

DDS Generation 6 USB Tape Drive



# User's Guide

**Important:**

Review the maintenance information in "Cleaning the tape drive heads" on page 15 and Appendix C, "IBM Statement of Limited Warranty Z125-4753-09 08/2006," on page 23, because periodic maintenance is not covered by the IBM warranty. Repairs or exchanges that result from improper maintenance might result in billable service charges.



DDS Generation 6 USB Tape Drive



# User's Guide

**Note:** Before using this information and the product it supports, read the information in Appendix C, "IBM Statement of Limited Warranty Z125-4753-09 08/2006," on page 23 and Appendix D, "Notices," on page 39.

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## Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

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

在安裝本产品之前，请仔细阅读 **Safety Information**  
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

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.

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 pečítajte 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.

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:**

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlet.
5. Turn device ON.

**To Disconnect:**

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

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# Contents

<b>Safety</b> . . . . .	iii
<b>Chapter 1. Introduction</b> . . . . .	1
The IBM Documentation CD . . . . .	2
Hardware and software requirements . . . . .	2
Using the Documentation Browser . . . . .	2
Notices and statements used in this document. . . . .	3
<b>Chapter 2. Installing the tape drive</b> . . . . .	5
Installation guidelines . . . . .	5
Handling static-sensitive devices . . . . .	5
Unpacking . . . . .	6
Parts inventory . . . . .	6
Preinstallation requirements . . . . .	6
Installing the drive . . . . .	7
<b>Chapter 3. Using the tape drive</b> . . . . .	9
Loading a cartridge . . . . .	9
Unloading a tape cartridge . . . . .	9
Emergency cartridge unloading . . . . .	9
Data cartridges . . . . .	9
Using the correct cartridge . . . . .	9
Handling cartridges . . . . .	10
Labeling cartridges . . . . .	10
Inspecting a cartridge . . . . .	11
Write-protect switch . . . . .	11
Cleaning cartridges . . . . .	12
Status LEDs . . . . .	13
<b>Chapter 4. Maintaining and troubleshooting the drive</b> . . . . .	15
Cleaning the tape drive heads . . . . .	15
Updating firmware. . . . .	15
Determining the current Linux firmware level . . . . .	15
Determining the current Microsoft Windows firmware level . . . . .	16
The tape drive is not working. . . . .	16
The tape drive fails the power-on self-test . . . . .	16
The server does not start . . . . .	16
The server does not recognize the drive . . . . .	17
The backup program does not recognize the drive . . . . .	17
Replacing the tape drive . . . . .	17
Removing the tape drive . . . . .	18
Installing the tape drive . . . . .	18
<b>Appendix A. Specifications</b> . . . . .	19
Size and weight . . . . .	19
Power specifications . . . . .	19
Environmental requirements . . . . .	19
<b>Appendix B. Getting help and technical assistance</b> . . . . .	21
Before you call . . . . .	21
Using the documentation . . . . .	21
Getting help and information from the World Wide Web . . . . .	21
Software service and support . . . . .	22

Hardware service and support . . . . .	22
IBM Taiwan product service . . . . .	22
<b>Appendix C. IBM Statement of Limited Warranty Z125-4753-09 08/2006</b>	<b>23</b>
Part 1 - General Terms . . . . .	23
Part 2 - Country-unique Terms . . . . .	27
Part 3 - Warranty Information . . . . .	37
<b>Appendix D. Notices</b> . . . . .	<b>39</b>
Trademarks . . . . .	39
Important notes. . . . .	40
Product recycling and disposal . . . . .	41
Battery return program . . . . .	42
Electronic emission notices . . . . .	44
Federal Communications Commission (FCC) statement . . . . .	44
Industry Canada Class A emission compliance statement . . . . .	44
Avis de conformité à la réglementation d'Industrie Canada . . . . .	44
Australia and New Zealand Class A statement . . . . .	44
United Kingdom telecommunications safety requirement. . . . .	44
European Union EMC Directive conformance statement. . . . .	44
Taiwanese Class A warning statement . . . . .	45
Chinese Class A warning statement . . . . .	45
Japanese Voluntary Control Council for Interference (VCCI) statement . . . . .	45
Korean Class A warning statement . . . . .	46
<b>Index</b> . . . . .	<b>47</b>



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## Chapter 1. Introduction

The IBM® DDS Generation 6 USB Tape Drive is a versatile backup and restore device for xSeries® and System x™ servers and IntelliStation® workstations. Using advanced onboard DDS-DC hardware that uses Lempel-Ziv (DCLZ) data-compression, it can store up to 160 GB of compressed data on a digital data storage (DDS) tape and transfer compressed data at a sustained rate of up to 12 MB per second.

The tape drive has the following other features:

- Supports DDS Generation 4, DDS Generation 5, and DDS Generation 6 recording formats
- Is connected to the computer through a Universal Serial Bus 2 (USB 2) interface
- Fits in a 5.25-inch, half-high bay, or as a 3.5-inch, half-high drive when attached to a Tape Enablement Kit
- High-speed transfer rates for fast backup operations
- Flash memory to store setup parameters and enable field firmware upgrades
- Automatic power-on self-test (POST)

The IBM DDS Generation 6 USB tape drive can be installed in many IBM xSeries and System x servers and IntelliStation workstations. For a list of servers that support the tape drive, see <http://www-03.ibm.com/servers/eserver/serverproven/compat/us/xseries/storage/tmatrix.html>.

### Notes:

- Changes are made periodically to the IBM Web site. Procedures for locating firmware and documentation might vary slightly from what is described in this document.
- Depending on your system configuration, the illustrations in this document might differ from your server hardware and optional devices. For additional information, see the documentation that comes with your server hardware and optional devices.
- For tape-drive specifications, see Appendix A, "Specifications," on page 19.

You can also install the tape drive in a tape-drive enclosure. For information about installing the tape drive in a tape-drive enclosure, see the documentation that comes with the tape-drive enclosure.

You can register the tape drive with IBM at <http://www.ibm.com/support/mysupport/>. The product name and serial number are required for registration. You can find this information in the option package that contains the tape drive.

The tape drive comes with a limited warranty. For more information, see Appendix C, "IBM Statement of Limited Warranty Z125-4753-09 08/2006," on page 23.

In addition to this *User's Guide*, the option package contains the following items:

- IBM USB DDS Generation 6 tape drive
- Mounting screws
- Cleaning cartridge
- Four internal USB cables

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.

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## The IBM Documentation CD

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

## Hardware and software requirements

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

- Microsoft® Windows® XP, 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

## 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 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 tape 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 the tape drive from the **Product** menu. The **Available Topics** list displays all the documents for your tape drive. 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 is displayed 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 Ctrl+F to use the Acrobat search function or press Alt+F to use the xpdf search function within the document.

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

---

## Notices and statements used in this document

The caution and danger statements used in this document are also in the multilingual *Safety Information* document provided on the IBM *Documentation* CD and at <http://www.ibm.com/systems/support/> on the World Wide Web. Each caution and danger statement is numbered for reference to the corresponding statement in the *Safety Information* document.

The following types of notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate possible 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 situations 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.



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## Chapter 2. Installing the tape drive

**Note:** See the documentation that came with the server for tape-drive installation instructions. If you do not have this documentation, use the general instructions in this section to install the tape drive.

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### Installation guidelines

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

- Read the safety information that begins on page iii 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.

### 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 you handle devices during cold weather. Heating reduces indoor humidity and increases static electricity.

## Unpacking

Before you unpack the contents of the tape drive package, inspect the shipping container for damage. If the shipping container is damaged, notify your carrier immediately.

Keep the packaging that comes with the tape drive in case you have to return it for service or warranty replacement.

## Parts inventory

Make sure that you received the following parts:

- Tape drive
- Mounting screws
- Cleaning cartridge
- Four internal USB cables

If any of these items are missing or damaged, contact your place of purchase for replacement.

---

## Preinstallation requirements

In addition to the contents that are included with the tape drive, you need the following items to install the tape drive:

- A USB 2 port
- An available 5.25-inch, half-high bay, or two available hard disk drive bays in a System x3650 or System x3655 server
- Backup application software that supports the tape drive
- Phillips screwdriver, if the server or workstation has Phillips screws
- Flat-blade screwdriver, if the server or workstation has slotted screws
- Torx screwdriver, if the server or workstation has torx screws

Before you install the tape drive, consider the following information:

- If your enclosure requires mounting rails, use the mounting rails that are provided with the enclosure. If your server requires mounting rails, use the mounting rails that are provided with the server.
- Also review the *Customer Responsibilities* document. See <http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-52989&brandind=5000019>.

