STORAGETEK®

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TAPE LIBRARY

CUSTOMER REPLACEABLE UNIT (CRU) INSTRUCTIONS

PRODUCT TYPE **HARDWARE**

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Sixth Edition (January 2005)
This edition contains 44 pages. See "Summary of Changes" on page iii for the revision history and summary of changes made to this publication.

A Reader's Comment Form at the back of this publication lets you communicate suggestions or requests for change. StorageTek encourages and appreciates reader feedback.

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Summary of Changes

EC	Date	Edition	Description
111663	August 2001	First	Initial release
111732	March 2002	Second	Refer to this edition for a description of the changes.
111763	June 2002	Third	Refer to this edition for a description of the changes.
111828	February 2003	Fourth	Refer to this edition for a description of the changes.
128788	June 2003	Fifth	Chapter 2: Removed the Puerto Rico address and changed Federal Express to Associated Global Systems.
111948	January 2005	Sixth	To meet Argentina marking requirements the Safety sections were translated into Spanish.

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Preface

These customer replaceable unit (CRU) instructions are for replacing the library under the interactive maintenance agreement.

■ Alert Messages

Alert messages call your attention to information that is especially important or that has a unique relationship to the main text or graphic.

Note: A note provides additional information that is of special interest. A note might point out exceptions to rules or procedures. A note usually, but not always, follows the information to which it pertains.

CAUTION:
A caution informs you of conditions that might result in damage to hardware, corruption of data, or corruption of application software. A caution always precedes the information to which it pertains.

WARNING:
A warning alerts you to conditions that might result in long-term health problems, injury, or death. A warning always precedes the information to which it pertains.

■ Mensajes de alerta

Los mensajes de alerta llaman la atención hacia información de especial importancia o que tiene una relación específica con el texto principal o los gráficos.

Nota: Una nota expone información adicional que es de interés especial. Una nota puede señalar excepciones a las normas o procedimientos. Por lo general, aunque no siempre, las notas van después de la información a la que hacen referencia.

PRECAUCIÓN:
Una precaución informa sobre situaciones que podrían conllevar daños del hardware, de los datos o del software de aplicación. Las precauciones van siempre antes de la información a la que hacen referencia.

ADVERTENCIA:
Una advertencia llama la atención sobre condiciones que podrían conllevar problemas de salud crónicos, lesiones o muerte. Las advertencias van siempre antes de la información a la que hacen referencia.

■ Conventions

Typographical conventions highlight special words, phrases, and actions in this publication.

Item	Example	Description of Convention
Buttons	MENU	Font and capitalization follows label on product
Commands	Mode Select	Initial cap
Document titles	*System Assurance Guide*	Italic font
Emphasis	*not* or *must*	Italic font
File names	`fsc.txt`	Monospace font
Hypertext links	Figure 2-1 on page 2-5	Blue (prints black in hardcopy publications)
Indicators	*Open*	Font and capitalization follows label on product
Jumper names	TERMPWR	All uppercase
Keyboard keys	<Y> <Enter> or <Ctrl+Alt+Delete>	Font and capitalization follows label on product; enclosed within angle brackets
Menu names	Configuration Menu	Capitalization follows label on product
Parameters and variables	Device = *xx*	Italic font
Path names	`c:/mydirectory`	Monospace font
Port or connector names	SER1	Font and capitalization follows label on product; otherwise, all uppercase
Positions for circuit breakers, jumpers, and switches	ON	Font and capitalization follows label on product; otherwise, all uppercase
Screen text (including screen captures, screen messages, and user input)	`downloading`	Monospace font
Switch names	Power	Font and capitalization follows label on product
URLs	http:// www.storagetek.com	Blue (prints black in hardcopy publications)

■ Additional Information

StorageTek offers several methods for you to obtain additional information. Please use one of these methods when you want to obtain the latest edition of this or any other StorageTek customer publication.

StorageTek's External Web Site

StorageTek's external Web site provides marketing, product, event, corporate, and service information. In addition, the external Web site serves as an entry point to the Customer Resource Center (CRC) and to the e-Partners site. The external Web site is accessible to anyone with a Web browser and an Internet connection.

The URL for the StorageTek external Web site is http://www.storagetek.com

Customer Resource Center

StorageTek's CRC is a Web site that enables members to resolve technical issues by searching code fixes and technical documentation. CRC membership entitles you to other proactive services, such as HIPER subscriptions, technical tips, answers to frequently asked questions, addenda to product documentation books, and online product support contact information. Customers who have a current warranty or a current maintenance service agreement may apply for membership by clicking on the Request Password button on the CRC home page.

The URL for the CRC is http://www.support.storagetek.com.

e-Partners Site

StorageTek's e-Partners site is a Web site that provides information about products, services, customer support, upcoming events, training programs, and sales tools to support StorageTek's e-Partners. Access to this site, beyond the e-Partners Login page, is restricted. On the e-Partners Login page, current partners who do not have access can request a login ID and password and prospective partners can apply to become StorageTek resellers.

The URL for the e-Partners site is http://members.storagetek.com.

Hardcopy Publications

Contact a StorageTek sales or marketing representative to order additional paper copies of this publication or to order other StorageTek customer publications in paper format.

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Safety

The following pages describe common practices concerning electrical safety, ergonomics, rack installation, and electrostatic discharge.

WARNING:
Potential injury: **On-the-job safety is important; therefore, observe the following safety precautions. Failing to follow these precautions could result in serious injury.**

Remove all conductive jewelry, such as watches and rings, before you access CRUs.

- Avoid electrical shock. Be careful when you work near power connectors and supplies.

- Power-off the equipment before you remove a customer replaceable unit (CRU). Remember that dangerous voltages could still be present in some areas even though power is off.

- Lift objects properly; read the information in "Lifting Techniques" (see below).

- Enforce good housekeeping practices in the equipment area to help prevent fire and accidents.

■ Lifting Techniques

Lifting, regardless of how much or how little, can create serious back stress. If you follow these guidelines, you can reduce the risk of back injury:

- Do not twist your body to pick up something or to put it down. Twisting puts extreme pressure on your back, especially when you lift or carry objects. Instead of twisting, make the task two separate moves; first lift, and then use your feet to turn your body.

- Plan the lift: first examine the object and then determine how it will be lifted and where it will be placed.

- Choose the appropriate lifting technique. Examine the weight, size, location, frequency, and direction of the lift. Plan to avoid awkward postures, and determine if material-handling aids are needed.

- Place your feet shoulder-width apart, and place one foot a little behind the other. Keep your back straight because even light loads can significantly increase pressure on your spine when you lean forward.

- Whenever you can, grip the load with your whole hand, and use two hands.

