StorageTek L5500

Automated Cartridge System

System Assurance Guide

Part Number: MT9142
Revision: E

L5500 Automated Cartridge System

System Assurance Guide

Part Number
MT9142

Sixth Edition

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Summary of Changes

Date	Edition	Description
April 2002	First	Initial release
May 2002	Second	Refer to the previous release for details.
July 2002	Third	Refer to the previous release for details.
July 2006	Fourth	Refer to the previous release for details.
September 2006	Fifth	Revised conversion bill and marketing part numbers for the Single Price List (SPL) effort.

Contents

Figures

Tables

Preface

This guide contains information about planning, ordering, installing, and follow-up activities required during the L5510 tape library sales, delivery, and installation.

The audience for this guide includes Sun Microsystems, Inc. marketing representatives, system engineers (SEs), installation coordinators, and customer services engineers (CSEs); independent consultants and service representatives; and customers involved with installation planning.

This guide provides information and a series of work sheets and checklists that, when completed and returned to the designated places, make sure that no one overlooks any aspect of the installation process. Completed work sheets and checklists promote error-free installation. Use only those checklists that apply to your system.

The *93xx/L55xx ACS Installation Manual*, PN 9314, contains additional specifications for the installation site. This guide should be used in conjunction with the *Installation Manual*.

Organization

This book contains the following information:

Chapter 1	"System Assurance Process" provides detailed information useful for understanding the process.
Chapter 2	"Key Personnel" provides forms for recording the phone numbers of team contacts.
Chapter 3	"System Overview" provides an overview of the automated cartridge system (ACS) hardware components and cartridges.
Chapter 4	"Ordering the Equipment" provides work sheets to fill out when ordering the ACS. It also provides prerequisite information, model, feature, and part numbers.
Chapter 5	"Preinstallation Checklist" provides checklists to use prior to installation to make sure that all issues are resolved.
Appendix A	"Site Planning Information" provides figures showing floor cutouts and leveling pad locations, configuration restrictions, product specifications, and other site information.
Index	The Index assists in locating information in this publication.

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.

Related Publications

Additional information is contained in the following publications, some of which are delivered with this product.

Publication	Part Number
Library Storage Module Publications	
93XX/44XX/L55XX Installation Manual	9314
Tape Drive Publications	
9840/T9840/T9940 Tape Drive Planning/Migration Guide	MT6004
9840/T9840/T9940 Tape Drive System Assurance Guide	MT5003
LibraryStation Publications	
LibraryStation Operator and System Programmer Guide	31260860x (v5.1)
LibraryStation Configuration Guide	31260880x (v5.1)
LibraryStation Messages and Code	31260870x (v5.1)
Miscellaneous Publications	
ACS Common Library Service Users Guide	
LCF Installation and Customization	

Additional Information

Sun Microsystems, Inc. (Sun) offers several methods for you to obtain additional information.

Sun's External Web Site

Sun's external Web site provides marketing, product, event, corporate, and service information. The external Web site is accessible to anyone with a Web browser and an Internet connection.

The URL for the Sun external Web site is: http://www.sun.com

The URL for Sun StorageTek™ brand-specific information is:
http://www.storagetek.com

Customer Resource Center

The Sun StorageTek product Customer Resource Center (CRC) is a Web site that enables members to resolve technical issues by searching code fixes and technical documentation for StorageTek brand products. 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. Sun employees may enter the CRC through the SunWeb PowerPort.

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

Partners Site

The StorageTek Partners site is a Web site for partners with a StorageTek Partner Agreement. This site provides information about products, services, customer support, upcoming events, training programs, and sales tools to support StorageTek Partners. Access to this site, beyond the Partners Login page, is restricted. On the Partners Login page, Sun employees and 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 StorageTek Partners site is:
http://members.storagetek.com

The URL for partners with a Sun Partner Agreement is:
http://www.sun.com/partners/

Global Services Support Tools

Global Services Support Tools site (also called Field Tools) provides tools that aid in the sales and support of Sun StorageTek brand products and services. This is an internal Web site for Sun employees.

The URL for the Global Services Support Tools is:
http://sunsolve.central.sun.com/handbook_internal/FieldTools/

Documents on CD

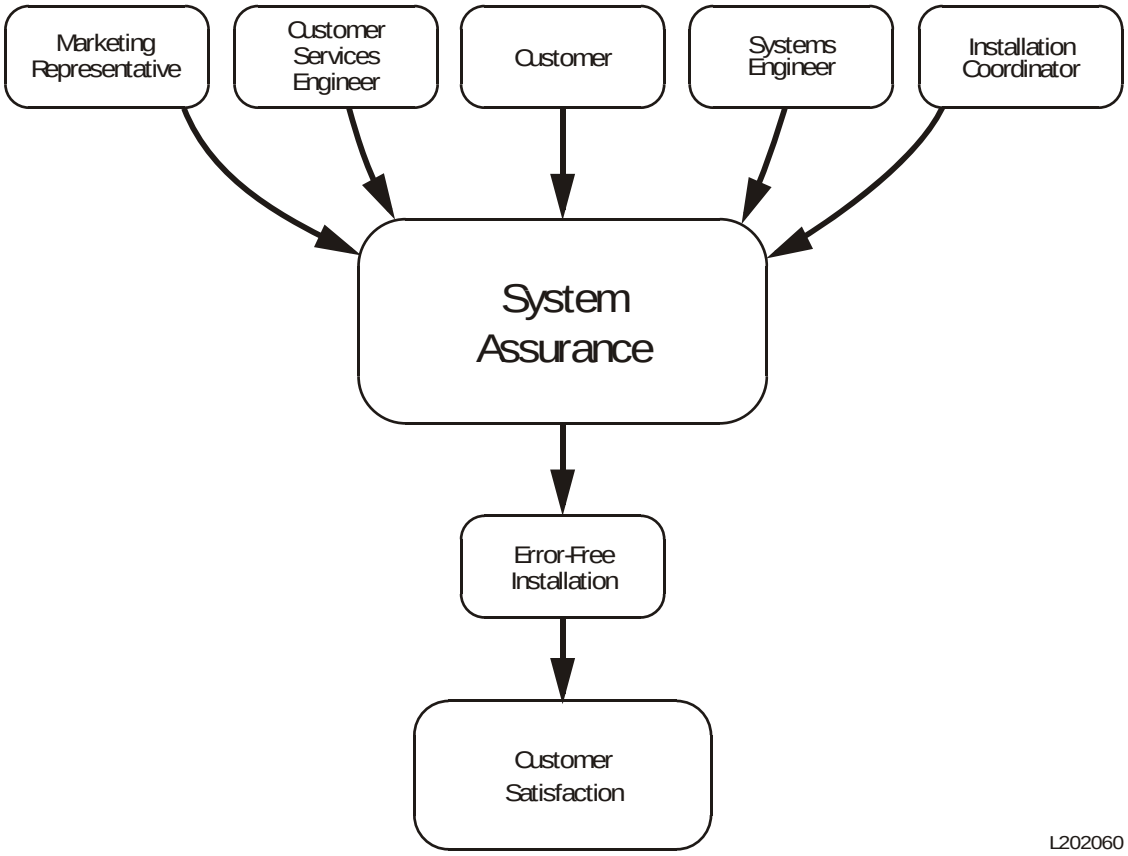
Documents on CD (3106600xx) contains portable document format (PDF) files of Sun StorageTek brand product publications. To order *Documents on CD*, contact your local Customer Services Logistics Depot. *Documents on CD* is only for Sun employees.

System Assurance Process

1

The following figure shows the system assurance process. The system assurance team members appear across the top of the figure. The process is the exchange of information among the team members to make sure that no one overlooks any aspects of a sale, ordering, and installation.

Figure 1-1. The System Assurance Process



Team Responsibilities

The following table lists the responsibilities of the system assurance team members. Customer and Sun team members jointly own and control the process.

Table 1-1. Team Responsibilities

Team Member	Responsibilities
Installation coordinator (IC) (United States) Customer services manager (international)	• Leads the system assurance team in most cases. • Coordinates the system assurance process and oversees the use and implementation of this guide. • Schedules meetings of team members. • Supplies or obtains all necessary support documentation. • Works with the customer to complete the work sheets in this guide. • Faxes all of the required and completed work sheets (except the sales entry form) to the appropriate orders offices. See Chapter 4, "Ordering the Equipment." • Works with the customer services engineer (CSE) and the customer to provide delivery information as listed in "Customer services engineer" responsibilities in this table.
Marketing representative (United States)	• Leads the system assurance team in some cases. • Is responsible for the customer account. • Submit the customer's order to Sun. • Follows up with the customer to make sure that the customer is satisfied.
Customer service engineer (CSE)	• Prepares customer services support procedures. • Explains available levels of hardware support and criteria for problem escalation. • Installs the product at the customer site.

Table 1-1. Team Responsibilities

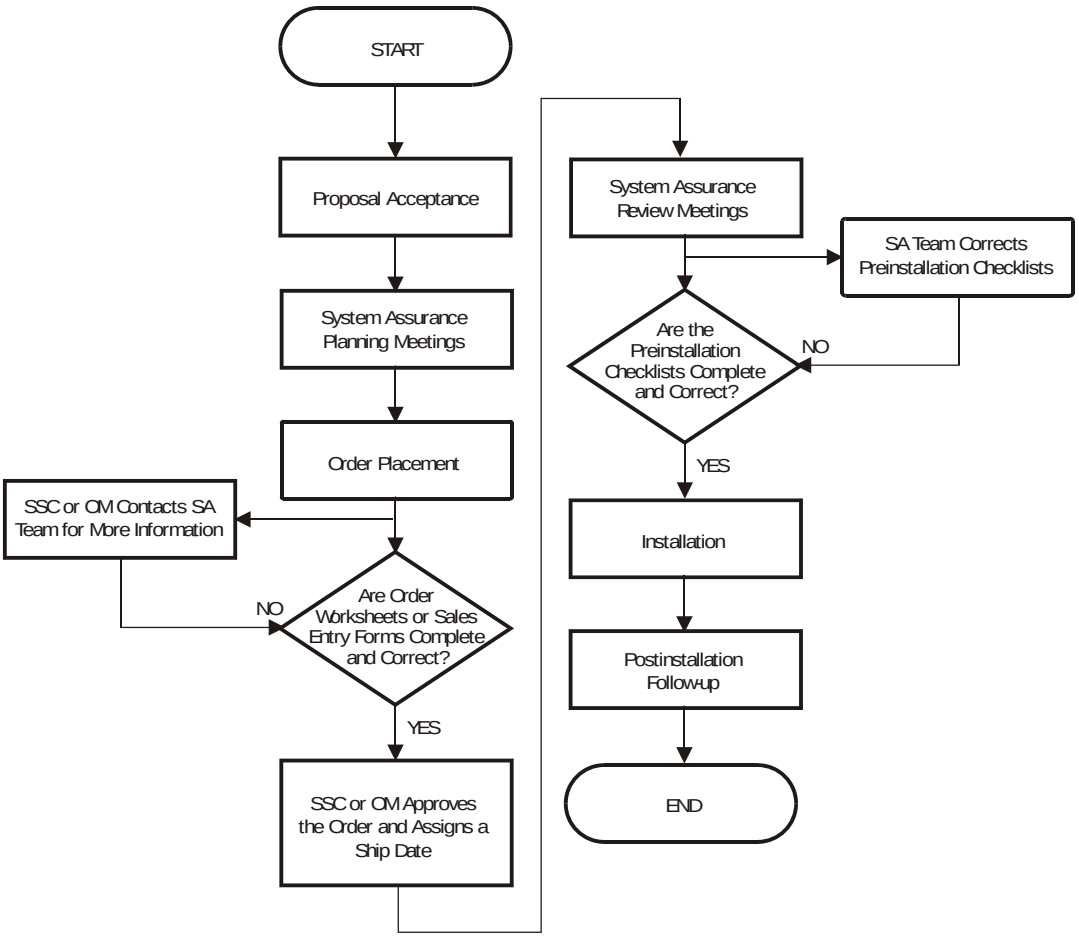
Team Member	Responsibilities
Customer	Works with the installation coordinator (IC) at the system assurance planning meetings to provide the data for the work sheets listed for the IC. Works with the systems engineer (SE) at the system assurance planning meetings to provide the data for the work sheet listed for the SE. Names a contact person for any unresolved issues in the above work sheets. Discusses the schedule and names a contact per son for all scheduling matters.
Systems engineer (SE)	• Explains available levels of software support and criteria for problem escalation. • Provides data migration information.

System Assurance Process Flow

The following figure shows the system assurance process flow. The sections following the figure describes the steps in more detail.

No two installations are the same; however, following this flowchart promotes a smooth system assurance process and an error-free installation.

Figure 1-2. The System Assurance Flowchart



Proposal Acceptance

The system assurance process begins when the customer accepts the proposal. At this time, the installation coordinator (in the United States) or the customer services manager (internationally) schedules one or more system assurance planning meetings.

Planning Meetings

The purpose of the system assurance planning meetings is to:

- Explain system assurance as it applies to this system
- Establish the system assurance team
- Establish the responsibilities of the team members
- Establish the schedule for the system assurance process
- Define hardware and software requirements
- Complete the configuration work sheets, order work sheets, and other required work sheets
- Set the dates and times for one or more system assurance review meetings

Order Placement

Depending on the customer, the appointed team member must now either:

- Fax the completed work sheets to Orders Management (OM), or
- Transfer information from the completed work sheets to the sales entry form and fax the sales entry form to the Shared Services Center (SSC)

Error Check

If the sales entry form or order work sheets are complete and correct, OM or SSC approves the order and assigns a ship date.

If not, OM or SSC contacts the system assurance team for more information.

Review Meetings

The purpose of the system assurance review meetings is to:

- Complete the preinstallation checklists in Chapter 5, "Preinstallation Checklist"
- Identify additional requirements

Error Check

If the preinstallation checklists are complete and correct, the sale receives final approval and the product is shipped.

If not, the system assurance team completes or corrects the checklists.

Installation

The CSE installs the system at the customer's site.

Postinstallation Follow-Up

After the installation:

- The Error-Free Delivery Team tracks any exceptions to the original shipment.
- The system assurance team leader sends comments about this guide to the address following the copyright information at the front of this guide.
- The CSE logs installation data into the Customer Services Data Collection (CSDC) system.
- The CSE attends a follow-up meeting with the customer to review the completed project.

Key Personnel

2

This chapter provides a place to record the names and telephone numbers of the key personnel on the teams. The home/cell telephone number is optional.

Customer Team Contacts

List names and telephone numbers of the following customer team personnel:

CPU Hardware

_____

Telephone: Office_____ Home/Cell_____

Operating Systems Software

_____

Telephone: Office_____ Home/Cell_____

Communication Hardware

_____

Telephone: Office_____ Home/Cell_____

Operations

_____

Telephone: Office_____ Home/Cell_____

Delivery

_____

Telephone: Office_____ Home/Cell_____

Sun Team Contacts

List names and telephone numbers of the following Sun team personnel:

Marketing

_____

Telephone: Office_____ Home/Cell_____

Customer Service Engineer (CSE)

_____

Telephone: Office_____ Home/Cell_____

SDE room on site_____

Systems Engineer (SE)

_____

Telephone: Office_____ Home/Cell_____

SE (Client Operating System)

_____

Telephone: Office_____ Home/Cell_____

SE (Library Control System)

_____

Telephone: Office_____ Home/Cell_____

Delivery

_____

Telephone: Office_____ Home/Cell_____

Sun Support

Sun Microsystems, Inc. provides the following phone numbers for hardware and software support:

Call Center (Hardware)	
U.S. (Colorado), international	1-303-673-4056
U.S. (outside Colorado) customers	1-800-525-0369
U.S. (outside Colorado) SDEs	1-800-735-2778
Software Support	
U.S. (outside Colorado)	1-800-678-4430
U.S. (Colorado), international	1-303-673-4430

Client Processor Team Contacts

List names and telephone numbers of the following client processor team personnel:

CPU Hardware Vendor

_____

Telephone: Office_____ Home/Cell_____

_____

Telephone: Office_____ Home/Cell_____

_____

Telephone: Office_____ Home/Cell_____

CPU Software Vendor

_____

Telephone: Office_____ Home/Cell_____

_____

Telephone: Office_____ Home/Cell_____

_____

Telephone: Office_____ Home/Cell_____

System Overview

3

This chapter provides an overview of the L5500 hardware components and cartridges, including specifications. For an overview of the drives, refer to the appropriate drive planning or system assurance guide (SAG) listed in "Related Publications" on page xv.

L5500 Automated Cartridge System

The Sun StorageTek L5500 tape library is a fully automated storage and retrieval system for data cartridges. The L5500 consists of a library storage module (LSM), a library management unit (LMU), a library control unit (LCU), one or more drive cabinets, host software, and tape drives.

Each component of the tape library will be explained in the sections that follow.

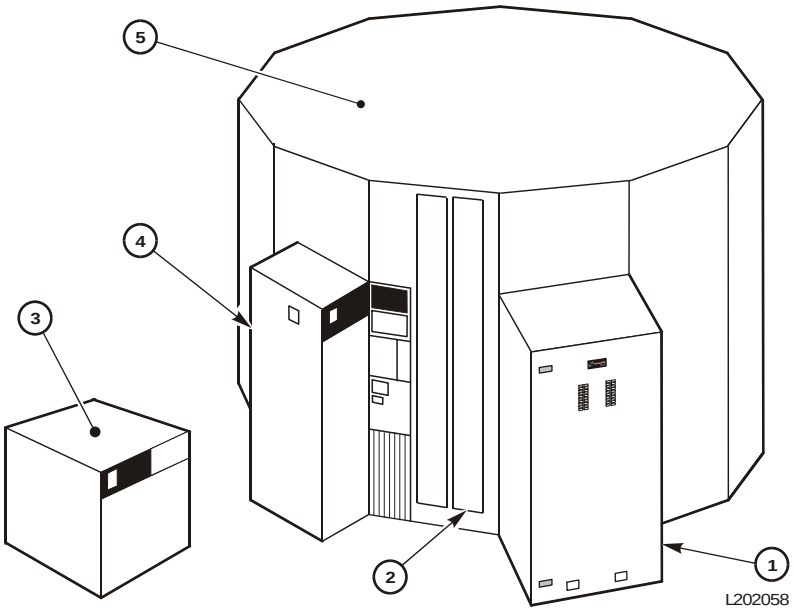
The L5500 accommodates both Linear Tape Open (LTO) Ultrium and T9x40 drives and media. The L5510 LSM provides a capacity count that ranges from 1,500 to 5,500 cartridge cells. Table 4-7 on page 4-35 lists the available configurations and the appropriate model number for each. Up to 24 L5510 LSMs can be connected in one automated cartridge system (ACS), for a maximum capacity of 132,000 cartridge cells per ACS.

