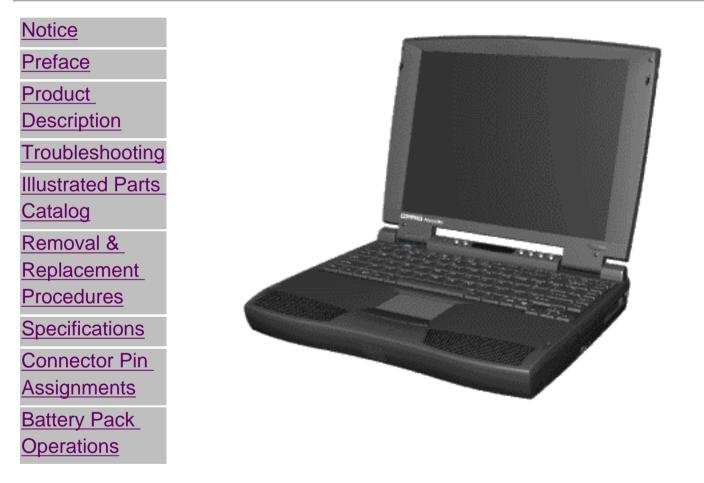
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Compaq Presario 1800 Series Portable Computer is a continuation of the new generation of multimedia portable computers with an innovative integrated design, outstanding audio and video, advanced core features, and attractive styling. This full-function, Pentium II - based series of portable computers allows full desktop functionality and additional connectivity via the optional port replicator.

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Notice

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

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Maintenance and Service Guide

Compaq Presario 1800 Series Portable Computers

First Edition (Oct. 1998) Compaq Computer Corporation

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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 1800 Series Portable Computers.

Compaq Computer Corporation reserves the right to make changes to the Compaq Presario 1800 Series Portable Computers without notice.

Symbols

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

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

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 1800 Series Portable Computer documentation set
- Introducing Windows 98 Guide
- Service Training Guides
- Compaq Service Advisories and Bulletins
- Compaq QuickFind
- Compaq Service Quick Reference Guide

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Product Description





Compaq Presario 1800 Series Series Portable Computer is а continuation of the new generation of multimedia portable computers with an innovative integrated design, outstanding audio and video. advanced core features, and attractive styling. This fullfunction, Pentium II based series of portable computers allows full desktop functionality and additional connectivity via the optional port replicator.

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Troubleshooting

<u>Preliminary Steps</u>
Clearing the Power-On
Password
Power-On Self Test
<u>(POST)</u>
Compaq Diagnostics
Diagnostic Error Codes
Troubleshooting
Without Diagnostics
Solving Minor
<u>Problems</u>
Contacting Compaq
<u>Support</u>

This section covers troubleshooting information for the Compag Presario 1800 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.

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

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Illustrated Parts Catalog

<u>System Unit</u>
<u>Boards</u>
<u>Display</u>
<u>Assembly</u>
Mass Storage
<u>Devices</u>
<u>Miscellaneous</u> Cable Kit
<u>Cables</u>
Miscellaneous
<u>Hardware and</u> Plastics Kit
Miscellaneous
Parts
Documentation
and Software

This section provides an breakdown and identifies the spare parts ordering number associated with each item(s) for the Compaq Presario 1800 Series Portable Computers.

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Removal and Replacement Procedures

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

Serial Number Location

Disassembly	
Sequence	
<u>Electrostatic</u> <u>Discharge</u>	
Service	
Considerations	
Cables and	
Connectors	
Preparing the	
<u>Computer for</u>	
Disassembly	
Battery Pack	
Palmrest	
<u>Cover with</u>	
Touch Pad	
<u>Keyboard</u>	Report the computer 1 serial number to Compaq when
<u>Heatspreader</u>	requesting information or ordering spare parts.
<u>Modem</u>	
Processor	
<u>Status Panel</u>	
Interface	
Board	
Hard Drives	
Battery	
Charger Board	

CD or DVD

<u>Drive</u>

<u>Display Panel</u> Assembly

Upper CPU

<u>Cover</u>

<u>Speaker</u> Assembly

Diskette Drive

Fan Assembly

<u>Audio Board</u>

System Board

<u>Memory</u> <u>Module</u>

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Specifications

This chapter covers the following specifications of Compaq Presario 1800 Series Portable Computers:

- Computer models
- Physical and environmental
- System Interrupts
- System DMA
- System I/O Address
- System Memory Catalog
- Display
- Memory expansion
- Diskette drive
- Hard drive
- CD and DVD drive
- Battery pack

Physical and Environmental

C C	Computer Specifications	
	U.S.	Metric
Dimensions		
Height	1.97 in	4.95 cm
Depth	12.20 in	31.00 cm
Width	10.08 in	25.40 cm
Weight		
Model 1805	7.326 Ib	3.33 kg
Model 1810	7.326 Ib	3.33 kg
Stand-Alone (Battery Pack)		
Power Requirements	NiMH	Li-ion
Nominal Operating	W @ 9.6 V	W @ 14.4 V
Maximum Average	W @ 9.6 V	W @ 14.4 V
Peak Operating	W @ 9.6 V	W @ 14.4 V
AC Power Requirements		.,
Operating Voltage	100-240 V	
Operating Current	0.8/0.4 A RMS	
Operating Frequency	47-63 Hz	
	Meets IEC 801-4 and IEC801	-5
Maximum Transient	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	
Non operating	240 G, 2 ms, half sine	
Vibration		
Operating	0.5 G	
Nonoperating	1.5 G	

System Interrupts

System Interrupts		
Hardware IRQ	System Function	
IRQ0	Timer Interrupt	
IRQ1	Keyboard	
IRQ2	Interrupt Controller Cascade	
IRQ3	Internal Modem	
IRQ4	Communication Port (COM1)	
IRQ5	Audio Controller	
IRQ6	Diskette Drive	
IRQ7	Parallel Port (LPT 1) (default)	
IRQ8	System CMOS/Real-Time Clock	
IRQ9	IRQ Holder for PCI Steering	
IRQ9	PCI-1131 CardBus Controller	
IRQ9	IRQ Holder for PCI Steering	
IRQ9	IRQ Holder for PCI Steering	
IRQ9	PCI-1131 CardBus Controller	
IRQ9	Video Controller	
IRQ11	Intel PCI to USB Universal Host Controller	
IRQ11	IRQ Holder for PCI Steering	
IRQ12	PS/2 TouchPad/Mouse	
IRQ13	Numeric data processor	
IRQ14	Intel PCI Bus Master IDE Controller	
IRQ14	Primary IDE Controller (dual fifo)	
IRQ15	Intel PCI Bus Master IDE Controller	
IRQ15	Secondary IDE Controller (dual fifo)	

System DMA

System DMA		
Hardware DMA System Function		
DMA 0	Audio Controller	
DMA 1	Audio Controller	
DMA 2	2 Diskette Drive	
DMA 4	DMA Controller	

System I/O Address

Controller DMA Controller 0000h-000Ph DMA Controller 0020h-0021h Interrupt Controller 0040h-0060h System stineer 0060h-0060h System speaker 0060h-0060h Motherboard resources 0070h-0071h DMA Controller 0080h-0080h Motherboard resources 0080h-0080h Programmable Interrupt controller 0080h-0080h Motherboard resources 0080h-0080h Motherboard resources 0080h-0080h Motherboard resources 0080h-0080h Motherboard resources 0070h-007th Muncric data processor 00170h-0177h Intel PCI Bus Master IDE Controller 0170h-0177h Intel PCI Bus Master IDE Controller 0170h-0177h ES1869 Plug and Play AudoDrive 0201h-0201h ES1869 Plug and Play AudoDrive 021h-021Fh Compaq Presario 584:CPF 0260h-0376h <		System I/O Address
Out201-0021h Interrupt Controller O040h-0043h System timer O040h-0043h System speaker O061h-0061h Standard 101/102 Key or Microsoft Natural Kyboard O070h 0071h System speaker O080h-0080h Motherboard resources O080h-0080h Numeric data processor O0160h-00Fh Numeric data processor O170h-0177h Intel PCI Bus Master IDE Controller O170h-0177h Frianzy IDE Controller (dual fifo) O220h-02Fh ES1869 Plug and Play AudioDrive O220h-02Fh Compaq Pressio S6K-DF O330h-0331h ES1869 Plug and Play AudioDrive O376h-0376h Frianzy IDE Controller O376h-0376h Frianzy IDE Controller O376h-0376h Frianzy IDE Controller O376h-0376h Frianzy IDE Controller O376h-0376h Frianzy IDE Controller </th <th>I/O Address (Hex)</th> <th>System Function (Shipping Configuration)</th>	I/O Address (Hex)	System Function (Shipping Configuration)
Inter 009010-00043h System timer 009010-000601 Keyboard Controller 0064h-0064h Standard 101/102-Key or Microsoft Natural Keyboard 0070h-0071h System CMOS/real time clock 0080h Motherboard resources 0080h-0087h MA 0080h-0087h MA 0080h-0087h Motherboard resources 0080h-0087h Numeric data processor 0170h-0177h Secondair JDE Controller 0170h-0177h Keyboard 0170h-0177h Secondair JDE Controller 0170h-0177h Finary 1DE Controller 0170h-0177h Secondary IDE Controller 0170h-01	0000h-000Fh	DMA Controller
00600h-00600h Keyboard Controller 0061h-00601h System speaker 0061h-0061h Standard 101/102-Key or Microsoft Natural Keyboard 0070h 0071h System CMOS/real Line clock 0080h Motherboard resources 0080h DMA 0080h Programmable Interrupt controller 0040h-0041h Programmable Interrupt controller 0040h-0047h Mutherboard resources 0170h-0177h Intel PCI Bus Master IDE Controller 0170h-0177h Intel PCI Bus Master IDE Controller 0170h-0177h ES1869 Plug and Play AudioDrive 0220h-0227h ES1869 Plug and Play AudioDrive 0230h-0331h ES1869 Plug and Play AudioDrive 0376h-037ch Print	0020h-0021h	Interrupt Controller
Constraint System speaker 0061h-0061h System speaker 0070h-0071h System CMOS/real time clock 0080h Motherboard resources 0080h DMA Controller 0080h-0080h Programmable interrupt controller 0040h-0041h Programmable interrupt controller 0040h-0041h Programmable interrupt controller 0040h-0041h Programmable interrupt controller 0040h-0041h Numeric data processor 00170h-0077h Intel PCI Bus Master IDE Controller 0070h-0077h Intel PCI Bus Master IDE Controller 0170h 0177h Resondary IDE controller (dual lifo) 0201h-0201h Gameport Joystick 0220h-022Fh Compaq Pressio SEK-OF 0330h-0331h Resondary IDE controller (dual lifo) 0376h-0376h Intel PCI Bus Master IDE Controller 0376h-0376h Intel PCI Bus Master IDE Controller 0376h-0376h Intel PCI Bus Master	0040h-0043h	System timer
0064h 0064h 0064h Sandard 101/102 Kcy or Microsoft Natural Keyboard 0070h 0071h 0080h Motherboard resources 0080h DMA Controller 0080h DMA 0000ch-000Fh DMA 000ch-000Fh DMA 000ch-000Fh Motherboard resources 0000h-000Fh Numeric data processor 0170h-0177h Intel PCI Bus Master IDE Controller 0170h-0177h Gameport Joystick 0220h-022Fh Compaq Pressio S6K-OF 0330h-0331h ES1869 Plug and Play AudioDrive 0376h-0376h Intel PCI Bus Master IDE Controller 0376h-0376h Intel PCI Bus Master IDE Controller </td <td>0060h-0060h</td> <td>Keyboard Controller</td>	0060h-0060h	Keyboard Controller
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0378h-037FhPrinter Port (LPT1)0388h-038BhES1869 Plug and Play AudioDrive03B0h-03BBhVideo Controller03C0h-03DFhVideo Controller03F0h-03F6hStandard Floppy Disk Controller03F6h-03F6hIntel PCI Bus Master IDE Controller03F6h-03F6hPrimary IDE controller (dual fifo)03F7h-03F7hStandard Floppy Disk Controller03F8h-03F6hPrimary IDE controller (dual fifo)03F8h-03F7hStandard Floppy Disk Controller03F8h-03F7hStandard Floppy Disk Controller03F8h-03F7hStandard Floppy Disk Controller03F8h-03F7hStandard Floppy Disk Controller03F8h-03FFhCommunications Port (COM1)04D0h-04D1hMotherboard resources0800h-0807hES1869 Control Interface02F8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resources8000h-803FhPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD0h-FCDFhSecondary IDE controller (dual fifo)	0376h-0376h	Secondary IDE controller (dual fifo)
O388h-O38BhES1869 Plug and Play AudioDriveO3B0h-O3BBhVideo ControllerO3C0h-O3DFhVideo ControllerO3F0h-O3F5hStandard Floppy Disk ControllerO3F6h-O3F6hIntel PCI Bus Master IDE ControllerO3F6h-O3F6hPrimary IDE controller (dual fifo)O3F7h-O3F7hStandard Floppy Disk ControllerO3F8h-O3FFhCommunications Port (COM1)O4D0h-O4D1hMotherboard resourcesOCF8h-OCFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	0376h-0376h	Intel PCI Bus Master IDE Controller
O3BOh-03BBhVideo Controller03C0h-03DFhVideo Controller03F0h-03F5hStandard Floppy Disk Controller03F6h-03F6hIntel PCI Bus Master IDE Controller03F6h-03F6hPrimary IDE controller (dual fifo)03F7h-03F7hStandard Floppy Disk Controller03F8h-03FFhCommunications Port (COM1)04D0h-04D1hMotherboard resources0800h-0807hES1869 Control Interface0CF8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	0378h-037Fh	Printer Port (LPT1)
Image: Constraint of Constra	0388h-038Bh	ES1869 Plug and Play AudioDrive
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11103F6h-03F6hIntel PCI Bus Master IDE Controller03F6h-03F6hPrimary IDE controller (dual fifo)03F7h-03F7hStandard Floppy Disk Controller03F8h-03FFhCommunications Port (COM1)04D0h-04D1hMotherboard resources0800h-0807hES1869 Control Interface0CF8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	03C0h-03DFh	Video Controller
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03F7h-03F7hStandard Floppy Disk Controller03F8h-03FFhCommunications Port (COM1)04D0h-04D1hMotherboard resources0800h-0807hES1869 Control Interface0CF8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	03F6h-03F6h	Intel PCI Bus Master IDE Controller
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04D0h-04D1hMotherboard resources0800h-0807hES1869 Control Interface0CF8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	03F7h-03F7h	Standard Floppy Disk Controller
0800h-0807hES1869 Control Interface0CF8h-0CFFhPCI bus2180h-218FhMotherboard resources8000h-803FhMotherboard resourcesFCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	03F8h-03FFh	Communications Port (COM1)
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FCD0h-FCD7hPrimary IDE controller (dual fifo)FCD0h-FCDFhIntel PCI Bus Master IDEControllerFCD8h-FCDFhSecondary IDE controller (dual fifo)	2180h-218Fh	Motherboard resources
FCD0h-FCDFh Intel PCI Bus Master IDEController FCD8h-FCDFh Secondary IDE controller (dual fifo)	8000h-803Fh	Motherboard resources
FCD8h-FCDFh Secondary IDE controller (dual fifo)	FCD0h-FCD7h	Primary IDE controller (dual fifo)
	FCD0h-FCDFh	Intel PCI Bus Master IDEController
FCE0h-FCFFh Intel PCI to USB Universal Host Controller	FCD8h-FCDFh	Secondary IDE controller (dual fifo)
	FCE0h-FCFFh	Intel PCI to USB Universal Host Controller

