

CONTENTS

preface

Symbols	ix
Technician Notes	x
Serial Number	x
Locating Additional Information	x

chapter1

1.1 Computer Features and Models	1-1
1.2 System Memory Options	1-4
1.3 Power Management Functions	1-5
1.4 Setup Configuration Utility (SCU)	1-6
1.5 Compaq Configuration Record Utility	1-16
1.6 Gathering Information	1-17
1.7 Diagnostics	1-19
1.8 Computer External Components	1-20
1.9 Design Overview	1-24

chapter2

2.1 Service Considerations	2-1
2.2 Basic Troubleshooting Checklist	2-1
2.2 Power-On Self Test (Post)	2-2
2.3 Solving Common Problems	2-5
2.4 Test Errors	2-7

chapter3

3.1 Serial Number Location	3-1
3.2 Computer System Major Components	3-2
3.3 Miscellaneous Plastic Kit Components	3-4
3.4 Hardware Kit Components	3-5
3.5 Cable Kit Components	3-6
3.6 Mass Storage Devices	3-7
3.7 Miscellaneous	3-8

chapter4

4.1 Tools Required	4-1
4.2 Service Considerations	4-1

4.3 Preventing Damage to Removable Drives	4-2
4.4 Preventing Electrostatic Damage.....	4-3
4.5 Packaging and Transporting Precautions	4-4
4.6 Workstation Precautions	4-4
4.7 Grounding Equipment and Methods	4-5

chapter 5

5.1 Serial Number	5-1
5.2 Disassembly Reference Chart.....	5-2
5.3 Preparing the Computer for Disassembly	5-3
5.4 Battery Pack	5-4
5.5 Modem	5-5
5.6 Fan Assembly.....	5-8
5.7 CD-ROM Drive.....	5-10
5.8 Processor	5-12
5.9 Memory	5-15
5.10 Top Cover.....	5-17
5.11 Hard Drive.....	5-19
5.12 Real Time Clock (RTC) Battery.....	5-20
5.13 Keyboard.....	5-21
5.14 EMI Shield	5-23
5.15 Touchpad.....	5-25
5.16 Speakers	5-26
5.17 Display Assembly	5-27
5.18 Speaker Housing	5-32
5.19 System Board.....	5-34
5.20 Diskette Drive	5-38

chapter 6

SPECIFICATIONS

appendix A

CONNECTOR PIN ASSIGNMENTS

appendix B

POWER CORD SET REQUIREMENTS

3-Conductor Power Cord Set.....	B-1
Country-Specific Requirements.....	B-2

INDEX	I-1
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chapter 1

PRODUCT DESCRIPTION

1.1 Computer Features and Models

The Compaq Notebook 100 Series offers an AMD K6-2 475-MHz processor, a 12.1-inch SVGA TFT or HPA display, a 5.0-GB hard drive, and a 24X Max CD-ROM drive. The computer also comes equipped with a TouchPad pointing device and 4 MB of video SDRAM.



Figure 1-1. *Compaq Notebook 100 Series*

Models

The Compaq Notebook 100 Series is available in the models shown in Table 1-1. The computer serial number is located on a bar code on the bottom of the computer and identifies the model's features.

**Table 1-1
Compaq Notebook 100
Model Naming Convention**

Example: serial number N10 K2 475 T1S 5 M 64 98

Key

A	K2	475	T2S	5	M	64	98
1	2	3	4	5	6	7	8
KEY	DESCRIPTION	OPTIONS					
1	Brand designator	A = Notebook 100					
2	Processor	K2 = AMD k6-2					
3	Processor speed	475 = 475-MHz					
4	Display	T2S = 12.1", CTFT, SVGA			H2S = 12.1", HPA, SVGA		
5	Hard drive size (MB)	5 = 5.0 MB					
6	Integrated communication	M = Modem		0 = None			
7	RAM (in MB)	64 = 64 MB		32 = 32 MB			
8	Operating system	98 = Microsoft Windows 98		2 = Microsoft Word 2000		SB = Microsoft Small Business	

**Table 1-2
Compaq Notebook 100 Models**

1	2	3	4	5	6	7	8	SKU#	Config. Code
A	K2	475	T2S	5	M	64	98/2	175844-XX4	FFG1
A	K2	475	T2S	5	M	64	98	180641-XX4	FFG2
A	K2	475	T2S	5	M	64	98	180641-XX5	FFG2
A	K2	475	T2S	5	0	64	98/2	180097-XX4	FFG3
A	K2	475	T2S	5	M	64	98/SB	175599-XX4	FFG4
A	K2	475	H2S	5	M	32	98/2	175843-XX4	FFF1
A	K2	475	H2S	5	M	32	98	180640-XX4	FFF2
A	K2	475	H2S	5	M	32	98	180640-XX5	FFF2
A	K2	475	H2S	5	0	32	98/2	180096-XX4	FFF3
A	K2	475	H2S	5	M	32	98/SB	175598-XX4	FFF4
A	K2	475	H2S	5	M	64	98/2	180095-XX4	FFF5
A	K2	475	H2S	5	M	64	98/SB	180094-XX4	FFF6

Features

The Compaq Notebook 100 Personal Computer has the following features:

- AMD K6-2 475-MHz processor with 512 KB integrated L2 cache.
- 64-MB 100-MHz SDRAM, expandable to 192 MB, or 32-MB 100-MHz SDRAM, expandable to 160 MB, varying by computer model. The Compaq Notebook 100 also features a SODIMM memory expansion slot, capable of accepting a memory expansion board of 32-, 64-, or 128-MB.
- Primary memory cache is 64 KB; secondary memory cache is 512 KB.
- 12.1-inch SVGA TFT or HPA (800 × 600) color display, varying by computer model. These display feature:
 - over 16.8 million colors.
 - integrated Trident CyberBlade AGP2 controller bus.

The computer also features external monitor support with 4G color (640 × 480, 800 × 600, 1024 × 768, 1280 × 1024), with up to 60-, 75-, or 85-Hz refresh rate.

- Microsoft Windows 98, professional or standard edition, preinstalled.
- Keyboard with TouchPad pointing device.
- 56-Kbps AC97 modem (not supported in DOS mode).
- External AC adapter with 6-foot power cord.
- A 9-cell NiMH battery pack is standard equipment on the Compaq Notebook 100 Personal Computer. An 8-cell Li ion battery pack is available as an option.
- One Type II PC Card slot with support for both 32-bit CardBus and 16-bit PC Cards.
- Mass storage devices include a 5.0-GB hard drive, 3.5-inch, 1.44-MB diskette drive, and 24X Max CD-ROM drive.
- Connectors for parallel, serial, audio in/out, external monitor, universal serial bus, external keyboard, and AC power. An infrared port is also available.

1.2 System Memory Options

Depending on the computer model, the main memory subsystem supports a minimum of 32 or 64 megabytes of Synchronous SDRAM, expandable to 160 or 192 megabytes. The minimum standard Synchronous SDRAM is integrated on the system board. The upgrade SDRAM is accomplished with memory expansion boards that are available on 128-, 64-, and 32-megabytes.

The memory expansion slot is located underneath the fan/CPU cover. Refer to Chapter 5, "Removal and Replacement Procedures," for information on installing and removing memory expansion boards.

System memory can be upgraded as shown in Table 1-3.

Table 1-13
Memory Upgrade

Base Memory on System Board	Memory Expansion Board	Total Memory
32 MB	32 MB	64 MB
32 MB	64 MB	96 MB
32 MB	128 MB	160 MB
64 MB	32 MB	96 MB
64 MB	64 MB	128 MB
64 MB	128 MB	192 MB

1.3 Power Management Functions

Power Management functions of the computer are designed to conserve power. All Power Management functions can be configured from the Setup Configuration Utility (SCU), described later in this chapter.

Automatic Power Management

Automatic Power Management operates at two levels as described in the following paragraphs.

Local Power Management

Local Power Management controls computer subsystems. When a subsystem is inactive for a period of time, it is automatically shut down or slowed to reduce power consumption. The subsystem returns to an active state when it is accessed.

Subsystems under Power Management include:

- Hard disk drive
- Diskette drive
- CD-ROM drive
- LCD display panel

Global Power Management

Global Power Management automatically puts the computer into Suspend mode when the computer is inactive for a period of time. The computer wakes up whenever activity resumes.

The time-out settings for Suspend mode are set up in the SCU program. The computer uses Suspend-to-RAM (Standby) or Suspend-to-Disk (Hibernation) depending on the Suspend Data To setting in the SCU program.

Manual Power Management

Suspend mode can be initiated at any time in one of two ways:

- By pressing **Fn + F12**.
- By closing the top cover, if the *Cover Close* option is set to *Suspend* in the SCU program.

Suspend-to-Disk (Hibernation)

When the computer suspends to disk, the system preserves all the running application programs as a file in a Suspend-to-Disk partition on the hard disk. The computer then turns off automatically. When the computer is powered on, the system reads the file from the Suspend-to-Disk partition back into memory, returning the computer to the state it was in before it was suspended.

If there is no Suspend-to-Disk partition on the hard disk, use the HIBERNAT utility to create the partition, in order to be able to use the Suspend-to-Disk feature.

Suspend-to-RAM (Standby)

When the computer suspends to RAM, several subsystems enter standby or power-off mode to conserve power. The system wakes up when any key is pressed. *Resume Timer* and *Ring Resume* options also wake the system from Suspend-to-RAM.

1.4 Setup Configuration Utility (SCU)

The system comes with a Setup Configuration Utility (SCU). This utility configures BIOS settings via menu-driven utilities. Settings are stored in the CMOS RAM.

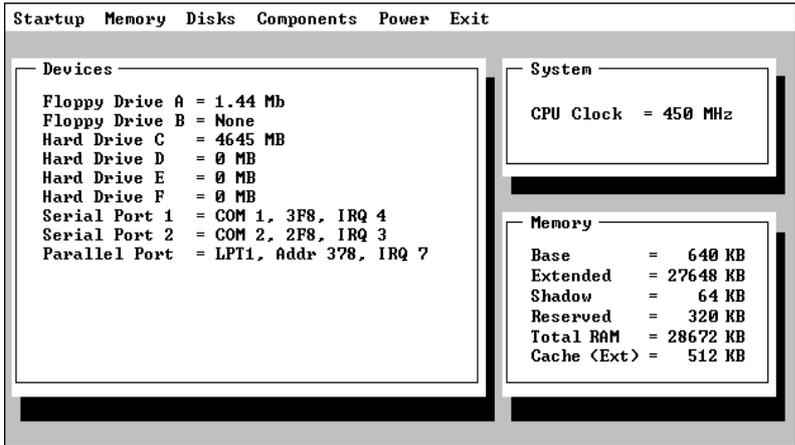
The SCU must be used when:

- An error message indicates that the SCU should be run.
- Factory default settings need to be restored (after BIOS upgrades).
- Specific settings must be modified.

Starting the SCU

The SCU resides on the system ROM chip. Start the utility by pressing **F10** during initial power up.

Main SCU Screen



The SCU main screen is divided into three areas:

Menu area – lists the available menu titles, across the top of the screen. Each menu title provides a pull-down menu of item settings.

Display area – displays current system settings. This section also displays submenus for items that provide multiple options.

Information and navigation area – provides keyboard/mouse instructions for moving around and making decisions.

You can select items using either the keyboard or the TouchPad/mouse.

Startup Menu

The Startup pull-down menu contains basic system configuration settings.



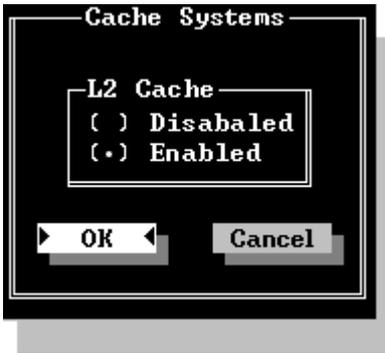
Startup Menu

Item	Function	Default
Date and Time	Sets the system date and time.	N/A
Fast Boot	When enabled, speeds up the booting procedure by bypassing the memory test. This option does not include a sub-menu. A check mark indicates <i>Enabled</i> . An underline indicates <i>Disabled</i> .	Enabled
Boot Device	Sets the boot device sequence. If all booting options are set to the same device, the computer tries to boot only from that device.	Diskette A Hard Drive C CD-ROM Drive
Set Admin password	Allows the creation of an administrator-level password. This controls whether a non-administrator can boot the system or enter the SCU utility.	
Set User password	Sets up a user-level password. This controls booting, running the SCU, or resuming the system.	

- An Administrator password must be set up prior to attempting to set up a User password.
- The Administrator password must be used to make changes in the SCU. The User password only allows browsing.

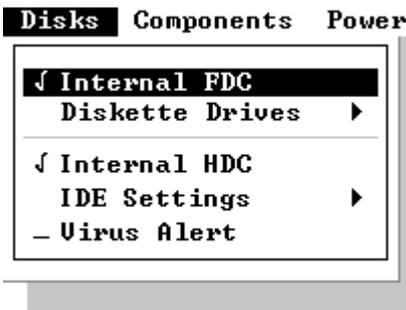
Memory Menu

The Memory pull-down menu controls memory usage. The setting enables or disables usage of L2 cache memory. The default setting is *Enabled*.



Disks Menu

The Disks menu contains settings that configure the system diskette drive and hard drive. It also sets the virus alert option.

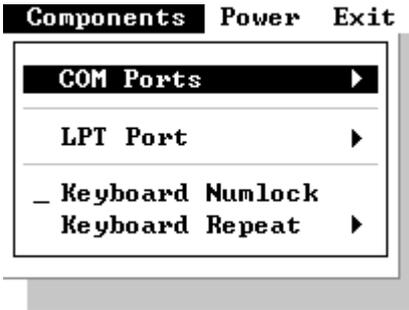


Disks Menu

Item	Function	Default
Internal FDC	Sets when an internal diskette drive is present. A check mark indicates that the item is <i>Enabled</i> . An underline indicates <i>Disabled</i> .	Enabled
Diskette Drives	Sets the type of diskette disk.	1.44MB
Internal HDC	Sets when an internal hard drive is present. A check mark indicates that the item is <i>Enabled</i> . An underline indicates <i>Disabled</i> .	Enabled
IDE Settings	Sets the type of hard disk drive in the system. HDD Timing – Sets the data transmit mode of the hard drive. The default is <i>Ultra DMA-33</i> . I/O 32 bit Transfer – If enabled, allows for a faster transfer rate. The effect is more noticeable under DOS. The default setting is <i>Enabled</i> . HDD Block Transfer – If enabled, allows for a large capacity hard disk. The default setting is <i>Enabled</i> .	N/A
Virus Alert	Provides warning messages if the hard disk boot sector (partition table) has changed. A checkmark indicates that the item is <i>Enabled</i> . An underline indicates <i>Disabled</i> .	Enabled

Components Menu

The Components menu changes settings on various components such as COM and LPT ports.

