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User manual COMPAQ NX6110
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Instruction manual COMPAQ NX6110



Maintenance and Service Guide

HP Compaq nx6110/nc6110 and
nx6120/nc6120 Notebook PCs

Document Part Number: 373146-001

February 2005

This guide is a troubleshooting reference used for maintaining and servicing the notebook. It provides comprehensive information on identifying notebook features, components, and spare parts; troubleshooting notebook problems; and performing notebook disassembly procedures.



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Manual abstract:

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..... @@@@A and Service Guide to notebook model is considered to be full-featured if it has 4 Universal Serial Bus ports, 2 PC Card slots, and the following components: Volume control buttons Info Center button Infrared port 6-in-1 Digital Media Slot Serial port Parallel port S-Video-out jack Docking connector A notebook model is considered to be defeatured if it has only 2 Universal Serial Bus ports, 1 PC Card slot, and none of the components in the preceding list. Support for the following optical drives: DVD±RW and CD-RW Combo Drive DVD/CD-RW Combo Drive DVD-ROM drive CD-ROM drive Maintenance and Service Guide 13 Product Description Connectors: Audio-out (headphone) Audio-in (microphone) Universal Serial Bus (USB) v.

2.0 (4 ports on full-featured notebook models, 2 ports on defeatured notebook models) Power External monitor RJ-11 (modem) RJ-45 (network) IEEE 1394 Travel battery Infrared (full-featured models only) Digital Media Slot (full-featured models only) Parallel port (full-featured models only) S-Video-out (full-featured models only) Docking connector (full-featured models only) 1.2 Resetting the Notebook If the notebook you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS: 1. Prepare the notebook for disassembly (refer to Section 5.3, "Preparing the Notebook for Disassembly," for more information). 2. Remove the real-time clock (RTC) battery (refer to Section 5.17, "RTC Battery," for more information on removing and replacing the RTC battery). 14 Maintenance and Service Guide Product Description 3.

Wait approximately 5 minutes. 4. Replace the RTC battery and reassemble the notebook. 5. Connect AC power to the notebook. Do not reinsert any battery packs at this time. 6. Turn on the notebook. All passwords and all CMOS settings have been cleared. 1.

3 Power Management The notebook comes with power management features that extend battery operating time and conserve power. The notebook supports the following power management features: Standby Hibernation Setting customization by the user Hotkeys for setting the level of performance Battery calibration Lid switch standby/resume Power/standby button Advanced Configuration and Power Management (ACPM) compliance Maintenance and Service Guide 15 Product Description 1.4 External Components The external components on the front of the notebook are shown below and described in Table 1-1.

Front Components Table 1-1 Front Components Item 1 Component Infrared port (full-featured models only) Stereo speakers (2) Display release latch Function Provides wireless communication between the notebook and an optional IrDA-compliant device. Produce stereo sound. Opens the notebook. 2 3 16 Maintenance and Service Guide Product Description Table 1-1 Front Components (Continued) Item 4 5 Component Wireless light Power/standby light Function On: an integrated wireless device has been enabled. Green: The notebook is on. Blinking green: The notebook is in standby mode. Off: The notebook is off or in hibernation.

6 Battery light Amber: A battery pack is charging. Green: A battery pack is close to full charge capacity. Blinking amber: A battery pack that is the only available power source has reached a low-battery condition. When the battery reaches a critical low-battery condition, the battery light begins blinking more quickly. Off: If the notebook is connected to an external power source, the light is turned off when all batteries in the notebook are fully charged. If the notebook is not connected to an external power source, the light is turned off until the battery reaches a low-battery condition. Blinking: The hard drive or optical drive is being accessed. Supports 6 optional digital memory card formats: SD (Secure Digital) Memory Card, MultiMediaCard, Memory Stick, Memory Stick Pro, SmartMedia, and xD-Picture Card.



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On: A digital memory card is being accessed. 7 Integrated Drive Electronics (IDE) drive light 6-in-1 Digital Media Slot (full-featured models only) 8 9 6-in-1 Digital Media Slot light (full-featured models only) Maintenance and Service Guide 17 Product Description The external components on the right side of the notebook are shown below and described in Table 1-2.

Right-Side Components 18 Maintenance and Service Guide Product Description Table 1-2 Right-Side Components Item 1 Component Audio-out (headphone) jack Function Connect optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device such as a television or VCR. Connects an optional monaural microphone. Connect USB 1.1- and 2.

0-compliant devices to the notebook using a standard USB cable, or connect an optional External MultiBay II to the notebook. The MultiBay II must also be connected to an external power source. Supports an optical disc. The type of optical drive varies by model. Connects an optional serial device.

2 3 Audio-in (microphone) jack USB ports (2) (full-featured models only) 4 5 Optical drive Serial port (full-featured models only) Maintenance and Service Guide 19 Product Description The external components on the left side of the notebook are shown below and described in Table 1-3. Left-Side Components Table 1-3 Left-Side Components Item 1 Component USB ports (2) Function Connect USB 1.1- and 2.0-compliant devices to the notebook using a standard USB cable. If the notebook is closed while on, turns off the display. If the notebook is opened while in standby, turns on the notebook (resumes from standby). Launches Info Center. 3 Info Center button (full-featured models only) Wireless button 4 Turns the wireless functionality on or off, but does not create a wireless connection. establish a wireless network connection, a already be set up. 5 6 7 Presentation mode button Caps lock light Num lock light Turns on Presentation mode. On: caps lock is on.

On: num lock or the numeric keypad is on. Maintenance and Service Guide 117 Product Description The notebook top components are continued below and described innt replacement or printed wiring board modification may void any warranty or exchange allowances. 2.1 Computer Setup Computer Setup is a system information and customization utility that can be used even when the operating system is not working or will not load. This utility includes settings that are not available in Windows. Using Computer Setup Information and settings in Computer Setup are accessed from the Main, Security, Advanced, or Tools menus: 1. Turn on or restart the notebook. Press f10 while the F10 = ROM-Based Setup message is displayed in the lower-left corner of the screen. To change the language, use the cursor control keys to navigate to the Advanced menu. To view navigation information, press f1.

To return to the Computer Setup menu, press esc. Maintenance and Service Guide 21 Troubleshooting 2. Select the Main, Security, Advanced, or Tools menu.

3. To close Computer Setup and restart the notebook: Select Exit > Exit Saving Changes, and then press enter.

-- or -- Select Exit > Exit Discarding Changes, and then press enter. -- or -- Select Exit > Load Setup Defaults, and then press enter. 4. When you are prompted to confirm your action, press f10. Selecting from the Main Menu Table 2-1 Main Menu Select System Information To Do This Change the system time and system date.

