HEWLETT® PACKARD

HP Omnibook 6000/6100

Service Manual

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Edition History

Edition 2 ..... June 2001

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Introduction

This manual provides reference information for servicing the HP Omnibook 6000/6100. It is for use by HP-authorized service personnel while installing, servicing, and repairing these products.

The manual is designed as a self-paced guide that will train you to install, configure, and repair Omnibook 6000/6100 computers. The manual is self-contained, so that you can follow it without having equipment available.

The following table lists other sources of information about the computers and related products.

Source	Address or Number	Comments
HP Notebook Web Site	http://www.hp.com/notebooks (http://www.europe.hp.com/notebook, European mirror)	No usage restriction.
HP Partnership Web	http://partner.americas.hp.com	Restricted to Authorized Resellers only.
HP Asia Pacific Channel Support Centre for DPSP Partners	http://www.hp.com.au	Restricted to DPSP Partners only.
America Online	Keyword: HP	Call (800) 827-6364 for membership within the US.
CompuServe	GO HP	Call (800) 524-3388 for membership within the US.
HP Bulletin Board Service		Refer to the latest Product Support Plan for non-US BBS numbers.
HP Support Assist CD-ROM	(800) 457-1762	US and Canada.
	(801) 431-1587	Outside US and Canada.
Microsoft Windows manual		Information about Windows operating system.
Microsoft Web	http://www.microsoft.com	Information and updates for Windows operating systems.

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Product Information

The HP Omnibook 6000 /6100 provides outstanding performance and expandability in a conveniently portable form. The high-performance components use the latest technologies to enable it to replace a desktop computer or serve as a portable multimedia presentation tool.

Table 1-1. Omnibook 6000/6100 Models

Omnibook Product *	CPU **	Display	Hard Drive	Drives	Standard SDRAM	Communication
Omnibook 6000 Series						
F2072*xy*	Celeron 550 MHz	14.1" XGA	5 GB	CD-ROM, FDD	64 MB	SW Modem
F2073*xy*	Celeron 550 MHz	14.1" XGA	5 GB	CD-ROM, FDD	64 MB	None
F2079*xy*	Pentium III 600 MHz	14.1" XGA	6 GB	CD-ROM, FDD	128 MB	Modem/LAN
F2080*xy*	Pentium III 600 MHz	14.1" XGA	6 GB	CD-ROM, FDD	128 MB	None
F2081*xy*	Pentium III 600 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	Modem/LAN
F2082*xy*	Pentium III 600 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	None
F2083*xy*	Pentium III 650 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	Modem/LAN
F2084*xy*	Pentium III 650 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	None
F2087*xy*	Pentium III 700 MHz	14.1" XGA	12 GB	DVD, FDD	128 MB	Modem/LAN
F2088*xy*	Pentium III 700 MHz	14.1" XGA	12 GB	DVD, FDD	128 MB	None
F2090*xy*	Pentium III 700 MHz	15.0" XGA	18 GB	DVD, FDD	128 MB	Modem/LAN
F2091*xy*	Pentium III 700 MHz	15.0" XGA	18 GB	DVD, FDD	128 MB	None
F2140*xy*	Celeron 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	SW Modem
F2141*xy*	Celeron 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	SW Modem
F2142*xy*	Celeron 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	None
F2143*xy*	Celeron 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	None
F2144*xy*	Pentium III 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	Modem/LAN
F2145*xy*	Pentium III 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	Modem/LAN
F2146*xy*	Pentium III 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	None
F2147*xy*	Pentium III 650 MHz	14.1" XGA	6 GB	CD-ROM, FDD	64 MB	None
F2148*xy*	Pentium III 700 MHz	14.1" XGA	10 GB	DVD, FDD	128 MB	Modem/LAN
F2149*xy*	Pentium III 700 MHz	14.1" XGA	10 GB	DVD, FDD	128 MB	None
F2150*xy*	Pentium III 700 MHz	15.0" XGA	20 GB	DVD, FDD	128 MB	Modem/LAN
F2151*xy*	Pentium III 700 MHz	15.0" XGA	20 GB	DVD, FDD	128 MB	None
F2182*xy*	Pentium III 800 MHz	14.1" XGA	20 GB	DVD, FDD	128 MB	Modem/LAN
F2183*xy*	Pentium III 800 MHz	14.1" XGA	20 GB	DVD, FDD	128 MB	None
F2184*xy*	Pentium III 850 MHz	15.0" SXGA	20 GB	DVD, FDD	128 MB	Modem/LAN
F2185*xy*	Pentium III 800 MHz	14.1" XGA	20 GB	DVD, FDD	128 MB	None
F2186*xy*	Pentium III 650 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	Modem/LAN
F2187*xy*	Pentium III 650 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	None
F2188*xy*	Celeron 750 MHz	14.1" XGA	7.5 GB	CD-ROM, FDD	64 MB	SW Modem
F2189*xy*	Celeron 750 MHz	14.1" XGA	7.5 GB	CD-ROM, FDD	64 MB	None
F2197*xy*	Pentium III 700 MHz	14.1" XGA	7.5 GB	CD-ROM, FDD	64 MB	Modem/LAN

Omnibook Product *	CPU **	Display	Hard Drive	Drives	Standard SDRAM	Communication
F2198*xy*	Pentium III 700 MHz	14.1" XGA	7.5 GB	CD-ROM, FDD	64 MB	None
F2200*xy*	Pentium III 900 MHz	14.1" XGA	20 GB	DVD, FDD	128 MB	Modem/LAN
F2201*xy*	Pentium III 900 MHz	14.1" XGA	20 GB	DVD, FDD	128 MB	None
F2202*xy*	Pentium III 1.0 GHz	15.0" XGA	30 GB	DVD, FDD	128 MB	Modem/LAN
F2203*xy*	Pentium III 1.0 GHz	15.0" SXGA+	30 GB	DVD, FDD	128 MB	None
Omnibook 6100						
F3257*xy*	Pentium III-M 933 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	Modem, LAN
F3258*xy*	Pentium III-M 933 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	None
F3259*xy*	Pentium III-M 933 MHz	14.1" XGA	10 GB	CD-ROM, FDD	128 MB	Modem, LAN, Wireless LAN
F3260*xy*	Pentium III-M 1.0 GHz	14.1" XGA	20 GB	DVD, FDD	128 MB	Modem, LAN
F3261*xy*	Pentium III-M 1.0 GHz	14.1" XGA	20 GB	DVD, FDD	128 MB	None
F3262*xy*	Pentium III-M 1.0 GHz	14.1" XGA	20 GB	DVD, FDD	128 MB	Modem, LAN, Wireless LAN
F3263*xy*	Pentium III-M 1.13 GHz	15.0 " SXGA+	30 GB	DVD, FDD	256 MB	Modem, LAN
F3264*xy*	Pentium III-M 1.13 GHz	15.0 " SXGA+	30 GB	DVD, FDD	256 MB	LAN
F3265*xy*	Pentium III-M 1.13 GHz	15.0 " SXGA+	20 GB	DVD, FDD	256MB	Modem, LAN, Wireless LAN
F3266*xy*	Pentium III-M 933 GHz	14.1 " XGA	20 GB	DVD, FDD	128 MB	Modem, LAN
F3267*xy*	Pentium III-M 933 GHz	14.1 " XGA	20 GB	DVD, FDD	128 MB	None
F3268*xy*	Pentium III-M 933 GHz	14.1 " XGA	20 GB	DVD, FDD	128 MB	Modem, LAN, Wireless LAN

This table lists only base product configurations—custom configurations are not included.

