



hp
pavilion notebook
ze1200 and xf300
series

troubleshooting
and self-repair
guide

Notice

This manual and any examples contained herein are provided “as is” and are subject to change without notice. Hewlett-Packard Company makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard Co. shall not be liable for any errors or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual or the examples herein.

Consumer transactions in Australia and the United Kingdom: The above disclaimers and limitations shall not apply to Consumer transactions in Australia and the United Kingdom and shall not affect the statutory rights of Consumers.

© Copyright Hewlett-Packard Company 2000–2002. All rights reserved. Reproduction, adaptation, or translation of this manual is prohibited without prior written permission of Hewlett-Packard Company, except as allowed under the copyright laws.

The programs that control this product are copyrighted and all rights are reserved. Reproduction, adaptation, or translation of those programs without prior written permission of Hewlett-Packard Co. is also prohibited.

Portions of the programs that control this product may also be copyrighted by Microsoft Corporation, Insyde Systems, Conexant Systems Incorporated, VIA Technologies Incorporated, ALPS Electric (USA) Incorporated, and Adobe Systems Incorporated. See the individual programs for additional copyright notices.

Microsoft®, MS-DOS®, and Windows® are U.S. registered trademarks of Microsoft Corporation. TrackPoint™ is a U.S. trademark of International Business Machines. Adobe® and Acrobat® are trademarks of Adobe Systems Incorporated.

All certifications may not be completed at product introduction.

This equipment is subject to FCC rules. It will comply with the appropriate FCC rules before final delivery to the buyer.

Hewlett-Packard Company
HP Notebook Customer Care
1070 NE Circle Blvd., MS 425E
Corvallis, OR 97330, U.S.A.

Edition History

Edition 1June 2002

Technology Codes

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

To help solve this problem, HP has added a technology code to the serial number of each of its products. Since the BIOS must be matched to the notebook's hardware, the same code is used for the BIOS and the hardware. This manual refers to technology code differences where applicable.

The table below shows the technology codes and the changes they signify for the products. Before downloading software or drivers or performing repairs, note the technology code for the HP notebook model.

Note that the first two characters of the BIOS ID (for example, **IC.M1.02**) indicate the hardware technology. You can also determine the BIOS ID using the BIOS configuration utility, or by pressing Esc during the boot process when the HP logo appears.

This manual contains service information for products with the following technology code.

Technology code	Product name	Details
JB	Pavilion ze1200/xf300 series.	AMD based platform with VIA chipset and integrated graphics.

Contents

Technology Codes.....	iii
Product Information	7
Notebook Features	7
Operating the Notebook	10
Turning the Notebook On and Off	10
Resetting the Notebook	11
Changing the Boot Device	11
Hardware Specifications	12
Technology Code JB	12
Troubleshooting and Diagnostics.....	15
Audio Problems.....	15
CD and DVD Problems	16
Display Problems	17
Floppy Disk Drive Problems	18
Hard Disk Drive Problems	18
Heat Problems	19
Keyboard, Touch Pad, and Mouse Problems	19
LAN Problems.....	20
Memory Problems	21
Modem Problems	21
One-Touch Button Problems.....	23
Parallel and USB Problems	24
PC Card (PCMCIA) Problems	25
Performance Problems	25
Power and Battery Problems	26
Printing Problems	27
Startup Problems	27
Standby and Resume Problems	28
Using the e-DiagTools Diagnostic Tests.....	29
Using the BIOS Configuration Utility.....	30
Reinstalling and Updating Software.....	33
Recovering the Factory Software Installation	33
Updating the Notebook BIOS	34
Updating the Windows Drivers.....	34
Removing and Replacing Parts	35
Removing the Battery	36
Removing the Hard Disk Drive.....	37
Removing an SDRAM Module.....	39
Replacing Small Parts and Accessories.....	41
Reference Information	43
Password Removal Policy.....	43
Hewlett-Packard Display Quality Statement.....	43

Figures

Figure 1. Front View	7
Figure 2. Back View	8
Figure 3. Bottom View.....	8
Figure 4. Main Status Lights	9
Figure 5. Keyboard Status Lights.....	9
Figure 11. Pressing the System-Off Switch	11
Figure 12. Removing the Battery	36
Figure 13. Removing the Hard Disk Drive	37
Figure 14. Removing the Hard Disk Tray.....	38
Figure 15. Removing an SDRAM Module	40
Figure 16. Installing an SDRAM Module.....	40

Tables

Table 1. Battery Replacement Part Numbers	36
Table 2. Hard Disk Drive Replacement Part Numbers	37
Table 3. SDRAM Module Replacement Part Numbers	39
Table 7. Replacing Small Parts	41
Table 8. Accessories.....	41

Product Information

This section introduces the notebook and its components, and briefly describes its basic operation.

Notebook Features

75-watt AC Adapter Caution

Use only the HP AC adapter included with your notebook, or another approved HP adapter. Using any other AC adapter can damage the adapter, and may void your warranty.

The pre-installed electronic online manual on your notebook may refer to the use of a 60-watt AC adapter designed for an earlier released product. A 60-watt AC adapter **SHOULD NOT** be used with this model.

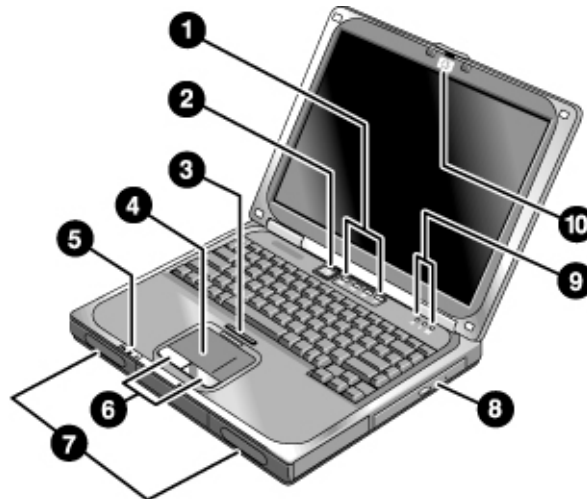


Figure 1. Front View

- | | |
|---|--|
| 1. One-Touch buttons (programmable). | 6. Left and right click buttons. |
| 2. Power button. | 7. Speakers. |
| 3. Touch pad on-off button. | 8. DVD or CD-RW/DVD drive (with eject button). |
| 4. Touch pad. | 9. Keyboard status lights. |
| 5. Power, hard disk, and battery status lights. | 10. Latch. |

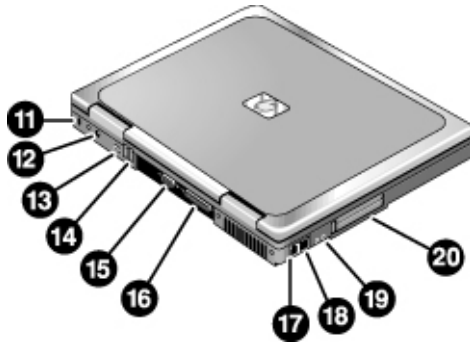


Figure 2. Back View

- | | |
|---|---|
| 11. Kensington lock slot (security connector). | 16. Parallel port (colored burgundy). |
| 12. AC adapter jack. | 17. Modem port. |
| 13. IEEE 1394 connector (selected models). | 18. LAN port and indicators (selected models). |
| 14. USB ports (2). | 19. External microphone jack (colored pink) and
headphone jack (colored lime green). |
| 15. External monitor (VGA) port (colored blue). | 20. PC Card slot and eject button. |

