MAINTENANCE & SERVICE GUIDE
PROSIGNIA NOTEBOOK 190

Welcome to the Maintenance & Service Guide (MSG) for the
Compaq Prosignia Notebook 190 Family.

This is an online guide designed to serve the needs of those whose job it is to repair Compaq products.

Please first read the Legal Notice which contains copyright and trademark information.

Then read the section on How to use this guide , which shows symbol conventions, technician notes, and the serial number location for the unit.

Click here for information on the computer's battery pack operating time (Power Management).

Click here to **download the complete ZIP file (3.5 MB) of this Maintenance & Service Guide to your hard drive.**

This MSG will be periodically maintained and updated as needed.
To report a technical problem, contact your Regional Support Center or IM Help Center.
For content comments or questions, contact the Editor.

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Product Description
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Compaq Prosignia Notebook 190

Legal Notice

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Maintenance and Service Guide

Compaq Prosignia Notebook 190 Family

Third Edition (April 2000)
Compaq Computer Corporation

How to use this Guide

Preface

This Maintenance and Service Guide is a troubleshooting guide that can be used for reference when servicing the Compaq Prosignia 190.

Compaq Computer Corporation reserves the right to make changes to the Compaq Prosignia Notebook Family of 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's 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 Prosignia 190 Notebook documentation set
- Introducing Windows 98 Guide
- Introducing Windows 2000 Professional Guide
- Service Training Guides
- Compaq Service Advisories and Bulletins

- **Compaq QuickFind**
- **Compaq Service Quick Reference Guide**

Removal & Replacement
Index Page

Removal & Replacement Preliminaries

Removal & Replacement Procedures

Illustrated Parts Catalog
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This section helps identify part numbers associated with each item(s) for the Compaq Prosignia Notebook 190 Family. These are the numbers used in ordering replacement parts.

System Unit

Mass Storage Devices

Miscellaneous Parts

Documentation & Software

Troubleshooting
Index Page

Follow these basic steps when beginning the troubleshooting process:

1. Complete the Preliminary steps.
2. Run the Power-On Self-Test (POST).
3. Check Compaq Utilities (F10 Setup).

If you are unable to run POST or if the problem persists after running POST, perform the recommended actions described in the Troubleshooting without Diagnostics section.

Follow these guidelines when troubleshooting:

- Complete the recommended actions in the order in which they are given.
- Repeat POST after each recommended action until the problem is resolved and the error message does not return.
- When the problem is resolved, stop performing the troubleshooting steps and do not complete the remaining recommended actions.
- Refer to the removal and replacement procedures.

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

Specifications
Index Page

**This chapter covers the following specifications of Compaq Prosignia Series Portable Computers.
Click on a link to go to a particular specification:**

Physical & Environmental

Display

Hard Drives

CD/DVD Drives

Diskette Drive

Battery Pack

Modem

System Memory

System Interrupts

System DMA

System I/O

Pin Assignments

Specifications
Physical & Environmental

	U.S.	Metric
Dimensions		
Height	12.4 in.	31.5 cm
Depth	9.99 in.	25.3 cm
Width	1.6 in.	4.1 cm
Weight	6.0 to 7.0 lbs	2.72 to 3.17 kg
Battery		
Nominal operating voltage (Li-Ion)	10.8 V DC	
Average operating	15W avg.	
Peak operating power	30W peak	

AC Adapter Power Requirements

Power Supply	100-120/220-240
Rated Input Voltage 90 to 264 VAC (auto-switching)	1.2/0.6 Amp
Rated Input Current < 60W	50 to 60 Hz AC
Rated Frequency 47 to 63 Hz	+18.85 volts 1kV for 50 ns

Temperature	U.S.	Metric
Operating	50 to 104°F	10° to 35°C
Nonoperating	-4 to 140°F	-20 to 60°C

Relative Humidity

(noncondensing)	10 to 90%
Operating	5 to 95%, 101.6°F/38.7°C
Nonoperating	Maximum wetbulb temperature

Altitude

(nonpressurized environment)	U.S.	Metric
Operating	0 to 10,000 ft	0 to 3048 m
Nonoperating	0 to 30,000 ft	0 to 9144 m

Shock
Operating   10 G, 11 ms, half sine
Nonoperating   240 G, 2 ms, half sine

Vibration   0.5 G zero-to-peak, 10 to
Operating   500 Hz, 0.25 oct/min
Nonoperating   1.5 G, zero-to-peak, 10 to
                     500 Hz, 0.5 oct/min

Specifications
Display

14.1-Inch Color TFT XGA Display

	U.S.	Metric
Viewable Dimensions		
Height	11.22 in.	28.5 cm
Width	8.46 in.	21.5 cm
Diagonal	14.1 in.	35.81 cm
Number of Colors	up to 16.8 million	
Contrast Ratio	150:1	
Brightness	120 nits 150nt typ	
Pixel Resolution		
Pitch	0.264 × 0.264 mm	
Format	1024 × 768	
Configuration	RGB Stripe	
Backlight	Edge-Lit	
Character Display	80 × 25	
Total Power Consumption	4.2 W	

12.1-Inch Color TFT SVGA Display

	U.S.	Metric
Viewable Dimensions		
Height	9.7 in.	24.6 cm
Width	7.24 in.	18.4 cm
Diagonal	12.1 in	30.7 cm
Number of Colors	up to 16.8 million	
Contrast Ratio	150:1	
Brightness	120 nits 150nt typ	
Pixel Resolution		
Pitch		
Format	0.30 x 0.30 mm	
Configuration	800 x 600 RGB Stripe	
Backlight	Edge-Lit	
Character Display	80 × 25	
Total Power Consumption	3.5W	

Specifications
Hard Drives

	6 GB	12 GB	18 GB
User capacity per drive	6.4 GB	12 GB	12 GB
Drive type	65	65	65
Drive height	0.5 in/12.5 mm	0.5 in/12.5 mm	.5 in./12.5 mm
Drive width	2.75 in/7 mm	2.75 in/77 mm	2.75 in./70 mm
Interface type	ATA	ATA	ATA
Seek times (typical, including settling)			
Single track	3 ms	2.5 ms	2 ms
Average	13 ms	12 ms	12 ms
Full stroke	25 ms	23 ms	23 ms
Physical configuration			
Cylinders	9279	23,392	35,152
Heads	6	16	16
Sectors per track	63	63	63
Bytes per sector	512	512	512
Logical configuration			
Cylinders	12,416	13424	16383
Heads	15	16	16
Sectors per track	63	63	63
Transfer rate			
Media	86.4 to 153.3 MB/s	85.5 to 161.6 MB/s	85.5 to 161.1 MB/s
Interface	UDMA 33.3 MB/s	UDMA 33.3 MB/s	UDMA 33.3 MB/s

Specifications
CD & DVD Drives

24X CD-ROM Drive

Applicable Disc CD-ROM	Applicable Disc CD-ROM (Mode 1, 2 and 3), CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R (read only), CD Plus, Photo CD (Single and Multi-session), CD-Extra, Video CD, CD-WO (fixed packets only), CD-Bridge
Center Hole Diameter	.59 in./15 mm
Disc Diameter	12 cm, 8 cm
Disc Thickness	1.2 mm
Track Pitch	1.6 µm
Access Time	
Random	< 150 ms
Full Stroke	< 300 ms
Audio Output Level	
Line Out	0.7 V rms
Cache Buffer	128 KB
Data Transfer Rate	
Sustained, 16X	2400 KB/s (150 KB/s at 1X)
Variable	1500 to 3600 KB/sec
Normal PIO Mode 4	16.6 MB/sec
(single burst)	< 8.0 seconds
Startup time	< 4.0 seconds
Stop time	

8X DVD-ROM Drive

Applicable Disc

DVD-5, DVD-9, DVD-10
CD-ROM mode 1, mode 2
CD-Digital Audio
CD-XA mode (Form 1, Form 2)
CD-I Ready
CD-Bridge
CD-R
Photo CD
(single/multisession)

Center Hole Diameter	.59 in./15 mm
Disc Diameter	12 cm, 8 cm
Disc Thickness	1.2 mm
Track Pitch	.74 m

Access Time
Random
Full Stroke

< 150 ms
< 225 ms

Audio Output Level

Line Out	0.7 V rms
Headphone	none
Cache Buffer	128 KB

Data Transfer Rate

Sustained, 1x CD rate	150 KB/sec
Sustained, 16x CD rate	2400 KB/sec
Sustained, 1x DVD rate	1380 KB/sec
Sustained, 4x DVD rate	5520 KB/sec
Normal IO Mode 4 (single burst)	16.6 MB/sec

Startup Time	< 15 seconds
Stop time	< 6 seconds

4X DVD-ROM Drive

Applicable Disc	DVD-ROM, CD-ROM, CD-XA, CD-I, Photo CD, Multi-session, Audio, CD-R, CD-RW
Center Hole Diameter	.59 in./39 cm
Disc Diameter	12 cm/ 8 cm
Disc Thickness	1.2 mm

Track Pitch	.74 µm
Access Time	
Random	< 150 ms
Full Stroke	< 225 ms
Audio Output Level	
Line Out	0.7 V rms
Cache Buffer	128 KB
Data Transfer Rate	
Sustained, 16x CD rate	2400 KB/s (150 KB/sec at
Sustained, 4x DVD	1X)
Normal PIO Mode 4	5520 KB/sec
(single burst)	16.6 MB/sec
Startup Time	< 15 seconds
Stop time	< 6 seconds

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REMOVAL & REPLACEMENT	ILLUSTRATED PARTS CATALOG	TROUBLESHOOTING	SPECIFICATIONS

Troubleshooting
Li Ion Battery Pack

	U.S.	Metric
9-cell Li Ion Pack		
Height	.84 in.	2.92 cm
Length	1.4 in	3.6 cm
Width	2.375 in.	6.03 cm
Weight	1.00 lb.	.455 kg
Power Supply (Input)		
Operating Voltage	10.8 V	
Amp-hour capacity	4.8 Ah	
Watt-hour capacity	52Wh	
Temperature		
Operating	50° to 95° F	10° to 35° C
Non-operating	-12° to 140°F	-25° to 60°C
6 Cell Pack	**US**	**Metric**
Height	0.57 in	1.44 cm
Length	4.55 in	11.5 cm
Width	3.93 in	9.9 cm
Weight	1.2 lbs	0.54 kg

Energy and Environmental Requirements (same for all battery packs).

Energy

Voltage	10.8 V	
Amp-hour capacity	4 Ah	
Watt-hour capacity	36 Wh	

Environmental Requirements

Temperature

Operating	50° to 104°F/ 10° to 40°C
Non-operating	-12° to 140°F/-25° to 60°C

Specifications
Diskette Drive

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

Specifications
LS-120 Drives

	1.68 MB DMF	1.44 MB	1.2 MB	1.2 MB	720 KB
Formatted capacity (bytes)	1,720,320	1,474,560	1,228,800	1,261,568	737,280
Sector size (bytes)	512	512	1,024	512	512
Sectors	3,360	2,880	1,232	2,400	1,440
Magnetic tracks surface	80	80	77	80	80
Optical servo tracks/surface	N/A	N/A	N/A	N/A	N/A
Sectors/track	21	18	8	15	9
Sector interleave	2:1	1:1	1:1	1:1	1:1
Spare sectors	0	0	0	0	0
Zones (each side)	1	1	1	1	1
Average random seek	70 ms	70 ms	70 ms	70 ms	70 ms
Track-to-track seek	25 ms	25 ms	25 ms	25 ms	25 ms
Max single seek	170 ms	170 ms	170 ms	170 ms	170 ms
Average latency	41.67 ms	41.67 ms	41.67 ms	41.67 ms	41.67 ms
Motor RPM	720±0.5%	720±0.5%	720±0.5%	720±0.5%	720±0.5%
Motor start time	800 ms	800 ms	800 ms	800 ms	800 ms
Track density	135 TPI	135 TPI	135 TPI	135 TPI	135 TPI
Track width	125 μm	125 μm	125 μm	125 μm	125 μm
Encoding method	MFM	MFM	MFM	MFM	MFM
Max flux density	17,334 FCI	17,334 FCI	17,334 FCI	17,334 FCI	17,334 FCI

Recording density	17,334 BPI	17,334 BPI	17,334 BPI	17,334 BPI	17,334 BPI
Nominal transfer rate	150 KB/sec	150 KB/sec	125 KB/sec	125 KB/sec	75 KB/sec
Nominal sustained transfer rate across interface	65 KB/sec read, 32 KB/sec write	55 KB/sec read, 28 KB/sec write	49 KB/sec read, 25 KB/sec write	46 KB/sec read, 23 KB/sec write	28 KB/sec read, 14 KB/sec write
Buffer transfer rate	4.0 MB/sec	4.0 MB/sec	4.0 MB/sec	4.0 MB/sec	4.0 MB/sec

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Specifications
Mini-PCI Modem

Compaq 56K (V.90)3 plus Intel PRO/100+ Mini PCI

Form Factor	Mini-PCI Type 1B and 2B per Specification
OS Support (with all released Service Packs)	Windows 95 (OSR2.x), Windows 98 (Gold, SE) Windows NT4.0, Windows 2000, DOS Application Support under Windows
Power Management Support	APM Revision 1.2; ACPI; Compaq Power Management Extensions for Windows NT
Approvals/Certifications	UL; CSA; NEMKO; CCIB; Industry Canada; FCC Part 68; CTR21; FCC Part 15 Class B; Canadian ICES-003 Class B; C.I.S.P.R.22; Australian ACA; CE Mark; Other Countries
Modem Device Driver Name	Compaq 56K (V.90) Mini PCI
Data Mode Capabilities	V.90 (a-law, mu-law); K56flex (a-law, mu-law); V.8bis, V.80, V42.bis, MNP5 (Compression) ,V.42 (LAPM, MNP2-4) (Error Correction), V.34 (file date: 10/96), Optional symbol rates: 2800, 3429

- Asymmetric Symbol rates
- Synchronous primary channel data signaling rates: 3600, 31200
- Automatic rate re-negotiation

V.32bis, V.32, V.23, V.22bis, V.22, V.21, Bell 212A,Bell 103J

Fax Mode Capabilities	TIA-578-S (Class 1), T.30, T.4 (Group 3), V.17, V.29, V.27ter, V.21 Channel 2

Command Set	V.250 (Partial), TIA-602, Identification: +GMI, +GMM, +GMR, Port control :+IPR, +ICF, +IFC, + Iirr, Modulation: +MS, +MR, +MA, Error control: +ES, +ER, +EB, +ESR, +ETBM, Data compression: +DS, +DR, V.251

Intel PRO/100+ Mini PCI

Ethernet Features	10 Mbps Ethernet: IEEE 802.3 standard 10Base T, 100 Mbps Ethernet: IEEE 802.3u standard 100Base TX, Full Duplex at 10 and 100Mbps, Auto-Negotiation, Wake on LAN from all power managed states, including soft off (S5), Boot on LAN from OFF, Lower Power State on Link Loss
Data Link Layers	IEEE 802.2 LLC; SNAP
Software support	Artisoft Lantastic 7.0, 8.0, Dedicated Server 1.1; Banyan 7.x, 8.5x; IBM LAN Server Version 1.2, 1.3, 2.0, 4.0; Microsoft NT 3.51, NT 4.0. Windows 2000; Novell Netware 3.1x, 4.x, 5.x
Protocol support	TCP/IP; Novell IPX/SPX and Microsoft compatible; Novel IPX ODI; Microsoft NetBEUI; Sun Microsystems PC-NFS; Banyan Vines Ethernet; IBM DLC

Specifications
System Memory Map

>Physical & Environmental
>Display
>Hard Drives
>CD/DVD Drives
>Diskette Drive
>Battery Pack
>Modem
>System Memory
>System Interrupts
>System DMA
>System I/O
>Pin Assignments

Size	Memory Address	System Function
640 K	00000000 - 0009FFFF	Base Memory
128 K	000A0000 - 000BFFFF	Video Memory
48 K	000C0000 - 000CBFFF	Video BIOS
160 K	000C8000 - 000E7FFF	Unused
64 K	000E8000 - 000FFFFF	System BIOS
15 M	00100000 - 00FFFFFF	Extended Memory
58 M	01000000 - 047FFFFF	Super Extended Memory
58 M	04800000 - 07FFFFFF	Unused
2 M	08000000 - 080FFFFF	Video Memory (Direct Access)
4 G	08200000 - FFFEFFFF	Unused
64 K	FFFF0000 - FFFFFFFF	System BIOS

Specifications
System Interrupts

Hardware IRQ	System Function
IRQ 0	System timer
IRQ1	Keyboard controller
IRQ2	Cascaded
IRQ3	COM2
IRQ4	COM1
IRQ5	Audio (default)*
IRQ6	Diskette drive
IRQ7	Parallel Printer Port (LPT1)
IRQ8	Real Time Clock (RTC)
IRQ9	Infrared
IRQ10	System use
IRQ11	System use
IRQ12	Internal Point Stick or External Mouse
IRQ13	Coprocessor (Not available to any peripheral)
IRQ14	IDE Interface (Hard Disk and CD-ROM Drive)
IRQ15	Fixed Disk Drives on the Expansion Base or Convenience Base

Notes:

PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.

*Default configuration; audio possible configurations are: IRQ5, IRQ7, IRQ9, IRQ10 or none.

Troubleshooting
System DMA

>Physical & Environmental

>Display

>Hard Drives

>CD/DVD Drives

>Diskette Drive

>Battery Pack

>Modem

>System Memory

>System Interrupts

>System DMA

>System I/O

>Pin Assignments

Hardware DMA	System Function
0	Available for audio
1	Entertainment Audio (Default; Alternate = DMA0, DMA3, None)
2	Diskette Drive
3	ECP Parallel Port LPT1 (Default; Alternate = DMA 0, none)
4	DMA Controller Cascading (Not available)
5	Available for PC Card
6	Not Assigned
7	Not Assigned

Note: PC Card controller can use DMA 1, 2, or 5.

Specifications
System I/O Address

I/O Address (Hex)	System Function (Shipping Configuration)
000 - 00F	DMA Controller no. 1
010 - 01F	Unused
020 - 021	Interrupt Controller no. 1
022 - 024	Chipset Configuration registers
025 - 03F	Unused
02E - 02F	87334 "Super IO" configuration for
040 - 043	CPU
044 - 05F	Counter/Timer Registers
060	Unused
061	Keyboard Controller
062 - 063	Port B
064	Unused
065 - 06F	Keyboard Controller
070 - 071	Unused
072 - 07F	NMI Enable/Real Time Clock
080 - 08F	Unused
090 - 091	DMA Page Registers
092	Unused
093 - 09F	Port A
0A0 - 0A1	Unused
0A2 - 0BF	Interrupt Controller no. 2
0C0 - 0DF	Unused
0E0 - 0EF	DMA Controller no. 2
0F0 - 0F1	Unused
0F2 - 0FF	Coprocessor Busy Clear/Reset
100 - 16F	Unused
170 - 177	Unused
178 - 1EF	Secondary Fixed Disk Controller
1F0 - 1F7	Unused
1F8 - 200	Primary Fixed Disk Controller
201	Unused
202 - 21F	JoyStick (Decoded in ESS1688)
220 - 22F	Unused
230 - 26D	Entertainment Audio
26E - 26	Unused
	National 87334 "Super IO" Controller

278 - 27F	Unused
280 - 2AB	Unused
2A0 - 2A7	PC Card DMA Selection, Hard Drive Reset, IDE Select, MultiBay Device Identification
2A8 - 2E7	Unused
2E8 - 2EF	Reserved Serial Port
2F0 - 2F7	Unused
2F8 - 2FF	Infrared port
300 - 31F	Network Interface (Default; Alternate is 320, 340, or 360h)
320 - 36F	Unused
370 - 377	Secondary Floppy Controller (when a floppy is installed in the CPU)
378 - 37F	Parallel Port (LPT1/Default)
380 - 387	Unused
388 - 38B	FM Synthesizer - OPL3 / MIDI
38C - 3AF	Unused
3B0 - 3BB	VGA
3BC - 3BF	Reserved (Parallel Port/No EPP
3C0 - 3DF	Support)
3E0 - 3E1	VGA
3E2 - 3E3	PC Card Controller in CPU PC Card Controller
3E8 - 3EF	Internal Modem
3F0 - 3F7	"A" Diskette Controller
3F8 - 3FF	Serial Port (COM1/Default)
CF8 - CFB	PCI Configuration Index Register
CFC - CFF	(PCIDIV0-1) PCI Configuration Data Register (PCIDIV0-1)

Connector Pin Assignments

>Physical & Environmental

>Display

>Hard Drives

>CD/DVD Drives

>Diskette Drive

>Battery Pack

>Modem

>System Memory

>System Interrupts

>System DMA

>System I/O

>Pin Assignments

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

Click on a link:

Parallel Connector

Serial Connector

Keyboard/Mouse

External VGA Monitor

Universal Serial Bus

Modem

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

Parallel Connector
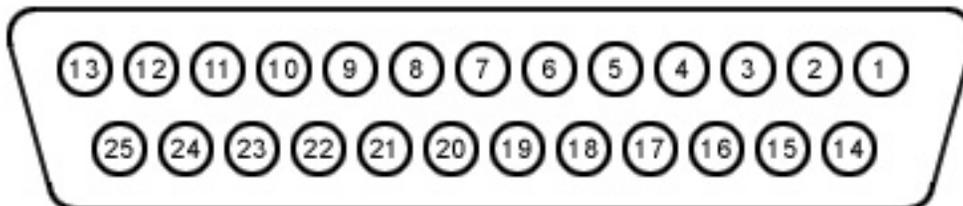
Pin	Signal	Pin	Signal
1	Strobe*	10	Acknowledge*
2	Data Bit 0	11	Busy
3	Data Bit 1	12	Paper Out

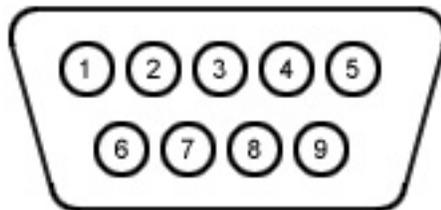| 4 | Data Bit 2 | 13 | Select |
5	Data Bit 3	14	Auto Linefeed*
6	Data Bit 4	15	Error*
7	Data Bit 5	16	Initialize Printer*
8	Data Bit 6	17	Select In*
9	Data Bit 7	18-25	Signal Ground

* = Active low

Serial Connector

Connector   **Pin Signal**

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

Keyboard/Mouse

Connector   **Pin Signal**

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

Return .

