DELL™

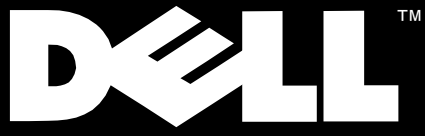## Dell™ Latitude™ CPt C-Series/CPi R-Series

SERVICE MANUAL

Dell™ Latitude™ CPt C-Series/CPi R-Series

SERVICE MANUAL

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Read This First

A prerequisite for using this manual to service Dell computer systems is a basic knowledge of IBM-compatible PCs and prior training in IBM-compatible PC troubleshooting techniques. In addition to information provided in this manual, Dell provides the *User's Guide* for troubleshooting procedures and instructions on using the Dell Diagnostics to test the computer system.

Notes, Cautions, and Warnings

Throughout this guide, blocks of text may be accompanied by an icon and printed in bold type or in italic type. These blocks are notes, cautions, and warnings, and they are used as follows:

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

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

WARNING: A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.

Dell™ Latitude™ CPt C-Series/ CPi R-Series Service Manual

This manual provides instructions for removing and replacing field-replaceable components, assemblies, and subassemblies in your Dell Latitude portable computer. Unless otherwise noted, each procedure in this manual assumes the following conditions:

*   The computer and any attached peripherals are turned off, and the peripherals are disconnected from the I/O panel on the back of the computer.

*   A part can be replaced by performing the removal procedure in reverse order.

When the display assembly is open nearly 180 degrees, use a book or something similar to support it. The angle of the display assembly with respect to the bottom case should never be allowed to exceed 180 degrees. Also, when performing the procedures in this manual, the locations or directions relative to the computer are as shown in Figure 1 unless otherwise specified.
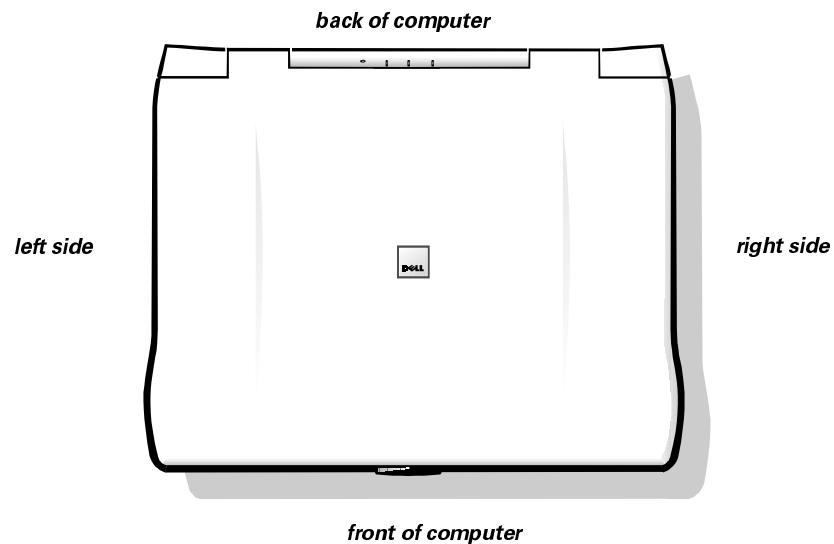
Figure 1. Computer Orientation

Recommended Tools

Most of the procedures in this manual require the use of one or more of the following tools:

- Number 0 and number 1 magnetized Phillips-head screwdrivers
- Small flat-blade screwdriver
- Small plastic scribe
- Processor extractor

Preparing to Work Inside Your Computer

Before you start to work on the computer, perform the following steps:

1. Save any work in progress and close all open application programs.

2. Turn off the computer and any attached peripherals.

   NOTE: Make sure the computer is turned off and not in suspend-to-disk mode. If you cannot shut down the computer using the computer's operating system, press the power button for 4 seconds.

3. If the computer is docked in a C/Dock Expansion Station or C/Port Advanced Port Replicator (APR), undock the computer.

4. Disconnect the computer and any attached peripherals from their electrical outlets to reduce the potential for personal injury or shock. Also disconnect any telephone or telecommunications lines from the computer.

5. Remove the power cord.

6. Disconnect all other external cables from the computer.

7. Remove any installed PC Cards.

   CAUTION: Make sure that the work surface is clean to prevent scratching the computer cover.

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

8. Remove the main battery assembly from the battery bay.

   Slide the battery bay latch toward the right side of the computer. Then slide the battery out of the battery bay (see Figure 2).
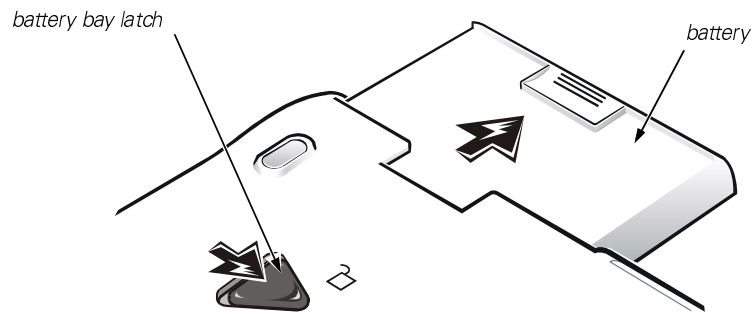
Figure 2. Main Battery Assembly Removal

9. Ground yourself by touching the unpainted metal surface of the I/O panel on the back of the computer.

    While you work, periodically touch the I/O panel to dissipate any static electricity that might harm components.

Screw Identification and Tightening

The illustrations in the following removal procedures provide the correct screw length as part of the screw's label. A graphic for that length screw is also included in the illustration. Examples are shown in Figure 3. Match the actual screw to the graphic in the illustration to check for correct length.
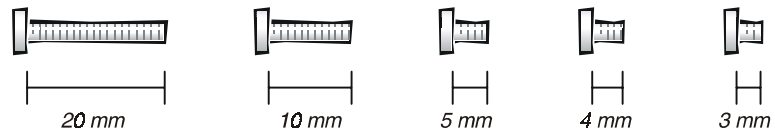
Figure 3. Screw Identification

CAUTION: When reinstalling a screw, you must use a screw of the correct length. Otherwise, hardware damage could result. Make sure that the screw is properly aligned with its corresponding hole, and avoid overtightening.

When you are removing and replacing components, photocopy the Table 1 placement mat as a tool to lay out and keep track of the component screws.

Table 1. Screw Placement Mat with Component Screw Counts and Sizes

Hard-Disk Drive: M3 x 3 (1 each)	**Keyboard Assembly:** M2.5 x 10 (7 each)	**Display Assembly:** M2.5 x 4 (3 each)
Display Assembly Bezel: Rubber Screw Covers (4 each) Plastic Screw Covers (2 each)	**Display Assembly Bezel:** M2.5 x 4 (6 each)	**Display Assembly LCD to Top Cover:** M2 x 3 (6 each)
Palmrest Assembly: M2.5 x 20 (5 each)	**System Board:** M2.5 x 4 (2 each)	**Microprocessor Shield:** *3 captive and 2 removable screws* M2 x 3 (5 each)

ZIF Connectors

Some of the computer's interface connectors are zero insertion force (ZIF) connectors. These connectors are not removable, but they must be released to disconnect a cable from them (see Figure 4).

movable part of connector (do not remove)
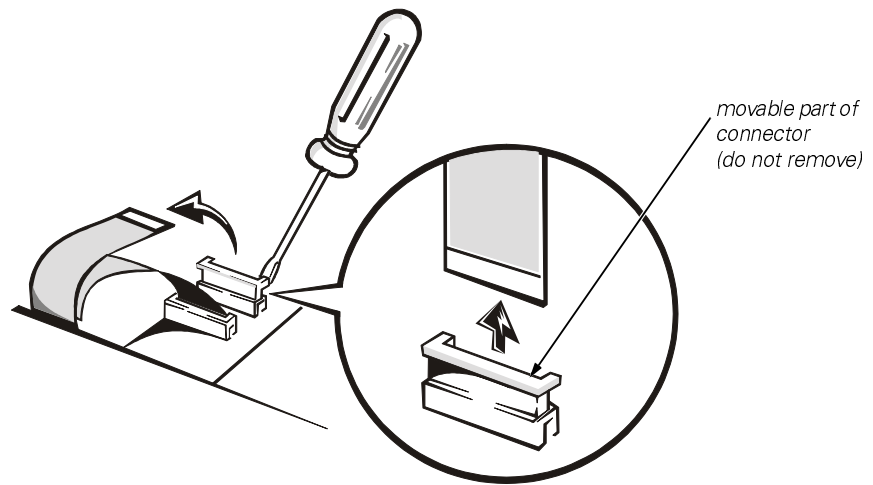
Figure 4. Disconnecting an Interface Cable

> **CAUTION: The ZIF connectors are fragile. To avoid damage, do not apply too much pressure to the movable part of the connector.**

To disconnect an interface cable from a ZIF connector, perform the following steps:

1. Insert a small flat-blade screwdriver under the movable part of the connector.

2. Pull gently upward on the movable part of the connector until it releases the interface cable.

3. Grasp the interface cable and pull it out of the connector.

To reconnect an interface cable to a ZIF connector, perform the following steps:

1. Use a small flat-blade screwdriver to open the movable part of the ZIF connector.

2. Orient the end of the interface cable with the ZIF connector, and insert the end of the cable into the connector.

3. While holding the cable in place, close the ZIF connector.

   To ensure a firm connection, make sure the ZIF connector is completely closed.

