

# **OptiPac-3 6622SX User's Manual**

Manual No. 11-16622-80  
Revision 1

© Copyright 2006

Bering Technology, Inc.  
1400 Dell Avenue, Suite B  
Campbell, CA 95008-6620  
(408) 364-6500



## Important Notice

Copyright © 2006 by Bering Technology, Inc. All rights reserved. No part of this document may be reproduced in any way without the express written permission of Bering Technology, Inc.

Printed in the United States of America.

The information contained in this document is subject to change without notice. Every reasonable precaution has been taken in the preparation of this manual to insure its accuracy. However, Bering Technology, Inc. assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein, nor does it make a commitment to update the information contained herein.

OptiPac is a trademark of Bering Technology, Inc.  
HP is a trademark of Hewlett Packard Corp.

## Important FCC Information

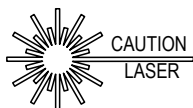
This peripheral device generates and uses radio frequency energy and if it is not installed and used properly, that is, in strict accordance with this manual, it may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class-A computing device in accordance with the specifications in subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause interference and is up to the user, at his own expense, to take whatever measures may be required to correct the interference. You can test to see whether this equipment does cause interference with radio or television reception by turning the disk drive off and on. If it is causing interference, try to correct the problem by one or more of the following measures:

- Be sure you're using shielded interconnect cables.
- Reorient the receiving antenna.
- Relocate the drive with respect to the receiver.
- Move the receiver away from the disk drive, or vice versa.
- Plug the computer into a different outlet so that the computer and receiver are on different circuits.

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may also find a booklet prepared by the Federal Communications Commission helpful. It is entitled *How to Identify and Resolve Radio-TV Interference Problems*. Request Stock No. 004-000-00345-4, from the U.S. Government Printing, Washington, D.C., 20402.

## Warning:

To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.



The OptiPac product is classified as a CLASS 1 LASER PRODUCT.

A CLASS 1 LASER PRODUCT label is located on the internal drive mechanism.

## Printing History

New revision levels of the manual indicate a new rewrite of the manual. This may include new installation instructions for a particular operating system, or a new ROM version of the OptiPac-3 subsystem which affects functionality. You can determine the ROM version of your OptiPac-3 by using the front panel LCD controls. See chapter 4 for details.

If you have upgraded your OptiPac-3 and the LCD functions no longer match those described in this manual, you should contact Bering Customer Service to determine the proper revision of the *OptiPac-3 6622SX User's Manual* required for your OptiPac-3 subsystem.

Date                   =   Date this manual was printed  
Rev                    =   Revision level of this manual

Date	Rev	Changes to manual
Mar 2006	1	Preliminary printing

## **Warranty Statement**

OptiPac-3 products sold in the U.S.A. and Canada carry a standard one year warranty against defects in materials and workmanship.\* During the warranty period, Bering will, at its option, repair or replace equipment which proves to be defective.

OptiPac-3 cartridge media is warranted against defects for one year from the date of purchase. If the media becomes defective, Bering will replace it upon receipt of the defective media from the customer.

All repairs will be performed at the factory. Any other arrangement, such as on-site service, will be at your expense. Before any product is returned for repair, a Return Materials Authorization number (RMA#) must first be obtained from a Customer Service representative.

Customer Service  
Bering Technology, Inc.  
1400 Dell Avenue, Suite B  
Campbell, CA 95008-6620

(408) 364-6500  
FAX (408) 364-6501  
Email: [help@bering.com](mailto:help@bering.com)

The selection and use of media, supplies, and consumables is the customer's responsibility. Bering reserves the right to exclude from the warranty any damage caused by misuse of the product, unauthorized modification, shipping damage, non-Bering-approved media, interface, software, or cleaning supplies.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. BERING SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES, DIRECTLY OR INDIRECTLY RELATED TO THE USE OR PERFORMANCE OF BERING PRODUCTS.

For products sold outside the U.S.A. and Canada, contact your local Bering distributor, representative, or dealer for warranty terms.

## Configuration Settings

Use this table to record the configuration settings of your Bering OptiPac-3 Magneto-optical disk drive subsystem.

Model \_\_\_\_\_

Part Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Time Zone \_\_\_\_\_

SCSI ID \_\_\_\_\_

Parity checking	<input type="checkbox"/> enabled	<input type="checkbox"/> disabled
-----------------	----------------------------------	-----------------------------------

Drive button	<input type="checkbox"/> enabled	<input type="checkbox"/> disabled
--------------	----------------------------------	-----------------------------------

12/24 hour clock	<input type="checkbox"/> 12	<input type="checkbox"/> 24
------------------	-----------------------------	-----------------------------

## Table of Contents

<i>INTRODUCTION</i> .....	1
Features .....	1
Compatibility .....	1
Magneto-Optical Technology .....	2
Conventions in this Manual .....	3
Unpacking .....	4
<i>INSTALLING THE OPTIPAC</i> .....	5
Quick-Start Procedure .....	5
Connecting the OptiPac Drive .....	6
<i>OPERATING THE DISK DRIVE &amp; CARTRIDGE</i> .....	7
6622SX Controls .....	7
MO Controls .....	8
Loading a Cartridge .....	8
Compatibility .....	8
Ejecting a Cartridge .....	9
Ejecting a Cartridge Without Power .....	9
Write-Protecting a Cartridge .....	10
<i>OPTIPAC SYSTEM FUNCTIONS</i> .....	11
System Menu .....	12
Main Menu .....	13
Unload Cartridge .....	13
Backup .....	14
Restore .....	14
Configurations .....	15
Utilities .....	15
Display Time and Messages .....	15
Configurations Submenu .....	16
Change SCSI ID .....	16
Parity Checking .....	16
Change Drive Button .....	17
Use 12 / 24 Hour Clock .....	17
Set Time .....	17
Set Date .....	18
Utilities Submenu .....	19
Hard Disk Utilities Submenu .....	20
Show Hard Disk Information .....	20
Spin Down / Up Hard Disk .....	20
Verify Hard Disk .....	21
Format Hard Disk .....	21
Erase Hard Disk .....	22
Cartridge Utilities Submenu .....	23
Show Cartridge Information .....	23
Unload Cartridge .....	23

Verify Cartridge . . . . .	23
Format Cartridge . . . . .	24
Erase Cartridge . . . . .	25
External Disk Utilities . . . . .	26
Show External disks . . . . .	26
Verify External disk . . . . .	26
Import External disk . . . . .	27
Tests Submenu . . . . .	28
Test LCD Display . . . . .	28
 <i>CARING FOR THE DISK DRIVE &amp; CARTRIDGE</i> . . . . .	29
General Safeguards . . . . .	29
Cartridge Care . . . . .	30
 <i>TROUBLESHOOTING &amp; SERVICE</i> . . . . .	31
Before You Do Anything Else . . . . .	31
Error Codes and LCD Messages . . . . .	31
Fuse Replacement . . . . .	31
If You're Still Having Problems . . . . .	32
 <i>SPECIFICATIONS</i> . . . . .	33
2.3GB Cartridge Disk Drive . . . . .	33
2.3GB Hard Disk . . . . .	34
General . . . . .	35
 <i>RACK MOUNT</i> . . . . .	37
Installation . . . . .	37
 <i>INDEX</i> . . . . .	39



## INTRODUCTION

Congratulations on purchasing what we think is the finest removable cartridge system on the market. Bering OptiPac-3 drives are built for years of reliable service. We're sure you'll agree as you begin to work with your drive.

### Features

The Bering OptiPac-3 6622SX subsystem is a 2.3GB Magneto-Optical removable cartridge disk drive with a 2.3GB hard disk compatible with Hewlett-Packard computers running operating systems that support SCSI disk drives. In this manual we refer to the Bering OptiPac-3 disk drive as *OptiPac* and all HP systems as *computer*, unless otherwise indicated.

**Note:** The Bering OptiPac-3 6622SX magneto-optical cartridge drive supports 2.3GB, 1.3GB, and 640MB cartridges. These cartridges are available through Bering Technology's sales department.

Serving a wide range of storage needs, the OptiPac-3 comes in the following configuration.

