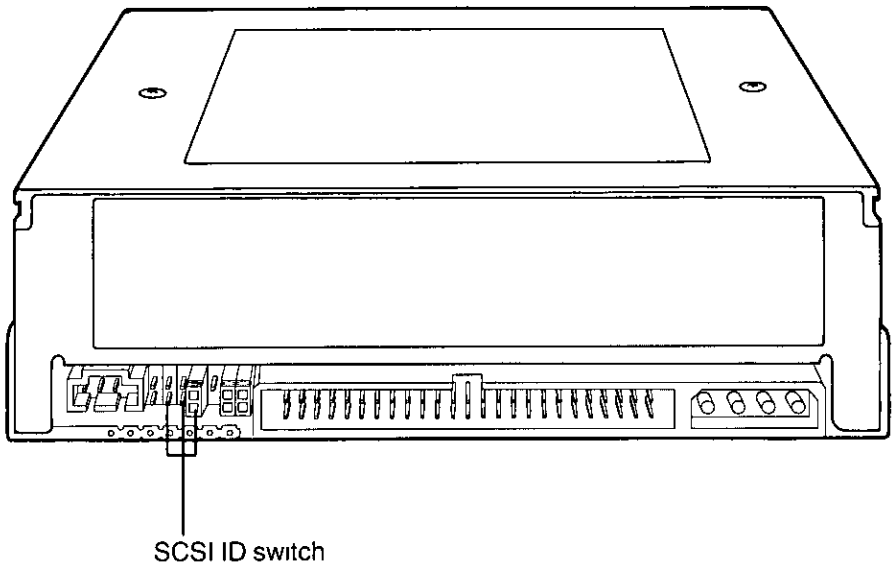
Lun Setting

The "LUN (Logical Unit Number)" is a function that causes the personal computer to differentiate between PD cartridges, CDs and CD-ROMs. It must be set according to the type of personal computer that has been connected. The factory default setting is OFF (IBM PC/AT or compatible).

- IBM PC/AT or compatible:

- Macintosh series:





SCSI ID Settings

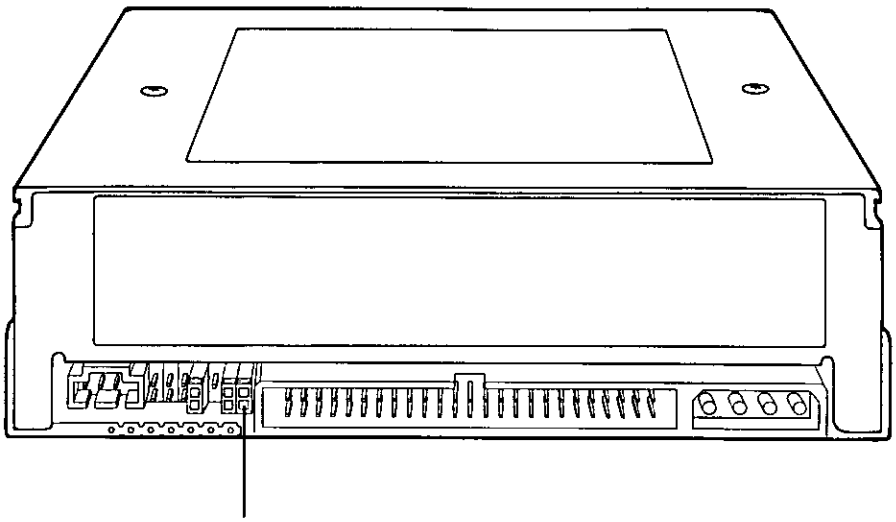
The SCSI ID is a number for identifying each SCSI unit These IDs must be set individually for each unit with no duplication The factory default setting is SCSI ID 4

- **SCSI ID="0"**
- **SCSI ID="1"**
- **SCSI ID="2"**
- **SCSI ID="3"**
- **SCSI ID="4"**
- **SCSI ID="5"**
- **SCSI ID="6"**

Generally, the SCSI IDs are set as follows

- Hard Disk Drive=0
- CD-ROM Drive=3
- SCSI Host Adapter=7

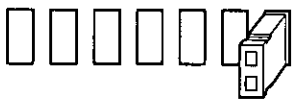
Check the IDs in the instruction manuals, and take care not to use the same setting as the one for the drive



TERM POWER Setting

The SCSI device at the terminating end requires a Terminator power supply. TERM POWER is a function which supplies this terminal power. (The factory setting is "ON".)

