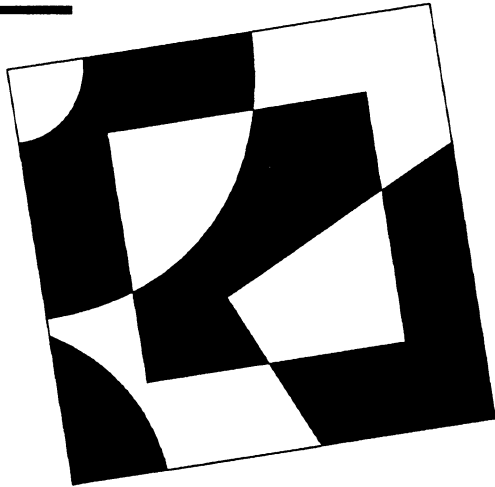


**TANDEM CD READ™**



**CD-ROM DRIVE  
INSTALLATION MANUAL  
FOR ISA/EISA PCs**

**TANDEM CD READ™**



**CD-ROM DRIVE  
INSTALLATION MANUAL  
FOR ISA/EISA PCs**

This manual describes how to install the hardware and software included in the Tandem CD-ROM drive kit for ISA/EISA PCs.

 **TANDEM**

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## ▲ **Warning**

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 the receiver.
- Connect the equipment into an outlet on a circuit that is different from the circuit to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables is required for this equipment to meet the FCC emissions limits.

---

## **CISPR Compliance Statement**

This equipment complies with the requirements of CISPR 22 (EN 55 022) for Class B information technology equipment (ITE).

---

## **German Compliance Statement**

Bescheinigung des Herstellers/Importeurs

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This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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# ***New and Changed Information***

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The Tandem CD-ROM drive kit has been updated; it now includes the Toshiba TXM3401E1 external CD-ROM drive and the Toshiba TMC-850MEX host adapter board. The *CD-ROM Drive Installation Manual for ISA/EISA PCs* has been revised as follows to reflect the changes to the drive kit:

- The "Installation Summary" section includes new jumper switch settings for the adapter board.
- Section 2, "Hardware Installation," includes new jumper switch settings for the adapter board and illustrates the new adapter board.
- Appendix A, "CD-ROM Drive Specifications," contains the latest technical specifications for the TXM3401E1 drive.

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# About This Manual

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This manual describes the Toshiba TXM3401E1 external CD-ROM drive and the TMC-850MEX host adapter board that are included in the Tandem CD-ROM drive kit. In addition to describing the drive and adapter, this manual explains how to install the required hardware and software that allows an IBM ISA/EISA (Industry Standard Architecture/Extended Industry Standard Architecture) PC or compatible computer to access the CD-ROM drive.

Information within this manual is organized as follows:

- Installation Summary—Summarizes, for experienced PC users, the installation procedures described in detail in Section 2, “Hardware Installation,” and Section 3, “Software Installation.”
- Section 1—Briefly describes the CD-ROM technology and then lists the contents of the Tandem CD-ROM drive kit for PCs. Additionally, it provides recommended software and hardware configurations and illustrates the front and rear panels of the CD-ROM drive.
- Section 2—Describes how to install the host adapter board, set the CD-ROM drive’s SCSI-ID switch, and connect an SCSI cable to the CD-ROM drive and the host adapter board.
- Section 3—Describes how to install the CD-ROM driver file and Microsoft CD-ROM extensions file on your PC, using either the automatic setup program or a manual setup procedure.
- Appendix A—Lists the physical and performance specifications for the Toshiba TXM3401E1 external CD-ROM drive.
- Appendix B—Describes how to test your CD-ROM drive, provides basic troubleshooting techniques, and supplies technical support information.

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**Additional Information** After installing the CD-ROM drive hardware and software as described in this manual, you are ready to use the Tandem CD Read product. The Tandem CD Read product includes the CD Read libraries, which contain the electronic form of Tandem manuals and related publications, and the CD Read viewer, a software program that enables you to display, search, print, and mark the information stored in the Tandem CD Read libraries.

Refer to the *Tandem CD Read Quick Start for Microsoft Windows Software* for instructions on how to install and use the Tandem CD Read viewer. The quick start is provided with the Tandem CD Read product.

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# Installation Summary

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To access the Toshiba TXM3401E1 external CD-ROM drive from your PC, you must install the hardware and software contained in the Tandem CD-ROM drive kit for ISA/EISA PCs. The following pages summarize the installation process, which involves:

1. Identifying any potential host adapter board conflicts
2. Setting jumper switches on the host adapter board
3. Installing the host adapter board in your PC
4. Connecting the CD-ROM drive to your PC
5. Setting the SCSI-ID switch on the CD-ROM drive
6. Attaching the power cord
7. Loading the appropriate software files
8. Testing the CD-ROM drive

If you have experience installing PC hardware and software, you might be able to set up your CD-ROM drive by reading only the installation summary contained on the following pages. If you do not have installation experience or are unsure of how to proceed, please read the rest of this manual. It describes the installation process in greater detail.

---

## **Identifying Host Adapter Board Conflicts**

Before installing the Toshiba TMC-850MEX host adapter board in your PC, verify that the default interrupt and shared memory settings supported by the TMC-850MEX adapter have not already been assigned to other adapter boards in your PC (for example, LAN adapters, tape drive adapters, or SCSI disk adapters). If you discover an assignment conflict:






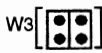


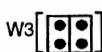


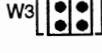


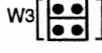



- Use one of the alternate assignments or addresses supported by the TMC-850MEX adapter.
- Reassign or disable one of the conflicting adapter boards to install the TMC-850MEX adapter.

The tables under "Setting Jumper Switches," which follows, specify the default shared memory address and the default interrupt assignment of the TMC-850MEX adapter. The tables also specify other addresses and assignments supported by the adapter.





For more information on identifying adapter board conflicts, see Section 2, "Hardware Installation."

**Setting Jumper Switches**

Once you have determined that the TMC-850MEX adapter is free of conflicts, specify the interrupt assignment and the shared memory address. You specify the shared memory address with jumpers W1, W2, and W3 as follows:

Hexadecimal Address Range	W1	W2	W3	Jumper Switch Configuration
CA00h (default)	OPEN	OPEN	1-2, 3-4	W1  W2  W3 
C800h	OPEN	CLOSED	1-2, 3-4	W1  W2  W3 
CE00h	CLOSED	OPEN	1-2, 3-4	W1  W2  W3 
DE00h	CLOSED	CLOSED	1-2, 3-4	W1  W2  W3 
E800h	OPEN	OPEN	1-3, 2-4	W1  W2  W3 
EC00h	CLOSED	OPEN	1-3, 2-4	W1  W2  W3 

You set the interrupt assignment with jumpers W6 and W7 as follows:















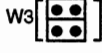



Interrupt Setting	W6	W7	Jumper Switch Configuration
IR 3 Enable	SHORT	OPEN	W6  W7 
IR 5 Enable (default)	OPEN	SHORT	W6  W7 

The tables under "Setting Jumper Switches," which follows, specify the default shared memory address and the default interrupt assignment of the TMC-850MEX adapter. The tables also specify other addresses and assignments supported by the adapter.



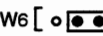

For more information on identifying adapter board conflicts, see Section 2, "Hardware Installation."

**Setting Jumper Switches**

Once you have determined that the TMC-850MEX adapter is free of conflicts, specify the interrupt assignment and the shared memory address. You specify the shared memory address with jumpers W1, W2, and W3 as follows:

Hexadecimal Address Range	W1	W2	W3	Jumper Switch Configuration
CA00h (default)	OPEN	OPEN	1-2, 3-4	W1  W2  W3 
C800h	CLOSED	OPEN	1-2, 3-4	W1  W2  W3 
CE00h	OPEN	CLOSED	1-2, 3-4	W1  W2  W3 
DE00h	CLOSED	CLOSED	1-2, 3-4	W1  W2  W3 
E800h	OPEN	OPEN	1-3, 2-4	W1  W2  W3 
EC00h	OPEN	CLOSED	1-3, 2-4	W1  W2  W3 

You set the interrupt assignment with jumpers W6 and W7 as follows:

Interrupt Setting	W6	W7	Jumper Switch Configuration
IR 3 Enable	SHORT	OPEN	W6  W7 
IR 5 Enable (default)	OPEN	SHORT	W6  W7 

For more information on setting jumper switches, see Section 2, "Hardware Installation."