The L5510 accepts SCSI, Fibre Channel, ESCON, and FICON T9x40 tape drives. Seagate and IBM LTO Ultrium drives with a SCSI data interface and IBM LTO, LTO2, and LTO3 Ultrium drives with a Fibre Channel interface are also accepted.

Figure 3-1 on page 3-2 is an L5500 with the 80-cell cartridge access port (CAP) door.

Note: All L5510 LSMs must use the 80-cell CAP.

Figure 3-1. L5510 Hardware with 80-Cell Cartridge Access Port



1. 9741E Drive Cabinet
2. 80-Cell Cartridge Access Port
3. L5530 Library Management Unit
4. L5511 Library Control Unit
5. L5510 Library Storage Module

L5510 LSM Cartridge Allotments

The L5510 LSM offers flexible cartridge capacity. Configurations supporting LTO media only are available starting at 1,500 cartridge slots up to 5,500 slots in 500 slot increments. Mixed media configurations are also available.

Five mixed media configurations are offered:

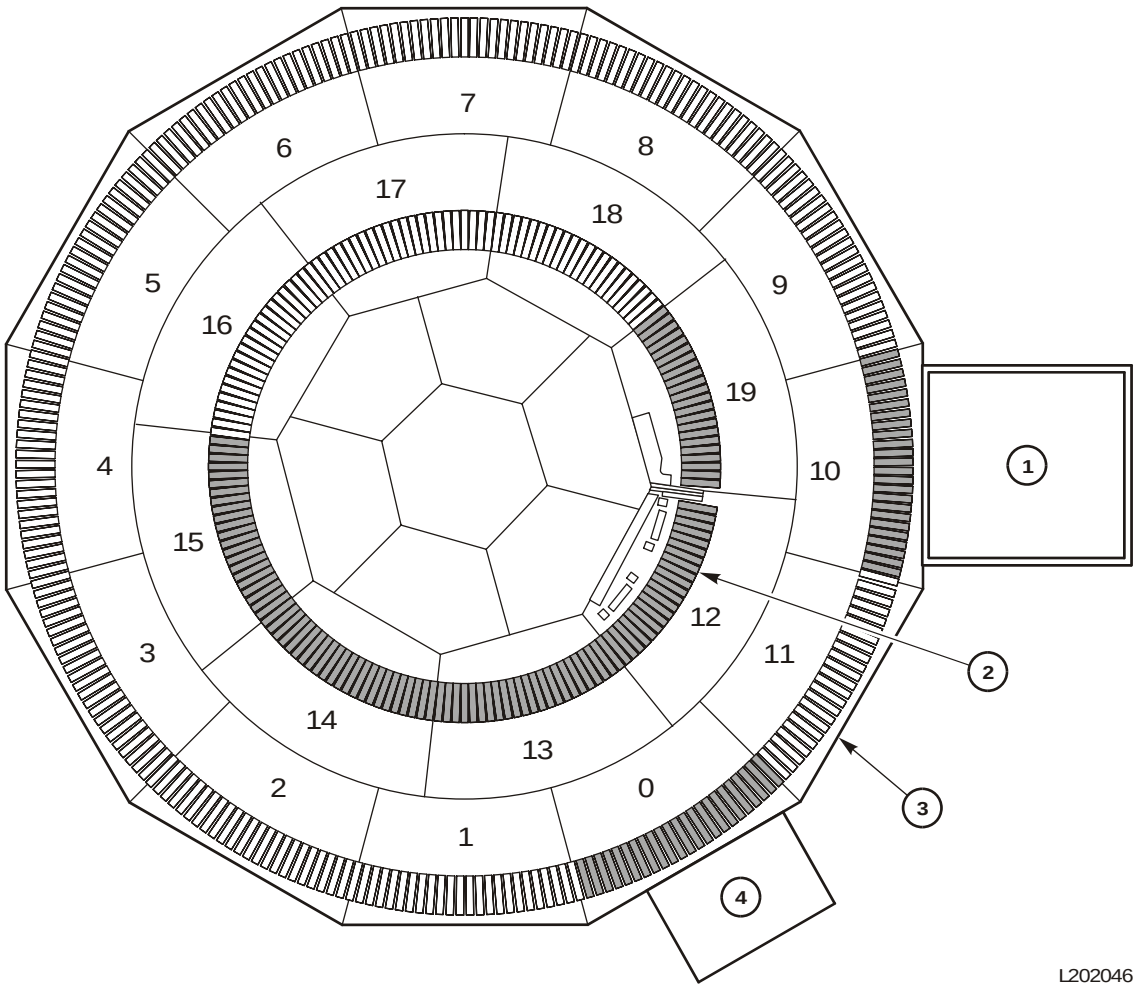
- 1,000 LTO Ultrium and 1,000 9x40 cartridges
- 1,500 LTO Ultrium and 1,500 9x40 cartridges
- 2,000 LTO Ultrium and 2,000 9x40 cartridges
- 2,000 LTO Ultrium and 3,500 9x40 cartridges
- 3,500 LTO Ultrium and 2,000 9x40 cartridges

Figure 3-2 on page 3-3 through Figure 3-12 on page 3-13 show the portions of the L5510 walls that are populated for each configuration. The shaded areas represent populated walls. These configurations follow the StorageTek suggested method for populating each configuration size.

Notes:

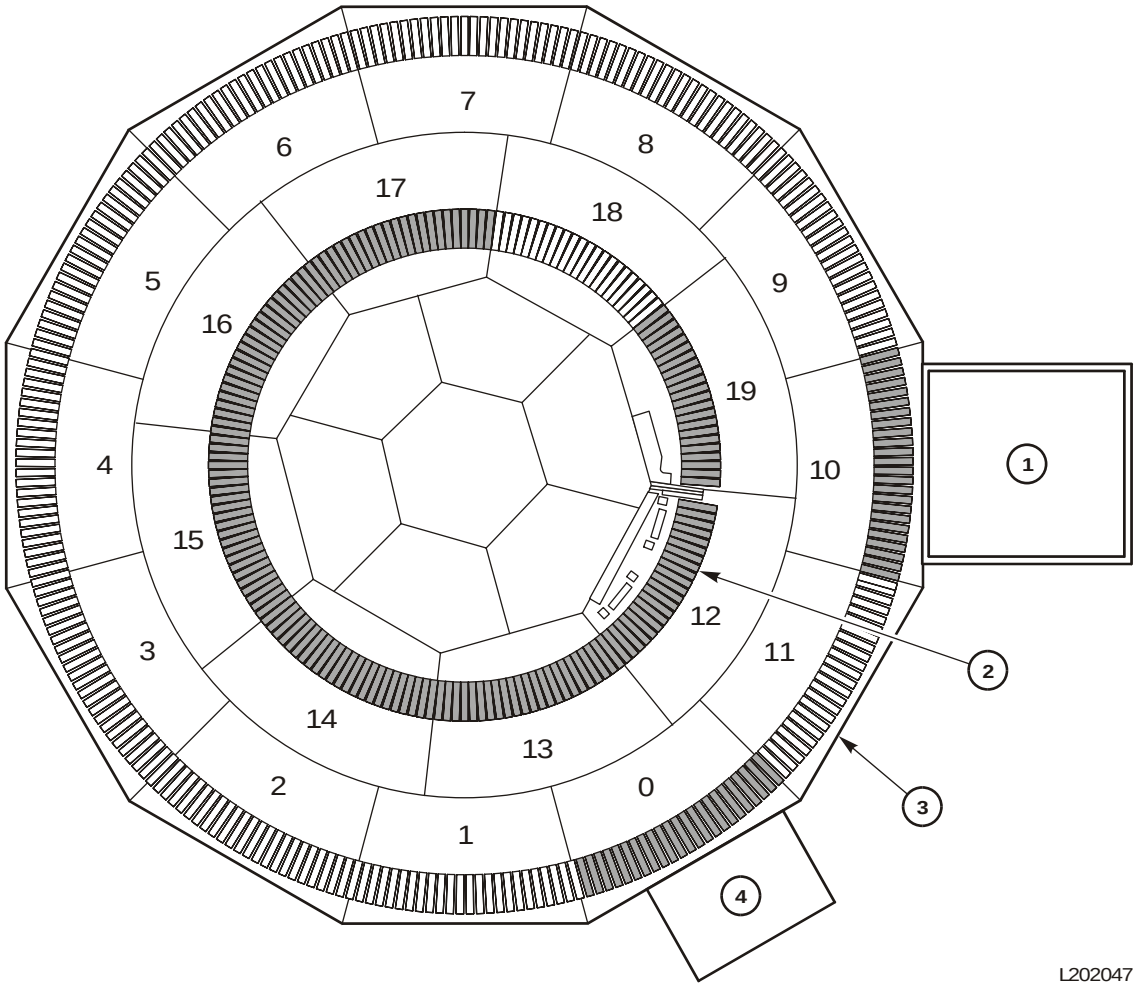
1. Adding more than one 9741E Drive Cabinet per library will decrease the total cartridge allotment by approximately 340 cartridge cells.
2. Adding any window walls to a L5510 tape library will decrease the total cartridge allotment by approximately 300 cartridge cells.

Figure 3-2. 1,500 LTO Cartridges



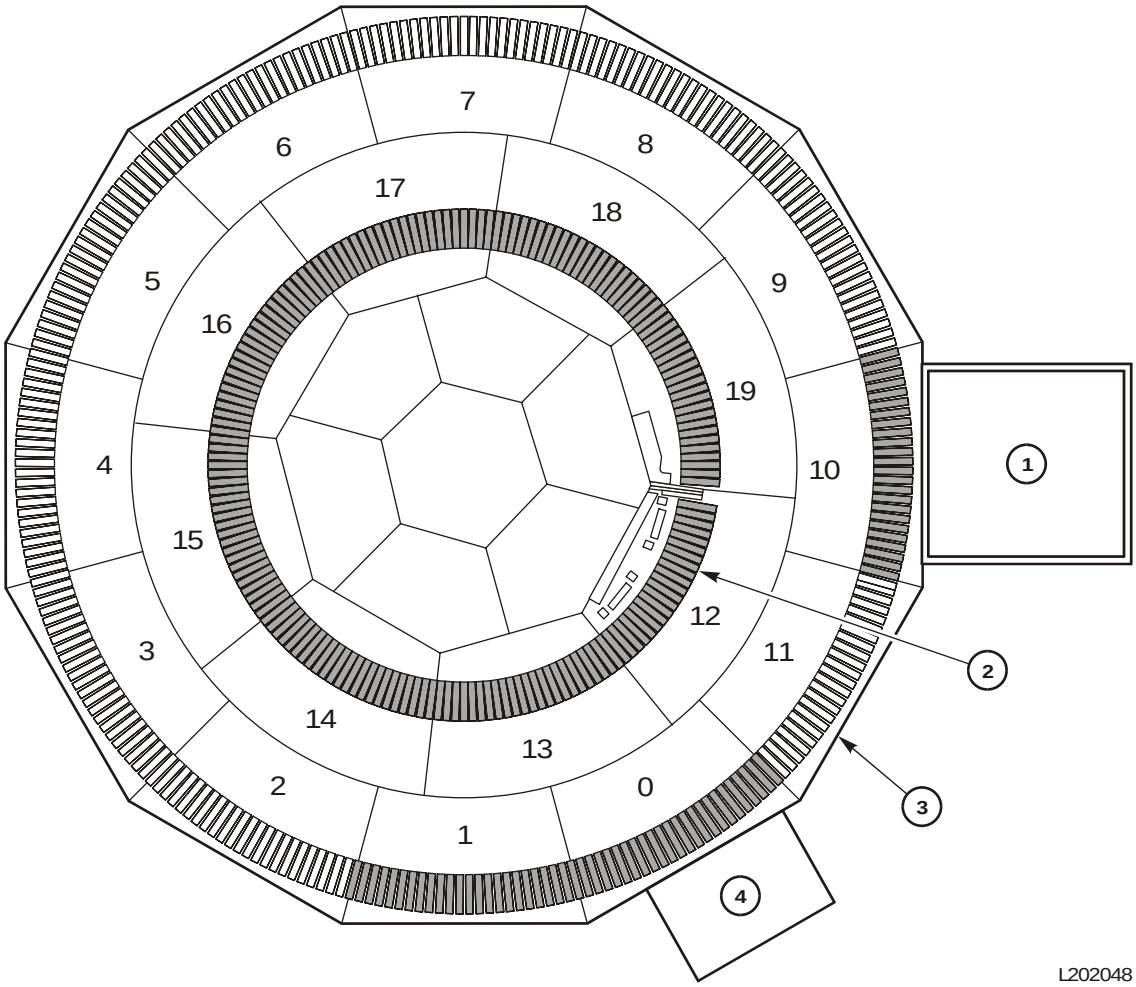
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-3. 2,000 LTO Cartridges



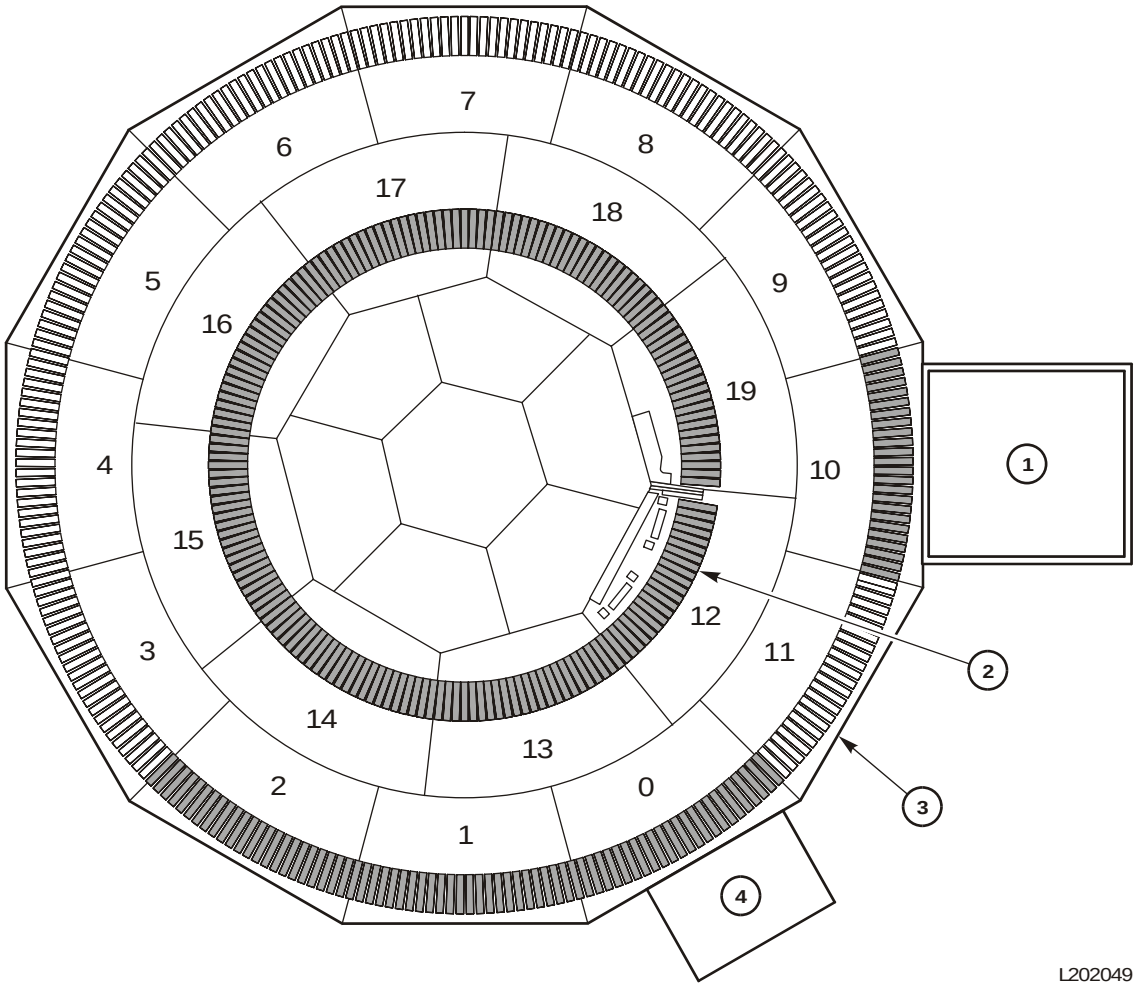
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-4. 2,500 LTO Cartridges



