COMPAQ

Maintenance and Service Guide

Compaq Evo Notebook N1005 Series
Compaq Presario 900 Series Mobile PC

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

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Product Description

The Compaq Evo Notebook N1015 Series, Evo Notebook N1005 Series, and Presario 900 Series Mobile PCs offer advanced modularity, AMD Athlon and Duron processors, industry-leading Accelerated Graphics Port (AGP) implementation, and extensive multimedia support.

Figure 1-1. Compaq Evo Notebook N1015 Series, Evo Notebook N1005 Series, and Presario 900 Series Mobile PCs

1.1 Models

Computer models are shown in Tables 1-1 through 1-4.

Table 1-1
Compaq Evo Notebook N1015, Notebook N1005, and Presario 900 Model Naming Conventions

Key									
P900	P	220	P5	40	V	C	51	O	XXXXXX-XXX
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Key	Description	Options	
1	Brand/Series designator	E = Evo P = Presario	1015 = 1015 Series 1005 = 1005 Series 900 = 900 Series
2	Processor type	A = AMD Athlon XP+	D = AMD Duron
3	Processor speed	167 = 1.67 GHz 160 = 1.60 GHz 153 = 1.53 GHz 147 = 1.47 GHz	140 = 1.40 GHz 130 = 1.30 GHz 120 = 1.20 GHz
4	Display type/ size/resolution	X = XGA (1024 × 768)	5 = 15.x-inch 4 = 14.x-inch
5	Hard drive size	40 = 40 GB 30 = 30 GB	20 = 20 MB
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 7 = 802.11b wireless LAN	C = Modem/NIC combination card
8	RAM	51 = 512 MB	25 = 256 MB
9	Operating system	O = Windows XP Pro	E = Windows XP Home
10	SKU#		

Table 1-2
Compaq Evo Notebook N1015 Series Models

The following Evo Notebook N1015 Series model uses config. code **KSXZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 2-year warranty
- diskette drive

N1015	A	130	X4	20	D	C	12	E	
Germany			470046-613						

The following Evo Notebook N1015 Series model uses config. code **KSBZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 1-year warranty
- diskette drive

N1015	A	167	X5	40	W	C	25	O	
Asia Pacific			470046-548			Korea			470046-555
Australia/New Zealand			470049-166			Thailand			470046-547
India			470046-554						
N1015	A	167	X5	40	V	C	25	O	
Taiwan			470046-559						
N1015	A	153	X5	40	W	C	25	O	
French Canada			470045-404			United States			470045-397
N1015	A	153	X5	40	W	C	25	O	
United States			470046-091			includes Microsoft Office Pro software			
N1015	A	153	X4	30	V	C	25	O	
Asia Pacific			470046-549			Korea			470046-557
Australia/New Zealand			470046-545			Taiwan			470046-558
India			470046-552			Thailand			470046-546

Table 1-2
Compaq Evo Notebook N1015 Series Models *(Continued)*

N1015	A	153	X4	20	R	C	25	O	
Asia Pacific			470047-372						
N1015	A	140	X5	30	R	C	25	O	
Latin America			470050-296			United States			NEW - 0.2LA
N1015	A	140	X4	30	V	C	25	O	
French Canada			470045-406			United States			470045-407
N1015	A	140	X4	30	V	C	25	O	
United States			470046-093			includes Microsoft Office Pro software			
N1015	A	140	X4	30	D	7	25	O	
French Canada			470046-577			United States			470046-574
N1015	A	140	X4	30	D	7	25	O	
United States			470046-576			includes Microsoft Office SE software			
N1015	A	130	X4	20	W	C	25	O	
Japan			470049-213			Japan English			470049-215
N1015	A	130	X4	20	R	C	25	O	
Japan			470049-211			Japan English			470049-216
N1015	A	130	X4	20	R	C	12	O	
Japan			NEW - 0.3AP			Japan (English)			NEW - 0.3AP
N1015	A	130	X4	20	R	C	12	O	
Japan			NEW - 0.4AP			Japan (English)			NEW - 0.4AP

Table 1-2
Compaq Evo Notebook N1015 Series Models *(Continued)*

N1015	A	130	X4	20	D	C	12	E	
Belgium			470046-581			Norway			470046-591
Czech Republic			470046-582			Portugal			470046-592
Denmark			470046-583			Russia			470046-600
European International			470046-584			Saudi Arabia			470046-580
						Slovenia			470046-602
France			470046-585			Spain			470046-603
Greece/Poland			470046-586			Sweden/Finland			470046-605
Hungary			470046-587			Switzerland			470046-607
Israel			470046-588			Turkey			470046-611
Italy			470046-589			United Kingdom			470046-612
The Netherlands			470046-590						
N1015	A	120	X4	20	D	C	25	O	
Latin America			NEW - 0.4LA			United States			NEW - 0.4LA
N1015	A	120	X4	20	D	C	12	E	
Latin America			NEW - 0.3LA			United States			NEW - 0.3LA
N1015	A	120	X3	20	R	C	25	O	
Asia Pacific			470049-163			India			470049-164
Australia/New Zealand			470046-544			Hong Kong			470049-165
N1015	A	120	X3	20	R	C	12	O	
Asia Pacific			470046-550			Hong Kong			470046-561
India			470046-551						
N1015	A	120	X3	20	D	7	12	E	
United States			470046-575						
N1015	A	120	X3	20	D	C	25	O	
Latin America			470050-294			United States			NEW - 0.1LA

Table 1-2
Compaq Evo Notebook N1015 Series Models *(Continued)*

N1015	A	120	X3	20	D	C	12	E	
Latin America			470050-688						
N1015	A	120	X3	20	D	0	12	E	
French Canada United States			470046-578 470046-573			United States GEM/NAFTA			470047-371

Table 1-3
Compaq Evo Notebook N1005 Series Models

The following Evo Notebook N1005 Series models use config. code **KSXZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 2-year warranty
- diskette drive

N1005	A	153	X5	30	W	C	25	O	
Germany			470041-860						
N1005	A	147	X4	20	V	C	25	O	
Germany			470041-859						

Table 1-3
Compaq Evo Notebook N1005 Series Models *(Continued)*

The following Evo Notebook N1005 Series models use config. code **KSBZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 1-year warranty
- diskette drive

N1005	A	153	X5	30	W	C	25	O	
Belgium				470041-815		Norway			470041-835
Czech Republic				470041-818		Portugal			470041-838
Denmark				470041-819		Russian			470041-839
European International				470041-822		Saudi Arabia			470041-814
						Slovenia			470041-842
France				470041-823		Spain			470041-843
Greece/Poland				470041-826		Sweden/Finland			470041-846
Hungary				470041-827		Switzerland			470041-848
Israel				470041-830		Turkey			470041-851
Italy				470041-831		United Kingdom			470041-852
The Netherlands				470041-834					

N1005	A	147	X4	20	V	C	25	O	
Belgium				470041-816		Norway			470041-836
Czech Republic				470041-817		Portugal			470041-837
Denmark				470041-820		Russia			470041-840
European International				470041-821		Saudi Arabia			470041-813
						Slovenia			470041-841
France				470041-824		Spain			470041-844
Greece/Poland				470041-825		Sweden/Finland			470041-845
Hungary				470041-828		Switzerland			470041-849
Israel				470041-829		Turkey			470041-850
Italy				470041-832		United Kingdom			470041-853
The Netherlands				470041-833					

Table 1-4
Compaq Presario 900 Series Mobile PC Models

The following Presario 900 Series Mobile PC models use config. code **KSXZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 2-year warranty
- diskette drive

P920	A	167	X5	30	W	C	25	E	
Belgium				470045-618		Norway			NEW - 1.3EA
Germany				470045-624					
P917	A	153	X5	30	W	C	51	E	
Germany				470046-503					
P918	A	153	X5	30	W	C	25	E	
Belgium				470046-500		Germany			470047-369
P905	A	153	X5	30	W	C	25	E	
Belgium				470036-882		Norway			470037-078
Denmark				470036-883		Portugal			470037-517
Germany				470037-069		Spain			470037-521
Italy				470037-072		Sweden/Finland			470037-083
The Netherlands				470037-075					
P915	A	153	X4	30	W	C	25	E	
Belgium				470045-617		Norway			470045-632
Germany				470045-623					
P911	A	153	X4	20	W	C	25	E	
Germany				470046-502					
P904	A	153	X4	20	W	C	25	E	
Belgium				470038-081		Norway			470038-086
Denmark				470038-082		Portugal			470038-087
Germany				470038-083		Spain			470038-088
Italy				470038-084		Sweden/Finland			470038-089
The Netherlands				470038-085					

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P910	A	140	X4	20	V	C	12	E	
Belgium			470045-616			Norway			470045-633
Germany			470045-622						
P902	A	130	X5	30	W	C	25	E	
Belgium			470037-046			Norway			470037-080
Denmark			470037-068			Portugal			470037-516
Germany			470037-071			Spain			470037-520
Italy			470037-074			Sweden/Finland			470037-081
The Netherlands			470037-077						
P908	A	130	X4	20	W	C	25	E	
Belgium			470046-499			Norway			470050-687
P906	A	130	X4	20	W	C	25	E	
United States			470047-897						
P907	A	130	X4	20	V	C	25	E	
Germany			470046-501			Norway			470046-506
P901	A	120	X5	20	W	C	25	E	
Belgium			470037-045			Norway			470037-079
Denmark			470037-067			Portugal			470037-515
Germany			470037-070			Spain			470037-519
Italy			470037-073			Sweden/Finland			470037-082
The Netherlands			470037-076						

The following Presario 900 Series Mobile PC model uses config. code **KSB1** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 1-year warranty
- diskette drive

P900	A	147	X5	30	W	C	25	E	
United States			470037-278						

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

The following Presario 900 Series Mobile PC model uses config. code **KSB2** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 1-year warranty
- diskette drive

P904	A	130	X5	20	W	C	51	E	
United States			470038-539						

The following Presario 900 Series Mobile PC models use config. code **KSBZ** and features:

- TouchPad
- 8-cell, 4.0-Ah lithium ion (Li ion) battery pack
- 1-year warranty
- diskette drive

P920	A	167	X5	40	W	C	51	E	
Canada (English) French Canada			470046-484 470046-485			United States			470045-486
P922	A	167	X5	30	W	C	51	E	
The Netherlands Sweden/Finland			470048-558 470048-559			United Kingdom			470046-497
P955	A	167	X5	30	W	C	25	E	
Asia Pacific			470049-161			Korea			470048-552
P925	A	167	X5	30	W	C	25	O	
European International			470049-156						

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P920	A	167	X5	30	W	C	25	E	
Denmark			NEW - 0.7EA			The Netherlands			470048-557
European International			470045-495			Portugal			470048-427
France			470045-500			Russia			470045-514
Greece/Poland			470045-501			Saudi Arabia			470045-494
Hungary			470045-507			Spain			470048-428
Israel			470045-508			Sweden/Finland			470050-685
Italy			470048-563			Switzerland			470045-515
						United Kingdom			470045-520
P950	A	167	X4	30	W	C	25	E	
Hong Kong			470048-551						
P945	A	167	X4	30	V	C	25	E	
Taiwan			470048-554						
P918	A	160	X5	40	W	C	51	E	
United States			470045-488						
P915	A	153	X5	40	W	C	25	E	
Canada (English)			470046-483			United States			470046-485
French Canada			470046-486						
P914	A	153	X5	40	W	C	25	E	
France			470047-904						
P930	A	153	X5	30	W	C	25	E	
India			470047-673						
P918	A	153	X5	30	W	C	25	E	
European International			470047-903			Switzerland			470046-498
Greece/Poland			470046-494			United Kingdom			470047-367

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P905	A	153	X5	30	W	C	25	E	
European International			470037-133			Russia			470037-140
France			470037-134			Saudi Arabia			470037-127
Germany			470037-138			Switzerland			470037-345
Hungary			470040-102			Turkey			470037-151
Israel			470037-305			United Kingdom			470037-152
P917	A	153	X5	30	W	C	25	O	
European International			470049-153						
P906	A	153	X5	30	W	C	25	O	
European International			470039-301						
P912	A	153	X5	20	V	C	25	E	
The Netherlands			470048-555						
P920	A	153	X4	40	W	C	25	E	
Latin America			470045-489			Latin America NAFTA			470045-492
P943	A	153	X4	30	W	C	25	E	
Thailand			470050-686						
P915	A	153	X4	30	W	C	25	E	
Denmark			470048-564			Israel			470045-509
European International			470045-496			The Netherlands			470048-556
						Russia			470045-513
France			470045-499			Saudi Arabia			470045-493
Greece/Poland			470045-503			Sweden/Finland			470048-741
Hungary			470045-506			Switzerland			470045-516
						United Kingdom			470045-519
P907	A	153	X4	30	W	C	25	E	
Hong Kong			470045-539						

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P906	A	153	X4	30	W	C	25	E	
Korea				470037-514					
P905	A	153	X4	30	W	C	25	E	
Australia/New Zealand				470037-311					
P904	A	153	X4	30	W	C	25	E	
Taiwan				470045-531					
P916	A	153	X4	30	W	C	25	O	
French Canada				470046-482		United States			470046-475
P940	A	153	X4	30	V	C	25	E	
Taiwan				470048-553					
P927	A	153	X4	30	V	C	25	E	
India				470050-293					
P904	A	153	X4	20	W	C	25	E	
European International				470038-102		Russia			470038-106
France				470038-103		Saudi Arabia			470038-101
Germany				470038-104		Switzerland			470038-107
Israel				470038-105		Turkey			470038-108
						United Kingdom			470038-109
P903	A	153	X4	20	W	C	25	E	
Korea				470038-111					
P935	A	153	X4	20	V	C	25	E	
Hong Kong				470048-550					
P905	A	153	X4	20	V	C	25	E	
Asia Pacific				470037-313		Korea			470037-312
Australia/New Zealand				470037-310		Thailand			470037-314

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P925	A	153	X4	20	V	C	12	E	
People's Republic of China			470048-549						
P905	A	147	X5	30	W	C	25	E	
Brazil			470037-309			Latin America (NAFTA)			470037-288
Hong Kong			470037-289						
Latin America			470037-277			Taiwan			470037-315
P900	A	147	X5	30	W	C	25	E	
Canada English			470037-117			French Canada			470037-279
P912	A	140	X4	40	W	C	25	E	
United States			470045-487						
P905	A	140	X4	30	R	C	12	E	
Latin America			NEW - 0.2LA			Latin America (NAFTA)			NEW - 0.2LA
P910	A	140	X4	20	W	C	25	E	
Australia/New Zealand			470047-670						
P921	A	140	X4	20	V	C	12	E	
Asia Pacific			470050-291			Australia/New Zealand			470050-290
P910	A	140	X4	20	V	C	12	E	
Denmark			470048-565			Israel			470045-510
European International			470045-497			Portugal			470048-425
						Russia			470045-512
France			470045-498			Saudi Arabia			470045-350
Greece/Poland			470045-504			Switzerland			470045-351
Hungary			470045-505			United Kingdom			470045-518
P920	A	140	X4	20	R	C	12	E	
Asia Pacific			470047-672			Thailand			470047-671
India			470050-289						

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P923	A	140	X4	20	D	C	25	E	
Korea			470050-292						
P900	A	140	X3	30	R	C	12	E	
Latin America			470045-490			Latin America NAFTA			470045-491
P902	A	130	X5	30	W	C	25	E	
European International			470037-132			Russia			470037-141
						Saudi Arabia			470037-126
France			470037-135			Switzerland			470037-344
Germany			470037-137			Turkey			470037-150
Israel			470037-304			United Kingdom			470037-153
P902	A	130	X5	20	W	C	25	E	
France			470040-350						
P910	A	130	X4	30	W	C	25	E	
Canada (English)			470046-477			United States			470045-484
French Canada			470046-478						
P905	A	130	X4	30	V	C	25	E	
Canada (English)			470046-476			United States			470045-353
French Canada			470046-479						
P908	A	130	X4	20	W	C	25	E	
Denmark			NEW - 0.9EA			Italy			470050-681
European International			470047-902			Spain			470048-424
						Sweden/Finland			470050-682
France			470046-488			Switzerland			470046-489
Greece/Poland			470047-366			United Kingdom			470046-495

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P907	A	130	X4	20	V	C	25	E	
European International			470047-365			Italy			470048-562
						Saudi Arabia			470047-899
France			470046-487			Spain			470048-423
Greece/Poland			470046-493			Sweden/Finland			470048-561
Hungary			470047-900			Switzerland			470046-490
Israel			470047-901						
P905	A	130	X4	20	V	C	25	E	
Hong Kong			47046-481						
P902	A	130	X4	20	V	C	25	E	
Australia/New Zealand			470038-110						
P903	A	130	X4	20	V	C	12	E	
Taiwan			470045-529						
P902	A	130	X4	20	V	C	12	E	
Asia Pacific			470045-480			Hong Kong			470045-527
Australia/New Zealand			470045-524						
P901	A	130	X4	20	D	C	12	E	
Asia Pacific			470045-526			Thailand			470045-525
Australia/New Zealand			470045-523						
P901	A	120	X5	20	W	C	25	E	
European International			470037-131			Russia			470037-142
						Saudi Arabia			470037-122
France			470037-136			Switzerland			470037-343
Germany			470037-120			Turkey			470037-149
Israel			470037-303			United Kingdom			470037-154

Table 1-4
Compaq Presario 900 Series Mobile PC Models *(Continued)*

P909	A	120	X4	20	R	C	12	E	
Portugal				470050-684					
P900	A	120	X4	20	D	C	12	E	
Asia Pacific				470040-356		Korea			470040-357
Australia/New Zealand				470040-354		Thailand			470040-355

1.2 Features

The notebook has the following features:

- AMD Athlon XP+ 1.67-, 1.60-, 1.53-, 1.47-, 1.40-, 1.30-, or 1.20-GHz processors, or AMD Duron 1.30-GHz processor, varying by notebook model
- ATI P7 graphics accelerator with 32 MB of shared Synchronous DRAM (SDRAM) and 4X AGP graphics card
- 256-MB high-performance SDRAM, expandable to 1.0 GB
- Microsoft Windows XP Home or Windows XP Professional, varying by computer model
- 15.0-, 14.1-, 13.3-inch XGA (1024 × 768), TFT display with over 16.7 million colors, varying by computer model
- Full-size Windows 98 keyboard with TouchPad pointing device
- Network interface card (NIC) integrated on the system board, with a mini PCI V.92 modem
- Integrated wireless support of 802.11b and Bluetooth devices through MultiPort
- Support for one Type I or II PC Card slot with support for both 32-bit CardBus and 16-bit PC Cards
- External 90 W AC adapter with power cord
- 8-cell Li ion battery pack

- 40-, 30-, or 20-GB high-capacity hard drive, varying by computer model
- 1.44-MB diskette drive
- Support for the following drives through the fixed optical drive:
  - 24X Max CD-ROM drive
  - 16X Max CD-RW drive
  - 8X Max DVD-ROM drive
  - 8X Max DVD-ROM/CD-RW combination drive
- Connectors for:
  - 1394 digital input
  - Stereo line out/headphone
  - Mono microphone
  - AC power
  - Universal serial bus
  - External monitor
  - S-video
  - External keyboard/mouse
  - Parallel devices
  - RJ-45 network
  - RJ-11 modem
- JBL Pro stereo speakers with bass reflex
- Dolby Digital certified 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 computer for disassembly (refer to Section 5.3, "Preparing the Computer for Disassembly," for more information).

2. Remove the RTC battery (refer to Section 5.7, “Disk Cell RTC Battery”).
3. Wait approximately five minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do **not** reinsert any battery packs at this time.
6. Turn on the computer.

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 Computer External Components

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

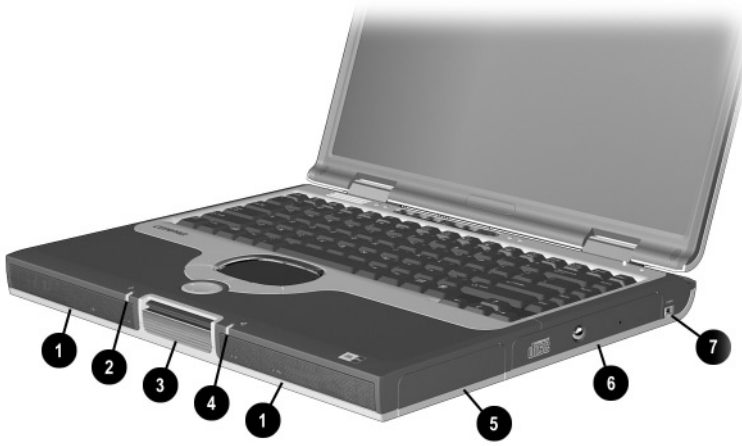


Figure 1-2. Front and Right Side Components

Table 1-4
Front and Right Side Components

Item	Component	Function
1	Stereo speakers (2)	Produce stereo sound.
2	Power/Standby light	On: Power is turned on. Off: Power is turned off. Blinking: Computer is in Standby mode.

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

Item	Component	Function
3	Display release latch	Opens the computer.
4	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.
5	Battery bay	Accepts an 8-cell Li ion battery pack.
6	Optical drive bay	Accepts a CD-ROM, CD-RW, DVD-ROM, or DVD/CD-RW combination drive.
7	1394 jack	Connects IEEE 1394-compliant products, such as digital camcorders, video editing equipment, VCRs, cameras, and audio players. A 1394 firewire cable is required for use with this jack.

The computer rear panel and left side components are shown in Figure 1-3 and described in Table 1-5.

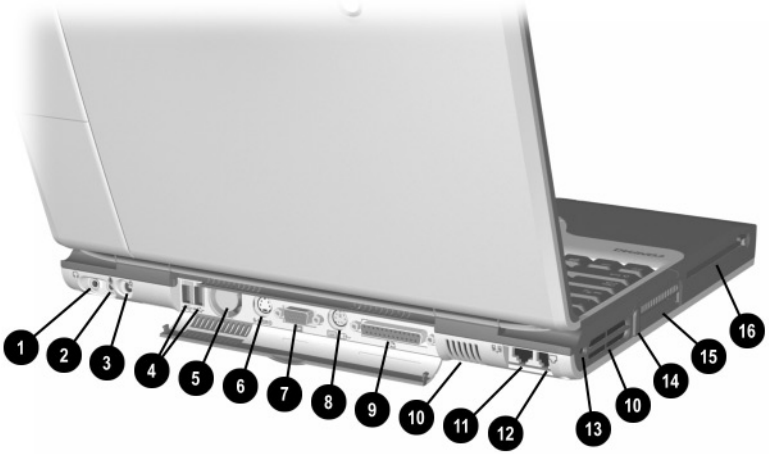


Figure 1-3. Rear Panel and Left Side Components

Table 1-5
Rear Panel and Left Side Components

Item	Component	Function
1	Stereo speaker/ headphone jack	Connects stereo speakers, headphones, headset, or television audio.
2	Mono microphone jack	Connects a mono microphone, disabling the built-in microphone.
3	DC power jack	Connects any one of the following: ■ AC adapter ■ Optional automobile power adapter/charger ■ Optional aircraft power adapter
4	USB connectors (2)	Connect USB devices.

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

Item	Component	Function
5	Fan	Provides airflow to cool internal components.
6	S-Video connector	Connects a television, VCR, camcorder, or overhead projector.
7	External monitor connector	Connects an external monitor or overhead projector.
8	External keyboard/mouse connector	Connects an optional full-sized keyboard or mouse. An optional splitter/adapter allows both an external keyboard and mouse to be used at the same time.
9	Parallel connector	Connects a parallel device.
10	Vents	Allow airflow to cool internal components.
	△ **CAUTION:** To prevent damage, the computer shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the computer on a blanket, rug, or other flexible surface that may cover the vent area.	
11	RJ-45 network jack	Connects the network cable. A network cable is not included with the computer.
12	RJ-11 modem jack	Connects the modem cable to an internal modem. A modem cable is included with internal modem models.
13	Security cable slot	Attaches an optional security cable to the computer.
14	PC Card eject button	Ejects a PC Card from the PC Card slot.
15	PC Card slot	Supports a 32-bit (CardBus) or 16-bit PC Card.
16	Diskette drive	Accepts diskettes.

The computer keyboard components are shown in Figure 1-4 and described in Table 1-6.

Figure 1-4. Keyboard Components

Table 1-6
Keyboard Components

Item	Component	Function
1	**F1** through **F12** function keys	Perform preset functions.
2	**Fn** key	Used with hotkeys to perform preset hotkey functions.

Table 1-6
Keyboard Components *(Continued)*

Item	Component	Function
3	Windows logo keys	Display the Windows Start menu.
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	Cursor control keys	Move the cursor around the screen.
6	Embedded numeric keypad	Converts keys to numeric keypad.
7	**Num lock** key	Turns on the numeric lock function. On: Num lock is on and the embedded numeric keypad is enabled.

The computer top components are shown in Figure 1-5 and described in Table 1-7.

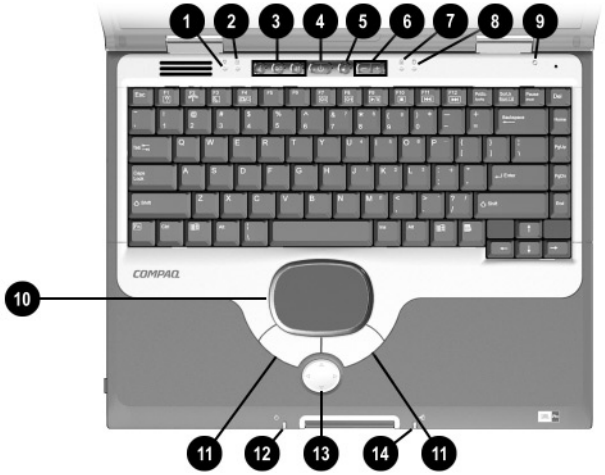


Figure 1-5. Top Components

Table 1-7
Top Components

Item	Component	Function
1	Power light	On: Power is turned on. Blinking: Computer 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	Num lock light	On: **Num lock** is on and the embedded numeric keypad is enabled.
3	Easy Access Buttons (3)	Provide quick access to the Internet. Refer to the Hardware Guide that ships with the computer for information about these buttons.

Table 1-7
Top Components *(Continued)*

Item	Component	Function
4	Power button	Turns on the computer. Use the operating system Shut Down command to turn off the computer.
5	Digital audio button	Launches Windows Media Player to play MP3 music.
6	Volume control buttons	Adjust the volume of the stereo speakers.
7	Caps lock light	On: Caps lock is on.
8	Drive indicator light	Turns on when the hard drive, CD-, or DVD-ROM drive is accessed.
9	Display lid switch	Turns off the computer display if the computer is closed while on.
10	TouchPad	Moves the mouse cursor, selects, and activates.
11	TouchPad buttons	Function like the left and right mouse buttons on an external mouse.
12	Power/Standby light	On: Power is turned on. Off: Power is turned off. Blinking: Computer is in Standby mode.
13	EasyScroll	Scrolls the screen left, right, up, and down.
14	Battery power light	On: A battery pack is charging. Blinking: A battery pack that is the only available power source has reached a low-battery condition.

The external components on the bottom of the computer are shown in Figure 1-6 and described in Table 1-8.

