Dell™ Latitude™ D400 Service Manual

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NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

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Model PPT

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Before You Begin

Dell™ Latitude™ D400 Service Manual

- Preparing to Work Inside the Computer
- Recommended Tools
- Computer Orientation
- Screw Identification

Preparing to Work Inside the Computer

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions in the *System Information Guide* that came with the computer.

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor by its edges, not by its pins.

NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

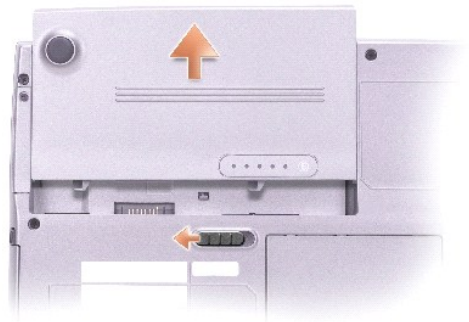
1. Ensure that the work surface is flat and clean to prevent scratching the computer cover.
2. Save any work in progress and exit all open programs.
3. Turn off the computer and all attached devices.

NOTE: Ensure that the computer is off and not in a power management mode. If you cannot shut down the computer using the computer operating system, press and hold the power button for 4 seconds.

4. If the computer is connected to a docking device (docked), undock it.
5. Disconnect the computer from the electrical outlet.
6. To avoid possible damage to the system board, wait 10 to 20 seconds and then disconnect any attached devices.
7. Disconnect all other external cables from the computer.
8. Remove any installed PC Cards from the PC Card slot.
9. Close the display and turn the computer upside down on a flat work surface.

NOTICE: To avoid damaging the system board, you must remove the main battery before you service the computer.

10. Slide and hold the battery-bay latch release on the bottom of the computer, and then remove the battery from the bay.

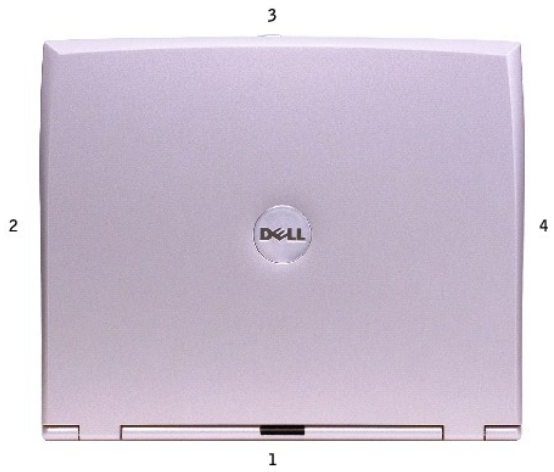


Recommended Tools

The procedures in this manual require the following tools:

- Phillips screwdriver
- Flat-blade screwdriver
- Small plastic scribe
- Flash BIOS update program floppy disk or CD

Computer Orientation



1	back
2	right
3	front
4	left

Screw Identification

When you are removing and replacing components, photocopy "Screw Identification" as a tool to lay out and keep track of the screws. The screw identification chart provides the number of screws and their sizes.

keyboard (two each)	modem (one each)	hard drive (four each)

M2 x 5 mm 1428U	M2 x 5 mm 1428U	M3 x 3 mm 2864D
display removal (six each) M2.5 x 6 mm 4911U	display bezel (six each) M2.5 x 4 mm 7166P	display latch (two each) M2 x 1.8 mm 5H953
palm rest (thirteen each) M2.5 x 6 mm 4911U (two each) M2 x 1.8 mm 5H953	fan (three each) M2 x 5 mm 1428U	system board (six each) M2 x 5 mm 1428U (one each, if a BIOS card is present) M2 x 5 mm 1428U
speakers (two each) M2.5 x 6 mm 4911U		

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Flashing the BIOS

1. Ensure that the AC adapter is plugged in and that the main battery is installed properly.

NOTE: If you use a BIOS update program CD to flash the BIOS, set up the computer to boot from a CD before inserting the CD.

2. Insert the BIOS update program floppy disk or CD, and turn on the computer.

   Follow the instructions that appear on the screen. The computer continues to boot and updates the new BIOS. When the flash update is complete, the computer automatically reboots.

3. Press <F2> during POST to enter the system setup program.
4. Press <Alt> and <F> to reset the computer defaults.
5. Press <Esc>, select **Save changes and reboot**, and press <Enter> to save configuration changes.
6. Remove the flash BIOS update program floppy disk or CD from the drive and restart the computer.

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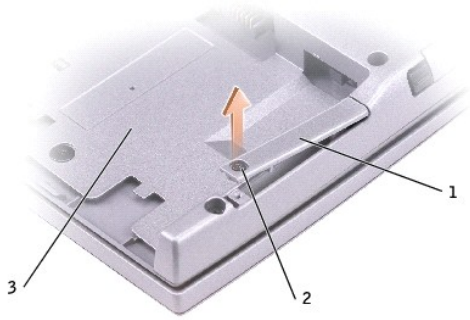
Bluetooth™

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

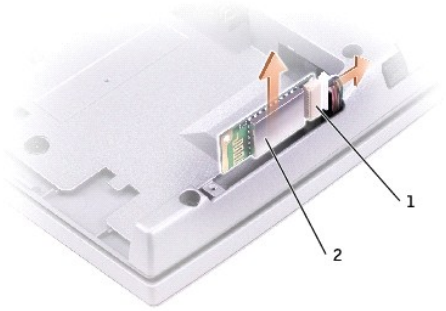
NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Turn the computer over, loosen the captive screw in the Bluetooth module cover, and remove the cover.



1	Bluetooth module cover	0X737
2	captive screw	
3	battery bay	

3. Remove the existing module:
   a. Pull the Bluetooth module out of the slot.
   b. Disconnect the cable from the module.



1	Bluetooth connector	
2	Bluetooth module (front)	2U381

4. Ensure that the front of the Bluetooth module (silver) is facing outward, and connect the cable to the module.
5. Insert the module into the slot.
6. Replace the cover and tighten the captive screw.

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Using the Dell Diagnostics

- When to Use the Dell Diagnostics
- Features of the Dell Diagnostics
- Starting the Dell Diagnostics

When to Use the Dell Diagnostics

Whenever a major component or device in your computer does not function properly, you may have a component failure. If you are experiencing a problem with your Dell™ computer, perform the checks in the "Solving Problems" section in the *User's Guide* and run the Dell Diagnostics *before* you call Dell for technical assistance. Running the Dell Diagnostics may help you to resolve the problem yourself quickly without having to contact Dell for assistance.