External VGA Monitor

Connector

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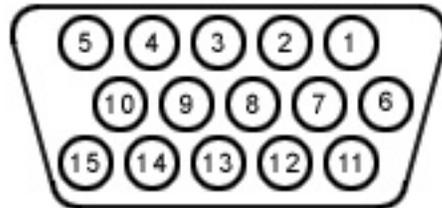
1	Red Analog
2	Green
3	Analog
4	Blue Analog
5	Not
6	connected
7	Ground
8	Ground
9	Analog
10	Ground
11	Analog
12	Ground
13	Analog
14	Not
15	connected
	Ground
	Monitor
	Detect
	DDC2B
	Data
	Horizontal
	Sync
	Vertical
	Sync
	DDC2B
	Clock

Return .
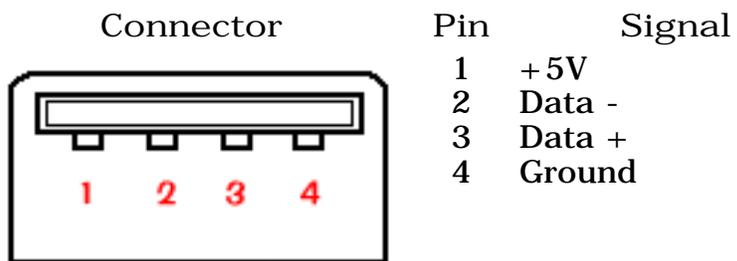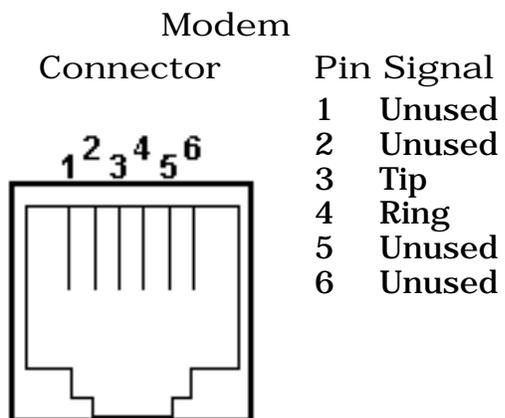
Universal Serial Bus

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

Return to the top.

Modem

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

Return to the top.

Product Description
Rear Connectors
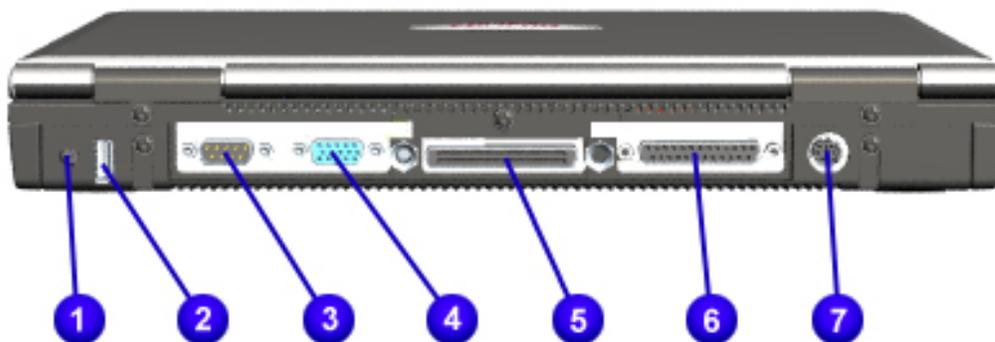
1 Power connector
2 USB connector
3 Serial connector
4 External monitor connector
5 Docking connector
6 Parallel connector
7 Keyboard/mouse connector

Product Description
Models & Available Features

- >Models
- >Top Cover
- >Top Lights
- >Left & Front Components
- >Right side Components
- >Bottom of Unit
- >Rear Connectors
- >Power Management

Feature	Specification
Display	TFT 12.1" SVGA Panel TFT 14.1" Panel
Processors	Intel Pentium III processor 450 MHz 500 MHz 600 MHZ with SpeedStep 650 MHz with SpeedStep
Hard Drives Ultra ATA	6 GB 12 GB 18 GB
3.5" Diskette Drive	1.44MB 720 KB
Additional Mass Storage Devices	24X CD-ROM 8X DVD-ROM Drive 4X DVD-ROM Drive LS-120 drive
Communications	Integrated miniPCI v. 90 controllerlesss Modem/NIC Combo card
Available System Memory	34 MB 62 MB 128 MB
Battery Packs	6-Cell Li ion MultiBay battery up to (2) 9-cell Li ion MultiBay battery
PCMCIA interface	Two PCMCIA Type II cards or One PCMCIA Type III card
Video	ATI Rage Video Controller with 8 MB VRAM TV Out

Product Description
Top Cover Buttons and Features: TouchPad Model

>Models
>Top Cover
>Top Lights
>Left & Front Components
>Right side Components
>Bottom of Unit
>Rear Connectors
>Power Management
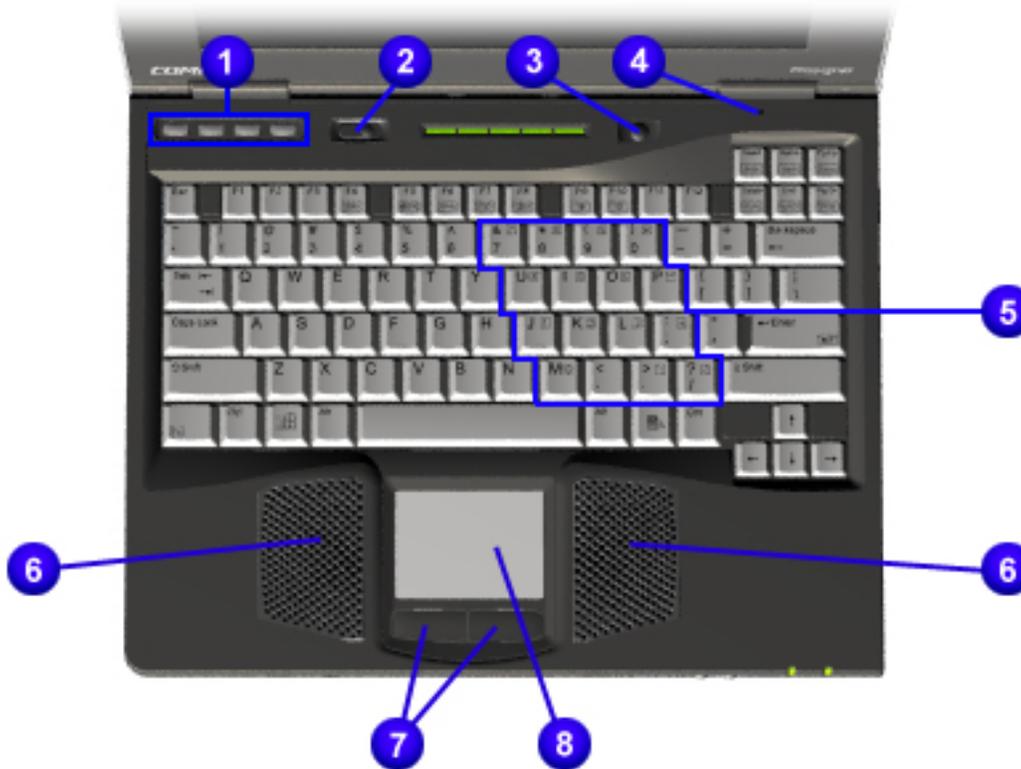
1	Easy Access Buttons
2	Power button
3	Suspend button
4	Display switch
5	Embedded numeric keypad
6	Stereo speakers
7	TouchPad buttons (TouchPad Models only)
8	TouchPad Module (TouchPad Models only)

Click here to go the pointing Stick model description.

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Product Description
Top Cover Lights
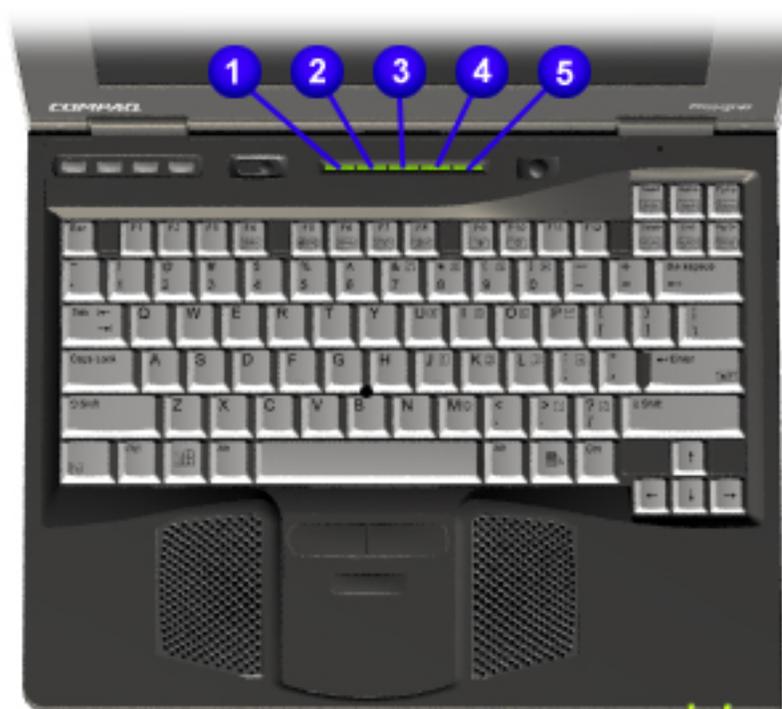
1	Hard drive activity light
2	MultiBay activity light
3	Num lock light
4	Caps lock light
5	Scroll lock light

Product Description
Left Side & Front Components
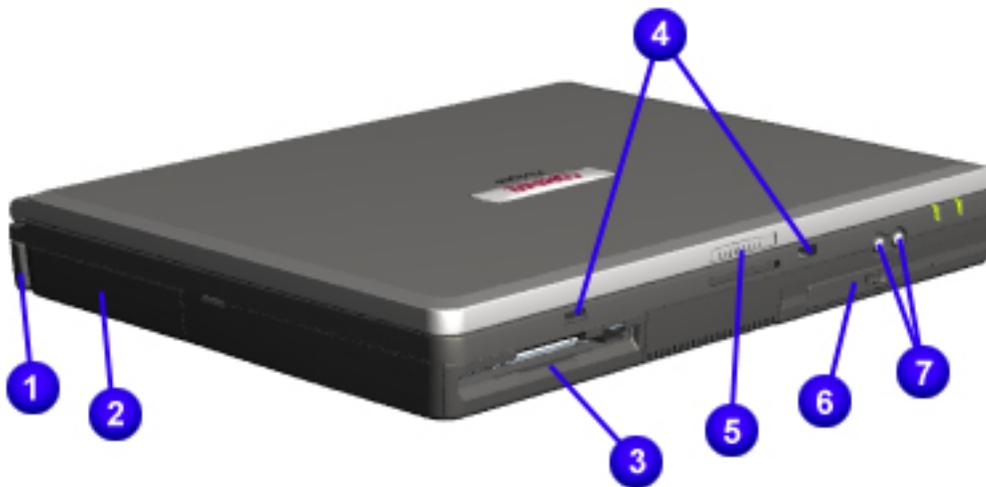
1	Computer feet
2	(primary) Battery
3	DualBay
4	Audio bass ports
5	Display release latch
6	MultiBay
7	Volume control buttons

Product Description
Right Side Components

1	PCI card slot
2	Stereo speaker & headphone jack
3	Mono microphone jack
4	Security cable slot
5	RJ-45 jack (for internal modems)
6	RJ-11 jack (for internal combo cards)
7	Infrared port
8	Composite TV connector

Product Description
Bottom of Unit

>Models

>Top Cover

>Top Lights

>Left &
Front
Components

>Right side
Components

>Bottom of
Unit

>Rear
Connectors

>Power
Management
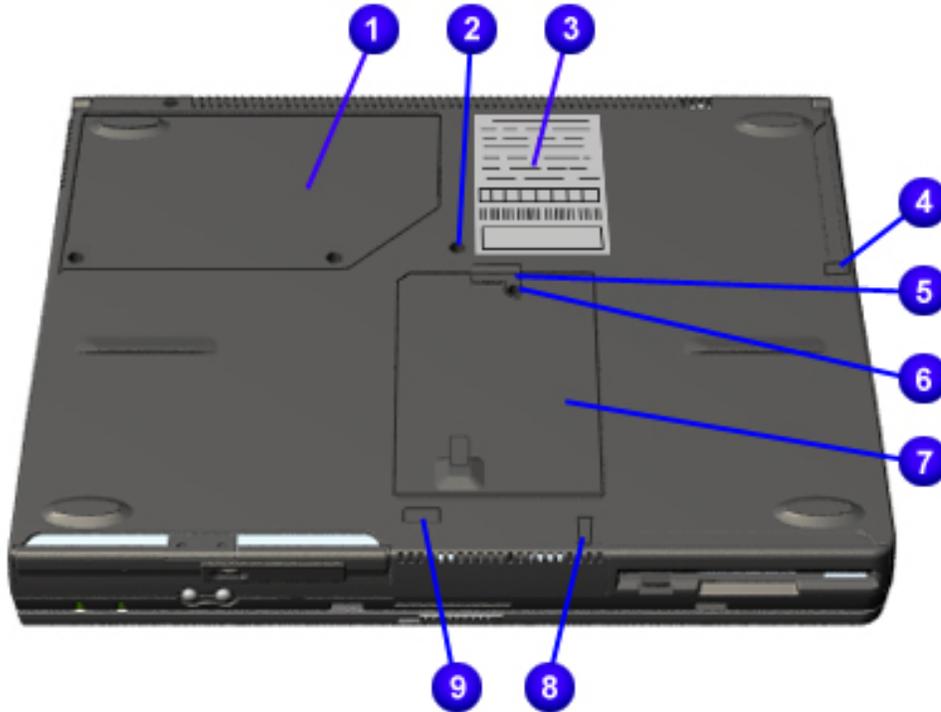
1	Modem/NIC/combo card slot cover
2	Keyboard retaining screw
3	Serial number & label
4	Primary battery release latch
5	Hard drive release latch
6	Hard drive retaining screw
7	Hard drive cover
8	DualBay release latch
9	MultiBay release latch

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| INDEX PAGE | PRODUCT DESCRIPTION | LEGAL NOTICE | HOW TO USE THIS GUIDE |
| REMOVAL & REPLACEMENT | ILLUSTRATED PARTS CATALOG | TROUBLESHOOTING | SPECIFICATIONS |

Product Description
Power Management

When an electrical outlet is not available or is not convenient, the power management of your battery plays a crucial role in the use of your personal computer. This section explains how to care for your battery to maximize its life and effectiveness.

Battery Packs

Your computer accommodates up to three rechargeable battery packs at one time. Battery packs are supported into the following areas of your computer:

- Primary Battery Bay (Primary Battery Location)
- DualBay (Second Battery Location)
- MultiBay (Third Battery Location)

With the computer turned off, each battery pack will recharge in less than three hours. With the computer turned on, each battery pack will recharge in less than five hours.

If two fully charged battery packs are installed, one can be removed while the computer is on without affecting system operation.

> **CAUTION:** Before removing a battery pack, ensure that the computer is connected to a fully charged battery pack or AC power source.

> **WARNING:** Your computer contains a lithium-ion battery pack. There is a risk of fire and burns if the battery pack is not handled properly. Do not disassemble, crush, puncture the short external contacts, or dispose of in fire or water. Do not expose to temperatures higher than 60°C. Replace only with the Compaq spare designated for this product.
>
> Also, Batteries/battery packs and accumulators should not be disposed of with general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to Compaq, your authorized Compaq Partners, or other agents.

Using a New Battery Pack

Charge the battery pack in the computer's primary battery bay or MultiBay while connected to an external power source or while docked in the optional convenience base.

NOTE: A new battery pack should be fully charged before it is used for the first time. The battery pack will work without being fully charged, but the battery gauge will not show an accurate charge until the battery pack receives its first full charge.

Charging Battery Packs

Battery packs charge in the following sequence:

- The primary battery (in the primary battery bay)
- A second battery pack in the DualBay
- A third battery in the MultiBay

Battery packs are discharged in the reverse order, with the battery pack in the MultiBay depleted first.

To charge battery packs, follow these steps:

1. With battery packs in the Primary Battery Bay, or MultiBay, connect the power cord to the computer and plug it into an electrical outlet.
2. Turn on the computer if you want to use it while the battery packs are charging.

NOTE: The battery charge light is the right light on the front edge of the computer. It turns on (solid) when a battery pack is charging. It turns off when fully charged. It blinks in a low-battery condition.

When the battery charge light turns off, the battery packs are fully charged.

Power Management <u>continued</u>.

-or-

Return to <u>Removal & Replacement</u>.
Return to the <u>Index page</u>.

Power Management Continued

Storing a Battery Pack

⚠	**CAUTION:** to prevent damage to a battery pack, do not expose it to high temperatures for extended periods of time.

If the computer will be unused and unplugged from an external power source for more than two weeks, remove and store the battery packs.

Maximizing Battery Pack Life

Battery pack operating time varies depending on the system components, options, and applications used. Battery operating time can increase by as much as 50% by controlling the energy used by the computer and the energy stored in the battery pack.

To maximize battery pack life, use the following guidelines:

- Initiate Suspend or Hibernation or turn the computer off when you are not using it.
- Reduce the display brightness and select a shorter screen save timeout.
- Keep a battery pack in the computer when you are using the computer with external power.
- Disconnect external equipment that does not have its own power source (external equipment connected to the computer drains the battery pack).
- Exit modem programs when you are not using them.
- Remove a PC Card when you are not using it.
- When storing the computer for more than two weeks, remove battery packs and store them separately to reduce the discharge rate and increase battery life.
- Store the battery pack in a cool, dry place when it is not in use. High temperatures cause a battery pack to lose its charge more quickly and reduce battery pack life.
- Format diskettes while using external power when possible (formatting diskettes increases the drain on a battery pack).

System Beeps

Beeps with a Blinking Battery Charge Light

When the computer beeps while the battery charge light is blinking, the computer has entered a low battery condition.

⚠	**CAUTION:** When you are alerted of a low battery condition, very little battery charge remains. Save your information and take immediate action to resolve the low battery condition.

Selecting a Power Source

NOTE: If your external monitor is not Energy Star compliant, enabling monitor energy-saving features may cause video distortion when the screen save timeout occurs.

Resolving Low-Battery Conditions

If external power is available, do one of the following:

- Connect the computer to an electrical outlet with the AC adapter.
- Dock the computer in a docking base that is connected to external power.
- Plug an optional automobile power adapter/charger into the power connector on the computer and into a vehicle

cigarette lighter receptacle.

Plug an optional aircraft power adapter into the power connector on the computer and into the in-seat power supply available on some commercial aircraft.

An optional aircraft power adapter can be used to run the computer, but cannot be used to charge a battery pack.

If a charged battery pack is available, press the **suspend** button to initiate Suspend (standby), then remove the discharged battery pack and insert a charged battery pack.

If neither external power nor a charged battery pack is available, press **Fn** + the **suspend** button to initiate Hibernation.

or

Save your work, then shut down the computer.

Restoring from Hibernation after Resolving a Critical Low-Battery Condition

Slide the power switch. If the computer does not have enough power to restore your work:

1. Press **Ctrl**+**Alt**+**Del** to abort the restoration.
2. Insert a charged battery pack or connect the computer to external power.
3. Slide the power switch.

Charging a Battery Pack

A battery pack can be recharged wherever external power is available.

NOTE: Charging may be delayed if a battery pack is new, has not been used for 2 weeks or more, or is much warmer or cooler than a comfortable room temperature.

To increase the accuracy of all battery charge displays:

- Allow a battery pack to discharge to the low-battery level through normal use before charging it.
- When you charge a battery pack, charge it fully.
- Before charging a new battery pack or a battery pack that has not been used for two weeks or more, calibrate the new battery pack or check the calibration on the unused battery pack.

Monitoring the Charge in a Battery Pack

Using the Battery Status Tab

To access the Battery Status tab, press the **Fn**+**F8** hotkeys or select **Start**-> **Setting** -> **Control Panel** power icon (named Power, Power Management, or Compaq Power, depending on your operating system), then select the **Battery Status** tab.