- Carry objects at elbow height and close to your body. The farther away you hold an object, the more force it puts on your lower back.

- Lift with your legs instead of your back. Leg muscles are some of the strongest in the body. When you squat and lift with your legs, you can lift more weight safely.

- Alternate lifting tasks with tasks that are less stressful to the same muscles. This technique ensures that your muscles have some recovery time.

■ Shoulder, Elbow, Wrist, and Hand Safety

Follow these guidelines to minimize the possibility of injury to your shoulders, elbows, wrists, and hands.

- Work within your safety zone—the area between shoulder level and knuckle level of your lowered hands. You face less chance of injury when you work or lift in this area.

- Keep your elbows bent to keep loads close to your body and to decrease the amount of force necessary to do the job. If you use this posture, you will put less weight and pressure on your shoulder.

- Be sure to keep your wrists straight. Avoid bending, extending, or twisting your wrists for long periods of time.

- Do not use a pinch grip to lift large or heavy loads because the way you lift also can affect the tendons in your hand. When you grasp an object between your thumb and fingers, you put a lot of tension on hand and wrist tendons. Use both hands—use one for a while, and then use the other—to give them rest.

■ Rack Safety and Precautions

WARNING:
Possible personal injury:

- ***Lifting hazard:* Use a mechanical device to lift and position the library. The library weighs 63.5 to 122.5 kg (140 to 270 lb).Use at least two people and a mechanical device to lift and position the library. Make sure you read the information in "Lifting Techniques" on page xiii before beginning.**

- **Also consider the library's total weight when you are placing other equipment into the rack. To prevent an unbalanced situation, install the heaviest equipment on the bottom and the lightest equipment on the top. Failure to do so might cause the rack to become unstable and tip over.**

Observe the following safety precautions when you are installing the library into a rack:

- If the rack has front or rear doors, do *not* allow the doors to interfere with the library's ventilation. The rack's internal ambient temperature should not exceed the recommended operating temperature range of the library. The maximum rack air ambient temperature is 40°C (104°F).

- Ensure that rack doors provide adequate clearance to the library.

- Ensure that the combination of the library with other equipment in the rack does not create an overcurrent condition, whether the equipment is connected directly to the branch circuit or to a power distribution strip.

- Ensure that all equipment in the rack has reliable earth ground, whether the equipment is connected directly to the branch circuit or to a power distribution strip.

  Note: The library relies on the ground pin of the power cord for its earth ground.

■ Electrostatic Discharge (ESD) Damage Prevention

Anyone who handles ESD-sensitive components must be aware of the damage that ESD can cause to electronic components and must take the proper precautions to prevent it. Also, anyone who performs maintenance on StorageTek equipment must complete an ESD-basics course.

CAUTION:
***Potential damage to equipment:* Handle ESD-sensitive components *only* under ESD-protected conditions. To meet this requirement, always use the Field Service Grounding Kit (PN 4711) and always follow these ESD precautions and procedures when you are accessing StorageTek equipment or handling ESD-sensitive components.**

ESD Precautions

Always take the following general precautions when you work with ESD-sensitive components:

- Wear ESD protection whenever you remove StorageTek equipment.

- Keep ESD-sensitive printed-circuit components in their ESD-protective packages until you have taken all ESD-preventive steps and you are ready to install the component.

- Do not allow anyone to touch or handle an unprotected ESD-sensitive component unless that person has taken all ESD precautions.

- Reinstall all equipment covers and close all equipment doors after you have completed the work.

- If the grounding-kit work surface has been exposed to temperatures above 66°C (150°F) or below 4.5°C (40°F), acclimate the work surface to room temperature before you unroll it.

- Immediately place any component that you have removed into an ESD-protective package.

- Keep the grounding-kit work surface clean.

  Note: To clean the work surface, use a mild detergent and water, and make sure that the surface is completely dry before you use it.

- Periodically check the electrical resistance of the ground cord and the wrist-strap coil cord.

  Note: The ground cord should measure less than 1.2 MΩ, and the coil cord should measure between 0.8 and 1.2 MΩ Repair or replace the cords if they no longer meet these requirements.

ESD-Protection Procedure

Remember that each customer environment is different. Address all the customer's concerns before you work on any equipment.

Prepare the Work Area

1. Before you access the equipment, unfold the grounding-kit work surface completely and place it on a convenient surface.

2. Attach one end of the ground cord to the work surface; secure the snap fastener.

   Note: You will attach the free end in a later step.

3. Slip on an ESD wrist strap. Make sure that the strap is comfortable and makes contact with the entire circumference of your wrist.

4. Snap one end of the coil cord to the wrist band.

Access the Equipment

5. Carefully open the doors to the equipment or remove the covers from the equipment. Do not touch any internal components.

   CAUTION:
   Be sure that you are properly grounded before you touch any internal components.

6. Attach the free end of the coil cord to the most appropriate place:

   a. If you are working on components from a small piece of equipment, attach the free end of the coil cord to the grounding-kit work surface. In addition, be sure that you touch an unpainted metal surface on the equipment before you touch an internal component.

   b. If you are working on components from a large piece of equipment, attach the free end of the coil cord to a grounding jack or to an unpainted metal surface inside the equipment.

Replace Components

7. Remove the defective component and place it on the work surface.

8. Remove the replacement component from its ESD-protective package, and install the component in the equipment.

9. Place the defective component in the ESD-protective package.

Clean Up

10. Disconnect the ground cords from the equipment.

11. Reinstall all equipment covers and close all equipment doors.

12. Disconnect the coil cord from your wrist, and, if necessary, disconnect the ground cord from the work surface.

13. Properly store the work surface and the other Field Service Grounding Kit items.

■ Fiber-optic Safety

WARNING:
***Eye hazard*. Never look directly into a fiber-optic cable, a fiber-optic connector, or a laser transceiver module. Hazardous conditions might exist from laser power levels that are capable of causing injury to the eye.**

Be especially careful when using optical instruments with this equipment. Such instruments might increase the likelihood of eye injury.

The laser transceivers in fiber-optic equipment can pose dangers to personal safety. Ensure that anyone who works with this StorageTek equipment understands these dangers and follows safety procedures. Ensure that the optical ports of every laser transceiver module are terminated with an optical connector, a dust plug, or a cover.

Each fiber-optic interface in this StorageTek Fibre Channel equipment contains a laser transceiver that is a Class 1 Laser Product. Each laser transceiver has an output of less than 70 μW and a wavelength of 850 nm. StorageTek's Class 1 Laser Products comply with EN60825-1(+A-11) and with sections 21 CFR 1040.10 and 1040.11 of the Food and Drug Administration (FDA) regulations.