* For the products listed, the "*xy*" suffix means: "W" for Windows 95 or Windows 98, "K" for Windows 2000 , "H" for Windows XP Home, "J" for Windows XP Professional. A "*y*" suffix (none, "T", "G", or "U") is a marketing distinction only.

** Intel Mobile Pentium III or III-M with SpeedStep Technology or Intel Mobile Celeron processor.

Table 1-2. Product Comparisons

	Omnibook 6100	Omnibook 6000	Omnibook 500
Processor*	Pentium III-M (933 to 1133 MHz).	Celeron (550 to 750 MHz) or Pentium III (600 to 1000 MHz).	Celeron (500 or 600 MHz) or Pentium III (600 to 750 MHz).
Memory	128 or 256 MB PC-133 SDRAM in system slot. Expandable to 1024 MB.	64 or 128 MB PC-100 SDRAM in system slot. Expandable to 512 MB.	64, 128, or 256 MB PC-100 SDRAM in system slot. Expandable to 512 MB.
Display	15.0-inch TFT SXGA+ or 14.1inch TFT XGA.	15.0- or 14.1-inch TFT XGA, or 15.0-inch TFT SXGA+.	12.1-inch TFT XGA.
Video	AGP 4X graphics interface. 16 MB DDR video RAM with 64-bit graphics interface. 3D and OpenGL graphics support. Up to 16M colors (UXGA). Zoomed Video enabled.	AGP 2X graphics interface. 4 or 8 MB video RAM with 32- or 64-bit interface 3D and OpenGL graphics support. Up to 64K or 16M colors (UXGA). Zoomed Video enabled.	AGP 2X graphics interface. 4 or 8 MB video RAM with 32- or 64-bit graphics interface and 64-bit graphics controller. 3D and OpenGL graphics support. Up to 64K or 16M colors (UXGA). Zoomed Video enabled.
Operating System	Windows 98, Windows 2000, or Windows XP preinstalled.	Windows 95, Windows 98, or Windows 2000 preinstalled.	Windows 98 or Windows 2000 preinstalled.
HP Toptools	HP Toptools 5.5	HP Toptools 4.5 to 5.0.	HP Toptools 5.0.
Power Management	APM 1.2. ACPI compliant.	APM 1.2. ACPI compliant.	APM 1.2. ACPI compliant.
Power States	On, Standby, Hibernate, Off.	On, Standby, Hibernate, Off.	On, Standby, Hibernate, Off.

* Intel Mobile Pentium, Mobile Pentium-M, or Mobile Celeron Processor. Dual-speed processors use Intel SpeedStep Technology.

Features

The following three illustrations show the computer's main external features. For an exploded view of the computer, see page 4-2.

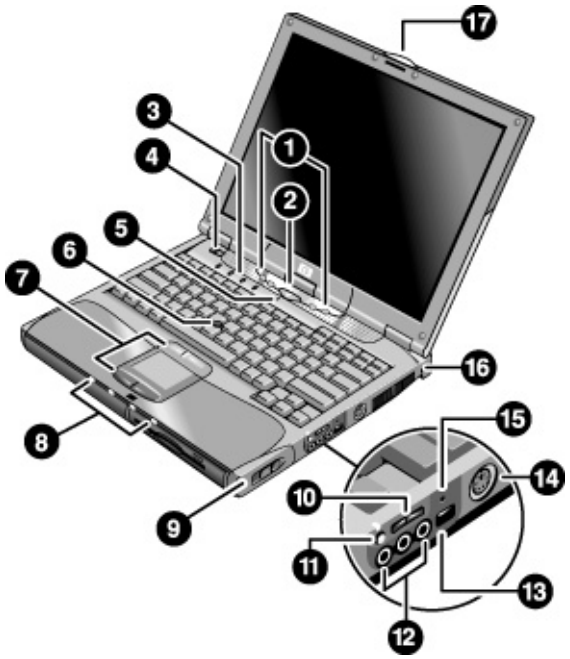

Figure 1-1. Omnibook — Front View

1. One-Touch buttons (on Omnibook 6100 models only).
2. Sleep button. Suspends and resumes operation.
3. Keyboard status lights (left to right: Caps Lock, Num Lock, Keypad Lock, Scroll Lock).
4. Power slide button. Turns the computer on and off.
5. Built-in microphone.
6. Pointing stick (pointing device).
7. Touch pad, click and scroll buttons.
8. Main status lights (left to right): power mode, hard disk activity, charging status for main battery, and charging status for secondary battery.
9. Module eject latch.
10. Volume control.
11. Audio-off button and audio-off light.
12. Audio jacks (left to right): audio out (headphones), external microphone, audio in*.
13. Infrared port.
14. S-video port (TV-out) (on Omnibook 6100 models only).
15. System-off switch.
16. Kensington lock slot (security connector).
17. Computer open/close latch.

*This diagram represents the Omnibook 6100 models. Placement varies slightly on Omnibook 6000 models.

