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HP OmniBook 2100/3000/3100

Service Manual

Notice

Edition History

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Introduction

This service manual provides reference information for the HP OmniBook 2100/3000/3100. It is intended to be used by HP-authorized service personnel in the installation, servicing, and repair of these products.

The manual is designed as a self-paced guide. It is intended to train you to install, configure, and repair OmniBook computers. You can follow this manual without having equipment available.

The following table lists additional places where you can get supplementary information about OmniBook products.

Sources of OmniBook Information

Source	Address or Number	Comments
HP External Web	http://www.hp.com/omnibook (http://www2.hp.com/omnibook, European mirror)	No usage restriction.
HP US Reseller 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 First (automated fax)	(800) 333-1917	US and Canada.
	(801) 344-4809	Outside US and Canada.
	(800) 544-9976	Reseller support number (enter outlet id number).
HP Support Assist CD-ROM	(800) 457-1762	US and Canada.
	(801) 431-1587	Outside US and Canada.
* Baud rates = 300-28,800; Parity = E; Data bits = 7; Stop bits = 1.		

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Product Information

The HP OmniBook 2100/3000/3100 represents a category of HP notebook computers featuring the latest mobile technologies. They use high-speed Intel Pentium processors with MMX technology, large 12.1-inch and 13.3-inch displays, and high-capacity hard drives.

Table 1-1. OmniBook 2100/3000/3100 Models

OmniBook Product *	CPU **	Display	Hard Drive	Floppy Drive	CD-ROM Drive	Standard RAM
OmniBook 3000						
F1391A	Pentium 200 MHz	13.3-inch XGA TFT	2.1 GB (F1385A)	1.44 MB (F1384A)	None	16 MB
F1392A	Pentium 233 MHz		4.0 GB (F1386A)			
F1393A	Pentium 266 MHz					32 MB
F1394A						16 MB
OmniBook 2100						
F1580N F1580W	Pentium 233 MHz	12.1-inch SVGA DSTN	3.2 GB (F1588A)	1.44 MB (F1384A)	CD-ROM (F1587A)	32 MB
F1581N F1581W		12.1-inch SVGA TFT				
F1584N F1584W F1584WT	Pentium 200 MHz	12.1-inch SVGA DSTN	2.1 GB (F1385A)			
OmniBook 3100						
F1582N F1582W	Pentium 266 MHz	13.3-inch XGA TFT	4.0 GB (F1386A)	1.44 MB (F1384A)	CD-ROM (F1587A)	32 MB
* For the products listed: "A" suffix means Windows 95 installed, Windows NT not available. "N" suffix means Windows NT 4.0 Workstation installed. "W" or "WT" suffix means Windows 95 installed. ** Intel Mobile Pentium processor.						

This chapter describes

- Features and operation (below).

- Specifications (page 1-10).

- Internal design (page 1-14).

Features and Operation

The following three illustrations point out the main external features of the computer. They are followed by highlights of the computer's operation. For an internal, exploded view, see page 4-2.

Power status light
Microphone
Status panel
Stereo speaker
Touch pad
Click buttons
Display latch
Main battery
Power button
Stereo speaker
Floppy drive or other plug-in module
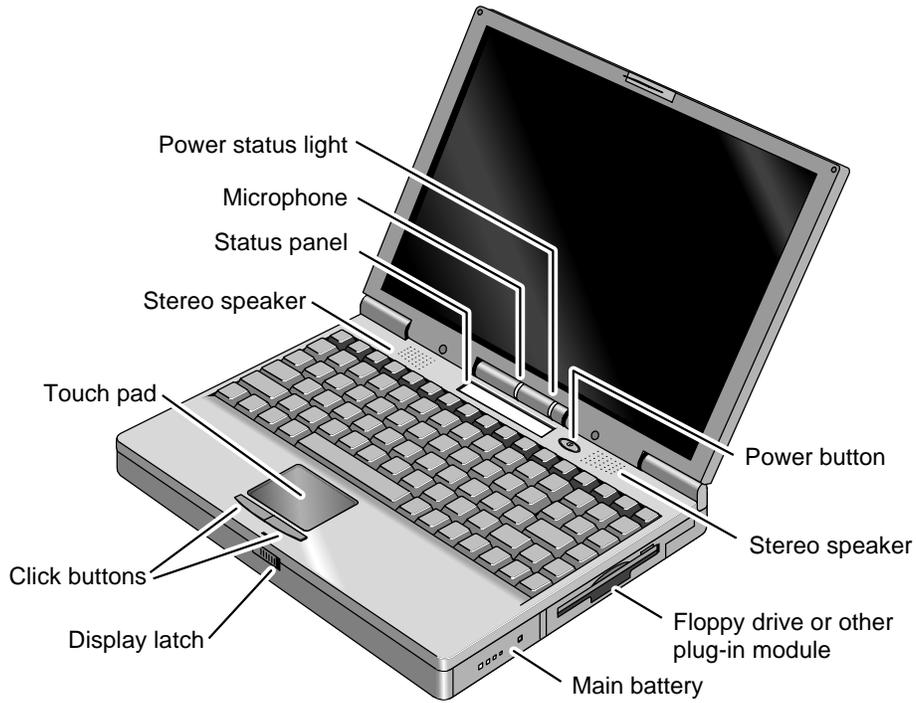
Figure 1-1. OmniBook - Front View

PC Card slots
Eject buttons
Audio line-in
Microphone-in
Headphone-out
AC adapter
Kensington lock
Hard disk drive
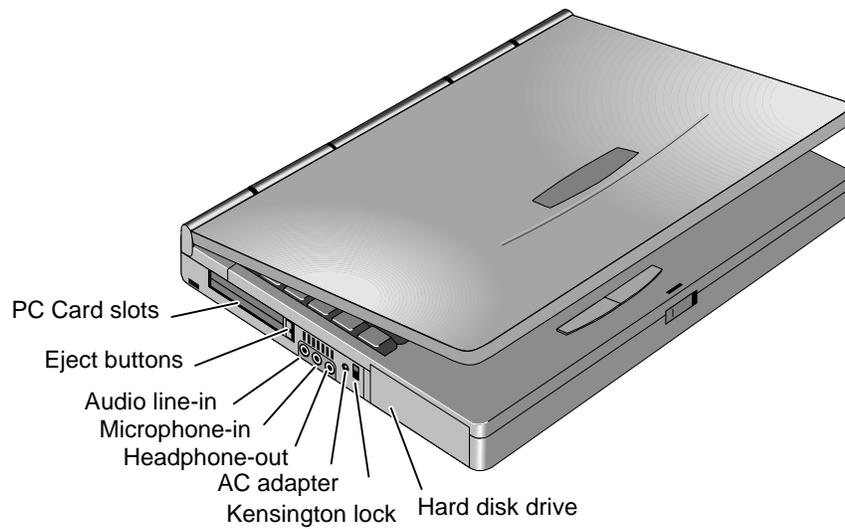
Figure 1-2. OmniBook - Side View
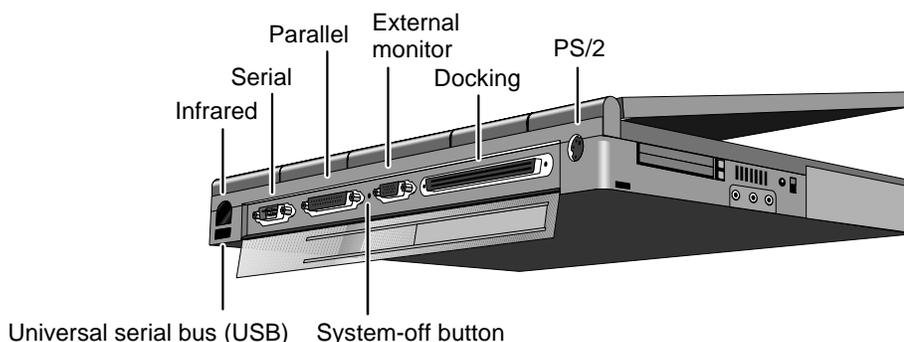
Figure 1-3. OmniBook - Back View

Table 1-2. Product Comparisons

	OmniBook 2100/3100	OmniBook 3000	OmniBook 4100	OmniBook 7100
Processor *	Pentium (266, 233, or 200 MHz), with MMX technology. 512-KB burst-synchronous L2 cache.	Pentium (266, 233, or 200 MHz), with MMX technology. 512-KB burst-synchronous L2 cache.	Pentium II (266 or 233 MHz), or Pentium (266 MHz), with MMX technology. 512-KB burst-synchronous L2 cache (high-speed bus for Pentium II).	Pentium II (266 MHz), with MMX technology. 512-KB burst-synchronous L2 cache (high-speed bus).
Memory	32 MB RAM on motherboard. Expandable to 96 MB.	16 MB RAM on motherboard. Expandable to 144 MB.	32 MB RAM on motherboard. Expandable to 96 MB.	32 MB RAM on motherboard. Expandable to 160 MB.
Display	13.3-inch TFT XGA display, or 12.1-inch TFT or DSTN SVGA display.	13.3-inch TFT XGA display.	14.1- or 13.3-inch TFT XGA display.	14.1-inch TFT XGA display.
Video	PCI local bus video. 128-bit graphics controller with 2 MB internal video RAM. Up to 64K colors (XGA), 16M colors (SVGA). Zoomed Video enabled.	PCI local bus video. 128-bit graphics controller with 2 MB internal video RAM. Up to 64K colors (XGA). Zoomed Video enabled.	PCI local bus video. 128-bit graphics controller with 2 MB internal video RAM. Up to 64K colors (XGA). Zoomed Video enabled.	PCI local bus video. 64-bit graphics controller with 4 MB external video RAM. Up to 16M colors (XGA). Zoomed Video enabled.
Operating System	Windows 95 or Windows NT 4.0 preinstalled.	Windows 95 preinstalled. (Windows NT 4.0 certified.)	Windows 95 or Windows NT 4.0 preinstalled.	Windows 95 or Windows NT 4.0 preinstalled.
Desktop Management Interface	DMI 2.0. HP TopTools 2.6.	DMI 1.1. HP TopTools 2.0.	DMI 2.0. HP TopTools 2.6.	DMI 2.0. HP TopTools 2.6.
Power Management	APM 1.2. ACPI compliant.	APM 1.2.	APM 1.2. ACPI compliant.	APM 1.2. ACPI compliant.
Power States	On, Standby, Suspend, Hibernate, Off.	On, Standby, Suspend, Hibernate, Off.	On, Standby, Suspend, Hibernate, Off.	On, Standby, Suspend, Hibernate, Off.
Features at the time of product introduction. Not updated for later versions.				
* Intel Mobile Pentium or Mobile Pentium II processor.				

Turning the OmniBook On and Off

- **On.** Press the blue power button to turn on the OmniBook.

- **Standby.** The display turns off automatically if the computer is inactive for about 2 minutes.

- **Suspend.** Click Start, Suspend (Windows 95) or press the blue power button briefly (about 1 second) to suspend activity when the OmniBook is on. When you turn on the computer, it resumes your previous work session.

  Closing the lid (for more than 2 seconds) also suspends the computer.

- **Hibernate.** Press Fn+F12. This is like Off, except that your current work session is first saved to disk. When you turn on the computer, it reboots and restores your previous session.

- **Off**. Click Start, Shut Down. If the OmniBook does not respond, press and hold the blue power button until the display shuts down. When you turn on the computer, it reboots. Unsaved data is lost.

Table 1-3. Activating Power Modes

Power Mode	To Enter Mode	To Turn Back On
Standby Reduced-power/stopped state. Display is off. Everything is in a reduced-power state. Network devices are maintained. Your current work session continues at turn-on (any key or pointer action).	Press Fn+S –or– allow time-out.	Press any key or move a pointing device to display the current session ("Instant-On").
Suspend Low-power/stopped state. Lower power state than Standby. Everything is off or in a low-power state. Network devices are off. Your previous work session resumes at turn-on. For plug-and-play operating systems, network connections resume at turn-on.	Press blue power button for about 1 second –or– close the lid* –or– click Start, Suspend (Windows 95) –or– allow time-out.	Press blue power button to display the current session ("Instant-On").
Hibernate No-power/stopped state. Session is saved on the hard disk. Everything is shut down. Computer reboots at turn-on and restores previous session and network connections (if plug-and-play).	Press Fn+F12 –or– allow time-out.	Press blue power button to restart and restore the previous session.
Off No-power/stopped state. Everything is shut down (battery continues charging if ac adapter is connected). Computer reboots at turn-on and restores network connections.	Click Start, Shut Down –or– Press and hold the blue power button until the display shuts down.	Press blue power button to restart with a new session.
* Does not suspend if Video Display Device set to Both in BIOS Setup.		

Checking the Status of the OmniBook

The OmniBook status panel, located above the keyboard (on the icon PCA), contains indicators that show the current status of the OmniBook. The indicators in the status panel show keyboard status, drive status, and power status.

Table 1-4. Status Panel Indicators (Icon PCA)

Indicator	Meaning
	AC power. The ac adapter is plugged in. OmniBook 3000: *Blinks* when the battery is being charged.
	Battery status. Shows the approximate charge level of the battery relative to a full charge. Each bar represents approximately 10% charge. The upper and lower triangles indicate the presence of the main battery (upper) and a second battery (lower). A triangle blinks when that battery is charging. The main battery charges first, discharges last. OmniBook 2100/3100: If two batteries are installed, the indicator shows the combined charge of both batteries. OmniBook 3000: If two batteries are installed and the ac adapter is connected, the indicator shows the level of the battery being charged. If the ac adapter is not connected, the indicator shows the combined charge of both batteries. Press Fn+F6 to show separate battery levels.
	Battery low. (Triangle, but no bars.) The OmniBook also beeps.
	Defective battery. (No triangle, no bars.) No charging, even though ac adapter is present.
	Overheated battery. (No triangle, top bar.) The battery is too hot to charge. Not necessarily a defective battery.
	Internal drive. The OmniBook is accessing one of the internal drives: the hard disk drive, CD-ROM drive, or other plug-in module drive.
	Floppy disk drive. The OmniBook is accessing the floppy disk drive.
	PC Card. There is activity between the PC Card and the computer.
A	**Caps Lock.** Caps Lock is active.
1	**Num Lock.** Num Lock is active.
	Keypad Lock. The embedded keypad is active (Fn+F8). Num Lock must also be on for the numeric keys—otherwise, cursor control is active.
	Scroll Lock. Scroll Lock is active.
A 1 (scrolling)	**OmniBook 3000:** **Suspend mode.** These symbols flash from left to right when the OmniBook is suspended (turned off by pressing the power button briefly). If ac power is not connected, the green power light also blinks slowly.
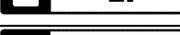
The green power light in the hinge area (located on the icon PCA) indicates the power state. The green lights on the main battery or secondary battery indicate its charge level.

Table 1-5. Indicator Lights (Icon PCA and Battery)

Light	Meaning

OmniBook 2100/3100:
Power Light
    Steady green light
    Blinking green light
    No light
	
	OmniBook is running (On mode).
	OmniBook is suspended (Suspend or Standby mode).
	OmniBook is off (Off or Hibernate mode).

OmniBook 3000:
Power Light
    Steady green light
    Blinking green light
 	
    No light
	
	Battery is charging (ac power connected).
	Battery is not charging (ac power connected), or
	    computer is Suspended (no ac power).
	Battery is not charging (no ac power).

Battery Lights	Show battery charge level only while the button is pressed on the battery. The number of lights that turn on indicates the charge.

Using Functions Keys (F1 through F12)

The top row of the keyboard has twelve function keys that serve as hot keys—shortcut key sequences—for various system controls. For an external keyboard, CTRL+ALT is normally equivalent to the Fn key.

Table 1-6. Function Keys (F1-F12)

Hot Keys	Effect
Fn + F1	Decreases the display's brightness.
Fn + F2	Increases the display's brightness.
Fn + F3	Decreases the display's contrast (DSTN displays only, if available).
Fn + F4	Increases the display's contrast (DSTN displays only, if available).
Fn + F5	Switches among the built-in display, an external display, and simultaneous displays.
Fn + F6 (hold)	For use with two batteries: The battery indicator in the status panel briefly displays the individual battery status for each battery.
Fn + F7	Toggles the sound on and off (mutes sound).
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 + F9	Toggles Num Lock (numeric functions for the keypad) on and off.
Fn + F10	Toggles Scroll Lock on and off.
Fn + F12	Enters Hibernate mode.
Fn + R	Enters Suspend mode.
Fn + S	Enters Standby mode.
Fn + UP-ARROW	Increases sound volume.
Fn + DOWN-ARROW	Decreases sound volume.

Resetting the OmniBook

1. Use a pen or a straightened paper clip to push the system-off button in the hole on the back panel. (The switch is on the motherboard.)

    –or–

    Press the blue power button until the display shuts down. (The switch is on the icon PCA.)

2. After the computer shuts down, press the blue power button to turn it on.

Note

The OmniBook can boot from a CD if all these conditions are true:

*   You have an internal CD-ROM drive installed,

*   You have a bootable CD in the drive, such as the OmniBook Recovery CD, and

*   You select the CD-ROM drive as the boot device. You can do this during reboot by pressing ESC to cancel the OmniBook screen, then ESC to display the boot-device menu for a one-time selection.

System Resources

Below are default values for system resources. To see other, non-default possibilities, use the BIOS Setup utility (see page 3-22), which lists port and audio device configurations in the System Devices menu.

The tables in this section show typical resource usage as set up by the OmniBook BIOS. Plug-and-play operating systems, drivers, and BIOS Setup settings may change some of the entries.

Table 1-7. System Interrupts

0	System timer
1	Keyboard
2	Cascade IRQ 9
3	Free (or COM2 infrared port, if enabled)
4	COM1 (serial port)
5	Crystal sound
6	Floppy drive
7	LPT1 (ECP parallel port)
8	Real-time clock
OmniBook 2100/3100	
9	Free)
10	USB and CardBus - assigned by Windows driver
11	Free
OmniBook 3000	
9	Free (or MIDI, if enabled)
10	USB - assigned by Windows driver
11	CardBus - assigned by Windows driver
12	Pointing device
13	Numeric data processor
14	Internal hard disk (primary IDE controller)
15	Internal CD-ROM drive (secondary IDE controller)

Table 1-8. System Memory

00000 - 9FFFF	System memory
A0000 - BFFFF	Video
C0000 - CBFFF	Video BIOS
OmniBook 2100/3100	
CC000 - DBFFF*	Free**
DC000*- FFFFF	System BIOS
OmniBook 3000	
CC000 - DFFFF*	Free**
E0000*- FFFFF	System BIOS
* Approximate boundary.	

** Valid uses for memory addresses CC000-DBFFF or CC000-DFFFF:
    Upper memory blocks (UMBs).
    PC card memory windows.	

Table 1-9. System Input/Output Addresses (100-3FF)

170-177	Internal CD-ROM drive (secondary IDE controller)
1F0-1F7	Internal hard disk (primary IDE controller)
200-207	OmniBook 3000: Joystick
220-22F	Crystal sound
376	Internal CD-ROM drive (secondary IDE controller)
378-37F	LPT1 (printer port)
388-38B	Sound
3B0-3BB	VGA adapter
3C0-3DF	VGA adapter
3E0-3E1	PCMCIA controller
3F0-3F5	Floppy controller
3F6	Internal hard disk (primary IDE controller)
3F7	Floppy controller
3F8-3FF	COM1 (serial port)

Table 1-10. DMA Channels

0	Sound record
1	Sound playback
2	Floppy drive
3	LPT1 (ECP parallel port)
4	Cascade
5	Free
6	Free
7	Free

Specifications

The following tables list specifications for the OmniBook and its accessories.

Table 1-11. HP OmniBook 2100/3000/3100 Specifications

Physical Attributes	**OmniBook 2100:**
	   Size: 29.9 × 23.7 × 4.6 cm (11.7 × 9.2 × 1.8 in) closed.
	   Weight: 2.9 kg (6.4 lb).
	OmniBook 3000:
	   Size: 30.3 × 23.7 × 5.2 cm (11.9 × 9.3 × 2.1 in) closed.
	   Weight: 3.0 kg (6.7 lb).
	OmniBook 3100:
	   Size: 30.3 × 23.7 × 4.9 cm (11.9 × 9.2 × 1.9 in) closed.
	   Weight: 3.0 kg (6.7 lb).

Processor and Bus Architecture	200-, 233-, or 266-MHz Intel Mobile Pentium processor with MMX technology. Intel sub-2V low-power processor. 512-KB burst-synchronous L2 cache. 32-bit PCI bus.

Graphics	**OmniBook 2100:**
	   12.1-inch SVGA active matrix (TFT) display (800 × 600 × 16M colors), or
	   12.1-inch SVGA dual-scan (DSTN) display (800 × 600 × 16M colors).
	OmniBook 3000:
	   13.3-inch XGA active-matrix (TFT) display (1024 × 768 × 64K colors).
	OmniBook 3100:
	   13.3-inch XGA active-matrix (TFT) display (1024 × 768 × 64K colors).
	PCI local bus video; 128-bit graphics controller with 2-MB video RAM.
	Zoomed Video enabled in one PC Card slot.

Power	**OmniBook 2100/3100:**
	   Rechargeable lithium-ion or nickel-metal-hydride battery with built-in four-level gauge.
	   AC adapter 100–240 Vac (50–60 Hz) input; 19 Vdc, 3.16 A output.
	OmniBook 3000:
	   Rechargeable lithium-ion battery with built-in four-level gauge.
	   AC adapter: 100–240 Vac (50–60 Hz) input; 19 Vdc, 2.4 A output.
	Low-battery warning.
	Suspend/resume capability.
	Power states: On, Standby, Suspend, Hibernate, Off.
	Battery life: up to 3 hours (varies with type of usage) for one battery.
	Optional secondary lithium-ion battery doubles operating time.
	Advanced Power Management (APM 1.2).
	ACPI 1.0 ready (OmniBook 2100/3100 only).

Mass Storage	4.0-GB, 3.2-GB, or 2.1-GB removable hard drive. 1.44-MB internal/external floppy drive (swap with optional modules or secondary battery). Removable CD-ROM drive. Optional removable Zip drive. Optional removable DVD drive (OmniBook 2100/3100 only).

RAM	**OmniBook 2100/3100:**
	   32-MB RAM on motherboard.
	   One slot for RAM expansion up to maximum of 96 MB using HP memory modules.
	OmniBook 3000:
	   16-MB RAM on motherboard.
	   Two slots for RAM expansion up to 144 MB using HP memory modules.

Audio System	16-bit, Sound Blaster Pro-compatible.
	Stereo sound via two built-in speakers.
	Built-in microphone.
	Line-in, line-out, and microphone-in.
	3D enhanced audio.
	MIDI support with optional port replicator (OmniBook 3000 only).
Keyboard and Pointing Device	87/88-key touch-type full-size QWERTY keyboard with 101/102-key emulation.
	Embedded numeric keypad.
	12 function Fn keys.
	Touch pad.
Input/Output	Universal serial bus (USB).
	9-pin, 115,200-bps serial (16550 UART).
	25-pin bidirectional ECP/EPP parallel.
	Video-out (up to 1024 × 768 × 64K colors) at up to 85-Hz refresh rate.
	PS/2 keyboard/mouse.
	4-Mbps IrDA-compliant infrared.
	Docking connector.
Expandability	One Type III or two Type II 16-/32-bit PC Card slots.
	CardBus enabled.
	Plug-in module bay for accessory modules.
	OmniBook 2100/3100:
	Full line of optional docking products: port replicator, mini dock, and docking system.
	OmniBook 3000:
	Optional port replicator.
Preinstalled Software	**OmniBook 2100/3100:**
	Microsoft Windows 95 or Windows NT 4.0.
	Windows 95-compatible Plug and Play.
	Windows NT 4.0 PC Card Plug-and-Play.
	DMI 2.0 with HP TopTools 2.6.
	OmniBook 3000:
	Microsoft Windows 95.
	Windows 95-compatible Plug and Play.
	DMI 1.1 under Windows 95 with HP TopTools 2.0.
	Windows NT 4.0 certified, with APM 1.2 and PC Card Plug-and-Play support.
	Advanced Power Management (APM 1.2).
	MacAfee VirusScan.
	Online documentation.
	OmniBook Recovery CD-ROM included.
	Centralized worldwide BIOS and driver update service.
Security Features	**OmniBook 2100/3100:**
	Two-level password protection.
	Drive lock.
	Password for docking eject.
	OmniBook 3000:
	One level password protection.
	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).
	Storage temperature: –20 to 50 °C (–4 to 122 °F).

Major ICs	**OmniBook 2100/3100:**
	CPU: Intel Mobile Pentium.
	South Bridge: PIIX4.
	Video: NeoMagic NM2160 (NMG4).
	Audio: Crystal CS4237B.
	CardBus: TI PCI1220.
	Keyboard controller: National PC87570.
	Super I/O: SMC 669FR.
	OmniBook 3000:
	CPU: Intel Mobile Pentium.
	South Bridge: PIIX4.
	Video: NeoMagic NM2160 (NMG4).
	Audio: Crystal CS4237B.
	CardBus: TI PCI1131.
	Keyboard controller: Intel 87C51SL.
	Super I/O: SMC 669FR.

Table 1-12. HP OmniBook 2100/3000/3100 Accessories

OmniBook 3000-Only Accessories	
F1381A	Port replicator.
F1369A	Monitor stand.
F1387A	20X CD-ROM drive module.
F1377A	AC adapter.
F1379A	Automobile adapter.

