

# **Service Manual**

## **(S1/P1)**

**LG Electronics**

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# Chapter 1. Service information

## 1-1. Important service information

### ■ Strategy for replacing parts (FRU-Field Replaceable Units)

#### Before replacing parts

Make sure that latest BIOS and drivers are installed before replacing any parts (FRUs) listed in this

Use the following strategy to prevent unnecessary expense for replacing and servicing parts

1. If you are instructed to replacing a part but the replacement does not correct the problem, reinstall the original part before you continue.
2. Some computers have both a processor board and system board. If you are instructed to replace either the processor board or the system board, and replacing one of them does not correct the problem, reinstall that board, and then replace the other one.
3. If an adapter or device consists of more than one part, any of the parts (FRUs) may be the cause of the error. Before replacing the adapter or device, remove the parts (FRUs), one by one, to see if the symptoms change. Replace only the part that changed the symptoms.

#### Caution



The BIOS configuration on the computer you are servicing may have been customized.

Running Automatic Configuration may alter the settings. Note the current configuration settings; then, when service has been completed, verify that those settings remain in effect.

### ■ Strategy for replacing a hard-disk drive

You have to get a User's approval before formatting or replacing a hard-disk drive. You must let the User know that the user is responsible for the loss data

#### Caution



The drive startup sequence in the computer you are servicing may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. If you select an incorrect drive, data or programs can be overwritten.

### 1-2. Safety notices

**Warning**

Before the computer is powered-on after part (FRU) replacement, make sure all screws, springs, and other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical shorts.

**Warning**

some standby batteries contain a small amount of nickel and cadmium. Do not disassemble a standby battery, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

**Warning**

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.

**Warning**

If the LCD breaks and the fluid from inside the LCD gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes. Seek medical care if any symptoms from the fluid are present after washing.

**Warning**

To avoid shock, do not remove the plastic cover that protects the lower part of the inverter card.

**Warning**

Though the main batteries have low voltage, a shorted or grounded battery can produce enough current to burn personnel or combustible materials.

**Warning**

Before removing any part (FRU), turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.



### 1-3. Safety information

#### ■ General safety

Follow these rules to ensure general safety

- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object
  1. Ensure you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
  4. Lift by standing or by pushing up with your leg muscles  
(This action removes the strain from the muscles in your back.)
- Do not attempt to lift any object weights more than 16kg(35lb) or object that you think are too heavy for you.
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool box away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Make sure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters(3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for you clothing.
- Wear safety glasses when you are hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.



#### **Caution**

Metal objects are good electrical conductors.

### ■ Electrical safety

Observe the following rules when working on electrical equipment.



#### Important

Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- Find the room emergency power-off switch, disconnecting switch, or electrical outlet. If an electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before
  1. Performing a mechanical inspection
  2. Working near power supplies
  3. Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine and to lock the wall box in the off position.
- If you need to work on a machine that has exposed electrical circuits, observe the following precautions :  
Ensure that another person, familiar with the power-off controls, is near you.



#### Caution

Another person must be there to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. Keep the other hand in your pocket or behind your back



#### Caution

An electrical shock can occur only when there is a complete circuit. By observing the above rule, you may prevent a current from through your body.

- When using testers, set the controls correctly and use the approved probe leads and accessories for that tester

## Ch1. Service information

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- Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.
- Observe the special safety precautions when you work with very high voltages. These instructions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.
- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- Never assume that power has been disconnected from a circuit. First check that it has been powered off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, non-grounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine.
  1. Power supply units
  2. Pumps
  3. Blowers and fans
  4. Motorgeneratorsand similar units. (This practice ensure correct grounding of the units.)
- If an electrical accident occurs
  1. Use caution ; do not become a victim of yourself.
  2. Switch off power.
  3. Send another person to get medical aid.

### ■ Safety inspection guide

The purpose of this inspection guide is to assist you in identifying potentially unsafe conditions.

As each machine was designed and built, required safety items were installed to protect users and service personnel from injury. This guide addresses only those items. You should use good judgment to identify potential safety hazards due to attachment of non-LG features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

· Consider these conditions and the safety hazards they present

1. Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock)
2. Mechanical hazards, such as loose or missing hardware

Refer to the following checklist and begin the checks with the power off, and the power cord disconnected.

· Checklist

1. Check exterior covers for damage (loose, broken, or sharp edges)
2. Power off the computer. Disconnect the power cord.
3. Check the power cord for :
  - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for  $0.1\ \Omega$  or less between the external ground pin and frame ground.
  - b. The power cord should be the type specified in the parts list.
  - c. Insulation must not be frayed or worn.
4. Remove the cover.
5. Check for any obvious non-LG alterations. Use good judgment as to the safety of any non-LG alterations.
6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Check that the power-supply cover fasteners (screw or rivets) have not been removed or tampered with.

### ■ Handling devices that are sensitive to electrostatic discharge

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

#### Note

Use product-specific ESD procedures when they exceed the requirements noted here.

Make sure that the ESD protective devices you use have been certified (ISO9000) as fully effective.

· When handling ESD-sensitive parts :

1. Keep the parts in protective packages until they are inserted into the product.
2. Wear a grounded wrist strap against your skin to eliminate static on your body.
3. Prevent the part from touching your clothing. Most clothing retains a charge even when you are wearing a wrist strap.
4. Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
5. Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

#### Note

The use of a grounding system is desirable but not required to protect against ESD damage.

- a. Attach the ESD ground clip too any frame ground, ground braid, or green-wire ground.
- b. Use an ESD ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.
- c. Use the round ground-prong of the AC plug on AC-operated computers.

### ■ Grounding requirements

Electrical grounding of the computers is required for operator safety and correct system function.

Proper grounding of the electrical outlet can be verified by a certified electrician.

### 1-4. Laser compliance statement

When a CD-ROM drive, DVD drive or the other laser product is installed, note the following :



#### Caution

Use of controls or adjustments or performance of procedures other than those specified here in might result in hazardous radiation exposure.

Opening the CD-ROM drive, DVD-ROM drive or the other optical storage device could result in exposure to hazardous laser radiation.

There are no serviceable parts inside those drives. Do not open



#### Danger

Emits visible and invisible laser radiation when open. Do not stare into the beam , do not view directly with optical instruments, and avoid direct exposure to the beam.

### 1-5. Backup (Standby) RTC battery safety information

When replacing or disposing of the backup (standby) RTC battery, note the following :



#### Caution

There is the risk of explosion if the backup (standby) RTC battery is replaced by an incorrect type. Dispose of used backup (standby) RTC battery according to your local ordinances or regulation.

Для замены, используйте соответствующий тип батареек.

Существует опасность воспламенения.

Удаляйте отработанные батарейки согласно местным правилам или нормам.

Неправильное удаление батареек может привести к их взрыву или пожару.

باطری ذخیره (بدکی) را با نوع درست آن عوض کنید.

خطر انفجار وجود دارد.

باطری های ذخیره های (بدکی) استفاده شده را بر اساس دستور العمل داخلی مصرف کنید.

مصرف باتریهای نادرست منجر به انفجار یا آتش سوزی میشود.

غير البطارية البديلة على الطراز المناسب.

وهناك احتمال الانفجار.

تخلص من البطاريات البديلة المستعملة حسب القوانين واللائحة المحلية.

البطاريات المتخلص منها بصورة غير مناسبة قد تؤدي الى انفجار او احتراق.

### 1-6. Read this first

Before you go to the checkout guide, be sure to read this section.

#### Important Notes

- Only trained personnel certified by LG should service the computer.
- Read the entire FRU removal and replacement page before replacing any FRU.
- Use new nylon-coated screws when you replace FRUs.
- Be extremely careful during such write operations as copying, saving, formatting.  
Drives in the computer that you are servicing sequence might have been altered. If you selected an incorrect drive, data or programs might be overwritten.
- Replace FRUs only for the correct mode.
- When you replace a FRU, make sure the model of the machine and the FRU part number are correct by referring to the FRU parts list.
- A FRU should not be replaced because of a single, irreproducible failure. Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors.
- Consider replacing a FRU only when a problem recurs. If you suspect that a FRU is defective, clear the error log and run the test again. If the error does not recur, do not replace the FRU.
- Be careful not to replace a non-defective FRU.

#### ■ What to do first

You must fill out the record form first.

During the warranty period, the customer may be responsible for repair costs if the computer damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer. The following list provides some common items that are not covered under warranty and some symptoms that might indicate that the system was subjected to stress beyond normal use. Before checking problems with computer, determine whether the damage is covered under the warranty by referring to the following :

**The followings are not covered under warranty :**

- CD panel cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) parts
- Distortion, deformation, or discoloration of the cosmetic parts
- Cracked or broken plastic parts, broken latches, broken pins, or broken connectors caused by excessive force
- Damage caused by liquid spilled into system
- Damage caused by improper insertion of a PC Card or the installation of an incompatible card
- Damage caused foreign material in the diskette drive
- Diskette drive damage caused by pressure on the diskette drive cover or by the insertion of a diskette with multiple labels
- Damaged or bent diskette eject button
- Fusses blown by attachment of a non-supported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard

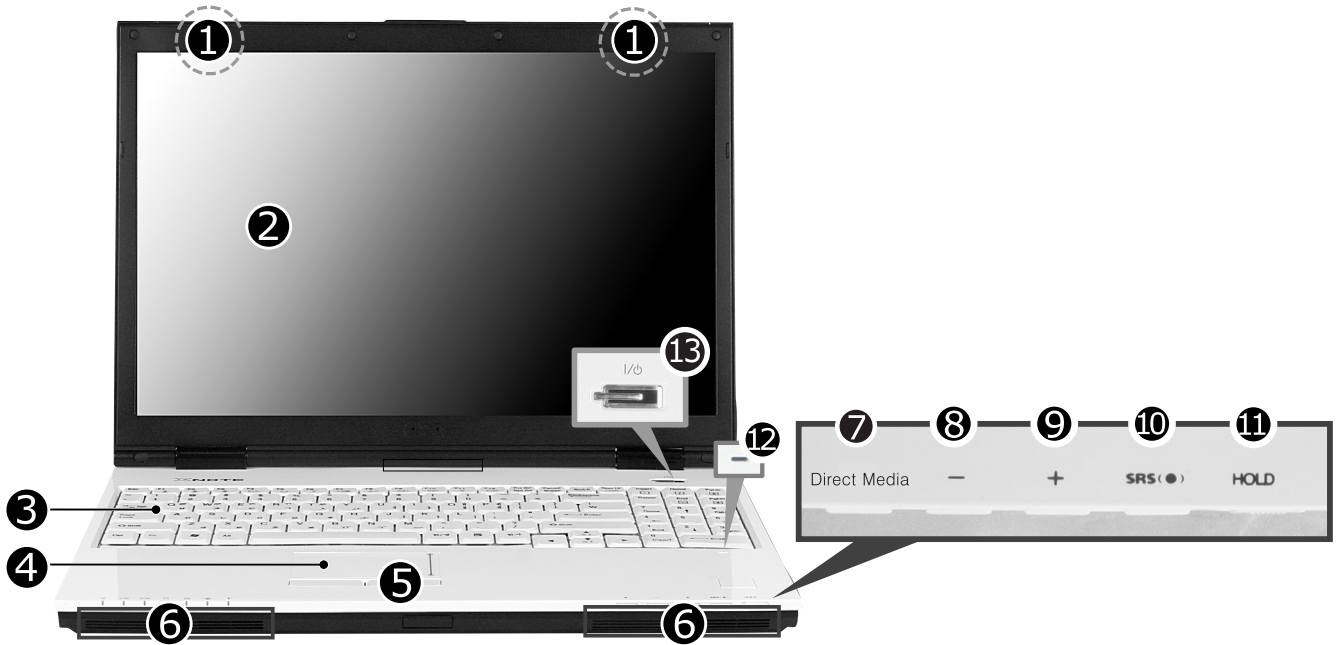
**The following symptoms might indicate damage caused by non-warranted activities :**

- Missing parts might be a symptom of unauthorized service or modification.
- If the spindle of a hard-disk drive becomes noisy, it may have been subjected to excessive force, or dropped.



## Chapter 2. Locations

### ■ Front view – S1



1. Wireless LAN/Bluetooth antenna

※ Bluetooth equipemtn is optional in sales.

2. LCD Monitor

3. Keyboard

4. Touch pad

5. Touch pad button

6. Built-in Speakers

7. Direct Media Button

- Click Direct Media button to start media program selected from control panel. LG Direct Media function is available while the system is off, in standby mode, or in hibernation mode. (Power DVD is set to factory default settings.)

8. Volume down button

9. Volume up button

10. SRS Button

- SRS is not performed by default and press SRS button to use this funtion and set SRS WOWXT / SRS TrueSurroundXT. SRS TruSurroundXT generates 5.1 Channel digital surround sound from 2 channels of sound and SRS WOWXT give field effect to 2 channels of sound.

### 11. HOLD button

- You can lock the Direct Media button, volume up/down button, and SRS button on the front side by pushing hold button. Unlock to use buttons in the front side.

### 12. Authentic Fingerprint Device

※ Authentic Fingerprint device is optional in sales.

### 13. Built-in Microphone

### 14. Power button

## ■ Rear view – S1



### 1. S-Video Connector

※ It is compatible with 4pin S-Video Cable.

### 2. Security keyhole

### 3. Modem connector

※ Specifications may be different depending on the model.

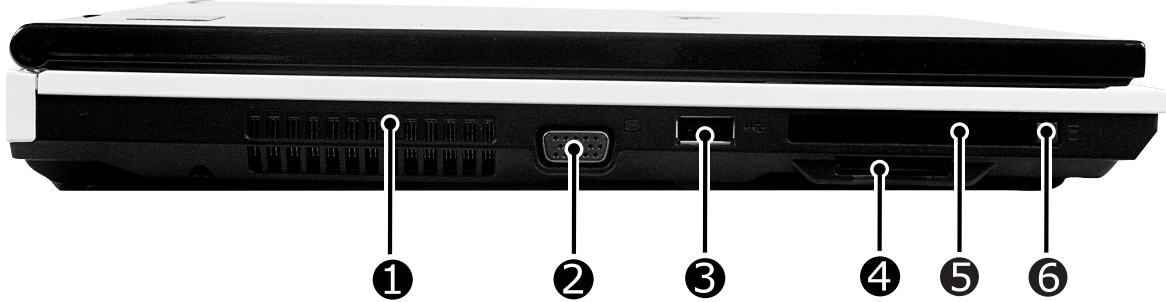
### 4. LAN Connector

### 5. Power connector

#### ※ Security Keyhole

User can attach a separately purchased chain lock into the security keyhole and connect it to a fixed object to prevent a notebook theft.

### ■ Left view – S1



1. Fan louvers
2. VGA Connector
3. USB Connector
4. Using 5-in-1 (XD / SD / MMC / Memory Stick / Memory Stick Pro) Card
5. Express / PCMCIA Card slot
- ※ Specifications may be different depending on the model.
6. PCMCIA Card eject button

### ■ Right view – S1s

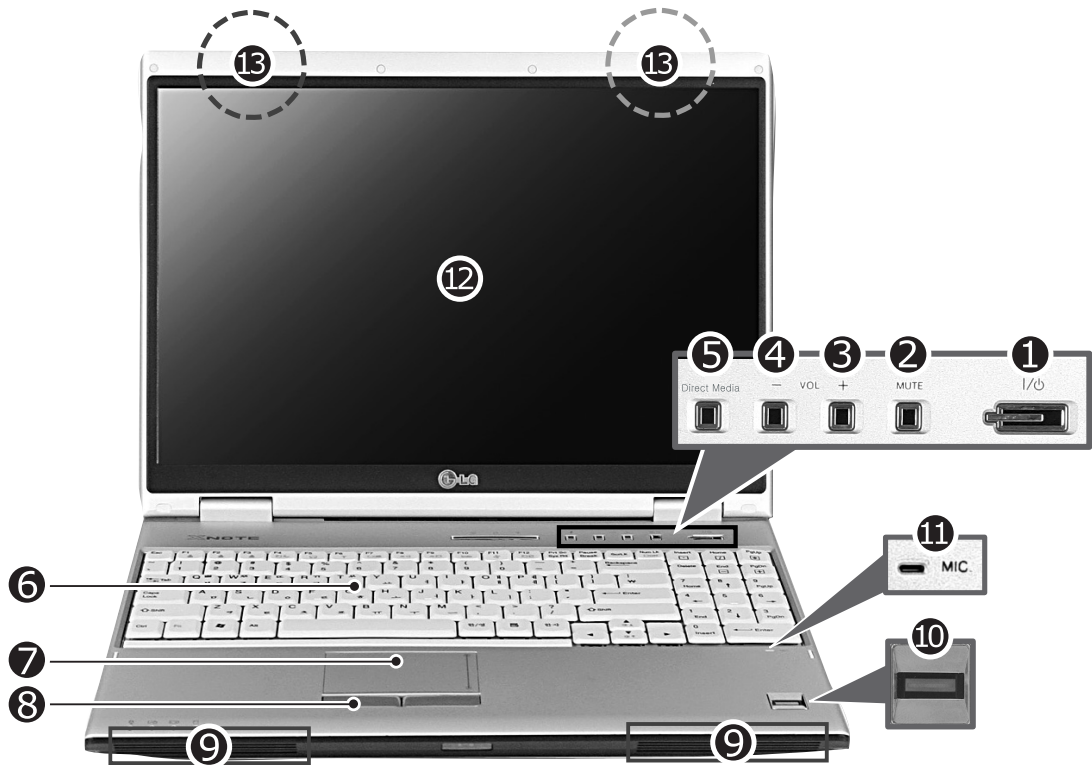


1. Microphone connector
2. Headphone connector
3. Line-in / S/PDIF Connector
4. IEEE 1394 Connector
5. Optical Disk Drive
6. Disk tray button
7. Emergency eject hole
8. USB Connector

#### ※ Emergency eject hole

Insert a thin and hard pin into this hole, and you can open the disc tray manually.

### ■ Front view – P1



1. Power button
2. SRS Button
3. Volume up button
4. Volume down button
5. Direct Media Button
6. Keyboard
7. Touch pad
8. Touch pad button
9. Built-in Speakers
10. Authentic Fingerprint scanner
- ※ Authentic Fingerprint device is optional.
11. Built-in Microphone
12. LCD Monitor
13. Wireless LAN
- ※ Mini Express Wireless LAN Card is optional.

### ■ Rear view – P1



1. S-Video Connector

※ It is compatible with 4pin S-Video Cable.

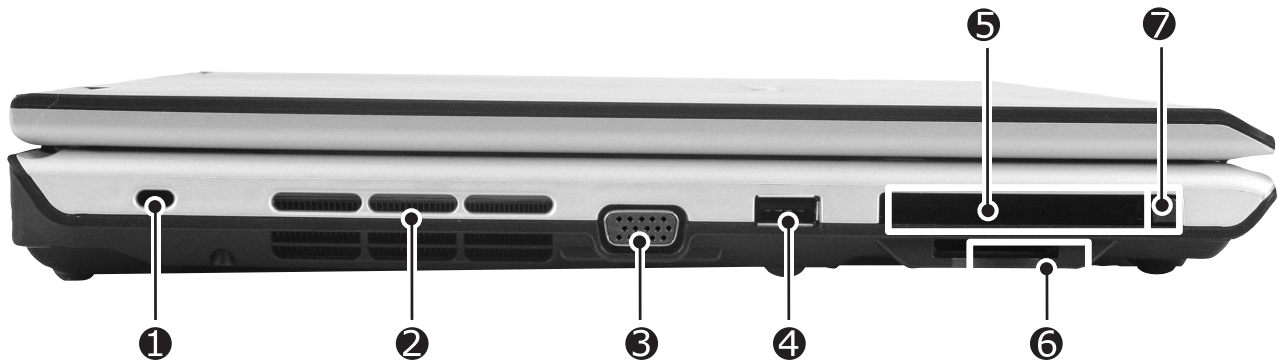
2. Modem connector

※ Specifications may be different depending on the model.

3. LAN Connector

4. Power connector

### ■ Left view – P1



1. Security keyhole

2. Fan louvers

3. VGA Connector

4. USB Connector

5. Express / PCMCIA Card slot

※ Specifications may be different depending on the model.

6. 5-in-1 Card slot (XD / SD / MMC / Memory stick / Memory stick Pro)

7. PCMCIA Card eject button

### ■ Right view – P1



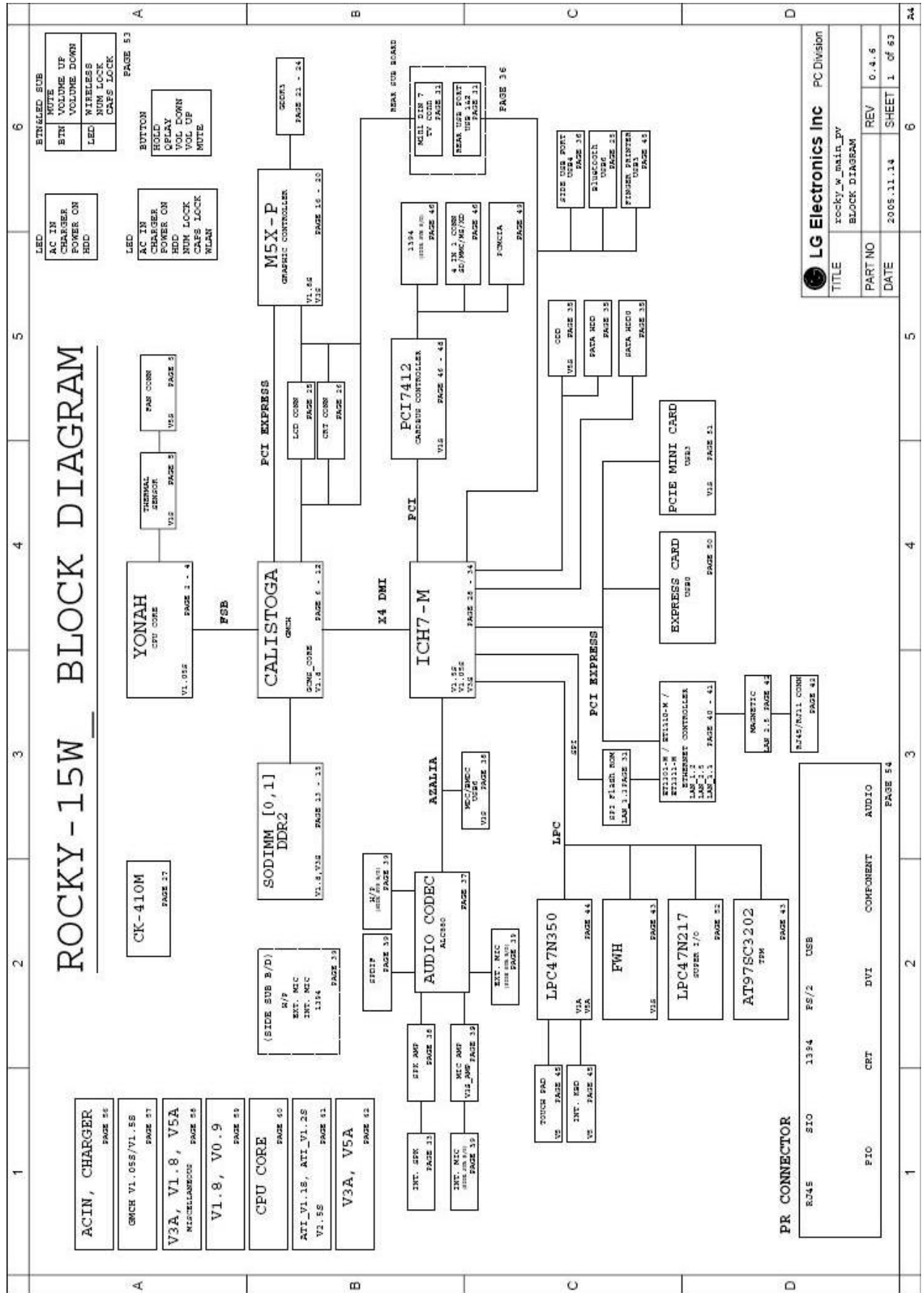
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5. Optical Disk Drive
6. Disk tray button
7. Emergency eject hole
8. USB Connector

## Chapter 3. System information

### ■ Specification – S1 / P1

- CPU
  - Yonah 1.66 ~ 2.16 GHz
  - $\mu$ FCPGA
- Main Chipset & Graphic
  - Intel 945GM, ICH7-M
  - Intel 945PM, ICH7-M, ATI Mobility Radeon X1300/X1400/X1600 VGA Controller
- Memory
  - 2SODIMM – Up to 2GB
  - DDR2 PC2-5300S Capable (667MHz)
- HDD
  - 2.5" 9.5mm 60/80/100/120GB PATA Type
  - 2.5" 9.5mm 60/80/100GB SATA Type
- Communication
  - Modem, Daughter Card Type
  - Bluetooth, Daughter Card Type
  - Agere Systems PCI-E Gigabit Ethernet Controller on Board
- Wireless LAN Solution
  - 802.11 abg PCI-express Mini Card Type, Hexa-band Antenna
- Security
  - Trust Platform Module (TPM 1.2)
  - Authentec EntréPad 2501A Fingerprint Sensor
- Card Slot
  - PCMCIA Card Slot
  - 5-in-1 Card Slot (Memory Stick/ Pro, Multi Media Card, SD Card, xD-Picture Card)
- ODD
  - Fixed Optical Storage
  - DVD-COMBO / Super-Multi
- Port
  - VGA, 3X USB(2.0), RJ11, RJ45, Headphone, SPDIF, Line-in, AC-in, IEEE1394, S-Video
- Input Devices
  - Keyboard : 99Key Keyboard
  - Touchpad
- Buttons
  - Power, Volume Down, Volume Up, SRS, Q-Play
- Indicator (LED)
  - AC-in, Power On, Charge, HDD, Caps Lock, Num Lock, Wireless/Bluetooth
- Power
  - 90 Watt 19V 4.74A Adapter
- Audio
  - Realtek Azalia Audio Codec, Stereo speakers each 1.5/1.5W
- Battery
  - 6 Cell 5.2AHr, CYLINDRICAL (Li-Ion)
  - 9 Cell 7.8AHr, CYLINDRICAL (Li-Ion)

## ■ System Block Diagram





#### ■ Fn key combinations

The following table shows the function of each combination of Fn with a function key.

Function of Fn keys has nothing to do with Operating System.

[Fn] + [F1]	User defined Hot key. (Setting is available at OSD)
[Fn] + [F2]	User defined Hot key. (Setting is available at OSD)
[Fn] + [F3]	User defined Hot key. (Setting is available at OSD)
[Fn] + [F4]	Force the computer to enter power-saving mode. (ex: system standby or hibernation)
[Fn] + [F5]	Press the combination keys each time for Touchpad Enable / Touchpad Disable / Touchpad Auto-disable. In Touchpad Auto-disable mode, Touchpad is disabled while USB or PS2 mouse is connected. Press again to change touchpad modes.
[Fn] + [F6]	Wireless LAN, Bluetooth On / Off. Setting is available at OSD. The default is set to Wireless LAN, Bluetooth On / Off.
[Fn] + [F7]	Monitor toggle. When the computer is attached to an external monitor, you can change the display output location with [Fn] + [F7] combination.
[Fn] + [F8]	Power scheme change (Refer to the Battery Miser)
[Fn] + [F9]	Mute(Sound On / Off)
[Fn] + [F10]	Shows System information
[Fn] + [F11]	Fan control function CPU Cooling Fan control mode (Normal / Slow / Fast)
[Fn] + [F12]	Maximum power-saving mode (When OSD is installed).
[Fn] + [Num Lk]	Keys with square mark are enabled. “.Del” key functions as an Insert key while Num Lock is off.
[Fn] + [▲]	Brighten the LCD Nine steps are available.
[Fn] + [▼]	Darken the LCD Nine steps are available.

### ■ Status indicators – S1

The system status indicators show the status of the computer



1. AC adapter indicator

2. Power indicator

- Power indicator lights up when the power cord is connected to the computer.
- OFF : Power is off, or it is entered system hibernation mode
- Orange : Notebook PC is turned on
- Blinking: Stand by mode

3. Battery status indicator: Charging the battery

- Battery status indicator indicates the computer is connected to an AC adaptor and is being charged. Indicator is off when the battery is fully charged OR the computer is not connected to an AC Adapter.
- When the battery is being charged (with AC adapter connected to the computer): On
- When the battery is fully charged: OFF
- When the computer is not connected to an AC Adapter: OFF
- When the battery power is under 10% of its maximum capacity: Blinking
- The battery is defective: Blinking
- ※ The Battery indicator blinks as you have set the alarm action from the Battery miser 2005.

4. Hard disk drive indicator

- Indicator lights up when the Notebook PC access to the hard disk drive.
- ※ Do not turn off the computer when the drive indicator lights up. It may cause data loss to the computer.

#### 5. Num Lock Indicator

- You can press the [Num Lk] key to enable the embedded numeric keypad. Press the [Num Lk] keys again to enable the Home/End/PaUp/PgDn/direction key of keypad.

#### 6. Caps Lock Indicator

- Caps Lock indicator lights up when Caps Lock key is pressed. When this indicator lights up, you can type capital letters without pressing the Shift key.

#### 7. Wireless LAN/Bluetooth indicator

- ※ Wireless LAN/Bluetooth Indicator may differently lights up depending on the model.
- ※ Bluetooth equipment is optional in sales.
- OFF : Wireless LAN/Bluetooth is not in use.
- Blinking: Wireless LAN/Bluetooth is connected.
- Blinking(2 to 3 seconds): Wireless LAN/Bluetooth is not connected while Wireless Radio is on.
- Blinking(3 to 4 seconds): Searching for the Access point to connect Wireless LAN/Bluetooth.
- ON : Connected or finding a connection to the access point.

### ■ Status indicators – P1

The system status indicators show the status of the computer



1. AC adapter indicator

2. Power indicator

- Power indicator lights up when the power cord is connected to the computer.
- OFF : Power is off, or it is entered system hibernation mode
- Green : Notebook PC is turned on
- Blinking: Stand by mode

3. Battery status indicator: Charging the battery

- Battery status indicator indicates the computer is connected to an AC adaptor and is being charged. Indicator is off when the battery is fully charged OR the computer is not connected to an AC Adapter.
- When the battery is being charged (with AC adapter connected to the computer): ON
- When the battery is fully charged: OFF
- When the computer is not connected to an AC Adapter: OFF
- When the battery power is under 10% of its maximum capacity: Blinking
- The battery is defective Blinking

※ The Battery indicator blinks as you have set the alarm action from the Battery miser 2005.

4. Hard disk drive indicator

- Indicator lights up when the Notebook PC access to the hard disk drive.
- ※ Do not turn off the computer when the drive indicator lights up. It may cause data loss to the computer.

5. Num Lock Indicator

- You can press the combination of [Fn] and [ScrLk] keys to enable the embedded numeric keypad. Press the combination of [Fn] and [ScrLk] keys again to disable the embedded numeric keypad.

6. Caps Lock Indicator

- Caps Lock indicator lights up when Caps Lock key is pressed. When this indicator lights up, you can type capital letters without pressing the Shift key.

#### 7. Wireless LAN Indicator

※ Wireless LAN Indicator may differently lights up depending on the model.

- OFF : Wireless LAN is not in use.
- Blinking: Wireless LAN is connected.
- Blinking(2 to 3 seconds): Wireless LAN is not connected while Wireless Radio is on.
- Blinking(3 to 4 seconds): Searching for the Access point to connect Wireless LAN.
- ON : Connected to Access point.

### ■ BIOS Flash

You can update BIOS using a floppy disk drive.

Because this system is not equipped with any floppy disk drive, you have to use an external USB drive for a BIOS update. In order to boot up with an USB drive, please set Removable Device as the first boot up drive in the boot menu of BIOS setup.

#### · How to update flash ROM in DOS

1. Create 'boot up' flash update diskette.
2. Copy a ROM image file (\*.wph) into the root of the flash update diskette.
3. Copy phlash16.exe to the flash update diskette.
4. Insert the diskette into the FDD of your computer.
5. Boot your computer with the diskette, and type 'plash16\*.wph /mode=n'.
6. Cold boot and follow the instruction displayed on the screen.

#### · Flash options /mode=n

0 – Default mode. Keep the current DMI information and update BIOS image only.

1 – Update DMI information only.

If new DMI information is not specified, the current DMI information is left unchanged.

2 – Update BIOS and DMI information.

If new DMI information is not specified, the current DMI information is left unchanged.

3 – Update BIOS and DMI information.

DMI information is updated to the DMI string and options specified in the new BIOS image.

#### **Note**

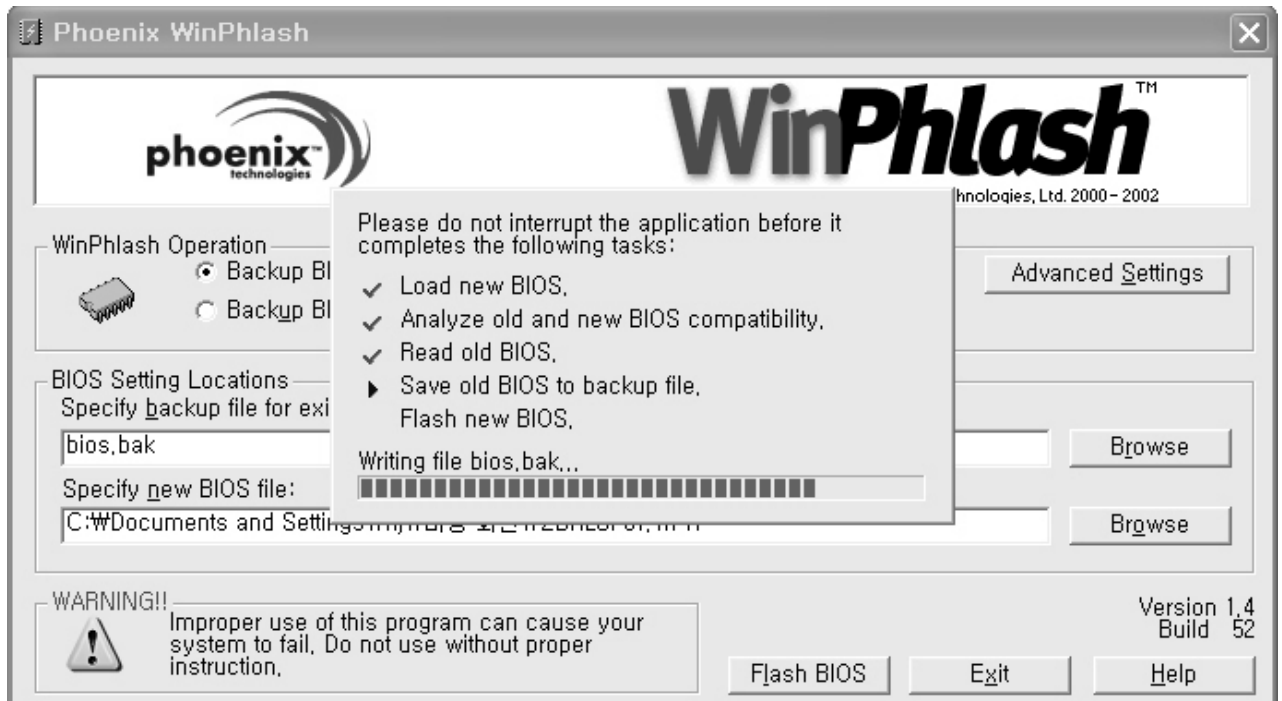
DMI is Desktop Management Interface

### ■ How to update flash ROM in Windows

1. Quit all running programs.
2. Start WINPLASH.EXE.



3. Select the procedure you want :
  - a. Backup BIOS and Flash BIOS with new settings
  - b. Backup BIOS Only
4. Specify the locations for backup and new BIOS files in BIOS Setting Locations.
  - a. Enter the name of the backup file for existing BIOS or click Browse to locate the file.
  - b. Enter the name of the new BIOS file or click Browse to locate the file.
5. Click Advanced Settings button to access the advanced settings
6. Click Flash BIOS button to start flash BIOS.
7. Wait for the operation to complete. WinPhlash may take one or two minutes to complete flash BIOS operation.