- 6622SX – a 2.3GB Magneto-Optical cartridge drive with a 2.3GB hard disk

The OptiPac-3 6622SX subsystem uses a 3.5 -inch removable cartridge which can store 2.3GB. This means:

- Your storage capacity is limited only by the number of cartridges you use.
- Your data is portable and secure. Just remove the cartridge from the drive and take it with you, or store it in a safe place.
- Your data cartridge is protected in a durable case.
- Your OptiPac-3 can be used to back up the data on hard disks.
- The hard disk can be backed up to the cartridge drive using a local backup function on the front LCD panel and controls.

The OptiPac-3 provides fast, reliable storage that's always on hand. No software or hardware modifications are required. The OptiPac-3 supports the standard SCSI disk command sets.

### ▲ DANGER:

*Use of the OptiPac-3 other than as prescribed in this manual may result in exposure to hazardous invisible laser radiation if the case is open during operation. Avoid direct exposure to laser radiation. Do not operate the OptiPac-3 while the cover is removed.*

### Compatibility

The OptiPac-3 subsystems read, write, and format ISO 128MB, 230MB, 640MB cartridges, and the GIGAMO 2.3 and 1.3GB MO cartridges. Use

**Magneto-  
Optical  
Technology**

the “Show Cartridge Information” function using the front panel control buttons to determine the capacity and statistics of each cartridge.

All of the Bering OptiPac disk drives are based on magnetic and optical technology. Like hard disks, a Magneto-Optical drive writes data to the cartridge using a strong magnet that changes the magnetic fields at specific locations from 1's to 0's and vice versa. But because of the polycarbonate surface of the cartridge, the magnet is not powerful enough to change the polarity of a bit by itself. This is where the optical part of the write process comes in. In order for the magnet to change the polarity of a bit, the area must be heated to a high temperature by a focused, fine-point laser.

Because of the polycarbonate substrate on the cartridge, data stored on Magneto-optical cartridges is highly secure for a long period of time. The estimated storage life of data stored on this media is greater than twenty years. Also the magnetic head does not “float” next to the surface such as fixed disks. This means it is virtually impossible for the head to crash.

## Conventions in this Manual

We'll use the following conventions to make the information in this manual more clear and predictable:

- **Keys** on the keyboard are indicated by capital letters enclosed in square brackets, e.g., [ENTER], regardless of whether the characters on your keys are actually capitalized. On the other hand, **buttons** on the OptiPac-3 are indicated by underlined capital letters alone followed by the word *button*, e.g., ENTER button.
- A font like **this** indicates text you should see on the LCD. The bold font will otherwise follow the conventions herein.
- Italics in any type face, *like this*, have a limited number of possible meanings:

Words as words, letters as letters, or numerals as numerals, e.g., “the word *enter* can be confused with the key on your keyboard, therefore we will use *type* in its place.”

Titles of books, booklets, or disks, e.g., *Bering OptiPac-3 6622SX User's Manual*

Symbolic of variable words, characters, or numerals. That is, something must be in the variable's place, but the exact contents vary with different situations and cannot be specified without knowing a particular situation. *Variable* is not synonymous with *optional*. Frequently the letter(s) *n* (for numerals), or *x* (for words or characters) are used to hold the place of the variable, e.g., “the program will respond that there are *n* widgets.”

## Unpacking

Carefully unpack your OptiPac-3 near the spot where you want to set it up, noting the packing method as you go. Save the packing materials, they'll come in handy if you ever want to ship the unit.

Besides this manual, you'll find:

- the OptiPac-3
- a removable data cartridge
- a SCSI terminator
- a power cable
- a warranty card

If any item is missing, please call your dealer or call Bering Customer Service at (408) 364-6500.

## INSTALLING THE OPTIPAC

This chapter describes the installation procedure for the OptiPac and is divided into two sections. The “Quick-Start Procedure” section enables experienced users to begin operation right away. The “Connecting the OptiPac Drive” section helps new users connect the disk drive before going on to the next chapter for additional operating instructions.

### Quick-Start Procedure

This section describes the quick-start procedure to set up the OptiPac for use on a computer system. Most of the parameters are already set at the factory. There may be some adjustments necessary before the OptiPac can operate in your particular environment. Refer to your operating system manuals for information.

1. Turn off your computer.
2. Attach the SCSI cable to the computer’s SCSI Interface and the other end to either SCSI connector on the back panel of the OptiPac drive.
3. Install the SCSI terminator on the remaining SCSI connector on the back of the OptiPac.
4. Turn on the OptiPac and wait for the self-test to end.  
When the test ends without incident, the time and date should be displayed on the front panel LCD and the clock should be running.
5. Load a cartridge.
6. Format the cartridge from the Removable Utilities menu. This step is not necessary if the cartridge was previously formatted.
7. Turn on your computer.
8. Begin using the OptiPac.

**Connecting the OptiPac Drive****▲ CAUTION:**

For specific installation and configuration instructions for your computer, refer to your computer's operating manual.

*Turn off your computer and unplug the power cord from the wall outlet. Disconnect any other cables attached to the back panel of your computer that may be in your way.*

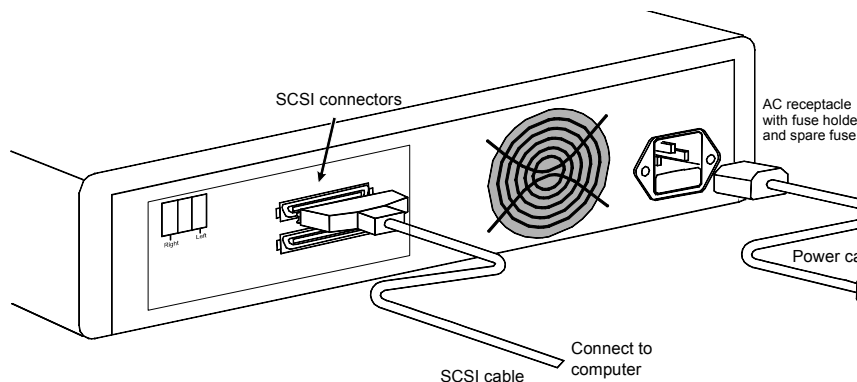


Figure 2-1: Connecting the OptiPac

1. Turn off your computer and the OptiPac drive.
2. Connect the SCSI cable into either SCSI connector on the back panel of the OptiPac.
3. Attach a SCSI terminator to the other SCSI connector on the back panel of the OptiPac.
4. Plug the other end of the SCSI cable into the SCSI connector on your computer.
5. Connect the power cable to the back of the OptiPac. Make sure there is at least one inch of space around the back and two inches around the sides of the drive.
6. Plug the OptiPac and the computer into grounded electrical outlets or a surge protector. The OptiPac should be on the same circuit as your computer.

**▲ CAUTION:**

*Make sure that other equipment or appliances which might generate electrical noise or a power surge (such as electric typewriters or heaters) are on separate circuits.*

7. Turn on the OptiPac.
8. Set the SCSI ID to a unique address using the front panel LCD controls.
9. Turn on the computer, and any other peripherals.

## OPERATING THE DISK DRIVE & CARTRIDGE

### 6622SX Controls

Figure 3-1 illustrates all controls and indicators required for operating the OptiPac 6622SX.

1. Press the **POWER** button on the front panel of the OptiPac.

The LCD will display a self-test message and the disk drive model number. This operation should take less than a minute. If a cartridge is loaded, a read test will be performed. After the self-test is successfully completed, the time and date will be displayed on the LCD.

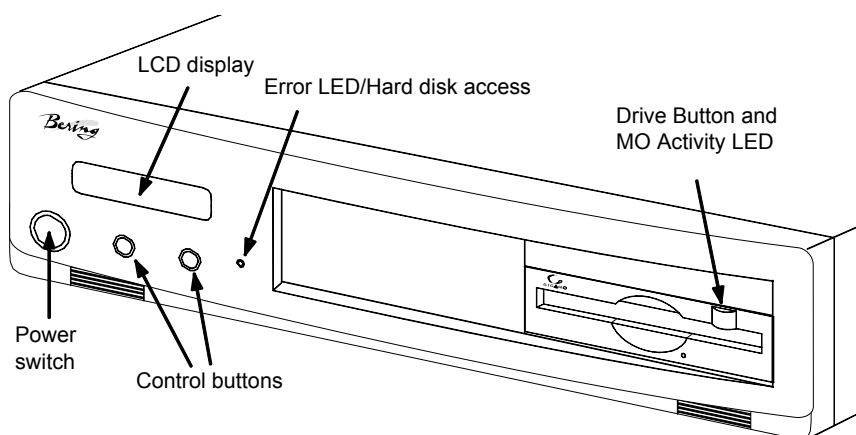


Figure 3-1: OptiPac 6622SX front panel

#### Drive Button

The drive button is always locked out. The cartridge will not eject when this button is depressed because the OptiPac controller has issued a lock command to the cartridge drive. The cartridge must be ejected using the **Unload cartridge** function in the LCD main menu.

