7214 Model 1U2 Storage Device Enclosure

Setup and Operation Guide

ESCALA

ESCALA

7214 Model 1U2 Storage Device Enclosure
Setup and Operation Guide

Hardware

Trademarks and Acknowledgements

We acknowledge the rights of the proprietors of the trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection.

Quoting of brand and product names is for information purposes only and does not represent trademark misuse.

Contents

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.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of IBM.

IBM has prepared this publication for use with the specific machines indicated. IBM makes no representations that it is suitable for any other purpose.

IBM's computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check IBM's support Web sites for updated information and fixes applicable to the system and related software.

Safety and Environmental Notices

Danger Notices

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

Caution Notices

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

Attention Notices

An attention notice indicates the possibility of damage to a program, device, system, or data.

Electronic Emission Notices

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

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class 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.

Responsible Party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504

Telephone: 1-919-543-2193

Industry Canada Compliance Statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any

failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

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.

VCCI Statement - Japan

この装置は、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。　　　　　ＶＣＣＩ－Ａ

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Electromagnetic Interference (EMI) Statement - People's Republic of China

Per GB 9254–1998, the user manual for a Class A product must carry the following warning message (English translation from the Chinese standard) about use in a residential environment in Chinese (*Simplified Chinese*):

声　　明

此为Ａ级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

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。

The following is a summary of the EMI Taiwan statement above.

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

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit Dem deutschen EMVG vom 9.Nov.92 das EG–Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

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 informaci¾n (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean ·tiles. IBM dispone de una serie de programas y servicios de devoluci¾n de productos en varios países, a fin de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar informaci¾n sobre las ofertas de reciclado de productos de IBM en el sitio web de IBM http://www.ibm.com/ibm/environment/products/index.shtml.

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

Appliances are 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.

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

L'etiquette 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.

Battery return program

This product may contain 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 other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

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 other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

In Taiwan, the following applies. Please recycle batteries.
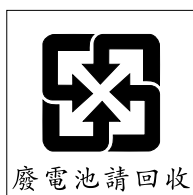
For the European Union (EU):

Note: 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.

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 or both may include a lithium manganese dioxide battery which contains a perchlorate substance.

IBM Cryptographic Coprocessor Card Return Program

This machine may contain an optional feature, the cryptographic coprocessor card which includes a polyurethane material that contains mercury. Please follow Local Ordinances or regulations for disposal of this card. IBM has established a return program for certain IBM Cryptographic Coprocessor Cards. More information can be found at: http://www.ibm.com/ibm/environment/products/prp.shtml

Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, or other countries, or both:

AIX
e (Stylized)
eServer
IBM
pSeries
RISC System/6000
RS/6000
System p

Other company, product, and service names may be the trademarks or service marks of others.

About This Guide

This guide describes how to install and use the 7214 Model 1U2 Storage Enclosure. It contains the following chapters:

Chapter 1, General Information, describes the 7214 Storage Enclosure, gives the system requirement, discusses cables, and lists hardware specifications.

Chapter 2, Installing and Removing Device Features, describes step-by-step instructions on how to physically install and remove the storage device features in the 7214 Model 1U2 Storage Enclosure.

Chapter 3, Mounting the 7214 Storage Enclosure in a Rack, describes the steps required to mount the 7214 Storage Enclosure in a rack system.

Chapter 4, Attaching the 7214 Storage Enclosure to a Host System, describes step-by-step instructions on how to properly attach and configure the 7214 Model 1U2 Storage Enclosure to a host system.

Chapter 5, Removing the 7214 Storage Enclosure from a Host System, describes how to remove the 7214 Storage Enclosure after it has been installed.

Chapter 6, The DAT 72, 4mm Tape Drive Feature, describes the 7214 Model 1U2 Storage Device Enclosure Feature #1400, the DAT 72, 4mm Tape Drive.

Chapter 7, The DVD Drive Features, describes the 7214 Model 1U2 Storage Device Enclosure Feature #1420 and #1421, the DVD Drives.

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

Store this guide with your system manuals.

Related Publications

- *7214 Model 1U2 Storage Enclosure Service Guide* , SA38-0801, provides service and maintenance information for the 7214 Storage Enclosure.
- *IBM Externally Attached Devices Safety Information* SA26-2004, provides translations of danger notices.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other IBM documentation, fill out the readers' comment form at the back of this book.

- If you prefer to send comments by mail, use the readers' comment form with the address that is printed on the back. If you are mailing a readers' comment form from a country other than the United States, you can give the form to the local IBM branch office or IBM representative for postage-paid mailing.
- If you prefer to send comments by FAX, use either of the following numbers:
  - United States, Puerto Rico, and Canada: 1-800-937-3430
  - Other countries: 1-507-253-5192
- If you prefer to send comments electronically, use the following e-mail address:
    RCHCLERK@us.ibm.com

Be sure to include the following:

- The name of the book.
- The publication number of the book.
- The page number or topic to which your comment applies.

Chapter 1. General Information

The storage enclosure is an external enclosure that provides convenient storage expansion capabilities for select IBM eServer, pSeries, and System p computer systems. The storage enclosure is designed to mount in 1 EIA Unit (1.75″) of a standard 19-inch rack using the rack mount hardware kit. The design of the storage enclosure allows for easy customer setup and installation. The storage enclosure has two bays that can accommodate a combination of the following storage device features:

- DAT 72, 4mm tape drive (Bay A or B)
- DVD assembly tray (Bay B only)

  The DVD assembly tray can contain two of the following in any combination.

  - DVD-ROM drive
  - DVD-RAM drive
  - DVD blank (to be used when only one DVD drive is installed)
- Bay Blank (to be used to cover an empty bay when only one drive is installed in the 7214 Storage Enclosure)

Figure 1 shows the 7214 Storage Enclosure with a DAT-72 4mm tape drive installed in Bay A and a DVD assembly with two DVD drives installed in Bay B.

RLHS503-0
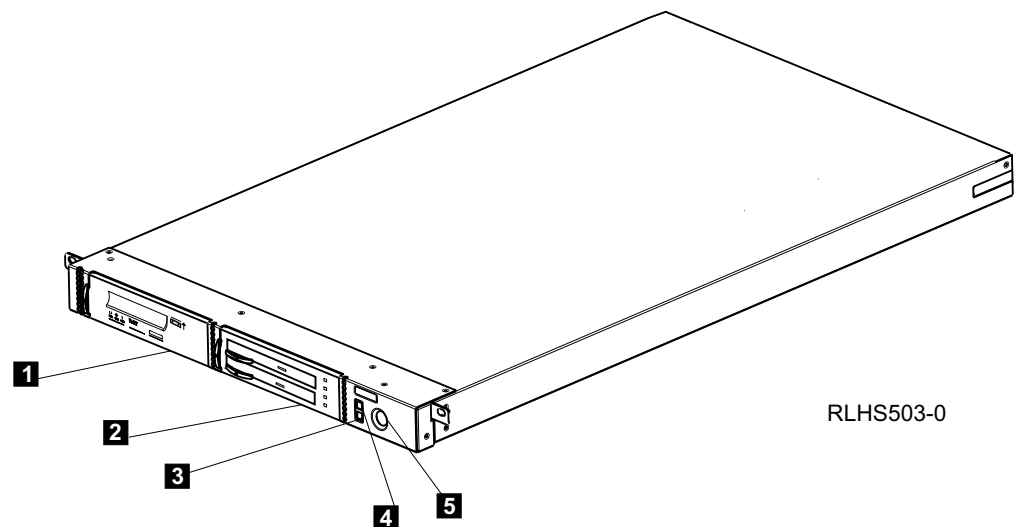
Figure 1. Front view of the storage enclosure

The 7214 Storage Enclosure has the following components on the front of the unit:

Status Lights

The following status lights are located on the right front of the enclosure:

- The **Power-on light** **4** is a green LED that is illuminated when the 7214 Storage Enclosure is powered on.
- The **Fault light** **3** is an amber LED that is illuminated when the 7214 Storage Enclosure requires service.

Power Switch

The power switch **5** is a push button switch that enables the power to be turned on or off. Push and release the button to toggle power to the 7214 Storage Enclosure on and off.

Bay A Bay A, **1** on the left front of the 7214 Storage Enclosure (see Figure 1 on page 1), can accommodate a single tape storage device or a bay blank.

Bay B Bay B, **2** on the right front of the 7214 Storage Enclosure (see Figure 1 on page 1), can accommodate a single tape storage device, a DVD assembly tray, or a bay blank.

The rear of the 7214 Storage Enclosure has the following components:

RLHSV504-0
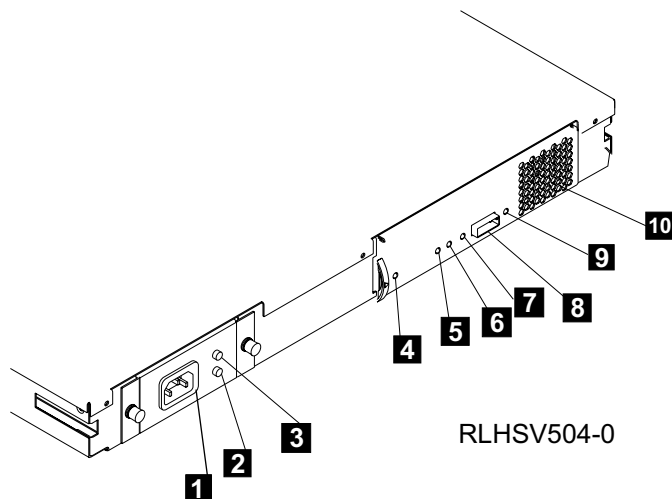
Figure 2. Rear view of the 7214 Storage Enclosure

Power Cable Connector

The 7214 Storage Enclosure receives power through a cable connected to the power cable connector **1** .

Power Supply DC Fault Indicator

A power supply DC fault is indicated with this amber LED. **2** .

Power Supply AC On Indicator

This green LED **3** indicates the presence of AC when lit.

Power In Good LED

The Power In Good green LED **4** indicates a +12V/+5V good voltage level at the ESM card.

All Power Good LED

The All Power Good green LED **5** indicates a +12V/+5V/+3.3V/+2.2V good voltage level at the ESM card.

ESM Card Fault LED

The ESM Card Fault amber LED **6** indicates an ESM card fault when lit.

SAS Link LED

The SAS Link green LED **7** indicates the SAS connection is in use when lit.

SAS Cable Connector

The 7214 Storage Enclosure provides a rear mounted SAS Cable connector **8** for attaching the 7214 Storage Enclosure to the SAS host.

Fan Fault LED
> The Fan Fault amber LED **9** indicates a fan fault when lit.

Cooling Fan
> The 7214 Storage Enclosure utilizes one internal cooling fan to regulate the internal temperature of the enclosure. Air exits the 7214 Storage Enclosure at the cooling fan location (**10**).
>
> **Note:** To ensure proper operation, place the 7214 Storage Enclosure so that the cooling fan exits at the rear of the enclosure and the air inlet holes at the front of the enclosure have sufficient clearance to ensure airflow.

System Requirement

The following sections describe the host system requirements for the 7214 Model 103 Storage Enclosure:

The 7214 Model 1U2 storage enclosure requires a host system platform with an AIX operating system with one of the following (or higher) software levels installed:

- Release level 5L for POWER V5.3 with the 5300-06 Technology Level and Service Pack 4
- Release level 5L for POWER V5.3 with the 5300-07 Technology Level
- Release level V6.1 with Service Pack 1

The 7214 Model 1U2 storage enclosure also supports host systems using the following Linux operating systems:

- SUSE Enterprise Server 10 SP1 for Power systems (or later,)

Note: Refer to the 7214 Model 1U2 sales pages for current supported software requirements.

For a list of supported processors and adapters, contact your IBM marketing representative or business partner.