View identification information about the notebook. View specification information about the processor, memory and cache size, and system ROM. 22 Maintenance and Service Guide Troubleshooting Selecting from the Security Menu Table 2-2 Security Menu Select Administrator Password Power-on Password DriveLock Passwords To Do This Enter, change, or delete an Administrator password. Enter, change, or delete a power-on password.

Enable/disable DriveLock; change a DriveLock user or master password. Settings are accessible DriveLock enter Computer Setup byonly when you turning on (not restarting) the notebook. Password Options (Password options can be selected only when a power-on password has been set.) Enable/disable:

QuickLock QuickLock on Standby QuickBlank To enable QuickLock on Standby or QuickBlank, you must first enable QuickLock. Device Security Enable/disable: Diskette drive startup* CD-ROM or diskette startup Settings for a DVD-ROM can be entered in the CD-ROM field. *Not applicable to SuperDisk LS-120 drives.

Maintenance and Service Guide 23 Troubleshooting Selecting from the Advanced Menu Table 2-3 Advanced Menu Select Language Boot Order To Do This Change the Computer Setup language. Enable/disable MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system. Allows electronic and information technology to be accessible to people with varying ranges of abilities. Displays the amount of video memory available on the notebook. Accessibility Options Video Memory Selecting from the Tools Menu Table 2-4 Tools Menu Select Hard Drive Self Test To Do This Run a quick comprehensive self test on hard drives in the system that support the test features. 24 Maintenance and Service Guide Troubleshooting 2.2 Troubleshooting Flowcharts Table 2-5 Troubleshooting Flowcharts Overview Flowchart 2.1 2.2 2.3 2.

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11--No OS Loading, Hard Drive, Part 2" "Flowchart 2.12--No OS Loading, Hard Drive, Part 3" "Flowchart 2.13--No OS Loading, Diskette Drive"

Maintenance and Service Guide 25 Troubleshooting Table 2-5 Troubleshooting Flowcharts Overview (Continued) Flowchart 2.14 2.15 2.16 2.17 2.18 2.19 2.20 Description "Flowchart 2.

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19--Nonfunctioning Pointing Device" "Flowchart 2.20--No Network/Modem Connection" 26 Maintenance and Service Guide Troubleshooting Flowchart 2.1--Initial Troubleshooting Begin troubleshooting. N Go to Is there power? "Flowchart 2.



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2--No Power, Part 1.

" Y N Beeps, LEDs, or error messages? Check LED board, speaker connections. All drives working? N Go to "Flowchart 2.17--Nonfunctioning Device." Y N Go to Is there video? (no boot) "Flowchart 2.6--No Video, Part 1." Y N Keyboard/ pointing device working? Go to "Flowchart 2.18--Nonfunctioning Keyboard" or "Flowchart 2.19--Nonfunctioning Pointing Device." Y N Go to Is the OS loading? "Flowchart 2.9--No Operating System (OS) Loading.

" Y N Connecting to network or modem? Y N Go to "Flowchart 2.20--No Network/Modem Connection." Go to Is there sound? "Flowchart 2.15--No Audio, Part 1." Y Y End Maintenance and Service Guide 27 Troubleshooting Flowchart 2.2--No Power, Part 1 No power (power LED is off). Remove from docking device (if applicable). N Power up on battery power? Reset power.* Power up on battery power? N Go to "Flowchart 2.3--No Power, Part 2.

" Y N Power up on AC power? Reset power.* Y N Power up on AC power? Go to "Flowchart 2.4--No Power, Part 3." Y Y Power up in docking device? Done Y *NOTES 1. On select models, there is a separate reset button.

2. On select models, the notebook can be reset using the standby switch and either the lid switch or the main power switch. N 1. Reset the power cables in the docking device and at the AC outlet. 2.

Ensure the AC power source is active. 3. Ensure that the power strip is working. Y Done Power up in docking device? N Go to "Flowchart 2.8--Nonfunctioning Docking Device (if applicable)." 28 Maintenance and Service Guide Troubleshooting Flowchart 2.3--No Power, Part 2 Continued from "Flowchart 2.2--No Power, Part 1." Visually check for debris in battery socket and clean if necessary. Y Power on? Done N Check battery by recharging it, moving it to another notebook, or replacing it.

N Power on? Replace power supply (if applicable). Y N Go to Done Power on? "Flowchart 2.4--No Power, Part 3." Y Done Maintenance and Service Guide 29 Troubleshooting Flowchart 2.4--No Power, Part 3 Continued from "Flowchart 2.3--No Power, Part 2." Plug directly into AC outlet. Y Power LED on? Done N Reseat AC adapter in notebook and at power source. Y Power on? Done External N N Power outlet active? Try different outlet. Internal or external AC adapter? Internal Go to Replace external AC adapter.

Y Replace power cord. N Power on? "Flowchart 2.5--No Power, Part 4." Y Done Y Power on? Done N 210 Maintenance and Service Guide Troubleshooting Flowchart 2.5--No Power, Part 4 Continued from "Flowchart 2.

4--No Power, Part 3." Open notebook. Y Loose or damaged parts? N Close notebook and retest. Reseat loose components and boards and replace damaged items. N Power on? Replace the following items (if applicable).

Check notebook operation after each replacement: 1. Internal DC-DC converter* 2. Internal AC adapter 3. Processor board* 4. System board* Y Done *NOTE: Replace these items as a set to prevent shorting out among components. Maintenance and Service Guide 211 Troubleshooting Flowchart 2.6--No Video, Part 1 No video. Docking Device Stand-alone or docking device? Stand-alone Internal or external display*? External Adjust brightness. Internal Adjust brightness. Go to "Flowchart 2.

7--No Video, Part 2." *NOTE: To change from internal to external display, use the hotkey combination. Y Video OK? Done N A Press lid switch to ensure operation. Y Video OK? Done Video OK? Y Done N Check for bent pins on cable. N Replace the following one at a time. Test after each replacement. 1.

Cable between notebook and notebook display (if applicable) 2. Display 3. System board N Video OK? Try another display. Internal and external video OK? N Replace system board. Y Done Y Done 212 Maintenance and Service Guide Troubleshooting Flowchart 2.7--No Video, Part 2 Continued from "Flowchart 2.6--No Video, Part 1." Remove notebook from docking device, if connected.

Adjust display brightness. Check brightness of external monitor. N Go to "A" in Video OK? "Flowchart 2.6--No Video, Part 1." Y Video OK? Done Y Check that notebook is properly seated in docking device, for bent pins on cable, and for monitor connection.

N Try another external monitor. Y Video OK? Done Internal and external video OK? Y Done N N Go to Adjust external monitor display. "Flowchart 2.8--Nonfunctioning Docking Device (if applicable)." Maintenance and Service Guide 213 Troubleshooting Flowchart 2.8--Nonfunctioning Docking Device (if applicable) Nonfunctioning docking device. Reset power cord in docking device and power outlet. Check voltage setting on docking device. Reinstall notebook into docking device. Reset monitor cable connector at docking device.