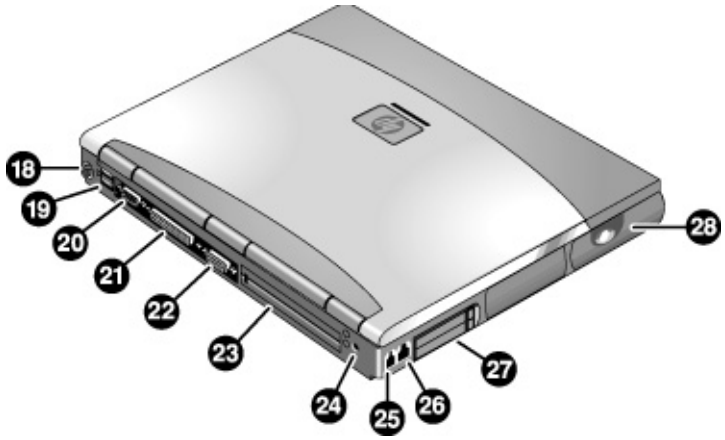

Figure 1-2. Omnibook — Back View

18. PS/2 keyboard or PS/2 mouse port (supports Y adapter).
19. One or two universal serial bus ports (USB), depending on model.
20. Serial port (COM1). Use this port for a serial mouse, modem, printer, or other serial device.
21. Parallel port (LPT1). Use this port for a parallel printer or other parallel device, or to connect the floppy disk drive externally.
22. External monitor port.
23. Docking port.
24. AC adapter jack.
25. Modem port (on certain models)
26. LAN port.
27. PC Card and CardBus slots (upper and lower)
28. Wireless on-off button and indicator light (on certain models)

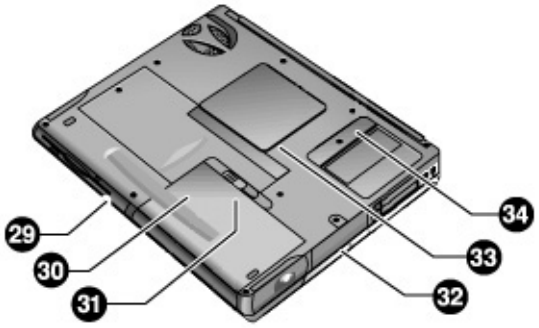

Figure 1-3. Omnibook — Bottom View

29. Plug-in module bay. Can contain a CD-ROM or DVD drive, floppy disk drive, secondary battery, or other plug-in module.
30. Main battery.
31. Main battery latch.
32. Hard disk drive.
33. RAM cover.
34. Mini-PCI cover (no user parts inside).

Operation

This section gives an overview of the computer's operation.

Turning the Computer On and Off

You can start and stop the computer using its blue sleep button. However, at certain times you may want to use other methods to start or stop the computer—depending on power considerations, types of active connections, and start-up time.

Table 1-3. Activating Power Modes

Power mode	To enter this mode	To turn on again
Standby mode Saves significant power. Turns off the display and other components. Maintains current session in SDRAM. Restarts quickly. Restores network connections. Power mode status light is on.	Press blue sleep button –or– click Start, Suspend (Windows 95*) or Start, Shutdown, Standby (Windows 98 and 2000) –or– allow timeout.	Press the blue sleep button to display your current session.
Hibernate mode Saves maximum power. Saves current session to disk, then shuts down. Restores network connections. Power mode status light is off.	Press Fn+F12 –or– Click Start, Shut Down, Hibernate (Windows 2000) –or– allow timeout.	Press the blue sleep button to restart and restore your previous session.
Shut down (off) Saves maximum power. Turns off without saving current session. At startup, resets everything, starts a new session, and restores network connections. Power mode status light is off.	Click Start, Shut Down (recommended) –or– slide the power button.	Press the blue sleep button to restart with a new session.
*Windows 95 is available only on Omnibook 6000 models.		

Checking the Status of the Computer

The computer's main status lights, located on the front of the computer, report power status, battery status, and drive activity

Table 1-4. Main Status Lights (front of computer)

	Meaning
	**Power status** Green: computer is on (even if the display is off). Amber or blinking: computer is in Standby mode. No light: computer is off or in Hibernate mode. Red light: computer failed when resuming, and must be reset.
	**Hard disk drive activity** On: computer is accessing the hard disk drive.
	**Main battery status** Green: The AC adapter is connected and the battery is fully charged. Amber: The AC adapter is connected and the battery is charging. Red or blinking: The AC adapter is connected and the battery is missing or has a fault. Off: The AC adapter is not connected.
	**Secondary battery status** Green: The AC adapter is connected and the battery is fully charged. Amber: The AC adapter is connected and the battery is charging. Red or blinking: The battery has a fault. Off: The AC adapter is not connected, a secondary battery is not installed, or the battery is not charging.

The keyboard status lights, located above the keyboard, indicate the states of the keyboard locks.

Table 1-5. Keyboard Status Lights

	Meaning
	**Caps Lock** Caps Lock is active.
	**Num Lock** Num Lock is active. (The Keypad Lock must also be on to use the embedded keypad.)
	**Keypad Lock** The embedded keypad is active (Fn+F8). Num Lock must also be on for the numeric keys—otherwise, cursor control is active (as marked on an external keyboard).
	**Scroll Lock** Scroll Lock is active.

In addition, the battery module has five lights on its back (flat) side that indicate its charge level. To see these lights, you must remove the battery and press the pad next to the lights. The number of lights that turn on indicates the charge.

Using Fn Hot Keys

The combination of the Fn key plus another key creates a *hot key*—a shortcut key sequence—for various system controls. To use a hot key, press *and hold* Fn, press the appropriate second key, then release both keys.

External keyboards support only Fn+F5, Fn+F7, and Fn+F12. To use these, press and hold left CTRL+left ALT, press the appropriate second key, then release both keys.

Table 1-6. Fn Hot Keys

Hot Key	Effect
Fn+F1	Decreases the display brightness.
Fn+F2	Increases the display brightness.
Fn+F5	Toggles among the built-in display, an external display, and simultaneous display on both.
Fn+F7	Mutes the computer's speakers.
Fn+F8	Toggles the built-in keypad on and off. Does not affect an external keyboard. If Num Lock is on, then the numeric functions are active; otherwise, cursor control is active.
Fn+F12	Enters Hibernate mode.
Fn+NumLock	Toggles Scroll Lock on and off.
Fn+UP ARROW	Increases sound volume (on Omnibook 6000 models only).
Fn+DOWN ARROW	Decreases sound volume (on Omnibook 6000 models only).

Resetting the Computer

Occasionally, Windows or the computer may stop responding, so that you cannot turn the computer off. If this happens, try the following in the order listed:

1. If possible, shut down Windows: press CTRL+ALT+DEL, then click Shut Down. Press the blue sleep button to restart.
2. Slide and hold the power button for 4 seconds, until the display shuts down, then press the blue sleep button to restart.

   –or, if this fails–

   Insert a straightened paper clip into the system-off switch on the right side of the computer, then press the blue sleep button to restart.

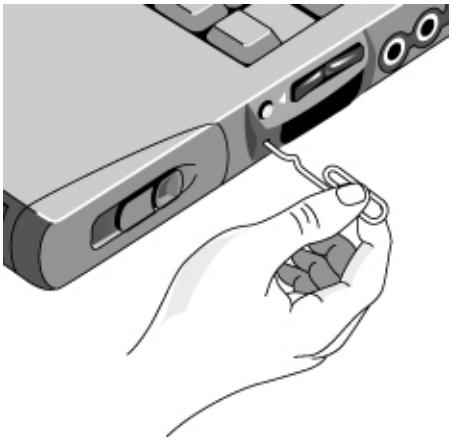

Figure 1-4. Resetting the Computer

Note

To boot from a floppy, CD-ROM, or DVD drive in the module bay, insert a bootable CD (such as the *Recovery CD*) into the drive, then reboot. Press ESC during reboot when the HP logo and prompt appear, then select the CD-ROM/DVD drive as the temporary boot device.

