maintenance & service guide

Presario 1600 Series

Models: 1683, 1685, 1687, 1688, 1690, 1692, 1693, and 1694

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

Compaq Presario 1600 System

Welcome to the Maintenance & Service Guide (MSG). This online guide is designed to serve the needs of those 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. This MSG will be periodically 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.

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Maintenance and Service Guide

Compaq Presario Series Portable Computer

First Edition (March 1999)
Compaq Computer Corporation

maintenance & service guide

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Preface

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

Compaq Computer Corporation reserves the right to make changes to the Compaq Presario Series Portable Computers without notice.

Symbols

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

WARNING: Text set off in this manner indicates that failure to follow 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 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 for Compaq Presario Series Portable Computers:

- Physical and Environmental
- System Interrupts
- System DMA
- System I/O Address
- System Memory Map
- Display
- Memory Expansion
- Modem Options
- Hard Drive
- DVD or CD Drive
- Battery Pack

Physical and Environmental

Computer Specifications

	U.S.	Metric
Dimensions		
Height	3.97 in	10.1 cm
Depth	12.32 in	31.3 cm
Width	10.63 in	27.0 cm
Weight		
Model 1683	(Base not available)	(Base not available)
Model 1685	7.18lbs	3260 g
Model 1687	7.38 lbs	3350 g
Model 1688	7.56 lbs	3320 g
Model 1690	7.76 lbs	
Stand-Alone (Battery Pack) Power Requirements	**14.1 cu**	
Nominal Operating Voltage	W @ 14.8 VDC	
Maximum Operating Power	W @ 16.5 W	
Peak Operating Power	W @ 58.5 W	
AC Power Requirements	(Information not available)	
Operating Frequency		
Operating Frequency		
Operating Frequency		
Temperature		
Operating	41° to 95 °F	5° to 35 °C
Nonoperating	-4° to 140 °F	-20° to 60 °C
Relative Humidity (Non-condensing)		
Operating	10 to 90%	31°C, to 90%
Nonoperating (to + 38.7°C, max)	5 to 95%	38°C to 95%
Altitude		
Operating	0 to 10,000 ft	0 to 3,15 km
Nonoperating	0 to 30,000 ft	0 to 10,4 km
Shock		
Operating	0.5, 11 ms, half sine	
Non-operating	60, 11 ms, half sine	
Vibration		
Operating	0.33, 5 - 0.5 Oct/Min sweep rate	
Nonoperating	1.5, 5, 0.25 Oct/Min sweep rate	

Note Applicable product safety standards specify thermal limits for plastic surfaces. Compaq Series Portable Computers operate well within this range of temperatures.

System Interrupts

System Interrupts

Hardware IRQ	System Function
IRQ0	System Timer
IRQ1	Standard 101/102-Key or Microsoft Natural Keyboard
IRQ2	Programmable interrupt controller
IRQ3	IRQ Holder for PCI Steering
IRQ4	PCI-TO-USB Open Host Controller
IRQ5	Communications Port (Default)
IRQ6	IRQ Holder for PCI Steering
IRQ7	ESS SOLO-1 PCI AudioDrive
IRQ8	IRQ Holder for PCI Steering
IRQ9	Standard Floppy Disk Controller
IRQ10	Power Port (LPT1)
IRQ11	System CMOS / real-time clock
IRQ12	IRQ Holder for PCI Steering
IRQ13	Numeric data processor
IRQ14	Primary IDE controller (dual fifo)
IRQ15	Secondary IDE controller (dual fifo)

System DMA

System DMA

Hardware DMA	System Function
0	(Free)
1	ESS SOLO-1 DOS Emulation
2	Standard Floppy Disk Controller
3	(Free)
4	Direct memory access controller
5	(free)

System I/O Address

System I/O Address

I/O Address (Hex)	System Function (Shipping Configuration)
0000 - 0009	Direct Memory Access Controller
0020 - 0021h	Programmable Interrupt Controller
0040h - 0043h	System Timer
0060h - a0060h	Standard 101/102-Key or Microsoft Natural Keyboard
0061h - 0061h	System Speaker
0040h - a0040h	Standard 101/102-Key or Microsoft Natural Keyboard
0070h - 0071h	Real-time clock, CMOS
0080h - 0083h	Motherboard Resources
0081h - 008Fh	Direct Memory Access controller
0092h - 0092h	Motherboard Resources
00A0h - 00A1h	Programmable Interrupt Controller
00B1h - 00B3h	Motherboard Resources
00C0h - 00DFh	Direct Memory Access controller
00F0h - 00F0h	Motherboard Resources
00F8h - 00FFh	Numeric Data Processor
0170h - 0177h	Secondary IDE Channel (dual fifo)
01F0h - 01F7h	Primary IDE Channel (dual fifo)
0220h - 0233h	ESS SOLO-1 DOS Emulation
0376h - 0376h	Secondary IDE Controller (dual fifo)
0377h - 0377h	Secondary IDE Controller (dual fifo)
0378h - 037Fh	PCI-TO-USB Open Host Controller
0378h - 037Fh	Power Port (LPT1)
0388h - 038Bh	ESS SOLO-1 DOS Emulation
03B0h - 03BBh	Intel(R) 82815 Graphics Controller
03C0h - 03DFh	Intel(R) 82815 Graphics Controller
03F0h - 03F5h	Standard Floppy Disk Controller
03F6h - 03F6h	Primary IDE Controller (dual fifo)
03F7h - 03F7h	Standard Floppy Disk Controller
03F8h - 03FFh	Communication Port (COM1)
0400h - 040Bh	Motherboard Resources
040Dh - 041Fh	Motherboard Resources
0480h - 04D0h	Motherboard Resources
04D0h - 04D1h	PCI Bus
1000h - 103Fh	Motherboard Resources
1040h - 105Fh	Motherboard Resources
1060h - 106Fh	ESS SOLO-1 PCI AudioDrive
1070h - 107Fh	ESS SOLO-1 PCI AudioDrive
1400h - 140Fh	Lucent 56K V.90 PCI DF Modem
1480h - 14BFh	ESS SOLO-1 PCI AudioDrive
14B0h - 14B7h	Primary IDE Controller (dual fifo)
14B4h - 14B4h	Intel(R) 82801BA/BAM USB Universal Host Controller
14B8h - 14BFh	Secondary IDE Controller (dual fifo)
14C0h - 14C3h	ESS SOLO-1 PCI AudioDrive
14E0h - 14F3h	ESS SOLO-1 PCI AudioDrive
1450h - 1453h	Lucent 56K V.90 PCI DF Modem
2000h - 2FFFh	PCI Standard PCI-to-PCI Bridge
3000h - 3FFFh	Intel(r) 815 Perf. Of Chipset

System Memory Catalog

System Memory Catalog

Memory Address	System Function
00000000h - 0009FFFFh	Motherboard Resources for PnP BIOS
000A0000h - 000AFFFFh	Intel(r) 815 Perf. Of Chipset
000B0000h - 000B7FFFh	Intel(r) 815 Perf. Of Chipset
000C0000h - 000CBFFFh	Intel(r) 815 Perf. Of Chipset
000CC000h - 000DFFFFh	Motherboard Resources
000E0000h - 000FFFFFh	System Board Extension for PnP BIOS
00100000h - 1FFFFFFFh	System Board Extension for PnP BIOS
FC000000h - FCFFFFFFh	Texas Instruments PCI-1211 CardBus Controller
FD000000h - FDFFFFFFh	AU PCI to USB Open Host Controller
FE000000h - FEFFFFFFh	AU PCI to USB Open Host Controller
FC000000h - FC001FFFh	Lucent 56K V.90 PCI DF Modem
FC002000h - FC003FFFh	PCI Standard PCI-to-PCI bridge
FC100000h - FC1000FFh	Intel(r) 815 Perf. Of Chipset
FC200000h - FC2000FFh	Intel(r) 815 Perf. Of Chipset
FD000000h - FDFFFFFFh	Intel(r) 815 Perf. Of Chipset
FFFC0000h - FFFFFFFFh	Motherboard Resources

Display

12.1" (Diagonal) TFT Display with UMA

	U.S.	Metric
Dimensions		
Height	9.45"	24 cm
Width	12.1"	30.7 cm
Diagonal Size	12.1"	30.7 cm
Mounting	Internal	
Number of Colors	16 M	
Contrast Ratio	Typical 150:1	
Brightness	Over 150 cd/m^2	
Pixel Resolution		
Pitch	0.30 x 0.30 m	
Configuration	RGB Stripe	
Backlight	Edge Light	
Character Display	80 x 25, 80 x 50	
Total Power Consumption	3.4 W (max)	

(Information not available)

	U.S.	Metric
Dimensions		
Height		
Width		
Diagonal Size		
Mounting		
Number of Colors		
Contrast Ratio		
Brightness		
Pixel Resolution		
Pitch		
Configuration		
Backlight		
Character Display		
Total Power Consumption		

14.1" (Diagonal) TFT Display with UMA

	U.S.	Metric
Dimensions		
Height	9.45"	24 cm
Width	11.2"	28.16 cm
Diagonal Size	14.1"	35.8 cm
Mounting	Internal	
Number of Colors	16 M	
Contrast Ratio	Typical 150:1	
Brightness	Over 120 cd/m^2	
Pixel Resolution		
Pitch	0.279 x 0.279 mm	
Configuration	RGB Stripe	
Backlight	Edge Light	
Character Display	80 x 25	
Total Power Consumption	6.6 W (max)	

Memory Expansion

Base System Memory	Expansion Board Memory	Total Memory
32-MB	32-MB	64-MB
32-MB	64-MB	96-MB
32-MB	128-MB	160-MB
64-MB	32-MB	96-MB
64-MB	64-MB	128-MB
64-MB	128-MB	192-MB

Diskette Drive

Diskette Drive

Diskette Size	3.5 in
Light	Front
Capacity	1.44 MB, 1.27 cm
Bytes per Sector	512
Sectors per Track	18 (1.44-MB) / 15 (1.2-MB)
Low Density	9
Tracks per Side	80 (1.44-MB) / 80 (1.2-MB)
Low Density	40
Access Times	
Track to Track	3 inch dia
Average (including Seek)	94 ms/174 ms
Setting Time (ms)	15 ms
Latency Average	100 ms
Number of Read/Write Heads	2

Hard Drive

Hard Drives

	6.4 GB	4.8 GB
		Not Available
Capacity Per Drive	6.4 GB	4.8 GB
Drive Type	3/5	3/5
Physical Configuration		
Heads	3647	3647
Sectors per track	63	63
Bytes per sector	512	512
Logical Configuration		
Cylinders	13624	7944
Heads	63	63
Sectors per track	15	15
Bytes per sector	512	512
Seek Times	2.5 ms	2.5 ms
Track to Track (including settling in ms)	10 ms	10 ms (read)
Track to Track	12 ms (write)	12 ms (write)
Average (including Seek)	4200 rpm	4200 rpm
Transfer Rate		
Media	56.8 to 107.2 Mb/s	56.8 to 107.2 Mb/s
Interface	33.3 MB/s	33.3 MB/s
Sector Interleave	1:1	1:1
Buffer Size	512 KB	512 KB

DVD or CD Drive

CD Drive

	24x CD Drive
Applicable Disk	CD-DA, CD-ROM, CD-ROM XA, CD-i, Photo CD (Multisession), Video CD, CD-R, CD-Extra (CD+), CD-RW, CD-Text
Center Hole Diameter	0.47 " / 15 mm
Disc Diameter	12 cm, 8 cm
Disc Thickness	1.2 mm
Track Pitch	1.6 um
Access Time (typical, including setting)	110 ms
Audio Output Level (line out)	+/- 0.27 Vrms
Cache Buffer	128 KB
Data Transfer Rate (typical, including setting)	3600 KB/s (24x) 150 KB/s/sec
Startup Time	< 8 sec
Stop time	< 4 sec

DVD Drive

	6x DVD Drive
Applicable Disk	DVD-ROM, CD-ROM, CD-XA, CD-i, Photo CD, Video CD, Audio CD, CD-R, CD-RW
Center Hole Diameter	0.47 " / 15mm
Access Time (typical, including setting)	< 100 ms (CD) < 150 ms (DVD)
Data Transfer Rate	7,800 KB/s (DVD) 1,200 KB/s (CD)
Track Pitch	0.74um (DVD)
Lens	.65" / 1.2cm
Beam Divergence	
Audio Output Level (line out)	1.0 volts RMS
Headphone	16 - 8 volts RMS
Cache Buffer	512 KBs (CD)
Data Transfer Rate (typical, including setting)	12,000 - 3,000 KB/s (CD) 2765 KB/s (DVD)
Warming Time	< 5 sec
Stop time	< 5 sec

Battery Pack

Battery Pack

	Lithium Ion (Li-ion) *	
	U.S.	Metric
Dimensions		
Height	.81 in	2.05 cm
Length	5.95 in	7.75 cm
Width	3.69 in	14.45 cm
Weight	0.83 lb	.39 kg
Battery Pack Operating Time	2 to 3 hours	
Energy	14.4 V	
Low-cost capacity	3.9 Ah	
Mini-four capacity	44.4 Wh	
Environmental Requirements		
Temperature	32° F to 113°	
Non-operating Temperature	-4° F to 140 °F	0° to 45° C -20° to 60° C

Modem

Modem

Compliance	ITU v.90+/I standard ITU v.34 annex I/J standard Full compliance with V.21, V.22, V.22bis, V.23, V.32, V.32bis, Bell 103, Bell 212A
Data Compression	V.42bis, MNP 5
Fax Modulation	V.17 V.29 (Group III Compatible) V.27ter
Command Set	Hayes AT Class 1 Fax
Codec	A-D, M-1 complete codec

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Parts Catalog

System Unit
System Boards
Display Assembly
Mass Storage Devices
Miscellaneous Cable Kit
Miscellaneous Hardware Kit
Miscellaneous Plastics Kit
Miscellaneous Parts
Documentation and Software

For the Compaq Presario 1600 Series of Portable Computers listed above, this section of the Maintenance and Service Guide provides the following information:

- An illustrated breakdown of components
- Identification of spare parts and the ordering number associated with each item(s)

Click on the appropriate categories listed to the left.