If you are experienced with computers and know what component(s) you need to test, select the appropriate diagnostic test group(s) or subtest(s). If you are unsure about how to begin diagnosing a problem, see "Starting the Dell Diagnostics."

Features of the Dell Diagnostics

The Dell Diagnostics helps you to check your computer hardware without any additional equipment and without destroying any data. By using the diagnostics, you can have confidence in the operation of your computer. If you find a problem that you cannot solve by yourself, the diagnostic tests can provide you with important information you need when talking to Dell's service and support personnel.

NOTICE: Use the Dell Diagnostics to test only your Dell computer. Using this program with other computers may cause incorrect computer responses or result in error messages.

The diagnostic test groups or subtests also have the following features:

- Options that let you perform express, extended, or custom tests on one or all devices
- An option that allows you to select tests based on a symptom of the problem you are having
- An option that allows you to choose the number of times a test group or subtest is repeated
- The ability to display test results
- Options to temporarily suspend testing if an error is detected, or to terminate testing
- Extensive online Help that describes the tests and devices
- Status messages that inform you whether test groups or subtests were completed successfully
- Error messages that appear if any problems are detected

Starting the Dell Diagnostics

The Dell Diagnostics is located on a hidden Diagnostic utility partition on your hard drive.

NOTE: If your computer cannot display a screen image, contact Dell. See the *User's Guide* for contact information.

1. Shut down the computer.
2. If the computer is connected to a docking device (docked), undock it. See the documentation that came with your docking device for instructions.
3. Connect the computer to an electrical outlet.

NOTE: If you do not see anything on your display, hold down the mute button and press the power button (instead of <F12>) to begin the Dell Diagnostics. You do not need to highlight **Diagnostics** and press <Enter>. The computer automatically runs the Pre-boot System Assessment.

4. Turn on the computer. When the DELL™ logo appears, press <F12> immediately. If you wait too long and the Microsoft® Windows® logo appears, continue to wait until you see the Windows desktop. Then shut down your computer and try again.

5. When the boot device list appears, highlight **Diagnostics** and press <Enter>.

The computer begins to run the Pre-boot System Assessment, a series of embedded diagnostics that perform initial testing on your system board, keyboard, hard drive, and display.

- During the assessment, answer any questions that appear.
- If a component failure is detected, the computer stops and beeps. To stop the assessment and reboot to the operating system, press <N>; to continue to the next test, press <Y>; to retest the component that failed, press <R>.
- If failures are detected during the Pre-boot System Assessment, write down the error code(s) and contact Dell before continuing on to the Dell Diagnostics. See the *User's Guide* for contact information.
- If you receive a message stating that no Diagnostics utility partition has been found, follow the instructions on the screen to run the Dell Diagnostics from your *Drivers and Utilities* CD.

If the Pre-boot System Assessment completes successfully, you receive the message `Booting Dell Diagnostic Utility Partition. Press any key to continue.`

6. Press any key to start the Dell Diagnostics from the Diagnostics utility partition on your hard drive.

7. After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.

NOTE: The Service Tag for your computer is located in the title bar of each screen.

Option	Function
Express Test	Performs a quick test of devices. The test typically takes 10 to 20 minutes and requires no interaction on your part. Run Express Test first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. The test typically takes 1 hour or more and requires you to answer questions periodically.
Custom Test	Tests a specific device. You can customize the tests to be run.
Symptom Tree	Allows you to select tests based on a symptom of the problem you are experiencing. The option lists the most common symptoms.

8. If a problem is encountered during a test, a message appears, displaying the error code and a description of the problem. Write down the error code and problem description and follow the instructions on the screen. If you cannot resolve the error condition, contact Dell. See the *User's Guide* for contact information.

9. If you run a test from the **Custom Test** or **Symptom Tree** option, click the applicable tab described in the following table for more information.

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and problem description.
Help	Describes the test and may indicate requirements for running the test.
Configuration	Displays your hardware configuration for the selected device. The Dell Diagnostics obtains your configuration information for all devices from the system setup program, memory, and various internal tests and displays the information in the device list in the left pane of the screen (see the *User's Guide* for information on the system setup program). The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test by changing the test settings.

10. When you have finished running a test, close the screen to return to the **Main Menu** screen. To exit the Dell Diagnostics and reboot the computer, close the **Main Menu** screen.

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Display

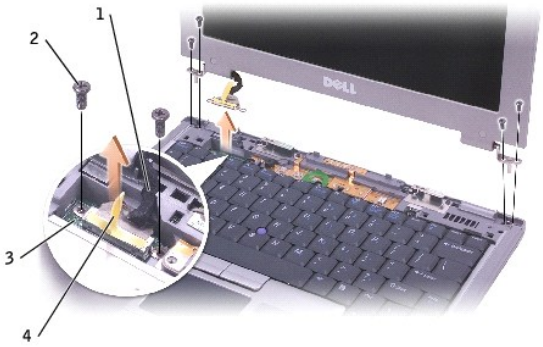
- Removing the Display Assembly
- Replacing the Display Latch

Removing the Display Assembly

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove the battery.
3. Remove the hard drive.
4. Remove the center control cover.
5. Remove the two M2.5 x 6-mm screws next to each hinge.



1	display-feed flex cable	
2	M2.5 x 6-mm screws (6)	4911U
3	display-feed flex cable hold-down board	
4	pull-tab	

6. Remove the two M2.5 x 6-mm screws from the display-feed flex cable hold-down board.
7. Use the pull-tab to disconnect the display-feed flex cable from its connector on the system board.
8. Move the display assembly to an upright position and pull it up out of the computer.

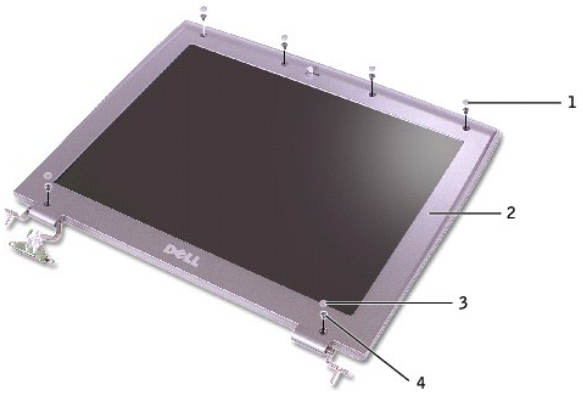
Replacing the Display Latch

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

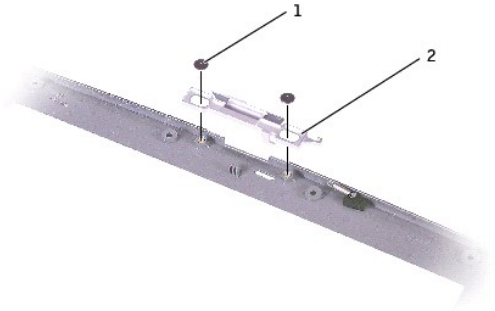
To replace the display latch, you must remove the whole bezel.

