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Model 1600T, 1600-XL140, 1600-XL141, 1600-XL142, 1600-XL143, 1600-XL144,
1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

Before You Begin	Product Description	Specifications
Pin Assignments	Battery Operations	Troubleshooting
Removal Sequence	Parts Catalog	MSG Index

Welcome to the Maintenance & Service Guide (MSG)

Welcome to the *Maintenance and Service Guide* (MSG) for Compaq Presario 1600XL Series Portable Notebooks. This online guide is designed to serve the needs of technicians whose job is to repair Compaq products.

For copyright and trademark information, refer to the *Notice* section of this MSG. To locate your unit's serial number, to see symbol conventions, or to view technician's notes, see the *Preface*. This MSG is updated online as needed.

For comments or questions about the contents of this MSG, contact Compaq. The term Notebook as referred to throughout this MSG is synonymous with the term Computer.

To report a technical problem, contact your Regional Support Center or IM Help Center.

For help on navigating in this guide, refer to *Using this Guide*.

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Using this Guide

To use this guide effectively, refer to the list of bookmarks at the left of the screen. These bookmarks help you navigate through the document quickly and easily. They are accessible from anywhere in the *Maintenance and Service Guide* (MSG).

Viewing a Chapter

Click one of the bookmarks or the color-coded bubbles on the Welcome page to view a chapter of this MSG.

Expanding and Hiding Topics

Click the **+** to expand or show the contents of a section, or click the **–** to hide the contents.

Opening another Chapter

Return to the Welcome page by clicking the bookmark, **1600XL Series Maintenance and Service Guide**, and then click the bookmark or color-coded bubble for another chapter.

Printing the MSG

For portable copies of this MSG, you can print single pages, multiple pages, or the entire guide. In the Acrobat Reader, click **File**, and then **Print...** for printing options.

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Before You Begin

Notice

The information in this guide is subject to change without notice.

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Compaq Presario 1600XL Series Notebook Computer

First Edition (June 2000) Compaq Computer Corporation

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Preface

This *Maintenance and Service Guide* is a troubleshooting guide for use as a reference guide when servicing the Compaq Presario 1600XL Series Notebook Computers*.

Compaq Computer Corporation reserves the right to make changes to the Compaq Presario 1600XL Series Notebooks without notice.

Symbols

The following words and symbols mark special messages throughout this guide.

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

⚠ **CAUTION:** Text set off in this manner indicates that failure to follow the directions in the cautioncould result in damage to equipment or loss of data.

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

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

Technician Notes

⚠ **WARNING:** Only authorized technicians trained by Compaq should 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 subassemblies, the user should not attempt to make repairs at the component level or modifications to any printed circuit board. Improper repairs can create a safety hazard. Any indications of component replacement or printed circuit board modifications may void any warranty.

Serial Number

When requesting information or ordering spare parts, you should provide the Notebook serial number to Compaq. The serial number location is underneath the Notebook.

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Locating Additional Information

The following documentation is available to support this product:

- Compaq Presario 1600XL Series Notebook Computer documentation set

- Introducing Windows 98 Guide

- Introducing Windows 2000 Guide

- Service Training Guides

- Compaq Service Advisories and Bulletins

- Compaq QuickFind

- Compaq Service Quick Reference Guide

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Product Description

Models and Features

Compaq Presario 1600XL Series Portable Notebook Computer Models		
	XL140	**XL141**
Display	12.1 inch TFT	12.1 inch TFT
Processor	Celeron 466-MHz w/128 Cache	Celeron 466-MHz w/128 Cache
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	24 CD Drive	6X DVD Drive
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56.0 Kbps Data/Fax with PCI-I	56.0 Kbps Data/Fax with PCI-I
Networking	None	None
Battery	3.2 Li-ION	3.2 Li-ION
System Memory	64 MB PC100	64 MB PC100
Misc 1	TV-Out	TV-Out
	XL142	**XL143**
Display	12.1 inch TFT	14.1 inch TFT
Processor	Pentium III/500-MHz w/128 Cache	Pentium III/500-MHz w/128 Cache
Hard Drive	6.0GB	12.0GB
CD or DVD Drive	6X DVD Drive	6X DVD Drive
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56.0 Kbps Data/Fax	56.0 Kbps Data/Fax
Networking	None	None
Battery	3.2 Li-ION	3.2 Li- ION
System Memory	64 MB PC100	64 MB PC100

Additional Models on Next Page

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Compaq Presario 1600XL Series Portable Notebook Computer Models		
	XL144	**XL145**
Display	14.1 inch TFT	14.1 inch TFT
Processor	Celeron 466-MHz w/128 Cache	Pentium III 500-MHz w/256 Cache
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	6X DVD Drive	6X DVD Drive
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56.0 Kbps Data/Fax International with PCI	56.0 Kbps Data/Fax International with PCI
Networking	None	None
Battery	3.2 Li-ION	3.2 Li-ION
System Memory	64 MB PC100	64 MB PC100
Misc 1	TV-Out	TV-Out

	XL146	**XL147**
Display	14.1 inch TFT	14.1 inch TFT
Processor	Pentium III 500-MHz w/256 Cache	Pentium III 500-MHz w/256 Cache
Hard Drive	12.0GB	12.0GB
CD or DVD Drive	6X DVD Drive	6X DVD Drive
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56.0 Kbps Data/Fax	56.0 Kbps Data/Fax-I
Networking	None	None
Battery	3.2 Li-ION	3.2 Li-ION
System Memory	64 MB PC100	64 MB PC100

Additional Models on Next Page

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| Compaq Presario 1600XL Series Portable Notebook Computer Models		
	XL150	**XL156**
Display	14.1 inch TFT	12.1 inch TFT
Processor	Celeron 500-MHz w/128 Cache	PIII/600(256) FCPGA
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	6X DVD Drive	24X
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56.0 Kbps Data/Fax	56K Mini PCI d/f 1*
Networking	None	None
Battery	3.2 Li-ION	3.2 Li-ION
System Memory	64 MB PC100	64 MB PC101
	XL157	**XL255**
Display	14.1 inch TFT	13.3 inch TFT
Processor	PIII/600(256) FCPGA	Cel/566(128) FCPGA
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	6X DVD Drive	DVD
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56K Mini PCI d/f 1*	56K Mini PCI d/f 2*
Networking	None	None
Battery	3.2 Li-ION	3.2 Li-ION
System Memory	64 MB PC102	64 MB PC100

Additional Models on Next Page

Modem Legend
1) 56K Mini PCI d/f 1 = Bear/Grizzly Modem/NIC Combo = NA, CKK, LA
2) 56K Mini PCI d/f 2 = Seminole = EMEA/APD
3) 56K Mini PCI d/f 3 = Seminole 2 = All AUS/NZ

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| Compaq Presario 1600XL Series Portable Notebook Computer Models		
	XL256	**XL257**
Display	14.1 inch TFT	14.1 inch TFT
Processor	PIII/650(256) FCPGA	Cel/566(128) FCPGA
Hard Drive	6.0GB	12.0GB
CD or DVD Drive	DVD	DVD
Diskette Drive	3.5 inch Floppy Drive	3.5 inch Floppy Drive
Modem	56K Mini PCI d/f 2*	56K Mini PCI d/f 1*
Networking	None	None
Battery	3.2 LiON	3.2 LiON
System Memory	64 MB PC100	64 MB PC100

	XL258	
Display	14.1 inch TFT	
Processor	PIII/600(256) FCPGA	
Hard Drive	12.0GB	
CD or DVD Drive	DVD	
Diskette Drive	3.5 inch Floppy Drive	
Modem	56K Mini PCI d/f 1*	
Networking	None	
Battery	3.2 LiON	
System Memory	64 MB PC100	

Modem Legend
1) 56K Mini PCI d/f 1 = Bear/Grizzly Modem/NIC Combo = NA, CKK, LA
2) 56K Mini PCI d/f 2 = Seminole = EMEA/APD
3) 56K Mini PCI d/f 3 = Seminole 2 = All AUS/NZ

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Front of Unit
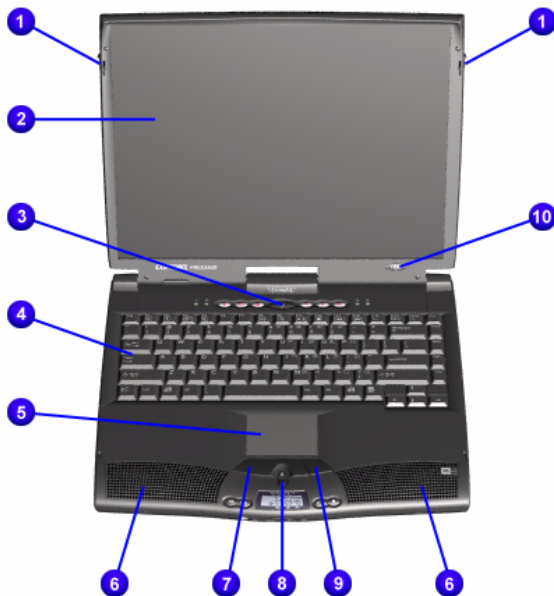
No.	Description	No.	Description
❶	Display Release Latch	❻	Integrated Speakers
❷	Display	❼	TouchPad Button
❸	Power (On/Off) Button	❽	Scroll Up/Down Button
❹	Lid Switch	❾	Right TouchPad Button
❺	Keyboard	❿	Model Number

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Internet Zone Buttons and Lights
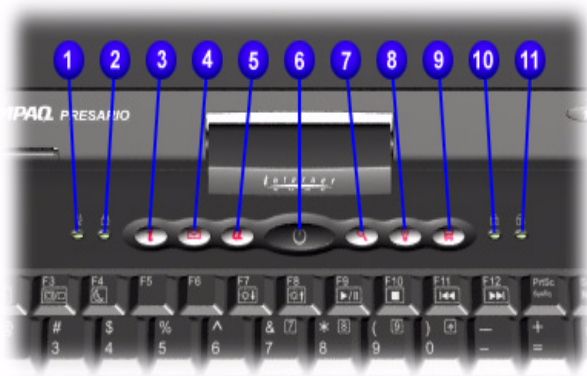
No.	Description	No.	Description
❶	AC Adapter Light	❼	Instant Search Button
❷	Cap Lock Light	❽	Online Marketplace Button (US/Puerto Rico) Instant Answer Button (countries outside the US)
❸	Instant Internet Access Button	❾	Retail Central Button (US/Puerto Rico), Instant E-Commerce Button (countries outside the US)
❹	Instant E-mail Access Button	❿	Num Lock Light 11
❺	My Presario Instant Access Button	⓫	Scroll Lock Light
❻	Power Button		

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Front Bezel Components
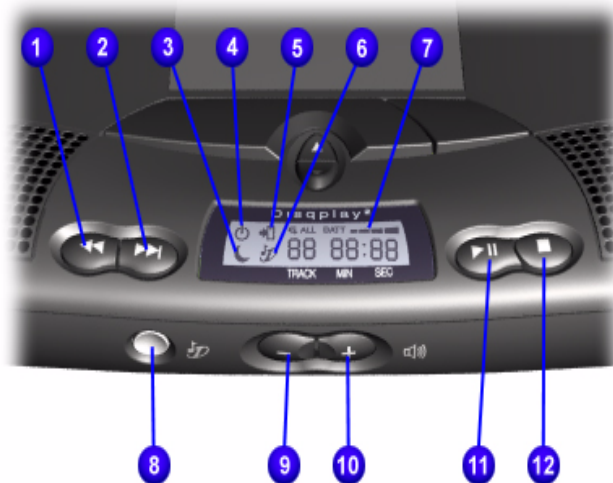
No.	Description	No.	Description
❶	Previous Track Button	❼	Battery Gauge
❷	Next Track Button	❽	DisqPlay On/Off Button
❸	Sleep Status Icon	❾	Volume Down Button
❹	Power Status Icon	❿	Volume Up Button
❺	Battery Charging Status Icon	⓫	Play/Pause Button
❻	DisqPlay Status Icon	⓬	Stop Button

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Right-Side Components
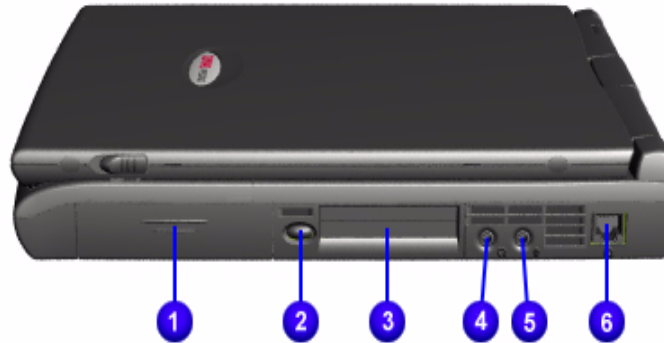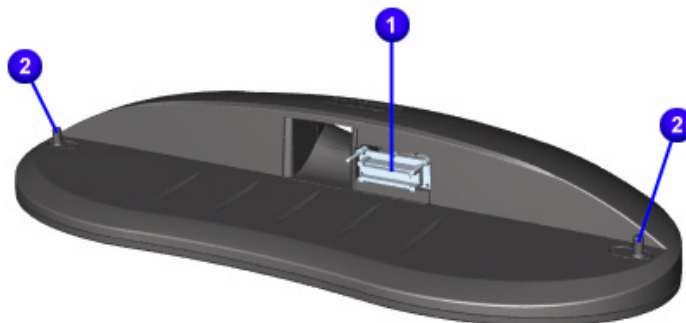

No.	Description
❶	Battery Compartment
❷	PC Card Eject Button
❸	PC Card Slot
❹	Headphone Jack
❺	Microphone Jack
❻	Modem Port

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Left-Side Components with Diskette Drive
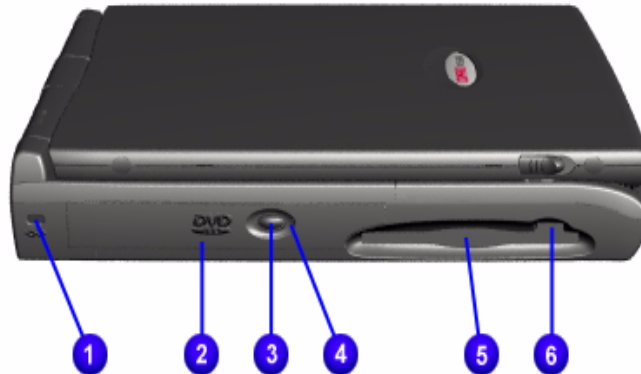
No.	Description	No.	Description
❶	Security Slot	❹	CD or DVD Manual Eject Hole
❷	CD or DVD Drive	❺	Diskette Drive
❸	CD/DVD Eject Button	❻	Diskette Drive Eject Button

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Underneath the Unit
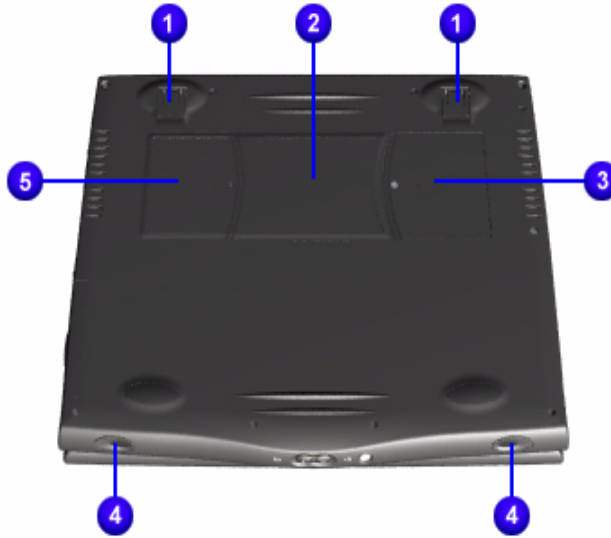
No.	Description	No.	Description
❶	Pop-up Feet	❹	Speaker Ports
❷	Serial and Model Number	❺	Modem Door
❸	Memory Compartment Door		

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Rear Connectors
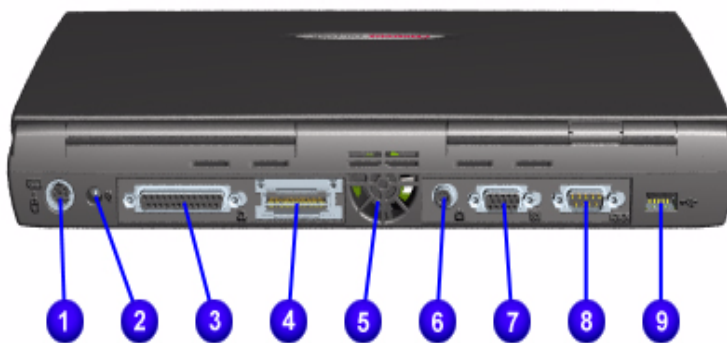
No.	Description	No.	Description
❶	Keyboard/Mouse Port	❻	TV Out Connector
❷	AC Adapter Connector	❼	VGA External Monitor Port
❸	Parallel Port	❽	Serial Port
❹	QuikDock Connector	❾	Universal Serial bus Port
❺	Fan Vent		

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QuikDock Components

No.	Description
❶	QuikDock Interface Connector
❷	QuikDock Guide Posts

QuikDock Connectors

No.	Description	No.	Description
❶	Universal Serial Bus Port	❽	Serial Port
❷	Universal Serial Bus Port	❾	External Monitor Port
❸	Power (AC Adapter) Connector	❿	10/100TX Ethernet
❹	Keyboard/Mouse Port	⓫	S Video
❺	Keyboard/Mouse Port	⓬	(Composite) TV Out
❻	Parallel Port	⓭	Audio Out
❼	Game Port		

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Power Management

The following power management features are available for conserving AC power and extending battery operating time:

- Power Management Settings

- Low-Power Modes

- Battery Operating Life

- Servicing the Notebook - Full Off Mode

- Rebooting After a Lockup

- Recovering From a Loss of Electrical Power

Power Management Settings

Different patterns of Notebook use determine the level of power management needed. These power management levels can be initiated based on the amount of time passed since the last system activity. System activity examples include keyboard strokes or mouse movement, DVD/CD playback (while under program control that monitors Standby), and modem use.

Power Schemes

You may select different settings or Power Schemes through Power Management from the Control Panel. The default Power Schemes are Home/Office Desk, Portable/Laptop, and Always On. The settings can be customized by changing the following options:

- **System Standby**: length of inactivity before the Notebook goes into Standby mode

- **Turn Off Monitor**: length of inactivity before the screen times out and goes blank

- **Turn Off Hard Disks**: length of inactivity before the hard drive goes into low-power mode

  Important: The setting for the Hard Disk must be less than or equal to the setting for the system. If the Notebook is on a network, Compaq recommends that System Standby be set to **Never**.

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The following table shows the default settings for each Power Scheme.

Power Schemes		
Always on	**AC Power**	**Battery Power**
System Standby Turn OFF Monitor Turn OFF Hard Disks	Never 15 minutes 1 hour	5 minutes 2 minutes 3 minutes
Portable/Laptop	**AC Power**	**Battery Power**
System Standby Turn OFF Monitor Turn OFF Hard Disks	Never 3 hours 15 minutes	15 minutes Never 10 minutes
Home/Office Desk	**AC Power**	**Battery Power**
System Standby Turn OFF Monitor Turn OFF Hard Disks	20 minutes 15 minutes 30 minutes	1 minute 2 minutes 10 minutes

Alarms

The Notebook can be set to Alarm when the battery power level is reduced or when it reaches a critical low level. The Notebook can also be set automatically to enter a low-power mode when the battery reaches a specific power level.

> ⚠️ **CAUTION:** The settings on the Alarms tab are preset for the Notebook to run at its best. Changing any of these settings could cause the Notebook to function improperly. It is recommended that these settings be left at their default values.

Alarms		
Alarm	**Default**	**Alarm Action**
Low Battery	10%	Notification: Text Power Mode: No Action
Critical Battery	0%	Notification: No Action Power Mode: Hibernation

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SpeedStep^(TM) Technology Modes

SpeedStep^(TM) Technology features several speed options for processor response to low-power conditions. These speed options are:

- **Maximum Performance**: always at high speed

- **Battery Optimized**: always at low speed

- **Reversed**: opposite recommended

- **Recommended**: performance on AC, battery optimized on battery

- **Disabled**: no run-time support, high speed

SpeedStep options can be accessed in three ways:

- Access **F10 Setup** during startup and select the **Advanced** screen.

- Click **Start>Settings>Control Panel>Power Options>Intel(R) SpeedStep^(TM) technology** tab.

- Double-click the **Flag** icon on the Windows taskbar to open the **Intel(R) SpeedStep^(TM) technology** dialog box.

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Low-Power Modes

Compaq Presario 1600XL Series Notebook Computers have two levels of low-power management: **Hibernation** and **Standby**.

Hibernation

Hibernation helps conserve battery life and protect data. The Notebook automatically enters Hibernation mode when the battery has little power left or when the Notebook (operating on battery power) is in Standby mode for more than one hour. As the Notebook enters Hibernation, it automatically stores the contents of its memory to the hard drive before it shuts down. When the Notebook comes out of Hibernation, it returns to its former state.

Activate Hibernation mode by pressing the **Power** button once.

To restart the Notebook, press the **Power** button once. When the Notebook enters or wakes from Hibernation mode, a Progress window is displayed on the screen.

Standby

Standby is a low-power mode, also referred to as Sleep mode. Selecting Standby mode instead of turning off the Notebook when finished has two advantages: 1. It enables the Notebook to wake up faster than if it had been turned off completely; 2. It saves more power than the active (On) mode.

Activate Sleep mode by pressing **Fn+F4**. Or click **Start,** select the **Shut Down** option, and click **Standby**.

> ⚠ **CAUTION:** The Notebook maintains system information and open files while in Standby mode. However, unsaved information is lost if the Notebook is turned off prior to system wake-up, or if a power loss occurs while using the AC adapter.

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The following table shows the conditions and indicators for entering and exiting the various power-management modes: Standby, Hibernation, and Off.