#### Hard Disk Access Indicator

The hard disk access indicator is on the lower middle of the front bezel. Whenever the hard disk is accessed the LED will flash on.

#### Error LED

The Error LED turns red and stays illuminated when a system error is detected. This LED is also used as a hard disk access LED. It flashes green when the hard disk in the model 6622SX is accessed.

## MO Controls

The MO drive controls are simple.

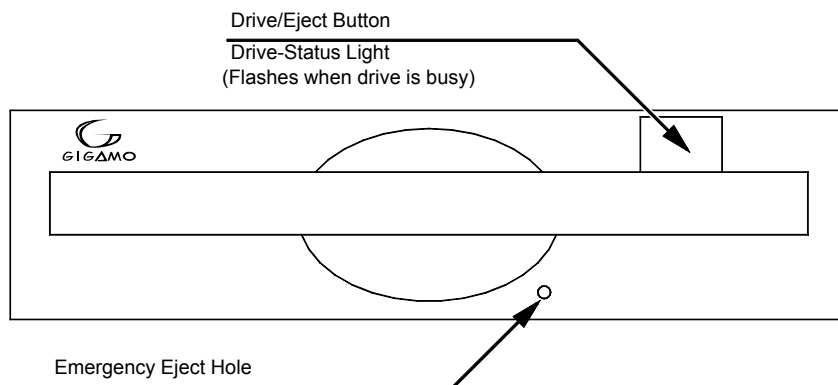


Figure 3-2: MO controls

### Emergency Eject Hole

In an emergency, such as a power outage, the cartridge can be manually ejected by inserting a tool into this opening. Read the complete instructions in the section titled "Ejecting a Cartridge Without Power."

### Loading a Cartridge

Loading a data cartridge is very much like loading a diskette.

1. Make sure the OptiPac is turned on before you load a cartridge.
2. Remove the cartridge from its plastic storage case.
3. Insert the cartridge into the drive slot with the label side up and push the cartridge straight in, keeping it parallel with the top and bottom of the drive.
4. Slide the cartridge all the way into the drive.

The activity LED on the front of the removable drive will flash green as the drive spins up. After a brief test, the LED will extinguish when the drive is ready. Thereafter, the status LED will flash whenever the removable disk is accessed.

### ▲ CAUTION:

*Never move or transport the OptiPac with a cartridge in the drive. This may damage the cartridge and cause read/write head damage.*

### Compatibility

The OptiPac subsystems read, write, and format ISO 128MB, 230MB, 640MB cartridges, and the GIGAMO 2.3 and 1.3GB MO cartridges. For full hard disk backup capabilities, only the GIGAMO 2.3GB cartridges should be used.



## Ejecting a Cartridge

It is important to remove the cartridge before you turn off the OptiPac. If you leave the cartridge in the drive, the shutter remains open and the recording media itself is vulnerable to dust. If the OptiPac is turned off prior to cartridge removal, the automatic disk spin-down operation does not occur and the cartridge disk will spin freely for up to 45 seconds. Attempting to remove the cartridge during this time may damage the media.

The OptiPac must be turned on before you can unload a cartridge. If the Drive button is enabled, which is the default, just press the eject button on the front of the MO drive and proceed directly to step 3. If the drive button is disabled perform the following steps to eject a cartridge.

1. With the time function displayed on the LCD, push the **SELECT** button on the front panel.

The **Unload cartridge** function(s) will be displayed.

### Unload cartridge

2. Push the **ENTER** button to execute the command.

The cartridge will spin down and eject from the drive.

### Note:

NEVER eject a cartridge while the file system is mounted on your operating system.

3. Remove the cartridge carefully and place it in the protective plastic storage case immediately.

Remember to label and date the cartridge for future reference. Do not mark on labels with a graphite pencil. The graphite dust may contaminate the disk surface. Refer to Chapter 5, "Caring for The Disk Drive & Cartridge," for further information on cartridge care.

## Ejecting a Cartridge Without Power

While the OptiPac is not powered on, you can manually eject a cartridge.

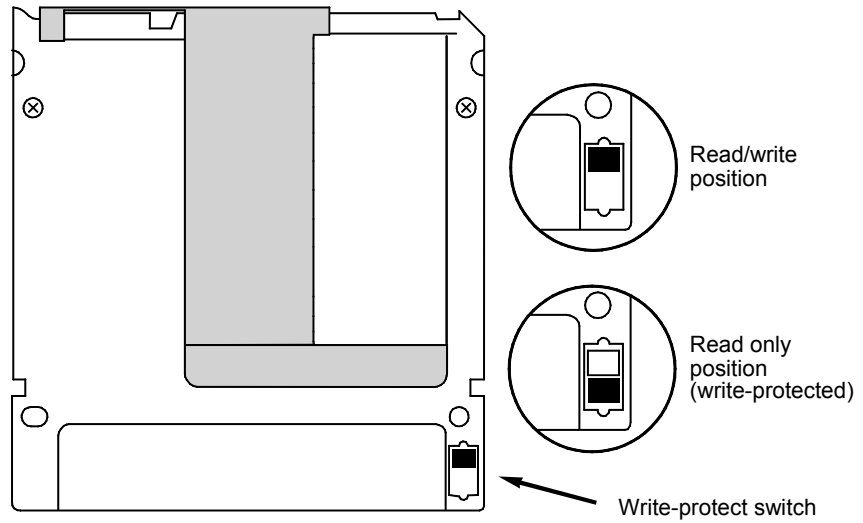
### ▲ CAUTION:

*Never manually eject a cartridge while the power is on. This can damage the drive and invalidate the warranty.*

1. Wait for 45 seconds or more after the power is off.
2. Insert a cartridge eject tool (a paper clip may be substituted) into the emergency reject hole on the front of the drive.
3. Gently push the tool into the hole until the cartridge pops out.
4. Return the cartridge to its protective case for storage or transport.

**Write-Protecting a Cartridge**

The MO cartridge can be physically write protected by pushing open the slide cover on the cartridge. This is similar to write protecting a floppy diskette.

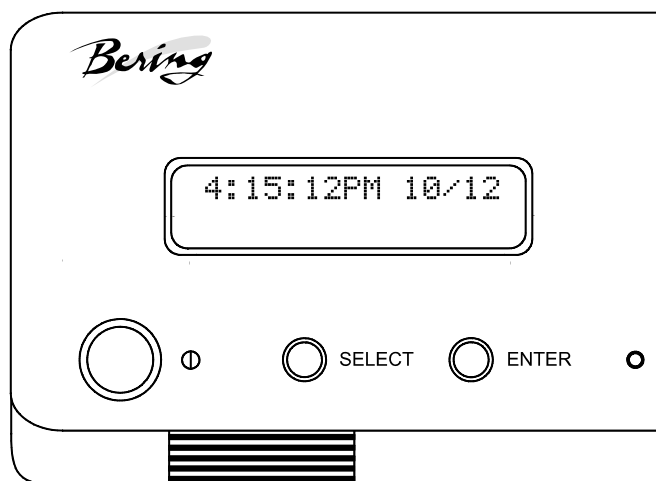


*Figure 3-3: Cartridge write-protect switch*

## OPTIPAC SYSTEM FUNCTIONS

This chapter describes the OptiPac configuration and operating procedures. The OptiPac 6622SX features a push-button operation for performing configuration and operating procedures. This procedure is based on a hierarchical structure of system functions displayed on the disk drive's LCD. All procedures can be performed using the two front panel push-button controls: **SELECT** and **ENTER**.

These instructions should be used in conjunction with your specific HP computer's configuration procedure."



*Figure 4-1: Front panel LCD and push-button controls*

All system operations are performed by first selecting a function and then entering it for execution. The **SELECT** button enables you to scroll through all the available system functions and select desired choices. The **ENTER** button enables you to execute the chosen function.