- When Terminator power is not supplied from another SCSI device:
  Set TERM POWER to "ON".



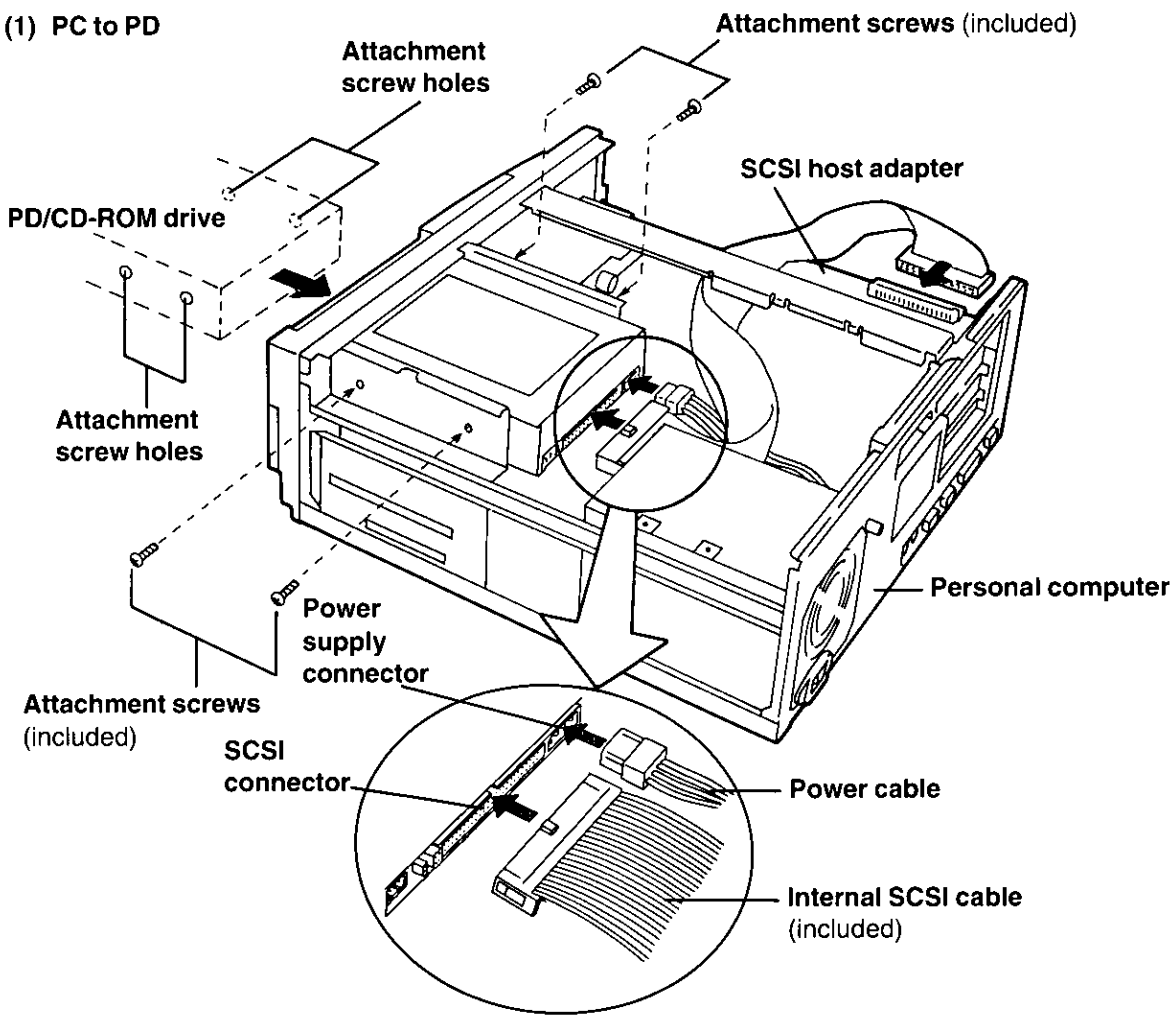
- When Terminator power is supplied from another SCSI device:
  TERM POWER may be set to either "ON" or "OFF".

