

TOSHIBA

CD-ROM DRIVE

COMPACT
disc

INSTRUCTION MANUAL

XM-3200B/3201B

July, 1989

CONTENTS

	Page
1. INTRODUCTION	4
2. CONTROLS & FUNCTIONS	4
2-1 Front Panel	4
2-2 Rear Panel	4
2-3 SCSI cable connection	7
3. HARDWARE CONFIGURATION	8
4. SPECIFICATIONS	8
4-1 Outline of product	8
4-2 Performance	9
4-3 Power supply, indicator, input/output terminals	9
4-4 Dimensions and weight	9
4-5 Environmental condition used	9
4-6 Operating position	9
4-7 Option	9
5. CAUTIONS FOR USE	10
5-1 Surrounding temperature	10
5-2 Transportation	10
5-3 Mounting screw length	10
5-4 Vertical mounting orientation	10
5-5 CD CADDY	11
6. EXTERNAL DIMENSIONS	12

1. INTRODUCTION

The CD-ROM Drive is designed to be installed in either horizontal or vertical position inside personal computers etc. To obtain the best performance, when installing the drive, always check to see that the specifications of the apparatus match the specifications of the drive and that the installing direction is correct.

This Instruction Manual is common to the two models XM-3200B and XM-3201B. Only for the not common items, the applicable model name is added.

2. CONTROLS & FUNCTIONS

2-1 Front Panel (Fig. 1)

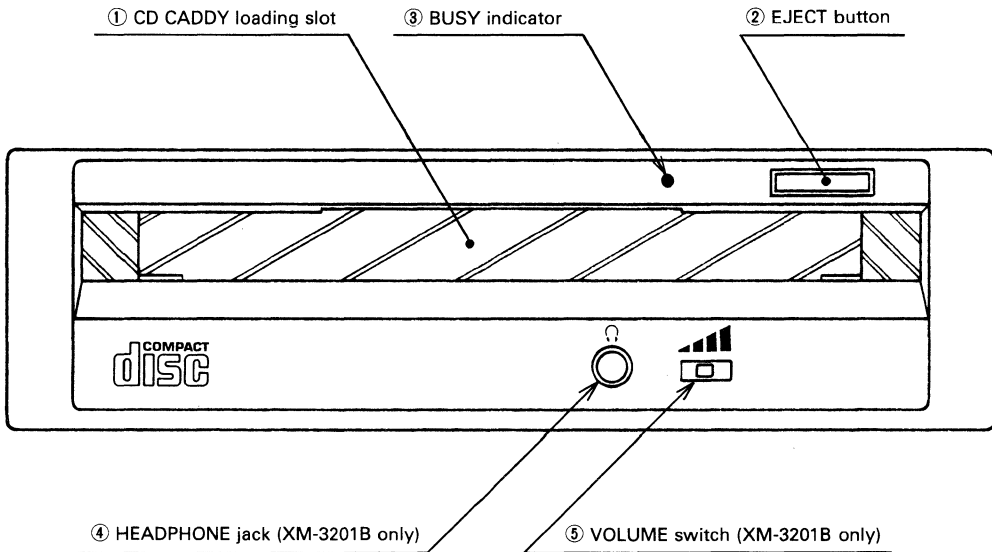


Fig. 1 Front panel

- ① **CD CADDY loading slot**
This is a loading slot for inserting a CD CADDY. When power is off, the loading function cannot be activated (even if the CD CADDY is inserted into the slot). When reloading the CD CADDY which is ejected by the operation of the EJECT button described below, the loading function cannot be activated unless pulling out once the CD CADDY more than 5mm from the ejected position and reinserting it again. (For handling the CD CADDY, refer to the section 5-5.)
- ② **EJECT Button**
Pressing this button ejects the CD CADDY. If this button is accidentally pressed while the drive is in use, the eject function cannot be activated (unless the button is continuously pressed for over one second). If the host computer is prohibiting the ejection, pressing the button does not activate ejecting function. If pressing the eject button for over one second does not activate the ejecting function, check the application software.
- ③ **BUSY Indicator**
Indicator lights during data access operation, and blinks during data transfer.
Data Reading: Blink
Accessing: Light up
Note: When disc detecting function is disabled by the defective disc, disc insertion error (the upside-down disc, etc.) or no disc is inserted in the CD CADDY, the "BUSY" indicator lights up after initially blinking.
- ④ **HEADPHONE Jack (XM-3201B only)**
This is a 3.5 DIA miniature stereo headphone jack for the audio output.
- ⑤ **VOLUME Switch (XM-3201B only)**
Switches the volume level for the headphones in the three steps.