System Memory Catalog

System Memory Catalog		
Memory Address	System Function	
00000000h-0009FFFFh	System board extension for PnP BIOS	
000A0000h-000AFFFFh	Graphics Controller	
000B0000h-000BFFFFh	Graphics Controller	
000C0000h-000CBFFFh	Graphics Controller	
000DC000h-000FFFFFh	System board extension for PnP BIOS	
00100000h-03FFFFFh	System board extension for PnP BIOS	
05000000h-05000FFFh	PCI-1131 CardBus Controller	
05001000h-05001FFFh	PCI-1131 CardBus Controller	
80000000h-803FFFFh	Intel Pentium(r) II Processor to PCI bridge	
FD000000h-FDFFFFFh	Graphics Controller	
FEA00000h-FEBFFFFh	Graphics Controller	
FED00000h-FEDFFFFh	Graphics Controller	
FFF80000h-FFFFFFFh	Motherboard resources	

Display (Information not available)

13.3" (Diagonal) TFT Display		
	U.S.	Metric
Dimensions		
Height	Information	Information
Width	not available	not available
Display Dimensions		
Width	Information	Information
Height	not available	not available
Depth		
Weight	Information not available	Information not available
Contrast Ratio	Information not available	Information not available
Brightness	Information not available	Information not available
Total Power Consumption	Information not available	Information not available

Memory Expansion

Memory Expansion			
System Memory	Expansion Board Memory	Total Memory	
32-MB	16-MB	48-MB	
32-MB	32-MB	64-MB	
32-MB	64-MB	96-MB	

Diskette Drive (Information not available)

Diskette Drive		
Capacity per Diskette (High/Low)	Information not available	
Diskette Size	Information not available	
Number of LED Indicators (Read/Write)	Information not available	
Number of Drives Supported	Information not available	
Drive Rotation (rpm)	Information not available	
Transfer Rate (Kbps)	Information not available	
Bytes per Sector	Information not available	
Sectors per Track (High/Low)	Information not available	
Tracks per Side (High/Low)	Information not available	
Access Times	Information not available	
Track-to-Track (ms) Average (ms) Setting Time (ms) Latency Average (ms)		
Cylinders (High/Low)	Information not available	
Number of Read/Write Heads	Information not available	

Hard Drive (Information not available)

Hard Drives				
	3.2-GB	4.0-GB	6.4-GB	
Capacity Per Drive	Information not available	Information not available	Information not available	
Drive Type	Information not available	Information not available	Information not available	
Logical Configuration Cylinders Heads Sectors per track Bytes per sector	Information not available	Information not available	Information not available	
Seek Times (Typical, Including settling in ms) Single track Average Full stroke	Information not available	Information not available	Information not available	
Transfer Rate At interface	Information not available	Information not available	Information not available	

DVD Drive (Information not available)

DVD Drive		
	DVD Drive	
Dimensions	Information not available	
Weight	Information not available	
Rotational Speed	Information not available	
Typical Transfer Rate Sustained Data Transfer Rate	Information not available	
Access Time Average Random Access Time	Information not available	
Spin Up time	Information not available	
Data Buffer Capacity	Information not available	

CD Drive		
	24× CD Drive	
Dimensions	Information not available	
Weight	Information not available	
Rotational Speed	Information not available	
Typical Transfer Rate Sustained Data Transfer Rate	Information not available	
Access Time Average Random Access Time	Information not available	
Spin Up time	Information not available	
Data Buffer Capacity	Information not available	

Battery Pack

Battery Pack				
Nickel Metal Hydride (NiMH) Lithium Ion (Li ion)				
Dimensions				
Height	0.8 in (20.3 mm)	0.8 in (20.3 mm)		
Length	5.7 in (145 mm)	5.7 in (145 mm)		
Width	3.1 in (78.7 mm)	3.1 in (78.7 mm)		
Weight	1.01 Ib (458.1 g)	0.90 Ib (408.2 g)		
Battery Pack Operating Time	2:30 hr	3:00 hr		
Energy				
Nominal Open Circuit Voltage	0.0.1	1 4 4 37		
Capacity	9.6 V	14.4 V		
Power	3200mAH	2500mAH		
	40 W	40 W		
Environmental				
Requirements	32° F (0-50° C)	32° F (0-50° C)		
Operating Temperature	-20° C -60° C	-20° C -60° C		
Non-operating Temperature	5° C-45° C	5° C-45° C		
Charging Temperature				

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Connector Pin Assignments

This appendix provides connector pin assignment tables for Compaq Presario 1800 Series Portable Computers. For more information on connectors, refer to the section on <u>Rear Connectors</u>.

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	5 Data Bit 3		Auto Linefeed*		
6	Data Bit 4	15	Error*		
7	7 Data Bit 5		Initialize Printer*		
8	Data Bit 6	17	Select In*		
9	9 Data Bit 7 18-25 Signal Ground				
* = Ac	tive low				

	Serial Connector			
Connector	Pin	Signal		
00000	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		
	2	Not defined		
	3	Ground		
	4	+ 5 VDC		
	5	Clock		
	6	Not defined		

	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 Ground		
	2 D+		
	3 D-		
	4 Powe	r	

		Port Replicator					
	L						
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	N.C.	21	Printer Data 0	41	N.C.	61	CTS
2	N.C.	22	Printer Data 1	42	N.C.	62	DCD
3	Kb Clk 1	23	Printer Data 2	43	Switch A	63	DSR
4	Joystick Data A	24	Printer Data 3	44	Switch B	64	TXD
5	Kb Data 1	25	Printer Data 4	45	Switch C	65	RTS
6	Joystick Data B	26	Printer Data 5	46	Switch D	66	N.C.
7	Kb Clk 2	27	Printer Data 6	47	N.C.	67	Detect
8	Joystick Data C	28	Printer Data 7	48	MIDI In	68	N.C.
9	Kb Data 2	29	USB 0 -	49	MIDI Out	69	V. Sync
10	Joystick Data D	30	USB 0 +	50	+ 5V	70	Ground
11	Lp Select In	31	USB 1 -	51	+ 5V	71	H. Sync
12	Lp Paper End	32	USB 1+	52	N.C.	72	Ground
13	Lp Initialize	33	Adapter In	53	N.C.	73	Blue
14	Lp Busy	34	Adapter In	54	N.C.	74	Ground
15	Lp Error	35	Adapter In	55	N.C.	75	Green
16	Lp Ack	36	Adapter In	56	Dock ID -	76	Ground
17	Lp Auto Feed	37	Adapter In	57	RXD	77	Red
18	Lp Strobe	38	Adapter In	58	Lp Select	78	Ground
19	DDC2BC	39	N.C.	59	RI	79	N.C.
20	DDC2BD	40	N.C.	60	DTR	80	N.C.

Modem			
Connector	Pin	Signal	
$1^{2}3^{4}5^{6}$	1	Unused	
	2	Unused	
	3	Тір	
	4	Ring	
	5	Unused	
	6	Unused	

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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.

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. **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 battery pack charge times by model.