Ownership Requirements

The 7214 Model 1U2 Storage Enclosure is a precision instrument designed to meet your highest data storage expectations. In purchasing this product you expect to be able to configure and use it reliably. IBM strives to deliver to you a product that meets this expectation. As with all mechanical devices, this product drive requires more periodic maintenance and care than the electronics in your computer. And to ensure a reliable operation of your enclosure, IBM also requires that it be installed and used properly. The following list outlines several required actions that become your responsibility in the ownership of this device, and if followed, can not only increase its availability, but may positively affect your warranty:

- Install the enclosure in a clean environment
- Use only high-quality, data-grade media
- Ensure that the media is properly handled and stored
- Clean the installed storage devices regularly, as recommended

Specifications

Table 1. Specifications for the storage enclosure

Physical Specifications		
Width	439 mm (17.28 in.)	
Depth	733 mm (28.85 in.)	
Height	42.9 mm (1.69 in.)	
Weight	11.79 kg (26 lb)[1]	
Power Specifications		
kVA	0.047 @ 120 V AC	
V AC	100 to 125, or 200 to 240	
Hertz	50 to 60	
Btu Maximum (watts)	205 Btu/hr (60 watts) @ 240 V AC	
Power Factor	0.8 to 0.9	
Altitude	2135 m (7000 ft)	
Performance Specifications		
Dependant on device, media type, and configuration.		
Recommended Environment		
Environmental Factor	**Operating**	**Non-operating**
Temperature	10 to 35°C (50 to 95°F)	-40 to 65°C (-40 to 149°F)
Relative Humidity (noncondensing)	8 to 80% non-condensing	1 to 100% (excluding rain)
Maximum Wet Bulb	23°C (73°F)	23°C (73°F)
[1] Weight with two DAT72, 4mm tape drives installed and no rack slides.		

Media Drive Environment and Use

IBM's goal is to provide you with a product that you can configure and use reliably. Removable media drives require specific maintenance and environmental conditions to operate well over time. Using high quality, data grade media, handling and storing this media properly, operating the removable media drive in a clean environment and keeping the removable media drive properly cleaned can help you to avoid problems with your IBM product.

Media Grades

IBM sells media designed to be used for storage. IBM supports the media that we sell. If IBM service personnel analysis indicates a problem with non-IBM media it may be necessary for the customer to replace the media.

Media Handling and Storage

Most media is supplied in a sealed cartridge. It is provided this way so that the media will remain in a clean environment. Opening the cartridge allows dirt and airborne particles to enter and then become a source of contamination. The cartridge should only be opened by the drive and not an operator. The media also is held under proper tension inside the cartridge. If the cartridge is dropped, this tension will be relaxed. Inserting a dropped cartridge into a drive can cause incorrect loading and result in a jam. This will ruin the media and can cause physical damage if the cartridge is not removed properly.

When the media is stored, it must be replaced in the protective containers and stored on the end. The storage area must be clean, dry, normal room temperature and away from any magnetic fields.

Environmental Issues

Removable media drives are designed to operate in a clean environment. Problem factors are dirt, dust, fibers and airborne particles. Airborne particles are the most difficult to address. When media is installed in the drive, the clearance between the heads and the media is measured in microns. Particles can damage the media or the head if they come in contact with either. Customers are responsible to provide a clean operating environment for the drive and system.

Drive Cleaning

No matter how clean the environment, debris may build up on the heads of any drive. Over time, this builds up and causes errors in reading and writing. Customers are responsible to clean the drive in accordance with the cleaning information provided with the drive.

IBM only supports the use of IBM cleaning cartridges for IBM drives.

SAS Hardware Issues

SAS cables may affect drive performance. IBM SAS cables are designed specifically to keep the SAS bus as free of noise as possible. Use of non-IBM cables may adversely affect the SAS performance. If IBM service personnel analysis indicates a problem with non-IBM cables, it may be necessary for the customer to replace them with the appropriate IBM cables.

Microcode Updates

IBM constantly works to provide the best possible products. To make certain that the drives work their very best, IBM occasionally releases changed microcode for the drives. When a microcode change is developed, IBM makes it available to you through the service organization or by electronic delivery.

For System p and pSeries Host Systems

Microcode changes are available from the following IBM Web site:

http://www14.software.ibm.com/webapp/set2/firmware/gjsn

Microcode can be installed by your IBM authorized service personnel or your system administrator.

Summary

Your drive must be installed in the cleanest possible environment. Additionally, IBM drives require high quality, data grade media and cleaning on a regular basis. Media must also be stored and handled properly. Improper use, storage or handling of drives or media may void your IBM warranty or service agreement

If a drive stops functioning due to a component failure during the drive warranty or maintenance time, IBM will replace the drive unit. IBM will replace any defective drive under the terms and conditions of the IBM warranty or service agreement. It is our objective to work with you to identify the cause of any drive problems and provide a solution.

Chapter 2. Installing and Removing Device Features

This chapter provides step-by-step instructions on how to physically install and remove the storage device features in the 7214 Model 1U2 Storage Enclosure.

DANGER

> **To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)**

Laser Safety Information

CAUTION:
This product may contain a CD-ROM which is a class 1 laser product. (RSFTC240)

Attention: The 7214 Storage Enclosure is a precision device that requires reasonable care in handling to prevent data loss or permanent damage to the device. Avoid bumping or dropping the 7214 Storage Enclosure or device features. Ensure all media is removed from the device before the drive is moved.

Handling Static-Sensitive Devices

Attention: Electronic assemblies are sensitive to static electricity discharge. When handling an electronic component, wrap it an antistatic bag to prevent damage.

Take the following precautions:

- Do not remove the electronic component from the antistatic bag until you are ready to install it.
- With the component still in its antistatic bag, touch it to the metal frame of an electrically grounded surface.
- Hold the component by the frame. Avoid touching the solder joints or pins.
- Handle the component carefully to prevent permanent damage.

Feature Code Devices and Recommendations

The 7214 Storage Enclosure has two bays for the installation of storage devices. When looking at the front of the enclosure, Bay A is on the left and Bay B is on the right (see Figure 3.)

RLHSO508-0
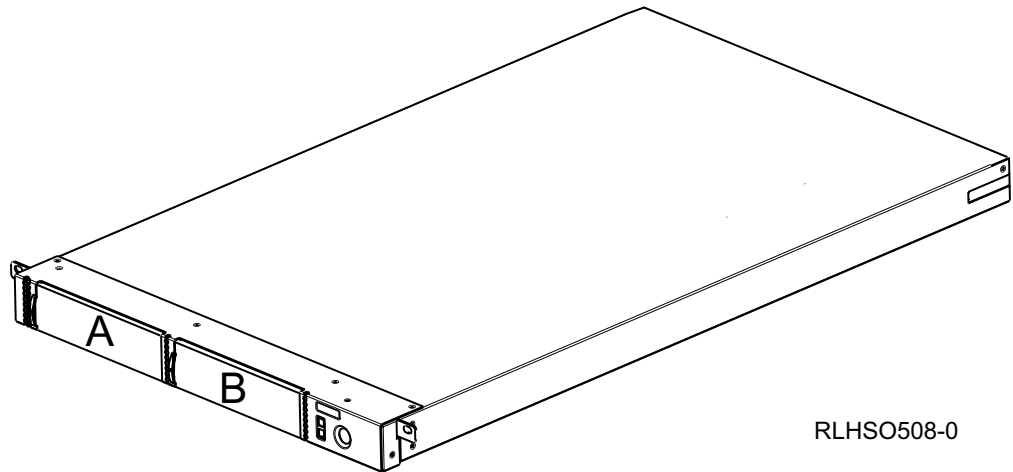
Figure 3. The 7214 Device Enclosure Bays

The 7214 Storage Enclosure can accommodate a combination of the feature devices listed in Table 2.

Table 2. 7214 Device Enclosure Feature Devices

Feature Code	Device Description	Bay
FC 1400	DAT 72, 4mm Tape Drive	A or B
FC 1420	DVD Sled with 1 DVD-RAM	B
FC 1421	DVD Sled with 1 DVD-ROM	B
FC 1422	DVD-RAM Drive	B
FC 1423	DVD-ROM Drive	B
FC 1440	Bay Blank	A or B
FC 1425	DVD Blank	B

Preparing the 7214 Storage Enclosure for Device Removal or Installation

Use the following procedure to prepare the 7214 Storage Enclosure for removal or installation of a storage device.

Note: Before performing this procedure, ensure that there is no activity between the host system and the installed devices or operations being performed by the installed devices. Turning off the 7214 Storage Enclosure power during activity could result in loss of data.

1. Remove any media from the installed devices.

   Note: *Device* means either drive or bay blank.
2. Turn off the power to the 7214 Storage Enclosure.
3. Remove the 7214 Storage Enclosure from the host system configuration (follow the procedure in Chapter 5, "Removing the 7214 Storage Enclosure from a Host System," on page 25).

DANGER

> **To prevent a possible electrical shock when installing the device, ensure that the power cord for that device is unplugged before installing signal cables. (RSFTD204)**

4. Unplug the 7214 Storage Enclosure power cable from the electrical outlet.

The 7214 Storage Enclosure is now prepared for either device removal or installation. Refer "Removing a Storage Device from the Enclosure" on page 10 for the appropriate procedure.

Removing a Storage Device from the Enclosure

Use the following procedures to remove installed devices from the 7214 Storage Enclosure:

Removing a DVD Drive from the DVD Assembly

1. Determine which DVD Drive will be removed.
2. Push the latch (see **1** in Figure 4) up toward the DVD Drive.
3. Grasp the latch tab and pull the assembly partially out of the enclosure.
4. Grasp the drive **2** and slide it out of the DVD assembly.
5. Place the drive assembly on an ESD protected work surface.

RLHSV509-0
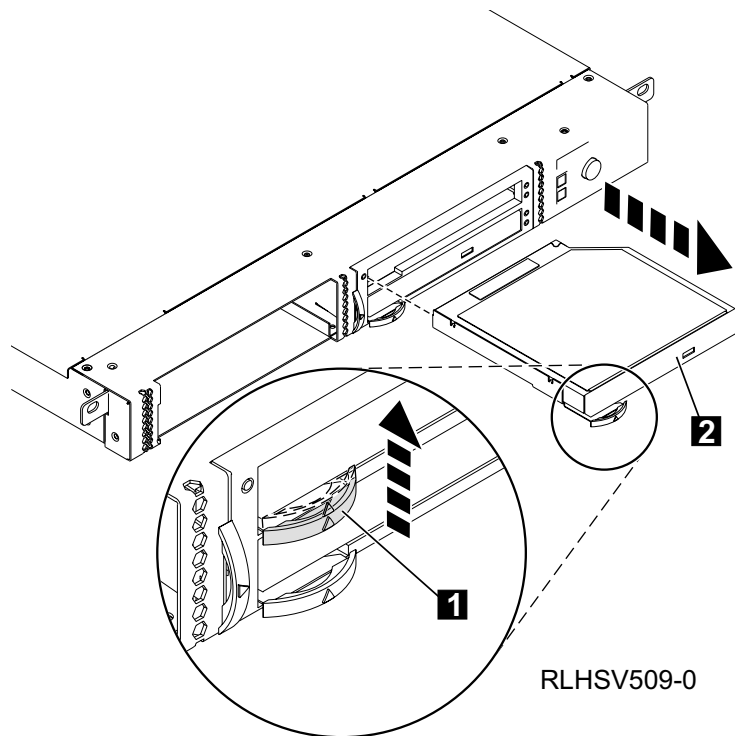
Figure 4. Removing a DVD Drive

6. Repeat these steps to remove a second DVD drive or, if installed, a filler panel.

Removing the DAT72 Drive Assembly

1. Push the latch (see **1** in Figure 5) towards the drive assembly.
2. Grasp the latch tab and pull the assembly partially out of the enclosure.
3. Grasp the DAT72 assembly **2** and pull it out of the enclosure.
4. Disconnect the SAS cable **3** from the drive assembly.
5. Place the drive assembly on an ESD protected work surface.

