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TimberWolf 9730 Library

System Assurance Guide



TimberWolf 9730 Library

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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:

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Summary of Changes

Date	Edition	Change
December 1997	A	Initial release.
September 1999	E	Added DLT8000, twist-lock power cable, 10-cell model, and miscellaneous changes.
February 2001	F	New template.

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About This Guide

The purpose of this *System Assurance Guide* is to ensure that the customer purchasing a TimberWolf 9730 Library has a positive, trouble-free experience, and that the ordering process is complete, efficient, and as simple as possible. To achieve these goals, the sales/marketing representative must be familiar with all the 9730 requirements, including library configurations, tape drive configurations, rack-mounting, cabling, host software, and cartridge tapes.

Organization

This guide contains:

Chapter 1 "9730 Essentials" discusses features of the 9730 Library that must be understood by sales/marketing representative when taking orders.

Chapter 2 "Ordering the Equipment" provides simplified forms for ensuring a complete 9730 Library order.

Chapter 3 "Preinstallation Checklist" provides a checklist to help ensure the customer is ready for installation of the 9730 Library.

Chapter 4 "Delivering the Equipment" provides a place to record the required information for delivery of the 9730 Library.

Chapter 5 "Ordering Information" provides additional information about options, configurations, feature codes, and part numbers for the 9730 Library, DLT cartridge tapes, and accessories.

Appendix A "Specifications" contains physical, electrical, and environmental specifications for the 9730 Library.

Glossary Defines new or special 9730 Library terms and abbreviations used in this guide.

Index Assists in locating information in this guide.

A Reader's Comment Form at the back of the guide is for communicating suggestions or requests for change. We encourage and appreciate reader feedback.

Trademarks

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Related Publications

Additional information is contained in the following publications.

Publication	Part Number
TimberWolf 9730 Library Product Manual	95900
TimberWolf 9730 Illustrated Parts Catalog/Compatibility	309129201
TimberWolf 9730 Library SCSI Reference Manual	95727
DLT4000 Tape Drive Product Manual	313127601
DLT7000 Tape Drive Product Manual	313134501
DLT8000 Tape Drive Product Manual	81-60118-0x (Quantum PN)

Ordering Publications

When hardware and software are ordered, the customer and marketing representative should also discuss any additional publications required (other than those included with the library).

9730 Essentials

1

The customer purchasing a TimberWolf 9730 Library deserves a positive, trouble-free experience. In order to ensure that the ordering process is complete, efficient, and as simple as possible, it is necessary to be familiar with the essentials of the 9730 system and installation:

- General overview
- Configuration
- Tape drives
- Rack-mounting
- Cabling
- Host software
- Cartridge tapes and labels

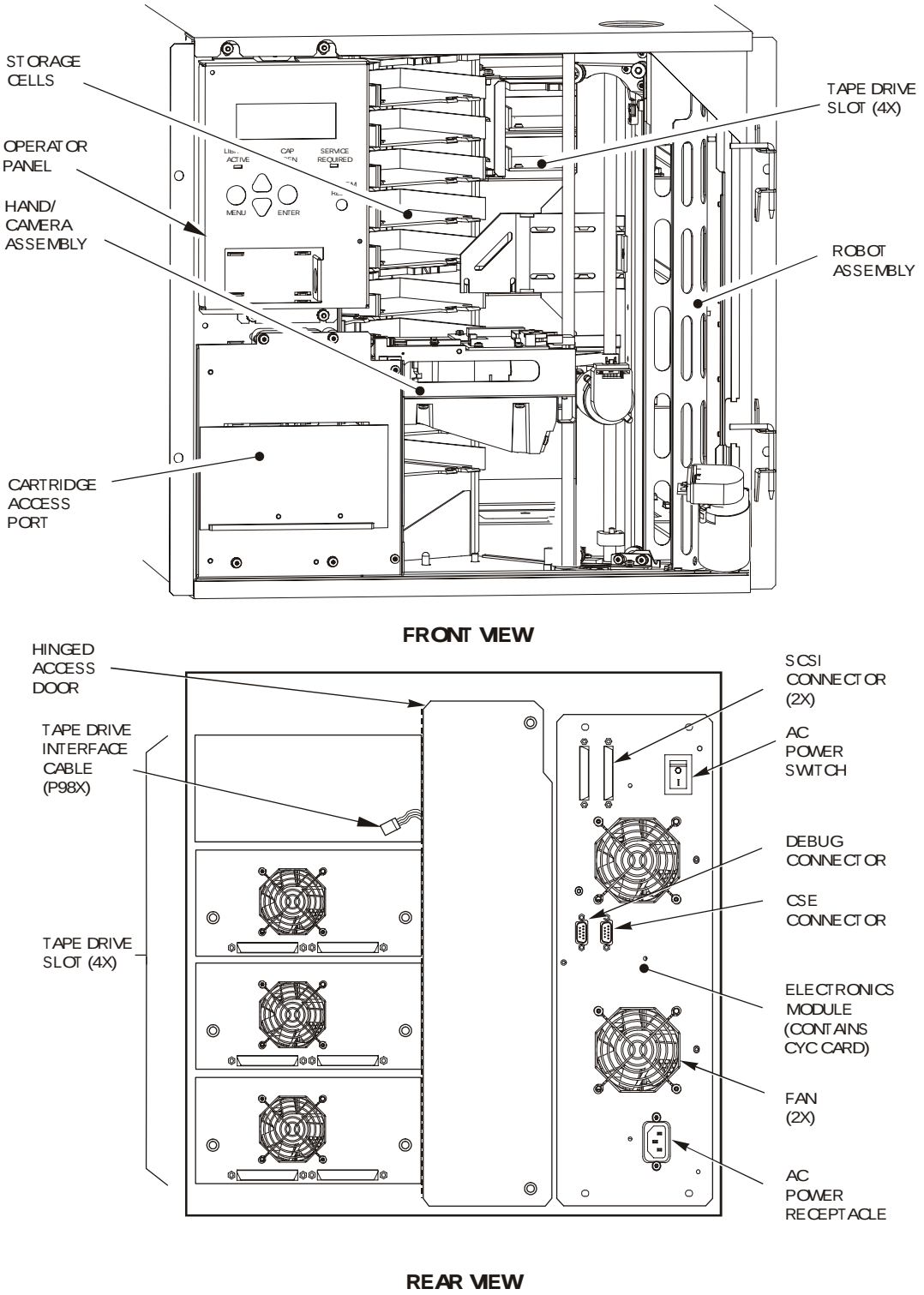
The following sections of this chapter discuss these areas.