Connections

Before connecting the drive

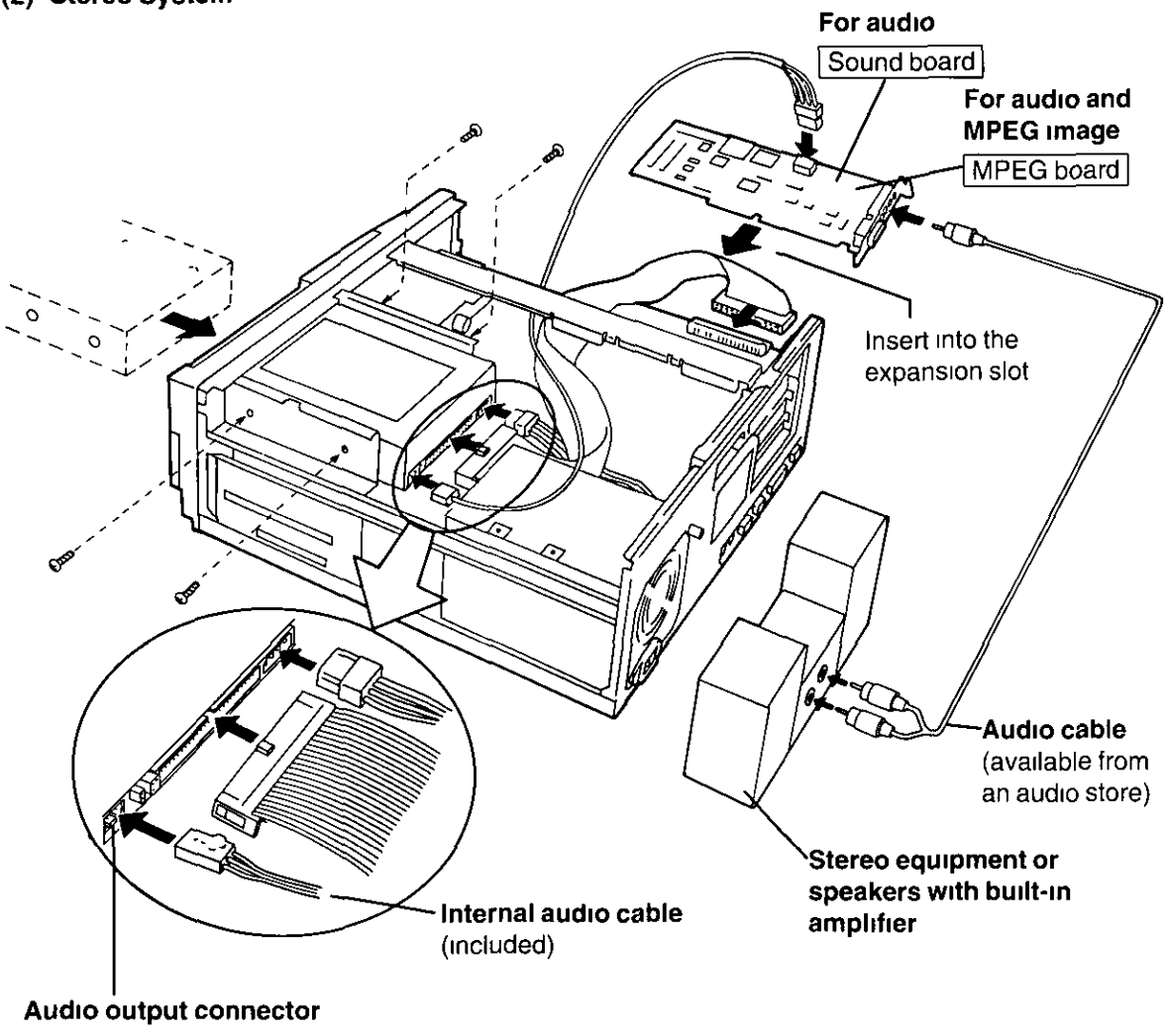
- This drive can be used horizontally only.
- Turn off the power switch for the personal computer unit and unplug the power cord from the power socket. (Absolutely do not connect the drive while the power is on.)
- Insert the connection cables firmly.
- Attachment screw holes are located in four places on the right and left panels of the drive, and in four places on the bottom panel. When securing the drive to a personal computer or other device, secure the drive firmly in place with four attachment screws (included) in four places on the right and left panels or in four places on the bottom panel.
- When connecting the internal SCSI cable (included), take care not to mistake the connected pin numbers. Connect the internal SCSI cable so that the protrusion on the tip is on the top.
- Be sure to connect the specified power cable (see p. 37 of this manual).
- Be sure to observe all operating environment restrictions as noted on p. 34 "Specifications" of this manual.