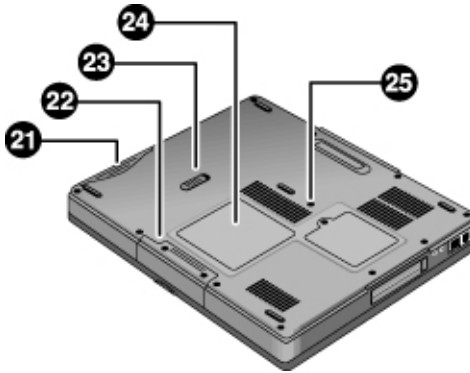


Figure 3. Bottom View

- | | |
|----------------------|--------------------------|
| 21. Battery. | 24. RAM expansion cover. |
| 22. Hard disk drive. | 25. System-off switch. |
| 23. Battery latch. | |

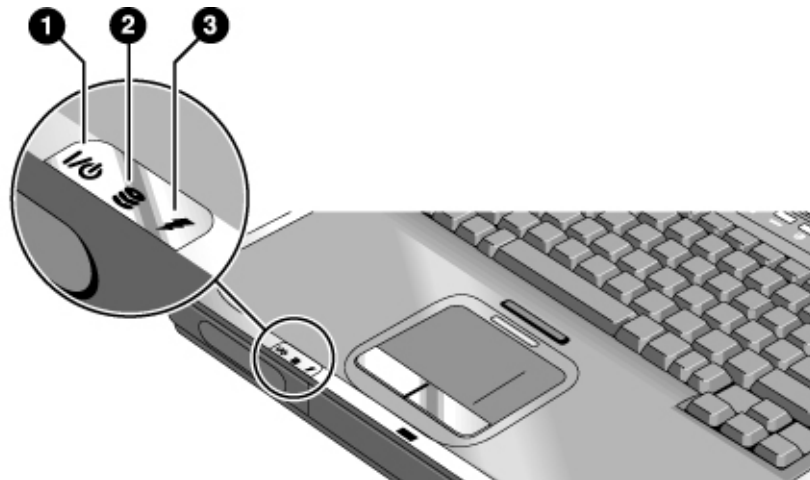


Figure 4. Main Status Lights

1. **Power mode (left status light).**
 - Steady blue: the notebook is on (even if the display is off).
 - Flashing blue: the notebook is on standby.
 - Off: the notebook is off or in hibernation.
2. **Hard drive activity (center status light).**
 - Blue: the notebook is accessing the hard drive.
3. **Battery charge (right status light).**
 - Green: the AC adapter is connected and the battery is fully charged.
 - Amber: the AC adapter is connected and the battery is charging.
 - Red: the AC adapter is connected and the battery has a fault.
 - Off: the AC adapter is not connected or the battery is missing.



Figure 5. Keyboard Status Lights

1. **Caps Lock.** Caps Lock is active.
2. **Num Lock.** Num Lock is active. (The Keypad Lock must also be on to use the embedded keypad.)
3. **Pad Lock.** Pad Lock is active.

Operating the Notebook

Note

This manual describes the notebook in its original factory configuration, with all settings at their default values.

Turning the Notebook On and Off

Power mode	To enter this mode	To turn on again
On Power mode status light is blue.	Press the power button.	
Standby Saves significant power. Turns off the display and other components. Maintains the current session in RAM. Restarts quickly. Restores network connections. Power mode status light flashes blue.	Click Start, Turn Off Computer, Stand By. –or– Press the power button. –or– Allow timeout.	Press the power button to quickly resume your session.
Hibernation Saves maximum power. Saves the current session to disk, then turns off. Restores network connections. Power mode status light is off.	Click Start, Turn Off Computer, then press and hold Shift and click Hibernate. –or– Allow timeout.	Press the power button to resume your session.
Turn off Saves maximum power. Turns off without saving the current session. At startup, resets everything, starts a new session, and restores network connections. Power mode status light is off.	Click Start, Turn Off Computer, Turn Off. –or– Press and hold the power button for four seconds. (Do this only if the Start menu procedure doesn't work.)	Press the power button to start with a new session.

Resetting the Notebook

If Windows or the notebook stops responding, and you cannot turn the notebook off, try the following in the order listed. Press the power button to restart.

- If possible, restart or turn off the notebook from within Windows: click Start, Turn Off Computer, Restart (or Turn Off).
- Press Ctrl+Alt+Del, then click Shut Down, Restart (or Turn Off).
- Press and hold the power button for about four seconds.
- If the notebook still does not turn off, use a straightened paper clip to press the system-off switch on the bottom of the notebook, near the RAM access door.

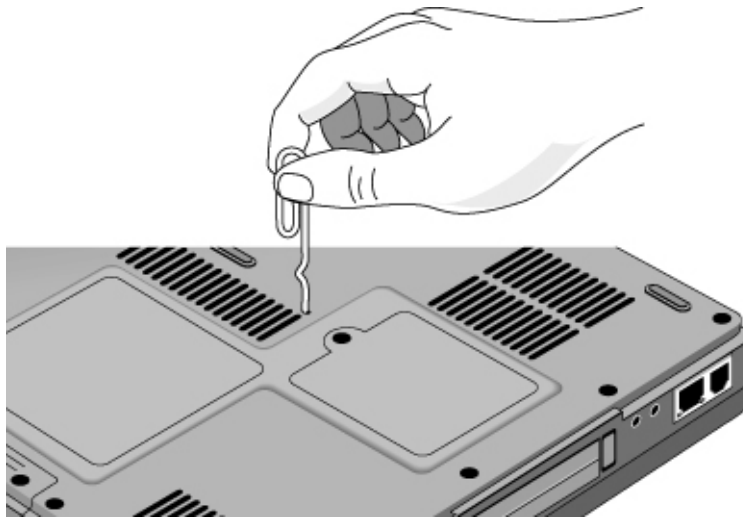


Figure 6. Pressing the System-Off Switch

Changing the Boot Device

The notebook normally boots from its internal hard disk. You can also boot the notebook from a floppy disk drive (optional accessory), the CD/DVD drive, or a local area network (LAN).

1. Restart the notebook: click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press Esc to display the Boot menu.
3. Use the arrow keys to select the boot device, and press Enter.

If you want to boot from a specific device whenever it is present, change the boot order using the BIOS configuration utility—see “Using the BIOS Configuration Utility” on page 30.

Hardware Specifications

The specifications shown below are subject to change. For the latest specifications, see the HP Notebook Web site (www.hp.com/notebooks).

Technology Code JB

Physical Attributes	14.1 in models: 320 x 265 x 34 mm; 6.2 lbs (2.8 kg) minimum. 15.0 in models: 330 x 269 x 35 mm; 6.6 lbs (3.0 kg) minimum.
CPU	AMD Athlon, up to 1.5 GHz.
Chip Set	Stepping A3 + VT8231.
RAM	133-MHz SDRAM (PC133). Maximum memory upgrade to 1 GB by two 512-MB SODIMM (144-pin/3.3 V) modules in two 1.25-in slots.
Mass Storage	9.5-mm, 2.5-in hard disk drive.
Optical Drive	DVD-ROM, 12.7mm OR DVD/CD-RW, 12.7 mm.
Display	14.1- or 15.0-in XGA (1024x768) TFT LCD.
Video Chip	Integrated AGP, 3D embedded in VIA ProSavage.
Keyboard and Pointing Devices	87-key spill-resistant QWERTY keyboard with 101/102 key emulation. Embedded numeric keypad. 12 function (Fn) keys. Touch pad with integrated scroll pad, on-off button, and indicator. Left and right click buttons.
Audio	Two stereo speakers. Color-coded jacks: headphone-out (lime green) and microphone-in (pink).
Power	Low-battery warning. Suspend/resume capability. AC adapter (DC-in) jack. Rechargeable lithium-ion battery (55 W). Universal AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output, 75 W.
I/O Ports	25-pin bi-directional high-speed ECP/EPP parallel (burgundy). 15-pin external monitor (VGA) video out port (blue). Two universal serial bus (USB) ports. IEEE 1394 port (selected models). Built-in RJ-11 modem, supporting Wake up on Ring# from D3 (hot) with AC-in. Built-in RJ-45 LAN.
Expandability	One Type II or Type III 16-/32-bit PCMCIA slot.
Options	128/256/512-MB PC133 SODIMM: 3.3 V, 144-pin, SDRAM.
Environmental Limits	Operating temperature: 0 to 40 °C (32 to 104 °F). Storage temperature: –20 to 65 °C (–4 to 149 °F). Operating humidity: 20% (10% on some models) to 90% RH (0 to 40 °C). Operating altitude: up to 3,000 m (10,000 ft) at 25 °C (77 °F). Storage altitude: up to 12,000 m (40,000 ft).

