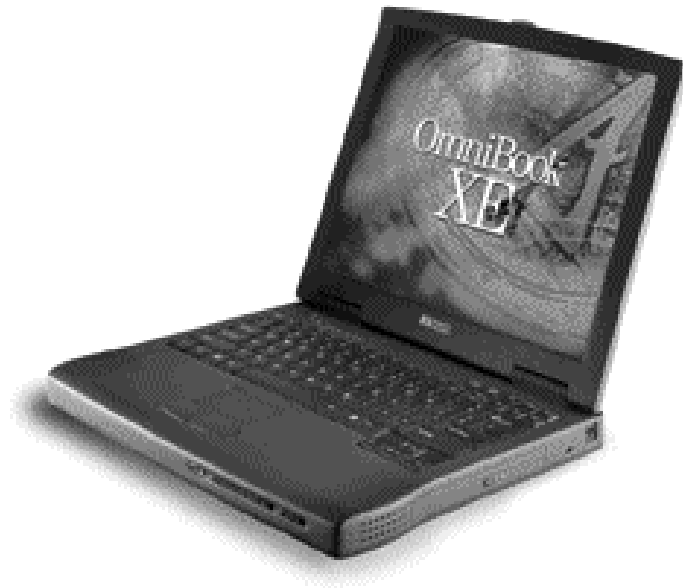**HEWLETT®**
PACKARD

HP OmniBook XE2

Service Manual

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Introduction

This service manual provides reference information for the HP OmniBook XE2. It is intended to be used by HP-authorized service personnel in the installation, servicing, and repair of this product.

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://www.europe.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 (AOL)	Keyword: HP	Call +1 (800) 827-6364 for AOL membership within the US or consult the AOL website, www.aol.com, for other local phone numbers.
HP Bulletin Board Service		Refer to the latest Product Support Plan for non-US BBS numbers.
HP Support Assist CD-ROM	+1 (800) 457-1762	US and Canada.
	+1 (801) 431-1587	Outside US and Canada.
Microsoft Web	http://www.microsoft.com	Information and updates for Windows operating systems.

1

Product Information

The HP OmniBook XE2 provides desktop performance and expandability as well as convenient portability. It uses high-performance component technologies that make it capable of replacing a desktop computer or serving as a portable multimedia presentation tool.

Table 1-1. OmniBook XE2

OmniBook Product	CPU	Display	Hard Drive	Floppy Drive	Multimedia Drive	Standard RAM
F1756W #AB2	Pentium II 366 MHz	13.3-inch TFT	6.0 GB	1.44 MB	24X CD-ROM	64 MB
F1755W #AB2	Pentium II 333 MHz	12.1-inch SVGA TFT	4.0 GB			32 MB
F1779D #AB2						
F1774W #AB2	Pentium II 366MHz					64 MB
F1775W #AB2	Pentium II 400MHz	14.1-inch XGA TFT	6.0 GB		6X DVD	
F1962W #AB2	Celeron 433 MHz	12.1-inch SVGA TFT	4.0GB		24X CD-ROM	32MB
F1671N #ABJ	Celeron 466 MHz	14.1-inch XGA TFT	6.0 GB			128 MB
F1672W #ABJ						64 MB
F1673W #ABJ		12.1-inch SVGA TFT	4.0 GB			

This chapter describes

- Features and operation (page 1-2).
- Specifications (page 1-10).
- Internal design (page 1-12).

Features and Operation

The following five 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.
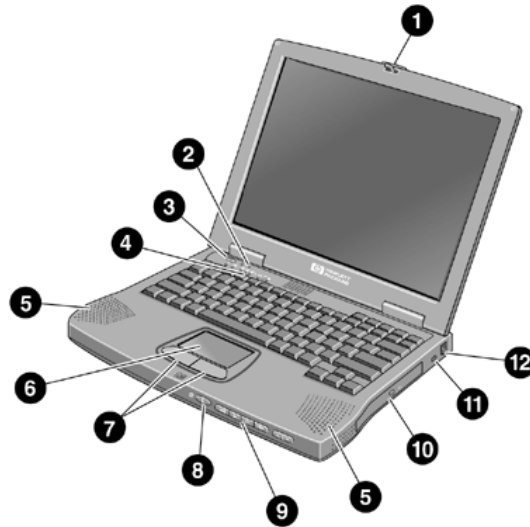
Figure 1-1. OmniBook Front View

1	Latch to open the OmniBook	7	Click buttons
2	Built-in microphone	8	CD player power (on selected models)
3	Blue power button	9	CD player buttons (on selected models)
4	Status lights	10	CD-ROM drive
5	Built-in speakers	11	Kensington lock slot (security connector)
6	Touch pad (pointing device)	12	Modem phone jack (on selected models)

Figure 1-2. OmniBook Side View

13	PC Card eject buttons
14	PC Card and CardBus slots (upper and lower)
15	Floppy disk drive
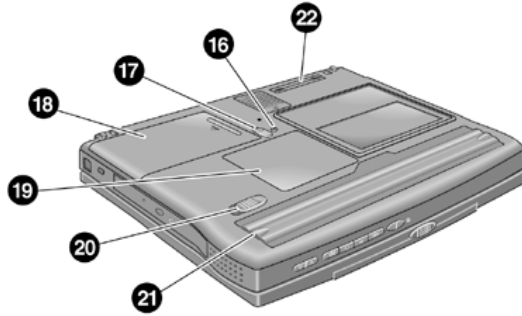
Figure 1-3. OmniBook Bottom View

16	System-off button	20	Battery latch
17	Hard disk drive latch and locking screw	21	Battery
18	Hard disk drive	22	Port replicator connector
19	RAM expansion cover		
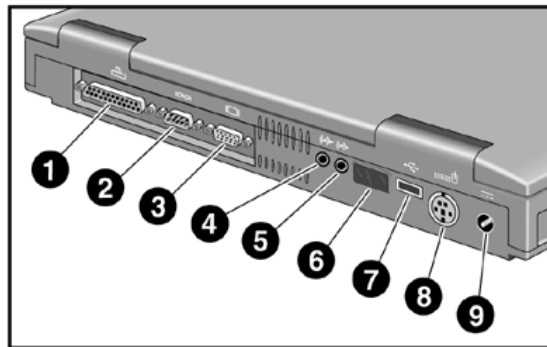
Figure 1-4. OmniBook Rear View

1	Parallel port	6	Infrared port
2	Serial port	7	USB port
3	VGA port (external monitor)	8	PS/2 port
4	Audio out (external speaker)	9	AC adapter jack
5	Microphone jack		
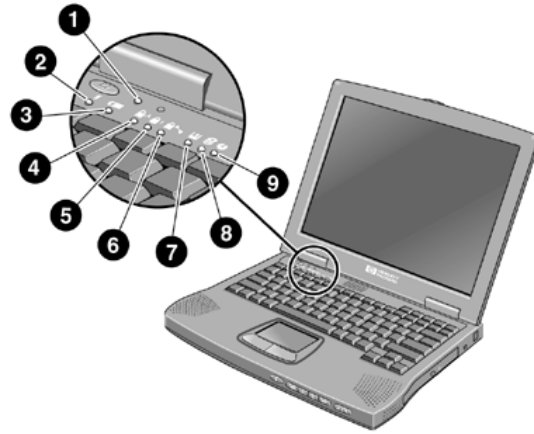
Figure 1-5. OmniBook Status Lights

1	Power	**6**	Scroll Lock
2	AC connected	**7**	Floppy disk drive access
3	Battery	**8**	Hard disk drive access
4	Caps Lock	**9**	CD-ROM access
5	Num Lock		

Turning the OmniBook On and Off

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

- **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+F5. 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 1-2. Activating Power Modes

Power Mode	To Enter Mode	To Turn Back On
Suspend Low-power/stopped state. 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– click Start, Shut Down, Standby (Windows 98) –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+F5 –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.

Checking the Status of the OmniBook

The OmniBook status lights, located on the keyboard cover (the display bezel above the keyboard), indicate power status and drive activity. These lights are on the LED PCA.

Table 1-3. Status Lights (LED PCA)

Icon	Meaning
No icon (Light next to blue button)	**Power** Steady green light: OmniBook is running (On mode). Slowly blinking green light: OmniBook is suspended to RAM (Suspend or Standby mode). No light: OmniBook is off (Off or Hibernate mode).
	AC connected Green light: AC power is connected.
	Battery Green light: Battery is full or stopped charging. Orange light: Battery is charging. No light: AC adapter is not connected or battery is not present.
	Floppy disk drive access Green light: OmniBook is accessing the floppy disk drive
	Hard disk drive access Green light: OmniBook is accessing the hard disk drive.
	CD-ROM drive access Green light: OmniBook is accessing the CD-ROM drive.
	Caps Lock Green light: Caps Lock is active.
	Num Lock Green light: Num Lock is active.
	Scroll Lock Green light: Scroll Lock is active.

The built-in microphone is to the right of the power light, next to its icon:

Using Fn Hot Keys

The Fn key combined with another key is a hot key—a shortcut key sequence for various system controls. For an external keyboard, CTRL+ALT is normally equivalent to the Fn key.

Table 1-4. Fn Hot Keys

Hot Key	Effect
Fn + F1	Decreases the display's contrast (DSTN displays only).
Fn + F2	Increases the display's contrast (DSTN displays only).
Fn + F3	Enters Suspend mode (Windows 98); enters Standby mode (Windows 95, Windows NT).
Fn + F4	Enters Suspend mode.
Fn + F5	Enters Hibernate mode.
Fn + F6	Toggles the sound on and off (mutes sound).
Fn + F12	Switches among the built-in display, an external display, and simultaneous displays.
Fn + NumLock	Toggles Scroll Lock on and off.
Fn + UP ARROW Fn + DOWN ARROW	Increases and decreases the sound volume.

Resetting the OmniBook

1. Use a pen or a straightened paper clip to push the system-off button on the bottom of the OmniBook. (The switch is on the motherboard.)

   –or–

   Press and hold the blue power button until the display shuts down. (The switch is on the I/O PCA.)

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

Note

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

- 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 1-5. System Interrupts

0	System timer
1	Keyboard
2	Cascade from secondary interrupt controller
3	Free (or COM2, IrDA port, if enabled)
4	COM1 (serial port)
5	Audio
6	Floppy disk drive
7	LPT1 (ECP parallel port)
8	Real-time clock
9	Free in APM mode (SCI in ACPI mode)
10	PCI IRQ (shared by all PCI devices)
11	Free (or MIDI, if enabled).
12	Touch pad, PS/2 mouse
13	Numeric coprocessor
14	Internal hard disk drive (primary IDE controller)
15	Internal CD-ROM drive (secondary IDE controller)

Table 1-6. System Memory

00000 - 9FFFF	System memory
A0000 – BFFFF	Video
C0000 - CFFFF	Video BIOS
D0000 - DBFFF	Free (valid uses: upper memory blocks (UMBs) or PC Card memory windows)
DC000 - FFFFF	System BIOS

Table 1-7. System Input/Output Addresses (100-3FF)

170-177	Internal CD-ROM drive (secondary IDE controller)
1F0-1F7	Internal hard disk drive (primary IDE controller)
220-22F	DOS games (FM decoding)
376	Internal CD-ROM drive (secondary IDE controller)
378-37F	LPT1 (printer port)
388-38B	DOS games (FM decoding)
3B0-3BB	VGA adapter
3C0-3DF	VGA adapter
3E0-3E1	PCMCIA controller
3F0-3F5	Floppy disk drive controller
3F6	Internal hard disk drive (primary IDE controller)
3F7	Floppy disk drive controller
3F8-3FF	COM1 (serial port)

Table 1-8. DMA Channels

0	Free
1	LPT1 (ECP parallel port)
2	Floppy disk drive
3	Fast IR (if enabled)
4	Cascade from secondary PMA controller
5	Free
6	Free
7	Free

Specifications

The following tables list descriptions for the OmniBook.

Table 1-9. OmniBook XE2 Specifications

Physical Attributes	Size: 311mm×249mm×42mm (12.24"×9.80"×1.64") closed. Weight: 3.0 kg (6.6 lb.).
Processor and Bus Architecture	333, 366, 400-MHz Intel Pentium II processor or 433, 466-MHz Celeron processor MMX technology. 2.5-V low-power processor. 128-KB OR 256-KB built-in L2 cache. 32-bit PCI bus.
Graphics	13.3", 12.1", or 14.1" active-matrix (TFT) display. XGA or SVGA resolution. SMI LynxE SM811 graphics controller with 2-MB 135-MHz SGRAM or SMI Lynx EM4 w/AGP and 4MB video memory Zoomed Video support for lower PC Card slot (Windows 95 and Windows 98 only). Dual-monitor support.
Power	Rechargeable 8-cell lithium ion battery (14.4 Vdc, 3.2 AH, 46 watt-hours) 3.12 hours battery life time. Fast battery recharge: 80% in 1.6 hours, 100% in 2.1 hours. Low-battery warning. Suspend/resume capability. 60-watt AC adapter: 115 to 230 Vac (47 to 63 Hz) input, 19 Vdc, 3.16 A output.
Storage	24X CD-ROM drive or 6X DVD 1.44MB floppy disk drive. 4.0-GB or 6.0-GB hard disk drive.
RAM	32-128MB SDRAM SDRAM preinstalled. Two slots for RAM expansion up to 256 MB maximum.
Audio System	16-bit, Sound Blaster Pro-compatible. ESS M-2EM or ESS M3E PCI audio 64-voice wavetable synthesizer. Stereo sound via two built-in speakers. Built-in microphone. Stereo line-in and monophonic microphone-in jacks. ZV port audio interface.
Keyboard and Pointing Device	87/88-key touch-type keyboard with 101/102 key emulation. Embedded numeric keypad. 12 function (Fn) keys. Touch pad pointing device.
Modem	56Kbps (V.90) data speed maximum. 14.4Kbps fax speed, Class 1 and 2.
Input/Output	Universal serial bus (USB). 9-pin, 115,200-bps serial (16550 UART). 25-pin bi-directional ECP/EPP parallel. Video out: 800×600×16M or 1024x768x64K colors at 75-Hz refresh rate. PS/2 keyboard/mouse port. IrDA 1.1 (Fast IR) infrared port.
Expandability	One Type III or two Type II 16-/32-bit PC Card slots (3.3- and 5-V support). CardBus enabled. Lower slot supports Zoomed Video (Windows 95 and Windows 98 only). Optional port replicator.

Software	Microsoft Windows 95 OR Microsoft Windows 98 OR Microsoft Windows NT 4.0. Windows-compatible Plug-and-Play. Power management. VirusScan. Adobe Acrobat Reader. My Yahoo! HP diagnostic tests. Online documentation. Electronic registration. OmniBook Recovery CD(s) included. Phoenix Card Executive (Windows NT 4.0 only) Centralized worldwide BIOS and driver update service.
Security Features	User and supervisor passwords. Kensington Microsaver lock slot.
Environmental Limits	Operating temperature: 5 to 35 ºC (41 to 95 ºF). Operating humidity: 20 to 80 percent RH. Storage temperature: −20 to 60 ºC (−4 to 140 ºF). Storage humidity: 8 to 90 percent RH.
Major ICs	CPU: Intel Pentium II or Celeron North Bridge: 443DX or 443ZXM-66 South Bridge: PIIX4e or PIIX4m Video: SMI LynxE SM811 or SMI Lynx EM4 SM710-4 Audio: ESS M-2EM or ESS M3E CardBus: TI PCI1225. Keyboard controller: National PC87570. Super I/O: National 97338.