2-2 Rear Panel (Fig. 2)

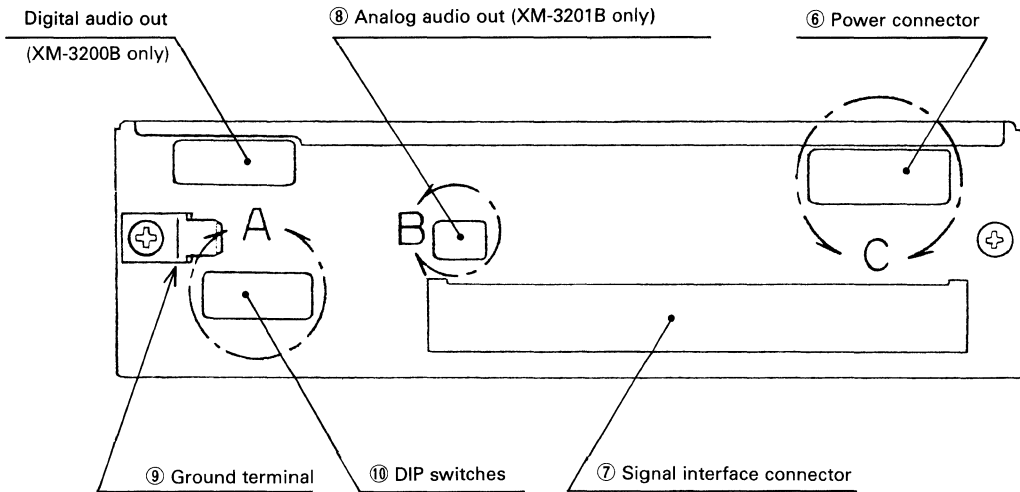
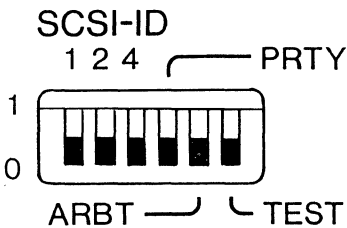


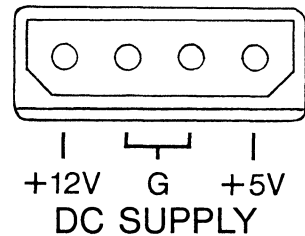
Fig. 2 Rear panel



Detailed figure for "A" section



Detailed figure for "B" section
(XM-3201B only)



Detailed figure for "C" section

⑥ Power Connector

Supplies +5V DC and +12V DC power. (Connector, Part No. 172294-1 or 174804-1, made by NIPPON AMP is used. Use matching plug, Part No. 1-480424-0, made by NIPPON AMP or equivalent.)

⑦ Signal Interface Connector

SCSI bus connection.

Connector made to SCSI Standard type is used. Allows daisy chain connection with a connection cord made for this purpose.

Refer to section 2-3, for proper connection information.

⑧ Audio Output Terminal (XM-3201B only)

Outputs analog audio signal. (Connector, Part No. 008283031100000, made by ELCO INTERNATIONAL K.K. is used. Use matching housing, Part No. 608283303815000, made by ELCO INTERNATIONAL K.K.)

⑨ Ground Terminal

In order to avoid a multifunction problem caused by noise, the ground terminal must be connected to the chassis ground (or GND terminal) of the host computer etc., which is used in conjunction with the drive.

⑩ DIP Switches

Selects SCSTI-ID numbers, parity option, arbitration option, and test function adjustment.

The actual settings by the switches are changed only after the power is turned ON, if any settings are changed, turn the power OFF once and ON again.

SCSI-ID : This 3 bit binary switch sets the SCSI-ID number. When setting numbers, follow the application software instructions.