Specifications

The following tables list the specifications for the computer and its accessories. These are subject to change: for the latest versions, see the HP Notebook Web site (www.hp.com/notebooks).

Table 1-7. Omnibook 6000/6100 Specifications

Physical Attributes	Size (14.0-inch display): 315 × 261 × 32 mm (12.4 × 10.3 × 1.3 in). Size (15.1-inch display): 325 × 261 × 34 mm (12.8 × 10.3 × 1.4 in). Weight: 2.3–2.9 kg (5.0–6.4 lb), depending on configuration. Magnesium display cover.
Processor and Bus Architecture	**Omnibook 6000:** 550- to 750-MHz Celeron processor with 128-KB four-way set-associative L2 cache. –or– 600-, 650-, 700-, 850-, 900-, or 1000-MHz Intel Mobile Pentium III processor with SpeedStep technology with 256-KB four-way set-associative L2 cache. 1.6-V core, 2.5-V external, low-power processor. 32-KB (16-KB instruction, 16-KB data) L1 cache. 32-bit PCI bus. **Omnibook 6100:** 933-, 1000-, or 1133-MHz Intel Mobile Pentium III-M processor with Intel Speed Step technology. Integrated 32-KB (16-KB instruction, 16-KB data) L1 cache and 512-KB four-way set-associative L2 cache. 1.4-V core low-power processor with 133-MHz processor system bus. Core logic interfaces processor, system memory, graphics subsystem, 33-MHz system PCI bus, and other I/O.
Graphics	**Omnibook 6000:** 14.1- or 15.0-inch XGA active-matrix (TFT) display (1024 × 768) or 15.0-inch SXGA+ (1400 × 1050). External monitors up to 1600 × 1200 × 64K or 16M colors, and at least 75 Hz refresh rate (only 60 Hz at 1400 × 1050). Zoomed Video support for lower PC Card slot. 3D and OpenGL graphics support. *Celeron models:* ATI Mobility M graphics accelerator with 4-MB display RAM, 2x AGP graphics capability. *Pentium III models:* ATI Mobility M1 graphics accelerator with 8-MB display RAM, 2x AGP graphics capability. **Omnibook 6100:** 14.1-inch XGA (1024 × 768) or 15.0-inch SXGA+ (1400 × 1050) active-matrix (TFT) LCD display. External monitors up to 1600 × 1200 resolution, 16M (24- or 32-bit) colors, and at least 75 Hz refresh rate (only 60 Hz at 1400 × 1050). ATI Mobility Radeon graphics accelerator with 16-MB DDR graphics memory, 4x AGP graphics capability. Hardware 3D acceleration, hardware DVD acceleration. Dual display capability (depends on operating system support). Zoomed Video support for lower PC Card slot.
Power	Rechargeable lithium-ion battery with LED charge-level gauge (11.1 or 14.8 Vdc). Battery life (one battery): up to 4-5 hours typical with 8-cell Li-Ion 14.8-V battery (varies with model and usage). Fast battery recharge: 80% in 1.5 hour, 100% in 2 hours. Low-battery warning. Suspend/resume capability. Universal 60-watt AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output. Optional secondary battery available for module bay.

Mass Storage	5- to 30-GB removable hard drive. 1.44-MB floppy drive module (on certain models). 24x CD-ROM, 6x or 8x DVD, or other drive module. Optional drive modules available.
SDRAM	**Omnibook 6000:** Two slots for PC-100 or higher SDRAM modules. 64-MB SDRAM installed in one slot. At least 100-MB RAM preinstalled. **Omnibook 6100:** Two slots for PC-133 SDRAM modules. Up to 1024-MB RAM maximum. At least 128-MB RAM preinstalled.
Audio System	16-bit Sound Blaster Pro–compatible stereo sound. Stereo sound via two built-in speakers (500 Hz to 10 KHz range). 3D-enhanced PCI bus audio with Zoomed Video support. Built-in microphone. Separate audio-off button with indicator light. Headphone-out, microphone-in, and audio line-in.
Keyboard and Pointing Device	87/88-key touch-type QWERTY keyboard with 101/102 key emulation. Embedded numeric keypad. Left and right click buttons, center scroll button. 12 function (Fn) keys. Two pointing devices: pointing stick and touch pad. Four user-programmable One-Touch buttons (Omnibook 6100 models only).
LAN	Ethernet 10Base-T (10 Mbps) and 100Base-TX (100 Mbps) support. Supports wake-on-LAN (Windows 2000), remote wake-up (Windows 98), fast IP, DMI, dRMON. MBA (Managed Boot Agent) support for PXE/BINL, BOOTP, NCP/IPX, DHCP.
Modem	Hardware-based controllerless modem (US Robotics or 3Com) or software-based ACLink modem (Ambit), mini-PCI interface Data speed: 56 Kbps (V.90) maximum. Fax speed: 14.4 Kbps, Class 1 and 2. Modulation: V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34, V.90, X2 (US Robotics and 3Com only), Bell 103, Bell 212A. Synchronous transfer: V.80. Compression: V.42bis, MNP5. Error correction: V.42, MNP2-4. Fax: Group 3 fax, Class 1. V.17, V.27ter, V.29, V.21 channel 2.
Wireless LAN (Omnibook 6100 models only)	Radio: IEEE 802.11b, WECA Wi-Fi compliant, direct-sequence spread-spectrum. Operating frequency: 2.5-GHz ISM band, exact frequencies and channels depend on country. Raw data rate: 1, 2, 5.5, or 11 Mbps. Transmitter output: 15 dBm typical (approx. 30 mW), 16 dBm max (approx. 40 mW). Receiver sensitivity: –84 dBm typical. Range: up to 100 m (300 ft) or more, depending on environment and conditions. On-off button and indicator. Mini-PCI interface.
Input/Output	Universal serial bus (USB), one or two ports. 9-pin, 115,200-bps serial (16550 UART). 25-pin bi-directional ECP/EPP parallel. 15-pin VGA video-out with DDC support. Dual display. PS/2 keyboard/mouse. 4-Mbps IrDA-compliant infrared port. S-video (TV-out) (Omnibook 6100 models only)
Expandability	One Type III or two Type II 16-/32-bit PC Card slots (3.3- and 5-V support). CardBus enabled. Plug-in module bay for accessory modules. Optional port replicator, mini dock, and docking system.