### Notes:

- Changes are made periodically to the IBM Web site. Procedures for locating firmware and documentation might vary slightly from what is described in this document.
- Depending on your system configuration, the illustrations in this document might differ from your server hardware and optional devices. For additional information, see the documentation that comes with your server hardware and optional devices.

---

## Installing the drive

To install the tape drive, complete the following steps:

1. Read the safety information that begins on page iii and “Installation guidelines” on page 5.
2. Make sure that the server is turned off and that the power cord is disconnected.
3. Install the tape drive in the bay, using the drive-installation instructions that came with the server. If you do not have the server documentation, install the drive by completing the following steps, and then continue with step 4 on page 8:
  - a. Locate an available bay to mount the tape drive. Remove the cover plate from the bay. You can install the drive either horizontally or vertically, depending on the bay.
  - b. Attach the drive rails to the tape drive as shown in Figure 1.

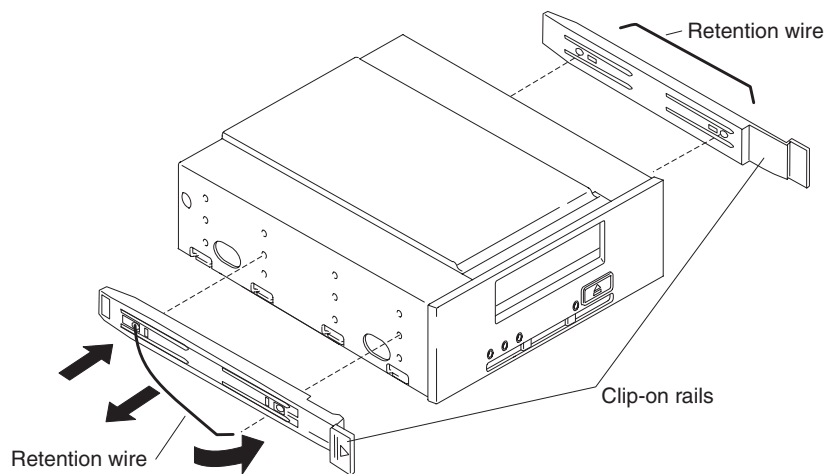
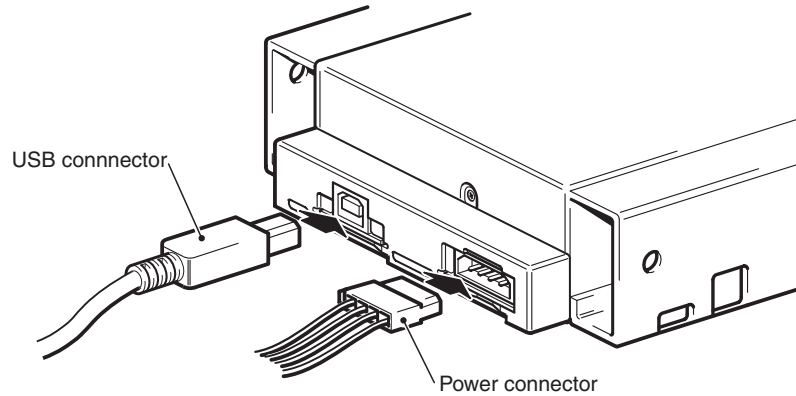


Figure 1. Drive rail installation

- c. Slide the drive into the server until the rails snap in place. When you mount the tape drive, follow these guidelines:
  - Make sure that no objects such as screw heads, cables, or adjacent devices are pressing against the frame.
  - Make sure that nothing blocks the ventilation slots on the bottom and rear of the tape drive.

- d. Choose one of the four included internal USB cables based on the system side connector. Attach that connector to the matching system-board connector in your server.
- e. Connect the other (tape drive) side of the internal USB cable to the tape drive.



*Figure 2. Cable connections*

- f. Connect the power connector to the tape drive.
4. Reinstall the server covers.
5. Connect the power cord and turn on the server.
6. Gently insert a tape cartridge into the tape drive (see “Loading a cartridge” on page 9). Slide the cartridge into the slot until the drive accepts the cartridge and loads it. A brief delay occurs and the ready LED flashes green while the drive identifies the cartridge type and state and moves the tape to the data area; then, the green ready LED turns on.
7. Install the device driver. For information about installing device drivers, see the instructions that are provided in the device-driver folder on the IBM *Documentation CD*.
8. Use your backup software application to perform a sample backup-and-restore operation.
9. At the end of the operation, press the eject button on the front of the tape drive to eject the cartridge from the drive (see “Unloading a tape cartridge” on page 9).



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## Chapter 3. Using the tape drive

This chapter describes how to use the tape drive.

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### Loading a cartridge

The tape drive has a front-loading tape cartridge bay. To load a tape cartridge, complete the following steps:

1. Hold the tape cartridge so that the label is facing you.
2. Gently insert the tape cartridge into the drive. The drive-bay door opens automatically when a tape cartridge is inserted. The ready LED flashes green during the load sequence.

After you insert the tape cartridge, there is a brief delay while the drive identifies the tape cartridge type and state and moves the tape to the data area.

---

### Unloading a tape cartridge

This section describes unloading a tape cartridge under normal operation conditions. If the cartridge does not unload, use the procedure in “Emergency cartridge unloading.”

To unload a tape cartridge, complete the following steps:

1. Make sure that the ready LED is not flashing.  
**Attention:** To ensure integrity of the backup and restore operations, do not press the unload button when the ready LED is flashing.
2. Press the unload button on the front panel of the drive to unload the tape cartridge. The drive automatically completes any operations that were in progress, rewinds the cartridge, and unloads the cartridge. This might take up to 25 seconds. Do not turn off the tape drive or host server during this time.

---

### Emergency cartridge unloading

If you cannot unload a cartridge using the procedure described in “Unloading a tape cartridge,” press and hold the unload button for 20 seconds. The drive completes the following tasks:

- Waits 35 seconds while it attempts to unload the cartridge normally
- Unloads the tape regardless of the state of the cartridge
- Resets itself

---

### Data cartridges

This section provides information about data cartridges. See “Cleaning cartridges” on page 12 for information about cleaning cartridges.

### Using the correct cartridge

The IBM DDS Generation 6 USB tape drive uses data-grade DDS cartridges. DDS Generation 6 tape cartridges are less abrasive than previous generations and provide maximum tape-head life.

The drive has the following capabilities and limitations:

- Reads and writes DDS Generation 6 cartridges

- Reads and writes DDS Generation 5 cartridges
- Reads and writes DDS Generation 4 cartridges
- Cannot read from or write to DDS Generation 2 or DDS Generation 3 cartridges

For optimum performance and maximum storage capacity, use only IBM-recommended data and cleaning cartridges. Other cartridges have not been tested by IBM. For a list of IBM-recommended tape cartridges, go to <http://www.ibm.com/systems/support/> and search for “MIGR-39931”.

**Note:** Do not bulk-erase DDS tape cartridges; otherwise, the prerecorded servo information will be deleted, rendering the cartridge useless.

## Handling cartridges

DDS cartridges are fragile. To protect the data cartridges and the information on them, observe the following guidelines:

- Use DDS cartridges at temperatures from 5° C (41° F) to 40° C (104° F). Cartridges can be stored at temperatures as low as -40° C (-40° F). If cartridges are exposed to temperatures or humidities outside the specified operating environment, expose them to the operating environment for a time equal to the period that the cartridges were exposed to the out-of-specification environment (up to a maximum of 24 hours).
- Do not read from or write to cartridges when a temperature change of 10° C (50° F) per hour is occurring.
- Keep cartridges in plastic cases when they are not in use.
- Consider reading data off of tapes and rewriting to new and perhaps more modern tapes every few years.
- Do not expose cartridges to direct sunlight, moisture, excessively dry or humid places, extreme changes in temperature or humidity, or X-rays.
- Do not treat cartridges roughly or drop them.
- Do not try to clean the tape guides or tape path inside the cartridge.
- Never touch the exposed tape media with your fingers.
- Never leave cartridges close to magnetic fields, such as near a monitor or telephone handset.