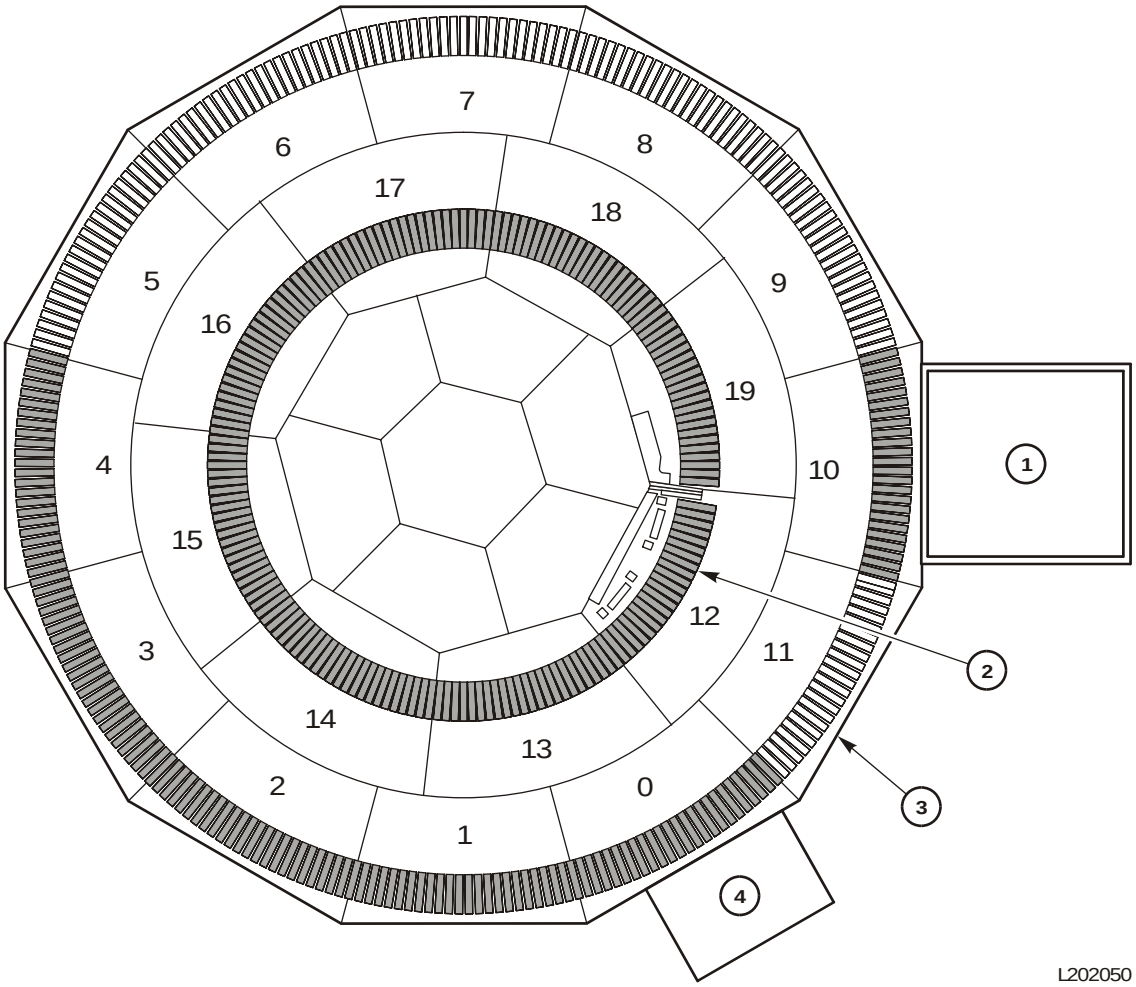
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-5. 3,000 LTO Cartridges



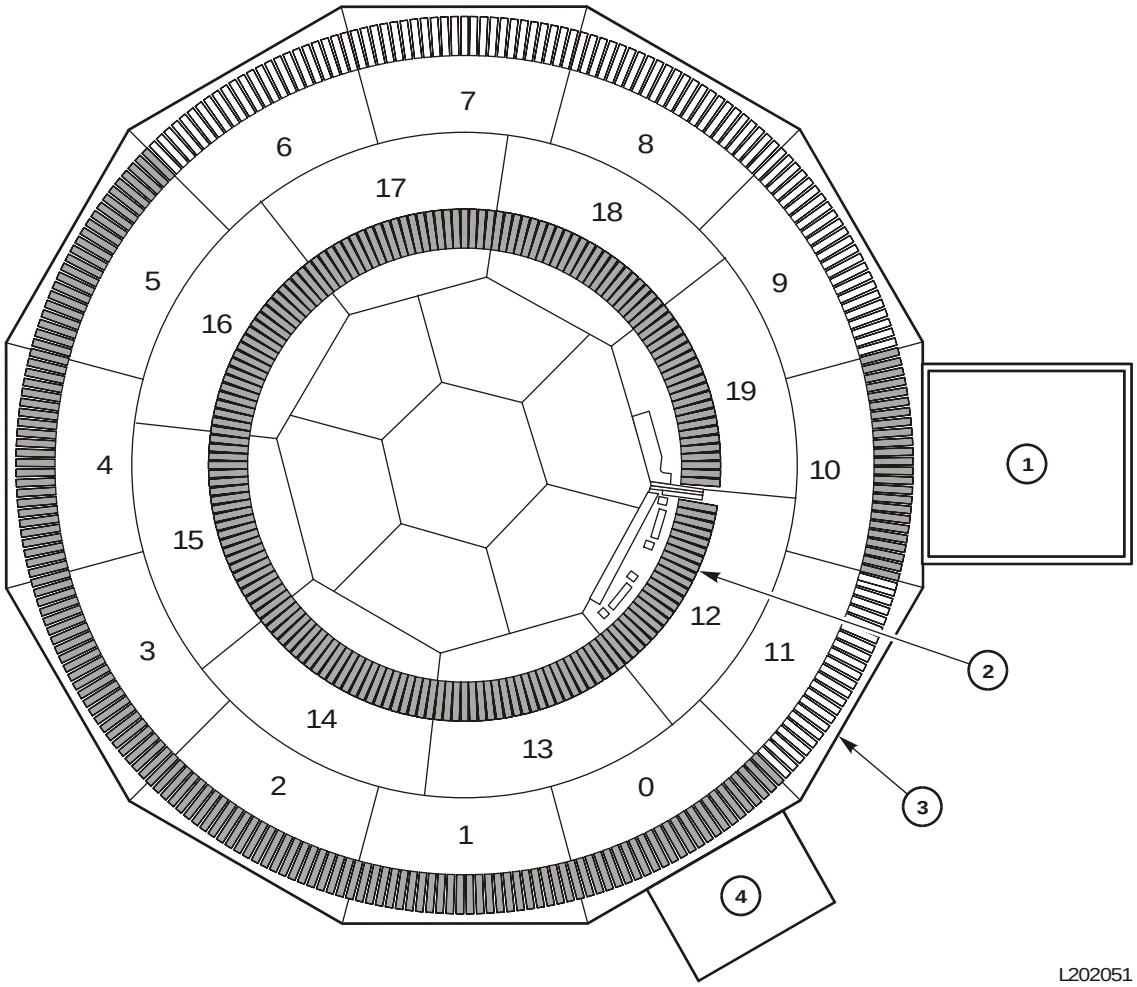
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-6. 3,500 LTO Cartridges



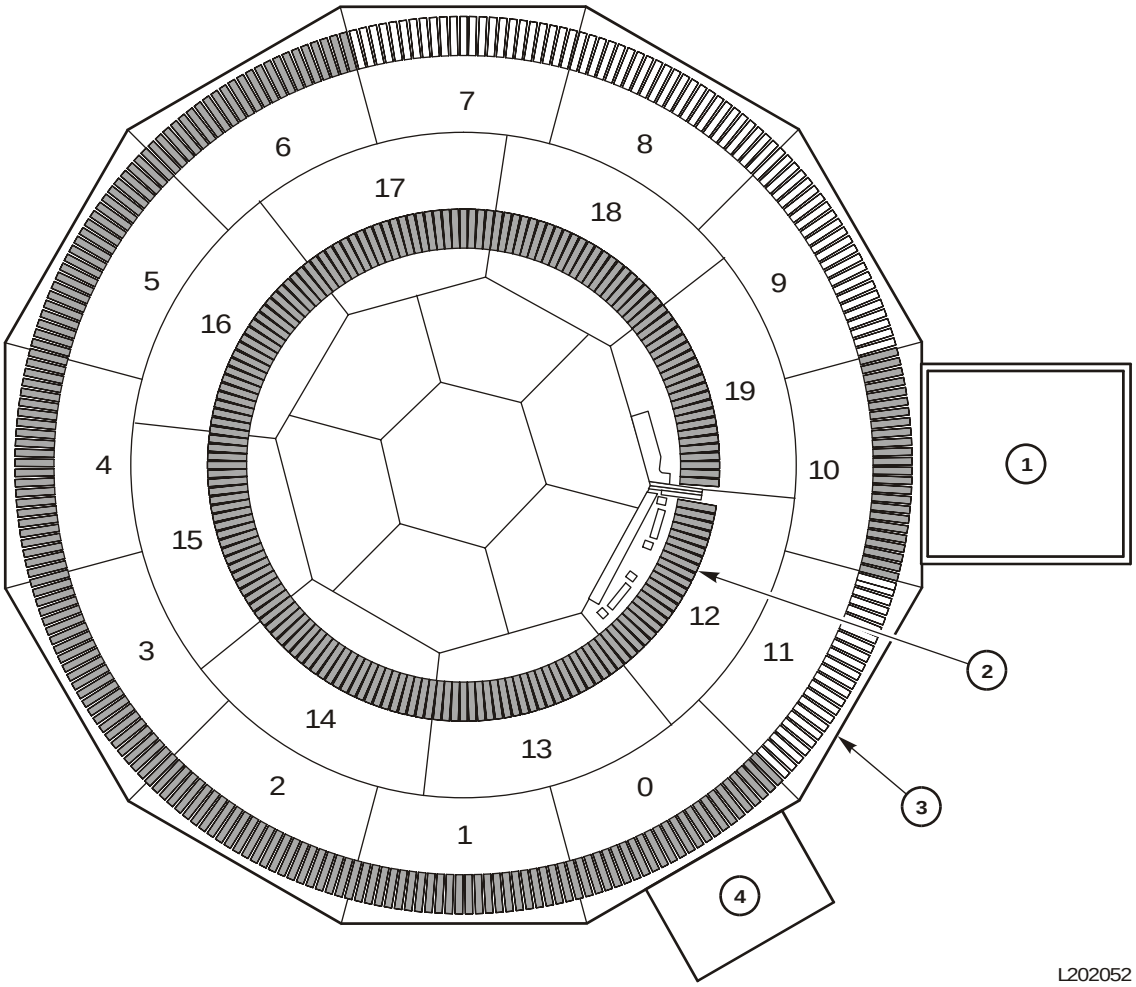
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-7. 4,000 LTO Cartridges



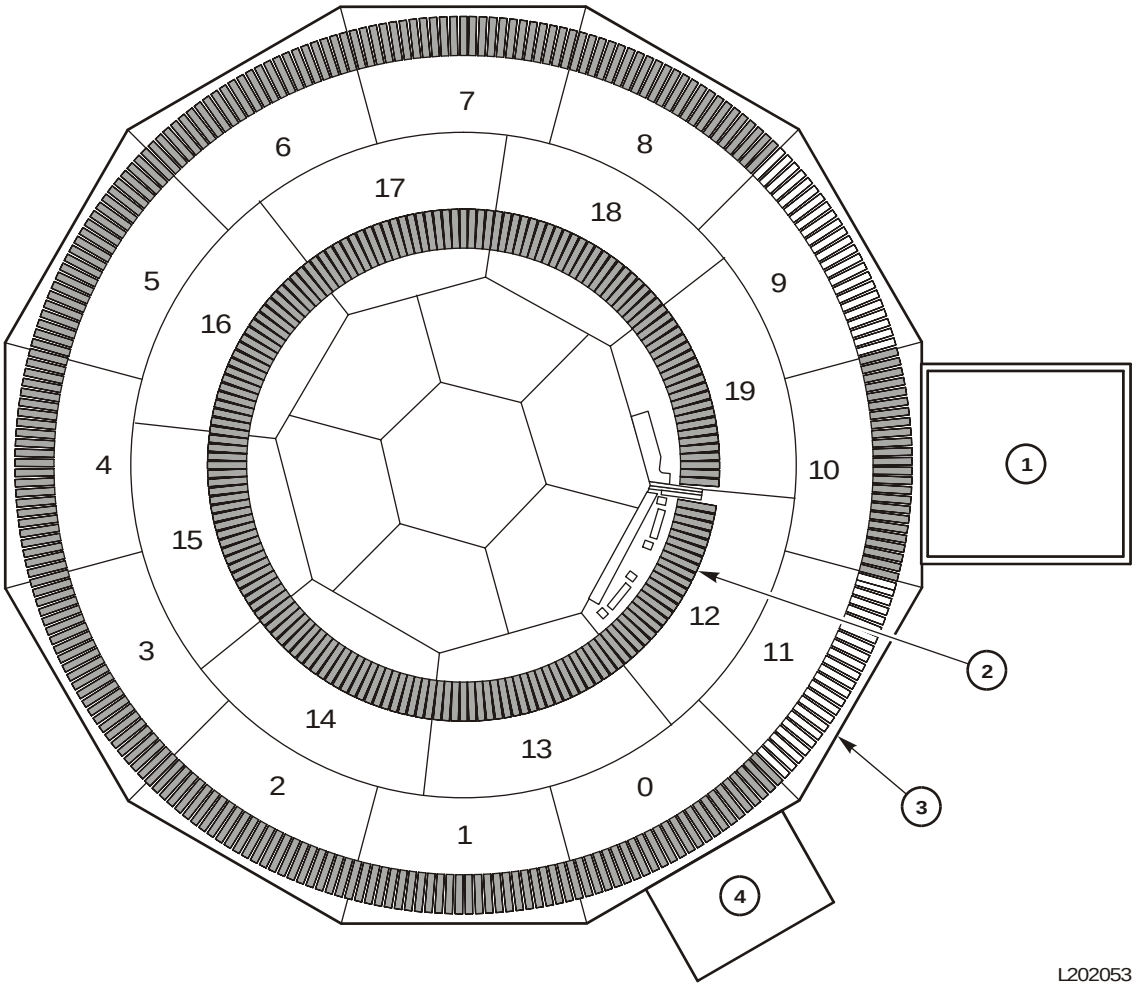
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-8. 4,500 LTO Cartridges



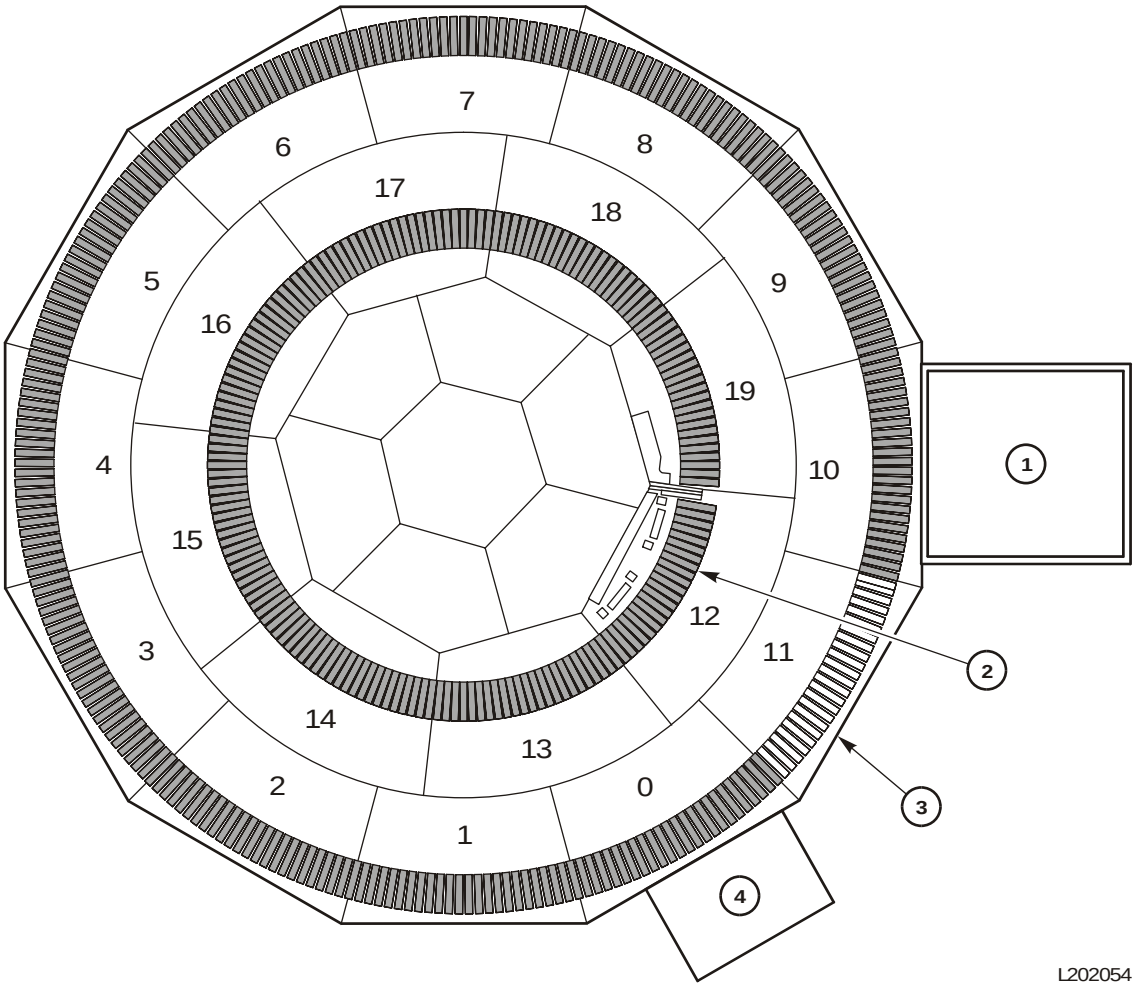
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-9. 5,000 LTO Cartridges