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Removal and Replacement

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Network Interface Card
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Introduction

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Note: The Internal Ethernet Card is **Not Available** for computer models: 1683, 1685, 1687, 1688, 1690, 1692, 1693, and 1694. The Ethernet Plug was removed on later models.

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- Preliminary Steps
- Clearing the Power-On Password
- Power-On Self Test (POST)
- Compaq Diagnostics
- Diagnostic Error Codes
- Solving Minor Problems
- Contacting Compaq Support

Introduction

This section covers troubleshooting information for the above listed Compaq Presario 1600 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

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Battery Pack Operating Time

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

- Increase battery pack operating time
- Conditioning a battery pack
- Disposal of a used battery pack

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.

Minimizing the Energy Required

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.

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 LED light on the display stops blinking. Your battery gauge may read 100 percent for a period of time before LED light on the display stops blinking. 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. **Do not plug in the AC adapter during this process or you will need to restart with Step No. 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 the approximate battery pack charge times.

Approximate Battery Charge Time		
Computer	**On Line**	**Off Line**
NiMH Battery Pack	4.0 hours premature termination	2:00 hrs
Li ion Battery Pack	4.5 hours premature termination	2:50 hrs

Disposal 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.

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Product Description

- Models and Features
- Controls and Lights
- Front Bezel Lights
- Front Bezel Buttons
- Left Side Components
- Right Side Components
- Underside of Unit
- Rear Connectors
- Power Management for Windows 98

The Compaq Presario 1600 Series Computers, the new generation of multimedia portables, present an innovative and integrated design, outstanding audio and video, advanced core features, and attractive styles. This fully functional AMD-K6-based portable computer allows full desktop versatility.

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Connector Pin Assignments

This appendix provides connector pin assignment tables for Compaq Presario 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
- Serial Connector
- Keyboard/Mouse
- External VGA Monitor
- Universal Serial Bus
- Modem

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

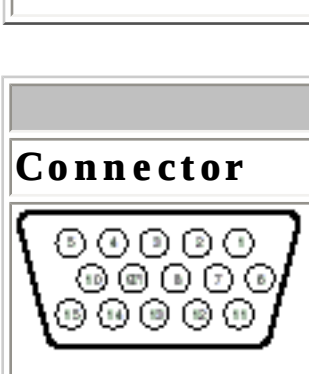
Serial Connector

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	Pin	Signal
	1	Data 1
	2	Data 2
	3	Ground
	4	+5 V
	5	Clock 1
	6	Clock 2

External VGA Monitor

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	Pin	Signal
	1	+5V
	2	Data - Data +
	3	Ground
	4	

Modem

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

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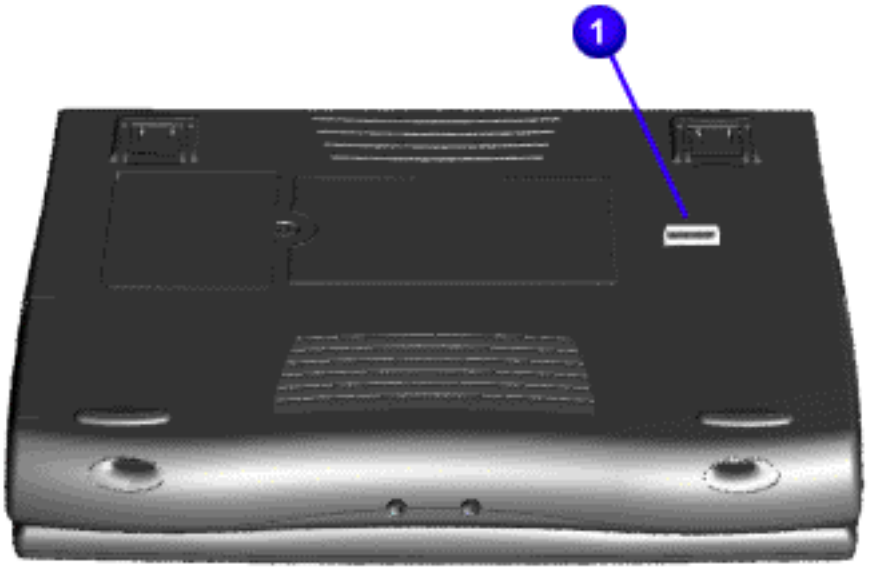
Before You Begin

Electrostatic Discharge

Service Considerations

Preparation for Disassembly



Report the computer serial number 1 to Compaq when requesting information or ordering spare parts.

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Before You Begin

Electrostatic Discharge
Service Considerations
Preparation for Disassembly

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.			

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Before You Begin

Electrostatic Discharge

Service Considerations

Preparation for Disassembly

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:

- Compaq screwdriver kit (Spare Part No. 161946-001)
- Torx T-9 screwdriver
- 3/16-inch and 5mm nut drivers (for screwlocks and standoffs)
- Small, standard screwdriver
- Small, Phillips screwdriver
- 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.

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Before You Begin

Electrostatic Discharge

Service Considerations

Preparation for Disassembly

Preparing the Computer for Disassembly

1. Disconnect AC power and any external devices.

2. Remove the battery pack.

3. Remove any PC Cards.

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 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 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 associated sub-assembly.

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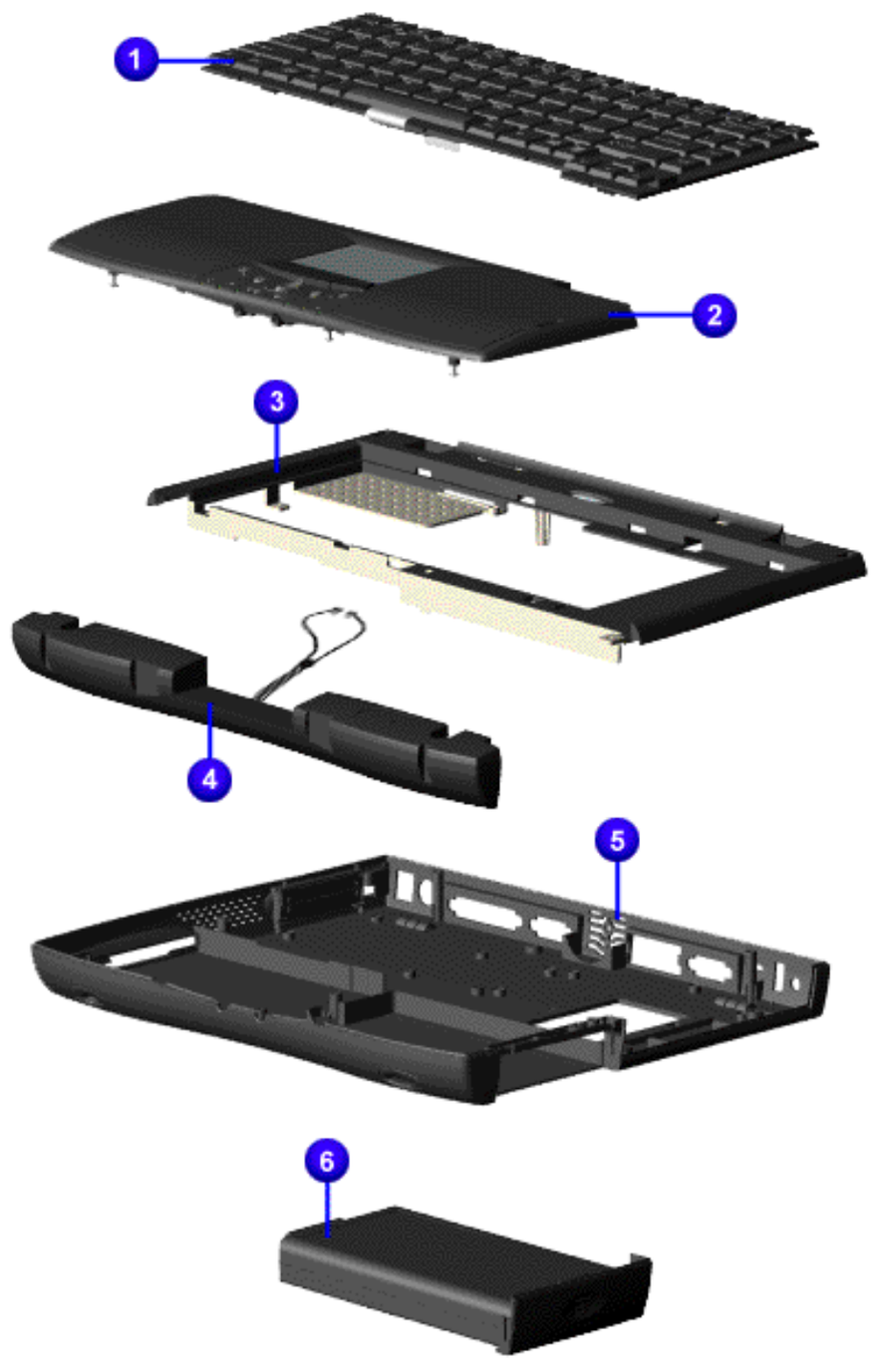
- **System Unit**
- System Boards
- Display Assembly
- Mass Storage Devices
- Miscellaneous Cable Kit
- Miscellaneous Hardware Kit
- Miscellaneous Plastics Kit
- Miscellaneous Parts
- Documentation and Software

System Unit



Part Description	Spare Part Number
1. Keyboard (Models: 1685, 1687, 1688, 1690, 1692, 1693, 1694)	141706-001
2. Palmrest Cover w/TouchPad and Button Board **(Models: 1687, 1688, 1690, 1693, 1694)**	142654-001
2. Palmrest Cover w/TouchPad and Button Board **(Models: 1683, 1685, 1688, 1692)**	142653-001
3. Upper CPU Cover w/Power Switch	141846-001
4. Speaker Assembly w/Cables	148108-001
5. Base Enclosure	141845-001
6. Battery Pack L ion Enhancement **(Models: 1683, 1685, 1687, 1688, 1690)** **6**. Battery Pack L ion Enhancement **(Models: 1692, 1693, 1694)**	388647-001 138-184-001

1600 Series CTO Description	Spare Part Number
1. Keyboard	EAB
2. Palmrest Cover w/TouchPad and Button Board	142654-001
3. Battery	sLiON
4. Port Replicator	400384-001

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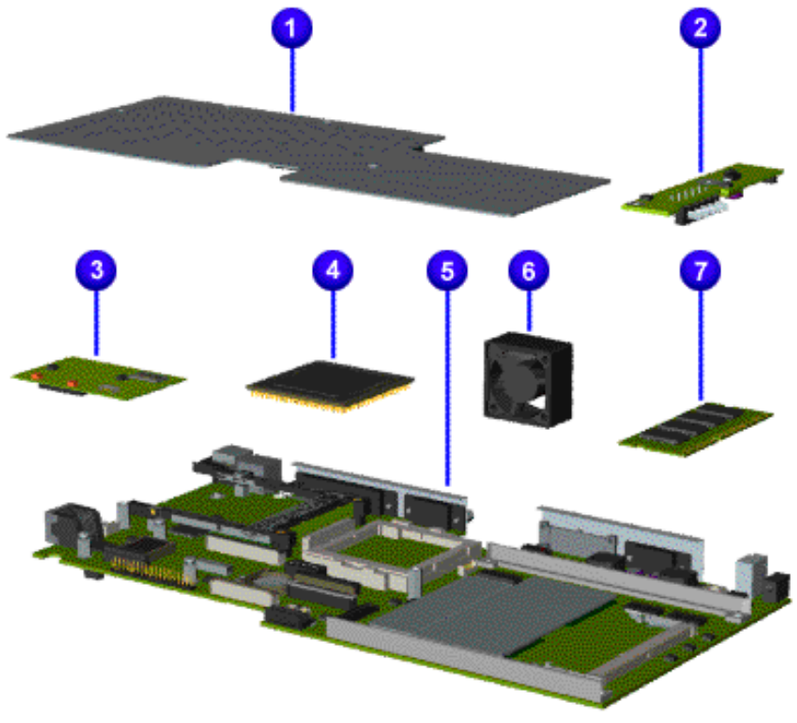
System Boards