---

***Installing the Host Adapter Board***

After the jumper switches have been correctly set, you are ready to install the TMC-850MEX adapter as follows:

1. Remove the cover from your PC system unit.
2. If necessary, remove a blank bracket to make an input-output (I/O) slot available.
3. Insert the adapter board into an open slot.
4. Secure the adapter board.
5. Replace the cover on your PC system unit.

For more information on installing the host adapter board, see Section 2, "Hardware Installation."

---

***Connecting the CD-ROM Drive***

To connect a single CD-ROM drive to your PC, attach one end of an adapter-to-SCSI cable to the host adapter board connector and the other to the CD-ROM drive's SCSI connector. Plug a terminator into the second, unused SCSI connector.

- 
- △ **Caution** Use only the SCSI cable supplied in the CD-ROM drive installation kit for ISA/EISA PCs. This cable has "270009" imprinted on its plug. If you use a different cable, you might overload the internal fuse in the CD-ROM drive and cause the drive to malfunction.
- 

For more information on connecting a single CD-ROM drive to your PC, see Section 2, "Hardware Installation." Also see Section 2 for instructions on how to connect multiple CD-ROM drives to your PC (that is, to daisychain drives) using SCSI-to-SCSI cables. (SCSI-to-SCSI cables are not provided with the Tandem CD-ROM drive kit.)

---

**Setting the  
SCSI-ID Switch**

The default setting for the SCSI-ID switch on the rear panel of the CD-ROM drive is 4. Use this default setting unless another SCSI device attached to your PC has already been assigned this number.

For more information on setting the SCSI-ID switch, see Section 2, "Hardware Installation." To locate the SCSI-ID switch, see Section 1, "Introduction to the Tandem CD-ROM Drive Kit."

---

**Attaching the  
Power Cord**

After connecting the CD-ROM drive to your computer and setting the SCSI-ID switch, connect the power cord to the CD-ROM drive and plug the other end of the cord into a grounded power outlet or surge protector.

---

**Loading Software**

After installing all necessary hardware, install the CD-ROM driver file and Microsoft CD-ROM extensions file on your PC. To do so, use the automatic setup program provided with the Tandem CD-ROM drive kit as follows:

1. Depending on the type of floppy drive on your PC, insert either the 3.5-inch or 5.25-inch software installation diskette into drive A:.
2. At your current prompt, type the following and press the Enter key to set the default drive:

A:

3. At the A: prompt, type the following and press the Enter key to initiate the setup program:

SETUP

4. When your PC displays the MSCDEX SETUP PROGRAM screens, answer the screen prompts.
5. After responding to each prompt in the automatic setup program, reboot your PC to load the CD-ROM software files.

For recommended responses to MSCDEX SETUP PROGRAM screen prompts or for information on how to install the required software files manually, see Section 3, "Software Installation."

---

**Testing the  
CD-ROM Drive**

If you have correctly installed the CD-ROM drive hardware and software, you should be able to display the Tandem CD Read disc directory on your PC screen as follows:

1. Insert the Tandem CD Read disc in the CD-ROM drive.
2. At the prompt, type:

DIR x:

where *x* is the letter that was assigned to the CD-ROM drive during software installation.

3. Press the Enter key.

The Tandem CD Read disc directory should appear on your screen.

For an illustration of the Tandem CD Read disc directory and troubleshooting tips in the event that the directory does not appear, see Appendix B, "Testing and Troubleshooting."



---

# 1 Introduction to the Tandem CD-ROM Drive Kit

---

This section describes the CD-ROM technology, lists the contents of the Tandem CD-ROM drive kit for PCs, describes the recommended software and hardware configurations, and illustrates the CD-ROM drive.

---

**CD-ROM Technology** A CD-ROM drive is a read-only memory device capable of reading digital data, including text and graphics, stored on a compact disc (CD). A CD-ROM drive is typically attached to either a stand-alone PC or Macintosh computer or a local area network (LAN) server. Users access information on the compact disc through their computers. A CD can store up to 650 megabytes of data, the equivalent of more than 250,000 pages of text.

Because of the CD's high capacity, durability, and portability, Tandem uses compact disc and CD-ROM drive technology for some of its computer documentation. With the required CD-ROM hardware and the Tandem CD Read product, you can display Tandem manuals on your computer screen. Online access to manuals ensures that your manuals are always up-to-date and available for reference. Additionally, the search and page-marking features available with Tandem online manuals make finding information fast and easy.

---

**Contents of the CD-ROM Drive Kit** The Tandem CD-ROM drive kit (ISA/EISA PC version) contains the following hardware and software:

- Toshiba TXM3401E1 external CD-ROM drive
- Toshiba TMC-850MEX host adapter board
- Adapter-to-SCSI cable (SCSI-to-SCSI cables for daisy chaining are not provided.)
- SCSI terminator
- Power cord
- Set of rubber feet
- Software diskettes (3.5" and 5.25")
- Compact disc caddy

Additionally, the Tandem CD-ROM drive kit contains a registration card, which you should complete and return to the CD-ROM drive manufacturer. If any components are missing, please contact your Tandem NonStop Support Center.

**Note** The TXM3401E1 CD-ROM drive, when used with the proper software, cables, and host adapter board, can read any CD that uses the High Sierra or ISO 9660 format.

**PC Configurations**

The Toshiba TXM3401E1 CD-ROM drive works with IBM PC/XT/AT model computers and most compatibles. If the drive does not operate with your IBM-compatible computer, contact your computer vendor.

In Table 1-1, the Minimum Configuration column lists the minimum hardware and software required for the Tandem CD Read product, which runs on the CD-ROM drive. The Recommended Configuration column denotes the hardware and software that provide improved performance.

**Table 1-1. Minimum and Recommended Configurations**

Minimum Configuration	Recommended Configuration
IBM or compatible 286 PC with 2 MB RAM	IBM or compatible 386 PC with 4 MB RAM
Hard drive with 2 MB of free space	Hard drive with 5 MB of free space
High-density floppy drive (3.5" or 5.25")	High-density floppy drive (3.5" or 5.25")
Windows compatible graphics adapter	VGA graphics adapter or other high-resolution adapter
14" monochrome monitor	14" or larger monochrome or color monitor
Access to a PostScript printer	Access to a PostScript printer
Mouse	Mouse
DOS 3.3 or higher	DOS 3.3 or higher
Microsoft Windows 3.0	Microsoft Windows 3.0
	Adobe Type Manager (ATM) and Adobe Plus Pack

Refer to the *Tandem CD Read Quick Start for Microsoft Windows Software* for more configuration and performance information as well as additional information on the Tandem CD Read product. The quick start is included with the Tandem CD Read product.

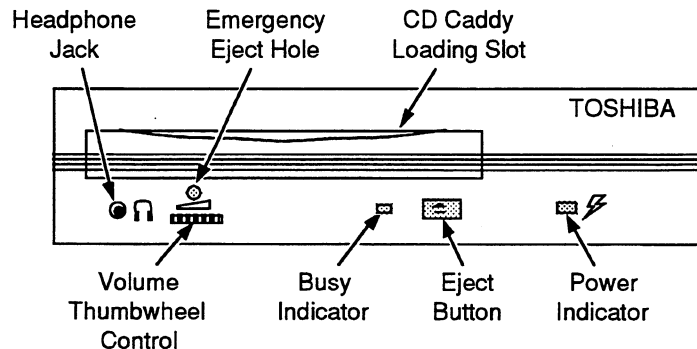
### CD-ROM Drive Components and Features

The TXM3401E1 CD-ROM drive is an external drive that connects to your computer system with an SCSI cable. Before installing and operating the CD-ROM drive, you should be familiar with its front and rear panels.