9730 Overview

The TimberWolf 9730 Library is a self-contained, rack-mountable fully automated cartridge system that can accommodate up to four digital linear tape (DLT) drives. The library uses a small computer system interface (SCSI) library command set and direct attach to the SCSI bus. Figure 1-1 on page 1-2, front and rear views, shows the major components of the library:

- Operator panel
- Electronics module
- Robot assembly including hand/camera
- Tape drives
- Storage cells
- Cartridge access port (CAP)

Figure 1-1. Major Components of the 9730 Library



Configuration

The TimberWolf 9730 Library is available in three configurations, as 10-, 20-, and 30-cell models.

9730-001

The first available 9730 configuration (9730-001) contains storage cells for 30 DLTtape cartridges and slots for up to four DLT drives.

Note: If four drives are installed, two of the storage cells must be removed.

9730-002

The second configuration of the 9730 (9730-002) is a 20-cell version available at a reduced price. This model is physically the same as the 9730-001, but is limited to using only 20 storage cells. An upgrade is available to easily bring the library up to full 30-cell functionality whenever the customer wishes to purchase it.

9730-003

The third configuration of the 9730 (9730-003) is a 10-cell version. Again, an upgrade is available to easily bring the library up to full 30-cell functionality whenever the customer wishes to purchase it.

Feature Codes

All configurations described above can be ordered as a Pedestal/Deskside, Desktop, or Rackmount models. The associated feature codes are

Feature Code	Description
9899	Desktop
9901	Rackmount

The rackmount unit can be converted later, if desired, to desktop configuration. The desktop can be converted to deskside use by ordering the matching pedestal.

Tape Drives

DLT4000, DLT7000, and DLT8000 drives for the 9730 are mounted on a tray that also holds a discrete power supply. This assembly can be easily removed and installed by most customers. The drive kit contains the actual tape drive, a load latch mechanism used by the library robot to open the drive for mounting cartridges, an interface cable for connection to the external SCSI ports, a terminator, the power-supply, and mounting hardware.

All the DLT drives use the same DLTtape IV cartridges (with compatibility for type III and IIIXT). The The DLT8000 can write up to 40 GB (native) information

to a type IV cartridge; the DLT7000 can write up to 35 GB; the DLT4000 is limited to 20 GB. Capacity with compressed data varies with the compression algorithm.

A caution is required when mixing drive types in the same library. The tape formatting done by the more advanced drives is not recognized by the earlier drives. Although library audits and host software keep track of which tapes are in which format, care must be taken when mounting tapes manually to the drives, or data may be overwritten.

A 9730-specific load latch is installed on each drive. The robot uses the load latch to open the drive for mounting and dismounting tapes. This load latch has a specially-designed breakaway feature. Because damage to the drive mechanism can occur if the load latch is manually opened improperly, the breakaway feature compensates for any excessive force that might be accidentally applied. The load latch can then be easily returned to its correct position.

All the DLT drives can be ordered single-ended or differential, except DLT8000, which is differential only. Single-ended systems are limited to 6 m (20 ft) in total SCSI cable length. Differential systems are limited to 25 m (82 ft) total cable length. While DLT4000, DLT7000, and DLT8000 drives can be mixed in the same library, the single-ended and differential versions should not be attached to the same SCSI bus.