The following translations are for users in Finland and Sweden who wish to identify laser safety and classification:

CLASS 1 LASER
LUOKAN 1 LASERLAITE
KLASSE 1 LASER APPARAT

Laser Product Label

In accordance with safety regulations, a label on each StorageTek Fibre Channel product identifies the laser class of the product and the place and date of the manufacturer. The label appears on top of a Fibre Channel tape drive and near the Fibre Channel connectors on a Fibre Channel tape library. A copy of the label is shown here:

CLASS 1 LASER PRODUCT
LASER KLASSE 1
APPAREIL A LASER DE CLASSE 1
COMPLIES WITH 21 CFR 1040.10 AND 1040.11
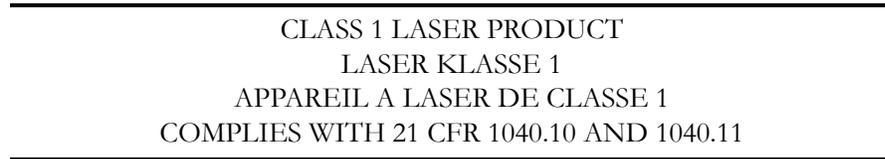
Fiber-optic Cable Installation

Follow these guidelines when you install fiber-optic cables:

1. **Cable routing:**

    - **Raised floor:** You may install fiber-optic cables under a raised floor. Route them away from any obstruction, such as existing cables or other equipment.

    - **Cable tray or raceway:** Place the cables in position; do not pull them through the cable tray. Route the cables away from sharp corners, ceiling hangers, pipes, and construction activity.

    - **Vertical rise length:** Leave the cables on the shipping spool, and lower them from above; do not pull the cables up from below. Use proper cable ties to secure the cable.

    - **General:** Do not install fiber-optic cables on top of smoke detectors.

2. **Cable management:**

    - Leave at least 4.6 m (15 ft) of cable at each end for future growth.

    - Use strain reliefs to prevent the weight of the cable from damaging the connector.

    - Review all information in this manual and in any related manuals about safely handling fiber-optic cables.

3. **Connector protection:**

    - Insert connectors carefully to prevent damage to the connector or fiber.

    - Leave the connector's protective cover in place until you are ready to make connections.

    - Replace the connector's protective cover when the connector is disconnected.

- Clean the connector before making a connection. Make sure that there are no obstructions and that keyways are aligned.

Fiber-optic Cable Handling

Observe these precautions when you handle fiber-optic cables:

- Do not coil the cable to less than 96 mm (3.75 in.) in diameter.

- Do not bend the cable to less than 12 mm (0.5 in.) in radius. StorageTek recommends that a cable's bend radius be no less than 20 times the diameter of the cable.

- Do not pull on the cables; carefully place them into position.

- Do not grasp the cables with pliers, grippers, or side cutters; do not attach pulling devices to the cables or connectors.

- Keep cables away from sharp edges or sharp protrusions that could cut or wear through the cable; make sure that cutouts in the equipment have protective edging.

- Protect the cable from extreme temperature conditions.

- Install the connector's protective cover whenever the connector is not connected.

Seguridad

Las siguientes páginas describen prácticas habituales sobre seguridad eléctrica, ergonomía, instalación en bastidor y descargas electrostáticas.

ADVERTENCIA:
***Posibles lesiones:* La seguridad laboral es importante. Por consiguiente, tenga siempre en cuenta las siguientes precauciones de seguridad. El incumplimiento de dichas precauciones puede conllevar graves lesiones.**

Antes de realizar cualquier tarea en las unidades sustituibles del cliente, quítese las joyas y accesorios conductores de electricidad, como relojes y anillos.

- Evite las descargas eléctricas. Tenga cuidado al trabajar en la proximidades de conectores y alimentaciones eléctricas.

- Antes de extraer una unidad sustituible del cliente (CRU), apague y desconecte el equipo. Recuerde que, incluso si están apagados, en algunas áreas pueden quedar tensiones peligrosas.

- Para levantar objetos, consulte la información de "Técnicas de levantamiento de objetos" (véase a continuación).

- Aplique las prácticas adecuadas de limpieza en el área del equipo para prevenir incendios y accidentes.

■ Técnicas de levantamiento de objetos

El levantar equipos o componentes, independientemente de su peso o tamaño, puede provocar serias lesiones lumbares. Siguiendo estas directrices podrá reducir los riesgos de lesiones.

- No incline el cuerpo para levantar o bajar algo. Esta posición supone una tensión extrema para la espalda, en especial al levantar o transportar objetos. En lugar de inclinarse, efectúe dos movimientos: primero levante el componente y, a continuación, utilice los pies para girar el cuerpo.

- Planifique el levantamiento: primero examine el objeto y, a continuación, determine cómo lo levantará y dónde lo colocará.

- Seleccione la técnica de levantamiento adecuada. Examine el peso y tamaño del objeto, su ubicación y frecuencia y dirección en que vaya a levantarlo. La planificación debe hacerse de tal modo que se eviten posturas incómodas. Determine si son necesarios accesorios para la manipulación de materiales.

- Separe bien las piernas y coloque una ligeramente detrás de la otra. Mantenga la espalda recta, porque incluso pesos ligeros pueden incrementar significativamente la presión sobre la espina dorsal al inclinarse hacia adelante.

- En la medida de lo posible, sostenga la carga con toda la mano, y utilice ambas manos.

- Transporte los objetos a la altura del codo y próximos a su cuerpo. Cuanto más lejos tenga que transportar un objeto, más presión aplicará sobre la zona lumbar.

- Levante el objeto haciendo fuerza con las piernas, y no con la espalda. Los músculos de las piernas se cuentan entre los más fuertes del cuerpo. Al acuclillarse y levantar un peso con las piernas, tendrá mayor tolerancia al peso.

- Alterne estas tareas con otras menos pesadas para los mismos músculos. De este modo, los músculos dispondrán de un cierto tiempo de recuperación.

■ Seguridad de hombros, codos, muñecas y manos

Siga estas instrucciones para reducir al mínimo las posibilidades de lesionarse los hombros, codos, muñecas y manos.

- Trabaje dentro de su zona de seguridad, el área entre el nivel de los hombros y el nivel de los nudillos. Trabajando o levantando objetos dentro de esta área se expondrá a menos probabilidades de lesiones.

- Mantenga los codos inclinados para mantener las cargas próximas a su cuerpo y reducir la fuerza necesaria para realizar la tarea. Con esta postura, aplicará menos peso y presión sobre los hombros.

- Asegúrese de mantener las muñecas rectas. Evite doblarlas, extenderlas o torcerlas durante períodos de tiempo prolongados.