#### Front Panel

Figure 1-1 illustrates the front panel of the CD-ROM drive. A description of each part of the front panel, in addition to the CD caddy, follows the illustration.

Figure 1-1. Front Panel



001

#### Door

The door prevents contamination, such as dust or dirt, from entering the CD-ROM drive; consequently, be sure to keep the door cover closed at all

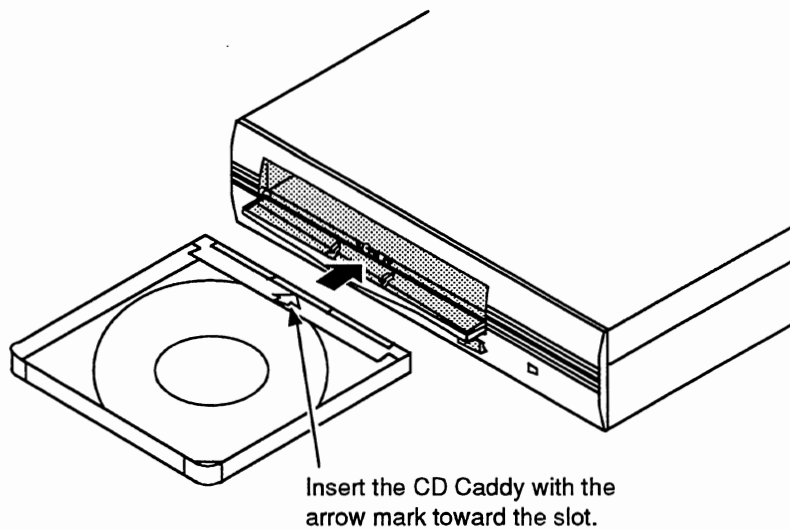
times (except when loading or ejecting the CD caddy). Pulling the door toward you exposes the CD caddy loading slot.

**CD Caddy Loading Slot**

You load the CD caddy, which holds the CD, into the loading slot by gently inserting the CD caddy in the direction of the arrow mark on the caddy, as illustrated in Figure 1-2. When the caddy is inserted in this way, the CD-ROM drive automatically accepts and loads the caddy. The loading function can only be activated when the CD-ROM power switch is on.

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**Figure 1-2. Loading the CD Caddy**



002

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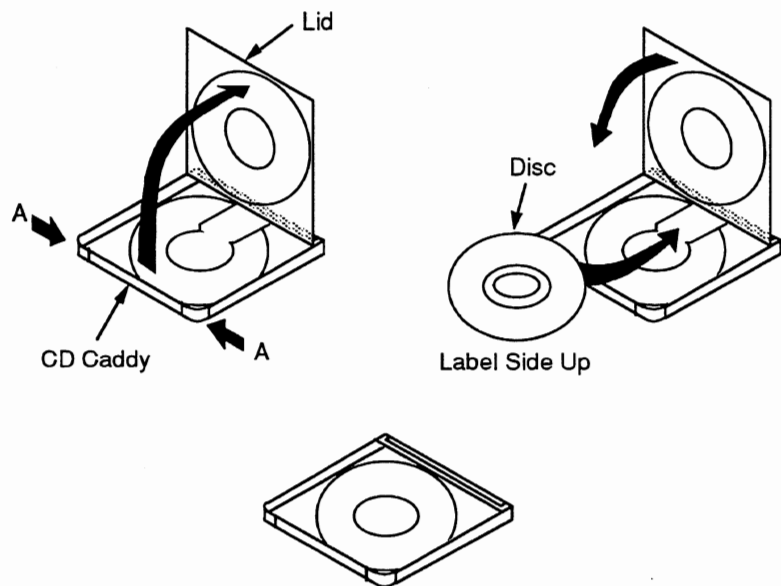
When you are transporting the CD-ROM drive, the CD caddy should be removed to prevent any damage to the drive. When the caddy is removed,

the CD-ROM drive automatically locks to prevent potentially damaging vibration.

To insert a compact disc into the CD caddy, do the following:

1. As illustrated in Figure 1-3, open the transparent lid of the CD caddy in the direction indicated by the arrow on the caddy while pushing in at the corners on both sides of the caddy.

**Figure 1-3. Inserting a CD Into the Caddy**



003

2. Insert the CD into the CD caddy with the disc label side up.
3. Close the transparent caddy lid securely, pushing both ends of the CD caddy until you hear a click sound.

- △ **Caution** Failure to close the caddy lid completely and securely can cause the CD caddy to jam in the drive slot.
- 

### ***Eject Button***

Pressing the Eject button ejects the CD caddy from the loading slot. After the caddy ejects from the drive, remove it manually and slowly. You can also eject the CD caddy by entering the appropriate command from the host computer. When the CD caddy is ejected, the caddy must be ejected more than 5 mm before you reinsert it.

The CD caddy will not eject if the CD-ROM drive is in use. To prevent unintentional ejection caused by accidentally pushing the Eject button, the Eject function does not work unless the button is pushed continuously for two to three seconds. The Eject button works only when the CD-ROM power switch is on.

- Note** The Eject function can be inhibited by a command issued by the host computer. Consequently, if pressing the Eject button does not activate the Eject function, check the application software on the host computer.
- 

### ***Busy Indicator***

When the CD caddy ejects, the Busy indicator light turns off. When the CD caddy is loaded, the Busy indicator blinks at different rates to convey different status information.

- When the Busy indicator blinks rapidly at 0.8-second intervals for several seconds and then stops blinking, it is signaling one of the following CD conditions:
  - Busy indicator blinks rapidly and then turns off—The CD-ROM drive is ready for a data read operation.
  - Busy indicator blinks rapidly and then remains lit—The CD-ROM drive is inoperative because no CD is inserted in the CD caddy; the

CD is incorrectly loaded in the caddy with the label facing downward; or the CD is extremely dirty, damaged, or scratched.

- When the Busy indicator blinks slowly at 3.2-second intervals, clean the CD; it is probably dirty.
- When the Busy indicator blinks at 1.6-second intervals, audio play is in progress.
- When the Busy indicator blinks at 0.2-second intervals, data access and/or transfer is in progress.

#### ***Power Indicator***

The Power indicator light remains on when power is being supplied to the CD-ROM drive.

#### ***Headphone Jack***

A 3.5-mm-diameter stereo headphone jack is available for monitoring audio signals.

#### ***Volume Thumbwheel Control***

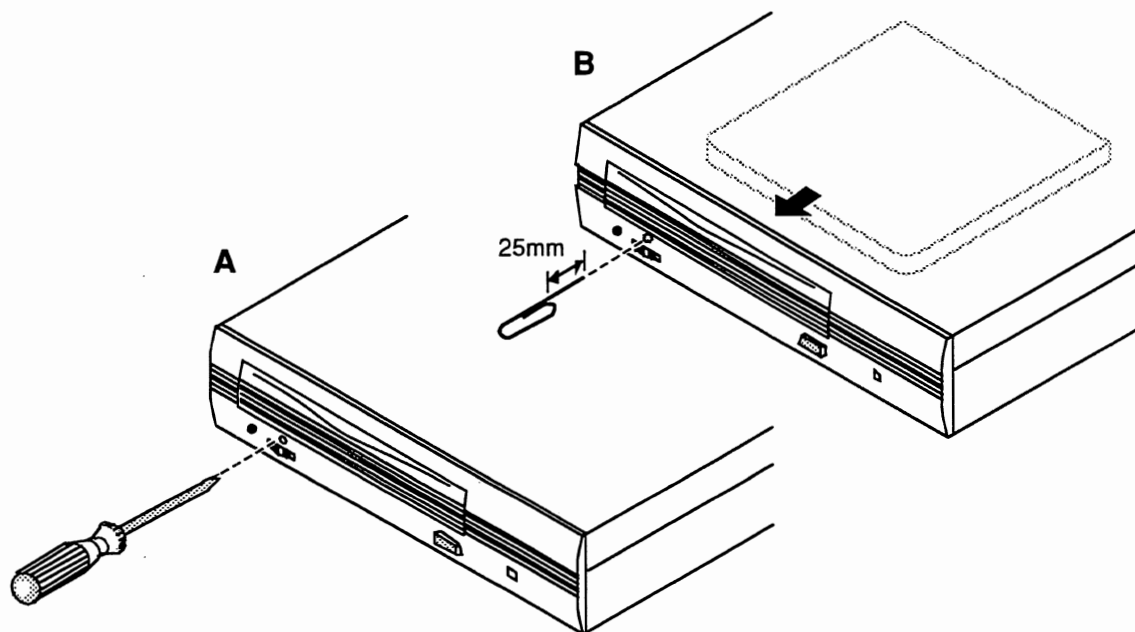
You use the thumbwheel control to adjust headphone sound level.