To display the location of a listed battery, select the corresponding battery icon. A lightning bolt icon beside a battery icon indicates that the battery pack in that location is charging.

Using the Battery Meter or Power Meter Icon

The battery meter icon, called the power meter icon in Windows 98, changes shape to indicate whether the computer is running on external power or on a full, half-full, or nearly discharged battery pack.

To display the battery meter icon in the taskbar, select **Start**-> **Settings**-> **Control Panel**-> **Power Management**-> **Power Meter** tab, then select the **Show Power Meter** on the **Taskbar** check box.

Using the Power or Power Meter Tab

To access the tab select **Start**-> **Settings** -> **Control Panel**-> **Power Management**-> **Power** Meter tab.

- To view the combined percent of total power remaining in all battery packs in the system, clear the **Show the Status of All Batteries** check box.
- To view the percent of total power remaining in each battery pack in the system, select the **Show the Status of All Batteries** check box. The three numbered icons correspond as follows to battery pack locations.

Icon	Battery Pack Location
1	Primary Bay
2	DualBay
3	MultiBay

Calibrating a Battery Pack

Calibration increases the accuracy of all battery charge displays. The calibration utility supports all battery packs that can be used in the computer. Use the calibration utility both to check the calibration of a battery pack and to calibrate or recalibrate a battery pack. A battery pack cannot be calibrated unless the utility reports that it needs calibration.

The following is a list of important information concerning the calibration of a battery pack:

- A new battery pack can be charged, then used to run the computer before the battery pack is calibrated. However, the amount of charge in the new battery pack cannot be reported accurately until the new battery pack has been calibrated.
- Check the calibration of a used battery pack periodically and whenever battery charge displays seem inaccurate.
- While a battery pack is being calibrated, it is fully charged, then fully discharged.
- A battery calibration icon in the taskbar displays an Up arrow during the charge phase and a Down arrow during the discharge phase.
- A calibration cannot resume if the calibration is stopped or if the computer is shut down during a calibration. An interrupted calibration must be restarted.
- After calibration, a battery pack must be charged before it can be used to run the computer.
- The calibration utility calibrates one battery pack at a time and can run in the background as you use the computer or overnight.

Running a Calibration

⚠ **CAUTION:** To prevent loss of work, ensure that the computer remains connected to AC power throughout a calibration.

To run a calibration of your battery pack, complete the following steps:

- If you are checking the calibration of a battery pack, insert the correct battery pack into the Primary Battery Bay, a DualBay, or a MultiBay.
- Then connect the computer to external power with the AC adapter or dock the computer in a docking base that is connected to external power.
- Access the Battery Calibration tab by selecting **Start**-> **Settings**-> **Control Panel**-> **Power Management**-> **Battery Calibration** tab.
- View the calibration reports in the Status column. The battery numbers in the Battery column correspond to the following locations:

Battery Number	Battery Pack Location
1	Primary Bay
2	DualBay
3	MultiBay

- In the Status column, select any location number with the "**Needs calibration**" indication beside it.
- Select the "**Start Calibration**" button.

Stopping a Calibration

Select the Stop Calibration button on the Battery Calibration tab. The Stop Calibration button is visible only during a calibration.

Return to the top.
Return to Product Description.
Return to Removal & Replacement.
Return to the Index page.

Removal & Replacement
Serial Number Location

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

>Preliminaries

>Serial Number Location

>Battery Pack

>DualBay Drive

>MultiBay Drive

>Hard Drive

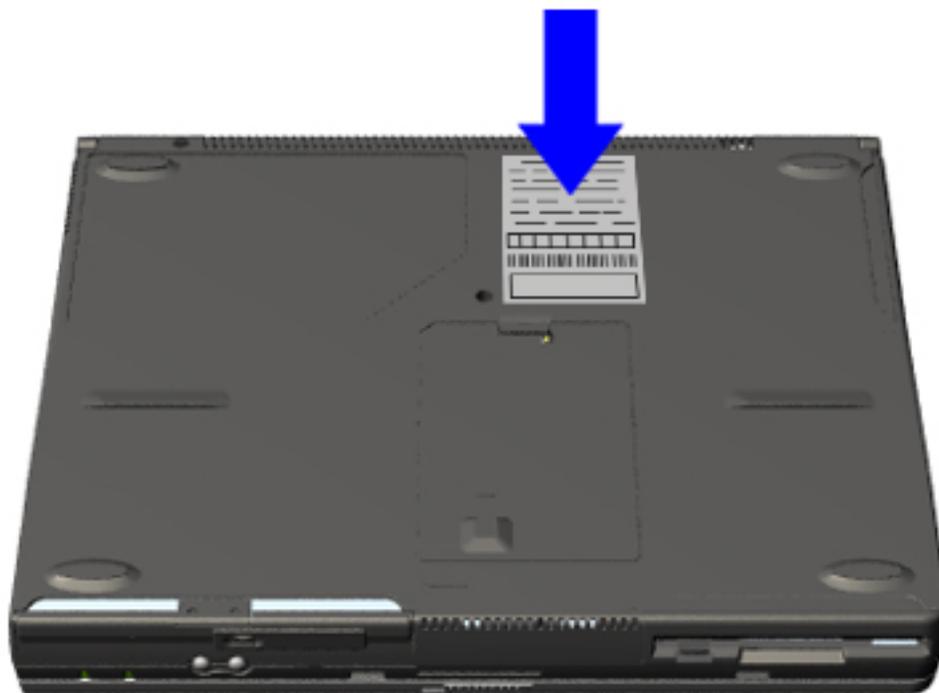>Modem

>Keyboard

>Memory Module

>LED Cover

>RTC battery

>Display Panel Assembly

>Button Board

>Top cover

>TouchPad or Pointing Stick Module

>System Board

>Voltage Converter Board

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

Click here for information on the computer's battery pack operating time and other Power Management Options.

Removal & Replacement
Preliminaries

The following links are preliminary instructions which should be read before continuing with the Removal & Replacement section of this Guide. Please read the following pages before servicing your computer:

[Electrostatic Discharge](#)

[Service Considerations](#)

[Cables & Connectors](#)

[Preparing Computer for Disassembly](#)

Electrostatic Discharge

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

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

Generating Static

The table shows how different activities generate static electricity and at different electrostatic voltage levels.

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

Continue Preliminary pages:

[Service Considerations](#)

[Cables & Connectors](#)

[Preparing Computer for Disassembly](#)

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Removal & Replacement
Service Considerations

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

Tool Requirements

To service the computer, you need the following:

- Torx T-8 screwdriver (with option for flathead on most screws)
- 7mm (1/4 in.) socket nut driver (for removal of Docking connector to remove system board)

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.

Plastic Parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in these maintenance instructions.

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

Continue Preliminary pages:

Cables & Connectors

Preparing Computer for Disassembly

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Removal & Replacement
Cables & 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.

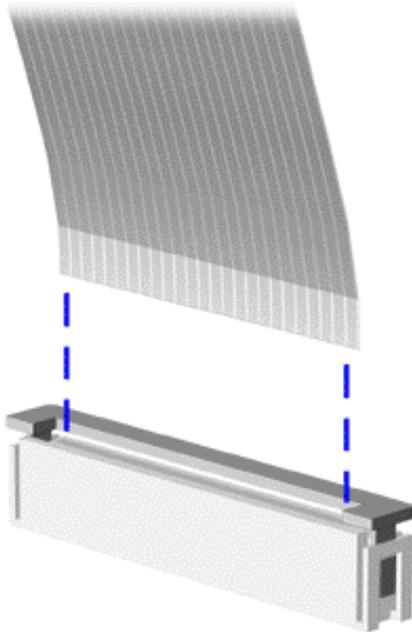## Connector Positions on the system board:
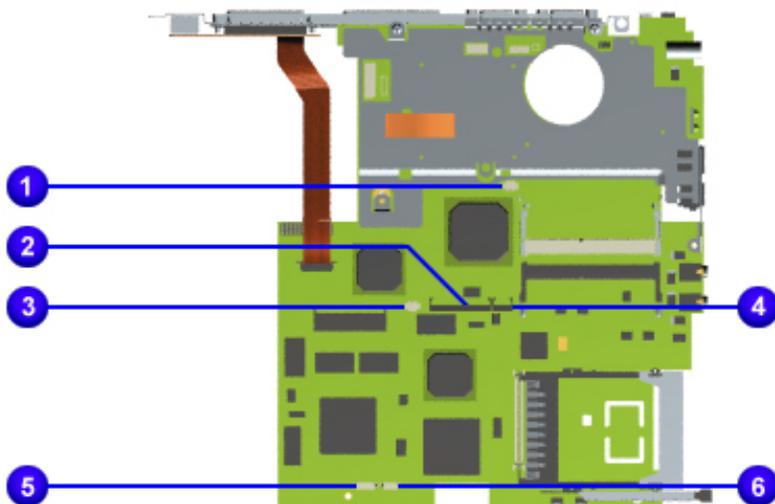
1 Right Speaker
2 Keyboard connector
3 Left speaker
4 Pointing device
5 Pointing stick connector
6 TouchPad module connector

Click here for information on removing a Cable from a ZIF Connector.

Continue with last Preliminary page:

MAINTENANCE & SERVICE GUIDE
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Removal & Replacement
ZIF Connector

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

CAUTION: A ZIF connector and its attached cable can be easily damaged. Handle only the connector slide when removing or replacing a cable. Never pull or twist on the cable while it is connected. When servicing this computer, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the computer.

Back to **Cables and Connectors.**

Removal & Replacement
Preparing the computer for Disassembly

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

- Disconnect AC power and any external devices.
- Remove the battery pack.
- Remove any PC Cards.

Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer or a removable drive, or loss of information, observe these precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, then shut it down.
- Before removing a diskette drive, CD-ROM drive, SuperDisk LS-120 drive, or a DVD-ROM drive, ensure that a diskette or disc is not in the drive. Ensure that the drive tray is closed. Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces that have at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- Do not use excessive force when inserting a drive into a drive bay.
- Avoid exposing a hard drive to products that have magnetic fields such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or to liquids.
- If a drive must be mailed, ship it in a suitable form of protective packaging. Shipping the drive in standard packaging may not cushion it from destructive shock, vibration, temperature, or humidity. Place a mailing label with the wording "Fragile: Handle With Care" on the mailer.
- After the hard drive has been removed from the computer, avoid turning the hard drive and tray upside down. The drive is not secured to the tray and can fall out.
- Do not place labels on the ventilation area on the hard drive.
- Heed the labels on the hard drive.

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

CAUTION: Do not crush, puncture, or incinerate the battery pack. Do not open a battery pack, as this damages the pack, makes it unusable, and exposes potentially harmful battery components. There are no field-serviceable parts located inside the battery pack.

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

Go to Removal & Replacement Procedures.

Removal & Replacement
Removing the Battery Pack

There are five steps in this sequence.

To remove the battery pack, complete the following steps:

1 Prepare the computer for disassembly.

2 Close the computer and turn it so the bottom is facing up.

3 Slide the battery release latch toward the back of the computer 1.

4 Pull the battery pack out of the battery bay 2.

END OF SEQUENCE

To replace the battery pack, reverse the previous

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|			
INDEX PAGE	PRODUCT DESCRIPTION	LEGAL NOTICE	HOW TO USE THIS GUIDE
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Removal & Replacement
Removing a device from the DualBay
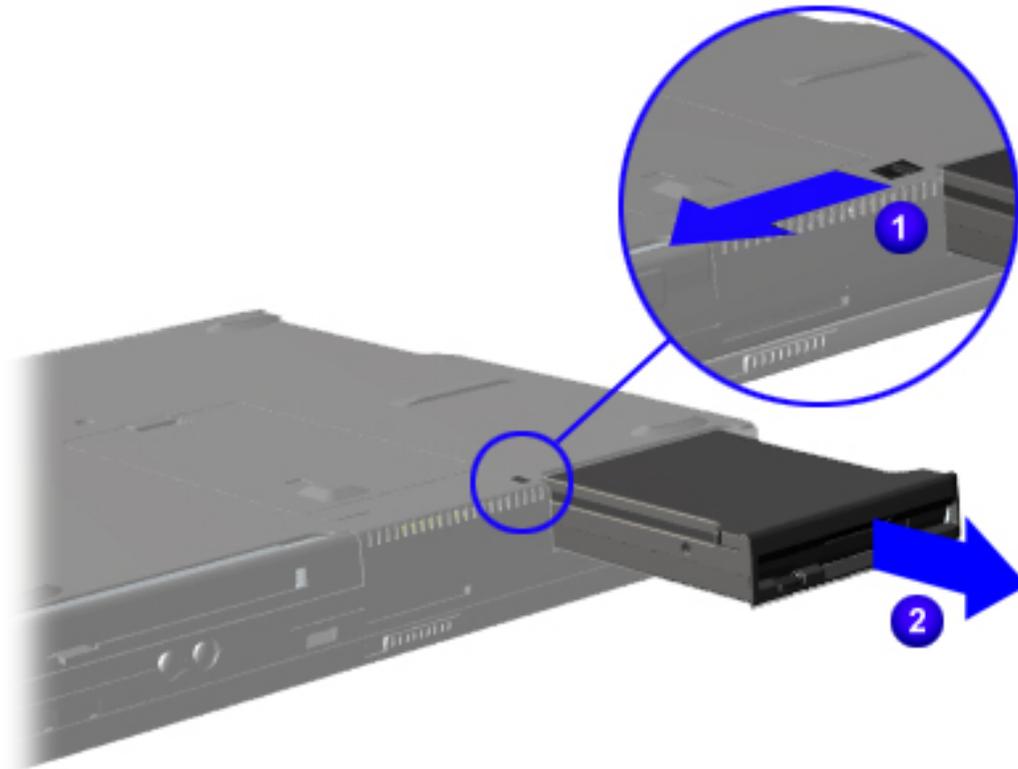
To remove a Diskette drive or battery, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove any diskettes (where applicable) from the drive.

3 Close the computer and turn the computer over so the bottom is facing up.

4 Slide the DualBay's release latch ❶ to the left.

5 Pull the device out of the bay ❷.

END OF SEQUENCE

To replace the DualBay Drive, reverse these

Removal & Replacement
Removing a device from the MultiBay
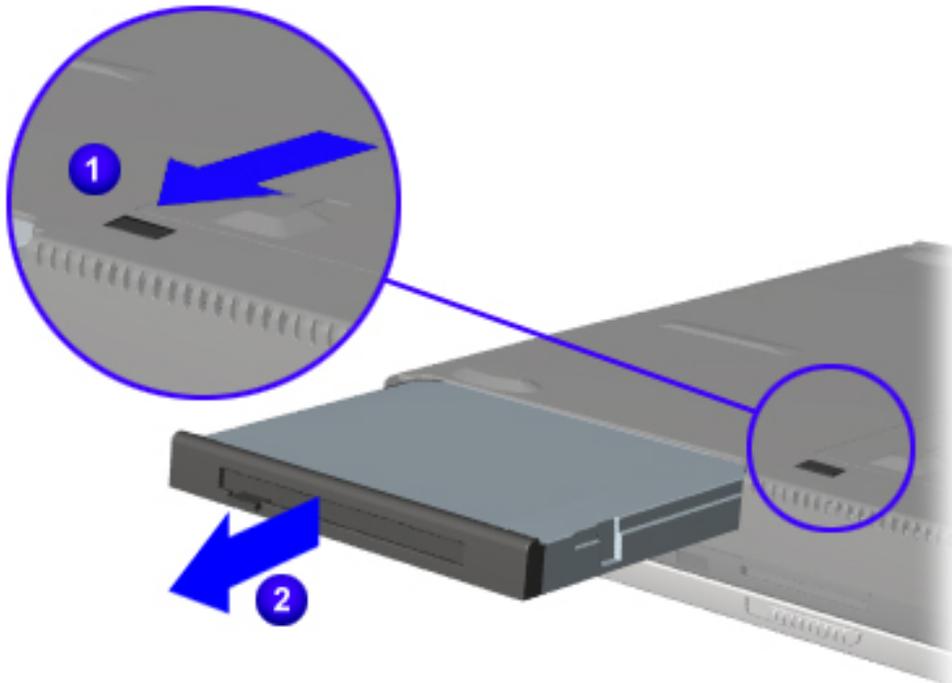
To remove a CD, DVD, or LS-120 drive, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the media (CD, DVD, Diskette) from the drive. Be sure the drive tray is closed.

3 Close the computer so the bottom is accessible.

4 Slide the drive's release latch ❶ forward.

5 Pull the device out of the drive bay ❷.

NOTE: If you are not inserting another device into the MultiBay, insert the MultiBay weight saver.

**END OF
SEQUENCE**

To replace a
MultiBay device,
reverse these
procedures.

Removal & Replacement
Removing the Hard Drive

>Preliminaries
>Serial Number Location
>Battery Pack
>DualBay Drive
>MultiBay Drive
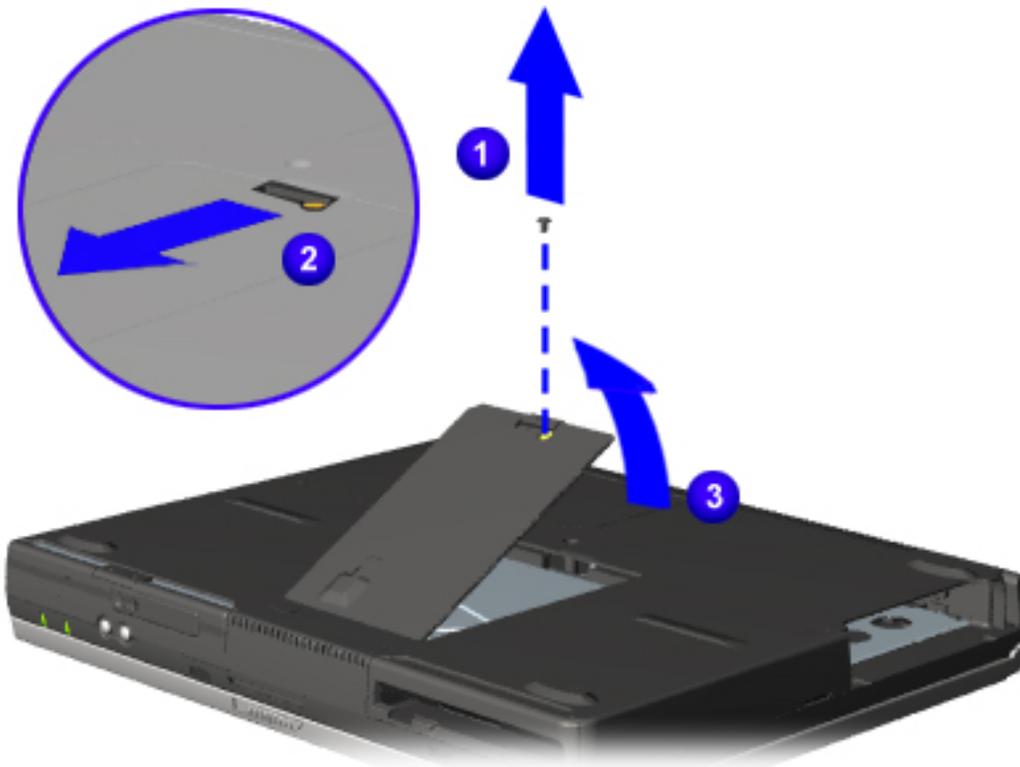>Hard Drive
>Modem
>Keyboard
>Memory Module
>LED Cover
>RTC battery
>Display Panel Assembly
>Button Board
>Top cover
>TouchPad or Pointing Stick Module
>System Board
>Voltage Converter Board

There are six steps in this procedure.

To remove the hard drive, complete the following steps:

1 Prepare the computer for disassembly.

2 Close the computer so the bottom of the computer is accessible.

3 Remove the screw ❶ which secures the hard drive cover to the computer's base.

4 Push the drive cover's latch forward ❷.

5 Lift the hard drive cover at an angle, towards the front of the computer ❸.

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Removal & Replacement
Removing Modem, NIC, & Combo cards
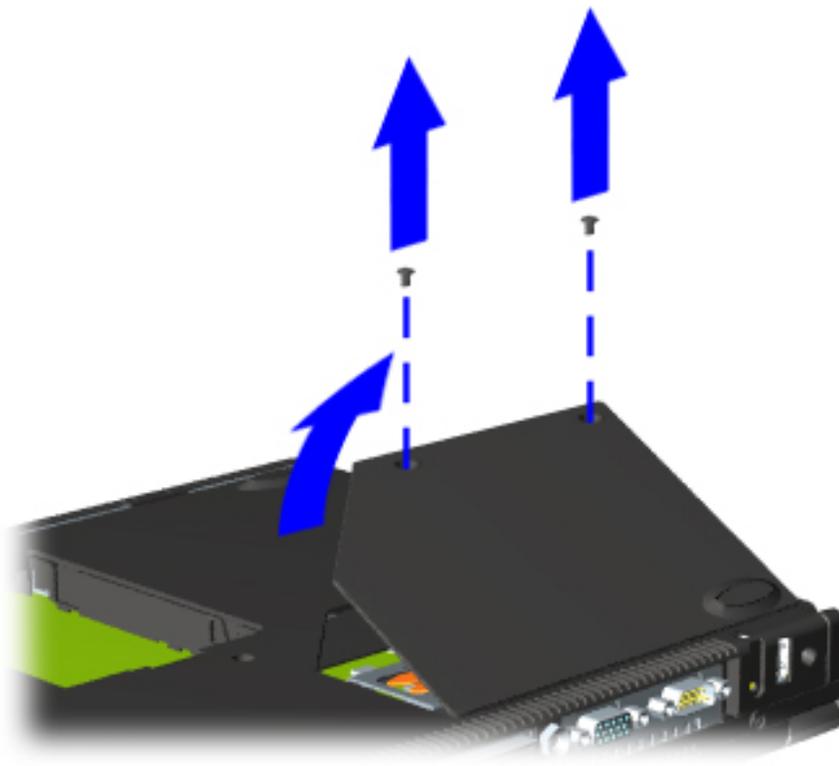
There are five steps in this procedure.

