L700 Tape Library

System Assurance Guide

Information contained in this publication is subject to change. In the event of changes, the publication will be revised. Comments concerning its contents should be directed to:

Nearline Information Development
Storage Technology Corporation
One StorageTek Drive
Louisville, CO 80028-2201
USA

Information Control

This publication and the information contained herein is the property of StorageTek. Furthermore, all information is considered StorageTek Proprietary Information and is intended for the exclusive use of our employees and authorized third parties. No information in this publication may be read, copied, used, distributed, or shared with any other person without the prior written consent of StorageTek.

Should this publication be found, please return it to StorageTek, One StorageTek Drive, Louisville, CO 80028-5214, USA. Postage is guaranteed.

List of Pages

Document Title: L700 Tape Library System Assurance Guide

Manual Part Number: MT 5008 A

Initial Release Date: August 1999

Total number of pages in this document is 72, consisting of the following:

Section	Disposition
Cover	
Copyright	
iii through xii	
1-1 through 1-6	
2-1 through 2-4	
3-1 through 3-6	
4-1 through 4-18	
5-1 through 5-2	
A-1 through A-2	
B-1 through B-6	
C-1 through C-2	
Glossary-1 through Glossary-4	
Index-1 through Index-2	
Reader's Comment Form	
Business Reply Mailer	
Printed in the USA	
Back Cover	

Summary of Changes

Date	Reissue Level	Change
August 1999	Initial Release	

Contents

Figures

This page intentionally left blank.

Tables

This page intentionally left blank.

Preface

This guide contains information about the StorageTek L700 Tape Library on how to plan, order, install, and follow up the sales, delivery, and installation steps.

The audience for this guide includes StorageTek marketing representatives, system engineers (SEs), software support representatives (SSRs), customer services engineers (CSEs), independent consultants, service representatives, and customers involved with installation planning.

How to Use This Guide

This guide provides a series of worksheets and checklists that, when you complete them 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 are applicable to your system. However, you *must* complete certain worksheets (noted below) for the product to be shipped. See Chapter 4, "Equipment Planning," for more information.

Note: If you do not complete and send the following worksheets to Orders Management, the *product will not be shipped*. Chapter 4 provides flow charts and instructions for faxing the following worksheets:

- Library Configuration Worksheet
- Site Survey
- Product Checklist

Organization

This guide contains five chapters and two appendixes:

Chapter 1 **"The System Assurance Process"** provides detailed information for understanding the System Assurance process.

Chapter 2 **"Key Personnel"** provides a convenient worksheet for recording names and phone numbers of key personnel on the system assurance teams.

Chapter 3 **"Product Overview"** presents an overview of the tape library.

Chapter 4 **"Equipment Planning"** contains worksheets for ordering the StorageTek L700 Tape Library and accessories.

Chapter 5	**"Preinstallation Checklist"** provides checklists to use before installation to ensure no issues remain unresolved.
Appendix A	**"Hardware Considerations"** provides product specifications.
Appendix B	**"Site Planning Information"** provides product specifications.
Appendix C	**"Solution Variables"** contains a worksheet to record solution information.
Glossary	The Glossary defines new or special terms and abbreviations used in this publication.
Index	The Index assists in locating information in this publication.

We appreciate comments about this guide. A Reader's Comment Form at the end of this guide serves as a convenient, postage-paid form for this purpose. Mail it to the address shown or fax it to 303-673-2784.

In addition, StorageTek employees with access to Portal can complete an online Reader's Comment Form. Point your browser to:

http://sto/sto/comment_forms/nid-rcf.htm

Trademarks

StorageTek is a trademark of Storage Technology Corporation. Other features or terms mentioned in this publication may be trademarks of Storage Technology Corporation or of other corporations.

Related Publications

The following list contains the names and part numbers of publications that provide additional information about the L700 Tape Library.

Publication	Part Number
L700 Tape Library Field Replaceable Units Parts List	300074601
L700 Tape Library General Information Manual	MT 4011 A
L700 Tape Library Illustrated Parts Catalog	95847
L700 Tape Library Installation Manual	95843
L700 Tape Library Operator's Guide	95845
L700 Tape Library Service Manual	95846
L180/L700 Tape Library SCSI Reference Manual	95869

Ordering Publications

To order **Marketing publications** (operator guides or publications with "MT" in the part number) use one of these methods:

- Contact a sales or marketing representative.
- Call StorageTek Literature Distribution at 303-673-5944.

  Note: Function and department numbers are required to process orders through Literature Distribution.

- Send electronic mail to: `literaturedistributionadmin@louisville.stortek.com`.
- Go to Portal (StorageTek web page).
  a. At the right side of the display under StorageTek websites, double click on `alphabetical`.
  b. Double click on `L`.
  c. Scroll to and select `Literature Distribution`.
  d. Select `Browse/Search`.
  e. Select the `View Catalog by Part #` box.
  f. Select `M` on the sort list at the top of the catalog.
  g. Select `See More` at the bottom of the list to scroll until you see `MT` part numbers.
  h. Follow the instructions to order your publications.

- Mail a Publications Order Form to:

  Literature Distribution
  Storage Technology Corporation
  One StorageTek Drive
  Louisville, CO 80028-0082
  USA

Education

The following pages describe the L700 Tape Library available training.

StorageTek CSE, SE, and Customer Training

Note: CSE training should be taken in the sequence listed.

Please refer to the documentation for the individual drive types for training requirements. Refer to "Related Publications" at the beginning of this document.

Refer to the current *Corporate Education Course Catalog* or view `EDUCATION` announcements on the Intranet using Netscape for the latest offerings and schedules.

StorageTek employees should follow these steps to register:

1. Log on to Netscape.
2. Type the following URL: http://intwww.stortek.com
3. At the right side of the screen click on 'alphabetical'.
4. Click on 'W' for Workforce Development.
5. Scroll down and click on 'Workforce Development Home Page'.

This procedure takes you to the StorageTek Workforce Development web page. Make your selections from there.

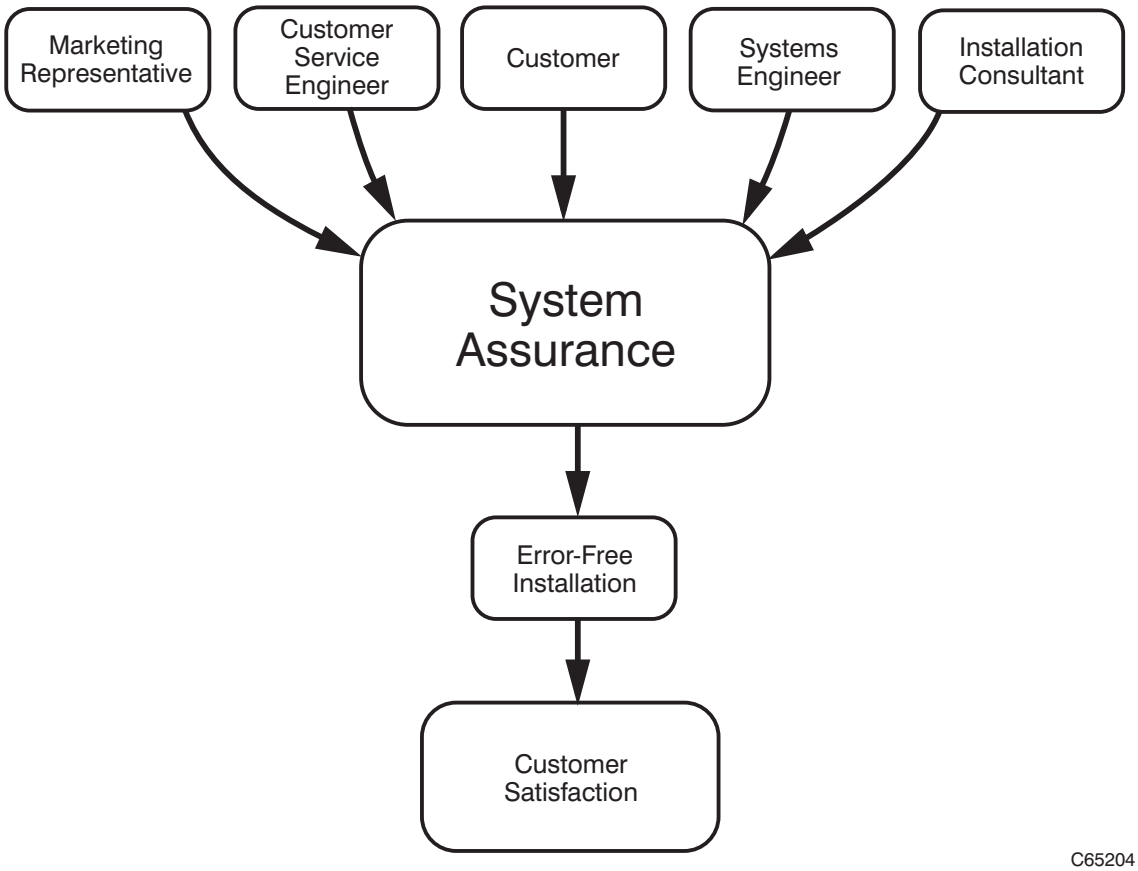
Questions about registering for Corporate Education courses (including tuition and schedules) should be directed to the registrar at 303-673-6262.