Troubleshooting and Diagnostics

This section contains solutions to several types of problems you may encounter when using the notebook. Try the solutions one at a time, in the order in which they are presented.

You can also find technical tips and software updates for the notebook at the HP Business Support Web site (www.hp.com/go/bizsupport).

Audio Problems

If no sound is audible

- Press Fn+Page Up several times.
- Click the speaker icon in the taskbar (if present), and make sure Mute is not checked and the Volume slider is not set to the bottom.
- Double-click the speaker icon in the taskbar and make sure the audio source is not muted. If the source is not displayed, click Options, Properties, and select the source from the volume control list.

If sound does not record

- Make sure the microphone is securely connected to the microphone jack.
- Check the software controls for recording sound: click Start, All Programs, Accessories, Multimedia (or Entertainment), Sound Recorder.
- Double-click the speaker symbol in the taskbar. Then click Options, Properties, and make sure the microphone is enabled in the recording controls.
- Test the audio with the e-DiagTools diagnostics— see “Using the e-DiagTools Diagnostic Tests” on page 29.

If the PC Card detection beep(s) at startup are very loud and volume cannot be adjusted

- Download the latest audio driver from the technical support area of the HP notebook Web site (www.hp.com/notebooks).

If you hear a loud high-pitched whine (feedback) from the speakers

- Double-click the speaker symbol in the taskbar, and try reducing the master volume.

CD and DVD Problems

If you can't boot from a CD in the DVD/CD-RW drive

- Make sure the CD is bootable, such as the *Recovery CDs*.
- Make sure the DVD/CD-RW drive is selected as the boot device—see “Changing the Boot Device” on page 11.
- Restart the notebook.
- Test the DVD/CD-RW drive with the e-DiagTools diagnostics—see “Using the e-DiagTools Diagnostic Tests” on page 29.

If a CD or DVD plays erratically

- Dirt or smudges can cause a disk to skip. Clean the disk with a soft cloth. If the disk is badly scratched, it will probably have to be replaced.
- Some DVDs include software called “PC Friendly.” You generally should not install this software, as it can cause errors or erratic play. If needed, uninstall it and restart your notebook.

If a DVD movie stops playing in the middle

- You may have accidentally paused the DVD movie. Press the Play button to continue.
- The DVD may be double-sided. Open the DVD tray and read the text near the center hole of the disk. If it says Side A, flip the disk over, close the tray, and press the Play button to continue playing the movie.

If you get a Region Code error when playing a DVD movie

- DVDs can have regional codes embedded in the disk data. These codes prevent DVD movies from being played outside the region of the world in which they are sold. If you get a Region Code error, you are trying to play a DVD intended for a different region.

Important: most DVD drives let you change the region code only a limited number of times (usually no more than four). When you reach this limit, your last change to the region code will be hard-coded on the DVD drive, and will be permanent. **Your HP warranty does *not* cover the expense of correcting this situation.**

Refer to the help for your DVD player software for details about setting region codes.

If the notebook cannot read a CD or DVD

- Make sure the disk is properly inserted, and snapped down onto the spindle in the center of the tray.
- For a single-sided CD or DVD, make sure the disk is placed in the drive with the label facing up.
- Clean the disk with a soft cloth.
- Wait 5 to 10 seconds after closing the tray for the notebook to recognize the disk.
- Remove the disk from the drive, then restart the notebook.
- If you created the CD on a CD-RW drive module, try using a different media brand. For best results use HP certified media. While other media may work, HP cannot guarantee compatibility.

If a DVD movie doesn't fill the screen

- Each side of a double-sided DVD has a different format (standard or widescreen). In widescreen format, black bands appear at the top and bottom of the screen. To view the standard format, flip the disk over and play the other side.

If a DVD doesn't play with two displays

- If both displays are active, press Fn+F5 to switch to one display. You cannot switch displays once the DVD player is started.
- If you're using both displays, the DVD image will not appear on any display set up as "secondary." Click Start, Control Panel, Appearance and Themes, Display. Click Advanced on the Settings tab, then click the S3Display tab and change settings.

Display Problems

If the notebook is on, but the screen is blank

- Move the mouse or tap the touch pad. This will wake the display if it is off.
- Try pressing Fn+F2 to increase the display brightness.
- Press Fn+F5 in case the internal display was disabled. (Do this three times to return to the state you started from.)
- If the notebook is cold, allow it to warm up.

If the screen is difficult to read

- Try setting the display resolution to its default of 1024×768: click Start, Control Panel, Appearance and Themes, Display, Settings.
- Try adjusting the size of the desktop icons and labels.

If part of the Windows desktop is not visible and you have to scroll down to see the taskbar, or if the desktop does not fill the entire display and has a black border

- Your display resolution may be set incorrectly. Adjust the resolution as needed.

If an external display does not work

- Check the connections.
- Press Fn+F5 in case the external monitor was disabled. (Do this three times to return to the state you started from.)
- Test the display with the e-DiagTools diagnostics—see "Using the e-DiagTools Diagnostic Tests" on page 29.

If one or more display pixels look bad

TFT display manufacturing is a highly precise but imperfect technology, and manufacturers cannot produce displays that are cosmetically perfect. Most, if not all, TFT displays exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible 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 notebook display.*

HP notebook TFT displays meet or exceed all HP standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections. *TFT displays can have a small number of cosmetic imperfections and still conform to HP's cosmetic quality specifications, including the following:*

- No more than 6 pixels remain on (always one color, such as white, red, green, or blue dots).
- No more than 6 pixels remain off (always dark).
- No more than a total of 8 pixels stuck on or off.
- No other stuck pixel within 15 mm of a stuck pixel.

Contact HP Customer Care if you have a display quality problem and require a more comprehensive explanation of HP display quality. We expect that over time the industry will continue to produce displays with fewer inherent cosmetic imperfections, and we will adjust our HP guidelines as these improvements are implemented.

Floppy Disk Drive Problems

If a floppy drive connected to the USB port doesn't work

- Make sure the drive is securely connected to the notebook.
- Restart the notebook: click Start, Turn Off Computer, Restart.

Hard Disk Drive Problems

If the notebook's hard drive doesn't spin

- Make sure the notebook has power. If necessary, connect the AC adapter, and make sure it is fully plugged into a power source and into the back of the notebook.

If the hard disk makes a buzzing or whining noise

- Back up the drive immediately.
- See whether the noise is coming from elsewhere, such as the fan or floppy disk drive.