Description	Spare Part Number
1. Heatspreader	122702-001
2. Voltage Converter Board	352891-001
3. Modem 56K Data/Fax w/o SRAM	400445-001
3. Modem 56K Data/Fax w/o SRAM-Intl	143848-001
4. Processor AMD K6	
350-Mhz (Model: 1683) 122698-001	
5. System Board w/512K Cache	144018-001 (models 1683-1690)
	158848-001 (models 1692-1694)
6. Fan Assembly	400444-001
7. System Memory	
32-MB (Models: 1683,1685, 1687) 122699-001	

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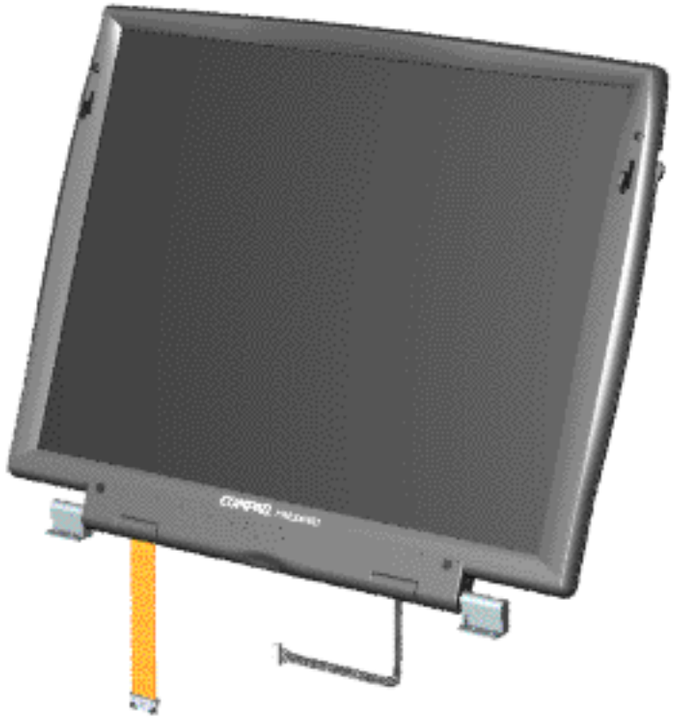
Display Assembly



Description	Spare Part Number
1. Display 12.1 TFT **(Models: 1683, 1685, 1687, 1692)**	142304-001
2. Display 13.3 TFT w/LVDS **(Model: 1688)**	142305-001
3. Display 14.1 TFT w/LVDS **(Model: 1690, 1693, 1694)**	142306-001

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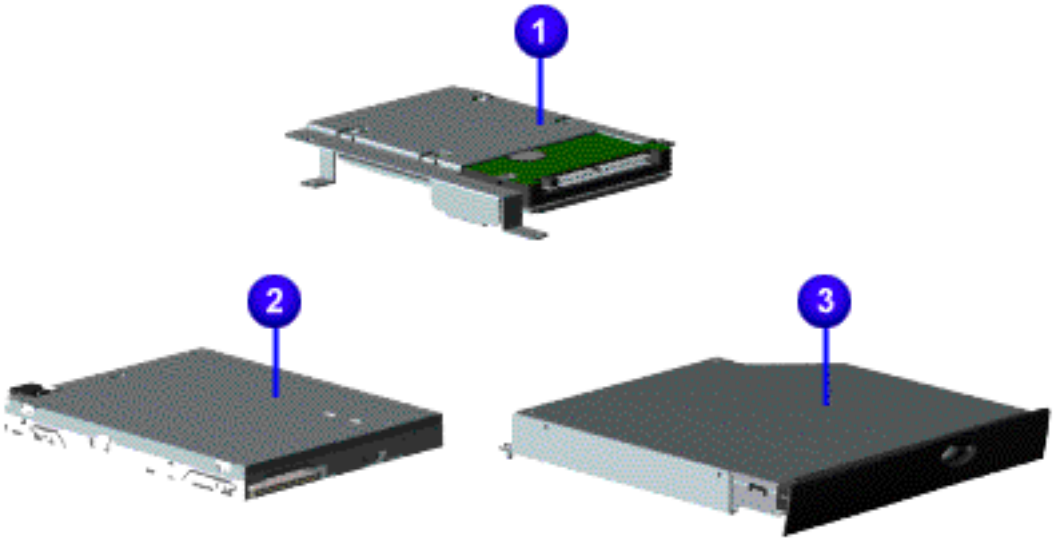
Mass Storage Devices

Use the scroll down menu for the description and spare part number.

1.) 3.2-GB Hard Drive 142309-001 (Model: 1683)



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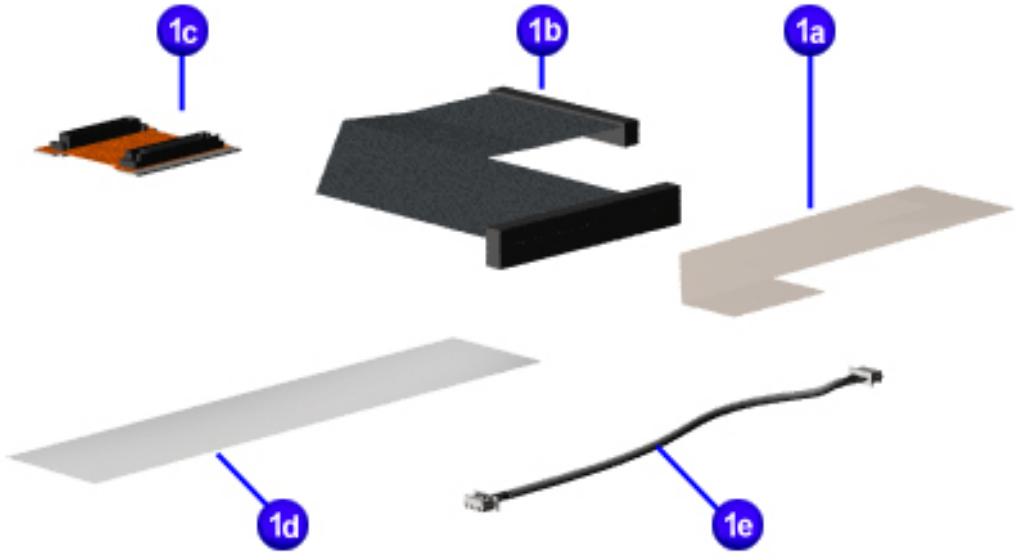
Miscellaneous Cable Kit



Miscellaneous Cable Kit Spare Part Number: 330946-001

1a. Diskette Drive Cable	1 each
1b. Hard Drive Cable	1 each
1c. CD or DVD Drive Cable	1 each
1d. Touchpad Cable	1 each
1e. Modem Cable	1 each

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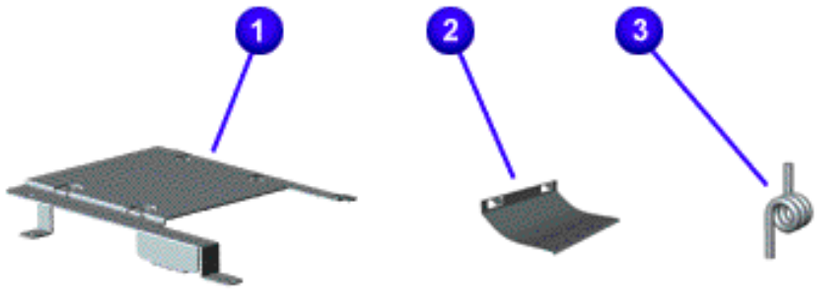
Miscellaneous Hardware Kit



Miscellaneous Hardware Kit
Spare Part Number: 346853-001

Description	Quantity
1. Hard Drive Mounting Bracket	1 each
2. LCD Guide FPC	1 each
3. Spring Torsion PCMCIA	4 each

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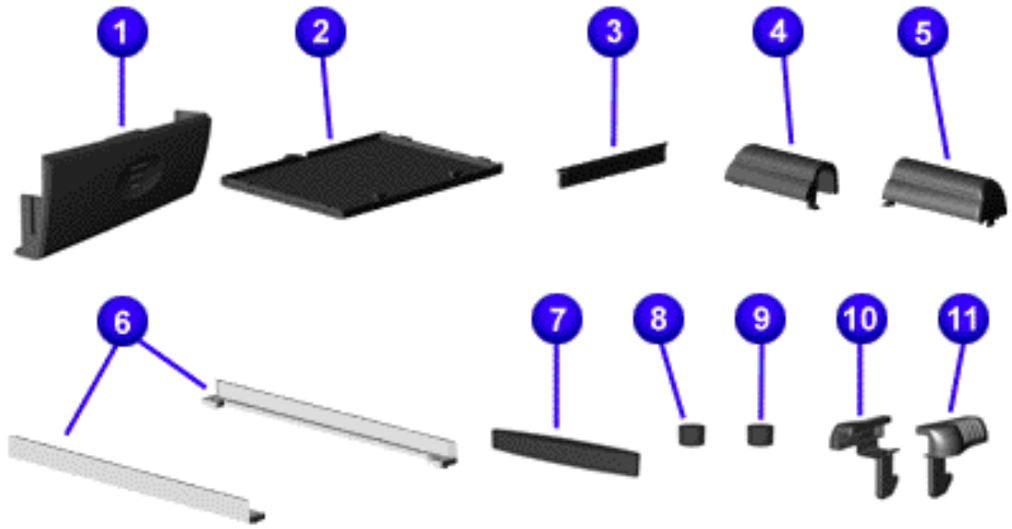
Miscellaneous Plastics Kit



Miscellaneous Plastics Kit
Spare Part Number: 142657-001

Description	Quantity
1. Door, Battery Pack	1 each
2. Cover, Memory Module	1 each
3. Door, PCMCIA	1 each
4. Display Hinge Cover, (Left)	1 each
5. Display Hinge Cover, (Right)	1 each
6. CD Drive Guide	1 each
7. Rubber Plug (A)	4 each
8. Rubber Plug (B)	4 each
9. Rubber Foot	8 each
10. Latch (Right)	2 each
11. Latch (Left)	2 each

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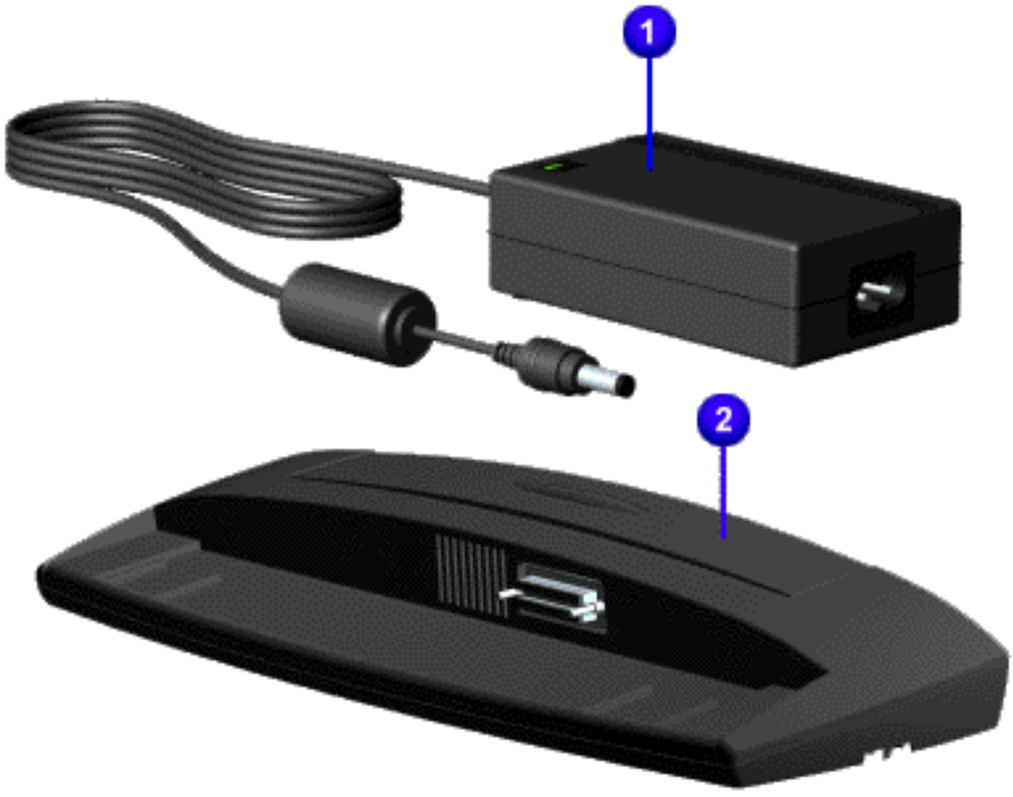
Miscellaneous Parts