8. After the completion, 'System BIOS was successfully updated' appears on the screen, then the computer restarts.
9. After the restart, make sure the system BIOS is updated.
10. If your computer does not restart automatically, turn off your computer and then turn it back on by pressing power button.



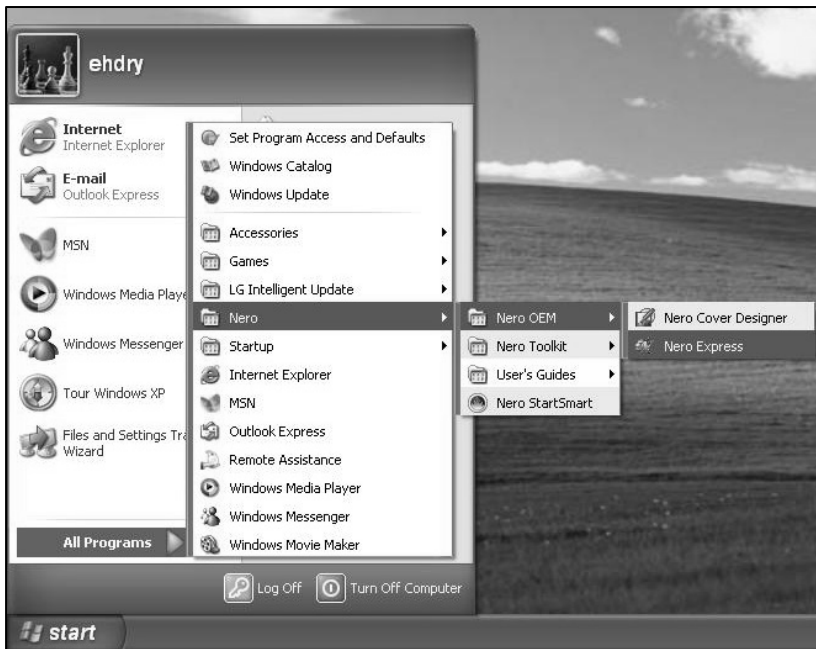
### ■ BIOS Release Process and Making Bootable CD

1. LGE(Korea) will send BIOS Image (\*.iso) to each Service Centers when we have a new revision.

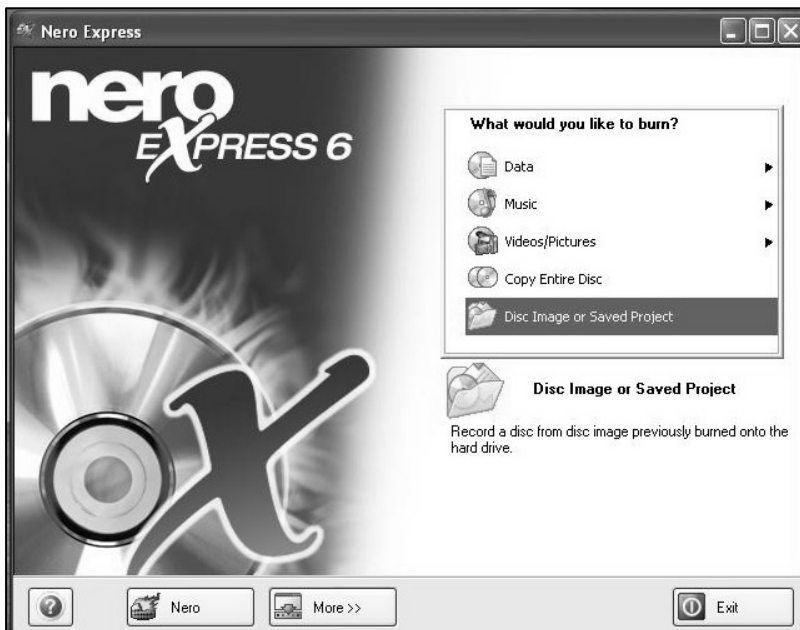
(Please refer to the BIOS Table (Document No. SBE-HA-01) for latest BIOS)

2. Service center will make Bootable Image CD with Image file(\*.iso) as below

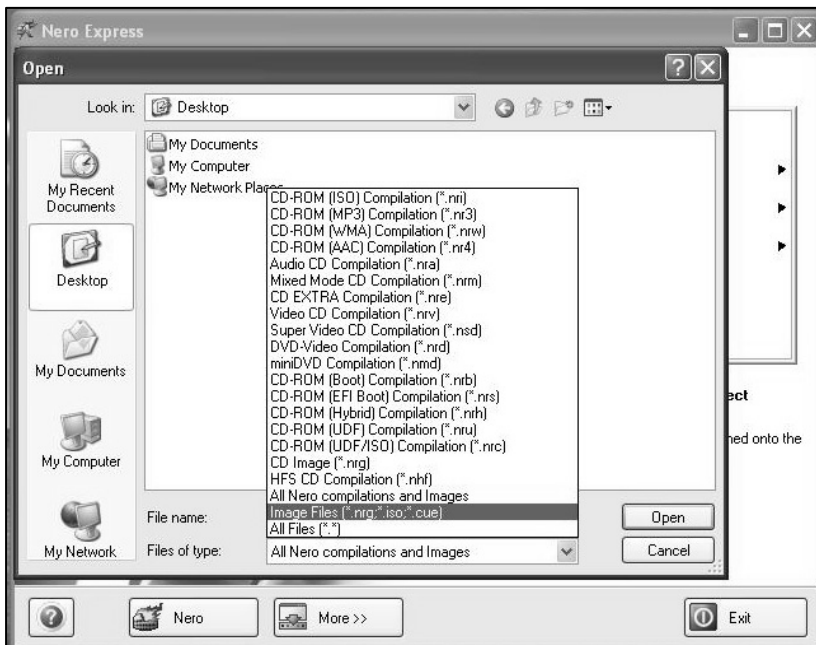
a. Insert empty disc to CD-RW Drive and start Nero Burning ROM.



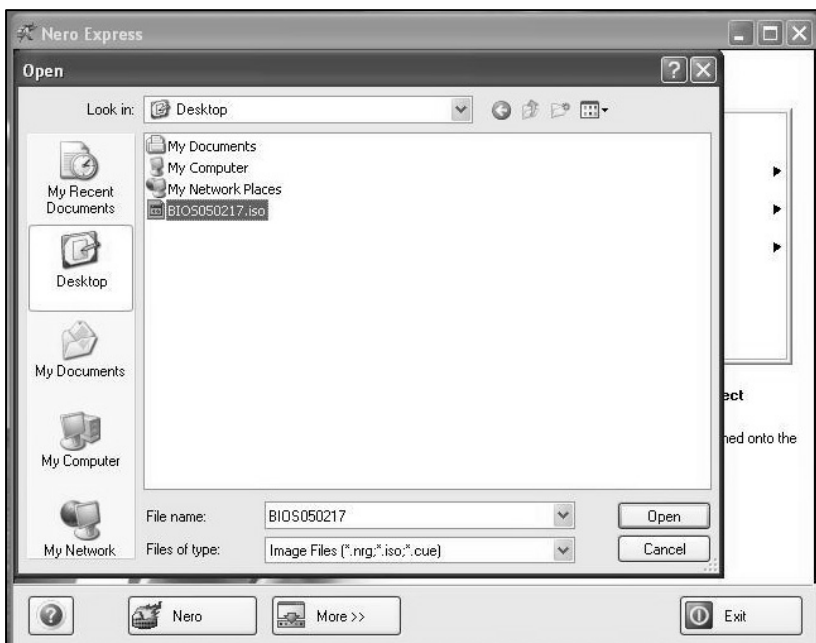
b. Select Disc Image or Saved Project.



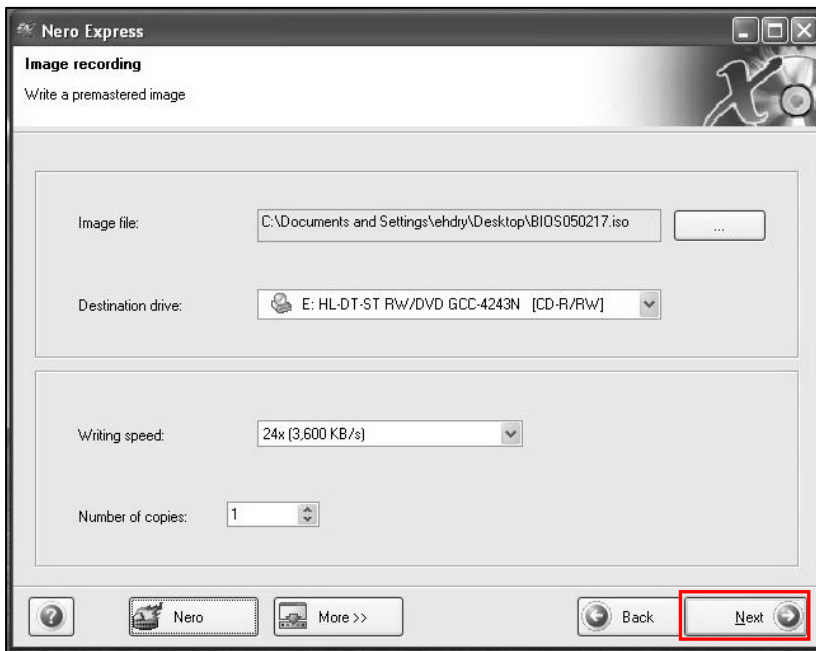
c. Select File Format as "Image Files(\*.iso)".



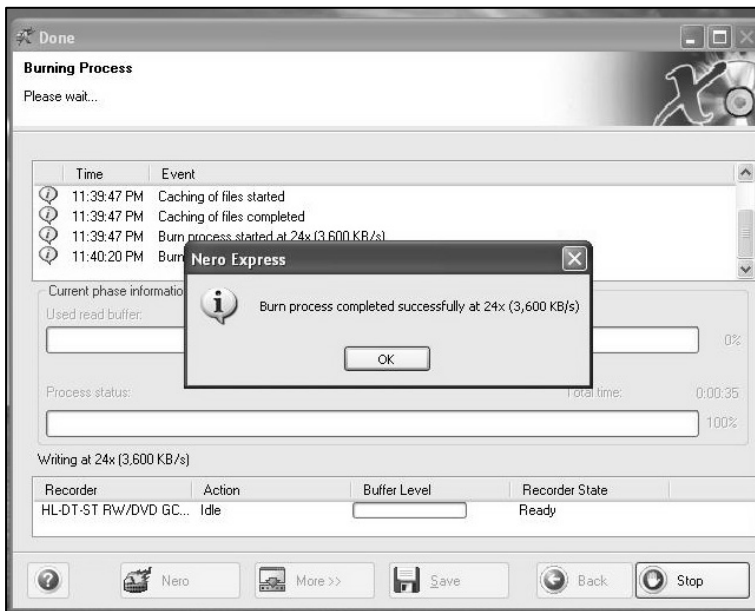
d. Open Image File(\*.iso) which is sent from LGE



e. Tab Next then burning will be started

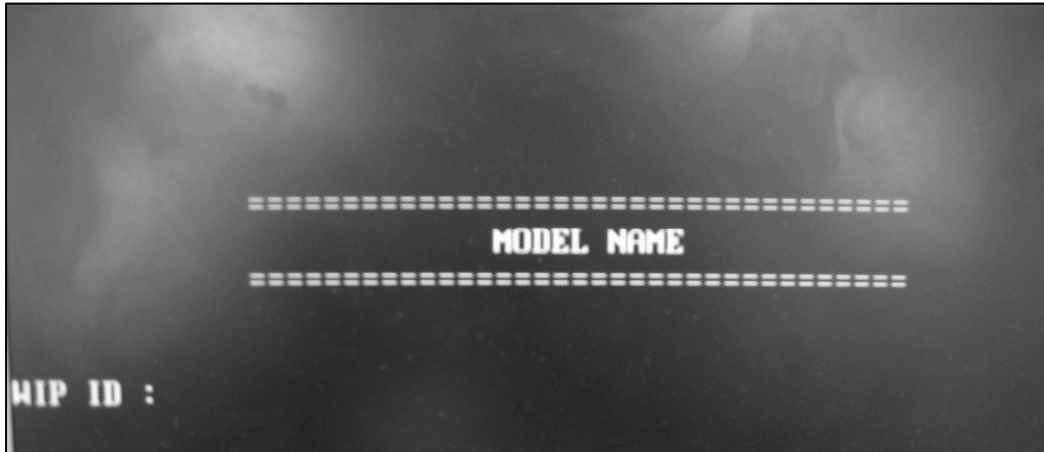


f. Burn process completed as below, and tab “OK”

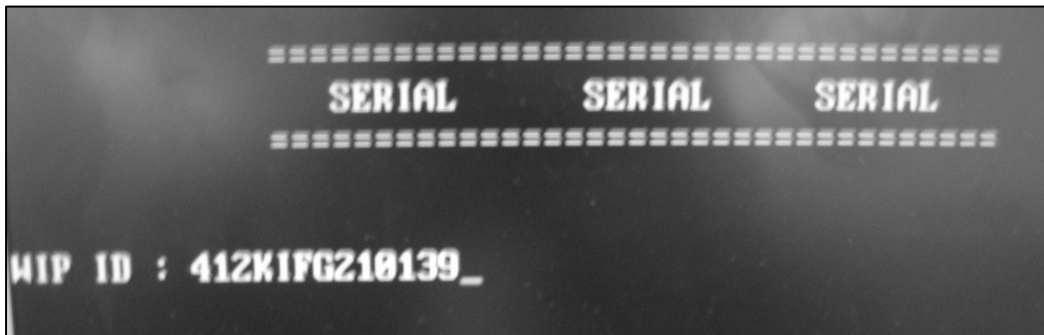


#### ■ BIOS/EC Flash Process

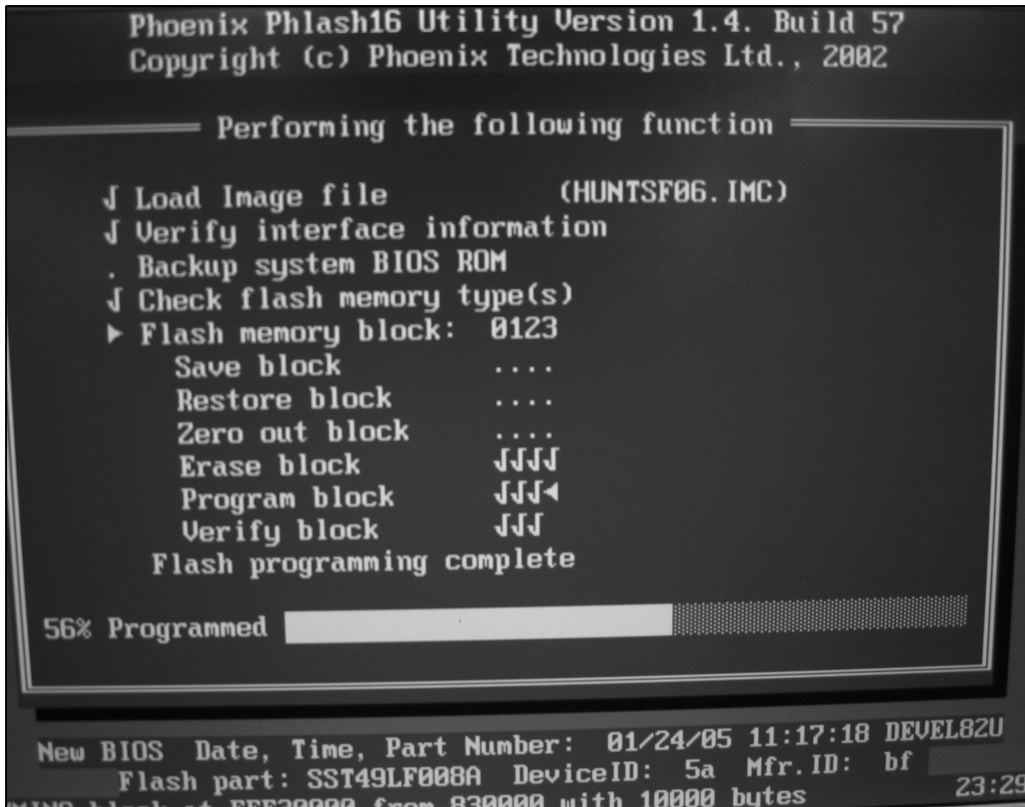
1. Insert Bootable CD in PC, and Turn it on, then PC will boot by DOS mode as below  
(If the EC is not correct or old version, then automatically update EC first and reboot again)
2. Type in Mode Name at the "WIP ID : " then press Enter key (You must use Capital Letter)  
(You can see the Model Name in ID Label at the bottom Case of PC: "M/N: LMXX-XXXX")



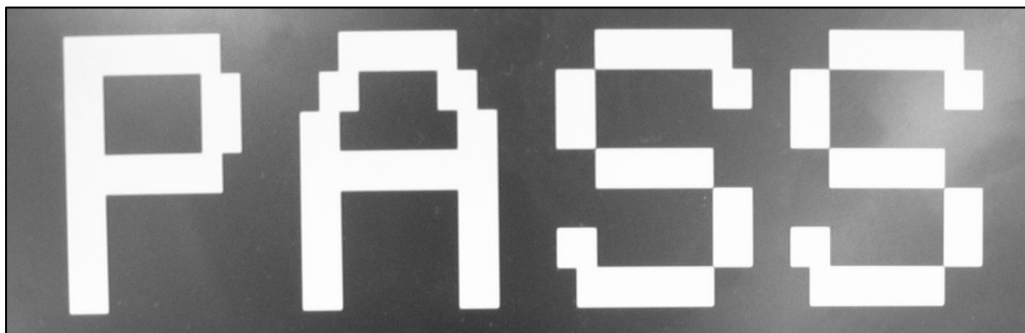
3. Type in Serial No at the "WIP ID : " then press Enter key (You must use Capital Letter)  
(You can see the Serial No in ID Label at the bottom Case of PC: "S/N: 412KIXXXXXXXX"(13digits))



4. You can see the BIOS flash process as below



5. After flashing is completed, you can see the "PASS" on your screen, and reboot your PC



### ■ BIOS Setup

**BIOS (Basic Input and Output System) Setup** saves the system configuration in **CMOS RAM**, and check the configurations during startup. Use the **BIOS Setup Utility** to change and save the system environment, hardware configurations, power saving mode, etc.

· Open the BIOS Setup Utility in the following situations :

1. to change the BIOS setup
2. to replace the backup battery
3. system configuration error occurs
4. to change the boot order
5. to set/change a password

Press the power button.

When the **LG** logo appears on the screen, press **F2** and enter the **BIOS Setup Utility**.

### ■ Using the keys

The keys used in the BIOS Setup Utility and their functions are described at the bottom.

- **F1**, **Alt** + **H** : General Help

Display the descriptions of the keys used in the setup utility.

- **↓**, **↑** : Select Item

Navigate and select items in the setup utility. The selected item becomes highlighted.

- **←**, **→** : Select Menu

Move to another menu.

- **-** / **+**, **Space Bar** : Change Values

Change the value of a selected item.

- **F9** : Load Default Configuration

Display Setup Confirmation window. Press **Enter** to load default configuration.

- **Enter** **↵** : Select Sub-Menu

Some items have sub-menus. Display the sub-menu for a selected item.

- **F10** : Save and Exit

Display Setup Confirmation window. Press **Enter** to save and exit.

- **Esc** : Exit

In a sub-menu, press **Esc** to move to the previous window. In Main menu, click **Esc** to move to Exit menu.

### ■ Main menu

#### **System Time**

Current time. Use <Tab>, <Shift-Tab>, or <Enter> keys to move around these fields. To change the value, press <+> or <-> key.

#### **System Date**

Today date. Use <Tab>, <Shift-Tab>, or <Enter> keys to move around these fields. To change the value, press <+> or <-> key. Set any date from year 1981 to 2079. It will automatically keep track of leap years. The system date can also be set from the operating system.

#### **Product Name**

This shows the name of PC.

#### **Processor Type**

This shows the type of CPU.

#### **Processor Spd**

This shows the speed CPU.

#### **BIOS Version**

This shows the Version of BIOS.

#### **KBC Version**

This shows the Version of KBD firm ware.

#### **UUID**

This is for display only. This shows the UUID.

#### **Pri Master**

Enter its submenu by pressing <Enter>. In this submenu, it would show the device of Primary IDE Master is HDD and its parameters.

#### **Sec Slave**

Enter its submenu by pressing <Enter>. In this submenu, it would show the device of Secondary IDE Slave is optical drive and its parameters.

#### **Total Memory**

This is for display only. This shows size of system memory.



### ■ Advanced menu

#### **Legacy USB Support**

There are two options to this field: **Enabled**, and **Disabled**. This field allows you to **enable** or **disable** the legacy USB support.

#### **Boot-time Diagnostic Screen**

Enables the Boot-time Diagnostic Screen.

#### **Core Multi-Processing**

Enables the Dual-Core technology.

#### **Boot-time Diagnostic Screen**

Enables the Boot-time Diagnostic Screen.

#### **SATA Controller Mode**

Set SATA (Serial ATA) Controller Mode.

#### **AHCI Configuration**

Enables the AHCI (Advanced Host Controller Interface).

#### **Battery Charge Stop Percentage**

Set Battery Charge Stop Percentage.

#### **Fan Mode Control**

Set Fan Mode Control.

#### **Fn Key Setup**

Set Sticky fn key function.

#### **Wake On Lan**

Enables Wake On Lan.

#### **PCIe Device Wake Up**

Enables Wake On PCIe device.

#### **PXE/Remote Boot OPROM**

Enables PXE/Remote Boot.

#### **MEF Support**

Control the MEF device in an ACPI environment.

#### **SIO Control Sub-Menu**

Control the configuration of various National 393 SIO devices.

### ■ Security menu

**Supervisor Password Is**

This shows the system's supervisor password has been set, or not.

**Set Supervisor Password**

Set Supervisor Password.

**User Password Is**

This shows the system's User Password has been set, or not.

**Set User Password**

Set User Password.

**Password on boot**

Enables Password on boot.

**HDD Password Is**

This shows the system's HDD Password has been set, or not.

**Set HDD Password**

Set HDD Password.

### ■ Boot menu

Boot menu enables you to set the boot order for the CD-ROM drive, Removable devices Hard drive, and Network boot as shown below.

**Boot Priority order / Excluded from boot order**

Up and Down arrows select a device. <+> and <-> moves the device up or down. <f> and <r> specifies the device fixed or removable.

<x> exclude or include the device to boot.

<Shift + 1> enables or disables a device.

<1 – 4> Loads default boot sequence.

### ■ Boot menu

#### **Exit Saving Changes**

Select Exit Saving Changes to save new setup information in CMOS RAM. CMOS RAM stores the information using the backup battery; therefore, the information will not be lost when the computer is turned off.

#### **Exit Discarding Changes**

Select Exit Discarding Changes to discard new setup information. If you made changes to items other than date, time, and passwords, the Setup Warning asks you to save the new configurations. Select Yes and press Enter to save the new configuration.

#### **Load Setup Defaults**

Select Load Setup Defaults to change the setup information to the factory default settings. If you select Load Setup Defaults or press F9, Setup Confirmation asks you to confirm your selection. Press Yes to load setup defaults.

#### **Discard Changes**

Discard change value.

#### **Save Changes**

Save change value.

### ■ Backup and Restore Security Platform Data

Security Platform Backup includes all data required in case of emergency. After a hardware or storage media failure or a Trusted Platform Module failure, Security Platform Restoration reestablishes access to Security Platform Features for all users.

In addition you can backup and restore your Personal Secure Drive data. Data from other applications using the Security Platform Solution (e.g. Secure e-mail) is not included in Security Platform backup.

### ■ Backup scope

Security Platform backup comprises the following data:

Security Platform Credentials and Settings	
Backup Contents	A copy of the user-specific credentials and settings which are stored on the Security Platform.
Purpose	Restoration of user-specific credentials and settings after a hardware or storage media failure. Otherwise users could not access Security Platform Features anymore and user data would be lost.
Archives	<ul style="list-style-type: none"><li>• <b>Automatically written Backup Archive</b> ("System Backup Archive", e.g. file <code>SPSystemBackup.xml</code> and folder <code>SPSystemBackup</code>): Set up by Security Platform Administrator. Contains credentials and settings of all Security Platform Users (for one or multiple Security Platform computers). Also contains computer identification and user identification, which are used to match computers and users during the restoration process.</li><li>• <b>Manually written Backup Archive</b> (e.g. <code>SPBackupArchive.xml</code>): Created by Security Platform User. Contains credentials and settings of one Security Platform User (for one Security Platform computer). Also contains computer identification and user identification, which are used to match computer and user during the restoration process.</li></ul>
Emergency Recovery	
Backup Contents	All Security Platform Basic User Keys, encrypted specifically for Emergency Recovery.
Purpose	Re-encryption of all Basic User Keys after a Trusted Platform Module failure. In this case a new Security Platform has to be set up and a new owner key is created. Emergency Recovery allows the re-encryption of Basic User Keys from the old owner key to the new one. Otherwise users could not access Security Platform Features anymore and user data would be lost.
Archives	<ul style="list-style-type: none"><li>• Emergency Recovery data is included in <b>automatically written Backup Archives</b>.</li><li>• <b>Emergency Recovery Token</b> (e.g. <code>SPEmRecToken.xml</code>): Created by Security Platform Administrator. Protected with a dedicated password. Is required for a restoration of Emergency Recovery data.</li></ul>

Personal Secure Drive	
Backup Contents	A copy of the PSD encrypted data and configuration settings.
Purpose	<p>Restoration of PSD encrypted data and configuration settings after a hardware or storage media failure. Otherwise users could not decrypt their PSD data anymore.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"><li>• In contrast to the PSD Backup, standard hard disk backup tools produce unencrypted backups.</li><li>• Lost PSD credentials can only be restored via <a href="#">Personal Secure Drive Recovery</a>.</li></ul>
Archives	<ul style="list-style-type: none"><li>• PSD configuration settings are included in both <b>automatically written Backup Archives</b> and <b>manually written Backup Archives</b>.</li><li>• <b>PSD backup file</b> (e.g. <code>SpPSDBackup.fsb</code>): A backup copy of the PSD image file may be created during a Security Platform User's manual backup.</li></ul>

### ■ Restoration Cases

Depending on the type of emergency there are different restoration cases

Restoration Case	Affected Restoration Scope
Broken hard disk or lost data	Security Platform Credentials and Settings, Personal Secure Drive
New Trusted Platform Module	Emergency Recovery
New Security Platform to be initialized	Emergency Recovery, Security Platform Credentials and Settings, Personal Secure Drive

### ■ How to Backup and Restore

How to configure automatic backups ("System Backup")	Software Component to use
Administrative Task: Configure automatic backups for all users (including Security Platform Credentials and Settings, Emergency Recovery and PSD configuration settings).	If Security Platform is not yet initialized: <i>Initialization Wizard</i> If Security Platform is already initialized: <i>Settings Tool - Backup - Configure...</i>
How to backup ("Manual Backup")	Software Component to use
User Task: Run backup manually for the current user.	<i>Settings Tool - Backup - Backup...</i>
How to restore	Software Component to use
Administrative Task: Prepare restoration for certain users. User Task: Run restoration manually for current user. If restoration has been prepared for current user, then complete the restoration. If a manually written Backup Archive is available and no Emergency Recovery data needs to be restored, then a user can perform restoration without preparation by an administrator.	<i>Settings Tool - Backup - Restore...</i>

### ■ Backup

With this page you can configure automatic Security Platform backups.

The following table gives hints on how to use this wizard page.

Wizard Page Element	Explanation
<i>Backup location: Browse...</i>	Security Platform credentials and settings will be regularly saved to a Backup Archive. Type in path and file name or browse for it. An automatically written Backup Archive consisting of an XML file and a folder with the same name will be created, e.g. file <i>SPSystemBackup.xml</i> and folder <i>SPSystemBackup</i> . Please use the extension *.xml.
<i>Schedule...</i>	A scheduled backup will be created. Click here to view and modify the backup scheduling. Please note that automatic backups are only executed if your PC is not shut down at the scheduled time. Please note that the user account chosen for the scheduled backup must be member of the group "Administrators" or "Backup Operators".

### ■ Infineon Platform Security Backup

With this page you can backup and restore Security Platform credentials, Security Platform settings and Personal Secure Drives.

If Enhanced Authentication is enabled, you can also create backups of your authentication device.

**Availability of page:** This page is only available on an initialized Security Platform, if one of the following conditions is fulfilled:

- The current user has administrative rights.
- The current user is an initialized Security Platform User, and the policy *Allow User Enrollment* is enabled.

**Buttons:**

- Buttons for administrative tasks are disabled for users without administrative rights.
- Buttons are disabled, if corresponding functions are not available in a certain Security Platform state.

The following table describes all backup and restore functions.

Explanation
Click here to set up automatic Security Platform backups. Infineon Security Platform Initialization Wizard will be started. This feature is only available, if the current user account has administrative rights.
Click here to start a manual backup of your Security Platform Settings and credentials. If you have configured Personal Secure Drive (PSD), you can backup your PSD too. The Infineon Security Platform Backup Wizard will be started. This button is disabled, if the Infineon Security Platform is disabled, not yet set up or the user is not set up.
Click here to start a manual restore of archived Security Platform Settings and credentials. If you have a backup of your Personal Secure Drive (PSD), you can restore your PSD too. The restore part of the Infineon Security Platform Backup Wizard will be started. This button is disabled, if the Infineon Security Platform is disabled or not yet set up.
Click here to create a backup authentication device. This feature is only available, if Enhanced Authentication is enabled.

# Chapter 4. Symptom-to-part index

The symptom-to-part index in this section lists symptoms and errors and their possible causes.

The most likely cause is listed first.

### Note

If replacing a part (FRU) does not solve the problem, put the original part back in the computer.

Do not replace a non-defective FRU.

## ■ Power system checkout

· To verify a symptom, do the following :

1. Power off the computer.
2. Remove the battery pack.
3. Connect the AC adapter.
4. Check that power is supplied when you power on the computer.
5. Power off the computer.
6. Disconnect the AC adapter and install the charged battery pack.
7. Check that the battery pack supplies power when you power on the computer.

· If you suspect a power problem, see the appropriate one of the following power supply checkouts :

1. Checking the AC adapter
2. Checking the operational charging
3. Checking the battery pack
4. Checking the backup battery

· Checking the AC adapter

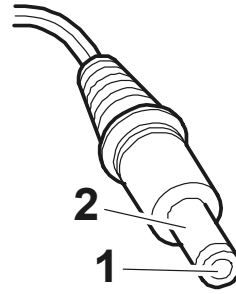
If the power-on indicator does not turn on, check the power cord of the AC adapter for correct continuity and installation.

If the computer does not charge during operation, go to “Checking operational charging.”



To check the AC adapter, do the following :

1. Unplug the AC adapter cable from the computer.
2. Measure the output voltage at the plug of the AC adapter cable. See the following figure :
3. If the voltage is not correct, remove the power code form AC adapter.
4. 10 seconds later, connect the power code, then measure the output voltage.
5. If the voltage is not correct, change the AC adapter.



Pin	Voltage (V dc)
1	+18.05 ~ +19.95
2	Ground

- If the voltage is not correct, replace the AC adapter.
- If the voltage is acceptable, do the following :
  1. Replace the system board.
  2. If the problem persists, check the AC adapter whether it is correct product or not.

**Note**

Noise from the AC adapter does not always indicate a defect.

- Checking operational charging
  1. To check whether the battery charges properly during operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.  
Perform operational charging. If the battery status indicator or icon does not turn on, remove the battery does not turn on, replace the battery pack.
  2. If the charge indicator still does not turn on, replace the system board.  
Then reinstall the battery pack.

**Note**

Do not charge battery pack, when its temperature is below 0°C or above 75°C.

- Checking the battery pack
  1. Open the Power Meter window by clicking **Start** → **Control Panel** → **Power Options** and then; check the total power remains. Battery charging does not start until the power Meter shows that less than 95% of the total power remains; under this condition the battery pack can charge to 100% of its capacity. This protects the battery pack from being overcharged or from having a shortened life.
  2. To check the status of your batter, move your cursor to the Power Meter icon in the icon tray of the Windows taskbar and wait for a moment (but do not click), and the percentage of battery power remaining is displayed. To get detailed information about the battery, double-click the Power Meter icon.

**Note**

If the battery pack becomes hot, it may not be able to charge. Remove it from the computer and Leave it at room temperature for a while. After it cools down, reinstall and recharge it.

- The Characteristics of the battery pack

1. Self-discharge

The battery gradually loses its power over time without ever being used.

2. Periodic full discharge / charge

Frequent recharge of the battery pack can reduce the capacity of the battery pack. When this happens, you can perform the full discharge / charge to improve the capacity. You should perform periodic full discharge /charge once every 30~60 days.

You should always use the battery until its power is low; then fully charge the battery.

3. Trickle charge

If the temperature of the battery pack drops below 10℃ , the trickle charging begins.

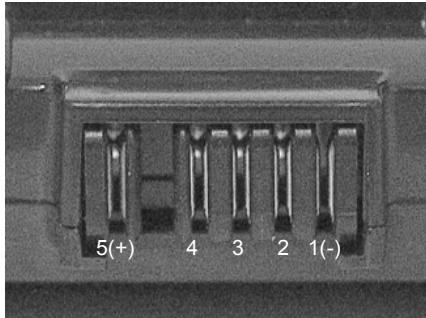
The trickle charging may take 32 hours for the battery pack to be fully charged.

## Ch4. Symptom-to-part index

· To check the battery pack, do the following :

1. Power off the computer.
2. Remove the battery pack and measure the voltage between battery terminals 1(-) and 5(+).

See the following figure :



Terminal	Voltage (V dc)
1	Ground(-)
5	+0V ~ +12.6V (6 cell)

3. If the voltage is still less than +11.1 V DC after recharging, replace the battery.
4. If the voltage is more than +11.1 V DC, measure the resistance between battery terminals 1 and 2.  
The resistance must be 2 to 4k $\Omega$  (typically 3k $\Omega$  ).
5. If the resistance is not correct, replace the battery pack. If the resistance is correct, replace the system board.

### Note

Charging will take at least 3 hours.

### Note

Battery is an expendable supplier, so its capacity and used time can be reduced by using the computer.

### ■ Numeric error codes

Symptom / Error	FRU or action, in sequence
0200 Fixed disk failure (The hard disk is not working)	1.Reset the hard-disk drive. 2.Load Setup Defaults in BIOS Setup Utility. 3.Hard-disk drive. 4.System board.
0210 Stuck Key error	1.Check the keyboard if it is pressed. 2.Replace the keyboard.
0211 Keyboard error	Run interactive tests of the keyboard and the auxiliary input device.
0212 Keyboard Controller Failed	System board.
0220 Monitor type error - Monitor type does not match the one specified in CMOS.	Load Setup Defaults in BIOS Setup Utility.
0230 System RAM error - System RAM Failed at offset.	1.DIMM 2.System board
0231 Shadow RAM error - Shadow RAM failed at offset	System board
0232 Extended RAM error - Extended RAM Failed at address line	1. DIMM 2. System board
0250 System battery error – System battery is dead	Replace the backup battery and run BIOS Setup Utility to reset the time and date.

