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Maintenance & Service Guide Presario Series

Models: 1270, 1670, and 1675

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Models and Features

Controls and Lights

Front Bezel Lights

Front Bezel
Buttons

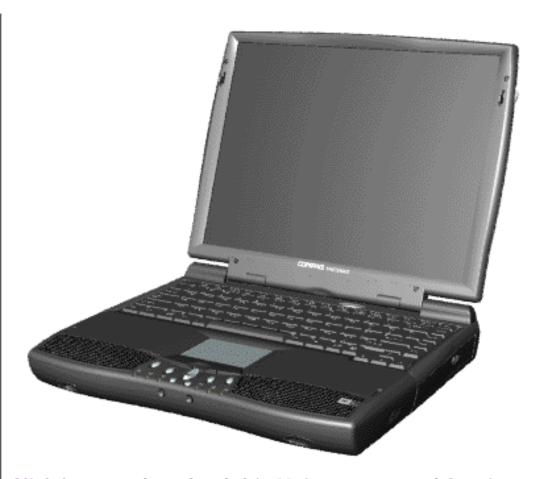
<u>Left Side</u> <u>Components</u>

Right Side Components

Bottom of Unit

Rear Connectors

Power Management for Windows 98



<u>Click here</u> to download this Maintenance and Service Guide (MSG) to your hard drive.

Welcome to the Maintenance & Service Guide (MSG). This online guide is designed to serve the needs of those whose job it is to repair Compaq products. Many of the components of the hardcopy MSG are contained in this online guide. The Notice, contains the copyright and trademark information. The Preface shows symbol conventions, Technician Notes and Serial Number locations on the unit.

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

For content comments or questions, contact the Editor.

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

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Notice

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Maintenance and Service Guide

Compaq Presario Series Portable Computer

First Edition (March 1999) 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 Series Portable Computers.

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

Symbols

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



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



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

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

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

Technician Notes



WARNING: Only authorized technicians trained by Compaq should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, the user should not attempt to make repairs at the component level or to make modifications to any printed circuit board. Improper repairs can create a safety hazard. Any indications of component replacement or printed circuit board modifications may void any warranty

Serial Number

When requesting information or ordering spare parts, the computer serial number should be provided to Compaq. The serial number is located on the bottom of the computer.

Locating Additional Information

The following documentation is available to support this product:

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

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Product Description

Models and Features

Controls and Lights

Front Bezel Lights

Front Bezel
Buttons

<u>Left Side</u> Components

Right Side Components

Bottom of Unit

Rear

Connectors

Power

Management for Windows

<u>98</u>



Compaq Presario Series Portable Computer is continuation of the new generation οf multimedia portable computers with an innovative integrated design, outstanding audio and video, advanced core features. and attractive styling. This fullfunction.

AMD-K6 based portable computer allows full desktop functionality.

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Troubleshooting

Preliminary Steps

Clearing the

Power-On

Password

Power-On Self

Test (POST)

Compaq

Diagnostics

Diagnostic Error

Codes

Troubleshooting

Without

Diagnostics

Solving Minor

Problems

Contacting

Compaq

Support

This section covers troubleshooting information for the Compag Presario 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 <u>Diagnostic Error Codes</u> 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

System Unit

Boards

Display

Assembly

Mass Storage

Devices

<u>Miscellaneous</u>

Cable Kit

<u>Miscellaneous</u>

Hardware Kit

<u>Miscellaneous</u>

Plastics Kit

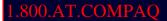
Miscellaneous

Parts 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 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

Electrostatic

Discharge

<u>Service</u>

Considerations

Cables and

Connectors

Preparing the

Computer for

<u>Disassembly</u>

Battery Pack

Palmrest

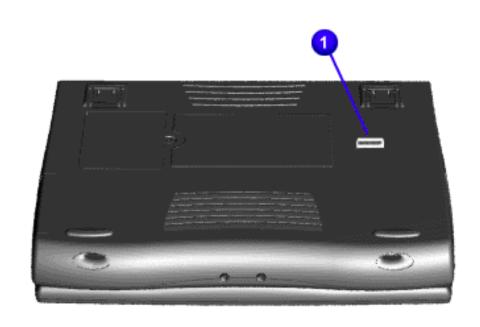
Cover with

Touch Pad

Keyboard

Heatspreader

Processor



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

Hard Drive

DVD or

CD Drive

Battery

Charger Board

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

<u>Settings</u>

Memory

Module

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Specifications

This chapter covers the following specifications of Compaq Presario 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
- DVD or CD drive
- Battery pack

Physical and Environmental

Computer Specifications				
	U.S.	Metric		

Dimensions			
Height	1.97 in	5.0 cm	
Depth	12.32 in 10.12 in	31.3 cm 25.7 cm	
Width	10.12 111	25.7 CIII	
Weight	7.35 lbs	2 24 kg	
Model 1270 Model 1670	7.35 lbs	3.34 kg 3.34 kg	
Model 1675	7.99 lbs	3.63 kg	
Stand-Alone (Battery Pack) Power	Li Ion		
Requirements			
Nominal Operating Voltage	W @ 14.8 VDC W @ 56.5 W		
Maximum Operating Power Peak Operating Power	W @ 58.5 W		
AC Power Requirements	(Information not available)		
Operating Voltage Operating Current Operating Frequency Maximum Transient			
Temperature			
Operating	41° to 95 °F	5° to 35 °C	
Nonoperating	-4° to 140 °F	-20° to 60 °C	
Relative Humidity (Non-condensing)			
Operating	10 to 90%	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 10.14 km	
Shock			
Operating	10 G, 11 ms, half sine		
Non operating	240 G, 2 ms, half sine		
Vibration			
Operating	0.55 G, 0.25 Oct/Min sweep rate		
Nonoperating	1.5 G, 0.25 Oct/Min sweep rate		
NOTE: Applicable product safety standard	s specify thermal limits for plastic surfaces	Compag Prosario Sorios	

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

System Interrupts

System Interrupts		
Hardware IRQ	System Function	
IRQ0	Timer Interrupt	
IRQ1	Standard 101/102-Key or Microsoft Natural Keyboard	
IRQ2	Programmable interrupt controller	
,		

IRQ3 Compaq Prosignia 56K-DF			
IRQ4	Communications Port (COM1)		
IRQ5	ES1869 Plug and Play Audio Drive		
IRQ6	Standard Floppy Disk Controller		
IRQ7	Printer Port (LPT1)		
IRQ8	System CMOS / real-time clock		
IRQ9	(free)		
IRQ10	OPTi 82C861 PCI to USB Open Host Controller		
IRQ10	IRQ Holder for PCI Steering		
IRQ11	IRQ Holder for PCI Steering		
IRQ11	IRQ Holder for PCI Steering		
IRQ11	NeoMagic MagicGraph 128XD		
IRQ11	Texas Instruments PCI-1131 CardBus Controller		
IRQ11	Texas Instruments PCI-1131 CardBus Controller		
IRQ12	Synaptics PS/2 TouchPad		
IRQ13	Numeric data processor		
IRQ14 Primary IDE controller (dual fifo)			
IRQ14 Opti Viper Max Dual PCI IDE Controller			
IRQ15 Secondary IDE controller (dual fifo)			
IRQ15	Opti Viper Max Dual PCI IDE Controller		

System DMA

System DMA		
Hardware DMA System Function		
0	ES1869 Plug and Play AudioDrive	
1	ES1869 Plug and Play AudioDrive	
2	Standard Floppy Disk Controller	
3	(free)	
4	Direct memory access controller	
5	(free)	
6	(free)	
7	(free)	

System I/O Address

System I/O Address		
I/O Address (Hex) System Function (Shipping Configuration)		
x0000 - x000F	Direct memory access controller	
x0020 - x0021	Programmable interrupt controller	

x0022 - x0024	Motherboard resources	
x0040 - x0043	System timer	
x0060 - x0060 Standard 101/102-Key or Microsoft Natur		
x0061 - x0061	System speaker	
x0064 - x0064	Standard 101/102-Key or Microsoft Natural Keyboard	
x0070 - x0071	System CMOS/real time clock	
x0080 - x0080	Motherboard resources	
x0081 - x008F	Direct memory access controller	
x0092 - x0092	Motherboard resources	
x00A0 - x00A1	Programmable interrupt controller	
x00C0 - x00DF	Direct memory access controller	
x00EC - x00EF	Motherboard resources	
x00F0 - x00FF	Numeric data processor	
x0170 - x0177 Opti Viper Max Dual PCI IDE Controll		
x0170 - x0177	Secondary IDE controller (dual fifo)	
x01F0 - x01F7 Opti Viper Max Dual PCI IDE Cont		