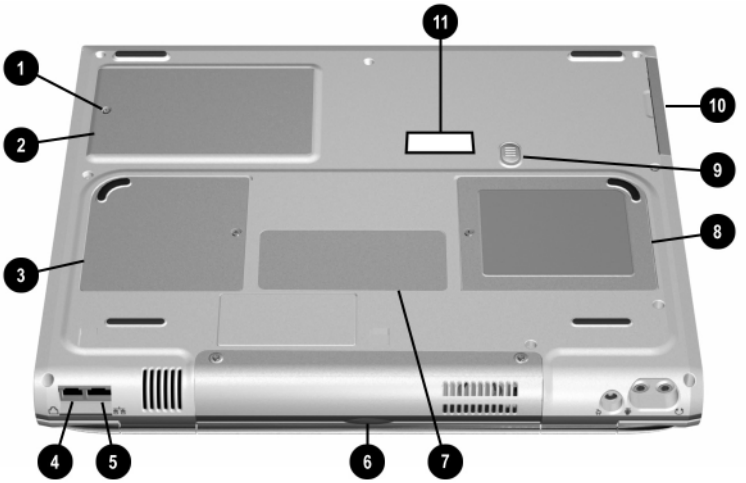


Figure 1-6. Bottom Components

Table 1-8
Bottom Components

Item	Component	Function
1	Hard drive retention screw	Secures the hard drive to the computer.
2	Hard drive bay	Supports the primary hard drive. The hard drive is secured to the computer by one screw.
3	Mini PCI communications compartment	Contains the mini PCI modem card.

Table 1-8
Bottom Components *(Continued)*

Item	Component	Function
4	RJ-11 modem jack	Connects the modem cable to an internal modem. A modem cable is included with internal modem models.
5	RJ-45 network jack	Connects the network cable. A network cable is not included with the computer.
6	Connector cover	Protects the parallel, external monitor, external keyboard/mouse, and USB connectors.
7	Certificate of Authenticity label	Contains the Product Key, which may need to be entered before using some Windows operating systems.
8	Memory expansion compartment	Covers the memory expansion compartment that contains two memory expansion slots for memory expansion boards.
9	Battery pack release switch	Releases the battery pack from the battery compartment.
10	Battery bay	Accepts an 8-cell Li ion 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 computer. 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
- AMD Athlon and Duron processors
- Fan
- PC Card
- Modem or modem/NIC

The computer 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 computer.

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

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. ✎ DriveLock 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.

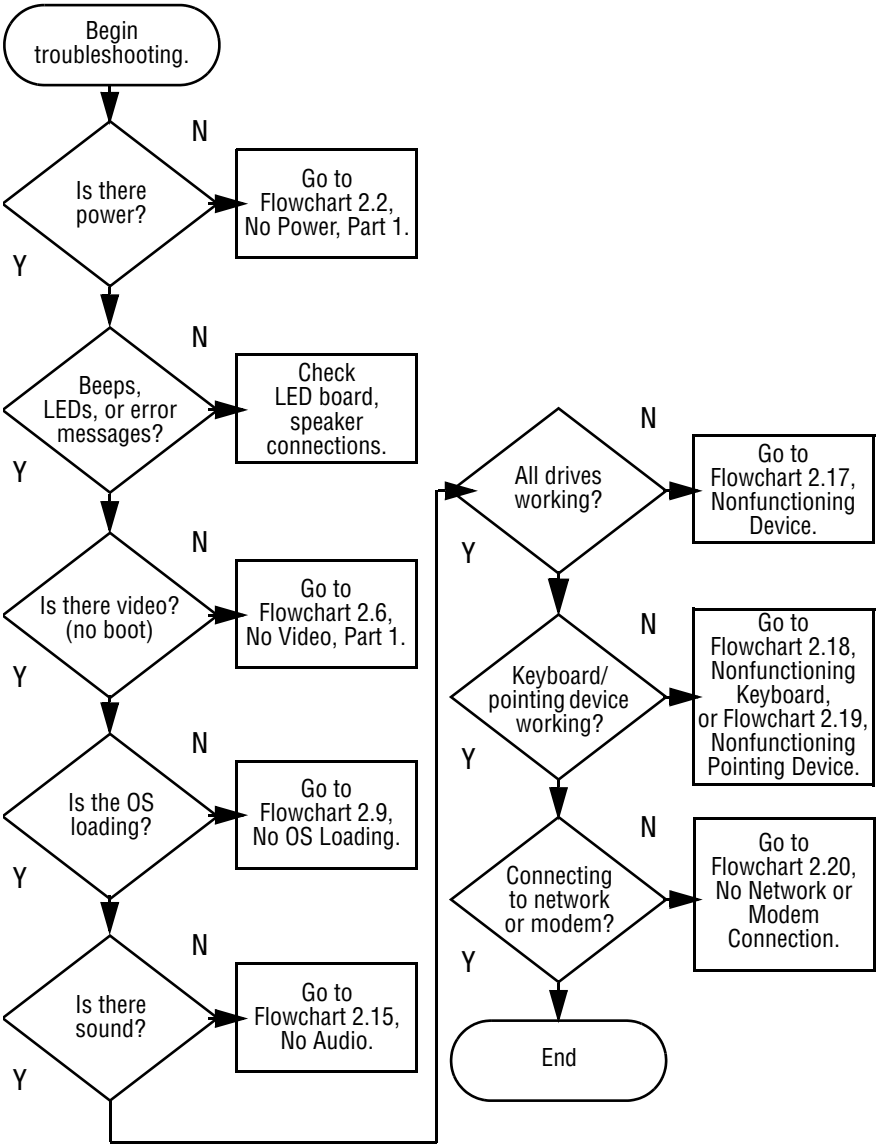
5. Select a test mode:
   - ❏ **Interactive Mode**—Provides maximum control over the testing process. You determine whether the test was passed or failed, and you may be prompted to insert or remove devices.
   - ❏ **Unattended Mode**—Does not display prompts. If errors are found, they are displayed 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

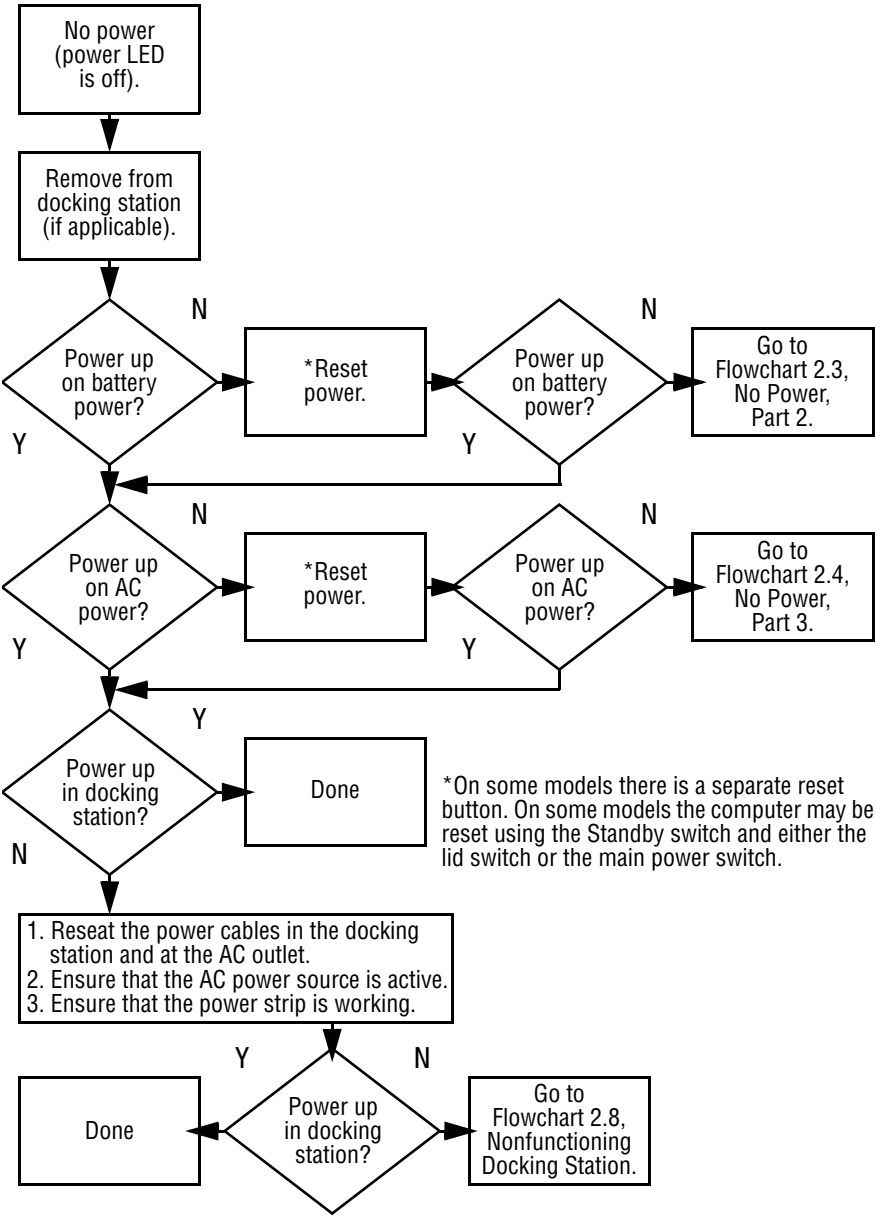
Table 2-4
Troubleshooting Flowcharts Overview

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

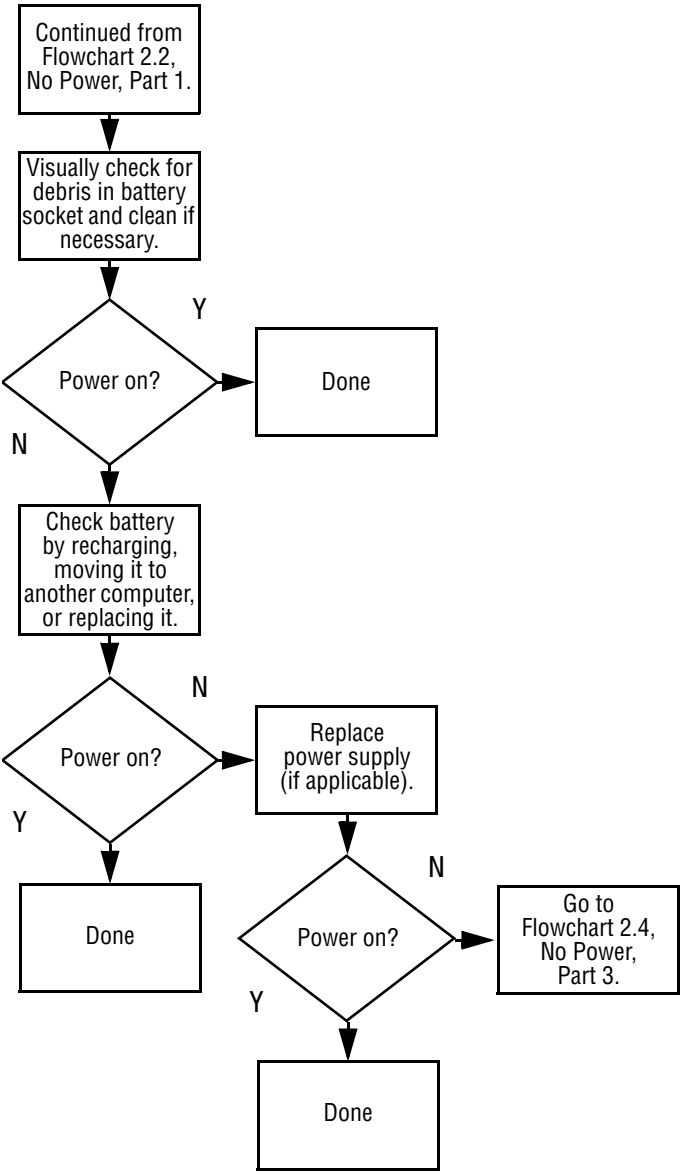
Flowchart 2.1 - Initial Troubleshooting



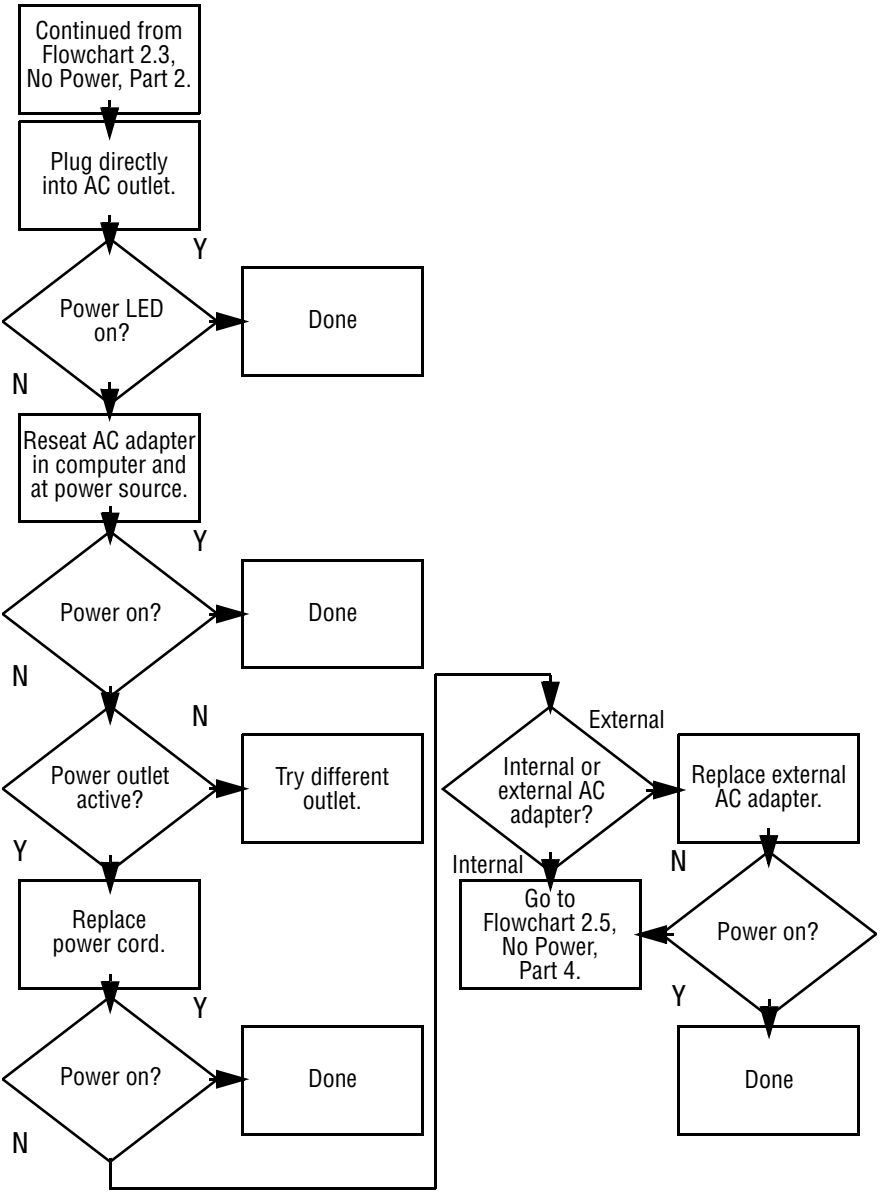
Flowchart 2.2 - No Power, Part 1



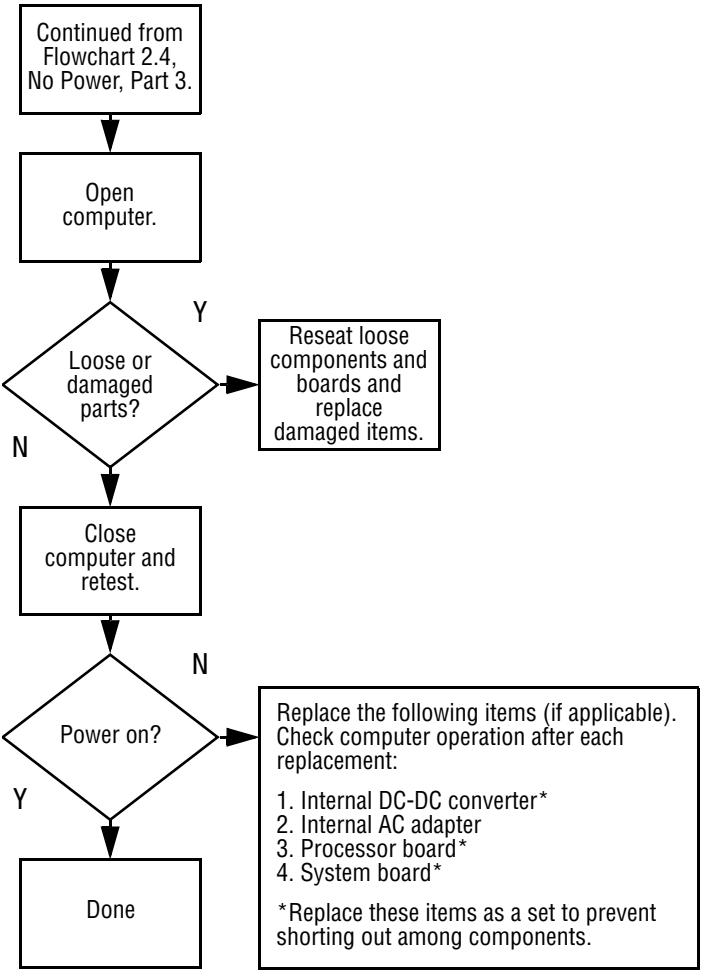
Flowchart 2.3 - No Power, Part 2



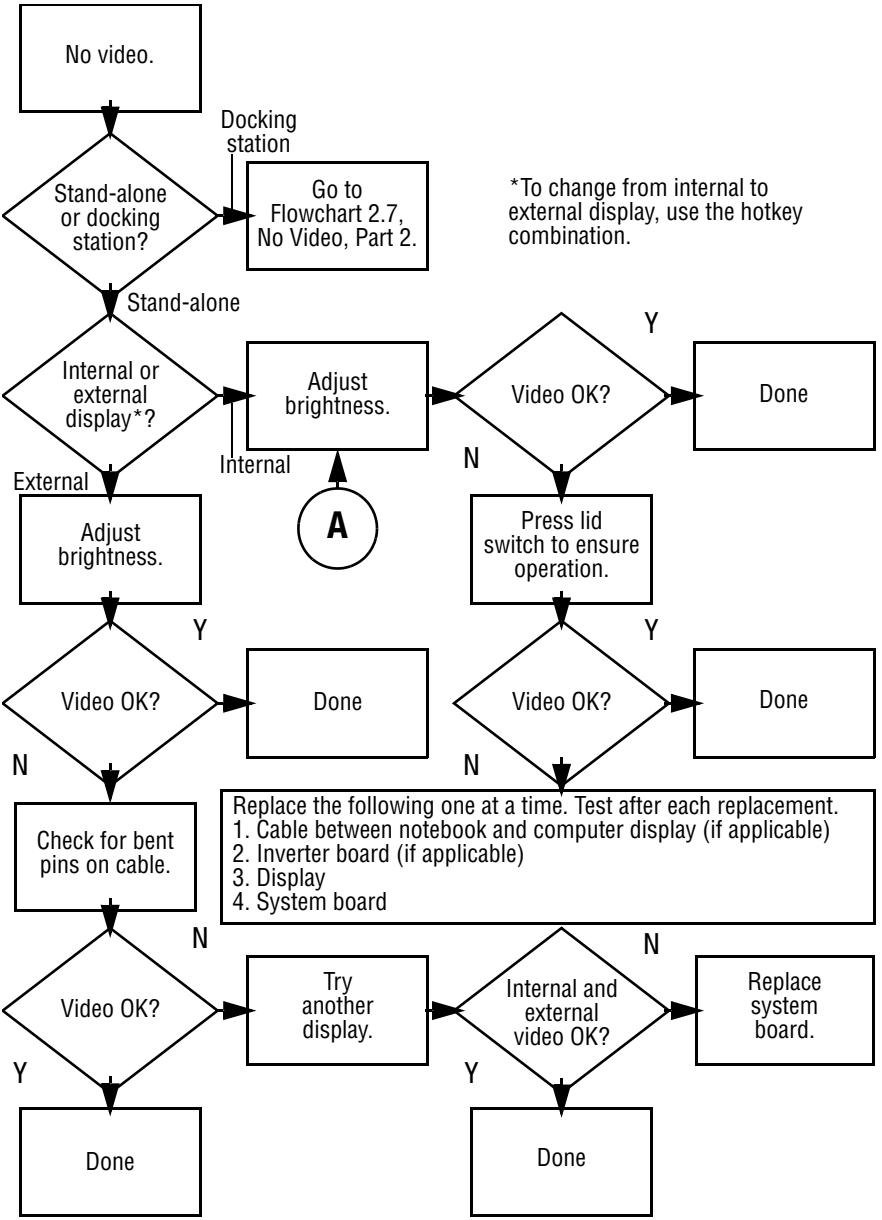
Flowchart 2.4 - No Power, Part 3



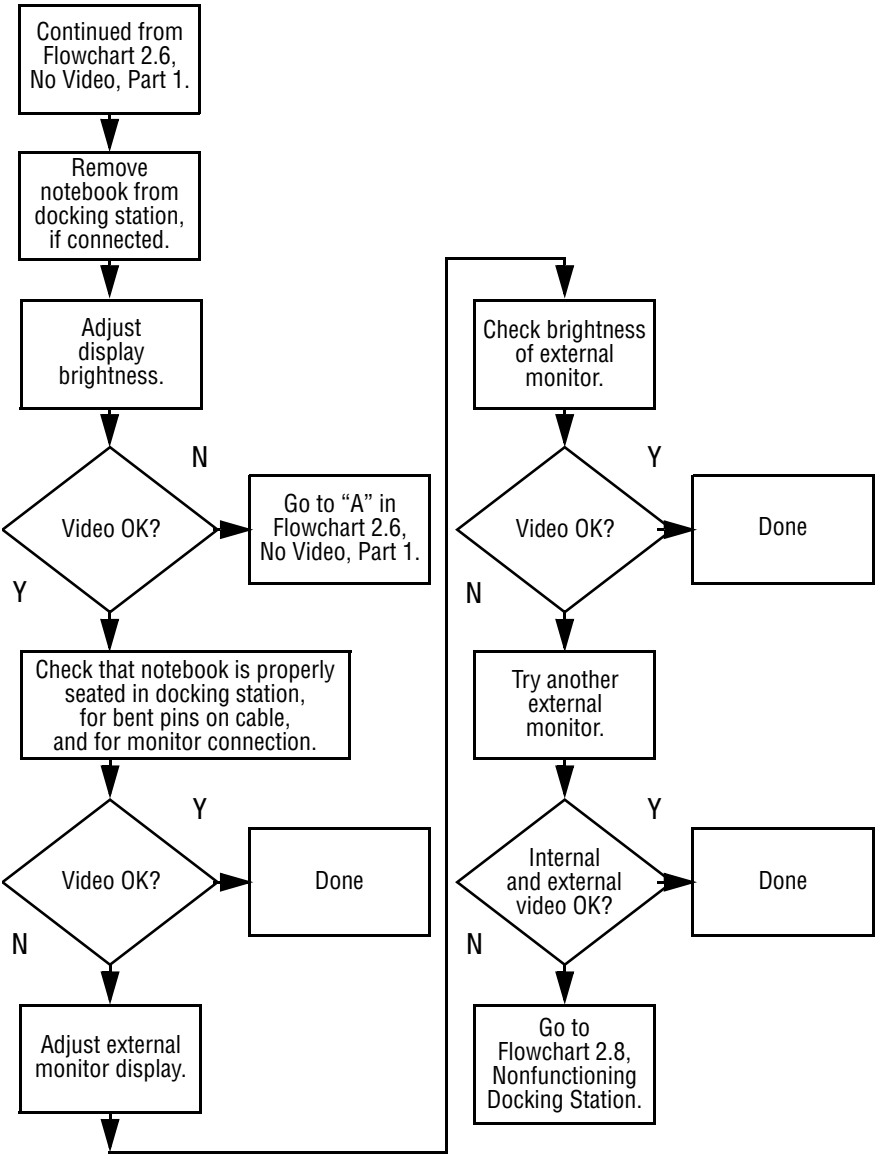
Flowchart 2.5 - No Power, Part 4



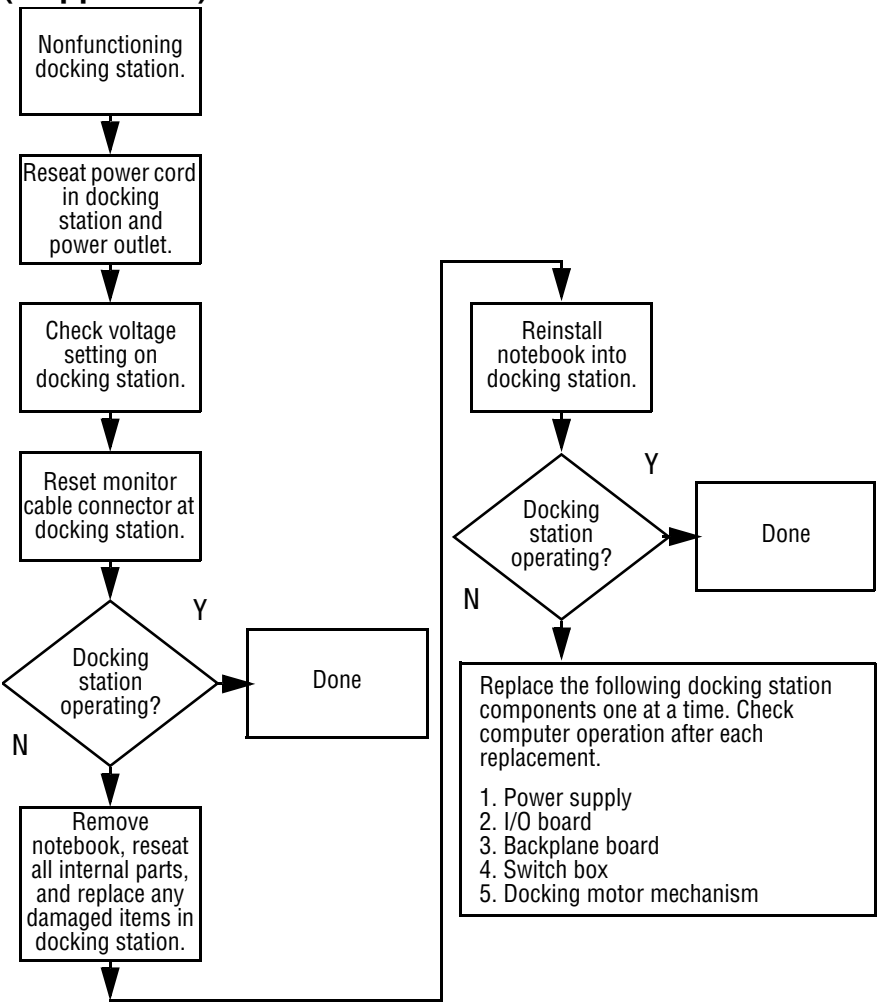
Flowchart 2.6 - No Video, Part 1



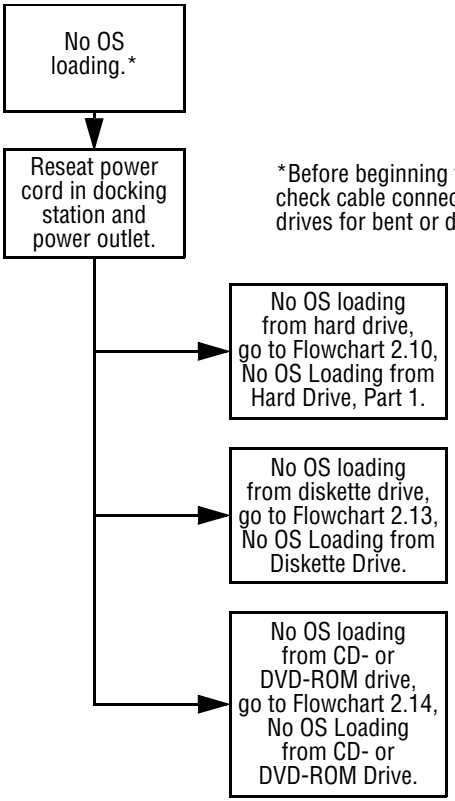
Flowchart 2.7 - No Video, Part 2



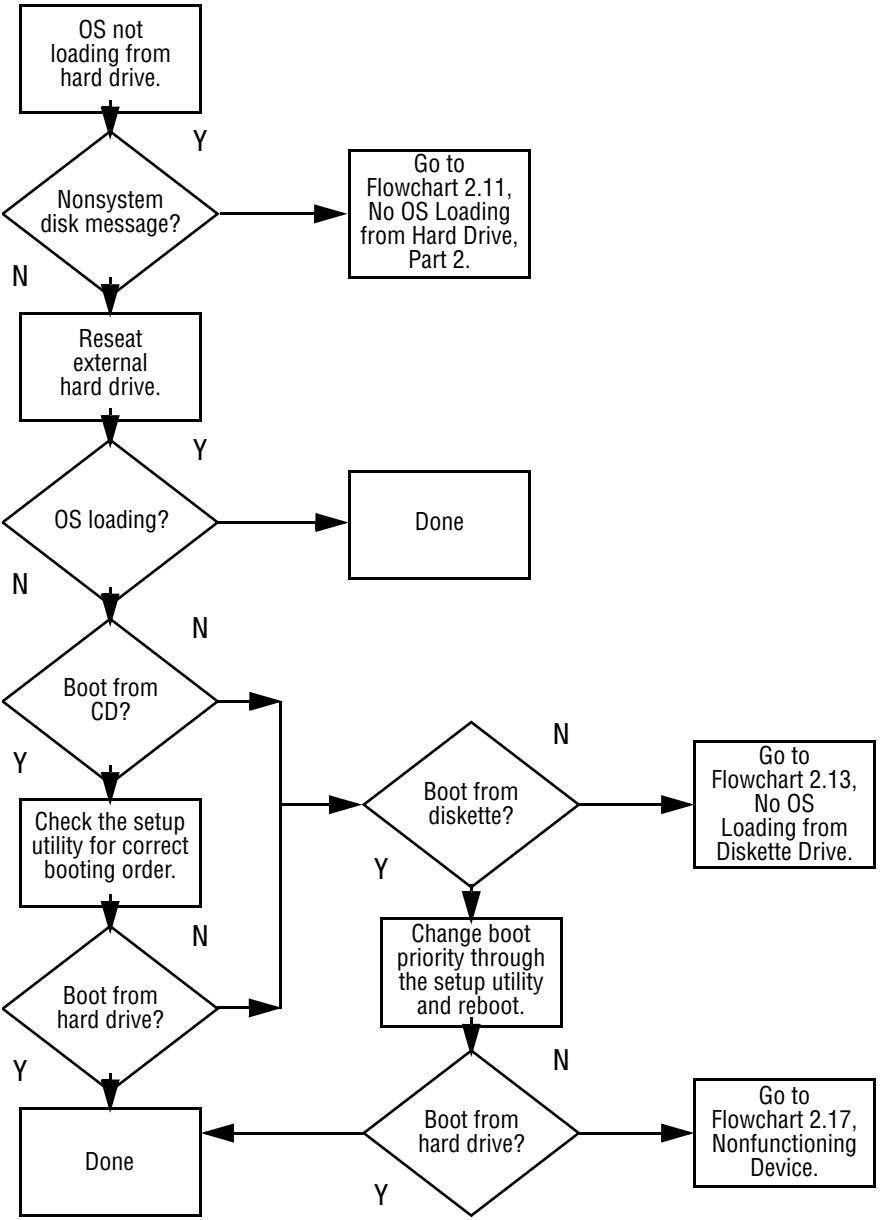
Flowchart 2.8 - Nonfunctioning Docking Station (if applicable)