1. Follow the instructions in "Preparing to Work Inside the Computer."
2. Remove the hard drive.
3. Remove the keyboard.
4. Open the display 180 degrees, and remove the two rubber screw covers, four rubber screw bumpers, and the six M2.5 x 4-mm screws that secure the bezel.



1	rubber screw bumpers	6U549
2	bezel	
3	rubber screw covers	2U940
4	M2.5 x 4-mm screws	7116P

5. Use your fingers to carefully pry around the perimeter of the bezel until the bezel separates from the display assembly.
6. Remove the two display latch screws, and remove the display latch.



1	M2 x 1.8-mm screws (2)	5H953
2	display latch	

NOTICE: When you replace the bezel, ensure that the display cable is routed correctly.

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Docking Doors

- Removing the Docking Doors
- Installing the Docking Doors

Removing the Docking Doors

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

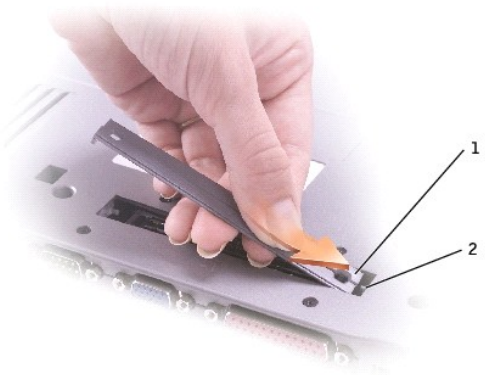
NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Gently bend the docking doors and lift them away from the computer base.

1	docking doors	8X516

Installing the Docking Doors

Slide the side of the docking doors with the spring over the longer posts.



1	docking doors with spring	8X516
2	longer post	

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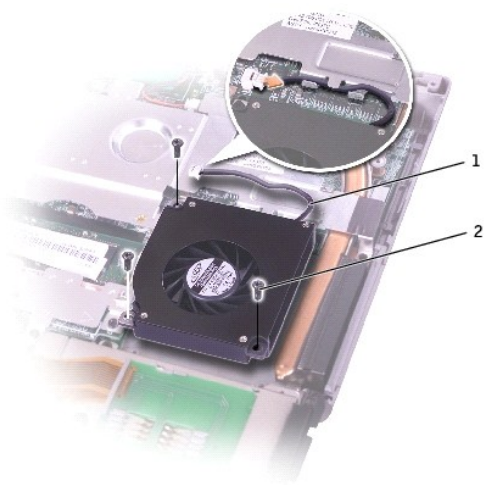
Cooling Fan

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove any installed memory modules, smart card, modem, or PC Card.
3. Remove the hard drive.
4. Remove the keyboard.
5. Remove the display.
6. Remove the palm rest.
7. Remove the fan cable from the fan extender cable that runs under the system board.



1	fan cable	
2	M2 x 5-mm screws (3)	1428U

8. Remove the three M2 x 5-mm screws that secure the cooling fan.
9. Lift out the cooling fan.

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Hard Drive

- Removing the Hard Drive
- Installing the Hard Drive
- Removing the Interposer
- Replacing the Interposer

Removing the Hard Drive

CAUTION: If you remove the hard drive from the computer when the drive is warm, do not touch the metal housing of the hard drive.

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

NOTICE: To prevent data loss, turn off your computer before removing the hard drive. Do not remove the hard drive while the computer is on, in standby mode, or in hibernate mode.

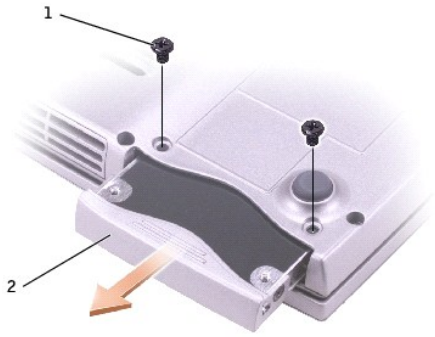
NOTICE: Hard drives are extremely fragile; even a slight bump can damage the drive.

NOTE: Dell does not guarantee compatibility or provide support for hard drives from sources other than Dell.

To remove the hard drive in the hard drive bay:

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Turn the computer over, and remove the two M3 x 3-mm screws.

NOTICE: When the hard drive is not in the computer, store it in protective, antistatic packaging. See "Protecting Against Electrostatic Discharge" in your *System Information Guide*.



1	M3 x 3-mm screws (2)	2864D
2	hard drive	See Mini RSL

3. Slide the hard drive out of the computer.

Installing the Hard Drive

1. Remove the new drive from its packaging.

   Save the original packaging for storing or shipping the hard drive.

2. Slide the hard drive into the bay until it is fully seated.
3. Replace and tighten the two M3 x 3-mm screws.
4. Use the *Operating System* CD to install the operating system for your computer.
5. Use the *Drivers and Utilities* CD to install the drivers and utilities for your computer.

Removing the Interposer

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove the hard drive.
3. Remove the two M3 x 3-mm screws from the side of the hard drive, and remove the hard drive carrier.

1	M3 x 3-mm screws (2)	2864D
2	hard drive carrier	7X499

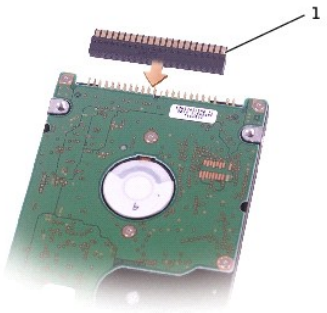
4. Carefully remove the interposer by pulling it straight off the hard drive.

1	interposer	8267R

Replacing the Interposer

NOTICE: Use firm and even pressure to slide the drive into place. If you use excessive force, you may damage the connector.

1. Attach the hard drive carrier to the new hard drive, and replace the two M3 x 3-mm screws.
2. Carefully attach the interposer from the old hard drive by pushing it straight onto the hard drive. Ensure that the pins are oriented correctly. When the interposer is attached correctly, four extra pins are on one side.