OmniBook 2100/3100-Only Accessories	
F1587A	24X CD-ROM drive module.
F1589A	Nickel-metal-hydride battery (primary).
F1588A	3.2-GB internal hard disk drive.

OmniBook 2100/3000/3100-Common Accessories (not 4100, 7100)	
F1363A	16-MB RAM expansion module.
F1364A	32-MB RAM expansion module.
F1365A	64-MB RAM expansion module.
F1384A	Internal/external floppy disk drive module and cable.
F1380A	Replacement floppy disk drive cable for external use.
F1388A	Internal 100-MB Zip drive module.
F1382A	Standard lithium-ion battery pack (primary).
F1383A	Secondary lithium-ion battery pack (plug-in module).
F1385A	2.1-GB internal hard disk drive.
F1386A	4.0-GB internal hard disk drive.

OmniBook 2100, 3100, 4100, 7100 Accessories (not 3000)	
F1477A	Docking system and monitor stand (tall).
F1452A	Mini dock.
F1451A	Port replicator.
F1453A	Monitor stand (short).
F1454A	60-watt ac adapter.
F1455A	75-watt auto/airline power adapter.
F1469A	PS/2 Y adapter.

OmniBook 2100, 3000, 3100, 4100, 7100 Accessories	
TMC3X575	10/100-Mbps Ethernet PC Card.
TMC3C589	10-Mbps Ethernet PC Card.
XIRCM56T	56-Kbps modem PC Card.
8120-6313	Replacement power cord (U.S., Canada, Taiwan).
8120-6314	Replacement power cord (Europe).
8120-6315	Replacement power cord (Hong Kong, Singapore, U.K.).
8120-6312	Replacement power cord (Australia).
8120-6316	Replacement power cord (Japan).
8120-6317	Replacement power cord (India, South Africa).
8120-8373	Replacement power cord (People's Republic of China).

Internal Design

The motherboard PCA is the central component of the OmniBook design. It plays a role in virtually all system functions. The CPU module (MMO) and all other subsystems connect to the motherboard.

The following figure shows the connections among the replaceable electrical modules. As a substitute for a functional block diagram, see the table on page 1-15—it lists the roles the replaceable modules play in each of the functional subsystems.

The power switch and the lid switch are contained on the Icon PCA.

All external connections (except USB and IR) are made to the motherboard.

* The LVDS PCA is present only with a 13" display.

** One BIOS IC on the OmniBook 2100/3100 contains the system and keyboard BIOS.
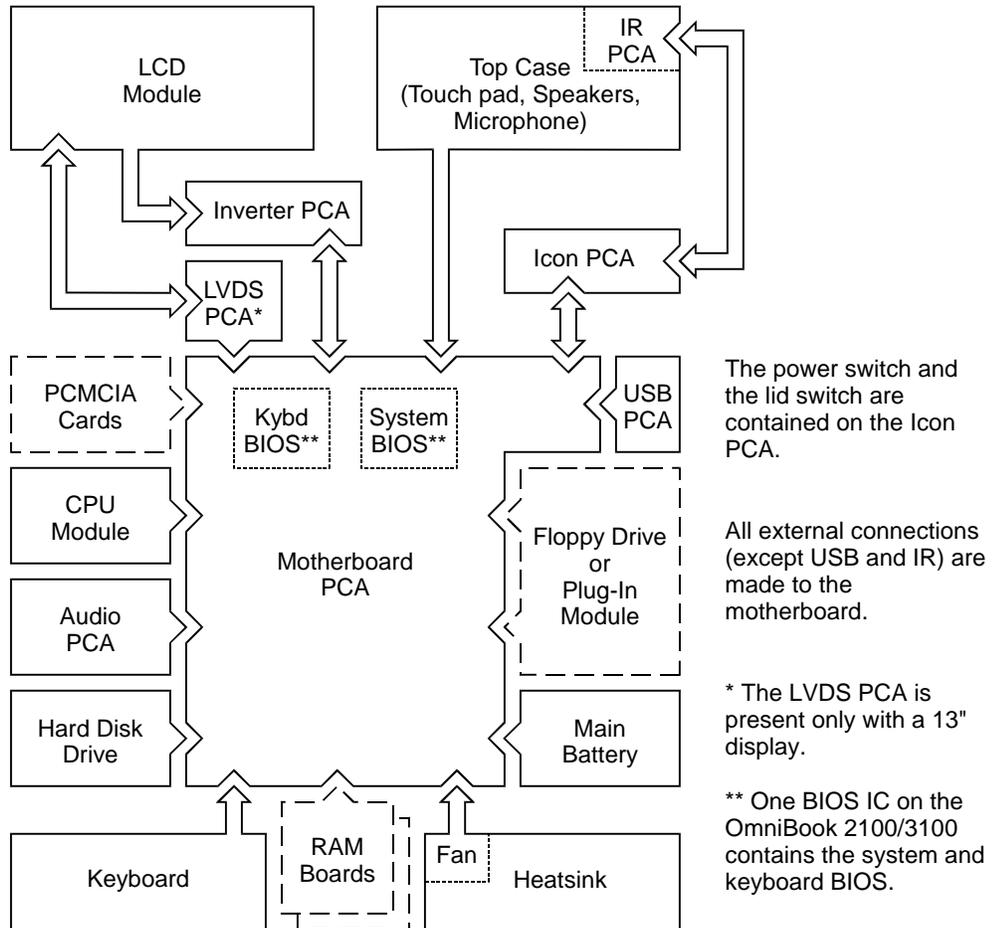
Figure 1-4. Replaceable Module Diagram

Table 1-13. Functional Structure

Function	Modules	Roles
Bootup	CPU module Motherboard System BIOS IC** Keyboard BIOS IC** Floppy disk drive Hard disk drive	Main processor (MMO). Primary system circuitry. Code for basic system functions. Code for keyboard functions. 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 RAM boards	First 16 MB (OmniBook 3000) or 32 MB (OmniBook 2100/3100) of RAM, video RAM. Optional, additional RAM.
Power	Battery Motherboard AC adapter Icon PCA	Power storage. Power supply, ac adapter socket, system-off switch. AC-to-dc converter. Power switch, lid switch.
Display	Motherboard LCD module LVDS PCA* Inverter PCA	Display/graphics controller, video RAM. Display output, backlight. Display drivers, signal processing. (Low-voltage differential signaling) Power converter for backlight.
Hard disk	Motherboard Hard disk drive	Hard disk controller. Hard disk mechanism.
Floppy drive	Motherboard Floppy disk drive	Floppy disk controller. Floppy disk mechanism.
Keyboard	Motherboard Keyboard BIOS IC** Keyboard	Keyboard controller. Keyboard BIOS. Key switches.
Touch pad	Motherboard Top case	Keyboard and PS/2 controller. Touch pad PS/2 device.
Audio	Motherboard Audio PCA Top case	Speaker amplifier, external audio jacks. Audio controller, wave synthesizer, headphone amplifier. Microphone, speakers.
Serial	Motherboard	I/O controller, serial connector.
Parallel	Motherboard	I/O controller, parallel connector.
Infrared	Motherboard IR PCA Icon PCA	I/O controller. Infrared transmitter/receiver. Pass-through connection.
PS/2 port	Motherboard	Keyboard and PS/2 controller, PS/2 connector.
USB	Motherboard USB PCA	I/O controller. USB power controller, USB connector.
Docking port	Motherboard	Docking logic, docking connector.
PCMCIA	Motherboard	PCMCIA controller, PCMCIA connectors.

* The LVDS PCA is not present in products with 12-inch displays. In these products, the LVDS functions are performed by the LCD module.

** The BIOS IC on the OmniBook 2100/3100 performs both system and keyboard BIOS functions.

2

Removal and Replacement

This chapter tells you how to remove and replace the following components and assemblies. The ones marked by • are user-replaceable.

Table 2-1. Removal Cross-Reference

- Battery (page 2-3).
  Bezel, display (table on page 2-29).
  Bracket, display (page 2-15 and 2-17).
  Cable, icon/MB (table on page 2-29).
  Cable, inverter/MB (table on page 2-29).
  Cable, IR/icon (table on page 2-29).
  Cable, LCD flex (table on page 2-29).
  Case, bottom (page 2-24).
  Case, display (page 2-15 and 2-17).
- Case, hard disk drive (page 2-5).
  Case, top (page 2-20).
  Cover, audio jack (table on page 2-29).
- Cover, BIOS (page 2-8).
- Cover, hinge (page 2-8).
- Cover, icon window (page 2-8).
- Cover, RAM (page 2-8).
  CPU module (table on page 2-29).
  Display assembly (page 2-9).
- Door, I/O (page 2-8).
- Drive, hard disk (page 2-5).

- Fan (table on page 2-29).
- Feet (page 2-8).
  Heatsink (table on page 2-29).
  Hinge, display (table on page 2-29).
  IC, BIOS (page 2-27).
  Keyboard (page 2-19).
  Latch, display (table on page 2-29).
  LCD module (page 2-11).
  Lens, IR (table on page 2-29).
- Modules, plug-in (page 2-4).
  PCA, audio (table on page 2-29).
  PCA, icon (table on page 2-29).
  PCA, inverter (table on page 2-29).
  PCA, IR (table on page 2-29).
  PCA, LVDS (table on page 2-29).
  PCA, motherboard (page 2-24).
  PCA, touch-pad (table on page 2-29).
  PCA, USB (table on page 2-29).
  Plate, lock (table on page 2-29).
- RAM board (page 2-7).

Caution

Always provide proper grounding when performing repairs. Without proper grounding, an electrostatic discharge may 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 them 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 screw.)

Table 2-2. Required Equipment

- Small Phillips screwdriver, preferably magnetized.
- 5 mm hex driver.
- Pointed knife or probe.
- Three small flat-blade screwdrivers (or equivalent tools for prying).
- IC insertion/removal tool.

Table 2-3. Recommended Screw Torques

Screw Thread Size	Torque (kgf•cm)	Torque (in•lbf)
M2	3.5 – 4.0	3.0 – 3.5
M2.5 except those below	3.0 – 4.0	2.6 – 3.5
M2.5 12" display brackets, LCD flex cable, LVDS PCA, icon PCA, HDD case	1.0 – 2.0	0.9 – 1.7
M3	3.0 – 4.0	2.6 – 3.5

Removing the Main Battery
(User-Replaceable)

The main battery is located under the right corner of the palmrest. To remove a secondary battery (an accessory plug-in module), see the next topic below.

WARNING

Do not mutilate, puncture, or dispose of batteries in fire. A battery can burst or explode, releasing hazardous chemicals. A rechargeable battery must be recycled or disposed of properly.

Required Equipment

- None.

Removal Procedure

1. Slide the safety latch for the battery compartment into its recess.

2. Slide and hold the release latch, then slide out the battery.
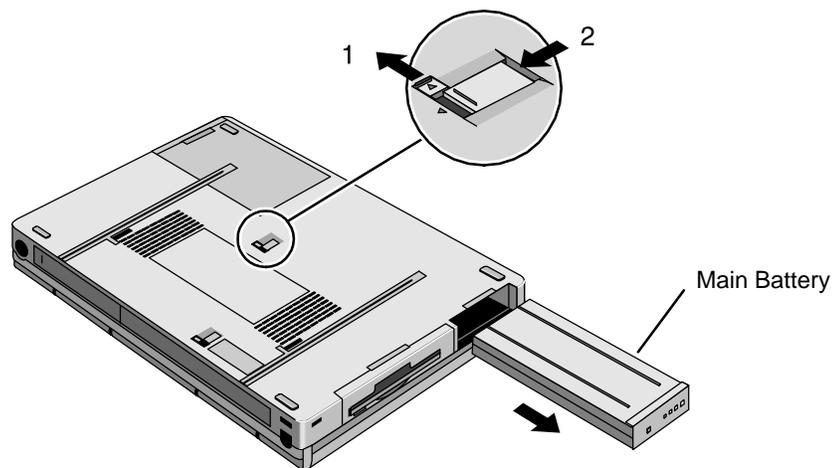
Figure 2-1. Removing the Main Battery

Reassembly Note

Caution

Be sure the safety latch is open before you insert the battery. Otherwise, the release latch could break if you force the battery in.

- After installing the battery, close the safety latch.

Removing a Plug-In Accessory Module
(User-Replaceable)

> **Note**
>
> Plug-in accessory modules have no repairable components. A defective module must be exchanged.

Required Equipment

- None.

Removal Procedure

1. Slide the safety latch for the plug-in slot into its recess.

2. Slide and hold the release latch, then slide out the module.
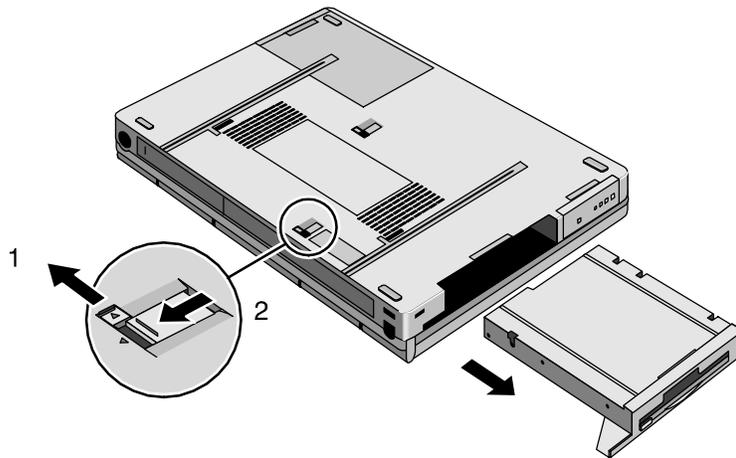
Figure 2-2. Removing a Plug-In Module

Reassembly Note

> **Caution**
>
> Be sure the safety latch is open before you insert the module. Otherwise, the release latch could break if you force the module in.

- After installing the module, close the safety latch.

Removing the Hard Disk Drive
(User-Replaceable)

Table 2-4. Hard Disk Drive Replacement Part Numbers

Description	Part Number	Exchange Part Number	OmniBook 2100	3100	3000
Drive, hard disk (2.1GB, 12.7mm, IBM)	0950-2801	F1580-69100	•		•
Drive, hard disk (3.2GB, 9.5mm, IBM)	0950-2802	F1348-69103	•		
Drive, hard disk (3.2GB, 9.5mm, Toshiba)	0950-2854	F1348-69102	•		
Drive, hard disk (4.0GB, 12.7mm, IBM)	0950-2671	F1386-69100		•	•

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the two screws from the bottom of the hard drive.

3. Pull out the hard drive.
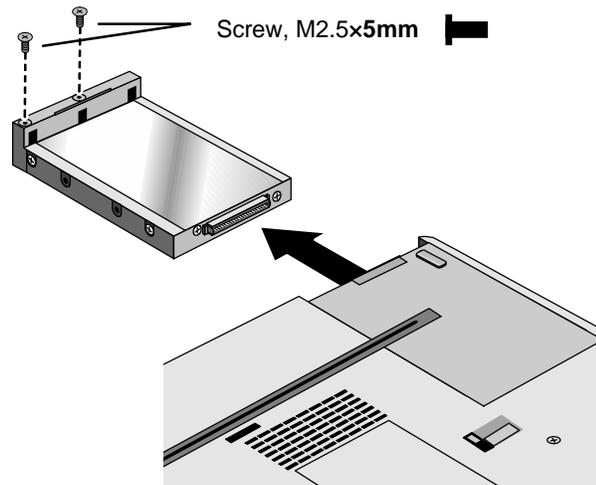
Figure 2-3. Removing the Hard Drive

> **Caution**
>
> Work the connector off the hard drive evenly, without pulling on the flex cable. Otherwise, you may bend connector pins on the hard drive or damage the flex cable.

4. If you are installing a new hard drive that does not have a plastic case, you can remove the case from the old hard drive:

- Remove the four screws from the sides of the case.

- Remove the shield from the drive and swing out the free end of the hard drive about 90°, then gently pry off the connector from the hard drive. The OmniBook 3000 may not have a shield.

Caution:

You must install a metal shield on an OmniBook 2100 or 3100.

The OmniBook 3000 does not require a shield.

HDD Case (Kit)
(includes M3×5mm screws)
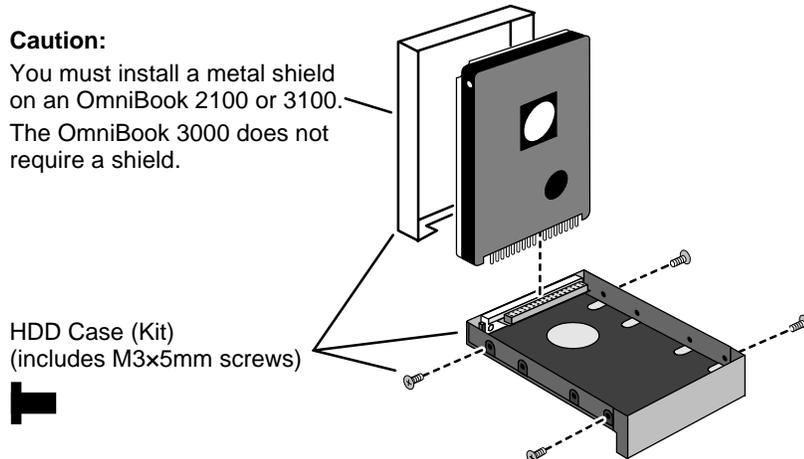
Figure 2-4. Installing a Hard Drive in the Case

Reassembly Notes

> **Caution**
>
> - Use a HDD case kit that is compatible with the thickness of the drive, 9.7 mm or 12.7 mm.
> - **OmniBook 2100/3100:** The hard drive in an OmniBook 2100 or 3100 must have a metal shield. If an older HDD case kit does not have this part, get a newer HDD kit.
> - Do not cover the vent hole in the top surface of the hard drive or in the case. If you cover the hole, the hard drive could fail prematurely.

- Depending on the manufacturer of the replacement drive, the hole placement for the four screws may vary.

> **Important**
>
> If you are installing a new hard drive, you should create a Hibernate partition on the drive before loading any software—see the steps below.

Creating a Hibernate Partition

1. If you do not have an OmniBook Recovery CD and internal CD-ROM module for the computer model you are repairing, create a Support Utility floppy disk now.

   After inserting a formatted floppy disk in the floppy drive, do one of the following:

   □ On a factory software installation, click Start, Programs, OmniBook, Create Support Utility Disk.

   □ On any computer that has a CD-ROM drive, run **makesupp** from the \Omnibook\Drivers\Hputils directory on the OmniBook Recovery CD.

   □ On any computer with World Wide Web access, download the Support Utility software package from the OmniBook website (see page vi). Follow the instructions provided.

2. Insert the Recovery CD in the CD-ROM drive—or insert the Support Utility disk in the floppy drive.

3. Reboot the computer. If you are using the Recovery CD, press ESC during reboot if the OmniBook screen appears, ESC to display the boot-device menu, then select the CD-ROM drive as the boot device.

4. When prompted, select "Create Hibernate Partition."

   OmniBook 2100/3100: We recommend that you create a 96-MB partition, the same as the factory setup.

   OmniBook 3000: We recommend that you create a 144-MB partition, the same as the factory setup.

Removing a RAM Board
(User-Replaceable)

Table 2-5. RAM Board Replacement Part Numbers

Description	Part Number	Exchange Part Number	OmniBook		
			2100	3100	3000
RAM board, 16-MB SODIMM	F1363-60001	F1363-69001	•	•	•
RAM board, 32-MB SODIMM	F1364-60001	F1364-69001	•	•	•
RAM board, 64-MB SODIMM	F1365-60001	F1365-69001	•	•	•

Caution

Handle the RAM board only by its edges and provide proper grounding. Otherwise, you may damage the board due to electrostatic discharge.

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the hard disk drive (see page 2-5).

3. Slide open the RAM cover about 3 mm, then lift off the cover.
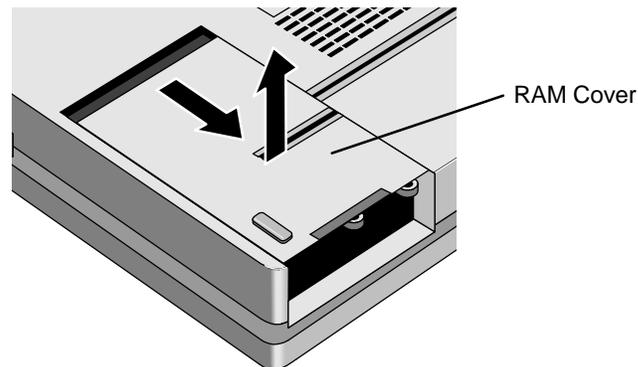
RAM Cover

Figure 2-5. Removing the RAM Cover

4. Release the two metal latches at the sides of the RAM board, so the free edge of the board pops up.

5. Pull the board out of the connector.

Note:
The OmniBook 2100/3100 has only one RAM slot.
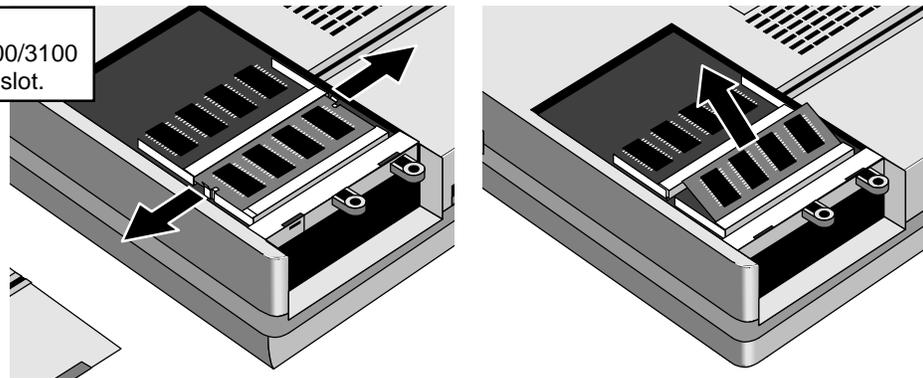
Figure 2-6. Removing a RAM Board

Reassembly Notes

- Insert the RAM board into the connector at about a 30° angle until it is fully inserted. Then press down at both sides until both latches snap closed.

- Place the RAM cover about 3 mm from its closed position, then slide it closed.

Replacing Small Parts
(User-Replaceable)

The following small parts are user-replaceable.

Table 2-6. Replacing Small Parts (User-Replaceable)

Part	Replacement Procedure
Cover, BIOS	On the bottom of the unit, insert a small flat-blade screwdriver into the slot at the edge of the BIOS cover and pry it off.
Cover, Hinge	With the display fully open, slide off the hinge cover about 5 mm, then lift it off. Use your finger or a small tool to push outward next to the hinge.
	To reinstall the cover, slide the open end of the cover onto the hinge, then lift the closed end over the bump and slide it in.
Cover, Icon Window	1. Remove the floppy drive or other plug-in module.
	2. With the display fully open, slide off each hinge cover about 5 mm, then lift it off. Use your finger or a small tool to push outward next to the hinge.
	3. Pry out and pop up the right end of the icon window cover at the plug-in module slot, then pop off the cover.
Cover, RAM	Remove the hard drive (see page 2-5). Slide the RAM cover about 3 mm toward the hard drive opening, then lift off the cover.
Door, I/O (and Hinge)	Open the door and unsnap it from the center hinge. Flex the center of the door until one of the side tabs releases.
	To replace the center I/O door hinge, insert a small flat-blade screwdriver behind the flat plate and pop the hinge out of the case. When installing the center hinge, make sure the hinge support curves downward.
Feet	Insert a small flat-blade screwdriver under the end of the foot and pry it loose. To replace, firmly press the adhesive side of the foot into the recess.

Removing the Display Assembly
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the floppy drive or other plug-in module (see page 2-4).

3. Open the display fully.

4. Slide off the two plastic hinge covers about 5 mm, then lift them off. Use your finger or a small tool to push outward next to the hinge.

5. Pry out and pop up the right end of the icon window cover at the plug-in module slot, then pop off the cover.
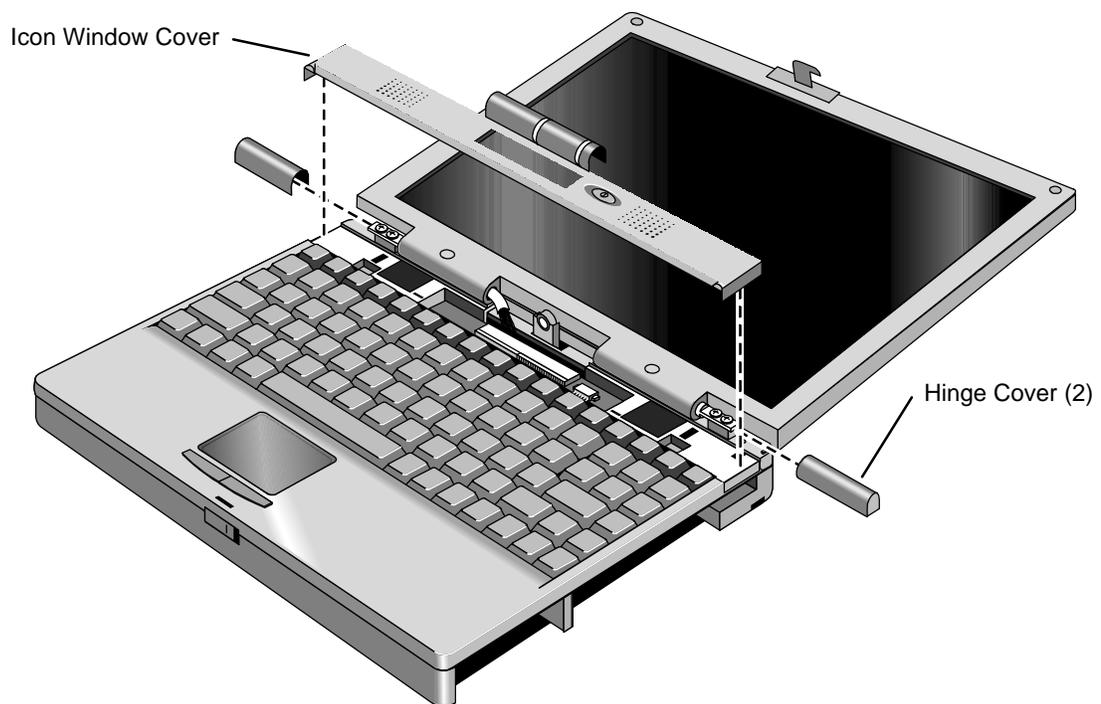
Figure 2-7. Removing the Hinge Covers and Icon Window Cover

6. Remove the icon PCA by doing the following:

   - Unplug the IR/icon cable near the right end of the icon PCA.

