StorageTek TIMBERWOLF™ 9740
Tape Library

System Assurance Guide

MT5001
Revision: U

TimberWolf 9740 Tape Library

System Assurance Guide

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Please include the publication name, part number, and edition number in your correspondence if they are available. This will expedite our response.

Summary of Changes

Date	Revision	Description
April 1997	First	Initial Release
1997 through July 2002	Second through Fourteenth	Refer to those revisions for descriptions of the changes.
September 2005	Fifteenth	Refer to that revision for descriptions of the changes.
August 2006	R	Refer to that revision for descriptions of the changes.
September 2006	S	Refer to that revision for descriptions of the changes.
September 2006	T	Refer to that revision for descriptions of the changes.
September 2006	U	Removed more references to 9740-05C and 9740-03C.

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Preface

This guide contains information about planning, ordering, installing, and follow-up activities that are required during StorageTek TimberWolf 9740 Library Storage Module sales, delivery, and installation.

The audience for this guide includes marketing representatives, technical support specialists (TSSs), software support representatives (SSRs), customer services engineers (CSEs), install coordinator (IC), independent consultants, service representatives, and customers involved with installation planning.

How to Use This Guide

This guide provides a series of work sheets and checklists that, when completed properly, ensure that no aspect of the installation process has been overlooked. This promotes error-free installation and customer satisfaction. Use only those checklists that apply to your system. However, you *must* complete certain work sheets (noted below) for the product to be shipped. See Chapter 4 for more information.

- Library Configuration Work Sheet
- Product Checklist

Note: If these work sheets are not completed and sent to Orders Management, the *product will not be shipped*. Chapter 4, "Ordering the Equipment," provides flow charts and instructions for faxing and submitting work sheets.

Organization

The sections of this book contain the following information:

Chapter 1	"The System Assurance Process" provides detailed information useful for understanding the System Assurance process.
Chapter 2	"Key Personnel" provides a work sheet that is helpful for recording names and phone numbers of the key personnel on the system assurance teams.
Chapter 3	"Product Overview" presents an overview of the library, tape drives, and interfaces.
Chapter 4	"Ordering the Equipment" contains work sheets to complete for ordering the TimberWolf 9740 Library Storage Module and accessories.
Chapter 5	"Pre-installation Checklist" provides checklists to use before installation to ensure there are no unresolved issues before installation.
Appendix A	"9740/9741 Specifications" provides product specifications.
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.

Conventions

Typographical conventions highlight special words, phrases, and actions used 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.sun.com	Blue (prints black in hardcopy publications)

Related Publications

The following list contains the names and part numbers of related publications that provide additional information about the data interfaces for the cartridge subsystems.

9740 Publications	**Part Number**
9740 Automated Cartridge System Operator's Guide	95693
9740 Library Storage Module Installation Manual	95694
Tape Drive Publications	
T9x40 Planning and Migration Guide	MT6004
T9x40 System Assurance Guide	MT5003
T9x40 Tape Drive Installation Manual	95879
SD-3 System Assurance Guide	ML0527
9490 System Assurance Guide	ML0040
18 to 36-Track Cartridge Subsystem Planning/Migration Guide	ML0800
Quantum™ DLT Publications	
DLT4000 Cartridge Subsystem Product Manual	CD shipped with drive
DLT7000 Tape Drive Product Manual	CD shipped with drive
DLT8000 Tape Drive Product Manual	CD shipped with drive)

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 external Web site is: http://www.sun.com

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

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, 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

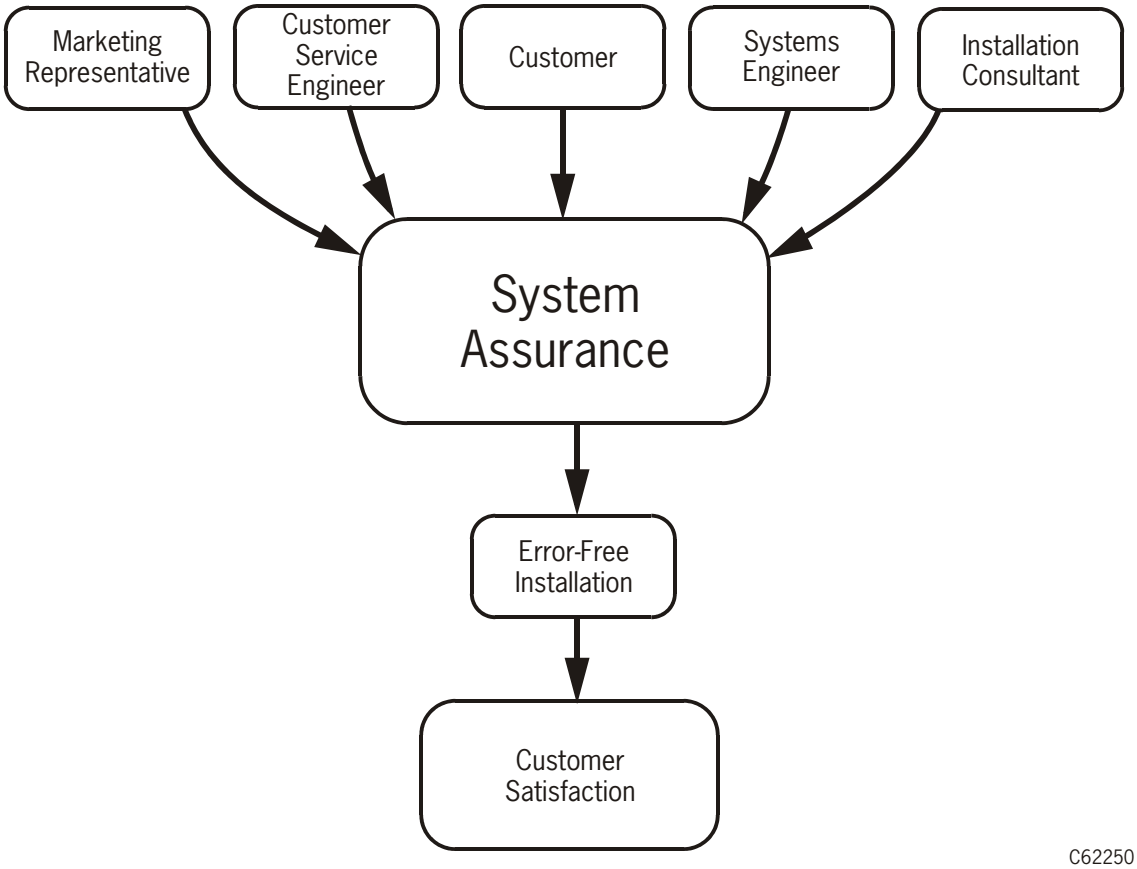
The URL for partners with a Sun Partner Agreement is:
http://www.sun.com/partners/

The System Assurance Process

1

Figure 1-1 outlines 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 ensure that no aspects of the sale, ordering, and installation are overlooked. This promotes an error-free installation and contributes to customer satisfaction.

Figure 1-1. The System Assurance Process



System Assurance Team Responsibilities

Table 1-1 lists the responsibilities of the system assurance team members. The team ensures that all aspects of the process are planned carefully and carried out efficiently. Customer and Sun Microsystems team members jointly own and control the process.

Table 1-1. Team Member Responsibilities

Team Member	Responsibilities

Installation Coordinator (IC) (United States)
 	
Customer Services Manager (CSM) (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 between team members.
	• Supplies or obtains all necessary support documentation.
	• Works with the customer to complete the following work sheets:
	  • Key personnel (Chapter 2)
	  • Hardware configuration (Chapter 4)
	  • Receiving dock information (Chapter 5)
	  • Inside delivery information (Chapter 5)
	  • Access and administrative issues (Chapter 5)
	• Faxes all of the required and completed work sheets (except the sales entry form) to the appropriate orders offices (Chapter 4).
	• Works with the customer services engineer (CSE) and the customer to provide delivery information as listed in "solutions delivery engineer" responsibilities in this table.

Marketing Representative (United States)	• Leads the system assurance team in some cases. • Is responsible for the customer account. • Faxes the sales entry form to the Shared Services Center. • Follows up with the customer to ensure customer satisfaction.
Customer Services Engineer (CSE)	• Prepares customer service support procedures. • Explains available levels of hardware support and criteria for problem escalation. • Installs the product at the customer site.

Table 1-1. Team Member Responsibilities (Continued)

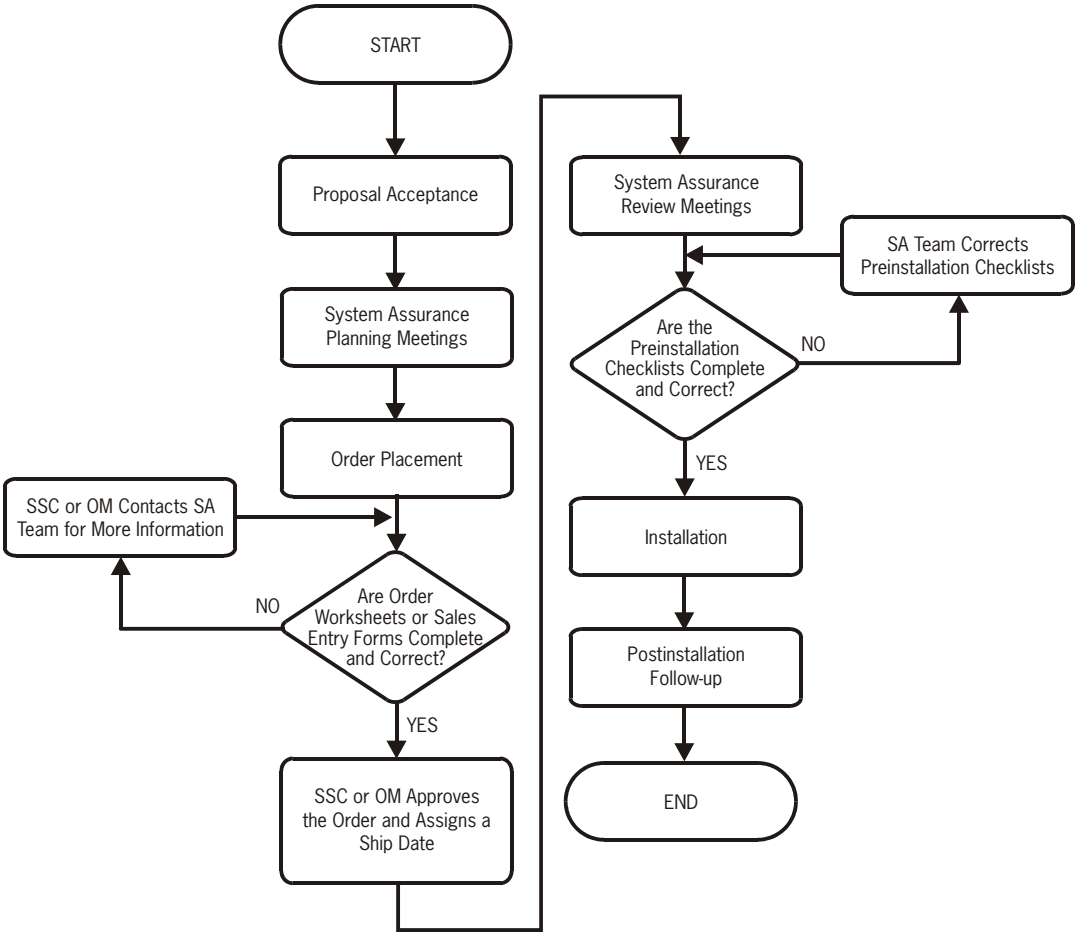
Team Member	Responsibilities
Customer	• Works with the IC at the system assurance planning meetings to provide the data for the work sheets listed for the IC. • Works with the systems engineer (SE) at the system assurance planning meetings to provide the data for the work sheet listed for the SE. • Names a contact person for any unresolved issues in the work sheets. • Discusses the schedule and names a contact person for all scheduling matters.
Technical Support Specialist (TSS)	• Explains available levels of software support and criteria for problem escalation. • Works with the customer to complete the Software Configuration work sheet (Chapter 4). • Provides data migration information

The System Assurance Flowchart

Figure 1-2 shows the system assurance process flow. The text that follows this 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 product proposal. At this time the installation consultant (in the United States) or the customer service manager (internationally) schedules one or more system assurance planning meetings.

System Assurance Planning Meetings

The purpose of the system assurance planning meetings is to:

- Explain system assurance as it applies to the 9740 Library
- 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 (Chapter 4)
- 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).

See Chapter 4 for which options and fax numbers to use.

Sales Entry Form or Order work Sheet 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.

System Assurance Review Meetings

The purpose of the system assurance review meetings is to:

- Complete the pre-installation checklists (Chapter 5)
- Identify additional requirements

Pre-installation Checklist Error Check

If the pre-installation checklists are complete and correct, the sale is approved and the product is shipped; if not, the system assurance team completes or corrects them.

Installation

The customer service engineer (CSE) installs the 9740 Library Storage Module at the customer's site.