#### ***Emergency Eject Hole***

If pressing the Eject button does not eject the CD caddy, use the Emergency Eject Hole as follows to eject and retrieve the CD caddy:

1. Turn off the CD-ROM drive power switch.
2. As shown in Figure 1-4, insert a Phillips head screwdriver (#1) into the Emergency Eject Hole and remove the screw inside the hole.

**Figure 1-4. Using the Emergency Eject Hole**



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3. As shown in Figure 1-4, insert a solid bar such as a paper clip into the Emergency Eject Hole and push in until the CD caddy pops out of the slot.

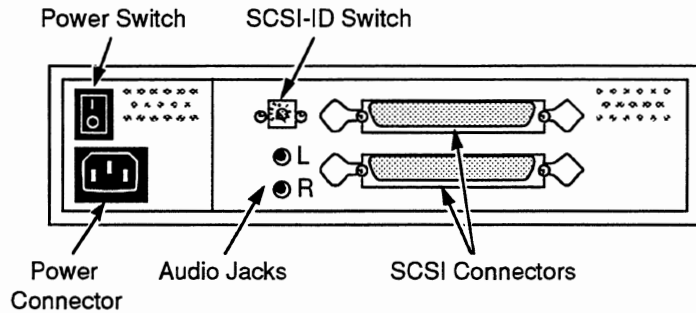
**△ Caution** Use a bar with a diameter of less than 2.0 mm. Do not insert the bar more than 25 mm (1 inch). Inserting the bar more than 25 mm could damage the CD-ROM drive.

4. Manually and slowly remove the caddy from the drive.



**Rear Panel** Figure 1-5 shows the rear panel of the CD-ROM drive. A description of each part of the rear panel follows the illustration.

**Figure 1-5. Rear Panel**



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### **SCSI Connectors**

The SCSI connectors are used to connect the adapter board in a host computer to a CD-ROM drive using a shielded interface cable, called an adapter-to-SCSI cable. The SCSI connectors can also be used to connect multiple CD-ROM drives to a single PC—referred to as daisy chaining—and to attach terminators. If you want to daisy chain CD-ROM drives, you must provide your own SCSI-to-SCSI cables.

### **Power Connector**

An AC cable is inserted into the power connector to provide power to the CD-ROM drive.

***Power Switch***

When set to the "I" position, the power switch supplies power to the CD-ROM drive. When the switch is set to the "O" position, the power is off.

***SCSI-ID Switch***

Each CD-ROM drive must have a unique SCSI ID that identifies the drive to the host adapter board. The SCSI-ID switch is used to select an SCSI-ID number between 0 and 6. Options 7, 8, and 9 are not valid. The default setting is 4. To make an SCSI-ID selection effective, turn the CD-ROM drive off and then on again.

***Audio Jacks***

The left (L) and right (R) audio jacks can be used to transmit low-level audio signals to an external device, such as a stereo amplifier or powered speakers. The audio jacks are not direct outputs for standard speakers.

---

## 2 Hardware Installation

---

Installing the CD-ROM drive hardware involves configuring the host adapter board, installing the host adapter board in your PC, connecting an SCSI cable, setting the SCSI-ID switch, and attaching the power cord. This section describes how to perform these tasks.

Regardless of whether you are attaching the CD-ROM drive to a stand-alone PC or a LAN server, the hardware installation process is the same.

---

### **Configuring the Host Adapter Board**

PCs use several control signals to send data to and receive data from adapter boards, which control a wide range of functions, ports, and peripheral devices. At least one and often more of these signals are used for every adapter. These signals are commonly assigned to four groups:

- Shared memory addresses
- Interrupt assignments
- I/O address assignments
- DMA (direct memory access) assignments

The Toshiba TMC-850MEX host adapter board, which is supplied with the Tandem CD-ROM drive kit and acts as a controller for the TXM3401E1 CD-ROM drive, uses only the shared memory address and interrupt assignment. The TMC-850MEX adapter does not assign an I/O address or a DMA channel.

Before you install the adapter board in your PC, you first identify any potential adapter board conflicts. If there is no conflict, you use the default shared memory address and interrupt assignment. If there is a conflict, you reset the default shared memory address and interrupt assignment using the jumper switches on the adapter board. The steps for resetting the address and assignment are described in detail on the following pages.

#### **Identifying Adapter Board Conflicts**

The preferred method for installing the TMC-850MEX adapter is to use the adapter board's default shared memory address and interrupt assignment; the jumper switches on the adapter are shipped with default settings. If you cannot use the default shared memory address and interrupt assignment, then the preferred installation method is to configure the adapter using a currently unassigned setting that is supported by the TMC-850MEX adapter.

Using a currently unassigned setting, however, might not always be possible. For example, the TMC-850MEX adapter must be configured to use either interrupt 3 or interrupt 5; however, use of either of these interrupt assignments could interfere with the standard interrupt assignment for serial port 2 or parallel port 2, respectively.

Consequently, prior to installing the TMC-850MEX adapter, verify that the default shared memory address and default interrupt assignment are not being used by another adapter board—such as a LAN adapter, tape drive adapter, or SCSI disk adapter—already installed on your PC.

When there is an adapter board conflict (that is, when two adapters require the same interrupt assignment and/or shared memory address):

- Use one of the alternate assignments or addresses supported by the TMC-850MEX adapter.
- Reassign or disable one of the conflicting adapter boards to install the TMC-850MEX adapter. To reassign a conflicting adapter board, you either reset it manually with jumper switches or reset it programmatically with software supplied by the adapter board vendor.

---

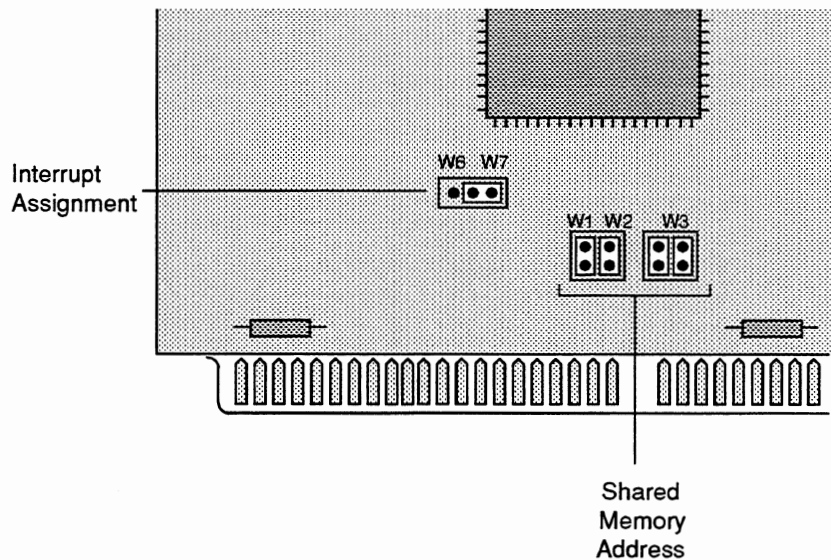
**△ Caution** Adapter board conflicts typically cause operational errors and machine lockups.

---

Tables 2-1 and 2-2 in this section list the default shared memory address and the default interrupt assignment of the TMC-850MEX adapter as well as other addresses and assignments supported by the adapter.

**Setting Jumper Switches** If you must use a shared memory address or interrupt assignment other than the default setting, you specify a different address or assignment by resetting the jumper switches located on the TMC-850MEX adapter. The adapter board is illustrated in Figure 2-1.

