Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

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

Presario 1900 Series

Welcome to the Maintenance & Service Guide (MSG). This online guide is designed to serve the needs of technicians whose job it is to repair Compaq products. The Notice contains the copyright and trademark information. The Preface shows symbol conventions, Technician Notes and Serial Number locations on the unit. The Table of Contents provides the technician with easier navigation.

This MSG periodically will be maintained and updated online as needed.

For content comments or questions, contact Tech Support..

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

For the best results when printing this MSG, set printer properties to landscape.

Maintenance & Service Guide

Presario 1900 Series
Models: XL1, XL160, XL161, XL162, XL163, and XL165

Before You Begin

Table Of Contents

Top of Page

Top of Page

Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

Notice

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

COMPAQ COMPUTER CORPORATION SHALL NOT BE LIABLE FOR TECHNICAL OR EDITORIAL ERRORS OR OMISSIONS CONTAINED HEREIN, NOR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE FURNISHING, PERFORMANCE, OR USE OF THIS MATERIAL.

Maintenance and Service Guide

Compaq Presario 1900 Series Portable Computers

First Edition (Oct. 1998)
Compaq Computer Corporation

Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

Preface

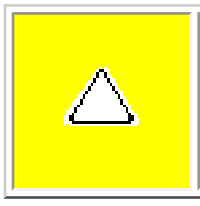
This *Maintenance and Service Guide* is a troubleshooting guide that can be used for reference when servicing the Compaq Presario 1900 Series Portable Computers.

Compaq Computer Corporation reserves the right to make changes to the Compaq Presario 1900 Series Portable Computers without notice. See Notice for license and nondisclosure agreements.

Symbols

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

WARNING: Text set off in this manner indicates that failure to follow 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 directions could 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 to make 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, the computer serial number should be provided to Compaq. The serial number is located on the bottom of the computer.

Locating Additional Information

The following documentation is available to support this product:

- Compaq Presario 1900 Series Portable Computer documentation set
- *Introducing Windows 98 Guide*
- Service Training Guides
- Compaq Service Advisories and Bulletins
- *Compaq QuickFind*
- *Compaq Service Quick Reference Guide*

Specifications

This chapter covers the following specifications of Compaq Presario 1900 Series Portable Computers:

Specifications

Physical and Environmental

Computer Specifications		
Dimensions	**U.S.**	**Metric**
(Models with 12.1 in TFT display) Height Depth Width *(Models with 13.3 in TFT display)* Height Depth Width	 1.1 in 11.6 in 9.2 in 1.2 in 11.6 in 9.2 in	 234mm 294.7mm 29mm 234mm 294.7mm 30.5mm
Weight 12.1 TFT 13.3 TFT Wedge	 4.5 lb 5.0 lb 1.8 lb	
Stand-Alone (Battery Pack) Power Requirements Nominal Operating Maximum Average Peak Operating	 NiMH W @ 9.6 V W @ 9.6 V W @ 9.6 V	 Li-ion W @ 14.4 V W @ 14.4 V W @ 14.4 V
AC Power Requirements Operating Voltage Operating Current Operating Frequency Maximum Transient	 100-240 V 0.8/0.4 A RMS 47-63 Hz Meets IEC 801-4 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%	35°C to 90%
Nonoperating (tw = 38.7°C max)	5 to 95%	60°C to 95%
Altitude		
Operating	0 to 10,000 ft	0 to 3.15 km
Nonoperating	0 to 30,000 ft	0 to 9.14 km
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 1900 Series Portable Computers operate well within this range of temperatures.		

Next Page

Specifications

System Interrupts

IRQ	Device(s)
0	System Timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable Interrupt Controller
3	Ambit Modem
4	Communications Port (COM1)
5	ESS 1946 Audio Controller
6	Standard Floppy Disk Controller
7	Printer Port (LPT1)
8	System CMOS/Real Time Clock
9	Intel 82371AB/EB PCI to USB Universal Host Controller
10	PCI Fast Ethernet DEC 21143 Based Adapter
11	Texas Instruments PCI-1225 CardBus Controller ATI M1 Graphics Controller
12	PS/2 Compatible Mouse Port
13	Numeric Data Processor
14	Intel 82371AB/EB PCI Bus Master IDE Controller
15	Intel 82371AB/EB PCI Bus Master IDE Controller

Next Page

Specifications

System DMA

DMA	Device(s)
0	ESS 1946 Audio Controller
1	ESS 1946 Audio Controller
2	Floppy Disk Controller
3	Parallel Port (ECP Mode)
5	Free
6	Free
7	Free

Specifications

System I/O Address

I/O Address	System Function (Shipping Configuration)
0000 - 000F	Direct Memory Access Controller
0020 - 0021	Programmable Interrupt Controller
0040 - 0043	System Timer
0060 - 0060	Standard 101/102-Key or Microsoft Natural Keyboard
0061 - 0061	System Speaker
0064 - 0064	Standard 101/102-Key or Microsoft Natural Keyboard
0070 - 0071	System CMOS/Real Time Clock
0081 - 008F	Direct Memory Access Controller
00A0 - 00A1	Programmable Interrupt Controller
00C0 - 00DF	Direct Memory Access Controller
00E0 - 00E1	Motherboard Resources
00F0 - 00FF	Numeric Data Processor
0170 - 0177	Intel 82371AB/EB PCI Bus Master IDE Controller
01F0 - 01F7	Intel 82371AB/EB PCI Bus Master IDE Controller
0201 - 0201	Gameport Joystick
0274 - 0277	IO Read Data Port for ISA Plug and Play Enumerator
0376 - 0376	Intel 82371AB/EB PCI Bus Master IDE Controller
0378 - 037F	Printer Port (LPT1)
03B0 - 03BB	ATI M1 Graphics Controller
03C0 - 03DF	ATI M1 Graphics Controller
03F0 - 03F5	Standard Floppy Disk Controller
03F6 - 03F6	Intel 82371AB/EB PCI Bus Master IDE Controller
03F7 - 03F7	Standard Floppy Disk Controller
03F8 - 03FF	Communications Port (COM1)
03D0 - 04D1	Motherboard Resources
0CF8 - 0CFF	PCI Bus
1000 - 103F	Motherboard Resources
1040 - 104F	Motherboard Resources
1050 - 105F	Intel 82371AB/EB PCI Bus Master IDE Controller
1060 - 107F	Intel 82371AB/EB PCI to USB Universal Host Controller
1080 - 10FF	PCI Fast Ethernet DEC 21143 Based Adapter
1400 - 14FF	PCI Communication Device
1800 - 1807	PCI Communication Device

System Memory Catalog

Memory Address	Device
00000000 - 0009FFFF	System Board Extension for PnP BIOS
000A0000 - 000AFFFF	ATI M1 Graphics Controller
000B0000 - 000BFFFF	ATI M1 Graphics Controller
000C0000 - 000CBFFF	ATI M1 Graphics Controller
000E4000 - 000FFFFF	System Board Extension for PnP BIOS
00100000 - 03FFFFFF	System Board Extension for PnP BIOS
04000000 - 04000FFF	Texas Instruments PCI-1225 CardBus Controller
04001000 - 04001FFF	Texas Instruments PCI-1225 CardBus Controller
F4000000 - F40000FF	PCI Communication Device
F4000400 - F40007FF	PCI Fast Ethernet DEC 21143 Based Adapter
F4100000 - F41FFFFF	ATI M1 Graphics Controller
F4100000 - F47FFFFF	Intel 82443BX Pentium(r) II Processor to AGP Controller
F4200000 - F42FFFFF	PCI Multimedia Audio Device
F4400000 - F47FFFFF	ATI M1 Graphics Controller
F4C00000 - F4FFFFFF	PCI Multimedia Audio Device
F4C00000 - F5FFFFFF	Intel 82443BX Pentium(r) II Processor to AGP Controller
F5000000 - F5FFFFFF	ATI M1 Graphics Controller
F8000000 - FBFFFFFF	Intel 82443BX Pentium(r) II Processor to PCI Bridge (with GART support)
FFF80000 - FFFFFFFF	Motherboard Resources

Display Information

12.1 in and 13.3 in TFT Display		
Dimensions	**U.S.**	**Metric**
12.1 in TFT		
Height	1.1 in	234mm
Depth	11.6 in	294.7mm
Width	9.2 in	29mm
13.3 in TFT		
Height	1.2 in	234mm
Depth	11.6 in	294.7mm
Width	9.2 in	30.5mm

Memory Expansion (Not Applicable in this Form Factor)

Diskette Drive or LS-120 Drive

Storage Drives		
	3.5 in Drive	**LS-120 Drive** Not Available
Capacity per Diskette (High/Low)	Low 720KB High 1.44MB	
Diskette Size	3.5 in	
Number of LED Indicators (Read/Write)	1	
Number of Drives Supported	1	
Drive Rotation (rpm)	360	
Transfer Rate (Kbps/Sec)	Low 31 High 62	
Bytes per Sector	512	
Sectors per Track (High/Low)	Low 9 High 18	
Access Times Track-to-Track (ms) Head Setting (ms)	3ms 15ms	
Cylinders (High/Low)	Not Available	
Number of Read/Write Heads	2	

Next Page

Specifications

System I/O Address

I/O Address	System Function (Shipping Configuration)
0000 - 000F	Direct memory access controller
0020 - 0021	Programmable interrupt controller
0040 - 0043	System Timer
0060 - 0060	Standard 101/102-Key or Microsoft Natural Keyboard
0061 - 0061	System speaker
0064 - 0064	Standard 101/102-Key or Microsoft Natural Keyboard
0070 - 0071	System CMOS/Real Time Clock
0081 - 008F	Direct memory access controller
00A0 - 00A1	Programmable interrupt controller
00C0 - 00DF	Direct memory access controller
00E0 - 00E1	Motherboard Resources
00F0 - 00FF	Numeric Data Processor
0170 - 0177	Intel 82371AB/EB PCI Bus Master IDE Controller
01F0 - 01F7	Intel 82371AB/EB PCI Bus Master IDE Controller
0201 - 0201	Gameport Joystick
0274 - 0277	IO read data port for ISA Plug and Play Enumerator
0376 - 0376	Intel 82371AB/EB PCI Bus Master IDE Controller
0378 - 037F	Printer Port (LPT1)
03B0 - 03BB	ATI M1 Graphics Controller
03C0 - 03DF	ATI M1 Graphics Controller
03F0 - 03F5	Standard Floppy Disk Controller
03F6 - 03F6	Intel 82371AB/EB PCI Bus Master IDE Controller
03F7 - 03F7	Standard Floppy Disk Controller
03F8 - 03FF	Communications Port (COM1)
03D0 - 04D1	Motherboard Resources
0CF8 - 0CFF	PCI Bus
1000 - 103F	Motherboard Resources
1040 - 104F	Motherboard Resources
1050 - 105F	Intel 82371AB/EB PCI Bus Master IDE Controller
1060 - 107F	Intel 82371AB/EB PCI to USB Universal Host Controller
1080 - 10FF	PCI Fast Ethernet DEC 21143 Based Adapter
1400 - 14FF	PCI Communication Device
1800 - 1807	PCI Communication Device

System Memory Catalog

Memory Address	Device
00000000 - 0009FFFF	System board extension for PnP BIOS
000A0000 - 000AFFFF	ATI M1 Graphics Controller
000B0000 - 000BFFFF	ATI M1 Graphics Controller
000C0000 - 000CBFFF	ATI M1 Graphics Controller
000E4000 - 000FFFFF	System board extension for PnP BIOS
00100000 - 03FFFFFF	System board extension for PnP BIOS
04000000 - 04000FFF	Texas Instruments PCI-1225 CardBus Controller
04001000 - 04001FFF	Texas Instruments PCI-1225 CardBus Controller
F4000000 - F40000FF	PCI Communication Device
F4000400 - F40007FF	PCI Fast Ethernet DEC 21143 Based Adapter
F4100000 - F41FFFFF	ATI M1 Graphics Controller
F4100000 - F47FFFFF	Intel 82443BX Pentium(r) II Processor to AGP Controller
F4200000 - F42FFFFF	PCI Multimedia Audio Device
F4400000 - F47FFFFF	ATI M1 Graphics Controller
F4C00000 - F4FFFFFF	PCI Multimedia Audio Device
F4C00000 - F5FFFFFF	Intel 82443BX Pentium(r) II Processor to AGP Controller
F5000000 - F5FFFFFF	ATI M1 Graphics Controller
F8000000 - FBFFFFFF	Intel 82443BX Pentium(r) II Processor to PCI bridge (with GART support)
FFF80000 - FFFFFFFF	Motherboard Resources

Display Information

12.1" TFT Display		
Dimensions	**U.S.**	**Metric**
(Models with 12.1 TFT display)		
Height Depth Width	1.1" 11.6" 9.2"	234mm 294.7mm 29mm
(Models with 13.3 TFT display)		
Height Depth Width	1.2" 11.6" 9.2"	234mm 294.7mm 30.5mm

Diskette Drive or LS-120 Drive

Storage Drives		
	3.5 Drive	**LS-120 Drive**
Capacity per Diskette (High/Low)	Low 720KB High 1.44MB	Low 720KB High 120MB
Diskette Size	3.5	3.5
Number of LED Indicators (Read/Write)	1	1
Number of Drives Supported	1	1
Drive Rotation (rpm)	360	720
Transfer Rate (Kbps/Sec)	Low 31 High 62	Low 313-565 High 313-565
Bytes per Sector	512	512
Sectors per Track (High/Low)	Low 9 High 18	Low 9 High 93
Access Times Track-to-Track (ms) Head Setting (ms)	 3ms 15ms	 25ms (1 cycle seek) 20ms (1 cycle seek)
Cylinders (High/Low)	Not Available	Low 80 High 1736
Number of Read/Write Heads	2	2

Hard Drive

Hard Drives			
Capacity Per Drive		**6.0-GB**	**12.0-GB**
Drive Type	Ultra DMA	66.7	66.7
Logical Configuration Cylinders Heads Sectors per Track Bytes per Sector		 15200 2 63 512	 15200 4 63 512
Seek Times			
Typical (including settling)	Read Write	13ms 13ms	13ms 13ms
Single Track	Read Write	3ms 3ms	3ms 3ms
Full Stroke	Read Write	24ms 24ms	24ms 24ms
Transfer Rate at Interface	Ultra DMA mode PIO mode	66.7MB/s Max. 66.7MB/s Max.	16.6MB/s 16.6MB/s

CD ROM or DVD Drive

	CD ROM Drive (24X)	DVD Drive (6X)
Dimensions Width Height Depth	 128mm 12.7mm 129mm	 128mm 12.7mm 129mm
Weight	300g	300g
Rotational Speed - Approx.	5100RPM	3400 RPM
Typical Transfer Rate Sustained Data Transfer Rate	16.67MB/s 4100KB/s	16.6MB/s(PIO) 8100KB/s
Access Time Average Random Access Time	100ms	
Spin Up Time	2.0s	2.5s
Data Buffer Capacity	1Mbit	128KB

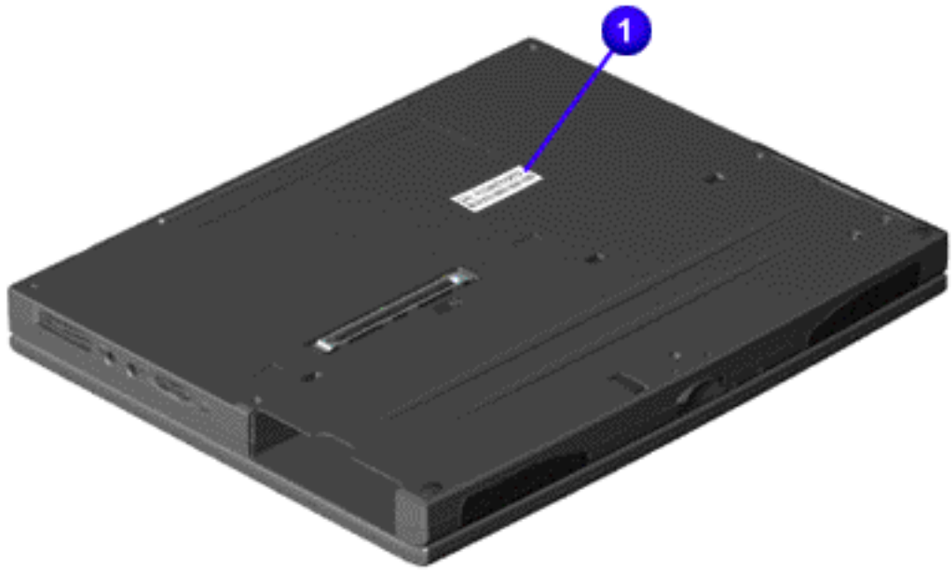
Go back to the top of Specifications

Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

Illustrated Parts Catalog



This section provides an illustrated parts breakdown and a reference for spare parts for the Presario 1900 Series Portable Computer.

The computer serial number 1 should be provided to Compaq whenever requesting information or ordering spare parts. The serial number is located on bottom of unit.

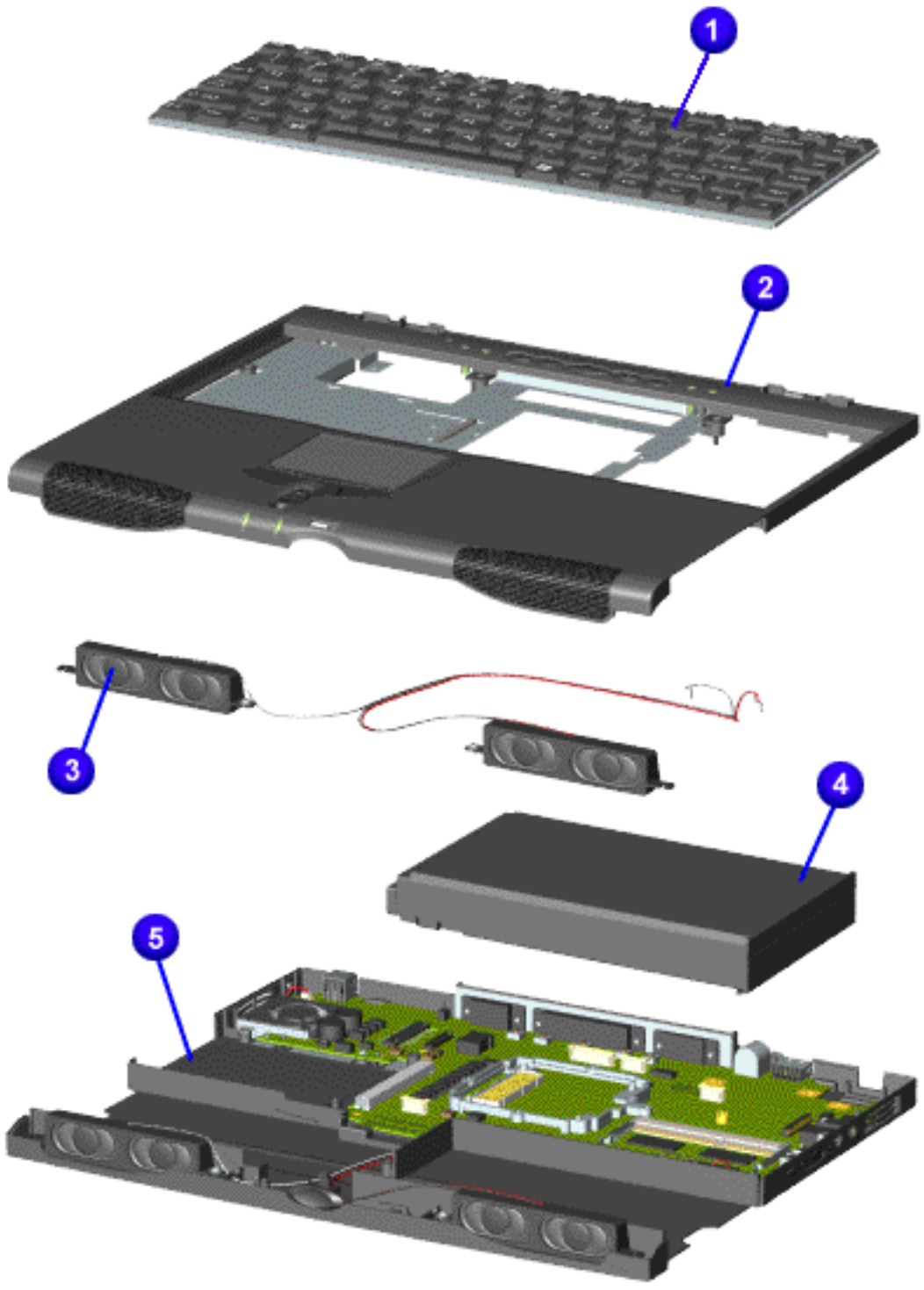
Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

Illustrated Parts Catalog

System Unit



Description
1. Keyboards

U.S.	159404-001
International	159404-002
United Kingdom	159404-031
Germany	159404-313
Denmark	331419-371
France	159404-051
Norway	159404-091
Japan	159404-291
Italy	159404-061
Belgium	159404-181
Korea	159404-AD3

2. Upper CPU Cover w/Palmrest and TouchPad
Spare Part No: 159400-001

3. Speaker Assembly w/Cable
Spare Part No: 174115-001

4. Battery Pack - Li ion
Spare Part No: 140664-001

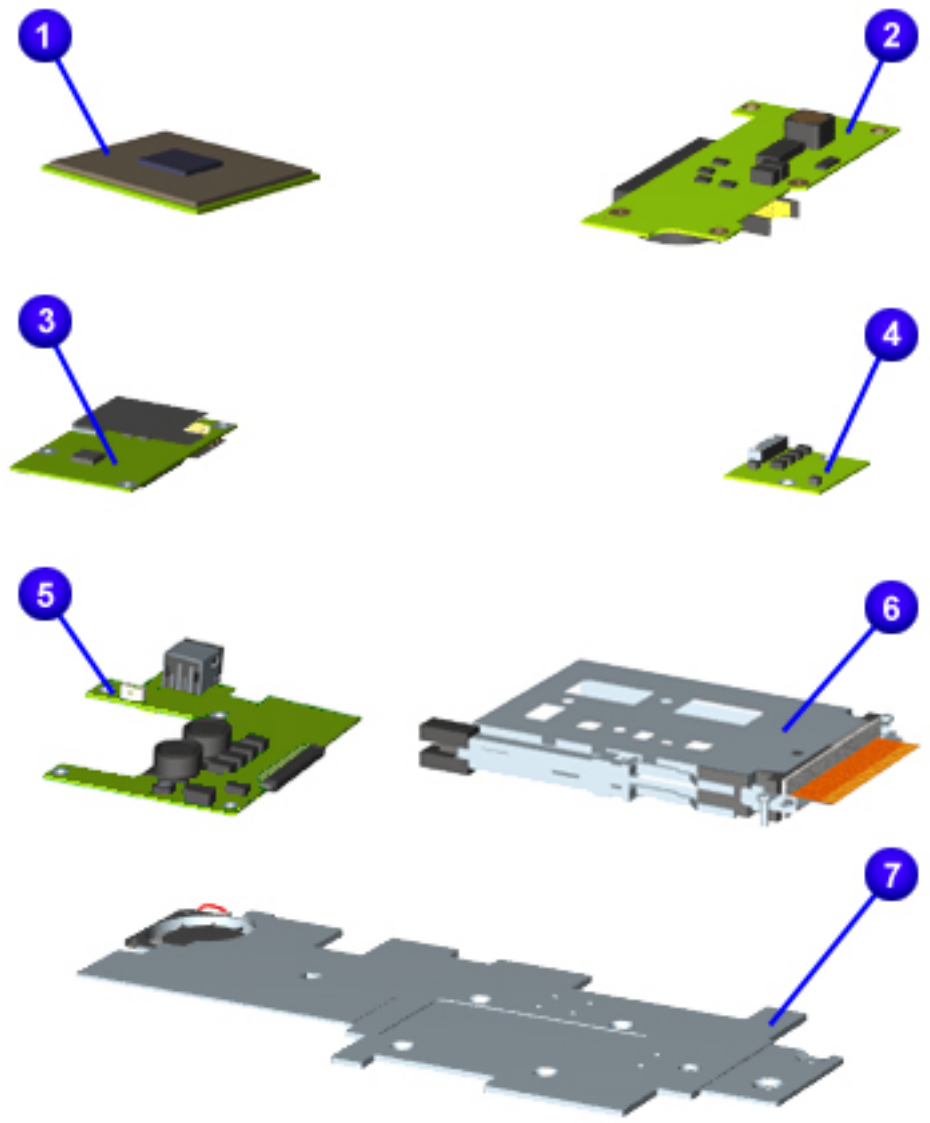
5. CPU Base Assembly Enclosure with System Board and Speaker Assembly, (Bottom Plastics) Spare Part No:
159398-001