Post-installation Follow-up

These actions follow the installation:

- The Error-Free Delivery Team tracks any exceptions to the original shipment.
- The system assurance team leader completes the reader's comment form at the back of this guide. See "Organization" on page xii for the fax number and address, or submit any comments online at:

  http://sts.stortek.com/
- 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.

Schedule Planning

When schedule planning is completed, attach a copy of the proposed schedule to this guide, and have the system assurance team members sign below.

_____

Sun Microsystems Representative (date)

_____

Customer Representative (date)

Key Personnel

2

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

Customer Team

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

CPU Hardware Contact

_____

Telephone: Office_____ Home_____

Operating Systems Software Contact

_____

Telephone: Office_____ Home_____

Communication Hardware Contact

_____

Telephone: Office_____ Home_____

Operations Contact

_____

Telephone: Office_____ Home_____

Delivery Contact

_____

Telephone: Office_____ Home_____

Sun Microsystems Team

List names and telephone numbers of the following team personnel:

Marketing Representative

_____

Telephone: Office_____ Home_____

Customer Services Engineer (CSE)

_____

Telephone: Office_____ Home_____

CSE room on site_____

Technical Support Specialist (TSS)

_____

Telephone: Office_____ Home_____

TSS (Client Operating System)

_____

Telephone: Office_____ Home_____

TSS (Library Control System)

_____

Telephone: Office_____ Home_____

Delivery Contact

_____

Telephone: Office_____ Home_____

Sun Microsystems Support

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

Call Center (Hardware)	
U.S. (outside Colorado) customers	1.800.525.0369
U.S. (Colorado), international	1.303.673.4056
U.S. (outside Colorado) CSEs	1.800.735.2778
Software Support	
U.S. (outside Colorado)	1.800.678.4430
U.S. (Colorado), international	1.303.673.4430

Client Processor Teams

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

CPU Vendor Hardware Contacts

_____

Telephone: Office_____ Home_____

_____

Telephone: Office_____ Home_____

_____

Telephone: Office_____ Home_____

CPU Vendor Software Contacts

_____

Telephone: Office_____ Home_____

_____

Telephone: Office_____ Home_____

_____

Telephone: Office_____ Home_____

Product Overview

3

This chapter describes the 9740 Library Storage Module (LSM) and the different types of tape drive attachments, interfaces, and cartridge tapes.

Figure 3-1 shows a 9740 LSM with an expansion door and an 9741/9741E drive cabinet.

Figure 3-1. 9740 LSM with 9741/9741E Drive Cabinet

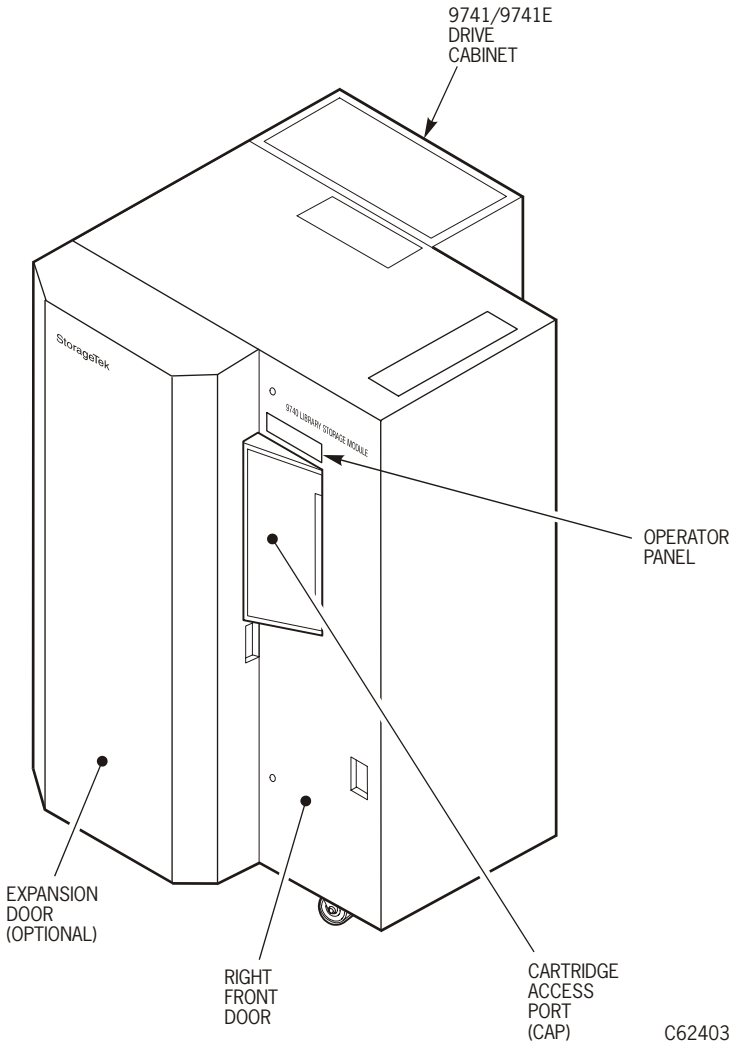
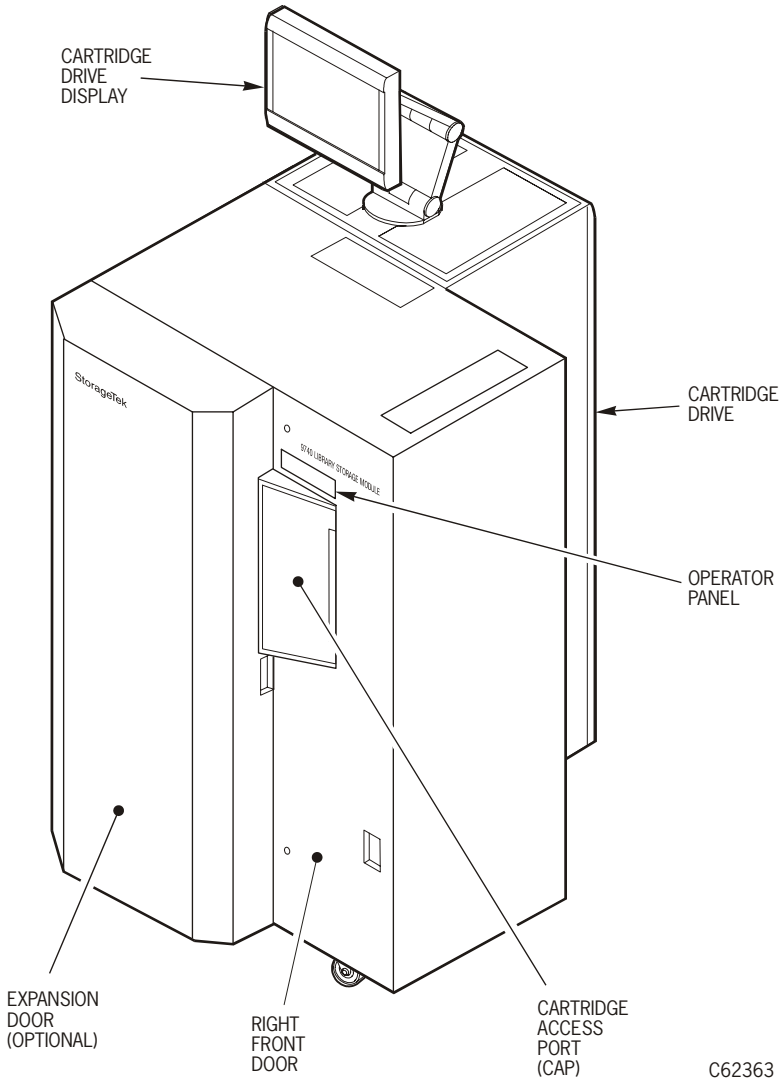


Figure 3-2 shows a 9740 LSM with attached SD-3 frame and overhead display for TimberLine 9490 and/or RedWood SD-3 transports.

Figure 3-2. 9740 LSM with Attached SD-3 Frame



9740 Library Storage Module

The 9740 LSM (shown in Figure 3-1 on page 3-1 and Figure 3-2 on page 3-2) is a fully automated cartridge storage and retrieval system. You can attach T9840, T9940, or DLT drives, or a combination of two of the three drive types, using a 9741 or 9741E drive cabinet.

Note: The T9840A, T9840B, and T9840C drives count as one drive type. T9940A and T9940B drives also count as one drive type.

You can also attach a TimberLine 9490-M32 or M34; RedWood SD-3 H31, H32, H33, or H34, or a combination of both using the SD-3 frame.

Note: Transports are not shipped as part of the 9740 library. They must be ordered separately. See Chapter 4, "Ordering the Equipment."

The LSM stores up to 326 cartridges (limited capacity)or up to 494 cartridges (full capacity). Both versions have special storage cells for storing diagnostic and cleaning cartridges.

The Cartridge Exchange Mechanism (CEM) enables you to attach up to six 9740 LSMs, and up to 60 DLT or T9x40 drives, for a maximum capacity of 2,964 cartridges.

The 9740 LSM operates with both Sun Microsystems and third party software for tape management and connectivity.

The customer may incorporate one or more of the following "selectable" features. A "Request for Price Quotation" (RPQ) must be submitted for special configurations not outlined in this document.

Standard Features

- 326 cartridges or 494 cartridges per LSM configurations
- Media types include T9840, T9940, DLT, 9490, 9490E, 9490EE, and SD-3

  Note: The 9840A, T9840B, and T9840C drives use the same media type. T9940A and T9940B drives use the same media type.

- Cartridge access port (CAP) comes in two versions:
  - 14-cell fixed array
  - 10-cell removable magazine for storing and loading cartridges

    Note: DLT tape cartridges do not fit in the 10-cartridge magazines.

- Auto-calibration
- Cartridge audit in less than two minutes
- Automatic drive cleaning capability
- Advanced rotational robotics
- Adaptable to future tape technologies

Note: The T9940 drive cannot be installed in a 9740 LSM if the library uses a SCSI control path.

Optional Features

- Cartridge exchange mechanism to connect up to six LSMs

Components

- Robot for moving cartridges between cells and drives
- Hand/camera for selecting the cartridge tapes
- Electronics module (EM) for control of all motion and vision systems
- Interface adapters
- Front door (standard, window, or expansion)
- Operator panel
- Arrays or storage cells for holding cartridge tapes
- Cartridge drive (CD), or drive cabinet, attached to the rear of the LSM consisting of one of the following:
  - One to ten T9x40 and/or DLT tape drives
  - One to four TimberLine 9490 and/or RedWood SD-3 transports

Note: The T9940 drive cannot be installed in a 9740 LSM if the library uses a SCSI control path.

Cartridge Exchange Mechanism (CEM)

Note: The CEM does not support a SCSI control path, but uses a serial host control path using ACSLS and/or HSC. Drives and/or transports attached to the 9740 are available with SCSI, Fibre Channel or ESCON data paths (Figure 4-2 on page 4-6 and Figure 4-3 on page 4-8).

The CEM enables a mount request to be accomplished even though all cartridge transport units (CTUs) or drives in the source LSM are busy.

The CEM is entirely gravity driven; motors or electronics are not required. "PUT" and "GET" cells in adjacent LSMs are connected with the CEM components.

There is a capacity loss of four slots with each CEM.

Installing the CEM requires joining the frames of adjacent LSMs; you can connect up to six LSMs. To enable this, the data center floor must be flat and level per the requirements in Table A-6 on page A-8. LSMs are joined with hardware included with the CEM and leveled with chocks included with the 9740. Use laser floor leveling.

ACSLS/NCS/HSC

The currently supported levels of ACSLS, NSC, and HSC can be found in the Customer Resource Center at:

http://www.support.storagetek.com

Note: Refer to the *T9x40 System Assurance Guide* for the minimum software levels required to operate T9840 and T9940 drives.

CEM/3270 Host Interface (PRI Card)

The PRI card is a serial or 3270 host interface that enables communication among two to six LSMs, and provides the serial control path interface to the host. The PRI card is required in LSMs that are configured with Cartridge Exchange Mechanisms (CEMs).

9741/9741E Drive Cabinet

Each 9740 LSM that uses T9840, T9940, or DLT drives must have a standard or expanded 9741 Drive Cabinet or a 9741E Drive Cabinet attached to it. The 9741/9741E Drive Cabinet houses up to ten drives; however only two of the three drive types are allowed in the same cabinet.

Table 3-1. Drive Connectivity

	SCSI	Fibre Channel	ESCON	FICON
T9840A	X	X	X	
T9840B	X	X	X	X
T9840C		X	X	X
T9940A	X	X	X	
T9940B		X	X	X
DLT	X			

If the customer is using T9940 drives, Feature 99DR or CB 62353 must be ordered for the standard model (9741001) drive cabinet. The 99DR feature provides additional cabinet space to accommodate the longer T9940 drive.

The 9741E Drive Cabinet does not require additional features to accommodate T9940 drives.

9741 Standard Features

- Standard 9741 Drive Cabinet (Model 9741001) or expanded 9741 Drive Cabinet
- 100 to 120 VAC Power Cords, US/Canada
- 200 to 240 VAC Power Cords, International
- Fibre Channel Switch attachable

  Note: Only 9741 Drive Cabinets with serial number 4356 or higher are Fibre Channel Hub and Fibre Channel Switch attachable.

