



CD-R DRIVE UNIT

CW-7503-B / CW-7503-C / CW-7503-D

INSTRUCTION MANUAL

Please read through these instructions before operating this unit.

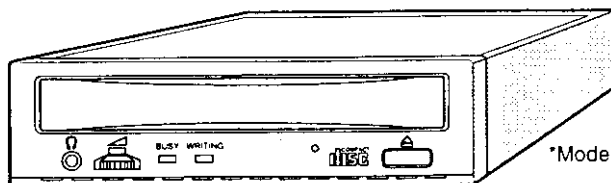
Interface: SCSI

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*Model CW-7503-B / CW-7503-C

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IMPORTANT SAFETY NOTICE

NOTICE

- (1) You may not reproduce or transcribe any part of this publication without permission.
- (2) We reserve the right to revise this document at any time without notice.
- (3) If you have any questions about this document, contact your sales representative.

SAFETY NOTICE

- (1) To prevent fire or electric shock, do not expose this appliance to rain or moisture.
- (2) To avoid electric shock or damage to the eyes due to laser beam, do not attempt to disassemble the cabinet.

For USA (Except Model CW-7503-D)

FEDERAL COMMUNICATIONS COMMISSION (FCC) RADIO FREQUENCY INTERFERENCE STATEMENT

Class B Computing 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 : Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CAUTION :

Use shielded connecting cables in order to meet FCC emission limits and also to prevent interference to nearby radio and television reception.

LASER SAFETY INFORMATION

Class 1 LASER Product

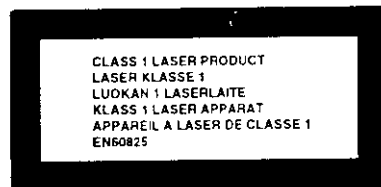
This equipment is certified to comply with DHHS Rule 21 CFR Chapter 1, Subchapter J in effect as of date of manufacture.

Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN60825 for Class 1 laser products.

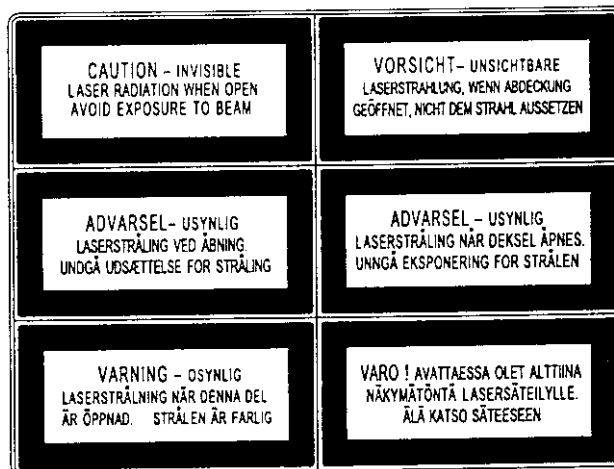
Class 1 laser products are not considered to be hazardous. To ensure continued product safety, the following precautions should be heeded.

CAUTION :

- (1) The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- (2) The drive is designed to be incorporated into a computer-based system or unit which has an enclosing cover. The drive may not be used as a stand-alone unit.
- (3) Do not open the drive unit; no user adjustments or serviceable parts are inside.



- This label is attached to the upper shield at the top of the drive unit.
- Märkningen återfinns på den översta kåpan överst på drivenheten. (For Sweden)
- Denne merkelappen er festet til det øverste dekslet på toppen av spilleren. (For Norway)
- Denne etiket er sat fast på den øverste skærm på drev-enhedens top. (For Denmark)
- Tämä etiketti on liimattu voimayksikön yläosan suojalevyyn. (For Finland)



- This label is attached to the bottom of the drive unit.
- Märkningen återfinns på drivenhetens undersida. (For Sweden)
- Denne merkelappen er festet til undersiden av spilleren. (For Norway)
- Denne etiket er sat fast i bunden af drev-enheden. (For Denmark)
- Tämä etiketti on liimattu laitteen pohjaan. (For Finland)

For Finland

VAROITUS! Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

For Sweden

VARNING! Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

LASER Specification

Type: Semiconductor laser GaAlAs
Wave Length: 790 ± 10 nm
Divergence: $\theta_v = 13^\circ \sim 21^\circ$
Output power: Read = 0.7 mW
Write = 31 mW

Laser- specifikationer: (For Sweden)

Typ: Laserhalvedare GaAlAs
Våglängd: 790 ± 10 nm
Divergens: $\theta_v = 13^\circ \sim 21^\circ$
Uteffekt: Läsning = 0,7 mW
Skrivning = 31 mW

