

7206 4GB External 4mm Tape Drive  
Model 005



# Setup and Operator Guide



7206 4GB External 4mm Tape Drive  
Model 005



# Setup and Operator Guide

**Note!**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

**First Edition (April 1997)**

The following paragraph does not apply to any country where such provisions are inconsistent with local law.

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

A reader's comment form is provided at the back of this publication. If the form has been removed, address your comments about this book to:

IBM Corporation, Department 61C, 9000 South Rita Road, Tucson, Arizona 85744-0001, U.S.A.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 1997. All rights reserved.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Notices</b> . . . . .	v
Safety Notices . . . . .	v
Danger Notice . . . . .	v
Caution Notice . . . . .	v
Attention Notice . . . . .	vi
End of Life (EOL) Plan . . . . .	vi
Electronic Emission Notices . . . . .	vii
Trademarks . . . . .	viii
<b>About This Guide</b> . . . . .	ix
Related Publications . . . . .	ix
<b>Chapter 1. General Information</b> . . . . .	1
System Requirement . . . . .	2
Specifications . . . . .	2
<b>Chapter 2. Setting Up the 7206 Tape Drive</b> . . . . .	3
Performing the Installation . . . . .	3
Step 1. Using the Inventory Checklist . . . . .	3
Step 2. Checking the Electrical Outlets . . . . .	4
Step 3. Assembling the Materials . . . . .	4
Step 4. Setting the SCSI Address . . . . .	4
Step 5. Placing the 7206 Tape Drive . . . . .	5
Step 6. Performing a System Shutdown . . . . .	5
Step 7. Connecting the SCSI Bus Cable . . . . .	6
Step 8. Installing the SCSI Bus Terminator . . . . .	7
Step 9. Connecting the Power Cables . . . . .	9
Step 10. Performing the 7206 Tape Drive Checkout Procedure . . . . .	9
<b>Chapter 3. Using the 7206 Tape Drive</b> . . . . .	11
Operator Controls . . . . .	11
Power Switch . . . . .	11
Unload Button . . . . .	12
Indicator Lights . . . . .	12
Power-On Light . . . . .	12
Status Lights . . . . .	12
Loading and Unloading a Tape Cartridge . . . . .	14
Loading a Tape Cartridge . . . . .	14
Unloading a Tape Cartridge . . . . .	15
Cleaning the Drive . . . . .	15
Recommendations for Cleaning . . . . .	15
Performing the Cleaning Procedure . . . . .	15
<b>Chapter 4. Removing the 7206 Tape Drive</b> . . . . .	17
Removal Checklist . . . . .	17
<b>Chapter 5. Using the Media</b> . . . . .	19
Types of Tape Cartridges . . . . .	19
Recommendations for Data Cartridge Usage . . . . .	20
Data Cartridge Erasure . . . . .	20

Storage and Shipping Environments . . . . .	21
Operating in Harsh Environments . . . . .	21
Setting the Write-Protect Switch . . . . .	22
Ordering Tape Cartridges . . . . .	23
<b>Appendix. Power Cables . . . . .</b>	<b>25</b>

---

## Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates.

Any reference to an IBM program or other IBM product in this publication is not intended to state or imply that only IBM's program or other product may be used. Any functionally equivalent program that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594, U.S.A.

---

## Safety Notices

When using this product, observe the danger, caution, and attention notices contained in this guide. Each danger and caution notice contains a reference number (72XXDxxx or 72XXCxxx). Use the reference number to check the translation in *External Devices Safety Information*, SA26-7003.

Examples of danger, caution, and attention notices follow.

### Danger Notice

A danger notice calls attention to a situation that is potentially lethal or extremely hazardous to people. The following is a sample danger notice:



#### DANGER

**An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.**

(72XXD201)

### Caution Notice

A caution notice calls attention to a situation that is potentially hazardous to people because of some existing condition. The following is a sample caution notice:



#### CAUTION:

**Do not attempt to use the handle on the module to lift the entire device (module and enclosure) as a unit. First remove the module; then, use two hands to lift the enclosure.**

(72XXC356)

## Attention Notice

An attention notice indicates the possibility of damage to a program, device, system, or data. The following is a sample attention notice:

**Attention:** Do not operate the 7206 Tape Drive in a poor air-quality environment. If your environment contains an excessive amount of particulates, contact your service representative for more information.

---

## End of Life (EOL) Plan

This box is a purchased unit. Therefore, it is the sole responsibility of the purchaser to dispose of it in accordance with local laws and regulations at the time of disposal.

This unit contains recyclable materials. The materials should be recycled where facilities are available and according to local regulations. In some areas IBM may provide a product take-back program that ensures proper handling of the product. Contact your IBM representative for more information.



---

## Electronic Emission Notices

The following statement applies to this IBM product. The statement for other IBM products intended for use with this product will appear in their accompanying manuals.

### Federal Communications Commission (FCC) Statement

**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 an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Industry Canada Compliance Statement

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

### Avis de conformité à la réglementation d'Industrie Canada

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

### European Community Compliance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

Properly shielded and grounded cables and connectors (IBM part number 75G5958 or its equivalent) must be used in order to reduce the potential for causing interference to radio and TV communications and to

other electrical or electronic equipment. Such cables and connectors are available from IBM authorized dealers. IBM cannot accept responsibility for an interference caused by using other than recommended cables and connectors.

**Germany Only:** This product is in conformity with the EN55022 class B emission limits.

### **Japanese Voluntary Control Council for Interference (VCCI) Statement**

This equipment is Class 2 Equipment (information equipment to be used in and around residential districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in residential districts.

This equipment could cause interference to reception when used in proximity to radio and television receivers.

Please handle the equipment properly according to the instruction manual.

### **Korean Government Ministry of Communication (MOC) Statement**

Please note that this device has been approved for non-business purposes and may be used in any environment including residential areas.

---

## **Trademarks**

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

AIX  
IBM  
RS/6000

The following terms are trademarks of other companies:

CSA            Canadian Standards Association  
UL             Underwriter's Laboratories

---

## About This Guide

This guide describes how to install and use the 7206 4GB External 4mm Tape Drive Model 005. It contains the following chapters:

Chapter 1, "General Information," describes the 7206 Tape Drive, gives the system requirement, and lists hardware specifications.

Chapter 2, "Setting Up the 7206 Tape Drive," tells how to install the 7206 Tape Drive.

Chapter 3, "Using the 7206 Tape Drive," describes the operator controls and indicator lights on the 7206 Tape Drive. It also tells how to load and unload a tape cartridge, and how to clean the tape drive.

Chapter 4, "Removing the 7206 Tape Drive," tells how to remove the 7206 Tape Drive after it has been installed.

Chapter 5, "Using the Media," describes the media to use in the 7206 Tape Drive.

The appendix, "Power Cables," provides power cable information for different countries.

Store this guide with your system manuals.

---

## Related Publications

- *7206 External 4mm Tape Drive Service Guide*, SA26-7073, provides service and maintenance information for the 7206 Tape Drive.
- *External Devices Safety Information*, SA26-7003, provides translations of danger and caution notices.
- *AIX System Management Guide: Operating System and Devices*, SC23-2525, provides information about how to manage the AIX operating system.



