Service Manual

Personal Computer

CF-T4

This is the Service Manual for
the following areas.
M …for U.S.A. and Canada

Model No. CF-T4HWETZBM

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service
or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

CONTENTS

WARNINGS

This apparatus must be earthed for your safety.

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe.

For your safety, if you have any doubt about the effective earthing of the power point, consult a qualified electrician.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 3 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark ⬦ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

Warning: THIS APPLIANCE MUST BE EARTHED.

Important

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow: Earth
Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ coloured GREEN or GREEN-and-YELLOW.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured RED.

The mains plug on this equipment must be used to disconnect the mains power.

Please ensure that a socket outlet is available near the equipment and shall be easily accessible.

■ How to replace the fuse

Open the fuse compartment with a screw-driver and replace the fuse.
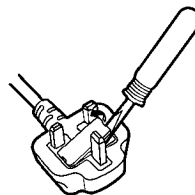
Warnings

● This equipment is not designed for connection to an IT power system.
   (An IT system is a system having no direct connections between live parts and Earth; the exposed-conducive-parts of the electrical installation are earthed.
   An IT system is not permitted where the computer is directly connected to public supply systems in the U.K.)

● Disconnect the mains plug from the supply socket when the computer is not in use.

This equipment is produced to BS800/1983.

1 Read Me First

Safety precautions

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacture's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.

Lithium Battery

Lithium Battery!

This computer contains a lithium battery to enable the date, time, and other data to be stored. The battery should only be exchanged by authorized service personnel.

Warning! A risk of explosion from incorrect installation or mis-application may possibly occur.

LITHIUM BATTERY ⚠

• **CAUTION**

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the equipment manufacture.

Discard used batteries according to the manufacturer's instructions.

Precautions

● Usage

Avoid Extreme Heat and Cold
Do not store or use the computer in locations exposed to heat, direct sunlight, or extreme cold. Avoid moving the computer between locations with large temperature difference.
Operation: 5 °C to 35 °C {41 °F to 95 °F}
Storage: -20 °C to 60 °C {-4 °F to 140 °F}

Avoid Direct Sunlight on the LCD Panel
The LCD panel should not be exposed to direct sunlight or ultraviolet light.
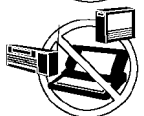
Avoid Humidity, Liquids and Dust
Do not store or use the computer in locations exposed to high humidity, liquids (including rain) or dust.

Prevent Shock
Avoid subjecting the computer to severe vibrations or impact. Do not place the computer inside a car trunk.

Avoid Radio Frequency Interference
Do not place the computer near a television or radio receiver.

Avoiding low-temperature burns
Avoid more than casual contact with any heat producing area of the notebook computer, AC adaptor, and any option or accessory you use with it. Even low heat, if warmer than body temperature, can cause a burn, if the skin is exposed to the heat source for a long enough period of time.

● Handling

Avoid Magnetic Fields
Keep the computer away from magnets.
Data stored on the hard disk may be lost.

Avoid Stacking
Do not place heavy objects on top of the computer.

Keep Small Objects Away
Do not insert paper clips or other small objects into the computer.

Do Not Disassemble the Computer
Do not attempt to disassemble your computer.

Avoid Excessive Force on the Display
Do not apply excessive downward force on the display.

● Cables
Use of an interface cable longer than 3 m (9.84 feet) is not recommended.

● Care should be exercised with regard to the following in order to avoid the possibility of overheating, fire or damage.

Avoid Heat
Do not throw the battery pack into a fire or expose it to excessive heat.

Keep Articles Away
Do not place the battery pack together with articles such as necklaces or hairpins when carrying or storing.

Do Not Disassemble
Do not insert sharp objects into the battery pack, expose it to bumps or shocks, deform, disassemble, or modify it.

Do Not Short
Do not short the positive (+) and negative (-) contacts.

Avoid Extreme Heat, Cold and Direct Sunlight
Do not charge, use or leave the battery pack for extended periods where it will be exposed to direct sunlight, in a hot place (in a car on a sunny day, for example), or in a cold place.

Do Not Use With Any Other Computer
The battery pack is rechargeable and was intended for the specified computer.
Do not use it with a computer other than the one for which it was designed.

Do Not Put into a Microwave
Do not put the battery pack into a microwave oven or a pressurized chamber.

Stop Using
Should the battery emit an abnormal odor, become hot to the touch, become discolored, change shape, or become in any way different from normal, remove it from the computer and stop using it.

● Do not touch the terminals on the battery pack. The battery pack may no longer function properly if the contacts are dirty or damaged.
● Do not expose the battery pack to water, or allow it to become wet.

● If the battery pack will not be used for a long period of time (a month or more), charge or discharge (use) the battery pack until the remaining battery level becomes 30% to 40% and store it in a cool, dry place.
● This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 95% of capacity.
● The battery pack is not charged when the computer is first purchased. Be sure to charge it before using it for the first time. When the AC adaptor is connected to the computer, charging begins automatically.
● Should the battery leak and the fluid get into your eyes, do not rub your eyes. Immediately flush your eyes with clear water and see a doctor for medical treatment as soon as possible.

NOTE

● The battery pack may become warm during recharging or normal use. This is completely normal.
● Recharging will not commence outside of the allowable temperature range (0 °C to 55 °C {32°F to 131 °F}).(☞ **Reference Manual** "Battery Power") Once the allowable range requirement is satisfied, charging begins automatically. Note that the recharging time varies based on the usage conditions. (Recharging takes longer than usual when the temperature is 10 °C {50 °F} or less.)
● If the temperature is low, the operating time is shortened. Only use the computer within the allowable temperature range.
● The battery pack is a consumable item. If the amount of time the computer can be run off a particular battery pack becomes dramatically shorter and repeated rechargings do not restore its performance, the battery pack should be replaced with a new one.
● When transporting a spare battery inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
● Always power off the computer when it is not in use. Leaving the computer on when the AC adaptor is not connected will exhaust the remaining battery capacity.

Saving Data on the Hard Disk

● **Do not expose your computer to shock.**
Use care when handling your computer, shock may damage your hard disk or make your software applications and data unusable.

● **Do not power off your computer while software applications are running or hard disk drive indicator (⊜) is on.**
Properly shut Windows* down to avoid problems.

● **Save all valuable data to disks.**
Backing up data to disks will limit damage should trouble occur to your computer or should you inadvertently change or erase data.

● **Use the security function for all important data.**

* This computer uses Microsoft® Windows® XP Professional.

Computer Viruses

Users are advised to purchase the latest versions of virus protection software and use them regularly.
We recommend you run the software:
• After booting your Computer.
• After receiving data.
We recommend that you check data received on disks or from external sources, such as data downloaded from the Internet, e-mail, etc. (For compressed files, uncompress them before running a check).

When Using Peripheral Devices

Pay strict attention to the following points to avoid damage to the computer, peripheral devices, cables ,etc. Also, in addition to following the manual and the Reference Manual, carefully read the instruction manuals for the peripheral devices being used.

● Use only peripheral devices that conform to the computer's specifications.
● Connect the devices properly, paying close attention to the condition and position of the connectors.
● If a connection cannot be made easily, do not apply undue force; check once more to confirm the condition and position of the connector (alignment of pins, etc.).
● If the connector has holding screws, fasten the screws firmly.
● Do not carry the computer with cables attached, and do not pull on the cables forcefully.

When Disposing of or Transferring Ownership of This Device

When disposing of or transferring ownership of this device, erase all data on the hard disk in order to prevent the theft of hard disk data. Even if you delete data or initialize the hard disk through normal Windows commands, data can still be read using special software. In order to erase all data, either have the data erased by a specialist (at a charge) or use the hard disk data erase utility (included). (Note that this hard disk data erase utility does not guarantee that data will be completely erased.)
Also note that if you transfer ownership of this device without deleting commercial software that you have installed to the hard disk, you may be in violation of licensing agreement for that software.

Usage Environment

● Environment
- Place the computer on a flat stable surface. Do not place the computer upright or allow it to tip over.
  When the computer receives extremely strong shock after falling, the hard disk may become inoperable.
- In use: Temperature: 5 °C to 35 °C {41 °F to 95 °F}
                Humidity: 30% to 80% RH (No condensation)
  Not in use: Temperature: -20 °C to 60 °C {-4 °F to 140 °F}
                Humidity: 30% to 90% RH (No condensation)

● Places not to use your computer
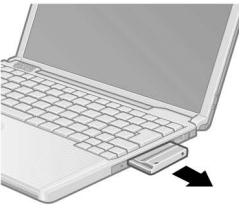- Such areas may result in damage to the computer.
  Areas with electronic equipment
    These areas may interfere with your display or cause your computer to produce strange sounds.
 **Areas with extremely high/low temperatures**
- Do not leave things near the computer that are sensitive to heat. During operation, the computer may become warm.

Handling

- This computer has been designed so as to minimize shock to the LCD and hard disk drive, etc., but no warranty is provided against such trouble. Therefore, as a precision instrument, be extremely careful in the handling.
- Do not carry the computer while the display is open, or carry it by gripping the display or the cabinet around the display (see figure upper left). When closing the display, ensure that the latch is positioned correctly in the slot.
- Do not drop or hit your computer against solid objects.
- Do not carry your computer when it is on.
- Remove all external devices, cables, PC Cards sticking out of the computer (see the figure lower left), SD memory cards, and MultiMedia Cards before transporting the computer.
- We recommend preparing a fully charged battery.
  When transporting a spare battery inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
- Always carry your computer with you. Never check it in with luggage. For use of the computer inside an aircraft, we recommend asking the airlines regarding their policy on this issue.
- It is a good idea to make backup copies on disks and carry them with you.

Maintenance

Touch Pad
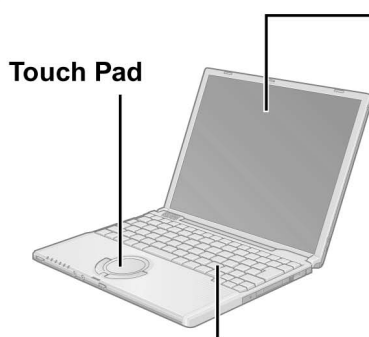
Display
Avoid using water when cleaning the panel. Ingredients included in water may leave scratches and reduce readability of the screen.
<When cleaning dust/dirt>
  Avoid rubbing off dust/dirt with cloth since it may leave scratch on the screen.
  Sweep dust/dirt with fine brush, then wipe it with a dry soft cloth used for cleaning glasses.
<When cleaning oily surface>
  Apply camera lens cleaner on a soft gauze and clean it with gentle force. Then, wipe with a dry soft cloth used for cleaning glasses.

Areas excluding the display
Wipe these areas with a soft cloth, after applying water or detergent diluted with water to the soft cloth and firmly wringing out excess water.
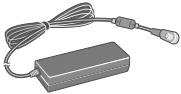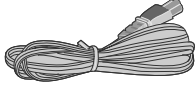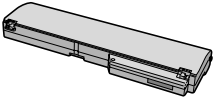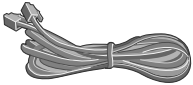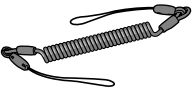
CAUTION
- Do not use benzene, thinner, or rubbing alcohol. Doing so may adversely affect the surface, e.g., discoloration. In addition, do not use commercially-available household cleaners and cosmetics, as they may contain components harmful to the surface.
- Do not directly add or spray water or detergent. If liquid enters the inside of the computer, it may cause it to work improperly or be damaged.

1.1. Accessories

Make sure the parts shown in the figure have been supplied. If any of these items are missing or is not working properly.