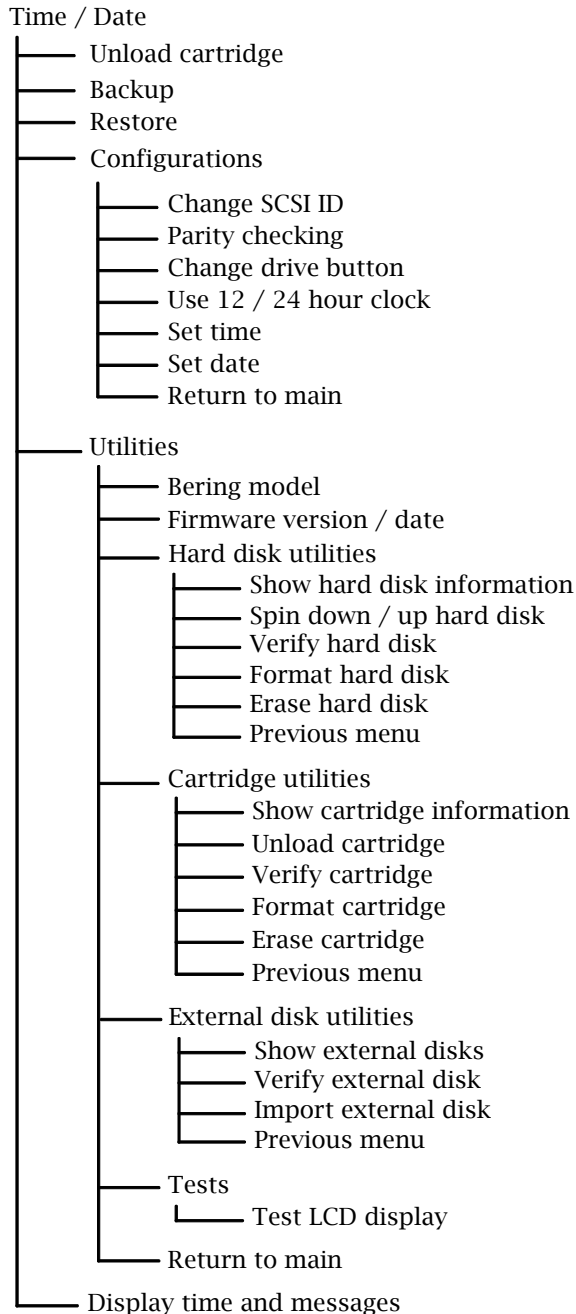
- To select a system function, press the **SELECT** button until the desired function appears on the LCD.
- To execute the chosen function or display its options, press the **ENTER** button.
- If you want to abort the current operation, press the **SELECT** and **ENTER** buttons simultaneously.

The abort function is allowed only during certain operations.

- To scroll or step backward in a menu, press and hold the **SELECT** button first and then the **ENTER** button.

**System Menu**

This section contains a menu structure of the commands which can be accessed from the front panel LCD display and controls.



## Main Menu

The default display on the front panel LCD is the time/date. When the **SELECT** button is pressed, the first choice of the Main menu will be displayed. You can scroll the Main menu by repeatedly pressing the **SELECT** button. To execute the selected function or to enter the sub-menu, press the **ENTER** button. The time/date display will appear similar to the following display when the system is first powered on and when the unit is on-line:

4:15:12PM 10/12

**Note:** Attempting to perform any function on a new and/or unformatted cartridge may cause the following message to display:

Media not  
initialized!

The cartridge must be formatted from the Cartridge Utilities menu before it can be used.

The following options are available from the Main menu of the OptiPac:

Unload cartridge  
Backup  
Restore  
Configurations  
Utilities  
Display time and messages

## Unload Cartridge

Use this function to unload the cartridge from the cartridge drive.

1. Use the **SELECT** button to choose the function you want to initiate from the Main menu:

Unload cartridge

2. Press the **ENTER** button.

A request is sent to the host system for permission to remove the cartridge. If the system grants the request or if there is no response for one second, the cartridge will be ejected. This is required for some operating systems and also prevents accidental ejection during cartridge use.

If the cartridge is in use by the operating system, the following message will appear.

Cartridge in use  
UNLOAD IT! (NO)

3. Press the **SELECT** button to select **Yes**, if need be; when **Yes** is selected, press the **ENTER** button to eject the cartridge.

**Backup**

This function is used to back up the OptiPac-3 hard disk to a cartridge. The entire image of the hard disk is copied onto one 2.3GB cartridge. A full backup can be made to one 2.3GB cartridge.

**Note:**

If you use a cartridge smaller than 2.3GB the backup will abort.

1. Insert a 2.3GB cartridge into the cartridge drive and wait for it to spin up.
2. Select **Backup** from the Main menu and press the **ENTER** button to choose this option.  
You will be asked:

Backup to  
cartridge? No

3. If the cartridge contains a readable backup stored on it you will see:

Overwrite backup  
Feb 16, 2005? No

- a. Press the **SELECT** button to toggle No to Yes.
- b. Press the **ENTER** button to continue when your choice is visible.  
If you entered No the cartridge will eject and the backup will abort.

4. As the backup progresses, the block number of the hard disk will be updated on the LCD:

Copy HARD DISK  
block nnnnnnn

5. To abort the function at any time, press and hold both the **SELECT** and **ENTER** buttons simultaneously until the following message appears:

Abort received.  
wait ...

When backup is complete. You will see:

Copy done at  
10:30:33 am

6. Press the **ENTER** button to exit the **Backup** function and return to the Main menu.

**Restore**

Use this function to restore the hard disk in the OptiPac from a cartridge containing a previous backup. The entire image of the disk is restored from the cartridge generated by the Backup function.

1. Load a cartridge containing the desired backup image into the OptiPac-3.
2. With the **Restore** function displayed, press the **ENTER** button to choose the **RESTORE** function.  
You will see the following message:

Restore to  
Wed Feb 16, 2005? No

This message shows the date of the hard disk backup on the cartridge you inserted.

3. Press the **SELECT** button to choose **Yes** and press the **ENTER** button to continue.

If you choose **No** and press the **ENTER** button the restore process will abort.

As the restoration progresses the block address of the hard disk is updated with the following message:

Copy CARTRIDGE  
block nnnnnnn

4. To abort the function at any time, press and hold both the **SELECT** and **ENTER** buttons simultaneously until the following message appears:

Abort received.  
wait ...

When the restoration is complete you'll see:

Copy done at  
10:30:33 pm

5. Press the **SELECT** button to complete and exit the **Restore** process.

## Configurations

This function changes the SCSI ID, enables and disables parity checking, changes the drive button, selects the 24 hour clock format, and sets the date and time. See the "Configurations Submenu" section for detailed information.

## Utilities

This function shows hard disk and cartridge information; verifies and formats the hard disk and cartridge; and erases the hard disk and cartridge data. Refer to the "Utilities Submenu" section for detailed information.

## Display Time and Messages

This function exits the Main menu and displays the current date and time.

**Configurations Submenu**

This function changes the SCSI ID, enables parity checking, enables the drive button, and sets the date and time.

1. Press the **ENTER** button when the Configurations function is displayed on the Main menu.

The Configurations submenu will offer these functions:

Change SCSI ID  
Parity checking (enable/disable)  
Change drive button (enable/disable)  
Use 24 / 12 hour clock  
Set time  
Set date

2. Press the **SELECT** button to scroll through the functions.

To return to the Main menu, press the **ENTER** button when you see **Return to main**.

**Change SCSI ID**

This changes the SCSI address of the OptiPac. The SCSI address should be set to a unique address different from all other SCSI devices on the SCSI chain.

To change the SCSI ID follow these instructions:

1. Press the **ENTER** button when the Configurations function is displayed on the Main menu.
2. Use the **SELECT** button to scroll through the selections until you see **Change SCSI ID**.
3. Press the **ENTER** button to select this option.

The LCD display will now show the following message:

SCSI ID=  
6

4. Press the **SELECT** button to scroll through the available addresses (0-6) and then press **ENTER** at the desired setting.

**Parity Checking**

This function enables or disables parity checking on the SCSI Bus. The default is parity checking disabled.