   - Remove the screw from the left end and lift up the PCA.

   - Unplug the cable from the motherboard.

7. For the LCD cable emerging from the left hinge, remove the screw from the grounding lug inside the base assembly. For a 12-inch display, also remove the second screw holding the LCD cable. Then unplug the cable from the base assembly.

8. For the inverter/MB cable emerging from the right hinge, unplug the cable from the motherboard.

9. Remove the four screws from the hinges, and lift off the display assembly.

Screw, M2.5×**8mm**

Icon PCA

Screw, M2.5×**5mm**
Note: Two screws secure the cable for a 12" display.

Note:
13-inch display shown. For a 12-inch display, the display cables differ.
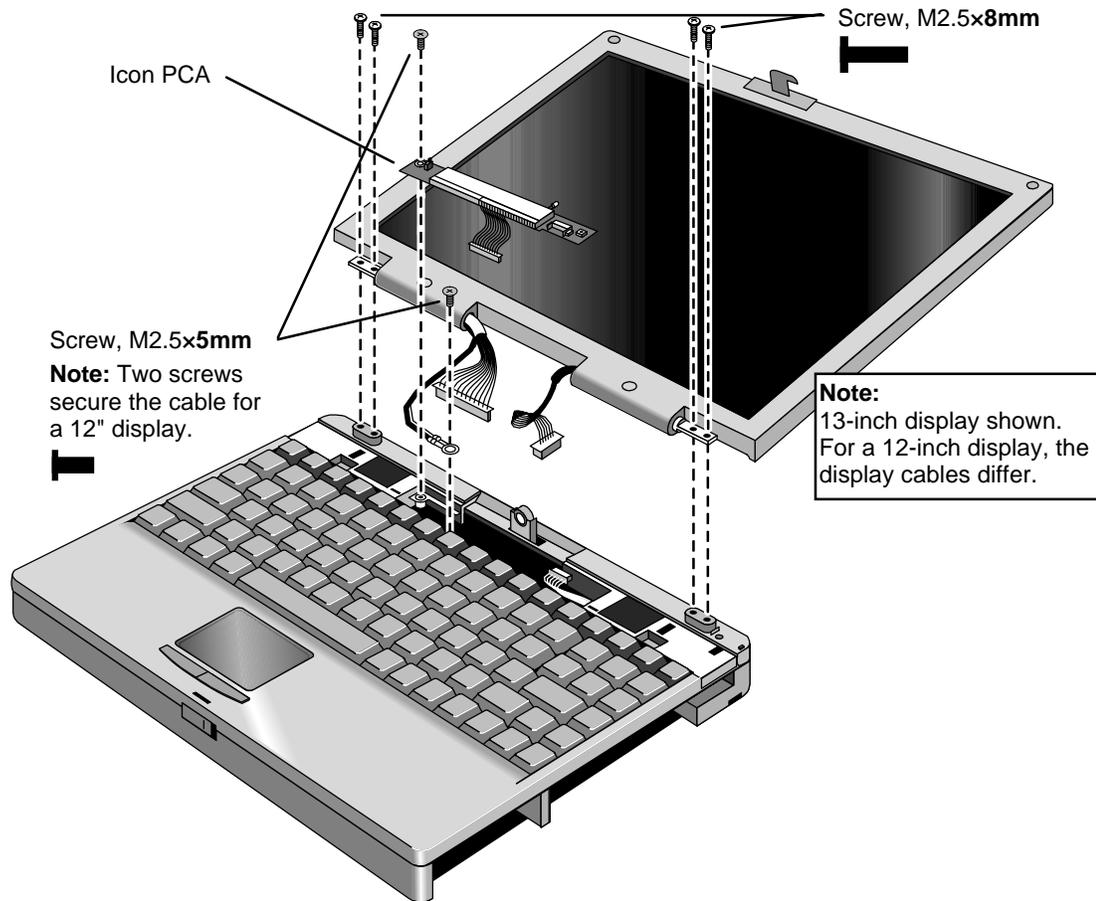
Figure 2-8. Removing the Icon PCA and Display Assembly

Reassembly Notes

- After connecting the inverter/MB cable from the right hinge, carefully dress the wires into the cutout and support in the top case.

Caution

- For a 12-inch display, tuck the excess length of the LCD flex cable under the keyboard. The cable could be damaged if there is excess length in the hinge area.

- Use a **5 mm** screw to fasten the LCD cable. If you use a longer screw, it will damage the motherboard.

  Do not overtighten the screws for the LCD cable. They fasten to a sheet-metal bracket and the threads could strip.

- Insert the right end of the icon PCA between the plastic tabs on the case. Check that the IR/icon cable is not pinched and emerges above the PCA.

- Slide the open end of the hinge cover onto the hinge, then lift the closed end over the bump and slide it in.

Removing the LCD Module
(HP Authorized Service Providers Only)

Note

The exact details for removing the LCD module depend on the type of module. Some details may differ from those described below.

See the table below for information about matching components for different types of LCD modules.

To identify the type of 12-inch LCD module, check the following:

- The Sanyo 12" DSTN module has two cutout holes in the frame on the left side of the glass, and the main connector is below the centerline on the back of the module.

- The Samsung 12" TFT module has no cutout holes in the frame, and the main connector is above the centerline on the back of the module.

Table 2-7. Display Component Compatibility

	OmniBook 2100 12" DSTN (Sanyo)	OmniBook 2100 12" TFT (Samsung)	OmniBook 3100 13" TFT (NEC)	OmniBook 3000 13" TFT (NEC)
Bezel, display	F1580-60911		F1391-60927	
Bracket, display	F1580-60916		F1391-60962	
Bumper, display	F1580-60909		F1391-60924	
Cable, inverter	F1580-60951		F1580-60952	F1391-60959
Cable, LCD flex	F1580-60930	F1580-60929	F1391-60961	
Case, display	F1580-60907		F1391-60910	
Foam, EPE	(none)		F1391-60926	
Hinge, display	F1580-60910		F1391-60925	
LCD module	F1580-69003	F1580-69002	F1391-69007	
PCA, inverter	F1580-60905		F1580-60904	F1391-60908
PCA, LVDS	(none)		F1391-60904	

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

- Pointed knife or probe.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the floppy drive or other plug-in module (see page 2-4).

3. Open the display fully.

4. Slide off the two plastic hinge covers about 5 mm, then lift them off. Use your finger or a small tool to push outward next to the hinge.

5. Pry out and pop up the right end of the icon window cover at the plug-in module slot, then pop off the cover.

Icon Window Cover

Hinge Cover (2)
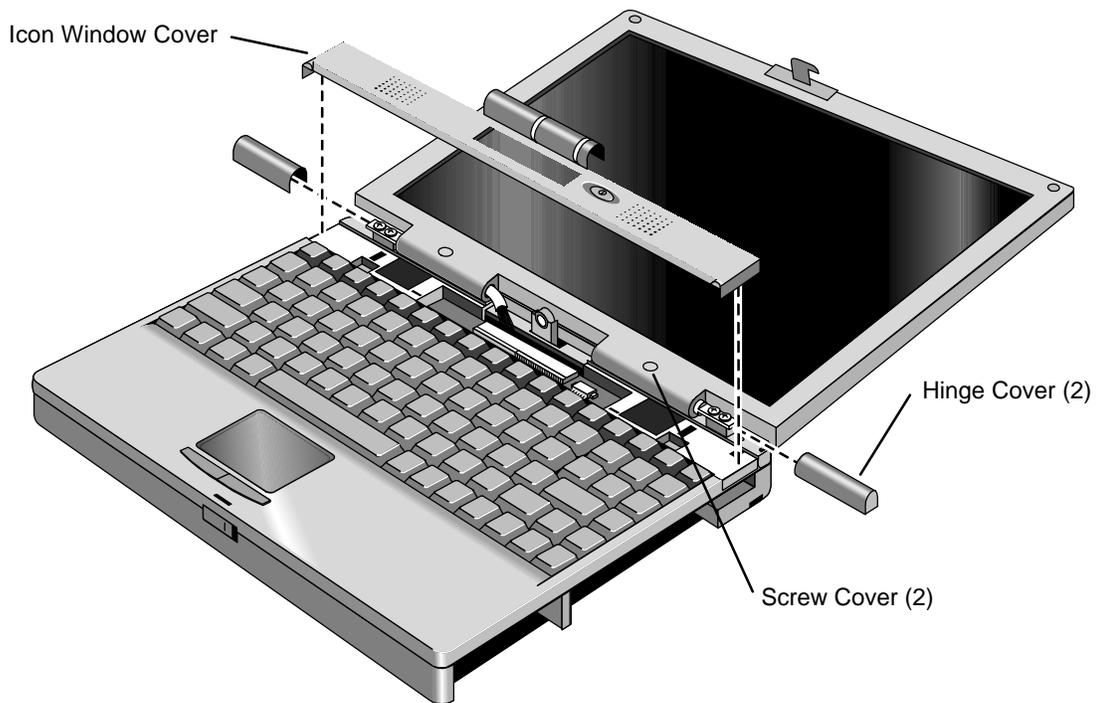
Screw Cover (2)

Figure 2-9. Removing the Hinge Covers and Icon Window Cover

6. Pry off the two screw covers by the hinges (use a pointed knife or probe), then remove the two screws.

   For a 12-inch display, pry off the two display bumpers at the top of the display, then remove the two additional screws.

7. Starting at the left side of the display, use your fingers to gently pull the display bezel toward the edge of the display case until the snaps release. As the snaps release, work your way up the left side, across the top, and down the right side—until only the bottom edge is attached.
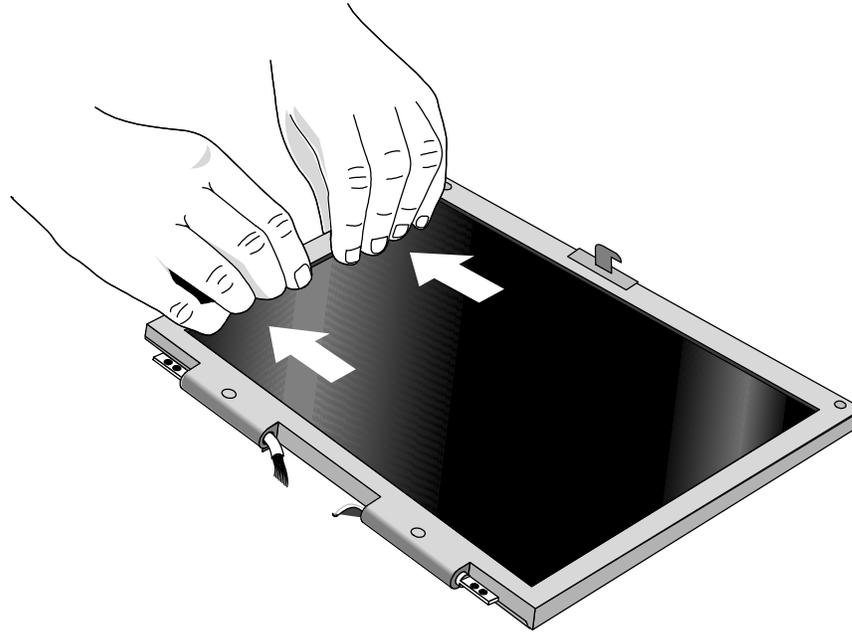
Figure 2-10. Removing the Display Bezel

8. Now use your fingers to gently lift up the inner, lower edge of the bezel away from the LCD until the lower snaps release.

9. Remove the four screws from the corners of the LCD module.

10. For a 12-inch display (not shown), unplug the two-wire cable from the top of the inverter PCA.

   For a 13-inch display (shown), lift the front edge the LCD module and move it to the left until you can unplug the two-wire cable at the inverter PCA.

11. Tip up the top of the LCD module and gently unplug the connector from the back of the LCD module. You have to remove a piece of Kapton tape to do this.

12. Lift out the LCD module. You may have to remove a piece of conductive tape to do this.
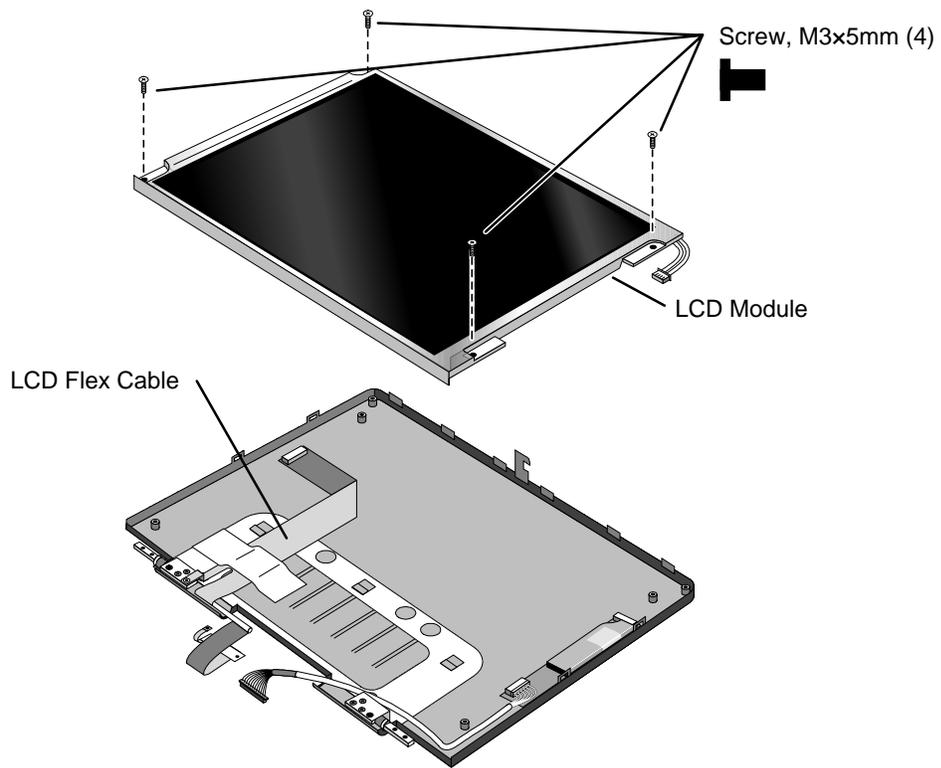
Figure 2-11. Removing the 12" LCD Module
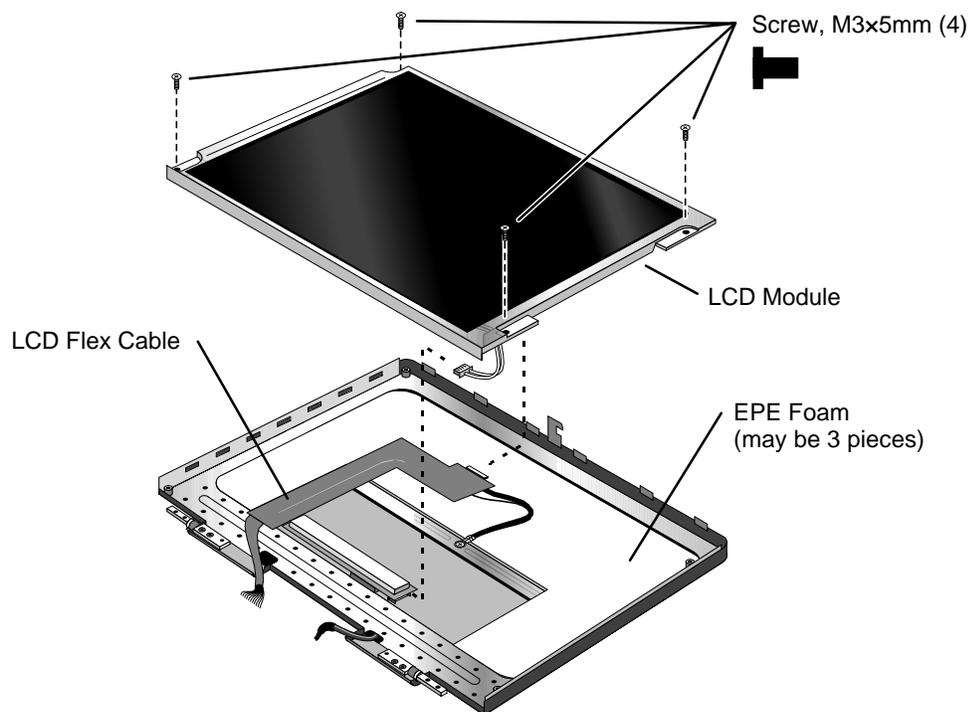
Figure 2-12. Removing the 13" LCD Module

Reassembly Notes

> **Caution**
>
> Be sure to replace the LCD module or other display components with compatible parts.
> Components may be damaged if compatible parts are not used. See the table above.

- Secure the LCD flex cable to the LCD module with a piece of Kapton tape next to the LCD connector.

- Before installing the LCD module, make sure the EPE foam is properly positioned inside the display bracket. For the OmniBook 3000, if two flaps are present, they should be on top of the center bar of the bracket.

- Position the cables properly in the hinges before installing the bezel.

- Make sure the bezel snaps to the case along all edges. Pull to the side to help seat the snaps.

- Make sure the screw covers stick securely in place.

Removing a 12" Display Case or Display Bracket
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

- Pointed knife or probe.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove these additional assemblies:

   - Floppy drive or other plug-in module (see page 2-4).

   - Display assembly (see page 2-9).

   - LCD module (see page 2-11).

3. Remove the LCD flex cable. It may be held by tape.

4. Remove the six screws holding the hinges and display bracket.

5. Lift the front edge of the bracket slightly and slide it toward the rear, then lift it out of the case.

6. Lift out the hinges.

7. To replace the display case, remove the inverter PCA from the case with the inverter/MB cable. You may have to remove a piece of Kapton tape to do this.
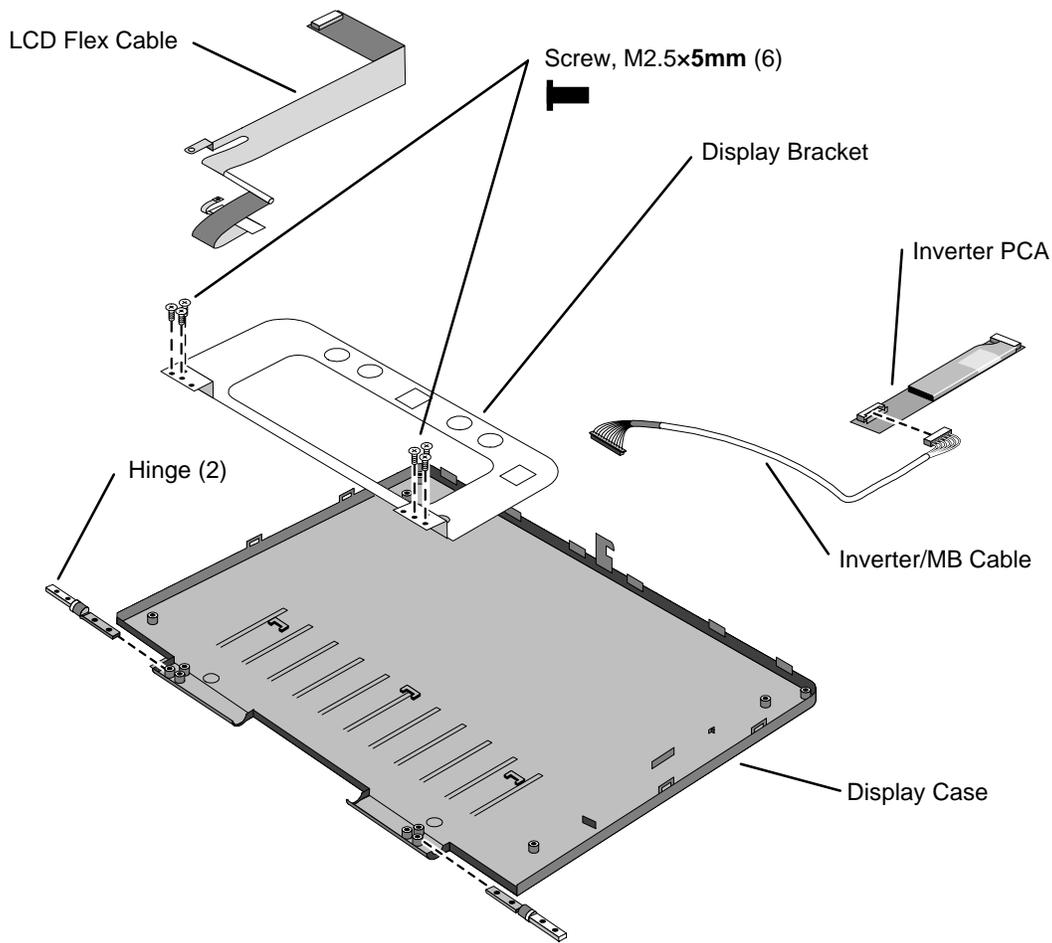
Figure 2-13. Removing a 12" Display Case and Display Bracket

Reassembly Notes

> **Caution**
>
> Be sure to replace display components with compatible parts. Components may be damaged if compatible parts are not used. See the table on page 2-11.

- The inverter PCA fits onto the two plastic pins in the display case.

- Install each hinge so the slit in the housing faces into the display case.

- When installing the LCD flex cable into the case, the notched end of the metal tube fits under the display bracket, and the tab on the side fits inside the hinge opening.

- The upper grounding tab of the LCD flex cable attaches around the hole for the left bezel screw in the display bracket.

- Secure the LCD flex cable to the LCD connector with a piece of Kapton tape.

- Position the cables properly in the hinges before installing the bezel.

- Make sure the bezel snaps to the case along all edges. Pull to the side to help seat the snaps.

Removing a 13" Display Case or Display Bracket
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

- Pointed knife or probe.

- Three small flat-blade screwdrivers (or equivalent tools for prying).

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove these additional assemblies:

    - Floppy drive or other plug-in module (see page 2-4).

    - Display assembly (see page 2-9).

    - LCD module (see page 2-11).

3. Remove the four screws holding the hinges and remove the hinges.

4. Remove the screw holding the display bracket to the display case near the hinge area.

5. If the EPE foam does not stick to the display case, remove the foam. If it does stick, you can leave it in place.

Important

In the next steps, you *must* start at the left side of the display case. Otherwise, the display bracket will not be able to tip up out of the display case.

Also, we suggest that you disengage all three tabs along the left edge at the same time. It is difficult to disengage them one at a time.

---

6. Using two or three small flat-blade screwdrivers or equivalent, separate the left side of the display case from the display bracket to disengage the three tabs.

7. Pry up the left side of the display bracket. There will be some friction due to the snug fit at the corners. You can use a small flat-blade screwdriver to pry at the corners between the metal screw tabs and the plastic posts underneath. (If the EPE foam sticks to the display case, fold it out of the way as the bracket lifts out of the display case.)

8. After the bracket clears the case, slide the bracket toward the left until it is freed from the right side of the case. Lift out the bracket and LCD flex cable.

9. To replace the display case, unsnap the inverter PCA from the case and remove it with the inverter/MB cable. You have to remove a piece of Kapton tape to do this.

    To replace the LCD bracket, remove the screw holding the LCD flex cable.