Field-Replaceable Parts and Assemblies

Table 2 lists the parts and assemblies available for the computer. Some parts may only be available as part of a service kit or assembly and are provided for reference only. The subsections that follow Table 2 provide instructions for removing and replacing these parts and assemblies.

Table 2. Parts and Assemblies

Part or Assembly Name	Order Name	Figure
AC Adapter and Power Cords		
Customer kit, AC adapter	CUS, ADPT, AC, EXT, 20V, 70W, NBK, CRNA	
AC adapter	ADPT, AC, EXT, 20V, 70W, 3WIRE, CRNA	
Power cable, U.S.	CORD, PWR, 110V, 6F, AC, 3W\3P, US	
Battery (Main)		
Customer kit, main battery	CUS, BTRY, 14.4V, 8CELL, LITH, 2ND	2
Main battery	BTRY, 50WHR, 14.4V, 8CELL, LITH, CP	
Battery (Reserve)		
Service kit, reserve battery	SVC, BTRY, RESERVE,CRNA	
Reserve battery	BTRY, RESERVE, CRNA	
Bottom Case Assembly		
Bottom assembly	ASSY, CVR, BTM, BASE, PLSTC, CRNA	14
CD-ROM Drive Subassembly		
Service kit, CD-ROM drive	SVC, SUBASSY, CD, 24X, NBK	15
CD-ROM drive bezel	BZL, CD	
24X CD-ROM drive	CD, 650M, I, INT, NBK, 24X, TSHBA	
CD-ROM drive interface board	PWA, INTERCONN, CD/DVD, OMAHA, CP	
Bottom CD-ROM drive cover	ASSY, BTM/BZL, CD, 24X, TSHBA, CP	
CD-ROM housing	ASSY, HSG, PLSTC, CD/DVD, OM-HA, CP	
CD-ROM drive label	LBL, CD, MEDIA BAY, TSHB, CP	

Table 2. Parts and Assemblies (continued)

Part or Assembly Name	Order Name	Figure
Diskette Drive Subassembly		
Diskette drive service kit	SVC, SUBASSY, FD, F3, INT/EXT, CRNA	15
Diskette drive subassembly	SUBASSY, FD, F3, INT/EXT, CRNA	
Diskette drive	FD, F3, CRNA	
Diskette drive assembly bottom cover	CVR, BTM, PLSTC, FD, F3, CRNA	
Diskette drive assembly top cover	CVR, TOP, PLSTC, FD, F3, CRNA	
Diskette drive assembly interface board	PWA, INTFC, FD, F3, CRNA	
Diskette drive assembly interface cable	CBL, FPC, FD, F3, CRNA	
Diskette drive assembly shield	SHLD, FD, F3, CRNA	
SuperDisk LS-120 Drive Subassembly		
LS-120 drive subassembly	SUBASSY, VAS, LS120,120MB,F3,CP	15
DVD-ROM Drive Subassembly		
DVD-ROM drive subassembly	SUBASSY, DVD, 4X, MPEGII, TSH-BA, CP	15
Thermal Cooling Solution		
Thermal cooling assembly (includes fan)	ASSY, HTSK, COOLER, PRC	20
Hard-Disk Drive Assemblies		
Hard-disk drive, subassembly	SUBASSY, HD, *xxxxx*, *yyy*MM, *zzz*, CP*	6
Hard-disk drive	HD, *xxxxx*, I, F2, *yy*MM, *zzz**	
Hard-disk drive interface board	PWA, INTERCONN, HD, CRNA	

*   *Substitute the drive capacity for xxxxx, the drive height for yy, and the manufacturer for zzz.*

Table 2. Parts and Assemblies _(continued)_

Part or Assembly Name	Order Name	Figure
Hard-Disk Drive Bracket/Door Assembly		
Hard-disk drive carrier assembly	ASSY, CARR, HD, CRNA	6
Hard-disk drive carrier door	DOOR, HD, 12.7MM, CRNA	
Hard-disk drive carrier bracket	CARRIER, HD, 12.7MM, MET, CRNA	
Hard-disk drive mylar carrier	MYLAR, CARRIER, HD	
Hard-disk drive carrier screws	SCR, M3X3, KSH, MS, LP, BLO	
Keyboards		
Keyboard, Belgian	KYBD, 88, BEL, CRNA	9
Keyboard, Chinese	KYBD, 87, CHI, CRNA	
Keyboard, Danish	KYBD, 88, DEN, CRNA	
Keyboard, French	KYBD, 88, FR, CRNA	
Keyboard, French/Canadian	KYBD, 87, FR CAN, CRNA	
Keyboard, German	KYBD, 88, GER, CRNA	
Keyboard, Italian	KYBD, 88, ITALIAN, CRNA	
Keyboard, Japanese	KYBD, 90, JPN, CRNA	
Keyboard, Korean	KYBD, 87, KOR, CRNA	
Keyboard, Latin American	KYBD, 88, LAC, CRNA	
Keyboard, Norwegian	KYBD, 88, NOR, CRNA	
Keyboard, Portuguese	KYBD,88,PORTUGEUSE,CRNA	
Keyboard, Russian	KYBD, 87, RUS, CRNA	
Keyboard, Spanish	KYBD, 88, SPN, CRNA	
Keyboard, Swedish/Finnish	KYBD, 88, SWE, CRNA	
Keyboard, Swiss	KYBD, 88, SWI, CRNA	
Keyboard, Thai	KYBD, 87, THAI, CRNA	
Keyboard, English (U.K.)	KYBD, 88, UK, CRNA	
Keyboard, English (U.S.)	KYBD, 87, DOM, CRNA	

Table 2. Parts and Assemblies (continued)

Part or Assembly Name	Order Name	Figure
Display Back Cover		
Display top-cover service kit, 14.1-inch display	ASSY, CVR, TOP, LCD, CRNA	
Display top cover	CVR, TOP, LCD, TFT, CRNA	
Cable	ASSY, CBL, FLX, TFT	
Right hinge	HNG, RT, LCD, TFT	
Left hinge	HNG, LF, LCD, TFT	
LCD Assemblies, 14.1-Inch XGA Display		
14.1-inch LCD/Cable service kit, including LCD, cable, inverter	SVC, LCD/CBL/INV, TFT, *zzz*, 14.1″, CRNA*	11
LCD Latch Assembly		
Display latch assembly	ASSY, LATCH, SPR, DIS, CRNA	
Memory		
Customer kit, memory module, 32-MB	32MB, DIMM, SDRAM, LAT CRNA, FACT	
Customer kit, memory module, 64-MB	64MB, DIMM, SDRAM, LAT CRNA, FACT	
Customer kit, memory module, 128-MB	128MB, DIMM, SDRAM, LAT CRNA, FACT	
Customer kit, memory module, 192-MB	192MB, DIMM, SDRAM, LAT CRNA, FACT	
Customer kit, memory module, 256-MB	256MB, DIMM, SDRAM, LAT CRNA, FACT	
Memory Door		
Service kit, memory door assembly	SVC, SUBASSY, DOOR, MEM/BIOS, CRNA	
Memory/BIOS door subassembly	SUBASSY, DOOR, MEM/BIOS, NB, CRNA	
Palmrest Assembly		
Service kit, palmrest assembly	ASSY, PLMRST, CRNA	12
Palmrest assembly	ASSY, PLMRST, GRY, CRNA	
Subassy, TPad, Brace	SUBASSY, TPAD, BRACE	