1. AC Adaptor (Model: 1685)	293831-AA1
2. Port Replicator	102270-001
3. Return Kit	293799-001
4. Logo Kit	141848-001



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Documentation and Software

Description	Spare Part Number
Quick Restore CD **[FrontPage Save Results Component]** Belgium Windows 98	
Reference Guide	Info. Not Available
QuickFind for Windows, North America, Latin America, Asia Pacific	Info. Not Available
QuickFind for Windows, Europe, Middle East, Africa	Info. Not Available

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

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

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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

Cables and Connectors
Battery Pack
Palmrest Cover with Touch Pad
Heatspreader
Keyboard
Processor
Hard Drive
DVD or CD Drive
Battery Charger Board
Modem
Display Panel Assembly
Upper CPU Cover
Speaker Assembly
Diskette Drive
Fan Assembly
System Board
Dip Switch Settings
Memory Module

Cables and Connectors (main page)

Most cables used throughout the unit are ribbon cables. Cables must be handled with extreme care to avoid 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

NOTE: In order to gain access to the cables, you must first remove the Battery Pack and the Palmrest Cover with Touch Pad. Those steps are covered in the Removal Sequence listed to the left.

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

Select the Desired Illustration

- Removing a Cable from a ZIF Connector.
- The ribbon cable position for the 4.3-GB and 6.4-GB hard drive.
- The ribbon cable position for the CD or DVD drive.
- The ribbon cable position for the diskette drive.
- 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.

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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Network Interface Card
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

ZIF Connectors

zif-cable.gif (10259 bytes)

Removing a ZIF Cable

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.

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

Back to Cables and Connectors main page.

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Removal and Replacement

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Removal Sequence

Cables and Connectors

Battery Pack

Palmrest Cover with Touch Pad

Heatspreader

Keyboard

Processor

Hard Drive

DVD or CD Drive

Battery Charger Board

Modem

Display Panel Assembly

Upper CPU Cover

Network Interface Card

Speaker Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch Settings

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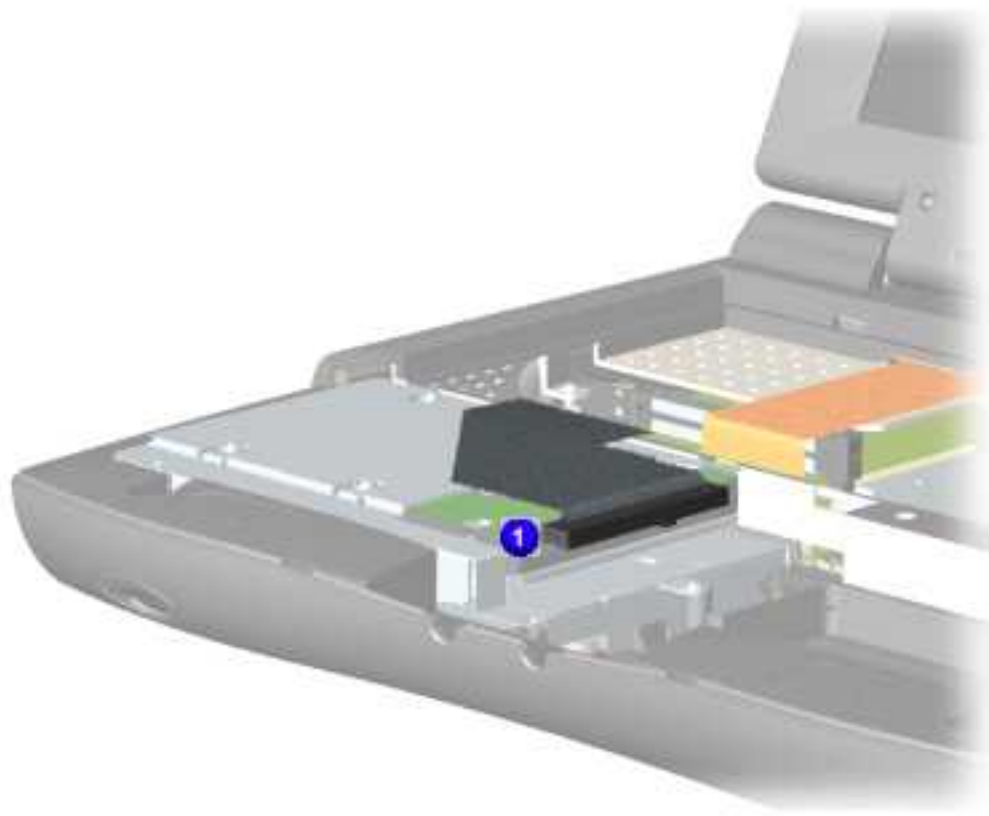
Hard Drive Ribbon

1 The ribbon cable position for the 4.3-GB and 6.4-GB hard drive



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Removal and Replacement

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Battery Pack
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Heatspreader
Keyboard
Processor
Hard Drive
DVD or CD Drive
Battery Charger Board
Modem
Display Panel Assembly
Upper CPU Cover
Network Interface Card
Speaker Assembly
Diskette Drive
Fan Assembly
System Board
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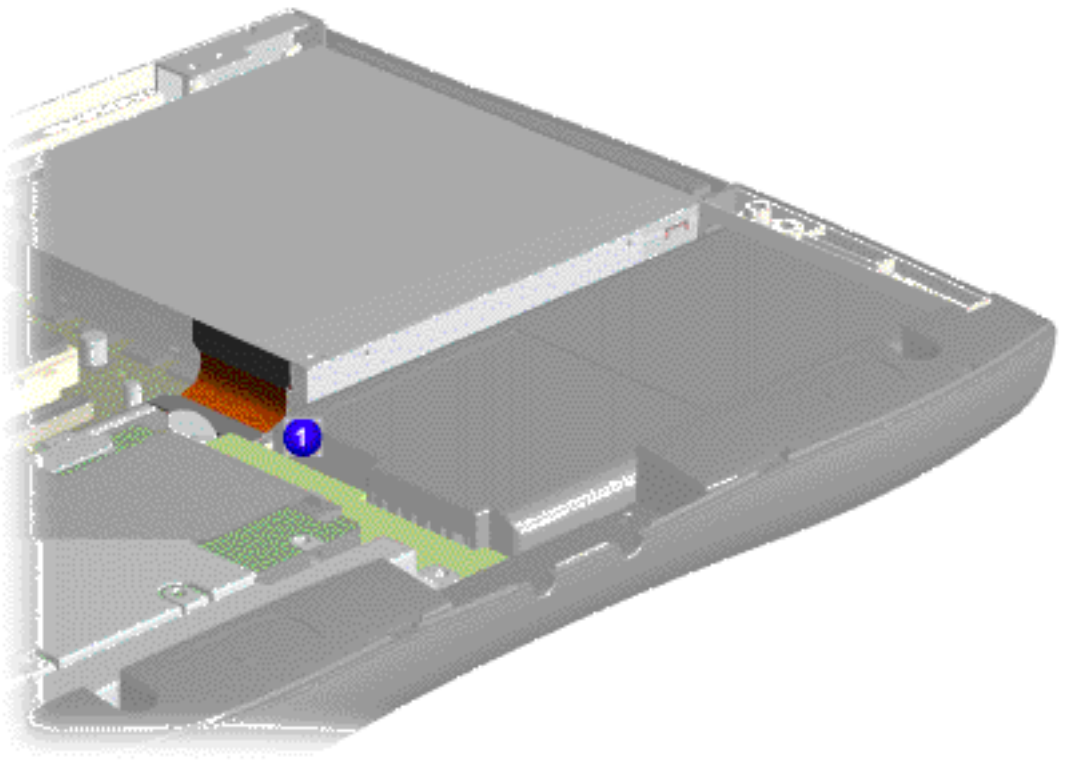
Memory Module

DVD or CD Drive Ribbon

1 The ribbon cable position for the DVD or CD drive ribbon.



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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

Cables and Connectors

Battery Pack

Palmrest Cover with Touch Pad

Heatspreader

Keyboard

Processor

Hard Drive

DVD or CD Drive

Battery Charger Board

Modem

Display Panel Assembly

Upper CPU Cover

Network Interface Card

Speaker Assembly

Diskette Drive

Fan Assembly

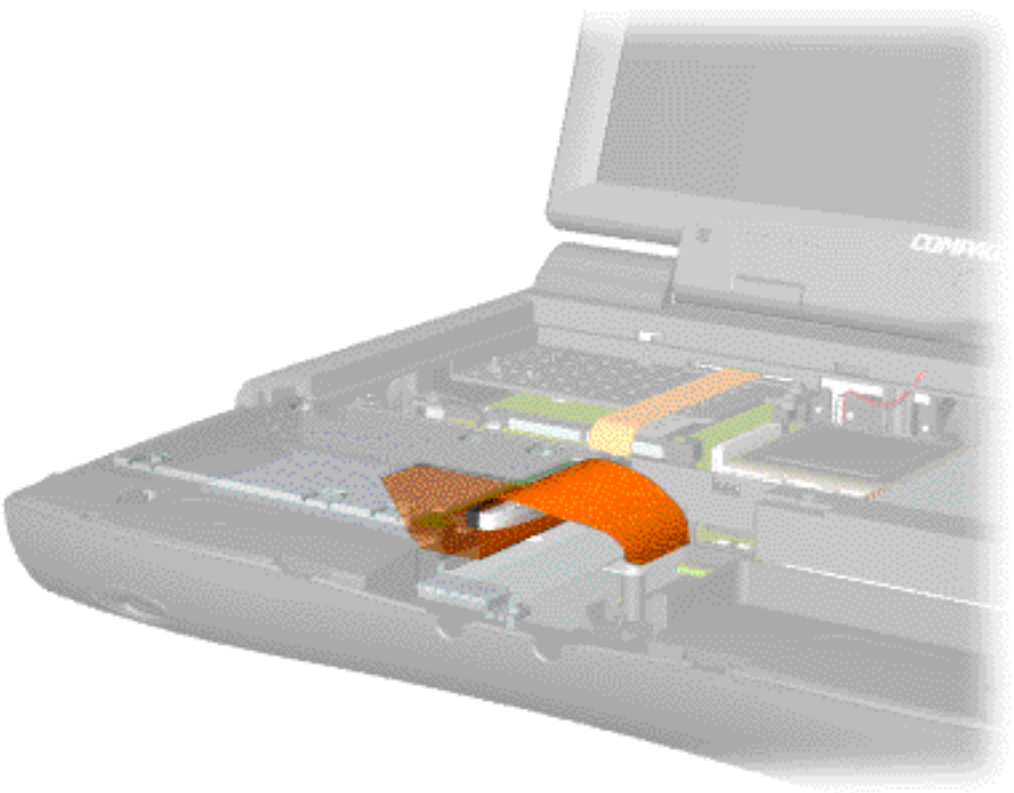
System Board

Dip Switch Settings

Memory Module

Diskette Drive Ribbon

The ribbon cable position for the diskette drive.