---

## Chapter 1. General Information

The 7206 4GB External 4mm Tape Drive Model 005 is an external storage device that connects to the IBM RS/6000 and stores additional data. The unit is a streaming tape drive that uses Digital Audio Tape (DAT) technology and Digital Data Storage (DDS) tape media.

The 7206 Tape Drive can be used for:

- Saving and restoring system data files
- Archiving important records
- Distributing operating system software upgrades

Figure 1 shows the 7206 4GB External 4mm Tape Drive Model 005.

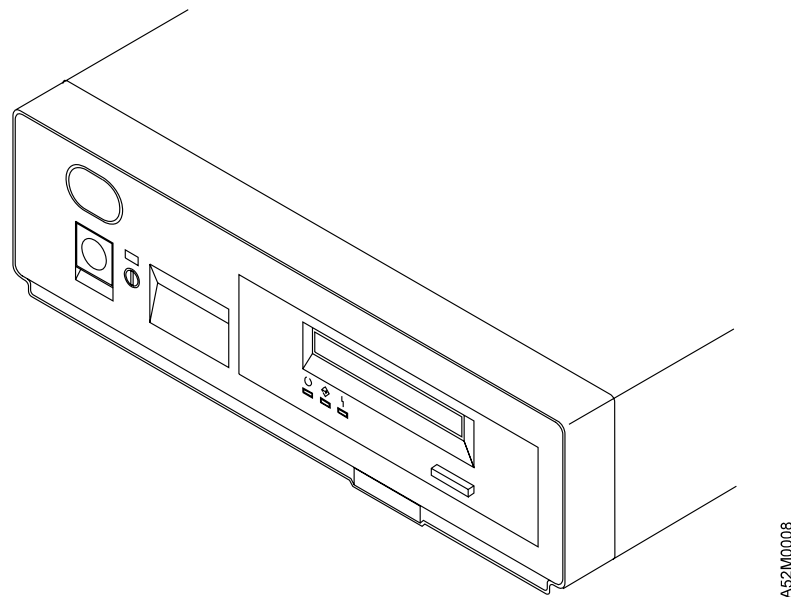


Figure 1. Front View of the 7206 4GB External 4mm Tape Drive Model 005

The 7206 4GB External 4mm Tape Drive Model 005 features:

- Capacity of 4 to 8GB per cartridge (where GB equals 1 000 000 000 bytes). 8GB is typical with data compression and DDS2 data cartridges. (The actual capacity per cartridge varies depending on the application and the type of data cartridge being used.)
  - Read and write capability with DDS||| tape cartridges in 2GB-per-cartridge format.
  - Data transfer rate of 400 to 1600KB per second (where KB equals 1 000 bytes). 800KB per second is typical with data compression.
- Note:** The factory activates data compression as the default setting. Data compression is usually controlled by the system software.
- Media Recognition System that permits the use of only data-grade media.

The 7206 Tape Drive attaches to any system that uses a single-ended interface which meets the Small Computer System Interface-2 (SCSI-2) standard X3.131-1994 Rev 10h of the American National Standards Institute (ANSI).

## System Requirement

The system requirement for the 7206 Tape Drive is any RS/6000 platform with an AIX operating system at 3.2.5 or higher.

## Specifications

<i>Figure 2. Specifications for the 7206 4GB External 4mm Tape Drive Model 005</i>		
<b>Physical Specifications</b>		
Width	280 mm (11 in.)	
Depth	290 mm (11.5 in.)	
Height	80 mm (3.5 in.)	
Weight	5 kg (10 lb)	
<b>Power Specifications</b>		
kVA	0.07 @ 220 V ac	
V ac	100 to 125, or 200 to 240	
Hertz	50 to 60	
Btu Maximum (watts)	100 Btu/hr (30 watts @ 240 V ac)	
Power Factor	0.5 to 0.7	
<b>Other Specifications</b>		
Maximum Altitude	2135 m (7000 ft)	
<b>Recommended Environment</b>		
<b>Environmental Factor</b>	<b>Operating</b>	<b>Non-operating</b>
Temperature	16 to 32°C (60 to 90°F)	10 to 43°C (50 to 110°F)
Relative Humidity (noncondensing)	20 to 80%	20 to 80%
Maximum Wet Bulb	23°C (73°F)	27°C (80°F)

---

## Chapter 2. Setting Up the 7206 Tape Drive

This chapter provides step-by-step instructions on how to properly install the 7206 4GB External 4mm Tape Drive Model 005.



### DANGER

**To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device.** (72XXD203)

Before installing the 7206 Tape Drive, let it acclimate to the operating environment for as long as it has been away from the environment or for 24 hours, whichever is less.

**Attention:** The 7206 Tape Drive is a precision device that requires reasonable care in handling to prevent data loss or permanent damage to the device. Avoid bumping or dropping the 7206 Tape Drive.

To unpack the 7206 Tape Drive, simply remove the packing material from the box it was shipped in.

---

## Performing the Installation

To install the 7206 Tape Drive, complete the following steps.

### Step 1. Using the Inventory Checklist

Make sure that you received the following items:

- \_\_\_ Power cable (for the appropriate cable see the appendix, "Power Cables," on page 25)
- \_\_\_ The *External Devices Warranty Information* (U.S., Canada, and Puerto Rico only)
- \_\_\_ The *7206 4GB External 4mm Tape Drive Model 005 Setup and Operator Guide* (this guide)
- \_\_\_ The *7206 4GB External 4mm Tape Drive Model 005 Service Guide*
- \_\_\_ The *External Devices Safety Information* manual
- \_\_\_ One of the following:
  - A system-to-device SCSI bus cable and a terminator (if the 7206 Tape Drive is the only device connected to the RS/6000)
  - A device-to-device SCSI bus cable (if the 7206 Tape Drive connects to another SCSI device)
- \_\_\_ Media (data, diagnostic, and cleaning cartridges)

**Note:** For cartridge part numbers, see Chapter 4, "Parts Diagram and Parts List," in the *7206 4GB External 4mm Tape Drive Model 005 Service Guide*.

## Step 2. Checking the Electrical Outlets

- Make sure that the electrical outlets you use are properly grounded.

## Step 3. Assembling the Materials

Refer to your system management or system hardware manuals to locate the information that you need to install the 7206 Tape Drive.

- 1. **Get your system unit manuals now.** You may find the needed information under the topics:
  - Installing an external SCSI-2 tape drive
  - SCSI controllers
  - External SCSI-2 devices

**Do not continue** until you have located the manual that describes how to:

- 2. Determine where the SCSI controller is located (where you make the cable connection).

Record the controller location here

A4310002

- 3. Determine an unused SCSI address for the 7206 Tape Drive.