1	interposer	8267R

3. Install the hard drive.

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Keyboard

- Removing the Keyboard
- Installing the Keyboard

Removing the Keyboard

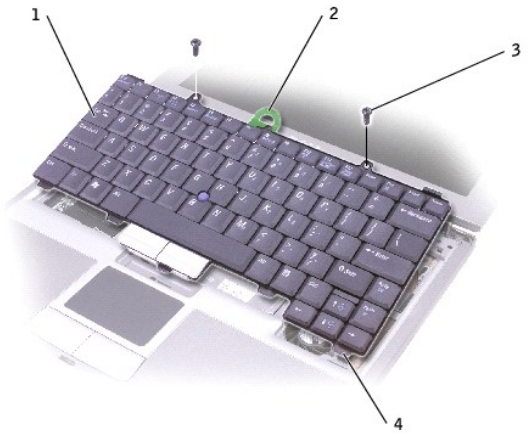
CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Open the display approximately 180 degrees.
3. Use a plastic scribe or, if a plastic scribe is not available, carefully use a small flat-blade screwdriver to lift the notched right edge of the center control cover, and pry the cover loose from the bottom case.

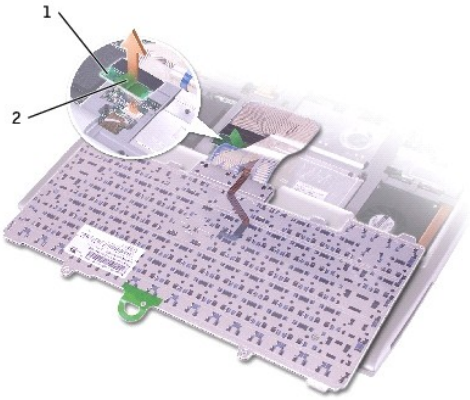
1	center control cover	5U447

4. Remove the two M2 x 5-mm screws from the top of the keyboard.
5. Use the pull-tab to pull the keyboard up and out (toward the display) of the bottom case.



1	keyboard	P1290
2	keyboard pull-tab	
3	M2 x 5-mm screws (2)	1428U
4	securing tabs (5)	

6. Rest the keyboard face down on the palm rest.
7. Pull straight up on the pull-tab that is attached to the keyboard connector to disconnect the connector from the interface connector on the system board.



1	pull-tab on keyboard connector
2	keyboard connector

Installing the Keyboard

1. Connect the keyboard connector to the interface connector on the system board.
2. Insert the five securing tabs on the keyboard into their respective slots in the palm rest.
3. Replace the two screws at the top of the keyboard.
4. Replace the center control cover and snap it down starting on the left side and working to the right side so that it is flush with the palm rest.

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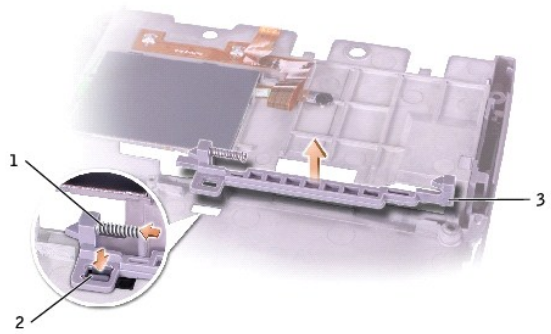
Battery Latch

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove any installed memory modules, smart card, modem, or PC Card.
3. Remove the keyboard.
4. Remove the display.
5. Remove the palm rest.
6. Remove the system board.
7. Press down on the battery latch to remove it.



1	spring
2	battery latch
3	battery latch locking arm

8. Press in the spring and pull up on the battery latch locking arm.

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Memory

- Installing a Memory Module Under the Memory Module/Modem Cover
- Installing a Memory Module Under the Keyboard

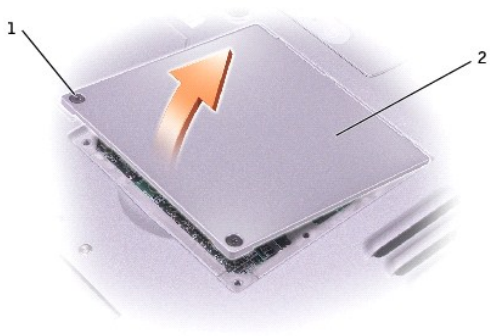
CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Continue to the appropriate section:
   - "Installing a Memory Module Under the Memory Module/Modem Cover"
   - "Installing a Memory Module Under the Keyboard"

Installing a Memory Module Under the Memory Module/Modem Cover

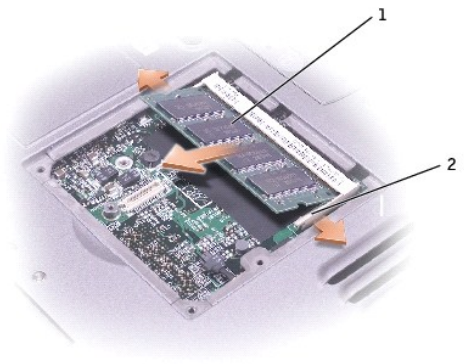
1. Turn the computer over, loosen the captive screws on the memory module/modem cover, and then remove the cover.



1	captive screws (2)	
2	memory module/modem cover	P0777

NOTICE: To prevent damage to the memory module connector, do not use tools to spread the memory-module securing clips.

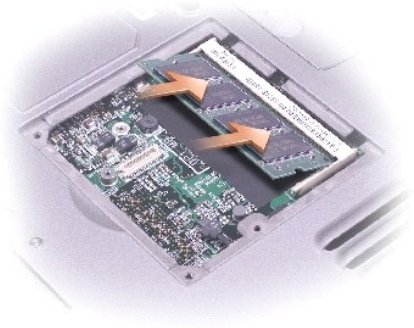
2. If you are replacing a memory module, remove the existing module:
   a. Use your fingertips to carefully spread apart the securing clips on each end of the memory module connector until the module pops up.
   b. Remove the module from the connector.



1	memory module	See Mini RSL
2	securing clips (2)	

3. Ground yourself and install the new memory module:
   a. Align the notch in the module edge connector with the tab in the connector slot.
   b. Slide the module firmly into the slot at a 45-degree angle, and rotate the module down until it clicks into place. If you do not feel the click, remove the module and reinstall it.

NOTE: If the memory module is not installed properly, the computer may not boot properly. No error message indicates this failure.



4. Replace the cover.

NOTICE: If the cover is difficult to close, remove the module and reinstall it. Forcing the cover to close may damage your computer.

5. Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.
6. Turn on the computer.

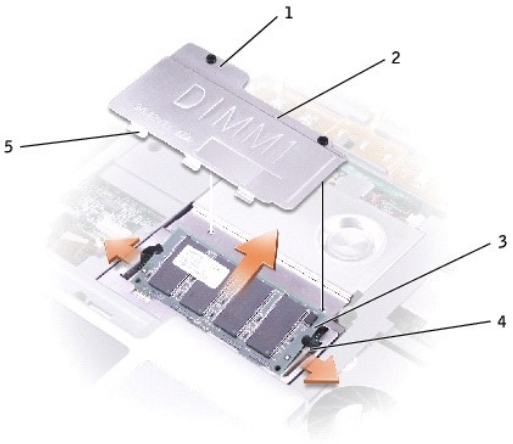
As the computer boots, it detects the additional memory and automatically updates the system configuration information.

To confirm the amount of memory installed in the computer:

- *In the Microsoft® Windows® XP operating system,* click the **Start** button, click **Help and Support**, and then click **Computer Information**.
- *In Windows 2000*, right-click the **My Computer** icon on your desktop, and then click the **General** tab.

Installing a Memory Module Under the Keyboard

1. Remove the keyboard.
2. Loosen the two captive screws in the cover labeled "DIMM1."



1	captive screws (2)	
2	DIMM1 cover	2X386
3	memory module	See Mini RSL
4	securing clips (2)	
5	securing tabs (3)	

NOTICE: To prevent damage to the memory module connector, do not use tools to spread the memory-module securing clips.

3. If you are replacing a memory module, remove the existing module:
   a. Use your fingertips to carefully spread apart the securing clips on each end of the memory module connector until the module pops up.
   b. Remove the module from the connector.
4. Ground yourself and install the new memory module:
   a. Align the notch in the module edge connector with the tab in the connector slot.
   b. Slide the module firmly into the slot at a 45-degree angle, and rotate the module down until it clicks into place. If you do not feel the click, remove the module and reinstall it.

NOTE: If the memory module is not installed properly, the computer may not boot properly. No error message indicates this failure.

5. Insert the three securing tabs on the DIMM1 cover into the notches above the memory module connector and tighten the captive screws.

NOTICE: If the DIMM1 cover is difficult to replace, remove the module and reinstall it. Forcing the cover to close may damage your computer.

6. Replace the keyboard.
7. Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.
8. Turn on the computer.

As the computer boots, it detects the additional memory and automatically updates the system configuration information. You may have to press <F1> to acknowledge that you have added additional memory.

To confirm the amount of memory installed in the computer:

- *In Windows XP*, click the **Start** button, click **Help and Support**, and then click **Computer Information**.
- *In Windows 2000*, right-click the **My Computer** icon on your desktop, and then click the **General** tab.

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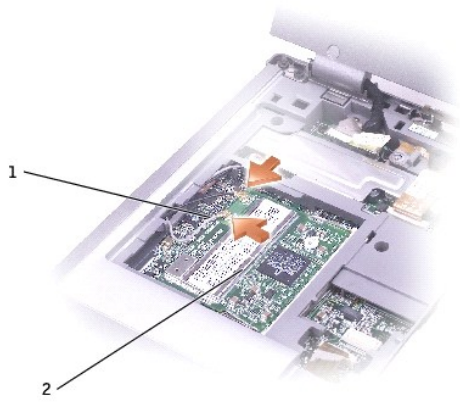
Mini PCI Card

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

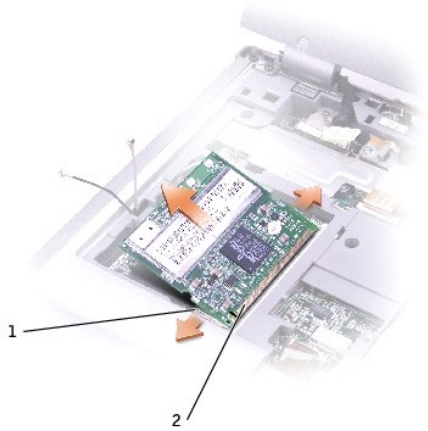
NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove the keyboard.
3. If a Mini PCI card is not already installed, go to step 4. If you are replacing a Mini PCI card, remove the existing card:
   a. Disconnect the Mini PCI card from the attached cables.



1	antenna cables (2)	
2	Mini PCI card	9Y200 3X548 J0846

   b. Release the Mini PCI card by spreading the metal securing tabs until the card pops up slightly.
   c. Lift the Mini PCI card out of its connector.



1	securing tabs (2)
2	Mini PCI card connector

NOTICE: To avoid damaging the Mini PCI card, never place cables on top of or under the card.

NOTICE: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors and realign the card.

NOTICE: Handle the antenna cables with care because they are very fragile.

NOTE: If a Mini PCI card was not already installed, remove the foam that secures the antenna cables before you install the card.

4. Align the Mini PCI card with the connector at a 45-degree angle, and press the Mini PCI card into the connector until you feel a click.
5. Connect the antenna cables to the Mini PCI card, with the white cable in the Mini PCI connector closer to the palm rest, and the black cable in the Mini PCI card connector closer to the display.
6. Replace the keyboard.

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Mini Recommended Spares List

Dell™ Latitude™ D400 Service Manual

Accessories	
P1516	D-Module external media bay housing with cable
Bluetooth™	
2U381	Bluetooth module
Bottom Base Parts	
D2389	computer base (bottom plastics)
2X386	DIMM1 cover
2X370	EMI shield, D400
P0777	memory door with captive screws
4U465	rubber foot (3)
0X737	Bluetooth module cover
8X516	docking doors or docking doors with spring
P0777	memory module cover
Base Bottom Plastics	
2X370	metal shield
0X740	smart card reader
CD-ROM/CD-RW	
G0405	24X CD, D-module
F0275	24X CD-RW, D-module
DVD-ROM	
K1033	24X CD-RW/DVD, D-module
M0063	2X DVD+RW, +R, D-module
G0408	8X DVD, D-module
Fan	
6U568	fan
Floppy Drive	
2R152	floppy drive, D-module
Hard Drive and Accessories	
8X239	20 G HDD
8X233	30 G HDD
0Y175	40 G HDD
7T651	40 G HDD, D-module, second HDD (HDD and D-MOD housing)
8267R	interposer
2X372	hard-drive controller card
8X217	60 G HDD
4P124	D-MOD housing only (no HDD)
8267R	HDD connector
2864D	HDD mounting screws (2)
2867R	HDD security screws (2)
7X499	primary HDD carrier with bezel
Keyboard	
5U447	center control cover
P1290	keyboard or Keyboard Service Kit, US
LCD Display Assembly	
P1291	LCD Service Kit (includes LCD assembly, tech sheet, and scribe), 12.1 XGA, D400
2X241	display connector-LCD flex cable
6U549	rubber screw bumpers
2U940	rubber screw covers
Memory	