Y Docking device operating? Done Y Docking device operating? Done N Replace the following docking device components one at a time. Check notebook operation after each replacement. 1. Power supply 2. I/O board 3. Backplane board 4. Switch box 5. Docking device motor mechanism N Remove notebook, reset all internal parts, and replace any damaged items in docking device. 214 Maintenance and Service Guide Troubleshooting Flowchart 2.9--No Operating System (OS) Loading No OS loading.

* Reset power cord in docking device and power outlet. No OS loading from hard drive, go to "Flowchart 2.10--No OS Loading, Hard Drive, Part 1." No OS loading from diskette drive, go to "Flowchart 2.13--No OS Loading, Diskette Drive.

" No OS loading from CD-ROM or DVD-ROM drive, go to "Flowchart 2.14--No OS Loading, Optical Drive." No OS loading from network, go to "Flowchart 2.20--No Network/Modem Connection." *NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

Maintenance and Service Guide 215 Troubleshooting Flowchart 2.10--No OS Loading, Hard Drive, Part 1 OS not loading from hard drive. Y Nonsystem disk message? Go to "Flowchart 2.11--No OS Loading, Hard Drive, Part 2." N Reseat external hard drive. Y OS loading? Done N N Boot from CD? Y Check the Setup utility for correct booting order. N Boot from diskette? Go to "Flowchart 2.13--No OS Loading, Diskette Drive." Y N Change boot priority through the Setup utility and reboot. Boot from hard drive? Y Done N Boot from hard drive? Go to "Flowchart 2.

17--Nonfunctioning Device." Y 216 Maintenance and Service Guide Troubleshooting Flowchart 2.11--No OS Loading, Hard Drive, Part 2 Continued from "Flowchart 2.



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10--No OS Loading, Hard Drive, Part 1." Reseat hard drive. 1. Replace hard drive. 2. Replace system board. N CD or diskette in drive? Y Hard drive accessible? Done Y N Remove diskette and reboot.

Run FDISK. Y Boot from hard drive? Done Hard drive partitioned? N N N Boot from diskette drive? Go to "Flowchart 2.13--No OS Loading, Diskette Drive." Y N Hard drive formatted? Create partition, and then format hard drive to bootable C:\prompt. Format hard drive and bring to a bootable C:\prompt. Y N Hard drive accessible? Y Y Notebook booted? Done Y Go to "Flowchart 2.12--No OS Loading, Hard Drive, Part 3." Load OS using Operating System disc (if applicable). N Go to "Flowchart 2.12--No OS Loading, Hard Drive, Part 3."

" Maintenance and Service Guide 217 Troubleshooting Flowchart 2.12--No OS Loading, Hard Drive, Part 3 Continued from "Flowchart 2.11--No OS Loading, Hard Drive, Part 2." N System files on hard drive? Install OS and reboot. Y Y Virus on hard drive? Clean virus. OS loading from hard drive? Y Done N Run SCANDISK and check for bad sectors. N Y Diagnostics on diskette? Replace hard drive. N N Can bad sectors be fixed? Replace hard drive. Run diagnostics and follow recommendations. Y N Fix bad sectors.

Boot from hard drive? Replace hard drive. Y Done 218 Maintenance and Service Guide Troubleshooting Flowchart 2.13--No OS Loading, Diskette Drive Y OS not loading from diskette drive. Reseat diskette drive. OS loading? Done N Y Nonsystem disk message? Bootable diskette in drive? N Install bootable diskette and reboot notebook. N N Boot from another device? Go to "Flowchart 2.17--Nonfunctioning Device." Y Check diskette for system files. Try different diskette. Y N Diskette drive enabled in the Setup utility? Enable drive and cold boot notebook.

Nonsystem disk error? Y 1. Replace diskette drive. 2. Replace system board. N Y Y Y Is diskette drive boot order correct? Reset the notebook. Refer to Section 1.2, "Resetting the Notebook," for OS loading? Done N N instructions. Change boot priority using the Setup utility. Go to "Flowchart 2.17--Nonfunctioning Device."

" Maintenance and Service Guide 219 Troubleshooting Flowchart 2.14--No OS Loading, Optical Drive No OS loading from CD-ROM or DVD-ROM drive. Y Disc in drive? Bootable disc in drive? N N Install bootable disc. Y Try another bootable disc. Install bootable disc and reboot notebook. Y Boots from CD or DVD? Done N Y Reseat drive. Boots from CD or DVD? Done N N Booting from another device? Go to "Flowchart 2.17--Nonfunctioning Device." Y Y Booting order correct? Reset the notebook. Refer to Section 1.

2, "Resetting the Notebook," for Go to "Flowchart 2.17--Nonfunctioning Device." N Correct boot order using the Setup utility. instructions. 220 Maintenance and Service Guide Troubleshooting Flowchart 2.15--No Audio, Part 1 Y No audio. Turn up audio internally or externally. Audio? Done N Y Notebook in docking device (if applicable)? Undock Internal audio? N Go to "Flowchart 2.16--No Audio, Part 2." N Go to "Flowchart 2.16--No Audio, Part 2." Y Replace the following docking device components one at a time, as applicable. Check audio status after each change. 1. Reset docking device audio cable.

2. Replace audio cable. 3. Replace speaker. 4.

Replace docking device audio board. 5. Replace backplane board. 6. Replace I/O board. Y Go to "Flowchart 2.17--Nonfunctioning Device." Audio? Done N Maintenance and Service Guide 221 Troubleshooting Flowchart 2.16--No Audio, Part 2 Continued from "Flowchart 2.15--No Audio, Part 1."

" N Audio driver in OS configured? Reload audio drivers. Y N Correct drivers for application? Load drivers and set configuration in OS. Y Connect to external speaker. N Audio? Y Replace audio board and speaker connections in notebook (if applicable). Y Audio? Done N 1. Replace internal speakers. 2. Replace audio board (if applicable). 3. Replace system board.

222 Maintenance and Service Guide Troubleshooting Flowchart 2.17--Nonfunctioning Device Nonfunctioning device. Reseat device. Unplug the nonfunctioning device from the notebook and inspect cables and plugs for bent or broken pins or other damage. Y Clear CMOS. Any physical device detected? Fix or replace broken item. Go to Replace hard drive. "Flowchart 2.9--No Operating System (OS) Loading." N Reattach device.

Close notebook, plug in power, and reboot. N Device boots properly? Replace NIC. If integrated NIC, replace system board. Device boots properly? N Y Replace diskette drive. Y Done Done Maintenance and Service Guide 223 Troubleshooting Flowchart 2.18--Nonfunctioning Keyboard Keyboard not operating properly. Connect notebook to good external keyboard. N External device works? Replace system board. Y Reseat internal keyboard connector (if applicable). N OK? Replace internal keyboard or cable.