The System Assurance Process

1

This chapter describes the system assurance process. The process is outlined in Figure 1-1. System assurance team members appear across the top of the figure. The process is the exchange of information among team members to ensure that no aspects of the sale, ordering, and installation are overlooked. This process 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 performed efficiently. Customer and StorageTek team members jointly own and control the process.

Table 1-1. Team Member Responsibilities

Team Member	Responsibilities
Installation consultant (IC) (United States) Customer service 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 between team members. • Supplies or obtains all necessary support documentation. • Works with the customer to complete the following worksheets: **Key personnel** (see Chapter 2) **Hardware planning** (see Chapter 4) **Site survey** (see Chapter 4) **Receiving dock information** (see Chapter 5) **Inside delivery information** (see Chapter 5) **Access and administrative issues** (see Chapter 5) • Faxes all of the required and completed worksheets (except the sales entry form) to the appropriate orders offices. See Chapter 4. • Works with the customer service engineer (CSE) and the customer to provide delivery information as listed in "Customer service 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 service 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

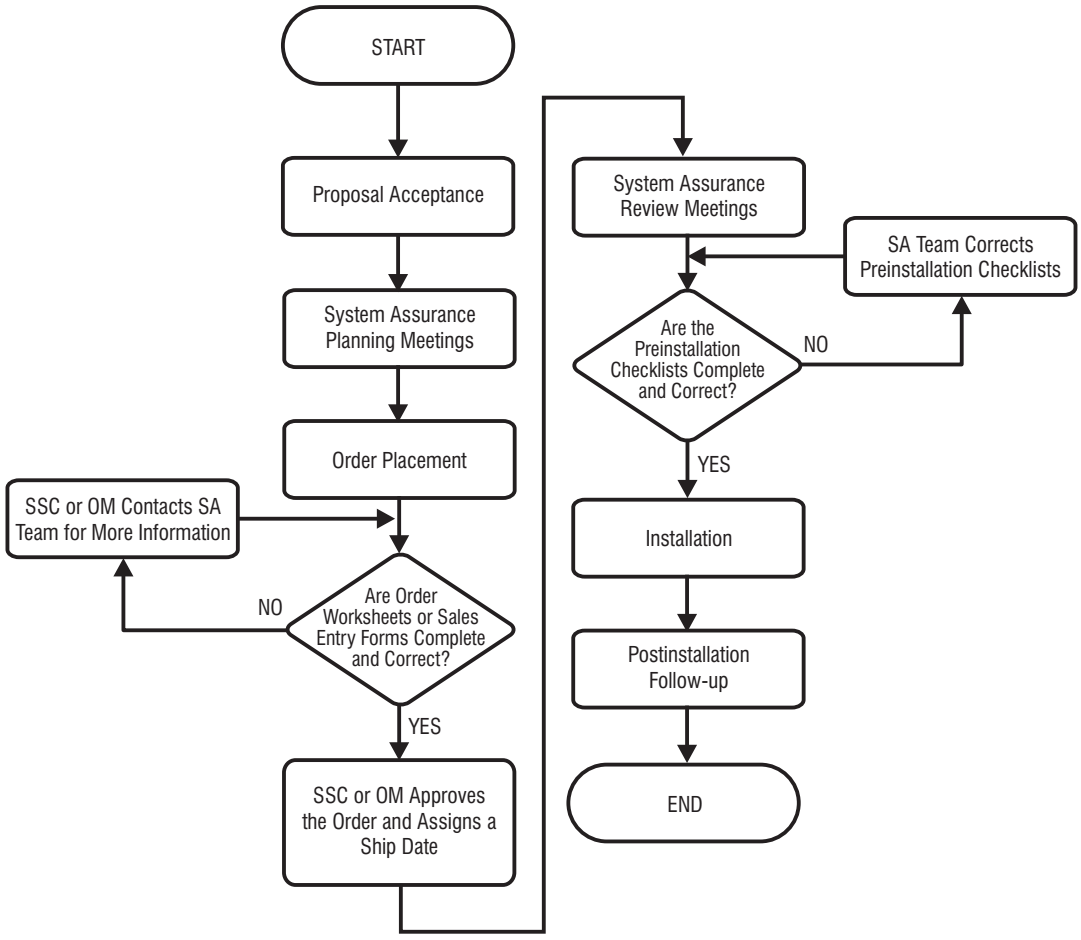
Team Member	Responsibilities
Customer	• Works with the IC at the system assurance planning meetings to provide the data for the worksheets listed for the IC. • Works with the systems engineer (SE) at the system assurance planning meetings to provide the data for the worksheet listed for the SE. • Names a contact person for any unresolved issues in the above worksheets. • Discusses the schedule and names a contact person for all scheduling matters.
Systems engineer (SE)	• Explains available levels of software support and criteria for problem escalation. • Works with the customer to complete the following worksheet: **Solution variables** (see Appendix C) • Provides data migration information

The System Assurance Flowchart

Figure 1-2 shows the system assurance process flow. The text that follows 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 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 StorageTek L700 Tape 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 worksheets, order worksheets, and other required worksheets (see Chapter 4)

Order Placement

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

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

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

Sales Entry Form or Order Worksheet Error Check

If the sales entry form or order worksheets 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 preinstallation checklists (see Chapter 5)
- Identify additional requirements

Preinstallation Checklist Error Check

If the preinstallation 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 CSE installs the StorageTek L700 Tape Library at the customer's site.

Postinstallation Follow-up

To follow up 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 or online. Refer to the end of the "How to Use This Guide" section in the "Preface" for the fax number, address, and URL.
- 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 enables you to record the names and phone numbers of the key personnel on the teams. The home telephone number is optional.

Customer Team

List names and telephone numbers of the following people:

CPU Hardware Contact

_____

Phone office:_____ home:_____

Operating Systems Software Contact

_____

Phone office:_____ home:_____

Communication Hardware Contact

_____

Phone office:_____ home:_____

Operations Contact

_____

Phone office:_____ home:_____

Installation Coordinator

_____

Phone office:_____ home:_____

StorageTek Team

List names and telephone numbers of the following people:

Marketing Representative

_____

Phone office:_____ home:_____

Systems Engineer

_____

Phone office:_____ home:_____

CSE

_____

Phone office:_____ home:_____

CSE room on site:

Installation Coordinator

_____

Phone office:_____ home:_____

StorageTek Hardware and Software Support

StorageTek provides the following phone numbers for hardware and software support:

Call Center (Hardware)	
U.S. and Colorado	1.303.673.4056
U.S. and Outside Colorado (Customers)	1.800.525.0369
U.S. and Outside Colorado (CSEs)	1.800.735.2778
Software Support	
U.S. and Outside Colorado	1.800.678.4430
U.S. and Colorado	1.303.673.4430

Channel Partner Team

List names and telephone numbers of the following people:

Marketing Representative

_____

Phone office:_____ home:_____

Systems Engineer

_____

Phone office:_____ home:_____

CSE

_____

Phone office:_____ home:_____

CSE room on site:

Installation Coordinator

_____

Phone office:_____ home:_____

This page intentionally left blank.

Product Overview

3

This chapter describes the StorageTek L700 Tape Library's features and major components. The L700 can store 216, 384, or 678 cartridges, depending on model and features selected, and make up to 450 exchanges per hour. Capacity does not include cartridges in the diagnostic and cleaning-cartridge cells, and the cartridge access port (CAP).

