

# 4200 / 4200M / 4600



Preface

**Notebook Computer** 

4200/4200M/4600

**Service Manual** 

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### **About this Manual**

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the Notebook PC. The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications. Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system. Appendix A, Part Lists Appendix B, Switches and Jumpers

#### **Related Documents**

You may also need to consult the following manual for additional information:

#### User's Manual on CD

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC. Preface

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# **Overview**

This manual covers the information you need to service or upgrade the 4200/4200M/4600 Notebook Computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *DOS*, *Windows 9x*, *Windows NT 4.0*, *Windows 2000*, *Windows XP*, *OS/2 Warp*, *UNIX*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The 4200/4200M/4600 notebook is designed to be upgradeable. See **"Disassembly" on page 2 - 1** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the "

The balance of this chapter reviews the computer's technical specifications and features.

# System Specifications Processor

# • Intel<sup>®</sup> Mobile Pentium III-M 866 ~ 933MHz - $1.00 \sim 1.26$ GHz

- Intel<sup> $\circ$ </sup> Mobile Pentium III-M 866 ~ 933MHz 1.00 ~ 1.26 C L2 Cache 512KB
- Intel<sup>®</sup> Mobile Celeron 733 ~ 933MHz L2 Cache 256KB
- Supporting µFC-PGA Package
   0.13 Micron (Tualatin Process Technology)

# **Core Logic**

• Intel<sup>®</sup> 830MP "Almador-M" : MCH= FW82830MP ICH= MFW82801 (ICH3)

### Memory

 Two SODIMM sockets Supporting PC-133/PC-100 SDRAM Expandable memory up to 1GB 64/128/256/512MB SO-DIMM modules supported

## BIOS

Phoenix BIOS
 One 512KB Flash ROM

# LCD

• 14.1" TFT XGA 1024x768, or 15.0" TFT SXGA+ 1400x1050

1 - 2 System Specifications

### Display

- ATI M6-P Integrated AGP 4X
- Integrated 128-bit 2D / 3D Graphics Accelerator Advanced HW Acceleration for DVD Playback (Motion Compensation engine and IDCT) Fully DirectX 8 Compliant Graphics Engine
- External memory up to 32MB or 64MB of DDR SGRAM on board
- Supports dual-view Display Monitor

## Audio

- AC'97 ver 2.2 Compliant Interface
  - 3D stereo enhanced sound system

Compatible Sound-Blaster PRO

1 \* SPDIF Digital output (5.1 CH) for DVD content

- $1^{\ast}$  built-in microphone and  $1^{\ast}$  Headphone out
- 2 \* speakers built-in

# Storage

- 3.5" 3-mode FDD
- 2.5" 9.5 mm (h) HDD Easy changeable
- One Bay for optional CD-ROM (24X speed) 12.7mmH, OR 8X DVD-ROM (12.7mm), OR CD-RW, OR Combo
- Supports Master mode IDE, PIO mode 4 / ATA-33/66/100 (Ultra DMA)

# **PC Card Sockets**

- PCMCIA 3.3V/5V/12V sockets, type II \*2 or type III \*1
- Supports Two CardBus slots (No Zoomed Video support available)

# Keyboard

• Win key, Multi-Language

### Interface

- Built-in Touch pad (Scrolling Key functionality integrated)
- Four USB ports
- One IEEE 1394 port (Mini)
- One S-Video jack for TV output
- One parallel port (LPT1), support ECP / EPP
- Infrared file transfer, IrDA 1.1 FIR/SIR/ ASKIR
- External CRT monitor
- One PS/2 port support mouse or keyboard
- One headphone jack
- One microphone jack
- One SPDIF jack
- One RJ-11 jack for Modem
- One RJ-45 jack for LAN
- DC-in jack
- Built-in 3 instant keys, www, email, DVD Player
- One SONY standard Memory Stick
- One PANASONIC SD Memory

### Communication

- Infrared transfer: 115.2K bps SIR/ 4M bps FIR, 1M operating distance, IrDA 1.1 compliant
- 10/100Mb Ethernet LAN built-in
- 802.11b Wireless LAN (Optional)
- 56K MDC MODEM with V.90 & V.92 compliant

### **Power Management**

- Supports ACPI v1.0b
- Supports APM v1.2
- Supports suspend to RAM
- Supports suspend to disk
- Battery low suspend
- Resume from modem ring
- Resume from LAN ring

#### Power

- Full Range AC adapter AC in 100~240V, 50~60Hz, DC Output 20V, 3.25A.
- Support one removable Smart Li-Ion Battery 80W

### Indicator

• LED indicator (HDD, Power on/ AC-In/SUSPEND, Battery Charging/Battery full, E-mail, Num Lock, Caps Lock, Scroll Lock)

## **EMC & Safety**

• FCC Class B, CE, VCCI, C-TICK, BSMI, UL, CUL, TUV, CB

## S/W Certificate

• MICROSOFT WHQL and WINKEY Logo, MACROVISION

## **Environmental Spec**

Temperature Relative Humidity
Operating: 5° C ~ 35°C Operating: 20% ~ 80%
Non-Operating: -20°C ~ 60°C Non-Operating: 10% ~ 90%