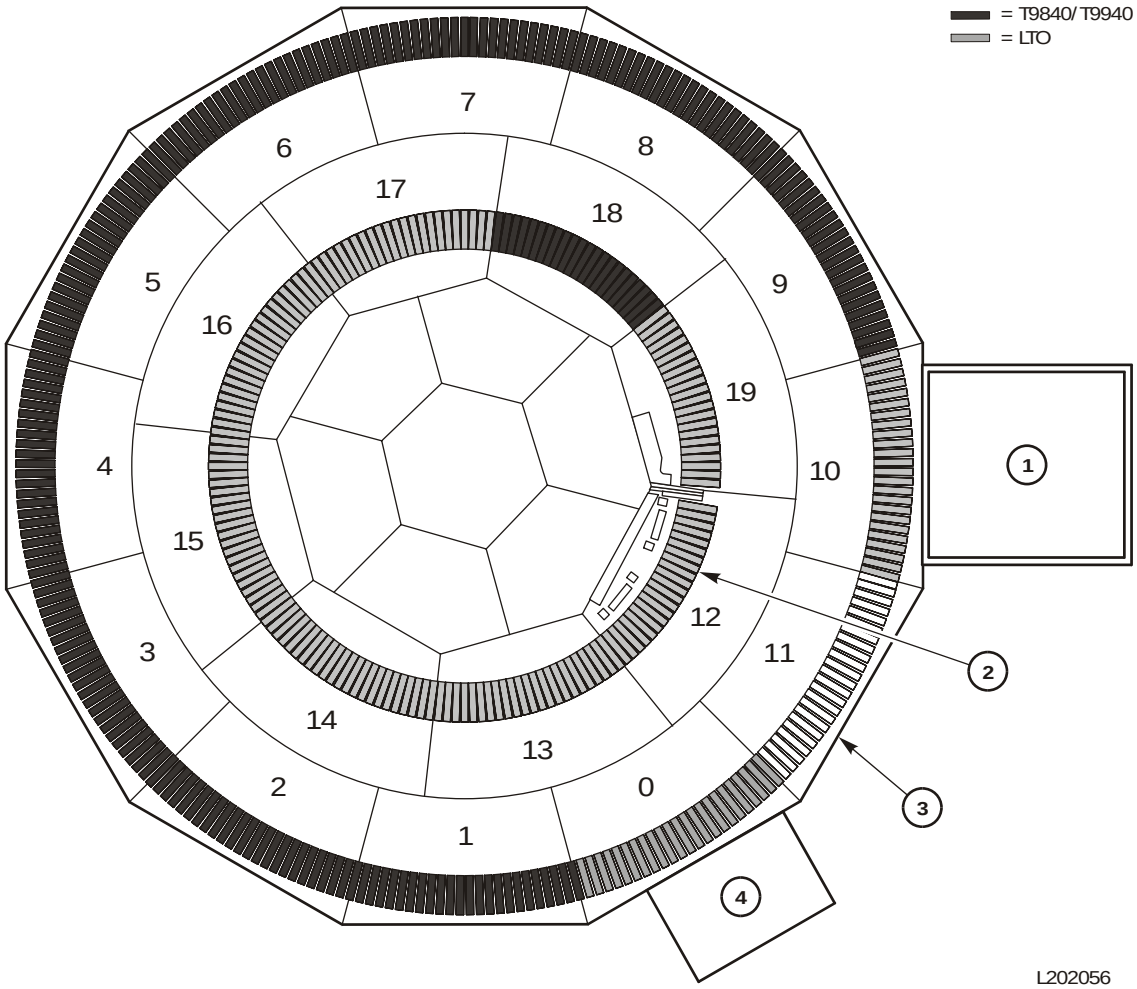
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-10. 5,500 LTO Cartridges



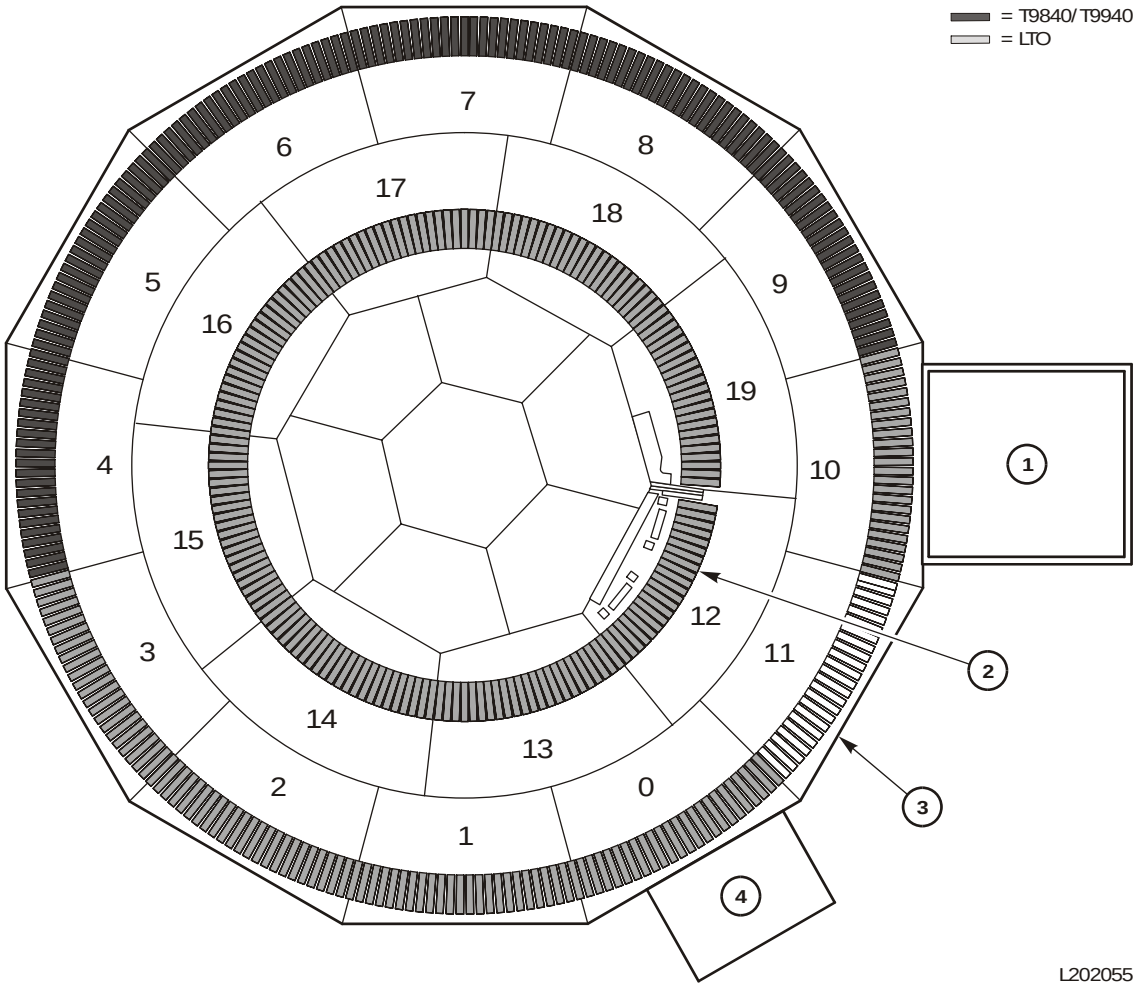
1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-11. 2,000 LTO/3,500 T9x40 Cartridges



1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

Figure 3-12. 3,500 LTO/2,000 T9x40 Cartridges



1. 9741E Drive Cabinet
2. Inner Door
3. Exterior Door with 80-Cell CAP
4. L5511 Library Control Unit

L5530 LMU

The L5530 library management unit (LMU) is a stand-alone unit that manages cartridge mount and move requests sent from the operating software. After a job request is received by the LMU, the LMU sends it to the proper library control unit (LCU) to execute the job. The L5511 LCU controls the library robotics.

The operating software, ACSLS, can send mount requests to the LMU via the RS423/232 interface or TCP/IP interface. The standard LMU comes equipped for receiving requests via RS423/232. However, a feature code is available to allow the LMU to receive requests via TCP/IP.

Each L5500 library must have one L5530 LMU to provide the host interface and manage the library. For high availability, dual LMUs are also available as a feature that ensures an LMU is always available to transmit robotic requests to the LCU. In a dual LMU configuration, if a job request is sent to an LMU that has suffered errors, the request is automatically re-routed to the standby LMU. Dual LMUs allow the L5500 tape library to perform its jobs uninterrupted.

L5511 LCU

One L5511 library control unit (LCU) is always attached to the left of the L5510 LSM door, panel 0, on every LSM. The L5511 provides the hardware and firmware to control the robotics of the LSM. The L5511 has a LAN interface to the L5530 LMU.

Note: The L5511 microcode must be at level 4.5.xx or higher.

L5520 Pass-thru Port

An L5510 LSM can pass cartridges, LTO or T9x40, to another L5510 using the L5520 pass-thru port. Up to 24 libraries can be connected together in a cluster configuration by using pass-thru ports. The L5520 pass-thru port allows the customer to have an automated cartridge system (ACS) with up to 132,000 cartridge slots or approximately 13.2 petabytes of native data.

Notes:

1. An L5510 LSM can have up to four pass-thru port walls.
2. An L5510 LSM can pass through only to another L5510.

9741E Drive Cabinet

The 9741E drive cabinet attaches to an L5510 LSM and holds up to 20 tape drives. When the drive cabinet is used with the L5510, it accommodates Sun StorageTek's T9x40 drives and LTO drives. In addition, the cabinet also holds Fibre Channel hubs and switches, as well as a TCP/IP maintenance switch for T9840B/C and T9940B tape drives.

A Fibre Channel hub connects fiber channel devices together in a logical loop. A Fibre Channel switch connects Fiber Channel devices together in a fabric. The TCP/IP

maintenance switch allows for additional diagnostic capabilities to be used on the T9840B/C and T9940B drives.

From one to four 9741E drive cabinets can be attached to each L5510. Each drive cabinet can contain one to 20 drives for a possible total of 80 drives.

Notes:

1. The number of T9x40 drives installed in a cabinet also equipped to accommodate Ultrium LTO drives cannot exceed 17, due to other required hardware (PLM Card) installed in the drive cabinet.
2. The 9741E can be purchased without LTO support. In this configuration 1 to 20 T9x40 drives can be installed.
3. A total of 20 LTO drives can be installed in each 9741E Drive Cabinet.

Host Software

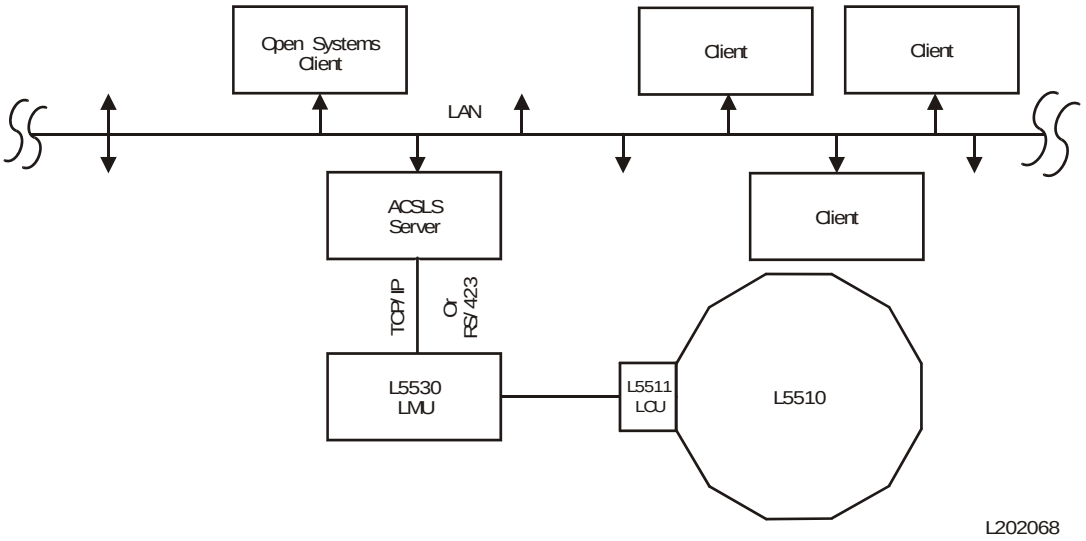
Automated Cartridge System Library Software (ACSLS) is the host software used to access and manage the information stored in an L5500 ACS. ACSLS acts as the interface between client requests and the library. ACSLS 6.01 or higher is required for proper communication with the L5500.

Up to 24 L5510 LSMs can be connected using an L5520 pass-thru port and ACSLS as the host software.

MVS clients can access an L5510 tape library by using MVS/CSC to communicate to an ACSLS server.

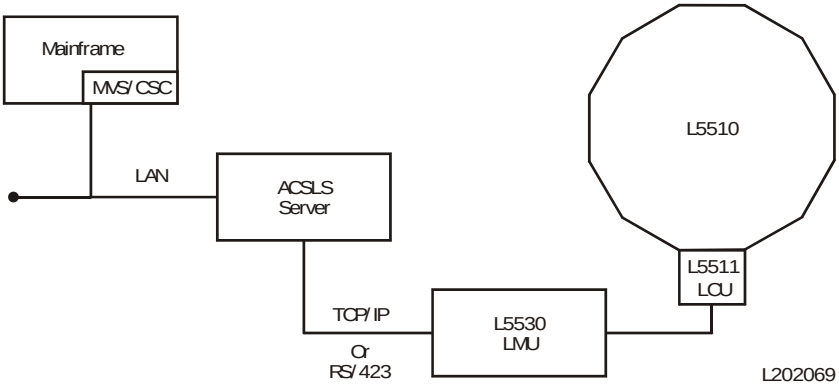
Figure 3-13 on page 3-16 shows a typical configuration where an open systems client interfaces with an ACSLS server to send requests to an L5510 LSM. Figure 3-14 on page 3-16 shows how a mainframe client communicates to an L5510 when MVS/CSC is used.

Figure 3-13. Open Systems Connection to L5510



Note: Data paths not shown.

Figure 3-14. Mainframe Connection to L5510



Note: Data paths not shown.

Tape Drives

The L5510 uses Sun StorageTek T9x40 tape drives and LTO Ultrium tape drives.

T9x40 Tape Drives

The T9x40 tape drives are small, modular, high-performance tape drives designed for the enterprise and client-server environments.

For additional information regarding T9x40 drives, please refer to the *T9x40 System Assurance Guide*, PN MT5003.

T9940 Drives

Important! A T9940A tape drive cannot read data from a data cartridge written by a T9940B tape drive in the high-density format. Any attempt to read data from a from a high-density cartridge by the T9940A drive causes an error similar to that of a blank cartridge.

A T9940B tape drive can read data written by a T9940A tape drive in the low-density format, but it cannot write (append) data to a low-density cartridge. Any attempt to write to a low-density cartridge causes an error similar to a write-protected cartridge.

If both drive models are used in the same L5500 library, extra media management measures should be taken, which involves creating and managing separate media pools or subpools for data cartridges formatted and written by T9940A and T9940B tape drives. Guidelines for creating and managing media pools or subpools are discussed in ACSLS and HSC documentation.

T9840 Drives

Important! The T9840A and B tape drives cannot read data from a data cartridge written on a T9840C tape drive. Any attempt to read data from a from a high-density cartridge written by the T9840C drive causes an error similar to that of a blank cartridge.

A T9840C drive can read data on cartridges written on T9840A/B drives, but cannot append data to the tape.

If T9840A, B, and C drive models are used in the same L5500 library, extra media management measures should be taken, which involves creating and managing separate media pools or subpools for data cartridges formatted and written by the tape drives. Guidelines for creating and managing media pools or subpools are discussed in ACSLS and HSC documentation.

LTO Ultrium Tape Drives

The Linear Tape Open (LTO), LTO2, and LTO3 Ultrium drives are single-reel, thread-and-load capacity-centric drives.

LTO is a set of tape data format standards created to enable data interchange among LTO Ultrium tape drives. These LTO Ultrium standards allow data cartridges to be interchangeable between LTO Ultrium tape drive brands.

Notes:

1. For T9x40 and LTO Ultrium tape drives, the customer's LMU must be running compatibility 13 microcode. The LMU microcode must be at level 2.5.xx or higher.
2. LTO Ultrium cartridges are smaller than T9x40 cartridges, thus the LTO Ultrium cartridges require a different cartridge array. An LTO array does not accommodate T9x40 media.

LTO Generation 1

The first generation LTO drives, called simply LTO, have a native storage capacity of 100 GB per data cartridge and a native transfer rate of 15 MB/second.

The following Small Computer System Interface (SCSI) and Fibre Channel LTO Ultrium drives can be used with the L5510 LSM.

- IBM Fibre Channel
- IBM High Voltage Differential (HVD)
- IBM Low Voltage Differential (LVD)
- Seagate HVD
- Seagate LVD

LTO Generation 2

The second generation LTO drives, typically referred to as LTO 2, has a native storage capacity of 200 GB per data cartridge with a native transfer rate of 35 MB/second. The L5500 library accepts IBM LTO 2 Fibre Channel drives. The LTO 2 drives are compatible with first-generation drives, and LTO 2 drives can perform the following functions:

- Read and write Generation 2 data cartridges to Generation 2 format
- Read and write Generation 1 data cartridges to Generation 1 format

LTO 2 drives *cannot* perform the following functions:

- Write Generation 2 data cartridges to Generation 1 format
- Write Generation 1 data cartridges to Generation 2 format

LTO Generation 3

The third generation LTO drives, typically referred to as LTO 3, has a native storage capacity of 400 GB per data cartridge with a native transfer rate of up to 80 MB/second. The L5000 library accepts IBM LTO 3 Fibre Channel drives.

The LTO 3 drives are compatible with second-generation drives, and LTO 3 drives can perform the following functions:

- Read and write Generation 3 data cartridges to Generation 3 format
- Read and write Generation 2 data cartridges to Generation 2 format
- Read Generation 1 data cartridges

LTO3 drives *cannot* perform the following functions:

- Write Generation 3 data cartridges to Generation 2 format
- Write Generation 2 data cartridges to Generation 3 format
- Write Generation 1 data cartridges

Cartridges

The L5510 can store media in the form of:

- 9840 and 9940 data cartridges
- LTO Ultrium data cartridges

Cartridge Labels

Data cartridges are not shipped as part of the L5510 library. Make sure that the customer orders the data cartridge labels at least two months before installation. Printed-to-order cartridge labels come in packets of 1,000.