1. Press the **ENTER** button when the Configurations function is displayed on the Main menu.
2. Use the **SELECT** button to scroll through the selections until you see **Parity checking**.
3. Press the **ENTER** button to select this option.

The following message will appear:



**Parity checking  
enable/disable**

4. Press the **SELECT** button to toggle between enable and disable, then press the **ENTER** button to choose the desired option.

**Change Drive Button**

This function enables or disables the Eject/Drive button on the cartridge drive. The default setting has the Drive button disabled, permitting cartridge removal only by using the Unload cartridge function. This allows the OptiPac to communicate with the host system to request permission for cartridge removal. Enabling this function allows ejection of the cartridge by pressing the eject button on the front of the drive.

1. Press the **ENTER** button when the Configurations function is displayed on the Main menu.
2. Use the **SELECT** button to scroll through the selections until you see Change drive button.
3. Press the **ENTER** button to select this option.

The following message will appear:

**disable / enable drive  
button**

4. Press the **SELECT** button to toggle between disable and enable.
5. Press the **ENTER** button to select the desired function. The disable function is recommended.

**Use 12 / 24 Hour  
Clock**

This function changes the clock display on the front panel LCD from a 12 hour clock to a 24 hour clock or vice versa.

1. Press the **ENTER** button until the Use 12 / 24 hour clock function is displayed on the Configurations menu.
2. Press **ENTER** to select this option.
3. Use the **ENTER** button to toggle between 12 and 24. Then press the **SELECT** button to return to the menu.

**Set Time**

This function allows you to change the time.

1. With the Set time function displayed, press the **ENTER** button.

You'll see:

**Set time  
3:15:27 PM**

The actual time displayed will vary. The hour field will be blinking.

2. Press the **SELECT** button to increment the hour.

Holding the **SELECT** button will cause the hour to increment (through twelve hours) continuously. If you continue to hold down the **SELECT** button, incrementing will speed up.

To decrement the hour, press and hold the **SELECT** button, and then press the **ENTER** button. Again, decrementing will be continuous and speeds up if you hold the buttons down.

3. When the correct hour is displayed, press the **ENTER** button.
4. **SELECT** and **ENTER** the correct minute setting just as you did the hour.
5. **SELECT** and **ENTER** the correct setting for seconds.
6. **SELECT** and **ENTER** the correct AM/PM setting.

You will now be returned to the **Set time** option.

## Set Date

This function allows you to change the date.

1. With the **Set date** function displayed, press the **ENTER** button.

You'll see:

**Set date**  
*Wed Feb 16, 2005*

The actual date displayed will vary. The day field will be blinking.

2. Press the **SELECT** button to increment the day.

Holding the **SELECT** button will cause the day to increment (through the days of the week) continuously. If you continue to hold down the **SELECT** button, incrementing will speed up.

To decrement the day, press and hold the **SELECT** button, and then press the **ENTER** button. Again, decrementing will be continuous and speeds up if you hold the buttons down.

3. When the correct day is displayed, press the **ENTER** button.  
The month field will start to blink.
4. **SELECT** and **ENTER** the correct month setting just as you did the day.
5. **SELECT** and **ENTER** the correct date setting.
6. **SELECT** and **ENTER** the correct year setting.

After you have made this setting, you'll be returned to the **Set date** option.

## Utilities Submenu

This function shows hard disk and cartridge information; verifies, and formats the hard disk and cartridge; copies and erases hard disk and cartridge data:

- **MODEL NUMBER**—Displays the model number of the OptiPac.
- **F/W VERSION**—Displays the firmware version number and release date.
- **SERIAL NUMBER** — Displays the serial number of the OptiPac.
- **HARD DISK UTILITIES**—Shows hard disk information; spins down the hard disk; verifies, erases, and formats the hard disk. Refer to the “Hard Disk Utilities Submenu” section for detailed information.
- **CARTRIDGE UTILITIES**—Shows cartridge information; unloads, verifies, erases, and formats the cartridge. Refer to the “Cartridge Disk Utilities Submenu” section for detailed information.
- **EXTERNAL DISK UTILITIES**—Shows information about other disk units attached to the SCSI chain, tests other disk units, and imports an image of other disk units.
- **TESTS**—Tests the LCD. Refer to the “Test Submenu” section for detailed information.

To access and exit these utilities ...

1. Press the **ENTER** button when the **Utilities** function is displayed on the Main menu.

The Utilities submenu appears and displays the following functions:

Model number  
F/W version  
Serial number  
Hard disk utilities  
Cartridge utilities  
External Disk Utilities  
Tests  
Return to main

2. Press the **SELECT** button to scroll through the information or functions.
3. When you see **Return to main** , press the **ENTER** button to return to the Main menu.

**Hard Disk Utilities Submenu**

This function shows hard disk information; verifies, and formats the hard disk, and spins the hard disk down or up.

1. Press the **ENTER** button when the Hard disk utilities function is displayed on the Utilities submenu.

The Hard disk utilities submenu then appears displaying the following functions:

Show hard disk information  
Spin down/up hard disk  
Verify hard disk  
Format hard disk  
Erase hard disk  
Previous menu

2. Press the **SELECT** button to scroll through the information or functions.
3. You can return to the Utilities menu by pressing the **ENTER** button when you see Previous menu.

**Show Hard Disk Information**

This function displays information similar to the following list about the hard disk.

Capacity in MB  
Sector size  
Date hard disk last formatted\*  
Date hard disk last written\*  
Date hard disk last accessed\*

\* only if hard disk is formatted.

1. Press the **SELECT** button to scroll through each field.

**Spin Down / Up Hard Disk**

This function will spin the hard disk drive down or up. Using this function will help prevent wear on a drive which is constantly powered on.

1. Press the **ENTER** button to execute this function.

If the drive is already spun down, you will see the following message:

Spin up  
hard disk

2. Press the **ENTER** button to spin the drive up.

The hard disk will spin up at the first sign of activity on the SCSI bus, or when the LCD front panel controls access the hard disk drive.

**▲ CAUTION:**

*If the computer system attempts to access the OptiPac while it is spun down, the hard disk will automatically spin up, but the computer system may time-out before the disk is ready, causing a system error.*

## Verify Hard Disk

This function scans every sector on the hard disk for defects. If a bad sector is found, this function will terminate with the LCD showing the error.

1. Press the **ENTER** button to start.

As the verification progresses, the block address is updated. The following message will appear:

Verify DISK  
block nnnnnnn

2. To abort the function at any time, press and hold both the **SELECT** and **ENTER** buttons simultaneously until the following message appears:

Abort received.  
wait ...

3. Release the buttons.

The function will abort at the appropriate time and you'll see:

User abort

4. Press the **SELECT** button to exit.

When the verify is complete, the following message will appear:

Hard disk verified

5. Press the **SELECT** button to return to the Hard disk utilities submenu.

## Format Hard Disk

This function is used to format the hard disk if the FORMAT utility is not available in your host system.

### ▲ CAUTION:

*The Format Hard Disk function will erase all data on the hard disk.*

1. Press the **ENTER** button when the Format disk function is displayed on the Hard disk utilities submenu.

The Format hard disk submenu then appears displaying the following message:

Erase entire  
media? NO

2. Press the **SELECT** button to toggle between YES and NO.
3. Select YES and press the **ENTER** button to continue.

The following message will appear:

Set bytes /sector  
512

4. Press the **SELECT** button to toggle between 512 and 1024.

5. Press the **ENTER** button to continue.

The following message will appear showing the number of volumes (**vols**) and the sector size (**bps** = bytes per sector):

```
1 vols      512 bps
continue?   No
```

If you choose **No** the FORMAT will abort and you'll be returned to the Hard disk utilities menu.

6. Use the **SELECT** button to select **Yes** and press the **ENTER** button to start the format process.

The following message will appear:

```
Formatting
HARD DISK
```

Formatting will take up to 1 hour. After the format a verify pass will occur. When the process is complete, the following message will appear:

```
HARD DISK
formatted
```

7. Press the **SELECT** button to return to the Hard disk utilities submenu.

## Erase Hard Disk

This function will erase the entire hard disk by performing a security wipe delete. This wiping of data is done by filling the sectors with hexadecimal characters in sequential passes. The characters are written in the following sequence: 35, CA, F6. A verify pass is done after each write pass, for a total of 6 passes. This method prevents any traces of data from being read, even with sophisticated techniques.