For information on accessories and accessory replaceable parts, see the Support publication "Express Support Material Program for the OmniBook XE Series PC."

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 and most 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 1-13—it lists the roles that the replaceable modules play in each of the functional subsystems.
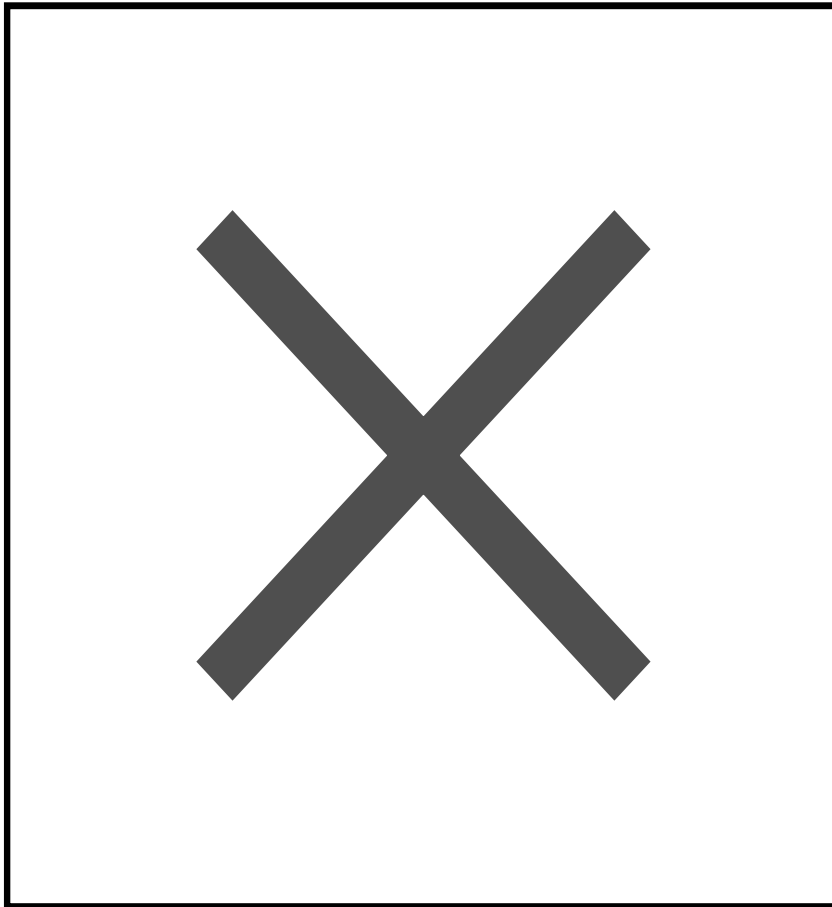
Figure 1-6. Replaceable Module Diagram

Table 1-10. Functional Structure

Bootup	CPU module Motherboard BIOS IC Floppy disk module Hard disk drive	Main processor (MMO). Primary system circuitry. Code for basic system 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	RAM board	Optional, additional RAM.
Power	Battery Motherboard AC adapter	Power storage. AC adapter socket, power switch, lid switch, system-off switch, power supply. AC-to-DC converter.
Display	Motherboard LCD module Inverter PCA	PCMCIA/zoomed video controller. Display output, backlight. Power converter for backlight.
Hard disk drive	Motherboard Hard disk drive	Hard disk controller. Hard disk mechanism.
Floppy disk drive	Motherboard Floppy disk module	Floppy disk controller. Floppy disk mechanism.
Keyboard	Motherboard BIOS IC Keyboard	Keyboard controller. Keyboard BIOS. Key switches.
Pointer	Motherboard Touch pad	Keyboard controller. Touch pad sensor, controller (PS/2 output).
Audio	Motherboard LED PCA Speakers	Audio controller, speaker amplifier, headphone amplifier, zoomed video controller, mute switch. External audio jacks. Speakers.
Status	Motherboard LED PCA	Keyboard controller. Power LEDs.
Serial	Motherboard Modem PCA	I/O controller. Serial connector.
Parallel	Motherboard Modem PCA	I/O controller Parallel connector.
Infrared	Motherboard LED PCA	I/O controller. Infrared transmitter/receiver.
PS/2 port	Motherboard LED PCA	Keyboard controller, PS/2 processor PS/2 connector.
USB	Motherboard LED PCA	Bus controller (South Bridge) USB connector.
Docking port	Motherboard	Docking logic, docking connector.
PCMCIA	Motherboard PCMCIA socket	PCMCIA controller. PCMCIA connectors.

2

Removal and Replacement

This chapter tells you how to remove and replace the following components and assemblies. A bullet (•) indicates that an item is user-replaceable.

Table 2-1. Removal Cross-Reference

- Battery (page 2-3).
  Bottom case (table on page 2-21).
  CD-ROM drive (table on page 2-21).
  CPU module (page 2-17)
  Display bezel (table on page 2-21).
  Display case (table on page2-21).
  Fan (page 2-7).
  Floppy disk drive (table on page 2-21).
- Foot (table on page 2-7).
- Hard disk drive (page 2-6).
  Heatsink (table on page 2-21).
  Hinge (table on page 2-21).

Hinge cover (table on page 2-21).
Inverter PCA (table on page 2-21).
LED PCA (table on page 2-21).
Keyboard (page 2-9).
LCD brackets (table on page 2-21).
LCD flex cable (table on page 2-21).
LCD module (page 2-21).
Motherboard (page 2-17).
- RAM board (page 2-3).
- RAM module cover (table on page 2-7).
  Top case (page 2-15).

Caution

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

Note

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

There are some removal and replacement procedures that differ between Omnibook XE2 technologies. Refer to the Technology Code description in section 5.3 for details. The Technology Code (e.g DD) will be referenced in the procedures in order to identify these differences.

Table 2-2. Required Equipment

- Small Phillips screwdriver, preferably magnetized.
- 5 mm hex driver.
- Pointed knife or probe.
- Small flat-blade screwdriver.
- uPGA-1 CPU removal tool (*Technology Code DD*)

Table 2-3. Recommended Screw Torques

Screw Thread Size	Torque (kgf•cm)	Torque (lbf•in)
M2	1.3 – 1.8	1.1 – 1.5
M2.5 (4–5 mm long)	3.0 – 3.5	2.6 – 3.0
M2.5 (16–19 mm long)	2.5 – 3.0	2.2 – 2.6
M3	3.0 – 3.5	2.6 – 3.0

Removing the Battery
(User-Replaceable)

Carefully read the following information.

Caution

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

- When discarding a battery, contact the local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.

- To avoid risk of fire, burns, or damage to the battery, do not allow a metal object to touch the battery contacts.

- The battery is suitable for use only with compatible OmniBook models.

- Do not disassemble. There are no serviceable parts inside.

- Handle a damaged or leaking battery with extreme care. If you come in contact with the electrolyte, wash the exposed area with soap and water. If it contacts the eye, flush the eye with water for 15 minutes and seek medical attention.

- Do not expose the batteries to high storage temperatures (above 60 °C, 140 °F).

Required Equipment

- None.

Removal Procedure

1. Unplug the AC adapter, if present.

2. Turn the notebook bottom side up.

3. Push the blue latch in the direction of the arrow (to your left) and lift out the battery.
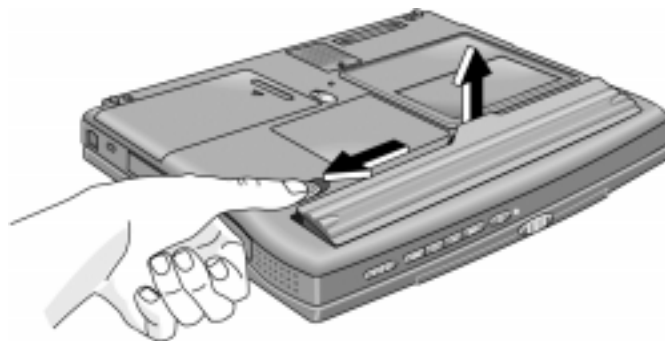
Figure 2-1. Removing the Battery

Reassembly Notes

- Snap the battery back into place.

- Charge the battery by connecting the AC adapter to the OmniBook.

Removing a RAM Board
(User-Replaceable)

The OmniBook XE2 has 64 MB of RAM on the motherboard and has one RAM slot for installing additional RAM.

Table 2-4. RAM Board Replacement Part Numbers

Description	Product Number
RAM board, 32-MB SDRAM	F1456A
RAM board, 64-MB SDRAM	F1457A
RAM board, 128-MB SDRAM	F1622A

The OmniBook's computer chips are extremely static-sensitive. Static electricity can permanently damage computer chips. Carefully read the following information.

Caution

Handle the RAM module only by its edges. Otherwise, you may damage the module due to electrostatic discharge. Static electricity can permanently damage computer chips. It is therefore important to discharge the static electricity from your body before installing the memory module. Discharge your body's electricity by touching the metal shielding around the connectors on the rear of the OmniBook computer.

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

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

2. Remove the RAM cover located on the bottom of the OmniBook using a Phillips screwdriver.
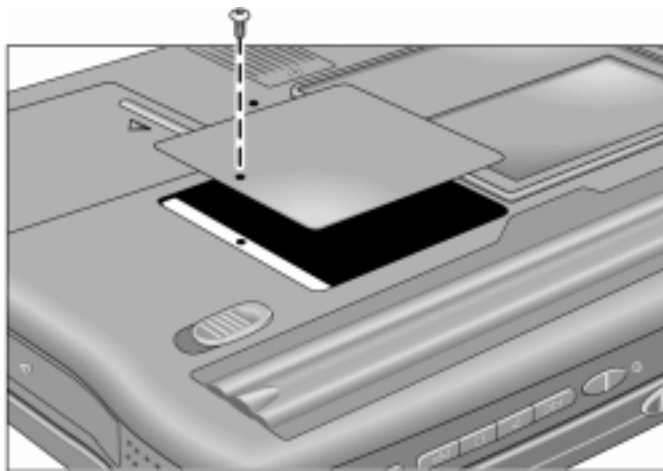
Figure 2-2. Removing the RAM Module Cover

3. Release the two latches at the sides of the RAM module by pushing them gently outward, away from the sides of the module. The free edge of the module pops up.

4. Pull the module out of the connector. Handle it only by the edges.
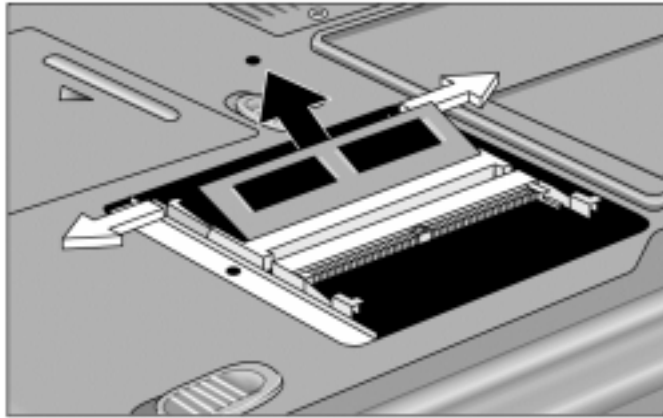
Figure 2-3. Releasing the RAM Module Latches

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.

Removing the Hard Disk Drive

(User-Replaceable)

Table 2-5. Hard Disk Drive Replacement Part Number

Description	Part Number	Exchange Part Number
Drive, hard disk (6.0GB)	F1753-60975	F1753-69075

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

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

2. Turn the notebook bottom side up.

3. Use a Phillips screwdriver to remove the hard disk drive locking screw.

4. Slide and hold the hard disk drive latch. This releases the hard disk drive.

5. Slide the hard disk drive to the left, then lift it out.

Figure 2-4. Removing the Hard Disk Drive

6. If you are installing a new hard drive that does not have a cover, you can remove the cover parts from the old hard drive:

- Remove the six screws from the case, carfully pull back the case prong, and lift out the drive.

Reassembly Notes

> **Caution**
>
> Do not cover the vent hole in the top surface of the hard drive. If you cover the hole, the hard drive could fail prematurely.

- Create a Hibernate partition on the drive before loading any software. See the instructions included with the drive or go to the OmniBook website at www.hp.com/omnibook.

- Create a partition the size of the default option.

Replacing Small Parts
(User-Replaceable)

The following small parts are user-replaceable.

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

Part	Replacement Procedure
Feet	Insert a small flat-blade screwdriver or pointed knife under the foot and pry it loose. To replace, firmly press the adhesive side of the foot into the recess.
RAM Module Cover	On the bottom of the unit, remove the screw from the RAM module cover and remove the cover (see page 2-4).

Removing the Fan

(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.

Removal Procedure

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

2. Turn the computer bottom side up.

3. Using a Phillips screwdriver, remove the screw holding the fan.

4. Slide the fan assembly forward, and lift it out by the rear edge.

5. Carefully unplug the cable connector.
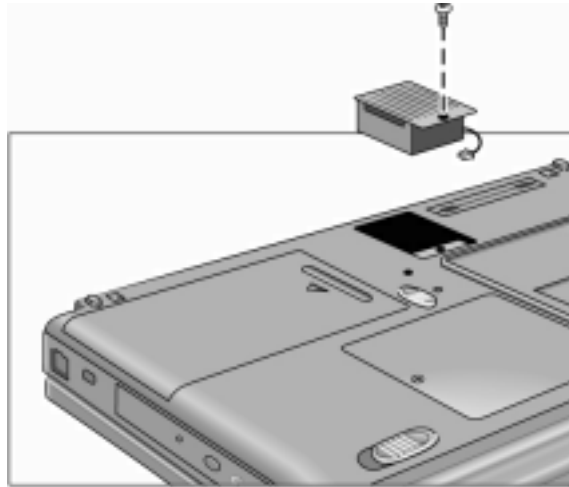
Removing the Keyboard
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.
- Plastic knife or small flat-blade screwdriver.

Removal Procedure

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

2. Use a plastic knife or small flat-blade screwdriver to gently pry up the right side of the keyboard cover. Remove the keyboard cover by pulling it to your right.

Caution

If you use a screwdriver to remove the keyboard cover, avoid scratching the plastic.

---

3. Use a Phillips screwdriver to remove the three screws.

Figure 2-5. Removing the Keyboard Cover and Screws

4. Lift up the edge of the keyboard that is closest to the display until it forms a 30° angle to the base, then gently pull it out toward the rear.

