COMPAQ

Maintenance and Service Guide

Compaq Evo N610c and Evo N600c

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This guide is a troubleshooting reference used for maintaining and servicing the notebook. It provides comprehensive information on identifying notebook features, components, and spare parts, troubleshooting problems, and performing disassembly procedures.

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Product Description

The Compaq Evo Notebook N610c and N600c Series offer advanced modularity, Mobile Intel Pentium 4 and Pentium III processors with 64-bit architecture, industry-leading Accelerated Graphics Port (AGP) implementation, and extensive multimedia support.

Figure 1-1. Compaq Evo Notebook N610c

1.1 Models

Computer models are shown in Tables 1-1 through 1-3.

Table 1-1
Compaq Evo Notebook N610c
Model Naming Conventions

Key									
N610	P4	200	P4	40	V	C	25	O	XXXXXX-XXX
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Key	Description	Options	
1	Brand/Series designator	N=Notebook	610=610c series 600=600c series
2	Processor type	P4=Pentium 4	P3=Pentium III
3	Processor speed	200=2.0 Ghz 190=1.9 GHz 180=1.8 GHz 170=1.7 GHz	160=1.6 GHz 106=1.06 GHz 866=866 MHz
4	Display type/ size/resolution	P=SXGA+ (1400 × 1050) X=XGA (1024 × 768)	4=14.x-inch
5	Hard drive size	40=40 GB 30=30 GB 20=20 GB	15=15 GB 10=10 GB
6	Optical drive designator	V=DVD-ROM drive W=DVD-RW drive	D=CD-ROM drive R=CD-RW drive
7	Integrated communication	M=Modem 0=None	C=Modem/NIC combination card
8	RAM	51=512 MB 38=384 MB	25=256 MB 12=128 MB
9	Operating system	8=Windows 98 SE 6=Windows 2000 and Windows XP	2=Windows 2000 O=Windows XP Pro E=Windows XP Home
10	SKU#		

Table 1-2
Compaq Evo Notebook N610c Models

The following Evo Notebook N610c models use config. code **KT81** and feature:

- Dual Stick pointing device (TouchPad and pointing stick)
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 3-year warranty
- 32 MB of discrete video memory
- No system memory
- No optical drive

N610	P4	180	X4	30	0	C	0	O	**KT81**
United States			470037-549						
N610	P4	180	X4	30	0	C	0	2	**KT81**
United States			470037-542						

The following Evo Notebook N610c models use config. code **KT8Z** and feature:

- Dual Stick pointing device (TouchPad and pointing stick)
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 3-year warranty
- 32 MB of discrete video memory

N610	P4	200	P4	40	W	C	25	O	
French Canada			470037-757			United States			470037-755
N610	P4	200	P4	40	W	C	25	2	
French Canada			470037-754			United States			470037-749

Table 1-2
Compaq Evo Notebook N610c Models *(Continued)*

N610	P4	180	X4	30	V	C	25	O	
Asia Pacific			470037-714			The Netherlands			470037-696
Australia			470037-713			Norway			470037-697
Belgium			470037-687			People's Republic of China			470037-709
Brazil			470037-712						
Czech Republic			470037-688						
Denmark			470037-689			Portugal			470037-699
France			470037-690			Russia			470037-700
French Canada			470037-685			Saudi Arabia			470037-686
Germany			470037-691			Slovenia			470037-701
Greece/Poland			470037-692			Spain			470037-702
Hong Kong			470037-717			Sweden/Finland			470037-703
Hungary			470037-693			Switzerland			470037-704
Israel			470037-694			Taiwan			470037-715
Italy			470037-695			Turkey			470037-705
Japan			470037-707			United Kingdom			470037-706
Japan (English)			470037-708			United States			470037-684 and 470037-722
Korea			470037-718						
Latin America			470037-710						
Latin America (GEM/NAFTA)			470037-747			United States (GEM/NAFTA)			470037-746

Table 1-2
Compaq Evo Notebook N610c Models *(Continued)*

N610	P4	180	X4	30	V	C	25	2	
Asia Pacific			470037-572			The Netherlands			470037-541
Australia			470037-570			Norway			470037-543
Belgium			470037-529			People's Republic of China			470037-577
Brazil			470037-569						
Czech Republic			470037-530						
Denmark			470037-531			Portugal			470037-545
France			470037-532			Russia			470037-546
French Canada			470037-527			Saudi Arabia			470037-528
Germany			470037-533			Slovenia			470037-548
Greece/Poland			470037-535			Spain			470037-551
Hong Kong			470037-584			Sweden/Finland			470037-552
Hungary			470037-537			Switzerland			470037-555
Israel			470037-538			Taiwan			470037-580
Italy			470037-539			Turkey			470037-556
Japan			470037-561			United Kingdom			470037-558
Japan (English)			470037-563			United States			470037-525 and 470037-720
Korea			470037-587						
Latin America			470037-566						
Latin America (GEM/NAFTA)			470037-726			United States (GEM/NAFTA)			470037-724
N610	P4	160	X4	20	V	C	25	O	
French Canada			470037-736			United States			470037-733
						United States (GEM/NAFTA)			470037-738
N610	P4	160	X4	20	V	C	25	2	
United States (GEM/NAFTA)			470037-738						

Table 1-2
Compaq Evo Notebook N610c Models *(Continued)*

N610	P4	160	X4	20	D	C	25	O	
Belgium			470037-619			Norway			470037-639
Czech Republic			470037-620			Portugal			470037-641
Denmark			470037-621			Russia			470037-644
France			470037-622			Saudi Arabia			470037-618
Germany			470037-623			Slovenia			470037-646
Greece/Poland			470037-625			Spain			470037-648
Hungary			470037-627			Sweden/Finland			470037-650
Israel			470037-630			Switzerland			470037-653
Italy			470037-633			Turkey			470037-656
The Netherlands			470037-636			United Kingdom			470037-658
N610	P4	160	X4	20	D	C	25	2	
Belgium			470037-567			Norway			470037-602
Czech Republic			470037-571			Portugal			470037-604
Denmark			470037-573			Russia			470037-605
France			470037-578			Saudi Arabia			470037-562
French Canada			470037-664			Slovenia			470037-606
Germany			470037-581			Spain			470037-607
Greece/Poland			470037-585			Sweden/Finland			470037-608
Hungary			470037-586			Switzerland			470037-613
Israel			470037-588			Turkey			470037-616
Italy			470037-595			United Kingdom			470037-617
The Netherlands			470037-601			United States			470037-661

Table 1-3
Compaq Evo Notebook N600c Models

The following Evo Notebook N600c models use config. code **KBSZ** and feature:

- Dual Stick pointing device (TouchPad and pointing stick)
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 3-year warranty
- 32 MB of discrete video memory

N600	P3	100	X4	20	D	C	25	6	
Greece/Poland			470029-002			Russia			470029-058
Hungary			470029-054			Turkey			470029-060
Portugal			470029-056						

N600	P3	100	X4	20	D	C	12	8	
Belgium			470029-930			Russia			470029-989
Czech Republic			470029-936			Saudi Arabia			470029-985
Denmark			470029-939			Slovakia/			470029-990
France			470029-941			Slovenia			
Germany			470029-945			Spain			470029-991
Greece/Poland			470029-951			Sweden/Finland			470029-992
Hungary			470029-982			Switzerland			470029-993
Israel			470029-983						and
Italy			470029-984						470029-995
The Netherlands			470029-986			Turkey			470029-996
Norway			470029-987			United Kingdom			470029-997
Portugal			470029-988						

Table 1-3
Compaq Evo Notebook N600c Models *(Continued)*

N600	P3	100	X4	20	D	C	12	6	
Belgium			470029-192			Saudi Arabia			470029-226
Czech Republic			470029-195			Slovakia/ Slovenia			470029-231
Denmark			470029-207						
France			470029-212			Spain			470029-232
Germany			470029-214			Sweden/Finland			470029-234
Israel			470029-217			Switzerland			470029-238
Italy			470029-224						and
The Netherlands			470029-227						470029-240
Norway			470029-228			United Kingdom			470029-242
N600	P3	100	X4	20	D	0	25	O	
European International			470030-001						
N600	P3	100	X4	20	D	0	25	8	
European International			470029-998						

1.2 Features

- The following processors are available, varying by notebook model:
  - The Evo Notebook N610c features a Mobile Intel Pentium 4 2.0-, 1.9-, 1.8-, 1.7-, or 1.6-GHz processor, with 512-KB integrated L2 cache.
  - The Evo Notebook N600c features a Mobile Intel Pentium III 1.066 GHz-M or 866-MHz-M processor, with 512-KB integrated L2 cache.
- ATI Mobility Radeon with 64-bit video graphics, 16-MB double date rate (DDR) SDRAM, 4X AGP graphics card
- The following memory configurations are available, varying by notebook model:
  - The Evo Notebook N610c features 256-MB high-performance Synchronous DRAM (SDRAM), expandable to 2048 MB
  - The Evo Notebook N600c features 256- or 128-MB high-performance Synchronous DRAM (SDRAM), expandable to 1024 MB
- Microsoft Windows 98 SE, Windows 2000, or Windows XP preinstalled, varying by notebook model
- 14.1-inch, SXGA+ (1400 × 1050) or XGA (1024 × 768), TFT display with over 16.8 million colors, varying by computer model
- Full-size TouchPad or Dual Stick keyboard, varying by notebook model
- Mini PCI 10/100 network interface card (NIC) or Mini PCI V.90 modem plus 10/100 NIC combination card, varying by notebook model
- Support for two Type II PC Card slots with support for both 32-bit CardBus and 16-bit PC Cards

- External AC adapter with power cord
- 8-cell Lithium ion (Li ion) battery pack
- 40-, 30-, 20-, 15-, or 10-GB high-capacity hard drive
- Connectors for:
  - RJ-11 modem
  - Mono microphone
  - Stereo line-out/headphone
  - MultiPort
  - Universal serial bus (USB)
  - Docking
  - Parallel devices
  - Serial devices
  - Composite TV
  - External keyboard/mouse
  - RJ-45 network
  - External monitor
  - AC power
- Stereo speakers providing Compaq Premier·Sound 16-bit stereo sound

1.3 Clearing a Password

If the notebook you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS.

1. Prepare the notebook for disassembly (refer to Section 5.3, "Preparing the Notebook for Disassembly," for more information).

2. Remove the RTC battery (refer to Section 5.6, “Disk Cell RTC Battery”).
3. Wait approximately five minutes.
4. Replace the RTC battery and reassemble the notebook.
5. Connect AC power to the notebook. Do **not** reinsert any battery packs at this time.
6. Turn on the notebook.

All passwords and all CMOS settings have been cleared.

1.4 Power Management

The notebook comes with power management features that extend battery operating time and conserve power. The notebook supports the following power management features:

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting level of performance
- Smart battery that provides an accurate battery power gauge
- Battery calibration
- Lid switch suspend/resume
- Power/suspend button
- Advanced Configuration and Power Management (ACP) compliance

1.5 Notebook External Components

The external components on the front and right side of the Evo Notebook N610c and Evo Notebook N600c are shown in Figure 1-2 and described in Table 1-4.

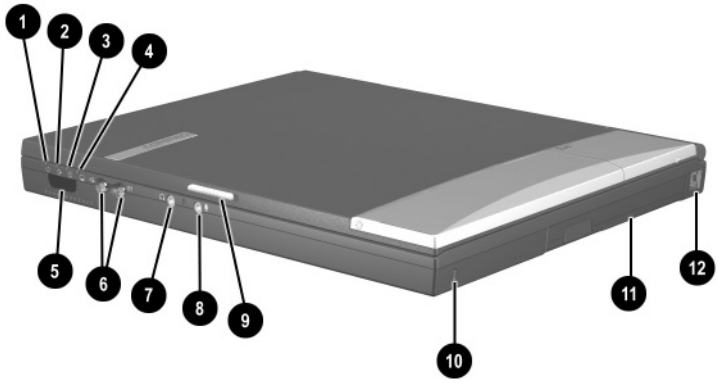


Figure 1-2. Front and Right Side Components

Table 1-4
Front and Right Side Panel Components

Item	Component	Function
1	Power light	On: Power is turned on. Blinking: Notebook is in Standby. The power light also blinks if a battery pack that is the only available power source reaches a low-battery condition.
2	Battery light	On: A battery pack is charging. Blinking: A battery pack that is the only available power source has reached a low-battery condition.

Table 1-4
Front and Right Side Panel Components *(Continued)*

Item	Component	Function
3	Drive activity light	Turns on when the hard drive, CD-, or DVD-ROM drive is accessed.
4	Media Bay light	Turns on when the diskette drive in the Media Bay or the optional external diskette drive is accessed.
5	Infrared port	Links to another IrDA-compliant device for wireless communication.
6	Volume control buttons	Adjust the volume of the stereo speakers.
7	Stereo line-out/ headphone jack	Connects stereo speakers, headphones, headset, or television audio.
8	Mono microphone jack	Connects a mono microphone, disabling the built-in microphone.
9	Display release latch	Opens the notebook.
10	Security cable slot	Attaches an optional security cable to the notebook.
11	Media Bay	Accepts a diskette drive, CD- or DVD-ROM drive, or secondary battery pack.
12	RJ-11 jack (internal modem models only)	Connects the modem cable to an internal modem. A modem cable is included with internal modem models.

The Evo Notebook N610c right side and rear panel components are shown in Figure 1-3 and described in Table 1-5.

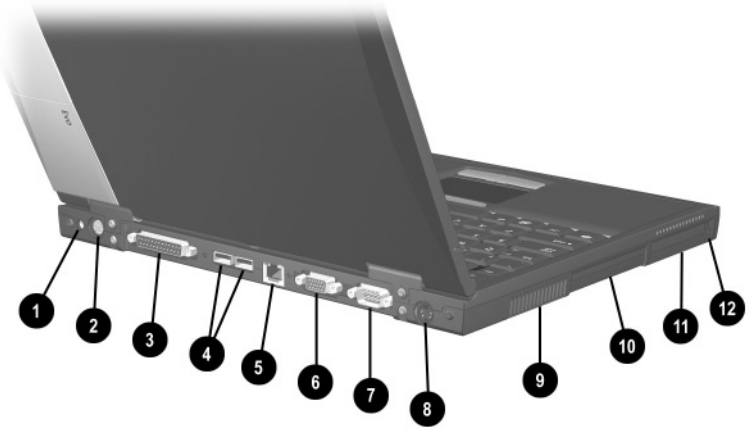


Figure 1-3. Right Side and Rear Panel Components—Evo Notebook N610c

Table 1-5
Right Side and Rear Panel Components

Item	Component	Function
1	DC power jack	Connects any one of the following: ■ AC adapter ■ Optional automobile power adapter/charger ■ Optional aircraft power adapter
2	Keyboard/mouse connector	Connects an external keyboard or PS/2-compatible external mouse. To connect a keyboard and a mouse at the same time, use an optional Y-adapter.

Table 1-5
Right Side and Rear Panel Components *(Continued)*

Item	Component	Function
3	Parallel connector	Connects a parallel device.
4	USB connectors (2)	Connect USB devices.
5	RJ-45 jack (network models only)	Connects the network cable. A network cable is not included with the notebook.
6	Serial connector	Connects a serial device.
7	External monitor connector	Connects an external monitor or overhead projector.
8	S-Video connector	Connects a television, VCR, camcorder, or overhead projector.
9	Vent	Allows airflow to cool internal components. ⚠ To prevent damage, the notebook shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the notebook on a blanket, rug, or other flexible surface that may cover the vent area.
10	Hard drive	Supports the removable primary hard drive.
11	PC Card slots	Support a 32-bit (CardBus) or 16-bit PC Card.
12	PC Card eject buttons	Eject a PC Card from a PC Card slot.

The Evo Notebook N600c right side and rear panel components are shown in Figure 1-4 and described in Table 1-6.

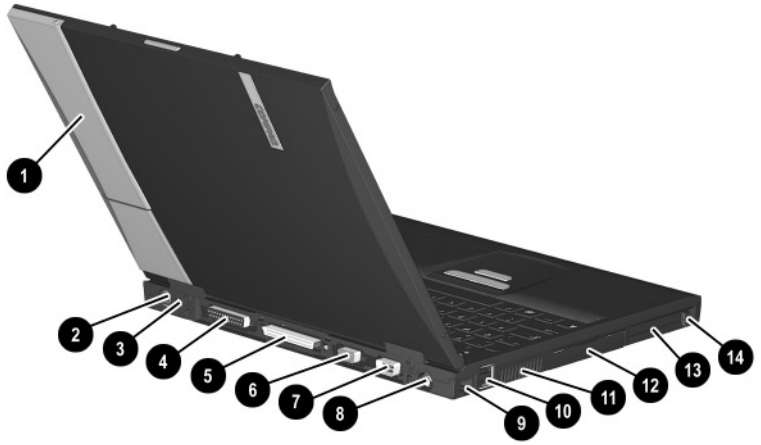


Figure 1-4. Right Side and Rear Panel Components—Evo Notebook N600c

Table 1-6
Right Side and Rear Panel Components

Item	Component	Function
1	MultiPort	Connects wireless communication devices, such as an optional Bluetooth or 802.11b MultiPort module, and other options.
2	DC power jack	Connects any one of the following: ■ AC adapter ■ Optional automobile power adapter/charger ■ Optional aircraft power adapter

Table 1-6
Right Side and Rear Panel Components *(Continued)*

Item	Component	Function
3	Keyboard/mouse connector	Connects an external keyboard or PS/2-compatible external mouse. To connect a keyboard and a mouse at the same time, use an optional Y-adapter.
4	Parallel connector	Connects a parallel device.
5	Docking connector	Connects the computer to the optional expansion base, convenience base, or port replicator.
6	Serial connector	Connects a serial device.
7	External monitor connector	Connects an external monitor or overhead projector.
8	S-Video connector	Connects a television, VCR, camcorder, or overhead projector.
9	RJ-45 jack (network models only)	Connects the network cable. A network cable is not included with the computer.
10	USB connectors (2)	Connect USB devices.
11	Vent	Allows airflow to cool internal components. ⚠ To prevent damage, the notebook shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the notebook on a blanket, rug, or other flexible surface that may cover the vent area.
12	Hard drive	Supports the removable primary hard drive.
13	PC Card slots	Support 32-bit (CardBus) or 16-bit PC Cards.
14	PC Card eject buttons	Eject PC Cards from the PC Card slots.

The keyboard components of the Evo Notebook N610c and Evo Notebook N600c are shown in Figure 1-5 and described in Table 1-7.

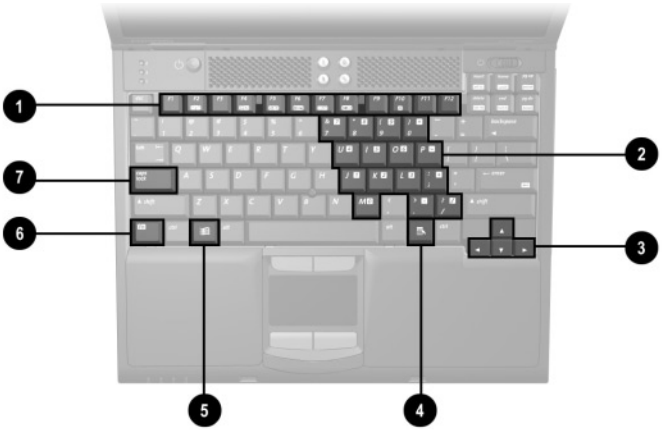


Figure 1-5. Keyboard Components

Table 1-7
Keyboard Components

Item	Component	Function
1	**F1** through **F12** function keys	Perform preset functions.
2	Embedded numeric keypad	Converts keys to a numeric keypad.
3	Cursor control keys	Move the cursor around the screen.
4	Windows application key	Displays a menu when using a Microsoft application. The menu is the same one that is displayed by pressing the right mouse button.
5	Windows logo key	Displays the Windows Start menu.
6	**Fn** key	Used with hotkeys to perform preset hotkey functions.
7	Caps lock key	Turns on the caps lock function.

The components on the top of the Evo Notebook N610c and Evo Notebook N600c are shown in Figure 1-6 and described in Table 1-8.

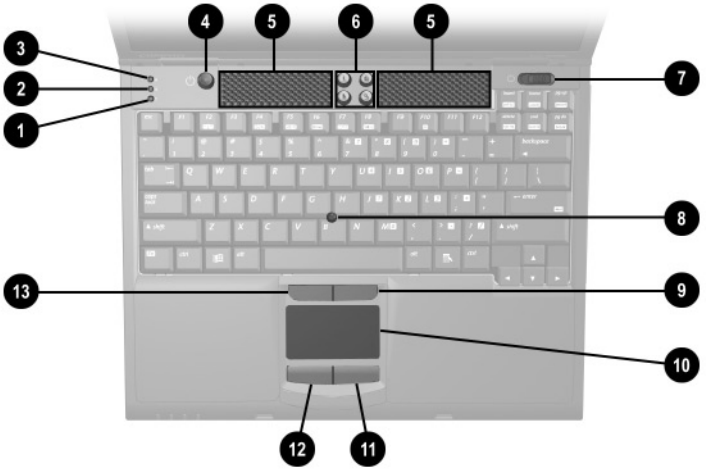


Figure 1-6. Top Components

Table 1-8
Top Components

Item	Component	Function
1	Num lock light	On: Num lock is on and the embedded numeric keypad is enabled.
2	Scroll lock light	On: Scroll is on.

Table 1-8
Top Components *(Continued)*

Item	Component	Function
3	Caps lock light	On: Caps lock is on.
4	Standby button	Turns on the notebook if it is off. Initiates and exits Standby. When pressed with the **Fn** key, initiates Hibernation.
5	Stereo speakers (2)	Produce stereo sound.
6	Easy Access buttons (4)	Provide quick access to the Internet. Refer to the *Hardware Guide* that ships with the notebook for information about these buttons.
7	Power switch	Turns on the notebook. To turn off the notebook, use the operating system Shut Down command.
8	Pointing stick	Moves the mouse cursor.
9	Right pointing stick button	Functions like the right mouse button on an external mouse.
10	TouchPad	Moves the mouse cursor.
11	Right TouchPad button	Functions like the right mouse button on an external mouse.
12	Left TouchPad button	Functions like the left mouse button on an external mouse.
13	Left pointing stick button	Functions like the left mouse button on an external mouse.

The Evo Notebook N610c bottom components are shown in Figure 1-7 and described in Table 1-9.

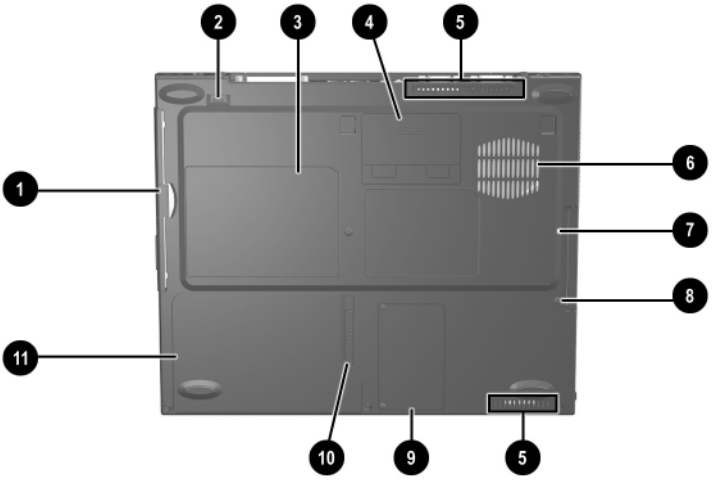


Figure 1-7. Bottom Components—Evo Notebook N610c

Table 1-9
Bottom Components

Item	Component	Function
1	Media Bay	Accepts a diskette drive, CD- or DVD-ROM drive, or secondary battery pack.
2	Media Bay release latch	Releases the Media Bay device from the connector.

Table 1-9
Bottom Components *(Continued)*

Item	Component	Function
3	Serial number	Identifies the notebook; needed when you call Compaq customer support.
4	Docking connector	Connects the notebook to the optional expansion base, convenience base, or port replicator.
5	Air vents (2)	Allow airflow to cool internal components.
6	Fan	Provides airflow to cool internal components.
7	Hard drive	Supports the removable primary hard drive.
8	Hard drive security screw	Secures the hard drive.
9	Mini PCI compartment cover	Covers the memory expansion compartment that contains two memory expansion slots for memory expansion boards.
10	Battery release latch	Releases the battery pack from the battery compartment.
11	Battery compartment	Holds the battery pack.

The Evo Notebook N600c bottom components are shown in Figure 1-8 and described in Table 1-10.

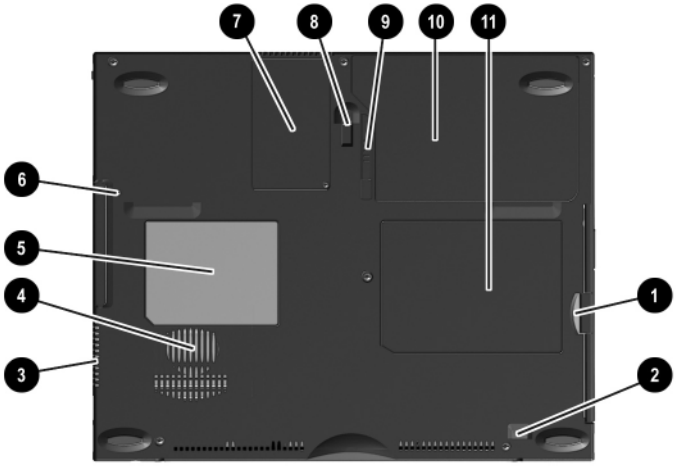


Figure 1-8. Bottom Components—Evo Notebook N600c

Table 1-10
Bottom Components

Item	Component	Function
1	Media Bay	Accepts a diskette drive, optical drive, or secondary battery pack.
2	Media Bay release latch	Releases the Media Bay device from the connector.
3	Vent	Allows airflow to cool internal components.

Table 1-10
Bottom Components *(Continued)*

Item	Component	Function
4	Fan	Provides airflow to cool internal components.
5	Certificate of Authenticity label	Contains the Product Key, which may need to be entered before using some Windows operating systems.
6	Hard drive security screw	Secures the hard drive.
7	Memory expansion compartment cover	Covers the memory expansion compartment that contains two memory expansion slots for memory expansion boards.
8	Docking recess latch	Secures the computer to an optional expansion base, convenience base, or port replicator.
9	Battery release latch	Releases the battery pack from the battery compartment.
10	Battery compartment	Holds the battery pack.
11	Serial number	Identifies the computer; needed when you call Compaq customer support.

1.6 Design Overview

This section presents a design overview of key parts and features of the notebook. Refer to Chapter 3, "Illustrated Parts Catalog," to identify replacement parts, and Chapter 5, "Removal and Replacement Procedures," for disassembly steps. The system board provides the following device connections:

- Memory expansion board
- Hard drive
- Display
- Keyboard/TouchPad or pointing stick
- Audio
- Intel Pentium 4 and Pentium III processors
- Fan
- PC Card
- Modem or modem/NIC

The notebook uses an electrical fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the left side of the notebook.

CAUTION: To properly ventilate the notebook, allow at least a 7.6-cm (3-inch) clearance on the left and right sides of the notebook.

2

Troubleshooting

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, no one should attempt to make repairs at the component level or make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Computer Setup and Diagnostics Utilities

Selecting Computer Setup or Compaq Diagnostics

The computer features two Compaq system management utilities:

- **Computer Setup**—A system information and customization utility that can be used even when your operating system is not working or will not load. This utility includes settings that are not available in Windows.

- **Compaq Diagnostics**—A system information and diagnostic utility that is used within your Windows operating system. Use this utility whenever possible to:
  - ❏ Display system information.
  - ❏ Test system components.
  - ❏ Troubleshoot a device configuration problem in Windows 2000, Windows XP Professional, or Windows XP Home.