LCD Flex Cable

Screw, M2.5×**3mm**

Screw, M2.5×**5mm**

Display Bracket

Inverter/MB Cable

Inverter PCA

Hinge (2)

Display Case

EPE Foam
Note: Flaps, if present,
go on top of the display
bracket.
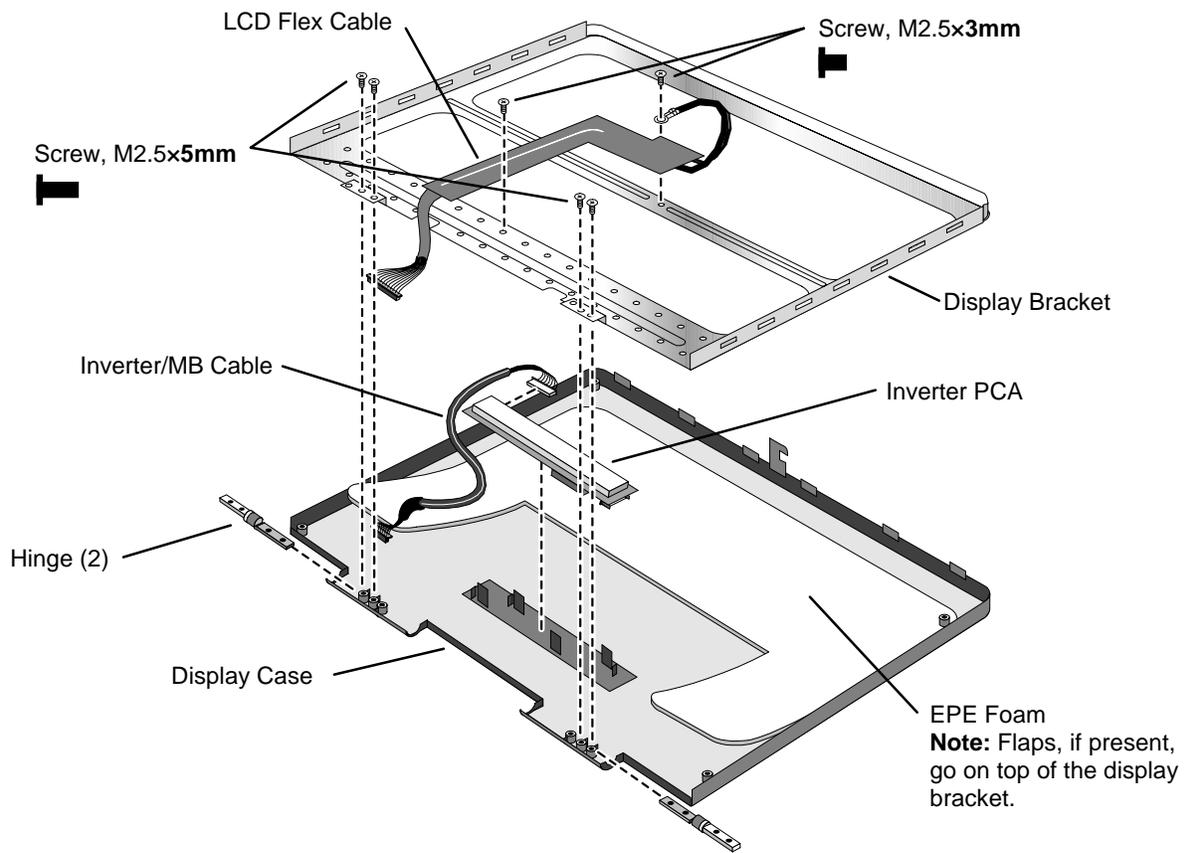
Figure 2-14. Removing a 13" Display Case and Display Bracket

Reassembly Notes

> **Caution**
>
> Be sure to replace display components with compatible parts. Components may be damaged if compatible parts are not used. See the table on page 2-11.

- Before you install the display bracket, secure the inverter/MB cable to the case near the hinge area with a piece of Kapton tape.

- Make sure the EPE foam is *not* placed under the display bracket. If there are flaps, they go on top of the bracket.

- Position the right cable correctly before you install the hinge screws. It should protrude from the case almost 6 cm (about 2 inches).

- Install each hinge so the slit in the housing faces into the display case.

- Before installing the LCD module, make sure the EPE foam is properly positioned inside the display bracket.

- Secure the LCD flex cable to the LCD module with a piece of Kapton tape next to the LCD connector.

- Position the cables properly in the hinges before installing the bezel.

- Make sure the bezel snaps to the case along all edges. Pull to the side to help seat the snaps.

Removing the Keyboard
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the floppy drive or other plug-in module (see page 2-4).

3. Open the display fully.

4. Slide off the two plastic hinge covers about 5 mm, then lift them off. Use your finger or a small tool to push outward next to the hinge.

5. Pry out and pop up the right end of the icon window cover at the plug-in module slot, then pop off the cover.
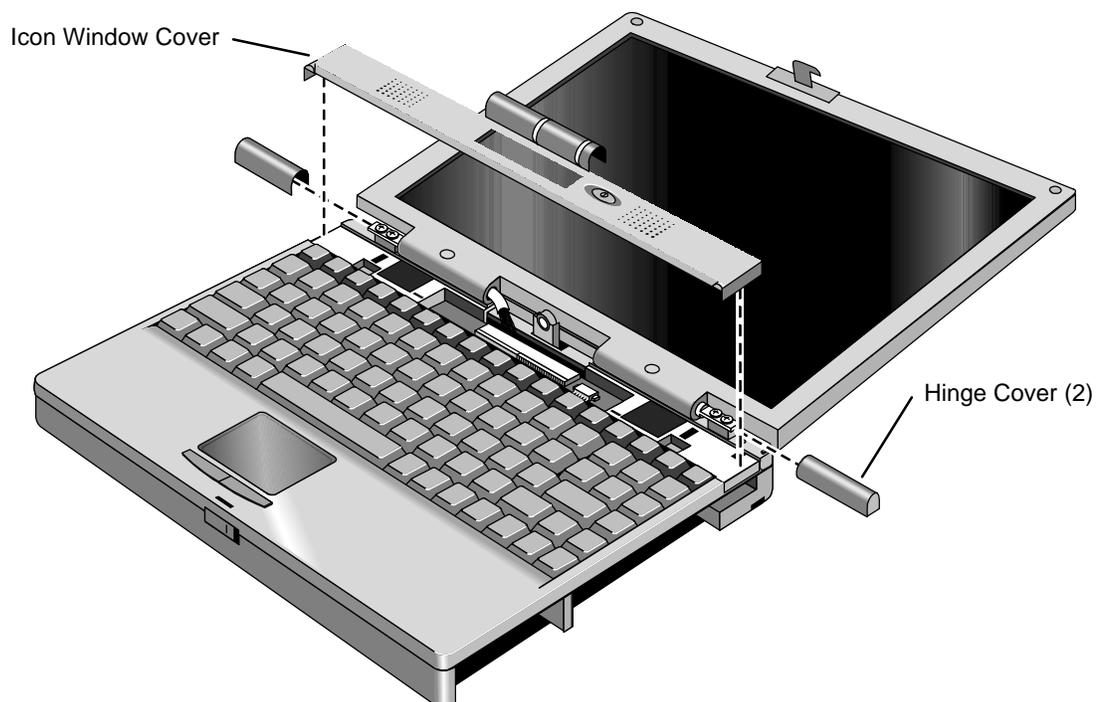
Figure 2-15. Removing the Hinge Covers and Icon Window Cover

6. Remove the two screws at the top ends of the keyboard.

7. Slide the keyboard toward the front of the computer until the top edge of the keyboard releases from the four plastic lugs at the top. If necessary, use a small flat-blade screwdriver to pry along the back edge of the keyboard.

8. Being careful of the flex cable underneath, lift the top edge and pivot the keyboard onto the palmrest.

9. Release the flex cable from the motherboard by lifting the locking tab.

Keyboard flex cable
(part of the keyboard)

Screw, M2.5×**4mm**
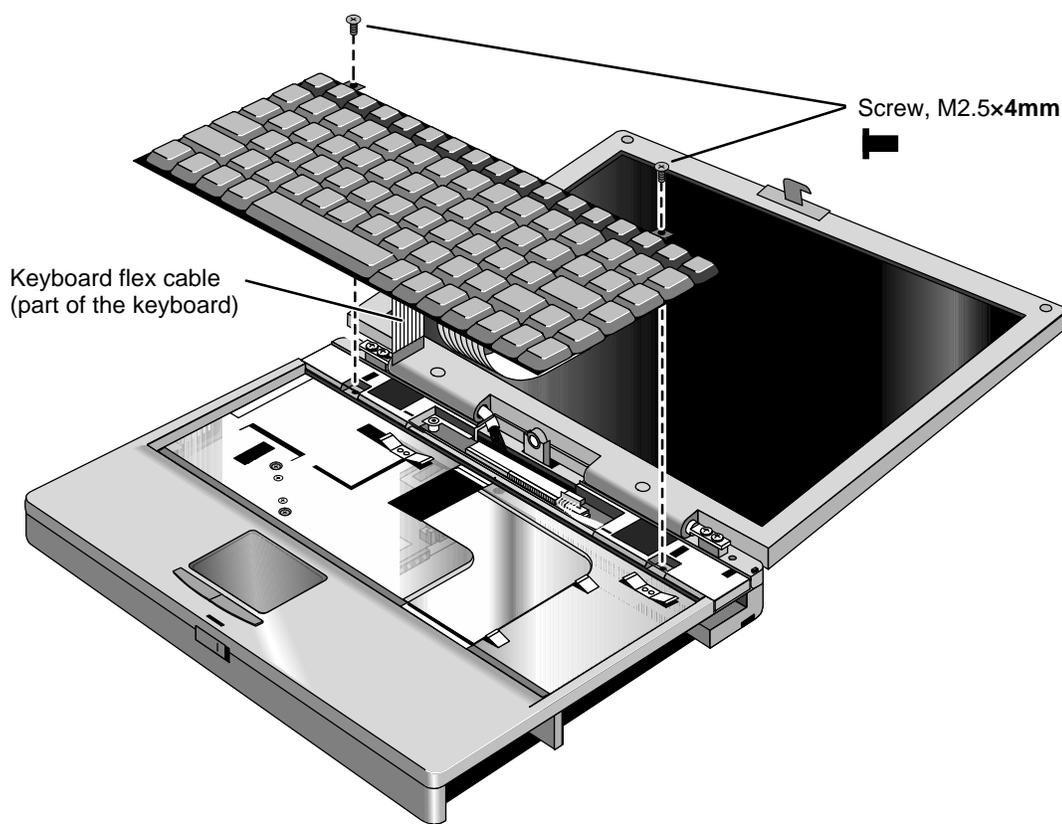
Figure 2-16. Removing the Keyboard

Reassembly Notes

> **Important**
>
> After inserting the keyboard into the case, make sure the back edge of the keyboard is underneath the four plastic tabs on the case–you should see a small gap between the front of the keyboard backplate and the top case.
>
> **Hint:** Insert a Phillips screwdriver into one keyboard screw hole and push it back, then do the same at the other hole.

• Slide the open end of the hinge cover onto the hinge, then lift the closed end over the bump and slide it in.

Removing the Top Case
(HP Authorized Service Providers Only)

Required Equipment

• Small Phillips screwdriver, preferably magnetized.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove these additional assemblies:

- Floppy drive or other plug-in module (see page 2-4).

- Hard drive (see page 2-5).

- Display assembly (see page 2-9).

- Keyboard (see page 2-19).

3. Remove the heatsink by doing the following:

- Remove the three *recessed* screws from the heatsink.
  Note: Do *not* remove the two middle screws from the heatsink. They hold a permanent part of the assembly.

- Lift the front edge of the heatsink slightly and slide it toward the front of the computer until the four tabs along the back edge are free from the case.

- Lift the right end of the heatsink and unplug the fan cable from the motherboard.
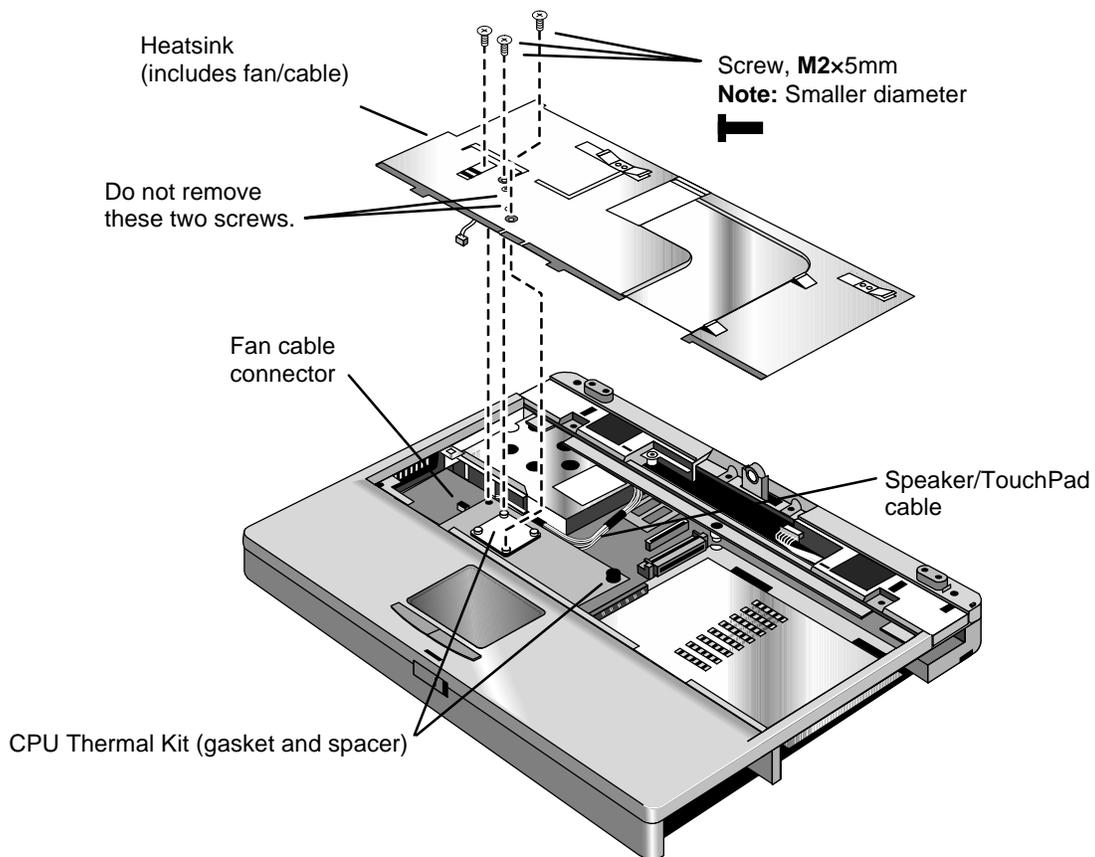
Figure 2-17. Removing the Heatsink

4. Unplug the speaker/touch-pad cable from the motherboard. (See the picture below.)

5. Turn the unit bottom side up and remove the five bottom case screws. Two of the five screws are hidden at the front corners inside the battery and hard drive slots.

6. Turn the unit face up and remove the six top case screws.

Screw, M2.5×**12mm**

Screw, M2.5×**5mm**

Screw, M2.5×**8mm**

Speaker/touch-pad cable connector

Screw, M2.5×**12mm**

Screw, M2.5×**3mm**
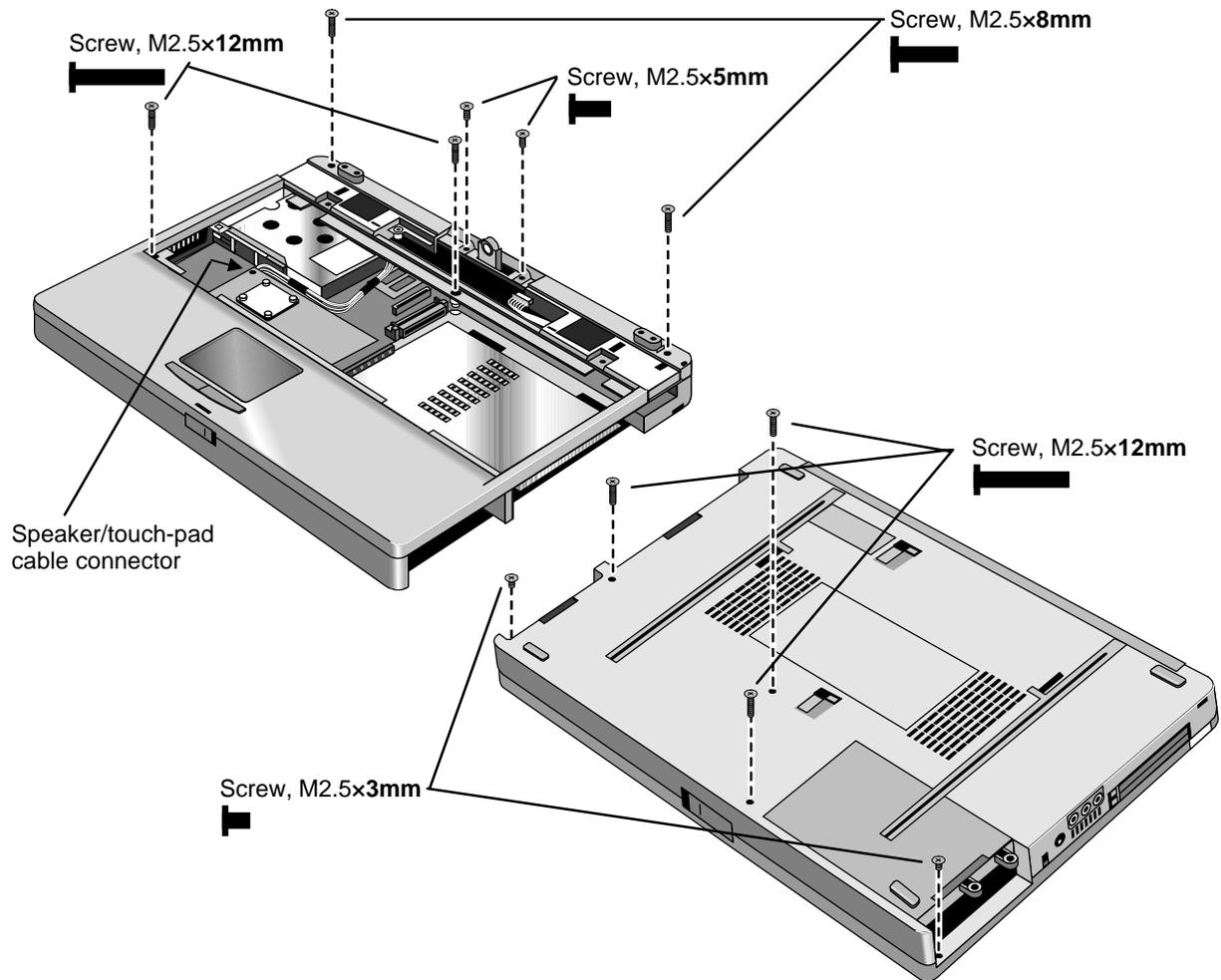
Figure 2-18. Removing the Case Screws

7. Lift up along the back edge of the top case until that edge is free.

8. Place your thumbs on the front of the bottom case and your fingertips wrapped around the back of the palmrest. Lift the back of the top case about 4 cm, then gently but firmly pinch the case forward—until the four snaps release along the front edge.
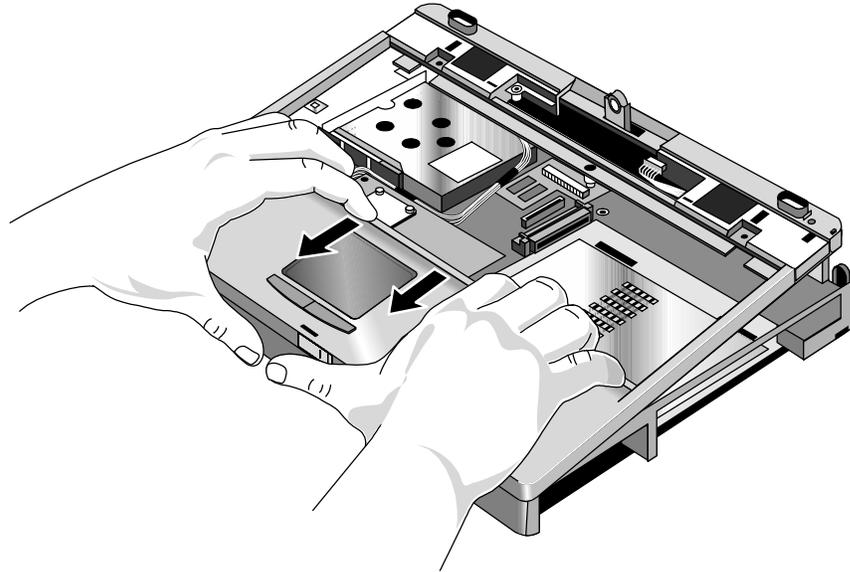
Figure 2-19. Removing the Top Case

Reassembly Notes

- Before you install the top case and heatsink, make sure the left-rear screw is *not* installed in the CPU module. (You install it after you install the heatsink.)

- Make sure the IR/icon cable and speaker cables are properly routed and restrained.

- Place the top case over the front latch but tilted up at the back, then pull forward and down along the front edge until the snaps lock. Finally, seat the back edge over the hinge brackets.

- Route the speaker/touch-pad cable so it does not overlap the CPU module or PCMCIA housing. (See Figure 2-17.)

- Before installing the heatsink, make sure a rubber spacer is stuck to the back-right corner of the CPU module. If the thermal pad on top of the CPU is damaged, replace it. (Both parts are included in the CPU thermal kit.) (See Figure 2-17.)

- When installing the heatsink, remember to plug in the fan cable, and make sure it does not overlap the CPU module. (See Figure 2-17.)

Caution

The three heatsink screws have M2 threads, slightly smaller than other screws. Make sure you use the correct screws. Otherwise, you could damage the threads.

Removing the Motherboard or Bottom Case
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver, preferably magnetized.

- 5 mm hex driver.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove these additional assemblies:

   - Floppy drive or other plug-in module (see page 2-4).

   - Hard drive (see page 2-5).

   - Display assembly (see page 2-8).

   - Keyboard (see page 2-19).

   - Heatsink and top case (see page 2-20).

3. Remove the two screws from the front edge of the CPU module.

Caution

Remove and install the CPU module by holding it at the connector end (the right end). Otherwise, you could damage the connectors or damage pressure-sensitive components on the module.

Install or replace the CPU module thermal pad and spacer if they are missing or damaged.

---

4. Unplug the CPU module from the motherboard. It is held by two connectors under the right end of the module.

Pull up here to remove.

Push here to install.
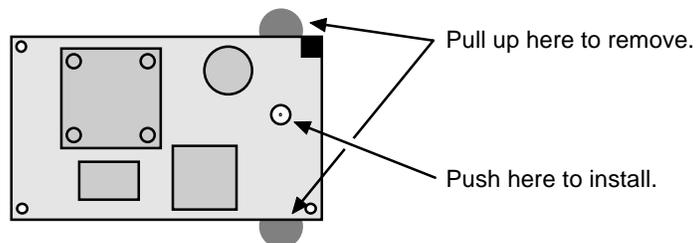
Figure 2-20. Removing and Installing the CPU Module

Caution

Use care when removing or installing the USB PCA. Otherwise, you could damage the mating pins on the motherboard.

---

5. Remove the screw from the USB PCA, then unplug the PCA from the motherboard by lifting the front edge.

6. Remove the three screws (one inside the hard drive opening) and three hex standoffs from the motherboard.

7. Lift the hard drive housing only until the PCMCIA pushbuttons clear the bottom case. Then gently work the motherboard forward until the I/O bracket slips free.

The audio jack cover is released when you remove the motherboard.
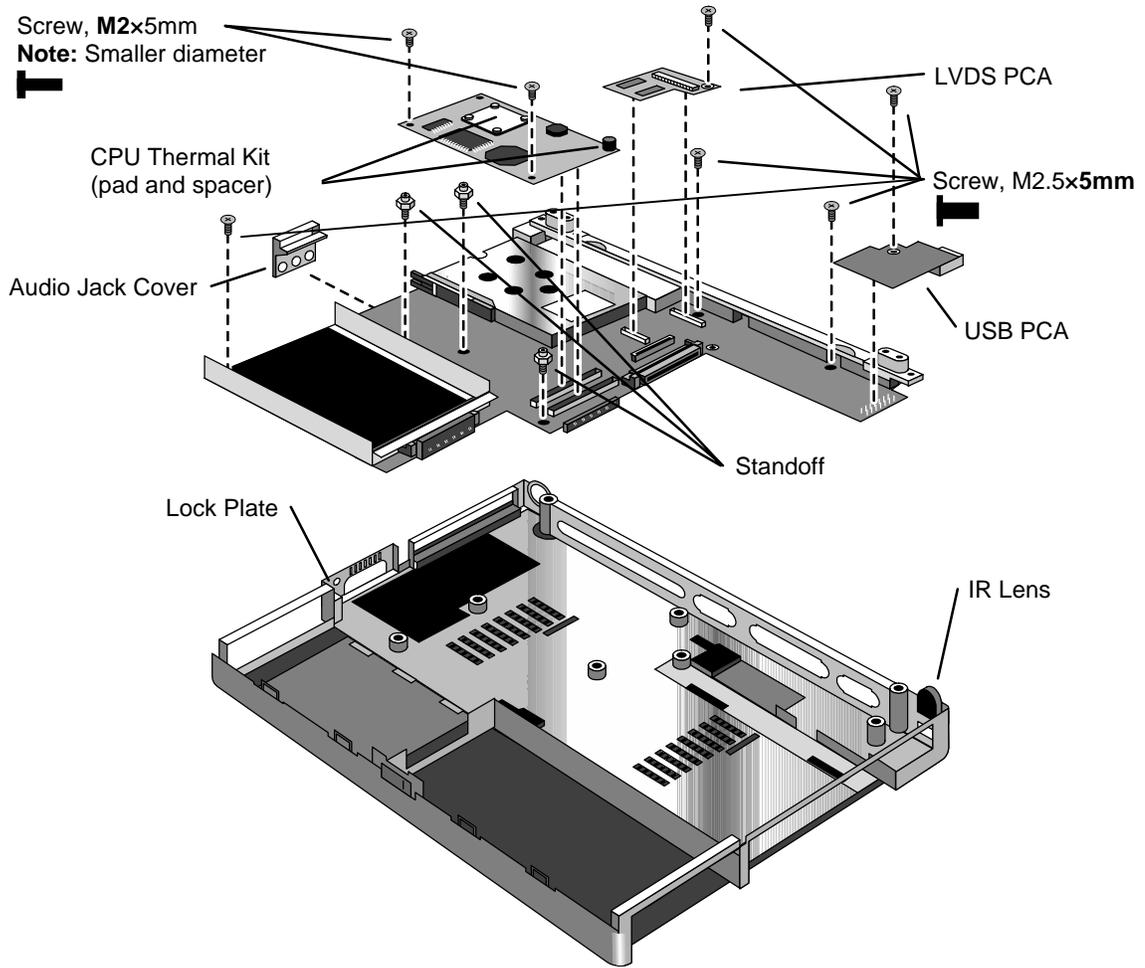
Figure 2-21. Removing the Motherboard

Reassembly Notes

Note: Installing a New Motherboard

- Transfer these PCAs from the old motherboard to the new one:

  LVDS PCA (secure it with one **5 mm** screw on the right side).
  Caution: Do not use a longer screw—it will damage the motherboard.