RLHSV512-0
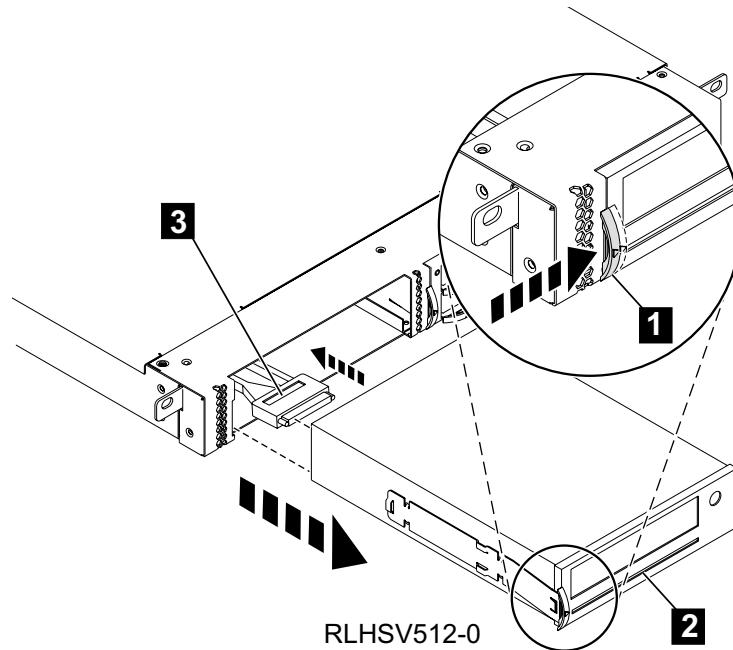
Figure 5. Removing the DAT72 Drive Assembly

6. Remove the latch from the tape drive assembly.

This completes the device removal procedure. Reverse this procedure to install a new device in the open bay.

Removing the Bay Blank Assembly

1. Push the latch (see **1** in Figure 6) towards the blank assembly.
2. Grasp the latch tab and pull the assembly partially out of the enclosure.
3. Grasp the blank assembly **2** and pull it out of the enclosure.
4. Place the blank on an ESD protected work surface.

RLHSO509-0
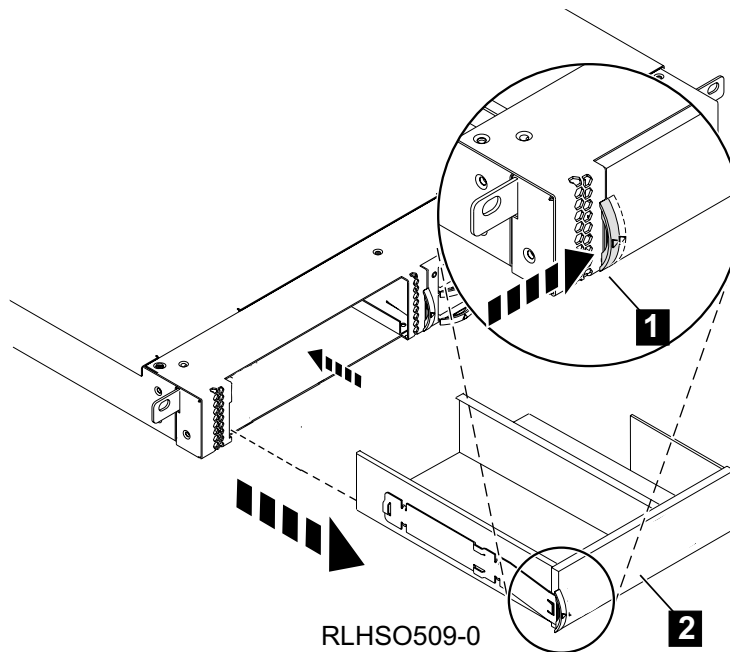
Figure 6. Removing the Bay Blank Assembly

5. Remove the latch from the bay blank assembly.

This completes the removal procedure. Reverse this procedure to install a new blank in the open bay.

Removing and Replacing other Enclosure Components

Use the following procedures to remove customer replaceable components from the 7214 Storage Enclosure:

Removing and Replacing the Power Supply

To remove the power supply from the 7214 Storage Enclosure:

1. Turn off the power to the 7214 Storage Enclosure.
2. Gain access to the rear of the 7214 Storage Enclosure.
3. Disconnect the ac power cord **1** from the power supply, at the rear of the 7214 Storage Enclosure.
4. Using the fastener knobs **2**, pull the power supply **3** straight out of the system, supporting the bottom while you do this.

   Note: The fastener knobs need to be squeezed out through the holes in the chassis assembly to release the power supply. As the plunger part of the fastener knobs are pulled out from the locked position, the grommets will release from the enclosure, allowing the removal of the power supply assembly.

5. Disconnect the power switch and power distribution cable connectors from the internal end of the power supply.
6. Lift the power supply out and away from the enclosure.
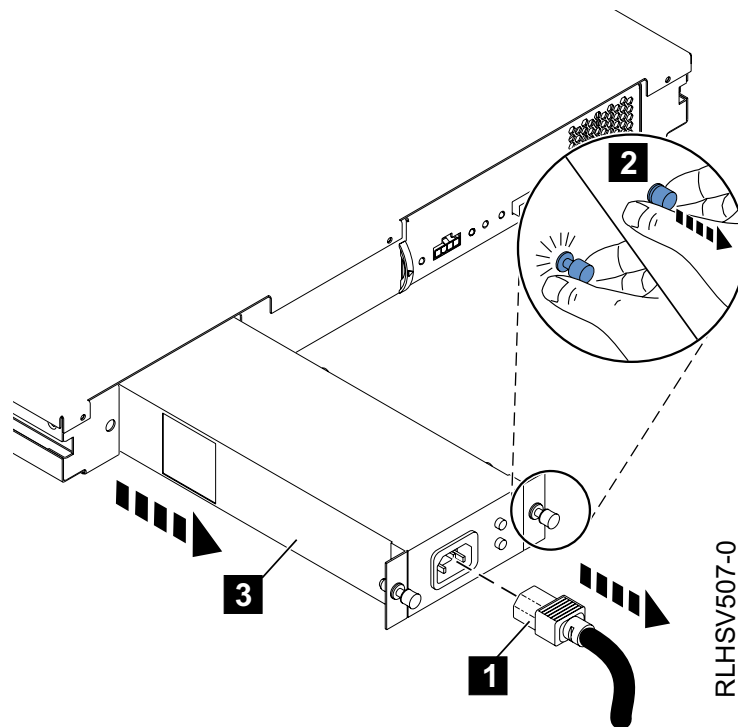
Figure 7. Removing and Replacing the Power Supply

To replace the power supply, reverse the removal procedure. Make sure to:

1. Connect the power switch and power distribution cable connectors into the internal end of the power supply.

2. Carefully insert and slide the power supply straight into the system.
3. Push the fastener knobs into the holes in the chassis assembly. Ensure that the grommets are engaged in the enclosure before pushing the plungers into the locked position.
4. Connect the ac power cord into the power supply.

Removing and Replacing the Cooling Fan

To remove the cooling fan:

1. In order to remove the cooling fan, you must slide the electronic tray assembly out of the enclosure.

   Attention: Removal and replacement of the electronic tray assembly must be performed by an IBM authorized service representative.

   a.

   b. Turn off the power to the 7214 Storage Enclosure.

   c. Gain access to the rear of the 7214 Storage Enclosure.

   d. Disconnect the ac power cord from the power supply, at the rear of the 7214 Storage Enclosure.

   e. Disconnect the SAS cable from the external connection **1** of the electronic tray assembly.

   f. Push the latch (see **2** in Figure 8) towards the electronic tray assembly.

   g. Pull the electronic tray and latch assembly partially out of the enclosure using the latch as a handle.

   h. Grasp the electronic tray assembly and pull it out of the enclosure.

RLHSV511-0
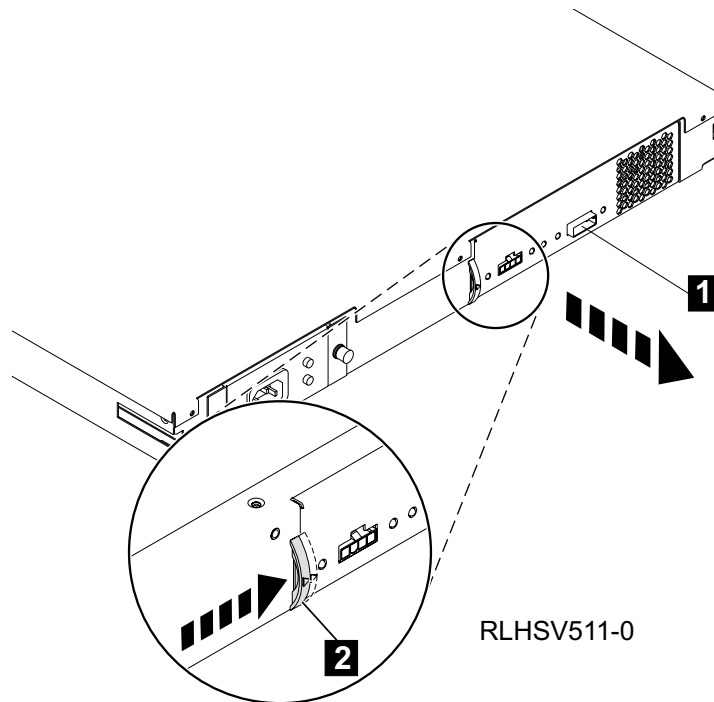
Figure 8. Removing the Electronic Tray Assembly

2. Disconnect the fan cable **1** from the ESM card connector.
3. Firmly grasp the fan **3** and pull the four blue mounting grommets **2** out of the grooves in the fan tray.
4. Lift the fan out of the assembly.

RLHSV513-0
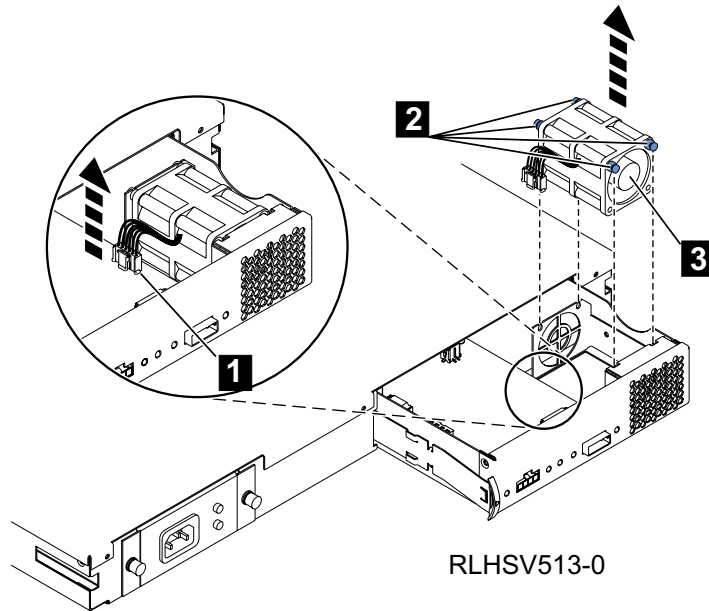
Figure 9. Removing the Cooling Fan

To replace the cooling fan, reverse this procedure. Make sure that the cooling fan is oriented so that air blows out of the 7214 Storage Enclosure.