Security Features	User and administrator passwords. System, hard drive, and docking passwords. PC identification displayed at boot. DMI-accessible electronic serial number. Kensington Microsaver lock slot.
Environmental Limits	Operating temperature: 5 to 35 °C (41 to 95 °F). Operating humidity: 20 to 90 percent RH (5 to 35 °C). Operating altitude: up to 3000 m (10,000 ft) at 25°C (77°F). Storage temperature: –20 to 50 °C (–4 to 122 °F).
Major ICs	CPU: Intel Mobile Pentium III or Celeron processor. Core logic: Intel South Bridge PIIX4M chipset. Graphics controller: ATI Mobility M or M1. Audio controller: ESS Maestro-3E and ESS ES1921. CardBus controller: TI PCI 1420. Keyboard/embedded controller: National PC87570. BIOS flash: SST28SF040. Super I/O: National NS97338. **Omnibook 6100:** CPU: Intel Mobile Pentium III-M processor. Core logic: Intel 830M/ICH3M chipset. Graphics controller: ATI Mobility Radeon M6-P. Audio controller: ESS ES1988. CardBus controller: TI PC1420. Keyboard/embedded controller: National PC87570. Super I/O: National PC87393F. LAN: integrated in core logic. Modem: USR controllerless or Ambit ACLink. 802.11b wireless LAN: Actiontec with Intersil Prism 2.5 chipset.

Table 1-8. Omnibook 6000/6100 Accessories

Accessory	Description	Omnibook 6100	Omnibook 6000	Omnibook 500
Memory				
F1456B	32-MB SDRAM module (PC100)		•	•
F1457B	64-MB SDRAM module (PC100)		•	•
F1457C	64-MB SDRAM module (PC133)	•	•	•
F1622B	128-MB SDRAM module (PC100)		•	•
F1622C	128-MB SDRAM module (PC133)		•	•
F1654A	256-MB SDRAM module (PC100)		•	•
F1654C	256-MB SDRAM module (PC133)		•	•
F3495A	128-MB SDRAM module (PC133)	•		
F3496A	256-MB SDRAM module (PC133)	•		
F2298A	512-MB SDRAM module (PC133)	•		
Hard Drives				
F2018B	20-GB hard disk drive module	•	•	•
F2018C	30-GB hard disk drive module	•	•	•
F2016B	20-GB hard disk drive module		•	
F2016C	30-GB hard disk drive replacement		•	
F2295A	30-GB hard disk drive replacement	•		
Plug-in Modules				
F2008A	Floppy disk drive cable (external)	•	•	
F2009A	Zip drive	•	•	•
F2013A	Floppy disk drive module	•	•	•
F2015A	DVD drive module	•	•	•
F2017A	CD-ROM drive module	•	•	•
F2022A/B	SuperDisk drive module	•	•	•
F2026A	CD read/write drive module	•	•	•
F2101A	USB floppy disk drive cable	•		•
F2107A	DVD-ROM/CD-RW drive module	•	•	•
Power Options				
F1454A	60-watt AC adapter	•	•	•
F1455A	75-watt auto/airline power adapter	•	•	•
F1781A	UltraSlim AC Adapter	•	•	•
F2011A	Battery charger (external)	•	•	•
F2014A	Lithium-ion secondary battery	•	•	•
F2019A	Lithium-ion primary battery	•	•	
F2297A	Auto power adapter (Europe only, 24 V)	•	•	•
8120-6312 8120-6313 8120-6314 8120-6316 8121-0702 8120-6317 8120-8367 8120-8373 8120-8452 8120-8699	Replacement power cord (Australia) Replacement power cord (U.S., Canada, Taiwan) Replacement power cord (Europe) Replacement power cord (Japan) Replacement power cord (India) Replacement power cord (South Africa) Replacement power cord (Argentina) Replacement power cord (People's Rep. of China) Replacement power cord (Chile) Replacement power cord (Hong Kong, Singapore, U.K.)	•	•	•
Adapters				
F1469A	PS/2 Y adapter	•	•	

Accessory	Description	Omnibook 6100	Omnibook 6000	Omnibook 500
PC Cards				
F1623A	10/100-Mbps Ethernet + 56-Kbps modem PC Card by Xircom	•	•	•
F1625A	56-Kbps global modem PC Card by Xircom	•	•	•
F1626A/B	10/100-Mbps Ethernet PC Card by 3Com	•	•	
F1627A	56-Kbps US modem PC Card by Xircom	•	•	•
F1643A/B	Realport 10/100-Mbps Ethernet + 56-Kbps modem PC Card by Xircom	•	•	
F1782A	10/100-Mbps Ethernet + 56-Kbps modem PC Card by 3Com	•	•	•
F1985A	10/100-Mbps USB-Ethernet adapter by 3Com	•	•	•
F2135A/B	802.11b wireless LAN access point	•	•	•
F2136A/B	802.11b wireless LAN PC Card	•	•	•
F2196A	Bluetooth PC Card by 3Com	•	•	•
Docking				
F1451A/B	Port replicator	•	•	
F1452A/B	Mini dock	•	•	
F1453A	Monitor stand (short) for F1451A and F1452A	•	•	
F1477A/B	Docking system and monitor stand (tall)	•	•	
F2012A	Docking tray	•	•	
F2021A	Docking module bay adapter	•	•	

Internal Design

The motherboard PCA is the central component of the Omnibook's design. It plays a role in virtually all system functions. The CPU module and most other subsystems connect to the motherboard.

The following figure shows the connections among the Omnibook's replaceable electronic modules. In addition, the table on page 1-15 lists the roles that the replaceable modules play in each of the Omnibook's functional subsystems.