  Audio PCA (on the underside).

  RAM board, if present (on the underside).

- Reprogram the BIOS IC—see the note below.

- Store the serial number electronically in the new motherboard—see the steps below.

> **Note: Installing a New Bottom Case**
>
> - Transfer these parts from the old bottom case to the new one:
>   Plastic parts (I/O door, RAM cover).
>   Lock plate and IR lens, if not included with new case (see Figure 2-21).
> - Install new regulatory and serial-number labels on the bottom case—see the steps below.

- Check that the audio PCA has two rubber bumpers attached to the board directly behind the two connectors.

- Check that the audio PCA is securely attached to the underside of the motherboard before installing the motherboard. The audio PCA can work loose if you flex the motherboard excessively.

- Place the audio jack cover onto the audio jacks before you lower the motherboard into the case.

- Raise the front edge of the motherboard only high enough for the PCMCIA pushbuttons to clear the bottom case. Work the I/O bracket into the back of the bottom case, then lower the front edge into the case.

- Do *not* install screws into the motherboard next to the ac adapter socket or next to the plug-in module socket. (See Figure 2-21.)

> **Caution**
>
> When installing the CPU module onto the motherboard, press on the white target (Figure 2-20). Otherwise, you could damage pressure-sensitive components.

- The two screws at the front-underside of the bottom case are the *shortest* screws—only 3 mm long.

> **Caution**
>
> Insert the back end of the USB PCA into the case first, then carefully align the connector before pressing it onto the motherboard. Take care not to damage the connector pins.

- Before you install the top case and heatsink, make sure you have installed only *two* screws in the CPU module—the two at the front corners. (You install the remaining screw after you install the heatsink.)

> **Note**
>
> If you installed a new motherboard with a new BIOS IC, the IC contains only enough basic programming to boot the OmniBook. After installing the IC, you must reprogram it. Hewlett-Packard prefers that you program the IC with the latest BIOS—follow the directions carefully. You can download it from the OmniBook website (see page vi).

Storing the Serial Number Electronically

1. Exit Windows and boot to a DOS prompt.

2. Run ESN.EXE from one of these sources:

    □ On a factory software installation, change to the \OMNIBOOK directory and type **esn** at the prompt.

    □ Otherwise, copy \Omnibook\Drivers\Hputils\Esn.exe from the OmniBook Recovery CD, then run it on the OmniBook.

3. Store the serial number:

   □ If you are prompted for the serial number, type the serial number shown on the bottom of the case.

   □ If a serial number has already been stored, you must call an HP support center to change it.

Installing New Regulatory and Serial-Number Labels — OmniBook 2100/3100

If you do not have a master file that creates serial number labels, get a copy from the Reseller website (see page vi).

1. Attach the regulatory label in the recess in the bottom case.

2. Using any PC connected to a laser printer, open the master serial label file, enter the serial number and product number from the old serial label, and print the new label on plain white paper. The new label does not have barcodes.

3. Carefully cut out the new serial label just inside the border and place it into the inner recess in the bottom case. The bottom of the label goes toward the front of the case.

4. While holding the paper label in place, attach a serial label overlay into the outer recess. It covers and protects the serial label.

Installing New Regulatory and Serial-Number Labels — OmniBook 3000

1. Attach the regulatory label in the recess in the bottom case. The bottom of the label goes toward the front of the case.

2. Looking at the serial number on the unit's original bottom case, create a replacement serial number label.

3. Attach the serial number label to the bottom area of the regulatory label.

Figure 2-22. Installing OmniBook 3000 Regulatory and Serial Labels

Removing a BIOS IC
(HP Authorized Service Providers Only)

Note

A replacement IC contains enough basic programming to boot the OmniBook. However, after replacing an IC, you must reprogram it. Hewlett-Packard prefers that you program the IC with the latest BIOS—follow the directions carefully. You can download it from the OmniBook website (see page vi).

Required Equipment

- Small flat-blade screwdriver.

- IC insertion/removal tool.

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. On the bottom of the unit, insert a flat-blade screwdriver into the slot at the edge of the BIOS cover and pry it off.

3. Use an IC insertion/removal tool to remove the BIOS IC from its socket.

   - For the OmniBook 2100/3100, a single BIOS IC contains both the system and keyboard BIOS.

   - For the OmniBook 3000, two separate BIOS ICs contain the system BIOS and keyboard BIOS.
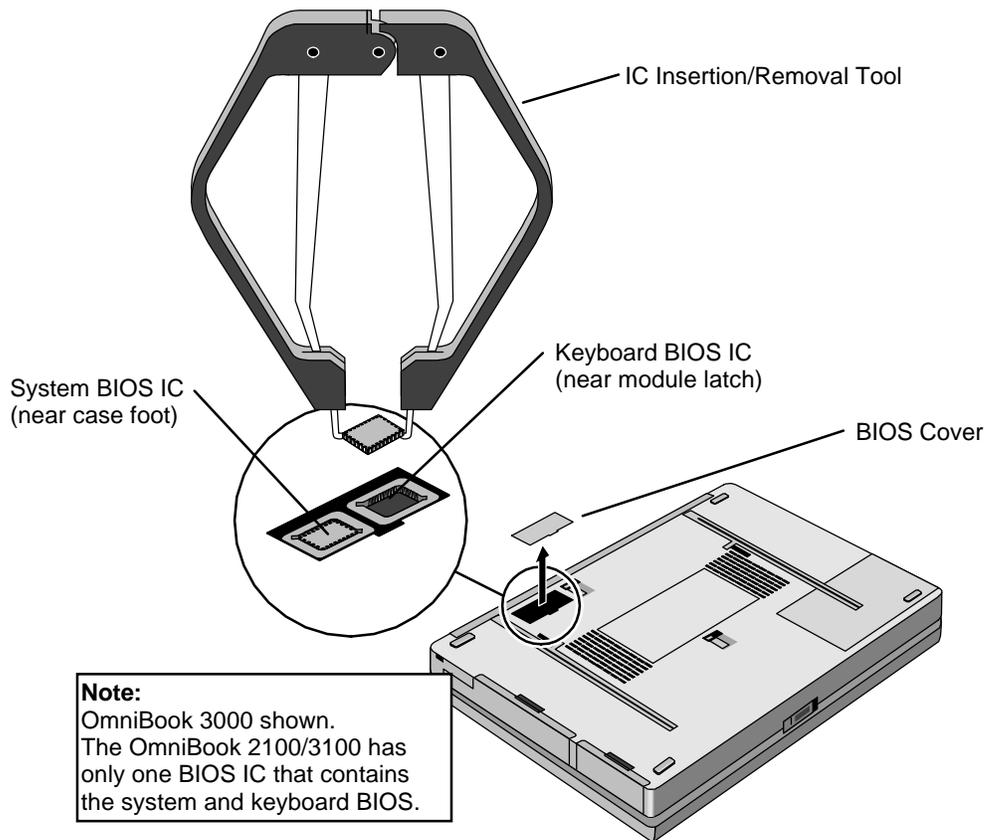
Figure 2-23. Removing a BIOS IC

Reassembly Notes

> **Caution**
>
> Align the IC with the slot in the socket. The IC is keyed to fit correctly. If you insert the IC backward, the IC or motherboard could be damaged.

- Press down firmly on the IC with your thumb to ensure a proper connection.

- Reprogram the IC by programming the BIOS—see the note above.

Removing Other Components
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.

- Pointed knife or probe (for display components).

- 5-mm hex driver (for bottom case components).

Removal Procedure

1. Unplug the ac adapter, if present, and remove the battery.

2. Remove the additional assemblies and follow the special steps indicated in the tables below.

Table 2-8. Removing Other Components (Authorized Providers)

Component	Removal Procedures	Additional Steps
Bracket, Display	See pages 2-15 and 2-17.	
Cable, Icon/MB	Plug-in module (page 2-4). Display, but only until the icon PCA is removed (page 2-8).	The display does not have to be removed.
Cable, Inverter/MB (12-inch display)	Plug-in module (page 2-4). Display (page 2-8). LCD module, but only until the bezel is removed (page 2-11).	**Reassembly Notes:** The cable should protrude about 6 cm from the hinge. **Caution:** Use compatible parts (page 2-11).
Cable, Inverter/MB (13-inch display)	Plug-in module (page 2-4). Display (page 2-8). LCD module (page 2-11). Display case (page 2-17).	**Reassembly Notes:** The cable should protrude about 6 cm from the hinge. Secure the inverter/MB cable to the case near the hinge area with a piece of Kapton tape. **Caution:** Use compatible parts (page 2-11).
Cable, IR/Icon	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	Remove the screws from the IR PCA and the speaker bracket. **Reassembly Notes:** Make sure the cable is clamped by the bracket, and it routes through the bottom corner of the window opening.

Component	Removal Procedures	Additional Steps
Cable, LCD flex (12-inch display)	Plug-in module (page 2-4). Display (page 2-8). LCD module (page 2-11).	**Reassembly Notes:** The notched end of the metal tube fits under the display bracket, and the tab on the side fits inside the hinge opening. The upper grounding tab of the cable attaches around the hole for the left bezel screw in the display bracket. Secure the LCD flex cable to the display bracket with a piece of conductive tape near the hinge. Secure the LCD flex cable to the LCD module with a piece of Kapton tape next to the LCD connector. **Caution:** Use compatible parts (page 2-11).
Cable, LCD flex (13-inch display)	Plug-in module (page 2-4). Display (page 2-8). LCD module (page 2-11).	**Reassembly Notes:** The cable should protrude about 6 cm from the hinge. Secure the LCD flex cable to the display bracket with a piece of Kapton tape near the hinge. Secure the LCD flex cable to the LCD module with a piece of Kapton tape next to the LCD connector. **Caution:** Use compatible parts (page 2-11).
Case, Bottom	See page 2-24.	
Case, Display	See pages 2-15 and 2-17.	
Case, Top	See page 2-20.	
Cover, Audio Jack	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20). Motherboard (page 2-23).	Remove the motherboard only far enough to slip the cover off the audio jacks.
CPU Module	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	Remove two screws from CPU module. Unplug CPU module from motherboard. **Caution:** Install both parts of a CPU thermal kit to the new CPU. Stick the pad to the top of the CPU. Stick the rubber spacer to the top back-right corner of the board.
Fan	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case, but only until the heatsink is removed (page 2-20).	**Reassembly Notes:** Spread a thin layer of thermal grease on the heatsink before installing the fan. Place the vent in the side of the fan toward the side of the heatsink. Make sure the fan cable is positioned so it does not interfere with contact points on the underside of the heatsink.
Heatsink	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case, but only until the heatsink is removed (page 2-20).	
Hinge, Display	Plug-in module (page 2-4). LCD module, but only until the display bezel is removed (page 2-11).	**Reassembly Notes:** Install the hinge so the slit in the housing faces into the display case. **Caution:** If the display is attached to the bottom case, install one new hinge before you remove the other to avoid stressing the cables. **Caution:** Use compatible parts (page 2-11).
IC, BIOS	See page 2-27.	
Keyboard	See page 2-19.	

Component	Removal Procedures	Additional Steps
Latch, Display (or Spring)	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	To remove, lift the left corner. **Reassembly Notes:** Put the spring on the latch shaft, then insert the shaft through the bottom of the right-hand slot.
LCD module	See page 2-11.	
Lens, IR	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	**Reassembly Notes:** The lens should be flush with the outside of the case.
PCA, Audio	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20). Motherboard (page 2-23).	Unplug audio PCA from underside of motherboard. **Reassembly Notes:** Check that two rubber bumpers are present on the new audio PCA directly behind the two connectors.
PCA, Icon	Plug-in module (page 2-4). Display, but only until the icon PCA is removed (page 2-8).	The display does not have to be removed.
PCA, Inverter (12-inch display)	Plug-in module (page 2-4). LCD module, but only until the bezel is removed (page 2-11).	Unplug the two cables and remove the inverter PCA from the display case. **Caution:** Use compatible parts (page 2-11).
PCA, Inverter (13-inch display)	Plug-in module (page 2-4). LCD module (page 2-11).	Unsnap the inverter PCA from the display case, then unplug the cable. **Reassembly Notes:** Make sure an inverter bumper is installed on the PCA. **Caution:** Use compatible parts (page 2-11).
PCA, IR	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	**Reassembly Notes:** The IR PCA fits onto the pin on the top case
PCA, LVDS	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	Unplug the LVDS PCA from the motherboard. **Reassembly Notes:** Do not install the left screw until you install the display assembly. **Caution:** Do not overtighten the LVDS screws. They fasten to a sheet-metal bracket and the threads could strip.
PCA, motherboard	See page 2-23.	
PCA, Touch-pad	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20).	Remove the 6 or 8 screws from the touch-pad support plate and lift it off. Lift the touch-pad PCA and unplug the flex cable from it.

Component	Removal Procedures	Additional Steps
PCA, USB	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20). Motherboard, but only until the USB PCA is removed (page 2-23).	The motherboard does not have to be removed.
Plate, Lock	Plug-in module (page 2-4). Hard drive (page 2-5). Display (page 2-8). Keyboard (page 2-19). Top case (page 2-20). Motherboard, but only until you can lift the front edge (page 2-23).	Pull up on the lock plate until it comes out of the bottom case.

3

Troubleshooting and Diagnostics

This chapter includes troubleshooting and diagnostic information for testing the functionality of the OmniBook and identifying faulty modules:

- Troubleshooting information
  - □ Troubleshooting the problem (page 3-2).
  - □ Verifying the repair (page 3-3).
  - □ Suggestions for troubleshooting (page 3-4).
- Diagnostic tools
  - □ OmniBook hardware diagnostic program (page 3-11).
  - □ Power-on self-test (page 3-16).
  - □ Sycard PCCtest 450 PC Card (page 3-16).
  - □ Desktop Management Interface (page 3-20).
  - □ BIOS Setup utility (page 3-22).

Troubleshooting

The suggestions in this section can help isolate and repair the cause of a problem. To ensure quality repair, HP recommends that you follow the basic troubleshooting steps shown in the illustration below.
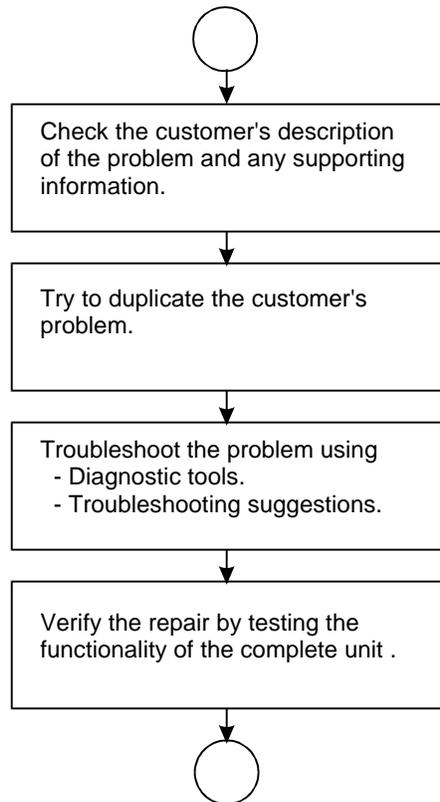
Figure 3-1. Basic Troubleshooting Steps

Troubleshooting the Problem

Record pertinent information about the unit:

- ☐ Model and serial number.

- ☐ Operating system and version.

- ☐ BIOS version.

- ☐ Accessories and peripherals used.

Analyze the problem:

- **Observe Symptoms.** Using the customer's information, try to duplicate the problem. Determine how the problem differs from proper behavior. Also, take note of the functions that *do* work properly.

- **Separate Problems.** If there is more than one symptom, separate them into distinct problems.

- **Consider Causes.** Keep in mind possible causes for each problem. Use the diagnostic tools and troubleshooting suggestions to help find possible causes.

  - The OmniBook diagnostic program is the primary troubleshooting tool—it tests most components using automatic and interactive tests. The table on page 3-4 shows how you can use the different diagnostic tools to isolate the cause.

  - The troubleshooting suggestions on page 3-5 include general suggestions for repairing units with certain failure symptoms.

Swapping easily replaced modules with known-good modules is an ideal way to isolate the cause down to the module level. It is rare for more than one module to be responsible for one failure symptom. Therefore, replacement of more than one module for a particular symptom should be the exception rather than the normal expectation.

After replacing a module, it is normal for the unit to be in a confused state and lock up when power is applied. If this occurs, press the system-off button to restart the computer in a known state.

Verifying the Repair

Before returning the repaired unit to the customer, verify the repair by running the following tests:

- **Basic Diagnostic Test.** Run the basic test of the OmniBook diagnostic program (page 3-11).

  –and–

- **Function Tests.** Run tests that check the repaired function, such as in the OmniBook diagnostic program (page 3-11).

  –and–

- **Failed Tests.** Run any other tests that failed during troubleshooting.

Suggestions for Troubleshooting

Table 3-1. Scope of Diagnostic Tools

Function	OmniBook Diagnostics	Power-On Self-Test	Sycard PCCtest 450	DMI/TopTools‡ (if installed)	BIOS Setup
Bootup		Tests		Describes (SafeTools)	Configures
Processor	Tests (System menu)	Tests		Describes (AssetTools)	
Memory	Tests (Memory menu)	Tests		Describes (AssetTools)	Describes
Batteries				Describes (AssetTools)	
Display	Tests (Video, Mem,User menus)			Describes (AssetTools)	
Hard disk	Tests (IDE menu)	Tests		Describes (AssetTools)	Configures
Floppy drive	Tests (FDD menu)	Tests		Describes (AssetTools)	Describes
Keyboard	Tests (KBD menu)	Tests		Describes (AssetTools)	
Pointer	Tests (Misc menu)			Describes (AssetTools)	Configures
Audio	Tests (System, Misc menus)				Configures
Serial	Tests* (Misc menu)			Describes (AssetTools)	Configures
Parallel	Tests* (Misc menu)			Describes (AssetTools)	Configures
Infrared	Tests† (Misc menu)			Describes (AssetTools)	Configures
PS/2 port	Tests† (KBD, Misc menus)				
USB	Tests† (System menu)			Describes (AssetTools)	
Docking port	Tests (using docks)				
PCMCIA			Tests	Describes (AssetTools)	
AC adapter				Status (AssetTools)	
Docking products	Tests ports and internal bus			Status (AssetTools)	Configures
CD-ROM drive	Tests (IDE menu)	Tests (with boot CD)		Describes (AssetTools)	Configures
Other plug-in modules				Describes (AssetTools)	

* The diagnostic test is more thorough if you use a loopback connector.
† Use an appropriate external device to exercise the port. See the help text for the tests in the menu.
‡ For TopTools 2.6. TopTools 2.0 capabilities (on the OmniBook 3000) are less in some areas.

If you can't isolate the cause of a problem using the diagnostic tools, you can use the suggestions in the following table to help find the problem.

Table 3-2. Troubleshooting Suggestions

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
To help determine likely causes, check to see what replaceable modules are involved in the system function and what roles they play. See the table on page 1-15.			
Startup			
Does not boot on ac or battery	Check the power source. Push system-off button. Unplug the ac adapter and remove all batteries, then reconnect power. Remove any RAM boards and try again. Reinsert and try again.	AC adapter. RAM board. CPU module. Motherboard. LCD module. Hard drive.	Check ac adapter. Remove any RAM boards and retry. If status panel does not turn on, reprogram BIOS, replace motherboard. If status panel turns on but display remains off, try external monitor. If monitor shows successful boot, replace LCD module. If monitor shows activity but BIOS does not complete, replace CPU module. If monitor is blank, replace CPU module, replace motherboard. If status panel and display turn on, BIOS completes, but OS does not start from hard disk or from floppy drive, replace CPU module, then motherboard. If OS starts from floppy drive, reload hard drive, replace hard drive.
Does not boot on battery (boots on ac)	Check battery level on status panel and battery LEDs. Check battery contacts. If available, try another battery.	Battery or contacts. Motherboard.	
Does not boot from floppy drive	Check floppy drive contacts. Try using alternate connection (with or without floppy cable). Check boot order in BIOS Setup. For OmniBook 2100/3100, check that floppy boot is enabled in BIOS Setup.	Floppy drive or contacts. Floppy cable. Motherboard.	
Error message such as "Invalid system disk" or "Auto IDE error."	Check for a disk in floppy drive. Remove and reinsert hard drive. Check boot order in BIOS Setup.	Hard drive contacts. Hard drive.	If unit boots from floppy drive, check for corrupt files on hard drive, reload hard drive, replace hard drive.
Sluggish startup or shutdown.	Run ScanDisk and Disk Defragmenter to check and optimize the hard drive. Delete temporary and unneeded files.		Use same suggestions shown at left.

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
Password has been forgotten	Verify proper ownership, then follow the removal procedure with the owner and log the appropriate data—see page 5-1.	An OmniBook 3000 may have to be shipped to an HP service center.	The user must call Technical Support and provide proof of ownership. Password removal is restricted to certain sites. See page 5-1.
Power/Battery			
Short battery operating time	Turn down display brightness. Check power management settings in BIOS Setup. Try the default settings. Inform user that certain applications can cause excess power usage. (User can get power monitor from www.intel.com and monitor CPU load.) Heavy modem use can affect battery operating time.	Battery. Motherboard.	Battery capacity often decreases after a year or more.
Does not run on battery, empty battery indicator	Check battery contacts. If available, try another battery.	Battery or contacts. Motherboard.	
Battery does not charge	Check the power source. Check battery contacts. If available, try another battery and ac adapter. Check for high ambient temperature and blocked air vents.	Battery or contacts. AC adapter. Motherboard. Fan.	Check ac adapter. Check fan.
Secondary battery does not work, main battery works	Check secondary-battery contacts. Secondary battery does not charge until main battery is fully charged.	Secondary battery or contacts. Motherboard.	
Battery indicator is inaccurate	Completely charge and discharge the battery 2 to 4 cycles in the unit.	Motherboard.	Try cycling the battery charge.
Display			
Dark display, no light	Adjust display brightness. Press Fn+F5 several times. Try external monitor.	LCD module (backlight). LCD cables or connections. Inverter PCA. LVDS PCA.	If an external monitor displays no image, replace the motherboard instead.
White display	Adjust display brightness.	LCD module. Inverter PCA. LVDS PCA.	
Erratic display		LCD cables or connections. LCD module.	
Bright or missing pixels or lines	See quality statement on page 5-2.	LCD module. LCD cables or connections.	See quality statement on page 5-2.

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
Hard disk			
Hard disk never spins	Check the power source. Remove and reinsert the hard drive. Check the contacts.	Hard drive or contacts. Motherboard. Hard drive case (flex cable).	If the drive case is damaged, it can prevent proper operation. Check the flex cable for wear.
Hard disk makes clunking or scratching noise	Back up the drive immediately. Was the computer or drive dropped?	Hard drive.	Check the computer and drive for evidence of customer abuse.
Hard disk makes buzzing or whining noise	Back up the drive immediately. Check for alternate noise sources, such as a PCMCIA drive or fan. If a keystroke causes the sound to change, it may be power supply noise.	Depends on the source of the noise.	
Files are corrupted	Run a virus scan program. Check the disk surface by running ScanDisk (Windows 95) or Disk Administrator (Windows NT). Or boot to DOS and run CHKDSK to look for problems, run CHKDSK /f to fix. Use Recovery CD to restore original factory software.		Use same suggestions shown at left.
Drive capacity is less than normal	Check the disk surface by running ScanDisk (Windows 95) or Disk Administrator (Windows NT). Check partitions using FDISK (Windows 95) or Disk Administrator (Windows NT).	Hard drive.	Use same suggestions shown at left. Recreate the Hibernate partition, then partition and format the disk.
Floppy drive			
General problems	Check floppy drive contacts. Try using alternate connection (with or without floppy cable). Check settings in BIOS Setup.	Floppy drive or contacts. Floppy cable. Motherboard.	
Keyboard			
Some or all keys do not work properly		Keyboard. Motherboard. Keyboard BIOS IC.	
PS/2 keyboard and mouse with Y-adapter do not work	For an OmniBook 2100/3100, check devices separately. For an OmniBook 3000, this configuration is not supported. (Maybe use a port replicator or a serial mouse.)	Y-adapter. PS/2 device. Motherboard.	