### ▲ CAUTION:

*The erased hard disk will be unreadable and must be formatted again to be usable.*

1. Press the **ENTER** button when the **Erase disk** function is displayed on the hard disk utilities submenu.

The Erase hard disk submenu will appear and ask:

```
Erase entire
media? NO
```

2. Use the **SELECT** button to select **YES** and press the **ENTER** button to continue.

Upon successful completion, the following message will appear:

```
HARD DISK
erased
```

3. Press the **SELECT** button to return to the Hard disk utilities submenu.

### **Cartridge Utilities Submenu**

This function shows cartridge information; locks and unlocks, verifies, and formats the cartridge.

1. Press the **ENTER** button when the Cartridge utilities function is displayed on the Utilities submenu.

The Cartridge utilities submenu then appears displaying the following functions:

Show cartridge information  
Unload cartridge  
Verify cartridge  
Format cartridge  
Erase cartridge  
Previous menu

2. Press the **SELECT** button to scroll through the information or functions.
3. You can return to the Utilities menu by pressing the **ENTER** button when you see Previous menu.

### **Show Cartridge Information**

This function displays information similar to the following list about the cartridge.

Capacity in MB  
Sector size  
Date hard disk last formatted\*  
Date hard disk last written\*  
Date hard disk last accessed\*

\* Not displayed for unformatted cartridges.

1. Press the **ENTER** button to scroll through each field.

### **Unload Cartridge**

This is the same as **Unload cartridge** in the Main menu.

### **Verify Cartridge**

This function scans every sector on the cartridge for defects. If a bad sector is found, this function will terminate with the LCD showing the error.

1. Press the **ENTER** button to start.

As the verification progresses, the block address is updated. The following message will appear:

Verify CARTRIDGE  
block *nnnnnn*

2. To abort the function at any time, press and hold both the **SELECT** and **ENTER** buttons simultaneously until the following message appears:

Abort received.  
wait ...

3. Release the buttons.

The function will abort at the appropriate time and you'll see:

**User abort**

4. Press the **ENTER** button to exit.

When the verify is complete, the following message will appear:

**CARTRIDGE  
verified**

5. Press the **SELECT** button to return to the Cartridge disk utilities submenu.

## Format Cartridge

All new cartridges should be formatted with this utility before using on the computer system. This function is used to format the cartridge if the FORMAT utility is not available in your host system.

1. Press the **ENTER** button when the Format cartridge function is displayed on the Cartridge disk utilities submenu.

The Format cartridge submenu then appears displaying the following message:

**Erase entire  
media? NO**

2. Press the **SELECT** button to toggle from NO to YES.
3. Select YES and press the **ENTER** button to continue.

The following message will appear:

**Set bytes /sector  
512**

4. Press the **SELECT** button to toggle between 512 and 1024.
5. Press the **ENTER** button to continue.

The following message will appear showing the number of volumes (vols) and the sector size (bps = bytes per sector):

**1 vol 512 bps  
continue? NO**

6. Use the **SELECT** button to select YES and press the **ENTER** button to start the format process.

The following message will appear:

**Formatting  
CARTRIDGE**



Formatting will take up to 1 hour. After the format, a verify pass will occur. When the process is complete, the following message will appear:

**CARTRIDGE**  
**formatted**

7. Press the **SELECT** button to return to the Cartridge disk utilities submenu.

## Erase Cartridge

This function will erase the entire cartridge by performing a security wipe delete. This wiping of data is done by filling the sectors with hexadecimal characters in sequential passes. The characters are written in the following sequence: 35, CA, F6. A verify pass is done after each write pass, for a total of 6 passes. This method prevents any traces of data from being read, even with sophisticated techniques.

This procedure may take as long as 48 hours to complete.

### ▲ CAUTION:

*The erased cartridge will be unreadable and must be formatted again to be usable.*

1. Press the **ENTER** button when the **Erase cartridge** function is displayed on the Cartridge disk utilities submenu.

The Erase cartridge submenu will appear and ask:

**Erase entire**  
**media? NO**

2. Use the **SELECT** button to select YES and press the **ENTER** button to continue.

Upon successful completion, the following message will appear:

**CARTRIDGE**  
**erased**

3. Press the **SELECT** button to return to the Cartridge disk utilities submenu.

**External Disk Utilities**

This function shows information about other disk units on the SCSI bus, verifies (tests) the external units, and imports data from external disk units to the OptiPac cartridge, or to the hard disk in the OptiPac.

**Warning:** These utilities will not function if the OptiPac and other devices on the SCSI chain are connected to the computer and the computer is powered on. The OptiPac will lock up with a blank display. Disconnect the computer from the SCSI cable before using the External Disk Utilities.

Ensure that the SCSI ID of the OptiPac is different from all other devices on the SCSI chain. We recommend a SCSI ID of 7 if the computer is disconnected or powered off.

1. Press the **ENTER** button when the External disk utilities function is displayed on the Utilities submenu.

The External disk utilities submenu then appears displaying the following functions:

Show external disks  
Verify external disk  
Import external disk  
Previous menu

2. Press the **SELECT** button to scroll through the information or functions.
3. You can return to the Utilities menu by pressing the **ENTER** button when you see Previous menu.

**Show External disks**

This function displays the following about the external disk:

SCSI ID  
Manufacturer and Model  
Capacity and Sector Size

1. Press the **SELECT** button to scroll through each field.

When the last device is completed, the following message will be displayed:

**No more disks**

This message is also displayed if no devices are attached to the OptiPac.

**Verify External disk**

This function reads the volume to ascertain the integrity of all sectors in the volume.

1. Press the **ENTER** button when Verify external disk is displayed on the External disk Utilities menu. The OptiPac will find the a drive on the SCSI chain and display a message similar to the following:

Verify ST34520  
at 1? Yes

2. If this is the drive to be verified, press the **ENTER** button while Yes is displayed; otherwise press **SELECT** to toggle to No and press the **ENTER** button to find the next available device on the SCSI chain.

When you select a drive a message similar to the following message will be displayed:

Verify EXTERNAL  
block nnnnnnn

When the verify is complete the following message will be displayed:

EXTERNAL  
verified

### Import External disk

This function imports data from another disk drive to the MO cartridge in the OptiPac or the hard disk in the OptiPac.

1. Press the **ENTER** button when Import external disk is displayed on the External Disk Utilities menu. The OptiPac will find a drive on the SCSI chain and display a message similar to the following:

ST34520 at 1  
Import? No

2. If this is the drive to be imported to the OptiPac, press **SELECT** to toggle from No to Yes and press **ENTER**; otherwise, press **ENTER** while No is displayed to select another device. If you selected Yes a message similar to the following will be displayed:

Import to  
hard disk? Yes

3. Press **SELECT** to toggle between Yes and No and then press the **ENTER** button. If you selected No, the display will change to "Import to cartridge." When you select Yes a message similar to the following will display:

Start the  
import? Yes

4. Press **ENTER** while Yes is displayed to start the import function. The progress is shown with the following message:

Import EXTERNAL  
Record nnnnnnn

When the import is complete the following message will be displayed:

Import done at  
11:28:33AM

**Tests Submenu**

This function tests the LCD.

1. Press the **ENTER** button when the **Tests** function is displayed on the Utilities submenu.

The Tests submenu will appear displaying the following function:

**Test LCD display**

2. Press the **SELECT** button to scroll through the information or functions.
3. To return to the Utilities menu, press the **ENTER** button when you see **Previous menu**.

**Test LCD Display**

This function is used to make sure the LCD is working properly.

1. Press the **ENTER** button to start the test.

All of the segments on the LCD will be turned on. If there are any missing segments (except the last character with an \*), call the Bering Service Department for assistance.

2. Press the **ENTER** button again to exit.

## CARING FOR THE DISK DRIVE & CARTRIDGE

This chapter describes how to care for your OptiPac disk drive. It is divided into two sections. The “General Safeguards” section tells you what to look out for. The “Cartridge Care” section describes ways to care for your cartridges. As long as you protect your OptiPac from hazards, it will provide you with years of service.

### General Safeguards

You can preclude many problems by taking preventive measures.