(1) PC to PD



- If the personal computer is to be moved, make sure to turn the power to OFF and remove the PD cartridge, CD or CD-ROM.

(2) Stereo System



- When purchasing a Sound board or MPEG board, review the product specifications thoroughly (Some board functions may be duplicated) Refer to the accompanying instructions for the connections
- **To enjoy music CDs audio**
  A Sound board is recommended to play CDs on stereo equipment, etc If no Sound board is present, CDs can be played by connecting stereo mini-jack headphones or speakers to the drive's headphone connector
- **To enjoy CD-ROM audio data**
  A Sound board is required

Device Driver Installation

"Device driver" refers to a software routine for exchanging data between the drive and the personal computer The device driver must be installed in the personal computer

This drive has a device driver for DOS/Windows and Macintosh series

Install the device driver you need for your computer by referring to either of the Device Driver Installation Manuals (included)

The Device Driver software that has been included with the PD/CD-ROM drive provides a utility for playing Audio CDs and CD-ROMs Refer to the PD Device Driver Installation manual for specific information on this subject

Troubleshooting

When this occurs	Possible cause	Refer to Page
No power	—Has the power cable been connected correctly?	29, 30
Tray fails to open	—Is the power on?	18, 20
	—If all else fails, insert the emergency ejection pin (included) into the hole to open the tray.	16
Tray fails to close	—Has the PD cartridge or CD, CD-ROM disc been inserted correctly?	18, 20
PD/CD identification lamp fails to light	—Has the PD cartridge or CD, CD-ROM disc been inserted correctly?	18, 20
Drive is not recognized by the computer	—Is the total length of the SCSI cable less than 6 meters?	24
	—Has the drive's terminator been set correctly?	25
	—Are the drive and computer connected correctly?	29, 30
	—Has the device driver been installed correctly?	31
CD or CD-ROM cannot be read	—Are you using the correct software program for playing CDs and CD-ROMs?	31
	—Has the drive's LUN function been set correctly?	26
	—Has the CD been placed correctly on the tray?	20
	—Is the CD dirty? (Wipe clean with a soft cloth).	39
	—Is the CD scratched, cracked or warped? (Do not use).	23
	—Has condensation formed in the drive? (Wait an hour or so for the unit to dry out and then try operating).	——

When this occurs	Possible cause	Refer to Page
PD cartridge cannot be read or written to	—Is there a PD (not CD) cartridge in the tray?	18
	—Has the PD cartridge been placed correctly in the tray?	18
	—Has the drive's LUN function been set correctly?	26
	—Is the PD cartridge dirty? (Wipe clean using the optional disk cleaning kit).	39
	—Has condensation formed in the drive? (Wait an hour or so for the unit to dry out and then try operating).	——
No sound from the stereo system	—Have the drive and sound board been connected correctly?	30
No sound from the headphones	—Have the headphones been connected correctly?	30

If, after following these procedures, your PD/CD-ROM drive still does not operate, please call the Panasonic Technical Support Hotline at 1-800-PANASYS (1-800-726-2797) for assistance.