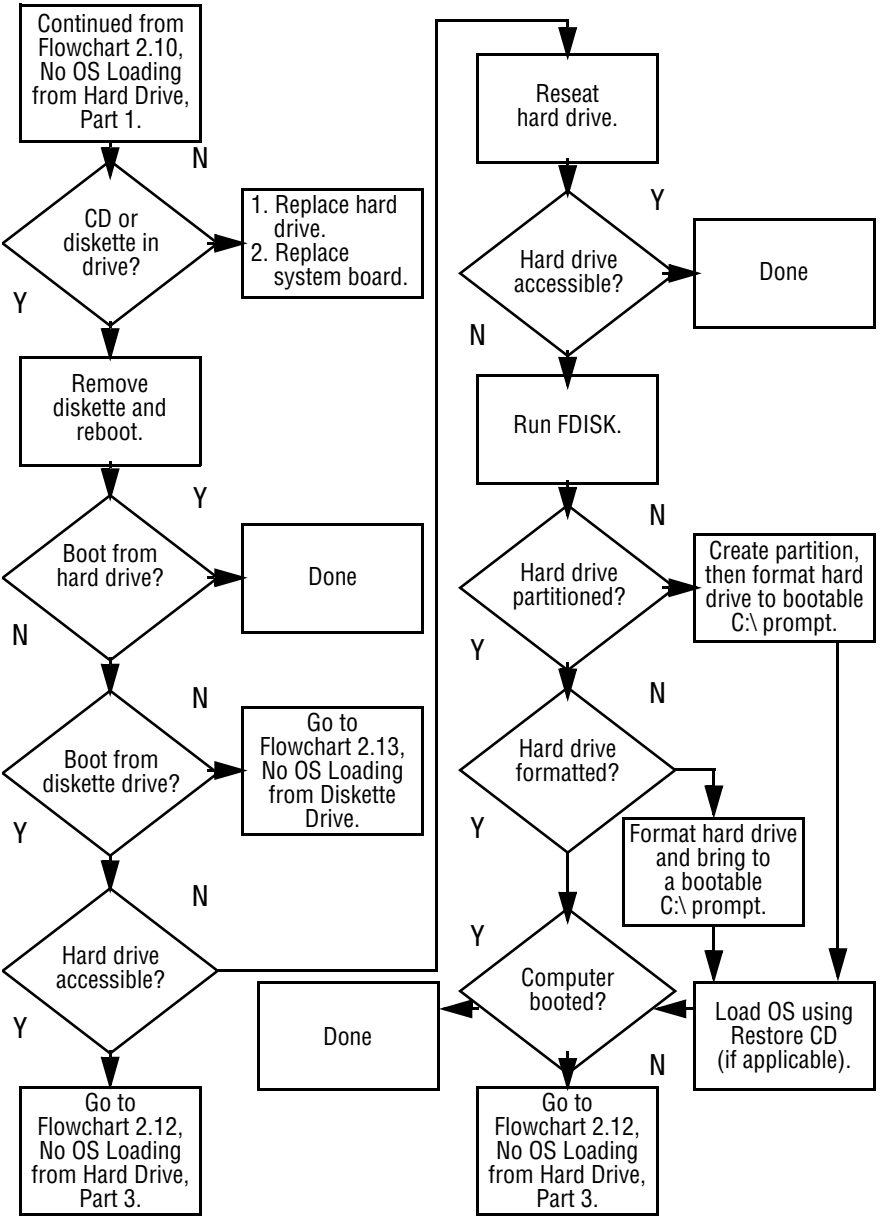
Flowchart 2.9 - No Operating System (OS) Loading



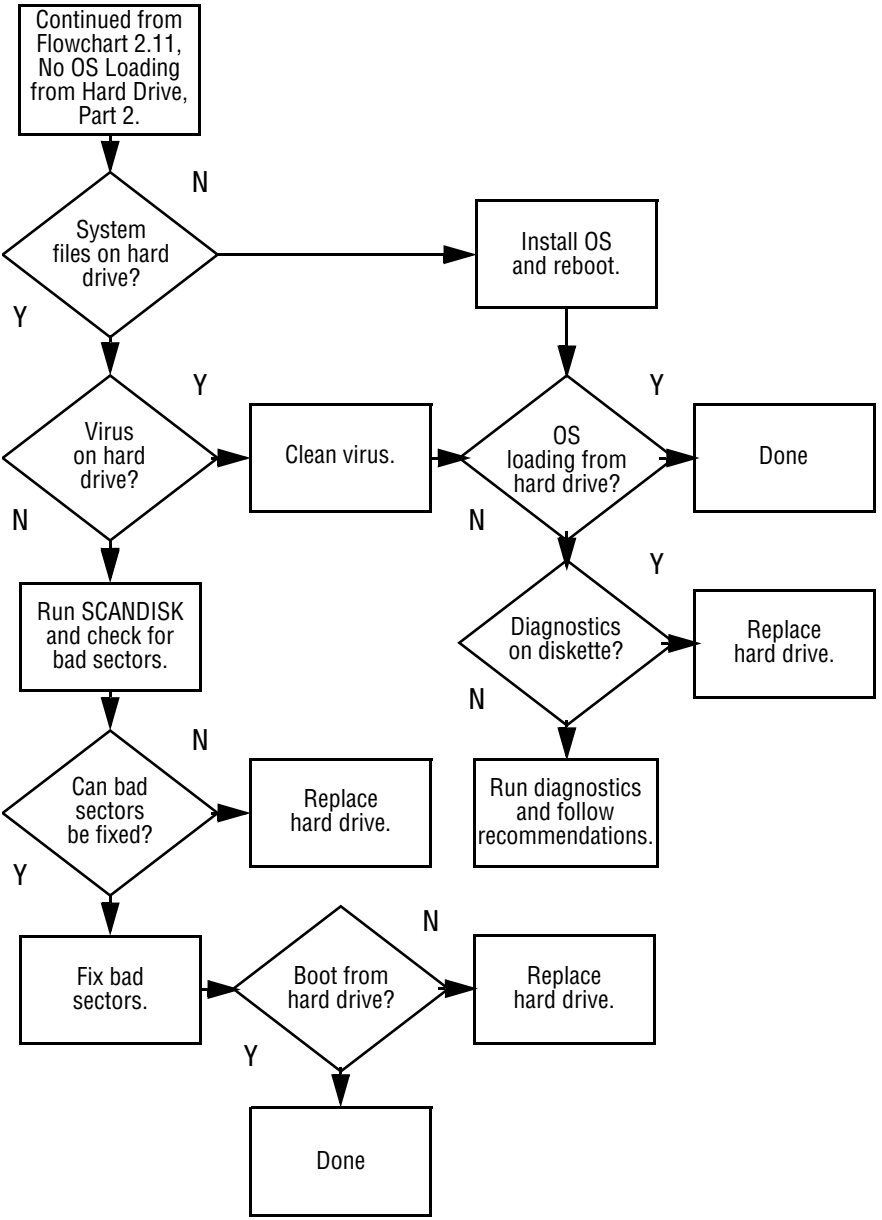
Flowchart 2.10 - No OS Loading from Hard Drive, Part 1



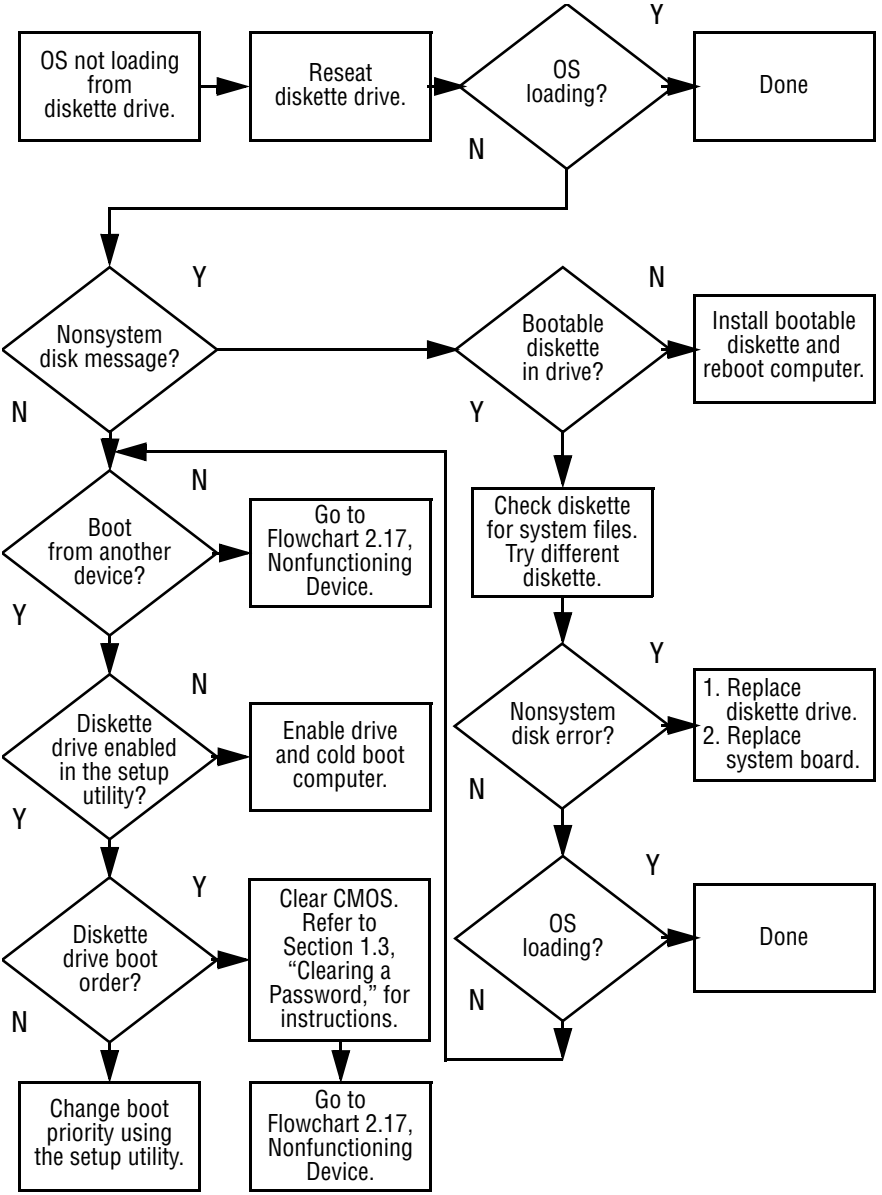
Flowchart 2.11 - No OS Loading from Hard Drive, Part 2



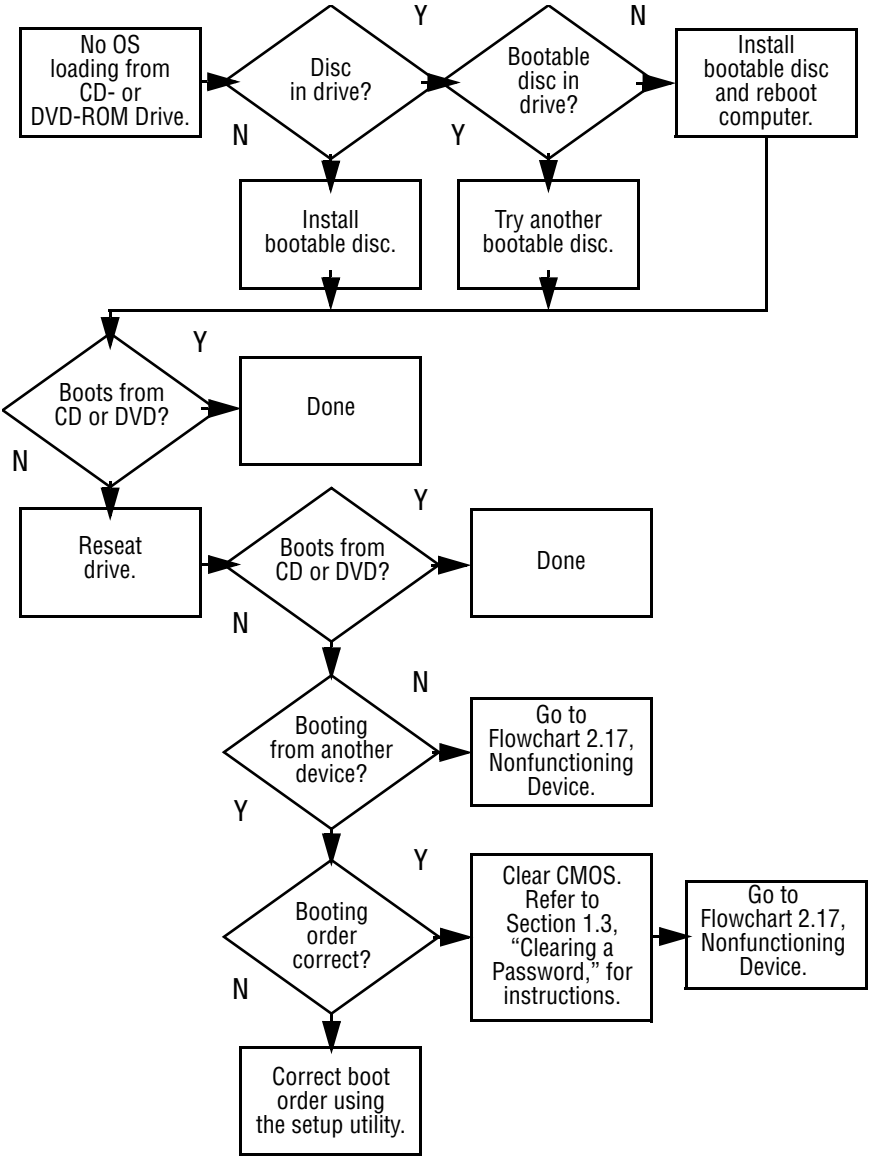
Flowchart 2.12 - No OS Loading from Hard Drive, Part 3



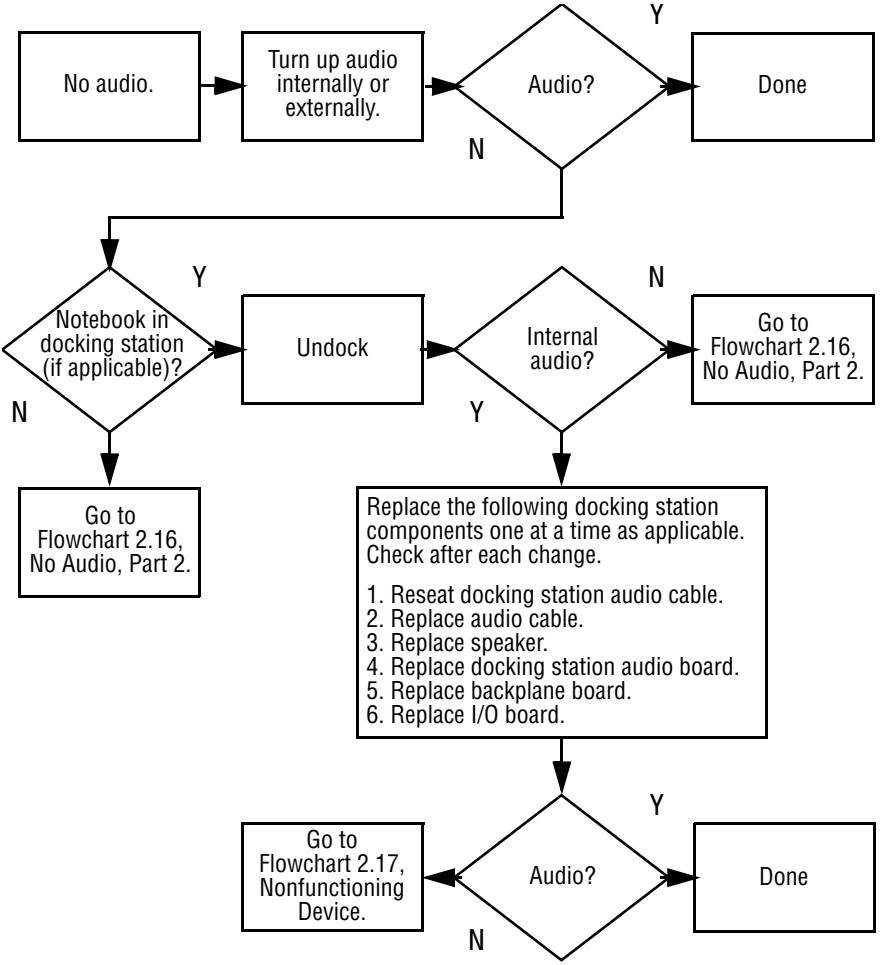
Flowchart 2.13 - No OS Loading from Diskette Drive



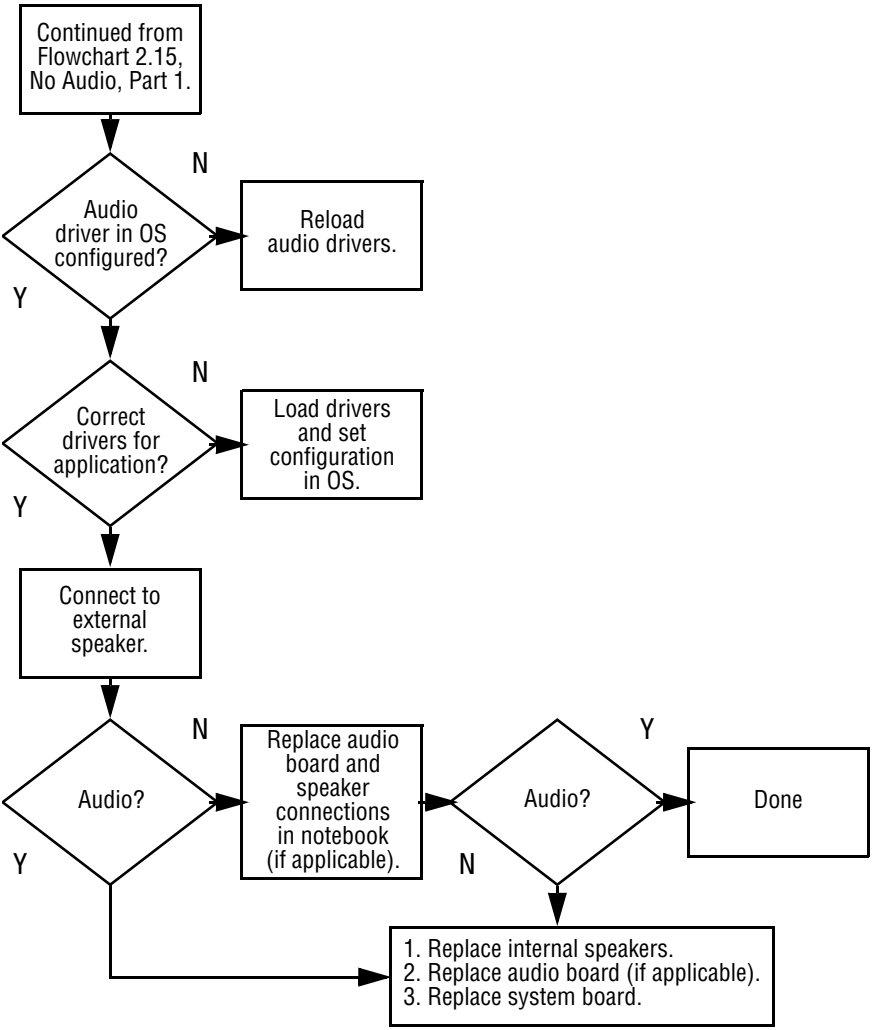
Flowchart 2.14 - No OS Loading from CD- or DVD-ROM Drive



