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REFERENCE GUIDE

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USING THIS GUIDE

Some or all of the following format conventions are used in this guide to distinguish elements of text:

- Names of keys are shown in bold type as they appear on the keyboard, for example, **Ctrl**, **Backspace**, **Tab**.
- Keys that you should press at the same time are represented by the key names and the plus (+) symbol, for example, **Ctrl+Alt+Delete**.
- Commands are presented in lowercase, bold type as shown here: **install** or **a:\install**.
- An arrow symbol is used to separate icons or menu options that you should select in succession, for example, click the Start button→Settings→Control Panel.
- When you need to type information without pressing the **Enter** key, you are directed to “type” the information.
- When you need to type information *and* press the **Enter** key, you are directed to “enter” the information.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.



WARNING: Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

Chapter 1

GETTING STARTED

This chapter tells how to set up the computer for the first time.

It describes the steps shown on the graphical poster and tells how to install the software that comes with the computer.

Unpacking the Computer

Before you begin, make sure you have removed everything from the box:

- Computer with the following removable devices:
 - Diskette drive
 - Hard drive
 - Lithium ion battery pack
 - Weight saver
 - CD-ROM drive (included with some models)
- Power cord
- Hard drive carrying case
- MultiBay device carrying case
- Slipcase

- Bag containing two spare pointing device caps
- Bag containing seven items:
 - Two dual-bay security screws (double tab)
 - Two single-bay security screws (single tab)
 - Two memory expansion slot cover security screws (no tab)
 - One Torx T-10 screwdriver for use with included security screws
- Warranty and service information
- Documentation about the computer

The following country-specific devices are included with some computer models:

- 3-to-2-prong plug adapter (Japan models only)
- Modem cable (models with integrated modem)

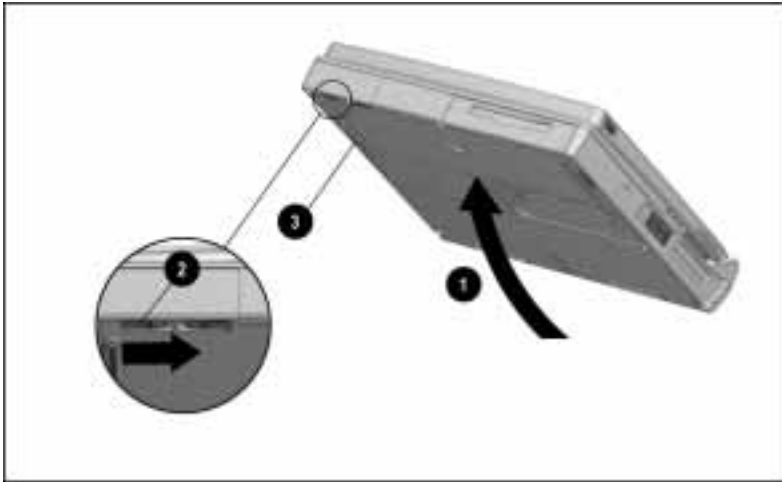
Taking the Battery Pack Out of Ship Mode

Before you set up the computer, you must take the battery pack out of ship mode.

- You must take the battery pack out of ship mode before you can charge and use the battery pack.
- You do not need ship mode when you travel with or ship the computer.

You can take the battery pack out of ship mode by removing and reinserting the battery pack:

1. Tilt the computer **1** to access the battery release features.
2. Slide the battery release latch **2** right while pulling on the battery pack from the recess **3** beneath the battery bay. This releases the battery pack from the battery bay.



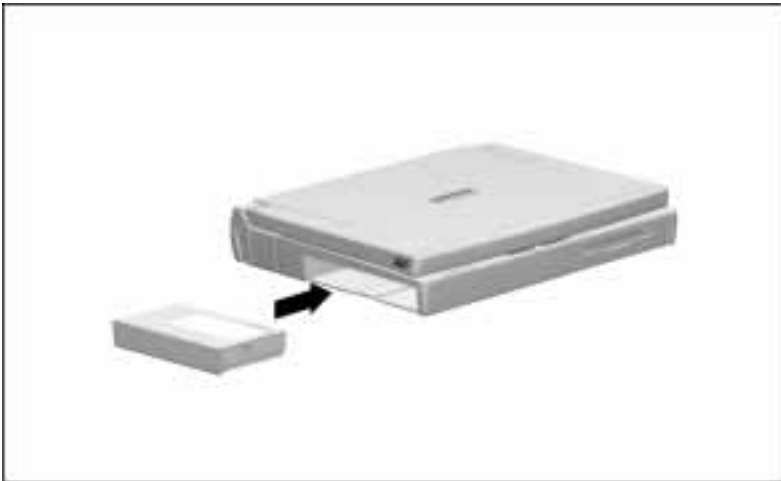
Releasing the Battery Pack from the Battery Bay

3. Slide the battery pack out of the battery bay.



Removing the Battery Pack from the Battery Bay

4. Reinsert the battery pack into the battery bay until it clicks into place.



Reinserting the Battery Pack into the Battery Bay

Setting Up the Computer

Before you set up the computer for the first time, ensure that

- The diskette drive is in the MultiBay.
- The computer is not docked in a docking station.

Protecting a New Battery Pack

After it has been taken out of ship mode, the battery pack in the computer begins to charge when the computer is connected to external power.

IMPORTANT: A new battery pack should be allowed to fully charge before the computer is disconnected from external power or before the battery pack is removed from the computer.

A new battery pack in a computer connected to external power fully charges in approximately

- 3 hours when the computer is turned on and being used.
- 1.5 hours when the computer is plugged in and turned off.

For more information on the battery pack, refer to Chapter 5, “Using Battery Packs.”

Connecting the Power Cord

To connect the computer to electrical power:

1. Place the computer on a flat surface near an electrical outlet.
2. Plug the power cord into the power connector on the rear panel of the computer ❶, then into the electrical outlet ❷.

NOTE: If you are plugging in the computer in Japan, you must first plug the power cord into the 3-to-2-prong plug adapter included with the computer. Ensure that the ground wire is connected to a safe earth ground, then plug the 3-to-2-prong plug adapter into the electrical outlet.



Plugging In the Computer

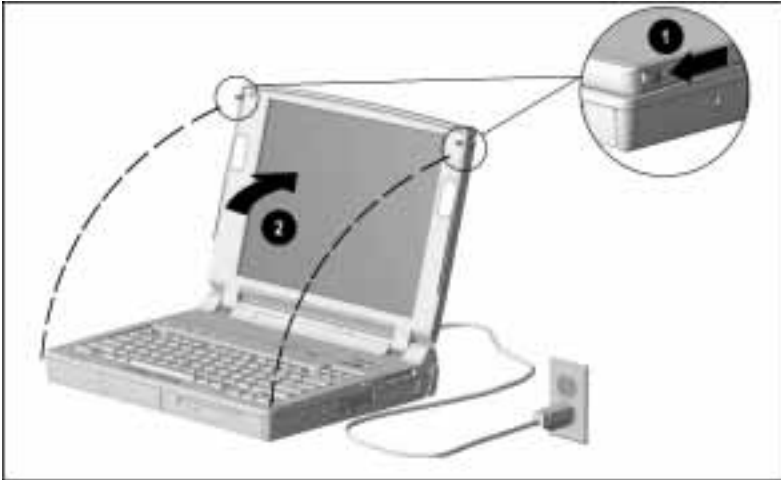


WARNING: To reduce the risk of personal injury, electric shock, fire, or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the equipment into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Disconnect power from the equipment by unplugging the power cord from the electrical outlet.
- Do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

Opening the Computer

Open the computer by sliding forward the display release latch ❶ on each side of the display, then raising the display to a comfortable viewing angle ❷.



Opening the Computer

Adjusting the Keyboard

To elevate the back of the keyboard, swivel the tilt feet back and down.

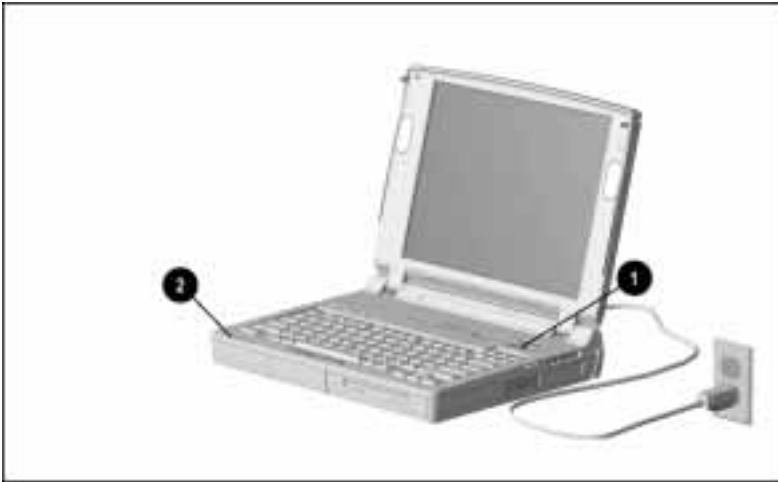


Tilting the Keyboard

Turning On the Computer

To turn on the computer, slide the power switch ❶ and release it. Whenever the computer is turned on, the power/suspend light ❷ turns on to indicate that power is turned on.

NOTE: To restore the screen if it is blanked by the screen saver during a period of keyboard and mouse inactivity, press the **Shift** key.



Turning On the Computer

Setting Up the Software

When you turn on the computer the first time, the Compaq setup screen appears.

When you select to begin software setup, online instructions guide you through the setup process.

IMPORTANT: After you select to begin software setup, you must complete the entire process, which may require up to 20 minutes.



CAUTION: To prevent file corruption and ensure the correct software drivers are installed:

- Before you begin software setup, be sure the diskette drive is in the computer and that the computer is *not* docked in a docking station.
- During software setup, do not turn off or unplug the computer or remove a drive.

Operating the Computer During Setup

- To move around the screen while making selections and entering information: press the **Tab** key, press the cursor (arrow) keys, or use the pointing device built into the computer keyboard.
- To record your selections, press the **Enter** key or press one of the mouse buttons on the computer keyboard.

For more information about using the built-in pointing device and mouse buttons, refer to “Performing Mouse Functions” in Chapter 3.

Choosing a Language

When you are prompted to select your language, choose carefully.

IMPORTANT: The languages that you do *not* choose will be deleted from the computer and cannot be recovered.

Choosing an Operating System

On some models, a single operating system, either windows 95 or Windows NT, is preinstalled.

On other models, both Windows 95 and Windows NT are preinstalled, and you are asked to choose between them. If you are asked to select an operating system, choose carefully.

IMPORTANT: The operating system that you do *not* choose will be deleted from the computer and cannot be recovered.

Most preinstalled online reference files, such as Help files, are available only through the Microsoft Windows 95 or Microsoft Windows NT Workstation interface. To use these online reference files, either Windows 95 or windows NT must remain installed on the computer.



CAUTION: Replacing the preinstalled Windows operating system with a retail version will result in the loss of the Compaq value-add software and certain hardware functionality, such as PC Card support and enhanced power management. Installing the retail version of Windows NT may result in system lockups and loss of unsaved information.

Where to Go from Here

Before beginning your work, consider the following resources for

- Protecting your work
- Learning to operate the computer
- Adapting the computer to your needs

Registering the Computer

Registration procedures vary by region. Be sure to register according to the online or printed instructions included with your computer.

Backing Up the System

The hard drive preinstalled in your computer is partitioned into two or more logical drives, depending on the size of the hard drive. All the preinstalled software is in the primary partition, drive C. Compaq recommends that you use a backup program to create a backup of drive C.

Obtaining a Backup of the Compaq Value-Add Software

Device drivers and utilities for Armada computers are available on the Compaq Internet site at <http://www.compaq.com>. Double-click Technical Help & Services→Downloadables→Portables.

For a small cost, you can order all the Armada 7700 value-add software on a CD-ROM, or order components of the value-add software on diskette(s). To order the CD-ROM or diskette(s):

- If an order form was included with the computer, complete the form and return it, or call one of the numbers listed on the order form.
- If an order form was not included with the computer, refer to the Compaq “Worldwide Telephone Numbers” in Appendix A.

NOTE: Have the computer serial number available when you call Compaq. The serial number is on the bottom of the computer.

Finding Information

Compaq online Help is combined with Windows Help. To access online *Help*:

- Click Start→Compaq Information Center→*Reference Guide*, or
- Click Start→Help.

To access help for a Windows application, open the application, then click the Help menu within the application.

Customizing Computer Settings

You can use Control Panel to view and change most factory-default settings.

- To open Control Panel, click Start→Settings→Control Panel.
- To access settings from Control Panel, double-click an icon, then click the tabs on top of the dialog box that appears.

You can also use Computer Setup to view and change configurations. For information on using Computer Setup, refer to Chapter 14, “Computer Setup and Diagnostics.”

Finding Optional Equipment

Compaq options designed for use with your computer are described in the printed *Options* flyer that came with the computer.

To view these options online, click Start→Compaq Information Center→*Options Catalog*.

To purchase an option from a Compaq authorized dealer, reseller or service provider, refer to “Worldwide Telephone Numbers” in Appendix A. Include the part number provided in the *Options* flyer or *Options Catalog* when you order.

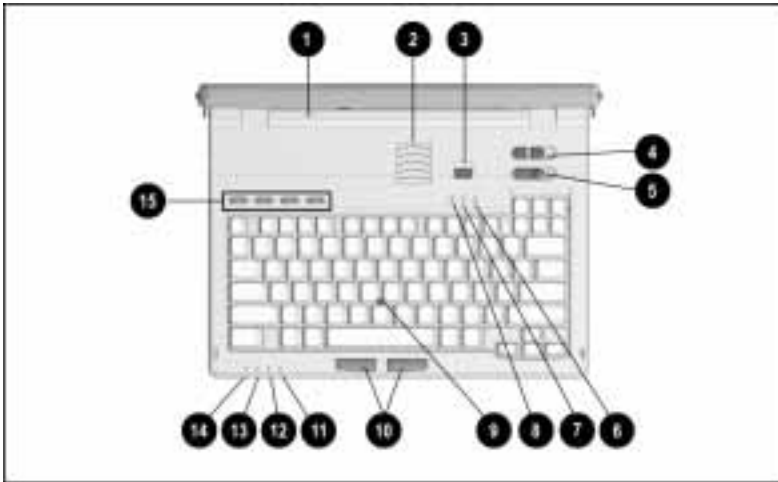
chapter 2

TAKING A LOOK AT THE COMPUTER

This chapter identifies the external features of the computer and summarizes the regional differences in these features.

For more keyboard information, refer to Chapter 3, “Using the Keyboard.”

Top Components



Top Components

Top Components

Component	Function
❶ Display switch	Turns the computer display off if the display is closed while the computer is on.
❷ Vents	Cool internal components.
❸ Suspend button	Initiates and exits Suspend. When pressed with the Fn key, initiates Hibernation.
❹ Volume control	Adjusts or mutes volume of stereo speakers or of connected external speakers, headphones, or headset.
❺ Power switch	Turns the computer on or off.
❻ Num Lk light	Turns on when num lock is on and the embedded numeric keypad is enabled.
❼ Scroll Lock light	Turns on when scroll lock is on.

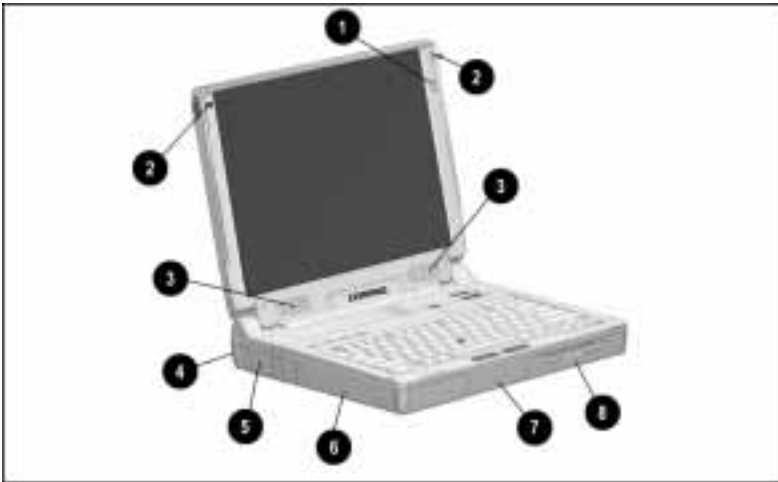
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Top Components *Continued*

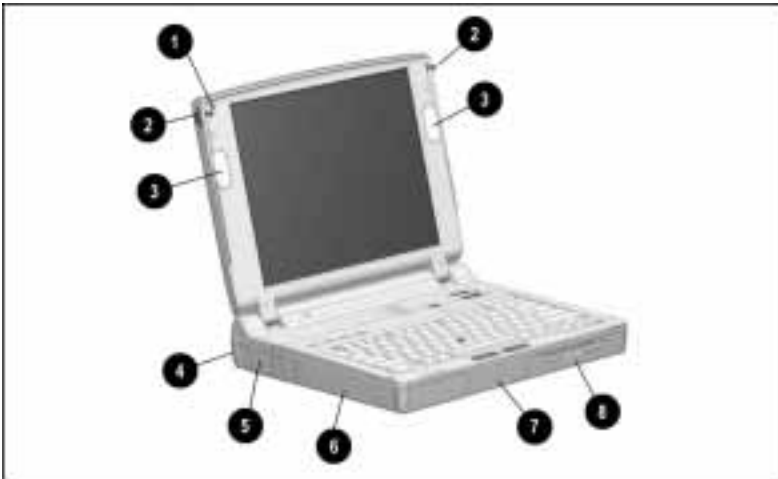
Component	Function
⑧ Caps Lock light	Turns on when caps lock is on.
⑨ EasyPoint III pointing device	Moves the onscreen pointer.
⑩ Left and right mouse buttons	Function like left and right buttons on an external mouse.
⑪ MultiBay drive light	Turns on when a MultiBay device is being accessed or when a battery pack in the MultiBay is charging or waiting to be charged. Blinks when a low-battery condition is reached while a battery pack is in the MultiBay.
⑫ Hard drive light	Turns on when a hard drive in the hard drive bay is being accessed.
⑬ Battery power light	Turns on when a battery pack in the computer is charging; turns off when all battery packs in the computer are fully charged; blinks to indicate a low-battery condition.
⑭ Power/suspend light	Turns on when power to the computer is turned on; turns off when the computer is off or in Hibernation; blinks when the computer is in Suspend.
⑮ Programmable keys	Open assigned files or applications or emulate Windows or other application logo keys.
NOTE: Shortcut keys used for special functions are identified in Chapter 3, "Using the Keyboard."	

Display and Left Side Components

The size of the display and the position of the microphone and speakers vary by model.



Display and Left Side Components on Some Models

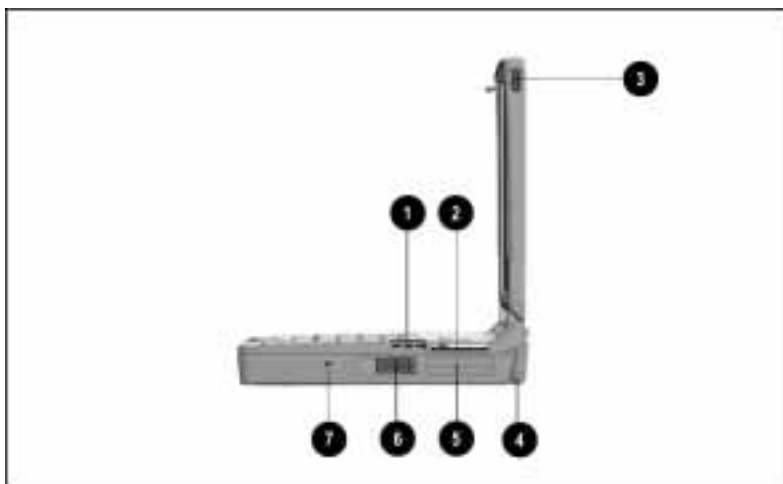


Display and Left Side Components on Other Models

Display and Left Side Components

Component	Function
❶ Microphone	Inputs sound to the computer from the inside or outside of the display; can be used whether the computer is open or closed.
❷ Display release latches (2)	Open the computer.
❸ Stereo speakers (2)	Produce high-quality stereo sound.
❹ Tilt feet (2)	Tilt the computer for comfortable use.
❺ Fan	Circulates air through the computer to cool internal components.
❻ Battery bay	Supports a lithium-ion battery pack that is running the computer; also charges a battery pack when the computer is connected to an external power source.
❼ Hard drive bay	Supports a removable hard drive.
❽ MultiBay	Supports a removable diskette drive, CD-ROM drive, or hard drive; also supports a battery pack that is running the computer or charges a battery pack when the computer is connected to an external power source.

Right Side Components

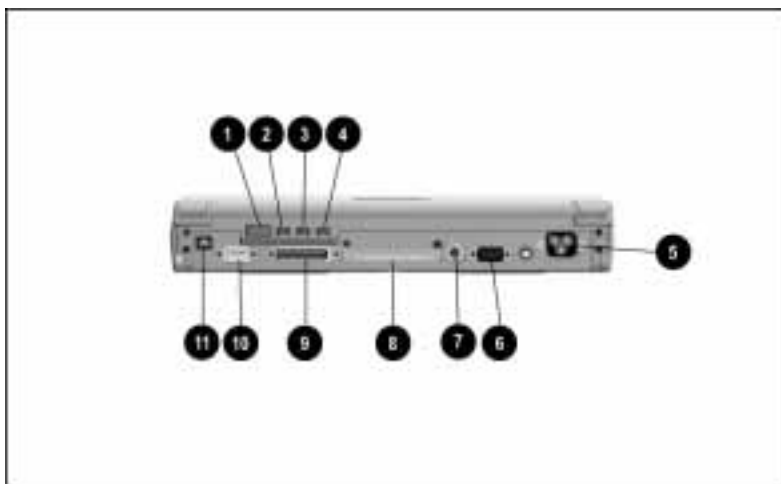


Right Side Components

Right Side Components

Component	Function
❶ Vents (3)	Cool internal components.
❷ 25-pin connector	The availability and use of this connector varies regionally. Please refer to "Regional Differences" at the end of this chapter.
❸ Display release latch	Opens the computer. (Use with the corresponding display release latch on the left side of the computer.)
❹ Tilt feet (2)	Tilt the computer for comfortable use.
❺ PC Card slots (2)	Support 32- and 16-bit PC Cards.
❻ PC Card eject levers (2)	Top lever ejects a PC Card from the top PC Card slot; bottom lever ejects PC Card from the bottom PC Card slot.
❼ Cable security slot	Attaches an optional security cable to the computer.

Rear Panel Components



Rear Panel Components

Rear Panel Components

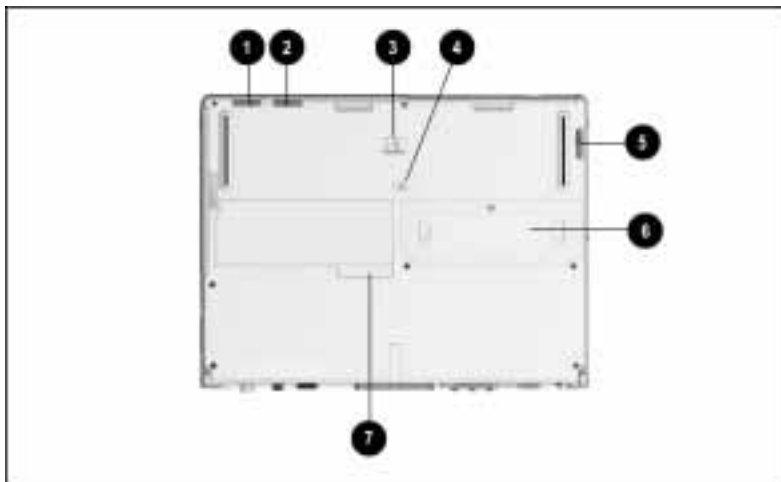
Component	Function
❶ Infrared port	Links to another IrDA-compliant device for wireless communication.
❷ Microphone jack	Connects a single sound channel (monaural) microphone.
❸ Stereo speaker/headphone jack	Connects stereo speakers, headphones, or a headset.
❹ Stereo line-in jack	Connects an external stereo player such as a CD player.
❺ Power connector	Connects external (AC) power.
❻ External monitor connector	Connects an external monitor or overhead projector.
❼ Keyboard/mouse connector	Connects an external PS/2-compatible device, such as a pointing device. (An optional splitter/adaptor can provide two PS/2-compatible connectors.)

Continued

Rear Panel Components *Continued*

Component	Function
⑧ Docking connector	Connects an optional ArmadaStation or Armada MiniStation.
⑨ Parallel connector	Connects a parallel device, such as a parallel printer.
⑩ Serial connector	Connects a serial device, such as a serial mouse.
⑪ RJ-11 jack	The availability and use of this connector varies regionally. Please refer to “Regional Differences” at the end of this chapter.

Bottom Components



Bottom Components

Bottom Components

Component	Function
❶ Battery release latch	Releases a battery pack from the battery bay.
❷ Hard drive release latch	Releases a removable hard drive from the hard drive bay.
❸ Docking restraint latch recess	Helps secure the computer when it is docked in an optional ArmadaStation or Armada MiniStation.
❹ Security slot	With the single-bay security screw or dual-bay security screw, secures devices installed in the MultiBay and hard drive bay.
❺ MultiBay release latch	Releases devices from the MultiBay.
❻ Memory expansion slot cover	Covers the memory expansion compartment, which contains two memory expansion slots for memory expansion boards.
❼ Serial number	Computer identification number; needed when you call Compaq customer support.

Regional Differences

Two connectors on the computer vary by region: the 25-pin connector and the RJ-11 jack. These connectors are used for modem and cellular phone connections.

- Some computer models with an integrated modem feature both an RJ-11 jack and a 25-pin connector.
- Some computer models with an integrated modem feature only an RJ-11 jack.
- Some computer models, which can be used with an optional PC Card modem, have neither an RJ-11 jack nor a 25-pin connector.

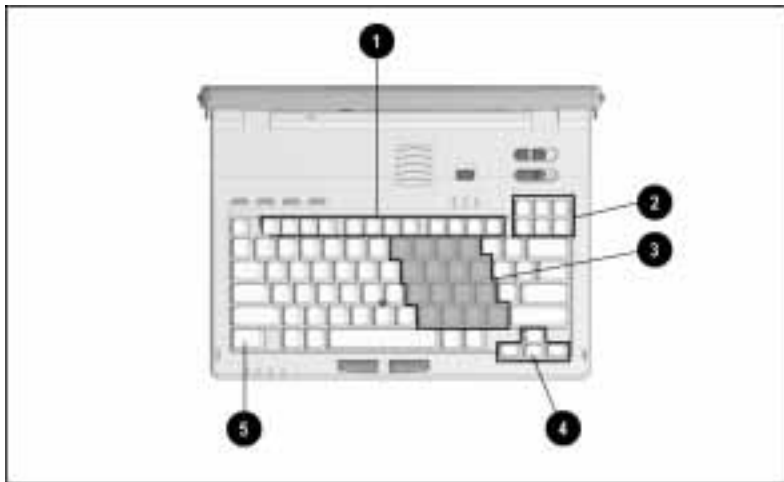
However, all models can have modem functionality in all regions. For information on using an integrated modem, using an optional PC Card modem, and connecting an integrated modem to a cellular phone, refer to Chapter 8, “Using a Modem.”

chapter 3

USING THE KEYBOARD

This chapter tells how to identify shortcut keys, perform mouse operations, and use keyboard shortcuts and the embedded numeric keypad.

Identifying Shortcut Keys



Shortcut Keys

- | | |
|--|-----------------------|
| ❶ Function keys F1-F12 | ❷ Cursor (arrow) keys |
| ❸ Screen-control keys (Pg Up, Pg Down, Home, and End) | ❹ Fn key |
| ❺ Embedded numeric keypad | |

Performing Mouse Functions

Use the EasyPoint III pointing device ❶ and the left ❷ and right ❸ mouse buttons to emulate the functions of an external mouse.