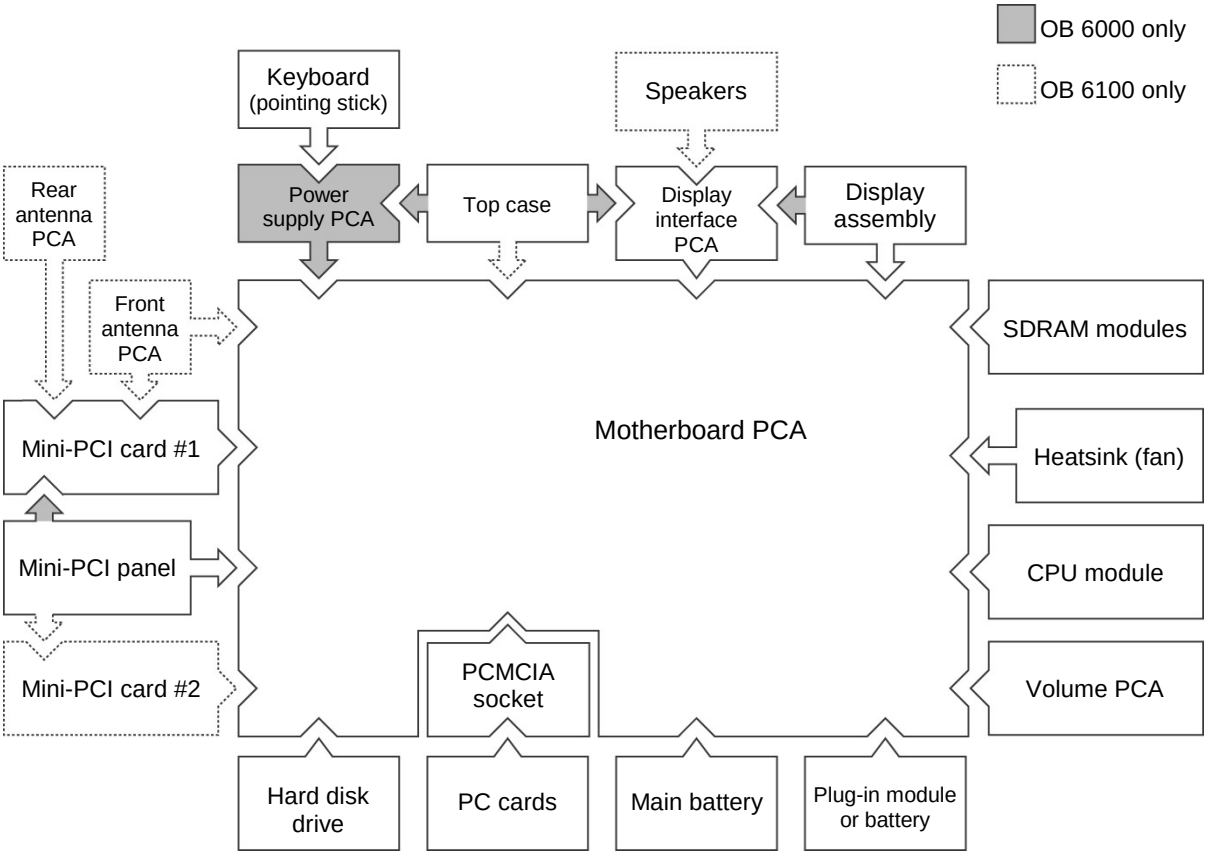

Figure 1-5. Replaceable Module Diagram

Table 1-9. Functional Structure

Bootup	CPU module Motherboard Power supply PCA (OB 6000) Floppy disk module Hard disk drive	Main processor (MMO). Primary system circuitry, system BIOS (OB 6100). System BIOS (OB 6000). First source of disk-based startup code. Second source of disk-based startup code.
Processor	CPU module Motherboard	Main processor, numeric data processor, L1 and L2 cache. Primary system circuitry.
Memory	Motherboard SDRAM module	No onboard RAM, video RAM. Changeable RAM (2 slots).
Power	Battery Motherboard Power supply PCA (OB 6000) AC adapter	Power storage. AC adapter socket, power switch, lid switch, system-off switch, power supply, power control circuitry (OB 6100). Power control circuitry (OB 6000). AC-to-DC converter.
Display	Motherboard Display assembly Display interface PCA	Graphics controller, ZV controller, video RAM. Display output, backlight, power converter for backlight. Display identification DIP switches.
Hard disk	Motherboard Hard disk drive	Hard disk controller. Hard disk mechanism.
Floppy drive	Motherboard Floppy disk module	I/O controller, floppy connector. Floppy disk mechanism.
Keyboard	Motherboard Power supply PCA (OB 6000) Keyboard	Keyboard BIOS (OB 6100), keyboard controller (OB 6100). Keyboard controller, keyboard BIOS (OB 6000). Key switches.
Pointer	Motherboard Power supply PCA (OB 6000) Keyboard Top case	Keyboard circuitry, keyboard controller (OB 6100). Keyboard controller (OB 6000), keyboard BIOS (OB 6000). Pointing stick sensor. Touch pad sensor, click buttons, controller (PS/2 output).
Audio	Motherboard Display interface PCA Volume PCA Top case Speaker assembly (OB 6100)	Audio controller, audio decoder, speaker amplifier, ZV controller. Microphone. External audio jacks, headphone amplifier, audio-off switch. Speakers (OB 6000). Speakers (OB 6100).
Status	Motherboard Power supply PCA (OB 6000) Display interface PCA Top case	LED circuitry, keyboard controller (OB 6100). Keyboard controller (OB 6000). Keyboard LEDs. Main status LEDs.
Serial	Motherboard	I/O controller, serial connector.
Parallel	Motherboard	I/O controller, parallel connector.
Infrared	Motherboard	I/O controller, infrared transmitter/receiver.
PS/2 port	Motherboard Power supply PCA (OB 6000)	PS/2 connector, keyboard controller (OB 6100). Keyboard controller (OB 6000).
USB	Motherboard	Bus controller (South Bridge), USB connector.
Docking port	Motherboard	Docking logic, docking connector.
PCMCIA	Motherboard PCMCIA socket	PCMCIA controller. PCMCIA connectors.
Wireless LAN	Motherboard Front antenna PCA Rear antenna PCA Mini-PCI card #1	I/O controller. Receive antenna, on-off button, indicator light. Transmit/receive antenna. Radio, radio frequency circuitry.
LAN	Motherboard Mini-PCI card #1 Mini-PCI panel	LAN circuitry (OB 6100), bus controller. LAN circuitry (OB 6000). LAN connector.
Modem	Mini-PCI card #1 Mini-PCI card #2 (OB 6100) Mini-PCI panel	Modem circuitry (OB 6000). Modem circuitry (OB 6100). Modem connector.

2

Removal and Replacement

This chapter tells you how to remove and replace the Omnibook's removable components and assemblies. The items marked by • in the following table are user-replaceable.

Table 2-1. Removal Cross-Reference

- Battery, main (page 2-4).
  Battery, CMOS (page 2-34).
- Bumpers, display (page 2-12)
- Cap, pointing stick (page 2-12).
- Card, mini-PCI #1 (page 2-9).
  Card, mini-PCI #2 (page 2-34).
  Case, bottom (page 2-22).
  Case, top (page 2-20).
  Cover, center hinge (page 2-34).
- Cover, left corner (page 2-12).
  Cover, left hinge (page 2-34).
- Cover, mini-PCI (page 2-12).
- Cover, SDRAM (page 2-12).
- Cover, right corner (page 2-12).
  Cover, right hinge (page 2-34).
- Covers, screw (page 2-12).
  CPU module (page 2-19).
  Display assembly (page 2-12).
  Doors, docking (page 2-27).
  Doors, PCMCIA (page 2-27).
- Drive, hard disk (page 2-7).
- Feet, rubber (page 2-12).
  Heatsink (with fan) (page 2-17).
  Keyboard (page 2-15).
  Panel, sound/IR (page 2-34).
  Panel, mini-PCI (page 2-34).
- Panel, power button (page 2-11).
  Panel, vent (page 2-34).
  PCA, display interface (page 2-34).
  PCA, power supply (page 2-34).
  PCA, motherboard (page 2-22).
  PCA, volume (page 2-34).
  PCA, front antenna (page 2-34).
  PCA, rear antenna (page 2-34).
- Plug-in module (page 2-5).
- SDRAM module (page 2-6).
  Socket, PCMCIA (page 2-34).
  Speaker assembly (page 2-28).
- Tray, hard disk drive (page 2-7).