System Memory Catalog

System Memory Catalog		
System Function		
System board extension for PnP BIOS		
NeoMagic MagicGraph 128XD		
NeoMagic MagicGraph 128XD		
NeoMagic MagicGraph 128XD		
System board extension for PnP BIOS		

x00100000 - x01FFFFFF	System board extension for PnP BIOS	
x03000000 - x03000FFF	Texas Instruments PCI-1131 CardBus Controller	
x03001000 - x03001FFF	Texas Instruments PCI-1131 CardBus Controller	
xFD000000 - xFDFFFFFF	NeoMagic MagicGraph 128XD	
xFEA00000 - xFEBFFFFF	NeoMagic MagicGraph 128XD	
xFECFF000 - xFECFFFFF	OPTi 82C861 PCI to USB Open Host Controller	
xFED00000 - xFEDFFFFF	NeoMagic MagicGraph 128XD	
xFFFC0000 - xFFFFFFF	Motherboard resources	

Display

12.1" (Diagonal) TFT Display with LVDS				
	U.S.	Metric		
Dimensions Height Width	7.83" 10.8"	19.9 cm 25.7 cm		
Diagonal Size	12.1"	30.7 cm		
Mounting	Internal	Internal		
Number of Colors	16 M	16 M		
Contrast Ratio	Typical 150:1	Typical 150:1		
Brightness	Over 120 cd/m	Over 120 cd/m~3		
Pixel Resolution Pitch Format Configuration	0.30 x 0.30 mi 800 x 600 RGB Stripe			
Backlight	Edge Light	Edge Light		
Character Display	80 x 25, 80 x 5	80 x 25, 80 x 50		
Total Power Consumption	5.4 W (max)	5.4 W (max)		

(Information not available)

13.3" (Diagonal) TFT Display with LVDS		
	U.S.	Metric
Dimensions Height Width		
Diagonal Size		
Mounting		
Number of Colors		
Contrast Ratio		
Brightness		
Pixel Resolution Pitch Format Configuration		
Backlight		
Character Display		
Total Power Consumption		

14.1" (Diagonal) TFT Display with LVDS		
	U.S.	Metric
Dimensions Height Width	8.43" 11.2"	21.42 cm 28.56 cm
Diagonal Size	14.1"	35.8 cm
Mounting	Internal	
Number of Colors	64 K	
Contrast Ratio	Typical 150:1	
Brightness	Over 120 cd/n	n~3
Pixel Resolution Pitch Format Configuration	0.279 x 0.279 1024 x 768 RGB Stripe	mm
Backlight	Edge Light	
Character Display	80 x 25	
Total Power Consumption	6.6 W (max)	

Memory Expansion

Memory Expansion for 350-MHz Processor			
System Memory	Expansion Board Memory	Total Memory	
32-MB	32-MB	64-MB	
32-MB	64-MB	96-MB	

32-MB	128-MB	160-MB
11	II.	II.

Memory Expansion for 380-MHz Processor		
System Memory	Expansion Board Memory	Total Memory
64-MB	32-MB	96-MB
64-MB	64-MB	128-MB
64-MB	128-MB	192-MB

Diskette Drive

Diskette Drive	
Diskette Size Light Height	3.5 in None .5" / 1.27 cm
Bytes per Sector: Sectors per Track High Density Low Density	512 18 (1.44-MB) / 15 (1.2-MB) 9
Tracks per Side High Density Low Density	80 (1.44-MB) / 80 (1.2-MB) 80
Access Times	
Track-to-Track (high/low) Average (ms) Setting Time (ms) Latency Average	3 ms/6 ms 94 ms/174 ms 15 ms 100
Number of Read/Write Heads	2

Hard Drive

Hard Drives			
	6.4-GB	4.3-GB	
Capacity Per Drive	6.4-GB	4.3-GB	
Drive Type	65	65	
Physical Configuration Cylinders Heads Sectors per track Bytes per sector	8647 6 240-250 512	8647 6 240-250 512	
Logical Configuration Cylinders Heads Sectors per track Bytes per sector	13424 15 63 512	7944 15 63 512	

Seek Times (Typical, Including settling in ms)	2.5 ms	2.5 ms
Track to Track Average Maximum Rotational Speed	13 ms 23 ms 4200 rpm	13 ms (read) 23 ms 4200 rpm
Transfer Rate Media At interface	60.8 to 107.2 Mb/s 33.3 MB/s	60.8 to 107.2 Mb/s 33.3 MB/s
Sector Interleave	1:1	1:1
Buffer Size	512 KB	512 KB

DVD or **CD Drive**

CD Drive	
	24× CD Drive
Applicable Disk	CD-DA, CD-ROM, CD-ROM XA, CD-1, Photo CD (multisession), Video CD, CD- R, CD-Extra (CD+), CD-G, CD-RW
Center Hole Diameter	.6" / 15 mm
Disc Diameter	12 cm, 8 cm
Disc Thickness	1.2 mm
Track Pitch	1.6 um
Access Time (typical, including setting)	110 ms
Audio Output Level Line out Headphone	+/- 0.27 Vrms none
Cache Buffer	128 KB
Data Transfer Rate (typical, including setting)	3600 KB/s 150 KB/s 16.66 MB/sec
Startup Time	< 8 sec
Stop time	< 4 sec

DVD Drive	
	DVD Drive
Applicable Disk	DVD-ROM, CD-ROM, CD-XA, CD-I, Photo CD, Multisession, Audio, CD-R, CD-RW
Center Hole Diameter	6" / 15mm
Access Time (typical, including setting)	< 100 ms (CD) < 150 ms (DVD)
Disc Thickness	4.7", 3.15" / 12cm, 8cm

Track Pitch	0.74um (DVD)
Laser Beam Divergence	.05" / 1.2cm
Audio Output Level Line out Headphone	1.0 volts RMS 0 - 0.6 volts RMS
Cache Buffer	512 KB/s (CD)
Data Transfer Rate (typical, including setting)	12,000 - 3,000 KB/s (CD) 2705 KB/s (DVD)
Startup Time	< 5 sec
Stop time	< 3 sec

Battery Pack

Battery Pack		
	Lithium Ion (Li ion) *	
	US	Metric
Dimensions Height Length	.81 in 3.05 in 5.69 in	2.05 cm 7.75 cm 14.45 cm
Weight	0.85 lb	.39 kg
Energy Voltage Amp-hour capacity Watt-hour capacity	3:00 hr 14.8 V 3.0 Ah 44.4 Wh	
Environmental Requirements Operating Temperature Non-operating Temperature	32° F to 113 F -4° F to 140 ° F	0° to 45° C -20° to 60° C

Modem	
Compliance	ITU v.90~6 standard
Full ITU-T V.34 compliance Full compliance with: V.21, V.22, V.22bis, V.23, V.32bis, Bell 103, Bell 212A	
Data Compression	V.42bis/MNP 5

Fax Modulation	V. 17
	V. 21 (Group III Compatible)
	V.29
	V.27Ter
Command Set	Hayes AT
	Class 1 Fax
Cable	6 Ft. RJ-11 telephone cable

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Connector Pin Assignments

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

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

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

[9	Data Bit 7	18-25	Signal Ground
	* = Active	low		

Serial Connector		
Connector	Pin	Signal
\(0 0 0 0 0 \)	1 2	Carrier Detect 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
Ke	yboard/	'Mouse
Connector	Pin	Signal
	1	Data 1
	2	Data 2
	3	Ground
	4	+5 V
	5	Clock 1
	6	Clock 2

External VGA Monitor		
Connector	Pin	Signal
\(\begin{picture}(30 \\ 00 \\	1	Red Analog
\@@@@J	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			
	Signal	Pin	Connector
	Signal	Pin	Connector

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

Modem			
Connector	Pin	Signal	
	1	Unused	
	2	Unused	
Modem Connector	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 LED light on the display stops blinking. Your battery gauge may read 100 percent for a period of time before LED light on the display stops blinking. Do not unplug the AC adapter until the arrow disappears.
- 2. Unplug the AC adapter and allow the battery to drain until the computer reaches hibernation and turns itself off. **Do not plug in the AC adapter during this process or you will need to restart with Step No. 1.** You may use the computer while the battery is draining.
- 3. Your battery is re-conditioned.
- 4. Plug in the AC adapter and begin using the computer.

The table below shows the approximate battery pack charge times.