Pointing Device and Mouse Buttons

Using the Pointing Device and Mouse Buttons

With either index finger, push the EasyPoint III pointing device in the direction that you want to move the onscreen pointer. The pressure you use on the pointing device determines the speed of the cursor.

To click or double-click, press the left mouse button with either thumb. To right-click, press the right mouse button.

NOTE: If the pointing device cap becomes soiled or damaged, refer to “Replacing the Pointing Device Cap” in Chapter 12.

Changing Mouse Function Settings

To change settings such as click speed or pointer shape or to display pointer trails, click Start→Settings→Control Panel→double-click the Mouse icon.

The settings you select in Mouse Properties apply to mouse functions performed on the computer keyboard as well as to mouse functions performed with an external mouse.

Calculating on the Keyboard

The computer keyboard features an embedded numeric keypad ❶ that is activated and deactivated by toggling **Fn+Num Lk** ❷.

When the embedded numeric keypad is toggled on:

- The Num Lk light ❸ is on.
- The *blue* numbers and symbols on the top right of the embedded numeric keypad keys are active.

When the embedded numeric keypad is toggled off:

- The Num Lk light is off.
- The *black* letters, numbers, and symbols on the embedded numeric keypad keys are active.

To type the *black* letters, numbers, and symbols on embedded numeric keypad keys while the embedded numeric keypad is on:

- Press and hold **Fn** to type lowercase letters or the lower-left symbols on the symbols keys.
- Press and hold **Fn+Shift** to type uppercase letters or the upper-left symbols on the symbols keys.



Embedded Numeric Keypad

NOTE: An external numeric keypad can be connected to the computer by using the serial connector or the keyboard/mouse connector.

Skippping Menus with Hotkeys

Hotkeys are preset, two-key combinations that take you directly to frequently used functions.

The function keys used in hotkey combinations have blue icons on them that represent their hotkey functions.

When you press some hotkeys, a popup window appears. To close a popup window, press the hotkey again.

Hotkey combinations work only on the computer keyboard, not on an external keyboard.

How to Use Hotkeys

Function Accessed	Hotkey	Procedure
Popup window location	Fn+F1	Press the hotkey to view the current popup window location. Press the cursor keys to relocate the popup window.
Display switching	Fn+F4	Press the hotkey to toggle the display among the computer, an external monitor, and simultaneous display.
Volume for system beeps, including low-battery warning beeps	Fn+F5	Press the hotkey to display volume settings in a popup window. To increase volume, press the right cursor key. To decrease volume, press the left cursor key. To test settings, press the down cursor key.
QuickLock/ QuickBlank	Fn+F6	Press the hotkey to initiate QuickLock, which disables the keyboard and pointing device, and QuickBlank, which clears the screen. (This function is not available unless you have established a power-on password. For information, refer to "Using a Power-On Password" in Chapter 13.)
Battery conservation settings	Fn+F7	Press the hotkey to display an icon representing the current battery conservation setting in a popup window. Use the cursor keys to change the setting. For information about battery conservation settings, refer to "Customizing Power Settings" in Chapter 4.

Continued

How to Use Hotkeys *Continued*

Function Accessed	Hotkey	Procedure
Battery gauge	Fn+F8	Press the hotkey to display a popup window showing the charge status of battery packs in the computer and, if the computer is docked, in an optional ArmadaStation or Armada MiniStation. For more information, refer to "Monitoring Battery Pack Activity" in Chapter 5.
Brightness control	Fn+F10	Press the hotkey to display brightness settings in a popup window. To increase brightness, press the up or right cursor key. To decrease brightness, press the left or down cursor key.
BIOS (Basic Input Output System) build dates	Fn+Esc	Press the hotkey, then the down arrow key to display BIOS dates for the system, video, keyboard, and for the expansion base when the computer is docked. (The BIOS contains detailed instructions that activate peripheral devices.)
Initiate Hibernation	Fn+suspend button	Press the hotkey to initiate Hibernation. For Hibernation information, refer to Chapters 4 and 5.
Image expansion	Fn+T	<p>Press the hotkey to toggle the image on the display between centered and expanded.</p> <p>NOTE: Image centering/expanding is automatically enabled with the Desktop Area setting is smaller than the display Resolution setting. For more information about display settings, refer to "Setting Up an External Monitor or Overhead Projector" in Chapter 7.</p>
NOTE: The contrast control function of the Fn+F9 hotkey is not applicable to Armada 7700 computers.		

Automating Your Work with Programmable Keys

The programmable keys feature enables you to

- Access a favorite document, worksheet, or application with a single keystroke.
- Add the functionality of an application logo key, such as the Microsoft Windows 95 Logo Key, to the computer keyboard.
- Display your programmable key assignments in the system tray on the Windows taskbar.
- Group key assignments into schemes. A scheme is a named collection of up to four programmable key assignments. The programmable keys can have different assignments in different schemes.

The four programmable keys are numbered left to right.



Programmable Keys

To access the programmable keys dialog box:

- Press any unassigned programmable key → Programmable Keys tab.
- Click Start → Settings → Control Panel → double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT) → Programmable Keys tab.

Setting Programmable Key Assignments

Each of the four programmable keys can have one assignment within a single scheme. If you have never created a scheme, the default scheme is the current scheme and your key assignments will be saved to the default scheme. For information on using schemes, refer to “Setting a Scheme” in this section.

Assigning or Reassigning a Programmable Key

To assign or reassign a programmable key:

1. Click Start→Settings→Control Panel→double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT)→Programmable Keys tab.
2. Click the button next to the number of the programmable key you want to assign or reassign.

NOTE: If you want to assign the key in other than the current scheme, click Show Advanced Options and select the scheme from the drop down list in the Scheme box.

3. Select an assignment for the programmable key.
 - If you did not check Show Advanced Options, click the Assign button. A dialog box appears listing the Microsoft Windows Logo keys and the contents of the Programs menu.

NOTE: In most Microsoft applications, the Microsoft Left Windows Logo Key assignment and the Microsoft Right Windows Logo key assignment produce the same results.
 - If you did check Show Advanced Options, the Assign button changed to a Browse button. Click the Browse button and you can select from among all the files, folders, and applications in the system.
4. Highlight your selection and click OK. The name and icon of your selection appear beside the button of the programmable key.
5. Click OK to save the key assignment and close Keyboard Properties.

When you press the programmable key you just assigned, the assigned application or file appears on screen. (If you assigned a logo key function, the programmable key now functions like the logo key.)

Unassigning a Programmable Key

To remove an assignment from a programmable key:

1. Click Start→Settings→Control Panel→double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT)→Programmable Keys tab.
2. Click the button next to the number of the programmable key you want to unassign.
NOTE: If you want to unassign the key in other than the current scheme, check Show Advanced Options and select the scheme from the drop down list in the Scheme box.
3. Ensure that Show Advanced Options is not checked.
4. Click the Assign button, select Unassigned from the drop down list, then click the OK button beneath the list. The word “Unassigned” appears next to the button of the programmable key.
5. Click OK to save the unassignment and close Keyboard Properties.

If you press the programmable key you just unassigned, the Keyboard Properties dialog box appears.

Viewing Programmable Key Assignments

You can view the key assignments in the current scheme with one click.

To enable this convenience, you must first place the key assignments icon in the system tray on the Windows taskbar.

NOTE: The system tray is the box, usually containing the time of day, in the lower right corner of the Windows taskbar.

To place the key assignments icon in the system tray:

1. Click Start→Settings→Control Panel→double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT)→Programmable Keys tab.
2. Place a check in the Show Key Assignments in the System Tray checkbox.
3. Click OK to save your preference and close Keyboard Properties.

The key assignments icon appears in the system tray. Click the icon to view the key assignments in the current scheme.

Setting a Scheme

A scheme is a named collection of up to four programmable key assignments. A single programmable key can have a different programmable key assignment in each scheme.

For example, you might assign each programmable key to a different game in a scheme you name “Games.” You could also assign the four programmable keys, respectively, to a database, a worksheet, a form, and a schedule in a scheme you name “Budget.”

The programmable keys software does not limit the number of schemes that you can create and display.

Adding a Scheme

To add a new scheme:

1. Click Start→Settings→Control Panel→double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT)→Programmable Keys tab.
2. Place a check in the Show Advanced Options checkbox.
3. Click the Add button.
4. Type the name of the new scheme in the popup dialog box and click OK.
5. Assign the programmable keys.

NOTE: For instructions, refer to “Setting Programmable Key Assignments” in this chapter.

6. Click OK to save the scheme and assignments and close Keyboard Properties.

Removing a Scheme

When you remove a scheme, the programmable key assignments used in that scheme are also removed. The programmable key assignments used in other schemes are not affected.

To remove a scheme:

1. Click Start→Settings→Control Panel→double-click the Keyboard icon (Windows 95) or the Programmable Key icon (Windows NT)→Programmable Keys tab.
2. Ensure that Show Advanced Options is checked.
3. If the scheme you want to remove does not show in the Scheme box, select it from the drop-down list.

NOTE: The default scheme is not removable.

4. Click the Remove button.
5. Click OK to save the removal and close Keyboard Properties.

Chapter **4**

MANAGING POWER

This chapter lists power sources, identifies power indicators and controls, and tells how to initiate and manage the computer's four power conditions.

Choosing a Power Source

You can run the computer with a battery pack.

You can run the computer and charge a battery pack by connecting the computer to an external power source. The external power source can be an

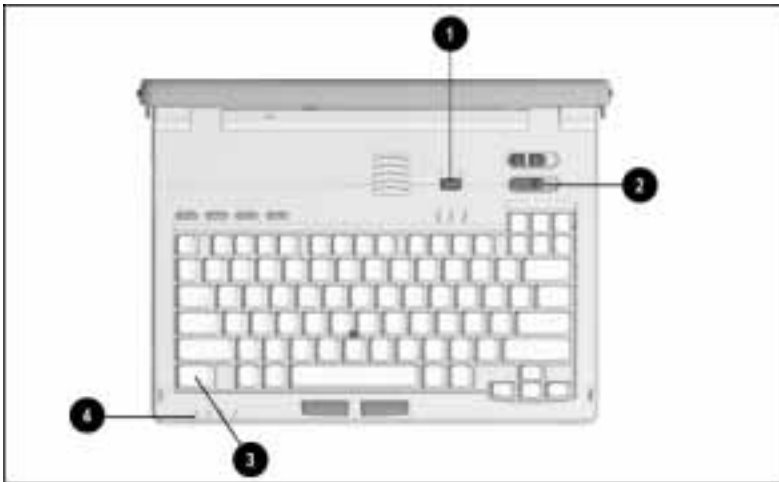
- Electrical outlet
- Optional ArmadaStation or Armada MiniStation
- Optional Automobile Adapter

For information on using battery packs, refer to Chapter 5, "Using Battery Packs."

Identifying Power Controls and Indicators

The computer uses four power conditions: on, off, Suspend, and Hibernation. You can use the following controls and indicators to monitor and manage these conditions:

- ❶ Suspend button
- ❷ Power switch
- ❸ Fn key
- ❹ Power/suspend light



Power Controls and Power/Suspend Light

Initiating Power Conditions

This section tells when to turn the computer on and off and how to use Suspend and Hibernation. The following table describes the operations; the following sections describe each power condition.

Initiating Power Conditions from the Keyboard		
Operation	Procedure	Indicator
Turn computer on.	Slide power switch. NOTE: If restarting, wait about 10 seconds after turning off the computer.	Power/suspend light turns on. If computer was in Suspend or Hibernation, the system beeps once and your work returns to the screen.
Turn computer off when using Windows.	1. Save your work and exit all applications. 2. Click Start→Shut Down→Shut Down the Computer→Yes.	Power/suspend light turns off.
Initiate Suspend.	Press suspend button.	Power/suspend light blinks. Screen is blank. System beeps twice.
Exit Suspend. NOTE: If the system initiated Suspend because of a critical low-battery condition, the computer may not exit Suspend until the low-battery condition is resolved.	Press suspend button.	Power/suspend light stops blinking and turns on. Your work returns to the screen. System beeps once.

Continued

Initiating Power Conditions from the Keyboard *Continued*

Operation	Procedure	Indicator
Initiate Hibernation. NOTE: Hibernation cannot be initiated when computer is docked in a docking station.	Press Fn + suspend button.	Power/suspend light turns off. Screen is blank. System beeps twice.
Exit Hibernation.	Slide power switch.	Power/suspend light turns on. Your work returns to the screen. System beeps once.
Stop restoration from Hibernation.	Press Fn+Ctrl+Break .	Restoration halts.
Resume restoration from Hibernation.	Slide power switch.	Power/suspend light turns on. Your work returns to the screen. System beeps once.

Turning the Computer On and Off

When you turn on the computer by sliding the power switch, your work returns as you left it if the computer was in Suspend or Hibernation.

If you use the computer frequently and you want “instant-on” convenience, do not turn the computer off. Instead, initiate Suspend. When operating from a fully-charged battery pack, you can leave the computer in Suspend for up to a week. For more information refer to “Initiating Suspend” in this chapter.

If the computer is going to be disconnected from an external power source for an extended period, such as two weeks, turn off the computer and remove the battery pack. This reduces the battery pack’s discharge and extends the life of the battery pack.

To charge a battery pack while you are not using the computer, connect the computer to external power and turn it off. The battery pack charges whether the computer is turned on or off. Refer to Chapter 5, “Using Battery Packs,” for more information.

Initiating Suspend

Initiate Suspend when you want to

- Conserve power during a short pause in your work.
- Clear the screen without saving or losing your work.

Suspend is an energy-saving feature that reduces power to system components when they are not being used.

Suspend can be initiated when the computer is running on battery or external power.

When the computer is running on a fully charged battery pack, the computer can be left in Suspend for up to a week. When the computer is connected to an external power source, the computer can be left in Suspend indefinitely.

You do not need to close applications or save your work before initiating Suspend; when the computer exits Suspend, your work returns to the screen as it was when Suspend was initiated. However, if you will not be using the computer for several days, you may want to save your work before initiating Suspend.

Three circumstances affect Suspend:

- **When the infrared port is enabled**, the system will not initiate Suspend while the Infrared Monitor software is searching for an infrared device. To disable this search, click Start → Settings → Control Panel, double-click the Infrared icon → Options tab. Then remove the check from Search For and Provide Status for Devices in Range and click OK.

IMPORTANT: You cannot establish an infrared connection while this check is removed.

Infrared communication is currently supported by Windows 95 but is not supported by Windows NT. For more information about infrared communication, refer to “Using the Infrared Port” in Chapter 7.

- **While a CD is in any CD-ROM drive in the system**, a default setting prevents the system from initiating Suspend. User-initiated Suspend is not affected. To enable the system to initiate Suspend while a CD is in a CD-ROM drive:
 - If you are running Windows 95, ensure that a CD-ROM drive is inserted, then click Start → Settings → Control Panel → double-click the System icon → Device Manager → CD-ROM → Properties. Check the CD-ROM Auto Insert Notification checkbox.
 - If you are running Windows NT, click Start → Settings → Control Panel → double-click the Power icon → Battery Conservation Settings tab. Check the CD-ROM Auto Insert Notification checkbox.
- **When a critical low-battery condition exists** and the system initiates Suspend, the computer may not exit Suspend until the critical low-battery condition is resolved. For more information, refer to “Identifying and Resolving a Low-Battery Condition” in Chapter 5.

Initiating Hibernation

Initiate Hibernation when you want to

- Conserve power during a lengthy pause in your work.
- Clear the screen without saving or losing your work.
- “Bookmark” your work so it will return to the screen at your stopping place after a lengthy pause.

Hibernation is an energy-saving feature that saves all information in memory to a Hibernation file on the hard drive, then shuts down the computer.

You do not need to close applications or save your work before initiating Hibernation; when the computer exits Hibernation, your work returns to the screen as it was when Hibernation was initiated.

Hibernation can be initiated when the computer is running on battery or external power and is not docked. Hibernation is not available while the computer is docked in an optional ArmadaStation or Armada MiniStation.

NOTE: If you try to exit Hibernation when the battery pack is too low to complete restoration of your work, press **Fn+Ctrl+Break** to stop the restoration, then insert a fully charged battery pack or connect the computer to external power. The restoration resumes when power is provided.

For information on system-initiated Hibernation and on customizing your system’s use of Hibernation, refer to “Hibernation Tab” in the “Using Power Properties” section of this chapter.

Customizing Power Settings

The default power management settings provide a balance between performance and power conservation. For example, using default settings:

- The system initiates Suspend after 5 minutes of inactivity.
- The system initiates Hibernation in a critical low-battery condition.
- If an application does not access information on the hard drive for 2 minutes, the hard disk spins down and remains idle until it is accessed again.

If you are running Windows 95 or Windows NT, you can customize power management settings from Power Properties. If you are running another operating system, you can use Computer Setup to customize these settings.

Some dialog boxes within Power Properties and Computer Setup enable you to specify settings for specific devices and functions. Other dialog boxes, such as Battery Conservation Settings, enable you to set a general conservation level which the system then implements by assigning system-specified settings to devices and functions.

Many power management settings involve timeouts. A timeout is the amount of time in minutes of system or component inactivity before the computer shuts down the system or component to conserve battery power. The shorter the timeout, the more battery power is saved. You can set timeouts for system-initiated Suspend, screen save, hard disk idle, and other functions.

- To access Power Properties, click Start→Settings→Control Panel→double-click the Power icon.
- To access Computer Setup, turn on or restart the computer, press **F10** when the cursor appears upper right on the screen, then select Computer Setup→System Features→Power Management.

For more information, refer to “Using Power Properties” or “Using Computer Setup” in this section.

Using Power Properties

You can view and change most power settings by using the Power Properties dialog box.

To access the Power Properties dialog box, click Start→Settings→Control Panel→double-click the Power icon.

Click a tab on top of the Power Properties dialog box, then follow the onscreen instructions.

- The conservation settings available at the Battery Conservation Settings tab apply only when the computer is running on battery power.
- Comparable conservation settings that apply when the computer is running from external power are on the AC Energy Saver tab. The AC Energy Saver tab is available only on a computer running Windows NT.

The following table lists the settings available at each tab in Power Properties. For information about an item on a tab, click the question mark in the upper-right corner of the Power Properties dialog box, then click the item. The AC Energy Saver, Battery Conservation Settings, and Hibernation tabs are described following the table.

Power Properties Settings	
Tab	Settings
AC Energy Saver	Enable/disable AC Energy Saver; set timeouts for hard disk idle and screen save. NOTE: This tab is present only on a computer running Windows NT.
Battery Conservation Settings	Set processor speed and battery conservation and brightness levels; enable/disable low-battery warning beeps; and set timeouts for Suspend, system idle, hard disk idle, and screen save. NOTE: On a computer running Windows NT, this tab can also be used to enable/disable CD-ROM auto insert notification.

Continued

Tab	Settings
Battery Status	Display only. Shows the percent of charge remaining and the charge status of battery packs in the system. For information about the location of the numbered batteries, refer to "Viewing Battery Power Displays" in Chapter 5.
Disk Drives	Set timeouts for drives when using battery power or external power. NOTE: This tab is present only on a computer running Windows 95.
Hibernation	Set Hibernation timeout; specify drive for Hibernation file; turn Hibernation on or off. IMPORTANT: Turning off Hibernation is <i>not</i> recommended. For more information, refer to "Hibernation Tab" in this chapter and to "Identifying and Resolving a Low-Battery Condition" in Chapter 5.
PC Card Modems	Turn Off PC Card Modems When Not in Use. NOTE: This tab is present only when an optional PC Card modem is installed on a computer running Windows 95.
Power	Enable/disable Allow Windows to Manage Power, Show Battery Meter on the Taskbar, and Wake Up the Computer When the Phone Rings. Also, displays current power source and battery pack charge information. NOTE: This tab is present only on a computer running Windows 95.
Resume Timer	Enable/disable Resume Timer; set date and time to exit (resume from) Suspend.

AC Energy Saver Tab

If you are running Windows NT, you can customize several power conservation settings and then turn them all on or off with a single click at the AC Energy Saver tab.

The settings in the AC Energy Saver dialog box function only when the computer is connected to an electrical outlet.

Turning AC Energy Saver On and Off—When AC Energy Saver is turned on, all settings on the AC Energy Saver tab are enabled and selectable. When AC Energy Saver is turned off, these settings are disabled and are not selectable.

Enabling Energy Save Monitor—When AC Energy Saver is on, you can check the Energy Save Monitor checkbox to enable the energy-saving features of an Energy Star-compliant external monitor.

- Checking Energy Save Monitor enables the monitor to go into low-power mode following a screen save timeout.
- The Energy Save Monitor feature is network-compatible: if you are using network PC Cards or a network connection on an optional ArmadaStation, you will not be logged off the network when AC Energy Saver is turned on.

NOTE: If you enable Energy Save Monitor and your monitor is not Energy Star-compliant, the screen may become distorted when the screen save timeout expires.

Setting Timeouts—When AC Energy Saver is on, you can use the drop-down lists in the scroll boxes to set two timeouts.

- The Hard Disk Idle timeout is the length of time during which an application does not access information on the hard drive before the hard drive spins down and remains idle until it is again accessed.
- The Screen Save timeout is the length of time during which there is no keyboard or mouse activity before the screen is cleared. To restore the screen after the timeout is reached, press any key or click the mouse.

To save your settings and close Power Properties, click OK. Your settings are enabled whenever AC Energy Saver is on.

NOTE: If you are running Windows 95, you can set a hard disk idle timeout on the Disk Drives tab in Power Properties. To set a screen save timeout and enable the energy-saving features of an Energy Star-compliant monitor, click Start→Settings→Control Panel →double-click the Display icon→Screen Saver tab.

Battery Conservation Settings Tab

From the Battery Conservation Settings dialog box you can select among three general levels of battery conservation and enable or disable low-battery warning beeps. You can also select a Custom conservation level and assign your own settings for screen brightness and processor speed and for Suspend, system idle, hard disk idle, and screen save timeouts.

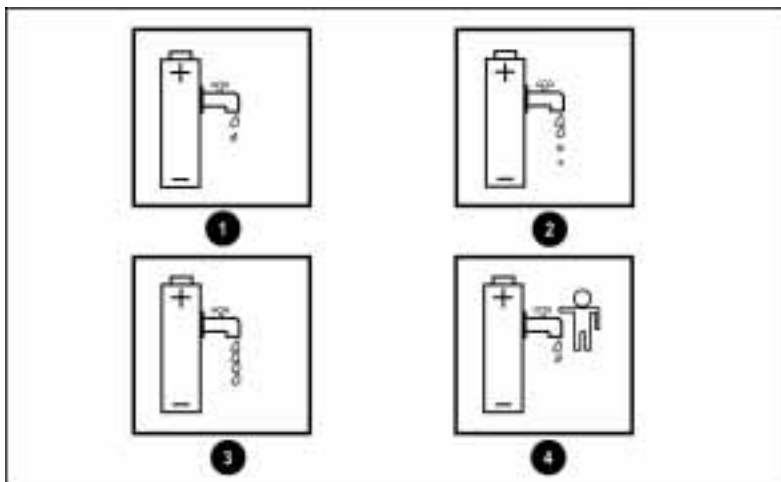
On a computer running Windows NT, the Battery Conservation Settings tab also includes a CD-ROM Auto Insert Notification checkbox.

Setting a Conservation Level—In the Conservation Level pane of the Battery Conservation Settings tab you can select among four levels.

- The High, Medium, and None (Drain) levels are general conservation levels. When you click on the radio button beside one of these levels, the settings the system implements for that level display in the adjoining Conservation Settings pane. These system-initiated settings are not further selectable at the High, Medium, or None (Drain) conservation levels.
- When you click on the radio button beside the Custom conservation level, the current settings display in the adjoining Conservation Settings pane and are selectable. To change a setting, click the arrow beside the scroll box, then click your selection from the drop-down list. The Off setting, where applicable, appears before the number 1 on the drop-down lists.

The battery conservation level settings function only when the computer is running on battery power.

When you change the battery conservation level, the icon shown above the list of battery conservation levels also changes. The following illustration shows the icons that represent the four battery conservation levels.



Battery Conservation Settings Icons

Battery Conservation Levels

Level	Result
① High	Provides maximum battery conservation and the most battery life from a single charge.
② Medium (Default)	Provides a balance between system performance and battery life.
③ None (Drain)	Turns off battery conservation; the system runs at full power.
④ Custom	Enables you to customize screen brightness and processor speed and timeouts for Suspend, system idle, hard disk idle, and screen save.

NOTE: Press the **Fn+F7** hotkey to view the icon for the current conservation level in a popup window. To change the conservation level, use the cursor keys.

Setting Low-Battery Warning Beeps—To hear warning beeps when the computer reaches a low-battery condition, click the On radio button. To disable low-battery warning beeps, click the Off radio button.

To adjust the volume of low-battery warning beeps, press **Fn+F5** to display volume settings in a pop-up window. Press the right and left cursor keys to adjust volume. Press the down cursor key to test your setting.

For information about other low-battery indicators, refer to Chapter 5.

Using CD-ROM Auto Insert Notification—On a computer running Windows NT, the Battery Conservation tab also includes a CD-ROM Auto Insert Notification checkbox.

- Place a check in this checkbox to enable system-initiated Suspend while a CD is in a CD-ROM drive.
- Remove the check to disable system-initiated Suspend while a CD is in a CD-ROM drive.

User-initiated Suspend is not affected by this checkbox.

NOTE: On a computer running Windows 95, the CD-ROM Auto Insert Notification checkbox is accessed through Device Manager and does not appear on the Battery Conservation Settings tab. To access the Auto Insert Notification checkbox in Windows 95, ensure that a CD-ROM drive is inserted, then click Start → Settings → Control Panel → double-click the System icon → Device Manager → CD-ROM → Properties.

Hibernation Tab

At the Hibernation tab you can turn Hibernation on and off, set Hibernation timeouts, and specify a location for the Hibernation file.

Turning Hibernation On and Off—When Hibernation is turned off, both user-initiated and system-initiated Hibernation are disabled and no other settings on the Hibernation tab are selectable.



CAUTION: If Hibernation is turned off, resolve a low-battery condition immediately to prevent the loss of unsaved work.

- When Hibernation is turned on and the computer reaches a critical low-battery condition, the system saves data to a Hibernation file on the hard drive, then shuts down. The factory-default setting for Hibernation is On.
- When Hibernation is turned off and the computer reaches a critical low-battery condition, the system initiates Suspend instead of Hibernation. The system remains briefly in Suspend until the battery is almost totally discharged. The computer then shuts down and unsaved work is lost. Turning off Hibernation is *not* recommended.

Setting Hibernation Timeouts—When Hibernation is turned on, you can select options from the Timeout scroll box drop-down list to customize Hibernation timeouts two ways.

- Select a timeout in hours to specify the amount of time the computer remains in Suspend before initiating Hibernation.
- Select Standby if you want the computer to enter Suspend when the system would otherwise initiate Hibernation.

The timeout in hours and Standby options are in addition to the default Low Battery setting. For example, even if you select a specific Hibernation timeout in hours, the system will still initiate Hibernation in a critical low-battery condition unless you have turned Hibernation off.

Specifying the Location for the Hibernation File—The system reserves space on the hard drive equal to the amount of system memory. When Hibernation is initiated, all data in memory is saved to a Hibernation file, which is placed in the space reserved for it on the hard drive.

The Drive For Hibernation File scroll box contains optional locations for the Hibernation file and displays the amount of space available at each location. The space currently required for the Hibernation file is displayed beneath the scroll box.

If the hard drive on your computer is partitioned, the drive options listed in the Drive For Hibernation File scroll box are for partitions on the hard drive that is in the hard drive bay. For more information about hard drive partitioning, refer to “Using a Partitioned Hard Drive” in Chapter 6.

NOTE: When Hibernation is turned off, no space is reserved on the hard drive for the Hibernation file and Hibernation cannot occur.

Using Computer Setup

You can view and change most power settings from Power Management in Computer Setup.

To access Power Management, turn on or restart the computer, press **F10** when the cursor appears upper right on the screen, then select Computer Setup→System Features→Power Management.

Select the tab in the right-hand pane that describes the settings you want to access.