Y Y Done OK? Done N Replace system board. 224 Maintenance and Service Guide Troubleshooting Flowchart 2.19--Nonfunctioning Pointing Device Pointing device not operating properly. Connect notebook to good external pointing device. N External device works? Replace system board. Y Reseat internal pointing device connector (if applicable). N OK? Replace internal pointing device or cable. Y Y Done OK? Done N Replace system board.

Maintenance and Service Guide 225 Troubleshooting Flowchart 2.20--No Network/Modem Connection No network or modem connection. N Network or modem jack active? Replace jack or have jack activated. Y Y Digital line? Connect to nondigital line. N N NIC/modem configured in OS? Reload drivers and reconfigure. OK? Y Done Y Disconnect all power from the notebook and open. N Replace NIC/modem (if applicable). Y Reseat NIC/modem (if applicable). OK? Done N Replace system board. 226 Maintenance and Service Guide 3 Illustrated Parts Catalog This chapter provides an illustrated parts breakdown and a reference for spare part numbers. 3.1 Serial Number Location When ordering parts or requesting information, provide the notebook serial number and model number located on the bottom of the notebook.

Serial Number Location Maintenance and Service Guide 31 Illustrated Parts Catalog 3.2 Notebook Major Components Notebook Major Components 32 Maintenance and Service Guide Illustrated Parts Catalog Table 3-1 Spare Parts: Notebook Major Components Item 1 Description Spare Part Number Display assemblies (include wireless antenna boards and cables) 15.



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0-inch, SXGA+WVA, TFT 15.0-inch, XGA, TFT 14.1-inch, XGA, TFT 378210-001 378209-001 378208-001 2 Switch covers For use with full-featured models For use with defeatured models 378232-001 378242-001 378228-001 3 4 LED board (for use only with full-featured models; includes LED board cable) Keyboards Belgium Brazil Czech Republic Denmark France French Canada Germany Greece Hungary Iceland International Israel Italy Japan Korea 378248-181 378248-201 378248-221 378248-081 378248-051 378248-121 378248-041 378248-151 378248-211 378248-DD1 378248-002 378248-BB1 378248-061 378248-291 378248-AD1 Latin America Norway Portugal Russia Saudi Arabia Slovakia Slovenia Spain Sweden Switzerland Taiwan Thailand Turkey United Kingdom United States 378248-161 378248-091 378248-131 378248-251 378248-171 378248-231 378248-BA1 378248-071 378248-101 378248-111 378248-AB1 378248-281 378248-141 378248-031 378248-001 378233-001 379799-001 5 6 Fan Heat sink (includes thermal paste) Maintenance and Service Guide 33 Illustrated Parts Catalog Notebook Major Components 34 Maintenance and Service Guide Illustrated Parts Catalog Table 3-1 Spare Parts: Notebook Major Components (Continued) Item 7 Description Processors (include thermal paste) Intel Pentium M 2.13-GHz Intel Pentium M 2.00-GHz Intel Pentium M 1.86-GHz Intel Pentium M 1.73-GHz Intel Pentium M 1.60-GHz Intel Pentium M 1.

30-GHz Intel Celeron 1.5-GHz Intel Celeron 1.4-GHz Spare Part Number 378224-001 378223-001 378222-001 378221-001 378220-001 378219-001 378218-001 378217-001 8 Top covers (include TouchPad) For use with full-featured models For use with defeatured models Miscellaneous Plastics Kit 378230-001 378239-001 378236-001 9a 9b 9c Includes: RTC battery Memory module/Mini PCI compartment cover (includes 1 captive screw) Hard drive cover (includes 2 captive screws) Not illustrated: Notebook feet PC Card slot space savers (2) Modem board Memory modules (400-MHz DDR2) 1024 MB 512 MB 256 MB 336579-001 336578-001 366577-001 378237-001 380774-001 10 11 12 Speaker Maintenance and Service Guide 35 Illustrated Parts Catalog Notebook Major Components 36 Maintenance and Service Guide Illustrated Parts Catalog Table 3-1 Spare Parts: Notebook Major Components (Continued) Item 13 Description USB/audio board (for use only with full-featured models; includes audio board cable, and USB board cable) Audio board (for use only with defeatured models; includes audio board cable) System boards For use with full-featured models For use with defeatured models-GML For use with defeatured models-GM Spare Part Number 378226-001 378241-001 14 378225-001 378238-001 383219-001 378229-001 15 16 Digital media board (for use only with full-featured models; includes digital media board cable) Base enclosure For use with full-featured models For use with defeatured models 378231-001 378240-001 378227-001 17 Serial connector module (for use only with full-featured models; includes serial connector board cable) Maintenance and Service Guide 37 Illustrated Parts Catalog Notebook Major Components 38 Maintenance and Service Guide Illustrated Parts Catalog Table 3-1 Spare Parts: Notebook Major Components (Continued) Item 18 Description Mini PCI communications cards 802.11b/g WLAN card, for use in MOW 802.11b/g WLAN card, for use in the ROW 802.11b/g combination WLAN card, for use internationally 802.11b/g combination WLAN card, for use Japan 802.11b/g combination WLAN card, for use in the United States 802.11a/b/g combination WLAN card, for use in Europe, Middle East, Africa 802.11a/b/g combination WLAN Mini PCI communications card for use Japan 802.

11a/b/g combination WLAN card, for use internationally 802.11a/b/g combination WLAN card, for use Japan 802.11a/b/g combination WLAN card, for use in MOW 802.11a/b/g combination WLAN card, for use in the United States 802.11a/b/g High Band combination WLAN card Spare Part Number 381582-001 381583-001 373032-002 373032-291 373032-001 373900-021 373900-291 373033-002 373033-291 373900-001 373033-001 373901-001 19 Battery packs 6-cell, 4.

4-AHr 6-cell, 4.4-AHr 6-cell, 2.2-AHr 372772-001 383220-001 364602-001 Maintenance and Service Guide 39 Illustrated Parts Catalog Notebook Major Components 310 Maintenance and Service Guide Illustrated Parts Catalog Table 3-1 Spare Parts: Notebook Major Components (Continued) Item 20 Description Optical drives (include bezel) 24X Max CD-ROM drive 8X Max DVD-ROM drive 4X Max DVD±RW and CD-RW Combo Drive DVD/CD-RW Combo Drive 8X Max DVD±RW and CD-RW Combo Drive Spare Part Number 380768-001 380770-001 380771-001 380772-001 380773-001 367871-001 21 22 Broadcom Bluetooth® wireless board (includes Bluetooth board cable) Hard drives (include frame and connector) 5400-rpm 80-GB 60-GB 40-GB 380108-001 378215-001 380107-001 4200-rpm 80-GB 60-GB 30-GB 378214-001 378213-001 378211-001 Maintenance and Service Guide 311 Illustrated Parts Catalog 3.3 Miscellaneous Plastics Kit Table 3-2 Spare Part Number 378236-001 Item 1 2 3 4 5 Description Memory module/Mini PCI compartment cover (includes 1 captive screw) Hard drive cover (includes 2 captive screws) RTC battery Notebook feet (4) PC Card slot space savers (2) 312 Maintenance and Service Guide Illustrated Parts Catalog 3.4 Miscellaneous Cable Kit Table 3-3 Spare Part Number 381709-001 Item 1 2 3 4 5 6 Description Bluetooth board cable LED board cable RJ-11 connector module and cable Audio board cable USB board cable Serial connector module cable Maintenance and Service Guide 313 Illustrated Parts Catalog 3.