SCSI-ID	Switch		
	LSB		MSB
	1	2	4
0	0	0	0
1	1	0	0
2	0	1	0
3	1	1	0
4	0	0	1
5	1	0	1
6	0	1	1
7	1	1	1

PRTY : To enhance data bus reliability, set this switch to the "1" position to activate the parity bit check function on the SCSI data bus.
This position cannot be used if no parity generation function is provided on the I/F card.

Switch	Function
0	Drive does not execute parity check, but develops output data parity.
1	Drive executes parity check.

ARBT : This switch changes between the use and non-use of ARBITRATION system.
Set the switch to the "1" position to activate disconnection process and increase operational efficiency of SCSI bus.
For details, refer to "Toshiba CD-ROM Drive SCSI Interface Specifications."

Switch	Function
0	NON-ARBITRATION System
1	ARBITRATION System

TEST : Set this switch to the "1" position to activate the test mode for adjustment. In this position the off-line mode is activated and all commands from the initiator are ignored. Set the switch to the "0" position for normal use.

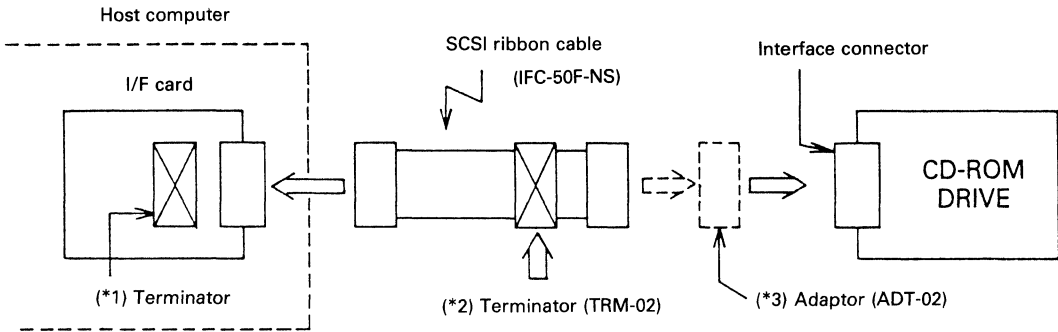
PRTY switch	ARBT switch	TEST switch	Function
*1	*2	0	Normal operation mode
0	0	1	Audio reproduction mode (Set all SCSI-ID switches to "0" position.) Allows repeated reproduction in the audio mode from the beginning up to the end of the program area. The output is muted on the data track area. Pushing the EJECT button for 0.1 — 1.0 sec allows proceeding to beginning of the next track number. Pushing the button for longer than 1 sec ejects the CD CADDY.
0	1	1	Focus adjustment mode (Set all SCSI-ID switches to the "0" position.) Use when conducting repair or adjustment. Do not use for normal operation.
1	0	1	Tracking adjustment mode (Set all SCSI-ID switches to the "0" position.) Use when performing repair or adjustment. Do not use for normal operation.

*1 Depends on the setting of the SCSI-ID number shown in the previous page.

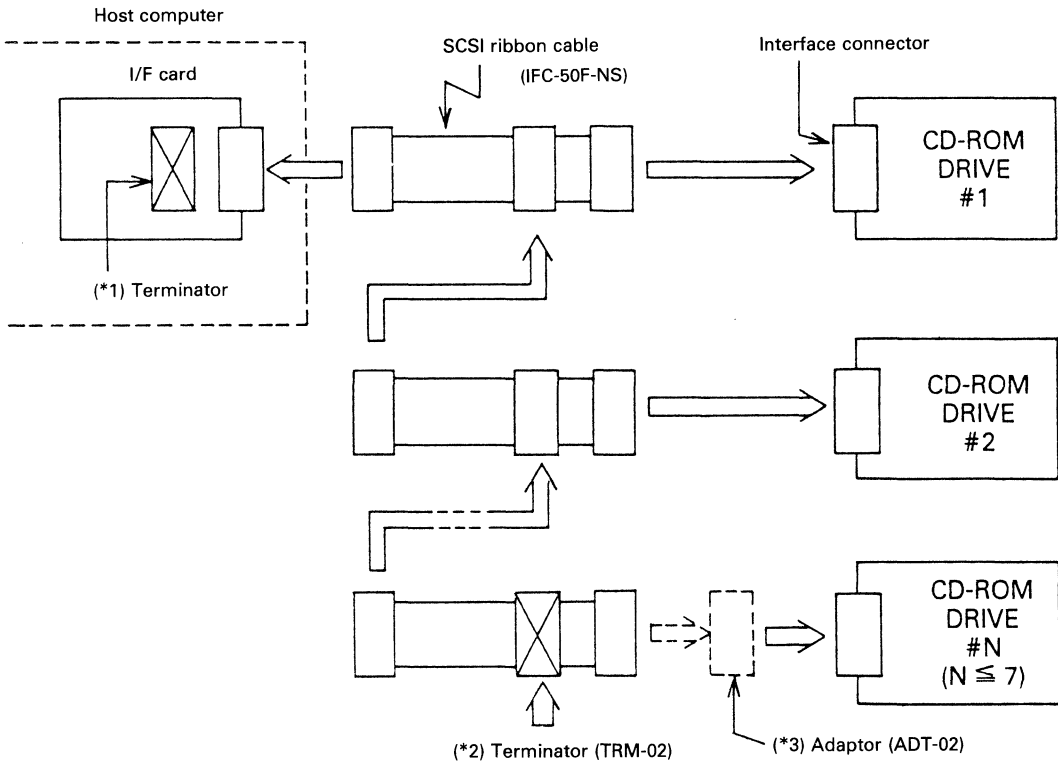
*2 Depends on the setting of the PRTY switch shown in the previous page.