9741E Standard Features

- Standard 9741E Drive Cabinet
- 100 to 120 VAC Power Cords, US/Canada
- 200 to 240 VAC Power Cords, International
- Fibre Channel Switch attachable
- TCP/IP Maintenance Switch attachable

Drive Capacities

Table 3-2 describes all possible drive configurations available for the 9740 LSM.

Table 3-2. Drive Capacities

Drive Attributes	T9840	T9940A	T9940B	DLT		TimberLine (9490)	
		See Notes		7000E	8000	M32	M34
Number of Drives to Connect	1 to 10	1 to 10	1 to 10	1 to 10	1 to 10	2	4
Cartridge Capacity	**T9840A/B** 20 GB **T9840C** 40 GB	60GB	200 GB	35 GB	40 GB	Up to 1.6 GB [5]	
Transfer Speed in MB/sec [6]	**T9840A** 10 **T9840B** 19 **T9840C** 30	10	30	5.2	7.4	6	
Capacity (TB) per 9740 LSM (494 cart.) [6]	9.88	29.6	98.8	17.3	19.8	0.79	
Capacity (TB) per 9740 ACS [7]	59.3	177	592	103	118	4.74	

Notes:

1. The T9x40 drives do not support Term Power. It must be supplied from the Host Bus Adapter Card.
2. The minimum 9740 SCSI control path firmware required to operate T9840 drives properly is 1.9.52. Refer to EC 113465, FB 61937.
3. The minimum 9740 serial control path firmware required to operate T9940 drives properly is 1.0.03.
4. The expansion frame feature for the 9741 Drive Cabinet is required for the T9940 drive.
5. TimberLine cartridges have a capacity of 200 MB, 400 MB, 800 MB or 1.6 GB.
6. Capacity/transfer speed is uncompressed.
7. Six 9740 LSMs, with 2964 cartridges, uncompressed.

The 9741/9741E Drive Cabinet can hold from one to 10 Digital Linear Tape (DLT) drives. Each DLT drive consists of a integrated controller and tape drive that does not affect operations of other DLT drives in the frame.

The DLT drive is a 5-1/4-in. form-factor, half-inch, magnetic cartridge tape drive that uses data streaming as well as data compression and compaction. See "Related Publications" on page xiv for a list of DLT publications that contain a full listing of specifications for DLT drives.

TimberWolf ACS Configurations

The following sections describe and illustrate the three basic configurations that are available for the TimberWolf automated cartridge system (ACS).

Client/Server Environment, One TimberWolf LSM

In the client/server environment with one LSM, ACSLS can run on a SCSI or RS423 path. With the 9741/9741E Drive Cabinet, you can select one to 10 DLTs with a SCSI data path only; one to ten T9840 or T9940 drives with SCSI or Fibre Channel data paths; or a combination of one to 10 DLT and/or T9840 and/or T9940 drives with the appropriate data interfaces. However, only two of the three drive types can be mixed in a 9741/9741E Drive Cabinet. The 9741 Drive Cabinet expansion frame feature (99DR) is required for T9940 drives; the 9741E does not require this feature for T9940 drives. See Figure 4-1 on page 4-4.

Note: The T9840A, T9840B, and T9840C tape drives count as one drive type because they use the same media. T9940A and T9940B tape drives also count as one drive type.

Client/Server Environment, Two to Six TimberWolf LSMs

In the client/server environment, the ACS can have two to six TimberWolf 9740 LSMs connected in a linear path by CEM(s). The control path is a serial link, while the data paths may be SCSI and/or Fibre Channel, depending upon the drive configurations (see "Client/Server Environment, One TimberWolf LSM"). The 9741/9741E drive attachment choices are the same as the single LSM environment for each LSM in the linear path.

As an example, up to sixty T9840 drives can be attached within a single ACS made up of six TimberWolf 9740 LSMs, connected by five CEMs. All T9840 drives in this environment support SCSI and/or Fibre Channel data paths. Customers with the single LSM configuration can upgrade to this multiple LSM configuration. See Figure 4-2 on page 4-6.

Enterprise Environment, One to Six TimberWolf LSMs

In an enterprise mainframe environment, the ACS can have one to six TimberWolf 9740 LSMs connected in a linear path by CEM(s). The data path is ESCON or FICON, while the control path is 3270. Up to four 3270 links per LSM are allowed, but no more than 16 host links can be connected for each ACS.

The drive attachment choices per LSM include:

- One to ten T9x40 drives in any combination using the 9741/9741E Drive Cabinet (expansion frame Feature 99DR or CB 62353 required for 9741 with T9940 drives)
- Two or four TimberLine 9490 transports using the 9490-M32 or 9490-M34 cartridge drive (transports included)
- One to four RedWood SD-3 transports using the SD-3-H31, -H32, -H33, or -H34 cartridge drive (transports included)
- TimberLine 9490 transports in combination with RedWood SD-3 transports using the SD-3-M11, -M12, -M13, -M21, -M22, or -M31 cartridge drive (transports included)

See Figure 4-3 on page 4-8 for more information.

CEM Wall Configuration

Figure 3-3 on page 3-11 shows that the panels are numbered clockwise starting with Panel 0, which is next to the leftmost column in the diagram. The CAP occupies cells in Panel 2. Panel configurations are:

- Type 41 is a storage panel
- Type 45 is a storage panel with a CAP
- Type 46 is a drive panel (18 cells on the bottom)
- Type 47 is a storage panel with a slave CEM
- Type 48 contains a master CEM, a CAP, and 136 cells. With no CAP it can contain 164 cells.

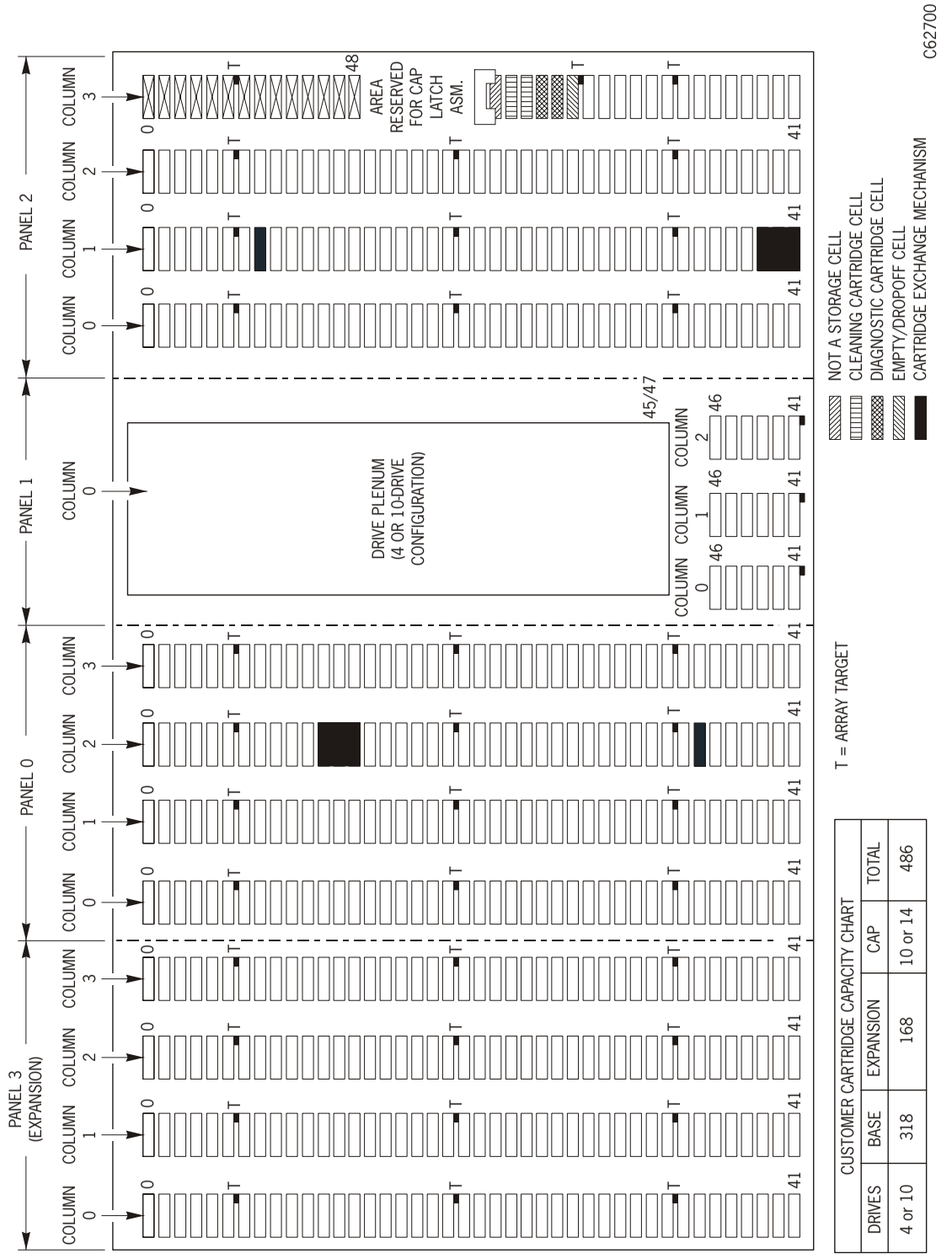
Only LSM0 and LSM1 can hold a CAP. With both CAPs installed, there is a maximum of 136 cells in Panel 2 of both LSM0 and LSM1.

Note: LSM0 is the leftmost LSM in an ACS with two or more LSMs; LSM1 is the LSM next to (on the right of) LSM0.

Slot Counts for Two to Six LSMs with CEMs

The information in Figure 3-3 on page 3-11 and Table 3-3 on page 3-12 gives details about the slot counts in an ACS that contains between two and six LSMs, connected by two to five CEMs.

Figure 3-3. CEM Wall Configuration



CUSTOMER CARTRIDGE CAPACITY CHART				
DRIVES	BASE	EXPANSION	CAP	TOTAL
4 or 10	318	168	10 or 14	486

Table 3-3. CEM Wall Configuration Slot Counts

LSM	Panel	Type	Number of Cells without CAP	Number of Cells with CAP	Cumulative Total Number of Cells without CAP	Cumulative Total Number of Cells with CAP
0	0	41	168	N/A	168	168
	1	46	18	N/A	186	186
	2	48	164	136	350	322
	3	41	168	N/A	518	490
1	0	47	164	N/A	682	654
	1	46	18	N/A	700	672
	2	48	164	136	864	808
	3	41	168	N/A	1032	976
2	0	47	164	N/A	1196	1140
	1	46	18	N/A	1214	1158
	2	45	140	N/A	1354	1298
	3	41	168	N/A	1522	1466
3	0	47	164	N/A	1686	1630
	1	46	18	N/A	1704	1648
	2	45	140	N/A	1844	1788
	3	41	168	N/A	2012	1956
4	0	47	164	N/A	2176	2120
	1	46	18	N/A	2194	2138
	2	45	140	N/A	2334	2278
	3	41	168	N/A	2502	2446
5	0	47	164	N/A	2666	2610
	1	46	18	N/A	2684	2628
	2	45	140	N/A	2824	2768
	3	41	168	N/A	2992	2936

Ordering the Equipment

4

This chapter contains work sheets to fill out for ordering the TimberWolf 9740 Library. You must complete these work sheets and send them to Shared Services or Orders Management or the *product will not be shipped.*

The Ordering Process

To order a TimberWolf 9740 Library:

1. Make photocopies of the blank work sheets provided in this guide.
2. Obtain other required work sheets not provided in this guide.
3. Review the customer's existing hardware and software.
4. Select the correct equipment and configuration for the customer's needs.
5. Enter the information on the work sheets.
6. Review the items with the customer.
7. Transfer the appropriate information from the order work sheets to a sales entry form.
8. Fax the order work sheets or sales entry form to the appropriate orders department.

Fax Numbers and Addresses

The orders department, the fax number, and the documents to fax depend on the customer. The department addresses and voice phone numbers are for your information.

United States customers, value-added distributors (VADs), and value-added resellers (VARs) must do the following;

1. Transfer the information from the work sheet to a sales entry form.

   You are encouraged to use the Siebel software tool to identify a valid configuration, generate an accurate quote, and produce an error-free sales entry form.

