2 U Universal Tape Autoloader

IBM

Installation Guide

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IBM

> **Note:** Before using this information and the product it supports, read the information in the IBM Statement of Limited Warranty Z125-4753-08 04/2004 in the *2 U Universal Tape Autoloader User's Guide* on the *Documentation* CD and "Notices," on page 11.

Contents

Safety

Before installing this product, read the Safety Information.

مج، يجب قراءة   دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
（安全信息）。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si prečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

安裝本產品之前，請先閱讀「安全資訊」。

Statement 1:

DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:
- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 15:

CAUTION:
Make sure that the rack is secured properly to avoid tipping when the unit is extended.

Statement 23:

CAUTION:
Do not place any object weighing more than 50 kg (110 lb) on top of rack-mounted devices.

>50 kg (110 lb)

Chapter 1. Introduction

The IBM® 2 U Universal Tape Autoloader is an automated tape storage and retrieval device for high-end xSeries® and System x™ servers. The autoloader supports one tape drive and can store up to 22 tape cartridges in two magazines.

Note: The host bus adapter for the autoloader should be SCSI-3 low voltage differential (LVD). A single-ended (SE) SCSI host bus adapter will severely degrade performance. Also, if there are any SE devices on the same SCSI bus, the entire SCSI bus will negotiate down to SE speed and severely degrade performance.

The Universal Tape Autoloader comes with a limited warranty. For more information, see the *IBM 2 U Universal Tape Autoloader User's Guide*.

Contact your place of purchase if an item is missing or damaged. Be sure to retain your proof of purchase. It might be required for you to receive warranty service.

The IBM Documentation CD

The IBM *Documentation* CD contains documentation for your option in Portable Document Format (PDF) and includes the IBM Documentation Browser to help you find information quickly.

Hardware and software requirements

The IBM xSeries *Documentation* CD requires the following minimum hardware and software:

- Microsoft Windows NT 4.0 (with Service Pack 3 or later), Windows 2000, or Red Hat Linux.
- 100 MHz microprocessor.
- 32 MB of RAM.
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems. Acrobat Reader software is included on the CD, and you can install it when you run the Documentation Browser.

Using the Documentation Browser

Use the Documentation Browser to browse the contents of the CD, read brief descriptions of the documents, and view documents, using Adobe Acrobat Reader or xpdf. The Documentation Browser automatically detects the regional settings in use in your system and displays the documents in the language for that region (if available). If a document is not available in the language for that region, the English-language version is displayed.

Use one of the following procedures to start the Documentation Browser:

- If Autostart is enabled, insert the CD into the CD drive. The Documentation Browser starts automatically.
- If Autostart is disabled or is not enabled for all users, use one of the following procedures:
  - If you are using a Windows operating system, insert the CD into the CD drive and click **Start --> Run**. In the **Open** field, type

    `e:\win32.bat`

where *e* is the drive letter of the CD drive, and click **OK**.

– If you are using Red Hat Linux, insert the CD into the CD drive; then, run the following command from the /mnt/cdrom directory:

```
sh runlinux.sh
```

Select your server from the **Product** menu. The **Available Topics** list displays all the documents for your server. Some documents might be in folders. A plus sign (+) indicates each folder or document that has additional documents under it. Click the plus sign to display the additional documents.

When you select a document, a description of the document appears under **Topic Description**. To select more than one document, press and hold the Ctrl key while you select the documents. Click **View Book** to view the selected document or documents in Acrobat Reader or xpdf. If you selected more than one document, all the selected documents are opened in Acrobat Reader or xpdf.

To search all the documents, type a word or word string in the **Search** field and click **Search**. The documents in which the word or word string appears are listed in order of the most occurrences. Click a document to view it, and press Crtl+F to use the Acrobat search function or Alt+F to use the xpdf search function within the document.

Click **Help** for detailed information about using the Documentation Browser.

Notices and statements in this documentation

The caution and danger statements that appear in this document are also in the multilingual *Safety Information* document, which is on the IBM *Documentation* CD. Each statement is numbered for reference to the corresponding statement in the *Safety Information* document.

The following notices and statements appear in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:**These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate a situation that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Chapter 2. Installing the autoloader

This chapter provides instructions for installing the autoloader.