- No levante cargas grandes o pesadas con el puño cerrado, porque el modo de levantarlas también afecta a los tendones de la mano. Al tomar un objeto entre el pulgar y los dedos se aplica mucha tensión a las manos y tendones de las muñecas. Utilice ambas manos alternativamente, para permitir que descansen.

■ Seguridad y precauciones del bastidor

ADVERTENCIA:
Posibilidad de lesiones físicas:

- ***Peligro de levantamiento:* Utilice un dispositivo mecánico para levantar la biblioteca y colocarla en su posición. La biblioteca pesa entre 63,5 y 122,5 kg (140 a 270 lb). Para levantar la biblioteca y colocarla en su posición se requieren como mínimo dos personas. Antes de poner manos a la obra, asegúrese de leer la información presentada en "Técnicas de levantamiento de objetos" en la página xxi.**

- **Al colocar otros equipos en el bastidor, considere también el peso total de la biblioteca. Para evitar un desequilibrio de la carga, coloque los equipos más pesados abajo y los más ligeros arriba. De lo contrario, el bastidor podría desestabilizarse y caerse.**

Al instalar la biblioteca en el bastidor, adopte las siguientes precauciones de seguridad:

- Si el bastidor tiene puertas delanteras o traseras, *no permita* que las puertas interfieran con la ventilación de la biblioteca. La temperatura ambiente en el interior del bastidor no debe ser superior a la temperatura de servicio recomendada de la biblioteca. La temperatura ambiente máxima del interior del bastidor es de 40 °C (104 °F).

- Asegúrese de que las puertas del bastidor permitan el acceso adecuado a la biblioteca.

- Asegúrese de que la combinación de la biblioteca con otros equipos instalados en el bastidor no provoque situaciones de sobretensión, tanto si el equipo está conectado directamente al circuito derivado o a una regleta de distribución.

- Asegúrese de que todos los equipos del bastidor dispongan de una puesta a tierra fiable, tanto si el equipo está directamente conectado al circuito derivado o a una regleta de distribución

  Nota: La puesta a tierra de la biblioteca se conecta a través de la patilla de puesta a tierra del enchufe.

■ Prevención de daños por descargas electrostáticas (DES)

Quienes manipulan componentes sensibles a las descargas electrostáticas (DES) deben ser conscientes de los daños que éstas pueden provocar en los componentes electrónicos, con el objeto de adoptar las precauciones adecuadas para evitarlas. Asimismo, las personas que realicen tareas de mantenimiento en equipos de Storage Tek deben pasar un curso de fundamentos de las descargas electrostáticas.

PRECAUCIÓN:
***Posibles daños a los equipos:* Manipule los componentes sensibles a las descargas electrostáticas *sólo* en las condiciones de protección adecuadas. Para cumplir este requisito, utilice siempre el Kit de puesta a tierra del servicio de campo (NP 4711) y cumpla en todo momento estas precauciones y procedimientos al acceder a equipos de StorageTek, así como al manipular componentes sensibles a las descargas electrostáticas.**

Precauciones contra descargas electrostáticas

Al trabajar con componentes sensibles a las descargas electrostáticas (DES), adopte siempre las siguientes precauciones generales:

- Al desmontar equipos de StorageTek, utilice protectores contra descargas electrostáticas.

- Mantenga los circuitos impresos sensibles a las descargas electrostáticas dentro de sus embalajes de protección hasta haber adoptado las medidas de prevención adecuadas y esté preparado para instalar el componente.

- No permita que nadie toque o manipule un componente sensible a las descargas electrostáticas no protegido, salvo que dicha persona haya adoptado las precauciones pertinentes.

- Una vez concluido el trabajo, vuelva a colocar todas las cubiertas del equipo y cierre todas las puertas.

- Si la superficie de trabajo del kit de puesta a tierra ha estado sometida a temperaturas superiores a los 66 °C (150 °F) o inferiores a los 4,5 °C (40 °F), deje que la superficie se aclimate a la temperatura ambiente antes de desenrollarla.

- Coloque inmediatamente sobre esta superficie todo componente que haya retirado de su embalaje de protección contra descargas electrostáticas.

- Mantenga limpia la superficie de trabajo del kit de puesta a tierra.

  Nota: Para limpiarla, utilice agua y un detergente suave, asegurándose de que esté completamente seca antes de utilizarla.

- Compruebe periódicamente la resistencia eléctrica del cable de puesta a tierra y del cable en espiral de la muñequera.

Nota: Al medir la resistencia del cable de puesta a tierra, debe ser inferior a 1,2 MΩ,; la del cable en espiral debe situarse entre 0,8 y 1,2 MΩ Repare o sustituya los cables si no cumplen estos requisitos.

Procedimiento de protección contra descargas electrostáticas (DES)

Recuerde que cada entorno de cliente es diferente. Responda a todas las dudas e inquietudes del cliente antes de proceder a trabajar en un equipo.

Prepare el área de trabajo

1. Antes de acceder al equipo, desenrolle completamente la superficie de trabajo del kit de puesta a tierra y colóquela sobre una superficie adecuada.

2. Conecte un extremo del cable de puesta a tierra a la superficie de trabajo y ajuste el broche de presión.

   Nota: El otro extremo se conectará posteriormente.

3. Colóquese una muñequera antiestática. Asegúrese de que le resulte cómoda y que haga contacto con toda la circunferencia de la muñeca.

4. Conecte a la muñequera un extremo del cable en espiral.

Acceda al equipo

5. Con todo cuidado, abra las puertas o retire las cubiertas del equipo. No toque ningún componente interno.

PRECAUCIÓN:
Antes de tocar cualquier componente interno, asegúrese de estar correctamente conectado a tierra.

6. Conecte el extremo libre del cable en espiral al lugar más adecuado:

   a. Si está trabajando con componentes de un equipo de pequeñas dimensiones, conecte el extremo libre del cable a la superficie de trabajo del kit de puesta a tierra. Asimismo, asegúrese de tocar una superficie metálica no pintada del equipo antes de tocar cualquier componente interno.

   b. Si está trabajando con componentes de un equipo de amplias dimensiones, conecte el extremo libre del cable en espiral a un conector de puesta a tierra o a una superficie metálica no pintada del interior del equipo.

Sustituya los componentes

7. Sustituya el componente defectuoso y colóquelo sobre la superficie de trabajo.

8. Extraiga el componente de recambio de su embalaje de protección contra descargas eléctricas e instálelo en el equipo.

9. Coloque el componente defectuoso dentro del embalaje de protección.

Limpie

10. Desconecte los cables de puesta a tierra del equipo.

11. Vuelva a instalar todas las cubiertas y cierre todas las puertas del equipo.

12. Desconecte el cable en espiral de la muñeca. Si fuese necesario, desconecte el cable de puesta a tierra de la superficie de trabajo.