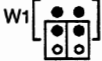
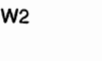


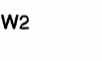




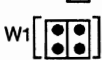


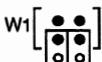


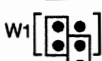
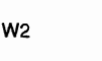

**Figure 2-1. TMC-850MEX Adapter Board With Jumper Switches**



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Set the shared memory address with jumpers W1, W2, and W3 as indicated in Table 2-1 on the following page.

**Table 2-1. Setting Jumper Switches W1, W2, and W3**

Hexadecimal Address Range	W1	W2	W3	Jumper Switch Configuration
CA00h (default)	OPEN	OPEN	1-2, 3-4	W1 [  ] W2 [  ] W3 [  ]
C800h	OPEN	CLOSED	1-2, 3-4	W1 [  ] W2 [  ] W3 [  ]
CE00h	CLOSED	OPEN	1-2, 3-4	W1 [  ] W2 [  ] W3 [  ]
DE00h	CLOSED	CLOSED	1-2, 3-4	W1 [  ] W2 [  ] W3 [  ]
E800h	OPEN	OPEN	1-3, 2-4	W1 [  ] W2 [  ] W3 [  ]
EC00h	CLOSED	OPEN	1-3, 2-4	W1 [  ] W2 [  ] W3 [  ]

Set the interrupt assignment with jumpers W6 and W7 as indicated in Table 2-2:



















**Table 2-2. Setting Jumper Switches W6 and W7**

Interrupt Setting	W6	W7	Jumper Switch Configuration
IR 3 Enable	SHORT	OPEN	W6 [  ] W7 [  ]
IR 5 Enable (default)	OPEN	SHORT	W6 [  ] W7 [  ]

**Installing the Host Adapter Board**





After the interrupt assignment and shared memory address have been set for the host adapter board, you are ready to install the adapter board itself. To do so, perform the following steps. Figure 2-2 illustrates the parts of the adapter board referred to in the steps.

**Table 2-1. Setting Jumper Switches W1, W2, and W3**

Hexadecimal Address Range	W1	W2	W3	Jumper Switch Configuration
CA00h (default)	OPEN	OPEN	1-2, 3-4	W1  W2  W3 
C800h	CLOSED	OPEN	1-2, 3-4	W1  W2  W3 
CE00h	OPEN	CLOSED	1-2, 3-4	W1  W2  W3 
DE00h	CLOSED	CLOSED	1-2, 3-4	W1  W2  W3 
E800h	OPEN	OPEN	1-3, 2-4	W1  W2  W3 
EC00h	OPEN	CLOSED	1-3, 2-4	W1  W2  W3 

Set the interrupt assignment with jumpers W6 and W7 as indicated in Table 2-2:

**Table 2-2. Setting Jumper Switches W6 and W7**

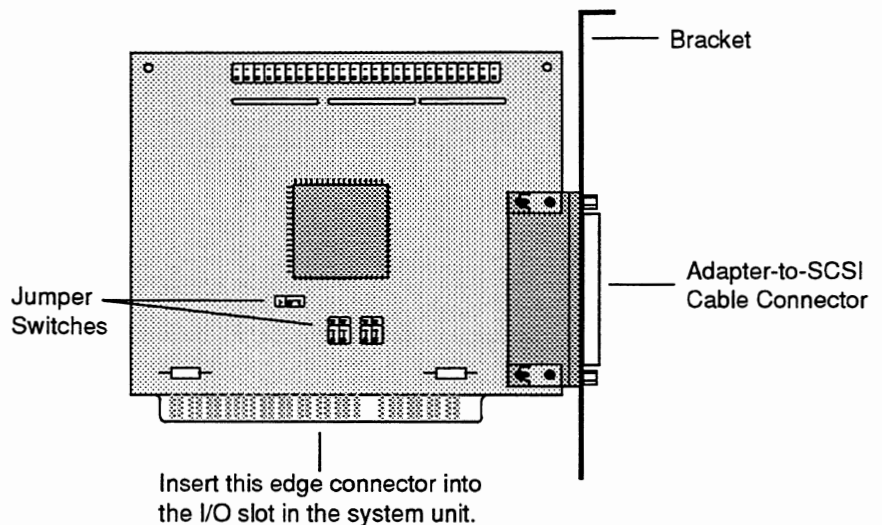
Interrupt Setting	W6	W7	Jumper Switch Configuration
IR 3 Enable	SHORT	OPEN	W6  W7 
IR 5 Enable (default)	OPEN	SHORT	W6  W7 

**Installing the Host Adapter Board**

After the interrupt assignment and shared memory address have been set for the host adapter board, you are ready to install the adapter board itself. To do so, perform the following steps. Figure 2-2 illustrates the parts of the adapter board referred to in the steps.

1. Open the PC system unit by removing its cover.
2. If necessary, remove a blank bracket to make an input-output (I/O) slot available. (Remove the bracket by unscrewing the anchoring screw and pulling the bracket out.)
3. Place the adapter board into any open I/O slot, making sure that the edge connector on the adapter board is fully inserted into the I/O slot in the system unit. In addition, make sure that the adapter board bracket is lined up with the fastening hole.
4. Secure the adapter board by inserting and tightening the adapter board bracket screw.
5. Replace the cover on the PC.

**Figure 2-2. Installing the Adapter Board**



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**Note** The adapter board for ISA/EISA computers has the label "Apple Signal SCSI Port" on it. This does not indicate that you have the wrong adapter; it indicates that the adapter connector wiring conforms to standards for Apple SCSI connectors.

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#### **Connecting the SCSI Cable**

To permit communication between your PC and a single Toshiba TXM3401E1 external CD-ROM drive, you connect them with an adapter-to-SCSI cable. If you are connecting more than one CD-ROM drive to your PC (otherwise known as daisy chaining drives), you must use SCSI-to-SCSI cables and provide each drive with its own SCSI ID. Regardless of whether you are connecting a single CD-ROM drive or daisy chaining drives, you must attach a terminator to the single drive or to the last drive in a daisy chain to ensure proper operation.

---

△ **Caution** Use only the SCSI cable supplied in the CD-ROM drive installation kit for ISA/EISA PCs to connect a single CD-ROM drive—or the first drive in a daisy chain of drives—to the host adapter board. This cable has "270009" imprinted on its plug. If you use a different cable, you might overload the internal fuse in the CD-ROM drive and cause the drive to malfunction. You may use any standard SCSI-to-SCSI cable to connect one CD-ROM drive to another.

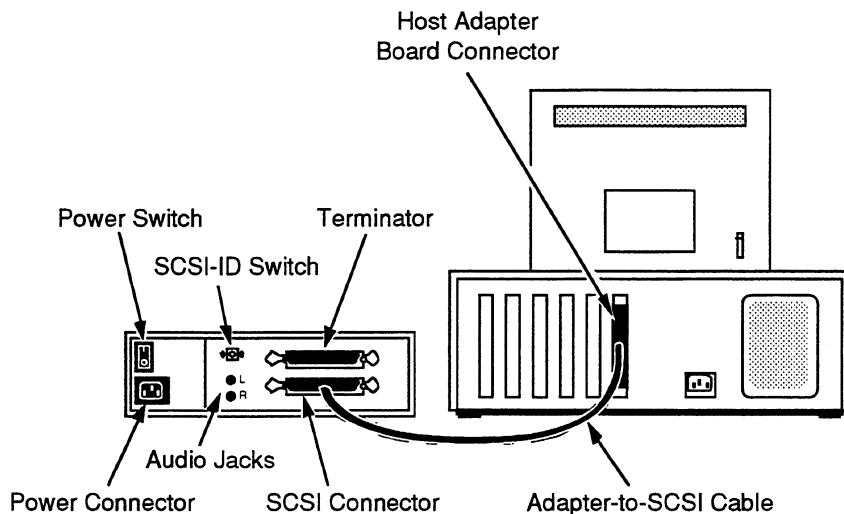
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#### **Attaching an Adapter-to-SCSI Cable**

To connect a single CD-ROM drive to your PC as illustrated in Figure 2-3, do the following:

1. Plug one end of the adapter-to-SCSI cable into either SCSI connector located on the CD-ROM drive's rear panel. Snap the wire clips over the ends of the cable to secure it.
2. Plug the other end of the cable into the connector on the adapter board.
3. Make sure that the cable is firmly inserted into the connector and then tighten with your fingers the two screws that hold the cable in place.
4. Plug a terminator, which is included in the Tandem CD-ROM drive kit, into the unused SCSI connector located on the CD-ROM drive's rear panel. Snap the wire clips over the ends of the terminator to secure it.