## Ch4. Symptom-to-part index

Symptom / Error	FRU or action, in sequence
0251 System CMOS checksum bad – System CMOS checksum is not correct. – Default configuration used.	Replace the backup battery and run BIOS Setup Utility to reset the time and date.
0252 Password checksum bad – The password is cleared.	Reset the password by running BIOS Setup Utility.
0260 System timer error	1. Replace the backup battery and run BIOS Setup Utility to reset the time and date. 2. System board.
0271 Check date and time settings – Date and time error.	Run BIOS Setup Utility to reset the time and date.
0280 Previous boot incomplete - Default configuration used	1. Load “Setup Default” in BIOS Setup Utility. 2. DIMM. 3. System board.
0281: Memory Size found by POST differed from EISA CMOS	Load Setup Defaults in BIOS Setup Utility.
02B0 Diskette drive A error	Set up the diskette type in BIOS Setup Utility.
02B1 Diskette drive B error	Set up the diskette type in BIOS Setup Utility.
02B2 Incorrect drive A type – Floppy diskette drive error	1. Floppy diskette drive. 2. External FDD cable. 3. I/O card.
02B3 Incorrect Drive B type	1. Floppy diskette drive. 2. External FDD cable. 3. I/O card.
02D0 System cache error – Cache disabled (RAM cache failed and BIOS disabled)	1. Load “Setup Default” in BIOS Setup Utility. 2. System board.
02F4 EISA CMOS not writable	1. Load “Setup Default” in BIOS Setup Utility. 2. Replace the backup battery. 3. System board.
02F5 DMA test failed	1. DIMM 2. System board
02F6 Software NMI failed	1. DIMM 2. System board

## Ch4. Symptom-to-part index

Symptom / Error	FRU or action, in sequence
02F7 Fail – Safe timer NMI failed	1. DIMM 2. System board
0611 IDE configuration changed	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0612 IDE configuration error	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0613 Com A configuration changed	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0614 Com A configuration error	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0615 Com B configuration changed	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0616 Com B configuration error	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0617 Floppy configuration changed	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0618 Floppy configuration error	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
0619 Parallel port configuration changed	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.
061A Parallel port configuration error	1. Load Setup Defaults in BIOS Setup Utility. 2. System board.

### ■ Error message

Symptom / Error	FRU or action, in sequence
Device address conflict.	<ol style="list-style-type: none"> <li>1. Load Setup Defaults in BIOS Setup Utility.</li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Allocation error for device.	<ol style="list-style-type: none"> <li>1. Load Setup Defaults in BIOS Setup Utility.</li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Failing bits: nnnn.	<ol style="list-style-type: none"> <li>1. DIMM.</li> <li>2. System board.</li> </ol>
Invalid System Configuration Data.	<ol style="list-style-type: none"> <li>1. DIMM.</li> <li>2. System board.</li> </ol>
I/O Device IRQ Conflict.	<ol style="list-style-type: none"> <li>1. Load Setup Defaults in BIOS Setup Utility.</li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Operating System not found.	<ol style="list-style-type: none"> <li>1. Check that the operating system has no failure and is installed correctly.</li> <li>2. Enter BIOS Setup Utility and see whether the hard-disk drive and the diskette drive are properly identified.</li> <li>3. Reset the hard-disk drive.</li> <li>4. Reinstall the operating system.</li> <li>5. Diskette drive.</li> <li>6. Hard-disk drive.</li> <li>7. System board.</li> </ol>
Hibernation error.	<ol style="list-style-type: none"> <li>1. Restore the system configuration to what it was before the computer entered hibernation mode.</li> <li>2. If memory size has been changed, re-create the hibernation file.</li> </ol>
FAN error.	Fan.
Thermal sensing error.	System board.



### ■ LCD-related symptoms

**Note**

Before removing or disassembling LCD, power off the computer, unplug all power cords from electrical outlets, remove the battery pack also.

Symptom / Error	FRU or action, in sequence
LCD screen becomes dark suddenly.	Check out Battery Miser.
Nothing displayed on LCD screen.	<ol style="list-style-type: none"><li>1. Check out Battery Miser.</li><li>2. Choose Never in the Turn off Monitor item on Power Options Properties.</li><li>3. Check the power save mode switch if it is pressed by something.</li><li>4. Check the System is in standby or hibernation mode.</li></ol>
LCD backlight not working. LCD too dark. LCD brightness cannot be adjusted.	<ol style="list-style-type: none"><li>1. Reconnect inverter to the board connector.</li><li>2. Replace inverter.</li><li>3. LCD assembly.</li><li>4. System board.</li></ol>
LCD color cannot be adjusted. LCD screen abnormal. Characters missing pixels. LCD screen unreadable. Wrong color displayed.	<ol style="list-style-type: none"><li>1. Reset all LCD connectors.</li><li>2. Replace LCD cable.</li><li>3. LCD assembly.</li><li>4. System board.</li></ol>
Horizontal or vertical lines displayed on LCD	LCD assembly.
Power-on indicator on, and a blank LCD during POST.	LCD assembly. System board.

### ■ Indeterminate problems

- You are here because the diagnostic tests did not identify which adapter or device failed, wrong devices are installed, a short circuit is suspected, or the system is inoperative.

Follow these procedures to isolate the failing FRU (do not isolate FRUs that have no defects).

- Verify that all attached devices are supported by the computer.
- Verify that the power supply being used at the time of the failure is operating correctly.
  1. Power off the computer
  2. Visually check each FRU for damage. Replace any damaged FRU.
  3. Remove or disconnected all of the following devices :
    - a. Non-LG devices.
    - b. Printer, mouse, and other external devices.
    - c. Battery pack.
    - d. PC cards.
    - e. ODD (CD-ROM, Combo) drive or FDD drive in the Bay.
    - f. Hard-disk drive.

#### **Note**

Use the other memory card because it needs when operating computer.

4. Power on the computer.
5. Determine whether the problem has changed.
6. If the problem does not recur, reconnect the removed devices one at a time until you find the failing FRU.
7. If the problem remains, replace the following FRUs one at a time.

(do not replace a non-defective FRU)

  - a. LCD assembly (Check external monitor whether the same problem recurs or not).
  - b. Keyboard.
  - c. Keydeck (TouchPad and Scroll Button assembly).
  - d. System board.

## Chapter 5. Removing and replacing a part (FRU)

**Danger**

Before removing any FRU, power off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.

**Caution**

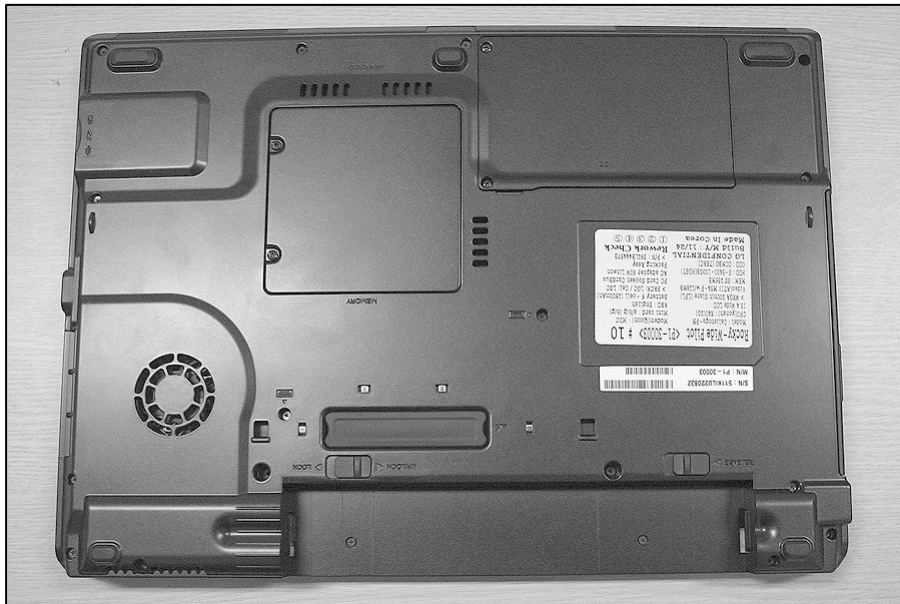
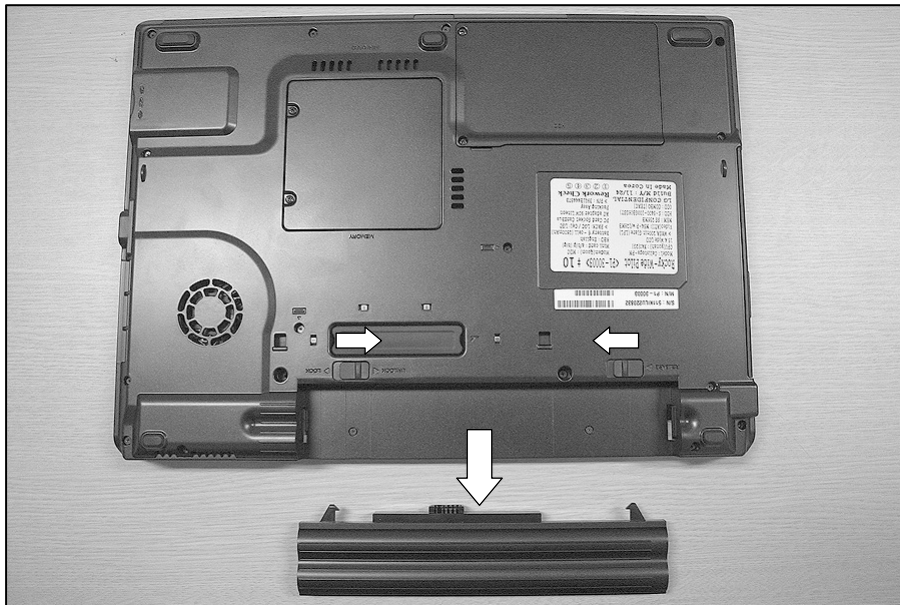
Before the computer is powered on after FRU replacement, make sure that all screws, springs, and other small parts are in place and are not loose inside the computer. Verify metal flakes can cause electrical short circuits.

**Note**

As for the screw, every Torque  $3 \pm 0.2 \text{ Kgfc}\cdot\text{cm}$  (0.196Nm)

### ■ 1010 Battery Pack

1. Push the battery latch in the direction shown below; then slide the battery pack out of the slot.

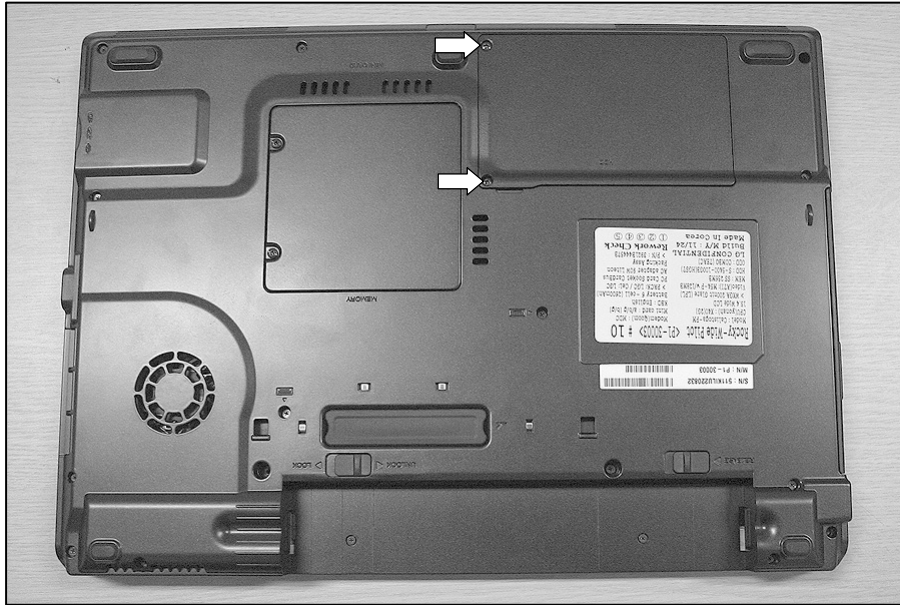


### ■ 1020 Hard Disk Drive

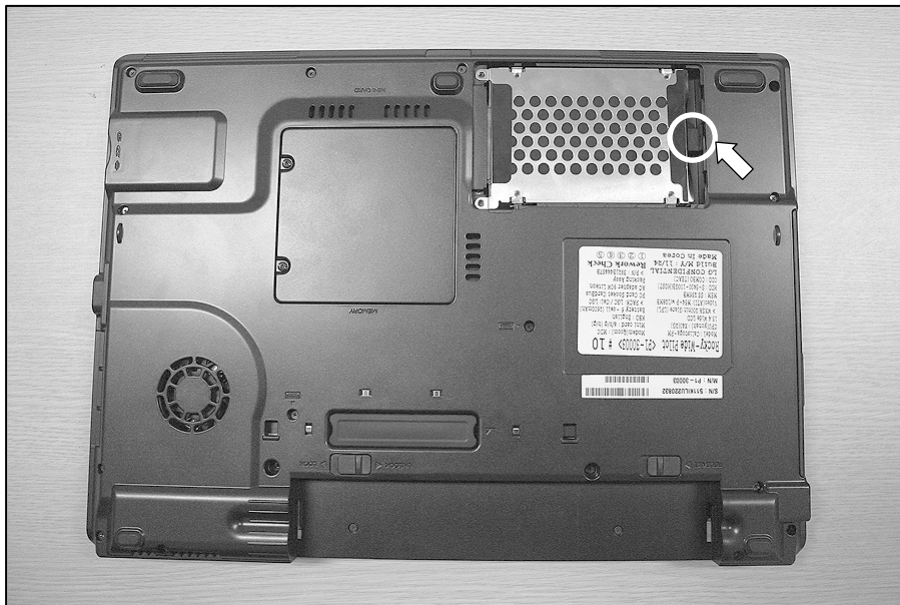
Remove the following parts in order before replacing this part.

a. Battery Pack(1010)

1. Remove the HDD cover, then remove the Vibration Cushion.



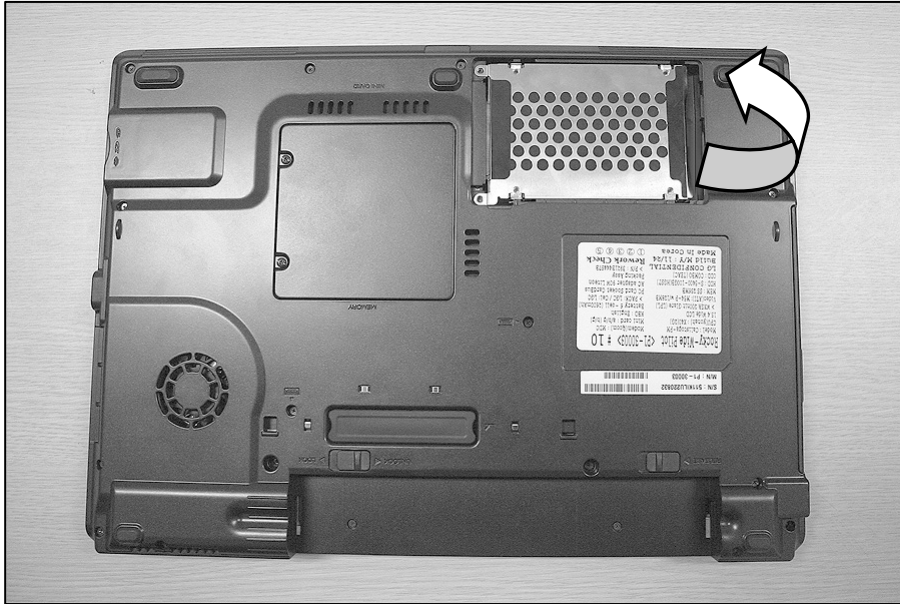
No.	FRU No.	Specification	Qty
1	1SZZBA4063D	M2.5x4.0	2



## Ch5. Removing and replacing a part

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2. Pull the HDD Assy out in the direction shown below.

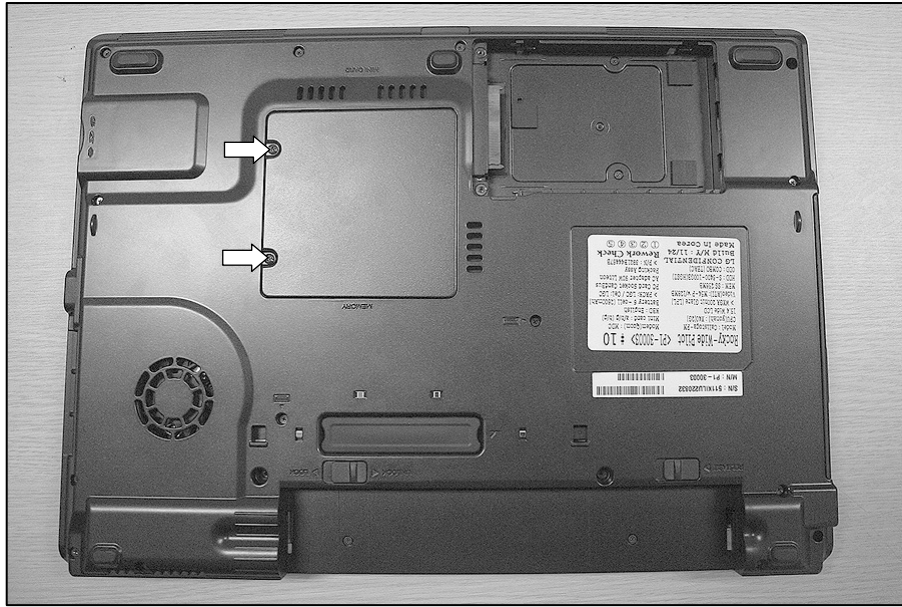


### ■ 1030 PCIE WLAN Card

Remove the following parts in order before replacing this part.

a. Battery Pack(1010) b. Hard Disk Drive(1020)

1. Remove 2 screws, then remove the Cover Mini PCI.

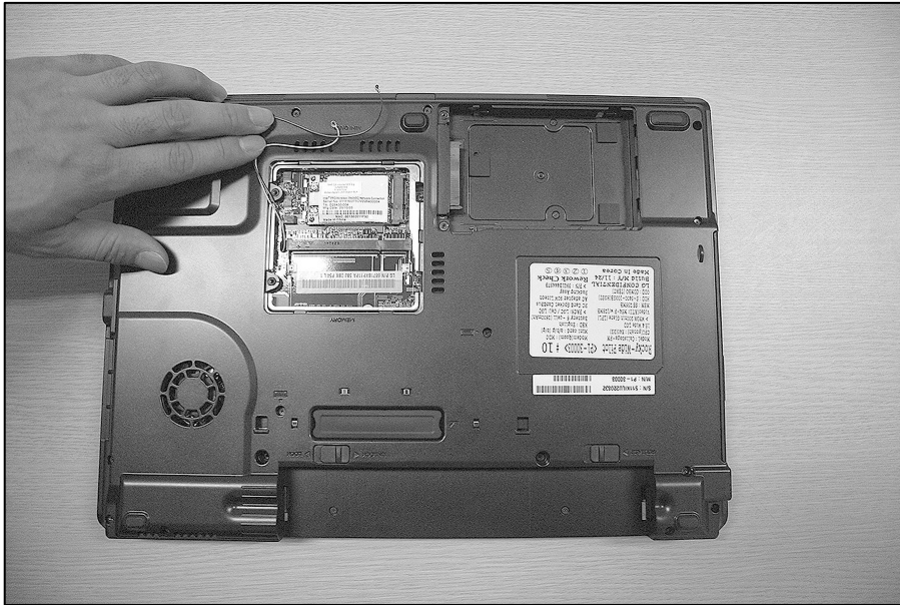


No.	FRU No.	Specification	Qty
1	1SZZBA4063C	M2.5x3.5	2

## Ch5. Removing and replacing a part

---

2. Disconnect the WLAN Card Antenna cable, then remove the WLAN Card.





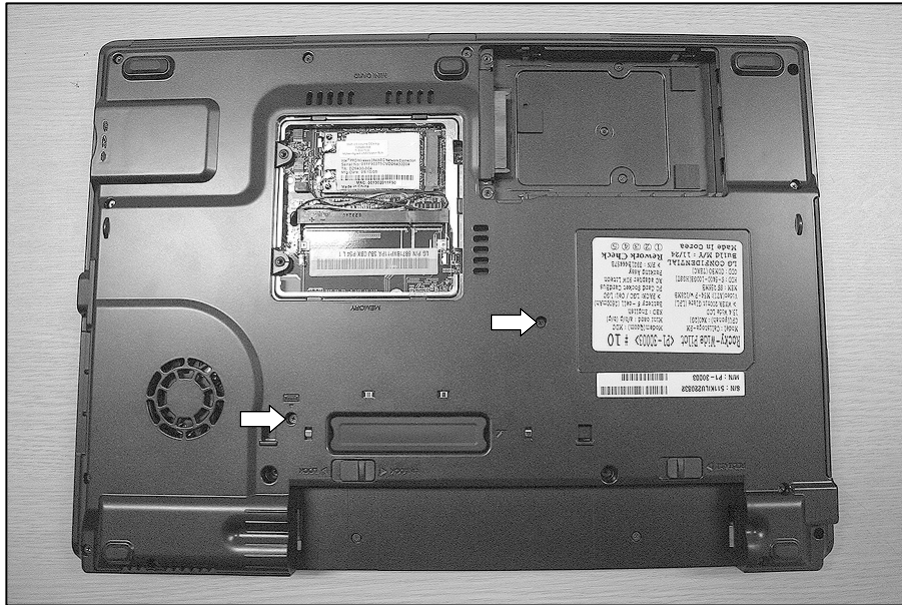
## Ch5. Removing and replacing a part

### ■ 1040 Keyboard

Remove the following parts in order before replacing this part.

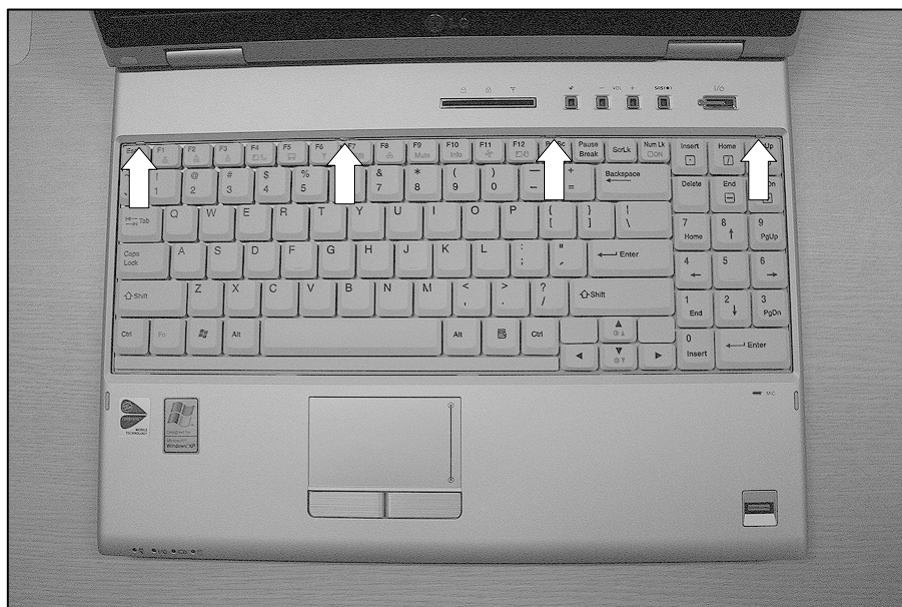
a. Battery Pack(1010) b. Hard Disk Drive(1020) c.PCIE WLAN Card(1030)

1. Remove 2 screws.



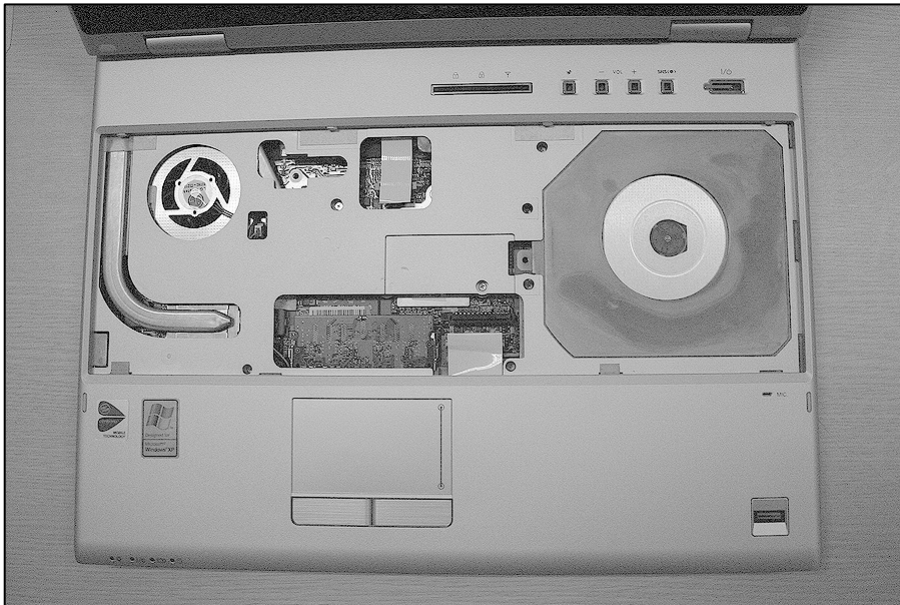
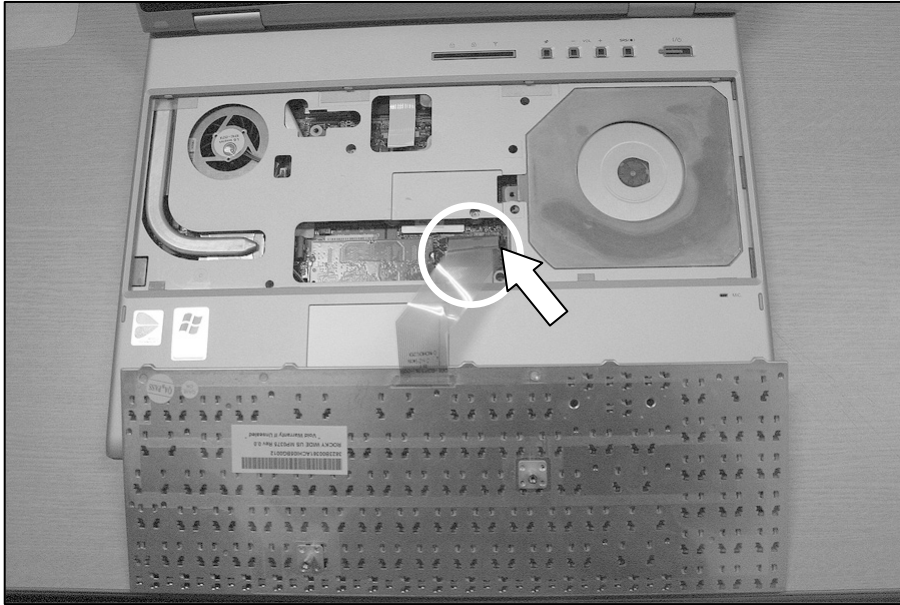
No.	FRU No.	Specification	Qty
1	1SZZBA4039D	M2.5 x L8.0	2

2. To remove 4 hooks, insert a (-) type screwdriver into a hook located at the top of keyboard, and pull it up.



## Ch5. Removing and replacing a part

3. Disconnect the keyboard connector.

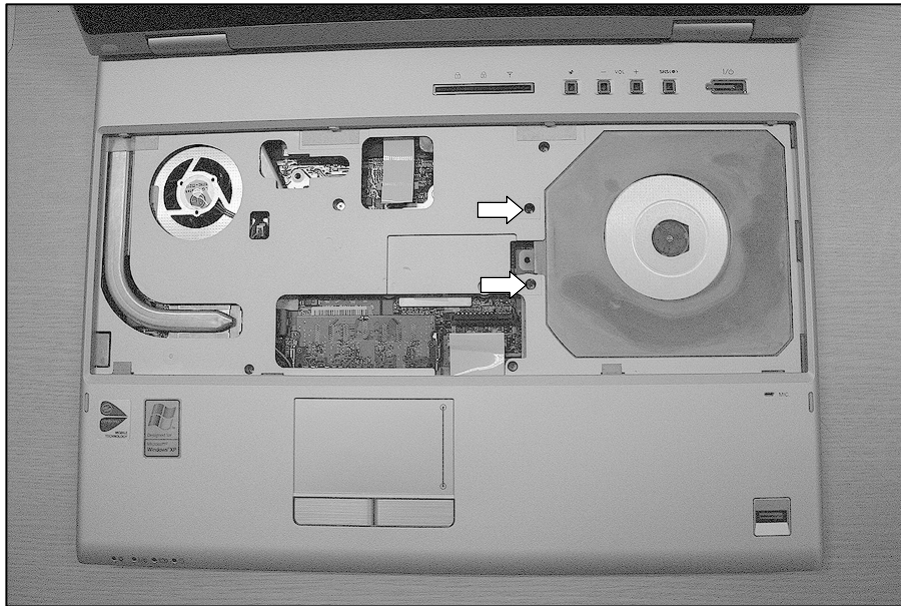


### ■ 1050 Optical Disk Drive

Remove the following parts in order before replacing this part.

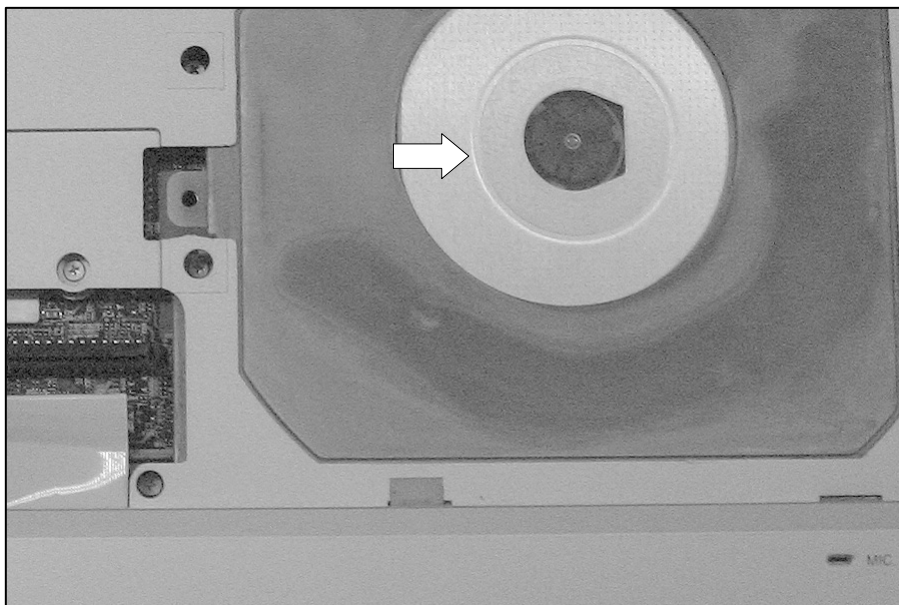
a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)

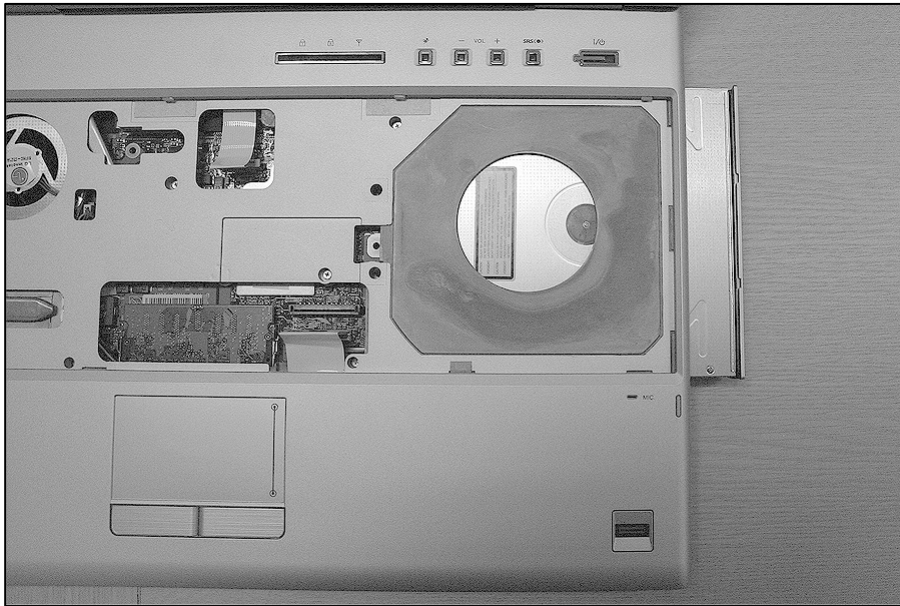
1. Remove 2 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4019L	M2.0 x L4.5	2

2. Remove a screw, insert a screwdriver into the hole located at the rear of ODD and push it out.



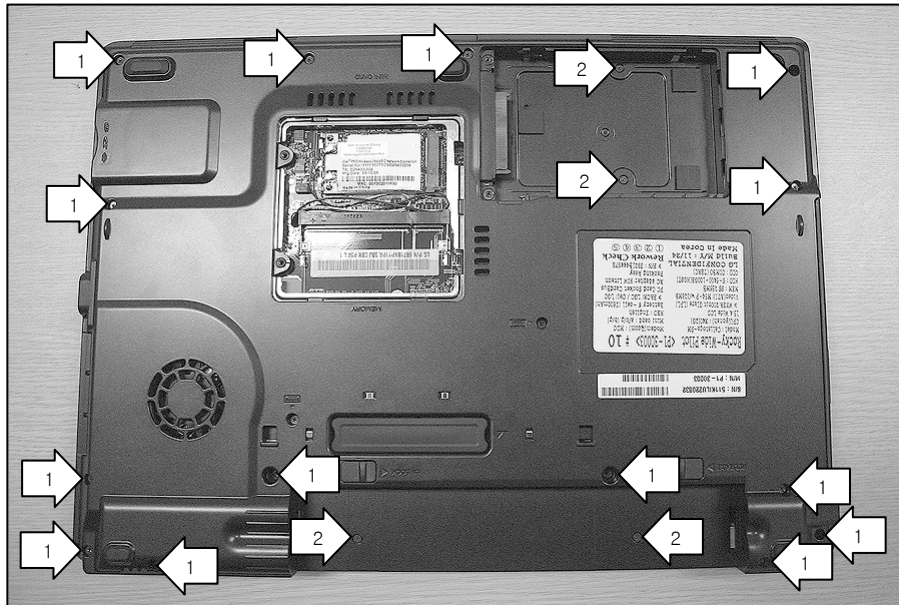


### ■ 1060 Keyboard Deck

**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050)

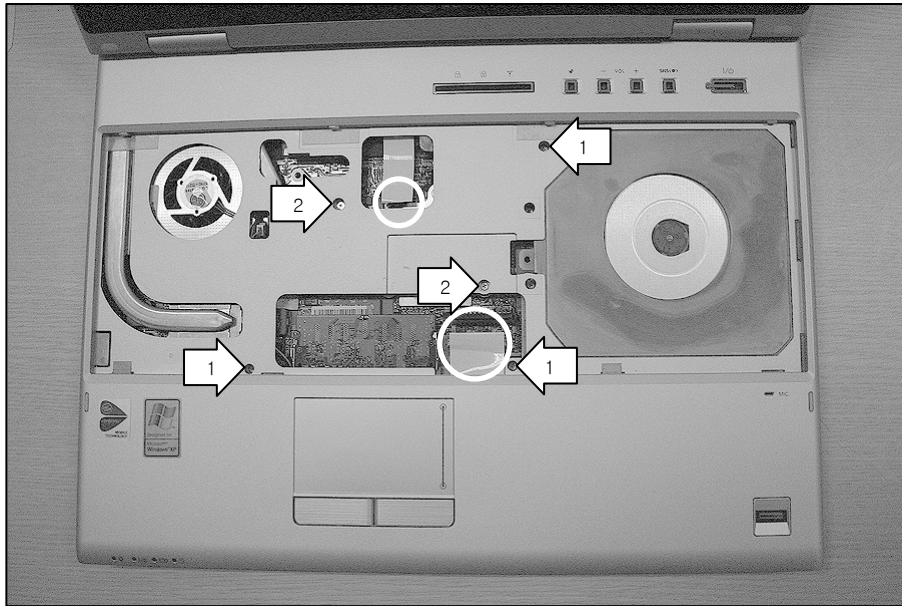
1. Remove 18 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4039D	M2.5 x L8.0	14
2	1SZZBA4017E	M2.0 x L3.0	4