5. Disconnect the flex cable from the base by grasping both sides of the cable and gently pulling up.
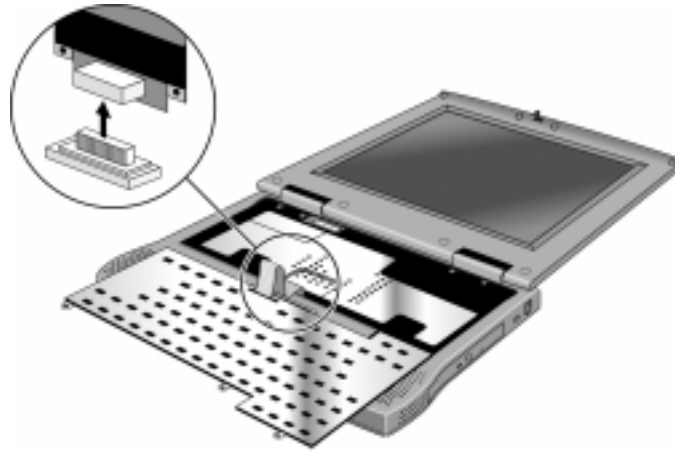
Figure 2-6. Installing the Keyboard

Reassembly Notes

- Lay the keyboard bottom side up on the top case, forward of its normal position, and attach the flex cable to the base. Be sure that the cable is folded neatly beneath the keyboard.

Removing the Display Assembly

(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.
- Plastic knife or small flat-blade screwdriver.

Removal Procedure

1. Unplug the AC adapter, if present, and remove the battery.
2. Open the display completely (180 degrees).
3. Use a plastic knife or small flat-blade screwdriver to gently pry up the right side of the keyboard cover.
4. Remove the cover by pulling it to your right.
5. Use a Phillips screwdriver to remove the four screws from the hinge covers.
6. Remove the hinge covers with your fingers. Do not use a tool.
7. Unplug the cable by grasping both ends of the connector and pulling toward you.
8. Use a Phillips screwdriver to remove the four screws from the hinges.

"Step 5" screws (4): M2.5×4mm

"Step 8" screws (4): M2.5×5mm
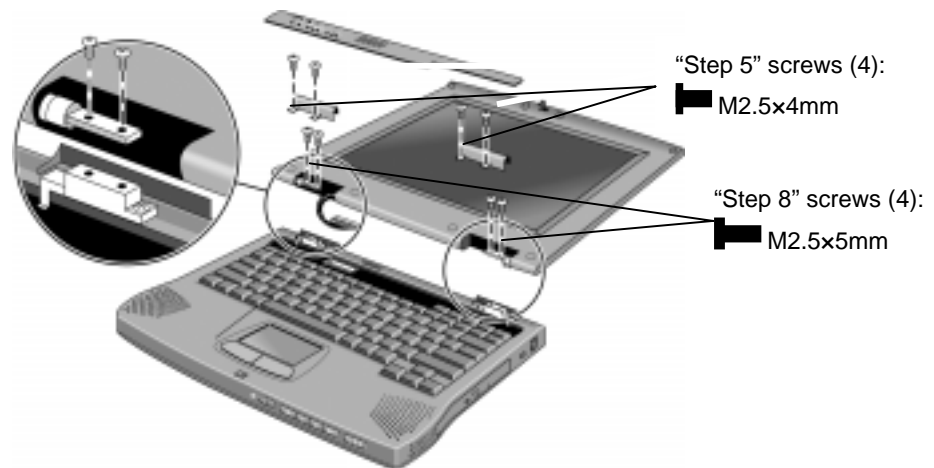
Figure 2-7. Removing the Display Assembly

Reassembly Notes

- You may need to use a flat-blade screwdriver to reconnect the cable.

Removing the LCD Module

(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.
- Pointed knife or probe.

Removal Procedure

1. Unplug the AC adapter, if present, and remove the battery.
2. Remove the display assembly (page 2-11).
3. On the display bezel, using a pointed knife or probe, remove the eight upper and lower screw covers.
4. Using a Phillips screwdriver, remove the eight screws.
5. Using your fingers at each side of the bottom of the display bezel, slide the bezel toward you until it unsnaps.
6. Lift up the bottom of the bezel and lift it off.
7. Using a Phillips screwdriver, remove the four screws holding the LCD brackets and hinges near the bottom corners of the display case.
8. Remove the hinges.
9. Using a Phillips screwdriver, remove the four screws holding the LCD brackets.
10. Lift out the LCD module, including the right and left LCD brackets and the inverter PCA. (In some models, the inverter PCA is at the bottom of the LCD module; in others, to the right side.)
11. Using a Phillips screwdriver, remove the four screws holding the brackets to the LCD module.
12. Unplug the two cables from the inverter PCA.
13. Remove the four side screws holding the brackets to the LCD module.

Screw covers

Display bezel

LCD module

Left LCD bracket

Note: In some models, the inverter PCA is at the bottom of the LCD module.

Inverter PCA

Hinges

Right LCD bracket
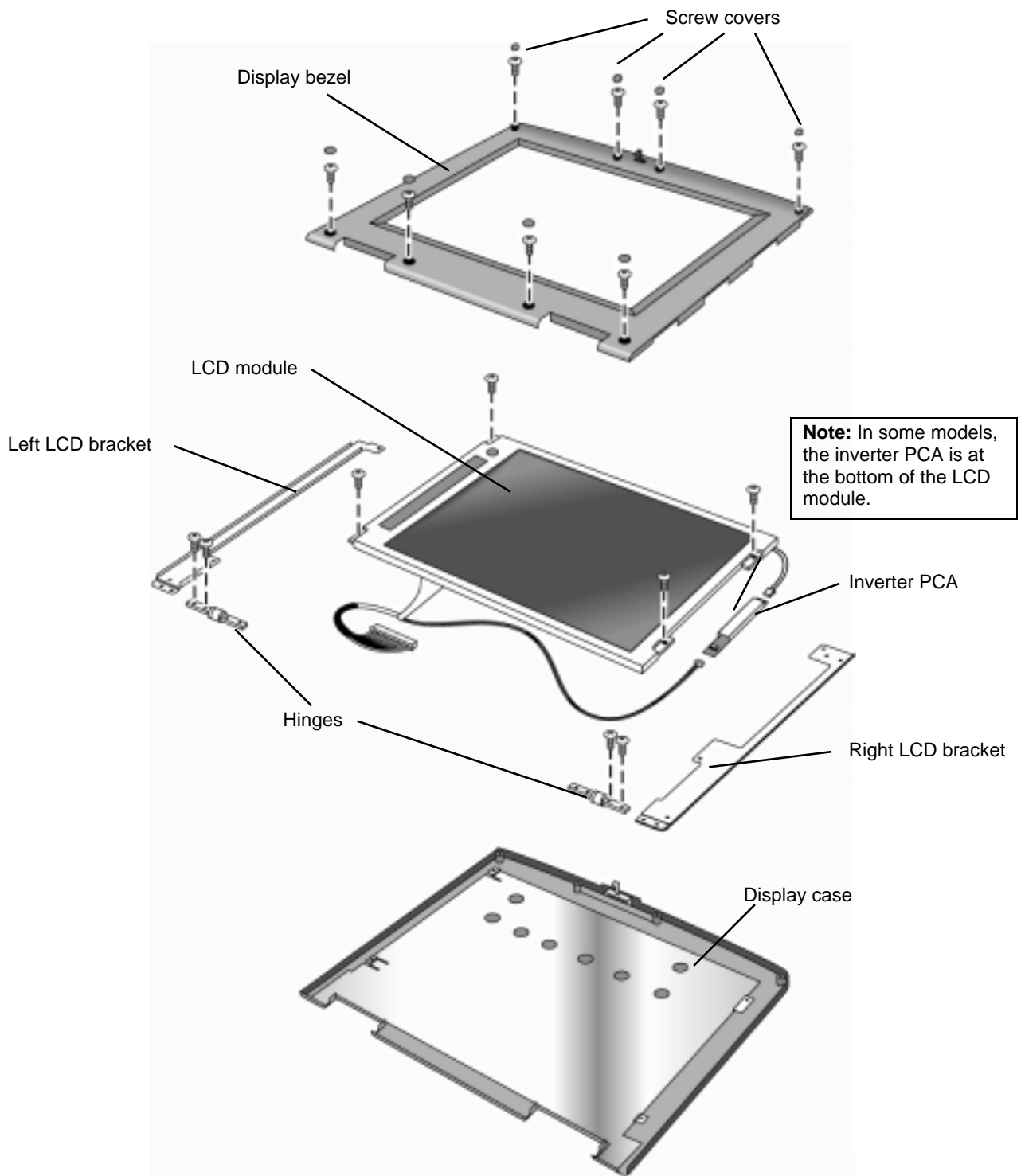
Display case

Figure 2-8. Removing the LCD Module

Reassembly Notes

- To resposition the inverter PCA, insert the plastic positioning knobs in the holes at each end of the inverter.

- Wrap the cable and wires around screw holes and free of the edge of the display case.

- Slide the display bezel toward the top until it snaps in place.

- Start all of the bezel screws before tightening any of them.

- Note that the top screw covers differ from the bottom screw covers, and that the two screw covers at the upper left and upper right are somewhat thicker than the others.

Removing the Top Case

(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.
- Pointed knife or probe.
- Small flat-blade screwdriver.

Removal Procedure

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

2. Remove these additional assemblies:

   - Hard disk drive (page 2-6).
   - Fan (page 2-7).
   - Keyboard (page 2-9).
   - Display assembly (page 2-11).

3. Using the Phillips screwdriver, remove four screws on the top case: two on either side of the fan location, one toward the top right, and one (recessed) next to the touch pad

Cables

Cable connectors
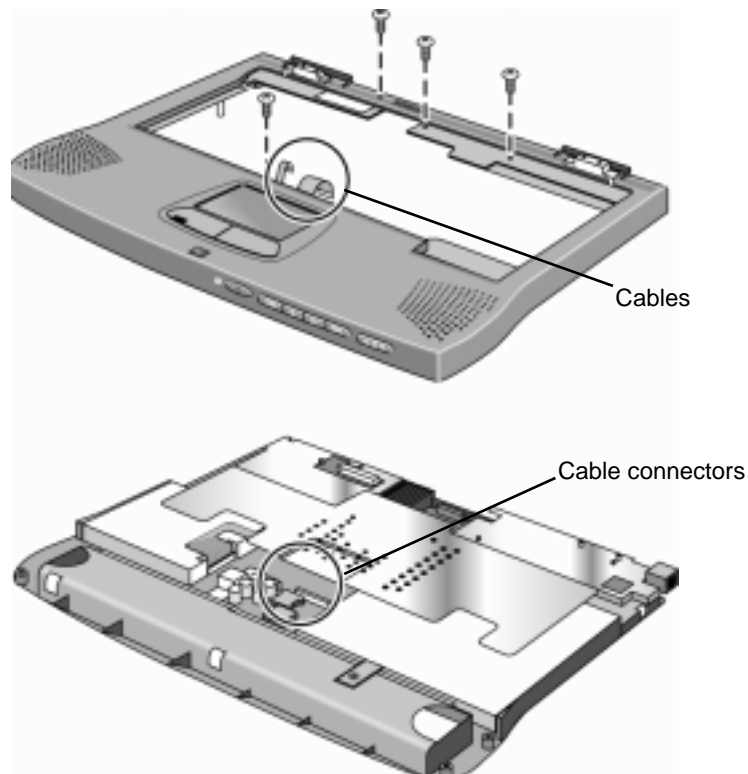
Figure 2-9. Removing the Top Case

4. Turn the case bottom side up and, with the battery compartment toward you, using the Phillips screwdriver, remove thirteen screws from the bottom case:

- four on the right side

- two in the battery compartment

- two to the left of the battery compartment

- one from the RAM module cover (also remove the RAM module cover itself)

- one in the hard disk drive compartment

- one under the upper left foot (first remove the foot with a pointed knife or probe)

- two recessed hinge screws
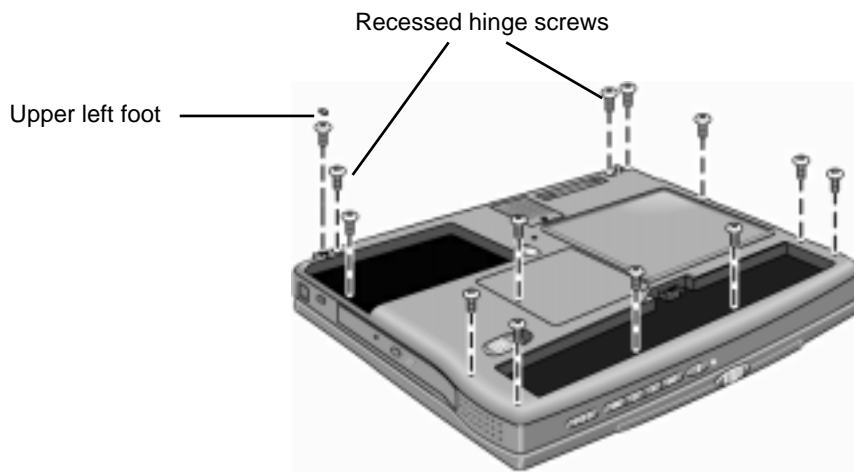
Figure 2-10. Detaching the Bottom Case

5. Turn the unit top side up.

6. Using a small flat-blade screwdriver, slide the two cable connectors up slightly and detach the two cables from the motherboard.

7. Lift off the top case.

Reassembly Notes

- Insert the thin (touch pad) cable first, since it has more flexibility than the wide (CD control PCA) cable.

- With the cable connectors opened slightly, insert the cables back in the cable connectors and push the connectors shut.

Removing the CPU and Motherboard

(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.

- Small flat-blade screwdriver.

- 5-mm (3/16 inch) hex driver.

- uPGA-1 CPU removal tool (*Technology Code DD*)

Removal Procedure

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

2. Remove these additional assemblies:

    - Hard disk drive (page 2-6).

    - Fan (page 2-7).

    - Keyboard (page 2-9).

    - Display assembly (page 2-11).

    - Top case (page 2-15).

3. Remove the heatsink: using the Phillips screwdriver,
   Technology Code (DB):
   remove the six screws on the heatsink (including the two recessed screws marked with arrows)
   and lift off the heatsink.
   Technology Code (DD):
   remove the eight screws on the heatsink (inlcuding the four recessed screws)

4. Remove the floppy disk drive (on the left):

    - Remove one screw.

    - Using a small flat-blade screwdriver, slide the cable connector to the right slightly and detach
      the cable from the motherboard.

    - Remove the drive.

5. Remove the CD-ROM drive (on the right):

    - Remove one screw.

    - Slide the drive to the right to detach the connector.

    - Remove the drive.

6. Remove the CPU module / CPU
   Technology Code (DB):
   Using the Phillips screwdriver, remove the three screws and lift the module up.
   Technology Code (DD):
   Using a uPGA-1 CPU removal tool, remove the CPU from the socket.

7. Remove the LED PCA (on the left):
   Technology Code (DB):

Using the Phillips screwdriver, remove the three screws (two long screws on top and one short screw on the front left).