DLT drives occasionally require cleaning and they automatically notify the library when this condition is detected. If the host software supports Auto Clean, a cleaning cartridge can be kept in one of the storage cells (column 0, cell 7) so drive cleaning is fully automated. Otherwise, the cleaning cartridge can be inserted into the library through the cartridge access port (CAP) as needed.

Rack-Mounting

The 9730 is rack-mountable. Its dimensions are:

- Width: 482.6 mm (19.0 in.)
- Depth: 726.4 mm (28.6 in.)
- Height: 444.5 mm (17.5 in.)

A “standard” 19-inch wide rack should have 10 rack units available to accomodate the library’s height. The library must sit on a shelf to support its weight, and it must be attached to the rack’s front mounting brackets with four bolts.

A mounting shelf to fit a standard 19-inch wide rack of any depth is available from StorageTek. Order PN 3000599.

If the rack has a front and/or rear door, it must provide adequate clearance to the library and must enable cooling air to flow through. The library’s air flow is drawn from the front and exhausted to the rear. If there is a rear door, it should provide at least four inches of clearance from the back of the library.

Cabling

SCSI cables (68-pin P-cable with HD connectors) are required for a 9730 installation. These are used to daisy-chain the DLT drives and the library, and also to provide a library-to-host connection. Refer to Chapter 5, "Ordering Information," for cable part numbers.

Daisy-Chain Cables

If multiple DLT drives are installed, they may be connected by SCSI daisy-chain cables. If two drives are installed, one cable would be required. Three drives require two daisy-chain cables, and so on. In addition, one SCSI cable is required to connect the drive chain to the library.

Library-to-Host Cable

The SCSI cable required for library to host connection depends upon the host requirements. Most installations use standard cables. Adapters are available to fit special connectors.

Note that the differential alternative allows a total system cable length of 25 m (82 ft) while the single-ended alternative is limited to 6 m (20 ft). *This includes the daisy chain cables, which may add up to 2 m (6 ft) or more, depending on the cables used.*

Host Software

Host-level software provides the functionality required by the customer for data management. This software also contains the drivers that use SCSI commands to control the motion of the library robot and to audit and store the location of cartridge tapes using the volume serial number (VOLSER) on the bar-coded cartridge labels.

Host Functions

Numerous software solutions integrate well with the 9730 Library and a wide variety of servers and operating systems. These can be chosen to meet the specific needs of the customer's application, for such functions as:

- Backing up and restoring data
- Archiving data
- Managing hierarchical storage
- Managing the storage media
- Recovering from disasters

Host software can be selected for other reasons also, such as:

- Optimizing the performance of large networks
- Supporting multiple platforms
- Improving availability, compatibility, and scalability of the system
- Delivering fully-automated, "lights out" environments

Microcode

The library and the DLT drives require their own unique microcode. Microcode for the DLT drives is loaded from a cartridge tape. Library microcode is loaded from a computer, through the CSE port on the rear of the unit, and is stored in nonvolatile random access memory (NVRAM) located on the CYC card in the electronics module. Microcode can be downloaded from the SCSI bus using the "Write Buffer" command.

Information regarding microcode updates may be found on the Partners Home Page at http://www.storagetek.com/customers/partners/.

Cartridge Tapes and Labels

DLT drives use DLTtape IV cartridge tapes. Type III and IIIXT cartridges are also supported for backward compatibility read/write functions (data migration). These tapes are available through StorageTek Direct Response at 1-800-922-3260.

Drive cleaning cartridges can be ordered from the same source. Quantum cleaning cartridges are specified for about 20 uses.

A diagnostic cartridge is included with the library. This tape is a blank DLTtape data cartridge with a "DG" label. The library uses the diagnostic cartridge to perform tests on the robot and the DLT drives to see if they are functioning properly.

Cartridges require labels. Labels include the VOLSER used for library auditing, and codes indicating whether the tape is used for data storage, cleaning, or diagnostic purposes. Cartridge tape label sets are described in detail in Chapter 5, "Ordering Information."

Ordering the Equipment

2

This chapter contains worksheets to order the TimberWolf 9730 Library and accessories.

The following Order Worksheet organizes information regarding the hardware configuration, and the DLT Cartridge Tapes and Labels Worksheet does the same for tapes and labels.

To order a TimberWolf 9730 Library:

1. Make photocopies of the blank worksheets.
2. Identify the customer and sales/marketing contacts.
3. Enter the desired configuration and accessory part numbers.
4. Review the items with the customer.

Order Worksheet—TimberWolf 9730 Library

Account Name _____ **Address** _____

_____

_____

STK Site Location Number (if applicable) _____

Library Configuration ❑ 9730-001 (30-cell) ❑ 9730-002 (20-cell) ❑ 9730-003 (10-cell)

❑ 20-cell to 30-cell conversion - CB 61630

Features ❑ Rackmount (9901) ❑ Desktop (9899)

SCSI Option (Default is differential; configurable single-ended in the field.)