LASER Spesifikasjon: (For Norway)

Type: Halvleder laser GaAlAs
Bølgelengde: 790 ± 10 nm
Divergens: $\theta_v = 13^\circ \sim 21^\circ$
Utgangseffekt: Lese = 0,7 mW
Skrive = 31 mW

Laser Specifikationer: (For Denmark)

Type: Semiconductor GaAlAs
Bølge-længde: 790 ± 10 nm
Divergens: $\theta_v = 13^\circ \sim 21^\circ$
Udgangs-effekt: Læse = 0,7 mW
Skrive = 31 mW

LASERin tekniset tiedot: (For Finland)

Tyyppi: Laserpuolijohdin GaAlAs
Aallon pituus: 790 ± 10 nm
Hajaantumisen: $\theta_v = 13^\circ \sim 21^\circ$
Teho: Lue = 0,7 mW
Kirjoita = 31 mW

INTRODUCTION

This CD-R drive features 8x speed reading and 4x speed writing technology. CD-R disc is compact disc memory that you can written digital data on the area one time and read with this CD-R drive.

This drive unit uses CD-R discs which bear the following mark.



This drive unit uses CD-ROM discs which bear the following mark.



Only compact discs having this mark can be used with this unit.



CHAPTER 1 PRECAUTIONS WHEN OPERATING

1.1 PRECAUTIONS WHEN TRANSPORTING

To avoid damage

- * Keep the original packing materials for the drive unit.
- * Before you transport the drive unit, remove the disc from the drive unit and repack the drive unit in its original packing.

1.2 INSTALLATION LOCATION

Do not place unit in the following environments.

- * High-temperature, high-humidity, extreme temperature changes.
- * Dusty
- * Excessive vibration/sudden shock.
- * Inclined place.
- * Direct sunlight.

1.3 PRECAUTIONS FOR USE

- * Never push objects of any kind through the Cabinet slots, never spill liquid of any kind on the unit.
- * Do not place objects on the product.
- * Do not attempt to service this product yourself.
- * Do not open or remove covers.
- * Do not place foreign objects in the disc insertion slot and attempt to operate.
- * Do not use CD-R drive when vertically installed.

1.4 PRECAUTIONS FOR OPERATION

To avoid error

- * Do not move the drive unit during operation.
- * Do not operate the unit directly after a sudden increase in temperature.

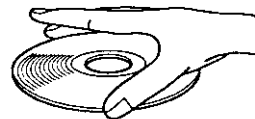
NOTE :

A great proportion of problems are usually caused by the following.

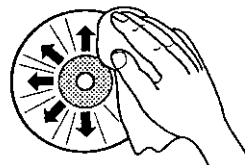
- ① Dust or Finger-prints on the surface of the CD-disc.
- ② Random Electrical Noise.
- ③ Scratches and Defects on the surface of the CD-disc.

1.5 PRECAUTIONS WHEN HANDLING DISCS

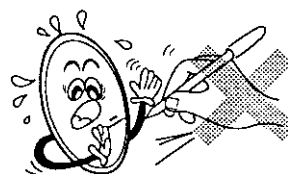
- ① Hold the disc by the edges, do not touch the surface of the disc.



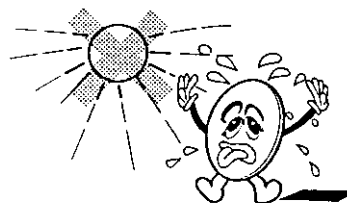
- ② To remove dust or fingerprint, use a clean, soft, dry cloth. When cleaning, wipe gently in a radial direction.



- ③ Do not write on the recording/reading side, or paste paper to the surface of the disc. When labelling a disc for identification purposes, write only on the premarked label side using a soft, felt tip marker.



- ④ Do not store the disc in a place where the temperature is high.



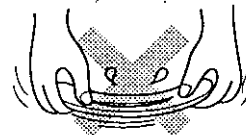
- ⑤ Do not use benzine, thinners and cleaners, etc. A very mild soap and water solution should be used to clean the disc.



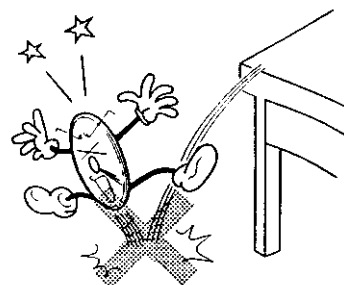
- ⑥ Do not make the center hole larger.