## Labeling cartridges

Place labels only on the recessed label area, as shown in Figure 3.

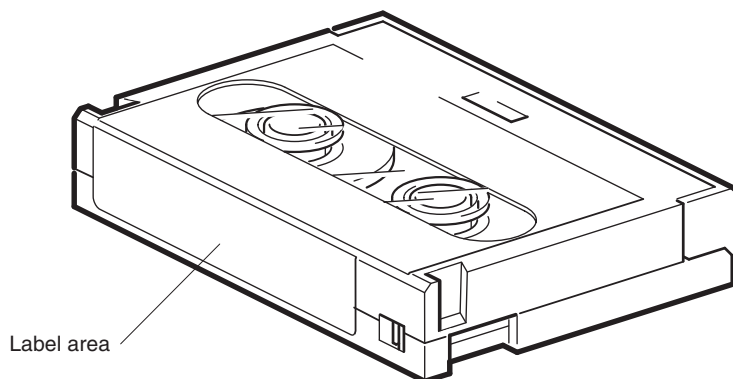


Figure 3. Label location

To ensure that the labels do not cause a problem, follow these guidelines:

- Place only one label at the label location.
- Use only labels that are similar to the labels that were supplied with the cartridge.
- Make sure that the edges of the labels adhere completely to the cartridge.

## Inspecting a cartridge

Before you use a cartridge, complete the following steps:

1. Inspect the packaging to detect rough handling.

**Note:** When you inspect a cartridge, open only the cartridge door. Do not open any other part of the cartridge case.

2. Inspect the cartridge for damage before you use or store it. If you suspect that the cartridge has a problem, copy any data onto a good cartridge immediately for possible data recovery. Discard the damaged cartridge. Use or store the good cartridge in accordance with the guidelines in “Handling cartridges” on page 10.

## Write-protect switch

The position of the write-protect switch on the tape cartridge determines whether you can write to the tape. If the switch is set to the write-protect position, data cannot be written to the tape. If the switch is set to the write-enabled position, data can be written to the tape.

If possible, use application software to write-protect your cartridges rather than manually setting the write-protect switch. This enables the software to identify a cartridge that no longer contains current data and is eligible to become a scratch (blank) data cartridge. Do not write-protect scratch cartridges; the drive will not be able to write new data to them.

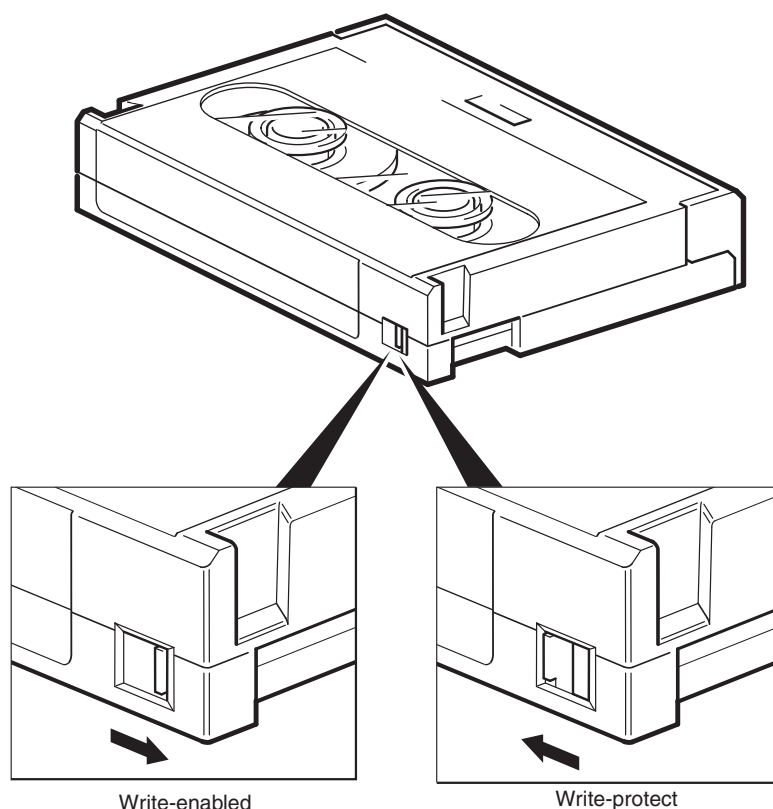


Figure 4. Write-protect switch location

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## Cleaning cartridges

If excessive dust or debris collects at the tape heads, the drive might not be able to read from or write to tape. Clean the tape heads in the following situations:

- When the clean LED is lit
- When you are directed to by your application software or system management software
- When read or write errors occur

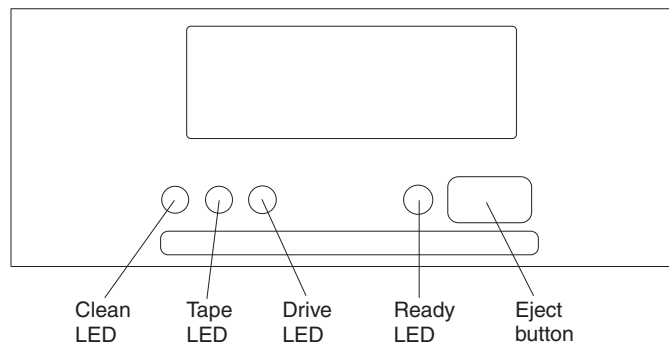
To clean tape heads, use only IBM-recommended cleaning cartridges. For a list of IBM-recommended cleaning cartridges, go to <http://www.ibm.com/systems/support/> and search for “MIGR-39931”.

**Note:** Do not use an audio DAT cleaning cartridge, because the drive cannot recognize it. Also, avoid liquids, swabs, and methods other than those that are described in this section.

IBM cleaning cartridges can be used for approximately 50 cleaning cycles. Expired cleaning cartridges are ejected within 20 seconds of being loaded.

## Status LEDs

The following illustration shows an example of the status LEDs on the front panel of the tape drive.



The following table summarizes the status LED functions.

*Table 1. Status LED descriptions*

Clean LED	Tape LED	Drive LED	Ready LED	Description	Corrective action
Off	Off	Off	Off	The drive does not have power.	Make sure that the power cable is correctly connected to the drive.  If the problem remains, contact IBM support.
Off	Off	Off	On	The drive is ready for operation.	No action is required.
Off	Off	Off	Flashing	Normal operation is occurring.	No action is required.
Flashing	Off	Off	Off or flashing	The tape drive heads require cleaning.	Clean the tape drive heads. See “Cleaning the tape drive heads” on page 15 for more information.
On	Off	Off	Flashing	The drive is being cleaned.	No action is required.

Table 1. Status LED descriptions (continued)

Clean LED	Tape LED	Drive LED	Ready LED	Description	Corrective action
Off	Flashing	Off	Off or flashing	There is a problem with the tape cartridge.	Complete the following steps in the order listed. Retry the operation after each step. <ol style="list-style-type: none"> <li>1. Unload the tape cartridge and verify that you are using a supported tape cartridge. See "Using the correct cartridge" on page 9 for more information.</li> <li>2. Load a new tape cartridge.</li> <li>3. Clean the tape drive.</li> <li>4. Verify that the latest firmware is installed. See "Updating firmware" on page 15 for more information.</li> <li>5. Replace the tape drive. See "Replacing the tape drive" on page 17.</li> </ol>
Off	Off	Flashing	Off or flashing	There is a problem with the drive.	Complete the following steps in the order listed. Retry the operation after each step. <ol style="list-style-type: none"> <li>1. Load a new tape cartridge.</li> <li>2. Clean the tape drive.</li> <li>3. Verify that the latest firmware is installed. See "Updating firmware" on page 15 for more information.</li> <li>4. Replace the tape drive. See "Replacing the tape drive" on page 17.</li> </ol>
Off	Flashing	Flashing	Flashing	A firmware download problem has occurred.	Try resetting power to the tape drive.  If the problem persists, contact IBM Support.

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## Chapter 4. Maintaining and troubleshooting the drive

This chapter provides information about maintaining the drive and troubleshooting drive problems.

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### Cleaning the tape drive heads

To clean the tape heads, complete the following steps:

1. Review the information in “Cleaning cartridges” on page 12.
2. Insert a cleaning cartridge into the drive. The drive loads and runs the cleaning cartridge for approximately 30-60 seconds.
3. Remove the cleaning cartridge from the drive.