Battery Charge Time					
Computer On Line Off Line					
Model 1/NiMH Battery Pack	4.0 hours premature termination	2:00 hr			
Model 2/Li ion Battery Pack	Model 2/Li ion Battery Pack4.5 hours premature termination2:50 hr				

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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Models and Features

Models and Features	Compaq Presario 1800 Series Portable Computer Models			
<u>Controls and</u> <u>Lights</u>		Model 1805	Model 1810	
<u>Left Side</u> <u>Components</u>	Display	13. 3" TFT	13. 3" TFT	
Right Side Components	Processor	Pentuim II/266 MMX	Pentuim II/300 MMX	
Bottom of	Hard Drive	3.2-GB or 4.0-GB	6.4-GB or 4.0-GB	
<u>Unit</u>	CD Drive	$24 \times MAX$	DVD Drive	
Rear Connectors	Modem	M++ 56.0 Kbps or K-56.0 Kbps with ITU V.90	M++-56.0 Kbps or K-56.0 Kbps with ITU V.90	
Replicator	<u>,</u>		,	

Power Management for Windows 98

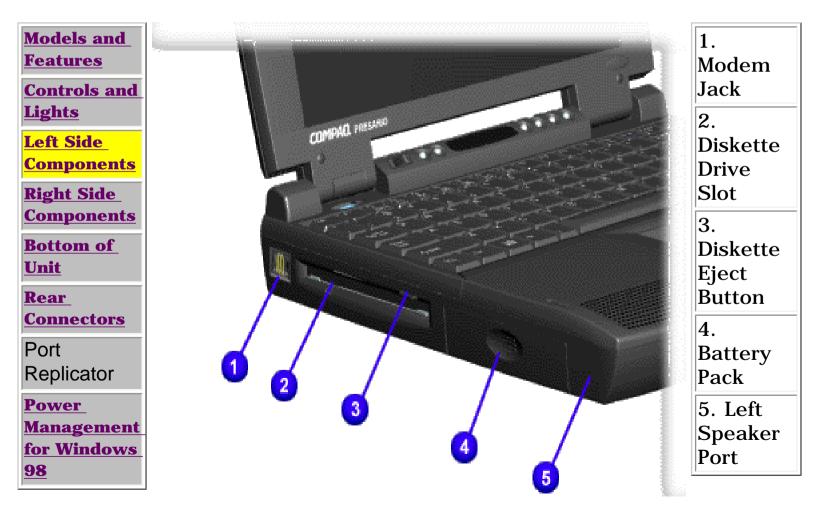
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Controls and Lights

Models and		Front	of Unit
<u>Features</u> Controls and Lights		1. Display	9.DVD/CD Previous Track
Left Side Components Right Side Components		2. Power (On/Off) Button	10. DVD/CD Next Track
Bottom of Unit Rear Connectors		3. DisqPlay Switch	11. Keyboard
Port Replicator Power	10-	4.Volume Control Down Button	12. Touch Pad
Management for Windows 98		5. Volume Control Up Button	13. Left Touch Pad Button
	15 12 13 14 15	6. Status Panel	14. Right Touch Pad Button
		7. DVD/CD Play/Pause	15. Integrated Speakers
	Download from Www.Somanuals.com. All Manuals Search And Download.	8. DVD/CD Stop	

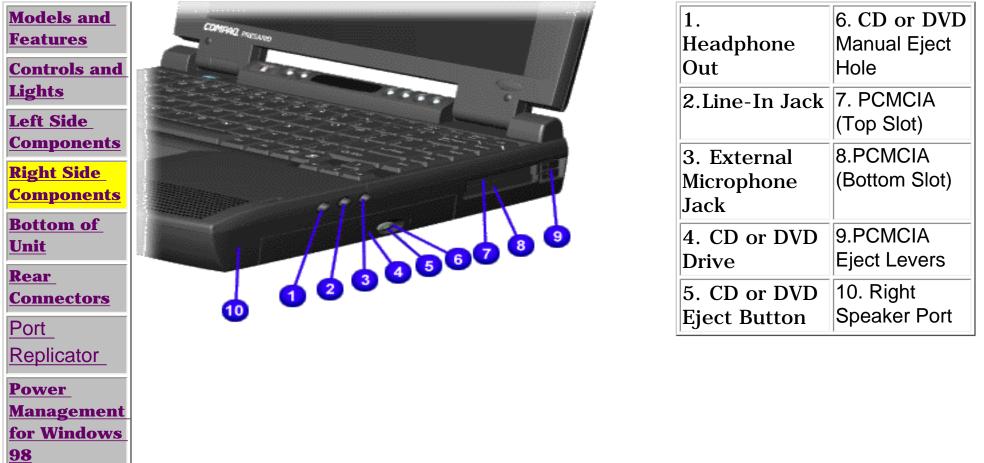
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Left Side Components



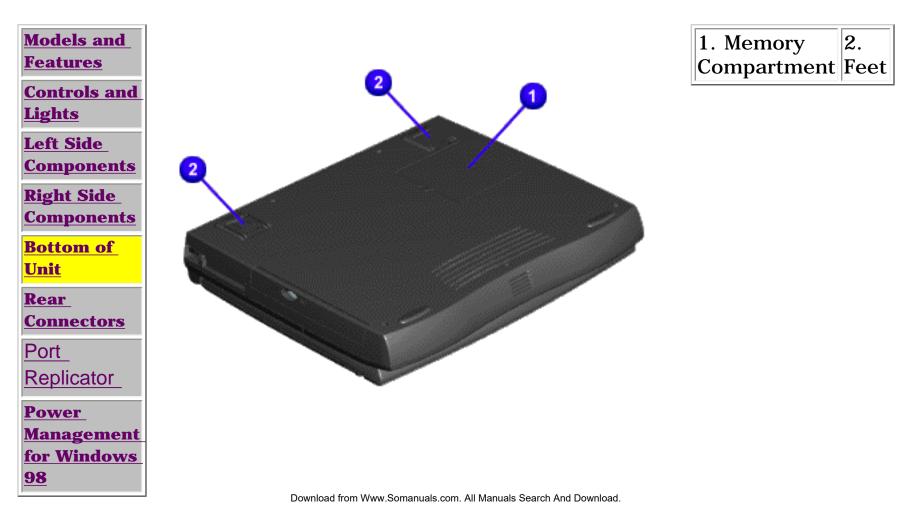
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Right Side Components



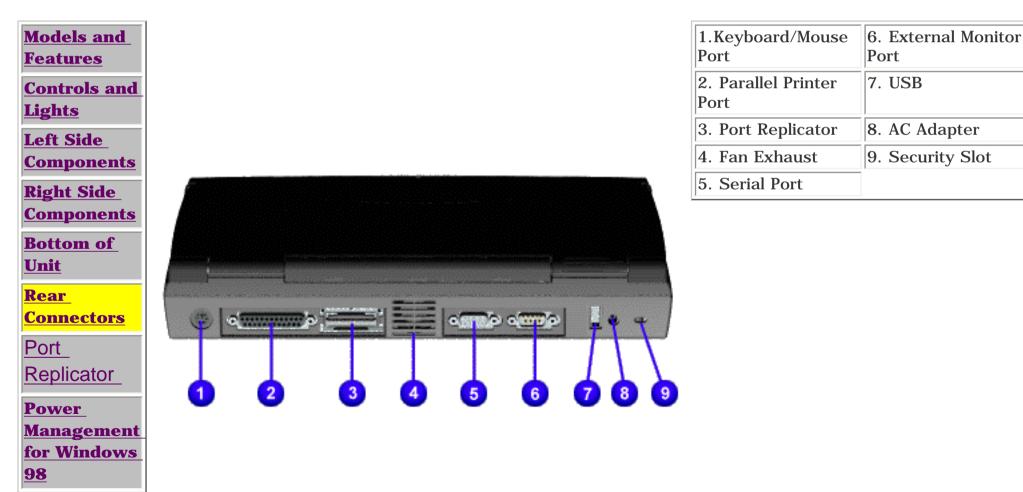
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Bottom of Unit



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Rear Connectors



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Port Replicator

Models and Features	This section is an overview of the Compaq Presario 1800 Series Portable Computer Port Replicator and covers the following topics:
Controls and Lights Left Side Components Right Side Components	 <u>System Overview</u> <u>Features</u> <u>Port Replicator Rear Connectors</u> <u>80-Pin Connectors</u>
	System Overview
<u>Bottom of</u> <u>Unit</u>	A manual docking mechanism on the Compaq Presario 1800 Series Portable
<u>Rear</u> Connectors	Computer Port Replicator docks Compaq Presario 1800 Series Portable
Port Replicator	Computers. When the computer is docked, the <u>80-pin external</u> options connector handles the entire electrical interface (both power and signal connections) between the computer and the Port Replicator Rear.
<u>Power</u> <u>Management</u> for Windows	Features
<u>98</u>	The Compaq Presario 1800 Series Portable Computer Port Replicator provides all the connectors supported by the Compaq Presario 1800 Series Portable Computers. They include:

- n External keyboard
- n External mouse
- n MIDI/game port
- External monitor
- n Serial
- n Parallel
- n AC Adapter
- n Dual USB ports (Not supported on all models.)

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Power Management for Windows 98

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

- Power Management Settings
- ⊢ <u>Sleep</u>
- Hibernation
- Battery operating time
- Rebooting After a Lockup
- Servicing Your Computer Full Off Mode

Power Management Settings

Depending on your patterns of computer use, you can set different levels of power management. These different power management levels can be activated based on the amount of time passed since the last system activity. System activity examples, include keyboard or mouse movement, CD (while under program control that monitors Sleep), and modem use.

You can select different conditions or power schemes through Power Management..The optional settings are **Home/Office Desk**, **Portable/ Laptop** and **Always On**. From the default settings, you can change the following settings.

- the System goes to Sleep (Standby) mode
- the screen times out and goes blank
- the hard drive spins down

Each of these system components will go to sleep after the selected or default periods of inactivity. (The setting for hard drive must be less than or equal to the setting for System.)



There are five categories of power management settings under the Control Panel. The default setting for each feature is listed below in the tables.

Power Management Properties

Tab: Power Schemes :	Plugged in	Running on Batteries
Always on System Standby:	Never	15 minutes
Turn OFF Monitor	After 15 minutes	After 10 minutes
Always on System Standby:	After 15 minutes	After 10 minutes

Power Management Properties

Tab: ALARMS::Low Battery Alarm:10%Critical Battery Alarm0%Alarm Actions:X Display Message Notification

Text Action No Action

Power Management Properties

Tab: POWER METER:DefaultTab: ADVANCEDDefault

Display Properties

Tab: **POWER METER**: **Monitor** Laptop Display (Maximum resolution according to unit display size)

System Properties

Tab: Device Manager Default:	
Disk Drives:	<u>X</u> DMA
CD ROM:	<u>X</u> DMA

Sleep

You can select Sleep mode instead of turning off the computer when you have finished using it. This allows the computer to wake up faster than turning it completely off and saves power over the active (On) mode. Compaq Presario Notebook computers have two levels of sleep, Hibernation and Sleep.

Hibernation - by pushing the power button once your computer will perform a save to disk followed by a shut down of the computer into Off mode.

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

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 helps conserve battery life and protects your data. Hibernation can be a routine power saving event, or can be the result of a low battery condition. As it enters Hibernation, your computer will display a progress screen, as it automatically saves the machine state before it shuts down and turns itself off. Your computer will automatically go into Hibernation, when the battery has little power left, or when the system (operating on battery power) has been in Sleep mode for more than an hour. You can also manually initiate Hibernation by pressing the power button once while the system is active. To restore the computer's previous state, simply press the power button once again. While waking up, the computer will display a progress screen.

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

Mode	To Initiate	To End	Indicators
Sleep	Manual keys combination - Fn+F4Time Out Default 15 minutes. If on Battery power (system will not go to Sleep if on AC power)	Press any key	Flashing green Power LED
Hibernate	Manual Manual Power Button onceTime Out 	Press Power Button once	No Power LED, blank screen
Off	Perform normal Windows shutdown via the start button, or press and hold down the power button for 4 seconds	Button once	No Power LED, blank screen

Servicing Your Computer - Full Off Mode

If you need to install or replace components in your system, you must turn the computer off completely. Follow the instructions above for properly putting the computer into Off mode, unplug from the outlet and remove the battery <u>(see battery section for instruction on removing battery)</u>.