Specifications

PD/CD-ROM Drive

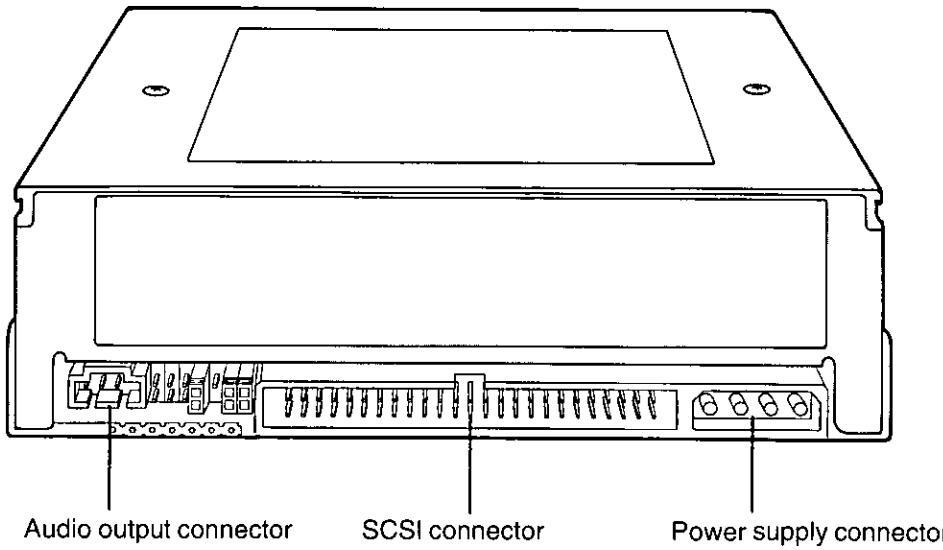
Model number		LF-1004
Power requirements		DC +5 V±5%
		DC +12 V±5%
Current consumption	DC +5 V	1.2 A (Avg.), 1.4 A (Max.)
	DC +12 V	0.3 A (Avg.), 0.7 A (Max.)
Interface		SCSI-2
Seek time	PD	165 msec.
	CD-ROM	195 msec.
Sustained data transfer rate	PD	518–1,141 KB/sec.
	Audio mode	150 KB/sec.
	CD-ROM 4X speed mode	600 KB/sec.
Data transfer rate (SCSI)	Synchronous	Max. 5.0 MB/sec.
	Asynchronous	Max. 3.3 MB/sec.
Disk speed	PD	2,026 rpm
	CD	200–530 rpm
	CD-ROM	800–2,120 rpm
Disk start/stop time	PD, CD, CD-ROM	6 s/3 s
MTBF		30,000 POH
Error rate (after correction)		Less than 1.0×10^{-12}
Output level (impedance)	Headphones	0.18 Vrms (16Ω)
	Line out	1.0 Vrms (47 kΩ)
Buffer memory		256 KB
Ambient temperature	During operation	5°C–45°C
	During storage	−20°C–50°C
Humidity (no condensation)	During operation	10% RH–80% RH
	During storage	8% RH–90% RH
Vibration resistance	During operation	2 m/sec^2 (17–150 Hz Sine)
	During storage	10 m/sec^2 (5–500 Hz Sine)
Shock resistance	During operation	50 m/sec^2 (No hard errors)
	During storage	500 m/sec^2 (No hard errors)
Dimensions (W×H×D)		146×41.3×196 mm
Weight		1,050 g
Applicable CDs and CD-ROMs		CD-ROM Mode-1, CD-DA, Video CD, CD-I CD-ROM XA Mode-2, Form-1, Form-2 PhotoCD

Specifications and external design are subject to change without notice because of product improvements.