Chapter 3. Mounting the 7214 Storage Enclosure in a Rack

The 7214 Storage Enclosure is designed to be installed in one EIA unit (1U) of a standard 19-inch rack using an optional rack-mount hardware feature kit. This optional rack-mount hardware feature kit includes the following components:

Rail Kit

- 2 slide rails
- 2 end caps (1 for each rail)
- 3 rack mount screws
- 2 thumbscrews

Before starting the rack-mount installation, read the entire installation procedure. To install the 7214 Storage Enclosure in the rack-mount configuration, perform the following steps:

1. Locate both slide rails.
2. On the left rail, press the rear rounded release tab **1** out and push the slide tab **2** towards the center or the rail assembly. This will open the rear rail latch assembly.
3. Insert the rear mounting pins **3** into the holes at the desired position in the rack system.
4. Press the rounded tab **1** again to close the rear latch assembly and lock the rear pins in place.
5. Press the front rounded release tab **4** out and push the slide tab **5** towards the center or the rail assembly. This will open the front rail latch assembly.
6. Insert the front mounting pins **6** into the holes at the desired position in the rack system.
7. Press the rounded tab **4** again to close the front latch assembly and lock the front pins in place.

RLHSO507-0
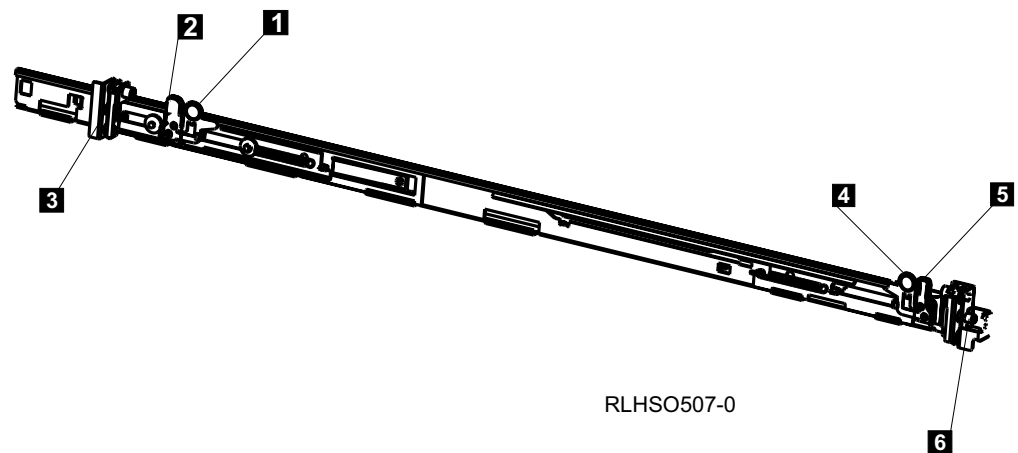
Figure 10. Moving Slide Rail Assembly

Attention: Make sure the rail assemblies are level in the rack system to ensure the enclosure is secure. Measure and mark the correct holes before starting this procedure so that the rail mounting pins are installed in the correct rack system holes.

8. Repeat this procedure for the right rail assembly.

9. Secure the rail assemblies to the rack by installing two of the rack mount screws in the rear of the installed rail assembly.

10. Slide the 7214 Storage Enclosure into the rack on the installed rails. Push the enclosure into the rack system until the rail assembly tabs snap into the mounting slots **1** on either side of the enclosure chassis.

11. Place the end caps **2** over the front of the rails.

12. Secure the end caps and front mounting tabs **3** to the rack using the thumb screws **4** provided in the rail kit.

13. Insert the IBM logo **5** into the right end cap.

RLHSO510-0
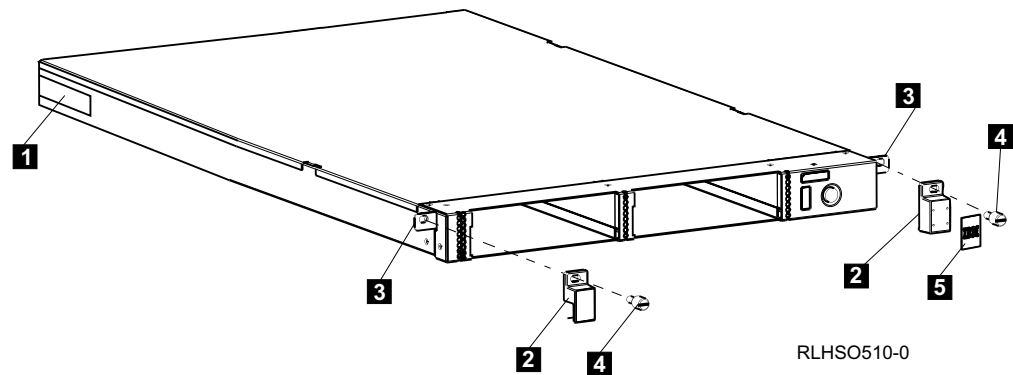
Figure 11. Mounting the Enclosure in the Rack System

This completes the rack-mount installation.

Chapter 4. Attaching the 7214 Storage Enclosure to a Host System (Installation)

This chapter provides step-by-step instructions on how to properly attach and configure the 7214 Model 1U2 Storage Enclosure to a host system.

DANGER

> **To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)**

Attention: The 7214 Storage Enclosure is a precision device that requires reasonable care in handling to prevent data loss or permanent damage to the device. Avoid bumping or dropping the 7214 Storage Enclosure. Ensure all media is removed from the device before the enclosure is moved.

Performing the Installation

To install the 7214 Model 1U2 Storage Enclosure, complete the following steps.

Step 1. Using the Inventory Checklist

Make sure that you received the following items:

- __ Power cable (for the appropriate cable see "Power Cables," on page 49)
- __ The *External Devices Warranty Information* (U.S., Canada, and Puerto Rico only)
- __ The *7214 Model 1U2 Storage Enclosure Setup and Operator Guide* (this guide)
- __ The *7214 Model 1U2 Storage Enclosure Service Guide*
- __ The *IBM Externally Attached Devices Safety Information* manual
- __ SAS cable

Note: For the part numbers of the items in this list, see Chapter 4, "Parts Diagram and Parts List," in the *7214 Model 1U2 Storage Enclosure Service Guide.*

Step 2. Checking the Electrical Outlets

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

DANGER

> **An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)**

Step 3. Assembling the Materials

Refer to your system management or system hardware manuals to locate the information that you need to install the 7214 Storage Enclosure.

1. **Get your system unit manuals now.** You may find the needed information under the topics:
    *   Installing an external SAS device
    *   SAS controllers
    *   External SAS devices
2. **Do not continue** until you have located the manual that describes how to determine where the SAS controller is located (where you make the cable connection).

    Record the controller location here

Step 4. Placing the 7214 Storage Enclosure

The 7214 Storage Enclosure can be located anywhere that is convenient to your system unit. The only restrictions are the length of the power cord and the SAS cable. Recommended locations are:

*   In a clean environment
*   Away from the floor
*   In a horizontal position
*   Where the media can be easily inserted

To place the 7214 Storage Enclosure, do the following:

1. __ Set the 7214 Storage Enclosure in the location that you have previously determined.
2. __ Connect the power cable to the 7214 Storage Enclosure. **(Do not plug it into the electrical outlet at this time.)**

Note: Heavy objects should not be stacked on the 7214 Storage Enclosure.

Step 5. Connecting the SAS Cable

To connect the SAS cable, do the following:

Note: If installed, remove the connector covers.

DANGER

> **To prevent a possible electrical shock when installing the device, ensure that the power cord for that device is unplugged before installing signal cables. (RSFTD204)**

1. On the rear of the 7214 Storage Enclosure (**1** in Figure 12), insert the device connector end of the SAS cable into the cable connector **2** .
2. Make sure that the connector is fully engaged.

RLHSO501-0
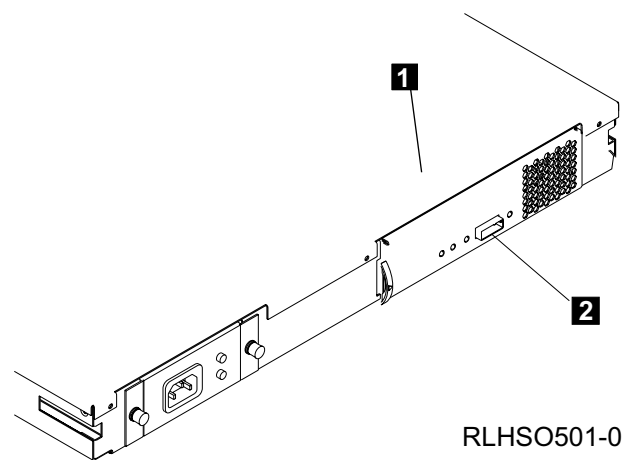
Figure 12. Connecting the SAS Cable to the 7214 Storage Enclosure

3. Connect the other end of the SAS cable to the host system.

Step 6. Connecting the Power Cables

To connect the power cables, do the following:

DANGER

> **An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)**

1. Plug the 7214 Storage Enclosure power cable into an electrical outlet.
2. Plug the power cables for all external devices and the system unit into electrical outlets.
3. Turn on the power to all of the external devices.
4. Review the information concerning and each drive status light, then turn on the power to the 7214 Storage Enclosure and watch for the following:
   - The 7214 Storage Enclosure power-on light comes on and stays on.
   - The drive status lights blink for several seconds and go out, indicating that the Power-On Self Test (POST) has completed successfully.

Step 7. Performing the Checkout Procedure

To ensure that the devices installed in the 7214 Storage Enclosure have been configured to the host system software by perform the following:

1. Log into the host system (AIX operating system).

   Note: You must have root authority to install or remove the 7214 Storage Enclosure from the system. To obtain root authority, see your system administrator.

2. To see the installed SAS device status, at the system prompt, type

   `lsdev -Cs sas`

   and press Enter. The command lists all of the SAS devices that are connected to the host system. Figure 13 shows an example of the screen that displays. The screen lists:

1	Device name	**3**	System address
2	Device Status	**4**	Description of the device

```
 1          2            3              4
 |          |            |              |
rmt0     Available    03-08-00    SAS 4mm Tape Drive
rmt1     Available    03-08-00    SAS 4mm Tape Drive
rmt2     Available    03-08-00    SAS 4mm Tape Drive
ses1     Available    03-08-00    SAS Enclosure Services Device
                                            RLHSO511-0
```

Figure 13. Screen Display of SAS Devices Attached to the host system

3. To see the installed SATA device status, at the system prompt, type

   `lsdev -Cs sata`

   and press Enter. The command lists all of the SATA devices that are connected to the host system. Figure 14 shows an example of the screen that displays. The screen lists:

1	Device name	**3**	System address
2	Device Status	**4**	Description of the device

```
 1          2            3              4
 |          |            |              |
cd0      Available    03-08-00    SATA DVD-ROM Drive
cd1      Available    03-08-00    SATA DVD-RAM Drive
                                            RLHSO512-0
```

Figure 14. Screen Display of SATA Devices Attached to the host system

4. From the list of devices, identify the 7214 Storage Enclosure drive features. These are listed as:

   - SAS 4mm Tape Drive
   - SATA DVD-RAM Drive
   - SATA DVD-ROM Drive

   If the status of the 7214 Storage Enclosure drive feature is displayed as *Available*, the device has successfully been configured.

If the status is not displayed as *Available*, refer to Chapter 2, "Maintenance Analysis Procedures," in the *7214 Model 1U2 Storage Enclosure Service Guide*. For more information about configuring the 7214 Storage Enclosure to the system software, refer to your AIX or host system manuals.

5. This completes the 7214 Storage Enclosure installation.

Chapter 5. Removing the 7214 Storage Enclosure from a Host System

This chapter describes how to remove the 7214 Model 1U2 Storage Enclosure after it has been installed.