- ⑦ Do not bend the disc.

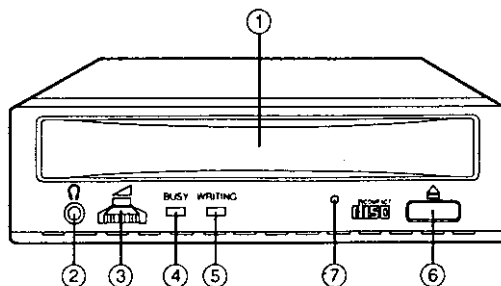


- ⑧ Do not drop the disc, or subject it to shock.



CHAPTER 2 PARTS AND FUNCTIONS

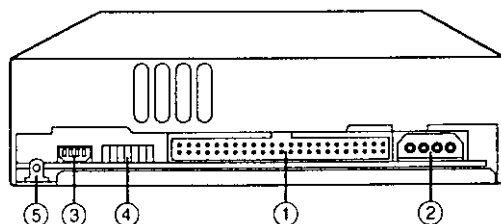
2.1 FRONT VIEW



- ① **DISC TRAY**
Accepts a disc.
- ② **HEADPHONE JACK** (Except Model CW-7503-D)
Headphone can be connected using a 3.5 mm stereo mini plug.
- ③ **VOLUME** (Except Model CW-7503-D)
Adjusts audio output level of Headphone.
- ④ **BUSY INDICATOR**
Lights when data is being accessed from the disc, or the drive is playing an audio CD.
- ⑤ **WRITING INDICATOR**
Lights when the drive is writing onto the CD-R disc.
- ⑥ **EJECT/LOAD BUTTON**
Ejects and loads the disc tray.
- ⑦ **EMERGENCY EJECT HOLE**
Insert an instrument such as straightened paper clip into this hole to manually eject the tray.
(See the lower part in Section 4.1)

Note: The Front Panel parts are nothing with model CW-7503-D.

2.2 REAR VIEW

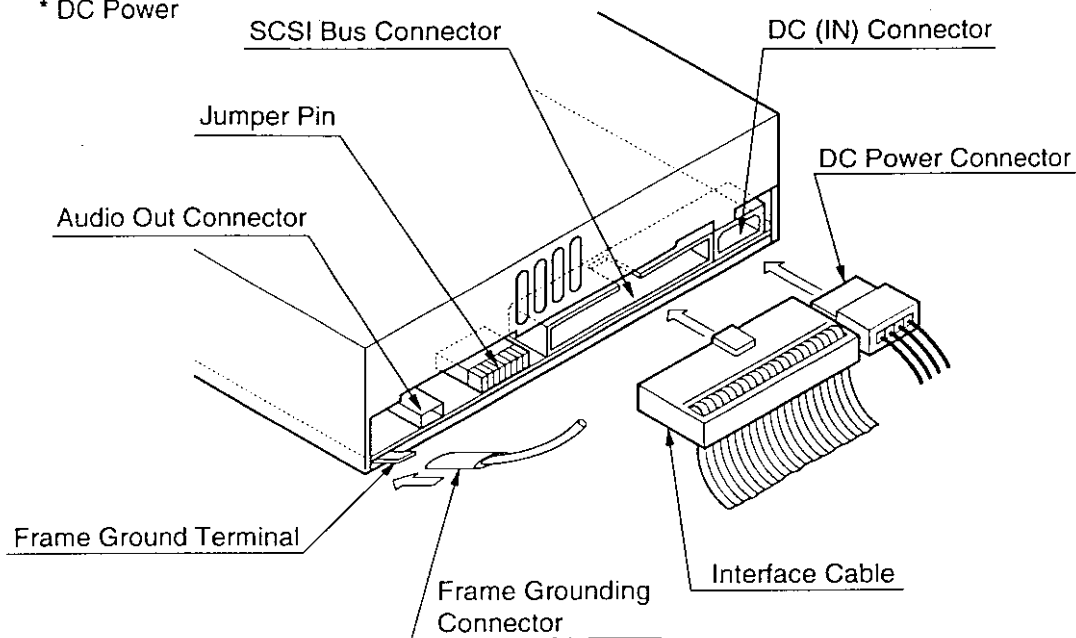


- ① **SCSI BUS CONNECTOR**
Connects to host computer's SCSI bus connector.
- ② **DC (IN) CONNECTOR**
- ③ **AUDIO OUT CONNECTOR**
- ④ **JUMPER PIN**
Insert the jumper according to the drive ID Number. (See the figure in the next page.)
- ⑤ **FRAME GROUND TERMINAL**