For information about the settings on each tab, click the Help button on the tab. To exit the Help program and return to Power Management, click File→Exit.

To exit Power Management and Computer Setup, click OK or Cancel at the System Features window, then click Exit at the Computer Setup window.

USING BATTERY PACKS

This chapter tells how to manage battery pack power, charge a battery pack, replace a discharged battery pack, and identify and resolve a low-battery condition.

Managing Battery Pack Power

You can manage battery pack power by

- Monitoring battery pack activity
- Controlling battery discharge

Monitoring Battery Pack Activity

You can view battery power information using any of the features listed in the “Battery Power Displays” table in this section.

Displays that show information about all battery packs in the system number the battery packs by location. In displays that represent the battery packs as a row of icons, the left icon represents the battery pack in location 1.

- Location 1 is the computer battery bay.
- Location 2 is the computer MultiBay.
- Location 3 is the battery charging bay in the Armada MiniStation EX or the right MultiBay in the ArmadaStation.
- Location 4 is the MultiBay in the Armada MiniStation EX or the half-height bay converted to a left MultiBay in the ArmadaStation.

Battery packs charge in the sequence of their location numbers. For example, a battery pack in the computer battery bay charges first and a battery pack in the computer MultiBay charges second.

The following table shows how to access displays that provide battery pack information. The battery gauge popup window accessed by pressing **Fn+F8**, the battery meter icon, and the charge level lights on a battery pack are described following the table.

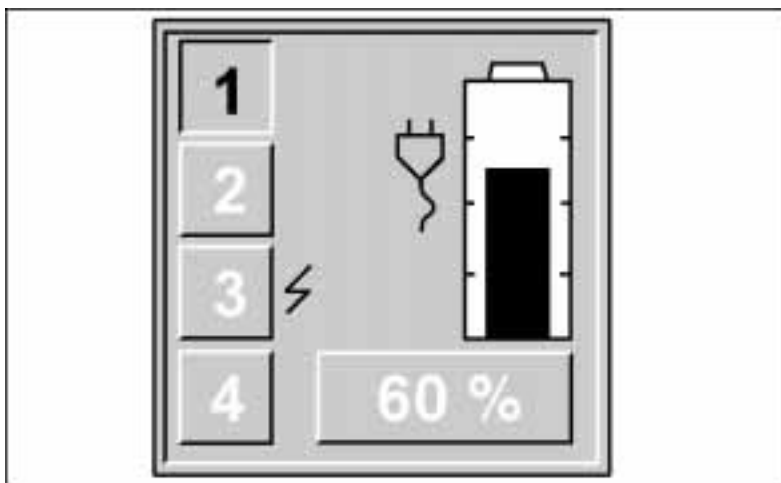
Battery Power Displays	
Access	Information Displayed
Click Start→Settings→Control Panel→double-click the Power icon→Power Properties→Power tab Or, in Windows 95, click the Battery meter icon on the taskbar→Adjust Power Properties.	Current power source. Percent of a full charge remaining on each battery pack in system. Charge remaining in the system.* NOTE: The Power tab battery information varies slightly according to the power source in use when the tab is accessed.
Click Start→Settings→ Control Panel→double-click the Power icon→Power Properties→Battery Status tab.	Charging status and percent of a full charge remaining on each battery pack in the system. NOTE: Click a listed battery pack to view its location.
Click Start→Settings →Control Panel→double- click the Power icon→Power Properties→Battery Conservation Settings tab.	Current battery conservation setting.
Press the Fn+F7 hotkey.	Current battery conservation setting.
Press the Fn+F8 hotkey.	Charging status and percent of a full charge remaining in each battery pack in the system. Charge remaining in the system displayed as a percent of a full charge.
Double-click the battery meter icon on the taskbar.	Charge remaining in the system. *
Rest the mouse cursor over the battery meter icon on the taskbar.	Charge remaining in the system. *
Press the battery pack button on a battery pack.	Charge remaining on the battery pack displayed as a percent of a full charge.
* Can be displayed as a percent of a full charge or as an approximate remaining charge time in hours. Refer to "Using Battery Meter" in this section for more information.	

Using Battery Gauge

The battery gauge hotkey, **Fn+F8**, displays a popup window that shows the charging status and the percent of a full charge remaining on each battery pack in the system. It also shows the percent of a full charge remaining in the system.

While a battery pack is charging, the battery gauge popup window shows a lightening bolt icon beside its location number. For location number information, refer to “Monitoring Battery Pack Activity” earlier in this chapter.

The battery gauge popup window shows the percent of a full charge remaining in the battery pack at the selected location both graphically and as a percentage. A power cord plug icon displays when the computer is connected to external power.



Battery Gauge Popup Window

In the illustration above, the battery pack in location 3 (the battery charging bay in the Armada MiniStation EX or the right MultiBay in the ArmadaStation) is charging, the battery in location 1 (the computer battery bay) has 60 percent of its charge remaining, and the computer is running on external power.

Use the up and down cursor keys to select the location number of the battery pack you want to monitor. The location numbers of bays that do not contain battery packs are not selectable.

If you do not press a cursor key within 5 to 7 seconds after displaying the battery gauge popup window, the graphic and the percentage displays show the charge remaining in the system.

Using Battery Meter

The battery meter feature enables you to place an informative icon in the system tray on the Windows taskbar. You can then use the icon to view some power information at a glance or to view additional battery information by using the mouse cursor or a single, right, or double click.

To display the battery meter icon, click Start→Settings→Control Panel→double-click the Power icon→Power tab. Check Show Battery Meter on the Taskbar, then click OK to save your preference and close Power Properties.

If you are running Windows 95, the icon that appears in the system tray on the taskbar displays some information by its appearance, as described in the following table.

Battery Meter Icon	
Appearance	Condition Represented
Power cord plug	The computer is running on external power.
Full battery	The computer is running on a battery pack and is in a <i>full battery</i> condition. The battery pack is at or near a full charge.
Half-full battery	The computer is running on a battery pack and is in a <i>half-battery</i> condition. The battery pack has partially discharged but has not reached a low-battery condition.
Empty battery	The computer is running on a battery pack and is in a <i>low-battery</i> or a <i>critical low-battery</i> condition. Refer to "Identifying and Resolving a Low-Battery Condition" in this chapter.

Click the battery meter icon to access a popup dialog box in which you can

- *Enable/disable the low-battery warning popup dialog box.* If you check Enable Low Battery Warning, a popup dialog box appears whenever the charge remaining in the battery pack running the computer reaches a critical low-battery condition. To close the Low Battery Warning dialog box, click OK.
- *Toggle between displaying the amount of charge remaining in the system as a percent of a full charge or as a time in hours.* Toggle the display options by clicking the option shown in the dialog box. Your selection affects the display on all battery meter features and on the Power tab in Power Properties. You can toggle the display options only while the computer is running on a battery pack; when the computer is running on external power, the amount of charge remaining is displayed as a percent of a full charge.

Right-click the battery meter icon to access a popup dialog box in which you can

- *Display the battery meter dialog box* by clicking Open Battery Meter. For information about an item in this dialog box, click the question mark in the upper-right corner of the dialog box, then click the item.
- *Access the Power tab in Power Properties* by clicking Adjust Power Properties. This feature is available only in Windows 95

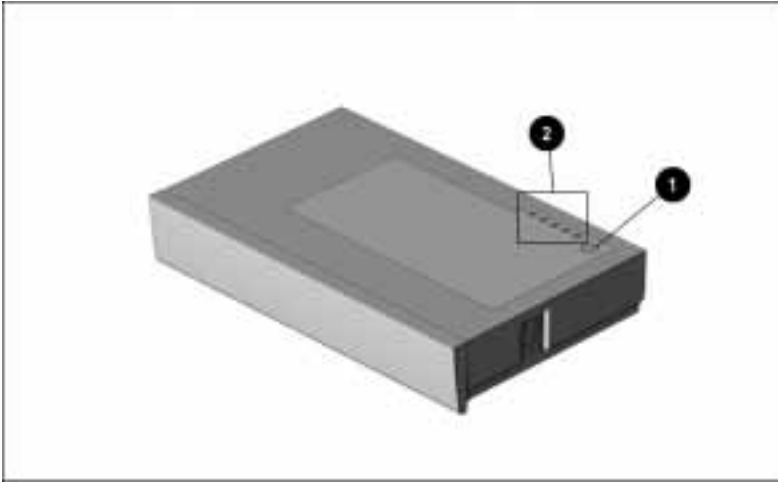
Double-click the battery meter icon to *display the battery meter dialog box.*

Rest the cursor over the battery meter icon to *display the amount of charge remaining in the system.*

Using Battery Charge Level Lights

Pressing the battery pack button ❶ on the top of a battery pack displays the percent of a full charge remaining in the battery. Each battery charge level light ❷ represents approximately 20 percent of a full charge. If three battery charge level lights are lit, approximately 60 percent of a full charge remains. If all five battery charge level lights are lit, the battery pack is fully charged.

The two lights that represent the lowest charge levels are amber. The three lights that represent the highest charge levels are green.



Battery Pack Button and Battery Charge Level Lights on Lithium Ion Battery Pack

To ensure accurate readings:

- Allow a battery pack to discharge to the low-battery warning level often—at least every 90 days.
- Allow a battery pack to fully charge before removing the external power source.
- Before use, fully charge a new battery pack or a battery pack that has not been used for two weeks or more.

Controlling Battery Discharge

This section tells how to maximize battery operating time.

For information on running the system at other battery power levels or while the computer is connected to an external power source, refer to Chapter 4, “Managing Power.”

Battery pack operating time is affected by how you

- Configure the system
- Use the computer
- Store a battery pack

Configuring the System

To set up the system for extended battery operating time:

- Select the High battery conservation level. (Refer to “Customizing Power Settings” in Chapter 4.)
- Select a low screen brightness. (Refer to the table in “Using Hotkeys” in Chapter 3.)
- Select a short screen save timeout. (Refer to “Customizing Power Settings” in Chapter 4.)
- Enable the system to turn off PC Card modems when they are not in use. (Refer to “Customizing Power Settings” in Chapter 4.)
- Disconnect external equipment that does not use an external power source when you are not using it.

Using the Computer

To extend battery operating time while using the computer:

- Allow a battery pack to fully charge before removing external power from the computer.
- Initiate Hibernation or Suspend if you will not be using the computer for several hours.
- Exit modem programs when you are not using them.
- Remove PC Cards that you are not using.

Storing a Battery Pack

Proper storage procedures reduce the self-discharge rate of a battery pack.



CAUTION: To prevent permanent damage to a battery pack, do not expose it to high temperatures for extended periods of time.

If the computer will be unused and unplugged from an external power source for more than two weeks, remove and store the battery pack(s).

Store a battery pack in a cool, dry place. High temperatures reduce the life of a battery pack and increase its rate of self-discharge.

Recommended Battery Pack Storage Temperatures

Storage Time	Temperature Range °F	Temperature Range °C
Less than 1 month	32°–122°	0°–50°
No more than 3 months	32°–104°	0°–40°
Unlimited time	32°– 86°	0°–30°

Charging a Battery Pack

A battery pack in the computer battery bay or MultiBay charges when the computer is plugged into external power.

- You can charge a battery pack in the computer while the computer is off or on and being used.
- A fully discharged battery pack fully charges in approximately 1.5 hours if the computer is off and approximately 3 hours if the computer is on.

The battery pack in the battery bay charges first.

When a battery pack is charging in the battery bay, the battery power light ❶ is on. When the battery pack is fully charged, the battery power light turns off.

When a battery pack is in the MultiBay, the MultiBay drive light ❷ is on while the battery pack is charging or waiting to be charged.

Both the battery power light and the MultiBay drive light blink to indicate a low-battery condition. Refer to “Identifying and Resolving a Low-Battery Condition” in this chapter for more information.



Battery Power Light and MultiBay Drive Light on Computer

If two battery packs are inserted in the computer, the battery pack in the MultiBay discharges first and the battery pack in the battery bay discharges second.

You can also charge battery packs in the optional Battery Charger, ArmadaStation, or Armada MiniStation EX.

Replacing a Discharged Battery Pack

In most circumstances, you can remove and insert battery packs in the computer battery bay or the computer MultiBay while the computer is on, off, in Suspend, or in Hibernation.

However, if the computer is on and you are replacing the battery pack that is running the computer, you must initiate Suspend before removing the battery pack. You can then exit Suspend after inserting a charged battery pack and your work will return to the screen.

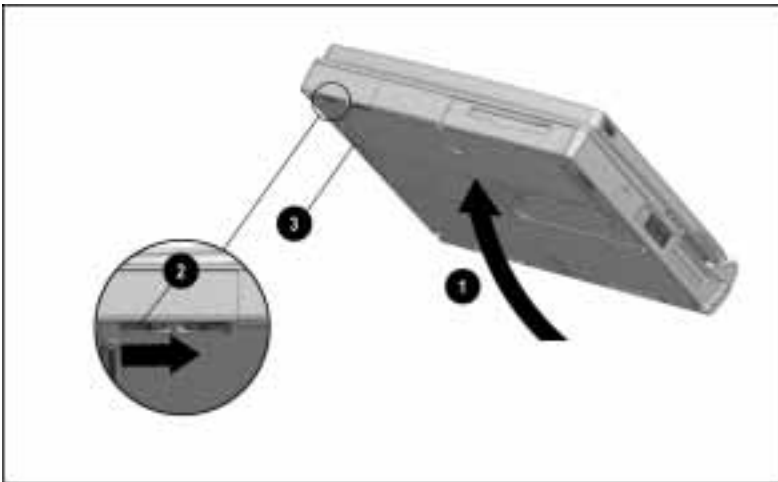


WARNING: To reduce the risk of injury or damage to the battery pack, do not crush, puncture, or incinerate the battery pack or short the metal contacts. Do not attempt to open or service the battery pack.

Removing a Battery Pack from the Battery Bay

To remove a battery pack from the computer battery bay:

1. If the computer is on and you want to return your work to the screen after replacing the battery pack that is running the computer, press the suspend button.
2. Tilt the computer ① to access the battery release features.
3. Slide the battery release latch ② right while pulling on the battery pack from the recess ③ beneath the battery bay.



Releasing a Battery Pack from the Battery Bay

4. Slide the battery pack out of the battery bay.



Removing a Battery Pack from the Battery Bay

For used battery recycling requirements, refer to “Battery Notice” in Appendix B.

Inserting a Battery Pack in the Battery Bay

To insert a battery pack in the computer battery bay:

1. With the battery pack label facing up and the battery pack contacts facing the computer, slide the battery pack into the battery bay until it clicks into place.
2. If the computer is in Suspend, press the suspend button to return your work to the screen.



Inserting a Battery Pack in the Battery Bay

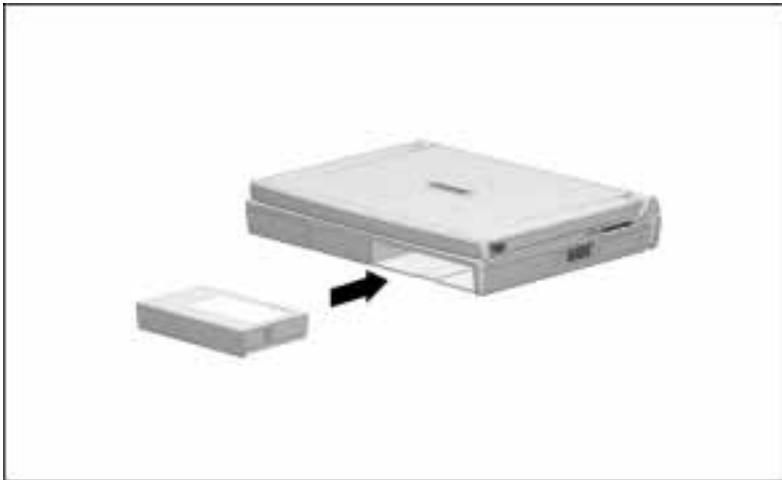
Inserting a Battery Pack in the MultiBay

To insert a battery pack in the computer MultiBay:

1. With the label on the battery pack facing up and the battery contacts facing the computer, slide the battery pack into the MultiBay until it clicks into place.

NOTE: You can secure the battery pack in the MultiBay with the single-bay security screw or the dual-bay security screw included with the computer. For information, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.

2. If the computer is in Suspend, press the suspend button to return your work to the screen.

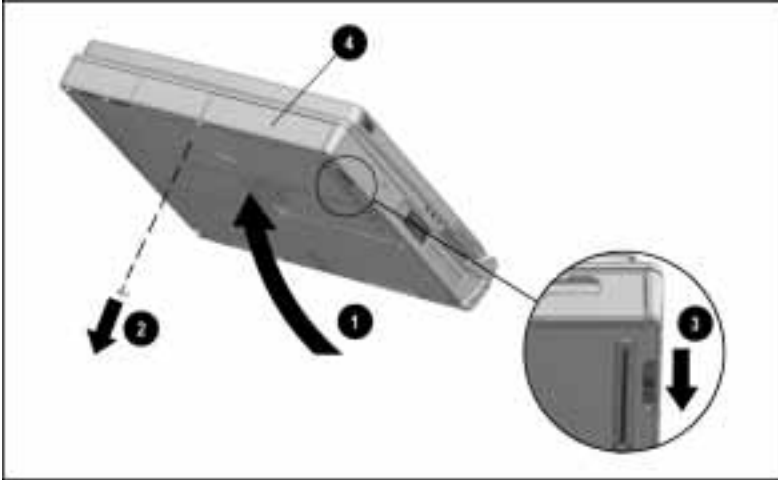


Inserting a Battery Pack in the MultiBay

Removing a Battery Pack from the MultiBay

To remove a battery pack from the computer MultiBay:

1. If the computer is on and you want to return your work to the screen after replacing the battery pack that is running the computer, press the suspend button.
2. Tilt the computer **1** to access the MultiBay release features.
3. If the battery pack has been secured in the MultiBay with a single-bay security screw **2** or a dual-bay security screw, remove the screw with the Torx T-10 screwdriver included with the computer. For more information about these security features, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.
4. Slide the MultiBay release latch **3** back while pulling on the battery from the recess **4** beneath the MultiBay.



Releasing a Battery Pack from the MultiBay

5. Slide the battery pack out of the MultiBay.



Removing a Battery Pack from the MultiBay

Identifying and Resolving a Low-Battery Condition

When a battery pack powering the computer reaches a low-battery condition—

- The system beeps several times.
- The indicator light of the bay containing the battery pack begins to blink.

To resolve a low-battery condition— save your work. Then do one of the following:

- Initiate Suspend and replace the discharged battery pack with a fully charged battery pack. To initiate Suspend, press the suspend button.
- Plug the computer into an external power source.
- Initiate Hibernation or shut down the computer until an external power source or a charged battery pack is available. To initiate Hibernation, press **Fn** + the suspend button.

If the low-battery condition is not resolved and the system reaches a *critical* low-battery condition—

- The computer beeps twice, saves data to a Hibernation file, and shuts down
- or
- If you have turned off Hibernation, the computer beeps twice, initiates Suspend, and the power/suspend light also begins to blink. The computer remains briefly in Suspend until the battery is almost totally discharged. The computer then shuts down and unsaved work is lost.

To exit Hibernation after power is restored, slide the power switch. If you try to exit Hibernation when the battery pack is too low to complete restoration of your work, press **Fn+Ctrl+Break** to stop the restoration, then insert a fully charged battery pack or connect the computer to external power. Restoration resumes when adequate power is supplied.

Hibernation is turned on by factory-default. To ensure that Hibernation has not been turned off, click Start→Settings→Control Panel→double-click the Power icon→Hibernation tab. Then click the radio button beside On.

chapter 6

WORKING WITH REMOVABLE DRIVES

The computer has one hard drive bay that supports a removable hard drive and one MultiBay that supports a removable diskette drive, CD-ROM drive, or second hard drive.

When a hard drive in the hard drive bay is being accessed, the hard drive bay light ❶ is on. When a drive in the MultiBay is being accessed, the MultiBay drive light ❷ is on.



Hard Drive Bay Light and MultiBay Drive Light

This chapter tells how to safely remove and insert removable drives and how to care for them when they are out of the drive bays. The “Using Boot Management” section at the end of the chapter tells how to change the drive boot sequence.

- The MultiBay also supports a battery pack; for information, refer to Chapter 5, “Using Battery Packs.”
- You can secure devices in the hard drive bay and the MultiBay by using one of the single-bay security screws or dual-bay security screws included with the computer. For information, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.
- You can disable the computer’s diskette drive controller, diskette drive write ability, and diskette boot ability. For information refer to “Disabling Devices” in Chapter 13.
- You can add additional drives to the system by inserting them in an optional ArmadaStation or Armada MiniStation.

Caring for Removable Drives

Removable drives are fragile components that must be handled with care. A hard drive carrying case and a MultiBay device carrying case are supplied with the computer to protect drives when they are out of the drive bays.



CAUTION: To prevent damage to the computer, damage to a removable drive, or loss of information, observe these precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, then shut it down.
 - Before removing a diskette drive, ensure that no diskette is in the drive.
 - Before removing a CD-ROM drive, ensure that no CD is in the drive and that the CD tray is closed.
 - Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector. For more information about preventing electrostatic damage, refer to Appendix C.
 - Handle a drive carefully; do not drop it.
 - After removing a hard drive, immediately place it into the hard drive carrying case. Do not place a hard drive into the MultiBay device carrying case.
 - After removing a CD-ROM drive or a diskette drive, immediately place it into the MultiBay device carrying case.
 - Avoid exposing a hard drive to products that have magnetic fields such as monitors or speakers.
 - Avoid exposing a drive to temperature extremes.
 - Avoid exposing a drive to liquids. Do not spray it with cleaners.
 - Do not use excessive force when inserting a drive into a drive bay.
 - If a drive must be mailed, do the following. Place the drive into its carrying case. Place the carrying case into a bubble pack mailer or other suitable form of protective packaging. Label the package "Fragile: Handle With Care."
-

Removing and Inserting Drives

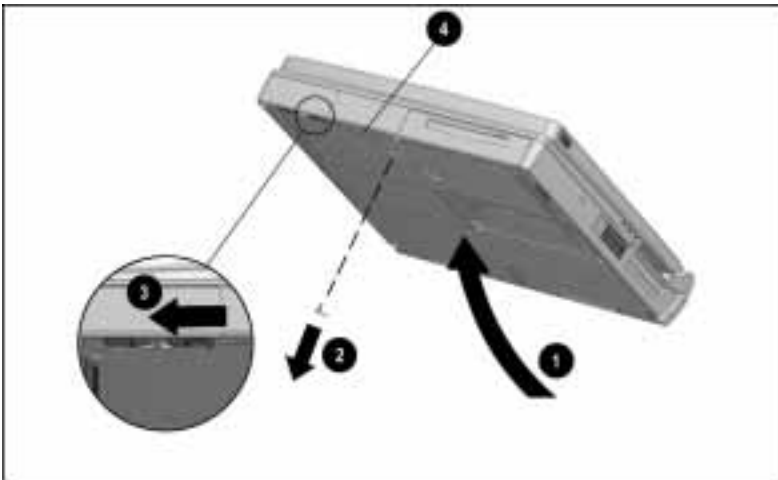
IMPORTANT: To prevent loss of information and damage to the computer, observe the cautions listed under “Caring for Removable Drives,” immediately preceding this section.

Removing a Hard Drive from the Hard Drive Bay

Before removing a hard drive, Compaq recommends that you back up all information on the hard drive.

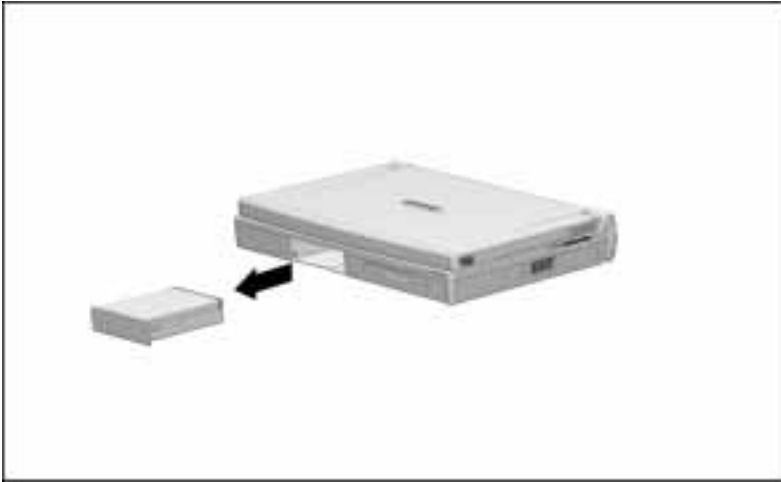
To remove the hard drive from the hard drive bay:

1. Save your work, exit all applications, and shut down the computer.
2. Tilt the computer ① to access the hard drive bay release mechanisms.
3. If the hard drive has been secured in the hard drive bay with a single-bay ② security screw or a dual-bay security screw, remove the screw with the Torx T-10 screwdriver included with the computer.
4. Slide the hard drive release latch ③ left while pulling the hard drive from the recess ④ beneath the hard drive bay. This releases the hard drive from the hard drive bay.



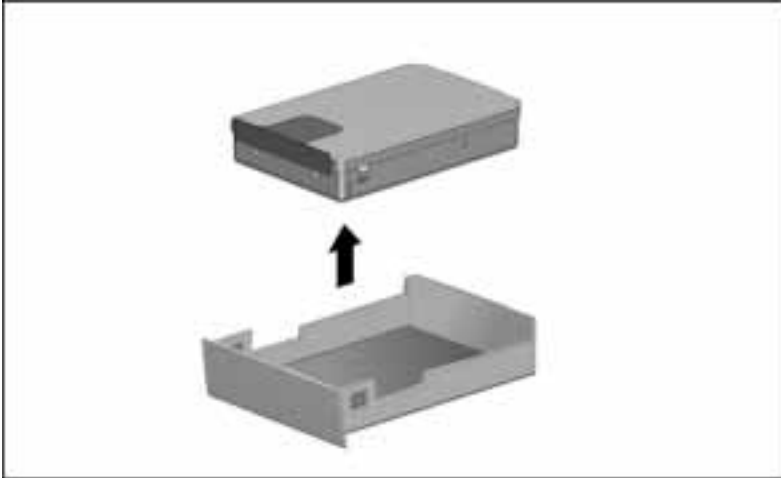
Releasing a Hard Drive from the Hard Drive Bay

5. Slide the hard drive out of the hard drive bay.



Removing a Hard Drive from the Hard Drive Bay

6. Pull the metal hard drive up and out of the plastic hard drive tray and place it in the hard drive carrying case included with the computer.



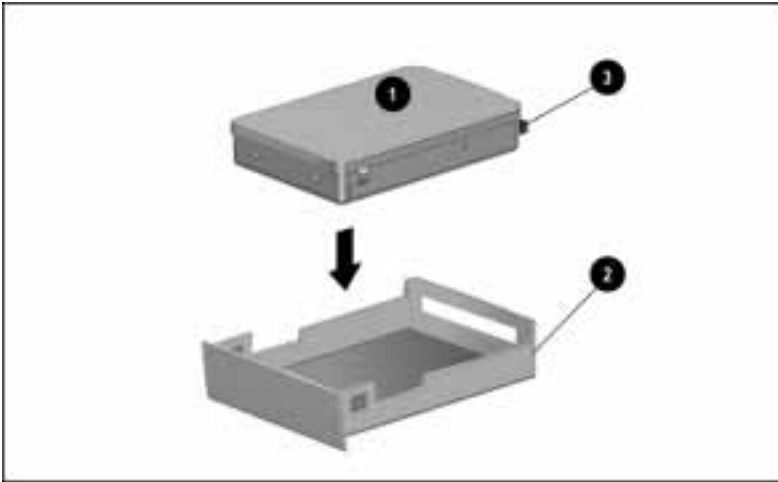
Removing a Hard Drive from the Hard Drive Tray

7. If you are not inserting another hard drive, replace the hard drive tray in the hard drive bay by sliding it into the hard drive bay until it is seated.