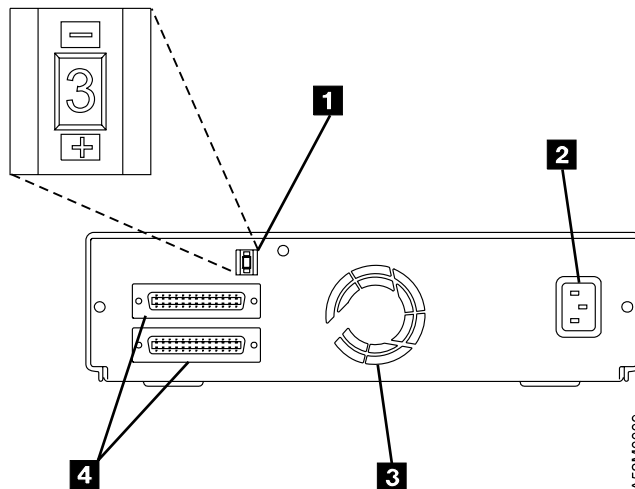
Record the address here

A4310002

## Step 4. Setting the SCSI Address

The SCSI address is a unique address that identifies the 7206 Tape Drive to your system unit. Use the SCSI address switch ( **1** in Figure 3) is located on the rear of the 7206 Tape Drive. Figure 3 also shows the SCSI bus cable connectors **4** , the cooling fan **3** , and the power cable connector **2** .

**Note:** Do not select a SCSI address that is already in use.



A52M0009

Figure 3. Rear View of the 7206 4GB External 4mm Tape Drive Model 005



To set the SCSI address, do the following:

- \_\_\_ Press the + or – pushbutton to set the SCSI address switch to the address that you have previously determined in “Step 3. Assembling the Materials” on page 4.

## Step 5. Placing the 7206 Tape Drive

The 7206 Tape Drive can be located anywhere that is convenient to your system unit. The only restrictions are the length of the power cord and the SCSI cable.

Recommended locations are:

- Away from the floor
- In a horizontal position
- Where the tape cartridge can be easily inserted
- Where airflow around the unit is not obstructed

To place the 7206 Tape Drive, do the following:

- \_\_\_ 1. Set the 7206 Tape Drive in the location that you have previously determined.
- \_\_\_ 2. Connect the power cable to the 7206 Tape Drive. **(Do not plug it into the electrical outlet at this time.)**

The external devices that attach to the system unit can be stacked. When stacking devices, do not place more than 30 pounds on top of the 7206 Tape Drive.

## Step 6. Performing a System Shutdown

**Attention:** Do not attach the 7206 Tape Drive to a system unit that is powered on. This can damage the 7206 Tape Drive, the system unit, or both.

To perform a system shutdown, do the following:

**Note:** Before doing a controlled shutdown of the system unit, notify other users who may be using the system.

- \_\_\_ 1. If it is on, do a controlled fast shutdown of the system unit by typing `shutdown -F` from the system console. (You must have root authority to perform the shutdown; see your system administrator.) Depending on your system configuration, the shutdown may take several minutes.
- \_\_\_ 2. When the message `Hal t Completed` displays on the system console, turn off the power to the system unit.
- \_\_\_ 3. Turn off the power to all external devices connected to the system unit.
- \_\_\_ 4. Unplug the power cables to all external devices from their electrical outlets.
- \_\_\_ 5. Unplug the system unit power cable from the electrical outlet.

## Step 7. Connecting the SCSI Bus Cable

To connect the SCSI bus cable, do the following:

- \_\_\_ 1. If installed, remove the connector covers.
- \_\_\_ 2. On the rear of the 7206 Tape Drive, insert the device connector end of the SCSI bus cable into one of the connectors. See Figure 4.
- \_\_\_ 3. Make sure that the connector is fully engaged.
- \_\_\_ 4. Secure the cable to the 7206 Tape Drive with the clips provided on the tape drive.

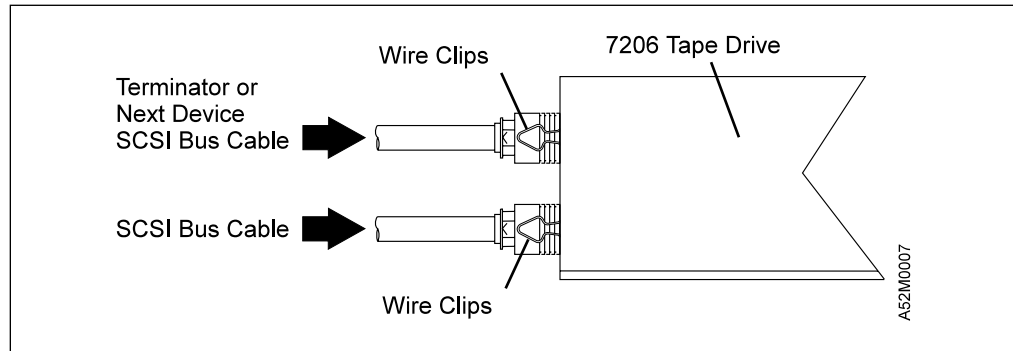


Figure 4. Connecting the SCSI Bus Cable to the 7206 Tape Drive

- \_\_\_ 5. Connect the other end of the SCSI bus cable as follows:
  - If the 7206 Tape Drive is the only device attached to the system, connect the cable to the system unit (see Figure 5 on page 7).
  - If the 7206 Tape Drive is part of a multiple-device configuration, connect the SCSI cable to the next device (see Figure 6 on page 7).

## Step 8. Installing the SCSI Bus Terminator

Make sure to install a terminator on the last device in the configuration.

To install the SCSI terminator, do the following:

- Align the SCSI terminator with the appropriate connector and push in until the terminator is seated. Secure the terminator with the wire clips.
  - If the 7206 Tape Drive is the only SCSI device on the SCSI bus, install the terminator on one of the dual connectors of the 7206 Tape Drive (see Figure 5).

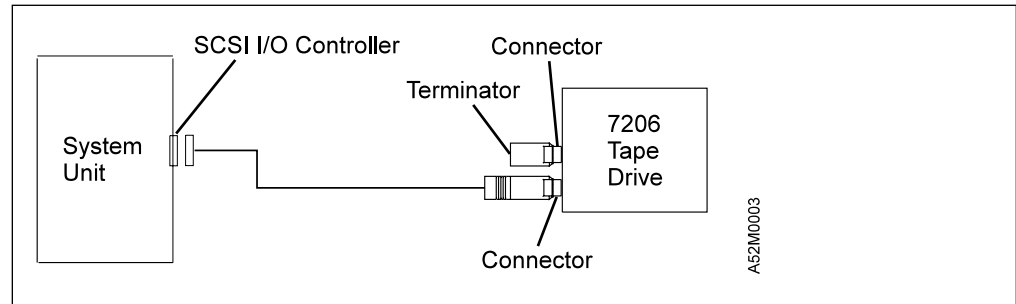


Figure 5. Example of Attaching One SCSI Device to the System Unit

- If there is more than one device on the SCSI bus, move the terminator to the last device as shown in Figure 6, Figure 7 on page 8, or Figure 8 on page 8.

**Note:** The SCSI devices can have one (single) or two (dual) connectors on the rear of the device. Figure 7 on page 8 shows a single connector. Figure 8 on page 8 shows dual connectors.