Technology Code (DD):
Using a Phillips screwdriver, remove the four screws (two long screws on top, one short screw on the top right, and one short screw on the front left).

- Tilt the front of the LED PCA up to detach the two connectors on the bottom.

- Lift the PCA out.
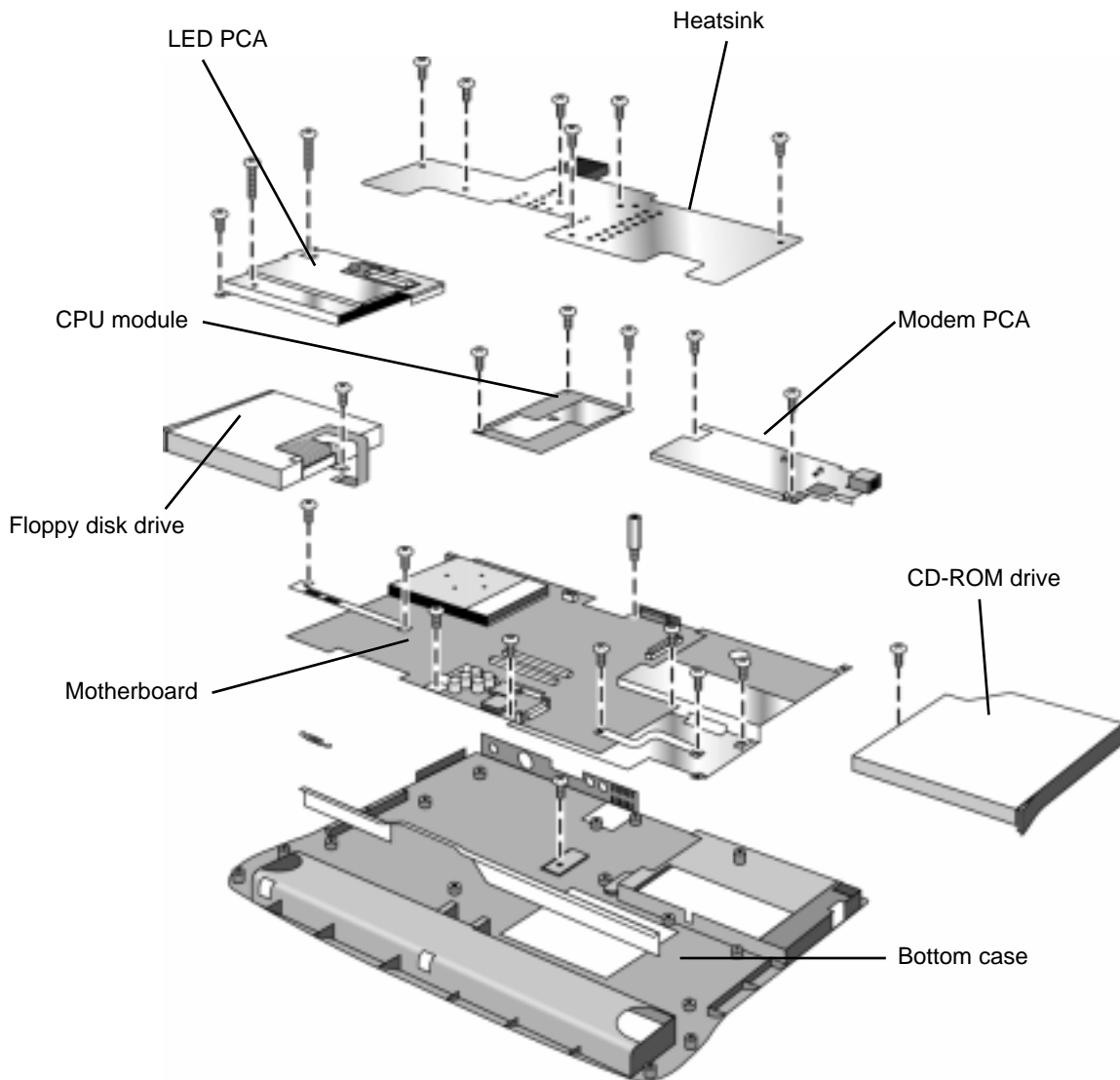
Figure 2-11. Removing the CPU and Motherboard

Note: Omnibook XE2-DB shown. Some details differ from Omnibook XE2-DD.

8. Remove the modem PCA (on the right):

- Using the Phillips screwdriver, remove the two screws.

- Tilt the left of the modem PCA up to detach the connector on the bottom.

- Lift the PCA out.

9. Remove the motherboard:

- Using the Phillips screwdriver, remove the two brackets; the left bracket has two screws, and the right has three.

- Using the Phillips screwdriver, remove the two screws in front (on either side of the battery connector), the one screw in front of the modem PCA, and the one screw on the right side.

- Using the 5-mm hex driver, remove the standoff on the left side of the VGA connector.

- Lift the motherboard at the rear and slide it out and upward from the bottom case.

Reassembly Notes

> **Note: Installing a New Motherboard**
> - If any RAM boards are present, transfer them from the old motherboard to the new one:
> - Store the serial number electronically in the new motherboard—see the steps below.

- When reinserting the motherboard, slip the battery connector under the front edge of the bottom case and drop in place.

- When reinstalling the LED PCA, tilt the PCA toward the back to slip the audio jacks into their openings, and be sure that the connectors line up on the bottom.

- When reinstalling the CPU module, press *only* on the two circles near the front edge.

- When reinstalling the floppy disk drive, slip the cable into the cable connector and slide the connector closed.

- When reinstalling the heatsink, be sure that the insulating material is intact.

> **Note: Installing a New Bottom Case**
> - Install a new serial number label and overlay—see the steps below.

Storing the Serial Number Electronically

1. Exit Windows and boot to a DOS prompt.

   □ For Windows 95 or Windows 98, press F8 during reboot and select Command Prompt Only.

   □ For Windows NT, boot from a DOS boot floppy disk.

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

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

   □ Otherwise, copy \Omnibook\Drivers\Hputils\Esn.exe from the OmniBook XE2 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 a New Serial Number Label

If you do not have a master file that creates serial number labels, get a copy from the Reseller website (see page vi) under Product Support Information in the Service and Support Library.

1. 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.

2. 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.

3. While holding the paper label in place, attach a serial label overlay (HP Part #7121-7525) into the outer recess. It covers and protects the serial label.

Removing Other Components
(HP Authorized Service Providers Only)

Required Equipment

- Small Phillips screwdriver.

- Pointed knife or probe (for display components).

- 5-mm hex driver (or 3/16 inch) (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. Components are separated into these groups:

   - Display components.

   - Top case components.

   - Bottom case components.

Table 2-7. Removing Display Components

Component	Removal Procedures	Additional Steps (See figure on page 4-3)
Display Bezel	Display (page 2-11) LCD module (page 2-12).	Remove the display bezel (page 2-12)..
Display Case	Display (page 2-11). LCD module (page 2-12).	Remove the LCD module and brackets from the case, but do not disassemble the module (page 2-12).
Hinge	Display (page 2-11). LCD module (page 2-12).	Remove the display bezel (page 2-12).
Hinge Cover	Display (page 2-11).	
Inverter PCA	Display (page 2-11). LCD module (page 2-12).	1. Remove the display bezel (page 2-12). 2. Unplug both cables attached to or holding the inverter PCA. Lift up the PCA if necessary.
LCD Brackets (part of LCD kit)	Display (page 2-11). LCD module (page 2-12).	
LCD Flex Cable	Display (page 2-11). LCD module (page 2-12).	
LCD Module	See page 2-12.	

Table 2-8. Removing Top Case Components

Component	Removal Procedures	Additional Steps
Keyboard	See page 2-9.	
Top Case	See page 2-15.	

Table 2-9. Removing Bottom Case Components

Component	Removal Procedures	Additional Steps (See figures on pages 4-2, 4-4)
Battery	See page 2-3.	

Component	Removal Procedures	Additional Steps (See figures on pages 4-2, 4-4)
Bottom Case	Keyboard (see page 2-9). Top case (see page 2-15). CPU and motherboard (see page 2-17).	Remove heatsink, drives, PCAs, CPU module, and motherboard (page 2-17).
CD-ROM Drive	Keyboard (see page 2-9). Top case (see page 2-15).	Remove heatsink (page 2-17).
CPU Module / CPU	See page 2-17.	Remove heatsink (page 2-17).
Fan	See page 2-7.	
Floppy Disk Drive	Keyboard (see page 2-9). Top case (see page 2-15).	Remove heatsink (page 2-17).
Hard Disk Drive	See page 2-6.	
Heatsink	Keyboard (page 2-9). Top case (see page 2-15).	
LED PCA	Keyboard (see page 2-9). Top case (see page 2-15).	Remove heatsink (page 2-17).
Modem PCA	Keyboard (see page 2-9). Top case (see page 2-15).	Remove heatsink (page 2-17).
Motherboard	See page 2-17.	
RAM Board	See page 2-4.	

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).
    - □ 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.

```
        ( )
         |
         v
+-----------------------------+
| Check the customer's        |
| description                 |
| of the problem and any      |
| supporting                  |
| information.                |
+-----------------------------+
         |
         v
+-----------------------------+
| Try to duplicate the        |
| customer's                  |
| problem.                    |
|                             |
+-----------------------------+
         |
         v
+-----------------------------+
| Troubleshoot the problem    |
| using                       |
|   - Diagnostic tools.       |
|   - Troubleshooting         |
|     suggestions.            |
+-----------------------------+
         |
         v
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| Verify the repair by        |
| testing the                 |
| functionality of the        |
| complete unit .             |
+-----------------------------+
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         v
        ( )
```
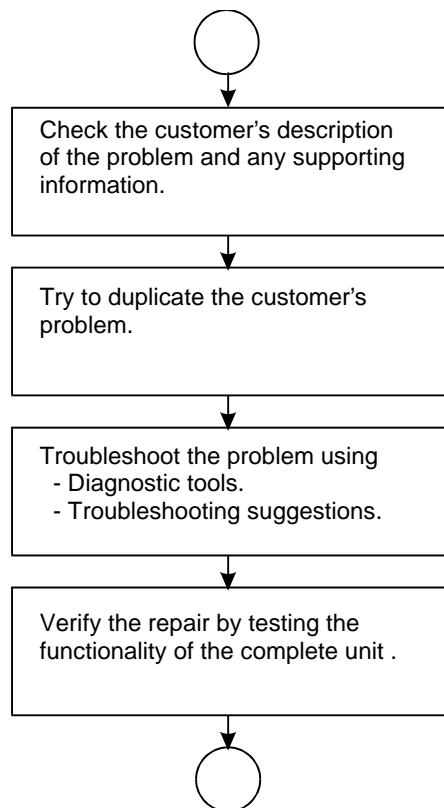
Figure 3-1. Basic Troubleshooting Steps

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	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 (Misc menu)		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)	

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 1-13.			
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 board and try again. Reinsert and try again.	AC adapter. RAM board. CPU module. Motherboard. I/O PCA. LCD module. Hard drive.	Check AC adapter. Remove any RAM boards and retry. If power status light does not turn on, replace motherboard. If power status light 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 I/O PCA, replace CPU module, replace motherboard. If power status light 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 battery LEDs. Check battery contacts. If available, try another battery.	Battery. Motherboard.	
Does not boot from floppy drive	Check boot order in BIOS Setup. Check that floppy boot is enabled in BIOS Setup.	Floppy drive or contacts. 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.		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.) Some PC cards (PCMCIA) draw power even while not in use. 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 indication	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.
Display			
Dark display, no light	Adjust display brightness. Press Fn+F12 several times. Try external monitor.	LCD module (backlight). LCD cable or connections. Inverter PCA.	Reseat the I/O PCA. If an external monitor displays no image, replace the I/O PCA instead, then motherboard.
White display	Adjust display brightness.	LCD module. Inverter PCA.	
Erratic display		LCD cable or connections. LCD module.	
Bright or missing pixels or lines	See quality statement on page 5-2.	LCD module. LCD cable or connections.	See quality statement on page 5-2.
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.	If the drive case is damaged, it can prevent proper operation.

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
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 95/98) 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 95/98) or Disk Administrator (Windows NT). Check partitions using FDISK (Windows 95/98) 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 module contacts. Check settings in BIOS Setup.	Floppy module or contacts. Motherboard.	
Keyboard			
Some or all keys do not work properly		Keyboard. Motherboard.	Try reinserting the flex cable in the connector on the motherboard.
PS/2 keyboard and mouse with Y-adapter do not work	Check devices separately.	Y-adapter. PS/2 device. Motherboard.	
Touch pad			
General problems	Check settings in Control Panel. Check that the touch pad is enabled in BIOS Setup.	Top case. Motherboard.	
Click button doesn't work		Top case. Motherboard.	

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
Audio			
Sound does not play	Check settings in BIOS Setup. Increase sound volume (Fn+UPARROW and software controls). Check whether mute is active (mute button and software controls). Check for sound resource conflicts in Device Manager (Windows 95/98) or Administrative Tools or Control Panel System (Windows NT).	Speakers. I/O PCA. 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.	Inverter PCA (mic). Motherboard. I/O PCA.	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.	Use loop-back connector during test—see page 3-13.
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.	I/O PCA. Motherboard.	
USB			
General problems	USB is not supported in Windows NT 4.0.	Motherboard.	

Symptom	Call Center: Suggestions	Repair Center: Likely Causes	Repair Center: Comments
PCMCIA			
General 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. PCMCIA socket.	Using a flashlight, look for bent pins inside the PCMCIA socket. If both slots have problems, replace the motherboard. If only one slot has a problem, try replacing the PCMCIA socket.
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.	Check the fan. Check for proper contact between CPU and its top plate, and between heatpipe 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. Check for overheating—see the previous symptom. 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—see the previous symptom.
Accessories			
Port replicator I/O problems	Check that AC power is connected. Check settings in BIOS Setup. Try using the corresponding OmniBook port.	Port replicator. Motherboard.	Test the corresponding OmniBook ports while undocked. The port replicator is not repairable—it must be exchanged.
Cannot boot from CD in CD-ROM drive	Check that the CD is bootable. During boot, do not press ESC before the F2 prompt—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 (below).

- Power-on self-test (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.
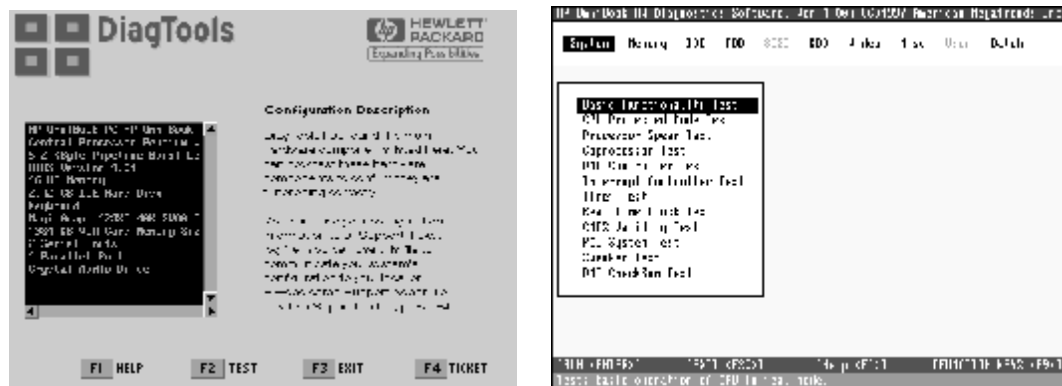
Figure 3-2. OmniBook Diagnostic Screens, Basic and Advanced

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 Floppy 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–
  If TopTools is installed, use the DiagTools page to create the disk.