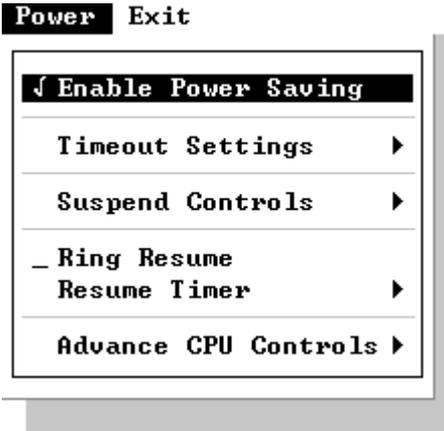


Components Menu

Item	Function	Default
Com Port	Assigns COM1 and COM2 to specific functions. In general, assign COM1 to RS-232 (the serial port); then assign COM2 to IR. Mode Setting for COM B – Sets the IR mode for COM B. The mode depends on the type of device that the computer will communicate with.	
LPT Port	Sets the address for the LPT (parallel) port. This system supports Enhanced Parallel Port (EPP) and Extended Capabilities Port (ECP) standards. If the port is set to ECP, choose a DMA channel setting for that port.	
Keyboard Numlock	Sets the function of the numeric keypad. If you disable this option, the numeric keypad on the computer will not function, even if the Num Lock indicator is on. However, an external keyboard is not affected by this feature.	Enabled
Keyboard Repeat	Sets the repeat rate and delay time of keystrokes. The Key Repeat Rate sets the repeat rate while holding down a key. The Key Delay item sets delaying time between key repeats.	

Power Menu

The Power menu contains Power Management settings that help conserve system power.



Enable Power Saving – This is the master control for the Power Management features. If disabled, all Power menu items with the exception of Suspend Controls are automatically disabled.

Timeout Settings – Sets up timeout functions. Note that some operating systems such as Windows 98 have built-in APM/ACPI configurations that could override these settings.

Power Menu

Item	Function
Video Timeout	Sets the timeout period for the monitor to power down if not used during a set period. The monitor powers up again when a key is pressed. Available options are <i>30 Sec, 2 Min, 5 Min, 10 Min, 15 Min, and Always On.</i>
Disk Timeout	Sets the timeout period for the hard disk to power down if not accessed during the set period. The hard disk powers up again when next accessed. Available options are <i>30 Sec, 1 Min, 1.5 Min, 2 Min, and Always On.</i>
Global Timeout	Sets the timeout period for the whole system to power down if not in use during a specified period. The system powers up again once any key is pressed. Available options are <i>1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 12 Min, 16 Min, and Always On.</i>

continued

Power Menu *continued*

Item	Function
Monitor Video Activity	Sets up the system to monitor video activity. If enabled, any activity on the screen (such as displaying a movie) prevents the monitor from powering down. Available options are <i>Enabled</i> or <i>Disabled</i> .
Suspend Timeout	<p>Sets the timeout period for the system to enter Suspend Mode if not in use during a pre-set period.</p> <p>The Suspend Mode is determined by the “Suspend Type” item in the “Suspend Controls” submenu. Choices may be Suspend-to-RAM or Suspend-to-Disk.</p> <p>When Suspend-to-RAM (Standby) mode is initiated, several subsystems enter standby or power-off mode to conserve power. The system wakes up when a key is pressed. “Resume Timer” and “Ring Resume” items will also wake the system from Suspend-to-RAM mode.</p> <p>When Suspend-to-Disk (Hibernation) mode is initiated, the system preserves all running application programs as a file in a suspend-to-disk partition on the hard disk. Available options are <i>1 Min, 5 Min, 10 Min, 20 Min, 30 Min, and Never</i>.</p>
Suspend-to-Disk	<p>Sets the timeout period for the system to enter Suspend-to-Disk mode if not in use during a set period.</p> <p>When Suspend-to-Disk mode is initiated, the system preserves all running application programs as a file in a suspend-to-disk partition on the hard disk. Available options are <i>1 Min, 5 Min, 10 Min, 20 Min, 30 Min, and Never</i>.</p> <p>The Suspend-to-Disk item functions regardless of the “Suspend Timeout” setting and the “Suspend Type” setting in the “Suspend Controls” submenu. If the timing of this item is shorter than that of “Suspend Timeout”, the system directly enters Suspend-to-Disk mode if inactive for the timing.</p>

Suspend Controls – Manages several suspend features.

Suspend Controls Menu

Item	Function
Power Button Function	Sets the function of the Power button. Available options are <i>Power On/Off</i> and <i>Suspend/Resume</i> . If this item is set to <i>Suspend/Resume</i> , holding down the button for 5 seconds will turn off power.
Lid Switch Function	Sets the sequential event when the top cover is closed with power still available. The available options are <i>Blank LCD</i> and <i>Suspend/Resume</i> .
Suspend Type	Sets the suspend mode the system enters if it stays inactive for the time specified in the “Suspend Timeout” item.

Ring Resume – Enables or disables the system from waking up from Suspend-to-RAM mode when the modem receives an incoming call.

Resume Timer – Sets the date and time the system resumes from suspend mode. The default setting is *Disabled*.

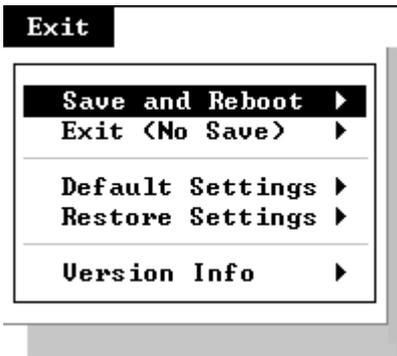
Advance CPU Controls – Sets up further advanced CPU functions.

Advance CPU Controls Menu

Item	Function
Clock Control Mechanism	Sets the CPU activity under normal condition. The available options range from 6% to full speed (Disabled). Note that although this item sets the usage of CPU resources, the CPU can still reach its full speed if the system is under a heavy job load.
Clock Run Enable	Enables whether the system can take advantage of the Southbridge chipset to help transmit data, thereby reducing the CPU job load.

Exit Menu

The Exit pull-down menu displays ways of exiting SCU. This menu also restores default settings and displays BIOS version information.



When troubleshooting the Compaq Notebook 100, it is important to obtain all facts about the situation. Obtain details of the problem and any circumstances surrounding the problem. Obtain all error codes or beep codes. Once all facts have been gathered, determine possible causes and search for issues.

1.5 Compaq Configuration Record Utility

Compaq Configuration Record Utility is an online information-gathering tool meant to replace the DOS based Inspect utility. It runs from within Windows and gathers critical hardware and software information from various sources to give a complete view of the computer. The Compaq Configuration Record Utility delivers comprehensive configuration capture, provides a means for automatically identifying and comparing configuration changes, and has the ability to maintain a computer configuration history. The information can be saved as a history of multiple sessions.

The Compaq Configuration Record Utility captures data as sessions; a session is defined as an organized group of data describing the configured state of the system at a specific point in time.

The session information is maintained in a log file, located in the same directory as the executable portion of the program. This file contains all of the ASCII text configuration information captured for a session. This file can be analyzed locally by the Configuration Record Utility, or it can be sent to another location such as a help center, or to Compaq.

The sessions are organized as two distinct types:

Active

The Active session (referenced as session now.log) is the most recent information captured. The utility overwrites this session each time a sample is taken.

Original

The Original session (referenced as session base.log) is the first session sampled. The Compaq Configuration Record Utility will treat this session as a "master configuration" and the utility will never overwrite this session.

1.6 Gathering Information

The comparison feature provides several reports that enable the administrator to specify the particular type and level of information that will be most useful in a particular case. The different report types available are:

Show Only Differences Report

This feature provides a mechanism for filtering the level of information displayed when comparing two different configuration snapshots (or sessions). For example, when a user requests that Configuration Record Utility generate a comparison of sessions using the “differences” filter, the tool automatically compares those two sessions (which are already stored in a Configuration Record file). It then generates a report that shows only the differences between the two generations. In this case, the differences report will include all information recorded, such as changes in amounts of free memory. Reviewing the differences occurring between different configuration snapshots can help identify trends causing intermittent computer problems, such as low memory resources.

Compaq Diagnostics Configuration Record 1.00

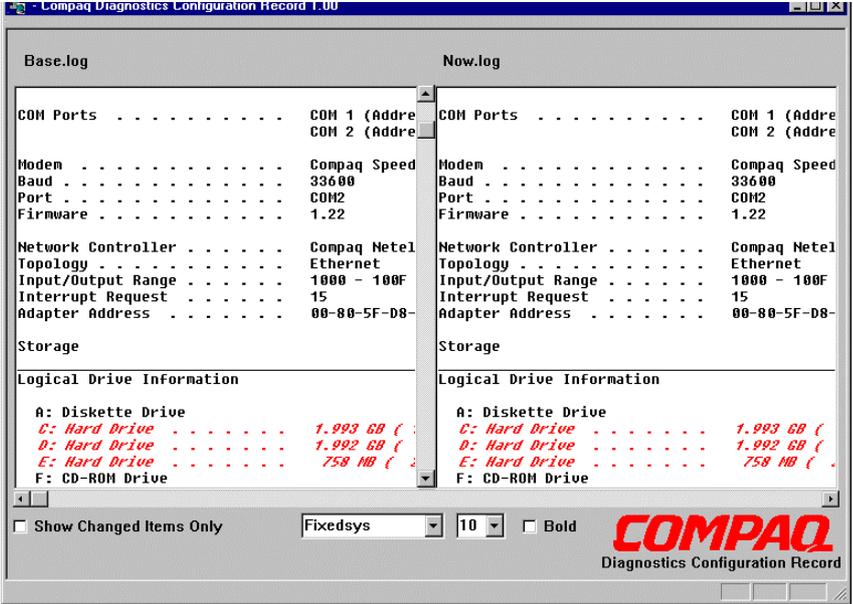
Base.log	Now.log
Date 3/2/99	Date 3/5/99
Time 3:13	Time 4:13
C: Hard Drive 1,993 GB (1)	C: Hard Drive 1,993 GB (1)
D: Hard Drive 1,992 GB (2)	D: Hard Drive 1,992 GB (2)
E: Hard Drive 758 MB (2)	E: Hard Drive 758 MB (2)
Free Physical Memory 4 Kbytes	Free Physical Memory 0 Kbytes
Free Physical Memory 4 Kbytes	Free Physical Memory 0 Kbytes
DRU: vip.386	DRU: vip.386
DRU: vip.386 - TCP/IP	DRU: vip.386 - TCP/IP
00 - 0F : 20 00 13 00 15 00 01 02	00 - 0F : 03 00 13 00 16 00 04 05
40:0040 : 1A 80 70 3F 01 00 00 AE	40:0040 : 94 80 70 3F 01 00 00 AE
40:0060 : 00 00 00 D4 03 29 30 E0	40:0060 : 00 00 00 D4 03 29 30 E0
40:0090 : 07 00 00 00 00 00 00 00	40:0090 : 07 00 00 00 00 00 00 10
80 - 83 : 0000:0000 0000:0000	80 - 83 : 0000:0000 0000:0000
84 - 87 : C386:0001 1388:00E3	84 - 87 : C386:0001 1388:00E3
88 - 8B : C142:6401 F000:A413	88 - 8B : C142:6401 F000:A413
8C - 8F : 93A0:94C3 F877:0E21	8C - 8F : 93A0:94C3 F877:0E21

Show Changed Items Only Fixedsys 10 Bold

COMPAQ
Diagnostics Configuration Record

Show Details and Differences Report

This report provides the level of detail that is necessary for service personnel to get a clear picture of the system configuration. It provides a much greater depth of information on hardware, operating system services, and drivers that are running on the computer.



The Compaq Configuration Record Utility is supported under Windows 95, Windows 98, and Windows NT 4.0. This utility is available on SoftPaq.

1.7 Diagnostics

Using Compaq Diagnostics

- Access Compaq Diagnostics for Windows by selecting Start→Settings→Control Panel→Compaq Diagnostics.
- To select a category, choose one of two methods:
 - Select the Categories menu, then select a category from the drop-down list.
 - Select a category icon on the toolbar.

To run diagnostic tests:

1. Select the Test tab.
2. In the scroll box, select the category or device you want to test.
3. Select the Quick, Complete, or Custom test type.
4. Select the Interactive or Unattended test mode.
5. Select the Begin Testing button.
6. View test information by selecting a report from the Status, Log, or Error tab.
 - To print the information or save it to a drive, select the File menu, then select Print or Save As.
7. To exit, select the File menu→Exit.

1.8 Computer External Components

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



Figure 1-2. Display and Right Side Components

Table 1-2
Display and Right Side Components

Item	Component	Function
1	TouchPad and touch buttons	The TouchPad moves the mouse cursor, selects, and activates. The touch buttons function like the left and right mouse button on an external mouse.
2	Keyboard	Provides numeric keypad, 12 function keys, and special fn keys
3	Stereo speakers	Produce high-quality stereo sound.
4	Activity lights	Indicate AC/battery power, mass storage, and keyboard lock status.
5	Display release latch	Opens the computer.
6	Microphone	Allows for audio input.
7	Volume control	Adjusts the volume of the stereo speakers.
8	CD-ROM drive	Accepts CD-ROM disks.
9	Infrared port	Provides wireless communication between the computer and another infrared-equipped device using an infrared beam.
10	Diskette drive	Accepts 3.5-inch diskettes.

The external components on the left side of the computer are shown in Figure 1-3 and are described in Table 1-4.

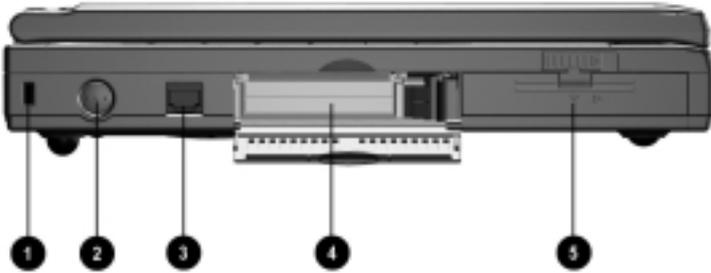


Figure 1-3. *Left Side Components*

Table 1-3
Left Side Components

Item	Component	Function
1	Security cable slot	Accepts an optional security cable to secure the computer to a fixed object to prevent theft.
2	Power button	Turns the computer on or off or exits Standby.
3	RJ-11 jack (internal modem models only)	Connects the modem cable to an internal modem.
4	PC Card slot	Supports 32-bit (CardBus) and 16-bit PC Cards.
5	Battery pack	Accepts either the standard 9-cell NiMH or optional 8-cell Li ion battery packs. The battery pack supplies power to the computer of external power is not available.

The external components on the rear of the computer are shown in Figure 1-4 and described in Table 1-5.