2-3 SCSI cable connection

(1) CD-ROM DRIVE connection (one drive)



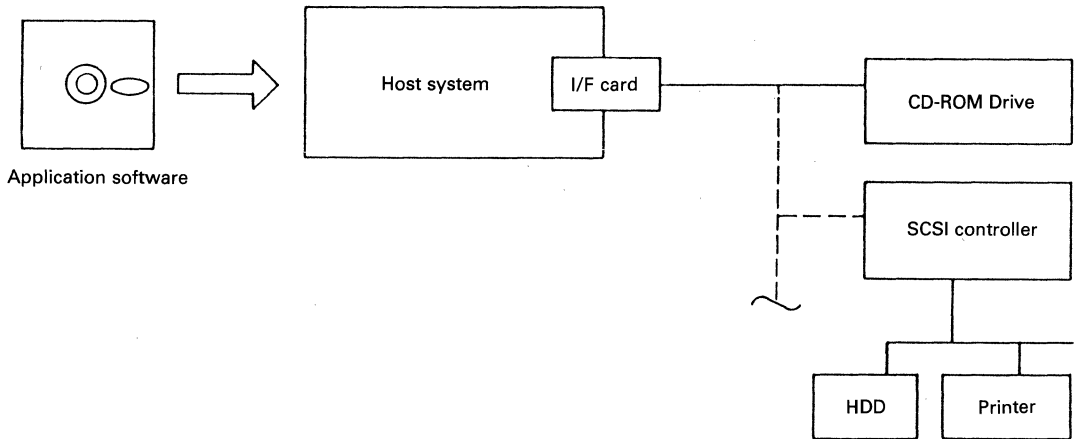
(2) CD-ROM DRIVE daisy chain connection



Note: The terminators (*1) and (*2) must be connected to assure operational performance. The terminator (*2) is not necessary when the Adaptor (*3) is used. The Toshiba CD-ROM Interface cards (XM-PB301 and XM-PB303) have built-in terminator (*1).

3. HARDWARE CONFIGURATION

When connecting the CD-ROM Drive to a host system, an I/F card is generally necessary in the host system. When designing an application software, set up according to the application software instructions. (This is necessary because the driver and the I/F card are designed as a pair.)



4. SPECIFICATIONS

(Specifications and design are subject to change without notice.)