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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

Cables and Connectors

Battery Pack

Palmrest Cover with Touch Pad

Heatspreader

Keyboard

Processor

Hard Drive

DVD or CD Drive

Battery Charger Board

Modem

Display Panel Assembly

Upper CPU Cover

Network Interface Card

Speaker Assembly

Diskette Drive

Fan Assembly

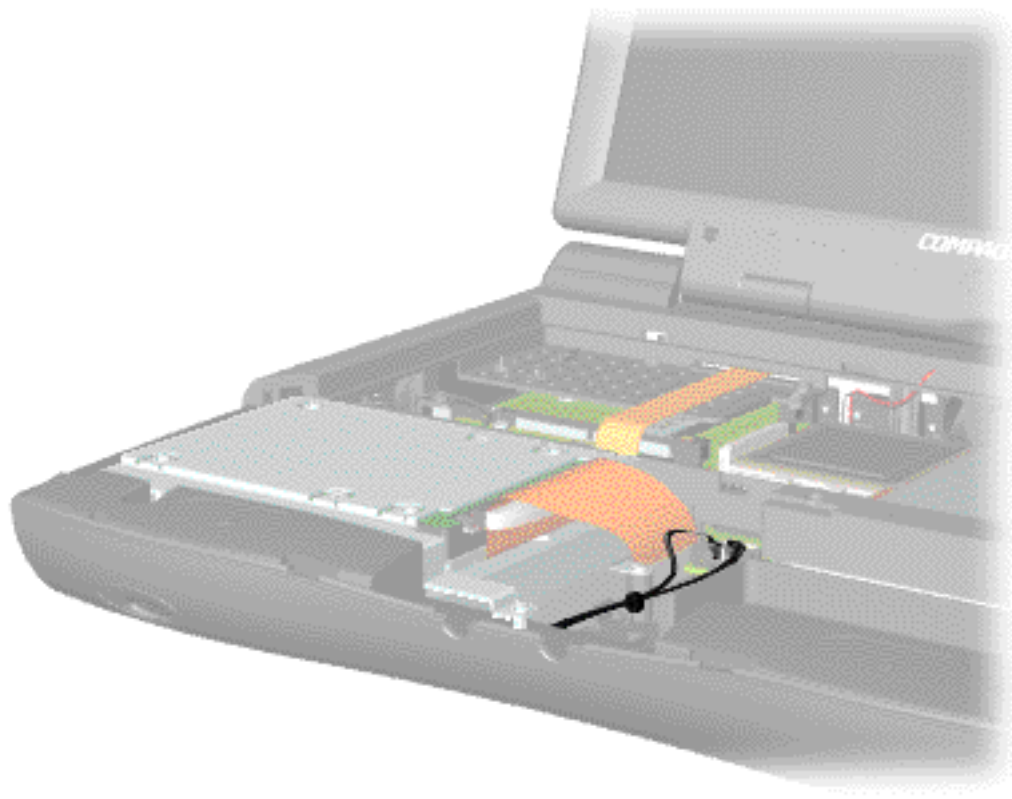
System Board

Dip Switch Settings

Memory Module

Speaker Cable Assembly

The cable position for the speaker assembly.



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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- **Battery Pack**
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Battery Pack (step 1)

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

Next Step

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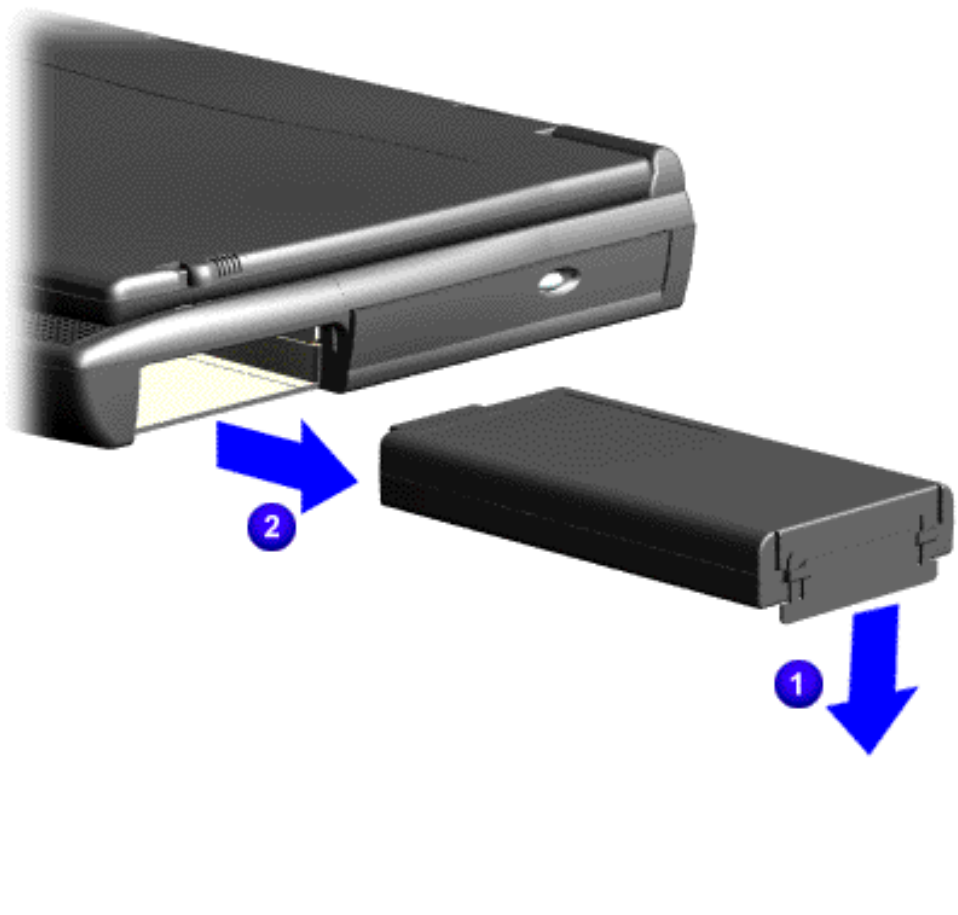
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- **Battery Pack**
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Network Interface Card
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Battery Pack (step 2)



Pull down on the battery pack tab (1) and (2) pull the battery pack from the chassis.

To replace the battery pack, reverse the previous procedures.

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Removal and Replacement

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Removal Sequence

- Cables and Connectors
- Battery Pack
- **Palmrest Cover with Touch Pad**
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
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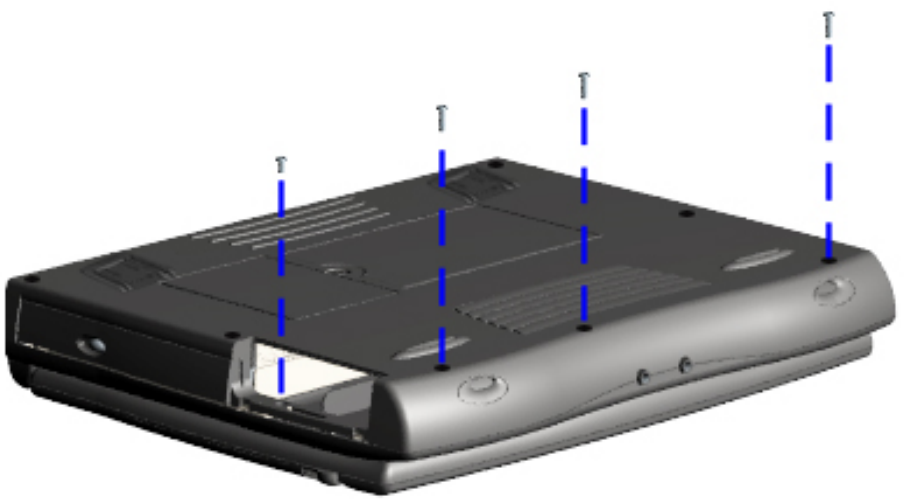
Removing the Palmrest Cover with Touch Pad



You must remove the palmrest cover with touchpad to gain access to the interior components, and it is the first step in the sequence of removal and replacement.

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

To remove the palmrest cover with touch pad, complete the following steps:

1. Prepare the computer for disassembly.
2. Close the computer and turn the computer upside down.
3. Remove four screws from the underside of the computer.

Next Step

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Models: 1683, 1685, 1687, 1688, 1690, 1692, 1693, and 1694

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Removal Sequence	Troubleshooting	Battery Operations
Product Description	Pin Assignments	**Index**

Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- **Palmrest Cover with Touch Pad**
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Palmrest Cover with Touch Pad (steps 4 & 5)

Previous Step

4. Turn the computer over (right side up), pull forward on the display latches to release and open the display assembly.

5. Lift up front end of the palmrest cover with touch pad and remove it from the groove in the chassis.

Next Step

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Presario 1600 Series

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Removal and Replacement

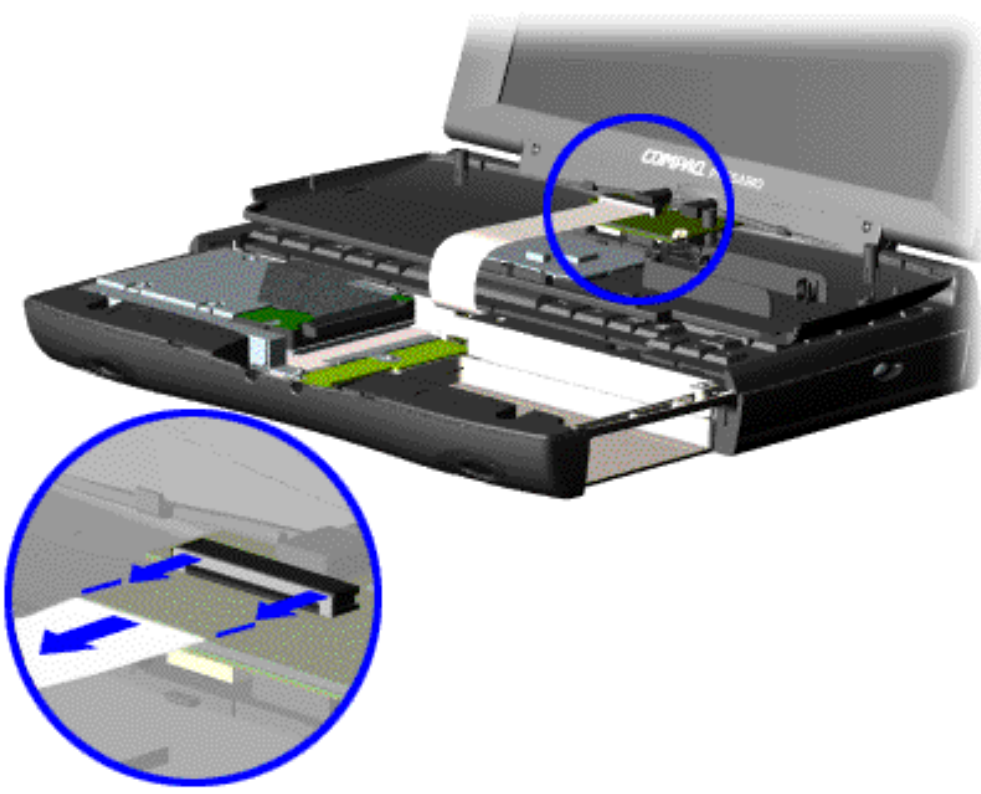
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- **Palmrest Cover with Touch Pad**
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Palmrest Cover with Touch Pad (step 6)

Previous Steps



6. Tilt the palmrest cover with touch pad, allowing it to rest on top of the keyboard, and disconnect the flex cable from the LIF connector on the palmrest cover.

CAUTION: When replacing the palmrest cover with touch pad, ensure that the cable is fully inserted into the LIF connector on the system board. If the metal end should come in contact with the keyboard, damage may occur to the computer.

To replace the palmrest cover with touch pad, reverse the previous procedures.

NOTE: When replacing the palm rest cover ensure the cable is properly routed through the slot on the Upper CPU cover.

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Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- **Cables and Connectors**
- **Battery Pack**
- **Palmrest Cover with Touch Pad**
- **Heatspreader**
- **Keyboard**
- **Processor**
- **Hard Drive**
- **DVD or CD Drive**
- **Battery Charger Board**
- **Modem**
- **Display Panel Assembly**
- **Upper CPU Cover**
- **Speaker Assembly**
- **Diskette Drive**
- **Fan Assembly**
- **System Board**
- **Dip Switch Settings**
- **Memory Module**

Heatspreader Removal (steps 1 - 3)

1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Gently lift and turn the keyboard over allowing it to rest on top of the Palmrest Cover with Touchpad slot opening.