- The MO disk lens head should be cleaned every three months with the Bering MO cleaning kit (ACCS-3513). The lens is cleaned by inserting a head cleaning cartridge into the powered on drive. Brushes on the cleaning cartridge wipe dust and dirt off the lens while the head mechanism moves across the brushes. The cartridge will be ejected after approximately 15 seconds.
- Avoid overheating by placing the OptiPac where adequate air flow can circulate around it. Be particularly careful to avoid blocking the cooling vent at the rear of the unit.
- Make sure it is plugged into a grounded electrical outlet. Verify that the outlet is actually grounded. The OptiPac should be on the same circuit as your computer.
- Make sure that other equipment or appliances which might generate electrical noise or a power surge (such as electric typewriters or heaters) are on separate circuits.
- Do not expose you OptiPac to extreme heat or cold. Prolonged exposure to excessive heat, direct sunlight, or freezing conditions will harm the drive.
- Keep it away from moisture, dirt, and contaminants such as spilled liquids, steam, or excessive dust. Do not smoke near the OptiPac.
- Avoid exposure to magnetic fields such as those emitted by magnets, speakers, or telephone equipment.
- Avoid bumping the OptiPac while it is running.
- Always set the OptiPac upright on a flat surface.
- Do not transport the OptiPac with a cartridge in the drive.
- Use the spin-down function if the drive will not be accessed for long periods of time. This will save wear and tear on the drive spindle and promote a much longer life for the drive.

You don't need to worry about leaving the OptiPac on for a long time it doesn't use much power. It's normal for the drive to feel warm (but not hot) after it's been running for a while.

If the OptiPac does get hot, make sure the fan is running properly, the

vent at the rear is not blocked, and that the unit is placed where plenty of air can circulate around it.

## Cartridge Care

Removable cartridges are highly reliable and have a very long service life if you care for them properly.

- We recommend that each cartridge be cleaned using the Magneto Optical Cleaning Kit (ACCS-3513) every 3 months of continuous service, or 300 hours of use.
- Store them properly. Remove the cartridge from the drive when you are not using it and store it in its protective case in a cool, dry, safe location.
- Do not leave the cartridge in the OptiPac after it is powered down. This leaves the cartridge shutter open and makes the recording media itself vulnerable to dust.
- Keep your cartridges clean and dry and out of harm's way. Protect cartridges from dirt, spills, and smoke. Avoid opening the shutter of the cartridge since dust and dirt can be transferred to the disk media or to the inside of the drive.
- Use them at correct temperatures. Avoid using the cartridges at extreme temperatures above 90° F (32° C) or below 60° F (16° C). To avoid permanently damaging data, the drive, cartridge, and room should all be about the same temperature when you insert the cartridge into the drive.
- Do not expose cartridges to moisture or prolonged direct sunlight.
- Do not move the drive with a cartridge loaded.
- Do not drop the cartridge.
- Label the cartridge clearly and make sure the label is securely attached before loading the cartridge. (Do not mark on labels with a graphite pencil. The graphite dust may contaminate the disk surface).
- Never apply more than one label to a cartridge.
- Apply a label only to the recessed area on the cartridge.

### ▲ CAUTION:

*Do not use defective or questionable cartridges on another OptiPac drive. You may spread the problem.*

## TROUBLESHOOTING & SERVICE

This chapter describes basic trouble-shooting procedures. It is divided into four sections: "Before You Do Anything Else," "Error Codes and LCD Messages," "Fuse Replacement," and "If You're Still Having Problems."

### Before You Do Anything Else

Often, problems you're having can be resolved by verifying that:

- The power cord is securely connected to the OptiPac and a wall outlet.
- The power is switched on, and the AC fuse in the back of the drive is not blown.
- None of the pins on the cable connectors are loose, broken, or shorted.
- All cables are installed correctly.
- The cartridge has been properly formatted.
- Each peripheral connected to your computer has a unique address.

### Error Codes and LCD Messages

Occasionally, after installing an OptiPac, the system will display a disk initialization error code upon start up. It is sometimes possible to solve the problem by following the LCD instructions. Sometimes the LCD will display an error code in the form of a number. This error code indicates a problem that may be associated with another hardware device other than the OptiPac. If this occurs, shut down your system and restart it again. If the problem still occurs, contact Bering Technical Support at (408) 364-6500.

### Fuse Replacement

If the drive fails to power on the AC fuse may be blown. The fuse is located in the AC input jack.

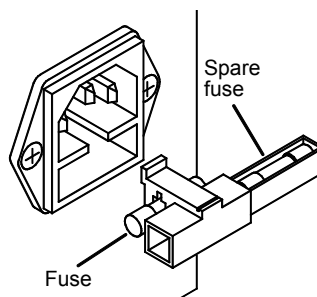


Figure 6-1: Replacing the AC fuse

**If You're Still Having Problems**

If you are able to start up from another drive but not the OptiPac, or from a cartridge and not the hard drive, the system files on the OptiPac hard drive may be damaged.

**START-UP PROBLEMS**

If you're unable to start up from an OptiPac, try starting up the computer with a different drive if available. If you're still unable to start up, the problem may be with the computer rather than the OptiPac. Refer to the troubleshooting section in your computer manual for more information.

**WHEN ALL ELSE FAILS...**

If you still have problems after following the procedures in this chapter, call Bering Technical Support at (408) 364-6500. When you call be ready to tell the service representative:

- The model number and serial number of the OptiPac, the firmware version of the OptiPac, the type of computer you're using, the operating system, and the software version.
- Any error messages that have appeared.
- A description of the problem(s) and the steps you've taken to correct it.

Bering Customer Service can be reached by several methods. The mailing/shipping address and phone numbers are:

Bering Technology, Inc.  
Customer Service/Technical Support  
1400 Dell Avenue, Suite B  
Campbell, CA 95008-6620

(408) 364-6500  
FAX: (408) 364-6501  
Email: [help@bering.com](mailto:help@bering.com)

**▲ CAUTION:**

*Never remove the cover of the OptiPac box. This voids the warranty.*



## SPECIFICATIONS

### 2.3GB Cartridge Disk Drive

#### 2.3GB MO Cartridge

The specifications listed on this page are for a 2.3GB cartridge. The 2.3GB, 2048bps cartridge is identical in capacity to the hard disk.

#### PERFORMANCE

Rotation speed 2.3GB cartridge	3,214	rpm
other cartridge	4,558	rpm
Average seek time	23	ms, read
HP-IB Burst transfer rate	1	MB/sec
HP-IB Average transfer rate	940	KB/sec
MTBF	120,000	Power On Hours
Data reliability	<1 nonrecoverable error	in 10 <sup>12</sup> bits read

#### LOGICAL SIZE (as seen by computer)

Cylinders	3473	
Heads	36	
Sectors	34	
Sector size	512	bps

#### ENVIRONMENTAL (operational)

Temperature	5° to 45°	C
Relative humidity	10 to 85	% non-condensing
Vibration	5 to 500	Hz, 0.4 G's p-p
Shock	2	G, 10 ms half sine pulse
Altitude	0 to 10,000	feet
	0 to 3,048	meters

#### (non-operating)

Temperature	-20° to 60°	C
Relative Humidity	5 to 90	% non-condensing
Vibration	5 to 500	Hz, 1 G p-p
Shock (cartridge removed)	5	G's at 10 ms half sine pulse
transport	50	G's at 10 ms half sine pulse
Altitude	0 to 40,000	feet
	0 to 12,192	meters

#### LASER DIODE

Type	Semiconductor Laser
Wavelength	785nm, Continuous
Output Power	30mW (max)
Classification	Class 1 (IEC. 825) GaAlAs

**2.3GB Hard Disk**

<b>PERFORMANCE</b>	Rotation speed	7200	rpm
	Average latency	5.6	ms
	Minimum seek time	2	ms
	Average seek time	12.5	ms
	Maximum seek time	22	ms
	MTBF	300,000	Power On Hours
<b>LOGICAL SIZE (as seen by computer)</b>	Cylinders	3473	
	Heads	36	
	Sectors	34	
	Sector size	512	bps
<b>ENVIRONMENTAL (operational)</b>	Temperature	5° to 55°	C
		41° to 131°	F
	Temperature gradient	15°	C/hour
		59°	F/hour
	Relative humidity	20 to 80	% non-condensing
	Vibration	1	G, 5 to 250Hz
	Shock	10	G, 10 ms max
	Altitude	0 ~ 3,000 0 ~ 10,000	meters feet
<b>(non-operating)</b>	Temperature	-40° to 70°	C
		-40° to 158°	F
	Relative Humidity	5 to 90	%
	Vibration	2	G, 5 to 250 Hz
	Shock	75	G, 10 ms max
	Altitude	0 ~ 12,000 0 ~ 40,000	meters feet