AC Adaptor 1	AC Cord 1	Battery Pack 1
Model No: CF-AA1623A		Model No: CF-VZSU37
Modem Telephone Cable 1	**Soft Cloth** 1	**Stylus**................... 1
Tether.......................1	Operating Instructions .... 1 Product Recovery DVD-ROM .... 1 Windows® Book 1	

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2. Specifications

● Main Specifications

CPU/ Secondary cache memory			Intel® Pentium® M Processor Ultra Low Voltage 753 (1.20 GHz, 2 MB[*1] L2 cache, 400 MHz FSB)
Chip Set			Intel® 915 GMS Express chip set
Main Memory			512 MB[*1], DDR2 SDRAM (1024 MB[*1] Max.)
Video Memory			UMA (128 MB[*1] Max.)[*2]
Hard Disk Drive (Replaceable)			60 GB[*3]
Display Method			12.1 XGA type (TFT) (1024 × 768 dots)
	Internal LCD Display		65,536/16,777,216 colors (1024 × 768 dots)[*4]
	External Display[*5]		65,536/16,777,216 colors (800 × 600 dots/1024 × 768 dots/1280 × 768 dots/1280 × 1024 dots/1600 × 1200 dots/2048 × 1536 dots)
	Simultaneous Display on LCD + External Display[*5]		65,536/16,777,216 colors (800 × 600 dots, 1024 × 768 dots)[*4]
Wireless LAN			Built-in Intel® PRO/Wireless 2915 ABG
LAN[*6]			IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX
Modem			Data: 56 kbps(V.92) FAX: 14.4 kbps
Sound			WAVE and MIDI playback, Monaural Speaker (built in)
Card Slots			PC Card Slot × 1: (One Type I or Type II, Allowable current 3.3 V: 400 mA, 5 V: 400 mA) SD Memory Card Slot[*7] × 1
RAM Module Slot			DDR2 SDRAM, 172-pin, 1.8 V, Micro DIMM, PC2-3200 Compliant[*8]
Interface			USB Ports × 2 (USB2.0 × 2) [*9] / Modem Port (RJ-11) / LAN Port (RJ-45) [*6] / External Display Port: Mini Dsub 15-pin female / Microphone Jack: Miniature jack, 3.5 DIA / Headphone Jack: Miniature jack, 3.5 DIA / Mini Port Replicator connector: Dedicated 50-pin male
Keyboard/Pointing Device			83 keys/Touch Pad/Touchscreen (stylus (included) touch capable)
Power			AC adaptor or Battery pack
AC Adaptor[*10]			Input: 100 V - 240 V AC, 50 Hz/60 Hz Output: 16 V DC, 2.5 A
Battery Pack			Li-ion 11.1 V, 7.65 Ah
	Operating Time[*11]		Approx. 6 hours -12 hours[*12] (Approx. 8 hours[*13]) (Disable Economy mode (ECO))
	Charging Time[*14]		Approx. 5 hours (Power off)/Approx. 7 hours (Power on)
Power Consumption[*15]			Approx. 35 W[*16] / Approx. 40 W (maximum when recharging in the ON state)
Physical Dimensions (W × H × D) (excluding the stylus holder)			• Including protrusion of the hand strap 268 mm × 28.1 mm (at the front)/66.9 mm (at the rear) × 210 mm {10.6 " × 1.1 " /2.7 " × 8.3 "} • Excluding protrusion of the hand strap 268 mm × 28.1 mm (at the front)/49.1 mm (at the rear) × 210 mm {10.5 " × 1.1 " /2.0 " × 8.3 "}
Weight[*17]			Approx. 1520 g {3.4 lb.} (including the stylus)
Environment	Operation	Temperature	5°C to 35°C {41°F to 95°F}
		Humidity	30% to 80% RH (No condensation)
	Storage	Temperature	-20°C to 60°C {-4°F to 140°F}
		Humidity	30% to 90% RH (No condensation)
OS[*18]			Microsoft® Windows® XP Professional with Service Pack 2 with Advanced Security Technologies (NTFS File system)
Pre-installed Software[*18]			Microsoft® Internet Explorer 6 Service Pack 2 / DirectX 9.0 c / Microsoft® Windows® Media Player 10 / Microsoft® Windows® Movie Maker 2.1 / Microsoft® .NET Framework 1.1 / Adobe Reader / Intel® PROSet/Wireless Software / SD Utility / Icon Enlarger / Loupe Utility / Touch Pad Utility / DMI Viewer / PC Information Viewer / Display Rotation Tool / Hotkey Settings / Wireless LAN Switch Utility / Economy Mode (ECO) Setting Utility / Battery Recalibration Utility / Infineon TPM Professional Package[*20]
			Setup Utility / Hard Disk Data Erase Utility[*19] / Hard Disk Backup Utility[*19]

[*1] 1 MB = 1,048,576 bytes

[*2] A segment of the main memory is allotted automatically depending on the computer's operating status. The size of the Video Memory cannot be set by the user.

[*3] 1 GB = 1,000,000,000 bytes. Operating system or some application software will report as fewer GB.

[*4] A 16,777,216 color display is achieved by using the dithering function.

[*5] Display may be impossible using some connected external displays.

[*6] Some devices cannot be used depending on the port type.

[*7] Operation has been confirmed for Panasonic SD memory cards with up to 2 GB capacity. The transfer rate using the SD memory card slot on this computer is 8 MB per second (this is a theoretical value, and differs from actual speeds). The transfer rate is 8 MB per second even if you use an SD memory card that supports high-speed transfer rates. Does not guarantee connection/ operation of all SD devices. Does not support MultiMedia card. Do not insert MultiMedia card.

[*8] Only a RAM module designed for DDR2 (PC2-3200) can be added (Panasonic : CF-BAV0256U / CF-BAV0512U). JEDEC standard 214 pin Micro DIMM cannot be used. PC2100 / PC2700 172 pin Micro DIMM cannot be used.

[*9] Does not guarantee operation of all USB-compatible peripherals.

[*10] <Only for North America>
The AC adaptor is compatible with power sources up to 240 V AC adaptor. This computer is supplied with a 125 V AC compatible AC cord.

[*11] Varies depending on the usage conditions, CPU speed, etc. Measured value when the power saving function on the USB2.0 USB Root Hub is set to on. (At the time of purchase, the power saving function is set to off.
When Economy Mode (ECO) is enabled, the operating time becomes approximately 20 % shorter than when it is disabled.

[*12] Measured using BatteryMark™ Version 4.0.1 (LCD brightness : Maximum - Minimum).

[*13] Measured using MobileMark™ 2002 (LCD brightness : 60 cd/m^2).

[*14] Varies depending on the usage conditions, CPU speed, etc.
It may take a long time to charge a fully discharged battery.

[*15] Approx. 1.5 W when the battery pack is fully charged (or not being charged) and the computer is off.

[*16] Rated power consumption.

[*17] Average value. May differ depending on models.

[*18] Operations of this computer are not guaranteed except for the pre-installed OS.

[*19] The Product Recovery DVD-ROM is required.

[*20] For information on TPM, input [c:\util\drivers\tpm\README.pdf] in [start] - [Run] and refer to the installation manual of "Trusted Platform Module (TPM)". You need to install Infineon TPM Professional Package to use TPM.

● Wireless LAN

Data Transfer Rates	IEEE802.11a: 54/48/36/24/18/12/9/6 Mbps (automatically switched)[*21]
	IEEE802.11b: 11/5.5/2/1 Mbps (automatically switched)[*20]
	IEEE802.11g: 54/48/36/24/18/12/9/6 Mbps (automatically switched)[*21]
Standard Supported	IEEE802.11a/IEEE802.11b/IEEE802.11g
Transmission Method	OFDM system, DS-SS system
Wireless Channels Used	IEEE802.11a: Channels 36/40/44/48/52/56/60/64/149/153/157/161/165 IEEE802.11b/ IEEE802.11g: Channels 1 to 11
RF Frequency Band	IEEE802.11a: 5.18 - 5.32 GHz, 5.745 - 5.825 GHz IEEE802.11b/ IEEE802.11g: 2412 - 2462 MHz

[*21] These are speeds specified in IEEE802.11a+b+g standards. Actual speeds may differ.

3. Names and Function of Parts

Names				
A	Function key	I	Display (internal LCD/Touchscreen)	
B	Keyboard	J	Speaker	
C	LEDs	K	LAN Port	品
D	Touch pad	L	Modem Port	☐
E	Power switch/Power indicator ⏻	M	Security lock	
F	Wireless LAN switch WIRELESS LAN	M	USB Ports	⊷
G	Economy-mode (ECO) indicator ECO	O	Wireless LAN Antenna (built-in)	
H	Battery indicator ▯			
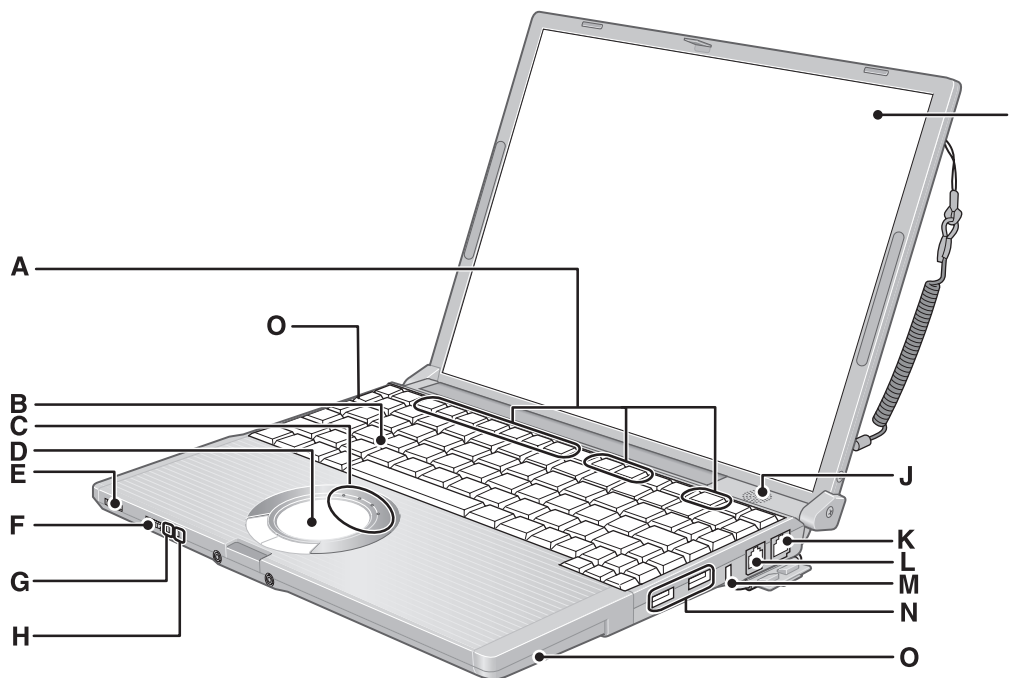
	Names				
A	DC-IN Jack	⊖−◐−⊕ DC IN 16V	H	Microphone Jack	🎤
B	External Display Port	▢	I	Headphone Jack	🎧
C	Mini Port Replicator Connector	EXT.	J	RAM Module Slot	
D	SD Memory Card Slot		K	Latch	
E	PC Card Slot		L	Hand strap	
F	SD Memory Card Indicator		M	Latch	
G	Latch		N	Battery Pack	