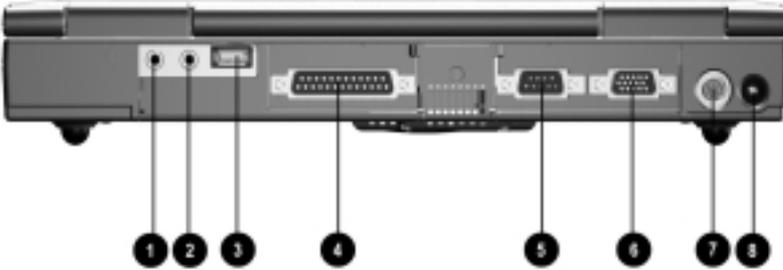


Figure 1-4. Rear Components

Table 1-4
Rear Components

Item	Component	Function
1	Mono microphone jack	Connects a mono microphone, disabling the built-in microphone.
2	Stereo speaker/headphone jack	Connects stereo speakers, headphones, or headset. This jack is driven by an amplifier and has volume control. The internal computer speakers are turned off when external speakers or headphones are plugged into this jack.

continued

Table 1-4 *continued*

Item	Component	Function
3	Universal Serial Bus (USB) connector	Connects USB devices, such as cameras for video conferencing, or hubs which connect multiple USB devices. The USB connector is a powered hub. When running Windows 98, any combination of up to five powered or unpowered hubs can be connected in any sequence, as long as two unpowered hubs are not connected next to each other. When running a lower version of Windows, or if using a different operating system, up to two hubs can be connected.
4	Parallel connector	Connects an optional parallel device, such as a printer.
5	Serial connector	Connects optional serial devices, such as a mouse.
6	External monitor connector	Connects an optional external monitor, overhead projector, or TV adapter.
7	Keyboard/mouse connector	Connects an optional full-sized keyboard or a mouse. Both external mouse and computer pointing device are active. An optional splitter/adaptor allows both an external keyboard and mouse to be used at the same time.
8	AC Adapter connector	Connects the AC power adapter.

1.9 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to Chapter 3 for the illustrated parts catalog and Chapter 5 for removal and replacement procedures.

The system board provides the following device connections:

- Memory expansion board
- Hard drive
- Display
- Keyboard/TouchPad
- Audio
- AMD K6-2 processor
- Fan
- PC Cards
- Modem or modem/NIC

The Compaq Notebook 100 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 right side of the computer.



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

chapter 2

TROUBLESHOOTING

2.1 Service Considerations

When troubleshooting the Compaq Notebook 100, it is important to obtain all facts about the situation. Obtain details of the problem and any circumstances surrounding the problem. Obtain all error codes or beep codes. Once all facts have been gathered, determine possible causes and search for issues.

2.2 Basic Troubleshooting Checklist

Use the following checklist in the event minor problems are encountered:

- Is the computer connected to an external power source or does it have a fully charged battery pack installed?
- Is the computer turned on and is the power indicator illuminated?
- Are all cables connected properly and secure?
- Did the diskette drive contain a non-bootable diskette when the system was powered up?
- Does the computer have all necessary device drivers?
- Have printer drivers been installed for each application?
- Was the Windows operating system properly exited?
- Has the computer hard drive been scanned for viruses?

2.2 Power-On Self Test (Post)

When the computer starts, the system BIOS runs a series of internal checks on the hardware. This allows the computer to detect problems as early as the power-on stage. The POST alerts you to problems by displaying error messages.

If POST detects an error, the system displays an error message on the display. If the error occurs before the display comes up, error codes or system beeps indicate the POST error.

The value for diagnostic POST (378H) is written at the beginning of the test. Therefore, if the test fails, you can determine where the problem occurred by reading the last value written to POST 378H by the PIO Debug Board Plug at the PIO port. The following table lists error codes in sequential order on the PIO Debug Board.

Table 2-1
Error Codes

Code	Description
01h	Start of boot loader sequence.
02h	Initialize chipset.
03h	Memory sizing.
04h	Perform conventional RAM (1st 640K) test with crossed pattern R/W.
05h	Move boot loader to the RAM.
06h	Start point of execution of boot loader in RAM.
07h	Shadow screen BIOS.
08h	Initialize clock synthesizer.
09h	Initialize audio controller.
0Ah	Detect internal ISA modem.
0Bh	Proceed with normal boot.
0Ch	Proceed with crisis boot.
0Fh	DRAM sizing
10h	Initial L1, L2 cache, make stack and diagnose CMOS.
11h	Turn off fast A20 for post, Reset GDT's, 8259's quickly.

continued

Table 2-1 *continued*

Code	Description
12h	Signal power on reset on COMS.
13h	Initialize the chipset (DRAM).
14h	Search for ISA bus VGA adapter.
15h	Reset counter/timer 1, excite the RAM.
16h	User register config through CMOS.
18h	Dispatch to 1st 64K RAM test.
19h	Checksum the ROM.
1Ah	Reset PIC's (8259s).
1Bh	Initialize video adapter(s)
1Ch	Initialize video (6845 regs).
1Dh	Initialize color adapter.
1Eh	Initialize monochrome adapter
1Fh	Test 8237A page registers.
20h	Perform keyboard self-test.
21h	Test and initialize keyboard controller.
22h	Check if CMOS RAM valid.
23h	Test battery fail & CMOS X-SUM.
24h	Test DMA controllers.
25h	Initialize 8237 controller.
26h	Initialize interrupt vectors table.
27h	RAM quick sizing.
28h	Protected mode entered safely.
29h	RAM test completed.
2Ah	Protected mode exit successful.
2Bh	Setup shadow.
2Ch	Prepare to initialize video.
2Dh	Search for monochrome adapter.
2Eh	Search for color adapter, VGA initialize

continued

Table 2-1 *continued*

Code	Description
2Fh	Signon messages displayed.
30h	Special init of keyboard ctrl.
31h	Test if keyboard present.
32h	Test keyboard interrupt.
33h	Test keyboard command Byte.
34h	Test, blank and count all RAM.
35h	Protected mode entered safely (2).
36h	RAM test complete.
37h	Protected mode exit successfully.
38h	Update keyboard output port to disable gate of A20.
39h	Setup cache controller.
3Ah	Test if 18.2Hz periodic working.
3Bh	Initialize BIOS data area at 40.0.
3Ch	Initialize the hardware interrupt vector table.
3Dh	Search and initialize the mouse
3Eh	Update NUMLOCK status.
3Fh	OEM initialization of COM and LPT ports.
40h	Configure the COM and LPT ports.
41h	Initialize the diskette drive.
42h	Initialize the hard disk.
43h	OEM's unit of PM with USB.
44h	Initialize additional ROMs.
45h	Update NUMLOCK status.
46h	Test for coprocessor installed.
47h	OEM's unit of power management (check SMI).
48h	OEM's functions before boot (PC Card, CardBus).
49h	Dispatch to operation system boot.
4Ah	Jump into bootstrap code.

2.3 Solving Common Problems

**Table 2-2
Power**

Problem	Possible Cause	Solution
The power button is pressed and nothing happens. The power indicator does not light up.	No AC or battery power.	<ul style="list-style-type: none">■ Check to ensure the AC adapter is plugged in.■ Check to ensure the battery is charged.■ Try another working battery or adapter.

**Table 2-3
Display**

Problem	Possible Cause	Solution
There is no display on either the internal LCD or an external monitor.	I/O devices and cables causing a problem.	<ul style="list-style-type: none">■ Try a working monitor or LCD.■ Check SW4 for proper switch settings■ Remove I/O devices and cables and reconnect one by one to determine which is causing the problem.

**Table 2-4
VGA Controller Failure**

Problem	Possible Cause	Solution
There is no display on either the internal LCD or an external monitor, yet the system passed POST.	Faulty LCD or Monitor	<ul style="list-style-type: none">■ Try another working monitor or LCD module.■ Remove I/O devices and cables and reconnect one by one to determine which is causing the problem.

Table 2-5
LCD No Display

Problem	Possible Cause	Solution
The LCD shows nothing or abnormal picture. The picture is fine on an external monitor.	<ul style="list-style-type: none">■ Improper switch settings.■ Faulty LCD display.■ Cables not installed properly.■ LCD is not active (toggle Fn + F5)	<ul style="list-style-type: none">■ Check to see if SW4 is set properly.■ Discharge CMOS for wrong display mode setting.■ Try a working LCD display.■ Check if D/A BD is good.■ Make sure cables are installed properly.

Table 2-6
External Monitor No Display

Problem	Possible Cause	Solution
The CRT monitor shows nothing or abnormal color. The picture is fine on the LCD.	<ul style="list-style-type: none">■ Monitor power cord not installed properly.■ CRT monitor cable not installed properly■ CRT monitor is faulty.■ External display not active (toggle Fn + F5)	<ul style="list-style-type: none">■ Check the monitor's power cord■ Check the CRT monitor cable.■ Try a working monitor.■ Check the CMOS settings

2.4 Test Errors

The following topics contain checklists to help isolate and correct errors generated during POST.

Memory Test Error

- Check extended SDRAM modules for proper installation.
- Visually inspect the SDRAM socket for bent pins.
- Try a working SDRAM module.

Keyboard Test Error

- Check the keyboard cable.
- If using an external PS/2 keyboard, ensure that it is working properly by testing a working keyboard.

Diskette Drive Test Error

- Ensure that BIOS is set up correctly. Use the SCU to verify.
- Ensure that the diskette drive is connected properly.
- Try another working diskette drive.

CD-ROM Drive Test Error

- Try another working CD.
- Ensure that the CD-ROM drive is connected properly.
- Try another working CD-ROM drive.

Hard Drive Test Error.

- Check the CMOS hard disk drive settings.
- Try another working hard disk drive.

USB Board Test Error

- Ensure that the USB device is installed properly.
- Ensure that the USB driver is installed.
- Verify that the USB device conforms to the correct standard, UHCI as opposed to OHCI.
- Try another working UHCI device.

Serial Port Test Error

- Ensure that the mouse or other I/O devices are installed properly (including associated drivers).
- Check CMOS to ensure that the COM port is set properly.
- Try another working device.

Parallel Port Test Error

- Ensure that the PIO device is installed properly.
- Check the CMOS LPT port settings
- Try another working device.

Audio Failure

- Ensure that all cables and devices are connected properly.
- Ensure that the appropriate software drivers are installed.
- Try another working speaker, cable, and CD-ROM.
- Ensure that there are no address or IRQ conflicts.

chapter 3

ILLUSTRATED PARTS CATALOG

This chapter provides an illustrated parts breakdown and a reference for spare part numbers and option part numbers for the Compaq Notebook 100 Personal Computer.

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).

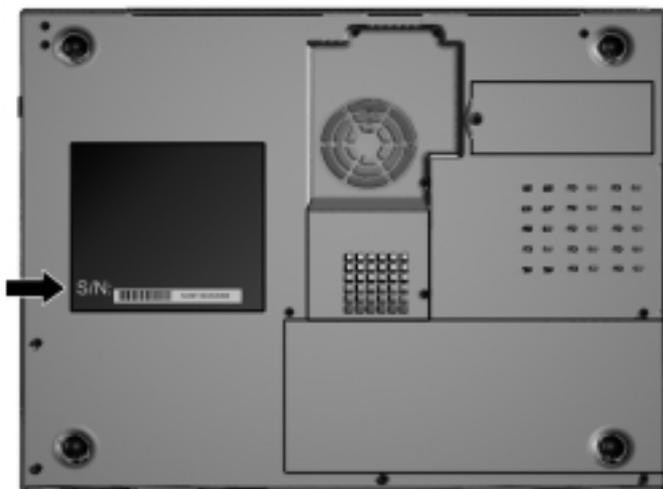


Figure 3-1. Serial Number Location

3.2 Computer System Major Components

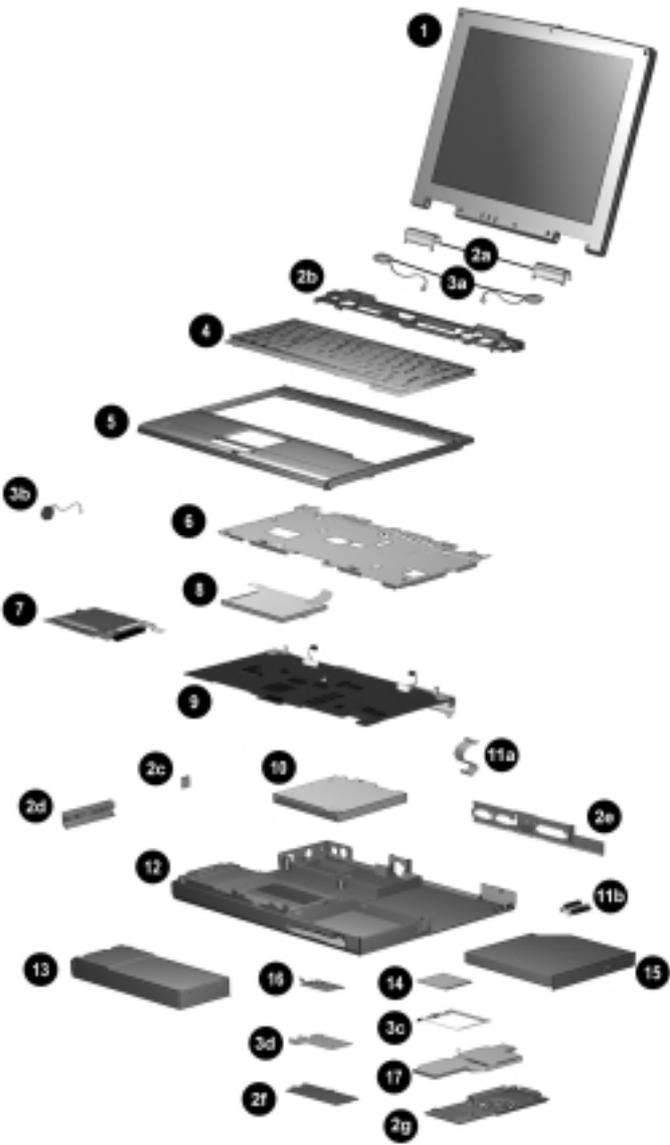


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components

Item	Description	Spare Part Number
1	Display assembly 12.1-inch panel, HPA (used only with config. codes beginning with "FFF")	176037-001
	12.1-inch panel, TFT (used only with config. codes beginning with "FFG")	176038-001
	Miscellaneous Plastics Kit, includes:	176048-001
2a	Left and right hinge covers	
2b	Speaker housing	
2c	RJ11 cover	
2d	PC Card door	
2e	I/O cover	
2f	Modem cover	
2g	Fan/CPU cover	
	Hardware Kit, includes:	176049-001
3a	Speakers (2)	
3b	Real time clock battery and sponge	
3c	Processor bracket	
3d	Modem shield	
4	Keyboard	176041-XXX
	Brazilian -201 Latin American	
	French -051 Spanish -161	
	German -041 Portuguese -131	
	International -002 Spanish -071	
	Italian -061 U.K. English -031	
	Japanese -291 U.S. English -001	
5	Top cover	176043-001
6	EMI shield	176002-001
7	TouchPad	176044-001
8	Hard drive 5.0 GB	176040-001
9	System board 64 MB SDRAM (used only with config. codes "FFG1" through "FFG4")	189047-001
	64 MB SDRAM (used only with config. codes "FFF5" and "FFF6")	176035-001
	32 MB SDRAM (used only with config. codes "FFF1" through "FFF4")	176034-001
10	Diskette drive	176047-001
	Cable Kit, includes:	176004-001
11a	Diskette drive cable	
11b	Modem cable	
11c	CD-ROM drive cable	
12	Base assembly	176042-001
13	Battery pack NiMH (standard)	174373-001
	Li ion (available only as an option)	174372-001
14	AMD K6-2 475-MHz processor	176036-001
15	24X CD-ROM drive	176039-001
16	56 Kbps modem	176052-001
17	Fan assembly	176051-001