5 Mass Storage Devices Table 3-4 Spare Part Number Information Item 1 Description Hard drives (include frame and connector) 5400-rpm 80-GB 60-GB 40-GB 380108-001 378215-001 380107-001 4200-rpm 80-GB 60-GB 30-GB Spare Part Number 378214-001 378213-001 378211-001 2 Optical drives (include bezel) 24X Max CD-ROM drive 8X Max DVD-ROM drive 4X Max DVD±RW and CD-RW Combo Drive DVD/CD-RW Combo Drive 8X Max DVD±RW and CD-RW Combo Drive 380768-001 380770-001 380771-001 380772-001 380773-001 314 Maintenance and Service Guide Illustrated Parts Catalog 3.6 Miscellaneous (Not Illustrated) Table 3-5 Spare Part Information Description 65 watt AC adapter HP Advanced Docking Station HP Docking Station Docking Station Miscellaneous Plastics Kit Carrying cases Nylon top load 325815-001 and 325815-002 325814-001 366143-001 366144-001 373315-001 373314-001 375198-001 367456-001 359118-001 Spare Part Number 239704-001 374804-001 374803-001 380089-001 Nylon entry-level External MultiBay cradle External MultiBay cradle power cable and stand MultiBay 24X DVD/CD-RW Combo Drive MultiBay 8X DVD-ROM Drive MultiBay hard drive, 80-GB, 5400-rpm 8-cell travel battery USB 1.



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I diskette drive Maintenance and Service Guide 315 Illustrated Parts Catalog Table 3-5 Spare Part Information (Continued) Description Screw Kit (includes the following screws; refer to Appendix C, "Screw Listing," for more information on specifications and usage Hex socket HM5.0×9.0 screw lock Phillips PM2.5×13.0 spring-loaded screw Phillips PM2.5×4.0 shoulder screw Phillips PM2.5×4.

0 screw Phillips PM2.0×8.0 shoulder screw Phillips PM2.0×7.0 screw Spare Part Number 378235-001 Phillips PM2.0×4.0 screw Phillips PM2.0×3.0 screw Phillips PM1.5×4.

0 screw Phillips PM1.5×3.5 screw Torx8 M2.0×9.0 screw Torx8 M2.

0×4.0 screw Torx8 M2.0×2.0 screw 316 Maintenance and Service Guide Illustrated Parts Catalog Table 3-5 Spare Part Information (Continued) Description Power cords For use in: Australia and New Zealand Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden Brazil Canada, French Canada, Latin America, Taiwan, Thailand, and the United States Denmark Hong Kong and the United Kingdom Israel Italy Japan Korea Sweden 246959-011 246959-021 246959-201 246959-001 246959-081 246959-031 246959-BB1 246959-061 246959-291 246959-AD1

246959-AG1 Spare Part Number Maintenance and Service Guide 317 Illustrated Parts Catalog 3.7 Sequential Part Number Listing Table 3-6 Sequential Part Number Listing Spare Part Number 239704-001 246959-001 246959-011 246959-021 Description 65-watt AC adapter Power cord for use in Canada, French Canada, Latin America, Taiwan, Thailand, and the United States Power cord for use in Australia and New Zealand Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden Power cord for use in Hong Kong and the United Kingdom Power cord for use in Italy Power cord for use in Denmark Power cord for use in Brazil Power cord for use in Japan Power cord for use in Korea Power cord for use in Sweden Power cord for use in Israel Nylon entry-level carrying case Nylon top load carrying case Nylon top load carrying case 512-MB memory module, 400-MHz DDR2 246959-031 246959-061 246959-081 246959-201 246959-291 246959-AD1 246959-AG1 246959-BB1 325814-001 325815-001 325815-002 336578-001 318 Maintenance and Service Guide Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 336579-001 359118-001 364602-001 366143-001 366144-001 366577-001 367456-001 367871-001 372772-001 373032-001 373032-002 373032-291 373033-001 373033-002 373033-291 373314-001 373315-001 Description 1024-MB memory module, 400-MHz DDR2 USB 1.

I diskette drive 6-cell, 2.2-AHr battery pack External MultiBay cradle External MultiBay cradle power cable and stand 256-MB memory module, 400-MHz DDR2 8-cell travel battery Broadcomm Bluetooth wireless board, includes cable 6-cell, 4.4-AHr battery pack 802.11b/g combination WLAN Mini PCI communications card for use in the United States 802.11b/g combination WLAN Mini PCI communications card for use internationally 802.11b/g combination WLAN Mini PCI communications card for use Japan 802.11a/b/g combination WLAN card Mini PCI communications card for use in the United States 802.11a/b/g combination WLAN Mini PCI communications card for use internationally 802.11a/b/g combination WLAN Mini PCI communications card for use in Japan MultiBay 8X DVD-ROM Drive MultiBay 24X DVD/CD-RW Combo Drive Maintenance and Service Guide 319 Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 373900-001 373900-021 373900-291 373901-001 374803-001 374804-001 375198-001 378208-001 378209-001 378210-001 378211-001 378213-001 378214-001 378215-001 Description 802.11a/b/g combination WLAN card Mini PCI communications card for use in MOW 802.