A
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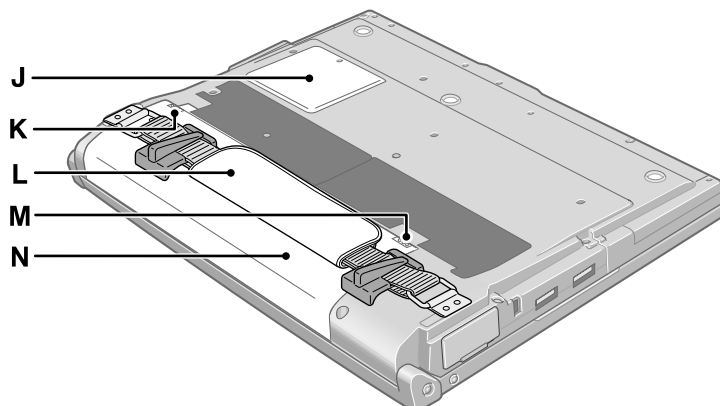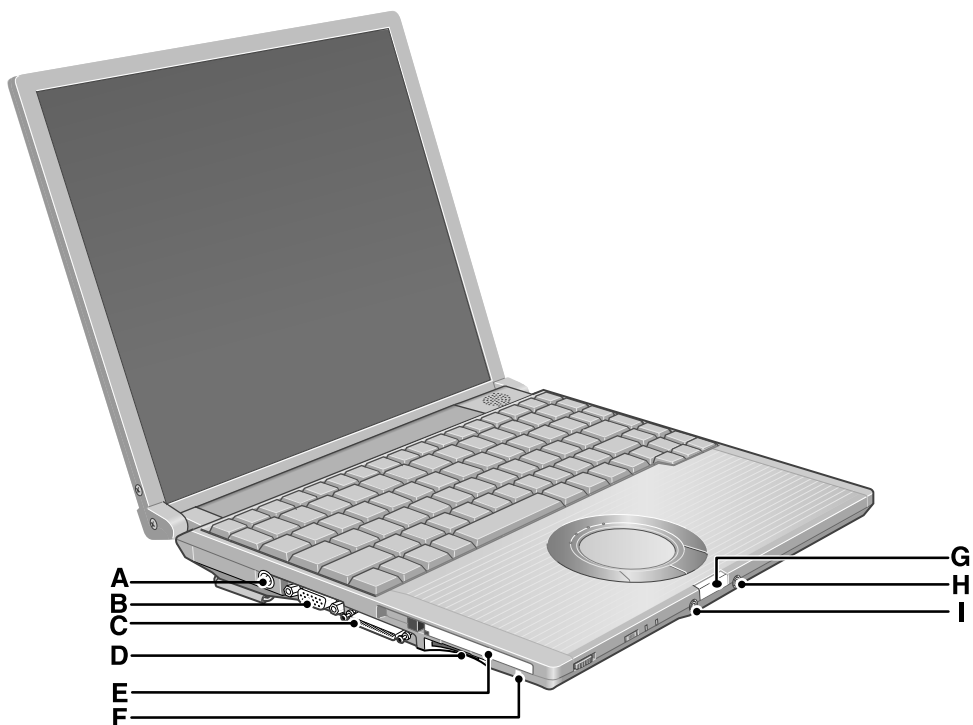
4 Diagnosis & Repair

4.1. Basic Procedures

The basic procedures for diagnosis, disassembly, and test of defective parts of a set to be repaired are summarized below. For details, refer to relevant pages in the Service Manual.

● **Flow Chart**

```
                              ┌──────────────────┐
                              │ OCCURRENCE OF    │
                              │ TROUBLE          │
                              └──────────────────┘
                                       │  Power sw is set to ON.
                                       ▼
                         ┌──────────────────────────┐      Automatic diagnosis takes
                         │   Power On Self Test      │      place when the power switch
                         └──────────────────────────┘      is set to ON.
                            │                    │
                            ▼                    ▼
                   ┌──────────────┐       ┌──────────────┐
                   │ POST NORMAL  │       │ POST ERROR   │
                   │ FINISH       │       │ OCCURRENCE   │
                   └──────────────┘       └──────────────┘
                            │                    │
                            ▼                    ▼
      DEFECTIVE PARTS   ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
      SORTING           │ ■ SELF-DIAGNOSIS TEST (IF REQUIRED)│ ◄──┐
                        │   Conduct a self diagnosis test when │    │
                        │   it is necessary for conduct        │    │
                        │   trouble diagnosis.                 │    │
                        └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘    │
                                       │                            │
                                       ▼                            │
                        ┌──────────────────────────┐                │
                        │ ■ TROUBLESHOOTING         │                │
                        │   Defective parts are sorted by │          │
                        │   referring to symptoms.  │                │
                        └──────────────────────────┘                │
                                       │                            │
                                       ▼                            │
      REPAIR WORK       ┌──────────────────────────┐                │
                        │ ■ DISASSEMBLY PROCEDURE   │                │
                        │   Replace defective parts. │               │
                        └──────────────────────────┘                │
                                       │                            │
                                       ▼                            │
      INSPECTION        ┌──────────────────────────┐                │
                        │ ■ SELF-DIAGNOSIS TEST     │                │
                        │   After repair, conduct a self- │  TEST FAILED
                        │   diagnosis test and make sure that the │──┘
                        │   repaired set operates properly. │
                        └──────────────────────────┘
                                       │  TEST OK
                                       ▼
                              ┌──────────────────┐
                              │ END OF           │
                              │ REPAIR WORK      │
                              └──────────────────┘
```

4.2. Troubleshooting

Please take note of the following two points with regard to troubleshooting:

1. Diagnosis upon occurrence of heavy troubles, e.g. 'System cannot be turned ON', 'System fails to start', 'No display on screen', etc.

2. Explanation of each trouble, mainly symptom of trouble in operation.

● **Flow Chart**

START

Pay attention to the following points when in pursuit of the cause of a troubleshooting.
1. Peripheral apparatus connected with the set should all be removed before operation check.
2. Make sure that cables, boards, etc. are not coming off, and recheck the contact condition.

Set cannot be supplied with current.
Power lamp fails to light up.

AC adaptor output voltage. — NG → Replace AC adaptor.
OK

Power lamp flashing — NO → Check contact condition of DC-IN jack terminal. Replace if defective.
Check power cable continuity. Replace if defective.
Check main board connection and contact. Replace if defective.
YES

Dark display on screen.
Screen fails to display.

Inverter board input/output voltage — NG → Replace inverter board.
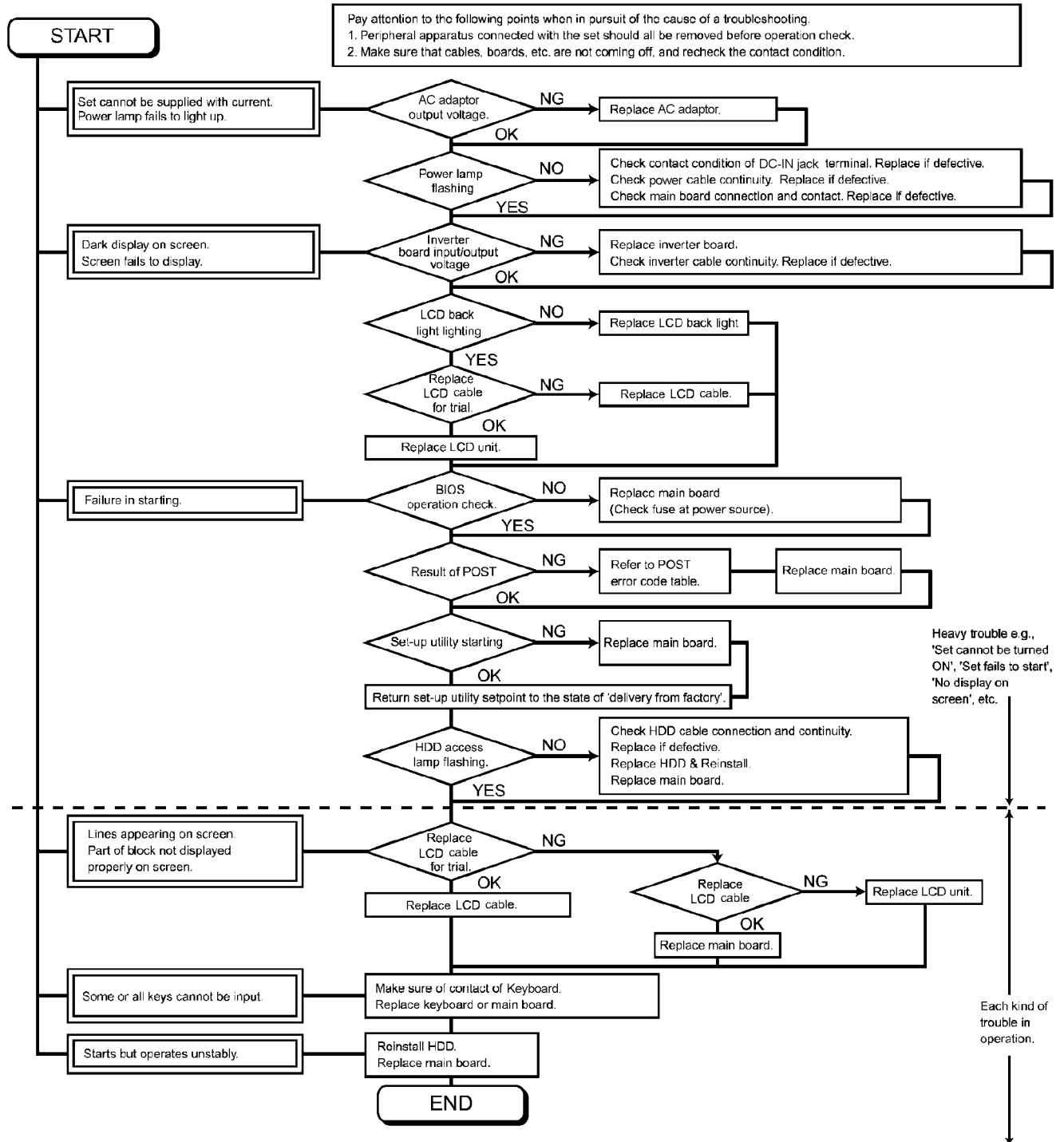Check inverter cable continuity. Replace if defective.
OK

LCD back light lighting — NO → Replace LCD back light
YES

Replace LCD cable for trial. — NG → Replace LCD cable.
OK

Replace LCD unit.

Failure in starting.

BIOS operation check. — NO → Replace main board (Check fuse at power source).
YES

Result of POST — NG → Refer to POST error code table. → Replace main board.
OK

Set-up utility starting — NG → Replace main board.
OK

Return set-up utility setpoint to the state of 'delivery from factory'.

HDD access lamp flashing. — NO → Check HDD cable connection and continuity.
Replace if defective.
Replace HDD & Reinstall.
Replace main board.
YES

Heavy trouble e.g.,
'Set cannot be turned ON', 'Set fails to start', 'No display on screen', etc.

Lines appearing on screen.
Part of block not displayed properly on screen.

Replace LCD cable for trial. — NG → Replace LCD cable — NG → Replace LCD unit.
OK   OK
Replace LCD cable.   Replace main board.

Some or all keys cannot be input.

Make sure of contact of Keyboard.
Replace keyboard or main board.

Each kind of trouble in operation.

Starts but operates unstably.

Reinstall HDD.
Replace main board.

END

When a problem occurs, refer to this page.
If a problem appears to be related to a software application, read the software related manual.

● Starting Up

The power indicator or battery indicator is not lit	● Check the cable connection for the AC adaptor. ● Check to see if a fully charged battery is properly inserted. ● Remove the battery pack and disconnect the AC adaptor, then connect them again.
[Enter Password] is displayed	Input your password.
POST Startup Error(s) is displayed	Refer to the List of Error Codes.
Windows startup, or an operation is extremely slow	● Press (F9) in the Setup Utility. This will restore the Setup Utility's settings to their default values (except the password settings). Then, the Setup Utility must be run once again for you to input the appropriate operating environment settings. (The processing speed depends on the application software used, so this operation may not cause the processing speed to increase.) ● If operations slow down during streaming playback, try changing the number of colors of the display.
The date and time are incorrect	● You can set the date and time using the following procedure: [Control Panel] - [Date, Time, Language, and Regional Options] - [Date and Time] ● If you continue to experience problems, the internal battery maintaining the clock may need to be replaced. ● When the computer is connected to a LAN, confirm the date and time of the server. ● This computer will not correctly recognize the date and time starting from the year 2100 A.D.
When resuming from the standby or hibernation mode, [Enter Password] does not appear even if a password has been set in the Setup Utility	Even when a password has been set in the Setup Utility, [Enter Password] does not appear when the computer resumes from the standby or hibernation mode. If you want to use the security function when using the standby or hibernation mode, use the Windows password as follows: Select the account to change in [Control Panel] - [User Accounts] and set the password, then add the check mark for [Prompt for password when computer resumes from standby] in [Control Panel] - [Performance and Maintenance] - [Power Options] - [Advanced].
When the administrator password is forgotten	If you have created a password reset disk, a message is displayed when you fail to correctly enter the password. Follow the message's instructions and set the password again by using the password reset disk. If you have not created a password reset disk, after reinstalling, setup Windows and then set the password again.