* *Substitute the drive capacity for xxxxx, the drive height for yy, and the manufacturer for zzz.*
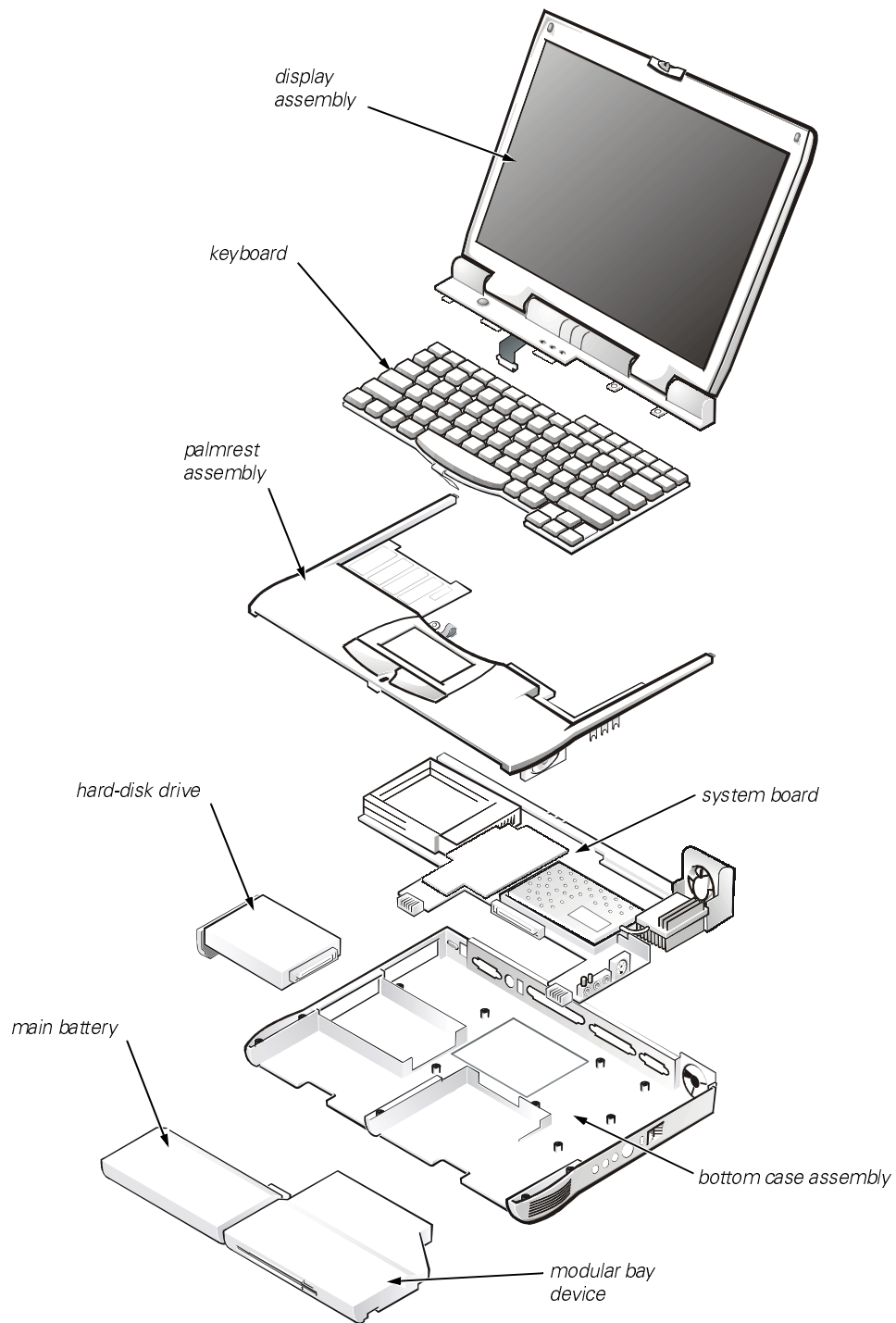
Table 2. Parts and Assemblies *(continued)*

Part or Assembly Name	Order Name	Figure
Palmrest Assembly *(continued)*		
Touch pad	TPAD, SGL, CHIP, INTEFC, CP/CPi	
Cbl, Flx, TPad	CBL, FLX, TPAD	
Plmrst, Plstc	PLMRST, PLSTC	
Speaker (2 each)	SPKR, 20X40, 1W, 8OHMS	
Screws		
LCD panel	SCR, M2X4.5, PHH, LP, ZPS	11
LCD hinge	SCR, M3X5, PHH, LP, ZPS	11
LCD bezel	SCR, M2X4.5, PHH, LP, ZPS	11
Keyboard	SCR, M2.6X12, PHH, LP, ZPS	9
Hard-disk drive carrier screws	SCR, M3X3, PHH, LP, ZPS	
Thermal cooling assembly	SCR, M2X3.5, PHH, LP, ZPS	20
Touch pad	SCR, M2.6X1.8, PHH, XLP, ZPS	
Palmrest, front edge	SCR, M2.6X12, PHH, LP, ZPS	12
Palmrest, hard-disk drive area	SCR, M2.6X5, PHH, LP, ZPS	
Bottom-case bracket	SCR, M2.6X5, PHH, LP, ZPS	
Exhaust fan	SCR, M2.6X12, PHH, LP, ZPS	
System Board Assembly		
System board assembly, CRNA, service kit	SVCKIT, MB ASSY, PWA, ENGINE, CRNA	18
Service tag installation diskette	DSK, BIOS, FLDSVC, F3, US, CP	
BIOS flash diskette	KIT, BIOS, FLASH, UPG, F3, CP	
Diagnostic diskette	KIT, DSK, DIAG, F3, CRNA, WW	
System board assembly	ASSY, PWA, ENGINE, CRNA	
Main system board	PWA, PLN, 0M, NB, CRNA	
Exhaust fan and cable	FAN, 25X25X10, CRNA	
Thermal cooling assembly	SVC, SUBASSY, HTSNK, CPU, HYB, CRNA	

Table 2. Parts and Assemblies *(continued)*

| Part or Assembly Name	Order Name	Figure
Microprocessor		
Microprocessor, CRNA, Service Kit	SVC, PRM, PCA *xxx* MHz	
Miscellaneous Hardware		
Microprocessor shield	ASSY, SHLD, EMI, PRC, MET	
Kit-SVC, latch, slider, BTN	LTCH, BTN, Module	
Foot, Rbr, Blk (4 each)	Foot, Rbr, Blk	
Foot, Rbr, Strike Zone, Blk	Foot, Rbr, Strike Zone, Blk	

Removing Field-Replaceable Parts and Assemblies

display assembly

keyboard

palmrest assembly

hard-disk drive

system board

main battery

bottom case assembly

modular bay device

Figure 5. Exploded View—Computer

The following subsections provide instructions for removing and replacing field-replaceable parts and assemblies.

Hard-Disk Drive Assembly

bottom of computer

5-mm screw

hard-disk drive door

5 mm
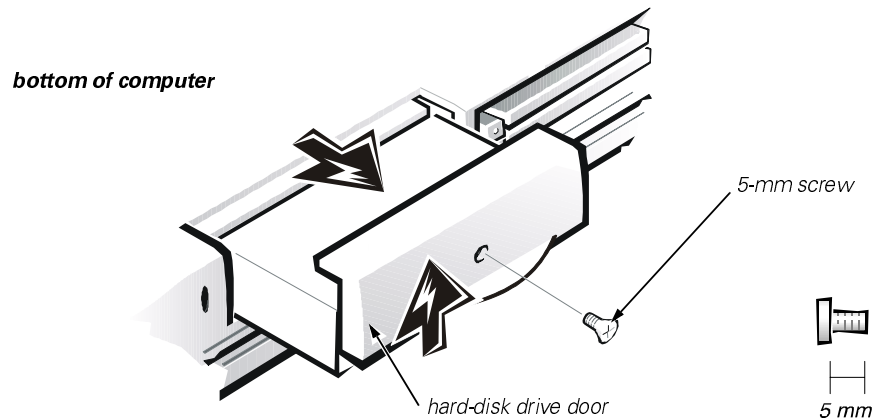
Figure 6. Hard-Disk Drive Assembly Removal

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

> CAUTION: The hard-disk drive is very sensitive to shock. Handle the assembly by its edges (do not squeeze the top of the hard-disk drive case), and avoid dropping it.

> CAUTION: Make sure that the work surface is clean to prevent scratching the computer cover.

1. Turn the computer over, and remove the 5-mm screw from the center of the hard-disk drive door (see Figure 6).

   The drive is on the left side of the computer.

2. Grasp the drive door and pull the drive out of the computer.

Memory Module Cover

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

> CAUTION: Make sure that the work surface is clean to prevent scratching the computer cover.

1. Close the display, and turn the computer upside down on a flat work surface.

2. Release the memory module cover.

   Insert a flat-bladed screwdriver under the indentation in the bottom case assembly and lift the cover.