DANGER

> **To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)**

Removal Checklist

To remove the 7214 Storage Enclosure, perform the following steps:

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

1. __ If loaded, remove any media (tape, CD, or DVD disc) from the devices installed in the 7214 Storage Enclosure 0by pressing the load/unload button while the power is on.
2. 0__ Remove the 7214 Storage Enclosure from the system configuration (for instructions, refer to your system manuals).

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

DANGER

> **An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)**

3. __ Unplug the power cable for the 7214 Storage Enclosure from the electrical outlet.

DANGER

> **To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)**

4. __ Disconnect the SAS cable from the system unit.
5. __ Disconnect the SAS cable from the 7214 Storage Enclosure.
6. __ Remove the 7214 Storage Enclosure and place it in the new location.
7. __ Reinstall the 7214 Storage Enclosure (see Chapter 4, "Attaching the 7214 Storage Enclosure to a Host System (Installation)," on page 19).

Chapter 6. The DAT 72, 4mm Tape Drive Feature

This chapter describes the 7214 Model 1U2 Storage Device Enclosure Feature #1400, the DAT 72, 4mm Tape Drive. It describes operator controls and indicator lights, outlines instructions for loading and unloading a tape cartridge, and tells how to clean the tape drive. The DAT 72 is a streaming tape storage device that uses Digital Data Storage (DDS) tape media.

The DAT 72 Tape Drive has the following features:
- With the DAT 72 data cartridge, a native capacity of up to 36 gigabytes (GB) per cartridge (where one gigabyte equals 1 000 000 000 bytes).

  Note: The actual capacity varies depending on the application, the type of data, and the tape cartridge. 72GB is typical with the Data Compression setting activated. The default setting of Data Compression is controlled by the host system. The user and the application software can control the activation or deactivation of the data compression setting. The DAT 72 tape drive can optimally achieve a 2:1 compression ratio.

- Sustained data transfer rate of 3.0 megabytes (MB) per second (where MB equals 1 000 000 bytes). A rate of 6.0MB per second is possible with the Data Compression setting activated.

- Downward read and write compatibility with DDS-3 and DDS-4 data cartridges.

Note: The DAT 72 only supports the use of DDS-3, DDS-4, and DAT 72 tape cartridges. If any other cartridge is inserted in the drive, it will be ejected.

- A Media Recognition System that allows only DDS-3, DDS-4, and DAT 72 tape cartridges to be used. If a tape cartridge is used that is not of the DDS-3, DDS-4, and DAT 72 format it will be ejected. A cartridge may also be ejected if the DAT 72 Drive detects that the cartridge is damaged or excessively worn.

- Can be used as an AIX bootable device, depending on the host system configuration.

Note: Although the feature #1400 DAT 72 tape drive can give you high tape performance, other components of the system installation may limit the actual performance achieved. In addition, the compression technology used in the tape drive can typically double the amount of data that can be stored on the media; however, the actual degree of compression achieved is highly sensitive to the characteristics of the data that is being compressed.

Feature Kit Contents

The 7214 Model 1U2 Storage Enclosure drive feature code #1400 provides a DAT 72 tape drive kit with the following content:

Table 3. Feature Code 1400 Contents

Description	Quantity
DAT 72 Tape Drive	1
Device Mounting Bracket	1
Device SAS Cable	1
DAT 72 Cleaning Cartridge	1
DAT 72 Data Cartridge	1
DAT 72 Test Cartridge	1

RLHSO502-0

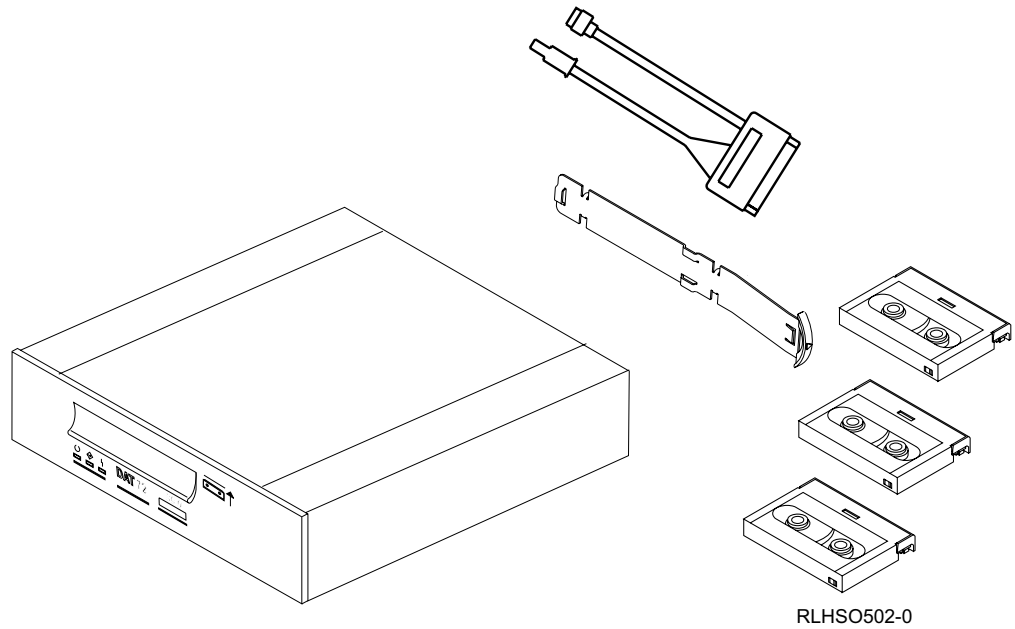*Figure 15. DAT 72 Feature Kit Contents*

Operation Features

The DAT 72 Tape Drive has the following operation features.
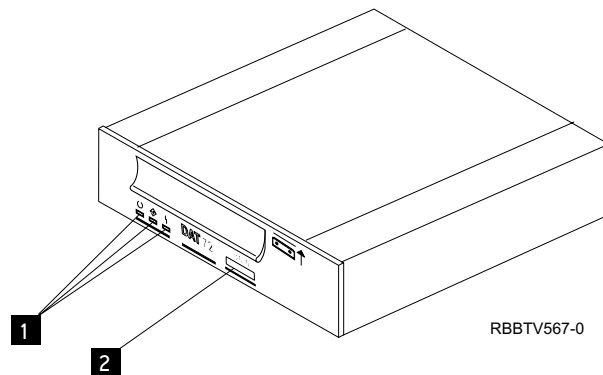
Figure 16. DAT 72 Operations Features

Unload Button

The unload button **2** enables the tape cartridge to be ejected. The unload button operates only when the tape drive power is on. To remove a cartridge, press and hold the unload button for about one second.

Status Lights

Three status lights (**1** in Figure 16) and their ISO symbols appear on the tape drive as follows:

○ **Ready** (green)

◈ **Activity** (dual color, green and amber)

Note: The Activity light is amber during power on sequences, microcode download activity, and other activity. The amber Activity light **does not** necessarily indicate an error condition.

↳ **Fault** (amber)

The combinations of the lights and their definitions are shown in Table 4 on page 31.

Notes:

1. The tape drive needs cleaning when the tape drive turns on the Fault status light (solid amber). The light turns on when the tape drive exceeds a preset operating limit.
2. The recommended preventative maintenance cleaning frequency is approximately 50 tape motion hours. Tape motion hours are defined as the time the tape drive is moving tape.
3. When the Fault light turns on (solid amber), the tape drive causes AIX to log an information error (TAPE_ERR6) in the AIX log, indicating that the tape drive needs to be cleaned.
4. Use only IBM media. IBM only supports the use of IBM media and IBM cleaning cartridges.

5. The tape drive is designed to operate in normal office environments. Dirty environments or other poor environments may damage the tape drive. It is the customer's responsibility to provide the proper operating environment.

6. When the tape drive indicates that the drive needs to be cleaned, it is the customer's responsibility to clean the tape drive with the recommended cleaning cartridge.

7. If a diagnostic cartridge is used in the drive, that cartridge will do automatic diagnostics. If a tape cartridge that is not DDS-3, DDS-4, or DAT 72 format is used, that cartridge will be immediately ejected as an incorrect cartridge type.

Table 4. Definition of Status Light Combinations

Ready ○	Activity ◈	Fault ↳	Definition
Flashing	Off	Off	The Power-On Self Test (POST) is running or the test cartridge is running.
Off or On	Off or Flashing	On	**The tape drive requires cleaning.** See "Cleaning the Tape Drive" on page 33. • If the Ready light is on, a tape cartridge is in the drive. If the light is off, a cartridge is not in the drive. • If the Activity light flashes, a tape cartridge is in the drive and tape movement is occurring. If the light is off, no tape movement is occurring.
Off	Off	Off or On	One of the conditions exists: • The power is off (Fault light is off). • The POST completed successfully, but no tape cartridge has been inserted. • If the Fault light is on, **cleaning is required**. See "Cleaning the Tape Drive" on page 33.
On	Off or Flashing	Off or On	A data cartridge has been inserted. • The DAT 72 Tape Drive is ready to receive commands from the system (whether the Fault light is on or off). • If the Fault light is on, **cleaning is required**. See "Cleaning the Tape Drive" on page 33. • If the Activity light flashes, a tape cartridge is in the drive and tape movement is occurring. If the light is off, no tape movement is occurring.
On	Flashing	Off or On	The tape is in motion, and the DAT 72 Tape Drive is running an operation or is cleaning.
Off	Off	Flashing	The DAT 72 Tape Drive detected an internal fault that requires corrective action. • Reset the error by turning the power off to the DAT 72 Tape Drive, then turning it back on, or by holding down the unload button for 8 seconds. • If the Fault light still flashes after the reset, contact your service representative.

Rear View of the DAT 72 Drive

Figure 17 shows the view of the connections on rear of the DAT 72 drive assembly.

1   SAS connector
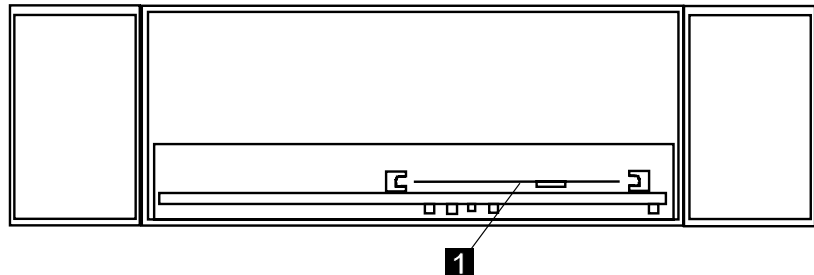
RLHSO514-0

Figure 17. Connector Locations on the DAT 72 Drive

Loading and Unloading a Tape Cartridge

Use the following instructions to load and unload a tape cartridge. For information about the type of media to use, refer to "Types of Tape Cartridges" on page 35.

Note: To avoid problems with loading and unloading, use only one label on a cartridge. Multiple or poorly placed labels can clog the drive load mechanism.

Note: Due to media characteristics, extended use of DDS-3 and DDS-4 tape cartridges may increase head wear on the drive. An indication of this head wear is an increase in soft (recoverable) errors. Using IBM DAT 72 media reduces drive head wear and maximizes the overall advantages of the DAT 72 Tape Drive.

Loading a Tape Cartridge

To load a tape cartridge:

1. Make sure that the 7214 Storage Enclosure power is on (the power-on symbol should be illuminated).
2. Grasp the cartridge by the outer edges, with the window side up and the write-protect switch facing you.

   Note: See "Setting the Write-Protect Switch" on page 39 to make sure that the write-protect switch is properly set.
3. Lift the door on the front of the DAT 72 Tape Drive and slide the cartridge into the opening until the loading mechanism pulls the cartridge into the drive and the drive door closes.

To indicate that the load operation was successful, the Ready status light comes on about 10 seconds after the load.

Unloading a Tape Cartridge

To unload a tape cartridge:

1. Make sure that the 7214 Storage Enclosure power is on (the power-on symbol should be illuminated).
2. Press the unload button.