4-1 Outline of product

- 1) Half height built-in type
- 2) Built-in SCSI interface controller
- 3) Allows SCSI daisy chain connection (use a connection cable expressly made for this connection)
- 4) Built-in MODE-1 error correction circuit
- 5) 28 blocks data buffer
- 6) High speed access (max. average 400 msec)
- 7) CD CADDY type automatic front loading
- 8) Provided with audio line output and headphone output (XM-3201B only)
- 9) Pickup head auto-lock mechanism (functions during removing the CD CADDY)
- 10) Usable in both horizontal and vertical positions

4-2 Performance

- 1) Data capacity
 - a. User data/block
Mode-1 : 2048 bytes/block
Mode-2 : 2336 bytes/block
(Based on Yellow Book Standard)
- 2) Transferring speed
 - a. Average data transfer speed : 75 blocks/sec
Mode-1 : 150 kbytes/sec
 - b. Maximum data transfer speed : 1.5 Mbytes/sec
- 3) Access time
 - a. Average access time (*1) : 350ms TYP. 400ms MAX.
 - b. Maximum average access time (*2) : 460ms TYP. 700ms MAX.
- 4) Data buffer capacity : 64 kbytes (28 blocks)
- 5) Hard read error rate
Mode-1 : Less than 10^{-12}
Mode-2 : Less than 10^{-9}
- 6) Optical pickup
 - a. Laser : Semiconductor laser
 - b. Head movement mechanism : Linear motor drive system
- 7) Revolution : Approx. 200 ~ 530 rpm (CLV system)

*1: Average value when more than 3000 times of random access are carried out on one block data reading from 00 min., 02 sec., 00 block to 60 min., 01 sec., 74 block.

*2: Average value when more than 100 times of access are carried out on data reading to 60 min., 01 sec., 74 block from the track including 00 min., 02 sec., 00 block.

Test disc used for *1 and *2: YHDS-50 (SONY)

4-3 Power supply, indicator, input/output terminals

- 1) Power supply : +5V DC $\pm 5\%$ 0.9A max. (rush current 1.6A max.)
(Without terminator) +12V DC $\pm 5\%$ 1.8A max. (rush current 1A max.)
+12V DC $\pm 8\%$ (at start-up)
- 2) Indicator : "BUSY"
- 3) Signal interface connector : INPUT/OUTPUT
(SCSI Standard type)
- 4) Audio output (XM-3201B only)
 - a. Line output : Terminal 3P connector (L, R, G)
: Output level 0.65 Vrms TYP. (load impedance 47K Ω)
: Mode 3 modes (L/R, L, R), selectable with command.
 - b. Headphone output : Terminal 3.5 dia stereo mini-phone jack
: Output level 0.7 Vrms TYP. (load impedance 30 Ω min, at maximum
Volume Control position) output adjustable.

4-4 Dimensions and weight

- 1) Dimensions : 149.5 x 43 x 208mm (W/H/D)
(excluding knobs, connectors, and protruding sections.)
- 2) Weight : Approx. 1.4 kg

4-5 Environmental condition used

- 1) Operating temperature : 5°C ~ 50°C
- 2) Operating humidity : 8% ~ 80% (no dew condensation)
- 3) Storage temperature : -30°C ~ 65°C
- 4) Storage humidity : 5% ~ 95%

4-6 Operating position

Horizontal or vertical : $\pm 5^\circ$ (Operational garranty limit)

Note: For vertical position, place the unit so that the eject button side is up.

4-7 Option

- 1) I/F card : Model No. XM-PB301 (for IBM PC-AT, PC-XT)
Model No. XM-PB303 (for Toshiba T-3100)
- 2) CD CADDY : Model No. CAD-01
- 3) SCSI ribbon cable : Model No. IFC-50F-NS
- 4) Terminator : Model No. TRM-02
- 5) Adaptor : Model No. ADT-02

5. CAUTIONS FOR USE

5-1 Surrounding temperature

Use this unit below 50°C of the environment temperature. If this unit should be mounted in a place where ventilation is maintained, take care not to allow air into the unit.

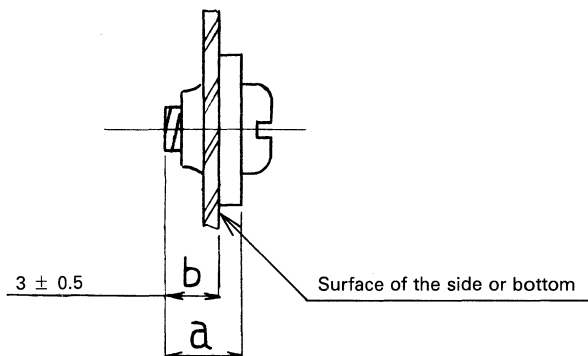
5-2 Transportation

The laser pickup head is not locked when a CD CADDY is loaded in the CD-ROM drive. Always remove the CD CADDY from the drive when moving the drive.