If files are corrupted

- Check the hard disk: open My Computer, select the disk you want to scan, click File, Properties, and use the Tools tab.
- Run the Norton AntiVirus program.
- Test the hard disk drive with the e-DiagTools diagnostics—see “Using the e-DiagTools Diagnostic Tests” on page 29.
- If necessary, format the hard disk and reinstall the original factory software—see “Recovering the Factory Software Installation” on page 33.

If the hard drive's reported capacity is less than its actual size

- The hard disk drive is preconfigured to allocate some space to diagnostic software, which is used for support and service of your notebook. This part of the hard drive is unavailable for other uses, and so is not included in the capacity of the hard drive as reported by Windows (My Computer, Properties).

Heat Problems

Keep in mind that your notebook normally gets warm during routine operation. Charging the battery and running games and other programs that drive CPU usage toward 100% can further increase the notebook's temperature.

If the notebook gets warmer than usual

- Always set the notebook on a firm, flat surface, so that air can flow freely around and underneath it. Do not place an operating notebook on carpeting, clothing, or other soft surface, as this can block the fan's air intake on the bottom of the notebook.
- Provide adequate ventilation around the notebook. Make sure there is adequate clearance at the back of the notebook, so that its fan vent is not blocked.
- Always turn off the notebook or put it into hibernation before placing it in a carrying case or other enclosed space.
- Make sure the fan is working properly. If needed, test the fan's operation—see “Using the e-DiagTools Diagnostic Tests” on page 29.

Keyboard, Touch Pad, and Mouse Problems

If the touch pad is difficult to control

- Customize the touch pad by modifying Mouse properties: click Start, Control Panel, Printers and Other Hardware, Mouse.

If the pointing devices don't work

- Don't use the touch pad while the notebook is starting up or resuming from standby or hibernation. If this happens, try the following:
 - Press any key on the keyboard.
 - Put the notebook on standby, then resume operation.
- Restart the notebook: click Start, Turn Off Computer, Restart.
- Test the keyboard and pointing devices with the e-DiagTools diagnostics—see “Using the e-DiagTools Diagnostic Tests” on page 29.

If the embedded numeric keypad doesn't work

- To type numbers, make sure Num Lock is on.
- Make sure the embedded Keypad Lock (Fn+F8) is on—or that you press and hold the Fn key to temporarily access the embedded keypad.

If a special feature on a USB mouse doesn't work

- Make sure you installed any drivers included with the mouse.
- Restart the notebook, so that it will detect the mouse.

LAN Problems

If the built-in network adapter doesn't connect to the LAN

- Check all cables and connections. Try connecting at a different network station, if available.
- If the green light next to the LAN port does not light, the LAN cable may not be connected to the network or the network may be down. Try connecting a different notebook to the cable.
- Click Start, Control Panel, Network and Internet Connections, Network Connections. Make sure you have the correct clients and protocols installed.
- Make sure the LAN cable is Category 3, 4, or 5 for 10Base-T operation, or Category 5 for 100Base-TX operation. Maximum cable length is 100 meters (330 feet).
- Use the networking problems troubleshooter in Windows Help and Support.
- Click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager. If the network interface is disabled, try to enable it. If it has a conflict, try disabling another device.

If you can't browse My Network Places

- Click Start, Search to look for a computer.
- Check with your network administrator to make sure NetBEUI protocol is supported on the network.

If you can't log in to Netware servers

- If a Netware server is using IPX/SPX protocol, you may need to force your frame type to match the server's frame type. Check with your network administrator.

If the notebook stops responding after booting

- Check whether you have a TCP/IP network with no DHCP server. This can cause a long delay at startup because DHCP is enabled. Contact your network administrator to determine the proper TCP/IP configuration.

If file transfers are unusually slow or produce timeout errors

- Connect the AC adapter.

Memory Problems

If a message says you are out of memory

- Make sure drive C is not running low on free space.
- Use the memory troubleshooter in Windows Help and Support.
- If you are having memory problems while running MS-DOS programs, use the application and software problems troubleshooter in Windows Help and Support.
- Not all third-party memory cards have been tested for use with the notebook. Check the HP Notebook Web site (www.hp.com/notebooks) for a list of approved and tested memory cards.
- Test your notebook's memory with the e-DiagTools diagnostics—see “Using the e-DiagTools Diagnostic Tests” on page 29.

If memory doesn't increase after adding RAM

- Make sure all RAM modules are installed properly.
- Test your notebook's memory with the e-DiagTools diagnostics—see “Using the e-DiagTools Diagnostic Tests” on page 29.

If the notebook will not boot up after adding RAM

- Make sure your notebook is using only PC133 SDRAM modules, or it will not boot up. (You will also see an error message.)

Modem Problems

If the modem seems slow

- Check for excess static or noise on the line, which reduces the overall transmission speed. If necessary, contact your telephone company about fixing this type of problem.
- If you're dialing internationally, line noise is often difficult or impossible to eliminate.
- If you have call-waiting, disable it—see Windows Help and Support, and contact your telephone company for information.
- Eliminate extra connections in the line. If possible, connect directly to the wall jack.
- Try another telephone line, preferably one normally used for a fax machine or modem.

If the modem doesn't dial or no dial tone is detected

- Check all cables and connections.
- Connect a standard telephone to the phone line and make sure the line is working.
- Make sure someone else isn't using the same phone line.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- If you're in a foreign country/region, the dial tone may not be recognized by the modem. Click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options. Select your modem on the Modems tab, then click Properties, Modem, and disable the option that waits for a dial tone.

- Many countries impose a blackout period after a modem repeatedly fails to connect to a service provider. The number of failed attempts and the period you must wait before trying again differ from country/region to country/region: check with your telephone company.

For example, if you are dialing from Italy and fail to connect to your server or cancel the connection, you must wait one minute before dialing that number again. If you dial before then, you will get an error message that says “delay.” After the fourth failed connection, you must wait one hour before trying the number again. If you dial before the hour is up, you will get a message that says “black list.”

If the modem dials incorrectly

- Check the telephone number you entered, including any digits required for outside access or long distance.
- In Control Panel, open Phone and Modem Options, and check the dialing options—look for duplicate digits for outside access or long distance.
- Make sure the number you’re calling isn’t busy.
- If you have call-waiting, disable it—see Windows Help and Support, and contact your telephone company for information.

If the modem dials but doesn’t connect

- Make sure you’re using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- The modem at the other end may have a problem. Try dialing to a different modem.

If the modem will not connect at 56K speed

- The host modem may not support a 56K (V.90) connection speed.
- Connection speed depends on several factors, such as the condition of the telephone line. Try connecting another time.

If the modem will not connect at any speed

- Make sure you’re using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Make sure the telephone line goes directly from the notebook’s modem phone jack to the telephone jack on the wall.
- If you have a single telephone line for voice and modem use, make sure no one else is using the line and that the phone is not off the hook.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- Contact your Internet Service Provider (ISP). It’s possible that service may be unavailable temporarily or that your settings are incorrect.
- Restart your notebook and attempt another connection.
- Download the latest modem driver from the technical support area of the HP notebook Web site (www.hp.com/notebooks).
- Run the modem diagnostics:

1. Click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options.
2. Click the Modems tab, and select the modem you want to test.
3. Click Properties, Diagnostics, Query Modem.

If the modem isn't detected

- Check the modem setup. In Control Panel, open Phone and Modem Options.
- Click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager. If the modem is disabled, try to enable it. If it has a conflict, try disabling another device.
- If you're running fax software using fax Class 2, try using Class 1.

If the modem dials but you can't hear it

- Check the speaker volume setting and mute setting.
- In Control Panel, open Phone and Modem Options. Select the modem and click Properties, then check the volume setting on the Modem tab.