6. CPU Base Assembly Enclosure with Shield,
(Bottom Plastics - Not Shown)
Spare Part No: 140679-001

Illustrated Parts Catalog

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Hardware and Plastics Kit
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Boards

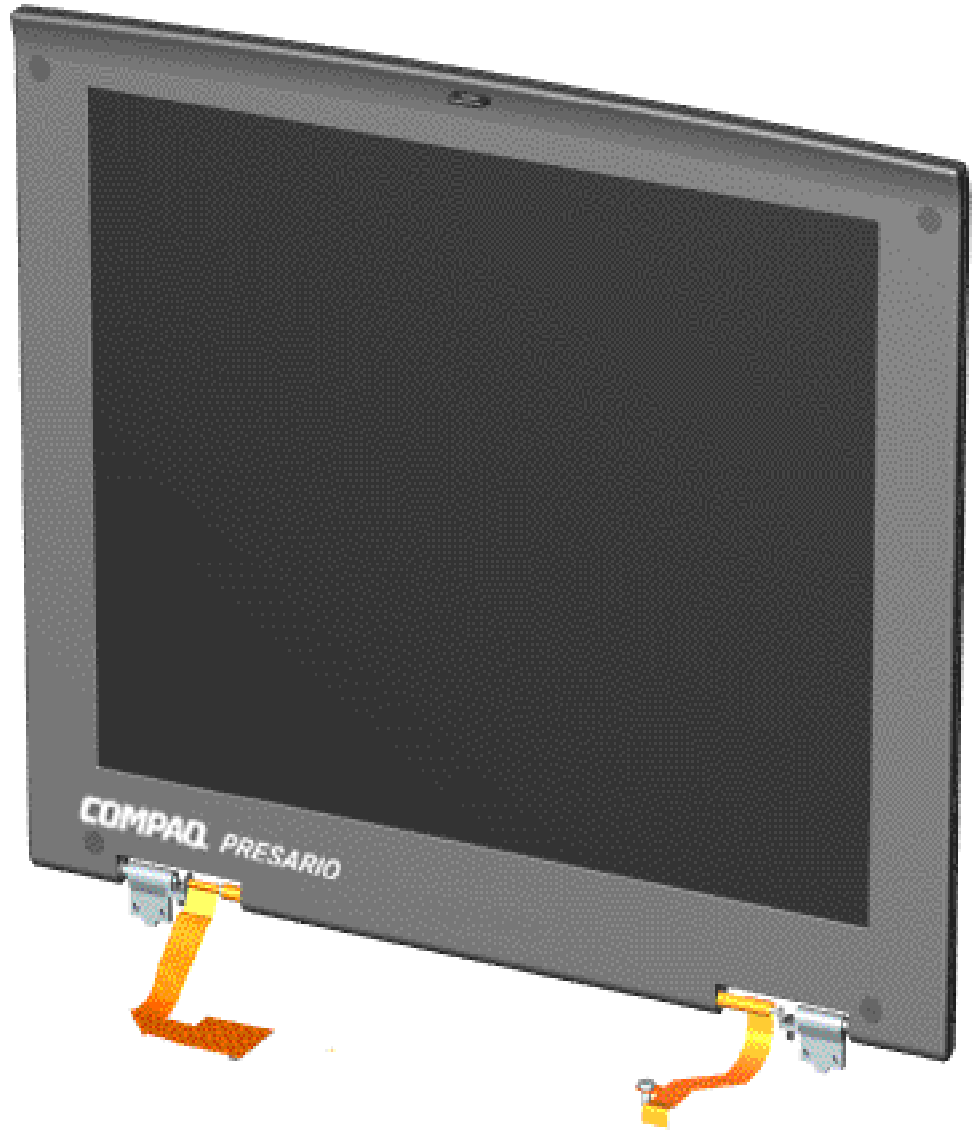


Description	Spare Part Number
1. Processors	
Celeron 450 MHz w/128L Cache	174105-001
Celeron 500 MHz w/128K Cache	174106-001
Pentium III/450 MHz w/256K Cache	174107-001
Pentium III/ 500 MHz w/256K Cache	174108-001
2. Hard Drive/Battery Charger Board w/RTC Battery	TBD
3. Modem w/Shield, 56.0 Kbps Data/Fax	174118-001 or 331429-001
4. Low Voltage Differential Signal Board (For 13.3' Display Panel)	174110-001
5. Voltage Converter Board	174112-001
6. PC Card Assembly	TBD
7. Fan Assembly (Not Shown)	174116-001

Illustrated Parts Catalog

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Hardware and Plastics Kit
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Display Panel Assembly

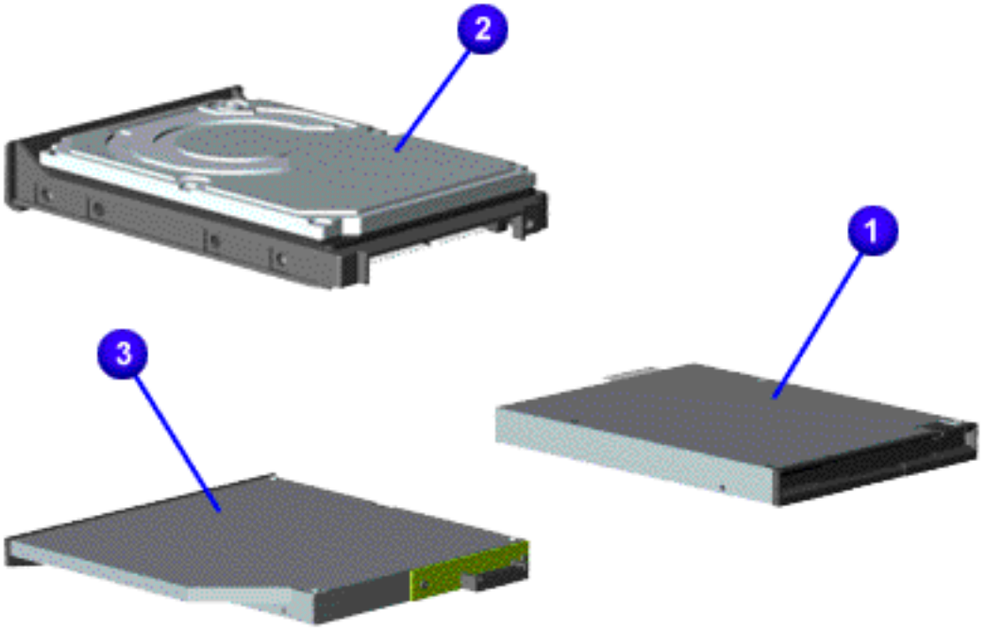


Description	Spare Part Number
Display Panel Assembly w/Cable 13.3 inch TFT	174110-001
Display Panel Assembly w/Cable and Connector, 12.1 inch TFT	174109-001

Illustrated Parts Catalog

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Hardware and Plastics Kit
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Mass Storage Devices

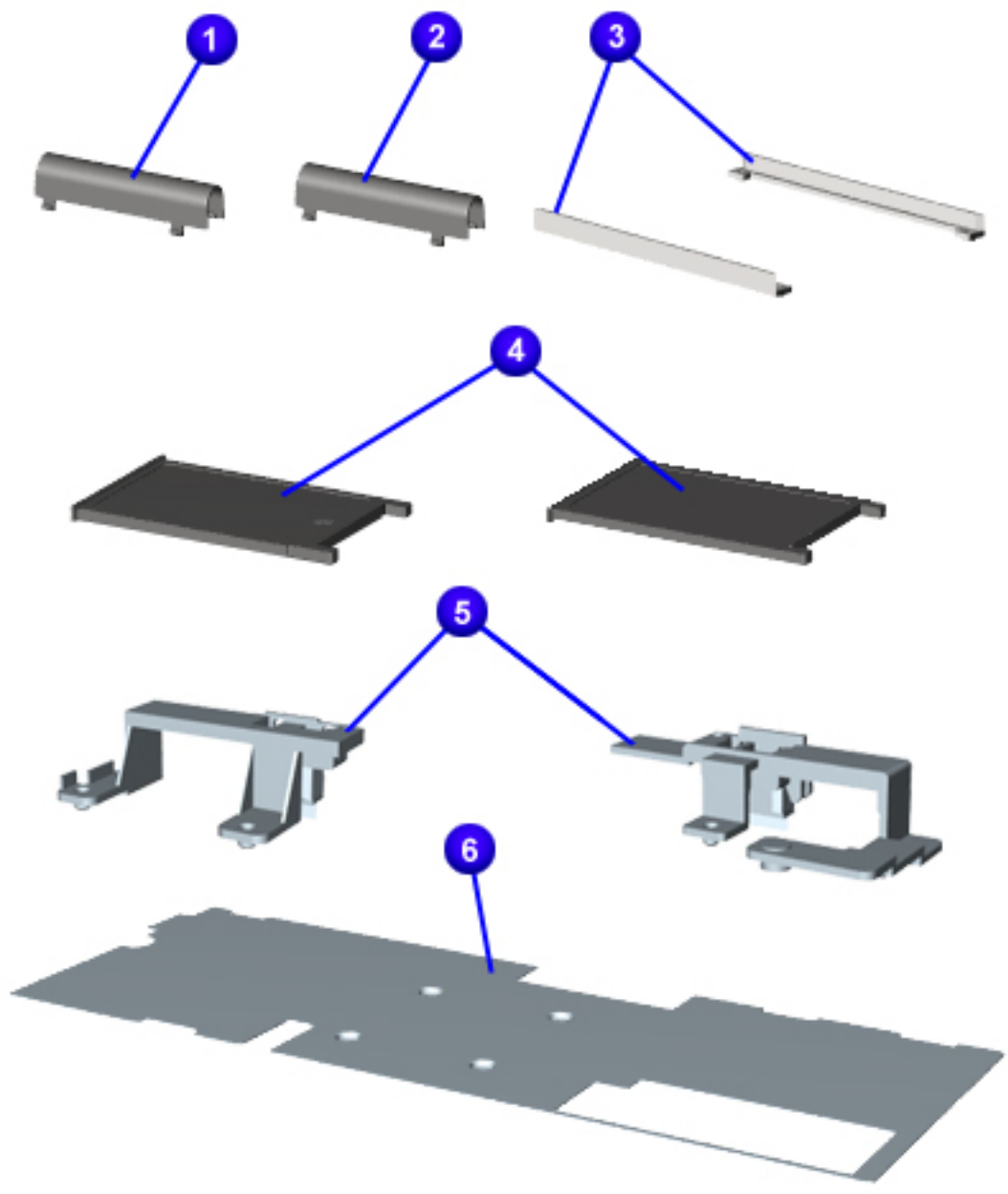


Description	Model No.	Spare Part Number
Diskette Drive w/cable 1.44 MB, 3.5 inch	XL1 XL160 XL161 XL162 XL163	331428-001
Hard Drive 6.0-GB	XL1, XL160, XL161, XL163	140673-001
12.0-GB	XL1, XL162	174113-001
6X DVD	XL1, XL161, XL162, XL163	159402-001
24X CD Drive w/cable	XL1, XL160	144356-001

Illustrated Parts Catalog

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- **Miscellaneous Hardware and Plastics Kit**
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Miscellaneous Hardware and Plastics Kit



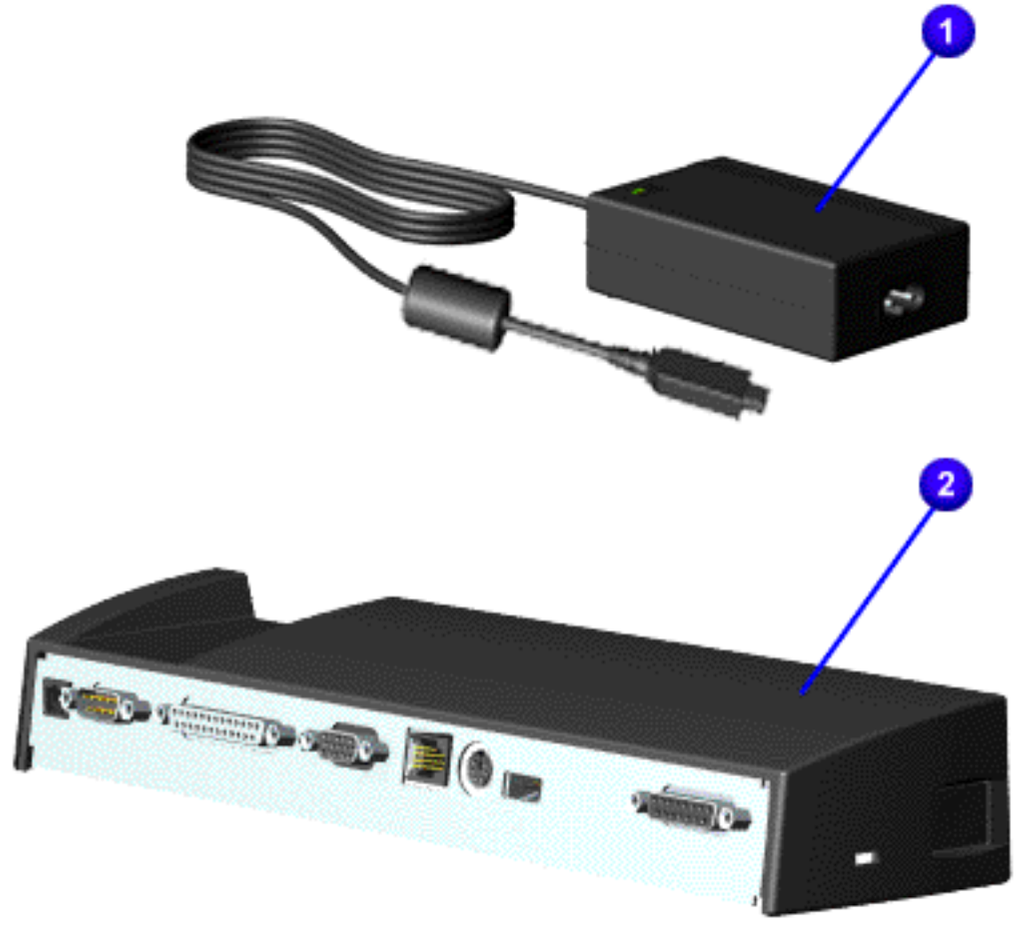
Spare Part Number: 140675-001 (Models: XL1, XL160, XL161, XL162, XL163)

Description	Quantity
1. Display Panel Assembly Hinge Cover, Left	1 each
2. Display Panel Assembly Hinge Cover, Right	1 each
3. CD/DVD Guide Rails	1 each
4. PC Card Placeholder	1 each
5. Display Panel Assembly Hinge Frame (Left and Right)	1 each
6. Heatspreader with Thermal Pad	2 each
12.1 inch FPC Support Bracket (Not Shown)	1 each
Keyboard Eject Latch (Not Shown)	1 each
TouchPad Switch (Not Shown)	1 each
Scroll Button Switch (Not Shown)	1 each
Battery Eject Latch (Not Shown)	1 each
Display Screw Hole Covers (Not Shown)	4 each
Battery Knob Spring Coil (Not Shown)	2 each
Volume Switch Knob (Not Shown)	1 each
Display Eject Latch (Not Shown)	1 each
RJ11 Jack Assembly (Not Shown)	1 each
Rubber Feet (Not Shown)	2 each

Illustrated Parts Catalog

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Hardware and Plastics Kit
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Miscellaneous Parts



Description	Spare Part Number
1. AC 45W Adapter	358976-001
2. Integrated 10/100BaseT Ethernet Port Replicator	140663-001
Miscellaneous Screw Kit (Not Shown)	159399-001
Y Cable Assembly (Not Shown)	102422-001

Illustrated Parts Catalog

Documentation and Software

- System Unit
- Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Hardware and Plastics Kit
- Miscellaneous Parts
- Documentation and Software
- Configure to Order

Description	Spare Part Number
Quick Restore CD 1	
	US/PR 169298-001 Mexico 169298-161 APD 169298-371 PRC 169298-AA1 Korea 169298-AD1 AUS 169298-371 Japan 169298-291 UK 169298-031 France 169298-051 Italy 169298-061 Belgium 169298-AK1
Quick Restore CD 2	Not Available
Reference Guide	**[FrontPage Save Results Component]** 117894-001 US
Quick Reference Guide	Not Available
QuickFind for Windows, North America, Latin America, Asia Pacific	Not Available
QuickFind for Windows, Europe, Middle East, Africa	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

Illustrated Parts Catalog

Configure To Order Features

Compaq Presario 1900T Portable Computer Configure To Order Features	
Processors	Celeron 500 uPGA2 Pentium III 500 uPGA2
System Memory	100MHz 64 SD (down) 100MHz 96SD (64down + 32up) 100MHz 128SD (64down + 64up)
Diskette Drive	Standard 3.5" Floppy
CD-ROM	24X CD-ROM Drive 6X DVD Drive
Hard Drive	6.0-GB 12.0-GB
Miscellaneous	Miscellaneous Overpack Box POD Label
Software	Microsoft Word 2000 CD Microsoft Office 2000 SBE CD Microsoft Office 2000 Professional CD
Other CTO Options	AC Adapter Briefcase External Zip Folio Case Port Replicator Security Lock Xircom 10/100 NIC

Back to Models and Features

Back to Illustrated Parts Catalog

Product Description

Compaq Presario 1900 Series Portable Computers, a new generation of multimedia portable computers, present ultimate thin and light-weight designs, outstanding audio and video, advanced core features, and attractive styles.

The Removable Drive Wedge provides multimedia expansion capability with a DVD or CD-ROM Drive.

Compaq Presario 1900 Series Portable Computers include an optional integrated 10/100BaseT Ethernet Port Replicator, allowing the user to attach or detach the computer quickly and easily from peripheral devices. Containing a full array of ports, some Presario computers are accessible while the system is docked to the Port Replicator.

This fully functional Intel Celeron- and Pentium II-based portable computer provides full desktop versatility.

Product Description

Compaq Discovery 1900 Series Portable Computer Models		
	Model XL160	**Model XL161**
Display	12. 1" TFT	12. 1" TFT
Processor	Intel Celeron/450-MHz w/128K Cache	Pentium III/450-MHz w/256K Cache
Hard Drive	6.0-GB	6.0-GB
Memory	64-MB	64-MB
Video Card	Mobility M1 (8-MB)	Mobility M1 (8-MB)
Modem	56.0 Kbps PCI Data/Fax-I	56.0 Kbps PCI Data/Fax
CD Drive	24X CD-ROM	6X DVD
Battery	Li ion	Li ion

	Model XL162	**Model XL163 & New**
Display	13. 3" TFT	13.3" TFT
Processor	Pentium III/450-MHz w/256K Cache	Pentium III/500-MHz w/256K Cache
Hard Drive	12.0-GB	6.0-GB or 12.0-GB
Memory	64-MB	64-MB
Video Card	Mobility M1 (8-MB)	Mobility M1 (8-MB)
Modem	56.0 Kbps PCI Data/Fax -I	56.0 Kbps PCI Data/Fax
DVD or CD Drive	6X DVD	6X DVD
Battery	Li ion	Li ion

	Model XL1	**Model XL165**
Display	12.1" TFT or 13. 3" TFT	13. 3" TFT
Processor	Pentium III/450-MHz w/256K Cache or Pentium III/500-MHz w/256K Cache	Pentium III/500-MHz w/128K Cache
Hard Drive	6.0-GB or 12.0-GB	6.0-GB
Memory	64-MB	64-MB
Video Card	Mobility M1 (8-MB)	Mobility M1 (8-MB)
Modem	K-56.0 Kbps PCI Data/Fax or 56.0 Kbps PCI Data/Fax (International)	56.0 Kbps PCI Data/Fax or 56.0 Kbps PCI Data/Fax (International)
DVD Drive	6X DVD Drive	6X DVD Drive
Battery	Li ion	Li ion

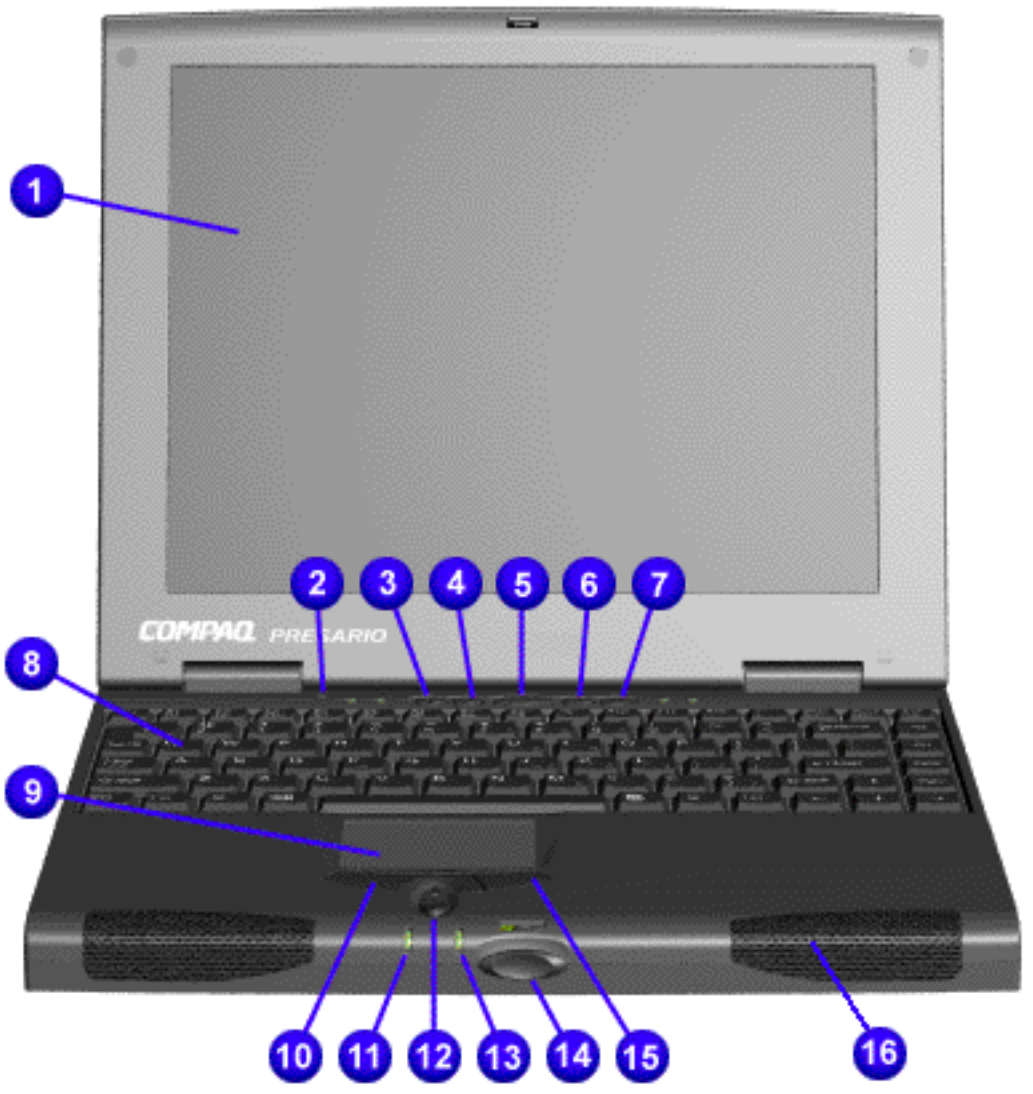
Configure To Order (CTOs)