## Ch5. Removing and replacing a part

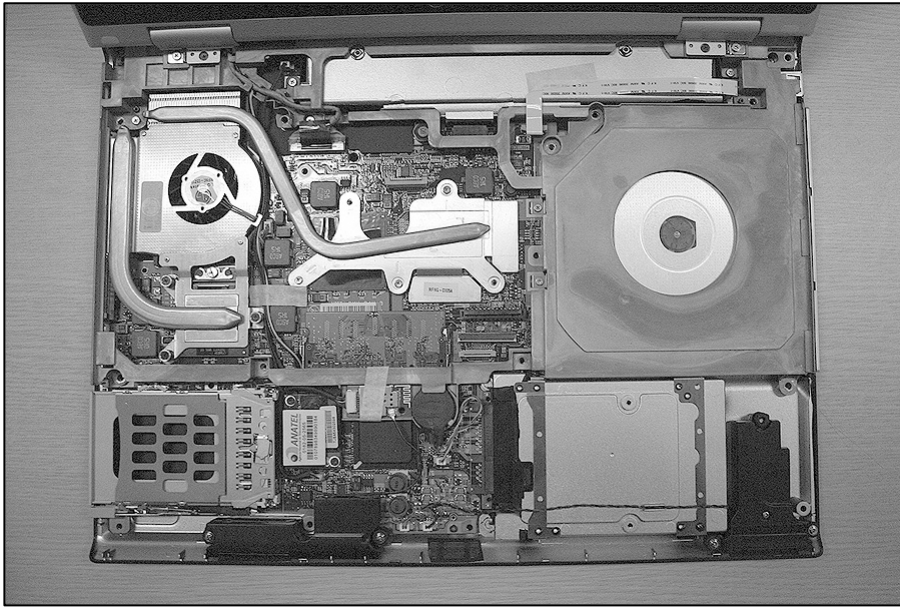
2. Disconnect the cable, then remove 5 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4080J	M2.5 x L6.0	3
2	1SZZBA4019L	M2.0 x L4.5	2

3. Remove the Keyboard Deck.







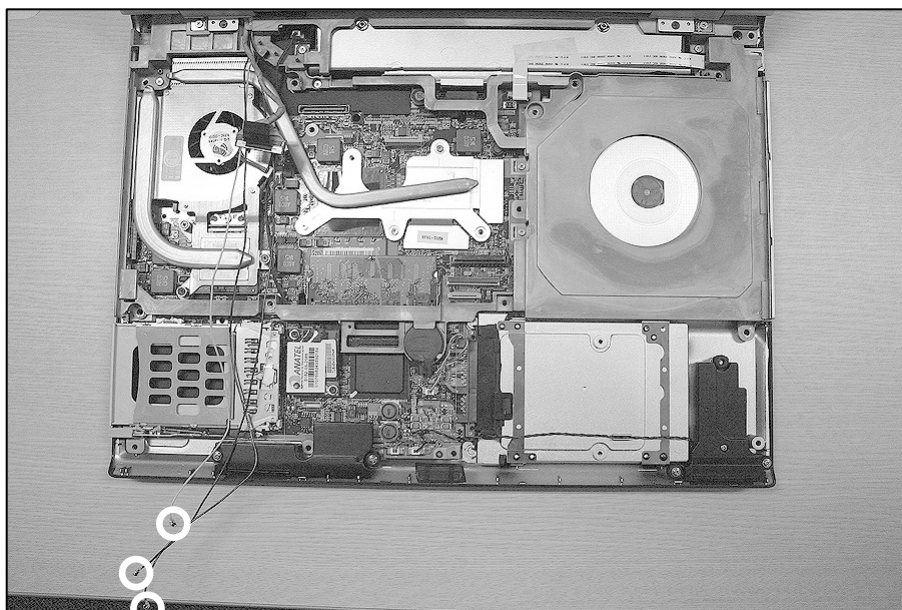
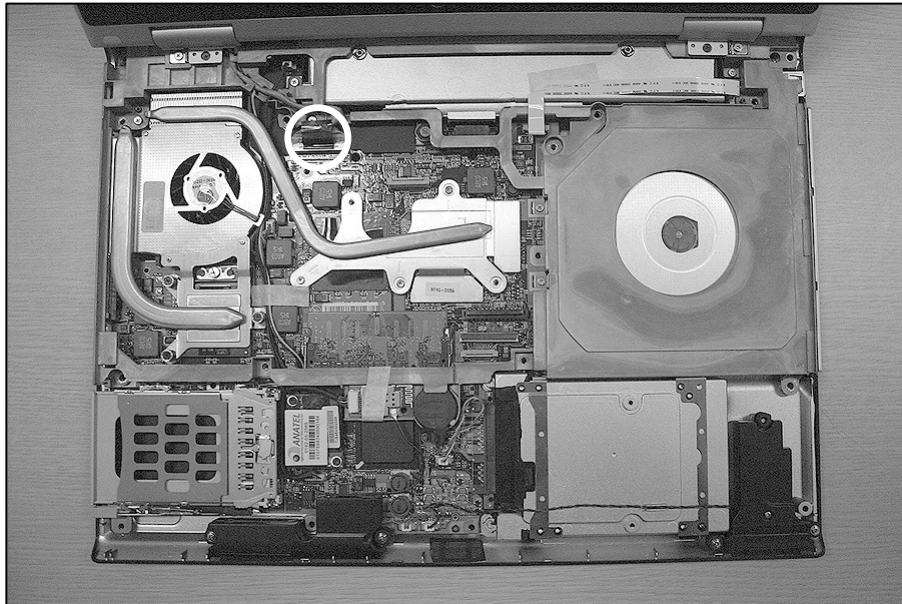
### ■ 1070 Display Module

**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060)

1. Remove the Wireless Cable from hole.

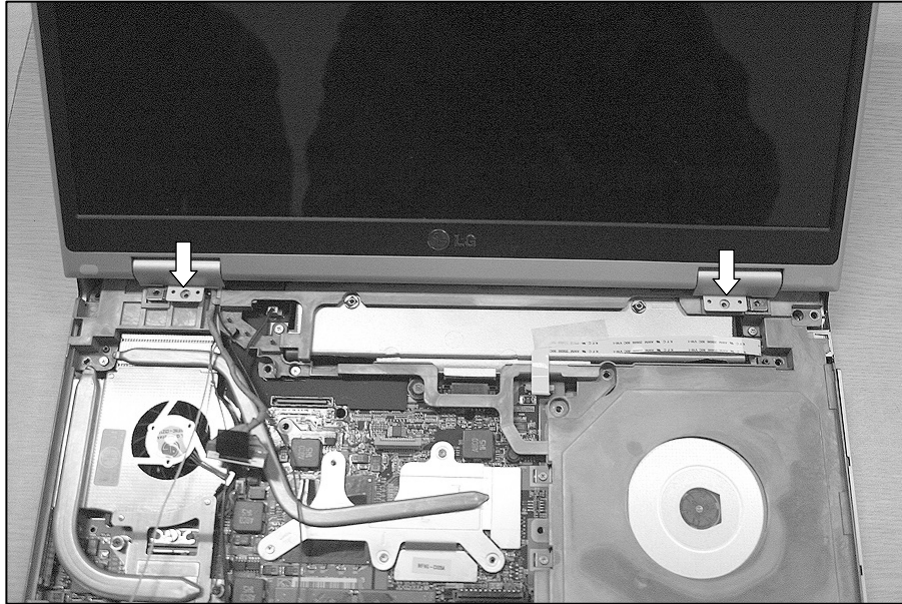
Disconnect the LCD Cable using tag.





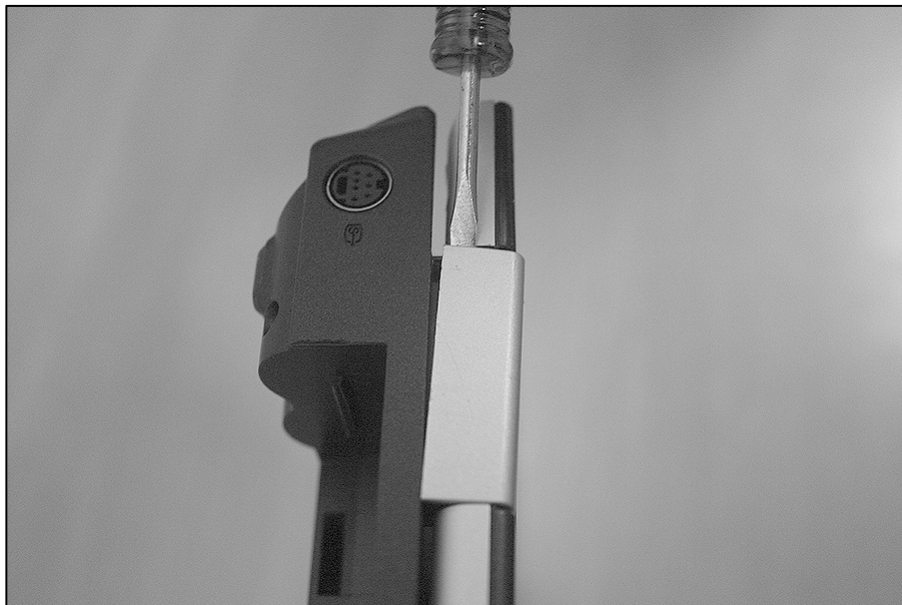
## Ch5. Removing and replacing a part

2. Remove 2 screws.

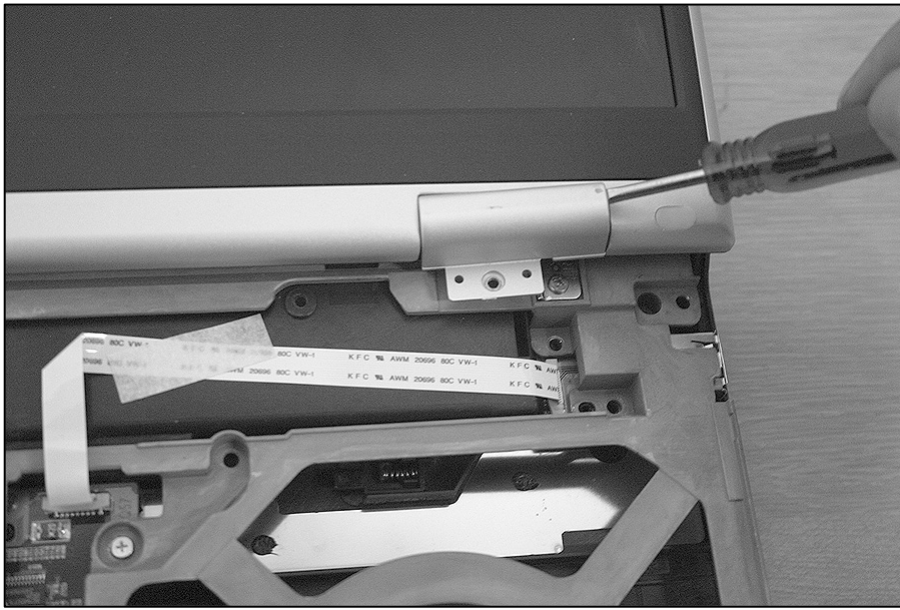


No.	FRU No.	Specification	Qty
1	1SZZBA4017E	M2.0 x L3.0	2

3. Remove the Hinge Cap using a (-) type screwdriver.



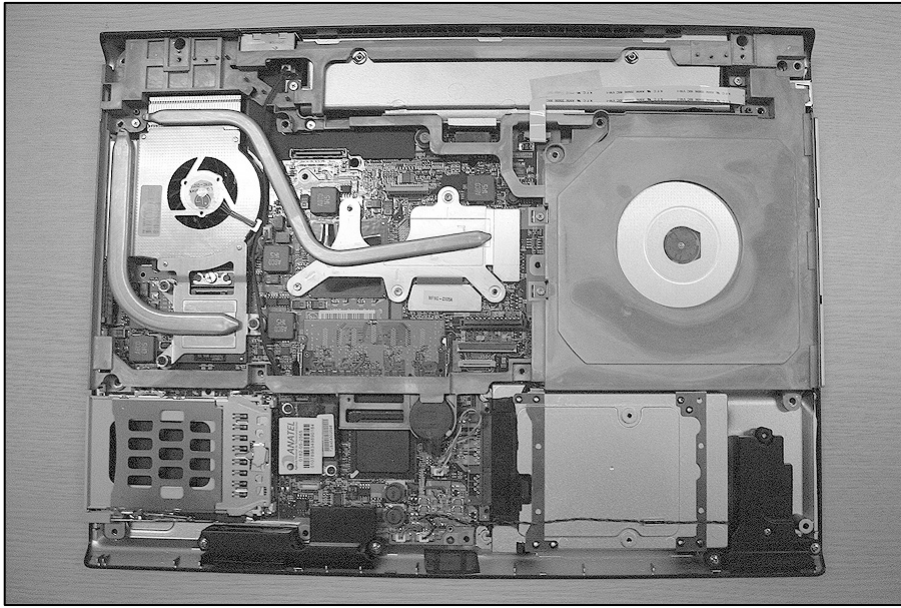
## Ch5. Removing and replacing a part



4. Remove 2 screws, then remove the Hinge.



No.	FRU No.	Specification	Qty
1	1SZZBA4080J	M2.5 x L6.0	2

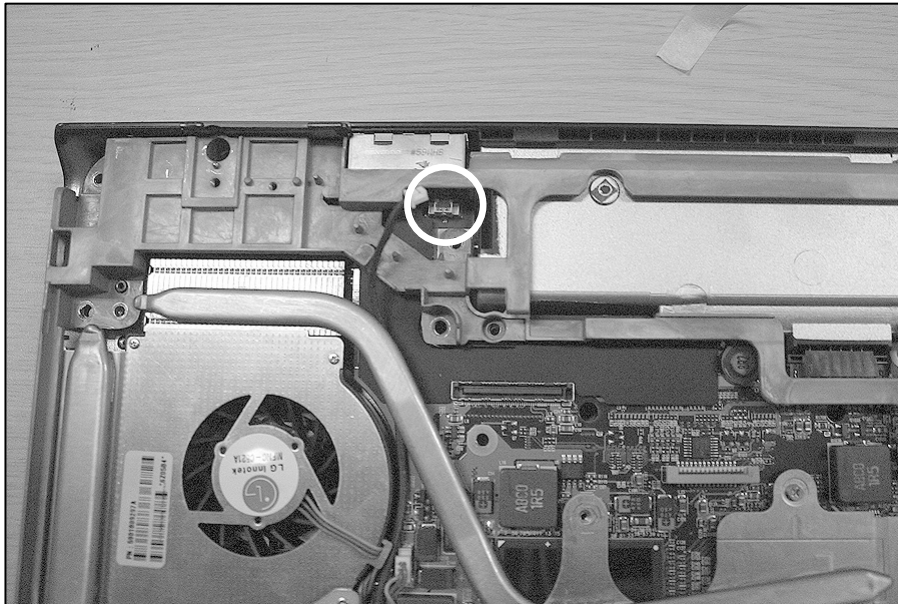


### ■ 1080 MDC MODEM

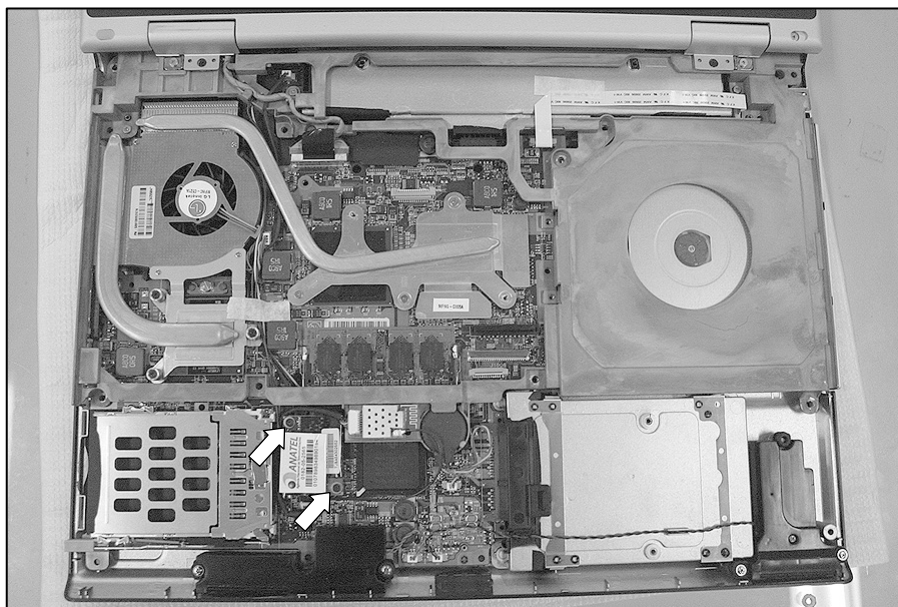
**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Disconnect the MDC cable connector.



2. Remove 2 screws, then remove the MDC Modem Card.



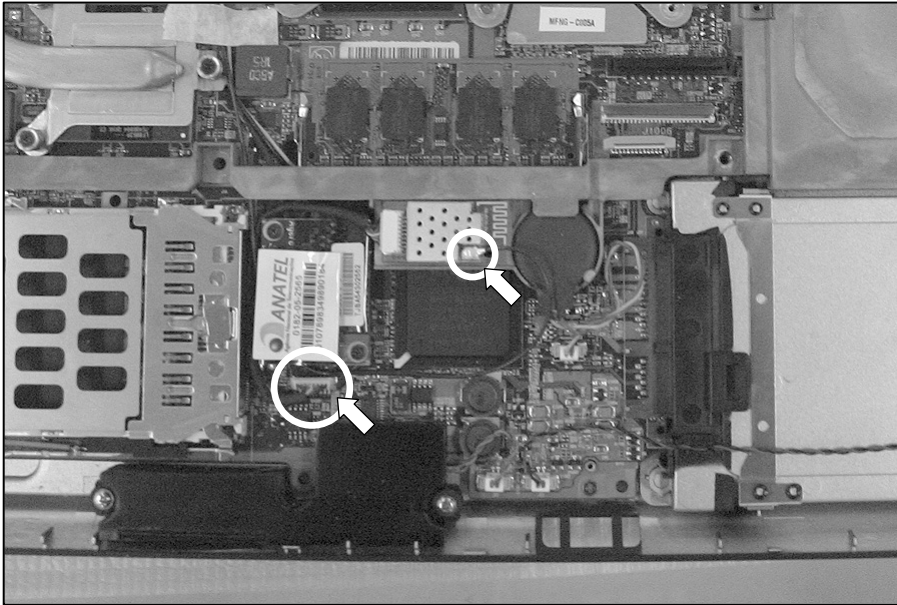
No.	FRU No.	Specification	Qty
1	1SZZBA4023A	M2.0 x L3.5	2

### ■ 1090 Bluetooth MODEM

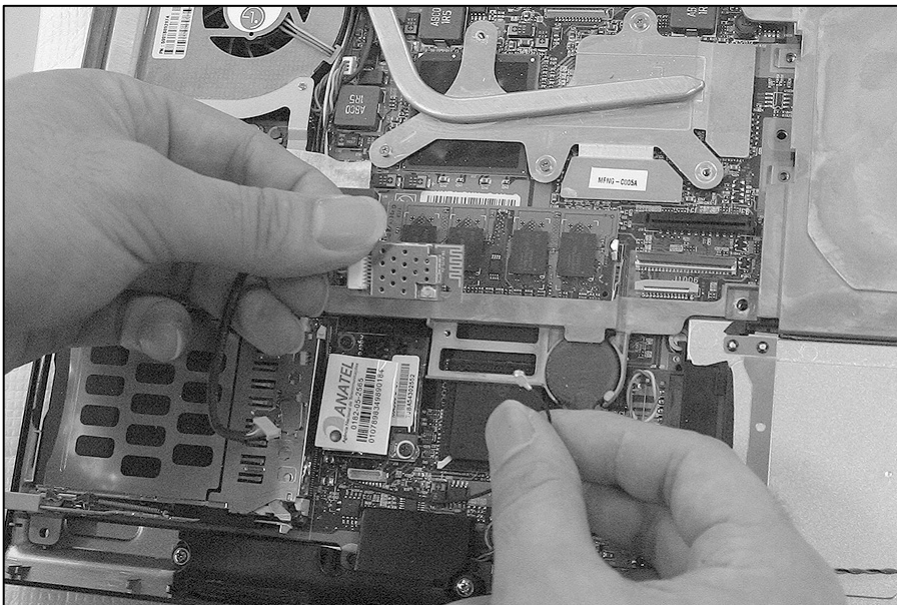
Remove the following parts in order before replacing this part.

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)
- e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Disconnect the Bluetooth antenna Cable.



2. Remove the Bluetooth card.

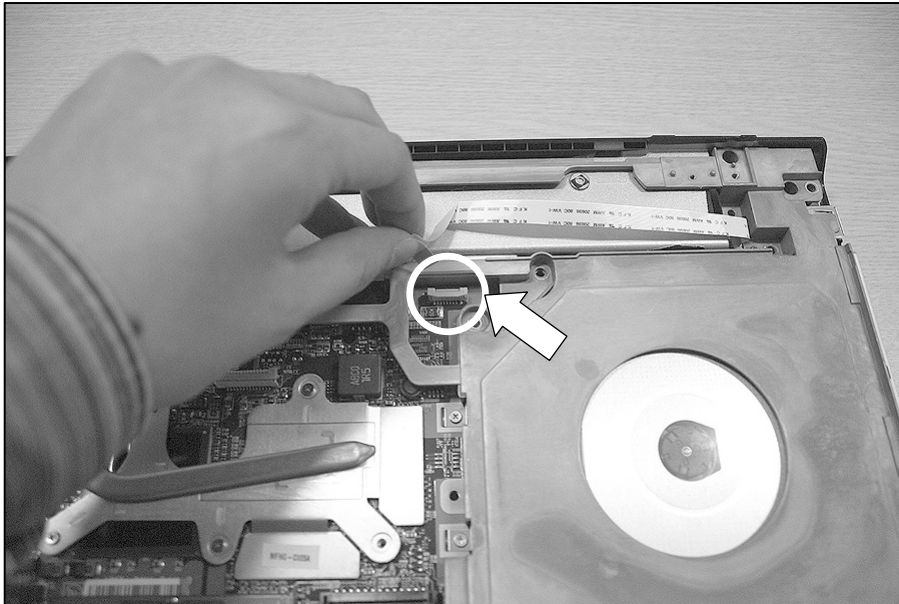


### ■ 1100 Middle Frame

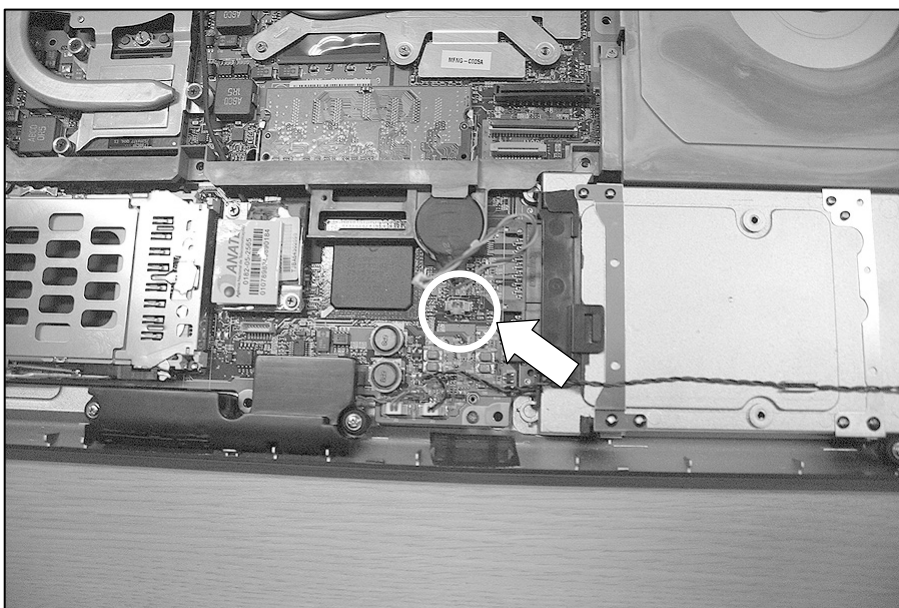
**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)
- e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Disconnect the S-video Connector.



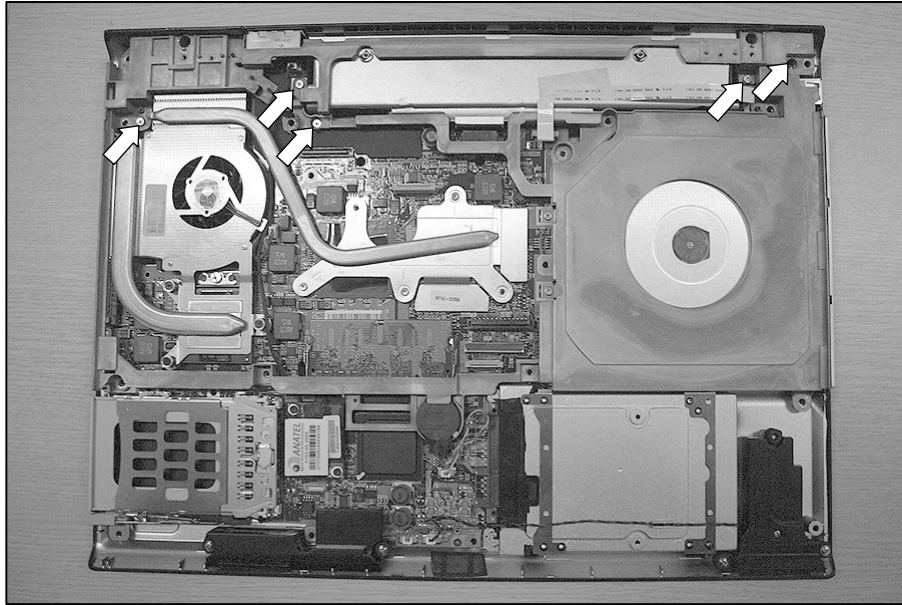
2. Disconnect the RTC Battery Connector.



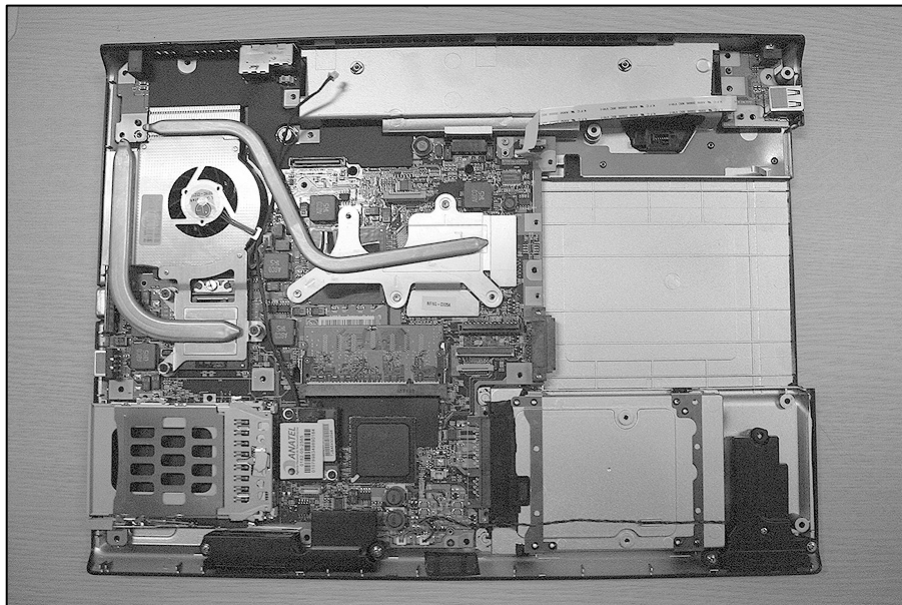


## Ch5. Removing and replacing a part

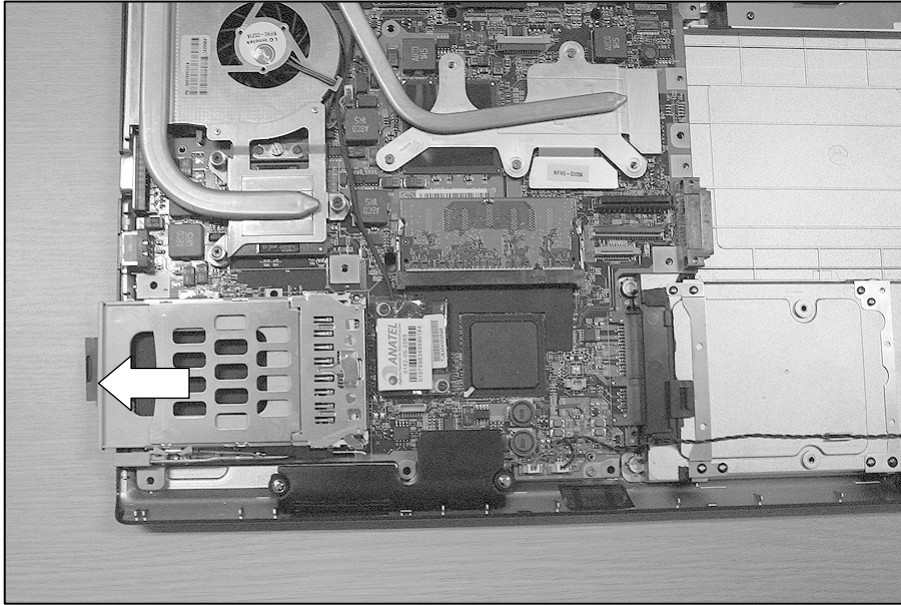
3. Remove 5 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4080J	M2.5 x L6.0	5



### 4. Remove the Cardbus/5-in-1 Dummy.



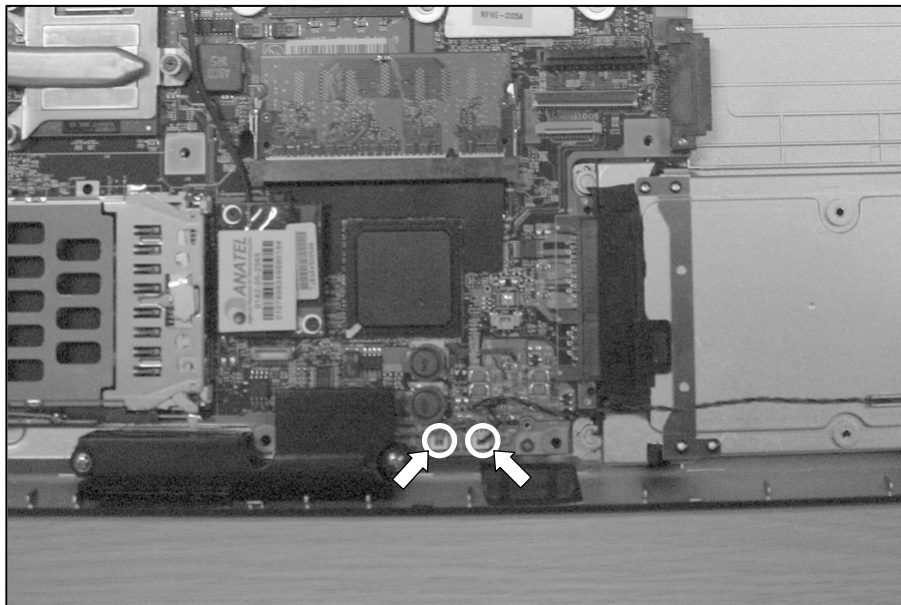
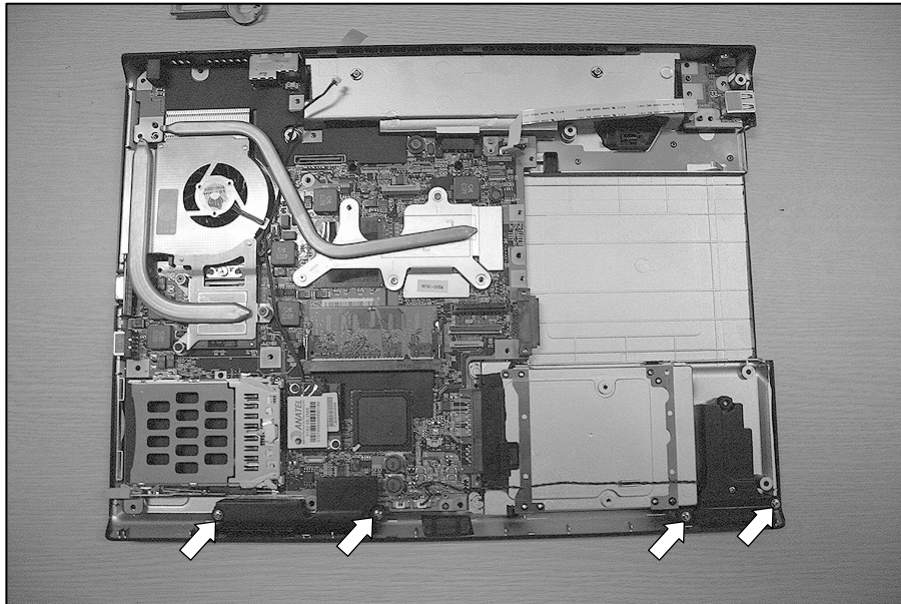


### ■ 1110 Speaker

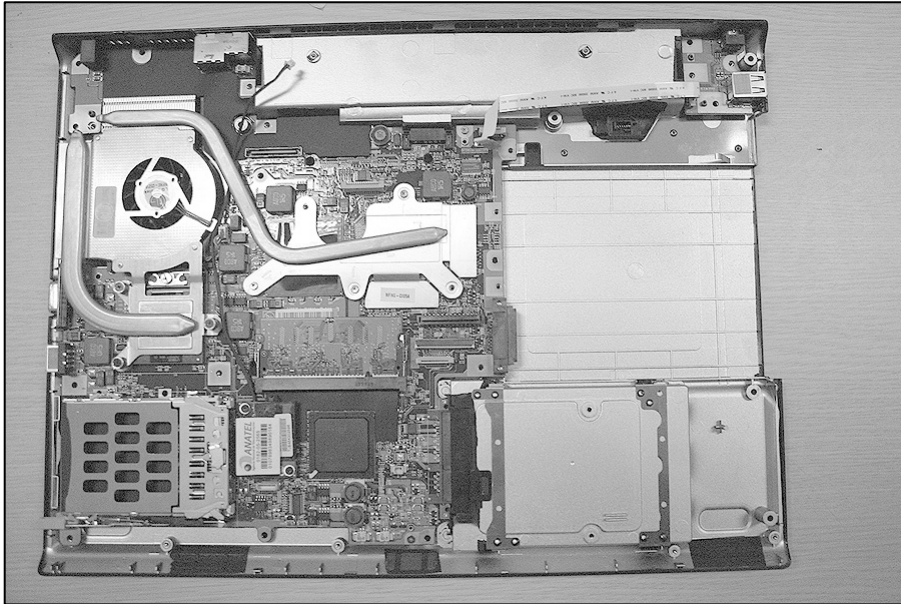
**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. Keyboard(1040) d. Optical Disk Drive(1050)  
e. Keyboard Deck(1060) f. Display Module(1070)

1. Remove 4 screws, then disconnect the Speaker Cable. Remove the Speaker Module.



No.	FRU No.	Specification	Qty
1	1SZZBZ4039A	M2.0 x L8.4	4

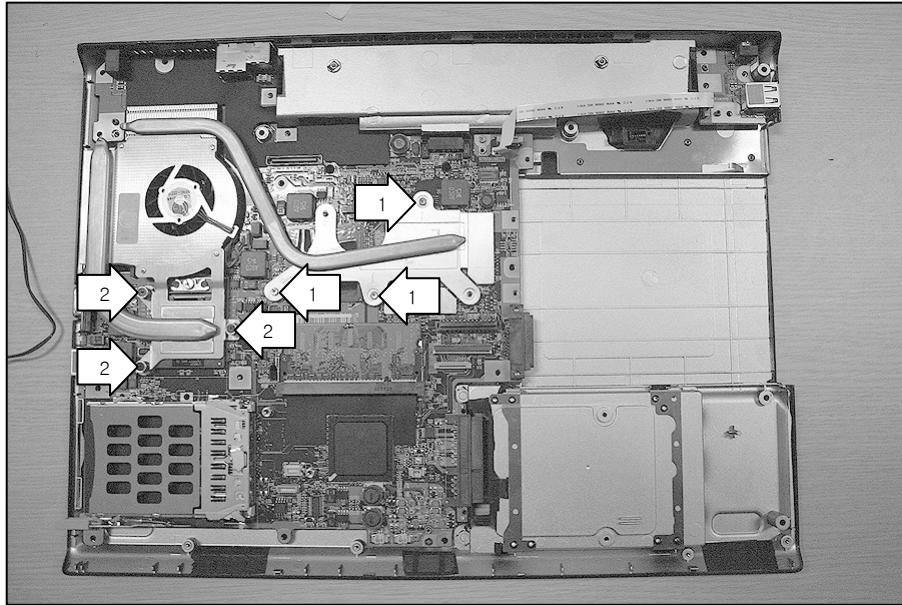


### ■ 1120 Fan Assembly

**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Remove 6 screws.

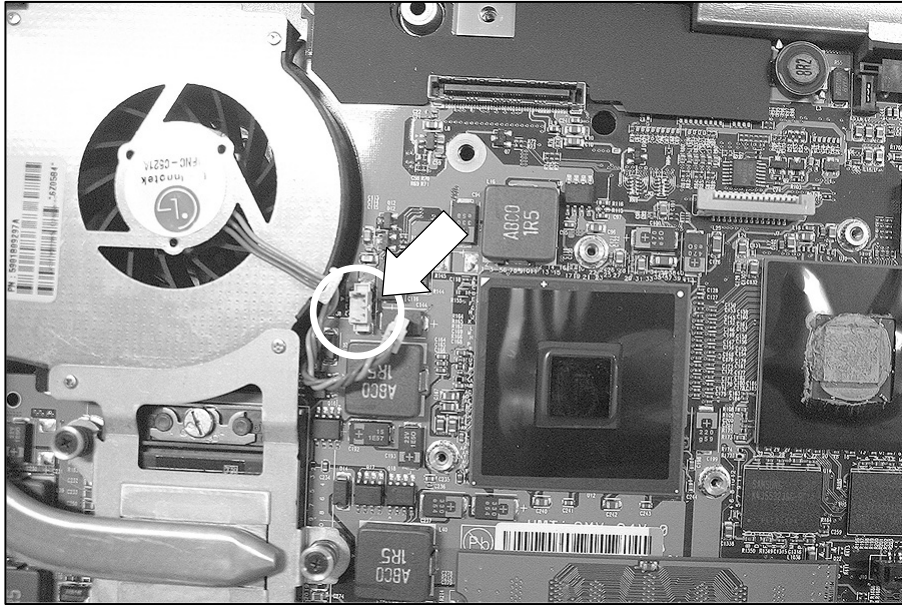


No.	FRU No.	Specification	Qty
1	1SZZBZ4022B	M2.0 x L12	3
2	1SZZBA4023A	M2.0 x L3.5	3

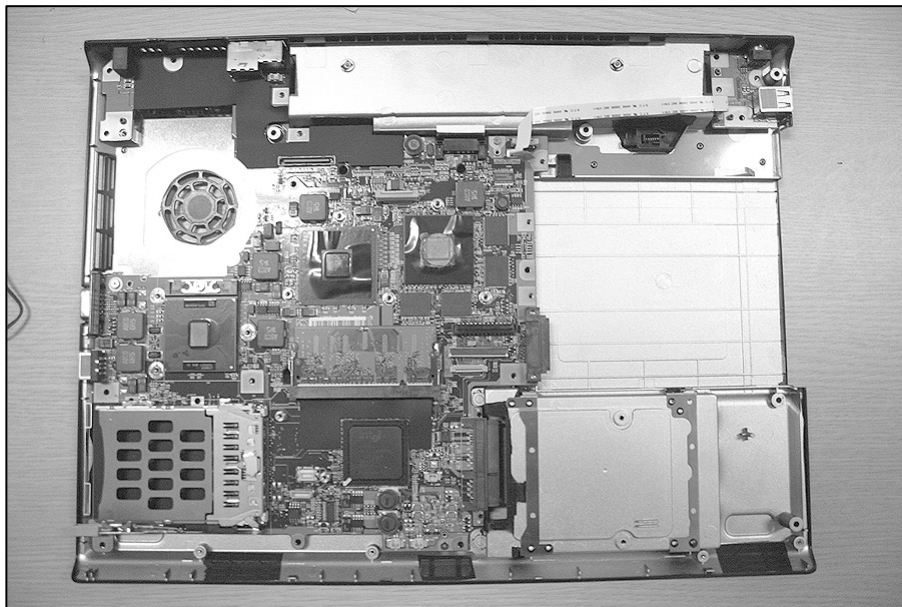
## Ch5. Removing and replacing a part

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2. Disconnect the Fan Assembly connector.