- On any computer with a CD-ROM drive, run **diaginst** from the \Omnibook\Drivers\Hputils directory on the OmniBook Recovery CD.

- 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—or press F10 in the next step.

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

> **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 checking the settings.

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 loop-back connector to the port before running the test for that port. See the wiring diagrams below.
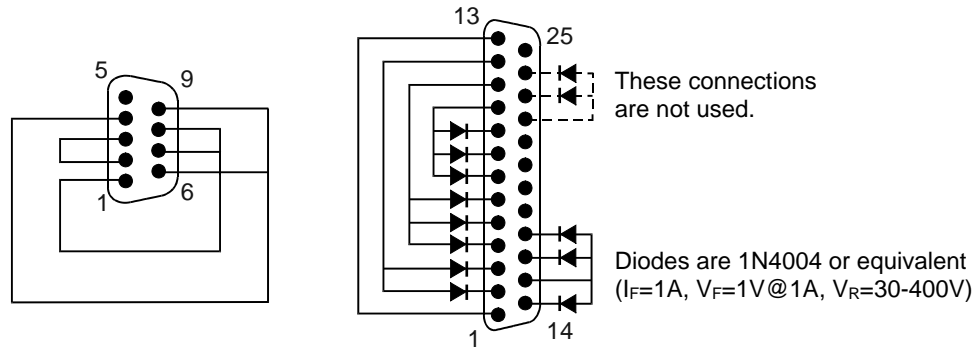
Figure 3-3. Serial and Parallel Loopback Connectors

Interpreting the Results

- The following table lists test groups, error codes, and suggestions for follow-up 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.
0079h	Replace the motherboard.
0083h - 0086h	Replace the BIOS IC. Replace the motherboard.
0087h	Replace the motherboard.
0088h	Replace the BIOS IC.

Code	Suggestions
0090h - 0096h	Replace the BIOS IC. Replace the motherboard.
009Ah - 009Eh	Replace the BIOS IC. Replace the motherboard.
009Fh	Insufficient DOS memory. Load fewer device drivers.
00A0h	No repair. (ESCD not supported.)
00A1h	Replace the BIOS IC. Replace the motherboard.
00A2h - 00A3h	No repair. (ESCD not supported.)
00A4h	Replace the BIOS IC.
00A5h - 00A6h	No repair. (ESCD not supported.)
00A7h	Replace the BIOS IC. Replace the motherboard.
00C0h - 00CCh	Replace the CPU module.
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 BIOS IC.
0120h - 0150h	For the OB 4100 for 01FFFFFFh and below, replace the motherboard. Otherwise, replace the RAM board (each 01000000h represents 16MB).
0160h	Address bus short. Remove any RAM board and rerun the test. Check the CPU module for shorts. Replace the motherboard.
0170h - 0172h	Replace the motherboard.

0180h	For the OB 4100 for 01FFFFFFh and below, replace the motherboard. Otherwise, replace the 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 the RAM board. Replace the motherboard.
0184h	Remove or swap RAM boards. (OmniBook 4150 must have one RAM board present.) Replace the CPU module, replace the motherboard.
0190h - 01A0h	For the OB 4100 for 01FFFFFFh and below, replace the motherboard. Otherwise, replace the RAM board (each 01000000h represents 16MB).
01A1h - 01A4h	Replace the CPU module.
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.
0290h	Rerun the test. If the error persists, replace the hard disk.
0293h - 0296h	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	Replace the VGA PCA for OB 4100 only. Replace the motherboard.
0416h - 0418h	Replace the keyboard. Replace the motherboard.
Serial Port Tests	
0601h	For the external loop-back test, make sure the loop-back connector is installed and constructed properly. For the external or internal loop-back test, replace the motherboard.
0602h	Replace the motherboard.

0603h	For the external loop-back test, make sure the loop-back connector is installed and constructed properly. For the external or internal loop-back test, replace the motherboard.
0604h - 0605h	Replace the motherboard.
0606h	For the external loop-back test, make sure the loop-back connector is installed and constructed properly. For the external or internal loop-back test, replace the motherboard.
0607h	Make sure the loop-back connector is installed and constructed properly. Replace the motherboard.
0608h - 0617h	Replace the motherboard.
Parallel Port Tests	
0701h	For the external loop-back test, make sure the loop-back connector is installed and constructed properly. For the external or internal loop-back 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 loop-back connector.
0708h	Replace the motherboard.
Audio Tests	
0801h - 0816h	If this error also occurs for an external headphone, replace the motherboard (or VGA PCA for the OB 4150). Otherwise, check the speaker connections, replace the speakers. If it occurs only for an external headphone, replace the audio jack PCA.
9003h - 9004h	(See Microphone Tests near end of table.)
Video Tests	
0900h - 0901h	Replace the VGA PCA.
0903h - 0906h	Replace the LVDS PCA. Replace the VGA PCA.
0907h - 0908h	Replace the VGA PCA.
0909h - 090Ah	Replace the LVDS PCA. Replace the VGA PCA.
090Ch - 090Fh	Replace the VGA PCA.
0920h	Replace the LVDS PCA. Replace the VGA PCA.
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 computer CD in the drive.
0A05h	Insert a different CD in the drive. Check the connectors on the CD-ROM drive and motherboard. Replace the CD-ROM drive.
0A06h	Insert an audio CD in the drive.
SMBus Tests	
0E00h - 0E10h	Replace the motherboard.
ATAPI Removable Tests (LS-120)	
0F02h - 0F03h	Rerun the test. Insert a different disk in the LS-120 drive. Check the connectors on the LS-120 drive and motherboard. Replace the LS-120 drive.
0F04h - 0F05h	Replace the LS-120 drive.
TI CardBus Tests	
1201h	Memory space not available. Remove any attached ISA or PCI cards.
1202h - 1203h	Replace the motherboard.
1205h - 1206h	Insert a different PC Card. Replace the PCMCIA socket. Replace the motherboard.
USB Tests	
1301h	Reprogram the BIOS IC. Replace the BIOS IC. Replace the motherboard.
1302h - 1312h	Replace the motherboard.
9006h	(See USB Port Test near end of table.)
LCD Test	
8000h	If the test fails with an external monitor (must support VESA mode 105h), replace the VGA PCA, replace the motherboard. Otherwise: - If the shaded-band test fails, check the LCD flex cable connection in the bottom case, replace the LVDS PCA, replace the LCD flex cable, replace the VGA PCA, replace the motherboard. - If only a solid-color test fails, see chapter 5 for cosmetic guidelines, replace the LCD module.
Microphone/Line-In Tests	
9003h	If the error occurs for built-in and external microphones, replace the motherboard (or VGA PCA for the OB 4150). If it occurs for only the built-in microphone, check the LCD flex cable connection, replace the inverter PCA. If it occurs only for an external microphone, replace the audio jack PCA.
9004h	Replace the audio jack PCA. Replace the motherboard (or VGA PCA for the OB 4150).
Suspend/Resume Test	
9005h	Run BIOS Setup and restore default settings. Reprogram the BIOS IC. Replace the BIOS IC. Replace the motherboard.
USB Port Test	
9006h	Make sure a USB device is connected to the port you are testing. Select the correct speed for the device. Replace the motherboard (or dock component, if applicable).

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 (the default setting), 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. Update to the latest BIOS version 2.xx. (Service note 4100-06.)
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.

Message	Description
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).
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 ????.

Message	Description
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.

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 the OmniBook Recovery CD or from floppy disks:

1. If you do not have a CD-ROM drive, create installation floppy disks

   - On any computer with a CD-ROM drive, copy the DMI software from the dmi directory of the Recovery CD (under \omnibook\drivers) to two or more floppy disks (for example, copy the contents of the \disk1 subdirectory to disk #1).

   - On any computer with World Wide Web access, download the Top Tools package from the OmniBook website (see page vi), then create the floppy disks as directed.

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

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

4. Select and run the SETUP program from the dmi\disk1 directory on the CD (under \omnibook\drivers), or from floppy disk #1.

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.

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
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/yyyy format.	
Diskette A	Sets the floppy drive type.	Floppy disk drive type detected and set automatically.
Primary Master	Sets the hard disk drive type and various parameters.	Hard disk drive detected and set automatically.
Secondary Master	Sets the CD-ROM drive type and various parameters.	CD-ROM drive detected and set automatically.
Display Device	Switches between the built-in display (LCD), an external display (CRT) if attached, and both.	LCD/CRT
PS/2 Mouse	Enables or disables the pointing devices.	Enabled
ZV Port	Sets whether zoomed video function is enabled, to connect from a PC card to a VGA controller.	Enabled
Quiet Boot	When enabled, hides summary of power-on self-test and messages during boot.	Enabled
System Memory	Shows the system memory size.	640KB
Extended Memory	Shows the extended memory size.	Detected automatically.
Advanced Menu		**Default**
Serial port	Sets how the serial port is configured by the	Enabled

	BIOS (specified or automatic).	
Base I/O address	Sets the I/O address and interrupt.	3F8 IRQ4
IrDA port	Sets how the infrared port is configured by the BIOS (specified or automatic).	Disabled
Mode	When IrDA port is enabled, sets the hardware to support SIR (Standard IR) or FIR (Fast IR) infrared communications. (Driver installation is required.)	SIR
Base I/O address	When IrDA port is enabled, sets the I/O address and interrupt.	2F8 IRQ3
DMA channel	When Fast IR mode is enabled, sets the DMA channel.	DMA 3
Parallel Port	Sets how the parallel port is configured by the BIOS (specified or automatic).	Enabled
Mode	Sets the port to output only, bi-directional, ECP mode, or EPP mode.	Bi-directional
Base I/O address	Sets the I/O address.	378 IRQ7
DMA channel	When ECP mode is enabled, sets the DMA channel.	DMA 1
Local Bus IDE Adapter	Enables the primary (hard drive) and secondary (CD-ROM drive) controllers.	Both
Floppy disk controller	Enables the floppy disk drive.	Enabled
Security Menu		**Default**
User Password Is	Shows if a user password is set.	Clear
Supervisor Password Is	Shows if a supervisor password is set.	Clear
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.	
Set Supervisor Password	Press ENTER to set, change, or clear supervisor password. This password protects BIOS Setup settings.	
Password on boot	Sets whether a user password is required when the computer boots.	Enabled
Power (APM) Menu*		**Default**
PM Control	Disables power management, or enables it either always or when on battery power only.	Battery Powered Only *or* Only When Battery Exists
Power Savings	Sets the combination of power management features for your usage. (Choose Customize if you want to set any of the Timeout options.)	Maximum Battery Life
Standby Timeout	Sets the period of inactivity after which the computer goes from On to Standby power mode.	2 minutes
Suspend Timeout	Sets the period of inactivity after which the computer goes from Standby to Suspend	2 minutes

	power mode.	
Hibernate Timeout	Sets whether the computer goes from Suspend to Hibernate power mode after the indicated period of inactivity.	2 hours
Hard Disk Timeout	Sets the period of inactivity after which the hard disk stops spinning.	1 minute
Video Timeout	Sets the period of hard disk inactivity after which the screen is turned off.	Off
Power Button Mode	Sets the action (Suspend or Off) 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.	Off
Resume on Time	Sets whether the system resumes from Suspend at a defined time of day.	Off
Resume Time	Sets the 24-hour time when the system resumes from Suspend if enabled.	
Cooling Control	Sets mode for reduction of CPU temperature to Silence (less cooling) or Performance (more cooling).	Performance
Boot Menu		**Default**
Removable Devices Hard Drive ATAPI CD-ROM Drive	Shows the order of boot devices. Move the entries to change the order. Removable Devices include the floppy disk drive.	1. Removable Devices 2. Hard Drive 3. ATAPI CD-ROM Drive
Exit Menu		
Exit Saving Changes	Saves Setup changes to CMOS, exits, and reboots.	
Exit Discarding Changes	Discards Setup changes since last save, exits, and reboots. Does not affect security, date, or time changes.	
Load Setup Defaults	Restores default settings, stays in Setup. Does not affect security, date, or time changes.	
Discard Changes	Discards Setup changes since last save, stays in Setup. Does not affect security, date, or time changes.	
Save Changes	Saves Setup changes to CMOS and stays in Setup. Security settings are saved when changed.	

4

Replaceable Parts

This chapter contains exploded views of the OmniBook XE2 and the following lists of parts:

- OmniBook replaceable parts (page 4-5).

- Accessory replaceable parts (page 4-8).

- HP part number reference (page 4-8).

- Quanta part number reference (page 4-12).