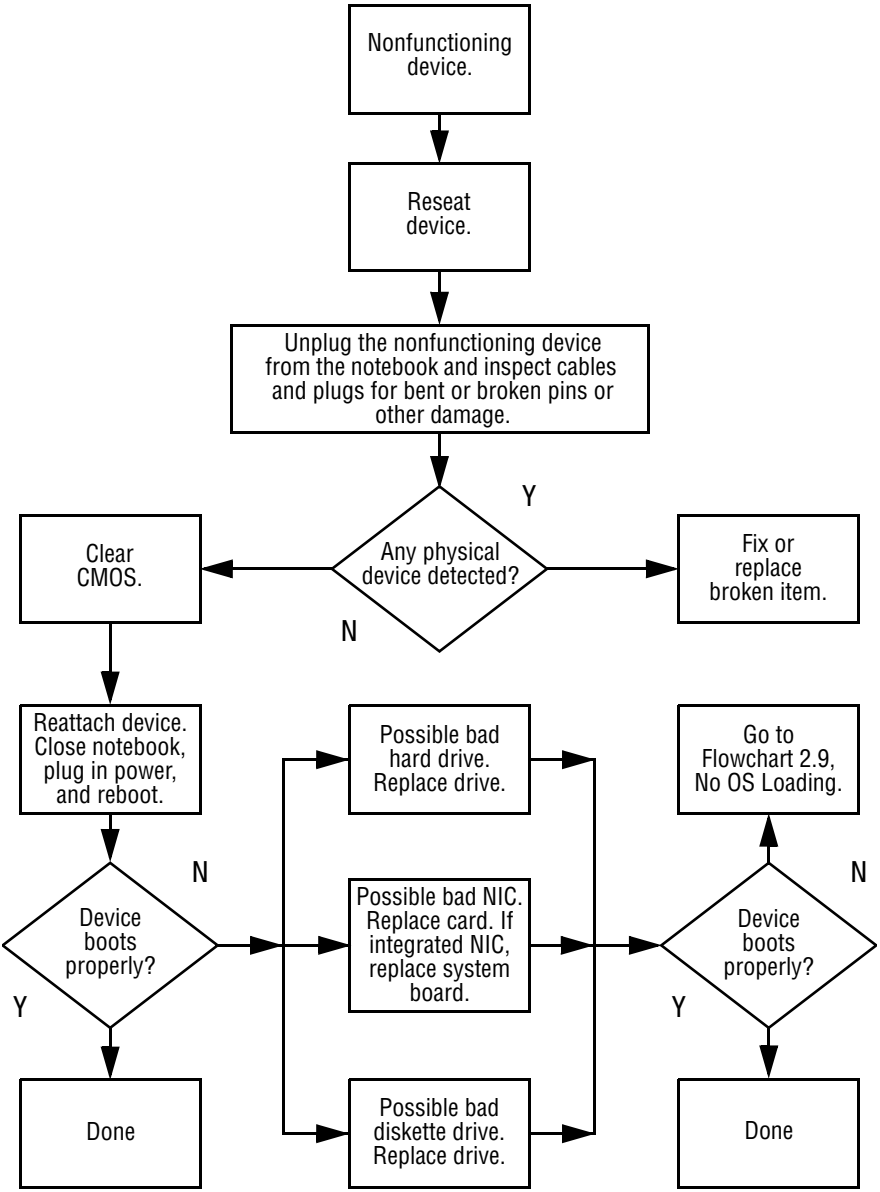
Flowchart 2.15 - No Audio, Part 1



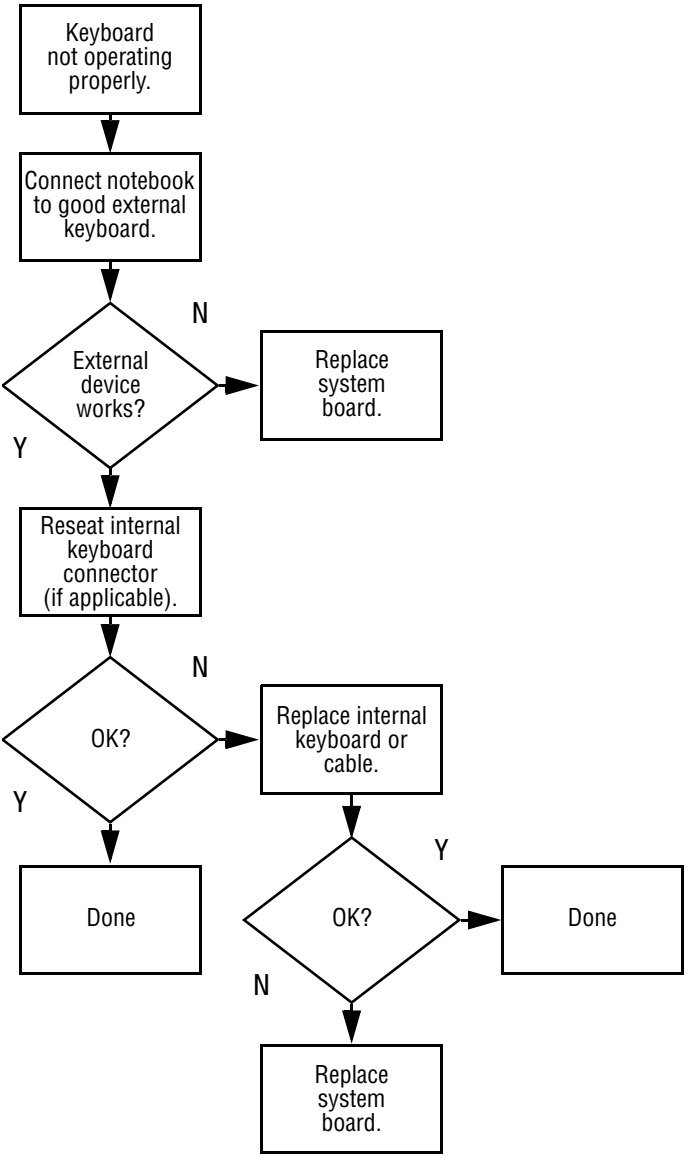
Flowchart 2.16 - No Audio, Part 2



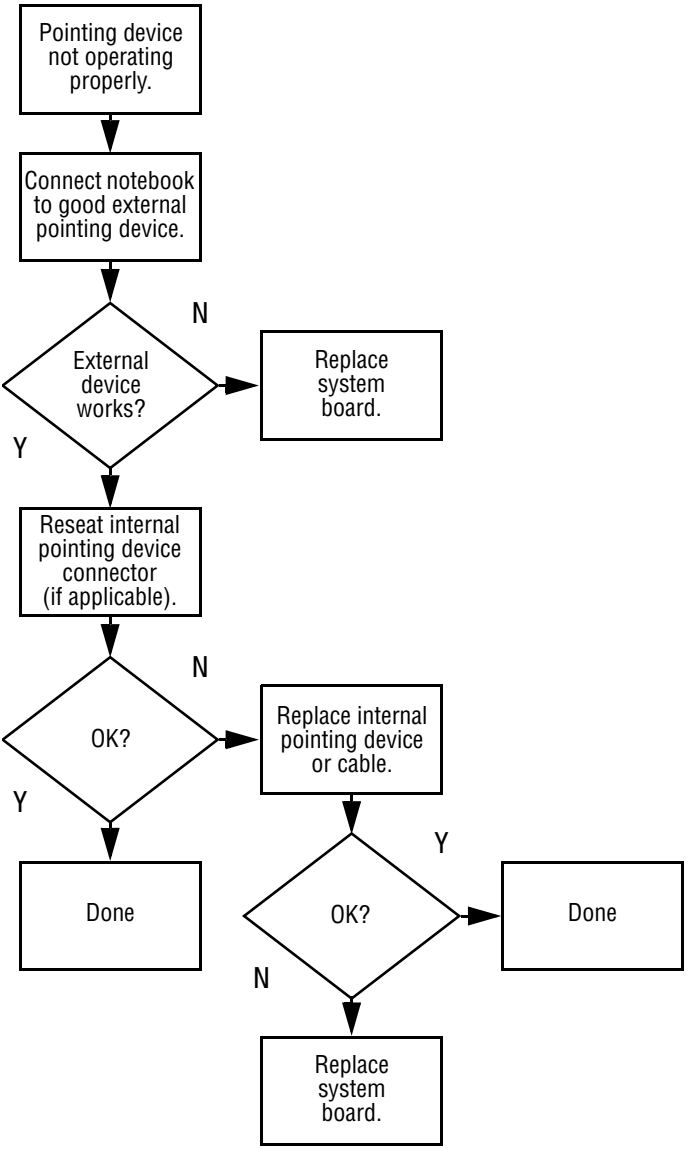
Flowchart 2.17 - Nonfunctioning Device



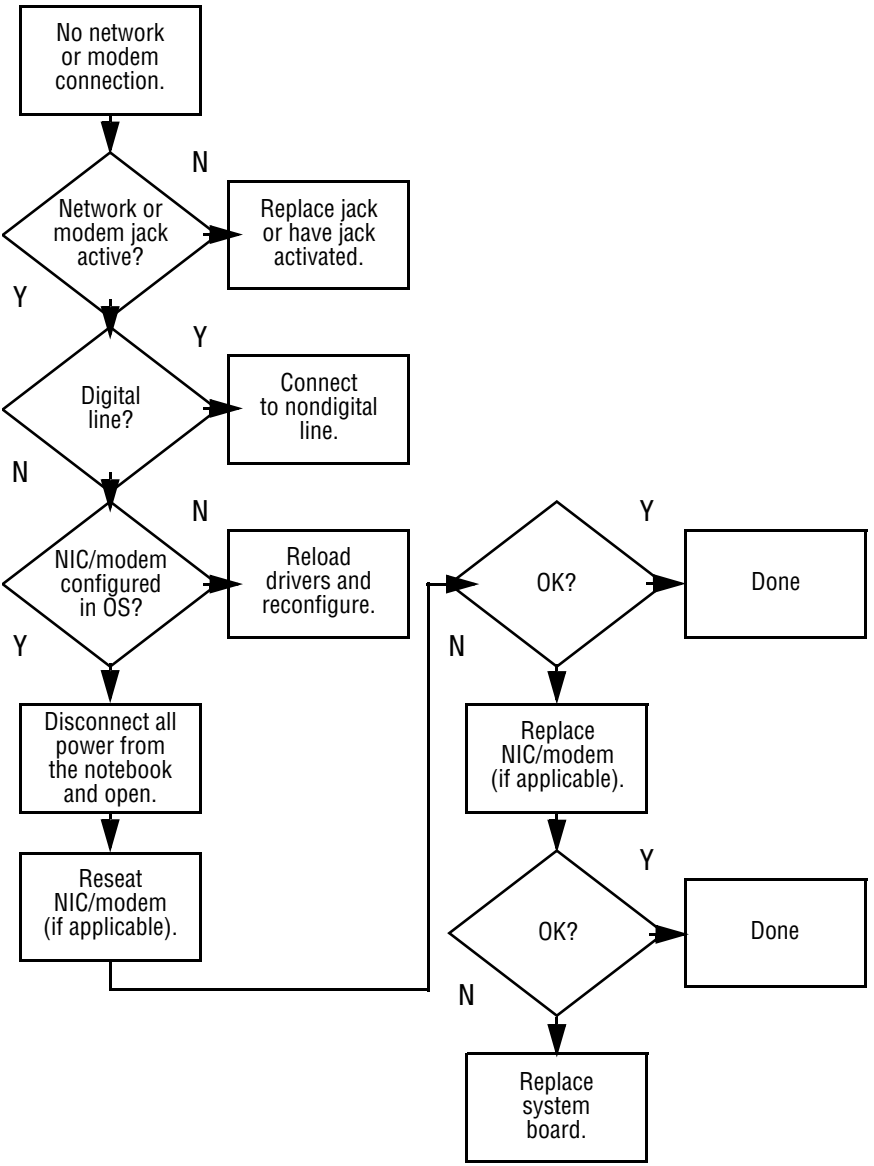
Flowchart 2.18 - Nonfunctioning Keyboard



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 computer serial number and model number located on the bottom of the computer (Figure 3-1).

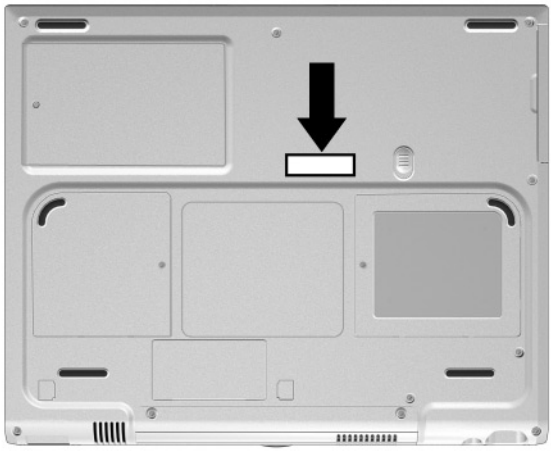


Figure 3-1. Serial Number Location

3.2 Computer System Major Components

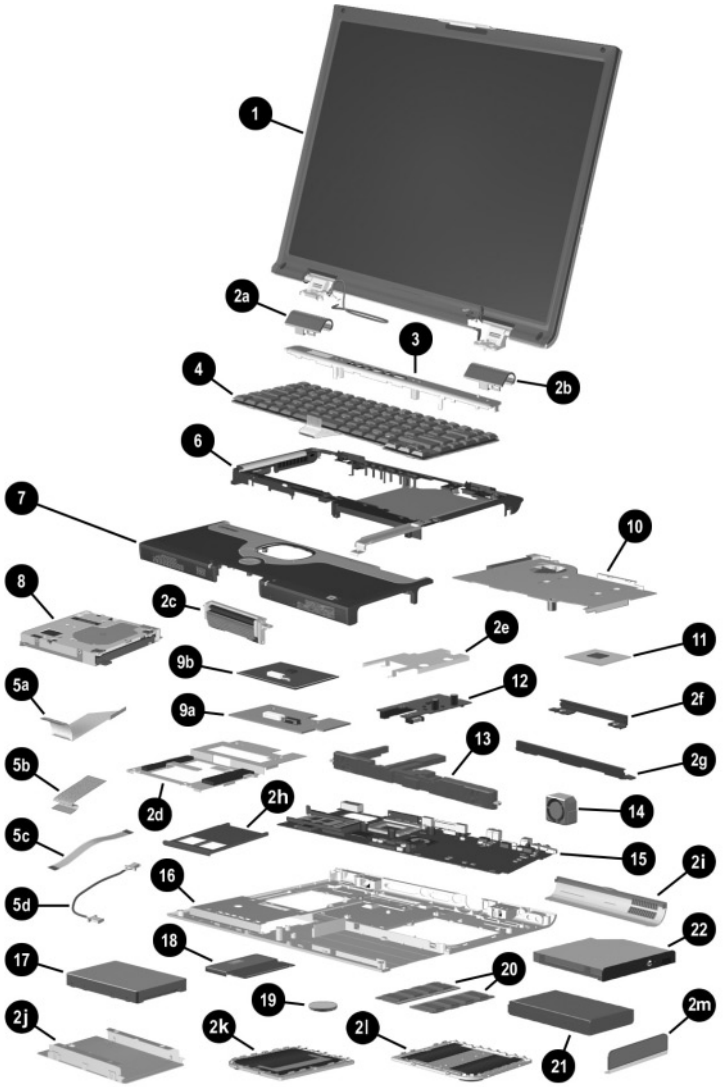


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components

Item	Description	Spare Part Number
1	**Displays**	
	for use only with Evo Notebook N1015 models	
	15.0-inch, TFT, XGA	310689-001
	14.1-inch, TFT, XGA	311286-001
	13.3-inch, TFT, XGA	309645-001
	for use only with Evo Notebook N1005 models	
	15.0-inch, TFT, SXGA+	291643-001
	15.0-inch, TFT, XGA	291642-001
	14.1-inch, TFT, XGA	291641-001
	for use only with Presario 900 models using 45W processors (refer to item 11, “Processors,” for a listing of 45W processors and spare part numbers)	
	15.0-inch, TFT, XGA	310688-001
	14.1-inch, TFT, XGA	310687-001
	13.3-inch, TFT, XGA	309644-001
	for use only with Presario 900 models	
	15.0-inch, TFT, SXGA+	286754-001
	15.0-inch, TFT, XGA	285521-001
	14.1-inch, TFT, XGA	285520-001
	Display Inverter Board Kit (not illustrated)	293348-001

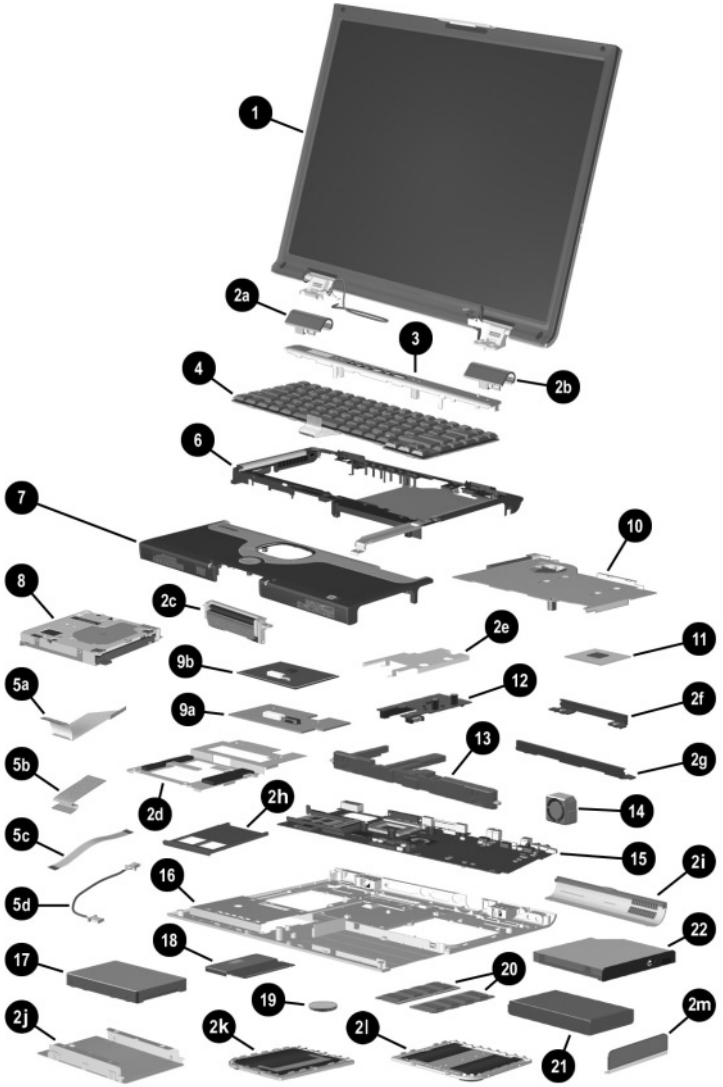


Figure 3-2. Computer System Major Components

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

Item	Description	Spare Part Number
	Miscellaneous Plastics/Hardware Kit, includes:	285541-001
2a	Left hinge cover	
2b	Right hinge cover	
2c	*Display release assembly	
2d	TouchPad bracket	
2e	Charger board shield	
2f	Optical drive rear alignment rail	
2g	Optical drive front alignment rail	
2h	PC Card space saver	
2i	*Connector cover	
2j	*Hard drive bracket	
2k	*Mini PCI compartment cover	
2l	*Memory expansion compartment cover	
2m	*Battery bezel	
	*Includes two of each part, one with carbon finish for use with Evo Notebook N1005 models and one with silver finish for use with Presario 900 models	
	Not illustrated: Computer feet	
3	**LED covers**	
	for use only with Evo N1015 models and Presario 900 models using 45W* processors	310695-001
	for use only with Evo N1005 models and Presario 900 models using non-45W* processors	285536-001
	*refer to item 11, “Processors,” for a listing of 45W and non-45W processors and spare part numbers	

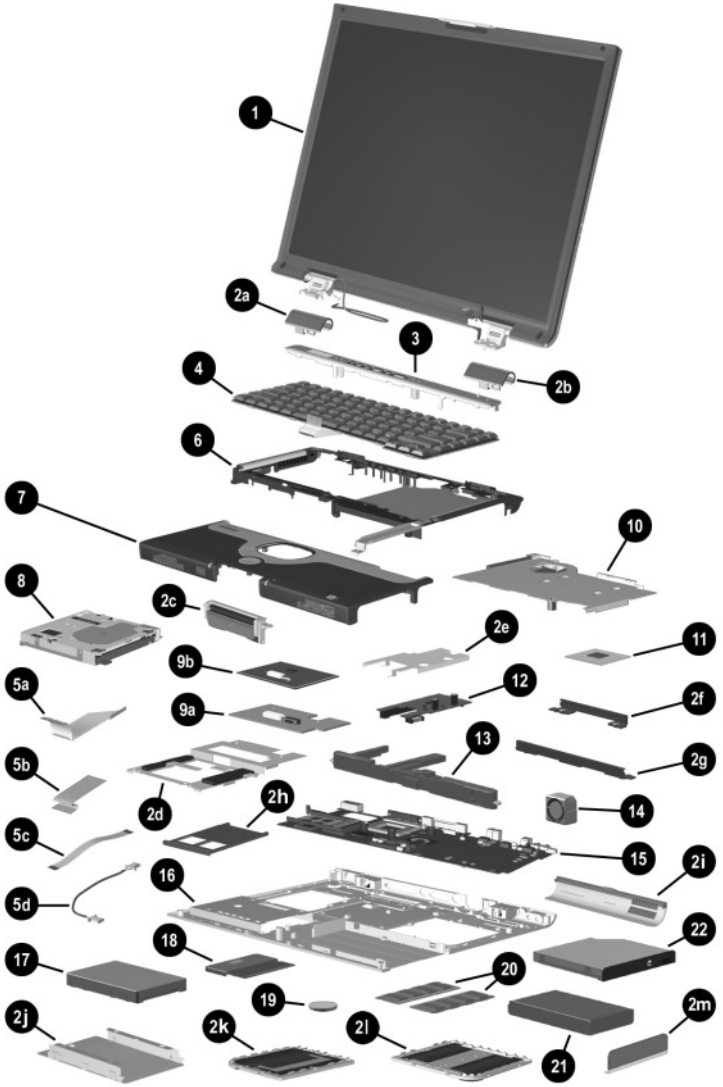


Figure 3-2. Computer System Major Components

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

Item	Description			Spare Part Number
4	**Keyboards**			
	Arabic	285530-171	Korean	285530-AD1
	Belgian	285530-181	Latin American Spanish	285530-161
	Brazilian	285530-201		
	Chinese	285530-AA1	Norwegian	285530-091
	Czech	285530-221	Portuguese	285530-131
	Danish	285530-081	Russian	285530-251
	French	285530-051	Slovakian	285530-231
	French Canadian	285530-121	Spanish	285530-071
			Swedish	285530-101
	German	285530-041	Swiss	285530-111
	Hebrew	285530-BB1	Taiwanese	285530-AB1
	Hungarian	285530-211	Thai	285530-281
	International	285530-002	Turkish	285530-141
	Italian	285530-061	U.K. English	285530-031
	Japanese	285530-291	U.S. English	285530-001
	Miscellaneous Cable Kit, includes:			285540-001
5a	Diskette drive cable			
5b	TouchButton board-to-TouchPad cable			
5c	System board-to-TouchButton board cable			
5d	Modem cable			
6	**Top covers**			
	for use only with Evo Notebook N1015 models and Presario 900 models using 45W* processors			310694-001
	for use only with Evo Notebook N1005 models and Presario 900 models using non-45W* processors			285535-001
	*refer to item 11, “Processors,” for a listing of 45W and non-45W processors and spare part numbers			

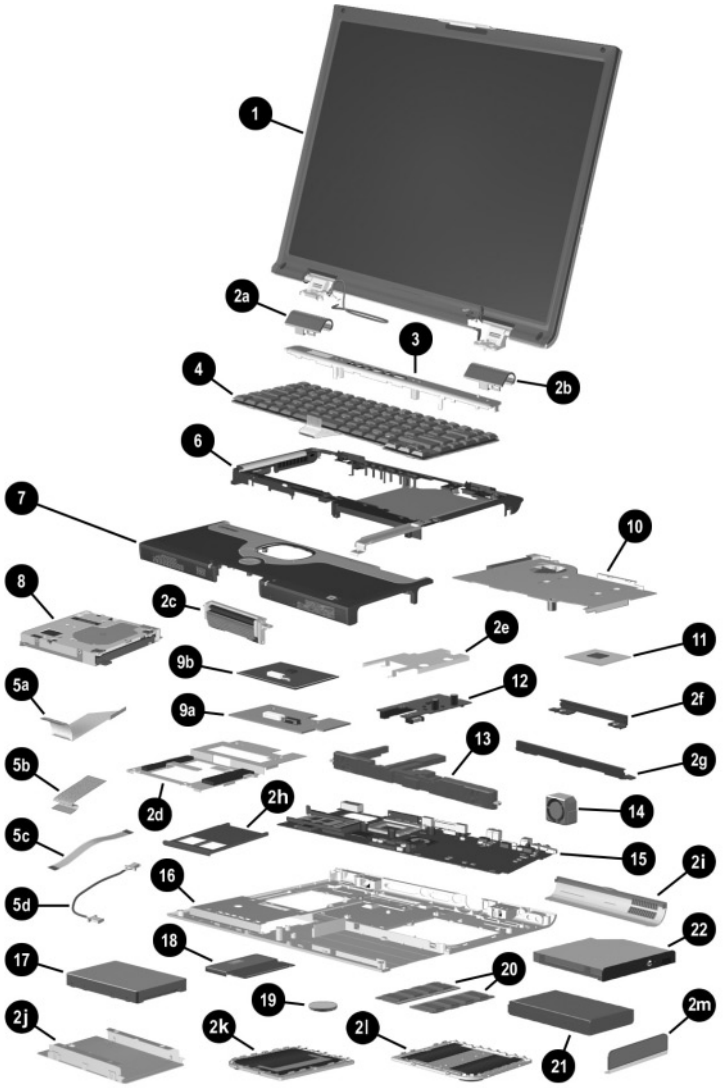


Figure 3-2. Computer System Major Components

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

Item	Description	Spare Part Number
7	**Palm rests**	
	for use only with Evo Notebook N1015 models (does not include pointing stick or diskette drive)	311955-001
	for use only with Presario 900 models using 45W processors* (does not include pointing stick or diskette drive)	310693-001
	for use only with Presario 900 models using 45W processors* (includes pointing stick)	310692-001
	for use only with Evo Notebook N1005 models	291645-001
	for use only with Presario 900 models using non-45W processors*	285533-001
	*refer to item 11, “Processors,” for a listing of 45W processors and spare part numbers	
8	**Diskette drive**	285539-001
	TouchPad components	
9a	TouchPad	
9b	TouchButton board	
	All TouchPad components are included with the palm rest. Refer to item 7, “Palm rests,” for more information.	
	All TouchPad cables are included in the Miscellaneous Cable Kit. Refer to item 5, “Miscellaneous Cable Kit,” for more information.	
	The TouchPad bracket is included in the Miscellaneous Plastics/ Hardware Kit. Refer to item 2, “Miscellaneous Plastics/ Hardware Kit,” for more information.	

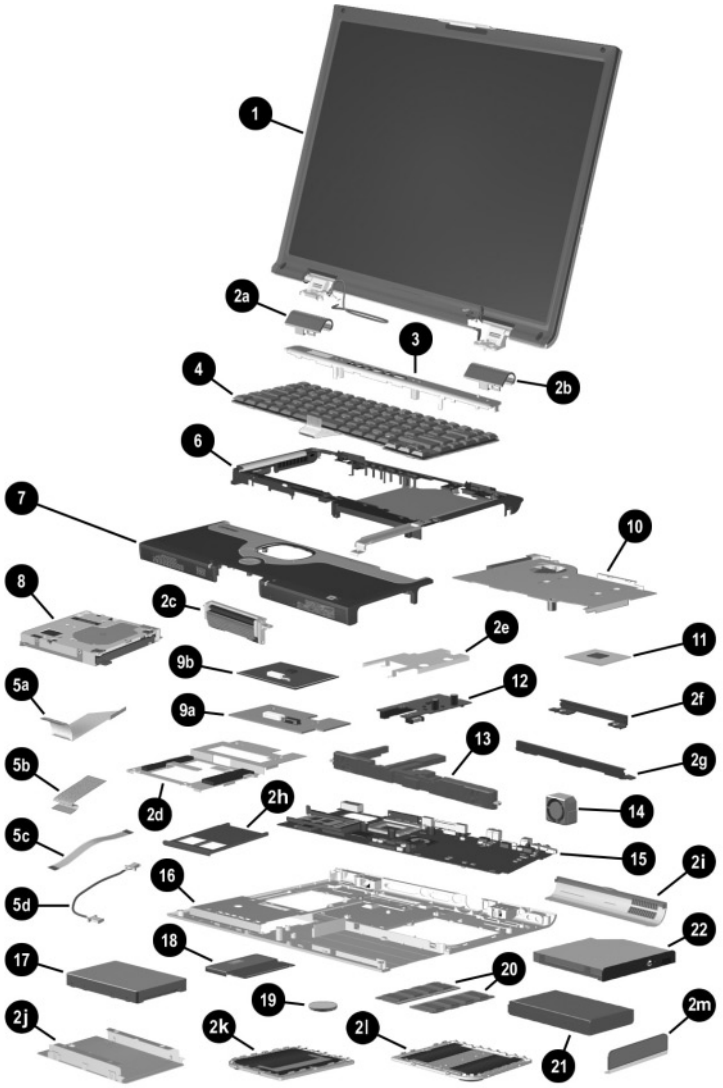


Figure 3-2. Computer System Major Components

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

Item	Description	Spare Part Number
10	**Heat spreaders**	
	for use only with AMD Athlon XP 45W processors*	309646-001
	for use only with AMD Athlon XP non-45W processors*	291594-001
	for use only with AMD Duron processors	291595-001
	*refer to item 11, “Processors,” for a listing of 45W and non-45W processors and spare part numbers	
11	**Processors**	
	The following processors are 45W processors:	
	AMD Athlon XP 2000+ 1.67-GHz processor	309643-001
	AMD Athlon XP 1900+ 1.60-GHz processor	309642-001
	AMD Athlon XP 1800+ 1.53-GHz processor	309641-001
	AMD Athlon XP 1700+ 1.47-GHz processor	309640-001
	AMD Athlon XP 1600+ 1.40-GHz processor	309639-001
	AMD Athlon XP 1500+ 1.30-GHz processor	312535-001
	AMD Athlon XP 1400+ 1.20-GHz processor	312986-001
	The following processors are non-45W processors:	
	AMD Athlon XP 1800+ 1.53-GHz processor	301644-001
	AMD Athlon XP 1700+ 1.47-GHz processor	291592-001
	AMD Athlon XP 1600+ 1.40-GHz processor	291591-001
	AMD Athlon XP 1500+ 1.30-GHz processor	291590-001
	AMD Athlon XP 1400+ 1.20-GHz processor	293664-001
	AMD Duron 1.30-GHz processor	291589-001
12	**Charger board**	285525-001
13	**Speaker assembly**	285538-001
14	**Fan**	285543-001