When ordering labels, you must specify the VOLSER/VOL_ID range you require.

To order and to obtain additional information about cartridge types, contact your distributor or OEM account representative.

9840 Cartridges

The T9840 tape drives use a dual-hub cartridge that is 125 x 109 x 24.5 mm (4.92 x 4.29 x 0.968 in.). These are considered access-centric drives.

The 9840 data cartridges can record 288 data tracks and have a mid-point tape load for fast access to data. 9840A and 9840B cartridges have a 20-GB native capacity. 9840C cartridges have a 40-GB native capacity because of VR[2] technology.[1]

Note: Do not order 9840 cartridges for T9940 or LTO Ultrium drives.

9940 Cartridges

The T9940 Tape Drive uses a single-hub cartridge that is 125 x 109 x 24.5 mm (4.92 x 4.29 x 0.968 in.). These are considered capacity-centric drives, particularly useful for an information lifecycle management (ILM) solution.

The 9940A cartridges can record 288 data tracks and have a 60-GB native capacity.

9940B cartridges can record 576 data tracks and have a 200-GB native capacity because of VR[2] technology.[1]

Note: Do not order 9940 cartridges for T9840 or LTO Ultrium drives.

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1. VR[2] is a trademark of Overland Storage.

9x40 VolSafe Cartridges

VolSafe data cartridges have a write-once, read-many (WORM) functionality to safeguard data files. After data has been written to a VolSafe data cartridge, it cannot be overwritten or deleted. New data can be added (appended) until the cartridge is full.

VolSafe cartridges have a magnetic signature in the Media Information Region (MIR) and unique machine-readable features. The cartridges are visually identified by specially colored labels and write-protect switches.

To write to a VolSafe data cartridge, a T9x40 tape drive must have compatible data density with a specific VolSafe cartridge. Table 3-1 details the appropriate cartridge for each tape drive model.

Table 3-1. T9x40 Tape Drive – VolSafe Cartridge Compatibility

	VolSafe Cartridge		
Drive	**9840A/B (20 GB)**	**9840C (40 GB)**	**9940B (200 GB)**
T9840A	Read/Write	Load Error	N/A
T9840B	Read/Write	Load Error	N/A
T9840C	Read Only	Read/Write	N/A
T9940A[1]	N/A	N/A	Load Error
T9940B	N/A	N/A	Read/Write

1. The T9940A tape drive is not VolSafe compatible.

For more information about VolSafe data cartridges, refer to the *T9x40 System Assurance Guide*, PN MT5003.

Note: Do *not* order VolSafe cartridges for LTO Ultrium drives.

LTO Ultrium Cartridges

The LTO, LTO 2, and LTO 3 Ultrium drives use a single-hub cartridge that is 105.4 x 102 x 21.5 mm (4.1 x 4.0 x 0.8 in.). These are considered capacity-centric drives.

A common tape format for LTO Ultrium cartridges allows them to be mounted into any LTO Ultrium tape drive. See "LTO Ultrium Tape Drives" on page 3-18 for information about the read/write compatibility of the three LTO drive generations.

Note: Do not order LTO Ultrium cartridges for T9x40 drives.

LTO 3 WORM Cartridges

LTO 3 WORM data cartridges are similar to T9x40 VolSafe data cartridges in that they have a write-once, read-many (WORM) functionality to safeguard data files. After data has been written to a WORM data cartridge, it cannot be overwritten or deleted. New data can be added (appended) until the cartridge is full.

Note: LTO 3 WORM cartridges and VolSafe cartridges are not interchangeable.

Ordering the Equipment

4

This chapter contains work sheets to fill out when ordering the L5500 tape library. These work sheets must be completed and submitted to the appropriate departments, or the *product will not be shipped.*

This chapter also includes prerequisite information, model and feature numbers, and part numbers.

L5500 Prerequisites

Microcode and host software prerequisites must be met to ensure the L5500 library functions properly.

The microcode prerequisites to support the L5500 library and all applicable tape drives listed below.

- Compatibility level 13 LMU microcode
- 2.5.xx or higher LMU microcode
- 4.5.xx or higher LCU microcode

The host software prerequisites for support of T9x40 and Seagate/IBM Ultrium tape drives attached to an L5510 tape library are listed below.

- ACSLS 6.01 or higher
- MVS/CSC 4.1 or higher

Note: MVS/CSC is used only for MVS clients to send requests to an L5500 ACS.

L5510 Cartridge Capacity Variations

The following table lists data cartridge capacity variations for the panel types available.

Notes:

1. Adding more than one 9741E drive cabinet per library will decrease the total cartridge allotment by approximately 340 cartridge cells.
2. Adding any window walls to an L5510 tape library will decrease the total cartridge allotment by approximately 300 cartridge cells.

Table 4-1. L5510 Cartridge Capacity Variations

Panel Type	Available Storage Cells
Standard outer wall	357
Access door with 80-cell CAP	0 (see note)
Standard inner wall	256
Inner wall with door	242
Inner wall with hinge	249
PTP wall	333
Window wall	69
Library Control Unit wall	319
20-drive wall	19

Note: CAP cells are not considered storage cells. The CAP is designed for transfer of cartridges into and out of the library.

Table 4-2 shows how the L5510 data cartridge cell capacity lessens as additional drives walls are attached to the library. Configurations that have less than 5,000 cartridge cells can have four drive walls attached without affecting the total cell allotment of the configuration.

Note: If a window wall is added to any of the cartridge cell variations listed in Table 4-2, subtract an additional 300 cartridge cells.

Table 4-2. Cartridge Cell Capacities with Additional Drive Walls

Model Number	1 Drive Wall	2 Drive Walls	3 Drive Walls	4 Drive Walls
L551050 (5,000 cells)	5,000 cells	5,000 cells	4,660	4,320
L551055 (5,500 cells)	5,500 cells	5,160	4,820	4,480

Note: The 4,500 LTO cartridge configuration (model number L551045), allows four drive walls to be attached to the library without affecting the total cartridge allotment. However, if a window wall is added, 300 cells must be subtracted from the total capacity, leaving a maximum cell capacity of 4,200 cartridge cells.

The capacity of the 4,000 LTO cartridge configuration and all smaller configurations are not affected by having four drive walls and a window wall on the LSM.

L5500 Hardware Work Sheet

The following work sheet is for ordering hardware for the L5500 LSM. Refer to Table 4-7 on page 4-35 through Table 4-14 on page 4-38 for a full list of the model numbers, feature codes, and their respective descriptions.

The italicized choices are optional or are required only for certain configurations.

The model number and feature codes have been filled in the following work sheet. Please note the quantity of each item you want to order. If you do not want to order a specific item, write "zero" in the quantity column.

Notes:

1. N/A indicates that a model or feature is not applicable for that item.
2. Adding more than one drive wall per library will decrease the total cartridge allotment by approximately 340 cartridge cells.
3. Adding any window walls to a L5510 tape library will decrease the total cartridge allotment by approximately 300 cartridge cells.

Account Name:

Account Address:

Table 4-3. L5510/L5511/L5520/L5530 Hardware Order Work Sheet (Sheet 1 of 3)

Configuration	Model Number	Feature Code	Quantity
1,500 Slots LTO Only	L551015	N/A	
2,000 Slots LTO Only	L551020	N/A	
2,500 Slots LTO Only	L551025	N/A	
3,000 Slots LTO Only	L551030	N/A	
3,500 Slots LTO Only	L551035	N/A	
4,000 Slots LTO Only	L551040	N/A	
4,500 Slots LTO Only	L551045	N/A	
5,000 Slots LTO Only	L551050	N/A	
5,500 Slots LTO Only	L551055	N/A	
1,000 LTO/1,000 T9x40 Slots	L5510BB	N/A	
1,500 LTO/1,500 T9x40 Slots	L5510CC	N/A	
2,000 LTO/2,000 T9x40 Slots	L5510DD	N/A	
2,000 LTO/3,500 T9x40 Slots	L5510M2	N/A	
3,500 LTO/2,000 T9x40 Slots	L5510M3	N/A	

Table 4-3. L5510/L5511/L5520/L5530 Hardware Order Work Sheet (Sheet 2 of 3)

Configuration	Model Number	Feature Code	Quantity
Sun Logo (only applies to L551015 model number)	N/A	SUN0	
StorageTek Logo	N/A	STK0	
0 Pass-thru Port Walls	N/A	PTW0	
1 Pass-thru Port Wall	N/A	PTW1	
2 Pass-thru Port Walls	N/A	PTW2	
3 Pass-thru Port Walls	N/A	PTW3	
4 Pass-thru Port Walls	N/A	PTW4	
Large viewing window	N/A	WF01	
1 Drive Wall (1 to 20 Drives)	N/A	DR20	
2 Drive Walls (1 to 20 Drives)	N/A	DR40	
3 Drive Walls (1 to 60 Drives)	N/A	DR60	
4 Drive Walls (1 to 80 Drives)	N/A	DR80	
LCU–L5511	L551100	N/A	
Dual power, CE compliance	N/A	DPCE	
14 ft N. American Russell Stoll cord	N/A	9952	
10 ft N. American Hubble cord	N/A	9953	
3 m International pigtail	N/A	9954	
10 ft N. American Russell Stoll cord	N/A	9962	
StorageTek Logo	N/A	STK0	
Sun Logo	N/A	SUN0	
LMU–L5530	L553000	N/A	
Dual LMU	N/A	4432	
14 ft N. American Russell Stoll cord	N/A	9952	
10 ft N. American Hubble cord	N/A	9953	

Table 4-3. L5510/L5511/L5520/L5530 Hardware Order Work Sheet (Sheet 3 of 3)

Configuration	Model Number	Feature Code	Quantity
3 m International pigtail	N/A	9954	
4.3 m International pigtail	N/A	9960	
No TCP/IP host card	N/A	T000	
1 TCP/IP host card	N/A	T101	
StorageTek Logo	N/A	STK0	
Sun Logo	N/A	SUN0	
PTP–L552000	L552000	N/A	

Host Software Work Sheet

The following work sheet is for ordering ACSLS, the host software that manages job requests for the L5500 library.

The italicized choices are optional and you are not required to fill these out to complete an order.

See Table 4-15 on page 4-39 and Table 4-16 on page 4-39 for a full list of the model numbers, feature codes, and their respective descriptions.

The model number and feature codes have been filled in the following work sheet. Please note the quantity of each item you wish to order. If you do not want to order a specific item, write "zero" in the quantity column.

Notes:

1. N/A indicates that a model or feature is not applicable for that item.
2. You must indicate the proper cartridge allotment and platform version in the order work sheet to complete the order. The cartridge allotment feature must reflect the number of data cartridges in the library. Use Table 4-16 on page 4-39 to determine the correct feature codes.

Account Name:

Account Address:

Table 4-4. Host Software Order Work Sheet (Sheet 1 of 2)

Host Software	Model Number	Feature Code	Quantity
ACSLS	**ACSLS01**	N/A	
Up to 1,500 Slots	N/A	Q015	
Up to 2,000 Slots	N/A	Q020	
Up to 2,500 Slots	N/A	Q025	
Up to 3,000 Slots	N/A	Q030	
Up to 3,500 Slots	N/A	Q035	
Up to 4,000 Slots	N/A	Q040	
Up to 4,500 Slots	N/A	Q045	
Up to 5,000 Slots	N/A	Q050	
Up to 5,500 Slots	N/A	Q055	
Up to 6,000 Slots	N/A	Q060	
Up to 7,000 Slots	N/A	Q070	
Up to 8,000 Slots	N/A	Q080	

Table 4-4. Host Software Order Work Sheet (Sheet 2 of 2)

Host Software	Model Number	Feature Code	Quantity
Up to 9,000 Slots	N/A	Q090	
Up to 10,000 Slots	N/A	Q100	
Up to 11,000 Slots	N/A	Q110	
Up to 16,500 Slots	N/A	Q165	
Up to 22,000 Slots	N/A	Q220	
Up to 27,500 Slots	N/A	Q275	
Up to 50,000 Slots	N/A	Q500	
Up to 75,000 Slots	N/A	Q750	
Up to 99,998 Slots	N/A	Q751	
99,999 + Slots	N/A	Q999	
ACSLS Solaris Version	N/A	0SLR	
ACSLS AIX Version	N/A	0AIX	
ACSLS Level	**N/A**	L601	
LM Gateway	N/A	GWMG	

Note: The LM Gateway provides firewall support.

Reduction of Hazardous Substances

Effective July 1, 2006, the European Union (EU) requires that products sold in EU countries comply with rules governing what materials can and cannot be used in *electrical* and *electronic* goods. These rules are called the Reduction of Hazardous Substances (RoHS) regulations. These regulations are intended to reduce the amount of lead and other heavy metals in the European environment.

Because products sold outside the EU are not required to comply with these restrictions, you can specify whether the products being ordered need to be in compliance with RoHS regulations. Table 4-5 lists the feature codes for RoHS.

Table 4-5. RoHS Feature Codes

Feature Code	Description
ROHS	RoHS Compliant
NCHS	RoHS Noncompliant

Tape Drive Work Sheet

The following work sheet is for ordering the tape drives available for attachment to the L5510 LSM. The italicized choices are optional.

To order T9x40 drives please refer to the *T9x40 System Assurance Guide*, PN MT5003.

Note: All T9x40 drives installed in an L5500 must have a bezel that reads "L5500 Compat."

See Table 4-17 on page 4-41 and Table 4-18 on page 4-41 for a full list of the model numbers, feature codes, and their respective descriptions.

The model number and feature codes have been filled in the work sheet below. Please note the quantity of each item you wish to order. If you do not want to order a specific item, write "zero" in the quantity column.

Note: N/A indicates that a model or feature is not applicable for that item.

Account Name:

Account Address:

Table 4-6. LTO Ultrium Tape Drives Order Work Sheet

Drives	Model Number	Feature Code	Quantity
LTO Drives (L5510 Attachment)	TLTO55	N/A	
IBM LTO Ultrium Fibre Channel Interface	N/A	IBFC	
IBM LTO Ultrium High Voltage Differential (HVD) SCSI Interface	N/A	IBHV	
IBM LTO Ultrium Low Voltage Differential (LVD) SCSI Interface	N/A	IBLV	
Seagate LTO Ultrium HVD SCSI Interface	N/A	SGHV	
Seagate Ultrium LTO LVD SCSI Interface	N/A	SGLV	
LTO2 Drives (for L5500)	LTO2L55		
IBM LTO2 Ultrium Fibre Channel Interface		IBFC	
LTO3 Drives (for L5500)	LTO3L55		
IBM LTO3 Ultrium Fibre Channel Interface		IBFC	
RoHS Compliant	N/A	ROHS	
RoHS Noncompliant	N/A	NCHS	
StorageTek Logo	N/A	STK0	
Sun Logo	N/A	SUN0	

Media Work Sheet

To order media for T9x40 tape drives or LTO Ultrium media and labels, contact a Sun sales representative.

Account Name:

Account Address:

9741E Drive Cabinet Work Sheet

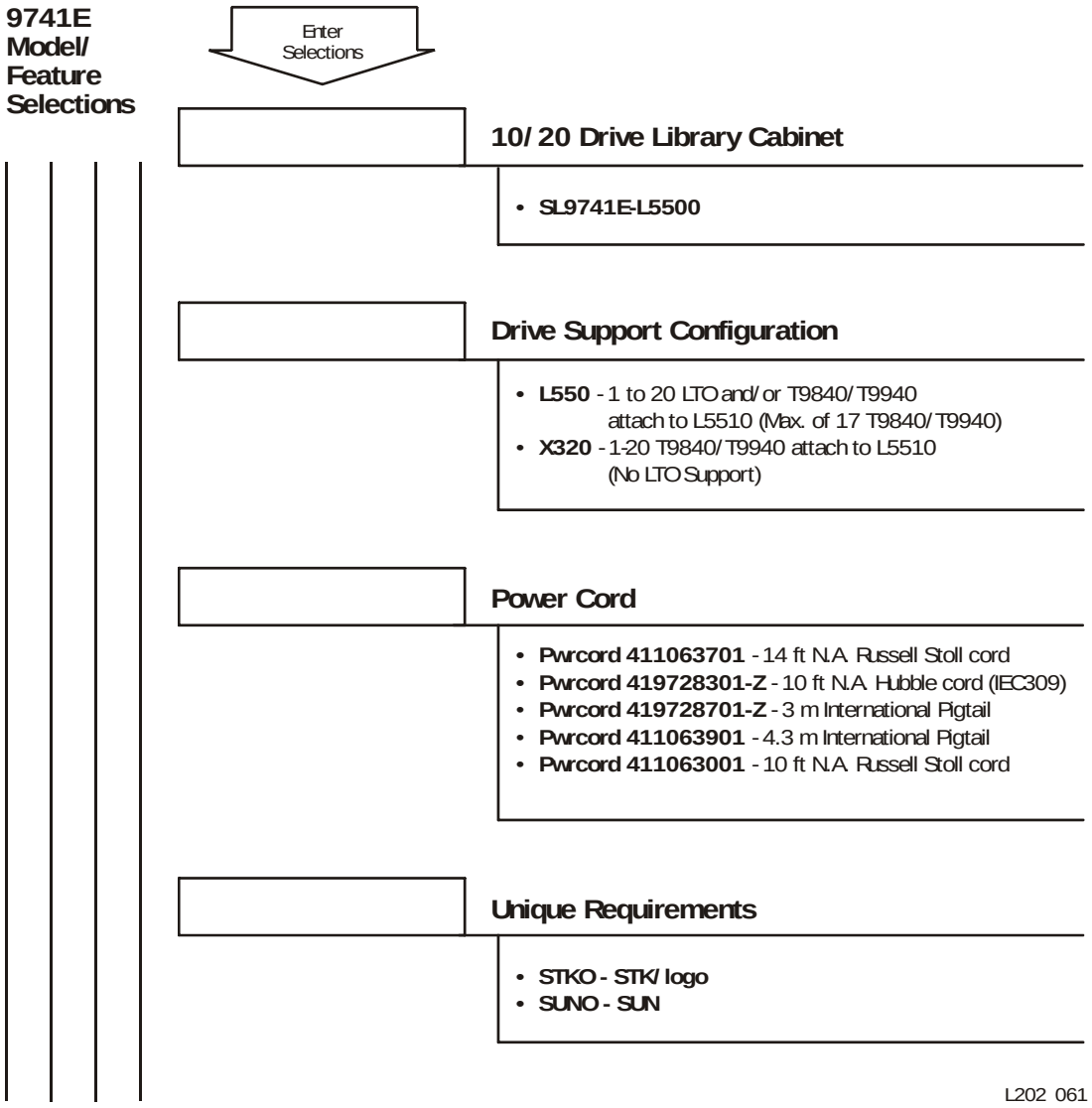
The following work sheet lists the required choices you must make to correctly order the 9741E drive cabinet.