Memory Modules

inner tabs
(2 per socket)

DIMM A

DIMM B

memory
module sockets (2)
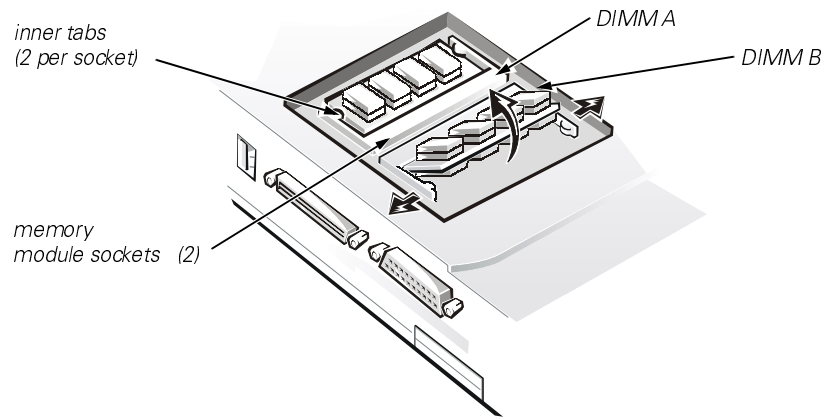
Figure 7. Memory Module Removal

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

1. Remove the memory module cover.

2. To avoid possible damage to the memory module from electrostatic discharge (ESD), ground yourself by touching the unpainted metal surface of an I/O connector on the computer's back panel.

3. To release a memory module from its socket, carefully spread apart the inner tabs of the memory module socket just far enough for the memory module to disengage from the socket (it should pop up slightly) (see Figure 7).

4. Lift the memory module out of its socket.

If you only have one memory module, install it in the DIMM A socket. Memory modules are keyed, or designed to fit into their sockets in only one direction. The slots on the system board are notched so that the memory module can be firmly seated only one way.

Align the memory module's edge connector with the slot in the center of the memory module socket. With the module at a 45-degree angle, press the memory module's edge connector firmly into the memory module socket. Pivot the memory module down until it clicks into place. If you do not hear a click as each end of the memory module snaps into the tabs, remove the memory module and reinstall it.

NOTE: 192-MB memory modules are designed for either the socket labeled DIMM A or the socket labeled DIMM B; they are not interchangeable. Be sure that the memory module is inserted with the double-stacked memory chips facing you. A 192-MB memory module inserted with the double-stacked memory chips facing down does not fit properly in the socket.

Keyboard Assembly

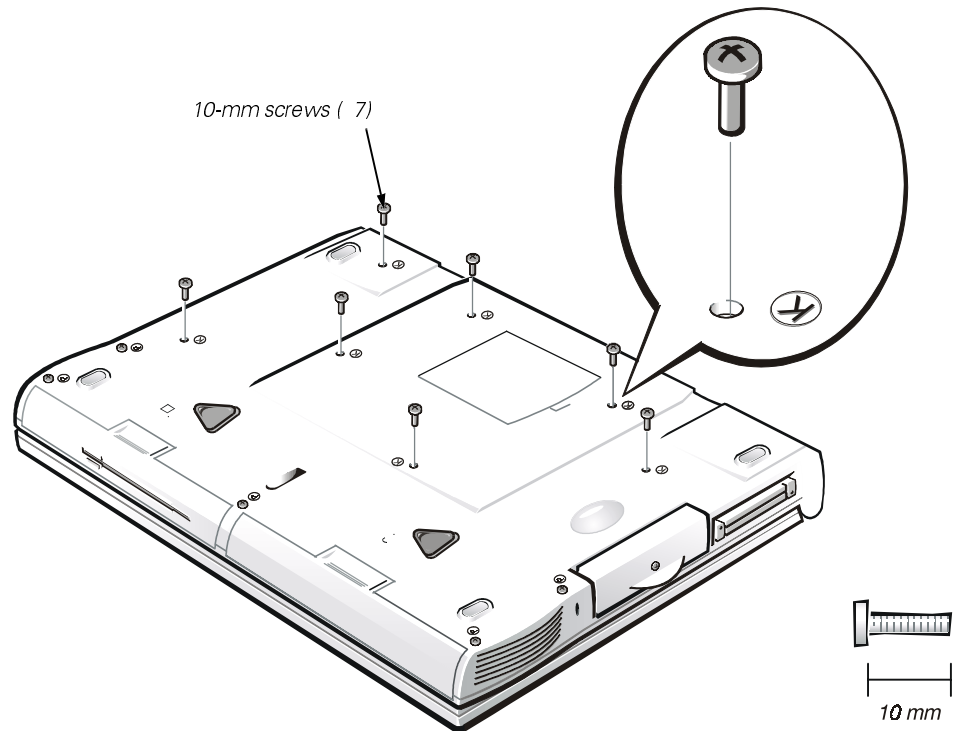To remove the keyboard assembly, perform the following steps.

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

⚠ **CAUTION: Make sure that the work surface is clean to prevent scratching the computer cover.**

1. Close the display assembly, and turn the computer upside down on a flat work surface.

10-mm screws (7)

10 mm

Figure 8. Removing the Keyboard Assembly Screws

2. Remove the seven 10-mm screws, labeled with a "circle K," that secure the keyboard to the computer (see Figure 8).

3. Turn the computer right-side up and open the display.

⚠ **CAUTION: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.**

4. Release the keyboard from the palmrest assembly by inserting a small flat-bladed screwdriver under the edge of the blank key (see Figure 9), and lift the right edge of the keyboard.

5. Once the keyboard is fully removed from the palmrest, lift the keyboard and disconnect the keyboard cable from the connector on the system board.

NOTE: Take notice of the position of the keyboard cable connection on the system board.

6. Remove the keyboard assembly.
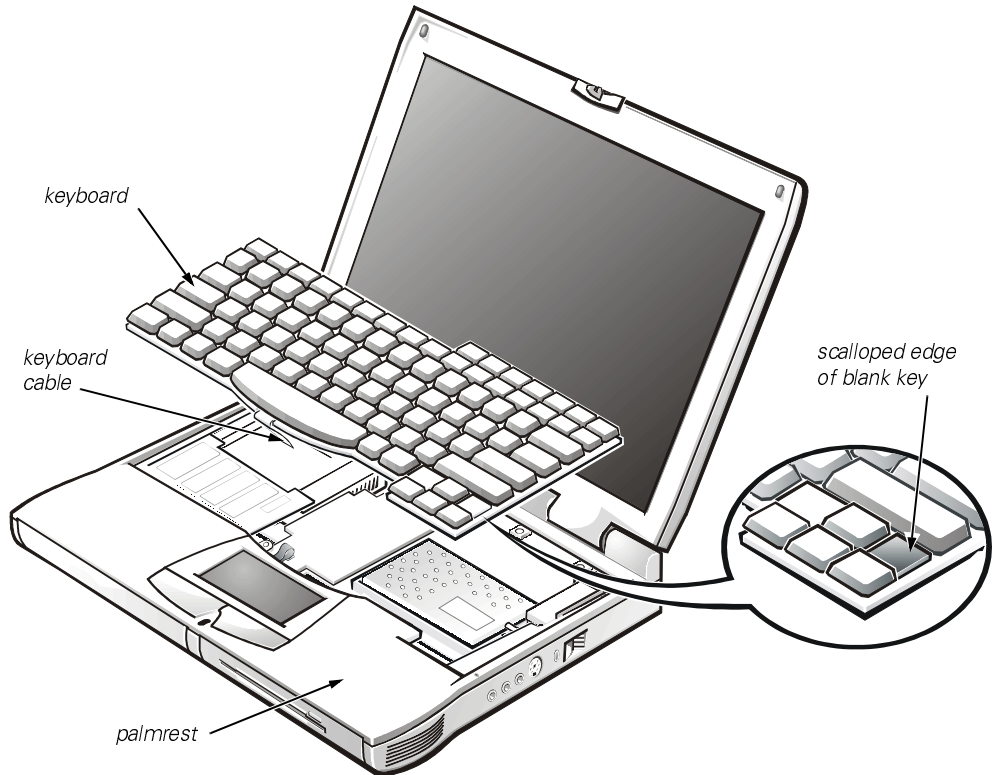
Figure 9. Keyboard Assembly Removal

To replace the keyboard assembly, perform the following steps.

CAUTION: Position the keyboard cable so it is not twisted when connected to the system board.

1. Connect the keyboard cable to connector on the system board.

2. Fit the keyboard into place.

3. To push the keyboard down, press on the blank key located below the right <Shift> key.

4. Check that the keyboard is correctly installed. The keys should be flush with the left and right surfaces of the palmrest.