2. Fax the following forms:

   - Sales entry form
   - Library configuration work sheet
   - Product checklist
   - Site survey

   to one of the fax numbers listed below:
   Fax: 1.678.969.4015, 4016, or 4017

Non-US original equipment manufacturers (OEMs), distributors, and subsidiaries in Canada, Japan, Australia, South Asia, and Mexico must fax the following forms:

- Hardware order work sheet
- Cables order work sheet
- Cartridge tapes and labels order work sheet
- Site survey

to one of the fax numbers listed below:

Fax: 1.303.673.2640 for distributors or subsidiaries
Fax: 1.303.673.7654 for OEM

Customers, VADs, VARs, OEMs, distributors, and subsidiaries in Europe, fax the European Sales Order Form (ESOF) from the Account Management application, along with any input following the site survey, to compare with the Systems, Applications, and Products (SAP) order to:

StorageTek European Trade Corp. (SETC)
Fax: 31.347.323.750

Ir. D. S. Tuynmanweg 6
Vianen, The Netherlands 4131 PN
Voice: 31.347.323.752

TimberWolf ACS Configurations

Three basic configurations of TimberWolf ACS are available:

- Configuration 1: Client/Server Environment, One TimberWolf LSM
- Configuration 2: Client/Server Environment, Two to Six TimberWolf LSMs
- Configuration 3: Enterprise Mainframe Environment, One to Six TimberWolf LSMs

One to ten T9840, T9940, and DLT drives can be attached to the 9740 using a 9741E drive cabinet. However, only two of the three drive types can be mixed in a drive cabinet.

Note: The T9840A, T9840B, and T9840C tape drives count as one drive type because they use the same media. T9940A and T9940B tape drives also count as one drive type.

A Timberline 9490 or RedWood SD-3 cartridge drive with one to four transports can also be attached to the 9740:

- Two or four TimberLine 9490 transports using the 9490-M32 or 9490-M34 cartridge drive (transports included)
- One to four RedWood SD-3 transports using the SD-3-H31, -H32, -H33, or -H34 cartridge drive (transports included)
- TimberLine 9490 transports in combination with RedWood SD-3 transports using the SD-3-M11, -M12, -M13, -M21, -M22, -M31 cartridge drive (transports included)

Library Capacity

Two basic capacity configurations are available:

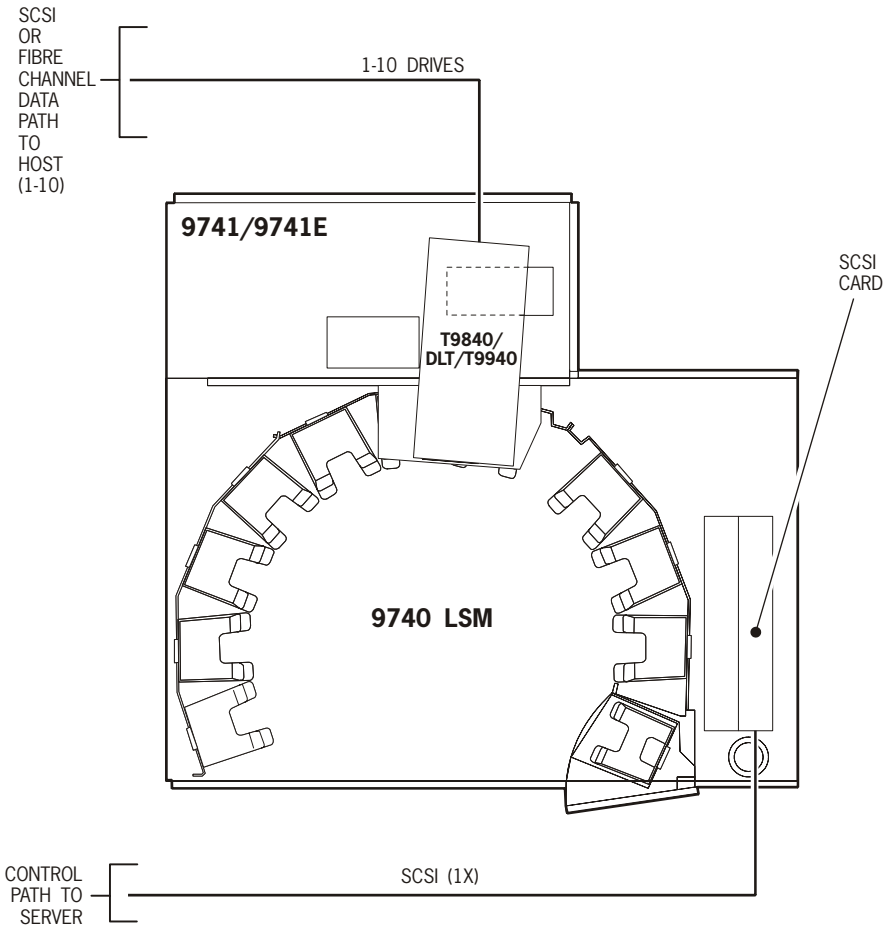
- One containing 326 customer cartridge locations
- One with the addition of an expansion door containing 494 cartridges.

A 14-cell fixed cartridge access port is also included.

Configuration 1: Client/Server Environment, One TimberWolf LSM

In a client/server environment with one LSM (Figure 4-1), ACSLS can run on a SCSI or RS423 path. Using the 9741E Drive Cabinet, you can select one to ten DLTs with a SCSI data path only; one to ten T9x40 drives with SCSI or Fibre Channel data paths; or a combination of one to ten DLT and/or T9x40 drives with the appropriate data interfaces.

Figure 4-1. Client/Server Environment ACS: One LSM



CLIENT SERVER ENVIRONMENT

TimberWolf Automated Cartridge System (ACS) with one 9740 LSM and 9741/9741E Cabinet with T9940/T9840/DLT Drives

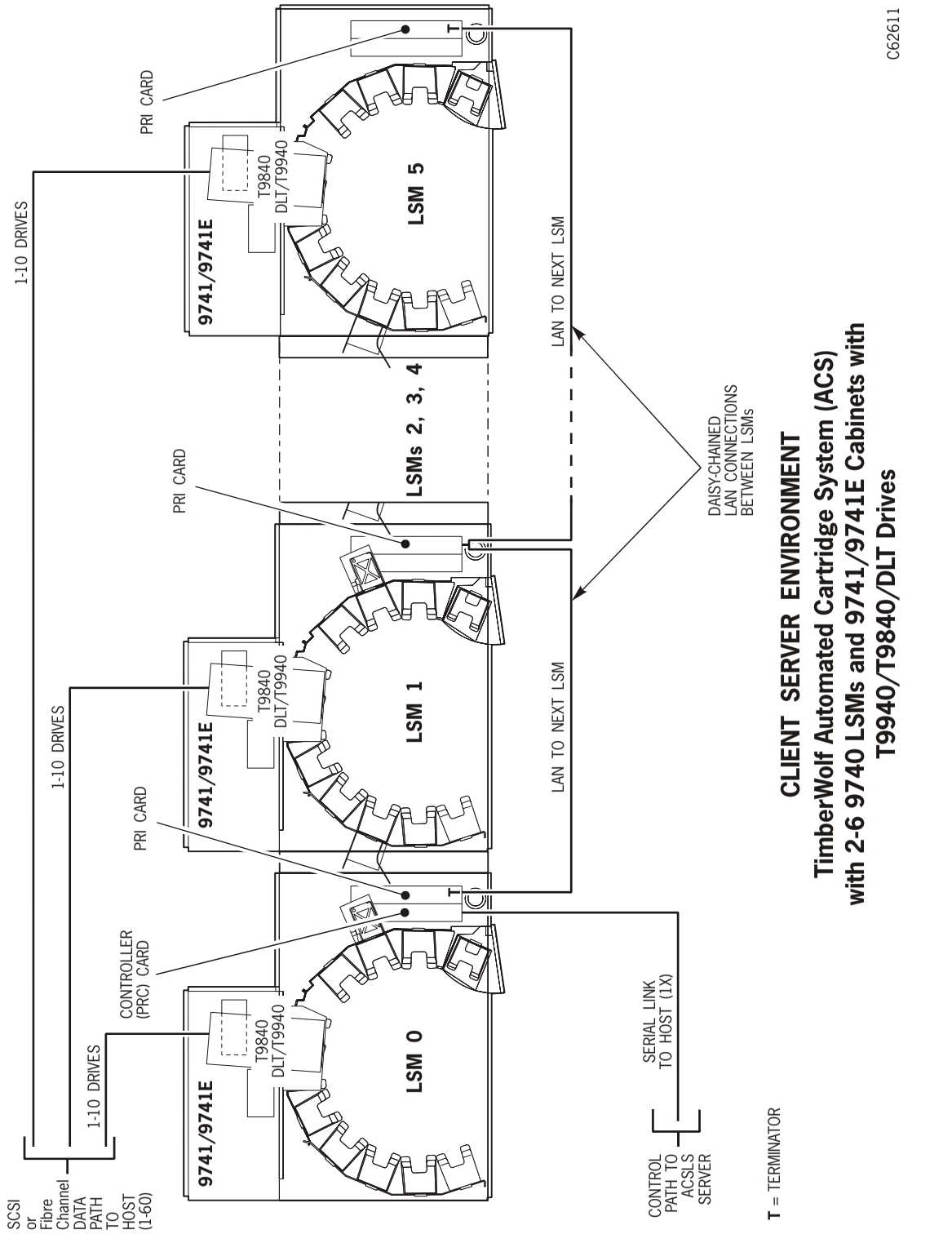
C62617

Configuration 2: Client/Server Environment, Two to Six TimberWolf LSMs

In a client/server environment, the ACS can have two to six TimberWolf 9740 LSMs in a linear path connected by CEM(s) (Figure 4-2 on page 4-6). The control path is a serial link, while the data paths may be SCSI (single-port) and/or Fibre Channel, depending upon the drive configurations. The drive choices are the same as the single LSM environment for each LSM in the linear path. The most current version of ACSLS is required for host control.

As an example, up to sixty T9840 drives can be attached within a single ACS made up of six TimberWolf 9740 LSMs, connected by five CEMs. The T9840 drives in this configuration support SCSI or Fibre Channel data paths. Customers with the single LSM configuration can upgrade to this multiple LSM configuration.

Figure 4-2. Client/Server Environment ACS: Multiple LSMs



Configuration 3: Enterprise Mainframe Environment, One to Six TimberWolf LSMs

In an enterprise mainframe environment, the ACS can have one to six TimberWolf 9740 LSMs connected in a linear path connected by CEM(s) (Figure 4-3 on page 4-8). The data path for the drives is ESCON (dual-port) or FICON and the control path for the library is 3270. Up to four 3270 links per LSM are allowed, but no more than 16 host links can be connected for each ACS.

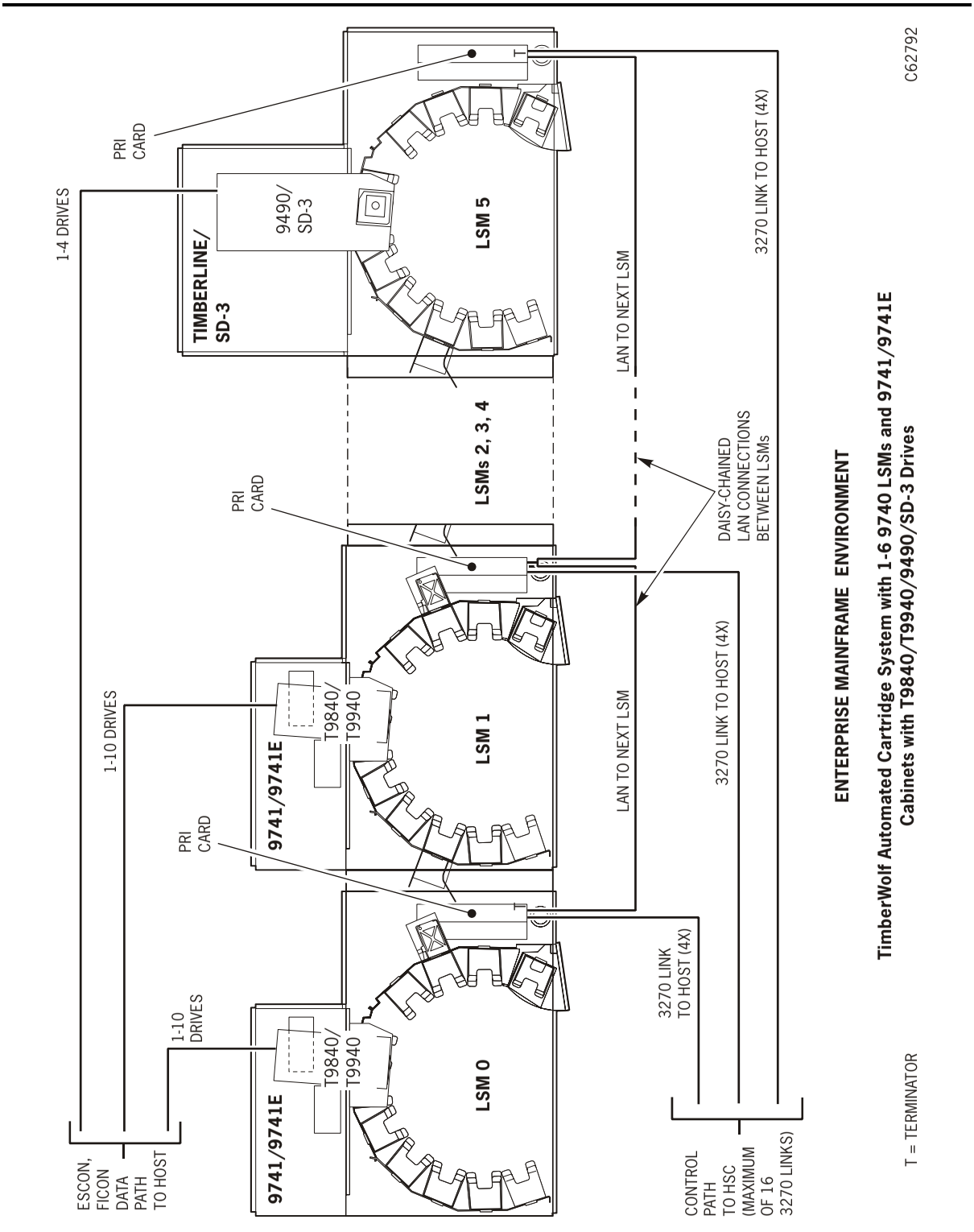
The transport and tape drive attachment choices per LSM include:

- One to ten T9x40 drives in any combination using the 9741E Drive Cabinet
- Two or four TimberLine 9490 transports using the 9490-M32 or 9490-M34 cartridge drive (transports included)
- One to four RedWood SD-3 transports using the SD-3-H31, -H32, -H33, or -H34 cartridge drive (transports included)
- TimberLine 9490 transports in combination with RedWood SD-3 transports using the SD-3-M11, -M12, -M13, -M21, -M22, -M31 cartridge drive (transports included)

Of the 24 control paths available in an ACS configuration with six LSMs attached, only one to 16 are available for use. Each ACS, not each LSM, must have a control path. The control paths are redundant and allow multiple hosts to share the same ACS. The LAN that runs between the LSMs provides the necessary control path communication across LSMs.