Rebooting After a Lockup

Occasionally you may encounter a frozen keyboard or a locked screen. To reboot your computer (as if from a cold start) press and hold down the Power Button for at least four seconds, which will cause a manual shutdown. Then, restart it with a single press of the Power Button. If it still doesn't recover, press the Power Button and hold it for four seconds to shut it down, then, remove the battery or unplug the AC power for at least 30 seconds. Reinsert the battery or reconnect AC power and press the Power Button once to reboot.

Battery Operating Time

Battery operating time is affected by variables, such as the following:

- Power conservation settings
- Hardware configuration
- Software applications
- Installed options
- Display brightness
- Hard drive usage
- Power button
- Changes in operating temperature
- Type and number of installed PC Cards

For more information on increasing battery pack operating time, conditioning the battery pack, and disposing of a used battery pack, refer to the <u>Battery Pack Operations</u>.

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Preliminary Steps

Before running <u>POST</u>, 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, <u>clear the password</u>.

- 2. Run Computer Checkup.
- 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.



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. Download from Www.Somanuals.com. All Manuals Search And Download.

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Power-On Self Test (POST)

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		
DMA, timers, etc.	Replace the system board.	
162-System	m 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.	

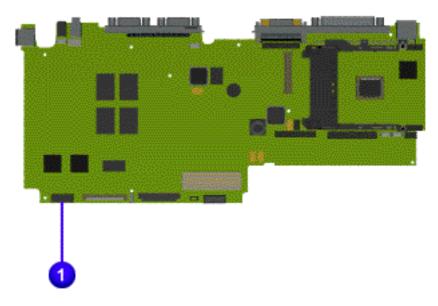
	2. Replace the system board.
XX000YZZ RAM failure	Replace the system board.

XX000	YZZ 201-Memory Error
Probable Cause	Recommended Action
30	01-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-Keyb	oard 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-Di	skette Controller Error
Probable Cause	Recommended Action
Mismatch in drive type or failure in the diskette controller	 Run Computer Checkup (TEST). 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-Prin	nary Hard Drive O 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
	1 Deve Commenter Contern



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Clearing the Power-on Password



Clearing the power-on password requires removing all Setup attributes that are programmed in the CMOS.

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. Remove the **1** RTC battery for 30 seconds. The password, together with other Setup attributes, will be cleared.

6. Reassemble the computer.

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

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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:

- n <u>Computer Checkup (TEST)</u>
- ⁿ <u>View System Information (INSPECT)</u>
- n Prepare Computer for a Compaq Service Call (RemotePaq)

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

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. If the list of installed devices is correct, select **OK**. 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 display when the testing is complete. You cannot print or save the error messages.
- Automatic Diagnostics. Runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or save a log of errors.
- Prompted Diagnostics. Allows maximum control over testing the devices.
 You can choose attended or unattended testing, decide to stop on errors, or choose to print or save a log of errors.

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.

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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.

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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 has been resolved, do not proceed with the remaining steps.

For the removal and replacement of a particular subassembly, see **<u>Removal and Replacement</u> Procedures.**

Select error codes by number or type:

<u>101 through 114</u>	Processor Test
200 through 215	<u>Memory Test</u>
<u>300 through 304</u>	<u>Keyboard Test</u>
<u>401 through 403</u>	Parallel Printer Test
<u>600 through 699</u>	<u>Diskette Drive Tes</u> t
<u>1101</u>	<u>Serial Test</u>
<u>1701 through 1736</u>	Hard Drive Test
<u>501 through 516</u>	<u>Video Test</u>
2402 through 2456	
2458 through 2480	
<u>3206</u>	<u>Audio Test</u>
<u>8601 through 8602</u>	Touch Pad Pointing Device Test
<u>3301 through 6623</u>	CD/DVD Test

Error Code	• Test Error Codes Description	Recommended Action
101-xx 102-xx	CPU test failed Coprocessor or Weitek Error	Replace the processor and retest. 1. Run the Configuration and Diagnostics Utilities.
103-xx	DMA page registers test failed	2. Replace the processor board and retest. Replace the system board and retest.
104-xx 105-xx	Interrupt controller master test failed Port 61 error Keybeard controller colf test failed	
106-xx 107-xx 108-xx	Keyboard controller self-test failedCMOS RAM test failedCMOS interrupt test failed	
108-xx 109-xx 110-xx	CMOS interrupt test failedCMOS clock test failedProgrammable timer load data test	
110-xx 113-xx	Programmable timer load data test failed Protected mode test failed	
114-01	Speaker test failed	 Check system configuration. Verify cable connections to speaker. Replace the system board and retest.
200-xx	Memory Test Er Memory machine ID test failed	ror Codes 1. Flash the system ROM and retest.
202-xx 203-xx	Memory system ROM checksum failed Write/Read test failed	2. Replace the system board and retest.1. Remove the memory module and retest.
204-xx 211-xx	Address test failedRandom pattern test failed	2. Install a new memory module and retest.
214-xx 215-xx	Noise test failed Random address test failed	
300-xx	Keyboard Test E Failed ID Test	rror Codes 1. Check the keyboard connection. If disconnected, turn off the computer and
301-xx 302-xx	Failed Selftest/Interface TestFailed Individual Key Test	connect the keyboard.
304-xx	Failed Keyboard Repeat Test	 Replace the keyboard and retest. Replace the system board and retest.
401-xx	Parallel Printer Tes Printer failed or not connected	1. Connect the printer.
402-xx	Failed Port Test	 Check power to the printer. Install the loop-back connector and retest. Check point and IBO configuration.
403-xx	Printer pattern test failed Diskette Driv	4. Check port and IRQ configuration.5. Replace the system board and retest.rest
600-xx	Diskette ID drive types test failed	 Replace the diskette media and retest. Check and/or replace the diskette power and signal cables and retest.
601-xx 602-xx	Diskette format failed Diskette read test failed	 3. Replace the diskette drive and retest. 4. Replace the system board and retest.
603-xx 604-xx	Diskette write, read, compare test failed Diskette random read test failed	
604-xx 605-xx 606-xx	Diskette random read test failed Diskette ID media failed Diskette speed test failed	
609-xx 610-xx	Diskette speed test failed Diskette reset controller test failed Diskette change line test failed	
697-xx 698-xx	Diskette change line test railed Diskette type error Diskette drive speed not within limits	
699-xx	Diskette drive/media ID error	 Replace media. Run the Configuration and Diagnostics Utilities
	Serial port test failed	
1101-xx	Serial port test failed Hard Drive Test E	1. Check port configuration2. Replace the system board and retest.Crror Codes
1701-xx 1702-xx	Hard drive format test failed Hard drive read test failed	1. Run the Configuration and Diagnostics Utilities and verify drive type.
1703-xx	Hard drive write/read/compare test failed	 Verify that all secondary drives have secondary drive capability. Replace the hard drive and retest.
1704-xx 1705-xx	Hard drive random seek test failed Hard drive controller test failed	4. Replace the system board and retest.
1706-xx 1707-xx	Hard drive ready test failed Hard drive recalibration test failed	
1708-xx 1709-xx	Hard drive format bad track test failed Hard drive reset controller test failed	
1710-xx 1715-xx	Hard drive park head test failedHard drive head select test failed	
1716-xx 1717-xx	Hard drive conditional format test failed Hard drive ECC* test failed	
1717-xx 1719-xx 1724-xx	Hard drive power mode test failed Network preparation test failed	
1736-xx	Drive monitoring test failed	
501-xx	Video controller test failed	The following apply to error codes 501-xx
502-xx 503-xx	Video memory test failed Video attribute test failed	through 516-xx:
504-xx	Video character set test failedVideo 80 × 25 mode 9 × 14 character	 Disconnect external monitor and test with internal LCD display. Replace the display assembly and retest
505-xx 506-xx	cell test failedVideo 80 × 25 mode 8 × 8 character	3. Replace the system board and retest.
507-xx	cell test failed Video 40 × 25 mode test failed Video 220 × 200 mode color oct 0	
508-xx	Video 320×200 mode color set 0 test failedVideo 320×200 mode color set 1	
509-xx 510-xx	test failed Video 640 × 200 mode test failed	
511-xx 512-xx	Video screen memory page test failedVideo gray scale test failed	
514-xx 516-xx	Video white screen test failedVideo noise pattern test failed	
2402-xx 2403-xx	Video memory test failed Video attribute test failed	The following steps apply to error codes 2402-xx through 2456-xx:
2404-xx 2405-xx	Video character set test failed Video 80 × 25 mode 9 × 14 character cell test failed	 Run the Configuration and Diagnostics Utilities. Replace the display assembly and retest
2406-xx	Video 80×25 mode 8×8 charactercell test failed	3. Replace the system board and retest.
2408-xx	Video 320×200 mode color set 0 test failed	
2408-xx 2409-xx 2410-xx	test failed Video 320 × 200 mode color set 1 test failed	
2409-xx 2410-xx 2411-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failed	
2409-xx 2410-xx 2411-xx 2412-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failed	
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failed	
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failed	
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2418-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failed	1. Run the Configuration and Diagnostics Utilities. 2. Disconnect external monitor and test
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2419-xx 2421-xx	 test failed Video 320 × 200 mode color set 1 test failed Video 640 × 200 mode test failed Video screen memory page test failed Video gray scale test failed Video white screen test failed Video noise pattern test failed ECG/VGC memory test failed ECG/VGC ROM checksum test failed ECG/VGC 640 × 200 graphics mode test failed 	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2421-xx 2422-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode	Utilities. 2. Disconnect external monitor and test with internal LCD display.
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2421-xx 2422-xx 2422-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failed	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2421-xx 2422-xx 2422-xx 2423-xx 2424-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
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2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedECG/VGC 640 × 350 64 color set test failedFCG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedS20 × 200 graphics (256 color mode)	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2423-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome test failedECG/VGC monochrome test failedECG/VGC monochrome test failed<	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2424-xx 2431-xx 2431-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedS20 × 200 graphics test failure320 × 200 graphics (256 color mode) test failure	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2424-xx 2425-xx 2431-xx 2431-xx 2431-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 320 × 200 mode test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome text mode test failedS20 × 200 graphics (256 color mode) test failureAdvanced VGA Controller test failed	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedS20 × 200 graphics test failure320 × 200 graphics (256 color mode) test failureAdvanced VGA 256 Color	Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2425-xx 2431-xx 2431-xx 2431-xx 2432-xx 2438-xx 2458-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedAdvanced VGA Controller test failed132-column Advanced VGA test failedAdvanced VGA 256 Color test failedAdvanced VGA DAC testAdvanced VGA DAC test	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. The following step applies to error codes
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2416-xx 2418-xx 2419-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2424-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2431-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo white screen test failedVideo noise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome text mode test failedS20 × 200 graphics (256 color mode) test failureAdvanced VGA Controller test failed132-column Advanced VGA test failedAdvanced VGA DAC testAdvanced VGA DAC testAdvanced VGA DAC testAdvanced VGA DAC testAdvanced VGA data path test	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.
2409-xx 2410-xx 2411-xx 24112-xx 2412-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2425-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2432-xx 2432-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedS20 × 200 graphics (256 color mode) test failureAdvanced VGA Controller test failed132-column Advanced VGA test failedAdvanced VGA 256 Color test failedAdvanced VGA BitBLT testAdvanced VGA DAC testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA BitBLT test	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.
2409-xx 2410-xx 2411-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2432-xx 2432-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome text mode test failedS20 × 200 graphics (256 color mode) test failure320 × 200 graphics (256 color mode) test failedAdvanced VGA Controller test failedAdvanced VGA 256 Color test failedAdvanced VGA BitBLT testAdvanced VGA LineDraw test	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest.
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2419-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2432-xx 2432-xx 2432-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo omise pattern test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedS20 × 200 graphics (256 color mode) test failureAdvanced VGA Controller test failedI32-column Advanced VGA test failedAdvanced VGA BitBLT testAdvanced VGA DAC testAdvanced VGA bitBLT testAdvanced VGA bitBLT testAdvanced VGA LineDraw testAdvanced VGA LineDraw test	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. or Codes
2409-xx 2410-xx 2411-xx 2412-xx 2412-xx 2416-xx 2418-xx 2419-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2432-xx 2432-xx 2432-xx 2432-xx 2432-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome text mode test failedS20 × 200 graphics (256 color mode) test failure320 × 200 graphics (256 color mode) test failedAdvanced VGA Controller test failedAdvanced VGA 256 Color test failedAdvanced VGA BitBLT testAdvanced VGA LineDraw test	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. Dr Codes Replace the system board and retest.
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2416-xx 2418-xx 2421-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2432-xx 2438-xx 2456-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedS20 × 200 graphics (256 color mode) test failureAdvanced VGA Controller test failedI32-column Advanced VGA test failedAdvanced VGA BitBLT testAdvanced VGA DAC testAdvanced VGA bitBLT testAdvanced VGA bitBLT testAdvanced VGA LineDraw testAdvanced VGA LineDraw testAudio System Internal Error	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. or Codes Replace the system board and retest. cerface Test Error Codes 1. Replace the TouchPad and retest.
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2418-xx 2418-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2438-xx 2438-xx 2458-xx 2458-xx 2458-xx 2458-xx	test failed Video 320 × 200 mode color set 1 test failed Video 640 × 200 mode test failed Video screen memory page test failed Video aray scale test failed Video noise pattern test failed Video noise pattern test failed ECG/VGC memory test failed ECG/VGC 640 × 200 graphics mode test failed ECG/VGC 640 × 350 16 color set test failed ECG/VGC monochrome text mode test failed ECG/VGC monochrome text mode test failed ECG/VGC monochrome graphics mode test failed G40 × 480 graphics test failure 320 × 200 graphics (256 color mode) test failed I32-column Advanced VGA test failed Advanced VGA 256 Color test failed Advanced VGA BitBLT test Advanced VGA bitBLT test Advanced VGA BitBLT test Advanced VGA LineDraw test Advanced VGA LineDraw test Advanced VGA LineDraw test	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. or Codes Replace the system board and retest. Terface Test Error Codes
2409-xx 2410-xx 2411-xx 2412-xx 2414-xx 2418-xx 2418-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2438-xx 2438-xx 2458-xx 2458-xx 2458-xx 2458-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo white screen test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC ROM checksum test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedS20 × 200 graphics (256 color mode) test failed320 × 200 graphics (256 color mode) test failedAdvanced VGA Controller test failedAdvanced VGA DAC testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA DAC testAdvanced VGA DAC testAdvanced VGA DAC testAdvanced VGA BitBLT testAdvanced VGA DAC testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA LineDraw testMudio System Internal ErrorTouchPad/Pointing Device Internal ErrorMouse test failed	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. or Codes Replace the system board and retest. Erface Test Error Codes 1. Replace the TouchPad and retest. 2. Replace the system board and retest.
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2409-xx 2410-xx 2411-xx 24112-xx 24114-xx 24118-xx 24118-xx 2421-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2431-xx 2438-xx 2438-xx 2438-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx	test failed Video 320 × 200 mode color set 1 test failed Video 640 × 200 mode test failed Video screen memory page test failed Video white screen test failed Video noise pattern test failed ECG/VGC memory test failed ECG/VGC 640 × 200 graphics mode test failed ECG/VGC 640 × 350 16 color set test failed ECG/VGC 640 × 350 64 color set test failed ECG/VGC 640 × 350 64 color set test failed ECG/VGC 640 × 350 64 color set test failed ECG/VGC monochrome text mode test failed ECG/VGC monochrome graphics mode test failed 640 × 480 graphics test failure 320 × 200 graphics (256 color mode) test failed Advanced VGA Controller test failed 132-column Advanced VGA test failed Advanced VGA DAC test Advanced VGA BitBLT test Advanced	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. 6. Replace the system board and retest. 6. Replace the system board and retest. 7. Replace the CD/DVD and retest. 7. Verify that the speakers are connected. 7. Verify that drivers are loaded and properly installed.
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2409-xx 2411-xx 2411-xx 2412-xx 2418-xx 2418-xx 2422-xx 2422-xx 2423-xx 2423-xx 2423-xx 2423-xx 2431-xx 2431-xx 2431-xx 2431-xx 2432-xx 2438-xx 2438-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx 2458-xx	test failedVideo 320 × 200 mode color set 1 test failedVideo 640 × 200 mode test failedVideo screen memory page test failedVideo gray scale test failedVideo noise pattern test failedECG/VGC memory test failedECG/VGC 640 × 200 graphics mode test failedECG/VGC 640 × 350 16 color set test failedECG/VGC 640 × 350 64 color set test failedECG/VGC monochrome text mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failedECG/VGC monochrome graphics mode test failed640 × 480 graphics test failure320 × 200 graphics (256 color mode) test failedAdvanced VGA Controller test failedAdvanced VGA 256 Color test failedAdvanced VGA DAC testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA BitBLT testAdvanced VGA LineDraw testAdvanced VGA LineDraw testMouse test failedMouse test failedMouse test failedCD/DVD drive read test failedCD/DVD drive read test failedCD/DVD drive seek test failed	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. The following step applies to error codes 2458-xx through 2480-xx: Replace the system board and retest. Replace the system board and retest. Fror Codes 1. Replace the TouchPad and retest. 2. Replace the system board and retest. 1. Replace the System board and retest. 2. Replace the CD/DVD and retest. 3. Verify that drivers are loaded and properly installed. 4. Replace the CD/DVD drive and retest.

