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FSE	Field service engineer
gripper assembly	The assembly that mounts on the extension axis and grips cartridges, referred to as the gripper.
horizontal belt	The drive belt connecting the horizontal motor to the horizontal axis assembly.
host	Host computer
host computer	The computer that issues SCSI commands to control the library robotics.
LCD	Liquid crystal display
Load Port	The operator accessible component of the library that allows up to four cartridges to be import/export loaded and unloaded into/from the library.
MTBF	Mean time between failures
MTTR	Mean time to repair
NVRAM	Nonvolatile RAM
off-line	Not ready for communications with a host. This mode is required for configuration, diagnostic, and maintenance operations.
on-line	Ready for communications with a host.
PC	Personal computer
pick	The act of removing a cartridge from one location in preparation for placing it in another location.
place	The act of placing a cartridge in a location after it has been picked from another location.
PROM	Programmable read-only memory
RAM	Random access memory
rear panel	The rear cosmetic panel of the library that contains the AC power switch, AC power receptacle and connectors for attaching external cabling to the library.
SCSI	Small computer system interface. A communications standard for attaching peripheral equipment to computers.
tape drive	The mechanism that reads and writes data from and to a tape cartridge.
UL	Underwriters Laboratories
vertical belt	The drive belt connecting the vertical motor to the vertical axis assembly.
vertical carriage assembly	The crossbar and linear bearings mounted on the vertical rails and all components mounted on the crossbar.

Glossary

actuators	Robotic components that move inside the library to manipulate cartridges. These include the cartridge handling mechanism, extension axis, vertical and horizontal axes.
automated tape library	A robotic storage and retrieval system for DLT tape cartridges.
bar code label	The identification label on DLT tape cartridges.
bar code scanner	A device that is mounted on the extension axis that reads the cartridge bar code labels.
calibration	The software measurements and configuration required for successful operation of the library.
CHM	Cartridge handling mechanism
DLT	Digital linear tape
control panel	A touch-screen panel on the front of the library that contains a main display area as well as indicators and control buttons.
EIA/TIA-574	A serial communications cabling and protocol standard for nine pin connectors, sometimes referred to as RS-232. The diagnostic port (DIAG), on the rear of the library, uses this protocol.
extension axis assembly	Mounted onto the vertical axis, the extension axis assembly consists of the gripper assembly and the horizontal axis on which the gripper assembly is mounted.
extension axis belt	The drive belt connecting the extension motor/gearbox to the gripper.
FCC Class A	Standard established by the U.S. Federal Communications Commission governing electromagnetic emissions.
FSA	Fixed storage array. This is a 3-column by 16-row fixture mounted inside the library. Its purpose is to store up to 48 cartridges in the library.

Troubleshooting Basic Problems

TABLE 4-2 lists basic problems that you can troubleshoot as the operator. For problems not listed in this section, contact an authorized field service engineer.

TABLE 4-2 Typical Problems with the Sun StorEdge L1800

Problem	Resolution
The library does not turn on.	Make sure the power switch is in the (on) position, all cables are connected, and the library has a unique SCSI ID number. If the library still does not turn on, contact an authorized field service engineer.
A cable is disconnected from the back panel.	Turn off the library, reconnect the cable as shown in Chapter 1, and turn on the library again.
The library is off-line.	Press the Standby button one time. If the library remains off-line, or if an error message appears on the display, contact an authorized field service engineer.
The CHM does not move.	First, visually inspect the CHM (through the front door window) for obstruction or restraint. If the Stop button was previously pressed, press the Stop button again to restore power to the CHM. If the CHM still does not move, contact an authorized field service engineer.
A tape drive does not eject a tape cartridge.	Use the manual unloading procedure found in Chapter 3. If the problem persists, contact an authorized field service engineer.
A tape drive does not spin up.	Make sure all cables are connected in the back panel and each tape drive has a unique SCSI ID number. If the drive still does not spin up, contact an authorized field service engineer.
The host computer cannot communicate with the library.	Make sure all cables are properly connected and that all SCSI devices (including the host computer and the library) have unique SCSI ID numbers. If the problem persists, contact an authorized field service engineer.

System State Messages

TABLE 4-1 lists the status messages which appear in the status display area of the control panel.

TABLE 4-1 Status Message Descriptions

Status Message	Description/Action
System Online	The library is on-line and ready to communicate with the host computer.
System Offline	The library is off-line and ready to switch to menu mode or to accept commands from the diagnostic PC
Going Online. . . Please Wait	The library is switching from off-line to on-line but must complete the current command first. When finished, System Online appears in the display.
Going Offline. . . Please Wait	The library is switching from on-line to off-line but must complete the current command first. When finished, System Offline appears in the display.
System Power-Up	This is the first message displayed when the library is turned on.
Initializing. . . Wait for Online	This is the second message displayed when the library is turned on. This message is followed by the message System Online.
Online Init Fail	This message appears when initialization fails.
System Stopped	The STOP button has been pressed.
System Door Open	The library front door is open.

Operator Troubleshooting

This chapter provides explanations of status messages which appear in the control panel display as well as actions necessary to correct specific problems.

Note – The information in this chapter is limited to operator-level troubleshooting. For complete troubleshooting information, refer to the *Sun StorEdge L1800 Diagnostic Software User's Manual* and the *Sun StorEdge L1800 Field Service Manual*.

- To Review Status Messages—page 38
- To Troubleshoot Basic Problems—page 39

Unloading the Load Port

This command moves a tape cartridge from the load port to an available storage bin. It must be invoked after inserting one or more tape cartridges into the load port whenever the library's auto load feature is disabled.

Note – You can also use the Move command (described earlier in this chapter) to unload the load port. The Move command is especially useful if the destination of the move needs to be specified.

To unload the load port, press the Unload Imp/Exp button in the Operator screen. An "In Progress" dialog box appears.

The dialog box remains on the screen until the move is completed, aborted by pressing the ABORT button, or stopped due to an error condition.

The exercise process runs continuously until you stop the process by pressing the ABORT button. The exercise process is also stopped if an error is detected.

Unloading a Drive

This command prepares a tape cartridge to be ejected from a drive by disengaging the tape from the read/write heads and rewinding it. After unloading the drive, you can eject and remove the tape cartridge using the Move Cartridge command described earlier in this chapter.

To unload a drive:

1. **In the Operator screen, press the Unload Drive button.**

The Unload Drive screen appears (FIGURE 3-11).

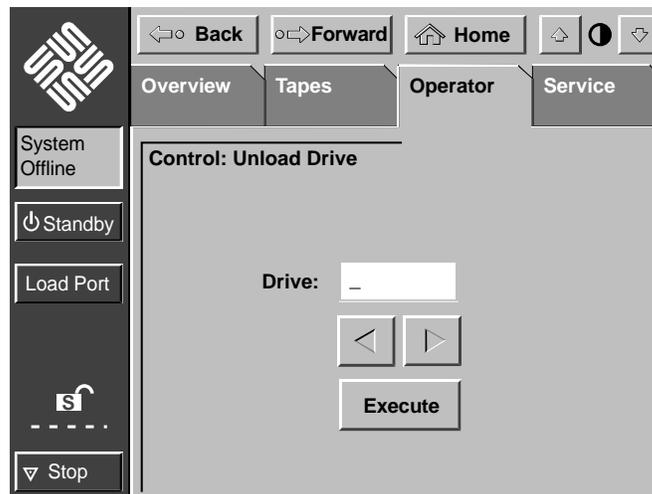


FIGURE 3-11 Unload Drives Screen

2. **Use the Left and Right Arrow buttons to select the desired tape drive.**
3. **Press the Execute button.**

This initiates the unload drive operation. An “In Progress” dialog box appears. The dialog box remains on the screen until the unload operation is completed, aborted by pressing the ABORT button, or stopped due to an error condition.

Calibrating the Library

This command enables you to calibrate the storage bins, the tape drives, the load port, or the entire library. The library should be calibrated during initial installation and after any maintenance procedure.

To calibrate library elements:

1. **In the Operator page, press the Calibrate Library button.**

The Calibrate Library screen appears (FIGURE 3-10).