Caution

Always provide proper grounding when performing repairs. Without proper grounding, an electrostatic discharge can damage the Omnibook and its components.

Notes

Reassembly steps are the reverse of the removal steps. Reassembly notes are included at the end of each section below.

Symbols like this throughout this chapter show approximate full-size screw outlines. You can use these to verify the sizes of screws before you install them. Installing a wrong-size screw can damage the unit. (The symbol at the left represents an M2.5×5mm T-head screw.)

Table 2-2. Required Equipment

- Small Phillips screwdriver, preferably magnetized.
- Small flat-blade screwdriver.
- IC (PLCC) removal tool (similar to OK Industries EX-5).

Table 2-3. Recommended Screw Torques

Screw Thread Size	Torque (cm-kgf)	Torque (in-lbf)
M2	1.3 – 1.8	1.1 – 1.5
M2.5 (2–11 mm long)	3.0 – 3.5	2.6 – 3.0
M2.5 (12–19 mm long)	2.5 – 3.0	2.2 – 2.6
M3	3.0 – 3.5	2.6 – 3.0

Disassembly Flowchart

The following diagram shows the general “path” you will use in disassembling the computer to access any particular component.

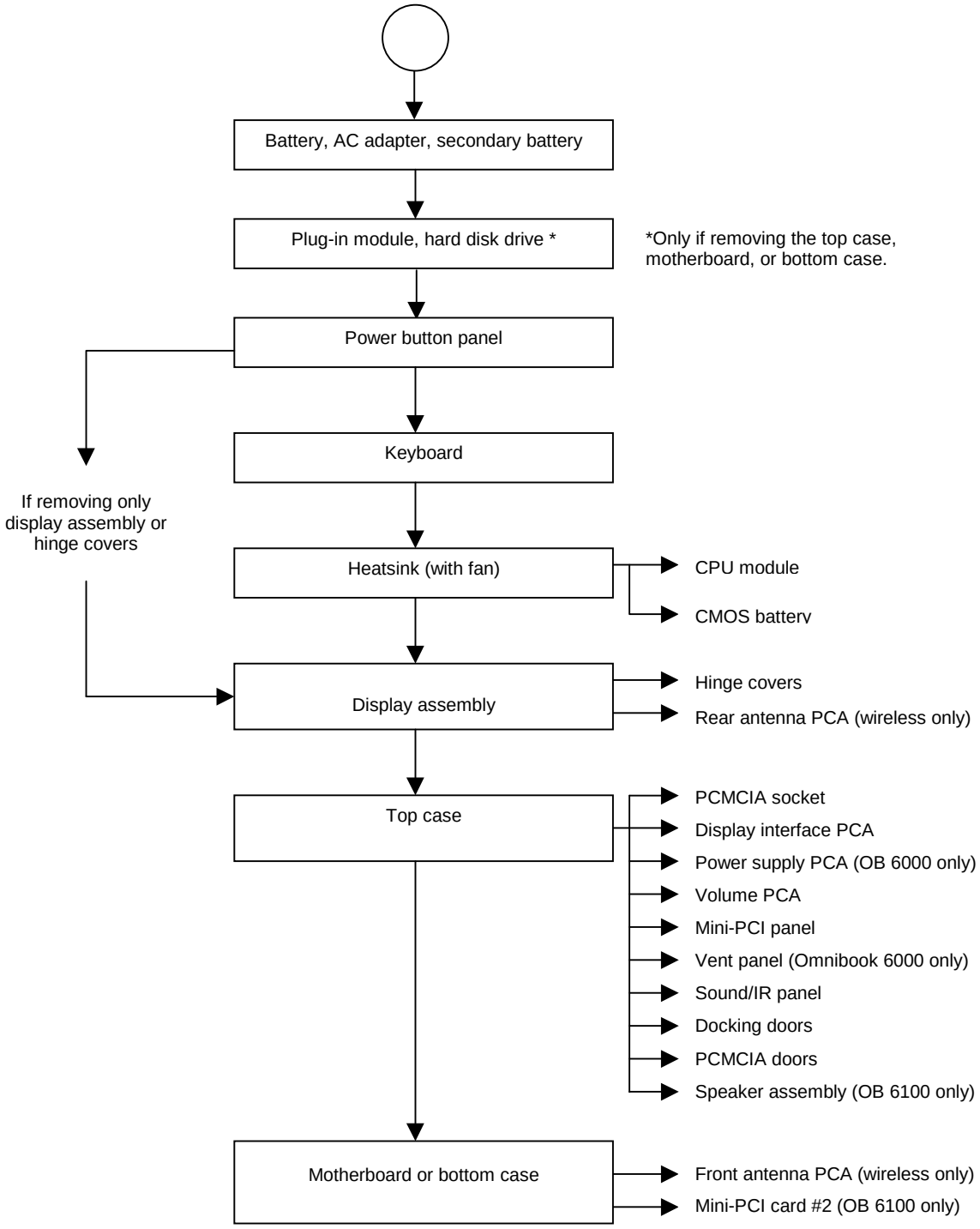

Figure 2-1. Disassembly Flow

Removing the Battery
(User-Replaceable)

Required Equipment

- None.

Removal Procedure

- Slide the battery's release latch, then lift the battery out of its compartment.

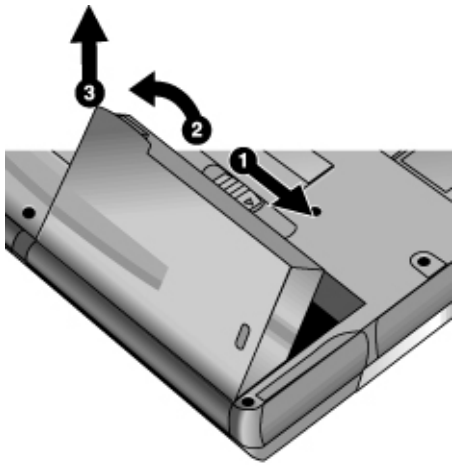

Figure 2-2. Removing the Battery

Reassembly Notes

- Insert the front (rounded) end of the battery into the battery compartment on the bottom of the computer, and lower the back end in until it clicks into place.