Special Attach ❑ ORCA Attach (OGAT)

DLT Drive Kits
(Table 5-1 to *Table 5-5*)

DLT4000 _____
Feature Code (includes Qty.)

DLT7000 _____
Feature Code (includes Qty.)

DLT8000 _____
Specify Quantity

(Customer must order DLT8000 separately. They are not incorporated in a library feature code.)
DLT8000=Model **9788-001**, Feature **TX60** (9730 tray), SCSI code **2012** (differential only)

SCSI Cable, DLT Drive Daisy-Chain
(*Table 5-6*)
PN 313109302 Qty. _____

SCSI Cable, 9730 Library Daisy-Chain
(*Table 5-7*)
PN 10083538 Qty. 1

SCSI Cables, 68-pin to 68-pin
(*Table 5-8*)
PN _____ Qty. _____
PN _____ Qty. _____
PN _____

SCSI Cables, RS6000
(Table 5-9)
PN _____ Qty. _____
PN _____ Qty. _____
PN _____

SCSI Cables, AS/400
(*Table 5-10*)
PN _____ Qty. _____
PN _____ Qty. _____
PN _____

Power Cord
(*Table 5-14*)

❑ Domestic	PN 10083242	Feature Code 9930
❑ International	PN 10083241	Feature Code 9931
❑ Twist-lock	PN 10083639	220 VAC

Miscellaneous

❑ Rackmount Accessory Kit (19 in. shelf)	CB 61661
❑ Library Pedestal	CB 61657

DLT Cartridge Tapes and Labels Worksheet

Account Name _____ **Address** _____

_____

_____

STK Site Location Number (if applicable) _____

DLT Cartridge Tape (Table 5-15)	DLTtape IV	PN 313126301	Qty. _____
	DLTtape (cleaning)	PN 313126401	Qty. _____
Label Sets (Table 5-16)	DLTtape IV (“D” Type)	PN 313126702 VOLSER Sequence	Qty. _____ _____
	Diagnostic Set	PN 313126802	Qty. _____
	Cleaning Set	PN 313126902	Qty. _____
DLT Cartridges w/ Labels (Table 5-17)	DLTtape IV	PN 313125802 VOLSER Sequence	Qty. _____ _____

SCSI Software Worksheet

This worksheet provides a place to record software configuration for SCSI-2 (Open System) connections.

Open Systems		
Item	**Processor 1**	**Processor 2**
Operating System Vendor/Type		
Operating System Level		
Driver Software		
Backup/Restore Software		
Archival/MigrationSoftware		
Performance Monitoring Software		
Data Compression Software		
Additional Information		

Information about connectivity options for the 9730 Library can be found on the Partners Home Page at http://www.storagetek.com/customers/partners/.

Preinstallation Checklist

3

Verify that all issues listed in Table 3-1 have been addressed and resolved. Check "Yes" or "No," as appropriate, for each item. For unresolved issues, assign a required action with a due date to the appropriate person.

Table 3-1. Preinstallation Checklist

Item Description	Yes/No	Action Required/Due Date/Person Responsible
Site Preparation		
Floor plans completed	❑ ❑	
Adequate rack available	❑ ❑	
Clearance adequate	❑ ❑	
Cooling adequate	❑ ❑	
Power requirements met	❑ ❑	
Cable lengths determined	❑ ❑	
Cable routing established	❑ ❑	
Future expansion considered	❑ ❑	
Dock facilities scheduled	❑ ❑	
Hardware Procurement		
Subsystem ordered	❑ ❑	
Power cables ordered	❑ ❑	
Options or features ordered	❑ ❑	
SCSI-2 cables ordered	❑ ❑	
Interface adapters ordered	❑ ❑	
Tapes and labels ordered	❑ ❑	

Table 3-1. Preinstallation Checklist (Continued)

Item Description	Yes/No	Action Required/Due Date/Person Responsible
Software Procurement		
Software prerequisites met	❑ ❑	
Software Installation		
Scheduled	❑ ❑	
Completed	❑ ❑	
Hardware Installation		
Delivery schedule completed	❑ ❑	
Dock hours scheduled	❑ ❑	
Pre-staging area set	❑ ❑	
Installation team identified	❑ ❑	
Site access arranged	❑ ❑	
Installation hours defined	❑ ❑	

Delivering the Equipment

4

This chapter establishes a list of contacts for product–delivery issues and captures the specific information for delivery of the equipment.

Customer Contacts for Delivery

The customer must provide the names and telephone numbers for the primary and secondary contacts for delivery at the customer site, and information to complete the following worksheets.

Primary Contact	Title	Telephone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Secondary Contact	Title	Telephone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Delivery Information

The worksheet in Table 4-1 provides a place to record delivery information. Answer all of the questions as completely as possible. This information can help resolve any delivery issues.