When the previous item is not the cause	● Press (F9) in the Setup Utility. This will restore the Setup Utility's settings to their default values (except the password settings).
	● Try removing all peripheral devices.
	● Check a disk error using the following procedure.
	  1. Select [Local Disk(C:)] with the right button in [start] - [My Computer], and select [Properties].
	  2. Select [Tools] - [Check Now].
	  3. Select [Start] after selecting required items in [Check disk options].
	● At startup, hold down (F8) when [Panasonic] screen disappears, and release your finger when the Windows Advanced Option Menu is displayed. Start the computer in Safe Mode, and confirm the details of the error.

The computer does not operate when a USB device is connected	The computer may not operate when certain USB devices are connected. Disconnect the USB device, or set [Legacy USB Support] to [Disable] in [Advanced] menu of the Setup Utility.
When "Invalid system disk. Replace the disk, and then press any key." (or a similar message) is displayed	● This means a floppy disk that does not contain system startup information has been left in the floppy disk drive. Remove the floppy disk, and press any key. ● This message may appear when certain USB devices are connected. Remove the USB device, or set [Legacy USB Support] in [Advanced] menu of the Setup Utility to [Disable].

● Display

No display after powering on	● When there is no display to an external display, • Check your cable connection to the external display. • Confirm your display is powered on. • Check the settings for your external display. ● Try switching the display destination by pressing **Fn**+**F3**.
The power has not been turned off, but after a certain period of time, there is no display	● Has the computer been set to the power-saving mode? To resume operation of your computer from the condition the power of the display is off (for energy conservation purposes), press any key unrelated to the direct triggering of a selection, like **Ctrl** ● To save power, your computer may have automatically entered the standby mode (Power indicator blinks green) or hibernation mode (Power indicator turns off). In such cases, Slide the power switch. ● There is a possibility that an external display is set as the display destination. Press **Fn**+**F3** to switch the display destination. ● If you want to switch the display destination repeatedly by pressing **Fn**+**F3**, make sure that the display destination has switched completely each time before pressing **Fn**+**F3** again.
The cursor cannot be controlled	● If you are using an external mouse, ensure that the external mouse has been connected correctly. ● Restart the computer by using the keyboard (Press **⊞** , **U** , and select [Restart] with **→** **←** **↑** **↓** , then press **Enter**). If the computer does not respond to keyboard commands, read "Computer hangs"
An afterimage appears (e.g., green, red, and blue dots remain on the display) or there are dots not displaying the correct colors	● If an image is displayed for a prolonged period of time, an afterimage may appear. This in not a malfunction. The afterimage will disappear when a different screen is displayed. ● High-precision and advanced technologies are necessary in the production of color liquid crystal displays (color LCDs). Therefore, if 0.002% or less of the picture elements either fail to light or remain constantly lit (that is, more than 99.998% of elements are functioning properly), no defect is considered to exist.
The external display no longer displays properly	When an external display not compatible with the power saving mode is used with the computer, the external display may no longer display properly when the computer enters the condition the power of the display is OFF (for energy conservation purposes). In such cases, turn off the power to the external display.
The screen becomes disordered	Changing the number of colors or resolution of the display may affect the screen. Restart the Computer.
During simultaneous display, the screen of the external display becomes disordered	● Try switching the display destination by pressing **Fn**+**F3**. ● If the external screen is not displayed even after switching screens using **Fn**+**F3**, try switching the display destination using the following procedure. [start] - [Control Panel] - [Other Control Panel Options] - [Intel® Extreme Graphics]
When an MPEG file is being played with Media Player, the display destination cannot be switched using Fn+F3	The display destination cannot be switched while an MPEG file is playing. Stop playing the MPEG file before switching the display destination.
Application is not displayed properly, or characters are garbled	Is the application a non-Unicode program? When non-Unicode programs are run on Windows XP, you must select the language appropriate to that program. Set [Language for non-Unicode programs] in [Control Panel] - [Date, Time, Language, and Regional Options] - [Regional and Language Options] - [Advanced].
When the battery pack is used, the screen is darker than when the AC adaptor is connected	Press **Fn**+**F2** and adjust the brightness. Note, however, that when the brightness is increased, the battery running time will become shorter. Brightness can be set to separate levels for when the AC adaptor is connected and when it is disconnected.
The screen does not fill up the entire display (i.e., the screen is shown in the center of the display	If the screen resolution is set to 800 x 600 or less and the screen is set to simultaneous display, the screen will not fill up the entire display. Also, if the screen is set to Extended Desktop, the screen may not fill up the entire display.

● Shutting down

Windows cannot be shut down or restarted	If a USB device is connected, try removing it.

● Battery Indicator

The red indicator lights	The battery level is low. Quickly save current data and power off your computer. After connecting the AC adaptor or replacing the battery pack with a fully charged one, turn your computer on.
The red indicator blinks	The battery pack or recharging function may be defective. Quickly save current data and power off your computer. Remove the battery pack and disconnect the AC adaptor, then connect them again.
The orange indicator blinks	Unable to recharge due to violation of temperature limits. The ambient temperature is outside the allowable range. Once the allowable range requirement is satisfied, charging begins automatically.

● SD Memory Card

Cannot log on with the SD memory card	If you change the setting for Language for non-Unicode programs after the check mark has been added in [Use when logging on to Windows] under [SD Card Setting] - [Setting for this SD card], remove the check mark from [Use when logging on to Windows] under [SD Card Settings] - [Setting for this SD card], and set the user name and password again.

● Others

Computer hangs	● Do not switch screens continuously (e.g., using [Command Prompt] full screen display) while an MPEG file is playing. ● Press [Ctrl]+[Shift]+[Esc] to open Task Manager and close the software application which is not responding. ● After shutting down the power by sliding the power switch for more than four seconds, slide the power switch to power on and open the application again. If the program no longer works normally, delete the program using the following procedure. Then reinstall the program. Select [start] - [Control Panel] - [Add or Remove Programs]

● Reference Manual

The Reference Manual is not displayed	Is Acrobat Reader installed?
	If Acrobat Reader is not installed, run the following* in [start] - [Run] to reinstall the program. When installing the program, do not change the installation destination folder. If the destination folder is changed, the Reference Manual cannot be opened from [start] menu.
	* English: [c:\util\reader\m\ar505enu.exe]
	  Traditional Chinese: [c:\util\reader\tc\ar505cht.exe]
	  Simplified Chinese: [c:\util\reader\sc\ar505chs.exe]

● Fast User Switching Function

Some applications do not work properly	When switching to a different user with the Fast User Switching function, the following problems may occur. • Some applications may not work properly (for example, PDF files may not be printed properly). • It may not be possible to set the settings of the display. If any of the above occur, log on with the administrator authority again, not using the Fast User Switching function, and try the operation once more.

4.2.1. List of Error Codes

The following is a list of the messages that BIOS can display. Most of them occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured. Following the list are explanations of the messages and remedies for reported problems.

If your system fails after you make changes in the Setup menus, reset the computer, enter Setup and install Setup defaults or correct the error.

0200 Failure Fixed Disk

Fixed disk in not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup. Find out if the fixed-disk type is correctly identified.

0210 Stuck key

Stuck key on keyboard.

0211 Keyboard error

Keyboard not working.

0212 Keyboard Controller Failed

Keyboard controller failed test. May require replacing keyboard controller.

0213 Keyboard locked - Unlock key switch

Unlock the system to proceed.

0230 System RAM Failed at offset : *nnnn*

System RAM failed at offset *nnnn* of in the 64k block at which the error was detected.

0231 Shadow RAM Failed at offset : *nnnn*

Shadow RAM failed at offset *nnnn* of the 64k block at which the error was detected.

0232 Extended RAM Failed at offset : *nnnn*

Extended RAM Failed at address line : *nnn*

Extended memory not working or not configured properly at offset *nnnn*.

0250 System battery is dead - Replace and run SETUP

The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.

*0251 System CMOS checksum bad - Default configuration used

System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or refer to "Support Information".

0260 System timer error

The timer test failed. Requires repair of system board.

0270 Real time clock error

Real-time clock fails BIOS test. May require board repair.

*0280 Previous boot incomplete - Default configuration used

Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of **wait states,** improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that the wait-state configuration is correct. This error is cleared the next time the system is booted.

0281 Memory Size found by POST differed from CMOS

Memory size found by POST differed from EISA CMOS.

02B0 Diskette Drive A error

02B1 Diskette Drive B error

Drive A: or B: is present but fails the BIOS POST diskette tests. Check to see that the drive is defined with the proper diskette type in Setup and that the diskette drive is attached correctly.

02B2 Incorrect Drive A type-run SETUP

Type of floppy drive A: not correctly identified in Setup.

02B3 Incorrect Drive B type-run SETUP

Type of floppy drive B: not correctly identified in Setup.

02D0 System cache error-Cache disabled

02F0 CPU ID

CPU socket number for Multi-Processor error.

02F4 EISA CMOS not writable

ServerBIOS2 test error: Cannot write to EISA CMOS.

02F5 DMA Test Failed

ServerBIOS2 test error: Cannot write to extended DMA (Direct Memory Access) registers.

02F6 Software NMI Failed

ServerBIOS2 test error: Cannot generate software NMI (Non-Maskable Interrupt).

02F7 Fail - Safe Timer NMI Failed

ServerBIOS2 test error: Fail-Safe Timer takes too long.

***device* address Conflict**

Address conflict for specified *device*.

Allocation Error for: *device*

Run ISA or EISA Configuration Utility to resolve resource conflict for the specified *device*.

Failing Bits : *nnnn*

The hex number *nnnn* is a map of the bits at the RAM address which failed the memory test. Each 1 (one) in the map indicates a failed bit. See error 230,231 or 232 for offset address of the failure in System, Extended or Shadow memory.

Invalid System Configuration Data

Problem with NVRAM (CMOS) data.

I/O device IRQ conflict

I/O device IRQ conflict error.

Operating System not found

Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.

Parity Check 1 *nnnn*

Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. Parity is a method for checking errors in binary data. A parity error indicates that some data has been corrupted.