Using Computer Setup

Information and settings in Computer Setup are accessed from the File, Security, or Advanced menus:

1. Turn on or restart the computer. Press **F10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.
   - ❏ To change the language, press **F2.**
   - ❏ To view navigation information, press **F1.**
   - ❏ To return to the Computer Setup menu, press **esc.**
2. Select the File, Security, or Advanced menu.
3. To close Computer Setup and restart the computer:
   - ❏ Select File > Save Changes and Exit and press **enter.**

     or
   - ❏ Select File > Ignore Changes and Exit and press **enter.**
4. When you are prompted to confirm your action, press **F10.**

Selecting from the File Menu

Table 2-1
File Menu

Select	To Do This
System Information	■ View identification information about the computer, a docking base, and any battery packs in the system. ■ View specification information about the processor, memory and cache size, and system ROM.
Save to Floppy	Save system configuration settings to a diskette.
Restore from Floppy	Restore system configuration settings 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 current session, then exit and restart the computer.
Save Changes and Exit	Save changes entered during the current session, then exit and restart the computer.

Selecting from the Security Menu

Table 2-2
Security Menu

Select	To Do This
Setup Password	Enter, change, or delete a setup password. (The setup password is called an administrator password in Compaq Computer Security, a program accessed from the Windows Control Panel.)
Power-on Password	Enter, change, or delete a power-on password.
DriveLock Passwords	Enable/disable DriveLock; change a DriveLock User or Master password. ✎ Drive Lock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.
Password Options Password options can be selected only when a power-on password has been set.	Enable/disable: ■ QuickLock ■ QuickLock on Standby ■ QuickBlank ✎ To enable QuickLock on Standby or QuickBlank, you must first enable QuickLock.
Device Security	Enable/disable: ■ Ports or diskette drives* ■ Diskette write* ■ CD-ROM or diskette startup ✎ Settings for a DVD-ROM can be entered in the CD-ROM field.
System IDs	Enter identification numbers for the computer, a docking base, and all battery packs in the system.

*Not applicable to SuperDisk LS-120 drives.

Selecting from the Advanced Menu

Table 2-3
Advanced Menu

Select	To Do This
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, disable QuickBoot.) ■ MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system.
Device Options	■ Enable/disable the embedded numeric keypad at startup. ■ Enable/disable multiple standard pointing devices at startup. (To set the computer to support only a single, usually nonstandard, pointing device at startup, select Disable.) ■ Enable/disable USB legacy support for a USB keyboard. (When USB legacy support is enabled, the keyboard works even when a Windows operating system is not loaded.) ■ Set an optional external monitor or overhead projector connected to a video card in a docking base as the primary device. (When the computer display is set as secondary, the computer must be shut down before undocking from a docking base.)

Table 2-3
Advanced Menu *(Continued)*

Select	To Do This
Device Options *(continued)*	■ Change the parallel port mode from Enhanced Parallel Port (EPP, the default setting) to standard, bidirectional, EPP or Enhanced Capabilities Port (ECP). ■ Set video-out mode to NTSC (default), PAL, NTSC-J, or PAL-M.* ■ Enable/disable all settings in the SpeedStep window. (When Disable is selected, the computer runs in Battery Optimized mode.) ■ Specify how the computer recognizes multiple identical docking bases that are identically equipped. (Select Disable to recognize the docking bases as a single docking base; select Enable to recognize the docking bases individually, by serial number.) ■ Enable/disable the reporting of the processor serial number by the processor to the software.
HDD Self Test Options	Run a quick comprehensive self test on hard drives in the system that support the test features.

* Video modes vary even within regions. However, NTSC is common in North America; PAL, in Europe, Africa, and the Middle East; NTSC-J, in Japan; and PAL-M, in Brazil. Other South and Central American regions may use NTSC, PAL, or PAL-M.

2.2 Using Compaq Diagnostics

When you access Compaq Diagnostics, a scan of all system components is displayed on the screen before the Compaq Diagnostics window opens.

You can display more or less information from anywhere within Compaq Diagnostics by selecting Level on the menu bar.

Compaq Diagnostics is designed to test Compaq components. If non-Compaq components are tested, the results may be inconclusive.

Obtaining, Saving, or Printing Configuration Information

1. Access Compaq Diagnostics by selecting Start > Settings > Control Panel > Compaq Diagnostics.
2. Select Categories, then select a category from the drop-down list.
   - ❏ To save the information, select File > Save As.
   - ❏ To print the information, select File > Print.
3. To close Compaq Diagnostics, select File > Exit.

Obtaining, Saving, or Printing Diagnostic Test Information

1. Access Compaq Diagnostics by selecting Start > Settings > Control Panel > Compaq Diagnostics.
2. Select the Test tab.
3. In the scroll box, select the category or device you want 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 testing on a selected device.
     - ◆ To run all tests for your selected device, click Check All.
     - ◆ To run only the tests you select, click Uncheck All, then select the checkbox for each test you want to run.

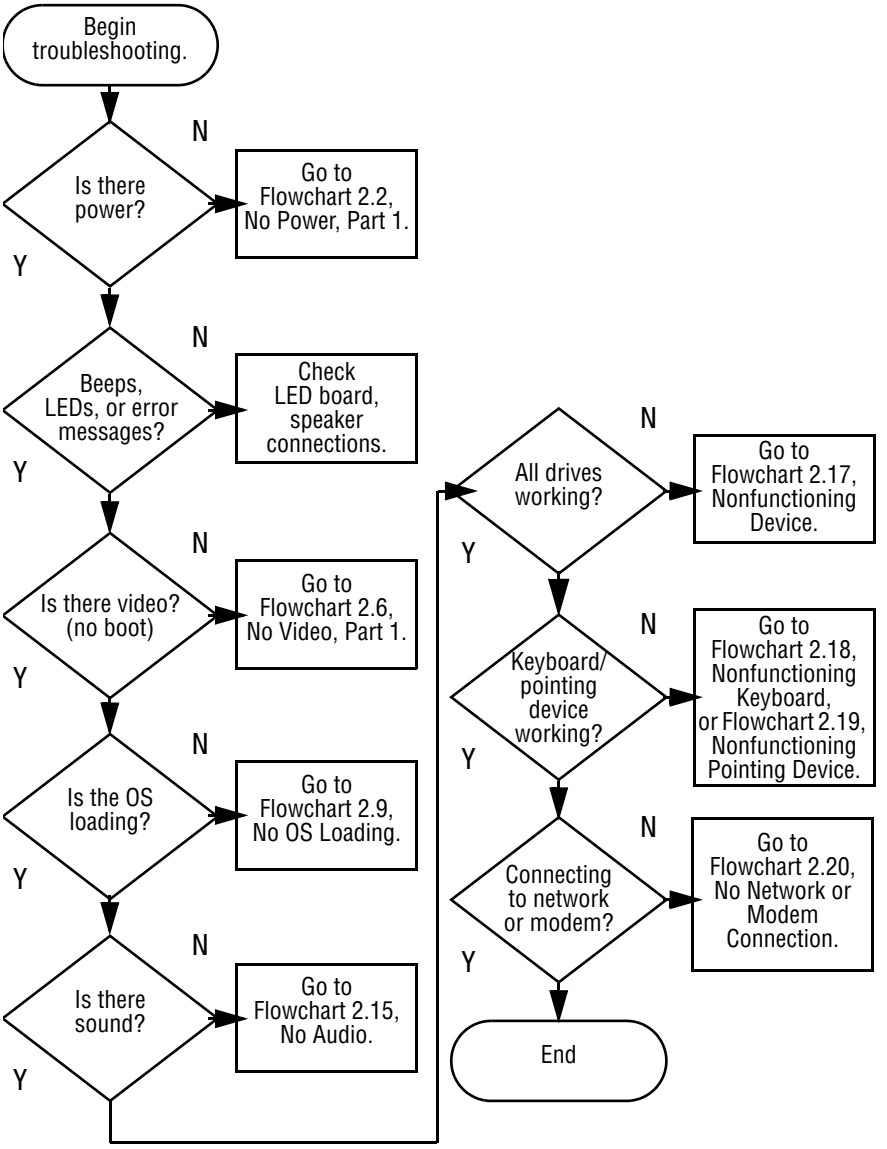
5. Select a test mode:
   - ❏ **Interactive Mode**—Provides maximum control over the testing process. You determine whether the test was passed or failed, and you may be prompted to insert or remove devices.
   - ❏ **Unattended Mode**—Does not display prompts. If errors are found, they are displayed when testing is complete.
6. Click Begin Testing.
7. Select a tab to view a test report:
   - ❏ **Status tab**—Summarizes the tests run, passed, and failed during the current testing session.
   - ❏ **Log tab**—Lists tests run on the system, 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**—Lists all errors found in the computer with their error codes.
8. Select a tab to save the report:
   - ❏ **Log tab**—Select Save.
   - ❏ **Error tab**—Select Save.
9. Select a tab to print the report:
   - ❏ **Log tab**—Select File > Save As, then print the file from your folder.

2.3 Troubleshooting Flowcharts

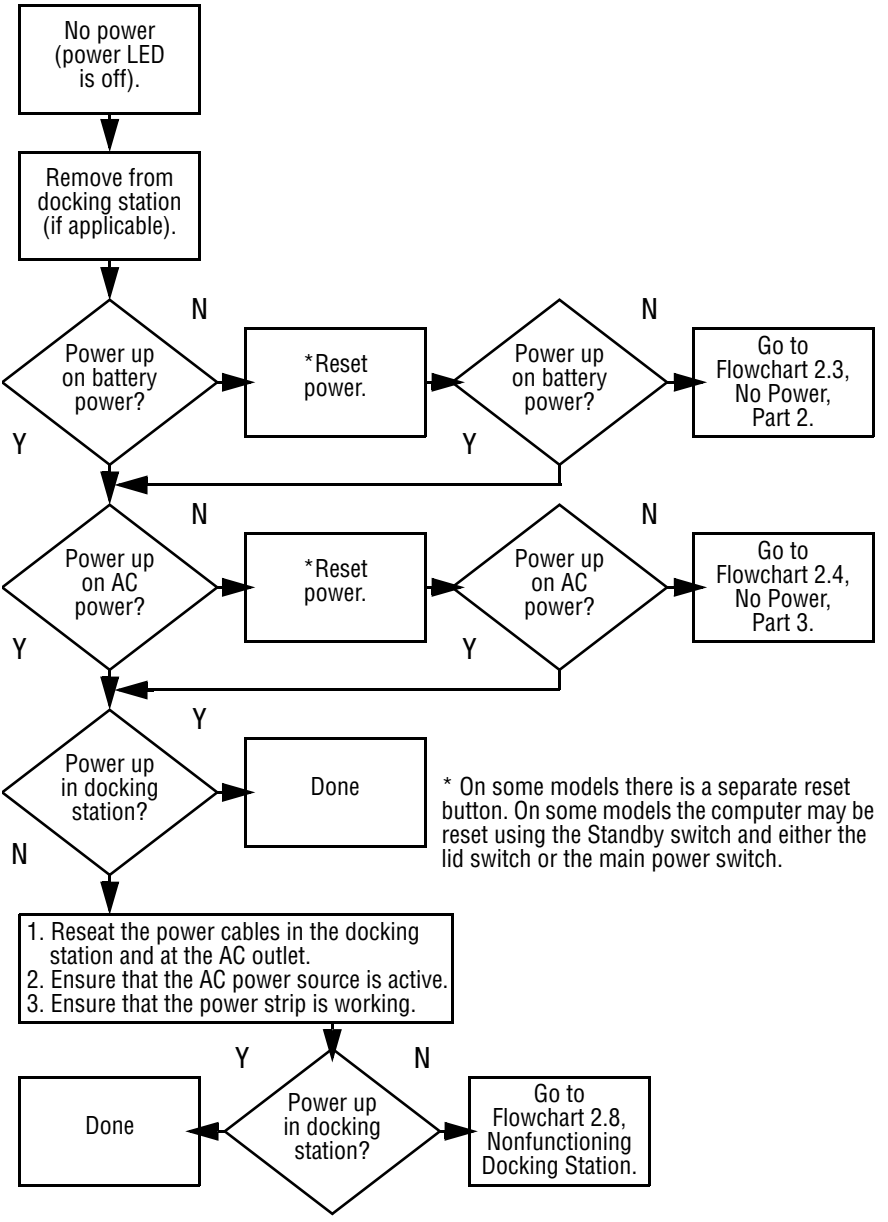
Table 2-4
Troubleshooting Flowcharts Overview

Flowchart	Description
2.1	Initial Troubleshooting
2.2	No Power, Part 1
2.3	No Power, Part 2
2.4	No Power, Part 3
2.5	No Power, Part 4
2.6	No Video, Part 1
2.7	No Video, Part 2
2.8	Nonfunctioning Docking Station
2.9	No Operating System (Os) Loading
2.10	No Os Loading From Hard Drive, Part 1
2.11	No Os Loading From Hard Drive, Part 2
2.12	No Os Loading From Hard Drive, Part 3
2.13	No Os Loading From Diskette Drive
2.14	No Os Loading From CD- Or DVD-ROM Drive
2.15	No Audio, Part 1
2.16	No Audio, Part 2
2.17	Nonfunctioning Device
2.18	Nonfunctioning Keyboard
2.19	Nonfunctioning Pointing Device
2.20	No Network Or Modem Connection