### Dimensions

• 312 (w) x272.7(d) x37.5 (h) mm w/14.1" LCD

### Weight

• 2.8kg w/o battery

### **Optional**

- 4201 Lithium-Ion smart battery pack (12cell)
- 4202 DVD-ROM Drive Module 12.7mm (h)
- 4203 CD-RW Drive Module 12.7mm (h)
- 4204 Software DVD Player
- 4205 Software RW Writer
- 4206 802.11b Wireless LAN card
- 2005 Car Adapter

# **External Locator - Top View**





#### *Figure 1 - 1* **Top View**

- 1. Cover Latch
- 2. LED Power Indicators
- 3. LCD Display
- 4. Speakers
- 5. Three Hot-Key buttons
- 6. LED Status Indicators
- 7. Power Button
- 8. Keyboard
- 9. TouchPad and Buttons
- 10.Color Cover
  - (changeable)
- 11.Microphone (built-in)

# **External Locator - Left & Right Side Views**

#### Figure 1 - 2 Left View

- 1. CD or DVD Label Indicator
- 2. Busy Indicator
- 3. Open Button
- 4. Emergency Eject Hole

#### *Figure 1 - 3* **Right View**

- 1. Microphone-In Jack
- 2. Speaker-Out Jack
- 3. S/PDIF Port
- 4. Sony Memory Stick Port
- 5. Secure Digital Port
- 6. Floppy Disk Drive
- Floppy Disk Eject Switch
- 8. Dual PC Card Slots
- 9. PC Card Socket Eject Buttons
- 10.IEE 1394 Port
- 11.Dual USB Ports
- 12.Vent





# **External Locator - Right Side & Bottom Views**





#### *Figure 1 - 4* **Right Side**

- 1. Parallel Port
- 2. Infrared Port
- 3. Vent
- 4. Security Lock
- 5. Dual USB Ports
- 6. S-Video Output Connector
- 7. Exrternal Monitor CRT Port
- 8. PS/2 Type Port
- 9. LAN Jack
- 10.Phone Jack
- 11.DC-In Jack

# *Figure 1 - 5* **Bottom View**

- Bottom View
- 1. CPU Cover
- 2. Fan Outlet
- 3. CD Device Release Latch
- 4. Hard Disk Drive Cover
- 5. Battery Release Latches
- 6. Battery

# **Mainboard Overview - Top**

**Key Parts** 

*Figure 1 - 6* Mainboard Overview - Top Key Parts

1. Mini-IEEE 1394 controller

- 2. Flash BIOS ROM
- 3. Smart I/O W83518D media reader controller
- 4. Ricoh Cardbus PCMCIA controller
- 5. Southbridge Intel ICH 3
- 6. LPC H8 Keyboard controller
- 7. On-board video memory
- 8. LAN Controller RTL8139CL
- 9. Power Button
- 10.Northbridge Intel MCH 830MP



# Mainboard Overview - Bottom Key Parts



#### *Figure 1 - 7* Mainboard Overview - Bottom Key Parts

1. ATI Mobility Radeon Graphics controller

Figure 1 - 8 Mainboard Overview - Top Cable Connectors & Switches

- 1. Internal speaker connectors (JSPK1 & J8PK2
- 2. FDD connector
- 3. TouchPad connector (JTP1)
- 4. Keyboard connector (JINTKB1)
- 5. Battery connectors (JBAT1 & CN3)
- 6. Wireless LAN socket (CN2)
- 7. Modem socket
- 8. Modem connector (JModem1)
- 9. LCD socket (JLCD1)
- 10.Inverter socket (JINV1)
- 11.Fan socket
  - (JFAN1)
- 12.LED cover connector (JLED1)

# Mainboard Overview - Top

**Cable Connectors and Switches** 



# **Mainboard Overview - Bottom**

**Cable Connectors and Switches** 



#### Figure 1 - 9 Mainboard Overview - Bottom Cable Connectors & Switches

- 1. CD device socket
- 2. Power board sockets (CN4 & CN5)
- 3. HDD Connector (CON2)
- 4. Audio board socket (JAUDIO1)
- 5. PCMCIA socket (SLOT1)
- 6. CPU Socket (no CPU installed)
- 7. Fan Socket (JFAN2)

1 - 14 Cable Connectors and Switches

## Disassembly

# 2: Disassembly

# **Overview**

This chapter provides step-by-step instructions for disassembling parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  $\square$  will provide any possible helpful information. A box with a  $\square$  contains warnings.

An example of these types of boxes are shown in the sidebar.



**NOTE**: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

#### **Maintenance Tools**

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)\*
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

#### Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replac- ing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pli- ers to gently lift the connector away from its socket. When re- placing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

### **Maintenance Precautions**

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

- 1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
- 2. Don't overheat it. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
- 3. Avoid interference. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
- 4. Keep it dry. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
- 5. Be careful with power. Avoid accidental shocks, discharges or explosions.
  - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
  - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
- 6. **Peripherals** Turn off and detach any peripherals.**Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
- 7. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
- 8. Keep your work environment clean. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
- 9. Keep track of the components. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

#### Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

# **Disassembly Steps**

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.** 

#### To remove the hard disk drive assembly:

1.Remove the battery	page 2 - 9
2.Remove the hard disk drive assembly	page 2 - 10
To remove the keyboard:	
1.Remove the battery	page 2 - 9
2.Remove the keyboard	page 2 - 11
To remove the system memory:	
1.Remove the battery	page 2 - 9
2.Remove the keyboard	page 2 - 11
3.Remove the system memory	page 2 - 12
To remove the CD Device:	
1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
To remove the CPU:	

# 1.Remove the batterypage 2 - 92.Remove the CPUpage 2 - 14

#### To remove the modem:

1.Remove the battery	page 2 - 9
2.Remove the keyboard	page 2 - 11
3.Remove the modem	page 2 - 15

#### To remove the Top Case and LCD:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16

#### To remove the Inverter:

page 2 - 9
page 2 - 13
page 2 - 10
page 2 - 11
page 2 - 12
page 2 - 14
page 2 - 16
page 2 - 18

### $\checkmark$

Modem Cable

The procedure described here is sufficient to enable the removal of the modem module itself.

If the modem **cable** also needs to be removed, or a new modem module and cable inserted, then the top case must also be removed to access the cable connector.

See "To remove the Top Case and LCD:" on page 2 - 5.

# To remove the floppy disk drive assembly:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19

#### To remove the audio board:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19
9.Remove the bottom case and audio board	page 2 - 20

### To remove the fan unit:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19
9.Remove the bottom case	page 2 - 20
10.Remove the fan unit	page 2 - 21

# To remove the PCMCIA assembly:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19
9.Remove the bottom case	page 2 - 20
10.Remove the fan unit	page 2 - 21
11.Remove the PCMCIA assembly	page 2 - 21

# To remove the power board:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19
9.Remove the bottom case	page 2 - 20
10.Remove the fan unit	page 2 - 21
11.Remove the power board	page 2 - 22

### To remove the mainboard:

1.Remove the battery	page 2 - 9
2.Remove the CD Device	page 2 - 13
3.Remove the hard disk drive assembly	page 2 - 10
4.Remove the keyboard	page 2 - 11
5.Remove the system memory	page 2 - 12
6.Remove the CPU	page 2 - 14
7.Remove the top case and LCD	page 2 - 16
8.Remove the floppy disk drive	page 2 - 19
9.Remove the bottom case and audio board	page 2 - 20
10.Remove the fan unit	page 2 - 21
11.Remove the PCMCIA assembly	page 2 - 21
12.Remove the power board	page 2 - 22
13.Remove the mainboard	page 2 - 22

# **Remove the Battery**

- 1. With the computer shut down and on a level surface, raise the LCD cover.
- 2. Remove the palm rest by applying gentle upward pressure with your fingers close to the area around the **left Alt** key, and the **right Ctrl** key (**Figure 2 1-A**).
- 3. Turn the computer over and locate the battery release latches 1 and 2 in (Figure 2 1-a).
- 4. Latch 1 should slide to the right and remain in place. Hold latch 2 in place as you slide the battery out towards you.
- 5. To replace the palm rest, slide it back in to place, and then apply a slight downward pressure to points 3 and 4 in order to snap it gently back down.
- Figure 2 1 Battery Removal Sequence a. Palm rest removal b. Battery removal.



#### *Figure 2 - 2* Hard Disk Removal Sequence

- a. Remove the cover and screws.
- b. Lift the HDD assembly out.
- c. Remove the HDD from the HDD assembly.



# Remove the Hard Disk Drive Assembly

- 1. Turn the computer over.
- 2. Remove screw 1 (Figure 2 2a) from the hard disk cover 2, and remove the cover.
- 3. Remove the screws **3-6** (Figure 2 2a) which hold the HDD assembly in place.
- 4. Lift the HDD assembly out of the case (Figure 2 2b).
- 5. Remove the HDD from the bracket 8 by removing screws 9-14 in(Figure 2 2c) from the bracket and connector 15.







# **Remove The Keyboard**

- 1. Turn off the computer.
- 2. Use a small screwdriver or a straightened paper clip to press in the latches 1-4 (Figure 2 3a) to release the keyboard.
- 3. Elevate the keyboard from its normal position.
- Carefully lift the keyboard up and out, making sure not to bend or twist the keyboard ribbon cable 5 (Figure 2 3b). 4.
- 5. Disconnect the keyboard ribbon cable from the locking collar socket 6 (Figure 2 3b).



#### Figure 2 - 3 Keyboard Removal Sequence

- a. Press the four latches to release the keyboard.
- b. Lift the keyboard out and disconnect the cable from the lock-

#### Figure 2 - 4 Memory Removal Sequence

- a. Lift away the RAM shielding module.
- b. Locate the memory sockets.
- c. Pull the latch(es) to release the module(s).
- d. When the module pops up, lift it out.

 RAM bay shielding module
 Memory module(s)

<u>ک</u>ز

**Contact Warning** 

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

# **Removing The System Memory**

- 1. Lift the RAM bay shielding 1(Figure 2 4a) up off the memory sockets 2 (Figure 2 4b).
- 2. Gently pull the two latches at the side of the memory socket outwards, as indicated in **Figure 2 4c**, to release the module.
- 3. The memory module will pop-up (Figure 2 4d) and can be lifted out.