Parity Check 2 *nnnn*

Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????.
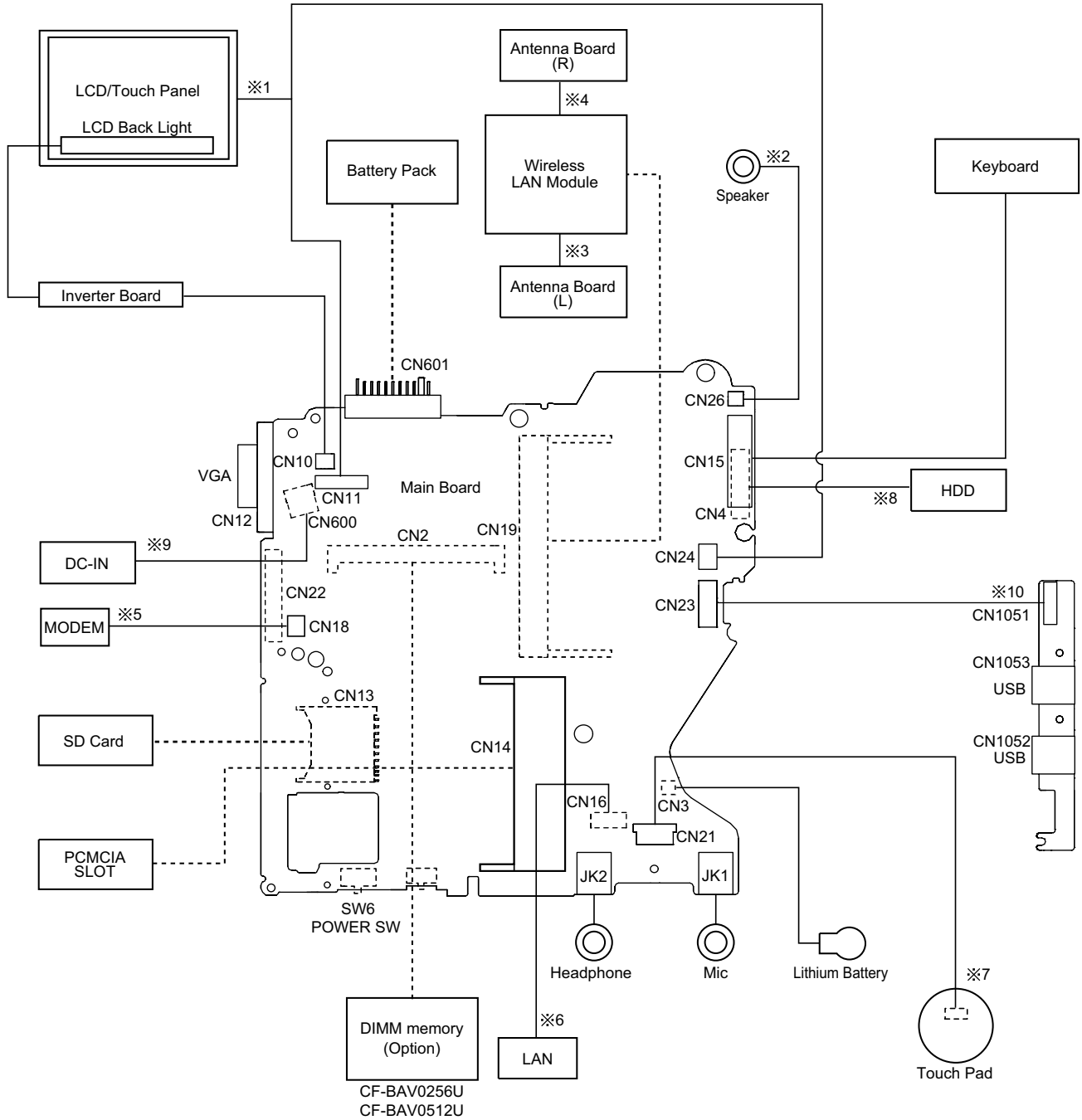
Press <F1> to resume, <F2> to Setup

Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter a Setup and change the settings. Write down and follow the information shown on the screen.

4.3. ConnectionDiagram

Connection by Cable
······· Direct connection Connectors
⌐¬ Parts on Bottom Side

Connection Cable
※1   LCD/TP Cable   DFJS963ZA
※2   Speaker Cable   DFJS962ZA
※3   Antenna PCB-L   N1ZYYY000002
※4   Antenna PCB-R   N1ZYYY000003
※5   Modem Cable   DFJS973ZA
※6   LAN Cable   DFJS958ZB
※7   PAD FFC   DFJK12U112BB
※8   HDD FPC Unit   DL3UP1443AAA
※9   DC-IN Cable   DFJS961ZB
※10 Main-Sub Cable   DFJS980ZA

LCD/Touch Panel
LCD Back Light
※1

Antenna Board (R)
※4

Battery Pack

Wireless LAN Module

Keyboard

Speaker ※2

※3

Antenna Board (L)

Inverter Board

CN601

CN26

VGA

CN10

CN15

Main Board

CN11
CN12   CN600   CN2   CN19

CN4

HDD ※8

DC-IN ※9

CN24

CN22

CN23

※10
CN1051

MODEM ※5   CN18

CN1053

CN13

USB

SD Card

CN14

CN1052
USB

CN16   CN3

PCMCIA SLOT

CN21

JK2   JK1

SW6
POWER SW

Headphone   Mic   Lithium Battery

※7

DIMM memory (Option)

※6

LAN

Touch Pad

CF-BAV0256U
CF-BAV0512U

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4.4. Power-on Self Test (Boot Check)

4.4.1. Outline of POST

The set has a boot check function called POST (Power-On Self Test) in it. The condition of the main body is diagnosed by checking beep sound or error code.
- Start ....Test begins automatically when power switch is set to ON.
- Normal finish .....After memory checking, a beep sound is issued once and the set is placed into automatic stop.

Note: If no error occurs, nothing is displayed. (No display of OK, etc.)

4.4.2. Error Diagnosis by Checking Beep Signal Sound

The beep sound is as follows:

■■■ ■ ■ ■ ■ ■ ■ ■ ■ ■ (1 (long sound) -2-3-4)

(Length of bar shows length of sound.)

■■ = long sound (about 0.4 sec.), ■ = short sound (about 0.2 sec.), Length between sounds is about 0.1 sec.

● **Table of errors classified by beep sounds**

Diagnosis	Beep signal sound	Error message
Main board	1(long sound)-2	BIOS ROM error
	1-2-2-3	BIOS ROM error
	1-3-1-1	RAM error
	1-3-1-3	Keyboard controller error
	1-3-4-1	RAM error
	1-3-4-3	RAM error
	1-4-1-1	RAM error
	2-1-2-3	BIOS ROM error
	2-2-3-1	Occurrence of unexpected offering

(Note) A beep sound is also issued in case of other I/O trouble.

4.4.3. Diagnosis by Error Code

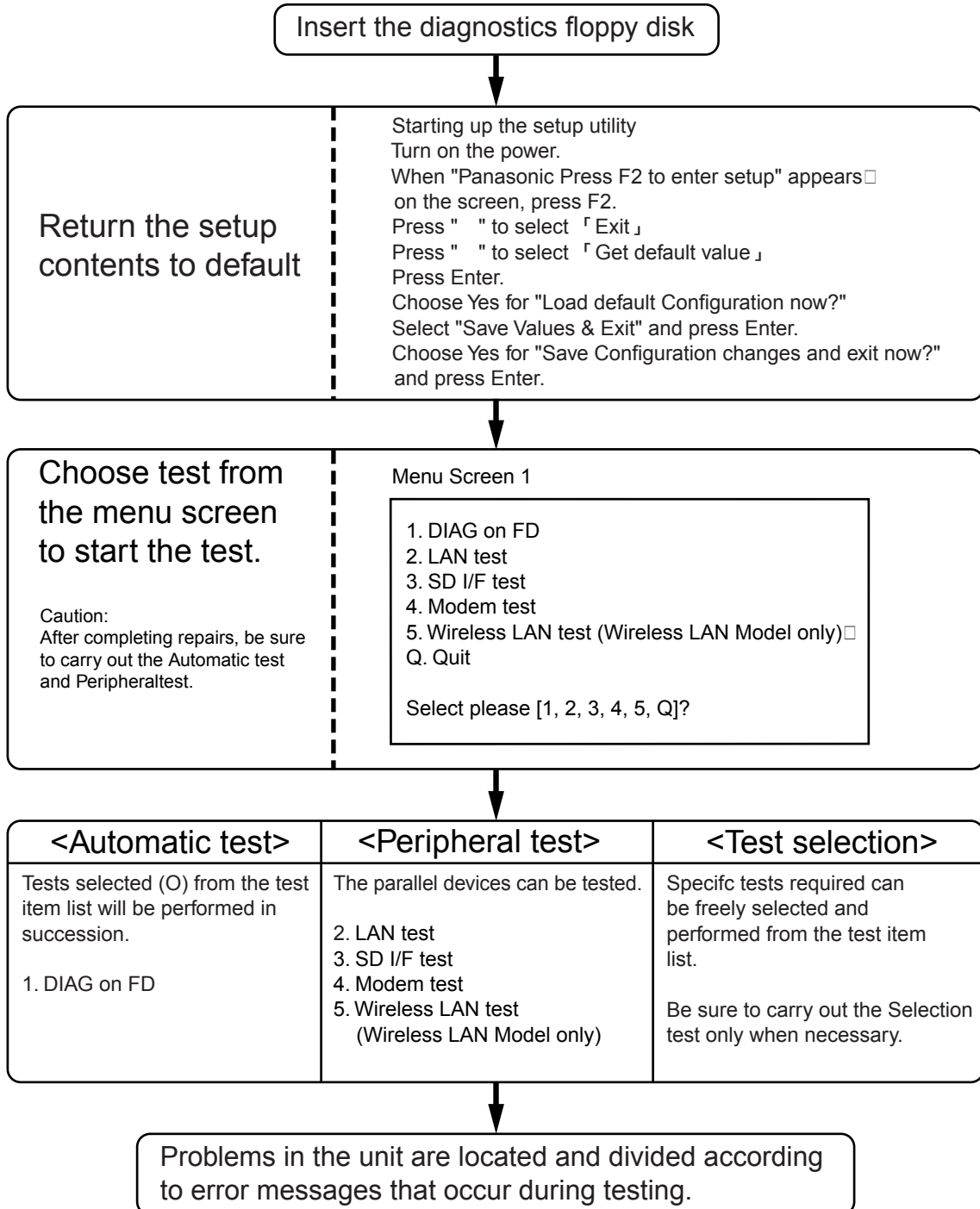| Error code	Message	Error Description	Possible faulty part
0200	Failure Fixed Disk	Fixed disk in not working or not configured properly. Run the Setup Utility and check that the hard disk capacity is displayed at [Primary Master]. If the [None] is displayed, disk error is occurred.	HDD Main board
0211	Keyboard error	Keyboard not working. Confirm the keyboard is connected to the computer and that a key is not being held down.	Keyboard
0212	Keyboard Controller Failed	Keyboard controller failed test. May require replacing keyboard controller.	Main board
0230	System RAM Failure at offset : *nnnn*	System RAM failure at offset *nnnn* of the 64k block at which the error was detected. If you installed RAM module, remove the RAM module and reinstall it.	Main board
0231	Shadow RAM Failure at offset : *nnnn*	Shadow RAM failure at offset *nnnn* of the 64k block at which the error was detected. If you installed RAM module, remove the RAM module and reinstall it.	Main board
0232	Extended RAM Failure at offset : *nnnn*	Extended memory not working or not configured properly at offset *nnnn*.	Main board Extension memory
0250	No battery on the system	CMOS backup battery exhausted. Battery replacement is required.	Lithium battery
0251	System CMOS checksum bad -Default configuration used	System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact Panasonic.	Incorrect Setup Lithium battery
0260	System timer error	The timer test failed. Requires repair of system board.	Main board
0270	Real time clock error	Real-time clock fails BIOS test. May require board repair.	Main board
0271	Check date and time settings	Incorrect date and time on the system. Set the correct date and time using the setup utility.	Incorrect Setup
0280	Previous boot incomplete -Default configuration used	Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and not corrected, the next boot will likely fail.	Boot-up failure
02D0	System cache error -Cache disabled	CPU trouble.	Main board
02F5	DMA Test Failed	Server BIOS2 test error: Cannot write to extended DMA	Main board

5. Self Diagnosis Test

1. Floppy disk is included for the self-diagnostic tests that should be performed before using this product.
2. Connect External Floppy Disk Drive (FDD) to USB port for diagnosis test.

Important notice

System password
This product has a password function. If this function is turned on, the self-diagnostics tests will not work.
You will need ask the user for the password before performing the self-diagnostics.

5.1. Outline of Self Diagnostic Tests

Insert the diagnostics floppy disk

Return the setup contents to default	Starting up the setup utility Turn on the power. When "Panasonic Press F2 to enter setup" appears on the screen, press F2. Press "　" to select　Exit Press "　" to select　Get default value Press Enter. Choose Yes for "Load default Configuration now?" Select "Save Values & Exit" and press Enter. Choose Yes for "Save Configuration changes and exit now?" and press Enter.