3.3 Miscellaneous Plastics Kit Components

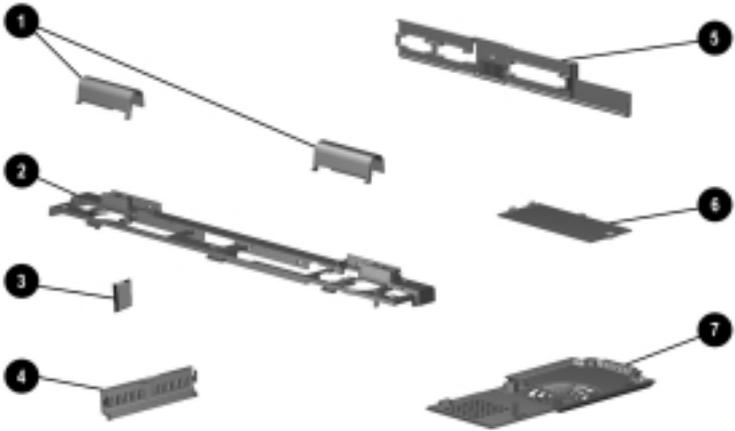


Figure 3-3. Miscellaneous Plastics Kit Components

Table 3-2
Miscellaneous Plastics Kit Components
Spare Part Number 176048-001

Item	Description
1	Left and right hinge covers
2	Speaker housing
3	RJ11 cover
4	PC Card door
5	I/O cover
6	Modem cover
7	Fan/CPU cover

3.4 Hardware Kit Components

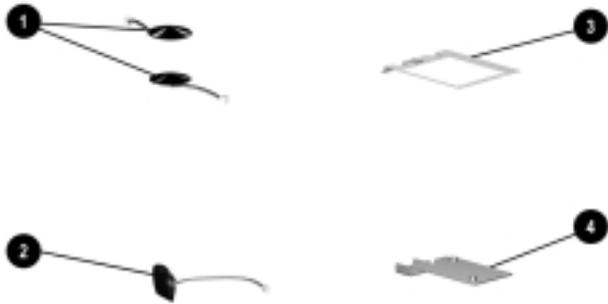


Figure 3-4. Hardware Kit Components

Table 3-3
Hardware Kit Components
Spare Part Number 176049-001

Item	Description
1	Speakers (2)
2	Real time clock battery
3	Processor bracket
4	Modem shield

3.5 Cable Kit Components

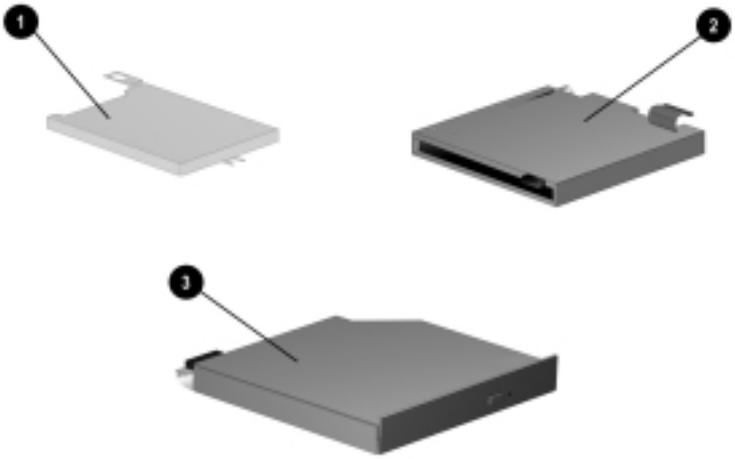


Figure 3-5. Cable Kit Components

Table 3-4
Spare Parts: Cable Kit Components
Spare Part Number 176004-001

Item	Description
1	Diskette drive cable
2	Modem cable
3	CD-ROM drive cable

3.6 Mass Storage Devices

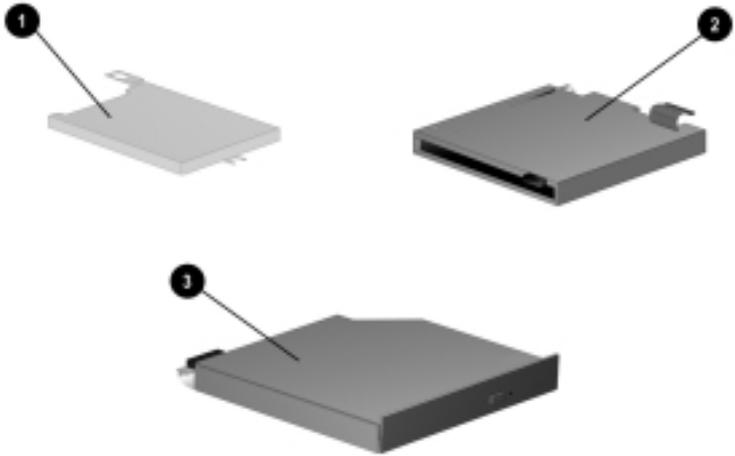


Figure 3-6. Mass Storage Devices

Table 3-5
Spare Parts: Mass Storage Devices

Item	Description	Spare Part Number
1	5.0-GB hard drive	176040-001
2	24X CD-ROM drive (standard)	176039-001
3	Diskette drive, 1.44-Megabyte	176047-001

3.7 Miscellaneous

Table 3-6
Spare Parts: Miscellaneous (Not Illustrated)

Description			Spare Part Number
Power cord, black, 6 feet			246959-XXX
Australian	-011	Korean	-AD1
Danish	-081	Swiss	-AG1
International	-021	U.K. English	-031
Italian	-061	U.S. English	-001
Japanese	-291		
PC Cards			
Compaq Microcom 420 56K Global Modem			317900-001
Compaq Netelligent 10/100 TX network card			335506-B12
Compaq Microcom 500 10/100 +56K combination modem/network interface card			321550-B21
AC Adapter, 50 W			174371-001
Miscellaneous Screw Kit			176050-001
Memory expansion board			
128 MB			179966-001
64 MB			179965-001
32 MB			179964-001
Compaq Notebook 100 <i>Maintenance & Service Guide</i>			190369-001

chapter 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 Phillips screwdriver
- Tool kit (includes connector removal tool, loopback plugs, and case utility tool)

4.2 Service Considerations

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

IMPORTANT: As you remove each subassembly from the computer, place it (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; they tear easily.



CAUTION: When servicing the computer, ensure that cables are placed in their proper location 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 these precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, then shut it down.
- Before removing a diskette drive or CD-ROM drive, ensure that a diskette or disc is *not* in the drive. Ensure that the CD-ROM 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, place it into a static-proof bag.
- After removing a CD-ROM drive or a diskette drive, place it into a static-proof bag.
- Do not use excessive force when inserting a drive into a drive bay.
- Avoid exposing a hard drive to products that have magnetic fields such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or to liquids.
- If a drive must be mailed, do the following: place the drive into a bubble pack mailer or other suitable form of protective packaging; 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. It 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 they arrive at static-free workstations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or non-conductive 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 were 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 later in this chapter).
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use field service tools, such as cutters, screwdrivers, and vacuums that are conductive.
- When using fixtures that must directly contact dissipative surfaces, use fixtures made of static-safe materials only.
- Keep 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 them 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 megaohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snug 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 them 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 include:
 - Antistatic tape
 - Antistatic smocks, aprons, or sleeve protectors
 - Conductive bins and other assembly or soldering aids
 - Non-conductive foam
 - Conductive tabletop workstations with ground cord of one-megohm resistance
 - Static-dissipative table or floor mats with hard tie to ground
 - Field service kits
 - Static awareness labels
 - Material-handling packages
 - Non-conductive 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**

Event	Relative Humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic 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

NOTE: A product can be degraded 700 volts.

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	15,000 V

Chapter 5

REMOVAL AND REPLACEMENT PROCEDURES

This chapter provides removal and replacement procedures for the Compaq Notebook 100 Series.

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 (Figure 5-1).

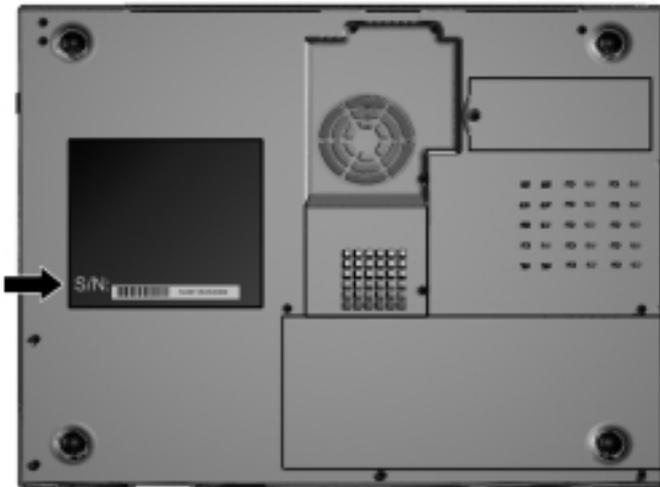


Figure 5-1. Serial Number Location

5.2 Disassembly Reference Chart

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

5.3	Preparing the Computer for Disassembly
5.4	Battery Pack
5.5	Modem
5.6	Fan Assembly
5.7	CD-ROM Drive
5.8	Processor
5.9	Memory
	Removing a Memory Expansion Board
	Installing a Memory Expansion Board
5.10	Top Cover
5.11	Hard Drive
5.12	Real Time Clock (RTC) Battery
5.13	Keyboard
5.14	EMI Shield
5.15	TouchPad
5.16	Speakers
5.17	Display Assembly
5.18	Speaker Housing
5.19	System Board
5.20	Diskette Drive

5.3 Preparing the Computer for Disassembly

Perform the following steps before disassembling the computer. Consult the computer reference guide for instructions on the steps below.

1. Remove any diskettes installed in the diskette drive.
2. Remove any CD-ROM discs installed in the CD-ROM drive.
3. Turn off the computer and close it.
4. Disconnect the AC Adapter and external devices.
5. Remove the battery pack (Section 5.4).

5.4 Battery Pack

Battery Pack Spare Part Number Information

Battery pack, NiMH	174373-001
Battery pack, Li ion	174372-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the right side facing forward.
3. Lift the battery tab up ❶ (Figure 5-2).
4. Slide the battery release switch to the left ❷.
5. Lift up the front edge of the battery pack and swing it away from computer ❸.
6. Remove the battery pack.

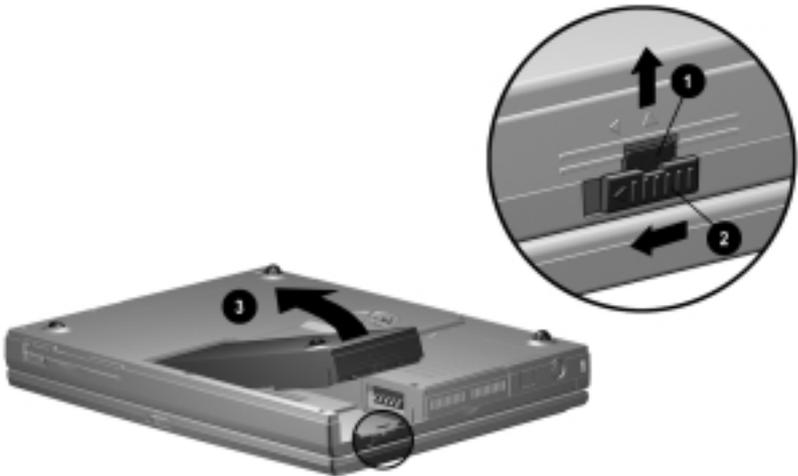


Figure 5-2. Removing the Battery Pack

Reverse the removal procedure described above to replace the battery pack.

5.5 Modem

Modem Spare Part Number Information

56Kbps modem board	176052-001
Modem cover (spared in Plastics Kit)	176048-001
Modem shield (spared in Hardware Kit)	176046-001
Modem cable (spared in Cable Kit)	176004-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the front facing forward.
3. Remove the screw ❶ securing the modem cover to the base assembly (Figure 5-3).
4. Lift the left side of the modem cover and swing it up and to the right ❷.
5. Remove the modem cover.

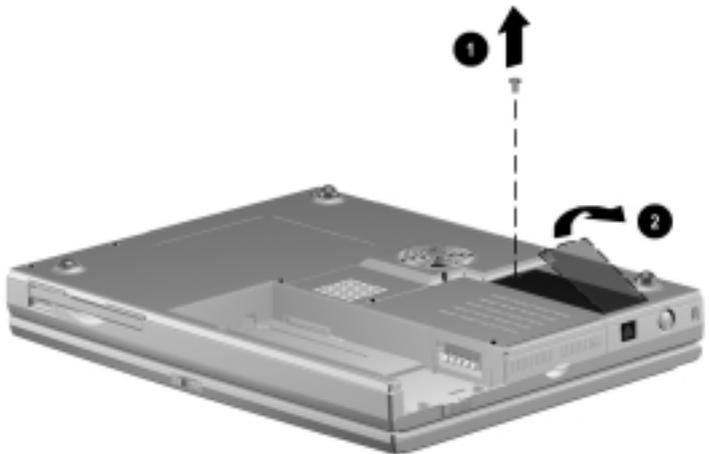


Figure 5-3. Removing the Modem Cover

6. Remove the two screws **1** securing the modem shield to the base assembly (Figure 5-4).
7. Remove the modem shield **2**.