Next Step

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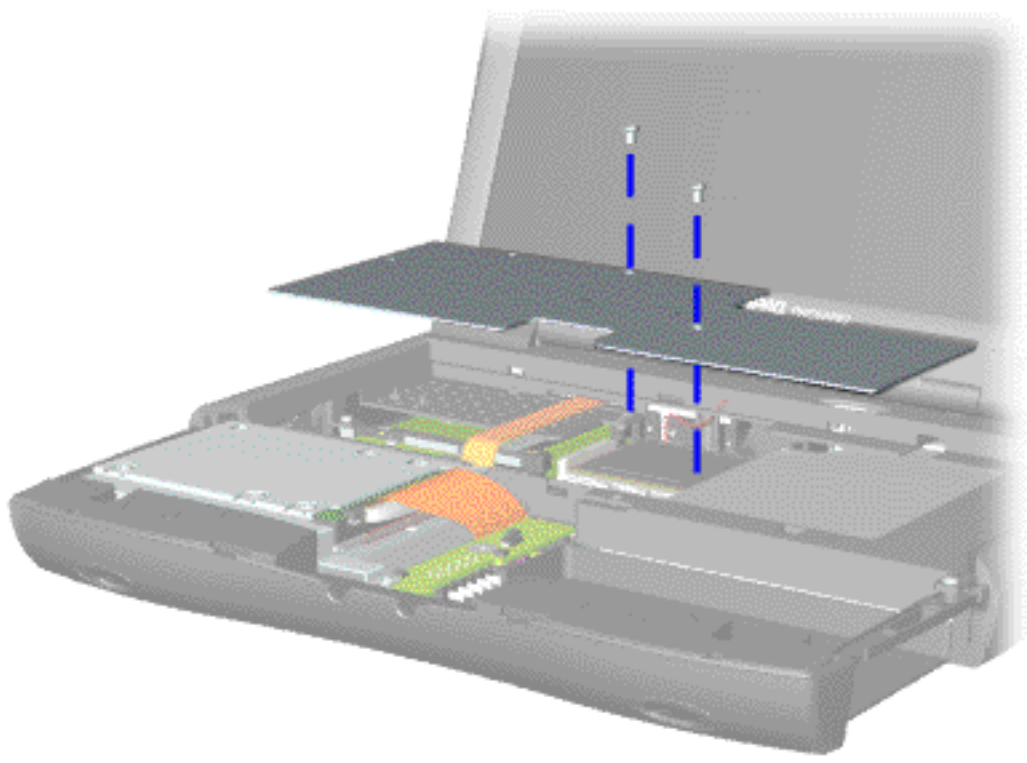
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- **Heatspreader**
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Network Interface Card
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Heatspreader Removal (step 4)



Previous Steps

4. Remove the screws from the heatspreader and lift out of the chassis.

To replace the heatspreader, reverse the previous procedures.

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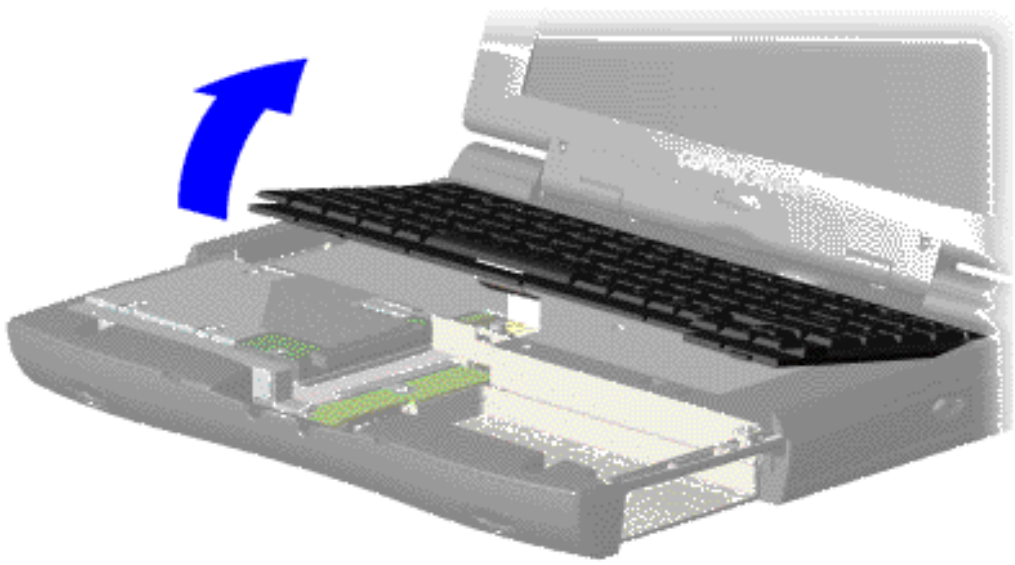
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- **Keyboard**
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Keyboard



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Gently lift Zif Socket and remove keyboard.

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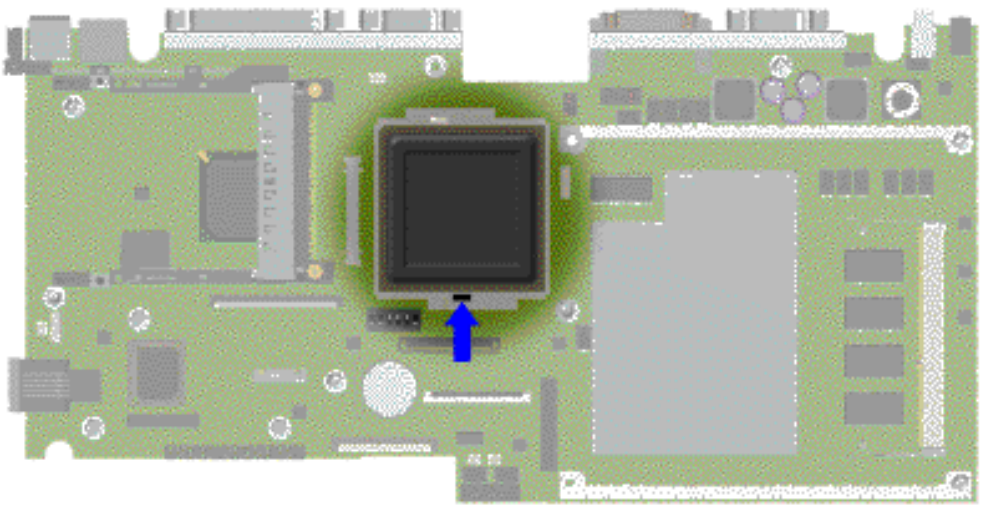
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- **Processor**
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Processor



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove the heatspreader.
5. Insert a small blade screw driver into the top slot opening on the processor and push away from the display to release the processor from the chassis slot.
6. Lift the processor out of the processor chassis slot.

Next Step (Replacing the Processor)

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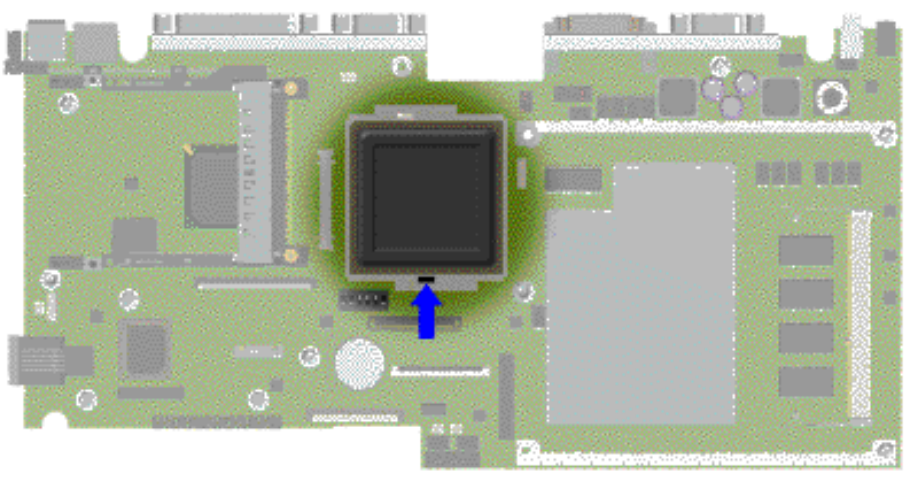
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- **Processor**
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Network Interface Card
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Replacing the Processor



Previous Step (Removing the Processor)

IMPORTANT: The notch on the upper left corner of the processor serves as an orientation indicator.

IMPORTANT: Align the notch on the left corner of the processor with the notch on the left processor chassis slot.

1. Insert the processor into the slot on the system board.

NOTE: When installing the processor into the chassis slot, be sure that the hole pattern on the chassis slot lines up with the pins on the processor.

The processor should drop into the socket without any force.

2. Insert a small blade screw driver into the bottom slot opening on the processor and push toward the display to lock the processor.

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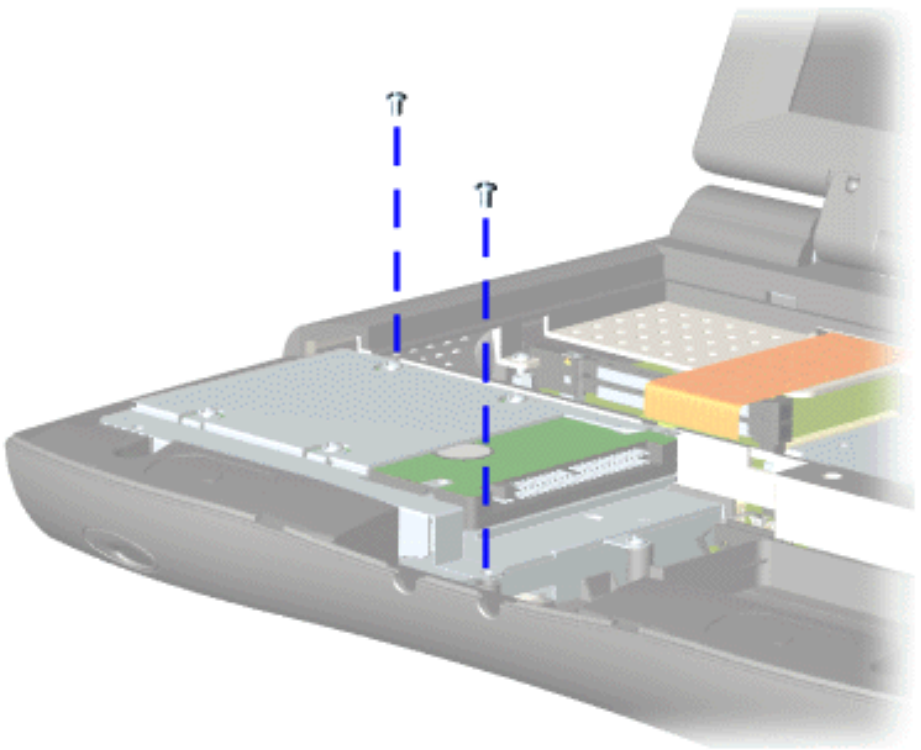
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- **Hard Drive**
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Hard Drive (steps 1 - 4)



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove two screws from the hard drive mounting bracket and lift out the hard drive with drive mounting bracket attached.

Next Step

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

Removal and Replacement

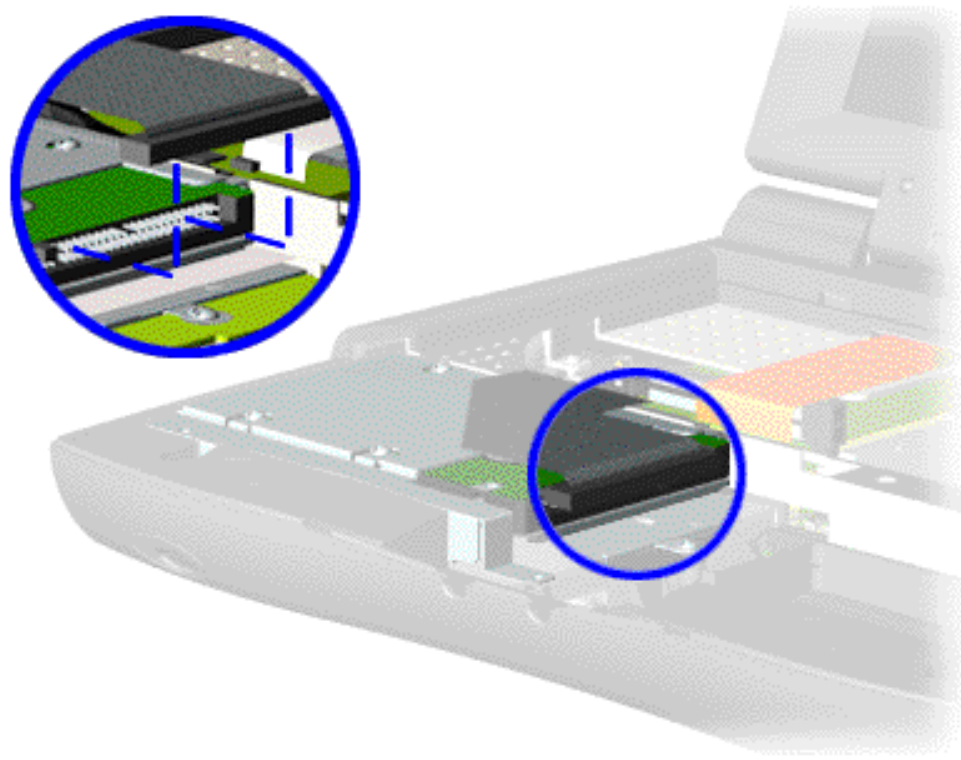
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- **Hard Drive**
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Hard Drive (step 5)