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Troubleshooting Without Diagnostics

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

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

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.

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

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Solving Minor Problems

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

Solving Audio Problems

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

Solving Audio Problems		
Problem	Probable Cause	Solution(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 turn on when battery pack is inserted and power cord is unplugged.	Battery pack is discharged.	Connect the computer to an external power source and charge the battery pack. 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.
Computer is beeping and battery LED icon is blinking.	Battery charge is low.	Immediately save any open file(s). Then do any one of the following: Connect the computer to an external power source to charge the battery pack. Turn off the computer or initiate Hibernation until you can find another power source or charge the battery pack.
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 was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is at end of its life.	Replace 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.

Problem	Probable Cause	Solution(s)
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 -4° F to 86° F (-20° C to 30° 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: -4° 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 is improperly inserted in the CD/DVD drive.	Open the CD/DVD loading tray, lay the compact disc or digital versatile disc in it (label side up), then close the tray.
	CD is CD Plus or Pregap/Track 0 type.	Cannot read these type 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. Turn off 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.

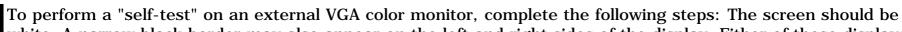
The display should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

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 .

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

** This problem indicates that the backlight or its power circuitry has failed. Since you cannot observe the POST result on 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 single or double beep, and watching for the LEDs turn on at the front of the computer.

Problem	Probable Cause	Solution(s)
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 patterns across the entire panel (not just on one section).	Improper display cable connections	 Reseat the display cable to the following until the problem is solved: 1. System board 2. Display assembly
	Defective display cable.	Replace the display assembly.
	Defective inverter board.	Replace the display assembly.
	Defective system board.	Replace the system board.



NOTE: 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 entered Hibernation due to low battery condition and is now exiting from it.	Give the system time to restore the previously saved data to its exact state before Hibernation.
Hard drive error occurs.	Hard drive has bad sectors or has failed.	Run Computer Checkup.
Hard drive does not work.	Hard drive is not seated properly.	Turn off and unplug the 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	Solutions(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						
ProblemProbable CauseSolution(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.				

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Solving PC Card Problems

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

	Solving PC C	ard Problems			
Problem	Probable Ca	luse	Soluti	ion(s)	
When turned on, the computer does not beep when a PC Card is inserted.		nserted properly. os are disabled.	in the Double icon in click th tab, th	e the card is inserted correct orientation. e-click the PC Card the Control Panel, he Global Settings he enable PC Card effects.	
	Speaker is tu volume is tur		Press turn th	volume buttons to ne speaker on, then se the volume.	
	PC Card drive installed.	ers are not	Double click the Add New Hardware icon in the Control Panel for installation instructions. If PC Card or drivers are no compatible with Windows, install drivers and use the		
	Card or card supported.	driver is not	PC Can Contac author for a li succes	rd in MS-DOS mode. ct your Compaq rized service provider ist of PC Cards tested ssfully in Compaq PC platforms.	
PC Card modem, fax, or network card does not work.	Card is not fu the slot or is properly.	ully inserted into not inserted			
	Telephone co plugged in al		Check and secure telephone connection.		
	Necessary dr installed (tur	ivers are not ned on).	Install drivers.		
PC Card modem or fax card does not work.	•	g to access the le wrong COM	See <u>Specifications</u> to verify COM port.		
	The card con serial device.		-	ee <u>Specifications</u> to verify ddress.	
	The card is n	ot supported.	Use su	pported cards only.	
	Network driver not set up prop	is not installed o perly.	r is	Install driver.	
	Telephone cord connected.	l is not properly		Verify telephone connection.	
Memory or storage card does not work.SRAM and require t		I and flash memory cards re the memory card driver to be ed (turned on).		Install driver.	
	Flash memory cards require the Aicrosoft FlashFile System to be loaded.				
	Hard drives on flash mass storage cards require the PC Card ATA driver to be loaded.				
		to access the har g the wrong drive		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.	Insert battery or connect an external power source.			
	Power cords to the external power source are unplugged.	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	System board is defective.	Replace the system board.			
left unattended and the power icon is off.	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.

S	olving 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 Touc	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.		