If the modem connects, but transferred data is bad

- In Control Panel, open Phone and Modem Options. Make sure the hardware settings match on the sending and receiving modems.

If the modem causes an ERROR message

- A string of AT commands may contain an incorrect command. If you entered commands as extra settings for the modem in Control Panel or in your communications software, check the commands.

If the modem doesn't fax

- If you're using fax Class 2 in the fax software, try using Class 1.
- Close any other communications programs.
- If you're faxing by printing from an application, make sure you've selected the fax printer.
- Try turning off power management features temporarily.

If the modem clicks repeatedly but doesn't connect

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Check all cables and connections.

One-Touch Button Problems

If One-Touch buttons are not working properly

- Make sure the items associated with the buttons are the ones you want.

If the onscreen display does not appear when pressing a One-Touch button

- Make sure the Onscreen Display is enabled.

Parallel and USB Problems

If a USB mouse doesn't work

- Make sure you followed the manufacturer's installation instructions completely and have installed the mouse properly. If not, repeat the procedure.
- Make sure the mouse is securely connected to the USB port.
- Put the notebook on standby, then resume.
- Restart the notebook.
- Check the mouse settings in Control Panel.
- Check the port settings in Control Panel: click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager, and double-click Universal Serial Bus Controllers.

If a USB modem doesn't work properly

- See "Modem Problems" on page 21.
- Make sure the modem is securely connected to the USB port.
- Use the modem troubleshooter (under Networking problems) in Windows Help and Support.
- Check the modem settings in Control Panel.
- Disable the internal modem:
 1. Click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager.
 2. Double-click Modem to list the current modem devices.
 3. Double-click the internal modem, then select the option to disable the modem.
- Check the port settings in Control Panel: click Start, Control Panel, Performance and Maintenance, System. On the hardware tab, open the Device Manager, then double-click Universal Serial Bus controllers.

If the parallel port is not working

- Make sure the port connection is secure.
- Check the port settings in Control Panel: click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager, and double-click Ports (COM & LPT).
- Test the port with the e-DiagTools diagnostics—see "Using the e-DiagTools Diagnostic Tests" on page 29.

If the USB port is not working

- Contact the vendor of the peripheral device and check the HP Notebook Web site (www.hp.com/notebooks) for the latest versions of the USB drivers and the driver for the device.
- Check the port settings in Control Panel: click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager, and double-click Universal Serial Bus controllers.
- Test the USB port with the e-DiagTools diagnostics— see "Using the e-DiagTools Diagnostic Tests" on page 29.

PC Card (PCMCIA) Problems

If the notebook doesn't recognize a PC Card

- Make sure the card is fully inserted in the bottom slot.
- Remove and reinsert the PC Card.
- Restart the notebook.
- If the card requires an IRQ, make sure one is available. If necessary, set the IRQ to an unused value: click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager, then view resources by type.
- Check the HP Business Support Web site (www.hp.com/go/bizsupport) for information about installing certain PC Cards.
- Make sure your notebook supports the problem PC Card: check the HP Notebook Web site (www.hp.com/notebooks) for a list of approved and tested PC Cards.
- Try the card in another computer to see whether the card functions properly.
- Test the PC Card with the e-DiagTools diagnostics— see “Using the e-DiagTools Diagnostic Tests” on page 29.

If an I/O card stops communicating properly

- The card may have been reset if your notebook went on standby or into hibernation, or turned off. Exit any applications, then remove and reinsert the card.

If a PC Card modem is not working

- Disable the internal modem:
 1. Click Start, Control Panel, Performance and Maintenance, System. On the Hardware tab, open the Device Manager.
 2. Double-click Modem to list the current modem devices.
 3. Double-click the internal modem, then select the option to disable the modem.

If file transfers through the PC Card are unusually slow or produce timeout errors

- Connect the AC adapter.

Performance Problems

For best performance with Windows XP, your notebook should have at least 128 MB of memory (RAM).

If the notebook pauses or runs sluggishly

- Certain background operations (such as a virus-scanning program) can affect performance and response time.
- Press Ctrl+Alt+Del to see if an application is not responding.
- Restart the notebook.

- Some file browsers respond slowly while processing graphics or waiting for broken network connections to time out.
- If the notebook's hard disk drive runs frequently (as indicated by the hard drive light on the front of the notebook) while the notebook appears to be paused or running slowly, Windows is likely spending excess time writing to its swap file on the notebook's hard disk. If this occurs frequently, consider installing additional memory.
- Check the amount of available free disk space. Delete temporary and unneeded files.

If the notebook stops responding

- Press Ctrl+Alt+Del to end the application that is not responding.
- Reset the notebook—see “Resetting the Notebook” on page 11.

Power and Battery Problems

If the notebook turns off immediately after it turns on

- Battery power is probably extremely low. Plug in the AC adapter or insert a charged battery.

If the notebook keeps beeping

- The notebook beeps repeatedly when battery power is low (you can set this option in Power Options in Control Panel). Save your work, turn off the notebook immediately, and insert a charged battery or plug in the AC adapter.

If the battery doesn't charge

- Make sure the AC adapter is fully plugged into the power source and the notebook, and that the light on the adapter is on.
- If you're using a power strip, remove the AC adapter from the power strip and plug it directly into a wall outlet.
- Make sure the battery is fully installed and locked in place.
- Move the notebook away from any nearby heat source. Unplug the AC adapter and allow the battery to cool down. If the battery gets too hot, it will not charge properly.
- If available, try another battery and AC adapter.

If the notebook has a short operating time

- Try conserving power using any of the suggestions listed in the online *Reference Guide*.
- If you are running an application that has an automatic save feature (such as MS Word), disable this feature or increase the specified save time to reduce hard disk access.
- If the operating time has gradually become shorter and the battery is more than a year or two old, you may need to replace the battery.
- Heavy modem use can affect battery operating time.
- PC Card use can affect battery operating time.
- The battery gauge may need to be calibrated. Restart the notebook, press F6 when the HP logo appears, and follow the instructions that appear onscreen. This process calibrates the battery, and requires four to five hours to complete. You cannot use the notebook during this time.

If the Time Remaining for the battery seems incorrect

- The Time Remaining is an estimate based on the rate at which the notebook is using power at that instant. So, if you check the Time Remaining while the notebook is using a good deal of power (such as when reading from a CD or DVD), the value will likely show less time remaining than you really have, since you will probably later switch to tasks that require less power.

If the notebook doesn't go on standby as expected

- If you have a connection to another computer, the notebook won't go on standby if the connection is active.
- If the notebook is performing an operation, it normally waits for the operation to finish before going on standby.
- Use the BIOS configuration utility to make sure I/O Performance is set to Max Battery Life—see “Using the BIOS Configuration Utility” on page 30.

If the notebook doesn't automatically hibernate as expected

- Make sure hibernate support is enabled: click Start, Control Panel, Performance and Maintenance, Power Options, then click the Hibernate tab.

Also, check the Power Schemes tab. Make sure the hibernation timeouts for AC power and battery power are not set to Never.

- Use the BIOS configuration utility to make sure I/O Performance is set to Max Battery Life—see “Using the BIOS Configuration Utility” on page 30.

Printing Problems

Hint

You can solve most printing problems using the printing troubleshooter in Windows Help and Support.

If a printer doesn't print

- Make sure the printer is on and has paper in it.
- Make sure you are using the correct printer cable or cable adapter, and that the cable is secure at both ends.
- Check for printer errors.