Approximate Battery Charge Time		
Computer	On Line	Off Line
NiMH Battery Pack	4.0 hours premature termination	2:00 hrs

Li ion Battery Pack	4.5 hours premature termination	2:50 hrs
---------------------	---------------------------------	----------

Disposal of a Used Battery Pack

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



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

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<u>Lights</u>
<u>Ligitts</u>
Front Bezel
<u>Lights</u>
Front Bezel
<u>Buttons</u>
Left Side
Components
Components
Right Side
-
Right Side Components
Right Side Components Bottom of
Right Side Components
Right Side Components Bottom of
Right Side Components Bottom of Unit Rear
Right Side Components Bottom of Unit Rear Connectors
Right Side Components Bottom of Unit Rear
Right Side Components Bottom of Unit Rear Connectors
Right Side Components Bottom of Unit Rear Connectors Power
Right Side Components Bottom of Unit Rear Connectors Power Management

Compaq Presario Series Portable Computer Models				
	Model 1675	Model 1670		
Display	14. 1" TFT	13.3" TFT		
Processor	AMD-K6 380-Mhz MMX	AMD-K6 350-Mhz MMX		
Cache	1-MB	1-MB		
Hard Drive	6.4-GB	4.3-GB		
DVD or CD Drive	2x DVD	24x CD		
Modem	56.0 Kbps Data/Fax with PCI	56.0 Kbps Data/Fax with PCI		
System Memory	64-MB	64-MB		
	Model 1270			
Display	12. 1" TFT			
Processor	AMD-K6 350-Mhz MMX			
Cache	512K			
Hard Drive	4.3-GB			
CD Drive	24x CD			
Modem	56.0 Kbps Data/Fax with PCI			
System Memory	32-MB			

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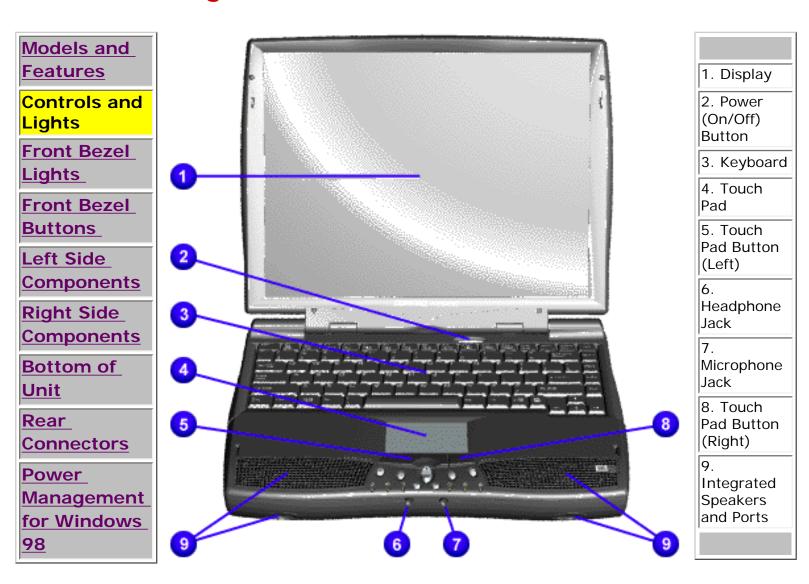
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Controls and Lights



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Front Bezel Lights

Models and Features

Controls and

<u>Lights</u>

Front Bezel Lights

Front Bezel
Buttons

Left Side

<u>Components</u>

Right Side

<u>Components</u>

Bottom of

<u>Unit</u>

Rear

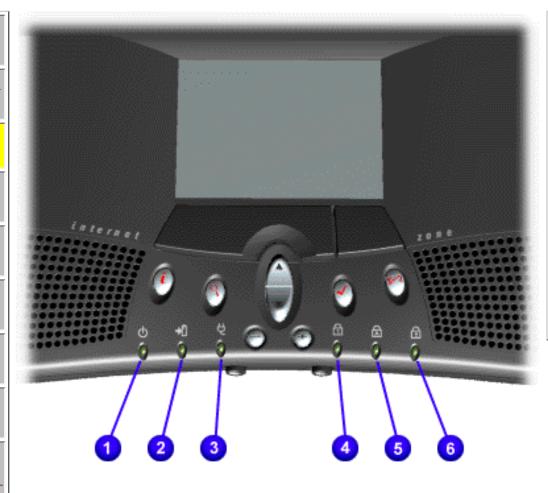
Connectors

Power

<u>Management</u>

for Windows

<u>98</u>



- 1. Power Light
- 2. Battery Charge Light
- Power Cord Light
- 4. Num Lock Light
- 5. Cap Lock Light
- 6. Scroll Lock Light

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Front Bezel Buttons

Models and Features

Controls and

Lights

Front Bezel

<u>Lights</u> Front Bezel

Buttons

Left Side

Components

Right Side

<u>Components</u>

Bottom of

<u>Unit</u>

Rear

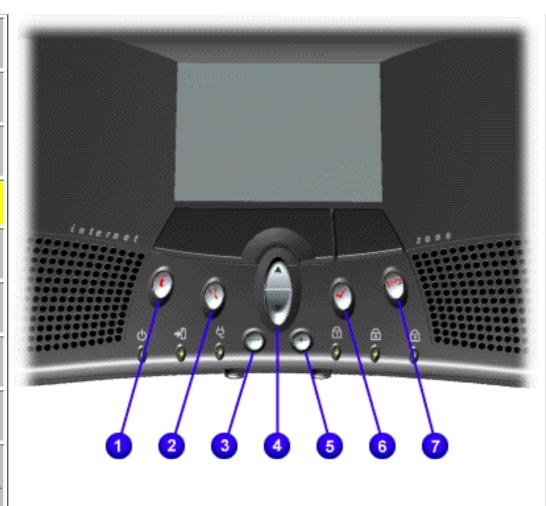
Connectors

Power

<u>Management</u>

for Windows

<u>98</u>



- 1. Instant Internet Access Button
- 2. Instant Search Button
- 3. Volume Down Button
- 4. Scroll Up/ Down Button
- 5. Volume Up Button
- 6. Secure E-Commerce Button (or favorite website)
- 7. Instant E-Mail Button

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Left Side Components

Models and Features

Controls and Lights

Front Bezel

<u>Lights</u>

Front Bezel
Buttons

Left Side Components

Right Side Components

Bottom of Unit

Rear

Connectors

Power

<u>Management</u>

for Windows

<u>98</u>



- 1. PC Card Eject Lever
- 2. PC Card Slot
- 3. Ethernet Connector Plug
- 4. Diskette Drive Slot
- 5. Diskette Eject Button

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Right Side Components

Models and Features

Controls and Lights

Front Bezel Lights

Front Bezel
Buttons

Left Side

Components

Right Side Components

Bottom of Unit

Rear

Connectors

Power

<u>Management</u>

for Windows

<u>98</u>



- 1. Battery Compartment
- 2. DVD or CD Drive Manual Eject Hole
- 3. DVD or CD Drive Eject Button

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Bottom of Unit

Models and Features

Controls and

<u>Lights</u>

Front Bezel

<u>Lights</u>

Front Bezel
Buttons

Left Side

Components

Right Side Components

Bottom of Unit

Rear

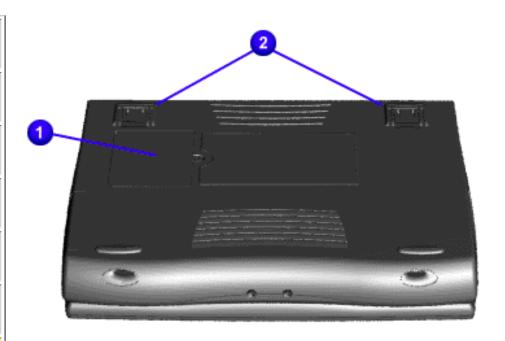
Connectors

Power

Management

for Windows

<u>98</u>



- 1. Memory Compartment Door
- 2. Stand Feet

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Rear Connectors

Models and Features

Controls and

<u>Lights</u>

Front Bezel Lights

Front Bezel

Buttons

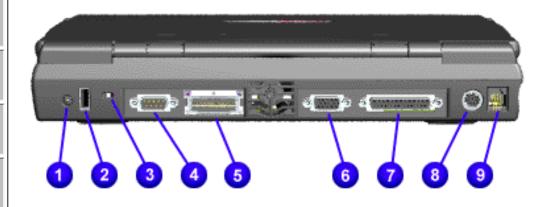
Left Side Components

Right Side Components

Bottom of Unit

Rear Connectors

Power Management for Windows 98



1. AC Adapter

2. Universal Serial Bus

3. Security Slot

4. Serial Port

5. Port Replicator

6. External Monitor Port

7. Parallel Printer Port

Keyboard/ Mouse Port

9. Modem Jack "Compaq.com - Compaq Presario Series Maintenance and Service Guide - Models: 1270, 1670, and 1675

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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
- Sleep
- 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 or DVD playback (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.)