5. Reinstall the seven 10-mm screws.

Display Assembly
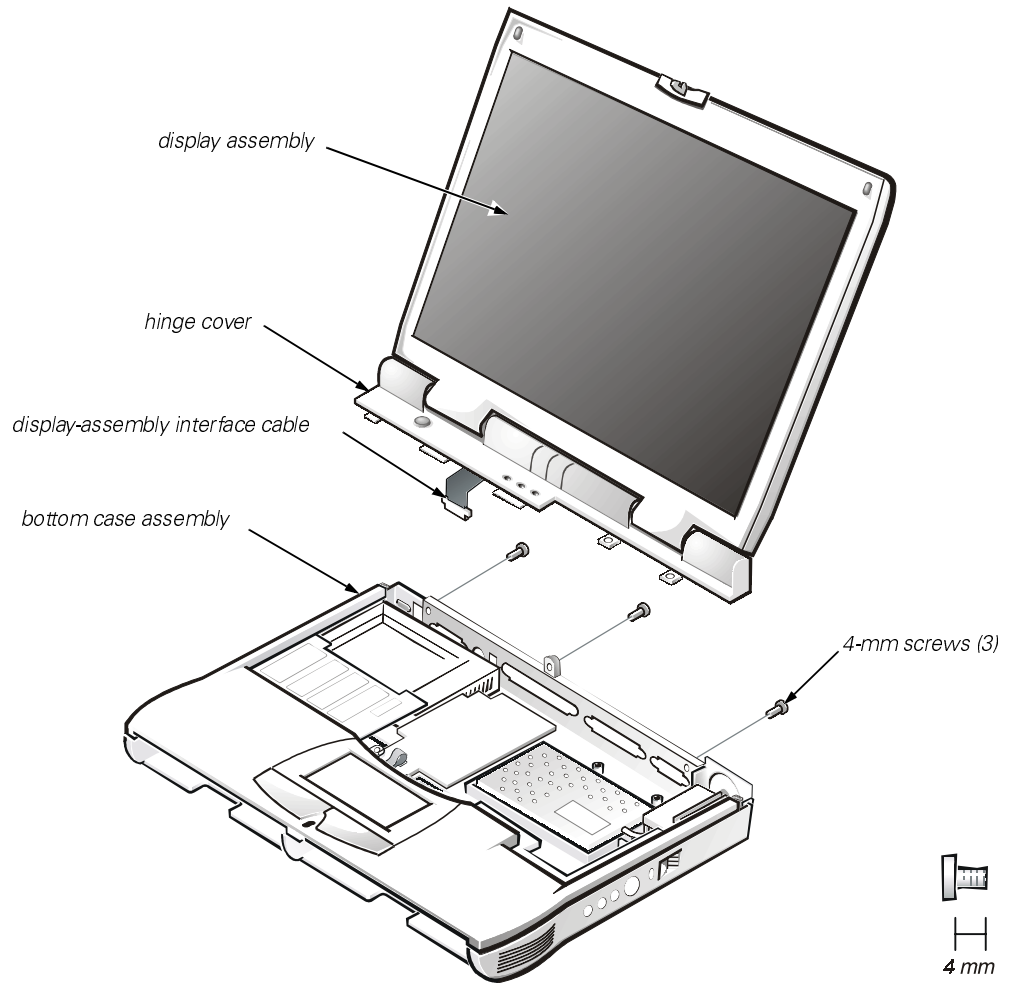
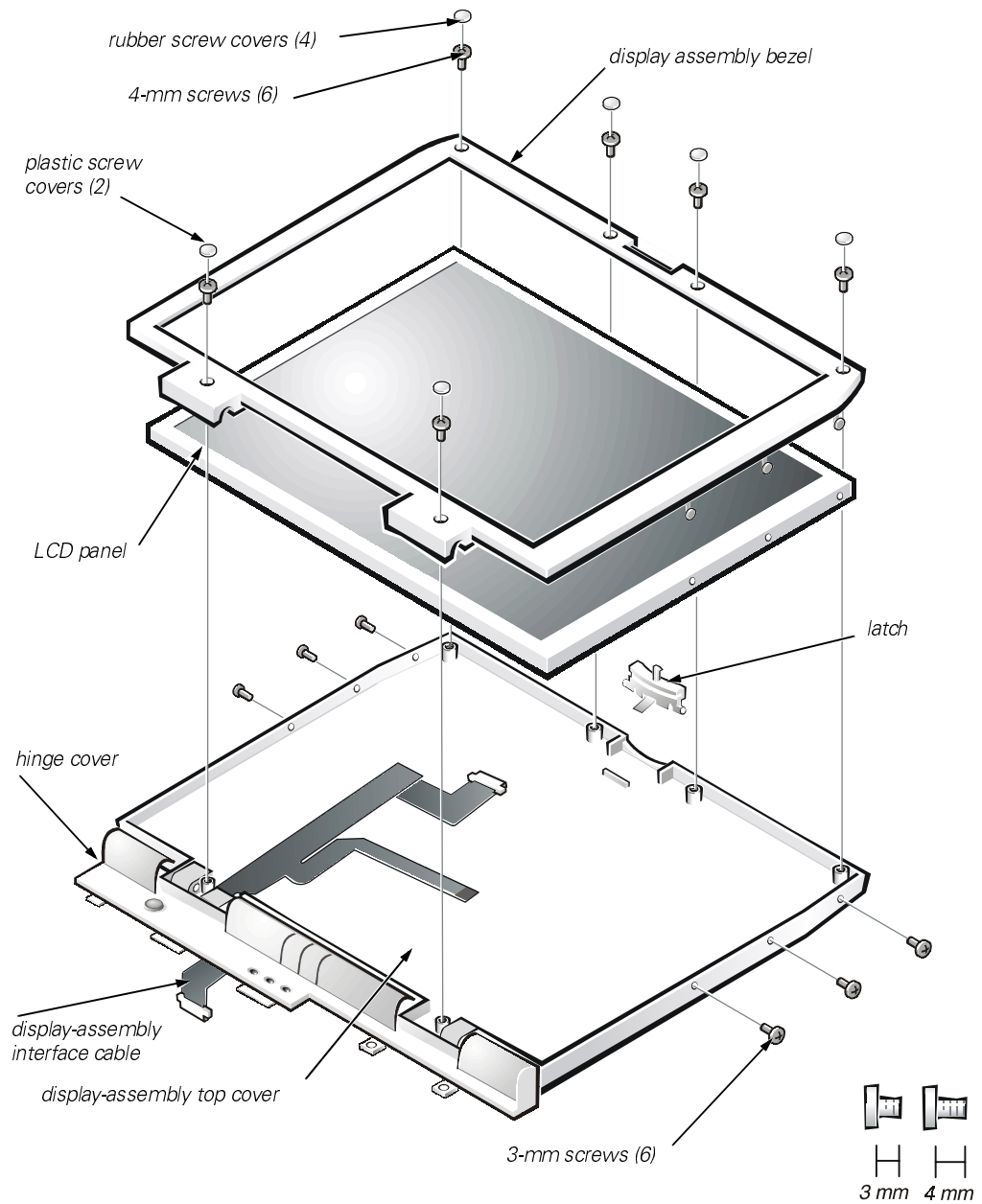

Figure 10. Display Assembly

CAUTION: To avoid damaging the system board, the battery must be removed before you service the computer.

1. Remove the keyboard.

2. Remove the three 4-mm screws, labeled with a "circle D," from the back of the computer (see Figure 10).

3. Disconnect the display-assembly interface cable from the connector on the system board by pulling the connector straight up.

4. Lift the display assembly from the bottom case assembly.

   NOTE: Pry the hinge cover loose from the bottom assembly using a flat tool or your fingertips.

Display Assembly Bezel

rubber screw covers (4)

display assembly bezel

4-mm screws (6)

plastic screw covers (2)

LCD panel

latch

hinge cover

display-assembly interface cable

display-assembly top cover

3-mm screws (6)

3 mm   4 mm

Figure 11. Display Assembly Bezel Removal

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

1. Use a scribe to carefully pry the four rubber screw covers out of the four screw holes located at the top of the bezel on the front of the display assembly.

2. Remove the four 4-mm screws located at the top of the bezel on the front of the display assembly (see Figure 11).

3. Use a scribe to carefully pry the two plastic screw covers out of the two screw holes located at the bottom of the bezel on the front of the display assembly.

4. Remove the two 4-mm screws from the bottom of the bezel.

CAUTION: The bezel tabs are fragile. Handle the bezel carefully to avoid breaking the tabs off.

5. Separate the bezel from the display-assembly top cover.

   The bezel is secured by three tabs on the left and right side of the display-assembly top cover. Lift the bezel to remove it from the display assembly.

Display Assembly Latch

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

1. Remove the display assembly bezel.

2. Remove the display assembly latch by unsnapping the latch and captive spring from the inside of the display assembly top-cover assembly (see Figure 11).

LCD Panel

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

1. Remove the keyboard.

2. Remove the display.

3. Remove the display assembly bezel.

4. Remove the three 3-mm screws on the right side of the LCD panel and the three 3-mm screws on the left side of the LCD panel (see Figure 11).

5. Lift and rotate the top of the LCD panel out of the top cover. Disconnect the ZIF connector and the display-assembly interface cable connector.

6. Lift the LCD panel out of the top cover.

*NOTES: Remove and replace the LCD panel as a complete assembly.*

Use a magnetic screw driver to reassemble the LCD panel in the display. Secure the right side first.

Removing the LCD Panel Cable

1. Remove the 4-mm screw securing the metal cable clip to the left hinge of the display-assembly top cover (see Figure 11).