Power-Management Modes			
Standby	**Activation**	**Deactivation**	**Indicators**
Manual	Press **Fn+F4** key combination or click the **Start** button on the Windows taskbar, then point to **Shutdown** and click **Standby**.	Press any key.	Flashing **Power** light*
Time-Out Default	15 minutes if using battery power. Notebook will not automatically enter Standby mode if using AC Power.		
Hibernate	**Activation**	**Deactivation**	**Indicators**
Manual	Press **Power** button once.	Press **Power** button once.	**Power** light is off, screen is blank**
Time-Out Default	When battery is low or after 1 hour of Standby. Notebook will not automatically enter Hibernation mode if using AC Power.	Press **Power** button once.	**Power** light is off, screen is blank**

* Moon icon appears on status display (1600XL Series only)
** Power icon does not appear on status display (1600XL Series only)

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Power-Management Modes			
Off	**Activation**	**Deactivation**	**Indicators**
Standard	Perform normal Windows shutdown using the **Start** button on the Windows taskbar.	Press **Power** button once.	**Power** light is off, screen is blank.
Manual	Press and hold down the **Power** button for 4 seconds.		

Important: The manual shutdown mode is not recommended unless the standard shutdown mode does not work.

Battery Operating Life

Battery operating life is affected by variables such as:

- Power conservation settings

- Hardware configuration

- Software applications

- Installed options

- Display brightness

- Hard drive usage

- Changes in operating temperature

- Type and number of installed PC Cards

For more information on increasing battery-pack operating time, conditioning the battery pack, and disposing of a used battery pack, refer to the Battery Operations section in this *Maintenance and Service Guide*.

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Servicing the Notebook - Full Off Mode

The Notebook must be turned off completely when installing or replacing components in the system. Follow the instructions for putting the Notebook into Off mode properly, unplugging it from the outlet, and removing the battery (see *Battery Pack Removal Sequence*).

Rebooting After a Lockup

To reboot the Notebook (from a cold start) when the keyboard is frozen or the screen is locked, press and hold down the **Power** button for at least four seconds; this causes a manual shutdown. Then, restart the Notebook with a single press of the **Power** button.

If the Notebook still does not recover, press the **Power** button and hold for four seconds to shut it down, then remove the battery or unplug the AC power for at least 30 seconds. Reinsert the battery or reconnect AC power and press the **Power** button once to reboot.

Recovering From a Loss of Electrical Power

Loss of electrical power causes the Notebook to turn off automatically. This may cause loss of data because the Microsoft Windows operating system is not able to close all files and programs properly.

Loss of power may be caused by one of the following:

- Electrical power service is interrupted.

- The power cord is accidentally disconnected.

If power surges or sags, the display and status lights may flicker, and the Notebook may automatically restart. If an improper shutdown occurs, the Microsoft Windows utility program, ScanDisk, runs automatically once power is restored. ScanDisk determines whether the improper shutdown caused any errors on the hard disk. These errors may occur if the Microsoft Windows operating system is not able to close all files properly before the shutdown. If no errors are found, the restart process continues. If ScanDisk does detect errors, follow the instructions on the screen to continue the restart process. Work that was not saved before the loss of power or shutdown may be lost.

If a power failure occurs, or the power cord disconnects while the Notebook is turned on, turn it off until normal service is restored. The next time the Notebook is turned on, ScanDisk may run to check the hard disk for errors caused by improper shutdown.

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Specifications

Physical and Environmental

Computer Specifications		
Dimensions	**U.S.**	**Metric**
Height	1.63 inch	41.4 cm
Width	12.20 inch	31.00 cm
Depth	10.38 inch	26.36 cm
Weight		
with 12.1 inch TFT display	7.2 lb	3.26 kg
with 13.3 inch TFT display	7.3 lb	3.31 kg
with 14.1 inch TFT display	7.2 lb	3.26 kg
Stand-Alone (Battery Pack) Power Requirements	Li-ION 3.2 AHr	
Nominal Operating	W @ 14.8 V	
Maximum Average	W @ 14.8 V	
Peak Operating	W @ 14.8 V	
AC Power Requirements		
Operating Voltage	100-240 V	
Operating Current	0.8/0.4 A RMS	
Operating Frequency	47-63 Hz	
Maximum Transient	Meets IEC801-4 and IEC801-5 1kV for 50 ns	
Temperature		
Operating	50° to 95°F	10° to 35°C
Nonoperating	-4° to 140°F	-20° to 60°C
Relative Humidity (noncondensing)		
Operating	10 to 90%	
Nonoperating (tw = 38.7°C max)	5 to 95%	
Altitude		
Operating	0 to 10,000 ft	0 to 3.15 km
Non-Operating	0 to 30,000 ft	0 to 9.14 km

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Computer Specifications		
Dimensions	U.S.	Metric
Shock		
Operating	10 G, 11 ms, half sine	
Nonoperating	240 G, 2 ms, half sine	
Vibration		
Operating	0.5 G	
Nonoperating	1.5 G	

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. Compaq Presario 1600XL Series Portable Notebooks operate well within this range of temperatures.

System Interrupts

IRQ	Device(s)
0	System Timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable Interrupt Controller
4	Communications Port (COM1)
6	Standard Floppy Disk Controller
7	Printer Port
8	System CMOS/Real Time Clock
9	VIA PCI Audio Controller
9	Texas Instruments PCI-1211 CardBus Controller
9	Trident CyberBlade i1 AGP (51)
10	SCI IRQ used by ACPI Bus
11	ACPI IRQ Holder for PCI IRQ Steering
11	VIA Tech 3038 PCI to USB Universal Host Controller
11	ACPI IRQ Holder for PCI IRQ Steering
11	Compaq PCI Modem Enumerator
12	Synaptics PS/2 TouchPad
13	Numeric Data Processor

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IRQ	Device(s)
14	VIA Bus Master PCI IDE Controller
14	Primary IDE Controller (Dual FIFO)
15	VIA Bus Master PCI IDE Controller
15	Secondary IDE Controller (Dual FIFO)

System DMA

DMA	Device(s)
2	Standard Floppy Disk Controller
4	Direct Memory Access Controller

System I/O Address

I/O Address	System Function (Shipping Configuration)
0000h-000Fh	Direct Memory Access Controller
0020h-0021h	Programmable Interrupt Controller
0040h-0043h	System Timer
0060h-0060h	Standard 101/102-Key or Microsoft Natural Keyboard
0061h-0061h	System Speaker
0062h-0062h	ACPI Embedded Controller
0064h-0064h	Standard 101/102-Key or Microsoft Natural Keyboard
0066h-0066h	ACPI Embedded Controller
0070h-0075h	System CMOS/Real Time Clock
0081h-008Fh	Direct Memory Access Controller
00A0h-00A1h	Programmable Interrupt Controller
00C0h-00DFh	Direct Memory Access Controller
00F0h-00FFh	Numeric Data Processor
0170h-0177h	VIA Bus Master PCI IDE Controller
0170h-0177h	Secondary IDE Controller (Dual FIFO)

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I/O Address	System Function (Shipping Configuration)
01F0h-01F7h	VIA Bus Master PCI IDE Controller
01F0h-01F7h	Primary IDE Controller (Dual FIFO)
0200h-0207h	Gameport Joystick
02F8h-02FFh	Compaq 56K V.90 HSF Mini PCI Modem
0376h-0376h	Secondary IDE Controller (Dual FIFO)
0376h-0376h	VIA Bus Master PCI IDE Controller
0378h-037Fh	Printer Port (LPT1)
03B0h-03BBh	Trident CyberBlade i1 AGP (51)
03C0h-03DFh	Trident CyberBlade i1 AGP (51)
03E8h-03EFh	Symphony Port (COM3)
03F0h-03F5h	Standard Floppy Disk Controller
03F6h-03F6h	VIA Bus Master PCI IDE Controller
03F6h-03F6h	Primary IDE Controller (Dual FIFO)
03F7h-03F7h	Standard Floppy Disk Controller
03F8h-03FFh	Communications Port (COM1)
0CF8h-0CFFh	PCI Bus
1000h-10FFh	VIA PCI Audio Controller (WDM)
1400h-141Fh	VIA Tech 3038 PCI to USB Universal Host Controller
1420h-1427h	Primary IDE Controller (Dual FIFO)
1420h-142Fh	VIA Bus Master PCI IDE Controller
1428h-142Fh	Secondary IDE Controller (Dual FIFO)
1430h-1433h	VIA PCI Audio Controller (WDM)
1434h-1437h	VIA PCI Audio Controller (WDM)
1438h-143Fh	Compaq PCI Modem Enumerator

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System Memory Catalog

Memory Address	Device(s)
00000000h-0009FFFFh	System Board Extension for ACPI BIOS
000A0000h-000AFFFFh	Trident CyberBlade i1 AGP (51)
000B0000h-000BFFFFh	Trident CyberBlade i1 AGP (51)
000C0000h-000CBFFFh	Trident CyberBlade i1 AGP (51)
000DC000h-000DFFFFh	System Board Extension for ACPI BIOS
000E0000h-000FFFFFh	System Board Extension for ACPI BIOS
03800000h-03800FFFh	Texas Instruments PCI-1211 CardBus Controller
F4000000h-F400FFFFh	Compaq PCI Modem Enumerator
F4100000h-F411FFFFh	Trident CyberBlade i1 AGP (51)
F4100000h-F57FFFFFh	PCI Standard PCI-to-PCI Bridge
F4120000h-F412FFFFh	Trident CyberBlade i1 AGP (51)
F4800000h-F4FFFFFFh	Trident CyberBlade i1 AGP (51)
F5000000h-F57FFFFFh	Trident CyberBlade i1 AGP (51)
F8000000h-FBFFFFFFh	PCI Standard Host CPU Bridge
FFFE0000h-FFFFFFFFh	System Board Extension for ACPI BIOS

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Display Information

12.1 inch 13.3 inch, and 14.1 inch TFT Display		
Dimensions	**U.S.**	**Metric**
12.1 inch TFT		
Dimensions		
Height	7.89 inch	20.05 cm
Width	10.82 inch	20.05 cm
Depth	0.27 inch	0.69 cm
Display Dimensions		
Height	7.42 inch	18.85 cm
Width	9.84 inch	25.00 cm
Contrast Ratio	150:1	
Brightness	150nits	
Total Power Consumption	1.2 to 1.5W typ (Assuming backlight current of 5.0 mA, or 100 nits luminance)	
Response Time	50ms	
Refresh Rate	60Hz	
13.3 inch TFT		
Dimensions		
Height	8.44 inch	21.45 cm
Width	11.18 inch	28.40 cm
Depth	0.21 inch	0.55 cm
Display Dimensions		
Height	7.98 inch	20.27 cm
Width	10.64 inch	27.03 cm
Contrast Ratio	150:1	
Brightness	150nits	
Total Power Consumption	1.2 to 1.5W typ (Assuming backlight current of 5.0 mA, or 100 nits luminance)	
Response Time	50ms	
Refresh Rate	60Hz	

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12.1 inch 13.3 inch, and 14.1 inch TFT Display		
Dimensions	U.S.	Metric
14.1 inch (Diagonal) TFT Display with LVDS		
Dimensions Height Width Depth	8.92 inch 11.76 inch 0.28 inch	22.65 cm 29.85 cm 0.72 cm
Display Dimensions Height Width	8.60 inch 11.41 inch	21.84 cm 28.98 cm
Contrast Ratio	150:1	
Brightness	150nits	
Total Power Consumption	1.2 to 1.5W typ (Assuming backlight current of 5.0 mA, or 100 nits luminance)	
Response Time	50 ms	
Refresh Rate	60 Hz	

Memory Expansion

Memory Expansion		
System Memory	Expansion Board Memory	Total Memory
64MB	none	64MB
64MB	32MB	96MB
64MB	64MB	128MB
64MB	128MB	193MB
64MB	256MB	320MB

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Diskette Drive

| Diskette Drive	
Capacity per Diskette (High/Low)	1.44 MB/720KB
Diskette Size	3.5 inch
Number of LED Indicators (Read/ Write)	0
Number of Drives Supported	1
Drive Rotation (rpm)	300
Transfer Rate (Kbps)	500
Bytes per Sector	512
Sectors per Track (High/Low)	18/9
Tracks per Side (High/Low)	80
Access Times Track-to-Track (ms) Average (ms) Setting Time (ms) Latency Average (ms)	3 94 15 100
Cylinders (High/Low)	80
Number of Read/Write Heads	2

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Hard Drive

| Hard Drives			
Drive Type	**6.0GB**	**12.0GB**	**18.0GB**
Capacity Per Drive	6.0GB	12.0GB	18.0GB
Logical Configuration Cylinders Heads Sectors per Track Bytes per Sector	8647 4 190/330 512	11968 6 190/330 512	11968 6 190/330 512
Seek Times Typical (including settling in ms) Single Track Average Full Stroke	4 14 24	4 14 24	4 14 24
Transfer Rate at Interface	33.3 MB/s	33.3 MB/s	33.3 MB/s

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CD or DVD Drive

CD or DVD Drive				
	6x DVD	**8x DVD**	**CD-RW**	**24x CD-ROM**
Dimensions	128 x 129 x 12.7 mm	128 x 129 x 12.7 mm	128 x 129 x 12.7 mm	128 x 129 x 12.7 mm
Weight	0.29 kg	0.29 kg	0.29	0.19 kg
Rotational Speed - Approx.	3450 rpm	2300 rpm	Not Available	4225 rpm
Typical Transfer Rate Sustained Data-Transfer Rate	8100 KB/s	5400 KB/s	2100 KB/s	3600 KB/s
Access Time Average Random Access Time	140 ms	140 ms	150 ms	120 ms
Spin Up Time	<15 s	3.8 s	<10.0 s	2.7 s
Data Buffer Capacity	512 KB	128 KB	Not Available	128 KB

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Battery Pack

Battery Pack	
Type	**Lithium Ion (Li-ION)**
Dimensions	
Height	0.8 in (20.3 mm)
Length	5.7 in (145 mm)
Width	3.1 in (78.7 mm)
Weight	0.90 lb (408.2 g)
Operating Lifetime	2 hr 30 min*
Energy	
Nominal Open	
Circuit Voltage	14.4 V
Capacity	3000 mAH
Power	43.2 WH
Temperature Requirements	
Operating	32° F (0 to 50° C)
Non-Operating	-20° C to 60° C
Charging	5° C to 45° C

*The battery operating lifetime changes depending on the power management settings, system components, options, and applications used.

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Pin Assignments

This appendix provides connector pin assignment tables for Compaq Presario 1600XL Series Portable Notebooks. For more information on connectors, refer to the section on Rear Connectors.

> **Note:** The signals in all tables of this appendix are considered active high unless otherwise indicated by an asterisk (*).

Parallel Connector

Pin	Signal	Pin	Signal
1	Strobe*	10	Acknowledge*
2	Data Bit 0	11	Busy
3	Data Bit 1	12	Paper Out
4	Data Bit 2	13	Select
5	Data Bit 3	14	Auto Linefeed*
6	Data Bit 4	15	Error*
7	Data Bit 5	16	Initialize Printer*
8	Data Bit 6	17	Select In*
9	Data Bit 7	18-25	Signal Ground

* = Active low

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Serial Connectors		
Connector	**Pin**	**Signal**
	1	Carrier Detect
	2	Receive Data
	3	Transmit Data
	4	Data Terminal Ready
	5	Signal Ground
	6	Data Set Ready
	7	Ready to Send
	8	Clear to Send
	9	Ring Indicator

Keyboard/Mouse		
Connector	**Pin**	**Signal**
	1	Data 1
	2	Data 2
	3	Ground
	4	+5 V
	5	Clock 1
	6	Clock 2

Modem Connector		
Connector	**Pin**	**Signal**
	1	Unused
	2	Tip
	3	Ring
	4	Unused

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Universal Serial Bus
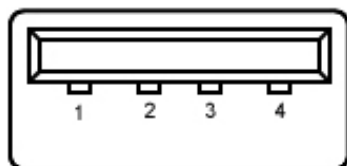
Connector	Pin	Signal
	1	+5 V
	2	Data -
	3	Data +
	4	Ground

External VGA Monitor
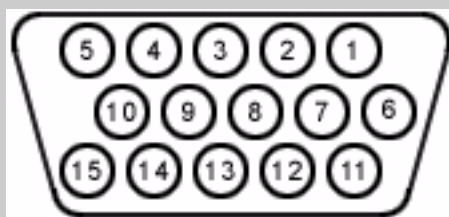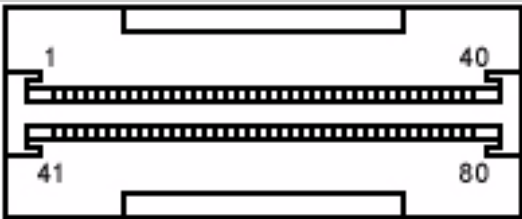
Pin	Connector	Pin	Signal
1	Red Analog	9	+5 V
2	Green Analog	10	Ground
3	Blue Analog	11	Not connected
4	Not connected	12	DDC2B Data
5	Ground	13	Horizontal Sync
6	Ground Analog	14	Vertical Sync
7	Ground Analog	15	DDC2B Clock
8	Ground Analog		

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TV-Out		
Connector	**Pin**	**Signal**
	1	Ground
	2	Composite

QuikDock Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	Adapter Power	22	Serial Port DCD	43	Keyboard Clock	64	MIDI Output
2	Adapter Power	23	Serial Port DSR	44	Keyboard Data	65	Headphone Sense
3	Adapter Power	24	Serial Port TXD	45	Mouse Clock	66	USB Power
4	Adapter Power	25	Serial Port RTS	46	Mouse Data	67	USB Power
5	Adapter Power	26	Monitor DDC	47	Lp Select	68	USB Power
6	Adapter Power	27	Monitor DDC	48	Lp Paper End	69	USB Power
7	Not Connected	28	Not connected	49	Lp Initialize	70	USB A-
8	Printer Data 0	29	V.SYNC	50	Lp Busy	71	USB A+
9	Printer Data 1	30	Ground	51	Lp Error	72	USB B-
10	Printer Data 2	31	H.SYNC	52	Lp Acknowledge	73	USB B+
11	Printer Data 3	32	Ground	53	Lp AutoFeed	74	5V
12	Printer Data 4	33	Blue	54	Lp Strobe	75	5V
13	Printer Data 5	34	Ground	55	Joystick Data A	76	Line Out Left
14	Printer Data 6	35	Green	56	Joystick Data B	77	S-Video SYR

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QuikDock Connector
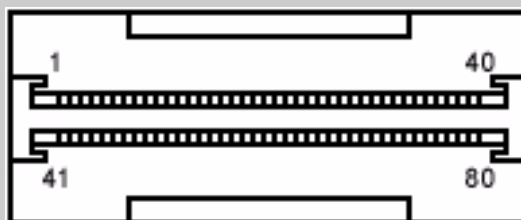
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
15	Printer Data 7	36	Ground	57	Joystick Data C	78	Ground
16	Lp Indicator	37	Red	58	Joystick Data D	79	S-Video SCG
17	QuikDock Indicator	38	Ground	59	Switch A	80	Ground
18	Serial Port RXD	39	Composite TV Out	60	Switch B	81	Ground
19	Serial Port RI	40	Line Out Right	61	Switch C	82	Ground
20	Serial Port DTR	41	Line Out Present	62	Switch D		
21	Serial Port CTS	42	Power Cycle	63	MIDI Input		

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Battery Operations

This section explains the following topics concerning battery pack operating time:

- [Increasing Battery Pack Operating Time](#)

- [Conditioning a Battery Pack](#)

- [Disposing of a Used Battery Pack](#)

Increasing Battery Pack Operating Time

Battery pack operating time varies depending on several factors. To avoid unnecessary replacement, consider the following when determining how long a charged battery pack should last:

- Power management settings

- Hardware configuration

- Software applications

- Installed options

- Display brightness

- Hard drive usage

- Changes in operating temperature

- Type and number of installed PC Cards

   Note: The power consumption requirements for PC Cards vary widely. Some cards drain the battery pack very rapidly.

Battery pack operating time can be increased by as much as 50 percent by controlling the amount of energy required by the computer and the energy stored in the battery pack.

Minimizing the Energy Required

To minimize the energy required by the computer, follow these steps:

- Set the power conservation levels in the Power Management utility to **Maximum**.
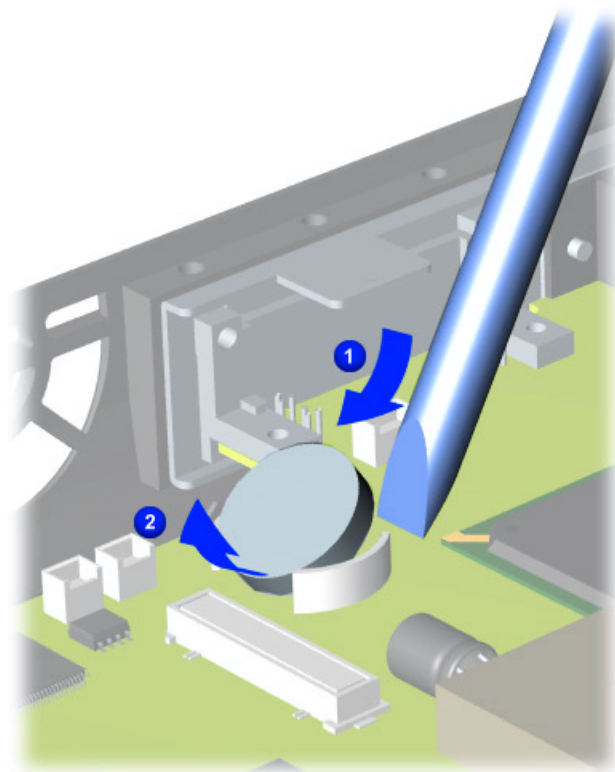
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- Customize the timeout value to work more efficiently with the applications. The amount of battery life depends on the values selected.

Maximizing the Energy Stored

To maximize the energy stored in the battery pack, follow these guidelines:

- Condition the battery pack at least every 30 days to improve overall battery performance.

- Keep a battery pack in the Notebook when using it with AC power. This supplies the battery pack with a constant trickle charge.

- Store the battery pack in a cool, dry place when not in use.

Conditioning a Battery Pack

⚠ **CAUTION:** To avoid loss of data, ensure that all data is saved before discharging a battery pack.

To condition a battery pack, complete the following steps:

1. Plug in the AC adapter and allow the battery to charge until the fast charge arrow on the display disappears. Your battery gauge may read 100 percent for a period of time before the arrow disappears. Do not unplug the AC adapter until the arrow disappears.