If the left edge of the printed output is missing

- Certain applications may not work properly with 600-dpi printers. If you're using such a printer, try selecting a compatible printer driver for a 300-dpi printer. For example, if you were using a 600-dpi HP LaserJet printer, you might try using the HP LaserJet IIIsi driver (300 dpi).

Startup Problems

If the notebook doesn't respond when you turn it on

- Connect the AC adapter.
- Reset the notebook by using a pen or straightened paper clip to press the reset switch on the bottom of the notebook. Then press the power button to turn the notebook on.

- Don't use the touch pad while the notebook is starting up or resuming from standby or hibernation.
- If the notebook still doesn't respond, remove the battery and AC adapter, and remove any PC Card. Then reset the notebook using the reset switch on the bottom of the notebook, replace the battery and plug in the AC adapter, and turn on the notebook by pressing the power button.
- If the notebook still doesn't respond, call HP for assistance.

If the notebook won't boot from battery power

- Make sure the battery is properly inserted and fully charged. Check the battery's charge by clicking the power icon in the taskbar, or using Power Options in Control Panel.
- If available, try another battery.

If the notebook won't boot from the floppy disk drive

- Make sure the optional USB floppy disk drive is connected correctly.
- Make sure the floppy disk is bootable.
- Make sure the floppy disk drive is selected as the boot device—see “Changing the Boot Device” on page 11.

Standby and Resume Problems

If the notebook takes a long time to resume after being on standby

- The notebook can take a minute or longer to resume if a network card is installed. A blinking cursor appears on the display while the system is loading and checking hardware and network connections. As soon as the hardware is reinitialized, the Windows desktop appears.

If you have general problems resuming from standby or hibernation

- Close all applications before going on standby or into hibernation.
- If the problems appeared after you installed new software (including drivers, such as printer drivers), uninstall the software. Contact the software application or device vendor for additional support.

Using the e-DiagTools Diagnostic Tests

The e-DiagTools hardware diagnostic program included with your notebook provides two levels of testing: automated testing using its basic hardware test, and advanced testing using individual hardware tests.

The tests are designed to run after the system reboots. This ensures that the notebook 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 notebook. The notebook reboots when you exit the program so drivers can be loaded.

Running basic tests and documenting the results

1. In Windows, click Start, All Programs, Hewlett-Packard, Notebook, HP e-DiagTools, e-DiagTools for Windows.
2. Click Support Ticket, and then click Update. e-DiagTools creates a new support ticket.
3. When e-DiagTools displays a dialog box about restarting the notebook, close all files and applications before clicking Yes.

Viewing the support ticket

1. In Windows, click Start, All Programs, Hewlett-Packard, Notebook, HP e-DiagTools, e-DiagTools for Windows.
2. Click View to display the Support Ticket.
3. To add information about your problem, click Comments and type the information, then click OK.
To save or print the Support Ticket, click Save As or Print.
To e-mail the Support Ticket to your support agent, click e Mail. The first time you make an e-mail connection from this program, click Change Settings in the Connect window and enter the settings recommended by your support agent.

Running advanced tests on specific hardware

1. Restart the notebook: click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press F10 to start the diagnostic test.
3. When the menu appears, press F2 to run e-DiagTools.
The first time you run the program, you are prompted to select the language for the program.
4. When the Configuration Description appears, verify the list of detected hardware.
5. Run the basic test. Press F2 to start the basic hardware test. The results appear when the test is complete.
6. Press F2 to open the advanced test screen.
7. Use the arrow keys and ENTER to select the tests that you want to run. Tests are listed only for detected hardware.
8. Press F2 to run the selected tests and add the results to the Support Ticket.
9. Press F12 to run the selected tests in a loop until you press ESC. When running advanced tests in a loop, ESC does not stop all tests immediately.

10. After each run, press F2 to go back to the advanced tests screen, press F4 to view the support ticket, or press F3 to exit.

e-DiagTools for Windows can update the version of e-DiagTools on your notebook's hard disk. In e-DiagTools for Windows, use the e-DiagTools menu.

If you have trouble running e-DiagTools from the hard disk, you can also run it from the Recovery CD or DVD. Boot from disk 1 and select the diagnostics option.

Using the BIOS Configuration Utility

The BIOS (Basic Input and Output System) configuration utility enables you to change the notebook's system configuration, and to tailor the operation of your notebook to your individual work needs.

1. Restart the notebook: click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press F2 to enter the BIOS configuration utility.
3. The pointing devices are not active in the BIOS configuration utility, so you will need to use the keyboard to navigate:
 - Press the left and right arrow keys to move among menus.
 - Press the up and down arrow keys to move among parameters in a menu.
 - Press Enter to open the dialog for the current parameter, or to select the parameter.
 - Press Tab or the left and right arrow keys to move among selections in a dialog.
 - Press the up and down arrow keys to move through values for the setting.
 - Press Enter to close the dialog and accept the settings.
4. When you finish making changes, press F10 (or select Exit, Save and Reboot).
5. Press Enter to confirm and restart the notebook.

The following tables describe the settings for the notebook's initial BIOS release. If your notebook's BIOS version is different, some settings may differ from those shown, or may be absent.

Startup Menu

Setting	Description	Default
Date and Time	Sets the date using mm/dd/yyyy format and the time using 24-hour format. Value set takes effect immediately.	
Boot Device	Shows the order of boot devices, with "+" indicating a device category. Move the entries to change the order. If the notebook has more than one device in a category, you can select the one scanned. Internal LAN appears in the list only if a built-in LAN is present—it provides diskless boot from a network server.	1. Hard Disk 2. CD-ROM/DVD 3. Diskette A 4. Internal LAN
I/O Performance (models with technology code GE only)	Enables (Max Battery Life) and disables (Max I/O Performance) battery-saving features to provide for improved I/O transfers.	Max Battery Life

Exit Menu

Setting	Description	
Save and Reboot	Saves changes, then exits and reboots.	
Exit (No Save)	Discards any changes made since last save, then exits and reboots. Does not affect date or time changes.	
Default Settings	Restores default settings and stays in the BIOS configuration utility. Does not affect date or time changes.	

Reinstalling and Updating Software

You can use the *Recovery CDs* provided with your notebook to recover its original factory software.

The *Recovery CDs* also provide Windows drivers specific to your notebook that you can use to configure a custom system. You can find drivers in these locations:

- On your notebook's hard drive under C:\hp\drivers.
- On the *Recovery CDs* under \hp\drivers.
- On the HP Business Support Web site (www.hp.com/go/bizsupport). This Web site contains the latest updates of software drivers for different operating systems.

Recovering the Factory Software Installation

You can use the *Recovery CDs* to reinstall the original factory software on your notebook's hard disk. You can also use the same process to create a larger Utility partition on your hard disk, or to create a Utility partition on a new hard disk. The hidden Utility partition contains the e-DiagTools diagnostic tests and stores hibernation data for operating systems that don't provide hibernation.

CAUTION

This procedure formats the notebook's hard disk drive and erases all data on the disk. After the hard disk is formatted, you'll need to reinstall your applications.

Do not interrupt the following process or unplug the AC adapter until the process is complete.

1. **Important:** If possible, back up all data from the notebook's hard disk. The following steps delete all data from the disk.
2. Connect the AC adapter to the notebook.
3. Insert the *Recovery CD* (disk 1) into the notebook's CD/DVD drive. If the notebook is turned off, use a pin or straightened paper clip to press the release switch on the drive door to open it.
4. Turn on or restart the notebook. If the notebook is on, click Start, Turn Off Computer, Restart.
5. When the HP logo appears, press Esc to display the Boot menu.
6. Use the arrow keys to select the CD-ROM/DVD drive as the boot device, and press Enter.
7. When the *Recovery CD* dialog box appears, follow the displayed instructions. If prompted, accept the recommended partition size. If you install the factory software, the recovery process can take up to 15 minutes.