3. Remove the Fan Assembly.

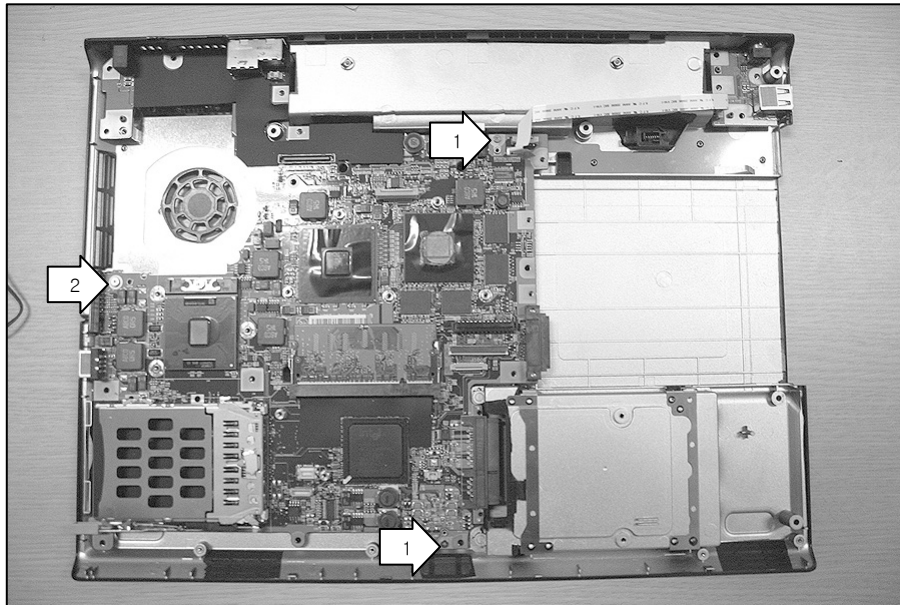


### ■ 1130 Main Board

**Remove the following parts in order before replacing this part.**

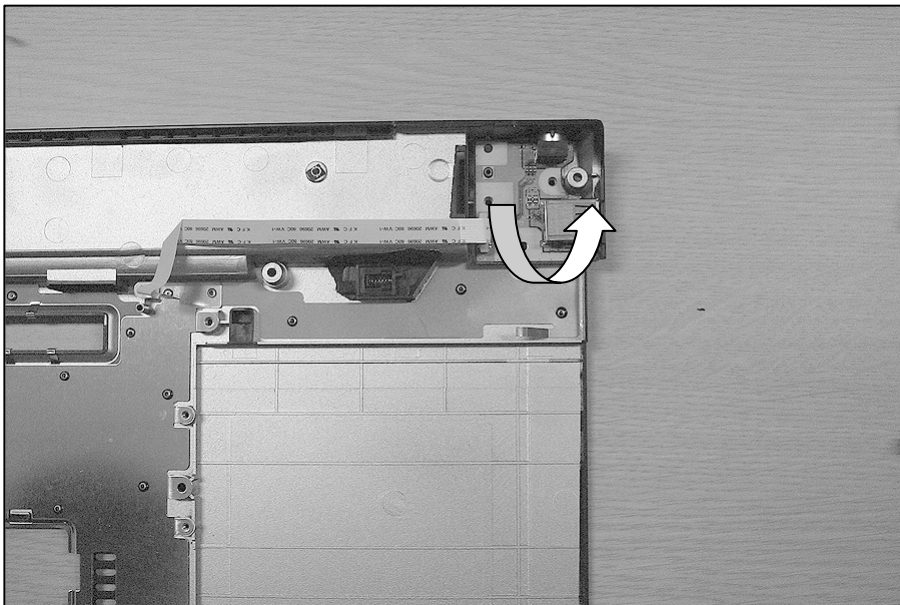
- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Remove 3 screws.

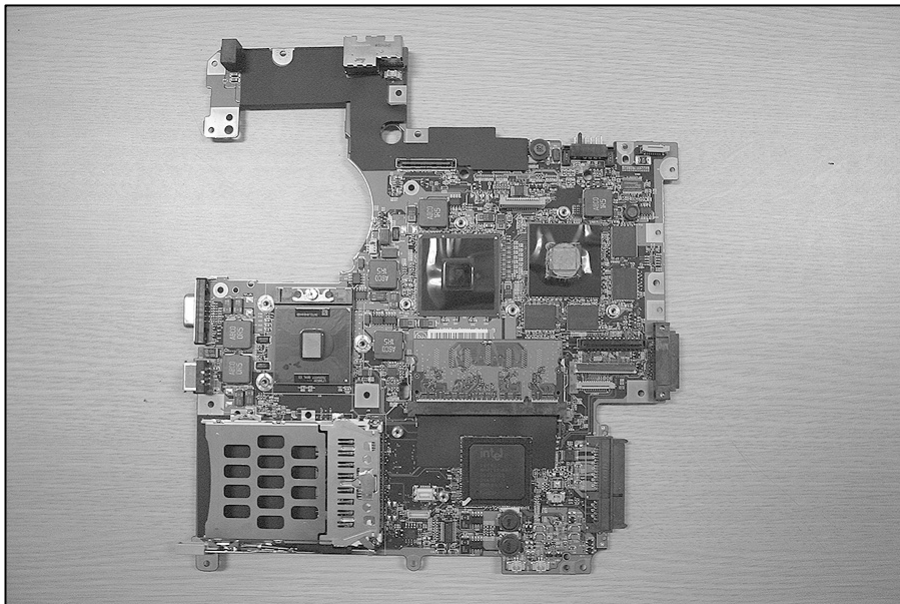
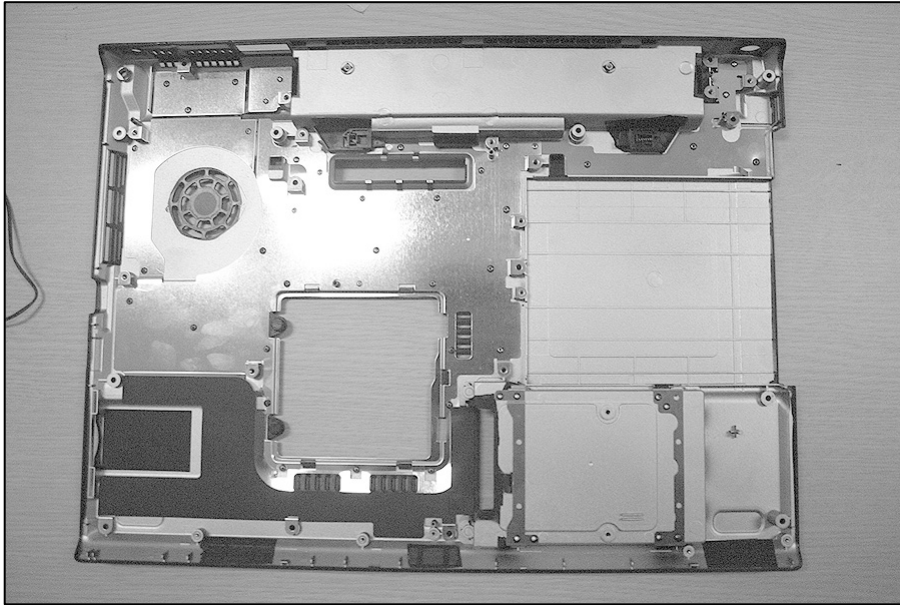


No.	FRU No.	Specification	Qty
1	1SZZBA4023A	M2.0 x L3.5	2
2	1SZZBA4080J	M2.5 x L6.0	1

2. Remove the S-video Sub Board.



### 3. Remove the Main Board.



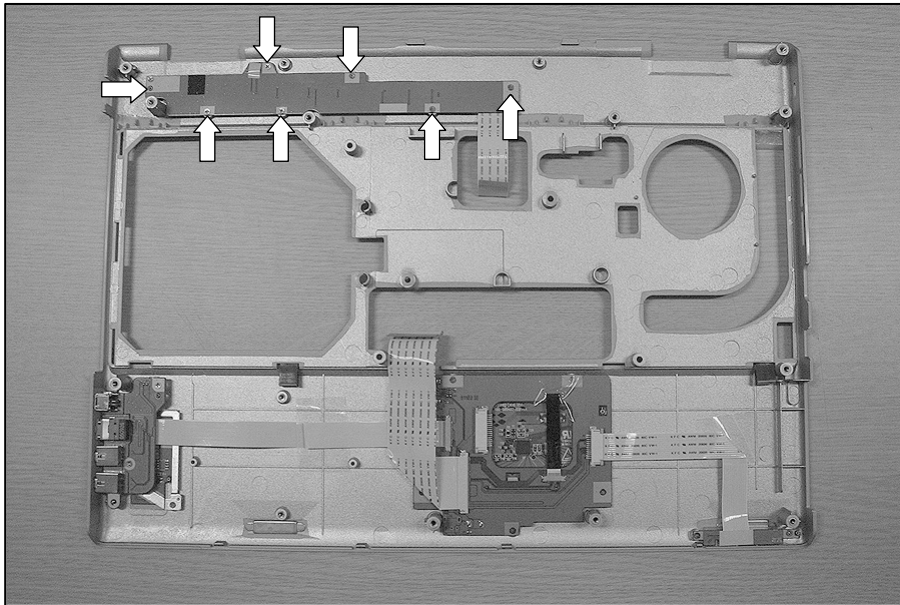


### ■ 1140 Button Sub Assembly

**Remove the following parts in order before replacing this part.**

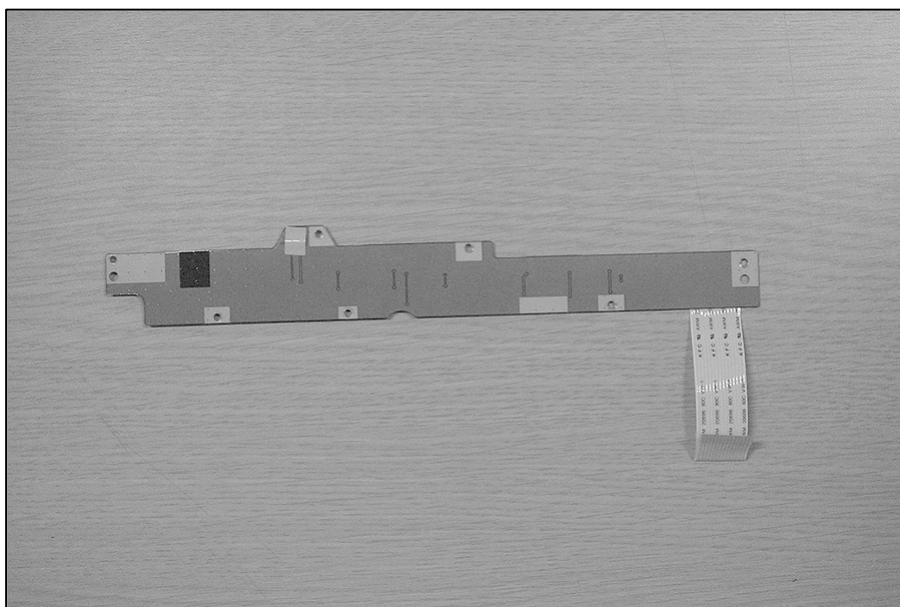
- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Remove 7 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4041A	M2 x L3.0	7

2. Remove the Button Sub Assembly.

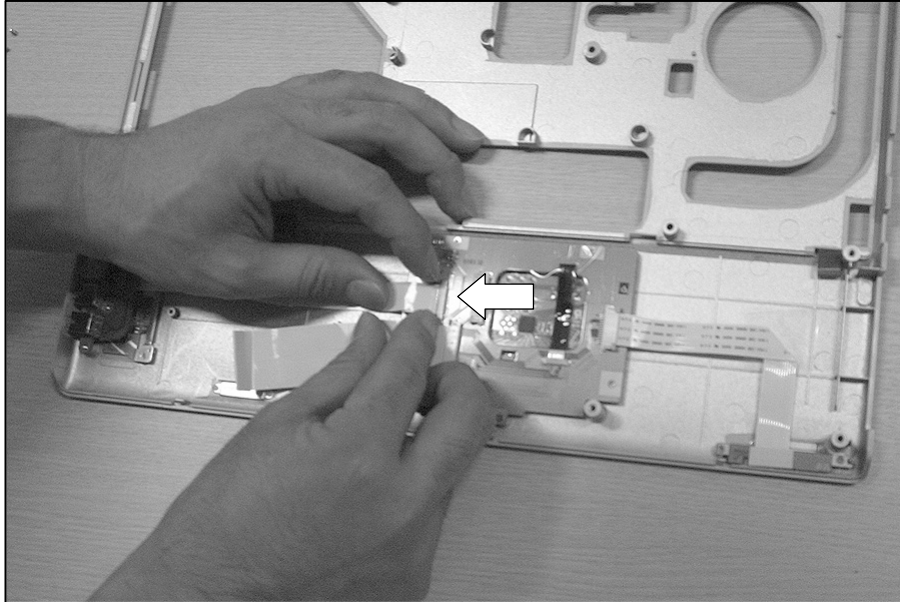


### ■ 1150 Audio sub board

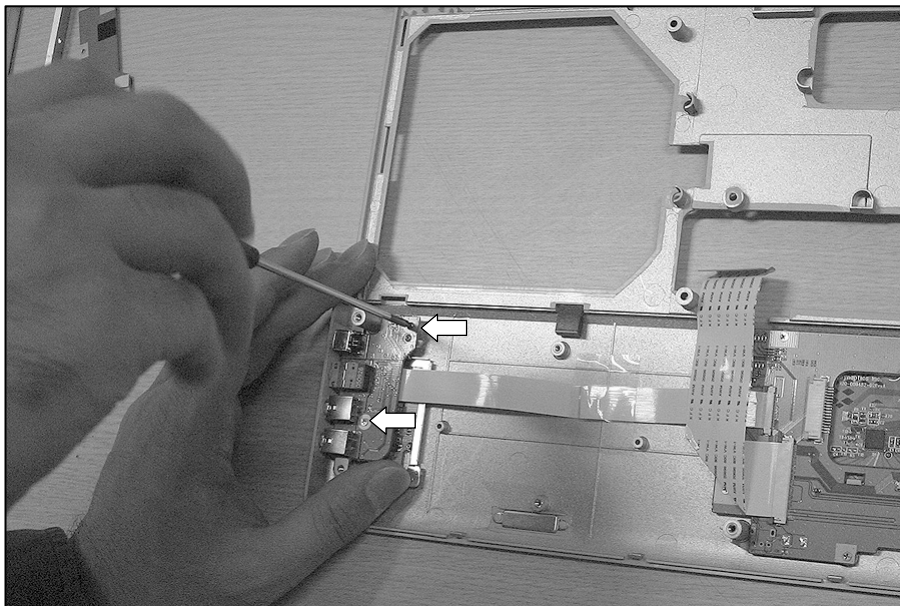
**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Disconnect the Audio Connector.



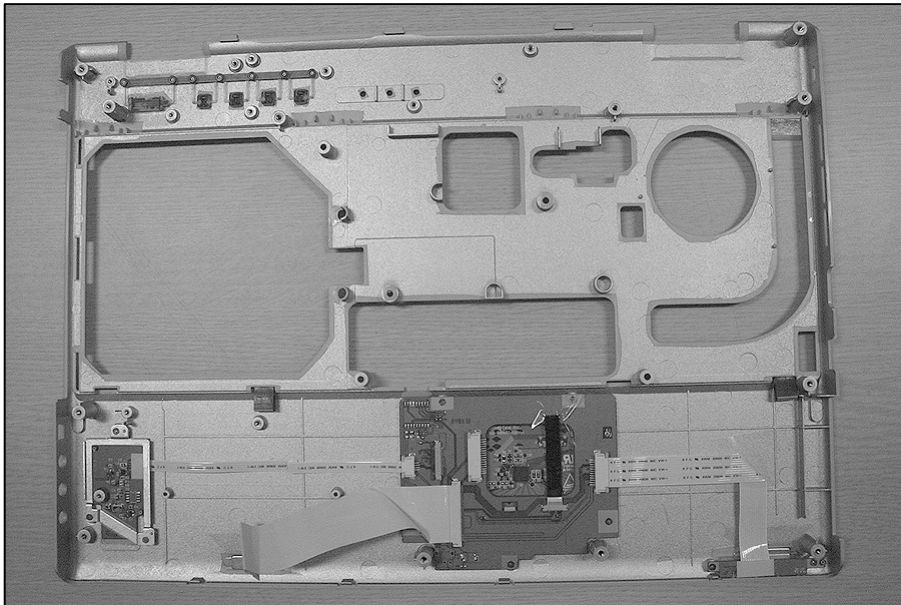
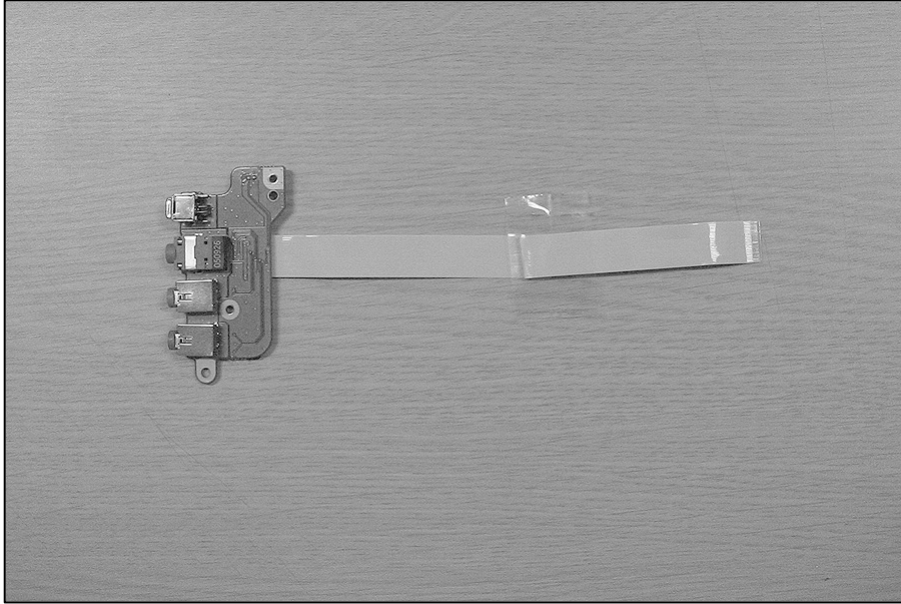
2. Remove 2 screws.



No.	FRU No.	Specification	Qty
1	1SZZBA4041A	M2 x L3.0	2



3. Remove the Audio sub board.

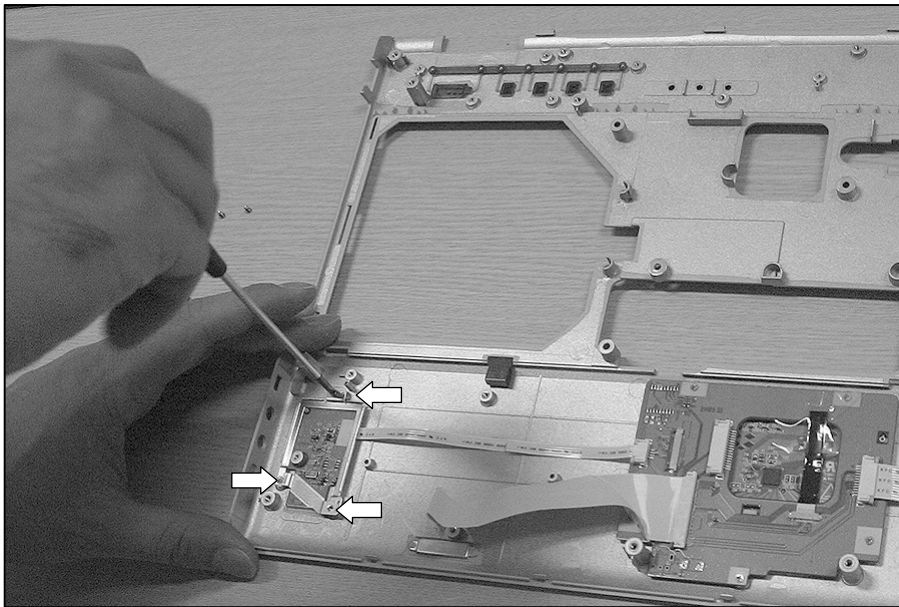


### ■ 1160 Finger Printing Assembly

**Remove the following parts in order before replacing this part.**

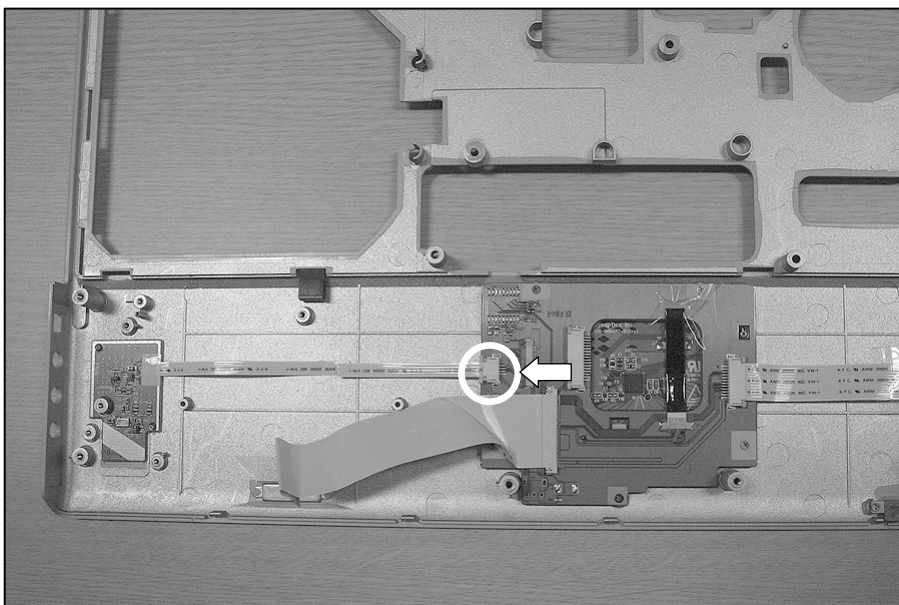
- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Remove 3 screws.

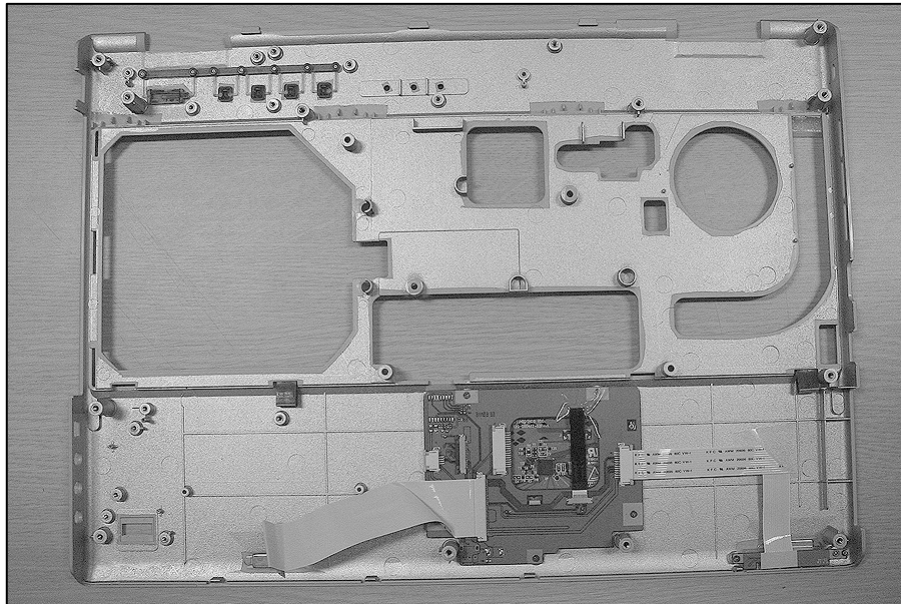
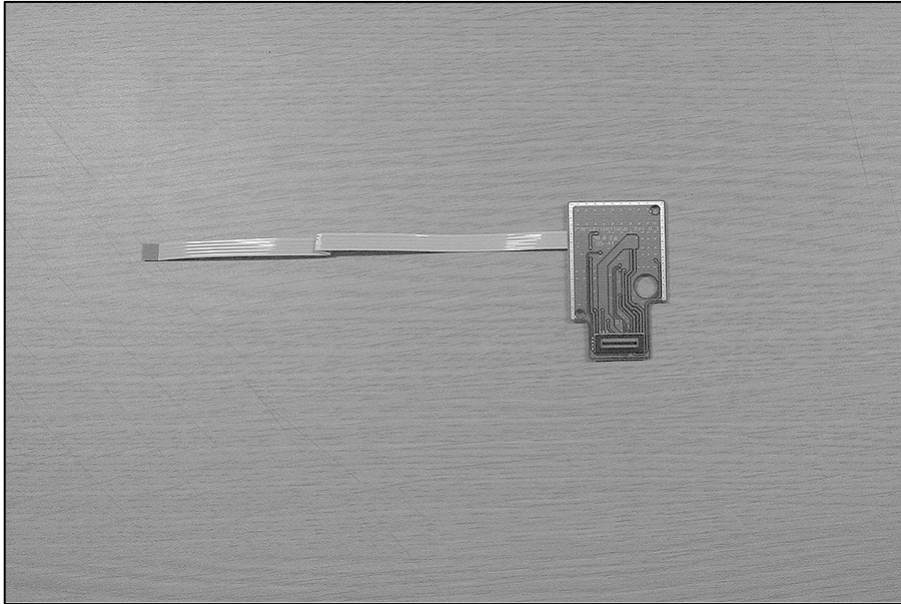


No.	FRU No.	Specification	Qty
1	1SZZBA4041A	M2 x L3.0	3

2. Disconnect the Finger Printer Connector.



2. Remove the Finger Printer.

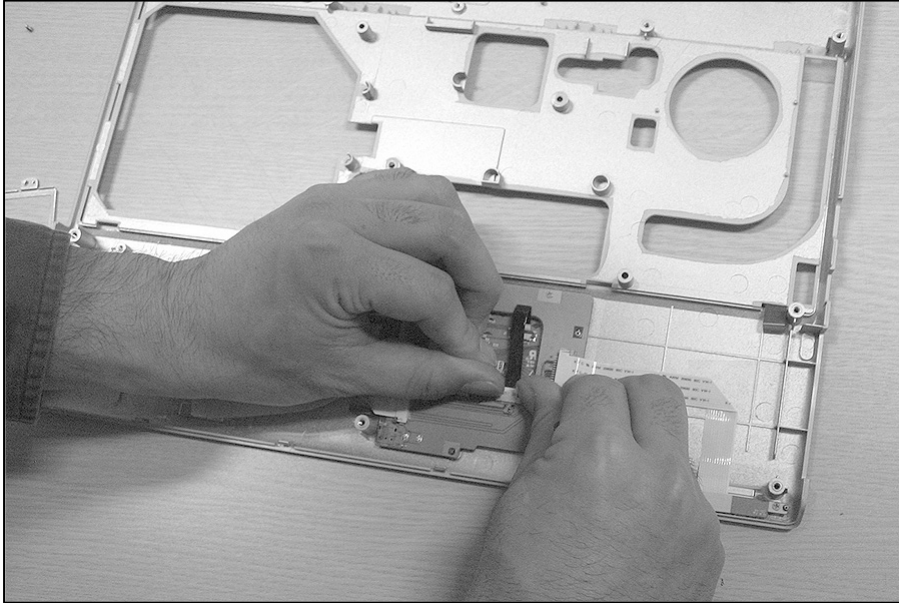


### ■ 1170 Touchpad Assembly

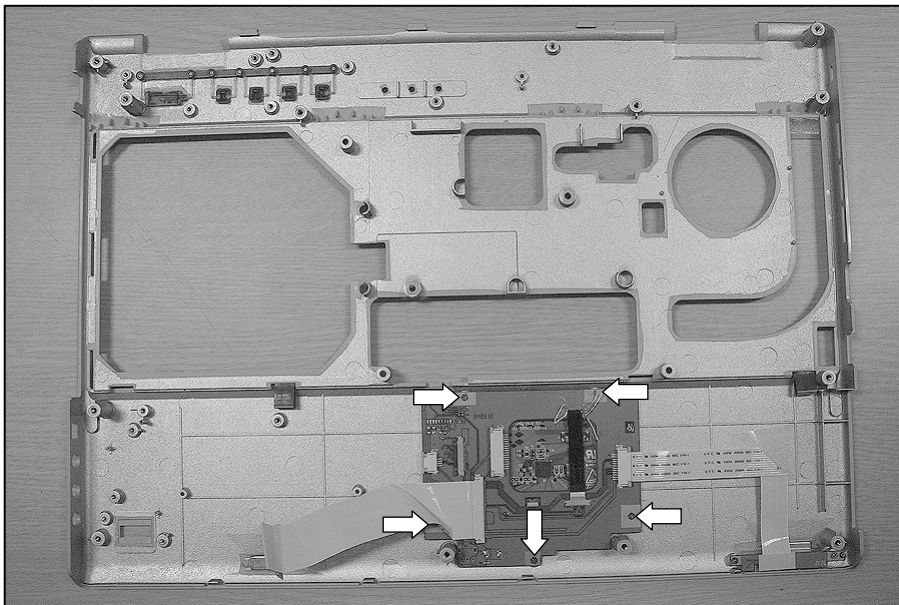
**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Disconnect the Touchpad connector.