Removing a Plug-In Module
(User-Replaceable)

Required Equipment

- None.

Removal Procedure

1. Press the button on the module release latch, and slide the latch toward the front of the computer.

Figure 2-3. Removing a Module

2. Grasp the module and pull it out.

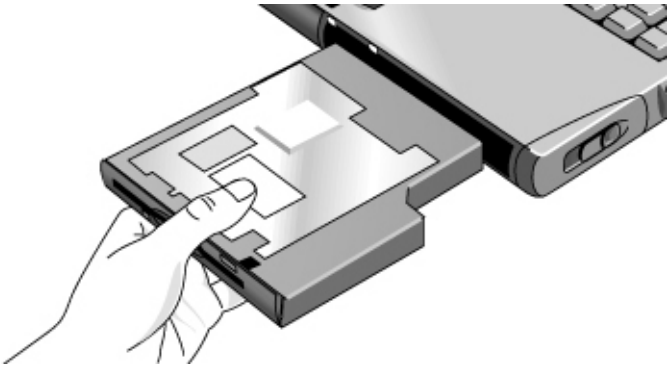

Figure 2-4. Removing a Module

Removing an SDRAM Module
(User-Replaceable)

The computer has no SDRAM on its motherboard, but has two slots for that hold two SDRAM modules. One slot contains a SDRAM module installed at the factory.

> **Caution**
> Handle the SDRAM module only by its edges and provide proper grounding, or you might damage the board by electrostatic discharge.

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

1. Unplug the AC adapter, if present, and remove the battery. Remove the secondary battery if one is installed.
2. Turn the unit bottom-side up, loosen the one or two screws holding the SDRAM cover (the cover may retain the screws), and remove the cover.
3. Release the two latches at the sides of the SDRAM module, so the free edge of the board pops up.
4. Pull the board out of the connector.

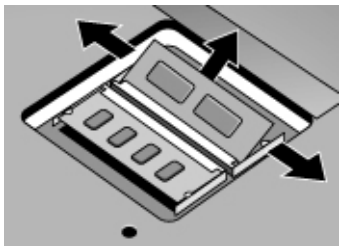

Figure 2-5. Removing a SDRAM Module

Reassembly Notes

- Gently press the SDRAM module into the connector at about a 30° angle, until it is fully inserted. Then press down on both sides until the latches snap closed.

Removing the Hard Disk Drive

(User-Replaceable)

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

1. Unplug the AC adapter, if present, and remove the battery. Remove the secondary battery if one is installed.
2. Turn the unit bottom side up and remove all hard drive screws.
3. Raise the cover on the end of the drive so that its retainer tab is free of the computer casing, then gently pull the hard drive out of the computer.

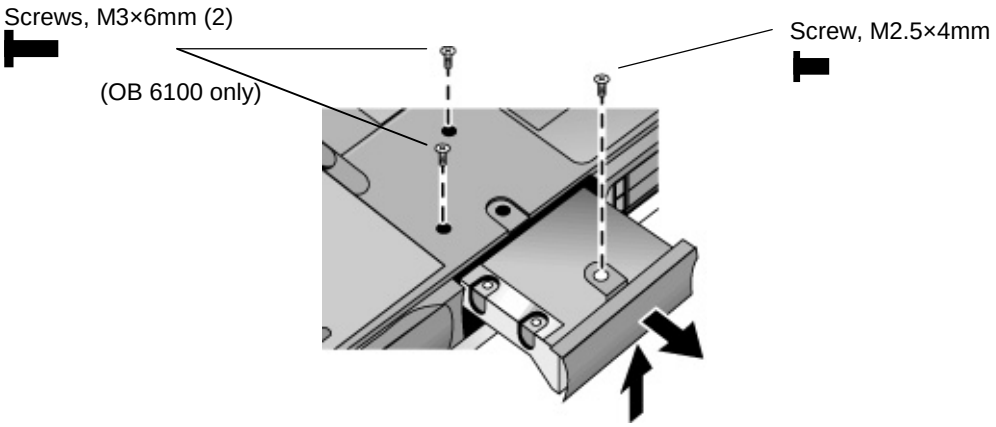

Figure 2-6. Removing the Hard Disk Drive

4. Remove all screws from the holder and drive case, then lift the drive out of the holder.
5. Notice that the hard drive has a pin connector attachment at one end. Carefully remove this connector from the end of the drive. Work alternately at each end so that the connector slides off evenly without bending the connector pins.

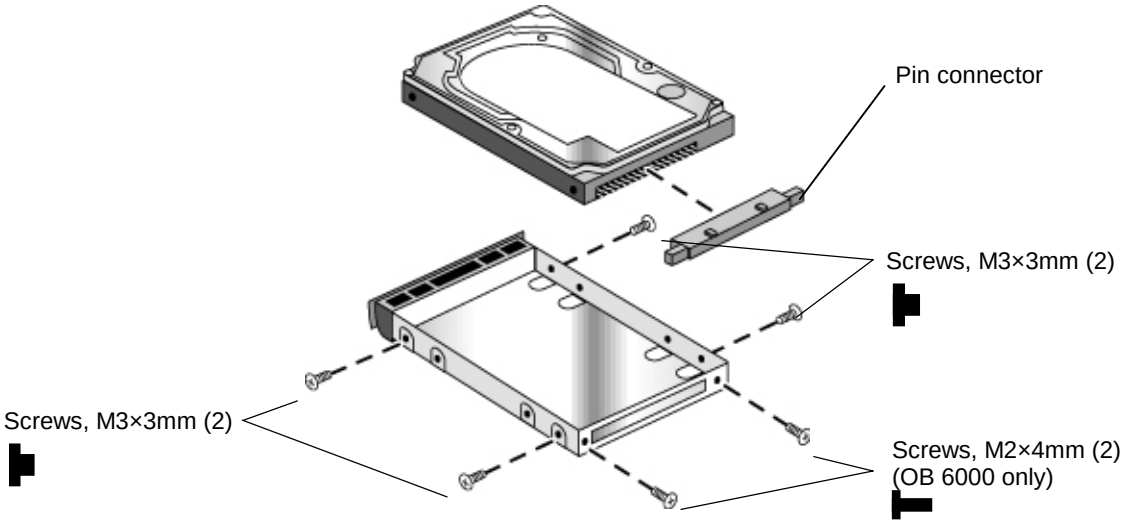

Figure 2-7. Removing the Hard Disk Case

- Slide the cover down into place so the retainer tab engages the casing.
- Carefully put the pin connector back onto the pins on the end of the new hard drive. Work at each end alternately so that the connector slides on evenly without bending the connector pins.

Important

If you are installing a new hard drive, create a Utility partition on the drive before loading any software—see “Creating a Utility Partition,” below.