2. Remove the cable out from under the plastic strain relief retainer located on the bottom of the display-assembly hinge cover.

3. Remove the clip from the bottom of the hinge cover located at the bottom of the display assembly.

4. Pry the hinge-cover assembly apart from the display assembly, and slide the cable through the opening.

Palmrest Assembly

The palmrest assembly consists of the touch pad and the palmrest.

20-mm
screws (5)

20 mm
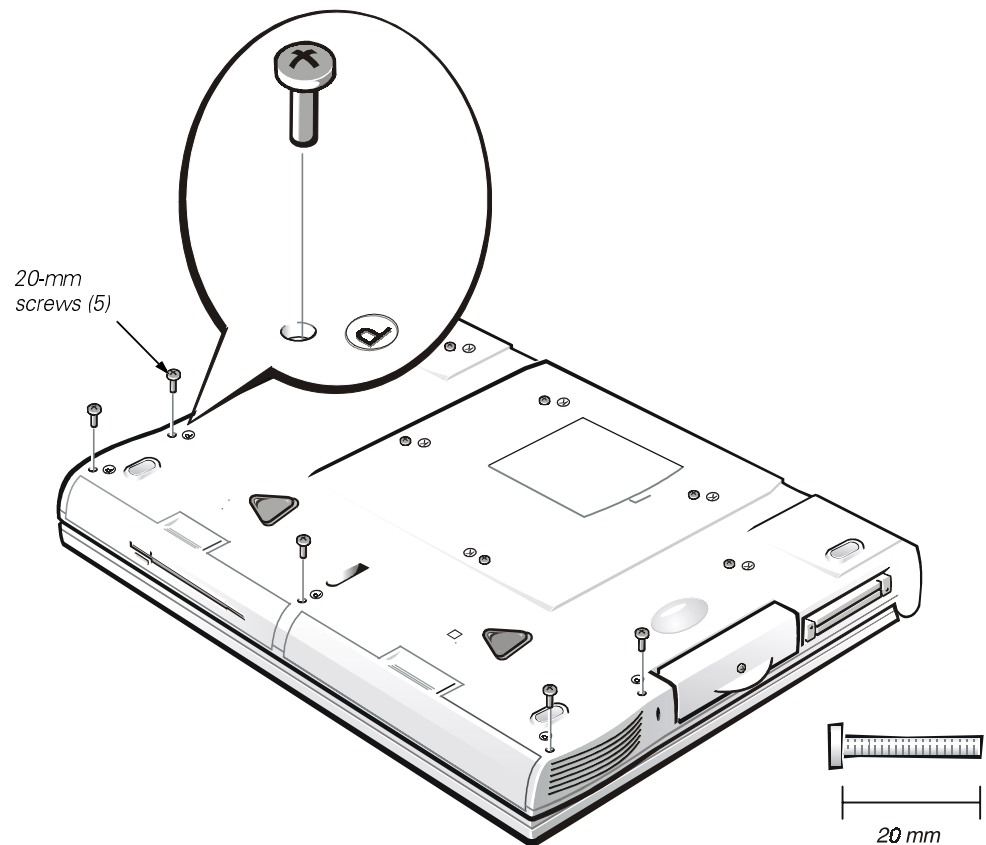
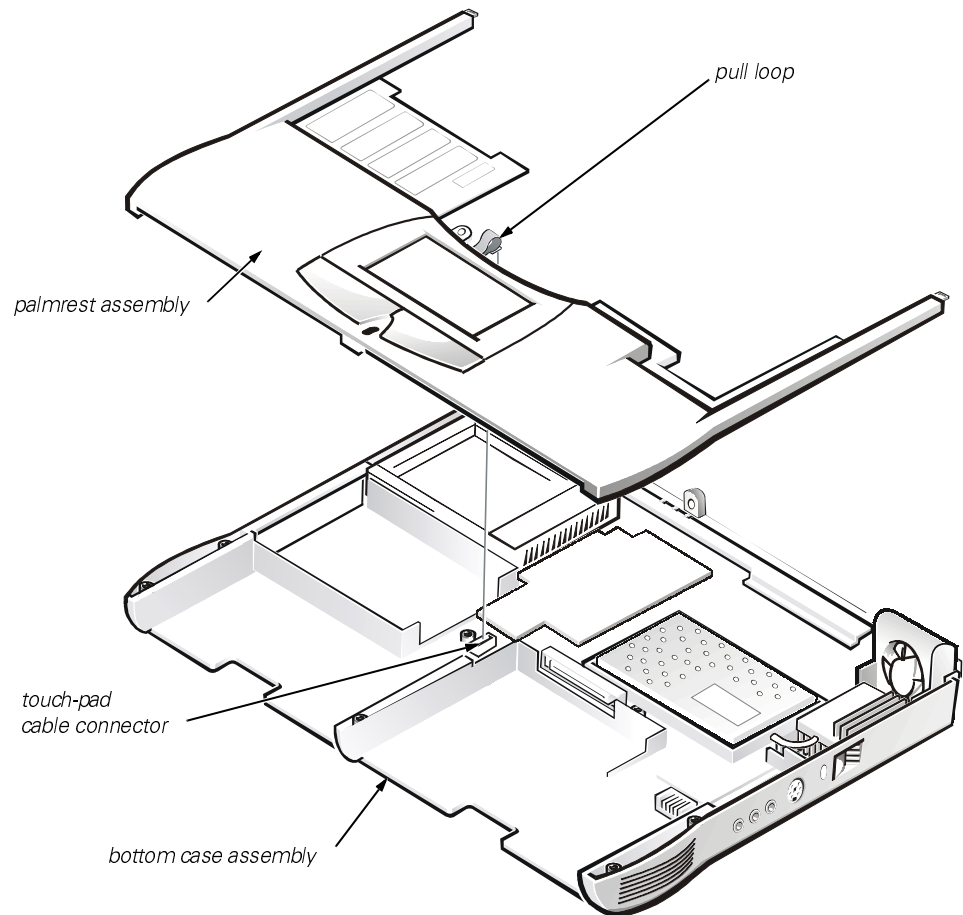**Figure 12. Removing the Palmrest Assembly Screws**

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

1. Remove the keyboard.

2. Remove the display.

3. Turn the computer upside down on a flat work surface.

4. Remove the five 20-mm screws that secure the palmrest to the computer. These screws, labeled with a "circle P," are located underneath the front edge of the computer (see Figure 12).

5. Turn the computer right-side up on the work surface.

6. Use the pull loop to disconnect the touch-pad cable from the connector on the system board (see Figure 13).

pull loop

palmrest assembly

touch-pad cable connector

bottom case assembly

Figure 13. Palmrest Assembly Removal

7. Carefully remove the palmrest assembly from the bottom case assembly (see Figure 13).

The speakers are located in the palmrest bracket assembly.

Reserve Battery

CAUTION: The reserve battery provides power to the computer's real-time clock (RTC) and nonvolatile random-access memory (NVRAM) when the computer is turned off. Removing the battery causes the computer to lose its date and time information as well as all user-settable parameters in NVRAM. If possible, make a copy of this information before you remove the reserve battery.

To remove the reserve battery, perform the following steps:

1. Remove the keyboard assembly.

2. Remove the display assembly.

3. Remove the palmrest assembly.

4. Turn the palmrest assembly over.

5. Remove the two 4-mm screws securing the palmrest bracket.

6. Lift the palmrest bracket and turn it over, taking care not to twist the touch-pad cable.

7. Disconnect the reserve battery cable from the connector on the palmrest bracket.

8. Remove the reserve battery from the palmrest bracket as follows:

   a. Tear the reserve battery free from the foam pad.

   b. Remove the remnants of the foam pad from the palmrest bracket.

NOTE: When you replace the reserve battery, first connect the reserve battery cable to the connector on the palmrest bracket. Then position the reserve battery on the palmrest bracket to minimize slack in the cable.