2. Remove 5 screws.

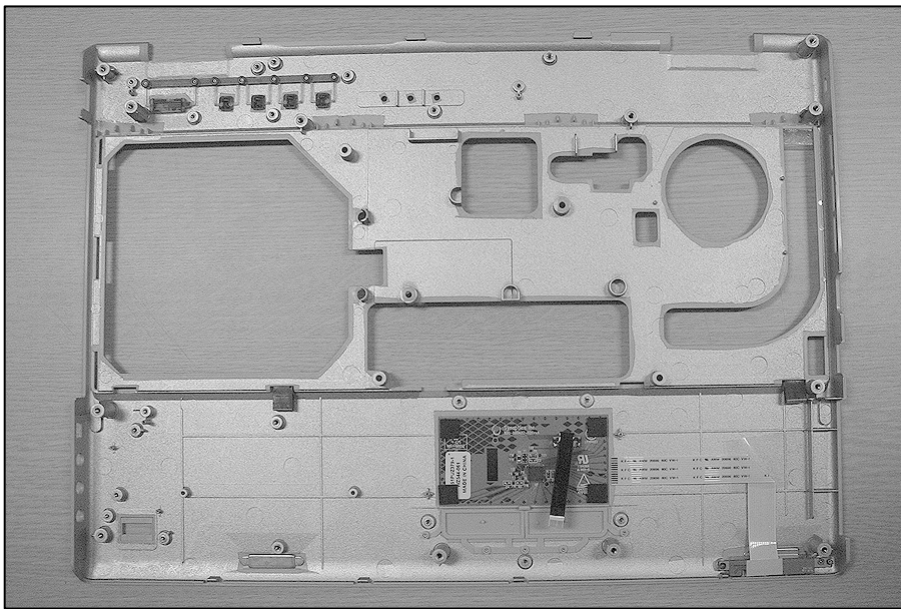
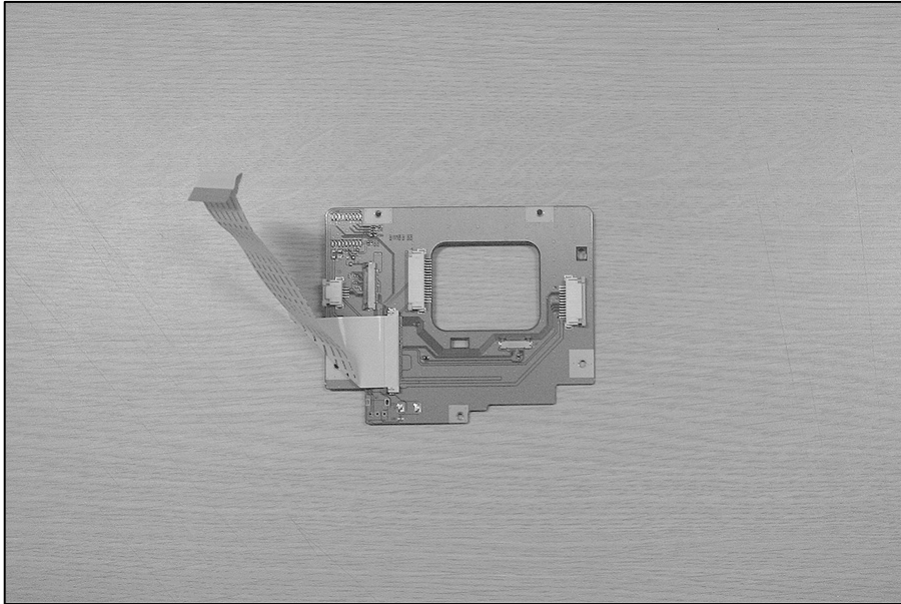


No.	FRU No.	Specification	Qty
1	1SZZBA4041A	M2 x L3.0	5

## Ch5. Removing and replacing a part

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### 2. Remove the Touchpad.



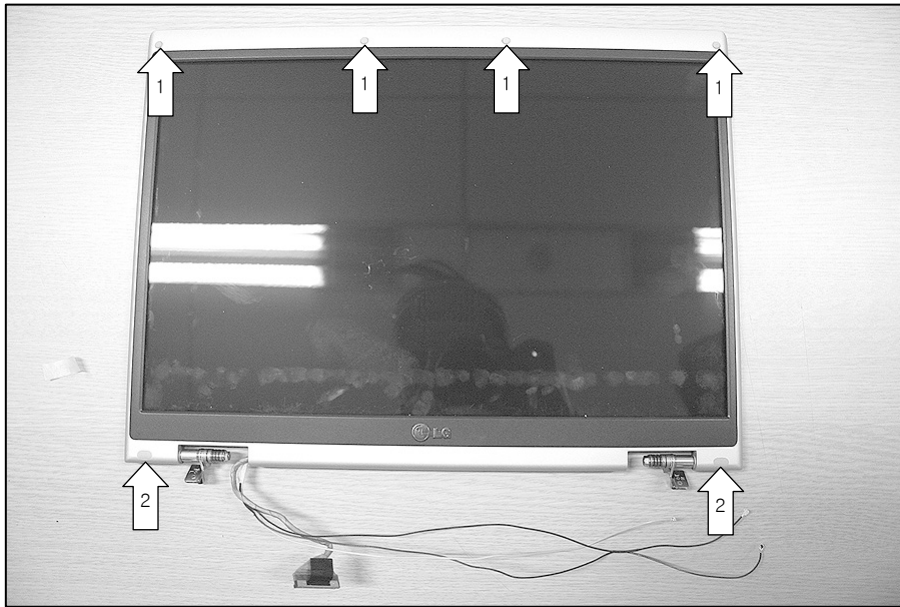
### ■ 1180 Display Module Exploded View

**Remove the following parts in order before replacing this part.**

- a. Battery Pack(1010) b. Hard Disk Drive(1020) c. PCIE WLAN Card(1030) d. Keyboard(1040)  
e. Optical Disk Drive(1050) f. Keyboard Deck(1060) g. Display Module(1070)

1. Using a knife, remove the rubbers that are covering screws. Then remove 6 screws.

Disassemble the LCD front. The front hook located on the middle of LCD outside. Be careful of the direction when removing because it is connected from inside out.



No.	FRU No.	Specification	Qty
1	1SZZBA4080J	M2.5 x L6.0	2
2	1SZZBA4080F	M2.5 x L4.5	4



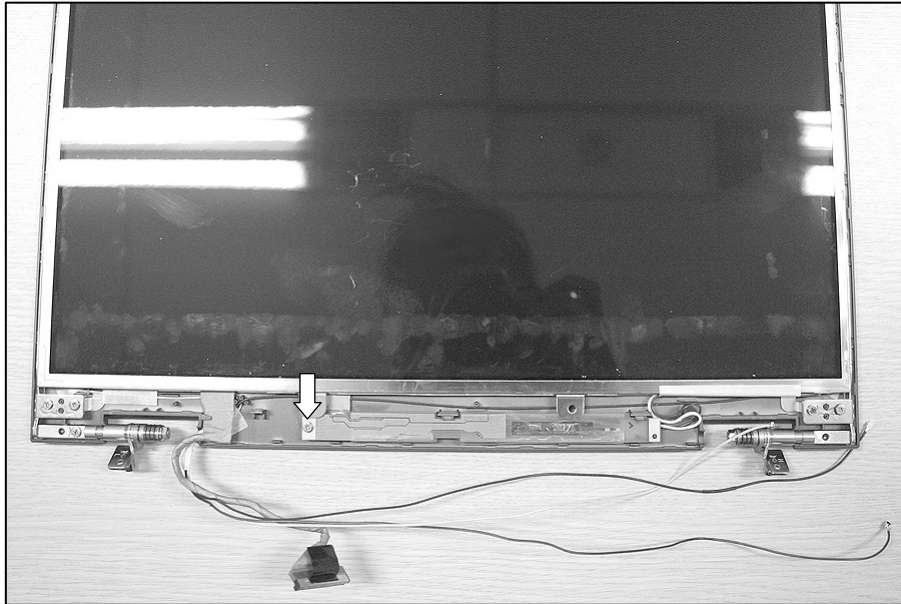
## Ch5. Removing and replacing a part

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2. Disassemble the LCD Hook located on top of LCD.



3. Remove a screw.

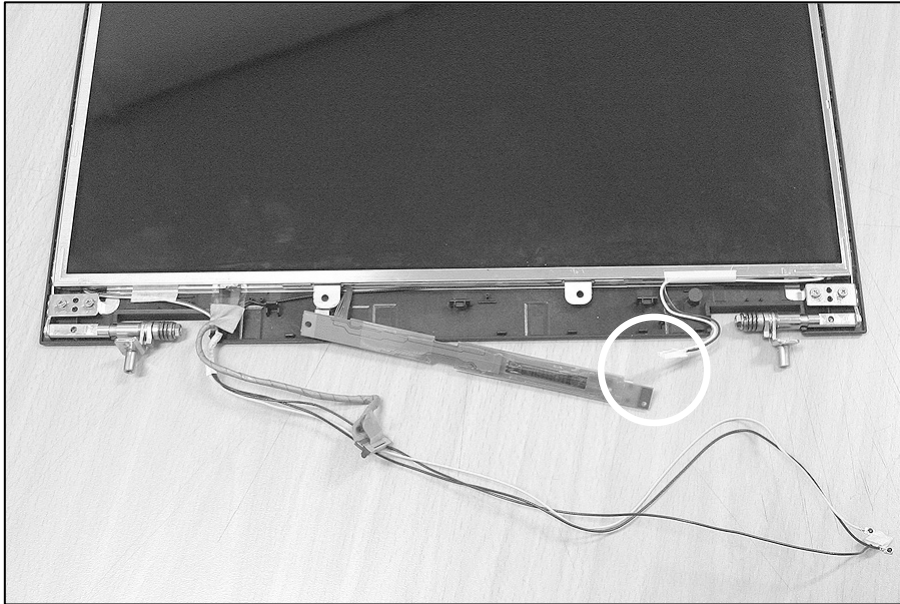


No.	FRU No.	Specification	Qty
1	1SZZBA4080F	M2.5 x L4.5	1

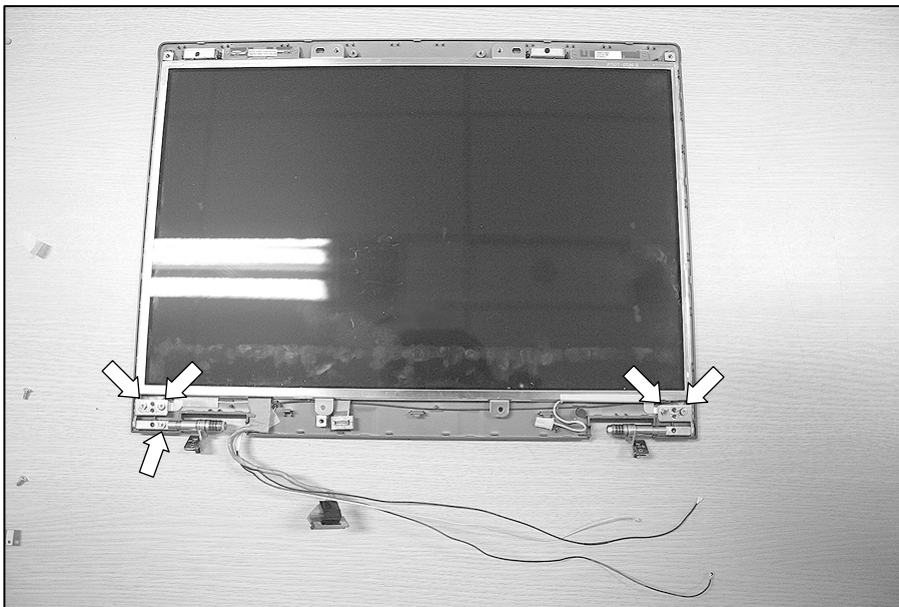


## Ch5. Removing and replacing a part

4. Disconnect the cable.



5. Remove 5 screws.



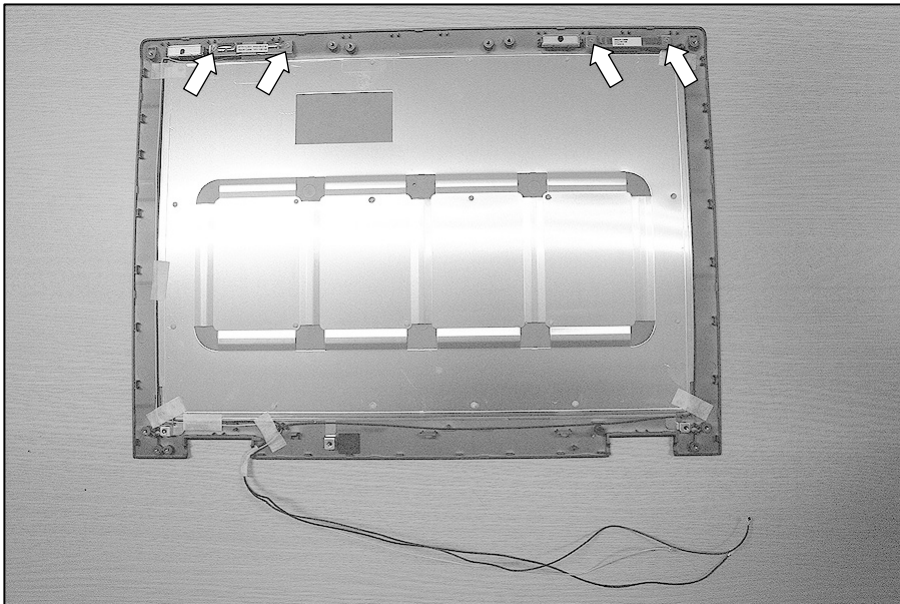
No.	FRU No.	Specification	Qty
1	1SZZBA4080F	M2.5 x L4.5	5

## Ch5. Removing and replacing a part

6. Remove the LCD.



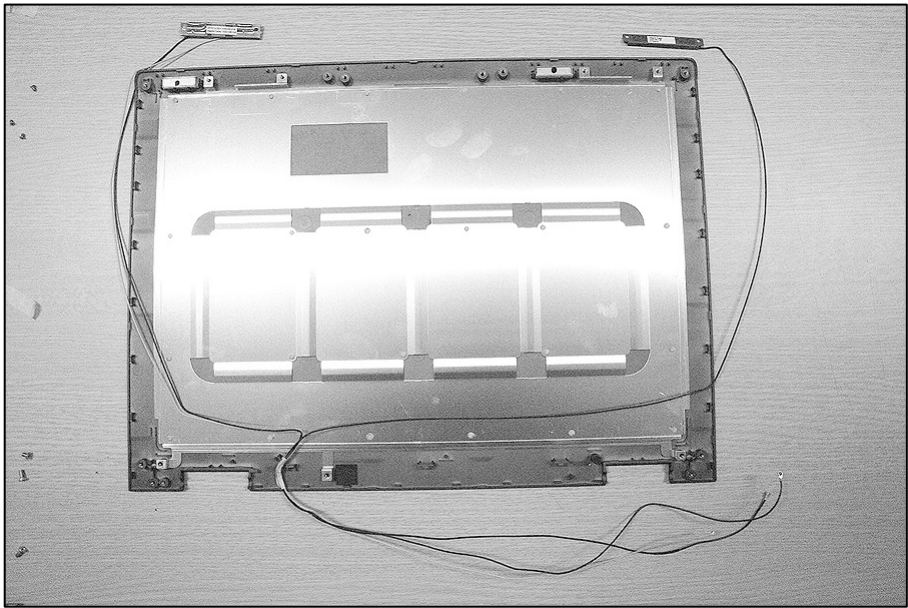
7. Remove 4 screws.



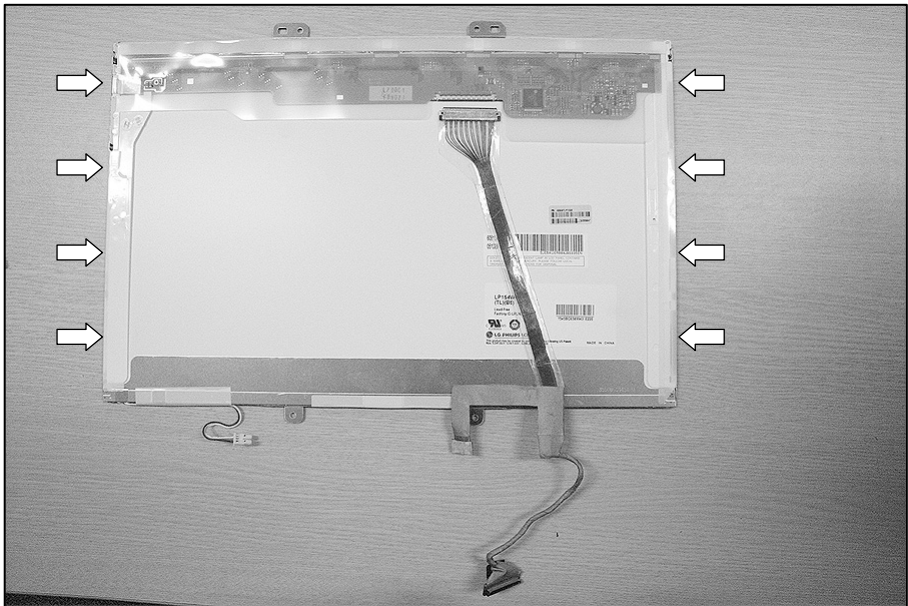
No.	FRU No.	Specification	Qty
1	1SZZBA4041A	M2.0 x L3.0	4

## Ch5. Removing and replacing a part

8. Remove the Antenna and cable.



9. Remove 8 screws, then disassemble the Hinge Assembly.



No.	FRU No.	Specification	Qty
1	1SZZBA4017E	M2.0 x L3.0	8



## Chapter 6. Part lists

Location	P/N	Specifications	Remarks
NACA1	6708BA0056P	PA-1900-08GR LITEON 90W 19V/4.74A 3PIN WITH PFC HUNTER-ALL , FOR OLYMPUS, ROHS	
NACA1	6708BA0057P	HP-AP091F13P-LF HIPRO 90W 19V/4.74A 3PIN WITH PFC HUNTER-ALL , FOR OLYMPUS, ROHS	
NANTL	5011B00037A	BLUETOOTH COMBO ANT HITACHI ROCKY 15 FULL	
NANTR	5011B00036A	WIRELESS AUX ANT HITACHI ROCKY 15FULL	
NBATC	6911B00125B	160MHA CR2025 SONY LI-ION COIN ROCKY-15W RTC ASSY WITH TAPE	
NBATM	6911B00136A	5200MAH 3S-2P LGC LI-ION CYLINDERICAL ROCKY-15F /15W LGC CELL BLUE	
NBATM	6911B00141A	5200MAH 3S-2P SIMPLO LI-ION CYLINDERICAL ROCKY-15F /15W LGC CELL BLUE	
NBATM	6911B00136A	5200MAH 3S-2P LGC LI-ION CYLINDERICAL ROCKY-15F /15W LGC CELL BLUE	
NBLU1	6871B0T62AA	QBTM300 QCOM 4 LAYERS VER.2A BLUETOOTH MODULE VER1.2	
NBLU1	6871B0T62AB	QBTM300 QCOM 4 LAYERS VER.2A2 BLUETOOTH2.0+EDR USB MODULE	
NBLU1	3041B1RKY1A	ROCKY-15W NT B/D - ADDITIONAL BLUETOOTH ASSY	
NBRKH	4811B00605A	HUNTER-WIDE 15.4 INCH HDD SUS 17.1W, 15F	
NCABB	6851B09277A	BLUETOOTH CABLE AY 100 8 ROCKY 15W/F	
NCABL	6851B09275A	15.4 W LCD XGA CABLE AY 198*190 31 ROCKY 15.4W	
NCABM	6851B76020F	MDC INTERFACE WIM TEK 240MM 2P ROCKY F PB FREE	
NCAPL	5006BM3039A	CAP,HINGE LEFT ROCKY 15.4 WIDE PCABS	
NCAPL	5006BM3046A	CAP,HINGE LEFT ROCKY 15.4WP PCABS	
NCAPR	5006BM3045A	CAP,HINGE RIGHT ROCKY 15.4WP PCABS	
NCAPR	5006BM3038A	CAP,HINGE RIGHT ROCKY 15.4 WIDE PCABS	
NCPU1	0IMCR02255A	LF80539GF0282M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2300 1.66GHZ/1GHZ C0-STEPPING(SL8VR)	
NCPU1	0IMCR02256A	LF80539GF0342M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2400 1.83GHZ/1GHZ C0-STEPPING(SL8VQ)	
NCPU1	0IMCR02257A	LF80539GF0412M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2500 2.0GHZ/1GHZ C0-STEPPING(SL8VP)	
NCPU1	0IMCR02258A	LF80539GF0412M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2600 2.16GHZ/1GHZ C0-STEPPING(SL8VN)	
NCSEB	3111B0TT12A	ROCKY-15W BOTTOM CASE	
NCSEB	3111B0TT25A	ROCKY-15WP BOTTOM CASE	
NCSEF	3110BM0196A	ROCKY-15W PCABS DISPLAY FRONT .	
NCSEF	3111B0TT45A	ROCKY-15WP DISPLAY FRONT ASSY	
NCSEK	3111B0TT10A	ROCKY-15W KBD DECK LG EXPORT	

## Ch6. Part lists

Location	P/N	Specifications	Remarks
NCSEK	3111B0TT10B	ROCKY-15W KBD DECK LG EXPORT W/O FINGER PRINT PCB	
NCSEK	3111B0TT09A	ROCKY-15W KBD DECK X-NOTE DOMESTIC W/ FINGER PRINT PCB	
NCSEK	3111B0TT09B	ROCKY-15W KBD DECK X-NOTE DOMESTIC W/O FINGER PRINT PCB	
NCSEK	3111B0TT24A	ROCKY-15WP KBD DECK X-NOTE DOMESTIC	
NCSEK	3111B0TT24B	ROCKY-15WP KBD DECK LG EXPORT	
NCSEK	3111B0TS96D	ROCKY-15F KBD DECK ASSY EXPORT WO/ FINGER PCB	
NCSEK	3111B0TT19A	ROCKY-15W DISPLAY REAR LG NORMAL	
NCSEK	3111B0TT46A	ROCKY-15W REAR NORMAL EXPORT LG	
NCSEK	3111B0TT26A	ROCKY-15WP DISPLAY REAR LG NORMAL	
NCSEK	3111B0TT26A	ROCKY-15WP DISPLAY REAR LG NORMAL	
NCSEK	3111B0TT50A	ROCKY-15WP DISPLAY REAR X-NOTE NORMAL	
NCSNF	4850BP4084A	ROCKY-15F SILICON DISPLAY FRONT .	
NCSNF	4850BP4084B	ROCKY-15WP SILICON DISPLAY FRONT BLACK	
NCSNH	4850BA4028A	DEBORAH EVA HDD VIBRATION	
NCSNL	4850BM4039A	ROCKY-15W CR DISPLAY RUBBER DAMPER LOWER	
NCSNL	4850BM4033A	OLYMPUS RUBBER DISPLAY DAMPER SIDE	
NCSNS	3610BM4033A	WINDRIVER RUBBER SPEAKER CUSHION	
NCVRB	3550BM3221A	OLYMPUS PCABS . BLOCK HDD	
NCVRC	3550BM3171C	ROCKY-15F PCABS DUMMY CARDBUS SILVER	
NCVRD	3550BM3210B	ROCKY-15W RUBBER DUMMY DOCKING BLUE COLOR	
NCVRH	3551B09770A	ROCKY-15W HDD COVER	
NCVRH	3551B09770B	ROCKY-15W HDD COVER, BK	
NCVRM	3551B09769C	ROCKY-15W MEMORY COVER	
NCVRM	3551B09769C	ROCKY-15W MEMORY COVER,BLUE, BENDING	
NCVRM	3551B09769D	ROCKY-15W MEMORY COVER,BLUE, BENDING CHINA LOCAL	
NCVRM	3551B09769E	ROCKY-15WP MEMORY COVER,BK, BENDING	
NCVRM	3551B09769A	ROCKY-15W MEMORY COVER	
NCVRM	3551B09769B	ROCKY-15W MEMORY COVER,BK	
NCVRS	3550BM4047E	ROCKY-15F PCABS DUMMY SD MEMORYCARD ROCKY BLUE	
NFAN1	5901B09297A	LG INNOTEK ROCKY-15W FAN + PNOP (GM/PM)	
NFAN2	5901B09299B	LG INNOTEK ROCKY-15W GFX MODULE ASSY WITHOUT GREASE FOR GM	
NFRMM	3210BD1008A	ROCKY-15W MG BOTTOM FRAME MIDDLE	
NHDD1	6744C00162A	MHV2100AT PL FUJITSU 100GB EIDE INNER 4200RPM 60GB/P ROHS FOR NB-PC	

## Ch6. Part lists

Location	P/N	Specifications	Remarks
NHDD1	6744C00158A	HTS541010G9SA00 HGST 100GB SATA INNER 5400RPM FOR NB-PC	
NHDD1	6744C00147B	HTS541080G9SA00 HGST 80GB SATA INNER 5400RPM HOMER-4 HUNTER	
NHDD1	6744C00144A	MHV2100AH FUJITSU 100GB EIDE INNER HUNTER 5400RPM	
NHDD1	6744C00159A	HTS721010G9SA00 HGST 100GB SATA INNER 7200RPM 50GB/P ROHS FOR NB-PC	
NHDD1	6744C00157A	MHV2100BH FUJITSU 100GB SATA INNER 5,400RPM ROHS FOR NB-PC	
NHNGL	4774BD2008A	ROCKY-15W SUS 7.0KGF-CM HINGE LEFT WITH BKT 8.0-9.0KGF-CM	
NHNGR	4774BD2007A	ROCKY-15W SUS 7.0KGF-CM HINGE RIGHT WITH BKT 8.0-9.0KGF-CM	
NKBD1	3823B00360A	KOREA ROCKY W CHICONY	
NKBD1	3823B00360B	KOREA ROCKY W P CHICONY	
NKBD1	3823B00361A	ENGLISH ROCKY W CHICONY	
NKBD1	3823B00361B	ENGLISH ROCKY W P CHICONY	
NKBD1	3823B00362A	US INTER ROCKY W CHICONY	
NKBD1	3823B00362B	US INTER ROCKY W P CHICONY	
NKBD1	3823B00363A	RUSSIAN ROCKY W CHICONY	
NKBD1	3823B00363B	RUSSIAN ROCKY W P CHICONY	
NKBD1	3823B00364A	TAIWAN ROCKY W CHICONY	
NKBD1	3823B00364B	TAIWAN ROCKY W P CHICONY	
NKBD1	3823B00365A	ARABIC ROCKY W CHICONY	
NKBD1	3823B00365B	ARABIC ROCKY W P CHICONY	
NKBD1	3823B00366A	SPANISH ROCKY W CHICONY	
NKBD1	3823B00366B	SPANISH ROCKY W P CHICONY	
NKBD1	3823B00367A	HEBREW ROCKY W CHICONY	
NKBD1	3823B00367B	HEBREW ROCKY W P CHICONY	
NKBD1	3823B00368A	FRENCH ROCKY W CHICONY	
NKBD1	3823B00368B	FRENCH ROCKY W P CHICONY	
NKBD1	3823B00369A	PORTUGUESE ROCKY W CHICONY	
NKBD1	3823B00369B	PORTUGUESE ROCKY W P CHICONY	
NKBD1	3823B00370A	NORWAY ROCKY W CHICONY	
NKBD1	3823B00370B	NORWAY ROCKY W P CHICONY	
NKBD1	3823B00371A	SWEDEN/FINLAND ROCKY W CHICONY	
NKBD1	3823B00371B	SWEDEN/FINLAND ROCKY W P CHICONY	
NKBD1	3823B00372A	DENMARK ROCKY W CHICONY	
NKBD1	3823B00372B	DENMARK ROCKY W P CHICONY	
NKBD1	3823B00373A	CANADIAN FRENCH ROCKY W CHICONY	

## Ch6. Part lists

Location	P/N	Specifications	Remarks
NKBD1	3823B00373B	CANADIAN FRENCH ROCKY W P CHICONY	
NKBD1	3823B00374A	TURKEY ROCKY W CHICONY	
NKBD1	3823B00374B	TURKEY ROCKY W P CHICONY	
NKBD1	3823B00375A	ITALY ROCKY W CHICONY	
NKBD1	3823B00375B	ITALY ROCKY W P CHICONY	
NKBD1	3823B00376A	HUNGARY ROCKY W CHICONY	
NKBD1	3823B00376B	HUNGARY ROCKY W P CHICONY	
NKBD1	3823B00377A	GERMAN ROCKY W CHICONY	
NKBD1	3823B00377B	GERMAN ROCKY W P CHICONY	
NKBD1	3823B00378A	BRAZIL ROCKY W CHICONY	
NKBD1	3823B00378B	BRAZIL ROCKY W P CHICONY	
NLAN1	6718M000031	WM3945AGM1GEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	
NLAN1	6718M000029	WM3945AGBGGEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	
NLAN1	6718M000032	WM3945AGM2GEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	
NLAN1	6718M000033	WM3945AGRGEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	
NLCD1	6304FLP155E	LP154W01-TLB5 LG PHILIPS TFT COLOR 15.4 INCH WXGA(1280X800) 200 NITS GLARE	
NLCD1	6304FHS008B	HSD150PK14-C HANNSTAR TFT COLOR 15.0 INCH SXGA+(1400X1050) 200 NITS	
NLCD1	6304FLP342A	LP154W02-B1K5 LG PHILIPS TFT COLOR 15.4 INCH WSXGA+(1680X1050) 170NITS ANTI-GLARE	
NLCD1	6304FLP342B	LP154W02-TL07 LG PHILIPS TFT COLOR 15.4INCH WSXGA+(1680X1050) 170NITS ANTI-GLARE	
NLCD1	6304FLP155F	LP154W01-TLB1 LG PHILIPS TFT COLOR 15.4 INCH WXGA(1280X800) 200 NITS ANTI GLARE	
NMDM1	6871BG869AB	MA560-3 LF(LEAD FREE) QCOM 2 LAYERS 1A CHIP REV.G MDC1.5 FORM FACTOR V.92 MODEM CARD	
NMEM1	0IMMR00177A	M470T3354CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	
NMEM1	0IMMR00176A	HYS64T32000HDL-3S-B INFINEON 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	
NMEM1	0IMMR00175A	HYS64T64020HDL-3S-B INFINEON 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	
NMEM1	0IMMR00178A	M470T6554CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	



## Ch6. Part lists

Location	P/N	Specifications	Remarks
NMLB1	6871BXG11PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.4 PILOT GM PATA	
NMLB1	6871BX421AA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 M54 64 SATA W/O TPM	
NMLB1	6871BX421PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.5 PILOT M54 64MB PATA W/O TPM	
NMLB1	6871BX441PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.5 PILOT M54 128MB SATA W/O TPM	
NMLB1	6871BX611PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.5 PILOT M56 128MB SATA W/ TPM	
NMLB1	6871BX631PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.5 PILOT M56 256MB SATA W/ TPM	
NMLB1	6871BXG21AA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 GM PATA W/O TPM	
NMLB1	6871BX641AP	ROCKY-15WP MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 M56 256MB SATA W/O TPM	
NMLB1	6871BX441AP	ROCKY-15WP MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 M54 128MB SATA W/O	
NMLB1	6871BX441AA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 M54 128MB SATA W/O TPM	
NMLB1	6871BXG21PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.4 PILOT GM SATA	
NMLB1	6871BXP11PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.4 PILOT M54 SATA	
NMLB1	6871BXP21PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.4 PILOT M56 SATA	
NMLB1	6871BX641AA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 1.0 M56 256MB SATA W/O TPM	
NNVE1	6708BI0099A	NIK07001.50 LOGAH GENERAL GENERAL GENERAL ROCKY-14WT ,15F,15W	
NNVE1	6708BI0098A	KUBNKM116A ALPS GENERAL SXGA+ LGP ROCKY-15F ,14WT,15W	
NNVE1	6708BI0098A	KUBNKM116A ALPS GENERAL SXGA+ LGP ROCKY-15F ,14WT,15W	
NNVE1	6708BI0098B	KUBNKM116A ALPS GENERAL SXGA+ LGP ROCKY-15W 15WP	
NODD1	2029B0MW10 C	GCC-4244N HLDS 8X 24X 24X 24X FOR ROCKY-F	
NODD1	2026B2A01TU	GSA-4082N HLDS 8X 24X 24X 24X 8X 24X 10X 2X 2X 2.4X 2.4X 2X 24X NOTE BOOK FOR ROCKY-F	
NODD1	2029B0MW10 W	GCC-4244N HLDS 8X 24X 24X 24X FOR ROCKY-15W LOCAL	
NODD1	2026B2A01TV	GSA-4082N HLDS 8X 24X 24X 24X 8X 24X 10X 2X 2X 2.4X 2.4X 2X 24X NOTE BOOK FOR ROCKY-15W	
NODD1	2029B00047A	DW-224E-C89 TEAC 8X 24X 24X 24X FOR ROCKY-15W	
NODD1	2026B00009D	DV-W28EA-689 TEAC 8X 24X 24X 16X 8X 4X 8X(2.4X) 4X 3X 24X NOTE BOOK FOR ROCKY-15W	
NODD1	2026B2A01TW	GSA-4082N HLDS 8X 24X 24X 24X 8X 24X 10X 2X 2X 2.4X 2.4X 2X 24X NOTE BOOK FOR ROCKY-15WP	
NODD1	2029B0MW10 D	GCC-4244N HLDS 8X 24X 24X 24X FOR ROCKY-15W	
NODD1	2029B0MW10 E	GCC-4244N HLDS 8X 24X 24X 24X FOR ROCKY-15WP	
NPAD1	5022BZ4025A	THERMAL PCS-TC-11-T-13 19X19MM T130UM ZEBRA-2(MOBILE) GRAY K=4.7(W/M-C)	
NPCD1	6410BM21002	PT8XXK9KB0A-033 LONGWELL KS 1000MM 3P CONN W/VELCRO TIE BLACK	
NPCD1	6410BM21601	SP-022+IS-034 H05VV-F I-SHENG KS 1000MM 3P CONN W/VELCRO TIE BLACK	
NPCD1	6410BX21602	PF8B1CIJ10A-060 LONGWELL GOST 1830MM 3PIN CONN. BLACK	
NPCD1	6410BX21601	SP-022+IS-034+H05VV-F3G I-SHENG GOST 1800MM 3P CONN. BLACK	
NPCD1	6410BK21005	PL8B1S3J10A-060 LONGWELL SAA 1830MM 3PIN CONN BLACK	