Figure 3-1. StorageTek's L700 Tape Library

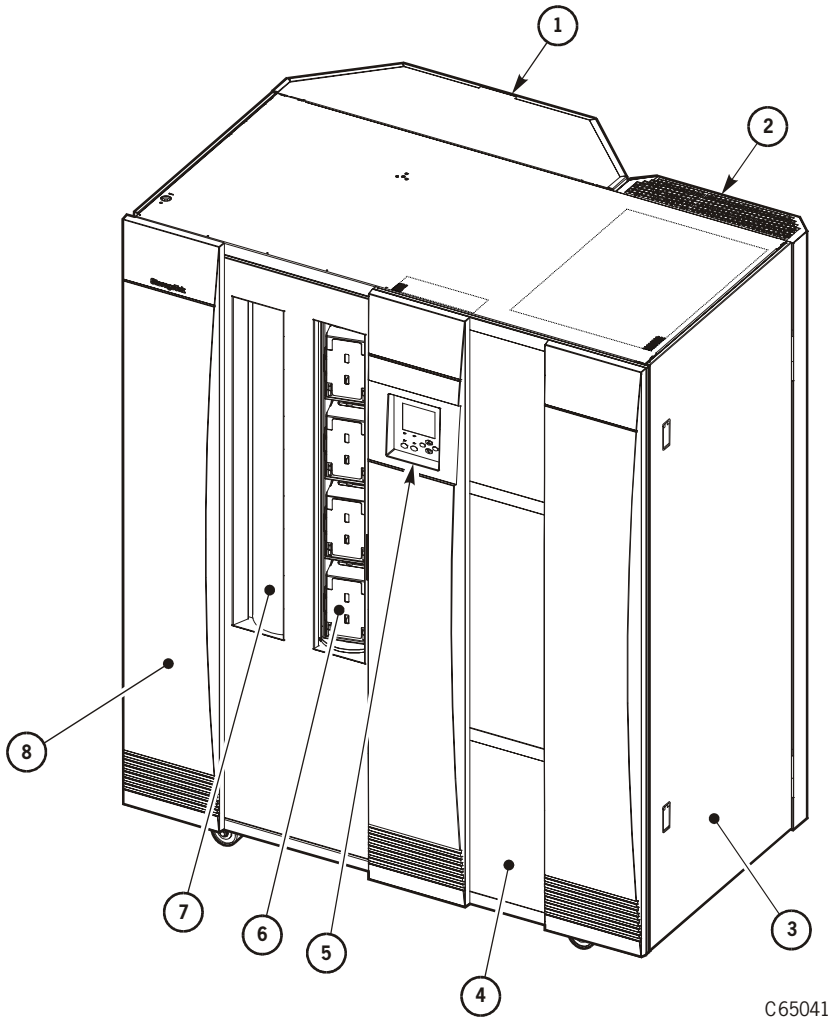


Figure 3-1. StorageTek's L700 Tape Library

Library with Expansion Frame Components (C65108)

1. Expansion frame
2. Rear rack access door
3. Side access door
4. Right front door
5. Operator panel
6. Cartridge access port (CAP) B (optional) or viewing window (standard)
7. CAP A (standard)
8. Library access door

The StorageTek L700 accommodates one to 12 StorageTek 9840 tape drives or one to 20 Quantum Digital Linear Tape (DLT) tape drives or a combination of the two.

You can order the library with cells for 216, 384, or 678 cartridge tapes. Each CAP holds four five-cartridge magazines (20 cartridges total) or you can order two CAPs (40 cartridges total).

The following table lists compatible cartridge tape drives.

Table 3-1. Compatible Tape Drives

Model	Number of Drives
DLT7000 Fast/Wide Differential	1 to 20
DLT8000 Fast/Wide Differential	1 to 20
StorageTek 9840 Differential	1 to 12
Note: The library accepts a combination of cartridge tape drives.	

Drive installation conventions include:

- DATA D3 (helical recording) cartridges and 3480 cartridges must *not* be used.
- Adding a second drive column reduces the number of cells by 60.

Configuration Flexibility

Configuration flexibility enables customers to expand a single unit from a smaller back-up-and-restore solution with a minimum of one drive and 216 cartridges, to a powerful product with up to 20 drives and 678 cartridges. The library operates with StorageTek and third-party software for connectivity and tape management. The library operates with standard SCSI control protocols.

A basic configurations is shipped complete in one container without tape drives. Additional features are shipped in their own separate boxes.

Host Indirect Connections

For indirect connections to the library, connect a server between the client and the library. An example of an indirect connection is a library connected to a Unix server; the server is then connected to an Ethernet local area network (LAN). A cable connects the Ethernet LAN to the client.

Server-to-library Connection

The server-to-library connection is made with a SCSI Type-3 68-pin cable. The library can have separate control and data paths or the control path be daisy chained to a data path.

Interfaces

DLT drives can run on SCSI; 9840 drives can run on a SCSI or Fibre Channel. Both DLT and 9840 SCSI also can be converted to Fibre Channel through a converter network that is rack mounted inside the library.

Communication between all hosts and an operator or CSE is supplied by:

- An operator panel that communicates library status, configuration, diagnostic sequences, and event-log information. Event-log information includes fault symptom codes (FSCs) to help you determine the problem.
- An optional 10baseT Ethernet with Horizon Library Monitor and Netscape or Microsoft Explorer
- A service port that communicates the same operator panel information described above to a remote laptop device or through a serial modem connection. This interface uses an RJ45 connection.

Power System

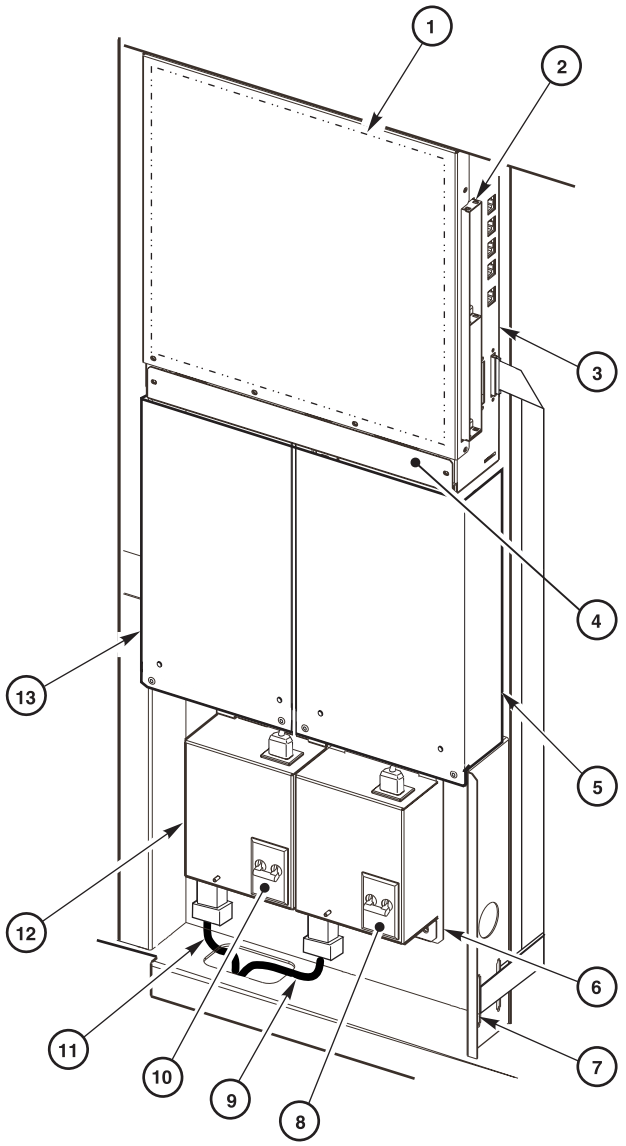
The library power system consists of:

- A power distribution unit (PDU) that contains a circuit breaker
- An AC power supply that operates within a line voltage of 90 to 264 VAC, 50 or 60 Hz

Customers can order an optional load-sharing redundant power supply for more availability; however, the redundancy is for the robotics, *not* for the tape drives. Libraries with two drive columns must have two PDUs. Hot-swappable power supplies feature drawer connectors.

The following figure identifies the main power system components.

Figure 3-2. Power System Components



Power System Components (C65110)

1. Electronics module (EM)–MPC Card
2. Compact PCI Expansion Bus (optional)
3. Serial and Ethernet port connections
4. Fan tray
5. DC power supply (optional)

Figure 3-2. Power System Components (Continued)

6. AC power distribution unit (PDU)–(secondary)
7. Library control SCSI I/O connectors
8. Power switch/circuit breaker (secondary)
9. AC power cord (secondary)
10. Power switch/circuit breaker (standard)
11. AC power cord (standard)
12. AC PDU (standard)
13. DC power supply (standard)

This page intentionally left blank.

Equipment Planning

4

This chapter helps you plan for installing StorageTek's L700 Tape Library. The planning process lists the steps to complete when ordering. Configuration worksheets record the customer's hardware and software.