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**Figure 2-3. Connecting a Single CD-ROM Drive**


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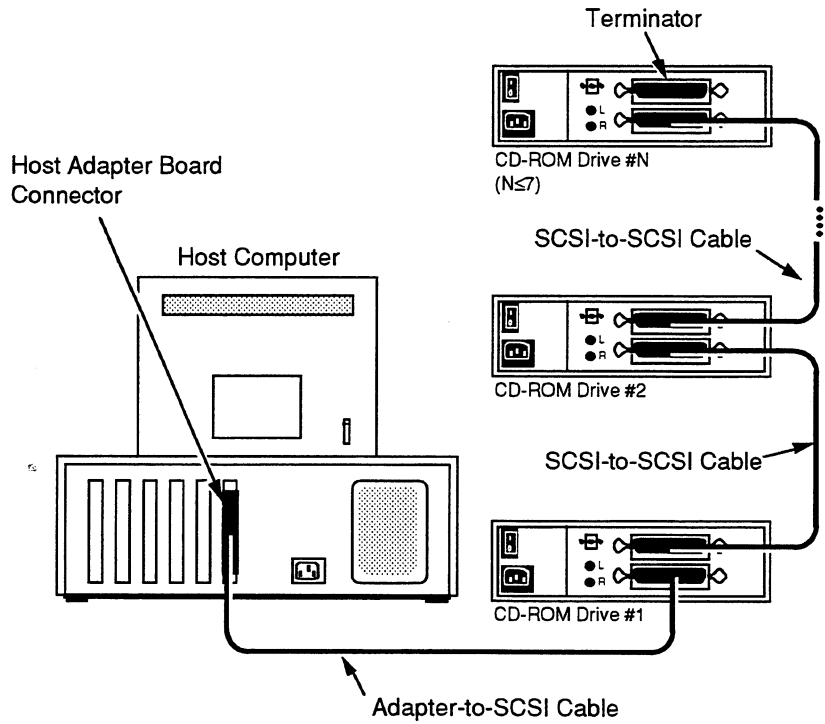
**Attaching SCSI-to-SCSI Cables**

To connect multiple CD-ROM drives to your PC as illustrated in Figure 2-4, complete the following steps. Because SCSI-to-SCSI cables are not provided with the Tandem CD-ROM drive kit, you will have to supply your own SCSI-to-SCSI cables to daisychain drives.

1. Plug one end of an adapter-to-SCSI cable into either SCSI connector located on the rear panel of the first CD-ROM drive. Secure the cable by snapping the wire clips over the ends of the cable.
2. Plug the other end of the adapter-to-SCSI cable into the host adapter board connector. Make sure that the cable is firmly inserted into the connector and then tighten with your fingers the two screws that hold the cable in place.

3. Plug an SCSI-to-SCSI cable into the unused SCSI connector on the first CD-ROM drive. Secure the cable as directed in step 1.
4. Plug the other end of the SCSI-to-SCSI cable into either SCSI connector located on the rear panel of the second CD-ROM drive. Secure the cable as directed in step 2.
5. Repeat steps 3 and 4 for the remaining CD-ROM drives in your configuration.
6. Plug a terminator, which is included in the Tandem CD-ROM drive kit, into the unused SCSI connector located on the rear panel of the last CD-ROM drive in the chain. Snap the wire clips over the ends of the terminator to secure it.

Figure 2-4. Connecting Multiple CD-ROM Drives



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**Setting the SCSI-ID Switch**

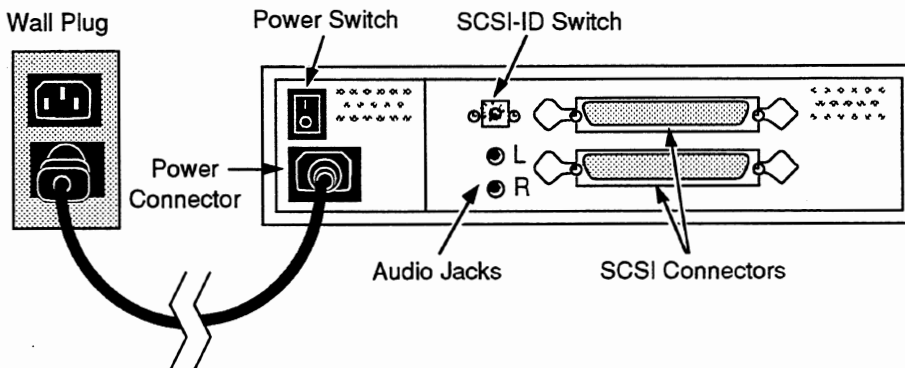
The SCSI-ID switch, which is located on the rear panel of the CD-ROM drive, provides dial settings between 0 and 9; however, only settings 0 to 6 are valid selections. The default setting is 4. When attaching the CD-ROM drive to your PC, use the default setting unless another SCSI device attached to your PC has already been assigned this number. In the event of an SCSI-ID conflict in which two or more devices have the same setting, change the ID of one of the devices to a nonconflicting SCSI-ID number.

△ **Caution** Two SCSI devices sharing the same SCSI ID can produce unpredictable system results.

**Attaching the Power Cord**

After connecting the CD-ROM drive to your computer and setting the SCSI-ID switch, connect the power cord to the CD-ROM drive as illustrated in Figure 2-5 and plug the other end of the cord into a grounded power outlet or surge protector.

Figure 2-5. Connecting the Power Cord



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## 3 Software Installation

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This section describes how to install the CD-ROM driver file and Microsoft CD-ROM extensions file on your PC, using either the automatic setup program or a manual setup procedure. Your PC requires the driver file and the extensions file to recognize the Toshiba TMC-850MEX host adapter board and communicate with the Toshiba TXM3401E1 CD-ROM drive.

Regardless of whether you are installing the CD-ROM driver file and Microsoft CD-ROM extensions file on a stand-alone PC or a LAN server, the software installation process is virtually the same. The only difference is the placement of the extensions file in the server's startup sequence. Consult your LAN vendor for information on the correct placement of this file.

---

### ***Installing Software With the Automatic Setup Program***

The automatic setup program copies the Microsoft CD-ROM extensions file (MSCDEX) and the CD-ROM driver file (MDS\_CD\_FD.SYS) from the software installation diskette to your hard disk. The automatic setup program also makes modifications to the AUTOEXEC.BAT and CONFIG.SYS files so that the extensions file is automatically loaded during system startup. Finally, the program creates two subdirectories on your hard drive called BIN and DEV.

Before starting the following procedure to run the automatic setup program, you should make a backup copy of the software installation diskette provided with your Tandem CD-ROM drive kit:

1. Depending on the type of floppy drive on your PC, insert either the 3.5-inch or 5.25-inch software installation diskette into drive A:.
2. At the current prompt, type the following and press the Enter key to set the default drive:

A:

3. At the A: prompt, type the following and press the Enter key to initiate the setup program:

SETUP

4. When your PC displays the MSCDEX SETUP PROGRAM screens, answer the screen prompts as follows. Answer "yes" by typing the letter "Y" and pressing the Enter key. Answer "no" by typing the letter "N" and pressing the Enter key.