CHAPTER 3 CONNECTIONS

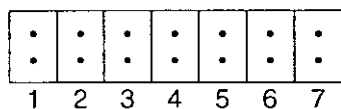
3.1 CONNECTING VIEW

- * Interface
- * DC Power



3.2 JUMPER PIN SETTING

Place the jumper of SCSI Interface



Jumper Pin No.	ID Number							
	0	1	2	3	4	5	6	7 *1
1	OUT	IN	OUT	IN	OUT	IN	OUT	IN
2	OUT	OUT	IN	IN	OUT	OUT	IN	IN
3	OUT	OUT	OUT	OUT	IN	IN	IN	IN

	Description	IN	OUT
4	Parity	ON	OFF
5	<No Pin>	Sector Size = 2048 (fix)	
6	Terminator	ON	OFF
7	Term Power	ON	OFF

Note:

*1 = Can't use, used by the SCSI controller.

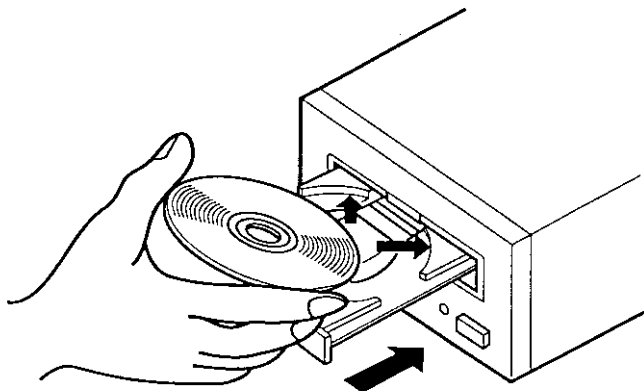
Reverse = Default

CHAPTER 4 GUIDE TO OPERATION

4.1 INSTALLATIONS

- Starting the drive.

- ① Turn on the power supply.
- ② Press the eject button. The tray is ejected from the drive.
- ③ Place the disc in the tray with the disc's label facing up.
- ④ Press the eject button or press the tray lightly as in the following figure. The tray is retracted automatically.

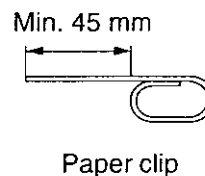


- ⑤ Loading start.

CAUTION:

- Do not insert any foreign objects into the disc tray. This could result in a malfunction.
- Do not manually force the tray to open.
- When the drive is not in use, keep the tray closed to protect against dust and dirt.
- Do not press down hard on the tray when loading a disc, since this may result in damage to or malfunction of the tray.

- In case of emergency, eject the tray manually
If for some reason the tray will not eject automatically, press the eject-bar (for example, insert a straightened paper clip minimum straight length = 45 mm, Diameter = 1 ~ 1.5 mm) into the emergency eject hole to manually eject the tray. (Before proceeding with this emergency step, make sure that the power is switched OFF.)



CHAPTER 5 GENERAL DESCRIPTION

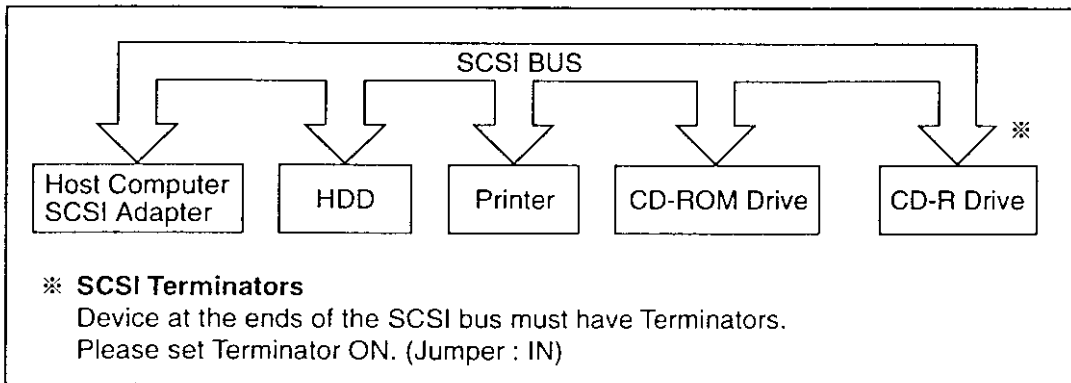
5.1 FEATURE SUMMARY

- ① Embedded SCSI Interface.
- ② Automatic Loading with tray.
- ③ Horizontal Installation.
- ④ Audio Playback Capability.
- ⑤ MS-DOS CD-ROM Extensions Available.
- ⑥ 5 $\frac{1}{4}$ " Half Height Design.
- ⑦ Digital data write and read capability.