11a/b/g combination WLAN Mini PCI communications card for use Europe, Middle East, and Africa 802.11a/b/g combination WLAN Mini PCI communications card for use Japan 802.11a/b/g High Band combination WLAN Mini PCI communications card HP Docking Station HP Advanced Docking Station MultiBay hard drive, 80-GB, 5400-rpm 14.1-inch, XGA, TFT, display assembly, includes wireless antenna boards and cables 15.0-inch, XGA, TFT, display assembly, includes wireless antenna boards and cables 15.0-inch, SXGA+WVA, TFT display assembly, includes wireless antenna boards and cables 30-GB hard drive, 4200-rpm, includes frame and connector 60-GB hard drive, 4200-rpm, includes frame and connector 80-GB hard drive, 4200-rpm, includes frame and connector 60-GB hard drive, 5400-rpm, includes frame and connector 320 Maintenance and Service Guide Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 378217-001 378218-001 378219-001 378220-001 378221-001 378222-001 378223-001 378224-001 378225-001 378226-001 378227-001 378228-001 378229-001 378230-001 378231-001 378232-001 378233-001 378235-001 Description Intel Celeron 1.4-GHz processor, includes thermal paste Intel Celeron 1.5-GHz processor, includes thermal paste Intel Pentium M 1.30-GHz processor, includes thermal paste Intel Pentium M 1.60-GHz processor, includes thermal paste Intel Pentium M 1.86-GHz processor, includes thermal paste Intel Pentium M 2.00-GHz processor, includes thermal paste Intel Pentium M 2.13-GHz processor, includes thermal paste System board, for use only with full-featured models USB/audio board, includes audio board cable and USB board cable, for use only with full-featured models Serial connector board, includes serial connector board cable LED board, includes LED board cable Digital media board, includes digital media board cable Top cover, includes TouchPad, for use only with full-featured models Base enclosure, for use only with full-featured models Switch cover, for use only with full-featured models Fan Miscellaneous Screw Kit Maintenance and Service Guide 321 Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 378236-001 378237-001 378238-001 378239-001 378240-001 378241-001 378242-001 378248-001 378248-002 378248-031 378248-041 378248-051 378248-061 378248-071 378248-081 378248-091 378248-101 378248-111 378248-121 Description Miscellaneous Plastics Kit Speaker System board, for use only with defeatured models (GML) Top cover, includes TouchPad, for use only with defeatured models Base enclosure, for use only with defeatured models Audio board, includes audio cable, for use only with defeatured models Switch cover, for use only with defeatured models Keyboard for use in United States Keyboard for use internationally Keyboard for use in United Kingdom Keyboard for use in Germany Keyboard for use in France Keyboard for use in Italy Keyboard for use in Spain Keyboard for use in Denmark Keyboard for use in Norway Keyboard for use in Sweden Keyboard for use in Switzerland Keyboard for use in French Canada 322 Maintenance and Service Guide Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 378248-131 378248-141 378248-151 378248-161 378248-171 378248-181 378248-201 378248-211 378248-221 378248-231 378248-251 378248-281 378248-291 378248-AB1 378248-AD1 378248-BA1 378248-BB1 378248-DD1 379799-001 380107-001 380108-001 380768-001 Description Keyboard for use in Portugal Keyboard for use in Turkey Keyboard for use in Greece Keyboard for use in Latin America Keyboard for use in Saudi Arabia Keyboard for use in Belgium Keyboard for use in Brazil Keyboard for use in Hungary Keyboard for use in the Czech Republic Keyboard for use in Slovakia Keyboard for use in Russia Keyboard for use in Thailand Keyboard for use in Japan Keyboard for use in Taiwan Keyboard for use in Korea Keyboard for use in Slovenia Keyboard for use in Israel Keyboard for use in Iceland Heat sink, includes thermal paste 40-GB hard drive, 5400-rpm, includes frame and connector 80-GB hard drive, 5400-rpm, includes frame and connector 24X Max CD-ROM drive, includes bezel Maintenance and Service Guide 323 Illustrated Parts Catalog Table 3-6 Sequential Part Number Listing (Continued) Spare Part Number 380770-001 380771-001 380772-001 380773-001 380774-001 381582-001 381583-001 381709-001 383219-001 383220-001 Description 8X Max DVD-ROM drive, includes bezel 4X Max DVD±RW and CD-RW Combo Drive, includes bezel DVD/CD-RW Combo Drive, includes bezel 8X Max DVD±RW and CD-RW Combo Drive, includes bezel Modem board 802.

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11b/g WLAN Mini PCI communications card for use in MOW 802.

11b/g WLAN Mini PCI communications card for use in ROW Miscellaneous Cable Kit System board, for use only with defeatured models (GM) 6-cell, 4.0-AHr battery pack 324 Maintenance and Service Guide 4 Removal and Replacement Preliminaries This chapter provides essential information for proper and safe removal and replacement service. 4.1 Tools Required You will need the following tools to complete the removal and replacement procedures: Magnetic driver Phillips P0 driver 5.0-mm socket for system board locks Flat-bladed driver Tool kit--includes connector removal tool, loopback plugs, and case utility tool Maintenance and Service Guide 41 Removal and Replacement Preliminaries 4.

2 Service Considerations The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures. As you remove each subassembly from the notebook, place the subassembly (and all accompanying screws) away from the work area to prevent damage. Plastic Parts Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions. Cables and Connectors CAUTION: When servicing the notebook, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the notebook. Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible.

In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily. 42 Maintenance and Service Guide Removal and Replacement Preliminaries 4.3 Preventing Damage to Removable Drives Removable drives are fragile components that must be handled with care. To prevent damage to the notebook, damage to a removable drive, or loss of information, observe the following precautions: Before removing or inserting a hard drive, shut down the notebook. If you are unsure whether the notebook is off or in hibernation, turn the notebook on, and then shut it down through the operating system.

Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed. Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector. Handle drives on surfaces covered with at least one inch of shock-proof foam. Avoid dropping drives from any height onto any surface. After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag. Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers. Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE: Handle With Care." Maintenance and Service Guide 43 Removal and Replacement Preliminaries 4.4 Preventing Electrostatic Damage Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge might not be affected at all and can work perfectly throughout a normal cycle. Or the device might function normally for a while, then degrade in the internal layers, reducing its life expectancy. 44 Maintenance and Service Guide Removal and Replacement Preliminaries 4.5 Packaging and Transporting Precautions Use the following grounding precautions when packaging and transporting equipment: To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes. Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging. Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations. Place items on a grounded surface before removing items from their containers. Always be properly grounded when touching a sensitive component or assembly.

Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam. Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. @@@@ Handle these items only at static-free workstations. Avoid contact with pins, leads, or circuitry. @@ When seated, wear a wrist strap connected to a grounded system. @@@@ On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin. Other grounding equipment recommended for use in preventing electrostatic damage includes: Antistatic tape Antistatic smocks, aprons, and sleeve protectors Conductive bins and other assembly or soldering aids Nonconductive foam Conductive tabletop workstations with ground cords of one megohm resistance Static-dissipative tables or floor mats with hard ties to the ground Field service kits Static awareness labels Material-handling packages Nonconductive plastic bags, tubes, or boxes Metal tote boxes Electrostatic voltage levels and protective materials Maintenance and Service Guide 47 Removal and Replacement Preliminaries Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities. Table 4-1 Typical Electrostatic Voltage Levels Relative Humidity Event Walking across carpet Walking across vinyl floor Motions of bench worker Removing DIPS from plastic tube Removing DIPS from vinyl tray Removing DIPS from Styrofoam Removing bubble pack from PCB Packing PCBs in foam-lined box 10% 35,000 V 12,000 V 6,000 V 2,000 V 11,500 V 14,500 V 26,500 V 21,000 V 40% 15,000 V 5,000 V 800 V 700 V 4,000 V 5,000 V 20,000 V 11,000 V 55% 7,500 V 3,000 V 400 V 400 V 2,000 V 3,500 V 7,000 V 5,000 V A product can be degraded by as little as 700 V.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.