Choose test from the menu screen to start the test. Caution: After completing repairs, be sure to carry out the Automatic test and Peripheraltest.	Menu Screen 1 1. DIAG on FD 2. LAN test 3. SD I/F test 4. Modem test 5. Wireless LAN test (Wireless LAN Model only) Q. Quit Select please [1, 2, 3, 4, 5, Q]?

<Automatic test>	<Peripheral test>	<Test selection>
Tests selected (O) from the test item list will be performed in succession. 1. DIAG on FD	The parallel devices can be tested. 2. LAN test 3. SD I/F test 4. Modem test 5. Wireless LAN test 　(Wireless LAN Model only)	Specifc tests required can be freely selected and performed from the test item list. Be sure to carry out the Selection test only when necessary.

Problems in the unit are located and divided according to error messages that occur during testing.

5.1.1. List of main test items

The section item displays the items selected under Automatic test. If you select Automatic test, these test items will be performed automatically. You can use Selection test to choose items from the menu screen that you want have tested. These items are shown below.

		Test classification	Test items shown on the screen	Contents	Select
1			SPEAKER TEST	Speaker test	O
2			VESA MODE TEST	VESA mode test	O
3		CPU	A20 GATE TEST	Address A20 line	O
4		(CPU related)	CACHE ON/OFF TEST	Cache memory on/off test	—
5			NPU OPERAND TEST	Floating point processor function test	O
6		RAM(Memory related)	RAM STANDARD TEST	Memory standard test	O
7		CONTROL	DMA PAGE REG TEST	DMA page register test	O
8		(Control ICs on the main	DMA REGISTER TEST	DMA register test	O
9		board, etc.)	DMAC Transfer TEST	DMA transfer test	O
10			PIC HALT INSTRUCTION TEST	Interrupt controller halt instruction test	O
11			PIC REGISTER TEST	Interrupt controller register test	O
12			RTC CMOS RAM TEST	Real time clock CMOS test	O
13			RTC TEST	Real time clock test	O
14			PIT CHO TEST	Interrupt timer CH0	O
15			PIT CH1 TEST	Interrupt timer CH1	O
16			PIT CH2 TEST	Interrupt timer CH2	O
17		IO	KEYBOARD REG TEST	Keyboard test	O
18		(Input-output)	PS/2 MOUSE REG	Mouse registration test	O
19		COMMUNICATION	SERIAL WRAP TEST	Serial loop back (jig required)	—
20			SERIAL ALL INTERNAL TEST	Serial port interior test	—
21			PARALLEL REGISTER R/W	Parallel register R/W test	—
22		AUX	PCIC ALL TEST	PCIC test	O
23		(Auxiliary functions)	Card Bus Reg	Card Bus register test	O
24			USB Reg	USB register test	O
25		VIDEO	VGA ALL TEST	VGA test	O
26		(Display related)	SVGA RAM TEST	SVGA RAM test	O
27		DISK	FD WT/RD/WP TEST	FD WT, RD WP test	—
28		(FDD, HDD)	HDD ALL TEST	Only HDD lead test selected	O
29		UNIQUE	ECP REGISTER R/W	ECP register R/W test	O
30		(Individual functions)	EPP REGISTER R/W	EPP register R/W test	O
31			EXT. CMOS R/W TEST	Extension CMOS R/W test	O

	Test function settings	Test condition save/play	Following file command
		Test automatic execute	Test executed on run settings by selecting command
		Error display (Paging style)	Select displayed items Error, Log, Option

5.2. Automatic Test

Test execution

From the menu screen shown below, be sure to choose DIAG on FD and press Enter.

```
1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
Q. Quit

Select please [1, 2, 3, 4, 5, Q]?
```

menu screen

Speaker test, VESA test

The speaker test involves listening to music and choosing OK or Not okay. The VESA test involves looking at the display to see if it is satisfactory then choosing OK or Not okay.

Diagnostic result

If no errors occur: The screen shows the word "Pass" in large letters.

If errors occur: The test stopped when an error occurs and the error message is displayed.

For explanations of error messages, see Error Message and Problem Categories.

Quitting the test

At the screen shown below, simultaneously press the ALT and X keys.

```
File Select Run Error Log Option Window




















Alt-X Exit   Alt-F4 Close   F10 Menu
```
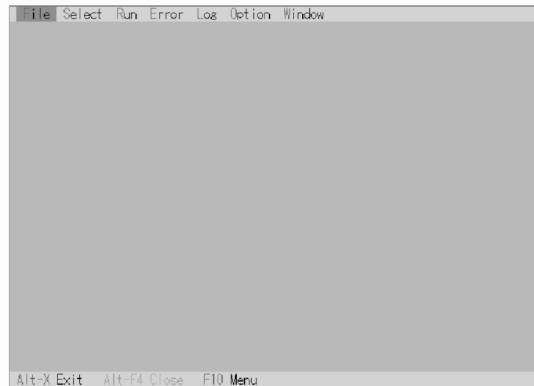
Input screen

5.3. Peripheral Test

Test execution

From the menu screen shown below, be sure to choose the follwing items and press Enter.

2. LAN tset

3. SD I/F test

4. Modem test

5. Wireless LAN test

```
1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
Q. Quit

Select please [1, 2, 3, 4, 5, Q]?
```

menu screen

LAN test

This test checks for internal LAN device. Choose LAN test and press Enter.

SD I/F test

This tests the SD Card I/F functions. Choose SD Card I/F test and press Enter.

5.4. Test Selection

Starting up the input menu

1. From the menu screen shown below, choose Quit and press Enter.

```
1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
Q. Quit

Select please [1, 2, 3, 4, 5, Q]?
```
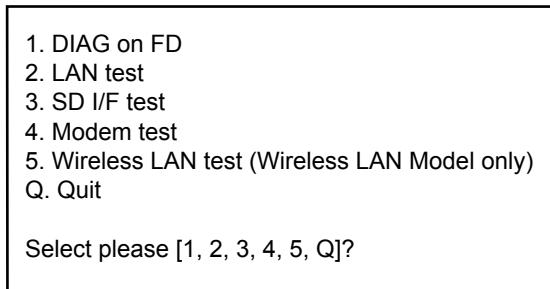
menu screen

2. When A:\DIAG appears, input "JDG_T4H, EXE" and press Enter.

3. The input screen shown below will appear.
   To choose menu items, hold down "ALT" and press the selection key.

Example:

"ALT" + F brings up the File menu.
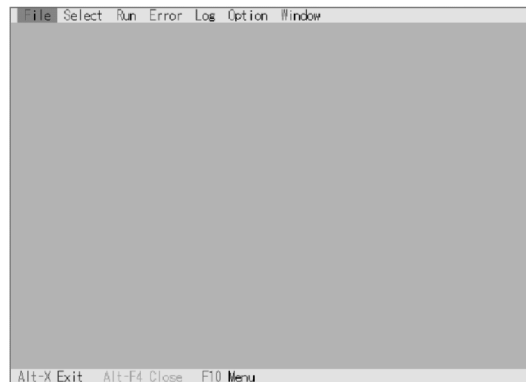
Input screen

Order of test flow selection

```
                    ┌──────────────────────────────┐
                    │      Input screen startup      │
                    └──────────────────────────────┘
                                   │
                                   ▼
```

1. Reading the test conditions settings file	If the test condition settings
① Press "ALT" and "F".	file is not read, this means
② Press "L".	the test program is not running correctly.
③ Press "ALT" and "O".	
④ Press Enter	

2. setting the test items	[Saving selected test items]
① Press "ALT" and "S".	If you change the file name when
② Press "S".	saving the file in step⑥, you can
③ Choose the test item and press Enter	create test condition settings for
④ Choose the test whose settings are	custom test items.
to be changed, press "A" for Additional	Example:
and "R" for Erase.	CF-T4 . ＊＊＊ → TEST1. ＊＊＊
All initial values are "0" so set	
tests other than the necessary ones to "1".	
⑤ Press "O" twice to return the menu screen.	
⑥ To save the selected list, press "ALT" and "F" at the file menu.	

```
        ┌──────────────────────────────┐
        │ ■ Starting the test            │
        │   ・ Press "ALT" and "R".      │
        │   ・ Press "R".                │
        │   This will start the test.    │
        └──────────────────────────────┘
                       │
                       ▼
        ┌──────────────────────────────┐
        │          End of test           │
        └──────────────────────────────┘
```

5.5. Error Messages and Troubleshooting

The table below explains the parts that may be faulty or damaged should an error message occur while performing the various test items of the self diagnostics program.

	Test classification	Screen display test items	Contents	Possible damaged or faulty part
1	CPU	A20 GATE TEST	Address 20 line	Main board
2	(CPU related)	NPU OPERAND TEST	Floating point processor function	
3	RAM (Memory related)	RAM STANDARD	Memory standard	Main board
4	CONTROL	DMA PAGE REG TEST	DMA page register	Main board
5	(Control ICs on the	DMA REGISTER TEST	DMA register	
6	main board, etc.)	DMAC Transfer TEST	DMA transfer test	
7		PIC HALT INSTRUCTION TEST	Interrupt controller	
8		PIC REGISTER TEST	Interrupt controller	
9		RTC CMOS RAM TEST	Real time clock CMOS	
10		RTC TEST	Real time clock test	
11		SPEAKER TEST	Speaker	
12		PIT CH0 TEST	Interrupt timer CH0	
13		PIT CH1 TEST	Interrupt timer CH1	
14		PIT CH2 TEST	Interrupt timer CH2	
15	I0	KEYBOARD REG TEST	Keyboard	Main board
16	(Input-output)	PS/2 MOUSE REG	Mouse	Main board
17	AUX	PCIC ALL TEST	PCIC	Main board
	(Auxiliary	Card Bus REG	Card Bus port	Main board
	functions)	USB REG	USB port	Main board
18	VIDEO	VGA ALL TEST	VGA	LCD, main board, cable
19	(Display related)	SVGA RAM TEST	SVGA RAM	Main board
20		VESA MODE TEST	VESA mode	LCD, main board, cable, connector
21	DISK (HDD)	HDD ALL TEST	Only HDD lead selected	HDD, main board, cable, connector
22	UNIQUE	ECP REGISTER R/W	Parallel port	Main board, cable, connector
23	(Individual	EPP REGISTER R/W	Parallel port	Main board, cable, connector
24	functions)	EXT. CMOS R/W TEST	Extension CMOS	Main board

6. Disassembly instructions

6.1. Disassembly Flow Chart

● Main Unit

6.2.1.

> **Preparation**
> 1. End the Windows.
> 2. Turn off the power, and then remove the AC adaptor or battery pack.
> 3. Remove any optional DIMM memory cards or PCMCIA cards.
> 4. Remove any other peripherals or connected devices.

6.2.2.
Keyboard

6.2.3.
HDD

6.2.4.
Top Case

6.2.5.
Touch Pad

6.2.6.
LCD Knob /Speaker

6.2.7.
USB Board

6.2.8.
Main Board

6.2.9.
Antenna Board (L, R) / DC-IN

6.2.10.
Wireless LAN Module

6.2.11.
MODEM

6.2.12.
Card Bus Ejector

● Display Unit

6.2.13.
LCD Unit

6.2.14.
Hinge Cover

6.2.15.
LCD Unit / LCD Rear

6.2.16.
Inverter

Main replaceable parts

6.2.1.	・ Battery Pack
	・ DIMM Cover
	・ AC Adaptor
6.2.2.	・ Keyboard
6.2.3.	・ HDD
	・ HDD Case
6.2.4.	・ Top Case
	・ Side Cover (R)
6.2.5.	・ Touch Pad
	・ Pad Cover
	・ PAD Button
	・ PAD FPC
6.2.6.	・ LCD Knob
	・ Speaker
6.2.7.	・ USB Board
	・ USB Cable

6.2.8.	・ Main Board
6.2.9.	・ Antenna Board (L, R)
	・ DC-IN Cable
6.2.10.	・ Wireless LAN Module
6.2.11.	・ MODEM
6.2.12.	・ Card Bas Ejector
6.2.13.	・ LCD Unit
6.2.14.	・ Hinge Cover
	・ Hinge (L, R)
6.2.15.	・ LCD Unit
	・ LCD Rear
	・ LCD Front
6.2.16.	・ Inverter
	・ LCD Cable

6.2. Disassembly

6.2.1. Preparation

Attention:

Before disassembly, be sure to perform the following steps.