2. Unplug the AC adapter and allow the battery to drain until the computer reaches hibernation and turns itself off.

⚠ **CAUTION:** Do not plug in the AC adapter during this process or you will need to restart with Step 1. You may use the computer while the battery is draining.

3. The battery is reconditioned.

4. Plug in the AC adapter and begin using the computer.

The table below shows battery pack charge times by model.

Battery Charge Time		
Computer	**Online**	**Offline**
Li-ION Battery Pack	4.5 hours premature termination	2:50 hr

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Disposing of a Used Battery Pack

In the interests of safeguarding our environment, Compaq Computer Corporation recommends that nickel metal hydride (NiMH) and lithium-ion (Li-ION) battery packs be recycled. Battery packs should be handled in accordance with country, state, province, or local regulations.

> △ **CAUTION:** Never attempt to open or service a battery pack. Opening a battery pack not only damages the pack and makes it unusable, but also exposes potentially harmful battery components.

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Troubleshooting

This section provides troubleshooting information for Compaq Presario 1600XL Series Portable Notebook. The basic steps in troubleshooting include:

1. Preliminary Steps

2. The Power-On Self Test (POST)

3. The recommended actions described in the diagnostic tables in case you are unable to run POST, or if POST displays an error message.

When following the recommended actions in the Sections on Power-On Self Test (POST) and Diagnostic Error Codes, perform the steps in the order listed above. Rerun POST after each recommended action until the problem is solved, and if no error message occurs. Once the problem is solved, do not continue with any recommended actions remaining.

> **Note:** If the problem is intermittent, check your computer several times to verify that the problem is solved.

Preliminary Steps

Before running Power-On Self Test (POST), complete the following steps:

1. If a Power-on password is established, type the password and press the **Enter** key. If you do not know the password, clear the password (See Clearing the Power-On Password).

2. Run Compaq Diagnostics.

3. Turn off the computer and its external devices.

4. Disconnect any external devices that you do not want to test. Do not disconnect the printer if you want to test it or use it to log error messages.

   Important: If the problem only occurs when an external device is connected to the computer, the problem may be related to the external device or its cable. Verify this by running POST both with and without the external device connected.

5. Install loopback plugs in the serial and parallel connectors if you would like to test these ports.

6. Ensure that the hard drive is installed in the Notebook.

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7. Ensure that the battery pack is inserted in the Notebook and that it is connected to an external AC power source.

When these preliminary steps are completed, you are ready to run POST.

Clearing the Power-On Password

Note: Clearing the Power-on password also removes all notebook Setup attributes that are programmed in the CMOS.

If you do not know the password, clear it by performing the following steps:

1. Turn off the computer.

2. Disconnect the power cord.

3. Remove the battery pack.

4. Remove the keyboard.

5. Remove the LED button bezel.

6. Disconnect the backlight cable from the connector on the system board.

Continued on next page.

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7. To clear the password, remove the RTC battery for 10 seconds. Simultaneously make contact with the two pads located at R37 on the system boarding, using a conductive piece of material such as a piece of wire or tool.

8. Reassemble the Notebook.

9. Turn on the Notebook to verify that the power-on password has been cleared. If it has not been cleared, repeat Steps 1 through 7.

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Power-On Self Test (POST)

To run POST, complete these steps:

Turn off the Notebook, then turn it on again. As soon as the Compaq logo appears, press the **ESC** key to clear the logo and display the POST messages as they occur.

If the Notebook does not beep, POST has successfully completed its test and detected no errors. POST then reboot from the hard drive, or from a bootable diskette if one is installed in the diskette drive.

However, if POST detects errors, these are indicated by messages displayed on the screen and/or audible messages. A list of the POST error codes and what they mean is shown in the table below.

> **Note:** If the system is not functioning well enough to run POST, or if the display is not functioning well enough to show POST error messages, refer to the Troubleshooting Tables.

Power-On Self Test Messages	
102-System Board Failure	
Probable Cause	**Recommended Action**
DMA, timers, etc.	Replace the system board.

162-System Options Not Set	
Probable Cause	**Recommended Action**
Incorrect configuration	Run Computer Setup.
CMOS reflects an invalid configuration setting.	Run Computer Setup.
RAM failure	1. Replace the memory modules. 2. Replace the system board.
Memory test data error	1. Replace the memory modules. 2. Replace the system board.
XX000YZZ RAM failure	Replace the system board.

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XX000YZZ 201-Memory Error	
Probable Cause	**Recommended Action**
Keyboard failure	1. Ensure that no keys are pressed during POST. 2. Reconnect the keyboard with the Notebook off. 3. Replace the keyboard.

301-Keyboard Error	
Probable Cause	**Recommended Action**
Keyboard failure	1. Ensure the keys are not pressed during POST. 2. Reconnect the keyboard with the Notebook off. 3. Replace the keyboard.

304-Keyboard or System Unit Error	
Probable Cause	**Recommended Action**
Keyboard or system board error	1. Replace the keyboard. 2. Replace the TouchPad or mouse. 3. Replace the system board.

601-Diskette Controller Error	
Probable Cause	**Recommended Action**
Mismatch in drive type or failure in the diskette controller	1. Run Computer Checkup (TEST). 2. Check or replace cables. 3. Replace the system board.

605-Diskette Drive Error	
Probable Cause	**Recommended Action**
Mismatch in drive type	Run Computer Setup.

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1780-Primary Hard Drive 0 Failure	
Probable Cause	**Recommended Action**
Disk 0 failed to respond	1. Run Computer Checkup (TEST). 2. Replace the hard drive.
Hard drive format error	1. Run Computer Checkup (TEST). 2. Replace the hard drive.

1782-Hard Drive Controller	
Probable Cause	**Recommended Action**
Hard drive controller failure	1. Run Computer Setup. 2. Replace the hard drive.

Compaq Diagnostics

Compaq Diagnostics is installed on the hard drive of the Notebook. Run the Diagnostic utilities when you want to view or test system information and if you have installed or connected devices. If you run Compaq Diagnostics from a diskette, ensure that the diagnostic program is version 10.11 or later.

The Diagnostics menu includes the following utilities:

- Computer Checkup (TEST)

- View System Information (INSPECT)

- Diagnostic Error Codes

- Troubleshooting without Diagnostics

- Before Replacing Parts

- Solving Minor Problems

- Solving Hard Drive Problems

- Solving Hardware Installation Problems

- Solving Keyboard/Numeric Keypad Problems

- Solving Memory Problems

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- Solving PC Card Problems

- Solving Power Problems

- Solving Printer Problems

- Solving TouchPad/Pointing Device Problems

- Contacting Compaq Support

If you have a problem you cannot solve, run the Diagnostics utilities before calling for support. Run Computer Checkup and select to save the device list to a file and to print or to save the log of errors. Run the View System Information (INSPECT) utility and select to print or to save that information. Have the files or the printed information available when you call for support.

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Computer Checkup (TEST)

Computer Checkup (TEST) determines if the various computer components and devices are recognized by the system and are functioning properly. You can display, print, or save the information generated by Computer Checkup.

Follow these steps to run Computer Checkup:

1. Plug the Notebook into an external power source. (A low battery condition could interrupt the program.)

2. Turn on the external devices you want to test. Connect the printer if you want to print a log of error messages.

3. Insert the Compaq Diagnostics diskette in drive A.

4. Turn on or restart the Notebook. The notebook starts from drive A, and the Diagnostics Welcome screen is displayed.

5. Press **Enter** to continue. The Diagnostics menu is displayed.

6. Select **Computer Checkup** from the **Diagnostics** menu. A Test Option menu is displayed.

7. Select **View the Device List** from the **Test Option** menu. A list of the installed Compaq devices is displayed.

8. If the list of installed devices is correct, select **OK**. The Test Option menu is displayed.

   Note: If the list is incorrect, ensure that any new devices are installed properly.

   Select one of the following from the **Test Option** menu:

   • **Quick Check Diagnostics**. Runs a quick, general test on each device with a minimal number of prompts. If errors occur, they are display when the testing is complete. You cannot print or save the error messages.

   • **Automatic Diagnostics**. Runs unattended, 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 testing the devices. You can choose attended or unattended testing, decide to stop on errors, or choose to print or save a log of errors.

9. Follow the instructions on the screen as the devices are tested. When testing is complete, the Test Option menu is displayed.

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10. Exit the Test Option menu and the Diagnostics menu.

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View System Information (INSPECT)

The View System Information (INSPECT) utility provides information about the Notebook and installed or connected devices. You can display, print, or save the information.

Follow these steps to run View System Information (INSPECT) from the Compaq Diagnostics diskette:

1. Turn on the external devices you want to test. Connect the printer if you want to print the information.

2. Insert the Compaq Diagnostics diskette in drive A.

3. Turn on or restart the Notebook. The Notebook starts from drive A, and the Diagnostics Welcome screen is displayed.

4. Press **Enter** to continue. The Diagnostics menu is displayed.

5. Select **View System Information (INSPECT)** from the Diagnostics menu.

6. Select the item you want to view from the following list:

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

7. Follow the on-screen instructions to cycle through the screens, return to the list and choose another item, or print the information.

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Diagnostic Error Codes

Diagnostic error codes are displayed if the system recognizes a problem while running the Compaq Diagnostic program. These error codes help identify subassemblies with possible damage or defects.

The following tables list error codes, a description of the error condition, and the action required to resolve the error condition.

> **Important:** Retest the system after completing each step. If the problem is resolved, do not proceed with the remaining steps.

For the removal and replacement of a particular subassembly, see Removal and Replacement Procedures.

Select error codes by number or type:

101 through 114 (pg 12)	Processor Test
200 through 215 (pg 13)	Memory Test
300 through 304 (pg 13)	Keyboard Test
401 through 403 (pg 13)	Parallel Printer Test
501 through 516 (pg 16)	Video Test
600 through 699 (pg 14)	Diskette Drive Test
1101 (pg 14)	Serial Test
1701 through 1736 (pg 15)	Hard Drive Test
2402 through 2456 (pg 17)	Video Test
2419 through 2456 (pg 18)	Video Test
2458 through 2480 (pg 18)	Video Test
3206 (pg 19)	Audio Test
3301 through 6623 (pg 19)	DVD or CD Test
8601 through 8602 (pg 19)	TouchPad Pointing Device Test

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Processor Test Error Codes		
Error Code	**Description**	**Recommended Action**
101-xx	CPU test failed	Replace the processor and retest.
102-xx	Coprocessor or Weitek Error	1. Run the Configuration and Diagnostics Utilities. 2. Replace the processor board and retest.
103-xx	DMA page registers test failed	Replace the system board and retest.
104-xx	Interrupt controller master test failed	
105-xx	Port 61 error	
106-xx	Keyboard controller self-test failed	
107-xx	CMOS RAM test failed	
108-xx	CMOS interrupt test failed	
109-xx	CMOS clock test failed	
110-xx	Programmable timer load data test failed	
113-xx	Protected mode test failed	
114-01	Speaker test failed	1. Check system configuration. 2. Check cable connections to speaker. 3. Replace the system board and retest.

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Memory Test Error Codes		
Error Code	**Description**	**Recommended Action**
200-xx	Memory machine ID test failed	1. Flash the system ROM and retest.
202-xx	Memory system ROM checksum failed	2. Replace the system board and retest.
203-xx	Write/Read test failed	1. Remove the memory module and retest.
204-xx	Address test failed	2. Install a new memory module and retest.
211-xx	Random pattern test failed	
214-xx	Noise test failed	
215-xx	Random address test failed	

Keyboard Test Error Codes		
Error Code	**Description**	**Recommended Action**
300-xx	Failed ID Test	1. Check the keyboard connection. If disconnected, turn off the computer and reconnect the keyboard.
301-xx	Failed Self Test/Interface Test	2. Replace the keyboard and retest.
302-xx	Failed Individual Key Test	3. Replace the system board and retest.
304-xx	Failed Keyboard Repeat Test	

Parallel Printer Test Error Codes		
Error Code	**Description**	**Recommended Action**
401-xx	Printer failed or not connected	1. Connect the printer.
402-xx	Failed Port Test	2. Check power to the printer.
403-xx	Printer pattern test failed	3. Install the loop-back connector and retest.
		4. Check port and IRQ configuration.
		5. Replace the system board and retest.

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Diskette Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
600-xx	Diskette ID drive types test failed	1. Replace the diskette media and retest. 2. Check and/or replace the diskette power and signal cables and retest. 3. Replace the diskette and retest. 4. Replace the system board and retest.
601-xx	Diskette format failed	
602-xx	Diskette read test failed	
603-xx	Diskette Read-Write, read, compare test failed	
604-xx	Diskette random read test failed	
605-xx	Diskette ID media failed	
606-xx	Diskette speed test failed	
609-xx	Diskette reset controller test failed	
610-xx	Diskette change line test	
697-xx	Diskette type error	
698-xx	Diskette drive speed not within limits	
699-xx	Diskette drive/media ID error	1. Replace media. 2. Run the Configuration and Diagnostics Utilities.

Serial Test Error Codes		
Error Code	**Description**	**Recommended Action**
1101-xx	Serial Port test failed	1. Check port configuration. 2. Replace the system board and retest.

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Hard Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
1701-xx	Hard drive format test failed	1. Run the Configuration and Diagnostics Utilities and verify drive type.
1702-xx	Hard drive read test failed	2. Verify that all secondary drives have secondary drive capability.
1703-xx	Hard drive write/read/compare test failed	3. Replace the hard drive and retest.
1704-xx	Hard drive random seek test failed	4. Replace the system board and retest.
1705-xx	Hard drive controller test failed	
1706-xx	Hard drive ready test failed	
1707-xx	Hard drive recalibration test failed	
1708-xx	Hard drive format bad track test failed	
1709-xx	Hard drive reset controller test failed	
1710-xx	Hard drive park head test failed	
1715-xx	Hard drive head select test failed	
1716-xx	Hard drive conditional format test failed	
1717-xx	Hard drive ECC* test failed	
1719-xx	Hard drive power mode test failed	
1724-xx	Network preparation test failed	
1736-xx	Drive monitoring test failed	

ECC = Error Correction Code

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Video Test Error Codes		
Error Code	**Description**	**Recommended Action**
501-xx	Video controller test failed	The following steps apply to error codes 501-xx through 516-xx:
502-xx	Video memory test failed	
503-xx	Video attribute test failed	1. Disconnect external monitor and test with internal LCD display.
504-xx	Video character set test failed	
505-xx	Video 80 x 25 mode 9 x 14 character cell test failed	2. Replace the display assembly and retest.
506-xx	Video 80 x 25 mode 8 x 8 character cell test failed	3. Replace the system board and retest.
507-xx	Video 40 x 25 mode test failed	
508-xx	Video 320 x 200 mode color set 0 test failed	
509-xx	Video 320 x 200 mode color set 1 test failed	
510-xx	Video 640 x 200 mode test failed	
511-xx	Video screen memory page test failed	
512-xx	Video gray scale test failed	
514-xx	Video white screen test failed	
516-xx	Video noise pattern test failed	

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Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2402-xx	Video memory test failed	The following steps apply to error codes 2402-xx through 2456-xx:
2403-xx	Video attribute test failed	
2404-xx	Video character set test failed	1. Run the Configuration and Diagnostics Utilities.
2405-xx	Video 80 x 25 mode 9 x 14 character cell test failed	2. Replace the display assembly and retest.
2406-xx	Video 80 x 25 mode 8 x 8 character cell test failed	3. Replace the system board and retest.
2408-xx	Video 320 x 200 mode color set 0 test failed	
2409-xx	Video 320 x 200 mode color set 1 test failed	
2410-xx	Video 640 x 200 mode test failed	
2411-xx	Video screen memory page test failed	
2412-xx	Video gray scale test failed	
2414-xx	Video white screen test failed	
2416-xx	Video noise pattern test failed	
2418-xx	ECG/VGC memory test failed	

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Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2419-xx	ECG/VGC ROM checksum test failed	1. Run the Configuration and Diagnostics Utilities.
2421-xx	ECG/VGC 640 x 200 graphics mode test failed	2. Disconnect external monitor and test with internal LCD display.
2422-xx	ECG/VGC 640 x 350 16 color set test failed	3. Replace the display assembly and retest.
2423-xx	ECG/VGC 640 x 350 64 color set test failed	4. Replace the system board and retest.
2424-xx	ECG/VGC monochrome text mode test failed	
2425-xx	ECG/VGC monochrome graphics mode test failed	
2431-xx	640 x 480 graphics test failure	
2432-xx	320 x 200 graphics (256 color mode) test failure	
2448-xx	Advanced VGA Controller test failed	
2451-xx	132-column Advanced VGA test failed	
2456-xx	Advanced VGA 256 Color test failed	

Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2458-xx	Advanced VGA BitBLT test failed	The following applies to error codes 2458-xx through 2480-xx:
2468-xx	Advanced VGA DAC test failed	
2477-xx	Advanced VGA data path test failed	Replace the system board and retest.
2478-xx	Advanced VGA BitBLT test failed	
2480-xx	Advanced VGA LineDraw test failed	

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Audio Test Error Codes		
Error Code	**Description**	**Recommended Action**
3206-xx	Audio System Internal Error	Replace the system board and retest.

TouchPad/Pointing Device Interface Test Error Codes		
Error Code	**Description**	**Recommended Action**
8601-xx	Mouse test failed	1. Replace the TouchPad and retest.
8602-xx	Interface test failed	2. Replace the system board and retest.

DVD or CD Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
3301-xx	DVD or CD drive read test failed	1. Replace the DVD or CD and retest.
3305-xx	DVD or CD drive seek test failed	2. Verify that the speakers are connected.
6600-xx	ID test failed	3. Verify that drivers are loaded and properly installed.
6605-xx	Read test failed	
6608-xx	Controller test failed	4. Replace the DVD or CD drive and retest.
6623-xx	Random read test failed	5. Replace the system board and retest.

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Troubleshooting without Diagnostics

This section provides information about how to identify and correct some common hardware, memory, and software problems. It also explains several types of common messages that may be displayed on the screen. The following pages contain troubleshooting information about:

Audio	Memory
Battery	PC Card
CD or DVD Drive	Power
Diskette Drive	Printer
Display	TouchPad
Hard Drive	Keyboard/Numeric Keypad
Hardware Installation	

Since symptoms can be similar, carefully match the symptoms of the computer malfunction against the problem description in the tables to avoid a misdiagnosis.

⚠ **WARNING:** To avoid a potential shock hazard during troubleshooting procedures, disconnect all power sources before removing the keyboard cover or the display bezel.

Before Replacing Parts

Verify that cables are connected properly to the suspected defective parts.

- Run Computer Setup after connecting external devices.
- Verify that all required device drivers are installed.
- Verify that all required changes have been made to the CONFIG.SYS file.
- Verify that all required changes have been made to the AUTOEXEC.BAT file.
- Verify that all printer drivers have been installed for each application.

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Solving Minor Problems

Some minor problems and possible solutions are outlined in the following tables. If the problem appears related to a software application, check the documentation provided with the software.

Solving Audio Problems

Some common audio problems and solutions are listed in the following table.

Solving Audio Problems		
Problem	**Probable Cause**	**Solution**
Computer does not beep after the Power-On Self-Test (POST).	This is typical; it indicates successful completion of the Power-On Self-Test (POST).	No action is required.

Solving Battery Pack/Gauge Problems

Some common causes and solutions for battery pack problems are listed in the following table. The "Solving Power Problems" section in this chapter may also be applicable.

Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
Computer won't turn on when battery pack is inserted and power cord is unplugged.	Battery pack is discharged.	• Connect the computer to an external power source and charge the battery pack. OR • Replace the battery pack with a fully charged battery pack.
		Check the battery connectors on the system board to verify that they are evenly spaced and are not bent or broken.

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Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
Notebook is beeping and battery icon is blinking.	Battery charge is low.	Immediately save any open file(s). Then complete one of the following: • Connect the Notebook to an external power source to charge the battery pack. • Turn off the Notebook or initiate Hibernation until you can find another power source or charge the battery pack.
Battery icon on the front of the unit blinks to indicate low battery condition, but computer does not beep.	Volume is turned down too low.	Adjust the volume.
Battery icon doesn't light and battery pack won't fast charge.	Battery pack is already charged.	No action is necessary.
	Battery pack was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is at end of its life.	Replace the battery pack.
You have to set the date and time every time you turn on the Notebook.	RTC battery is dead.	Replace the RTC battery.
Battery charge does not last as long as expected.	Battery is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended temperature range for operation or storage. • Operating Range: 50°F to 104°F (10°C to 40°C) • Storage Range: -4°F to 86°F (-20°C to 30°C) Recharge the battery pack.

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Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
	Battery has partially self-discharged.	Recharge the battery. Discharge the battery completely and then recharge it.
	Power management is disabled.	Set a power management level in Computer Setup.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not in use.
Battery pack is warm to the touch after charging.	Normal warming has occurred due to charging.	No action is required.
Battery pack operating time is far less than the documented average operating time.	Power management is turned off or disabled.	Enable power management in Computer Setup and in Windows Power Properties.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not in use.

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Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
	Battery pack has partially self-discharged.	Condition the battery pack by fully charging, fully discharging, then fully recharging it. To maintain the charge, leave the battery pack in the Notebook when it is connected to external power. If the Notebook is disconnected from external power for more than two weeks, remove battery packs to reduce the discharge rate.
	Battery pack is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended temperature range for operation or storage. • Operating Range: 50°F to 104°F (10°C to 40°C) • Storage Range: -4°F to 86°F (-20°C to 30°C) Recharge the battery pack.

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Solving CD and DVD Drive Problems

Some common causes and solutions for CD and DVD drive problems are listed in the following table.

Solving CD or DVD Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
CD or DVD drive cannot read a Compact Disc or Digital Versatile Disc.	Disc is upside down or is improperly inserted in the CD or DVD drive.	Open the loading tray, lay the CD label side up in the tray, then close the tray.
	CD is CD Plus or Pregap/Track 0 type.	Cannot read these types of CDs in 24X. Remove the CD.

Solving Diskette Drive Problems

Some common causes and solutions for diskette drive problems are listed in the following table.