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
Touch pad			
General problems	Check settings in Control Panel.	Touch-pad PCA. Top case. Motherboard.	
Special touch pad driver features not working	In Mouse Properties, select the TouchPad mouse type. Run Setup.exe from the touch-pad subdirectory under \Omnibook\Drivers.	Touch-pad PCA. Top case. Motherboard.	
Click button doesn't work		Top case. Motherboard.	
Audio			
Sound does not play	Check settings in BIOS Setup. Increase sound volume (Fn+UP and software controls). Check whether mute is active (Fn+F7 and software controls). Check for sound resource conflicts.	Audio PCA. Top case (speakers). Motherboard.	Check operation using headphones or external speakers.
Sound does not record	Check settings in BIOS Setup. Check software controls for microphone—it should not be muted in recording panel. **Note:** The microphone should normally be muted in the master output panel.	Top case (microphone). Audio PCA. Motherboard.	Check operation using external microphone.
Serial/Parallel			
General problems	Check settings in BIOS Setup. Check settings in Control Panel (and in Windows NT Diagnostics).	Motherboard.	
Infrared			
General problems	Infrared communication is not supported in Windows NT 4.0. Infrared is disabled and no drivers installed as shipped. (Drivers are included.) Check settings in BIOS Setup. Standard IrDA and fast-IrDA are incompatible (they use different drivers). For fast-IrDA, check for DMA conflict with ECP parallel port.	IR PCA. Motherboard. Icon PCA.	

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
USB			
General problems	USB is not supported in Windows NT 4.0.	USB PCA. Motherboard.	Check for bent pins and misaligned connectors for the USB PCA. If USB works on a docking product, replace the USB PCA.
PCMCIA			
Setup problems	Make sure Card Executive is installed for Windows NT. If the card requires an IRQ, check that there is one available. Check for conflicts or refresh the device list in Device Manager (Windows 95) or Administrative Tools or Control Panel System (Windows NT). Reboot the computer. Try the card in the other slot or in another computer. Check the OmniBook website for installation instructions (page vi). Download current drivers from the card manufacturer's website.	Motherboard.	
AC adapter			
Does not power the OmniBook.	Try another ac adapter, if available.	AC adapter. Motherboard.	The ac adapter is not repairable—it must be replaced.
Miscellaneous			
Clock loses time	Plug in ac adapter for 24 hours to charge backup battery.	Motherboard.	Charge backup battery.
Computer gets hot	It is normal for the computer to get hot. Make sure the air vents are clear. DOS games and other programs that drive CPU usage toward 100% can contribute.	Fan. Thermal connections. Heatsink damage.	Test the fan. Check for proper contact between CPU and heatsink, and between fan and heatsink.

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
Computer pauses or runs sluggishly	May be normal Windows behavior (background processing can affect response time). If the hard disk has spun down to conserve power, it can take several seconds to spin up. You can hear this. You can run BIOS Setup and change the hard disk time-out to match the Suspend time-out. Certain background operations (such as HP COE virus scans) can affect performance while they're running. Some file browsers may be unresponsive while they're processing a graphic image or waiting for broken network connections to time out. Run BIOS Setup and try turning off smart CPU mode.	CPU module. Motherboard.	If computer slows after a period of continuous activity, check thermal connections and parts.
Accessories			
Docking product I/O problems	Check that ac power is connected. Check settings in BIOS Setup. Try using the corresponding OmniBook port.	Docking product. Motherboard.	Test the corresponding OmniBook ports while undocked. The port replicator and mini dock are not repairable—they must be exchanged. The docking system is repairable—see its service manual.
Can not boot from CD in CD-ROM drive	Check that the CD is bootable. Check ESC key timing during boot, or check boot order in BIOS Setup.	CD-ROM drive.	The CD-ROM drive is not repairable—it must be exchanged.
General plug-in module problems	Check module contacts. Push system-off button.	Plug-in module or contacts. Motherboard.	Plug-in modules are not repairable—they must be exchanged.

Diagnostic Tools

This section describes the following diagnostic tools you can use for troubleshooting and repairing the OmniBook:

- OmniBook hardware diagnostic program (page 3-11).
- Power-on self-test (page 3-16).
- Sycard PCCtest 450 PC Card (page 3-16).
- Desktop Management Interface (page 3-20).
- BIOS Setup utility (page 3-22).

OmniBook Diagnostic Program

The OmniBook hardware diagnostic program provides two levels of testing:

- User-level testing using the basic hardware test.
- Advanced testing using the individual hardware tests.
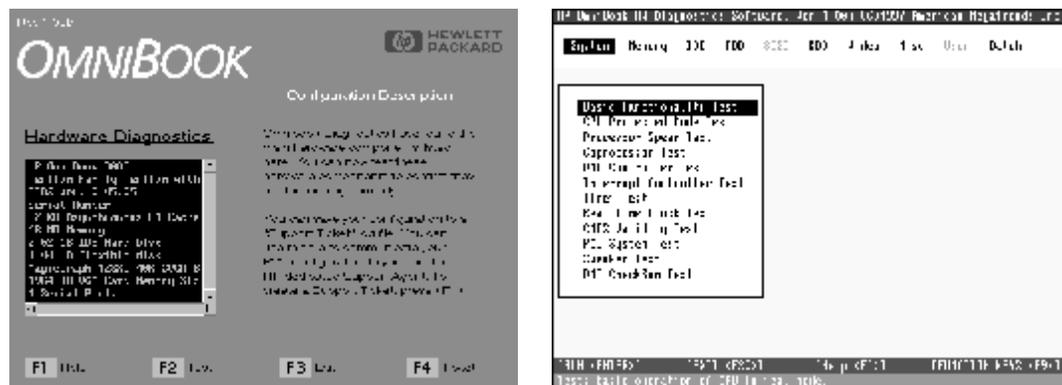
Figure 3-2. OmniBook Diagnostic Screens — Basic and Advanced

The tests are designed to run after the system reboots. This ensures that the computer will be in a predictable state, so the diagnostic program can properly test the hardware components. The tests are non-destructive and are intended to preserve the state of the computer. The OmniBook reboots when you exit the program so drivers can be loaded.

Creating a Diagnostic Disk

After inserting a formatted floppy disk in the floppy drive, do one of the following to create a diagnostic floppy disk:

- On an OmniBook with a factory software installation, run **diaginst** from the \Dmi\Hpdiags directory on the hard disk.
  –or–
  For an OmniBook 2100/3100 with TopTools installed, use the DiagTools page to create the disk.

- On any computer with a CD-ROM drive, run **diaginst** from the \Omnibook\Dmi\Hpdiags directory on the Recovery CD for the computer model you are repairing (OmniBook 2100/3100 or OmniBook 3000).

- On any computer with World Wide Web access, download the diagnostic software package from the OmniBook website (see page vi), run this file to unpack the files, then run **diaginst** to create the diagnostic disk.

Running the Diagnostic Test

1. Insert the diagnostic disk in the floppy drive.

2. Reboot the OmniBook.

3. Go through the first several screens.

4. When the hardware detection finishes, check the list of detected hardware. The following information and devices should be listed if applicable:

Product name	Main memory	Graphics adapter
Processor type	IDE drives	Serial ports
BIOS version	Floppy drives	Parallel port
Serial number	Keyboard	Audio device
Cache memory		

Note

If a device is not detected or fails its test below, it may be configured incorrectly in the BIOS Setup utility (page 3-22). You can confirm the problem by running BIOS Setup and restoring the default settings.

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5. **Run the basic test.** Press F2 to start the basic hardware test.

6. If you intend to exit without running advanced tests, press F4 to save system and test information in the Support Ticket log file, HPSUPPT.TXT. Then remove the diagnostic disk and press F3 to exit.

7. **Run the advanced tests.** Press F2 to open the advanced test screen.

8. Select and run the appropriate tests. Tests are not listed if no such hardware is detected. Press the following keys to run tests:

ENTER	Runs the highlighted test.
F5 or SPACE	Marks or unmarks the highlighted test.
F6	Marks or unmarks all tests in the current menu.
F7	Marks or unmarks all tests in all menus.
F10	Runs all marked tests.

If any test fails, the error is logged (error code and description) and displayed temporarily (error code). If several errors occur, look for patterns that might indicate a common cause. See the table on page 3-13 for repair suggestions. Consider these suggestions in combination with other troubleshooting information.

9. When you are finished running tests, press ESC to exit the advanced tests.

10. Press F4 to save system and test information in the Support Ticket log file, HPSUPPT.TXT.

11. **Exit.** Press F3 to exit and reboot.

12. **Optional: Check the log.** On any computer, open the HPSUPPT.TXT log file on the diagnostic disk using Notepad or other text editor. It contains a hardware summary and a list of all test results and errors.

Note that the serial and parallel port tests are more thorough if you connect a loopback connector to the port before running the test for that port. See the wiring diagrams below.
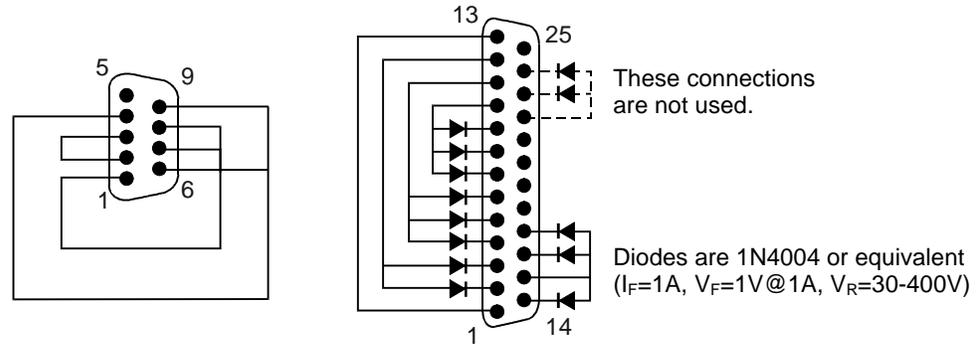

Figure 3-3. Serial and Parallel Loopback Connectors

Interpreting the Results

- The following table lists test groups, error codes, and suggestions for followup actions. Consider these suggestions in combination with other troubleshooting information.

Table 3-3. OmniBook Diagnostic Error Codes

Code	Suggestions
System Tests	
0001h - 0008h	Reseat or replace the CPU module.
0009h	Replace the motherboard.
0010h - 002Fh	Reseat or replace the CPU module.
0030h - 0040h	Replace the motherboard.
0041h	Unrecognized interrupts. Run BIOS Setup and check IRQ assignments for all devices.
0050h - 0070h	Replace the motherboard.
0071h	Bad CMOS checksum. Reset the system, then run BIOS Setup and check settings. Replace motherboard.
0072h	Configuration mismatch in CMOS. Reset the system, then run BIOS Setup and check settings. Replace motherboard.
0073h	Bad CMOS RAM size. Reset the system, then run BIOS Setup and check settings. Replace motherboard.
0074h	Bad CMOS time. Reset the system, then run BIOS Setup and check settings. Replace motherboard.
0075h - 0076h	Reset the system. Replace the motherboard.
0077h	Replace the motherboard.
0078h	Bad CMOS checksum. Reset the system, then run BIOS Setup and check settings. Replace motherboard.

Code	Suggestions
0079h	Replace the motherboard.
0083h - 0086h	Replace the system BIOS IC. Replace the motherboard.
0087h	Replace the motherboard.
0088h	Replace the system BIOS IC.
0090h - 009Eh	Replace the system BIOS IC. Replace the motherboard.
009Fh	Insufficient DOS memory. Load fewer device drivers.
00A0h	No repair. (ESCD not supported.)
00A1h	Replace the system BIOS IC. Replace the motherboard.
00A2h - 00A3h	No repair. (ESCD not supported.)
00A4h	Replace the system BIOS IC.
00A5h - 00A6h	No repair. (ESCD not supported.)
00A7h	Replace the system BIOS IC. Replace the motherboard.
00FFh	Rerun the test. (Possible diagnostic programming error.)
Memory Tests	
The addresses below are absolute (32-bit) address. These addresses are not in the segment:offset format.	
0100h - 0101h	Replace the motherboard.
0102h	Replace the system BIOS IC.

0120h - 0150h	For 00FFFFFFh (OmniBook 3000) or 01FFFFFFh (OmniBook 2100/3100) and below, replace the motherboard. Above that value, replace the corresponding RAM board (each 01000000h represents 16MB).
0160h	Address bus short. Remove any RAM boards and rerun the test. Check the CPU module for shorts. Replace the motherboard.
0170h - 0172h	Replace the motherboard.
0180h	For 00FFFFFFh (OmniBook 3000) or 01FFFFFFh (OmniBook 2100/3100) and below, replace the motherboard. Above that value, replace the corresponding RAM board (each 01000000h represents 16MB).
0181h	Replace the CPU module.
0182h	Make sure that another application is not using all extended memory allocated by HIMEM.SYS.
0183h	No extended memory. Check installation of RAM boards. Replace the motherboard.
0190h - 01A0h	For 00FFFFFFh (OmniBook 3000) or 01FFFFFFh (OmniBook 2100/3100) and below, replace the motherboard. Above that value, replace the corresponding RAM board (each 01000000h represents 16MB).
Hard Disk Tests	
0201h	Replace the hard disk. Replace the motherboard.
0202h - 0204h	Rerun the test. If error persists, replace the hard disk.
0205h	Replace the motherboard.
0207h	Run BIOS Setup and check the hard disk type. Check internal and external hard disk connectors and motherboard connector. Replace the hard disk.
0208h - 0209h	Transient DMA error. Rerun the test.
020Ah - 0211h	Rerun the test. Run SCANDISK or equivalent.
0220h	Replace the motherboard.
0240h	Replace the hard disk. Replace the motherboard.
0280h	Check internal and external hard disk connectors and motherboard connector. Replace the hard disk.
0281h	Replace the hard disk.
02AAh	Check internal and external hard disk connectors and motherboard connector. Replace the hard disk.
02CCh	Run BIOS Setup and check the hard disk type. Replace the hard disk or the motherboard.
02EEh	For the performance test, run BIOS Setup and temporarily select a drive type that has more than 200 cylinders.
02F1h	Recreate the Hibernate partition, then run FDISK to partition the hard disk.
02F2h	Run FDISK to make one partition active. If necessary, recreate the Hibernate partition, then run FDISK to partition the hard disk.

02F3h	Run FDISK to check for overlapping partitions. If necessary, recreate the Hibernate partition, then run FDISK to partition the hard disk.
02F4h	Check for the presence of a boot sector virus. If necessary, recreate the Hibernate partition, then run FDISK to partition the hard disk.
02F5h	Reformat the partition.
02F6h	Recreate the Hibernate partition, then run FDISK to partition the hard disk.
02FFh	Check internal and external hard disk connectors and motherboard connector. Replace the hard disk. Replace the motherboard.
Floppy Disk Tests	
0301h	Replace the floppy drive. Replace the motherboard.
0302h	Run BIOS Setup and check the floppy drive type. Replace the floppy drive.
0303h	Insert a floppy disk without write protection.
0304h	Run BIOS Setup and check the floppy drive type. Replace the floppy drive.
0305h	Replace the motherboard.
0307h	Run BIOS Setup and check the floppy drive type. Check the connectors on the floppy drive and motherboard. Replace the floppy drive.
0308h - 0309h	Transient DMA error. Rerun the test.
030Ah - 0310h	Rerun the test with a good floppy disk. Replace the floppy drive.
0311h	Rerun the test with another floppy disk.
0321h - 0322h	Replace the floppy drive.
0340h	Replace the motherboard.
0380h - 03AAh	Make sure the floppy disk is fully inserted. Check the connectors on the floppy drive and motherboard. Replace the floppy drive.
03CCh	Run BIOS Setup and check the floppy drive type. Rerun the test with another floppy disk. Replace the floppy drive. Replace the motherboard.
03EEh - 03FFh	Check the connectors on the floppy drive and motherboard. Rerun the test with another floppy disk. Replace the floppy drive. Replace the motherboard.
Keyboard Tests	
0400h - 0401h	Replace the motherboard.
0410h - 0414h	Check the keyboard flex cable connection. Replace the keyboard. Replace the motherboard.
0415h	Check icon PCA connections. Replace the icon PCA. Replace the motherboard.
0416h - 0418h	Replace the keyboard. Replace the motherboard.
Serial Port Tests	
0601h	For the external loopback test, make sure the loopback connector is installed and constructed properly. For the external or internal loopback test, replace the motherboard.
0602h	Replace the motherboard.

Code	Action
0603h	For the external loopback test, make sure the loopback connector is installed and constructed properly. For the external or internal loopback test, replace the motherboard.
0604h - 0605h	Replace the motherboard.
0606h	For the external loopback test, make sure the loopback connector is installed and constructed properly. For the external or internal loopback test, replace the motherboard.
0607h	Make sure the loopback connector is installed and constructed properly. Replace the motherboard.
0608h - 0611h	Replace the motherboard.
Parallel Port Tests	
0701h	For the external loopback test, make sure the loopback connector is installed and constructed properly. For the external or internal loopback test, replace the motherboard.
0702h	Replace the motherboard.
0703h	Run BIOS Setup and disable ECP for the parallel port, then rerun the test. Replace the motherboard.
0704h - 0706h	Replace the motherboard.
0707h	Connect the loopback connector.
0708h	Replace the motherboard.
Audio Tests	
0801h - 0806h	If this error also occurs for an external headphone, replace the audio PCA, then motherboard. Otherwise, check the top case cable connection. Replace the top case.
0810h	If this error also occurs for an external headphone, replace the motherboard. Otherwise, check the top case cable connection. Replace the top case.
0812h	If this error also occurs for an external headphone, replace the audio PCA, then motherboard. Otherwise, check the top case cable connection. Replace the top case.
8000h & above	(See Microphone Tests near end of table.)
Video Tests	
0900h - 0901h	Replace the motherboard.
0903h - 0906h	Replace the LVDS PCA. Replace the motherboard.
0907h - 0908h	Replace the motherboard.
0909h - 090Ah	Replace the LVDS PCA. Replace the motherboard.
090Ch - 090Fh	Replace the motherboard.
8000h	(See LCD Test near end of table.)
CD-ROM Tests	
0A00h	Insert a CD in the drive.
0A01h	Rerun the test. Replace the CD-ROM drive.
0A02h	No repair. (Automatic close not supported.)
0A03h	Insert a different CD in the drive. Check the connectors on the CD-ROM drive and motherboard. Replace the CD-ROM drive.
0A04h	Insert a different CD in the drive. Check the connectors on the CD-ROM drive and motherboard. Replace the CD-ROM drive.
0A05h	Insert a computer CD in the drive.
0A06h	Insert an audio CD in the drive.
USB Tests	
1301h	Reprogram the system BIOS IC. Replace the system BIOS IC. Replace the motherboard.
1302h - 1306h	Replace the motherboard.
8000h & above	(See USB Port Test and USB Dock Bottom Port Test near end of table.)
Fan Test (OmniBook 3000 only)	
8000h & 9001h	If the fan is already running, you will not hear a change. Check the fan connection. Replace the fan. Replace the motherboard.
9002h	Replace the motherboard.
LCD Test	
8000h	If the test fails with an external monitor (must support VESA mode 105h), replace the motherboard. Otherwise: - If the shaded-band test fails, check the display cable connections in the bottom case, replace the LVDS PCA, replace the LCD flex cable, replace the motherboard. - If only a solid-color test fails, see chapter 5 for cosmetic guidelines, replace the LCD module.
Microphone/Line-In Tests	
8000h & 9003h	If the error occurs for built-in and external microphones, replace the audio PCA, replace the motherboard. If it occurs for only the built-in microphone, check the top case cable connection, replace the icon PCA.
9004h	Replace the audio PCA. Replace the motherboard.
Suspend/Resume Test	
8000h & 9005h	Run BIOS Setup and restore default settings. Reprogram the system BIOS IC. Replace the system BIOS IC. Replace the motherboard.
USB Port Test	
8000h	Make sure a high-speed USB device is connected. Replace the USB PCA. Replace the motherboard.
9006h	Make sure a USB device is connected to the port you are testing. Select the correct speed for the device. Replace the USB PCA, replace the motherboard (or dock component, if applicable).
OmniBook USB Dock Bottom Port Test (OB3000 only)	
8000h	Make sure a high-speed USB device is connected to the bottom USB port on the port replicator. Replace the port replicator. Replace the motherboard.
OmniBook IR Tests (FIR enabled, undocked)	
9002h & 9007h - 9008h	Rerun the test. Replace the motherboard.

| 9009h | Do not run this test in Windows. For the one-unit test, replace the motherboard. For the two-unit test, make sure the IR ports on the reflector and test computers are lined up, replace the IR PCA, replace the motherboard. | 900Ah | Rerun the test. For the two-unit test, make sure the IR ports on the reflector and test computers are lined up. Replace the IR PCA, replace the motherboard. |
| | | 900Ch | Rerun the test. Make sure the IR ports on the reflector and test computers are lined up. Restart the reflector unit. Replace the IR PCA, replace the motherboard. |

Power-On Self-Test

> **Note**
> If Quiet Boot is enabled in BIOS Setup, press ESC during boot to see POST messages.

The POST (Power-On Self-Test) is a series of initialization routines and diagnostic tests that the system BIOS runs when the computer boots. The system BIOS will not boot the operating system if system memory, the CPU, DMA, or the interrupt controller fails the POST diagnostic tests. POST progress is indicated by a sequence of codes. If possible, error messages are displayed.

You should not interpret the failure of one or more POST tests as a hardware, software, or firmware failure. First, confirm the failure with a "clean" boot:

- Remove all accessories, including RAM boards, floppy drive, port replicator, PC Cards, printer, external monitor, pointing device, and keyboard.

- Provide "clean" ac power—no auto adapter or unusual ac adapter configuration.

- Press the system-off button to start from a known state.

If the computer fails to boot with a clean boot, it requires repair. If an error message is displayed, *confirm the problem using other diagnostic tools.* Not all POST messages indicate a hardware, software, or firmware failure—some messages are informational messages.

If the BIOS detects a terminal error condition, it halts POST after issuing a terminal error beep code—up to four groups of 1 to 4 short beeps. The beep code indicates the POST routine in which the terminal error occurred. The BIOS also issues a beep code (one long tone followed by two short tones) during POST if the video configuration fails (no card installed or faulty) or if an external ROM module does not properly checksum to zero.

Table 3-4. POST Terminal-Error Beep Codes

Beep Codes	POST Description
1	One short beep before boot
1-2	Search for option ROMs. One long, two short beeps on checksum failure
1-2-2-3	BIOS ROM checksum
1-3-1-1	Test DRAM refresh
1-3-1-3	Test 8742 Keyboard Controller
1-3-4-1	RAM failure on address line xxxx
1-3-4-3	RAM failure on data bits xxxx of low byte of memory bus
1-4-1-1	RAM failure on data bits xxxx of high byte of memory bus
2-1-2-3	Check ROM copyright notice
2-2-3-1	Test for unexpected interrupts

The following table lists POST messages and explanations for reported problems. If the system fails after you make changes in BIOS Setup, reset the computer, enter BIOS Setup, and install the defaults or correct the error.

Table 3-5. POST Messages

Message	Description
0200 Failure Fixed Disk	Fixed disk is not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup. Find out if the fixed-disk type is correctly identified.
0210 Stuck key	Stuck key on keyboard.
0211 Keyboard error	Keyboard not working.
0212 Keyboard Controller Failed	Keyboard controller failed test. May require replacing keyboard controller.
0213 Keyboard locked - Unlock key switch	Unlock the system to proceed.
0220 Monitor type does not match CMOS - Run SETUP	Monitor type not correctly identified in Setup
0230 Shadow Ram Failed at offset: *nnnn*	Shadow RAM failed at offset nnnn of the 64k block at which the error was detected.
0231 System RAM Failed at offset: *nnnn*	System RAM failed at offset nnnn of in the 64k block at which the error was detected.
0232 Extended RAM Failed at offset: *nnnn*	Extended memory not working or not configured properly at offset nnnn.
0250 System battery is dead - Replace and run SETUP	The CMOS clock battery indicator shows the battery is dead. Connect the ac adapter for at least 24 hours, replace the motherboard.
0251 System CMOS checksum bad - Default configuration used	System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default Setup Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery. Connect the ac adapter for at least 24 hours, replace the motherboard.
0260 System timer error	The timer test failed. Requires repair of system board.
0270 Real time clock error	Real-time clock fails BIOS test. May require board repair.
0280 Previous boot incomplete - Default configuration used	Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. This error is cleared the next time the system is booted.
0281 Memory Size found by POST differed from CMOS	Memory size found by POST differed from CMOS.
02B0 Diskette drive A error **02B1 Diskette drive B error**	Drive A: or B: is present but fails the BIOS POST diskette tests. Check to see that the drive is defined with the proper diskette type in Setup and that the diskette drive is attached correctly.
02B2 Incorrect Drive A type - run SETUP	Type of floppy drive A: not correctly identified in Setup.
02B3 Incorrect Drive B type - run SETUP	Type of floppy drive B: not correctly identified in Setup.
02D0 System cache error - Cache disabled	RAM cache failed and BIOS disabled the cache. On older boards, check the cache jumpers. You may have to replace the cache. See your dealer. A disabled cache slows system performance considerably.
02F0: CPU ID:	CPU socket number for Multi-Processor error.
02F4: EISA CMOS not writeable	ServerBIOS2 test error: Cannot write to EISA CMOS.
02F5: DMA Test Failed	ServerBIOS2 test error: Cannot write to extended DMA (Direct Memory Access) registers.
02F6: Software NMI Failed	ServerBIOS2 test error: Cannot generate software NMI (Non-Maskable Interrupt).