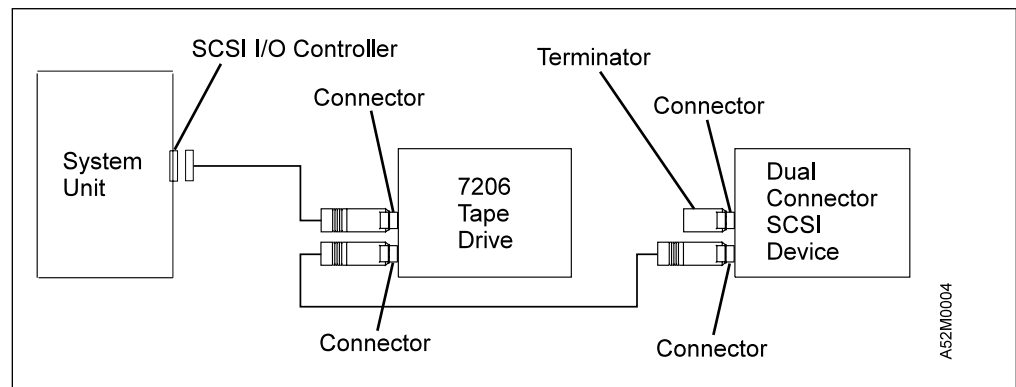


Figure 6. Example of Attaching Multiple SCSI Devices to the System Unit

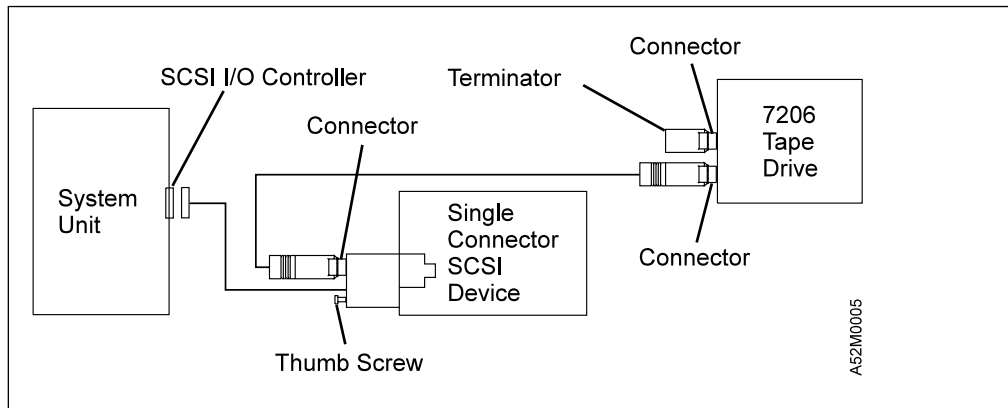


Figure 7. Example of Attaching Multiple Devices, with the Single Connector Device as the First Device in the Sequence of External Devices

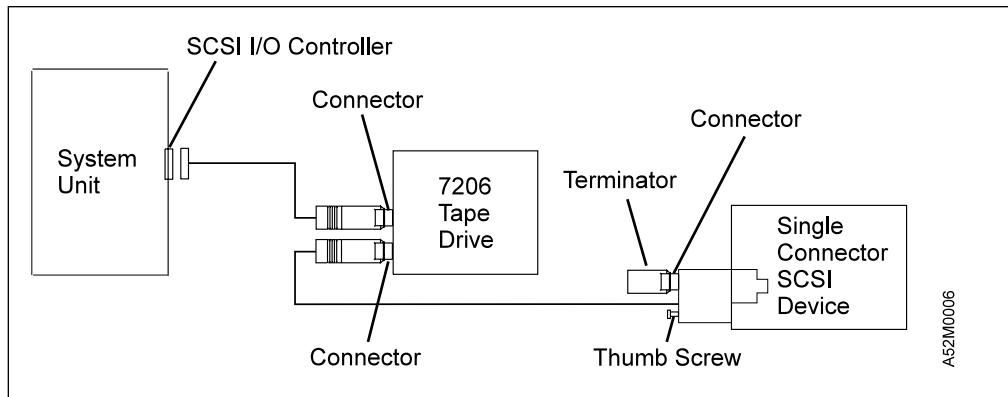


Figure 8. Example of Attaching Multiple Devices, with the Dual Connector Device as the First Device in the Sequence of External Devices

**Notes:**

1. The terminator and the SCSI bus cable can be connected to either the top or bottom SCSI connector on the 7206 Tape Drive.
2. Only one external terminator is required to terminate the SCSI bus. You do not need to use the terminator shipped with the 7206 Tape Drive if a terminator has been previously installed.

## Step 9. Connecting the Power Cables

To connect the power cables, do the following:

- \_\_\_ 1. Plug the 7206 Tape Drive power cable into an electrical outlet.
  - \_\_\_ 2. Plug the power cables for all external devices and the system unit into electrical outlets.
  - \_\_\_ 3. Turn on the power to all of the external devices.
  - \_\_\_ 4. Review the information in “Indicator Lights” on page 12, then turn on the power to the 7206 Tape Drive and watch for the following:
    - The power-on light comes on and stays on.
    - All three status lights come on.
      - The Activity and Fault lights turn off, and the Ready light flashes (indicating that the Power-On Self Test (POST) is running).
      - The Ready light turns off (indicating that the POST has completed successfully).
- Note:** You may need to turn on the power to the system to ensure that the three 7206 Tape Drive status lights turn off.
- \_\_\_ 5. Turn on the power to the system unit.

## Step 10. Performing the 7206 Tape Drive Checkout Procedure

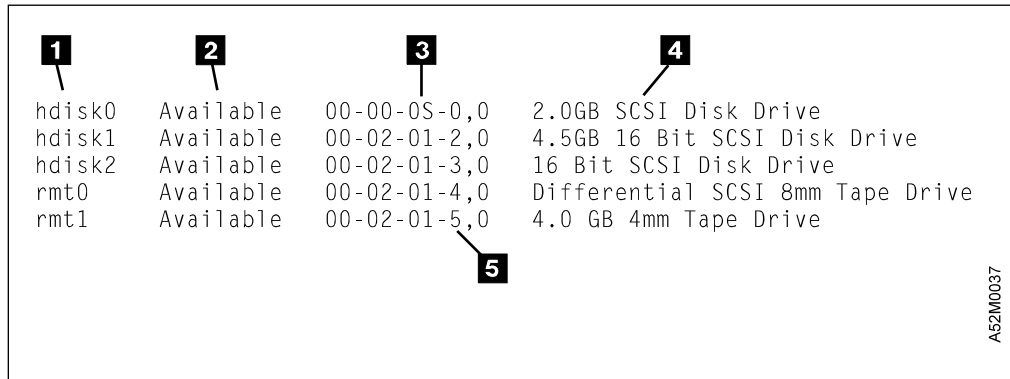
To perform the checkout procedure, do the following:

- \_\_\_ 1. Configure the 7206 Tape Drive to the RS/6000 software by doing the following:
  - a. Log into the RS/6000 (AIX operating system).

**Note:** You must have root authority to install or remove the 7206 Tape Drive from the system. To obtain root authority, see your system administrator.
  - b. At the system prompt, type `lsdev -Cs scsi` and press Enter. The command lists all of the SCSI devices that are connected to the RS/6000. Figure 9 on page 10 shows an example of the screen that displays.