5-3 Mounting screw length

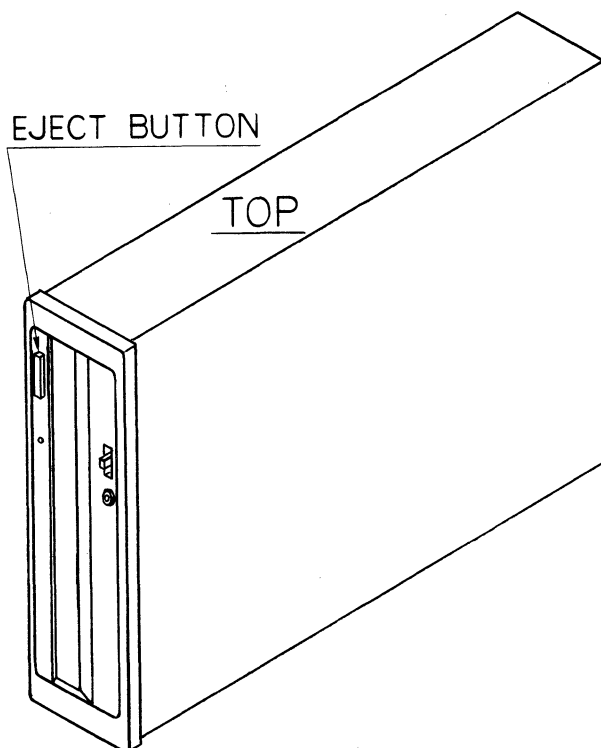
The mount this unit in other device using 12 screw holes on the sides and bottom of the unit, use the screws with correct screw length. The screw length "a" as shown in the illustration below should be calculated so that the length "b" becomes 3 ± 0.5 mm. The length "b" is measured from the outside surface of the side or bottom of the unit to the end of the screw.

If mounting screw used is too long, there may be interference in the loading and unloading of the CD CADDY.



5-4 Vertical mounting

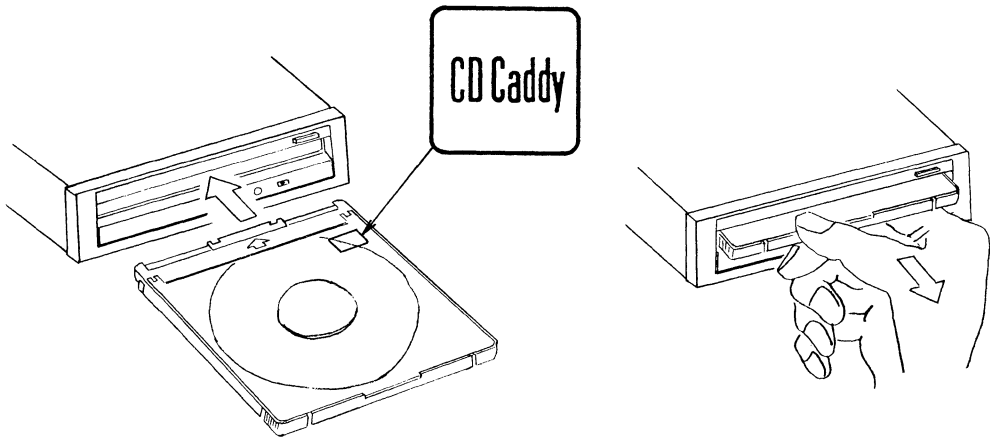
When mounting the unit in vertical position, be sure to mount it correctly by placing the eject button side up (never mount the eject button side down).



5-5 CD CADDY

Use a CD CADDY that is recommended by Toshiba. (Toshiba recommends the CD CADDY supplied with the unit or Model CAD-01 sold separately.) If you use a commercially available CD CADDY, be sure to use the CD CADDY marked as shown in the below. For the proper handling of the CD CADDY, refer to the illustration provided with the CD CADDY. When setting a disc into the CD CADDY, take care that the label side of the disc faces the transparent cover.

Note: The drive employs the auto-loading feature, so do not force the CD CADDY go into the CD CADDY slot of the drive. This might cause a problem or permanent damage to the drive. Always wait for the drive to load the CD CADDY. Do not drop the CD CADDY.