1. End the Windows.

2. Turn off the power and then remove the AC adaptor.

3. Slide the hooks (A) and then remove the battery pack.

4. Remove the screw (A) and then remove the DIMM cover. (Remove if the DIMM memory is equipped with)

   Screw (A) : XSB2+4FNL(N16)
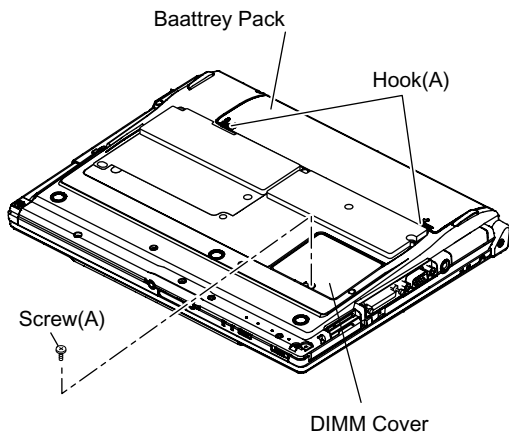
6.2.2. Removing the Keyboard

Preparation : perform the section 6.2.1. first.

1. Remove the 4 screws (B).

   Screw(B):DXQT2+E12FNL(N11)

2. Remove the 2 keyboard hook plates, and then remove the hook of back side of keyboard with screw driver.
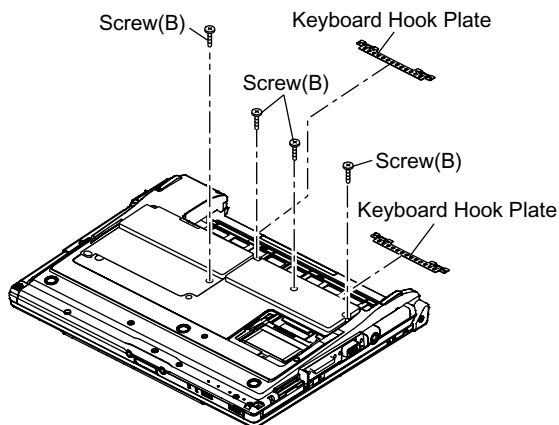
3. The LCD unit is opened up to about 90° by operating the LCD knob.

4. Remove the 6 hooks (B).

5. Open the keyboard from LCD side and then turn it inside out on the top case.

   Note:

   It can remove with the keyboard hook plate.
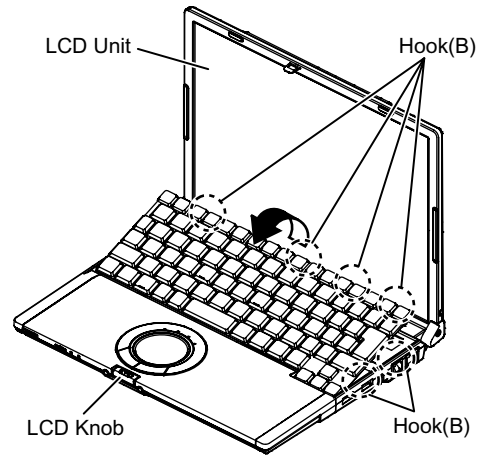
6. Remove the heat spreader from buttom of the keyboard.

7. Remove the keyboard FFC from the connector (CN15) and then remove the keyboard.
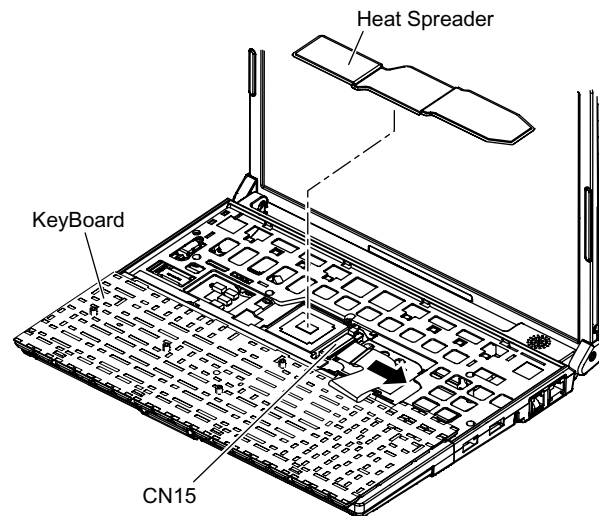
6.2.3.   Removing the HDD

Preparation : perform the section 6.2.1. 6.2.2. first.

1. Remove the 2 screws (C) and then remove the HDD cover.

   Screw (C):DFHE5025XA(N501)
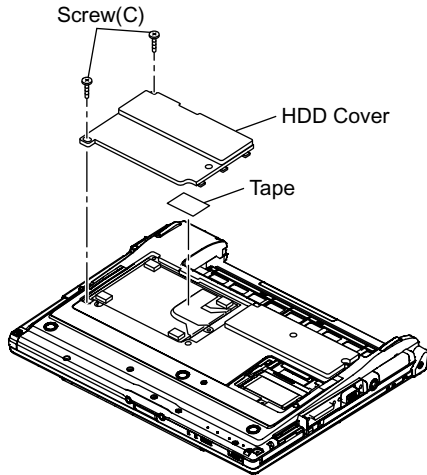
2. Lift up the HDD unit and remove FFC connector and then remove the HDD unit.

3. HDD is taken out of the HDD case.

   Note:

   Please do not bend pins of the HDD connector, at the time of removing HDD and FFC connector.
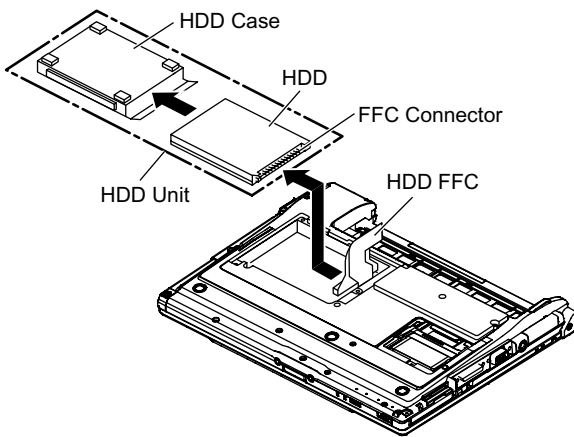
6.2.4.   Removing the Top Case

Preparation : perform the section 6.2.1. , 6.2.2. first.

1. Remove the 7 screws (D) and 5 screws (G).

   Screw (D):DXHM0039ZA(N5)

   Screw (G):DXHM0057ZA(N7)
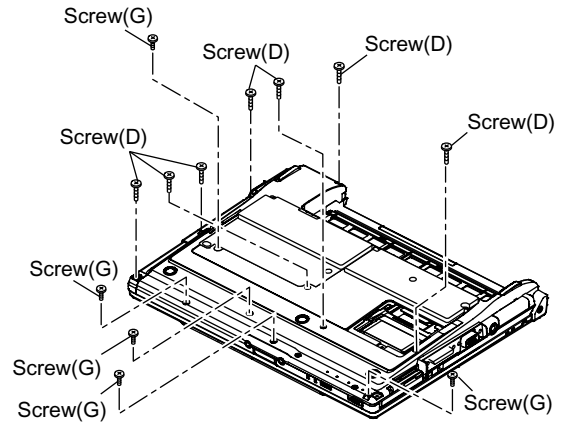
2. Remove the speaker cable from the connector (CN26).

3. Remove the side cover (R) as slide it to this side.

4. Remove the 1 screw (J), 3 screws (K) and 2 screws (L) from top case and then remove the top case.

   Screw(J):DXHM0056ZA(N6)

   Screw(K):DXQT2+E6FNL(N12)

   Screw(L):DXQT26+D8FCL(N15)
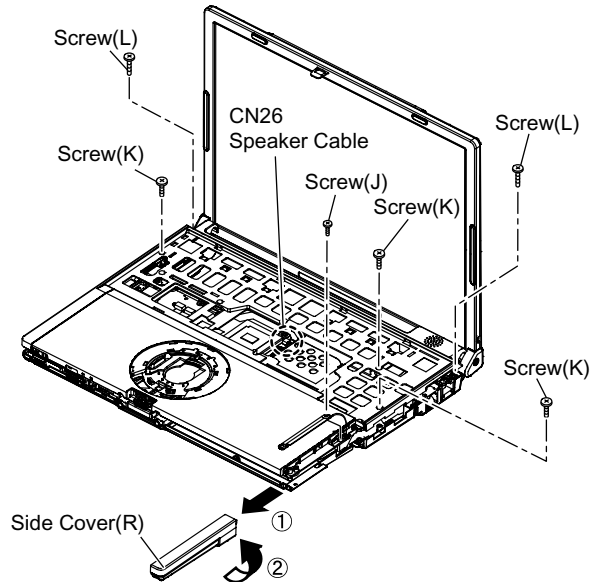
5. Lift up the top case and remove the pad FFC and then remove the top case.

Top Case

Pad FFC
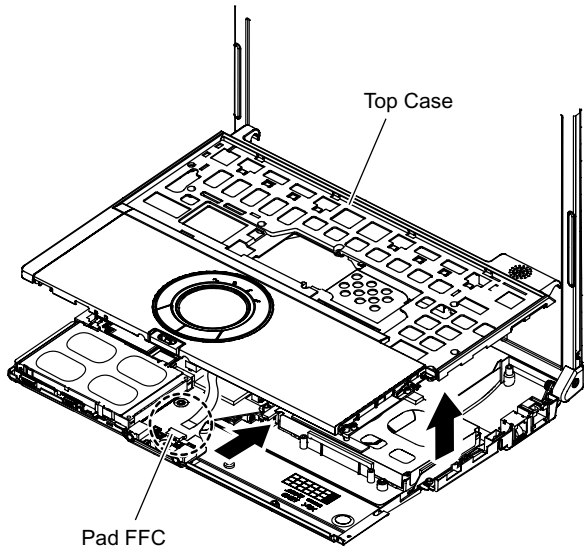
6.2.5. Removing the Touch Pad

Preparation : perform the section 6.2.1. , 6.2.2. and 6.2.4. first.

1. Peel off the tape.
2. Depress to center the 6 hooks of the pad cover, (D)(E)(F) as order.

Tape

Top Case

Hook(D)

Hook(F)

PAD FFC

Hook(E)

Hook(F)
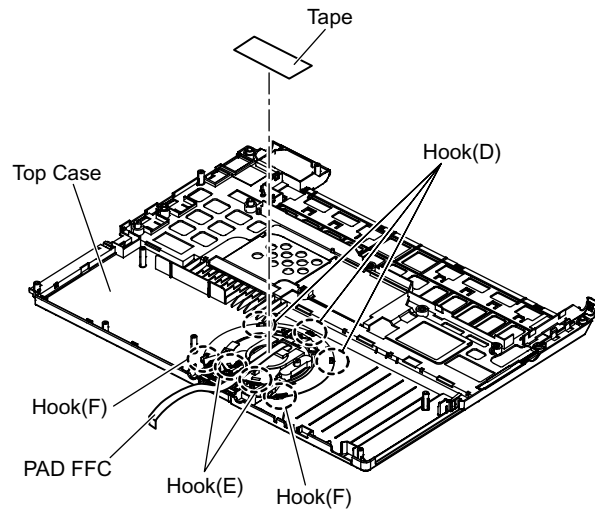
3. Remove the hook (G) and remove the touch pad.