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Table 4-2 Static-Shielding Materials Material Antistatic plastic Carbon-loaded plastic Metallized laminate Use Bags Floor mats Floor mats Voltage Protection Level 1,500 V 7,500 V 5,000 V 48 Maintenance and Service Guide 5 Removal and Replacement Procedures This chapter provides removal and replacement procedures. There are 62 screws and screw locks, in 11 different sizes, that must be removed, replaced, or loosened when servicing the notebook.

2. Disconnect all external devices connected to the notebook. 3. Remove the battery pack by following these steps: a. Slide and hold the battery pack lock latch 1 to the right. c. Slide the battery pack release latch 2 to the right. (The battery pack disengages from the notebook.) d. Remove the hard drive by following these steps: a. Remove the hard drive cover. b. Remove the hard drive cover. c. Remove the hard drive cover. d. Remove the hard drive cover. e. Remove the hard drive cover. f. Remove the hard drive cover.

h. Lift the frame straight up 4 to remove it from the hard drive. k. Prepare the notebook for disassembly (refer to Section 5.3). 3. Disconnect the Bluetooth board cable 2 from the board.

Removing the Bluetooth Board Reverse the above procedure to install a Bluetooth board. Maintenance and Service Guide 511 Removal and Replacement Procedures 5.6 External Memory Module Memory Module Spare Part Number Information 1024 MB 512 MB 256 MB 336579-001 336578-001 366577-001 1. Prepare the notebook for disassembly (refer to Section 5.3).

2. Position the notebook with the front toward you. 512 Maintenance and Service Guide Removal and Replacement Procedures 3. Loosen the PM2.0x4.0 screw 1 that secures the memory module/Mini PCI compartment cover to the notebook. 4. Lift the rear edge of the cover up and swing it toward you. 5. Remove the memory module/Mini PCI compartment cover. The memory module/Mini PCI compartment numbers are included in the Miscellaneous Plastics Kit, spare part 378236-001. Removing the Memory Module/Mini PCI Compartment Cover Maintenance and Service Guide 513 Removal and Replacement Procedures 6. Spread the retaining tabs 1 on each side of the memory module socket to release the memory module board. (The edge of the module opposite the socket rises away from the notebook.) 7.

Slide the module away from the socket at an angle. 8. Remove the memory module board. Note that memory modules are slotted 3 to prevent incorrect installation into the memory module socket. Removing the Memory Module Reverse the above procedure to install a memory module. 514 Maintenance and Service Guide Removal and Replacement Procedures 5.7 Mini PCI Communications Card Mini PCI Communications Card Spare Part Number Information 802.11b/g WLAN card, for use in MOW 802.11b/g WLAN card, for use in the ROW 381582-001 381583-001 802.11b/g combination WLAN card, for use internationally 373032-002 802.

11b/g combination WLAN card, for use Japan 373032-291 802.11b/g combination WLAN card, for use in the United States 373032-001 802.11a/b/g combination WLAN card, for use in Europe, Middle East, and Africa 802.11a/b/g combination WLAN Mini PCI communications card for use Japan 802.11a/b/g combination WLAN card, for use internationally 802.

11a/b/g combination WLAN card, for use Japan 802.11a/b/g combination WLAN card, for use in MOW 802.11a/b/g combination WLAN card, for use in the United States 802.11a/b/g High Band combination WLAN card 373900-021 373900-291 373033-002 373033-291 373900-001 373033-001 373901-001 1. Prepare the notebook for disassembly (Section 5).

3. 2. Remove the memory module/Mini PCI compartment cover (Section 5.6). 3. Position the notebook with the front toward you. Maintenance and Service Guide 515 Removal and Replacement Procedures 4. Disconnect the auxiliary and main 1 antenna cables from the Mini PCI communications card. Make note of which antenna cable is attached to which antenna clip on the Mini PCI communications card before disconnecting the cables. 5.

Spread the 2 retaining tabs 2 on each side of the Mini PCI socket to release the Mini PCI communications card. (The edge of the card opposite the socket rises away from the notebook.) 6. Remove the Mini PCI communications card by pulling the card away from the socket at a 45-degree angle. 3. PCI communications card is slotted 4 to Note that the Mini installation. prevent incorrect Removing a Mini PCI Communications Card Reverse the above procedure to install a Mini PCI communications card. 516 Maintenance and Service Guide Removal and Replacement Procedures 5.8 Optical Drive Optical Drive Spare Part Number Information 24X Max CD-ROM drive 8X Max DVD-ROM drive 4X Max DVD±RW and CD-RW Combo Drive DVD/CD-RW Combo Drive 8X Max DVD±RW and CD-RW Combo Drive 380768-001 380770-001 380771-001 380772-001 380773-001 1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the memory module/Mini PCI compartment cover (Section 5.6). 3. Position the notebook with right side toward you. Maintenance and Service Guide 517 Removal and Replacement Procedures 4. Remove the T8M2.0x9.0 screw 1 that secures the optical drive to the notebook. 5.

Insert a thin tool, such as an unbent paper clip 2, into the media tray release hole and release the media tray. 6. Use the media tray to slide the optical to the left and out of the notebook. 3. 7. Prepare the notebook for disassembly (Section 5.3). 2. Turn the notebook display-side up with the front toward you. 5. Open the notebook as far as possible.

6. Remove the keyboard. Prepare the notebook for disassembly (Section 5.3). 2. Remove the keyboard (Section 5.9). 3. Turn the notebook upside down with the rear panel toward you. 4.

Turn the notebook display-side up with front toward you. 6. Open the notebook as far as possible. 7. Disconnect the LED board cable 1 from the system board.

8. Prepare the notebook for disassembly (Section 5.3). 2. Remove the keyboard (Section 5.9). 3. Remove the switch cover (Section 5.10). 4. Turn the notebook upside down with the rear panel toward you. 5. Remove the 4 PM1.5x4.

0 screws 1 that secure the LED board to the switch cover. 7. Remove the LED board. 2. Removing the LED Board Reverse the above procedure to install the LED board. Maintenance and Service Guide 527 Removal and Replacement Procedures 5.12 Fan Fan Spare Part Number Information Fan 378233-001 1. Prepare the notebook for disassembly (Section 5.3). 2. Release the keyboard (Section 5).

9). 3. Disconnect the fan cable 1 from the system board. 4. Loosen the 2 PM2.0x7.0 screws 2 that secure the fan to the notebook. 5. Remove the fan. 3. Removing the Fan Reverse the above procedure to install the fan. 528 Maintenance and Service Guide Removal and Replacement Procedures 5.13 Heat Sink Heat Sink Spare Part Number Information Heat sink (includes thermal paste) 379799-001 1. Prepare the notebook for disassembly (Section 5.3). 2. Release the keyboard (Section 5).