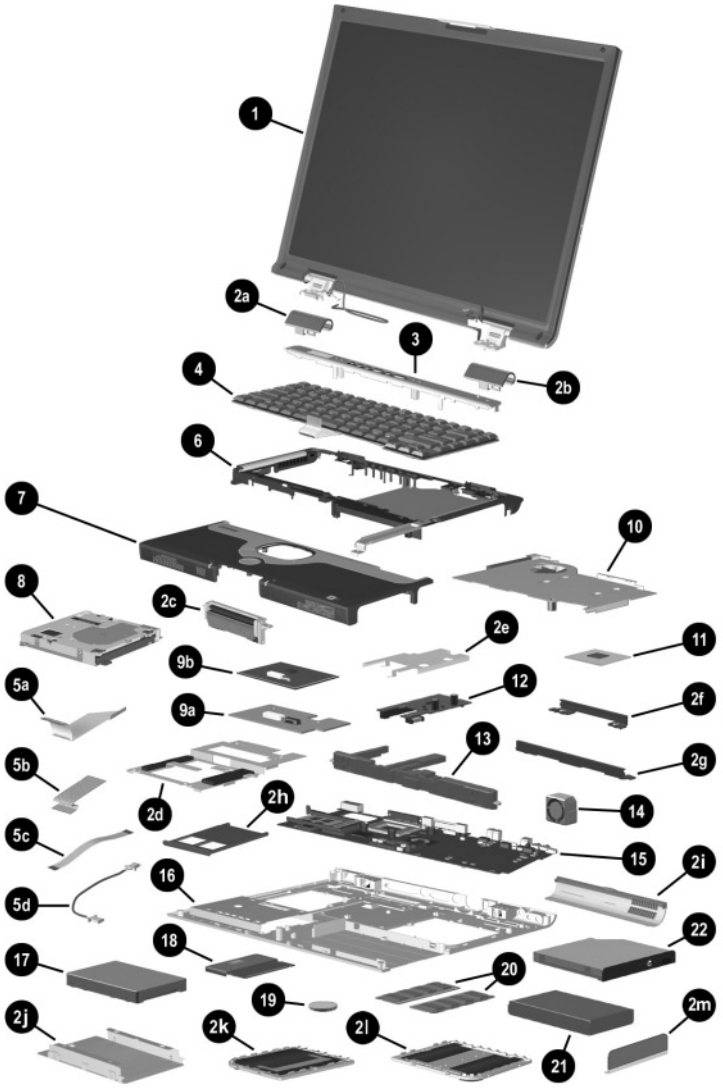


Figure 3-2. Computer System Major Components

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

Item	Description	Spare Part Number
15	**System boards** (do not contain memory)	
	for use only with notebook models using 45W processors*	309638-001
	for use only with notebook models using non-45W processors*	291588-001
	*refer to item 11, “Processors,” for a listing of 45W and non-45W processors and spare part numbers	
16	**Base enclosures** (include shields)	
	for use only with Evo Notebook N1015 models	311624-001
	for use only with Evo Notebook N1005 models	295718-001
	for use only with Presario 900 models using 45W* processors	310691-001
	for use only with Presario 900 models using non-45W* processors	291593-001
	*refer to item 11, “Processors,” for a listing of 45W and non-45W processors and spare part numbers	
17	**Hard drives**	
	40 GB	273491-001
	30 GB	192406-001
	20 GB	288291-001
18	**Mini PCI communications boards**	
	U.S. modem	248776-001
	International modem	248777-002 and 285545-001

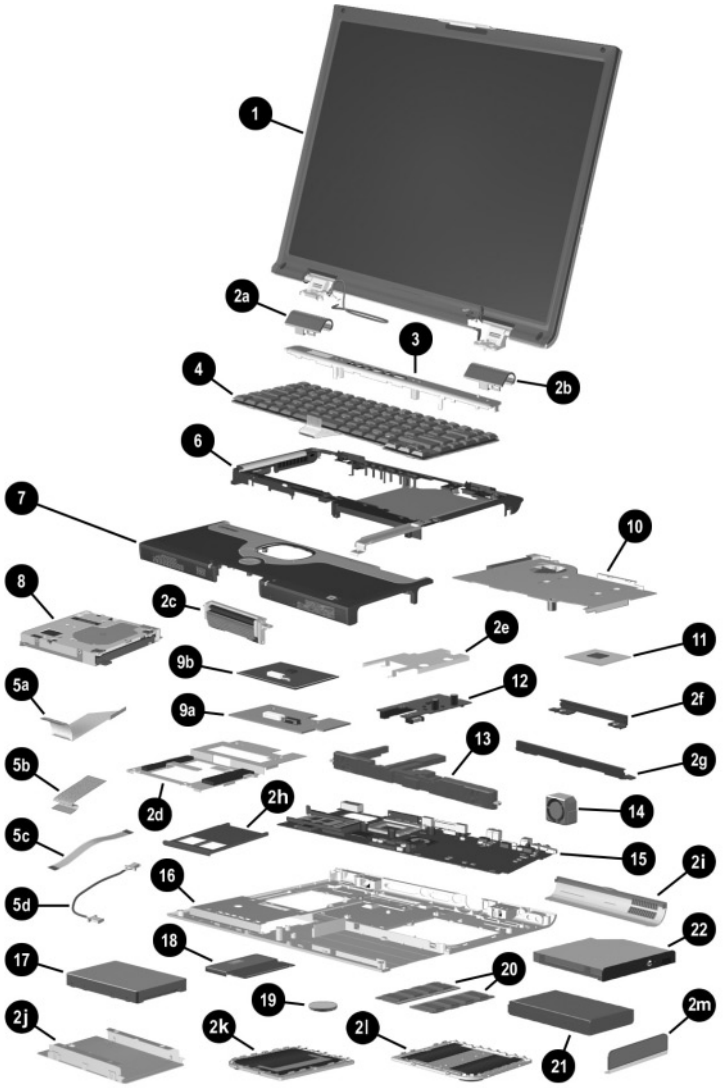


Figure 3-2. Computer System Major Components

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

Item	Description	Spare Part Number
19	**Disk cell RTC battery, 3 volt, 36 MAh, Li ion**	279769-001
20	**Memory expansion boards**	
	512 MB	285524-001
	256 MB	285523-001
	128 MB	285522-001
21	**Battery packs**	
	8 cell, 62 Wh, 3.6 Ah, Li ion	289053-001
	8 cell, 58 Wh, 3.6 Ah, Li ion	281766-001
22	**Optical drive**	
	24X Max CD-ROM/CD-RW combination drive	310690-001
	24X Max CD-ROM drive	285526-001 and 311954-001
	16X Max CD-RW drive	285528-001
	8X Max DVD-ROM drive	311280-001
	8X Max DVD-ROM drive	285527-001
	8X Max DVD-ROM/CD-RW combination drive	311281-001
	8X Max DVD-ROM/CD-RW combination drive	285529-001

3.3 Miscellaneous Plastics/Hardware Kit

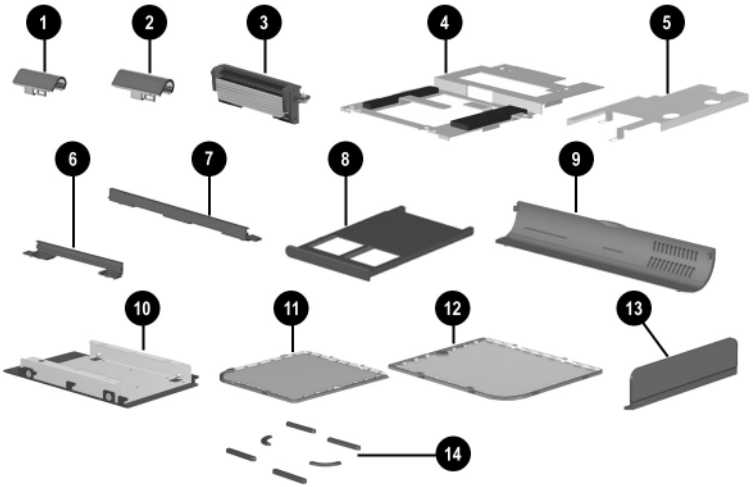


Figure 3-3. Miscellaneous Plastics/Hardware Kit Components

Table 3-2
Miscellaneous Plastics/Hardware Kit Components
Spare Part Number 285541-001

Item	Description	Item	Description
1	Left hinge cover	8	PC Card space saver
2	Right hinge cover	9	*Connector cover
3	*Display release assembly	10	*Hard drive bracket
4	TouchPad bracket	11	*Mini PCI compartment cover
5	Charger board shield	12	*Memory expansion compartment cover
6	Optical drive rear alignment rail	13	*Battery bezel
7	Optical drive front alignment rail	14	Computer feet

*Includes two of each part, one with carbon finish for use with Evo Notebook N1005 models and one with silver finish for use with Presario 900 models

3.4 Miscellaneous Cable Kit

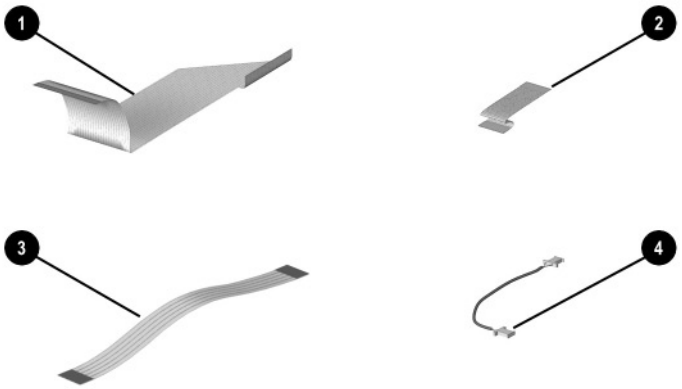


Figure 3-4. Miscellaneous Cable Kit Components

Table 3-3
Miscellaneous Cable Kit Components
Spare Part Number 285540-001

Item	Description
1	Diskette drive cable
2	TouchButton board-to-TouchPad cable
3	System board-to-TouchButton board cable
4	Modem cable

3.5 Mass Storage Devices

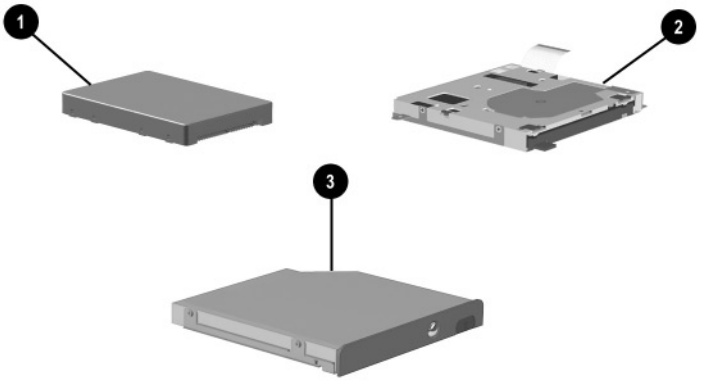


Figure 3-5. Mass Storage Devices

Table 3-4
Mass Storage Devices

Item	Description	Spare Part Number
1	**Hard drives**	
	40 GB	273491-001
	30 GB	192406-001
	20 GB	288291-001
2	**Diskette drive**	285539-001
3	**Optical drives**	
	24X Max CD-ROM/CD-RW combination drive	310690-001
	24X Max CD-ROM drive	285526-001 and 311954-001
	16X Max CD-RW drive	285528-001
	8X Max DVD-ROM drive	311280-001
	8X Max DVD-ROM drive	285527-001
	8X Max DVD-ROM/CD-RW combination drive	311281-001
	8X Max DVD-ROM/CD-RW combination drive	285529-001

3.6 Miscellaneous

Table 3-5
Spare Parts: Miscellaneous (not illustrated)

Description	Spare Part Number
Logo Kit	285547-001
Screw Kit, includes the following screws (Refer to Appendix C, "Screw Listing," for more information on screw specifications and usage.) ■ Torx T8 Metric 2.5 × 5.0 ■ Torx T8 Metric 2.5 × 8.0 ■ Torx T8 Metric 2.5 × 9.0 ■ Torx T8 Metric 2.5 × 14.0 shoulder screw ■ Phillips Metric 3.0 × 3.0 ■ Phillips Metric 2.5 × 4.0 ■ Phillips Metric 2.0 × 4.5	285542-001
AC adapter, 90 W, 3 wire, slim line	286755-001
Power cords, 3 wire	
Australian 170513-011 Danish 170513-081 International 170513-002 Italian 170513-061 Korean 170513-AD1 Swiss 170513-115 U.K. English 170513-031 U.S. English 170513-001	

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
- Torx T8 screwdriver
- 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.

There are 57 screws, in seven different sizes, that must be removed and replaced when servicing the computer. 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 computer serial number to Compaq when requesting information or ordering spare parts. The serial number is located on the bottom of the computer as indicated in Figure 5-1.

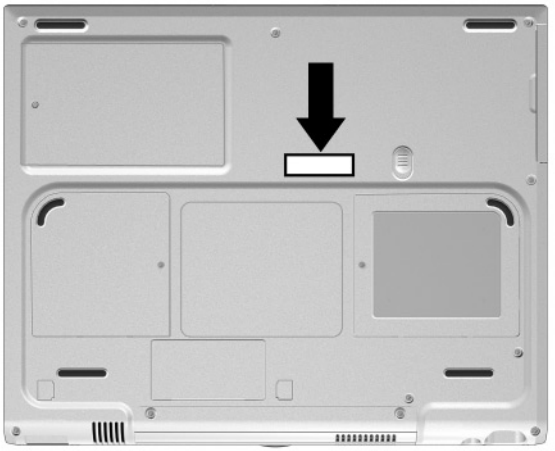


Figure 5-1. Serial Number Location

5.2 Disassembly Sequence Chart

Use the following chart to determine the section number to be referenced when removing computer components.

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the computer for disassembly	
	Battery pack	0
	Optical drive	2
	Hard drive	1 to remove the hard drive 4 to remove the hard drive from hard drive bracket
5.4	Computer feet	0
5.5	Memory expansion board	1
5.6	Mini PCI communications board	1
5.7	Disk cell RTC battery	0
5.8	Connector cover	2
5.9	LED cover	2
5.10	Keyboard	0
5.11	Heat spreader	7
5.12	Processor	0

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.13	Display	6
5.14	Palm rest	6
5.15	Diskette drive	3
5.16	TouchPad components	4
5.17	Display release assembly	2
5.18	Charger board	3
5.19	Speaker assembly	0
5.20	Top cover	5
5.21	Fan	0
5.22	System board	7
5.23	Modem cable	1

5.3 Preparing the Computer for Disassembly

Perform the following steps before disassembling the computer:

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

Battery Packs Spare Part Number Information	
8 cell, 62 Wh, 3.6 Ah, Li ion	289053-001
8 cell, 58 Wh, 3.6 Ah, Li ion	281766-001

3. Remove the battery pack by following these steps:
   a. Turn the computer bottom side up with the left side facing forward.
   b. Slide and hold the battery release latch ❶ toward the back of the computer (Figure 5-2).
   c. Use the notch in the battery bay to slide the battery pack out of the battery bay ❷.
   d. Remove the battery pack.

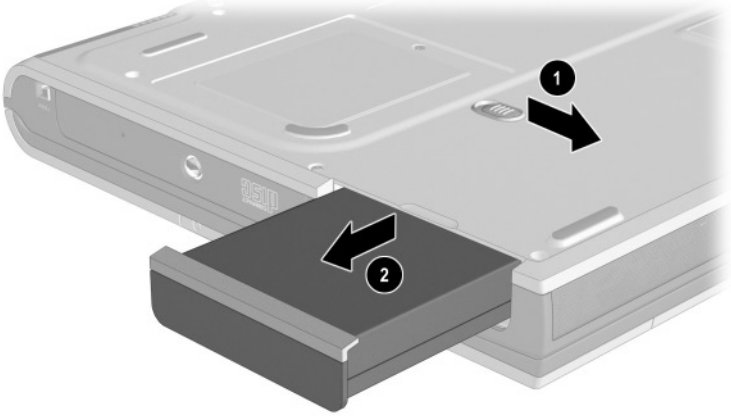


Figure 5-2. Releasing the Battery Pack

Reverse the preceding procedures to install the battery pack.

4. To remove the battery bezel, slide the bezel straight down (Figure 5-3).

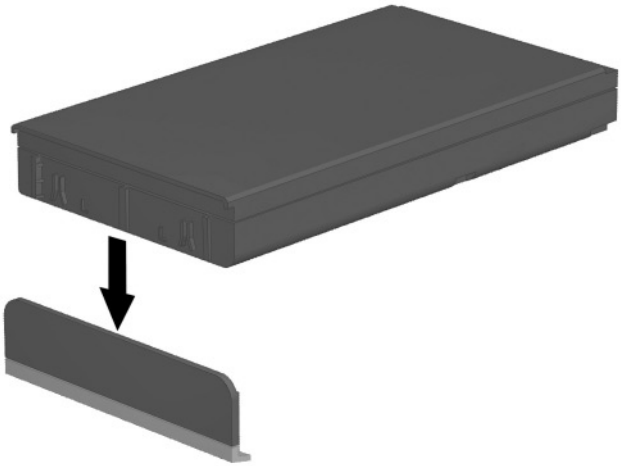


Figure 5-3. Removing the Battery Bezel

Battery bezels are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

Reverse the preceding procedures to install the battery bezel.

Optical Drives Spare Part Number Information	
24X Max CD-ROM/CD-RW combination drive	310690-001
24X Max CD-ROM drive	285526-001 and 311954-001
16X Max CD-RW drive	285528-001
8X Max DVD-ROM drive	311280-001
8X Max DVD-ROM drive	285527-001
8X Max DVD-ROM/CD-RW combination drive	311281-001
8X Max DVD-ROM/CD-RW combination drive	285529-001

5. Remove the optical drive by following these steps:

   a. Turn the computer bottom side up with the left side facing forward.

   b. Remove the two TM2.5 × 5.0 screws that secure the optical drive to the base enclosure (Figure 5-4).

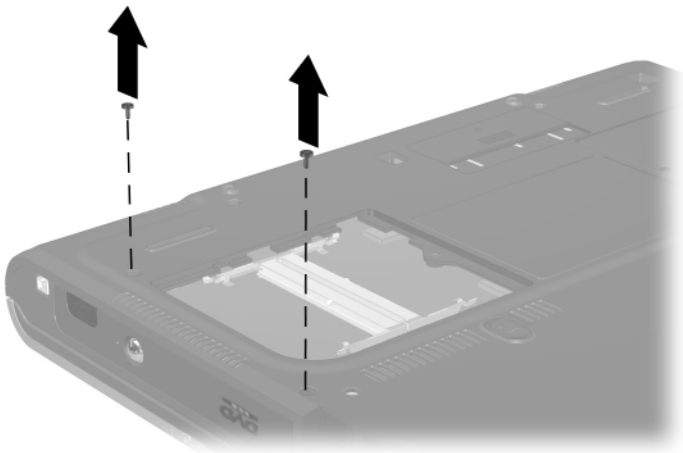


Figure 5-4. Removing the Optical Drive Screws

c. Turn the computer top side up with the right side facing forward.

d. Insert a paper clip or similar thin metal rod into the manual release hole on the front bezel of the optical drive ❶ (Figure 5-5). Press firmly.

e. Grasp the drive bezel and slide the drive out of the optical drive bay ❷.

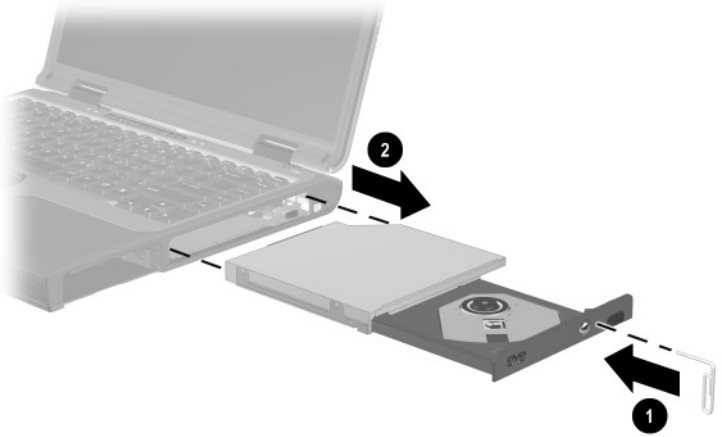


Figure 5-5. Removing an Optical Drive

Reverse the preceding procedures to install a optical drive.

Hard Drives Spare Part Number Information	
40 MB	273491-001
30 MB	192406-001
20 MB	288291-001

6. Remove the hard drive by following these steps:
   a. Turn the computer bottom side up with the right side facing forward.
   b. Remove the TM2.5 ×8.0 hard drive retention screw ❶ (Figure 5-6).
   c. Slide the hard drive forward ❷ to unseat the hard drive connector from the system board.

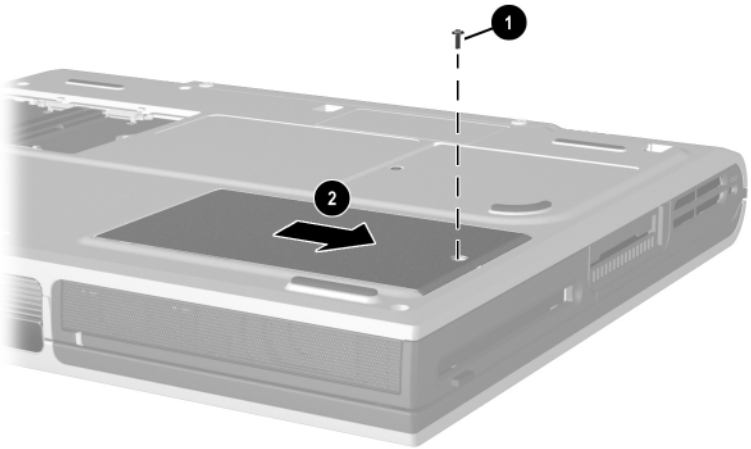


Figure 5-6. Removing the Hard Drive Screw

d. Lift the front edge of the hard drive ❶ until it rests at an angle (Figure 5-7).

e. Remove the hard drive from the hard drive bay ❷.

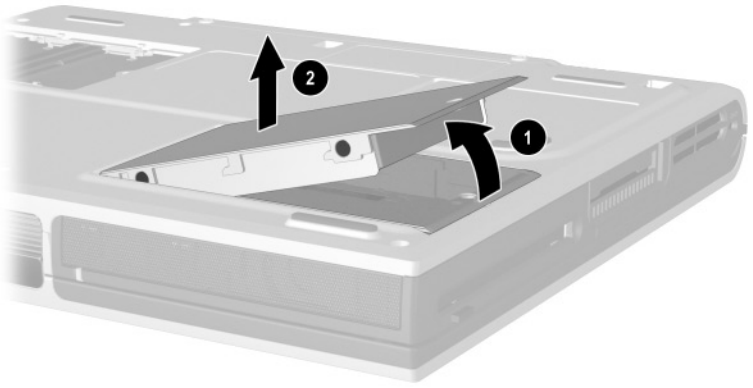


Figure 5-7. Removing the Hard Drive

7. Remove the four PM3.0 × 3.0 screws ❶ that secure the hard drive to the hard drive bracket (Figure 5-8).
8. Slide the hard drive out of the hard drive bracket ❷.

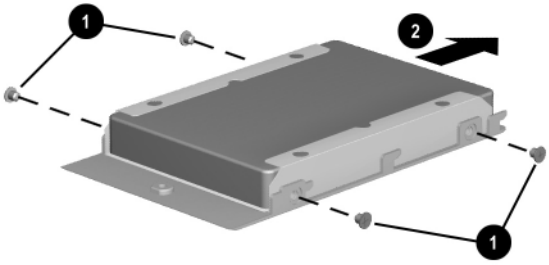


Figure 5-8. Removing the Hard Drive Bracket

Hard drive brackets are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

Reverse the preceding procedures to install the hard drive and hard drive bracket.

5.4 Computer Feet

The computer feet are adhesive-backed rubber pads. The computer feet are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001. The computer feet attach to the base enclosure as illustrated in Figure 5-9.

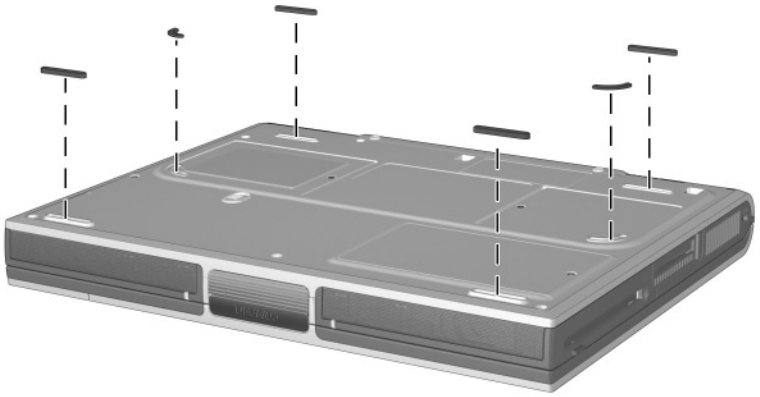


Figure 5-9. Replacing the Computer Feet

5.5 Memory Expansion Board

Memory Expansion Boards Spare Part Number Information	
512 MB	285524-001
256 MB	285523-001
128 MB	285222-001

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

3. Remove the PM2.5 × 4.0 screw ❶ that secures the memory expansion compartment cover to the base enclosure (Figure 5-10).
4. Slide the cover to the right ❷.
5. Lift the right edge of the cover and swing it to the left ❸.
6. Remove the cover ❹.

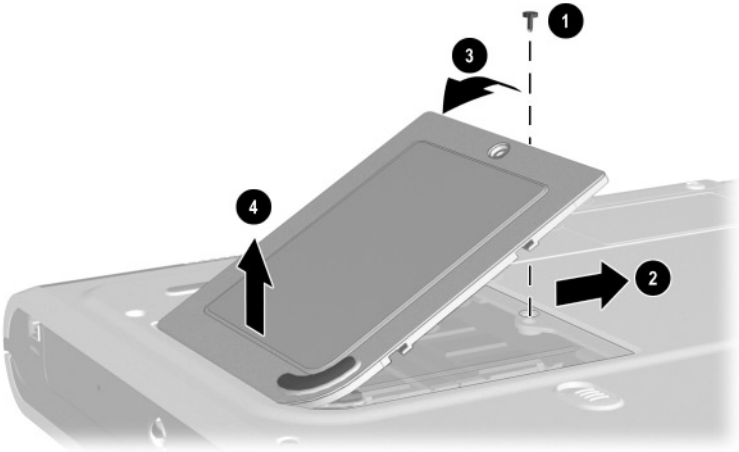


Figure 5-10. Removing the Memory Expansion Compartment Cover

Memory expansion compartment covers are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

7. Spread the memory expansion slot retaining tabs ❶ to release the memory expansion board. The board tilts up at a 45-degree angle (Figure 5-11).
8. Remove the board by pulling it away from the connector at a 45-degree angle ❷.

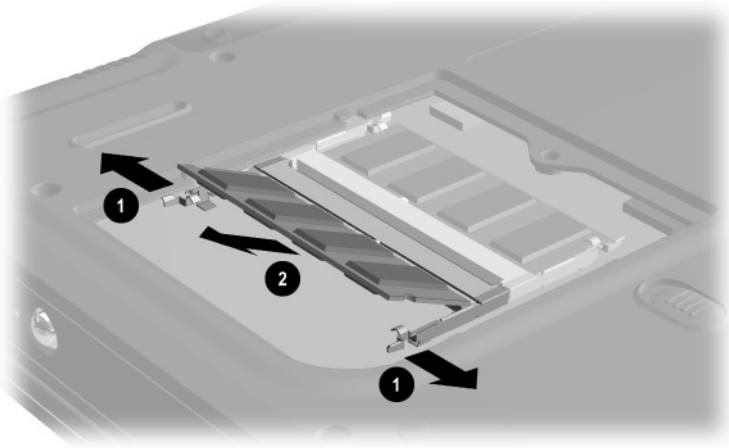


Figure 5-11. Removing a Memory Expansion Board

Reverse the preceding procedures to install a memory expansion board.