The screen lists:

- 1** Device name
- 2** Device status
- 3** SCSI adapter slot number
- 4** Description of the SCSI device
- 5** SCSI address (begins with 7th digit)



<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	
hdisk0	Available	00-00-0S-0,0	2.0GB SCSI Disk Drive	
hdisk1	Available	00-02-01-2,0	4.5GB 16 Bit SCSI Disk Drive	
hdisk2	Available	00-02-01-3,0	16 Bit SCSI Disk Drive	
rmt0	Available	00-02-01-4,0	Differential SCSI 8mm Tape Drive	
rmt1	Available	00-02-01-5,0	4.0 GB 4mm Tape Drive	<b>5</b>

A52M0037

Figure 9. Screen Display of SCSI Devices Attached to the RS/6000

c. From the list of SCSI devices, identify the 7206 Tape Drive (listed as the 4.0 GB 4mm Tape Drive):

- If the status of the 7206 Tape Drive is displayed as *Available*, the device has successfully been configured.
- If the status is not displayed as *Available*, refer to Chapter 2, "Maintenance Analysis Procedures," in the *7206 4GB External 4mm Tape Drive Model 005 Service Guide*. For more information about configuring the 7206 Tape Drive to the system software, refer to your AIX or RS/6000 manuals.

d. This completes the 7206 Tape Drive installation.

Store the test cartridge and the cleaning cartridge for future use. Store all 7206 Tape Drive publications with your system manuals.

---

## Chapter 3. Using the 7206 Tape Drive

This chapter describes the operator controls and indicator lights on the 7206 4GB External 4mm Tape Drive Model 005. It also gives instructions for loading and unloading a tape cartridge, and tells how to clean the tape drive.

Figure 10 shows the front view of the 7206 4GB External 4mm Tape Drive Model 005.

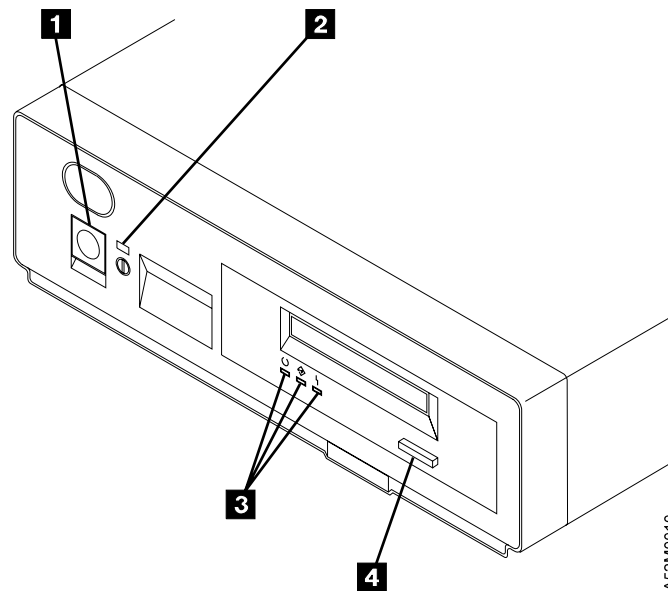


Figure 10. Front View of the 7206 4GB External 4mm Tape Drive Model 005

---

### Operator Controls


The 7206 4GB External 4mm Tape Drive Model 005 has the following operator controls.

#### Power Switch

The power switch ( **1** in Figure 10) is a pushbutton switch that enables the power to be turned on or off:

- The power is on when the pushbutton is depressed.
- The power is off when the pushbutton is even with the front cover.

When the 7206 Tape Drive is on, the power-on light **2** is on.

**Note:** The  symbol located next to the power switch is an International Organization for Standardization (ISO) symbol for a pushbutton switch.

## Unload Button

The unload button **4** enables the tape cartridge to be ejected. The unload button operates only when the 7206 Tape Drive power is on. To remove a cartridge, press and hold the unload button for about one second.

### Emergency Eject Feature

**Attention:** This procedure may result in data loss.

Drive types 2 and 3 of the 7206 Tape Drive include an emergency eject feature. Use the emergency eject feature if the tape does not move properly or if the unload process fails.

To perform an emergency eject of the tape cartridge, press and hold the unload button for 6 seconds. The tape automatically ejects without rewinding.

**Note:** If you attempt an emergency eject and it does not work, you may have drive type 1, which does not support the emergency eject feature. For information about drive types, see “Drive Assemblies,” in the *7206 4GB External 4mm Tape Drive Model 005 Service Guide*.

---

## Indicator Lights




The 7206 Tape Drive has the following indicator lights.

### Power-On Light

When the 7206 Tape Drive is turned on, the power-on light **2** comes on, indicating that the unit is receiving power.

### Status Lights




Three status lights **3** and their ISO symbols appear on the 7206 Tape Drive as follows:

-  Ready (green)
-  Activity (green)
-  Fault (amber)

The combinations of the lights and their definitions are shown in Figure 11.



*Figure 11. Definition of Status Light Combinations*

 <b>(Ready)</b>	 <b>(Activity)</b>	 <b>(Fault)</b>	<b>Status</b>
On two seconds at power-on	On two seconds at power-on	On two seconds at power-on	The light-emitting diode (LED) test is occurring.
Flashing	Off	Off	The Power-On Self Test (POST) is occurring or the diagnostic cartridge is running
Off	Off	Off	The power is off or the cartridge has not been loaded after POST.
On	Off	Off	A tape cartridge has been loaded and the 7206 Tape Drive is ready to receive commands from the system.
On	Flashing	Off	A cartridge is loaded and activity is occurring, or the cartridge is unloading.
Off	Off	On	A cartridge is not loaded, or cleaning is required, or the cartridge is damaged.
On	Off	On	The cartridge is loaded, or there is no activity, or cleaning is required.
On	Flashing	On	The cartridge is loaded, activity is occurring, and cleaning is required, or the cartridge is unloading and cleaning is required.
Off	Off	Flashing	One of the following has occurred: <ul style="list-style-type: none"> <li>• Unrecoverable drive failure</li> <li>• Cartridge failure</li> <li>• Microcode download failure</li> <li>• High humidity</li> <li>• Depleted cleaning cartridge</li> </ul>

---

## Loading and Unloading a Tape Cartridge

Use the following instructions to load and unload a tape cartridge. For information about the type of media to use, refer to Chapter 5, "Using the Media" on page 19.

**Note:** To avoid problems with loading and unloading, use only one label on a cartridge.

### Loading a Tape Cartridge

To load a tape cartridge:

1. Make sure that the 7206 Tape Drive power is on (the power-on light should be on).
2. Grasp the cartridge ( **1** in Figure 12) by the outer edges, with the window side up and the write-protect switch **2** facing you.