Inserting a Hard Drive into the Hard Drive Bay

To insert a hard drive into the hard drive bay:

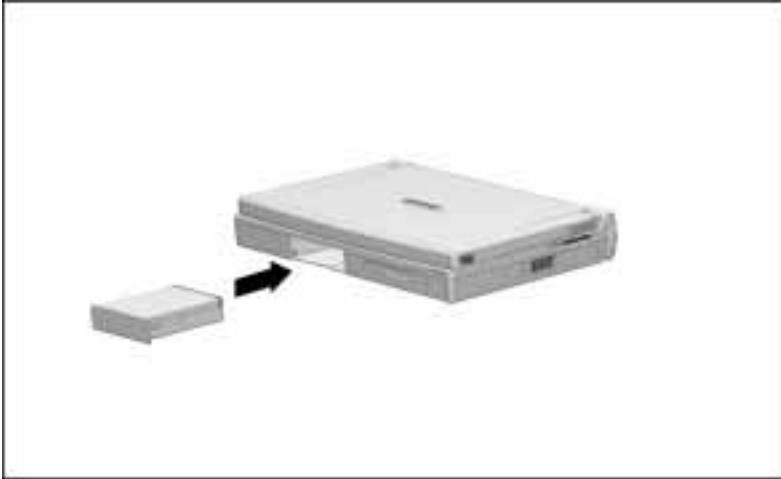
1. Turn off the computer.
2. Release the hard drive tray from the hard drive bay by sliding the hard drive release latch left while pulling the hard drive tray from the recess beneath the hard drive bay.
3. Slide the hard drive tray out of the hard drive bay.
4. Insert the metal hard drive ❶ into the plastic hard drive tray ❷ with the connectors ❸ protruding through the opening in the rear of the tray.



Inserting a Hard Drive into the Hard Drive Tray

5. Slide the hard drive assembly into the hard drive bay.

NOTE: You can secure the hard drive assembly in the hard drive bay with one of the single-bay security screws or dual-bay security screws included with the computer. For information, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.



Inserting a Hard Drive into the Hard Drive Bay

Inserting a Hard Drive into the MultiBay

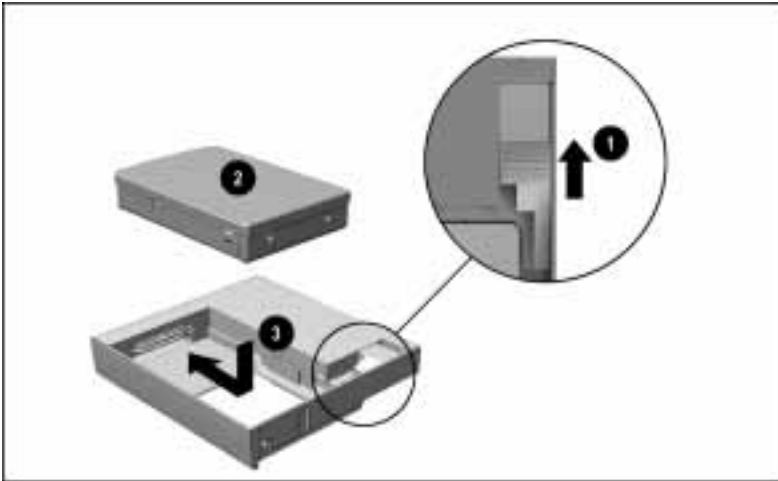
- If you are moving a hard drive from the hard drive bay to the MultiBay, remove the hard drive from the hard drive tray. For instructions, refer to “Removing a Hard Drive from the Hard Drive Bay” in this chapter.
- If you are inserting an optional hard drive, remove the metal hard drive from the packing materials.

To insert a hard drive into the MultiBay, you need an Armada 7000 Hard Drive MultiBay Adapter. This adapter is included with the purchase of an optional Armada 7700 hard drive.

NOTE: You can also purchase an Armada 7000 Hard Drive MultiBay Adapter separately. For the name of your nearest Compaq authorized dealer, reseller, or service provider, refer to “Worldwide Telephone Numbers” in Appendix A.

To insert a hard drive into the MultiBay:

1. Turn off the computer.
2. Push back the slide tab ❶ on the MultiBay Adapter.
3. Lower the hard drive ❷ into the MultiBay Adapter.
4. Slide the hard drive toward the connector ❸ in the MultiBay Adapter until both connectors are fully engaged.



Inserting a Hard Drive into an Armada 7000 Hard Drive MultiBay Adapter

5. Release the slide tab.
6. Slide the hard drive assembly into the MultiBay with the bezel facing out.

NOTE: You can secure the hard drive assembly in the MultiBay with one of the single-bay security screws or dual-bay security screws included with the computer. For information, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.

Removing a Hard Drive from the MultiBay

Before removing a hard drive, Compaq recommends that you back up all information on the hard drive.

To remove a hard drive from the MultiBay:

1. Save your work, exit all applications, and shut down the computer.
2. Tilt the computer to access the MultiBay release mechanisms.
3. If the hard drive assembly has been secured in the MultiBay with a single-bay security screw or a dual-bay security screw, remove the screw with the Torx T-10 screwdriver included with the computer.
4. Slide the MultiBay release latch back while pulling on the hard drive assembly from the recess beneath the MultiBay. This releases the hard drive assembly from the MultiBay.
5. Slide the hard drive assembly out of the MultiBay.
6. If you are not inserting another drive or a battery pack into the MultiBay, insert the weight saver included with the computer. For more information, refer to “Using the Weight Saver” in this chapter.

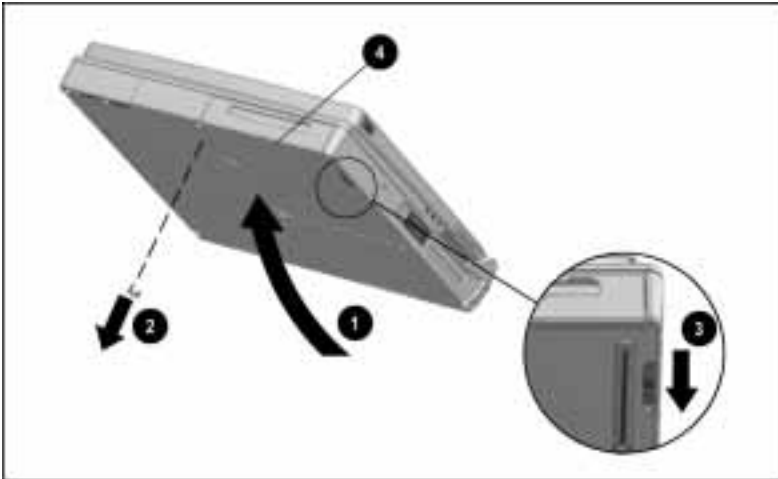
Removing a Diskette Drive or CD-ROM Drive from the MultiBay

To remove a diskette drive or CD-ROM drive from the MultiBay:

1. If you are using Windows 95, save your work, exit all applications, and shut down the computer.

NOTE: If you are using Windows NT, it is not necessary to shut down the computer before removing a diskette drive or a CD-ROM drive from the MultiBay.

2. Remove the diskette from the diskette drive or the CD from the CD-ROM drive. Ensure that the CD tray is closed.
3. Tilt the computer ① to access the MultiBay release features.
4. If the drive has been secured in the MultiBay with a single-bay security screw ② or a dual-bay security screw, remove the screw with the Torx T-10 screwdriver included with the computer.
5. Slide the MultiBay release latch ③ back while pulling on the drive from the recess ④ beneath the MultiBay. This releases the drive from the MultiBay.



Releasing a Drive from the MultiBay

6. Slide the drive out of the MultiBay.



Removing a Drive from the MultiBay

7. If you are not inserting another drive or a battery pack into the MultiBay, insert the weight saver included with the computer. For more information, refer to “Using the Weight Saver” in this chapter.

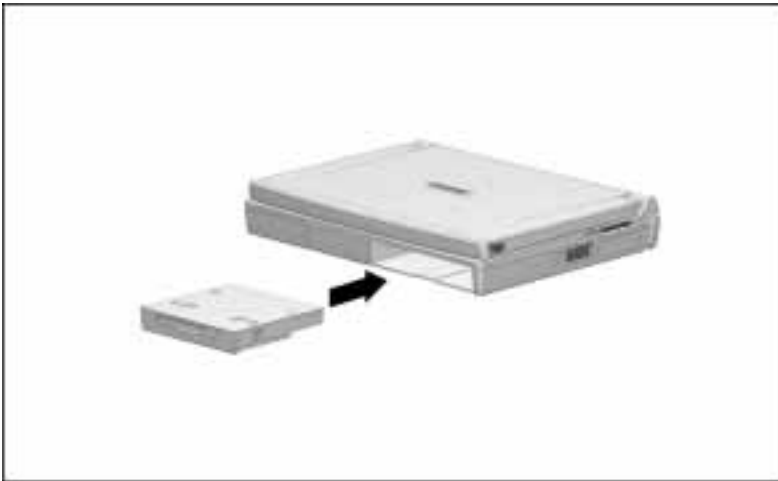
Inserting a Diskette Drive or CD-ROM Drive into the MultiBay

To insert a diskette drive or CD-ROM drive into the MultiBay:

1. If you are using Windows 95, save your work, exit all applications, and turn off the computer.

NOTE: If you are using Windows NT, it is not necessary to turn off the computer before inserting a diskette drive or CD-ROM drive into the MultiBay.

2. Remove the diskette from the diskette drive or the CD from the CD-ROM drive. Ensure that the CD tray is closed.
3. Slide the drive into the MultiBay with the bezel facing out until it clicks into place.



Inserting a Drive into the MultiBay

While a CD is inserted in any CD-ROM drive in the system, a default setting prevents the system from initiating Suspend. User-initiated Suspend is not affected. To change this setting, refer to “Initiating Suspend” in Chapter 4.

NOTE: You can secure the drive in the MultiBay with one of the single-bay security screws or dual-bay security screws included with the computer. For information, refer to “Securing Devices in the Hard Drive Bay and MultiBay” in Chapter 13.

Using the Weight Saver

The weight saver included with the computer is a light-weight, hollow device that covers the MultiBay opening and keeps the MultiBay compartment free of dust and obstructions.

Use the weight saver to protect the MultiBay compartment and to minimize the weight of the computer when you do not have any other device inserted in the MultiBay.

To insert the weight saver into an empty MultiBay, slide it into the MultiBay with the bezel facing out.



Inserting the Weight Saver into the MultiBay

To remove a weight saver from the MultiBay, slide the MultiBay release latch back while pulling on the weight saver from the recess beneath the MultiBay.

Using Boot Management

Changing the Boot Sequence

The factory-default boot sequence is the first bootable CD-ROM, the first bootable diskette, then the first bootable hard drive. A bootable drive contains files needed by the computer to start and operate properly. The bootable drive can be in the computer, or, when the computer is docked, in an optional ArmadaStation or Armada MiniStation EX.

Boot Management in Computer Setup provides a way to change the default boot order. To view or change Boot Management settings, turn on or restart the computer and press **F10** when the cursor appears upper right on the screen. Select Computer Setup → System Features → Boot Management, then the Properties or MultiBoot tab.

On the Properties tab, you can disable the diskette boot ability. On the MultiBoot tab, you can enable MultiBoot and specify by bay the sequence you want the computer to follow when searching for a bootable drive.

When MultiBoot is enabled, the default boot order by bay is:

- First Computer MultiBay
- Second Computer hard drive bay
- Third Left bay in ArmadaStation or Armada MiniStation EX
- Fourth Right bay in ArmadaStation

To change the MultiBoot sequence, select a bay, move it up or down the list, and click OK.

When the computer restarts and searches for a bootable drive, it considers only the first drive of each type. For example, in the default MultiBoot sequence, the computer will not start from a bootable hard drive in an ArmadaStation if a non-bootable hard drive is in the computer MultiBay.

IMPORTANT: Be aware that if you change the boot order, you also change the logical drive designations. For example, if you boot from a hard drive in the ArmadaStation, it becomes drive C, and the computer hard drive becomes drive D (and E if partitioned). Similarly, if you boot from a diskette drive in an Armada MiniStation EX, it becomes drive A, and the computer diskette drive becomes drive B.

Using a Partitioned Hard Drive

The hard drive in your computer may be partitioned into up to four logical drives.

Compaq partitions preinstalled hard drives with capacities greater than 2 gigabytes (GB) because Microsoft Windows operating systems using 16-bit file allocation tables do not recognize hard drive capacities greater than 2 GB.

The first partition contains the Computer Setup and Diagnostics software accessed by pressing **F10** at startup. The second two partitions each have a capacity of 2 GB. The fourth partition contains all additional capacity.

You will find all preinstalled software on drive C.

Any extended partition you may find on your computer, such as a drive E, is formatted and ready for data.

CONNECTING EXTERNAL DESKTOP EQUIPMENT

This chapter identifies the external connectors on the computer and tells how to connect the following external options:

- PS/2-compatible keyboard, numeric keypad, mouse, or other pointing device
- Parallel device, such as a printer or SCSI adapter
- Serial device, such as a serial mouse or printer
- Monitor or overhead projector
- Infrared-equipped device that is InfraRed Data Association (IrDA)–compliant

For information about connecting a modem, refer to Chapter 8, “Using a Modem.”

For information about connecting PC Cards, refer to Chapter 9, “Using PC Cards.”

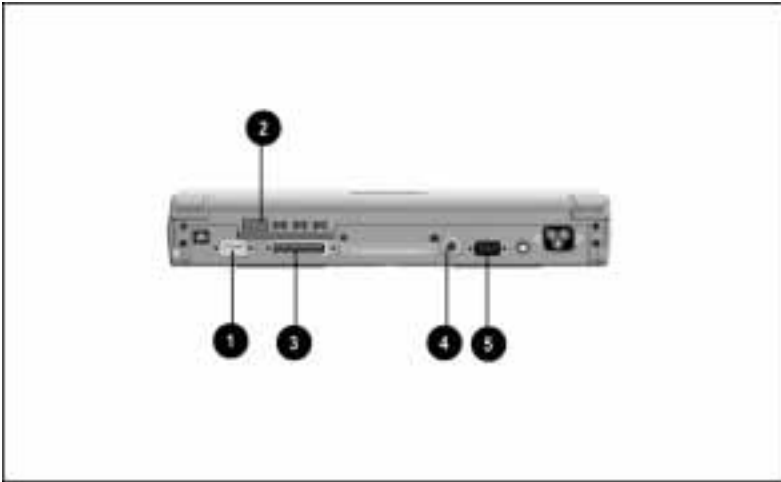
For information about connecting audio equipment, refer to Chapter 10, “Using Audio Components.”

For a list of external options available for the computer, refer to the online *Options Catalog* or the printed *Options* flyer included with the computer. Refer also to “Worldwide Telephone Numbers” in Appendix A for the nearest Compaq authorized dealer, reseller, or service provider.

Identifying External Connectors

The following illustration identifies connectors for the equipment discussed in this chapter.

- ❶ Serial connector
- ❷ Infrared port
- ❸ Parallel connector
- ❹ Keyboard/mouse connector (PS/2-compatible)
- ❺ External monitor connector



Identifying Connectors for External Desktop Equipment

NOTE: An arrow on the connector or plug of a device indicates that the cable should be connected with the arrow facing up.

Connecting an External Device

You do not have to shut down the computer to connect an external keyboard, external numeric keypad, or PS/2-compatible mouse or other pointing device.

After connecting an external PS/2-compatible device, you can use either the external or the integrated device.

To connect an external device:

1. Connect the external device cable to the computer. For information about which computer connector to use, refer to “Identifying External Connectors” in this chapter and to the documentation that came with the device.
2. If applicable, plug the power cord of the new device into an electrical outlet.
3. If applicable, turn on the system in this sequence:
 - First, all external devices that have power switches.
 - Second, the computer.

NOTE: The parallel connector supports the faster bi-directional communications of Extended Capabilities Port (ECP) and of Enhanced Parallel Port (EPP). If you are connecting the computer to another computer, refer to “Accessing Infrared Software” in this chapter for information about using the Direct Cable Connection utility.

Installing Parallel and Serial Device Drivers

Windows 95 automatically detects most new devices and installs device drivers. If a new parallel or serial device does not work correctly, follow the instructions in the Add New Hardware dialog box. To access this dialog box click Start→Settings→Control Panel→double-click the Add New Hardware icon.

If you are running Windows NT, refer to the documentation included with the new device for Windows NT driver and configuration information.

Setting Up an External Monitor or Overhead Projector

The computer can support an external display with a resolution up to 1280×1024 in 256 colors.

When an external monitor or overhead projector is connected, the factory-default is to simultaneously display on both screens. The **Fn+F4** hotkey switches among simultaneous display, the external display, and the internal computer display.

If the external display remains blank after it warms up, press the **Fn+F4** hotkey to switch displays.

Choosing Display Settings

If this is the first time you have connected the external monitor or overhead projector, click Start→Settings→Control Panel→double-click the Display icon to open the Display Properties dialog box.

Click the Settings tab to verify or change the Desktop Area and Color Palette. The Desktop Area can be set equal to, larger than, or smaller than the display Resolution. Setting the Desktop Area larger or smaller than the Resolution enables image panning or centering/expanding, respectively.

Click the Compaq tab to verify or change the external display (CRT) Resolution and Refresh (Hz). Refer to the documentation included with the external monitor or overhead projector for the settings it supports. To see how the settings will affect the displayed image, click the Test button.

Image Panning or Expanding

Image panning is automatically enabled when the Desktop Area setting is *larger* than the display Resolution setting. The image pans to the larger desktop area when you move the onscreen pointer to the edges of the screen.

Image centering/expanding is automatically enabled when the Desktop Area setting is *smaller* than the display Resolution setting. The image can be toggled between centered (with a black border around it) or expanded (to fill the screen) by pressing the **Fn+T** hotkey or by selecting it on the Compaq tab.

Dual Display Settings

In Windows 95, the computer's dual display technology (two graphics controllers) allows you to set an external display resolution and/or refresh rate different from the fixed internal display settings when in simultaneous mode. Before the external display settings can be changed, the Color Palette on the Settings tab must be set to 256.

When the external and internal displays have different resolution and/or refresh rate settings in simultaneous mode, the following conditions are true:

- When the Desktop Area on the Settings tab is the same as the *larger* Resolution setting, panning is enabled on the display with the smaller setting.
- When the Desktop Area on the Settings tab is the same as the *smaller* Resolution setting, centering/expanding is enabled on the display with the larger setting.
- Optional Zoomed Video PC Cards cannot be used.
- Hotkey popup windows appear on only one screen, usually the internal display.

Enabling Energy-Saving Features

You can enable an energy-saving monitor to go into a low-power mode following a screen save timeout. This low-power mode is compatible with network PC Cards or a network connection on an optional ArmadaStation. To access the Energy Save Monitor checkbox, do one of the following:

- In Windows 95, click Start→Settings→Control Panel→double-click the Display icon→Screen Saver tab→Energy Saving Features.
- In Windows NT, click Start→Settings→Control Panel→double-click the Power icon→Power Properties→AC Energy Saver tab.
- In any operating system, turn on or restart the computer and press **F10** when the cursor appears upper-right on the screen. Select Computer Setup→System Features→Power Management→Energy Save Mode.

NOTE: If you enable monitor energy-saving features and the external monitor is *not* an energy-saving monitor, the display may become distorted when screen timeout occurs.

Using the Infrared Port

The infrared port on the rear panel of the computer provides cable-free communication between the computer and another infrared-equipped device such as a printer or desktop computer.

This point-to-point communication is enabled by an invisible beam of infrared light.

The infrared port supports both low speed connections up to 115 kilobits per second (Kbps) and high speed connections up to 4 megabits per second (Mbps). The infrared port is IrDA-compliant and can be used with any other infrared-equipped device that is also IrDA-compliant.

Operating system support for infrared communication is currently available with Microsoft Windows 95. However, Microsoft Windows NT Workstation support for infrared communication is not yet available. If you are running Windows NT, the computer is fully equipped to take advantage of infrared communication as soon as Windows NT support is made available.



Wireless Infrared Communication

NOTE: Compaq infrared computers are IrDA-compliant (4 Mbps standard). Infrared performance may vary depending on performance of infrared peripherals, distance between infrared devices, and applications used.

Establishing an Infrared Link

To transmit data between two infrared-equipped devices that are IrDA-compliant:

- Enable the infrared ports on both devices.
- Position the ports for the transmission.

NOTE: If you are preparing for a computer-to-computer link, ensure that each computer has a different name, according to Microsoft conventions.

Enabling the Infrared Port

The infrared port must be enabled each time the computer is started or restarted.

To enable the infrared port, click Start→Settings→Control Panel→double-click the Infrared icon.

When the infrared port is enabled

- The infrared icon appears in the system tray on the Windows taskbar.
- A default setting prevents the system from initiating Suspend. User-initiated Suspend is not affected.

To change this default setting and enable system-initiated Suspend while the infrared port is enabled:

1. Click Start→Settings→Control Panel, double-click the Infrared icon→Options tab.
2. Remove the check from Search For and Provide Status for Devices in Range.
3. Click OK to save your preference and close the Options dialog box.

IMPORTANT: Removing the check from Search For and Provide Status for Devices in Range prevents the infrared software from searching for infrared devices. You cannot establish an infrared connection while the check is removed.

Positioning the Infrared Ports

To position the infrared ports for optimal transmissions:

- Ensure that no objects block the line-of-sight path between the infrared ports.
- Position the two devices so that the infrared ports face each other at a distance no greater than 1.5 feet (about 0.5 meter).
- Aim the ports directly at each other. The maximum capture angle is 30 degrees. Do not point one port more than 15 degrees off the center line from the other port.
- Shield the ports from direct sunlight and flashing incandescent light. Some energy-saving fluorescent lights may also affect transmissions.
- During a transmission:
 - ❑ Do not allow remote control units, such as wireless headphones or other audio devices, to point at the ports.
 - ❑ Do not disrupt the infrared beam with objects or movements.
 - ❑ Do not move the devices.

NOTE: Because infrared equipment varies among manufacturers, it may be necessary to place the two devices closer together and in more direct alignment than recommended above.

Accessing Infrared Software

Two preinstalled utilities support infrared communication, Direct Cable Connection and Infrared Monitor.

Direct Cable Connection

Direct Cable Connection operates an infrared, serial cable, or high-speed parallel cable connection between two computers.

To run Direct Cable Connection, click Start→Programs→Accessories→Direct Cable Connection. The program guides you through establishing a connection. When you are asked to choose a port for an infrared connection, select Serial Cable on COM4.

When two computers are connected using Direct Cable Connection, the guest computer has access to shared resources on the host computer and to any network to which the host computer is connected.

Infrared Monitor

Infrared Monitor configures serial infrared communication, displays the settings and properties of the infrared port, and monitors the status of infrared communication links.

To access the Infrared Monitor dialog box:

- Click the infrared icon in the system tray on the Windows taskbar
- or
- Click Start→Settings→Control Panel→double-click the Infrared icon.

For help, click the Help menu within Infrared Monitor.

chapter 8

USING A MODEM

This chapter tells how to connect and use an integrated modem, install and use an optional PC Card modem, and connect a modem to a cellular phone (North America).

Connecting a Modem

Modem devices and procedures vary by region.

- If the computer has both an RJ-11 jack and a 25-pin connector, follow the instructions for “Connecting a Modem in North America, Latin America, Japan, or Hong Kong” in this section.
- If the computer has a 25-pin connector but not an RJ-11 jack, follow the instructions for “Connecting a Modem in Europe or Asia Pacific (except Japan and Hong Kong)” in this section.
- If the computer has no modem connector, refer to “Adding an Optional PC Card Modem” in this chapter.

Identifying Modem Connectors

The following illustrations identify the RJ-11 jack and the 25-pin connector available on some models.



RJ-11 Jack



25-Pin Connector

Connecting a Modem in North America, Latin America, Japan, or Hong Kong

If the computer was purchased for North America, Latin America, Japan, or Hong Kong, the computer features

- A 33.6 kilobytes per second (Kbps) integrated modem
- An RJ-11 jack
- A 25-pin connector

The RJ-11 jack is a telephone connector that can be used with a standard (analog) telephone line and wall jack in all of the regions listed above.

- To connect to an analog line in a hotel, request a data line.
- To connect to an analog line in an office, connect to a fax machine line or a modem line.

You can connect the modem to an analog line when the computer is on, off, in Suspension, or in Hibernation.

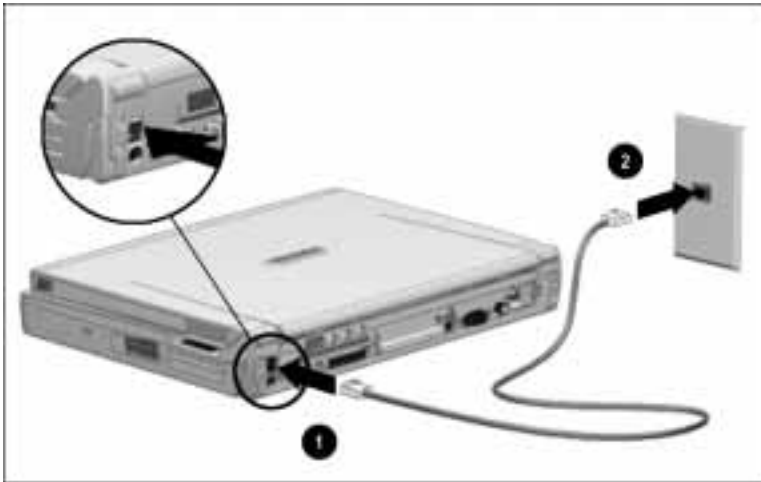
The integrated modem is equipped with a digital line guard. This feature protects the modem if you accidentally connect it to a digital line, such as a digital PBX system line, instead of an analog line. If the modem is connected to a digital line, the following error message is displayed on the screen:

**DIGITAL LINE
NO DIAL TONE**

The 25-pin connector is a telephone connector that can be used with a cellular phone in North America and, when using an International Modem Adapter, with standard telephone lines in regions other than those listed above. For more information about using the 25-pin connector, refer in this chapter to “Connecting the Modem to a Cellular Phone (North America)” and to “Traveling Internationally.”

To connect the modem to a standard telephone wall jack in North America, Latin America, Japan, or Hong Kong:

1. Plug the standard telephone cable into the RJ-11 jack ❶.
2. Plug the opposite end of the telephone cable into a standard telephone wall jack ❷.



Connecting the Modem to a Telephone Wall Jack in North America, Latin America, Japan, or Hong Kong

Connecting a Modem in Europe or Asia Pacific (except Japan and Hong Kong)

If the computer was purchased for use in Europe or Asia Pacific (except Japan and Hong Kong), the computer features

- A 33.6 Kbps integrated modem
- A 25-pin connector
- A country-specific modem cable

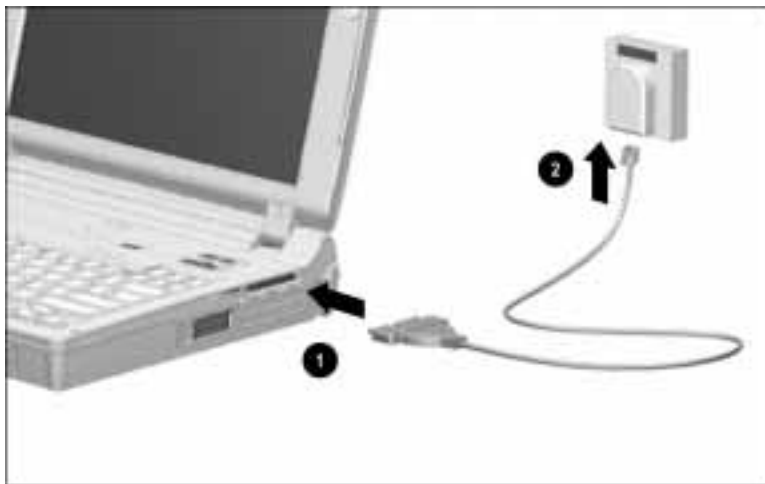
The 25-pin connector is a telephone connector that can be used with a country-specific modem cable and a standard telephone wall jack in any of the regions listed above.