The DAT 72 Tape Drive rewinds, unloads, and ejects the tape cartridge. The process may take from 15 seconds to several minutes, depending on the position of the tape and the amount of data written. The status lights respond as follows:

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

Emergency Eject Feature

Attention: You may lose data or the cartridge may be incorrectly formatted if you perform an emergency eject of a cartridge. An emergency ejection should only be performed as a last resort to recover a cartridge (for example, to prevent an incorrect operation from being processed on a specific data cartridge or to remove a stuck tape cartridge).

The DAT 72 Tape Drive includes an emergency eject and reset feature that releases the tape cartridge and resets the drive. If the Eject button is pressed when a drive is performing an operation, the drive will attempt to finish the task before ejecting the cartridge. This ensures that a proper End-of-Data (EOD) marker is written and the task is completed in a controlled manner. EOD marker is placed at the end of each operation to indicate completion of that task.

Note: In some emergency eject cases where a read or write operation takes longer than 35 seconds, the operation may be discontinued before a proper EOD marker can be written.

To perform an emergency eject of the tape cartridge or a reset of the drive, press and hold the unload button for at least 5 seconds. If a cartridge is in the drive, it automatically ejects without rewinding the tape.

Note: Emergency ejection overrides any PREVENT REMOVAL that may be in effect, and can abort any tape drive operations.

Cleaning the Tape Drive

Clean the DAT 72 Tape Drive whenever the Fault status light comes on or a system I/O error related to the device occurs.

Attention: Use only the recommended cleaning cartridge to clean the tape drive. Use of other than recommended cleaning cartridges can damage your drive and may void the warranty.

To clean the DAT 72 Tape Drive tape drive:

1. Make sure that the power is on to the 7214 Storage Enclosure.
2. If a tape cartridge is in the DAT 72 Tape Drive, eject and remove the cartridge.

   Notes:

   a. Cleaning cartridges can be used approximately 50 times. Once a cleaning cartridge has been used to its maximum number of uses, the cartridge is

considered expired. The DAT 72 Tape Drive will detect, and automatically eject, an expired cartridge. Never attempt to reuse an expired cleaning cartridge as it will reintroduce debris removed during a previous cleaning of the tape drive.

b. The IBM cleaning cartridge has 50 white dots on the window side that are designed to be used to log the use of the cartridge. Each time the cartridge is used, mark one of the dots on the cartridge with a pen or marker. When all of the dots have been marked, discard the cleaning cartridge.

c. If the cartridge has no dots or not all of the dots have been marked and the cleaning LED does not turn off after its use, discard the cartridge and use a new cleaning cartridge.

3. Grasp the cleaning cartridge (**1** in Figure 18) by the outer edges, with the window side up and the write-protect switch **2** facing you.

4. Lift the door on the front of the DAT 72 Tape Drive and slide the cartridge into the opening until the loading mechanism pulls the cartridge into the drive and the drive door closes.

RLHSO513-0
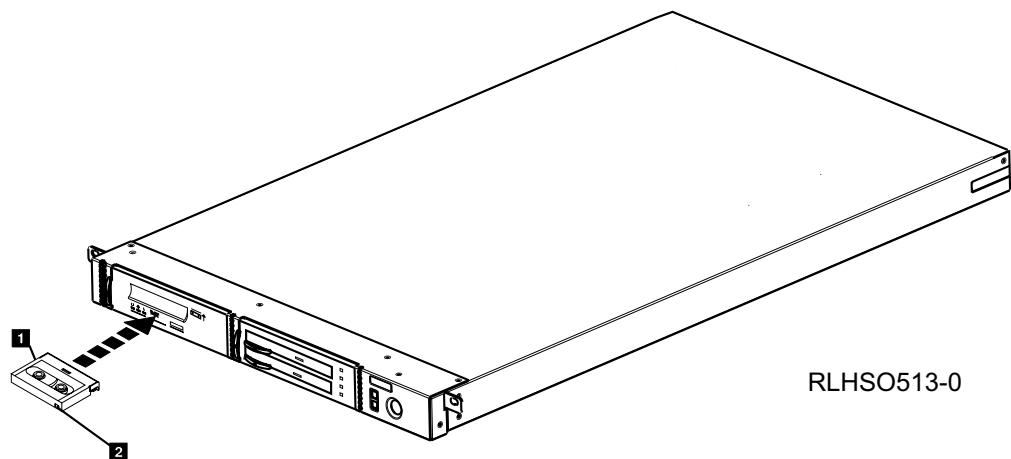
Figure 18. Loading the Cleaning Cartridge

After the cleaning cartridge has been inserted, the remainder of the cleaning process is automatic. The DAT 72 Tape Drive:

1. Loads the cleaning cartridge into the tape drive

2. Cleans the drive by advancing the cleaning tape forward for approximately 30 seconds

3. Unloads the cleaning cartridge when the cleaning operation is complete

4. Indicates a successful cleaning operation by turning off the Fault status light (if the Fault light was on prior to the cleaning process.)

Note: If the cleaning operation completes but the Fault light remains on, the cleaning cartridge may no longer be usable. Repeat the cleaning procedure with a new cleaning cartridge. If the light still remain on, contact your authorized service representative. If the cleaning cartridge is expired, discard it.

To determine how many times a cleaning cartridge may be used, check the information printed on the cartridge. If you attempt to use a depleted cleaning cartridge, the DAT 72 Tape Drive automatically detects the error and ejects the cartridge. If the Fault status light was on prior to the cleaning process, it stays on; if the Fault light was off, the depleted cartridge causes the light to come on.

Types of Tape Cartridges

The DAT 72 Tape Drive uses 4mm data cartridges for saving and restoring system data. It is designed to use only DDS (Digital Data Storage) data cartridges. The cartridges are identified by one of the following DDS symbols:

RBBUA504-0

The DAT 72 Tape Drive only reads and writes data to tape cartridges that are DDS-3, DDS-4, or DAT 72 format.

Note: The DAT 72 Tape Drive only supports DDS-3, DDS-4, and DAT 72 tape cartridges. If any other cartridge is inserted in the drive, it will be ejected.

The DAT 72 Tape Drive has been designed to operate with DDS media that meet the following standards of the European Computer Manufacturers Association (ECMA):
- ECMA-236 DDS-3 format
- ECMA-288 DDS-4 format

Note: IBM only supports the use of IBM media.

The DAT 72 Tape Drive uses the following types of media cartridges.

Data Cartridge

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

Test Cartridge Use the specially labeled 4mm test cartridge to run the AIX system diagnostics (for information about running diagnostics, refer to your AIX manuals). The test cartridge should not be used to save or restore customer programs or data.

Cleaning Cartridge

Use the specially labeled cleaning cartridge (part number 21F8763) to clean the DAT 72 Drive. For instructions about how to clean the DAT 72 Drive, see "Cleaning the Tape Drive" on page 33).

Attention: Use of other than the IBM DAT 72 cleaning cartridge can damage your DAT 72 Drive and may void your warranty.

To order additional cartridges, refer to "Ordering Tape Cartridges" on page 39.

Recommendations for Data Cartridge Usage

The following list describes recommended guidelines that will help to protect your data and prolong the life of your tape cartridges and the DAT 72 Tape Drive:

Attention: Use only the recommended cleaning cartridge to clean the tape drive. Use of other than recommended cleaning cartridges can damage your drive and may void the warranty.

- Use only approved, IBM tape cartridges.
- Use only 4mm DDS-3, DDS-4, or DAT 72 cartridges. (DAT 72 media is recommended whenever possible as it best optimizes overall drive advantages).

  Note: Due to media characteristics, extended use of DDS-3 and DDS-4 tape cartridges may increase head wear on the drive. An indication of this head wear is an increase in soft (recoverable) errors. Using IBM DAT 72 media reduces drive head wear and maximizes the overall advantages of the DAT 72 Tape Drive.

- Remove the tape cartridge from the drive when the drive is not in use.
- Back up and then discard any tape cartridge that repeatedly produces error messages (the error information is in the System Error Log).
- On the data cartridge, do not open the door that covers the tape. The door protects the tape from dirt, dust, and damage.
- Do not touch the tape. Any substance transferred to the tape by touching could cause loss of data.
- Attach a barcode label to each tape cartridge. Use only barcode labels that were supplied by IBM. Labels marked **CLNxxx** should only be used for cleaning cartridges.
- Use only one label on a tape cartridge. Multiple or poorly placed labels can clog the drive load mechanism.
- Do not use poor-quality tape cartridges. They can cause excessive read or write errors, and may damage the tape drive.
- Discard any tape cartridges that have been dropped, as the impact may damage the tape's internal mechanism.
- Make sure the environment is kept clean and constant. Do not operate in a dusty environment and always maintain a constant environmental atmosphere. A consistent storage and operating environment reduces media exposure to climatic stress.
- Printers and copiers can produce paper and toner dust. Locate the tape unit away from these items. High traffic areas near hallways and doors can also produce excess dust and dirt.
- All important information should be recorded on the tape label. Information, such as the model and number of the system or tape drive, the date, the density, any error statistics, and a log number should be included. The operating environment and compression mode should also be noted.
- Position the enclosure in a location where the temperature is relatively stable, for example, away from open windows, fan heaters and doors.
- Avoid leaving cartridges in severe temperature conditions, for example in a car standing in bright sunlight.
- Avoid transferring data (reading from and writing to cartridges) when the temperature is changing by more than 10°C (50°F) per hour.

- After either cartridge or tape drive has experienced an extreme change of temperature (more than 15°C, 59°F), do not use the drive for at least two hours to allow the temperature of the device and cartridges to stabilize.

Storage and Shipping Environments

Before using a tape cartridge, let it acclimate to the operating environment by placing the cartridge in the environment for as long as it has been away from the environment or for 24 hours, whichever is less.

Retrieval of archived data should be performed on a tape unit that is clean and fully operational. Try to make the recovery environment the same as the operating environment. Allow tapes at least 24 hours to acclimate to environment of the tape unit.

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

The recommended environment for storage and shipment of data cartridges is shown in Table 5.

Table 5. Recommended Environment for Data Cartridges

Environmental Factor	Storage	Shipping
Temperature	5 to 32°C (40 to 90°F)	−40 to 52°C (−40 to 125°F)
Relative Humidity	20 to 60%	5 to 80% (noncondensing)
Maximum Wet Bulb	26°C (79°F)	26°C (79°F)

Tape Cartridge Storage

Tape drives record data using densities similar to hard disk drives. Because most computer systems are not located in a dust-free, climate-controlled environment, you must exercise special care when dealing with tape cartridges and tape drives. They need to be treated as a valuable asset used to protect your business data.

Use the following guidelines for storing your tape cartridges:

- Temperature and humidity should be kept constant, at a level comfortable for you.
- Tape cartridges should always be stored in their protective cases. The storage case helps prevent damage from dust and physical misuse. When the tape cartridges are not in use or being stored, they should be in their storage cases and stood on edge in a designated storage location. Do not stack cartridges on the flat side or stack other items on top of the tape cartridges. Handle your tape cartridges with care to reduce archival problems.
- Stored tapes should be exercised at least once every 12 months. Run the tape from Beginning of Data (BOD) to End of Data (EOD) and back to BOD at normal operating speeds. Tapes stored in a warmer environment should be exercised more frequently.
- Sunlight can damage the tape and the cartridge shell. Store tape cartridges out of the direct sunlight

Operating in Harsh Environments

Attention: Operation outside of the recommended environment can result in possible loss of data or failure of the drive.

Any tape that has been used outside of the operating ranges specified in "Specifications" on page 4 for an extended period of time should not be used as an archival tape. The magnetic and physical strength of the tape will have deteriorated as a result of its exposure to the environment. Do not store important data on such a tape; transfer the data to a newer tape for reliable archiving.