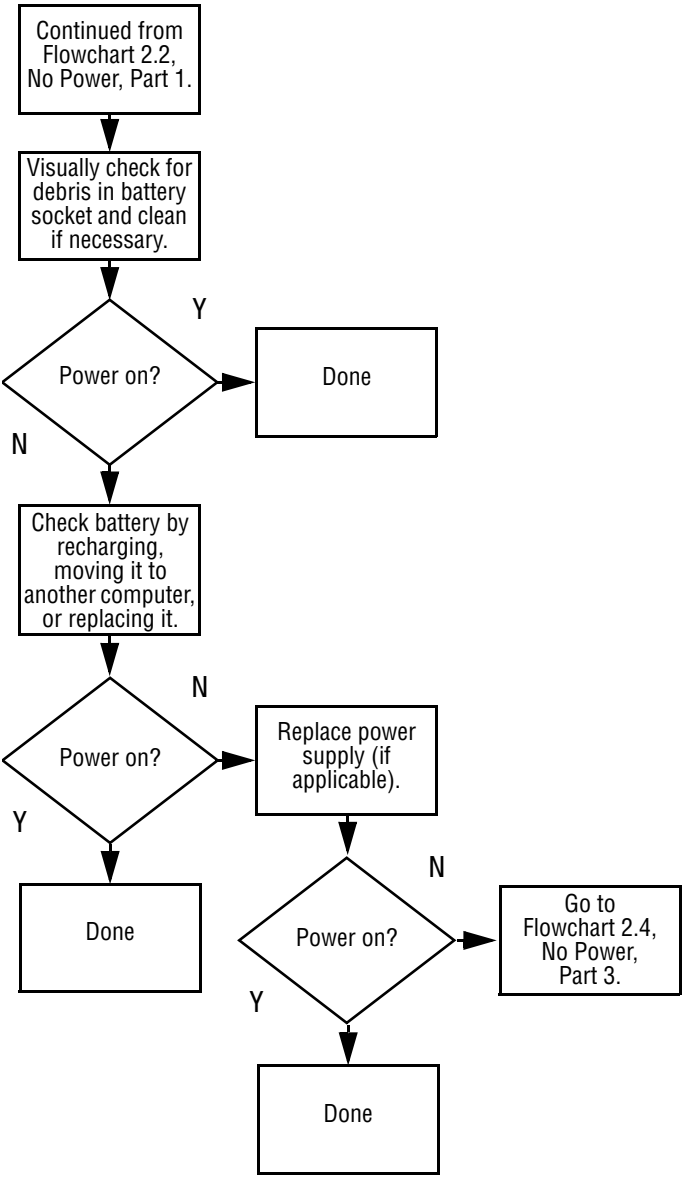
Flowchart 2.1 - Initial Troubleshooting



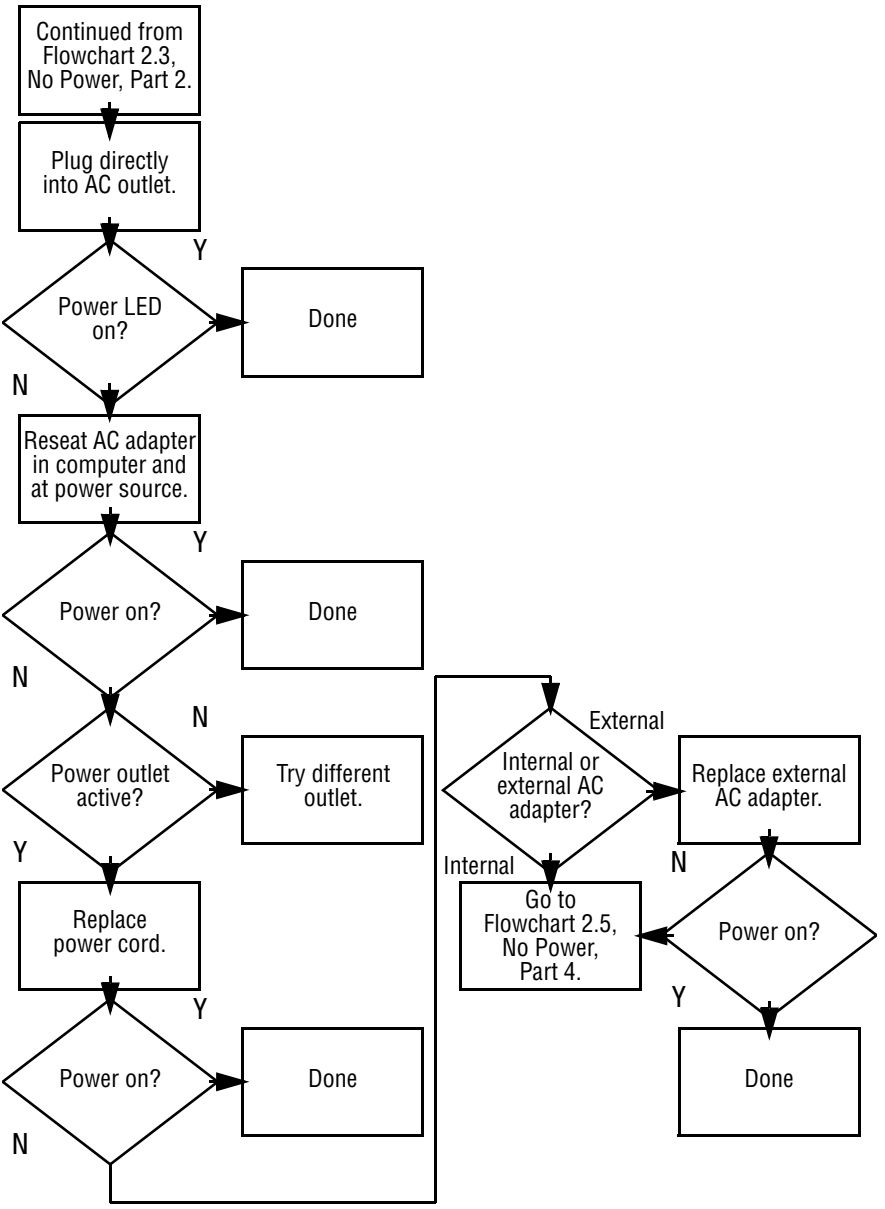
Flowchart 2.2 - No Power, Part 1



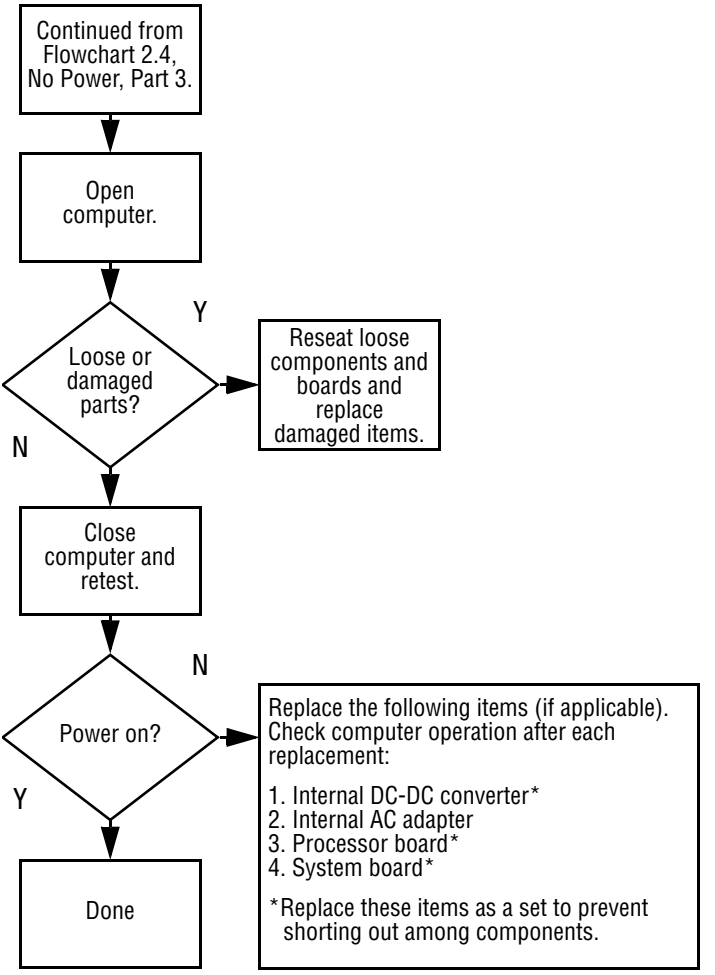
Flowchart 2.3 - No Power, Part 2



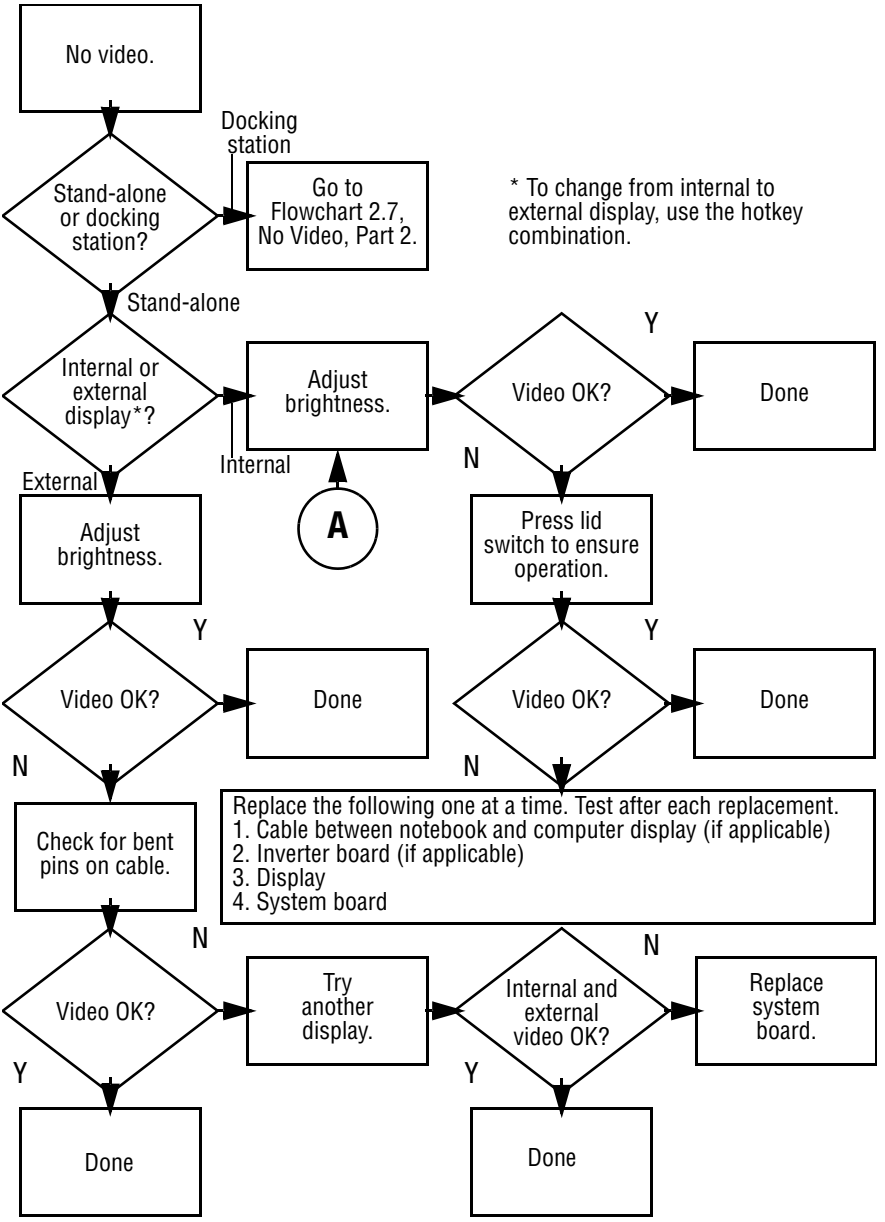
Flowchart 2.4 - No Power, Part 3



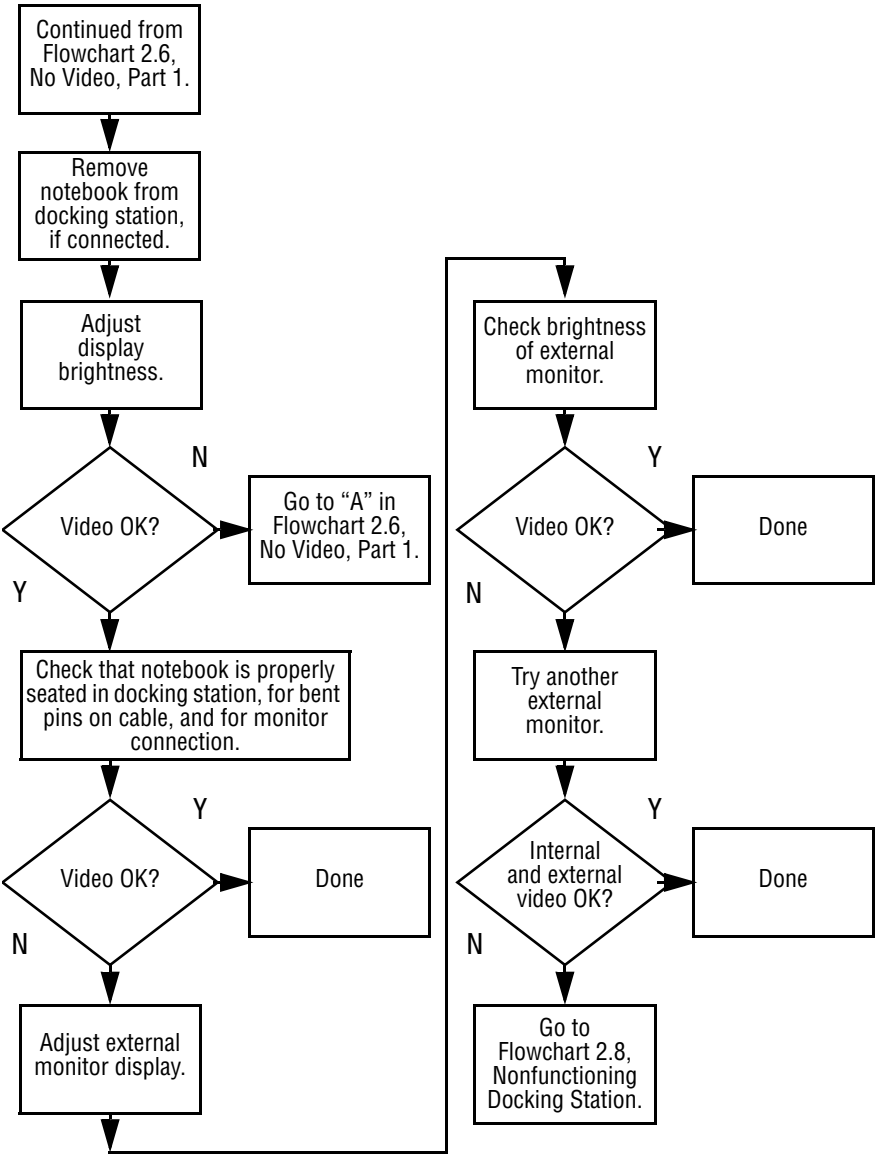
Flowchart 2.5 - No Power, Part 4



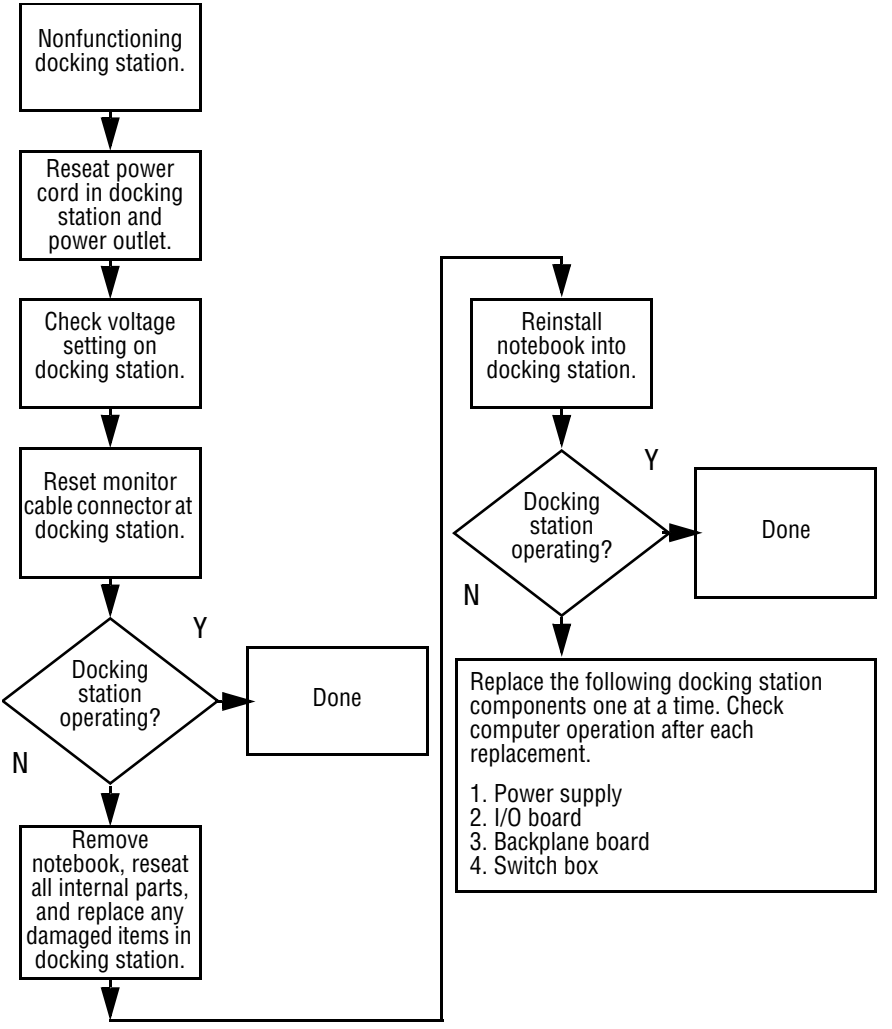
Flowchart 2.6 - No Video, Part 1



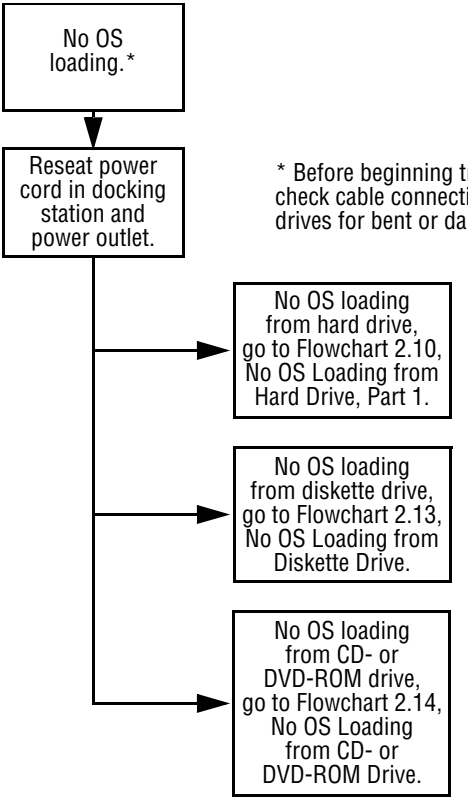
Flowchart 2.7 - No Video, Part 2



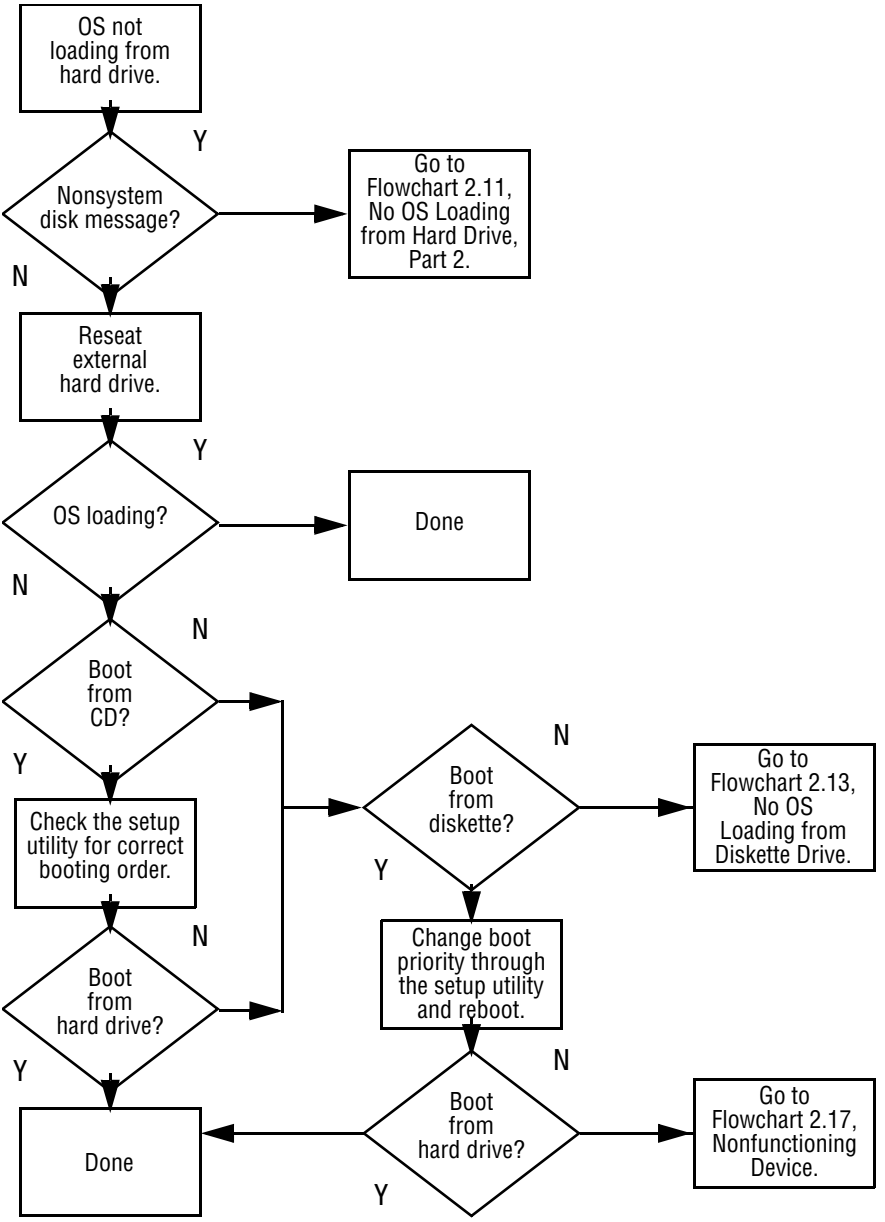
Flowchart 2.8 - Nonfunctioning Docking Station (if applicable)



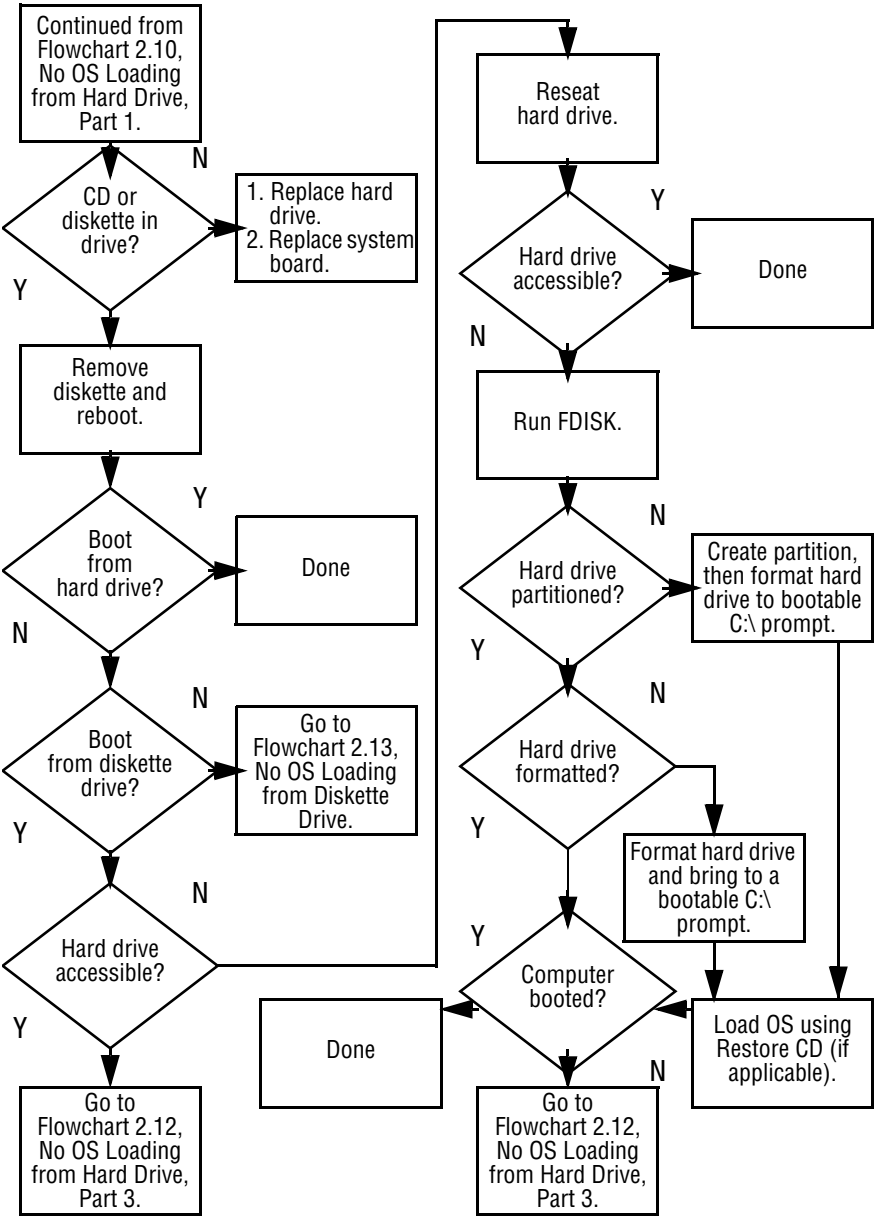
Flowchart 2.9 - No Operating System (OS) Loading



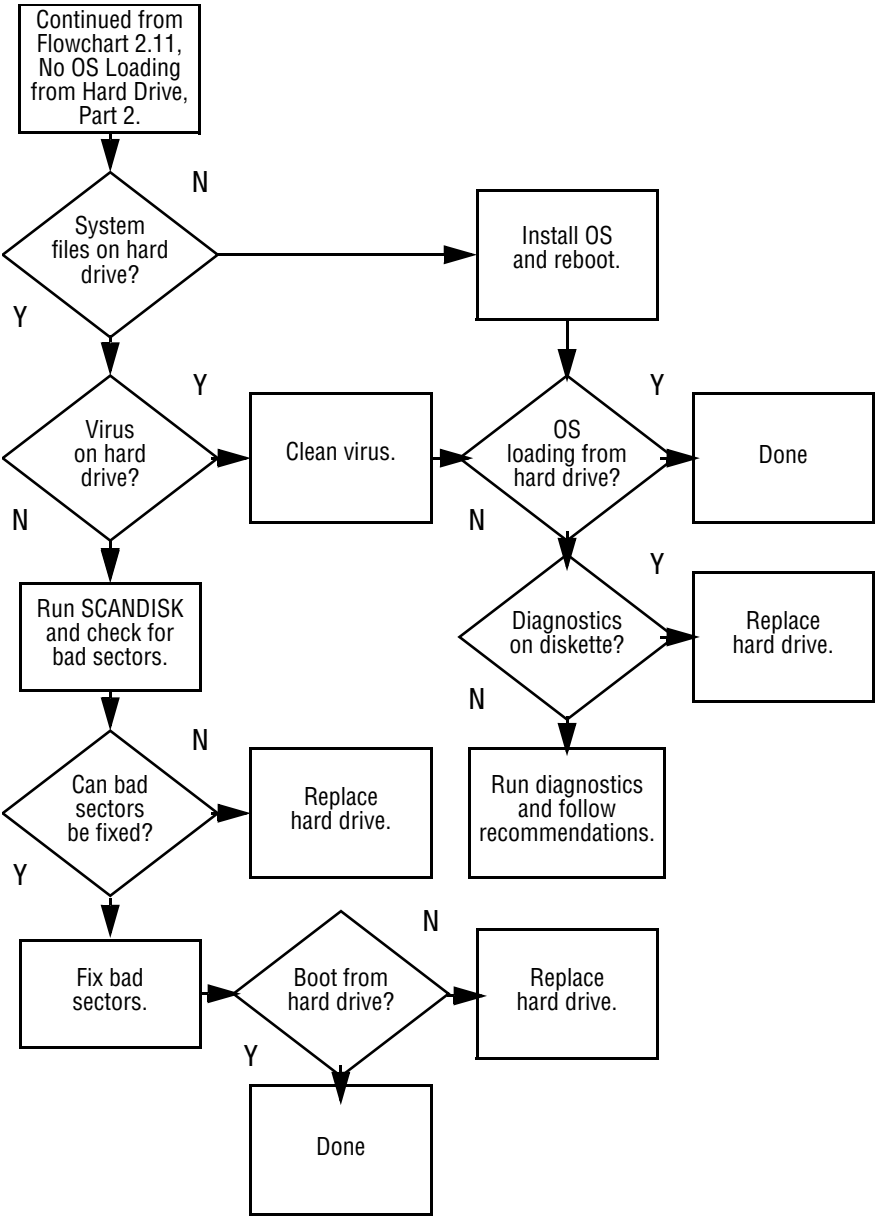
Flowchart 2.10 - No OS Loading from Hard Drive, Part 1



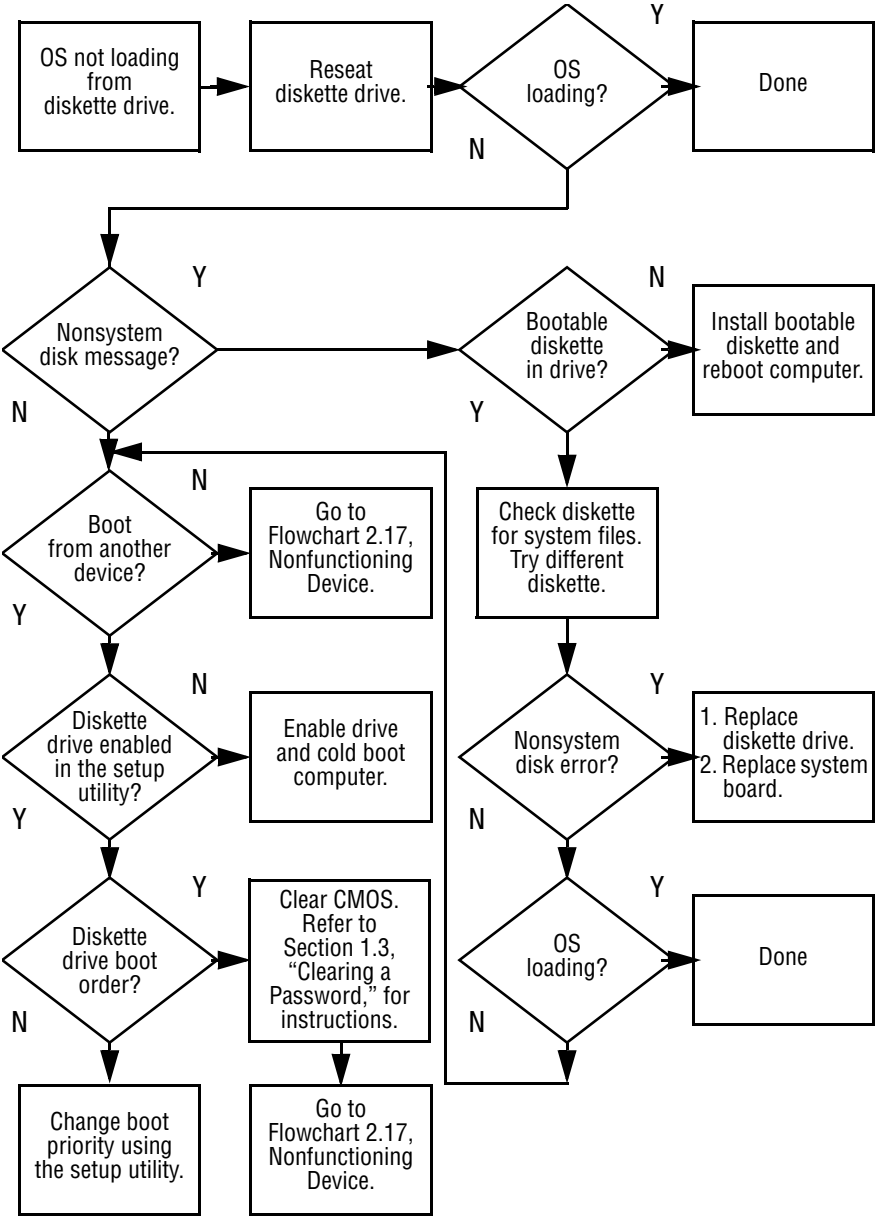
Flowchart 2.11 - No OS Loading from Hard Drive, Part 2



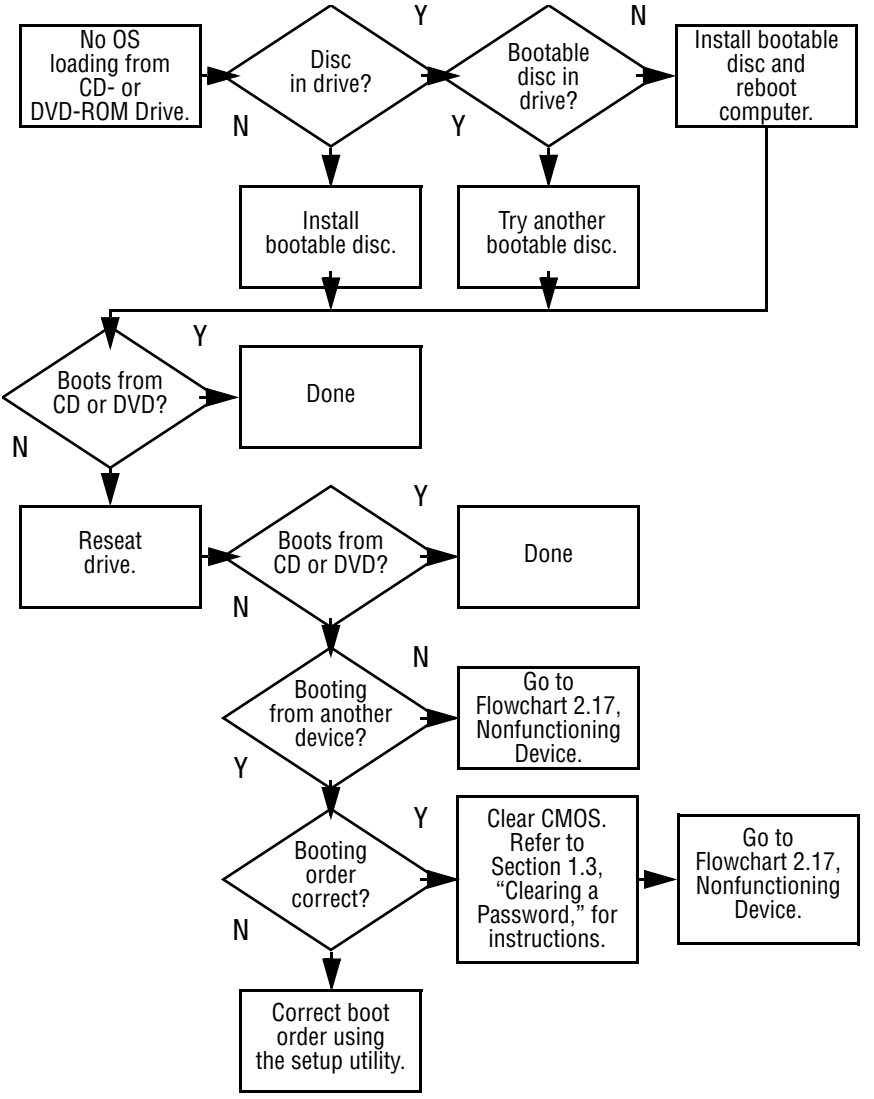
Flowchart 2.12 - No OS Loading from Hard Drive, Part 3



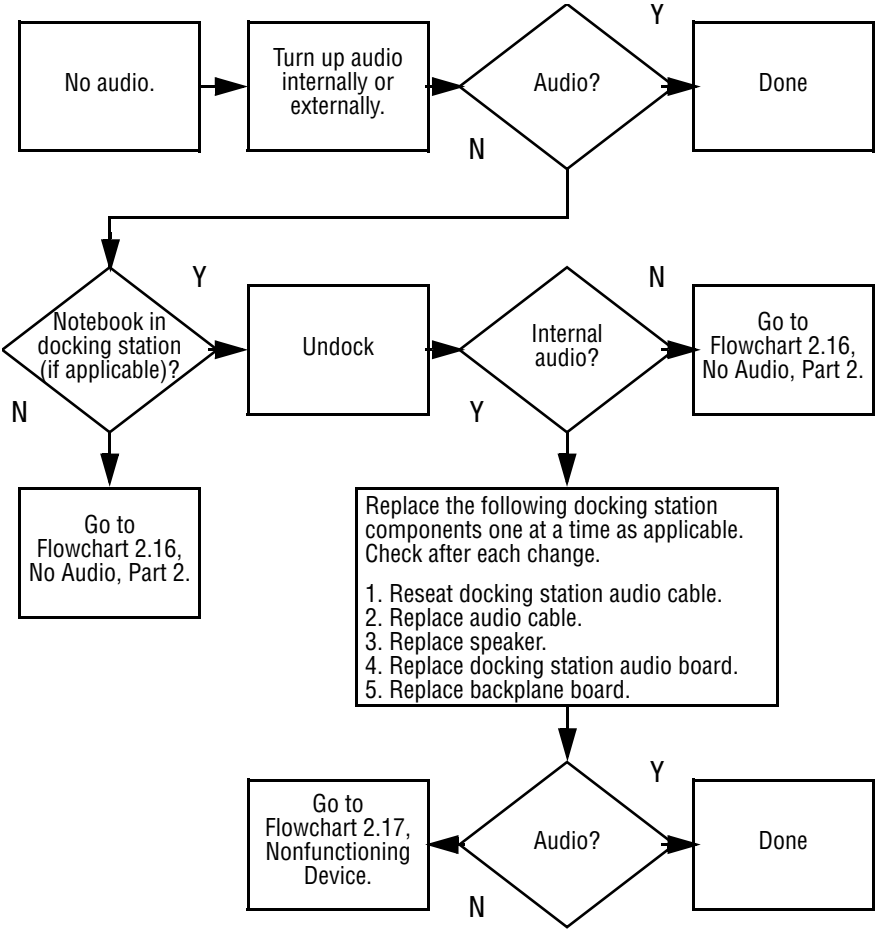
Flowchart 2.13 - No OS Loading from Diskette Drive



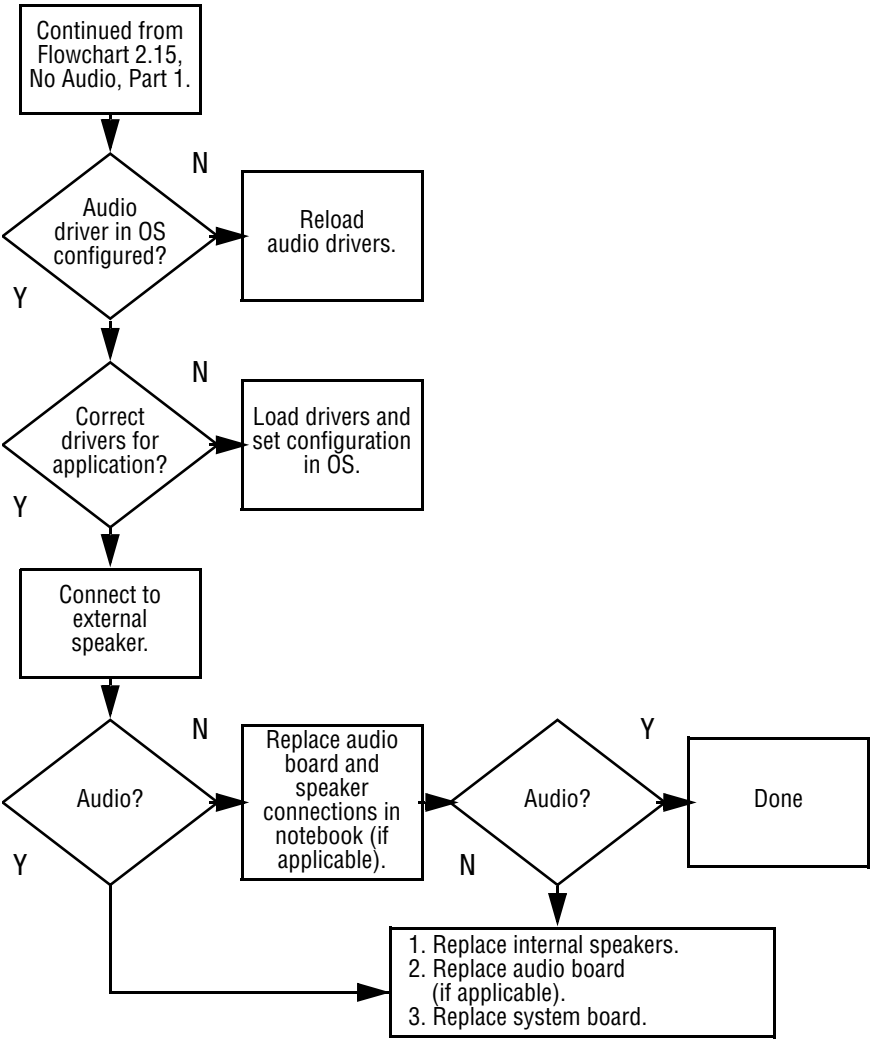
Flowchart 2.14 - No OS Loading from CD- or DVD-ROM Drive