5.2 SYSTEM SET UP

Hardware System [Example of SCSI system set-up]

This unit consists as SCSI Device and basically must be installed in SCSI System.



5.3 POWER SAVING

- ① When the drive waits for a command from the Host for more than five minutes, then the Drive enters Power Save Mode. Spindle motor stop.
- ② Re-start is automatic when the Host Command (Ex. Seek, Read, Write, etc.) is received.

NOTE:

- SCSI : Small Computer System Interface.
- MS-DOS : A registered trademark of Microsoft Corporation.

CHAPTER 6 SPECIFICATION SUMMARY

6.1 PERFORMANCE

① Disc diameter	12 cm
② Disc speed	
(NV mode) *1	200 ~ 530 r/min (CLV) *4
(20x CAV mode) *2	3950 ~ 4610 r/min (CAV)
③ Data capacity	656 / 748 MBytes typical (Mode 1/Mode 2) (74 min. and 42 sec. disc)
④ Data transfer Rate	
Sequential (NV mode)	150 KBytes/s (Mode 1)
Sequential (20x CAV mode)	1275 ~ 3000 KBytes/s (Mode 1)
From buffer	<u>Synchronous mode</u> 10 MBytes/s (Reading) 8 MBytes/s (Writing; included overhead)
	<u>Asynchronous mode</u> 5 MBytes/s (Reading, Writing)
⑤ Access time	
Random access time *3(NV mode)	450 ms typical
Random access time (20x CAV mode)	175 ms typical
⑥ Buffer Size	2 MByte

NOTE:

- *1 NV mode : Normal Velocity mode
- *2 CAV mode : Constant Angular Velocity mode
- *3 Random
access time : Average Data read over the complete area from 00 min. 02 sec.
00 blocks to 59 min. 58 sec. 74 blocks, more than 2000 times including
latency and layered error correction time.
- *4 CLV : Constant Linear Velocity

6.2 ERROR RATES

• Soft read errors	Less than 10^{-9}
• Hard read errors	Less than 10^{-12}

6.3 AUDIO PERFORMANCE (Line-out)

① Number of channels	2
② Frequency response	20 Hz ~ 20 kHz, -3 dB ~ +0.5 dB
③ SN Ratio	More than 80 dB
④ Distortion	Less than 0.1 % (1 kHz)
⑤ Output level	0.6 Vrms

6.4 GENERAL PERFORMANCE

① Power requirement	+5 V $\Rightarrow$ 2.0 A +12 V $\Rightarrow$ 2.0 A
② Dimensions (W x H x D)	146 x 41.3 x 203 mm (exclude Front Bezel)
③ Weight	1,000 g typ.

6.5 ENVIRONMENTAL CONDITION

- Temperature
- Humidity

Operating
5 ~ 45 °C
5 ~ 90 %Rh
(Non-condensing)

6.6 PICK UP LASER

- Type
- Wave Length
- Divergence
- Output power

Semiconductor laser GaAlAs
790 ± 10 nm
 $\theta_v = 13^\circ \sim 21^\circ$
Read = 0.7 mW
Write = 31 mW

CHAPTER 7 BEFORE REQUESTING SERVICE

7.1 TROUBLESHOOTING

- (1) There are many kinds of problems caused by misuse. When a problem occurs, check the table below which describes possible problems occurring with your CD-R drive.
- (2) If the CD-R drive is not operating correctly and you cannot restore operation by following the detailed procedures in the table below, do not remove the cover of the units or adjust further.
- (3) In the case of (2) above, unplug the unit and consult with your dealer or the nearest service station.

TROUBLE	CORRECTION
• CD-R drive does not operate and Writing/Busy Indicator does not light.	① Confirm that the interface board is installed correctly in your host computer. ② Confirm that the connection between the CD-R drive and the host computer is correct. ③ Confirm that the program is correct. ④ Confirm that the setting drive select switch is correct. ⑤ Confirm that the disc has been inserted label side up. ⑥ Confirm that foreign objects have not been inserted.
• CD-R drive does not write onto the CD-R disc.	① Confirm that the recordable CD-R disc has been mounted. ② Confirm that the proper Writing Software is installed.