To order drives, use the appropriate drive SAG publication listed in the "Related Publications" on page xv. To order LTO drives, please refer to the "Tape Drive Model Numbers and Feature Codes" on page 4-41.

Account Name:

Account Address:

Figure 4-1. 9741E Hardware Order Work Sheet



L5500 Model Numbers and Feature Codes

The following tables list the model numbers and features codes available for the L5510, L5511, L5520, L5530. Use them to help complete Table 4-3 on page 4-26.

L5510 Model Numbers

Table 4-7 lists models for the L5510 LSM.

Table 4-7. L5510 Models

Model Number	Description
L551015	L5510 with 1,500 cartridge slots (LTO only)
L551020	L5510 with 2,000 cartridge slots (LTO only)
L551025	L5510 with 2,500 cartridge slots (LTO only)
L551030	L5510 with 3,000 cartridge slots (LTO only)
L551035	L5510 with 3,500 cartridge slots (LTO only)
L551040	L5510 with 4,000 cartridge slots (LTO only
L551045	L5510 with 4,500 cartridge slots (LTO only)
L551050	L5510 with 5,000 cartridge slots (LTO only)
L551055	L5510 with 5,500 cartridge slots (LTO only)
L5510BB	L5510 with 1,000 LTO/1,000 T9x40 cartridge slots
L5510CC	L5510 with 1,500 LTO/1,500 T9x40 cartridge slots
L5510DD	L5510 with 2,000 LTO/2,000 T9x40 cartridge slots
L5510M2	L5510 with 2,000 LTO/3,500 T9x40 cartridge slots
L5510M3	L5510 with 3,500 LTO/2,000 T9x40 cartridge slots

Table 4-8 lists the available logo feature codes for the L5510 LSM. You must indicate one of these feature codes to complete the order.

Table 4-8. L5510 Feature Codes

Feature Code	Description
STK0	StorageTek Logo
SUN0	Sun Logo

L5510 Wall Panel Features

Table 4-9 lists the feature codes for L5510 wall panels.

Note: The feature codes for the drive capacity are not for ordering a drive cabinet. The following feature codes are for the wall panel. Each drive wall panel will allow you to use a 20-slot 9741E drive cabinet. You must select only one of the drive capacity features for each L5510 LSM.

Table 4-9. L5510 Wall Panel Feature Codes

Feature Code	Description
WF01	Large Viewing Window Wall
DR20	20 Drive Capacity (1 drive wall per L5510)
DR40	40 Drive Capacity (2 drive walls per L5510)
DR60	60 Drive Capacity (3 drive walls per L5510)
DR80	80 Drive Capacity (4 drive walls per L5510)
PTW0[1]	No Pass-thru Port
PTW1	1 Pass-thru port wall
PTW2	2 Pass-thru port walls
PTW3	3 Pass-thru port walls
PTW4	4 Pass-thru port walls

[1] If you do not want to order a pass-thru port wall you must indicate so by selecting this feature code.

L5511 Model Number

The following table lists the model number for the L5511 LCU.

Table 4-10. 9311 Model Number

Model Number	Description
L551100	Library Control Unit

L5511 Feature Codes

Table 4-11 lists the available feature codes for L5511 LCU.

Note: The dual power feature is optional (power cords not included). It is required that at least one power cord is specified on the sales order to complete the order. At least one logo feature code must also be indicated on the order.

The dual power feature provides redundant AC inputs to the L5511 so that operation will continue uninterrupted should an AC input fail. The dual power feature code or C/B do not supply the power cords; order the power cords using the feature codes listed below.

Table 4-11. L5511 Feature

Feature	Description
DPCE	Dual Power, CE Compliance (also available as C/B YXSL9310/5510DPCE)
9952	14 ft N. American Russell Stoll cord
9953	10 ft N. American Hubble cord
9954	3 m International pigtail
9960	4.3 m International pigtail
STK0	StorageTek Logo
SUN0	Sun Logo

L5520 Model Number

Table 4-12 lists the model number for the L5520 pass-thru port. There are no accompanying features for this model number.

Table 4-12. L5520 Model Number

Model Number	Description
L552000	Pass-thru Port

L5530 Model Number

Table 4-13 lists the model numbers for the L5530 LMU.

Table 4-13. L5530 Model Number

Model Number	Description
L553000	Stand-alone LMU for RS423 or TCP/IP Connection

L5530 Feature Codes

Table 4-14 lists the feature codes for the L5530.

Note: One power cord must be indicated on the sales order to complete the order.

Table 4-14. L5530 Feature Codes

Feature Code	Description
4432	Dual LMU Capacity
9952	14 ft N. American Russell Stoll cord
9953	10 ft N. American Hubble cord
9954	3 m International pigtail
9960	4.3 m International pigtail
T000[1]	No TCP/IP Host
T101	One TCP/IP Host
STK0	StorageTek Logo
SUN0	Sun Logo

[1] If you do not want to use TCP/IP to communicate to the LMU choose this feature to order a standard LMU with the RS423/232 interface.

Host Software Model Numbers and Feature Codes

Table 4-15 on page 4-39 and Table 4-16 on page 4-39 list the model number and feature codes available for ACSLS.

Host Software Model Numbers

Table 4-15 lists the model number available for ACSLS.

Table 4-15. ACSLS Model Numbers

Model Number	Description
ACSLS01	**ACSLS Software**

Host Software Feature Codes

Table 4-16 lists the features available for ACSLS.

Note: You must indicate a feature code for data cartridge allotments and platform version (Solaris or AIX) on Table 4-4 on page 4-29. The cartridge allotment feature must reflect the number of cartridges in the ACS. The LM Gateway is optional feature code, therefore it is not required to complete an order, however if you wish to order you must indicate it on Table 4-4 on page 4-29.

Table 4-16. ACSLS Feature Codes (Sheet 1 of 2)

Feature Code	Description
Q015	**Up to 1,500 Slots**
Q020	**Up to 2,000 Slots**
Q025	**Up to 2,500 Slots**
Q030	**Up to 3,000 Slots**
Q035	**Up to 3,500 Slots**
Q040	**Up to 4,000 Slots**
Q045	**Up to 4,500 Slots**
Q050	**Up to 5,000 Slots**
Q055	**Up to 5,500 Slots**
Q060	**Up to 6,000 Slots**
Q070	**Up to 7,000 Slots**
Q080	**Up to 8,000 Slots**
Q090	**Up to 9,000 Slots**
Q100	**Up to 10,000 Slots**

Table 4-16. ACSLS Feature Codes (Sheet 2 of 2)

Feature Code	Description
Q110	**Up to 11,000 Slots**
Q165	**Up to 16,500 Slots**
Q220	**Up to 22,000 Slots**
Q275	**Up to 27,500 Slots**
Q500	**Up to 50,000 Slots**
Q750	**Up to 75,000 Slots**
Q751	**Up to 99,998 Slots**
Q999	**99,999 + Slots**
0SLR	**ACSLS Solaris Version**
0AIX	**ACSLS AIX Version**
L601	**ACSLS Level 6.01**
GWMG	***LM Gateway***

Tape Drive Model Numbers and Feature Codes

The following tables list the tape drive model and feature codes available for attachment to the L5510 LSM.

T9x40 Tape Drive Models and Features

To order T9x40 drives, please refer to the *T9x40 System Assurance Guide*, PN MT5003.

Note: All T9x40 drives installed in an L5500 must have a bezel that reads "L5500 Compat."

LTO Ultrium Model Number

Table 4-17 lists the model number for LTO Ultrium tape drives.

Table 4-17. LTO Ultrium Model Number

Model Number	Description
TLTOL55	LTO Ultrium Tape Drive (LTO1)
LTO2L55	Generation 2 LTO Ultrium Tape Drive (LTO 2)
LTO3L55	Generation 3 LTO Ultrium Tape Drive (LTO 3)

LTO Ultrium Feature Codes

Table 4-18 lists the feature codes for LTO, LTO 2, and LTO 3 Ultrium tape drives.

Several feature codes are available for LTO Ultrium. Be sure you have indicated the correct feature code on the work sheet.

Notes:

1. Feature code IBFC is valid for IBM LTO, LTO 2, and LTO 3 Fibre Channel interface.
2. The feature code for the StorageTek Logo is required. You must indicate it on the LTO Ultrium order work sheet.

Table 4-18. LTO Ultrium Feature Codes (Sheet 1 of 2)

Feature Code	Description
IBFC	IBM LTO Fibre Channel Interface
IBHV	IBM LTO HVD Interface[1]
IBLV	IBM LTO LVD Interface[1]
SGHV	Seagate LTO HVD Interface[1]

Table 4-18. LTO Ultrium Feature Codes (Sheet 2 of 2)

Feature Code	Description
SGLV	Seagate LTO LVD Interface[1]
ROHS	RoHS Compliant[2]
NCHS	RoHS Noncompliant[2]
STK0	StorageTek Logo
SUN0	Sun Logo

1. LTO1 and LTO2 only.
2. For more information, see "Reduction of Hazardous Substances" on page 4-30.

Media

To order media for T9x40 tape drives or LTO Ultrium media and labels, contact a Sun sales representative.

External Cables

The following table is a work sheet for ordering external cables. Use Table 4-21 on page 4-44 through Table 4-25 on page 4-48 to determine the appropriate part numbers of the cables that you will require to complete installation.

Find cable information for the T9x40 drives in the *T9x40 Tape Drive System Assurance Guide*, PN MT5003.

Table 4-19. External Cables

Description	Part Number	Quantity
LAN cable pair		
LAN cable pair		
Video coaxial cable		
50 Hz cable assembly		
RDC, CCITT cable assembly		
LMU 25-USS 9 cable assembly		
LMU 25-USS 9 cable assembly		
RDC, CCITT plenum cable assembly		
LMU plenum cable assembly		
LMU plenum cable assembly		
LCU LAN plenum cable assembly pair		
LCU LAN plenum cable assembly pair		
LSM panel cable pair, panel 1, PTP		
LSM panel cable pair, panel 2, PTP		
LSM panel cable pair, panel 3, PTP		
LSM panel cable pair, panel 4, PTP		
LSM panel cable pair, panel 5, PTP		
LSM panel cable pair, panel 6, PTP		
LSM panel cable pair, panel 7, PTP		
LSM panel cable pair, panel 8, PTP		

Table 4-20 lists the external cable functions, the maximum lengths, and the number required.

Table 4-20. External Cables Overview

	Function	Maximum Length	Number Required
1	LMU to LCU (LAN 0 and 1)	183 m (600 ft)[1] (RG58AU coaxial) (50 Ω)	2 per LMU/LCU
2	LCU to LCU (LAN 0 and 1)	Typically 7.6 m (25 ft) (RG58AU coaxial) (50 Ω)	2 per LCU pair
3	UNIX-based workstation to LMU (ACSLS)	61 m (200 ft) RS-423	1 per workstation

[1] Total length of the LAN including all daisy-chained links is 183 m (600 ft).

The main power cables for the LMU and LCU have Russell Stoll 3720 male input power connectors attached. The LMU and LCU require customer 20 A, 220 VAC Russell Stoll 3743 or 3913 female connectors.

Local Area Network Cables

Table 4-21 lists L5510 external local area network (LAN) cables that connect the LMU and LSMs. The first group of cables are conventional cables. The second group of cables is "plenum rated" (suitable for sites that require cables with higher flammability ratings).

Table 4-21. LMU to LCU and LCU to LCU Cables (Sheet 1 of 2)

Marketing Part	Description
CABLE410612401	Cable pair, LAN, 50 Ω, 7.6 m (25 ft)
CABLE410612402	Cable pair, LAN, 50 Ω, 15.2 m (50 ft)
CABLE410612403	Cable pair, LAN, 50 Ω, 22.9 m (75 ft)
CABLE410612404	Cable pair, LAN, 50 Ω, 30.5 m (100 ft)
CABLE410612405	Cable pair, LAN, 50 Ω, 45.7 m (150 ft)
CABLE410612406	Cable pair, LAN, 50 Ω, 61 m (200 ft)
CABLE410612407	Cable pair, LAN, 50 Ω, 76.2 m (250 ft)
CABLE410612408	Cable pair, LAN, 50 Ω, 91.4 m (300 ft)
CABLE410612409	Cable pair, LAN, 50 Ω, 106.7 m (350 ft)
CABLE410612410	Cable pair, LAN, 50 Ω, 121.9 m (400 ft)

Table 4-21. LMU to LCU and LCU to LCU Cables (Sheet 2 of 2)

Marketing Part	Description
CABLE410612411	Cable pair, LAN, 50 Ω, 137.2 m (450 ft)
CABLE410612412	Cable pair, LAN, 50 Ω, 152.4 m (500 ft)
CABLE410612413	Cable pair, LAN, 50 Ω, 167.6 m (550 ft)
CABLE410612414	Cable pair, LAN, 50 Ω, 182.9 m (600 ft)
CABLE410612415	Cable pair, LAN, 50 Ω, 4 m (13 ft)
CABLE411207515	Cable pair, plenum, LCU LAN, 4 m (13 ft)
CABLE411207501	Cable pair, plenum, LCU LAN, 7.6 m (25 ft)
CABLE411207502	Cable pair, plenum, LCU LAN, 15.2 m (50 ft)
CABLE411207503	Cable pair, plenum, LCU LAN, 22.9 m (75 ft)
CABLE411207504	Cable pair, plenum, LCU LAN, 1 30.5 m (100 ft)
CABLE411207505	Cable pair, plenum, LCU LAN, 45.7 m (150 ft)
CABLE411207506	Cable pair, plenum, LCU LAN, 61 m (200 ft)
CABLE411207507	Cable pair, plenum, LCU LAN, 76.2 m (250 ft)
CABLE411207508	Cable pair, plenum, LCU LAN, 91.4 m (300 ft)
CABLE411207509	Cable pair, plenum, LCU LAN, 106.7 m (350 ft)
CABLE411207510	Cable pair, plenum, LCU LAN, 121.9 m (400 ft)
CABLE411207511	Cable pair, plenum, LCU LAN, 137.2 m (450 ft)
CABLE411207512	Cable pair, plenum, LCU LAN, 152.4 m (500 ft)
CABLE411207513	Cable pair, plenum, LCU LAN, 167.6 m (550 ft)

The following table lists L5510 external video monitor cables for sites that require video monitoring of robotic activity within the LSM.

Video Cables

Table 4-22. Video Monitor Cables

CABLE410615201	Cable coaxial, video, 75 Ω, North American
410647502	Cable assembly, 50 Hz, international

Remote Center Cables

The following table lists cables that customers and CSEs use to remotely connect to the Remote Center. These cables will run through a modem. The first group are conventional cables; the second group may be run through plenums.

Table 4-23. Remote Center Cables

CABLE410828901-Z*	Cable assy, 3.1 m (10 ft), RDC, CCITT
CABLE410828902	Cable assy, 6.1 m (20 ft), RDC, CCITT
CABLE410828905	Cable assy, 15.2 m (50 ft), RDC, CCITT
CABLE410828910	Cable assy, 30.5 m (100 ft), RDC, CCITT
CABLE410828915	Cable assy, 45.7 m (150 ft), RDC, CCITT
CABLE410828920	Cable assy, 61 m (200 ft), RDC, CCITT
CABLE410828925	Cable assy, 76.2 m (250 ft), RDC, CCITT
CABLE411049701	Cable assy, plenum, RDC, CCITT, 6.1 m (20 ft)
CABLE411049702	Cable assy, plenum, RDC, CCITT, 15.2 m (50 ft)
CABLE411049703	Cable assy, plenum, RDC, CCITT, 30.5 m (100 ft)
CABLE411049704	Cable assy, plenum, RDC, CCITT, 45.7 m (150 ft)
CABLE411049705	Cable assy, plenum, RDC, CCITT, 61 m (200 ft)
CABLE411049706	Cable assy, plenum, RDC, CCITT, 76.2 m (250 ft)
* The "-Z" suffix denotes RoHS compliance	

Serial Host Cables

The following table lists cables that CSEs use to connect an LMU to a UNIX-based workstation. Two types are shown: one is for 25-pin to 9-pin applications; the other is for 25-pin to 25-pin connectors, depending on the workstation.

If the customer chooses to use TCP/IP as the host interface to the LMU, they are responsible for providing the Ethernet cable. Ethernet cables cannot be ordered through StorageTek.

Table 4-24. LMU to UNIX-based Workstation Cables

CABLE410913831	Cable assy, LMU 25-USS 9, 6.1 m (20 ft)
CABLE410913832	Cable assy, LMU 25-USS 9, 15.2 m (50 ft)
CABLE410913833	Cable assy, LMU 25-USS 9, 30.5 m (100 ft)
CABLE410913834	Cable assy, LMU 25-USS 9, 45.7 m (150 ft)
CABLE410913835	Cable assy, LMU 25-USS 9, 61 m (200 ft)
CABLE410891202	Cable assy, LMU 25-USS 25, 6.1 m (20 ft)
CABLE410891205	Cable assy, LMU 25-USS 25 15.2 m (50 ft)
CABLE410891210	Cable assy, LMU 25-USS 25, 30.5 m (100 ft)
CABLE410891215	Cable assy, LMU 25-USS 25, 45.7 m (150 ft)
CABLE410891220	Cable assy, LMU 25-USS 25, 61 m (200 ft)
CABLE411207401	Cable assy, plenum, LMU DB25, 6.1 m (20 ft)
CABLE411207402	Cable assy, plenum, LMU DB25, 15.2 m (50 ft)
CABLE411207403	Cable assy, plenum, LMU DB25, 30.5 m (100 ft)
CABLE411207404	Cable assy, plenum, LMU DB25, 45.7 m (150 ft)
CABLE411207405	Cable assy, plenum, LMU DB25, 61 m (200 ft)

Pass-thru Port Cables

The following table lists the pass-thru port cables. One pair is required for each L5520.