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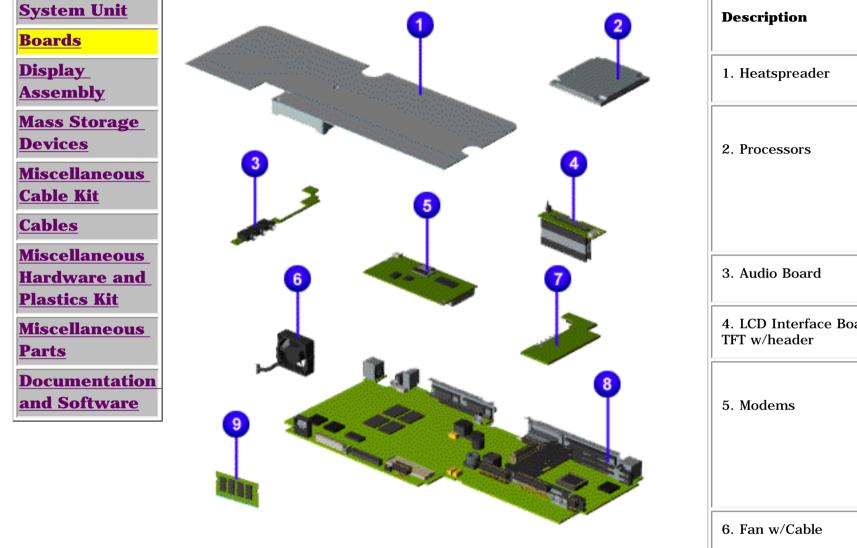
System Unit

<mark>Unit</mark>		Descri	ption	Spare Part Number
	4	1. Stat	us Panel	293737-001
	r.	2. Palm	nrest Cover	332226-001
		2 3. Keyl	poards	1
	3			
		4. Upp Power 2 (Top Pl	er CPU Cover with Switch Connector astics)	293739-001
		5. Spe w/Cabl	aker Assembly e	293883-001
		6. Batt Li ion	tery Pack,	330936-001
		7. CPU Enclosu Plastics	J Base Assembly ure, (Bottom s)	331156-001
ftware		7		

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Boards



Description	Spare Part Number
1. Heatspreader	331164-001
2. Processors	
3. Audio Board	331010-001
4. LCD Interface Board TFT w/header	293156-001
5. Modems	
6. Fan w/Cable	332228-001
7. Voltage Converter	331019-001
8. System Board, w/o processor	331009-001
System Board, w/o processor	347731-001
9. Memory Module 16-MB 32-MB 64-MB	293726-001 293727-001 332208-001

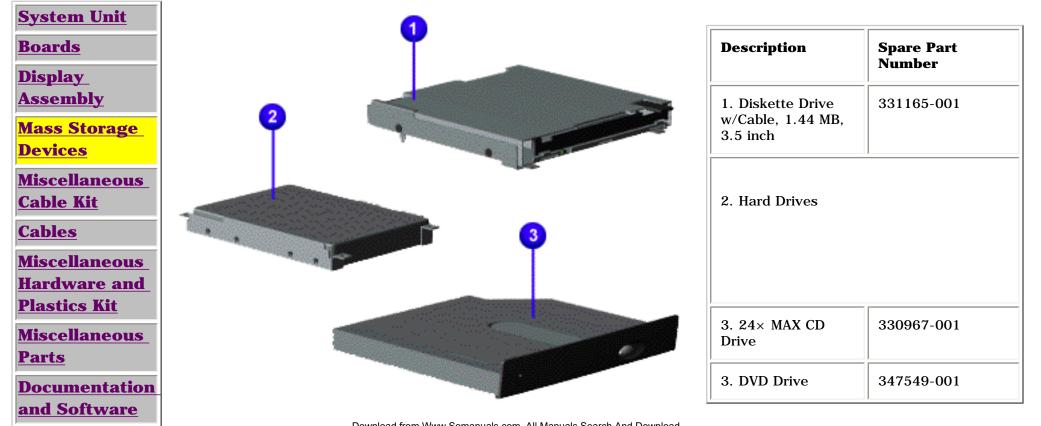
Spare Part

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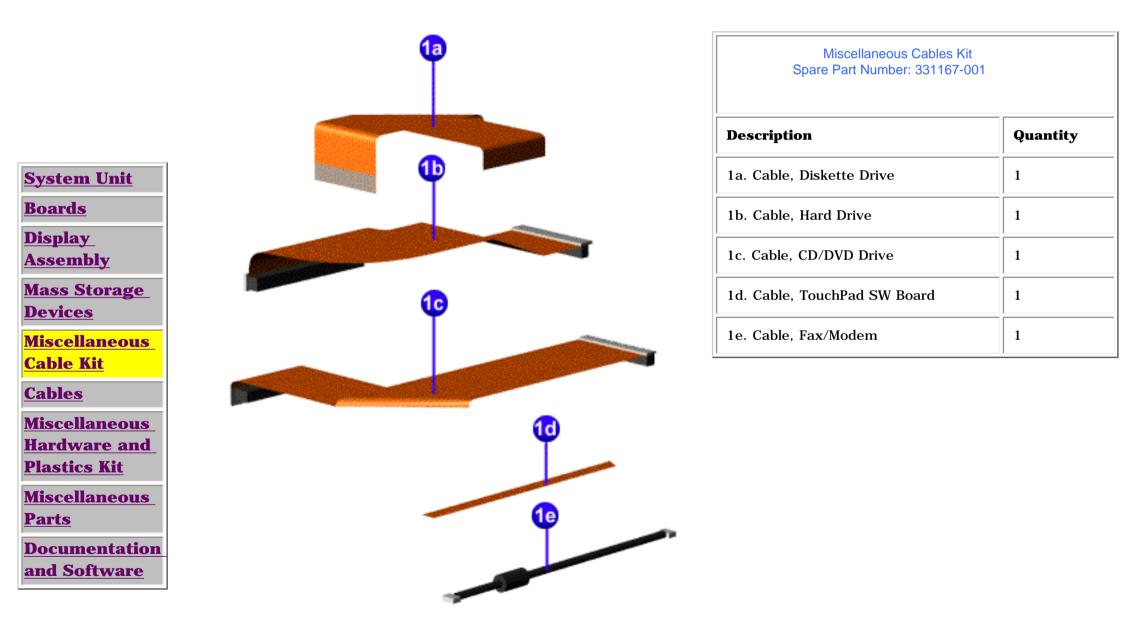
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Mass Storage Devices



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Miscellaneous Cables Kit

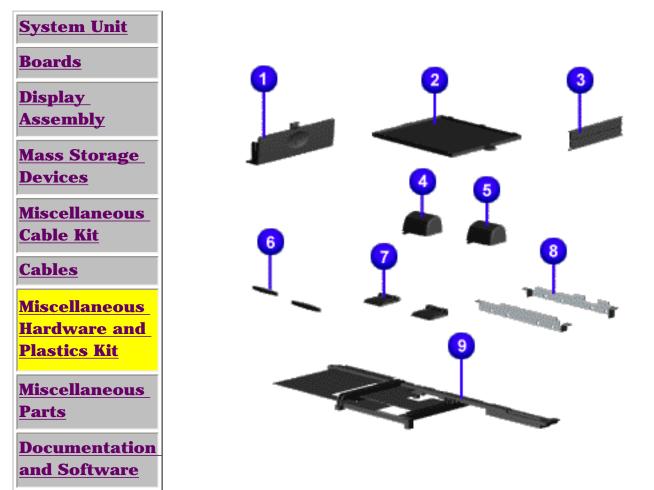


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System Unit	Power Cords		
Boards	Description Spare Part Num		
<u>Display</u> <u>Assembly</u>	Power Cord		
<u>Mass Storage</u> Devices			
<u>Miscellaneous</u> Cable Kit			
<u>Cables</u>		Modem Cables	
Miscellaneous Hardware and	Description	Spare Part Number	
<u>Plastics Kit</u> <u>Miscellaneous</u>	1. Modem		
Parts			
Documentation and Software	,		

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Miscellaneous Hardware and Plastics Kit



Miscellaneous Hardware and Plastics Kit Spare Part Number: 293761-001		
Description	Quantity	
1. Door, Battery Pack	1 each	
2. Cover, Memory Module	1 each	
3. Door, PCMCIA	2 each	
4. Hinge (Clutch) Cover, Left	1 each	
5. Hinge (Clutch) Cover, Right	1 each	
6. Rubber Foot	10 each	
7. Stand Foot (plastic)	10 each	
8. Hard Drive Mounting Bracket	1 each	
9. Stiffener Bracket	1 each	

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Miscellaneous Parts

_____1

System Unit		
<u>Boards</u>	0	
<u>Display</u> Assembly	Description	Spare Part Number
Maga Stanada	1. AC Adapte	er 298239-001
<u>Mass Storage</u> <u>Devices</u>	2. Port Replicator	293857-001
Miscellaneous	Clock Battery (Not Shown)	
<u>Cable Kit</u> <u>Cables</u>	2 Miscellaneou Screw Kit (Not Shown)	
<u>Miscellaneous</u> Hardware and	Logo Kit (Not Shown)	203727-001
Plastics Kit	Return Kit (Not Shown)	293799-001
Miscellaneous	PCMCIA Brad (Not Shown)	
Parts Documentation		.,
and Software	Download from Www.Somanuals.com. All Manuals Search And Download.	

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Documentation and Software

<u>System Unit</u>	Description			Spare Part Number	
Boards	Quick Restore CD				
<u>Display</u>		Not Availab	ble		
<u>Assembly</u>		Not Availab	ble		
Mass Storage		Not Availab	ble		
<u>Devices</u>		Not Availab	ble		
<u>Miscellaneous</u> Cable Kit		Not Availab	ble		
<u>Cables</u>	Quick Referenc	e Guide			
	QuickFind for V	Vindows, North Amer	ica, Latin America,	Asia	
<u>Miscellaneous</u> Hardware and	Pacific				
Plastics Kit	QuickFind for Windows, Europe, Middle East, Africa				
<u>Miscellaneous</u> <u>Parts</u> Documentation	*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.				
and Software			d Part Number S		
<u></u>	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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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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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
- 5mm nut drivers (for screwlocks and standoffs)
- Small, standard screwdriver
- Small, Phillips screwdriver
- Plastic shroud
- 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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Cables and Connectors

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

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 **<u>ZIF Connector</u>**.

The ribbon cable position for the **<u>3.2-GB</u>**, **<u>4.0-GB</u>**, **and 6.4-GB** hard drive</u>.

The ribbon cable position for the **<u>CD or DVD drive.</u>**

The ribbon cable position for the **<u>diskette drive</u>**.

The cable position for the **speaker assembly.**

Plastic Parts

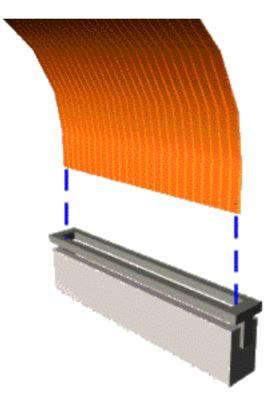
Plastic parts can be damaged by the use of excessive force during disassembly and reassembly. When handling the plastic parts, use care. Apply pressure only at the points designated in the maintenance instructions.

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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.

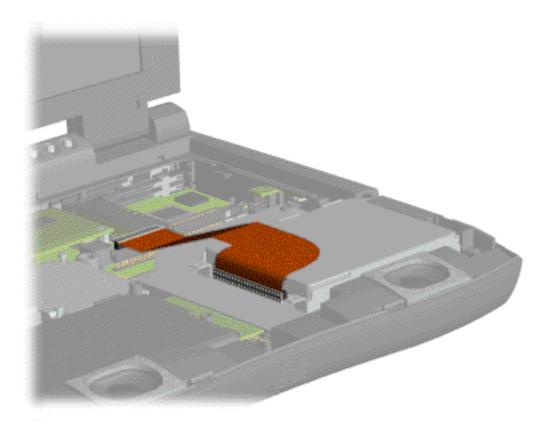
CAUTION: A ZIF connector and its attached cable can be easily damaged. Handle only the connector slide when removing or replacing a cable. Never pull or twist on the cable while it is connected.

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.

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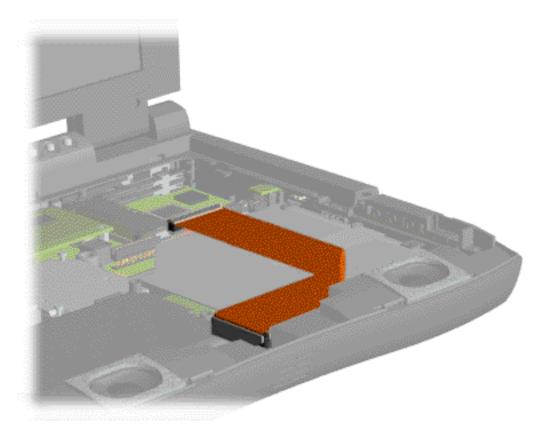
The ribbon cable position for the 3.2-GB, 4.0-GB, or 6.4-GB hard drive.