13. Pliegue correctamente la superficie de trabajo, y guárdela. Guarde también los demás componentes del Kit de puesta a tierra del servicio de campo.

■ Seguridad de fibras ópticas

ADVERTENCIA:
Riesgo para la vista. **Nunca mire directamente el interior de un cable de fibra óptica, un conector de fibra óptica o un módulo transceptor de láser. Los niveles de potencia del láser pueden conllevar situaciones de riesgo, susceptibles de lesionar la vista.**

Tenga especial cuidado al utilizar instrumentos ópticos con estos equipos. Dichos instrumentos pueden incrementar las probabilidades de lesiones oculares.

Los transceptores de láser de los equipos de fibra óptica pueden suponer un peligro para la seguridad física. Asegúrese de que toda persona que trabaje con estos equipos de StorageTek entienda los peligros y siga los procedimientos de seguridad. Asegúrese de que todos los puertos ópticos de los módulos transceptores de láser estén terminados con un conector óptico, una cubierta o un tapón de protección contra el polvo.

Todas las interfaces de fibra óptica de estos equipos de canal de fibra de StorageTek contienen un transceptor de láser, categorizado como Producto láser de Clase 1. Cada transceptor láser tiene una salida de menos de 70 μW y una longitud de onda de 850 nm. Los productos de láser de clase 1 de StorageTek cumplen las normas EN60825-1(+A-11) y las secciones 21 CFR 1040.10 y 1040.11 de las normas de la Administración para la Calidad de Alimentos y Medicamentos (FDA).

Las siguientes traducciones están dirigidas a usuarios de Finlandia y Suecia que deseen identificar la categoría y clasificación de seguridad de los dispositivos láser:

LÁSER DE CLASE 1
LUOKAN 1 LASERLAITE
KLASSE 1 LASER APPARAT

Etiqueta del producto láser

De conformidad con las normas de seguridad, cada producto de canal de fibra de StorageTek lleva una etiqueta que identifica la clase de láser del producto, y el lugar y fecha de fabricación. Esta etiqueta aparece sobre la unidad de cinta de canal de fibra, así como en las proximidades de los conectores de las bibliotecas de cintas de canal de fibra. A continuación puede verse una copia de dicha etiqueta:

CLASS 1 LASER PRODUCT
LASER KLASSE 1
APPAREIL A LASER DE CLASSE 1
CUMPLE LAS NORMAS 21 CFR 1040.10 Y 1040.11

Instalación de cables de fibra óptica

Para instalar cables de fibra óptica, efectúe este procedimiento:

1. **Tendido del cable:**

   • **Tarima:** Los cables de fibra óptica pueden instalarse debajo de tarimas. Al tenderlos, manténgalos apartados de cualquier obstrucción, como por ejemplo otros cables o equipos.

   • **Escalerilla portacables o canaleta de cables:** Sitúe los cables en su posición. No tire de ellos a través de la escalerilla portacables. Al tender los cables, manténgalos apartados de esquinas afiladas, colgadores de techo, conductos, tuberías y actividades de construcción.

   • **Longitud de elevación vertical:** Deje los cables en la bobina original y bájelos desde arriba. No tire de ellos desde abajo. Utilice los fijadores adecuados para inmovilizarlos.

   • **General:** No instale cables de fibra óptica encima de detectores de humo:

2. **Instalación de los cables:**

   • Deje como mínimo 4,6 m (15 pies) de cable en cada extremo, en previsión de futuras extensiones.

   • Utilice protectores contra tirones para evitar que el peso del cable dañe el conector.

   • Repase en el presente manual, así como de manuales afines, toda la información relativa a la manipulación segura de cables de fibra óptica.

3. **Protección de los conectores:**

- Inserte los conectores con todo cuidado para evitar dañar éstos o la fibra.

- No quite la cubierta de protección del conector hasta que esté preparado para realizar las conexiones.

- Al desconectar el conector, vuelva a colocar la cubierta de protección.

- Antes de realizar una conexión, limpie el conector. Asegúrese de que no haya obstrucciones y de que las ranuras de chavetas estén alineadas.

Manipulación de cables de fibra óptica

Al manipular cables de fibra óptica, tenga en cuenta las siguientes precauciones:

- No enrolle el cable a menos de 96 mm (3,75") de diámetro.

- No curve el cable a menos de 12 mm (0,5") de radio. StorageTek recomienda que el radio de curvatura de un cable no sea inferior a 20 veces el diámetro del cable.

- No tire de los cables: colóquelos con cuidado en su posición.

- No aferre los cables con alicates, pinzas ni fresas. No una los cables ni los conectores a dispositivos de tracción.

- Mantenga los cables apartados de bordes y salientes afilados que pudieran cortarlos o desgastarlos. Asegúrese de que los orificios del equipo dispongan de bordes protectores.

- Proteja los cables contra temperaturas extremas.

- En toda ocasión en que el conector no esté conectado, colóquele su cubierta de protección.

Replacing the Library

<div style="text-align: right">1</div>

This chapter describes how to replace the library.

Note: The CRU does not include the drive tray assemblies, personality module, external cables, or cartridges. Do *not* return them with the library.

■ Removing the Existing Library

WARNING:
Possible personal injury: **Use a mechanical device to lift and position the library. The library weighs 63.5 to 122.5 kg (140 to 270 lb).Use at least two people and a mechanical device to lift and position the library. Make sure you read the information in "Lifting Techniques" on page xiii before beginning.**

ADVERTENCIA

Posibilidad de lesiones físicas: **Utilice un dispositivo mecánico para levantar la biblioteca y colocarla en su posición. La biblioteca pesa entre 63,5 y 122,5 kg (140 a 270 lb). Para levantar la biblioteca y colocarla en su posición se requieren como mínimo dos personas. Antes de poner manos a la obra, asegúrese de leer la información presentada en "Técnicas de levantamiento de objetos" en la página xxi**

Observe these precautions before beginning:

* Read the safety instructions in "Safety."

* Stop all data processing on the channel to which the library is connected before disconnecting the library.

* Make sure there is no activity on the SCSI bus before disconnecting the external SCSI cables. Stop all processes on the client server.

* Make sure all signals are terminated at each end of the SCSI bus. Do not mix single-ended and differential terminators.

* If the drives are daisy-chained, stop all data processing on the channel to which the drives are connected before disconnecting the drives.