---

### Updating firmware

IBM periodically releases new firmware to fix problems or provide functional enhancements. To locate the tape files index of the latest firmware and instructions for installing it, go to <http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-52989&brandind=5000019> and search for “tape files”.

**Note:** Changes are made periodically to the IBM Web site. Procedures for locating firmware and documentation might vary slightly from what is described in this document.

After you install the tape drive, make sure that the latest firmware is installed on the tape drive. To do this, complete the following steps:

1. First, determine the level of the firmware that is currently installed. The procedures for determining the current firmware level vary according to the type of operating system that you are using.
  - If you are using the Linux operating system, see “Determining the current Linux firmware level.”
  - If you are using the Microsoft Windows operating system, see “Determining the current Microsoft Windows firmware level” on page 16.
2. If the firmware level is not up-to-date, install the latest firmware by using the instructions at <http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-52989&brandind=5000019>.

### Determining the current Linux firmware level

To determine the level of Linux firmware that is currently installed, complete the following steps:

1. Go to your **/DEV** file directory.
2. Find the SCSI or XXX Device Folder (readable English).
3. Find the tape device in that folder, where XXX represents the device type.
4. Use the applicable Linux command to display the contents on the tape device.

**Note:** See your *Linux User's Guide* for instructions.

## Determining the current Microsoft Windows firmware level

To determine the level of Microsoft Windows firmware that is currently installed, complete the following steps:

1. Go to the Windows Device Manager.
2. Find the **Tape Device** and expand it.
3. Right-click the device driver for the tape device.
4. Left-click **Properties**.
5. Choose the **Driver Detail Tab**.

This will display the registry entry for the tape drive and the Microsoft Windows revision level on the tape device.

---

## The tape drive is not working

### Notes:

- If all of the front panel LEDs are flashing, try resetting power to the tape drive. If the problem persists, contact IBM Support.
- IBM Support might ask you to obtain diagnostic information, by using the tape-drive diagnostic software. To find this software, go to <http://www.ibm.com/systems/support/> and search for “tape files”.

If the tape drive is not working, complete the following steps:

1. Make sure that the power cable is correctly connected to the drive. If the connection is correct, replace the power cable.
2. If the drive still does not function correctly, contact IBM Support.

---

## The tape drive fails the power-on self-test

If the tape drive fails the power-on self-test (POST), complete the following steps:

1. Check for a cartridge in the drive. If you find one, eject it.
2. Turn off and then turn on the tape drive.
3. If the tape drive still fails the POST, contact IBM Support.

---

## The server does not start

If the server does not start after you install the tape drive, complete the following steps:

1. Make sure that the server power cord is correctly connected and all cables are correctly connected to the drive and the server.
2. Make sure that the server power cord is connected to a power outlet that is known to work.
3. If the server still does not start, contact IBM Support.



---

## The server does not recognize the drive

If the server does not recognize the drive, complete the following steps:

1. Make sure that the USB cable and power cable are correctly connected to the drive.
2. Make sure that the correct device driver is installed.
3. If the server still does not recognize the tape drive, contact IBM Support.

---

## The backup program does not recognize the drive

If the backup application program does not recognize the drive, use another application (such as Microsoft Windows Device Manager, for example) to determine whether the drive is recognized.

If the other application recognizes the drive, check the documentation that came with the backup program to determine whether the program requires a particular device driver.

If the other application does not recognize the drive, the drive might not be correctly installed or configured. Check the drive installation and configuration.

---

## Replacing the tape drive

The tape drive is a Tier 1 customer replaceable unit (CRU). Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For more information about the terms of the warranty and getting service and assistance, see Appendix C, “IBM Statement of Limited Warranty Z125-4753-09 08/2006,” on page 23.

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

Table 2 lists the replaceable components.

*Table 2. CRU list*

Description	CRU part number
Tape drive	43W8494
Mounting screw	42C3933
USB cable for System x3650 and System x3655 servers	44E8883
USB cable for System x3400 and System x3500 servers	44E8884
USB cable for System x3105 and System x3200 servers	44E8885
USB cable for other servers	44E8893

## Removing the tape drive

To remove the tape drive, complete the following steps:

1. Read the safety information that begins on page iii and “Installation guidelines” on page 5.
2. Make sure that the server is turned off and that the power cord is disconnected.
3. Remove the server covers. Use the instructions that came with the server.
4. Disconnect the USB and power cables from the tape drive.
5. Remove the tape drive from the bay. Use the drive-installation instructions that came with the server.

## Installing the tape drive

Before you install the tape drive, consider the following information:

- If your enclosure requires mounting rails, use the mounting rails that are provided with the enclosure. If your server requires mounting rails, use the mounting rails that are provided with the server.
- Also review the *Customer Responsibilities* document. See <http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-52989&brandind=5000019>.

To install the tape drive, complete the following steps:

1. Read the safety information that begins on page iii and “Installation guidelines” on page 5.
2. Make sure that the server is turned off and that the power cord is disconnected.
3. Install the tape drive in the bay. Use the drive-installation instructions that came with the server.
4. Connect the other (tape drive) side of the internal USB cable to the tape drive.

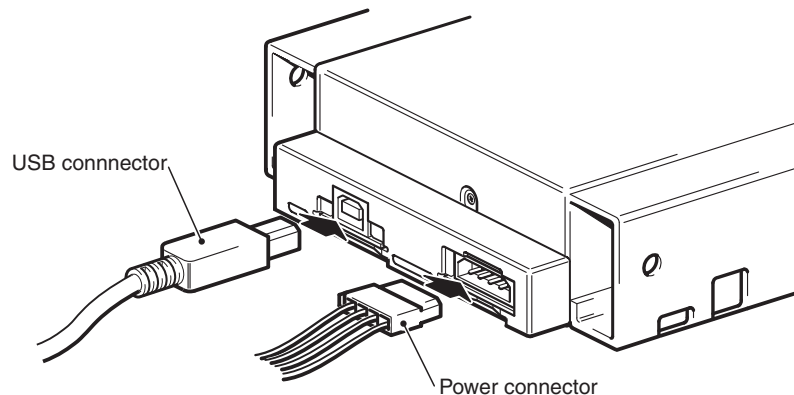


Figure 5. Cable connections

5. Connect the power connector to the tape drive.
6. Reinstall the server covers. Use the instructions that came with the server.
7. Connect the power cord and turn on the server.

---

## Appendix A. Specifications

This appendix provides specifications of the DDS Generation 6 USB tape drive.

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### Size and weight

Specification	Tape drive
Height	4.0 cm (1.6 inches)
Depth	18.3 cm (7.2 inches)
Width	14.5 cm (5.7 inches)
Weight	1.2 kg (2.7 lb)

---

### Power specifications

Specification	+12 Vdc supply	+5 Vdc supply
Voltage tolerance	±10% operating	± 5% operating
Current	Average: .4 A Maximum: 2.0 A	Average: 1.2 A Maximum: 1.2 A
Ripple (peak-to-peak)	≤ 0.15 V (peak-to-peak)	≤ 0.1 V (peak-to-peak)
Total power consumption	Average: 10.8 W Maximum: 30 W	

---

### Environmental requirements

The following table lists the environmental specifications of the tape drive. The tape drive meets these standards whether it is mounted vertically (on its side) or horizontally (right side up).

Specifications	Operational	Nonoperational
Temperature	+5° C to +40° C (+41° F to +104° F)	-40° C to +70° C (-40° F to +158° F)
Relative humidity	20% to 80% noncondensing	5% to 95% noncondensing



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## Appendix B. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

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### Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Problem Determination and Service Guide* on the IBM Documentation CD that comes with your system.
- Go to the IBM support Web site at <http://www.ibm.com/systems/support/> to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

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### Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/systems/support/> and follow the instructions. Also, some documents are available through the IBM Publications Center at <http://www.ibm.com/shop/publications/order/>.

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### Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM systems, optional devices, services, and support. The address for IBM System x and xSeries information is <http://www.ibm.com/systems/x/>. The address for IBM BladeCenter® information is <http://www.ibm.com/systems/bladecenter/>. The address for IBM IntelliStation information is <http://www.ibm.com/intellistation/>.

You can find service information for IBM systems and optional devices at <http://www.ibm.com/systems/support/>.