To remove the modem, NIC, or combo card, complete the following steps:

1 Prepare the computer for disassembly.

2 Close the computer so the bottom can be accessed and position it so the rear panel is facing forward.

3 Remove the two screws that secure the modem/combo card cover to the base assembly

4 Swing the cover towards the rear of the computer and remove it.

Next Step

Removal & Replacement
Removing the Keyboard
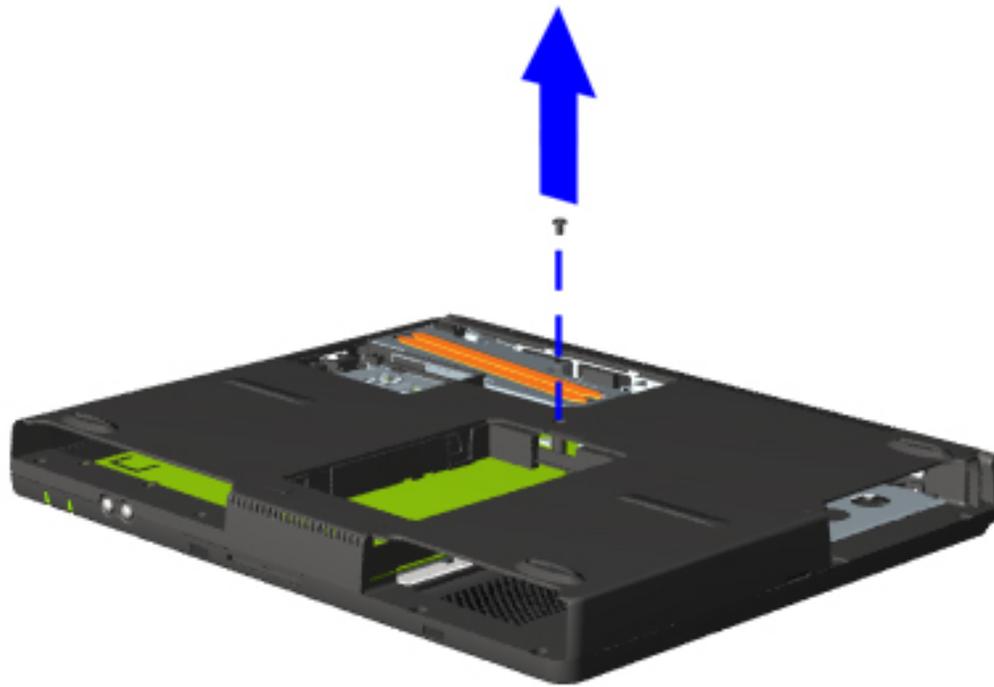
There are seven steps in this procedure.

To remove the keyboard, complete the following steps:

1 Prepare the computer for disassembly.

2 Close the computer and turn it so the bottom is facing up.

3 Remove the screw located on the bottom center of the computer.

Next Step

Removal & Replacement
Memory Module
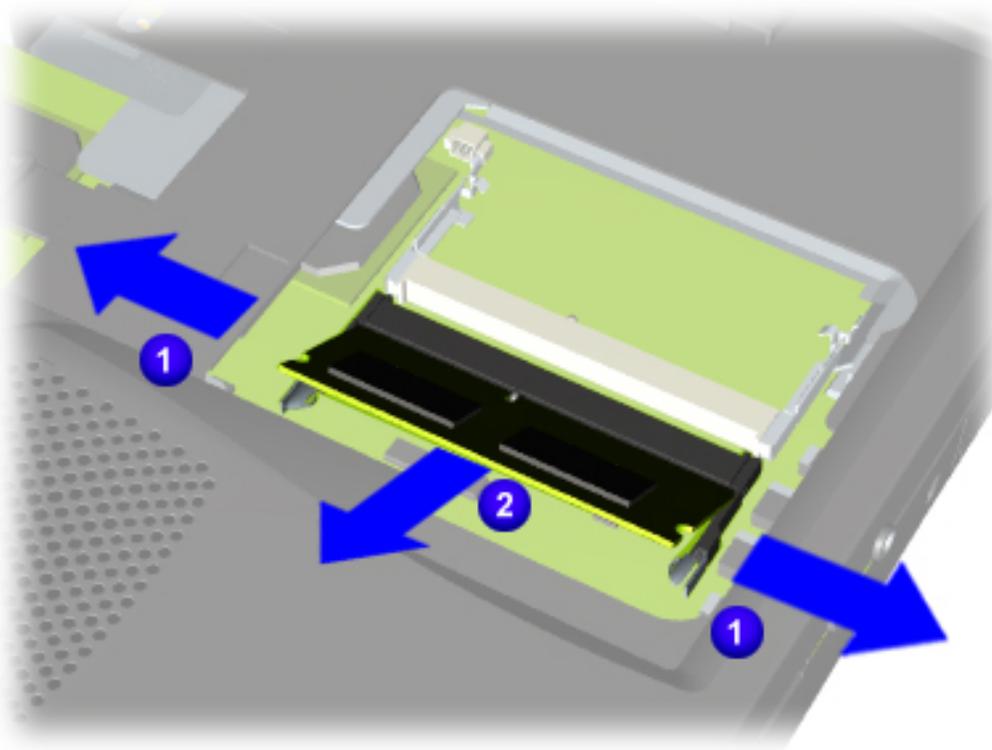
To remove the memory module, complete the following steps:

1 Prepare the [computer for disassembly](#).

2 Remove the [Keyboard](#).

3 Pull away the metal retention clips on each side of the memory expansion board ❶. The memory expansion board will automaticaly tilt upward.

4 Lift the edge of the memory expansion board and slide it out of the memory expansion slot at a 45-degree angle ❷.

END OF

SEQUENCE

To replace the
memory
module,
reverse the
previous
procedures.

Removal & Replacement
Removing LED Cover

To remove the LED Cover complete the following steps:

There are six steps to this procedure.

1 Prepare the computer for disassembly.

2 Remove the Keyboard.

3 Position the computer so the rear panel faces forward.

4 Remove the one screw from the rear panel that secure the switch cover to the base assembly.

Next Step

Removal & Replacement
Removing the RTC Battery
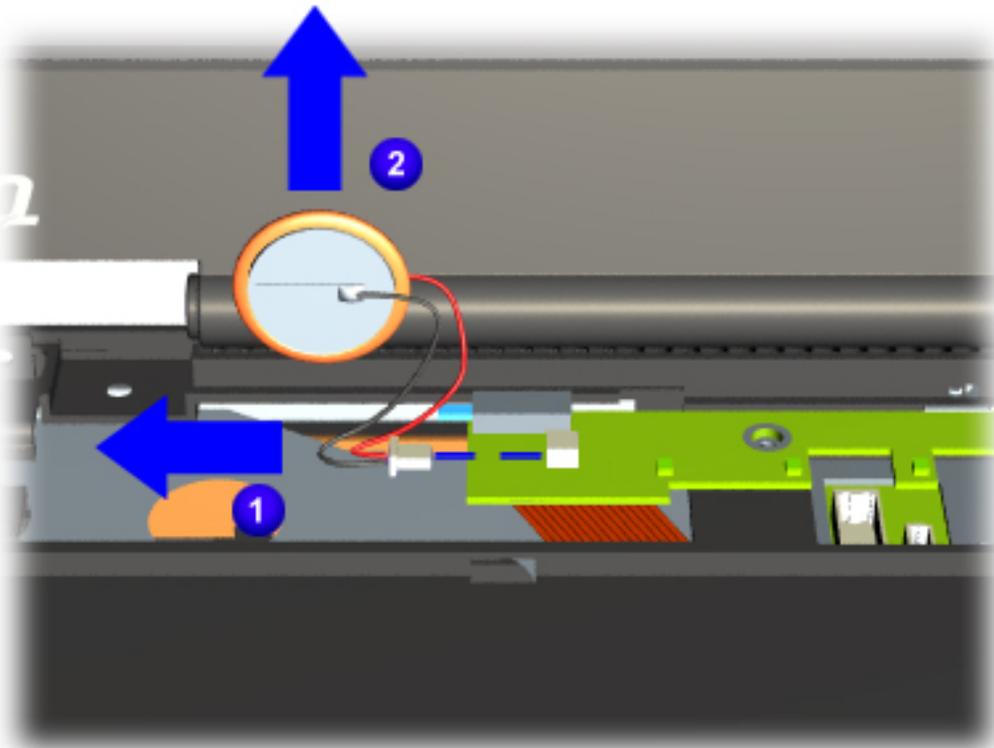
To remove the RTC battery, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the Keyboard.

3 Remove the LED cover.

4 Disconnect the RTC battery cable from the LED button board 1.

5 Remove the battery from the computer 2.

END OF SEQUENCE

To replace the RTC battery, reverse the previous procedures.

Removal & Replacement
Display Panel Assembly

There are ten steps in this procedure.

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

1 Prepare the computer for disassembly.

2 Remove the Keyboard.

3 Remove the LED Cover.

4 Remove the two screws which secure the grounding cables to the computer ❶.

5 Disconnect the Microphone cable ❷.

6 Disconnect the video cable ❸.

NOTE: To prevent the computer from tipping over during removal of the display assembly, a MultiBay device can be inserted into the computer MultiBay.

Removal & Replacement
Removing the LED Button Board
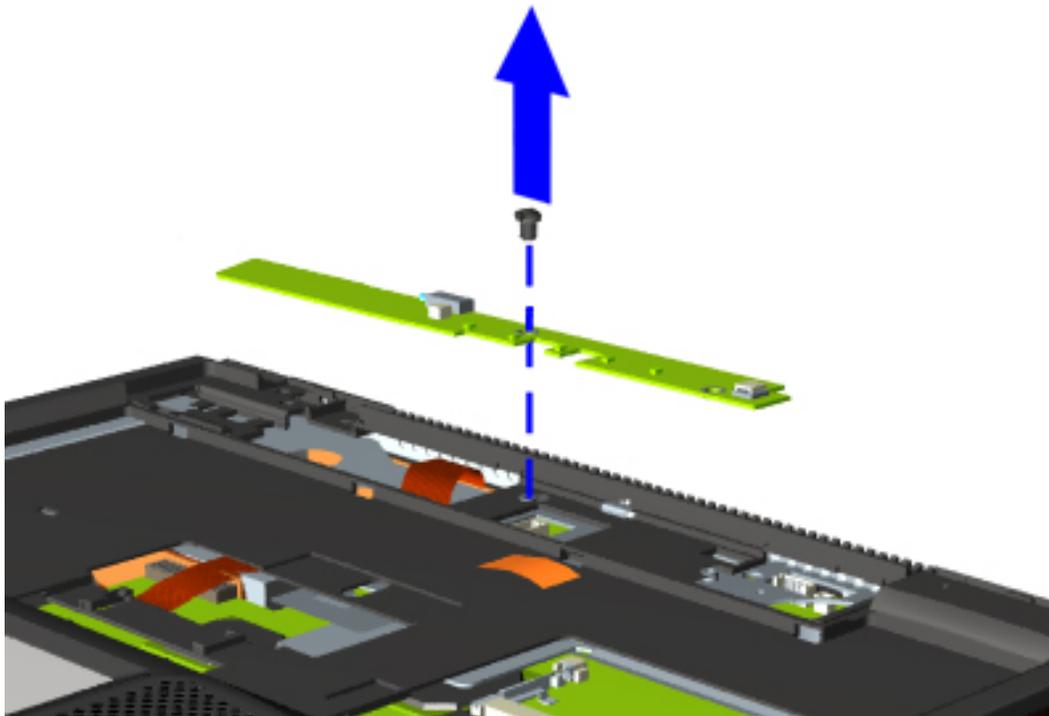
To remove the LED button board, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the LED cover.

3 Remove the Display Assembly.

4 Remove the center screw, disconnect the right side of the board, and lift the button board out of the computer.

END OF SEQUENCE

To replace the LED button board, reverse these procedures.

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Removal & Replacement
Top Cover

>Preliminaries

>Serial Number Location

>Battery Pack

>DualBay Drive

>MultiBay Drive

>Hard Drive

>Modem

>Keyboard

>Memory Module

>LED Cover

>RTC battery

>Display Panel Assembly

>Button Board

>Top cover

>TouchPad or Pointing Stick Module

>System Board

>Voltage Converter Board

There are thirteen steps in this procedure.

To remove the computer's Top cover complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the Keyboard.

3 Remove the LED Cover.

4 Remove the Display Panel Assembly.

5 Remove the Button Board.

Next Step

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| REMOVAL & REPLACEMENT | ILLUSTRATED PARTS CATALOG | TROUBLESHOOTING | SPECIFICATIONS |

Removal & Replacement
Removing the TouchPad or Pointing Stick Module
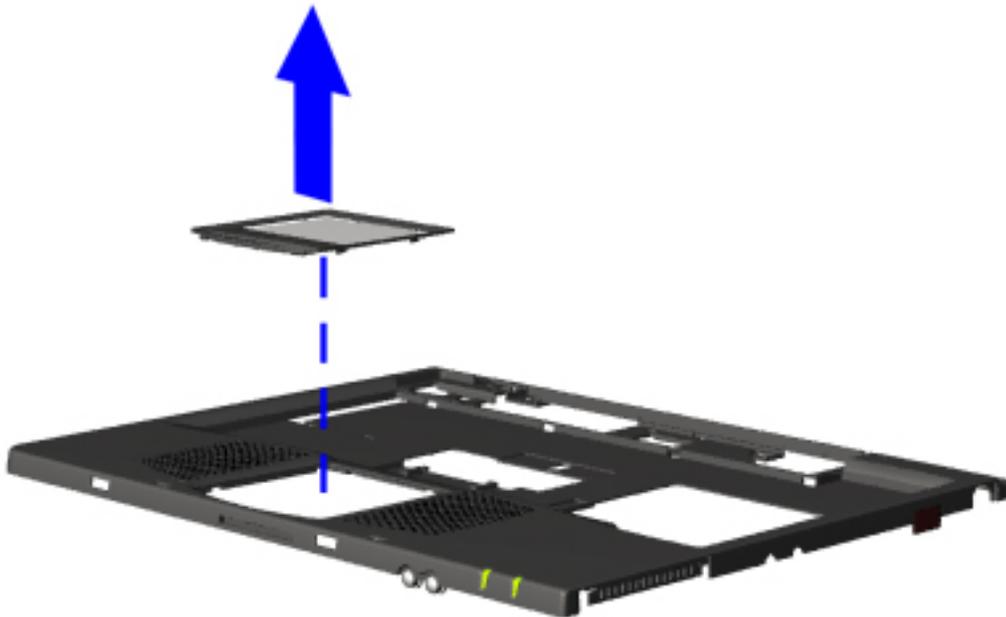
To remove the TouchPad or Pointing Stick (depending on model) module, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the Keyboard.

3 Remove the LED Cover.

4 Remove the Display Panel Assembly.

5 Remove the Top cover.

6 Carefully push the TouchPad assembly through the top of the top cover.

END OF SEQUENCE

To replace the TouchPad or Pointing Stick module, reverse the

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Removal & Replacement
System Board

There are eighteen steps in this procedure.

To remove the system board, complete the following steps:

1 Prepare the computer for disassembly.

2 Remove the battery pack.

3 Remove the Modem/combo card.

4 Remove the MultiBay drive.

5 Remove the DualBay drive.

6 Remove the Hard drive.

7 Remove the Modem.

8 Remove the Keyboard.

9 Remove the LED Cover.

10 Remove the Display Panel Assembly.

11 Remove the Top cover.

Next Step

Removal & Replacement
Removing the Voltage Converter Board
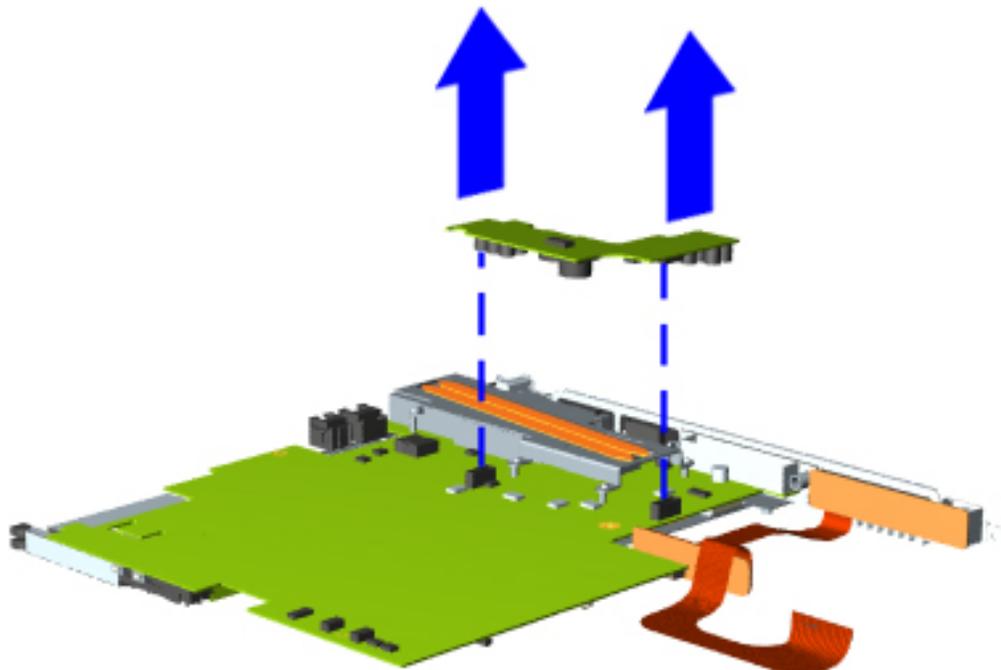
To remove the Voltage Converter board, complete the following steps:

1. Prepare the computer for disassembly.

2. Remove the System Board.

3. Carefully Lift the voltage converter board straight up to disconnect it from the system board, and remove it from the computer.

END OF SEQUENCE

To replace the Voltage converter board, reverse the previous procedures.

Removal & Replacement
System Board

12 Carefully turn the computer over so the bottom is facing up.

13 Disconnect the system board's connector from the MultiBay Module, located next to the place where the modem/combo card was located.

Next Step

Removal & Replacement
System Board

14 Carefully turn the computer over so the top is facing up.

15 Remove the screw to the metal shield and lift the shield out of the computer's base.

Next Step

Removal & Replacement
System Board

16 Remove the the port replicator's two standoff screws ① from the rear of the computer.

17 Remove three screws that secure the system board to the base ②.

18 Carefully remove the system board from the base ③.

END OF SEQUENCE

To replace the system board, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal & Replacement
CPU Cover
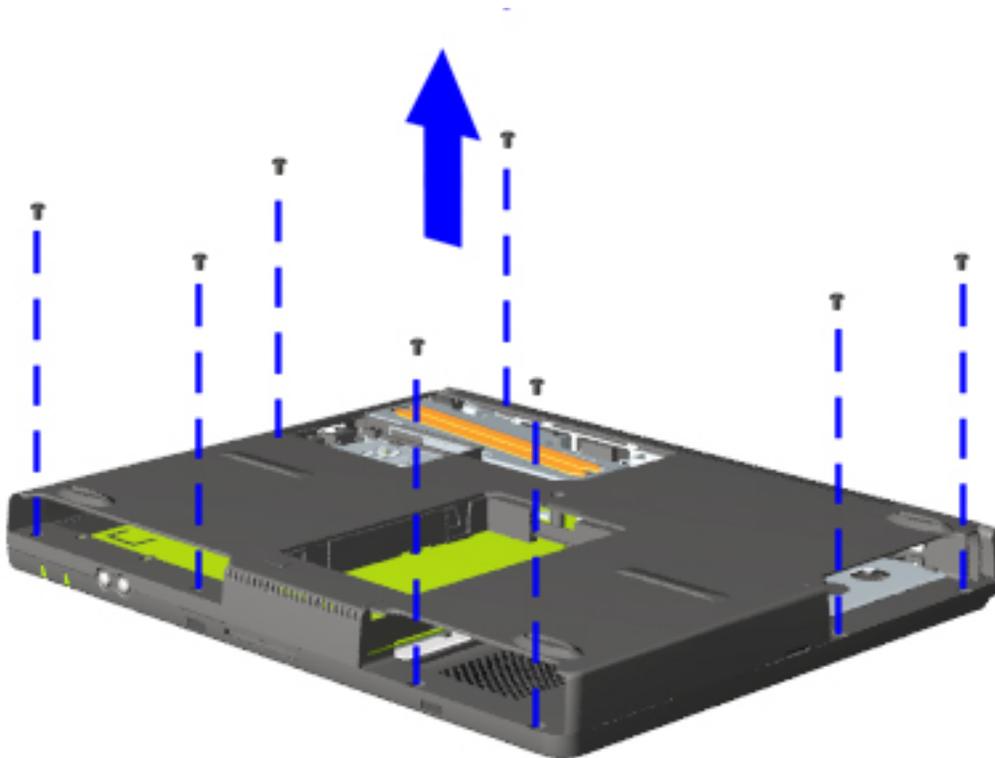
6 Turn the computer so the bottom side is facing up.