Solving Diskette Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
Diskette drive cannot write to a diskette.	Diskette is write-protected.	Disable the diskette's write-protect feature or use a diskette that is not write-protected.
	Computer is writing to the wrong drive.	Check the drive letter in the path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Drive error has occured.	Run Computer Checkup from the Compaq Diagnostics diskette.
	Diskette is not formatted.	Format the diskette. At the system prompt, enter: **FORMAT A:**
Diskette drive cannot read a diskette.	Diskette drive cannot read a diskette.	Use the type of diskette required by the drive.
	Diskette has a bad sector.	Copy files to hard drive or another diskette. Reformat bad floppy.

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Solving Diskette Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
	Drive error has occurred.	Run Computer Checkup from the Compaq Diagnostics diskette.
(*Continued*) Diskette drive cannot read a diskette.	Diskette is not formatted.	Format the diskette. At the system prompt, enter **FORMAT A:**
Cannot boot from diskette.	Bootable diskette is not in drive A.	Put the bootable diskette in drive A.
	Diskette Boot has incorrect setting in Computer Setup.	Run Computer Setup and set diskette as first to boot.

Solving Display Problems

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

You can perform a monitor self-test on an external VGA color or monochrome monitor by disconnecting the monitor from the Notebook, then completing the following steps:

1. Turn off the monitor.

2. Turn off the Notebook.

3. Disconnect the monitor signal cable from the Notebook.

4. Turn on the monitor and allow it to warm up for one minute.

The display should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

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Solving Display Problems		
Problem	**Probable Cause**	**Solution(s)**
Screen is dim.	Brightness Control (if available) is not set properly.	Adjust the Brightness of the display by pressing **Fn+F7** or **Fn+F8**.
	Computer screen is in direct light.	Tilt display or move computer.
Screen is blank.	Screen save was initiated by Power Management due to lack of user activity.	Press any key or touch the TouchPad.
	Display has overheated.	If the Notebook is in direct sunlight, move it and allow it to cool off.
Display is blank and the Suspend icon is flashing.	System is in Suspend mode.	Press any key or touch the TouchPad.
Internal display is blank and the screen on an external monitor displays information.	Display function was switched to the external monitor.	Press **Fn+F3** to switch between LCD or CRT.
Internal display flashes or has garbled characters when Notebook is connected to external monitor.	Using 1024 x 768 or higher resolution on external monitor and toggling back to internal display, which supports up to 800 x 600.	Restart the Notebook.
The light tubes on the edge of the display panel do not light up at all and the Power-On Self-Test (POST) completes when the unit is powered up.**	Improper backlight or display cable connections	Replace the display assembly.
	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective display panel.	Replace the display assembly.
	Defective system board.	Replace the system board.

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Solving Display Problems		
Problem	**Probable Cause**	**Solution(s)**
The light tubes on the edge of the display panel do not light up at all and Power-On Self-Test (POST) does not complete when the unit is powered up.**	Defective system board.	Replace the system board.
Backlight (brightness) cannot be adjusted with Fn+F7 or Fn+F8.	Improper display cable connections.	1. Reseat the display cable to the system board. 2. Replace the display assembly.
(Continued)	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective system board.	Replace the system board.

*__**This problem indicates that the backlight or its power circuitry has failed. If the backlight is not functioning, the POST result cannot be observed. Connect the unit to an external monitor before powering up the unit. If an external monitor is not available verify that POST is complete by opening and closing the display, listening for the single or double beep, and watching for the icons to turn on at the front of the notebook.__*

Solving Display Problems Continued		
Problem	**Probable Cause**	**Solution(s)**
This display panel has a continuous pattern across it (e.g., "jailbars" pattern), has a single color on it, or has garbled graphics across the entire panel. This failure is for patterns across the entire panel (not just on one section).	Improper display cable connections	Reseat the display cable to the following until the problem is solved: 1. System board 2. Display assembly
	Defective display cable.	Replace the display assembly.
	Defective inverter board.	Replace the display assembly.

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Solving Display Problems Continued		
Problem	**Probable Cause**	**Solution(s)**
	Defective system board.	Replace the system board.
A single line, small group of lines, or block appears on the display panel. This failure occurs in only a section of the display panel.	Defective display panel.	Replace the display assembly.

Note: When you perform a "self-test" on an external VGA color or monochrome monitor, the screen should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

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Solving Hard Drive Problems

Some common causes and solutions for hard drive problems are listed in the following table.

⚠️ **CAUTION:** To prevent loss of information, maintain an up-to-date backup of your hard drive at all times in case of errors or failures.

Solving Hard Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
Reading hard drive takes an unusually long time after restarting the Notebook.	System entered Hibernation due to low battery condition and is now exiting from it.	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.	Run Computer Checkup.
Hard drive does not work.	Hard drive is not seated properly.	Turn off and unplug the Notebook, remove the battery pack, and remove and then reinstall the hard drive.

Solving Hardware Installation Problems

Some common causes and solutions for hardware installation problems are listed in the following table.

Solving Hardware Installation Problems		
Problem	**Probable Cause**	**Solution(s)**
A new device is not recognized as part of the computer system.	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected.
	Power switch of new external device is not turned on.	Turn off the Notebook, turn on the external device, then turn on the Notebook to integrate the device with the computer system.
	Device is not seated properly.	Turn off the Notebook and reinsert the device.

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Solving Keyboard/Numeric Keypad Problems

Some common causes and solutions for keyboard/numeric keypad problems are listed in the following table.

Solving Keyboard/Numeric Keypad Problems		
Problem	**Probable Cause**	**Solution(s)**
Embedded numberic keypad on notebook keyboard is disabled.	Num Lock function is not enabled.	Press the **Shift+NumLk** keys to enable the Num Lock function and embedded numberic keypad. The Num Lock light on the notebook turns on.
Embedded numeric keypad is disabled and Num Lock function is on.	External numeric keypad is connected to the notebook.	Disconnect the external numeric keypad from the notebook.

Solving Memory Problems

Some common causes and solutions for memory problems are listed in the following table.

| Solving Memory Problems		
Problem	**Probable Cause**	**Solution(s)**
Memory count during Power-On Self-Test (POST) is incorrect.	Optional memory expansion card is installed incorrectly, is incompatible with the computer, or is defective.	Ensure that the optional memory expansion card is installed correctly.
"Out of Memory" message is displayed on the screen or insufficient memory error occurs during operation.	System ran out of memory for the application.	Check the application documentation for memory requirements. If necessary, install additional memory.
	Too many TSR (terminate-and-stay-resident) applications are running.	Remove from memory any TSR applications that you do not need.

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Solving PC Card Problems

The following table lists some common causes and solutions for PC Card problems.

Solving PC Card Problems		
Problem	**Probable Cause**	**Solution(s)**
When turned on, the Notebook does not beep when a PC Card is inserted.	Card is not inserted properly.	Ensure that the card is inserted in the correct orientation.
	PC Card beeps are disabled.	Double-click the PC Card icon on the Control Panel, click the **Global Settings** tab, the enable PC Card sound effects.
	Speaker is turned off or volume is turned down.	Press **Volume** buttons to turn the speaker on, then increase the volume.
	PC Card drivers are not installed.	Double-click the **Add New Hardware** icon on the Control Panel for installation instructions. If PC Card or drivers are not compatible with Windows, install drivers and use the PC Card in MS-DOS mode.
	Card or card driver is not supported.	Contact a Compaq authorized service provider for a list of PC Cards tested sucessfully in Compaq PC Card platforms.
PC Card modem, fax, or network card does not work.	Card is not fully inserted into the slot or is not inserted properly.	Ensure that the card is inserted in the correct orientation.
	Telephone cord is not plugged in all the way.	Check and secure telephone connection.
	Necessary drivers are not installed (turned on).	Install drivers.
PC Card modem or fax card does not work.	You are trying to access the card using the wrong COM port.	See Specifications to verify COM port.

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Solving PC Card Problems		
Problem	**Probable Cause**	**Solution(s)**
	The card conflicts with a serial device.	See Specifications to verify address.
	The card is not supported.	Use supported cards only.
Modem network PC Card does not work.	Network driver is not installed or is not set up properly.	Install driver.
	Telephone cord is not properly connected.	Verify telephone connection.
Memory or storage card does not work.	SRAM and flash memory cards require the memory card driver to be loaded (turned on). Flash memory cards require the Microsoft FlashFile System to be loaded. Hard drives on flash mass- storage cards require the PC Card ATA driver to be loaded.	Install driver.
	You are trying to access the hard drive card using the wrong drive letter.	Double-click **My Computer** to verify the drive letter assigned to the card.
	The card is not supported.	Contact a Compaq authorized service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.

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Solving Power Problems

Also see Solving Battery Pack/Gauge Problems in this section.

Solving Power Problems		
Problem	**Probable Cause**	**Solution(s)**
Notebook will not turn on and the battery pack is not inserted.	Notebook is not connected to a power source.	Insert battery or connect an external power source.
	Power cords to the external power source are unplugged.	Ensure that power cords connecting the Notebook and the external power source are plugged in properly.
	Power adapter is defective.	Replace AC Adapter and restart.
Notebook turned off while it was left unattended and the power icon is off.	System board is defective.	Replace the system board.
	System initiated Hibernation due to a critical low-battery condition.	Replace the battery pack with a fully charged battery pack or connect the Notebook to an external power source. Then turn on the Notebook.
	System initiated Hibernation after a preset timeout.	Turn on the Notebook.

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Solving Printer Problems

If you experience problems printing, run a printer self-test. Refer to the documentation provided with your printer for instructions. If the self-test fails, it is a printer-specific problem. Also refer to the printing section of your application documentation.

Solving Printer Problems		
Problem	**Probable Cause**	**Solution(s)**
Printer will not turn on.	The signal cable may not be connected properly, or the printer is unplugged.	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.
	The device drivers for the application are not installed.	Refer to the printer documentation to install the correct printer driver.
	Printer that is set up for a network is not connected to the network.	Connect the printer to the network.
	Printer cable is too long, unshielded, or defective.	Replace the cable.
	Paper tray is empty.	Fill the paper tray with paper and set the printer to online.
Printer prints garbled information.	Correct printer drivers are not installed.	Refer to the printer documentation to install the correct printer driver.
	Cable is not connected properly.	Ensure that the printer signal cable is properly connected to the Notebook.
	Cable is defective.	Replace the printer cable and retest.

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Solving TouchPad/Pointing Device Problems

The following table lists some common causes and solutions for TouchPad/pointing device problems.

| Solving TouchPad/Pointing Device Problems		
Problem	**Probable Cause**	**Solution(s)**
TouchPad or mouse does not work.	Incorrect or no device driver is installed.	Install the device driver and add to the *AUTOEXEC.BAT* file or *CONFIG.SYS* file.
	The device driver is not installed in Windows.	Install the TouchPad/mouse driver in Windows.
External mouse does not work.	Mouse is not securely connected or is connected to an incorrect external connector.	Ensure that the mouse is securely connected to the appropriate external connector.
TouchPad or mouse do not work even though the device is enabled in Windows.	Mouse is not enabled.	Type MOUSE at the system prompt to activate the mouse device driver. Add a line in the *AUTOEXEC.BAT* file to activate the mouse driver automatically each time the computer is turned on or restarted.
	Cable is not properly seated in TouchPad board.	Reseat cable.
	Defective TouchPad board.	Replace the TouchPad board.
	Defective system board.	Replace system board.
	Device driver is not correctly installed in Windows.	Install the appropriate device driver in Windows.
Cursor skips or moves abnormally when using the TouchPad.	The TouchPad needs to be cleaned.	Clean the TouchPad with a cloth dampened with alcohol or an ammonia-based glass cleaner. Wipe up liquid with a dry cloth.

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Contacting Compaq Support

Obtain the following information before contacting Compaq Reseller Support:

- Product name

- Product serial number

- Purchase date

- Conditions in which the problem occurred

- Any error messages that have occurred

- Hardware configuration

- Type of printer connected

- Hardware/software installed

- Printed results of Computer Checkup (TEST)

- Printed copies of *CONFIG.SYS* and *AUTOEXEC.BAT* files, if possible.

Shipping Preparation

To ship the Notebook, complete the following steps:

1. Back up the critical hard drive files. Ensure that backup tapes/diskettes are not exposed to electrical or magnetic fields while stored or in transit.

2. Turn off the Notebook and external devices.

3. Disconnect the external devices from their power sources, then from the Notebook.

   Important: Ensure that there is no diskette in the diskette drive and that there are no PC Cards in the PC slots.

4. Close the display and all exterior doors of the Notebook.

5. Pack the Notebook with sufficient packing material to protect it. Use the original packing box or similar packaging.
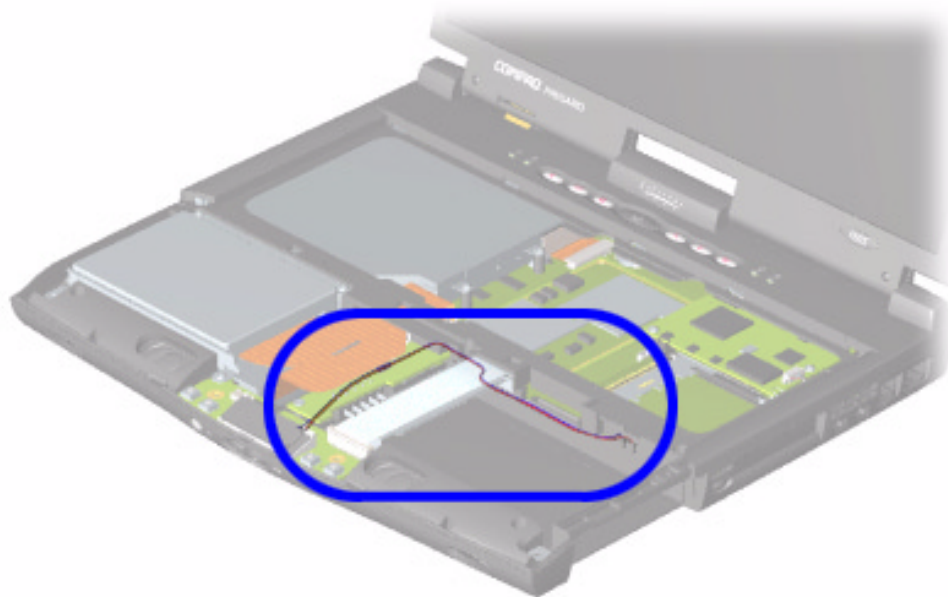
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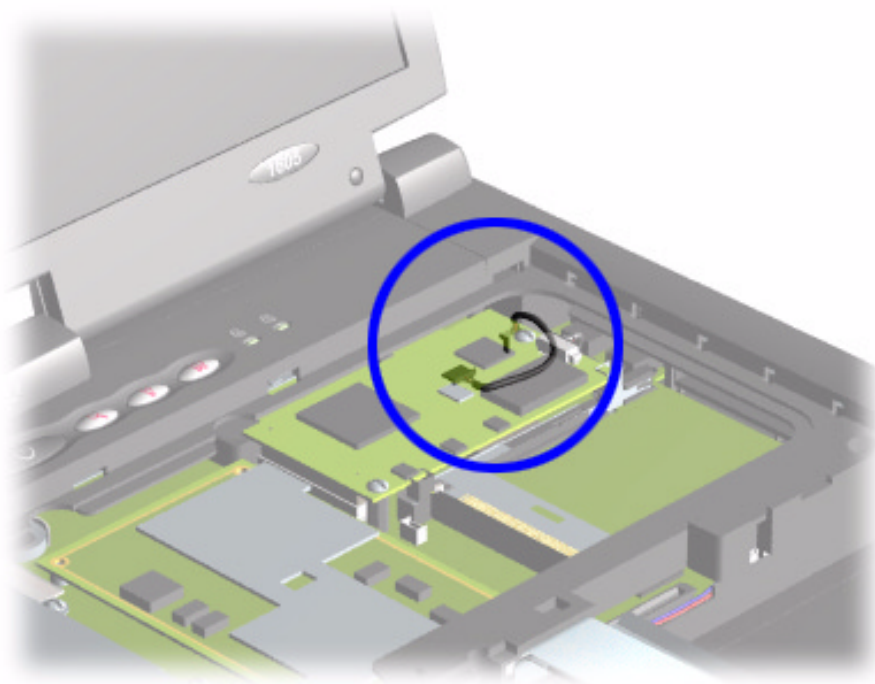
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Removal Sequence

This section explains the removal and replacement procedures for the 1600XL units.

Serial Number Location

Report the unit's serial number ❶ to Compaq when requesting information or ordering spare parts. The serial number is located underneath the Notebook as shown below.
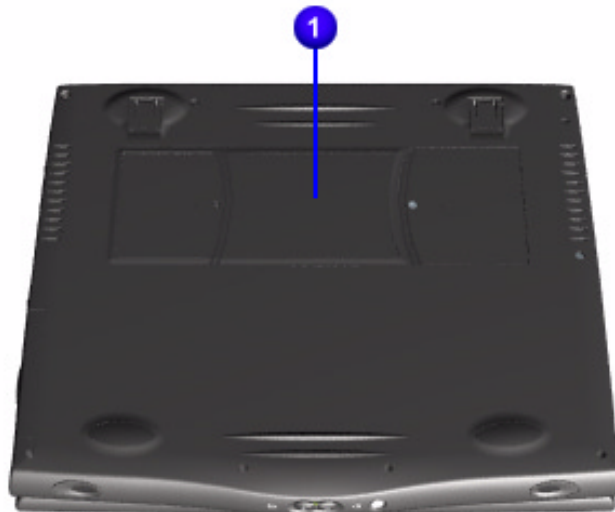
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Electrostatic Discharge

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not seem to be affected at all and work perfectly throughout a normal cycle. Although it may function normally for a while, it may be degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

Generating Static

The table below shows activities that generate static electricity and the associated electrostatic voltage level.

Typical Electrostatic Voltages			
Event	**Relative Humidity**		
	10%	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tubes	2,000 V	700 V	400 V
Removing DIPS from vinyl trays	11,500 V	4,000 V	2,000 V
Removing DIPS from styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCBs	26,000 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Note: 700 Volts can degrade a product.

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Service Considerations

Consider the following during the disassembly and assembly of the Notebook:

Tools and Software Requirements

The following items are required to service the computer:

- Torx T-9 screwdriver
- 5mm nut drivers (for screw locks and standoffs)
- Small standard screwdriver

Screws

The screws used in the Notebook are *not* interchangeable. If an incorrect screw is used during the reassembly process, it can damage the unit. Compaq strongly recommends that all screws removed during disassembly be kept with the part that was removed, then returned to their proper locations.

> **Important:** As each subassembly is removed from the Notebook, place it away from the work area to prevent damage.

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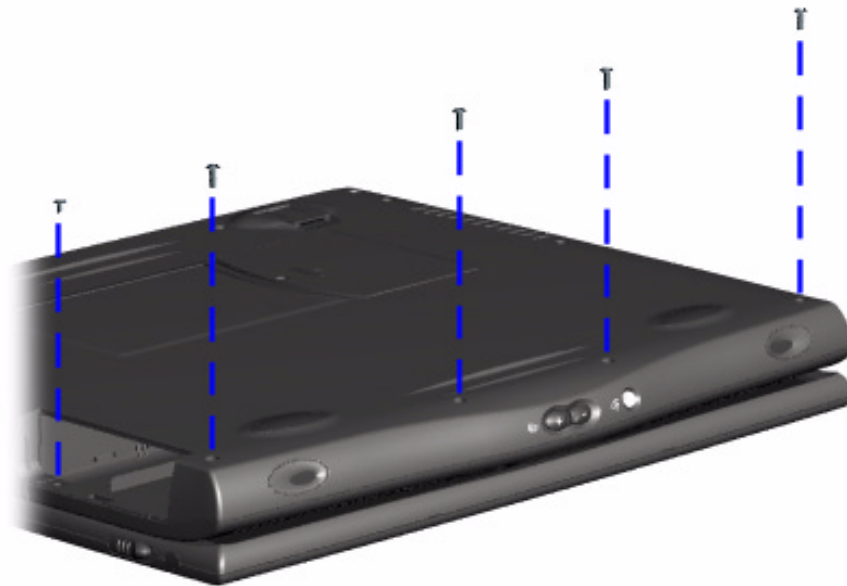**Model 1600T, 1600-XL140, 1600-XL141, 1600-XL142, 1600-XL143, 1600-XL144, 1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258**

Cables and Connectors

Cables must be handled with extreme care to avoid damage. Apply only the pressure required to seat or unseat the cables during insertion or removal from the connector. Handle cables by the connector whenever possible. In all cases avoid bending, twisting, or tearing the cables, and ensure that the cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Most of the cables used throughout the unit are ribbon cables.

Cables

Use the following precautions when handling cables to avoid damage to the cable or computer:

- Always handle cables by their connectors.

- Avoid bending, twisting, or pulling on the cables.

- Apply minimum required force when seating or unseating the cables from their connectors.

- Place the cables in a location where they cannot be caught or snagged by parts being removed or replaced.

- Handle flex cables with extreme care; they can tear easily.

⚠ **CAUTION:** When servicing these computers, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can cause severe damage to the unit.

The following illustrations show the proper placement for each cable:

- ZIF Connector
- Hard Drive Ribbon Cable
- CD or DVD Ribbon Cable
- Diskette Drive Ribbon Cable
- Speaker Assembly Cable
- Modem Cable
- Keyboard Ribbon Cable

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Connectors and Plastic Parts

Plastic parts can be damaged by using excessive force during disassembly and reassembly. When handling the plastic parts, use care. Apply pressure only at the points designated in the maintenance instructions.

ZIF Connector

The 1600XL Series Notebooks use zero insertion force (ZIF) connectors on the system board.

⚠ **CAUTION:** A ZIF connector and its attached cable can easily be damaged. Handle only the connector slide when removing or replacing a cable. Never pull or twist on the cable while it is connected.