5.6 Mini PCI Communications Board

Mini PCI Communication Boards Spare Part Number Information	
U.S. modem	248776-001
International modem	248777-002 and 285545-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the PM2.5 × 4.0 screw ❶ that secures the mini PCI compartment cover to the base enclosure (Figure 5-12).
4. Slide the cover to the left ❷.
5. Lift the left edge of the cover and swing it to the right ❸.
6. Remove the cover ❹.

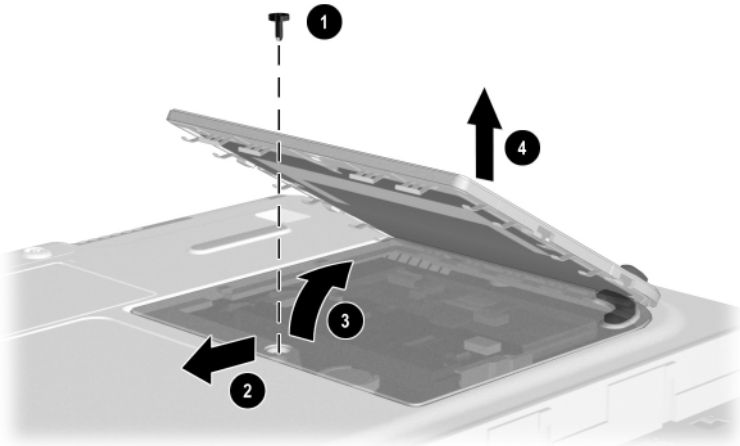


Figure 5-12. Removing the Mini PCI Communications Slot Cover

Mini PCI compartment covers are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

7. Disconnect the modem cable from the mini PCI communications board ❶ (Figure 5-13).
8. Spread the retaining tabs ❷ on each side of the mini PCI communications board. The board releases and rests at an angle.
9. Remove the board by pulling it away from the socket at an angle ❸.

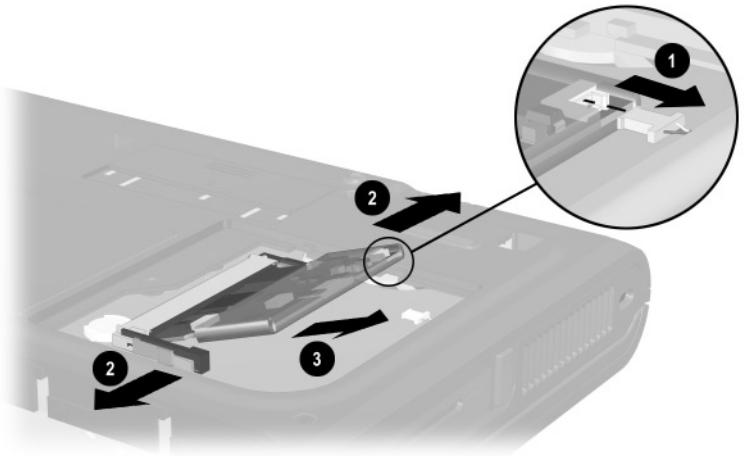


Figure 5-13. Removing a Mini PCI Communications Board

Reverse the preceding procedures to install a mini PCI communications board.

5.7 Disk Cell RTC Battery

Disk Cell RTC Battery Spare Part Number Information	
Disk cell RTC battery	279769-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the mini PCI compartment cover (Section 5.6).
3. Remove the RTC battery from its socket on the system board (Figure 5-14).

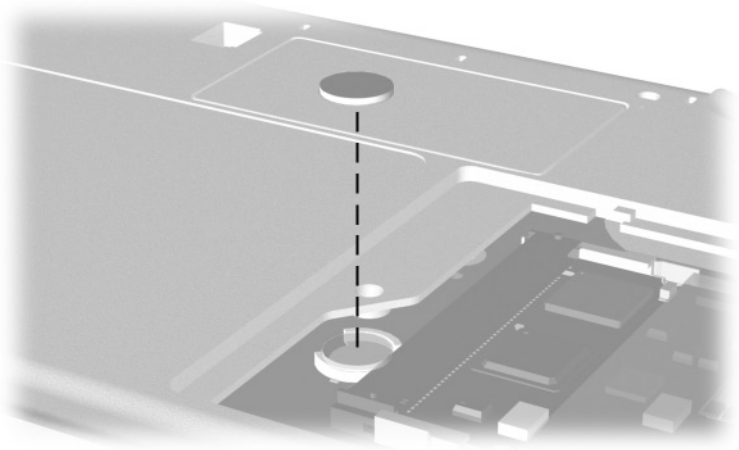


Figure 5-14. Removing the Disk Cell RTC Battery

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

5.8 Connector Cover

Connector covers are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the two TM2.5 × 5.0 screws ❶ that secure the connector cover to the base enclosure (Figure 5-15).
4. Open the connector cover ❷.
5. Remove the connector cover from the base enclosure ❸.

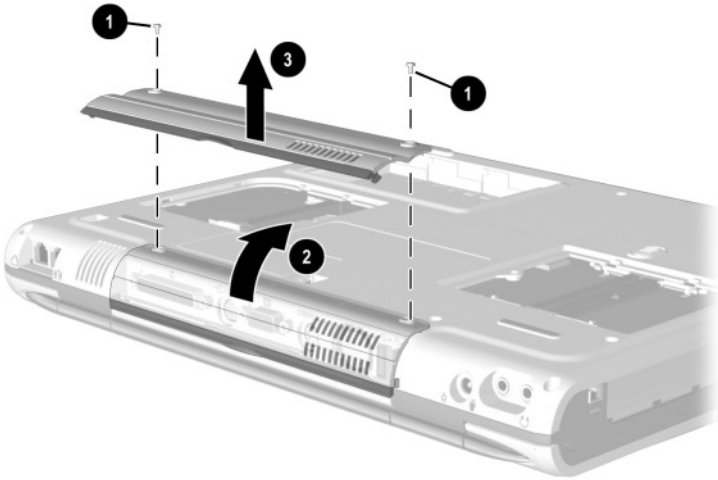


Figure 5-15. Removing the Connector Cover

Reverse the preceding procedures to install the connector cover.

5.9 LED Cover

LED Cover Spare Part Number Information	
For use only with Evo N1015 models and Presario 900 models using 45W processors*	310695-001
For use only with Evo N1005 models and Presario 900 models using non-45W processors*	285536-001
*refer to Section 5.12, “Processor,” for a listing of 45W and non-45W processors and spare part numbers	

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the two TM2.5 × 8.0 screws that secure the LED cover to the base enclosure (Figure 5-16).

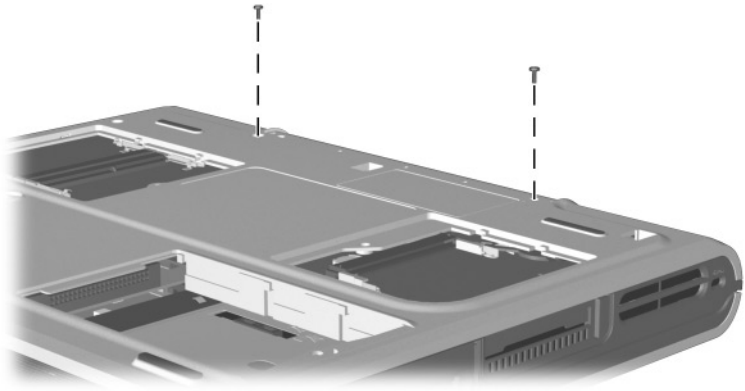


Figure 5-16. Removing the LED Cover Screws

4. Turn the computer top side up with the front facing forward.
5. Open the computer.

6. Press down and hold the **F1** and **F2** keys.
7. Insert a pointed tool into the notch in the LED cover ❶ between the **F1** and **F2** keys and lift up (Figure 5-17).
8. Press down and hold the **Pause** and **Scroll** keys.
9. Insert a pointed tool into the notch in the LED cover ❷ between the **Pause** and **Scroll** keys and lift up.
10. Remove the LED cover ❸.

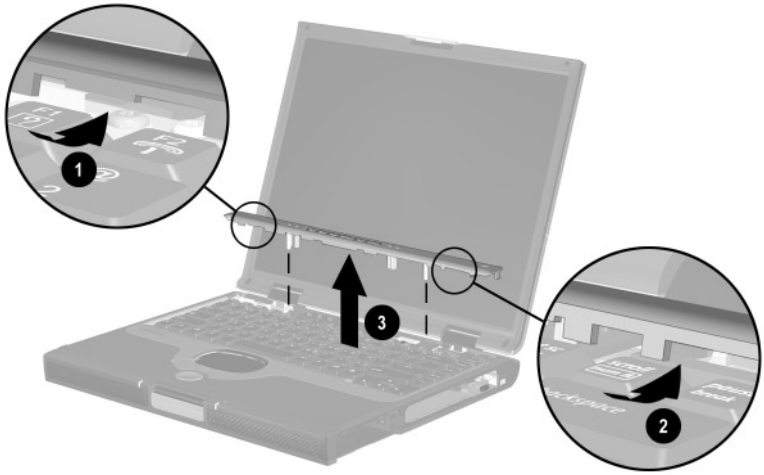


Figure 5-17. Removing the LED Cover

Reverse the preceding procedures to install the LED cover.

5.10 Keyboard

Keyboards
Spare Part Number Information

For use only with TouchPad notebook models

Arabic	285530-171	Korean	285530-AD1
Belgian	285530-181	Latin American Spanish	285530-161
Brazilian	285530-201	Norwegian	285530-091
Chinese	285530-AA1	Portuguese	285530-131
Czech	285530-221	Russian	285530-251
Danish	285530-081	Slovakian	285530-231
French	285530-051	Spanish	285530-071
French Canadian	285530-121	Swedish	285530-101
German	285530-041	Swiss	285530-111
Hebrew	285530-BB1	Taiwanese	285530-AB1
Hungarian	285530-211	Turkish	285530-141
International	285530-002	U.K. English	285530-031
Italian	285530-061	U.S. English	285530-001
Japanese	285530-291		

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the LED cover (Section 5.9).

3. Lift the back edge of the keyboard and swing it forward until it rests on the palm rest (Figure 5-18).

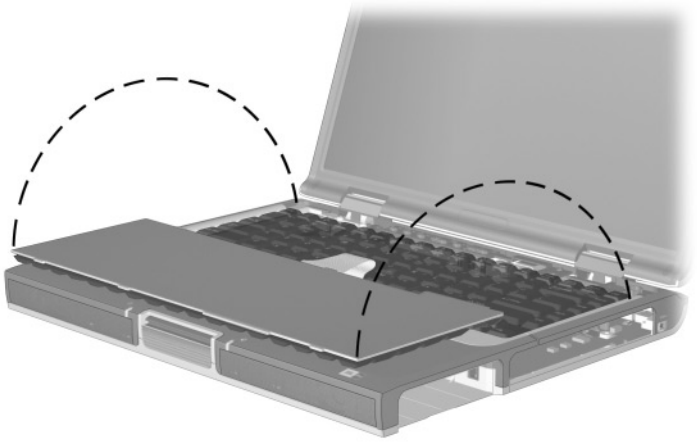


Figure 5-18. Releasing the Keyboard

4. Release the ZIF connector ❶ to which the keyboard cable is connected and disconnect the keyboard cable ❷ from the system board (Figure 5-19).

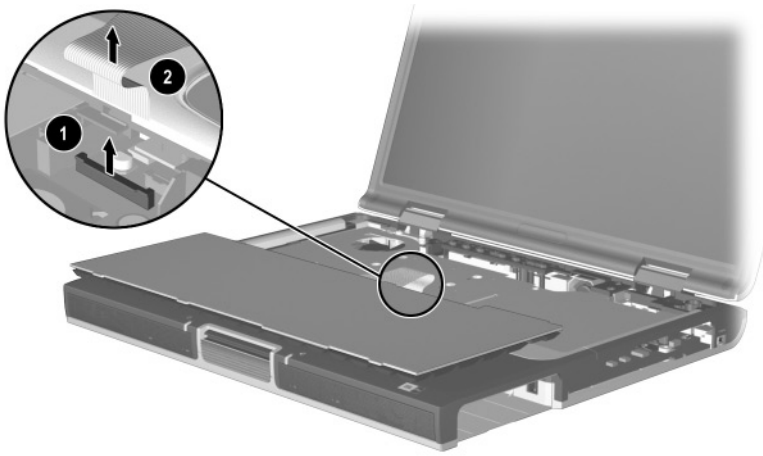


Figure 5-19. Disconnecting the Keyboard Cable

5. Remove the keyboard.

Reverse the preceding procedures to install the keyboard.

5.11 Heat Spreader

Heat Spreaders Spare Part Number Information	
For use only with AMD Athlon XP 45W processors*	309646-001
For use only with AMD Athlon XP non-45W processors*	291594-001
For use only with AMD Duron processors	291595-001

*refer to Section 5.12, “Processor,” for a listing of 45W and non-45W processors and spare part numbers

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the LED cover (Section 5.9).
3. Remove the keyboard (Section 5.10).

4. Remove the following screws:
   - ❏ One TM2.5 × 5.0 screw ❶ next to the fan (Figure 5-20)
   - ❏ Four spring-loaded TM2.5 × 14.0 shoulder screws ❷

The four spring-loaded shoulder screws should be removed and installed in the "1," "2," "3," "4" sequence stamped on the heat spreader adjacent to each screwhole.

   - ❏ One TM2.5 × 8.0 screw ❸ next to the keyboard and TouchPad ZIF connectors

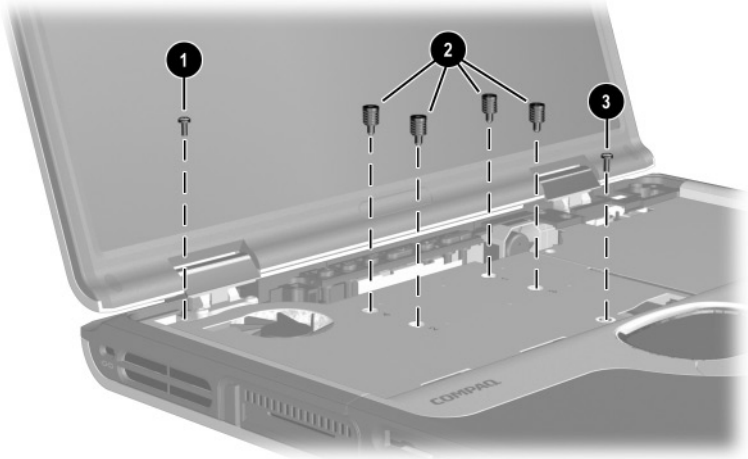


Figure 5-20. Removing the Heat Spreader Screws

5. Remove the TM2.5 × 5.0 screw ❶ that secures the display video cable ground loop (Figure 5-21).
6. Remove the display video cable ❷ from the routing channel in the heat spreader.

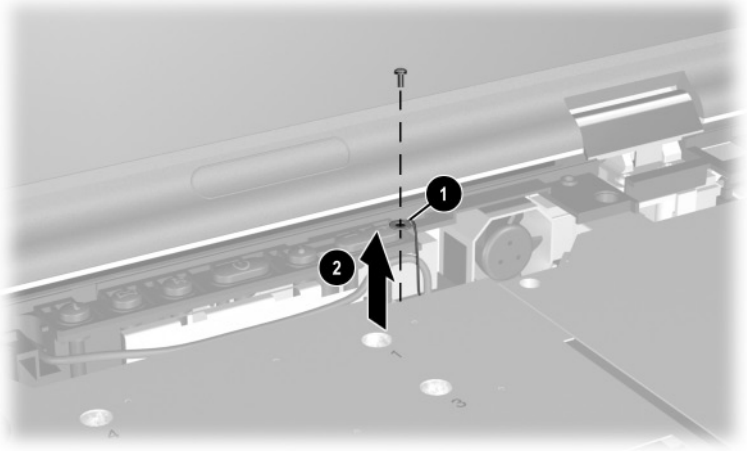


Figure 5-21. Removing the Display Video Cable Ground Cable

7. Lift the right side of the heat spreader until it rests at an angle ❶ (Figure 5-22).
8. Slide the heat spreader to the right at an angle ❷.

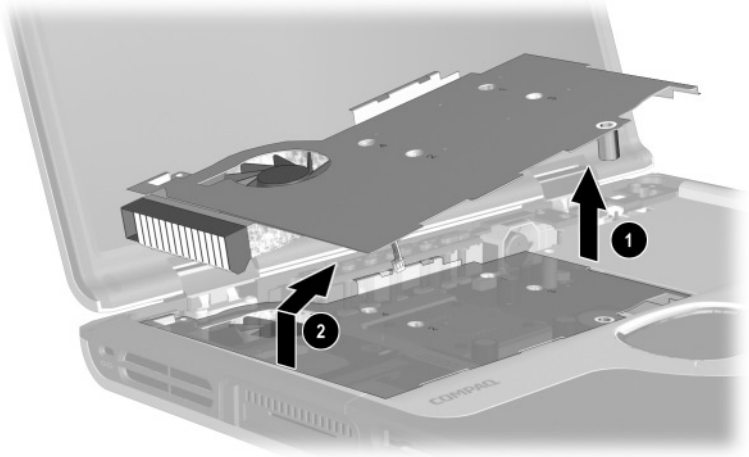


Figure 5-22. Removing the Heat Spreader

9. Disconnect the fan cable from the system board (Figure 5-23).

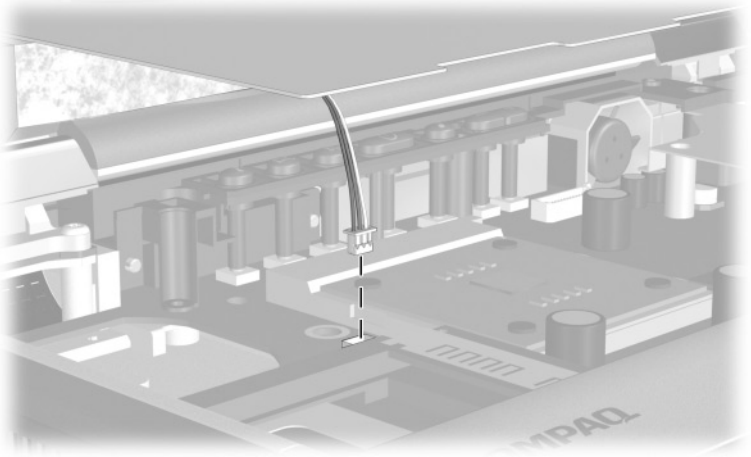


Figure 5-23. Disconnecting the Fan Cable

10. Remove the heat spreaker from the base enclosure.

Reverse the preceding procedures to install the heat spreader.

5.12 Processor

Processors Spare Part Number Information	
The following processors are 45W processors:	
AMD Athlon XP 2000+ 1.67-GHz processor	309643-001
AMD Athlon XP 1900+ 1.60-GHz processor	309642-001
AMD Athlon XP 1800+ 1.53-GHz processor	309641-001
AMD Athlon XP 1700+ 1.47-GHz processor	309640-001
AMD Athlon XP 1600+ 1.40-GHz processor	309639-001
AMD Athlon XP 1500+ 1.30-GHz processor	312535-001
AMD Athlon XP 1400+ 1.20-GHz processor	312986-001
The following processors are non-45W processors:	
AMD Athlon XP 1800+ 1.53-GHz processor	301644-001
AMD Athlon XP 1700+ 1.47-GHz processor	291592-001
AMD Athlon XP 1600+ 1.40-GHz processor	291591-001
AMD Athlon XP 1500+ 1.30-GHz processor	291590-001
AMD Athlon XP 1400+ 1.20-GHz processor	293664-001
AMD Duron 1.30-GHz processor	291589-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.9)
   b. Keyboard (Section 5.10)
   c. Heat spreader (Section 5.11)

2. Slide the front end of the processor release bar ❶ to the right until it clears the clip on the processor bracket (Figure 5-24).
3. Swing the processor release bar up and back ❷ until it rests in an upright position.
4. Lift the processor straight up ❸ and remove it from the processor socket.

When installing the processor, make sure the gold triangle (refer to detail) is in the right rear corner.

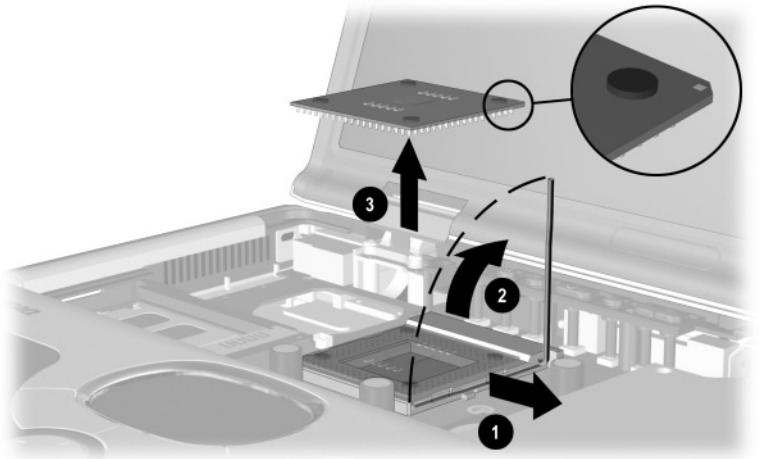


Figure 5-24. Removing the Processor

Reverse the preceding procedures to install the processor.

5.13 Display

Displays Spare Part Number Information	
For use only with Evo Notebook N1015 models	
15.0-inch, TFT, XGA	310689-001
14.1-inch, TFT, XGA	311286-001
13.3-inch, TFT, XGA	309645-001
For use only with Evo Notebook N1005 models	
15.0-inch, TFT, SXGA+	291643-001
15.0-inch, TFT, XGA	291642-001
14.1-inch, TFT, XGA	291641-001
For use only with Presario 900 models using 45W processors (refer to Section 5.12, "Processor," for a listing of 45W and non-45W processors and spare part numbers)	
15.0-inch, TFT, XGA	310688-001
14.1-inch, TFT, XGA	310687-001
13.3-inch, TFT, XGA	309644-001
For use only with Presario 900 models	
15.0-inch, TFT, SXGA+	286754-001
15.0-inch, TFT, XGA	285521-001
14.1-inch, TFT, XGA	285520-001
Display Inverter Board Kit (not illustrated)	293348-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the LED cover (Section 5.9).
3. Remove the keyboard (Section 5.10).

4. Remove the TM2.5 × 5.0 screw ❶ that secures the display inverter cable ground loop to the heat spreader (Figure 5-25).
5. Disconnect the display inverter cable ❷ from the system board.
6. Remove the TM2.5 × 5.0 screw ❸ that secures the display video cable ground loop to the heat spreader.
7. Disconnect the display video cable ❹ from the system board.
8. Remove the display video cable from the routing channels in the heat spreader and the top cover ❺.

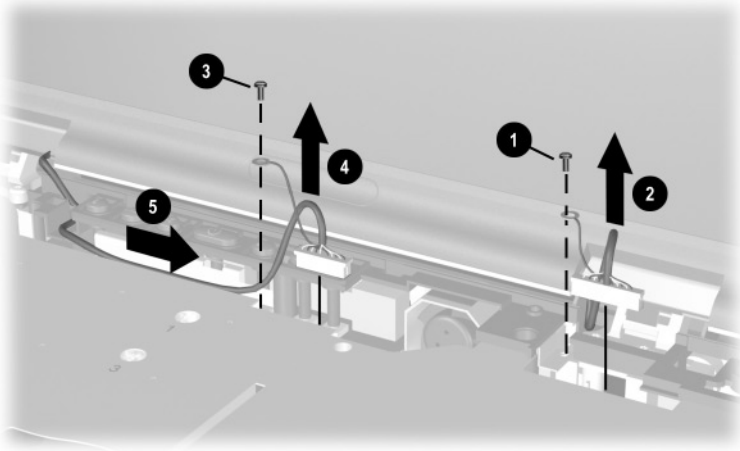


Figure 5-25. Removing the Display Screws and Disconnecting the Display Cables

CAUTION: Make sure the display is supported when removing the following screws. The display is secured to the computer only by these screws and will fall if not supported during screw removal.

9. Remove the four TM2.5 × 9.0 screws ❶ that secure the display to the base enclosure (Figure 5-26).
10. Remove the display from the base enclosure ❷.

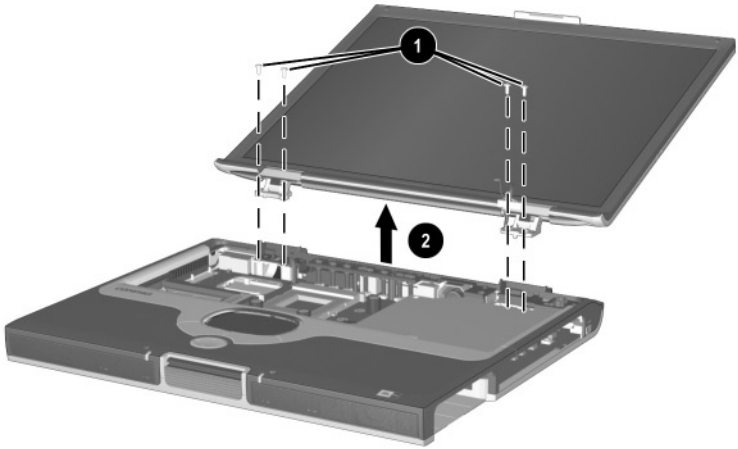


Figure 5-26. Removing the Display

11. If necessary, remove the display hinge covers by pressing up on the bottom of the covers from behind the display assembly (Figure 5-27). Note that the hinge covers are not interchangeable.

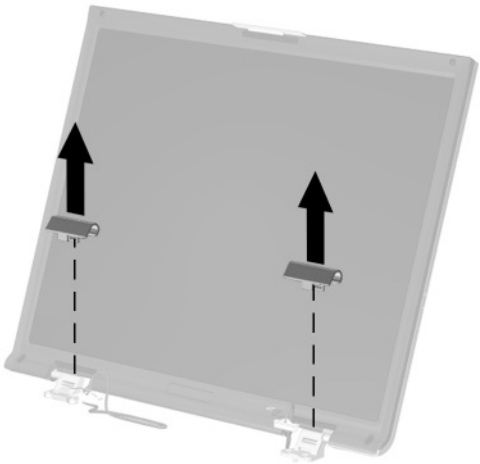


Figure 5-27. Removing the Display Hinge Covers

The display hinge covers are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

When installing the display, install the screws in the ❶, ❷, ❸, ❹ sequence shown in the Figure 5-28.