7 Remove the eight screws from the bottom of the computer.

Next Step

Removal & Replacement
Removing the Top Cover
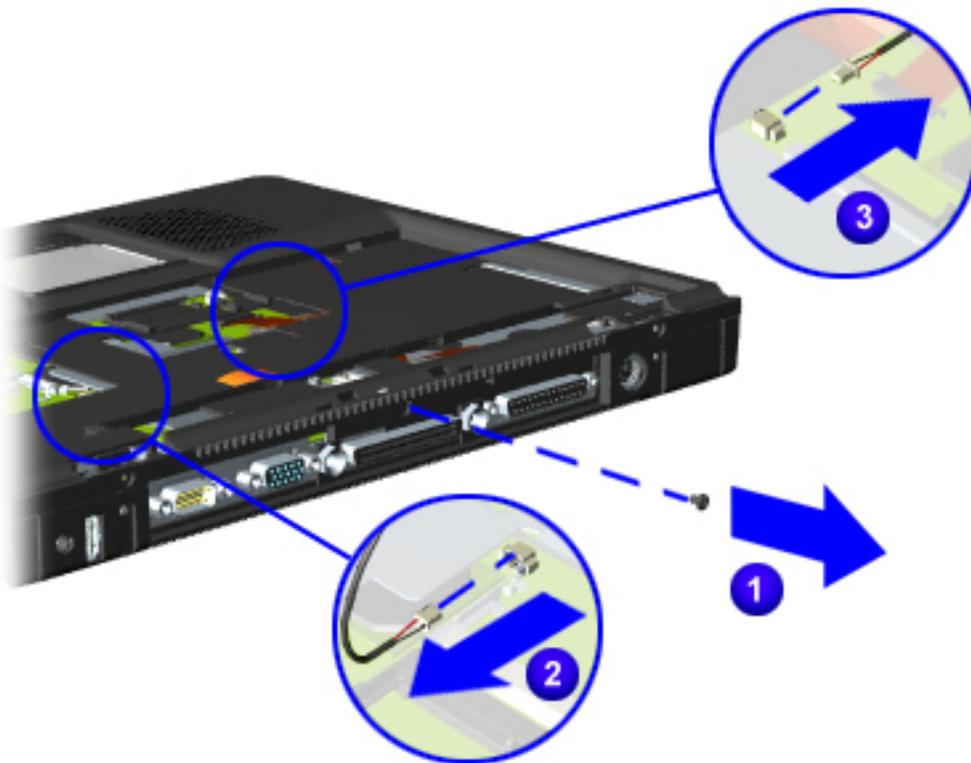
8 Turn the computer over, so the top side is facing up.

9 Remove one screw ❶ which secures the top cover to the computer's base.

10 Disconnect the right speaker cable ❷.

11 Disconnect the left speaker cable ❸.

Next step

Removal & Replacement
Removing the Top Cover
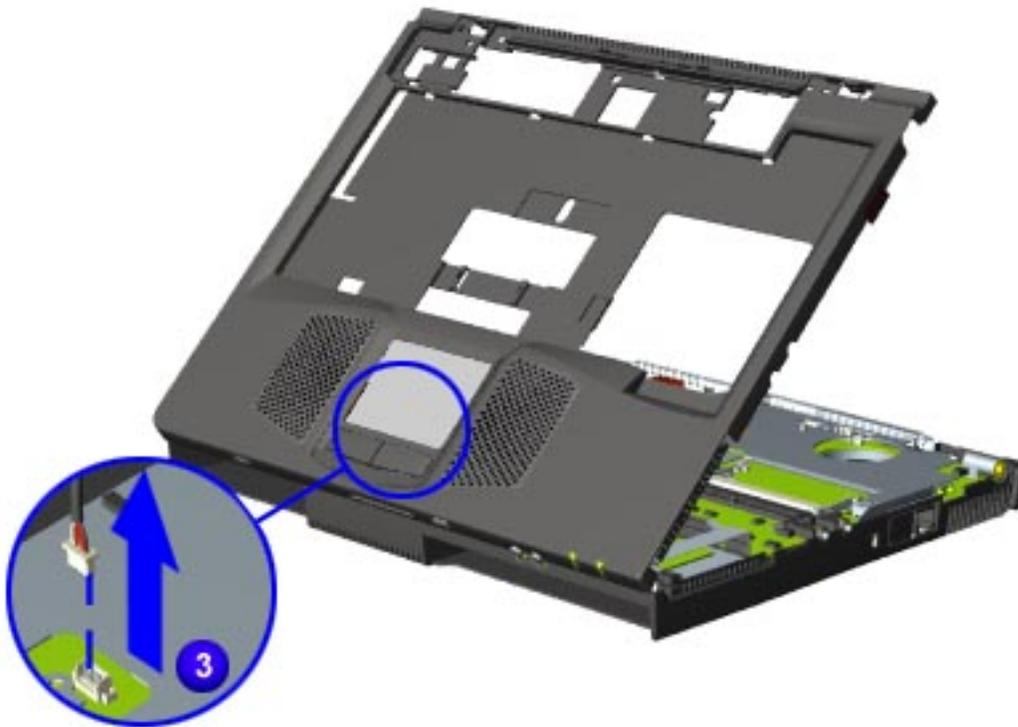
12 Carefully lift the top cover towards the front of the computer and disconnect the TouchPad or Pointing Stick (depending on model) module cable.

13 Remove the top cover.

END OF SEQUENCE.

To replace the Top Cover, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal & Replacement
Display Panel Assembly
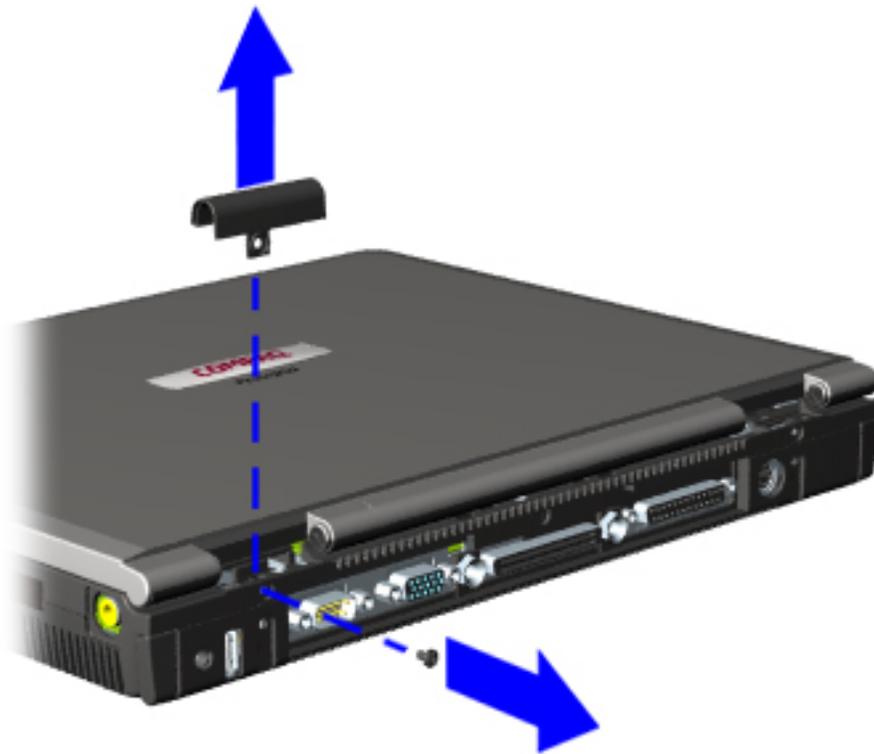
7 Remove one screw which secures the hinge cover to the computer and remove the hinge cover.

Next Step

Removal & Replacement
Display Panel Assembly
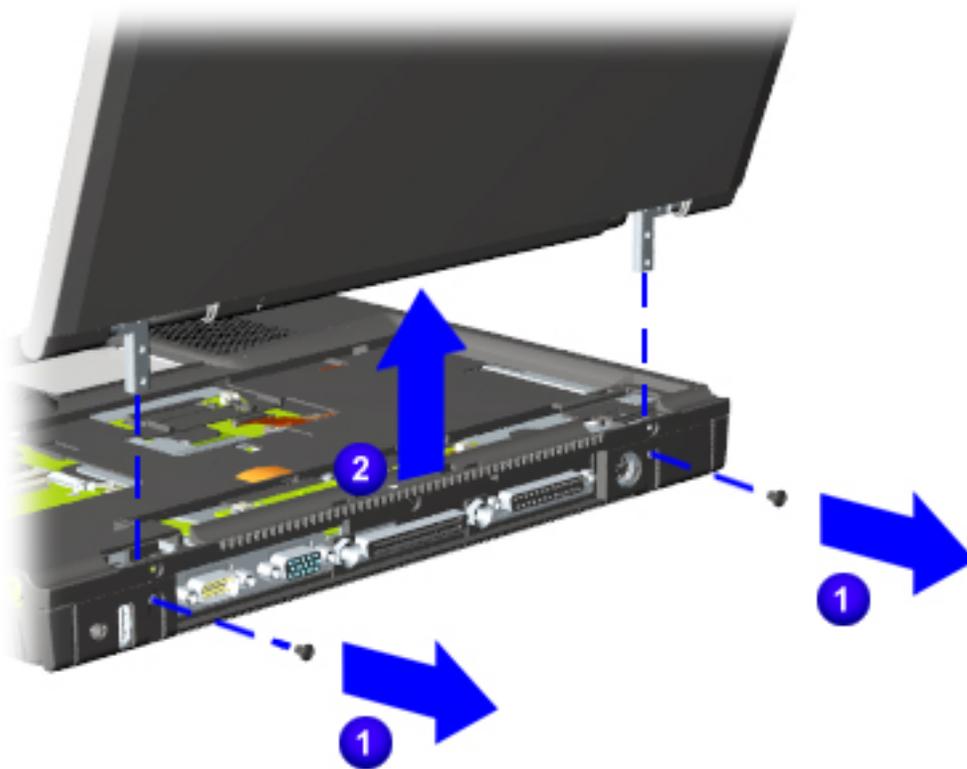
8 Position the computer so the rear panel faces forward.

9 Remove the two screws that secure the display assembly to the base assembly ❶.

10 Lift the display panel assembly up and out of the computer's base ❷.

END OF SEQUENCE

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

Return to Removal & Replacement Procedures.

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Removal & Replacement
Removing the LED Cover
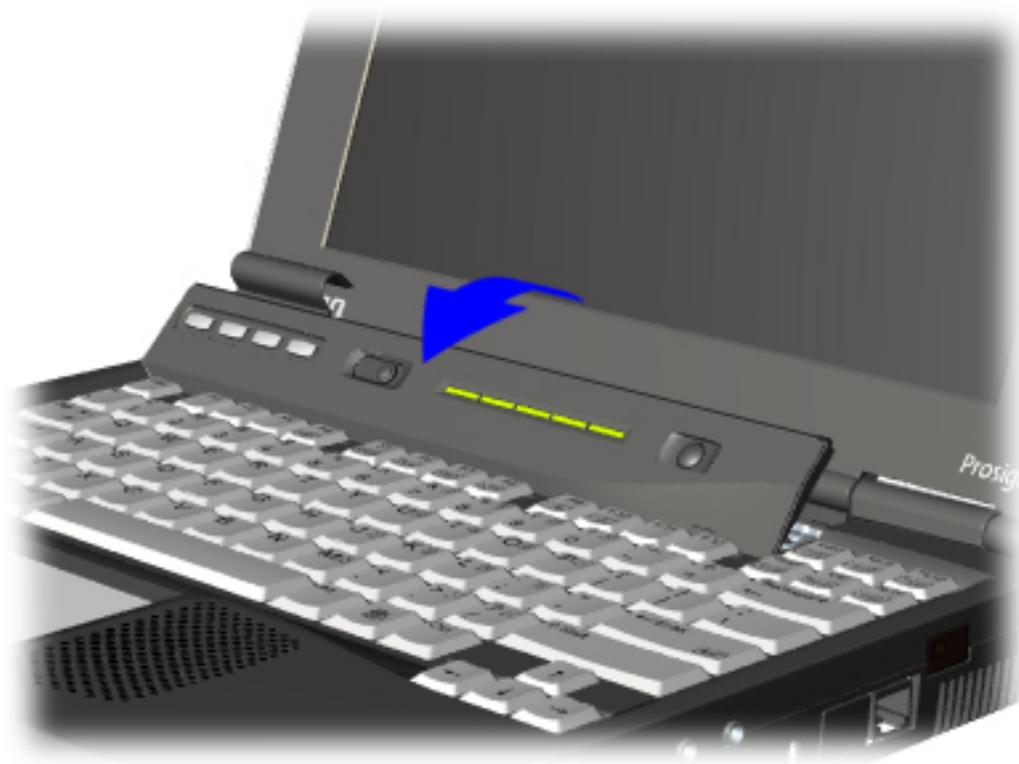
5 Position the computer so the front is facing you, and open the computer as far as it will open.

6 Lift the switch cover towards the front and out of the computer.

END OF SEQUENCE.

To replace the LED Cover, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal & Replacement
Removing the Keyboard

4 Slide the four tabs located along the top of the keyboard 🔵1 towards the front of the computer.

5

⚠️	**CAUTION**: There are cables* underneath the keyboard that connect it to the system board. If you lift it too quickly, you may damage the cables.

Carefully swing the top of the keyboard toward the front of the computer 🔵2.

*For Pointing Stick models there are two cables; for TouchPad models, there is only one cable.

Next Step

Removal & Replacement
Removing the Keyboard
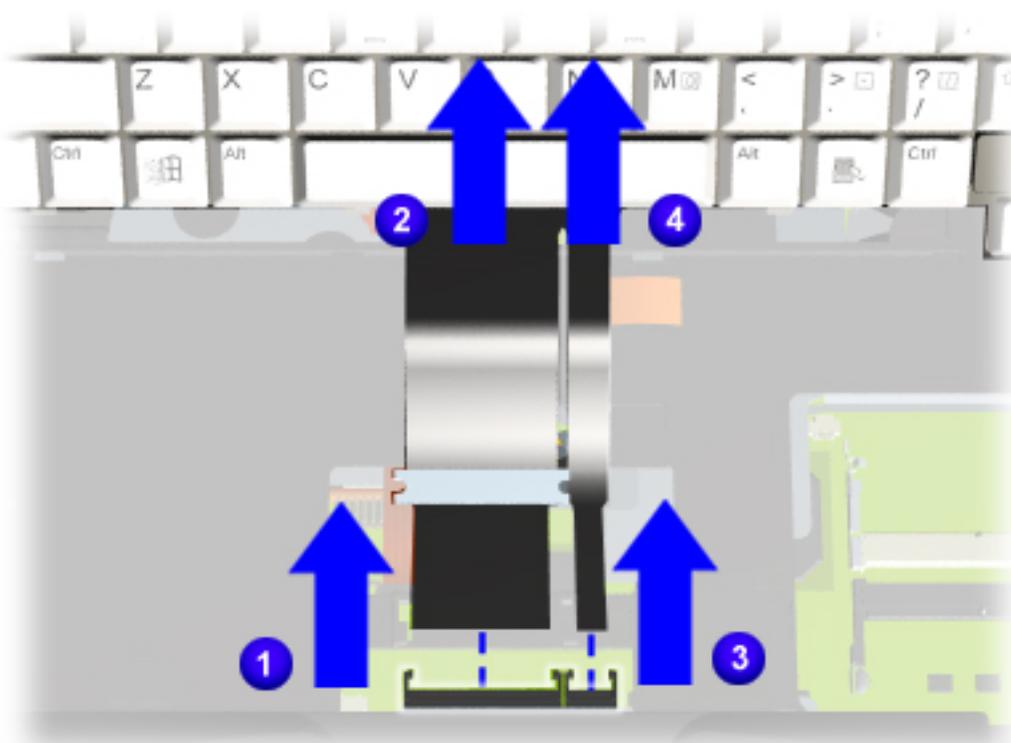
6 Disengage the ZIF connector **1** and carefully remove the the keyboard flex cable **2**.

7 (For Pointing Stick models only) Disengage the Pointing Stick ZIF connector **3** and remove the flex cable **4**.

END OF SEQUENCE

To replace the keyboard, reverse the above procedures.

Return to Removal & Replacement Procedures.

Removal & Replacement
Modem, NIC, & Combo cards
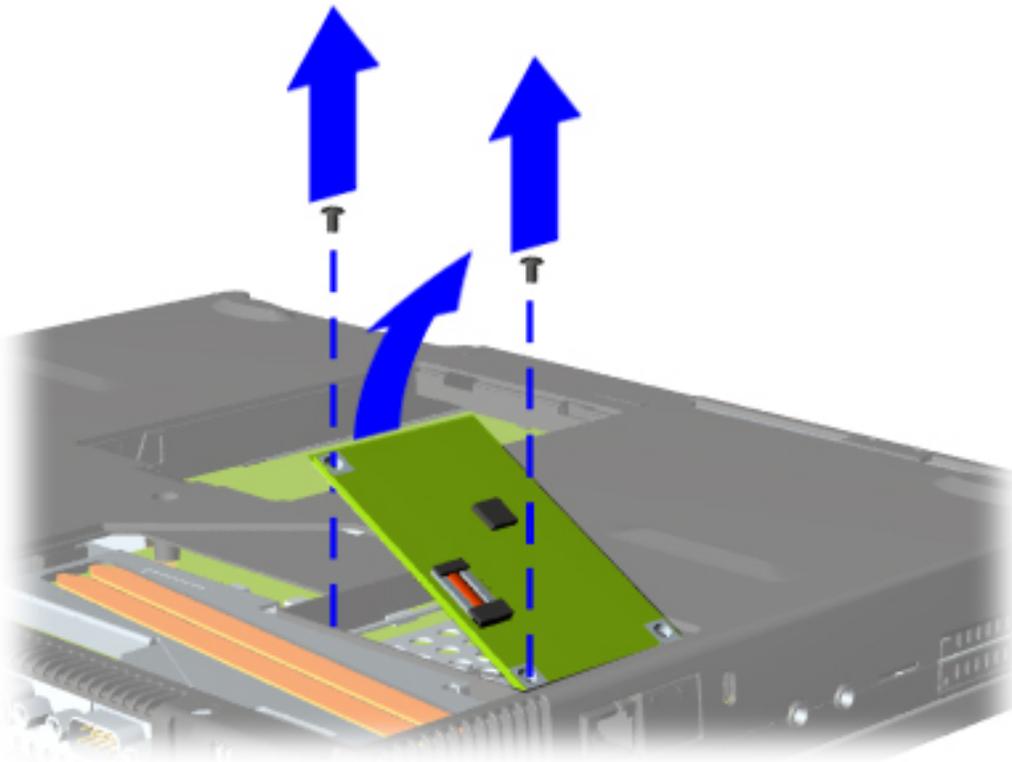
5 Remove the two screws and carefully lift the card at an angle, towards the right side of the computer. This will disconnect the card from the system board.

END OF SEQUENCE

To replace the modem, NIC, or combo card, reverse the previous procedures.

Return to Removal & Replacement Procedures.

Removal & Replacement
Removing the Hard Drive

6 Slide the Hard drive towards the rear of the computer to disconnect it, and lift it out of the computer, using the plastic tab on the top of the drive.

END OF SEQUENCE

To replace the hard drive, reverse these procedures.