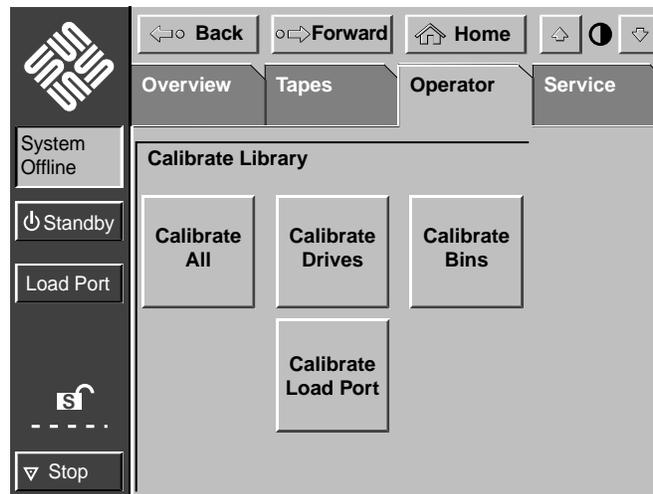


FIGURE 3-10 Calibrate Library Screen

2. **Press the button with the desired calibration option.**

This initiates the calibration command. An “In Progress” dialog box appears.

The dialog box remains on the screen until the calibration is completed, aborted by pressing the ABORT button, or stopped due to an error condition.

Exercising the Library

This command tests library robotics and calibration by randomly moving tape cartridges from one element to another.

To exercise library elements, press the Exercise Library button in the Operator screen. An “In Progress” dialog box appears.

2. **Identify the source element (that is, the element with the tape cartridge to be moved). To do this:**
 - a. **Press the appropriate element type button (Storage Bin, Tape Drive, Load Port, or Gripper).**

When you press an element type button, the range of addresses appears in the Range display.
 - b. **Using the keypad, enter the address for the source element**

The source information appears in the Source input field.
 - c. **When you have finished entering the address, press the Destination input field.**

The Destination input field becomes active.
3. **Select a destination for the cartridge as follows:**
 - a. **Press the appropriate element type button (Storage Bin, Tape Drive, Load Port, or Gripper).**

When you press an element type button, the range of addresses appears in the Range display.
 - b. **Using the keypad, enter the address for the destination element.**

The destination information appears in the Destination input field.
 - c. **When you have finished entering the address, press the Execute button.**

This initiates the move command from the source element to the destination element. An “In Progress” dialog box appears.

The dialog box remains on the screen until the move is completed, aborted by pressing the Abort button, or stopped due to an error condition.

Performing an Inventory

This command identifies all tape cartridges in the library by bar code label and determines their location. Elements that are empty or that contain unlabeled cartridges are marked as such.

To perform an inventory, press the Inventory Tapes button in the Operator screen. An “In Progress” screen appears.

The dialog box remains on the screen until the inventory is completed, aborted by pressing the Abort button, or stopped due to an error condition.

3. Use the left and right scroll buttons to scroll to the new desired setting.
4. Press the Execute button.

Moving Cartridges

This command enables you to move any tape cartridge in the library to the destination element you specify. The destination can be a storage bin, a tape drive, the load port, or the gripper.

Note – To move a cartridge from a tape drive, you must first issue an Unload Drive command as explained later in this chapter.

To move a cartridge:

1. In the Operator screen, press the Move Cartridges button.
The Control: Move Cartridges screen appears (FIGURE 3-9).

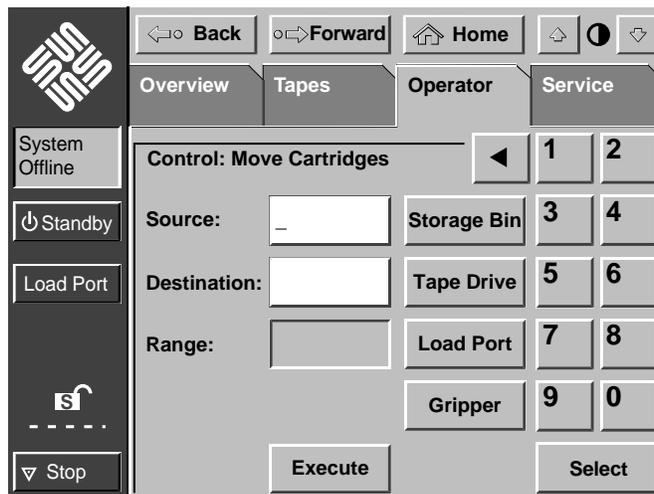


FIGURE 3-9 Control: Move Cartridge Screen

Configuring Library Options

The Configure Options command allows you to set the following:

- *Library power-up state.* This option determines whether the library is on-line or in standby mode when powered up.
- *Auto clean.* This option allows the library to perform drive cleaning tasks automatically as needed.
- *Retries.* This option causes the library to automatically retry a failed move command before issuing an error message.
- *Exabyte emulation.* This option causes the library to return the same inquiry string as the Exabyte tape library.
- *Bar code scan.* This option turns bar code scanning on or off during inventory.
- *Auto inventory.* This option causes the library to perform an inventory whenever the library is powered up.
- *Auto load.* The library automatically moves any cartridge placed in the load port to an empty storage bin.
- *Temp Detection.* The library will shut off the motor power supply if the temperature inside the cabinet rises above 40°C (104°F).

To configure these options:

1. **In the Operator screen, press the Configure Options button.**

The Config.: Options screen appears (FIGURE 3-8).

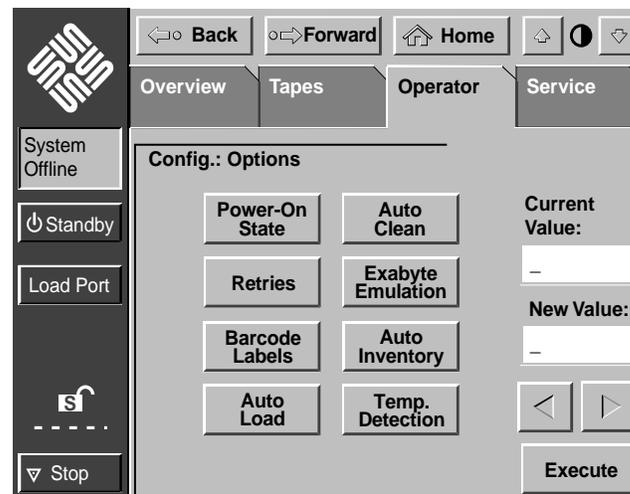


FIGURE 3-8 Config.: Options Screen

2. **Press the desired function button.**

The Configure: Library Settings screen appears (FIGURE 3-7).

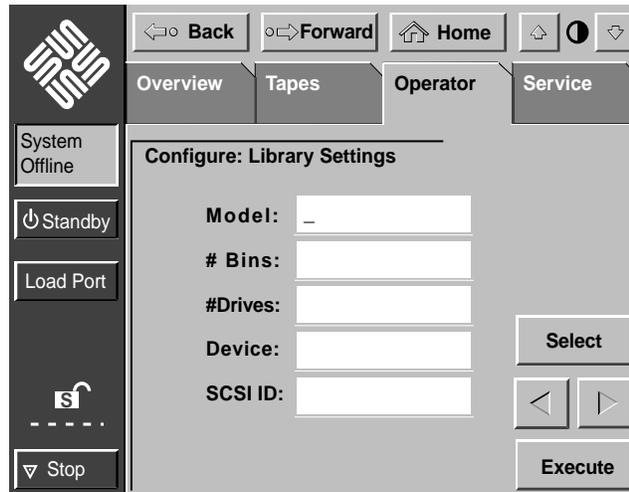


FIGURE 3-7 Configure: Library Settings Screen

3. Press the **Select** button to highlight the desired option.
4. Press the **Left and Right Arrow** buttons to scroll to the desired setting.
5. Press the **Execute** button to change to the new setting.
6. To return to the **Operator** screen, press the **Back** button two times.

SCSI ID Assignment Guidelines

When selecting SCSI IDs using this procedure, remember that each SCSI device on the same SCSI bus must have a unique ID number (from 0 to 15). SCSI devices include the library robotics, the host computer, the library tape drives, internal and external hard disk drives, and so on.

If you set up the library with multiple SCSI busses, you can assign the same number to two or more devices provided each device is on a different SCSI bus.

Configuring the Library

This command allows you to assign the following:

- Library model number
- Number of storage bins
- Number of drives
- Library SCSI ID
- Tape drive SCSI IDs

To configure these attributes:

1. **In the operator screen, press the Configure Library button.**

The Config: Library screen appears (FIGURE 3-6).