## **Remove the CD-Device**

- 1. Turn off the computer.
- 2. Turn the computer over.
- 3. Remove the screw from the CD-Device release latch 1 (Figure 2 5a)
- 4. Apply pressure to the sliding release latch 1 to slide the CD-Device 2 (Figure 2 5b) out of the bay..





#### *Figure 2 - 5* **CD Device Removal Sequence**

a. Remove the screw from the CD Device.b. Apply pressure to the sliding release latch to slide the device out of the bay.



#### Figure 2 - 6 Processor Removal Sequence

- a. Remove the screws from the CPU cover.
- b. Loosen the four heat sink screws in the order indicated.
- c. Remove the heat sink.
- d. Unlock the CPU.
- e. Remove the CPU.



## **Remove the CPU**

- 1. Turn off the computer and turn it over.
- 2. Remove the screws 1 & 2 (Figure 2 6a) from the CPU cover and remove the cover 3 (Figure 2 6b).
- 3. Loosen the four screws from the heat sink in the order 4, 5, 6,7 (Figure 2 6b) and remove the heat sink 8 (Figure 2 6c).
- 4. Use a small screwdriver to release the lock holding down the CPU by giving it a counter-clockwise turn until the indicator **9** (Figure 2 6d) points to the unlocked symbol **10** (Figure 2 6e).
- 5. Remove the CPU **11** ((**Figure 2 6f**) **from** the socket. (**Note**: The thermal pad affixed on the heat sink can not be reused. If you are upgrading the CPU, or changing the CPU, you must use a new thermal pad to avoid overheating).



2 - 14 Remove the CPU

#### **Remove the Modem**

- 1. Remove the modem bay shield 1 (Figure 2 7a) covering the modem bay by removing the screws 2-3 (Figure 2 7a).
- 2. Remove screw 4(Figure 2 7b) holding the modem cable place.
- 3. Release the modem cable 5 (Figure 2 7b) and lift the modem 6 (Figure 2 7c) from the board.





#### Figure 2 - 7 Modem Removal Sequence

- a. Remove the shielding module covering the modem.
- b. Unscrew the screws holding the modem in place.
- c. Release the modem cable and lift out the modem.



#### *Figure 2 - 8* **Top Case and LCD Removal Sequence**

- a. Remove the screws from the bottom of the case.
- b. Remove the screws from the top of the case, disconnect the speaker cables and LED cover module cable.

## Remove the Top Case and LCD

- 1. Refer to page 2 5 to make sure you have removed all the necessary components.
- 2. Turn the computer over and remove the screws 1-11 (Figure 2 8a) from the bottom of the case.
- 3. Turn the computer back over and remove the screws 12-16 (Figure 2 8b) from the top of the case.
- 4. Disconnect the 2 speaker cables from audio sockets **19** (**Figure 2 8b**), and disconnect the ribbon cable **18** (**Figure 2 8b**) connecting the LED cover module and board.

а.



b.





2 - 16 Remove the Top Case and LCD

Figure 2 - 9

**Top Case** 

Removal

Sequence (cont.)

a. Remove the LED

LCD cable cover.

b. Disconnect the cables from the LCD.

c. Unscrew the 2

cover module and

- 5. Slide the LED cover module and board 1 (Figure 2 9a) towards you, and lift it up and away (Note: You do not need to separate the LEDs held to the underside of the board by three screws).
- 6. Remove the LCD cable cover 2 (Figure 2 9a) by gently squeezing it as you lift it up.
- 7. Disconnect cable set 4 (Figure 2 9b) from the LCD to the mainboard at point 5 (Figure 2 9b).
- 8. Remove screws 6 & 7 (Figure 2 9c) at the rear of computer and carefully lift the LCD up and out of the main assembly.
- 9. Remove the remaining three screws 9 & 11 (Figure 2 9d) from the top of the case.
- 10. Carefully raise the top of the case (be careful not to lose the infrared lens cover 8 in Figure 2 9c) just enough to enable you to disconnect the touchpad cable 12 (Figure 2 9d) from the socket on the mainboard.
- 11. Ease the top case slowly up and away from the main assembly.



# 2.Disassembly

#### *Figure 2 - 10* Inverter Removal Sequence

- a. Remove the rubber covers and screws, then separate the front cover from the back.
- b. Unscrew the screw from the inverter board, and disconnect the cable, then remove the inverter board.

#### **Remove the Inverter**

- 1. Refer to **page 2 5** to make sure you have removed all the necessary components.
- 2. Remove the rubber covers 1-4 (Figure 2 10a) and the screws under them.
- 3. Run your finger around the middle of the frame to carefully unsnap the front cover module from the back.
- 4. Remove the screw holding the inverter board at point 5 (Figure 2 10b).
- 5. Disconnect the cable from the inverter board at point 6 (Figure 2 10b) and remove the inverter board.







2 - 18 Remove the Inverter

## **Remove the Floppy Disk Drive Assembly**

- 1. Remove screws 1-3(Figure 2 11) from the floppy disk assembly.
- 2. Remove the ribbon cable from the socket and lift out the floppy disk drive assembly.



#### **Remove the Battery Bracket**

- 1. Remove screws **4-7** (Figure 2 12).
- 2. Remove the battery bracket.