Return to Removal & Replacement procedures.
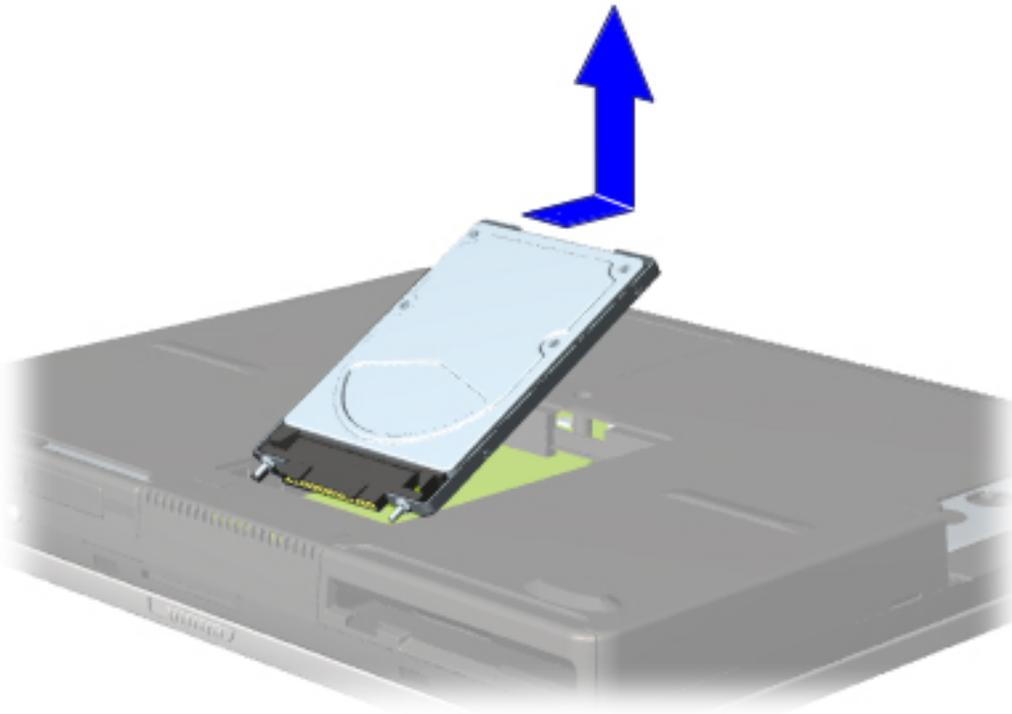
Product Description
Top Cover Buttons and Features: Pointing Stick Model
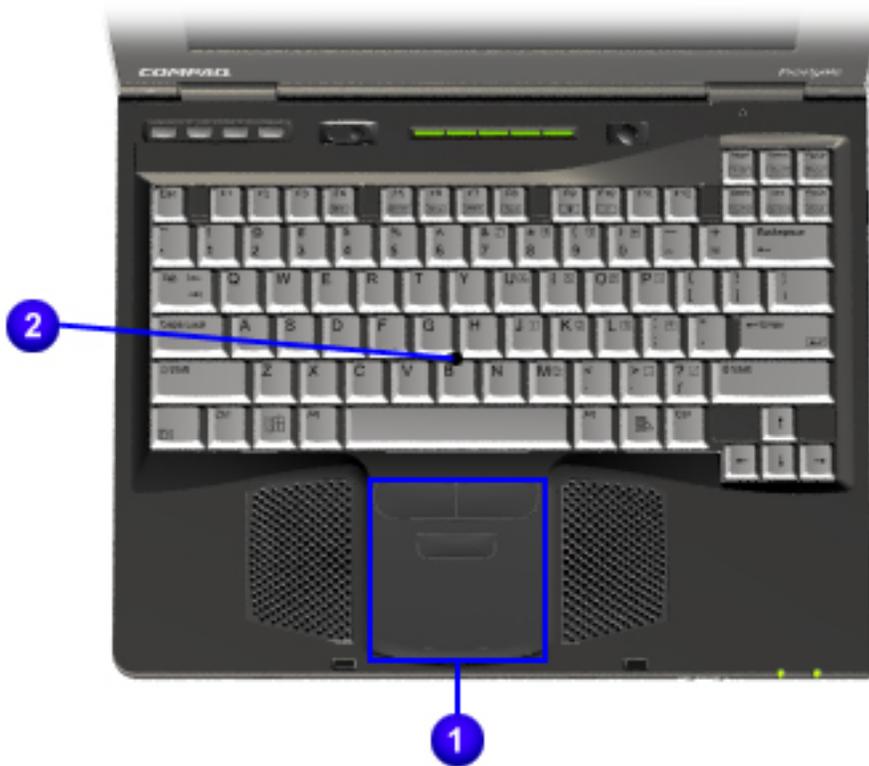
1 pointing Stick module & buttons

2 pointing Stick module

Return to Top Cover for TouchPad Models.

Return to Product Description.

Troubleshooting
Preliminary Steps

Before running POST, complete the following preliminary steps:

IMPORTANT: Use AC power when running POST or Computer Setup. A low battery condition could initiate Hibernation and interrupt the test.

1. Obtain established passwords. Click here if you need to clear the password.
2. Ensure that the hard drive is installed in the computer.
3. Ensure that the battery pack is installed in the computer and the power cord is connected to the computer and plugged into an AC power source.
4. Turn on the computer.
5. If a power-on password has been established, type the password and press **Enter**.
6. Run **Computer Setup**. If a Setup password has been established, type the password and press **Enter**.
7. Turn off the computer and all external devices.
8. Disconnect external devices that you do not want to test. If you want to use the printer to log error messages, leave it connected to the computer.
9. Use Compaq Utilities and loopback plugs in the serial and parallel connectors if you plan to test these ports.

NOTE: If a problem only occurs when an external device is connected to the computer, the problem could be with the external device or its cable. Isolate the problem by running POST with and without the external device connected.

Follow these steps to run Compaq Utilities:

- If you are running Compaq Utilities from the hard drive, turn on or restart the computer. Press **F10** when the cursor appears in the upper-right corner of the screen. If you do not press **F10** in time, restart the computer and try again.
- If you are running Compaq Utilities from diskette, insert the Compaq

Utilities diskette in drive Turn on or restart the computer.

- Press **Enter** to accept. Select **Prompted Diagnostics**.
- After "Identifying System Hardware" completes, select **Interactive Testing** and follow the instructions on the screen.

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

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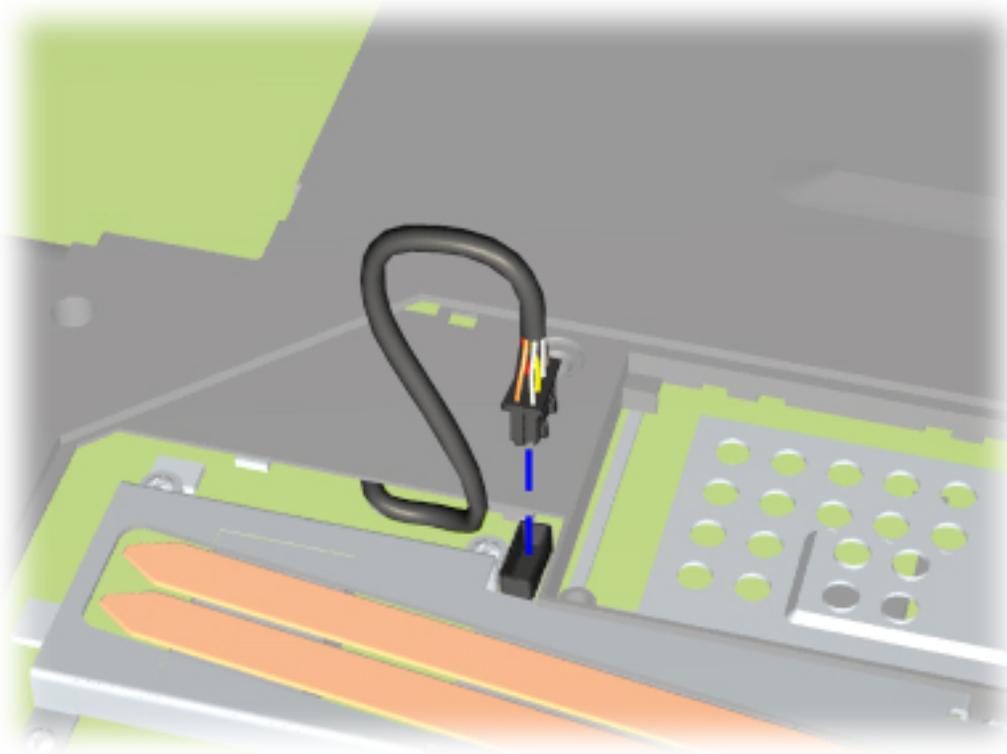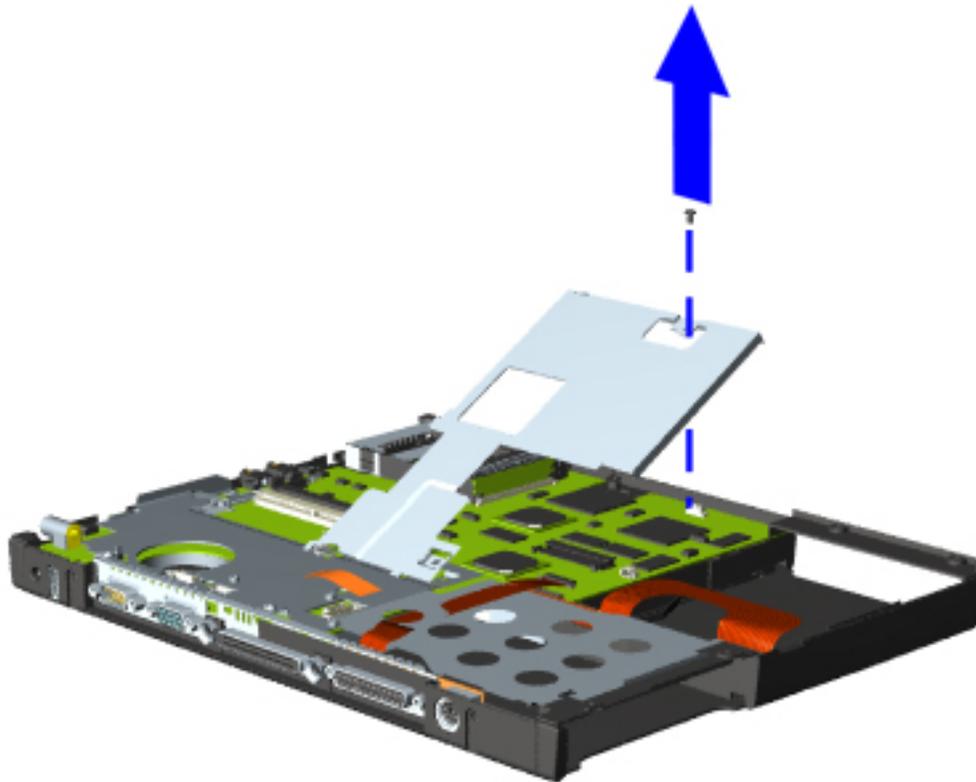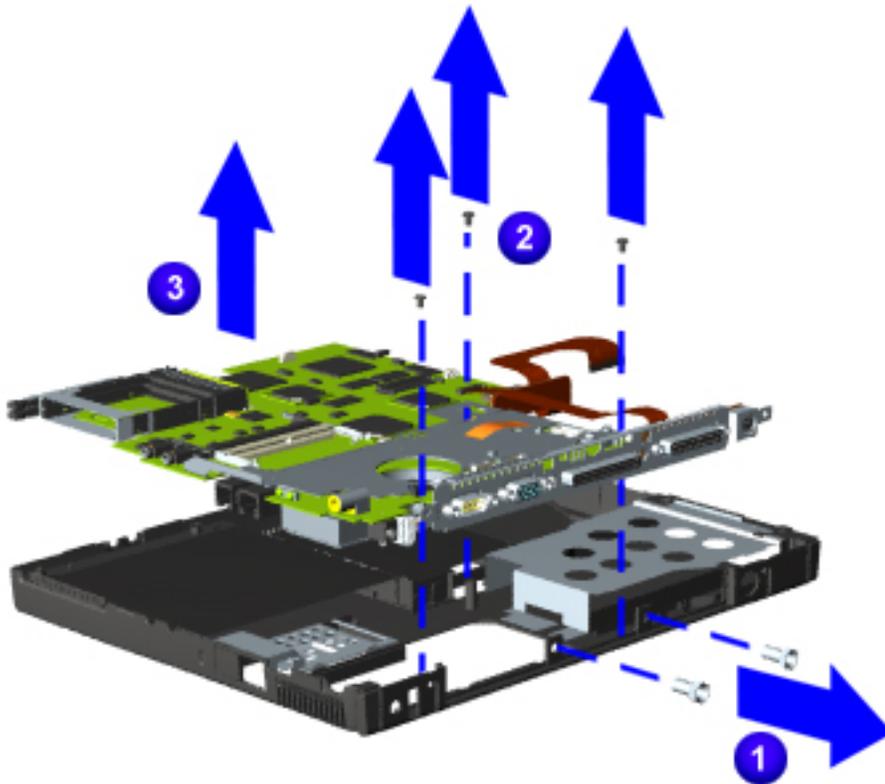| INDEX PAGE	PRODUCT DESCRIPTION	LEGAL NOTICE	HOW TO USE THIS GUIDE
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Troubleshooting
Clearing the Power-on Password (CMOS)
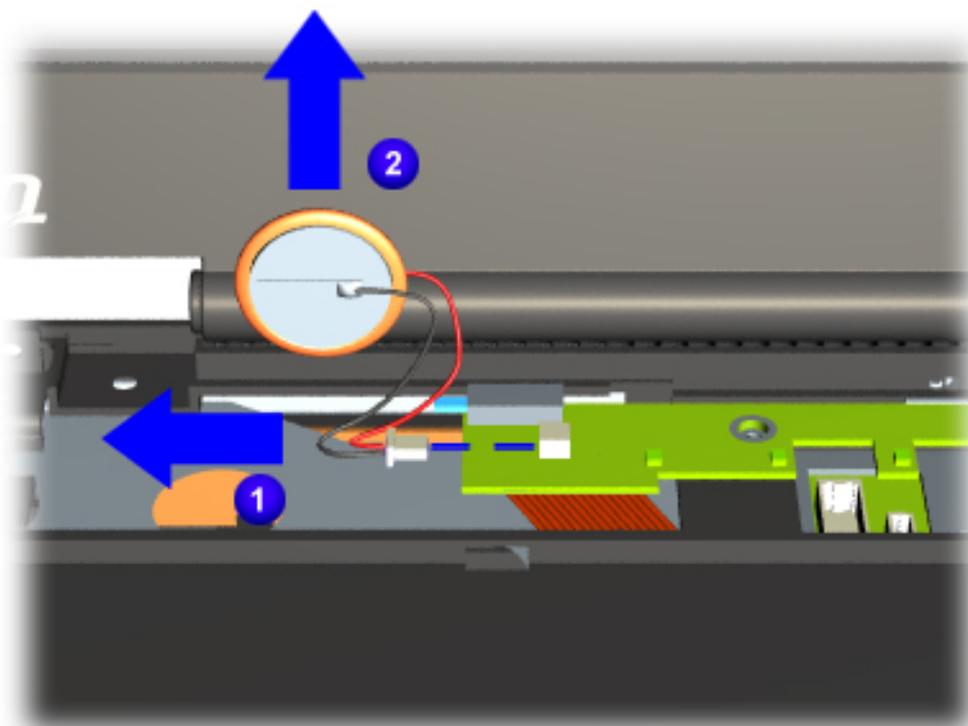
Clearing the power-on password requires removing all Setup attributes that are programmed in the CMOS.

If the password is not known, clear it by performing the following steps:

1 Prepare the computer for disassembly.

2 Remove the keyboard.

3 Remove the LED cover.

4 Disconnect the RTC battery cable from the system board **1**.

5 Remove the battery from the computer **2**.

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Troubleshooting
Power-on Self Test (POST)

The Power-On Self-Test (POST) is a series of tests that run every time the computer is turned on. POST verifies that the system is configured and functioning properly.

To run POST, complete the following steps:

1. Complete the Preliminary steps.
2. Turn on the computer.

If POST does not detect any errors, the computer beeps once or twice to indicate that POST has run successfully. The computer boots from the hard drive or from a bootable diskette if one is installed in the diskette drive.

POST Error Messages

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 in the Troubleshooting without Diagnostics page.

If POST detects an error, one of the following events occurs:

1. A message with the prefix "**WARNING**" appears, informing you where the error occurred. The system pauses until you press **F1**.
2. A message with the prefix "**FATAL**" appears, informing you where the error occurred. After the message, the system emits a series of beeps, then stops.

Warning Messages

Warning messages indicate that a potential problem, such as a system configuration error, exists. When **F1** is pressed, the system should resume. You should be able to correct problems that produce warning messages.

If you receive one of the error messages listed below, follow the recommended action.

Warning Messages	Message Description	Recommended Action
CMOS checksum invalid, run SCU CMOS	RAM information has been corrupted.	Run Computer Setup to reinitialize CMOS-RAM.

CMOS failure, run SCU	CMOS RAM has lost power.	Run Computer Setup to reinitialize CMOS-RAM.
Diskette controller error	The diskette drive controller failed to respond to the recalibrate command.	If there is no diskette drive in the system, run Computer Setup to properly configure the CMOS-RAM to show no diskette drive present. If the problem persists, or if a diskette drive is present, complete these steps until the problems is solved: 1. Check diskette drive connections. 2. Replace diskette drive. 3. Replace system board.
Diskette track 0 failed	The diskette drive cannot read track 0 of the diskette in the drive.	Try another diskette. If the problem persists, you may need to replace the diskette drive.
Hard disk controller error	The hard drive controller failed to respond to the reset command.	Check the drive parameters. Turn off the system and check all related connections.
Keyboard controller failure	The keyboard failed the self-test command.	Replace the system board.
Keyboard failure	The keyboard failed to respond to the RESET ID command.	Replace the keyboard. If the problem persists, replace the system board.
No interrupts from	Timer 0 The periodic timer interrupt is not occurring.	Replace the system board.
ROM at xxxx (LENGTH yyyy) with nonzero checksum (zz)	An illegal adapter ROM was located at the specified address.	Check the external adapter (such as a video card) to determine if it is causing the conflict.
Time/Date corrupt - run SCU	The time and date stored in the real time clock have been corrupted, possibly by a power loss.	1. Run Computer Setup. 2. If problem persists, replace auxiliary battery. 3. If problems persists, replace system board
Hard disk xx failure (or error)	A failure or an error occurred when trying to access the hard drive.	1. Run ScanDisk. 2. Check disk in DOS and Windows 95.

Fatal Error Messages

Fatal errors emit a beep and may display a "**FATAL**" message. Fatal errors indicate severe problems, such as a hardware failure. Fatal errors do not allow the system to resume. Some of the Fatal error beep codes are listed at the end of this section.

Message	Description	Beep code
CMOS RAM test failed	A walking bit test of CMOS RAM location 0E (Hex) - 3F (Hex) failed.	3
DMA controller faulty	A sequential read/write of the transfer count and transfer address registers within the primary and secondary DMA controllers failed.	4
Faulty DMA page registers	A walking bit read/write of the 16 DMA controller page registers starting at location 80 Hex failed.	0
Faulty refresh circuits	A continuous read/write test of port 61h found that bit 4 (Refresh Detect) failed to toggle within an allotted amount of time.	1
Interrupt controller failed	A sequential read/write of various Interrupt Controller registers failed.	5
ROM checksum incorrect	. A checksum of the ROM BIOS does not match the byte value at F000:FFFF.	2
RAM error at location xxxx	RAM error occurred during memory test.	None

Fatal Error Beep Codes

NOTE: S = Short, L = Long, P = Pause

Beep Code	Beep Sequence	Description Recommended Action
0 S-S-S-P-S-S-L-P	The DMA page registers are faulty.	Replace system board.
1 S-S-S-P-S-L-S-P	The refresh circuitry is faulty.	
2 S-S-S-P-S-L-L-P	The ROM checksum is incorrect.	
3 S-S-S-P-L-S-S-P	The CMOS RAM test failed.	
4 S-S-S-P-L-S-L-P	The DMA controller is faulty.	
5 S-S-S-P-L-L-S-P	The interrupt controller failed.	
6 S-S-S-P-L-L-L-P	The keyboard controller failed.	
7 S-S-L-P-S-S-S-P	Graphics adapter is faulty.	

8 S-S-L-P-S-S-L-P	Internal RAM is faulty.	Replace memory board or system board if memory on system board is faulty.

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Troubleshooting
Compaq Utilities & F10 Setup

Compaq Utilities contain several functions that determine if various computer devices are recognized by the system and checks to see if the devices are operating properly.

Provide information about the system once it is configured.

Compaq Utilities include the following programs:

- Computer Setup
- Compaq Diagnostics

To access Compaq Utilities:

1. Turn on or restart the computer by clicking **Start -> Shut Down -> Restart** the computer.
2. Press **F10** when the blinking cursor appears in the upper-right corner of the display.
3. Select a menu option.

Selecting Computer Setup or Compaq Diagnostics for Windows

The computer features two system management utilities:

- Computer Setup is a system information and configuration utility that can be used even when your operating system is not working or will not load. It includes custom settings that are not available in Windows.

To configure a device in Windows NT 4.0, you must use Computer Setup.

- Compaq Diagnostics for Windows is a system information and diagnostic utility that is used within the Windows operating system. Use Compaq Diagnostics for Windows to test system components and to display system information whenever possible.

To configure a device in Windows 95 or 98 use the operating system itself. Windows 95 and 98 can be used to add and remove programs, and provide Wizards to ensure proper device drivers are installed. Diagnostics for Windows is NOT a configuration tool and might only test devices that are properly configured by the operating system.

NOTE: It is not necessary to configure a device connected to a USB connector on the computer or an optional docking base.

Using Computer Setup

All information and setting in Computer Setup are accessed from the File, Security, or Advanced menus. The items on each of these menus are described in this section.

To use Computer Setup:

1. Turn on or restart the computer.
2. When the blinking cursor appears in the upper-right corner of the screen, press **F10**.
3. To change the language, press **F2**.
4. To view navigation information, press **F1**.
5. To return to the Computer Setup menu from anywhere in Computer Setup, press **ESC**.
6. Select the **File**, **Security**, or **Advanced** menu.
7. To close Computer Setup and restart the computer:
   Select **File->Save->Changes** and **Exit**, then press **Enter**.
   Select **File->Ignore Changes** and **Exit**, then press **Enter**.
8. When you are prompted to confirm your action, **press F10**.

Selecting from the File Menu

Use the following table as a reference in making selections from the File Menu.