Maintenance & Service Guide

Presario 1900 Series

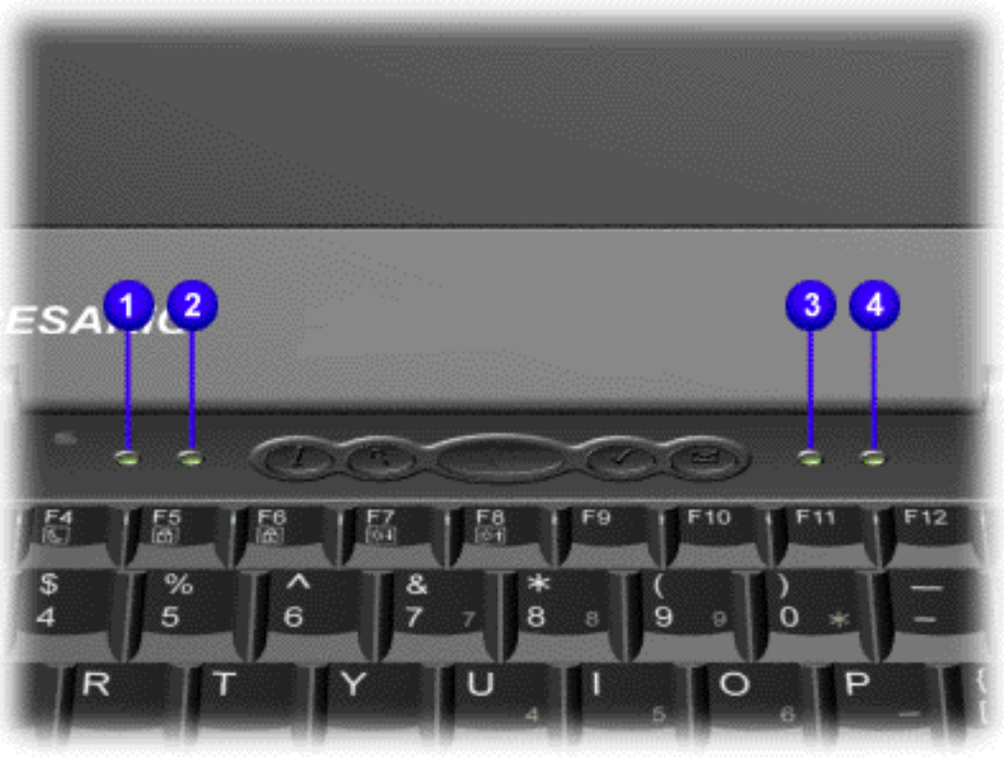
Models: XL1, XL160, XL161, XL162, XL163, and XL165

Product Description



Front of Unit	
1. Display	9. TouchPad
2. Backlight Switch Button	10. Left TouchPad Button
3.Instant Internet Access Button	11. Power (On/Off) Light
4.Instant Search Button	12. Scroll (Up/Down) Button
5. Power (On/Off) Button	13. Battery Charge Light
6. Instant E-Commerce (or Favorite Web site) Button	14. Display Panel Release Button
7. Instant E-Mail Button	15. Right TouchPad Button
8. Keyboard	16.Integrated Speakers

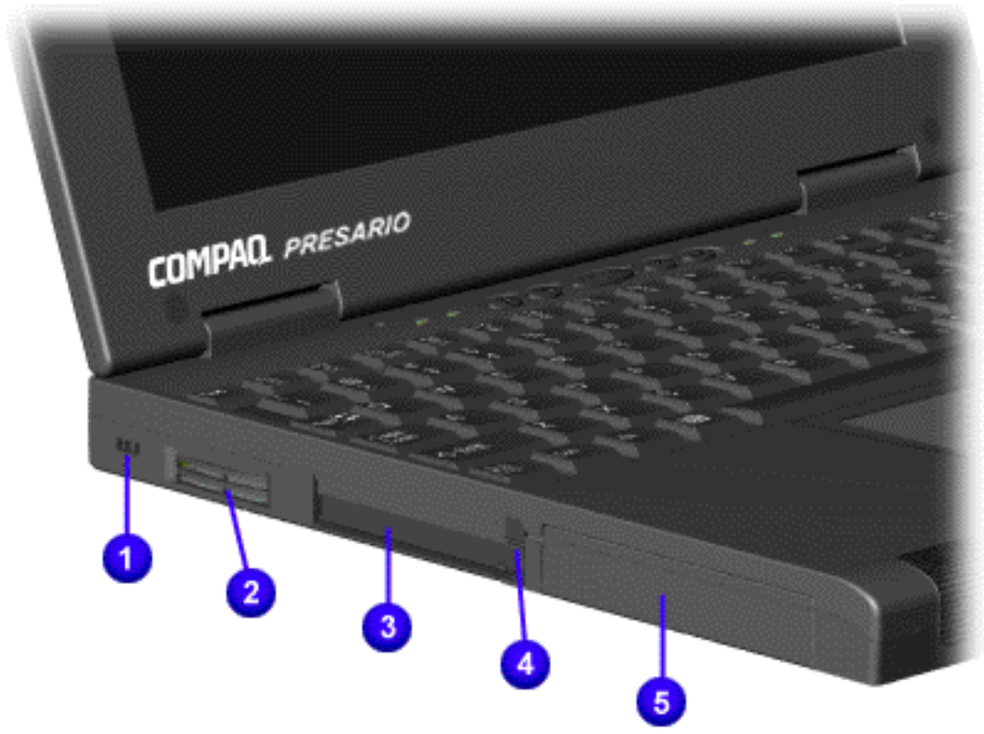
Product Description



Status Panel Lights

1. AC Adapter Light
2. Num Lock Light
3. Caps Lock Light
4. Scroll Lock Light

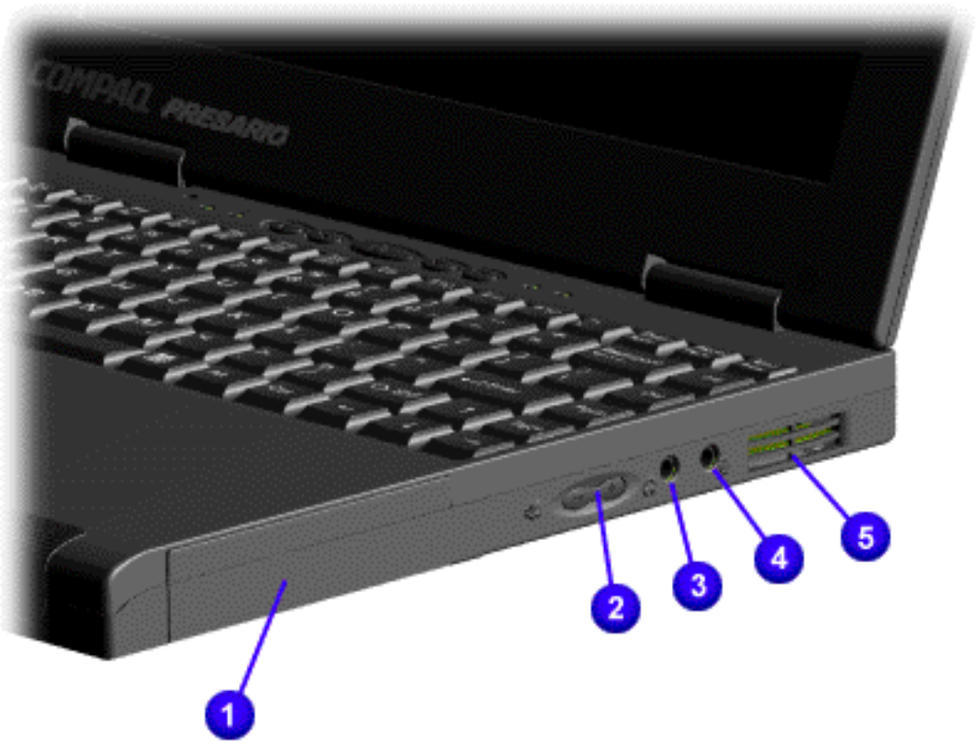
Product Description



Left Side Components

1. Security Lock
2. Air Vent
3. PC Card Slots
4. PC Card Eject Levers
5. Hard Drive

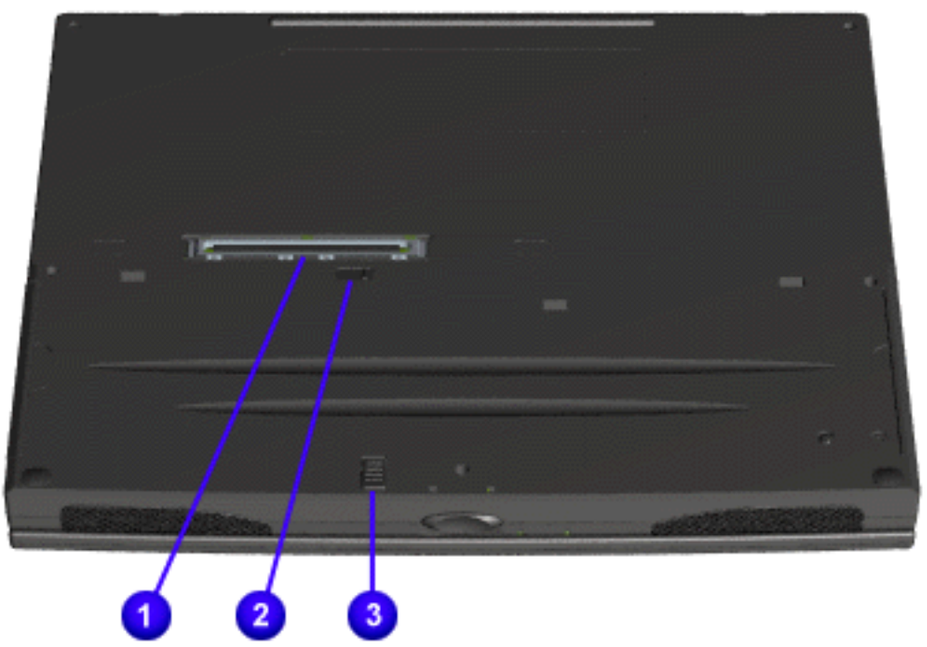
Product Description



Right Side Components

1. Battery Compartment
2. Volume Up/Down Button
3. Headphone Jack
4. Microphone Jack
5. Air Vent

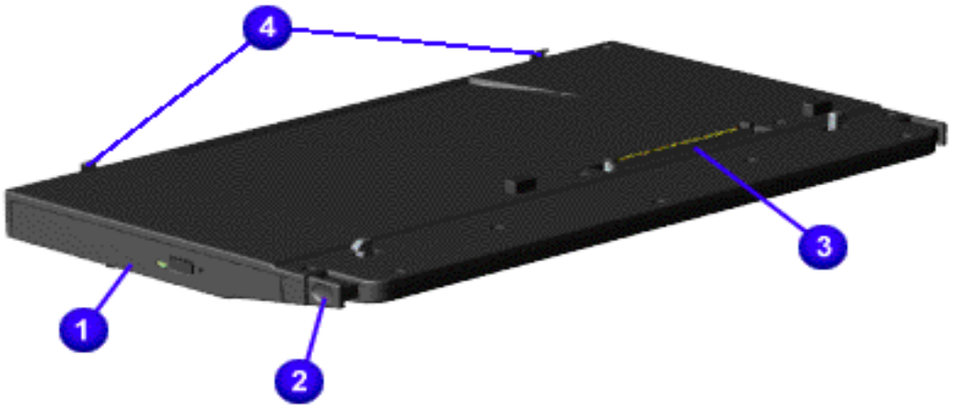
Product Description



Bottom of Unit

1. Wedge Interface Connector
2. Keyboard Eject Switch
3. Battery Release Lever

Product Description

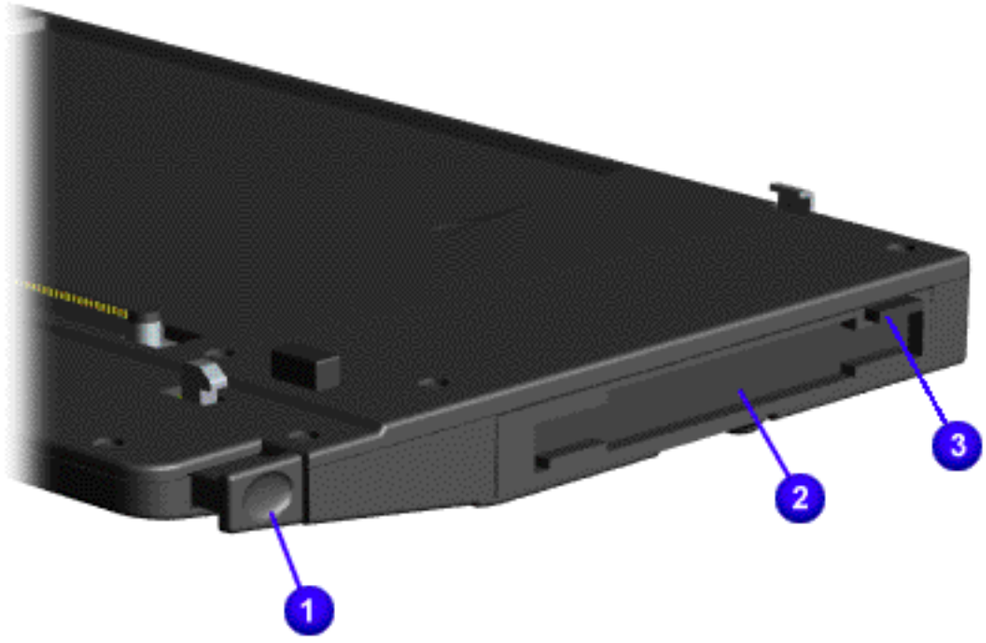


Left Side and Top Components of the Removable Drive Wedge

1. DVD Drive or CD ROM Drive
2. Wedge Release Button
3. System to Wedge Interface Connector
4. Alignment Pins

Note: For the Presario 1900 XL Series, the wedge is serviced as a one component. Consult repair technician prior to opening wedge.

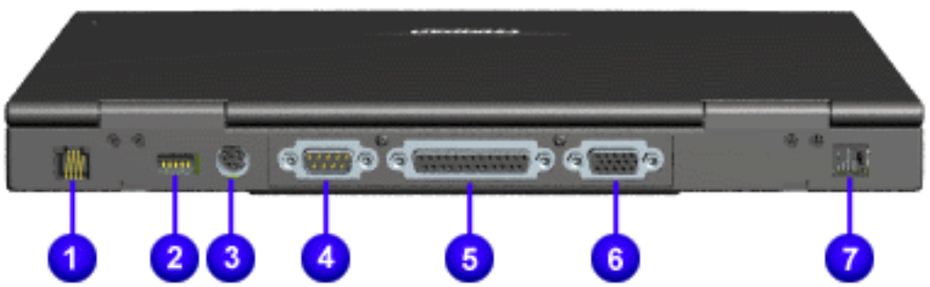
Product Description



Right Side Components of the Removable Drive Wedge

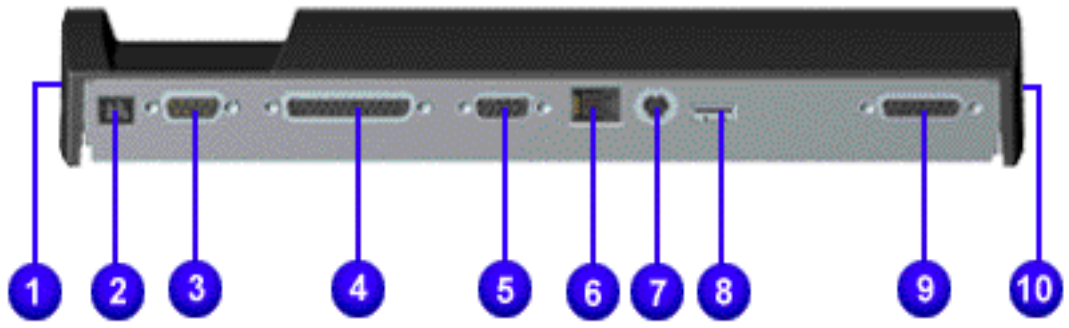
1. Wedge Release Button
2. Diskette Drive or LS-120 Drive Slot
3. Diskette Drive or LS-120 Drive Eject Button

Product Description



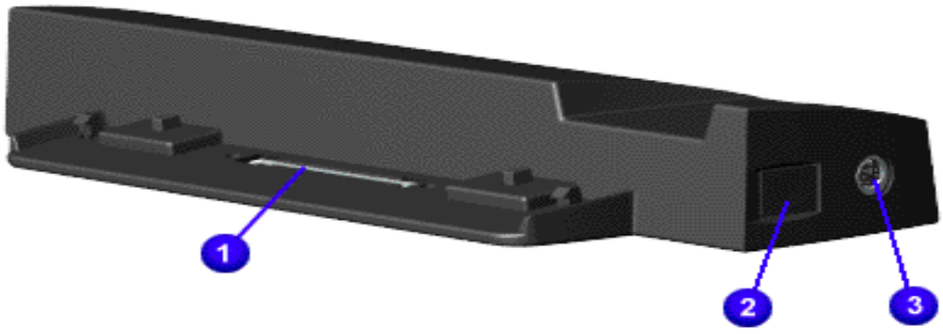
Rear Connectors
1. Modem Jack
2. USB Port
3. Keyboard/Mouse Port
4. Serial Port
5. Parallel Port
6. External Monitor Port
7. AC Adapter

Product Description



Integrated 10/100BaseT Ethernet Port Replicator Connectors
1. Keyboard/Mouse
2. AC Adapter
3. Serial Port
4. Parallel Port
5. External Monitor Port
6. Local Area Network (LAN)
7. Keyboard/Mouse
8. USB Port
9. MIDI/Game Pad/Joystick Port
10. Security Lock

Product Description



Integrated 10/100BaseT Ethernet Port Replicator Components
1. Port Replicator Interface Connector
2. Port Replicator Release Button
3. Keyboard/Mouse Connector

CAUTION: The computer power switch should be turned off before you connect or disconnect the port replicator. Damage may occur to the computer if it is "hot" plugged to the port replicator.

Product Description

Compaq Presario 1900 Series Portable Computers are equipped with Advanced Power Management (APM). This management system allows you to conserve battery power and customize the power saving settings to suit your individual needs.

Power Management Settings

Depending on your patterns of computer use, you can set different conditions, or Power Schemes, under which the computer will go into Sleep mode. The optional settings are **Home/Office Desk** , **Portable/Laptop** , and **Always On** .

From the default settings, you can change the following settings.

- When the computer goes into Sleep (Standby) mode
- When the screen times out and goes blank
- When the hard drive slows down

NOTE: The setting for the hard drive must be less than or equal to the setting for the computer.

IMPORTANT: If you are connected to a network, Compaq recommends you set **System Standby** to **Never** .

Sleep

Sleep mode is a low power mode, also referred to as Standby mode.

CAUTION: While in Sleep mode, your computer will maintain system information and open files. Unsaved information will be lost if you turn off your system prior to system wake-up, or if you lose power while using the AC adapter .

Hibernation Mode

Hibernation mode occurs by pressing the **Power** button once. Your computer saves the content of your computer memory to the hard drive. This is followed by the computer turning off.

The following table shows the conditions and indicators for getting in and out of the various power modes: Sleep, Hibernation, and Off.

Mode	To Start	To End	Indicators
Sleep	Manual - **Fn+F4** key combination	Press any key or move the mouse	Flashing **Power** LED
	Time-Out Default - 15 minutes. If using battery power, system will not go to Sleep if on AC power		
Hibernate	Manual - Press **Power** Button once	Press **Power** button once	No **Power** LED, blank screen
	Time Out Default - if low battery or after 1 hour of Sleep (system will not Hibernate if on AC power)		
Off	Perform normal Windows shutdown using the **Start** button, or press and hold down the **Power** button for 4 seconds	Press **Power** button once	No **Power** LED, blank screen

Rebooting After a Lockup

Occasionally you may encounter a non-working keyboard or a locked screen. To restart your computer, press and hold down the **Power** button for at least four seconds. This will cause a manual shutdown. Press the **Power** button once to start the computer.

If the computer still does not restart, follow these steps:

1. Press the **Power** button and hold it for four seconds to shut the computer down.

2. Remove the battery and unplug the AC power for at least 30 seconds.

3. Reinsert the battery or reconnect AC power and press the **Power** button once to restart.

Full Off (Main Power Off) Mode

If you need to install or replace components in your computer, you must turn the computer off *completely* . Follow the instructions above for putting the computer into Standard Off mode. Unplug the computer electrical cord from the outlet and remove the battery if installed.

Pin Assignments

This appendix provides connector pin assignment tables for Compaq Presario 1900 Series Portable Computers. 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

Serial Connector

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

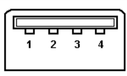
Keyboard/Mouse Connector

Connector	Pin	Signal
	1	Data
	2	Not defined
	3	Ground
	4	+5 VDC
	5	Clock
	6	Not defined

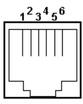
External VGA Monitor Connector

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

Universal Serial Bus Connector

Connector	Pin	Signal
	1	Ground
	2	D+
	3	D-
	4	Power

Modem Connector

Connector	Pin	Signal
	1	Unused
	2	Unused
	3	Tip
	4	Ring
	5	Unused
	6	Unused

This information was not available at time of publication.

Port Replicator Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal

This information was not available at time of publication.

LAN Connector

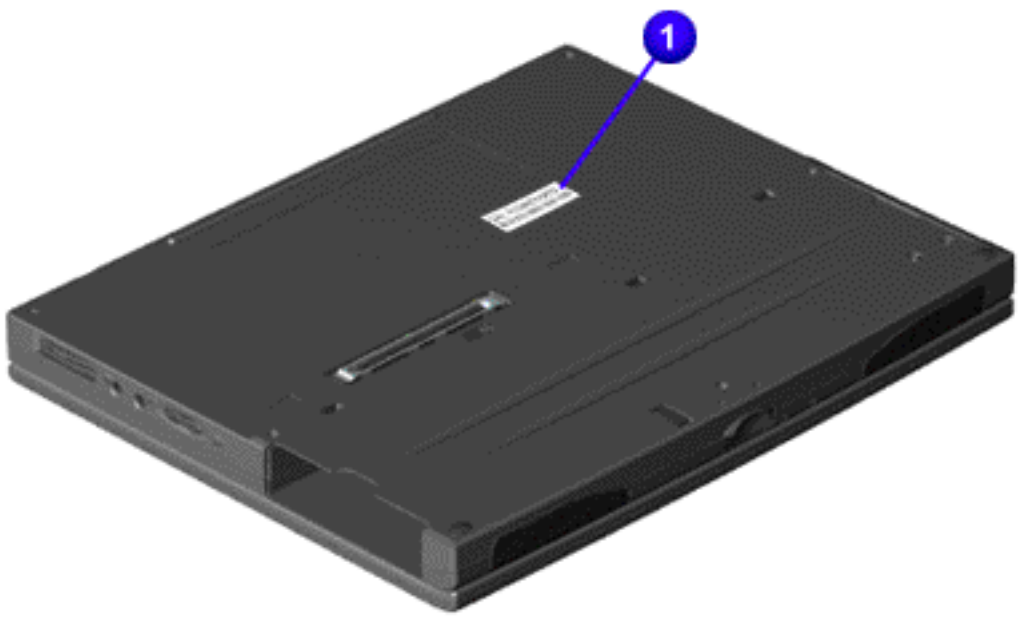
Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

Removal and Replacement Procedures

This section explains the removal and replacement procedures for the computer.



Serial Number

Report the computer serial number to Compaq when requesting information or ordering spare parts. The serial number is located on bottom of unit.

Removal and Replacement Procedures

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 be affected at all and will work perfectly throughout a normal cycle. Although, it may function normally for a while, then degrade 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 shows how different activities generate static electricity and at different electrostatic voltage levels.

Typical Electrostatic Voltages

	Relative Humidity		
Event	**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.			

Return to Removal & Replacement Procedures.

Removal and Replcement Procedures

Service Considerations

Listed below are some of the considerations that you should keep in mind during the disassembly and assembly of the computer.

Tool and Software Requirements

To service the computer, you need the following items:

- 5 millimeter nut drivers (for screwlocks and standoffs)
- Small, Phillips (P-Zero) screwdriver
- Small, standard screwdriver
- Small, pair of tweezers
- Diagnostics software

Screws

The screws used in the computer 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 computer, it should be placed away from the work area to prevent damage.

Return to Removal & Replacement Procedures.

Removal and Replacement Procedures

Cables and Connectors

Most cables used throughout the unit are ribbon cables. Cables must be handled with extreme care to prevent damage. Apply only the tension 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.

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 such a manner that they cannot be caught or snagged by parts being removed or replaced.
- Handle flex cables with extreme care; they can tear easily.

CAUTION: When serving 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.

Select the desired illustration

Removing a cable from a **ZIF Connector** .