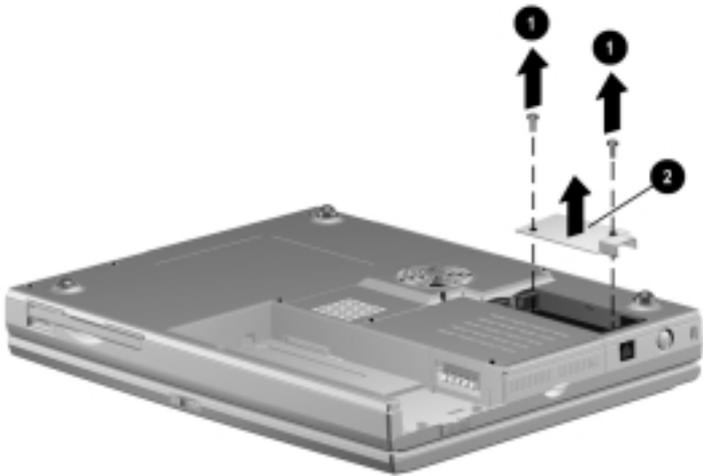


Figure 5-4. *Removing the Modem Shield*

8. Swing the plastic modem protector toward the back of the computer ❶ (Figure 5-5).
9. Disconnect the modem cable from the system board ❷.
10. Lift the left side of the modem board to disconnect it from the system board ❸.
11. If necessary, disconnect the modem cable from the modem board and replace the modem cable ❹.

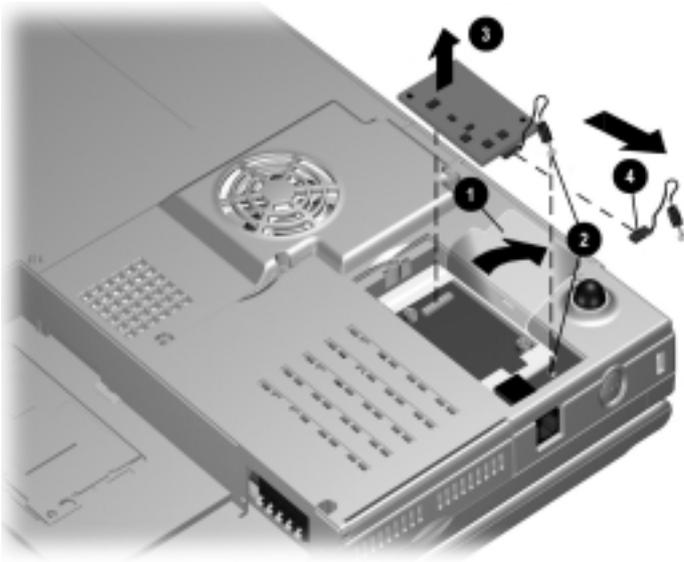


Figure 5-5. *Removing the Modem*

12. Remove the modem board.
- Reverse the removal procedure described above to replace the modem.

5.6 Fan Assembly

Fan Assembly Spare Part Number Information

Fan assembly (includes fan shield, fan, and heat sink)	176051-001
Fan/CPU cover (spared in Plastics Kit)	176048-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the front facing forward.
3. Remove the four screws securing the fan/CPU cover to the base assembly. Note that the two screws removed from the back edge of the cover **1** differ in size from the other two screws **2** (Figure 5-6).
4. Remove the fan/CPU cover **3**.

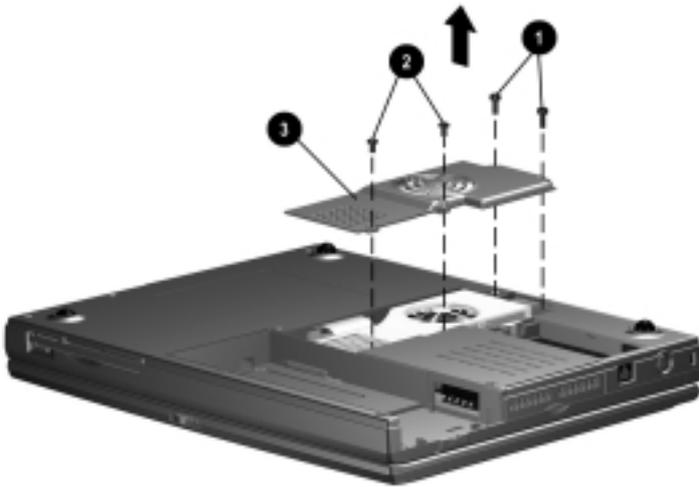


Figure 5-6. Removing the Fan/CPU Cover

5. Disconnect the fan cable ❶ from the system board (Figure 5-7).
6. Remove the four screws ❷ securing the fan assembly to the system board.
7. Remove the fan assembly ❸.

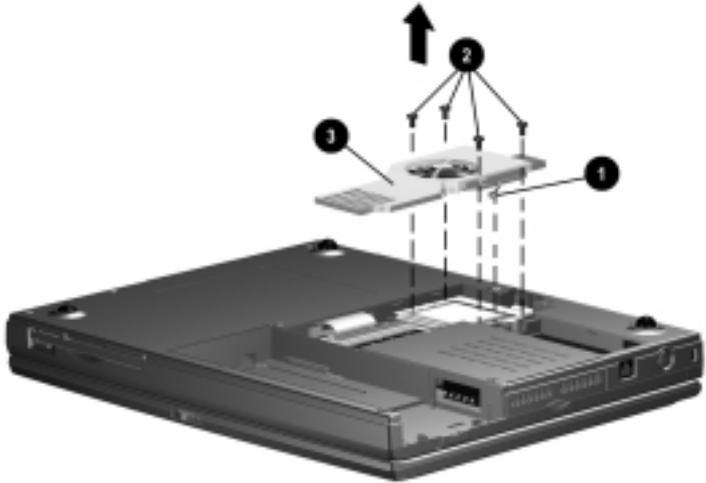


Figure 5-7. *Removing the Fan Assembly*

5.7 CD-ROM Drive

CD-ROM Drive Spare Part Number Information

24X Max CD-ROM drive	176039-001
CD-ROM drive cable (spared in Cable Kit)	176004-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the fan assembly (Section 5.6).
3. Disconnect the CD-ROM drive cable from the system board ❶ (Figure 5-8).
4. Remove the screw securing the CD-ROM drive to the base assembly ❷.
5. Push on the back of the CD-ROM drive and slide the drive to the left ❸.

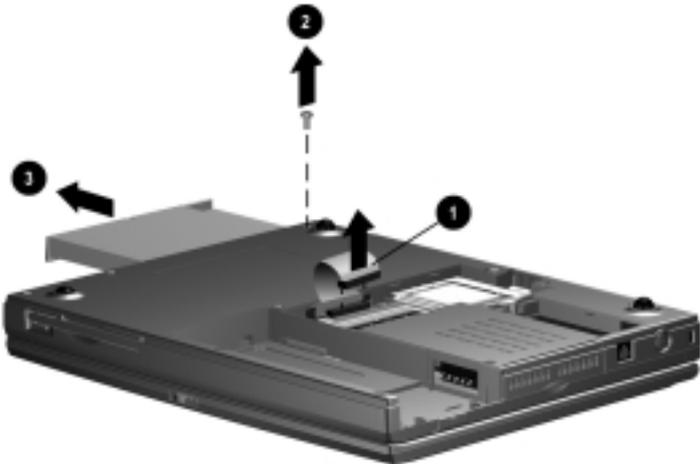


Figure 5-8. Removing the CD-ROM Drive

6. Remove the CD-ROM drive.

7. If necessary, disconnect the CD-ROM drive cable from the CD-ROM drive (Figure 5-9).

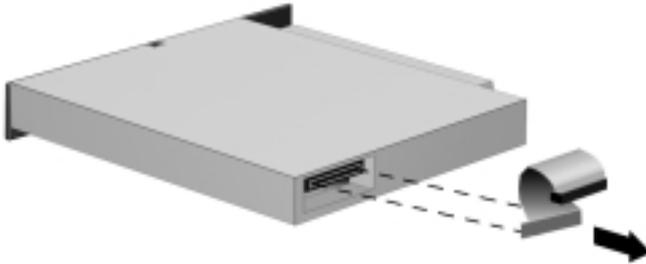


Figure 5-9. *Removing the CD-ROM Drive Cable*

Reverse the removal procedure described above to replace the CD-ROM drive.

5.8 Processor

Processor Spare Part Number Information

475-MHz processor	176036-001
Processor bracket	176046-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the fan assembly (Section 5.6).
3. Swing the left side of the processor bracket up and to the right **1** (Figure 5-10).
4. Remove the processor bracket **2**.

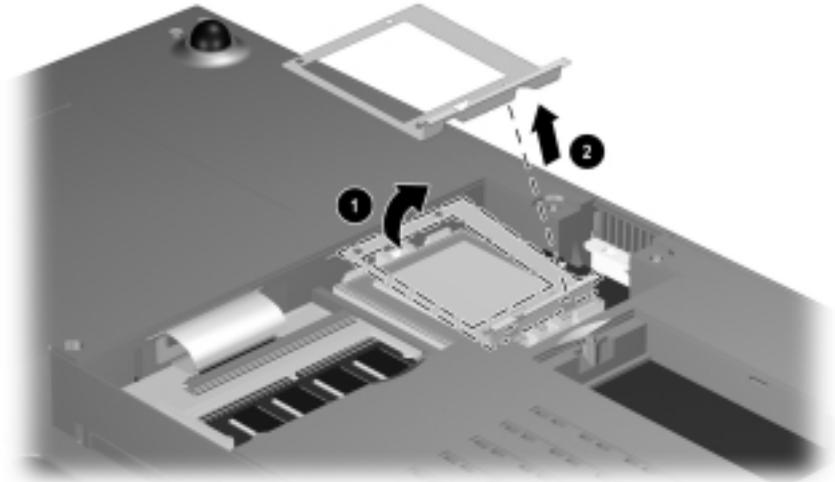


Figure 5-10. Removing the Processor Bracket

5. Insert the tip of a flat-blade screwdriver into the left socket **1**. This socket is marked “**SKT OPEN**” (Figure 5-11).
6. Swing the screwdriver to the right to release the processor **2**.
7. Remove the processor.

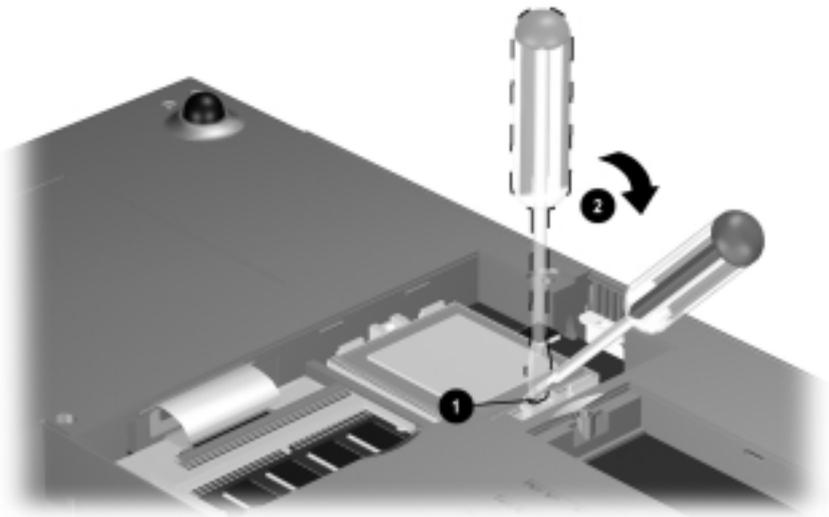


Figure 5-11. Removing the Processor

When replacing the processor, make sure the white square is in the upper-right corner **1**. Insert the tip of the screwdriver into the right socket (marked “SKT CLOSE”) **2** and swing the screwdriver to the right to seat the processor **3** (Figure 5-12).

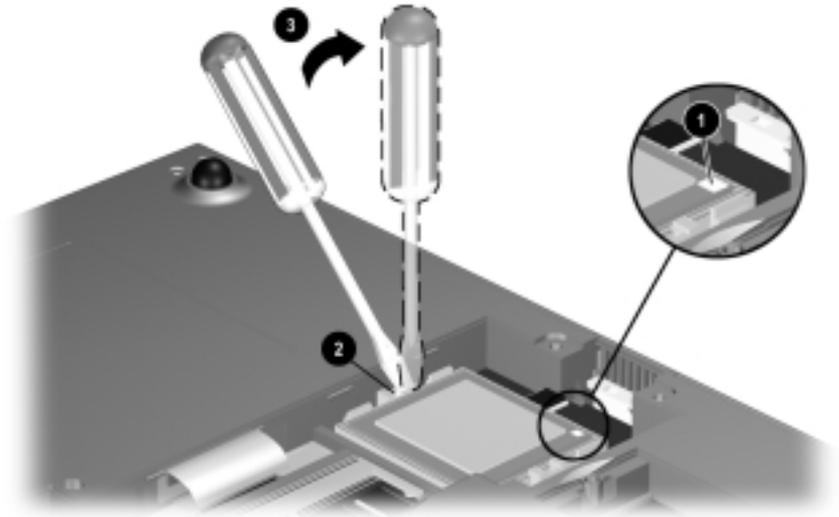


Figure 5-12. Replacing the Processor

5.9 Memory

Memory Expansion Board Spare Part Number Information

128 MB memory expansion board	179964-001
64 MB memory expansion board	179965-001
32 MB memory expansion board	179966-001

The Compaq Notebook 100 computer features one memory expansion slot, located under the fan assembly.

Removing a Memory Expansion Board

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the fan assembly (Section 5.6).
3. Spread the retaining tabs apart **1**. The memory expansion board tilts upward (Figure 5-13).
4. Lift the edge of the memory expansion board and gently slide it out of the memory expansion slot at a 45-degree angle **2**.
5. Place the memory expansion board in an electrostatic-safe container.



Figure 5-13. Removing a Memory Expansion Board

Installing a Memory Expansion Board

All memory expansion boards are asymmetrically keyed (notched) to ensure correct positioning. Memory expansion boards can be used in either memory expansion slot.

1. Insert the memory expansion board into an empty memory expansion slot at a 45-degree angle ❶ (Figure 5-14).
2. Push the memory expansion board down ❷ until the board is seated in the plastic retention clips.



Figure 5-14. *Installing a Memory Expansion Board*

5.10 Top Cover

Top Cover Spare Part Number Information

Top cover

176043-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up, with the front facing forward.
3. Remove the six screws securing the top cover to the base assembly (Figure 5-15).