File Menu Selections	Resulting Action
System information	Allows viewing of identification information about your computer, a docking base, and battery packs.
Save to floppy	Save system configuration to a formatted diskette.
Restore from floppy	Restore system configuration from a diskette
Restore defaults	Replace configuration settings in Computer Setup with factory default settings (identification information is retained).
Ignore changes and exit	Cancel changes entered during the Computer Setup session, then exit and restart the computer
Save changes and exit	Save changes entered during the current Computer Setup session, then exit and restart the computer

Selecting from the Security Menu

Use the following table as a reference in making selections from the Security Menu.

Security Menu	Selections Resulting Action
Setup password	**Enter**, **change**, or **delete** a setup password
Power-on password	**Enter**, **change**, or **delete** a power-on password.

DriveLock passwords	**Enable/disable** DriveLock; change a Drive/Lock User or Master password.
Password options	Enable/disable QuickLock QuickLock on Suspend QuckBlank Lock keyboard and mouse at power-on To enable Quicklock on Suspend or QuckBlank, Quicklock must be enabled first.
Device security	Enable/disable Ports or diskette drives Diskette write CD or diskette startup Settings for DVD can be entered in the CD field.
System IDs	Enter identification numbers for the computer, a docking base, and battery packs.

Selecting from the Advanced Menu

Use the following table as a reference in making selections from the Advanced Menu.

Advanced Menu	Selections Resulting Action
Language (or press F2)	Change the Computer Setup language
Boot options	Enable/disable QuickBoot, which starts the computer more quickly by eliminating some startup tests. (If you suspect a memory failure and want to test memory automatically during startup, you may want to disable QuickBoot.) MultiBoot, which enables you to set a startup sequence that can include any drives and PCI network adapters in the system.
Device options	Enable/disable the embedded numeric keypad at startup. Enable multiple standard pointing devices at startup, or disable this feature so the computer supports only a single pointing device at startup. Enable/disable USB legacy support for one USB mouse and one USB keyboard. Set an optional external monitor or overhead projector connector to a video card in a docking base as the primary device. Change the parallel port mode from EPP (default) to standard, bidirectional, EPP, or ECP.

Using Compaq Diagnostics for Windows

When you access Compaq Diagnostics for Windows, a scan of all system components appears on the screen before the Compaq Diagnostic window opens. You can display more or less information from anywhere within

Compaq Diagnostics for Windows by selecting Level on the menu bar.

Compaq Diagnostics for Windows are designed to test Compaq components. Testing other components may be inconclusive.

Displaying System Information

To display system information:

1. **Select Start -> Settings -> Control Panel -> Compaq Diagnostics**
2. Select Categories, then select a category from the drop-down list.
3. To save the information, select **File -> Save As**.
4. To print the information, select **File -> Print**.
5. To close Compaq Diagnostics for Windows, select **File -> Exit**.

Running a Diagnostic Test

To run a diagnostic test:

1. Select **Start ->Settings -> Control Panel -> Compaq Diagnostics**.
2. **Select the Test Tab.**
3. **In the scroll box, select the category or device you wan to test.**
4. **Select a test type.**
   Quick Test runs a quick, general test on each device in a selected category.
   Complete Test performs maximum testing on each device in a selected category.
   Custom Test performs maximum on a selected device.
   To run all tests listed beneath your selection, select the **Check All** button.
   To run only the tests you select, select the **Uncheck All** button, then select the check box beside each test you want to run.
5. **Select a test mode.**
   Interactive Mode provides maximum control over the testing process. You determine whether the test was passed or failed and may be prompted to insert or remove devices.
   Unattended Mode does not display prompts. If errors occur, they are displayed when testing is complete.
6. **Select the Begin Testing button.**
7. **Access the test information. The view test information, select a report:**
   Status tab provides a summary of tests run, passed and failed during the current testing session.
   Log tab provides a listing of tests run on your computer, the number of times each test has run, the number of errors found on each test, and the total run time of each test.
   Error tab provides a listing of all errors found on your computer with their error codes.
8. **To save**
   Test information: Select the **Save** button on the **Log** tab.
   Error reports: Select the **Save** button on the **Error** tab.
9. **To close Compaq Diagnostics for Windows, select File -> Select**.

Click here to see Factory Default settings.

Return to the top.

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 messages that may be displayed on the screen.

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.

Before Replacing Parts

When troubleshooting a problem, check the following items for possible solutions before replacing parts:

- Verify that cables are connected properly to the suspected defective parts.
- Verify that all required device drivers are installed.
- Verify that all printer drivers have been installed for each application.

Obtaining Update Information with Info Messenger

Compaq Info Messenger allows you to set a customized search of the Compaq Web site. By registering for this utility, you can stay up to date with software and hardware information specific to your system.

Select the **Categories menu**, then select a category from the drop-down list.

To access Compaq Info Messenger, go to www.compaq.com and select Info Messenger.

To register, follow the instructions on the Info Messenger page. When your registration is complete, you can

- Implement your customized search whenever you prefer from the Info Messenger page.
- Set Info Messenger to send you the information by email as it becomes available.
- Info Messenger will also inform you if there are updates to the system ROM for your computer.

Checklist for Solving Problems

If you encounter a minor problem with the computer or software applications,

go through the following checklist for possible solutions:

- Is the computer connected to an external power source, or does it have a fully charged battery pack installed?
- Are all cables connected properly and securely?
- Did the diskette drive contain a nonbootable diskette when you turned on the computer?
- Have you installed all the needed device drivers? For example, if you are using a mouse, you may need to install a mouse device driver.
- Are printer drivers installed for each application?

Eliminating the typical problems described in this Troubleshooting section may save you time and money. If the problem appears related to a software application, check the documentation provided with the software. You may discover something you can resolve easily by yourself.

If the condition persists, contact your Compaq authorized dealer or service provider.

Click on a link below for Troubleshooting information regarding:

>**Audio**   >**Keyboard**

>**Battery**   >**Modem**

>**CD/DVD drive**   >**PC Card**

>**Diskette/LS 120**   >**Power**

>**Hard Drive**   >**Screen**

>**Infrared**   >**USB**

MAINTENANCE & SERVICE GUIDE
PROSIGNIA NOTEBOOK 190

INDEX PAGE	PRODUCT DESCRIPTION	LEGAL NOTICE	HOW TO USE THIS GUIDE
REMOVAL & REPLACEMENT	ILLUSTRATED PARTS CATALOG	TROUBLESHOOTING	SPECIFICATIONS

Troubleshooting
Contacting Compaq Support

>Preliminaries

>Clearing Password

>POST

>Compaq Utilities

>Troubleshooting without Diagnostics

>Contacting Compaq

Obtain the following information before contacting Compaq Support:

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

Shipping Preparation

To ship the computer, complete the following steps:

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

2. Turn off the computer and external devices.

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

IMPORTANT: Ensure that there is not a diskette in the diskette drive and that there are no PC Cards in the PC slots.

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

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

Troubleshooting
Without Diagnostics: Solving Minor Problems

Click on a link below for Troubleshooting information on:

> **Audio**   > **Keyboard**

> **Battery**   > **Modem**

> **CD/DVD drive**   > **PC Card**

> **Diskette/LS 120** > **Power**

> **Hard Drive**   > **Screen**

> **Infrared**   > **USB**

Solving Audio Problems

Problem	Possible Cause	Solution
Computer does not beep after the Power-On Self-Test (POST).	System beeps have been turned down.	Use the **Fn**+**F5** hotkeys to turn up the system volume.
Internal speaker does not produce sound when an external audio source is connected to the stereo line-in jack.	Volume may be turned off or set too low.	Adjust the overall volume with the **Fn+F5** hotkeys. Adjust the overall volume by pressing the **Fn**+**F5** hotkeys. Adjust the sliding mixer controls by double-clicking the speaker icon on the Windows taskbar.
	Line input may not be connected properly.	Check line input connection.
	Headphones or speakers are connected to the stereo speaker/ headphone jack, which disables the internal speakers.	Disconnect the headphones or speakers to enable the internal speakers.
	Volume may be muted	Uncheck the mute box in the volume properties.

External microphone does not work.	You are using the wrong type of microphone or microphone plug for the computer.	Check to see if you are using a monophonic electret condenser microphone with a 3.5-mm plug.
	The microphone may not be connected properly.	Ensure that the microphone plug is properly connected to the mono microphone jack.
	Sound source not selected.	Ensure that microphone is selected as the recording source in **Control Panel** -> **Multimedia** and that the recording level is adjusted.
	Audio settings are not set correctly.	Check the game program's audio settings.
	Volume control on the computer is turned down.	Adjust the computer volume with the **Fn**+**F5** hotkeys.
No sound from headphones	Volume or mixing controls set incorrectly.	Adjust the overall volume with the **Fn**+**F5** hotkeys.
		Use the mixing features available by double-clicking the speaker icon on the Windows taskbar.
	Sound source not selected.	Verify that the sound source is selected in **Control Panel** -> **Multimedia**.
	The headphones are connected to the wrong jack.	Check the connection.
	Volume too low or too loud Volume or mixing controls set incorrectly.	Adjust the overall volume with the **Fn**+**F5** hotkeys.
		Check the mixing features available by double-clicking the speaker icon on the Windows taskbar.

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Solving Battery/Battery Gauge Problems

Problem	Possible Cause	Solution
Computer is beeping and battery power light is blinking	Battery pack charge is low.	Charge the battery pack by connecting to an external power source.
		Replace the battery pack with another fully charged battery.

		Initiate Hibernation or turn the computer off until AC power or a fully charged battery is available.
Computer battery charge light blinks to indicate low battery condition, but computer does not beep.	Volume turned down too low.	Turn up the volume using the **Fn**+**F5** hotkeys.
Battery pack will not charge.	Battery pack was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is already charged.	No action required.
	Battery pack has exceeded its useful life cycle.	Use a different battery pack.
Computer shut down and memory was lost when replacing the battery pack.	Hibernation was not initiated before removing the battery pack.	Work is lost.
Battery charge does not last very long.	Battery is exposed to high temperatures.	Put the computer in a cooler place and recharge the battery pack.
	Battery is exposed to extremely cold temperatures.	Put the computer in a warmer place and recharge the battery pack.
NOTE: The recommended operating temperature range for the battery is from 10°C to 40°C (50°F to 104°F). The recommended storage temperature range for the battery is from 0°C to 30°C (32°F to 86°F).		
	Battery conservation is disabled or set to drain.	Reset the battery conservation level.
	An external device is draining the battery.	Turn off or remove any external device or PC Cards when not in use.
	Battery gauge may be inaccurate and require recalibration.	Recalibrate the gauge.
Date and time must be set every time computer is turned on.	The Real Time Clock battery has reached the end of its useful life.	Restore power, then turn on the computer with the power switch. Contact your Compaq authorized service provider to replace the Real Time Clock battery.
Battery gauge seems inaccurate.	The battery pack may need calibration.	Recalibrate the battery.
	The battery pack has reached the end of its useful life.	Replace the battery pack.

Battery pack is warm after charging.	Warming occurs during charging.	No action required.

Solving CD and DVD Problems

Problem	Possible Cause	Solution
Drive cannot read a disc.	Disc is not properly seated in the drive.	Open the loading tray, insert the disc, then close the tray.
	Disc is loaded in the loading tray upside down.	Open the loading tray, turn over the disc (label facing up), then close the tray.
	Disc has a scratch on its surface.	Insert a different disc.
CD-ROM drive or DVD-ROM drive is not detected by the computer.	Drive is not connected properly.	If you are running a version of Windows that was preinstalled by Compaq, remove the drive from the MultiBay and reinsert it.
		If you are running a version of Windows that was not preinstalled by Compaq, turn off the computer. Then remove the drive from the MultiBay and reinsert it.

Solving Diskette Drive/SuperDisk LS-120 Drive Problems

Problem	Possible Cause	Solution
Drive cannot write to a diskette.	Diskette is not formatted.	Format the diskette: If you are using Windows 95 or Window 98: 1. From the Windows desktop, select **My Computer**. 2. Select 3.5-in. Floppy (A). 3. Select **File**, then **Format**. 4. Fill in the appropriate information, then select **Start**.
		If you are using Windows NT 4.0, format the diskette by entering format a: at the system prompt.

	Diskette is write-protected.	Use another diskette that is not write-protected or disable the write-protect feature.
	Writing to the wrong drive.	Check the drive letter in your path statement.
	Not enough space is left on the diskette.	Save the information to another diskette.
	Drive is disabled.	Enable the proper drive through Device Manager.
	Disable diskette write ability is turned on.	Run Computer Setup. Select the Storage icon. Make sure Disable diskette write ability is not checked.
System cannot start up from diskette or SuperDisk LS-120 drive.	A bootable diskette is not in the drive.	Verify that a diskette with the necessary system files is in the drive.
	Diskette bootability is disabled in Computer Setup.	Enable diskette bootability in Computer Setup, Security menu.

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Hard Drive Problems

Problem	Possible Cause	Solution
Accessing information on the hard drive is much slower than usual.	Hard drive entered low power state due to timeout and is now exiting from it.	Wait for the system to restore the previously saved data to its state prior to initiating a low power state.
	Hard drive is fragmented/not optimized or has errors.	Run ScanDisk and Disk Defragmenter.
Hard drive does not work.	Hard drive is not seated properly.	Turn off and unplug the computer, remove the hard drive, and reinsert the hard drive.
	Errors occur after starting from an additional hard drive.	Additional hard drive has not been specially prepared with necessary software. Boot from the original hard drive or a specially prepared hard drive.
System does not recognize a hard drive.	The drive is not seated properly.	Remove, then reinsert the drive.
	The drive is damaged.	Try using the hard drive in another bay to verify that the problem is with the drive.

		Run ScanDisk on the drive.
	The drive was inserted while system was on or in Suspend or Hibernation.	Shut down the computer before inserting removing a hard drive.
DriveLock settings cannot be accessed in Computer Setup.	The DriveLock settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.	Completely turn off the computer. Turn the computer back on, then run Computer Setup by pressing **F10** when the blinking cursor light appears upper-right on the screen.

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Solving Infrared Problems

Problem	Possible Cause	Solution
Cannot communicate with another computer.	The appropriate software is not running on both computers.	Install the appropriate software on the second device, start the second device, and start the program on both computers.
	The other computer does not have an IrDA-compliant infrared port.	Your Compaq computer uses the IrDA communications protocol. Communication between infrared devices must use the same communications protocol. Check the manufacturer's instructions for connecting with infrared devices or try connecting with a device you know to be IrDA-compliant.
	The pathway between the infrared ports is obstructed, one port is more than 30 degrees (plus or minus 15 degrees off the center line) from the other, or the ports are more than one meter apart.	Remove the obstruction, align the infrared ports to within 30 degrees, and position computers within 1.5 feet (about 0.5 meter) of each other.
	There is an interrupt request (IRQ) conflict.	Check for IRQ conflicts in the Device Manager. If two devices have the same IRQ address, reassign one of the devices.
	There is a baud rate conflict.	Select the same baud rate for both computers.
	There is a conflict with the # bits.	Select the same # bits setting for both computers.
	There is a stop byte conflict.	Select the same stop byte for both computers.

	There is a parity conflict.	Select the same parity setting for both computers
Cannot transmit data.	Direct sunlight, fluorescent light, or flashing incandescent light is close to the infrared connections.	Remove the interfering light source(s).
	There is interference from other wireless devices.	Keep remote control units such as wireless headphones and other audio devices away from the infrared connections.
	There is a physical obstruction in the way.	Do not place objects that will interfere with a line-of-sight data transmission between the two units.
	One of the units was moved during data transmission.	Do not move either unit during data transmission.
	The orientation of the units is wrong.	Adjust the devices so that they point directly at each other.
	The distance between the units is too great.	Verify that devices are not more than 1.5 feet (0.5 meter) apart.
Infrared port doesn't work.	Direct sunlight, fluorescent light, or flashing incandescent light is close to the infrared connections.	Remove the interfering light source(s).
	There is interference from other wireless devices.	Keep remote control units such as wireless headphones and other audio devices away from the infrared connections.
	IR has been disabled.	Run IR configuration utility in Control Panel.

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Troubleshooting
Without Diagnostics: Solving Minor Problems

Click on a link below for Troubleshooting information on:

>**Audio**   >**Keyboard**
>**Battery**   >**Modem**
>**CD/DVD drive**   >**PC Card**

>**Diskette/LS 120** >**Power**
>**Hard Drive**   >**Screen**
>**Infrared**   >**USB**

Solving Keyboard Problems

Problem	Possible Cause	Solution
Screen is blank and keyboard is working.	A screen timeout has been initiated.	Press any key to refresh the screen.
	QuickLock/QuickBlank has been initiated	To enable the keyboard and return your information to the screen, enter your power-on password.
	LCD has been disabled.	Press **Fn**+**F4** to cycle from external monitor to internal LCD.
	Embedded numeric keypad on computer keyboard is disabled. Num Lock function is not turned on	Press **Fn**+**Num Lk** to enable the Num Lock function and embedded numeric keypad.

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Solving Modem Problems

Problem	Possible Cause	Solution
Modem loses connection.	The cable connection from the phone line to the modem is loose.	Check to make sure the telephone cable is properly connected.

		Disable Call Waiting: 1. Select **Start** -> **Setting** -> **Control Panel** -> select **Modems**. 2. From the General tab of the Modems Properties page, select Dialing Properties. From the **My Locations** tab of the Dialing Properties page, check the box labeled This location has call waiting. Select *70, 70#, or 1170 from the drop-down list to disable call waiting.
	Call Waiting has not been disabled.	
	There is noise or excessive traffic on the phone line.	Try connecting at a later time.
Modem not responding	Modem is not set up correctly in system BIOS.	Check the computer BIOS setup. If it requires specific settings for modems, be sure that they have been enabled.
Modem does not dial correctly.	Telephone number is not entered correctly in the modem's dialing software.	Make sure the telephone number you dialed is correct if you are using the dialing directory or the terminal mode. ● Dial 1 if using dialing long distance. ● The other line could be busy or not answering. ● Make sure call waiting is disabled. ● The modem may not recognize an international dial tone. Try the ATX3DT command and the telephone number
Characters are garbled/transfer rates are slow.	There is noise in the telephone line.	Check your telephone and modem cable connections. If they are a little loose, they can cause noise on the line. Check with your local telephone company for a phone line filter.

Phone line noise causing a disconnection.	Hang-up Delay S Register (S10) set too low.	Change **S10** default to **150**. To set **S10=150**: 1. Select **Start** -> **Programs** -> **Accessories** -> **HyperTerminal**, then go to Command Mode. 2. Type **ATS10=150** and press **Enter**. This command causes the modem to take longer to disconnect even if there is noise on the line.
No dial tone	Phone service is not connected to the telephone wall jack.	Verify that service from the local phone company by following these steps: 1. Unplug the telephone cable from the telephone wall jack. 2. Connect a telephone to the jack, pick up the handset, and listen for a dial tone. If there is a dial tone, reconnect the modem to the telephone wall jack with the telephone cable and make sure all connections are secure. 3. If there is still no dial tone, contact your local phone company or building manager.
	The modem is not responding to commands from the computer keyboard.	Verify the modem and computer are connected: 1. Select **Start** -> **Programs** -> **Accessories** -> **HyperTerminal**, then go to Terminal Mode. 2. Type **AT** and press the **Enter** key. If the modem displays OK, the modem and computer are working together. If the modem displays ERROR, or does not respond, restart the computer and repeat step 1. 3. Type **ATDT** and listen for dial tone. 4. Type **ATH0** to hang up.

Modem does not connect at highest speed.	Line conditions in your area or in the area you are calling may not support the highest connect speeds.	Have your telephone line checked by your local telephone service provider.Try dialing an alternate telephone number for the service you are using.
	Another device on your telephone line may be causing interference.	Hang up an extension telephone and disconnect any other devices that may be using the same telephone line, then redial.
	The service or site called does not support 56K or supports an incompatible 56K implementation.	An internal modem supports K56flex.
		To find an Internet service provider (ISP) that supports K56flex, go the Compaq Web site at www.compaq.com.
	There is noise on the telephone line.	The 56K protocol of an internal modem will fall back to lower speeds if the telephone line is too noisy for a high-speed connection. Try using another telephone line. Change the Hang-up Delay S Register: 1. Select **Start**-> **Programs** ->**Accessories**-> **HyperTerminal**. 2. Go to Command Mode, type **ATS10=150**, then press **Enter**.
NOTE: This command causes the modem to take longer to disconnect even if there is no noise on the line.		
The telephone line does not support 56K implementation.	The 56K protocol requires that the telephone line contain no more than one analog-to-digital conversion.	Try connecting from an alternate site.