Installation guidelines

Before you remove or replace a device, read the following information:

- Read the safety information that begins on page v and "Handling static-sensitive devices." This information will help you work safely.
- Observe good housekeeping in the area where you are working. Place removed covers and other parts in a safe place.
- Do not attempt to lift an object that you think is too heavy for you. If you have to lift a heavy object, observe the following precautions:
  - Make sure that you can stand safely without slipping.
  - Distribute the weight of the object equally between your feet.
  - Use a slow lifting force. Never move suddenly or twist when you lift a heavy object.
  - To avoid straining the muscles in your back, lift by standing or by pushing up with your leg muscles.
- Make sure that you have an adequate number of properly grounded electrical outlets for the server and all attached devices.
- Back up all important data before you make changes to disk drives.

Review the documentation that comes with your rack cabinet for safety and cabling information. Before installing your enclosure in a rack cabinet, consider the following guidelines:

- Two or more people are required to install the device in a rack cabinet.
- Ensure that the room air temperature is below 35°C (95°F).
- Do not block any air vents, usually 15 cm (6 in.) of space provides proper airflow.
- Do not leave open spaces above or below an installed enclosure in your rack cabinet. To help prevent damage to enclosure components, always install a blank filler panel to cover the open space and to help ensure proper air circulation.
- Plan the device installation starting from the bottom of the rack cabinet.
- Install the heaviest device in the bottom of the rack cabinet.
- Do not extend more than one device out of the rack cabinet at the same time.
- Do not overload the power outlet when installing multiple devices in the rack cabinet.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of damage from electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.

- The use of a grounding system is recommended. For example, wear an electrostatic-discharge wrist strap, if one is available.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal surface for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it immediately without setting down the device. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Returning a device or component

If you are instructed to return a device or component, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Required tools

Ensure that the following tools are available:
- Flat blade screwdriver
- Phillips screwdriver
- Anti-static wrist strap

Inventory parts

Ensure that the following parts are available:

- Chassis option:
    - Chassis
    - Chassis power cord
    - PDU power cord
    - Long SCSI cable
    - Short SCSI cable
    - SCSI terminator
    - Rack mounting hardware
- Drive option:
    - Drive assembly
    - Cleaning cartridge
    - Barcode labels
- Magazine option:
    - Right magazine
    - Left magazine

Installing the autoloader

To install the autoloader, complete the following steps:

1. Read the safety information that begins on page v and "Installation guidelines" on page 3.
2. Ensure that the host system is turned off and that the power cord is disconnected.
3. Determine whether you are performing a standalone or a rack installation.

- If you are installing the autoloader standalone, go to step 4.
- If you are installing the autoloader in a rack, go to step 5.

4. To install the autoloader standalone, complete the following steps:

   a. Remove the label that secures the shipping lock, then remove the shipping lock.

      Note: The illustrations in this document might differ slightly from your hardware.

Shipping lock

Shipping lock label

Remove before operation!
Place in storage location on rear panel.

Figure 1. Remove the shipping lock

   b. Secure the shipping key to the back of the autoloader with the shipping lock label.
   c. Attach the footpads to the bottom of the autoloader.
   d. Continue with step 6.

5. To install the autoloader in a rack, complete the following steps:

   a. Ensure that the host system is turned off and that the power cord is disconnected.
   b. Remove the label that secures the shipping lock, then remove the shipping lock. See Figure 1.
   c. Secure the shipping key to the back of the autoloader with the shipping lock label.
   d. Using the screws for your rack type, secure the back and front of the rails to the rack as shown in Figure 2 on page 6.
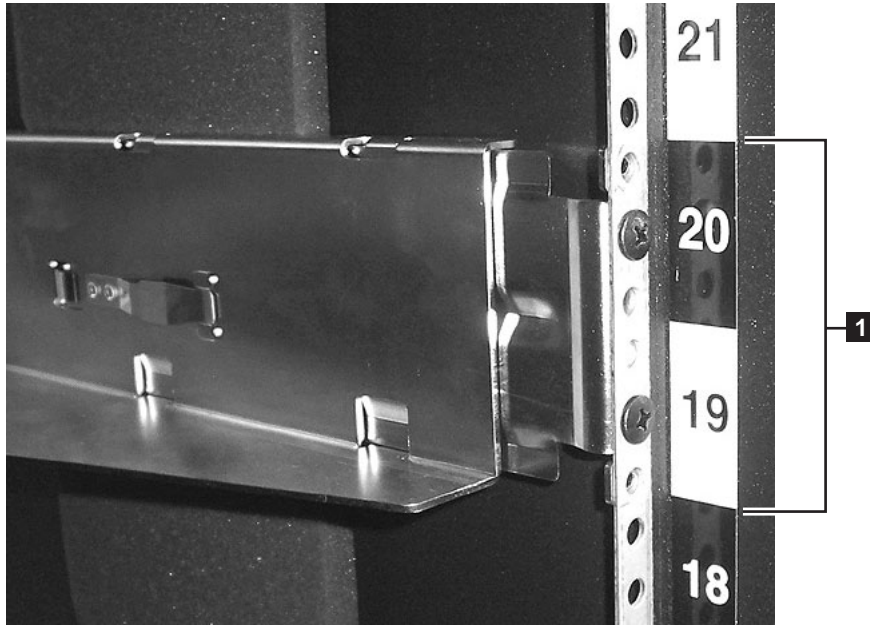
Figure 2. Install the rails