#### Floppy Disk Drive Removal Sequence Unscrew the screws and remove the floppy drive assembly.

*Figure 2 - 11* 



2.Disassembly

#### Figure 2 - 12 Battery Bracket Removal Sequence Unscrew the screws and remove the battery bracket.



#### Figure 2 - 13 Bottom Case and Audio Board Removal Sequence

- a. Remove the screws from the bottom of the case, and release the connectors.
- b. Raise the board away from the bottom of the case.
- c. Separate the audio board from the mainboard.



## **Remove the Bottom Case and Audio Board**

- 1. Remove the screws 1-9 (Figure 2 13a) from the mainboard and audio board.
- 2. Remove the connectors at points 10-12 (Figure 2 13a).
- 3. Gently raise the board assembly away from the bottom of the case.
- 4. Release the nuts at points 13-14 (Figure 2 13b) holding the bolts from the audio board 15 (Figure 2 13b/c).
- 5. Carefully separate the audio board from the mainboard.







### **Remove the Fan Unit**

- 1. Remove the screws 1-3(Figure 2 14a) from the fan unit.
- Unplug the connector **4**(**Figure 2 14b**) from the fan unit to the mainboard. 2.
- 3. Lift the fan unit away from the mainboard.
  - a.



## **Remove the PCMCIA assembly**

1. Carefully lift the PCMCIA unit up and away from the mainboard (Note: The screws anchoring this assembly will have been removed in "Remove the Bottom Case and Audio Board" on page 2 - 20 (screws 4-7).

b.



#### *Figure 2 - 14* Fan Unit Removal Sequence

- a.Remove the screws from the fan unit. and release the connector. b.Lift the fan unit away
- from the bottom of the case.



- *Figure 2 15* **PCMCIA** assembly Removal Sequence Lift the PCMCIA unit
- up and away from the mainboard.



#### Figure 2 - 16 Power Board Removal Sequence

- a. Remove the hex studs from the IO bracket.
- b. Release the connector from the fan to the mainboard.
- c. Remove the screws from the power board.
- d. Lift the power board up and away from the mainboard.

### **Remove the Power Board**

- 1. Remove the hex studs **1-4**(**Figure 2 16a**) from the IO bracket, and separate the IO bracket from the mainboard slightly.
- 2. Release connector **5** (Figure 2 16b) from the fan to the mainboard (top) at point **6**.
- 3. Turn the board over to the underside and remove screws 8-10 (Figure 2 16c) from the power board, and release the connector at point 11 (Figure 2 16c) to the IO bracket.
- 4. Lift the power board up and away from the mainboard.
- 5. With all the procedures complete you will be left with the mainboard.











d.



# **Appendix A:Part Lists**

This appendix breaks down the notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

**Note:** This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

**Note:** Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

**Note:** Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

## **Part List Illustration Location**

The following table indicates where to find the appropriate part list illustration.

*Table 1 - 1* Part List Illustration Location

Part	4200	4200M	4600
Тор	page A - 3	page A - 13	page A - 23
Top 15"	page A - 4	page A - 14	page A - 24
Bottom	page A - 5	page A - 15	page A - 25
LCD 14"	page A - 6	page A - 16	page A - 26
LCD 15"	page A - 7	page A - 17	page A - 27
Battery	page A - 8	page A - 18	page A - 28
CD-ROM	page A - 9	page A - 19	page A - 29
DVD-ROM	page A - 10	page A - 20	page A - 30
CD-RW	page A - 11	page A - 21	page A - 31
Combo	page A - 12	page A - 22	N/A
Combo - KME	N/A	N/A	page A - 32
Combo - Toshiba	N/A	N/A	page A - 33
HDD	page A - 34	page A - 34	page A - 34
FDD	page A - 35	page A - 35	page A - 35

Part Lists

### **Top Assembly (4200)**



Figure 1 - 1 Top Assembly (4200)