Thus, for a single LSM, between one and four of the available control paths can be connected. For multiple LSMs, between one and *n* control paths can be connected, where *n* equals the number of LSMs times four, whose total is less than 16.

Figure 4-3. Enterprise Mainframe Environment ACS: One or More LSMs



Ordering Hardware

The following work sheets will help you define the configuration for each LSM you order.

9740 Library Part Numbers

The following tables list part numbers and conversion bill part numbers for the 9740 library.

Table 4-1. Library Part Numbers

	Description	Part Number
❑	TimberWolf 326-cartridge LSM, installation included	SL9740-BASELIB
❑	Pass-thru port kit	SL9740-PTPKIT
❑	Direct field transfer packaging for Sun drives	SL9740-PKG-SUN
❑	Direct field transfer packaging for DLT drives	SL9740-PKG-DLT

Table 4-2. Library Conversion Bills

	Description	Part Number
❑	No cartridge exchange mechanism	X9740-0CEM
❑	Add one cartridge exchange mechanism	X9740-1CEM
❑	Add 10-cartridge magazine cartridge access port	X9740-10MAGCAP
❑	Add 2018 port	X9740-2018PORT
❑	Air box	X9740-AIR-BOX
❑	Add 168-cartridge expansion door	X9740-EXP-DOOR
❑	IBM NUMA Q install kit	X9740-IBM-NUMA
❑	SCSI single-ended/differential Convert from fast/wide differential (addresses 0–15) to fast/narrow single-ended and differential SCSI (addresses 0–7). The interface accepts 8 device addresses	X9740-SEDIFF

Table 4-2. Library Conversion Bills (Continued)

	Description	Part Number
❑	Single-ended/differential wide Convert from fast/narrow single-ended and differential (addresses 0–7) to fast/wide differential SCSI (addresses 0–15) SCSI. The interface recognizes 16 device addresses.	X9740-SEDIFFWIDE
❑	Unisys door kit	X9740-UNISYS

9741E Cabinet Part Numbers

The following tables list part numbers and conversion bill part numbers for the 9741E Cabinet.

Select the 9741E Drive Cabinet *only if you are using DLT and/or T9x40 drives*. The T9x40 and DLT drives are purchased separately.

Note: No more than two drive types can be mixed in one 9741E frame.

Table 4-3. 9741E Cabinet Part Numbers

	Description	Part Number
❑	9741E cabinet, base, 115V, 10 drive	SL9741E-9740-115
❑	9741E cabinet, base, 230V, 10 drive	SL9741E-9740-230

Table 4-4. 9741E Cabinet Conversion Bills

	Description	Part Number
❑	9741E cabinet, base, 9310 to 9740, 115V, 10 drive	X9741ETO9740-115
❑	9741E cabinet, base, 9310 to 9740, 230V, 10 drive	X9741ETO9740-230
❑	9741E cabinet, decorative door assembly	X9741E-DECO-DR
❑	9741E cabinet, fibre hub mounting kit	X9741-HUB-MTG
❑	9741E cabinet, fibre switch mounting kit	X9741-SW-MTG

Ordering Cables, Adapters, Terminators

The following sections list the cables used for the 9740 and 9741E cabinet.

Power Cords

The following tables lists power cord part numbers by country. All cords are 3 m (9.81 ft).

The receptacle type is listed also. Refer to your vendor catalog for the part number.

If your country is not listed below, use the cord that you used on past products, such as the harmonized cord described in Table 4-6 on page 4-12.

Table 4-5. Country-specific Power Cords

	Input Voltage	Country	Part Number	Receptacle Type
❑	100 to 127 VAC	U.S./Canada	PWRCORD10187019-Z	5-15R
❑		Japan	PWRCORD10083243-Z	JIS C8303
❑	200 to 240 VAC	Australia	PWRCORD10083244-Z	AS 3112
❑		Denmark	PWRCORD10083248-Z	DEMKO107/ 10-1973
❑		Europe	PWRCORD10187018-Z	Schuko
❑		Europe (Continental) See Note 2.	PWRCORD10187022-Z	IEC309
❑		Italy	PWRCORD10083245-Z	CEI 23-16/V11
❑		Korea	PWRCORD10083657-Z	KSC 8305
❑		South Africa	PWRCORD10083636-Z	BS546
❑		Switzerland	PWRCORD10083246-Z	CEE 7
❑		United Kingdom	PWRCORD10083247-Z	BS 1363
❑		U.S./Canada	PWRCORD10187020-Z	6-15R

Note: This is a harmonic no plug cord for Belgium, Denmark, Finland, France, Germany, Holland, Norway, Sweden, and Switzerland.

Table 4-6. Non-country-specific Power Cords

	Input Voltage	Description	Part Number
❑	100 to 127 VAC	SJT IEC320 14AWG, 3 m, receptacle 5-15	PWRCORD10187061-Z
❑	250 VAC	SJT 16 AWG L6-15P, C13, 2.5 m, receptacle L6-15P	PWRCORD10187024-Z
❑	250 VAC	18, 3, SVT, 1mm, M/SH FRT	PWRCORD10187055-Z (for F40 rack)
❑		3, F, IEC320 harmonized (see **Note**)	PWRCORD10187047-Z
❑	100 to 240 VAC	International power cord pigtail	PWRCORD10083735-Z

Note: The cord has a plug on one end that attaches to the library and bare wires on the other. Buy the correct end to match your normal wall outlet and attach it to the cord.

Table 4-7. 9741E Cabinet Power Cords

	Description	Part Number
❑	14 ft North America Russell Stoll	PWRCORD411063701
❑	10 ft North America Russell Stoll	PWRCORD411063001
❑	10 ft North America Hubble (IEC 309)	PWRCORD419728301-Z
❑	3 m international pigtail	PWRCORD419728701-Z
❑	4.3 m international pigtail	PWRCORD411063901

SCSI Cabling

Several factors, which are discussed in the following sections, are involved in cabling SCSI devices together.

Achieving Maximum Performance

Achieving maximum performance depends on several items, such as the number of drives installed, and the distance between the LSM and the host. For SCSI attachment, here are the specifications:

- SCSI single-ended: 6 m (19.6 ft)
- SCSI differential: 25 m (82 ft)

Keep in mind that hardware capacities need to be compatible, and components installed in an enterprise should not be pushed to their limits of performance, if possible. It is wise to leave a comfortable cushion of excess capacity when you determine and order the components that make up a system.

If a SCSI card allows a maximum cable length of 25 m (82 ft), attaching such a cable can overtax the cable's capacity, causing sporadic and unpredictable performance problems. It is best to connect the device within the maximum range of the cable for maximum performance results.

Consider also cable throughput with respect to the hardware that they interface with. For example, in an LSM with 3 DLT7000 drives, which can read and write data at 5 MB to 10 MB/sec compressed, a cable that is rated at 10 MB/sec cannot transport data from more than two devices at a time, even if the SCSI card technically supports more than those.

9740 to Host

There are many external SCSI cables depending on the platform. These cables are available through Sun Microsystems. These are "standard" and will fit most applications for the data and the control path.

The LSM SCSI control must be 68-pin connectors at the SCSI card. Because system cables vary, you may have to adapt your customer's connector to fit the LSM.

Note: The SCSI 6-m (20-ft) Type CL2 SCSI External Interface Cable, PN 10083310, is included in the 9740, and does not need to be ordered separately.

TimberLine (9490) or RedWood (SD-3) Drive Daisy Chain

The drive cabinets attach to the rear of the TimberWolf 9740. The daisy-chain cables are common to both the TimberLine and RedWood and are installed from drive to drive within the TimberLine or RedWood cabinets.

There are a number of external SCSI cables depending on the platform to which the 9740 is attached. The following cables are available through Sun Microsystems. For more information, refer to the system assurance guide for that drive product, mentioned in the "Related Publications" on page xiv.

Table 4-8. SCSI Cables 9740 to Host Order Sheet

	Description	Part Number	Quantity
❑	Type CL21 SCSI External Interface Cable 3 m (10 ft)	CABLE10187000-Z	_____
❑	Type CL2P2 SCSI External Interface Cable 3 m (10 ft)	CABLE10083313-Z	_____
❑	Type CL2P SCSI External Interface Cable 6 m (20 ft)	CABLE10083314-Z	_____
❑	Type CL2 SCSI External Interface Cable 21 m (69 ft)	CABLE10187001-Z	_____
❑	Type CL2P SCSI External Interface Cable 21 m (69 ft)	CABLE10083316-Z	_____
		Total	_____

9740 to Host RS/6000 With Fast/Wide 2416

Table 4-9. SCSI Cables 9740 to Host RS/6000 With Fast/Wide 2416 Cable Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, 68 pin to 68 pin, Micro D, 12 M, RS/6000 special	CABLE309692001-Z	_____
❑	Adapter, f/n SCSI, 50 to 68 pin	10148010	_____
		Total	_____

9740 to 3270 Host 3270 Coax, RG62A/U 93 Ohm

Table 4-10. 9740 to 3270 Host Coax, RG62A/U 93 Ohm Cable Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, 3270, 93 Ω, 30 m (100 ft)	CABLE410286001-Z	_____
❑	Cable assembly, 3270, 93 Ω, 60 m (200 ft) (2)	CABLE410286002-Z	_____
❑	Cable assembly, 3270, 93 Ω, 90 m (300 ft)	CABLE410286003-Z	_____
❑	Cable assembly, 3270, 93 Ω, 120 m (400 ft)	CABLE410286004-Z	_____
❑	Cable assembly, 3270, 93 Ω, 150 m (500 ft) (2)	CABLE410286005-Z	_____
❑	Cable assembly, 3270, 93 Ω, 180 m (600 ft)	CABLE410286006-Z	_____
❑	Cable assembly, 3270, 93 Ω, 210 m (700 ft)	CABLE410286007-Z	_____
❑	Cable assembly, 3270, 93 Ω, 240 m (800 ft) (2)	CABLE410286008-Z	_____
❑	Cable assembly, 3270, 93 Ω, 270 m (900 ft)	CABLE410286009-Z	_____
❑	Cable assembly, 3270, 93 Ω, 300 m (1000 ft) (2)	CABLE410286010-Z	_____
		Total	_____

9740 to Standard DTE Host

The following cables have male DB-25 to female DB-9 for connecting the 9740 to a standard DTE host.

Table 4-11. 9740 to Standard DTE Host Cable Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, 6 m (20 ft)	CABLE310657701-Z	_____
❑	Cable assembly, 15 m (50 ft)	CABLE310657702-Z	_____
❑	Cable assembly, 30 m (100 ft)	CABLE310657703-Z	_____
❑	Cable assembly, 60 m (200 ft)	CABLE310657704-Z	_____
		Total	_____

9740 to Standard DCE Host

The following cables have female DB-9 connectors on each end for connecting the 9740 to a standard DCE host.

Table 4-12. 9740 to Standard DCE Host Cable Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, 6 m (20 ft)	CABLE310657801-Z	_____
❑	Cable assembly, 15 m (50 ft)	CABLE310657802-Z	_____
❑	Cable assembly, 30 m (100 ft)	CABLE310657803-Z	_____
❑	Cable assembly, 60 m (200 ft)	CABLE310657804-Z	_____
		Total	_____

Miscellaneous Cables

You must order the following cables separately. They are not part of the basic kit.