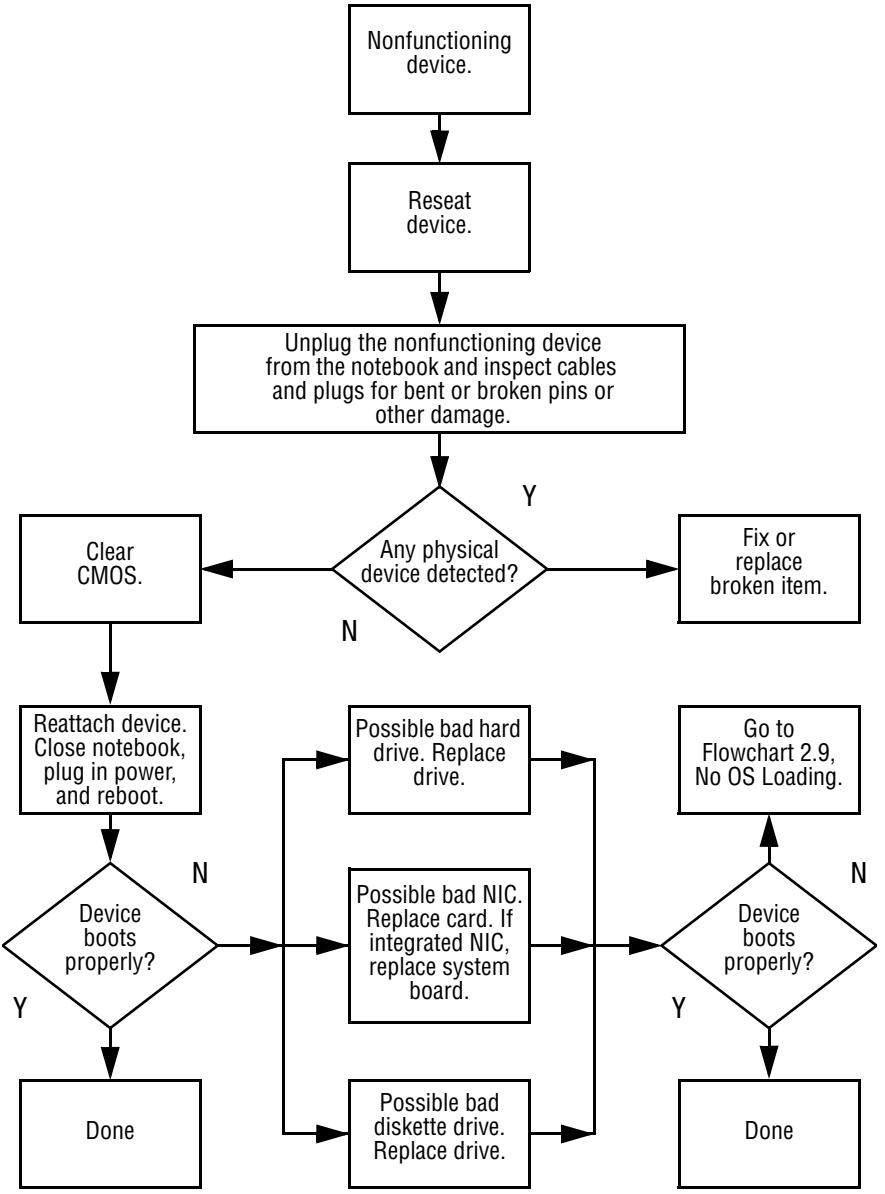
Flowchart 2.15 - No Audio, Part 1



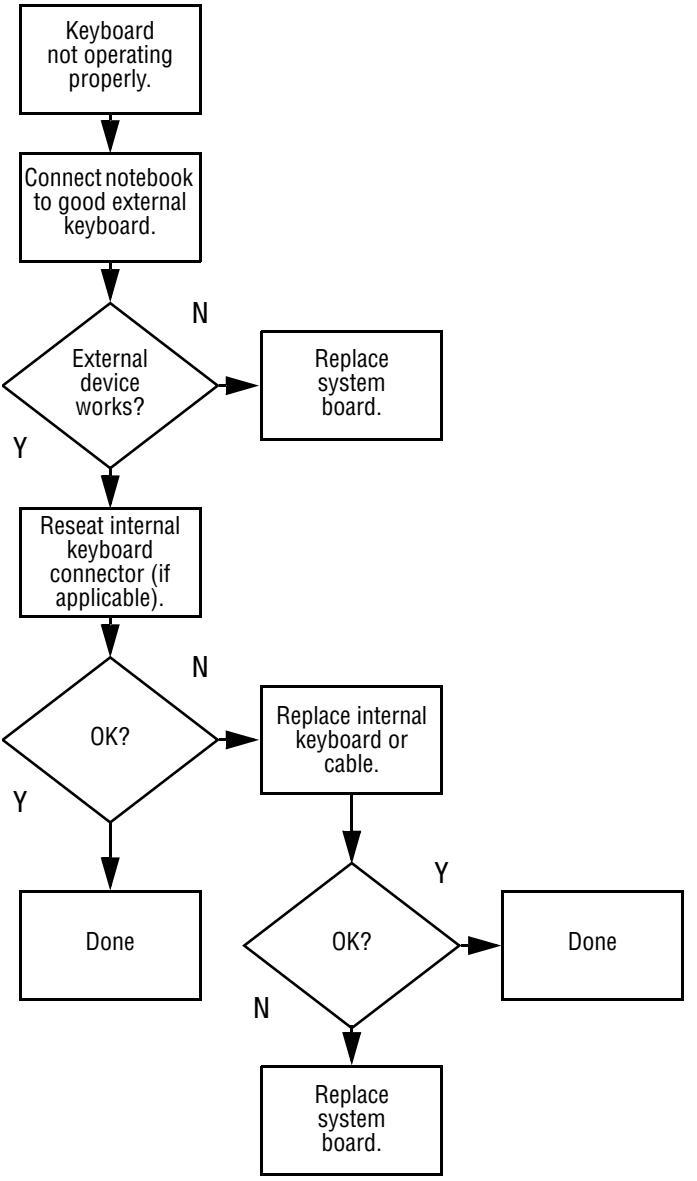
Flowchart 2.16 - No Audio, Part 2



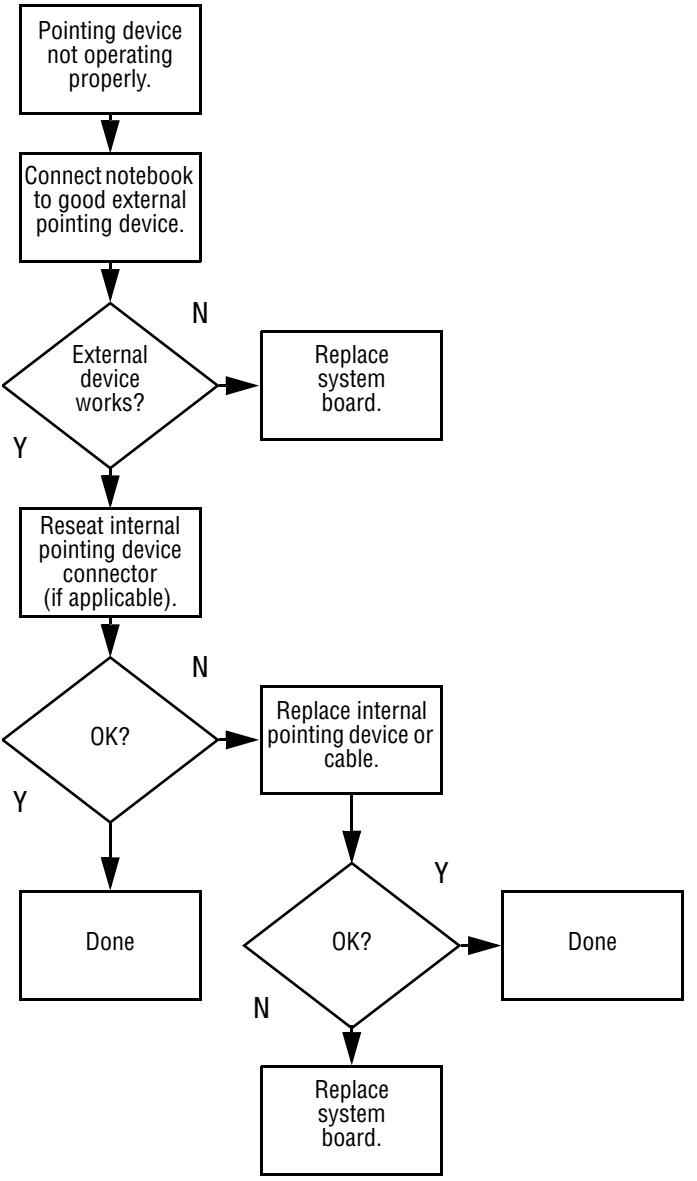
Flowchart 2.17 - Nonfunctioning Device



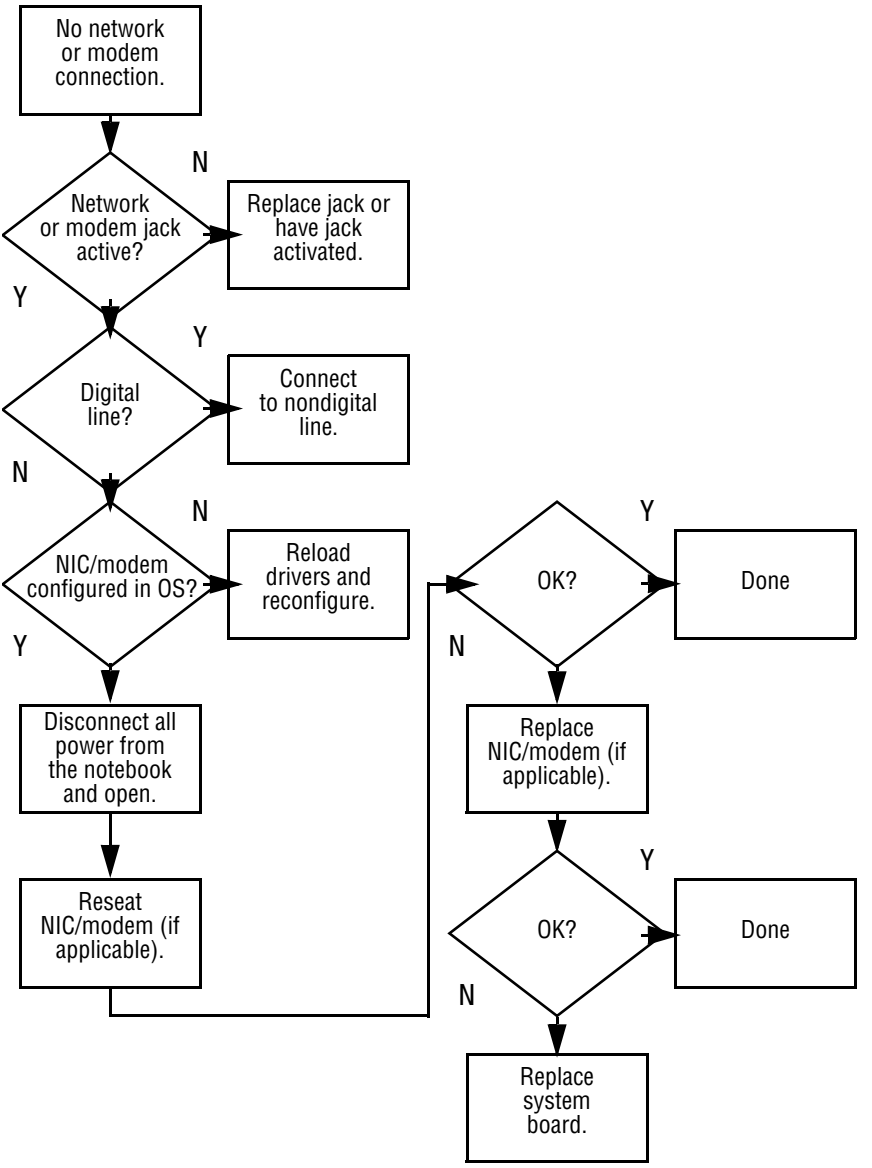
Flowchart 2.18 - Nonfunctioning Keyboard



Flowchart 2.19 - Nonfunctioning Pointing Device



Flowchart 2.20 - No Network or Modem Connection



3

Illustrated Parts Catalog

This chapter provides an illustrated parts breakdown and a reference for spare part numbers and option part numbers.

3.1 Serial Number Location

When ordering parts or requesting information, provide the notebook serial number and model number located on the bottom of the notebook (Figure 3-1).

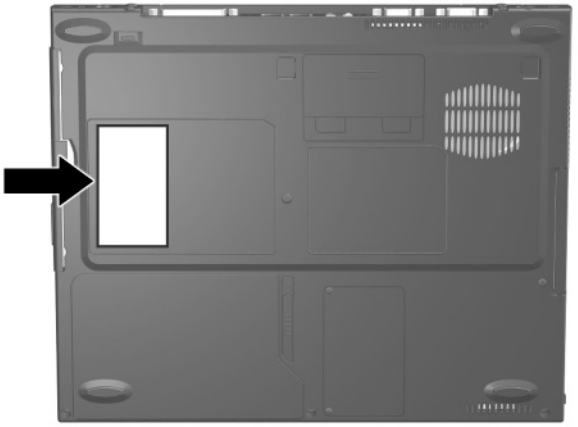


Figure 3-1. Serial Number Location

3.2 Notebook System Major Components

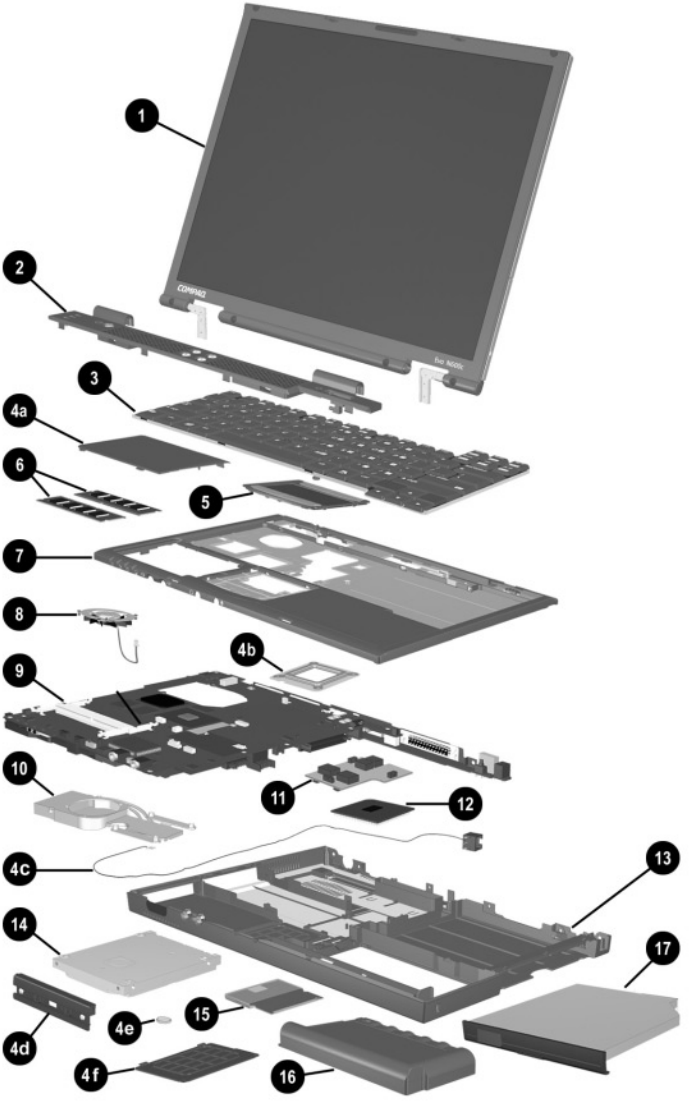
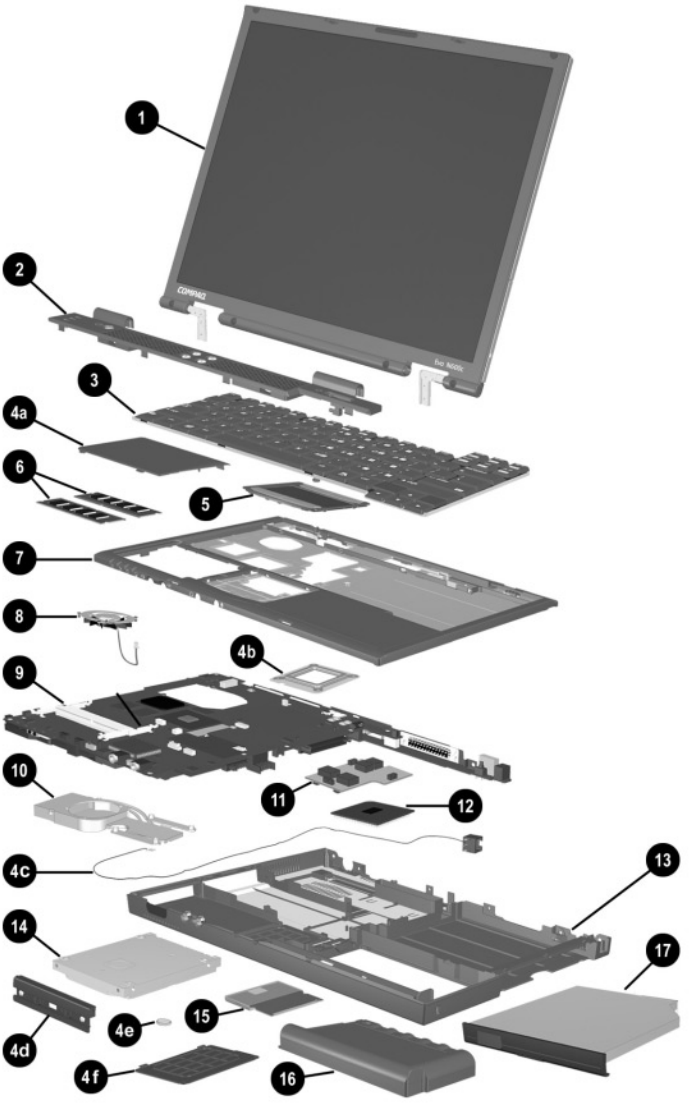


Figure 3-2. Notebook System Major Components

Table 3-1
Spare Parts: Notebook System Major Components

Item	Description	Spare Part Number
1	**Displays**	
	For use with Evo Notebook N610c models only:	
	14.1-inch, SXGA+, CTFT	291261-001
	14.1-inch, XGA, CTFT	291262-001
	For use with Evo Notebook N600c models only:	
	14.1-inch, SXGA+, CTFT	241433-001
	14.1-inch, XGA, CTFT	241434-001
2	**Switch cover**	241438-001
3	**Keyboard with pointing stick** (for use with Dual Stick models)	

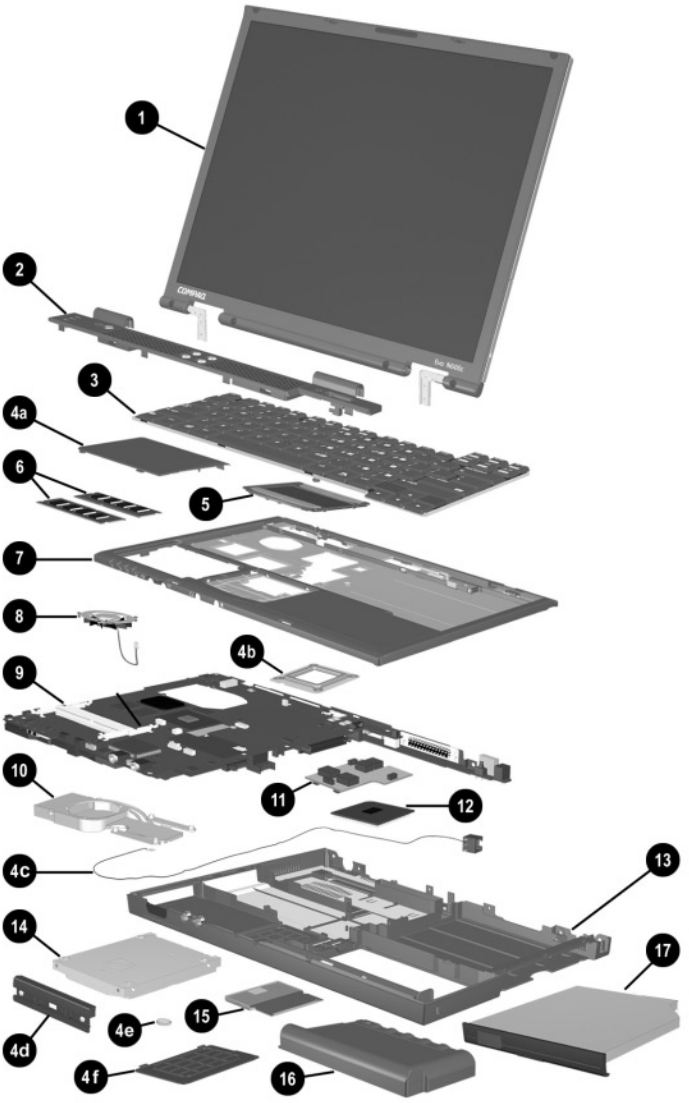
Arabic	241427-171	International	241427-002
Bosnia-Herzegovina/ Croatia/ Slovenia/ Yugoslavia	241427-B41	Italian	241427-061
		Japanese	241427-291
		Korean	241427-AD1
		Latin American Spanish	241427-161
Brazilian	241427-201	Norwegian	241427-091
Belgian	241427-181	Portuguese	241427-131
Czech	241427-221	Russian	241427-251
Danish	241427-081	Slovenian	241427-231
French	241427-051	Spanish	241427-071
French Canadian	241427-121	Swedish/Finnish	241427-101
German	241427-041	Swiss	241427-111
Greek	241427-151	Taiwanese	241427-AB1
Hebrew	241427-BB1	Turkish	241427-141
Hungarian	241427-211	U.K. English	241427-031
		U.S. English	241427-001



Notebook System Major Components (continued)

Table 3-1
Spare Parts: Notebook System Major Components *(Continued)*

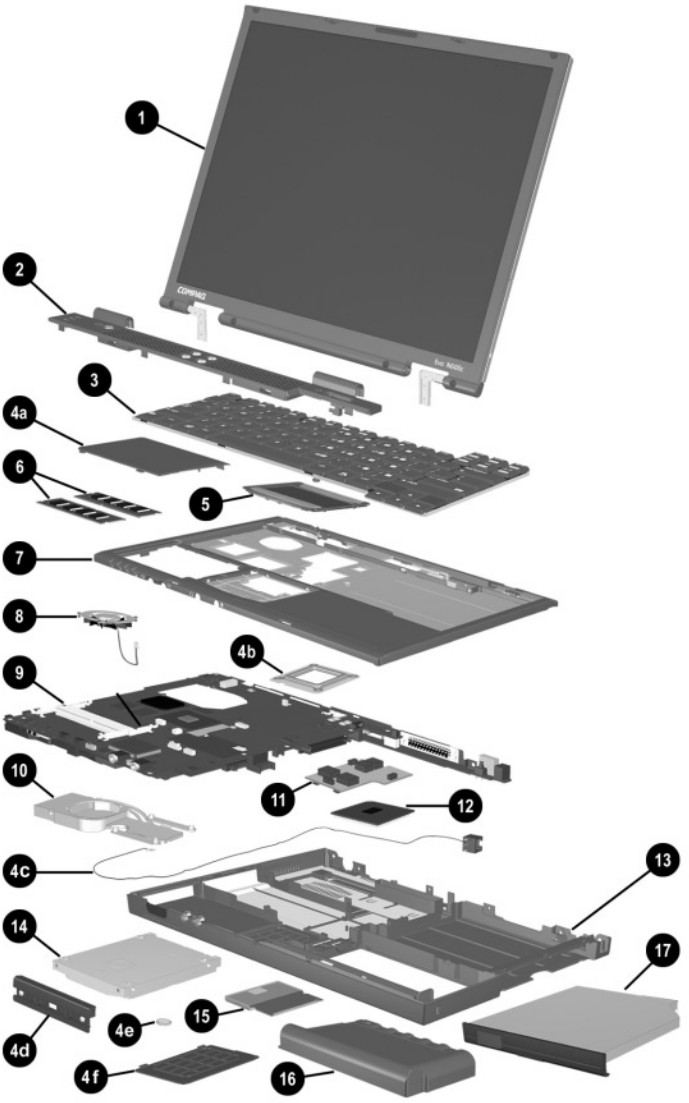
Item	Description			Spare Part Number
3	**Keyboard without pointing stick** (for use with TouchPad models)			
	Arabic	241428-171	International	241428-002
	Bosnia-Herzegovina/Croatia/Slovenia/Yugoslavia	241428-B41	Italian	241428-061
			Japanese	241428-291
			Korean	241428-AD1
			Latin American Spanish	241428-161
	Brazilian	241428-201	Norwegian	241428-091
	Belgian	241428-181	Portuguese	241428-131
	Czech	241428-221	Russian	241428-251
	Danish	241428-081	Slovenian	241428-231
	French	241428-051	Spanish	241428-071
	French Canadian	241428-121	Swedish/Finnish	241428-101
			Swiss	241428-111
	German	241428-041	Taiwanese	241428-AB1
	Greek	241428-151	Turkish	241428-141
	Hebrew	241428-BB1	U.K. English	241428-031
	Hungarian	241428-211	U.S. English	241428-001



Notebook System Major Components (continued)

Table 3-1
Spare Parts: Notebook System Major Components *(Continued)*

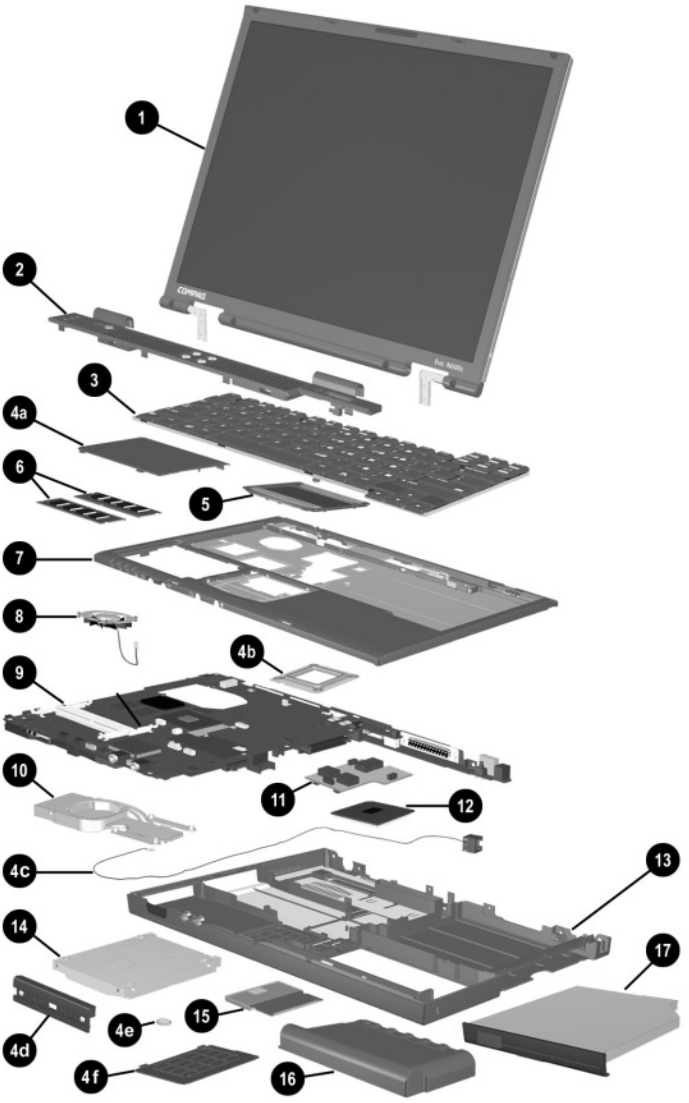
Item	Description	Spare Part Number
	Miscellaneous Plastics Kit	241439-001
4a	Memory expansion compartment cover (on Evo Notebook N610c models)	
	Mini PCI compartment cover (on Evo Notebook N600c models)	
4b	Processor bracket	
4c	Modem cable	
4d	Hard drive bezel	
4e	Disk cell RTC battery	
4f	Mini PCI compartment cover (on Evo Notebook N610c models)	
	Memory expansion compartment cover (on Evo Notebook N600c models)	
	Not illustrated:	
	MultiPort module cover	
	Notebook feet	
	PC Card slot space savers	
	RJ-11 cover	
5	**TouchPad components**	
	For use with Evo Notebook N610c models only:	
	TouchPad (for use with TouchPad models)	253658-001
	TouchPad with biometric TouchButton (for use with TouchPad models)	252433-001
	TouchButton with pointing stick buttons (for use with Dual Stick models)	252434-001
	For use with Evo Notebook N600c models only:	
	TouchPad (for use with TouchPad models)	135227-001
	TouchButton with pointing stick buttons (for use with Dual Stick models)	159530-001