Prompt	Response
Do you want to install MDSCD_FD.SYS? [Y or N]	Y and Enter
How many CD-ROM drives do you have? [default is 1]	Enter
Which directory would you like the CD-ROM device driver files installed in?	Enter
Which directory would you like MSCDEX.EXE installed in?	Enter
Would you like to continue the setup procedure? [Y or N]	Y and Enter
Do you want Setup to make the changes to CONFIG.SYS? [Y or N]	Y and Enter
Are you installing on a network server? [Y or N]	N and Enter
Do you want to change the default size? [Y or N]	N and Enter
Do you want Setup to make the changes to AUTOEXEC.BAT? [Y or N]	Y and Enter

5. After responding to each prompt in the automatic setup program, reboot your PC to load the CD-ROM software files.

Assuming that you have accepted the default parameters during the execution of the automatic setup program, the drive designation for the CD-ROM drive is the next available drive letter. For example, if your hard drive is C:, then the CD-ROM drive is usually D:. After the setup program is run, a CD formatted in High Sierra or ISO 9660 can be accessed with standard DOS commands.

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**Note** If you intend to use a CD with a format other than High Sierra or ISO 9660, refer to the vendor instructions supplied with the differently formatted software.

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**Installing Software  
With the Manual  
Procedure**

To copy the MSCDEX and MDSCD\_FD.SYS files and modify the AUTOEXEC.BAT and CONFIG.SYS files on your PC manually, instead of running the automatic setup program and answering prompts on the MSCDEX SETUP PROGRAM screens, refer to the following procedure.

- 
- △ **Caution** If performed incorrectly, manually copying the CD-ROM driver file and the Microsoft CD-ROM extensions file and modifying the AUTOEXEC.BAT and CONFIG.SYS files can produce unpredictable system results. It is recommended that, whenever possible, you use the automatic setup program described previously in this section.
- 

As with the automatic setup program, you should make a backup copy of the software installation diskette provided with your Tandem CD-ROM drive kit before starting the installation procedure.

1. Depending on the type of floppy drive on your PC, insert either the 3.5-inch or 5.25-inch software installation diskette into drive A:.
2. Copy the Microsoft CD-ROM extensions file from the installation diskette to your hard drive (C:) by typing the following at the A: prompt and then pressing the Enter key:

```
COPY A:MSCDEX.EXE C:
```

3. Copy the CD-ROM driver file from the installation diskette to your hard drive (C:) by typing the following at the A: prompt and then pressing the Enter key:

```
COPY A:MDSCD_FD.SYS C:
```

4. Modify the CONFIG.SYS file on your PC's hard disk as follows:
  - a. Add the following command line if it does not already exist:

```
LASTDRIVE=x
```

where *x* represents the next available drive designation.



If the LASTDRIVE command line already exists in the CONFIG.SYS file, increase the drive designation by one letter (for example, from F to G).

- b. Add the following command line, which names the CD-ROM driver for DOS and tells DOS where to find it:

```
DEVICE=MDSCD_FD.SYS /D:device name /N:number
```

Specify one or both parameters as follows:

*/D:device name* Identifies the name of the CD-ROM driver file. The device name entered here should be the same as the name entered in Step 5. This is a required parameter.

*/N:number* Specifies the number of CD-ROM drives in your configuration. This is an optional parameter.

5. Modify the AUTOEXEC.BAT file on your PC's hard disk by adding the following command:

```
MSCDEX.EXE /D:device name /E /M:cache value  
/L:drive designation /V /S
```

Specify one or more parameters as follows:

*/D:device name* Identifies the name of the CD-ROM driver file. The device name entered here should be the same as the name entered in Step 4b. This is a required parameter.

*/E* Specifies the use of expanded memory. This is an optional parameter.

*/M:cache value* Indicates how much memory to allocate for caching. The default is 10, which is equivalent to 20 kilobytes. This is an optional parameter.

<i>/L:drive designation</i>	Indicates the drive letter to be assigned to the CD-ROM drive. This is an optional parameter.
<i>/V</i>	Provides memory usage statistics, such as how much memory is used by buffers, resident data, and resident code. This is an optional parameter.
<i>/S</i>	Indicates that the CD-ROM driver is attached to a LAN server. This is an optional parameter.

6. Restart your PC to load the CD-ROM software files.

---

# Appendix A *CD-ROM Drive Specifications*

---

This appendix lists the specifications for the Toshiba TXM3401E1 external CD-ROM drive, including key features, performance statistics, power supply requirements, physical characteristics, and reliability data.

---

## **Features**

The TXM3401E1 CD-ROM drive has the following key features:

- 4.2 MB synchronous data transfer
- 330 KB transfer rate
- Built-in SCSI-II interface
- 2X and 1X rotational speed
- Closed enclosure and door, to help prevent contamination of the disc
- High system reliability using Advanced CIRC Error Correction
- Embedded CD-ROM XA type ECC/EDC
- Remote SCSI-ID jumper block
- Software-controlled volume
- Automatic lens cleaner
- Universal compatibility
- Storage capacity of 690/788 MB
- 16-modes of output for CD audio
- Audio reproduction function with headphone jack and volume control
- Fast data access (200 ms average)
- CD caddy with automatic front loading
- Reads both High Sierra and ISO 9660 formats
- Snap-on bezel
- Media-removal prevention function
- Emergency eject capability

- Can be used either horizontally or vertically

---

**Note** The TXM3401E1 CD-ROM drive functions properly when placed either vertically or horizontally on a flat surface. It is not recommended, however, that you place the drive on its side because the CD-ROM enclosure is not designed to be stable in the vertical position.

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- Built-in MODE-1 ECC/EDC and MODE-2 EDC (command selectable)
- Efficient data transmission through 256 KB buffer memory
- Low power consumption
- Photo CD capabilities (single-session and multisession CDs)
- Easy serviceability

---

**Performance** The TXM3401E1 CD-ROM drive performs as follows:

- Data capacity (calculated in 65 minutes):
  - Formatted capacity (based on CD-ROM standard): 600 MB approximately
  - Data block size per disc (based on CD-ROM standard): 2048 bytes (Mode 1), 2336 bytes (Mode 2)
- Transfer rate
  - Average (Mode 1 ): 327 KB/s (2X speed), 150 KB/s (1X speed)
  - Maximum (burst, SCSI interface): 4.2 MB/s
  - Blocks (sustained from disc): 163.5 blocks/s
- Access time (including latency)
  - Random access time (measured by performing multiple random accesses and a read of data blocks over whole area of media (recorded up to 60:01:74)): 200 ms (2X speed), 310 ms (1X speed)

- Full stroke access time (measured by performing multiple maximum travel accesses from 00:02:00 to 60:01:74 (100 times)): 480 ms TYP, 650 ms MAX
- Spin-up time: 1 s TYP, 1.5 s MAX
- Data buffer: 256 KB

---

**Optical** The TXM3401E1 CD-ROM drive has the following optical specifications:

- Semiconductor laser and 3-beam system
- Head movement mechanism: gear drive system
- Rotational speed: approximately 200–1060 rpm (CLV)

---

**Power Supply** The TXM3401E1 CD-ROM drive has the following power specifications:

- +5 V DC +/-5% 0.9 A max. (.49 A TYP)
- +12 V DC +/-5% 0.85 A max. (.22 A TYP)
- +12 V DC +/-8% (at start up)

---

**Indicators** The TXM3401E1 CD-ROM drive has Busy and Power indicators.

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**Signal Interface Connector** The TXM3401E1 CD-ROM drive has an input-output (SCSI-II) signal interface connector.

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**Audio Output** The TXM3401E1 CD-ROM drive has the following audio output specifications:

- Analog output (500 mV rms TYP at load impedance 47 K $\Omega$  1 KHz)
- Headphone output terminal: 3.5-mm-diameter stereo phonejack, adjustable output level
- Headphone output: 650 mV rms TYP at load impedance 100  $\Omega$  1 KHz

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**Physical Characteristics**

The TXM3401E1 CD-ROM drive has the following physical characteristics:

- Dimensions: 9.375 x 2.75 x 8.75 inches (238 x 70 x 222 mm)
- Weight: 3.42 lbs (1.6 kg)
- Operating position: Horizontal or Vertical +/-45°
- Environmental conditions:
  - Operating temperature: 41° to 113° F (+5° to 45° C)
  - Nonoperating temperature: -4° to 185° F (-20° to 85°C)
  - Operating humidity: 10% to 80% (no condensation)
  - Nonoperating humidity: 10% to 90% (no condensation)
- Cable: FCC approved, shielded, 3 to 5 feet long, 50 pin

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**Reliability**

The TXM3401E1 CD-ROM drive has the following reliability statistics:

- Hard read error rate: 10<sup>-12</sup> MAX (Mode 1), 10<sup>-9</sup> MAX (Mode 2)
- Seek error rate: 10<sup>-6</sup> MAX
- Mean time between failures (MTBF): 50,000 power on hours
- Mean time to repair (MTTR): 0.5 hours
- Drive life: 15,000 power on hours or 5 years
- Caddy load/unload: 10,000 times or more
- Interface connector attach/detach: 500 times or more

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# Appendix B *Testing and Troubleshooting*

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This appendix describes how to test your CD-ROM drive to make sure that it is connected and operating properly. It also provides troubleshooting techniques and technical support information.