Table 4-13. Miscellaneous Cables Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, Ultra Port B, 6 m (20 ft)	CABLE310658806-Z	_____
❑	Cable assembly, Ultra Port B, 15 m (50 ft)	CABLE310658807-Z	_____
❑	Cable assembly, Ultra Port B, 30 m (100 ft)	CABLE310658808-Z	_____
❑	Cable assembly, Ultra Port B, 60 m (200 ft)	CABLE310658809-Z	_____
❑	SCSI Cable, 68MD-68VHDCI, 3 m (10 ft)	CABLE10083594-Z	_____
❑	SCSI Cable, 68MD-68VHDCI, 6 m (20 ft)	CABLE10187003-Z	_____
❑	SCSI Cable, 68MD-68VHDCI, 12 m (40 ft)	CABLE10083596-Z	_____
		Total	_____

Host to Serial Interface

Table 4-14. Host to Serial Interface Cable Order Sheet

	Description	Part Number	Quantity
❑	Cable, 20, 1 coaxial, RG58	CABLE10082418-Z	_____
		Total	_____

LAN Cable for CEM Installation

Note: The CEM does not support the SCSI robotics interface.

The 9740 can have up to 5 LAN cables and (24) 3270 connections.

Table 4-15. LAN Cable for CEM Installation Order Sheet

	Description	Part Number	Quantity
❑	Cable assembly, LAN, 25 ft (# cables = #PRI–1) Example: 3 PRIs - 1 = 2 cables	CABLE410612201-Z	_____
		Total	_____

SCSI Daisy-Chain Cables

Table 4-16. SCSI Daisy-Chain Cables Order Sheet

	Description	Part Number	Quantity
❑	25 cm (10 in.) SCSI Daisy-Chain Cable (see Note)	CABLE419728801-Z	_____
❑	46 cm (18 in.) SCSI Daisy-Chain Cable (see Note)	CABLE419712001-Z	_____
		Total	_____
Note: These cables are used only with DLT, T9840, or T9940 drives.			

SCSI Drive Terminators

Table 4-17. SCSI Drive Terminators Order Sheet

	Description	Part Number	Quantity
❑	Terminator, SCSI, single-ended	CABLE10187074-Z	_____
❑	Terminator, SCSI, differential	CABLE10187075-Z	_____
		Total	_____

PRI Card LAN Terminators

The PRI LAN connection requires up to two 50-Ω terminators.

Accessories and Special Tools

You must order the items in the following tables as separate line items on, or included as an attachment to, the purchase order.

Accessories

Accessories are non-production items that may be used with the product but are not shipped with the unit. They are not structured in the CEI and are ordered through *Business Solutions*. Examples of accessories are cartridges, carrying case, and the magazine target set.

Table 4-18. 9740 Accessories Order Sheet

	Description	Part Number	Quantity
❑	14-cartridge array	308286604	_____
❑	6-cartridge array	313122502	_____
❑	10-cartridge magazine	404543206	_____
		Total	_____

Table 4-19 lists the Fibre Channel mounting kits that can be installed in a 9741E Cabinet. 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 4-19 also lists a decorative cover for the 9741E cabinet.

Table 4-19. 9741E Accessories Order Sheet

	Description	Part Number	Quantity
❑	Fibre Channel hub 1000 Mounting Kit	313332001	_____
❑	Fibre Channel hub 4108 Mounting Kit	313332101	_____
❑	9741E Deco Cabinet Door Assembly	313330904	_____
		Total	_____

Special Tools

The special tools listed in Table 4-20 are used in the field for the installation or maintenance of the 9740. Special tools are ordered through *customer services.*

Table 4-20. Miscellaneous Special Tools Order Sheet

	Description	Part Number	Quantity
❑	Cover latch release tool	310229501	_____
❑	Wheel chock/leveler assembly (required for CEM installation) comes with Library	307505603	_____
❑	DLT leader kit (universal for DLT4000, DLT7000, DLT7000E)	309172301	_____
❑	Hollow, cylindrical key, front door (old)	310293301	_____
❑	Solid, hexagonal key, front door (new)	313325501	_____
		Total	_____

The special tools listed in Table 4-21 are used only as a service tool for the T9840B Tape Drive. The ethernet maintenance switches can only be mounted in a 9741E Drive Cabinet.

Table 4-21. 9741E Special Tools Order Sheet

	Description	Part Number	Quantity
❑	Maintenance Switch Mounting Kit	313332201	_____
❑	8-Port 10/100 Ethernet Switch	24100208	_____
❑	16-Port 10/100 Ethernet Switch	24100209	_____
		Total	_____

Ordering Media

Contact your authorized selling agent for Sun-approved labeled cartridges. You must select the volume serial number (VOLSER) range and other label options when ordering cartridges. If you choose to order additional labels, order them from any standard media vendor.

Labels used in StorageTek libraries can be made by any vendor that produces a label that meets the Sun Label Specification. Some vendors (not all inclusive) are:

- EDP/Colorflex http://www.colorflex.com
- NetC http://www.netcllc.com
- WrightLine/American Eagle Systems http://www.americaneaglesys.com
- Dataware http://www.datawarelabels.com

These Web sites contain links to third party sites. These links are provided as a convenience to you and not as an endorsement by Sun. Sun is not responsible for the content of these linked Web sites and does not make any representations regarding the content or accuracy of any content on such Web sites.

For technical questions, contact the Sales Support at:

Telephone: 1.800.ask4stk (1.800.275.4785)
E-mail: sales_support@storagetek.com.

Ordering Software

Before you order software for new 9740 installations, determine if the customer has software that meets requirements for additional 9740 libraries.

Software Configuration

Use Table 4-22 through Table 4-25 on page 4-25 to determine the customer's current software configuration and requirements.

Table 4-22. Software Configuration Work Sheet

Software	Processor 1	Processor 2
Operating System Vendor/Type		
Backup/recovery		
Archival/migration		
Performance monitoring		
Data compression		
ACSLS level		
HSC level		
Driver		
Tape Management System		
Additional		

Table 4-23. ACSLS/HSC General Configuration Work Sheet

	System 1	System 2	System 3	System 4
Model/features				
Power requirements				
Space requirements				
Console/ keyboard				
Mouse				
Customer ports/ cables				
Maintenance port				
Ethernet address				
Ethernet backbone cable/type				
Ethernet transceiver hookup				
Internet address				
UNIX install media				
Server scratch tape				
ACS number designations				
LSM number designations				
Port A modem hookup				

Table 4-24. HSC General Configuration Work Sheet

	Processor 1	Processor 2	Processor 3	Processor 4
Model/features				
Number of channels				
Channel speed				
Channel type (serial/ parallel)				
Channel cable length				
CHIPID				
Device address				
POST/MPST available				
PM2/MPPM available				
LIBGEN programmer contact				

Table 4-25. Server/HSC Customer/Subsystem Configuration Work Sheet

	Processor 1	Processor 2	Processor 3	Processor 4
Model/features				
Clearance space requirements with drives				
Cooling requirements				
Power requirements				
Host ID (H)				
CEM locations, types (H)				
CTU addresses (H)				
CTU cable lengths (H)				
Port numbers (S)				
LAN cable lengths (S)				
MARS box/cable				
Note: (H) =HSC, (S) =server, blank =both				

9740 Software Support—CEM and Stand-alone

Table 4-26. 9740 Software Support

Hardware	Interface	Software[1]	
		ACSLS	HSC
Stand-alone	Serial	❑	N/A
	SCSI-N	❑	N/A
	SCSI-W	❑	N/A
	3270	N/A	❑
CEM [2]	Serial	❑ [3]	N/A
	SCSI-N	N/A	N/A
	SCSI-W	N/A	N/A
	3270	N/A	❑

Notes:

1. Compatibility level 12 interface functionality.
2. CEM support is provided through "LMU" code loaded on the PRC controller card and using the PRI card for 9740 to 9740 communications.
3. Needs the PRI card (3270) for 9740 to 9740 LAN connections.

Another work sheet is required to place an order. Domestic customers, value-added distributors (VADs), and value-added resellers (VARs) must obtain and send the Site Survey work sheet in addition to the order work sheets or sales entry form *or the orders department will not enter the order.*

Pre-installation Checklist

5

Verify that all issues listed in Table 5-1 have been addressed and resolved. Circle "Yes" or "No," as appropriate, for each item. For unresolved issues, assign a required action with a due date to the appropriate person.

Table 5-1. Pre-installation Checklist

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	
Power cables ordered	Yes/No	
Options or features ordered	Yes/No	
Interface cables ordered	Yes/No	
Interface adapters ordered	Yes/No	
Tapes and labels ordered	Yes/No	
Accessories/Special Tools	Yes/No	
Software Procurement		
Software prerequisites met	Yes/No	

Table 5-1. Pre-installation Checklist (Continued)

Item Description	Yes/No	Action Required/Due Date/ Person Responsible
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 Microsystems does not supply fire suppression systems. Any fire suppression system for the 9740 is the customer's responsibility.

Sun Microsystems' Remote Library Support

Sun Microsystems' 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 Microsystems' local and remote support. See "Customer Resource Center" on page xv.

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 using a modem and an optional Data Director or MARS+ box
- Test and diagnose equipment problems
- Suggest ways for the operator to repair certain problems
- Dispatch a CSE with repair parts

❑ Yes ❑ No Does the customer want remote support for the 9740 library?

Table 5-2 lists the remote support hardware and cables to provide remote support for the customer.

Table 5-2. Remote Support Hardware and Cables

Equipment	Description	Part Number	Reference Number
Modem	56 K baud	24100215	1
Data Director	8 Port Universal Modem 8 Port Upgrade Card	24100227 24100191	
Modem Switches	16 Port MARS+ 16 to 32 Port MARS+ upgrade	4954 4956	5 5
Cable RJ-45 to RJ-45	20 ft MARS/UUT interconnect 50 ft MARS/UUT interconnect 100 ft MARS/UUT interconnect 150 ft MARS/UUT interconnect 200 ft MARS/UUT interconnect 250 ft MARS/UUT interconnect	410828902 410828905 410828910 410828915 410828920 410828925	7 7 7 7 7 7
Adapter	RJ-45 8-pin (F) to DB9 (F)	10410823	
Modem/MARS interconnect cable	4 ft. modem to MARS interconnect (DB-25 to DB-9)	4895	9

9740/9741 Specifications

A

Specifications

This chapter gives specifications for all 9740 LSM configurations attached to 9741/9741E Drive Cabinets, and expanded 9741 Drive Cabinets, containing DLT and/or T9x40 drives; TimberLine 9490 CTUs; or RedWood SD-3 CTUs.

For T9840 and T9940 specifications, refer to the T9x40 manuals. For DLT specifications, refer to the DLT manuals.

Note: All specifications are rounded up to the nearest millimeter or inch.