PD Cartridge

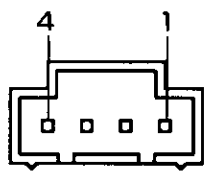
Model number		LM-R650A
Type		Phase-change rewritable
Disk diameter		120 mm cartridge
Memory size disk/user		668 MB/664 MB (single sided)
Bytes/sector		512
Sectors/track (Disk format)		30–66 (Zoned CAV)
Track pitch		1.20 µm
Disk life		More than 15 years
Ambient temperature	During operation	5°C–60°C
	During storage	−10°C–60°C
Humidity (no condensation)	During operation	10% RH–80% RH
	During storage	8% RH–90% RH
Dimensions (W×H×D)		124×135×7.8 mm
Weight		75 g

Specifications and external design are subject to change without notice because of product improvements.



Audio output connector

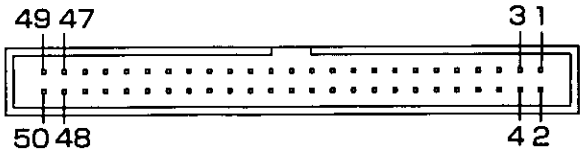
Connect the provided cable to the drive's audio output connector.



Pin no.	Signal name
1	L audio
2	L GROUND
3	R GROUND
4	R audio

SCSI connector

Connect the provided SCSI cable to the drive's SCSI connector.

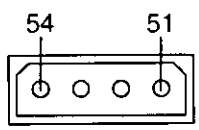


Pin no.	Signal name
1	GROUND
2	−DB (0)
3	GROUND
4	−DB (1)
5	GROUND
6	−DB (2)
7	GROUND
8	−DB (3)
9	GROUND
10	−DB (4)
11	GROUND
12	−DB (5)
13	GROUND
14	−DB (6)
15	GROUND
16	−DB (7)
17	GROUND
18	−DB (P)
19	GROUND
20	GROUND
21	GROUND
22	GROUND
23	GROUND
24	GROUND
25	NC

Pin no.	Signal name
26	TERMPWR
27	GROUND
28	GROUND
29	GROUND
30	GROUND
31	GROUND
32	−ATN
33	GROUND
34	GROUND
35	GROUND
36	−BSY
37	GROUND
38	−ACK
39	GROUND
40	−RST
41	GROUND
42	−MSG
43	GROUND
44	−SEL
45	GROUND
46	−C/D
47	GROUND
48	−REQ
49	GROUND
50	−I/O