Table 4-1. Receiving Dock Information

Yes	No	Considerations/Conditions
❑	❑	Is a receiving dock available? If yes, what is the maximum truck length? 40' _____ 45' _____ 48' _____ other _____ If yes, what is the maximum truck height? _____ If yes, what is the dock height in inches? _____
❑	❑	Are there any physical impediments to dock use? If yes, list here: _____ _____ _____ _____
❑	❑	Are there any street or alley limitations to dock use? If yes, list here: _____ _____ _____ _____
❑	❑	Are there any days or times when dock hours are controlled, or when the dock is unavailable? If yes, list here: _____ _____

Once the equipment arrives on the receiving dock, the worksheet in Table 4-2 will help locate the equipment to the staging area or to the actual location of where the equipment will be installed.

Table 4-2. Inside Delivery Information

Yes	No	Considerations/Conditions
❑	❑	Is a lift gate required?
❑	❑	Is inside delivery required?

Table 4-2. Inside Delivery Information

Yes	No	Considerations/Conditions
❑	❑	Will any stairs need to be negotiated? If yes, list here: _____ _____ _____ _____
❑	❑	Will an elevator be used? What are the approved hours for elevator use? _____ _____
❑	❑	Is protective floor covering required? If yes, who will provide the necessary materials and labor? _____ _____ _____ _____
❑	❑	Are transport aids available (cart, hand truck, dolly)? _____ _____

The worksheet in Table 4-3 helps identify any restrictions about access to the account's computer room and any other administrative issues that could arise.

Table 4-3. Access and Administrative Issues

Yes	No	Considerations/Conditions
❑	❑	Are there physical or statutory limitations of access to the area in which this customer delivery site is located? If yes, list the limited hours here: _____ _____
❑	❑	Are there local codes that specify equipment clearances? If yes, list here: _____ _____

Table 4-3. Access and Administrative Issues

Yes	No	Considerations/Conditions
❑	❑	What ID badges are required to gain access to the customer facility if an outside installer is used? List a point of contact to acquire the required ID badges or to get on appropriate access lists. _____ _____
❑	❑	Are there any union or local regulations that would prevent an outside installer from performing any activities? If yes, explain here: _____ _____
❑	❑	Does the carrier need to belong to a union? If yes, which union? _____ _____
❑	❑	Is there a secure area where test equipment, spare parts and documentation can be stored? If yes, note the location. _____ _____ _____ _____

Ordering Information

5

This chapter contains information needed to complete the worksheets in Chapter 2, "Ordering the Equipment."

Options, Feature Codes, and Part Numbers

Some of the items in the following tables ship separately from the TimberWolf 9730 Library.

DLT Drives, Differential or Single-Ended

The 9730 Library can hold from one to four DLT4000, DLT7000, or DLT8000 drives. These drive models can be mixed, but differential and single-ended alternatives *cannot* be mixed on the same SCSI bus. Drives come mounted on a tray, and include a terminator and a power cord. Table 5-1 shows part numbers and feature codes for the DLT4000 differential configurations.

Table 5-1. DLT4000 Drives, Differential

Part Number	Feature Code	Description	Quantity
Default	00DL	No DLT4000 drives, differential	0
32881	01DL	DLT4000 drive, differential	1
32881	02DL	DLT4000 drives, differential	2
32881	03DL	DLT4000 drives, differential	3
32881	04DL	DLT4000 drives, differential	4

Table 5-2 shows part numbers and feature codes for the DLT4000 single-ended configurations.

Table 5-2. DLT4000 Drives, Single-Ended

Part Number	Feature Code	Description	Quantity
Default	00DE	No DLT4000 drives, single-ended	0
32880	01DE	DLT4000 drive, single-ended	1
32880	02DE	DLT4000 drives, single-ended	2
32880	03DE	DLT4000 drives, single-ended	3
32880	04DE	DLT4000 drives, single-ended	4

Table 5-3 shows part numbers and feature codes for the DLT7000 differential configurations.

Table 5-3. DLT7000 Drives, Differential

Part Number	Feature Code	Description	Quantity
Default	00D7	No DLT7000 drives, differential	0
32882	01D7	DLT7000 drive, differential	1
32882	02D7	DLT7000 drives, differential	2
32882	03D7	DLT7000 drives, differential	3
32882	04D7	DLT7000 drives, differential	4

Table 5-4 shows part numbers and feature codes for the DLT7000 single-ended configurations.

Table 5-4. DLT7000 Drives, Single-Ended

Part Number	Feature Code	Description	Quantity
Default	00E7	No DLT7000 drives, single-ended	0
32883	017E	DLT7000 drive, single-ended	1
32883	02E7	DLT7000 drives, single-ended	2
32883	03E7	DLT7000 drives, single-ended	3
32883	04E7	DLT7000 drives, single-ended	4

Table 5-5 shows part numbers and feature codes for the DLT8000 differential configurations.