Figure A-1. Physical Specifications of 9740 LSM Attached to 9741 Drive Cabinet

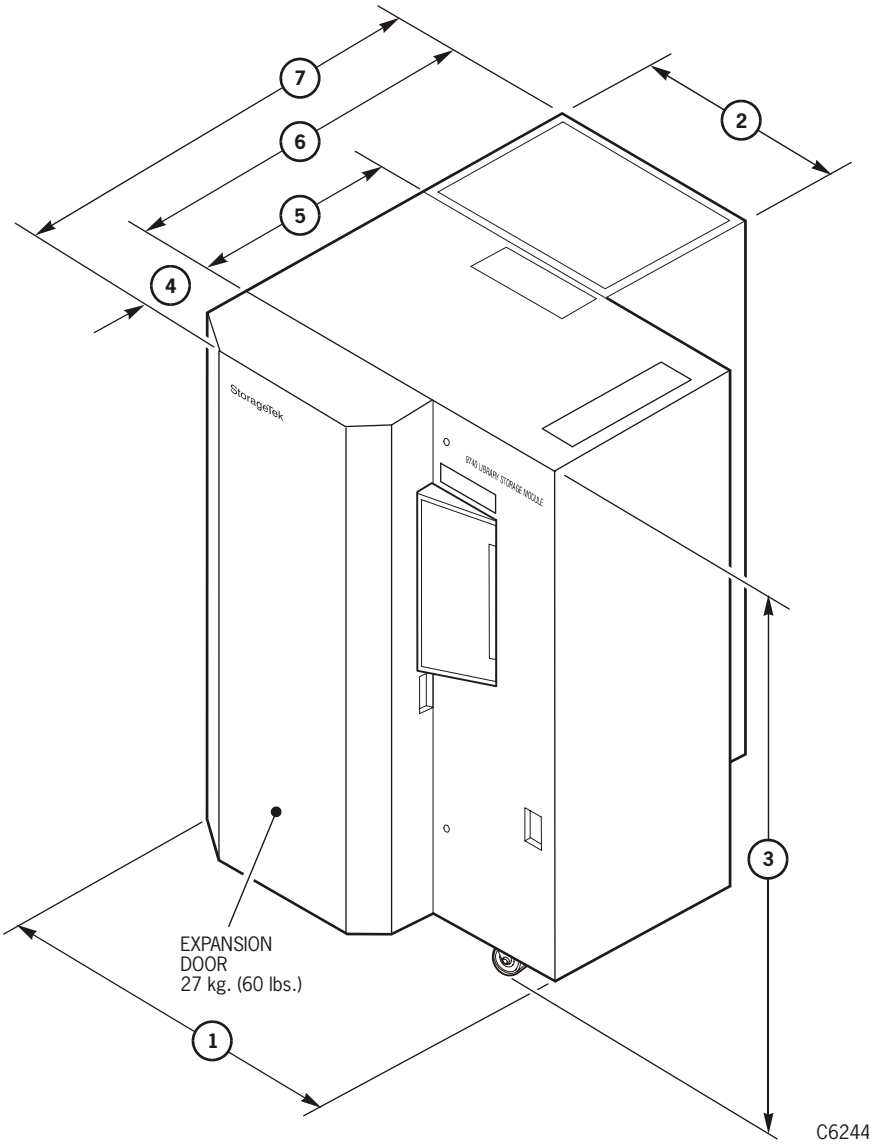


Table A-1. 9741 Drive Cabinet and 9740 LSM Physical Specifications

Figure A-1 Description	9741 Drive Cabinet with DLT Drives	9741 Drive Cabinet with T9x40 Drives
1. Width with covers	1.17 m (46 in.)	
2. Width of 9741 cabinet	762 mm (30 in.)	
3. Height	1.83 m (72 in.)	
4. Depth of expansion door	250 mm (10 in.)	
5. Depth of 9740 basic unit, plus 9741 Drive Cabinet	1.19 m (46 in.) (add 20 mm [1 in.] for standard door)	
6. Depth of expanded section of the 9741 Drive Cabinet	152 mm (6 in.)	
7. Depth of 9740 basic unit, plus 9741 Drive Cabinet, plus expanded section of the 9741 Drive Cabinet	1.34 m (52 in.)	
8. Depth of 9740 basic unit, plus 9741 Drive Cabinet, plus expanded section of the 9741 Drive Cabinet, plus expansion door	1.6 m (63 in.)	
Weight of LSM and 9741 Drive Cabinet	550 kg (1213 lb) (see Note 1)	550 kg (1213 lb) (see Notes 2 and 3)
Weight of standard 9741 Drive Cabinet	118 kg (260 lb)	
Weight of expanded 9741 Drive Cabinet	138 kg (304 lb)	
Weight of expansion door	27 kg (60 lb)	27 kg (60 lb)
Weight of LSM with expansion door and 9741 Drive Cabinet	645 kg (1422 lb) (see Note 1)	645 kg (1422 lb) (see Notes 2 and 3)

Notes:

1. For each DLT drive and power supply, add an additional 4.5 kg (10 lb). For each DLT cartridge in the 9740 LSM, add an additional 223 g (7.85 oz).
2. For each T9840 drive and power supply, add an additional 7 kg (15 lb). For each cartridge with an "R" media ID label in the 9740 LSM, add an additional 262 g (9.17 oz).
3. For each T9940 drive and power supply, add an additional 9 kg (20 lb). Add an additional 34 kg (74 lb) to account for the expanded 9741 Drive Cabinet required to accommodate the T9940 drive. For each T9940 cartridge in the 9740 LSM, add an additional 262 g (9.17 oz).

Figure A-2. Physical Specifications of 9740 LSM Attached to 9741E Drive Cabinet

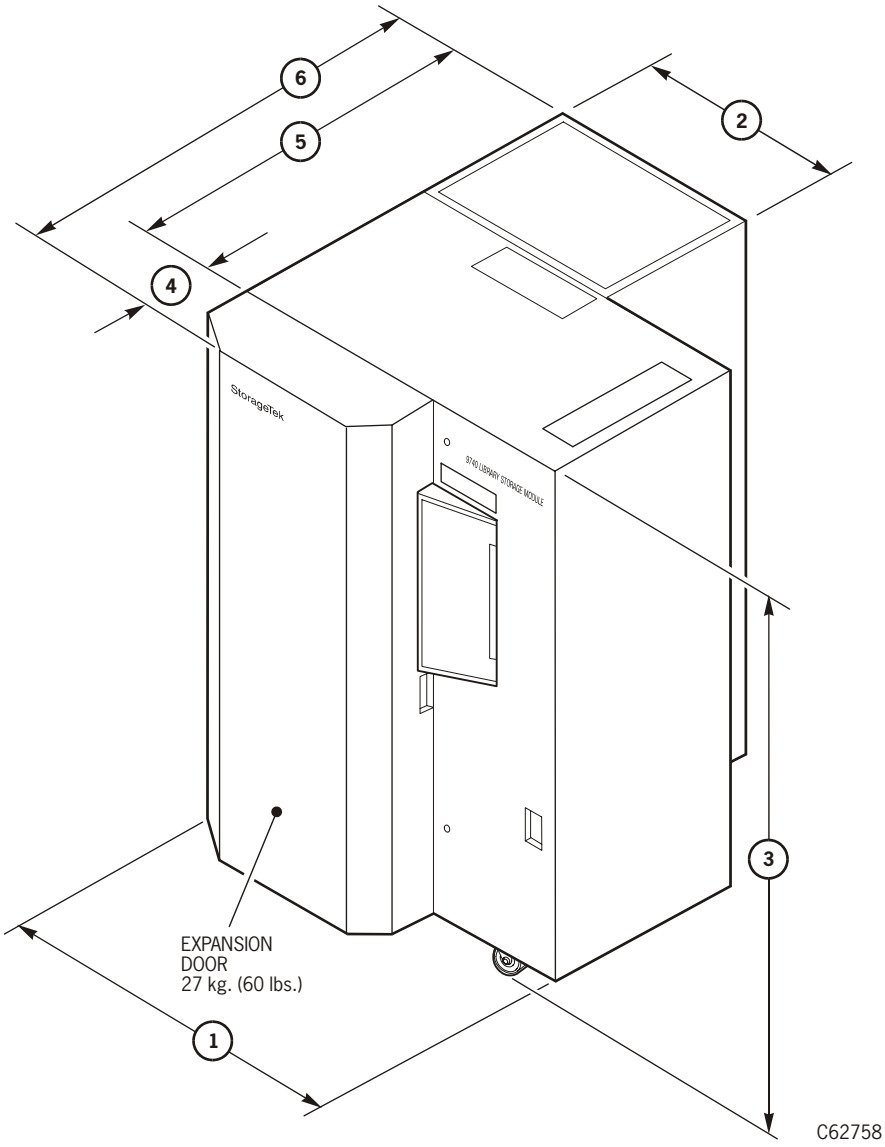


Table A-2. 9741E Drive Cabinet and 9740 LSM Physical Specifications

Figure A-2 Description	**9741E Drive Cabinet with DLT Drives**	**9741E Drive Cabinet with T9x40 Drives**
1. Width with covers	1.17 m (46 in.)	
2. Width of 9741E cabinet	762 mm (30 in.)	
3. Height	1.83 m (72 in.)	
4. Depth of expansion door	250 mm (10 in.)	
5. Depth of 9740 basic unit, plus 9741E Drive Cabinet	1.36 m (53.5 in.) (add 20 mm [1 in.] for standard door)	
6. Depth of 9740 basic unit, plus 9741E Drive Cabinet, plus expansion door	1.61 m (63.5 in.)	
Weight of LSM and 9741E Drive Cabinet	618 kg (1362 lb) (see Note 1)	618 kg (1362 lb) (see Notes 2 and 3)
Weight of standard 974E1 Drive Cabinet	186 kg (409 lb)	
Weight of expansion door	27 kg (60 lb)	27 kg (60 lb)
Weight of LSM with expansion door and 9741E Drive Cabinet	645 kg (1422 lb) (see Note 1)	645 kg (1422 lb) (see Notes 2 and 3)

Notes:

1. For each DLT drive and power supply, add an additional 4.5 kg (10 lb). For each DLT cartridge in the 9740 LSM, add an additional 223 g (7.85 oz).
2. For each T9840 drive and power supply, add an additional 7 kg (15 lb). For each cartridge with an "R" media ID label in the 9740 LSM, add an additional 262 g (9.17 oz).
3. For each T9940 drive and power supply, add an additional 9 kg (20 lb). Add an additional 34 kg (74 lb) to account for the expanded 9741 Drive Cabinet required to accommodate the T9940 drive. For each T9940 cartridge in the 9740 LSM, add an additional 262 g (9.17 oz).

Figure A-3. Physical Specifications of 9740 LSM Attached to 9490/SD-3 Cartridge Drives

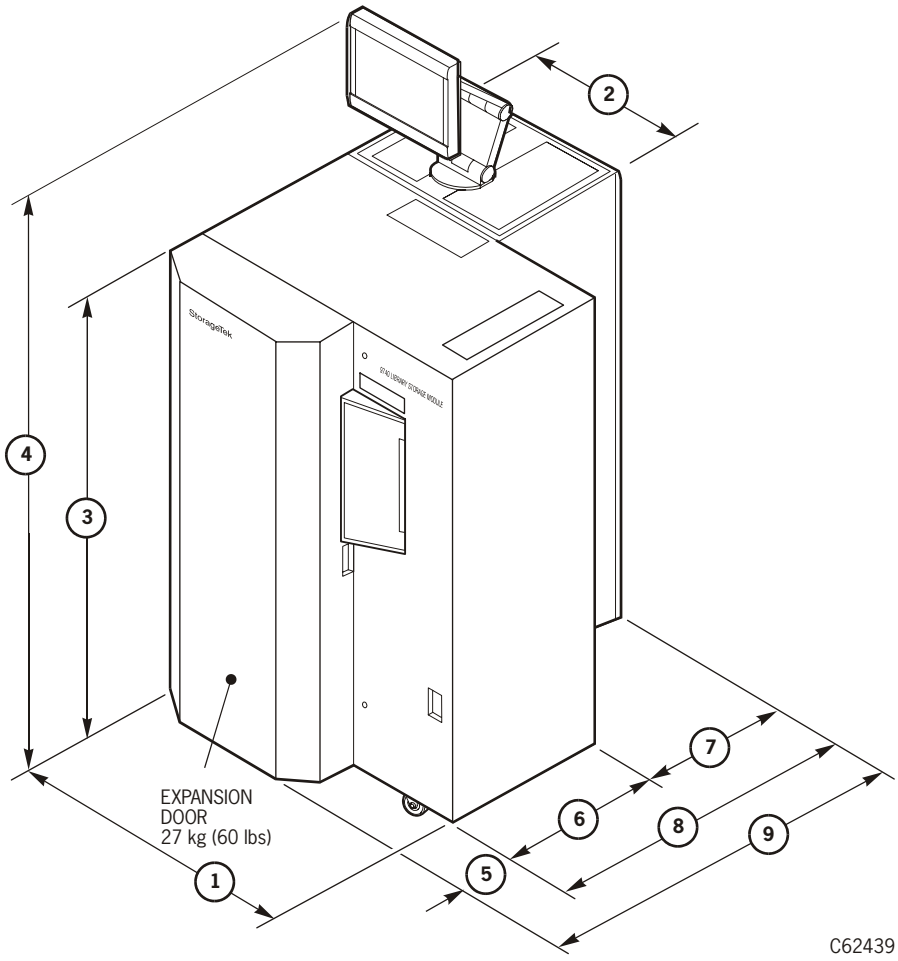


Table A-3. LSM with 9490, SD-3: Physical Specifications

Figure A-3 Description	1 SD-3 CTU	4 SD-3 CTUs	4 9490 CTUs
1. Width with covers	1.17 m (46 in.)		
2. Width of 9490/SD-3 unit with covers	762 mm (30 in.)		
3. Height	1.83 m (72 in.)		
4. Height with overhead display	2.2 m (7 ft) minimum 2.4 m (8 ft) maximum		
5. Depth of expansion door	250 mm (10 in.)		
6. Depth of 9740 basic unit	740 mm (29 in.) (add 20 mm [1 in.] for standard door)		
7. Depth of cartridge drive	710 m (28 in.) (SD-3 only)		610 mm (24 in.) (9490 only)
8. Depth of basic 9740 plus cartridge drive	1.47 m (58 in.) (w/SD-3 only)		1.37 m (54 in.) (w/9490 only)
9. Depth of basic 9740 plus cartridge drive plus expansion door	1.70 m (w/SD-3 only)		1.60 m (63 in.) (w/9490 only)
Weight	826 kg (1821 lb)	975 kg (2150 lb)	904 kg (1993 lb)
Weight with expansion door	853 kg (1881 lb)	980 kg (2160 lb)	931 kg (2053 lb)
Weight with expansion door & tapes	1007 kg (2219 lb)	1174 kg (2588 lb)	1085 kg (2391 lb)

Note: When the overhead display is installed, the overall height of the CTU varies from 2.2 to 2.4 m (7 to 8 ft).