Message	Description
02F7: Fail-Safe Timer NMI Failed	ServerBIOS2 test error: Fail-Safe Timer takes too long.
device **Address Conflict**	Address conflict for specified device.
Allocation Error for: *device*	Run ISA or EISA Configuration Utility to resolve resource conflict for the specified device.
CD ROM Drive	CD ROM Drive identified.
Entering SETUP ...	Starting Setup program
Failing Bits: *nnnn*	The hex number nnnn is a map of the bits at the RAM address which failed the memory test. Each 1 (one) in the map indicates a failed bit. See errors 230, 231, or 232 above for offset address of the failure in System, Extended, or Shadow memory.
Fixed Disk *n*	Fixed disk n (0-3) identified.
Invalid System Configuration Data	Problem with NVRAM (CMOS) data.
I/O device IRQ conflict	I/O device IRQ conflict error.
PS/2 Mouse Boot Summary Screen:	PS/2 Mouse installed.
nnnn **kB Extended RAM Passed**	Where nnnn is the amount of RAM in kilobytes successfully tested.
nnnn **Cache SRAM Passed**	Where nnnn is the amount of system cache in kilobytes successfully tested.
nnnn **kB Shadow RAM Passed**	Where nnnn is the amount of shadow RAM in kilobytes successfully tested.
nnnn **kB System RAM Passed**	Where nnnn is the amount of system RAM in kilobytes successfully tested.
Operating system not found	Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.
Parity Check 1 *nnnn*	Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. Parity is a method for checking errors in binary data. A parity error indicates that some data has been corrupted.
Parity Check 2 *nnnn*	Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????.
Press <F1> to resume, <F2> to Setup, <F3> for previous	Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter Setup and change the settings. Press <F3> to display the previous screen (usually an initialization error of an Option ROM, such as an add-on card). Write down and follow the information shown on the screen.
Press <F2> to enter Setup	Optional message displayed during POST.
PS/2 Mouse:	PS/2 mouse identified.
System BIOS shadowed	System BIOS copied to shadow RAM.
UMB upper limit segment address: *nnnn*	Displays the address nnnn of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS which can be reclaimed by a virtual memory manager.
Video BIOS shadowed	Video BIOS copied to shadow RAM.

Sycard PCCtest 450 CardBus Card (Optional)

The PCCtest 450 CardBus Card (version 1.05 required for the OmniBook 2100/3100) available from Sycard Technology is an optional diagnostic tool. It is the only recommended tool that tests the functionality of the PCMCIA slots. It is a Type II CardBus Card that works with compatible test software to exercise PCMCIA functions. (See the Sycard Technology website, http://www.sycard.com.) The PCCtest 450 product contains these components:

- PCCtest 450 CardBus Card—version 1.05 required for the OmniBook 2100/3100.

- PCCtest 450 software disk. (Software updates are available at the Sycard Technology website, http://www.sycard.com.)

- Configuration headers (PC Card/16-bit and CardBus/32-bit), which attach to the card.

You will also need:

- CardBus extender card to avoid wear on the Sycard PCMCIA connector. The Sycard PCCextend 70 extender card is an example.

The Sycard PCCtest 450 provides the following tests. See the Sycard documentation for details about running the tests.

- PC Card (16-bit) test, PCT450.
  Requires the PC Card configuration header.
  OmniBook 2100/3100: Run the test for the Texas Instruments PCI1220 socket controller (command line switch **-b66**).
  OmniBook 3000: Run the test for the Texas Instruments PCI1131 socket controller (command line switch **-b63**).

- CardBus (32-bit) test, TESTCB.
  This test currently does not work on the OmniBook 3000.
  OmniBook 2100/3100: Run the test for the Texas Instruments PCI1220 socket controller (command line switches **-b63** and **-jsd000**).
  OmniBook 3000: Run the test for the Texas Instruments PCI1131 socket controller (command line switch **-b61**).

Desktop Management Interface (DMI)

The Desktop Management Interface (DMI) is basically a set of rules for accessing information about a personal computer. Using DMI, an application program can determine, for example, which hardware and software components are present in a personal computer, the operating system that is being used, and the number of accessory board slots that are available. Using the DMI interface, a local or remote application program can check what hardware and software components are installed on your computer, and may be able to tell how well they are working or whether any needs replacing. All this information is stored in a special Management Information Format (MIF) file, installed on each personal computer as part of the DMI package.

Installing the DMI Package

The DMI package is included with the OmniBook, but it must be properly installed before it can be used. The following steps explain how.

To install the DMI preloaded on the hard disk:

1. Start Windows, if it is not already running.

2. Click Start, Programs, HP DMI, Setup.

To install the DMI from floppy disks or from the Recovery CD:

1. For floppy disks, copy the DMI software from the \omnibook\drivers*os_version*\dmi directory of either the hard disk or Recovery CD to two or more floppy disks (for example, copy the contents of the \disk1 subdirectory to disk #1).

2. Start Windows, if it is not already running.

3. Insert disk #1 into the floppy drive, or insert the Recovery CD into the CD-ROM drive.

4. Select and run the SETUP program from floppy disk #1 or from the \omnibook\drivers*os_version*\dmi\disk1 directory on the CD.

Uninstalling the DMI Package

1. Click Start, Programs, HP DMI, Uninstall DMI.

2. Reboot the PC.

Using the DMI Interface

For a complete explanation of how to fully take advantage of DMI, the following documentation is provided with the OmniBook:

- A README.TXT file.

- A Windows online help file describing Hewlett-Packard's implementation of DMI (group and attribute definitions). Since not all Hewlett-Packard enhanced features are supported on all models, this document also describes any restrictions that apply.

Description of DMI

The Desktop Management Interface (DMI) is the result of the efforts of the Desktop Management Task Force (DMTF). This task force was founded in 1992 by a group of leading computer manufacturers, including Hewlett-Packard, to define a standard method of managing the physical and logical components of personal computers.

Hewlett-Packard has developed a number of extensions to DMI to allow the enhanced features of HP OmniBook computer to be managed with DMI, including features such as passwords and tattooing (identifying a computer using a unique string of characters).

For full details of the structure of the MIF file, including an explanation of the meaning of the fields of groups and attributes and how to write an application program that accesses this information, you can access the DMTF FTP server ftp.dmtf.org or the DMTF web pages at the http://www.dmtf.org.

Contents of the DMI Package

The DMI software and associated documentation is supplied either preinstalled on the OmniBook's hard disk drive or on two floppy disks. The contents of the package are the same in both cases.

Since the information accessed by the DMI software is specific to a particular computer, it must be installed on each computer separately. The DMI package included with the OmniBook can be used only with the OmniBook.

The following software is supplied with the DMI package:

- A Microsoft Windows utility, SETUP.EXE, to install and initialize the DMI software.

- A Windows utility, HP TopTools. After DMI is installed, this utility can be used to display information about the computer through the DMI.

- A Management Information Format (MIF) file. This file contains information about everything on the computer that can be controlled using DMI facilities, and is initialized during installation.

- A component code, identifying the version of MIF file to use for specific models of HP OmniBook computers.

- Windows-compatible DMTF Service Layer software, which controls access to the DMI.

- A client agent. The HP Remote DMI Agent is a DMI application and also a network server-side stream-based application. The Remote Agent is listening for Remote Application connection requests. If the main window of the Remote Agent is hidden, then no icon will appear on the screen when it is running.

The following illustration shows a representation of several components of the DMI package.
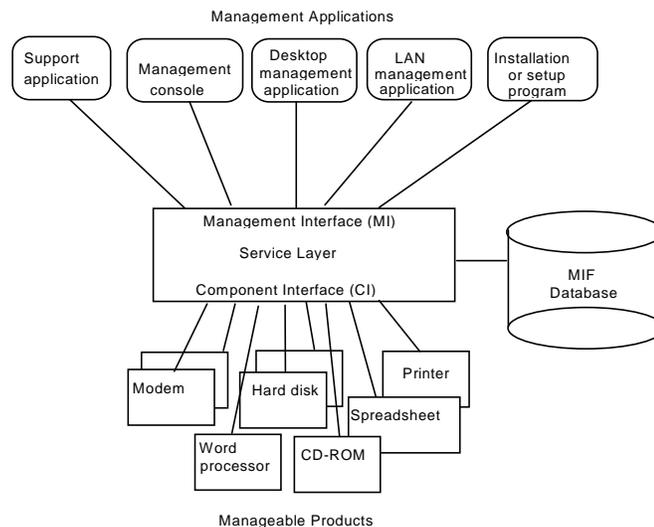
Figure 3-4. DMI Components

BIOS Setup Utility

The BIOS Setup utility provides access to basic configuration settings. It is independent of the operating system.

Running the BIOS Setup Utility

1. Close all applications, then shut down Windows and reboot the OmniBook. If necessary, you can press CTRL+ALT+DEL to reboot.

2. During reboot, press F2 to start the BIOS Setup utility.

3. The pointing device or mouse is not active in the BIOS Setup utility. Press the RIGHT and LEFT arrow keys to move among menus. Press the DOWN and UP arrow keys to move among parameters in a menu. Press ENTER to change a setting. See the table below for more information.

4. After you select the options you want, press F10 or use the Exit menu to exit the BIOS Setup utility.

   If the settings cause a conflict between devices during reboot, the system prompts you to run BIOS Setup, and the conflicting settings are marked.

Table 3-6. BIOS Setup Menus and Parameters

Main Menu		Default
OmniBook 2100/3100: Language	Sets the language for this utility and BIOS messages.	English.
OmniBook 2100/3100: BIOS Revision	Shows the current BIOS version.	Detected automatically.
System Time	Sets the time using 24-hour format. Values set take effect immediately.	
System Date	Sets the date using mm/dd/yy (English) or dd/mm/yy format.	
Floppy Drive	Sets the floppy drive type.	Detected and set automatically.
Hard Disk	Sets the hard disk drive type and various parameters.	Detected and set automatically.
Quiet Boot	When enabled, hides summary of power-on self-test and messages during boot.	**OB 2100/3100:** Enabled **OB 3000:** Disabled
Video Display Device	Sets whether the built-in and external display signals automatically switch when an external display is detected, or whether both signals are active. Pressing Fn+F5 temporarily switches displays. Setting to Both prevents suspending when lid closes.	Auto
System Memory	Shows the system memory size.	640KB
Extended Memory	Shows the extended memory size.	Detected automatically.
System Devices Menu		**Default**
OmniBook 3000: PS/2 Mouse	Enables the PS/2 touch pad and external PS/2 mouse, if present.	Enabled
External Fn Key	Sets whether left-CTRL + left-ALT on an external keyboard is interpreted as the Fn key.	Enabled
IDE Controller	Enables the primary (hard drive) and secondary (optional CD-ROM drive) controllers.	Both
FDD Controller	Enables the floppy drive.	Enabled

Serial Port	Sets how the serial port is configured by the BIOS (specified or automatic).	Enabled
Base I/O address	Sets the I/O address and interrupt.	3F8h, IRQ4 (COM1)
Infrared Port	Sets how the infrared port is configured by the BIOS (specified or automatic).	Disabled
Mode	Sets the hardware to support SIR (Standard IR), ASK IR (amplitude shift keyed IR), or FIR (Fast IR) infrared communications. (Driver installation required.)	SIR
Base I/O address	Sets the I/O address and interrupt.	2F8h, IRQ3 (COM2)
DMA channel	For Fast IR mode, sets the DMA channel.	DMA3
Parallel Port	Sets how the parallel port is configured by the BIOS (specified or automatic).	Enabled
Mode	Sets the port to normal, bi-directional, EPP, or ECP.	ECP
Base I/O address	Sets the I/O address.	378h
Interrupt	Sets the interrupt.	IRQ7
DMA channel	For ECP mode, sets the DMA channel.	DMA3
Audio	Sets how the audio system is configured by the BIOS (specified or automatic).	Enabled
SB I/O address	Sets the Sound Blaster I/O address.	220h
WSS I/O address	Sets the Windows Sound System I/O address.	530h
AdLib I/O address	Sets the AdLib synthesizer I/O address.	388h
Interrupt	Sets the interrupt.	IRQ5
1st DMA channel	Sets the DMA channel for playback.	DMA1
2nd DMA channel	Sets the DMA channel for recording.	DMA0
OmniBook 3000: MPU Device	Sets how the MIDI capability is configured: by the BIOS (specified settings or automatic) or by a PnP operating system. The port replicator provides a MIDI port, but the OmniBook does not.	Disabled
OmniBook 3000: MPU I/O address	Sets the MIDI I/O address.	330h
OmniBook 3000: Interrupt	Sets the interrupt.	IRQ9
Security Menu		**Default**
OmniBook 2100/3100: User Password Is	Shows if a user password is set.	Clear
OmniBook 2100/3100: Administrator Password Is	Shows if an administrator password is set.	Clear
OmniBook 2100/3100: Set User Password	Press ENTER to set, change, or clear user password. Password length can be no longer than 8 characters, 0-9, A-Z.	
OmniBook 2100/3100: Set Administrator Password	Press ENTER to set, change, or clear administrator password. This password protects BIOS Setup settings.	
OmniBook 3000 only: System Password is	Shows whether a password is set.	Clear
OmniBook 3000 only: Set System Password	Press ENTER to set, change, or clear the password. Password length can be no longer than 8 characters, 0-9, A-Z.	
Boot	Sets whether a user password is required when the computer boots.	**OB 2100/3100:** Enabled **OB 3000:** Disabled

Resume	If boot security is enabled, sets whether a user password is required when resuming from a suspended state.	**OB 2100/3100:** Enabled **OB 3000:** Disabled
OmniBook 2100/3100: Undock	If boot security is enabled, sets whether a user password is required when undocking the OmniBook.	Disabled
OmniBook 2100/3100: Hard Disk Drive Lock	If boot security is enabled, sets whether a password is stored on the hard disk. Secures data on the disk if the disk is moved to another computer.	Disabled
OmniBook 2100/3100: Floppy Boot	Sets whether the floppy drive is a boot device.	Enabled
Power Menu		**Default**
Power Management Mode	Disables time-outs, selects a combination of time-outs, or allows customized time-outs.	Max Power Savings
Smart CPU Mode	Enables automatic CPU power savings. Absence of keyboard, mouse, and hard disk activity could cause slower CPU response.	Off
Standby Time-out	Sets the period of inactivity after which the computer goes from On to Standby power mode.	2 minutes
Suspend Time-out	Sets the period of inactivity after which the computer goes from Standby to Suspend power mode. (Skips Standby mode if that time-out is disabled.)	4 minutes
OmniBook 2100/3100: Hibernate Time-out	Sets whether the computer goes from Suspend to Hibernate power mode after the indicated period of inactivity. (Skips Suspend mode if that time-out is disabled.)	4 hours
OmniBook 3000: Hibernate after 4 hours	Sets whether the computer goes from Suspend to Hibernate power mode after 4 hours of inactivity. (Skips Suspend mode if that time-out is disabled.)	Enabled
Hard Disk Time-out	Sets the period of hard disk inactivity after which the hard disk stops spinning.	**OB 2100/3100:** 2 minutes **OB 3000:** 30 seconds
Time-out on AC	Sets whether power management time-outs occur while the ac adapter is connected.	Disabled
Power Button Mode	Sets the action of the blue power button when pressed for less than 4 seconds.	Suspend
Resume on Modem Ring	Sets whether the system resumes from Suspend if a ring signal is received.	Enabled
Resume on Time of Day	Sets whether the system resumes from Suspend at a defined time of day.	Disabled
Resume Time	Sets the 24-hour time when the system resumes from Suspend if enabled.	
OmniBook 2100/3100: Auto Suspend on Undock	Sets whether the OmniBook suspends after undocking.	When Lid Closed
Boot Menu		**Default**
Diskette Drive Hard Drive CD-ROM Drive	Shows the order of boot devices. Move the entries to change the order.	1. Diskette drive 2. Hard drive 3. CD-ROM drive

Exit Menu	
Save Changes and Exit	Saves Setup changes, exits, and reboots.
Discard Changes and Exit	Discards Setup changes since last save, exits, and reboots. Does not affect Security and date/time changes.
Get Default Values	Restores default settings, stays in Setup. Does not affect Security and date/time settings.
Load Previous Values	Discards Setup changes since last save, stays in Setup. Does not affect Security and date/time changes.
Save Changes	Saves Setup changes, and stays in Setup. Security settings are saved when changed.

4

Replaceable Parts

This chapter contains an exploded view of the OmniBook and the following lists of parts:

- OmniBook replaceable parts (page 4-3).

- Assembly-component breakout (page 4-6)

- Accessory replacement parts (page 4-7).

- Part number reference (page 4-8).

Note:
13-inch display shown.
To see 12-inch display
parts, see chapter 2.
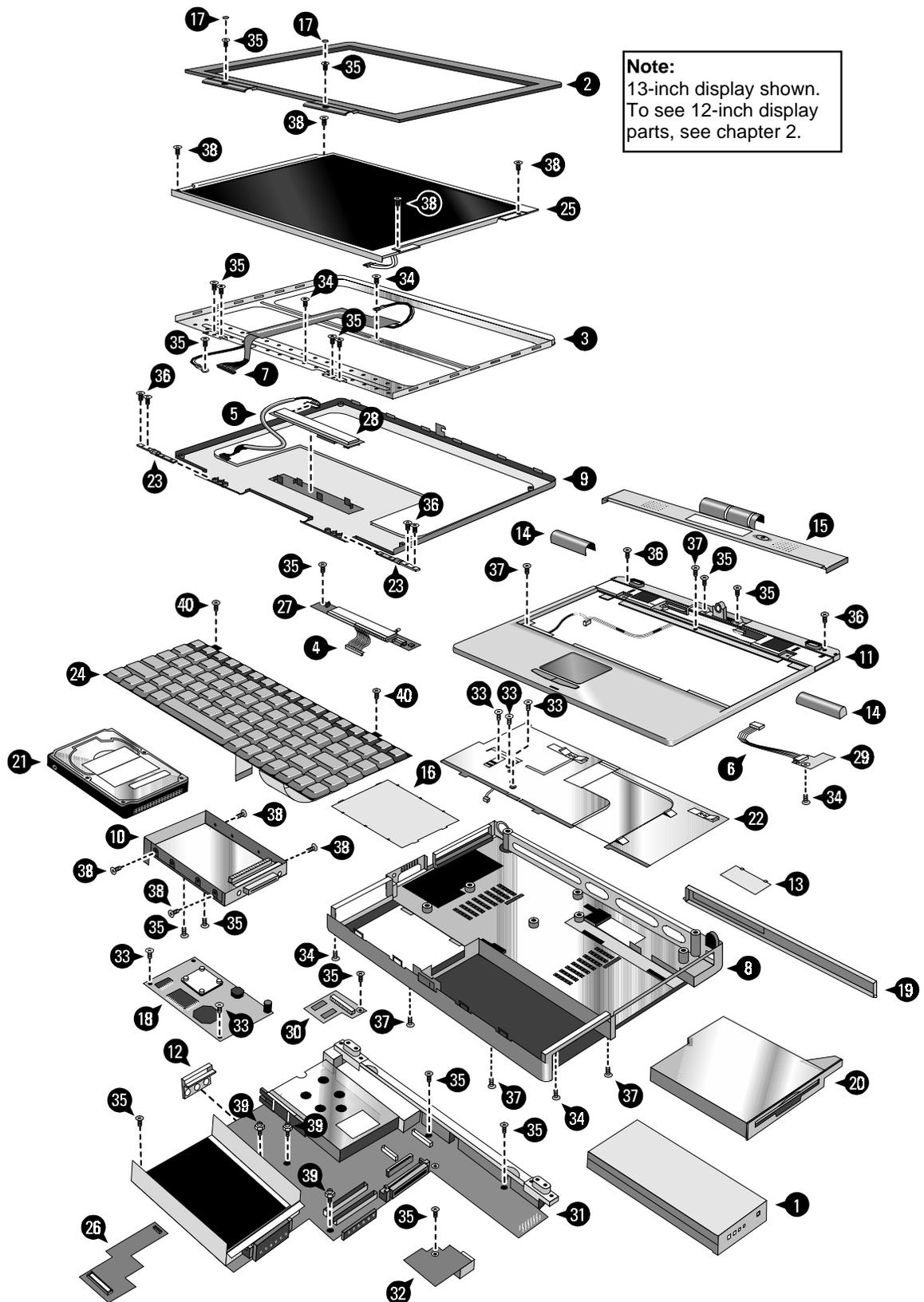
Figure 4-1. Exploded View

Table 4-1. OmniBook Replaceable Parts

	Description	Part Number	Exchange Part Number	User Repl.	OmniBook 2100	3100	3000
1	Battery, main (lithium-ion)	F1382-60901		Yes	●	●	●
1	Battery, main (nickel-metal-hydride)	F1589-60901		Yes	●	●	
2	Bezel, display (12" TFT and DSTN) *	F1580-60911			●		
2	Bezel, display (13" TFT) *	F1391-60927				●	●
3	Bracket, display (12" TFT and DSTN)	F1580-60916			●		
3	Bracket, display (13" TFT)	F1391-60962				●	●
	Bumper, audio	F1580-60935			●	●	
	Bumper, display (12" TFT and DSTN)	F1580-60909		Yes	●		
	Bumper, display (13" TFT)	F1391-60924		Yes		●	●
	Bumper, inverter	F1391-60960					●
4	Cable, icon/MB	F1391-60914			●	●	●
5	Cable, inverter/MB (12" TFT and DSTN)	F1580-60951			●		
5	Cable, inverter/MB (13" TFT)	F1580-60952				●	
5	Cable, inverter/MB (13" TFT)	F1391-60959					●
6	Cable, IR/icon	F1391-60915			●	●	●
7	Cable, LCD flex (12" Samsung TFT)	F1580-60929			●		
7	Cable, LCD flex (12" Sanyo DSTN)	F1580-60930			●		
7	Cable, LCD flex (13" TFT)	F1391-60961				●	●
	Card, business	F1580-60936		Yes	●	●	
8	Case, bottom *	F1580-60906			●	●	
8	Case, bottom *	F1391-60913					●
9	Case, display (12" TFT and DSTN) *	F1580-60907			●		
9	Case, display (13" TFT) *	F1391-60910				●	●
10	Case, HDD kit (9.5mm, 3GB)	F1580-60915		Yes	●		
10	Case, HDD kit (12.7mm, 2GB, 4GB)	F1391-60937		Yes	●	●	●
11	Case, top *	F1391-60909			●	●	●
12	Cover, audio jack	F1391-60920			●	●	●
13	Cover, BIOS	F1391-60929		Yes	●	●	●
14	Cover, hinge	F1391-60935		Yes	●	●	●
15	Cover, icon window (OB2100)	F1580-60913		Yes	●		
15	Cover, icon window (OB3000)	F1391-60928		Yes			●
15	Cover, icon window (OB3100)	F1580-60912		Yes		●	
16	Cover, RAM *	F1580-60914		Yes	●	●	
16	Cover, RAM *	F1391-60936		Yes			●
17	Cover, screw (display)	F1391-60923		Yes	●	●	●
18	CPU module (MMO), 200MHz Pentium (T)*	F1391-60905	F1391-69005		●		●
18	CPU module (MMO), 233MHz Pentium (T)*	F1391-60906	F1391-69006		●		●
18	CPU module (MMO), 266MHz Pentium (T)*	1821-4302	F1440-69102			●	●
19	Door, I/O (with hinge)	F1391-60976		Yes	●	●	●
20	Drive, floppy module (no cable)	F1384-60901		Yes	●	●	●
21	Drive, hard disk (2.1GB, IBM) *	0950-2801	F1580-69100		●		●
21	Drive, hard disk (3.2GB, IBM) *	0950-2802	F1348-69103		●		
21	Drive, hard disk (3.2GB, Toshiba) *	0950-2854	F1348-69102		●		
21	Drive, hard disk (4.0GB, IBM) *	0950-2671	F1386-69100			●	●
	Fan	F1391-60916			●	●	●

	Description	Part Number	Exchange Part Number	User Repl.	OmniBook 2100	3100	3000
	Foam, EPE (13" TFT)	F1391-60926			•	•	•
	Foot, rubber	F1580-60932		Yes	•	•	
	Foot, rubber	F1391-60931		Yes			•
22	Heatsink, CPU	F1391-60921			•	•	•
23	Hinge, display (12" TFT and DSTN)	F1580-60910			•		
23	Hinge, display (13" TFT)	F1391-60925				•	•
	IC, BIOS (keyboard/system)	F1580-60908			•	•	
	IC, keyboard BIOS	F1391-60918					•
	IC, system BIOS	F1391-60919					•
24	Keyboard, Danish	F1580-60927			•	•	
24	Keyboard, Danish	F1391-60948					•
24	Keyboard, French	F1580-60919			•	•	
24	Keyboard, French	F1391-60940					•
24	Keyboard, French-Canadian	F1580-60926			•	•	
24	Keyboard, French-Canadian	F1391-60947					•
24	Keyboard, German	F1580-60918			•	•	
24	Keyboard, German	F1391-60939					•
24	Keyboard, International English	F1580-60928			•	•	
24	Keyboard, International English	F1391-60949					•
24	Keyboard, Italian	F1580-60921			•	•	
24	Keyboard, Italian	F1391-60942					•
24	Keyboard, Norwegian	F1580-60925			•	•	
24	Keyboard, Norwegian	F1391-60946					•
24	Keyboard, Spanish	F1580-60920			•	•	
24	Keyboard, Spanish	F1391-60941					•
24	Keyboard, Swedish/Finnish	F1580-60923			•	•	
24	Keyboard, Swedish/Finnish	F1391-60944					•
24	Keyboard, Swiss	F1580-60922			•	•	
24	Keyboard, Swiss	F1391-60943					•
24	Keyboard, UK English	F1580-60924			•	•	
24	Keyboard, UK English	F1391-60945					•
24	Keyboard, US English	F1580-60917			•	•	
24	Keyboard, US English	F1391-60938					•
	Label, regulatory (OB2100)				•		
	Label, regulatory (OB3000)	F1391-60978					•
	Label, regulatory (OB3100)					•	
	Latch, display	F1391-60933			•	•	•
25	LCD module (12" Samsung TFT)	F1580-60902	F1580-69002		•		
25	LCD module (12" Sanyo DSTN)	F1580-60903	F1580-69003		•		
25	LCD module (13" TFT)	F1391-60907	F1391-69007			•	•
	Lens, IR	F1391-60930			•	•	•
	Overlay, business card	F1580-60937			•	•	
	Overlay, serial number	7121-7525			•	•	
26	PCA, audio *	F1580-60950			•	•	
26	PCA, audio *	F1391-60903					•
27	PCA, icon	F1391-60911			•	•	•

	Description	Part Number	Exchange Part Number	User Repl.	OmniBook 2100	OmniBook 3100	OmniBook 3000
28	PCA, inverter (12" TFT and DSTN)	F1580-60905			●		
28	PCA, inverter (13" TFT) *	F1391-60908					●
28	PCA, inverter (13" TFT) *	F1580-60904				●	
29	PCA, IR	F1391-60912			●	●	●
30	PCA, LVDS	F1391-60904			●	●	●
31	PCA, motherboard *	F1580-60901	F1580-69001		●	●	
31	PCA, motherboard *	F1391-60901	F1391-69001				●
	PCA, touch-pad	F1580-60934			●	●	●
32	PCA, USB	F1391-60902			●	●	●
	Plate, lock	F1391-60934			●	●	●
33	Screw, M2×5mm	F1391-60954			●	●	●
34	Screw, M2.5×3mm	F1391-60955			●	●	●
40	Screw, M2.5×4mm	0515-2699			●	●	●
35	Screw, M2.5×5mm	F1391-60951			●	●	●
36	Screw, M2.5×8mm	F1391-60957			●	●	●
37	Screw, M2.5×12mm	F1391-60956			●	●	●
38	Screw, M3×5mm	F1391-60950			●	●	●
	Spring, display latch	F1391-60932			●	●	●
	Standoff, 4-11258-2 (docking)	F1391-60953			●	●	●
	Standoff, 4-4 OUNC-2 (I/O plate)	F1391-60952			●	●	●
39	Standoff, TS30HR01 (CPU)	F1391-60958			●	●	●
	Thermal kit	F1391-60917			●	●	●
*	See Table 4-2 for components.						