To remove a cable from a ZIF connector, lift both corners of the ZIF connector and slide the cable out simultaneously with constant light pressure.
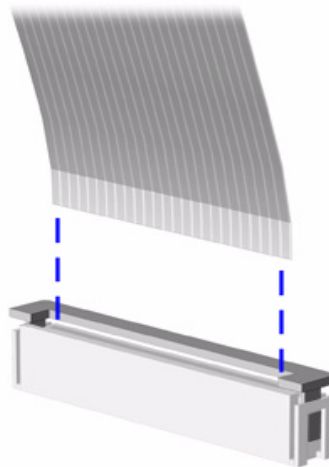
⚠ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.
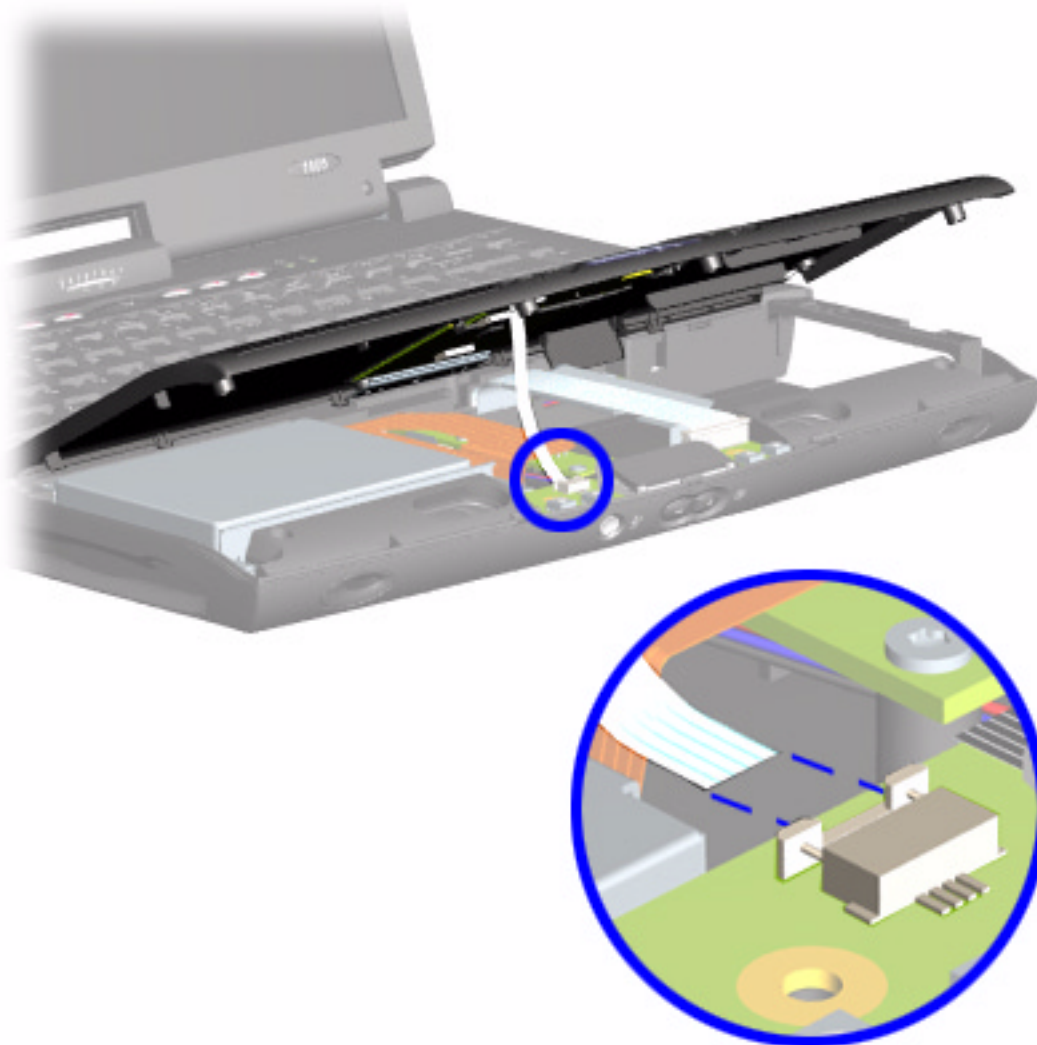
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Hard Drive Ribbon Cable

The ribbon cable position for the hard drive is shown below.
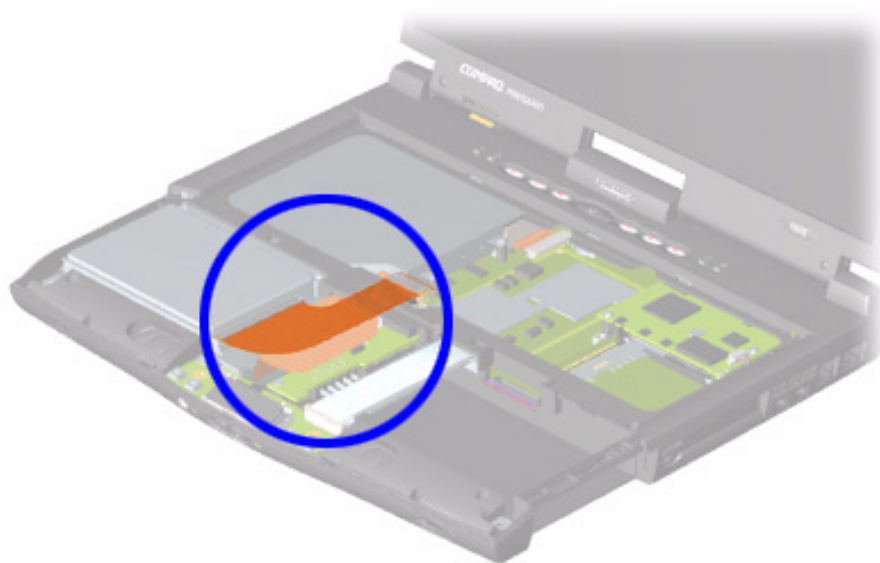
△ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.

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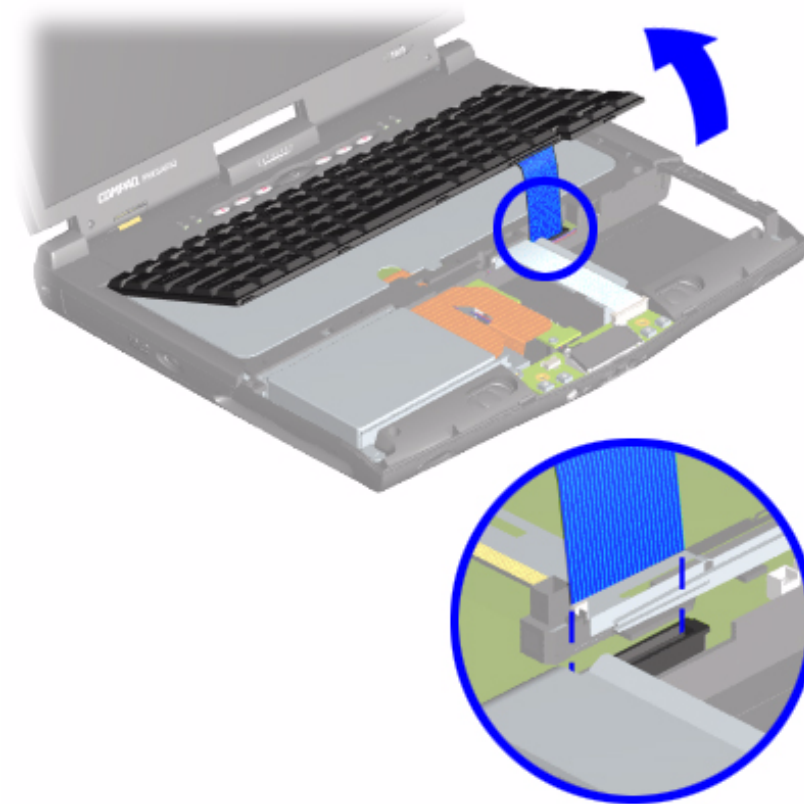**Presario 1600XL Series**
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CD or DVD Ribbon Cable

The ribbon cable position for the CD or DVD drive is shown below.
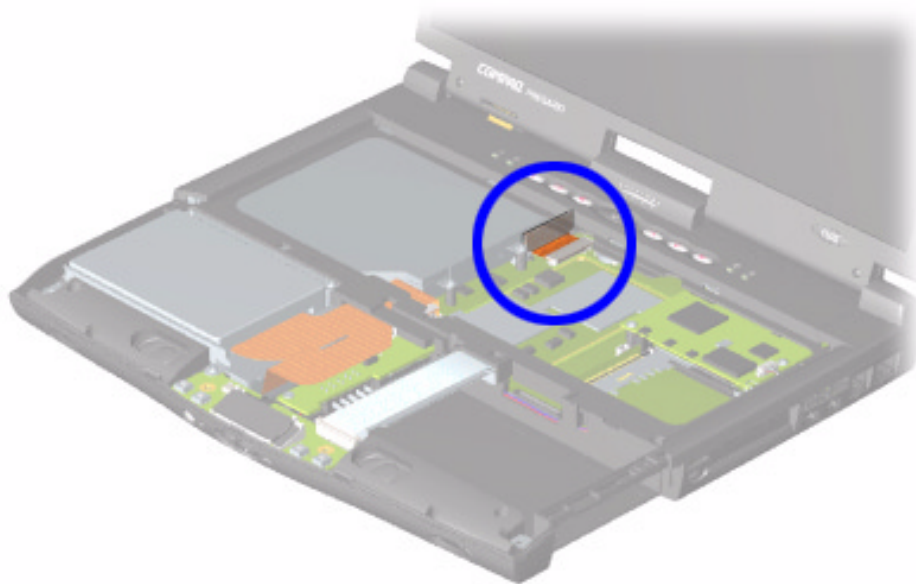
> △ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.

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Diskette Drive Ribbon Cable

The ribbon cable position for the diskette drive is shown below.
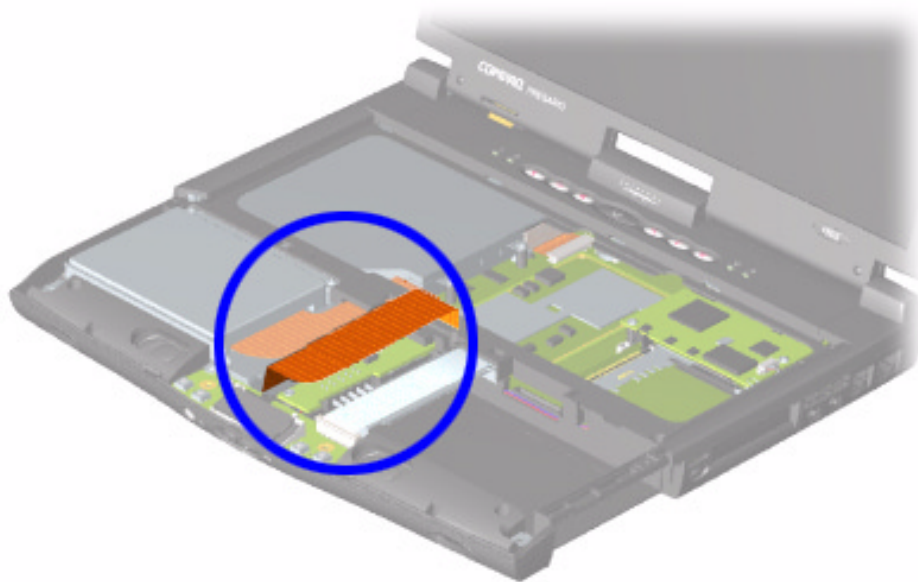
⚠ **CAUTION:** When servicing this Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.

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Speaker Assembly Cable

The cable position for the speaker assembly is shown below. The cable is routed under the battery charger board and under the edge of the system board.

⚠ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.

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Modem Cable

The cable position for the modem is shown below.

△ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.
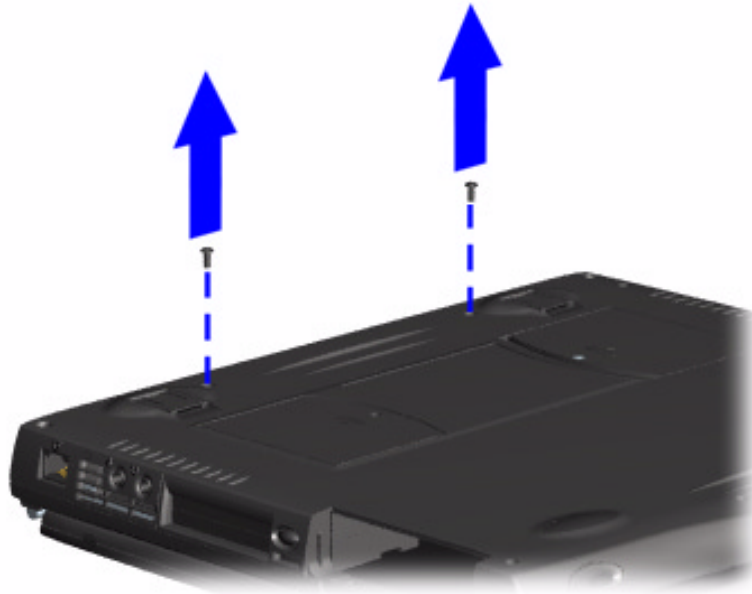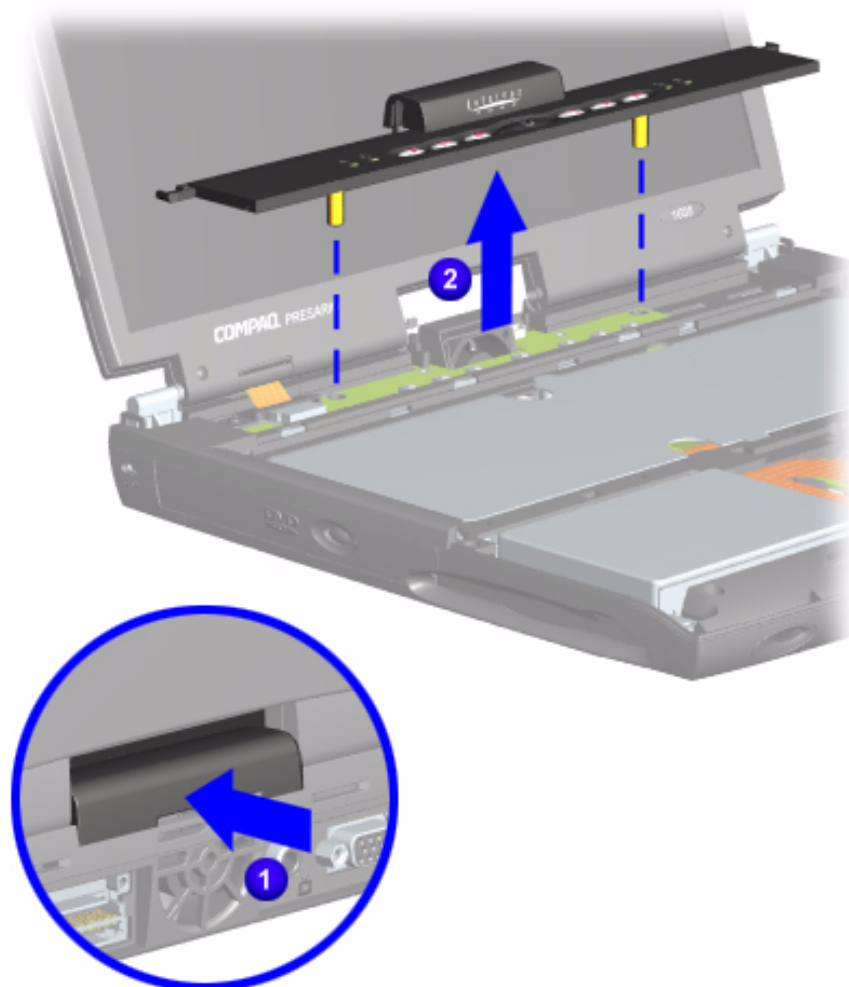
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Keyboard Ribbon Cable

The ribbon cable position for the keyboard is shown below.

⚠ **CAUTION:** When servicing the Notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Notebook.
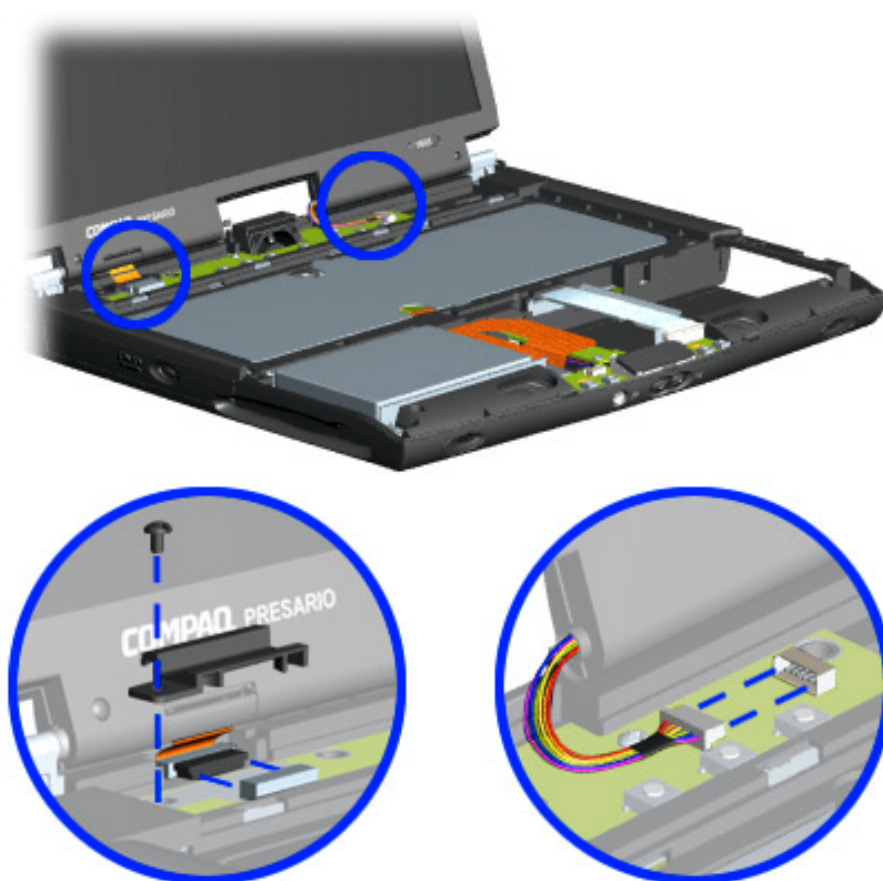
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Preparing the Notebook for Disassembly

Before beginning Removal & Replacement Procedures, complete the following steps:

1. Disconnect AC power and any external devices.

2. Remove the QuikDock.

3. Remove the battery pack ().

4. Remove any PC Cards.

> **Important:** The battery pack should be removed before performing any internal maintenance on the Notebook.

> ⚠ **WARNING:** Metal objects can damage the battery pack as well as the battery contacts in the battery compartment. To prevent damage, do not allow metal objects to touch the battery contacts. Place only the battery pack for the Compaq Presario 1600XL Series Portable Notebooks into the battery compartment. Do not force the battery pack into the bay if insertion is difficult.

> ⚠ **CAUTION:** Do not crush, puncture, or incinerate the battery pack. Do not open a battery pack; this action damages the pack, makes it unusable, and exposes potentially harmful battery components. No field-serviceable parts are located inside the battery pack.

> **Note:** Compaq Presario 1600XL Series Portable Notebooks have several screws of various sizes that are **not** interchangeable. Care must be taken during reassembly to ensure that the correct screws are used in their correct location. During removal keep screws with their respective associated subassembly.

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Removing the QuikDock

To remove the QuikDock, complete the following steps:

1. Lift up the handle on top of the QuikDock.
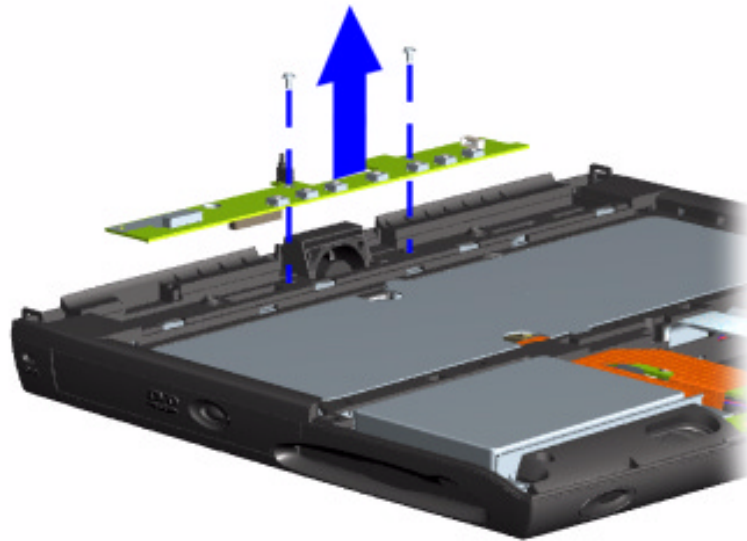
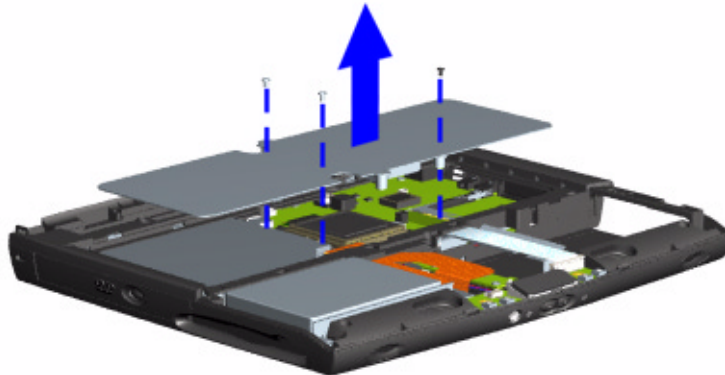2. Lift the computer straight up.

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Removing the Battery

To remove the battery pack, complete the following steps:

1. Slide the battery pack compartment door ❶ down and remove it from the chassis.

2. Pull the battery pack ❷ from the chassis by the tab located on the end of the battery pack.
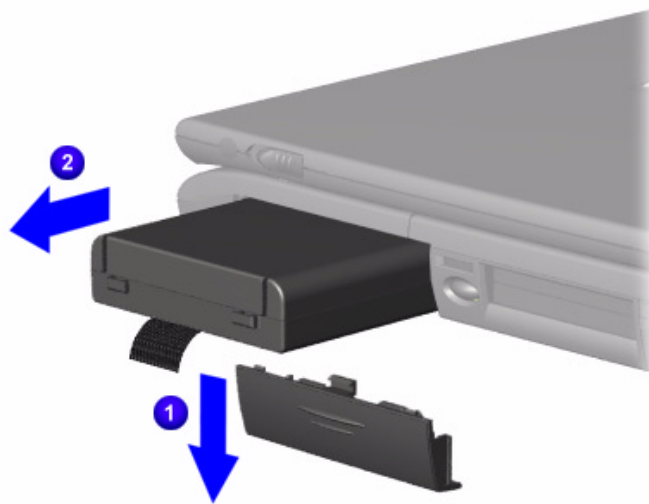
To replace the battery pack, reverse the previous procedures.