Table A-4. LSM Power Specifications

Power cable	**US/Canada** 100-120 VAC UL/CSA power cable **International** 200 to 240 VAC HAR power cable
Input voltage range Nominal voltage	100 or 240 VAC 100 to 254 VAC
Power configuration	**US/Canada:** 100-120 VAC, single phase, 47 to 63 Hz, 20-Amp Service, 3-wire **International:** 200 to 240 VAC, single phase, 47 to 63 Hz, 10-Amp Service, 3-wire
Power consumption	200 W
Maximum heat output	683 Btu/hr

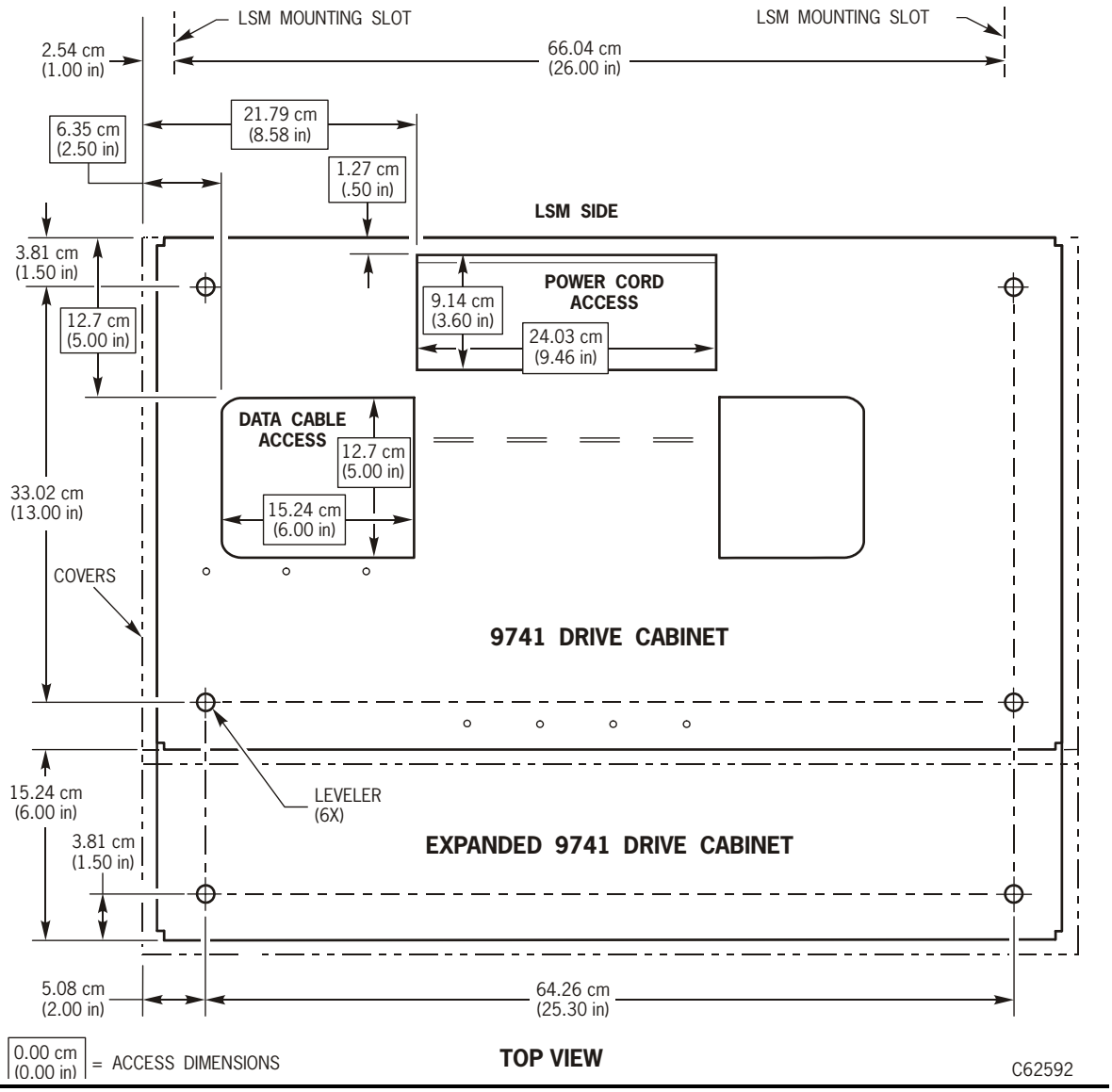
Table A-5. LSM Environmental Specifications

Temperature	
Operating	15º to 32ºC (59º to 90ºF)
Storage	10º to 40ºC (50º to 104ºF)
Shipping	-40º to 60ºC (-40º to 140ºF)
Relative Humidity	
Operating	20% to 80% (noncondensing)
Storage	10% to 95% (noncondensing)
Shipping	10% to 95% (noncondensing)
Wet Bulb Maximum	
Operating	29.2ºC (84.5ºF)
Storage	35ºC (95ºF)
Shipping	35ºC (95ºF)
Altitude	
Operating	0 to 3.05 km (0 to 10,000 ft)
Storage	0 to 3.05 km (0 to 10,000 ft)
Shipping	0 to 15.24 km (0 to 50,000 ft)

Table A-6. Floor Flatness/Level Requirements for CEM Installation

Maximum Out-of-Flatness	**0.50 inch along entire string of LSMs**
Maximum Out-Of-Level	0.5 degree 0.40 in. along length of each LSM

Figure A-4. 9741 Power and Signal Cable Cutout Diagram



Note: The additional 6-in. area added to the front of the 9741 drive cabinet in Figure A-4 is for the expanded version of the cabinet intended to accommodate T9940 tape drives.

Figure A-5. 9741E Power and Signal Power Cable Cutout Diagram

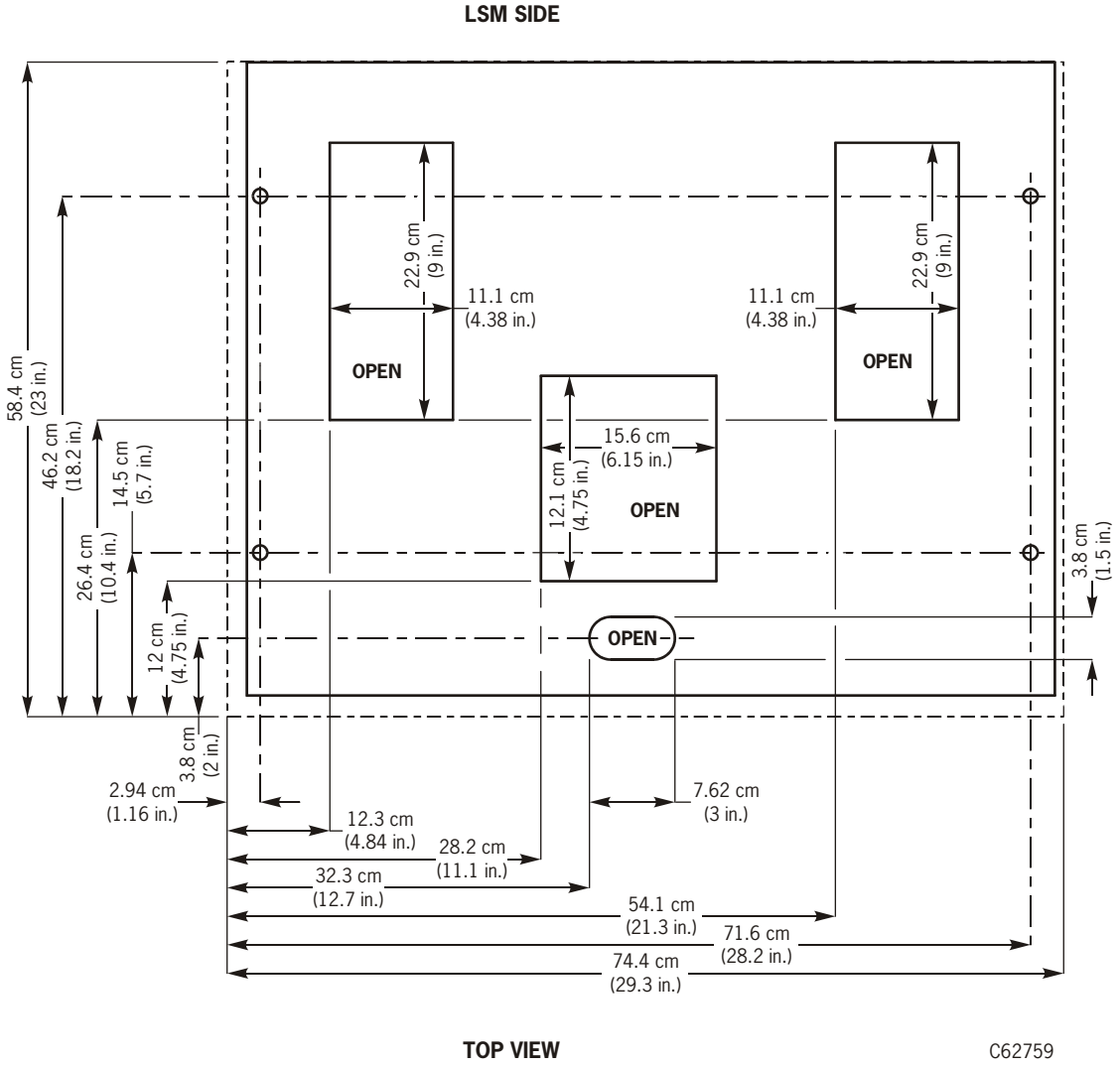
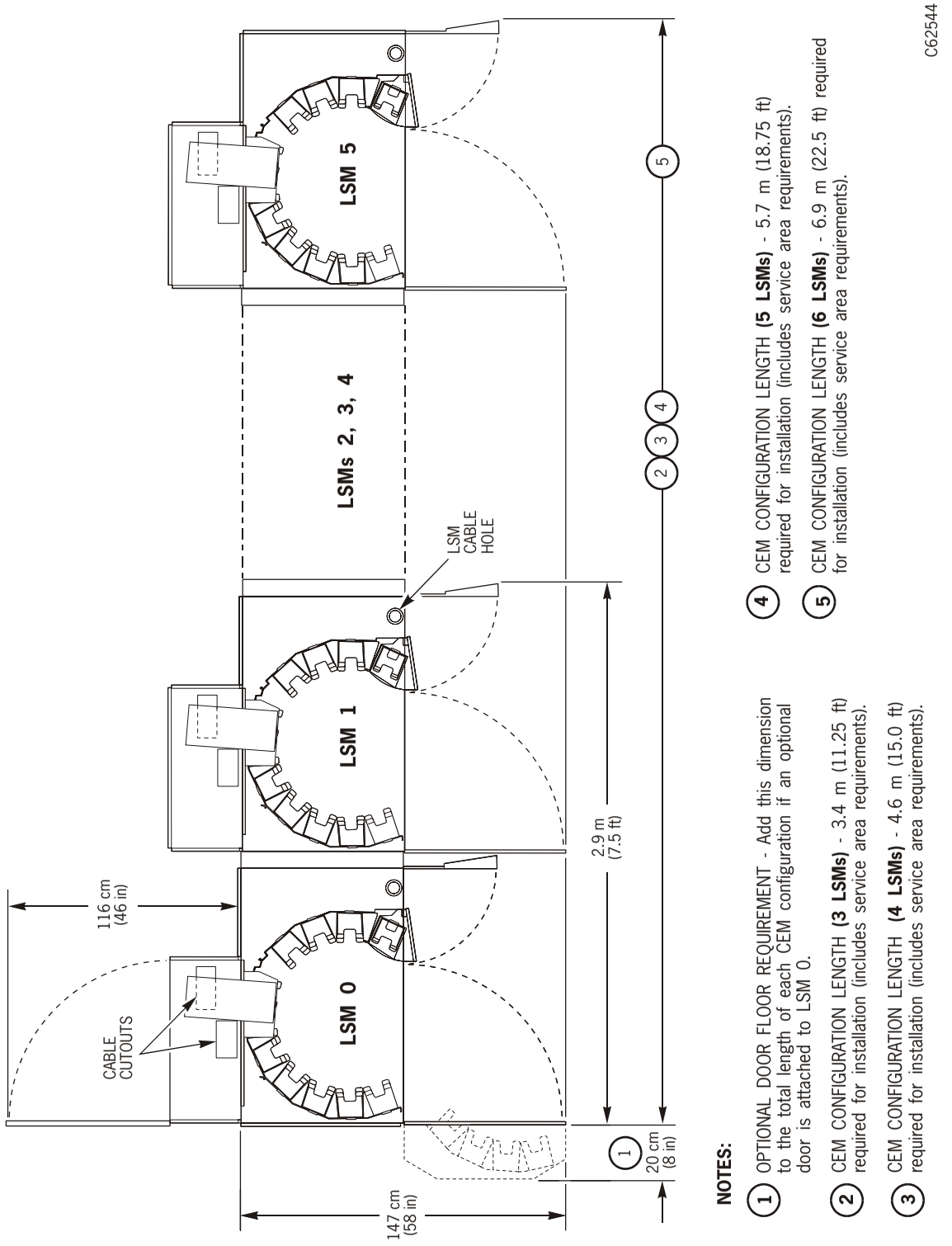


Figure A-6. 9740 LSM Floor Requirements in CEM Configuration



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