IMPORTANT: If you're on a network, it's recommended that you set System Standby to Never.

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 Always on System

Standby:

After 15 minutes
After 15 minutes

After 10 minutes
After 10 minutes

Power Management Properties

Tab: **ALARMS**::

Low Battery Alarm: 10% Critical Battery Alarm 0%

Alarm Actions: X Display Message Notification

Text Action No Action

Power Management Properties

Tab: **POWER METER**: Default **Tab: ADVANCED** Default

Display Properties

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

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 Series 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+F4 Time Out Default 15 minutes. If on	Press any key	Flashing green Power LED
	Battery power (system will not go to Sleep if on AC power)		
Hibernate	Manual - Press Power Button once	Press Power Button once	No Power LED, blank screen
	Time Out Default If low battery or after 1 hour of sleep (system will not Hibernate if on AC power)		
Off	Perform normal Windows shutdown via the start button, or press and hold down the power button for 4 seconds	Press Power 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 (see battery section for instruction on removing battery).

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 Battery Pack Operations.

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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.

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



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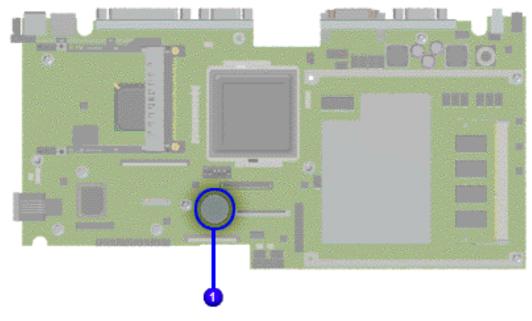
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Clearing the Power-on Password



Clearing the power-on password requires removing all Setup attributes that are programmed in the CMOS. The 1 RTC battery is located on the system board.

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 <u>Palmrest</u> Cover with Touch Pad.
- 5. Remove the heatspreader.

- 6. Remove the keyboard.
- 7. Remove RTC battery for 30 seconds and replace it .
- 8. Reassemble the computer.
- 9. Turn on the computer to verify that the power-on password has been cleared. If it has not been cleared, repeat Steps 1 through 9.

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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			
Probable Cause Recommended Action			
DMA, timers, etc.	Replace the system board.		
162-Sy	stem 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.		
X000YZZ RAM failure Replace the system board.			

XX000	YZZ 201-Memory Error	
Probable Cause	Recommended Action	
3	01-Keyboard Error	
Probable Cause	Recommended Action	
Keyboard failure	Ensure the keys are not depressed during POST.	
	2. Reconnect the keyboard with the computer off.	
	3. Replace the keyboard.	
304-Keyb	ooard or System Unit Error	
Probable Cause	Recommended Action	
Keyboard or system board error	Replace the keyboard.	
	2. Replace the TouchPad or mouse.	
	3. Replace the system board.	
601-D	iskette Controller Error	
Probable Cause Recommended Action		
Mismatch in drive type or failure in the diskette	1. Run Computer Checkup (TEST).	
controller	2. Check and/or replace cables.	
	3. Replace the system board.	
605	-Diskette Drive Error	
Probable Cause Recommended Action		
Mismatch in drive type	Run Computer Setup.	
1780-Pri	mary 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	
Hard drive controller failure	1. Run Computer Setup.	
	2. Replace the hard drive.	

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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:

- Computer Checkup (TEST)
- View System Information (INSPECT)
- 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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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 **Removal and** Replacement Procedures.

Select error codes by number or type:

101 through 114	Processor Test
200 through 215	Memory Test
300 through 304	Keyboard Test
401 through 403	Parallel Printer Test
600 through 699	<u>Diskette Drive Tes</u> t
<u>1101</u>	Serial Test
1701 through 1736	Hard Drive Test
501 through 516	<u>Video Test</u>
2402 through 2456	

2458 through 2480

3206 Audio Test

8601 through 8602 Touch Pad Pointing Device Test

3301 through 6623 CD Test

Processo	r Test Error Codes	
Error Code	Description	Recommended Action
101-xx	CPU test failed	Replace the processor and retest.
102-xx	Coprocessor or Weitek Error	 Run the Configuration and Diagnostics Utilities. Replace the processor board and retest.
103-xx	DMA page registers test failed	Replace the system board and retest.
104-xx	Interrupt controller master test failed	
105-xx	Port 61 error	
106-xx	Keyboard controller self-test failed	
107-xx	CMOS RAM test failed	
108-xx	CMOS interrupt test failed	
109-xx	CMOS clock test failed	
110-xx	Programmable timer load data test failed	
113-xx	Protected mode test failed	
114-01	Speaker test failed	 Check system configuration. Verify cable connections to speaker. Replace the system board and retest.
	Memory Test E	rror Codes
200-xx	Memory machine ID test failed	1. Flash the system ROM and retest.
202-xx	Memory system ROM checksum failed	2. Replace the system board and retest.
203-xx	Write/Read test failed	1. Remove the memory module and
204-xx	Address test failed	retest. 2. Install a new memory module and
211-xx	Random pattern test failed	retest.
214-xx	Noise test failed	
215-xx	Random address test failed	
	Keyboard Test E	Error Codes

300-xx	Failed ID Test	1. Check the keyboard connection. If disconnected, turn off the computer and			
301-xx	Failed Selftest/Interface Test	connect the keyboard.			
302-xx	Failed Individual Key Test	2. Replace the keyboard and retest.			
304-xx	Failed Keyboard Repeat Test	3. Replace the system board and retest.			
	Parallel Printer Test Error Codes				
401-xx	Printer failed or not connected	 Connect the printer. Check power to the printer. 			
402-xx	Failed Port Test	3. Install the loop-back connector and retest.			
403-xx	Printer pattern test failed	4. Check port and IRQ configuration. 5. Replace the system board and retest.			
	Diskette Dri	ve Test			
600-xx	Diskette ID drive types test failed	 Replace the diskette media and retest. Check and/or replace the diskette 			
601-xx	Diskette format failed	power and signal cables and retest.			
602-xx	Diskette read test failed	3. Replace the diskette drive and retest. 4. Replace the system board and retest.			
603-xx	Diskette write, read, compare test failed				
604-xx	Diskette random read test failed				
605-xx	Diskette ID media failed				
606-xx	Diskette speed test failed				
609-xx	Diskette reset controller test failed				
610-xx	Diskette change line test failed				
697-xx	Diskette type error				
698-xx	Diskette drive speed not within limits				
699-xx	Diskette drive/media ID error	 Replace media. Run the Configuration and Diagnostics Utilities. 			
	Serial Test Err	or Codes			
1101-xx	Serial port test failed	 Check port configuration Replace the system board and retest. 			
	Hard Drive Test	Error Codes			
1701-xx	Hard drive format test failed	1. Run the Configuration and			
1702-xx	Hard drive read test failed	Diagnostics Utilities and verify drive type.			

1703-xx	Hard drive write/read/compare test failed	
1704-xx	Hard drive random seek test failed	
1705-xx	Hard drive controller test failed	
1706-xx	Hard drive ready test failed	
1707-xx	Hard drive recalibration test failed	
1708-xx	Hard drive format bad track test failed	
1709-xx	Hard drive reset controller test failed	
1710-xx	Hard drive park head test failed	
1715-xx	Hard drive head select test failed	
1716-xx	Hard drive conditional format test failed	
1717-xx	Hard drive ECC* test failed	
1719-xx	Hard drive power mode test failed	
1724-xx	Network preparation test failed	
1736-xx	Drive monitoring test failed	

- 2. Verify that all secondary drives have secondary drive capability.
- 3. Replace the hard drive and retest.
- 4. Replace the system board and retest.

* ECC = Error Correction Code

,		
	Video Test Err	or Codes
501-xx	Video controller test failed	The follow
502-xx	Video memory test failed	xx throug
503-xx	Video attribute test failed	1. Discon
504-xx	Video character set test failed	with inter
505-xx	Video 80 × 25 mode 9 × 14 character cell test failed	2. Replac retest. 3. Replac
506-xx	Video 80 × 25 mode 8 × 8 character cell test failed	з. керіас
507-xx	Video 40 × 25 mode test failed	
508-xx	Video 320 × 200 mode color set 0 test failed	
509-xx	Video 320 × 200 mode color set 1 test failed	
510-xx	Video 640 × 200 mode test failed	
511-xx	Video screen memory page test failed	

The following apply to error codes 501-xx through 516-xx:

- 1. Disconnect external monitor and test with internal LCD display.
- 2. Replace the display assembly and retest.
- 3. Replace the system board and retest.