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## Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with System x and xSeries servers, BladeCenter products, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, see <http://www.ibm.com/services/sl/products/>.

For more information about Support Line and other IBM services, see <http://www.ibm.com/services/>, or see <http://www.ibm.com/planetwide/> for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

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## Hardware service and support

You can receive hardware service through IBM Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. See <http://www.ibm.com/planetwide/> for support telephone numbers, or in the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

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## IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：  
台灣國際商業機器股份有限公司  
台北市松仁路 7 號 3 樓  
電話：0800-016-888

IBM Taiwan product service contact information:

IBM Taiwan Corporation  
3F, No 7, Song Ren Rd.  
Taipei, Taiwan  
Telephone: 0800-016-888

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## Appendix C. IBM Statement of Limited Warranty Z125-4753-09 08/2006

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### Part 1 - General Terms

#### Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms, Part 2 - Country-unique Terms, and Part 3 - Warranty Information. The terms of Part 2 replace or modify those of Part 1.

The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. **NOTHING IN THIS STATEMENT OF LIMITED WARRANTY AFFECTS ANY STATUTORY RIGHTS OF CONSUMERS THAT CANNOT BE WAIVED OR LIMITED BY CONTRACT.**

This Statement of Limited Warranty is available, in multiple languages, at the following IBM Internet website: [http://www.ibm.com/servers/support/machine\\_warranties/](http://www.ibm.com/servers/support/machine_warranties/).

#### What this Warranty Covers

IBM warrants that each Machine is free from defects in materials and workmanship and conforms to its Specifications. "Specifications" is information specific to a Machine in a document entitled "Official Published Specifications" which is available upon request.

During the warranty period, IBM provides repair and exchange service for the Machine under the type of warranty service IBM designates for the Machine. The warranty period for the Machine is a fixed period starting on its original Date of Installation. The date on your purchase invoice or sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise. The warranty period, type of warranty, and service level that apply to your Machine are designated in Part 3.

Many features, conversions, or upgrades involve the removal of parts and their return to IBM. An IBM part that replaces a removed part will assume the warranty service status of the removed part. An IBM part that is added to a Machine without replacing a previously-installed part is subject to warranty effective on its Date of Installation. Unless IBM specifies otherwise, the warranty period, type of warranty, and service level of such part is the same as the Machine on which it is installed.

Unless IBM specifies otherwise, these warranties apply only in the country or region in which you purchased the Machine.

**THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE**

**EXCLUSION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.**

#### **What this Warranty Does not Cover**

This warranty does not cover the following:

1. failure or damage resulting from misuse (including but not limited to use of any Machine capacity or capability, other than that authorized by IBM in writing), accident, modification, unsuitable physical or operating environment, or improper maintenance by you;
2. failure caused by a product for which IBM is not responsible;
3. any non-IBM products, including those provided with, or installed on, an IBM Machine at your request;
4. accessories, supply items and consumables (e.g. batteries and printer cartridges), and structural parts (e.g. frames and covers);
5. service of Machine alterations; and
6. service of a Machine on which you are using capacity or capability, other than that authorized by IBM in writing.

The warranty is voided by removal or alteration of identification labels on the Machine or its parts.

IBM does not warrant uninterrupted or error-free operation of a Machine.

Any technical or other support provided for a Machine under warranty, such as assistance with “how-to” questions and those regarding Machine set-up and installation, is provided **WITHOUT WARRANTIES OF ANY KIND**.

#### **How to Obtain Warranty Service**

If the Machine does not function as warranted during the warranty period, contact IBM or your reseller to obtain warranty service. Contact information for IBM is provided in Part 3. If you do not register the Machine with IBM, you may be required to present proof of purchase as evidence of your entitlement to warranty service.

#### **What IBM Will Do to Correct Problems**

IBM will attempt to diagnose and resolve your problem over the telephone or electronically by access to an IBM Internet website. Certain Machines contain remote support capabilities for direct problem reporting, remote problem determination and resolution with IBM. When you contact IBM for service, you must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, a service technician will be scheduled for service at your location.

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called “BIOS”), utility programs, device drivers, and diagnostics delivered with an IBM Machine) and other software updates in a timely manner from an IBM Internet



website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes, however, you may be charged for that service.

Some parts of IBM Machines are designated as Customer Replaceable Units ("CRUs"). If your problem can be resolved with a CRU (e.g., keyboard, memory, hard disk drive), IBM will ship the CRU to you for you to install.

If the Machine does not function as warranted during the warranty period and your problem cannot be resolved over the telephone or electronically, through your application of Machine Code or software updates, or with a CRU, IBM or its subcontractor or a reseller that has been approved by IBM to provide warranty service, will either, at its discretion, 1) repair it to make it function as warranted, or 2) replace it with one that is at least functionally equivalent. If IBM or its subcontractor or the reseller is unable to do either, you may return the Machine to your place of purchase and your money will be refunded.

IBM or its subcontractor or the reseller will also manage and install selected engineering changes that apply to the Machine.

### **Exchange of a Machine or Part**

When the warranty service involves the exchange of a Machine or part, the item IBM or its subcontractor or the reseller replaces becomes IBM's property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

### **Your Additional Responsibilities**

You agree:

1. before IBM or its subcontractor or the reseller exchanges a Machine or part, to remove all features, parts, options, alterations, and attachments not under warranty service and ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. to obtain authorization from the owner to have IBM or its subcontractor or the reseller service a Machine that you do not own;
3. where applicable, before service is provided:
  - a. follow the service request procedures that IBM or its subcontractor or its reseller provides;
  - b. backup and secure all programs, data, and funds contained in the Machine; and
  - c. inform IBM or its subcontractor or the reseller of changes in the Machine's location;
4. to provide IBM or its subcontractor or the reseller with sufficient and safe access to your facilities to permit IBM to fulfill its obligations;
5. to allow IBM or its subcontractor or the reseller to install mandatory engineering changes, such as those required for safety;
6. when the type of warranty service requires that you deliver a failing Machine to IBM, you agree to ship it suitably packaged, as IBM specifies, to a location IBM designates. After the Machine has been repaired or exchanged, IBM will return the repaired Machine or provide a replacement Machine to you at its expense, unless IBM specifies otherwise. IBM is responsible for loss of, or damage to, your Machine only while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges; and

7. to securely erase from any Machine you return to IBM for any reason all programs not provided by IBM with the Machine, and data, including without limitation the following: 1) information about identified or identifiable individuals or legal entities ("Personal Data") and 2) your confidential or proprietary information and other data. If removing or deleting Personal Data is not possible, you agree to transform such information (e.g., by making it anonymous or encrypting it) so that it no longer qualifies as Personal Data under applicable law. You also agree to remove all funds from Machines returned to IBM. IBM is not responsible for any funds, programs not provided by IBM with the Machine, or data contained in a Machine that you return to IBM. You acknowledge that, to perform its responsibilities under this Statement of Limited Warranty, IBM may ship all or part of the Machine or its software to other IBM or third party locations around the world, and you authorize IBM to do so.

### **Limitation of Liability**

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

This limit also applies to IBM's suppliers, subcontractors, and resellers. It is the maximum for which IBM and its suppliers, subcontractors and resellers are collectively responsible.

**UNDER NO CIRCUMSTANCES IS IBM OR ITS SUPPLIERS, SUBCONTRACTORS, OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING EVEN IF INFORMED OF THEIR POSSIBILITY: 1) THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, DATA; 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR 4) LOST PROFITS, BUSINESS REVENUE, GOODWILL OR ANTICIPATED SAVINGS. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.**

### **Governing Law**

Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Statement of Limited Warranty, without regard to conflict of law principles.

**THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE OR JURISDICTION TO JURISDICTION.**

## Jurisdiction

All of our rights, duties, and obligations are subject to the courts of the country in which you acquired the Machine.

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## Part 2 - Country-unique Terms

### AMERICAS

**Jurisdiction:** *The following sentence is added to this section as it applies to countries in bold print below:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by 1) in **Argentina**; the Ordinary Commercial Court of the city of Buenos Aires; 2) in **Bolivia**; the courts of the city of La Paz; 3) in **Brazil**; court of Rio de Janeiro, RJ; 4) in **Chile**; the Civil Courts of Justice of Santiago; 5) in **Colombia**; the Judges of the Republic of Colombia; 6) in **Ecuador**; the civil judges of Quito for executory or summary proceedings (as applicable); 7) in **Mexico**; the courts located in Mexico City, Federal District; 8) in **Paraguay**; the courts of the city of Asuncion; 9) in **Peru**; the judges and tribunals of the judicial district of Lima, Cercado; 10) in **Uruguay**; the courts of the city of Montevideo; 11) in **Venezuela**; the courts of the metropolitan area of the city of Caracas.