Planning worksheets record the equipment that the team must order to install a library. This guide provides:

- Hardware planning worksheets
- Order worksheets

Other worksheets might be required. This guide does not provide the following worksheets, but you can obtain them from Installation Consultants, or through Portal from the Knowledge Map, or on Microsoft Exchange:

- Site survey
- Product checklist

Customer needs dictate which worksheets to complete and which departments to contact.

The Planning Process

To plan for your StorageTek L700 Tape Library:

1. Make photocopies of the blank worksheets provided in this guide.
2. Obtain other required worksheets 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 worksheets.
6. Review the items with the customer.
7. If necessary, transfer the appropriate information from the worksheets to a sales entry form.
8. Fax the worksheets or sales entry form to the appropriate orders department.

Fax Numbers and Addresses

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

VARs and VADS

Domestic customers, value-added distributors (VADs), and value-added resellers (VARs) must:

1. Transfer the information from the hardware planning worksheet, the cables order worksheet, and the cartridge tapes and labels order worksheet to a sales entry form. Use Galileo software to identify a valid configuration, generate an accurate quote, and produce an error-free sales entry form.

2. Fax these forms:
   - Sales entry form
   - Library configuration worksheet
   - Site survey
   - Product checklist

   to this number:

   Atlanta Shared Services Center
   Fax: 1-678-969-4015, 4016, or 4017

   5390 Triangle Parkway, Suite 300
   Norcross, GA 30092
   Voice: 1-678-969-4000 or toll free (from U.S. only) 1-800-903-7278

OEMs

Original equipment manufacturers (OEMs), distributors, and subsidiaries in Canada, Japan, Australia, South Asia, and Mexico must fax these forms:

- Hardware planning worksheet
- Cables order worksheet
- Cartridge tapes and labels order worksheet
- Site survey

to this number:

Orders Management
Fax: 1-303-673-2640 for distributors or subsidiaries
Fax: 1-303-673-7654 for OEM

One StorageTek Drive
Louisville, CO 80028-4350
USA
Voice: 1-303-673-5513

Hardware Planning Worksheets

Accurately complete the following worksheets to help ensure a trouble-free installation of the StorageTek L700 Tape Library. Use the "Order Worksheets" on page 4-13 to compile your order information.

Tape Drives

A DLT tape drive occupies one drive column slot, a 9840 tape drive occupies 1 1/2 slots. Complete the Drive Column Planning Sheet (Table 4-1) to determine the total number of drive slots you require. Enter the number of drives you need, then multiply by the number to the right of the "x". Use this planning sheet to complete the "Tape Drive Order Worksheet" on page 4-13.

Table 4-1. L700 Drive Column Planning Sheet

Tape Drive	Quantity	Multiplier	Drive slots
DLT7000		x 1	
DLT8000		x1	
9840		x 1.5	
		Total[1]	

[1] The total cannot exceed 20 slots. More than 10 drives requires a second column.

The library can hold from one to 20 DLT7000, or DLT8000 drives, or from one to six 9840 drives, and you can mix drive models. The maximum combinations of drives per column are shown in Table 4-2.

Table 4-2. Drive Combinations

9840	DLT
0	10
1	8
2	7
3	5
4	4
5	2
6	1

Drives ship with one interface 'Y' cable (installed by a technician), one terminator, a drive mounting tray, a drive chassis, a power supply for the tape drive, and hardware to mount the drive to the tray.

You will need SCSI 68-pin connectors to connect to the drives. The drive shipment does *not* contain a cartridge tape, but contains labels for cleaning cartridges and diagnostic cartridges.

Power Cable Information

The customer must order a general power cable and supply the correct receptacle (see Table 4-3). Additional power cables for specific wiring, source power, or country requirements can be ordered separately as options (see Table 4-4). Power characteristics for the tape library are listed in Table 4-5 on page 4-7.

Table 4-3. L700 Power Cables—General

Use	STK Cable PN, Length	STK Plug Type	Customer Installed Fixed Receptacle
North America	10083634 2.5 m (8.2 ft)	Feature code 9930 100 to 127 VAC, 15 A, NEMA 5-15P	NEMA 5-15R wall receptacle
North America (Locking)	10083645 2.5 m (8.2 ft)	200 to 240 VAC, 15 A, L6-15P[1]	L6-15R[1] wall receptacle
International	10083635 2.5 m (8.2 ft)	Feature code 9931 200 to 240 VAC, Harmonized, IEC 60309	230 VAC, IEC 60309 wall receptacle

[1] "L" denotes a locking connector. Use locking plugs for non-PFC DLTs mixed with 9840s for 200 to 240 VAC applications.

Power cables with specific connectors for the library and tape drives are listed in the table below.

Table 4-4. L700 Power Cables—Country Specific

Input Voltage	Country	If the Library Contains . . .	
		Only 9840 drives	**DLT Drives[1.]**
100 – 127 VAC 15 A	U.S./Canada	NEMA 5–15P 10083634	NEMA 5–15P 10083634
	Japan	JIS 8303 10083649	JIS 8303 10083649
[1.] For 200 – 240 VAC applications, use locking plugs for DLTs or DLTs mixed with 9840s.			
200 – 240 VAC 10 or 15 A	Australia	AS 3112 10083650	Locking IEC 60309 10083635
	Denmark	Afsnit 107-2-D1 10083654	Locking IEC 60309 10083635
	Europe[2.]	CEE 7/7 10083646	Locking IEC 60309 10083635
	Italy	CEI.23 10083651	Locking IEC 60309 10083635
	Japan	JIS 8303 10083649	Locking IEC 60309 10083635
	South Korea	KS 8305 10083656	Locking IEC 60309 10083635
	South Africa	BS 546 or BS 1363 10083655	Locking IEC 60309 10083635
	Switzerland	SEV 1011 10083652	Locking IEC 60309 10083635
	United Kingdom	BS 1363 10083653	Locking IEC 60309 10083635

Table 4-4. L700 Power Cables—Country Specific (Continued)

Input Voltage	Country	If the Library Contains . . .	
		Only 9840 drives	**DLT Drives[1.]**
Note: [1.] Use locking plugs for DLTs or DLTs mixed with 9840s. [2.] Europe includes Germany, Austria, Norway, Sweden, Finland, the Netherlands, Belgium, France, Portugal, and Spain.			
200 – 240 VAC 10 or 15 A	U.S.	NEMA 6–15 10083647	Locking[3.] IEC 60309 410573502 *or* NEMA L6–15P 10083645
	Canada	NEMA 6–15 10083648	Locking IEC 60309 410573502 *or* NEMA L6–5P 10083645
Note: [1.] Use locking plugs for DLTs or DLTs mixed with 9840s. [3.] Use locking plugs for DLTs or DLTS mixed with 9840s.			

External Cable Information

Order external cables through Orders Administration as required. Examples of external cables are SCSI cables.

Table 4-5. L700 Power Characteristics Description

Description	Value/Part Identification
Power drops for library and PDU 1, each: (47 to 63 Hz AC range. 3-wire cables supplied. International cables are supplied without cable connectors)	U.S./Canada: 120 VAC, single phase International: 200 to 240 VAC, single phase
Library 120 VAC domestic plug feature code 9930	NEMA 5-15P — supplied with library
PDU 120 VAC domestic plug	NEMA 5-15P — supplied with PDU
Library 120 VAC domestic wall receptacle	NEMA 5-15R — supplied by customer
PDU 120 VAC domestic wall receptacle	NEMA 5-15R — supplied by customer
International plugs and receptacles for library and, if applicable, for PDU	Supplied by client according to local electrical codes, see power specifications below.
Current input for library without drives[1]	1.250 A at 120 VAC 0.625 A at 240 VAC 2.000 A at 120 VAC
Power usage for library without drives[1]	W 150 peak /100 continuous KVA 0.15 peak /0.10 continuous
Heat output for library without drives	680 Btu/hr

[1] Up to six 9840 tape drives or 10 DLT drives take power from the standard L700 power distribution unit (PDU). Calculate power ratings for the L700, and (separately) for the PDU, by adding the number of drives connected to each. The PDU alone has zero load.

Power Cables, Drives, and Robot

Drive power cables are not needed. Installing a drive in a library inserts a power plug on the drive tray into a panel-mounted receptacle. The panel-mounted receptacle lets you replace a faulty drive while other drives are running.

SCSI Cable Paths

You may choose to separate the control and data paths. The control path transfers host commands for library move operations only. The data path transfers data to and from the drives. Alternately, you can combine both control

and data paths into one cable. Consider performance characteristics when determining the number of drives per SCSI path.