Table 5-5. DLT8000 Drives, Differential (see DLT8000 CCD)

Model	Feature Code	SCSI
9788-001	TX60 (9730 tray)	2012 (differential)

Accessories and Supplies

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

SCSI Interface Cables and Adapters

The number of DLT drives installed and the method of cabling determines the type and quantity of cables required.

DLT Drive Daisy-Chain

Table 5-6 lists the daisy-chain cables to connect multiple DLT drives on the SCSI bus.

Table 5-6. SCSI Cable, DLT Drive Daisy-Chain

Part Number	Description
313109301	**Cable Assembly** SCSI, 68 pin to 68 pin, 25.4 cm (10 in.), drive-to-drive

Robotic Control

Table 5-7 lists the daisy chain cable to connect the 9730 Library to the DLT drives on the SCSI bus.

Table 5-7. SCSI, 9730 Library Daisy-Chain

Part Number	Description
10083538	**Cable Assembly** SCSI, 68 pin to 68 pin, 1 m (3.3 ft), library-to-drive

The following tables list some of the options for external SCSI cables.

Note: Single-ended systems are limited to 6 m (20 ft.) total cable length. Differential systems are limited to 25 m (82 ft.) total cable length.

Table 5-8. SCSI Cables, 68-pin to 68-pin

Description	Standard (CL2)	Plenum (CL2P)
SCSI Cable, 3 m (9.8 ft)	10083309	10083313
SCSI Cable, 6 m (19.6 ft)	10083310	10083314
SCSI Cable, 15 meter (49 ft)	10083311	10083315
SCSI Cable, 20 meter (65 ft)	10083312	10083316

The cables listed in Table 5-9 work with the RS6000 2416 Fast/Wide Adapter, which has a unique SCSI connector.

Table 5-9. SCSI Cables, 68-pin to 2416/RS6000

Description	Standard (CL2)	Plenum (CL2P)
SCSI Cable, 2 m (6.5 ft)	10083384	10083393
SCSI Cable, 3 m (9.8 ft)	10083385	10083394
SCSI Cable, 6 m (19.6 ft)	10083386	10083395
SCSI Cable, 9 meter (29.5 ft)	10083387	10083396
SCSI Cable, 12 meter (39.3 ft)	10083388	10083397
SCSI Cable, 15 m (49 ft)	10083389	10083398
SCSI Cable, 18 m (59 ft)	10083390	10083399
SCSI Cable, 21 meter (68 ft)	10083391	10083400
SCSI Cable, 24 meter (78 ft)	10083392	10083401

The SCSI cables in Table 5-10 are for use with AS/400 connections.

Table 5-10. SCSI Cables, 68-pin to 2416/RS6000

Description	Standard (CL2)	Plenum (CL2P)
SCSI Cable, 2 m (6.5 ft)	10083402	10083411
SCSI Cable, 3 m (9.8 ft)	10083403	10083412
SCSI Cable, 6 m (19.6 ft)	10083404	10083413
SCSI Cable, 9 meter (29.5 ft)	10083405	10083414
SCSI Cable, 12 meter (39.3 ft)	10083406	10083415
SCSI Cable, 15 m (49 ft)	10083407	10083416
SCSI Cable, 18 m (59 ft)	10083408	10083417
SCSI Cable, 21 meter (68 ft)	10083409	10083418
SCSI Cable, 24 meter (78 ft)	10083410	10083419

Note: If these part numbers do not appear in the order system, an order can still be "forced" into logistics.

The RS 6000 2420 and the Bull DPX/20 fast/narrow adapters are fitted with a 50-pin connector. The adapter listed in Table 5-11 converts the 50 pins to 68 for use with SCSI-3 68-pin connectors.

Table 5-11. RS 6000 2420 Fast/Narrow Adapter

Part Number	Description
10148010	**Adapter**, 50-pin to 68-pin

SCSI Terminators

Terminators are provided with the DLT drives. Table 5-12 lists part numbers in case additional terminators are needed.

Table 5-12. SCSI Terminators

Part Number	Description
10148002	**Terminator**, SCSI, Single-ended, 68 pin
10148003	**Terminator**, SCSI, Differential, 68 pin
10148010	**Terminator**, Feedthrough, 68 pin to 50 pin

Special Items

Table 5-13 lists cables and an adapter available for attachment to a PC for loading code. The adapter attaches a cable to a PC. Also listed are a rackmount shelf kit and a Conversion Bill (rackmount to desktop).

Table 5-13. Miscellaneous Special Items

Part Number	Description
410828902	**Cable Assy**, RJ45 8 pin – RJ45 8 pin, 20 feet
410828905	**Cable Assy**, RJ45 8 pin – RJ45 8 pin, 50 feet
410828925	**Cable Assy**, RJ45 8 pin – RJ45 8 pin, 250 feet
10410823	**Adapter**, RJ45 8 pin – DB9
3000599	**Rackmount Accessory Kit**, 19 in. wide shelf
(CB) 61453	**Convert Rackmount to Desktop**, kit converts rackmount unit to desktop unit (white metal cover, rubber feet, and mounting hardware)
(CB) 61658	**Pedestal**, fits under desktop unit for using deskside
313123701	**Key**, Front Door

Power Cords

Two AC power cords (domestic and international) are available for the 9730 Library. These connect the AC power source to the 9730 auto-ranging power supply, which supplies power to the whole unit, including the installed DLT drives. One is included with the library when the feature code is specified on the order.