The cable position for the **Speaker Assembly.**

Plastic Parts

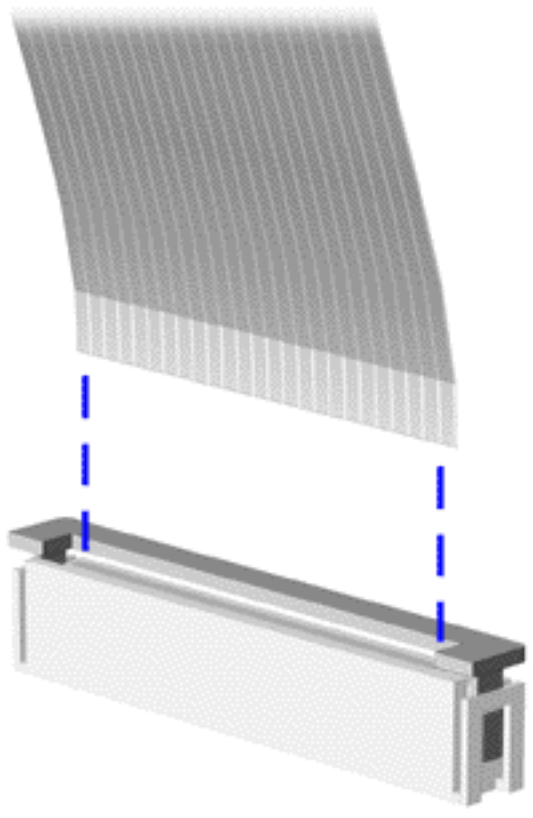
Plastic parts can be damaged by the use of excessive force during disassembly and reassembly. When handling the plastic parts, use care. Apply pressure only at the points designated in the maintenance instructions.

Return to Removal & Replacement Procedures .

Maintenance & Service Guide

Presario 1900 Series
Models: XL1, XL160, XL161, XL162, XL163, and XL165

Removal and Replacement Procedures



Removing a Cable from the Zif Connector

The computer uses a zero insertion force (ZIF) connector for the keyboard cable to the system board. To remove a cable from a ZIF connector, lift both corners of the ZIF connector and slide simultaneously with constant light force.

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

Note:	Use a pair of tweezers to properly replace the cable inside the ZIF connectors on the system board. When replacing the keyboard, fold the flex cables as illustrated. The J7 (Slender) cable must first be folded towards the display.

Removal and Replacement Procedures

Preparing the Computer for Disassembly

Before beginning removal and replacement procedures, complete the following procedures:

1. Disconnect AC power and any external devices.

2. Remove the battery pack.

3. Remove any PC Cards.

4. Remove the wedge.

IMPORTANT: The battery pack should be removed before performing any internal maintenance on the computer.

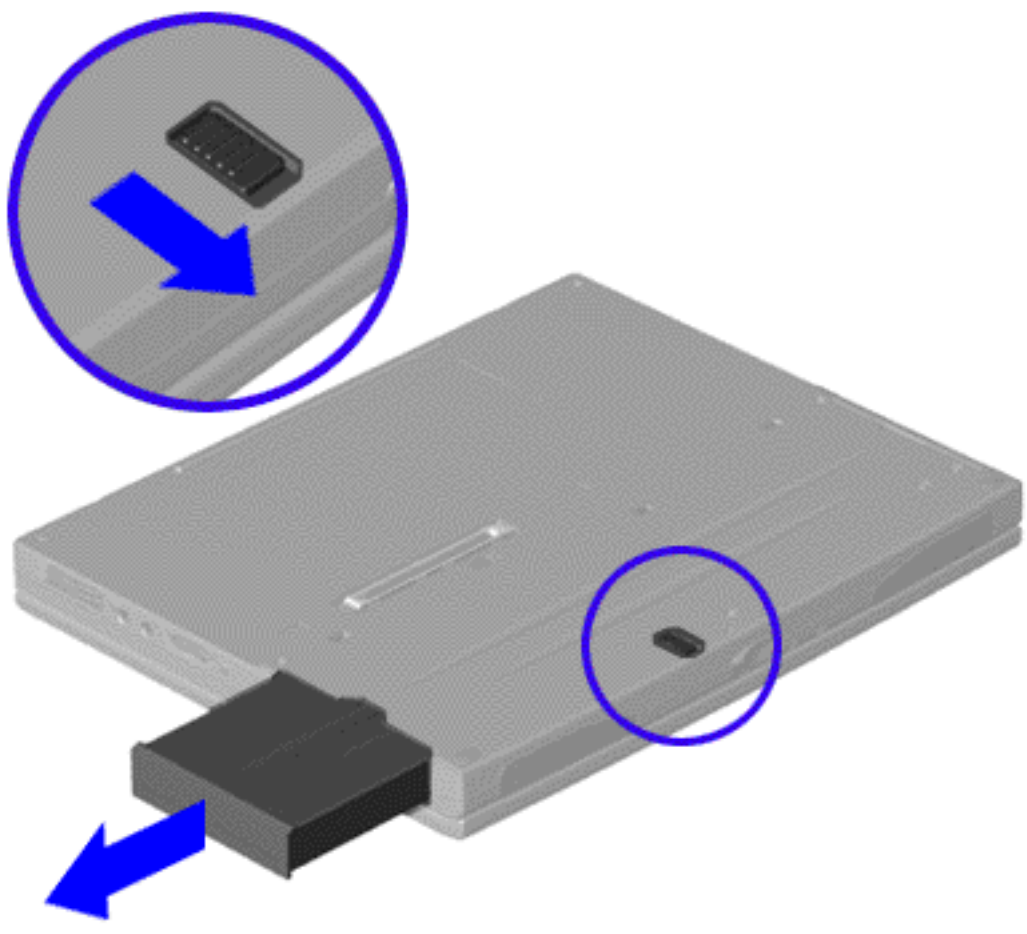
WARNING: Metal objects can damage the battery pack as well as the battery contacts in the battery compartment. To prevent damage, do not allow metal objects to touch the battery contacts. Place only the battery pack for the Compaq Presario 1900 Series Portable Computers into the battery compartment. 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, as this damages the pack, makes it unusable, and exposes potentially harmful battery components. There are no field-serviceable parts located inside the battery pack.

NOTE: The Compaq Presario 1900 Series Portable Computers have several screws of various sizes which are **not** interchangeable. Care must be taken during reassembly to ensure that the correct screws are used in their correct location. During removal please keep respective screws with their associate sub-assembly.

Removal and Replacement Procedures



Removing the Battery Pack

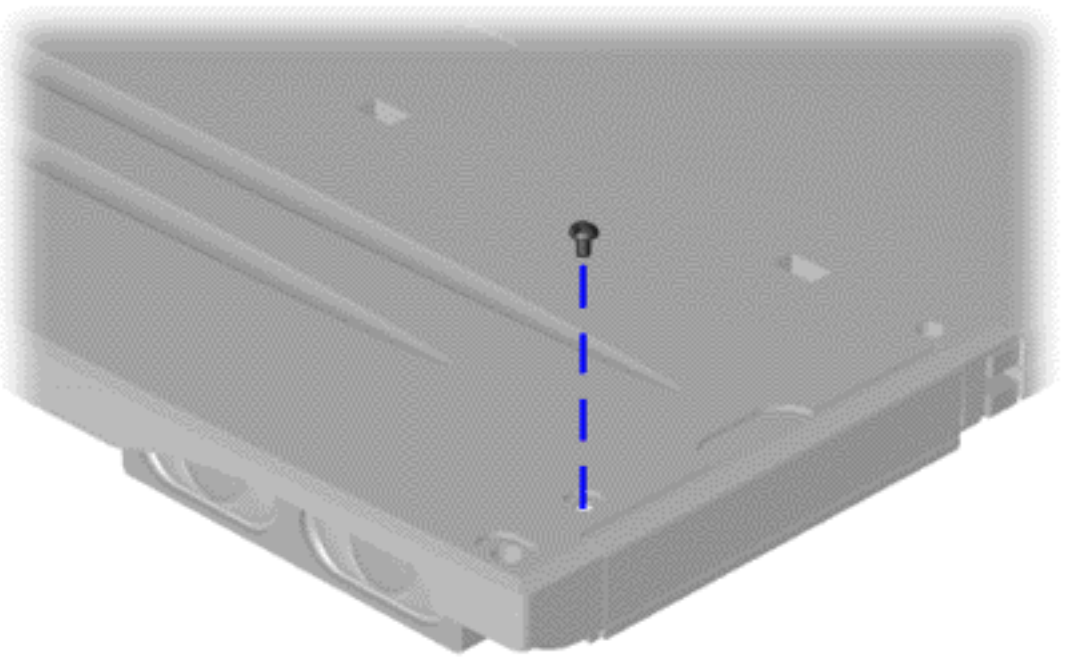
To remove the battery pack, complete the following steps:

1. Prepare the computer for disassembly.
2. **Turn the unit over.**
3. **Slide the battery pack release button located in the center of the bottom of the unit.**
4. **Locate the battery pack on the right, place your thumb in the groove, and pull the battery pack forward from the unit.**

To replace the battery pack, complete the following step.

Insert the battery pack into the chassis slot located on the right side of the unit and push in.

Removal and Replacement Procedures



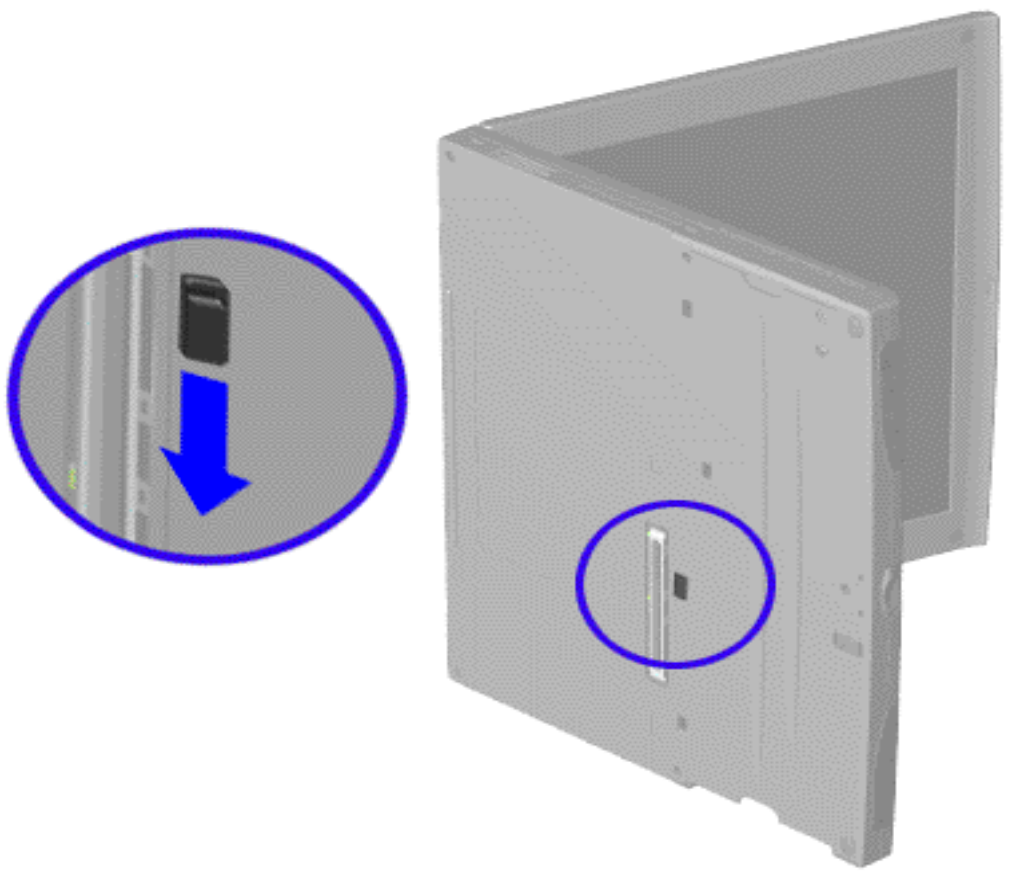
Removing the Hard Drive

To remove the hard drive, complete the following steps:

1. Prepare the computer for disassembly.
2. Turn the unit over and remove the screw (located in the right corner) from the hard drive.
3. Pull the hard drive from the chassis slot.

To replace the hard drive, reverse the previous procedures.

Removal and Replacement Procedures



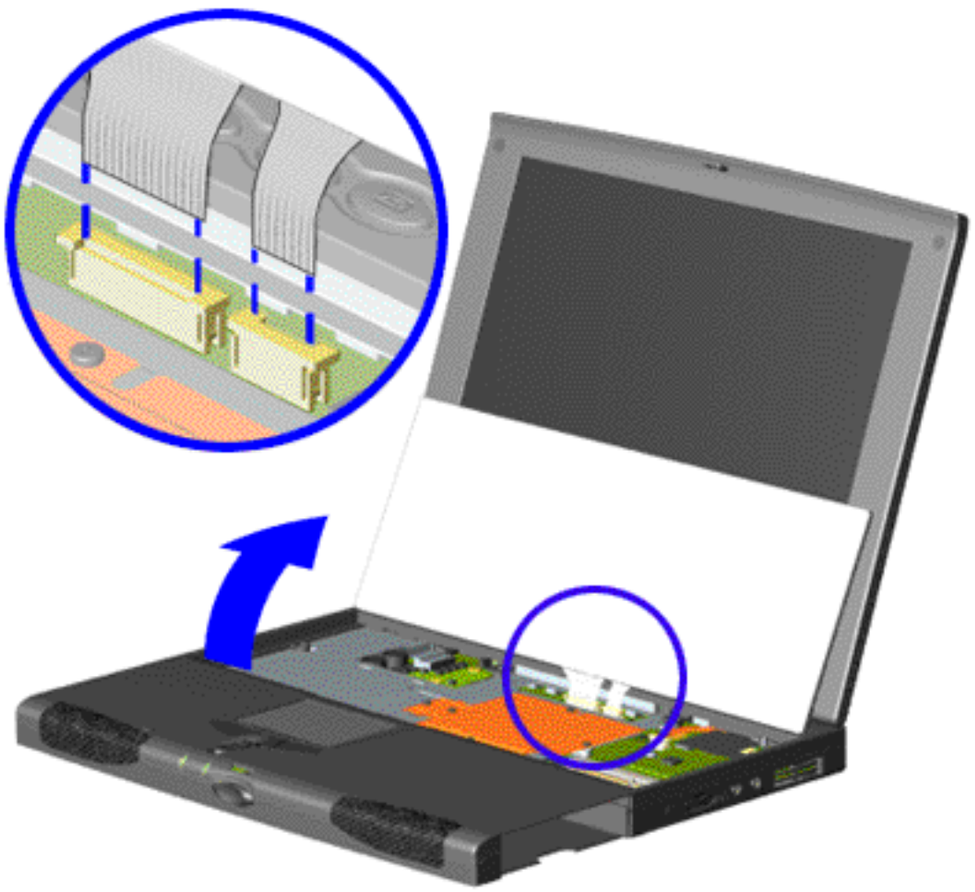
Removing the Keyboard

To remove the keyboard, complete the following steps:

1. Prepare the computer for disassembly.
2. Partially close the unit and place it on its side.
3. Slide the keyboard eject switch located in the center of the bottom of the unit to the right to release the keyboard.

Next Step

Removal and Replacement Procedures



Removing the Keyboard, continued

4. Place the unit right side up. Gently lift up the front of the keyboard using tweezers. Disconnect the flex cables from the ZIF connectors on the system board.

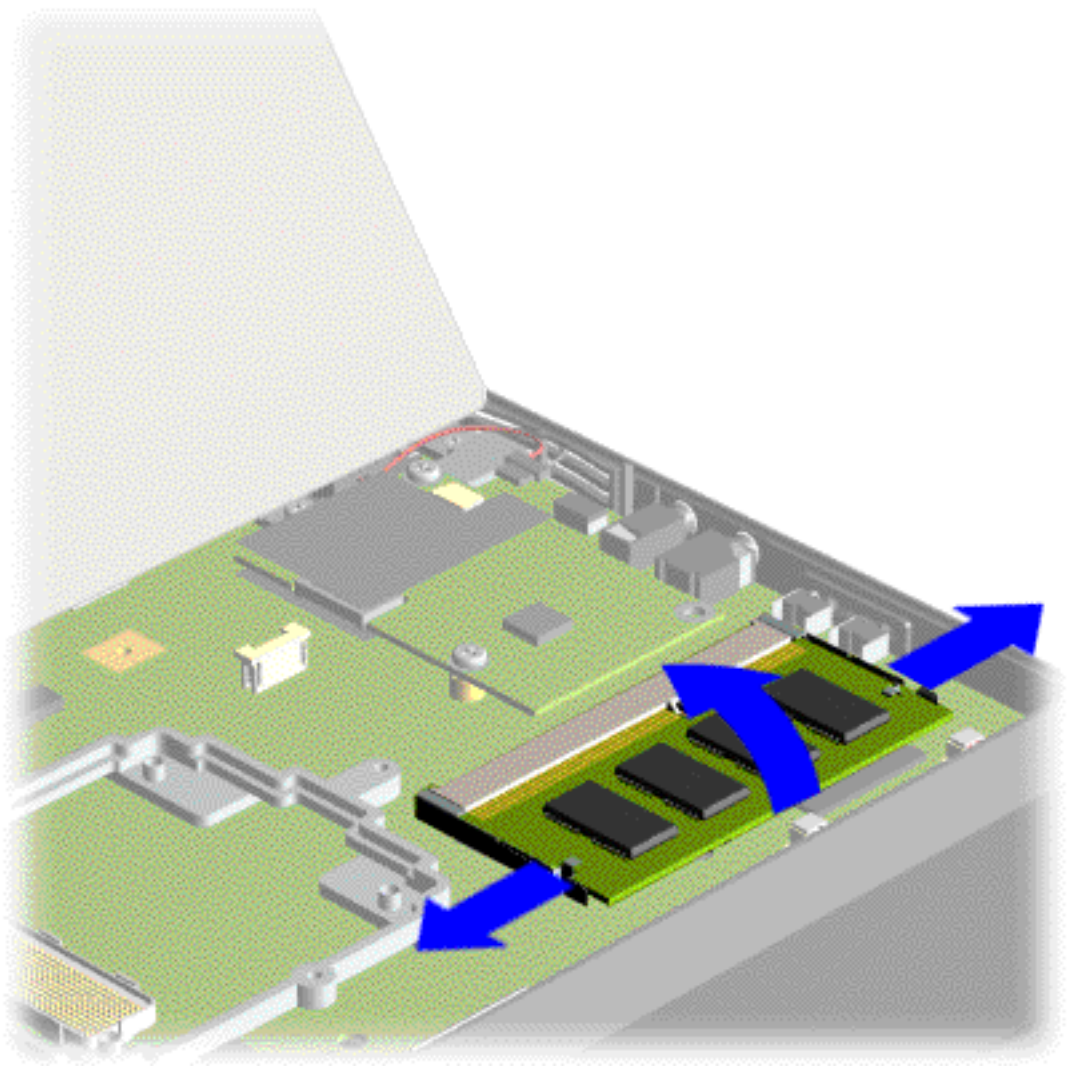
NOTE: To remove a cable from a ZIF connector, lift both corners of the ZIF connector and slide simultaneously with constant light force and then remove the cable.

5. Lift the keyboard out of the chassis.

To replace the keyboard, reverse the previous procedures.

Return to Removal and Replacement Procedures .

Removal and Replacement Procedures



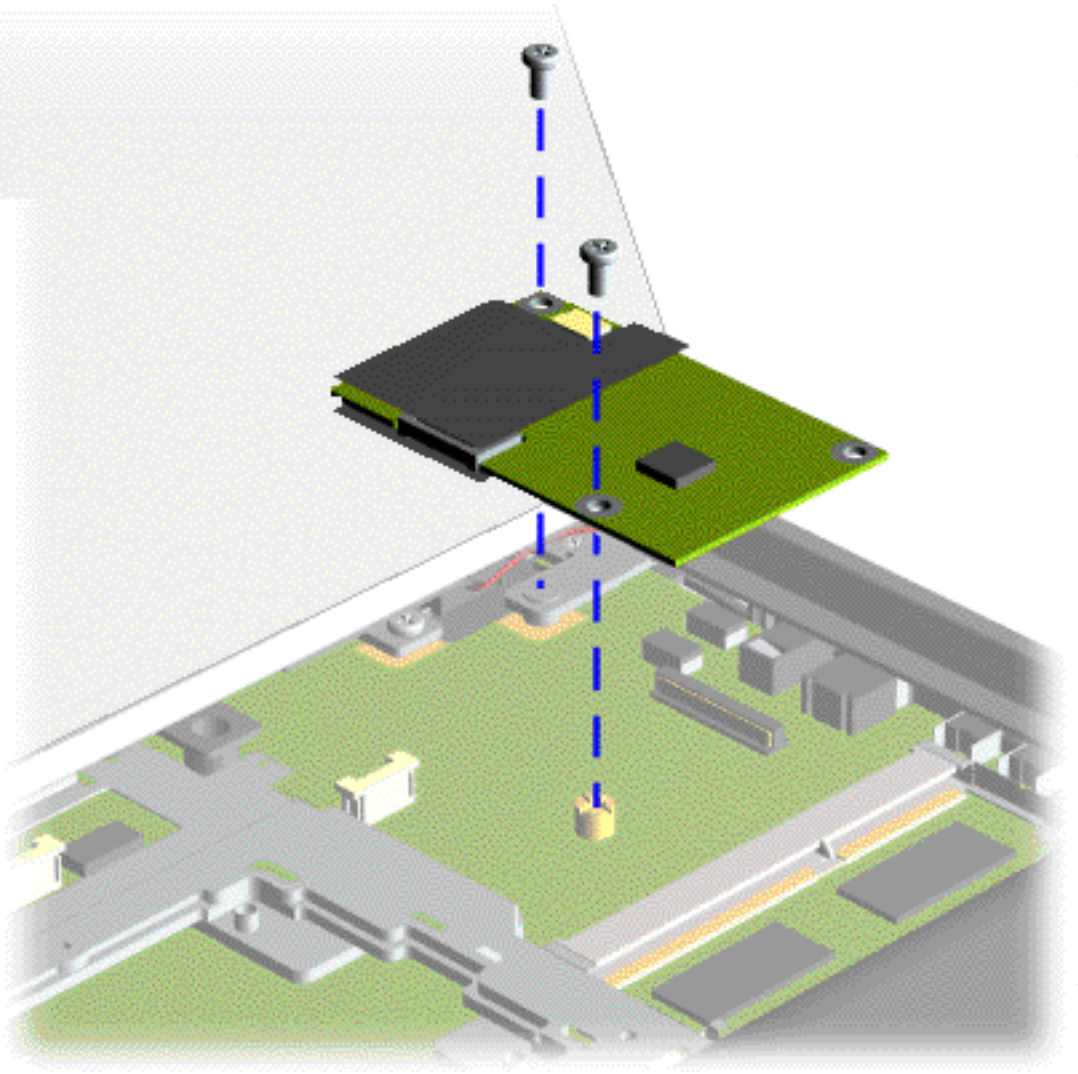
Removing the Memory Module

To remove the memory module, complete the following steps:

1. Prepare the computer for disassembly.
2. Release and lift up the keyboard.
3. Pull side levers to release the memory module, then unplug the memory module from the system board.

To replace the memory module, reverse the previous procedures.