Table 4-25. Pass-thru Port Cables

CABLE410396102	Cable pair, LSM Panel 1
CABLE410396202	Cable pair, LSM Panel 2
CABLE410396302	Cable pair, LSM Panel 3
CABLE410396402	Cable pair, LSM Panel 4
CABLE410396502	Cable pair, LSM Panel 5
CABLE410396602	Cable pair, LSM Panel 6
CABLE410396702	Cable pair, LSM Panel 7
CABLE410396802	Cable pair, LSM Panel 8

Power Cables

Table 4-26 lists L5510 power cables.

Table 4-26. L5510 Power Cables

PWRCORD411063701	North American Russell Stoll Power Cord (14 ft)
PWRCORD419728301-Z*	North American Hubble Power Cord (10 ft, IEC309)
PWRCORD419728701-Z*	International Power Cord, Harmonized (3.15 m)
PWRCORD411063901	4.3 m International Power Cord, Harmonized (4.3 m)
* The "-Z" suffix denotes RoHS compliance	

9741E External Cables

The following table lists the external cables and connectors for the 9741E drive cabinet.

Table 4-27. 9741E External Cables

Part Number	**Description**
300097601	Power cord, North American, TW (10 ft, twist lock)
PWRCORD419728701-Z*	Power cord, Harmonized, International (3.15 M)
PWRCORD419728301-Z*	Power cord, North American, Hubble (10 ft)
PWRCORD411063701	Power cord, North American, Russell Stoll (14 ft)
Power Connector	**Description**
Customer end	Russell Stoll RS320C6W (IEC309) Hubble 320C6W (IEC309)

Table 4-27. 9741E External Cables (Continued)

Part Number	Description
Customer receptacle	Russell Stoll RS320R6W (IEC309) Hubble 320R6W (IEC309)
* The "-Z" suffix denotes RoHS compliance	

9741E Accessories

Table 4-28 lists the Fibre Channel mounting kits that can be installed in a 9741E drive cabinet. The mounting kits are specifically designed for the StorageTek Hub 1000 and the StorageTek 4108 Switch. Up to eight Fibre Channel hubs or four Fibre Channel switches can be installed in a 9741E drive cabinet; a combination of hubs and switches is also acceptable. Table 4-28 also lists a decorative cover for the 9741E cabinet.

Table 4-28. 9741E Mounting Structure Kit

Part Number	Description
X9741-HUB-MTG	Fibre Channel Hub 1000 Mounting Kit
X9741-SW-MTG	Fibre Channel Switch 4108 Mounting Kit
X9741E-DECO-DR	9741E Deco Cabinet Door Assembly

9741E Special Tools

The special tools listed in Table 4-29 are used only as a service tool for the T9840B tape drive. The Ethernet maintenance switches can be mounted only in a 9741E drive cabinet.

Table 4-29. 9741E Special Tools

Part Number	Description
313332201	Maintenance Switch Mounting Kit
24100208	8 Port 10/100 Ethernet Switch
24100209	16 Port 10/100 Ethernet Switch

9741E Conversion Bills

Table 4-30 lists the conversion bills for the 9741E Drive Cabinet.

Table 4-30. 9741E Conversion Bills

Part Number	Description
X9741E-L5500-PH	9741E/L5510 Attach to 9310 Attach (Feature L550 to Feature X320)
X9741E-PH-L5500	9741E/9310 Attach to L5510 Attach (Feature X320 to L550)
X9741E-SUN	9741E/L5510 to L5510, Sun (Feature STK0 to SUN0)
X9741E-LONGCORD	Long Power Cords, L5500 Attach

L5510 Conversion Bills

Table 4-31 lists the conversion bills for the L5500. StorageTek Conversion Bill numbers have been changed to marketing part numbers for the Single Price Listing (SPL) effort.

Note: When converting from a 9310 to an L5510, all 10-drive walls must be converted before the L5500 conversion can begin. The 10-drive walls can be converted to standard walls or 20-drive walls. Each L5510 LSM is required to have at least one 20-drive wall.

Table 4-31. L5510 Conversion Bills/Marketing Part Numbers

Marketing Part Number*	Description
YXSl5510UPG-15-20	L551015 to L551020 (1,500 LTO Cartridge Slots to 2,000 LTO Cartridge Slots)
YXSl5510UPG-20-25	L551020 to L551025 (2,000 LTO Cartridge Slots to 2,500 LTO Cartridge Slots)
YXSl5510UPG-25-30	L551025 to L551030/L551035/L551040/L551045/L551055
YXSl5510UPG-30-35	L551030 to L551035/L551050
YXSl5510UPG-15-M2	L551015 to L5510M2 (1,500 LTO Cartridge Slots to 2,000 LTO/3,500 9x40 Cartridge Slots)
YXSl5510UPG-15-M3	L551015 to L5510M3 (1,500 LTO Cartridge Slots to 3,500 LTO/2,000 9x40 Cartridge Slots)
YXSl5510UPG-M2-M3	L5510M2 to L5510M3 (2,000 LTO/3,500 9x40 Cartridge Slots to 3,500 LTO/2,000 9x40 Cartridge Slots)
YXSl5510UPG-M3-M2	L5510m3 to L5510M2 (3,500 LTO/2,000 9x40 Cartridge Slots to 2,000 LTO/3,500 Cartridge Slots)
YXSl5510UP-15-9310	L551015-55 to 9310 (Any L5510 Model to 9310)

Table 4-31. L5510 Conversion Bills/Marketing Part Numbers (Continued)

Marketing Part Number*	Description
YXSl5510UP-M2-9310	L5510M2 to 9310 w/80-Cell Cap (2,000 LTO/3,500 9x40 Cartridge Slots to 9310)
YXSl5510UP-M3-9310	L5510M3 to 9310 w/80-Cell Cap (3,500 LTO/2,000 9x40 Cartridge Slots to 9310)
YXSL5510-LTO-DWL	20-Drive Wall (must purchase 9741E01 separately)
YXSL5510-LTO-WWL	Window Wall Arrays
YXSL9330UPG-L5530	9330 to L5530
YXSL5510-T9x40BEZ	T9x40 Bezel for L5500
YXSL5530UPG-TCPIP	L5530 to L5530 TCP/IP (L5530, T000 to L5530, T101)
YXSL5500PTP-DEIN	PTP Deinstall for L5500 (L5520 to L5510)
YXSL5500PTP-DEINL	PTP Deinstall for L5500 LTO (L5520 to L5510)
YXSL9310-L5500-C1	PowderHorn with Clipper Door and 20 Drive Wall to L551015, Part 1 of 2 (PR) (9310001 to L551015)
YXSL9310-L5500-C2	PowderHorn with Clipper Door and 20 Drive Wall to L551015, Part 2 of 2 (WB) (9310001 to L551015)
YXSL9310-L5500-S1	PowderHorn with Standard Door and 20 Drive Wall to L551015, Part 1 of 2 (PR) (9310001 to L551015)
YXSL9310-L5500-S2	PowderHorn with Standard Door and 20 Drive Wall to L551015, Part 2 of 2 (WB) (9310001 to L551015)
YXSL4410-L5510-P1	4410 to L551015 with Clipper Door and 20 Drive Wall, Part 1 of 2 (PR) (4410 to L551015)
YXSL4410-L5510-P2	4410 to L551015 with Clipper Door and 20 Drive Wall, Part 2 of 2 (WB) (4410 to L551015)
YXSL5510UPG-15-BB	L551-015 to L551-0BB (L551015 to L5510BB)
YXSL5510UPG-15-CC	L551-015 to L551-0CC (L551015 to L5510CC)
YXSL5510UPG-15-DD	L551-015 to L551-0DD (L551015 to L5510DD)
YXSL5510-DWLTOARR	20 Drive Wall, Arrays, LTO Only
YXSL5510UPG-15-20	1500-2000, XL5500-2000 I (L551015 to L551020)
YXSL5510UPG-20-25	2000-2500, XL5500-2500 I (L551020 to L551025)
YXSL5510UPG-25-30	2500-3000, XL5505-3000 I (L551025 to L551030)
YXSL5510UPG-30-35	3000-3500, XL5500-3500 I (L551030 to L551035)
YXSL5510UPG-35-40	3500-4000, XL5500-4000 I (L551035 to L551040)
YXSL5510UPG-40-45	4000-4500, XL5500-4500 I (L551040 to L551045)

Table 4-31. L5510 Conversion Bills/Marketing Part Numbers (Continued)

Marketing Part Number*	Description
YXSL5510UPG-45-50	4500-5000, XL5500-5000 I (L551045 to L551050)
YXSL5510UPG-50-51	5000-5500, XL5500-5500 I (L551050 to L551055)

***Note:** The "Y" prefix denotes "used."

Test Equipment and Special Tools

Use the test equipment found at the account site to assemble and check out the L5500 equipment.

When you need special tools to assemble the LSM (other than those located in the CSE tool kit), have the local field depot personnel order the tools from Sun StorageTek America's Logistics Department. These tools include items such as bubble levels, torque wrenches, floor and wall alignment tools, and pry bars. The LSM Installation Tool Kit, PN 4105358xx, contains these tools.

You can order the miscellaneous items listed in the following table.

Table 4-32. Test Equipment and Special Tools

	Description	Part Number	Quantity
❑	ESD grounding kit	4711	
❑	L5500 WWN for IBM LTO* Kit	24100257	
❑	CSE tool kit	410535803	
❑	Reach belt gauge	308487301	
❑	Torx power bit, 15.2 in.	308782301	
❑	Grease syringe	308830101	
❑	Grease gun	410916101	
❑	Grease gun with grease	410945502	
❑	STK diagnostic system 2.3	309437207	
❑	PC utilities tool	410961107	
❑	Airflow measurement tool	411022301	
❑	Theta encoder torque tool	411205101	
❑	LSM product label, standard	4045342xx	
❑	Cable assembly select LCU to CD select	4103263xx	
❑	Magazine storage furniture	4110051xx	

Remote Diagnostic Tools

Sun customer service representatives are available to assist you with hardware and software problem resolution. During the initial order and installation planning, make sure that you inform the customer about Sun's local and remote support. Point your Web browser to http://sunsolve.central.sun.com/handbook_internal/FieldTools/ to order remote diagnostic hardware.

Hardware support is staffed by diagnostic experts who have access to history files for solutions related to previous equipment problems. With the installation of remote equipment, hardware support can:

- Connect to the customer account by using a modem and an optional MARS+ box
- Test and diagnose the equipment problems
- Suggest ways for the operator to repair certain problems
- Dispatch a CSE with repair parts

Preinstallation Checklist

5

Make sure that you have resolved all the items listed in the following table. Circle "Yes" or "No," as appropriate, for each item. For unresolved items, assign a required action and a due date to the appropriate person.

Table 5-1. Preinstallation Checklist (Sheet 1 of 2)

Item Description	Yes/No	Action Required/Due Date/ Person Responsible
Site Preparation		
Floor plans completed	Yes/No	
Clearance adequate	Yes/No	
Cooling adequate	Yes/No	
Power requirements met	Yes/No	
Cable lengths determined	Yes/No	
Cable routing established	Yes/No	
Future expansion considered	Yes/No	
Dock facilities scheduled	Yes/No	
Hardware Procurement		
Subsystems ordered	Yes/No	
Options or features ordered	Yes/No	
Power cables ordered	Yes/No	
Interface cables ordered	Yes/No	
Interface adapters ordered	Yes/No	
Tapes and labels ordered	Yes/No	
Accessories and special tools ordered	Yes/No	
Pallet jack available	Yes/No	
Software Procurement		
Software prerequisites met	Yes/No	

Table 5-1. Preinstallation Checklist (Sheet 2 of 2)

Software Installation	
Scheduled	Yes/No
Completed	Yes/No
Hardware Installation	
Delivery schedule completed	Yes/No
Dock hours scheduled	Yes/No
Pre-staging area set	Yes/No
Installation team identified	Yes/No
Site access arranged	Yes/No
Installation hours defined	Yes/No

Fire Suppression System

❑ Yes ❑ No Does the customer want a fire suppression system?

Make sure that the customer is aware that Sun does not supply fire suppression systems. The L5510 LSM is designed to accommodate fire suppression systems, but the fire suppression system is the customer's responsibility.

Site Planning Information

A

This appendix provides site planning information for the L5500 tape library:

- Configuration restrictions
- Floor-space requirements
- Physical specifications
- Electrical specifications

L5500 Facility Overcurrent Protection

Branch circuit fuse or circuit breaker protection for the receptacles providing AC power to the library storage module (LSM), library control unit (LCU), and library management unit (LMU) must not exceed 20 Amps. This current limit ensures adequate short-circuit and ground-fault protection to the library's AC power conductors.

L5500 Computer Room Floor

Before anyone can assemble the library, the raised computer room floor must be leveled with a laser to meet the requirements listed below:

1. The maximum vertical misalignment of floor tiles is 0.254 cm (0.1 in.) for proper function of floor-leveling pads located beneath the leveling screws.
2. At tape drive locations, the floor is level within 0.318 cm (0.125 in.) for a measured distance of 91.4 cm (36 in.) from the LSM.
3. Calculate the maximum out-of-level condition for 2 to 16 libraries from the following formula:

   For a metric (centimeter-gram-second) system:

   X = 2.54 + [(#libraries - 1) * 0.318]

   For a U.S. (foot-pound-second) system:

   X = 1.00 + [(#libraries - 1) * 0.125]

   when: X = maximum out-of-level tolerance (in centimeters/inches)

   #libraries = number of libraries in a straight line

   This formula is based on a maximum adjustment in any one libraries floor of 2.54 cm (1 in.), and a maximum step between adjacent libraries floors of 0.318 cm (0.125 in.).

L5500 Assembly Area

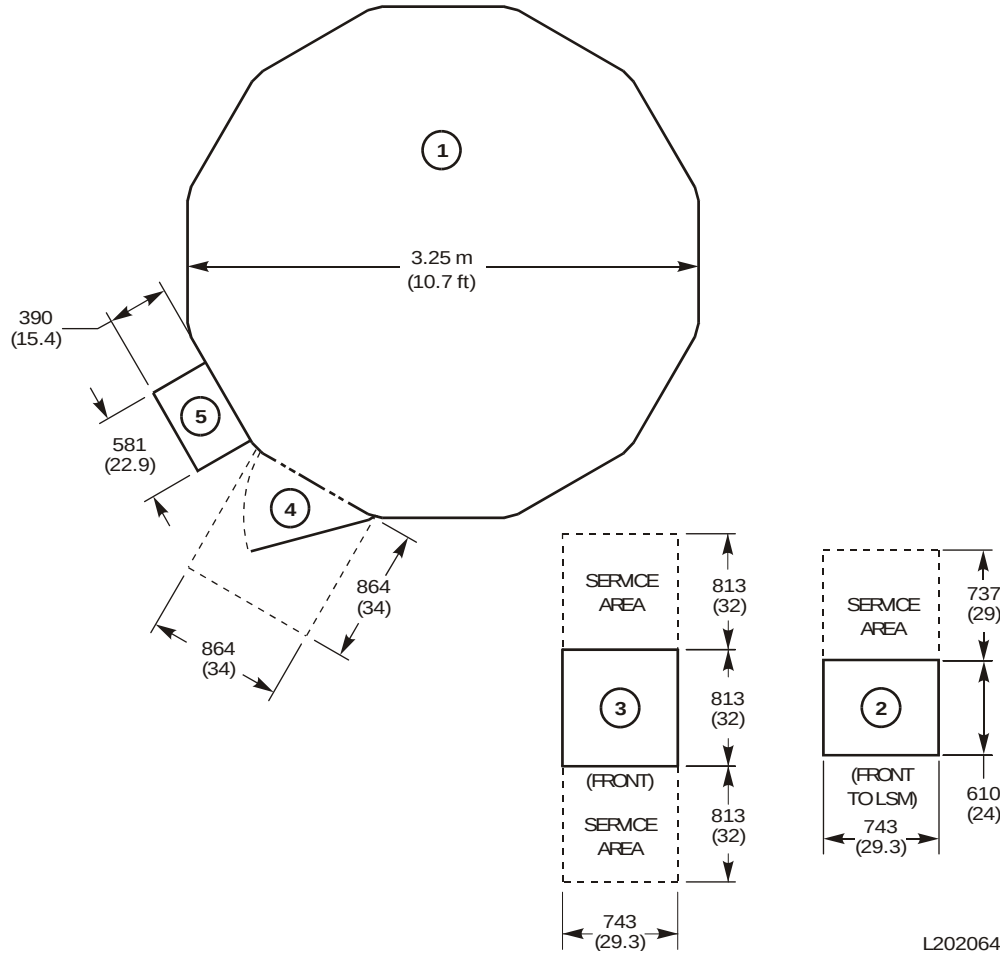
The minimum working area required in the computer room to assemble an LSM is about 35 m^2 (400 ft^2). *This is in addition to the area occupied by any pallet loads.* Coordinate with customer management personnel to make sure adequate working space is available *before* beginning the assembly process. The LSM must be assembled in the exact desired location.

The people installing the LSM will need a pallet jack to move the LSM equipment from the pallets. If the customer does not have a pallet jack, arrange with the customer to rent a pallet jack. The customer service engineer (CSE) is responsible for guiding each pallet into place, allowing sufficient space for unpacking the equipment, disposing of packaging material, staging the equipment, and assembling the equipment.