Notebook System Major Components (continued)

Table 3-1
Spare Parts: Notebook System Major Components *(Continued)*

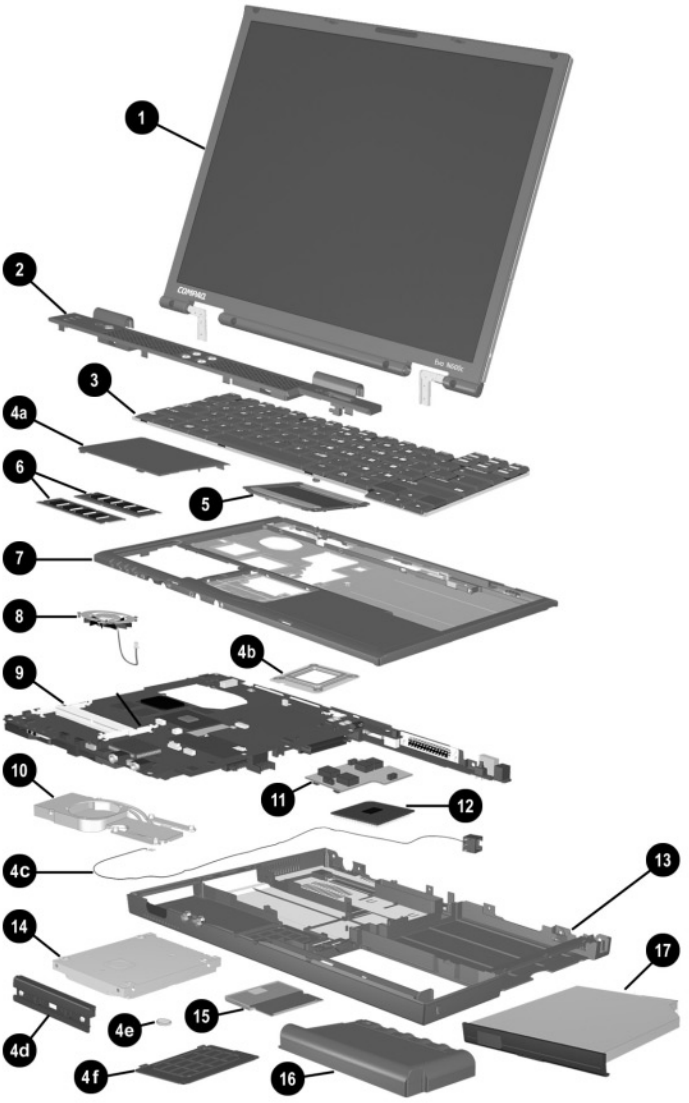
Item	Description	Spare Part Number
6	**Memory expansion boards**	
	266 MHz, 2DM (for Evo Notebook N610c models only)	
	1024 MB	301576-001
	768 MB	301575-001
	512 MB	301574-001
	384 MB	301572-001
	256 MB	301571-001
	266 MHz, 1DM (for Evo Notebook N610c models only)	
	512 MB	301573-001
	256 MB	301570-001
	128 MB	301569-001
	133 MHz (for Evo Notebook N610c models only)	
	512 MB	238879-001
	256 MB	212683-001
	128 MB	212682-001
	64 MB	212681-001
	100 MHz (for Evo Notebook N600c models only)	
	512 MB	238830-B25
	256 MB	197898-B25
	128 MB	197987-B25
	64 MB	197896-B25
7	**Top covers**	
	For use with Evo Notebook N610c models only	291264-001
	For use with Evo Notebook N600c models only	241436-001
8	**Fans**	
	For use with Evo Notebook N610c models only	291266-001
	For use with Evo Notebook N600c models only	255528-001



Notebook System Major Components (continued)

Table 3-1
Spare Parts: Notebook System Major Components *(Continued)*

Item	Description	Spare Part Number
9	**System boards**	
	For use with Evo Notebook N610c models only	291581-001
	For use with Evo Notebook N600c models only:	
	Mobile Intel Pentium III processor 1.066 GHz-M	241430-001
	Mobile Intel Pentium III processor 866 MHz-M	241432-001
10	**Heat sink**	303103-001
11	**DC-DC converter boards**	
	For use with Evo Notebook N610c models only	291263-001
	For use with Evo Notebook N600c models only	241435-001
12	**Processors (for use only on Evo Notebook N610c models)**	
	Mobile Intel Pentium 4 2.0 GHz	303282-001
	Mobile Intel Pentium 4 1.9 GHz	291580-001
	Mobile Intel Pentium 4 1.8 GHz	291269-001
	Mobile Intel Pentium 4 1.7 GHz	291268-001
	Mobile Intel Pentium 4 1.6 GHz	291267-001
13	**Base enclosures**	
	For use with Evo Notebook N610c models only	291265-001
	For use with Evo Notebook N600c models only	241437-001
14	**Hard drives**	
	For use with Evo Notebook N610c models only:	
	40 GB	265495-001
	30 GB	257660-001
	20 GB	235540-101
	For use with Evo Notebook N600c models only:	
	30 GB	217096-001
	20 GB	235421-001
	15 GB	241429-001
	10 GB	217094-001



Notebook System Major Components (continued)

Table 3-1
Spare Parts: Notebook System Major Components *(Continued)*

Item	Description	Spare Part Number
15	**Mini PCI communications boards**	
	Type III mini PCI combination 56-Kbps modem/NIC	230338-001
	Type III mini PCI combination 56-Kbps modem/ 3DES NIC	230339-001
	Type III mini PCI 56-Kbps modem	230337-001
16	**Battery packs** (6-cell, Li ion)	232633-001 and 301952-001
17	**Media Bay devices**	
	For use with all Evo Notebook N610c and Evo Notebook N600c models:	
	Diskette drive	135233-001
	24X Max CD-ROM drive	228746-001 and 228746-001
	8X Max CD-RW drive	153992-001
	8X Max DVD-ROM drive	173949-001
	DVD/CD-RW combination drive	238878-001
	2X Max SuperDisk LS120 drive	201274-001
	IOmega 250-MB ZIP drive	218683-001
	6-cell battery pack	100680-001 and 280876-001
	For use with Evo Notebook N610c models only:	
	16X Max CD-RW drive	274419-001
	24X Max DVD/CD-RW combination drive	274420-001

3.3 Miscellaneous Plastics Kit Components

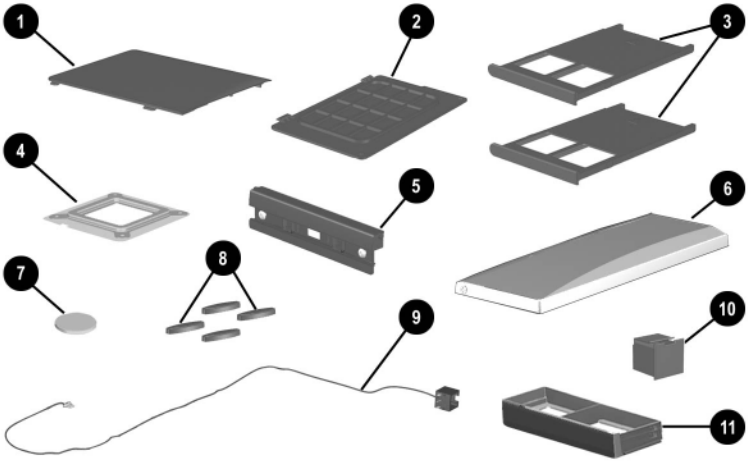


Figure 3-3 Miscellaneous Plastics Kit Components

Table 3-2
Miscellaneous Plastics Kit Components
Spare Part Number 241439-001

Item	Description
1	Memory expansion compartment cover (Evo Notebook N610c models) Mini PCI compartment cover (Evo Notebook N600c models)
2	Mini PCI compartment cover (Evo Notebook N610c models) Memory expansion compartment cover (Evo Notebook N600c models)
3	PC Card slot space savers
4	Processor bracket
5	Hard drive bezel
6	MultiPort module cover
7	Disk cell RTC battery
8	Notebook feet
9	Modem cable
10	RJ-11 connector cover
11	Media Bay space saver

3.4 Mass Storage Devices

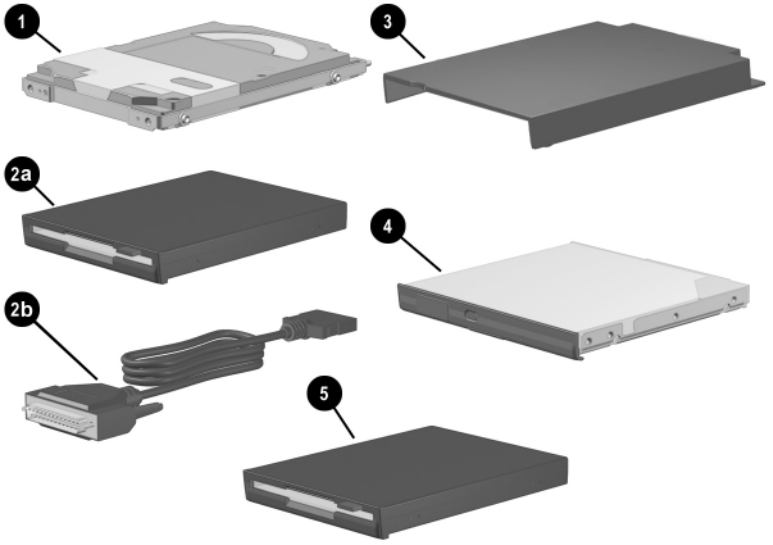
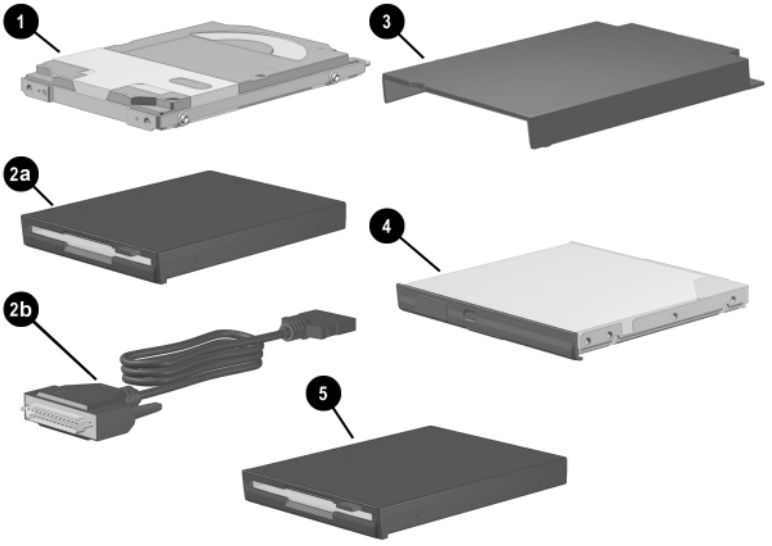


Figure 3-4. Mass Storage Devices

Table 3-3
Mass Storage Devices

Item	Description	Spare Part Number
1	**Hard drives**	
	For use with Evo Notebook N610c models only:	
	40 GB	265495-001
	30 GB	257660-001
	20 GB	235540-101
	For use with Evo Notebook N600c models only:	
	30 GB	217096-001
	20 GB	235421-001
	15 GB	241429-001
	10 GB	217094-001
2a	**Diskette drive**	135233-001
2b	**External diskette drive cable**	135232-001
3	**External Media Bay cradle**	218685-001
	External Media Bay USB cradle	280879-001
	External Media Bay USB cradle cable	287693-001
	External Media Bay cradle AC adaptor	287694-001
	External Media bay cradle plugs	287695-001



***Mass Storage Devices** (continued)*

Table 3-3
Mass Storage Devices *(Continued)*

Item	Description	Spare Part Number
4	**Optical drives**	
	For use with all Evo Notebook N610c and Evo Notebook N600c models:	
	Diskette drive	135233-001
	24X Max CD-ROM drive	228746-001 and 228746-001
	8X Max CD-RW drive	153992-001
	8X Max DVD-ROM drive	173949-001
	DVD/CD-RW combination drive	238878-001
	For use with Evo Notebook N610c models only:	
	16X Max CD-RW drive	274419-001
	24X Max DVD/CD-RW combination drive	274420-001
5	**IOmega 250-MB ZIP drive**	218683-001
	2X Max SuperDisk LS120 drive	201274-001

3.5 Miscellaneous

Table 3-4
Spare Parts: Miscellaneous (not illustrated)

Description	Spare Part Number
AC adaptors	
90-Watt AC adapter power supply	239705-001
65-Watt AC adapter power supply	239704-001
50-Watt AC adapter power supply	120765-001
Bluetooth wireless communication MultiPort module	230336-001
Logo kit	304204-001
Modems	
Type III mini PCI combination 56-Kbps modem/NIC	230338-001
Type III mini PCI combination 56-Kbps modem/3DES NIC	230339-001
Type III mini PCI 56-Kbps modem	230337-001
Modem adapters	
Czech	234963-221
German	236432-041
Hungarian	234963-211
Norwegian	234963-091
Swiss	198294-111
Modem cable	234962-001
Modem cable adapters	
Australian	304398-011
Belgian	304398-181
French	304398-051

Table 3-4
Spare Parts: Miscellaneous (not illustrated) *(Continued)*

Description	Spare Part Number
Power cord, black, 6 feet	
Australian	246959-011
Danish	246959-081
European/Middle Eastern/African	246959-021
Italian	246959-061
Japanese	246959-291
Korean	246959-AD1
Swiss	246959-AG1
Taiwanese	234961-AA1
U.K. English	246959-031
U.S. English	246959-001
RJ-11 P55 adapters	
Danish	316904-081
Finnish	316904-351
Italian	316904-061
Swedish	316904-101
RJ-11 PTT adapter (used in the United Kingdom)	158593-031
RJ-45 network cable	239049-001
Screw Kit (includes the following screws and bushing guides; refer to Appendix C, "Screw Listing," for more information on screw specifications and usage) ■ Torx T8 M2 × 7 ■ Torx T8 M2 × 5 ■ 7.0-mm bushing guide ■ Phillips M1 × 6 ■ Phillips M2 × 6.5	241440-001

4

Removal and Replacement Preliminaries

This chapter provides essential information for proper and safe removal and replacement service.

4.1 Tools Required

You will need the following tools to complete the removal and replacement procedures:

- Magnetic screwdriver
- Phillips P0 screwdriver
- 7.0-mm socket wrench (for Evo Notebook N600c models)
- Tool kit (includes connector removal tool, loopback plugs, and case utility tool)

4.2 Service Considerations

The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures.

As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

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 the maintenance instructions.

Cables and Connectors

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

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

4.3 Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a removable drive, or loss of information, observe the following 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 or optical drive, ensure that a diskette or disc is not in the drive. Ensure that the optical 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.
- After removing a hard drive, CD-ROM drive, or a diskette drive, place it in a static-proof bag.
- 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, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “Fragile: Handle With Care.”

4.4 Preventing Electrostatic Damage

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. 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.

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 may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.
- Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a sensitive component or assembly.

- Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyers made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-dissipative material (refer to Table 4-2).
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When using fixtures that must directly contact dissipative surfaces, only use fixtures made of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

4.7 Grounding Equipment and Methods

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, connect a wrist strap with alligator clips.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one-megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Other grounding equipment recommended for use in preventing electrostatic damage includes:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one-megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities.

Table 4-1
Typical Electrostatic Voltage Levels

	Relative Humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	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 PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

✎ A product can be degraded by as little as 700 V.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.

Table 4-2
Static-Shielding Materials

Material	Use	Voltage Protection Level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5

Removal and Replacement Procedures

This chapter provides removal and replacement procedures.

Both Phillips P0 and Torx T8 screws are removed during disassembly. There are 37 screws and screwlocks, in seven different sizes, that must be removed and replaced when servicing the notebook. Make special note of each screw size and location during removal and replacement.

Refer to Appendix C, “Screw Listing,” for detailed information on screw sizes, locations, and usage.

5.1 Serial Number

Report the notebook serial number to Compaq when requesting information or ordering spare parts. The serial number is located on the bottom of the notebook (Figure 5-1).

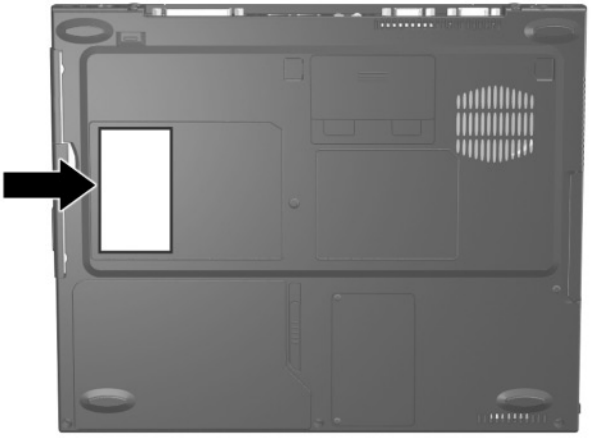


Figure 5-1. Serial Number Location

5.2 Disassembly Sequence Chart

Use the chart below to determine the section number to be referenced when removing notebook components.

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the Notebook for Disassembly	
	Battery Pack	0

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.3	Preparing the Notebook for Disassembly *(Continued)*	
	Media Bay Device	0
	Hard Drive	1 to remove hard drive 2 to remove hard drive bezel
5.4	Computer Feet	0
5.5	Mini PCI Communications Board	2
5.6	Disk Cell RTC Battery	0
5.7	Keyboard	1
5.8	Memory Expansion	0
5.9	TouchPad	0
5.10	Switch Cover	2
5.11	Display	3
5.12	Top Cover	12
5.13	System Board	5
5.14	Fan	3
5.15	Heat Sink (Evo Notebook N610c models only)	6
5.16	Processor (Evo Notebook N610c models only)	0
5.17	DC-DC Converter Board	0
5.18	Modem Cable	0

5.3 Preparing the Notebook for Disassembly

Perform the following steps before disassembling the notebook:

1. Turn off the notebook.
2. Disconnect the AC adapter and all external devices.

Battery Pack, 6-cell, Li ion Spare Part Number Information	
Battery packs, 6-cell, Li ion	232633-001 and 301952-001

3. Remove the battery pack by following these steps:
   a. Turn the notebook bottom side up with the front facing forward.

b. Slide the battery release latch ❶ toward the back of the notebook (Figure 5-2).

c. Swing the right side of the battery pack up and to the left ❷.

d. Remove the battery pack ❸.

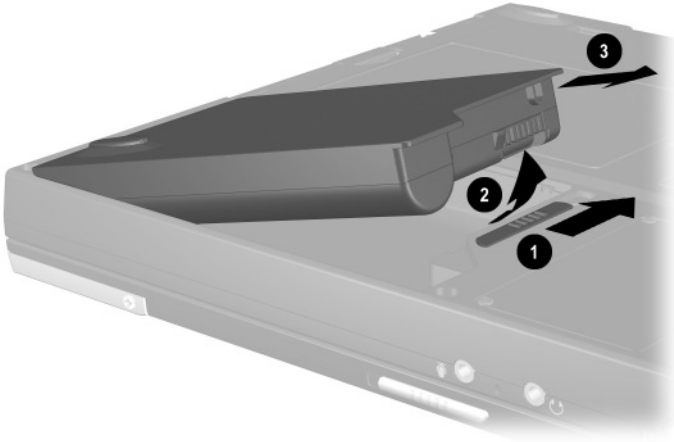


Figure 5-2. Removing the Battery Pack

Reverse the preceding procedure to install the battery pack.

Media Bay Devices
Spare Part Number Information

For use with all Evo Notebook N610c and Evo Notebook N600c models:	
Diskette drive	135233-001
24X Max CD-ROM drive	228746-001 and 228746-001
8X Max CD-RW drive	153992-001
8X Max DVD-ROM drive	173949-001
DVD/CD-RW combination drive	238878-001
2X Max SuperDisk LS120 drive	201274-001
IOmega 250-MB ZIP drive	218683-001
6-cell battery pack	100680-001 and 280876-001
For use with Evo Notebook N610c models only:	
16X Max CD-RW drive	274419-001
24X Max DVD/CD-RW combination drive	274420-001

4. Remove a Media Bay device by following these steps:
   a. Turn the notebook bottom side up with the left side facing forward.
   b. Slide and hold the Media Bay release latch toward the back of the notebook ❶ (Figure 5-3).
   c. Use the notch in the Media Bay device to slide the device out of the Media Bay ❷.

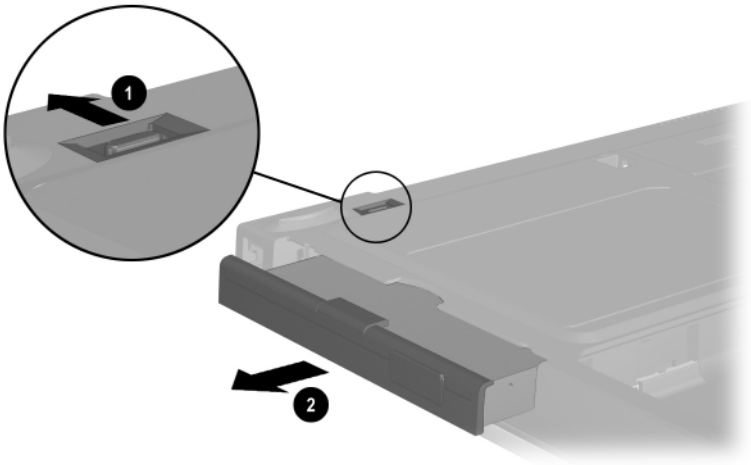


Figure 5-3. Removing a Media Bay Device

Reverse the preceding procedure to install the Media Bay device.

Hard Drive Spare Part Number Information	
For use with Evo Notebook N610c models only:	
40 GB	265495-001
30 GB	257660-001
20 GB	235540-101
For use with Evo Notebook N600c models only:	
30 GB	217096-001
20 GB	235421-001
15 GB	241429-001
10 GB	217094-001

5. Remove the hard drive by following these steps:

   a. Turn the notebook bottom side up with the right side facing forward.

b. Remove the PM2.5 × 2.5 hard drive retention screw ❶ (Figure 5-4).

c. Separate the hard drive bezel ❷.

d. Use the bezel to slide the hard drive forward ❸ to unseat the hard drive connector from the system board.

e. Remove the hard drive.

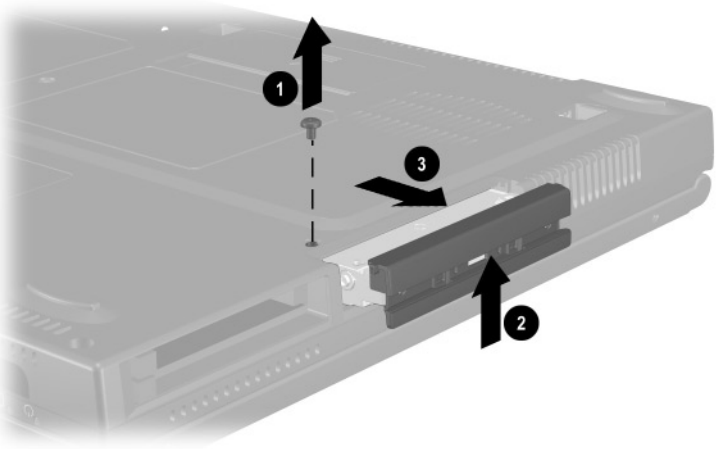


Figure 5-4. Removing the Hard Drive

Reverse the preceding procedure to install the hard drive.

6. Loosen the two PM1.5 × 3.5 screws ❶ that secure the hard drive bezel to the hard drive (Figure 5-5).
7. Remove the hard drive bezel from the hard drive ❷.

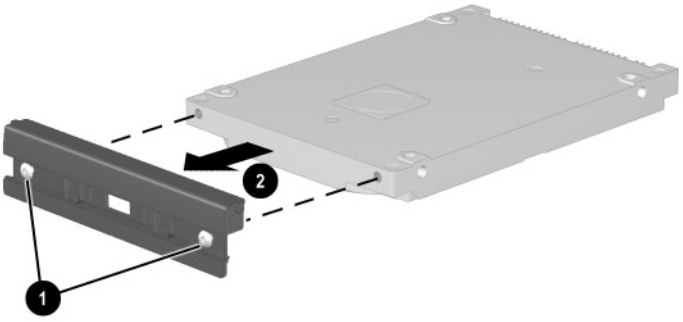


Figure 5-5. Removing the Hard Drive Bezel

The hard drive bezel is included in the Miscellaneous Plastics Kit, spare part number 241439-001.

5.4 Computer Feet

The notebook feet are adhesive-backed rubber pads. The notebook feet are included in the Miscellaneous Plastics Kit (spare part number 241439-001). Refer to Figure 5-6 for notebook feet locations.

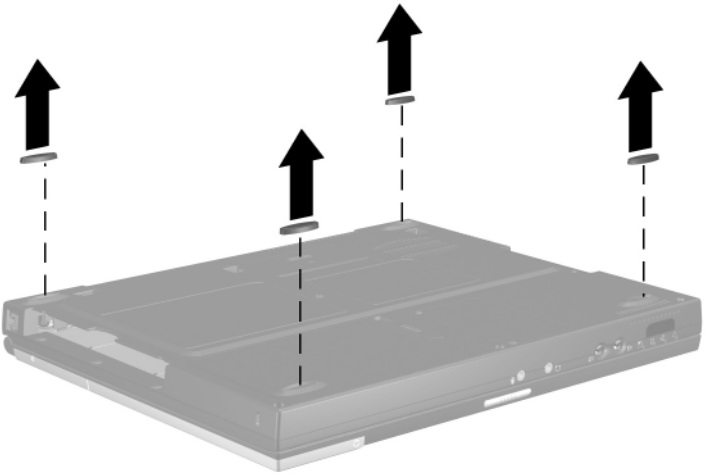


Figure 5-6. Replacing the Notebook Feet

5.5 Mini PCI Communications Board

Compaq Evo Notebook N600c models contain a memory expansion slot in this location. Refer to Section 5.8, steps 5 and 6, for instructions on removing a memory expansion board. The mini PCI compartment cover is included in the Miscellaneous Plastics Kit (spare part number 241439-001).

Mini PCI Communications Board Spare Part Number Information	
Type III mini PCI combination 56-Kbps modem/NIC board	230338-001
Type III mini PCI combination 56-Kbps/NIC/3DES board	230339-001
Type III mini PCI 56-Kbps modem board	230337-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Turn the notebook bottom side up with the front facing forward.

3. Remove the two PM2.5 × 5.0 screws ❶ that secure the mini PCI compartment cover to the base enclosure (Figure 5-7).
4. Lift the left edge of the cover and swing it up and to the right ❷.
5. Remove the cover.

The mini PCI compartment cover is included in the Miscellaneous Plastics Kit (spare part number 241439-001).

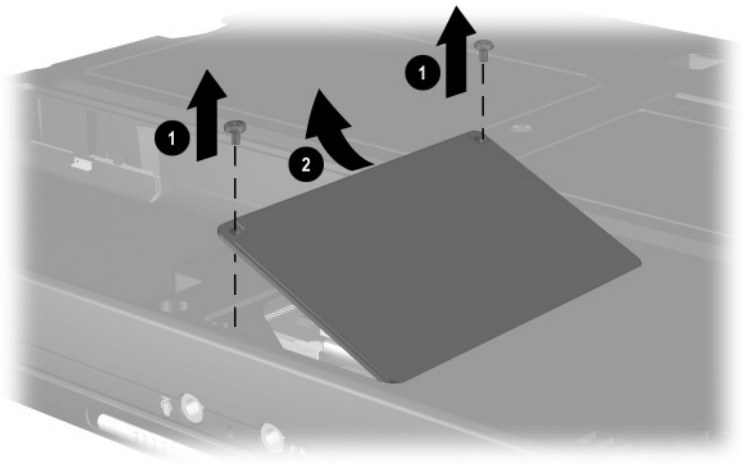


Figure 5-7. Removing the Mini PCI Compartment Cover

6. Disconnect the modem cable from the mini PCI communications board ❶ (Figure 5-8).
7. Spread the retaining tabs ❷ to release the mini PCI communications board. The board tilts up at a 45-degree angle.
8. Remove the board by pulling it away from the connector at a 45-degree angle ❸.