**Part Lists** 

## Top Assembly (4200 - 15")



Т

## **Bottom Assembly (4200)**



			netters
ITEM	PART NAME	PART NO	REMARK
1	HEX STUD SUM22 NI-PL 10mm	33-07009-011-A	
5	FAN 25*25*6.5T 5V 0.09A CON	23-A2514-050	
3	I/O BRACKET FOR 4200	33-42005-011	
4	SCREW M2×4L K1 BN1 ICT NY	35-B9120-4RA	
5	SCREW M2.5×0.45P×3L K1 BN [CT NY	35-B9125-3R0	
6	MDC MODEM MODULE	76-32200-003	
7	FAN 45#45#10T 5V 0.2A+CON APOWER	23-44511-461	
8	SCREW M2.5×5L K1 BNI ICT NY	35-B9125-5R0	
9	MAIN BOARD	77-42000-D03	
10	CD ROM MYLAR ON MB FOR 4200	40-42055-021	
11	CABLE FOR MDC TO M/B	43-4200Z-012	
12	ALMADOR HEATSINK FOR 4200	31-4200N-011	
13	CPU SUPPORT FOR 4200	33-42009-050	
14	CPU HEATSINK MODULE FOR 4200	31-4200N-100	
15	PCMCIA MYLAR FOR 4200	40-4205P-010	
16	AUDIO-BRD NUT 4.5M 2.0H FOR 4200	36-01311-450	
17	AUDIO BOARD	77-42008-DOX	
18	HDD CONNECTOR MYLAR FOR 4200	40-42051-010	
19	POWER BOARD	77-4200C-DOX	
50	SCREW M2.5×17L KI BNI ICT NY	35-B9125-17A	
21	CPU CO∨ER MODULE	42-42079-101	
22	FDD ASS'Y 4200	79-4202J-010	Reference Ass'y big (99-42005-080)
23	MJC. 6MM 10V~2V 2.2K W/CABLE	53-E0605-555	
24	SCREW M2.5×20L K1 BNI ICT N	r 35-B9125-200	
25	SCREW M2.5×8L KI BN ICT NY	35-B9125-8R0	
26	RUBBER FOOT VI.0 SILICONE 320	47-32001-011	
27	HDD COVER MODULE	42-4207I-101	
28	0054 Y'22A CCH D/W	79-42021-010	Reference Ass'y Dig
29	BATTERY ASS'Y 4200(PANASONIC)	87-42085-407	Reference Ass'y Dig
29	BATTERY ASS'Y 4200(PANASENIC)	87-42088-457	Reference Ass'y Dig
30	PRODUCT LABEL FOR 4200	45-42003-010	42000 0707
31	CD-ROM ASS'Y 4200	79-4202Z-020	Reference Ass'y big
31	CD-RW ASS'Y 4200	79-4202W-010	Reference Ass'y Dig
31	0.024 ASS/ 4200	79-4202V-010	Reference Ass'y Dag
32	BUTTOM CASE MODULE	39-42003-011	1035-42003-0707
33	BATTERY BRACKET	33-4200M-011	
34	CABLE FOR DC JACK 2P	43-42002-022	
35	SCREW M2*4L KL BNJ ICT NY	35-B9120-4RA	
36	CONDUCTIVE CLUTH (50+20 AT BATTERY BRACKET	47-4200M-010	
37	MINI POL SHIELDING MODULE	33-4207P-101	
38	LCD CONNECTOR MYLAR	40-42051-010	
39	GASKET 10#7#IT AT 1394 PORT	47-4209P-010	
40	CONDUCTIVE OF THE 40x18 AT HOD DODR	47-42001-010	
41	CONDUCTIVE CLOTH 23x18 AT HOR DOOR	47-42001-020	
40	CONDUCTIVE CERT 45-10 AT COL MORE	47-42001-020	
40	CONDUCTIVE CUDEN 19915 AT CRU 2002	47-42005-010	
4.5	CARVET DE-E-TT AT CROCK PORTUNE	47 42003-010	
44	GASKET 258587T AT CORDM OPENNING	47-42092-020	
40	TRUN BZU IA C.S.RCRUI ANA	47-4209P-020	
46	BILLS LABLUMONEX NETERIOS PENTIUM PSIV)	45-85709-011	
4/	MILAR WASHER AT MAR BUSS	40-00131-010	
40			

#### Figure 1 - 3 Bottom Assembly (4200)

## LCD 14" (4200)



ITEM	PART NAME	PART NO	REMARK
1	LCD F-CVR RUBBER	47-42001-020	
2	14.1″ LCD FRONT CO∨ER MODULE	39-42001-011	
3	SCREW M2.5×5L KI BNI ICT NY	35-B9125-5R0	
4-1	LCD 14.1°TFT CPT CLAA141XCO1 XG	50-J2265-C00	
4-2	LCD 14.1*T UNIPAC UB141X01	50-J2260-U03	
5-1	LCD COAXIAL CABLE FOR 14.1"	43-42001-020	CPT CLAA141XCO
5-2	LCD COAXIAL CABLE FOR 14.1"	43-42001-010	UNIPAC UB141X0
6-1	PORON	47-42091-030	UNIPAC
6-5	LCD BACK COVER SPONGE 200*8*1T	47-42091-010	CPT
7	LCD SHIELDING PLATE FOR 14.1"	40-42001-010	
8	SCREW M2*2L KI BZ ICT NY	35-B6120-2R0	
9	LCD HINGE-R 14.1" FOR 4200	33-42001-021	
10	LCD CLAMPING FOR 4200	33-42001-040	
11	HINGE COVER FOR 4200	42-4207Y-011	
12	FRONT COVER 鋁箔	40-42031-010	
13	INVERTER BOARD	77-4200R-DOX	
14	SCREW M2*4L KI BNI ICT NY	35-B9120-4RA	
15	WIRE CABLE FOR INVERTER	43-4200R-010	
16	LCD BRACKET 4200	33-42001-050	UNIPAC UB141X0
16	LCD BRACKET W/O PORON	33-42001-051	CPT CLAA141XC0
17	NAME PLATE FOR CLEVO LP200T	45-P2202-000	
18	LCD HINGE-L 14.1"FOR 4200	33-42001-031	
19	14.1" LCD BACK CO∨ER MODULE	39-42001-021	
20	2.4G DIPOLE ANTENNA L=500MM+58.5MM	23-712R4-001	

*Figure 1 - 4* LCD 14" (4200)