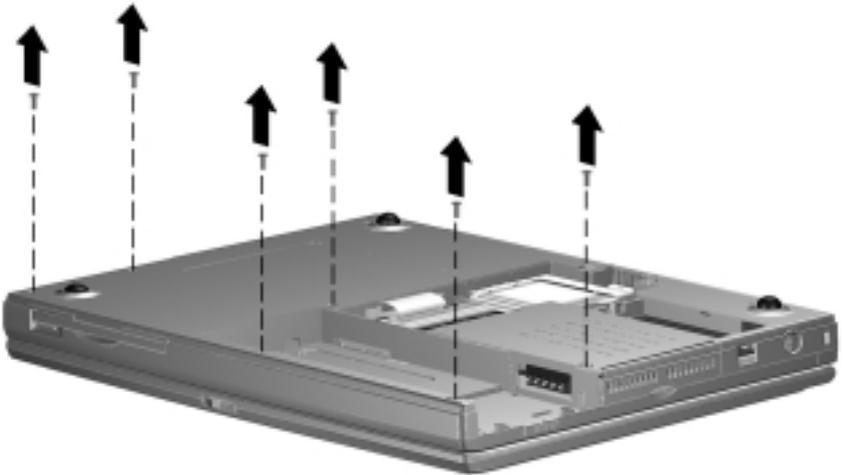


Figure 5-15. Removing the Top Cover Screws

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

6. Lift up the front edge of the top cover ❶ and swing it toward the back of the computer ❷ (Figure 5-16).

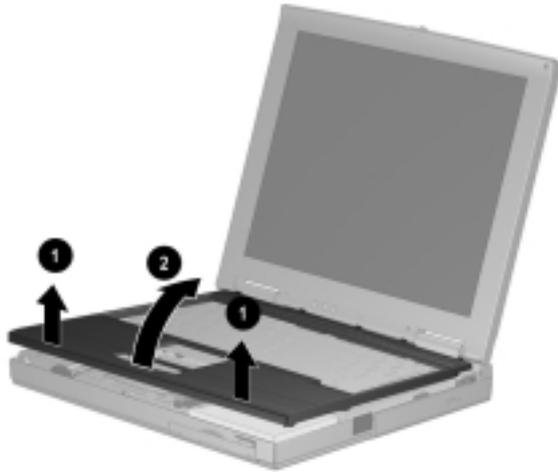


Figure 5-16. *Removing the Top Cover*

7. Remove the top cover.

IMPORTANT: When installing the top cover, align the five tabs on the back edge of the top cover with the slots in the speaker housing.

5.11 Hard Drive

Hard Drive Spare Part Number Information

5.0 GB hard drive

176040-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the top cover (Section 5.10).
3. Remove the two screws securing the hard drive to the base assembly ❶ (Figure 5-17).
4. Lift up the right side of the hard drive ❷, and then pull the hard drive to the right ❸ to disconnect it from the TouchPad assembly.



Figure 5-17. Removing the Hard Drive

5. Remove the hard drive.

Reverse the removal procedure described above to replace the hard drive.

5.12 Real Time Clock (RTC) Battery

NOTE: Removal of the RTC battery clears all information from CMOS.

Real Time Clock Battery Spare Part Number Information

Real time clock battery (spared in Hardware Kit) 176049-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the top cover (Section 5.10).
3. Disconnect the RTC battery cable from the TouchPad ❶ (Figure 5-18).
4. Remove the RTC battery from the base assembly ❷.



Figure 5-18. Removing the RTC Battery

Reverse the removal procedure described above to replace the RTC battery.

5.13 Keyboard

Keyboard			
Spare Part Number Information			
Keyboard			176041-XXX
Brazilian	-201	Latin American	
French	-051	Spanish	-161
German	-041	Portuguese	-131
International	-002	Spanish	-071
Italian	-061	U.K. English	-031
Japanese	-291	U.S. English	-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the top cover (Section 5.10).

3. Lift up the front edge of the keyboard **1** and swing it back toward the display (Figure 5-19).
4. Release the ZIF (zero insertion force) connector to which the keyboard cable is attached **2**.
5. Disconnect the keyboard cable from the system board **3**.



Figure 5-19. *Releasing the Keyboard and Disconnecting the Keyboard Cable*

6. Remove the keyboard.

IMPORTANT: When installing the keyboard, align the three tabs on the back edge of the keyboard with the slots in the EMI shield.

5.14 EMI Shield

EMI Shield Spare Part Number Information

EMI shield

176002-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the top cover (Section 5.10).
3. Remove the keyboard (Section 5.13).
4. Remove the 12 screws securing the EMI shield to the base assembly (Figure 5-20).

NOTE: There are three different-sized screws removed in this step: the silver screws are removed/installed in location **1**; the longer black screws are removed/installed in location **2**; the shorter black screw is removed/installed in location **3**.

Also note that one of the silver screws **4** secures the display ground cable to the EMI shield.

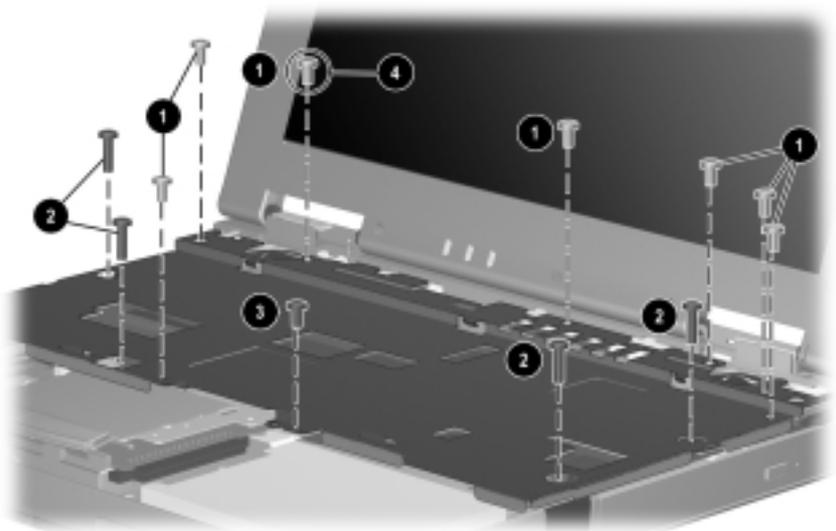


Figure 5-20. Removing the EMI Shield Screws

5. Lift up the front edge of the shield and swing it toward the back of computer (Figure 5-21).

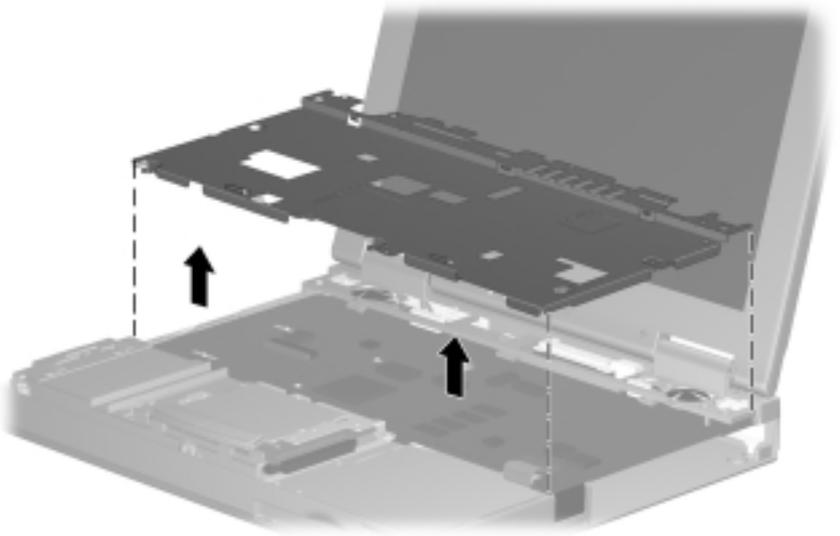


Figure 5-21. *Removing the EMI shield*

6. Remove the EMI shield.
Reverse the removal procedure described above to replace the EMI shield.

5.15 TouchPad

TouchPad Spare Part Number Information

TouchPad

176044-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - hard drive (Section 5.11)
 - RTC battery (Section 5.12)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
2. Lift the back edge of the TouchPad to disconnect it from the system board ❶ (Figure 5-22).
3. Remove the TouchPad ❷.



Figure 5-22. Removing the TouchPad

Reverse the removal procedure described above to replace the TouchPad.

5.16 Speakers

Speakers Spare Part Number Information

Speakers (2; spared in Hardware Kit)

176049-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
2. Disconnect the speaker cables from the system board ❶ (Figure 5-23).
3. Remove the speakers from the speaker housing ❷.

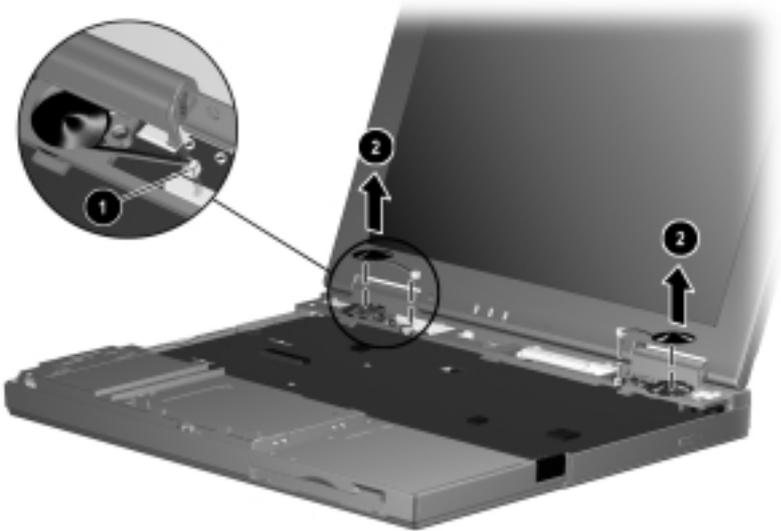


Figure 5-23. Removing the Speakers

Reverse the removal procedure described above to replace the speakers.

5.17 Display Assembly

Display Assembly Components Spare Part Number Information

12.1-inch panel, HPA	176037-001
12.1-inch panel, TFT	176038-001
Left and right hinge covers (spared in Plastics Kit)	176048-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
2. Use a flat blade screwdriver to gently pry up and remove the left and right hinge covers (Figure 5-24).

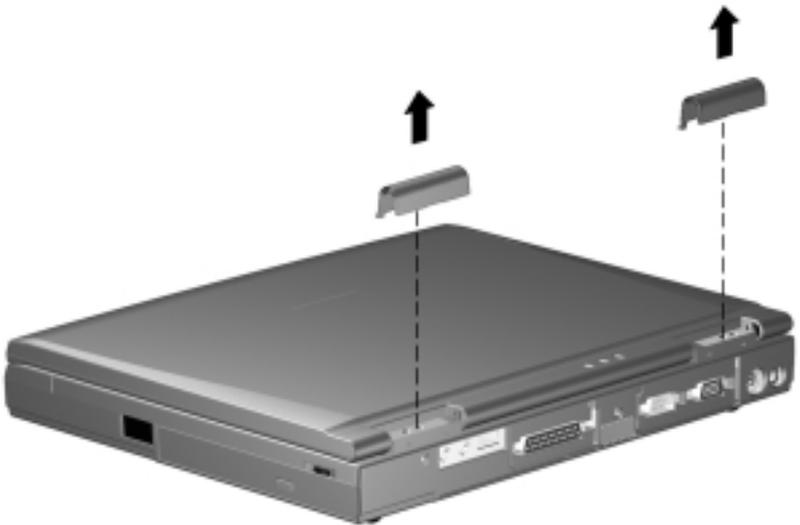


Figure 5-24. Removing the Hinge Covers

3. Open the computer as far as it will open.
4. Disconnect the display video cable **1**, display inverter cable **2**, and microphone cable **3** (Figure 5-25).



Figure 5-25. *Disconnecting the Display Cables*

5. Remove the four screws **1** securing the display hinges to the base assembly (Figure 5-26).

6. Remove the display assembly **2**.

NOTE: Make sure the display assembly is supported and does not fall when the screws are removed.

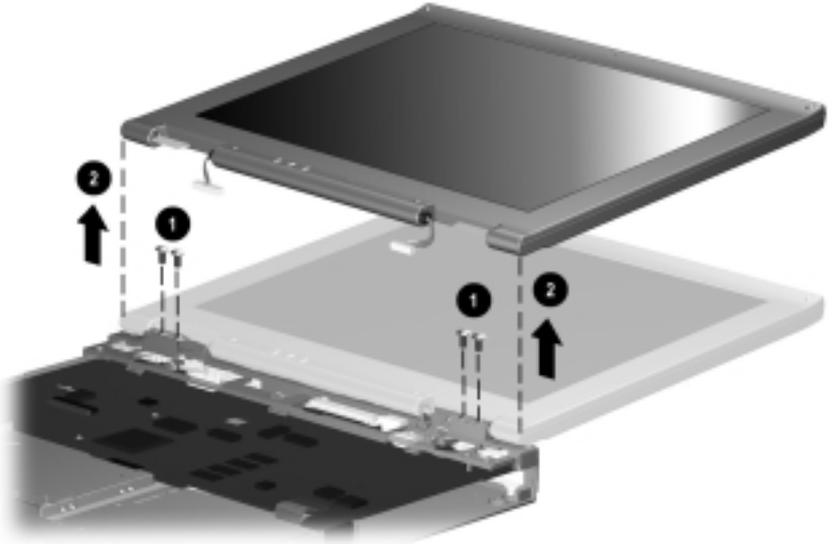


Figure 5-26. Removing the Display Assembly

When installing the display assembly, make sure the display video cable ❶ is routed behind the left speaker connector ❷ on the system board (Figure 5-27).

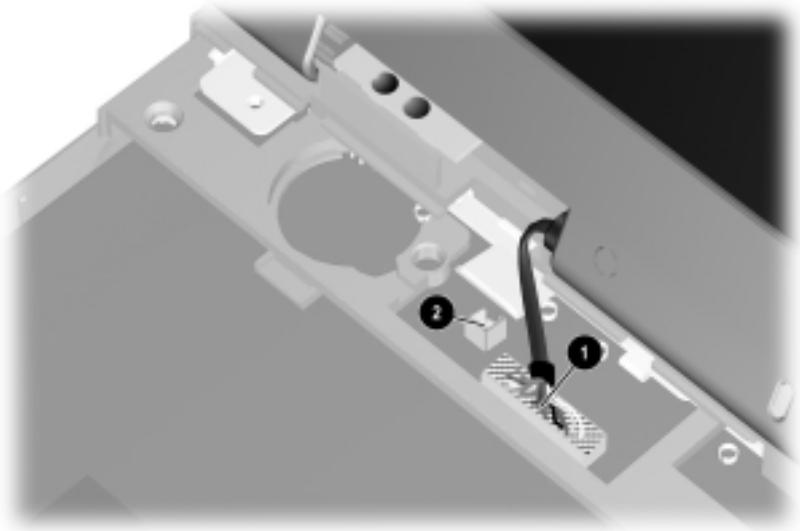


Figure 5-27. Routing the Display Video Cable

When replacing the display assembly, it is imperative that the DIP switches are correctly set. To set the display DIP switches on the system board, follow the steps below.

1. Remove the display assembly.
2. Locate the part number label on the display microphone cable ❶ (Figure 5-28).
3. Part number “441668500001/176038-001” corresponds to the 12.1-inch, TFT display assembly. If this is the part number on the label, make sure the display DIP switch on the system board is set according to setting ❷.
4. Part number “441668500002/176037-001” corresponds to the 12.1-inch, HPA display assembly. If this is the part number on the label, make sure the display DIP switch on the system board is set according to setting ❸.