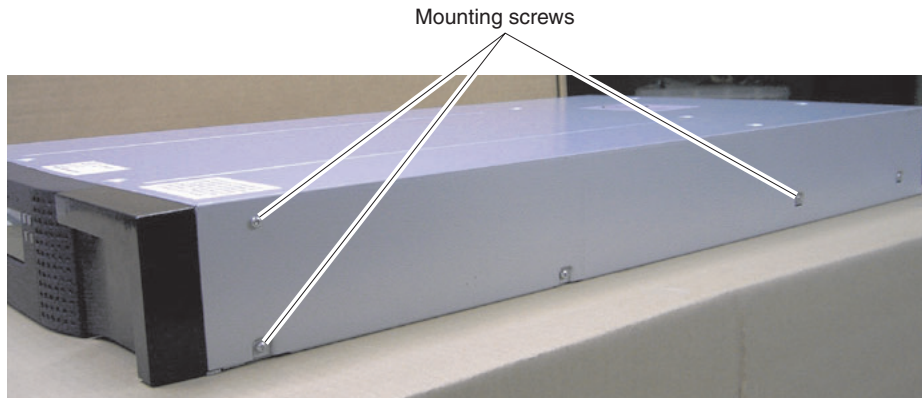   e.   Remove the mounting screws shown in Figure 3.

Mounting screws

Figure 3. Remove the mounting screws

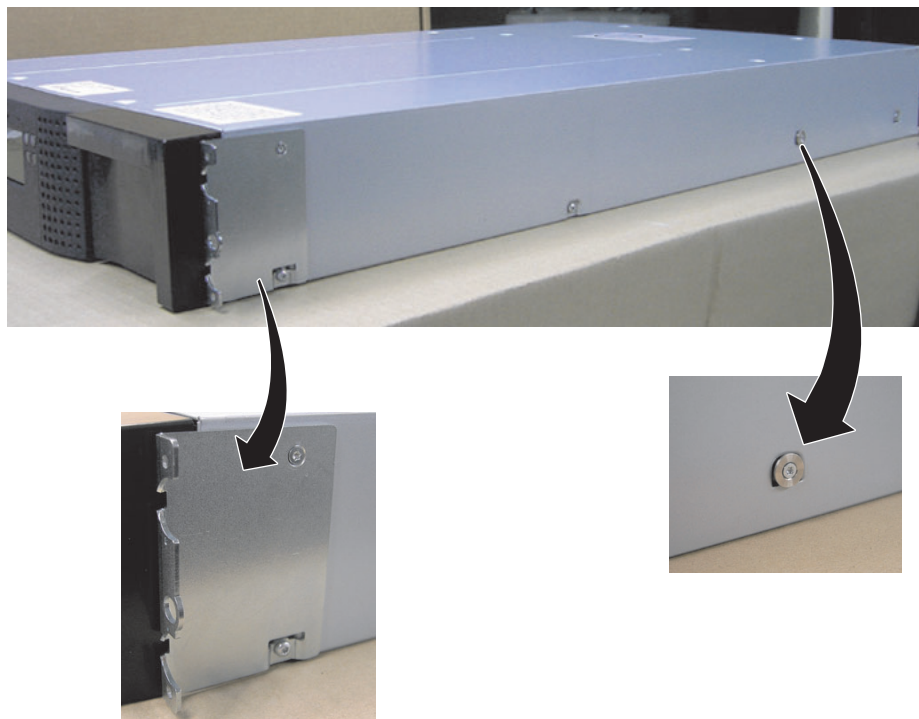   f.   Install the autoloader rack anchors and mounting brackets as shown in Figure 4 on page 7.