1. End all jobs the robot and the drives are performing.

2. Remove power from the library by placing the input line switches at the bottom of the frame to the O position.

3. Disconnect the AC power cords.
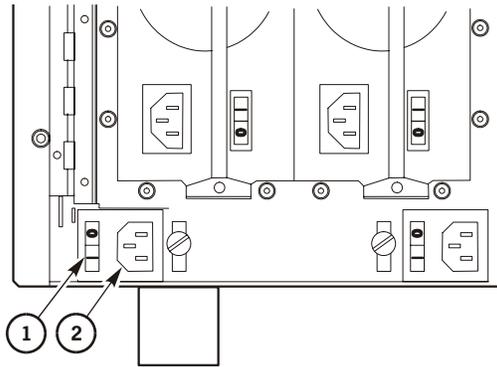
1. Input line switch (2)
2. AC power cord receptacle (2)

L201_352

4. Insert the door key into each of the two locks on the door, and unlock and open the door.

5. Look into the drive area to determine where the drives are installed.

6. Use the following steps to remove all the drive trays, *but do not remove the drives from the trays.*

CAUTION:
Possible component damage: **Do not use a screwdriver for the drive door latch or drive tray latch knob.**

7. At the rear of the library, turn the drive door latch knob to your left, and open the door.

1. Latch
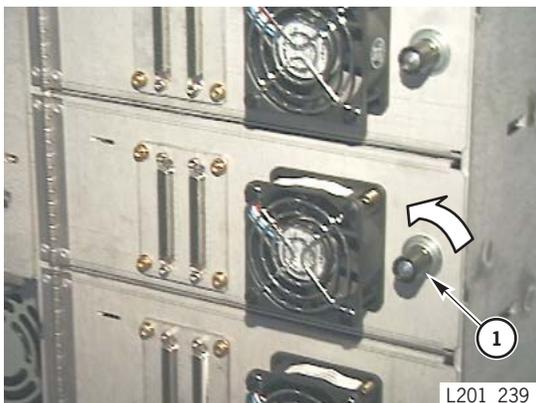
L201_239

Note: The following figure shows a typical cable configuration. Your cables might differ slightly, depending on your drive type.

CAUTION:
***Possible equipment damage:* Pull P903 straight out to prevent damaging the pins.**

8. Disconnect the drive SCSI connector, P903, from the drive.

9. Disconnect the drive power cable, P904A/B, from the library.

10. Disconnect the serial interface connector, P6A/B, from the library.

1. P903
2. P904A/B
3. P6A/B

L201_210
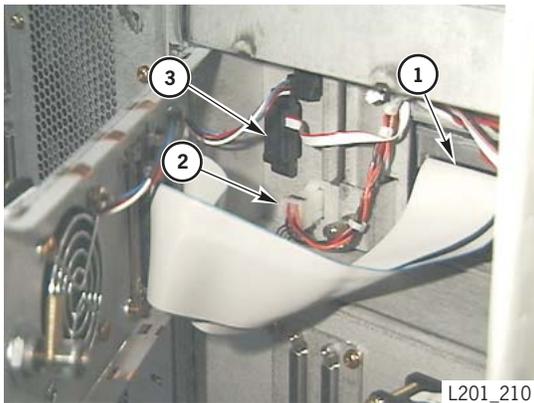
11. Turn the drive tray latch knob all the way to your left. This loosens the latch to its fully unlocked position.

1. Knob

L201_299
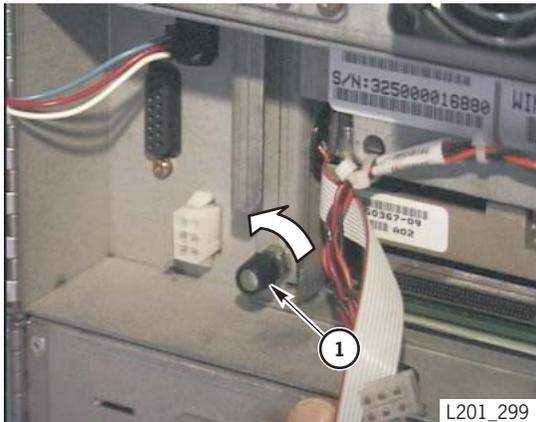
WARNING:
Lifting hazard: **Depending upon the drive type, each drive and tray weighs between 5.0 kg (11 lb) and 5.8 kg (12.7 lb). Follow the lifting instructions in "Lifting Techniques" on page xiii.**

ADVERTENCIA:
Riesgo al levantar: **En función del tipo de unidad, cada unidad y bandeja pesa entre 5,0 kg (11 lb) y 5,8 kg (12,7 lb). Para levantarlas, siga las instrucciones de "Técnicas de levantamiento de objetos" en la página xxi.**

12. Pull out the drive tray and set it aside.

CAUTION:
Load/unload problems: **The latch must be fully loosened (disengaged) before you slide the tray into the slot. If the latch arm contacts part of the library frame as it is being tightened, it cannot be rotated to its fully locked position, and the tray will not be firmly locked into the drive slot. This can cause alignment problems and the camera can have problems reading the target.**

13. Holding the replacement drive tray as shown in the figure below, turn the drive tray latch knob all the way to your right so that it is in its fully unlocked position.

14. Slide the replacement drive tray into the empty slot.
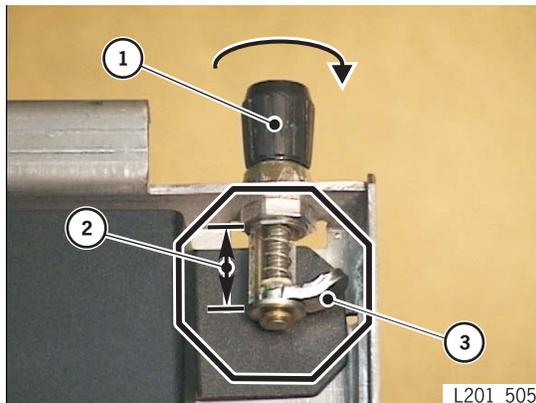
1. Knob
2. Range
3. Latch arm (shown disengaged)

L201_505

CAUTION:
Possible component damage: **Do not use a screwdriver to tighten the drive tray latch knob.**

15. Turn the knob all the way to the right to engage the latch and clamp it firmly into the frame.

16. Pull back on the tray to make sure the tray is securely latched. It should not move.

17. Connect the drive SCSI connector, P903, to the drive.

18. Connect the drive power cable, P904A/B, to the library.

19. Connect the serial interface connector, P6A/B, to the library.
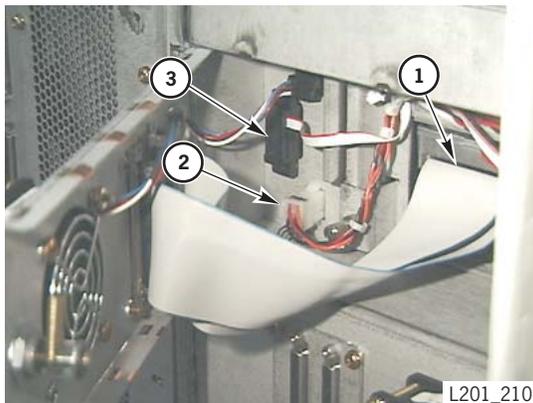
1. P903
2. P904A/B
3. P6A/B