Bottom Assembly

The bottom assembly consists of the following field-replaceable components:

- Modular bay device (diskette drive assembly, CD-ROM drive assembly, DVD-ROM drive assembly, SuperDisk LS-120 drive, battery, or travel module)
- Module latch assemblies
- System board assembly
- Bottom case cover
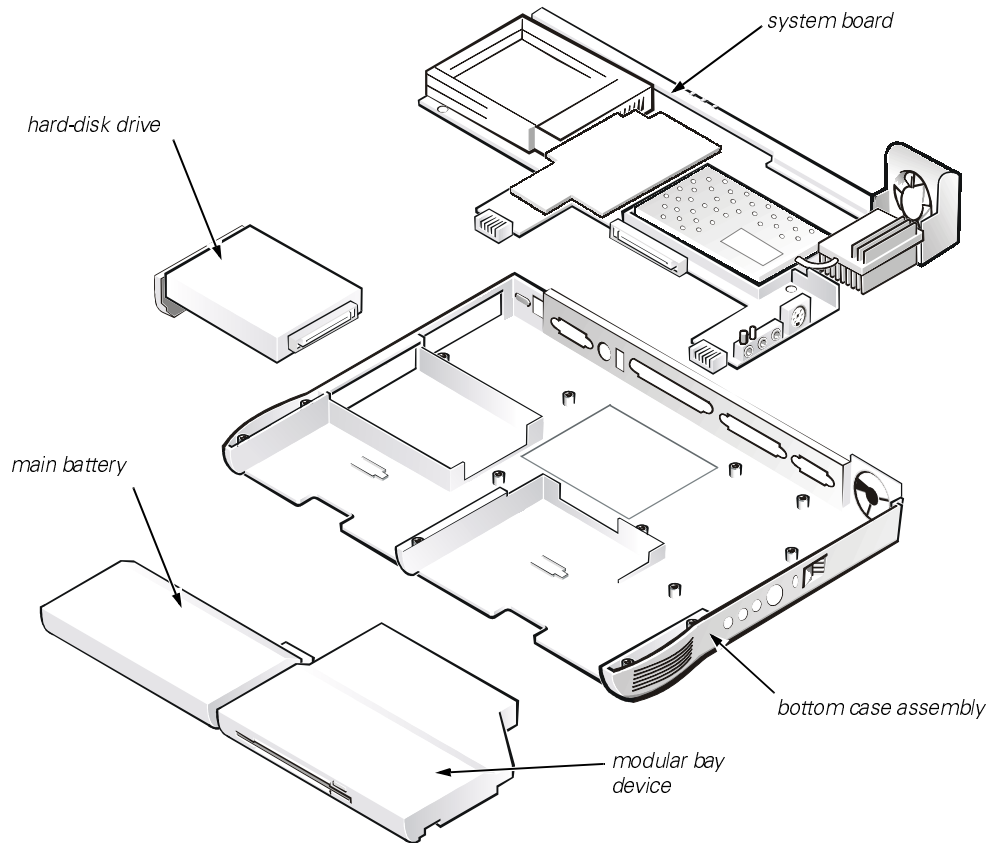
Figure 14. Bottom Assembly

system board

hard-disk drive

main battery

bottom case assembly

modular bay
device

Modular Bay Devices (Diskette Drive, CD-ROM Drive, DVD-ROM Drive, SuperDisk LS-120 Drive, Battery, or Travel Module)

latch lock
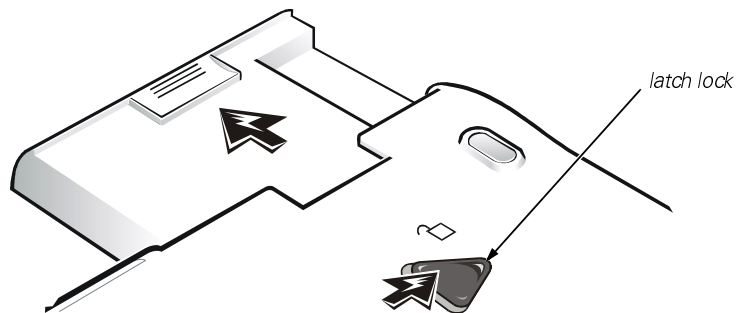
Figure 15. Modular Bay Device Removal

*NOTE: You do not need to remove the main battery prior to this procedure .*

CAUTION: Make sure that the work surface is clean to prevent scratching the computer cover.

1. Close the display and turn the computer over.

2. Remove the device from the modular bay.

   Push the module latch toward the unlock icon. Keep holding the latch open while pulling the device out of the modular bay with the other hand.

Module Latch Assemblies
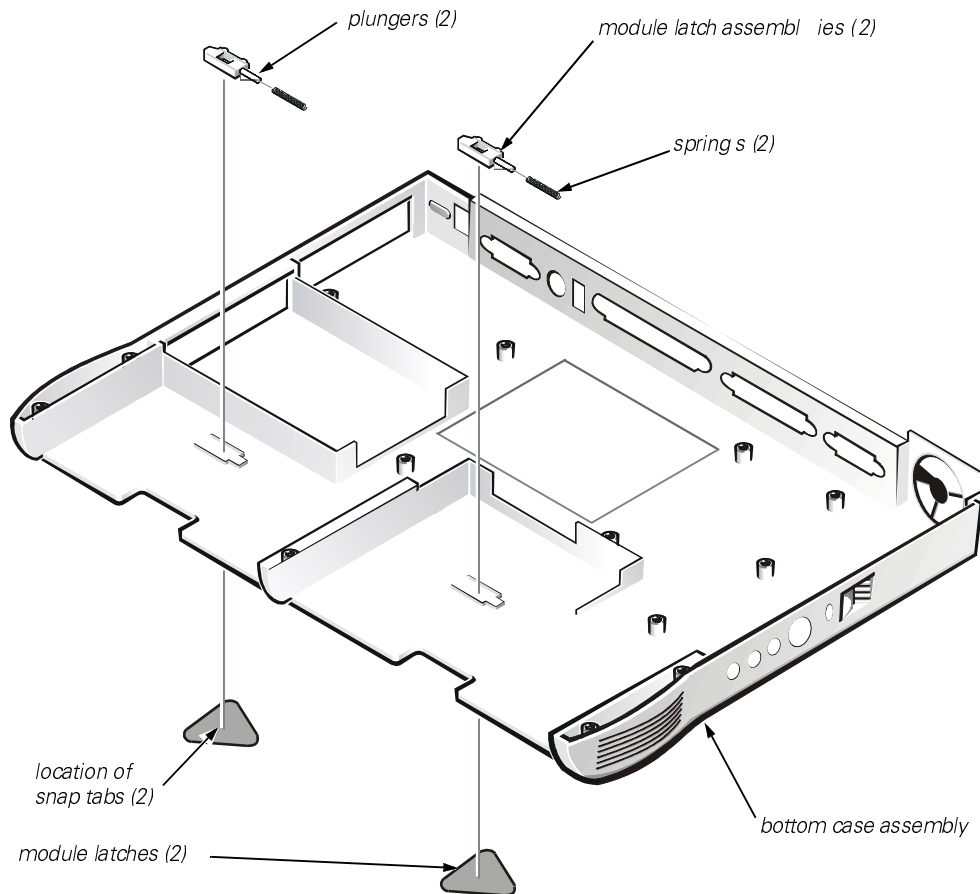
Figure 16. Module Latch Assemblies Removal

CAUTION: To avoid damaging the system board, you must remove the main battery before you service the computer.
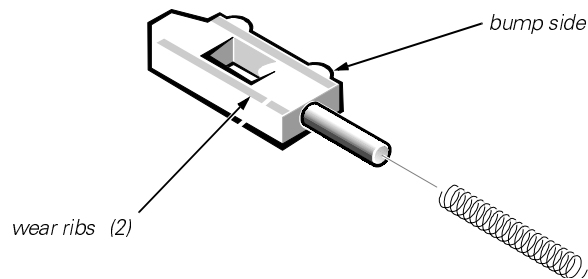
1. Remove the main battery and remove the device from the modular bay.

2. Remove the keyboard assembly.

3. Remove the display assembly.

4. Remove the palmrest assembly.

5. Remove the left latch from the outside of the bottom case assembly by carefully squeezing the snap tabs to unsnap the module latch assembly.

    Keep pressure applied to the module latch assembly while unsnapping the snap tabs to prevent the module latch assembly from coming loose from the case. If the module latch assembly does come loose from the case:

    a. Carefully reinsert the spring onto the plunger on the module latch, and reinstall the module latch assembly into the holding features on the inside of the case.

    b. Ensure that the plunger is inserted in its respective hole, that the side of the latch with the two bumps is facing the back of the case, and that the surface with the wear ribs is facing the bottom of the case (see Figure 17).

6. Snap in the new latch from the bottom of the base, making certain its snap features are fully engaged on the inside of the case.