### **BRAZIL**

**Exchange of a Machine or Part:** *Delete the last sentence:*

The replacement assumes the warranty service status of the replaced item.

### **CANADA**

**What this Warranty Covers:** *The following replaces the 2<sup>nd</sup> paragraph to this section:*

During the warranty period, IBM provides repair and exchange service for the Machine under the type of warranty service IBM designates for the Machine. The warranty period for the Machine is a fixed period starting on its original Date of Installation. The date on your purchase invoice or sales receipt is the Date of Installation unless IBM informs you otherwise. The warranty period, type of warranty, and service level that apply to your Machine are designated in Part 3.

**Limitation of Liability:** *The following replaces item 1 and item 2 of this section:*

1. damages for bodily injury (including death) or physical harm to real property and tangible personal property caused by IBM's negligence; and
2. the amount of any other actual direct damages, up to the greater of \$100,000.00 or the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws in the Province of Ontario.

### **PERU**

**Limitation of Liability:** *The following is added at the end of this section:*

In accordance with Article 1328 of the Peruvian Civil Code the limitations and exclusions specified in this section will not apply to damages caused by IBM's willful misconduct ("dolo") or gross negligence ("culpa inexcusable").

## **UNITED STATES**

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York

## **ASIA PACIFIC**

### **AUSTRALIA**

**What this Warranty Covers:** *The following paragraph is added to this section:*

The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

**Limitation of Liability:** *The following is added to this section:*

Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State or Territory

### **CAMBODIA AND LAOS**

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York, United States of America

### **CAMBODIA, INDONESIA, AND LAOS**

**Arbitration:** *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Singapore in accordance with the Arbitration Rules of Singapore International Arbitration Center ("SIAC Rules") then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the SIAC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

### **HONG KONG S.A.R.**

As applies to transactions initiated and performed in Hong Kong S.A.R., phrases throughout this Agreement containing the word “country” (for example, “country of purchase” and “country of Installation”) are replaced with “Hong Kong S.A.R.”

### **INDIA**

**Limitation of Liability:** *The following replaces items 1 and 2 of this section:*

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; and
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, the charge paid by you for the individual Machine that is the subject of the claim. For purposes of this item, the term “Machine” includes Machine Code and Licensed Internal Code (“LIC”).

**Arbitration:** *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Bangalore, India in accordance with the laws of India then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Bar Council of India. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

### **JAPAN**

**Governing Law:** *The following sentence is added to this section:*

Any doubts concerning this Statement of Limited Warranty will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

#### **MACAU S.A.R.**

As applies to transactions initiated and performed in Macau S.A.R., phrases throughout this Agreement containing the word “country” (for example, “country of purchase” and “country of Installation”) are replaced with “Macau S.A.R.”

#### **MALAYSIA**

**Limitation of Liability:** *The word “**SPECIAL**” in item 3 of the fifth paragraph is deleted.*

#### **NEW ZEALAND**

**What this Warranty Covers:** *The following paragraph is added to this section:*

The warranties specified in this section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

**Limitation of Liability:** *The following is added to this section:*

Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

#### **PEOPLE’S REPUBLIC OF CHINA (PRC)**

**Governing Law:** *The following replaces “laws of the country in which you acquired the Machine” in the first sentence:*

laws of the State of New York, United States of America (except when local law requires otherwise).

#### **PHILIPPINES**

**Limitation of Liability:** *Item 3 in the fifth paragraph is replaced by the following:*

**SPECIAL (INCLUDING NOMINAL AND EXEMPLARY DAMAGES), MORAL, INCIDENTAL, OR INDIRECT DAMAGES FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR**

**Arbitration:** *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Metro Manila, Philippines in accordance with the laws of the Philippines then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Philippine Dispute Resolution Center, Inc. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

## **SINGAPORE**

**Limitation of Liability:** *The words “**SPECIAL**” and “**ECONOMIC**” in item 3 in the fifth paragraph are deleted.*

## **EUROPE, MIDDLE EAST, AFRICA (EMEA)**

### ***THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:***

The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

#### **How to Obtain Warranty Service:**

*Add the following paragraph in **Western Europe** (Andorra, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican State, and any country subsequently added to the European Union, as from the date of accession):*

The warranty for Machines acquired in Western Europe shall be valid and applicable in all Western Europe countries provided the Machines have been announced and made available in such countries.

If you purchase a Machine in one of the Western European countries, as defined above, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM, provided the Machine has been announced and made available by IBM in the country in which you wish to obtain service.

If you purchase a Machine in a Middle East or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM approved service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM approved service provider.

**Governing Law:** *The phrase “the laws of the country in which you acquired the Machine” is replaced by:*



1) “the laws of Austria” in **Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan;** 2) “the laws of France” in **Algeria, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Libya, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna;** 3) “the laws of Finland” in **Estonia, Latvia, and Lithuania;** 4) “the laws of England” in **Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, the United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe;** and 5) “the laws of South Africa” in **South Africa, Namibia, Lesotho and Swaziland.**

**Jurisdiction:** *The following exceptions are added to this section:*

1) **In Austria** the choice of jurisdiction for all disputes arising out of this Statement of Limited Warranty and relating thereto, including its existence, will be the competent court of law in Vienna, Austria (Inner-City); 2) **in Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe** all disputes arising out of this Statement of Limited Warranty or related to its execution, including summary proceedings, will be submitted to the exclusive jurisdiction of the English courts; 3) **in Belgium and Luxembourg**, all disputes arising out of this Statement of Limited Warranty or related to its interpretation or its execution, the law, and the courts of the capital city, of the country of your registered office and/or commercial site location only are competent; 4) **in France, Algeria, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Libya, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna** all disputes arising out of this Statement of Limited Warranty or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 5) **in South Africa, Namibia, Lesotho and Swaziland**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the High Court in Johannesburg; 6) **in Turkey** all disputes arising out of or in connection with this Statement of Limited Warranty shall be resolved by the Istanbul Central (Sultanahmet) Courts and Execution Directorates of Istanbul, the Republic of Turkey; 8) in each of the following specified countries, any legal claim arising out of this Statement of Limited Warranty will be brought before, and settled exclusively by, the competent court of a) Athens for **Greece**, b) Tel Aviv-Jaffa for **Israel**, c) Milan for **Italy**, d) Lisbon for **Portugal**, and e) Madrid for **Spain**; and 8) **in the United Kingdom**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the English courts.

**Arbitration:** *The following is added under this heading:*



**In Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Libya, FYR Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan** all disputes arising out of this Statement of Limited Warranty or related to its violation, termination or nullity will be finally settled under the Rules of Arbitration and Conciliation of the International Arbitral Center of the Federal Economic Chamber in Vienna (Vienna Rules) by three arbitrators appointed in accordance with these rules. The arbitration will be held in Vienna, Austria, and the official language of the proceedings will be English. The decision of the arbitrators will be final and binding upon both parties. Therefore, pursuant to paragraph 598 (2) of the Austrian Code of Civil Procedure, the parties expressly waive the application of paragraph 595 (1) figure 7 of the Code. IBM may, however, institute proceedings in a competent court in the country of installation.

**In Estonia, Latvia and Lithuania** all disputes arising in connection with this Statement of Limited Warranty will be finally settled in arbitration that will be held in Helsinki, Finland in accordance with the arbitration laws of Finland then in effect. Each party will appoint one arbitrator. The arbitrators will then jointly appoint the chairman. If arbitrators cannot agree on the chairman, then the Central Chamber of Commerce in Helsinki will appoint the chairman.

## **EUROPEAN UNION (EU)**

### ***THE FOLLOWING TERMS APPLY TO ALL EU COUNTRIES:***

The warranty for Machines acquired in EU countries is valid and applicable in all EU countries provided the Machines have been announced and made available in such countries.