Previous Steps



5. Disconnect the hard drive data cable from the hard drive and remove from the chassis.

Next Step

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Removal and Replacement

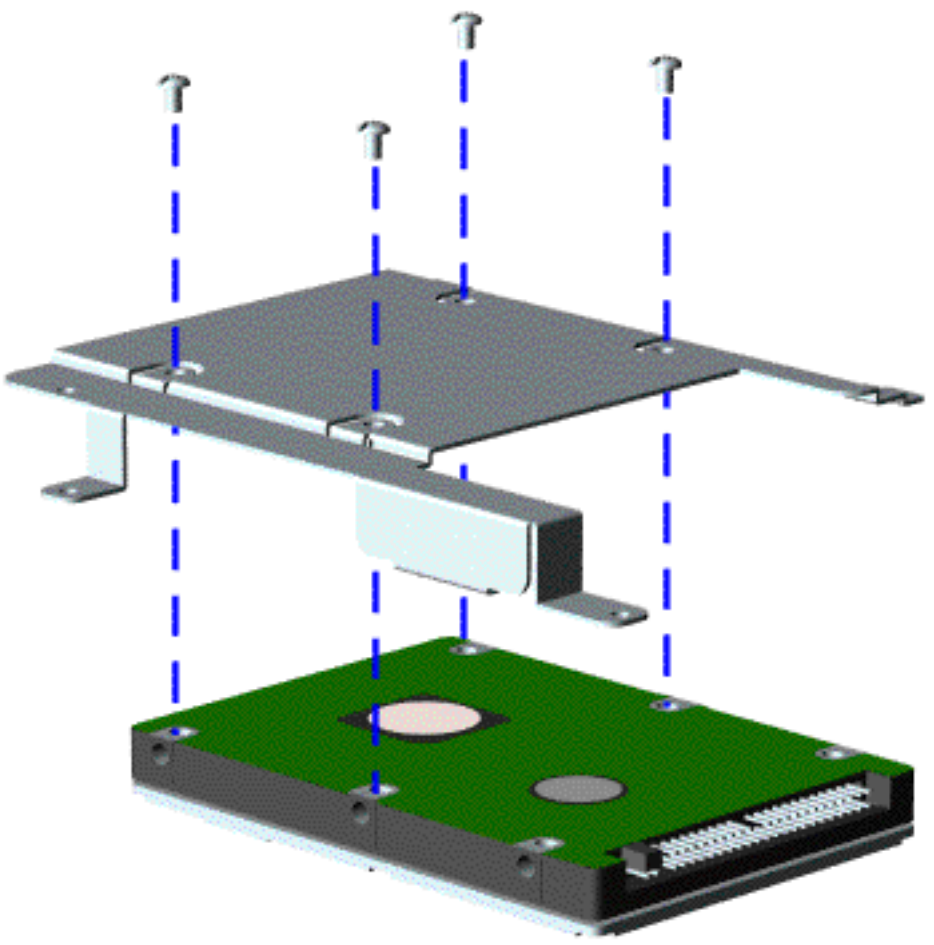
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- **Hard Drive**
- DVD or CD Drive
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Hard Drive (step 6)

Previous Steps



6. Remove four screws from the hard drive mounting bracket.

To replace the hard drive and hard drive mounting bracket, reverse the previous procedures.

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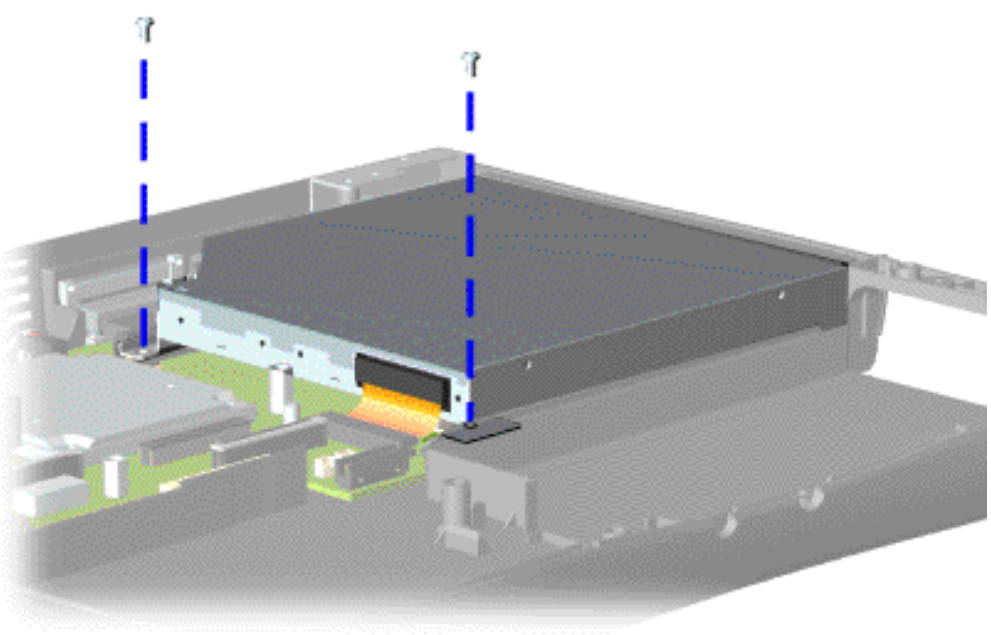
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- **DVD or CD Drive**
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removal of DVD or CD Drive



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove the heatspreader.
5. Remove two screws located at the back of the DVD or CD drive.

Next Step

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Removal and Replacement

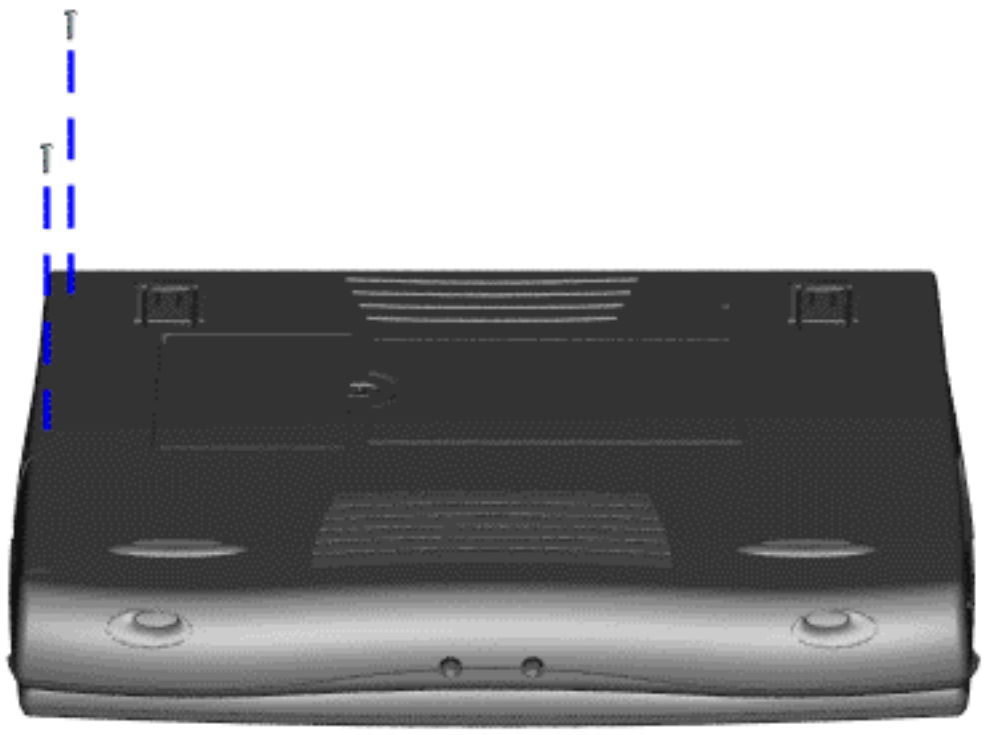
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- **DVD or CD Drive**
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removal of DVD or CD Drive (step 6)

Previous Steps



6. Remove two screws from the base enclosure which secures the DVD or CD drive to the chassis.

Next Step

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Removal and Replacement

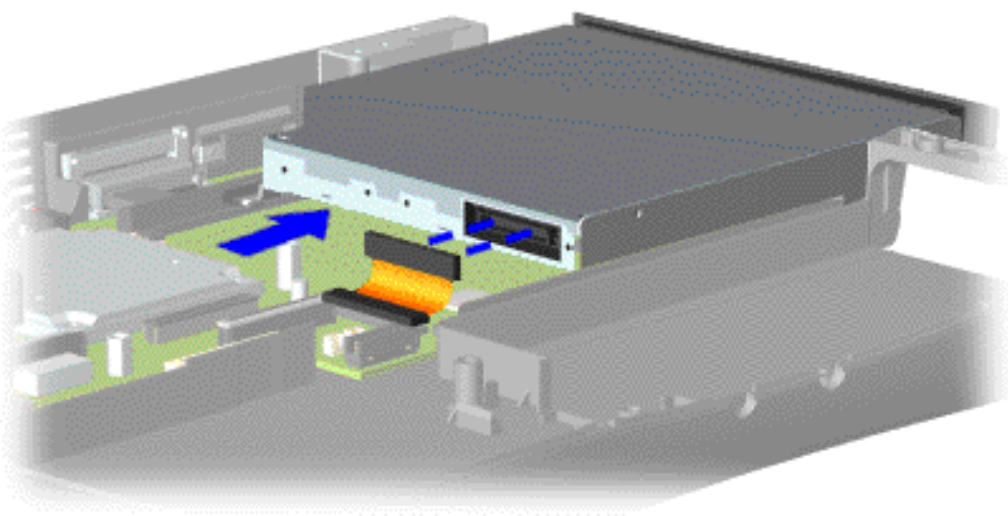
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- **DVD or CD Drive**
- Battery Charger Board
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removal of DVD or CD Drive (step 7)

Previous Steps



7. Disconnect the DVD or CD drive cable from the DVD or CD drive and remove the DVD or CD drive from the chassis.

To replace the DVD or CD drive, reverse the previous procedures.

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

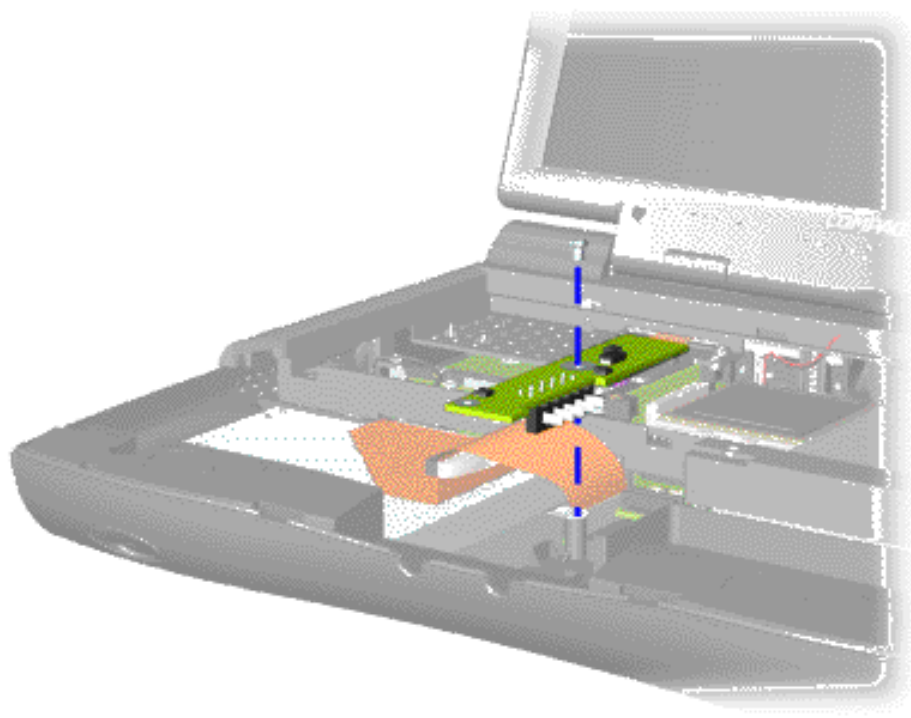
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- **Battery Charger Board**
- Modem
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Battery Charger Board



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove the heatspreader.
5. Remove the hard drive.
6. Remove one scre from the battery charger board, unplug the board from the connector on the system board, and lift out the chassis.

To replace the battery charger board, reverse the previous procedures.

NOTE: When replacing the battery charger board, ensure the pins are aligned with the connector on the system board.