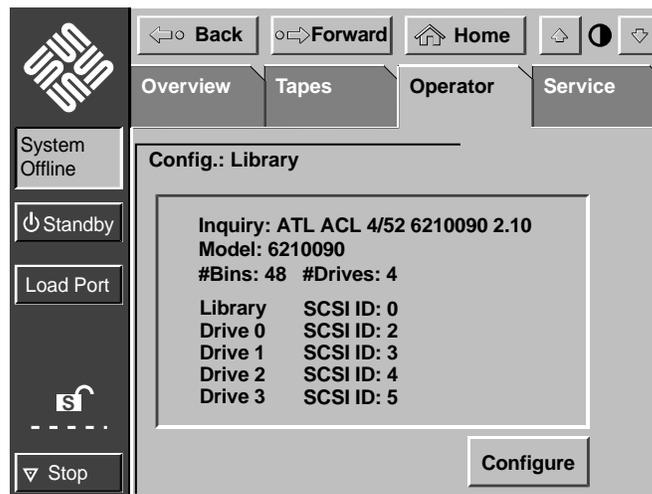


FIGURE 3-6 Config.: Library Screen

The current configuration settings are displayed.

2. **Press the Configure button.**

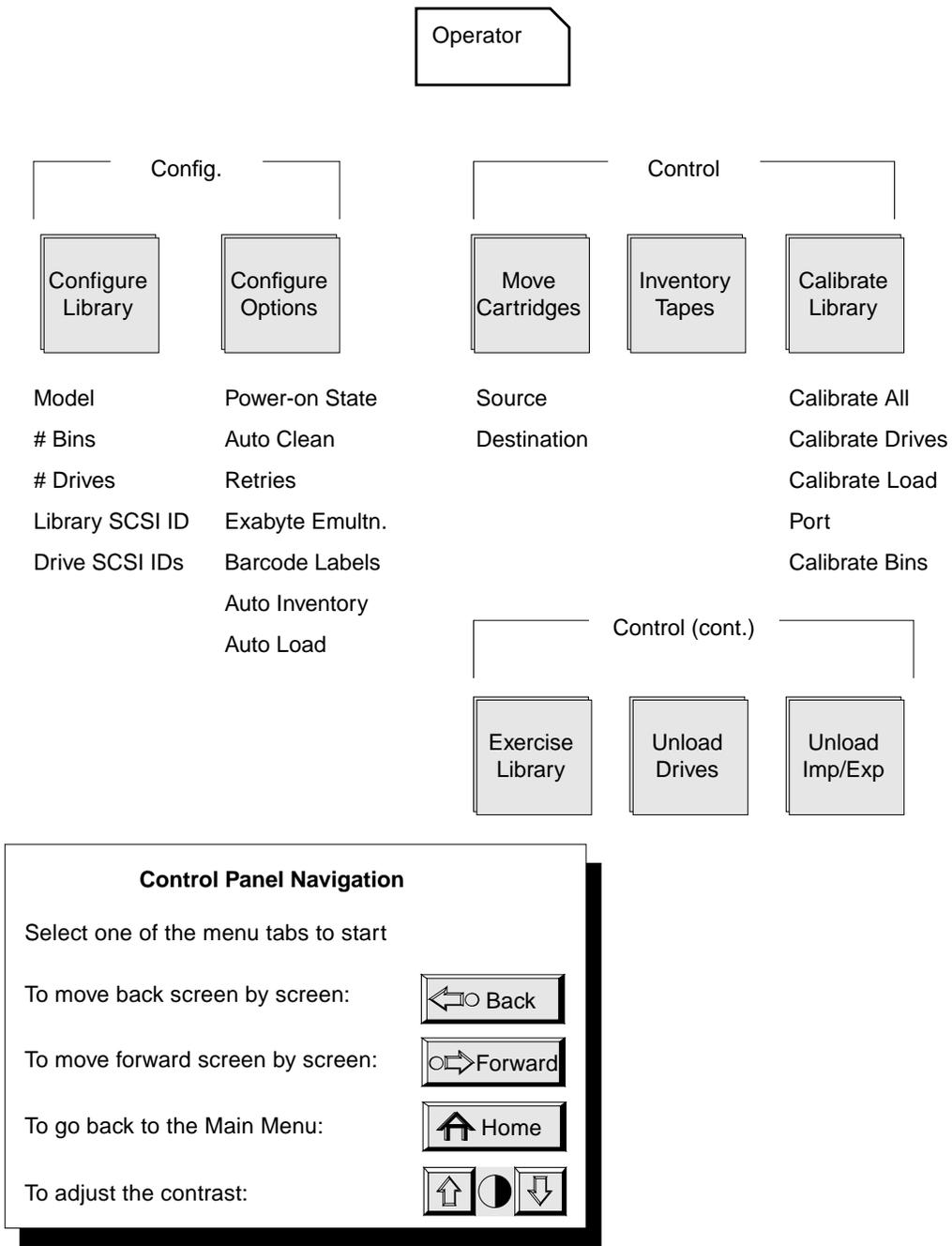


FIGURE 3-5 Operator Screen Menu Structure

Using the Operator Screen

The operator screen in the control panel contains library configuration and control functions.

▼ To Open the Operator Screen

1. **Press the Operator tab in the main display area.**

A dialog box appears requesting a password

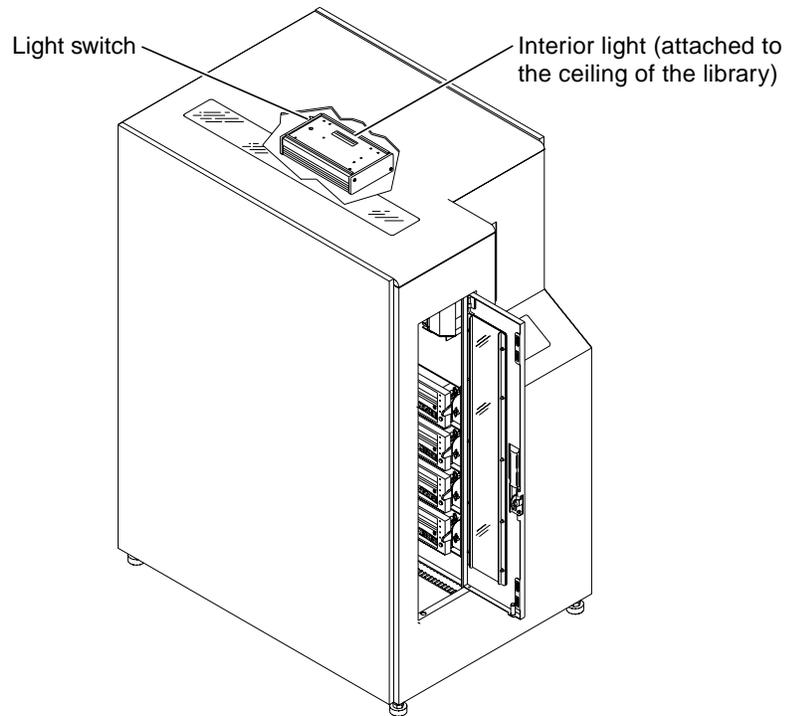
2. **Using the keypad, enter the correct operator or service password and then press the Select button.**

The operator screen appears in the main display area (FIGURE 3-4).



FIGURE 3-4 Operator Screen

FIGURE 3-5 on page 28 gives an overview of the operator screen.



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FIGURE 3-3 Internal Light Fixture

- 5. Close and latch the front door.**
- 6. Press the Stop button to release it.**
- 7. Press the Standby button and verify that the system goes on-line.**
"System Online" appears in the control panel's system state display.

9. Pull the cartridge completely out of the drive.
10. Close the library door.
11. Press the Stop button to release it.
12. Press the Standby button and verify that the system goes on-line.
“System Online” appears in the system state display.

▼ Turning On or Off the Interior Light

Note – The library is normally shipped with the interior light turned on. The following procedure can be used to turn the light off or on.

Note – The interior light bulb is not an operator-replaceable item. If the light bulb needs to be replaced, please notify an authorized field service engineer.

1. Press the Standby button and verify in the control panel’s system state display that the system goes off-line.
2. Press the Stop button.



Caution – To prevent injury from moving components, always press the Stop button before opening the front door.

3. Open the front door by pulling it toward you.
The door opens to the right.

Note – The front door provides the only access to the internal light.