> **Important:** The battery pack should be removed before performing any internal maintenance on the Notebook.

> ⚠ **WARNING:** Metal objects can damage the battery pack as well as the battery contacts in the battery compartment. To prevent damage, do not allow metal objects to touch the battery contacts. Place only the battery pack for Compaq Presario 1600XL Series Portable Notebooks into the battery compartment. Do not force the battery pack into the bay if insertion does not occur easily.

> ⚠ **CAUTION:** Do not crush, puncture, or incinerate the battery pack. Do not open a battery pack; this action damages the pack, makes it unusable, and exposes potentially harmful battery components. No field-serviceable parts are located inside the battery pack.
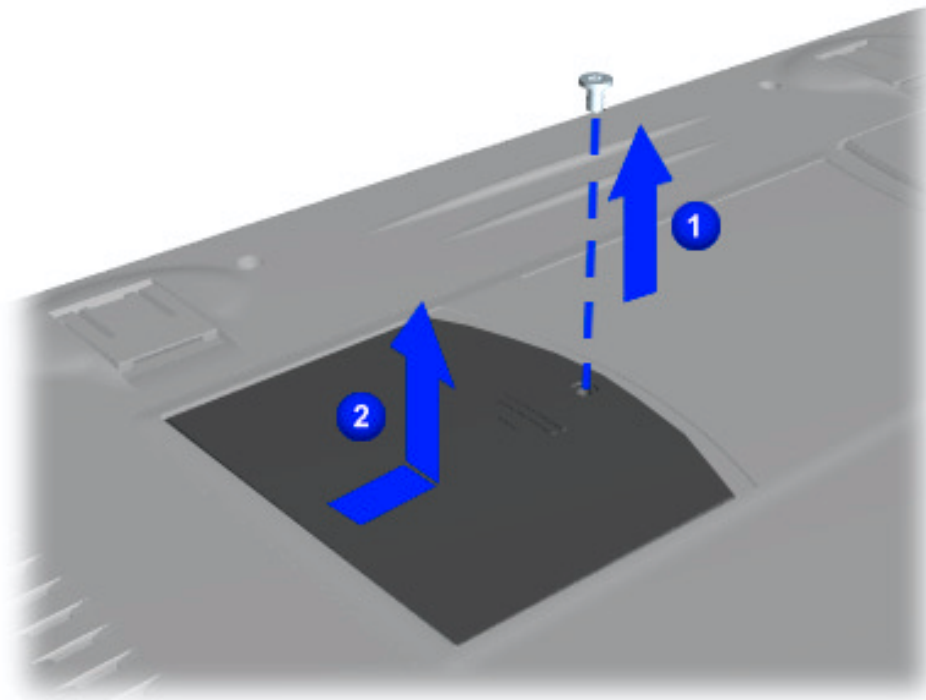
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Presario 1600XL Series
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Removing the Palmrest Cover with TouchPad

> **Note:** It is not necessary to remove the display panel assembly to access the interior components of the computer.

To remove the Palmrest Cover with TouchPad, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Close the display assembly and turn the computer upside down.

3. Remove the five screws from underneath the computer.

Procedure continued on next page.

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fn

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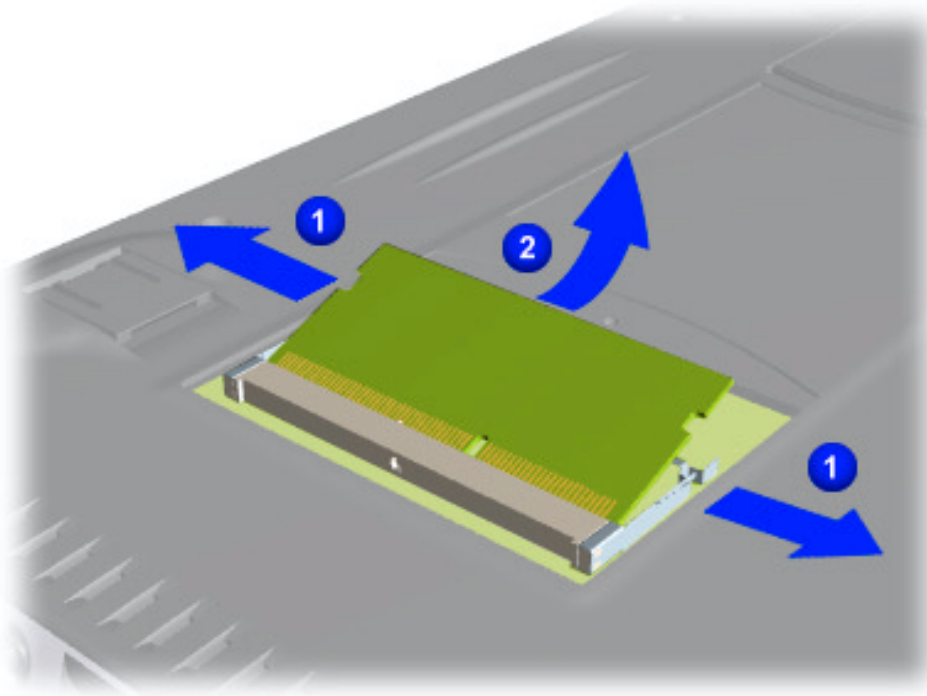PRESARIO NOTEBOOK MAINTENANCE AND SERVICE GUIDE 1600XL SERIES REMOVAL SEQUENCE 15

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4. Turn the Notebook right side up.

5. Pull the display release latches and open the display assembly.

6. Lift up the front end of the Palmrest Cover with TouchPad and remove it from the groove in the chassis.

Procedure continued on next page.

7. Disconnect the flex cable from the ZIF connector on the DisqPlay Module.

To replace the Palmrest Cover with TouchPad, reverse the previous procedures.
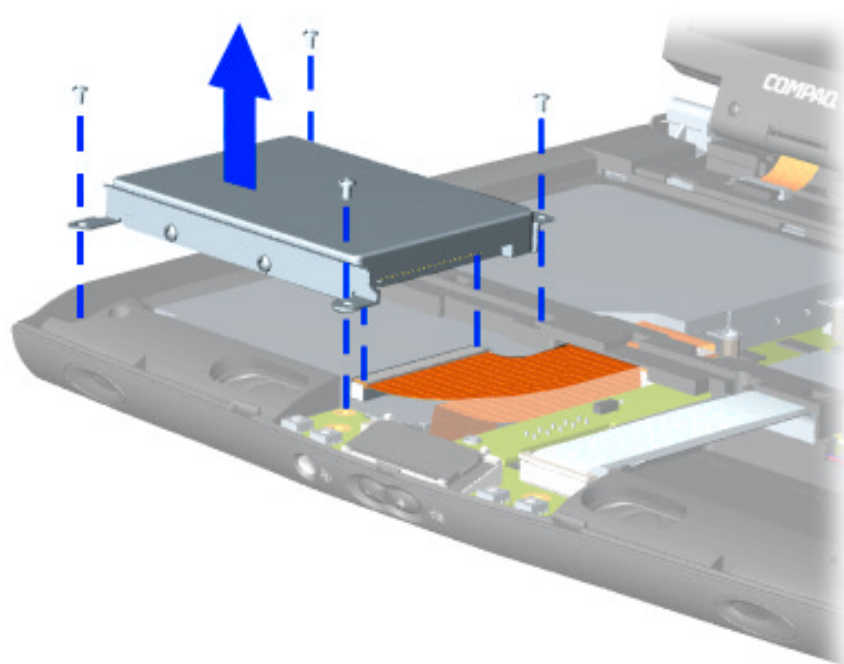
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Presario 1600XL Series
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Removing the Keyboard

To remove the keyboard, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Gently lift up the front of the keyboard and disconnect the flex cable from the ZIF Connector on the system board and remove the keyboard.

To replace the keyboard, reverse the previous procedures.

> **Note:** When replacing the keyboard, the Keyboard Ribbon Cable should fold behind the ZIF Connector rather than underneath the keyboard.

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Removing the Status/Internet Zone Cover

(Status Panel Assembly)

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove **only** the parts listed in the written procedure.

To remove the Status/Internet Zone Cover, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Open the display assembly, and squeeze the sides of the display assembly hinge covers while sliding them off the hinges.
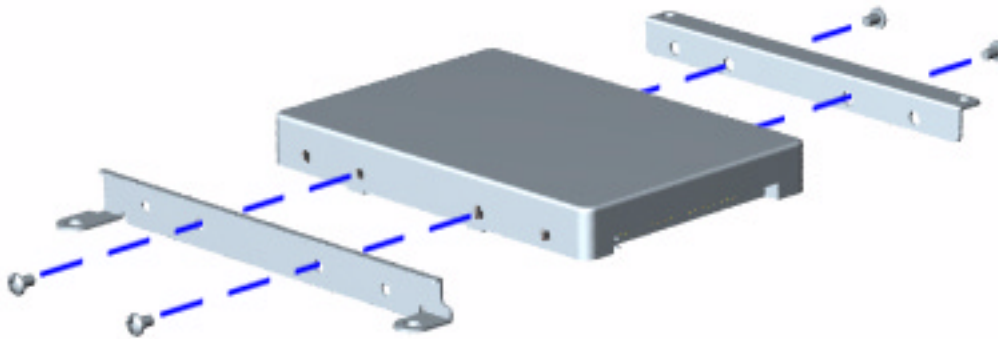
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Presario 1600XL Series
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3. Turn the unit upside down and remove the two screws located in the back of the Notebook that secure the Status/Internet Zone Cover to the chassis.

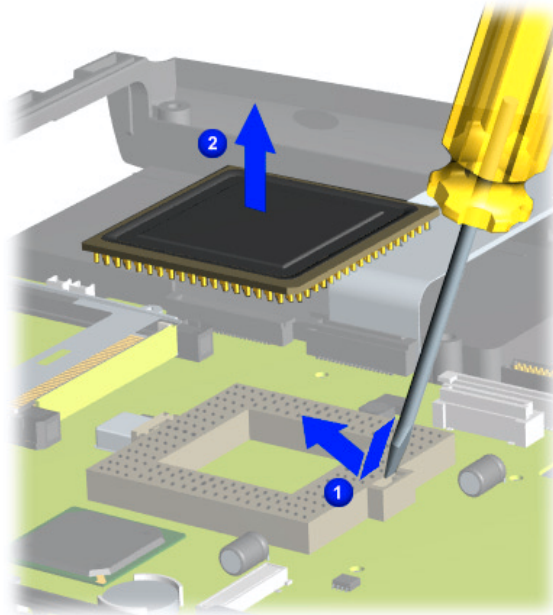Procedure continued on next page.

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Presario 1600XL Series
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1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

4. Turn the unit right side up and open the display assembly.

5. Remove the two innermost screws from the Status/Internet

6. Lift up one corner of the Status/Internet Zone Cover ❶   and push forward from the back (center piece) to release the snaps on the Status/Internet Zone Cover.

7. Remove the Status/Internet Zone Cover ❷   from the chassis.

To replace the status panel assembly, reverse the previous procedures.

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Removing the Internet Button Board

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove **only** the parts listed in the written procedure.

To remove the Internet Button Board, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Status/Internet Zone Cover (pg 19).

3. Remove the screw securing the display flex cable bracket and disconnect the display flex cable and backlight cable from the Internet Button Board.

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4. Remove the two screws securing the Internet Button Board and remove it from the chassis.

To replace the Internet Button Board, reverse these procedures.
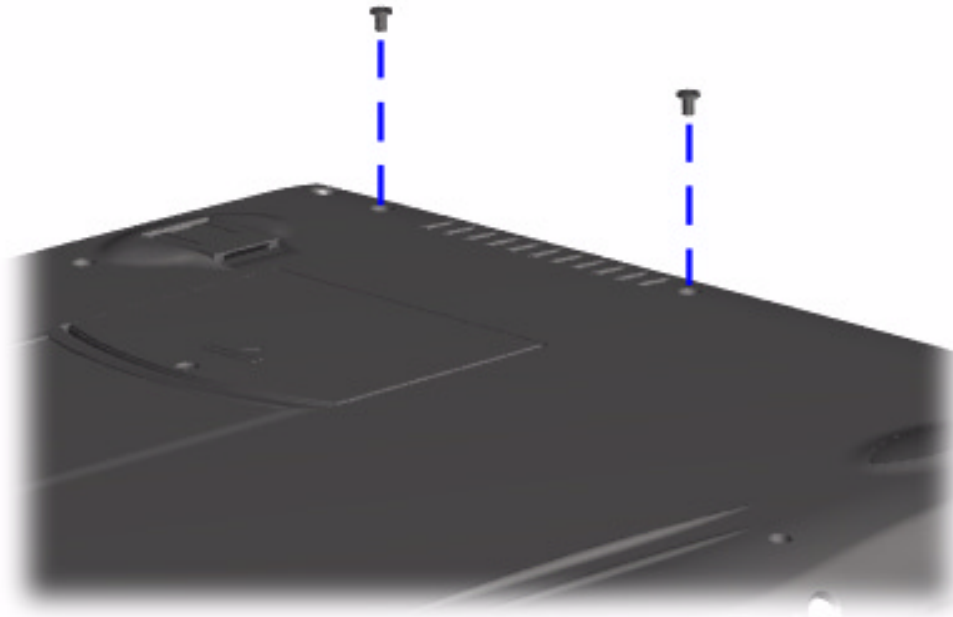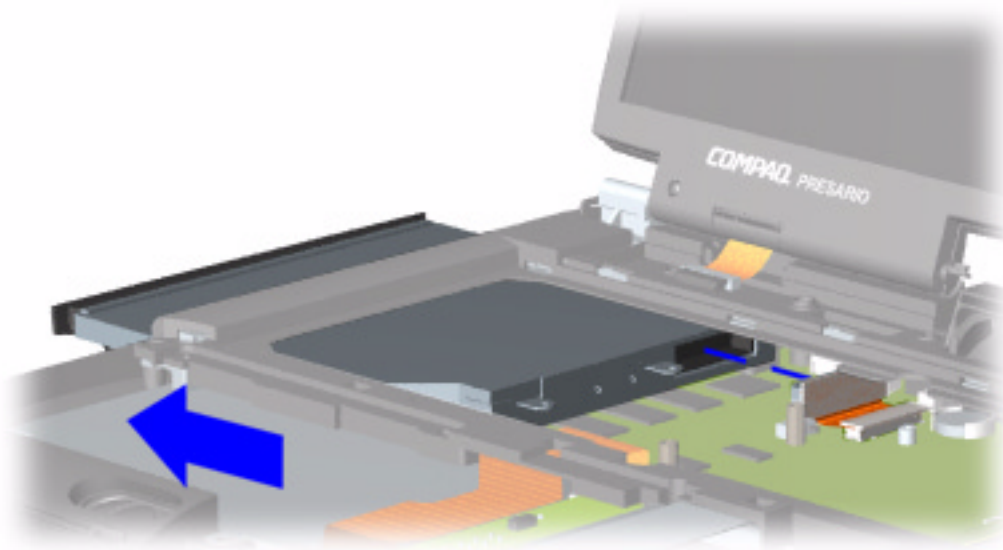
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Presario 1600XL Series
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Removing the Heatspreader

To remove the Heatspreader, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the three screws from the Heatspreader.

5. Remove the EMI tape from the heatspreader and lift it out of the chassis.

To replace the Heatspreader, reverse the previous procedures.

> **Note:** If the thermal pads on the Heatspreader are missing or damaged, a new Heatspreader should be installed.

> **Important:** Before installing the new Heatspreader, remove the plastic covering from the thermal pads.

> ⚠ **WARNING:** To prevent damage, do not use excessive force when replacing the screws.

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Removing the Modem

To remove the modem, complete the following steps:

1. Prepare the Notebook for disassembly ().

2. Turn the Notebook upside down and locate the modem door. (The modem door is located on the left side when the Notebook is upside down.)

3. Remove one screw from the modem door.

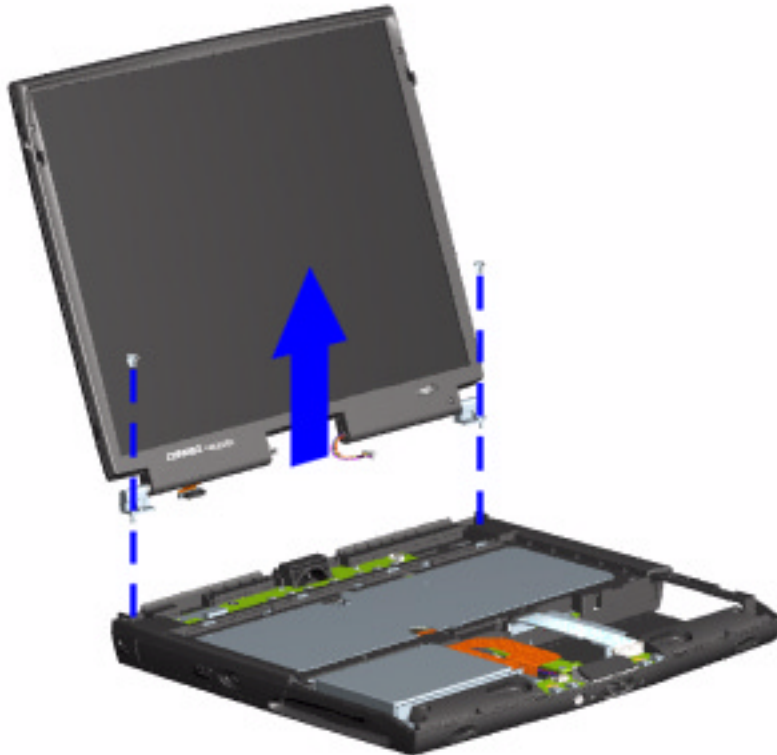Continued on next page

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Presario 1600XL Series
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4. Gently pull the two modem latches on each side of the modem.

5. Disconnect the modem from the system board.

To replace the modem board, reverse these procedures.

maintenance & service guide

Removing the Hard Drive

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove only the parts listed in the written procedure.

To remove the hard drive, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the four screws from the hard drive mounting bracket, disconnect the hard drive data cable, and lift out the hard drive with drive mounting brackets attached.

4. Remove the screws from the hard drive mounting bracket and lift out the hard drive with mounting brackets attached.
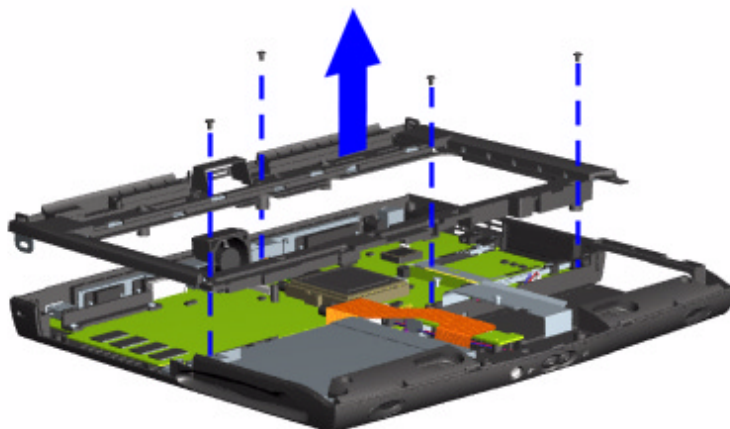
maintenance & service guide

Presario 1600XL Series
Model 1600T, 1600-XL140, 1600-XL141, 1600-XL142, 1600-XL143, 1600-XL144, 1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

Removing the Hard Drive Mounting Brackets

To remove the hard drive mounting brackets, remove two screws from each of side of the hard drive.

To replace the hard drive and mounting brackets, reverse this procedure.

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Removing the DisqPlay Module

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is
> necessary to remove **only** the parts listed in the written procedure.

To remove the DisqPlay Module, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the hard drive (pg 27).

4. Lift up the DisqPlay Module, disconnect the flex cable from the DisqPlay Module, and
   remove the DisqPlay Module from the chassis.

To replace the DisqPlay Module, reverse the previous procedures.
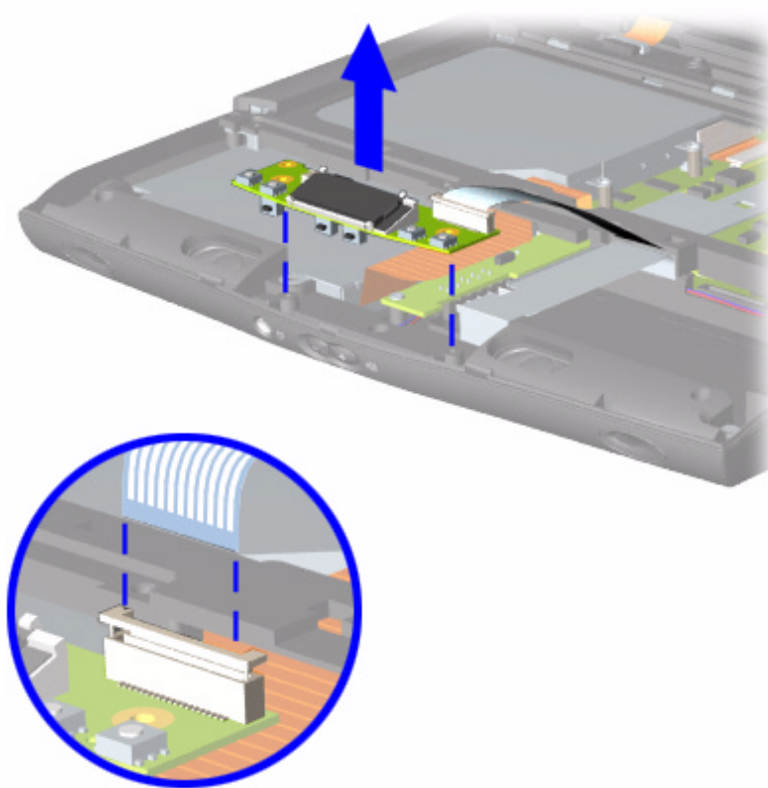
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Removing the Processor

To remove the processor, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Place the tip of a standard screwdriver in the "Open" slot, shift it to the right, and lift the processor from the chassis.