512-xx	Video gray scale test failed		
514-xx	Video white screen test failed		
516-xx	Video noise pattern test failed		
2402-xx	Video memory test failed	The following steps apply to error codes	
2403-xx	Video attribute test failed	2402-xx through 2456-xx:	
2404-xx	Video character set test failed	1. Run the Configuration and	
2405-xx	Video 80 × 25 mode 9 × 14 character cell test failed	Diagnostics Utilities. 2. Replace the display assembly and	
2406-xx	Video 80 × 25 mode 8 × 8 character cell test failed	retest. 3. Replace the system board and retest.	
2408-xx	Video 320 × 200 mode color set 0 test failed		
2409-xx	Video 320 × 200 mode color set 1 test failed		
2410-xx	Video 640 × 200 mode test failed		
2411-xx	Video screen memory page test failed		
2412-xx	Video gray scale test failed		
2414-xx	Video white screen test failed		
2416-xx	Video noise pattern test failed		
2418-xx	ECG/VGC memory test failed		
2419-xx	ECG/VGC ROM checksum test failed	1. Run the Configuration and Diagnostics Utilities.	
2421-xx	ECG/VGC 640 × 200 graphics mode test failed	2. Disconnect external monitor and test with internal LCD display.3. Replace the display assembly and	
2422-xx	ECG/VGC 640 × 350 16 color set test failed	retest. 4. Replace the system board and retest.	
2423-xx	ECG/VGC 640 × 350 64 color set test failed		
2424-xx	ECG/VGC monochrome text mode test failed		
2425-xx	ECG/VGC monochrome graphics mode test failed		
2431-xx	640 × 480 graphics test failure		
		· '	

2432-xx	320 × 200 graphics (256 color mode) test failure	
2448-xx	Advanced VGA Controller test failed	
2451-xx	132-column Advanced VGA test failed	
2456-xx	Advanced VGA 256 Color test failed	
2458-xx	Advanced VGA BitBLT test	The following step applies to error codes 2458-xx through 2480-xx:
2468-xx	Advanced VGA DAC test	Replace the system board and retest.
2477-xx	Advanced VGA data path test	
2478-xx	Advanced VGA BitBLT test	
2480-xx	Advanced VGA LineDraw test	
	Audio Test Err	or Codes
3206-xx	Audio System Internal Error	Replace the system board and retest.
	TouchPad/Pointing Device In	terface Test Error Codes
8601-xx	Mouse test failed	 Replace the TouchPad and retest. Replace the system board and retest.
8602-xx	Interface test failed	
	CD Drive Test E	rror Codes
3301-xx	CD drive read test failed	Replace the CD and retest. Verify that the speakers are
3305-xx	CD drive seek test failed	connected. 3. Verify that drivers are loaded and properly installed.
6600-xx	ID test failed	4. Replace the CD drive and retest. 5. Replace the system board and retest.
6605-xx	Read test failed	

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6608-xx	Controller test failed
6623-xx	Random read test failed

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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:

AudioMemoryBattery/Battery gaugePC CardCD drivePowerDiskette/Diskette drivePrinterDisplayTouch Pad

Hard drive Keyboard/Numeric keypad

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.

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

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Solving Minor Problems

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

Solving Audio Problems

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

Solving Audio Problems		
Problem	Probable Cause	Solution(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 Drive Problems

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

Solving CD Drive Problems			
Problem	Probable Cause	Solution(s)	
CD drive cannot read a compact disc.	improperly inserted in the CD drive.	Open the CD loading tray, lay the compact disc in it (label side up), then close the tray.	
	0 1	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.
Januar 2001 II Gill Gilliotte.	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 or contrast (if applicable) is not set properly.	Adjust the Brightness of the display by using Fn + F7 ($^-$) or Fn + F8 ($^-$). Adjust the Contrast of the display by using Fn + F5 ($^-$) or Fn + F6 ($^-$).
	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.
Contrast cannot be adjusted with Fn + F5 () or Fn + F6 (-).	Improper display cable connections.	1. Reseat the display cable to the system board.
		2. Replace the display assembly.
	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective system board.	Replace the system board.

** 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.
Ghost bars extending from graphics on the display.	Common characteristic of STN displays.	1. Change the background colors. 2. Adjust the Contrast of the display by using Fn + F5 (-) or Fn + F6 (-).
A single line, small group of lines, or block appears on the display panel. This failure occurs in only a section of the display panel.	Defective display panel.	Replace the display assembly.



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

Solving Hard Drive Problems

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



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

Solving Hard Drive Problems			
Problem	Probable Cause	Solution(s)	
Reading hard drive takes an unusually long time after restarting the computer.	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.	re Ensure that all cables are properly and securely connected.		
	Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.		
	Device is not seated properly.	Turn off the computer and reinsert the device.		

Solving Keyboard/Numeric Keypad Problems

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

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

Solving Memory Problems

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

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

Solving Minor Problems (continued)

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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.



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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<u>Display</u> Assembly

Mass Storage

<u>Devices</u>

<u>Miscellaneous</u>

Cable Kit

<u>Miscellaneous</u>

Hardware Kit

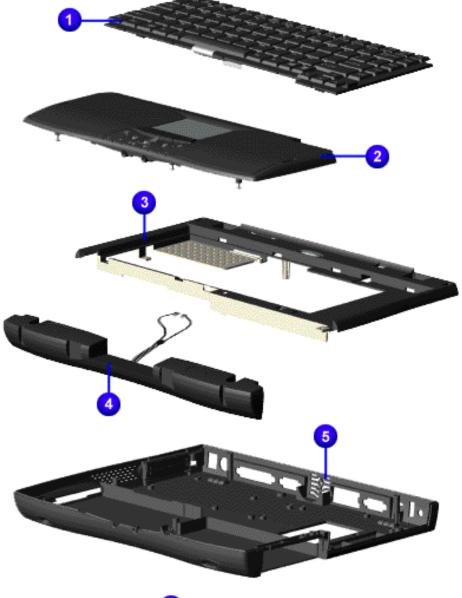
<u>Miscellaneous</u>

Plastics Kit

Miscellaneous

<u>Parts</u>

Documentation and Software



Description	Spare Part Number
1. Keyboard	102250- 001
2. Palmrest Cover w/ TouchPad and Button Board (Model: 1675)	118167- 001
2. Palmrest Cover w/ TouchPad and Button Board (Models: 1270 and 1670)	387540- 001
3. Upper CPU Cover w/Power Switch	400443- 001
4. Speaker Assembly w/ Cables	352889- 001
5 . Base Enclosure	400441- 001
6 .Battery Pack Li ion	388647- 001



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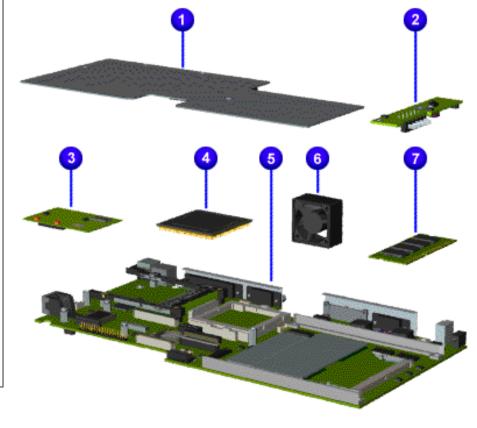
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Plastics Kit
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and Software



Description	Spare Part Number	
1. Heatspreader	122702- 001	
2. Voltage Convertor Board	352891- 001	
3. Modem 56K Data/ Fax w/o SRAM	400445- 001	
4. Processor AMD P350- Mhz (Models: 1270 and 1670)	122698- 001	
Processor AMD P380- Mhz (Model: 1675)	123923- 001	
5. System Board (Models: 1670 and 1675) System Board w/512K Cache (Model: 1270)	400440- 001 122697- 001	
6.Fan Assembly	400444- 001	

7 Custans	
7. System	
Memory	
32-MB	122699-
(Model:	1.220,,
1270)	001
64-MB	
(Models:	
•	122700-
1670 and	001
1675)	

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Description	Spare Part Number	
1. Display 14.1 TFT (Model: 1675)	118165- 001	
2. Display 13.3 TFT w/LVDS (Model: 1670) 3. Display 12.1 TFT w/ LVDS (Model: 1270)	123924- 001	
	387544- 001	
	r	

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Mass Storage Devices

System Unit

Boards

Display Assembly

Mass Storage Devices

Miscellaneous

Cable Kit

Miscellaneous

Hardware Kit

Miscellaneous

Plastics Kit

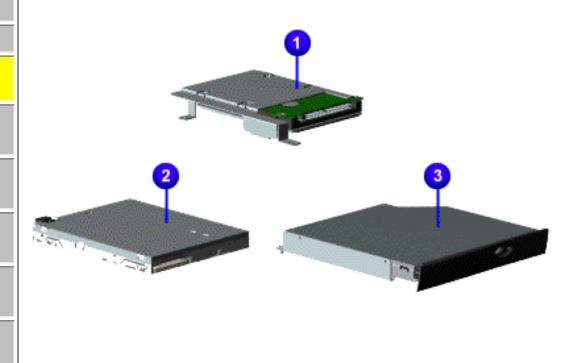
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Use the scroll down menu for the description and spare part number.