7. Ensure that the newly installed latch moves smoothly and freely when pushed and released.

8. Repeat steps 1 through 3 for the latch on the right side.

bump side

wear ribs (2)

Figure 17. Left Slider

System Board Assembly
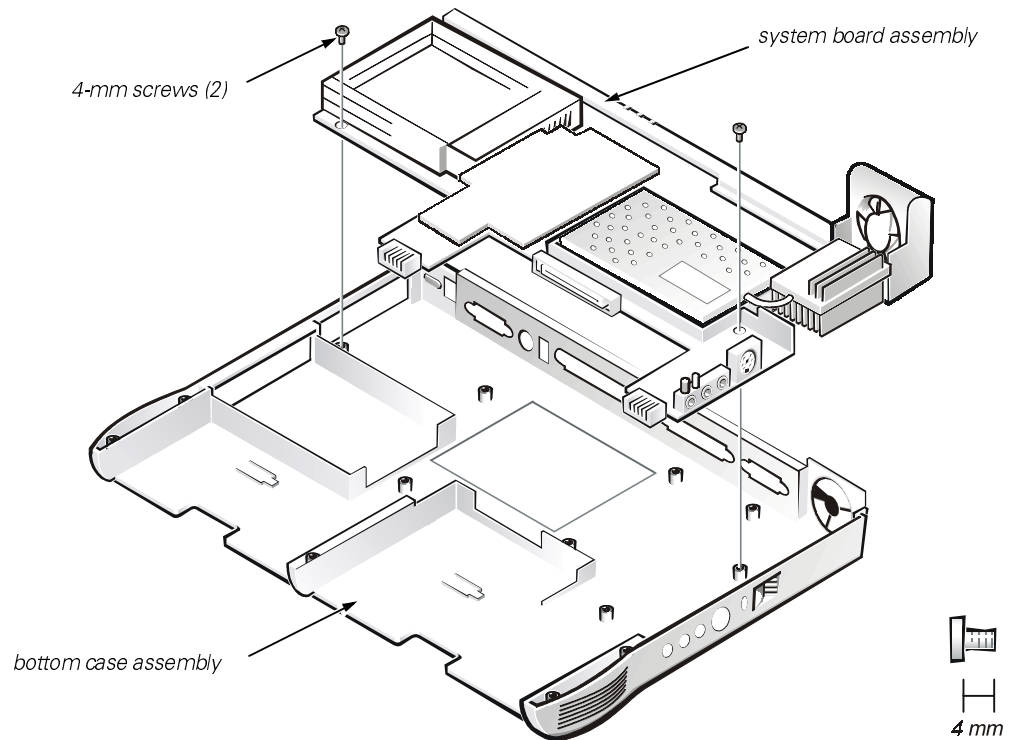
Figure 18. System Board Assembly Removal

The system board's basic input/output system (BIOS) chip contains the system service tag number, which is also visible on a bar-code label on the bottom of the computer. The replacement kit for the system board assembly includes a diskette that provides a utility for transferring the service tag number to the replacement system board assembly.
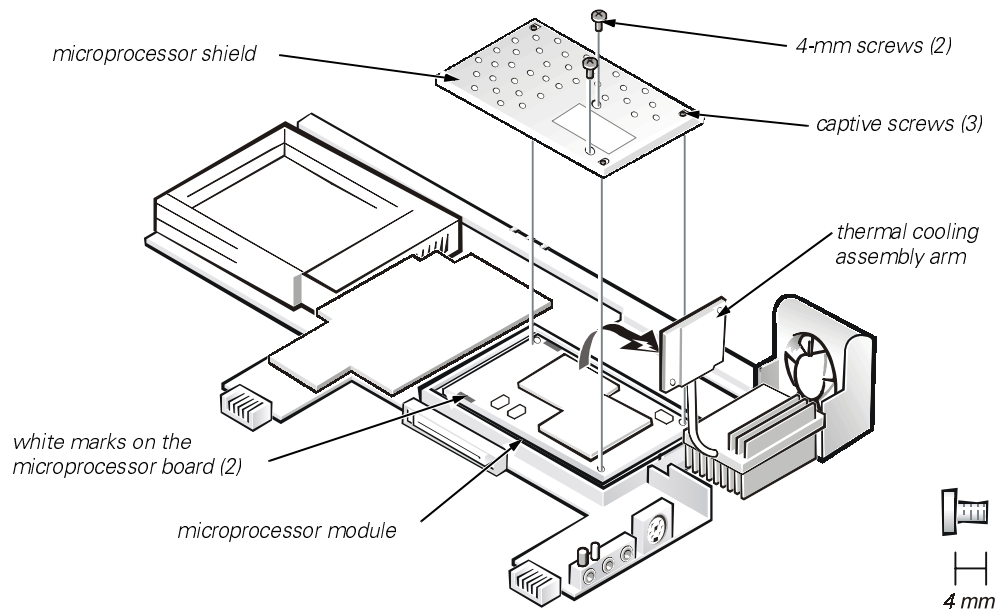
⚠ **CAUTION: To avoid damaging the system board, you must remove the main battery before you service the computer.**

1. Remove the keyboard assembly.

2. Remove the display assembly.

3. Remove the palmrest assembly.

⚠ **CAUTION: To ensure maximum cooling for the microprocessor, do not touch the heat transfer areas on the thermal cooling assembly. The oils in your skin reduce the heat transfer capability of the thermal pads.**

microprocessor shield

4-mm screws (2)

captive screws (3)

thermal cooling
assembly arm

white marks on the
microprocessor board (2)

microprocessor module

4 mm

Figure 19. Microprocessor Module

4. Remove the two 4-mm screws securing the thermal cooling assembly to the microprocessor module (see Figure 19).

5. Loosen the three captive screws securing the microprocessor shield to the microprocessor module.

6. Remove the microprocessor shield.

7. Rotate the arm of the thermal cooling assembly up and away from the microprocessor module.

CAUTION: Pull the module straight up. Do not move the tool from side to side to extract the processor board.

8. Use a microprocessor extractor tool to remove the microprocessor module.

    The tool fits on the left side of the module aligned with white marks on the front and back edge of the processor board (see Figure 19).

9. Remove any PC Cards or plastic blanks from the PC Card slot.

10. Verify that the PC Card ejectors do not extend from the PC Card slot.

11. Remove the following two screws from the system board assembly (see Figure 18):

    • The 4-mm screw with captive washer located on the far left side of the computer between the hard-disk drive assembly and the PC Card slot.

- The 4-mm screw with captive washer located on the far right side of the computer in front of the TCA and to the right of the microprocessor module.

NOTE: Locate these screws by looking for the white circles on the system board that outline the captive washers.

12. Lift the system board assembly out of the bottom case assembly.

Be sure to transfer the memory module(s) to the replacement system board assembly.

After replacing the system board assembly, be sure to enter the system's service tag number into the BIOS of the replacement system board assembly. Insert the diskette that accompanied the replacement system board assembly into the diskette drive, and turn on the computer. Follow the instructions on the display screen.

When you reinstall the microprocessor module in the system board, make sure to align the microprocessor connector on the left side of the board and press down to insert the module connector. When the microprocessor module is seated, all four corners must be at the same height. If one or more corners of the module are higher than the others, the module is not seated correctly. Rotate the arm of the thermal cooling assembly into place and replace the microprocessor shield. Tighten the three captive screws on the corners of the shield to secure the microprocessor module and shield. Replace the two 4-mm screws that secure the thermal cooling assembly arm and shield to the microprocessor module.

Thermal Cooling Assembly

4-mm screws (2)

thermal cooling assembly and exhaust fan

4 mm
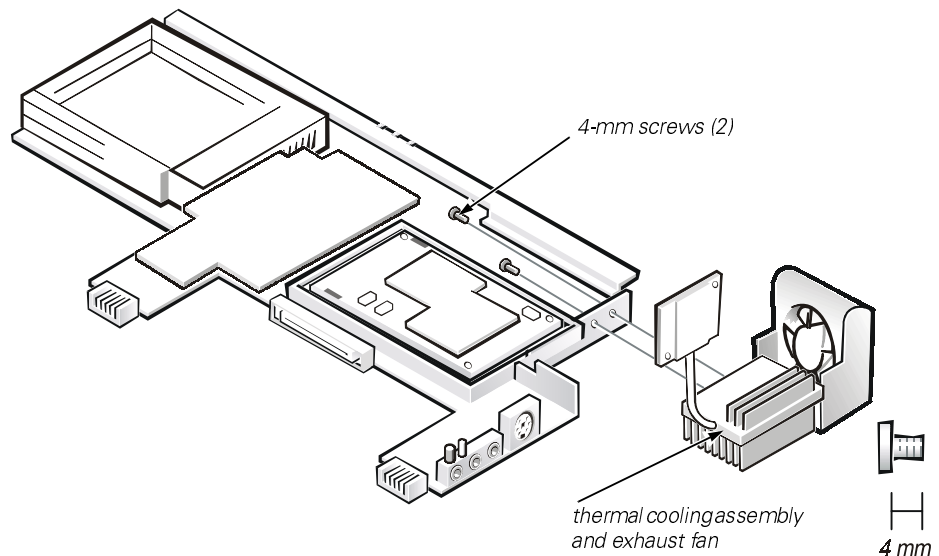
Figure 20. Thermal Cooling Assembly Removal

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

1. Remove the keyboard assembly.

2. Remove the display assembly.

3. Remove the palmrest assembly.

4. Disconnect the exhaust-fan power cable from the connector on the system board.

5. Remove the two 4-mm screws securing the thermal cooling assembly and exhaust fan, and then remove the thermal cooling assembly and exhaust fan (see Figure 20).

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