Table 4-2. Assembly-Component Breakdown

Assembly	Part Number	OmniBook			Component	Part Number	Incl.
		2100	3100	3000			
Bezel, display (12")	F1580-60911	●			Bumper, display (2)	F1580-60909	No
					Cover, screw (2)	F1391-60923	No
Bezel, display (13")	F1391-60927		●	●	Bumper, display (2)	F1391-60924	Yes
					Cover, screw (2)	F1391-60923	No
Case, bottom	F1580-60906	●	●		Cover, audio jack	F1391-60920	No
					Cover, BIOS	F1391-60929	Yes
					Cover, RAM	F1391-60936	No
					Door, I/O	F1391-60976	No
					Feet, rubber (3)	F1580-60932	Yes
					Hinge, I/O door	F1391-60976	Yes
					Overlay, business	F1580-60937	No
					Overlay, serial	7121-7525	No
					Label, regulatory	(all)	No
					Latch, display	F1391-60933	Yes
					Lens, IR	F1391-60930	No
					Plate, lock	F1391-60934	Yes
					Spring, display latch	F1391-60932	Yes
Case, bottom	F1391-60913			●	Cover, audio jack	F1391-60920	No
					Cover, BIOS	F1391-60929	Yes
					Cover, RAM	F1391-60936	No
					Door, I/O	F1391-60976	No
					Feet, rubber (3)	F1391-60931	Yes
					Hinge, I/O door	F1391-60976	Yes
					Label, regulatory	F1391-60971	No
					Latch, display	F1391-60933	Yes
					Lens, IR	F1391-60930	Yes
					Plate, lock	F1391-60934	No
					Spring, display latch	F1391-60932	Yes
Case, display (12")	F1580-60907	●			Bracket, display	F1580-60916	No
Case, display (13")	F1391-60910		●	●	Bracket, display	F1391-60962	No
					Foam, EPE	F1391-60926	No
Case, top	F1391-60909	●	●	●	Cable, IR/icon	F1391-60915	Yes
					PCA, IR	F1391-60912	Yes
					PCA, touch-pad	F1580-60934	Yes
Cover, RAM	F1580-60914	●	●		Foot, rubber	F1580-60932	Yes
Cover, RAM	F1391-60936			●	Foot, rubber	F1391-60931	Yes
CPU module	(all)	●	●	●	Thermal kit	F1391-60917	No
Drive, hard disk	(all)	●	●	●	Case, HDD kit	F1391-60937	No
PCA, audio	F1580-60950	●	●		Bumper, audio (2)	F1580-60935	Yes
PCA, audio	F1391-60903			●	Bumper, audio (2)	F1580-60935	Yes
PCA, inverter (13")	F1580-60904		●		Bumper, inverter	F1391-60960	Yes
PCA, inverter (13")	F1391-60908			●	Bumper, inverter	F1391-60960	Yes
PCA, motherboard	F1580-69001	●	●		IC, BIOS	F1580-60908	Yes
PCA, motherboard	F1391-69001			●	IC, keyboard BIOS	F1391-60918	Yes
					IC, system BIOS	F1391-60919	Yes

Table 4-3. Accessory Replaceable Parts

Description	Part Number	Exchange Part Number	User Repl.	OmniBook		
				2100	3100	3000
Adapter, ac (45W)	F1377-60901		Yes			•
Adapter, ac (60W)	0950-2790		Yes	•	•	
Adapter, auto	F1379-60901		Yes			•
Adapter, auto plug (from airline)	5182-5131		Yes	•	•	
Adapter, auto/airline (75W)	F1455-60001		Yes	•	•	
Adapter, PS/2 "Y"	F1469-80001		Yes	•	•	
Battery, main (lithium-ion)	F1382-60901		Yes	•	•	•
Battery, main (nickel-metal-hydride)	F1589-60901		Yes	•	•	
Battery, secondary (lithium-ion)	F1383-60901		Yes	•	•	•
Cable, external FDD	F1380-60901		Yes	•	•	•
Drive, CD-ROM module (20X)	F1387-60901	F1387-69001	Yes			•
Drive, CD-ROM module (24X)	F1587-60901	F1587-69001	Yes	•	•	
Drive, floppy module (no cable)	F1384-60901		Yes	•	•	•
Drive, Zip module	F1388-60901	F1388-69001	Yes	•	•	•
Port replicator	F1381-60902		Yes			•
RAM board, 16MB SODIMM	F1363-60001	F1363-69001	Yes	•	•	•
RAM board, 32MB SODIMM	F1364-60001	F1364-69001	Yes	•	•	•
RAM board, 64MB SODIMM	F1365-60001	F1365-69001	Yes	•	•	•
Stand, monitor	F1369-60901		Yes			•
Stand, monitor (short)	F1453-60901		Yes	•	•	

Table 4-4. Part Number Reference

Part Number	Exchange Part Number	Description	User Repl.	OmniBook		
				2100	3100	3000
		Label, regulatory (OB2100)		•		
		Label, regulatory (OB3100)			•	
0515-2699		Screw, M2.5×4mm		•	•	•
0950-2671	F1386-69100	Drive, hard disk (4.0GB, IBM)			•	•
0950-2790		Adapter, ac (60W)	Yes	•	•	
0950-2801	F1580-69100	Drive, hard disk (2.1GB, IBM)		•		•
0950-2802	F1348-69103	Drive, hard disk (3.2GB, IBM)		•		
0950-2854	F1348-69102	Drive, hard disk (3.2GB, Toshiba)		•		
1821-4302	F1440-69102	CPU module (MMO), 266MHz Pentium (T)			•	•
5182-5131		Adapter, auto plug (from airline)	Yes	•	•	
5967-4703		Service Manual (OB2100/3000/3100)		•	•	•
7121-7525		Overlay, serial number		•	•	
8120-6312		Power cord, replacement (Australia).	Yes	•	•	•
8120-6313		Power cord, replacement (U.S., Canada, Taiwan).	Yes	•	•	•
8120-6314		Power cord, replacement (Europe).	Yes	•	•	•
8120-6315		Power cord, replacement (Hong Kong, Singapore, U.K.).	Yes	•	•	•
8120-6316		Power cord, replacement (Japan).	Yes	•	•	•
8120-6317		Power cord, replacement (India, South Africa).	Yes	•	•	•
8120-8373		Power cord, replacement (People's Republic of China).	Yes	•	•	•
F1363-60001	F1363-69001	RAM board, 16MB SODIMM	Yes	•	•	•
F1364-60001	F1364-69001	RAM board, 32MB SODIMM	Yes	•	•	•
F1365-60001	F1365-69001	RAM board, 64MB SODIMM	Yes	•	•	•
F1369-60901		Stand, monitor	Yes			•
F1377-60901		Adapter, ac (45W)	Yes			•
F1379-60901		Adapter, auto	Yes			•
F1380-60901		Cable, external FDD	Yes	•	•	•
F1381-60902		Port replicator	Yes			•
F1382-60901		Battery, main (lithium-ion)	Yes	•	•	•
F1383-60901		Battery, secondary (lithium-ion)	Yes	•	•	•
F1384-60901		Drive, floppy module (no cable)	Yes	•	•	•
F1387-60901	F1387-69001	Drive, CD-ROM module (20X)	Yes			•
F1388-60901	F1388-69001	Drive, Zip module	Yes	•	•	•
F1391-60901	F1391-69001	PCA, motherboard				•
F1391-60902		PCA, USB		•	•	•
F1391-60903		PCA, audio				•
F1391-60904		PCA, LVDS		•	•	•
F1391-60905	F1391-69005	CPU module (MMO), 200MHz Pentium (T)		•		•
F1391-60906	F1391-69006	CPU module (MMO), 233MHz Pentium (T)		•		•
F1391-60907	F1391-69007	LCD module (13" TFT)			•	•
F1391-60908		PCA, inverter (13" TFT)				•
F1391-60909		Case, top		•	•	•
F1391-60910		Case, display (13" TFT)			•	•
F1391-60911		PCA, icon		•	•	•

Part Number	Exchange Part Number	Description	User Repl.	OmniBook 2100	3100	3000
F1391-60912		PCA, IR		•	•	•
F1391-60913		Case, bottom				•
F1391-60914		Cable, icon/MB		•	•	•
F1391-60915		Cable, IR/icon		•	•	•
F1391-60916		Fan		•	•	•
F1391-60917		Thermal kit		•	•	•
F1391-60918		IC, keyboard BIOS				•
F1391-60919		IC, system BIOS				•
F1391-60920		Cover, audio jack		•	•	•
F1391-60921		Heatsink, CPU		•	•	•
F1391-60923		Cover, screw (display)	Yes	•	•	•
F1391-60924		Bumper, display (13" TFT)	Yes		•	•
F1391-60925		Hinge, display (13" TFT)			•	•
F1391-60926		Foam, EPE (13" TFT)		•	•	•
F1391-60927		Bezel, display (13" TFT)			•	•
F1391-60928		Cover, icon window (OB3000)	Yes			•
F1391-60929		Cover, BIOS	Yes	•	•	•
F1391-60930		Lens, IR		•	•	•
F1391-60931		Foot, rubber	Yes			•
F1391-60932		Spring, display latch		•	•	•
F1391-60933		Latch, display		•	•	•
F1391-60934		Plate, lock		•	•	•
F1391-60935		Cover, hinge	Yes	•	•	•
F1391-60936		Cover, RAM	Yes			•
F1391-60937		Case, HDD kit (12.7mm, 2GB, 4GB)	Yes	•	•	•
F1391-60938		Keyboard, US English				•
F1391-60939		Keyboard, German				•
F1391-60940		Keyboard, French				•
F1391-60941		Keyboard, Spanish				•
F1391-60942		Keyboard, Italian				•
F1391-60943		Keyboard, Swiss				•
F1391-60944		Keyboard, Swedish/Finnish				•
F1391-60945		Keyboard, UK English				•
F1391-60946		Keyboard, Norwegian				•
F1391-60947		Keyboard, French-Canadian				•
F1391-60948		Keyboard, Danish				•
F1391-60949		Keyboard, International English				•
F1391-60950		Screw, M3×5mm		•	•	•
F1391-60951		Screw, M2.5×5mm		•	•	•
F1391-60952		Standoff, 4-4 OUNC-2 (I/O plate)		•	•	•
F1391-60953		Standoff, 4-11258-2 (docking)		•	•	•
F1391-60954		Screw, M2×5mm		•	•	•
F1391-60955		Screw, M2.5×3mm		•	•	•
F1391-60956		Screw, M2.5×12mm		•	•	•
F1391-60957		Screw, M2.5×8mm		•	•	•
F1391-60958		Standoff, TS30HR01 (CPU)		•	•	•

Part Number	Exchange Part Number	Description	User Repl.	OmniBook 2100	3100	3000
F1391-60959		Cable, inverter/MB (13" TFT)				•
F1391-60960		Bumper, inverter				•
F1391-60961		Cable, LCD flex (13" TFT)			•	•
F1391-60962		Bracket, display (13" TFT)			•	•
F1391-60965		Recovery CD, English (OB3000, W95)				•
F1391-60966		Recovery CD, French (OB3000, W95)				•
F1391-60967		Recovery CD, Italian (OB3000, W95)				•
F1391-60968		Recovery CD, German (OB3000, W95)				•
F1391-60969		Recovery CD, Spanish (OB3000, W95)				•
F1391-60970		Recovery CD, Swedish (OB3000, W95)				•
F1391-60976		Door, I/O (with hinge)	Yes	•	•	•
F1391-60978		Label, regulatory (OB3000)				•
F1453-60901		Stand, monitor (short)	Yes	•	•	
F1455-60001		Adapter, auto/airline (75W)	Yes	•	•	
F1462-60901		OmniBook Performance 98 Group training kit		•	•	•
F1469-80001		Adapter, PS/2 "Y"	Yes	•	•	
F1580-60901	F1580-69001	PCA, motherboard		•	•	
F1580-60902	F1580-69002	LCD module (12" Samsung TFT)		•		
F1580-60903	F1580-69003	LCD module (12" Sanyo DSTN)		•		
F1580-60904		PCA, inverter (13" TFT)			•	
F1580-60905		PCA, inverter (12" TFT and DSTN)		•		
F1580-60906		Case, bottom		•	•	
F1580-60907		Case, display (12" TFT and DSTN)		•		
F1580-60908		IC, BIOS (keyboard/system)		•	•	
F1580-60909		Bumper, display (12" TFT and DSTN)	Yes	•		
F1580-60910		Hinge, display (12" TFT and DSTN)		•		
F1580-60911		Bezel, display (12" TFT and DSTN)		•		
F1580-60912		Cover, icon window (OB3100)	Yes		•	
F1580-60913		Cover, icon window (OB2100)	Yes	•		
F1580-60914		Cover, RAM	Yes	•	•	
F1580-60915		Case, HDD kit (9.5mm, 3GB)	Yes	•		
F1580-60916		Bracket, display (12" TFT and DSTN)		•		
F1580-60917		Keyboard, US English		•	•	
F1580-60918		Keyboard, German		•	•	
F1580-60919		Keyboard, French		•	•	
F1580-60920		Keyboard, Spanish		•	•	
F1580-60921		Keyboard, Italian		•	•	
F1580-60922		Keyboard, Swiss		•	•	
F1580-60923		Keyboard, Swedish/Finnish		•	•	
F1580-60924		Keyboard, UK English		•	•	
F1580-60925		Keyboard, Norwegian		•	•	
F1580-60926		Keyboard, French-Canadian		•	•	
F1580-60927		Keyboard, Danish		•	•	
F1580-60928		Keyboard, International English		•	•	
F1580-60929		Cable, LCD flex (12" Samsung TFT)		•		
F1580-60930		Cable, LCD flex (12" Sanyo DSTN)		•		

Part Number	Exchange Part Number	Description	User Repl.	OmniBook		
				2100	3100	3000
F1580-60932		Foot, rubber	Yes	•	•	
F1580-60934		PCA, touch-pad		•	•	•
F1580-60935		Bumper, audio		•	•	
F1580-60936		Card, business	Yes	•	•	
F1580-60937		Overlay, business card		•	•	
F1580-60938		Recovery CD, English (OB2100/3100, W95)		•	•	
F1580-60939		Recovery CD, French (OB2100/3100, W95)		•	•	
F1580-60940		Recovery CD, German (OB2100/3100, W95)		•	•	
F1580-60941		Recovery CD, Italian (OB2100/3100, W95)		•	•	
F1580-60942		Recovery CD, Spanish (OB2100/3100, W95)		•	•	
F1580-60943		Recovery CD, Swedish (OB2100/3100, W95)		•	•	
F1580-60944		Recovery CD, English (OB2100/3100, WNT)		•	•	
F1580-60945		Recovery CD, French (OB2100/3100, WNT)		•	•	
F1580-60946		Recovery CD, German (OB2100/3100, WNT)		•	•	
F1580-60947		Recovery CD, Italian (OB2100/3100, WNT)		•	•	
F1580-60948		Recovery CD, Spanish (OB2100/3100, WNT)		•	•	
F1580-60949		Recovery CD, Swedish (OB2100/3100, WNT)		•	•	
F1580-60950		PCA, audio		•	•	
F1580-60951		Cable, inverter/MB (12" TFT and DSTN)		•		
F1580-60952		Cable, inverter/MB (13" TFT)			•	
F1587-60901	F1587-69001	Drive, CD-ROM module (24X)	Yes	•	•	
F1589-60901		Battery, main (nickel-metal-hydride)	Yes	•	•	

5

Reference Information

This chapter includes the following reference information:

- Password removal policy.
- Display quality statement.

Password Removal Policy

If the user forgets the system password, the user calls Technical Support to determine the proper removal procedure. *For the OmniBook 3000, this may require sending the unit to a Hewlett-Packard repair center.*

The password removal procedure is protected as HP Company Private information. There are a restricted number of locations that can perform password removal. It may not be disclosed or distributed outside those locations.

Password removal is strictly controlled. Hewlett-Packard and authorized support providers must ensure with written evidence that the OmniBook being "cleansed" is actually in the possession of the unit's actual and current owner. This requires a sales receipt showing the unit serial number and owner's name, or a written statement from the owner attesting that he or she is the owner of the unit. The statement can be a fax copy of the document. The fact that the unit is in the hands of an HP representative on behalf of the customer is not evidence of ownership. In addition, HP will not remove the password of a unit for any non-owner, even if it is requested by law enforcement agencies. If you receive such a request, you should notify management and HP Corporate Legal immediately. (These requests may require a court order prior to our participation.)

Further, the entity removing the password must log the name, serial number and date of the removal, and file the written backup with the log. The log and backup are subject to standard record retention process and review.

The final issue relating to removal of passwords is that HP cannot provide information to users that would assist them in improperly removing a password and opening a unit.

Hewlett-Packard Display Quality Statement

TFT display manufacturing is a high precision but imperfect technology and manufacturers cannot currently produce large displays that are cosmetically perfect. Most, if not all, TFT displays will exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible to the customer under varying display conditions and can appear as bright, dim, or dark spots. *This issue is common across all vendors supplying TFT displays in their products and is not specific to the HP OmniBook display.*

HP OmniBook TFT displays meet or exceed all TFT manufacturer's standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections. *TFT displays may have a small number of cosmetic imperfections and still conform to the display manufacturer's cosmetic quality specifications.*

Here are some guidelines to use in determining what action to take on customers' complaints of cosmetic imperfections in their TFT displays:

1. The unit should be viewed in the customer's normal operating condition.

   This means if the customer uses the unit predominately in DOS, in Windows, or in some other application or combination of applications, that is where you should make the determination. Self test is not a normal operating condition and is not a sufficient tool to interpret display quality.

2. Use the table below to determine whether the display should be considered for replacement. These are the only conditions in this guideline that may call for a replacement due to a defect in material or workmanship based on the HP Limited Warranty Statement.

3. If a display is considered for replacement, it should be clear to the customer that cosmetic variations on the replacement display may also exist, and may require the customer to use a work-around to obscure the cosmetic imperfection.

4. Customers with cosmetic-based complaints only, that do not conform to the above conditions and tests will not normally be considered for display replacement. It will be left to the judgment of the HP-responsible person working with the customer, to identify work-arounds that are reasonable and appropriate for the individual customer. Customers who must have a more perfect display solution should consider switching to an OmniBook with a DSTN display.

We expect over time that the industry will continue to improve in its ability to produce displays with fewer inherent cosmetic imperfections, and we will adjust our HP guidelines as the improvements are implemented.

Table 5-1. OmniBook 2100/3000/3100 LCD Guidelines (TFT)

Type of Imperfection	Imperfections Not Allowed
NEC 13" TFT, XGA	
Electrical Imperfections: Bright dots (a) Dark dots (a)	• 13 or more single bright dots. • 3 or more double bright dots. • 8 or more single or double dark dots. • 3 or more single/double bright dots within 7 mm. • Any occurrence of triple bright dots (or triple dark dots).
Mechanical Imperfections: Spots (b) Lines (c) Polarizer scratches (d) Polarizer dents, bubbles (e)	• 4 or more spots 0.3-0.5 mm avg. dia. • 5 or more lines 0.7-1 mm long and over 0.05 mm wide. • 3 or more dents or bubbles 0-0.5 mm avg. dia. • Any spot over 0.5 mm avg. dia. • Any line over 1 mm long or 0.1 mm wide. • Any scratch noticeable from 30 cm (12 in) under normal office lighting. • Any dent or bubble over 0.5 mm avg. dia.
Samsung 12" TFT, SVGA	
Electrical Imperfections: Bright dots (a) Dark dots (a)	• 5 or more single bright dots. • 11 or more single dark dots. • 5 or more double or triple dark dots. • 15 or more total bright or dark dot imperfections. • Any occurrence of 2 bright dots within 15 mm. • Any occurrence of 2 single/double/triple dark dots within 5 mm.
Mechanical Imperfections: Spots (b) Lines (c) Polarizer scratches (d) Polarizer dents, bubbles (e)	• 5 or more spots 0.1-0.8 mm avg. dia. • 5 or more lines 0.3-1 mm long and over 0.01 mm wide. • 4 or more scratches 0.3-10 mm long and over 0.01 mm wide. • 7 or more dents or bubbles 0-0.5 mm avg. dia. • Any spot over 0.8 mm avg. dia. • Any line over 1 mm long or 0.8 mm wide. • Any scratch over 10 mm long or 0.1 mm wide. • Any dent or bubble over 0.5 mm avg. dia.
Definitions of imperfections: a Bright or dark dot: A subpixel (red, green, or blue dot) that is stuck on or off. b Spot: A point on the display that appears dark or bright and does not change in size. Caused by foreign circular matter on the backlight. c Line: A line on the display that appears dark or light and does not change in size. Caused by contamination (lint, hair) behind the display. d Polarizer scratch: A light line that is visible on a darker background and does not change in size. e Polarizer dent or bubble: A light spot with a darker border that appears on a lighted display and does not change in size.	

Table 5-2. OmniBook 2100 LCD Guidelines (DSTN)

Type of Imperfection	Imperfections Not Allowed
Sanyo 12" DSTN, SVGA	
Imperfections: Spots (a) Lines (b) Polarizer scratches (c) Polarizer dents, bubbles (d)	• 5 or more spots 0.2-0.4 mm avg. dia. • 3 or more lines 0-3 mm long and over 0.03 mm wide. • 4 or more scratches 0-3 mm long and over 0.03 mm wide. • 3 or more dents or bubbles 0.2-0.3 mm avg. dia. • Any spot over 0.4 mm dia. • Any line over 3 mm long or 0.2 mm wide. • Any scratch over 3 mm long or 0.2 mm wide. • Any dent or bubble over 0.3 mm avg. dia.
Definitions of imperfections: a Spot: A point on the display that appears black, white, or colored and does not change in size or color. b Line: A line on the display that appears dark or light and does not change in size. c Polarizer scratch: A light line that is visible on a darker background and does not change in size. d Polarizer dent or bubble: A light spot with a darker border that appears on a lighted display and does not change in size.	

1. **Product Information**
2. **Removal and Replacement**
3. **Troubleshooting and Diagnostics**
4. **Replaceable Parts**
5. **Reference Information**