7M020	1 G DIMM
3Y180	128 MB DIMM
3Y182	256 MB DIMM
0K963	512 MB DIMM
Mini PCI Cards	
9Y200	Intel Pro 2100, 802.11b
3X548	TM1400, 802.11a\b
J0846	TM1300, 802.11b\g
Modem	
9X163	Modem Daughter Card
Power Source	
5U092	AC power brick only, 65 W
9T215	AC power brick only, 90 W (must be used with D-Dock and D-Port)
F2952	duck-head power supply plug (direct to wall)
F2951	power cord, US, 0.9 m (3 ft)
K2596	power cord, US, 1.8 m (6 ft)
8T016	primary battery 4 cell, 14.8 V, lithium
6T087	primary battery 6 cell, 11.1 V, lithium
3U490	reserve battery
H0286	rubber strap for power cord management
System Board With Processor	
X1097	System Board Service Kit, 1.3 GHz, D400
X1099	System Board Service Kit, 1.4 GHz, D400
X1102	System Board Service Kit, 1.7 GHz, D400
Palm Rest Assembly	
4U782	palm rest
D1690	touch pad with cable
4U782	speaker
Screws	
5H953	M2 x 1.8-mm screw
1428U	M2 x 5-mm screw
7116P	M2.5 x 4-mm screw
4911U	M2.5 x 6-mm screw
2864D	M3 x 3-mm screw

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Modem

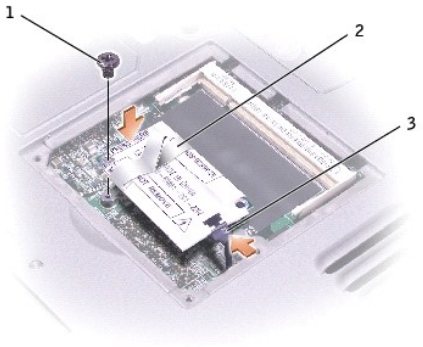
CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.

NOTICE: Handle components and cards by their edges, and avoid touching pins and contacts. Ground yourself by touching a metal connector on the back of the computer. Continue to ground yourself periodically during this procedure.

2. Turn the computer over, loosen the captive screws on the memory module/modem cover, and then remove the cover.



1	M2 x 5-mm screw	1428U
2	pull-tab	
3	modem cable	

3. If a modem is not already installed, go to step 4. If you are replacing a modem, remove the existing modem:
   a. Remove the M2 x 5-mm screw securing the modem to the system board, and set it aside.
   b. Pull straight up on the attached pull-tab to lift the modem out of its connector on the system board, and disconnect the modem cable.
4. Connect the modem cable to the modem.

NOTICE: The cable connectors are keyed for correct insertion; do not force the connections.

5. Align the modem with the screw hole, and press the modem into the connector on the system board.
6. Install the screw to secure the modem to the system board.
7. Replace the modem cover.

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Palm Rest

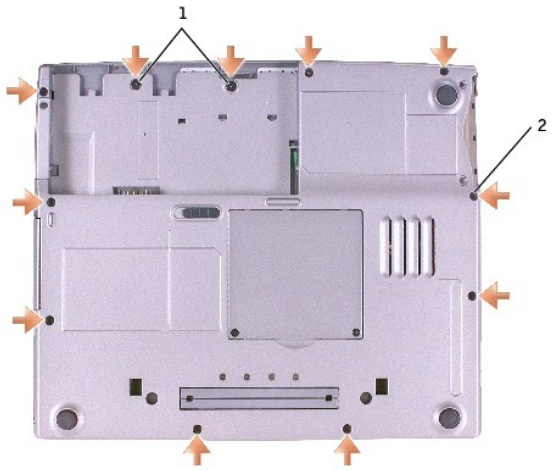
CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove the hard drive.
3. Remove the keyboard.

NOTICE: You must remove the display assembly before you remove the palm rest; the display hinges pass through the back of the palm rest.

4. Remove the display.
5. Turn the computer over and remove the nine M2.5 x 6-mm screws.

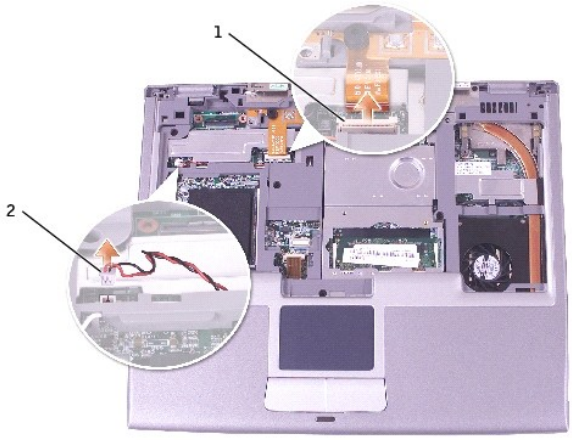


1	M2 x 1.8-mm screws (2)	5H953
2	M 2.5 x 6-mm screws (9)	4911U

6. Remove the two M2 x 1.8-mm screws located inside the battery bay.
7. Turn the computer over and remove the four M2.5 x 6-mm screws.

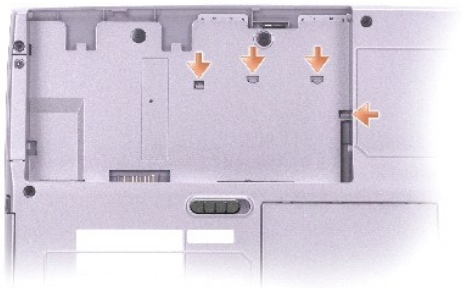
1	M2.5 x 6-mm screws (4)	4911U

8. Disconnect the speaker connector, and remove the speaker cable.



1	ZIF connector
2	speaker connector

9. Pull up on the palm rest connector tab, and disconnect the ZIF connector from the system board.
10. Disengage the four battery bay tabs.