Removal and Replacement Procedures



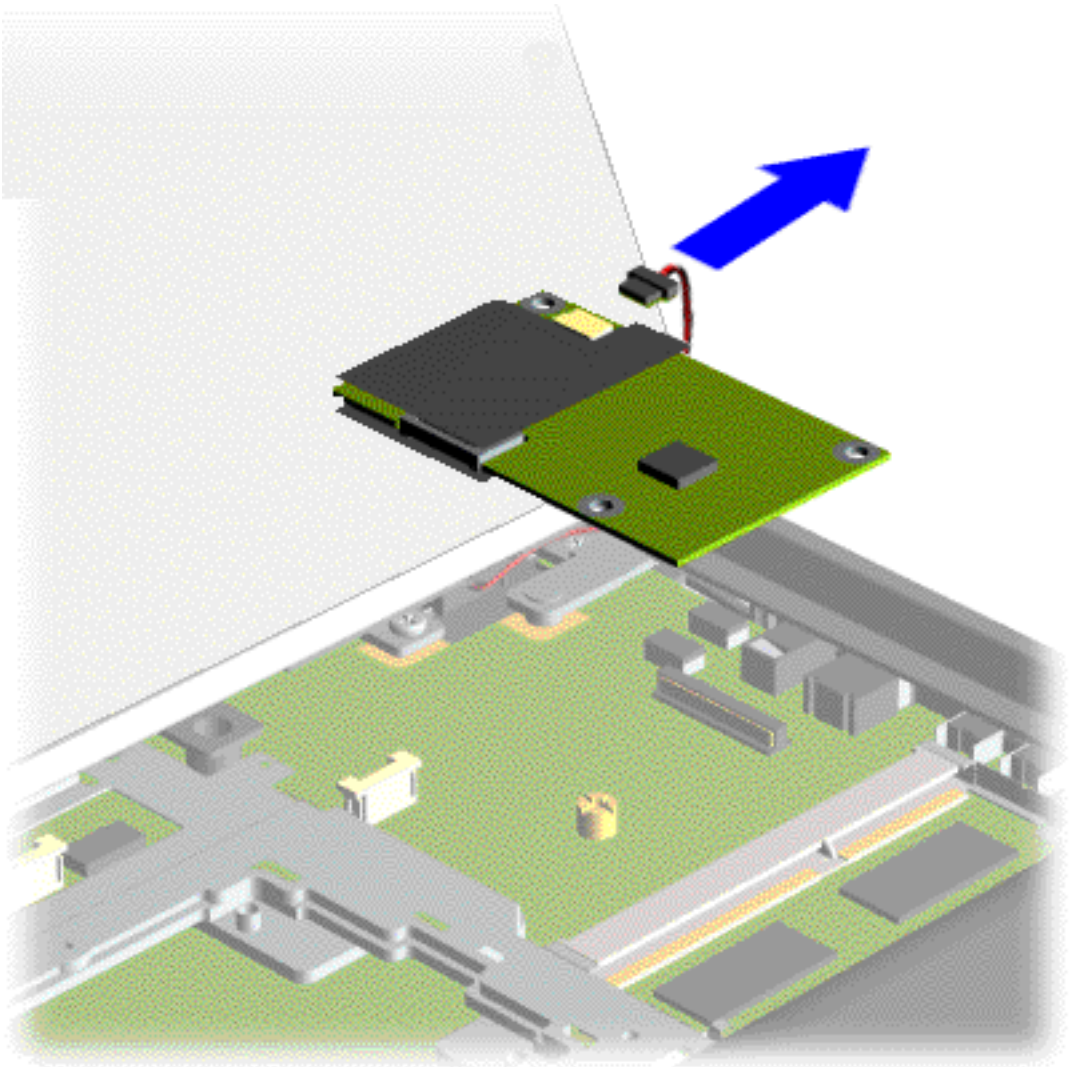
Removing the Modem

To remove the modem, complete the following steps:

1. Prepare the computer for disassembly.
2. Release and lift up the keyboard.
3. Remove two screws securing the modem and pull the modem off the connector on the system board.

Next Step

Removal and Replacement Procedures



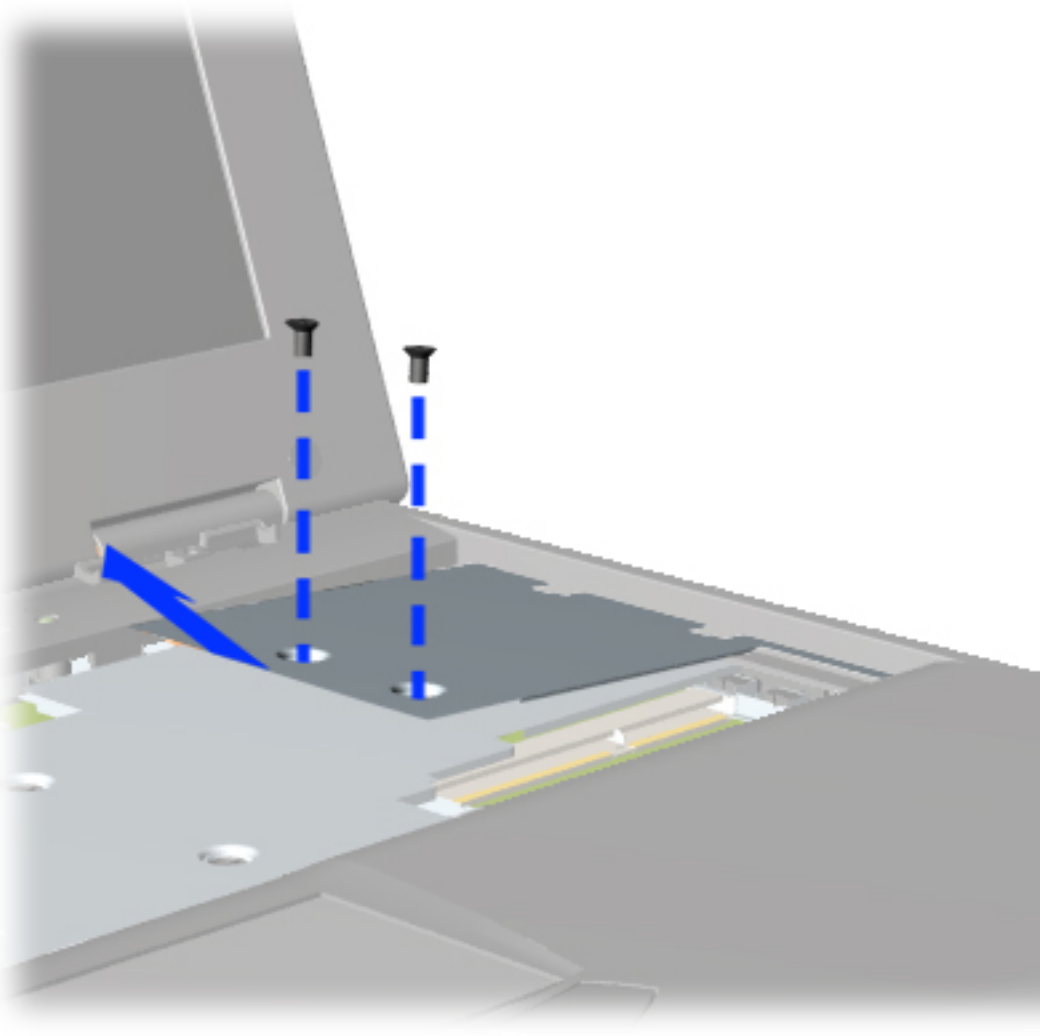
Removing the Modem, continued

4. Disconnect the modem cable from the modem, and lift the modem from the chassis.

To replace the modem, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal and Replacement Procedures



Removing the Heatspreader with Thermal Pad

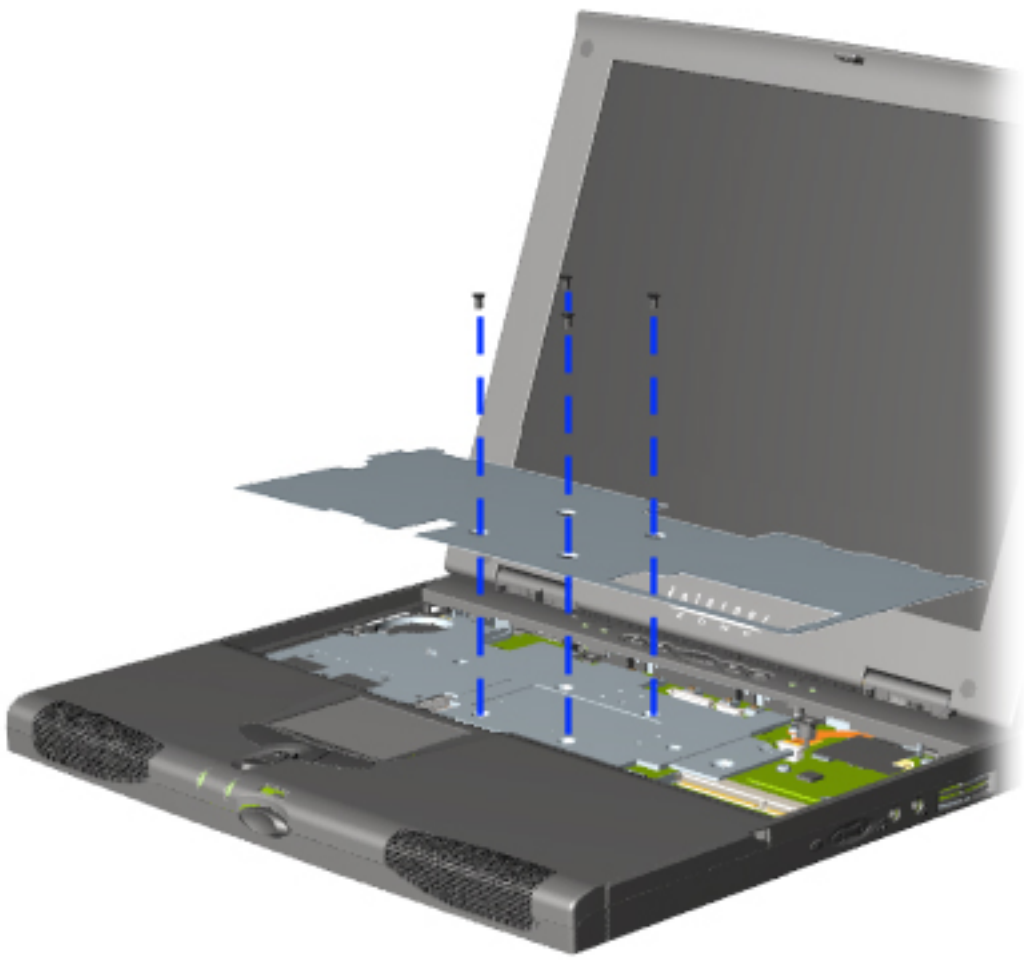
To remove the heatspreader with thermal pad, complete the following steps:

1. Prepare the computer for disassembly.
2. Release and lift the keyboard.
3. Remove two screws from the smaller half of the heatspreader with thermal pad. You will remove eight screws total to remove heatspreader.

NOTE: When replacing the heatspreader, ensure that the thermal pad under the heatspreader is properly replaced.

Next Step

Removal and Replacement Procedures



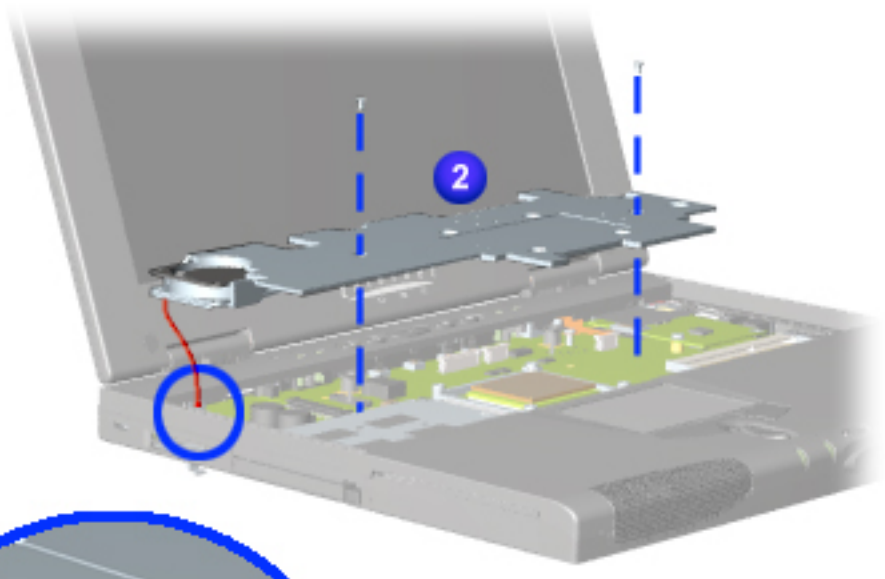
Removing the Heatspreader with Thermal Pad (continued)

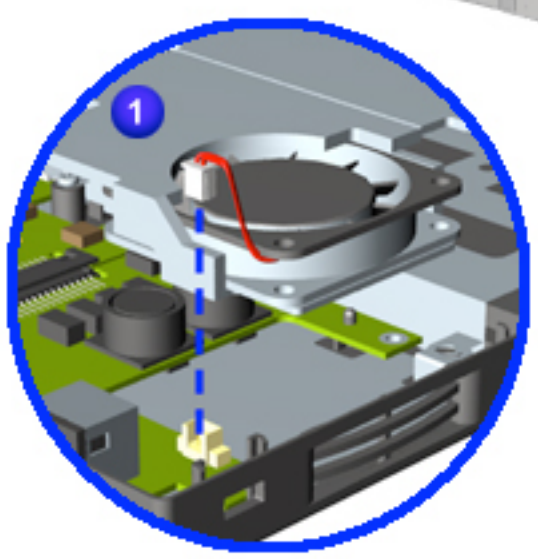
1. Prepare the computer for disassembly.
2. Release and lift the keyboard.
3. Remove screws from the smaller half of the heatspreader.
4. Remove four screws from the larger half of the heatspreader. Review next step before removing heatspreader.

NOTE: When replacing the heatspreader, ensure that the thermal pad under the heatspreader is properly replaced.

Next Step

Removal and Replacement Procedures



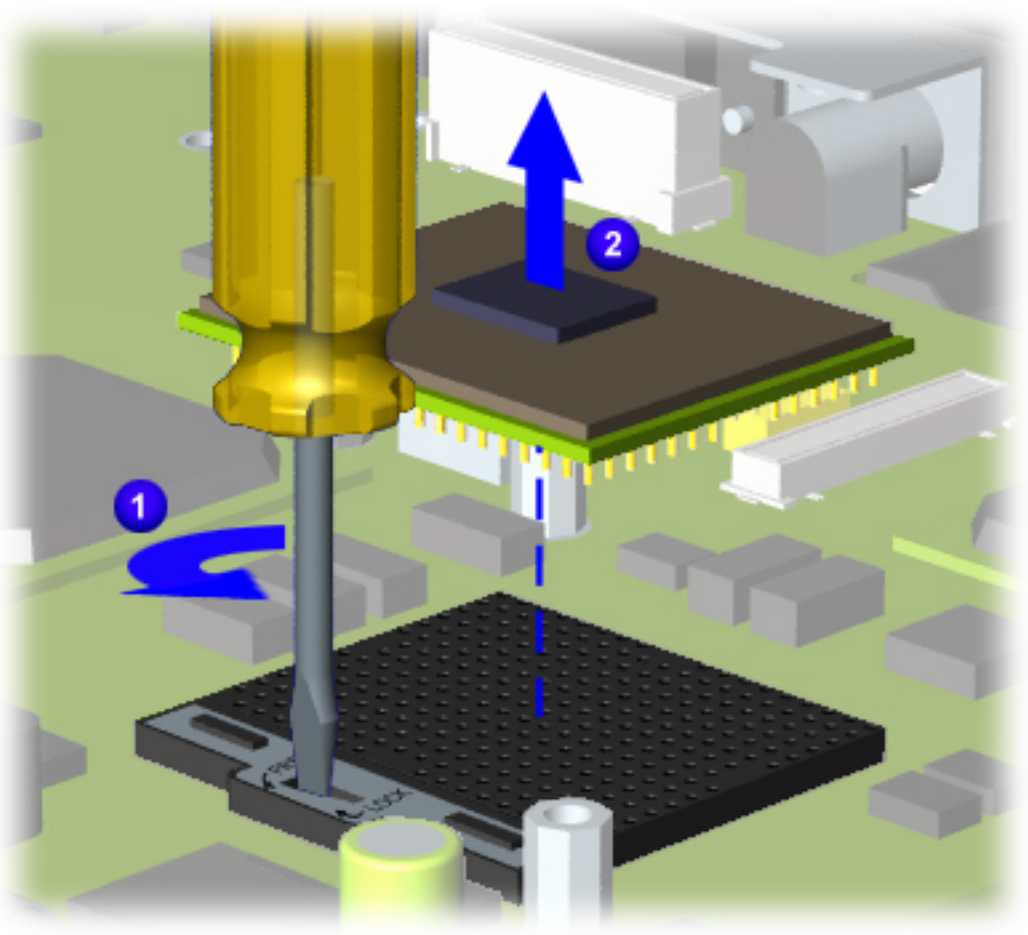


Removing the Heatspreader with Thermal Pad (continued)

1. Prepare the computer for disassembly.
2. Release and lift the keyboard.
3. Remove the smaller half of the heatspreader.
4. Remove the larger half of the heatspreader.
5. Remove two screws from heatspreader, disconnect cable from fan assembly, and then lift from chassis.

NOTE: When replacing the heatspreader, ensure that the thermal pad under the heatspreader is properly replaced.

Removal and Replacement Procedures



Removing the Processor

To remove the processor, complete the following steps:

1. Prepare the computer for disassembly.
2. Release and lift the keyboard.
3. Remove the heatspreader with thermal pad.
4. Remove the processor as shown in illustration if your processor is this type. To remove processor, follow these steps:

A. Place tip of standard screwdriver in center slot 1.

B. Twist screwdriver toward the word "FREE" until it snaps.

C. Lift processor from the chassis 2.

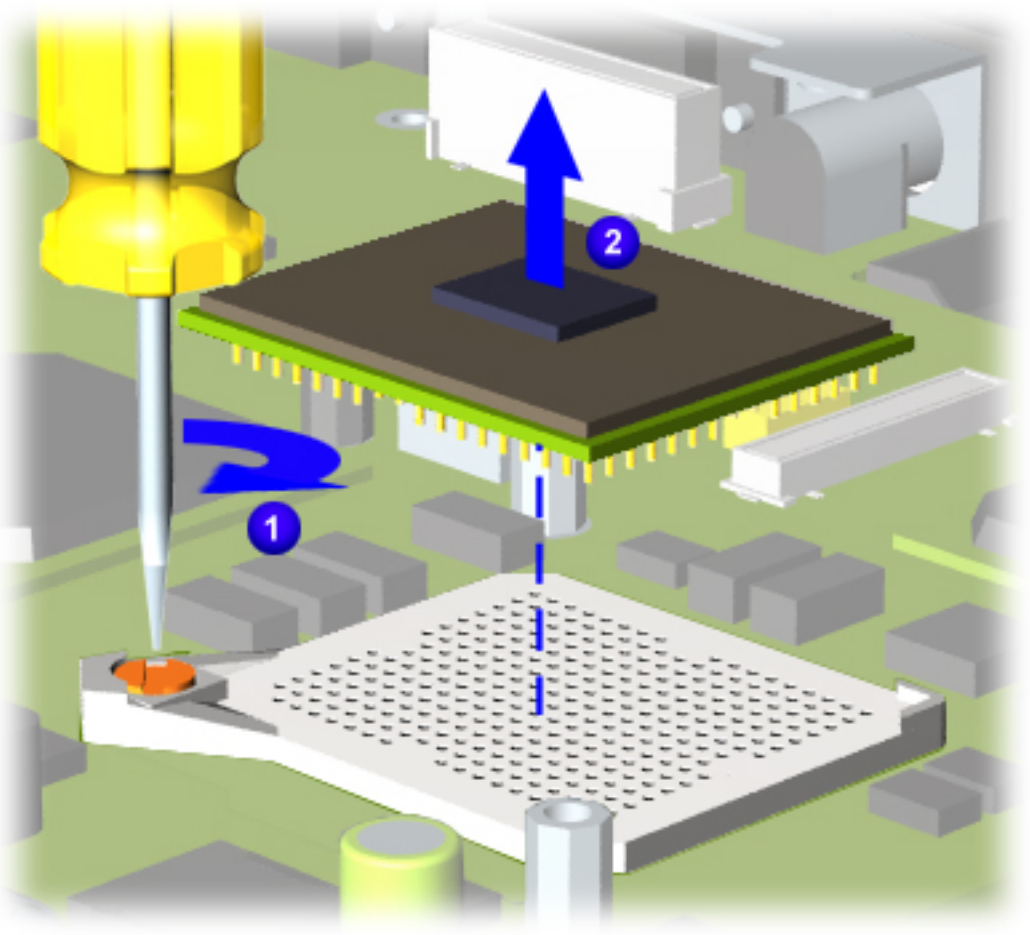
If your processor is not this type, refer to next page for instructions.

To replace processor, reverse previous removal procedures.

IMPORTANT: The bottom of the processor contains socket pins which can be easily damaged, if not properly removed.

WARNING: The Pentium Processor may be very hot when the unit has been running. Allow the processor to cool before handling it.

Removal and Replacement Procedures



Removing the Processor (continued)

To remove the processor, complete the following steps:

1. Prepare the computer for disassembly.
2. Release and lift the keyboard.
3. Remove the heatspreader with thermal pad.
4. Remove the processor as shown in illustration if your processor is this type. To remove processor, follow these steps:

   A. Place tip of standard screwdriver in screw 1.

   B. Turn screwdriver toward the number "0."

   C. Lift processor from the chassis 2.

   If your processor is not this type, refer to previous page for instructions.

WARNING: The Pentium Processor may be very hot when the unit has been running. Allow the processor to cool before handling it.

IMPORTANT: The bottom of the processor contains socket pins which can be easily damaged, if not properly removed.

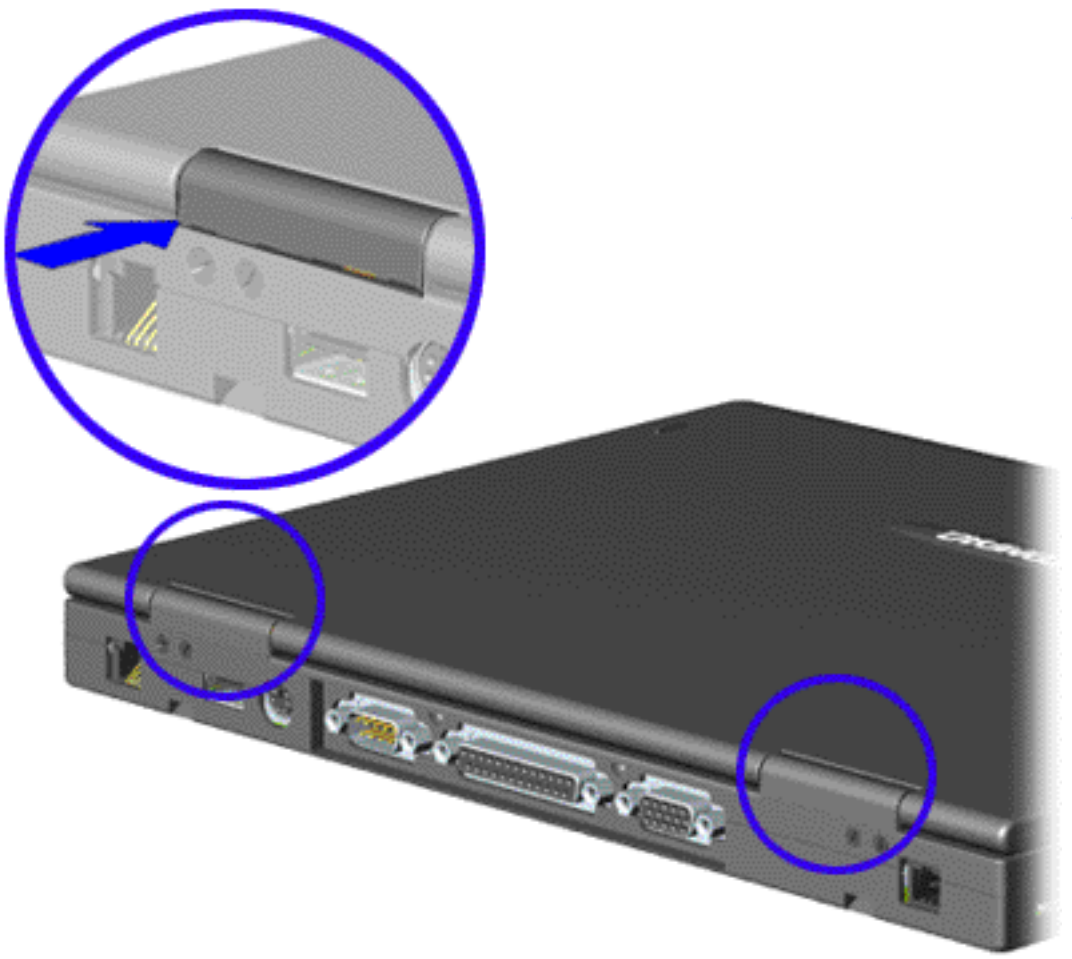
Replace processor by following these procedures:

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

B. Insert and press down carefully on the processor in the proper connectors.

C. Turn screwdriver toward the number "1."

Removal and Replacement Procedures



Removing the 13.3 inch Display Panel Assembly

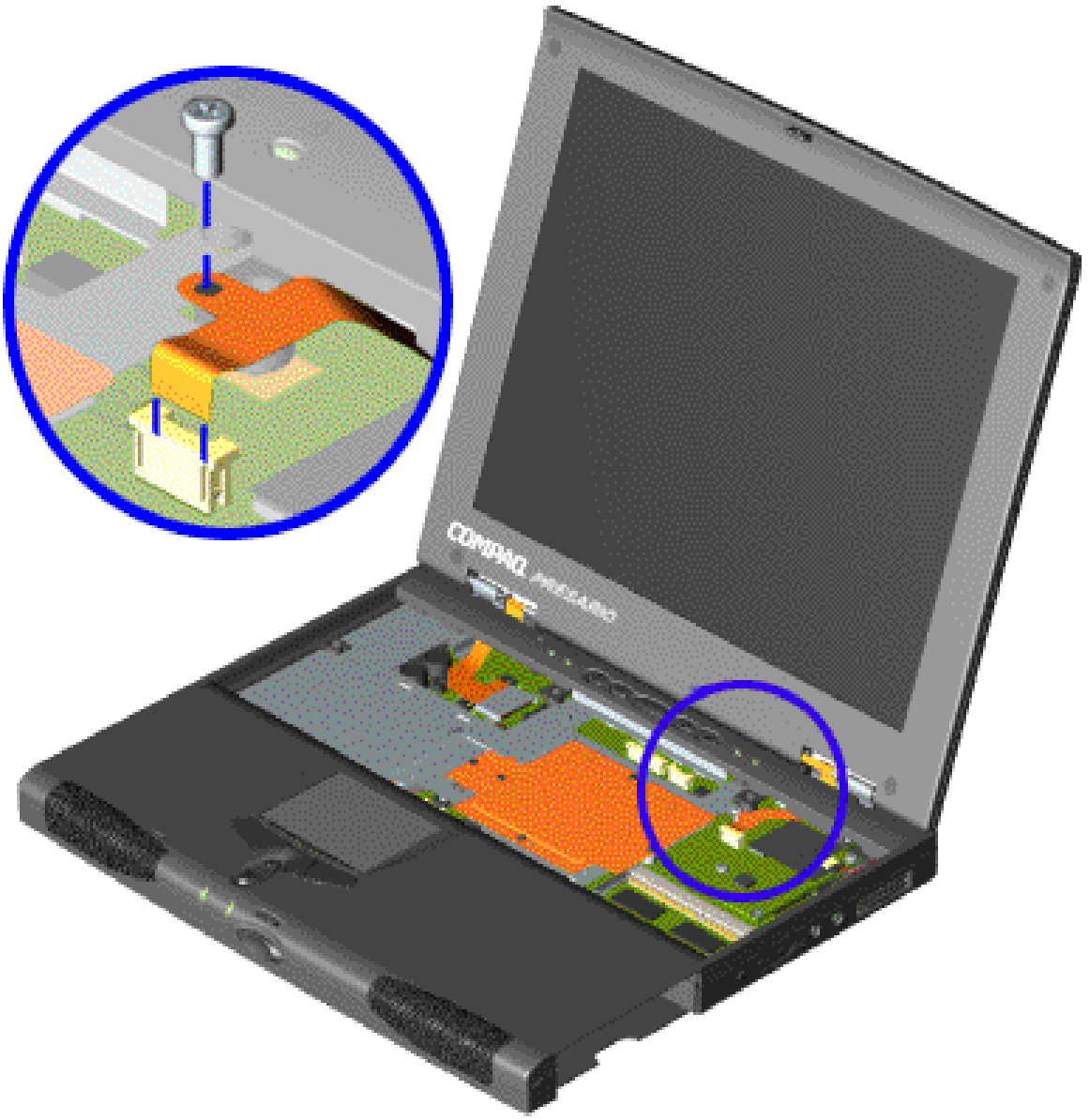
To remove the 13.3 inch display panel assembly, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Close the display panel assembly to access the hinge covers from the rear of the unit. Using tweezers, gently lift from the bottom edge of the hinge covers. Lift the hinge covers off the unit.