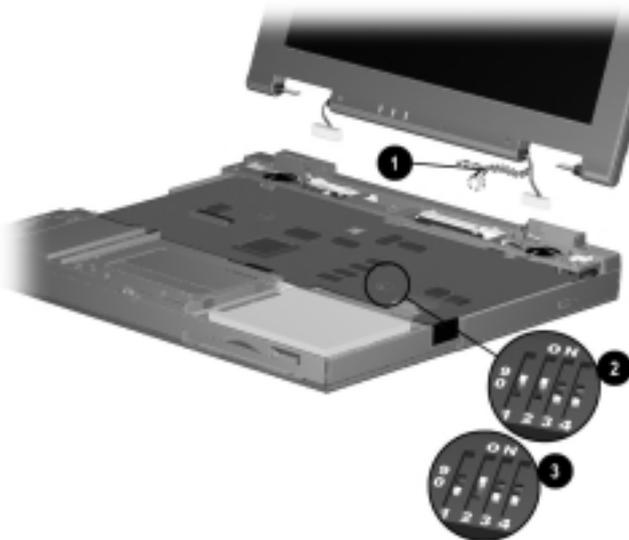


Figure 5-28. Setting the Display DIP Switches

5. After the DIP switch settings have been verified, reassemble the computer.

5.18 Speaker Housing

Speaker Housing Spare Part Number Information

Speaker housing (spared in Plastics Kit)	176048-001
I/O cover (spared in Plastics Kit)	176048-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
 - display assembly (Section 5.17)
2. Position the computer so the rear panel faces forward.
3. Remove the screw securing the I/O cover to the speaker housing **1** (Figure 5-29).
4. Flex the middle of the I/O cover away from the computer **2**.

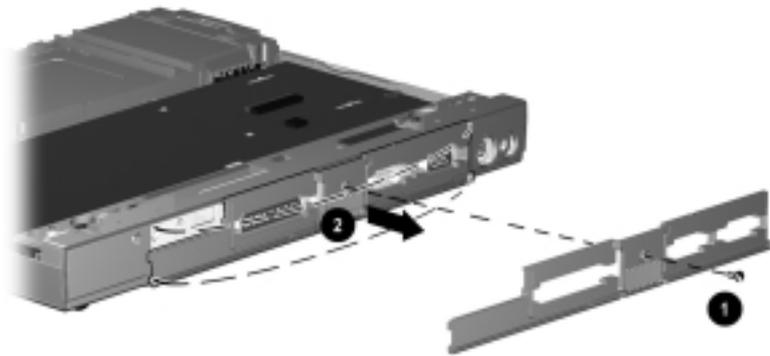


Figure 5-29. Removing the I/O Cover

5. Remove the I/O cover.

6. Remove the five screws securing the speaker housing to the base assembly ❶ (Figure 5-30).
7. Remove the speaker housing ❷.

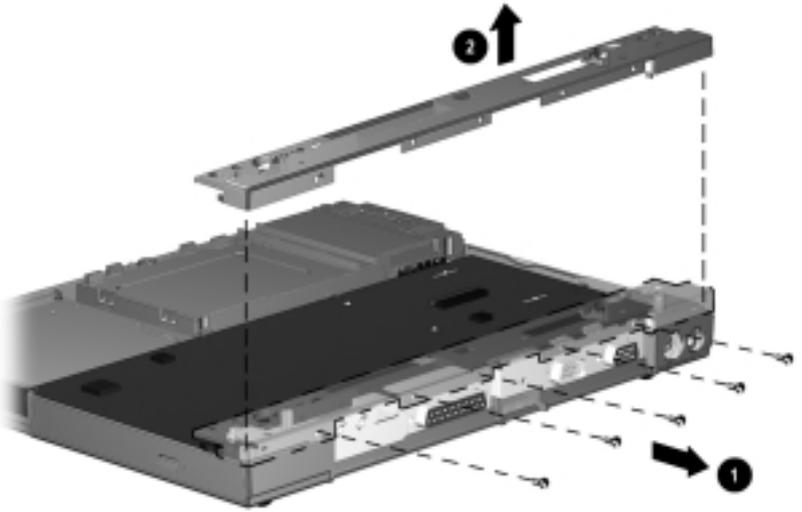


Figure 5-30. *Removing the Speaker Housing*

Reverse the removal procedure described above to replace the speaker housing.

5.19 System Board

System Board Spare Part Number Information

System board with 32 MB SDRAM	176034-001
System board with 64 MB SDRAM	176035-001
RJ11 cover (spared with Plastics Kit)	176048-001
PC Card door (spared with Plastics Kit)	176048-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - hard drive (Section 5.11)
 - RTC battery (Section 5.12)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
 - TouchPad (Section 5.15)
 - speakers (Section 5.16)
 - display assembly (Section 5.17)
 - speaker housing (Section 5.18)
2. Turn the computer bottom side up with the rear panel facing forward.

3. Remove the two screws securing the system board to the base assembly (Figure 5-31).

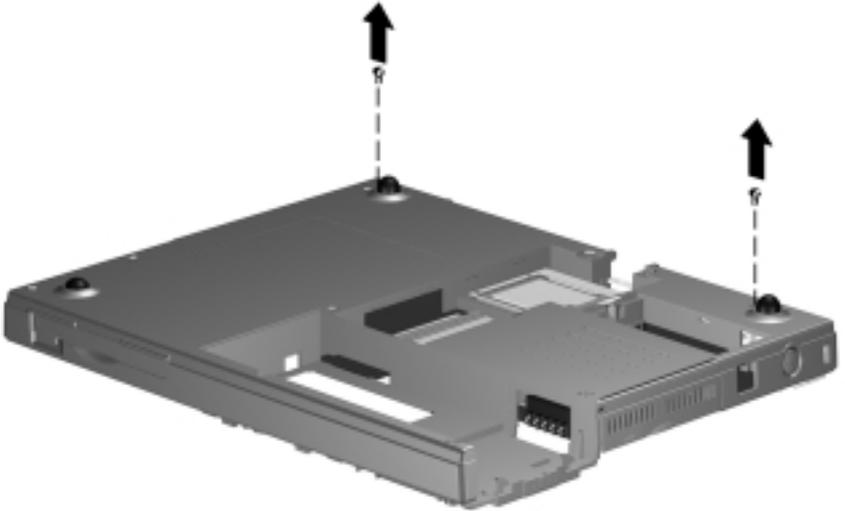


Figure 5-31. *Removing the System Board Screws*

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

5. If installed, remove the RJ11 cover from the left side of the computer ❶ (Figure 5-32).
6. Disconnect the diskette drive LIF (low insertion force) cable from the system board ❷.
7. Remove the system board from of the base assembly ❸.

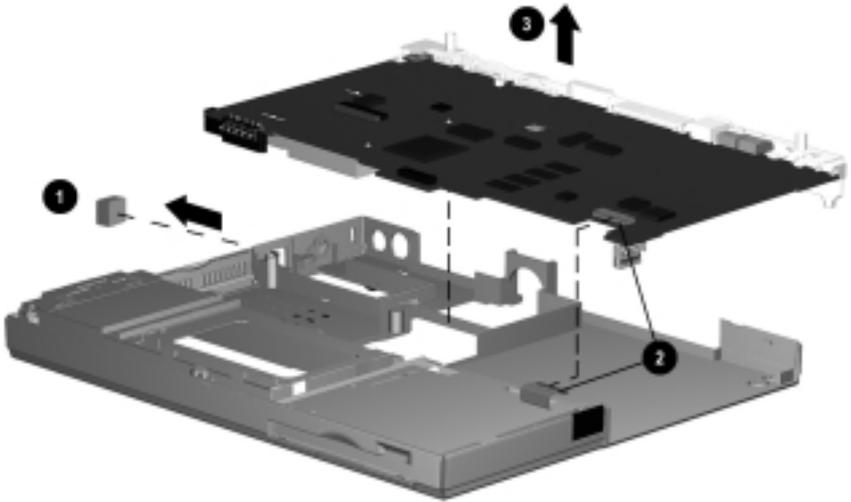


Figure 5-32. *Removing the System Board*

IMPORTANT: When installing the system board, make sure the diskette drive cable does not get trapped underneath the system board.

If necessary, remove the PC Card door by partially opening the door ❶, flexing the middle of the door away from the computer ❷, and removing the door (Figure 5-33).

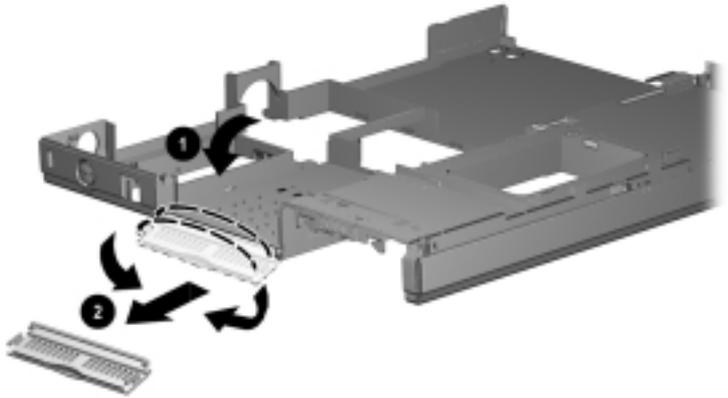


Figure 5-33. Removing the PC Card Door

5.20 Diskette Drive

Diskette Drive Spare Part Number Information

Diskette drive, 1.44 MB	176047-001
Diskette drive cable (spared in Cable Kit)	176004-001

1. Prepare the computer for disassembly (Section 5.3) and, in the order below, remove the following components:
 - top cover (Section 5.10)
 - hard drive (Section 5.11)
 - RTC battery (Section 5.12)
 - keyboard (Section 5.13)
 - EMI shield (Section 5.14)
 - TouchPad (Section 5.15)
 - speakers (Section 5.16)
 - display assembly (Section 5.17)
 - speaker housing (Section 5.18)
 - system board (Section 5.19)

2. Lift the back edge of the diskette drive ❶ and swing it up and toward the front of the base assembly ❷ (Figure 5-34).

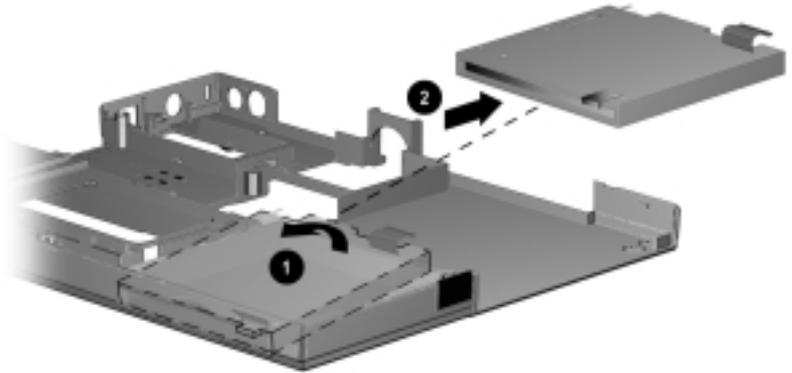


Figure 5-34. Removing the Diskette Drive

3. Remove the diskette drive.

If necessary, remove the diskette drive cable by releasing the ZIF connector ❶ to which the cable is attached and disconnecting the cable ❷ (Figure 5-35).

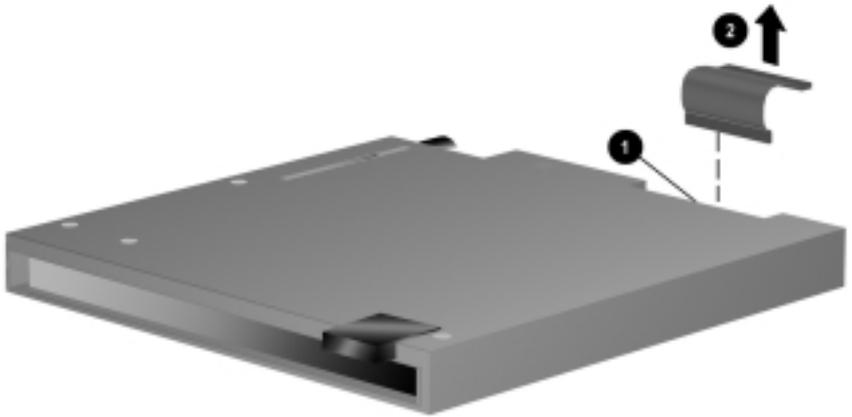


Figure 5-35. *Disconnecting the Diskette Drive Cable*

When installing the diskette drive, first insert the front of the drive through the opening in the base assembly ❶, then lower the back edge of the drive into the base assembly ❷. Make sure the FPC cable ❸ on the back of the drive fits inside the diskette drive shield (Figure 5-36).