4. Reach through the front door and set the light switch located on the far side of the light (FIGURE 3-3).

Note – The front door provides the only access to the tape drives for manually unloading tape cartridges.

4. Locate the drive to be unloaded and press the Unload button (FIGURE 3-2).

When you press Unload, the tape cartridge completely unwinds. Depending on the position of the tape, this may take between 10 and 120 seconds. After the tape rewinds, the Operator Handle indicator lights (see FIGURE 1-6 on page 9).

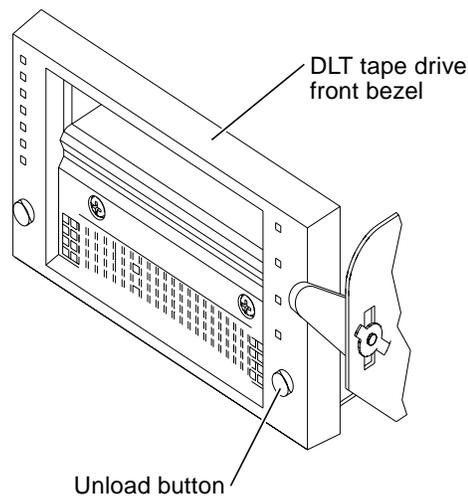


FIGURE 3-2 DLT Tape Drive Front Bezel

5. When the Operator Handle indicator lights, raise the insert/release handle to eject the tape cartridge.
6. Wait two seconds before going on to step 7.
7. Slowly pull the tape cartridge half way out of the drive.
8. If the tape cartridge leader is buckled to the take-up leader, push the cartridge all the way back into the drive and repeat steps 4-6. If the tape is clear, go to step 9.

▼ Removing a Tape Cartridge

1. **When one or more tape cartridges have been moved to the load port to be exported (as explained later in this chapter), press the Load Port button.**

It may require several seconds for the load port door to automatically open. A dialog box appears in the control panel with the message “Load Port Opening—Please Wait...” until the load port door is completely open.



Caution – Mechanical hazards could be present while the load port is partially open. Do not insert your hand into the load port at any time.

2. **When the load port opens completely, remove the tape cartridge(s) from the load port.**

Up to four tape cartridges can be removed at one time.

3. **When all tape cartridges have been removed, press the Load Port button.**

When the load port door is in the open position, pressing the Load Port button unlocks the door so it can be closed manually. A dialog box appears with the message “Load Port Closing—Please Wait...” until the locking mechanism releases the door. Then a dialog box appears with the message “Load Port Closing—Operate Handle.”

4. **When the dialog box instructs you to “operate handle,” grasp the load port door handle and push the load port door closed.**

After you close the door, the library automatically locks it.

▼ Manually Unloading a Tape Cartridge

1. **Press the Standby button and verify that “System Offline” appears in the control panel’s system state display.**

2. **Press the Stop button.**

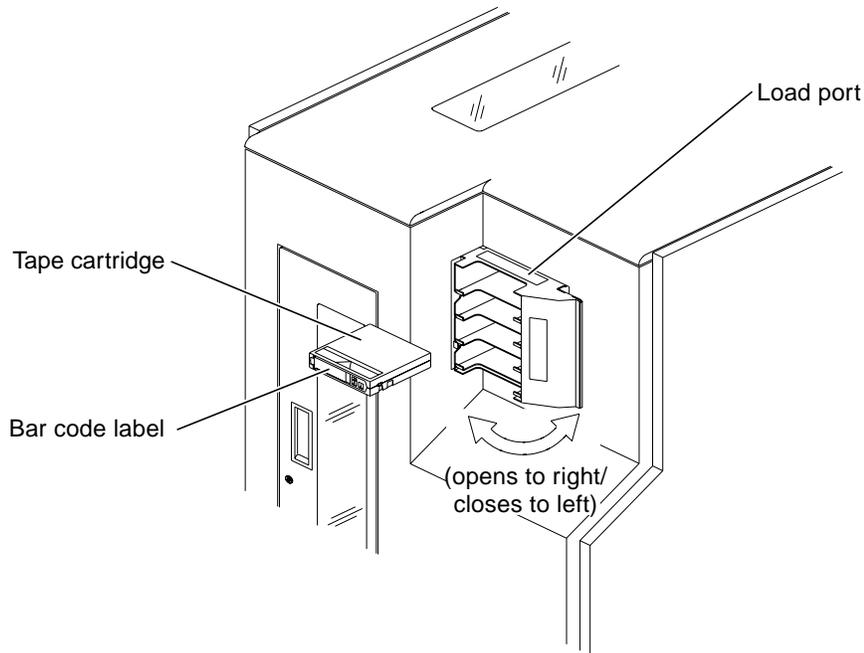
This button removes power from the CHM to prevent it from moving.



Caution – To prevent injury from moving components, always press the STOP button before opening the front door.

3. **Open the front door by pulling it toward you.**

The door opens to the right.



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FIGURE 3-1 Tape Orientation for Insertion

4. Repeat step 3 to load additional cartridges.

Up to four tape cartridges can be inserted at one time.

5. When all tape cartridges have been loaded, press the Load Port button.

When the load port door is in the open position, pressing the Load Port button unlocks the door so it can be closed manually. A dialog box appears with the message “Load Port Closing—Please Wait...” until the locking mechanism releases the door. Then a dialog box appears with the message “Load Port Closing—Operate Handle.”

6. When the dialog box instructs you to “operate handle,” grasp the load port door handle and push the load port door closed.

After you close the door, the library automatically locks it.

▼ Placing the Library On-Line

1. With library power turned on and the control panel's system state display showing "System Offline," press the Standby button.
2. Verify that "System Online" appears in the system state display.

▼ Taking the Library Off-Line

1. With library power turned on and the control panel's system state display showing "System Online," press the Standby button.
2. Verify that "System Offline" appears in the system state display.

▼ Inserting a Tape Cartridge

1. Press the Load Port button.

It may require several seconds for the load port door to automatically open. A dialog box appears in the control panel with the message "Load Port Opening—Please Wait..." until the load port door is completely open.



Caution – Mechanical hazards could be present while the load port is partially open. Do not insert your hand into the load port at any time.

2. Examine the tape cartridge to be inserted into the load port.

Make sure it is the proper type (CompacTape III or IV). Also make sure that its label is properly attached and no foreign material clings to the cartridge.



Caution – Do not use CompacTape I, CompacTape II, or CompacTape IIIXT tape cartridges in this library.

3. When the load port door opens completely, place the tape cartridge in any available bin.

The proper orientation for the tape cartridge is shown in FIGURE 3-1 on page 22.

Basic Procedures

Basic operating procedures involve the use of physical switches and library controls to alter the library's operation. Although the control panel screens are not used for these procedures, library controls in the vertical bar of the control panel and dialog boxes which appear in the main display area may be involved.

This section contains procedures for the following:

- Turning the library on and off
- Placing the library on-line
- Taking the library off-line
- Inserting and removing tape cartridges using the load port
- Manually unloading a tape cartridge from a tape drive
- Turning the interior light on and off

▼ Turning On the Library

1. **Verify that the front door and load port are closed, that all cosmetic panels are in place, and that all rear panel cables are securely connected.**
2. **At the back panel, set the AC power switch to the | (on) position.**

After several seconds, verify that the system state display of the control panel shows "System Online."

Note – In factory default configuration, the library goes on-line after being turned on. If you change the power-up state of the library, the system state display should indicate "System Offline" instead.

▼ Turning Off the Library

1. **Press the control panel Stop button.**
2. **Press the control panel Standby button and make sure "System Offline" appears in the system state display of the control panel.**
3. **At the back panel, set the AC power switch to the O (off) position.**

Operating Procedures

This chapter describes the following library operating procedures:

- **Basic Procedures**
 - To turn the library on and off—page 20.
 - To place the library on-line or off-line—page 21.
 - To insert and remove tape cartridges—page 21.
 - To manually unload and remove a tape cartridge—page 23.
 - To turn on and off the interior light—page 25.
- **Operator Screen Procedures**
 - To configure the library—page 29. This procedure includes setting the library model number, the number of storage bins, the number of drives, the library SCSI ID and the drive SCSI IDs.
 - To configure library options—page 31. This procedure allows you to configure the library's power-on state, auto clean mode, retries option, Exabyte emulation, bar code label reading function, auto inventory operation, and auto loading at the load port.
 - To move cartridges—page 32.
 - To inventory the dataset—page 33.
 - To calibrate the library—page 34.
 - To exercise the library—page 34.
 - To unload a drive—page 35.
 - To unload the load port—page 36.