**Note:** See "Setting the Write-Protect Switch" on page 22 to make sure that the write-protect switch is properly set.

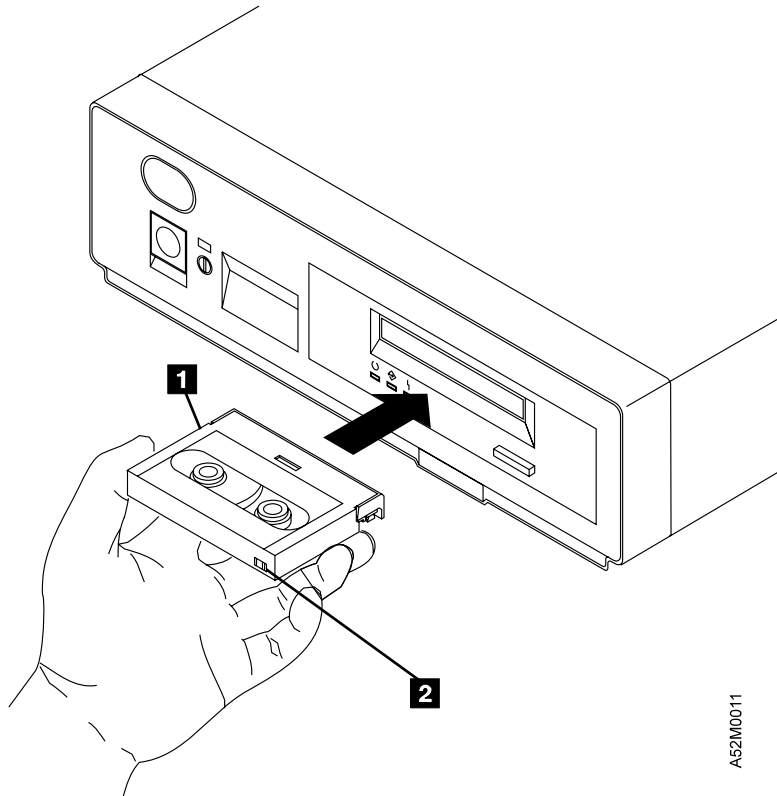


Figure 12. Loading a Tape Cartridge

3. Slide the cartridge into the opening on the front of the 7206 Tape Drive until the loading mechanism pulls the cartridge into the drive and the drive door closes.

To indicate that the load operation was successful, the Ready status light comes on about 15 seconds after the load.

## Unloading a Tape Cartridge

To unload a tape cartridge:

1. Make sure that the 7206 Tape Drive power is on (the power-on light should be on).
2. Press the unload button.

The 7206 Tape Drive rewinds, unloads, and ejects the tape cartridge. The process may take from 15 seconds to several minutes, depending on the position of the tape and the amount of data written. The status lights respond as follows:

- The Activity light flashes during the unload operation.
- The Ready and Activity lights turn off when the cartridge is ejected from the tape drive.

If the cartridge fails to eject, refer to the procedure for manually removing a tape cartridge in the *7206 4GB External 4mm Tape Drive Model 005 Service Guide*.

---

## Cleaning the Drive

### Recommendations for Cleaning

- Clean the drive:
  - Whenever the Fault status light is on.
  - After 8 hours of read/write operation, if you are using a new tape cartridge. (A cartridge is considered “new” until it completes 5 full read/write passes.)
  - After each 24 hours of usage, if you are using a tape cartridge that has been used 5 times or more.
  - Before performing critical backups or processes.
- **Attention:** Do not operate the 7206 Tape Drive in a poor air-quality environment. If your environment contains an excessive amount of particulates, contact your service representative for more information.
- To resolve drive problems or errors due to debris contamination, repeat the cleaning procedure for 4 to 8 passes.
- Clean the tape drive with only IBM-approved cleaning cartridges designated for the 7206 External 4mm Tape Drive.
- **Attention:** Make sure that the cleaning cartridge is of good quality. Damaged tape cartridges can harm the 7206 Tape Drive.

### Performing the Cleaning Procedure

To load the cleaning cartridge:

1. Make sure that the 7206 Tape Drive power is on (the power-on light should be on).
2. Grasp the cartridge by the outer edges, with the window side up and the write-protect switch facing you (see Figure 12 on page 14).
3. Slide the cartridge into the opening on the front of the 7206 Tape Drive until the loading mechanism pulls the cartridge into the drive and the drive door closes.

After the cleaning cartridge has been fully inserted into the 7206 Tape Drive, the remainder of the cleaning process is automatic. The 7206 Tape Drive:

- Loads the cleaning cartridge into the tape path
- Cleans the drive by moving the cleaning tape forward approximately 30 seconds
- Unloads and ejects the cleaning cartridge when the cleaning operation is complete
- Indicates a successful cleaning operation by turning off the Fault status light (if it was on).

The cleaning cartridge can be used for approximately 50 cleaning operations. When the cleaning cartridge is depleted, the Fault light flashes to indicate that the cartridge is no longer usable. If you attempt to use the cleaning cartridge more than is allowed, the 7206 Tape Drive automatically detects the error and ejects the cartridge without turning off the Fault light (if it was on prior to the cleaning process).

---

## Chapter 4. Removing the 7206 Tape Drive

This chapter describes how to remove the 7206 Tape Drive after it has been installed.



### DANGER

**To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device.** (72XXD203)

---

### Removal Checklist

When moving the 7206 Tape Drive, perform the following steps:

**Attention:** Failure to perform the following steps in sequence before you add or delete a device may result in data loss or a system fault.

- 1. If loaded, remove the tape cartridge from the drive by pressing the unload button while the 7206 Tape Drive power is **on**.
- 2. Remove the 7206 Tape Drive from the system configuration (for instructions, refer to your system manuals).

**Attention:** Failure to inform the operating system before you add or delete a device may result in data loss or a system fault.

- 3. If it is on, do a controlled shutdown of the system unit. Refer to “Step 6. Performing a System Shutdown” on page 5.
- 4. Turn off the power to the 7206 Tape Drive.
- 5. Turn off the power to all external devices attached to the system.
- 6. Turn off the power to the system unit.
- 7. Unplug the power cable for the 7206 Tape Drive from the electrical outlet.
- 8. Unplug the system unit power cable from the electrical outlet.

**Attention:** When SCSI bus cables are connected to a system unit, they must also be connected to a device. Do not leave the SCSI bus cable connected to the system if the device for that cable has been removed.

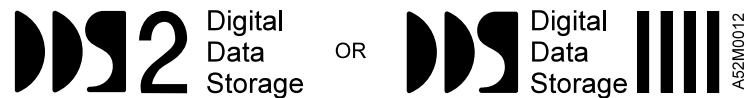
- 9. Disconnect the SCSI bus cable from the system unit.
- 10. Disconnect the SCSI bus cable from the 7206 Tape Drive.
- 11. Ensure that the terminator is on the last device on the SCSI bus (see “Step 8. Installing the SCSI Bus Terminator” on page 7).
- 12. Remove the 7206 Tape Drive and place it in the new location.
- 13. Reinstall the 7206 Tape Drive (refer to Chapter 2, “Setting Up the 7206 Tape Drive” on page 3).



---

## Chapter 5. Using the Media

The 7206 Tape Drive uses a 4mm data cartridge for saving and restoring system data. It is designed to use only DDS (Digital Data Storage) data cartridges. The cartridges are identified by one of the following two DDS symbols:



The DDS symbol on the data cartridge must match the DDS symbol on the front of the 7206 Tape Drive.