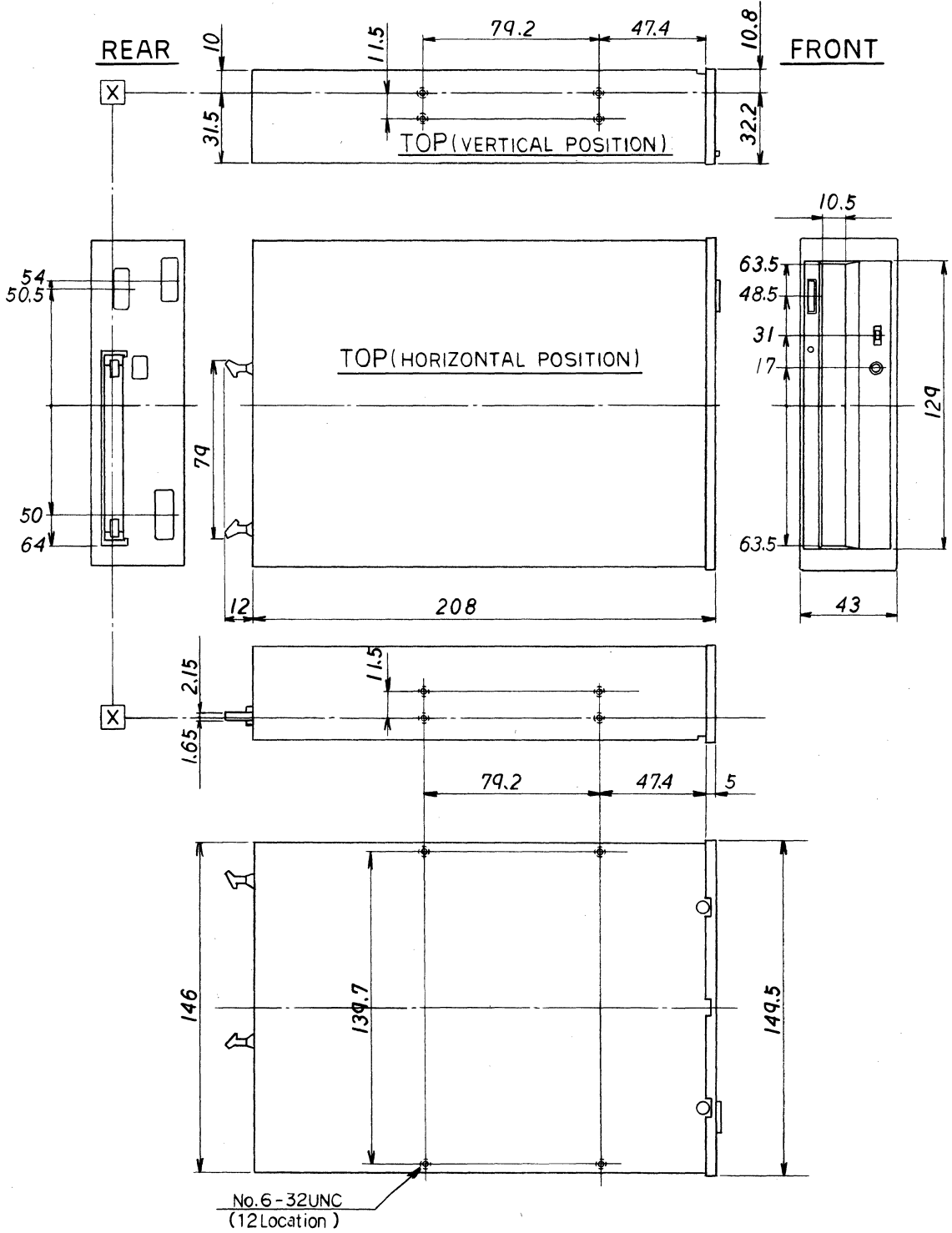


When inserting the CD CADDY, make sure that the direction of the CD CADDY is correct as shown in the illustration above and gently push into the CD CADDY slot until a click sound is heard.

When removing the CD CADDY, slowly pull out the CD CADDY after it has been ejected.

6. EXTERNAL DIMENSIONS

XM-3200B/3201B EXTERNAL DIMENSIONS (Unit:mm)



TOSHIBA CORPORATION