11. Lift the palm rest away.

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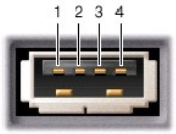
Pin Assignments for I/O Connectors

- USB Connector
- Video Connector
- Serial Connector
- Dell D/Bay Connector

USB Connector



Pin	Signal
1	USB5V+
2	USBP−
3	USBP+
4	GND

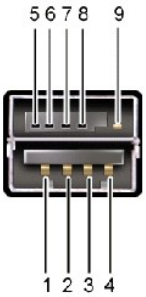
Video Connector

Pin	Signal	Pin	Signal
1	CRT_R	9	5V+
2	CRT_G	10	GND
3	CRT_B	11	MONITOR_DETECT−
4	NC	12	DDC_DATA
5	GND	13	CRT_HS
6	GND	14	CRT_VS
7	GND	15	DDC_CLK
8	GND		

Serial Connector

Pin	Signal	Pin	Signal
1	DCD	**6**	DSR
2	RXDA	**7**	RTS
3	TXDA	**8**	CTS
4	DTR	**9**	RI
5	GND		

Dell D/Bay Connector



Pin	Signal	Pin	Signal
1	USB_VCC	**8**	SMB_CLK
2	USB_D-	**9**	GND
3	USB_D+	**10**	SHIELD GND
4	USB_GND	**11**	SHIELD GND
5	PWR_SRC	**12**	SHIELD GND
6	SMB_DAT	**13**	SHIELD GND
7	MODPRES#	**14**	SHIELD GND

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Reserve Battery

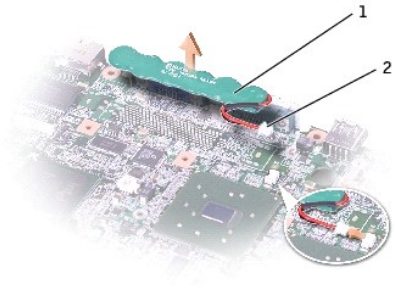
CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the main battery and prepare the computer for work.
2. Remove any installed memory modules, smart card, modem, or PC Card.
3. Remove the keyboard.
4. Remove the display.
5. Remove the palm rest.

NOTICE: Note the reserve battery location before you remove it so that you can put the replacement reserve battery in the same location.

6. Lift out the reserve battery, and disconnect it from the system board connector.



1	reserve battery	3U490
2	system board connector	

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Speakers

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

Follow the instructions in the palm rest section. The replacement palm rest contains the replacement speakers.

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System Board

- Removing the System Board
- Replacing the System Board

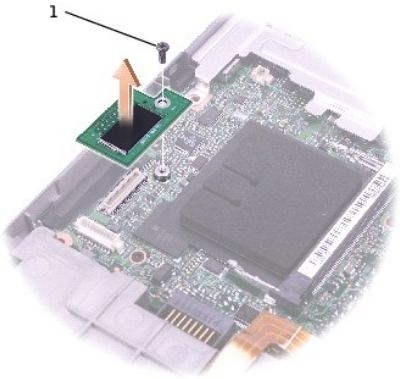
Removing the System Board

The system board's BIOS chip contains the Service Tag, which is also visible on a bar code label on the bottom of the computer. The replacement kit for the system board may include a CD that provides a utility for transferring the Service Tag to the replacement system board.

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove any installed memory modules, smart card, modem, or PC Card.
3. Remove the hard drive.
4. Remove the keyboard.
5. Remove the display.
6. Remove the palm rest.
7. If the system board has a removable BIOS chip, remove the M2 x 5-mm screw and lift the BIOS chip from the system board.

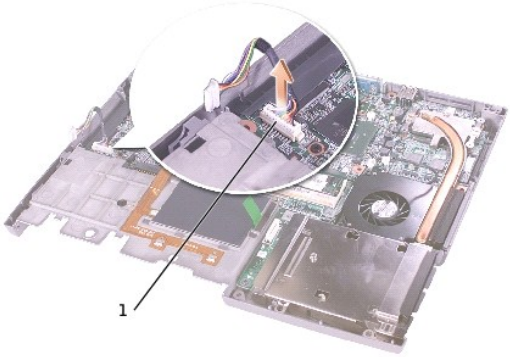


1	M2 x 5-mm screw	1428U

8. Disconnect the smart card cable from the system board.

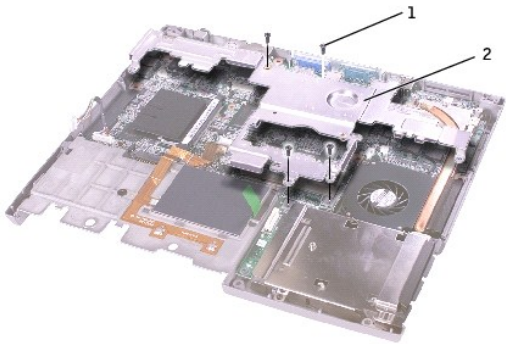
1	smart card cable	

9. Unroute and disconnect the Bluetooth™ cable from the system board.



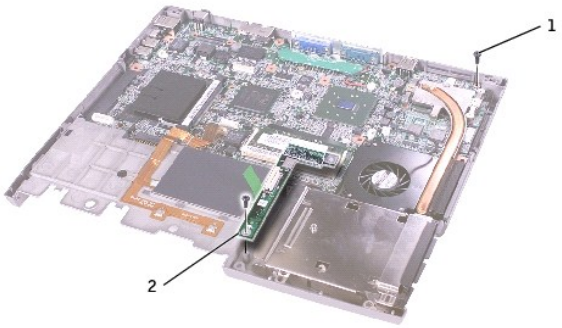
1	Bluetooth cable	

10. Remove the four M2 x 5-mm screws from the metal shield, and remove the metal shield.



1	M2 x 5-mm screws (4)	1428U
2	EMI shield	2X370

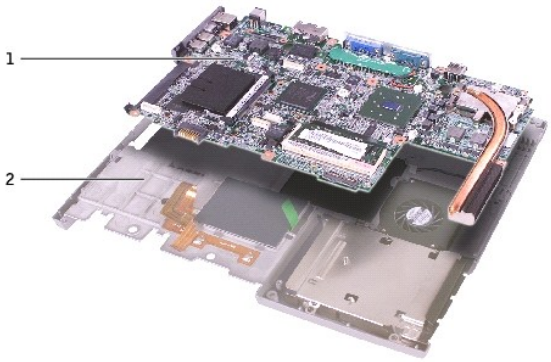
11. Remove the two M2 x 5-mm screws, and remove the daughter card.