The library SCSI control and data path cables must be 68-pin high density (HD) connectors at the library. While single-ended cables may be used, their connectors must be adapted to a 68-pin differential configuration at the library connection. Because system cables vary in nature, you might have to adapt your connector to fit the library.

Daisy-Chain Cables

If the drives will be linked to a common path or if the library will be linked to a common path with the drives, refer to the following table for daisy-chain cables.

Table 4-6. Daisy-Chain Cables

Length	Description	Part Number
25 cm (10 in.)	Drive-to-drive	313109302
213 cm (84 in.)	Library-to-drive	313115701

SCSI Connectors

Refer to the following tables and figure for SCSI connectors for the library.

High Density 68-pin VHDC Cables

StorageTek offers the following cables for operating systems that support the VHDC (very high density connector) cables at the host channel card. The smaller, VHDC connector is connected to the host channel card.

Table 4-7. 68-pin Mini-D to 68-pin VHDC Connector

68-Pin MD to 68-Pin VHDCI Cable Part Numbers		
Length	**Above Floor PN**	**Plenum PN (see note)**
3 m (10 ft)	10083594	Not available
6 m (20 ft)	10083595	Not available
12 m (9 ft)	10083596	Not available
15 m (49 ft)	10083597	Not available
18 m (59 ft)	10083598	Not available
Note: Plenum rated cables have a higher flammability rating.		

High Density 68-pin Jackscrew Cables

Use high-density 68-pin high density jackscrew cables between for secure connections between the server, library, and drives. Refer to Table 4-8.

Table 4-8. 68-pin High Density Jackscrew Connector

68-Pin High Density Jackscrew Cable Part Numbers		
Length	**Above Floor PN**	**Plenum PN (see note)**
3 m (10 ft)	10083309	10083313
6 m (20 ft)	10083310	10083314
15 m (49 ft)	10083311	10083315
20 m (65 ft)	10083312	10083316
Note: Plenum rated cables have a higher flammability rating.		

Centronics 50-pin Latch to 68-pin Jackscrew Cables

When connecting to a system that uses a Centronics 50-pin spring-latch connector, you must order one of the cables listed in the following table.

Table 4-9. Centronics 50-pin to 68-pin Jackscrew Cable Part Numbers

Centronics 50-pin to 68-pin Jackscrew Cable Part Numbers		
Length	**Above Floor PN**	**Plenum PN (see note)**
9 m (29 ft)	10083359	10083368
15 m (49 ft)	10083361	10083370
24 m (78 ft)	10083364	10083373
Note: Plenum rated cables have a higher flammability rating.		

Special SCSI Adapter Cable

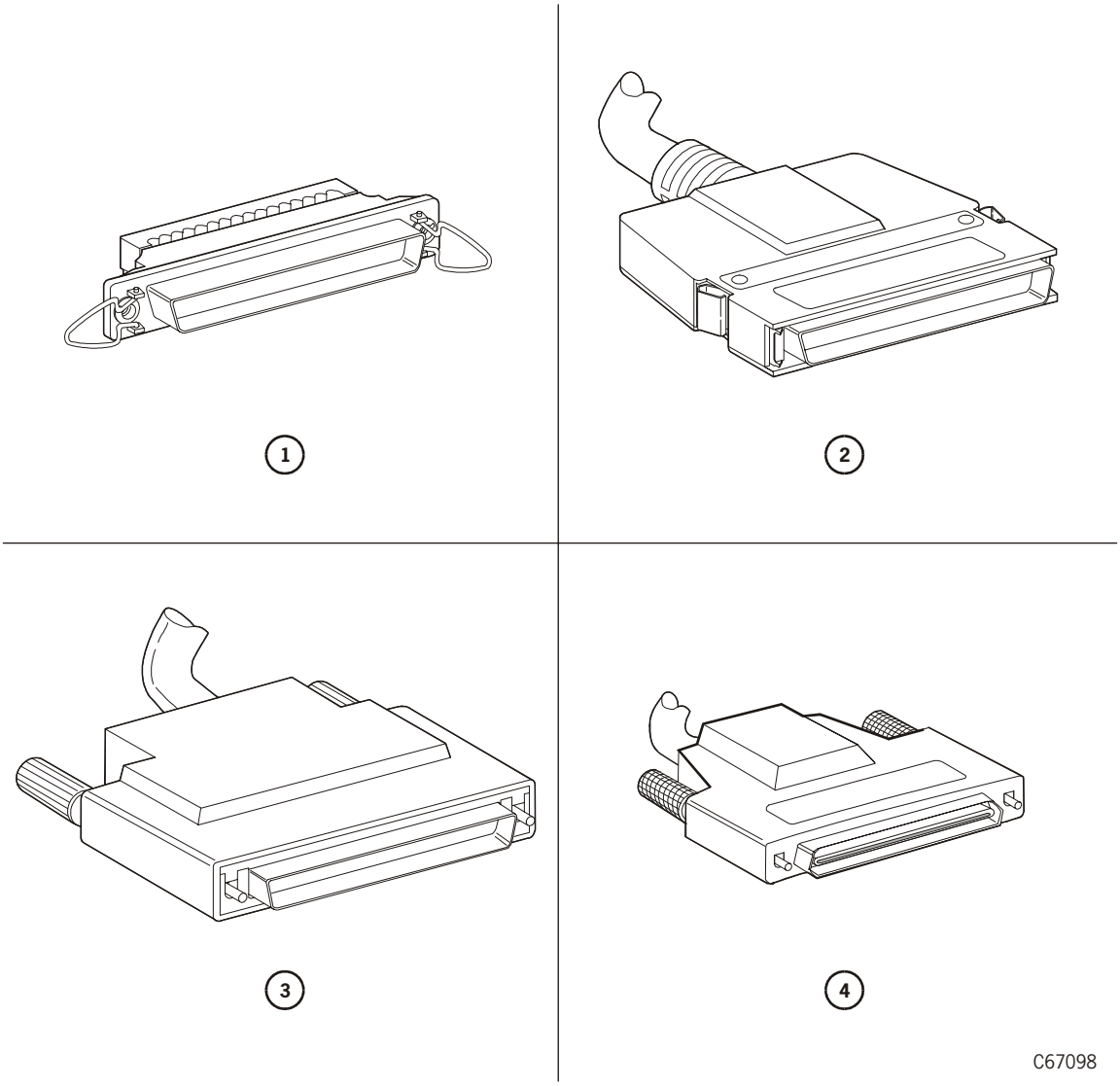
Use the cable in the following table to adapt existing system cables to operate with the library or drives.

Table 4-10. Special SCSI Cable Adapter

50-pin to 68-pin Latch, Block and Rail Connector Part Number		
Length and Description	**Usage**	**Part Number**
3 m (10 ft): HD 50-68 pin Sun/SPARC latch, block and rail adapter	Used to adapt the 50-pin HD latch, block and rail to fit a 68-pin connection	10083522

The following figure shows four common SCSI connector types and lists their descriptions. See preceding tables for part numbers.

Figure 4-1. SCSI Connector Types



SCSI Connector Types (C65134)

1. 50-pin spring latch Centronics connector
2. 50-pin high-density latch block and rail connector
3. 68-pin high-density jackscrew connector (standard)
4. 68-pin very-high-density jackscrew connector (68VHDC)

Interface Cables

Your selection of external interface cables depends on the platform. These cables are available through StorageTek and will fit most applications for data and the control path. Plenum-rated cables have a higher flammability rating.

Table 4-11. Interface Cables, L700 to Host

Description–Standard Material	**Part Number**
3 m (10 ft) Type CL2 SCSI External Interface Cable	10083309
6 m (20 ft) Type CL2 SCSI External Interface Cable	10083310
15 m (49 ft) Type CL2 SCSI External Interface Cable	10083311
20 m (65 ft) Type CL2 SCSI External Interface Cable	10083312
Description–Plenum rated (under floor)	**Part Number**
3 m (10 ft) Type CL2P SCSI External Interface Cable	10083313
6 m (20 ft) Type CL2P SCSI External Interface Cable	10083314
15 m (49 ft) Type CL2P SCSI External Interface Cable	10083315
20 m (65 ft) Type CL2P SCSI External Interface Cable	10083316
Description–Serial Cables	**Part Number**
4 m (13 ft) Cable Assy, DB9 (F)-DB25 (F)	310227101
6 m (20 ft) Cable Assy, DB9 (F)-DB25 (F)	310227201
12 m (40 ft) Cable Assy, DB9 (F)-DB25 (F)	310227301
24 m (80 ft) Cable Assy, DB9 (F)-DB25 (F)	310227401

Order Worksheets

Use the following worksheets to order the L700 Tape Library. Photocopy the worksheet if ordering more than one.