Back to **Cables and Connectors.**

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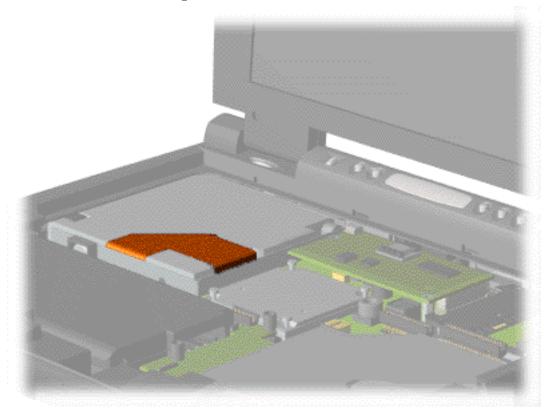
The ribbon cable position for the CD drive.



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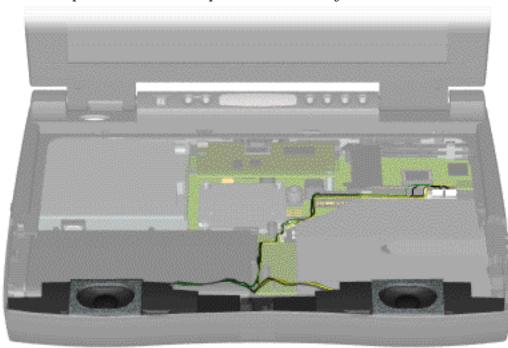
The ribbon cable position for the diskette drive.



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The cable position for the speaker assembly.



Back to Cables and Connectors.

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Preparing the Computer for Disassembly

<u>Electrostatic</u> <u>Discharge</u>
Service
Considerations
Cables and
<u>Connectors</u>
Preparing the
Computer for
Disassembly
Battery Pack
Palmrest
<u>Cover with</u>
Touch Pad
<u>Keyboard</u>
<u>Heatspreader</u>
<u>Modem</u>
Processor
Status Panel
Interface
<u>Board</u>
Hard Drives
Battery
<u>Charger Board</u>
<u>CD or DVD</u>
<u>Drive</u>
Display Panel
<u>Assembly</u>
<u>Upper CPU</u>
<u>Cover</u>
<u>Speaker</u>
Assembly
Diskette Drive
Fan Assembly
Audio Board
System Board
Memory

Module

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.

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 1800 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.

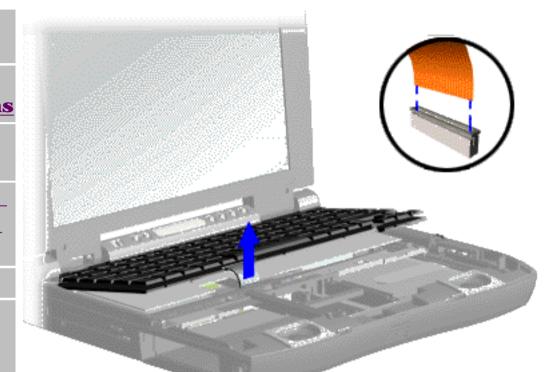
The Compaq Presario 1800 Series Portable Computers have several screws of various sizes which are **not** interchangeable. Care must be taken during reassembly to ensure that the correct screws are used in their correct location. During removal please keep respective screws with their associate sub-assembly.

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Removing the Keyboard

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard Heatspreader** Modem **Processor Status Panel** Interface Board **Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU** Cover **Speaker** Assembly **Diskette Drive Fan Assembly Audio Board System Board Memory**

Module



To remove the keyboard, complete the following steps:

1. <u>Prepare the</u> <u>computer for</u> disassembly.

2. <u>Remove the</u> palmrest cover with touch pad.

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

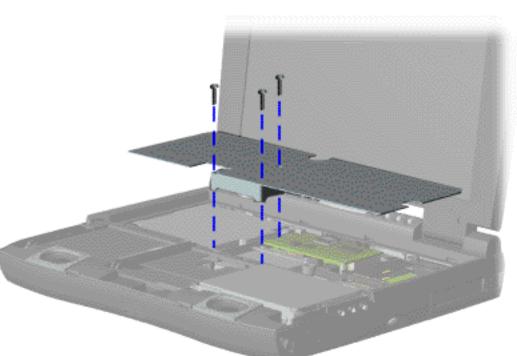
To remove a cable from a ZIF connector, lift both corners of the **ZIF** connector and slide simultaneously with constant light force. NOTE: Then remove the cable. Refer to the section on Cables and **Connectors** for more information on removing a cable from the ZIF connector.

Next Step

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Removing the Heatspreader

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad** Keyboard **Heatspreader** Modem **Processor Status Panel** Interface Board **Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU** Cover **Speaker** <u>Assembly</u> **Diskette Drive Fan Assembly Audio Board System Board** Memory Module



To remove the heatspreader, complete the following steps:

1. <u>Prepare</u> <u>the computer</u> <u>for</u> <u>disassembly</u>.

2. Remove the <u>palmrest</u> <u>cover with</u> <u>touch pad</u>.

3. Remove the <u>keyboard</u>.

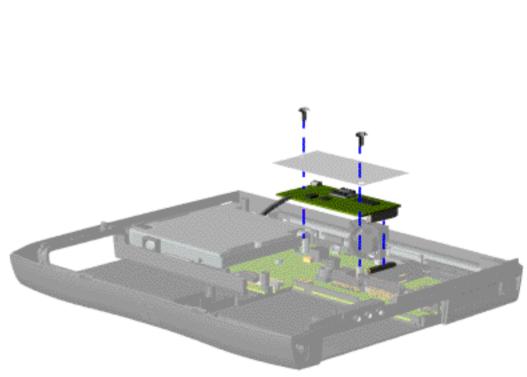
4. Remove three screws from the heatspreader and lift out of the chassis.

To replace the heatspeader, reverse the previous procedures.

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Removing the Modem

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard Heatspreader** Modem **Processor Status Panel** Interface **Board Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU** Cover <u>Speaker</u> Assembly **Diskette Drive Fan Assembly Audio Board System Board** Memory Module



To remove the modem and shield, complete the following steps:

1. Prepare the <u>computer</u> <u>for</u> <u>disassembly</u>.

2. Remove the <u>palmrest</u> <u>cover with</u> <u>touch pad</u>.

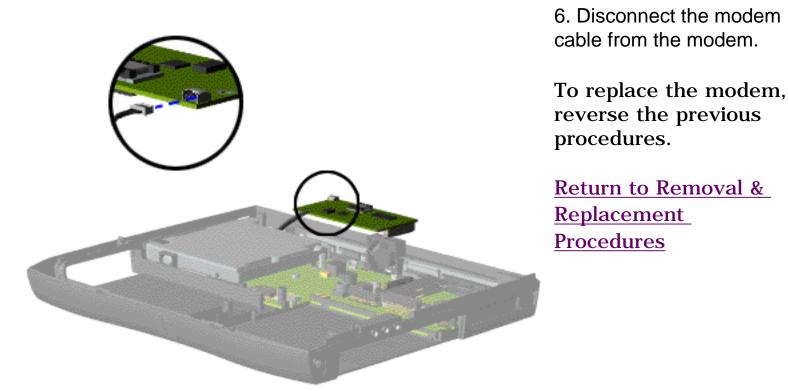
3. Remove the <u>keyboard</u>.

4. Remove the <u>heatspreader</u>.

5. Remove two screws securing the shield and modem, lift off the shield, and pull the modem off the connector on the system board.

Next Step

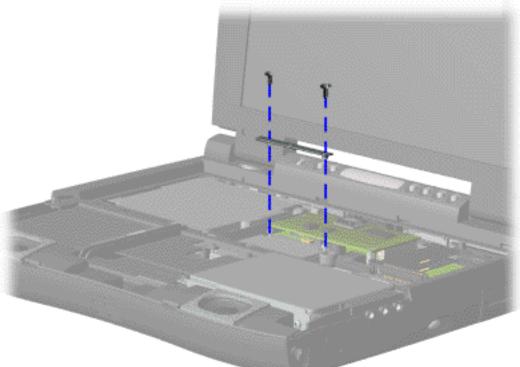
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Removing the Processor

Electrostatic Discharge Service **Considerations** Cables and **Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard Heatspreader** Modem **Processor Status Panel** Interface **Board Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU**



To remove the processor, complete the following steps:

1. <u>Prepare</u> <u>the computer</u> <u>for</u> <u>disassembly</u>.

2. Remove the <u>palmrest</u> <u>cover with</u> <u>touch pad</u>.

3. Remove the <u>keyboard</u>.

4. Remove the <u>heatspreader</u>.

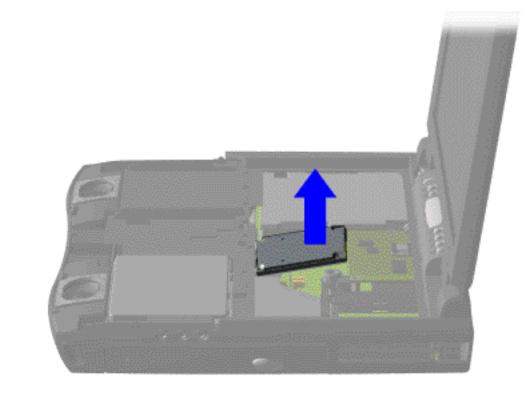
5. Remove the <u>modem</u>.

6. Remove two screws securing the processor bracket.

<u>Next Step</u>

Cover
Speaker
Assembly
Diskette Drive
Fan Assembly
Audio Board
System Board
Memory
Module

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7. Insert a small blade screw driver under the right side on the processor and lift the processor from the chassis slot.

8. Lift the processor out of the processor chassis slot.

To replace the processor complete the following steps:

1. Insert the processor into the chassis slot on the system board and push down into the slot.

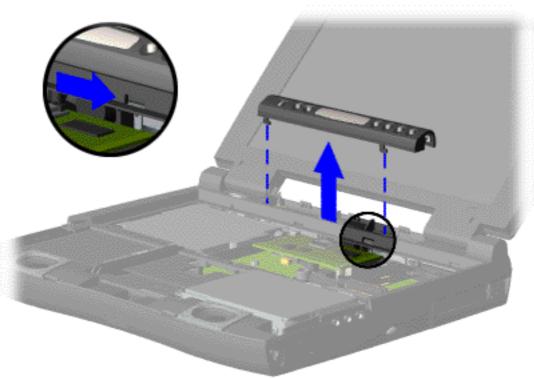
2. Replace the processor bracket.

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Removing the Status Panel

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard Heatspreader** Modem **Processor Status Panel** Interface **Board Hard Drives Battery Charger Board CD or DVD Drive Display Panel** Assembly **Upper CPU** Cover **Speaker** <u>Assembly</u> **Diskette Drive Fan Assembly Audio Board System Board** <u>Memory</u> Module



To remove the status panel, complete the following steps:

1. <u>Prepare</u> <u>the computer</u> <u>for</u> <u>disassembly</u>.

2. <u>Remove</u> <u>the palmrest</u> <u>cover with</u> <u>touch pad</u>.

3. Remove the <u>keyboard</u>.

4. Move the lever (located below the CD Play button on the status panel) to the right to release the status panel cover.

5. Support the front bottom corners of the status panel with the thumb and forefinger. Lift up the status panel off the chassis.