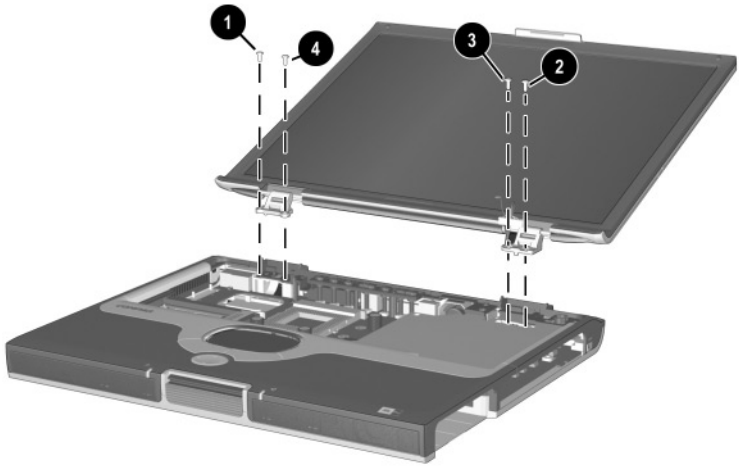


Figure 5-28. Installing the Display Screws

5.14 Palm Rest

Palm Rests Spare Part Number Information	
For use only with Evo Notebook N1015 models (does not include pointing stick or diskette drive)	311955-001
For use only with Presario 900 models using 45W processors* (does not include pointing stick or diskette drive)	310693-001
For use only with Presario 900 models using 45W processors* (includes pointing stick)	310692-001
For use only with Evo Notebook N1005 models	291645-001
For use only with Presario 900 models using non-45W processors*	285533-001

*refer to Section 5.12, “Processor,” for a listing of 45W and non-45W processors and spare part numbers

When replacing the palm rest, ensure that the following components are removed from the old palm rest and installed on the new palm rest:

- Diskette drive (Section 5.15)
- TouchPad components (Section 5.16)
- Display release assembly (Section 5.17)

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

4. Remove the five TM2.5 × 8.0 screws ❶ that secure the palm rest to the base enclosure (Figure 5-29).
5. Remove the TM2.5 × 5.0 screw ❷ that secures the palm rest to the base enclosure in the battery bay.

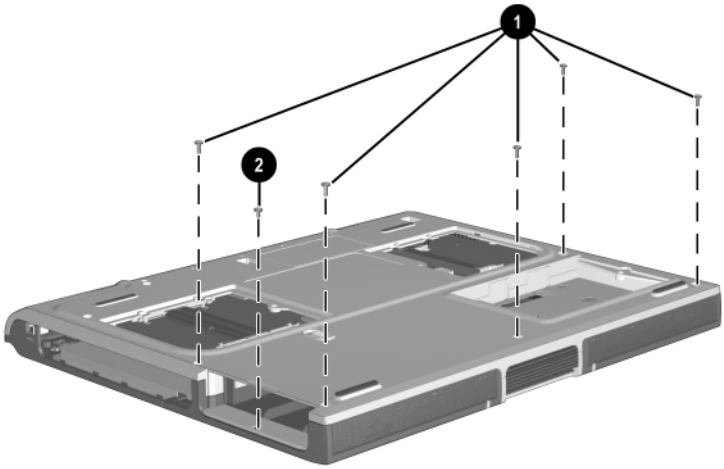


Figure 5-29. Removing the Palm Rest Screws

6. Turn the computer top side up with the front facing forward.
7. Open the computer.

8. Lift the front edge of the palm rest and swing it up and back ❶ until it rests on the top cover (Figure 5-30).
9. Release the ZIF connector to which the diskette drive cable is attached ❷ and disconnect the diskette drive cable ❸ from the system board.
10. Release the ZIF connector to which the system board-to-TouchButton board cable is attached ❹ and disconnect the cable ❺ from the TouchButton board.

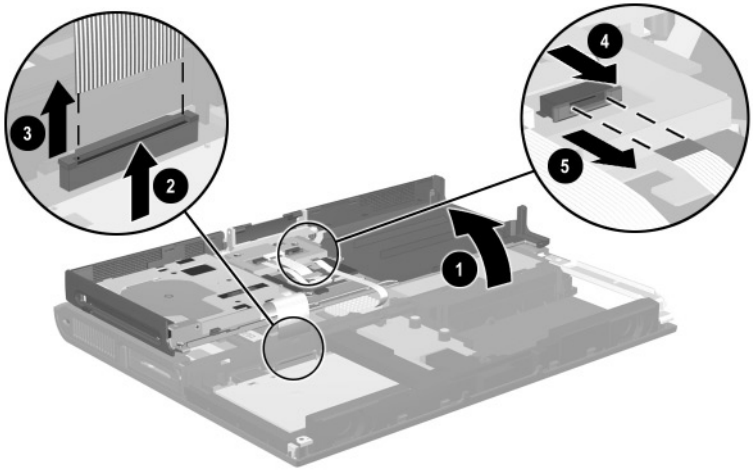


Figure 5-30. Removing the Palm Rest

11. Remove the palm rest from the base enclosure.

Reverse the preceding procedures to install the palm rest.

5.15 Diskette Drive

Diskette Drives Spare Part Number Information	
Diskette drive	285539-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the palm rest (Section 5.14).
3. Turn the palm rest bottom side up with the speaker grilles facing away from you.
4. Remove the three TM2.5 × 5.0 screws ❶ that secure the diskette drive to the palm rest (Figure 5-31).
5. Remove the diskette drive ❷ from the palm rest.

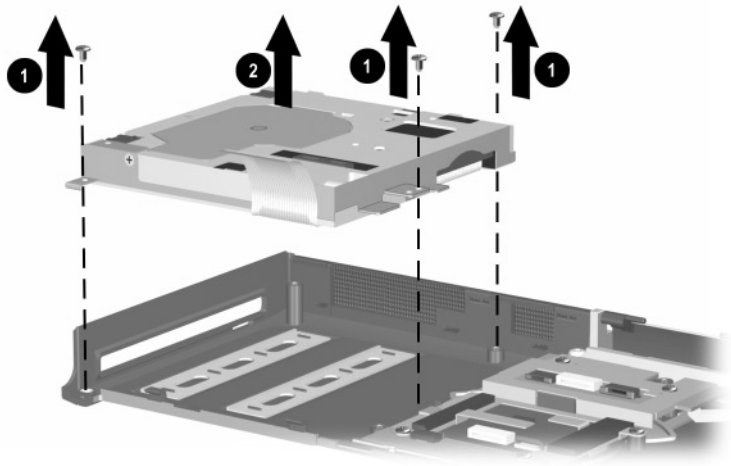


Figure 5-31. Removing the Diskette Drive

6. Release the ZIF connector ❶ to which the diskette drive cable is connected and disconnect the diskette drive cable ❷ from the drive (Figure 5-32).
7. Remove the diskette drive cable.

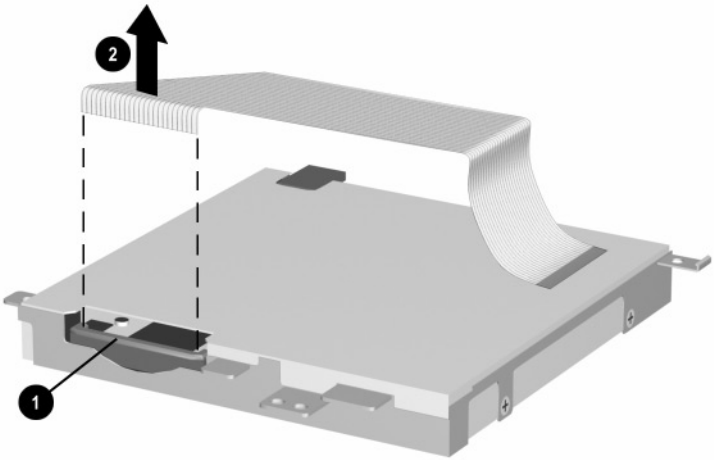


Figure 5-32. Removing the Diskette Drive Cable

Reverse the preceding procedures to install the diskette drive.

5.16 TouchPad Components

TouchPad Components Spare Part Number Information
The TouchPad components consist of the TouchPad, TouchPad bracket, TouchButton board, system board-to-TouchButton board cable, and TouchButton board-to-TouchPad cable. These components are included with the palm rest. The system board-to-TouchButton board cable and TouchButton board-to-TouchPad cable are also included in the Miscellaneous Cable Kit, spare part number 285540-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the palm rest (Section 5.14).
3. Remove the diskette drive (Section 5.15).
4. Turn the palm rest bottom side up with the speaker grilles facing away from you.

5. Disconnect both ends of the TouchPad-to-TouchButton board cable ❶ from the low insertion force (LIF) connectors on the TouchPad ❷ and TouchButton board ❸ (Figure 5-33).
6. Remove the TouchPad-to-TouchButton board cable.

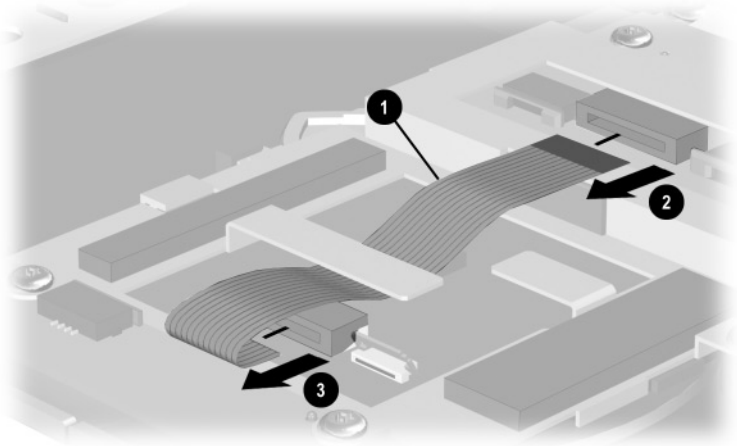


Figure 5-33. Removing the TouchPad-to-TouchButton Board Cable

7. Remove the four TM2.5 × 5.0 screws ❶ that secure the TouchPad, TouchButton board, and TouchPad bracket to the palm rest (Figure 5-34).
8. Remove the TouchPad bracket ❷, TouchButton board ❸, and TouchPad ❹ from the palm rest.

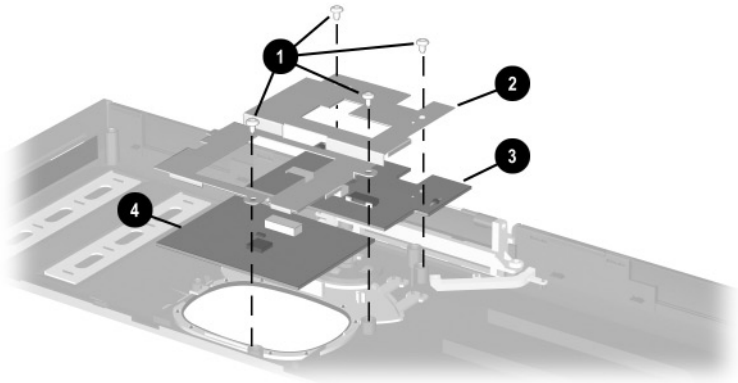


Figure 5-34. Removing the TouchPad Components

5.17 Display Release Assembly

Display release assemblies are available with carbon finish for Evo Notebook N1005 models and silver finish for Presario 900 models, and are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the palm rest (Section 5.14).
3. Turn the palm rest bottom side up with the speaker grilles facing forward.

4. Remove the two TM2.5 × 5.0 screws ❶ that secure the display release assembly to the palm rest (Figure 5-35).
5. Remove the assembly ❷ from the palm rest.

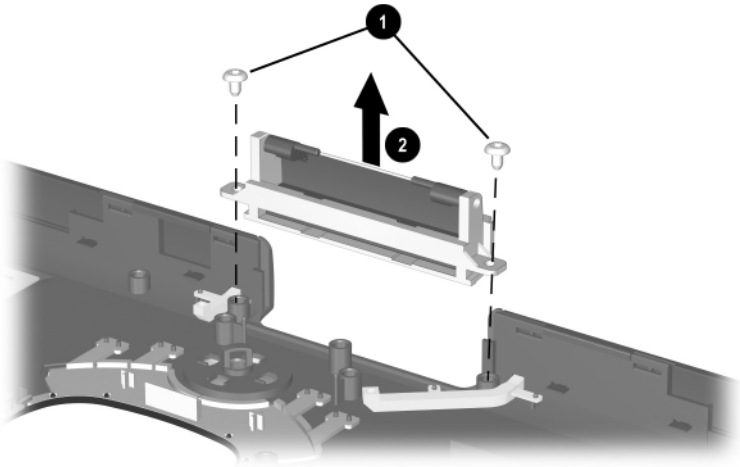


Figure 5-35. Removing the Display Release Assembly

Reverse the preceding procedures to install the display release assembly.

5.18 Charger Board

Charger Board Spare Part Number Information	
Charger board	285525-001
The charger board shield is included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.	

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the palm rest (Section 5.14).

3. Remove the three TM2.5 × 5.0 screws ❶ that secure the charger board to the base enclosure (Figure 5-36).
4. Lift the front edge of the charger board shield ❷ until it clears the base enclosure, then slide the shield forward to remove it.
5. Lift up on the back edge of the charger board ❸ to disconnect it from the system board.
6. Remove the charger board from the base enclosure.

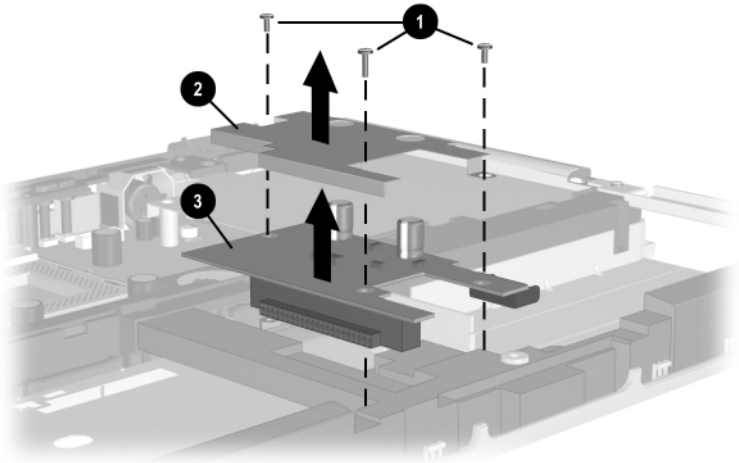


Figure 5-36. Removing the Charger Board

Reverse the preceding procedures to install the charger board.

5.19 Speaker Assembly

Speaker Assembly Spare Part Number Information	
Speaker assembly	285538-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the palm rest (Section 5.14).
3. Remove the charger board (Section 5.18).

4. Disconnect the speaker cable ❶ from the system board (Figure 5-37).
5. Swing the battery bay support bracket ❷ to the right until it clears the right edge of the speaker assembly.
6. Lift the front edge of the speaker assembly until it rests at an angle ❸.
7. Slide the speaker assembly forward and remove it ❹ from the base enclosure.

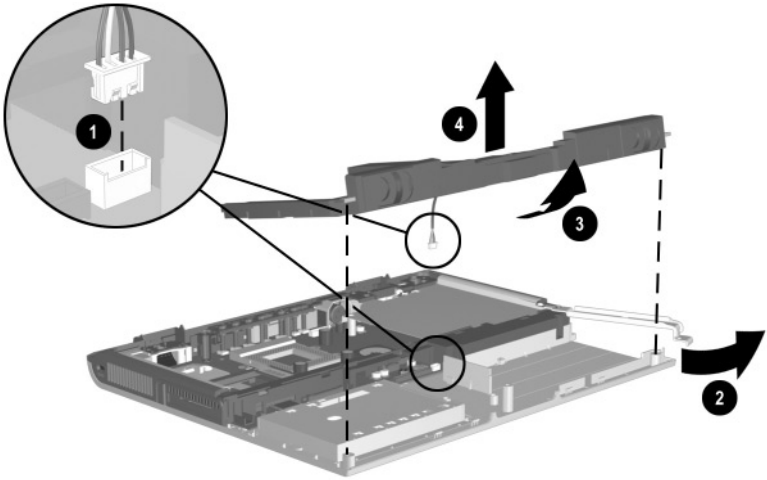


Figure 5-37. Removing the Speaker Assembly

Reverse the preceding procedures to install the speaker assembly.

5.20 Top Cover

Top Cover Spare Part Number Information	
For use only with Evo Notebook N1015 models and Presario 900 models using 45W processors*	310694-001
For use only with Evo Notebook N1005 models and Presario 900 models using non-45W processors*	285535-001
*refer to Section 5.12, "Processor," for a listing of 45W and non-45W processors and spare part numbers	

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.9)
   b. Keyboard (Section 5.10)
   c. Heat spreader (Section 5.11)
   d. Display (Section 5.13)
   e. Palm rest (Section 5.14)
2. Turn the base enclosure bottom side up with the rear panel facing forward.

3. Remove the two TM2.5 × 8.0 screws that secure the top cover to the base enclosure (Figure 5-38).

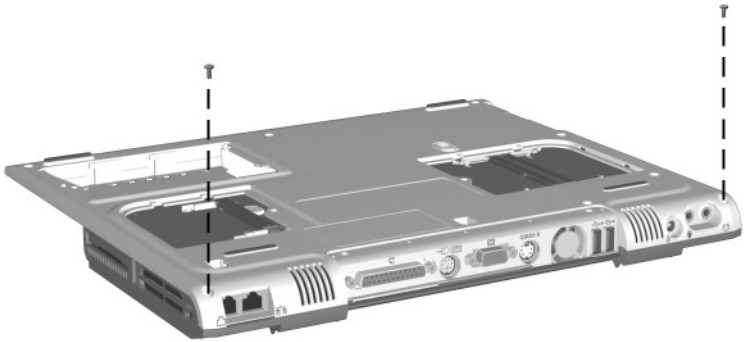


Figure 5-38. Removing the Top Cover Screws

4. Turn the base enclosure top side up with the front facing forward.

5. Remove the three TM2.5 × 5.0 screws ❶ that secure the top cover to the base enclosure (Figure 5-39).
6. Remove the top cover from the base enclosure ❷.

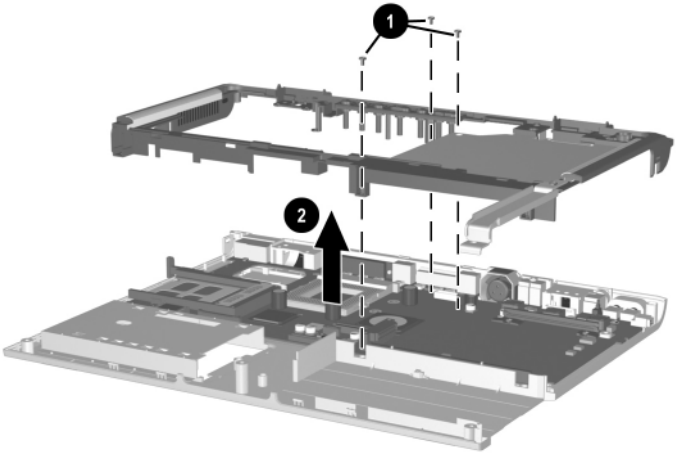


Figure 5-39. Removing the Top Cover

After the top cover is removed, the system board-to-TouchButton board cable can be removed. The system board-to-TouchButton board cable is included in the Miscellaneous Cable Kit, spare part number 285540-001.

7. Release the ZIF connector ❶ to which the system board-to-TouchButton board cable is attached and disconnect the cable ❷ from the system board (Figure 5-40).

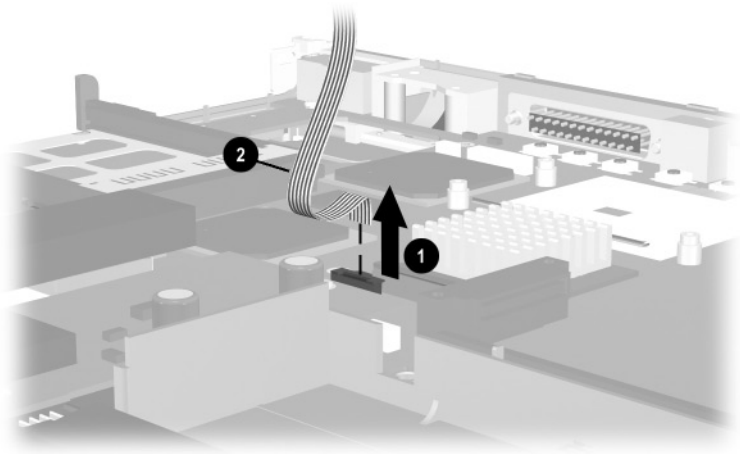


Figure 5-40. Removing the System Board-to-TouchButton Board Cable

Reverse the preceding procedures to install the top cover.

5.21 Fan

Fan Spare Part Number Information	
Fan	285543-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.9)
   b. Keyboard (Section 5.10)
   c. Heat spreader (Section 5.11)
   d. Display (Section 5.13)
   e. Palm rest (Section 5.14)
   f. Top cover (Section 5.20)

2. Disconnect the fan cable ❶ from the system board (Figure 5-41).
3. Remove the fan ❷ from the base enclosure.

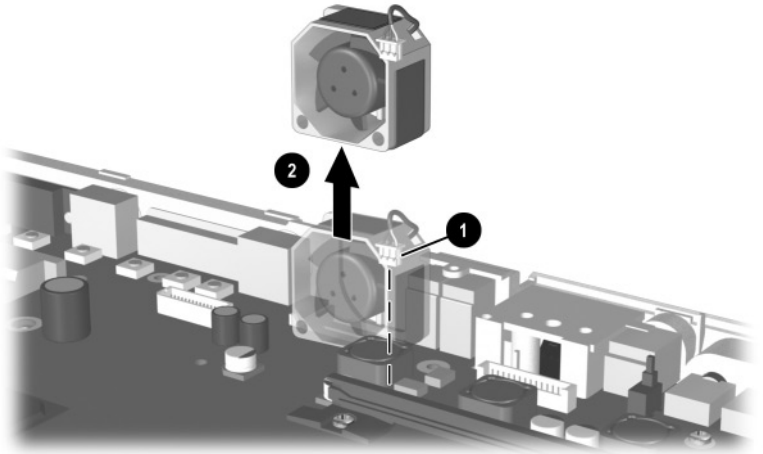


Figure 5-41. Removing the Fan

Reverse the preceding procedures to install the fan.

5.22 System Board

System Board Spare Part Number Information	
For use only with notebook models using 45W processors*	309638-001
For use only with notebook models using non-45W processors*	291588-001

*refer to Section 5.12, “Processor,” for a listing of 45W and non-45W processors and spare part numbers

When replacing the system board, ensure that the following components are removed from the old system board and installed on the new system board:

- Memory expansion boards (Section 5.5)
- Mini PCI communications board (Section 5.6)
- Disk cell RTC battery (Section 5.7)
- Processor (Section 5.12)
- Modem cable (Section 5.23)

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.9)
   b. Keyboard (Section 5.10)
   c. Heat spreader (Section 5.11)
   d. Display (Section 5.13)
   e. Palm rest (Section 5.14)
   f. Charger board and shield (Section 5.18)

g. Speaker assembly (Section 5.19)

h. Top cover and TouchPad cable (Section 5.20)

i. Fan (Section 5.21)

2. Remove the two TM2.5 × 5.0 screws ❶ that secure the optical drive rear alignment rail to the base enclosure (Figure 5-42).
3. Remove the two TM2.5 × 5.0 screws ❷ that secure the optical drive rear alignment rail to the base enclosure.
4. Remove the rear alignment rail ❸ from the base enclosure.
5. Remove the rear alignment rail ❹ from the base enclosure.

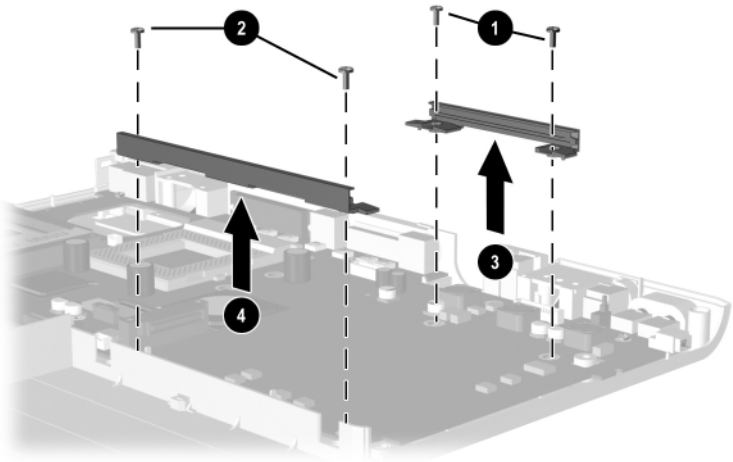


Figure 5-42. Removing the Optical Drive Alignment Rails

The optical drive alignment rails are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285541-001.

6. Remove the following screws:
   - ❏ TM2.5 × 5.0 screw ❶ next to the PC Card assembly (Figure 5-43)
   - ❏ TM2.5 × 5.0 screw ❷ next to the RJ-11 and RJ-45 connectors
   - ❏ TM2.5 × 5.0 screw ❸ next to the audio connectors

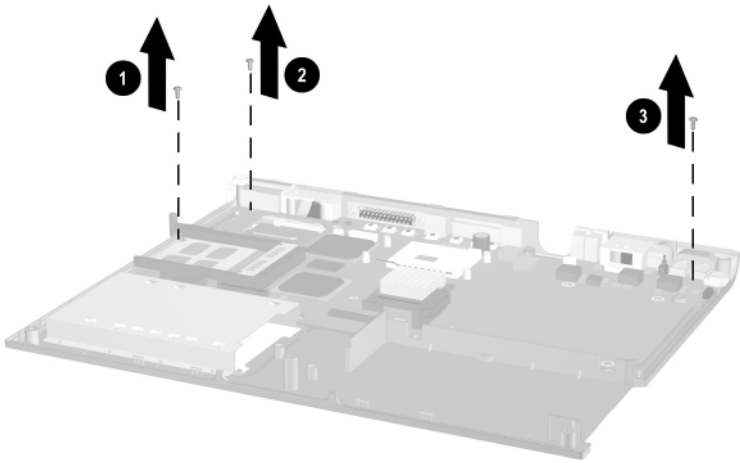


Figure 5-43. Removing the System Board Screws

7. Lift the front edge of the system board until it rests at an angle ❶ (Figure 5-44).
8. Slide the system board forward ❷ and remove it from the base enclosure.

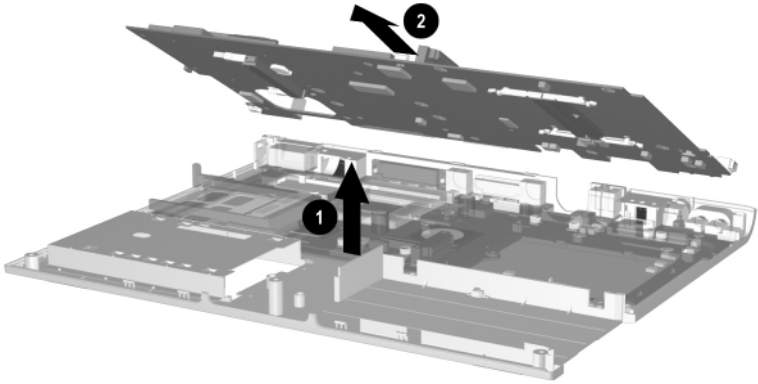


Figure 5-44. Removing the System Board

Reverse the preceding procedures to install the system board.

5.23 Modem Cable

The modem cable is included in the Miscellaneous Cable Kit, spare part number 285540-001.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.9)
   b. Keyboard (Section 5.10)
   c. Heat spreader (Section 5.11)
   d. Display (Section 5.13)
   e. Palm rest (Section 5.14)
   f. Top cover (Section 5.20)
   g. Fan (Section 5.21)
   h. System board (Section 5.22)

2. Turn the system board bottom side up with the rear panel facing forward.
3. Remove the PM2.0 × 4.5 screw ❶ that secures the modem ground cable to the system board (Figure 5-45).
4. Disconnect the modem cable ❷ from the system board.
5. Remove the cable from the clips ❸ on the system board.