Part Lists

#### Part Lists

## LCD 15" (4200)



ITEM	PART NAME	PART NO	REMARK
1	LCD F-CVR RUBBER	47-32001-020	
5	LCD FRONT COVER 15" MODULE	39-42001-111	
3	SCREW M2.5×5L KI BNI ICT NY	35-B9125-5R0	
4-1	LCD T IBM ITSX93C/E 15.0' SXGA+	50-L5275-E00	
4-2	LCD 15'T HYUNDA1 HT15P11 SXGA+	50-L5275-H00	
4-3	LCD T CPT CLAA150PA01 15" SXGA+7.0MM	50-L5270-C00	
5-1	LCD CABLE FOR IBM 15"	43-42001-130	IBM
5-2	LCD WIRE CABLE FOR 15' HYUNDAI	43-42001-030	HYUNDAI
5-3	LCD CABLE FOR 15' CPT	43-42001-110	CPT
6-1	PORON 16×6×0.8mm FOR UNIPAC 14.1"	47-42091-030	IBM
6-2	PORON 16*6*2 FOR 15" CPT	47-42091-040	CPT/HYUNDAI
7	鋁箔 FOR LCD FRONT COVER	40-42031-010	
8	SCREW M2*2L KI BZ ICT NY	35-B6120-2R0	
9-1	LCD HINGE-R 15" IBM FOR 4200	33-42001-120	
9-2	LCD HINGE-R 15' FOR HYUNDAI 4200	33-42001-220	
9-3	LCD HINGE-R 15" FOR CPT 4200	33-42001-320	
10	LCD CLAMPING FOR 4200	33-42001-040	
11	HINGE COVER FOR 4200	42-4207Y-011	
12	4200 15" LCD BACK COVER 鋁箔	40-42031-111	
13	IN∨ERTER B⊡ARD	77-4200R-DOX	
14	SCREW M2*4L KI BNI ICT NY	35-B9120-4RA	
15	WIRE CABLE FOR INVERTER	43-4200R-010	
16-1	LCD BRACKET FOR 14.1*(W/D SPONGE)	33-42001-051	IBM/CPT
16-2	LCD BRACKET	33-42001-050	HYUNDAI
17	NAME PLATE FOR CLE∨O LP200T	45-P2202-000	
18-1	LCD HINGE-L 15' FOR IBM 4200	33-42001-130	
18-2	LCD HINGE-L 15' FOR HYUNDAI 4200	33-42001-230	
18-3	LCD HINGE-L 15" FOR CPT 4200	33-42001-330	
19	LCD BACK COVER MODULE 15"	39-42001-121	
20	2.4G DIPOLE ANTENNA (2WIRE ASSEMBLY)	23-712R4-001	
21	LCD BACK COVER SPONGE	47-42091-010	IBM
22	GASKET(175×8×1T)	47-00190-H50	

*Figure 1 - 5* LCD 15" (4200)

## Battery (4200)



## CD-ROM Drive (4200)





**DVD-ROM Drive (4200)** 

*Figure 1 - 9* 

## CD-RW Drive (4200)





## Top Assembly (4200M)



#### Figure 1 - 11 Top Assembly (4200M)

**Part Lists** 

## **Top Assembly (4200M - 15")**



### Bottom Assembly (4200M)



Figure 1 - 13
Bottom Assembly
(4200M)

PART NO

76-32200-003

77-42000-D03

40-4205P-010

77-42008-D0X

77-4200C-DOX

42-42179-101

79-4202J-010

42-42171-101

79-4202I-010

79-4212Z-020

79-4212W-010

79-4212V-010

39-42103-011

33-4200M-011

40-42051-010

47-4209P-020

REMARK

Reference Ass'y Dig (99-42005-080)

-4200

eference Ass'y Dec 99-42005-070

LCD 14" (4200M)



REMARK

#### Part Lists

## LCD 15" (4200M)



ITEM	PART NAME	PART NO	REMARK
1	LCD F-CVR RUBBER	47-32001-020	
5	LCD FRONT COVER 15" MODULE	39-42101-110	MAXDATA
3	SCREW M2.5×5L KI BNI ICT NY	35-B9125-5R0	
4-1	LCD T IBM ITSX93C/E 15.0" SXGA+	50-L5275-E00	
4-2	LCD 15"T HYUNDAI HT15P11 SXGA+	50-L5275-H00	
4-3	LCD T CPT CLAA150PA01 15' SXGA+7.0MM	50-L5270-C00	
5-1	LCD CABLE FOR IBM 15"	43-42001-130	IBM
5-2	LCD WIRE CABLE FOR 15' HYUNDAI	43-42001-030	HYUNDAI
5-3	LCD CABLE FOR 15' CPT	43-42001-110	CPT
6-1	PORON 16×6×0.8mm FOR UNIPAC 14.1*	47-42091-030	IBM
6-2	PORON 16*6*2 FOR 15° CPT	47-42091-040	CPT/HYUNDAI
7	鋁箔 FOR LCD FRONT COVER	40-42031-010	
8	SCREW M2*2L KI BZ ICT NY	35-B6120-2R0	
9-1	LCD HINGE-R 15" IBM FOR 4200	33-42001-120	
9-2	LCD HINGE-R 15" FOR HYUNDAI 4200	33-42001-220	
9-3	LCD HINGE-R 15' FOR CPT 4200	33-42001-320	
10	LCD CLAMPING FOR 4200	33-42001-040	
11	HINGE COVER FOR 4200	42-4217Y-011	
12	4200 15" LCD BACK COVER 鋁箔	40-42031-111	
13	INVERTER BOARD	77-4200R-DOX	
14	SCREW M2*4L KI BNI ICT NY	35-B9120-4RA	
15	WIRE CABLE FOR INVERTER	43-4200R-010	
16-1	LCD BRACKET FOR 14.1"(W/D SPONGE)	33-42001-051	IBM/CPT
16-2	LCD BRACKET	33-42001-050	HYUNDAI
17	NAME PLATE FOR MAXDATA	45-42102-000	
18-1	LCD HINGE-L 15° FOR IBM 4200	33-42001-130	
18-2	LCD HINGE-L 15" FOR HYUNDAI 4200	33-42001-230	
18-3	LCD HINGE-L 15" FOR CPT 4200	33-42001-330	
19	LCD BACK COVER MODULE 15"	39-42101-121	MAXDATA
20	2.4G DIPULE ANTENNA (2WIRE ASSEMBLY)	23-712R4-001	
21	LCD BACK COVER SPONGE	47-42091-010	IBM
55	GASKET(175*8*1T)	47-00190-H50	