Viewing Screen Elements

Some categories in the Overview and Tapes screens contain too many elements to display on the screen at one time. Up and down arrow buttons at the bottom of a category indicate that there are more elements to view. To scroll through these elements, touch the arrow buttons.

You can also expand a category to fill the screen by touching the category anywhere above the scrolling arrows. For example, touching the storage category on the Tapes screen causes the screen expansion shown in FIGURE 2-4.

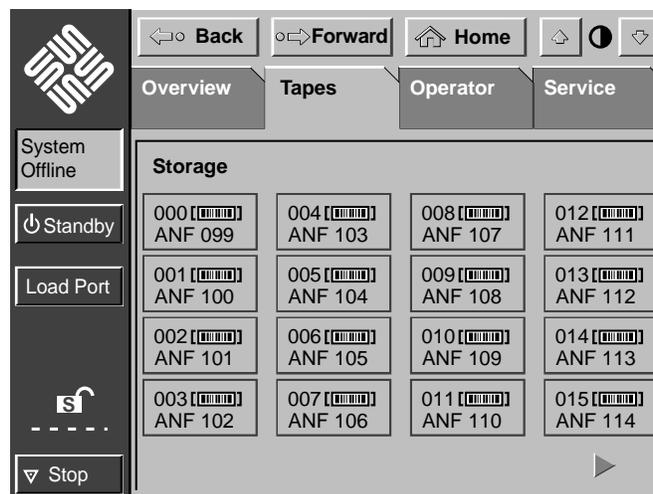


FIGURE 2-4 Tapes Screen with Expanded Storage Display

To return the screen to normal, press the Back button at the top of the control panel.

Using the Tapes Screen

As shown in FIGURE 2-3, the Tapes screen displays the inventory of all elements in the library.

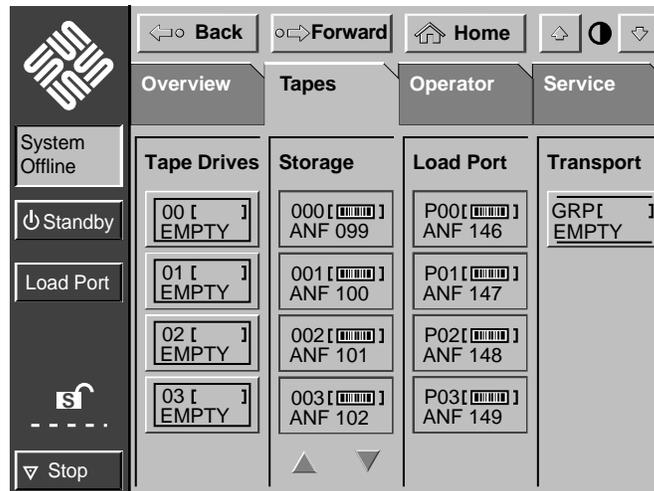


FIGURE 2-3 Tapes Screen

In this screen, there are four element types:

- Tape drives
- Storage bins
- Load port
- Transport (gripper)

Using these categories, you can determine whether a particular element has a tape cartridge and whether the cartridge is labeled.

Basic Library Information

You can obtain basic information about library configuration and operation using the Overview and the Tapes screens.

Using the Overview Screen

As shown in FIGURE 2-2, the Overview screen displays a snapshot of the following:

- Tape drive status
- CHM activity
- Load port status

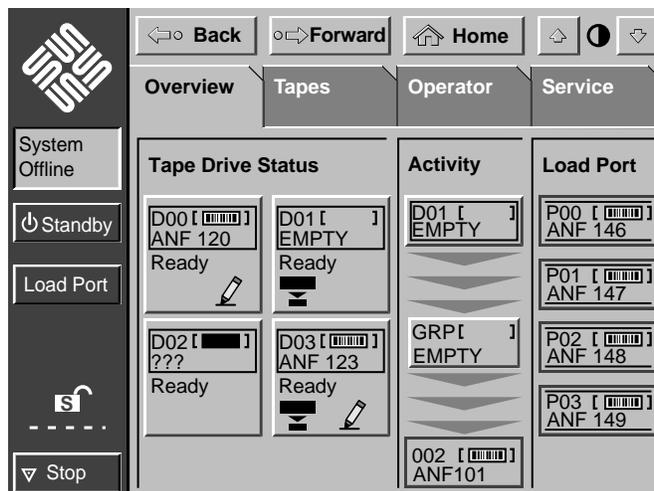


FIGURE 2-2 Overview Screen

Control Panel Navigation

The control panel uses a touch-screen for convenient navigation. To activate a command or open a screen, simply touch the appropriate “button” on the screen. You can also move backward and forward through screens opened previously by pressing the Back and Forward buttons.

The Home button returns the control panel to the initial screen.

Using Library Controls

Library controls are located in the vertical bar on the left side of the control panel. They are always available, even when using the main display area to open operator- or service-related screens.

To activate any of these controls, press the desired button. For a description of these functions, see Chapter 1.

Opening a Screen

To open one of the four main screens (Overview, Tapes, Operator, or Service), press the appropriate tab near the top of the control panel. The desired screen then appears in the main display area.

Note – If you press either the Operator or Service tabs, a dialog box appears requesting a password. You must enter a password to display these screens.

Once the desired screen appears, you can view information or press buttons to execute commands and open other screens.

Exiting a Screen

You can exit any screen by pressing the Back or Home buttons.

If a command is executing, a dialog box appears in the main display area with an ABORT button. Pressing this button cancels the command and stops the ongoing operation. (Pressing the Back or Home button is still required to exit the screen associated with the dialog box.)

Control Panel Structure

As explained in Chapter 1, the control panel's main display area consists of the following four screens:

- Overview
- Tapes
- Operator
- Service

FIGURE 2-1 lists the structure of the control panel main display area.

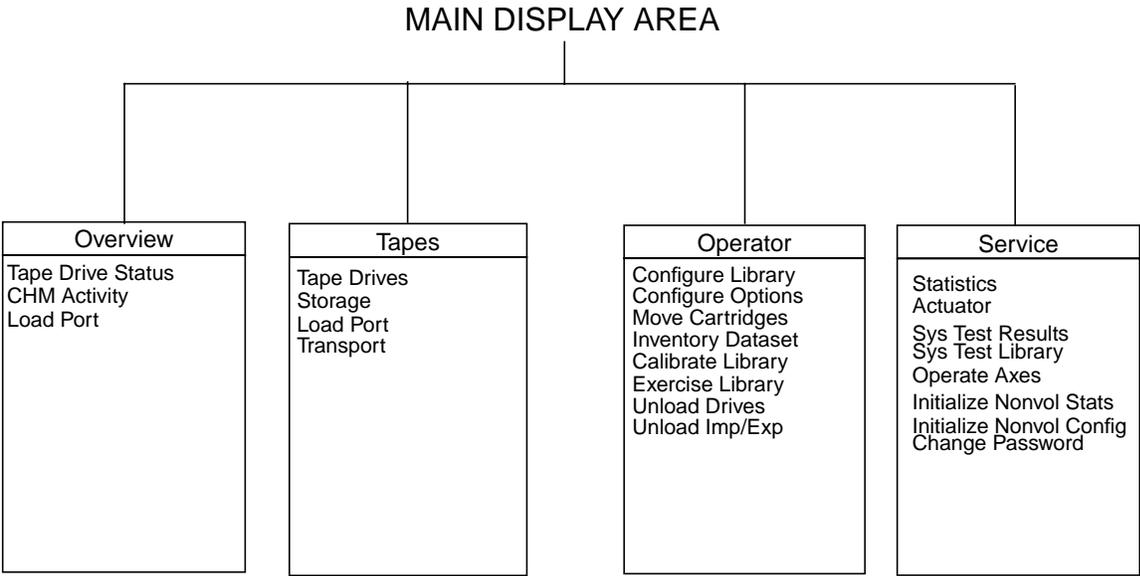


FIGURE 2-1 Menu Structure

Control Panel Functions

As operator, your responsibilities may include using the control panel to check library status or to configure, calibrate, or test the library. This chapter describes basic menu structure and navigation and explains how to use the control panel to get status information and to perform basic functions.