To replace the processor:

1. Fully align the processor connector with the system board connector.

2. Press down carefully on the processor directly over the connectors to seat the processor.
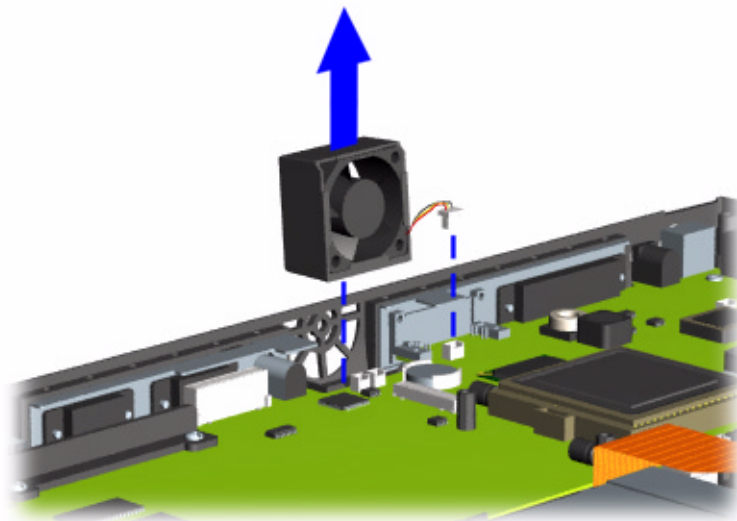
3. Reassemble the remaining subassemblies by reversing their removal procedures.
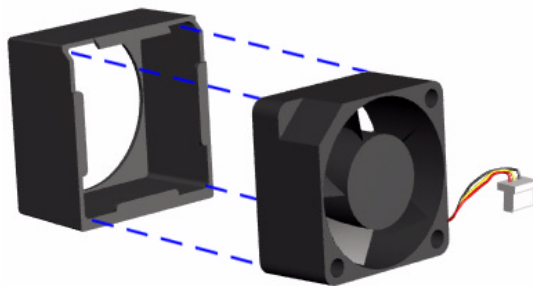
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Removing the CD/DVD Drive

To remove the CD/DVD Drive, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Turn the unit over and remove the two screws from the base enclosure that secure the CD or DVD drive to the chassis.
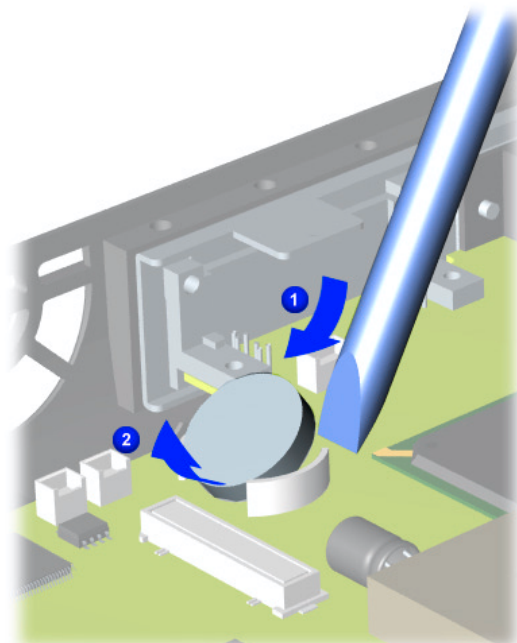
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6. Disconnect the CD or DVD Drive cable from the CD or DVD Drive and push forward from the back of the drive to remove it from the chassis.

To replace the CD/DVD Drive, reverse these procedures.

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Presario 1600XL Series
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1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

Removing the Display Panel Assembly

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove **only** the parts listed in the written procedure.

To remove the display panel assembly, complete the following steps:

1. Prepare the Notebook for disassembly ().

2. Remove the Status/Internet Zone Cover ().

3. Remove the two outermost screws from the display base hinges.

4. Remove the display assembly from the chassis.
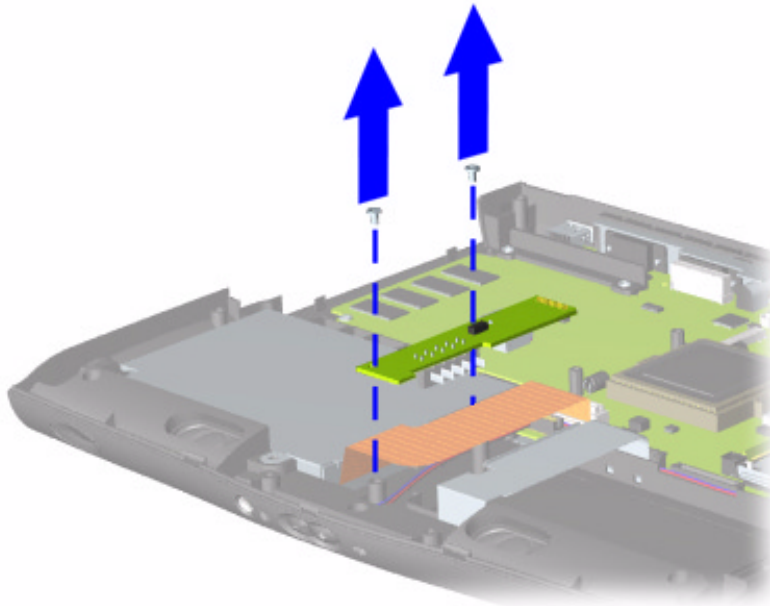

To replace the display panel, reverse these procedures.

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Removing the Upper CPU Cover

To remove the upper CPU cover, complete the following:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Remove the Status/Internet Zone Cover (pg 19).

6. Remove the Internet Button Board (pg 22).

7. Remove the hard drive (pg 27).

8. Remove the display panel assembly (pg 33).

9. Remove the four screws located on the top of the upper CPU cover and lift the cover off the chassis.

To replace the upper CPU cover, reverse the previous procedures.

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Removing the Fan Assembly

To remove the fan assembly, complete the following:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Remove the Status/Internet Zone Cover (pg 19).

6. Remove the Internet Button Board (pg 22).

7. Remove the display panel assembly (pg 33).

8. Remove the hard drive (pg 27).

9. Remove the upper CPU cover (pg 34).

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10. Lift the fan assembly from the chassis slot and disconnect the fan cable from the connector on the system board. The fan faces inward, and the arrow is not visible on the side of the fan.

Note: If you are replacing the fan assembly, remove the fan gasket by pulling it from the fan, and placing it on the new fan assembly.

To replace the fan assembly and gasket, reverse these procedures.

Important: When replacing the fan assembly, be sure that the manufacturing label is pointing inward.
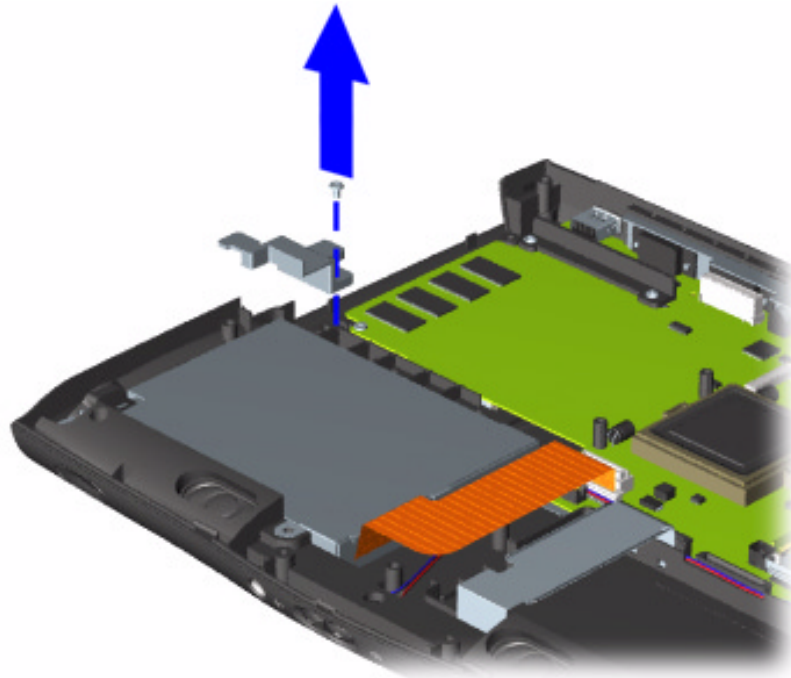
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Removing the Real Time Clock Battery

⚠ **CAUTION:** Removing the RTC battery clears the power-on password and removes all setup attributes that are programmed in the CMOS.

To remove the RTC battery, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Remove the Internet Button Board (pg 22).

6. Remove the display panel assembly (pg 33).

7. Remove the hard drive (pg 27).

8. Remove the RTC battery from the battery socket, prying gently with a non-conductive piece of material. The RTC battery is located on the system board behind the CD/DVD drive near the rear edge of the chassis.

To replace the RTC battery, press the battery firmly into the socket and reverse the previous procedures to replace the remaining components.
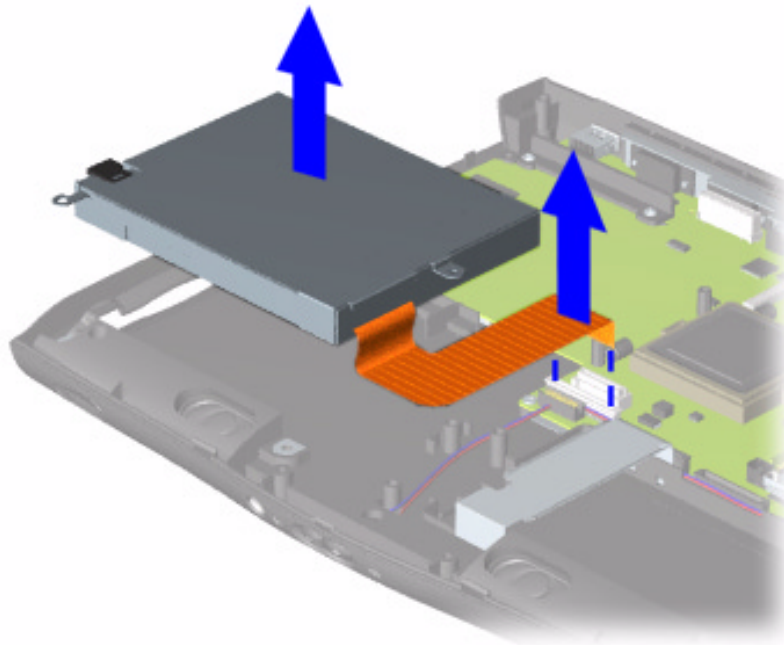
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Presario 1600XL Series
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1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

Removing the Battery Charger Board

(Voltage Converter Board)
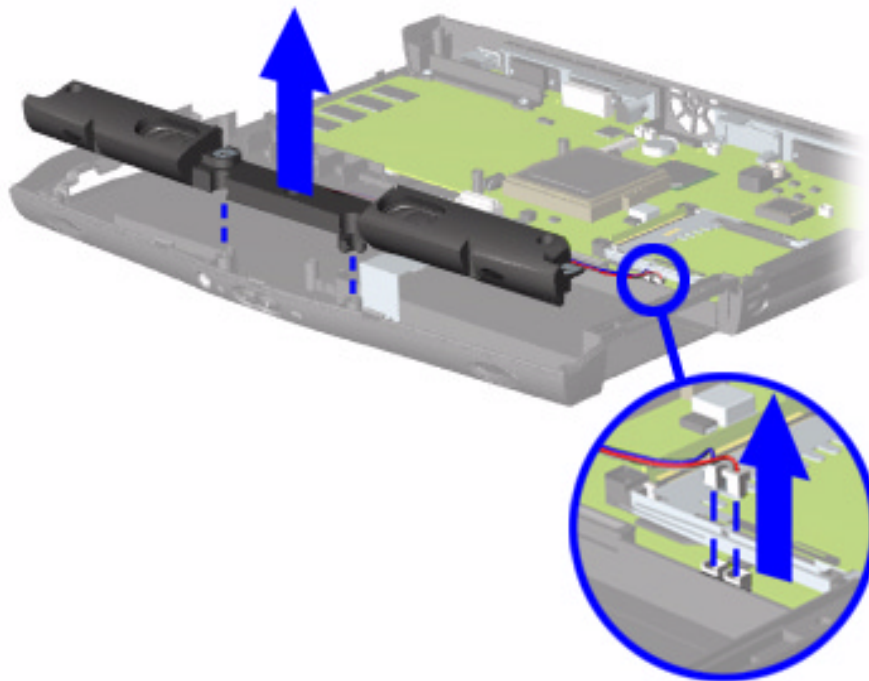
To remove the battery charger board, complete the following:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the Heatspreader (pg 24).

5. Remove the Status/Internet Zone Cover (pg 19).

6. Remove the Internet Button Board (pg 22).

7. Remove the display panel assembly (pg 33).

8. Remove the hard drive (pg 27).

9. Remove the upper CPU cover (pg 34).

Procedure continued on next page.

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10. Remove the two screws from the battery charger board.

11. Lift the battery charger board out of the chassis.

To replace the battery charger board, reverse these procedures.

> **Important:** When replacing the battery charger board, ensure that the pins are aligned with the connector on the system board.

Removing the Diskette Drive

To remove the diskette drive, complete the following:

1. Prepare the Notebook for disassembly ().

2. Remove the Palmrest Cover with TouchPad ().

3. Remove the keyboard ().

4. Remove the Heatspreader ().

5. Remove the CD or DVD Drive ().

6. Remove the Status/Internet Zone Cover ().

7. Remove the Internet Button Board ().

8. Remove the display panel assembly ().

9. Remove the hard drive ().

10. Remove the upper CPU cover ().

11. Remove the battery charger board ().

12. Remove the screw from the diskette drive retaining bracket.

Procedure continued on next page.

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13. Disconnect the diskette drive data cable from the ZIF Connector on the system board and lift the diskette drive from the chassis.

To replace the diskette drive, reverse the previous procedures.

> ⚠ **CAUTION:** Ensure that cables are placed in their proper locations during the reassembly process.

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Removing the Speaker Assembly

To remove the speaker assembly, complete the following:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the display panel assembly (pg 33)

5. Remove the Status/Internet Zone Cover (pg 19).

6. Remove the Internet Button Board (pg 22).

7. Remove the Heatspreader (pg 24)

8. Remove the upper CPU cover (pg 34).

9. Remove the hard drive (pg 27).

10. Remove the battery charger board (pg 38).

11. Disconnect the speaker cables from the system board and lift the speaker assembly from the chassis.

⚠ **CAUTION:** Ensure that cables are placed in their proper locations during the reassembly process.

To replace the speaker assembly, reverse the previous procedures.

Removing the System Board

To remove the system board, complete the following steps:

1. Prepare the Notebook for disassembly (pg 12).

2. Remove the Palmrest Cover with TouchPad (pg 15).

3. Remove the keyboard (pg 18).

4. Remove the display panel assembly (pg 33)

5. Remove the Status/Internet Zone Cover (pg 19).

6. Remove the Internet Button board (pg 22).

7. Remove the Heatspreader (pg 24).

8. Disconnect the DisqPlay Module cable from the system board.

9. Remove the processor (pg 30).

10. Remove the CD or DVD drive.

11. Remove the upper CPU cover (pg 34).

12. Remove the hard drive (pg 27).

13. Remove the fan assembly.

14. Disconnect the diskette drive cable from the system board (pg 8).

15. Remove the battery charger board (pg 38).

16. Disconnect the speaker assembly cables from the system board.

17. Remove the two standoffs from the system board.
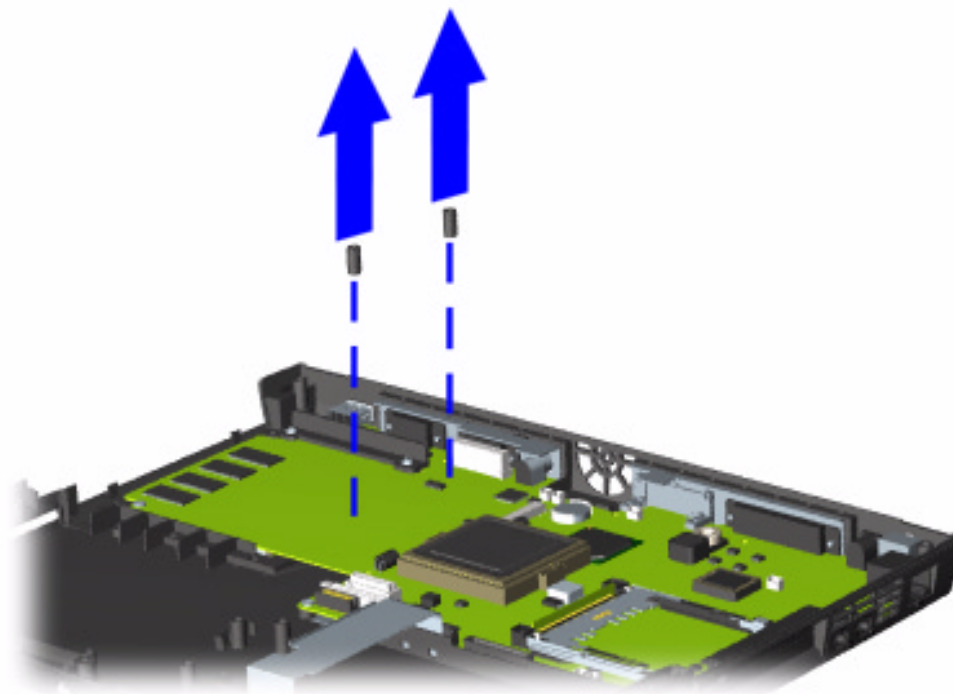
Procedure continued on next page.

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18. Remove the two screws from the CD or DVD drive mounting rail, and lift the mounting rail from the system board.
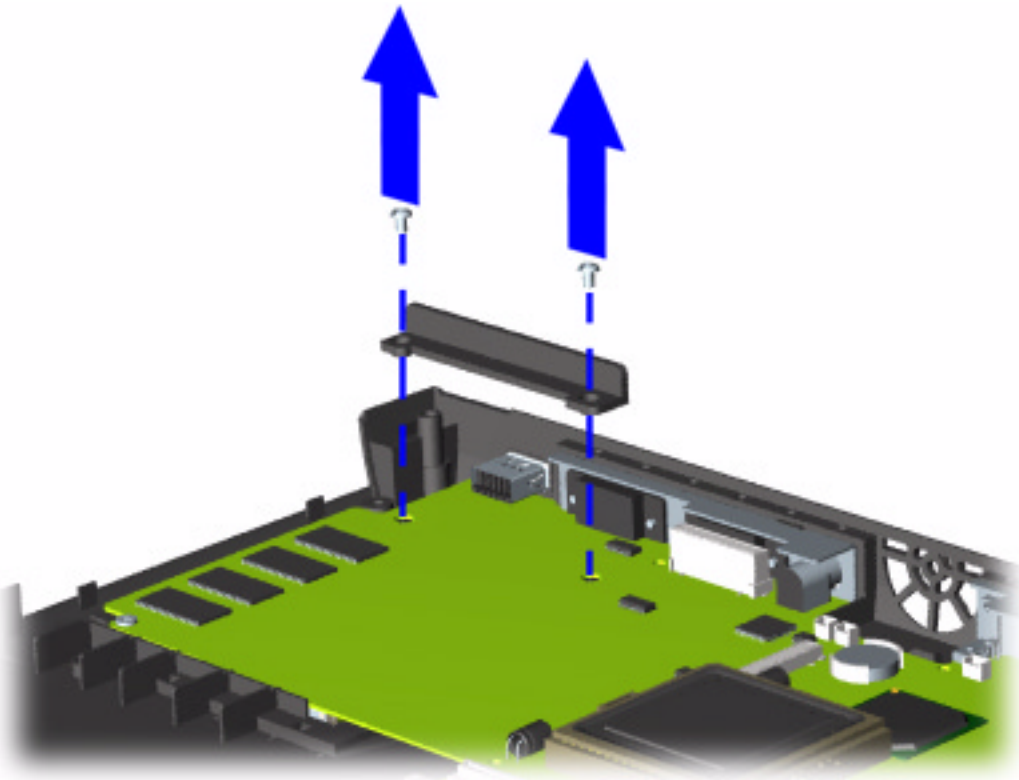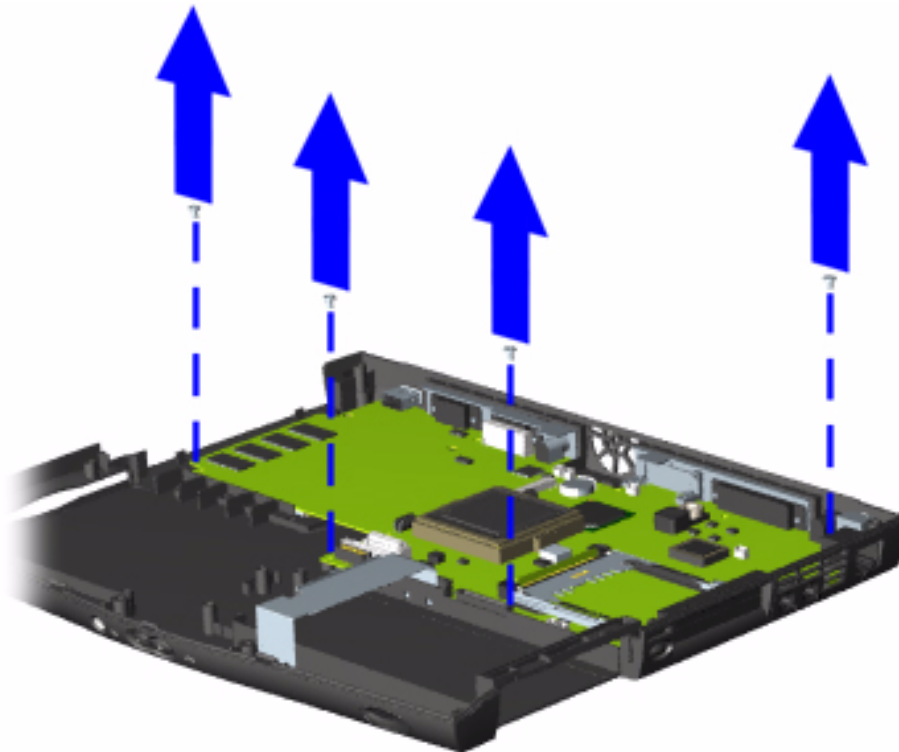

Procedure continued on next page.