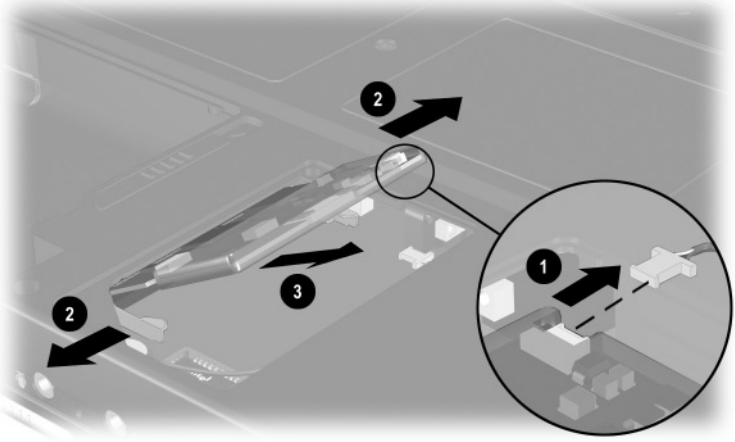


Figure 5-8. Removing the Mini PCI Communications Board

Reverse the preceding procedure to install the mini PCI communications board and mini PCI compartment cover.

5.6 Disk Cell RTC Battery

The disk cell real time clock (RTC) battery on the Compaq Evo Notebook N600c model is located under the memory expansion slot compartment cover. Refer to Section 5.8 for instructions on removing the memory expansion slot cover. The procedures used to remove an RTC battery are the same for the Evo notebook N610c and Evo Notebook N600c. The disk cell RTC battery is included in the Miscellaneous Plastics Kit (spare part number 241439-001).

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the mini PCI compartment cover (Section 5.5).

3. Use a flat blade tool to remove the battery ❶ from the socket on the system board (Figure 5-9).

The system ROM ❷ is also accessible when the mini PCI compartment cover is removed.

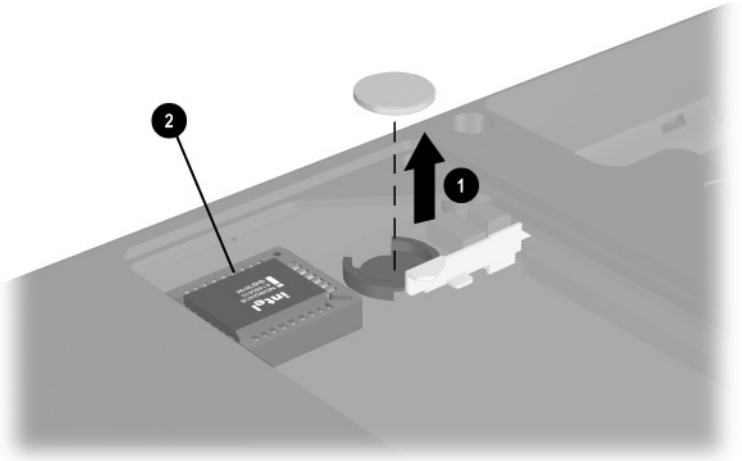


Figure 5-9. Removing the Disk Cell RTC Battery

The notebook uses a CR1220 lithium disk cell battery. When replacing the RTC battery, insert the battery with the "+" sign facing up.

5.7 Keyboard

Keyboard
Spare Part Number Information

Keyboard with Pointstick

Arabic	241427-171	International	241427-002
Bosnia-Herzegovina/Croatia/Slovenia/Yugoslavia	241427-B41	Italian	241427-061
		Japanese	241427-291
		Korean	241427-AD1
		Latin American Spanish	241427-161
		Norwegian	241427-091
Brazilian	241427-201	Portuguese	241427-131
Belgian	241427-181	Russian	241427-251
Czech	241427-221	Slovenian	241427-231
Danish	241427-081	Spanish	241427-071
French	241427-051	Swedish/Finnish	241427-101
French Canadian	241427-121	Swiss	241427-111
German	241427-041	Taiwanese	241427-AB1
Greek	241427-151	Turkish	241427-141
Hebrew	241427-BB1	U.K. English	241427-031
Hungarian	241427-211	U.S. English	241427-001

Keyboard
Spare Part Number Information

Keyboard without Pointstick (for use with TouchPad models)

Arabic	241428-171	International	241428-002
Bosnia-Herzegovina/Croatia/Slovenia/Yugoslavia	241428-B41	Italian	241428-061
		Japanese	241428-291
		Korean	241428-AD1
		Latin American Spanish	241428-161
		Norwegian	241428-091
Brazilian	241428-201	Portuguese	241428-131
Belgian	241428-181	Russian	241428-251
Czech	241428-221	Slovenian	241428-231
Danish	241428-081	Spanish	241428-071
French	241428-051	Swedish/Finnish	241428-101
French Canadian	241428-121	Swiss	241428-111
German	241428-041	Taiwanese	241428-AB1
Greek	241428-151	Turkish	241428-141
Hebrew	241428-BB1	U.K. English	241428-031
Hungarian	241428-211	U.S. English	241428-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Turn the notebook bottom side up with the front facing you.
3. Remove the TM2.5 × 7.0 screw that secures the keyboard to the base enclosure (Figure 5-10).

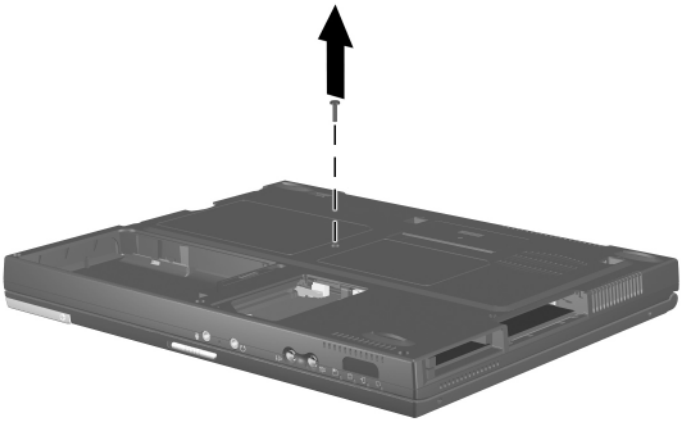


Figure 5-10. Removing the Keyboard Screw

4. Turn the notebook top side up with the front facing you.
5. Open the notebook.

6. Slide the four tabs on the top of the keyboard forward (Figure 5-11).

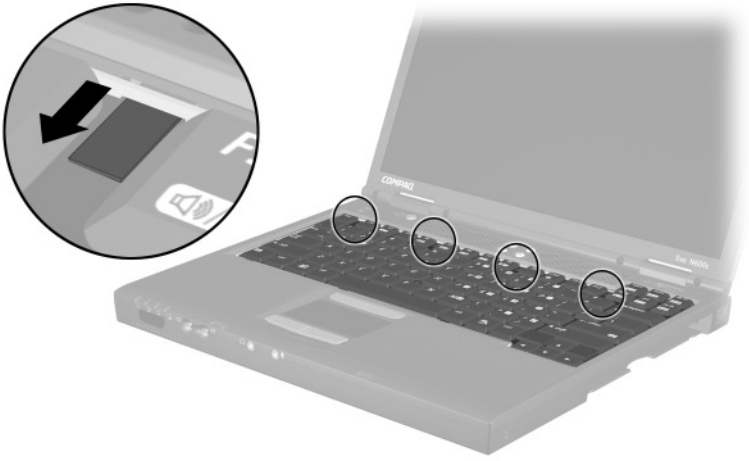


Figure 5-11. Releasing the Keyboard

7. Lift the top edge of the keyboard and swing it up and forward until it rests on the top cover ❶ (Figure 5-12).
8. Disengage the keyboard cable from the retaining clips in the top cover.
9. Release the ZIF connector to which the pointing device cable is attached ❷ and disconnect the pointing device cable ❸.
10. Release the ZIF connector to which the keyboard cable is attached ❹ and disconnect the keyboard cable ❺.

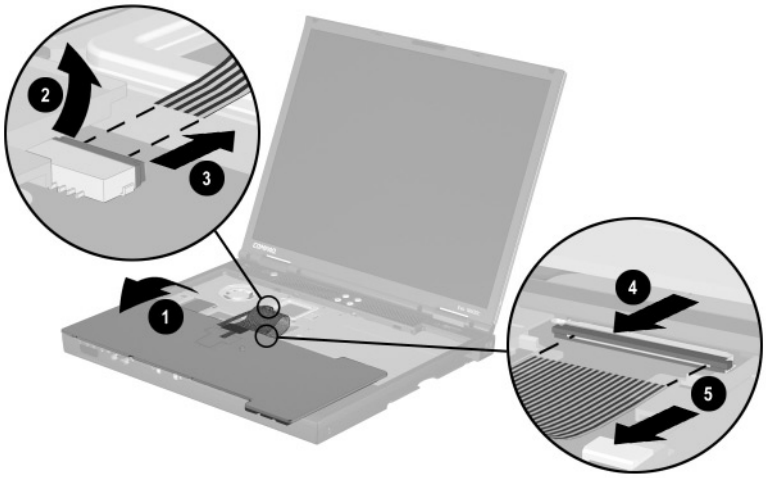


Figure 5-12. Disconnecting the Pointing Device and Keyboard Cables

11. Remove the keyboard.

Reverse the preceding procedure to replace the keyboard.

5.8 Memory Expansion

Compaq Evo Notebook N600c models contain the mini PCI communications board slot in this location. Refer to Section 5.5, steps 6 through 8, for instructions on removing a mini PCI communications board. The memory expansion compartment cover is included in the Miscellaneous Plastics Kit (spare part number 241439-001).

Memory Expansion Board
Spare Part Number Information

266 MHz, 2DM (for Evo Notebook N610c models only)	
1024 MB	301576-001
768 MB	301575-001
512 MB	301574-001
384 MB	301572-001
256 MB	301571-001
266 MHz, 1DM (for Evo Notebook N610c models only)	
512 MB	301573-001
256 MB	301570-001
128 MB	301569-001
133 MHz (for Evo Notebook N610c models only)	
512 MB	238879-001
256 MB	212683-001
128 MB	212682-001
64 MB	212681-001
100 MHz (for Evo Notebook N600c models only)	
512 MB	238830-B25
256 MB	197898-B25
128 MB	197987-B25
64 MB	197896-B25

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the keyboard (Section 5.7).
3. Lift the left side of the memory expansion compartment cover ❶ and swing the cover forward ❷ (Figure 5-13).
4. Remove the memory expansion compartment cover.

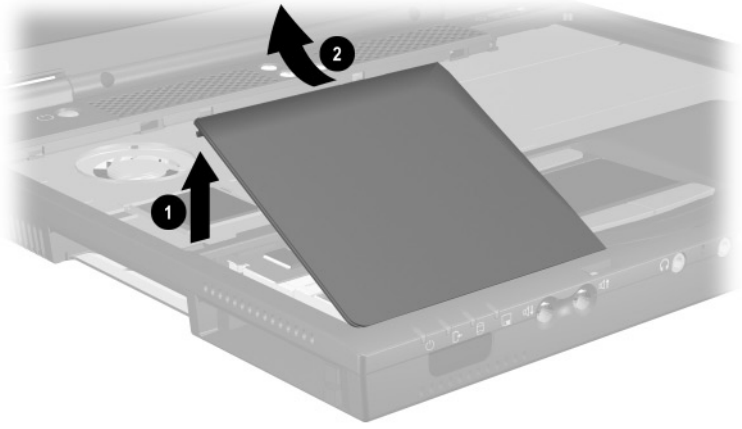


Figure 5-13. Removing the Memory Expansion Compartment Cover

5. Spread the retaining tabs ❶ that secure the memory expansion board to the socket. The board rises up at a 45-degree angle (Figure 5-14).
6. Pull the board away from the socket at a 45-degree angle ❷.

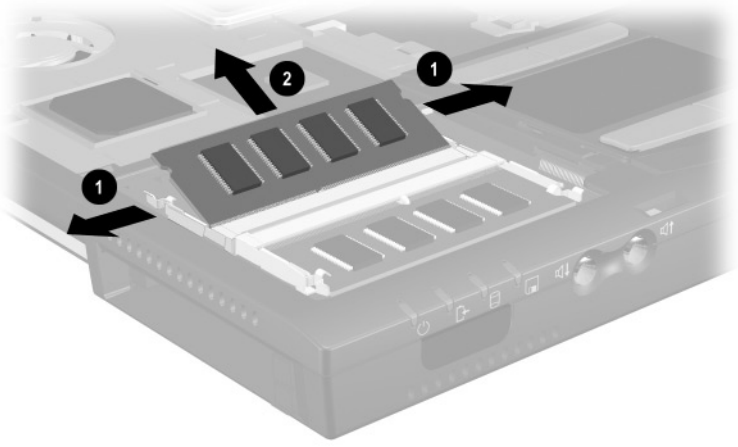


Figure 5-14. Removing a Memory Expansion Board

Reverse the preceding procedure to replace a memory expansion board.

5.9 TouchPad

TouchPad Components Spare Part Number Information	
For use with Evo Notebook N610c models only:	
TouchPad (for use with TouchPad models)	253658-001
TouchPad with biometric TouchButton (for use with TouchPad models)	252433-001
TouchButton with Dual Stick (for use with pointing stick models)	252434-001
For use with Evo Notebook N600c models only:	
TouchPad (for use with TouchPad models)	135227-001
TouchButton with Dual Stick (for use with pointing stick models)	159530-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the keyboard (Section 5.7).
3. Remove the memory expansion compartment cover (Section 5.8).

4. Lift up on the left side of the TouchPad ❶ until it disengages from the top cover (Figure 5-15).
5. Swing the TouchPad up and back ❷ and rest it on the top cover.
6. Disconnect the TouchPad cables ❸ and ❹ from the system board.

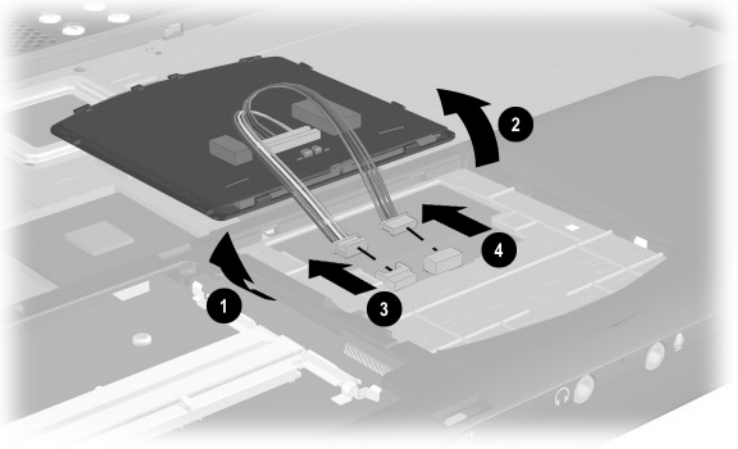


Figure 5-15. Removing the TouchPad

7. Remove the TouchPad.

Reverse the preceding procedure to replace the TouchPad.

5.10 Switch Cover

Switch Cover Spare Part Number Information	
Switch cover	241438-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the keyboard (Section 5.7).
3. Position the notebook so the rear panel faces you.
4. Remove the two black TM2.5 × 7.0 screws that secure the switch cover to the base enclosure (Figure 5-16).

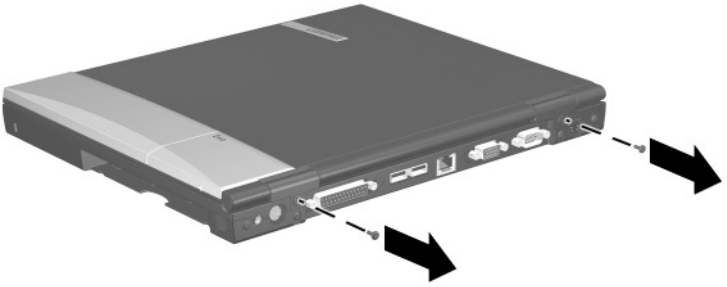


Figure 5-16. Removing the Switch Cover Screws

5. Position the notebook so the front faces you.
6. Open the notebook as far as it will open.
7. Lift the switch cover up ❶, slide it forward ❷, and rest it on the top cover (Figure 5-17).
8. Disconnect the left ❸ and right speaker cables ❹ from the system board.

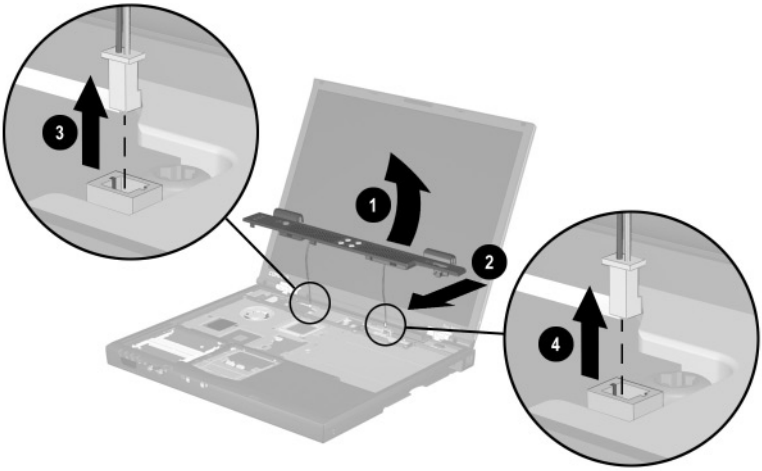


Figure 5-17. Removing the Switch Cover

9. Remove the switch cover.

Reverse the preceding procedure to replace the switch cover.

5.11 Display

Display Spare Part Number Information	
For use with Evo Notebook N610c models only:	
14.1-inch, SXGA+, CTFT	291261-001
14.1-inch, XGA, CTFT	291262-001
For use with Evo Notebook N600c models only:	
14.1-inch, SXGA+, CTFT	241433-001
14.1-inch, XGA, CTFT	241434-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the keyboard (Section 5.7).
3. Remove the switch cover (Section 5.10).
4. Position the display so that it is vertical.

5. Remove the TM2.5 × 7.0 screw that secures the display ground cable to the top cover ❶ (Figure 5-18).

The procedure described below for disconnecting the display video cable ❷ applies only to Evo Notebook N610c models. The procedure for disconnecting the display video cable on Evo Notebook N600c models is described on the following page.

6. Disconnect the display video ❷ and inverter cables ❸ from the system board.

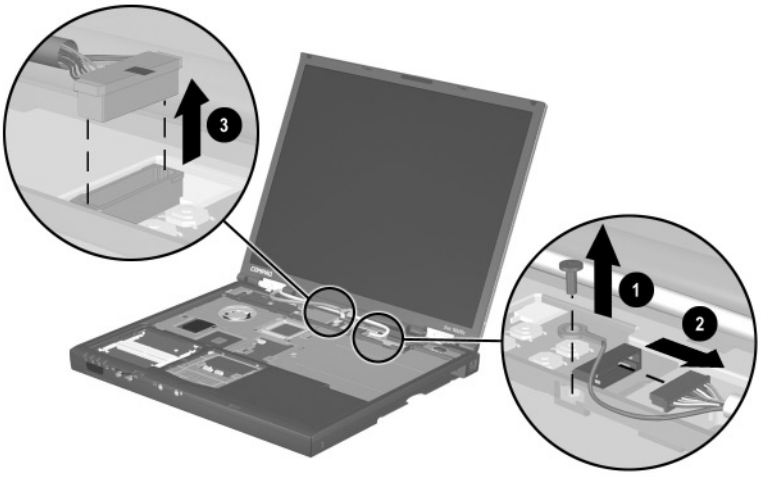


Figure 5-18. Disconnecting the Display Cables

The display video cable on Compaq Evo Notebook N600c models is located on the left side of the system board. Refer to Figure 5-19 for information on disconnecting the display video cable on Evo Notebook N600c models.

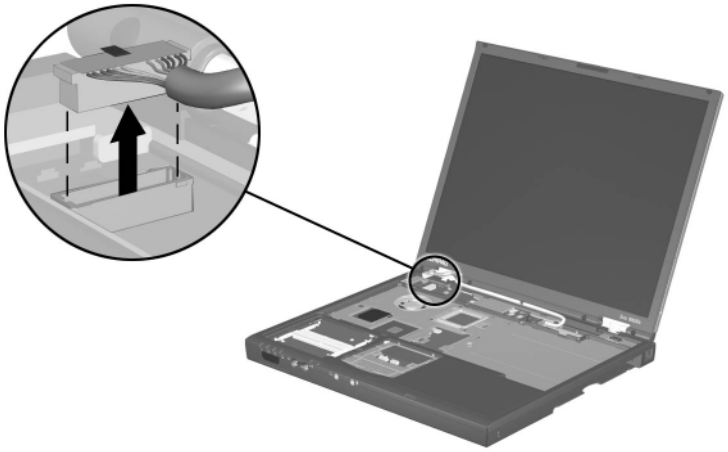


Figure 5-19. Disconnecting the Display Video Cable on an Evo Notebook N600c

7. Partially close the notebook.
8. Position the notebook so the rear panel faces you.

9. Remove the two TM2.5 × 7.0 screws ❶ that secure the display to the base enclosure (Figure 5-20).
10. Lift the display straight up and remove it from the base enclosure ❷.

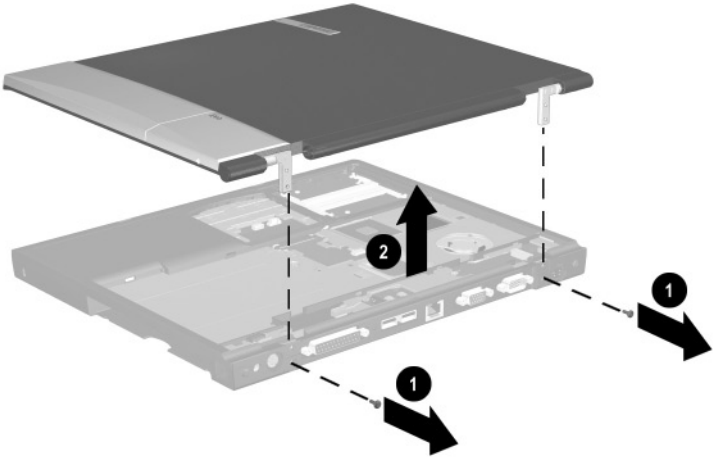


Figure 5-20. Removing the Display

Reverse the preceding procedure to replace the display.

5.12 Top Cover

Top Cover Spare Part Number Information	
For use with Evo Notebook N610c models only	291264-001
For use with Evo Notebook N600c models only	241436-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. Keyboard (Section 5.7)
   b. Memory expansion compartment cover (Section 5.8)
   c. Switch cover (Section 5.10)
   d. Display (Section 5.11)
2. Turn the notebook bottom side up with the rear panel facing you.

3. Remove the following screws:
   - ❏ Three TM2.5 × 7.0 screws from the front edge of the base enclosure ❶ (Figure 5-21)
   - ❏ Two TM2.5 × 5.0 screws from the hard drive bay ❷
   - ❏ Two TM2.5 × 5.0 screws from the Media Bay ❸
   - ❏ **Evo Notebook N600c models**—Two TM2.5 × 5.0 screws from the rear panel ❹, or
   - ❏ **Evo Notebook N610c models**—Two TM2.5 × 7.0 screws from the rear panel ❹

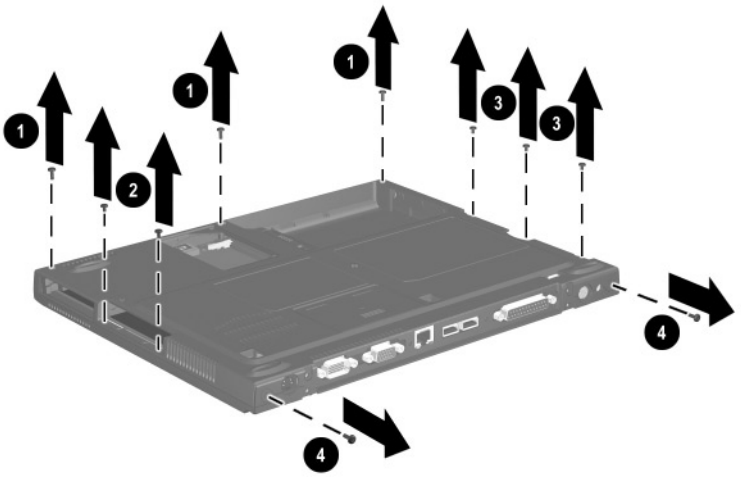


Figure 5-21. Removing the Top Cover Screws

4. Turn the notebook top side up with the rear panel facing you.
5. **For Evo Notebook N610c models only**—Remove the PM2.0 × 4.0 ❶ and TM2.5 × 7.0 ❷ screws that secure the top cover to the base enclosure (Figure 5-22).
6. Insert a flat blade screwdriver into the slot ❸ on the rear edge of the top cover to disengage the cover from the I/O bracket.
7. Lift the top cover straight up and remove it from the base enclosure ❹.

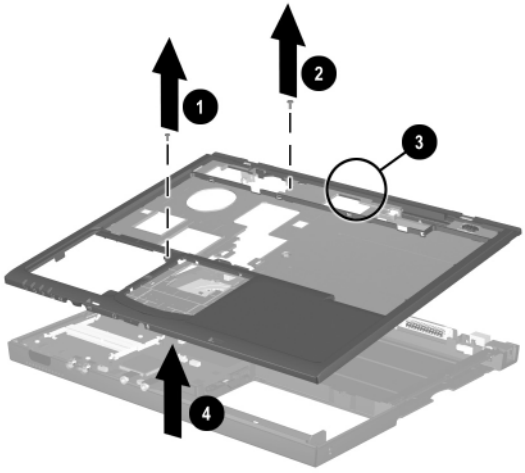


Figure 5-22. Removing the Top Cover

Reverse the preceding procedure to replace the top cover.

5.13 System Board

System Board Spare Part Number Information	
For use with Evo Notebook N610c models only	291581-001
For use with Evo Notebook N600c models only:	
Mobile Intel Pentium III processor 1.066 GHz-M	241430-001
Mobile Intel Pentium III processor 866 MHz-M	241432-001

Make sure the PC Card eject buttons are fully depressed and there are no PC Card devices or space savers inserted into the PC Card slots before removing the system board.

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
2. Position the notebook so the rear panel faces you.

Steps 3 through 5 apply only to Evo Notebook N600c models.

3. Remove the tape that secures the modem cable to the system board ❶ (Figure 5-23).
4. Remove the two 7.0-mm bushing guides ❷ on either side of the docking connector that secure the system board to the base enclosure.
5. Remove the three TM2.5 × 5.0 screws ❸ that secure the system board to the base enclosure.

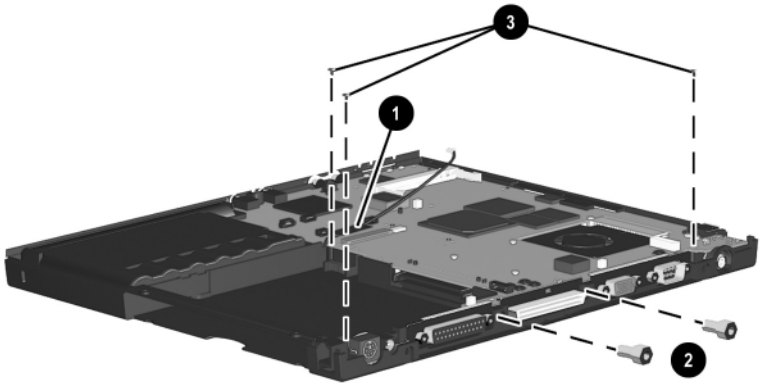


Figure 5-23. Removing the System Board Screws and Bushing Guides on an Evo Notebook N600c

Steps 6 and 7 apply only to Evo Notebook N610c models.