Table 5-14. Power Cords

Part Number	Feature Code	Description	Quantity
10083242	9930	Domestic Power Cord (NEMA 5-15P)	1
10083241	9931	International Power Cord (stripped leads)	1
10083639		Twist-lock (220VAC)	

DLT Cartridge Tapes and Labels

DLT4000, DLT7000, and DLT8000 drives use DLTtape IV cartridge tapes. This cartridge has a capacity of 20 GB (native) when formatted for the DLT4000, 35 GB (native) when formatted for the DLT7000, and 40 GB (native) when formatted for the DLT8000.

DLTtape III, and DLTtape IIIXT cartridges are also supportedby these drives.

The following tables list the appropriate types of cartridges, labels, and labeled cartridge sets for the 9730 Library.

DLT Cartridge Tapes

To order DLT tape cartridges and labels, call StorageTek Customer Services Marketing and Sales at 1-800-922-3260 from 8:00 a.m. to 8:00 p.m. Eastern Standard Time Monday through Friday.

The part numbers in Table 5-15 include a quantity of one (1) cartridge tape.

Table 5-15. DLT Cartridge Tapes

Part Number	Tape Name	Description
313126301	DLTtape IV	Cartridge Tape 20 GB native – DLT4000 format 35 GB native – DLT7000 format 40 GB native – DLT8000 format
313126401	DLTtape	Cleaning Cartridge

DLT Cartridge Tape Labels

The label set for *DLTtape IV* (multi-color tri-optic type) contains two hundred labels (10 sheets, 20 labels/sheet, 8 $^{1}/_{2}$ x 11 inch sheets). Specify the desired three-digit VOLSER sequence when ordering (two to three week lead time).

The label set for *diagnostic cartridges* (black and white only) contains 20 labels (one sheet). These are a fixed sequence from DG_000 through DG_019.

Note: Diagnostic cartridges are empty DLTtape cartridges with a “DG” label applied. They contain no code. However, the library requires a “DG” label on the cartridge for diagnostic routines.

The label set for *cleaning cartridges* (black and white only) contains 20 labels (one sheet). These are a fixed sequence from CLN_000 through CLN_019.

Labels can be removed from their protective backing and adhered to cartridges, or they can be slipped into a slot on the cartridge with the backing still attached. A protruding lip on the slot prevents the label from falling out.

Labels are identified by a character to the right of the last VOLSER character:

- DLTtape IV — last character = “D”
- DLTtape cleaning — last character = “C”

Table 5-16 lists part numbers for DLT cartridge tape label sets.

Table 5-16. Label Sets

Part Number	Description
313126702	**Label Set,** Cartridge Tape, DLTtape IV (“D” type)
313126802	**Label Set,** Cartridge Tape, Diagnostic (“DG” type)
313126902	**Label Set,** Cartridge Tape, Cleaning (“C” type)

DLT Cartridge Tapes with Labels

Table 5-17 lists the part number for DLTtape IV cartridge tapes with labels inserted in the slots (protective backing intact). Specify quantity and VOLSER sequence when ordering.

Table 5-17. DLT Cartridge tapes with Labels

Part Number	Description
31325802	**Cartridge Assy,** DLTtape IV with label installed

Note: Because of the small quantities, cleaning and diagnostic cartridges are not available with installed labels.

Specifications

A

The following specifications apply to the library and to tape media. Specifications include physical, electrical, and environmental information.

Table A-1. Physical Specifications

Item	Measurement
Width	483 mm (19 in.)
Height	445 mm (17.5 in.)
Depth	726 mm (28.6 in.)
Rear clearance, library to any wall or other cabinet	205 mm (8 in.)
Front clearance, library to any wall or other cabinet	508 mm (20 in.)
Minimum rear clearance required to remove/replace the electronics module or the tape drives	610 mm (24 in.)
Weight with no drives	50 kg (110 lb)
Weight with 4 drives	68 kg (149 lb)

Table A-2. Power Specifications

Item	Measurement
Input Voltage	90–264 VAC, single phase
Frequency	47–63 Hz
Maximum power consumption (library)	1.0 A at 120 V *or* 0.5 A at 240 V
Maximum power consumption (each DLT4000 drive)	0.8 A at 120 V *or* 0.42 A at 240 V
Maximum power consumption (each DLT7000 drive)	0.92 A at 120 V *or* 0.46 A at 240 V