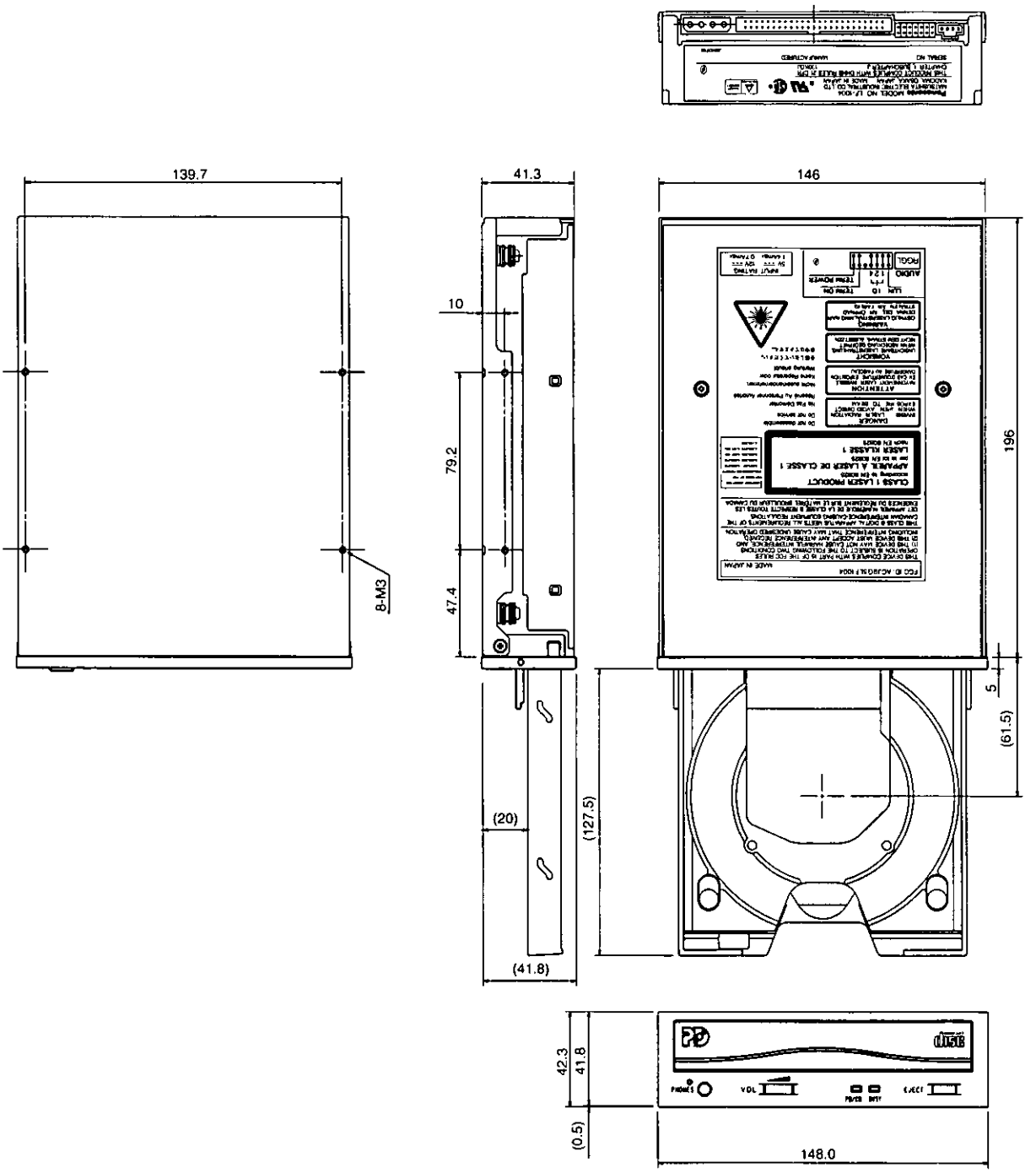
Power supply connector

Connect a LCP-∅4 power cable made by J.S.T.Mfg. Co., Ltd. or equivalent product to the drive's power supply connector.



Pin no.	Signal name
51	+12 V
52	GROUND (+12 V)
53	GROUND (+5 V)
54	+5 V

Dimensions



Optional Accessories

LM-R650A	PD cartridge (650 MB, single-sided)
LF-K022DC	PD/CD Disk Cleaning Kit

Maintenance

DRIVE/DISKS

When used for an extended period of time, the drive's lens and the surfaces of optical disks may become dusty and fail to operate as designed. To avoid this, use of the optional cleaning kit is recommended to clean the lens and disks regularly.

CD/CD-ROM DISCS

- If a disc is dirty, wipe it with a soft cloth moistened with water and remove any remaining moisture with a dry cloth. Be sure to wipe the disc from its center towards its edge.

- If condensation has formed on a disc because it has suddenly been brought into a warm room, etc., wipe it off using a soft dry cloth.

Technical Support

To answer questions or requests from customers who have bought the Panasonic PD/CD-ROM drive, the following Hotline is available for Panasonic customers. Please do not hesitate to call us.

The Hotline number is 1-800-PANASYS (1-800-726-2797)

This number is available 24 hours a day, 7 days a week.

Panasonic Communications & Systems Company
A Division of Matsushita Electric Corporation of America
Computer Products Group

Headquarters
Two Panasonic Way, Secaucus, New Jersey 07094
(201) 348-7000

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