#### *Figure 1 - 15* LCD 15" (4200M)

## Battery (4200M) $\frac{1}{2}$ *Figure 1 - 16* **Battery (4200M)** 2 REMARK ITEM PART PART NAME NΠ 1-1 BATTERY LABEL FOR 4200 45-4200M-020 德臻 1-2 BATTERY LABEL FUR 4200 45-4200M-030 2 BATTERY TUP CASE 42-4217M-010 3 BATTERY BUTTUM CASE 42-4217M-020 新普 (3)



*Figure 1 - 17* **CD-ROM Drive** 

(4200M)



## **DVD-ROM Drive (4200M)**



(4200M)



## Combo Drive (4200M)

## **Top Assembly (4600)**



#### *Figure 1 - 21* **Top Assembly** (4600)

**Part Lists** 

## Top Assembly (4600 15")



## **Bottom Assembly (4600)**



#### *Figure 1 - 23* Bottom Assembly (4600)

Part Lists

LCD 14" (4600)


# LCD 15" (4600)



# *Figure 1 - 25* **LCD 15" (4600)**

**Part Lists** 

# Battery (4600)



# CD-ROM Drive (4600)



### *Figure 1 - 27* **CD-ROM Drive** (4600)

**Part Lists** 





*Figure 1 - 29* **CD-RW Drive (4600)** 



*Figure 1 - 31* **Combo Drive -**

Toshiba (4200)

# **Combo Drive - Toshiba (4600)**



# Hard Disk Drive (4200, 4200M & 4600)



*Figure 1 - 33* **Floppy Disk Drive** 

(4200, 4200M & 4600)

# Floppy Disk Drive (4200, 4200M & 4600)



Part Lists

# **Appendix B:Schematic Diagrams**

# Mainboard



Sheet 1 of 27

#### Sheet 2 of 27



# Schematic Diagrams





#### Sheet 4 of 27







# Sheet 6 of 27







>>+3VH8 3,26,27



### Sheet 7 of 27



#### Sheet 8 of 27



### Sheet 9 of 27



#### Sheet 10 of 27



Sheet 11 of 27



#### Sheet 12 of 27



# Sheet 13 of 27



# Sheet 14 of 27



# Sheet 15 of 27



#### Sheet 16 of 27



# Sheet 17 of 27



Sheet 18 of 27



#### Sheet 19 of 27



Sheet 20 of 27



### Sheet 21 of 27



#### Sheet 22 of 27



# Sheet 23 of 27



#### Sheet 24 of 27



### Sheet 25 of 27



### Sheet 26 of 27


Schematic Diagrams

### Sheet 27 of 27



# Inverter

Sheet 1 of 1



Schematic Diagrams

# **Power Board**

Sheet 1 of 3



## Sheet 2 of 3



#### Sheet 3 of 3





# Appendix C:Updating the FLASH ROM BIOS

# To update the FLASH ROM BIOS you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable Floppy Disk.
- Reboot your computer from the FDD.
- Use the flash tools to update the flash BIOS.
- Restart the computer booting from the HDD.
- 1. Using your web browser go to www.clevo.com.tw
- 2. Choose **Download** from the menu bar at the top of the page.
- 3. In the Driver section select the model of your computer (4200/4600 series) and the driver type (BIOS).
- 4. Select GO.
- 5. Click on 4200Biosxxx.zip. to download the BIOS files (including BIOS refresh tools).

## Unzip the file you have just downloaded on to a bootable floppy disk.

(*Some of the files you should see on this disk are: runme.bat, Platform.bin, Phlash.exe & 42\_XXX.rom*) With the bootable floppy disk containing the BIOS files in your Floppy Drive, restart the computer.

## After the computer has been booted from the floppy disk:

- 1. Go to the DOS prompt.
- 2. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message "**Starting MS-DOS**". You will then be prompted to give "**Y**" or "**N**" responses to the programs being loaded by DOS. Choose "N" for any memory management programs
- If you have chosen to extract the zipped files to the floppy disk the files are located in the folder A:/4200/BIOS. Browse to this folder and type the following command: A:/4200/BIOS. runne
- 4. Remove the floppy disk from the drive.

Your notebook is now running normally with the updated BIOS.

**BIOS Update**