Attention: Do not operate the DAT 72 Tape Drive in a poor air-quality environment. If your environment contains an excessive amount of particulates, contact your service representative for more information.

Prolonging Head Life

The DAT 72 Tape Drive is read and write compatible with DDS-3, DDS-4, and DAT 72 media. Due to media characteristics, extended use of DDS-3 tape cartridges may increase head wear on the drive. An indication of this head wear is an increase in soft (recoverable) errors. Using IBM DAT 72 media reduces drive head wear and maximizes the overall advantages of the DAT 72 Tape Drive.

Data Cartridge Erasure

Most bulk eraser devices do not have the capability to erase the data cartridge. To properly erase a data cartridge with a bulk eraser device, the erasure coercivity rating must be a minimum of 3900 Oersted.

Setting the Write-Protect Switch

The position of the write-protect switch on the DAT 72 tape cartridge determines when you can write to the tape (see Figure 19).

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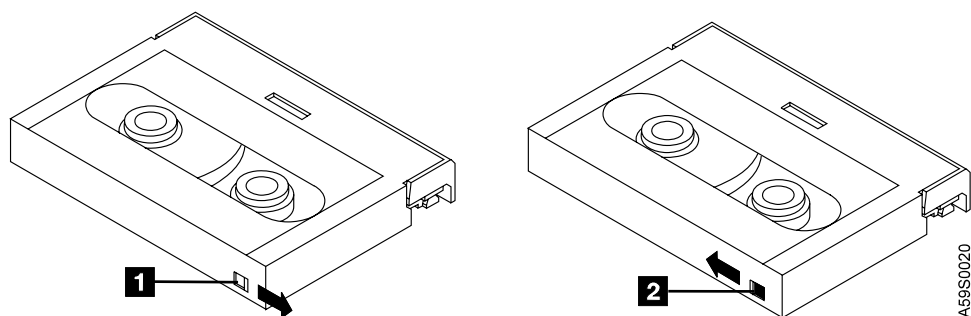- When the switch is set to the left **2**, data can only be read.

Figure 19. Setting the Write-Protect Switch

Ordering Tape Cartridges

All tape cartridges are not alike. The tape composition and length, and the construction of the cartridge itself can all affect the quality and capacity of the recording and the performance of your tape drive. A poor quality tape cartridge may appear to work adequately in your system, yet it can leave contamination in the tape path or impede the speed of the recording.

The length and composition of the tape, and the size, shape, and construction of the cartridge shell must all be considered when selecting the tape cartridge to be used with your system. IBM only supports using data and cleaning cartridges supplied by IBM. Data grade tape media is the only type of tape media that should be used for backup and data processing. Saving money by using generic media for data purposes will do little to save your business if your data is destroyed and your backup tapes fail because of inferior media.

For best performance, only order cartridges for your tape drive that are recommended in Table 6. To order cartridges in the United States and Canada, call 1-888-IBM-MEDIA. To order cartridges in other locations, contact your local provider of IBM storage products or visit the following URL:

http://www.storage.ibm.com/media/

Table 6. Tape Cartridges for the DAT 72 Tape Drive

IBM Part Number	Type of Cartridge	Native Capacity
18P7912	DAT 72 Data Cartridge	36 GB
59H4457	4mm Test Cartridge	--
21F8763	4mm Cleaning Cartridge	--

Chapter 7. The DVD Drive Features

This chapter describes the 7214 Model 1U2 Storage Device Enclosure Feature #1100, the DVD-ROM Drive and Feature #1103, the DVD-RAM Drive. It describes operator controls and indicator lights, gives instructions for loading and unloading a DVD disc. The 7214 Storage Device Enclosure is capable of utilizing up to four slim DVD drives. The DVD drives **1** are installed in a two-drive assembly **2** that is installed in either bay of the storage enclosure.
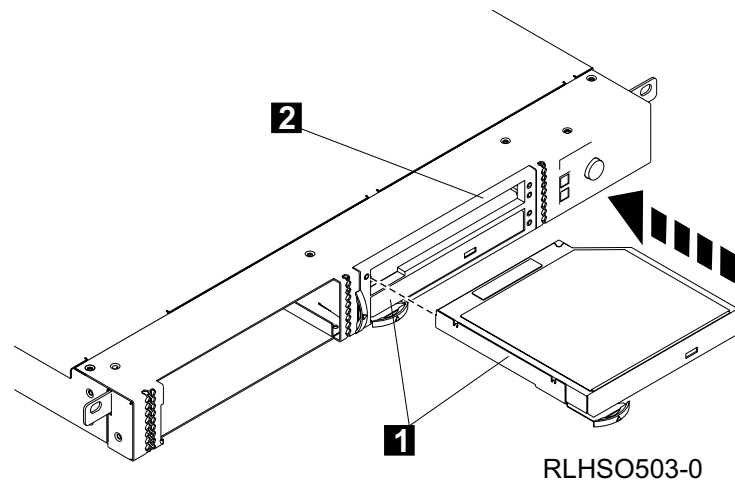
RLHSO503-0

Figure 20. DVD Drive Assembly

The DVD-RAM drive has the following features:
- Native data storage capacity of up to 9.4 GB per DVD-RAM disk (Using the drive 3:1 compression, a single disk can store 28 GB of data)
- Native write data transfer rate of 1.3 MB per second
- Native read data transfer rate of 2.7 MB per second in DVD mode, 3.6 MB per second in CD mode
- Read and write compatible with 2.6 GB, 4.7 GB, 5.2 GB, and 9.4 GB format DVD disks
- Reads CD-ROM disks created in either single-or multi-session mode and supports photo CD applications
- Supports standard and XA media formats
- Accommodates both 12 cm and 8 cm disks
- Supports both synchronous and asynchronous data transfer
- Support includes the following industry standards:
  - MPC-3 multi-media compliant

– CD-ROM data in either Mode 1 or Mode 2 formats
– CD-ROM XA data in either Mode 2 Form 1 or Mode 2 Form 2 formats
– Compact Discs containing combinations of the above CD-ROM data formats
– Multi-session CD-ROM disks to the Orange Book Standard

Note: Although the feature #1103 DVD-RAM drive can give you high performance, other components of the system installation may limit the actual performance achieved. In addition, the compression technology used in the drive can typically triple the amount of data that can be stored on the media; however, the actual degree of compression achieved is highly sensitive to the characteristics of the data that is being compressed.

The DVD-ROM drive has the following features:
• Native read data transfer rate of 2.7 MB per second in DVD mode, 3.6 MB per second in CD mode
• Read compatible with 2.6 GB, 4.7 GB, 5.2 GB, and 9.4 GB format DVD disks
• Reads CD-ROM disks created in either single-or multi-session mode and supports photo CD applications
• Supports standard and XA media formats
• Accommodates both 12 cm and 8 cm disks
• Supports both synchronous and asynchronous data transfer
• Support includes the following industry standards:
   – MPC-3 multi-media compliant
   – CD-ROM data in either Mode 1 or Mode 2 formats
   – CD-ROM XA data in either Mode 2 Form 1 or Mode 2 Form 2 formats
   – Compact Discs containing combinations of the above CD-ROM data formats
   – Multi-session CD-ROM disks to the Orange Book Standard

Feature Kit Contents

The 7214 Model 1U2 Storage Enclosure drive feature codes 1420 and 14210 provide a DVD drive kits with the following content:

Table 7. Feature Code 1420/1421 Contents

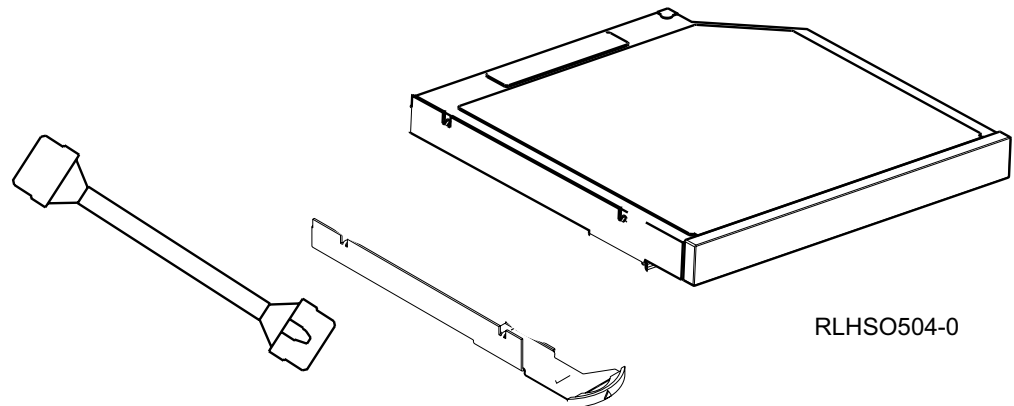| Description	Quantity
DVD-RAM or DVD-ROM Drive	1
Device Mounting Bracket	1
DVD Internal Cable	1
DVD Test Disc	1

RLHSO504-0

Figure 21. DVD Drive Feature Kit Contents

Operator Controls

The DVD Drive has the following operator controls.

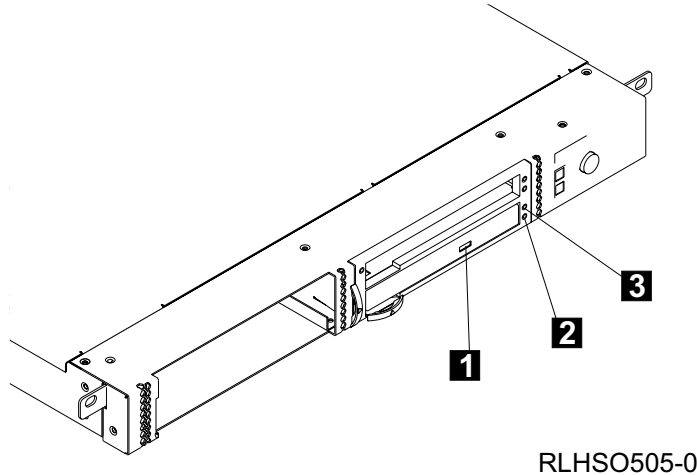Figure 22 shows a front view of the DVD Drive.

RLHSO505-0

Figure 22. Front View of the DVD Drive

Load/Unload Button

The load/unload button **1** enables the disc tray to be inserted or ejected. To insert or eject the tray, press and hold the load/unload button for about one second. The load/unload button operates only when the 7214 Storage Enclosure power is on.

Fault LED

The Fault LED (amber) **2** indicates when a problem has occurred with the DVD drive. failure prevents the disc from ejecting, the disc can be removed manually. After unplugging the 7214 Storage Enclosure from the power source, insert a solid metal rod (such as a paper clip or bristol wrench) into the manual unload hole **2** until resistance is met, then gently push to unlatch the DVD-RAM disc tray (this may take several attempts to unlatch the tray.)

Status Lights

The DVD Drive has two status lights. The Fault LED (amber) **2** indicates when a problem has occurred with the DVD drive. The activity LED **3** can indicate in one of several states:

* The light is off when the DVD drive is on but not in use (with or without the disc loaded).
* The light is green:

– After the DVD tray has been inserted and while the drive is running the Power-On Self Test (POST).

   Note: When the POST completes successfully, the light goes out.

– During data transfer operations.

Rear View of the DVD Drive Assembly

The following shows the rear of the DVD drive assembly.