If you want to create the Utility partition without installing the factory software, click Advanced and select not to install the operating system.

If your hard disk is partitioned into several drives, you can install the factory software on drive C without affecting other drives. Click Advanced and select to restore only the C partition.

8. **Important:** When prompted to reboot the notebook, press Ctrl+Alt+Del and follow any instructions that appear.

Updating the Notebook BIOS

Hewlett-Packard may provide updates to the notebook's BIOS to enhance its capabilities. You can use e-DiagTools for Windows to download and install BIOS updates in your notebook.

Caution

Because a BIOS update replaces the previous version, you must follow these instructions exactly, or you risk damaging your notebook. The BIOS update process resets the settings in the BIOS configuration utility.

1. In Windows, exit any programs that are running.
2. Remove any PC Card.
3. Connect the AC adapter.
4. Connect any cables or equipment needed to connect to the Internet.
5. Click Start, All Programs, Hewlett-Packard, Notebook, HP e-DiagTools, e-DiagTools for Windows.
6. Click Update, select Download New and click OK. Follow the instructions that appear. **Once the update process begins, do not interrupt it.**

The first time you make an Internet connection from this program, click Change Settings in the Connect window to define your connection settings.
7. When the process is completed, reset the notebook —see “Resetting the Notebook” on page 11).

BIOS updates are also available from the HP Business Support Web site (www.hp.com/go/bizsupport). Installation utilities and instructions are provided with the updates.

Updating the Windows Drivers

From time to time, HP releases updated versions of the drivers for your notebook. These updates are intended to fix any problems that could be encountered in the drivers, and to keep your notebook running smoothly. In addition, HP normally provides drivers for other versions of Microsoft Windows, in case you decide to install a different version of Windows.

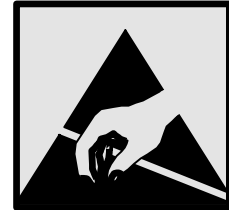
- Download the latest drivers for your notebook from the HP Business Support Web site (www.hp.com/go/bizsupport). Follow the instructions included with the drivers.

Removing and Replacing Parts

This chapter shows how to remove and replace notebook components.

Caution

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



Notes

To reassemble a component, perform the removal procedure in reverse order. Any special notes required for reassembly are included at the end of each section.

■ Symbols like this are used throughout this chapter to show approximate full-size screw outlines. Use these to verify the sizes of screws before you install them. Installing a wrong-size screw can damage the notebook. (The symbol shown represents an M2.5×5mm T-head screw.)

Removing the Battery

Table 1. Battery Replacement Part Numbers

Description	Part Number	Exchange Part Number
Battery, Lilon 8-Cell	F5398-60911	

Required Equipment

- None.

Removal Procedure

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

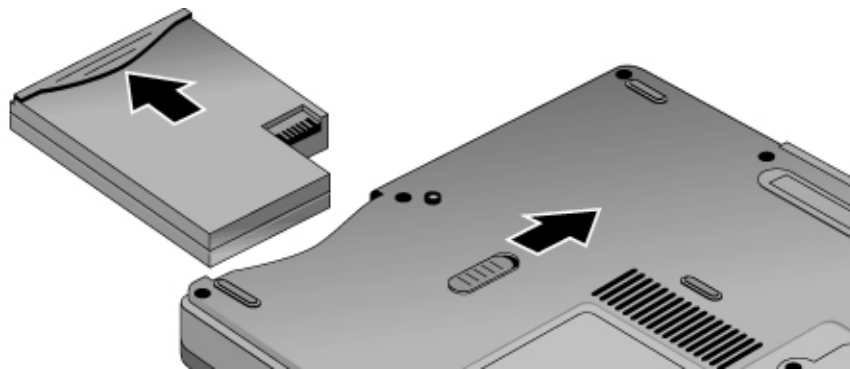


Figure 7. Removing the Battery

Reassembly Notes

- Insert the battery into the battery compartment, then press it in until it clicks into place.

Removing the Hard Disk Drive

Table 2. Hard Disk Drive Replacement Part Numbers

Description	Part Number	Exchange Part Number
HDD-20GB 9.5mm, IBM ATA100 FDB	0950-4318	F3257-69501
HDD-20GM 9.5mm, TOSH ATA100 FDB	0950-4287	F3476-69002
HDD-30.0GB 9.5mm, IBM ATA100 FDB (Cascade)	0950-4319	F3414-69500
HDD-30BG 9.5mm, TITAN Toshiba ATA100 (TITAN)	0950-4360	F3414-69501
Tray Assy, HDD		F5398-60914

Required Equipment

- #0 Phillips screwdriver.

Removal Procedure

1. Unplug the AC adapter (if present), and remove the notebook's battery.
2. Remove both hard drive retaining screws from the bottom of the notebook.

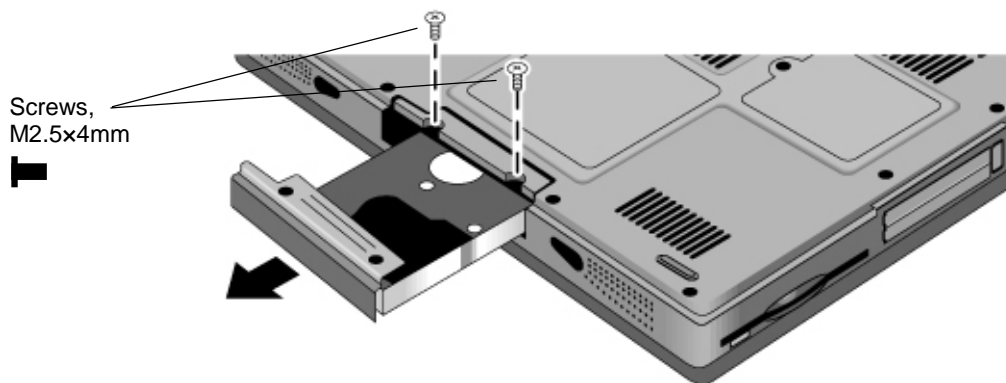


Figure 8. Removing the Hard Disk Drive

3. Carefully remove the hard drive from of the notebook.
4. Remove all four screws from the tray and drive case, then remove the drive from the tray.

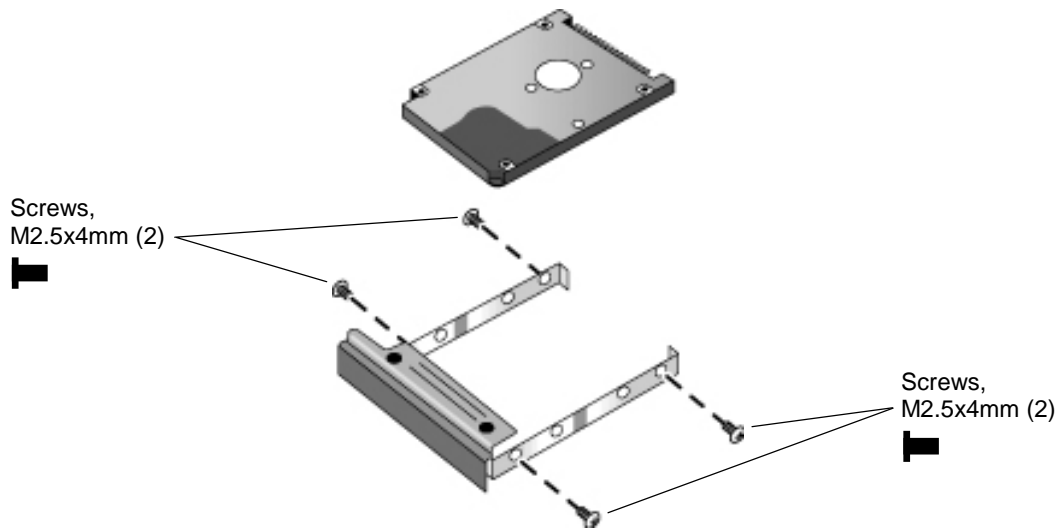


Figure 9. Removing the Hard Disk Tray

Reassembly Notes

- Insert the connector end of the drive through the opening in the carrier, then lower the drive into place.
- Carefully slide the new drive into the hard drive compartment. Press firmly to make sure its connector seats properly.