Note

There are some replacement parts that differ between Omnibook XE2 technologies. Refer to the Technology Code description in section 5.3 for details. The Technology Code (e.g DD) will be referenced part description in order to identify these differences.
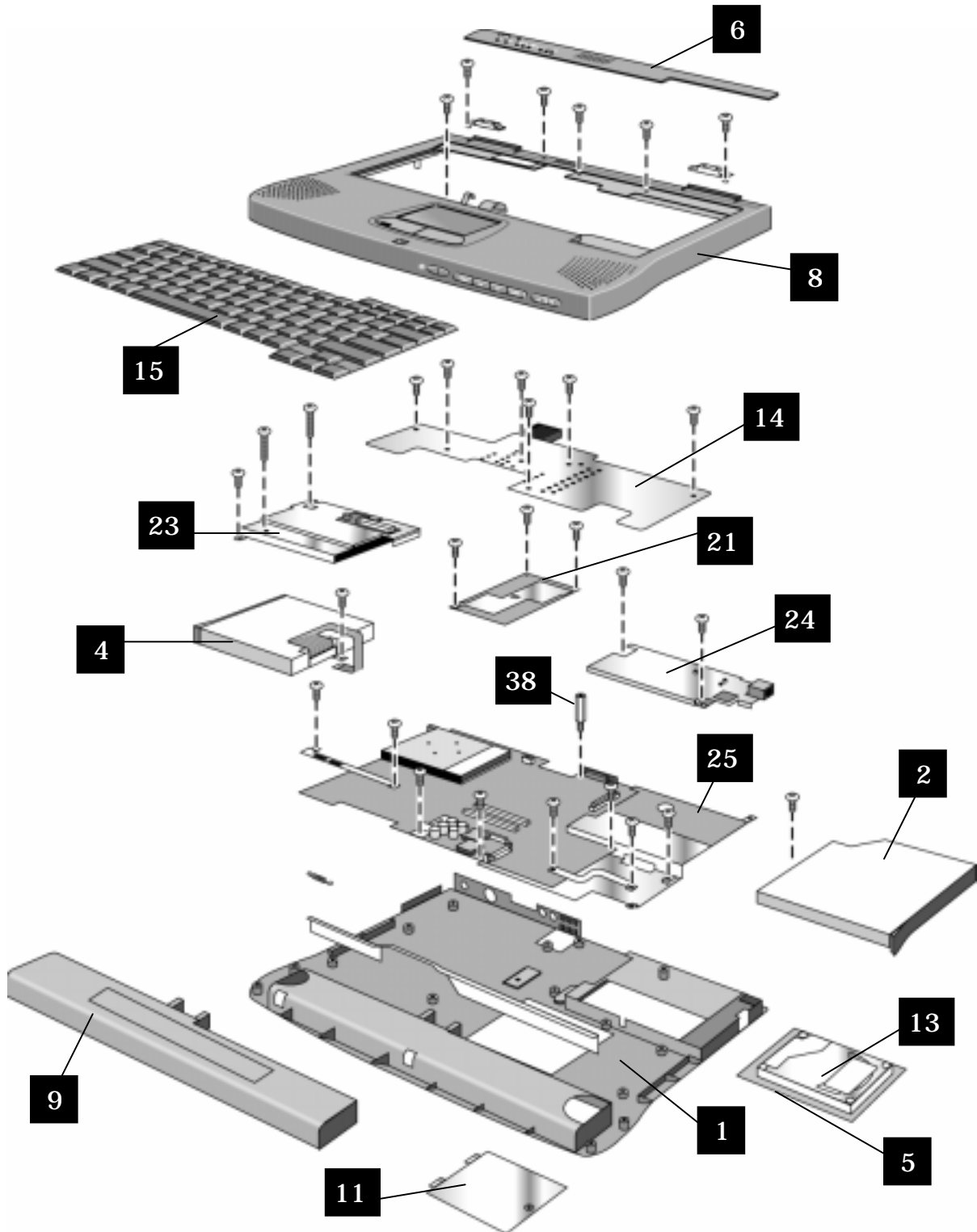
Figure 4-1. Exploded View (Except Display Components)

Note: Omnibook XE2-DB shown. Some details differ from Omnibook XE2-DD.
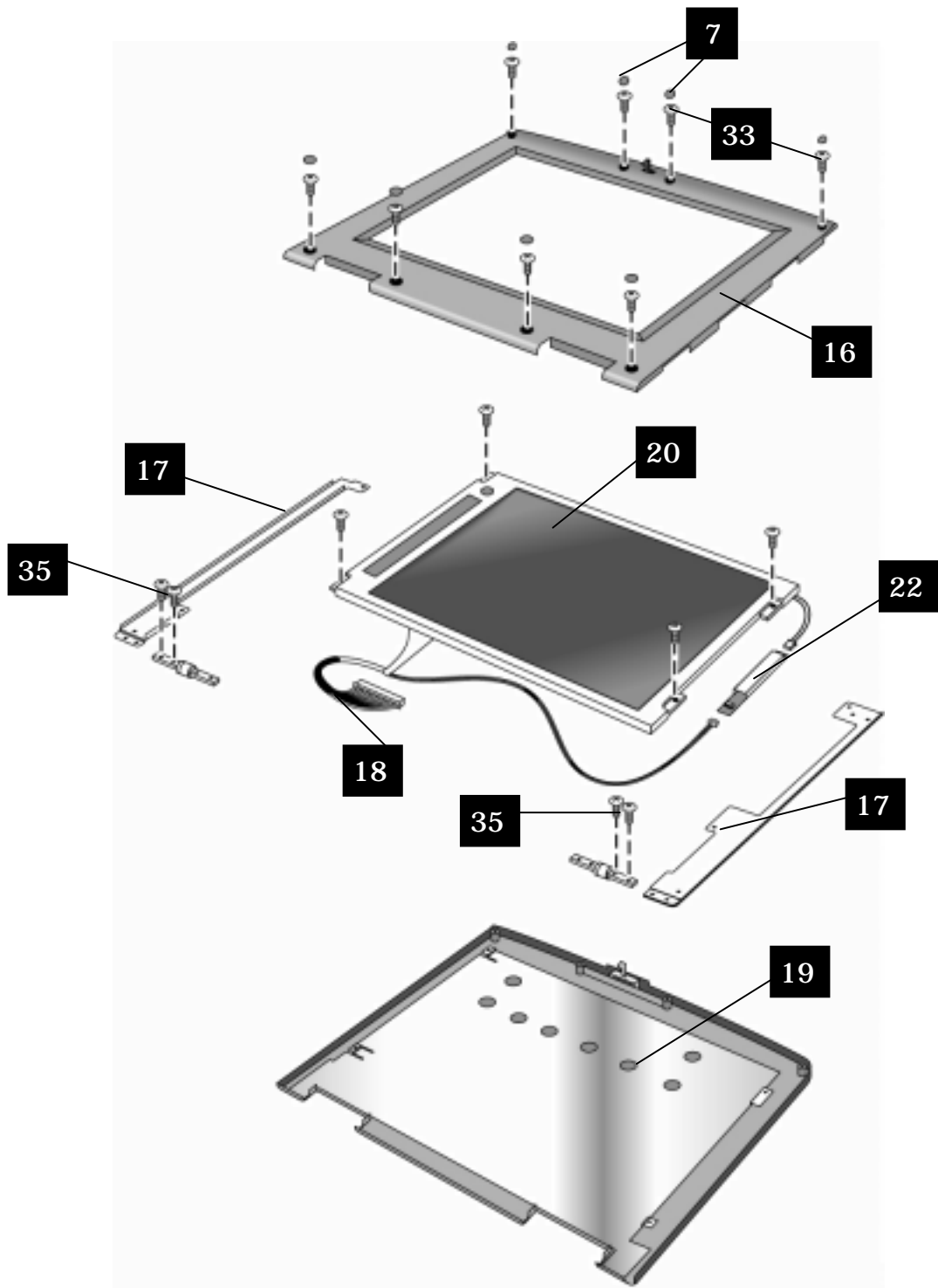
Figure 4-2. Exploded View (Display Components)
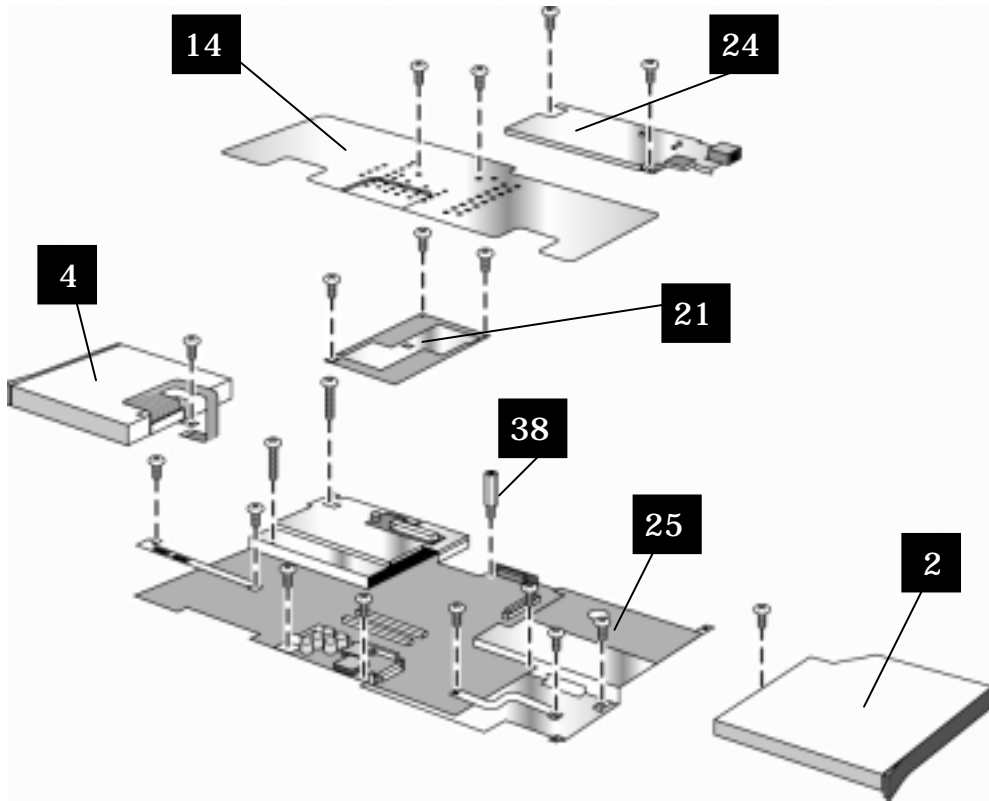
Figure 4-3. Exploded View (Motherboard Components)

Note: Omnibook XE2-DB shown. Some details differ from Omnibook XE2-DD.

Table 4-1. OmniBook XE Replaceable Parts

	HP Part Number	HP Exchange Part Number	Description	Technology Code* DB	DD
1	F1753-60910		ASSY, Base	X	
1	F1772-60904		DD ASSY, BASE		X
2	F1753-60914		ASSY, CD-ROM	X	
2	F1772-60923		DD/DE ASSY, CD-ROM		X
2	F1772-60924		DC/DD ASSY, DVD-ROM TOS 6X		X
4	F1753-60915		ASSY, FDD	X	
4	F1772-60922		DD ASSY, FDD		X
5	F1753-60974		ASSY, HDD Tray	X	
6	F1753-60917		ASSY, Keybd Cover	X	
6	F1772-60927		DD/DE ASSY, KEYBD CVR		X
7	F1753-60951		ASSY, Screw Cvr	X	X
8	F1753-60911		ASSY, Top	X	
8	F1753-60985		ASSY, Top, null-modem	X	
8	F1772-60905		DD ASSY, TOP (MODEM)		X
8	F1772-60906		DD ASSY, TOP (NO-MODEM		X
9	F1753-60978		Battery, Li-Ion	X	X
11	F1753-60912		Door, RAM	X	
11	F1772-60921		DC/DD/DE DOOR, RAM		X
13	F1753-60975	F1753-69075	HDD 6GB	X	
13	F1753-60976	F1753-69076	HDD 4GB	X	
13	F1772-60925	F1772-69025	DC/DD/DE ASSY, HDD 4.8 GB		X
13	F1772-60926	F1772-69026	DC/DD/DE ASSY, HDD 6.X GB		X
14	F1753-60916		Heatsink	X	
14	F1772-60920		DC/DD HEATSINK		X
15	F1753-60918		Keybd, US	X	X
15	F1772-60933		Keybd, JAPAN		X
16	F1753-60949		LCD Bezel 13"	X	
16	F1753-60950		LCD Bezel 12"	X	X
16	F1772-60916		LCD BEZEL 14"		X
17	F1753-60930		LCD Bkt, Hy 13	X	
17	F1753-60931		LCD Bkt, LG 13	X	
17	F1753-60932		LCD Bkt, Sam 13	X	
17	F1753-60933		LCD Bkt, IBM 12	X	
17	F1753-60934		LCD Bkt, Syo/Shp 12TFT	X	
17	F1753-60935		LCD Bkt, Syo/Shp 12DST & LG 12TFT	X	X
17	F1772-60911		LCD BKT, ADI 12 TFT		X
17	F1772-60912		LCD BKT, CPT 14 TFT		X
18	F1753-60952		LCD Cbl, Hy 13	X	
18	F1753-60953		LCD Cbl, LG 13	X	
18	F1753-60954		LCD Cbl, Sam 13	X	
18	F1753-60955		LCD Cbl, Syo 12 TFT	X	

	HP Part Number	HP Exchange Part Number	Description	Technology Code*	
				DB	DD
18	F1753-60956		LCD Cbl, IBM 12 TFT	X	
18	F1753-60957		LCD Cbl, Shp 12 TFT	X	
18	F1753-60958		LCD Cbl, LG 12 TFT	X	
18	F1753-60959		LCD Cbl, Shp 12 DSTN	X	X
18	F1753-60960		LCD Cbl, Syo 12 DSTN	X	
18	F1772-60913		LCD CBL, ADI 12 TFT		X
18	F1772-60914		LCD CBL(PFC), ADI 12 TFT		X
18	F1772-60915		LCD CBL, CPT 14 TFT		X
19	F1753-60941		LCD Cvr, Hy 13	X	
19	F1753-60942		LCD Cvr, LG 13	X	
19	F1753-60943		LCD Cvr, Sam 13	X	
19	F1753-60944		LCD Cvr, Syo 12 TFT	X	
19	F1753-60945		LCD Cvr, Shp/IBM 12 TF	X	
19	F1753-60946		LCD Cvr, LG 12 TFT	X	
19	F1753-60947		LCD Cvr, Shp 12 DSTN	X	X
19	F1753-60948		LCD Cvr, Syo 12 DSTN	X	
19	f1772-60909		LCD CVR, ADI 12 TFT		X
19	F1772-60910		LCD CVR, CPT 14 TFT		X
20	F1753-60920	F1753-69020	LCD, Hy 13 TFT	X	
20	F1753-60921	F1753-69021	LCD, LG 13 TFT	X	
20	F1753-60922	F1753-69022	LCD, Sam 13 TFT	X	
20	F1753-60923		LCD, Syo 12 TFT	X	
20	F1753-60924	F1753-69024	LCD, IBM 12 TFT	X	
20	F1753-60925		LCD, Shp 12 TFT	X	
20	F1753-60926		LCD, LG 12 TFT	X	
20	F1753-60927		LCD, Shp 12 DSTN	X	X
20	F1753-60928		LCD, Syo 12 DSTN	X	
20	F1772-60907	F1772-69007	LCD, ADI 12 TFT		X
20	F1772-60908	F1772-69008	LCD, CPT 14 TFT		X
21	1821-4931	F1753-69201	Module, CPU, PII-333C1	X	
21	1821-5319	F1753-69101	Module, CPU, PII-366C1	X	
21	1821-5399	F1772-69301	CPU, C-466 uPGA1		X
21	1821-5455	F1772-69101	CPU, PII-366 uPGA1		X
21	1821-5456	F1772-69201	CPU, PII-400 uPGA1		X
22	F1753-60936		PCA Inv, LG 13	X	
22	F1753-60937		PCA Inv, Hy/Sy/Sam TFT	X	
22	F1753-60938		PCA Inv, Sh/IBM TFT	X	X
22	F1753-60939		PCA Inv, LG12/SH DSTN	X	X
22	F1753-60940		PCA Inv, Syo 12 DSTN	X	
22	F1772-60917		PCA INV, CPT/HIT 14 TFT		X
23	F1753-60903		PCA, LED (TFT)	X	
23	F1753-60904		PCA, LED (DSTN)	X	
23	F1772-60902		DC/DD PCA, LED (TFT)		X
23	F1772-60903		DC/DD PCA, LED (DSTN)		X
24	F1753-60905		PCA, Modem (US)	X	
24	F1753-60984		PCA, Null-Modem	X	
24	F1772-60918		DC/DD PCA, MODEM (2 LAYER)		X