**Attention:** The 7206 Tape Drive cannot write data to tape cartridges that do not carry the proper DDS symbol.

The 7206 Tape Drive reads and writes data to:

- DDS |||| cartridges in a 2GB format
- DDS2 cartridges in a 4GB format

The 7206 Tape Drive has been designed to operate with DDS-approved media that meet the following standards:

- International Organization for Standardization (ISO)/ International Electrotechnical Commission (IEC) standard, 13923:1996 *3.81mm Wide Magnetic Tape Cartridge for Information Interchange - Helical Scan Recording, DDS2 Format*
- European Computer Manufacturers Association (ECMA) standard, ECMA-198 *3.81mm Wide Magnetic Tape Cartridge for Information Interchange - Helical Scan Recording, DDS2 Format*

---

### Types of Tape Cartridges

The 7206 Tape Drive is shipped with the following media cartridges.

#### Data Cartridge

Use the 4mm data cartridge to save or restore programs or data.

#### Diagnostic Cartridge

Use the specially labeled diagnostic cartridge to perform diagnostic procedures on the drive. The diagnostic cartridge cannot be used to save or restore programs or data.

## Cleaning Cartridge

**Attention:** Use of other than the IBM cleaning cartridge can damage your 7206 Tape Drive and may void the drive warranty.

Use the specially labeled cleaning cartridge to clean the 7206 Tape Drive. For instructions on how to clean the 7206 Tape Drive, see “Cleaning the Drive” on page 15.

To order additional cartridges, refer to “Ordering Tape Cartridges” on page 23.

---

## Recommendations for Data Cartridge Usage

- Remove the tape cartridge from the drive when the drive is not in use.
- Back up and then discard any tape cartridge that repeatedly produces error messages (the error information is in the System Error Log).
- On the data cartridge, do not open the door that covers the tape. The door protects the tape from dirt, dust, and damage.
- Do not operate in a dusty environment.
- Do not touch the tape. Any substance transferred to the tape by touching could cause loss of data.
- Do not use excessive labels on a tape cartridge. They can clog the drive load mechanism.
- Do not drop the tape cartridge from a height greater than 3 feet (1 meter). Dropping may damage the tape's internal mechanism.

---

## Data Cartridge Erasure

Most bulk eraser devices do not have the capability to erase the 4mm data cartridge. To properly erase a 4mm data cartridge with a bulk eraser device, the erasure coercivity rating must be 2000 oersted minimum.



---

## Storage and Shipping Environments

Before using a tape cartridge, let it acclimate to the operating environment by placing the cartridge in the operating environment for as long as it has been away from the environment or for 24 hours, whichever is less. (To determine the appropriate operating environment, see “Specifications” on page 2.)

Acclimation is necessary for any data cartridge exposed to a different humidity environment or to temperature changes of 11°C (20°F) or more.

The recommended environment for storage and shipment of 4mm data cartridges is shown in Figure 13.

*Figure 13. Recommended Environment for 4mm Data Cartridges*

<b>Environmental Factor</b>	<b>Storage</b>	<b>Shipping</b>
Temperature	-5°C to 32°C (40° to 90°F)	-40 to 52°C (-40 to 126°F)
Relative Humidity (noncondensing)	20 to 60%	5 to 80%
Maximum Wet Bulb	26°C (79°F)	26°C (79°F)

---

## Operating in Harsh Environments

The 7206 External 4mm Tape Drive is ideally suited to streaming operations, as opposed to multiple stop-and-start, random-search tape operations. When the tape is used for frequent stop-and-start operations, it is beneficial to still have as much streaming movement as possible. This can be accomplished by assuring that any save or restore operation is the only active operation being performed by a device connected to this SCSI I/O controller.

Do not use as an archival tape any tape that has been used outside of the operating ranges specified in Figure 2 on page 2 for an extended period of time. The magnetic and physical strength of the tape will have deteriorated as a result of its exposure to the environment. Do not store important data on such a tape; transfer the data to a newer tape for reliable archiving.

**Attention:** Do not operate the 7206 Tape Drive in a poor air-quality environment. If your environment contains an excessive amount of particulates, contact your service representative for more information.

---

## Setting the Write-Protect Switch

The position of the write-protect switch on the 4mm tape cartridge determines when you can write to the tape (see Figure 14).

- When the switch is set to the right **1**, data can be written to and read from the tape.
- When the switch is set to the left **2**, data can only be read.

Any attempt to write to a 4mm data cartridge with the switch set to the left will cause an error.

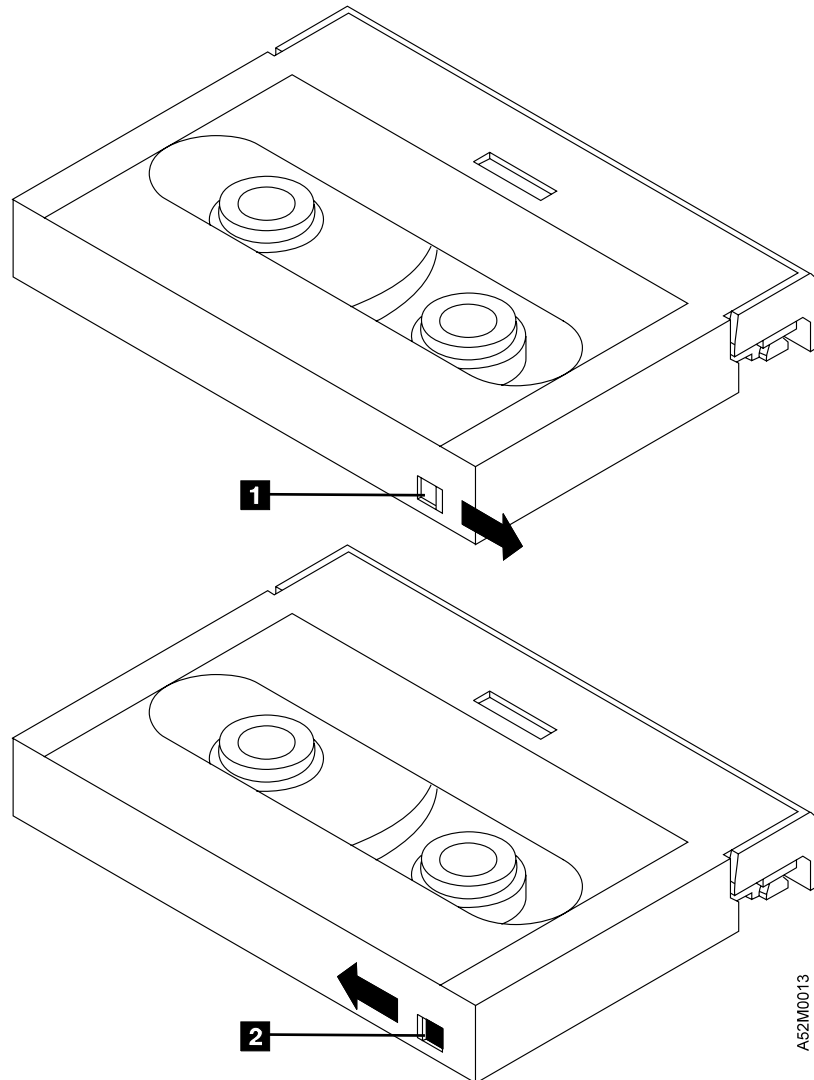


Figure 14. Setting the Write-Protect Switch

---

## Ordering Tape Cartridges

Figure 15 lists the tape cartridges that you can order for the 7206 4GB External 4mm Tape Drive Model 005. To order cartridges in the United States and Canada, call 1-888-IBM-MEDIA. To order cartridges in other locations, contact your local provider of IBM storage products.