Important

If you are installing a new hard disk drive, install the factory software and operating system on the drive before loading any additional software—see “Recovering the Factory Software Installation” on page 33.

Removing an SDRAM Module

The notebook has no SDRAM built into its motherboard, but has two slots for removable SDRAM modules in a compartment on the bottom of the unit. (One of these slots contains a module installed at the factory). You can use these slots to expand your unit's RAM. Use HP PC133 SDRAM modules only, or your notebook will not boot up.

Table 3. SDRAM Module Replacement Part Numbers

Description	Part Number	Exchange Part Number
Module, SDRAM, 128 MB, PC133 SODIMM (X16)	1818-8504	
Module, SDRAM, 256 MB, PC133 SODIMM (X16)	1818-8635	
Module, SDRAM, 256 MB, PC133 SODIMM (X8)	1818-8604	F2298-69001

Caution

Provide proper grounding and handle the SDRAM module only by its edges, or you could damage the module through electrostatic discharge.

Required Equipment

- #0 Phillips screwdriver.

Removal Procedure

1. Turn off the notebook: click Start, Turn Off Computer, Turn Off.
2. **Important:** Unplug the AC adapter (if present) and remove the notebook's battery.
3. On the bottom of the notebook, loosen the screw holding the RAM cover (the cover retains the screw), and remove the cover.
4. Release the two latches at the sides of the SDRAM module by pushing them gently outward (away from the sides of the module). When you release the latches, the free edge of the module pops up.

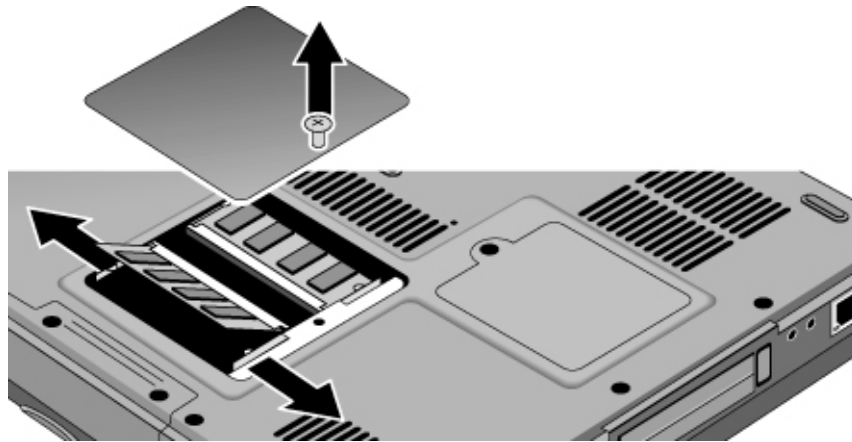


Figure 10. Removing an SDRAM Module

Reassembly Notes

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

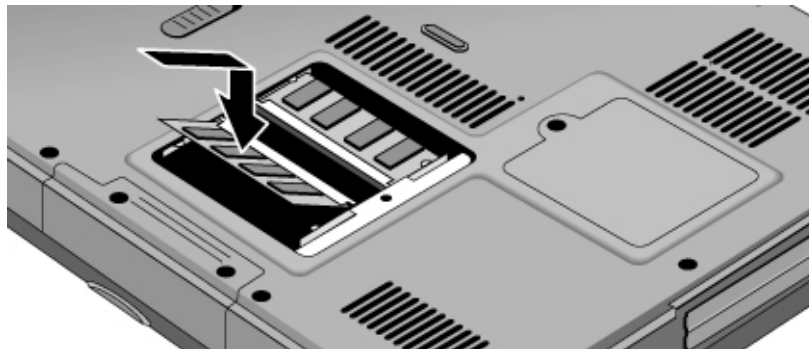


Figure 11. Installing an SDRAM Module

Replacing Small Parts and Accessories

The following small parts are user-replaceable.

Table 4. Replacing Small Parts

Part	Part Numbers	Replacement Procedure
Cover, SDRAM	F5398-60912	On the bottom of the notebook, loosen the screw holding the RAM cover (the cover retains the screw), and remove the cover.
Feet, rubber	F3410-60915 (kit)	Insert a small flat-blade screwdriver under the foot and pry it loose. To replace, firmly press the adhesive side of the foot into the recess.

Table 5. Accessories

Part	Part Numbers
Technology code JB: AC adapter, Ultralim (75 W, 19 V output)	F4814A
Power cord, replacement (US #ABA, 2w)	8120-6313

Reference Information

This section includes information on HP's password removal policy, and on notebook display quality.

Password Removal Policy

If the user forgets the system password, the user calls HP Customer Care to determine the proper password removal procedure. The user must provide proof of ownership, and the notebook 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. The procedure 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 notebook being "cleansed" is actually in the possession of the notebook's actual and current owner. This requires a sales receipt showing the notebook serial number and owner's name, or a written statement from the owner attesting that he or she is the owner of the notebook. The statement can be a fax copy of the document. The fact that the notebook 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 notebook 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 notebook.

Hewlett-Packard Display Quality Statement

TFT display manufacturing is a highly precise but imperfect technology, and manufacturers cannot produce large displays that are cosmetically perfect. Most, if not all, TFT displays 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 notebook display.*

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

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

1. View the notebook under the customer's normal operating conditions.

This means that if the customer uses the notebook predominately in DOS, in Windows, or in some other application or combination of applications, you should make the determination under those same applications. Self test is not a normal operating condition and is not a sufficient tool for interpreting 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, make sure the customer understands that cosmetic variations may also exist on the replacement display, and may require the customer to use a work-around to obscure the cosmetic imperfection.
4. Displays with cosmetic imperfections that do not conform to the above conditions and tests will not normally be considered for display replacement. The HP-responsible person working with the customer should identify work-arounds that are reasonable and appropriate for that customer. Customers who require a more perfect display solution should consider switching to a notebook with a DSTN display.

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

Type of Imperfection	Imperfections Not Allowed
Electrical Imperfections: Bright dots ^(a) Dark dots ^(a)	<ul style="list-style-type: none"> • 7 or more single bright dots. • 7 or more single dark dots. • 9 or more total (bright and dark combined) defective dots. • Any occurrence of multiple defective dots within 15 mm.
Mechanical Imperfections: Discoloration Polarizer bubbles, dents ^(b)	<ul style="list-style-type: none"> • Any polarizer bubble, discoloration, or dent that is visible from at least 36 cm (14 in).
Definitions of imperfections: ^a A bright or dark dot is a subpixel (red, green, or blue dot) that is stuck on or off. ^b A polarizer dent or bubble is a light spot with a darker border that appears on a lighted display and does not change size. In contrast, a polarizer scratch is a light line that is visible on a darker background and does not change size.	