NOTE: Use a pair of tweezers to properly remove the display hinges from the unit.

Next Step

Removal and Replacement Procedures



Removing the 13.3 inch Display Panel Assembly, continued

4. Open the display panel assembly and remove the screw from the backlight cable. Disconnect the backlight cable from the ZIF connector on the system board.

Next Step

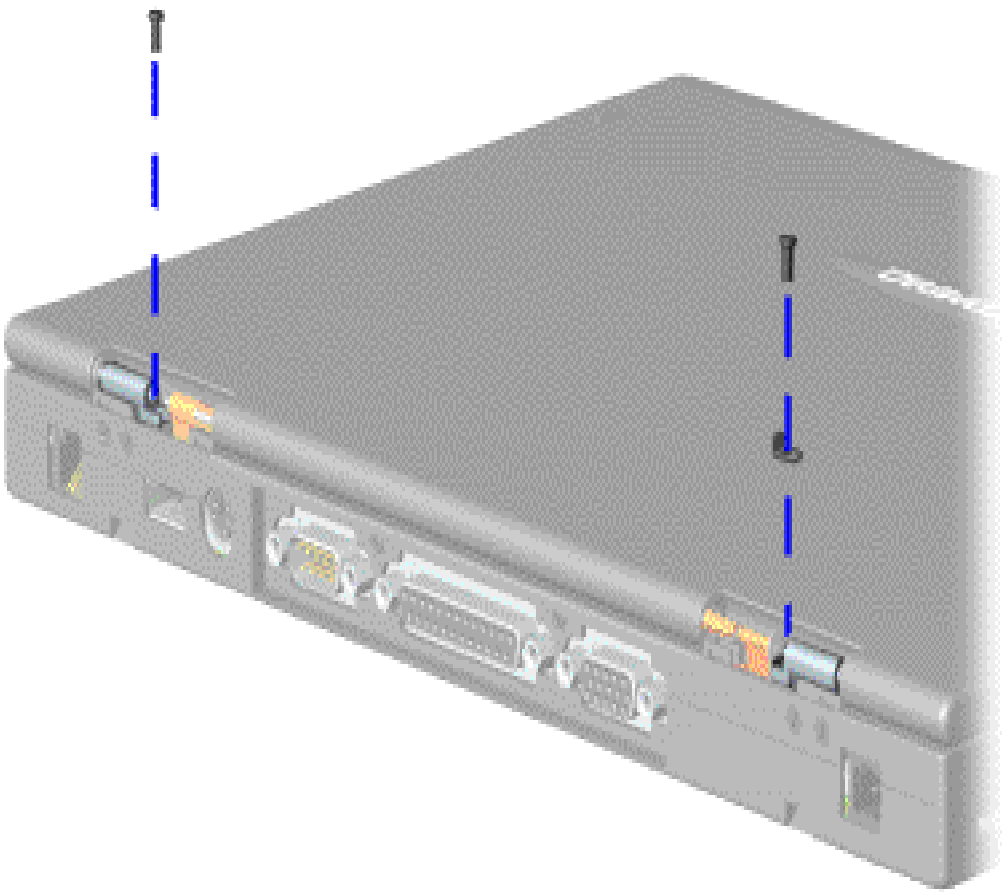
Removal and Replacement Procedures

Removing the 13.3 inch Display Panel Assembly, continued

5. Disconnect the data cable from the LIF connector on the Low Voltage Differential Signal (LVDS) board.

Next Step

Removal and Replacement Procedures



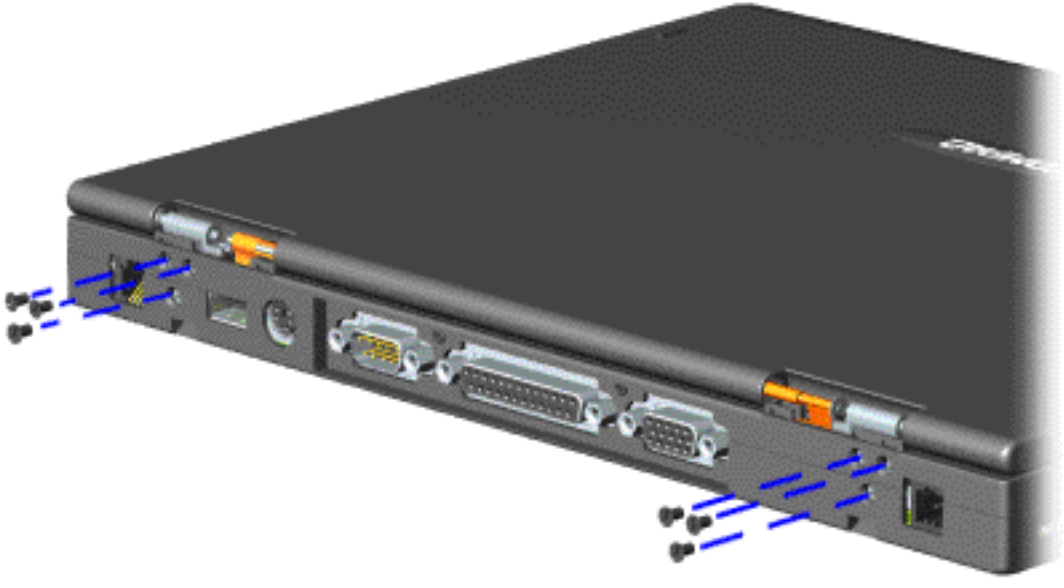
Removing the 13.3 inch Display Panel Assembly, continued

6. Close the display panel assembly.

7. Remove the hinge screws on each side and a clamp (right side) on top of the base pan assembly.

Next Step

Removal and Replacement Procedures

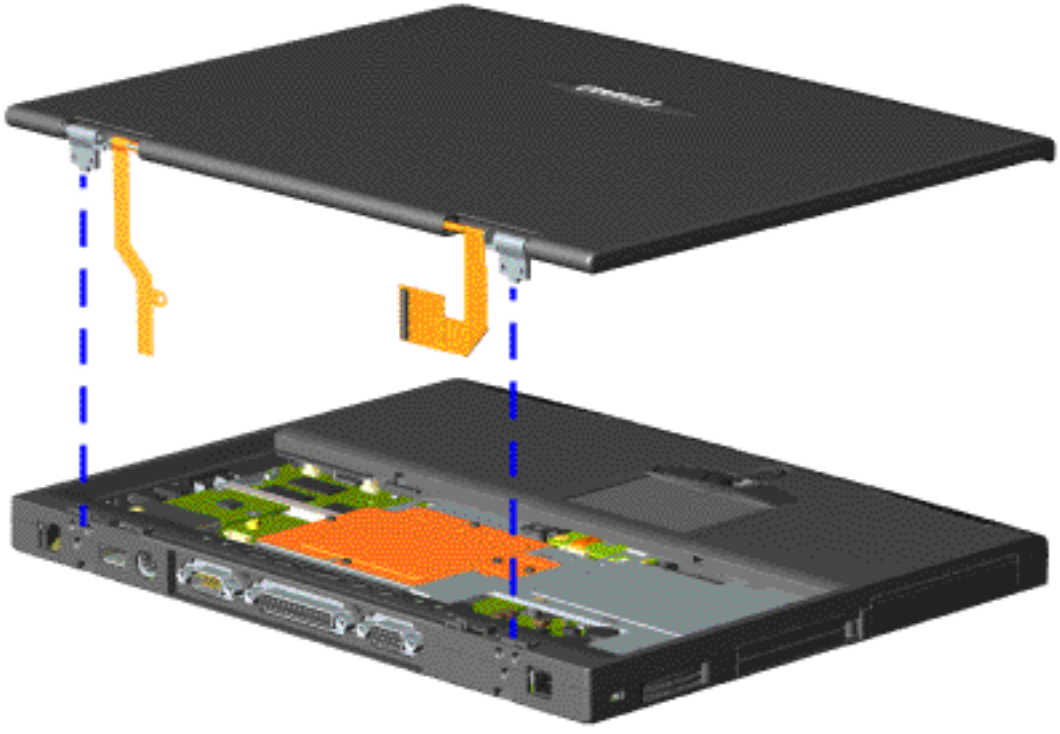


Removing the 13.3 inch Display Panel Assembly, continued

8. Remove three hinge screws (rear of unit) from each side of the base pan assembly.

Next Step

Removal and Replacement Procedures



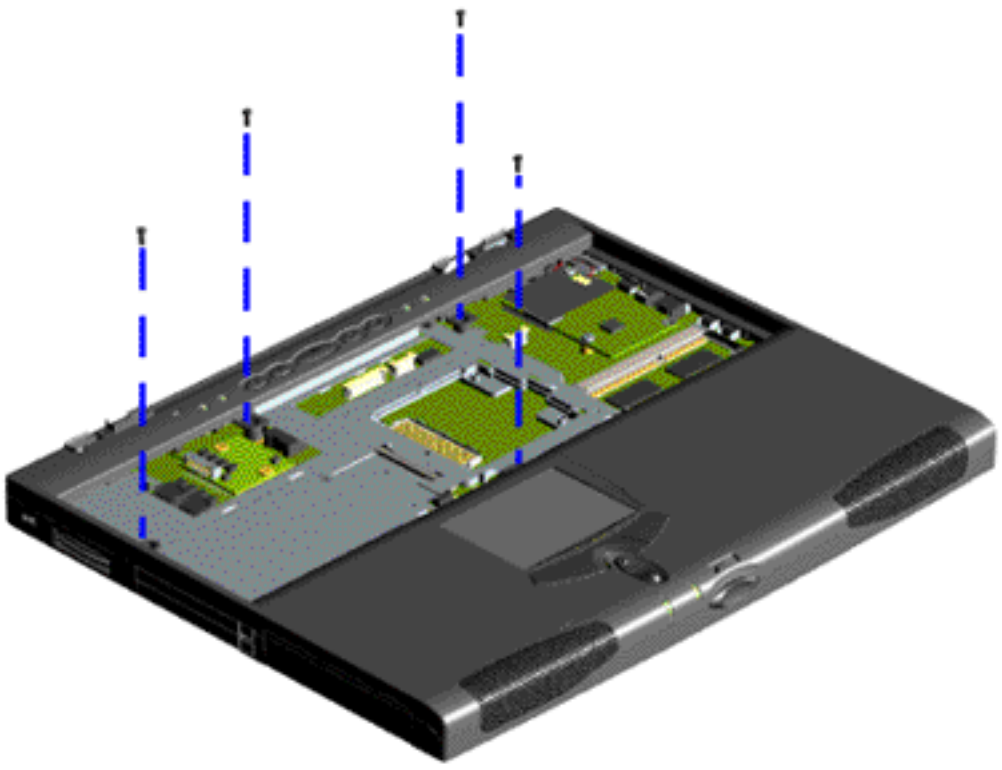
Removing the 13.3 inch Display Panel Assembly, continued

9. Gently pull the flex cables attached to the display panel assembly through the slot on the Upper CPU cover and remove the display assembly with flex cables attached from the chassis.

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

Return to Removal and Replacement Procedures.

Removal and Replacement Procedures



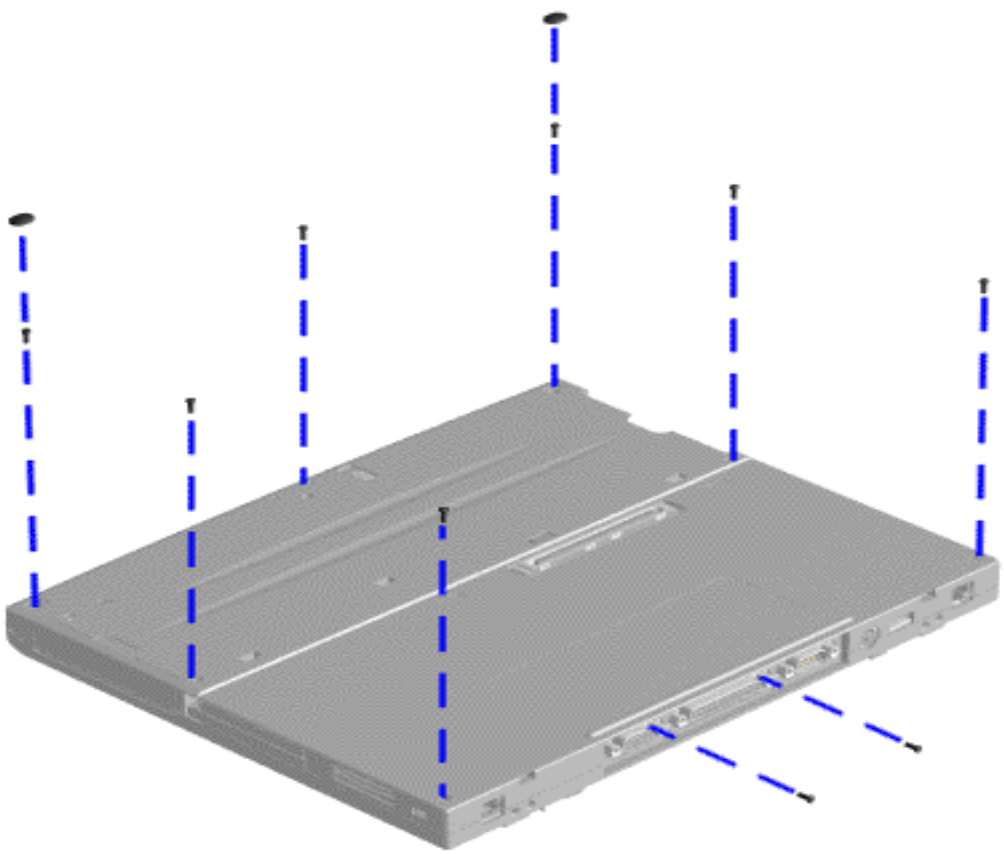
Removing the Upper CPU Cover with Palmrest and TouchPad

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

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Remove the Heatspreader.
4. Remove the display assembly with flex cables attached.
5. Remove four screws located at the top of the Upper CPU Cover with Palmrest and TouchPad.
6. Remove a fifth screw located just to the top right of the fan. (Not shown).

Next Step

Removal and Replacement Procedures



Removing the Upper CPU Cover with Palmrest and TouchPad, continued

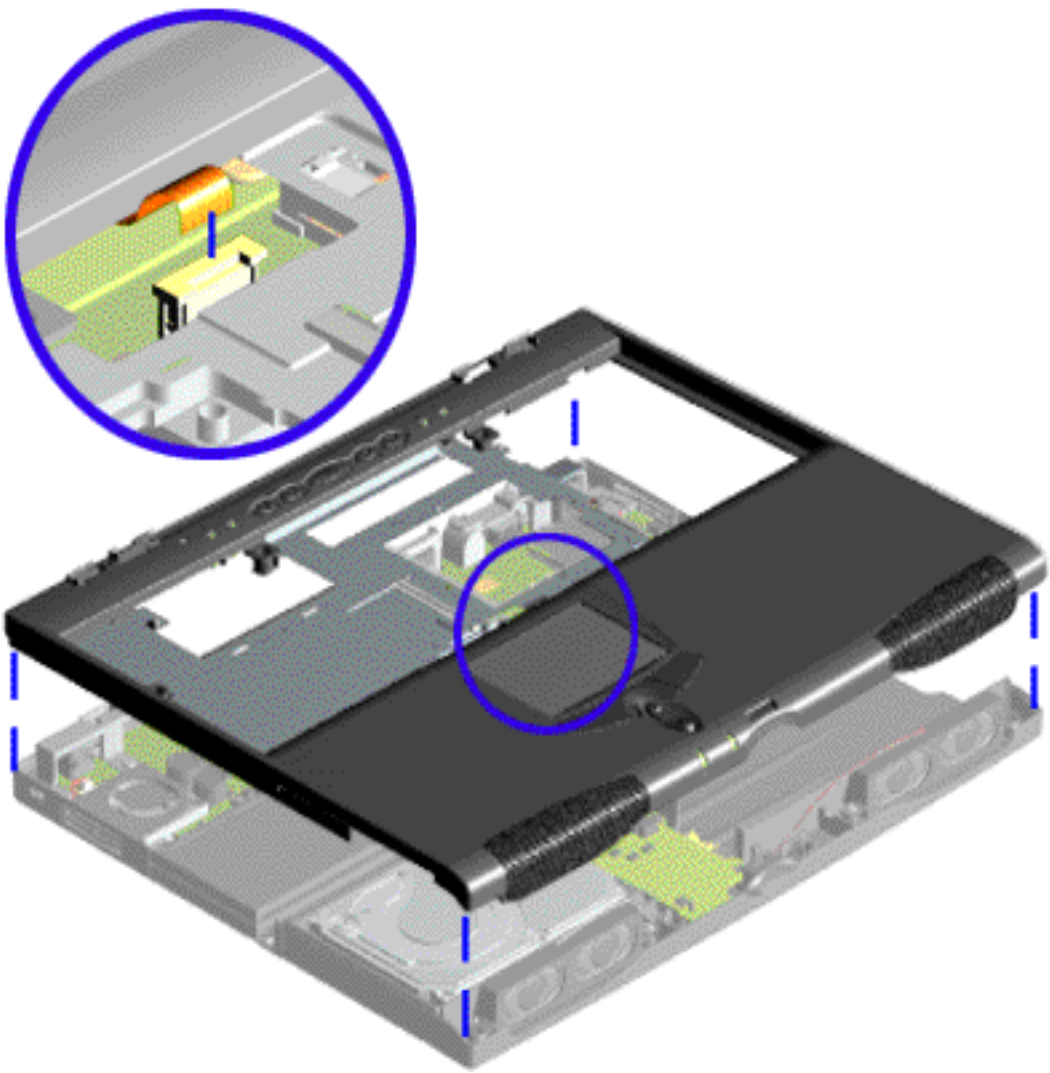
6. Turn the unit upside down.

7. Remove two rubber feet and seven screws located at the bottom of the unit which secures the Upper CPU Cover with Palmrest and TouchPad.

8. Remove two screws on the rear of the unit.

Next Step

Removal and Replacement Procedures



Removing the Upper CPU Cover with Palmrest and TouchPad, continued

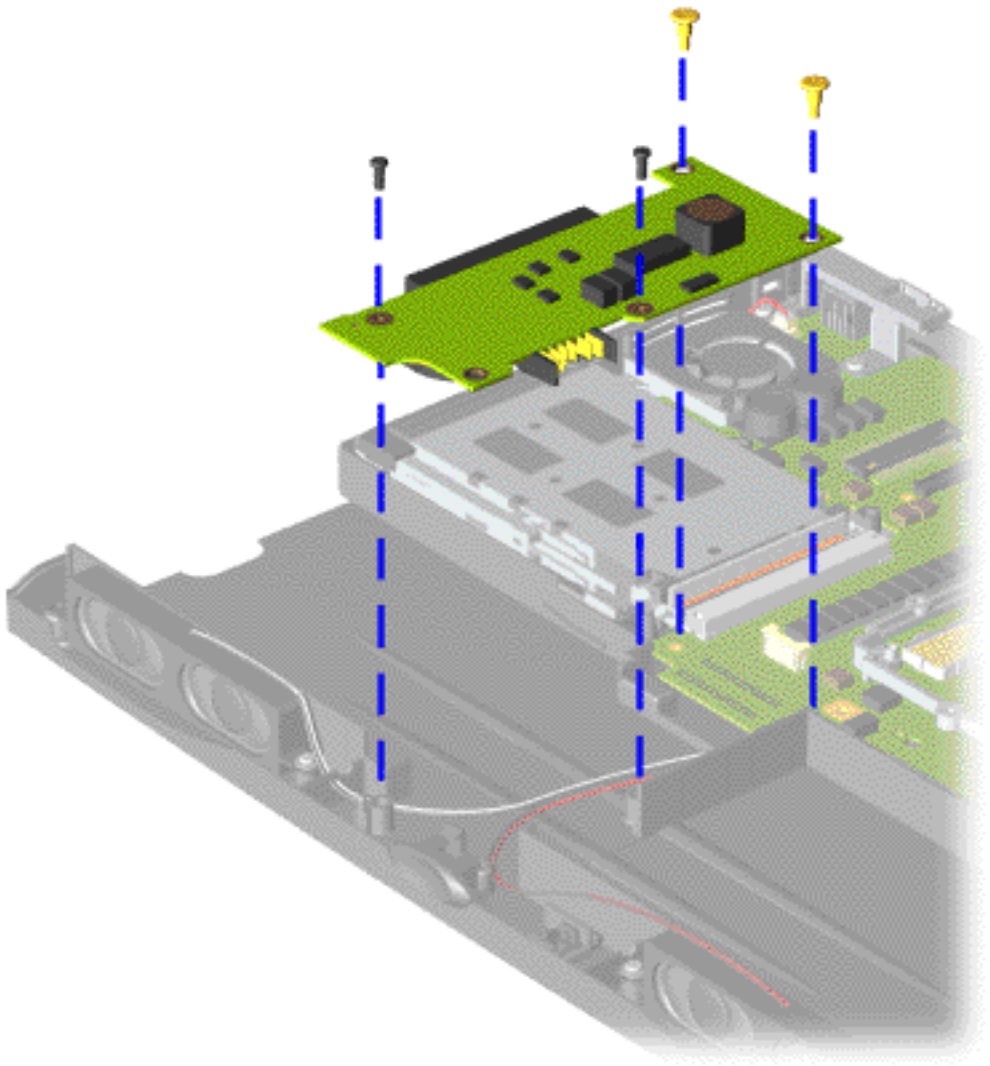
9. Turn the unit right side up.