Feature codes, where shown, are required selections. Use both model number and feature code when completing the sales entry form.

Tape Library Order Worksheet

Select the model number of the L700 you require.

	Configuration	Model Number
❑	L700 (678 cells)	L700-700
❑	L700 (384 cells)	L700-400
❑	L700 (216 cells)	L700-300

Tape Drive Order Worksheet

Use Table 4-1 on page 4-3 to help complete this worksheet.

Tape Drive	Model Number	Drive Tray Feature Code	Interface Feature Code	Quantity
DLT7000	9777-001	TX40	2010 (single-ended)	
DLT7000	9777-001	TX40	2012 (differential)	
DLT8000	9788-001	TX40	2012 (differential)	
9840	9840-L01	TX40		
			Total	

Optional Features Order Worksheet

Select the features you require.

Feature Code	Description	Quantity
40CC	Second 20-cell CAP	
2NDT	Second drive column[1]	
1PDU	Second power distribution unit (PDU), cable not included	

RMPS	Redundant power supply[2]
9930	Domestic 100 to 120 VAC power cable
9931	International 200 to 240 VAC power cable (stripped leads)
	Country-specific power cable. Use the cable's part number to complete the feature code column (see Table 4-4 on page 4-5).

[1]More than 10 drives requires a second column.

[2] A redundant power supply produces redundancy for the robotics, *not* for the tape drive, and requires a second PDU.

SCSI Cables and Adaptors Worksheet

Refer to Table 4-6 on page 4-8 through Table 4-11 on page 4-12 to help complete this worksheet.

Table 4-12. External Cables and Adaptors

Part Number	Quantity

Special Tools Worksheet

Select the special tools you require to install or maintain the library.

Table 4-13. Special Tools

Description	Part Number	Quantity
Cover latch release tool	310229501	
DLT7000 leader kit	309172301	

Table 4-13. Special Tools

Description	Part Number	Quantity
DLT8000 leader kit	309172301	
Key, front door	310293301	
CSE tool kit	4019	
ESD grounding kit	4711	
3/4-inch wrench	WR11	
Diagonal cutters		
Laptop computer (486 or higher)		
Torx driver set		
Phillips screwdriver		

Environmental Planning

Environmental planning refers to the readiness of the physical locations and connections where the StorageTek L700 Tape Library will be installed. When the Preinstallation Checklist and Solution Variable information have been completed, attach a copy of them to this document and have the appropriate system assurance team members sign below. Refer to Appendix A, "Hardware Considerations," for information about the L700's physical, power, and environmental specifications.

_____
StorageTek representative (date)

_____
Customer representative (date)

Note: These worksheets can be obtained from the individual installation consultants or are available through Portal from the Knowledge Map or on Microsoft Exchange.

Schedule Planning

After completing schedule planning, attach a copy of the proposed schedule to this document and have the appropriate system assurance team members sign below.

_____

StorageTek marketing representative (date)

_____

Customer representative (date)

This page intentionally left blank.

Preinstallation Checklist

5

Verify that you have resolved all issues listed in Table 5-1. Circle "Yes" or "No" for each item. For unresolved issues, assign an action, a due date, and an appropriate person.

Table 5-1. Preinstallation Checklist

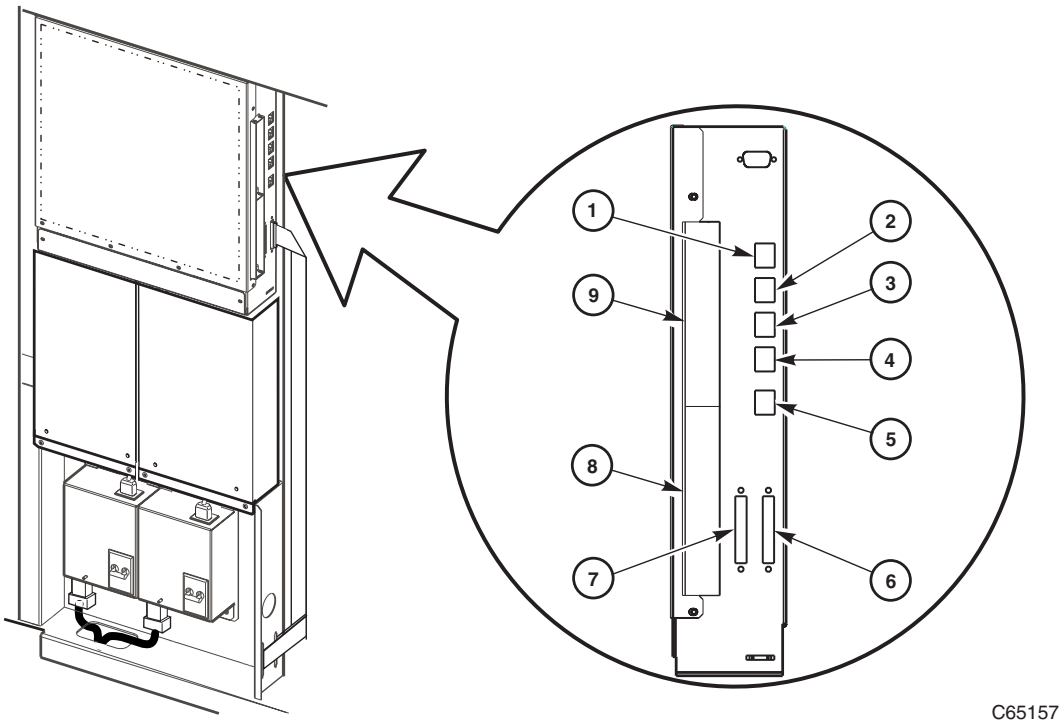
Item Description	Yes/No	Action/Due Date/Person Responsible
Site Preparation		
Floor plans completed	Yes/No	
Clearance adequate	Yes/No	
Cooling adequate	Yes/No	
Power requirements met	Yes/No	
Cable lengths determined	Yes/No	
Cable routing established	Yes/No	
Future expansion considered	Yes/No	
Dock facilities 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	
Software Procurement		
Software prerequisites met	Yes/No	
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	

This page intentionally left blank.

Hardware Considerations

A

Figure A-1. Electronics Panel for the I/O Library Control Cable



Electronics Panel Components (C65120)

1. CSE (service)
2. Test
3. Ser 1 (serial)
4. Ser 2 (serial)
5. Enet (Ethernet)
6. SCSI, Differential
7. SCSI, Single ended
8. Slot 0 (expansion card)
9. Slot 1 (expansion card)

This page intentionally left blank.

Site Planning Information

B

Table B-1. Weights and Measures

Library, Drive, and Cartridge Tape	
Height	183 cm (72 in.)
Width with covers	156 cm (61.3 in.)
Depth	95 cm (37.5 in.)
Depth with expansion frame	110 cm (43.5 in.)
Weight without drives or cartridges	427 kg (941 lbs)
DLT drive and tray weight	5.3 kg (11.7 lbs)
9840 drive and tray weight	6.4 kg (14.0 lbs)
DLT cartridge tape weight	255 g (9.0 oz)
9840 cartridge tape weight	260 g (9.2 oz)

Table B-2. Power Specifications

Power cable	
U.S./Canada International	100 VAC UL/CSA power cable 200 to 240 VAC HAR power cable
Input voltage range Nominal voltage (per power supply)	90 to 254 VAC 120 or 240 VAC
Power configuration (library without drives)	**U.S./Canada:** Single phase 100 VAC, 47 to 63 Hz, 20 A service, 3-wire **International:** Single phase 200 to 240 VAC, 47 to 63 Hz, 10 A service, 3-wire
Power consumption	210 W
Maximum heat output	716 Btu/hr

Table B-3. Single Drive Tower

Power cable	
U.S./Canada International	120 VAC UL/CSA power cable 200 to 240 VAC HAR power cable
Input voltage range Nominal voltage	90 to 254 VAC 120 or 240 VAC
Power configuration	
U.S./Canada International	Single phase 120 VAC, 47 to 63 Hz, 6 A service, 3-wire Single phase 200 to 240 VAC, 47 to 63 Hz, 3 A service, 3 wire
Power consumption	6 x 9840 tape drives = 972 W 10 x DLT7000 tape drives = 1,104 W
Maximum heat output	6 x 9840 tape drives = 3,314 Btu/hr 10 x DLT7000 tape drives = 3,764 Btu/hr