## **DENMARK, FINLAND, GREECE, ITALY, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN AND SWITZERLAND**

**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty or due to any other cause related to this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault) or of such cause, for a maximum amount equal to the charges you paid for the Machine. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2. **UNDER NO CIRCUMSTANCES IS IBM, OR ITS SUPPLIERS, SUBCONTRACTORS, OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

## FRANCE AND BELGIUM

**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault), for a maximum amount equal to the charges you paid for the Machine that has caused the damages. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2. **UNDER NO CIRCUMSTANCES IS IBM, OR ITS SUPPLIERS, SUBCONTRACTORS, OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

### THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

#### AUSTRIA AND GERMANY

**What this Warranty Covers:** *The following replaces the first sentence of the first paragraph of this section:*

The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

*The following paragraphs are added to this section:*

The minimum warranty period for Machines is twelve months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a price reduction as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

*The second paragraph does not apply.*

**What IBM Will Do to Correct Problems:** *The following is added to this section:*

During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

**Limitation of Liability:** *The following paragraph is added to this section:*

The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

*The following sentence is added to the end of item 2:*

IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

## **IRELAND**

**What this Warranty Covers:** *The following is added to this section:*

Except as expressly provided in these terms and conditions or Section 12 of the Sale of Goods Act 1893 as amended by the Sale of Goods and Supply of Services Act, 1980 ("the 1980 Act"), all conditions or warranties (express or implied, statutory or otherwise) are hereby excluded including, without limitation, any warranties implied by the Sale of Goods Act 1893 as amended by the 1980 Act (including, for the avoidance of doubt, section 39 of the 1980 Act).

**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*

For the purposes of this section, a "Default" means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default occurring on the date of occurrence of the last such Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM's liability and your sole remedy.

1. IBM will accept unlimited liability for death or personal injury caused by the negligence of IBM.
2. Subject always to the **Items for Which IBM is Not Liable** below, IBM will accept unlimited liability for physical damage to your tangible property resulting from the negligence of IBM.
3. Except as provided in items 1 and 2 above, IBM's entire liability for actual damages for any one Default will not in any event exceed the greater of 1) EUR 125,000, or 2) 125% of the amount you paid for the Machine directly relating to the Default.

### **Items for Which IBM is Not Liable**

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM, its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

## **SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND**

**Limitation of Liability:** *The following is added to this section:*

IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

## SWITZERLAND

**Your Additional Responsibilities:** *The following sentence is added to this section:*

Personal Data also includes information about you as a legal entity.

## TURKEY

**What this Warranty Covers:** *The following is added to this section:*

The minimum warranty period for Machines is 2 years.

## UNITED KINGDOM

**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*

For the purposes of this section, a "Default" means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM's liability and your sole remedy.

1. IBM will accept unlimited liability for:
  - a. death or personal injury caused by the negligence of IBM; and
  - b. any breach of its obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982, or any statutory modification or re-enactment of either such Section.
2. IBM will accept unlimited liability, subject always to the **Items for Which IBM is Not Liable** below, for physical damage to your tangible property resulting from the negligence of IBM.
3. IBM's entire liability for actual damages for any one Default will not in any event, except as provided in items 1 and 2 above, exceed the greater of 1) Pounds Sterling 75,000, or 2) 125% of the total purchase price payable or the charges for the Machine directly relating to the Default.

These limits also apply to IBM's suppliers and resellers. They state the maximum for which IBM and such suppliers and resellers are collectively responsible.

### Items for Which IBM is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM or any of its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss;
3. loss of profits, business, revenue, goodwill, or anticipated savings; or

4. third party claims against you for damages.

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## Part 3 - Warranty Information

### IBM DDS Generation 6 USB Tape Drive

Country or Region of Purchase	Warranty Period	Type of Warranty Service*	Service Level*
Worldwide	1 year	1	Not applicable
* See “Types of Warranty Service” and “Service Levels” for explanations of warranty-service types and service levels.			

Scheduling of a warranty service will depend upon the following: 1) the time your request for service is received, 2) Machine technology, and 3) availability of parts. Contact your local IBM representative or the subcontractor or reseller performing services on behalf of IBM for country and location specific information.

#### Types of Warranty Service

##### 1. **Customer Replaceable Unit (“CRU”) Service**

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your Machine and are available from IBM at any time on your request. CRUs are designated as being either Tier 1 or a Tier 2 CRU. Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

##### 2. **On-site Service**

IBM or your reseller will either repair or exchange the failing Machine at your location and verify its operation. You must provide suitable working area to allow disassembly and reassembly of the IBM Machine. The area must be clean, well lit and suitable for the purpose. For some Machines, certain repairs may require sending the Machine to an IBM service center.

##### 3. **Courier or Depot Service**

You will disconnect the failing Machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your Machine to a designated service center. A courier will pick up your Machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the Machine to your location. You are responsible for its installation and verification.

##### 4. **Customer Carry-In or Mail-In Service**

You will deliver or mail as IBM specifies (prepaid unless IBM specifies otherwise) the failing Machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the Machine, IBM will make it available for your collection or, for Mail-in Service, IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation of the Machine and verification of its operation.

##### 5. **CRU and On-site Service\***

This type of Warranty Service is a combination of Type 1 and Type 2 (see above).

6. **CRU and Courier or Depot Service\***

This type of Warranty Service is a combination of Type 1 and Type 3 (see above).

7. **CRU and Customer Carry-In or Mail-In Service\***

This type of Warranty Service is a combination of Type 1 and Type 4 (see above).

8. **Machine Exchange Service**

IBM will initiate shipment of a replacement Machine to your location. You are responsible for its installation and verification of its operation. You must pack the failing Machine into the shipping container that contained the replacement Machine and return the failing Machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement Machine if IBM does not receive the failing Machine within 15 days of your receipt of the replacement Machine.

**(\*) When a 5, 6, or 7 type of warranty service is listed, IBM will determine which type of warranty service is appropriate for the repair.**

### **Service Levels**

Service levels specified below are response-time objectives only and are not guarantees. The specified service level may not be available in all worldwide locations. Charges may apply outside IBM's normal service area. Certain Machines with a Same Day On-site response-time objective may require the installation and use of remote connectivity tools and equipment for direct problem reporting, remote problem determination and resolution.

1. **Next Business Day (NBD), 9X5**

After we receive your call, following problem determination, if IBM determines on-site service is required, a service technician will be scheduled to arrive at your location on the next business day. Service will be provided from 8:00 a.m. to 5:00 p.m. in your local time zone, Monday through Friday, excluding holidays.

2. **Same Business Day (SBD), 9X5**

After we receive your call, following problem determination, if IBM determines on-site service is required, a service technician will be scheduled to arrive at your location within four hours. Service will be provided from 8:00 a.m. to 5:00 p.m. in your local time zone, Monday through Friday, excluding local IBM holidays. If after 1:00 p.m. it is determined that on-site service is required, a service technician will be scheduled to arrive the morning of the following business day.

3. **Same Day (SD), 24X7**

After we receive your call, following problem determination, if IBM determines on-site service is required, a service technician will be scheduled to arrive at your location within four hours. This type of service will be provided 24 hours a day, every day, including holidays.

### **IBM Contact Information**

For IBM in Canada or the United States, call 1-800-IBM-SERV (or 1-800-426-7378). For IBM in the European Union (EU), Asia Pacific, and Latin America countries, contact IBM in that country or visit the following IBM Internet website:  
[http://www.ibm.com/servers/support/machine\\_warranties/](http://www.ibm.com/servers/support/machine_warranties/).

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## Appendix D. Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

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Active Memory	IntelliStation	Tivoli Enterprise
Active PCI	NetBAY	Update Connector
Active PCI-X	Netfinity	Wake on LAN



AIX	PowerExecutive	XA-32
Alert on LAN	Predictive Failure Analysis	XA-64
BladeCenter	ServeRAID	X-Architecture
Chipkill	ServerGuide	XpandOnDemand
e-business logo	ServerProven	xSeries
@server	System x	

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## Important notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.



Maximum memory might require replacement of the standard memory with an optional memory module.

IBM makes no representation or warranties regarding non-IBM products and services that are ServerProven®, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

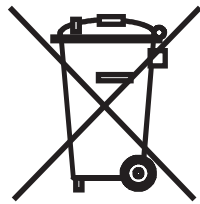
Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

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## Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/index.shtml>.