- To Understand the Menu Structure—page 14
- To Learn How to Navigate Through the Menu System—page 15
- To Use the Overview Screen—page 16
- To Use the Tapes Screen—page 17

Note – For advanced control panel functions, go to Chapter 4. Additional information about control panel operation is also available in the *Sun StorEdge L1800 Diagnostic Software Manual* and the *Sun StorEdge L1800 Field Service Manual*.

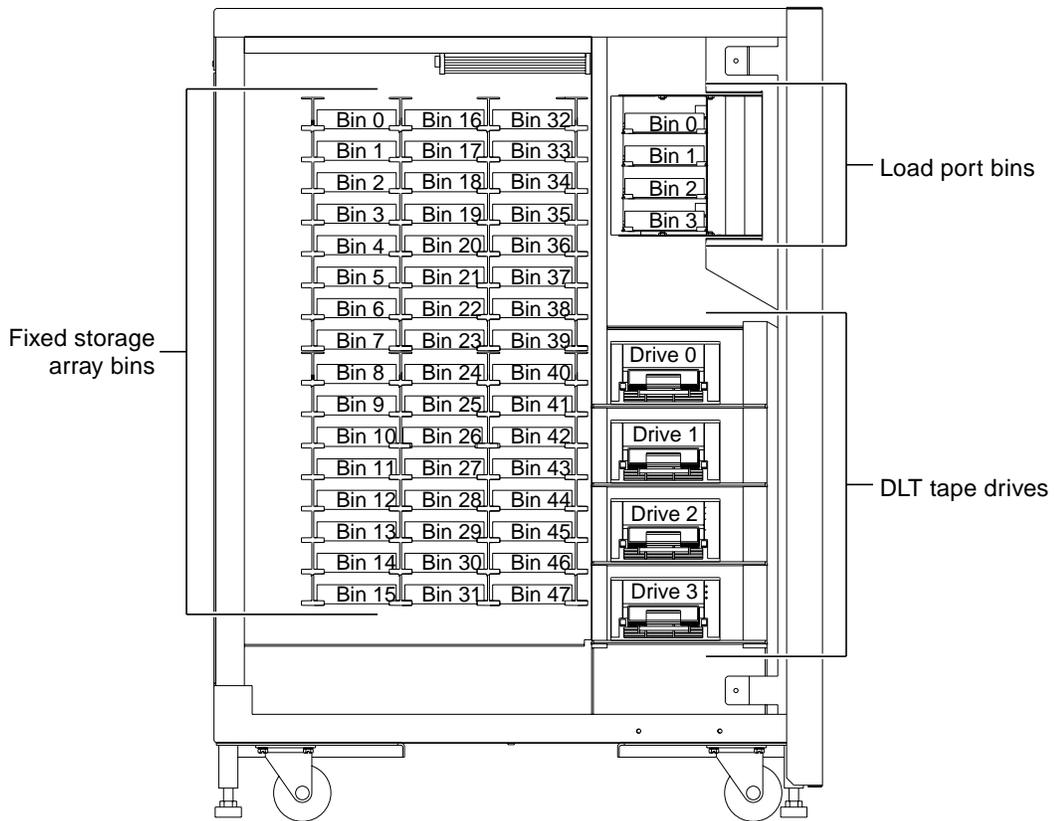


FIGURE 1-7 Bin and Drive Numbering Conventions

Tape Cartridge Compatibility

The library uses DLT7000 tape drives which support CompacTape™ III (dark gray) and CompacTape IV (black) tape cartridges.



Caution – Do not use CompacTape I, II, or IIIXT tape cartridges in this library.

TABLE 1-1 DLT7000 Tape Drive Status/Control Panel Functions

Feature	Function
Unload button	<p>This button is used to unload the tape from the drive to prepare it for ejecting and removal. When you press this button, the drive rewinds the tape and unloads the tape from the drive back into the cartridge.</p> <p>The tape cartridge must be completely rewound and unloaded before ejecting it from the drive. Depending on tape position, rewinding and unloading the tape may take from 10 to 120 seconds.</p>
Operate Handle indicator	This green indicator lights when the insert/release handle is ready to operate.
Use Cleaning Tape indicator	This yellow indicator lights when the drive head needs cleaning or the current cleaning tape is bad. After unloading the cleaning tape cartridge, the indicator remains lit if the cleaning operation was not completed or if the cleaning tape was bad.
Tape in Use indicator	This yellow indicator flashes while the tape cartridge loads and becomes calibrated. After calibration, the indicator remains lit.
Write Protect indicator	This orange indicator lights when the loaded tape cartridge is write protected.

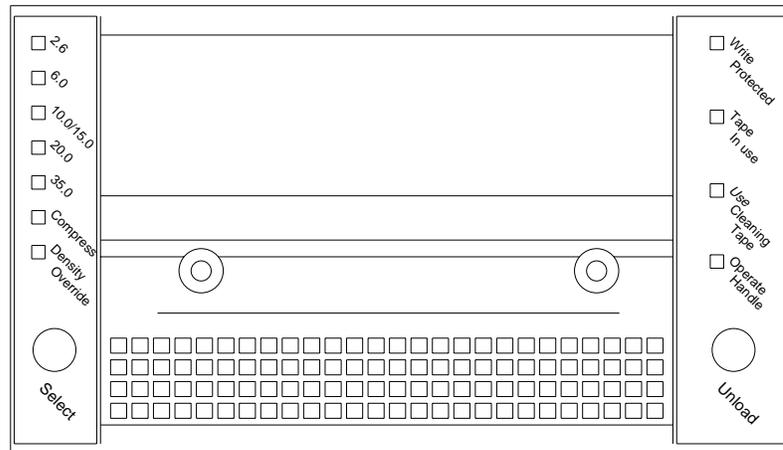
Library Numbering Conventions

FIGURE 1-7 shows the numbering conventions for storage bins, load port bins, and tape drives. These numbering conventions are used by the diagnostic software and the library menu system viewed in the status display area of the control panel when the library is off-line

DLT Tape Drive Status/Control Panel

A status/control panel can be found on the front panel of each tape drive (FIGURE 1-6). The functions of this display are described in TABLE 1-1.

Note – For a detailed description of the DLT tape drive, refer to the *DLT7000 Cartridge Tape Drive Product Manual*.



TA00052b

FIGURE 1-6 DLT7000 Tape Drive Status/Control Panel

Back Panel

Figure 1-5 shows the back panel of the library. This panel contains the AC power switch and receptacle and various communication ports for the host computer, tape drives, and diagnostic PC.

As the operator, you only need access to the back panel to turn the library on and off and to verify that cables are properly connected. Field service engineers use the back panel to set up the system and to use the diagnostic PC.

For more information about setting up the system, refer to the *Sun StorEdge L1800 Facilities Planning and Installation Guide*. For more information about using the diagnostic PC and diagnostic software, refer to the *Sun StorEdge L1800 Diagnostic Software User's Manual*.