Figure 4. Install the anchors and mounting brackets

g. Slide the autoloader into the rack.
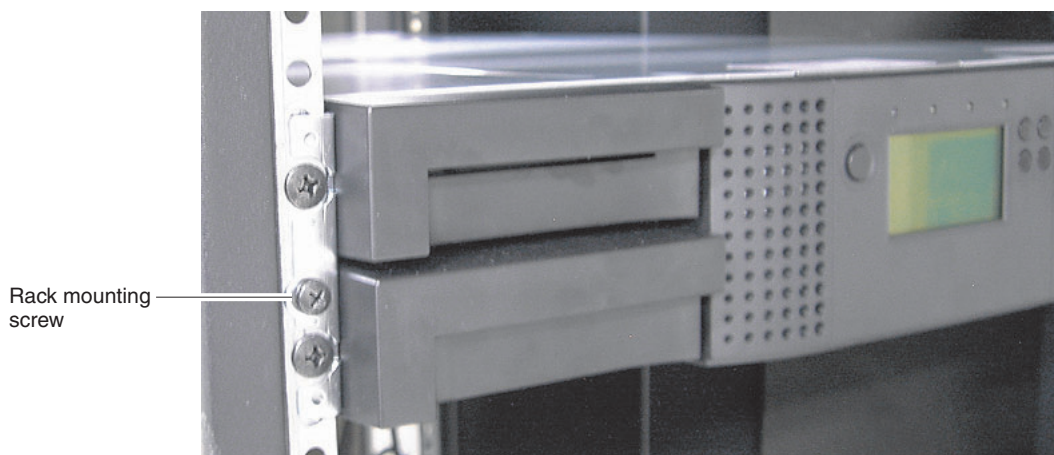
h. Secure the autoloader to the rack as shown in Figure 5.

Rack mounting screw

Figure 5. Secure the autoloader to the rack

i. Continue with step 6.

6. Install the magazines.

7. Install the tape drive:

a. Slowly slide the tape drive into the autoloader as shown in Figure 6 on page 8.

Figure 6. Install tape drive

      b. Tighten the captive screws.

   8. Install the cables and power cord:

      a. Attach the host interface cable to the autoloader and host system.
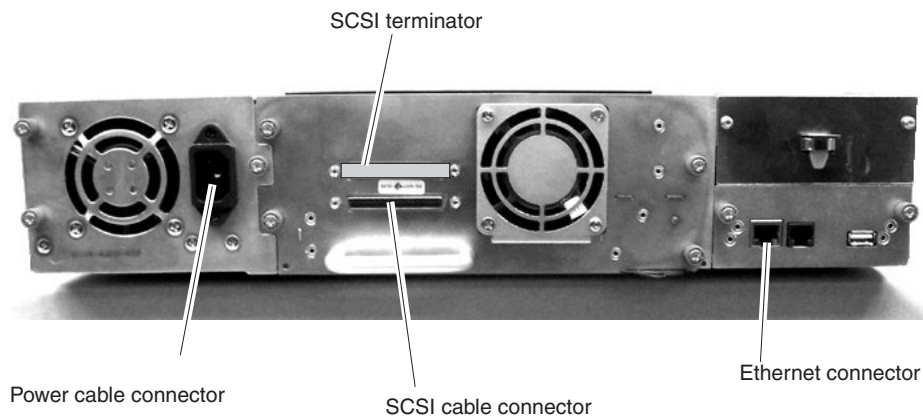

SCSI terminator

Power cable connector   SCSI cable connector   Ethernet connector

Figure 7. Install cables

      b. Install the SCSI terminator.

      c. Connect the Ethernet cable to the Ethernet connector.

      d. Attach the power cable to the autoloader.

      e. Plug the power cable into a properly grounded electrical outlet.

   9. Turn the autoloader on:

      a. Make sure that the power cord is properly connected.

      b. Press the power-on switch.

To turn the autoloader off, push the power button for 1 second. The shutdown sequence can take up to a minute to complete.

10. Install the tape cartridges:

   a. Label the cartridges.

   b. Set the write protect switch to write protect or write enable.

   c. Place the cartridges in the magazines:

      1) From the main screen, press the Enter button. The main menu is displayed.