L201_210

CAUTION:
Possible equipment damage: **Make sure the SCSI cable does not block the fan before you close the drive door.**

Possible cable damage: **Make sure you move the SCSI cable out of the way before you close the drive door.**

Possible component damage: **Do not use a screwdriver to tighten the drive door latch knob.**

20. Close the drive door and secure it by turning the drive door latch knob to your right.

21. Repeat the drive steps for every drive tray.

CAUTION:
Initialization fault: **You *must* keep the personality module and reattach it to the replacement library.**

22. Remove the personality module from its connector.
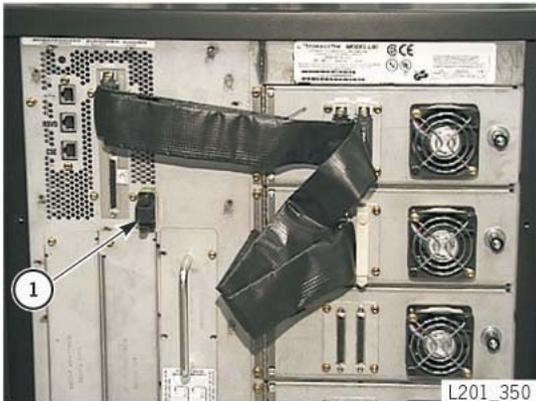
1. Personality module

23. Disconnect the SCSI client server cable, SCSI cable, and SCSI terminator from the rear of the library.
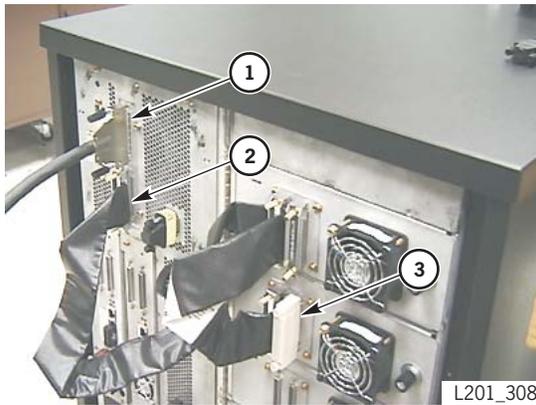
1. SCSI client server cable
2. SCSI cable
3. SCSI terminator

L201_308

24. Remove all the cartridges.

CAUTION:
Shipping damage: **When you pack your library for shipment, you must correctly install the shipping foam and cushions to receive proper credit for your returned library. If you no longer have the original unpacking material, use the material from your replacement library.**

25. Lift the hand to the top of the library.

26. Place the packing cushion (that you will later secure around the rear Z shaft) under the Z carriage to hold the hand at the top.

27. Place the hand foam in the bottom of the library so that the higher part is to the right and slightly under the lowest cells, as shown in the picture. The shallow part will be flush against the left wall of the library.

28. While holding the hand, remove the cushion from under the Z carriage, and lower the hand and turn it until it is directly in front of the drive slots. The right side of the hand will fit into the foam groove.

29. Wrap the packing cushion around the rear Z shaft, and secure the foam with tie wraps.
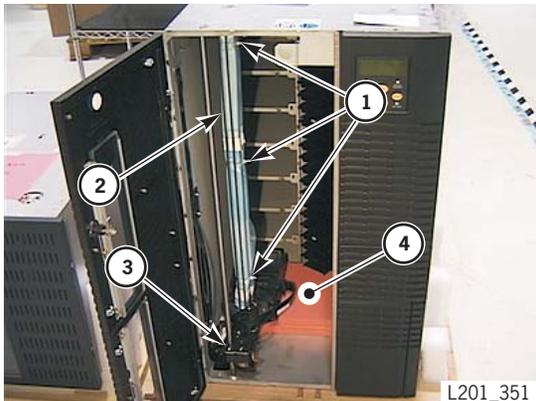
1. Tie wraps
2. Packing cushion around the Z shaft
3. Z carriage
4. Hand foam

L201_351

If you are replacing a deskside version, see Figure 1-1 on page 1-11 and its callout list to continue packing the library. See Chapter 2 for instructions about returning the library.

If the library is in a rack, continue to the next step.

You must remove the door and two decorative covers to access the holes in the frame.

30. Hold the door *firmly* with your left hand, and remove the two hinge pins.

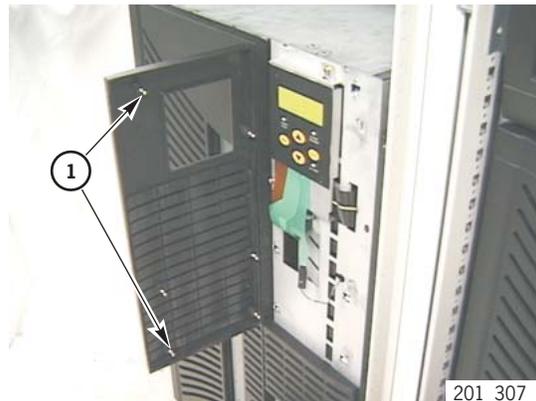**Note:**   Remove the bottom pin first, to make it easier to balance the door while holding it.

1. Hinge pin (2)

L201_303
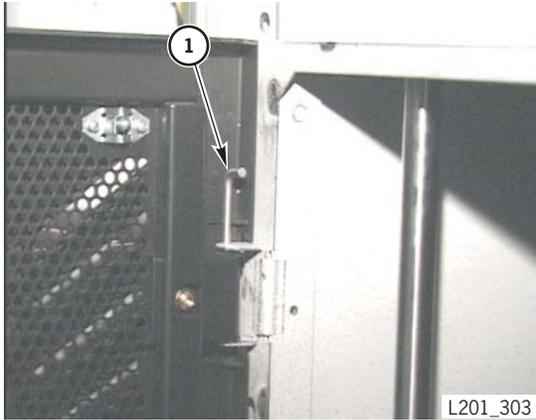
31. Set the door aside.

32. Remove the top right decorative cover over the operator panel by grasping the *top* of the cover and gently pulling it away from the operator panel. The snap pins will disconnect from the holes in the frame.

33. Remove the center decorative cover the same way.

Note: Do not remove the bottom section, which is the CAP.