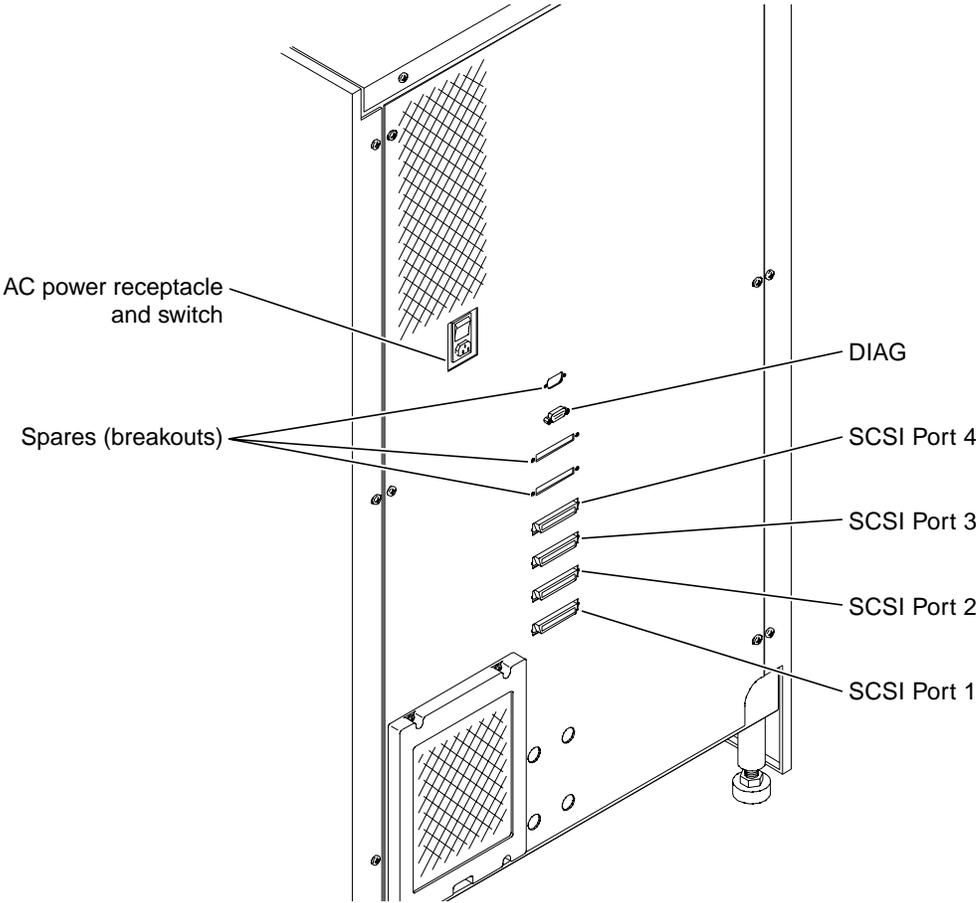


FIGURE 1-5 Back Panel

Front Door

FIGURE 1-4 shows the library's front door and interlock switch. You can use this door to access the DLT tape drives to manually eject and remove tape cartridges.

Note – Field service engineers use the front door to perform various maintenance procedures. For more information, refer to the *Sun StorEdge L1800 Field Service Manual*.

To ensure your safety, the interlock switch removes power from the CHM when the door is opened.



Caution – To prevent injury from moving components, always set the library to off-line mode and stop the CHM before opening the front door. To do so, press the Standby button and wait until the system state display indicates that the system is off-line. Then press the Stop button to cut the power to the CHM.

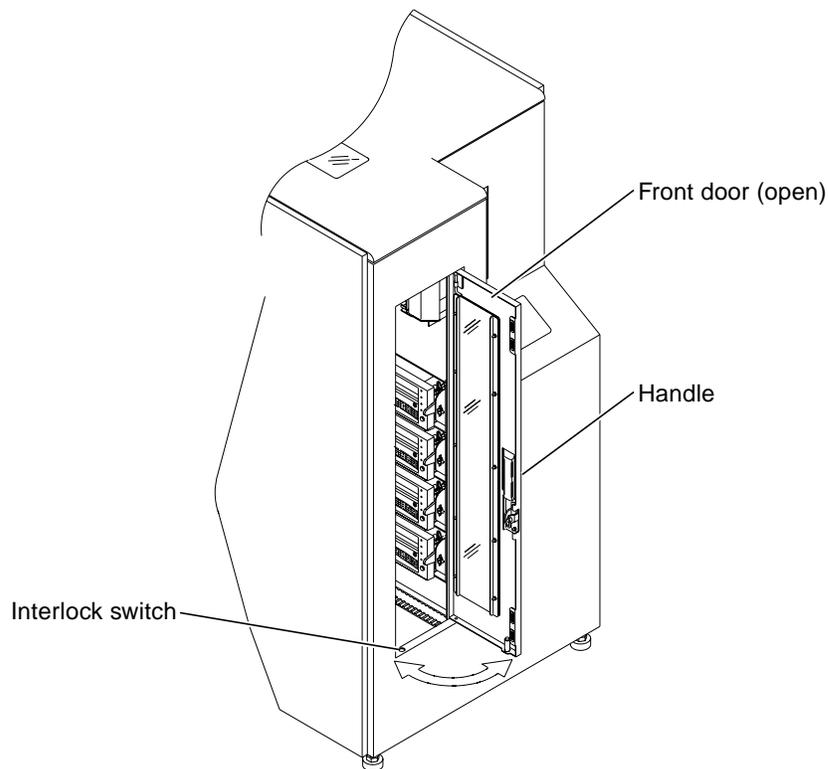


FIGURE 1-4 Front Door

Load Port

The load port (FIGURE 1-3) is located at the front of the library above the control panel. This port enables you to insert or remove up to four tape cartridges.

The Load Port button on the control panel allows you to open and close the load port door. For more information about load port operation, see Chapter 3.

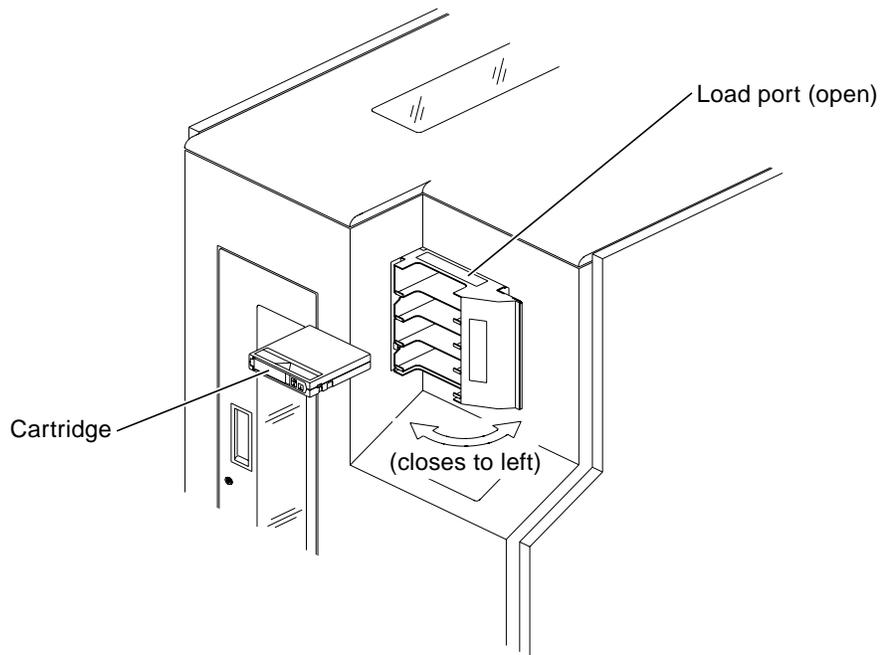


FIGURE 1-3 Load Port

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Main Display Area

The main display area consists of the following four screens:

- Overview. This screen displays a snapshot of the tape drives, CHM activity, and load port inventory.
- Tapes. This screen displays the contents of the tape drives, storage bins, load port, gripper, and pass-through mechanism (if supported).
- Operator. This screen contains the library configuration and control functions. To use this screen, you must have either operator or service security clearance.
- Service. This screen contains reporting functions, system tests, and miscellaneous commands. To use this screen, you must have service security clearance.

For more information about the Overview and Tapes screens, see Chapter 2. For more information about the Operator screen, see Chapter 3. For more information about the Service screen, see the *Sun StorEdge L1800 Diagnostic Software Manual* and the *Sun StorEdge L1800 Field Service Manual*.

Note – You must enter the correct password to access the Operator and Service screens. If you do not have the appropriate password, consult your system administrator.

Horizontal Bar

The horizontal bar extends along the top of the control panel screen and consists of the following four controls:

- Back button. This button moves you backwards screen-by-screen through previous menu selections.
- Forward button. This button moves you forward screen-by-screen through previous menu selections.
- Home button. This button returns you to the initial control panel screen (shown in FIGURE 1-2).
- Contrast buttons. These buttons adjust the contrast of the screen.

Vertical Bar

The vertical bar extends along the left edge of the control panel screen and consists of the following controls and indicators:

- System state display. This display gives the current state of the library (on-line or off-line) and displays important messages relating to library operation.
- Standby button. This button switches the library between on-line and off-line mode.
- Load Port button. When the load port is closed, this button causes the load port door to open. When the load port is open, this button unlocks the load port door, allowing the door to be closed manually.
- Security Level indicator. This indicator gives the current security level available at the control panel. The following security levels are available: U (user), O (operator), and S (service).

Note – For more information about security levels, see the “Main Display Area” section in this chapter and Chapters 2 and 3.

- System activity indicator. This indicator, a dotted line directly below the security level indicator, flashes to show library activity.
- Stop button. This button halts all activity in the library by cutting power to the CHM. Pressing the Stop button a second time restores power to the CHM.