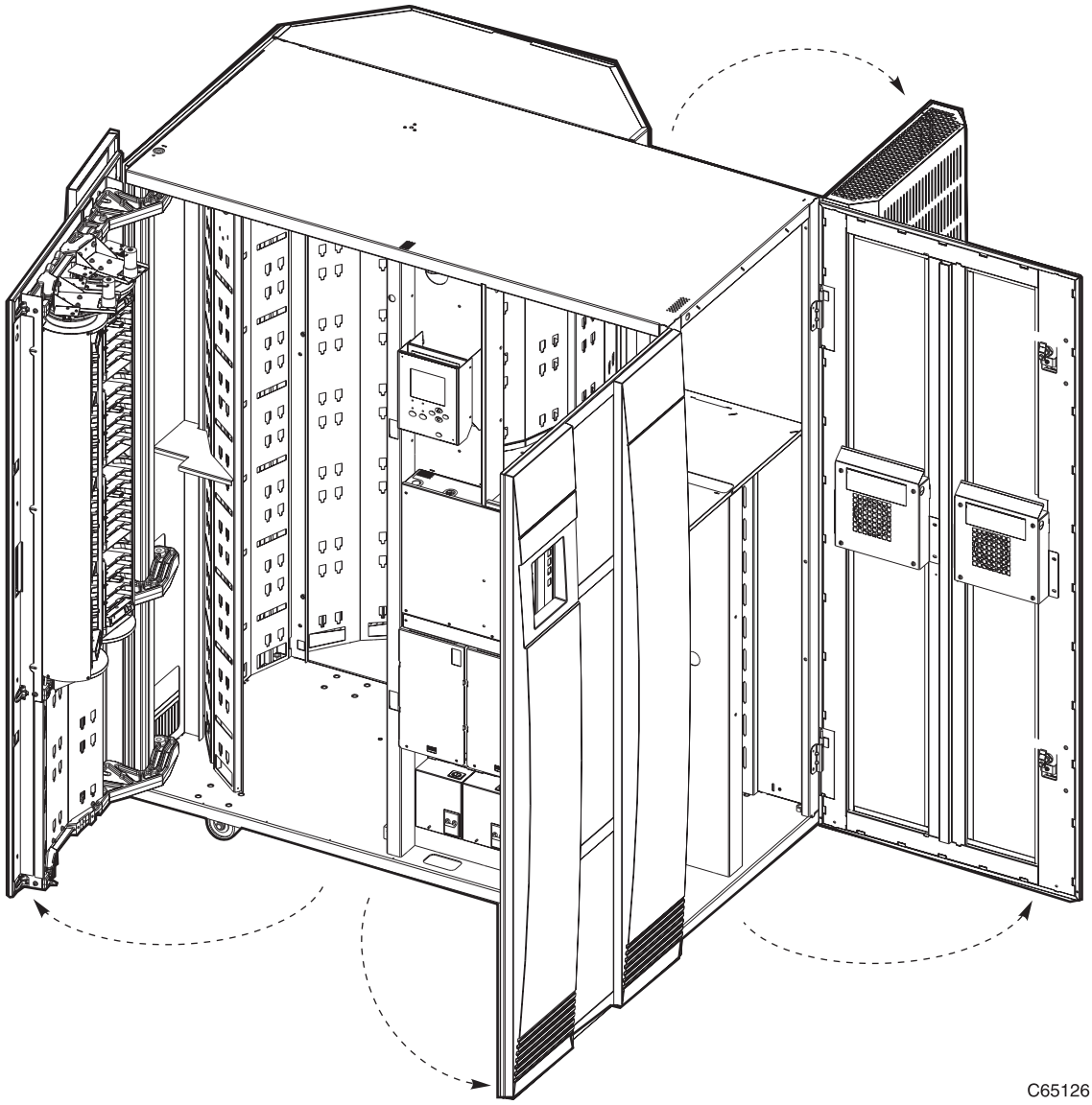
Table B-4. Optional Second Drive Tower

Power cable	
U.S./Canada International	120 VAC UL/CSA power cable 200 to 240 VAC HAR power cable
Input voltage range Nominal voltage	90 to 254 VAC 120 or 240 VAC
Power configuration	
U.S./Canada International	Single phase 120 VAC, 47 to 63 Hz, 6 A service, 3 wire Single phase 200 to 240 VAC, 47 to 63 Hz, 3 A service, 3 wire
Power consumption	6 x 9840 tape drives = 972 W 10 x DLT7000 tape drives = 1,104 W
Maximum heat output	6 x 9840 tape drives = 3,314 Btu/hr 10 x DLT7000 tape drives = 3,764 Btu/hr

Table B-5. Environmental Specifications

Temperature	
Operating	15° to 32° C (59° to 90° F)
Storage	10° to 40° C (50° to 104° F)
Shipping	-40° to 60° C (-40° to 140° F)
Relative Humidity	
Operating	20% to 80% (noncondensing)
Storage	10% to 95% (noncondensing)
Shipping	10% to 95% (noncondensing)
Wet Bulb Maximum	
Operating	29° C (84° F)
Storage	35° C (95° F)
Shipping	35° C (95° F)
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.)

Figure B-1. Library Layout and Floorspace Requirements

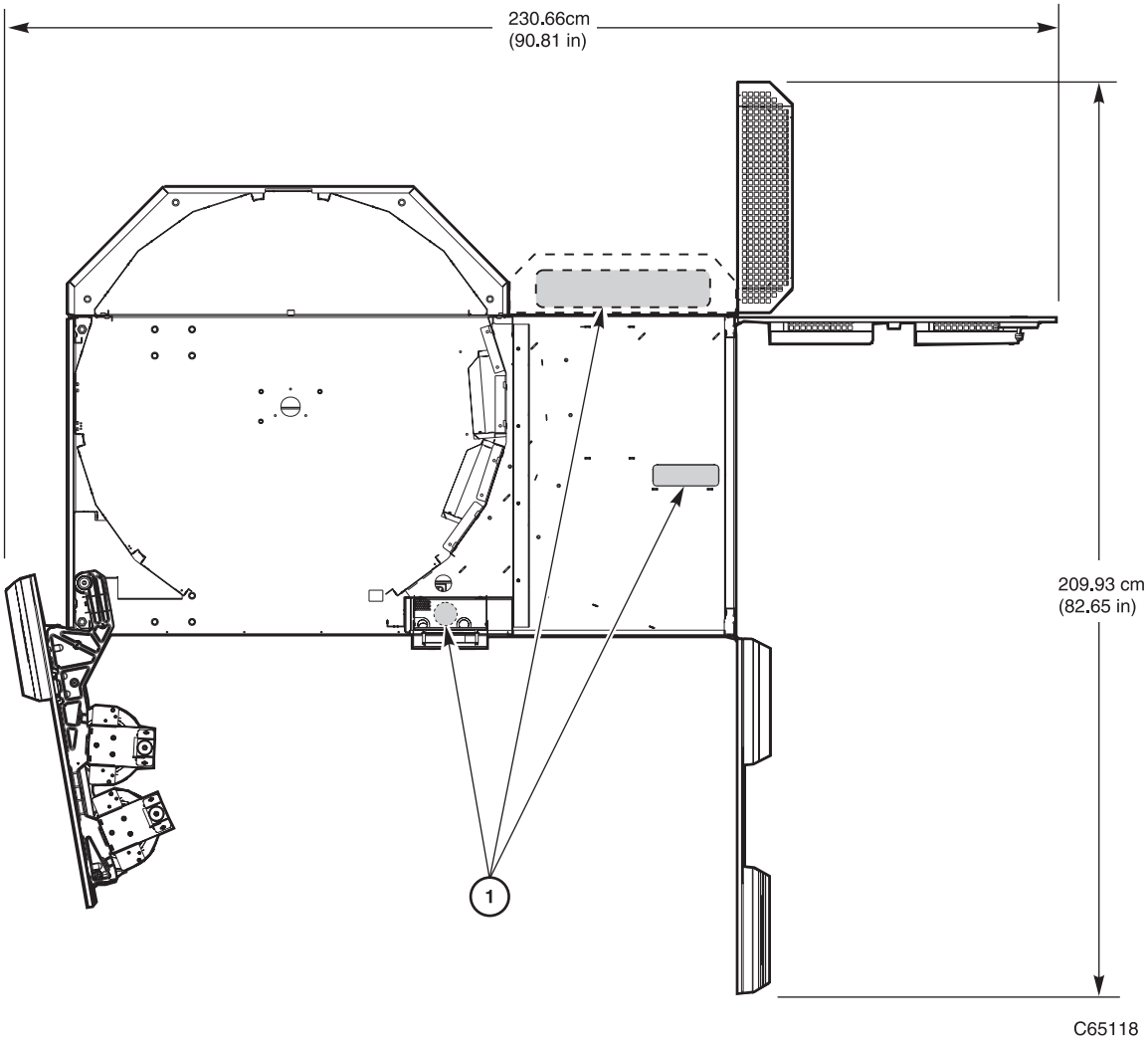


Floorspace requirements (C65126)

The arrows indicate door travel necessary for service access.