## General

### Power Requirements

Line voltage	96 - 240	volts
Line frequency	47 - 63	Hz
Current	0.5	Amps
Fuse	"Slow blow" 1.6A, 250V	

### General Dimensions

Interface	SCSI, Common Command Set (CCS)	
Dimension	3" x 12.8" x 14"	
	8.25 x 32.5 x 35.5 cm	
Shipping weight	25 lbs.	
	11.3 Kg	

### Accessories

Cartridge MO, 2.3GB	ACCS-3073
Cartridge MO, 2.3GB, 5 pack	ACCS-3074
Rack Mount Kit - 19"	ACCS-7206

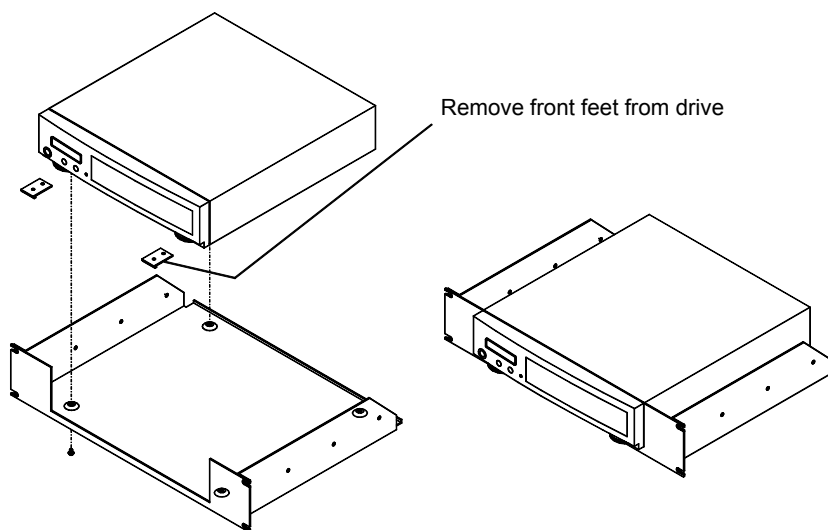


## RACK MOUNT

### Installation

If you purchased the rack mount kit, ACCS-7206 from Bering, these instructions will show the installation procedures. It fits in a standard 19" rack cabinet. The front is a 3.5 in. panel with the holes on 3 in. centers. The holes on the sides of the rack are 3.625 centers for installation of a standard C300S-22 slide rail. The following instructions are for installing the drive into a rack without slide rails.

1. Remove the front feet from the Bering drive by removing two screws in each foot.
2. Mount the Bering drive to the rack mount shelf with four (4) 8-32x¼ screws inserted from the bottom through the shelf into the bottom of the drive.



*Figure B-1: Attaching the drive to the rack mount assembly*

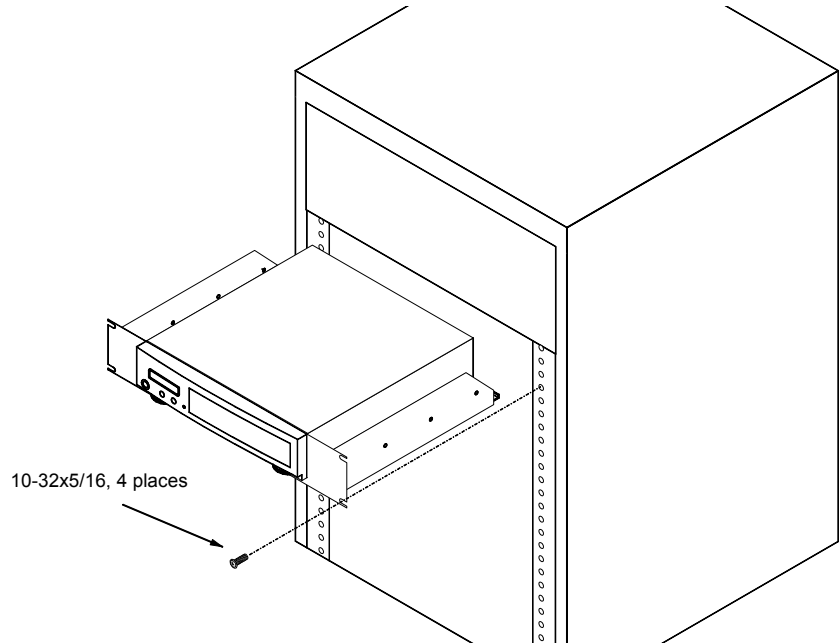
This step may be performed by turning the drive upside down and placing the shelf on the drive while aligning the screw holes.

**▲ CAUTION**

*The following steps require two people to install the unit in a cabinet.*

The shelf requires 3.5 inches of vertical clearance.

3. Insert the shelf with the Bering drive into the cabinet and hold it in place.
4. Insert the four (4) 10-32x5/16 screws from the front through the holes in the cabinet. Screw the 10-32 nuts on the screws from the rear of the panel and tighten.



*Figure B-2: Installing the rack mount in the chassis*

# INDEX

---

## A

Access indicator 7  
Accessories 35

## B

Backup 14

## C

Cartridge  
    Erase 25  
    Format 24  
    Loading 8  
    Show information 23  
    Specifications 33  
    Unload 13, 23  
    Unloading 9  
    Verify 23  
Cartridge utilities submenu 23  
Change drive button 17  
Change SCSI ID 16  
Clock, 12 / 24 setting 17  
Configurations submenu 16  
Controls 7  
Customer Service 32

## D

Date  
    Setting 18  
Display Time and Messages 15  
Drive button 17

## E

Emergency eject hole 8  
Erase cartridge 25  
Erase hard disk 22  
Error LED 7  
External disk  
    Import 27  
    Show 26  
    Verify 26

## F

FCC iii  
Firmware version 19  
Format cartridge 24

Format hard disk 21  
Fuse replacement 31

## H

Hard disk  
    Erase 22  
    Format 21  
    Show information 20  
    Spin down 20  
    Verify 21  
Hard disk access indicator 7

## I

Import external disk 27

## L

LCD  
    Backup 14  
    Cartridge utilities submenu 23  
    Change drive button 17  
    Change SCSI ID 16  
    Configurations submenu 16  
    Erase cartridge 25  
    Erase hard disk 22  
    F/W version 19  
    Format cartridge 24  
    Format hard disk 21  
    Import external disk 27  
    Model number 19  
    Parity checking 16  
    Restore 14  
    Set date 18  
    Set time 17  
    Show cartridge information 23  
    Show external disks 26  
    Show hard disk information 20  
    Spin down / up hard disk 20  
    Test LCD display 28  
    Unload cartridge 13, 23  
    Use 24 hour clock 17  
    Utilities submenu 19  
    Verify cartridge 23  
    Verify external disk 26  
    Verify hard disk 21  
LCD Menu 12  
LCD messages 31

LED, error 7

## **M**

Magneto-Optical technology 2  
Main menu 13  
Media not initialized, message 13  
Menu, system 12  
Model number 19

## **N**

New cartridge 13

## **O**

Operation 7

## **P**

Parity checking 16

## **R**

Rack mount installation 37  
Rack mount kit 35  
Restore 14  
ROM version 19

## **S**

SCSI ID, changing 16  
Serial number 19  
Set date 18  
Set time 17  
Show cartridge information 23  
Show external disks 26  
Show hard disk information 20  
Specifications  
    2.3GB cartridge drive 33  
    2.3GB Hard disk 34  
    General 35  
Spin down / up hard disk 20

## **T**

Table of Contents vii  
Technical Support 32  
Test LCD display 28  
Tests submenu 28  
Time  
    Setting 17

## **U**

Unload cartridge 13, 23  
Unpacking 4  
Utilities submenu 19

## **V**

Verify cartridge 23  
Verify external disk 26  
Verify hard disk 21

## **W**

Warranty statement v  
Write protection 10