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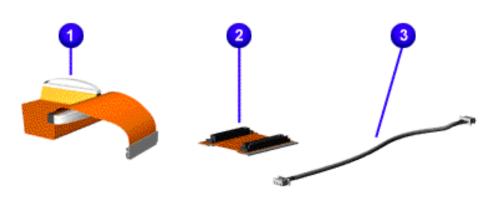
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Miscellaneous Cable Kit Spare Part Number: 330946-001		
1. Hard	1	
Drive	each	
and		
Diskette		
Drive		
Cable		
2. CD or	1	
DVD	each	
Drive		
Cable		
3.	1	
Modem	each	
Cable		

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Miscellaneous Hardware Kit

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Devices

System Unit

Miscellaneous Cable Kit

Miscellaneous Hardware Kit

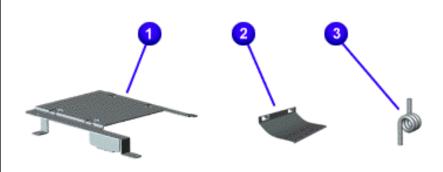
Miscellaneous

Plastics Kit

<u>Miscellaneous</u>

<u>Parts</u>

Documentation and Software



Miscellaneous Hardware Kit Spare Part Number: 346853-001		
Description	Quantity	
1. Hard Drive Mounting Bracket	1 each	
2. LCD Guide FPC	1 each	
3. Spring Torsion PCMCIA	4 each	

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<u>Assembly</u>	
Mass Storage	
Devices	

Miscellaneous
Cable Kit

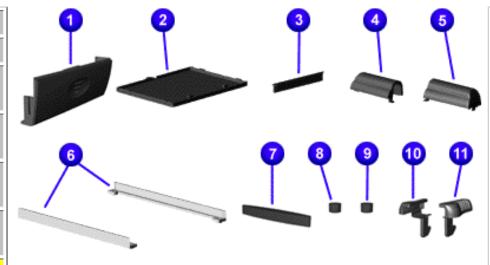
Miscellaneous Hardware Kit

Miscellaneous Plastics Kit

Miscellaneous

<u>Parts</u>

Documentation and Software



Miscellaneous Plastics Kit Spare Part Number: 330949-001 Description Quantity 1. Door, Pattery Pack

330949-001			
Description	Quantity		
1. Door, Battery Pack	1 each		
2. Cover, Memory Module	1 each		
3. Door, PCMCIA	1 each		
4. Display Hinge Cover, (Left)	1 each		
5. Display Hinge Cover, (Right)	1 each		
6. CD Drive Guide	1 each		
7. Rubber Plug (A)	4 each		
8. Rubber Plug (B)	4 each		
9. Rubber Foot	8 each		
10. Latch (Right)	2 each		
11. Latch (Left)	2 each		

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Miscellaneous Parts

System Unit

Boards

Display Assembly

Mass Storage

Devices

Miscellaneous

Cable Kit

Miscellaneous

Hardware Kit

Miscellaneous

Plastics Kit

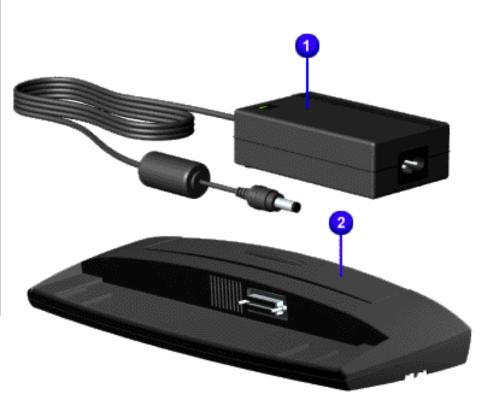
Miscellaneous

Parts

Documentation

and Software

Use the scroll down menu for the description and spare part number of spare parts Not Shown.



Miscellaneous Parts 1. AC 298239Adapter 001 2. Port 102270Replicator 001

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Documentation and Software

System Unit
<u>Boards</u>
<u>Display</u>
<u>Assembly</u>
Mass Storage
<u>Devices</u>

Miscellaneous
Cable Kit

Miscellaneous Hardware Kit

Miscellaneous
Plastics Kit

Miscellaneous Parts

Documentation and Software

	Description	l		Spare Part Number
	Quick Restor	e CD, Belgium	Windows 98	Info. Not Available
il	France	Windows 98		Info. Not Available
l	Germany	Windows 98		Info. Not Available
I	Netherlands	Windows 98		Info. Not Available
I	UK	Windows 98		Info. Not Available

Quick Reference Guide	Info. Not Available
QuickFind for Windows, North America, Latin America, Asia Pacific	Info. Not Available
QuickFind for Windows, Europe, Middle East, Africa	Info. Not Available

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

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

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Electrostatic Discharge

A sudden discharge of static electricity from a finger or other conductor can destroy staticsensitive 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 Hu	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		

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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:

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

Screws

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

IMPORTANT:

As each subassembly is removed from the computer, it should be placed away from the work area to prevent damage.

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

Select the desired illustration.

Removing a Cable from a **ZIF Connector**.

The ribbon cable position for the <u>4.3-GB and 6.4-GB hard drive</u>.

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

The ribbon cable position for the **diskette drive**.

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

Plastic Parts

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

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Preparing the Computer for Disassembly

Disassembly Sequence

Electrostatic Discharge

Service

Considerations

Cables and Connectors

Preparing the Computer for Disassembly

Battery Pack

Palmrest
Cover with
Touch Pad

Keyboard

<u>Heatspreader</u>

Processor

Hard Drive

DVD or CD Drive

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 Series Portable Computers into the battery compartment. Do not force the battery pack into the bay if insertion does not occur easily.

Battery Charger Board Modem **Display Panel Assembly** Upper CPU Cover Speaker **Assembly Diskette Drive** Fan Assembly

System Board

Dip Switch

Settings

Memory **Module**



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

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Connectors

Preparing the

Computer for

Disassembly

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the battery pack, complete the following steps:

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

Next Step

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings

Memory

Module

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Removing the Palmrest Cover with Touch Pad

Disassembly Sequence

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Cables and

Connectors

Preparing the

Computer for Disassembly

Battery Pack

Palmrest Cover with Touch Pad

Keyboard

Heatspreader

Processor

Hard Drive

DVD or

CD Drive

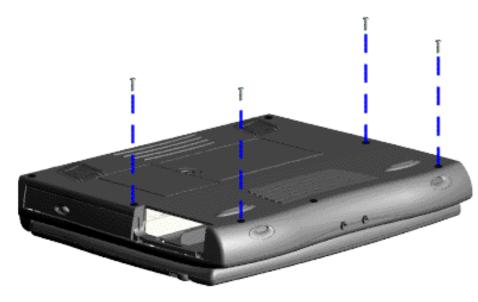
Battery

Charger Board

Modem

Display Panel

Assembly



The palmrest cover with touch pad must be removed to gain access to any of the interior components of the computer, and it is the first component that has to be removed to gain access to the interior components.

It is not necessary to remove the display panel

NOTE: assembly to access the interior components of the computer.

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

1. Prepare the computer for disassembly.

Upper CPU Cover

Speaker Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch
Settings

Memory Module

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privacy and legal statement

- 2. Close the computer and turn the computer upside down.
- 3. Remove four screws from the bottom of the computer.