Note: Right front door, rear rack door, and plastic cover on front left door can be removed to fit the library through confined spaces 73.6 cm (29 inches).

Figure B-2. Top View of Library Showing Cable Access



Top view of library showing cable access (C65118)

1. Cable access holes

   Note: The library requires 15 cm (6 in.) of clearance at the top and 10 cm (4 in.) on the sides.

This page intentionally left blank.

Solution Variables

C

Record information about your solution variables in Table C-1.

Table C-1. Solution Variables

Storage Management Software _____
Server Brand _____ Model _____ Operating System Version _____
Client 1 Brand _____ Model _____ Operating System Version _____
Client 2 Brand _____ Model _____ Operating System Version _____
ACSLS Version (if running) _____ Server Brand _____ Operating System Version _____

Visit the Connectivity Matrix Web site at: https://extranet.stortek.com/isvrel/ to determine if the desired solution is certified.

This page intentionally left blank.

Glossary

The following terms are used in this guide or apply to this product.

A

ACSLS Automated cartridge system library server.

ANSI American National Standards Institute.

array A vertical row of cartridge tape cells inside a tape library.

ASCII American National Standard Code for Information Interchange. A character set used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control and graphic characters.

audit (1) For a tape library, a part of its IPL sequence that catalogs all cartridge locations within the tape library cells and retains the data in the MPC card's memory. (2) For a host, its request to catalog the cartridges in a tape library by tape library number, panel, row, and column.

automatic mode A relationship between a tape library and all attached hosts. A tape library operating in automatic mode handles cartridges without operator intervention. This is the normal operating mode of a tape library that has been placed online to all host CPUs.

B

Btu British thermal unit.

C

C Centigrade.

CAP *See* cartridge access port.

cartridge The plastic housing around the tape. A plastic leader block is attached to the tape for automatic threading when loaded in a transport. The spine of the cartridge contains a VOLSER label listing the volume serial identification number.

cartridge access port An assembly that allows an operator to enter/eject up to 20 cartridges during automated operations. The operator can open the CAP and place each cartridge into the cells or place a preloaded five-cartridge magazine into a CAP. The CAPs are located on the right front door of the tape library.

cartridge tape Magnetic tape enclosed in a plastic housing.

catalog The inventory of all tape cartridge storage locations in a tape library. This inventory is by tape library number, panel, row, column.

cell A slot in the tape library that is used to store a cartridge.

Central Support Remote Center The remote diagnostic center at StorageTek. Central support remote engineers (CSREs) can access and test StorageTek systems and software, through telecommunications lines, from certain remote customer installations. Previously referred to as the remote diagnostic center (RDC).

configuration The description of a tape library, listing the panel types and drives.

CSE Customer services engineer.

CSRC *See* Central Support Remote Center.

CSRE A central support remote engineer. *See* Central Support Remote Center.

customer services engineer A StorageTek employee trained to install, maintain, and repair StorageTek equipment.

D

daisy chain A method of device interconnection for determining interrupt priority by connecting the interrupt sources serially.

diagnostic programs Tests, accessible through the tape library operator panel, that allow a local user to run offline tests within the tape library.

differential A SCSI bus alternative with a maximum cable length of 25 meters (82 feet).

Digital Linear Tape A trade name for Quantum cartridge tapes used in DLT drives.

DLT Digital Linear Tape.

drive An electromechanical device capable of threading tape from a cartridge, moving the tape across a read/write head, and writing data onto or reading data from the tape.

F

F Fahrenheit.

fast wide SCSI A 16-bit data transfer about 20 MB/s.

fault symptom code (FSC) Error or information code generated by functional or diagnostic software that may directly or indirectly be used to indicate the field replaceable unit (FRU) that is probably causing the error.

fiber optics The branch of optical technology concerned with the transmission of radiant power through fibers made of transparent materials such as glass, fused silica, and plastic.

field replaceable unit Assembly that is replaced in its entirety when any one of its components fails.

FRU *See* field replaceable unit.

FSC *See* fault symptom code.

G

GB gigabyte

I

IBM International Business Machines.

ID Identifier or identification.

initial program load (IPL) A process that activates a machine reset and loads system programs to prepare a computer system for operation. Processors with diagnostic programs activate these programs at IPL execution.

in-transit cartridges Cartridges left in the robot hand during a power failure.

IPL *See* initial program load.

L

library A device for storing cartridge tapes, robot at drives.

M

MB/s Megabytes per second.

N

Nearline The StorageTek family of tape-library information storage and retrieval products.

O

operator panel The user interface for the L700 library.

operating system Software that controls program execution.

R

robot Electromechanical device for moving cartridge tapes between storage cells and tape drives.

S

SCSI *See* Small Computer Systems Interface.

SE Systems engineer.

servo Device that uses closed-loop feedback to govern physical positioning.

single-ended A SCSI bus alternative with a maximum cable length of 6 meters (25 feet).

small computer systems interface A data interface between the drive and host.

SSR Software support representative.

system assurance The exchange of information among the product-installation teams to ensure customer satisfaction and an error-free installation.

T

theta motor The motor responsible for the lateral movement of the hand assembly in the tape library.

V

VOLSER *See* volume serial label.

volume serial label (VOLSER) An alphanumeric label used by host software to identify a volume. It is attached to the spine of a cartridge and is both human and machine readable.

Z

Z column assembly The column which allows the hand assembly in the tape library to move vertically.

Z motor The motor responsible for the vertical movement of the hand assembly in the tape library.

This page intentionally left blank.

Index

T

W

Z

READER'S COMMENT FORM

Manual Name:_____ Manual PN:_____

Please check or fill in the items; adding explanations/comments in the space provided.

Which of the following terms best describes your job?

☐ Field Engineer	☐ Manager	☐ Programmer	☐ Systems Analyst
☐ Engineer	☐ Mathematician	☐ Sales Representative	☐ Systems Engineer
☐ Instructor	☐ Operator	☐ Student/Trainee	☐ Other (explain below)

How did you use this publication?

☐ Introductory text ☐ Reference manual ☐ Student/Trainee ☐ Instructor text

☐ Other (explain)_____

Did you find the material easy to read and understand? ☐ Yes ☐ No (explain below)

Did you find the material organized for convenient use? ☐ Yes ☐ No (explain below)

Specific criticisms (explain below):

Clarification on pages_____

Additions on pages_____

Deletions of pages_____

Errors on pages_____

Explanations and other comments:

Note: *Staples can cause problems with automated mail sorting equipment. Please use pressure sensitive or other gummed tape to seal this form. If you would like a reply, please supply your name and address on the reverse side of this form.*

Thank you for your cooperation. No postage stamp required if mailed in the U.S.A.

TO COMPLY WITH POSTAL REGULATIONS, FOLD EXACTLY ON DOTTED LINES AND TAPE (DO NOT STAPLE)

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 2 LOUISVILLE, CO U.S.A.

POSTAGE WILL BE PAID BY ADDRESSEE

NEARLINE INFORMATION DEVELOPMENT MS 2201
STORAGE TECHNOLOGY CORPORATION
ONE STORAGETEK DRIVE
LOUISVILLE CO 80027-9984

FOLD HERE AND TAPE DO NOT STAPLE FOLD HERE AND TAPE

If you would like a reply, please print:

Your Name:_____

Company Name:_____ Department:_____

Street Address:_____

City: _____

State: _____Zip Code:_____

STORAGE TECHNOLOGY CORPORATION
ONE STORAGETEK DRIVE
Louisville, CO 80028-2201

CSE World Wide Tech Support: (303) 673-4056
OEM Tech Support (303) 673-3126

Printed in the USA

StorageTek

Information Made Powerful™

World Headquarters
Storage Technology Corporation
One StorageTek Drive
Louisville, Colorado 80028 USA
Phone: 1 800 STORTEK (786-7835)
Fax: (719) 536-4053

World Wide Web Address
www.storagetek.com