19. Remove the four screws from the system board.

20. Remove all EMI tape from the system board

Procedure continued on next page.
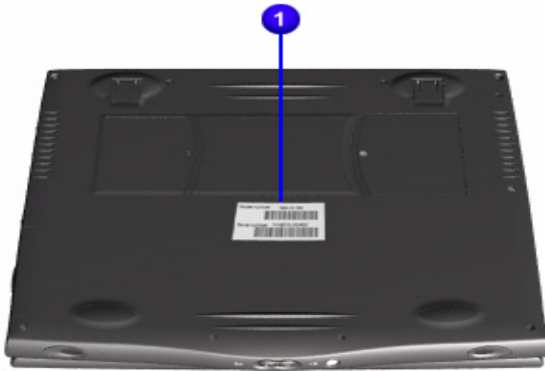
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1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258

21. Shift the board to the left and lift up, then pull out to remove it from the chassis.
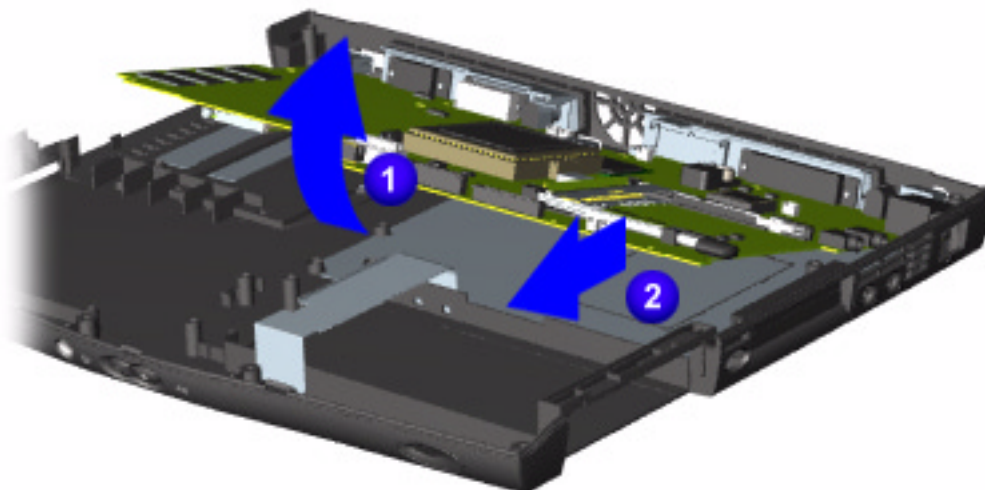
Important: Before replacing the system board, remove all remaining cables.

To replace the system board, reverse the previous procedures.

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Illustrated Parts Catalog

This section provides a breakdown of illustrated parts and a reference for spare parts for the Presario 1600XL Series Notebook.

The computer serial number should be provided to Compaq whenever requesting information or ordering spare parts. The serial number ❶ is located underneath the unit.

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System Units
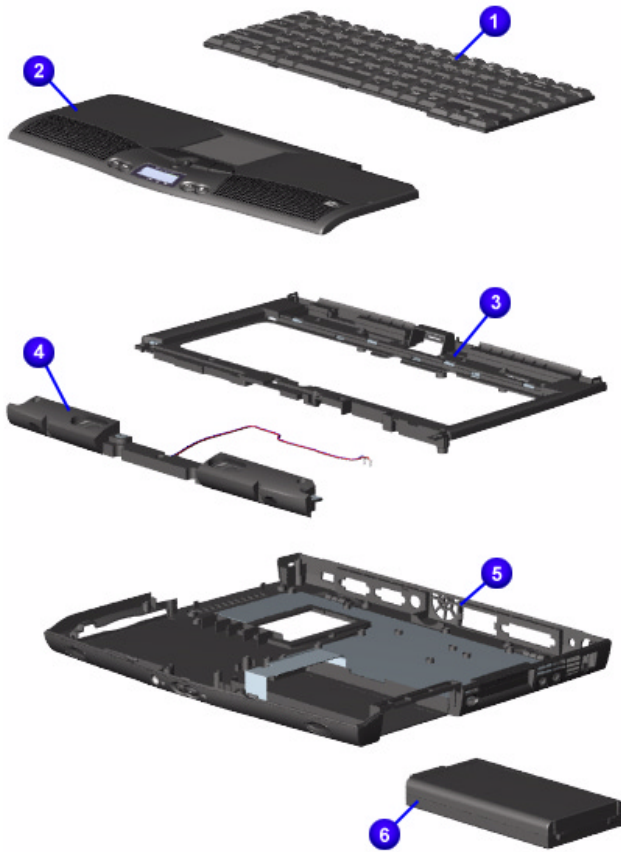
#	Description	Model Number	Spare Part Number
❶	Keyboards	141, 144, 146, 150, 256	170090-001
		144, 155, 256	170090-031
		141, 144, 146, 150, 151, 256	170090-041
		141, 144, 146, 150, 256	170090-051
		141, 144, 146, 150, 256	170090-061
		141, 146, 256	170090-081
		141, 144, 146, 150, 256	170090-091
		146, 255	170090-101
		142, 256	170090-131
		144, 146, 150, 256	170090-161
		141, 144, 146, 150, 256	170090-311
		141, 146, 256	170090-331
		143, 146, 258, 257	170090-381
		All, CTO	170090-291
❷	Palmrest w/ Touchpad	All, CTO	159490-001
❸	CPU Cover w/Power Switch	All, CTO	159492-001
❹	Speakers w/ Enclosure and Cables	All, CTO	159494-001

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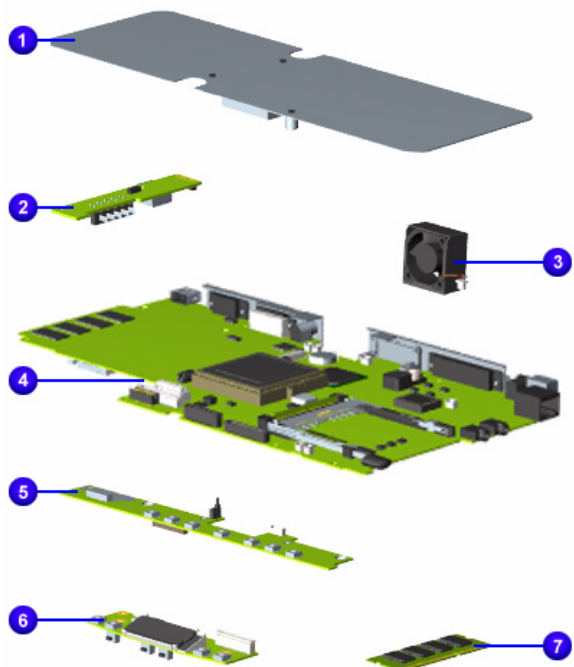
#	Description	Model Number	Spare Part Number
❺	Enclosure Base	All, CTO	159491-001
❻	Battery Pack Li-ION Enhanced	All, CTO	138184-001
❼	Button Board Cover (not shown)	All, CTO	159493-002

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System Boards

#	Description	Model Number	Spare Part Number
❶	Heat Spreader	147, 145, 146, 151, 152, 153, 155, 154, 256, 255, 258, 257	159501-001
		140, 141, 147, 144, 146, 150, 151, 155, 256, 255	174042-001
❷	Voltage Converter Board	140, 152, CTO	352891-001
❸	Fan Assembly	140, 141, 143, 142, 144, 146, 150, CTO	159500-001
❹	Processors CEL 466MHz 128K	140, 141, 144, CTO	174040-001
	CEL 500MHz 128K	143, 142, 146, 150, CTO	159484-001
	CEL 533MHz 128K	150	187724-001
	PIII 500MHz 256K	147, 145, 146, CTO	174041-001
	PIII 600MHz 256K	151, 153, CTO	159485-001
	PIII 650MHz 256K	155, 154, 256, CTO	175308-001
	C/566MHz 1.5V FC-PGA	152, 255, 257	201565-001
❺	Internet Switch Board	All, CTO	159495-001
❻	LCD Indicator Module Module II	All, CTO All, CTO	138187-001 177457-001

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#	Description	Model Number	Spare Part Number
❼	Memory, SO Dimm (32MB, PC100) (64MB, PC100) (128MB)	CTO 155, CTO All, CTO	122699-001 122700-001 123930-001
❽	System I/O Boards (Not Shown) 64MB SDRAM	140, 141, 143, 142, 147, 145, 144, 146, 150, 151, CTO	159483-001
	64MB SDRAM 1.5V	152, 153, 155, 154	201805-001
	64MB WL	256, 258	212382-001
	64MB 1.5V WL	255, 257	212383-001
❾	Modems (not shown) 56K Mini (Int'l)	143, 142, 145, 146, 152, 155, 154, CTO, 258, 257	159502-002
	(US) (AU)	140, 147 142, 145, 155, CTO	159502-001 159502-011

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Display Panel Assembly

Description	Model Number	Spare Part Number
Display Panel Assemblies		
12.1" TFT/LVDS	140, 141, 142, 146, 152, CTO	170091-001
12.1" TFT/LVDS MD	255	TBD
13.3"	256, 258, 257	201075-001
14.1" TFT/LVDS	143, 147, 145, 144, 145, 146, 150, 151, 153, 155, 154, CTO	159486-001
14.1" TFT/LVDS MD	CTO	201074-001

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Mass Storage Devices
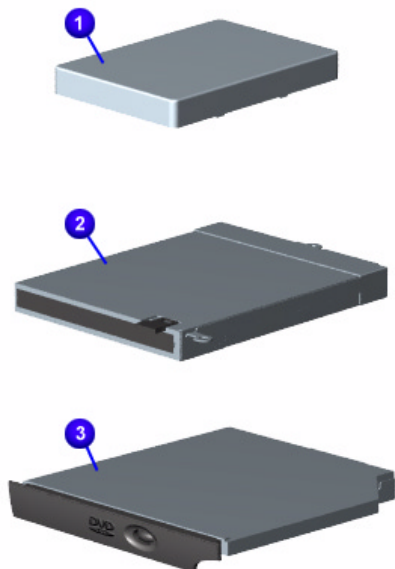
#	Description	Model Number	Spare Part Number
❶	Hard Drives 6GB	143, 147, 146, 153, 155, 154, 258, 257, CTO	170087-001
	12GB	CTO	170086-001
	18GB	140, 147, 145, 152, 153, 154 CTO	161544-001
❷	Diskette Drive 1.44MB	All, CTO	159496-001
❸	DVD Drive 6X	256, 255, 258, 257	159488-001
	8X	CTO	201806-001
❹	CD-ROM Drive (not shown) (24x)	141, 143, 142, 147, 145, 144, 145, 146, 150, 151, 153, 155, 154, CTO	159487-001
❺	CD-R/W Drive (not shown)	140, 141, 142, 145, 144, 145, 146, 150, 151, 152, 256, 255, CTO	170085-001

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**1600-XL146, 1600-XL147, 1600-XL150 XL156, XL157, XL255, XL256, XL257, and XL258**

Miscellaneous Cables
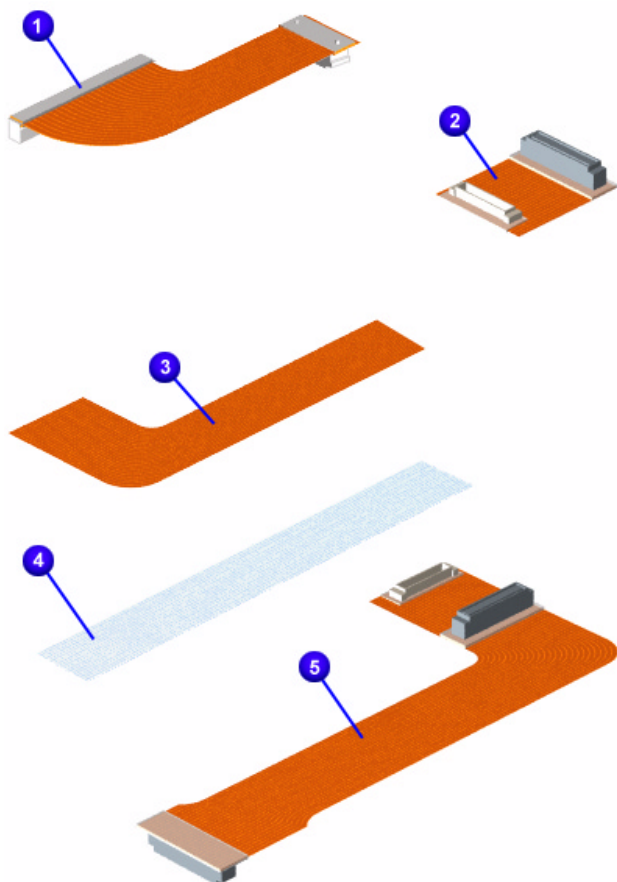
#	Description	Model Number	Spare Part Number
	Miscellaneous Cable Kit*	All, CTO	159497-001
❶	**Hard Drive Cable**		
❷	**CD/DVD Drive Cable**		
❸	**Diskette Drive Cable**		
❹	**Status Panel Cable**		
❺	**CD (DVD) Cable** (not available)		
❻	**Modem Cable** (not shown)		
❼	**TouchPad Cable** (not shown)		

*Kit includes one each of the above items unless otherwise specified.

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Miscellaneous Hardware
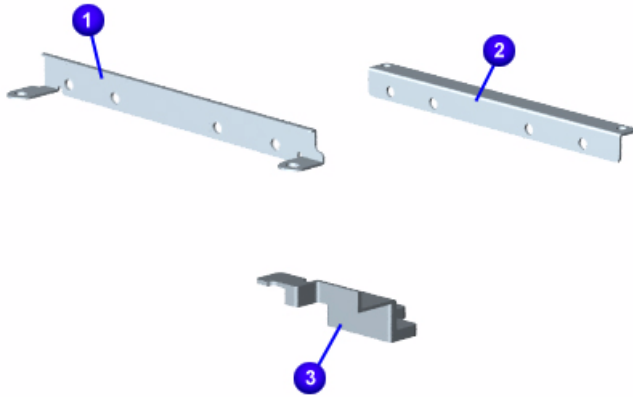
#	Description	Model Number	Spare Part Number
	Miscellaneous Hardware Kit	All, CTO	159499-001
❶	Hard Drive Mounting Bracket (right)		
❷	Hard Drive Mounting Bracket (left)		
❸	Reinforcement Bracket		

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Miscellaneous Parts

#	Description	Model Number	Spare Part Number
❶	AC Adapter (not shown)	143, 142, 145, 146, 258, 257, CTO	298239-001
	APD 60W Slim 2-Wire	140, 141, 147, 144, 146, 150, 151, 152, 153, 155, 154, 256, 255	164854-001 180676-001
	60W Slim 3-Wire		180675-001
❷	QuikDock		138167-001
❸	Misc. Screw Kit (not shown)	All, CTO	138161-001
❹	Logo Kit (not shown)	All, CTO	159503-001
❺	Return Kit (not shown)	All, CTO	138166-001
❻	AC Power Cords: (not shown) N. America	143, 146, 258, 257	293831-001
	Japan	140, 147	293831-291
	US (3-Wire)	141, 144, 146, 150, 151, 256, 255	170513-001
	Intl (3-Wire)	141, 144, 146, 150, 151, 256, 255	170513-002
	UK (3-Wire)	144, 146, 150, 256	170513-031
	SWI (3-Wire)	140, 147,	170513-115
	AU (3-Wire)	140, 147	170513-011
	PRC (3-Wire)	143, 142, 145, 146, CTO	170513-AA3

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Miscellaneous Plastics
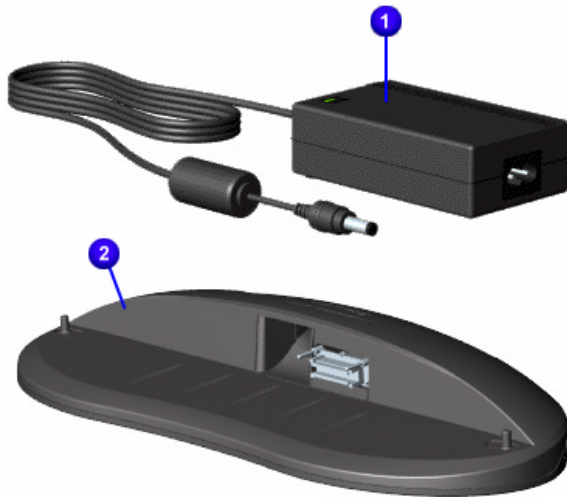
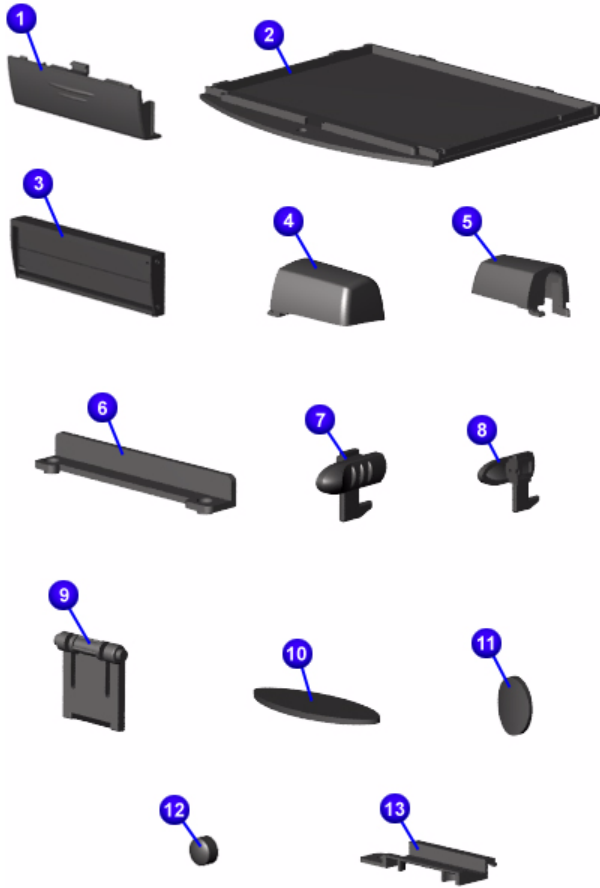| #	Description	Model Number	Spare Part Number
	Miscellaneous Plastics Kit	All, CTO	159498-001
❶	Battery Pack Door		
❷	Memory Module Cover		
❸	PCMCIA Door		
❹	Display Hinge Cover (Right)		
❺	Display Hinge Cover (Left)		
❻	CD Drive Guide		
❼	Latch (Right) 10 each		
❽	Latch (Left) 10 each		
❾	Stand-foot 10 each		
❿	Rubber Foot 10 each		
⓫	Rubber Plug (Side Mount for 14.1" Display) 10 each		
⓬	Rubber Plug (Side Mount for 15.0" Display) 10 each not available		
⓭	Rubber Plug, LCD 10 each		
⓮	Thin Rubber Plug, LCD (14.1" Display) 10 each		
⓯	Cover, LCD FPC		

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Spare Parts Not Listed

#	Description	Model Number	Spare Part Number
❶	Port Replicator	All, CTO	175310-001
❷	Voltage Converter 3C	140, 152, CTO	352891-001

Documentation and Software

Description	Spare Part Number
Win98 2nd Edition Manual Kit	146642-001
Win2000 Professional Manual Kit	164286-001
Emergency Recovery CD Kit	157296-002
QuickReference Kit	169300-001
Win98 Reference Guide	117894-003
Features Guide	120223-001
Quick Reference Guide	Information Not Available
QuickFind for Windows*	Information Not Available

*QuickFind is updated monthly. To complete the QuickFind part number, add the suffix from the table below for the desired month. If you do not specify the 3-digit suffix, the default is the current month in which the order is placed.

QuickFind Part Number Suffix			
Suffix	**Month**	**Suffix**	**Month**
-001	January	-007	July
-002	February	-008	August
-003	March	-009	September
-004	April	-010	October
-005	May	-011	November
-006	June	-012	December

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Configure To Order Features

Compaq Presario 1600XL Portable Computer Configure To Order Features		
Item	**Description**	**Spare Part Number**
Display	12.1" TFT/LVDS 14.1" TFT 14.1" TFT/LVDS, MD	170091-001 159486-001 201074-001
Processors	466 MHZ 128K CACHE 500 MHZ 128K CACHE 2V PIII 500 MHZ 256K CACHE PIII 600 MHZ 256K CACHE PIII 650 MHZ 256K CACHE	174040-001 159484-001 174041-001 159485-001 175308-001
Memory	S.O.DIMM, 32 MB, PC100 S.O.DIMM, 64 MB, PC100 S.O.DIMM, 128 MB, PC100	122699-001 122700-001 123930-001
Diskette Drive	Standard 3.5" Floppy	159496-001
CD-Rom	24X CD-ROM Drive 8X DVD Drive CD-RW Drive	159487-001 201806-001 170085-001
Hard Drive	6.0-GB 12.0-GB 18.0-GB	170087-001 170086-001 161544-001
System Units	JP Keyboard Palmrest w/TouchPad Button Board Enclosure Base Upper CPU Cover 1000 Button Board Cover 1000 Li-ION Enhanced Battery Pack Speaker w/ Enclosure	170090-291 159490-001 159491-001 159492-001 159493-002 138184-001 159494-001

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Compaq Presario 1600XL Portable Computer Configure To Order Features		
Item	**Description**	**Spare Part Number**
System Boards	LCD w/ Internet Switch LCD Indicator Module LCD Indicator Module II Fan Assembly Heat Spreader	159495-001 138187-001 177457-001 159500-001 159501-001
Miscellaneous Kits	Cables Plastics Hardware Screws	159497-001 159498-001 159499-001 138161-001
Modems	56K Mini 3-Int'l 56K Mini 3-AU	
Miscellaneous Parts	AC Power Cord PRC 3-Wire AC Adapter AC Adapter 60W Slim-3 Wire Logo Kit Return Kit Port Replicator	170513-AA3 298239-001 180675-001 159503-001 138166-001 175310-001