The country-specific modem cable included with the computer is approved for use in a specific country. If you plan to travel with the computer, you may need a different country-specific modem cable. For information about country-specific modem cables, refer to “Traveling Internationally” in this chapter.

You can connect the modem using the appropriate country-specific cable when the computer is on, off, in Suspend, or in Hibernation.

To connect an integrated modem to a standard telephone wall jack in Europe or Asia Pacific (except Japan and Hong Kong):

1. Connect the 25-pin connector on the country-specific modem cable to the 25-pin connector on the computer ❶.
2. Plug the opposite end of the country-specific modem cable into a standard telephone wall jack ❷.



Connecting the Modem to a Telephone Wall Jack in Europe or Asia Pacific (Except Japan and Hong Kong)

NOTE: The country-specific modem cable and standard telephone wall jack that you are using may differ from the cable and jack shown in this illustration. The sizes and shapes of country-specific modem cables and standard telephone wall jacks vary among countries.

Finding Online Modem Instructions

An online help program that tells how to register, configure, and use a modem is preinstalled on the computer.

To access the modem information in online help:

1. Click Start→Help→double-click Modem.
2. From the Help Topics screen, select a topic from the Contents tab or search for a topic using the Index.

Selecting Modem Software

Communications software that you can use to operate the modem is preinstalled on all computer models except models purchased for Japan.

Select the software according to the operating system you are using.

NOTE: To obtain modem software compatible with a computer purchased for Japan, refer to “Worldwide Phone Numbers” in Appendix A for the nearest Compaq authorized dealer, reseller, or service provider.

Preinstalled Software for Windows 95

If you are running Windows 95, you can use Just Connect communications software to operate the modem in a variety of applications.

- To access Just Connect from Windows 95, click Start → Programs → Just Connect.
- For an explanation of how Just Connect works, access Just Connect and refer to Just Connect’s online help from within the software.

Preinstalled Software for Windows NT

If you are running Windows NT, you can use Trio Communications software to operate the modem in a variety of applications including faxing.

- To access Trio Communications from Windows NT, click Start → Programs → Trio Communications.
- For information on using Trio Communications, access Trio Communications and follow the onscreen instructions.

Optional Modem Software

By installing additional modem software, you can use the modem for such specialized tasks as accessing a host computer from a remote location. For a complete list of compatible communications software applications, refer to “Worldwide Telephone Numbers” in Appendix A for the name of the nearest Compaq authorized dealer, reseller, or service provider.

Traveling Internationally

The devices and procedures for travel connections vary by computer model and destination country.

- For information about traveling internationally with a computer purchased for Europe or Asia Pacific (except Japan and Hong Kong), refer to “Traveling from Europe or Asia Pacific” in this section.
- For information about traveling internationally with a computer purchased for North America, Latin America, Japan, or Hong Kong, refer to “Traveling from North America, Latin America, Japan, or Hong Kong” in this section.
- For information about purchasing an International Modem Adapter or the country-specific modem cable(s) appropriate for your itinerary, refer to “Using a Country-Specific Modem Cable” in this chapter.

Traveling from Europe or Asia Pacific

If the computer was purchased for use in Europe or Asia Pacific (except Japan and Hong Kong), you need the country-specific modem cable approved for use in each of your destination countries.

For information about obtaining country-specific modem cable(s) for your itinerary, refer to “Using a Country-Specific Modem Cable” in this chapter.

For information about connecting a country-specific modem cable, refer to “Connecting a Modem in Europe or Asia Pacific (except Japan and Hong Kong)” earlier in this chapter.

Traveling from North America, Latin America, Japan, or Hong Kong

The devices and procedures for connecting the modem in destination countries depend on whether you are

- Traveling to North America, Latin America, or Hong Kong
- or
- Traveling to Europe or Asia Pacific (including Japan, but excluding Hong Kong)

Traveling to North America, Latin America, or Hong Kong

If the computer was purchased for use in North America, Latin America, Japan, or Hong Kong, you can connect the modem to a standard telephone wall jack, hotel data line, or office fax machine or modem line anywhere within these regions without purchasing additional equipment.

For information about connecting a modem within these regions refer to “Connecting a Modem in North America, Latin America, Japan, or Hong Kong” earlier in this chapter.

Traveling to Europe or Asia Pacific (including Japan, but excluding Hong Kong)

If the computer was purchased for use in North America, Latin America, Japan, or Hong Kong, you need the following to connect the modem in Europe or Asia Pacific (including Japan, but excluding Hong Kong):

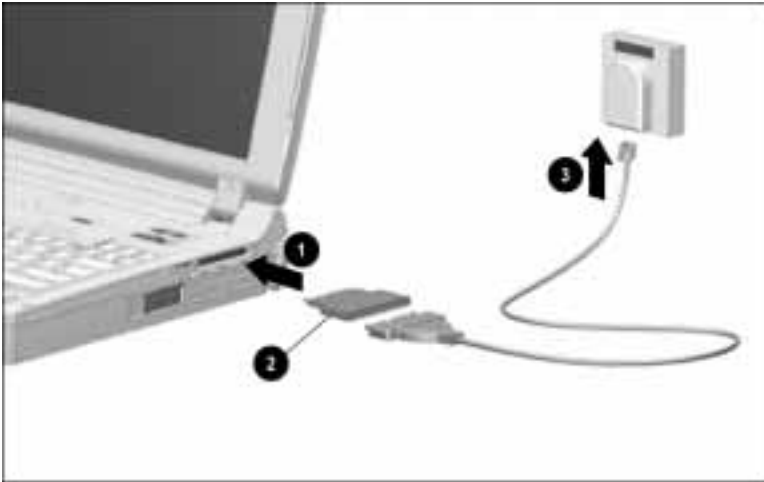
- An International Modem Adapter
- The country-specific modem cable approved for use in each of your destination countries

To purchase an International Modem Adapter, refer to “Worldwide Telephone Numbers” in Appendix A for the name of the nearest Compaq authorized dealer, reseller, or service provider.

For information on obtaining country-specific modem cable(s) for your itinerary, refer to “Using a Country-Specific Modem Cable” in this chapter.

To connect an International Modem Adapter:

1. Turn off the computer.
2. Connect the International Modem Adapter to the 25-pin connector on the computer ❶.
3. Connect the 25-pin connector on the country-specific modem cable to the International Modem Adapter ❷.
4. Plug the opposite end of the country-specific modem cable into a standard telephone wall jack ❸.
5. Turn on the computer.



Connecting the Modem to a Standard Telephone Wall Jack Using an International Modem Adapter and a Country-Specific Modem Cable

NOTE: The country-specific modem cable and standard telephone wall jack that you are using may differ from the cable and jack shown in this illustration. The sizes and shapes of country-specific modem cables and standard telephone wall jacks vary among countries.

Using a Country-Specific Modem Cable

Standard telephone wall jacks vary worldwide.

They are consistent among locations in North America, Latin America, Japan, and Hong Kong, but vary by country elsewhere.

To enable modem connections in other countries, Compaq offers optional country-specific modem cables. Each cable connects to the standard telephone wall jacks found in one or more regions or countries.

To purchase the country-specific modem cable(s) required for your itinerary, refer to “Worldwide Telephone Numbers” in Appendix A for the name of the nearest authorized Compaq dealer, reseller, or service provider.

To view an online list of country-specific modem cables (with part numbers) listed by country:

1. Click Start→Help→double-click Modem.
2. Double-click Connecting the Modem→double-click Connecting the Modem to a Telephone Wall Jack.
3. Click Connecting the Modem in Africa, Europe, the Middle East, or Asia Pacific (except Japan and Hong Kong)→Using the Country-Specific Modem Cable.

NOTE: The hypertext Using the Country-Specific Modem Cable appears in the “Important” at the top of the screen.



CAUTION: To ensure safe and reliable operation, Compaq country-specific modem cables should only be used with UL LISTED Compaq Computer products.

Adding an Optional PC Card Modem

You can add modem functionality to a computer model without an integrated modem by using an optional modem PC Card.

Obtaining and Installing a Modem PC Card

- To purchase a modem PC Card compatible with the computer, refer to “Worldwide Telephone Numbers” in Appendix A for the name of the nearest authorized Compaq dealer, reseller, or service provider.
- For information about inserting and connecting a modem PC Card, refer to the documentation that comes with the card and to Chapter 9, “Using PC Cards,” in this *Reference Guide*.

Selecting Modem Software

Select the software to operate the PC Card modem according to the operating system that you are using.

Software for Windows 95

If you are using Windows 95 or Windows 3.1, you can use software, such as WinFax LITE or WinCom LITE, that may be included with the PC Card to operate the modem.

- To install the software, refer to the documentation that comes with the PC Card.
- To access the software from Windows 95, select it from the menu at Start → Programs.
- For an explanation of how the software works, refer to the documentation that comes with the PC Card and to the application’s online Help from within the software.

Software for Windows NT

If you are using Windows NT, you can use Trio Communications software to operate the modem in a variety of applications including faxing. This software is preinstalled on the computer.

- To access Trio Communications from Windows NT, Click Start → Programs → Trio Communications.
- For information on using Trio Communications, access Trio Communications and follow the onscreen instructions.

Connecting the Modem to a Cellular Phone (North America)

Cellular phone frequencies vary by region. You can connect the modem to a cellular phone only if you are in North America, using a computer purchased for use in North America, and using a Compaq-compatible cellular phone.

When the modem is connected to a cellular phone, data can be transmitted and received without the use of a standard RJ-11 telephone jack.

Connection Requirements

To connect the modem to a cellular phone, you need

- A cellular phone supported by the modem
- A cellular phone cable

Selecting a Compatible Cellular Phone

To view an online list of the cellular phones supported by the modem:

1. Click Start→Help→double-click Modem.
2. Double-click Using the Modem with a Cellular Phone
→double-click Connecting the Modem to a Cellular Phone.
3. Under Related Topics at the bottom of the screen, click Compatible Cellular Phones with Compaq Cables.

For online information about the modem's compatibility requirements:

1. Click Start→Help→double-click Modem.
2. Double-click Using the Modem with a Cellular Phone
→double-click Choosing Cellular Direct Components.
3. Under Related Topics at the bottom of the screen, double-click Modem Compatibility.

Selecting a Cellular Phone Cable

The modem connectors on cellular phones vary.

To connect the modem to a cellular phone, you must use a cellular phone cable approved for use with that make and model.



CAUTION: Using the wrong cable could cause permanent damage to the modem.

To purchase the cellular phone connection cable for the cellular phone you want to use, refer to “Worldwide Telephone Numbers” in Appendix A for the name of your nearest authorized Compaq dealer, reseller, or service provider.

To view an online list (including part numbers) of the cellular phone cables to use with various makes and models of cellular phones:

1. Click Start→Help→double-click Modem.
2. Double-click Using the Modem with a Cellular Phone
→double-click Connecting the Modem to a Cellular Phone.
3. Under Related Topics at the bottom of the screen, click Compatible Cellular Phones with Compaq Cables.

Connecting the Cellular Phone

To connect the modem to a supported cellular phone using a cellular phone cable:

1. Save your work, exit all applications, and turn off the computer.
2. Connect the 25-pin connector on the cellular phone cable to the 25-pin connector on the computer ❶.
3. Turn on the computer.
4. Insert the opposite end of the cellular phone cable into the cable connector on the cellular phone ❷.

NOTE: For information about identifying and using this connector, refer to the documentation that came with the cellular phone.

5. Turn on the cellular phone.

To optimize a cellular phone connection: do place the cellular phone upright and near a window; do not lay the cellular phone on a metal surface; do not move the computer or the cellular phone while in use.



Connecting the Modem to a Cellular Phone

NOTE: The cellular phone-specific modem cable and cellular phone jack that you are using may differ from the cable and jack shown in this illustration. The sizes and shapes of cellular phone-specific modem cables and cellular phone jacks vary among supported phones.

Finding Online Cellular Phone Instructions

To enable the modem to check for a cellular phone connection, you must register the cellular phone with the modem. After registration is complete, the modem will check for the presence of the cellular phone and dial through it whenever it is connected.

For information about registering, configuring, managing, and using the cellular phone, refer to the online help program preinstalled on the computer.

To access this online cellular phone connection information:

1. Click Start → Help → double-click Modem.
2. Double-click Using the Modem with a Cellular Phone. From the Help Topics screen, select a topic from the Contents tab or search for a topic using the Index.

NOTE: If you prefer, you can use AT commands when you use the cellular phone to transmit or receive data. You can access the AT command set through the Compaq Internet site at <http://www.compaq.com>.

chapter 9

USING PC CARDS

A PC Card is a credit card-sized option designed to conform to the standard specifications of the Personal Computer Memory Card International Association (PCMCIA). Examples of PC Cards include fax/modem cards, hard drive cards, memory cards, and network interface cards. There are 32-bit (CardBus) cards and 16-bit PC Cards. All PC Cards can be added and removed as needed.

The computer supports most current PC Cards. For information about compatibility, refer to “Using the Compaq PC Card Solutions List” in this chapter.

Selecting PC Card Slots

PC Cards are classified as Type I, Type II, and Type III. The three types are about the same length and width, but vary in thickness. Type III cards are the thickest, at less than one-half inch (10.5 mm).

The computer has two PC Card slots. These slots are *not* identical.

- Type I and Type II PC Cards are supported in the top and bottom PC Card slots singly or in any combination.
- A Compaq telephony card is supported only in the *top* PC Card slot.
- A Type III or Zoomed Video PC Card is supported only in the *bottom* PC Card slot. No other PC Card can be used in the top slot while a Type III PC Card is in the bottom slot.

Using the Compaq PC Card Solutions List

Compaq offers a list of PC Cards, including 32-bit (CardBus) and Zoomed Video PC Cards, that are compatible with Compaq computers and meet rigorous Compaq quality standards.

PC Cards listed in the Premier category are comprehensively tested by Compaq. PC Cards in the Standard category are vendor-tested and supported on specific Compaq computers and operating systems.

The Compaq PC Card Solutions List is updated quarterly and is available at the Compaq Internet site at <http://www.compaq.com>. You may also be able to obtain the list from your Compaq authorized dealer, reseller, or service provider. For information, refer to “Worldwide Telephone Numbers” in Appendix A.



PC Cards with this logo on their packaging and advertising are compatible with most Compaq portable computers.

Configuring a PC Card

Windows 95 automatically configures Plug and Play Devices. PC Cards are considered to be true Plug and Play Devices.

If you are running Windows NT, you can use the preinstalled CardWare program to provide many Plug and Play features. For example, you can use CardWare to automatically configure a PC Card. To access CardWare, click Start→Programs→CardWare or double-click the PC Card icon in the system tray on the Windows taskbar. For additional configuration information, refer to CardWare Help from within the program.

If you are instructed by PC Card documentation to install card-specific device drivers, be sure to install only device drivers for your Windows 95 or Windows NT operating system. Do not install Card Services, Socket Services, or enablers. If diskettes are not clearly labeled or the instructions are unclear, call the PC Card manufacturer for more specific instructions.



CAUTION: If you install card and socket services or enablers provided by a PC Card manufacturer, you may not be able to use other PC Cards.

Inserting a PC Card

Some PC Cards are supported only in the top or bottom slot, and not all combinations of PC Cards are supported. For information about using PC Card slots, refer to “Selecting PC Card Slots” first in this chapter.

If you are running Windows 95:

- You do not have to shut down or restart the computer to insert and use a PC Card.
- The PC Card icon appears in the system tray on the Windows taskbar while a PC Card is inserted.

If you are running Windows NT:

- You must restart the computer after inserting some, but not all PC Cards. For example, you can insert modem, ATA, flash, or SRAM cards without restarting. However, you must restart after inserting LAN or SCSI cards. For insertion information about a particular PC Card, refer to the documentation that came with the card, to the Help program within CardWare, and to any onscreen prompts that appear when you insert the card.
- CardWare displays the PC Card icon in the system tray on the Windows taskbar whether or not a PC Card is inserted.

To insert a PC Card:

1. With the connector facing in, push the PC Card through the PC Card doors and align the PC Card on the guide rails.



CAUTION: Forcing a PC Card into a PC Card slot can damage the slot.

2. Gently push the card into the slot until it is seated.
 - A computer running Windows 95 beeps twice when the card is ready for use.
 - A computer running Windows NT beeps three times in ascending tones when the card is recognized.

NOTE: If you are running Windows NT, additional insertion information and instructions appear onscreen when you insert some PC Cards, such as LAN and SCSI cards. To ensure proper PC Card performance, please follow these prompts.



Inserting a PC Card

Removing a PC Card

The procedure for removing a PC Card varies with the operating system you are using and with the kind of PC Card you want to remove.

If you are running Windows 95:

- You can remove a PC Card while the computer is off or on.
- The PC Card icon appears in the system tray on the Windows taskbar only while a PC Card is inserted.

If you are running Windows NT:

- You can remove some PC Cards, such as modem, ATA, flash, and SRAM cards, while the computer is on. However, you must shut down the computer before removing other PC Cards, such as LAN and SCSI cards. For removal information about a particular PC Card, refer to the documentation that came with the card and to the Help program within CardWare.
- CardWare displays the PC Card icon in the system tray on the Windows taskbar whether or not a PC Card is inserted.

When the Computer is Off

To remove a PC Card when the computer is off:

1. Pull the PC Card eject lever ❶ that corresponds to the slot containing the PC Card.
2. Gently grasp the card and pull it out ❷.



Removing a PC Card

When the Computer is On

To stop, then remove a PC Card from a computer that is on and running Windows 95:

1. Click the PC Card icon in the system tray on the Windows taskbar. A list of PC Cards in the system appears.
2. Click the PC Card you want to stop.
IMPORTANT: Always stop a LAN, ATA, or SCSI card before removing it.
3. When a message appears that it is safe to remove the card, pull the PC Card eject lever ❶ that corresponds to the slot.
4. Gently grasp the card and pull it out ❷.
 - A computer running Windows 95 beeps twice when the card is removed.
 - A computer running Windows NT beeps three times in descending tones when the card is removed.

chapter 10

USING AUDIO COMPONENTS

The computer's industry-standard 16-bit stereo sound system can record, edit, and play voice, music, and other sounds. This capability enables you to take advantage of the newest multimedia business, presentation, education, and entertainment software.

This chapter identifies the computer's audio components and tells how to use the computer's microphone, volume control, and stereo speakers. This chapter also tells how to connect external audio devices to the computer's stereo line-in jack, stereo speaker/headphone jack, and microphone jack..

For information on using an external audio device, refer to the documentation that came with the device.

You can use Windows software to manage many audio operations.

- CD Player plays audio CDs.
- Sound Recorder records, plays, and edits sound files.
- Media Player plays audio, video, and animation files and controls the settings for multimedia equipment.

To access these accessories, click Start→Programs→Accessories→MultiMedia.

Identifying Audio Components



Front Audio Components

- | | |
|-----------------------|---------------------------------|
| ❶ Microphone | ❷ Microphone jack |
| ❸ Stereo speakers (2) | ❹ Stereo speaker/headphone jack |
| ❺ Volume control | ❻ Stereo line-in jack |



Rear Panel Audio Components

Using Audio Features

Microphone

The internal microphone has a standard sensitivity of -50 dB and supports audio input when the display is open or closed.

The internal microphone is disabled if an external microphone is connected.

Stereo Speakers

The internal stereo speakers provide quality audio playback for multimedia applications.

The internal speakers are disabled when

- External speakers, headphones, or a headset is connected to the computer.
- The computer is docked in an optional ArmadaStation.

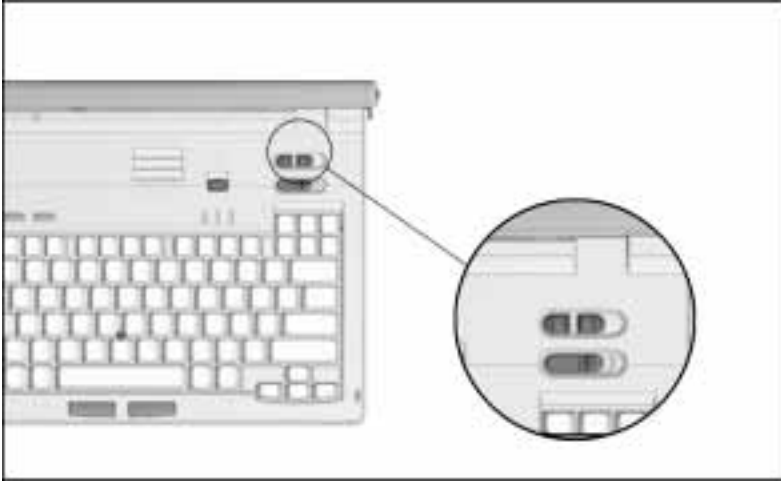
NOTE: When docked, sound that would play from the computer stereo speakers plays through the stereo speakers in the ArmadaStation.

Volume Control

Two buttons adjust the volume of the internal speakers and of connected external audio devices such as speakers, headphones, or a headset. To increase volume, press the right button. To decrease volume, press the left button. To mute the volume, press both buttons.



WARNING: To reduce the risk of personal injury, turn down the volume control before putting on headphones.



Volume Control

You can also control volume by clicking a speaker icon on the taskbar. To place the speaker icon on your taskbar, click Start→Settings→Control Panel→double-click Multimedia→Audio tab. Check Show Volume Control on the Taskbar, then click OK to save your preference and close MultiMedia.

For maximum volume, set both volume controls at the highest volume.

NOTE: To control the volume of system beeps, press the **Fn+F5** hotkey. When the popup window appears, press the right cursor key to increase volume, the left cursor key to decrease volume, and the down cursor key to test volume.

Connecting External Audio Devices

The computer features three connectors for external audio devices.

- Connect an external microphone to the microphone jack.
- Connect stereo speakers, headphones, or a headset to the stereo speaker/headphone jack.
- Connect an external stereo player such as a CD player, stereo tuner, or tape deck to the stereo line-in jack.

Microphone Jack

The microphone jack supports a single sound channel (monaural) microphone with a 3.5-mm plug.

A powered electret condenser microphone is recommended.

Other types of microphones, such as stereo or dynamic, are not recommended. A stereo microphone will record the left channel on both the left and right channels. A dynamic microphone lacks the recommended sensitivity.

When an external microphone is connected to the computer, the computer's internal microphone is disabled.

Stereo Speaker/Headphone Jack

The stereo speaker/headphone jack supports external stereo speakers, headphones, or a headset. External speakers can provide more separation for the left and right audio channels, more volume, and higher quality sound.

Use only a 3.5-mm stereo plug. For best sound quality, headphones should be 32 ohms, and external speakers should be at least 8 ohms.

When external stereo speakers, headphones, or a headset is connected to the computer, the computer's internal speakers are disabled.



WARNING: To reduce the risk of personal injury, adjust the volume control before putting on headphones.



CAUTION: Use only a 3.5 mm stereo plug in the stereo speaker/headphone jack. A single sound channel (monaural) plug in the stereo speaker/headphone jack may damage the computer.

Stereo Line-In Jack

The stereo line-in jack is the input line for an external stereo player such as a CD player, stereo tuner, or tape deck.

The input device must have a 3.5-mm stereo plug and must supply line input levels of 0.5 to 4.25 volts. The line output of most stereo players meets this specification.



CAUTION: Use only a 3.5 mm stereo plug in the stereo line-in jack. A single sound channel (monaural) plug in the stereo line-in jack may damage the input device.

INCREASING RAM

This chapter tells how to obtain and install an optional memory expansion board to expand random access memory (RAM).

The computer has 16 megabytes of integrated memory and two memory expansion slots for additional memory. Some models have a 16-Megabyte Memory Expansion Board preinstalled in one of these slots.

You can expand RAM by adding a memory expansion board and also by replacing a preinstalled memory expansion board. For example, you can expand RAM to 144 megabytes by installing two 64-Megabyte Memory Expansion Boards.

To view the amount of existing RAM in the computer, click Start→Settings→Control Panel→double-click the Compaq Diagnostics icon.

IMPORTANT: When RAM is increased, the space on the hard disk reserved for the Hibernation file is also increased. If you experience problems with Hibernation after adding a memory expansion board, verify that your hard disk has enough free space for the larger Hibernation file. To view the amount of free space on your hard disk, click Start→Settings→Control Panel→double-click the Power icon→Hibernation tab. For more information on the Hibernation file and on using the Hibernation tab, refer to “Hibernation Tab” in the “Using Power Properties” section of Chapter 4.



WARNING: The memory compartment is the only user-accessible internal compartment on the computer. All other areas that require a tool to access should be opened only by a Compaq authorized service provider.

Obtaining an Optional Memory Expansion Board

To view a list of the memory expansion boards available for the computer:

- Refer to the *Options* flyer that came with the computer.
- Refer to the online Options Catalog by clicking Start→Compaq Information Center→*Options Catalog*.
- Refer to “Worldwide Telephone Numbers” in Appendix A for the nearest Compaq authorized dealer, reseller, or service provider.

Installing an Optional Memory Expansion Board

On a model that ships with a preinstalled memory expansion board, the memory expansion slot cover is attached with a tamper-resistant memory expansion slot cover security screw. Use the Torx T-10 screwdriver included with the computer to remove and reinsert this screw.

On a model that ships with an empty memory expansion compartment, the memory expansion slot cover is attached with a standard Torx T-8 screw. Use a standard Torx T-8 screwdriver to remove and reinsert this screw.

Two memory expansion slot cover security screws are included with the computer. A factory-installed Torx T-8 screw can be replaced with a memory expansion slot cover security screw.

Removing a Memory Expansion Slot Cover

To remove the memory expansion slot cover:

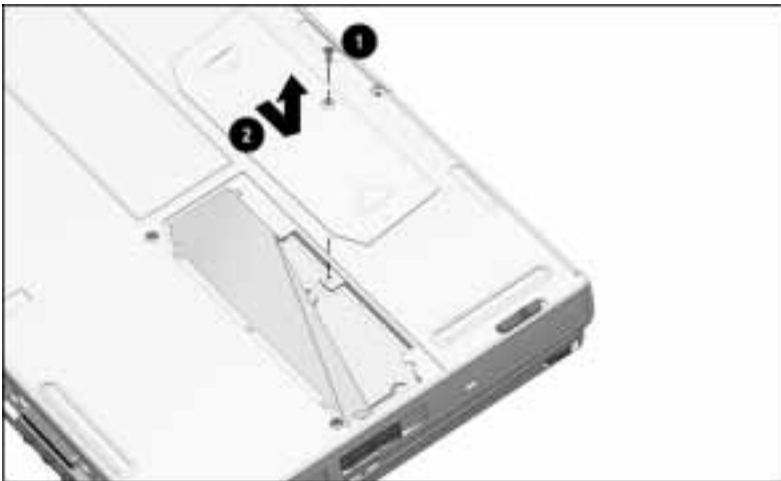


WARNING: Failure to unplug the power cord and remove the battery pack before installing a memory expansion board can damage the equipment and expose you to the risk of electrical shock.



CAUTION: Electrostatic discharge (ESD) can damage electronic components. Before beginning this procedure, ensure that you are properly grounded. For more information, refer to Appendix C, “Electrostatic Discharge.”

1. Save your work, exit all applications, and shut down the computer.
NOTE: If you are unsure whether the computer is off or in Hibernation, turn the computer on, then shut it down.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord and remove any battery pack(s) in the computer.
4. Turn the computer bottom side up on a flat surface with the rear panel facing you.
5. Remove the screw **❶** attaching the memory expansion slot cover to the computer.
6. Slide right, then lift away the memory expansion slot cover **❷**.



Removing the Memory Expansion Slot Cover

Removing a Memory Expansion Board

This section tells how to remove a memory expansion board from a memory expansion slot.

If you are not replacing an installed memory expansion board, refer to the following section, “Inserting a Memory Expansion Board.”

To remove an installed memory expansion board:

1. Lift and hold back the memory insulator ❶.
2. Pull away the plastic retention clips on each side of the memory expansion board to release it ❷. The memory expansion board tilts toward you.
3. Lift the edge of the memory expansion board and slide it gently out of the memory expansion slot at a 45-degree angle ❸.
4. Place the removed memory expansion board in an electrostatic-safe container.