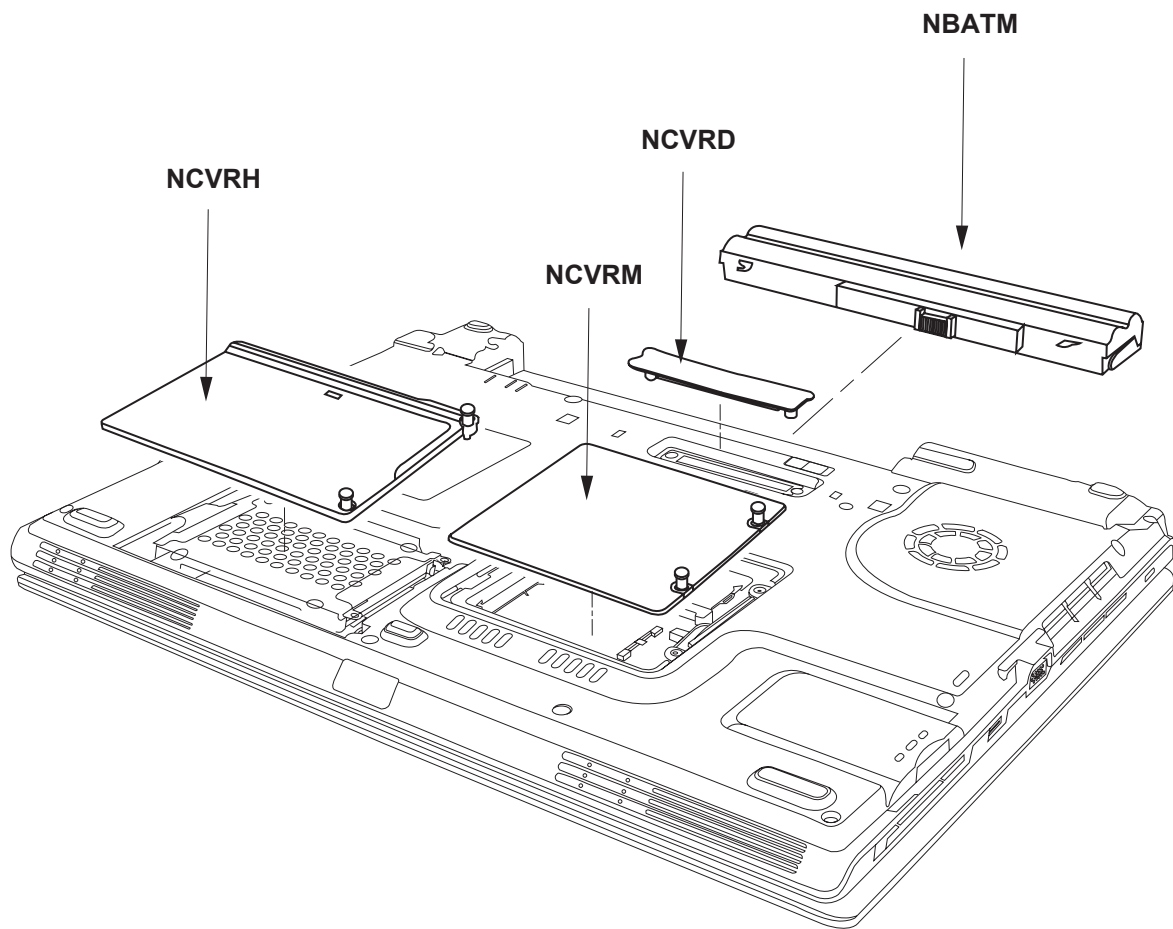
## Ch6. Part lists

Location	P/N	Specifications	Remarks
NPCD1	6410BK21007	SP-502B+H05VV-F+IS-034 I-SHENG SAA 1830MM 3PIN CONN. BLACK	
NPCD1	6410BK21006	AU10S3+H03VV-F+VAC5S VOLEX SAA 1830MM 3PIN CONN BLACK	
NPCD1	6410BD21003	PF8B1CIJ10A-060 LONGWELL CEU 1830MM 3P CONN. BLACK	
NPCD1	6410BV21002	PF8B1L1J10A-060 LONGWELL SII 1830MM 3PIN CONN. BLACK	
NPCD1	6410BV21003	SP-86+IS-034 I-SHENG SII 1830MM 3PIN CONN. BLACK	
NPCD1	6410BV21602	SI16S3+H03VV-F+VAC5S VOLEX SII 1830MM 3PIN CONN BLACK	
NPCD1	6410BQ21003	SP-305+H05VV-F+IS-034 I-SHENG INMETRO 1830MM 3PIN CONN BLACK	
NPCD1	6410BQ21002	BR10S3+H03VV-F+VAC5S VOLEX INMETRO 1830MM 3PIN CONN BLACK	
NPCD1	6410BO20603	P48F1SAJ30A-060 LONGWELL CCC 1830MM 3P CONN BLACK	
NPCD1	6410BO20602	SP-506+RVV 3CX0.75MM2+IS-034 I-SHENG CCC 1830MM 3P CONN BLACK	
NPCD1	6410BO21008	GB10S3+RW300_300+VAC5S VOLEX CCC 1830MM 3PIN CONN BLACK	
NPCD1	6410BU21602	SP-80A+H05VV-F+IS-034 I-SHENG SABS 1830MM 3PIN CONN BLACK	
NPCD1	6410BU21603	SA16A+H03VV-F+VAC5S VOLEX SABS 1830MM 3PIN CONN BLACK	
NPCD1	6410BW21001	X-LGPC0415-001 VOLEX ISI 1830MM 3PIN CONN. BLACK	
NPCD1	6410BH21003	SP-60+IS-034 I-SHENG BSI 1830MM 3PIN CONN FOR NT-PC BLACK	
NPCD1	6410BK20705	PL8B1SQJ10A-060 LONGWELL SAA 1830MM 3PIN CONN BLACK	
NPCD1	6410BC11017	213349-001(SP305A+IS34) I-SHEN	
NPLTD	3300BP4486A	ODD SUPPORT ROCKY 15F .	
NSCR1	1SZZBA4017E	+ D2.0 L3.0MM SWRH4 / [BK] DISPLAY BK [S-PJT] #0 TIP	
NSCR2	1SZZBA4041A	+ D3.5 L3.0MM SWRH4 DUMMY COVER FIX SILVER MAGELLAN DISPLAY	
NSCR3	1SZZBA4080F	+ D4.5 L4.5MM SWRH4 M2.5 H1.0 SILVER HUNTER TIP #0	
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	
NSCR6	1SZZBA4019L	+ D3.8 L4.5MM SWRH4 PCB ETC.. FIX YL HUNTER WIDE E2 ROHS	
NSCR7	1SZZBA4023A	+ D2.0 L 3.5 SWRH4 SYDNEY SYSTEM SILVER S3-PJT PLATED NICKEL	
NSCR8	1SZZBA4039D	+ D4.5 L8.0MM SWRH4 LCD FIX BK MCKINLEY M2.5 TIP#0 ROHS	
NSCRA	1SZZBZ4022B	+ D4.0 L12.0MM SWRH4 / [BK] FAN ASSY BK HUNTER F/W M2 TIP NO. 0 ROHS	
NSCRB	1SZZBZ4039A	+ D5.0 L8.5MM MSWR3 / FN SPEAKER SILVER ROCKY-154W L8.4MM	
NSCRC	1SZZBA4011K	+ D5.0 L3.0MM SWRH4 HDD ASSY FIX WH HUNTER WIDE TIP #0 ROHS	
NSETF	3858BP4548B	. ROCKY-15W BADGE LOGO, LG DISPLAY FRONT BLACK	
NSETR	3858BP4527A	. ROCKY-15F LOGO BADGE SMILE LG	
NSPKL	6401B02553A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4 WIDE LEFT	
NSPKL	6401B02558A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4WP LEFT	
NSPKR	6401B02559A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4WP RIGHT	
NSPKR	6401B02554A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4 WIDE RIGHT	

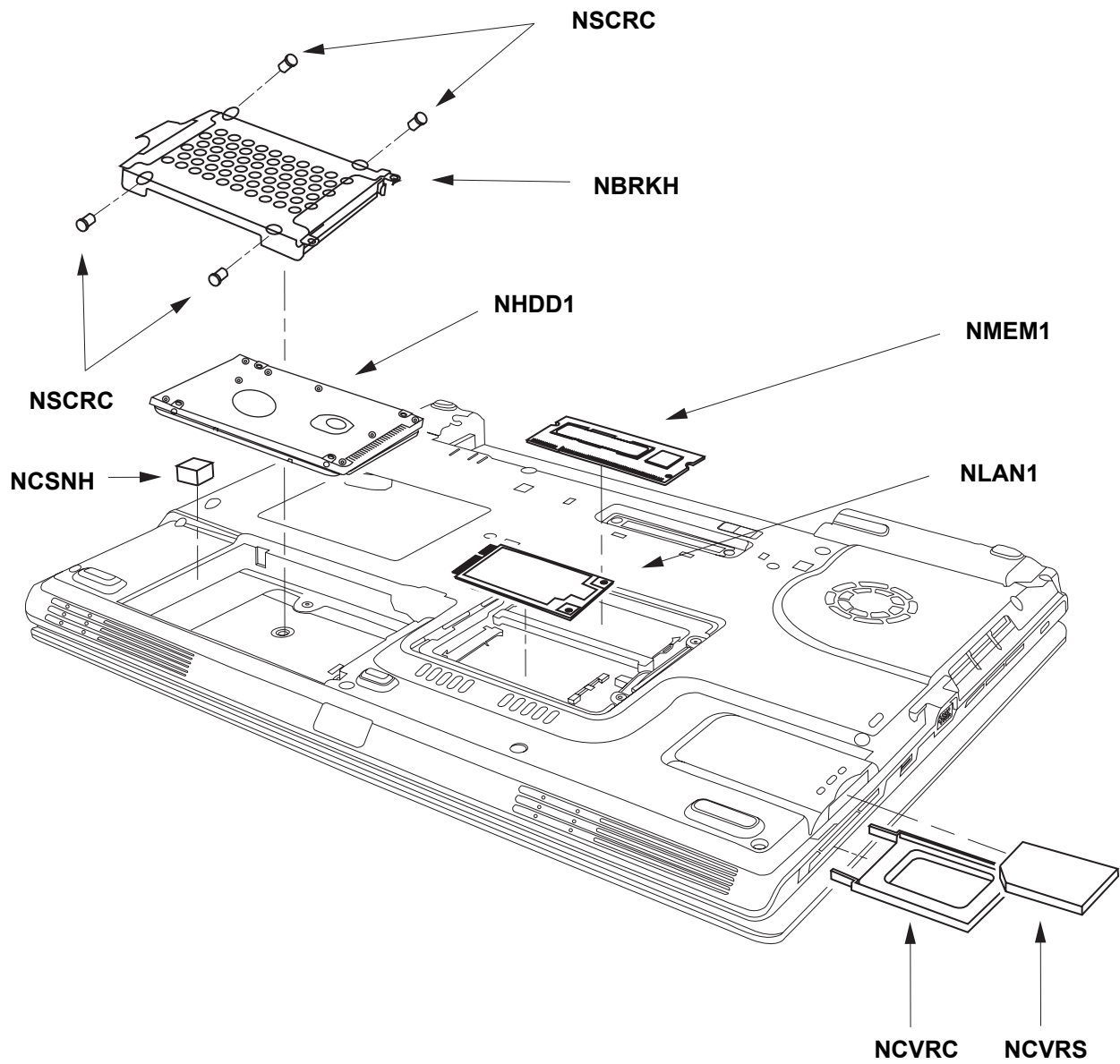
## Ch6. Part lists

Location	P/N	Specifications	Remarks
NSUBA	6871BXS01PA	ROCKY-15W WIMTEC 4 LAYERS REV 0.3 AUDIO SUB B/D	
NSUBA	6871BXS06PA	ROCKY-15WP WIMTEC 4 LAYERS REV 0.4 AUDIO SUB B/D	
NSUBB	6871BXS04PA	ROCKY-15W WIMTEC 2 LAYERS REV 0.4 BUTTON SUB B/D	
NSUBB	6871BXS0APA	ROCKY-15WP WIMTEC 2 LAYERS REV 0.4 FRONT BUTTON SUB B/D	
NSUBB	6871BXS09PA	ROCKY-15WP WIMTEC 2 LAYERS REV 0.4 BUTTON SUB B/D	
NSUBF	6871B0T58PA	SUB ASSEMBLY WIMTEC 2 LAYERS REV 0.3 FINGER PRINT	
NSUBT	6871BXS03PA	ROCKY-15W WIMTEC 2 LAYERS REV 0.4 TOUCH PAD SUB B/D	
NSUBT	6871BXS08PA	ROCKY-15WP WIMTEC 2 LAYERS REV 0.5 TOUCH PAD SUB B/D	
NSUBU	6871BXS02PA	ROCKY-15W WIMTEC 4 LAYERS REV 0.3 REAR USB SUB B/D	
NREM1	6710B00009D	RC-501 HTC PB FREE W/ CROSSED-OUT WHEELED BIN LG LOGO FOR ROCKY WIDE W/O BATTERY	
NBATR	6910C00028A	CR2016 WUHAN LIXING (TORCH) 3.0V - 75MA/H LITHIUM/MANGANESE DIOXIDE COIN CELLS	

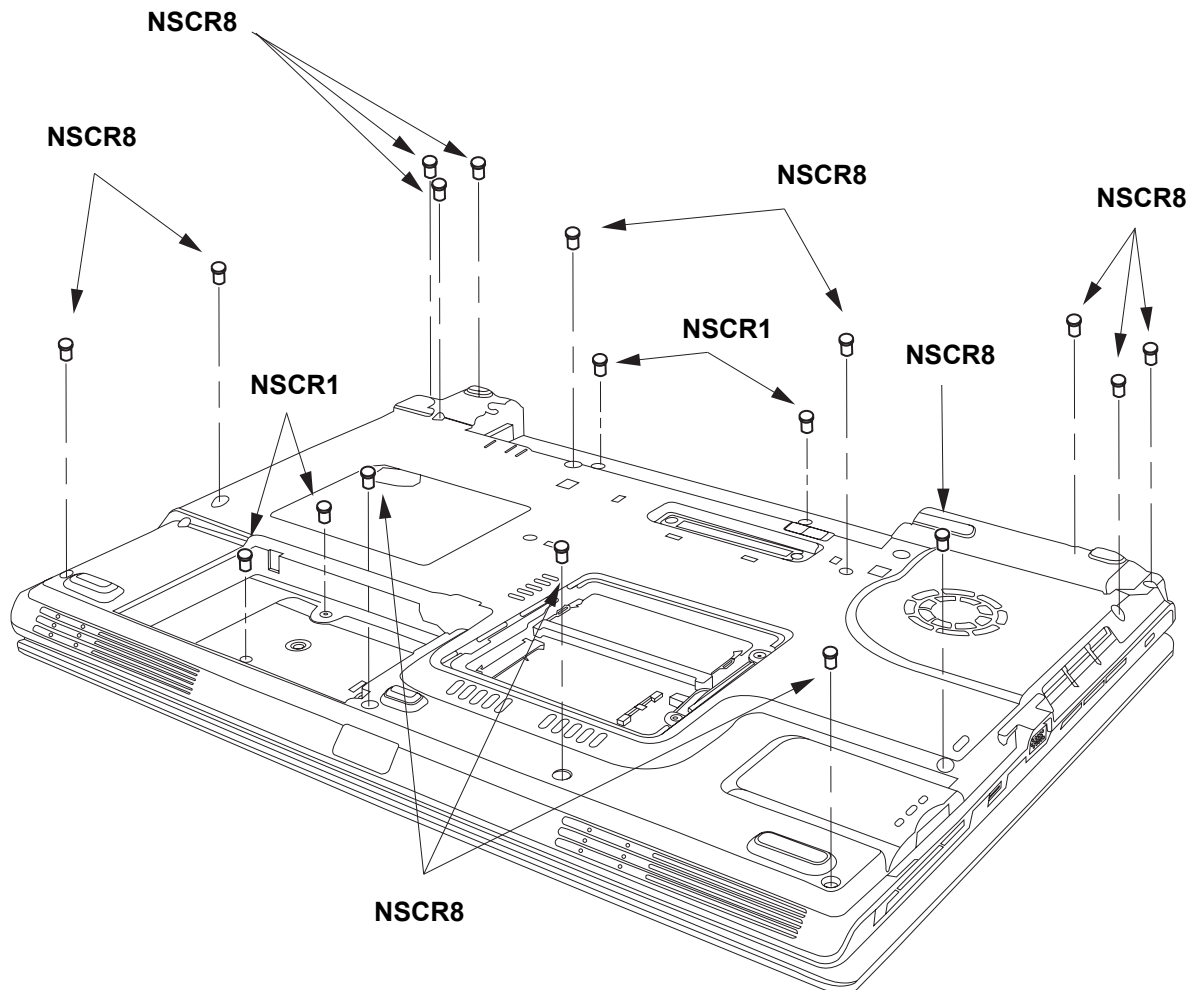
## Rocky W EXPLODED VIEW



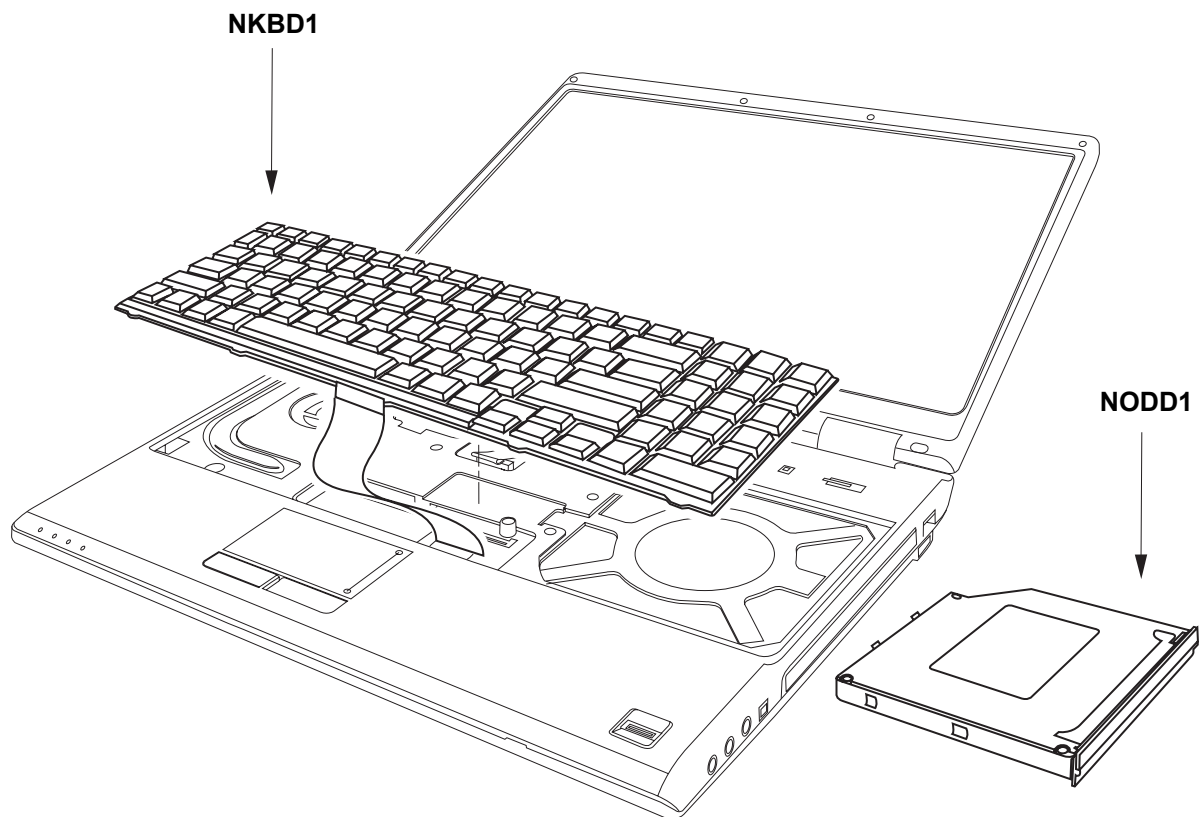
Location	LG P/N	SPECIFICATION	REMARKS
NCVRH	3551B09770A	ROCKY-15W HDD COVER	COVER ASSEMBLY
NCVRM	3551B09769A	ROCKY-15W MEMORY COVER	COVER ASSEMBLY
NCVRD	3550BM3210B	ROCKY-15W RUBBER DUMMY DOCKING BLUE COLOR	COVER
NBATM	6911B00136A	5200MAH 3S-2P LGC LI-ION CYLINDRICAL ROCKY-15F /15W LGC CELL BLUE	BATTERY ASSEMBLY
NBATM	6911B00141A	5200MAH 3S-2P SIMPLO LI-ION CYLINDRICAL ROCKY-15F /15W LGC CELL BLUE	BATTERY ASSEMBLY
NBATM	6911B00136A	5200MAH 3S-2P LGC LI-ION CYLINDRICAL ROCKY-15F /15W LGC CELL BLUE	BATTERY ASSEMBLY



Location	LG P/N	SPECIFICATION	REMARKS
NSCRC	1SZZBA4011K	+ D5.0 L3.0MM SWRH4 HDD ASSY FIX WH HUNTER WIDE TIP #0 ROHS	SCREW, DRAWING
NBRKH	4811B00605A	HUNTER-WIDE 15.4 INCH HDD SUS 17.1W, 15F	BRACKET ASSEMBLY
NHDD1	6744C00162A	MHV2100AT PL FUJITSU 100GB EIDE INNER 4200RPM 60GB/P ROHS FOR NB-PC	HDD,2.5"
NHDD1	6744C00158A	HTS541010G9SA00 HGST 100GB SATA INNER 5400RPM FOR NB-PC	HDD,2.5"
NHDD1	6744C00147B	HTS541080G9SA00 HGST 80GB SATA INNER 5400RPM HOMER-4 HUNTER	HDD,2.5"
NCSNH	4850BA4028A	DEBORAH EVA HDD VIBRATION	CUSHION
NLAN1	6718M000031	WM3945AGM1GEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	LANCARD, MINI PCI
NLAN1	6718M000029	WM3945AGBGGEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	LANCARD, MINI PCI
NLAN1	6718M000032	WM3945AGM2GEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	LANCARD, MINI PCI
NLAN1	6718M000033	WM3945AGRWGEN INTEL IEEE 802.11ABG STANDARD PROTOCOL 54M REV2.03 PCIE MINICARD FORM FACTOR	LANCARD, MINI PCI
NMEM1	0IMMR00177A	M470T3354CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00176A	HYS64T32000HDL-3S-B INFINEON 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00175A	HYS64T64020HDL-3S-B INFINEON 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00178A	M470T6554CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NCVRC	3550BM3171C	ROCKY-15F PCABS DUMMY CARDBUS SILVER	COVER
NCVRS	3550BM4047E	ROCKY-15F PCABS DUMMY SD MEMORYCARD ROCKY BLUE	COVER



Location	LG P/N	SPECIFICATION	REMARKS
NSCR1	1SZZBA4017E	+ D2.0 L3.0MM SWRH4 / [BK] DISPLAY BK [S-PJT] #0 TIP	SCREW, DRAWING
NSCR8	1SZZBA4039D	+ D4.5 L8.0MM SWRH4 LCD FIX BK MCKINLEY M2.5 TIP#0 ROHS	SCREW, DRAWING



Location	LG P/N	SPECIFICATION	REMARKS
NKBD1	3823B00360A	KOREA ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00360B	KOREA ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00361A	ENGLISH ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00361B	ENGLISH ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00362A	US INTER ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00362B	US INTER ROCKY W P CHICONY	KEYBOARD ASSEMBLY

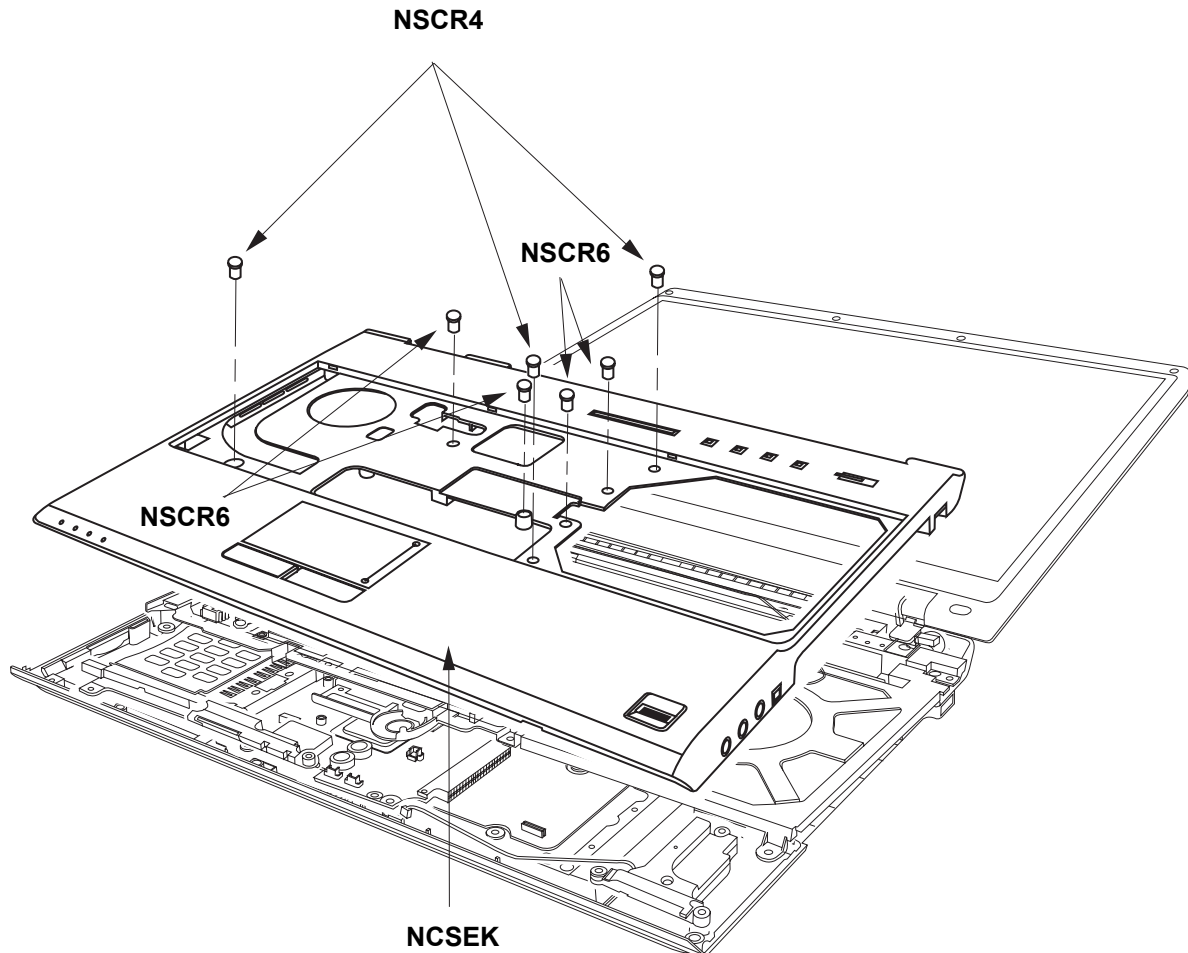


## Rocky W EXPLODED VIEW

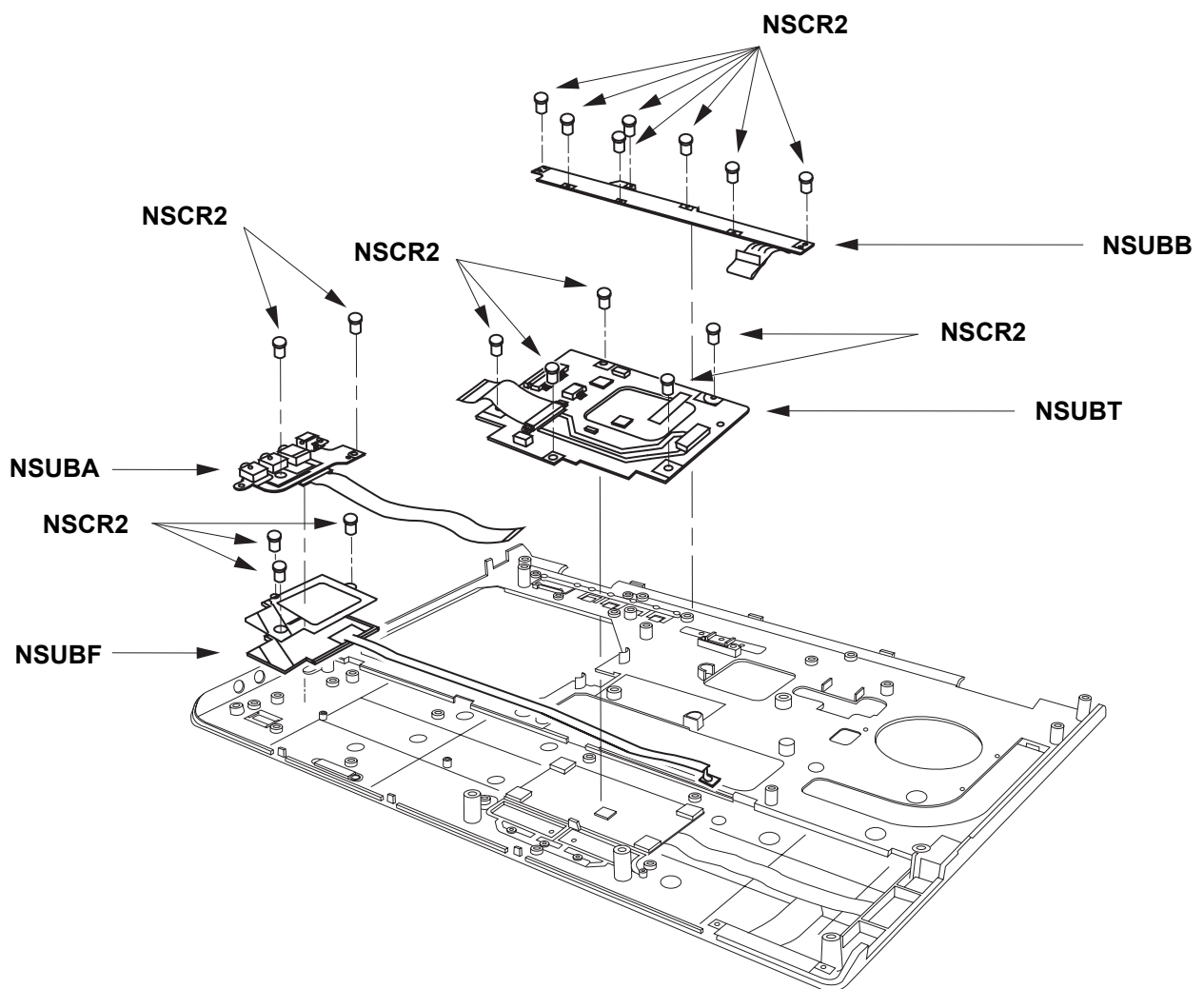
Location	LG P/N	SPECIFICATION	REMARKS
NKBD1	3823B00363A	RUSSIAN ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00363B	RUSSIAN ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00364A	TAIWAN ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00364B	TAIWAN ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00365A	ARABIC ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00365B	ARABIC ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00366A	SPANISH ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00366B	SPANISH ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00367A	HEBREW ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00367B	HEBREW ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00368A	FRENCH ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00368B	FRENCH ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00369A	PORTUGUESE ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00369B	PORTUGUESE ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00370A	NORWAY ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00370B	NORWAY ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00371A	SWEDEN/FINLAND ROCKY W CHICONY	KEYBOARD ASSEMBLY

## Rocky W EXPLODED VIEW

Location	LG P/N	SPECIFICATION	REMARKS
NKBD1	3823B00371B	SWEDEN/FINLAND ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00372A	DENMARK ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00372B	DENMARK ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00373A	CANADIAN FRENCH ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00373B	CANADIAN FRENCH ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00374A	TURKEY ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00374B	TURKEY ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00375A	ITALY ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00375B	ITALY ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00376A	HUNGARY ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00376B	HUNGARY ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00377A	GERMAN ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00377B	GERMAN ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00378A	BRAZIL ROCKY W CHICONY	KEYBOARD ASSEMBLY
NKBD1	3823B00378B	BRAZIL ROCKY W P CHICONY	KEYBOARD ASSEMBLY
NODD1	2029B0MW10C	GCC-4244N HLDS 8X 24X 24X 24X FOR ROCKY-F	COMBO, ASSEMBLY
NODD1	2026B2A01TU	GSA-4082N HLDS 8X 24X 24X 24X 8X 24X 10X 2X 2X 2.4X 2.4X 2X 24X NOTE BOOK FOR ROCKY-F	DVD REWRITABLE



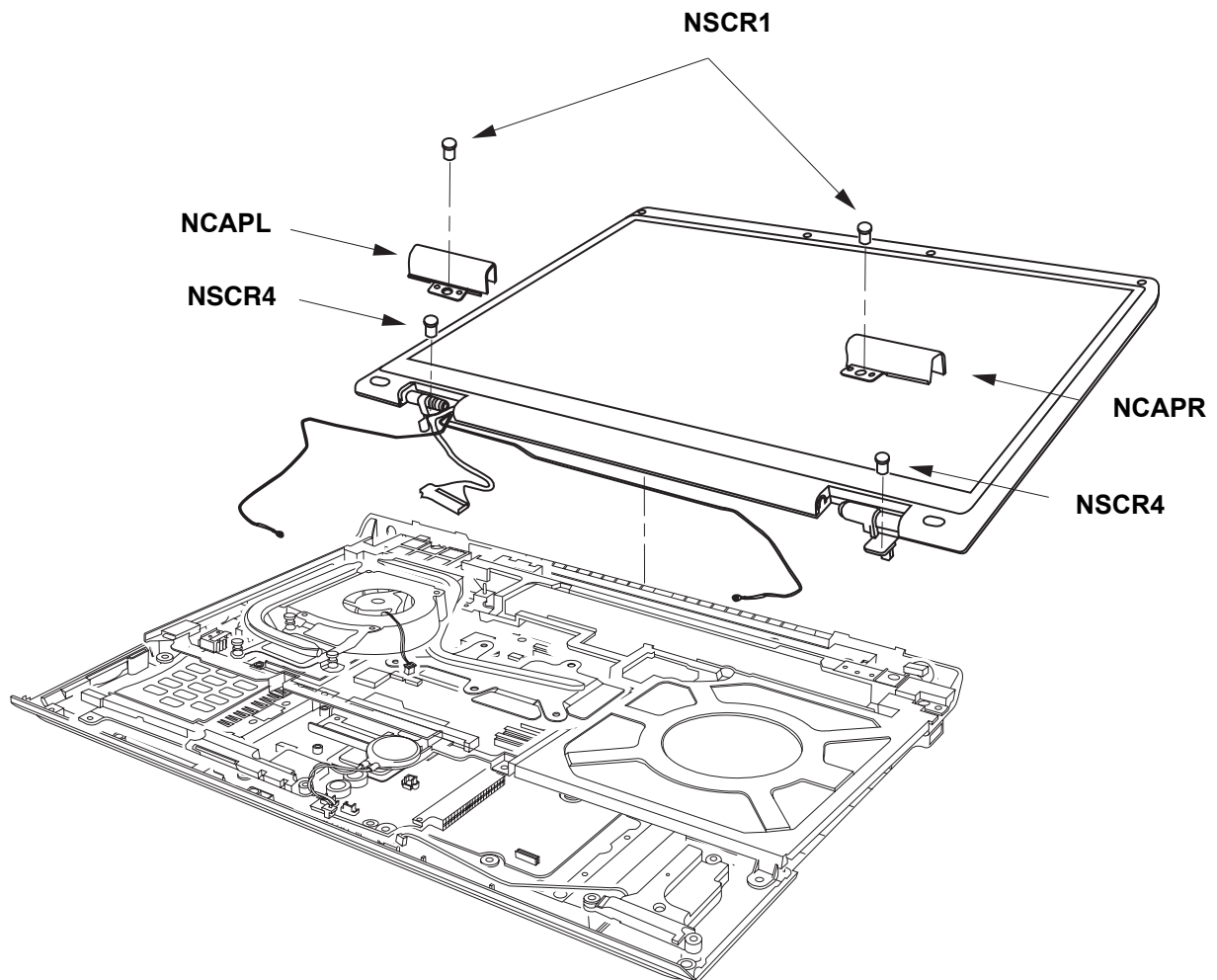
Location	LG P/N	SPECIFICATION	REMARKS
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	SCREW, DRAWING
NSCR6	1SZZBA4019L	+ D3.8 L4.5MM SWRH4 PCB ETC.. FIX YL HUNTER WIDE E2 ROHS	SCREW, DRAWING
NCSEK	3111B0TT10A	ROCKY-15W KBD DECK LG EXPORT	CASE ASSEMBLY