Notes:

1. The DVD Drive Assembly uses converter card that is attached to the rear of the assembly. This card distributes signals from the host and electrical power to the installed drives.

| **1** | Internal power/signal connector | **2** | Drive Assembly Converter Card |

RLHSO506-0
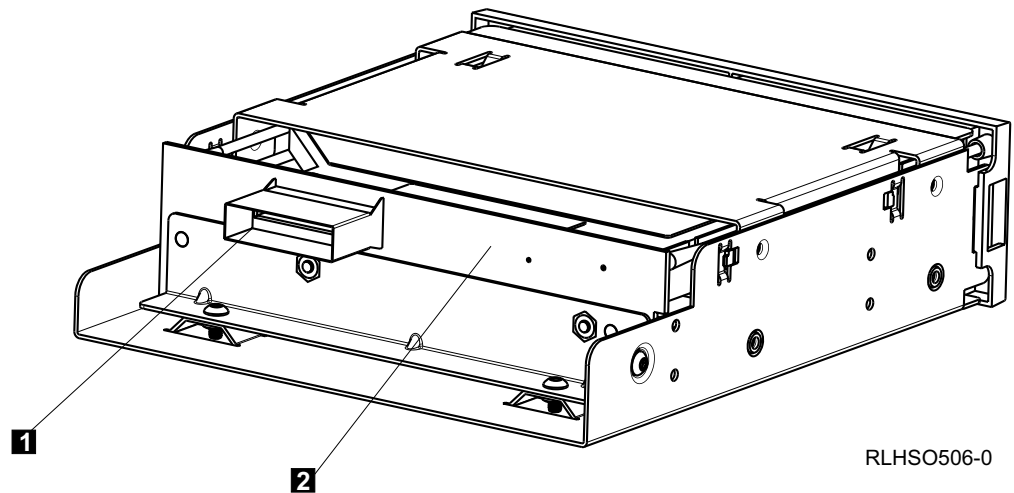
Figure 23. Rear View of the DVD Drive

Loading and Unloading a DVD Disc

Loading a DVD

Use the following instructions to load or unload a DVD disc.

Notes:

1. When loading a disc, make sure that the text on the disc faces up.

To load a disc:

1. Press the load/unload button to eject the disc tray (see Figure 22 on page 44).
2. Place the disc onto the disc tray.
3. Do one of the following:
   - Press the load/unload button.
   - Gently push the disc tray completely into the disc opening.

Unloading a Disc

To unload a disc:

1. Press the load/unload button to eject the disc tray.
2. Remove the disc from the disc tray.
3. Do one of the following:
    - Press the load/unload button.
    - Gently push the disc tray completely into the disc opening.

If the disc fails to eject, refer to the procedure for manually removing a disc in the *7214 Model 1U2 Storage Enclosure Service Guide.*

Ordering DVD Discs

All DVD Discs are not alike. The media composition and the construction of the cartridge itself can all affect the quality and capacity of the recording and the performance of your drive. Poor quality media may appear to work adequately in your system, yet it may not provide the highest reliability.

IBM only supports using data and cleaning cartridges supplied by IBM. Data grade media is the only type of media that should be used for backup and data processing. Saving money by using generic media for data purposes will do little to save your business if your data is destroyed and your backup discs fail because of inferior media. For best performance, only order disc cartridges for your drive that are recommended in Table 8.

To order cartridges in the United States and Canada, call 1-888-IBM-MEDIA. To order cartridges in other locations, contact your local provider of IBM storage products or visit the following URL:

http://www.storage.ibm.com/media/

Table 8. DVD Discs

IBM Part Number	Type of Cartridge
18P8040	DVD-RAM - 4.7 GB Single Sided in Jewel Case, 5-pack

Recommendations for Disc Usage

The following list describes recommended guidelines that will help to protect your data and prolong the life of your discs and the installed DVD-RAM drives:

- Back up and then discard any disc that repeatedly produces error messages (the error information is in the System Error Log).
- Do not touch the disc data surface, handle by the disc edges to prevent against disc damage and data loss.
- Use only one label on a disc. Apply labels only to top surface. Multiple or poorly placed labels can clog the drive load mechanism.
- Discard any discs that may have been damaged due to mishandling.
- Make sure the environment is kept clean and constant. Do not operate in a dusty environment and always maintain a constant environmental atmosphere. A consistent storage and operating environment reduces media exposure to climatic stress.

- Printers and copiers can produce paper and toner dust. Locate the unit away from these items. High traffic areas near hallways and doors can also produce excess dust and dirt.
- All important information should be recorded on the disc label. Information, such as the model and number of the system or DVD-RAM drive, the date, the density, any error statistics, and a log number should be included. The operating environment and format mode should also be noted.
- Position the enclosure in a location where the temperature is relatively stable, for example, away from open windows, fan heaters and doors.
- Avoid leaving discs in severe temperature conditions, for example in a car standing in bright sunlight.
- Avoid transferring data (reading from or writing to discs) when the temperature is changing by more than 10°C (50°F) per hour.
- After either the disc or drive has experienced an extreme change of temperature (more than 15°C, 59°F), do not use the drive for at least two hours to allow the temperature of the device and media to stabilize.

Storage and Shipping Environments

Before using a disc, let it acclimate to the operating environment by placing the disc in the environment for as long as it has been away from the environment or for 24 hours, whichever is less.

Retrieval of archived data should be performed on a unit that is clean and fully operational. Try to make the recovery environment the same as the operating environment. Allow discs at least 24 hours to acclimate to environment of the unit.

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

The recommended environment for storage and shipment of discs is shown in Table 9.

Table 9. Recommended Environment for Discs

Environmental Factor	Storage	Shipping
Temperature	5 to 32°C (40 to 90°F)	−40 to 52°C (−40 to 125°F)
Relative Humidity	20 to 60%	5 to 80% (noncondensing)
Maximum Wet Bulb	26°C (79°F)	26°C (79°F)

Appendix. Power Cables

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

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

- Electrical cables, type SVT or SJT.
- Attachment plugs complying with National Electrical Manufacturers Association (NEMA) 5-15P, that is:

  "For 115 V operation use a UL Listed Cable Set consisting of a minimum 18 AWG, Type SVT or SJT three conductor cable a maximum of 15 feet in length and a parallel blade, grounding type attachment plug rated at 15 A, 125 V."

  "For 230 V operation in the United States use a UL Listed Cable Set consisting of a minimum 18 AWG, Type SVT or SJT three conductor cable a maximum of 15 feet in length, and a tandem blade, grounding type attachment plug rated at 15 A, 250 V."
- Appliance couplers complying with International Electrotechnical Commission (IEC) Standard 320, Sheet C13.

Power cables used in other countries consist of:

- Electrical cables, type HD21.
- Attachment plugs approved by the appropriate testing organization for the specific countries where they are used.

  "For units set at 230 V (outside of U. S.): Use a Cable Set consisting of a minimum 18 AWG cable and grounding type attachment plug rated 15 A, 250 V. The Cable Set should have the appropriate safety approvals for the country in which the equipment is to be installed and marked 'HAR'."
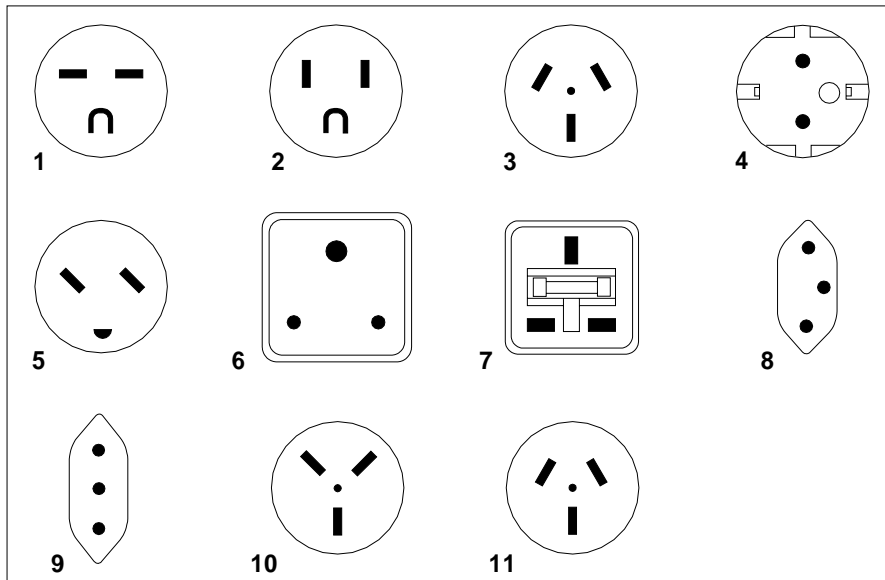
Table 10 lists the power cable part number, the country where the power cable can be used, and an index number to be matched with the receptacles shown in Figure 24 on page 50. If your power cable does not match this information, contact your local dealer.

Table 10. Power Cable Information

Part Number	Country or Region	Index
39M5095 Japan	Bahamas, Barbados, Bolivia, Brazil, Canada, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Netherlands Antilles, Panama, Peru, Philippines, Taiwan, Thailand, Tobago, Trinidad, U.S.A. (except Chicago), Venezuela	1
39M5081 US/Canada	Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saudi Arabia, Suriname, Taiwan, Trinidad, U.S.A. (except Chicago), Venezuela	2

Table 10. Power Cable Information (continued)

Part Number	Country or Region	Index
39M5080 6 ft Chicago	Chicago, U.S.A.	2
39M5102 Australia	Australia, New Zealand, Uruguay	3
39M5123 France	Abu Dhabi, Austria, Belgium, Bulgaria, Botswana, Egypt, Finland, France, Germany, Greece, Iceland, Indonesia, Korea (South), Lebanon, Luxembourg, Macau, Netherlands, Norway, Portugal, Saudi Arabia, Spain, Sudan, Sweden, Turkey, Yugoslavia	4
39M5130 Denmark	Denmark	5
39M5144 South Africa	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka	6
39M5151 United Kingdom	Bahrain, Bermuda, Brunei, Channel Islands, Cyprus, Ghana, Hong Kong, India, Iraq, Ireland, Jordan, Kenya, Kuwait, Malawi, Malaysia, Nigeria, Oman, People's Republic of China, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Arab Emirates (Dubai), United Kingdom, Zambia	7
39M5158 Switzerland	Liechtenstein, Switzerland	8
39M5165 Italy	Chile, Ethiopia, Italy	9
39M5172 Israel	Israel	10
39M5068 Colombia	Colombia, Paraguay, Argentina	11
39M5206 China	China (PRC)	
39M5247 Taiwan	Taiwan	

26415-00

Figure 24. Types of Receptacles

Technical publication remarks form

Title:	7214 Model 1U2 Storage Device Enclosure - Setup and Operation Guide

Reference:	86 A1 70EW 00	Date:	March 2008

ERRORS IN PUBLICATION

SUGGESTIONS FOR IMPROVEMENT TO PUBLICATION

Your comments will be promptly investigated by qualified technical personnel and action will be taken as required.
If you require a written reply, please include your complete mailing address below.

NAME: _____ DATE: _____

COMPANY: _____

ADDRESS: _____

_____

Please give this technical publication remarks form to your BULL representative or mail to:

Bull - Documentation D^{ept.}
1 Rue de Provence
BP 208
38432 ECHIROLLES CEDEX
FRANCE
info@frec.bull.fr

Technical publications ordering form

To order additional publications, please fill in a copy of this form and send it via mail to:

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

Phone: +33 (0) 2 41 73 72 66
FAX: +33 (0) 2 41 73 70 66
E-Mail: srv.Duplicopy@bull.net

Reference	Designation	Qty
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		

[_ _] : The latest revision will be provided if no revision number is given.

NAME: _____ DATE: _____

COMPANY: _____

ADDRESS: _____

_____

PHONE: _____ FAX: _____

E-MAIL: _____

For Bull Subsidiaries:
Identification: _____

For Bull Affiliated Customers:
Customer Code: _____

For Bull Internal Customers:
Budgetary Section: _____

For Others: Please ask your Bull representative.

BULL CEDOC

357 AVENUE PATTON

B.P.20845

49008 ANGERS CEDEX 01

FRANCE

REFERENCE
86 A1 70EW 00