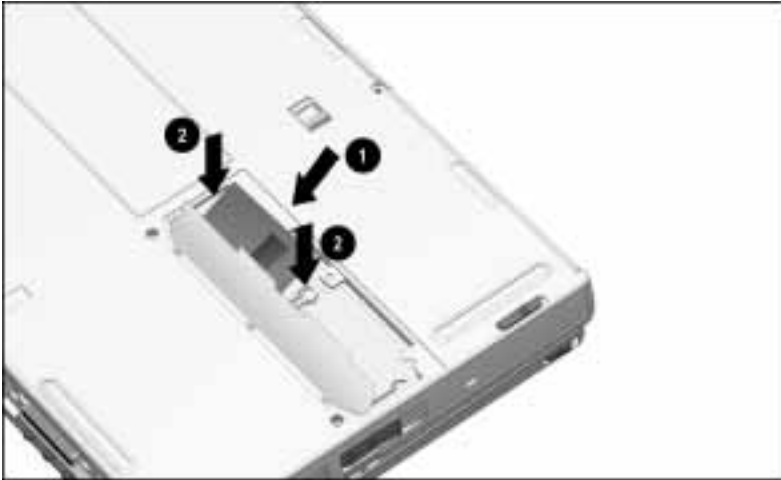
Releasing and Removing an Installed Memory Expansion Board

Inserting a Memory Expansion Board

A memory expansion board is asymmetrically keyed (notched) to ensure correct positioning.

To insert an optional memory expansion board:

1. Insert the memory expansion board into an empty memory expansion slot at a 45-degree angle **①**. Then slide it gently into place until it is seated while tilted.
2. Push the memory expansion board down until the plastic retention clips **②** snap back into place.

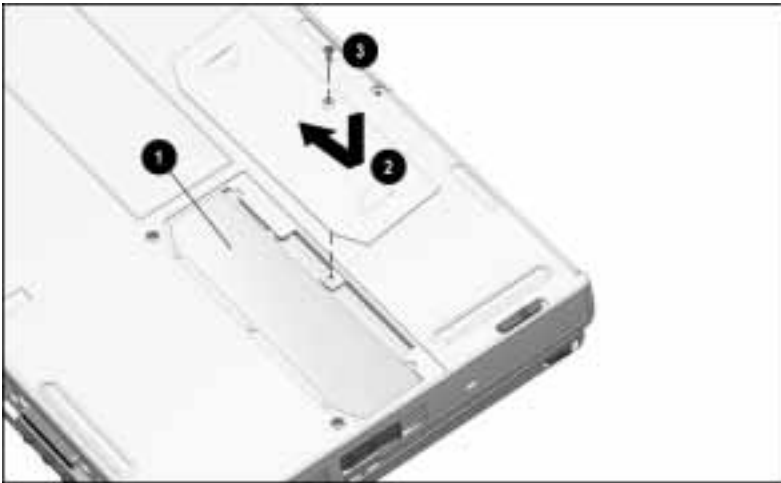


Inserting a Memory Expansion Board

Replacing the Memory Expansion Slot Cover

To replace the memory expansion slot cover:

1. Lay the memory insulator **❶** over the installed memory expansion board (s), ensuring that all edges of the memory insulator are tucked inside the memory expansion compartment.
2. Replace the memory expansion slot cover **❷** by placing it flush right over the memory expansion compartment, then sliding it left until it is seated.
3. Attach the memory expansion slot cover to the computer with a memory expansion slot cover security screw **❸** or a standard Torx T-8 screw.



Replacing a Memory Expansion Slot Cover

chapter 12

MAINTENANCE, SHIPPING, AND TRAVEL

This chapter tells how to care for the computer, replace the pointing device cap, and ship or travel with the computer.

For computer dimensions and guidelines on temperature, relative humidity, altitude, and input power, refer to Appendix D, “Specifications.”

Caring for the Computer

Routine care involves only minimal cleansing and a few precautions:

- Occasionally wipe the computer screen and exterior with a soft, damp cloth moistened only with water. Do not spray liquids directly on the computer screen.



WARNING: To reduce the risk of electric shock or damage to internal components, do not allow liquids to drip into the computer keyboard.



CAUTION: Damage to internal components may result if liquids drip inside the computer. Soap or other cleaning products can damage the screen and discolor the plastic.

- Avoid exposing the computer to direct sunlight or strong ultraviolet light for extended periods of time.
- Keep the computer away from excessive moisture and temperature extremes. Do not expose the computer to liquids or precipitation.

- Do not place anything on top of the computer display.



CAUTION: To prevent possible damage to the display, do not place anything on top of the computer when it is closed.

- Carry the computer in the slipcase with care.



CAUTION: The protective slipcase is provided for carrying convenience only and does not provide shock and vibration protection for the computer.

Do not place other items in the slipcase along with the computer.

- If the computer will not be used for a week or more, shut down or turn off the computer.
- If the computer will be disconnected from an external power source for more than two weeks, shut down or turn off the computer and remove the battery pack.

Replacing the Pointing Device Cap

If the EasyPoint III pointing device cap becomes soiled or worn, you can replace it with one of the two spare pointing device caps included with the computer.



Replacing the Pointing Device Cap

To replace the rubber pointing device cap:

1. Exit all applications and turn off the computer.
2. Gently pull up on the rubber pointing device cap.

NOTE: The rubber pointing device cap covers a smaller, plastic cap. If you accidentally remove the plastic cap, replace it before proceeding.

3. Gently push the new rubber pointing device cap onto the plastic cap.

Preparing the Computer for Shipping or Travel

Before you ship or travel with the computer:

1. If applicable to the destination(s), review the guidelines on temperature, relative humidity, altitude, and input power in Appendix D, “Specifications.”
2. Back up all important hard drive files onto diskettes, tape media, or another computer.
3. Remove any PC Card, diskette, or CD that is in the computer.
4. Shut down the computer and turn off external devices.
5. Disconnect all external devices from the computer.
6. Close the display and all exterior doors on the computer. Do not place objects between the keyboard and the display.
7. Place the computer in the slipcase supplied with the computer. Do not place other objects in the slipcase along with the computer.
8. If you are shipping the computer and external devices, pack them in their original packing boxes or in similar boxes that contain protective packing materials.
9. If you are shipping or mailing a removable drive:
 - Place the drive in its carrying case.
 - Place the carrying case in a bubble pack mailer or similar protective packaging.
 - Label the package, “Fragile: Handle With Care.”

Preparing for Air Travel

- Review “Caring for the Computer” in this chapter.
- Review “Preparing the Computer for Shipping or Travel” in this chapter.
- If you plan to use the computer on the plane, check with the airline you are using. In-flight computer use is at the discretion of the airline.
- Hand carry the computer in the slipcase; do not check it with your luggage.
- You can send the computer and diskettes through an airport X-ray device. (The X-ray device is the one, usually with a conveyer belt, that examines your carry-ons.)

IMPORTANT: Compaq recommends that you do not expose the computer or diskettes to an airport walk-through magnetic detector or to an airport hand-held magnetic detector (usually, a wand).

Preparing for International Travel

- Review “Caring for the Computer” in this chapter.
- Review “Preparing the Computer for Shipping or Travel” in this chapter.
- Review “Preparing for Air Travel” in this chapter.
- Check the local customs regulations of the countries on your itinerary.
- Purchase a power cord approved for use in each of the countries on your itinerary. (Voltage, frequency, and plug configurations vary by country.) If you are traveling to Japan, you will also need to purchase a 3-to-2-prong plug adapter. To obtain these devices, refer to “Worldwide Telephone Numbers” in Appendix A for your nearest authorized Compaq dealer, reseller, or service provider.



WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not attempt to power the computer with a voltage converter kit sold for appliances.

- Depending on your computer model and destination(s), you may need to purchase additional equipment to connect your modem in foreign countries. For information about using your modem internationally, refer to Chapter 8, “Using a Modem.”

SECURING THE COMPUTER

You can enable several types of security by using the preinstalled software described in this chapter.

- **Power-on password** prevents unauthorized operation of the computer.
 - **QuickLock** disables the keyboard and pointing device at power-on until the power-on password is entered.
 - **QuickBlank** clears the screen at power-on until the power-on password is entered.
 - **QuickLock on Suspend** initiates QuickLock and, if it is enabled, QuickBlank, when the computer enters Suspend.
- **Setup password** prevents unauthorized configuration changes implemented by pressing **F10** to access Compaq utilities.
- **Disable devices** temporarily disables specific devices and functions, such as ports and diskette boot.

You can use hardware included with the computer to secure devices in the hard drive bay and the MultiBay and to secure memory expansion boards in the memory expansion compartments.

A security slot on the computer enables you to attach the computer to an immovable object by using an optional cable lock.

Using Security Software

A power-on password must be established before QuickLock and QuickBlank can be enabled.

The same password can be used as a power-on password and as a setup password.

Using a Power-On Password

A power-on password is a software security feature that permits computer operation only after entering a unique, preset, secret word or code. After you establish a power-on password, you must enter it each time you turn on the computer.

IMPORTANT: Record your password and put it in a safe place. If you forget the password, you cannot turn on the computer until a Compaq authorized dealer, reseller, or service provider has cleared the password from computer memory.

Establishing a Power-On Password

First, access the security software.

- Click Start→Settings→Control Panel→double-click the Passwords icon→Computer Security tab→Set button.

or

- Turn on or restart the computer, press **F10** when the cursor appears upper right on the screen, select Computer Setup→System Features→Security Management→Passwords tab.

Second, follow the onscreen instructions.

- Type carefully. To ensure security, the power-on password does not display as you type it.
- The power-on password can be up to seven alphanumeric characters.
- The power-on password is not case sensitive.
- The power-on password must be established and entered with the same set of keys. For example, if you establish the password using numbers typed with the row of keys beneath the special function keys, the system will not accept the password if the numbers are typed with the number keys within the embedded numeric keypad.

When a power-on password is established:

- A password prompt appears the next time the computer is turned on.
- QuickLock and QuickBlank can be enabled.

Entering a Power-On Password

If you have established a power-on password, a password prompt appears on the screen when the computer is turned on.

- Type the password using the same keys you used to establish the password.
- If you enter the password incorrectly, you are prompted to retry.
- If your third try is unsuccessful, you must turn off the computer, then turn it on again before you can continue.

Using Quick Controls

If you have established a power-on password, you can enable QuickLock, then QuickBlank and QuickLock on Suspend.

QuickLock disables the pointing device at power-on until the power-on password is entered. It allows the keyboard to be used only to enter the power-on password.

QuickBlank blanks the screen while the keyboard and pointing device are disabled by QuickLock.

QuickLock on Suspend initiates QuickLock and, if it is enabled, QuickBlank, when the computer enters Suspend.

You can enable Quick Controls by checking them in the dialog box you used to enter your power-on password. To access these dialog boxes:

- If you are running Windows 95, click Start→Settings→Control Panel→double-click the Passwords icon→Computer Security tab.
- If you are running Windows NT, turn on or restart the computer, press **F10** when the cursor appears upper right on the screen, select Computer Setup→Security Management→Password Options tab.

Your preferences take effect the next time the computer is restarted.

When QuickLock and QuickBlank are enabled, you can initiate them manually from the computer keyboard or an external keyboard.

- To initiate QuickLock/QuickBlank from the computer keyboard, press the **Fn+F6** hotkey.
- To initiate QuickLock/QuickBlank from the computer keyboard or from an external keyboard, press **Ctrl+Alt+L**.

To exit QuickLock/QuickBlank, type your power-on password.

Using a Setup Password

A setup password is a software security feature that permits changes to be made to the system configuration only after entering a unique, preset, secret word or code.

After a setup password is established a setup password prompt appears each time **F10** is pressed to access Compaq Utilities.

IMPORTANT: Record your password and put it in a safe place. If you forget the password, you cannot use **F10** to access Compaq Utilities until a Compaq authorized dealer, reseller, or service provider has cleared the password from computer memory.

Establishing a Setup Password

First, access the security software.

1. Turn on or restart the computer.
2. Press **F10** when the cursor appears upper right on the screen.
3. Select Computer Setup→System Features
→Security Management→Passwords tab.

Second, follow the onscreen instructions.

- Type carefully. To ensure security, the setup password does not display as you type it.
- The setup password can be up to seven alphanumeric characters.
- The setup password is not case sensitive.
- The setup password must be established and entered with the same set of keys. For example, if you establish the password using numbers typed with the row of keys beneath the function keys, the system will not accept the password if the numbers are typed with the number keys within the embedded numeric keypad.

A password prompt appears the next time **F10** is pressed to access Compaq Utilities.

Entering a Setup Password

If you have established a setup password, a setup password prompt appears on the screen when **F10** is pressed to access Compaq Utilities.

- Type the setup password using the same keys you used to establish the password.
- If you enter the password incorrectly, you are prompted to retry.
- If your third try is unsuccessful, you must turn off the computer, then turn it on again before you can continue.

Changing or Deleting a Power-On or Setup Password

An established power-on password or setup password can be changed only at the password prompt window.

The password prompt window for an established power-on password appears on the screen when the computer is turned on.

The password prompt window for an established setup password appears on the screen when **F10** is pressed to access Compaq Utilities.

- **To change a password**, type the old password once and then type the new password twice. Separate each password with the password delimiter for your keyboard. For example, if you are using a United Kingdom keyboard, type

oldpassword/newpassword/newpassword

Then press **Enter**. The password is changed.

- **To delete a password**, type the current password followed by the delimiter for your keyboard. For example, if you are using a Belgian keyboard, type

currentpassword=

Then press **Enter**. The password is deleted.

Keyboards vary by language. Password delimiters vary by keyboard. The following table shows the password delimiter to use with your keyboard.

Password Delimiters	
Country Keyboard	Symbol
Belgian	=
Danish, German, Italian, Latin American, Norwegian, Portuguese, Spanish, Swedish/Finnish, Swiss, Taiwanese	-
French	!
French/Canadian	é
Japanese, Korean, United Kingdom, United States	/

Disabling Devices

You can prevent the unauthorized use of some of the computer's capabilities. This enables you to allow limited use of the computer by another user.

You can disable the diskette drive controller, diskette drive write ability, diskette drive boot, the serial port, the infrared port, and the parallel port.

To disable a device:

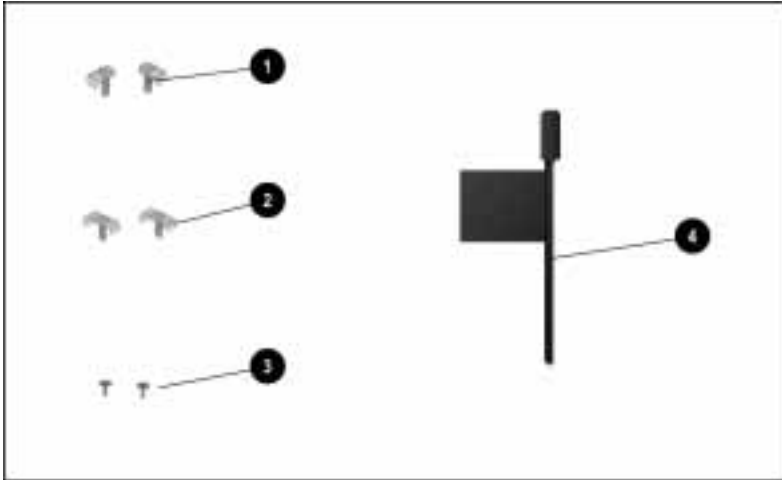
1. Turn on or shut down and restart the computer.
2. Press **F10** when the cursor appears upper right on the screen.
3. Select Computer Setup.
4. Click Communication or Storage, depending on the device you want to disable.
5. Follow the onscreen instructions.
 - For information about the settings on each tab, click the Help button on the tab. To exit the Help program and return to Power Management, click File→Exit.
 - To exit Power Management and Computer Setup, click OK or Cancel at the Communication or Storage window, then click Exit at the Computer Setup window.

The device is disabled the next time the computer is restarted.

Using Security Hardware

Four types of security hardware are included with the computer:

- ❶ Single-bay security screws (2)
- ❷ Dual-bay security screws (2)
- ❸ Memory expansion slot cover security screws (2)
- ❹ Torx T-10 screwdriver



Security Hardware

Use the single-bay and dual-bay security screws to secure devices in the hard drive bay or the MultiBay.

Use the memory expansion slot cover security screw to secure a memory expansion board installed in the memory expansion compartment.

Use the Torx T-10 screwdriver to install and remove a single-bay security screw, a dual-bay security screw, or a memory expansion slot cover security screw.

Securing Devices in the Hard Drive Bay and MultiBay

To secure devices in the hard drive bay ❶ or the MultiBay ❷:

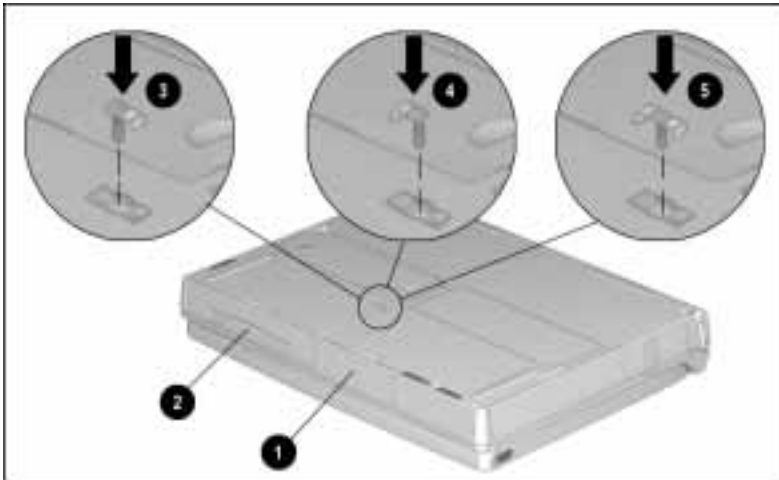
1. Place the computer on a flat surface, bottom side up and facing forward.
2. Depending on the device(s) you want to secure, insert a single-bay security screw or a dual-bay security screw into the security slot(s) on the bottom of the computer.

To secure a hard drive in the hard drive bay, position the tab on the single-bay security screw to the right and insert it in the right side of the security slot ❸.

To secure a device in the MultiBay, position the tab on the single-bay security screw to the left and insert it in the left side of the security slot ❹.

To secure a hard drive in the hard drive bay and a device in the MultiBay, position the dual-bay security screw so that the tabs on the security screw fit into both security slots ❺.

3. Tighten the single-bay security screw or the dual-bay security screw with the Torx T-10 screwdriver included with the computer.



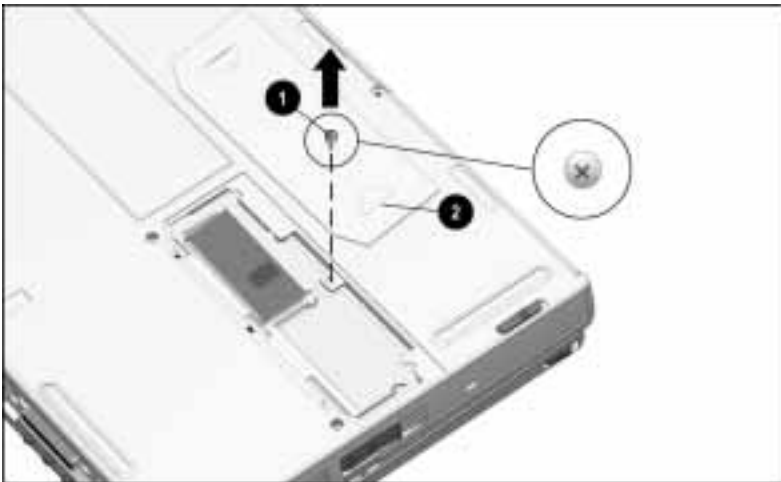
Securing Computer Devices with a Single-Bay Security Screw ❸ and ❹ or a Dual-Bay Security Screw ❺

Securing a Memory Expansion Board

On a model that ships with an empty memory expansion compartment, the memory expansion slot cover is attached to the computer with a standard Torx T-8 screw.

To secure the memory expansion slot cover with one of the two tamper-resistant memory expansion slot cover screws supplied with the computer:

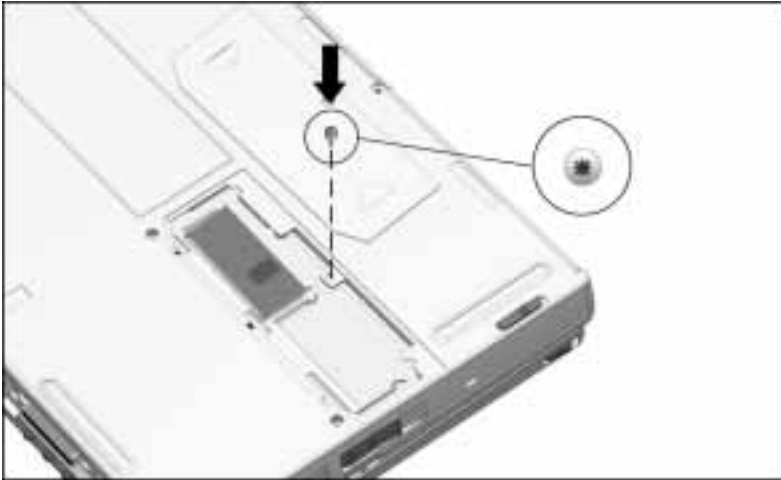
1. Place the computer on a flat surface, bottom side up.
2. Use a Torx T-8 screwdriver to remove the factory-installed screw ❶ that attaches the memory expansion slot cover ❷ to the computer.



Removing the Factory-Installed Screw

NOTE: For information about adding memory and installing a memory expansion board, refer to Chapter 11, “Increasing RAM.”

3. Use the Torx T-10 screwdriver included with the computer to replace the factory-installed screw with a memory expansion slot cover security screw.



Inserting a Memory Expansion Slot Cover Security Screw

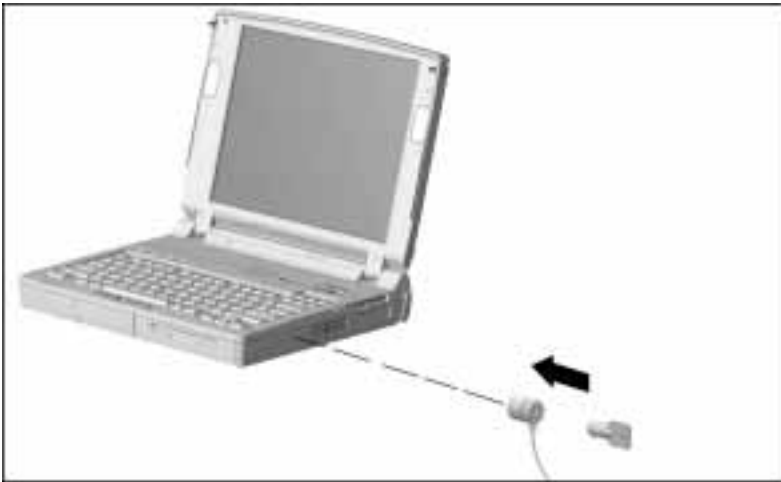
Using an Optional Cable Lock

The computer has a cable security slot that can be used with an optional cable lock to attach the computer to a fixed or heavy object.

NOTE: A Kensington MicroSaver Security System cable lock (Model 64068) is available from Kensington Microware Ltd. or major resellers worldwide.

To attach an optional cable lock:

1. Loop the cable around a fixed or heavy object.
2. Insert the lock end of the cable through the loop end of the cable.
3. Insert the lock end of the cable into the cable security slot on the right side of the computer.
4. Insert the key into the cable lock, turn it to the locked position, then remove the key.



Securing the Computer with an Optional Cable Lock

chapter 14

COMPUTER SETUP AND DIAGNOSTICS

Compaq Utilities comprises Computer Setup, Computer Checkup (TEST), View System Information (INSPECT), and other configuration and diagnostic utilities that you can use to

- Configure the computer system
- Test for proper functioning of system components
- Display information about system configuration

NOTE: To prevent unauthorized access to Compaq Utilities, establish a set-up password. For instructions, refer to “Using a Setup Password” in Chapter 13.

To select a utility from the Compaq Utilities menu:

1. Turn on or restart the computer.
To restart a computer running Windows 95 or Windows NT, click the Start button → Shut Down → Restart the Computer → Yes.
2. Press **F10** as soon as the cursor appears near the upper-right corner of the screen.
The cursor remains upper right on the screen for only about 2 seconds. If you do not press **F10** within this time, you must restart the computer and try again.
3. If prompted, select a language.
4. Use the up and down cursor keys to select a utility, then press **Enter**.

Using Computer Setup

Use Computer Setup to

- Set custom features that are not available within Windows 95
- Configure some new devices

When you select Computer Setup from the Compaq Utilities menu and follow the onscreen instructions, the computer beeps once and restarts.

To exit Computer Setup, click Exit on any View by Type or View By Connection screen.

Viewing Menus

You can view menus in Computer Setup by clicking View or Tools on the Computer Setup menu bar.

- Click View to display Computer Setup menus by type, by connection, or by resource type. These menus display the viewing and configuration features available in Computer Setup with icons and short descriptions.
 - **By Type** is the default menu. It displays Computer Setup features by such categories as System Features, Communication, Storage, Input Devices, Audio, Video, and Other Devices.
 - **By Connection** displays Computer Setup features by such categories as System Features, System Devices, PCI, and PC Card (PCMCIA)
 - **System Resources** displays the allocations of such resource types as IRQ, DMA, and memory addresses.
- Click Tools to view a menu of features that you can select by function. For example, you can select
 - **Set Defaults** to reestablish factory default settings.
 - **Resource Priorities** to change the priority of a resource type such as IRQ, DMA, I/O address, and memory address.
 - **Resolve Conflicts** to resolve configuration conflicts.
 - **Legacy** to add Legacy devices, such as ISA devices, that predate Plug and Play.

Getting Help

Many of the features listed on Computer Setup menus are described elsewhere in this *Reference Guide*. For example, for more information about the following tabs within System Features, refer to the following chapters.

System Feature Tab	Chapter in <i>Reference Guide</i>
Power Management	Chapter 4, “Managing Power” Chapter 5, “Using Battery Packs”
Security Management	Chapter 13, “Securing the Computer”
Boot Management	Chapter 6, “Working with Removable Drives”
Intelligent Manageability	Chapter 15, “Intelligent Manageability”

In addition, you can obtain online, context-specific help within Computer Setup by clicking the Help button on a menu window or a dialog box. To exit any Help window, click File→Exit.

Using Computer Checkup (TEST)

Use Computer Checkup (TEST) to

- Prepare for a call to Technical Support
- Test for proper recognition and functioning of computer components and devices.

The information generated by Computer Checkup can be displayed, printed, and saved.

If you are preparing for a Technical Support call, do the following:

- As you run Computer Checkup, save the device list to a file.
- As you run Computer Checkup, print or save the log of errors.
- Complete your preparation for the Technical Support call by running View System Information (INSPECT), described in this chapter.

To run Computer Checkup:

1. Ensure that the computer is connected to external power. (A low-battery condition could initiate Hibernation and interrupt the program.)
2. Turn on the external devices that you want to test. Connect the printer if you plan to print the log of errors.
3. Turn on or restart the computer, then press **F10** when the cursor appears upper right on the screen.
4. Select Computer Checkup (TEST) from the Compaq Utilities menu.
5. Select View Device List.
6. Verify that Computer Checkup correctly detected the devices installed.

- If the list is correct, select OK to exit the dialog box.
- If the list is incorrect, ensure that any new devices are installed properly. If you do not find an installation problem, call your Compaq authorized service provider.

NOTE: To make a selection in the Installed Compaq Devices dialog box, press **Alt** + the letter underlined on the button.

7. Select one of the following and follow the onscreen instructions.
 - **Quick Check Diagnostics** runs a quick, general test on each device with a minimal number of prompts. If errors are found, they are displayed when the testing is complete.
 - **Automatic Diagnostics** runs unattended and performs maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or save a log of errors.
 - **Prompted Diagnostics** allows maximum control over the device testing process. You can choose attended or unattended testing, decide to stop on errors, or choose to print or save a log of errors.