As the operator, you need to be able to access the following library components:

- Control panel
- Load port
- Front door
- Tape drive status/control panel
- Back panel

These components are described in the following sections.

Control Panel

The control panel (FIGURE 1-2) is located at the front of the library to the right of the front door. Its features are described in this section.

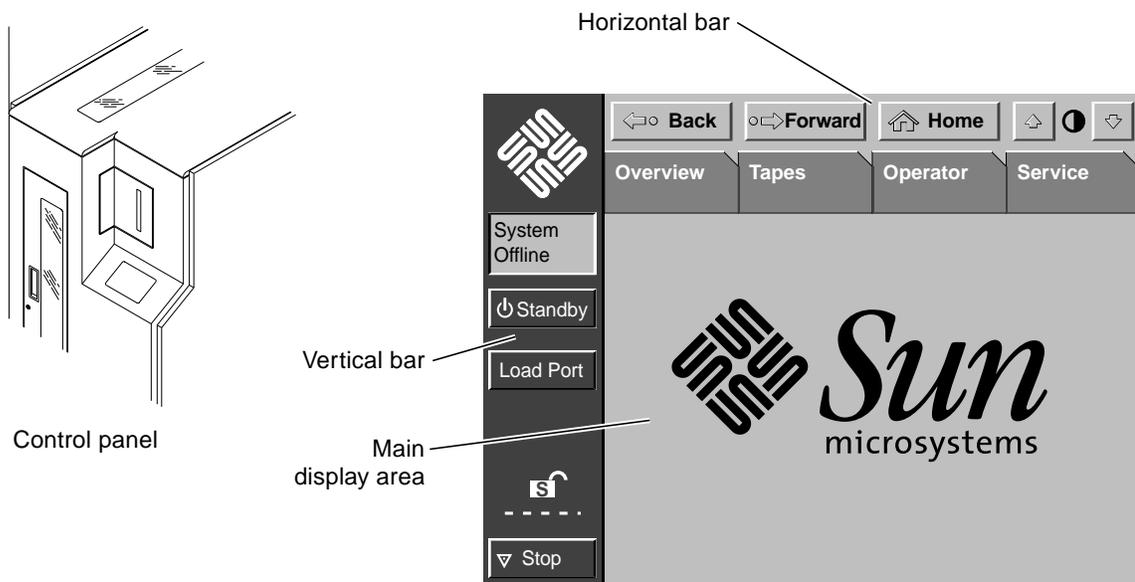
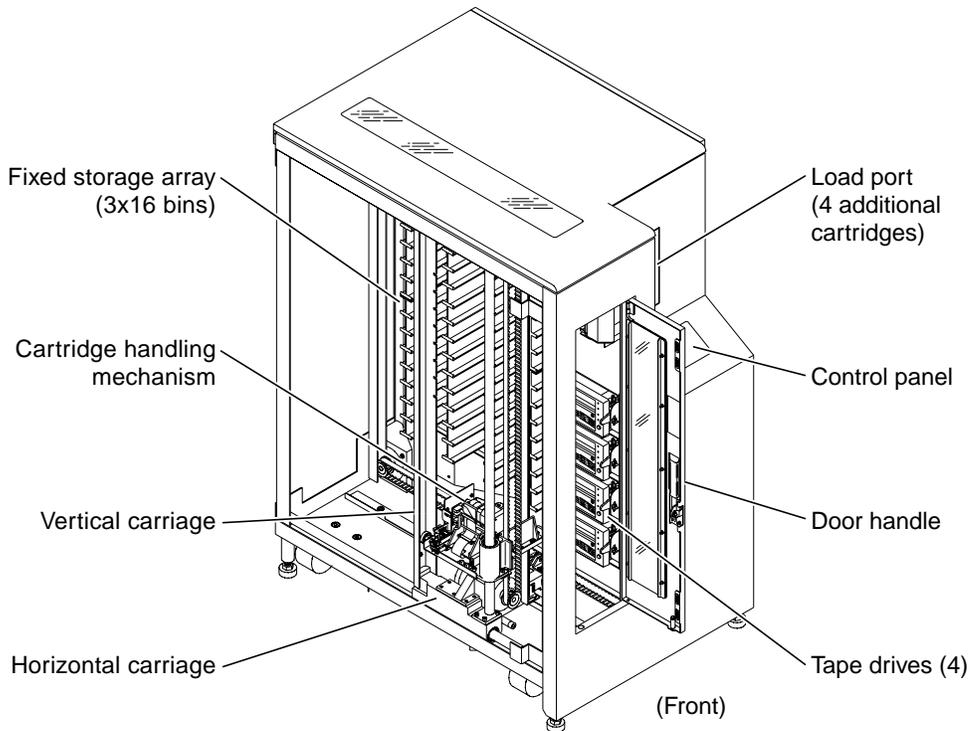


FIGURE 1-2 Control Panel

The control panel can be divided into three sections:

- Horizontal bar
- Vertical bar
- Main display area



TA00038d

FIGURE 1-1 Sun StorEdge L1800 (Left Cosmetic Panel Removed)

Product Description

The Sun StorEdge L1800 is the storage and retrieval component of an automated tape library system. A host computer communicates with the library through a SCSI interface using the SCSI-2 medium changer command set. In a typical operation, the host computer issues commands to the CHM to transfer tape cartridges between storage bins or between a storage bin and a tape drive or the load port.

Library Overview

This manual describes the Sun StorEdge L1800, shown in FIGURE 1-1. This library consists of the following main components:

- A robotic handler, referred to as the *cartridge handling mechanism* (CHM)
- Up to 48 digital linear tape (DLT™) cartridges in a *fixed storage array* (FSA)
- Up to four DLT7000 tape drives
- A load port which can hold four additional cartridges
- A control panel used to set options, check operating statistics, and diagnose errors
- A tape drive status/control panel used to set drive options and check drive status

This chapter gives a brief description of these and other library components.



Caution – Your Sun product is shipped with a grounding type (3-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

Panels and Cover



Caution – It is not safe to operate Sun products without the panels and covers in place. Failure to take this precaution may result in personal injury and system damage.



Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.



Hot Surface – Hot surface or materials are present. To reduce the risk of burns, follow the instructions.

Modification to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems, Inc. is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product



Caution – To ensure reliable operation of your Sun product and to protect it from overheating, openings in the equipment must not be blocked or covered. A Sun product should never be placed near a radiator or heat register.

Power Cord Connection



Caution – Sun products are designed to work with single-phase power systems that have a grounded neutral conductor. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



Caution – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell superuser prompt	machine_name#
Bourne shell and Korn shell prompt	\$
Bourne shell and Korn shell superuser prompt	#

Safety Agency Compliance

Before beginning any procedure, read the instructions and cautions in this section. They explain how to work safely with the internal components of your system. The equivalent information, translated into French, German, and Spanish, can be found at the beginning of this document.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all warnings and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source matches the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols appear in this book:



Caution – Risk of personal injury and equipment damage. Follow the instructions.

What Typographic Changes Mean

The following table describes the typographic changes used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. machine_name% You have mail.
AaBbCc123	What you type, contrasted with on-screen computer output	<pre>machine_name% su Password:</pre>
AaBbCc123	Command-line placeholder; replace with a real name or value	To delete a file, type <code>rm filename</code> .
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be root to do this.

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	machine_name%

Preface

This book explains how to operate the Sun™ StorEdge™ L1800. It assumes that the library has already been unpacked and installed using instructions found in the *Sun StorEdge L1800 Unpacking Instructions* and the *Sun StorEdge L1800 Facilities Planning and Installation Guide*.

First read the “Safety Agency Compliance” section at the end of this preface. Then refer to the specific chapters to find the information you need.

Who Should Use This Book

This book is designed to aid nontechnical users in the operation of the tape library system. It begins with a general description of library components and continues with detailed descriptions of control panel menu functions and specific operating procedures. It also contains basic troubleshooting information.

This book does not address highly technical issues and procedures, such as hardware maintenance, diagnostic software operation, or library software development. To obtain this information, authorized field service engineers and system programmers should refer to the following documents:

- *Sun StorEdge L1800 Diagnostic Software User’s Manual*
- *Sun StorEdge L1800 Field Service Manual*
- *Sun StorEdge L1800 Software Interface Guide*

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