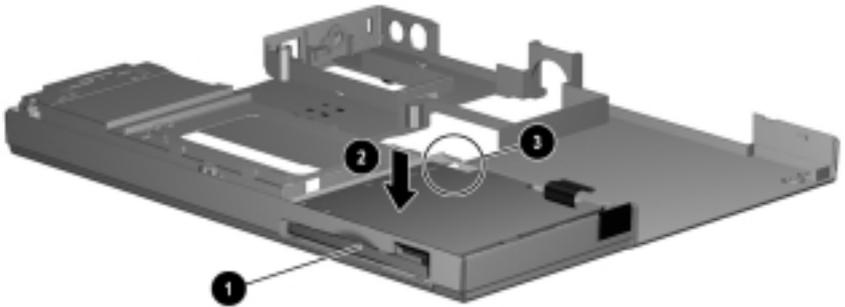


Figure 5-36. *Installing the Diskette Drive*

appendix **A**

CONNECTOR PIN ASSIGNMENTS

Table A-1
RJ-11

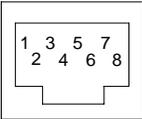
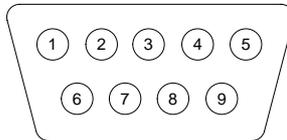
Connector	Pin	Signal
	1	NC_J3A
	2	NC_J3B
	3	TIP
	4	RING
	5	NC_J3C
	6	NC_J3D
	7	Unused
	8	Unused

Table A-2
Serial Connector



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

Table A-3
Microphone Jack

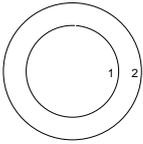
Connector	Pin	Signal
	1	Audio in
	2	Ground

Table A-4
Stereo Speaker/Headphone Jack

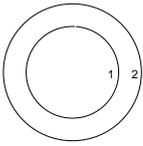
Connector	Pin	Signal
	1	Audio out
	2	Ground

Table A-5
Stereo Line-in Jack

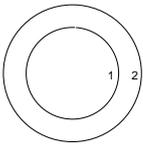
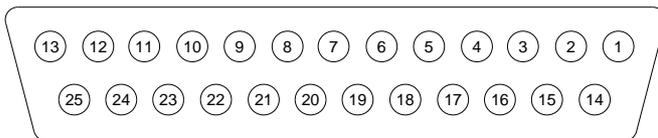
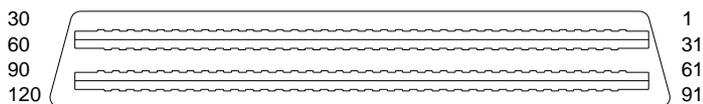
Connector	Pin	Signal
	1	Audio in
	2	Ground

Table A-6
Parallel Connector



Pin	Signal	Pin	Signal
1	Strobe	14	Auto Linefeed
2	Data Bit 0	15	Error
3	Data Bit 1	16	Initialize Printer
4	Data Bit 2	17	Select In
5	Data Bit 3	18	Ground
6	Data Bit 4	19	Ground
7	Data Bit 5	20	Ground
8	Data Bit 6	21	Ground
9	Data Bit 7	22	Ground
10	Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper End	25	Ground
13	Select		

Table A-7
Docking Connector



Pin	Signal	Pin	Signal
1	EBOXL	29	XA3/R IN
2	AGND	30	MID0/MIC IN
3	EBOXS1	31	AUGND
4	RED	32	XA0/L OUT
5	AGND	33	XSD/MIC SN
6	GREEN	34	XA1/R OUT
7	AGRD	35	GND
8	BLUE	36	GND
9	AGND	37	EXPCLK2
10	VSYNC	38	+3.3V
11	HSYNC	39	EXPCLK0
12	DDC DAT	40	+5V (8051VCC)
13	DDC CLK	41	EXPCLK
14	GND	42	EBOXS2
15	INDEX	43	GND
16	RDATA	44	EBOXL
17	TRK0	45	EBOXL /GND
18	WDATA	46	SRDY
19	WGATE	47	EBOXS1 /GND
20	STEP	48	RI1 EX
21	DIR	49	GND
22	POWER ON	50	SLCT LD0
23	SYS RESET	51	PE LD1
24	GND	52	ACK LD2
25	DSKCHG	53	BUSY LD3
26	+5 V (VDD)	54	GND
27	AUGND	55	STRB LD4
28	XA2/L IN	56	ALF LD5

Continued

Table A-7 *continued*

Pin	Signal	Pin	Signal
57	INIT LD6	91	PS2 VCC
58	SLCTIN LD7	92	SERIRQ
59	GND	93	PS2 CLK
60	PDATA0 LD8	94	EXPREQ
61	PDATA1 LD9	95	AD[29]
62	PDATA2 LD10	96	AD[31]
63	PDATA3 LD11	97	AD[30]
64	GND	98	AD[28]
65	PDATA4 LD12	99	AD[26]
66	PDATA5 LD13	100	GND
67	PDATA6 LD14	101	AD[24]
68	PDATA7 LD15	102	AD[22]
69	GND	103	AD[20]
70	ERROR LCLK	104	AD[18]
71	RXD1 LVREQ	105	AD[16]
72	TXD1 LCREQ	106	GND
73	RTS1 LEN	107	AD[15]
74	GND	108	AD[13]
75	CTS1 LIIC CLK	109	AD[11]
76	DTR1 LIIC DAT	110	AD[09]
77	DSR1 EX	111	GND
78	DCD1 EX	112	AD[06]
79	12C DATA	113	AD[04]
80	GND	114	AD[02]
81	12C CLK	115	AD[00]
82	GND	116	GND
83	HDSEL	117	FRAME
84	GND	118	TRDY
85	WPROT	119	STOP
86	EBOXS2 /GND	120	PAR
87	ERDY	121	CBE0
88	EBOXL /GND	122	CBE1
89	FLUSHREQ	123	GND
90	MEMACK	124	KB CLK

Continued

Table A-7 *continued*

Pin	Signal	Pin	Signal
125	RSVD1/M CTRL2	151	AD[12]
126	XSC/L OUT SN	152	AD[10]
127	RSVD2/M OFF HOOK	153	AD[08]
128	KB DATA	154	GND
129	MGND	155	AD[07]
130	STANDBY	156	AD[05]
131	M DRZP	157	AD[03]
132	M DRXN	158	AD[01]
133	VBATT	159	GND
134	EXPGNT	160	CBE3
135	VBATT	161	CBE2
136	GND	162	IRDY
137	VBATT	163	DEVSEL
138	PS2 DATA	164	LOCK
139	VBATT	165	OERR
140	AD[25]	166	SERR
141	VBATT	167	GND
142	AD[27]	168	RSVD3
143	VBATT	169	M 12C CLK
144	AD[23]	170	M 12C DATA
145	GND	171	M RING
146	AD[21]	172	MGND
147	AD[19]	173	M DXTN
148	AD[17]	174	GND
149	GND	175	M DXTP
150	AD[14]	176	MSTRBAT

Table A-8
External Keyboard/Mouse Connector

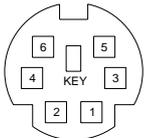
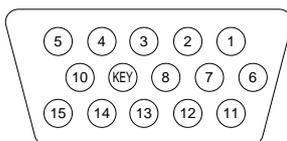
Connector	Pin	Signal
	1	Keyboard/Mouse DATA
	2	Keyboard/Mouse DATA
	3	Ground
	4	+5 VDC
	5	Keyboard/Mouse CLK
	6	Keyboard/Mouse CLK

Table A-9
External Monitor Connector



Pin	Signal	Pin	Signal
1	Red Analog	9	NC
2	Green Analog	10	Ground
3	Blue Analog	11	NC
4	NC	12	DDC Data
5	Ground	13	Horizontal Sync
6	Ground	14	Vertical Sync
7	Ground	15	DDC Clock
8	Ground		

appendix *B*

POWER CORD SET REQUIREMENTS

3-Conductor Power Cord Set

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

The power cord sets received with the computers 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:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 6.50 feet (2.0 m).
2. 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.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the back of the computer.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements—By Country

Country	Accredited Agency	Applicable Note Numbers
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	JIS	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) 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, 0.75mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

INDEX

A

- AC Adapter
 - spare part number, 3-8
 - specifications, 6-6
- advance CPU controls menu, 1-14
- applications. *See* software

B

- base enclosure
 - illustrated, 3-2
 - spare part number, 3-3
- battery pack, 5-4
 - illustrated, 3-2
- Li ion
 - spare part number, 3-3, 5-4
 - specifications, 6-7
- NiMH
 - spare part number, 3-3, 5-4
 - specifications, 6-7
 - removing, 5-4

C

- Cable Kit
 - components
 - illustrated, 3-2, 3-6
 - spare part number, 3-3, 3-6
- cables, 4-2
- CD-ROM drive, 5-10
 - cable
 - disconnecting
 - from CD-ROM drive, 5-11
 - from system board, 5-10
 - illustrated, 3-2, 3-6
 - illustrated, 3-2, 3-7
 - removing, 5-10
 - spare part number, 3-3, 3-7, 5-10
 - specifications, 6-6
- components menu, 1-11
- computer
 - features, 1-3
 - major components
 - illustrated, 3-2
 - models, 1-2

- specifications, 6-1
- configuration record utility, 1-16
- connector
 - pin assignments, A-1
- connectors, 4-2

D

- design overview, 1-24
- diagnostics, 1-19
- disassembly
 - preparing the computer, 5-3
 - reference chart, 5-2
- diskette drive, 5-38
 - cable
 - disconnecting
 - from diskette drive, 5-40
 - from system board, 5-36
 - illustrated, 3-6
 - illustrated, 3-2, 3-7
 - installing, 5-41
 - removing, 5-39
 - spare part number, 3-3, 3-7, 5-38
 - specifications, 6-5
- disks menu, 1-9
- display assembly, 5-27
 - cables
 - disconnecting, 5-28
 - DIP switches
 - setting, 5-31
 - components, 1-20
 - illustrated, 3-2
 - removing, 5-29
 - video cable
 - routing, 5-30
 - 12.1-inch
 - spare part number, 3-3, 5-27
 - 12.1-inch, STN
 - specifications, 6-3
 - 12.1-inch, TFT
 - specifications, 6-3
- docking
 - connector
 - pinout, A-4
- DOS. *See* MS-DOS
- drivers. *See* device drivers

E

- electrostatic
 - preventing damage, 4-3
 - voltage levels, 4-6
- EMI shield
 - illustrated, 3-2
 - removing, 5-23
 - spare part number, 3-3, 5-23
- ESD. *See* electrostatic discharge
- exit menu, 1-15
- external monitor
 - connector
 - illustrated, 1-23

F

- fan assembly, 5-8
 - illustrated, 3-2
 - removing, 5-9
 - spare part number, 3-3, 5-8
- fan/CPU cover
 - illustrated, 3-2, 3-4
 - removing, 5-8
- features, 1-3
- floppy disk drive. *See* diskette drive

G

- gathering information, 1-17
- grounding
 - equipment, 4-5
 - methods, 4-5

H

- hard drive
 - illustrated, 3-2, 3-7
 - removing, 5-19
 - spare part number, 3-3, 3-7, 5-19
 - specifications, 6-4
- Hardware Kit
 - components
 - illustrated, 3-2, 3-5
 - spare part number, 3-3, 3-5
- headphone
 - jack
 - pinout, A-2
- Hibernation, 1-6

- hinge covers
 - illustrated, 3-2, 3-4
 - removing, 5-27

I

- I/O address. *See* input/output address
- I/O cover
 - illustrated, 3-2, 3-4
 - removing, 5-32
- IRQ. *See* interrupt requests

K

- keyboard
 - cable
 - disconnecting, 5-22
 - connector
 - illustrated, 1-23
 - pinout, A-7
 - illustrated, 3-2
 - removing, 5-21
 - spare part number, 3-3, 5-21

L

- left side components, 1-21

M

- mass storage devices
 - illustrated, 3-7
 - spare part numbers, 3-7
- memory, 5-15
 - expansion board
 - installing, 5-16
 - removing, 5-15
 - 128 MB
 - spare part number, 5-15
 - 32 MB
 - spare part number, 3-8, 5-15
 - 64 MB
 - spare part number, 5-15
- menu, 1-9
- options, 1-4
- upgrade table, 1-4
- microphone
 - jack
 - pinout, A-2

- miscellaneous
 - spare part numbers, 3-8
- Miscellaneous Plastics Kit
 - components
 - illustrated, 3-2, 3-4
 - spare part number, 3-3, 3-4
- Miscellaneous Screw Kit
 - spare part number, 3-8
- model table, 1-2
- models
 - computer, 1-2
- modem, 5-5
 - cable
 - illustrated, 3-6
 - cover
 - illustrated, 3-2, 3-4
 - removing, 5-5
 - illustrated, 3-2
- PC Card
 - Compaq Microcom 420 56K
 - spare part number, 3-8
 - removing, 5-7
- shield
 - illustrated, 3-2, 3-5
 - removing, 5-6
 - spare part number, 3-3, 5-5
- modem/network interface card
 - combination
- PC Card
 - Compaq Microcom 500 10/100 +56K
 - spare part number, 3-8
- monitor
 - connector
 - pinout, A-7
- mouse
 - connector
 - illustrated, 1-23
 - pinout, A-7

N

- network card
 - PC Card
 - Compaq Netelligent 10/100 TX
 - spare part number, 3-8

P

- packaging
 - precautions, 4-4

- parallel
 - connector
 - illustrated, 1-23
 - pinout, A-3
- PC Card
 - door
 - illustrated, 3-2, 3-4
 - removing, 5-37
- PCMCIA. *See* PC Cards
- plastic parts, 4-1
- POST. *See* Power-on Self-Test
- power
 - automatic management, 1-5
 - cord
 - set requirements, B-1
 - spare part number, 3-8
 - global management, 1-5
 - local management, 1-5
 - management functions, 1-5
 - manual management, 1-5
 - menu, 1-12
- preparing computer for disassembly, 5-3
- problem solving. *See* troubleshooting
- processor, 5-12
 - bracket
 - illustrated, 3-2, 3-5
 - removing, 5-12
 - illustrated, 3-2
 - installing, 5-14
 - removing, 5-13
 - spare part number, 3-3, 5-12

R

- RAM. *See* random access memory
- real time clock battery, 5-20
 - illustrated, 3-2, 3-5
 - removing, 5-20
- removable drives
 - preventing damage, 4-2
- right side components, 1-20
- RJ-11
 - cover
 - illustrated, 3-2, 3-4
 - removing, 5-36
 - jack
 - pinout, A-1
- ROM. *See* read only memory
- RTC battery, 5-20
 - illustrated, 3-2, 3-5
 - removing, 5-20

S

- SCU, 1-6
 - main screen, 1-7
 - starting, 1-6
- serial
 - connector
 - illustrated, 1-23
 - pinout, A-1
 - serial number, x
 - location, 3-1, 5-1
- service consideration, 4-1
- setup configuration utility, 1-6
- show details and differences report, 1-18
- show only differences report, 1-17
- software drivers. *See* device drivers
- solving problems. *See* troubleshooting
- speaker housing, 5-32
 - illustrated, 3-2, 3-4
 - removing, 5-33
- speakers
 - illustrated, 3-2, 3-5
 - removing, 5-26
- specifications
 - AC Adapter, 6-6
 - battery pack
 - Li ion, 6-7
 - NiMH, 6-7
 - CD-ROM drive, 6-6
 - computer, 6-1
 - diskette drive, 6-5
 - display
 - 12.1-inch, STN, 6-3
 - 12.1-inch, TFT, 6-3
 - hard drive, 6-4
 - system DMA, 6-7
 - system I/O address, 6-9
 - system interrupts, 6-8
 - system memory map, 6-11
- Standby, 1-6
- startup menu, 1-8
- static electricity. *See* electrostatic discharge
- static shielding materials, 4-2, 4-6
- stereo
 - line-in
 - jack
 - pinout, A-2
 - speaker
 - jack
 - pinout, A-2
- suspend controls menu, 1-14

- suspend-to-disk, 1-6
- suspend-to-RAM, 1-6
- system board, 5-34
 - 32 MB
 - spare part number, 3-3, 5-34
 - 64 MB
 - spare part number, 3-3, 5-34
 - illustrated, 3-2
 - removing, 5-36
- system
 - DMA
 - specifications, 6-7
 - I/O addresses
 - specifications, 6-9
 - interrupts
 - specifications, 6-8
 - memory map
 - specifications, 6-11

T

- technician notes, x
- TEST. *See* Computer Checkup (TEST)
- tools, 4-1
- top cover
 - illustrated, 3-2
 - removing, 5-17
 - spare part number, 3-3, 5-17
- touchpad
 - illustrated, 3-2
 - removing, 5-25
 - spare part number, 3-3, 5-25
- transporting
 - precautions, 4-4

U

- universal serial bus
 - connector
 - illustrated, 1-23
- USB
 - connector
 - illustrated, 1-23

W

- workstation
 - precautions, 4-4