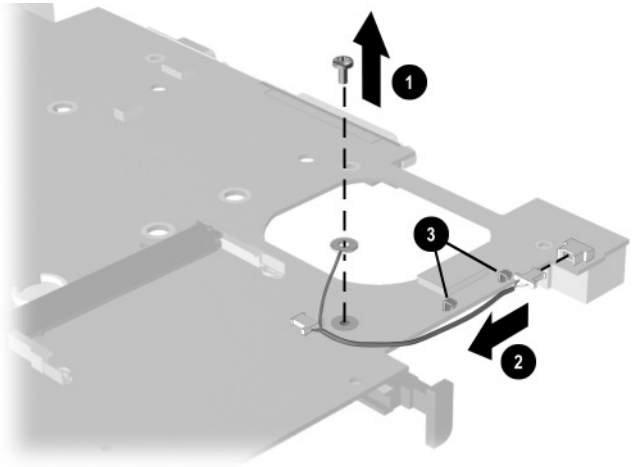


Figure 5-45. Removing the Modem Cable

Reverse the preceding procedures to install the modem cable.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Notebook

Dimensions		
Height	3.94 cm	1.55 in
Width	32.74 cm	12.89 in
Depth	26.75 cm	10.53 in
Weight (varies by notebook configuration)		
with 15.1-inch display	3.22 kg	7.09 lb
with 14.1-inch display	3.09 kg	6.82 lb
Stand-alone power requirements		
Nominal operating voltage	14.4 V (8 cell)	
Average operating power	29.7 W desktop	
Peak operating power	80 W on AC, 55 W on DC	
Power in Suspend mode	< 1000 mW	
Power in Hibernation mode	< 100 mW	
Temperature		
Operating	10° to 35° C	50° to 95° F
Nonoperating	-10° to 60° C	14° to 140° F

Table 6-1
Notebook *(Continued)*

Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 90%, 38.7° C (101.6° F) maximum wet bulb temperature	
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, 11 ms, half-sine	
Nonoperating	60 G, 11 ms, half-sine	
Vibration		
Operating	0.5 G zero-to-peak, 10 to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.0 G zero-to-peak, 10 to 500 Hz, 0.5 oct/min sweep rate	

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

Table 6-2
15.0-inch XGA, TFT Display

Dimensions		
Height	22.86 cm	9.00 in
Width	29.97 cm	11.80 in
Diagonal	38.10 cm	15.00 in
Number of colors	Up to 16.8 million	
Contrast ratio	150:1	
Brightness	120+ nit typical	
Pixel resolution		
Pitch	0.297 × 0.297 mm	
Format	1024 × 768	
Configuration	RGB stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	5.00 W	

Table 6-3
14.1-inch XGA, TFT Display

Dimensions		
Height	28.50 mm	11.22 in
Width	21.49 mm	8.46 in
Diagonal	35.81 mm	14.1 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 stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.2 W	

Table 6-4
Hard Drives

	40 GB	30 GB	20 GB
User capacity per drive[1]	40.0 GB	30.0 GB	20.0 GB
Drive height	9.5 mm	9.5 mm	9.5 mm
Drive width	70 mm	70 mm	70 mm
Interface type	ATA-5	ATA-5	ATA-5
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Full stroke	24 ms	24 ms	24 ms
Logical blocks[3]	78,140,160	58,605,120	39,070,080
Logical configuration			
Cylinders	16,683	16,683	16,683
Heads	16	16	16
Sectors per track	63	63	63

[1] 1 GB = 1,073,741,824 bytes.

[3] Actual drive specifications may differ slightly.

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

Table 6-4
Hard Drives *(Continued)*

	40 GB	30 GB	20 GB
Physical configuration			
Cylinders[3]	22,784	25,800	22,784
Heads	4	2	4
Sectors per track[3]	293 to 560	398 to 731	293 to 560
Bytes per sector	512	512	512
Buffer size[3]	2 MB	512 KB	512 KB
Disk rotational speed	4200 rpm	4200 rpm	4200 rpm
Transfer rate			
Interface max (MB/s)[2]	66.6	100	66.6
Media (Mb/s)[3]	109 to 203	155 to 256	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 6-5
Diskette Drive

Diskette size	3.5 in
Activity indicator	On system
Height	12.7 mm (0.5 in)
Bytes per sector	512
Sectors per track	
High density	18 (1.44 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)	95 to 174 ms
Settling time	15 ms
Latency average	100 ms

Table 6-6
DVD-ROM Drive

Applicable disk	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
Disk diameter	12 cm, 8 cm	
Disk thickness	1.2 mm	.047 in
Track pitch	.74 µm	
Access time (typical reads, including setting)		
Random (DVD media)	< 125 ms	
Full stroke (DVD media)	< 225 ms	
Random (CD media)	< 100 ms	
Full stroke (CD media)	< 175 ms	
Audio output level	Line-out, 0.7 to 0.9 Vrms	
Cache buffer	512 KB	
Data transfer rate (typical, including setting)		
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)	
Startup time	< 12 seconds (typical)	
Stop time	< 3 seconds	

Table 6-7
DVD-RW Drive

Applicable disk	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
Disk diameter	12 cm, 8 cm	
Disk thickness	1.2 mm	.047 in
Track pitch	1.60 µm	
Access time		
Random	< 120 ms	
Full stroke	< 175 ms	
Audio output level	Line-out, 0.7 to 0.9 Vrms	
Cache buffer	2 MB	
Data transfer rate		
CD-R (8X)	1200 KB/s (150 KB/s at 1X CD rate)	
CD-RW (8X)	1200 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Normal PIO Mode 4 (single burst)	16.6 MB/s	
Startup time		
Single	< 7 seconds (typical)	
Multi-session	< 30 seconds (typical)	
Stop time	< 3 seconds	

Table 6-8
CD-ROM Drive

Applicable disk	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
Disk diameter	12 cm, 8 cm	
Disk thickness	1.2 mm	.047 in
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 6-9
CD-RW Drive

Center hole diameter	1.5 cm	.59 in
Disk diameter	12 cm, 8 cm	
Disk thickness	1.2 mm	.047 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	
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 6-10
External AC Adapter

Weight	.85 lb	.39 kg
Power supply		
Operating watts	90 W	
Operating voltage	110 to 240 VAC RMS	
Operating current	1.5 A RMS	
Operating frequency range	50 to 60 Hz AC	

Table 6-11
8-cell, Li ion Battery Pack

Dimensions		
Length	12.57 cm	4.95 in
Width	8.79 cm	3.46 in
Depth	2.03 cm	0.80 in
Weight	.44 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 6-12
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 6-13
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 IRQ4.

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

Table 6-14
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 6-14
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 6-14
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)

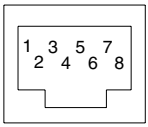
Table 6-15
System Memory Map

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

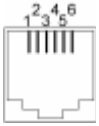
Connector Pin Assignments

Table A-1
RJ-45 Network Interface



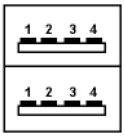
Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit -	6	Receive -
3	Receive +	7	Unused
4	Unused	8	Unused

Table A-2
RJ-11 Modem



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

Table A-3
Universal Serial Bus

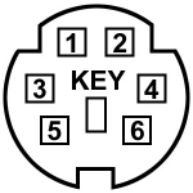


Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

Table A-4
S-Video

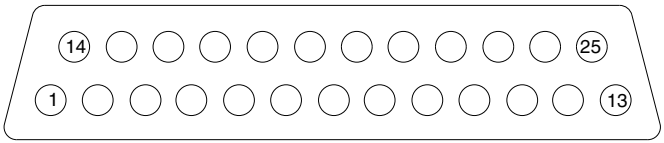
Pin	Signal	Pin	Signal
1	Ground (Y)	3	Y-Luminance (Intensity)
2	Ground (C)	4	C-Chrominance (Color)

Table A-5
External Keyboard/Mouse



Pin	Signal	Pin	Signal
1	Keyboard/mouse DATA	4	+5 VDC
2	Keyboard/mouse DATA	5	Keyboard/mouse CLK
3	Ground	6	Keyboard/mouse CLK

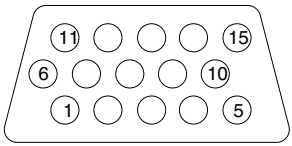
Table A-6
Parallel



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-7
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
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

Table A-8
Stereo Speaker/Headphone

Pin	Signal	Pin	Signal
1	Audio out	2	Ground

Table A-9
Microphone

Pin	Signal	Pin	Signal
1	Audio in	2	Ground

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 computer 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 computer 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 no more than 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 computer.

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 *(Continued)*

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 they 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 computer. All screws listed in this appendix are available in the Miscellaneous Screw Kit, spare part number 285542-001.

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:
Two screws that secure the optical drive to the computer (documented in Section 5.3)

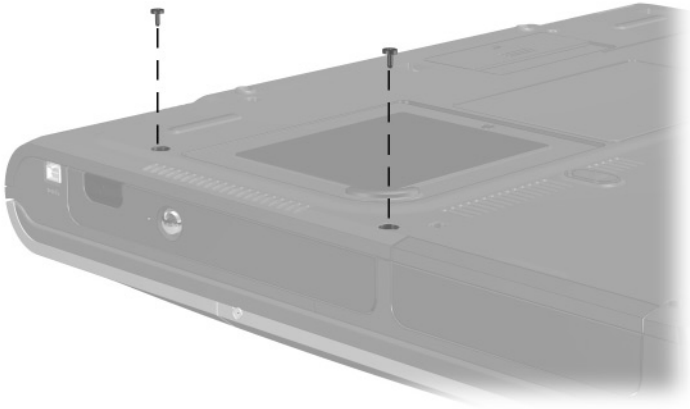


Figure C-1. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:
Two screws that secure the connector cover to the base enclosure (documented in Section 5.8)

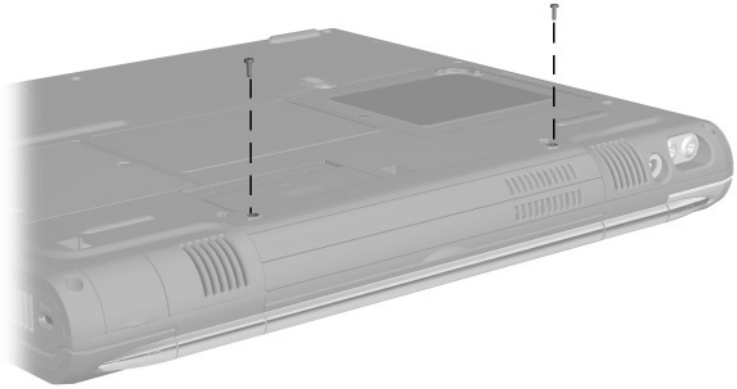


Figure C-2. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the heat spreader to the base enclosure (documented in Section 5.11)

❷ One screw that secures the display video cable ground loop to the heat spreader (documented in Sections 5.11 and 5.13)

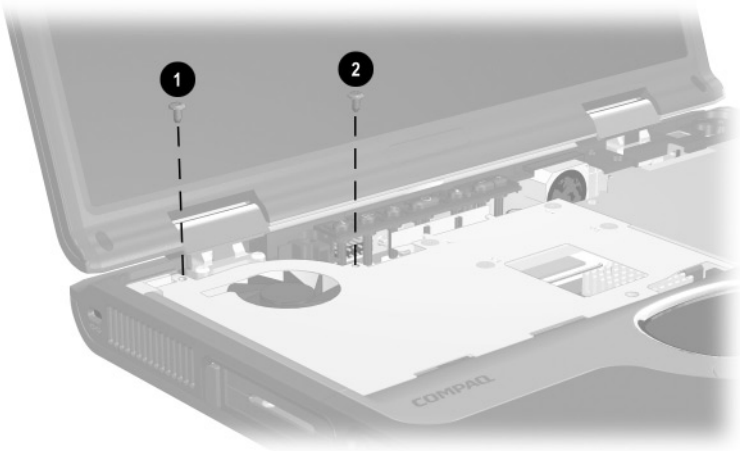


Figure C-3. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:

One screw that secures the display inverter cable ground loop to the heat spreader (documented in Section 5.13)

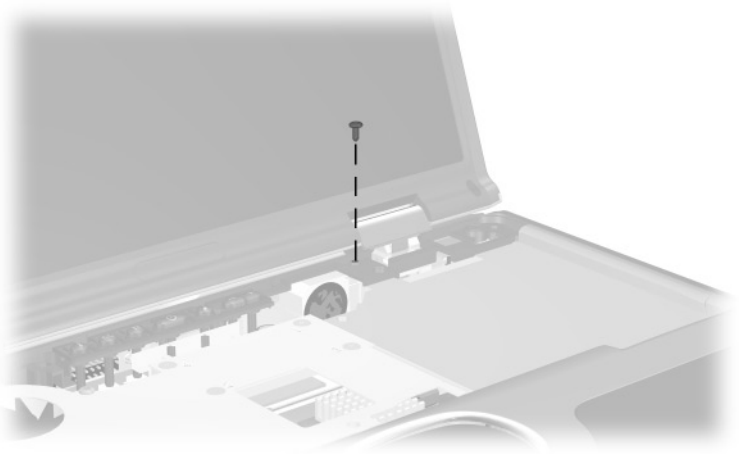


Figure C-4. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ Three screws that secure the diskette drive to the palm rest (documented in Section 5.15)

❷ Four screws that secure the TouchPad components to the palm rest (documented in Section 5.16)

❸ Two screws that secure the display release assembly to the palm rest (documented in Section 5.17)

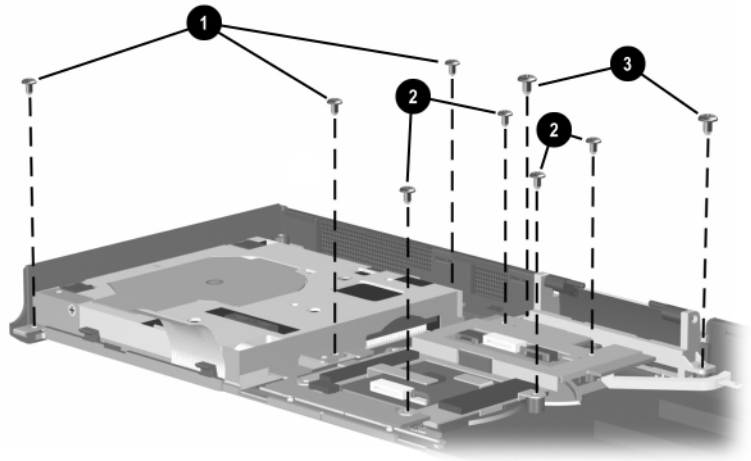


Figure C-5. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:
Three screws that secure the charger board and shield to the base enclosure (documented in Section 5.18)

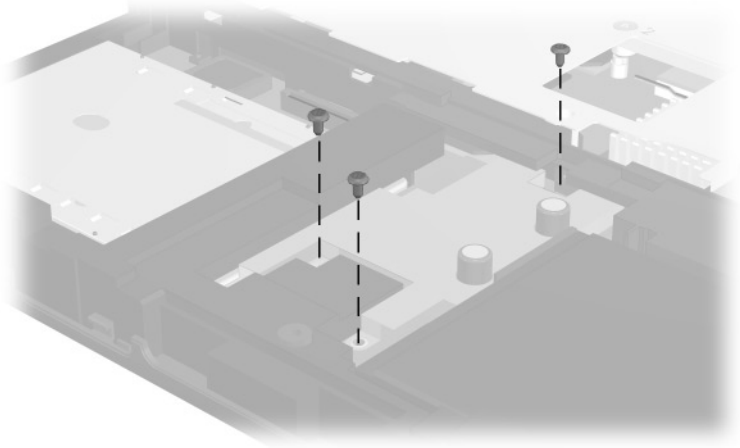


Figure C-6. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:
Three screws that secure the top cover to the base enclosure (documented in Section 5.20)

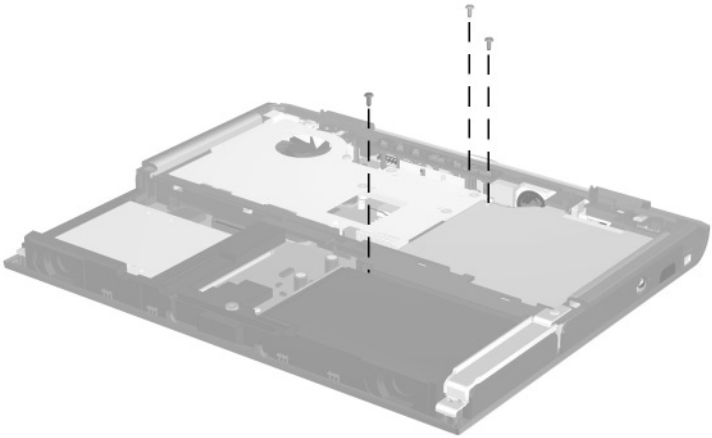


Figure C-7. TM2.5 × 5.0 Screw Locations

Table C-1
Torx T8 Metric 2.5 × 5.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	30	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ Two screws that secure the optical drive front alignment rail to the base enclosure (documented in Section 5.22)

❷ Two screws that secure the optical drive rear alignment rail to the base enclosure (documented in Section 5.22)

❸ Three screws that secure the system board to the base enclosure (documented in Section 5.22)

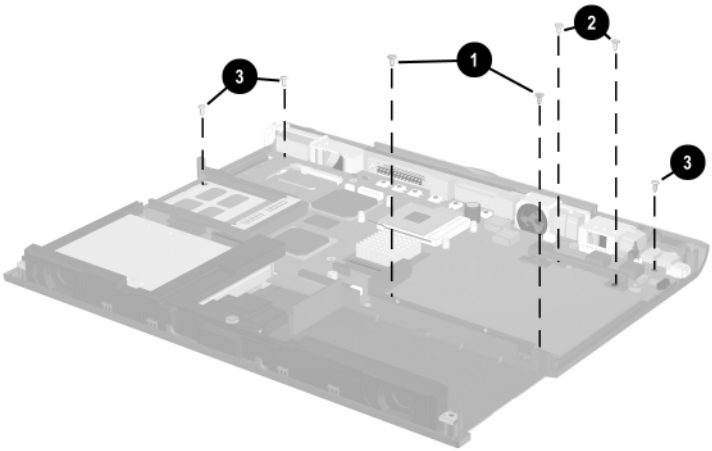


Figure C-8. TM2.5 × 5.0 Screw Locations

Table C-2
Torx T8 Metric 2.5 × 8.0 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	11	8.0 mm	2.5 mm	4.0 mm

Where used:

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

❷ Two screws that secure the LED cover to the base enclosure (documented in Section 5.9)

❸ Five screws that secure the palm rest to the base enclosure (documented in Section 5.14)

❹ Two screws that secure the top cover to the base enclosure (documented in Section 5.20)

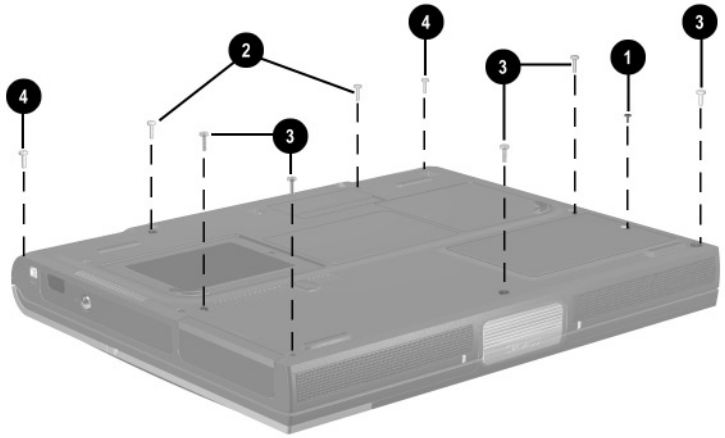


Figure C-9. TM2.5 × 8.0 Screw Locations

Table C-2
Torx T8 Metric 2.5 × 8.0 Screw *(continued)*

	Color	Qty	Length	Thread	Head Width
	Silver	11	8.0 mm	2.5 mm	4.0 mm

Where used:

One screw that secures the heat spreader to the base enclosure (documented in Section 5.11)

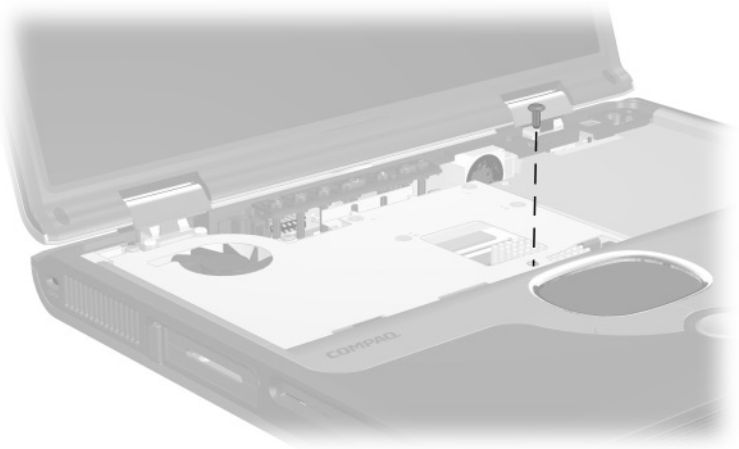


Figure C-10. TM2.5 × 8.0 Screw Locations

Table C-3
Phillips Metric 3.0 × 3.0 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	4	3.0 mm	3.0 mm	5.0 mm

Where used:
Four screws that secure the hard drive to the hard drive bracket (documented in Section 5.3)

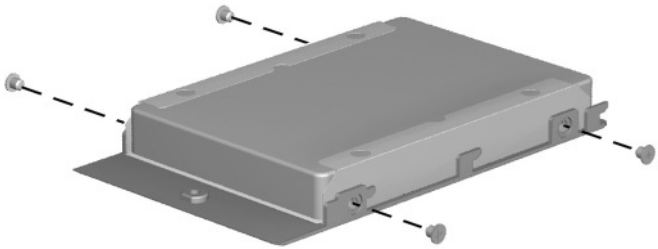


Figure C-11. PM3.0 × 3.0 Screw Locations

Table C-4
Phillips Metric 2.5 × 4.0 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	2	4.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the memory expansion compartment cover to the base enclosure (documented in Section 5.5)

❷ One screw that secures the mini PCI compartment cover to the base enclosure (documented in Section 5.6)

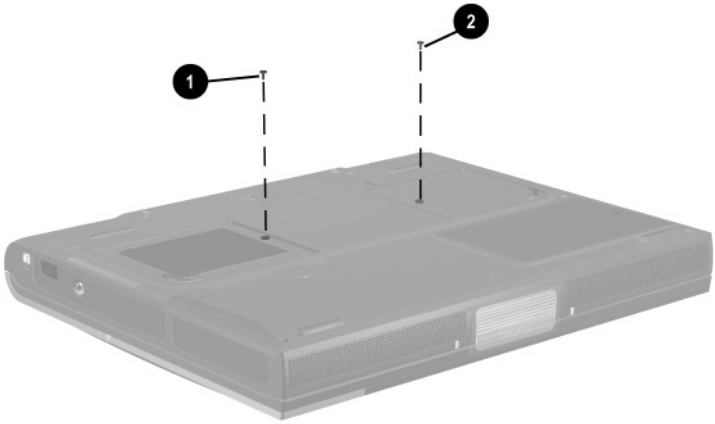


Figure C-12. PM2.5 × 4.0 Screw Locations

Table C-5
Torx T8 Metric 2.5 × 14.0 Shoulder Screw

	Color	Qty	Length	Thread	Head Width
	Silver	4	14.0 mm	2.0 mm	6.0 mm

Where used:
Four screws that secure the heat spreader to the base enclosure (documented in Section 5.11)

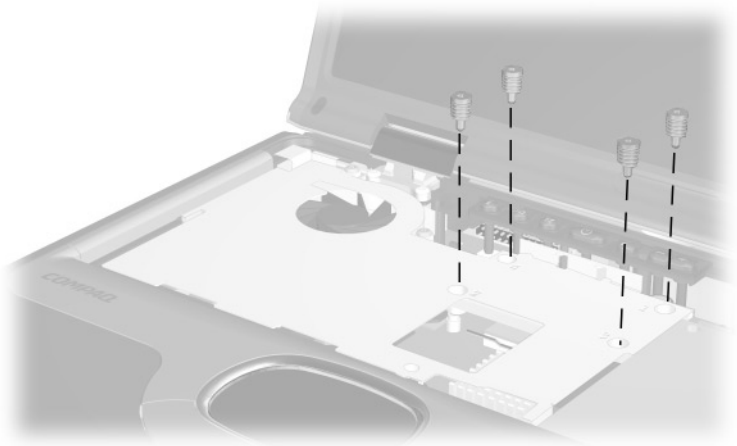


Figure C-13. TM2.5 × 14.0 Shoulder Screw Locations

Table C-6
Torx T8 Metric 2.5 × 9.0 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	4	9.0 mm	2.5 mm	5.0 mm

Where used:
Four screws that secure the display assembly to the base enclosure (documented in Section 5.13)

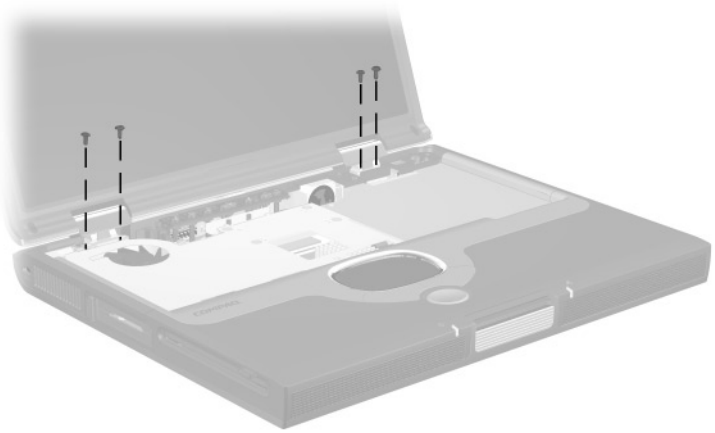


Figure C-14. TM2.5 × 9.0 Screw Locations

Table C-7
Phillips Metric 2.0 × 4.5 Screw

	Color	Qty	Length	Thread	Head Width
	Silver	1	4.5 mm	2.0 mm	4.0 mm

Where used:
One screw that secures the modem cable to the system board (documented in Section 5.23)

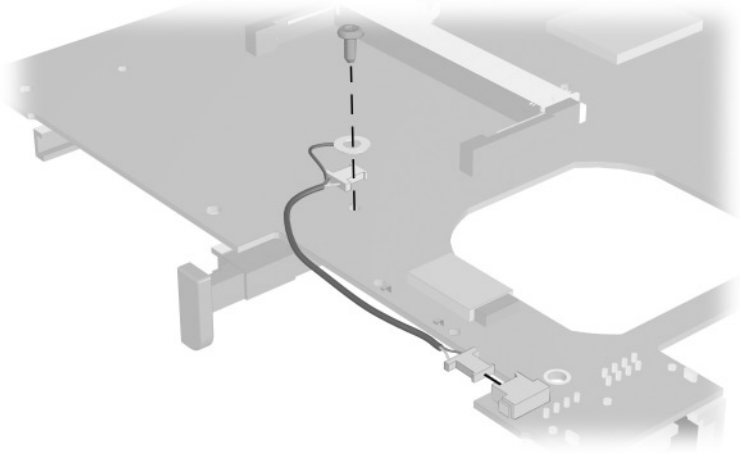


Figure C-15. PM2.0 × 4.5 Screw Locations

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