1. Snap pins (6)

201_307

34. Remove the four screws and screw nut clips securing the library to the rack.

1. Screw (4)

L201_304

35. Reattach the two decorative covers.

36. Reattach the door.

Note: Install the top pin first, to make it easier to balance the door while holding it.

37. Close and lock the door.

WARNING:
Possible personal injury: **Use a mechanical device to lift and position the library. The library weighs 63.5 to 122.5 kg (140 to 270 lb).Use at least two people and a mechanical device to lift and position the library.**

ADVERTENCIA

Posibilidad de lesiones físicas: **Utilice un dispositivo mecánico para levantar la biblioteca y colocarla en su posición. La biblioteca pesa entre 63,5 y 122,5 kg (140 a 270 lb). Para levantar la biblioteca y colocarla en su posición se requieren como mínimo dos personas.**

38. Remove the library from the rack and place it on a sturdy surface.

39. See Figure 1-1 on page 1-11 and its callout list to continue packing the library. Start from the bottom, with callout 15, and continue moving up. See Chapter 2 for instructions about returning the library.

Figure 1-1. Packing the Library (L201_229)
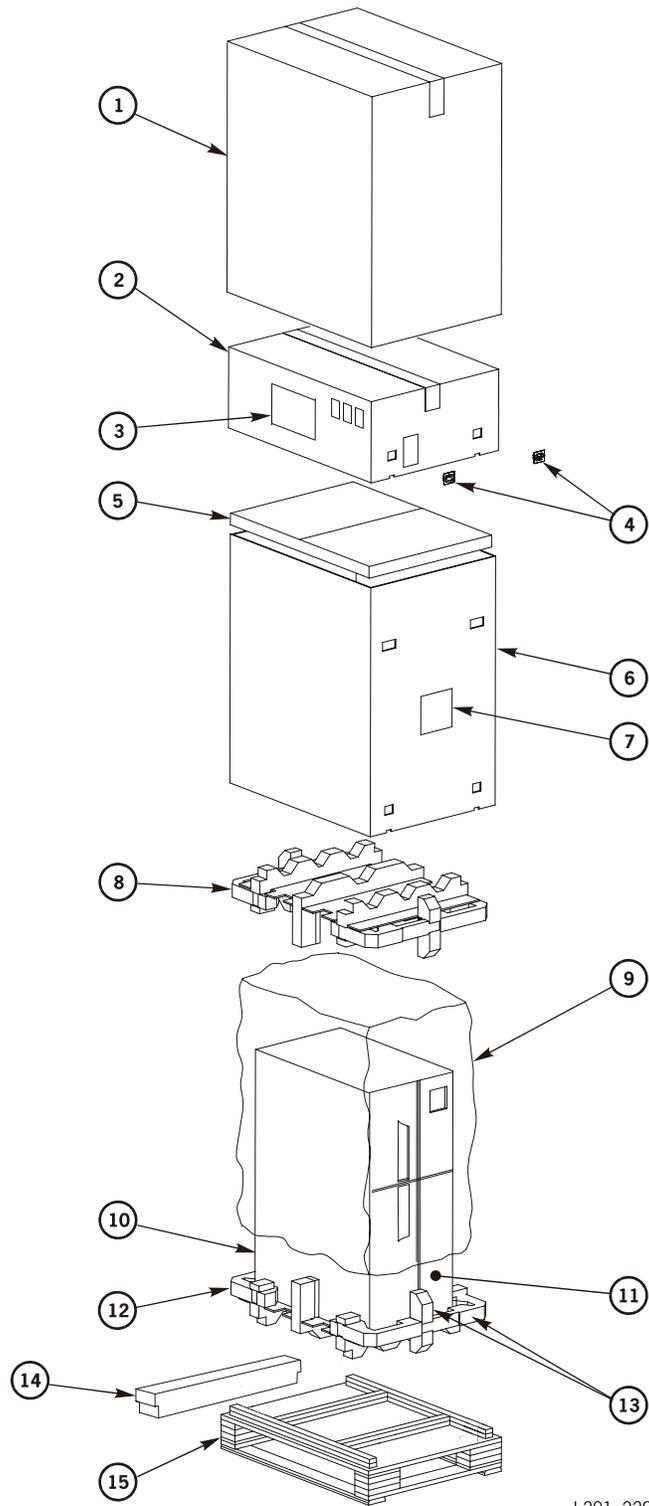
L201_229

Figure 1-1. Packing the Library (Continued) (L.201_229)

1. Outer Container
2. Container cap
3. Logo label
4. Container locks (Hold so the protruding part is on top. Squeeze the ears and lift the locks to secure them into the openings.)
5. Accessory container
6. Sleeve
7. Bar code label
8. Top cushion assembly
9. Bag
10. Library
11. Internal bracing items
12. Bottom cushion assembly
13. Front and rear rails (The pallet has wooden bars on each side. Place the rails so they interlock with the bars.)
14. Rear cushion
15. Pallet

■ Installing the Replacement Library

To install the replacement library, follow the instructions in *L80 Tape Library Installation Manual*, 96054.

To configure the library, follow the instructions in *L80 Tape Library User's Guide,* PN 96021.

Notes: Remember to install the cartridges, external cables, personality module, and drive trays into the replacement library.

Always install drives trays by starting at the empty slot nearest the top and working downward. From a software viewpoint, the drive numbers are assigned from top (0) to bottom (7). By adding drives in this order, the client software will correctly reflect the drives previously installed.

When you install the drive trays into the replacement library, slide the drive tray into the empty slot and turn the drive tray latch to your right. Make sure the tray is securely latched by pulling back on the tray. It should not move.

Return Shipment

Note: The CRU does not include the drives, cartridges, external cables, or personality module. Do *not* return them with your shipment.

CAUTION:
Shipping damage: To ensure proper credit for the returned CRU, you must package the CRU correctly, and you must write your RMA (return material authorization) number (obtained from the invoice/packing list) and returned product serial number on the outside of the packaging.

Use the original packing material or, if you no longer have the material, use the CRU shipping material and box to carefully pack the defective CRU for return shipment.

Refer to your *L20/40/80 Tape Library Warranty Agreement* for the procedures to return drives:

- For *European* customers, refer to your warranty instructions for the address to return parts.

- *For United States customers only:* Arrange a pick-up with Associated Global Systems by calling **1.720.858.0500**.

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ABOUT STORAGETEK

Storage Technology Corporation (NYSE: STK) is a $2 billion global company that enables businesses, through its information lifecycle management strategy, to align the cost of storage with the value of information. The company's innovative storage solutions manage the complexity and growth of information, lower costs, improve efficiency and protect investments. For more information, visit www.storagetek.com, or call 1.800.275.4785 or 01.303.673.2800.

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