Table A-3. Functional Data

Item	Measurement or Comments
Media	DLTtape IV (III and IIIXT supported)
Number of cells	20 or 30 (28 with four tape drives)
Number of tape drives	Up to four DLT4000 or DLT7000 tape drives
Average cartridge access time	Six seconds
Audit time	Less than one minute
Robotics control	SCSI-2 media changer command set, single-ended or differential (selectable in field)
Cartridge access port	Single cartridge capacity
Bar code reader	Standard
Serviceability	Key components are customer-serviceable. Drives are hot-swappable (with independent SCSI interface)

Table A-4. Data Capacity

Library Capacity (30 Cells, DLTtape IV)	Uncompressed	Compressed (2:1)
DLT4000	600 GB	1.2 TB
DLT7000	1.05 TB	2.1 TB
DLT8000	1.2 TB	2.4 TB

Table A-5. Reliability

Item	Measurement
Mean exchanges between failures (MEBF)	1,000,000
Mean time to repair (MTTR)	Less than 30 minutes

Table A-6. Environmental Specifications

Item	Measurement		
	Operating	**Storage**	**Transit**
Temperature	+15 to +32°C (+59 to +90°F)	+10 to +40°C (+50 to +104°F)	-40 to +60°C (-40 to +140°F)
Humidity	20 to 80%	10 to 95%	10 to 95%
Wet bulb (max, non-condensing)	+29.2°C (+84.5°F)	+35°C (+95°F)	+35°C (+95°F)
Altitude	-76 to 3,048 m (-250 to 10,000 ft)		

Table A-7. Agency Certifications

Category	Certification
Safety	CSA standard CAN/CSA-C22.2 no. 950-M93
	UL standard 1950, Third Edition
	EN60950
Emissions	FCC #47, Part 15, Subpart B, Class A
	EMC Framework AS/NZS 3598: 1995 (Australia, N.Z.)
	VCCI Class A (Japan)
	European Union CE EN55022 Class A emissions standards
	Canadian EMC Law; ICES-003
	BCIQ EMC Law CNS 13438 (Taiwan)
	Korean EMC Law
Immunity	European Union CE EN50082-1 immunity standards

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Glossary

A

Auto Clean A feature of the 9730 library allowing a cleaning cartridge to be kept in a storage cell and accessed automatically when drives need cleaning. (Must also be supported by the host software.)

C

cartridge tape A data storage tape encased in a plastic housing. DLT cartridge tapes are used by DLT drives.

controlling (host) software The interface between the host operating system and the library components.

D

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

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

dismount To remove a cartridge from a drive.

DLT Digital Linear Tape.

DLT drive A tape drive used in the 9730 Library in two models-DLT4000 and DLT7000.

E

electronics module A field replaceable unit incorporating the library controller card (CYC), fan assemblies, and power supply.

F

fault symptom code (FSC) Four-digit hexadecimal code generated in response to a subsystem error.

FCC Federal Communications Commission.

field replaceable unit A library component that can be replaced on site.

FRU Field replaceable unit.

H

hand-camera assembly A part of the library robot whose function is grasping cartridge tapes and moving them between storage cells and tape drives. The camera reads cartridge VOLSERs during library audits and normal operation.

host (controlling) software The interface between the host operating system and the library components.

I

interlock switch A switch that disconnects power to the library when the front door is opened.

L

load latch The specially designed mechanism used by the library robot to open and close the DLT drives for mounting and dismounting cartridge tapes.

M

menus A hierarchical list of selections on the 9730 operator panel, providing the user interface to the library.

mount To insert a cartridge into a drive.

O

operator panel The user interface to the 9730 Library.

operator panel controls The MENU, ENTER, Up and Down Arrows, and RESET buttons on the 9730 operator panel.

operator panel LEDs The Library Active, CAP Open, and Service Required LEDs on the 9730 operator panel.

P

picker mechanism The specially designed mechanism that latches onto cartridge tapes and pulls them into the robot hand.

R

robot The mechanism that moves cartridge tapes between the storage cells and the tape drives.

S

safety interlock switch A switch that disconnects power to the library when the front door is opened.

SCSI Small Computer System Interface.

SCSI device A host adapter or control unit attached to the SCSI bus.

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

status display A screen on the 9730 operator panel showing library and drive status.

storage cells The slots where cartridge tapes are kept in the library.

T

TERMPWR Terminator power. A SCSI bus signal for device termination networks.

theta The horizontal rotation of the library robot.

theta motor The motor driving the belt that moves the library robot in horizontal rotation.

TimberWolf Program name for the 9730 Library.

V

VOLSER Volume serial number.

Volume serial number The code used by the library to track cartridge tapes during library audits and normal operation.

Z

Z-column The part of the library robot responsible for vertical motion of the hand/camera assembly.

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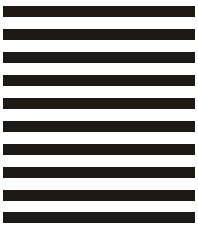
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