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## **Testing the CD-ROM Drive**

If you have correctly installed the CD-ROM hardware and software, you will be able to access the CD-ROM drive and display the Tandem CD Read disc directory on your PC. To test your CD-ROM drive, do the following:

1. Insert the Tandem CD Read disc in the CD-ROM drive.
2. At the prompt, type:  

```
DIR x:
```

where *x* is the letter that was assigned to the CD-ROM drive during software installation.
3. Press the Enter key. The Tandem CD Read disc directory illustrated in Figure B-1 should appear on your screen.

---

**Figure B-1. Tandem CD Read Disc Directory Example**

```
Volume in drive x is C30_08_1
Directory of x:\

SOFTDOCS          3745750 09-26-93  12:03p
SOFTPUBS          <DIR>    09-28-93   3:34p
MAC               <DIR>    09-28-93   4:17p
PC                <DIR>    09-28-93   4:17p
                  4 file(s) 3745750 bytes
                  0 bytes free
```

---

If your PC does not display a disc directory similar to the preceding example, see "Troubleshooting Techniques," which immediately follows, for guidance.

**Troubleshooting  
Techniques**

An inability to access the CD-ROM drive from your PC—after installing the CD-ROM hardware and software and restarting your PC to load the appropriate software files—can be caused by:

- A loose SCSI cable connection
- A disconnected power supply cable
- Adapter board conflicts
- Problems with the CONFIG.SYS file or the AUTOEXEC.BAT file

**Note**

Before you can access a CD-ROM drive from your PC, the CD-ROM driver in the CONFIG.SYS file must locate the host adapter card and then poll the SCSI bus to locate the CD-ROM drive. In addition, the system must execute the Microsoft CD-ROM extensions from the AUTOEXEC.BAT file and assign the CD-ROM drive a device letter.

- A failure to turn on the power of the CD-ROM drive
- A loose or missing terminator
- A failure to load a CD in the CD-ROM drive
- An improperly seated host adapter board

Refer to the following troubleshooting information when you cannot access your CD-ROM drive:

**Problem.** When restarting your PC after installing CD-ROM hardware and software, you see the following message:

```
Driver not needed, no drives needing support.
```

or

```
Number of the installed Toshiba CD-ROM drives:0
```



**Recovery.** Check that power is available to the CD-ROM drive. If power is being supplied, verify that the interface cable is securely fastened at both ends. If the cable is properly connected, verify that the SCSI-ID switch on the rear panel of the CD-ROM drive is correctly set to 4.

**Problem.** When restarting your PC after installing CD-ROM hardware and software, you see the following message:

Driver not needed. No host adapter found.

**Recovery.** Follow these steps to determine what caused this message:

1. Verify that the host adapter board is firmly seated in its connector slot on your PC. If it is not, reseal it and then restart your PC. If the same message reappears, continue to Step 2.
2. Determine whether any other device in your system is using the same address range as the host adapter board. If an addressing conflict exists, then select an alternative address by changing the W1 and W2 jumpers on the host adapter board. Then, restart your PC. If the same message reappears, continue to Step 3.
3. If your system uses a 16-bit VGA graphics card, verify that the shared memory address range on your VGA adapter card does not occupy the same range as the shared memory address range on your CD-ROM host adapter board. If the VGA card is in 16-bit mode, select 8-bit mode to further decrease conflicts. Then, restart your PC. If the same message reappears, continue to Step 4.
4. Remove the SCSI terminator from the back of your CD-ROM drive and then restart your system. If the same message does not appear, the internal fuse in your CD-ROM drive has overloaded. Do not use the CD-ROM drive. Instead, contact the Tandem NonStop Support Center, as described at the end of this appendix.

**Problem.** The CD-ROM driver in the CONFIG.SYS file has located the host adapter board and the CD-ROM drive, as evidenced by the following display message:

```
Toshiba CD-ROM SCSI Device Driver - Version 1.11 [n]
Written by Modern Data Systems, Inc.
Copyright (c) Toshiba Corporation 1990-1991

[1] Host Adapter for [Future Domain] Installed
Unit 0 = Host [0] SCSI [4] Model [3301] Rev [1651]
```

However, the system does not assign the CD-ROM a drive letter.

**Recovery.** Check the AUTOEXEC.BAT file for a command line that sends your system to a shell or menu. If this shell or menu command line appears, and therefore executes, before the MSCDEX.EXE line, then the CD-ROM drive will not be assigned a drive letter. Edit the AUTOEXEC.BAT file so that the following command line is executed before the shell or menu command line:

```
\BIN\MSCDEX.EXE /D:MSCD000
```

**Problem.** When trying to test the CD-ROM drive after installation, you see the following message:

```
COMMAND.COM cannot be found on your path.
```

**Recovery.** No path exists to the root directory or wherever else the COMMAND.COM resides. Either repair your existing PATH statement in the AUTOEXEC.BAT file or, if there is no PATH statement, add one to the AUTOEXEC.BAT file.

To repair an existing PATH statement, first determine if you have a PATH statement by typing the following at the DOS prompt and pressing the Enter key:

```
PATH
```

If there is a PATH statement, append the following if it is not already included in the PATH statement:

```
;C:\
```

If no PATH statement currently exists ("No PATH" appears on the screen), add the following line to the AUTOEXEC.BAT file:

```
PATH=C:\
```

Reboot your PC for the PATH statement changes to take effect.

**Problem.** When trying to boot up your LAN server, you see the following message:

```
Incorrect redirector version
```

**Recovery.** Change the order in which the Microsoft CD-ROM extensions file is loaded during system startup by loading the extensions file after the redirector. Consult your LAN vendor for the correct placement of the Microsoft CD-ROM extensions file in your startup sequence.

**Problem.** When trying to boot up your PC, which is running DOS version 5.0, you see the following message:

```
Incorrect DOS version
```

**Recovery.** The Microsoft CD-ROM extensions file does not recognize DOS version 5.0. To resolve this problem, add the following line to the CONFIG.SYS file:

```
DEVICE = C:\DOS\SETVER.EXE
```

Then, type the following command *one time only* at the DOS prompt:

```
SETVER MSCDEX.EXE = 4.0
```

and press the Enter key. You do not have to alter the AUTOEXEC.BAT file.

**Problem.** When trying to display the contents of a CD, you see the following message:

Error non High Sierra format

**Recovery.** The CD-ROM driver software only accepts CDs created using the High Sierra or ISO 9660 formats. Remove the CD from the caddy and insert an acceptably formatted CD.

**Problem.** The CD caddy will not eject.

**Recovery.** Verify that power is available to the CD-ROM drive. If power is supplied, press the Eject button for a full four to five seconds before releasing pressure. If the Eject button does not eject the caddy, use the Emergency Eject Hole as directed in Section 1, "Introduction to the Tandem CD-ROM Drive Kit."

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### Technical Support

If you require technical support, contact your Tandem NonStop Support Center (TNSC). Please have your system hardware near the phone or readily accessible and the following information available before calling:

- A record of any error messages and the sequence of events leading up to the problem
- The DOS type and version that you are using
- The software application name and version level
- Your hardware system configuration, including any nonstandard hardware components
- A list of any special additional software or modifications that you have made to the AUTOEXEC.BAT or CONFIG.SYS files

Many problems are caused by the interaction of two or more products in your system. The problem you are experiencing might be related to your latest hardware or software addition or change.

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