10. Disconnect the TouchPad cable from the connector on the system board.

To replace the Upper CPU Cover with Palmrest and TouchPad, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal and Replacement Procedures



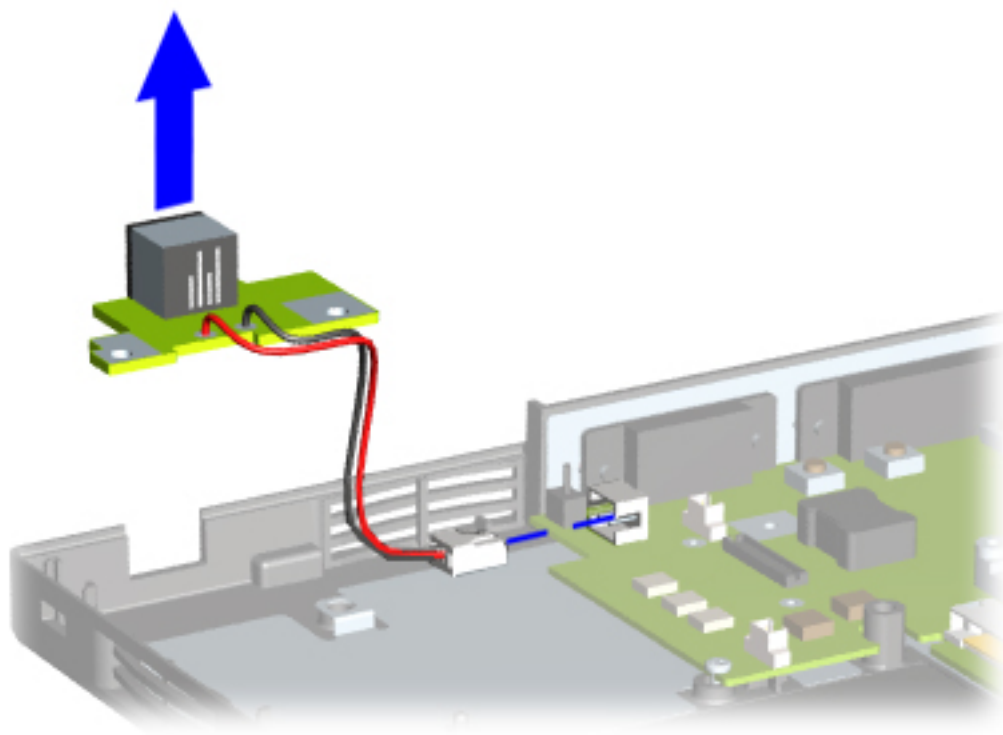
Removing the Hard Drive/Battery Charger Board

To remove the hard drive/battery charger board, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Remove the heatspreader.
4. Remove the display assembly with flex cables attached.
5. Remove the Upper CPU Cover with Palmrest/TouchPad/Fan.
6. Remove four screws from the hard drive/battery charger board located front center portion of the chassis.

To replace the hard drive/battery charger board reverse the previous procedures.

Removal and Replacement Procedures



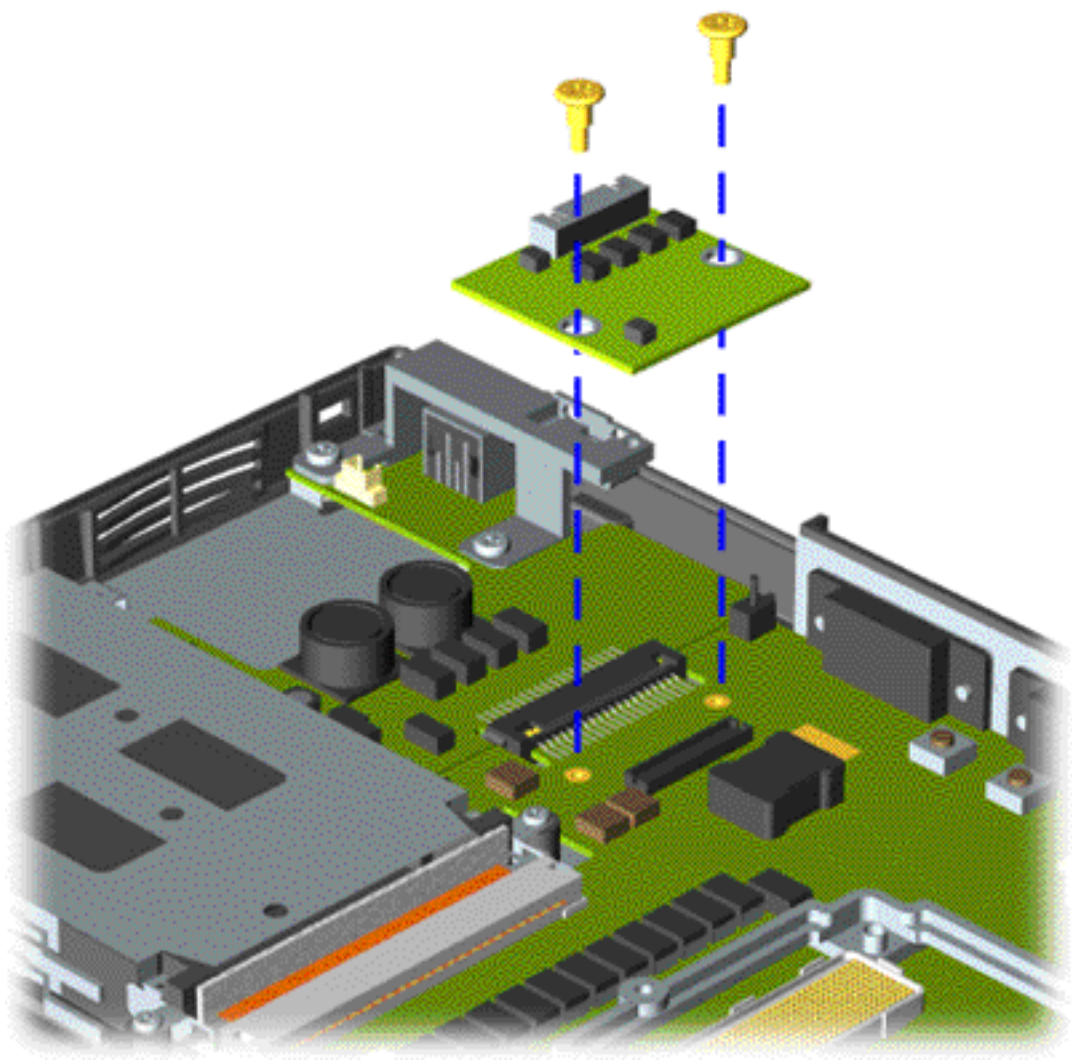
Removing the Converter Board

To remove the converter board, complete the following steps:

1. Prepare the computer for disassembly .
2. Remove the keyboard .
3. Remove the display panel assembly.
4. Remove the Upper CPU cover with Palmrest Cover and TouchPad.
5. Remove the hard drive.
6. Remove the modem.
7. Remove two screws and disconnect the converter board from the system board connector and remove from the chassis.

To replace the converter board, reverse the previous procedures.

Removal and Replacement Procedures



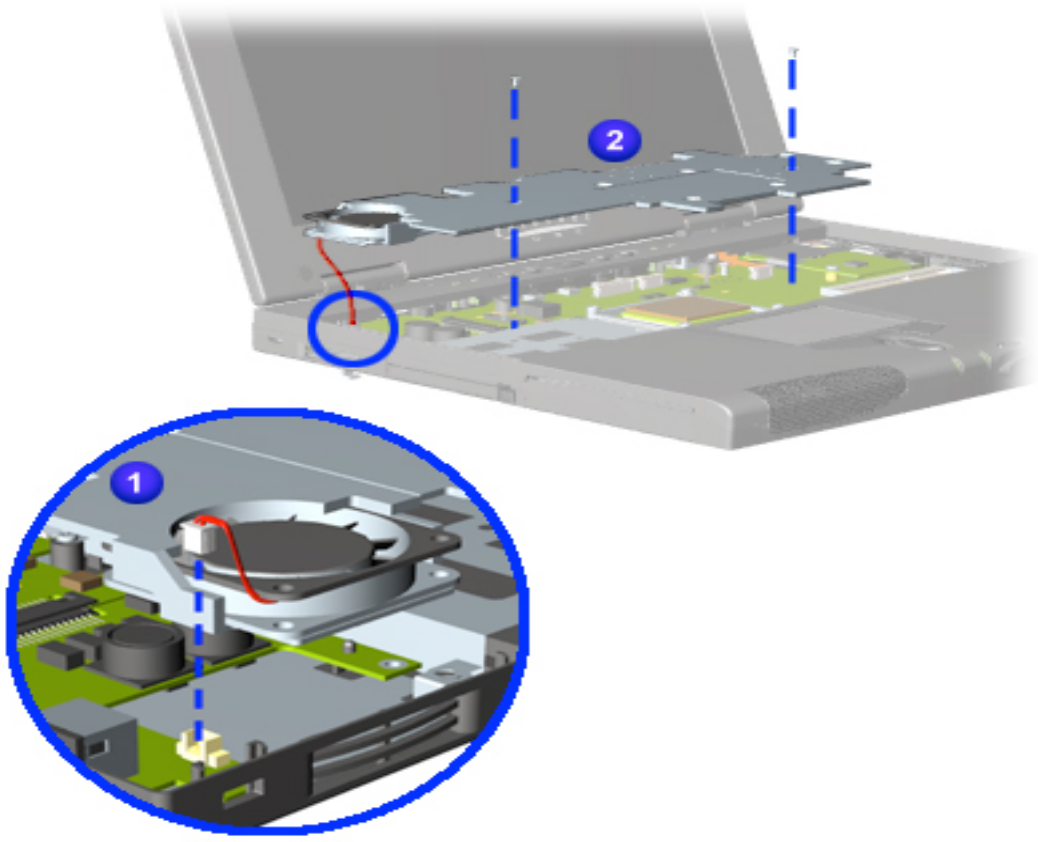
Removing the Low Voltage Differential Signal (LVDS) Interface Board

To remove the LVDS Interface Board, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Remove the heatspreader.
4. Remove the two screws from the LVDS Interface Board and lift from the chassis.

To replace the LVDS Interface Board reverse the previous procedures.

Removal and Replacement Procedures



Removing the Fan Assembly

To remove the fan assembly, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Remove the heatspreader. Fan is attached to heatspreader assembly.
4. Disconnect the fan cable and lift the fan assembly from the slot on the system board.

To replace the fan assembly, reverse the previous procedures.

Removal and Replacement Procedures

Removing the System Board

To remove the system board, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard.
3. Remove the display panel assembly.
4. Remove the heatspreader.
5. Remove the processor.

Next Step

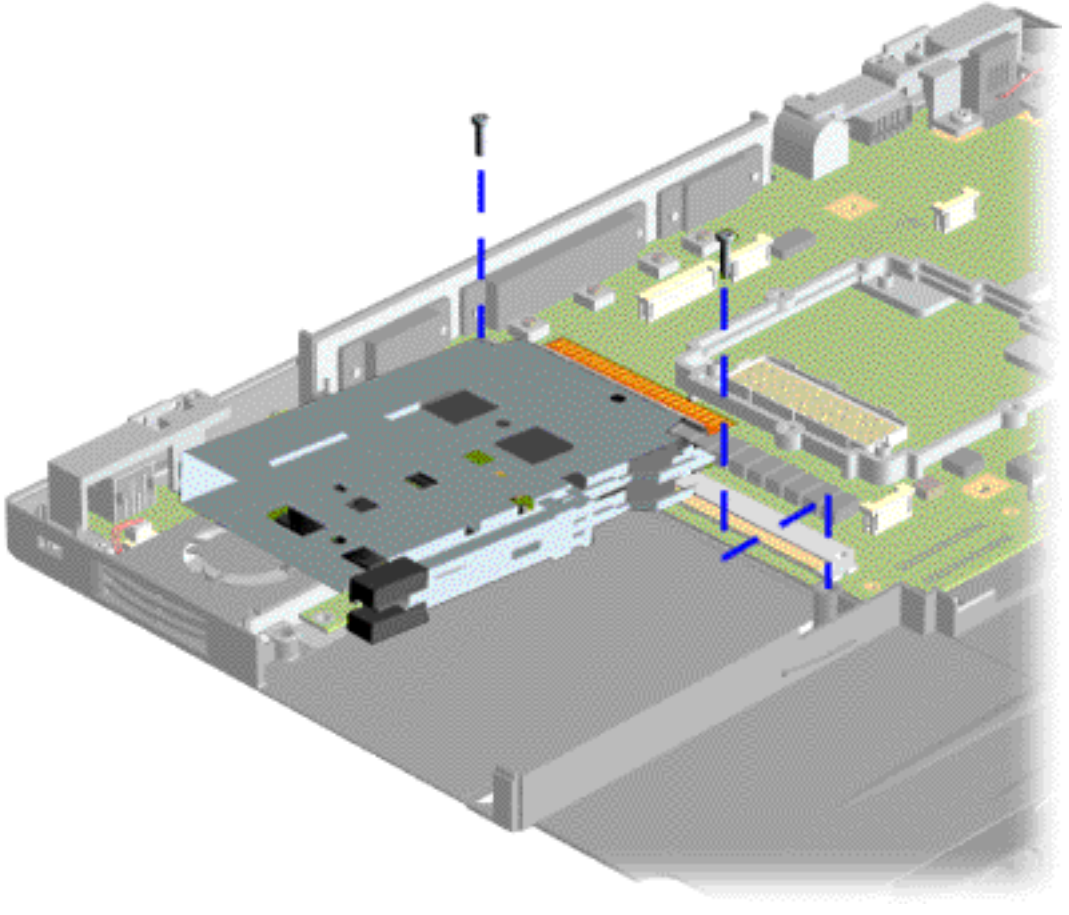
Maintenance & Service Guide

Presario 1900 Series

Models: XL1, XL160, XL161, XL162, XL163, and XL165

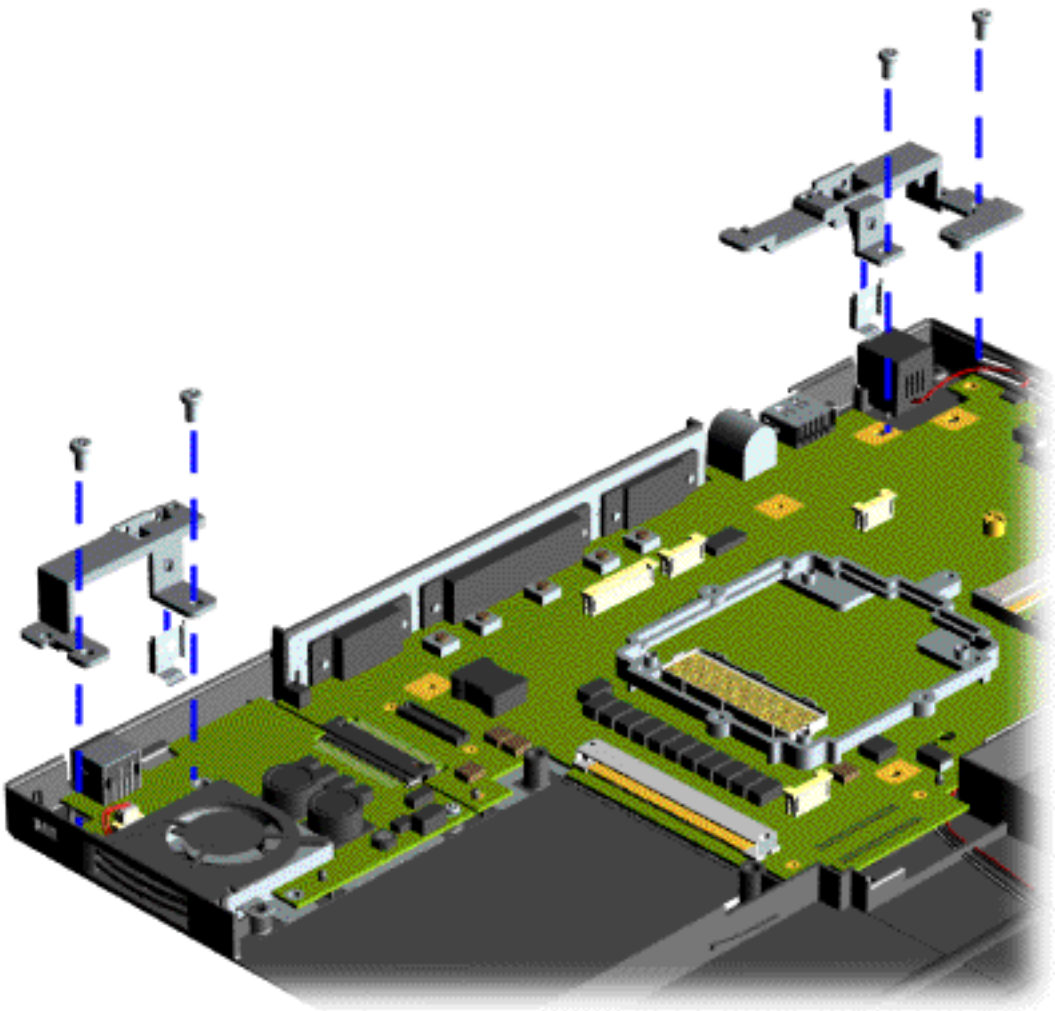
Removal and Replacement Procedures

Removing the PC Card Slot



1. Remove the Upper CPU cover with Palmrest Cover and TouchPad.
2. Remove the hard drive.
3. Remove the modem.
4. Remove the hard drive/battery charger board.
5. Remove the converter board.
6. Remove the PC Card Slot.

Next Step



Removing the Display Panel Assembly Hinge Bracket

12. Remove two screws from the Display Panel Assembly Hinge Bracket with hinge to base ground clip and lift off the chassis.

Next Step

(Illustration not shown but is forthcoming.)

Removing the System Board (Continued)

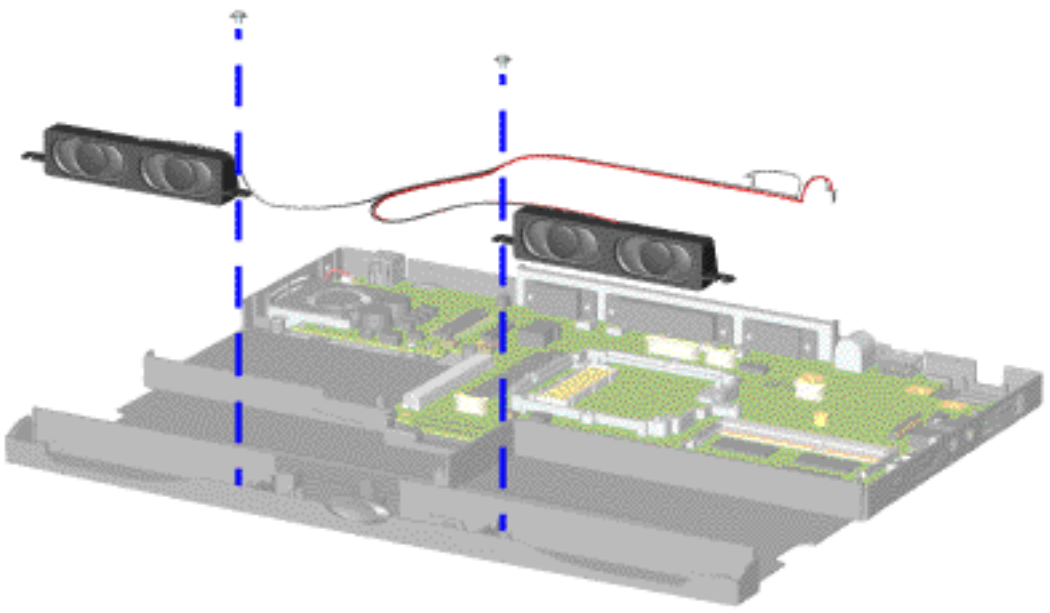
13. Remove the right hinge bracket before removing the DC IN board.

14. Disconnect cable from DC IN board.

15. Lift the RJ11 connector off the guide posts located on the right side on the chassis.

Return to Removal and Replacement Procedures.

Removal and Replacement Procedures



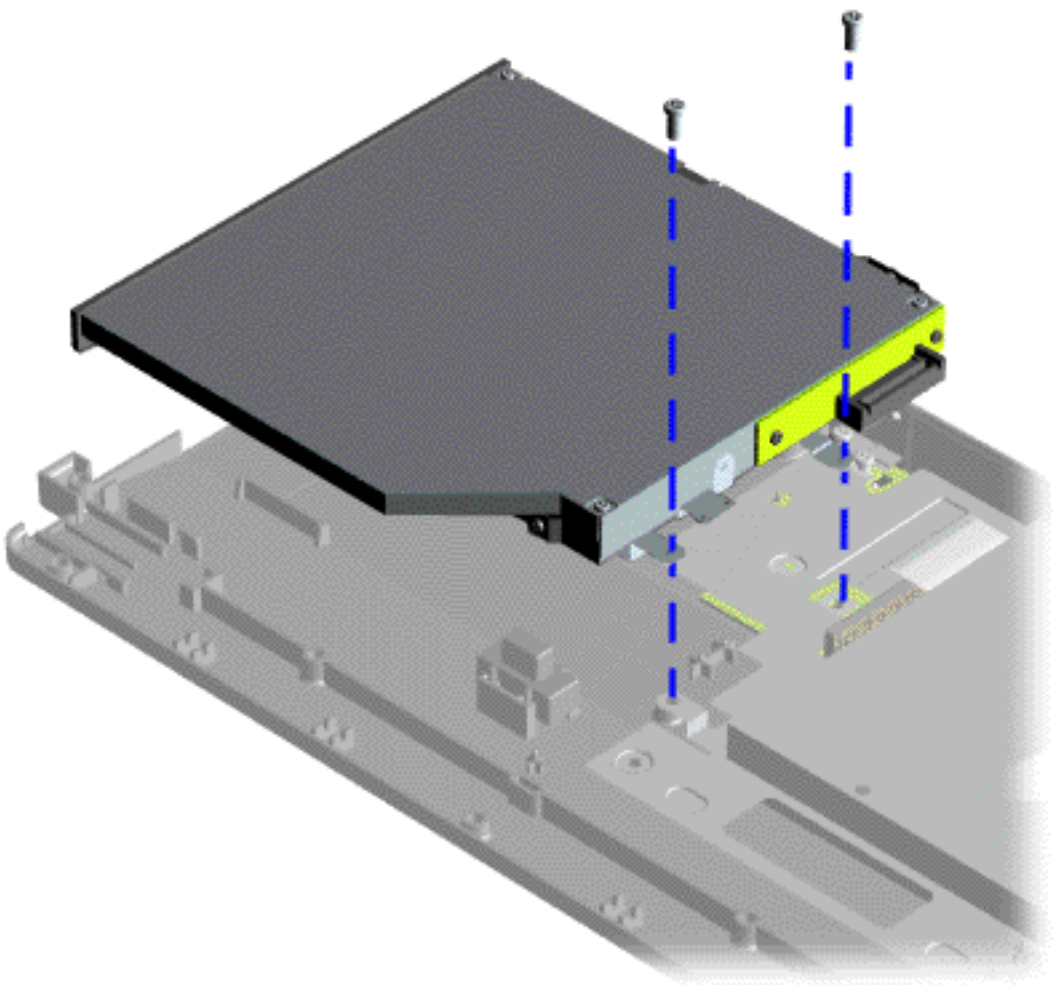
Removing the Speaker Assembly

To remove the speaker assembly, complete the following steps:

1. Prepare the computer for disassembly.
2. Remove the keyboard .
3. Remove the display panel assembly.
4. Remove the Upper CPU cover with Palmrest Cover and TouchPad.
5. Remove two screws from the speaker assembly, disconnect the speaker cables from the system board, and lift out of the unit.

To replace the speaker assembly, reverse the previous procedures.