Next Step

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Removing the Keyboard

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<u>Service</u>

Considerations

Cables and Connectors

Preparing the Computer for Disassembly

Pottony Dook

Battery Pack

<u>Palmrest</u>

Cover with Touch Pad

Keyboard

<u>Heatspreader</u>

Processor

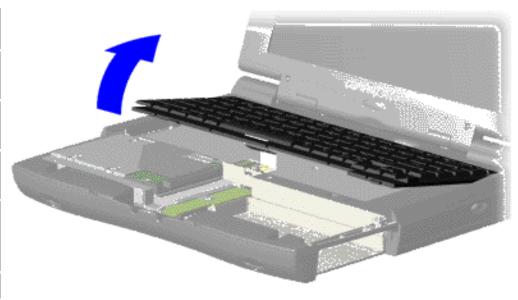
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the keyboard, complete the following steps:

- 1. <u>Prepare</u>
 <u>the</u>
 <u>computer for</u>
 disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Gently lift and turn the keyboard over allowing it to rest on top of the palmrest cover with touchpad slot opening.

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings

Memory

Module

4. Remove the heatspreader.

Next Step

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Connectors

Preparing the

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Disassembly

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

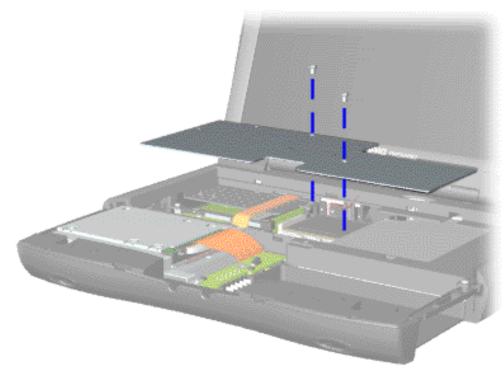
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the heatspreader, complete the following steps:

- 1. <u>Prepare</u> the computer for disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Gently lift and turn the keyboard over allowing it to rest on top of the palmrest cover with touchpad slot opening.

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings Memory

Module

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

To replace the heatspeader, reverse the previous procedures.

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Removing the Processor

Disassembly Sequence

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Service

Considerations

Cables and

Connectors

Preparing the

Computer for

<u>Disassembly</u>

Battery Pack

<u>Palmrest</u>

Cover with

Touch Pad

Keyboard

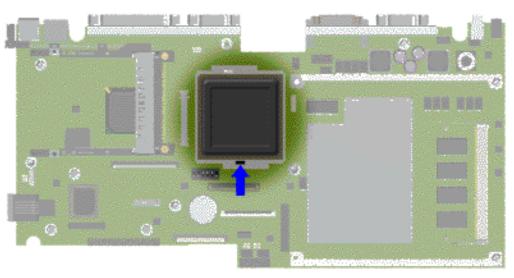
<u>Heatspreader</u>

Processor

Hard Drive

DVD or

CD Drive



To remove the processor, complete the following steps:

- 1. <u>Prepare</u>
 <u>the</u>
 <u>computer for</u>
 <u>disassembly</u>.
- 2. Remove the palmrest cover with touch pad.
- 3. Remove the keyboard.
- 4. Remove the heatspreader.
- 5. Insert a small blade screw driver

Battery
Charger Board
Modem
Display Panel
Assembly
Upper CPU
Cover
Speaker
Assembly
Diskette Drive
Fan Assembly
System Board
Dip Switch
Settings

into the bottom slot opening on the processor and push toward the display to release the processor from the chassis slot.

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

Next Step

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Memory Module

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Removing the 4.3-GB or 6.4-GB Hard Drive

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Service

Considerations

Cables and

Connectors

Preparing the

Computer for

Disassembly

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

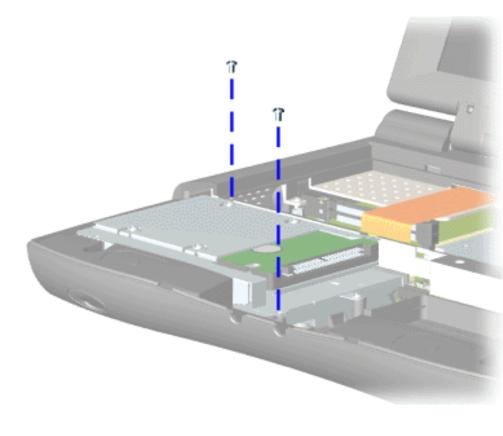
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the hard drive, complete the following steps:

1. Prepare the computer for disassembly.

- 2. Remove the palmrest cover with touch pad.
- 3. Remove the <u>keyboard</u>.
- 4. Remove two screws from the

Modem
Display Panel
Assembly
Upper CPU
Cover
Speaker
Assembly
Diskette Drive
Fan Assembly
System Board
Dip Switch
Settings

hard drive mounting bracket and lift out the hard drive with drive mounting bracket attached.

Next Step

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Memory Module

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Removing the DVD or CD Drive

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Connectors

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Computer for

Disassembly

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

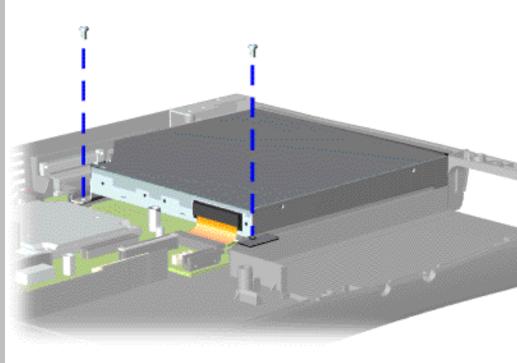
Hard Drive

DVD or

CD Drive

Battery

Charger Board



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

- 1. Prepare the computer for disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Remove the <u>keyboard</u>.
- 4. Remove the heatspreader.
- 5. Remove two screws located at

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

<u>Settings</u>

Memory

Module

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the back DVD or CD drive.

Next Step

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<u>Connectors</u>

Preparing the

Computer for

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Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

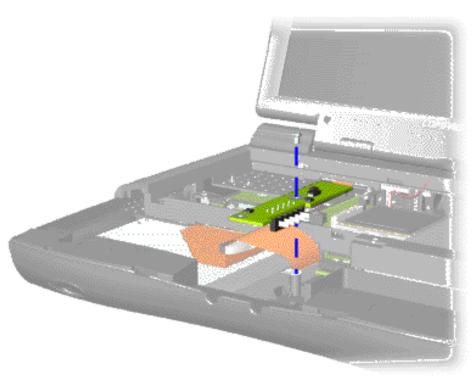
Heatspreader

Processor

Hard Drive

DVD or

CD Drive



To remove the battery charger board, 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 <u>heatspreader</u>.
- 5. Remove the hard drive.
- 6. Remove one screw from the battery charger board, unplug the board from the connector on the system board,

<u>Battery</u> <u>Charger Board</u>

Modem

Display Panel

<u>Assembly</u>

Upper CPU
Cover

<u>Speaker</u>

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

<u>Settings</u>

Memory Module and lift out of the chassis.

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

When replacing the battery charger board, ensure

NOTE: the pins are aligned with the connector on the system board.

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<u>Disassembly</u>

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

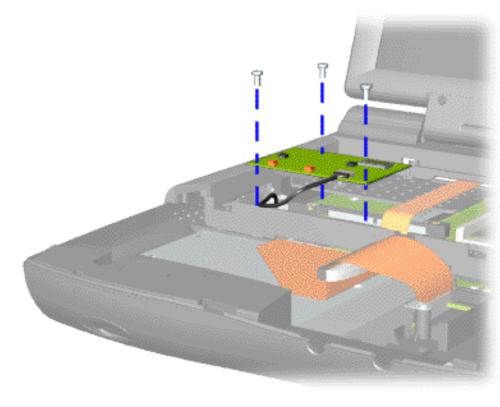
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the modem, complete the following steps:

- 1. Prepare the computer for disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Remove the <u>keyboard</u>.
- 4. Remove the <u>heatspreader</u>.
- 5. Remove two screws securing modem and

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings

<u>Memory</u>

Module

pull the modem off the connector on the system board.

Next Step

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Connectors

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Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

<u>Heatspreader</u>

Processor

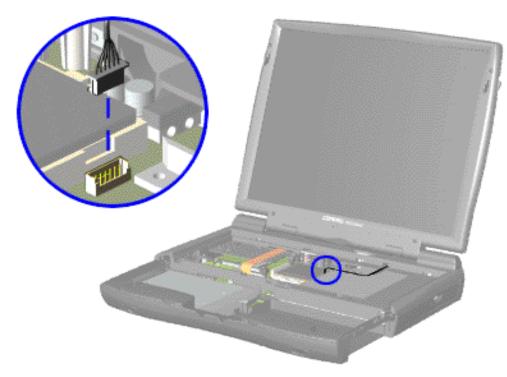
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the display panel assembly, 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 heatspreader.
- 5. Remove the modem.