6. Remove the two TM2.5 × 5.0 screws ❶ that secure the system board to the base enclosure through the rear panel (Figure 5-24).
7. Remove the three TM2.5 × 5.0 screws ❷ that secure the top cover to the base enclosure.

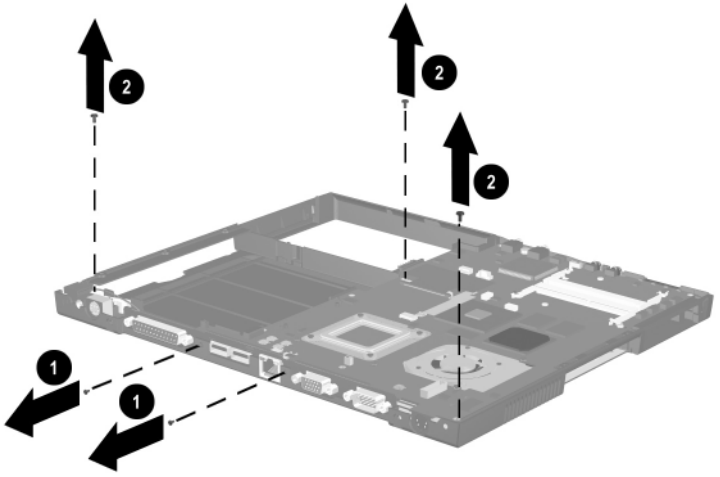


Figure 5-24. Removing the System Board Screws on an Evo Notebook N610c

When removing the system board, do **not** remove the following screws (Figure 5-25):

- Four screws ❶ that secure the processor bracket to the system board
- Two screws ❷ that secure the heat sink to the system board
- Two screws ❸ that secure the hard drive connector the system board
- Four screws ❹ that secure the PC Card assembly to the system board

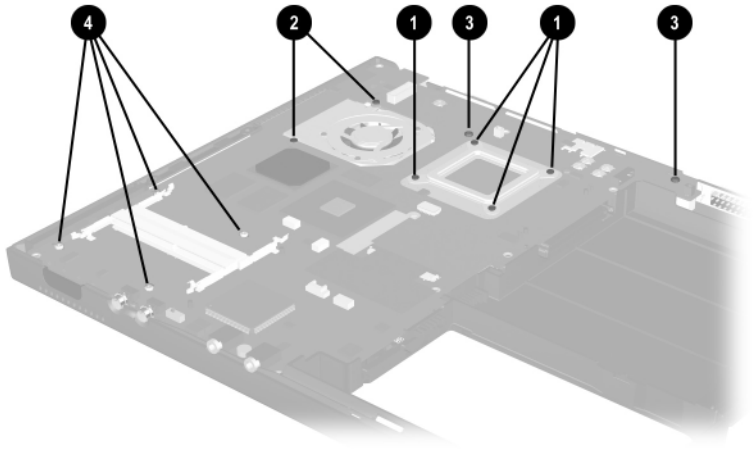


Figure 5-25. Do Not Remove These Screws

8. Use the Media Bay connector ❶ to lift the right side of the system board ❷ until it rests at a 45-degree angle (Figure 5-26).
9. Slide the system board out of the base enclosure at a 45-degree angle ❸.

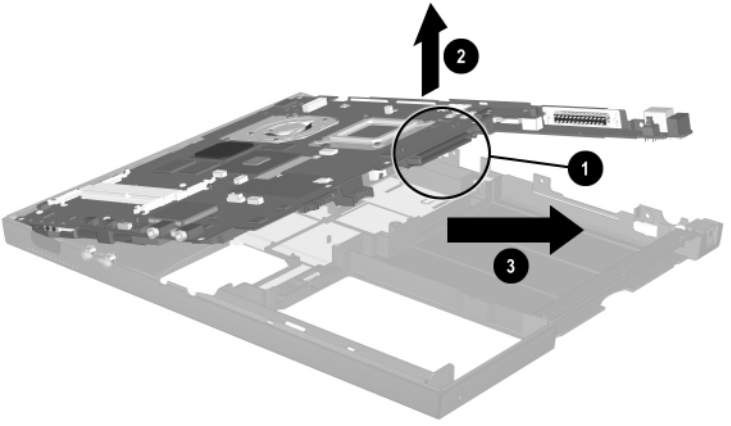


Figure 5-26. Removing the System Board

Figure 5-28 applies only to Evo Notebook N600c models. When handling the system board, be careful not to put stress on the I/O interface board ❶. The narrow profile of this board makes it susceptible to being damaged when mishandled. Do not remove the screw ❷ that secures the I/O interface board to the system board or attempt to remove the I/O interface board. The I/O board should only be removed and handled using the Media Bay connector, as illustrated in Figure 5-27.

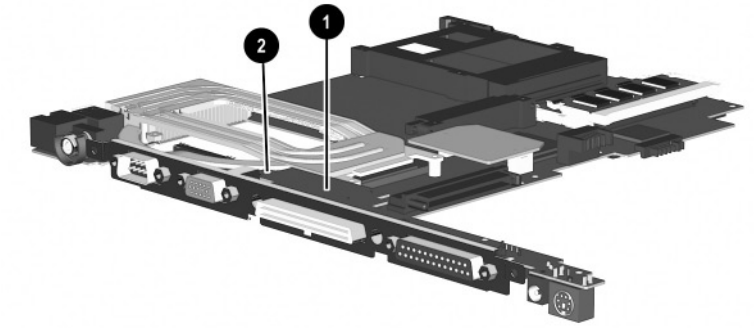


Figure 5-28. Proper Handling of the I/O Interface Board on an Evo Notebook N600c

Figure 5-29 applies only to Evo Notebook N610c models. When handling the system board, be careful not to put stress on the I/O interface board ❶. The narrow profile of this board makes it susceptible to being damaged when mishandled. The I/O board should only be removed and handled using the Media Bay connector ❷.

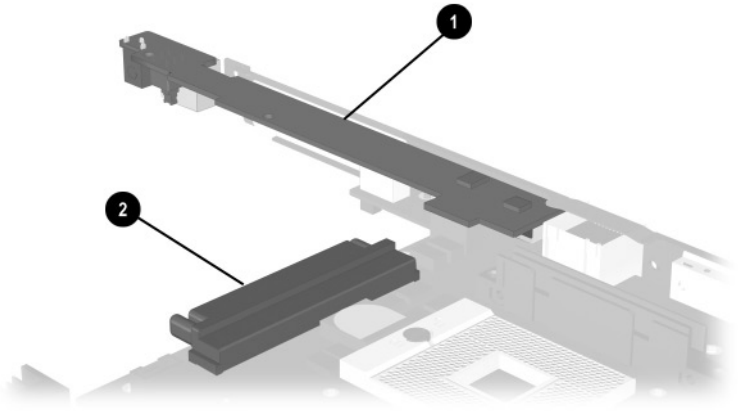


Figure 5-29. Proper Handling of the I/O Interface Board on an Evo Notebook N610c

Reverse the preceding procedure to replace the system board.

5.14 Fan

Fan Spare Part Number Information	
For use with Evo Notebook N610c models only	291266-001
For use with Evo Notebook N600c models only	255528-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
   h. System board (Section 5.13)
2. Turn the system board bottom side up with the rear panel facing you.

3. Disconnect the fan cable from the system board (Figure 5-30).

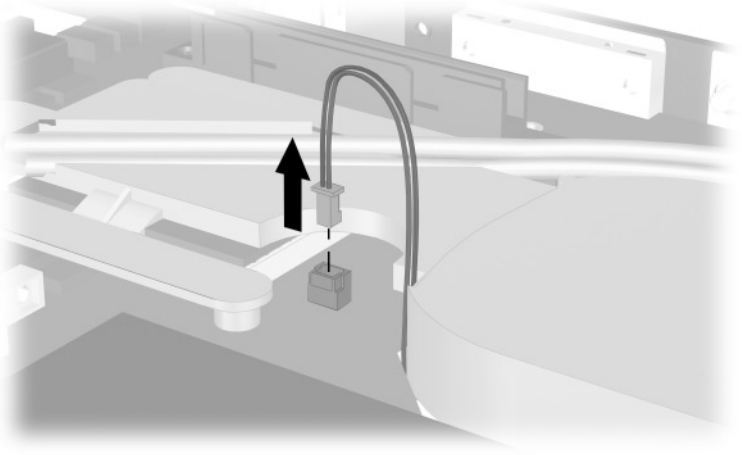


Figure 5-30. Disconnecting the Fan Cable

4. Turn the system board top side up with the rear panel facing you.

Steps 5 through 7 apply only to Evo Notebook N600c models.

5. Remove the PM2.0 × 4.0 screw ❶ and PM2.5 × 5.0 screw ❷ that secure the fan to the system board (Figure 5-31).
6. While holding the system board above the work surface, push the left side of the fan up ❸ from the bottom of the system board.
7. When the left edge of the fan has cleared the system board, slide the fan to the left ❹ and out of the heat sink.

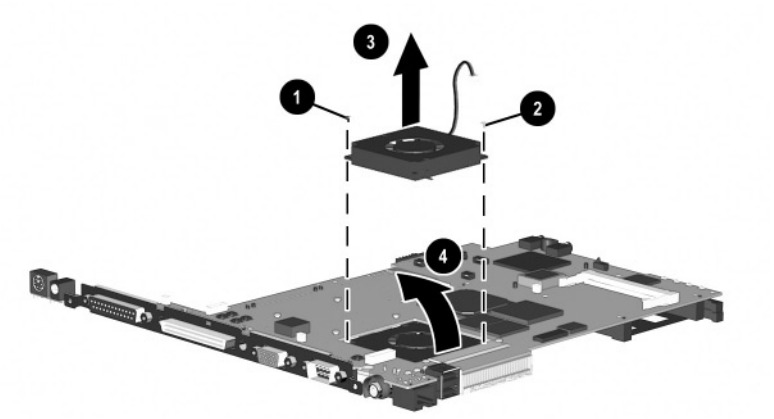


Figure 5-31. Removing the Fan on an Evo Notebook N600c

Steps 8 and 9 apply only to Evo Notebook N610c models.

8. Remove the three PM2.0 × 4.0 screws ❶ that secure the fan to the heat sink (Figure 5-32).
9. Lift the fan out of the heat sink ❷.

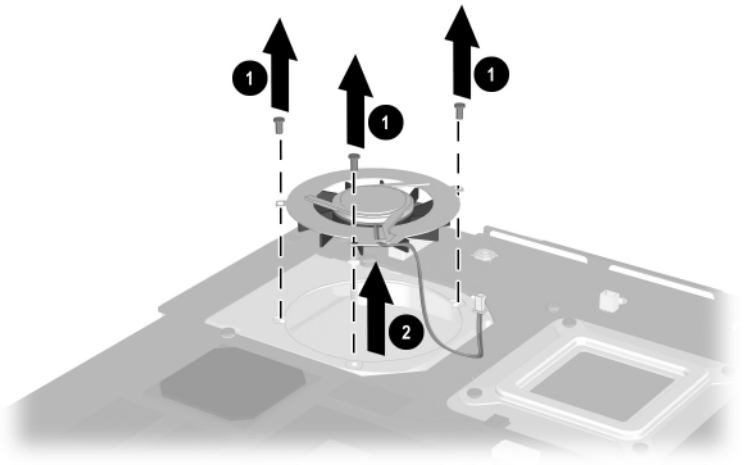


Figure 5-32. Removing the Fan on an Evo Notebook N610c

10. Remove the fan.

Reverse the preceding procedure to replace the fan.

5.15 Heat Sink

This section applies only to Evo Notebook N610c models.

Heat Sink Spare Part Number Information	
Heat sink	303103-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
   h. System board (Section 5.13)

2. Turn the system board bottom side up with the rear panel facing you.
3. Disconnect the fan cable from the system board (Figure 5-33).

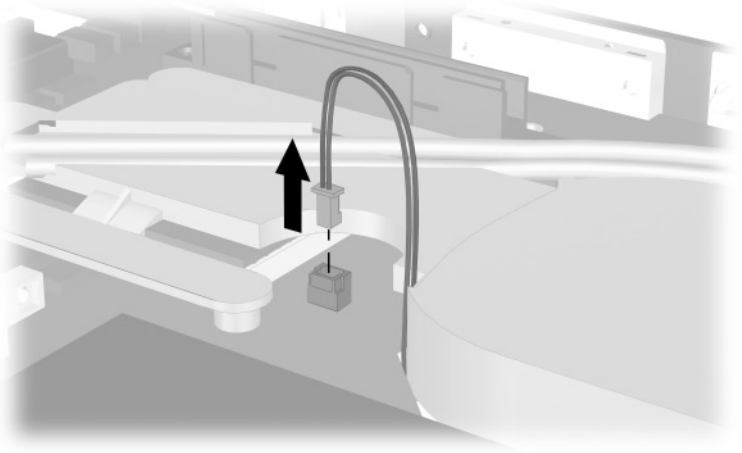


Figure 5-33. Disconnecting the Fan Cable

4. Turn the system board top side up with the rear panel facing you.
5. Remove the six PM2.0 × 4.0 screws ❶ that secure the processor mounting bracket and heat sink to the system board (Figure 5-34).
6. Remove the processor mounting bracket ❷.

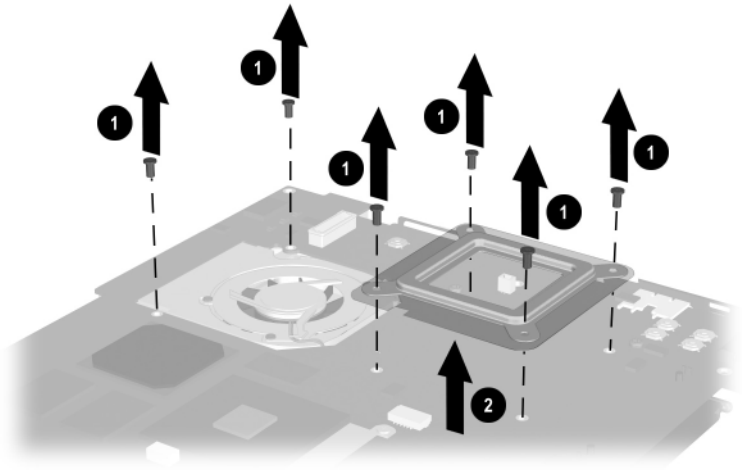


Figure 5-34. Removing the Heat Sink Screws

7. Lift the system board straight up ❶. The heat sink ❷ will remain resting on the work surface (Figure 5-35).

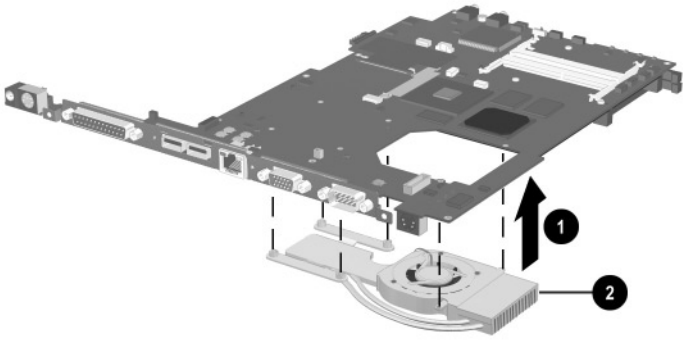


Figure 5-35. Removing the Heat Sink

Reverse the preceding procedure to replace the heat sink.

5.16 Processor

This section applies only to Evo Notebook N610c models.

Processor Spare Part Number Information	
Mobile Intel Pentium 4 2.0 GHz	303282-001
Mobile Intel Pentium 4 1.9 GHz	291580-001
Mobile Intel Pentium 4 1.8 GHz	291269-001
Mobile Intel Pentium 4 1.7 GHz	291268-001
Mobile Intel Pentium 4 1.6 GHz	291267-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
   h. System board (Section 5.13)
   i. Heat sink (Section 5.15)
2. Turn the system board bottom side up with the rear panel facing you.

3. Insert the tip of a flat-blade screwdriver into the slot on the processor locking screw.
4. Turn the screwdriver counterclockwise ❶ to release the processor (Figure 5-36).
5. Remove the processor from the socket on the system board ❷.

When installing the processor, make sure the gold triangle ❸ is in the lower right corner.

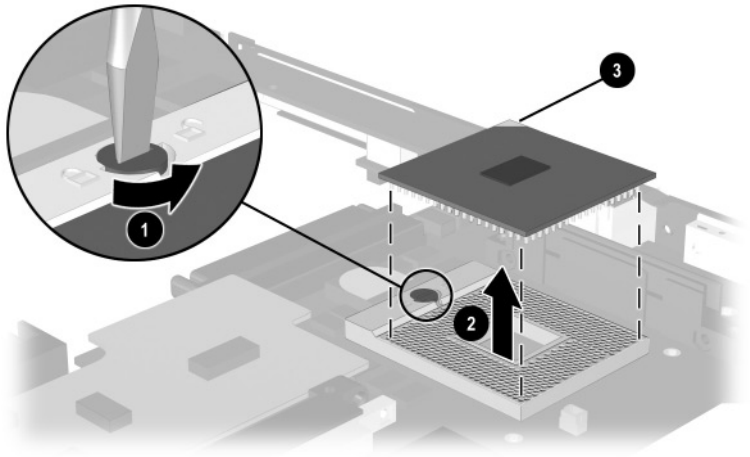


Figure 5-36. Removing the Processor

Reverse the preceding procedure to replace the processor.

5.17 DC-DC Converter Board

DC-DC Converter Board Spare Part Number Information	
For use with Evo Notebook N610c models only	291263-001
For use with Evo Notebook N600c models only	241435-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
   h. System board (Section 5.13)
2. Turn the system board bottom side up with the rear panel facing you.

3. Lift the left and right edges of the DC-DC converter board to disconnect the board from the system board (Figure 5-37).

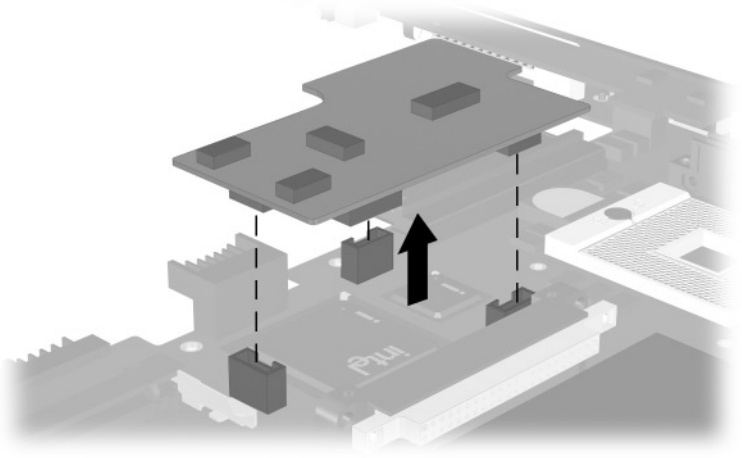


Figure 5-37. Removing the DC-DC Converter Board

4. Remove the DC-DC converter board.

Reverse the preceding procedure to replace the DC-DC converter board.

5.18 Modem Cable

The modem cable is spared with the base enclosure. Modem cables are also included in the Miscellaneous Plastics Kit (spare part number 241439-001).

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:
   a. RTC battery (Section 5.6)
   b. Keyboard (Section 5.7)
   c. Memory expansion compartment cover (Section 5.8)
   d. TouchPad (Section 5.9)
   e. Switch cover (Section 5.10)
   f. Display (Section 5.11)
   g. Top cover (Section 5.12)
   h. System board (Section 5.13)
2. Position the base enclosure with the rear panel facing forward.

3. Lift the modem connector out of the base enclosure ❶ and disengage the modem cable ❷ from the alignment clips and tabs in the base enclosure (Figure 5-38).

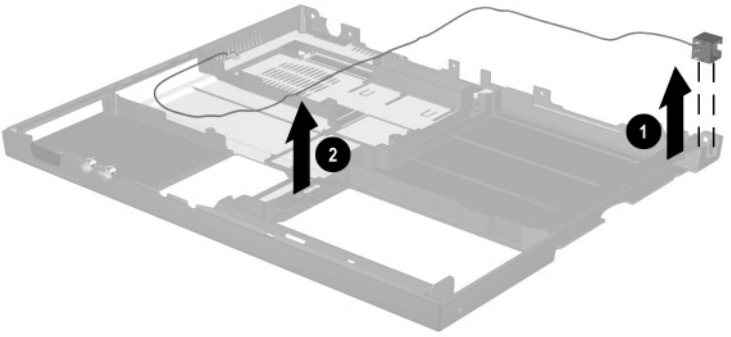


Figure 5-38. Removing the Modem Cable

4. Remove the modem cable.

When installing the modem cable, route the cable along the path indicated in Figure 5-39.

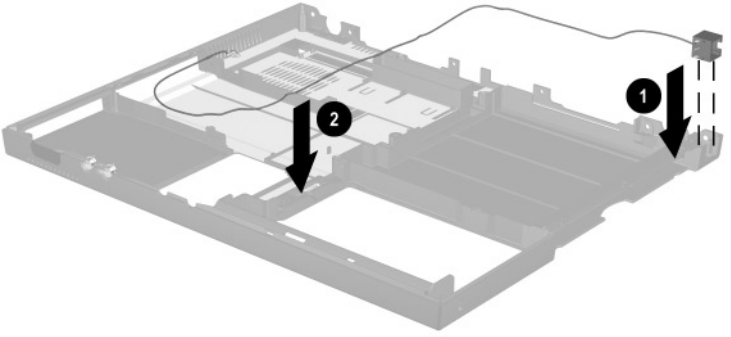


Figure 5-39. Routing the Modem Cable in the Base Enclosure

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Notebook

Dimensions		
Height	3.1 cm	1.2 in
Width	30.7 cm	12.1 in
Depth	25.0 cm	9.8 in
Weight		
With 8-cell battery pack and optical drive in Media Bay	2.5 kg	5.5 lb
With 8-cell battery pack and Media Bay weight saver	2.1 kg	4.8 lb
Stand-alone (battery) power requirements		
Nominal operating voltage (Li ion)	14.4 V	
Average operating power	15.8 W	
Peak operating power	38 W	
Power in Suspend	< 800 mW	
Power in Hibernation	< 100 mW	
AC adapter power requirements		
Rated input voltage	90 to 264 VAC (auto switching)	
Rated input current	< 60 W	
Rated frequency	47 to 63 Hz	

Table 6-1
Notebook *(Continued)*

Temperature		
Operating	10° C to 35° C	50° F to 95° F
Nonoperating	-20° C to 60° C	-4° F to 140° F
Relative humidity (noncondensing)		
Operating	10 to 90%	
Nonoperating	5 to 95%, 38.7° C/101.6° F maximum wetbulb	
Altitude (unpressurized)		
Operating	0 to 3,048 m	0 to 10,000 ft
Nonoperating	0 to 9,144 m	0 to 30,000 ft
Shock		
Operating	10 G for 11 ms, half sine	
Nonoperating	60 G for 11 ms, half sine	
Vibration		
Operating	0.5 G zero-to-peak, 10–500 Hz, 0.25-oct/min sweep rate	
Nonoperating	1.0 G zero-to-peak, 10–500 Hz, 0.25-oct/min sweep rate	

Applicable product safety standards specify thermal limits for plastic surfaces. The notebook operates well within this range of temperatures.

Table 6-2
14.1-inch XGA, TFT Display

Dimensions		
Height	21.40 cm	8.46 in
Depth	28.50 cm	11.22 in
Width	35.81 cm	14.10 in
Number of colors	Up to 16.8 million	
Contrast ratio	150:1	
Brightness	120 nits typical	
Pixel resolution		
Pitch	0.264 × 0.264 mm	
Format	1024 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Refresh	60 Hz	
Total power consumption	4.2 W	

Table 6-3
Hard Drives

	40.0 GB	30.0 GB	20.0 GB	15.0 GB
User capacity per drive[1]	40.0	30.0 GB	20.0 GB	15.0 GB
Drive height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Drive width	70.0 mm	70.0 mm	70.0 mm	70.0 mm
Interface type	ATA-5	ATA-5	ATA-5	ATA-4
Seek times (typical read, including setting)				
Single track	2.5 ms	2.5 ms	2.5 ms	2.5 ms
Average	12.0 ms	12.0 ms	12.0 ms	13.0 ms
Full stroke	23.0 ms	23.0 ms	23.0 ms	24.0 ms
User addressable sectors[3]	78,140,160	58,605,120	39,070,080	23,579,136
Logical configuration				
Cylinders	16,383	16,383	16,383	16,683
Heads	16	16	16	16
Sectors per track	63	63	63	63

[1]1 GB = 1,000,000,000 bytes.

[3]Actual drive specifications may differ slightly.

Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details.

Table 6-3
Hard Drives *(Continued)*

	40.0 GB	30.0 GB	20.0 GB	15.0 GB
Physical configuration				
Cylinders[3]	22,784	25,800	22,784	25,800
Heads	4	2	4	2
Sectors per track[3]	293 to 560	398 to 731	293 to 560	398 to 731
Bytes per sector	512	512	512	512
Buffer size[3]	2 MB	512 KB	512 KB	512 KB
Disk rotational speed	4200 rpm	4200 rpm	4200 rpm	4200 rpm
Transfer rate				
Interface max (MB/s)[2]	66.6	100	66.6	100
Media (Mb/s)[3]	109 to 203	109 to 203	109 to 203	109 to 203

[2]System capability may differ.

[3]Actual drive specifications may differ slightly.

Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details.

Table 6-4
Diskette Drive

Diskette size		3.5 in
Light	On system	
Height	12.7 mm	0.5 in
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	
Low density	80	
Read/write heads	2	
Average seek times		
Track-to-track (high/low)	3 to 6 ms	
Average (high/low)	94 to 174 ms	
Settling time	15 ms	
Latency average	100 ms	

Table 6-5
CD-ROM Drive

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/multisession) CD-Extra Video CD CD-WO (fixed packets only) CD-Bridge
Center hole diameter	1.5 cm .59 in
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
Cache buffer	128 KB
Data transfer rate	
Sustained, 16X	150 KB/s at 1X
Variable	1500 to 3600 KB/s (10X to 24X)
Normal PIO Mode 4 (single burst)	16.66 KB/s
Startup time	< 8 seconds
Stop time	< 4 seconds

Table 6-6
DVD-ROM Drive

Applicable disc	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio 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/multisession) CD-Bridge
Center hole diameter	1.5 cm .59 in
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 Vrms
Cache buffer	512 KB/sec
Data transfer rate	
Max 24X CD	3600 KB/s (150 KB/s at 1X CD rate)
Max 8X DVD	10,800 KB/s (1352 KB/s at 1X DVD rate)
Normal IO Mode 4 (single burst)	16.6 MB/s
Startup time	< 12 seconds
Stop time	< 3 seconds

Table 6-7
CD-RW Drive

Center hole diameter	.39 cm	.59 in
Disk diameter	12 cm, 8 cm	
Disk thickness	.12 cm	.47 in
Track pitch	.74 µm	
Access time		
Random	< 150 ms	
Full stroke	< 225 ms	
Audio output level	Line-out, 0.7 Vrms	
Cache buffer	128 KB/s minimum	
Data transfer rate		
Sustained, 16X	150 KB/s	
Sustained, 4X CD-RW	5,520 KB/s	
Normal PIO Mode 4 (single burst)	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-8
AC Adapter

Dimensions		
Height	2.79 cm	1.10 in
Depth	3.61 cm	1.42 in
Width	9.40 cm	3.70 in
Weight	.18 kg	.39 lb
Power supply (input)		
Operating voltage	90 to 260 VAC RMS nominal	
Operating current	1.3 A RMS	
Operating frequency range	47 to 63 Hz nominal	
Maximum transient	4/50 kV	

Table 6-9
8-cell, Li ion Battery Pack

Dimensions		
Length	125.80 cm	4.95 in
Width	88.00 cm	3.46 in
Depth	20.40 cm	0.80 in
Weight	0.43 kg	0.96 lb
Energy		
Voltage	14.8 V	
Amp-hour capacity	Minimum 3.7 Ah, typical 3.9 Ah	
Watt-hour capacity	Minimum 53.2 Ah, typical 56.1 Ah	
Temperature		
Operating	0 to 42° C	32 to 108° F
Nonoperating	0 to 60° C	32 to 140° F

Table 6-10
System DMA

Hardware DMA	System Function
DMA0	Available for audio
DMA1	Entertainment audio (default; alternate = DMA0, DMA3, none)
DMA2	Diskette drive
DMA3	ECP parallel port LPT1 (default; alternate = DMA0, none)
DMA4	DMA controller cascading (not available)
DMA5	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

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

Table 6-11
System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Keyboard controller
IRQ2	Cascaded
IRQ3	COM2
IRQ4	COM1
IRQ5	Audio (default)*
IRQ6	Diskette drive
IRQ7	Parallel port
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 drive and optical drive)
IRQ15	System use

✎ PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ 4.