1	M2 x 5-mm screws	1428U
2	Hard drive controller card	2X372

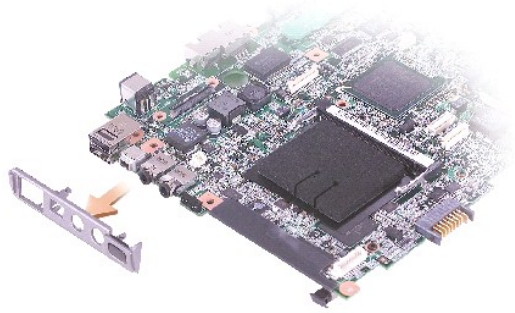
12. Disconnect the fan cable.

13. Remove the system board from the computer base.



1	system board	See Mini RSL
2	computer base	D2389

14. Remove the infrared sensor cover.



Replacing the System Board

After you have replaced the system board, insert the floppy disk or CD that accompanied the replacement system board into the appropriate drive, and turn on the computer. Follow the instructions on the screen.

NOTE: After replacing the system board, be sure to enter the computer's Service Tag into the BIOS of the replacement system board.

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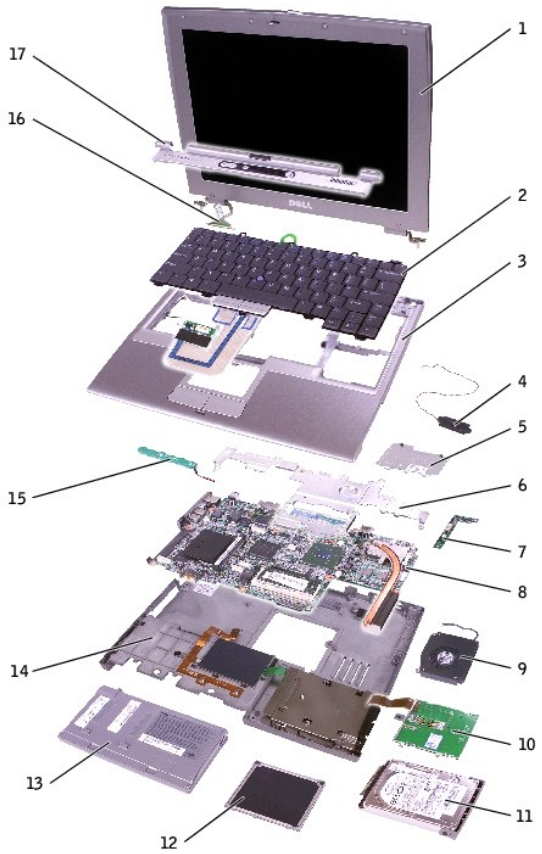
System Components

NOTICE: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

NOTICE: Unless otherwise noted, each procedure in this document assumes that a part can be replaced by performing the removal procedure in reverse order.



1	display	P1291	**10**	smart card reader	0X740
2	keyboard	P1290	**11**	hard drive	See Mini RSL
3	palm rest	4U782	**12**	memory module cover	P0777
4	speaker	4U782	**13**	battery	See Mini RSL
5	DIMM1 cover	2X386	**14**	computer base	D2389
6	metal shield	2X370	**15**	reserve battery	3U490
7	Hard drive controller card	2X372	**16**	display connector	2X241
8	system board	See Mini RSL	**17**	center control cover	5U447
9	fan	6U568			

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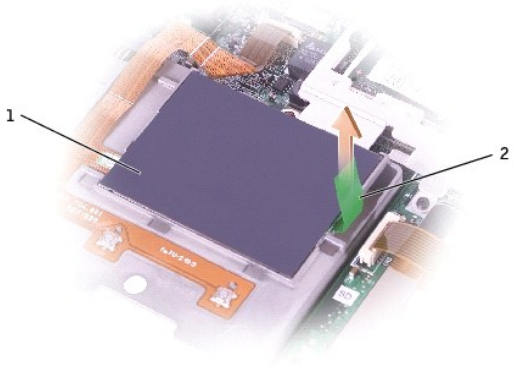
Touch Pad

CAUTION: Before performing the following procedures, read the safety instructions in your *System Information Guide*.

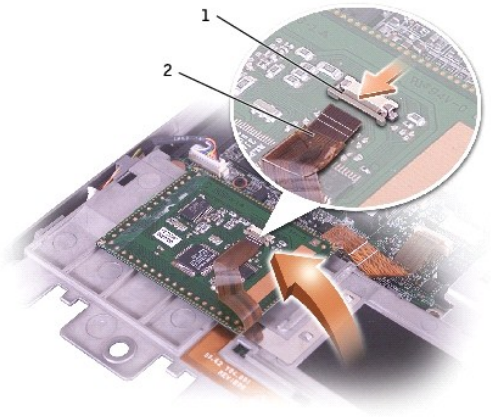
NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as the back panel) on the computer.

1. Follow the instructions in "Preparing to Work Inside the Computer" to remove the battery and prepare the computer for work.
2. Remove any installed memory modules, smart card, modem, or PC Card.
3. Remove the hard drive.
4. Remove the keyboard.
5. Remove the display.
6. Remove the palm rest.
7. Gently lift up the touch pad using the pull-tab.



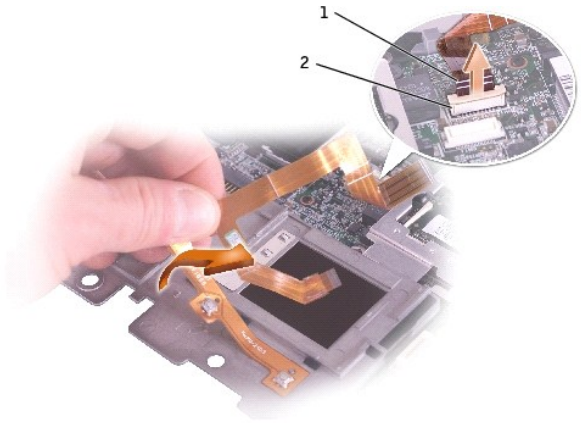
1	touch pad	D1690
2	pull-tab	

8. Very carefully remove the touch pad cable from the touch-pad ZIF connector.



1	touch-pad ZIF connector	
2	touch pad cable	D1690

9. If you damage the cable while detaching or attaching it to the touch pad ZIF connector, remove the touch pad cable from the system-board ZIF connector and repeat the procedure using a new touch pad cable.



1	touch pad cable	D1690
2	system-board ZIF connector	

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Dell™ Latitude™ D400 Service Manual

CAUTION: Follow the safety instructions in the *System Information Guide* to help protect your computer from damage and ensure your own personal safety.

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

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