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

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6. Disconnect the backlight cable attached to the display panel assembly from the connector on the system board.

Next Step

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Removing the Upper CPU Cover

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Service Considerations

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Connectors

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Computer for Disassembly

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Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

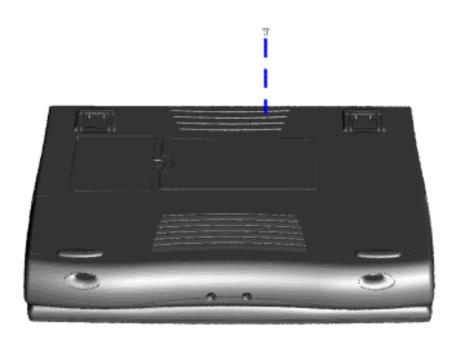
Heatspreader

Processor

Hard Drive

DVD or

CD Drive



To remove the Upper CPU cover complete the following steps:

- 1. Prepare the computer for disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Remove the <u>keyboard</u>.
- 4. Remove the heatspreader.
- 5. Remove the <u>hard</u> drive.

<u>Battery</u> <u>Charger Board</u>

Modem

Display Panel Assembly

Upper CPU Cover

Speaker Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch
Settings

Memory Module 6. Remove the <u>display</u> panel assembly.

7. Remove the screw located under the bottom of the unit (rear) which secures the Upper CPU cover to the chassis.

Next Step

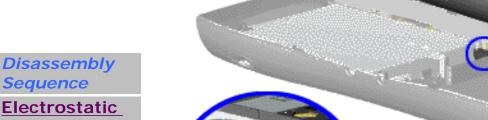
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Removing the Speaker Assembly



To remove the speaker assembly, 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 heatspreader.
- 5. Remove the hard drive.

Discharge

Service

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Processor

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CD Drive

Battery

Charger Board

Modem

Display Panel

Assembly

Upper CPU

Cover

<u>Speaker</u>

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

<u>Settings</u>

Memory

Module

6. Remove the <u>display</u> panel assembly.

7. Remove the <u>Upper</u> CPU cover.

8. Remove the charger board.

9. Disconnect the speaker cables from the system board and remove the speaker assembly from the chassis.

To replace the speaker assembly, reverse the previous procedures.

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Removing the Diskette Drive

Disassembly Sequence

Electrostatic

<u>Discharge</u>

Service Considerations

Cables and

Connectors

Preparing the

Computer for

Disassembly

Battery Pack

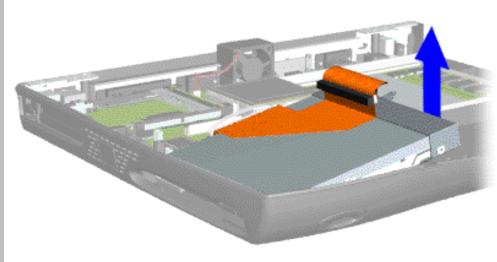
Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader



To remove the diskette drive, complete the following steps:

- 1. <u>Prepare the computer for 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 hard drive.
- 6. Remove the display panel assembly.
- 7. Remove the <u>Upper CPU cover</u>.

Processor

Hard Drive

DVD or

CD Drive

Battery

Charger Board

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

<u>Settings</u>

<u>Memory</u>

Module

- 8. Remove the screw from the diskette drive and lift up the diskette drive.
- 9. Disconnect the diskette drive data cable from the system board.

To replace the diskette drive, reverse the previous procedures.

Ensure the diskette drive eject lever is properly inserted NOTE: in the chassis slot, when replacing the diskette drive.

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Removing the Fan Assembly

Disassembly Sequence

Electrostatic
Discharge

<u>Service</u>

Considerations

Cables and Connectors

Preparing the

Computer for Disassembly

Battery Pack

Palmrest

Cover with

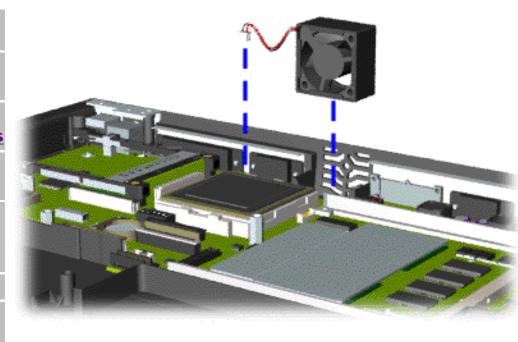
Touch Pad

Keyboard

<u>Heatspreader</u>

Processor

Hard Drive



To remove the fan assembly, complete the following steps:

- 1. Prepare the computer for disassembly.
- 2. Remove the palmrest cover with touch pad.
- 3. Remove the <u>keyboard</u>.
- 4. Remove the heatspreader.
- 5. Remove the <u>display</u> panel

DVD or

CD Drive

Battery

Charger Board

Modem

Display Panel

<u>Assembly</u>

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings

<u>Memory</u>

Module

assembly.

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

7. Remove the <u>Upper</u> CPU cover.

8. Lift the fan assembly from the chassis slot and disconnect the fan cable from the connector on the system board.

Next Step

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Removing the System Board

Disassembly	To remove the system board, complete the following steps:
Sequence	
Electrostatic	1. Prepare the computer for disassembly.
<u>Discharge</u>	
<u>Service</u>	2. Remove the palmrest cover with touch pad.
Considerations	
Cables and	3. Remove the <u>keyboard</u> .
<u>Connectors</u>	4. Remove the <u>heatspreader</u> .
Preparing the	4. Remove the <u>neatspreader</u> .
Computer for	5. Remove the processor.
Disassembly	3. Remove the processor.
Battery Pack	6. Remove the modem.
<u>Palmrest</u>	
Cover with	7. Remove the hard drive.
Touch Pad	
<u>Keyboard</u>	8. Remove the display panel assembly.
<u>Heatspreader</u>	
<u>Processor</u>	9. Remove the <u>Upper CPU Cover</u> .
Hard Drive	10. Domayo the bettery charger board
DVD or	10. Remove the battery charger board.
CD Drive	11. Remove the <u>diskette drive</u> .

Battery Charger Board

Modem

Display Panel Assembly

Upper CPU Cover

Speaker Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch **Settings**

Memory Module

12. Remove the CD or DVD drive.

13. Remove the fan assembly.

IMPORTANT: When replacing the system board remove the memory module on the system board.

14. Disconnect the speaker assembly cables.

Next Step

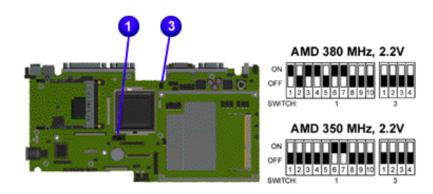
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For Models: 1670 and 1675



NOTE: The black area on the dip switch indicates the position of the switch.

Return to Removal & Replacement Procedures

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Maintenance & Service Guide

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Removing the Memory Module

Disassembly Sequence

Electrostatic

Discharge

Service

Considerations

Cables and

Connectors

Preparing the

Computer for

Disassembly

Battery Pack

Palmrest

Cover with

Touch Pad

Keyboard

Heatspreader

Processor

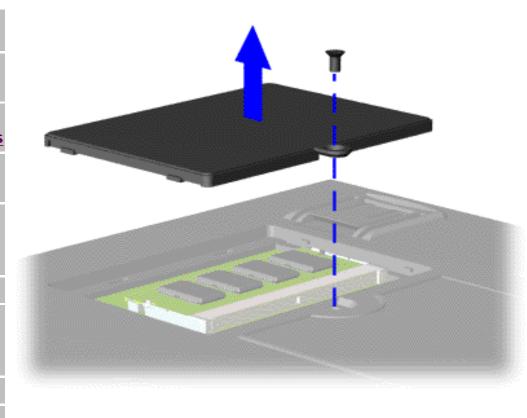
Hard Drive

DVD or

CD Drive

Battery

Charger Board



To remove the memory module, complete the following steps:

- 1. Prepare the computer for disassembly.
- 2. Close the computer and turn the computer upside down.
- 3. Remove the screw from the memory module

Modem

Display Panel

Assembly

Upper CPU

Cover

Speaker

Assembly

Diskette Drive

Fan Assembly

System Board

Dip Switch

Settings

Memory Module

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door, and slide the memory module door to the right.

Next Step