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Solving PC Card Problems

Problem	Possible Cause	Solution
Computer does not beep when a PC Card is	PC Card is not inserted properly.	Try reinserting the card.

inserted.		Ensure that the PC Card is inserted in the correct orientation. Insert the card gently to prevent damage to the pins.
	Speakers are turned off or volume is turned down.	Adjust the volume control on the computer.
	PC Card or card driver is not PCMCIA compliant.	Contact your Compaq authorized dealer, reseller, or service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.
Computer beeps only once when a PC Card is inserted.	The computer beeps once to indicate that a PC Card is recognized but not properly configured.	Before a new PC Card can be used, it may be necessary to perform an initial setup procedure. Follow the PC Card manufacturer's instructions for formatting a hard drive card or installing PC Card-specific drivers for a network card.
Network PC Card does not work.	Necessary drivers are not installed (turned on).	Refer to the instructions that came with the PC Card or contact the vendor for information on installing the correct drivers.
	PC Card is not fully inserted or is upside down.	Ensure the PC Card is inserted correctly.
	Network PC Card or driver is not PCMCIA compliant.	Contact your Compaq authorized dealer, reseller, or service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.
Storage PC Card does not work.	SRAM and flash memory PC Cards require the memory card driver to be loaded.	Memory cards can only be accessed using DOS real mode drivers.
	You are trying to access the storage PC Card using the wrong drive letter.	- If you are running Windows 95, change the drive letter assignment in Device Manager. - If you are running Windows NT 4.0, change the drive letter assignment through the Control Panel.

	The PC Card is not formatted.	• For memory cards, run MCFORMAT in MS-DOS Mode to format the PC Card. • For ATA cards, run ATAINIT, then run MCFORMAT in MS-DOS Mode to format the PC Card.
	The card is not supported.	Contact your Compaq authorized dealer, reseller, or service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.
	Storage cards, such as SRAM, do not work in the expansion base.	Use the storage card in the computer.

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Solving Power Problems

Problem	Possible Cause	Solution
Computer will not turn on.	Battery is discharged and computer is not connected to a power source.	Charge the battery pack.
		Replace the battery pack.
		Connect the computer to an external power source.
	Battery is discharged and cables to the external power source are unplugged.	Ensure that cables connecting the computer and the external power source are plugged in properly.
Computer turned off while it was left unattended.	Computer initiated because of a critical low battery condition.	Charge the battery pack.
		Replace the battery pack.
		Connect the computer to an external power source.
	The computer initiated Hibernation after a user-defined timeout expired.	Turn on the computer.

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Solving Screen Problems

Problem	Possible Cause	Solution
Characters on computer display are dim.	Computer is in direct light.	Move the computer or adjust the screen.
	The brightness control is not set properly.	Adjust the brightness control by pressing the **Fn**+**F10** hotkeys.
	You may have a screen saver or screen blanking utility installed.	Press any key to refresh the screen.
	Screen timeout was initiated.	Press any key to light the screen.
	System initiated Suspend after a user-defined timeout expired.	Press the suspend button to exit Suspend.
	Computer initiated a low battery Suspend or Hibernation.	Replace the battery pack and exit Suspend or Hibernation.
		Connect the computer to an external power source and exit Suspend or Hibernation.
	Power Management, which controls Suspend and Hibernation, is disabled and the battery pack has discharged.	Replace the battery pack and turn on the computer.
		Connect the computer to an external power source and turn on the computer.
Computer screen is blank and external monitor displays information.	Display was switched to the external monitor.	Press **Fn**+**F4** to display information on the computer screen; press **Fn**+**F4** again to display information simultaneously on both screens.
	Display switch is stuck.	Tap the switch.
Fn+F4 hotkey combination does not switch between internal and external displays.	CRT or other display device is not connected properly.	Check your connections to ensure that an external device is connected properly.

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Solving USB Problems

Problem	Possible Cause	Solution

External device connected to a USB connector does not work.	The operating system limits external devices connected by USB to two tiers which can include no more than two hubs on the first tier and no more than one keyboard and one pointing device on the first or second tier.	Reduce the number of connected external USB devices to no more than two hubs on the first tier, and no more than one keyboard and one pointing device on the first or second tier.
External device connected to USB connector does not work during startup (before Windows 95 loads).	During startup, only two tiers are supported by the USB port. These tiers can include no more than two hubs on the first tier and no more than one keyboard and one pointing device on the first or second tier.	Use the external device only after Windows 95 or Windows 98 has loaded.
		Reduce the number of connected external USB devices to no more than two hubs on the first tier, and no more than one keyboard and one pointing device on the first or second tier.
External devices in lower tiers do not work.	An unpowered hub is connected to another unpowered hub.	Use only powered hubs.
		Make sure that all unpowered hubs are immediately preceded by powered hubs in the USB chain.

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Troubleshooting
Factory Default Settings for F10 Setup

The following tables contain the factory default settings for F10 setup configuration.

Initialization

Enable POST Memory Test	Checked (enabled)
Keyboard Num Lock	Unchecked (Off)
Hard drive boot sequence	
1	Hard drive in the computer MultiBay
2	Hard drive in the computer hard drive bay
3	Hard drive in the expansion base or convenience base half-height/MultiBay
4	Hard drive in the expansion base or convenience base MultiBay
Boot display	Auto
Language	Language of country

Ports

Serial port	3F8, IRQ4
Infrared port	2F8, IRQ9
Parallel port	378, IRQ7
Ethernet port	300, IRQ11

Power

Low Battery Warning Beep	Checked (enabled)

External Energy Saving Monitor Connected	Unchecked (not connected)
Power Management Enabled	While operating on battery power
Conservation Level	High
Level Definition	
High	Suspend Time: 3 minutes Hibernation Timeout: Immediate Drive Timeout: 1 minute Screen Timeout: 1 minute
Medium	Suspend Time: 5 minutes Hibernation Timeout: 1 hour Drive Timeout: 2 minutes Screen Timeout: 3 minutes
Custom	Suspend Time: disabled Hibernation Timeout: low battery Drive Timeout: always on Screen Timeout: always on

Security

Enable QuickLock/QuickBlank	Unchecked (Disabled)
Enable Power-on Password	Unchecked (Disabled)
Disable Serial/Infrared Ports	Unchecked (Enabled)
Disable Parallel Port	Unchecked (Enabled)
Disable PC Card Slots	Unchecked (Enabled)
Setup Password	Password blank
Power-on Password	Password blank
Diskette Drives	
Disable Diskette Drives	Unchecked (Enabled)
Disable Diskette Boot	Unchecked (Enabled)

Go back to Compaq Utilities.

Illustrated Parts Catalog
System Unit
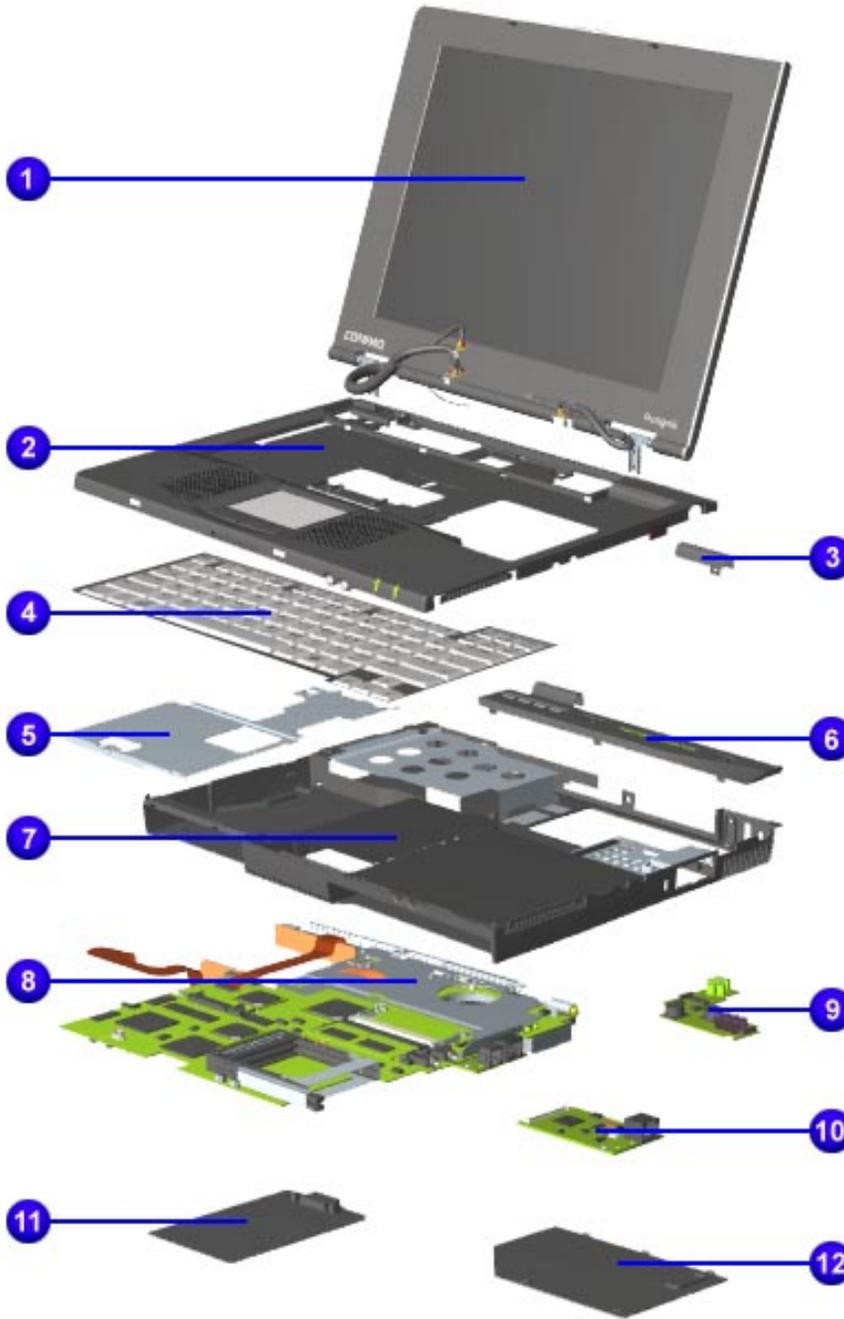
	Description	Spare Part No.
1	Display Panel Assembly	
	12.1"	171488-001
	14.1"	167520-001
2	Top Cover	167521-001
3	Plastic hinge cover	see: Miscellaneous Plastic parts
4	Keyboard without Pointing Stick: 155208	
	USA	-001
	UK	-031
	France	-051
	Japan	-291
	Keyboard with Pointing Stick: 155207	
	USA	-001
	UK	-031
	France	-051
	Japan	-291
5	Front Shield	NA
6	LED Panel	167525-001
7	Base enclosure	167522-001
8	System board with processor & fan	
	Intel PIII 450 MHz	167518-001
	Intel PIII 450 MHz	165101-001
	Intel PIII 500 MHz	167519-001

	Intel PIII 500 MHz	165102-001
	Intel PIII 600 MHz with SpeedStep	177750-001
	Intel PIII 650 MHz with SpeedStep	177751-001
9	Voltge converter Board	152928-001
10	Type-II v.90 Modem	121895 -001
	Type-II modem/ NIC combo card	153207-001
11	Hard Drive cover	N/A
12	Modem/NIC cover	N/A

Items not pictured:

Pointing Stick module	170385-001
TouchPad module	167526-001

Illustrated Parts Catalog
Mass Storage Devices

>System Unit
>Mass Storage Devices
>Miscellaneous Parts
>Documentation & Software
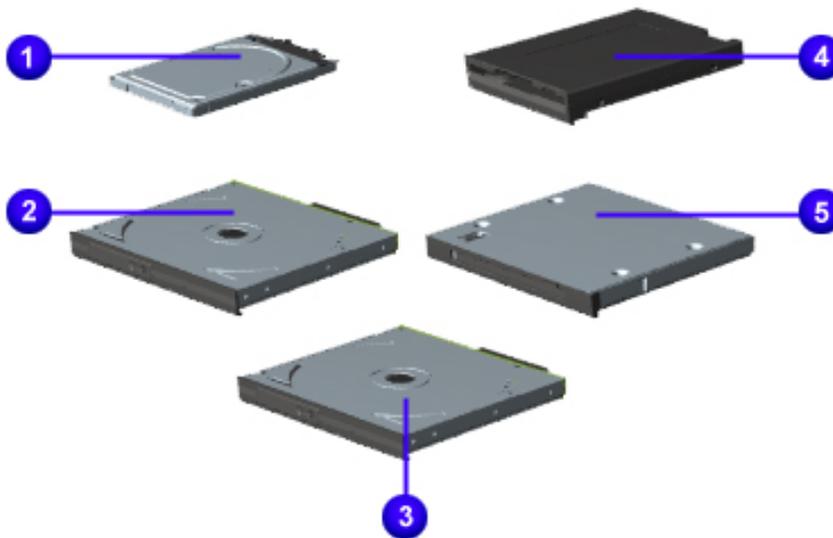
	Description	Spare Part #
1	Hard Drives	
	6 GB	159526-001
	12 GB	167527-001
	18 GB	167528-001
2	24X CD-ROM Drive	169007-001
3	8X DVD-ROM Drive	187445-001
4	4X DVD-ROM Drive	169006-001
5	1.44 MB Diskette Drive	167524-001
6	LS 120	169008-001

Not pictured:

Hard Drive Adapter	171958-001

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Illustrated Parts Catalog
Miscellaneous Parts

> Miscellaneous

	Description	Spare Part #
1	9-cell Li Ion Battery	167517-001
2	RTC Battery	N/A
3	Li Ion Battery Charger	N/A
4	AC Adapter	163444-001
5	AC power cord	N/A

Items not pictured:

Fan	159535-001
Return Kit	159541-001
Hardware kit (extra screws)	159537-001
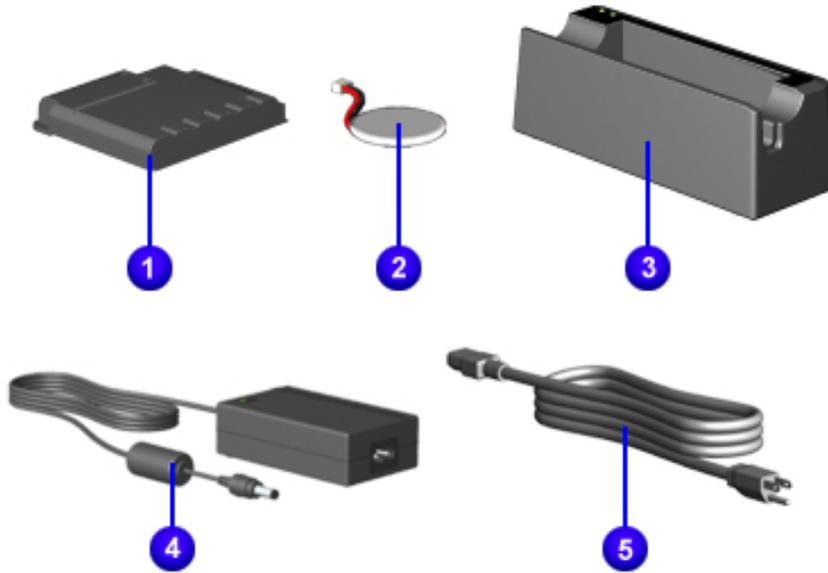
NOTE: In the above illustration, The RTC battery's size is not in scale with the rest of the items. It was made larger to enhance its visibility.

Miscellaneous Plastics Kit Spare Part #: 167523-001	
Description	Quantity
Switch cover	1 each
Infrared lens	1 each
Touchpad cable	1 each
RJ-45 jack cover	1 each
RJ-11 jack cover	1 each
PCMCIA dummy card covers	2 each
TV-out cover	1 each

Dual bay dummy cover--flat	1 each
Diskette drive cover	1 each
MultiBay weight saver	1 each
LED/button board cover	1 each
Hard drive cover	1 each
NIC/modem card cover	1 each
System board shield	1 each
Computer feet	2 each
Hinge covers	2 each
Rubber caps	2 each

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Illustrated Parts Catalog
Documentation & Software

Quick Restore: 2 CDs

Description	Spare Part number	Spare Part number
QRCD, OS disk (disk 1 of 2)	**Windows 98**	**Windows 2000 Professional ***
U.S.	164003-001	164006-001
Germany	164003-041	164006-041
France	164003-051	164006-051
Italy	164003-061	164006-061
Spain	164003-071	164006-071
Sweden	164003-101	164006-101
Japan	164003-191	164006-191
Netherlands	164003-331	164006-331
QRCD, Driver disk (disk 2 of 2)	**Windows 98**	**Windows 2000 Professional ***
U.S., French, Spanish	164302-001	164304-001
Sweden, Germany, Italy, Netherlands	164303-101	164305-001
Japan	170003-191	170305-191

Quick Reference Guide

Volume 1	Quantity of 1	185861-001
Volume 2	Quantity of 5	106854-001
Volume 2	Quantity of 1	162212-001
Volume 2, subscription	Quantity of 5, delivered each quarter	184961-001**
Volume 2, subscription	Quantity of 1, delivered each quarter	184960-001**

QuickFind for Windows

US edition	137906-xx***

** Subscription orders are not available in Europe, the Middle East, and Africa. In other countries, contact your local Compaq office for availability.

*** 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.

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

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INDEX PAGE	PRODUCT DESCRIPTION	LEGAL NOTICE	HOW TO USE THIS GUIDE
REMOVAL & REPLACEMENT	ILLUSTRATED PARTS CATALOG	TROUBLESHOOTING	SPECIFICATIONS

Intelligent Manageability

Intelligent Manageability consists of preinstalled software tools for the computer and Compaq servers that assist in tracking, troubleshooting, protecting, and maintaining the computer. It provides the following functions:

- Asset Management: detailed configuration and diagnostic information.
- Fault Management: prevents, predicts, and alerts of impending hardware problems.
- Security Management: protects unauthorized access to data and components.
- Configuration Management: optimizes the computer by providing the latest drivers, utilities, and software, which are available on CD-ROM and the Compaq Web site at www.compaq.com/support/portables.

NOTE: For further help with Intelligent Manageability, select **Start -> Compaq Information Center Intelligent Manageability**.

Accessing the Web Agent

The computer may have a preinstalled Web Agent that allows computer configuration information to be viewed using Web technology. To access this feature, select

Start -> Compaq Information Center -> Insight Web Management.

If the computer does not have a preinstalled Web Agent, it can be downloaded from the Compaq Web site at www.compaq.com.

Asset Management

Asset Management enables component information to be retrieved when on the road or connected to the network. Asset Management also enables the network administrator to remotely retrieve information from any Compaq computer connected to the network. The information can be used to assist in tracking and maintaining the computer and its components. It provides the following information:

- Inventory information:The network administrator can retrieve information about the computer over the network by using Compaq Insight Manager or any PC management tool provided by Compaq Solution Partners.

- Asset control information retrieved from the computer includes: Manufacturer, model, and serial number of Compaq computers, monitors, hard drives, battery packs, memory boards, processor speeds, and operating systems
- Asset tag
- System board and ROM revision levels
- BIOS settings
- Diagnostic information: Diagnostics for Windows includes information on hard drives, ports, video, sound, and other components. This application also allows the user to run multi-threaded tests on hardware components. If problems are found, recommendations are provided.

Fault Management

Fault Management features minimize downtime and data loss by monitoring system performance and generating the following alerts:

- **Hard drive alert** provides 72-hour advance warning of impending hard drive problems and can automatically start optional backup software.
- **System temperature alert** reports overheating. As the system temperature rises, this feature first adjusts fan speed and other cooling components, then displays an alert, then shuts down the system.
- **Battery pack alert** reports charging problems and battery pack failure.
- **Monitor alert** diagnoses and displays external monitor operational problems.
- **Memory alert** reports memory board configuration changes when a memory board is removed, added, or reconfigured. It also provides the previous and current configurations for comparison.

The alerts work with or without network connection. If the computer is not connected to the network, the network administrator cannot receive alerts from the computer.

Faulty Management Alerts

Alerts can be enabled, disabled, and tested, and software can be set to back up information whenever a hard drive alert occurs. While the computer is connected to a network, alerts are displayed and are simultaneously reported to the network console.

NOTE: A battery charging problem alert is reported only on the computer display. When the computer is not connected to a network, the user will receive a local alert. To set alerts, select the **Intelligent Manageability** icon in the system tray.

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Security Management

- **Security Management** features customize system security.
- **Power-On and Setup Passwords** prevent unauthorized access to information and computer configuration.
- **DriveLock** prevents unauthorized access to hard drives.
- **Device disabling** prevents unauthorized data transfer through modems, serial ports, parallel ports, and infrared ports on the computer and an optional docking station. **QuickLock/QuickBlank locks** the keyboard and clears the screen.
- **Ownership Tag** displays ownership information during system restart.

Configuration Management

Configuration Management optimizes software upgrade and customer support procedures. Compaq provides support software to optimize the performance of the computer. This support software is accessible through a monthly CD-ROM subscription. Support software can also be downloaded from the Compaq Web site at www.compaq.com/support/portables.

Managing Power

The computer comes with a collection of power management features that allow battery operating time to be extended and power to be conserved. Use power management to monitor most computer components such as the hard drive, processor, and display.

Accessing Power Management

In Windows 95, select **Start** -> **Settings** -> **Control Panel** -> **Power** to view or adjust settings in Power Properties.
In Windows NT 4.0, select **Compaq Power** instead of Power
In Windows 98, select **Power Management**.

Power Management Levels

To extend the life of batteries, use the **Battery Conservation** tab in **Power Properties**.
If Windows 95 is running, select **Start** -> **Settings** -> **Control Panel** -> **Power** to access **Power Properties**.

The level of battery conservation or the selection of preset power management levels can be customized.

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Product Description
Right Side Components

1	PCI card slot
2	Stereo speaker & headphone jack
3	Mono microphone jack
4	Security cable slot
5	RJ-11 jack (for internal modems)
6	RJ-45 jack (for internal combo cards)
7	Infrared port
8	Composite TV connector