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

Table 6-12
System I/O Addresses

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	Opti chipset configuration registers
025–03F	Unused
02E–02F	87334 “Super IO” configuration for CPU
040–05F	Counter/timer registers
044–05f	Unused
060	Keyboard controller
061	Port B
062–063	Unused
064	Keyboard controller
065–06F	Unused
070–071	NMI enable/real time clock
072–07F	Unused
080–08F	DMA page registers
090–091	Unused
092	Port A
093–09F	Unused
0A0–0A1	Interrupt controller no. 2

Table 6-12
System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
0A2–0BF	Unused
0C0–0DF	DMA controller no. 2
0E0–0EF	Unused
0F0–0F1	Coprocessor busy clear/reset
0F2–0FF	Unused
100–16F	Unused
170–177	Secondary fixed disk controller
178–1EF	Unused
1F0–1F7	Primary fixed disk controller
1F8–200	Unused
201	Joystick (decoded in ESS1688)
202–21F	Unused
220–22F	Entertainment audio
230–26D	Unused
26E–26	Unused
278–27F	Unused
280–2AB	Unused
2A0–2A7	Unused
2A8–2E7	Unused
2E8–2EF	Reserved serial port

Table 6-12
System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
2F0–2F7	Unused
2F8–2FF	Infrared port
300–31F	Unused
320–36F	Unused
370–377	Secondary diskette drive controller
378–37F	Parallel port (LPT1/default)
380–387	Unused
388–38B	FM synthesizer - OPL3
38C–3AF	Unused
3B0–3BB	VGA
3BC–3BF	Reserved (parallel port/no EPP support)
3C0–3DF	VGA
3E0–3E1	PC Card controller in CPU
3E2–3E3	Unused
3E8–3EF	Internal modem
3F0–3F7	“A” diskette controller
3F8–3FF	Serial port (COM1/default)
CF8–CFB	PCI configuration index register (PCIDIVO-1)
CFC–CFF	PCI configuration data register (PCIDIVO-1)

Table 6-13
System Memory Map

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

A

Connector Pin Assignments

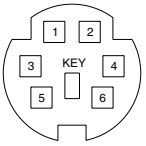
Table A-1
Stereo Speaker/Headphone

Pin	Signal	Pin	Signal
1	Audio out	2	Ground

Table A-2
Microphone

Pin	Signal	Pin	Signal
1	Audio in	2	Ground

Table A-3
Keyboard/Mouse

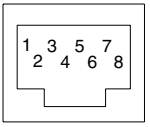


Pin	Signal	Pin	Signal
1	Keyboard/mouse data1	4	+5 VDC
2	Keyboard/mouse data2	5	Keyboard/mouse clock1
3	Ground	6	Keyboard/mouse clock2

Table A-4
RJ-11 Modem

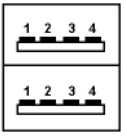
Pin	Signal	Pin	Signal
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

Table A-5
RJ-45 Network Interface



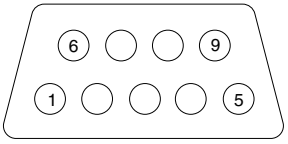
Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit -	6	Receive -
3	Receive +	7	Unused
4	Unused	8	Unused

Table A-6
Universal Serial Bus



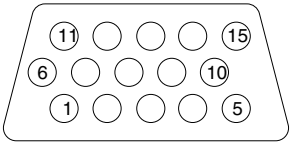
Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

Table A-7
Serial



Pin	Signal	Pin	Signal
1	Carrier detect	6	Data set ready
2	Receive data	7	Ready to send
3	Transmit data	8	Clear to send
4	Data terminal ready	9	Ring indicator
5	Signal ground		

Table A-8
External Monitor

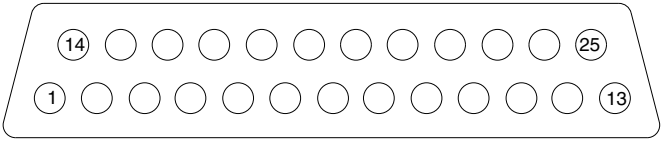


Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data

Table A-8
External Monitor

5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC2B clock
8	Ground analog		

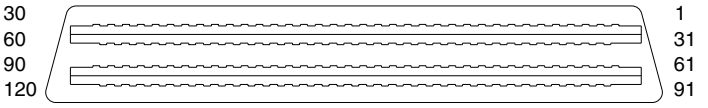
Table A-9
Parallel



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 line feed*
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

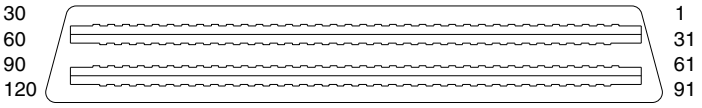
*Signal is active low.

Table A-10
Docking



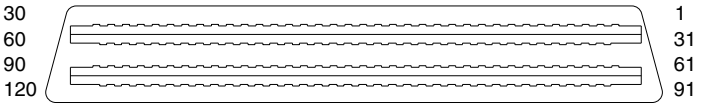
Pin	Signal	Pin	Signal
1	EBOXL	16	RDATA
2	AGND	17	TRK0
3	EBOXS1	18	WDATA
4	RED	19	WGATE
5	AGND	20	STEP
6	GREEN	21	DIR
7	AGRD	22	POWER ON
8	BLUE	23	SYS RESET
9	AGND	24	GND
10	VSYNC	25	DSKCHG
11	HSYNC	26	+5 V (VDD)
12	DDC DAT	27	AUGND
13	DDC CLK	28	XA2/L IN
14	GND	29	XA3/R IN
15	INDEX	30	MID0/MIC IN

Table A-10
Docking *(Continued)*



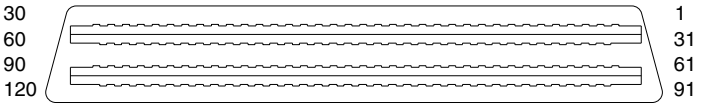
Pin	Signal	Pin	Signal
31	AUGND	46	SRDY
32	XA0/L OUT	47	EBOXS1/GND
33	XSD/MIC SN	48	RI1 EX
34	XA1/R OUT	49	GND
35	GND	50	SLCT LD0
36	GND	51	PE LD1
37	EXPCLK2	52	ACK LD2
38	+3.3 V	53	BUSY LD3
39	EXPCLK0	54	GND
40	+5 V (8051VCC)	55	STRB LD4
41	EXPLCK	56	ALF LD5
42	EBOXS2	57	INIT LD6
43	GND	58	SLCTIN LD7
44	EBOXL	59	GND
45	EBOXL/GND	60	PDATA0 LD8

Table A-10
Docking *(Continued)*



Pin	Signal	Pin	Signal
61	PDATA1 LD9	76	DRT1 LIIC DAT
62	PDATA2 LD10	77	DSR1 EX
63	PDATA3 LD11	78	DCD1 EX
64	GND	79	12C DATA
65	PDATA4 LD12	80	GND
66	PDATA5 LD13	81	12C CLK
67	PDATA6 LD14	82	GND
68	PDATA7 LD 15	83	HDSEL
69	GND	84	GND
70	ERROR LCLK	85	WPROT
71	RXD1 LVREQ	86	EBOXS2/GND
72	TXD1 LCREQ	87	ERDY
73	RTS1 LEN	88	EBOXL/GND
74	GND	89	FLUSHREQ
75	CTS1 LIIC CLK	90	MEMACK

Table A-10
Docking *(Continued)*



Pin	Signal	Pin	Signal
91	PS2 VCC	106	GND
92	SERIRQ	107	AD[15]
93	PS2 CLK	108	AD[13]
94	EXPREQ	109	AD[11]
95	AD[29]	110	AD[09]
96	AD[31]	111	GND
97	AD[30]	112	AD[06]
98	AD[28]	113	AD[04]
99	AD[26]	114	AD[02]
100	GND	115	AD[00]
101	AD[24]	116	GND
102	AD[22]	117	FRAME
103	AD[20]	118	TRDY
104	AD[18]	119	STOP
105	AD[16]	120	PAR

B

Power Cord Set Requirements

3-Conductor Power Cord Set

The wide range input feature of the notebook permits it to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

The power cord set received with the notebook meets the requirements for use in the country where the equipment is purchased.

Power cord sets for use in other countries must meet the requirements of the country where the notebook is used. For more information on power cord set requirements, contact a Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord set must be at least 1.5 m (5.00 feet) and a maximum of 2.0 m (6.50 feet).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord set must have a minimum current capacity of 10 amperes and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with the appliance inlet on the back of the notebook.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

Country	Accredited Agency	Applicable Note Number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1

3-Conductor Power Cord Set Requirements

Country	Accredited Agency	Applicable Note Number
United Kingdom	BSI	1
United States	UL	2

Notes

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. The power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

C

Screw Listing

This appendix provides specification and reference information for the screws used in the notebook. All screws listed in this appendix are available in the Miscellaneous Screw Kit, spare part number 241440-001.

Table C-1
Phillips Metric 2.5 × 2.5 Screw

	Color	Qty	Length	Thread	Head Width
	Black	1	2.5 mm	2.5 mm	5.0 mm

Where used:

One screw that secures the hard drive to the base enclosure (documented in Section 5.3)

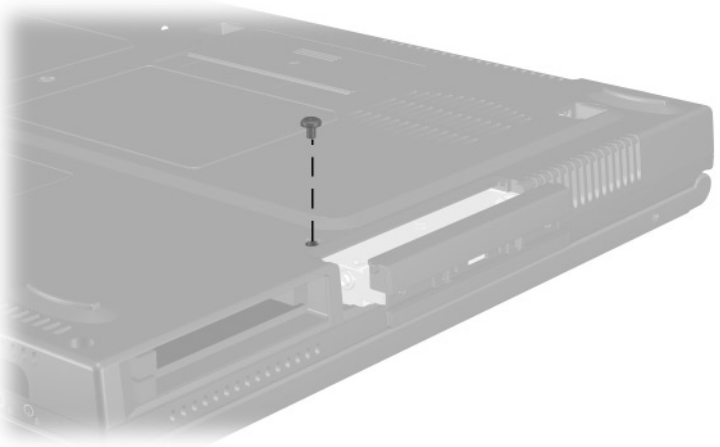


Figure C-1. PM2.5 × 2.5 Screw Location

Table C-2
Phillips Metric 1.5 × 3.5 Screw

	Color	Qty	Length	Thread	Head Width
	Black	2	1.5 mm	3.5 mm	3.0 mm

Where used:

Two screws that secure the hard drive bezel to the hard drive (documented in Section 5.3)

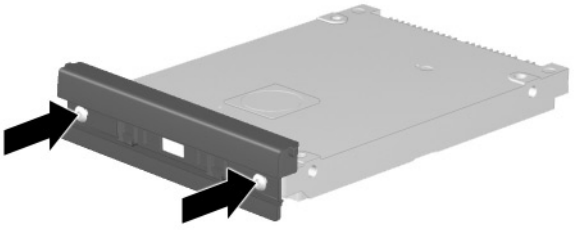


Figure C-2. PM1.5 × 3.5 Screw Location

Table C-3
Phillips Metric 2.5 × 5.0 Screw

	Color	Qty	Length	Thread	Head Width
	Black	3	5.0 mm	2.5 mm	4.5 mm

Where used:

Evo Notebook N600c models—Two screws that secure the memory expansion compartment cover to the base enclosure

Evo Notebook N610c models—Two screws that secure the mini PCI compartment cover to the base enclosure (documented in Section 5.5)

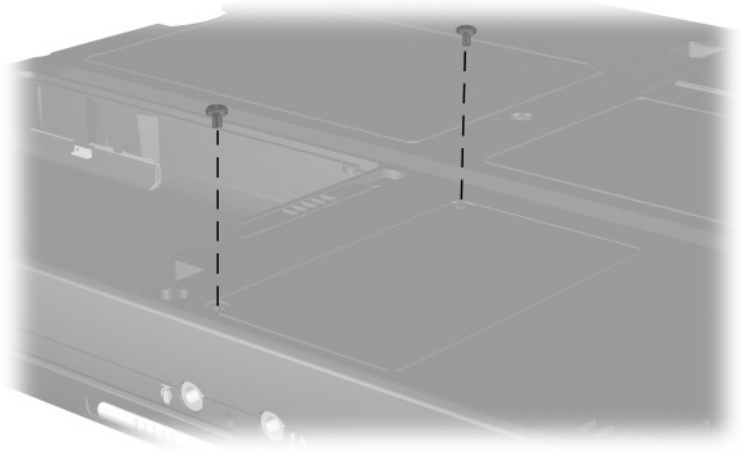


Figure C-3. PM2.5 × 5.5 Screw Location

Table C-3
Phillips Metric 2.5 × 5.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	3	5.0 mm	2.5 mm	4.5 mm

Where used:

Evo Notebook N610c models—One screw that secures the fan to the heat sink (documented in Section 5.14)

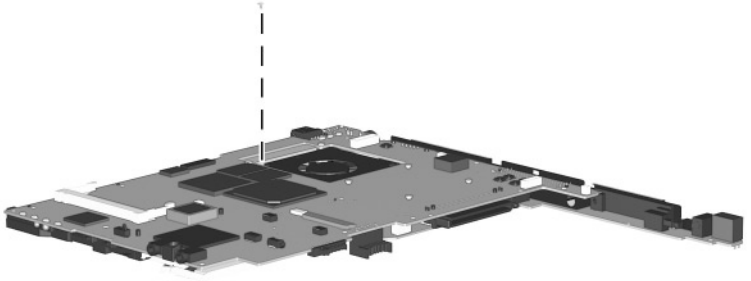


Figure C-4. PM2.5 × 5.5 Screw Location (Continued)

Table C-4
Torx T8 Metric 2.5 × 7.0 Screw

	Color	Qty	Length	Thread	Head Width
	Black	12	7.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the keyboard to the base enclosure (documented in Section 5.7)

❷ Three screws that secure the top cover to the base enclosure (documented in Section 5.12)

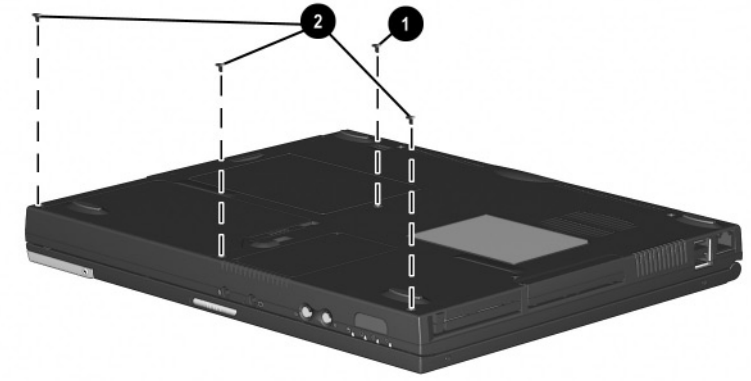


Figure C-5. TM2.5 × 7.0 Screw Locations

Table C-4
Torx T8 Metric 2.5 × 7.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	12	7.0 mm	2.5 mm	5.0 mm

Where used:

❶ Two screws that secure the switch cover to the base enclosure (documented in Section 5.10)

❷ Two screws that secure the display to the base enclosure (documented in Section 5.11)

❸ **Evo Notebook N610c models**—Two screws that secure the top cover to the base enclosure (documented in Section 5.12)

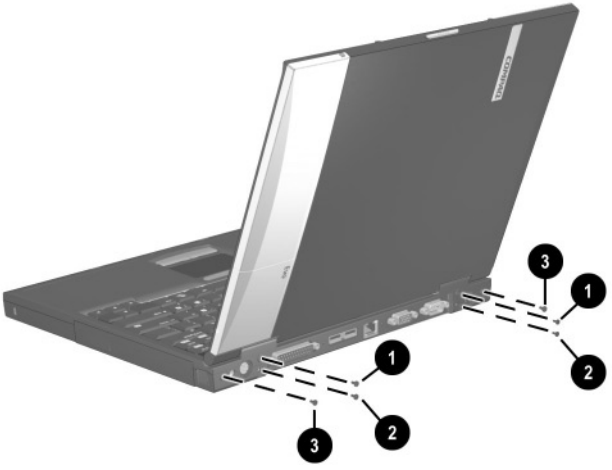


Figure C-6. TM2.5 × 7.0 Screw Locations (Continued)

Table C-4
Torx T8 Metric 2.5 × 7.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	12	7.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the display ground cable to the base enclosure (documented in Section 5.11)

❷ **Evo Notebook N610c models**—One screw that secures the top cover to the base enclosure (documented in Section 5.12)

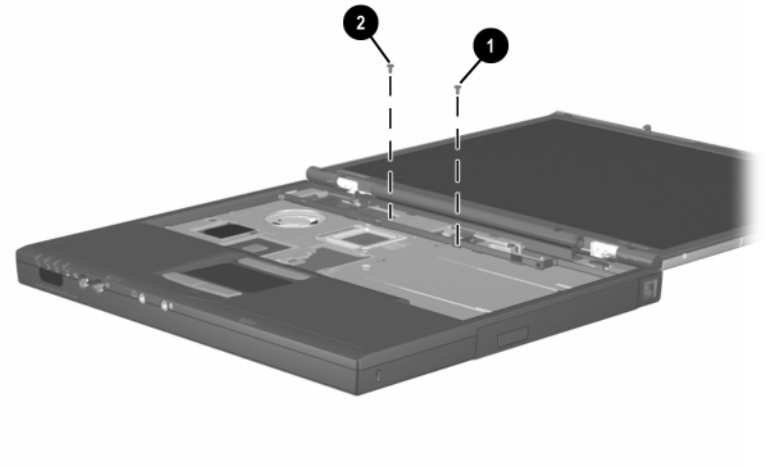


Figure C-7. TM2.5 × 7.0 Screw Locations (Continued)

Table C-5
Torx T8 Metric 2.5 × 5.0 Screw

	Color	Qty	Length	Thread	Head Width
	Black	12	5.0 mm	2.5 mm	4.0 mm

Where used:

❶ Two screws that secure the top cover to the base enclosure in the hard drive bay (documented in Section 5.12)

❷ Three screws that secure the top cover to the base enclosure in the Media Bay (documented in Section 5.12)

❸ **Evo Notebook N600c models**—Two screws that secure the top cover to the base enclosure (documented in Section 5.12)

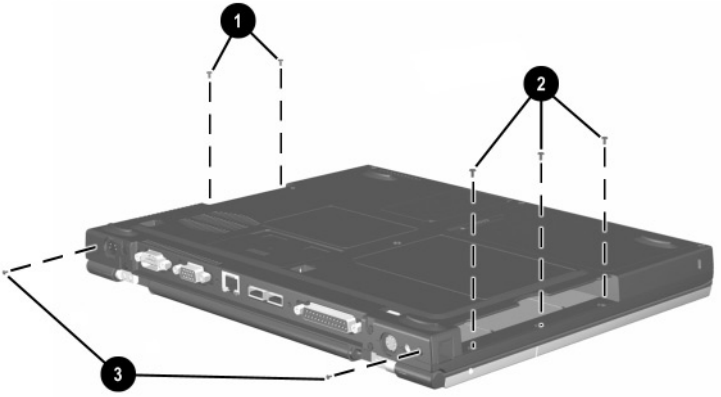


Figure C-8. TM2.5 × 5.0 Screw Locations

Table C-5
Torx T8 M2.5 × 5.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	12	5.0 mm	2.5 mm	4.0 mm

Where used:

❶ Three screws that secure the system board to the base enclosure (documented in Section 5.13)

❷ **Evo Notebook N610c models only**—Two screws that secure the system board to the base enclosure through the rear panel (documented in Section 5.13)

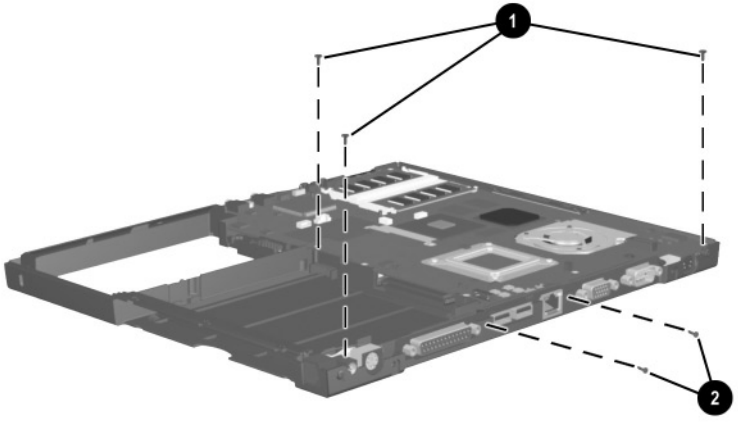
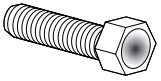


Figure C-9. TM2.5 × 5.0 Screw Locations (Continued)

Table C-6
7.0 mm × 20.0 mm Bushing Guide



Color	Qty	Length	Thread	Head Width
Silver	2	20 mm	n/a	7.0 mm

Where used:

Evo Notebook N600c models only—Two bushing guides that secure the system board to the base enclosure (documented in Section 5.13)

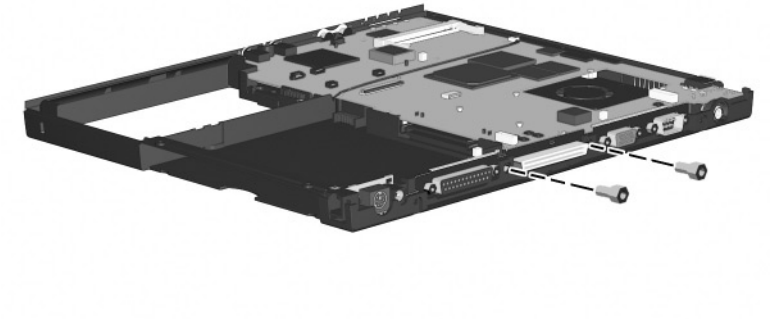


Figure C-10. 7.0 × 20.0 Bushing Guide Location

Table C-7
Phillips Metric 2.0 × 4.0 Screw

	Color	Qty	Length	Thread	Head Width
	Black	11	4.0 mm	2.0 mm	3.5 mm

Where used:

Evo Notebook N610c models only—One screw that secures the top cover to the system board (documented in Section 5.12)

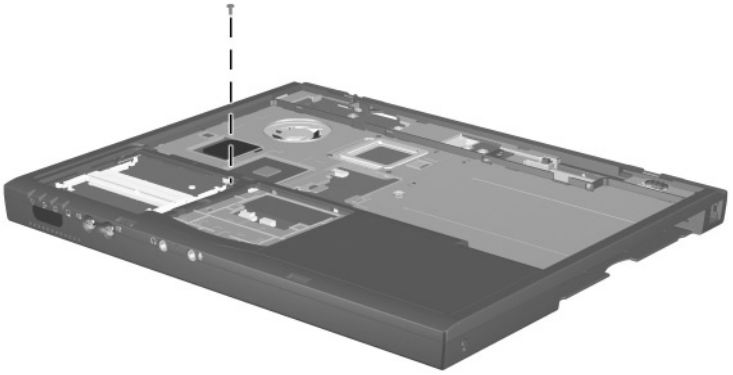


Figure C-11. PM2.0 × 4.0 Screw Location

Table C-7
Phillips Metric 2.0 × 4.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	11	4.0 mm	2.0 mm	3.5 mm

Where used:

Evo Notebook N600c models only—One screw that secures the fan to the system board (documented in Section 5.14)

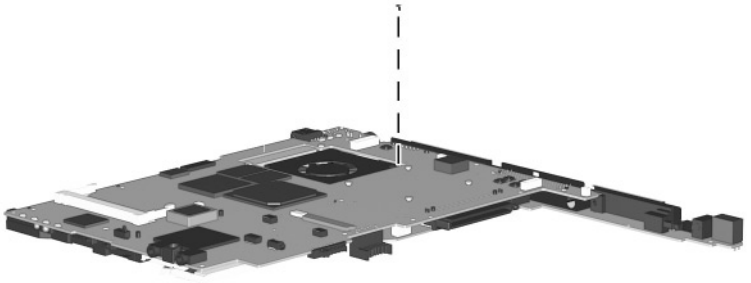


Figure C-12. PM2.0 × 4.0 Screw Location (Continued)

Table C-7
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	11	4.0 mm	2.0 mm	3.5 mm

Where used:

Evo Notebook N610c models only—Three screws that secure the fan to the system board (documented in Section 5.14)

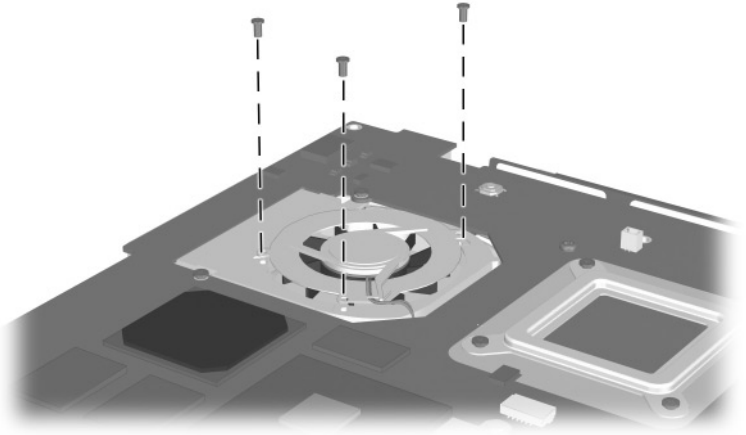


Figure C-13. PM2.0 × 4.0 Screw Location (Continued)

Table C-7
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty	Length	Thread	Head Width
	Black	11	4.0 mm	2.0 mm	3.5 mm

Where used:

Evo Notebook N610c models only—Six screws that secure the heat sink and processor mounting bracket to the system board (documented in Section 5.15)

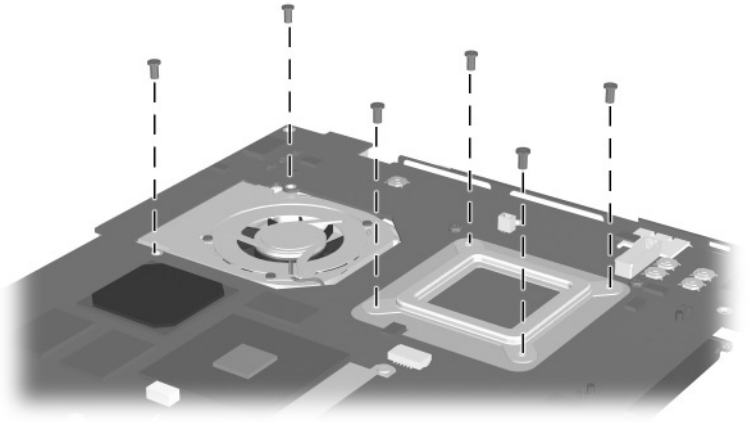


Figure C-14. PM2.0 × 4.0 Screw Location (Continued)

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