      2) Press the Next button to select **Magazine** and press the Enter button.

      3) Press the Next button to select the magazine that you want to open and press the Enter button. The Magazine Unlocking screen is displayed and the magazine is unlocked.

      4) Open the magazine and load the tape cartridges.

      5) Close the magazine. The tape cartridges are automatically inventoried.

   d. Close the autoloader doors.

Solving initial startup problems

Problems encountered during the installation of the autoloader are usually caused by improper SCSI bus configuration, application software configuration errors, or an incorrectly configured operating system. If the application software that you are using is not communicating with the autoloader after installation, check the following:

- SCSI ID: The autoloader with a SCSI tape drive uses a single SCSI ID. Depending on other devices attached to the same SCSI bus and their SCSI IDs, you might need to change the SCSI ID of the autoloader or tape drive before you can use the autoloader. Review the documentation for the other devices on the SCSI bus or your operating system to determine which SCSI IDs are currently in use.

- LUN scanning: Use dual logical unit numbers (LUNs) to control the tape drive (LUN 0) and autoloader accessor (LUN 1). These models require an HBA that supports LUN scanning and LUN scanning must be enabled.

- Host interface cabling: Verify that all cables are securely connected at both ends. Check the length and integrity of your cabling. Check the connector for bent pins or other damage.

   – The length of the internal SCSI cabling inside the autoloader is 60 cm (2 feet). This length must be included in any calculations of cable length.

   – The maximum length for a single device is 25 meters (82 feet). For multiple devices, the maximum combined internal and external length is 12 meters (40 feet).

   – If you have a combination of low voltage differential (LVD) and single-ended (SE) devices on the bus, the maximum cable length reverts to the SE specification, which for Ultra devices is 3 meters (10 feet) for four or fewer devices, and 1.5 meters (5 feet) for more than four devices.

- SCSI termination: If the autoloader is the only SCSI device other than the SCSI host adapter on the selected SCSI bus, it must be terminated. Likewise, if the autoloader is physically the last SCSI device on the SCSI bus, it must be terminated. Only the devices physically located at the beginning and end of the SCSI bus should be terminated. Refer to the documentation that was supplied with other devices on the SCSI bus for information on enabling or disabling termination on those devices.

To terminate the autoloader, locate the terminator in the accessories package and press it firmly into either of the two SCSI connectors on the back panel of the autoloader. Secure the terminator by tightening the finger-screws until snug. The supplied terminator is dual mode and will work on both LVD and SE SCSI buses. Check all SCSI cable connections and confirm that the unit is attached to a valid SCSI SE or LVD bus.

- Compatibility: Ensure that the autoloader is compatible with the SCSI host adapter and backup application you plan to use. For a list of compatible SCSI adapters and application software, check with your SCSI host adapter manufacturer or backup application vendor.

    Note: The host bus adapter for the autoloader should be SCSI-3 LVD. A single-ended (SE) SCSI host bus adapter will severely degrade performance. Also, if there are any SE devices on the same SCSI bus, the entire SCSI bus will negotiate down to SE speed and severely degrade performance.

- SCSI host adapter installation: Verify that your SCSI host adapter is installed correctly. Refer to the documentation that came with your SCSI host adapter for installation and troubleshooting instructions. Pay particular attention to any steps describing the settings of various jumpers and/or switches on the host adapter, if applicable. Make sure that the host adapter is properly seated in the motherboard slot and the operating system correctly detects the host adapter. Make sure that the proper device driver is installed for the SCSI host adapter.

- Backup application installation: Refer to the documentation included with your backup application for instructions on how to verify proper installation. Some backup software packages require an additional module to communicate with the autoloader accessor.

- Device driver installation: Make sure that the proper device driver, if applicable, is installed for the autoloader.

    Note: Many backup applications use their own drivers for the autoloader and drive. Before installing a driver, make sure it will not be in conflict with the software.

Appendix. Notices

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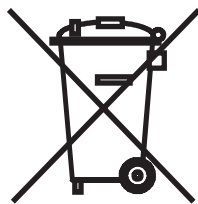
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> xSeries

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This appliance is labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

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In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to

minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. 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 Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU 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 nonrecommended 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 A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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Chinese Class A warning statement

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在这种情况下，可能需要用户对其
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