*Figure 15. Tape Cartridges for the 7206 4GB External 4mm Tape Drive Model 005*

<b>IBM Part Number</b>	<b>Type of Cartridge</b>	<b>Length</b>
8191160	4mm Data Cartridge	160 m (525 ft)
8191146	4mm Diagnostic Cartridge	7 m (23 ft)
21F8763	4mm Cleaning Cartridge	--



---

## Appendix. Power Cables



To avoid electrical shock, a power cable with a grounded attachment plug is provided. Use only properly grounded outlets.

Power cables used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA). The power cables consist of:

- Electrical cables, type SVT or SJT.
- Attachment plugs complying with National Electrical Manufacturers Association (NEMA) 5-15P, that is:
  - “For 115 V operation use a UL Listed Cable Set consisting of a minimum 18 AWG, Type SVT or SJT three conductor cable a maximum of 15 feet in length and a parallel blade, grounding type attachment plug rated at 15 A, 125 V.”
  - “For 230 V operation in the United States use a UL Listed Cable Set consisting of a minimum 18 AWG, Type SVT or SJT three conductor cable a maximum of 15 feet in length, and a tandem blade, grounding type attachment plug rated at 15 A, 250 V.”
- Appliance couplers complying with International Electrotechnical Commission (IEC) Standard 320, Sheet C13.

Power cables used in other countries consist of:

- Electrical cables, type HD21.
- Attachment plugs approved by the appropriate testing organization for the specific countries where they are used.
  - “For units set at 230 V (outside of U. S.): Use a Cable Set consisting of a minimum 18 AWG cable and grounding type attachment plug rated 15 A, 250 V. The Cable Set should have the appropriate safety approvals for the country in which the equipment will be installed and marked 'HAR'.”

Figure 16 on page 26 lists the power cable part number, the country where the power cable can be used, and an index number to be matched with the receptacles shown in Figure 17 on page 27. If your power cable does not match this information, contact your local dealer.

Figure 16. Power Cable Information

Part Number	Country	Index
1838574 US/Canada	Bahamas, Barbados, Bolivia, Brazil, Canada, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Netherlands Antilles, Panama, Peru, Philippines, Taiwan, Thailand, Tobago, Trinidad, U.S.A. (except Chicago), Venezuela	1
6952300 US/Canada	Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saudi Arabia, Suriname, Taiwan, Trinidad, U.S.A. (except Chicago), Venezuela	2
6952301 6 ft Chicago	Chicago, U.S.A.	2
13F9940 Australia	Argentina, Australia, New Zealand	3
13F9979 France	Abu Dhabi, Austria, Belgium, Bosnia, Botswana, Bulgaria, Croatia, Egypt, Finland, France, Germany, Greece, Iceland, Indonesia, Korea (South), Lebanon, Luxembourg, Macau, Macedonia, Netherlands, Norway, Portugal, Saudi Arabia, Serbia, Slovenia, Spain, Sudan, Sweden, Turkey	4
13F9997 Denmark	Denmark	5
14F0015 South Africa	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka	6
14F0033 United Kingdom	Bahrain, Bermuda, Brunei, Channel Islands, Cyprus, Ghana, Hong Kong, India, Iraq, Ireland, Jordan, Kenya, Kuwait, Malawi, Malaysia, Nigeria, Oman, People's Republic of China, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Arab Emirates (Dubai), United Kingdom, Zambia	7
14F0051 Switzerland	Liechtenstein, Switzerland	8
14F0069 Italy	Chile, Ethiopia, Italy	9
14F0087 Israel	Israel	10
6952291 Colombia	Colombia, Paraguay, Uruguay	11

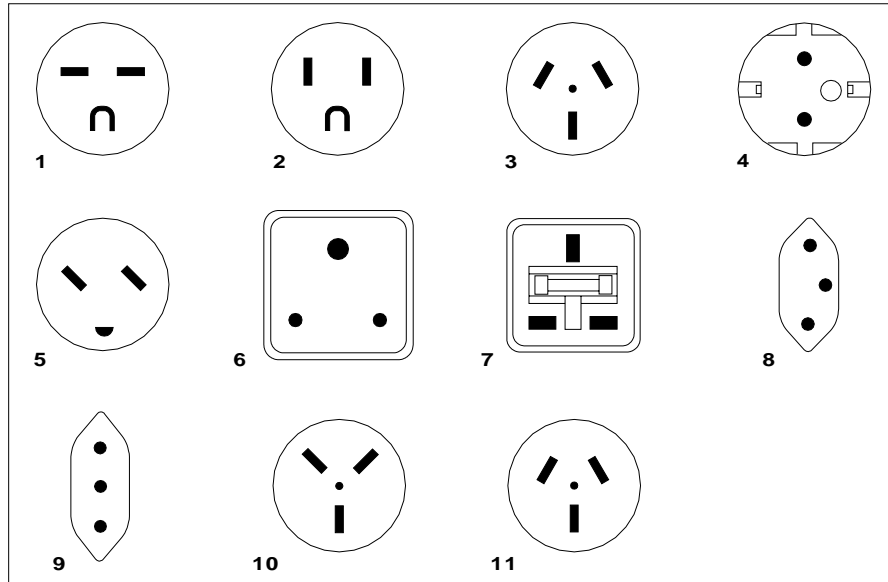


Figure 17. Types of Receptacles





---

# Reader Comments—We'd Like to Hear from You!

7206 4GB External 4mm Tape Drive  
Model 005  
Setup and Operator Guide  
Publication No. SA37-0357-00

Overall, how would you rate this manual?

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Overall satisfaction				

How satisfied are you that the information in this manual is:

Accurate				
Complete				
Easy to find				
Easy to understand				
Well organized				
Applicable to your tasks				
T H A N K   Y O U !				

Please tell us how we can improve this manual:

---

---

---

---

---

May we contact you to discuss your responses?  Yes  No  
Phone: (\_\_\_\_) \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_ Internet: \_\_\_\_\_

**To return this form:**

- Mail it
  - Fax it
- United States and Canada: **800+937-3430**  
Other countries: **(+1)+507+253-5192**
- Hand it to your IBM representative.

Note that IBM may use or distribute the responses to this form without obligation.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Company or Organization

\_\_\_\_\_  
Phone No.

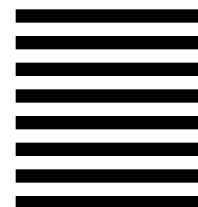
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE  
NECESSARY  
IF MAILED IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

ATTN DEPT 542 IDCLERK  
IBM CORPORATION  
3605 HWY 52 N  
ROCHESTER MN 55901-9986



Fold and Tape

Please do not staple

Fold and Tape



# IBM®

Part Number: 59H3380



Printed in the United States of America  
on recycled paper containing 10%  
recovered post-consumer fiber.

SA37-0357-00



59H3380



*Spine information:*

**IBM**

7206 4GB External 4mm Tape Drive  
Model 005

Setup and Operator Guide