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

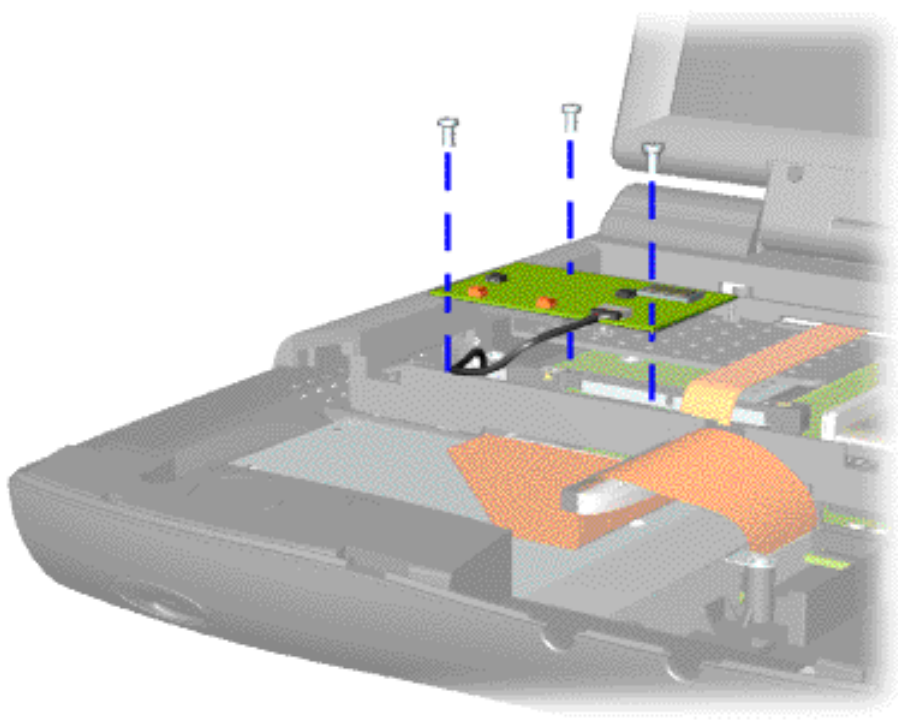
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- **Modem**
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Modem (steps 1 - 5)



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove the heatspreader.
5. Remove three screws securing modem and pull the modem off the connector on the system board.

Next Step

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

Removal and Replacement

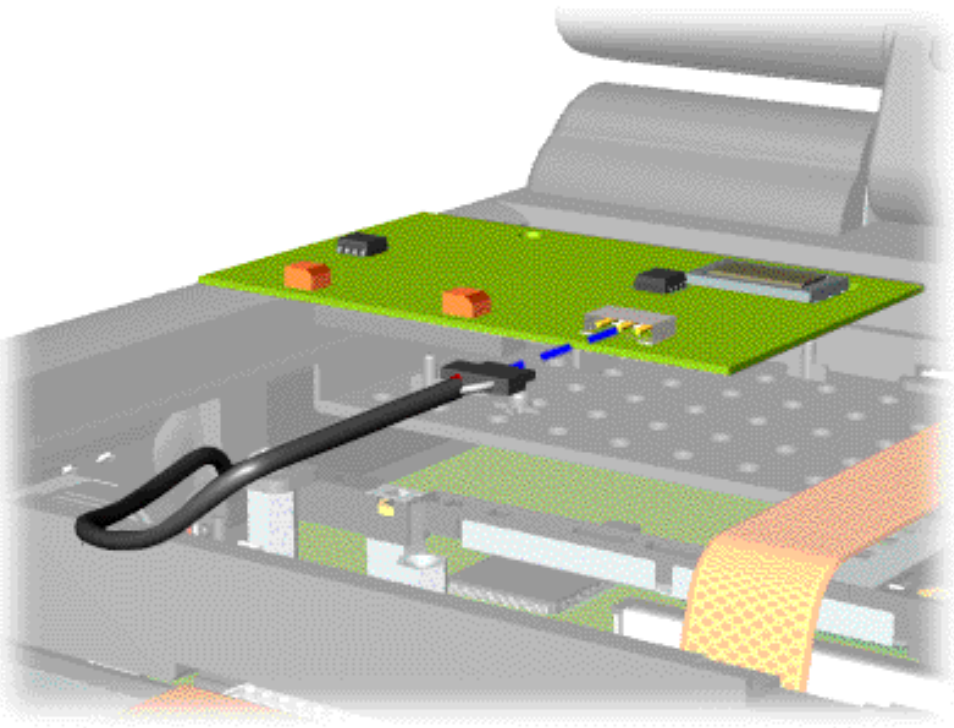
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- **Modem**
- Display Panel Assembly
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Modem (step 6)

Previous Steps



6. Disconnect the modem cable from the modem.

To replace the modem, reverse the previous procedures.

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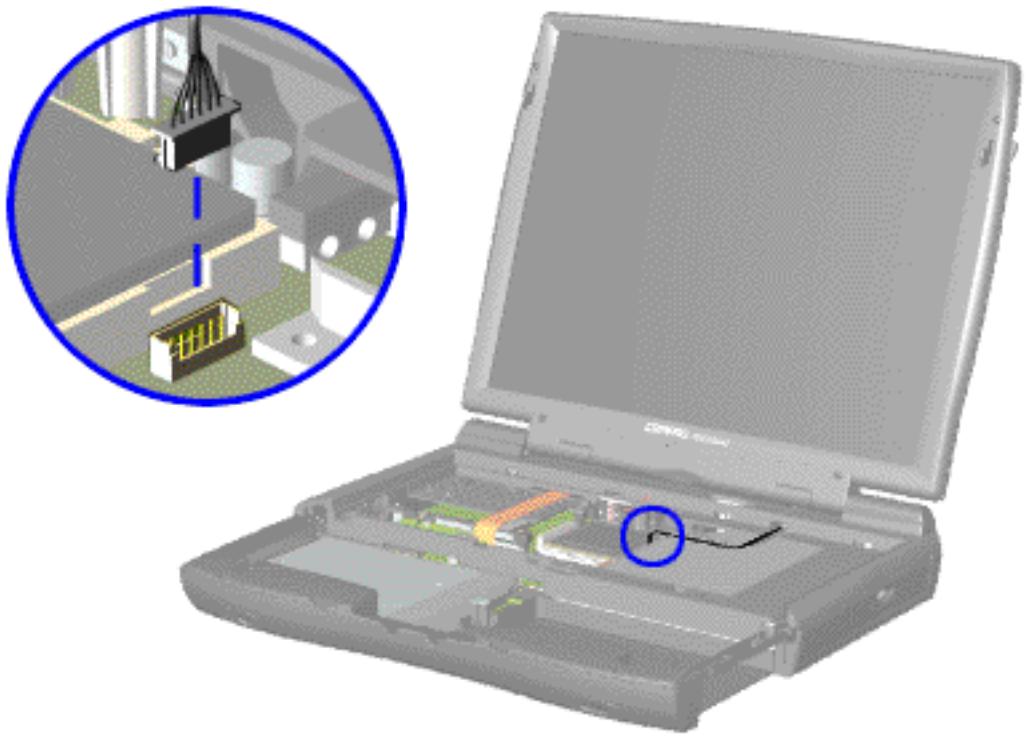
Removal and Replacement

IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- **Display Panel Assembly**
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Display Panel Assembly



1. Prepare the computer for disassembly.
2. Remove the palmrest cover with touch pad.
3. Remove the keyboard.
4. Remove the heatspreader.
5. Remove the modem.
6. Disconnect the backlight cable attached to the display panel assembly from the connector on the system board.

Next Step

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Removal and Replacement

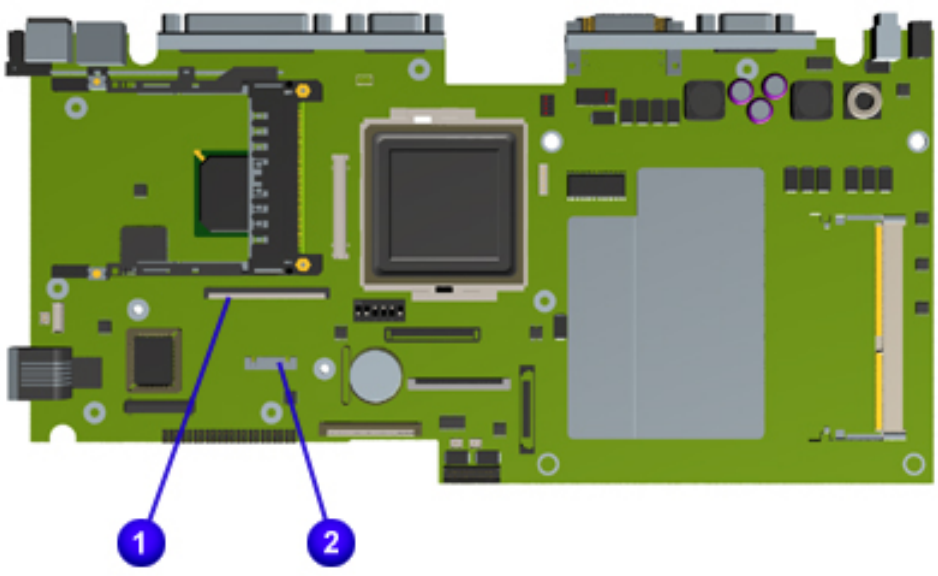
IMPORTANT: Prior to conducting any removal and/or replacement procedures, you should review and fully understand the section titled "Before You Begin".

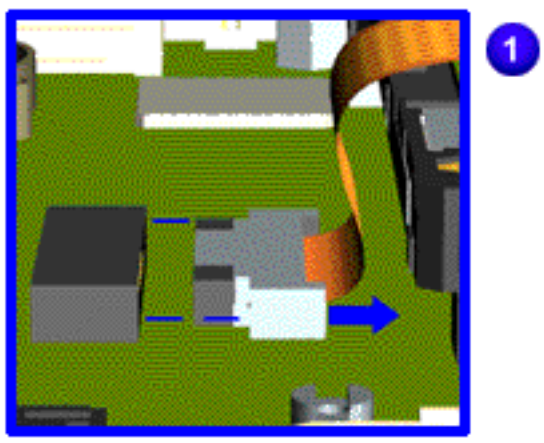
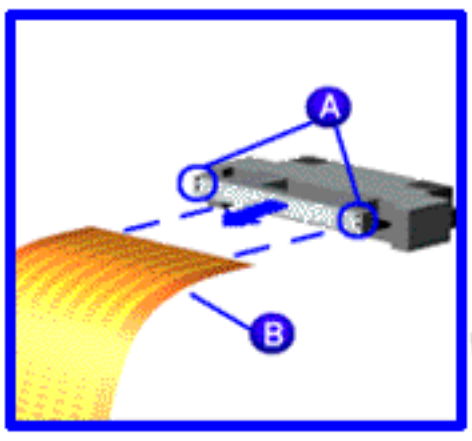
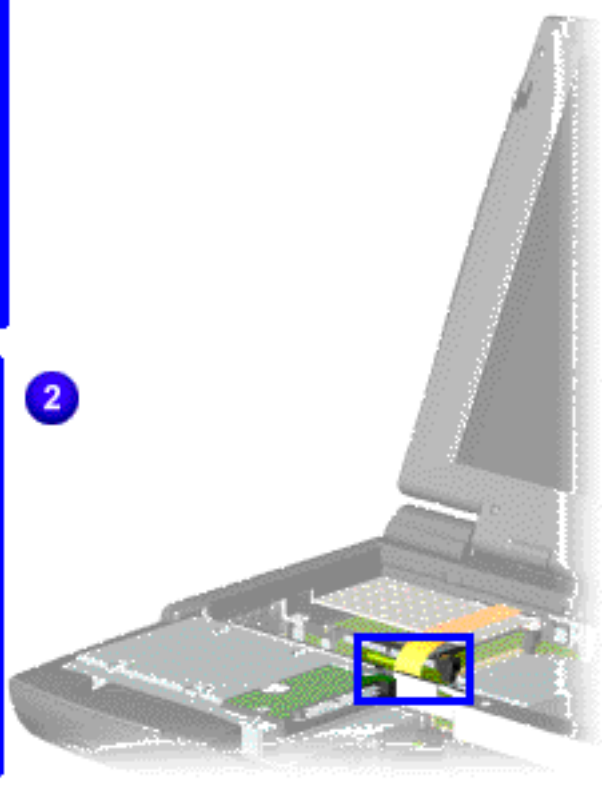
Removal Sequence

- Cables and Connectors
- Battery Pack
- Palmrest Cover with Touch Pad
- Heatspreader
- Keyboard
- Processor
- Hard Drive
- DVD or CD Drive
- Battery Charger Board
- Modem
- **Display Panel Assembly**
- Upper CPU Cover
- Speaker Assembly
- Diskette Drive
- Fan Assembly
- System Board
- Dip Switch Settings
- Memory Module

Removing the Display Panel Assembly (step 7)

Previous Step



7. Disconnect the flex data cable attached to the display panel assembly from either the TFT connector 1 or the Low Voltage Differential Signal (LVDS) 2 connector on the system board.

Next Step