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9). 3. Remove the fan (Section 5.12).

Maintenance and Service Guide 529 Removal and Replacement Procedures 4. Loosen the 4 PM2.0×8.0 shoulder screws 1 that secure the heat sink to the notebook. 5. Lift the right side of the heat sink 2 to disengage it from the processor. 6. Slide the heat sink up and to the right 3 to remove it. of the thermal located Due to the adhesive qualityprocessor, it may be necessary to move the heat sink from side to side to detach the heat sink from the processor. Removing the Heat Sink Reverse the above procedure to install the heat sink.

530 Maintenance and Service Guide Removal and Replacement Procedures 5.14 Processor Processor Spare Part Number Information Intel Pentium M 2.13-GHz Intel Pentium M 2.00-GHz Intel Pentium M 1.86-GHz Intel Pentium M 1.

73-GHz Intel Pentium M 1.60-GHz Intel Pentium M 1.30-GHz Intel Celeron 1.5-GHz Intel Celeron 1.4-GHz 378224-001 378223-001 378222-001 378221-001 378220-001 378219-001 378218-001 378217-001 1.

Prepare the notebook for disassembly (Section 5.3). 2. Release the keyboard (Section 5.9). 3. Remove the fan (Section 5.12). 4. Remove the heat sink (Section 5.

13). Maintenance and Service Guide 531 Removal and Replacement Procedures 5. Use a flat-blade screw driver to turn the processor locking screw one-quarter turn counterclockwise 1 until you hear a click. 6. Lift the processor straight up and remove it 2. 3 on The gold triangle when the processor should be aligned in the front right corner you install the processor. Removing the Processor Reverse the above procedure to install the processor. 532 Maintenance and Service Guide Removal and Replacement Procedures 5.15 Modem Board Modem Board Spare Part Number Information Modem board 380774-001 1.

Prepare the notebook for disassembly (Section 5.

3). 2. Release the keyboard (Section 5.9). 3.

Remove the 2 PM2.0×3.0 screws 1 that secure the modem board to the notebook. 4. Lift the right side of the modem board 2 to disconnect it from the system board.

5. Disconnect the modem cable 3 from the modem board. 6. Remove the modem board. Removing the Modem Board Reverse the above procedure to install the modem board. Maintenance and Service Guide 533 Removal and Replacement Procedures 5.16 Internal Memory Module Memory Module Spare Part Number Information 1024 MB 512 MB 256 MB 336579-001 336578-001 366577-001 1. Prepare the notebook for disassembly (Section 5.3). 2.

Release the keyboard (Section 5.9). 534 Maintenance and Service Guide Removal and Replacement Procedures 3. Spread the retaining tabs 1 on each side of the memory module socket to release the memory module board. (The edge of the module opposite the socket rises away from the notebook.) 4. Slide the module away from the socket at an angle 2. 5. Remove the memory module board. Note that memory modules are slotted 3 to prevent incorrect installation into the memory module socket.

Removing the Memory Module Reverse the above procedure to install a memory module. Maintenance and Service Guide 535 Removal and Replacement Procedures 5.17 RTC Battery included in The RTC battery is 378236-001.the Miscellaneous Plastics Kit, spare part number 1. Prepare the notebook for disassembly (Section 5.

3). 2. Release the keyboard (Section 5.9). 3.

Disconnect the RTC battery cable 1 from the system board. 4. Remove the RTC battery 2 from the clip in the top cover. Removing the RTC Battery Reverse the above procedure to install an RTC battery. 536 Maintenance and Service Guide Removal and Replacement Procedures 5.18 Display Assembly Display Assembly Spare Part Number Information 15.0-inch, SXGA+WVA, TFT 15.0-inch, XGA, TFT 14.1-inch, XGA, TFT 378210-001 378209-001 378208-001 1. Prepare the notebook for disassembly (Section 5.

3), and then remove the following components: a. Memory module/Mini PCI compartment cover (Section 5.6) b. Optical drive (Section 5.8) c. Keyboard (Section 5.9) d. Switch cover (Section 5.10) 2. Disconnect the wireless antenna cables from the Mini PCI communications board (Section 5.

7). 3. Turn the notebook display-side up with the front toward you. 4. Open the notebook as far as possible.

Maintenance and Service Guide 537 Removal and Replacement Procedures 5. Disconnect the display cable 1 from the system board. 6. Remove the wireless antenna cables from the Mini PCI compartment and the top cover clips 2. 7.

Remove the 2 T8M2.0×9.0 screws 3 that secure the display assembly to the notebook. Disconnecting the Display Cable and Removing the Display Screws 538 Maintenance and Service Guide Removal and Replacement Procedures 8. Swing the display assembly into a partially closed position. 9. Position the notebook with the rear panel toward you. CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other notebook components. 10.

Remove the 4 T8M2.0×9.0 screws 1 that secure the display assembly to the notebook. 11. Lift the display assembly straight up and remove it 2. Removing the Display Assembly Reverse the above procedure to install the display assembly. Maintenance and Service Guide 539 Removal and Replacement Procedures 5.19 Top Cover Top Cover Spare Part Number Information Top covers (include TouchPad) For use with full-featured models For use with defeatured models 378230-001 378239-001 1. Prepare the notebook for disassembly (Section 5.3), and then remove the following components: a.

Memory module/Mini PCI compartment cover (Section 5.6) b. Optical drive (Section 5.8) c. Keyboard (Section 5.

9) d. Switch cover (Section 5.10) e. Display assembly (Section 5.18) 2.

Turn the notebook upside down with the rear panel toward you. 540 Maintenance and Service Guide Removal and Replacement Procedures 3. Remove the 13 T8M2.0×9.0 screws that secure the top cover to the notebook. Removing the Top Cover Screws, Part 1 Maintenance and Service Guide 541 Removal and Replacement Procedures 4. Turn the notebook right-side up with the front toward you. 5. Disconnect the RTC battery cable from the system board. Disconnecting the RTC Battery Cable 542 Maintenance and Service Guide Removal and Replacement Procedures 6.

Remove the 2 T8M2.0×9.0 screws 1 that secure the top cover to the notebook. 7. Disconnect the TouchPad cable 2 from the system board. Removing the Top Cover Screws, Part 2 Maintenance and Service Guide 543 Removal and Replacement Procedures 8. Lift up the rear edge of the top cover 1 until it disengages from the base enclosure. 9. Swing the top cover toward you 2 until the left and right sides of the top cover disengage from the base enclosure. 10.

Lift up on the left 3 and right sides 4 of the top cover until the top cover disengages from the base enclosure. Releasing the Top Cover 11.



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