Next Step

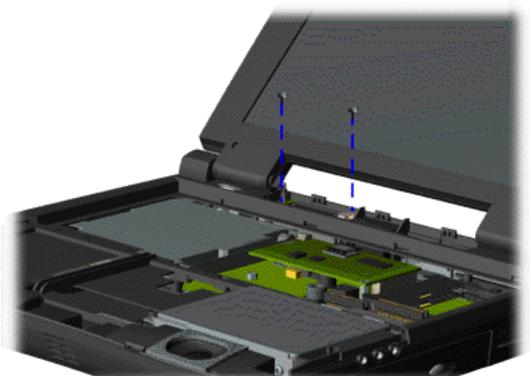
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Removing the Interface Board with Header

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard Heatspreader** Modem **Processor Status Panel** Interface Board **Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU** Cover **Speaker** Assembly **Diskette Drive Fan Assembly Audio Board**

System Board

<u>Memory</u> Module



To remove the interface board with header, complete the following steps:

1. Prepare the computer for disassembly.

2. Remove the palmrest cover with touch pad.

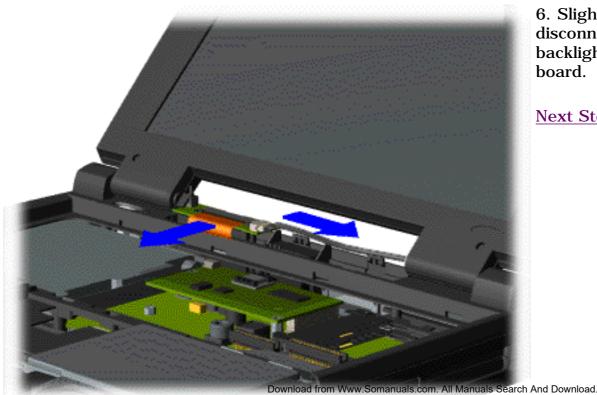
3. Remove the keyboard.

4. Remove the status panel.

5. Remove the two screws from the interface board.

<u>Next Step</u>

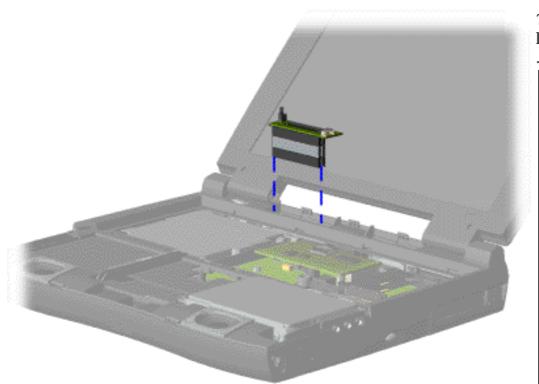
Home Page | Notice | Preface | Product Description | Troubleshooting **Illustrated Parts Catalog | Removal & Replacement Procedures | Specifications Pin Assignments | Battery Pack Operations**



6. Slightly lift the interface board, disconnect the ZIF connector, and backlight power cable from the interface board.

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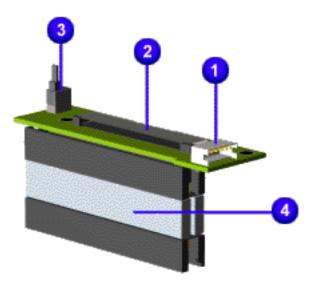


7. Lift the interface board up with the header attached from the system board.

When removing the interface board with the header attached occassionally the header will remain attached to the system **IMPORTANT:** board. If this occurs when removing the interface board with the header attached, separate the header from the connector on the system board.

To replace the interface board, reverse the previous procedures.

NOTE: When replacing interface board, ensure both connectors on the board are properly seated.



The following illustration and table indicates the locations of the connectors on the interface board.

Interface Board Components		
Designator	Connector	
1. JP1	Backlight Switch	
2. JP3	Display Interface ZIF	
3. JP4	Inverter/Backlight LIF Connector	
4. None	Interface Header	

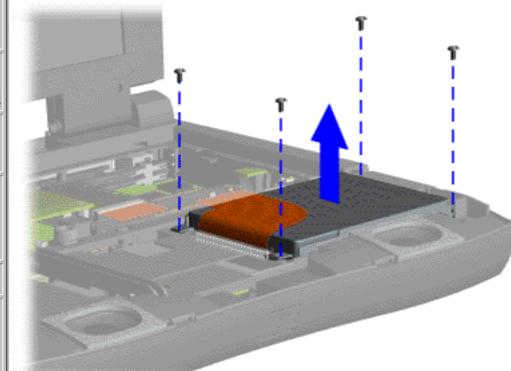
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Removing the 3.2-GB, 4.0-GB, or 6.4-GB Hard Drive

Electrostatic **Discharge** Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard** Heatspreader Modem **Processor Status Panel** Interface Board **Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly

Upper CPU



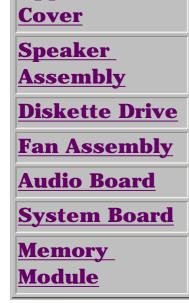
To remove the hard drive with the hard drive bracket attached, complete the following steps:

1. Prepare the <u>computer</u> <u>for</u> disassembly.

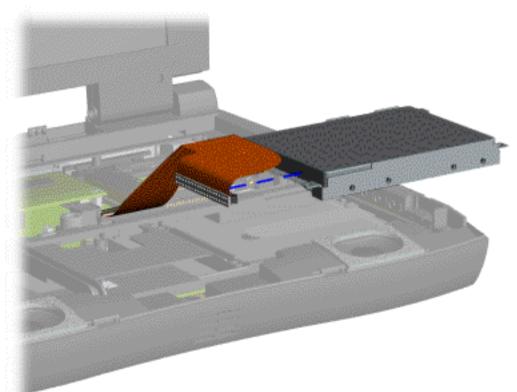
2. Remove the <u>palmrest</u> <u>cover with</u> <u>touch pad</u>.

3. Remove four screws from the hard drive mounting bracket and lift up the hard drive.

<u>Next Step</u>



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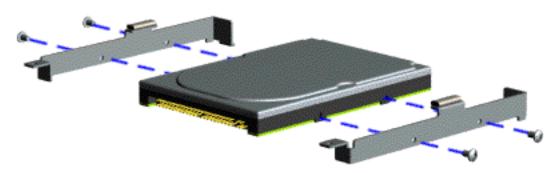
5. Disconnect the hard drive data cable from the hard drive and remove from the chassis.

<u>Next Step</u>

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To remove the hard drive mounting bracket, complete the following step:

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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Removing the Battery Charger Board

<u>Electrostatic</u> <u>Discharge</u>

<u>Service</u> Considerations

Cables and

Connectors

Preparing the

<u>Computer for</u> Disassembly

Battery Pack

Palmrest

<u>Cover with</u> Touch Pad

<u>Keyboard</u>

<u>Heatspreader</u>

<u>Modem</u>

Processor

<u>Status Panel</u>

Interface

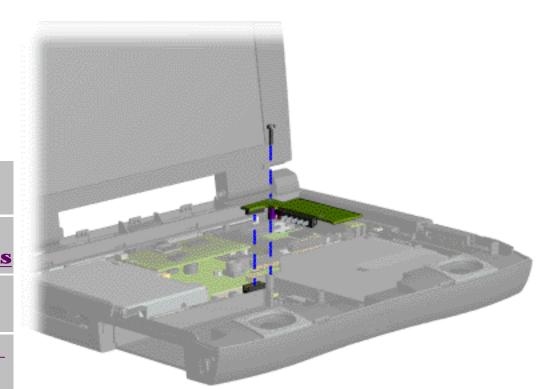
<u>Board</u>

Hard Drives

Battery

<u>Charger Board</u>

<u>CD or DVD</u> Drive



To remove the battery charger board, complete the following steps:

1. Prepare the <u>computer for</u> <u>disassembly</u>.

2. Remove the palmrest cover with touch pad.

3. Remove the <u>keyboard</u>.

4. Remove the <u>hard drive</u>.

5. Remove the <u>stiffener</u> <u>bracket</u>.

6. Remove screw from the battery charger board, unplug the board from the connector on the system board, and lift out of the chassis.

<u>Display Panel</u> Assembly

Upper CPU

Cover

<u>Speaker</u>

Assembly

Diskette Drive

Fan Assembly

<u>Audio Board</u>

System Board

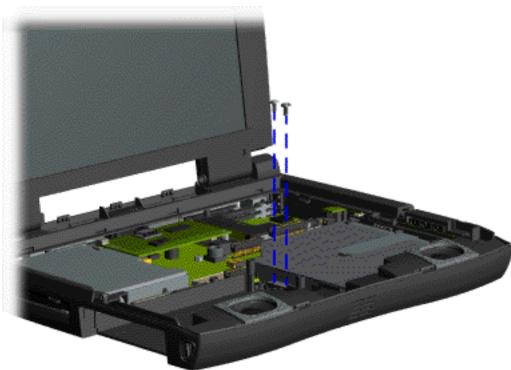
<u>Memory</u> Module To replace the battery charger board, reverse the previous procedures.

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

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Removing the CD or DVD Drive

Electrostatic Discharge Service **Considerations** Cables and **Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad Keyboard** <u>Heatspreader</u> Modem **Processor Status Panel** Interface **Board Hard Drives Battery Charger Board CD or DVD Drive Display Panel Assembly Upper CPU** Cover <u>Speaker</u> Assembly **Diskette Drive Fan Assembly Audio Board System Board Memory** Module



To remove the CD or DVD drive, complete the following steps:

1. Prepare the <u>computer</u> <u>for</u> <u>disassembly</u>.

2. Remove the <u>palmrest</u> <u>cover with</u> <u>touch pad</u>.

3. Remove the <u>keyboard</u>.

4 Remove the <u>heatspreader</u>.

4. Remove the <u>hard</u> drive.

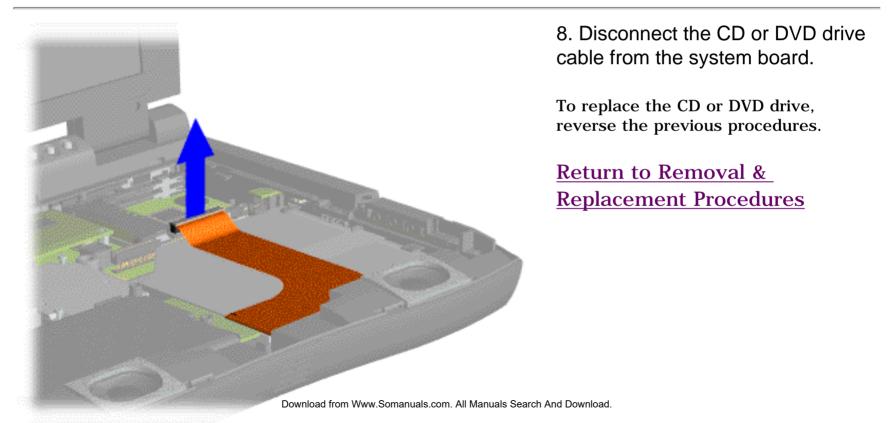
5. Remove the <u>stiffener</u> <u>bracket</u>.

6. Remove the <u>battery</u> <u>charger</u> <u>board</u>.

7. Remove two screws located at the back CD or DVD drive.

<u>Next Step</u>

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Removing the Display Panel Assembly

Electrostatic Discharge Service **Considerations Cables and Connectors Preparing the Computer for Disassembly Battery Pack Palmrest Cover with Touch Pad** <u>Keyboard</u> <u>Heatspreader</u> Modem **Processor Status Panel** Interface Board **Hard Drives Battery Charger Board CD or DVD** Drive **Display Panel** Assembly **Upper CPU** Cover **Speaker** Assembly **Diskette Drive Fan Assembly Audio Board System Board** Memory Module



<u>} |</u>

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

1. <u>Prepare the</u> <u>computer for</u> <u>disassembly</u>.

2. Remove the palmrest cover with touch pad.

3. Remove the <u>keyboard</u>.

4. Remove the <u>heatspreader</u>.

5. Remove the <u>status</u> panel.

6. Remove the interface board.

7. Grasp the hinge covers, pull out and lift the covers off the chassis.

IMPORTANT:	Carefully remove the display panel assembly hinge covers.
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Next Step

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