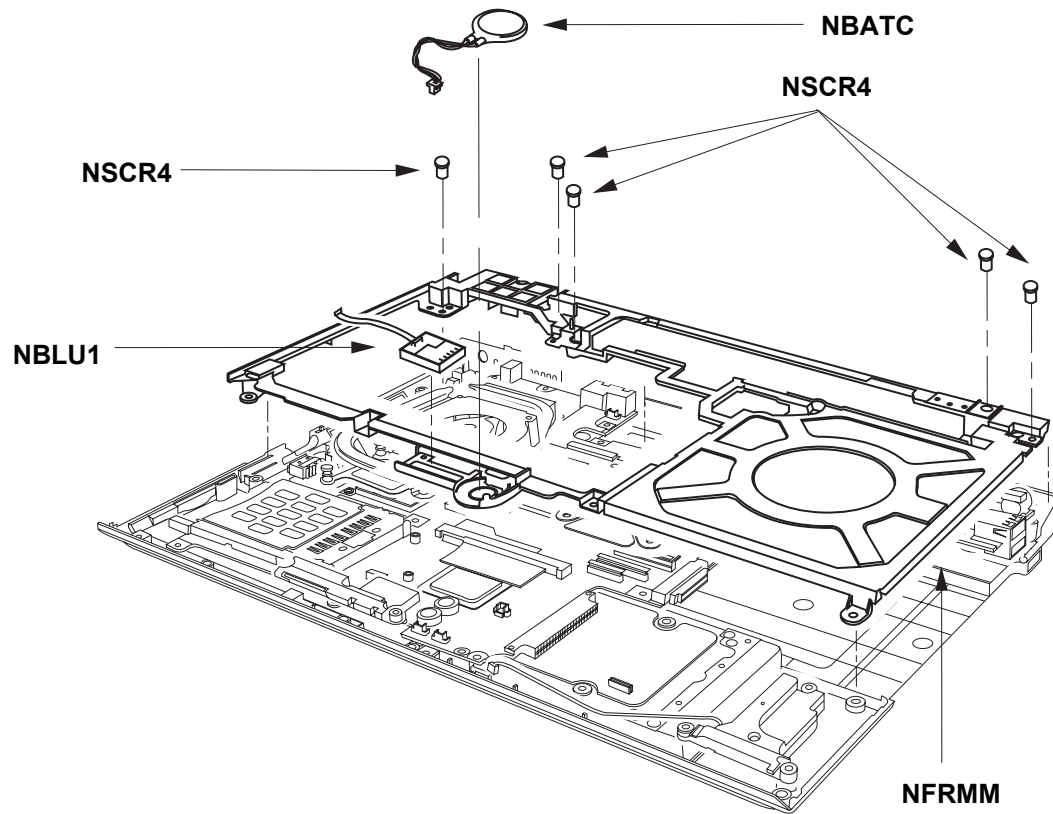
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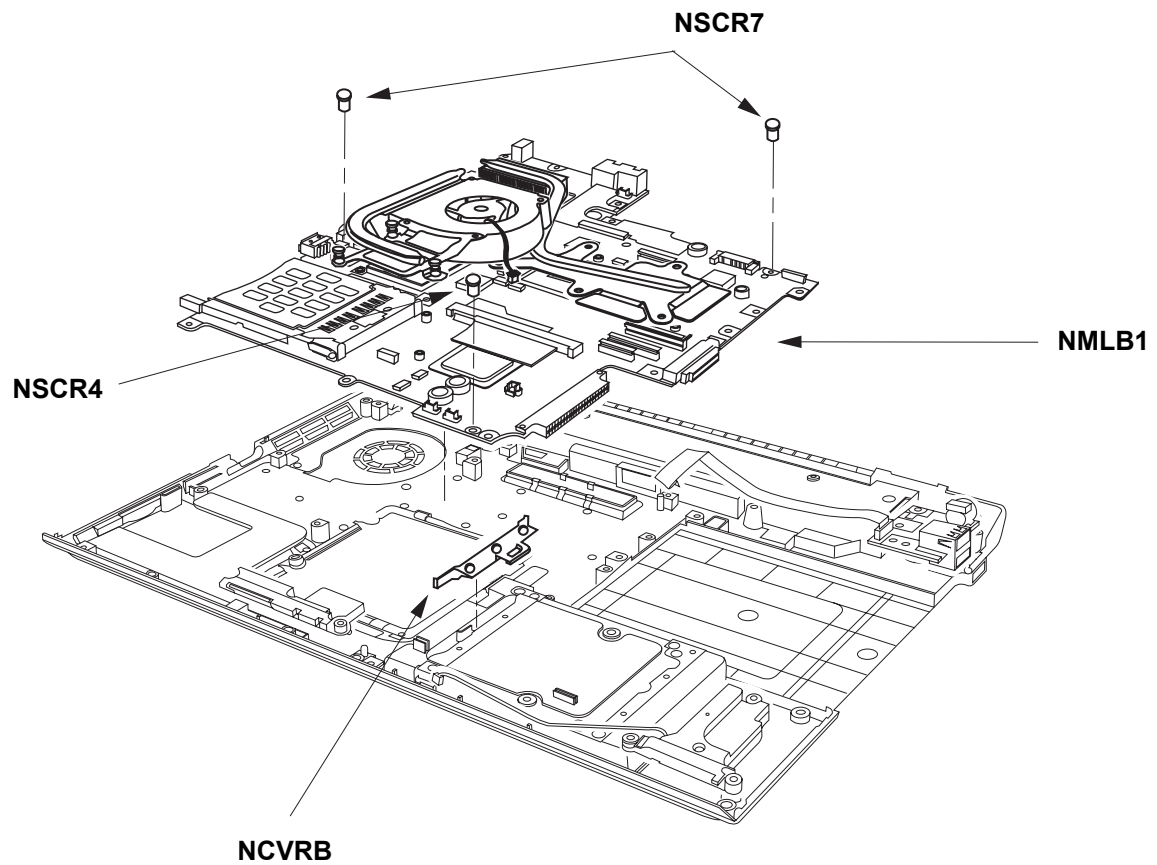
Location	LG P/N	SPECIFICATION	REMARKS
NSCR2	1SZZBA4041A	+ D3.5 L3.0MM SWRH4 DUMMY COVER FIX SILVER MAGELLAN DISPLAY	SCREW, DRAWING
NSUBA	6871BXS01PA	ROCKY-15W WIMTEC 4 LAYERS REV 0.3 AUDIO SUB B/D	PWB(PCB) ASSEMBLY, MAIN
NSUBB	6871BXS04PA	ROCKY-15W WIMTEC 2 LAYERS REV 0.4 BUTTON SUB B/D	PWB(PCB) ASSEMBLY, SUB
NSUBF	6871B0T58PA	SUB ASSEMBLY WIMTEC 2 LAYERS REV 0.3 FINGER PRINT	PWB(PCB) ASSEMBLY, SUB
NSUBT	6871BXS03PA	ROCKY-15W WIMTEC 2 LAYERS REV 0.4 TOUCH PAD SUB B/D	PWB(PCB) ASSEMBLY, SUB



Location	LG P/N	SPECIFICATION	REMARKS
NSCR1	1SZZBA4017E	+ D2.0 L3.0MM SWRH4 / [BK] DISPLAY BK [S-PJT] #0 TIP	SCREW, DRAWING
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	SCREW, DRAWING
NCAPR	5006BM3038A	CAP,HINGE RIGHT ROCKY 15.4 WIDE PCABS	CAP
NCAPL	5006BM3039A	CAP,HINGE LEFT ROCKY 15.4 WIDE PCABS	CAP

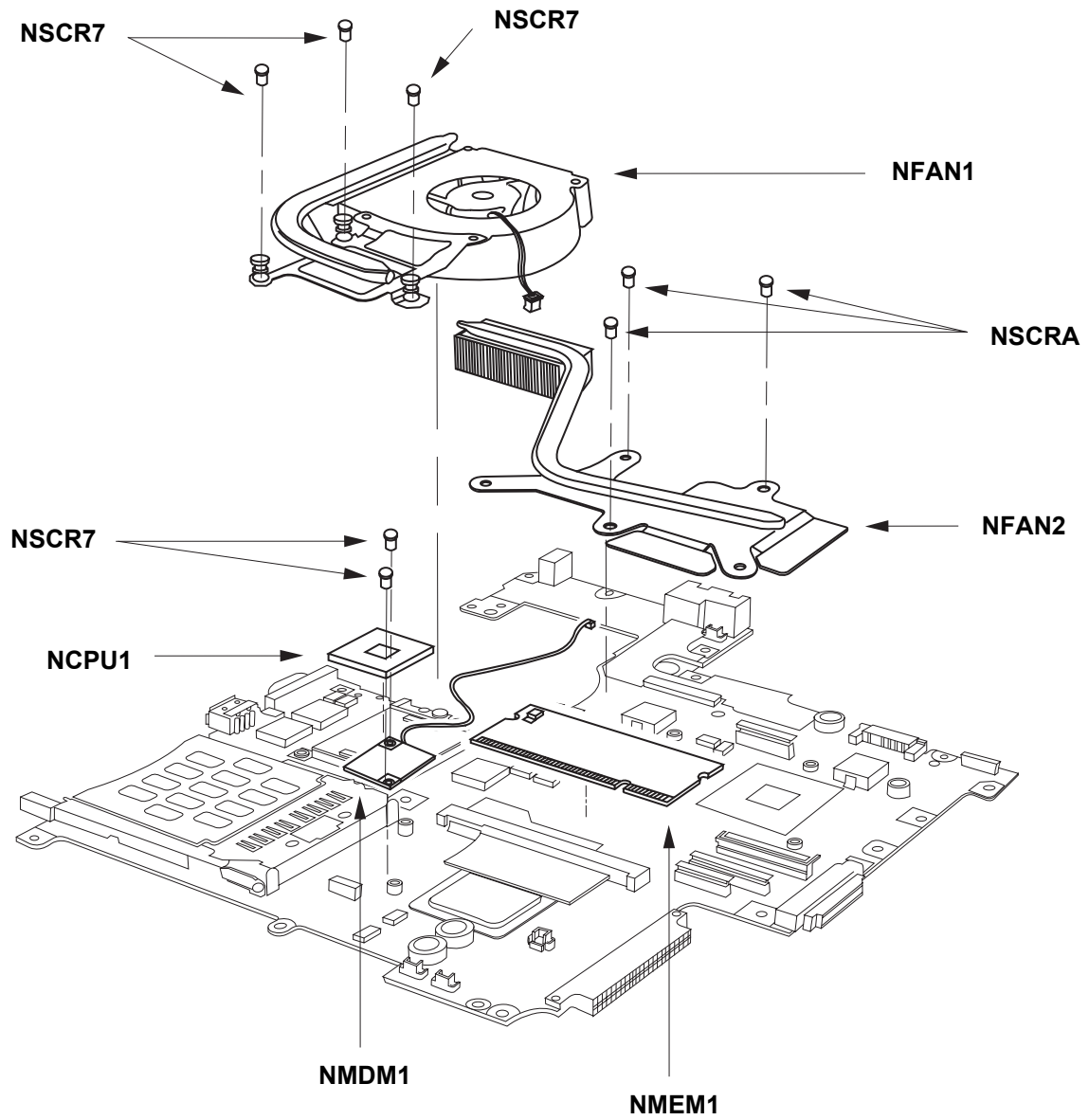


Location	LG P/N	SPECIFICATION	REMARKS
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	SCREW, DRAWING
NBATC	6911B00125B	160MHA CR2025 SONY LI-ION COIN ROCKY-15W RTC ASSY WITH TAPE	BATTERY ASSEMBLY
NBLU1	6871B0T62AA	QBTM300 QCOM 4 LAYERS VER.2A BLUETOOTH MODULE VER1.2	PWB(PCB) ASSEMBLY, SUB
NFRMM	3210BD1008A	ROCKY-15W MG BOTTOM FRAME MIDDLE	FRAME

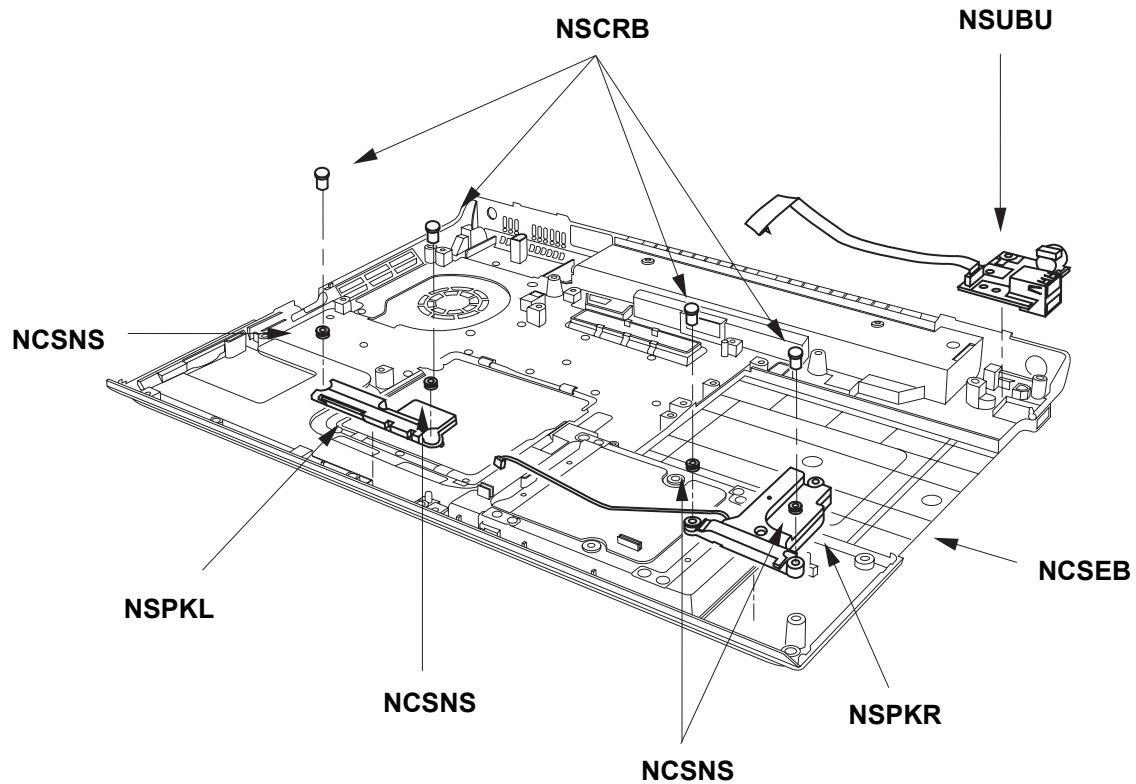


Location	LG P/N	SPECIFICATION	REMARKS
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	SCREW, DRAWING
NSCR7	1SZZBA4023A	+ D2.0 L 3.5 SWRH4 SYDNEY SYSTEM SILVER S3-PJT PLATED NICKEL	SCREW, DRAWING
NCVRB	3550BM3221A	OLYMPUS PCABS . BLOCK HDD	COVER
NMLB1	6871BXG11PA	ROCKY-15W MAIN B/D MAIN ASSY LGE 10 LAYERS REV 0.4 PILOT GM PATA	PWB(PCB) ASSEMBLY, MAIN

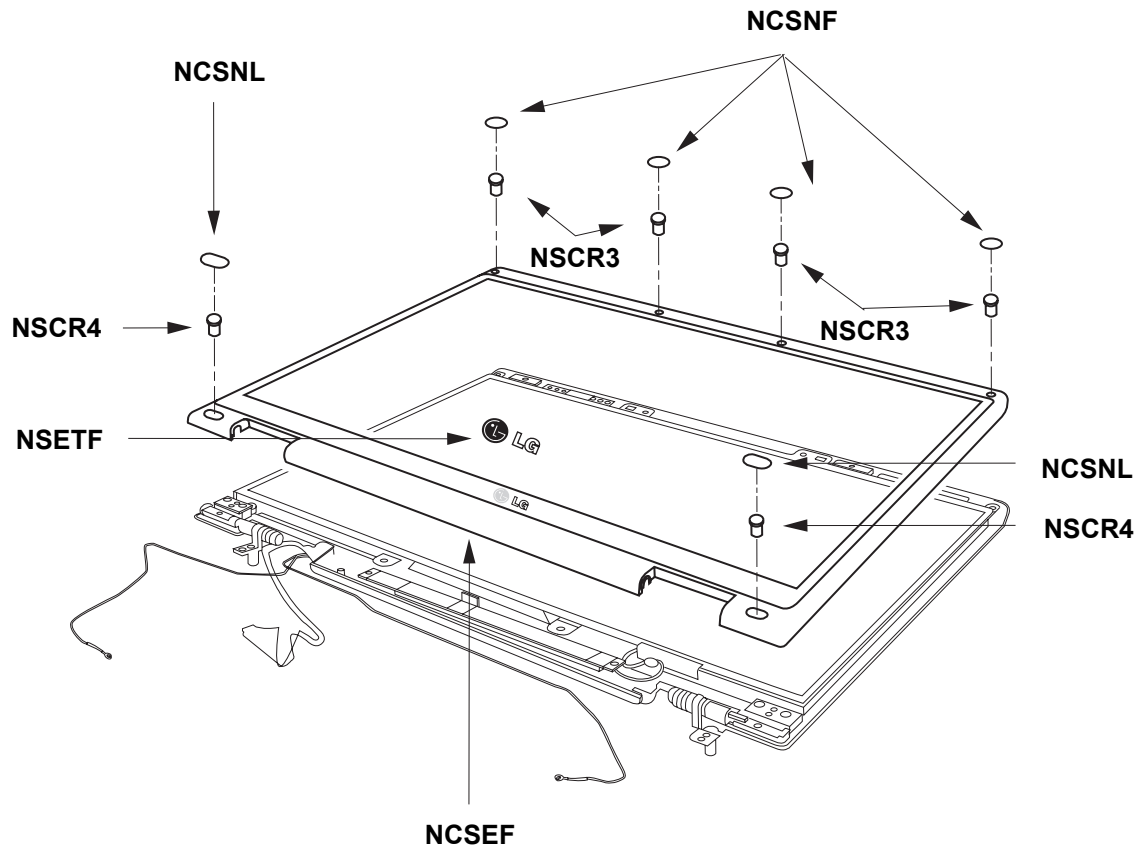




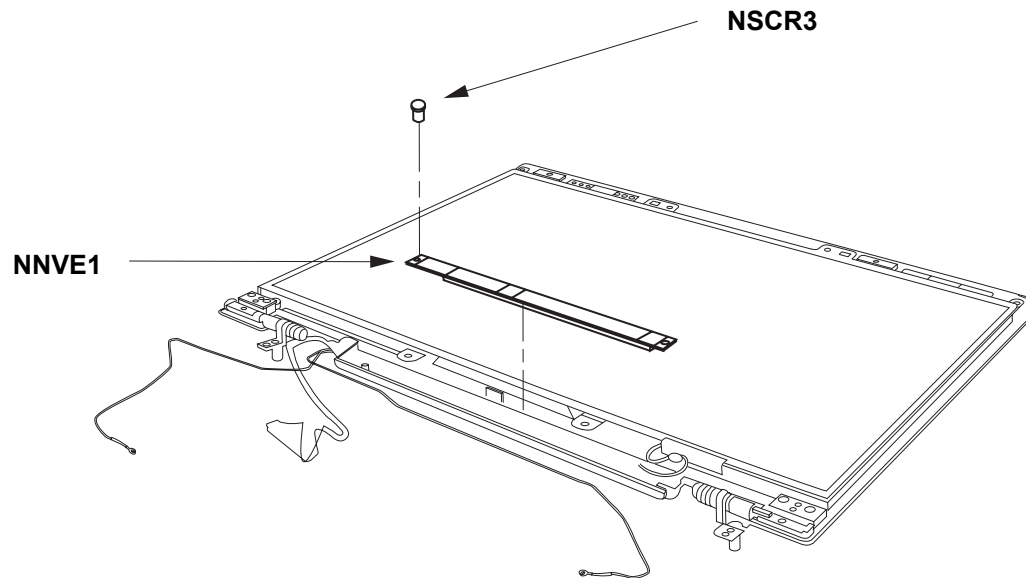
Location	LG P/N	SPECIFICATION	REMARKS
NSCRA	1SZZBZ4022B	+ D4.0 L12.0MM SWRH4 / [BK] FAN ASSY BK HUNTER F/W M2 TIP NO. 0 ROHS	SCREW, DRAWING
NSCR7	1SZZBA4023A	+ D2.0 L 3.5 SWRH4 SYDNEY SYSTEM SILVER S3-PJT PLATED NICKEL	SCREW, DRAWING
NFAN1	5901B09297A	LG INNOTEK ROCKY-15W FAN + PNOP (GM/PM)	FAN ASSEMBLY
NFAN2	5901B09299B	LG INNOTEK ROCKY-15W GFX MODULE ASSY WITHOUT GREASE FOR GM	FAN ASSEMBLY
NCPU1	0IMCR02255A	LF80539GF0282M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2300 1.66GHZ/1GHZ C0-STEPPING(SL8VR)	IC,MICRO CONTROLLER
NCPU1	0IMCR02256A	LF80539GF0342M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2400 1.83GHZ/1GHZ C0-STEPPING(SL8VQ)	IC,MICRO CONTROLLER
NCPU1	0IMCR02257A	LF80539GF0412M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2500 2.0GHZ/1GHZ C0-STEPPING(SL8VP)	IC,MICRO CONTROLLER
NCPU1	0IMCR02258A	LF80539GF0412M LG INTEL 478P UFCPGA TRAY NT CPU YONAH2 T2600 2.16GHZ/1GHZ C0-STEPPING(SL8VN)	IC,MICRO CONTROLLER
NMDM1	6871BG869AB	MA560-3 LF(LEAD FREE) QCOM 2 LAYERS 1A CHIP REV.G MDC1.5 FORM FACTOR V.92 MODEM CARD	PWB(PCB) ASSEMBLY, MAIN
NMEM1	0IMMR00177A	M470T3354CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00176A	HYS64T32000HDL-3S-B INFINEON 200P SODIMM BULK 256MB 32MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00175A	HYS64T64020HDL-3S-B INFINEON 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES
NMEM1	0IMMR00178A	M470T6554CZ3-CE6 SAMSUNG ELECTRONICS 200P SODIMM BULK 512MB 64MX64 667MHZ DDR2 SDRAM WITH 32MX16	IC, MEMORIES



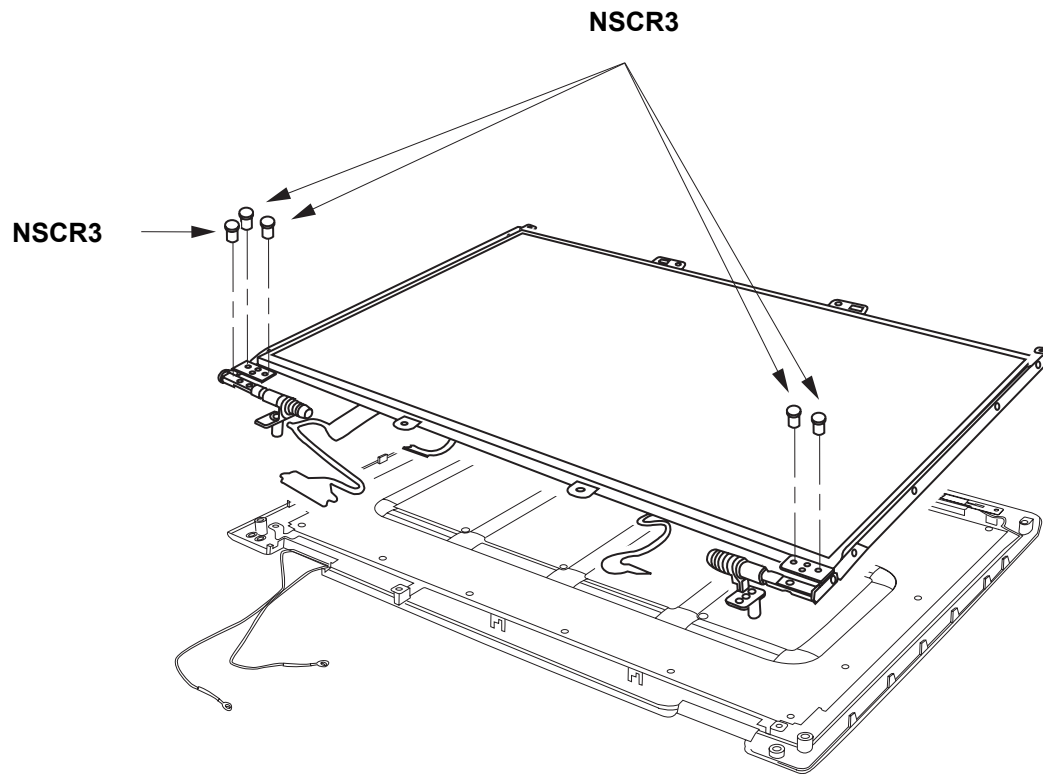
Location	LG P/N	SPECIFICATION	REMARKS
NSCRB	1SZZBZ4039A	+ D5.0 L8.5MM MSWR3 / FN SPEAKER SILVER ROCKY-154W L8.4MM	SCREW, DRAWING
NCSNS	3610BM4033A	WINDRIVER RUBBER SPEAKER CUSHION	FOOT
NSPKL	6401B02553A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4 WIDE LEFT	SPEAKER ASSEMBLY
NSPKR	6401B02554A	N ESTEC 1W 2PIN 10X10X10 N ROCKY 15.4 WIDE RIGHT	SPEAKER ASSEMBLY
NSUBU	6871BXS02PA	ROCKY-15W WIMTEC 4 LAYERS REV 0.3 REAR USB SUB B/D	PWB(PCB) ASSEMBLY, MAIN
NCSEB	3111B0TT12A	ROCKY-15W BOTTOM CASE	CASE ASSEMBLY



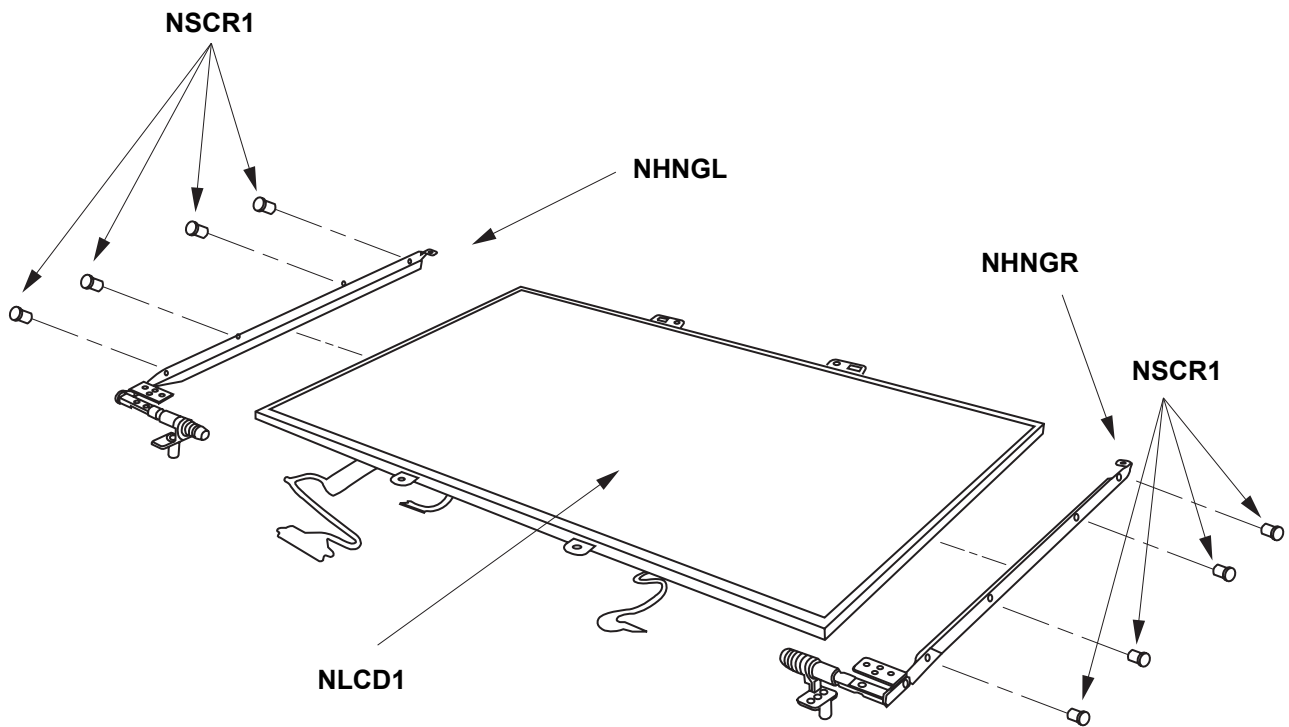
Location	LG P/N	SPECIFICATION	REMARKS
NSCR3	1SZZBA4080F	+ D4.5 L4.5MM SWRH4 M2.5 H1.0 SILVER HUNTER TIP #0	SCREW, DRAWING
NSCR4	1SZZBA4080J	+ D4.5 L6.0MM SWRH4 M2.5 H1.0 YL HUNTER TIP #0 ROHS	SCREW, DRAWING
NSETF	3858BP4548B	. ROCKY-15W BADGE LOGO, LG DISPLAY FRONT BLACK	SHEET (MECH)
NCSEF	3110BM0196A	ROCKY-15W PCABS DISPLAY FRONT .	CASE
NCSNL	4850BM4039A	ROCKY-15W CR DISPLAY RUBBER DAMPER LOWER	CUSHION
NCSNF	4850BP4084A	ROCKY-15F SILICON DISPLAY FRONT .	CUSHION



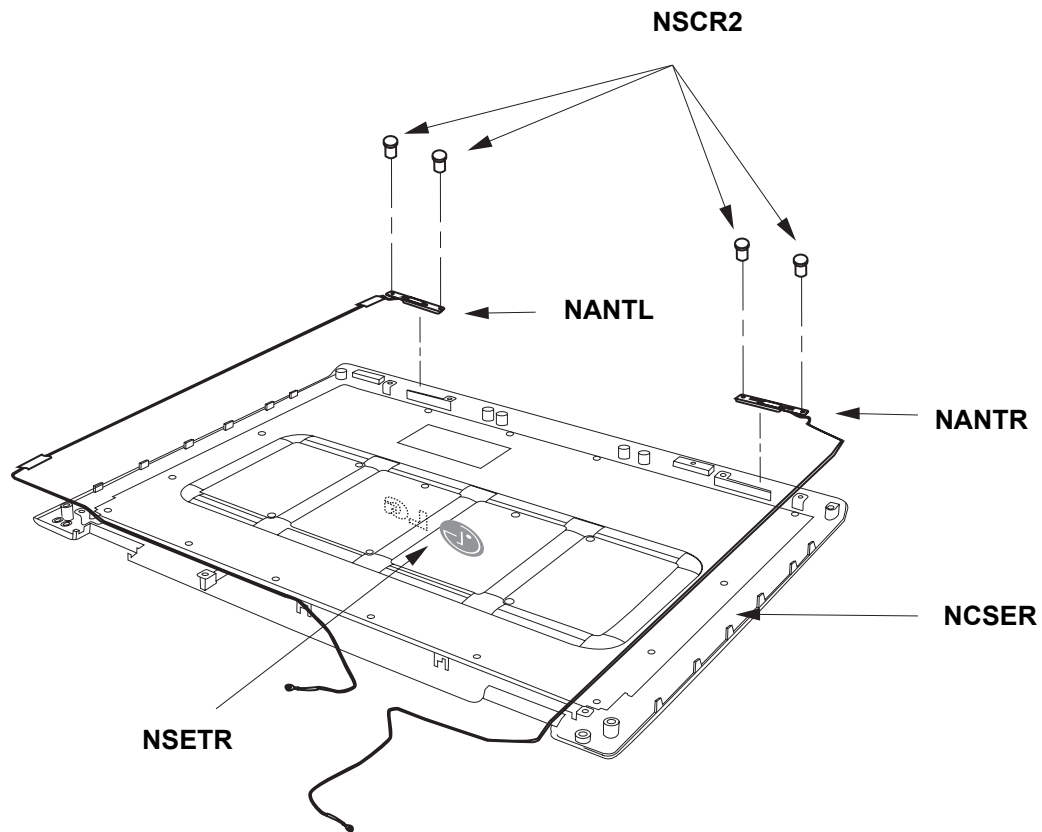
Location	LG P/N	SPECIFICATION	REMARKS
NSCR3	1SZZBA4080F	+ D4.5 L4.5MM SWRH4 M2.5 H1.0 SILVER HUNTER TIP #0	SCREW, DRAWING
NNVE1	6708BI0099A	NIK07001.50 LOGAH GENERAL GENERAL GENERAL ROCKY-14WT ,15F,15W	POWER SUPPLY, INVERTER
NNVE1	6708BI0098A	KUBNKM116A ALPS GENERAL SXGA+ LGP ROCKY-15F ,14WT,15W	POWER SUPPLY, INVERTER
NNVE1	6708BI0098A	KUBNKM116A ALPS GENERAL SXGA+ LGP ROCKY-15F ,14WT,15W	POWER SUPPLY, INVERTER



Location	LG P/N	SPECIFICATION	REMARKS
NSCR3	1SZZBA4080F	+ D4.5 L4.5MM SWRH4 M2.5 H1.0 SILVER HUNTER TIP #0	SCREW, DRAWING

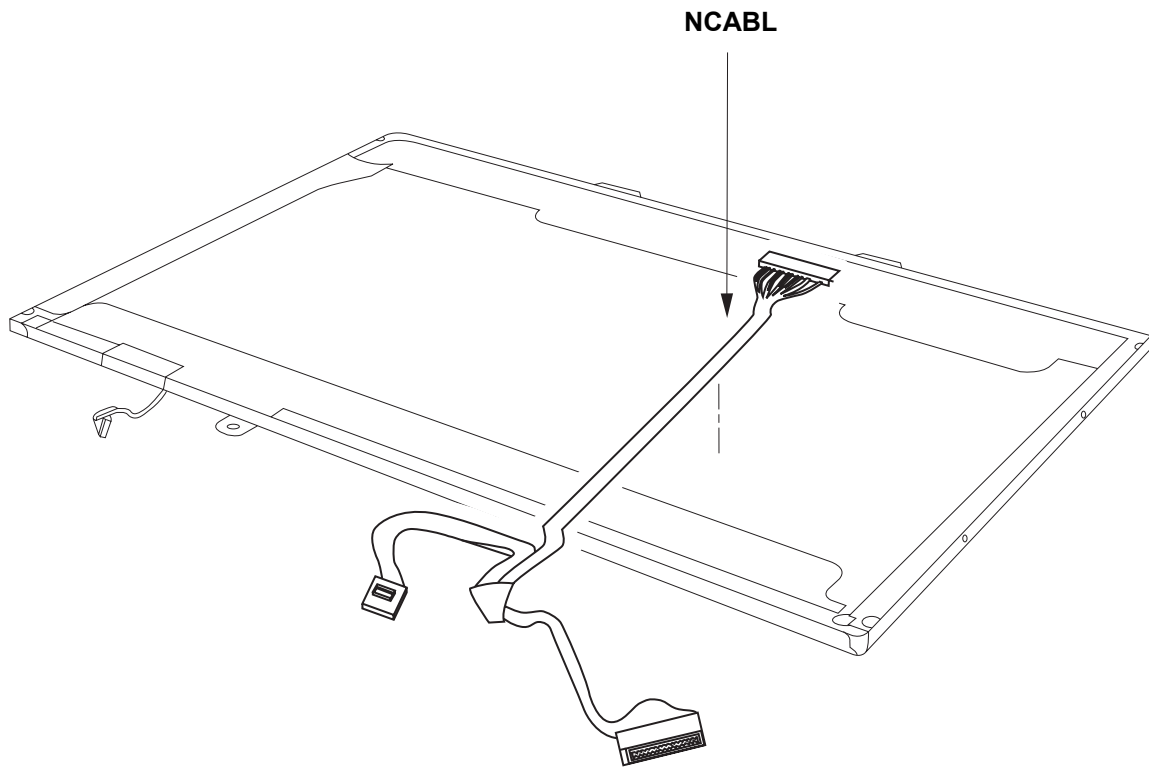


Location	LG P/N	SPECIFICATION	REMARKS
NSCR1	1SZZBA4017E	+ D2.0 L3.0MM SWRH4 / [BK] DISPLAY BK [S-PJT] #0 TIP	SCREW, DRAWING
NHNGL	4774BD2008A	ROCKY-15W SUS 7.0KGF-CM HINGE LEFT WITH BKT 8.0-9.0KGF-CM	HINGE
NHNGR	4774BD2007A	ROCKY-15W SUS 7.0KGF-CM HINGE RIGHT WITH BKT 8.0-9.0KGF-CM	HINGE
NLCD1	6304FLP155E	LP154W01-TLB5 LG PHILIPS TFT COLOR 15.4 INCH WXGA(1280X800) 200 NITS GLARE	LCD (LIQUID CRYSTAL DISPLAY)
NLCD1	6304FHS008B	HSD150PK14-C HANNSTAR TFT COLOR 15.0 INCH SXGA+(1400X1050) 200 NITS	LCD (LIQUID CRYSTAL DISPLAY)



Location	LG P/N	SPECIFICATION	REMARKS
NCSR2	1SZZBA4041A	+ D3.5 L3.0MM SWRH4 DUMMY COVER FIX SILVER MAGELLAN DISPLAY	SCREW, DRAWING
NANTL	5011B00037A	BLUETOOTH COMBO ANT HITACHI ROCKY 15 FULL	ANTENNA ASSEMBLY
NANTR	5011B00036A	WIRELESS AUX ANT HITACHI ROCKY 15FULL	ANTENNA ASSEMBLY
NSETR	3858BP4527A	. ROCKY-15F LOGO BADGE SMILE LG	SHEET (MECH)
NCSR	3111B0TT19A	ROCKY-15W DISPLAY REAR LG NORMAL	CASE ASSEMBLY





Location	LG P/N	SPECIFICATION	REMARKS
NCABL	6851B09275A	15.4 W LCD XGA CABLE AY 198*190 31 ROCKY 15.4W	CABLE ASSEMBLY