Using View System Information (INSPECT)

Use View System Information (INSPECT) to

- Prepare for a call to Technical Support
- Obtain information about system configuration

NOTE: To obtain similar configuration information from within Windows 95, click Start→Settings→Control Panel→double-click Compaq Diagnostics.

The information generated by View System Information can be displayed, printed, and saved.

If you are preparing for a Technical Support call, print or save the information generated by View System Information. You should also run Computer Checkup, described in this chapter.

To run View System Information (INSPECT):

1. Turn on the external devices that you want to inspect. Connect the printer if you plan to print error messages.
2. Turn on or restart the computer and press **F10** as soon as the cursor appears upper right on the screen.
3. Select View System Information (INSPECT).
4. Select the item you want to view from the list that appears. The list includes such items as:

System	Memory
ROM	Audio
Keyboard	Operating system
System ports	System files
System storage	Windows files
Graphics	

5. Follow the instructions on the screen to cycle through the items, to return to the list and choose another item, or to print the information.

Using Other Features

Other features available from within Compaq Utilities on some computer models include

- Manage Diagnostics Partition
- Create Diagnostics Diskette

Manage Diagnostics Partition

Use Manage Diagnostics Partition to create, delete, or upgrade Computer Setup and the Compaq diagnostics utilities.

Creating a diagnostics partition is normally done only to add Compaq Utilities to a replacement hard drive. It involves performing a low-level format on the hard drive.



CAUTION: If utilities in the diagnostics partition are deleted, you will no longer be able to access Computer Setup or the diagnostics utilities from the hard drive.

Create Diagnostics Diskette

Use Create Diagnostics Diskette to copy the Computer Setup and diagnostics utilities to two bootable diskettes. These diskettes provide a way to troubleshoot the system if the hard drive cannot be accessed.

INTELLIGENT MANAGEABILITY

Intelligent Manageability is software that combines innovative hardware technology with PC LAN management tools to make Compaq computers easier to inventory, troubleshoot, and protect.

The lowercase **i** in the notification area on the taskbar indicates that Intelligent Manageability is installed on the computer.

Fault Management, Asset Management, and Security Management are features within Intelligent Manageability.

Insight Manager is included with Intelligent Manageability software installed on Compaq servers. It provides monitoring, remote maintenance, and asset management of network resources. Insight Personal Edition provides similar capabilities to personal computers.

Fault Management

Fault Management is a monitoring and notification utility that helps prevent data loss. It includes two primary detection functions:

- **IntelliSafe hard drive** constantly monitors hard drive activity to predict failures before they occur.
- **Temperature sensing** hardware and software track the internal temperature of the computer and display a warning message when the normal range is exceeded.

When a hard drive fault or system temperature fault is detected, a fault notice appears in a popup window. If the computer is connected to a network that is using Insight Manager, the fault notice can also be seen by the network administrator.

Asset Management

AssetControl is an asset management utility that makes it easy and inexpensive to maintain an accurate and current inventory of personal computers, components, and monitors that support VESA DDC (Video Electronics Standards Association Data Display Channel) and EDID (Extended Display Identification Data) standards.

To access AssetControl, click Start→Settings→Control Panel→double-click the Insight Personal Edition icon→Categories.

The detailed inventory information available includes manufacturer, model, serial number, asset tag, and ROM revision label. This information can be viewed, printed, or saved to a file using either Insight Personal Edition or Insight Manager.

To change the asset tag number, turn on or restart the computer, press **F10** when the cursor appears upper right on the screen, then select Computer Setup→Intelligent Manageability.

Security Management

Security Management provides a variety of security features to protect data and the computer.

- **Passwords** prevent unauthorized access to information stored on the computer or network.
- **Drive security** prevents starting the computer from the diskette drive and writing information to the diskette drive.
- **Device disabling** prevents unauthorized data transfer through fax/modems, serial ports, parallel ports, and infrared ports.

For more information about security features, refer to Chapter 13, “Securing the Computer.”

chapter 16

TROUBLESHOOTING

If you have a problem with the computer, you may be able to resolve it easily by using the Minor Problems Checklist and the tables of troubleshooting solutions in this chapter.

For online Troubleshooting help, refer to the Troubleshooting section of the online *Reference Guide*: Click Start→Help→Contents→double-click Troubleshooting→problem.

If the problem persists, run Computer Checkup. For instructions, refer in this *Reference Guide* to Chapter 14, “Computer Setup and Diagnostics.”

If you need additional help, refer to “Preparing for a Technical Support Call” in Appendix A.

Minor Problems Checklist

If you encounter a minor problem with your computer or software application, the following checklist may suggest a solution.

- Is the computer connected to an external power source? Or is a fully charged battery pack installed?
- Is the computer turned on? (When the computer is on, the power/suspend light is on and not blinking.)
- Are all cables connected properly and securely?
- Was a nonbootable diskette in the computer diskette drive when you turned on the computer?
- Have you installed all needed device drivers?
- If the problem appears related to a software application, have you looked for a solution in the software documentation?

NOTE: A message on the screen does not necessarily mean that an error condition exists. For example, some messages give information about what the computer is doing. Others are prompts that request you to enter information or press a key.

Solving Audio Problems

Problem	Possible Cause	Solution
Computer beeps once after you turn it on.	This is normal; it indicates successful completion of the Power-On Self-Test (POST).	No action is required.
Computer does not beep after the Power-On Self-Test (POST).	System beeps have been turned down.	Press Fn+F5 , then press the right cursor key to increase the system beeps volume.
Computer beeps several times recurrently and the battery power light or MultiBay drive light is blinking.	Battery charge is low and computer has entered a low-battery condition.	Immediately save open files and resolve the low-battery condition. (Refer to Chapter 5.)
Computer does not beep to indicate a low-battery condition.	Low-battery warning beeps have been disabled.	Enable low-battery warning beeps on Battery Conservation Settings tab in Power Properties.
	System beeps have been turned down too low.	Press Fn+F5 , then press the right cursor key to increase the system beeps volume.
Audio playback is too low or too loud.	The computer volume control or the software volume control needs to be adjusted.	Adjust the computer volume control buttons or adjust the volume control in Multimedia Properties.
Internal speakers produce no sound.	Volume has been muted.	Press the right volume control button to increase the volume.
	External speakers or headphones are connected to the computer, or the computer is docked in the optional ArmadaStation.	Use the external speakers or headphones or the expansion base speakers. To use the internal speakers, disconnect the external speakers or headphones or undock the computer.

Solving Battery Problems

The solutions for “Solving Power Problems” also may be helpful.

Problem	Possible Cause	Solution
Computer does not turn on when battery pack is inserted (and external power is disconnected).	Battery pack is discharged.	Connect the computer to an external power source and charge the battery pack.
		Replace the battery pack with a fully charged battery pack.
Computer beeps several times recurrently and battery power light or MultiBay drive light is blinking.	Battery charge is low, and computer has entered a low-battery condition.	<p>You can allow the computer to shut down, although you may lose some unsaved work.</p> <p>To ensure that your unsaved work is not lost, immediately save open files and do one of the following:</p> <ul style="list-style-type: none">■ Connect the computer to an external power source to charge the battery pack.■ Initiate Suspend and replace the battery pack with a fully charged battery pack.■ Shut down the computer or initiate Hibernation until you can find another power source or charge the battery pack.

Continued

Solving Battery and Battery Gauge Problems *Continued*

Problem	Possible Cause	Solution
While the battery power light or the MultiBay drive light is blinking, the computer beeps twice and the power/suspend light begins blinking.	Hibernation has been turned off, and the computer has entered a critical low-battery condition.	To avoid losing unsaved work, immediately connect the computer to an external power source or replace the battery pack.
Battery power light or MultiBay drive light blinks to indicate a low-battery condition, but computer does not beep.	Low-battery warning beeps have been disabled.	Enable low-battery warning beeps on Battery Conservation Settings tab in Power Properties.
	System beeps have been turned down too low.	Press Fn+F5 , then press the right cursor key to increase system beeps volume.
Battery light or MultiBay drive light does not turn on to indicate battery pack is charging.	Battery pack is already fully charged.	No action is necessary.
	Battery pack was exposed to temperature extremes	Allow time for battery pack to return to room temperature.
	Battery pack is at the end of its life.	Replace the battery pack.
Battery pack is warm to the touch after charging.	Warming occurs due to charging.	No action is required.
Every time the computer is turned on, the date and time have to be set.	Auxiliary battery charge is low because the computer was not connected to a power source for an extended time period.	Connect the computer to an external power source for approximately 24 hours to fully charge the auxiliary battery.
	Auxiliary battery is at the end of its life.	Contact your Compaq authorized service provider to replace the auxiliary battery.

Continued

Solving Battery and Battery Gauge Problems *Continued*

Problem	Possible Cause	Solution
The computer shut down and information in memory was lost when a battery pack was being replaced.	Suspend was not initiated, or a charged battery pack was not inserted immediately after removing the discharged battery pack.	To prevent loss of information next time, initiate Suspend, remove the discharged battery pack, and immediately insert a fully charged battery pack.
	Auxiliary battery charge is low because the computer was not connected to a power source for an extended time period.	Connect the computer to an external power source for approximately 24 hours to fully charge the auxiliary battery.
	Auxiliary battery is at the end of its life.	Contact your Compaq authorized service provider to replace the auxiliary battery.
Battery charge does not last as long as expected.	Battery conservation level is set for high performance.	Press Fn+F7 , then use the cursor keys to change the setting to a higher conservation level. (Refer to "Battery Conservation Settings Tab" in Chapter 4.)
	An external device or a PC Card is draining the battery pack.	Turn off or remove external devices and PC Cards when not using them.
	Battery pack has partially self-discharged.	If the computer is disconnected from external power for more than two weeks, remove the battery pack to reduce the self-discharge rate.
	Battery pack is being exposed to temperature extremes.	Keep battery pack within the recommended operating or storage temperature ranges. (Refer to Appendix D for operating ranges or to Chapter 5 for storage ranges.)

Continued

Solving Battery and Battery Gauge Problems *Continued*

Problem	Possible Cause	Solution
Battery gauge is inaccurate.	The battery pack is new or was not used for a long time and has not been fully charged.	Fully charge the battery pack until the battery power light or the MultiBay drive light turns off.
		Allow the battery pack to discharge to the low-battery warning level at least every 90 days, then fully charge.
	Battery pack has reached end of its useful life.	Purchase a new battery pack.

Solving Diskette and Diskette Drive Problems

Problem	Possible Cause	Solution
Cannot access diskette drive.	Diskette drive is not seated.	In Windows 95, shut down the computer, remove and reinsert the diskette drive, then turn on the computer. In Windows NT, you do not have to shut down the computer.
Diskette drive cannot write to a diskette.	Diskette is write-protected.	Disable the write-protect feature or use a diskette that is not write-protected.
	Diskette is not formatted.	Format the diskette.
	Not enough space is left on the diskette.	Use a larger capacity diskette.
	Computer is trying to write to the wrong drive.	Verify the drive letter.
	The diskette drive controller or diskette write ability has been disabled.	Run Computer Setup and enable the diskette drive controller or the diskette write ability.

Continued

Solving Diskette and Diskette Drive Problems *Continued*

Problem	Possible Cause	Solution
Diskette drive cannot write to a diskette (<i>continued</i>).	Diskette has a bad sector.	Copy files to hard drive or another diskette. Reformat the bad diskette.
	Drive error has occurred.	In Windows 95, click the Device Manager tab in System Properties to verify the diskette drive is recognized and to view settings. Run Computer Checkup to test the drive. (Refer to Chapter 14.)
Diskette drive cannot read a diskette.	Diskette is not formatted.	Format the diskette.
	Diskette is defective or damaged.	If you can read other diskettes in the drive, try reading this diskette in another diskette drive to determine whether it is damaged.
	Drive error has occurred.	In Windows Explorer, click the drive letter→File→Properties→Tools→Error Checking→Check Now button.
		Run Computer Checkup to test the drive. (Refer to Chapter 14.)

Continued

Problem	Possible Cause	Solution
Cannot boot from a diskette.	Bootable diskette is not in computer MultiBay or is not first diskette in the MultiBoot order.	Verify the diskette has the system files necessary to boot. Run Computer Setup and verify the MultiBoot order under Boot Management. (Refer to "Using Boot Management" in Chapter 6.)
	Diskette boot ability is disabled in Computer Setup.	Run Computer Setup and enable Diskette Boot Ability under Boot Management.

Solving Display Problems

This section lists some common causes and solutions for computer display and external monitor problems

To perform a monitor self-test on an external VGA color or monochrome monitor:

1. Switch to the internal display.
2. Turn off the external monitor.
3. Disconnect the external monitor signal cable from the computer.
4. Turn on the monitor and allow it to warm up for 1 minute. If the monitor is working properly:
 - The screen is white.
 - A narrow black border may appear on the left and right sides of the display.

Solving Display Problems *Continued*

Problem	Possible Cause	Solution
Characters are dim.	Brightness controls need adjusting.	Press Fn+F10 , then press the right or left cursor keys to adjust brightness.
	Computer screen is in direct light.	Tilt the display or move the computer.
Screen is blank.	Screen save was initiated after the screen save timeout (period of inactivity).	Press any key or click the mouse.
	You initiated QuickLock/QuickBlank.	Enter your power-on password to exit QuickLock/QuickBlank.
	Brightness needs adjusting.	Press Fn+F10 , then press the right or left cursor keys to adjust brightness.
	Screen has overheated.	If computer is in direct sunlight, move it and allow it to cool off.
Screen is blank and the power/suspend light is blinking.	System is in Suspend.	Press the suspend button to exit Suspend. Enter your power-on password if prompted.
Screen is blank, the power/suspend light and the battery power light or the MultiBay drive light are blinking.	System has entered a critical low-battery condition.	Save your work, then immediately connect the computer to an external power source or replace the battery pack.
Computer screen is blank and the external monitor displays information.	Display is switched to the external monitor.	Press Fn+F4 to switch to the computer display.
External monitor does not display information.	External monitor was connected after computer was turned on.	Press Fn+F4 to switch to the external monitor.
	The external monitor signal cable or power cord is not properly connected.	Verify that the cables are properly connected.

Continued

Solving Display Problems *Continued*

Problem	Possible Cause	Solution
Display on an external monitor is distorted.	Incorrect display device drivers are installed or incorrect resolution is set.	Click Start→Settings→Control Panel→double-click the Display icon. Then set the correct display type and resolution for the external monitor.
	The external monitor is not Energy Star-compliant, but monitor energy-saving feature is enabled.	<ol style="list-style-type: none">1. Press any key or move the pointing device to restore the display.2. If display remains distorted, turn monitor off, then on.3. Disable the monitor energy-saving feature. For instructions, refer to “Enabling Energy-Saving Features” in Chapter 7.
Small red, green, or blue spots appear on the computer TFT display.	Small spots, called on-pixels, often appear on TFT screens. Compaq limits the number of these on-pixels to 0.003 percent.	This is typical; no action is required.
The image has a black border and does not fill the screen.	The Desktop Area setting is smaller than the Resolution setting.	Click Start→Settings→Control Panel→double-click the Display icon→Settings tab→Compaq tab. Then adjust the Desktop Area and Resolution settings.
		Press Fn+T to expand the image.

Solving Hard Drive Problems



CAUTION: Maintain an up-to-date backup of your hard drive in case of errors or failures.

Problem	Possible Cause	Solution
Cannot access hard drive.	Hard drive is not seated properly.	Shut down the computer, remove and reinsert the hard drive, then turn on the computer.
	Hard drive was inserted while computer was on, in Suspend, or in Hibernation.	Shut down computer, then turn it on again. The hard drive is initialized when the computer is turned on.
	Hard drive may be damaged.	If the hard drive is in the MultiBay, try inserting another removable drive. Contact your Compaq authorized service provider.
Reading the hard drive takes an unusually long time after restarting the computer.	System is exiting from Hibernation.	Give the system time to restore the previously saved data to its exact state before Hibernation.
Hard drive error occurs.	Hard drive has bad sectors or has failed.	In Explorer, click the drive letter→File→Properties→Error Checking→Tools→Check Now button. Run Computer Checkup to test the drive. (Refer to Chapter 14.)

Continued

Solving Hard Drive Problems *Continued*

Problem	Possible Cause	Solution
Hard drive error occurs (<i>continued</i>).	Hard drive may be damaged.	Try inserting another removable drive, if the hard drive is in the MultiBay.
		Contact your Compaq authorized service provider.
Errors occur after booting from an additional hard drive.	Additional hard drive does not have the software and drivers necessary to boot and operate correctly.	Boot from the hard drive supplied with the computer or another hard drive that has the necessary software and drivers.

Solving Hardware Problems

Problem	Possible Cause	Solution
New device is not recognized as part of the computer system.	The system did not automatically configure the new device.	In Windows 95, double-click the Add New Hardware icon in Control Panel.
		Refer to the documentation that came with the new device for installation instructions.
	Cables of new external device are loose or power cord is not plugged in.	Ensure that all cables are properly and securely connected and that the power cord is plugged into an electrical outlet.
	Power switch of external device is not turned on.	Turn on the external device.
		Turn off the computer, turn on the device, then turn on the computer.

Continued

Solving Hardware Problems *Continued*

Problem	Possible Cause	Solution
Cannot access a removable drive.	A removable drive is not seated properly.	In Windows 95, shut down the computer, remove and reinsert the drive, then turn on the computer. In Windows NT, you do not have to shut down the computer to insert a diskette drive or CD-ROM drive.
		Run Computer Checkup to test the drive. (Refer to Chapter 14.)
Computer beeps four times when turned on, power/suspend light is on, but screen remains blank.	Memory expansion board(s) has been installed incorrectly or has lost connection.	Follow the steps in Chapter 11 to remove and reinsert the memory expansion board(s).
	Memory board or memory circuitry has failed.	Contact your Compaq authorized service provider.

Solving Infrared Problems

Problem	Possible Cause	Solution
Cannot link with another infrared-equipped device.	Appropriate software is not running on both devices.	Install the appropriate software on the second device and start the program on both devices.
	Infrared port on computer is not enabled.	Enable infrared port on computer. (Refer to Chapter 7.)
	Interrupt request (IRQ) conflict.	Resolve the IRQ conflict. In Windows 95: Click Start→Settings→Control Panel→System Properties→Device Manager tab. Reassign if two devices have the same IRQ address. IRQ conflicts can also be resolved using Computer Setup. Select Resolve Conflicts from the System Features Tools menu or Select System Features→Communications→Infrared Port. For Computer Setup information, refer to Chapter 14.
	Target device is not IrDA-compliant.	Check documentation of target device and make recommended changes.
	A physical condition exists that affects the connection.	Refer to the solutions below for data transmission problems.
	Devices are too far apart.	Move devices closer together. (The maximum distance for IrDA interface is 1.5 feet [.5 meter]; some target devices may require a shorter distance.)

Continued

Solving Infrared Problems *Continued*

Problem	Possible Cause	Solution(s)
Cannot link with another infrared-equipped device (continued).	Devices are placed at too wide an angle.	Lessen the angle between the devices. (The maximum capture angle for IrDA interface is 30 degrees; some target devices may require more direct alignment. Do not point one port more than 15 degrees off the center line away from the other port.)
Cannot link with another computer.	Interrupt request (IRQ) conflict.	Check IRQ assignments for conflicts, then reassign if necessary.
	Baud rate conflict.	Select the same baud rate for both computers.
	# bits conflict.	Select the same # bits setting for both computers.
	Stop byte conflict.	Select the same stop byte for both computers.
	Parity conflict.	Select the same parity setting for both computers.
Data transmission problem.	Direct sunlight, energy-saving fluorescent light, or flashing incandescent light is close to the infrared connections.	Remove the interfering light source(s). Move the infrared ports closer together. Select a slower fixed baud rate for both devices.
	Interference from other infrared-equipped devices.	Keep infrared-equipped remote control units, such as wireless headphones, pointed away from the infrared connection.
	Dirty infrared lens.	Clean the lens with a lint-free cloth.
	Distance.	Verify that the devices are not more than 1.5 feet (.5 meter) apart.

Continued

Solving Infrared Problems *Continued*

Problem	Possible Cause	Solution(s)
Data transmission problem (<i>continued</i>).	Movement.	Do not move either unit during data transmission.
	Orientation.	Adjust the devices so that they point within 15 degrees of each other.
	Physical obstruction.	Remove any objects between the two devices that could be interfering with the line-of-sight data transmission.

Solving Keyboard and Numeric Keypad Problems

Problem	Possible Cause	Solution
Embedded numeric keypad does not work.	Num Lock function is not enabled.	Press Fn+Num Lk to enable the embedded numeric keypad (The Num Lk light turns on).
External keyboard does not work.	Keyboard may not be securely connected or may be connected to the wrong external connector.	Ensure that the external keyboard is securely connected to the external keyboard/mouse connector.
Keyboard and pointing device are locked.	You initiated QuickLock.	To exit QuickLock, enter your power-on password.

Solving Memory Problems

Problem	Possible Cause	Solution
Memory count during Power-On Self-Test (POST) is incorrect.	Optional memory expansion boards are installed incorrectly.	Ensure that the memory expansion boards have been installed correctly. (Refer to Chapter 11.)
An Out of Memory message is displayed on the screen, or insufficient memory error occurs during operation.	System ran out of memory for the application.	Refer to the application documentation for memory requirements and add more memory if needed.
	Too many programs are open.	Close any programs that you do not need.

Solving Modem Problems

Problem	Possible Cause	Solution
Characters are garbled/transfer rates are slow.	There is noise in the telephone line.	Verify that your telephone and modem cables are securely connected. Request a telephone line filter from your local telephone company.
Cellular connection doesn't work (North America only).	Environmental factors are interfering with the cellular connection.	Refer to the online <i>Reference Guide</i> →Troubleshooting→Solving Modem Problems→Cellular connection doesn't work→How the Environment Affects Cellular Performance.

Continued

Solving Modem Problems *Continued*

Problem	Possible Cause	Solution
Modem loses connection.	The cable connection from the telephone line to the modem is loose.	Ensure that the telephone cable is properly connected.
	Call Waiting has not been disabled.	To disable Call Waiting, click Start→Settings→Control Panel→double-click the Modems icon→General tab→Dialing Properties. NOTE: If you do not know the disable call waiting code for your dialing area, contact your local telephone company.
No dial tone.	Phone service is not connected to the telephone wall jack.	Verify service from the local telephone company.
	The modem is not responding to commands from the keyboard.	To verify the modem and computer are connected: <ol style="list-style-type: none">1. Click Start→Programs→Accessories→HyperTerminal.2. Go to Terminal Mode, then type AT and press Enter.<ul style="list-style-type: none">■ If the modem displays OK, the modem and computer are working together.■ If the modem displays ERROR, or does not respond, restart the computer and repeat step 1.3. Type ATDT and listen for a dial tone.4. Type ATH0 to hang up.

Continued

Solving Modem Problems *Continued*

Problem	Possible Cause	Solution
No dial tone (<i>continued</i>).	Speaker Control AT Command (ATM) is set to 0.	To set the Speaker Control to 1: <ol style="list-style-type: none">1. Click Start→ Programs→ Accessories→ HyperTerminal.2. Go to Command Mode, type ATM1, then press Enter.3. Type ATH1 and listen for the sound of the dial tone.
Phone line noise is causing a disconnection.	Hang-up Delay S Register (S10) is set too low.	To change S10 default to 150: <ol style="list-style-type: none">1. Click Start→ Programs→ Accessories→ HyperTerminal.2. Go to Command Mode, type ATS10=150, then press Enter. <p>NOTE: This command causes the modem to take longer to disconnect even if there is no noise on the line.</p>

Solving PC Card Problems

If you are running Windows NT, refer also to the Help program within CardWare. To access CardWare, click Start→ Programs→CardWare.

Problem	Possible Cause	Solution
Computer does not beep when PC Card is inserted, but PC Card works correctly.	System beeps are turned down.	Press Fn+F5 , then press the right cursor key to increase the system beeps volume.

Continued

Solving PC Card Problems *Continued*

Problem	Possible Cause	Solution
Computer does not beep when PC Card is inserted, but PC Card works correctly (<i>continued</i>).	PC Card sound effects have been disabled.	In Windows 95, double-click the PC Card icon in Control Panel, click the Global Settings tab, then click to deselect Disable PC Card Sound Effects.
Computer does not beep when PC Card is inserted, and PC Card does not work.	Card is not inserted properly.	Remove and reinsert the card gently, to avoid damaging the pins.
	Card or card driver is not compatible with the computer or with the operating system.	Refer to the documentation supplied with the PC Card and to Chapter 9 of this <i>Reference Guide</i> .
Zoomed Video card does not work.	Card or card driver is not compatible with the computer or with the operating system.	Refer to the documentation supplied with the PC Card and to Chapter 9 of this <i>Reference Guide</i> .
Computer beeps twice when a storage card is inserted, but the card does not work.	You are trying to access the storage card using the wrong drive letter.	Open Windows Explorer and verify the drive letter.
Computer beeps twice but modem, fax, or network card does not work.	Telephone cord is not plugged in all the way.	Verify that the telephone connection is secure.
	You are trying to access the card using the wrong COM port.	Verify the COM port assigned to the card and within the application. Click Start→Help→Contents→Troubleshooting→problem, then follow the instructions.
	Network server is unavailable.	Contact system administrator.

Solving External Pointing Device Problems

The following are common problems with an external mouse, trackball, or other pointing device.

Problem	Possible Cause	Solution
External pointing device does not work.	Incorrect device driver is installed.	Refer to the documentation supplied with the device for instructions.
	Device is not properly connected.	Be sure the pointing device is securely connected to the correct connector.
Cursor skips or moves abnormally when using an external pointing device.	Device is not properly connected.	Be sure the pointing device is securely connected to the correct connector.
	Device needs to be cleaned.	Refer to the documentation supplied with the external pointing device to verify whether it should be cleaned.

Solving Power Problems

Solutions for “Solving Battery and Battery Gauge Problems” may also be helpful.

Problem	Possible Cause	Solution
Computer will not turn on.	Computer is not connected to a power source.	Insert a battery pack or connect to an external power source.
	Power cords to the external power source are unplugged.	Ensure that power cords connecting the computer to the external power source are plugged in properly.
	Battery pack is discharged.	Insert a fully charged battery pack or connect to an external power source.

Continued

Solving Power Problems *Continued*

Problem	Possible Cause	Solution
Computer will not turn on when connected to external power if battery pack is in the computer.	Battery pack may be defective.	Remove battery pack, insert another battery pack, and try again.
Computer turned off while it was left unattended and power/suspend light is off.	System initiated Hibernation after a preset timeout.	Turn on the computer to restore your information at the point where Hibernation was initiated. To change the Hibernation timeout setting, click the Hibernation tab in Power Properties or click Power Management in Computer Setup.
Computer turned off while it was left unattended and will not turn on.	System initiated Hibernation and/or shut down because of a critical low-battery condition.	Replace the battery pack with a fully charged battery pack or connect to an external power source. Then turn on the computer.
Computer unexpectedly initiated Suspend, or turned off when it was docked.	The maximum operating temperature was exceeded.	Computer is in an exceedingly hot environment and the fan was not able to cool it adequately. Let the computer cool down, then turn it on again. Make sure the ventilation intake and exhaust are not obstructed. If problem persists, contact your Compaq authorized service provider.

Continued

Solving Power Problems *Continued*

Problem	Possible Cause	Solution
Computer beeps twice when you press Fn + suspend button.	Hibernation has been turned off.	Click Start→Settings→Control Panel→double-click the Power icon→Power Properties→Hibernation tab. Then click Hibernation On.
System does not initiate Suspend.	The infrared port is enabled.	To disable the infrared port, restart the computer. To enable system-initiated Suspend while the infrared port is enabled, click Start→Settings→Control Panel→double-click the Infrared icon→Options tab, then remove the check from Search For and Provide Status for Devices in Range.
	A CD is in a CD-ROM drive.	Remove the CD. To enable system-initiated Suspend while a CD is in a CD-ROM drive: In Windows 95: Click Start→Settings→Control Panel→double-click the System Properties icon→Device Manager→CD-ROM→Properties. Then check CD-ROM Auto Insert Notification. In Windows NT: Click Start→Settings→Control Panel→double-click the Power icon→Battery Conservation Settings tab. Then check CD-ROM Auto Insert Notification.