	HP Part Number	HP Exchange Part Number	Description	Technology Code* DB	DD
24	F1772-60919		DC/DD PCA, NO-MODEM (2 LAYER)		X
25	F1753-60901	F1753-69001	PCA, Motherboard	X	
25	F1772-60901	F1772-69001	DD PCA, Motherboard		X
33	F1753-60968		Scr-M2.6x5.0 (Bezel)	X	X
33	F1772-60929		DD Scr-M2.0x4.5 (BEZEL 14")		X
35	F1753-60967		Scr-M2.6x5.0 (Hinge)	X	X
38	F1753-60973		Standoff 5mm	X	X
	1818-7952	F1660-69104	SDRAM module, 128MB PC100 SODIMM	X	X
	F1753-60979		RAM module 64MB	X	X
	F1753-60980		RAM module 32MB	X	X
	7121-7525		Cover, Label Protect	X	X
	F1753-60913		ASSY, Fan	X	X
	F1753-60919		Foot, Rubber	X	X
	F1772-60928		DD Scr-M2.6x7.0 (BASE)		X
	F1772-60930		DD Scr-M2.0x9.0 (HEAT SINK)		X
	F1772-60931		DD Scr Shield (LCD BEZEL)		X
	F1753-60961		Scr-M2.0x2.5	X	X
	F1753-60963		Scr-M2.0x17	X	X
	F1753-60964		Scr-M2.6x3.0	X	X
	F1753-60965		Scr-M2.6x4.0	X	X
	F1753-60966		Scr-M2.6x5.0 (HDD)	X	X
	F1753-60969		Scr-M2.6x5.0 (Base)	X	X
	F1753-60970		Scr-M2.6x7.0	X	X
	F1753-60971		Scr-M3.0x5.0	X	X
	F1753-60972		Scr-M2.0x3.3	X	X
	F1753-60962		Scr-M2.0x3.5	X	X
	F1753-60977		Adapter, AC	X	X
	8120-6316		Cord, Pwr, Japan #ABJ (2w)	X	X
	F1753-60983		CD, Recov #AB2 (DB)	X	
	F1772-60932		CD, Recov #AB2 (DD)		X
	F1772-60934		CD, 9x Recov #ABJ (DD) Win 95/98		X
	F1772-60935		CD, NT Recov #ABJ (DD) Win NT4.0		X

Table 4-2. Accessory Replaceable Parts

HP Part Number	HP Exchange Part Number	Description
1818-7952	F1660-69104	SDRAM module, 128MB PC100 SODIMM
F1753-60979		RAM module 64MB
F1753-60980		RAM module 32MB
F1753-60977		Adapter, AC
F1455-80003		Adapter, Auto/Air 75W
F1469-80001		Adapter, PS/2 - "Y"
F1753-60978		Battery, Li-Ion
5182-5131		Plug, adapter-auto/air auto to air
8120-6312		Cord, Pwr, Austr #ABG (2w)
8120-6313		Cord, Pwr, US #ABA (2w)
8120-6314		Cord, Pwr, Europe #ABB (2w)
8120-6315		Cord, Pwr, UK & Singapore #ARS (2w)
8120-6316		Cord, Pwr, Japan #ABJ (2w)
8120-6317		Cord, Pwr, S.Afr #ACQ (2w)
8120-8367		Cord, Pwr, Argentina (2w)
8120-8373		Cord, Pwr, China #AB2 (2w)
8120-8452		Cord, Pwr, Chile (2w)
8120-8699		Cord, Pwr, UK (EPSR) For Hong Kong (2w)
F1753-60981		Port Replicator

Table 4-3. HP Part Number Reference

HP Part Number	HP Exchange Part Number	Description	Quanta Part Number	Order From
1818-7952	F1660-69104	SDRAM module, 128MB PC100 SODIMM		HP Parts (CCSD)
1821-4931	F1753-69201	Module, CPU, PII-333C1		GCIPO
1821-5319	F1753-69101	Module, CPU, PII-366C1		GCIPO
1821-5399	F1772-69301	CPU, C-466 uPGA1		GCIPO
1821-5455	F1772-69101	CPU, PII-366 uPGA1		GCIPO
1821-5456	F1772-69201	CPU, PII-400 uPGA1		GCIPO
5182-5131		Plug, adapter-auto/air auto to air		HP Parts (CCSD)
7121-7525		Cover, Label Protect		HP Parts (CCSD)
8120-6312		Cord, Pwr, Austr #ABG (2w)		HP Parts (CCSD)
8120-6313		Cord, Pwr, US #ABA (2w)		HP Parts (CCSD)
8120-6314		Cord, Pwr, Europe #ABB (2w)		HP Parts (CCSD)
8120-6315		Cord, Pwr, UK & Singapore #ARS (2w)		HP Parts (CCSD)
8120-6316		Cord, Pwr, Japan #ABJ (2w)		HP Parts (CCSD)
8120-6317		Cord, Pwr, S.Afr #ACQ (2w)		HP Parts (CCSD)
8120-8367		Cord, Pwr, Argentina (2w)		HP Parts (CCSD)
8120-8373		Cord, Pwr, China #AB2 (2w)		HP Parts (CCSD)
8120-8452		Cord, Pwr, Chile (2w)		HP Parts (CCSD)
8120-8699		Cord, Pwr, UK (EPSR) For Hong Kong (2w)		HP Parts (CCSD)
F1455-80003		Adapter, Auto/Air 75W		HP Parts (CCSD)
F1469-80001		Adapter, PS/2 - "Y"		HP Parts (CCSD)
F1753-60901	F1753-69001	PCA, Motherboard	10MBZZZTP03	GCIPO
F1753-60903		PCA, LED (TFT)	1MIBZZZTPF6	GCIPO
F1753-60904		PCA, LED (DSTN)	1MIBZZZTPE8	GCIPO
F1753-60905		PCA, Modem (US)	1MIBZZZ1PK5	GCIPO
F1753-60910		ASSY, Base	1MIBZZZTPH2	GCIPO
F1753-60911		ASSY, Top	1MIBZZZTPG4	GCIPO
F1753-60912		Door, RAM	1MIAZZZTP63	GCIPO
F1753-60913		ASSY, Fan	1MIBZZZTPD0	GCIPO
F1753-60914		ASSY, CD-ROM	1CDFZZZTP09	GCIPO
F1753-60915		ASSY, FDD	1FDDZZZTP06	GCIPO
F1753-60916		Heatsink	1MIAZZZTPP5	GCIPO
F1753-60917		ASSY, Keybd Cover	1MIAZZZTPN7	GCIPO
F1753-60918		Keybd, US	1KBPZZUTP03	GCIPO
F1753-60919		Foot, Rubber	1MIAZZZTPM9	GCIPO
F1753-60920	F1753-69020	LCD, Hy 13 TFT	1LDFZZZTP83	GCIPO
F1753-60921	F1753-69021	LCD, LG 13 TFT	1LDFZZZTP75	GCIPO
F1753-60922	F1753-69022	LCD, Sam 13 TFT	1LDFZZZTP67	GCIPO
F1753-60923		LCD, Syo 12 TFT	1LDFZZZTP59	GCIPO
F1753-60924	F1753-69024	LCD, IBM 12 TFT	1LDFZZZTP41	GCIPO
F1753-60925		LCD, Shp 12 TFT	1LDFZZZTP32	GCIPO
F1753-60926		LCD, LG 12 TFT	1LDFZZZTP24	GCIPO
F1753-60927		LCD, Shp 12 DSTN	1LDFZZZTP16	GCIPO
F1753-60928		LCD, Syo 12 DSTN	1LDFZZZTP08	GCIPO
F1753-60930		LCD Bkt, Hy 13	1MIAZZZTP47	GCIPO
F1753-60931		LCD Bkt, LG 13	1MIAZZZTP55	GCIPO

HP Part Number	HP Exchange Part Number	Description	Quanta Part Number	Order From
F1753-60932		LCD Bkt, Sam 13	1MIAZZZTP12	GCIPO
F1753-60933		LCD Bkt, IBM 12	1MIAZZZTP39	GCIPO
F1753-60934		LCD Bkt, Syo/Shp 12TFT	1MIAZZZTP04	GCIPO
F1753-60935		LCD Bkt, Syo/Shp 12DST & LG 12TFT	1MIAZZZTP21	GCIPO
F1753-60936		PCA Inv, LG 13	1MIAZZZTPA2	GCIPO
F1753-60937		PCA Inv, Hy/Sy/Sam TFT	1MIAZZZTP80	GCIPO
F1753-60938		PCA Inv, Sh/IBM TFT	1MIAZZZTP71	GCIPO
F1753-60939		PCA Inv, LG12/SH DSTN	1MIAZZZTPB1	GCIPO
F1753-60940		PCA Inv, Syo 12 DSTN	1MIAZZZTP98	GCIPO
F1753-60941		LCD Cvr, Hy 13	1MIBZZZTP40	GCIPO
F1753-60942		LCD Cvr, LG 13	1MIBZZZTP31	GCIPO
F1753-60943		LCD Cvr, Sam 13	1MIBZZZTP74	GCIPO
F1753-60944		LCD Cvr, Syo 12 TFT	1MIBZZZTP58	GCIPO
F1753-60945		LCD Cvr, Shp/IBM 12 TF	1MIBZZZTP82	GCIPO
F1753-60946		LCD Cvr, LG 12 TFT	1MIBZZZTP66	GCIPO
F1753-60947		LCD Cvr, Shp 12 DSTN	1MIBZZZTP23	GCIPO
F1753-60948		LCD Cvr, Syo 12 DSTN	1MIBZZZTP91	GCIPO
F1753-60949		LCD Bezel 13"	1MIBZZZTPB3	GCIPO
F1753-60950		LCD Bezel 12"	1MIBZZZTPC1	GCIPO
F1753-60951		ASSY, Screw Cvr	1MIBZZZTPI1	GCIPO
F1753-60952		LCD Cbl, Hy 13	1MIAZZZTPJ4	GCIPO
F1753-60953		LCD Cbl, LG 13	1MIAZZZTPI8	GCIPO
F1753-60954		LCD Cbl, Sam 13	1MIAZZZTPG1	GCIPO
F1753-60955		LCD Cbl, Syo 12 TFT	1MIAZZZTPK2	GCIPO
F1753-60956		LCD Cbl, IBM 12 TFT	1MIAZZZTPH0	GCIPO
F1753-60957		LCD Cbl, Shp 12 TFT	1MIAZZZTPF3	GCIPO
F1753-60958		LCD Cbl, LG 12 TFT	1MIAZZZTPC9	GCIPO
F1753-60959		LCD Cbl, Shp 12 DSTN	1MIAZZZTPE5	GCIPO
F1753-60960		LCD Cbl, Syo 12 DSTN	1MIAZZZTPE5	GCIPO
F1753-60961		Scr-M2.0x2.5	1MIAZZZTPU4	GCIPO
F1753-60962		Scr-M2.0x3.5	1MIAZZZTPT8	GCIPO
F1753-60963		Scr-M2.0x17	1MIAZZZTPS0	GCIPO
F1753-60964		Scr-M2.6x3.0	1MIAZZZTPQ3	GCIPO
F1753-60965		Scr-M2.6x4.0	1MIAZZZTPR1	GCIPO
F1753-60966		Scr-M2.6x5.0 (HDD)	1MIAZZZTPV2	GCIPO
F1753-60967		Scr-M2.6x5.0 (Hinge)	1MIAZZZTPX9	GCIPO
F1753-60968		Scr-M2.6x5.0 (Bezel)	1MIAZZZTP07	GCIPO
F1753-60969		Scr-M2.6x5.0 (Base)	1MIAZZZTP15	GCIPO
F1753-60970		Scr-M2.6x7.0	1MIAZZZTPW1	GCIPO
F1753-60971		Scr-M3.0x5.0	1MIAZZZTPY7	GCIPO
F1753-60972		Scr-M2.0x3.3	1MIAZZZTPZ5	GCIPO
F1753-60973		Standoff 5mm	1MIAZZZTPL1	GCIPO
F1753-60974		ASSY, HDD Tray	1MIBZZZTPA5	GCIPO
F1753-60975	F1753-69075	HDD 6GB	1HDDZMZTP09	GCIPO
F1753-60976	F1753-69076	HDD 4GB	1HDDZNZTP03	GCIPO
F1753-60977		Adapter, AC	1ACQZZZTP05	GCIPO
F1753-60978		Battery, Li-Ion	1BPUZZZP11	GCIPO
F1753-60979		RAM module 64MB	1SMGZZZTP12	GCIPO

HP Part Number	HP Exchange Part Number	Description	Quanta Part Number	Order From
F1753-60980		RAM module 32MB	1SMGZZZTP04	GCIPO
F1753-60981		Port Replicator	1RP1ZZZTP01	GCIPO
F1753-60983		CD, Recov #AB2 (DB)		GCIPO
F1753-60984		PCA, Null-Modem	1MIBZZZ1PK5	GCIPO
F1753-60985		ASSY, Top, null-modem	1MIDZZZTPM1	GCIPO
F1772-60901	F1772-69001	DD PCA, Motherboard	10MBZZZTP20	GCIPO
F1772-60902		DC/DD PCA, LED (TFT)	1MIBZZZTPZ8	GCIPO
F1772-60903		DC/DD PCA, LED (DSTN)	1MIBZZZTPY0	GCIPO
F1772-60904		DD ASSY, BASE	1MIBZZZ0089	GCIPO
F1772-60905		DD ASSY, TOP (MODEM)	1MIBZZZTPW3	GCIPO
F1772-60906		DD ASSY, TOP (NO-MODEM	1MIBZZZTPX1	GCIPO
F1772-60907	F1772-69007	LCD, ADI 12 TFT	1LDFZZZTP91	GCIPO
F1772-60908	F1772-69008	LCD, CPT 14 TFT	1LDKZZZTP04	GCIPO
F1772-60909		LCD CVR, ADI 12 TFT	1MIPZZZTP05	GCIPO
F1772-60910		LCD CVR, CPT 14 TFT	1MIPZZZTP13	GCIPO
F1772-60911		LCD BKT, ADI 12 TFT	1MIBZZZ0062	GCIPO
F1772-60912		LCD BKT, CPT 14 TFT	1MIBZZZ0011	GCIPO
F1772-60913		LCD CBL, ADI 12 TFT	1MIBZZZTPU7	GCIPO
F1772-60914		LCD CBL(PFC), ADI 12 TFT	1MIBZZZTPT1	GCIPO
F1772-60915		LCD CBL, CPT 14 TFT	1MIBZZZTPR4	GCIPO
F1772-60916		LCD BEZEL 14"	1MIQZZZTP67	GCIPO
F1772-60917		PCA INV, CPT/HIT 14 TFT	1MIBZZZTPV5	GCIPO
F1772-60918		DC/DD PCA, MODEM (2 LAYER)	1MDGZZZTP01	GCIPO
F1772-60919		DC/DD PCA, NO-MODEM (2 LAYER)	1MDGZZZTP10	GCIPO
F1772-60920		DC/DD HEATSINK	1MIAZZZ0020	GCIPO
F1772-60921		DC/DD/DE DOOR, RAM	1MIBZZZ0038	GCIPO
F1772-60922		DD ASSY, FDD	1FDDZZZTP22	GCIPO
F1772-60923		DD/DE ASSY, CD-ROM	1CDFZZZTP17	GCIPO
F1772-60924		DC/DD ASSY, DVD-ROM TOS 6X	1DV9ZZZTP02	GCIPO
F1772-60925	F1772-69025	DC/DD/DE ASSY, HDD 4.8 GB	1HDDZNZTP46	GCIPO
F1772-60926	F1772-69026	DC/DD/DE ASSY, HDD 6.X GB	1HDDZNZTP33	GCIPO
F1772-60927		DD/DE ASSY, KEYBD CVR	1MIQZZZTPB4	GCIPO
F1772-60928		DD Scr-M2.6x7.0 (BASE)	1MIBZZZTPP8	GCIPO
F1772-60929		DD Scr-M2.0x4.5 (BEZEL 14")	1MIBZZZTPN0	GCIPO
F1772-60930		DD Scr-M2.0x9.0 (HEAT SINK)	1MIBZZZTPQ6	GCIPO
F1772-60931		DD Scr Shield (LCD BEZEL)	1MIBZZZ0046	GCIPO
F1772-60932		CD, Recov #AB2 (DD)		GCIPO
F1772-60933		Keybd, JAPAN	1KBPZZJTP03	GCIPO
F1772-60934		CD, 9x Recov #ABJ (DD) Win 95/98		GCIPO
F1772-60935		CD, NT Recov #ABJ (DD) Win NT4.0		GCIPO