Esta unidad debe reciclarse o desecharse de acuerdo con lo establecido en la normativa nacional o local aplicable. IBM recomienda a los propietarios de equipos de tecnología de la información (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean útiles. IBM dispone de una serie de programas y servicios de devolución de productos en varios países, a fin de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar información sobre las ofertas de reciclado de productos de IBM en el sitio web de IBM <http://www.ibm.com/ibm/environment/products/index.shtml>.



**Notice:** This mark applies only to countries within the European Union (EU) and Norway.

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。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために種々の製品に貼られています。

**Remarque :** Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège.

L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

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.

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## Battery return program

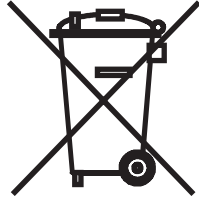
This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/index.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

**For Taiwan:** Please recycle batteries.



**For the European Union:**



**Notice:** This mark applies only to countries within the European Union (EU).

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

バッテリーあるいはバッテリー用のパッケージには、EU 諸国に対する廃電気電子機器指令 2006/66/EC のラベルが貼られています。この指令は、バッテリーと蓄電池、および廃棄バッテリーと蓄電池に関するものです。この指令は、使用済みバッテリーと蓄電池の回収とリサイクルの骨子を定めているもので、EU 諸国にわたって適用されます。このラベルは、使用済みになったときに指令に従って適正な処理をする必要があることを知らせるために種々のバッテリーに貼られています。

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury, and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local IBM representative.

**For California:**

Perchlorate material – special handling may apply. See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>.

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product/part may include a lithium manganese dioxide battery which contains a perchlorate substance.

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## 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 2004/108/EC 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.

European Community contact:  
IBM Technical Regulations  
Pascalstr. 100, Stuttgart, Germany 70569  
Telephone: 0049 (0)711 785 1176  
Fax: 0049 (0)711 785 1283  
E-mail: tjahn@de.ibm.com

### Taiwanese Class A warning statement

警告使用者：  
這是甲類的資訊產品，在  
居住的環境中使用時，可  
能會造成射頻干擾，在這  
種情況下，使用者會被要  
求採取某些適當的對策。

### Chinese Class A warning statement

聲 明  
此為 A 級產品。在生活環境中，  
該產品可能會造成無線電干擾。  
在這種情況下，可能需要用戶對其  
干擾採取切实可行的措施。

### Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に  
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を  
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求  
されることがあります。

## Korean Class A warning statement

이기는 업무용으로 전자파 적합등록을 받은 기기  
이오니, 판매자 또는 사용자는 이점을 주의하시기  
바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에  
서 비업무용으로 교환하시기 바랍니다.

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# Index

## A

assistance, getting 21  
attention notices 3  
automatic power-on self-test (POST) 1

## B

backup program  
    does not recognize drive 17  
    preinstallation requirement 6  
battery return program 42  
bay specifications, tape drive 1, 6

## C

cable connections 8, 18  
cable specifications 17  
cartridges  
    acclimating 10  
    cleaning cartridge use 12, 15  
    emergency unloading 9  
    handling 10  
    inspecting 11  
    labeling 10  
    labels 10  
    loading 9  
    specifications 9  
    storage temperatures 10  
    unloading 9  
    write-protect switch 11  
checking the status of the ready LED 9  
Class A electronic emission notice 44  
components, replaceable 17  
connecting the cables 8, 18  
country unique terms 27  
courier or depot service 37  
customer carry-in service 37  
customer replaceable unit (CRU) list 17  
customer replaceable unit (CRU) service 37  
Customer Responsibilities document 6

## D

danger statements 3  
depot or courier service 37  
description 1  
determining the current level of  
    Linux firmware 15  
    Microsoft Windows firmware 16  
documentation CD 2  
drive rail installation 7  
drive specifications 19  
drive-bay specifications 1, 6

## E

electronic emission Class A notice 44  
emergency cartridge unloading 9  
environmental specifications 10, 19  
exchange of a machine or part 25

## F

FCC Class A notice 44  
features 1  
firmware level  
    Linux, determining the current level 15  
    Microsoft Windows, determining the current level 16  
firmware, updating 15

## G

general terms, warranty 23  
getting help 21  
governing law 26

## H

handling cartridges 10  
handling static-sensitive devices 5  
hardware problems 16, 17  
hardware requirements 6  
hardware service and support 22  
hardware, CRU part numbers 17  
heads, cleaning 12, 15  
help, getting 21

## I

IBM Support Line 22  
inspecting a cartridge 11  
installation guidelines 5  
installation instructions, server documentation 5  
installation procedure 7  
inventory, parts 6

## J

jurisdiction 27

## L

labeling cartridges 10  
law, governing 26  
LEDs  
    flashing together 16  
    function summary 13  
    location 13  
liability, limitation of 26  
limitation of liability 26  
Linux firmware, determining the current level 15

loading a cartridge 9

## M

machine exchange service 38  
machine or part, exchange of 25  
mail-in service 37  
maintaining the tape drive 15  
media, type of 9  
Microsoft Windows firmware, determining the current level 16  
mounting rails, using 6, 18

## N

next business day service level 38  
notes 3  
notes, important 40  
notices 39  
    electronic emission 44  
    FCC, Class A 44  
    used in this document 3  
notices and statements 3

## O

obtaining warranty service 24  
on-site service 37  
online product registration 1

## P

part numbers, customer replaceable unit (CRU) 17  
parts inventory 6  
parts list 17  
port requirement, Universal Serial Bus (USB) 6  
power cable connector 8, 18  
power specifications 19  
power-on self-test (POST)  
    automatic 1  
    tape-drive failure 16  
preinstallation requirements 6  
product recycling and disposal 41  
product registration Web site 1

## R

rail installation 7  
ready LED, checking the status of 9  
recording formats, supported 1  
recycling and disposal, product 41  
registration, product 1  
removing the tape drive 18  
replaceable components 17  
replacement procedure 18  
replacing the tape drive 17, 18

## S

same business day service level 38  
same day service level 38  
server  
    does not recognize drive 17  
    does not start 16  
    drive-bay specifications 6  
servers, supported 1  
service  
    courier or depot 37  
    CRU and on-site 38  
    customer carry-in or mail-in 37  
    customer replaceable unit (CRU) 37  
    machine exchange 38  
    on-site 37  
service level  
    next business day 38  
    same business day 38  
    same day 38  
setting the write-protect switch 11  
size and weight 19  
software problems 17  
software requirements 6  
software service and support 22  
solving problems 16, 17  
specifications  
    cartridges 9  
    drive-bay 1, 6  
    parts inventory 6  
    parts list 17  
    tape drive 19  
    tools, hardware, and software 6  
statements and notices 3  
static-sensitive devices, handling 5  
status LEDs 13, 16  
storage temperatures 10  
support, web site 21  
supported recording formats 1  
supported servers 1

## T

tape drive  
    backup program does not recognize drive 17  
    bay specifications 1, 6  
    cable connections 8, 18  
    cleaning 15  
    description 1  
    emergency cartridge unloading 9  
    environmental specifications 10, 19  
    fails the power-on self-test (POST) 16  
    installation procedure 7  
    loading a cartridge 9  
    not working 16  
    parts list 17  
    power specifications 19  
    preinstallation requirements 6  
    product registration 1  
    rail installation 7  
    removal procedure 18



- tape drive *(continued)*
  - replacement procedure 18
  - server does not recognize drive 17
  - size and weight 19
  - specifications 19
  - status LEDs 13, 16
  - unloading a cartridge 9
- tape heads, cleaning 12, 15
- tapes, handling 10
- tapes, type of 9
- telephone numbers 22
- terms, country unique 27
- tools 6
- trademarks 39
- troubleshooting 16, 17
- type of warranty 37

## U

- unique terms, country 27
- United States electronic emission Class A notice 44
- United States FCC Class A notice 44
- Universal Serial Bus (USB)
  - cable connector 8, 18
  - cable specifications 17
  - port requirement 6
- unloading a cartridge 9
- unpacking 6
- using mounting rails 6, 18

## W

- warranty
  - general terms 23
  - service, obtaining 24
  - type 37
- web site
  - Customer Responsibilities document 6
  - machine warranty 38
  - product registration 1
  - publication ordering 21
  - support 21
  - support line, telephone numbers 22
- write-protect switch, setting 11







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