Removal and Replacement Procedures



Removing the DVD or CD-ROM Drive

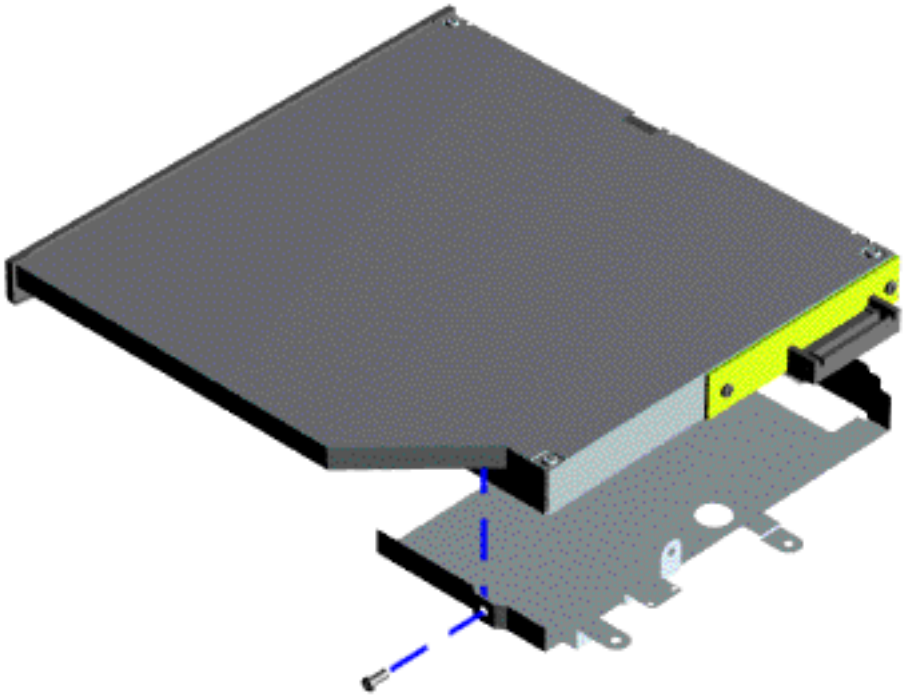
To remove the CD-ROM or the DVD Drive with shield attached, complete the following steps:

1. Prepare the computer for disassembly.
2. Disassemble the wedge.
3. Remove two screws at the rear of the CD-ROM or DVD Drive and lift the CD-ROM or DVD Drive with shield attached off the connector wedge.

To replace the CD-ROM or DVD Drive with shield attached, reverse the previous procedures.

Next Step

Removal and Replacement Procedures



Removing the DVD or CD-ROM Drive, continued

To remove the CD-ROM or DVD Drive shield perform the following step:

4. Remove the screw which secure the CD-ROM or DVD Drive shield.

To replace the CD-ROM or DVD Drive shield, reverse the previous procedure.

Return to Removal and Replacement Procedures.

Troubleshooting

This section covers troubleshooting information for the Compaq Presario 1900 Series Portable Computers. The basic steps in troubleshooting include:

1. Follow the Preliminary Steps .
2. Run the Power-On Self-Test (POST).
3. Follow the recommended actions described in the diagnostic tables, if you are unable to run POST or if POST displays an error message.

When following the recommended actions in the Sections on POST and Diagnostic Error Codes perform them in the order listed. Rerun POST after each recommended action until the problem is solved and no error message occurs. Once the problem is solved, do not complete the remaining recommended actions.

NOTE: If the problem is intermittent, check the computer several times to verify that the problem is solved.

Troubleshooting

Preliminary Steps

Before running POST, complete the following preliminary steps:

1. If a power-on password has been established, type the password and press the **Enter** key. If the password is not known, clear the 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 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 the hard drive is installed in the computer.
7. Ensure that the battery pack is inserted in the computer and the computer is connected to an external AC power source.

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

Troubleshooting

Running POST

To run POST, complete the following steps:

Turn off the computer, then turn on the computer.

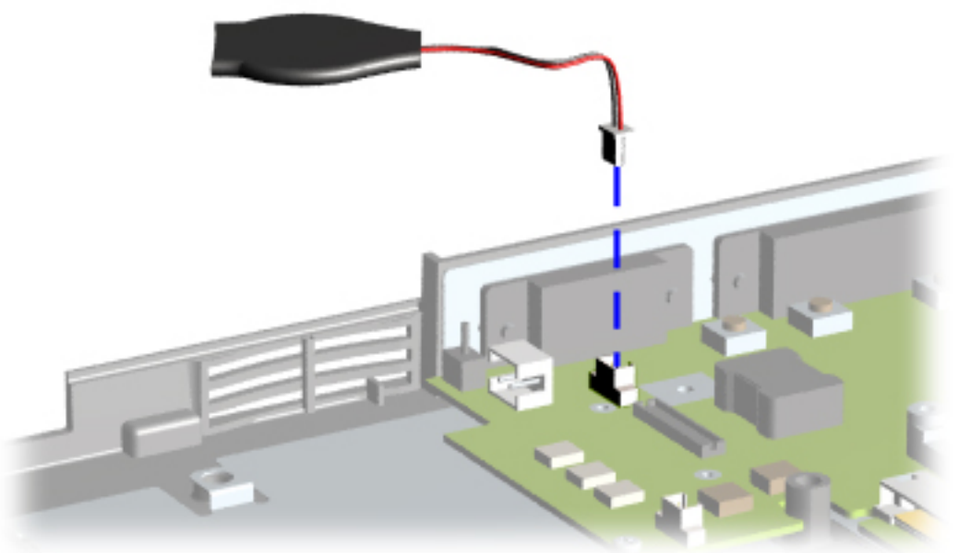
If POST does not detect any errors, the computer will not beep. This indicates successful completion of POST test. POST has run successfully and boots from the hard drive (or from a bootable diskette if one is installed in the diskette drive).

If POST detects errors, the errors are indicated by screen and/or audible messages. Refer to "Power-On Self-Test (POST) Codes" in the tables for a list of POST codes and their relevant descriptions.

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**
Configuration incorrect	Run Computer Setup.
CMOS reflects that an invalid configuration has been set.	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.
XX000YZZ 201-Memory Error	
Probable Cause	Recommended Action
301-Keyboard Error	
Probable Cause	Recommended Action
Keyboard failure	1. Ensure the keys are not depressed during POST. 2. Reconnect the keyboard with the computer 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 and/or replace cables. 3. Replace the system board.
605-Diskette Drive Error	
Probable Cause	Recommended Action
Mismatch in drive type	Run Computer Setup.
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.

Troubleshooting



Clearing the Power-on Password

If the password is not known, 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. Disconnect the backlight cable from the connector on the system board.
6. Simultaneously make contact with the two pads located at R37 on the system boarding using a conductive piece of material (piece of wire or tool) or remove the RTC battery for 10 seconds, clearing the password.
7. Reassemble the computer.
8. Turn on the computer to verify that the power-on password has been cleared. If it has not been cleared, repeat Steps 1 through 7.

Troubleshooting

Compaq Diagnostics

Compaq Diagnostics is installed on the hard drive of the computer. Run the Diagnostics 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 it is version 10.11 or later.

The Diagnostics menu includes the following utilities:

- Perform Computer Checkup (TEST).
- View System Information (INSPECT).
- Prepare Computer for a Compaq Service Call (RemotePaq).

If you have a difficult problem that seems unsolvable, run the Diagnostics utilities before calling for support. Run Computer Checkup and select to save the device list to a file to print or to save the log of errors. Run the View System Information (INSPECT) utility and select to print or save that information. Have the files or the printed information available when you call for support.

Computer Checkup (TEST)

Computer Checkup (TEST) determines whether 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 computer into an external power source. (A low battery condition could interrupt the program.)

2. Turn on the external devices that 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 computer. The computer starts from drive A, and the **Diagnostics Welcome** screen appears.

5. Press **Enter** to continue. The **Diagnostics** menu appears.

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

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

8. Select **OK** if the list of installed devices is correct. The **Test Option** menu appears.

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

9. 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 displayed 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 the amount of times to run the tests, stop on errors, or print/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/save a log of errors.

10. Follow the instructions on the screen as the devices are tested. When testing is complete, the **Test Option** menu appears.

11. Exit the **Test Option** menu.

12. Exit the **Diagnostics** menu.

View System Information (INSPECT)

The View System Information (INSPECT) utility provides information about the computer 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 that 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 computer. The computer starts from drive A, and the **Diagnostics Welcome** screen appears.

4. Press **Enter** to continue. The Diagnostics menu appears.

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

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

Troubleshooting

Contacting Compaq Support

Obtain the following information before contacting Compaq Reseller Support:

- Product name
- Product serial number
- Purchase date
- Conditions under which the problem occurred
- Any error messages that have occurred
- Hardware configuration
- Type of printer connected
- Hardware/software being used
- Printed result of Computer Checkup (TEST)
- Printed copies of *CONFIG.SYS* and *AUTOEXEC.BAT* files, if possible

Shipping Preparation

To ship the computer, complete the following steps:

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

2. Turn off the computer and external devices.

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

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 computer.

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

Troubleshooting

Diagnostic Error Codes

Diagnostic error codes occur if the system recognizes a problem while running the Compaq Diagnostic program. These error codes help identify possibly defective subassemblies.

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 the section for **Removal and Replacement Procedures.**

Select error codes by number or type:

Processor Test Error Codes

Error Code	Description	Recommended Action
101-xx	Failed CPU Test.	Replace the processor and retest.
102-xx	Coprocessor or Weitek Error	Run the Configuration and Diagnostics Utilities. Replace the processor board and retest.
103-xx	Failed DMA Page Registers Test.	Replace the system board and retest.
104-xx	Failed Interrupt Controller Master Test.	
105-xx	Port 61 Error.	
106-xx	Failed Keyboard Controller Self Test.	
107-xx	Failed CMOS RAM Test.	
108-xx	Failed CMOS Interrupt Test.	
109-xx	Failed CMOS Clock Test.	
110-xx	Failed Programmable Timer Load Data Test.	
113-xx	Failed Protected Mode Test.	
114-01	Failed Speaker Test.	1. Check system configuration. 2. Verify cable connections to speaker. 3. Replace the system board and retest.

Memory Test Error Codes

200 -xx	Failed Memory Machine ID Test.	1. Flash the system ROM and retest. 2. Replace the system board and retest.
202-xx	Failed Memory System ROM Checksum.	
203-xx	Failed Write/Read Test.	1. Remove the memory module and retest. 2. Install a new memory module and retest.
204-xx	Failed Address Test.	
211-xx	Failed Random Pattern Test.	
214-xx	Failed Noise Test.	
215-xx	Failed Random Address Test.	

Keyboard Test Error Codes

300 -xx	Failed ID Test.	1. Check the keyboard connection. If disconnected, turn off the computer and connect the keyboard.
301-xx	Failed Selftest/Interface Test.	
302-xx	Failed Individual Key Test.	2. Replace the keyboard and retest.
304-xx	Failed Keyboard Repeat Test.	3. Replace the system board and retest.

Parallel Printer Test Error Codes

401 -xx	Failed Printer or not connected.	1. Connect the printer. 2. Check power to the printer. 3. Install the loop-back connector and retest. 4. Check port and IRQ configuration. 5. Replace the system board and retest.
402-xx	Failed Port Test.	
403-xx	Failed Printer Pattern Test.	

Diskette Drive Test

600 -xx	Failed Diskette ID Drive-types Test.	1. Replace the diskette media and retest. 2. Check and/or replace the diskette power and signal cables and retest. 3. Replace the diskette drive and retest. 4. Replace the system board and retest.
601-xx	Failed Diskette Format.	
602-xx	Failed Diskette Read Test.	
603-xx	Failed Diskette Write, Read, Compare Test.	
604-xx	Failed Diskette Random Read Test.	
605-xx	Failed Diskette ID Media.	
606-xx	Failed Diskette Speed Test.	
609-xx	Failed Diskette Reset Controller Test.	
610-xx	Failed 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

1101-xx	Failed Serial Port Test.	1. Check port configuration 2. Replace the system board and retest.

Hard Drive Test Error Codes

1701-xx	Failed Hard Drive Format Test.	1. Run the Configuration and Diagnostics Utilities and verify drive type. 2. Verify that all secondary drives have secondary drive capability. 3. Replace the hard drive and retest. 4. Replace the system board and retest.
1702-xx	Failed Hard Drive Read Test.	
1703-xx	Failed Hard Drive Write/Read/Compare Test.	
1704-xx	Failed Hard Drive Random-seek Test.	
1705-xx	Failed Hard Drive Controller Test.	
1706-xx	Failed Hard Drive Ready Test.	
1707-xx	Failed Hard Drive Recalibration Test.	
1708-xx	Failed Hard Drive Format Bad-track Test.	
1709-xx	Failed Hard Drive Reset Controller Test.	
1710-xx	Failed Hard Drive Park-head Test.	
1715-xx	Failed Hard Drive Head-select Test.	
1716-xx	Failed Hard Drive Conditional Format Test.	
1717-xx	Failed Hard Drive ECC* Test.	
1719-xx	Failed Hard Drive Power-mode Test.	
1724-xx	Failed Network Preparation Test.	
1736-xx	Failed Drive-monitoring Test.	

* ECC = Error Correction Code

Video Test Error Codes

501-xx	Failed Video Controller Test.	The following apply to error codes 501-xx through 516-xx: 1. Disconnect external monitor and test with internal LCD display. 2. Replace the display assembly and retest. 3. Replace the system board and retest.
502-xx	Failed Video Memory Test.	
503-xx	Failed Video Attribute Test.	
504-xx	Failed Video Character-set Test.	
505-xx	Failed Video 80 × 25 mode 9 × 14 Character-cell Test.	
506-xx	Failed Video 80 × 25 mode 8 × 8 Character- cell Test.	
507-xx	Failed Video 40 × 25 mode Test.	
508-xx	Failed Video 320 × 200 mode color set 0 Test.	
509-xx	Failed Video 320 × 200 mode color set 1 Test.	
510-xx	Failed Video 640 × 200 mode Test.	
511-xx	Failed Video Screen Memory Page Test.	
512-xx	Failed Video Gray Scale Test.	
514-xx	Failed Video White Screen Test.	
516-xx	Failed Video Noise Pattern Test.	
2402 -xx	Failed Video Memory Test.	The following steps apply to error codes 2402-xx through 2456-xx: 1. Run the Configuration and Diagnostics Utilities. 2. Replace the display assembly and retest. 3. Replace the system board and retest.
2403-xx	Failed Video Attribute Test.	
2404-xx	Failed Video Character-set Test.	
2405-xx	Failed Video 80 × 25 mode 9 × 14 Character-cell Test.	
2406-xx	Failed Video 80 × 25 mode 8 × 8 Character- cell Test.	
2408-xx	Failed Video 320 × 200 mode color set 0 Test.	
2409-xx	Failed Video 320 × 200 mode color set 1 Test.	
2410-xx	Failed Video 640 × 200 mode Test.	
2411-xx	Failed Video Screen Memory Page Test.	
2412-xx	Failed Video Gray Scale Test.	
2414-xx	Failed Video White Screen Test.	
2416-xx	Failed Video Noise Pattern Test.	
2418-xx	Failed ECG/VGC Memory Test.	
2419-xx	Failed ECG/VGC ROM Checksum Test.	1. Run the Configuration and Diagnostics Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest. 4. Replace the system board and retest.
2421-xx	Failed ECG/VGC 640 × 200 graphics mode Test.	
2422-xx	Failed ECG/VGC 640 × 350 16 Color Set Test.	
2423-xx	Failed ECG/VGC 640 × 350 64 Color Set Test.	
2424-xx	Failed ECG/VGC Monochrome Text Mode Test.	
2425-xx	Failed ECG/VGC Monochrome Graphics Mode Test.	
2431-xx	Failed 640 × 480 Graphics Test.	
2432-xx	Failed 320 × 200 Graphics (256 color mode) Test.	
2448-xx	Failed Advanced VGA Controller Test.	
2451-xx	Failed 132-column Advanced VGA Test.	
2456-xx	Failed Advanced VGA 256 Color Test.	
2458 -xx	Failed Advanced VGA BitBLT Test.	The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest.
2468-xx	Failed Advanced VGA DAC Test.	
2477-xx	Failed Advanced VGA data path Test.	
2478-xx	Failed Advanced VGA BitBLT Test.	
2480-xx	Failed Advanced VGA LineDraw Test.	

Audio Test Error Codes

3206 -xx	Audio System Internal Error	1. Replace the system board and retest.

TouchPad/Pointing Device Interface Test Error Codes

8601 -xx	Failed Mouse Test.	1. Replace the TouchPad and retest. 2. Replace the system board and retest.
8602-xx	Failed Interface Test.	

CD/DVD Drive Test Error Codes

3301 -xx	Failed CD/DVD Drive Read Test.	1. Replace the CD/DVD and retest. 2. Verify that the speakers are connected. 3. Verify that drivers are loaded and properly installed. 4. Replace the CD/DVD drive and retest. 5. Replace the system board and retest.
3305-xx	Failed CD/DVD Drive-seek Test.	
6600-xx	Failed ID Test.	
6605-xx	Failed Read Test.	
6608-xx	Failed Controller Test.	
6623-xx	Failed Random Read Test.	

Back to top

Troubleshooting

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 on:

Audio
Battery/Battery gauge
CD/DVD drive
Diskette/Diskette drive
Display
Hard drive
Hardware Installation
Memory
PC Card
Power
Printer
Touch Pad
Keyboard/Numeric keypad

Since symptoms can appear to be similar, carefully match the symptoms of the computer malfunction against the problem description in the Troubleshooting 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.

Troubleshooting

Solving PC Card Problems

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

Solving PC Card Problems

Problem	Probable Cause	Solution(s)
When turned on, the computer does not beep when a PC Card is inserted.	Card is not inserted properly. PC Card beeps are disabled.	Ensure the card is inserted in the correct orientation. Double-click the PC Card icon in 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 in 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 your Compaq authorized service provider for a list of PC Cards tested successfully 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 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.
	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 your Compaq authorized service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.

Solving Power Problems

Also see "Solving Battery and Battery Gauge Problems" in this section.

Solving Power Problems

Problem	Probable Cause	Solution(s)
Computer won't turn on and battery pack is not inserted.	Computer is not connected to a power source. Power cords to the external power source are unplugged.	Insert battery or connect an external power source. Ensure that power cords connecting the computer and the external power source are plugged in properly.
	Power adapter is defective.	Replace AC Adapter and restart.
Computer 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 computer to an external power source. Then turn on the computer.
	System initiated Hibernation after a preset timeout.	Turn on the computer.

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 off line.	Turn the printer on and set it to on line.
	The device drivers for your 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 computer.
	Cable is defective.	Replace the printer cable and retest.

Solving Touch Pad/Pointing Device Problems

Some common causes and solutions for Touch Pad/pointing device problems are listed in the following table.

Solving Touch Pad/Pointing Device Problems

Problem	Cause	Solution(s)
Touch Pad 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 Touch Pad/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.
Touch Pad or mouse does not work even though the device is enabled in Windows.	Mouse is not enabled.	Enter MOUSE at the system prompt to activate the mouse device driver.
		Add a line in the AUTOEXEC.BAT file to automatically activate the mouse device driver each time computer is turned on or restarted.
	Cable not properly seated in Touch Pad board.	Reseat cable.
	Defective Touch Pad board.	Replace Touch Pad 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 Touch Pad.	The Touch Pad needs to be cleaned.	Clean the Touch Pad with a cloth dampened with alcohol or an ammonia-based glass cleaner. Wipe up liquid with a dry cloth.

Troubleshooting

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(s)
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 and Battery 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 and Battery Gauge Problems

Problem	Probable Cause	Solution(s)
Computer won't run 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. Replace the battery pack with a fully charged battery pack.
		Check the battery connectors on the system board to verify they are evenly spaced and that they are not bent or broken. Inconclusively raise any spurs file(s). Then do any one of the following: • Connect the computer to an external power source to charge the battery pack. • Shut down the computer or initiate Hibernation and you can then another power source or charge the battery pack.
Computer is beeping and battery LED icon is blinking.	Battery charge is low.	
Computer battery LED icon (front on the unit) blinks to indicate low battery condition, but computer does not beep.	Volume is turned down too low.	Adjust the volume.
Battery LED icon doesn't light and battery pack won't fast-charge.	Battery pack is already charged.	No action is necessary.
	Battery pack have exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is at end of its life.	Replace battery pack.
You have to set the date and time every time you turn on the computer.	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 operating temperature range 50° F to 104° F (10° C to 40° C) or recommended storage range 32° F to 140° F (0° C to 60° C). Recharge the battery pack.
	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 using them.
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 using them.
	Battery pack has partially self-discharged.	Condition the battery pack by fully charging, fully discharging, then fully recharging it. To maintain the charge, leave battery packs in the computer when it is connected to external power.
		If the computer is disconnected from external power for more than two weeks, remove battery packs from the computer 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 ranges. Operating: 50° F to 104° F (10° C to 40° C) Storage: 5° F to 86° F (-20° C to 30° C)
		Recharge the battery pack.

Solving CD/DVD Drive Problems

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

Solving CD/DVD Drive Problems

Problem	Probable Cause	Solution(s)
CD/DVD drive cannot read a compact disc or digital versatile disc.	Compact disc or digital versatile disc is upside down or dirty, especially if it is recorded on the CD/DVD drive.	Open the CD/DVD loading tray, lay the compact disc or digital versatile disc in it label side up. Clean the disc if necessary.
	CD to CD Plus or Prepgap/Track 0 type.	Cannot read these types of CDs in 24x. Remove the CD.

Solving Diskette and Diskette Drive Problems

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

Solving Diskette and 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 occurred.	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.	The wrong type of diskette is being used.	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.
	Drive error has occurred.	Run Computer Checkup from the Compaq Diagnostics 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 computer. To do so, complete the following steps:

1. Turn off the monitor.
2. Disconnect the computer.
3. Disconnect the monitor signal cable from the computer.
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.

Solving Display Problems

Problem	Probable Cause	Solution(s)
Screen is dim.	Control for brightness (if applicable) is not set properly.	Adjust the Brightness of the display by using **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 Touch Pad.
	Display has overheated.	If computer 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 Touch Pad.
Internal display is blank and the screen on an external monitor displays information.	Display function was switched to the external monitor.	Use **Fn** + **F2** to switch between **LCD** or **CRT.**
Internal display flashes or has garbled characters when computer is connected to external monitor.	Using 1024 × 768 or higher resolution on external monitor and have toggled back to internal display, which supports up to 800 × 600.	Restart the computer.
The light comes on the edge of the display panel do not light up at all and 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.
The light comes 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.
	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective system board.	Replace the system board.
	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective system board.	Replace the system board.

**A This problem indicates that the backlight inverter has failed. Since a defective inverter can POST result in the display panel when the backlight is not functioning, connect the unit to an external monitor before powering the unit up. If an external monitor is not available, verify that POST completes by opening and closing the display, listening for the operating system startup sound, and verify that the keyboard Caps Lock key responds correctly.

***This display panel has a continuous pattern across it (e.g., a "jailbars" pattern), has a single color on it, or has garbled graphics across the entire panel. This failure is for the LCD panel requires the entire panel (not just on one section).

NOTE: To perform a "self-test" on an external VGA color monitor, complete the following steps: 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.

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, always 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 computer.	System requires Hibernation due to low battery condition and is now resuming 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 computer, 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 computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
	Device is not seated properly.	Turn off the computer and reinsert the device.

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 numeric keypad on computer keyboard is disabled.	Num Lock function is not enabled.	Press the **Shift** + **NumLk** keys to enable the Num Lock function and embedded numeric keypad. The Num Lock icon on the status panel turns on.
Embedded numeric keypad is disabled and Num Lock function is on.	External numeric keypad is connected to the computer.	Disconnect the external numeric keypad from the computer.

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. Install additional memory.
	Too many TSR (terminate-and stay-resident) applications are running.	Remove from memory any TSR applications that you do not need.

Solving Minor Problems (continued)

Battery Pack Operating Time

This section covers the following information concerning battery pack operating time:

Increasing Battery Pack Operating Time

Battery pack operating time differs depending on several variables. To avoid unnecessary replacement, consider the following variables 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 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** .
- 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 computer when using it with AC power to supply 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 a 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 the AC adapter during this process or you will need to restart with step number 1. You may use the computer while the battery is draining.

3. Your battery is re-conditioned.
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	**On Line**	**Off Line**
Li ion Battery Pack	4.5 hours premature termination	2:50 hr

Disposing of a Used Battery Pack

In the interest 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 expose potentially harmful battery components.

Back to Top of Page