Solving Printer Problems

If you experience problems printing, refer to the printer documentation for instructions to run a printer self-test. If the self-test is successful, it is not a printer-specific problem.

Problem	Possible Cause	Solution
Printer will not turn on.	The signal cable or power cord may not be securely connected.	Ensure that the signal cable is properly connected and that the power cord is connected to the electrical outlet.
Printer will not print.	Printer is not turned on or is offline.	Turn the printer on and set it to online.
	Correct printer is not selected.	Select the printer within your software program, or double-click the Printers icon in Control Panel, click the correct printer, then click File→Set as Default.
	Printer driver is not installed.	In Control Panel, double-click Printers→Add Printer, then follow instructions to install the driver for your printer.
	Driver is installed for a network printer that is not connected to the network.	Connect the printer to the network or contact the network administrator.
	Printer cable is too long, unshielded, or defective.	Replace the printer cable.
	Paper tray is empty.	Fill the paper tray with paper. Set the printer to online, if necessary.
Printer prints garbled information.	Correct printer driver is not installed.	In Control Panel, double-click Printers→Add Printer, then follow instructions to install the driver for your printer.
	Cable is not connected properly.	Ensure that the printer signal cable is securely connected to the computer.
	Cable is damaged.	Replace the cable.

COMPAQ CUSTOMER SUPPORT

Preparing for a Technical Support Call

You may be able to resolve the problem using “Troubleshooting” in the online *Reference Guide* or in Chapter 16 of this guide. If not, run the diagnostic utilities described in Chapter 14, “Computer Setup and Diagnostics,” and have the following available when you call:

- The computer.
- Serial number (on the bottom of the computer).
- Date of purchase (on invoice).
- Conditions under which the problem occurred.
- Error messages that occurred.
- Hardware configuration.
- Type of printer connected.
- Hardware and software that you are using.
- Your Windows 95 product identification number (PIN). To locate your PIN number, click Start→Settings→Control Panel→double-click the System icon→General tab. Your PIN number is below your name.

- The printed error message log from Computer Checkup (TEST), or a list of the devices and error messages received. For instructions, refer to Chapter 14, “Computer Setup and Diagnostics.”
- Specific information about your configuration settings. You can use View System Information (INSPECT) to generate configuration information and then save it to a file or print it. For instructions, refer to Chapter 14, “Computer Setup and Diagnostics.”

NOTE: If you take your computer in for service, choose a Compaq authorized dealer, reseller, or service provider, and remember to provide your setup and power-on passwords, if they are set.

Worldwide Telephone Numbers

Locate your geographical area in the following table and use one of the telephone numbers for Compaq assistance.

General Information Numbers—Product information, technical assistance, and the location of your nearest Compaq authorized dealer, reseller, or service provider.

Technical Support Numbers—Hardware technical support in analyzing system configuration and diagnostic problems or troubleshooting.

Customer Support Numbers—Information on service and support programs including warranty, product catalogs, and white papers.

PaqFax Numbers—Automatic facsimile response system for technical and product-specific information that is transmitted to any fax machine. PaqFax is available 24 hours a day.

NOTE: Telephone numbers are subject to change without notice.

* Indicates toll-free domestic numbers.

Worldwide Telephone Numbers		
Location	Country Code	Telephone Number
Argentina		
General Information	+54	-1-796-1616
Technical Support	+54	-1-796-1717
Australia		
General Information		61-2-9911-1999
Technical Support		61-2-9911-1955
PaqFax		61-2-9911-1982
Austria		
General Information*		0222/8 78-16-16
Technical Support*		0222/8 78-16-16
Order Software Backup	+31	-55-38-43-39

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Belgium / Luxembourg		
Compaq Care Center	Bel Lux	0903-99036 (45 BFr/min.) 089/89.232
General Fax	+32	(0)2/725 22 13
Infoline (resellers, brochures)	+32	(0)2/716 96 96
QuickLine (BBS)	+32	(0)2/716 95 92
Order Software Backup	+32	(0)2/716 96 78
Order Software Backup by Fax	+32	(0)2/716 96 79
Brazil		
General Information	+55	-11-246-7866
Canada		
General Information		1-905-707-1715
Technical Support*		1-800-OKCOMPAQ (1-800-652-6672)
Customer Support*		1-800-263-5868
Order Software Backup*		1-800-952-7689
Battery Pack Recycling*		1-800-263-5868
Caribbean		
General Information		1-281-514-4220
Technical Support		1-281-518-2200
Chile		
General Information	+56	-2-274-1911
Technical Support	+56	-2-274-3007
China		
General Information	+86	-10-6831-3399
Technical Support	+86	-10-6834-6721
Colombia		
General Information	+57	-1-312-0201
Technical Support	+57	-1-345-0266
Czech Republic		
General Information	+420	-2-232-8772
Technical Support	+420	-2-232-8772

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Denmark		
General Information	+45	-45-90-45-90
Technical Support	+45	-45-90-45-45
Finland		
General Information	+358	-0-615 599
Technical Support*		0203-206 720
QuickLine (BBS)	+358	-0-6155 9870
France		
General Information	+33	-1-41-33-41-33
Technical Support	+33	-1-41-33-44-55
Germany		
		0,48 DM/min.
Hotline		0180/5 21 21 11
Hotline Fax		0180/5 21 21 17
Infoline		0180/3 22 12 21
Infoline Fax		0180/3 22 12 20
QuickLine		0180/5 21 21 18
FaxPaq		0180/5 21 21 19
Order Software Backup*		0130/81 10 81
Hong Kong		
General Information		852-28681382
Technical Support		852-90116633
PaqFax		852-28671648
Hungary		
General Information	+36	-1-457-3600
Technical Support	+36	-1-457-3682
India		
General Information		91-80-559-6023
PaqFax		91-80-559-8989
BBS		91-80-559-8900

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Israel		
General Information	+972	-3-6363-444
Technical Support	+972	-3-6363-444
PaqFax	+972	-3-6396-601
Italy		
General Information	+39	-2-57-59-03-00
Technical Support	+39	-2-57-59-03-00
Japan		
General Information*		0120-101-589
Technical Support*		0120-101-589
Windows 95 Support*		0120-505-589
Order Software Backup *		0120-250-589
FaxStation		81-3-5402-0991
Korea		
General Information		82-2-3470-07001
Technical Support		82-2-523-3575 82-082-902-77774
Malaysia		
General Information		603-717-1188
Technical Support		603-718-1636
Mexico		
General Information	+52	-5-229-7900
Technical Support	+52	-5-229-7910
PaqFax	+52	-5-229-7920
Netherlands		
General Information		0182-565805
Customer Support*		06-91681616 (Dfl. 0.75/min)
Fax*		06-8991116 (Dfl. 0.40/min)
QuickLine Bulletin Board		0182-572366

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
New Zealand		
General Information		64-9-307-3969
Norway		
General Information	+47	-22-07-20-00
Technical Support	+47	-22-07-20-20
Poland		
General Information	+48	-2-630-3535
Technical Support	+48	-2-630-3535
Portugal		
General Information	+351	-1-4128400
Technical Support	+351	-1-4128460
Russia		
General Information	+7	-095-967-1700
Technical Support	+7	-095-967-1700
PaqFax	+7	-095-967-1701
Singapore		
General Information		65-753-6688
Customer Support Center		65-750-3030
PaqFax		65-750-4514
South Africa		
General Information		27-11-728-6999
Technical Support		27-11-728-6999
Spain		
General Information	+34	-902.10.14.14
Technical Support	+34	-1-640-1302
Sweden		
General Information	+46	-8-703-5240
Technical Support	+46	-8-703-5240
PaqFax (hämtfax)	+46	-8-703-5225
QuickLine (BBS)	+46	-8-703-5220

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Switzerland		
General Information		0844 844 111
Technical Support		01/838 22 22 (German) 01/838 22 23 (French)
QuickLine Bulletin Board		01/838-24 21
Order Software Backup		0800 556 206
Taiwan		
General Information		886-2-7351000
Technical Support		886-2-3761170
BBS		886-2-3761175
Thailand		
General Information		62-2-679-6222
United Arab Emirates (Dubai)		
General Information	+97	14 -818100
United Kingdom		
General Information		0990-134456
FaxPaq		0181-332-3550
QuickLine Bulletin Board		0181-332-9499
United States		
Product Information*		1-800-345-1518
Technical Support*		1-800-OKCOMPAQ (1-800-652-6672)
PaqFax*		1-800-345-1518, Option 1
Download Facility (modem access only)		1-281-518-1418
Order Software Backup*		1-800-952-7689
Battery Pack Recycling*		1-800-524-9859
Venezuela		
General Information	+58	-2-953-6944

Appendix *B*

REGULATORY NOTICES

Regulatory Agency Identification Numbers

Regulatory agencies worldwide use agency series numbers for product identification. Each approved product displays the assigned agency series number. To ensure continued safe and reliable operation, the options listed below should be used only with Compaq series 2890, 2890A, and 2890B computers.

Option	Agency Series Number
■ Nickel Metal Hydride Battery Pack	2891A
■ Battery	2891B
■ Automobile Adapter	2874
■ ArmadaStation	2895
■ Armada MiniStation	2896
■ MultiBay PCMCIA Module	2989
■ Modem DAA Cable	575Z
■ International Modem Adapter	575X

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity (United States only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To identify this product, refer to the Series number found on the product. For questions regarding this declaration, write

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston TX 77269-2000

or call

(281) 514-3333.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

- EN55022 (CISPR 22)—Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4)—
Electromagnetic Immunity
- EN60950 (IEC950)—Product Safety

Japanese Notice

本装置は、第二種情報装置（住宅地域またはその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

しかし、本装置をラジオ、テレビジョン受信機に、近接してご使用になると、受信障害の原因となることがあります。本書の説明にしたがって正しい取り扱いをしてください。

German Ergonomics Notice

The Compaq 2890 series of computers have been evaluated and found to comply with the requirements of ZH 1/618, 1980. The computers were evaluated using MS-DOS Version 3.31 or higher, BASICA/T, and the EGA_THIN.CPI character set, as published by Compaq. In order to meet the minimum contrast requirements of ZH 1/618 when used in a negative polarity mode to display light characters on a dark background, the character colors red and blue should be used in the high intensity/bright color mode. Positive polarity displays (dark characters on a light background) do not meet the background reflection requirements of ZH 1/618.

Airline Travel Notice

Use of electronic equipment aboard commercial aircraft is at the discretion of the airline.

Energy Star Compliance

The Compaq 2890 series of computers are compliant with the U.S. Environmental Protection Agency (EPA) Energy Star Computers Program 2.0. The EPA Energy Star logo does not imply endorsement by the EPA. As an Energy Star Partner, Compaq Computer Corporation has determined the product meets the Energy Star guidelines for energy efficiency.

Battery Notice



WARNING: This computer contains an internal nickel metal hydride auxiliary battery. There is a risk of explosion and injury if the battery is incorrectly replaced or improperly handled. Do not attempt to recharge, disassemble, immerse in water, or dispose of it in fire. Replacement should be done by a Compaq authorized service provider using the Compaq spare part for this computer.

This computer contains a lithium ion battery pack. There is a risk of fire and chemical burn if the battery pack is handled improperly. Do not disassemble, crush, puncture, short external contacts, dispose in water or fire, or expose it to temperatures higher than 60°C (140°F). Replace only with the Compaq battery pack for this computer.



In North America, dispose of nickel metal hydride or lithium ion batteries by taking advantage of the Compaq battery recycling program. You will be provided with a postage-paid battery pack mailer preaddressed to a reclamation facility where the metals are recycled. Call the telephone number listed for your location in Appendix A for more information.

In Europe, do not dispose of batteries with general household waste. Dispose of or recycle them by using the public collection system or returning them to Compaq, your authorized Compaq partners, or their agents.

Power Cords

If you were not provided with a power cord for your computer or for an AC power option intended for use with your computer, you should purchase a power cord that is approved for use in your country.

The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product. In addition, the diameter of the wire must be a minimum of 0.75 mm²/18AWG, and the length of the cord must be between 5 feet (1.5 m) and 6½ feet (2 m). If you have questions about the type of power cord to use, contact your Compaq authorized service provider.

A power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product.

Safety Precautions for Modems

Always follow these basic safety precautions when using a modem or telephone that is not cordless.



WARNING: To reduce the risk of personal injury, electric shock, or fire:

- Never connect or use a modem or telephone during a lightning storm. There may be a remote risk of electric shock from lightning.
 - Never connect or use a modem or telephone in a wet location.
 - Never use a modem or telephone to report a gas leak in the vicinity of the leak.
 - Always disconnect the modem cable before opening the equipment enclosure or touching an uninsulated modem cable, jack, or internal components.
-

U.S. Regulations Governing the Use of Modems

This equipment complies with Part 68 of the FCC rules. Located on the bottom of the computer is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. Upon request, you must provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most areas (but not all), the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your telephone line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

The REN for this device is 0.7B.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, contact your local telephone company for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

For the Compaq Customer Support Center and your nearest Compaq Authorized reseller in North America, call 1-800-345-1518 or write:

Compaq Customer Support Center
P.O. Box 692000
Houston, Texas 77269-2000

Telephone Consumer Protection Act of 1991

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page, or on the first page of the transmission, the date and time it is sent and an identification of the business, or entity, or individual sending the message and the telephone number of the sending machine or such business, or entity, or individual.

Canadian Regulations Governing the Use of Modems

NOTE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority or an electrician.

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a terminal loop which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all devices does not exceed 100. An alphabetic suffix is also specified in the Load Number for the appropriate ringing type (A or B), if applicable. For example, LN = 20 A designates a Load Number of 20 and an "A" type ringer.

The Load Number for this device is 5B.

For the location of the authorized Canadian maintenance facility nearest you, call 1-800-263-5868 or contact:

Compaq Canada, Inc.
45 Vogell Road
Richmond Hill, Ontario LA5B 3P6

AUSTEL Requirements



CAUTION: Failure to set the modem, and any communications software used with the modem, to the values contained in the Telephone Answering Machine documentation will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this equipment, and the Telecommunications Act 1991 prescribes a penalty of \$12,000 for the connection of non-permitted equipment.

Auto Dialing with the Modem

1. When entering telephone numbers, ensure that the number that appears on the screen is correct before beginning to dial.
2. Some parameters required for compliance with AUSTEL specifications are dependent on the Telecommunications apparatus provided with the Compaq 2890 series of computers. The Compaq series 576W global modem shall be set to operate within the following limits for compliance with AUSTEL Specifications.

When the user manually initiates a call via equipment connected to the Compaq personal computer, the equipment shall operate within the following restrictions:

- a. Without call progress detection—a maximum of three calls (original plus two retries).
- b. With call progress detection (which ensures the line will be released after detection of tones indicating the call will not be successful)—a maximum of ten calls (original plus nine retries).
- c. If the series of calls noted in a or b are unsuccessful, no further attempts shall be made to obtain the required number within the next 30 minutes (unless manually initiated).

NOTE: Failure to meet the above requirements may negate user rights under the AUSTEL Terms of Service.

U.K. BABT User Information

Safety

The Compaq series 576W global modem is intended for use in the Compaq 2890 series of computers. For the purposes of BABT approval, the Compaq series 576W global modem is classified as a host-independent product.

The following information characterizes the requirements of the host system in order to maintain the reliable use of the Compaq series 576W global modem:

- The fax/voice modem requires a power supply voltage of $5\text{VDC} \pm 5\%$, $12\text{VDC} \pm 5\%$, or $-12\text{VDC} \pm 5\%$.
- The host computer must provide a maximum of 950 mW (U.K.) from the +5VDC power supply, and a maximum of 50 mW from the -12VDC power supply and the +12VDC power supply.
- The host apparatus must provide adequate power for the modem and any other auxiliary apparatus drawing power from it.
- Failure to provide modem user's instructions with the host computer will INVALIDATE modem approval.
- The modem is approved only for installation in a host and with host attachments that are either type approved for such apparatus or, if supplied after 1st March 1989, are marked with or supplied with a statement that the host is supplied under General Approval Number NS/G/1234/J/100003.
- Connections to and from the modem card are made via the following port: DTE port (SELV) 80-pin edge connector on modem PCB.
- Ports for SELV circuitry should only be connected to like SELV circuitry ports.

Telephone Network Connection

- The modem is suitable for connection to the Public Switched Telephone Network (PSTN) direct exchange lines and relevant branch systems (PBXs).
- A ringer equivalent number (REN) is a value given to all apparatus to be connected to the PSTN. Its value can be taken and used to calculate the maximum number of equipment items that can be connected in parallel without impairing the performance of the standard bell circuit.
 - $REN = 3/n$ where n is the maximum number of units that may be used in parallel.
 - The maximum REN of a line is 4; therefore, the total REN of all apparatus connected to the line (obtained by summing the individual REN values) should not exceed 4. This value includes any BT-provided instrument, each of which is assumed to have REN value of 1.0 unless otherwise stated. Exceeding the $REN = 4$ value may cause your telephone(s) to ring weakly or not ring at all.
 - Only one modem should be connected to a telephone line. Connecting a modem in parallel with one or more telephone instruments is not allowed.
 - The REN for this piece of equipment is 1.0.
- The exchange should provide facilities for either loop disconnect (pulse) dialing or multifrequency (tone) dialing. The modem can be configured to operate with either system.
- During dialing, this apparatus may tinkle the bells of other telephones using the same line. This is not a fault, and we advise you not to call the Fault Repair Service.
- The Compaq series 576W global modem specified in this guide is for the Compaq 2890 series of computers.
- This apparatus has been approved for the following facilities:
 - Simple modem
 - Facsimile
 - Telephone answering machine functions
 - Speakerphone functions
 - Automatic call initiation
 - Detection of initial proceed indication

- ❑ Automatic dialing
- ❑ Tone detection of busy tone, dial tone, or number unobtainable tone
- ❑ Auto clear from the call origination end
- ❑ Loop disconnect (pulse) dialing
- ❑ Multifrequency (tone) dialing

Any other usage will invalidate the approval of the apparatus if, as a result, it ceases to conform to the standards against which approval was granted.

All apparatus connected to this modem and, thereby, connected directly or indirectly to the British Telecom Public Switched Telephone Network, must be approved apparatus as defined in Section 16 of the British Telecommunications Act of 1981.

Although this equipment can use either loop disconnect or DTMF signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment be set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call setup.



CAUTION: The series 576W global modem may not be used on extension wiring that makes use of plug pins 1 & 6. If in doubt, advice must be obtained from a competent telecommunications engineer.

Difficulties may occasionally be experienced from other apparatus connected to the BT PSTN via the Compaq series 576W global modem apparatus. Such difficulties may include the following:

- Difficulty in making calls
- Problems in telephone conversion being experienced by both parties to the call



CAUTION: Initially, normal operation will be possible. However, changes to or modernization of the network may result in the apparatus being connected to a network service with which it was not designed to be compatible. Failure of the apparatus to work under these circumstances may not be the responsibility of the network operator.

If the above mentioned difficulties are experienced, please contact your product supplier or your authorized Compaq reseller in the United Kingdom.

This device is intended for auto-answering of incoming calls. Under normal conditions callers will be accustomed to calls being answered within 10 seconds, and a majority of callers will abandon calls that are not answered within 45 seconds.

There are several options available for auto-answering operation. The default setting is for two incoming rings. This is the recommended setting for normal operation by most computer users.

Auto Dialing with the Modem

When entering telephone numbers, ensure that the number that appears on the screen is correct before beginning to dial.

Approval Statements

The following lists the modem approval statements:

- This modem is approved as a host independent product. This approval number is a general approval number.
- APPROVED for connection to the telecommunications systems specified in the instructions for use, subject to the conditions set out in them.
- DGT No. NS/5141/3/V/607051.

User Instructions Compliant with New Zealand Telecom Requirements

Safety

The series 576W global modem is intended for use with the Compaq 2890 series of computers. For the purposes of New Zealand Telecom approval, the Compaq series 576W global modem is classified as a host-independent product.

The following information characterizes the requirements of the host system in order to maintain the reliable use of the Compaq series 576W global modem:

- The Compaq series 576W voice/fax modem requires a power supply voltage of 5 VDC $\pm 5\%$, 12 VDC $\pm 5\%$, or -12 VDC $\pm 5\%$.
- The host computer must provide a maximum of 950 mW from the +5 VDC power supply and a maximum of 50mW from the -12 VDC power supply and the +12 VDC power supply.
- The host apparatus must provide adequate power for the modem and any other auxiliary apparatus drawing power from it.
- For reasons of electrical safety, the computer which houses this voice/fax modem card must be earthed. The operation of this card in a computer which is not earthed may negate the user's rights under the Telecom terms of service.
- The computer which houses this voice/fax modem card is classified as a computer rather than a communications terminal. As with all mains powered electrical equipment, there is a legal requirement for it to meet the requirements of the NZ Wiring Regulations. It is the responsibility of the computer supplier rather than the Telepermit System to ensure that these requirements are met.
- Failure to provide modem user's instructions with the host computer will INVALIDATE the modem approval.

Telephone Network Connection

1. The modem is suitable for connection to the Public Switched Telephone Network (PSTN) direct exchange lines and relevant branch systems (PBXs).
2. A ringer approximate loading (**RAL**) is a value given to all apparatus to be connected to the PSTN. Its value can be taken and used to calculate the maximum number of equipment items that can be connected in parallel without impairing the performance of the standard bell circuit.
3. The maximum **RAL** value for telephone equipment is **5**. Exceeding the **RAL** value of **5** may cause your telephone(s) to ring weakly or not ring at all.
4. Only one modem should be connected to a telephone line. Connecting a modem in parallel with one or more telephone instruments is not allowed.
5. The **RAL** for this piece of equipment is **1.0**.
6. The exchange should provide facilities for either loop disconnect (pulse) dialing or multifrequency (tone) dialing. The modem can be configured to operate with either system.
7. The operation of this equipment on the same line as telephones or other equipment with audible warning devices or automatic ring detectors will give rise to bell tinkle or noise and may cause false tripping of the ring detector. Should such problems occur, the user is not to contact Telecom Faults Service.
8. The Compaq series 576W global modem specified in this guide is for the Compaq 2890 series of computers.

9. This apparatus has been approved for the following facilities:
- Simple modem
 - Facsimile
 - Telephone answering machine functions
 - Automatic call initiation
 - Detection of initial proceed indication
 - Detection of secondary proceed indication
 - Operation in the absence of proceed indication
 - Automatic dialing
 - Tone detection of busy tone, dial tone, or number unobtainable tone
 - Auto clear from the call origination end
 - Loop disconnect (pulse) dialing
 - Multifrequency (tone) dialing
10. Any other usage will invalidate the approval of the apparatus, if as a result it then ceases to conform to the standards against which approval was granted.
11. This equipment may not necessarily provide for the effective hand-over of a call to or from a telephone connected to the same line.

Auto Dialing with the Modem

1. When entering telephone numbers, ensure that the number that appears on the screen is correct before beginning to dial.
2. Some parameters required for compliance with Telecom's PTC Specifications are dependent on the telecommunications apparatus provided with Compaq computers. The Compaq series 576W modem shall be set to operate within the following limits for compliance with Telecom specifications.

3. When the user manually initiates a call via equipment connected to the Compaq personal computer, the equipment shall operate within the following restrictions:
 - a. Not more than five call attempts shall be made to the same number within a one-hour period.
 - b. There shall be at least 60 seconds between call attempts.
 - c. Not more than a total of ten call attempts shall be made to the same number for any single manual call initiation.
 - d. Automatic calls to different numbers shall be not less than 60 seconds apart.

NOTE: Failure to meet the above requirements may negate the user rights under the Telecom Terms of Service.



WARNING: This equipment does not provide a guard tone with certain transmission modes. In some circumstances this could cause interference with the telephone network signaling systems and could result in lost calls. Telecom will not accept responsibility should such problems occur. Such occurrences will be rare.



WARNING: This equipment does not fully meet Telecom's impedance requirements. Performance limitations may occur when used in conjunction with some parts of the network. Telecom will accept no responsibility should difficulties arise in such circumstances.



WARNING: When setting the apparatus for Auto-Answer do not set the number of rings to answer at a value greater than 5 or less than 3. Setting the Auto Answer parameter value outside this range will violate Telecom requirements which will cause the equipment not to conform with the standards against which approval was granted.

Laser Safety

All Compaq systems equipped with laser products comply with appropriate safety standards, including IEC 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies for Class 1 laser products. It does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.



WARNING: Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product installation guide may result in hazardous radiation exposure.



This system is classified as a Class 1 laser product. This label appears on the laser product.

Laser Information

Laser Type:	Semiconductor GaAlAs
Wave Length:	$780 \pm 35 \text{ nm}$
Divergence Angle:	$53.5^\circ \pm 1.5^\circ$
Output Power:	Less than 0.2mW or $10,869 \text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$
Polarization:	Circular
Numerical Aperture:	0.45 ± 0.04

Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and sub-assemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.

ELECTROSTATIC DISCHARGE

A discharge of static electricity from fingers or other electrostatic conductors may damage electronic components. Before handling electrostatic-sensitive components, discharge static electricity by one of the methods described in this appendix.

Preventing Electrostatic Discharge

When Handling Removable Drives

To prevent electrostatic damage to removable drives, observe these precautions:

- Before handling a removable drive, discharge static electricity by touching the unpainted metal surface or lug nuts on the connectors on the back of the computer.
- Avoid touching connector pins on the computer and on the removable drive.
- Keep a removable drive in its carrying case until you are ready to insert it into a drive bay.

When Installing Internal Components

To prevent electrostatic damage when installing internal components, observe these precautions:

- Keep components in their electrostatic-safe containers until you are ready to install them.
- Have everything needed for the installation within reach so that you do not have to leave the area after beginning installation.
- Use nonmagnetic tools.

- Before touching an electronic component, discharge static electricity by one of the grounding methods described later in this appendix. If you must leave the area during installation, remember to reground yourself before resuming installation.
- Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.
- If you remove a component, place it in an electrostatic-safe container.

Grounding Methods

There are several methods for grounding. Use one or more of the following grounding methods when installing components in the computer or expansion base.

- Touch the unpainted metal surface or lug nuts on the connectors on the back of the computer or expansion base. Avoid touching connector pins. If installation instructions direct you to unplug the computer or expansion base, unplug it after being properly grounded and before removing the cover.
- Touch an exterior unpainted metal surface of equipment that is connected to an electrical outlet by a grounding plug.
- Use a wrist strap connected by a ground cord to the computer chassis. Wrist straps are flexible grounding straps with a minimum of 1 megohm \pm 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.

NOTE: If you need more information about static electricity or assistance with product installation, contact your Compaq authorized dealer, reseller, or service provider.

SPECIFICATIONS

Operating Environment

The following guidelines provide a safe operating environment for the computer.

Operating Environment		
Temperature		
Operating	50 to 104°F	10 to 40°C
Non-operating (excluding battery pack)	-4 to 140°F	-20 to 60°C
Relative Humidity (non-condensing)		
Operating	10 to 90%	
Non-operating	5 to 90% 38.7°C Maximum Wet Bulb	
Altitude (unpressurized)		
Operating	0-10,000 ft	0-3.05 km
Nonoperating	0-30,000 ft	0-9.14 km

Input Power Requirements

Input power to the computer should comply with the following specifications.

Input Power Requirements	
Rated Voltage	100-120 / 220-240 VAC RMS
Rated Current	1.2 / 0.6 A RMS
Rated Frequency Range	50 to 60 Hz AC
NOTE: This product is designed for IT power systems with phase-to-phase voltage not exceeding 240 Vrms minimum charge.	

Computer Dimensions

	Models with 12.1 Inch (30.73 cm) Display	Models with 13.3 Inch (33.79 cm) Display
Height	2.0 in (5.08 cm)	2.0 in (5.08 cm)
Width	12.6 in (32.00 cm)	12.6 in (32.00 cm)
Depth	9.5 in (24.20 cm)	9.7 in (24.54 cm)

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