Table 4-4. Quanta Part Number Reference

Quanta Part Number	Description	HP Part Number	HP Exchange Part Number
10MBZZZTP03	PCA, Motherboard	F1753-60901	F1753-69001
10MBZZZTP20	DD PCA, Motherboard	F1772-60901	F1772-69001
1ACQZZZTP05	Adapter, AC	F1753-60977	
1BPUZZZP11	Battery, Li-Ion	F1753-60978	
1CDFZZZTP09	ASSY, CD-ROM	F1753-60914	
1CDFZZZTP17	DD/DE ASSY, CD-ROM	F1772-60923	
1DV9ZZZTP02	DC/DD ASSY, DVD-ROM TOS 6X	F1772-60924	
1FDDZZZTP06	ASSY, FDD	F1753-60915	
1FDDZZZTP22	DD ASSY, FDD	F1772-60922	
1HDDZMZTP09	HDD 6GB	F1753-60975	F1753-69075
1HDDZNZTP03	HDD 4GB	F1753-60976	F1753-69076
1HDDZNZTP33	DC/DD/DE ASSY, HDD 6.X GB	F1772-60926	F1772-69026
1HDDZNZTP46	DC/DD/DE ASSY, HDD 4.8 GB	F1772-60925	F1772-69025
1KBPZZJTP03	Keybd, JAPAN	F1772-60933	
1KBPZZUTP03	Keybd, US	F1753-60918	
1LDFZZZTP08	LCD, Syo 12 DSTN	F1753-60928	
1LDFZZZTP16	LCD, Shp 12 DSTN	F1753-60927	
1LDFZZZTP24	LCD, LG 12 TFT	F1753-60926	
1LDFZZZTP32	LCD, Shp 12 TFT	F1753-60925	
1LDFZZZTP41	LCD, IBM 12 TFT	F1753-60924	F1753-69024
1LDFZZZTP59	LCD, Syo 12 TFT	F1753-60923	
1LDFZZZTP67	LCD, Sam 13 TFT	F1753-60922	F1753-69022
1LDFZZZTP75	LCD, LG 13 TFT	F1753-60921	F1753-69021
1LDFZZZTP83	LCD, Hy 13 TFT	F1753-60920	F1753-69020
1LDFZZZTP91	LCD, ADI 12 TFT	F1772-60907	F1772-69007
1LDKZZZTP04	LCD, CPT 14 TFT	F1772-60908	F1772-69008
1MDGZZZTP01	DC/DD PCA, MODEM (2 LAYER)	F1772-60918	
1MDGZZZTP10	DC/DD PCA, NO-MODEM (2 LAYER)	F1772-60919	
1MIAZZZ0020	DC/DD HEATSINK	F1772-60920	
1MIAZZZTP04	LCD Bkt, Syo/Shp 12TFT	F1753-60934	
1MIAZZZTP07	Scr-M2.6x5.0 (Bezel)	F1753-60968	
1MIAZZZTP12	LCD Bkt, Sam 13	F1753-60932	
1MIAZZZTP15	Scr-M2.6x5.0 (Base)	F1753-60969	
1MIAZZZTP21	LCD Bkt, Syo/Shp 12DST & LG 12TFT	F1753-60935	
1MIAZZZTP39	LCD Bkt, IBM 12	F1753-60933	
1MIAZZZTP47	LCD Bkt, Hy 13	F1753-60930	
1MIAZZZTP55	LCD Bkt, LG 13	F1753-60931	
1MIAZZZTP63	Door, RAM	F1753-60912	
1MIAZZZTP71	PCA Inv, Sh/IBM TFT	F1753-60938	
1MIAZZZTP80	PCA Inv, Hy/Sy/Sam TFT	F1753-60937	
1MIAZZZTP98	PCA Inv, Syo 12 DSTN	F1753-60940	
1MIAZZZTPA2	PCA Inv, LG 13	F1753-60936	
1MIAZZZTPB1	PCA Inv, LG12/SH DSTN	F1753-60939	
1MIAZZZTPC9	LCD Cbl, LG 12 TFT	F1753-60958	
1MIAZZZTPE5	LCD Cbl, Shp 12 DSTN	F1753-60959	
1MIAZZZTPE5	LCD Cbl, Syo 12 DSTN	F1753-60960	
1MIAZZZTPF3	LCD Cbl, Shp 12 TFT	F1753-60957	

Quanta Part Number	Description	HP Part Number	HP Exchange Part Number
1MIAZZZTPG1	LCD Cbl, Sam 13	F1753-60954	
1MIAZZZTPH0	LCD Cbl, IBM 12 TFT	F1753-60956	
1MIAZZZTPI8	LCD Cbl, LG 13	F1753-60953	
1MIAZZZTPJ4	LCD Cbl, Hy 13	F1753-60952	
1MIAZZZTPK2	LCD Cbl, Syo 12 TFT	F1753-60955	
1MIAZZZTPL1	Standoff 5mm	F1753-60973	
1MIAZZZTPM9	Foot, Rubber	F1753-60919	
1MIAZZZTPN7	ASSY, Keybd Cover	F1753-60917	
1MIAZZZTPP5	Heatsink	F1753-60916	
1MIAZZZTPQ3	Scr-M2.6x3.0	F1753-60964	
1MIAZZZTPR1	Scr-M2.6x4.0	F1753-60965	
1MIAZZZTPS0	Scr-M2.0x17	F1753-60963	
1MIAZZZTPT8	Scr-M2.0x3.5	F1753-60962	
1MIAZZZTPU4	Scr-M2.0x2.5	F1753-60961	
1MIAZZZTPV2	Scr-M2.6x5.0 (HDD)	F1753-60966	
1MIAZZZTPW1	Scr-M2.6x7.0	F1753-60970	
1MIAZZZTPX9	Scr-M2.6x5.0 (Hinge)	F1753-60967	
1MIAZZZTPY7	Scr-M3.0x5.0	F1753-60971	
1MIAZZZTPZ5	Scr-M2.0x3.3	F1753-60972	
1MIBZZZ0011	LCD BKT, CPT 14 TFT	F1772-60912	
1MIBZZZ0038	DC/DD/DE DOOR, RAM	F1772-60921	
1MIBZZZ0046	DD Scr Shield (LCD BEZEL)	F1772-60931	
1MIBZZZ0062	LCD BKT, ADI 12 TFT	F1772-60911	
1MIBZZZ0089	DD ASSY, BASE	F1772-60904	
1MIBZZZ1PK5	PCA, Modem (US)	F1753-60905	
1MIBZZZ1PK5	PCA, Null-Modem	F1753-60984	
1MIBZZZTP23	LCD Cvr, Shp 12 DSTN	F1753-60947	
1MIBZZZTP31	LCD Cvr, LG 13	F1753-60942	
1MIBZZZTP40	LCD Cvr, Hy 13	F1753-60941	
1MIBZZZTP58	LCD Cvr, Syo 12 TFT	F1753-60944	
1MIBZZZTP66	LCD Cvr, LG 12 TFT	F1753-60946	
1MIBZZZTP74	LCD Cvr, Sam 13	F1753-60943	
1MIBZZZTP82	LCD Cvr, Shp/IBM 12 TF	F1753-60945	
1MIBZZZTP91	LCD Cvr, Syo 12 DSTN	F1753-60948	
1MIBZZZTPA5	ASSY, HDD Tray	F1753-60974	
1MIBZZZTPB3	LCD Bezel 13"	F1753-60949	
1MIBZZZTPC1	LCD Bezel 12"	F1753-60950	
1MIBZZZTPD0	ASSY, Fan	F1753-60913	
1MIBZZZTPE8	PCA, LED (DSTN)	F1753-60904	
1MIBZZZTPF6	PCA, LED (TFT)	F1753-60903	
1MIBZZZTPG4	ASSY, Top	F1753-60911	
1MIBZZZTPH2	ASSY, Base	F1753-60910	
1MIBZZZTPI1	ASSY, Screw Cvr	F1753-60951	
1MIBZZZTPN0	DD Scr-M2.0x4.5 (BEZEL 14")	F1772-60929	
1MIBZZZTPP8	DD Scr-M2.6x7.0 (BASE)	F1772-60928	
1MIBZZZTPQ6	DD Scr-M2.0x9.0 (HEAT SINK)	F1772-60930	
1MIBZZZTPR4	LCD CBL, CPT 14 TFT	F1772-60915	
1MIBZZZTPT1	LCD CBL(PFC), ADI 12 TFT	F1772-60914	

Quanta Part Number	Description	HP Part Number	HP Exchange Part Number
1MIBZZZTPU7	LCD CBL, ADI 12 TFT	F1772-60913	
1MIBZZZTPV5	PCA INV, CPT/HIT 14 TFT	F1772-60917	
1MIBZZZTPW3	DD ASSY, TOP (MODEM)	F1772-60905	
1MIBZZZTPX1	DD ASSY, TOP (NO-MODEM	F1772-60906	
1MIBZZZTPY0	DC/DD PCA, LED (DSTN)	F1772-60903	
1MIBZZZTPZ8	DC/DD PCA, LED (TFT)	F1772-60902	
1MIDZZZTPM1	ASSY, Top, null-modem	F1753-60985	
1MIPZZZTP05	LCD CVR, ADI 12 TFT	f1772-60909	
1MIPZZZTP13	LCD CVR, CPT 14 TFT	F1772-60910	
1MIQZZZTP67	LCD BEZEL 14"	F1772-60916	
1MIQZZZTPB4	DD/DE ASSY, KEYBD CVR	F1772-60927	
1RP1ZZZTP01	Port Replicator	F1753-60981	
1SMGZZZTP04	RAM module 32MB	F1753-60980	
1SMGZZZTP12	RAM module 64MB	F1753-60979	

5

Reference Information

This chapter includes the following reference information:

- Password removal policy.
- Display quality statement.
- Technology Codes.

Password Removal Policy

If the user forgets the system password, the user calls Technical Support to determine the proper removal procedure. The user must provide proof of ownership, and the OmniBook must be operated during the procedure.

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 XE LCD Guidelines (TFT)

Type of Imperfection	Imperfections Not Allowed
13.3" TFT, SVGA	
Electrical Imperfections: Bright dots [a] Dark dots [a]	• 7 or more single bright dots. • 7 or more single dark dots. • 3 or more double bright dots. • 3 or more double dark dots. • 11 or more total bright and dark dot imperfections. • Any occurrence of triple bright dots (or triple dark dots). • Any occurrence of 3 bright dots within 20 mm (or 3 dark dots).

Type of Imperfection	Imperfections Not Allowed
Mechanical Imperfections: Spots [b] Lines [c] Polarizer scratches [d] Polarizer dents, bubbles [e]	• 6 or more spots 0.2-0.5 mm avg. dia. • 4 or more lines 0.3-3 mm long and over 0.07 mm wide. • 5 or more scratches 5-20 mm long and over 0.02 mm wide. • 9 or more dents or bubbles 0-0.5 mm avg. dia. • Any spot over 0.5 mm avg. dia. • Any line over 3 mm long or 0.1 mm wide. • Any scratch over 20 mm long or 0.05 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.

OmniBook XE Technology Codes

HP does not change the product name every time the product technology changes. While this helps ensure continuing market momentum for the products, it complicates the technology deployment and support processes.

To help with these processes, HP has chosen to add a technology code (sometimes also referred to as sub-branding") to the serial number label. The chart below, shows the technology codes and the changes they signify for the Products based on the Omnibook XE2 technology.

Since the BIOS needs to be matched to the hardware in the system, the team has chosen to use the same code to indicate the BIOS technology and the hardware technology.

Note that systems produced before the Omnibook XE2-DD technology will NOT have this code printed on the serial number label, but the first two characters of the BIOS ID (e.g. DB.M1.04) still gives an indication of the hardware technology.

Product Name	Technology Code	Product Number(s)	Details
OmniBook XE2	DB	F1756W, F1755W F1779D	Same motherboard as Typhoon 1 - increase BIOS chip to 512K for ACPI BIOS
	DD	F1962W, F1774W F1775W F1671N, F1672W F1673W	New motherboard - design based on micro PGA-1 - derived from Typhoon-2.x design

Technology Code Example

HP Serial Number   (S)   TW0000000

(1P) F1XXXX   DB   MFG#
TW0000000

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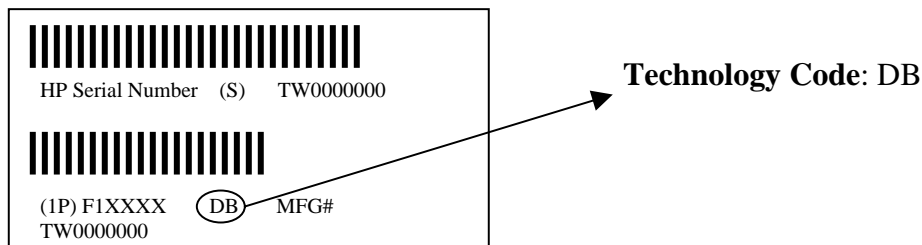
1. **Product Information**
2. **Removal and Replacement**
3. **Troubleshooting and Diagnostics**
4. **Replaceable Parts**
5. **Reference Information**