Use Figure A-1 on page A-3 through Figure A-6 on page A-13 to develop a floor plan. Use the full-scale templates in the special tool kit to mark the floor tiles. You will need floor tiles with ventilation holes under the center of the LSM and below each tape drive (CD) or drive cabinet during installation.

Note: Plan the floor tile cutouts for the LCU and CD before assembling the LSM floor.

Figure A-1. L5510 Floor Space Requirements

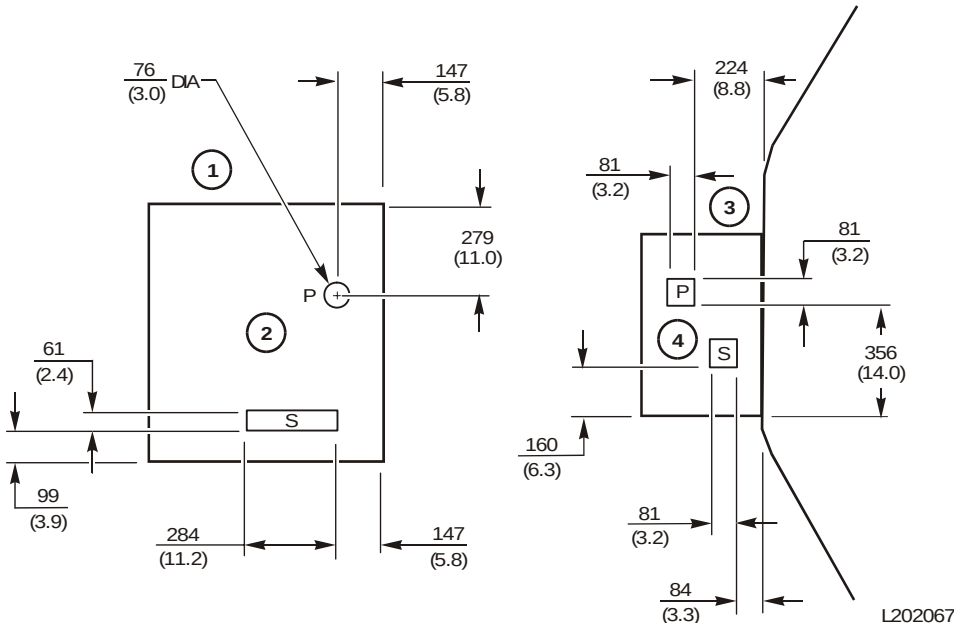


1. L5510
2. 9741E Drive Cabinet
3. L5530 LMU
4. L5510 Door
5. L5511 LCU

Notes:

1. Unless otherwise noted, dimensions are in millimeters (inches).
2. Measurements are with front, rear and side panels attached.

Figure A-2. LMU and LCU Floor Cutout Requirements

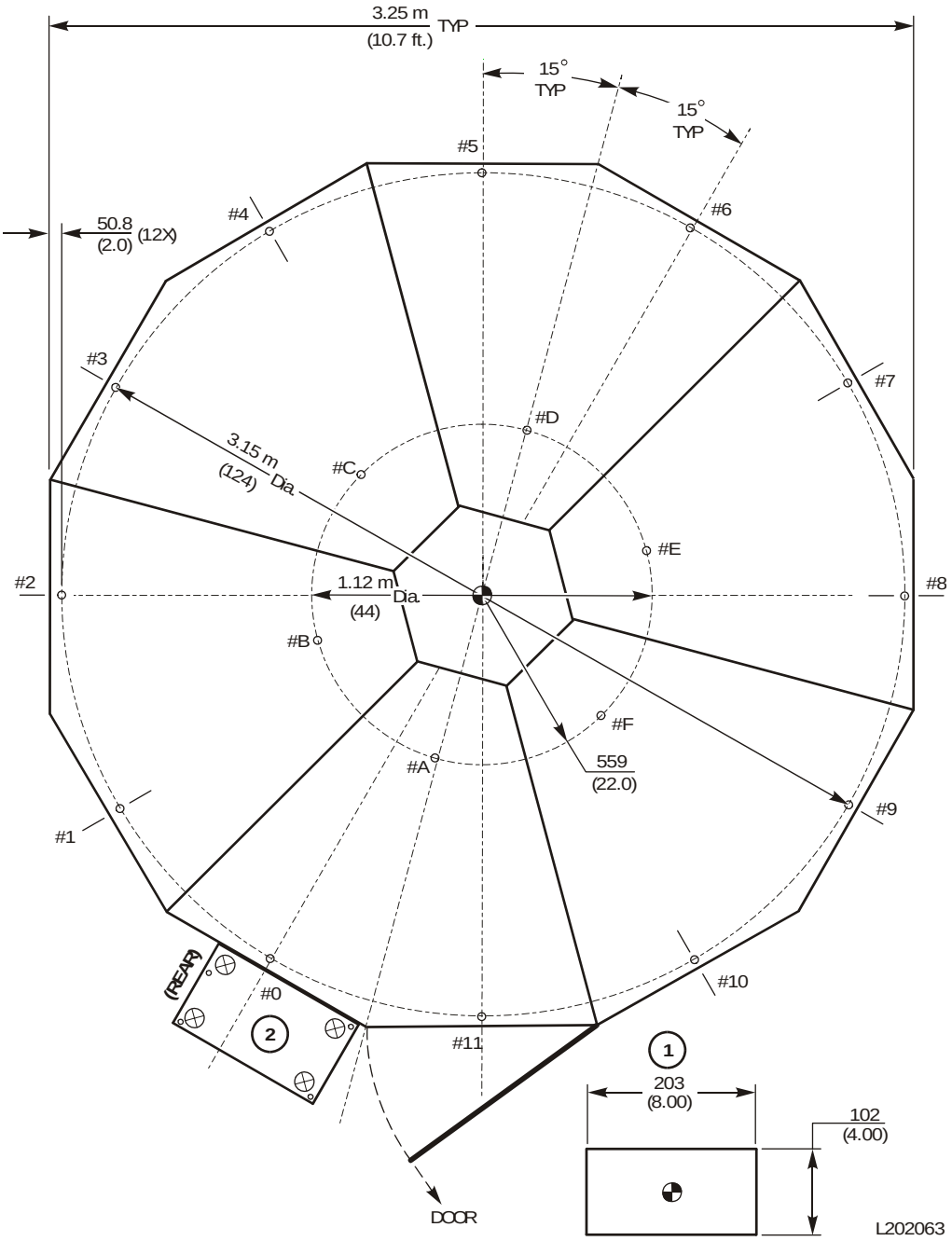


1. LMU (front)
2. LMU
3. LCU (rear)
4. LCU

Notes:

1. P = Power Cutout
2. S = Signal Cutout

Figure A-3. L5510 Leveling Pad Locations

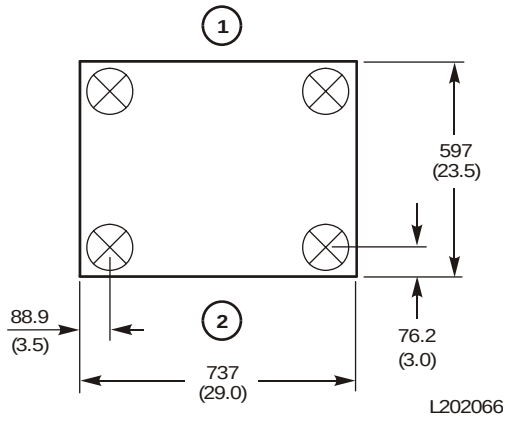


1. Leveling Pad Detail
2. LCU

Notes:

1. Unless otherwise noted dimensions are in millimeters (inches).
2. Scale: none
3. 18 leveler pad locations

Figure A-4. L5530 Leveling Pad Locations

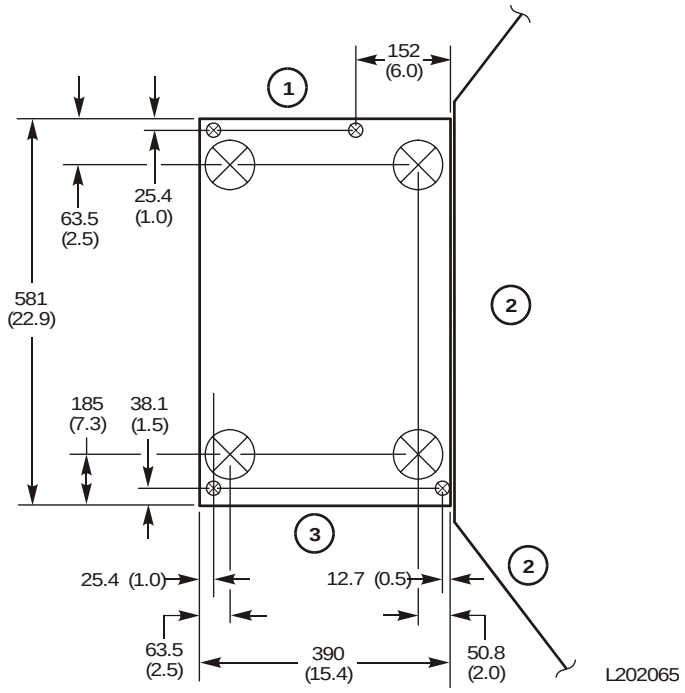


1. Rear
2. Front

Notes:

1. Dimensions in millimeters (inches)
2. Scale: none
3. Unit ships and operates on casters with wheel chocks.

Figure A-5. LCU Leveling Pad Locations



1. Rear
2. LSM Side
3. Front

Notes:

1. Dimensions in millimeters (inches)
2. Scale: none
3. Unit ships on casters, operates on levelers

L5500 Specifications

The following tables list the specifications for the L5500 tape library.

Table A-1. L5500 Physical Specifications

Library Management Unit (L5530) (Width is with side panels on; depth is with front and rear panels on.)	Height	930 mm (36.6 in.)
	Width	743 mm (29.3 in.)
	Depth	597 mm (23.5 in.)
	Service clearance	
	Front	813 mm (32.0 in.)
	Rear	813 mm (32.0 in.)
	Weight	97.5 kg (215 lb)
Library Control Unit (L5511) (Width is with side panels on; depth is with front and rear panels on.)	Height	1.61 m (63.5 in.)
	Width	390 mm (15.4 in.)
	Depth	581 mm (22.9 in.)
	Service clearance	
	Front	390 mm (15.4 in.)
	Rear	NA
	Weight	136 kg (300 lb)
Tape Library (L5510)	Height	2.35 m (92.5 in.)
	Diameter	3.25 m (128.0 in.)
	Service clearance	
	To open door	860 mm (34 in.)
	Weight	3,810 kg (8,400 lb) (loaded)
		2,449 kg (5,400 lb) (unloaded)
Raised Floor Loading: 244-293 kg/sq m (50-60 lb/sq ft)		

Table A-2. L5500 Electrical Specifications

Library Storage Module/ Library Control Unit (L5510/L5511) (Voltages are selectable using jumpers.) (Current is branch circuit rating. Average line current is 8.4 A at 180 VAC, 200 VAC nominal.)	Volts (AC)	200 +10%, -10% 208 +10%, -15% 220 +10%, -15% 230 +10%, -10% 240 +10%, -15%	
	Frequency	47 to 63 Hz	
	Phases	Single	
	Current	12 A RMS	
	Power consumption (operating)	1.1 kW	
Library Management Unit (L5530)	Volts (AC)	200–250, nominal	
	Frequency	47 to 63 Hz	
	Phases	Single	
	Current	0.75 A RMS	
	Power consumption (operating)	126 W	
Power Connectors (Customer supplies the female connector.)	LMU (L5510) LCU (L5511) LSM (L5530)	US/Canada: Russell Stoll 3720 (male) 3743 (box receptacle) (inline connector)	3913

Table A-3. L5500 Environmental Specifications

Temperature	
Operating	16ºC to 32ºC (60ºF to 90ºF)
Storage	4.4ºC to 32ºC (40ºF to 90ºF)
Shipping	-30ºC to 49ºC (-22ºF to 120ºF)
Relative Humidity	
Operating	20% to 80%
Storage	10% to 90%
Shipping	5% to 95% noncondensing
Temperature Change	
Operating	< 5ºC/hr (< 9ºF/hr)
Storage	<15ºC/hr (<27ºF/hr)
Shipping	<15ºC/hr (<27ºF/hr)
Heat Output	
LMU (L5530)	32 kcal/hr (128 Btu/hr)
LCU/LSM (L5511/L5510)	945 kcal/hr (3,750 Btu/hr)

9741E Specifications

The following tables list 9741E specifications.

Table A-4. 9741E Physical Specifications

Height	1.83 m (72.0 in.)
Width	749 mm (29.5 in.)
Depth	584 mm (23 in.)
Weight	186 kg (409 lb)

Table A-5. 9741E Environmental Specifications

Temperature	
Operating	16ºC to 32ºC (60ºF to 90ºF)
Storage	4.4ºC to 32ºC (40ºF to 90ºF)
Shipping	-30ºC to 49ºC (-22ºF to 120ºF)
Relative Humidity	
Operating	20% to 80%
Storage	10% to 90%
Shipping	5% to 95% noncondensing
Temperature Change	
Operating	< 5ºC/hr (< 9ºF/hr)
Storage	<15ºC/hr (<27ºF/hr)
Shipping	<15ºC/hr (<27ºF/hr)
Heat Output	8047 Btu/hr maximum

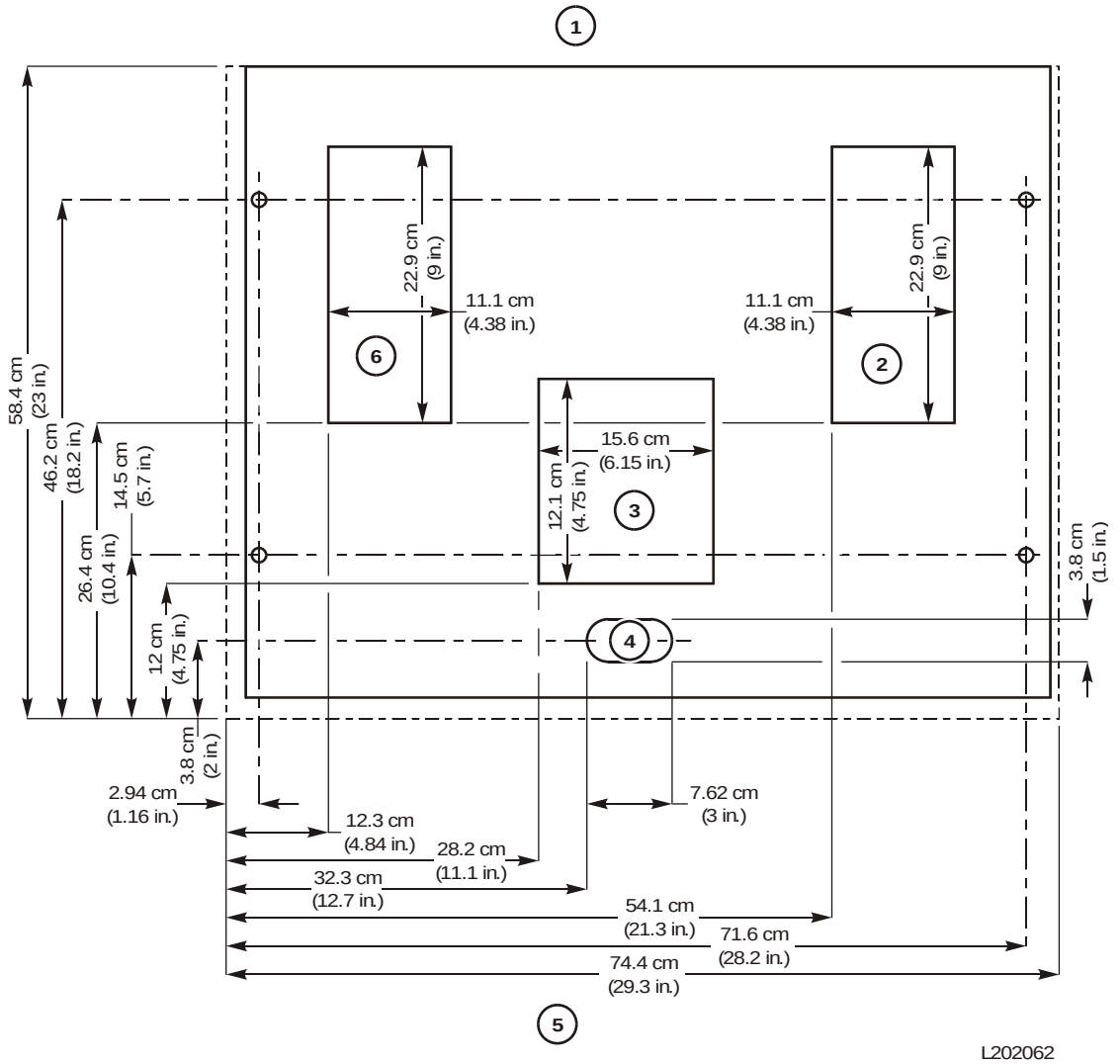
Table A-6. 9741E Power Configuration

Volts (AC)	176-264 VAC
Frequency	47 to 63 Hz
Phases	Single
Amp Service	20 Amps/per unit

Table A-7. 9741E Hardware Power Consumption

Device	Power Consumption
T9840 Drives	70 W (per drive)
T9940 Drives	85 W (per drive)
Seagate LTO Drives	25 W (per drive)
IBM LTO Drives	41 W (per drive)
Drive Cabinet Fans	105 W (two per cabinet)
Fibre Channel Hub 1000	25 W (per hub/8 maximum)
Fibre Channel Switch 4108	110 W (per switch/4 maximum
Fibre Channel Switch 4116	155 W (per switch/2 maximum
Ethernet Hub (8 Port)	12 W
Ethernet Hub (16 Port)	25 W

Figure A-6. 9741E Drive Cabinet Floor Cutouts



1. LSM side
2. Cutout
3. Cutout
4. Cutout
5. Top View
6. Cutout

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