Pad Cover

Touch Pad

Pad Button

Hook(G)

Hook(G)
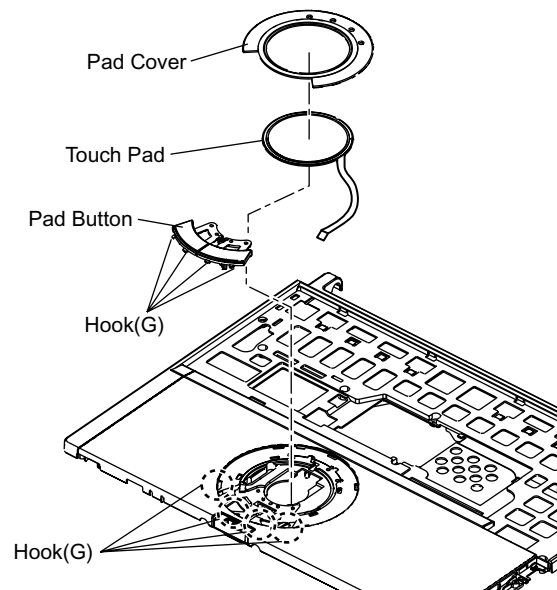
6.2.6. Removing the LCD Knob and the Speaker

Preparation : perform the section 6.2.1. , 6.2.2. and 6.2.4. first.

1. Remove the latch spring from the top case.
2. Remove the hook of the LCD knob from stopper rib of the top case.
3. Peel off the tape of the speaker box.
4. Peel off the tape on the speaker and speaker ring and then remove the speaker.
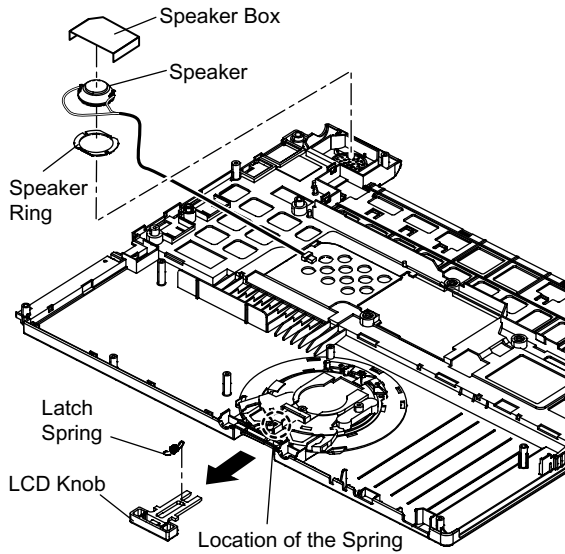
6.2.7. Removing the USB Board

Preparation : perform the section 6.2.1. , 6.2.2. and 6.2.4. first.

1. Peel off the tape for clamp the USB cable.
2. Remove the connector (CN23) on the main board.
3. Remove the USB board from the bottom case.
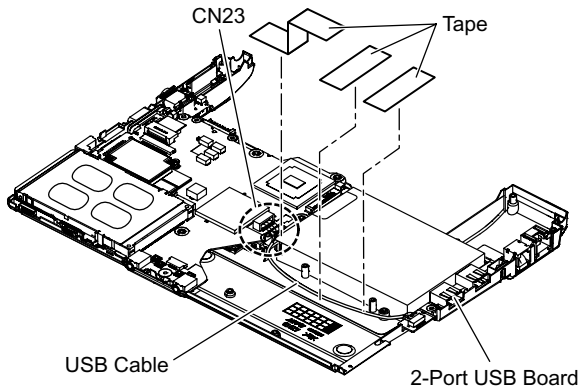
6.2.8. Removing the Main Board

Preparation : perform the section 6.2.1. , 6.2.2. and 6.2.4. first.

1. Remove the 1 screw (E), 1 screw (F), 2 screws (H) and 2 screws (I).

   Screw (E):DXQT2+E10FNL(N10)

   Screw (F):DXQT2+D4FNL(N9)

   Screw (H):DFHE5035ZB(N2)

   Screw (I):KIYE50000022(N500)
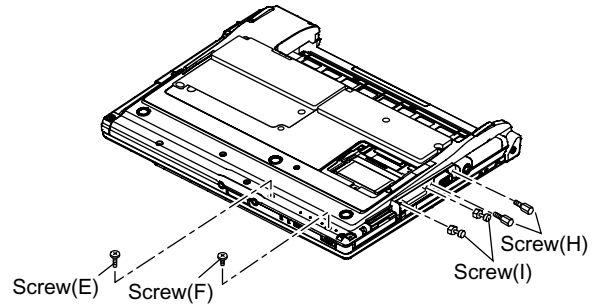
2. Remove the 2 screws (N).

   Screw (N):DXQT2+E6FNL(N13)

3. Remove the modem cable from the MDC modem.
4. Remove the side cover(L) from the bottom case.
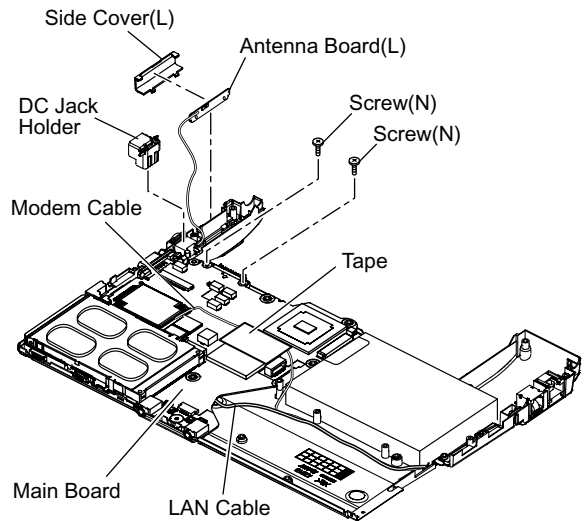
5. Remove the DC jack holder on the DC-IN jack.
6. Remove the LCD cable connectors (CN10,CN11,CN24).
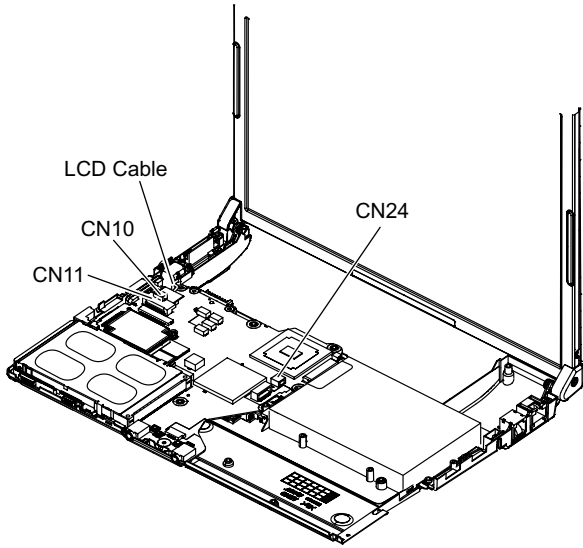
7. Turn it to arrow and remove the lithium battery connector (CN3), LAN cable connector (CN16) and HDD FPC connector (CN4) and then remove the main board.
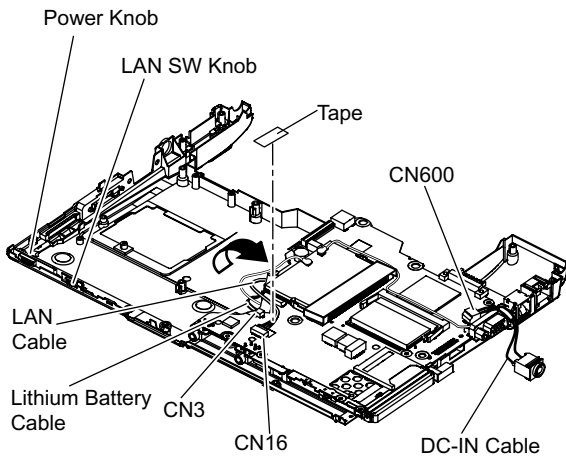
6.2.9. Removing the Antenna Board (L,R) and the DC-IN Cable

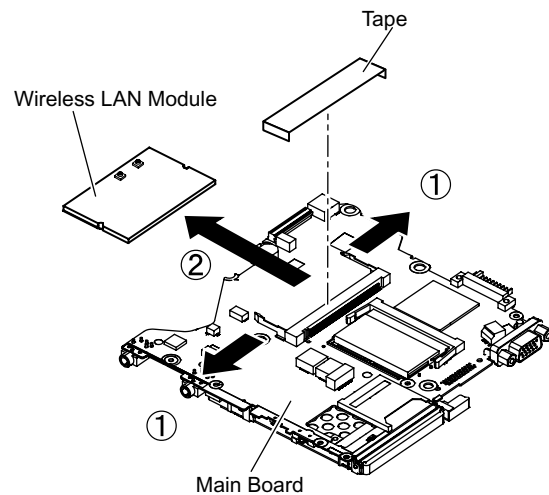**Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6.2.8. first.**

1. Remove the antenna cable(L) from the main terminal and the antenna cable(R) from the AUX terminal and then remove the antenna board(L, R) from the bottom case.

2. Remove the DC-IN cable(CN600) from the main board.
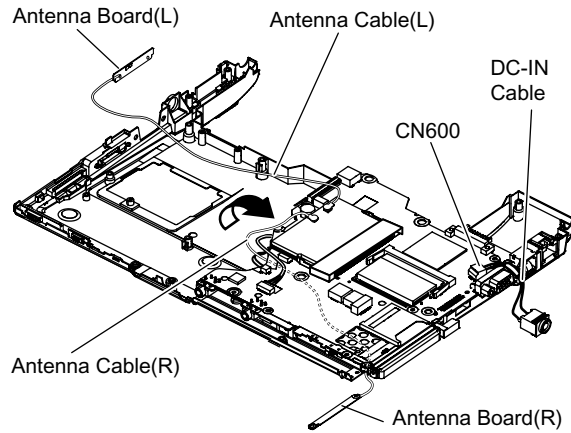
6.2.10. Removing the Wireless LAN Module

Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6.2.8. first.

1. Peel off the tape on the wireless LAN module.

2. Open the wireless LAN module holding arms and remove the wireless LAN module.

6.2.11. Removing the MODEM

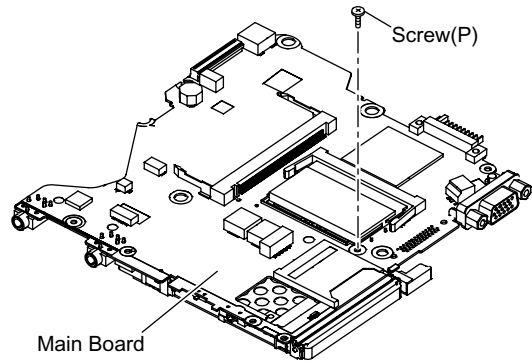**Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6.2.8. first.**

1. Remove the 2 screws (O).

    Screw (O):DXQT2+D25FNL(N8)

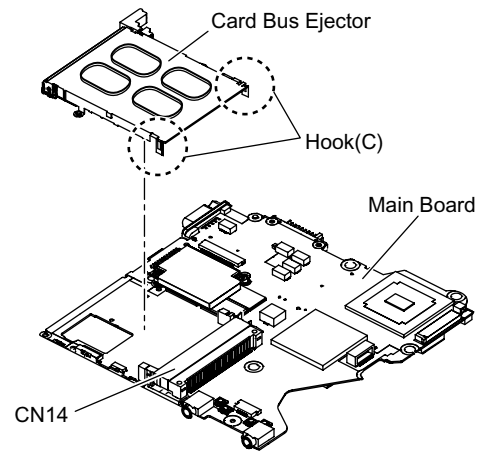2. Remove the MODEM from main board connector (CN18) as vertical.
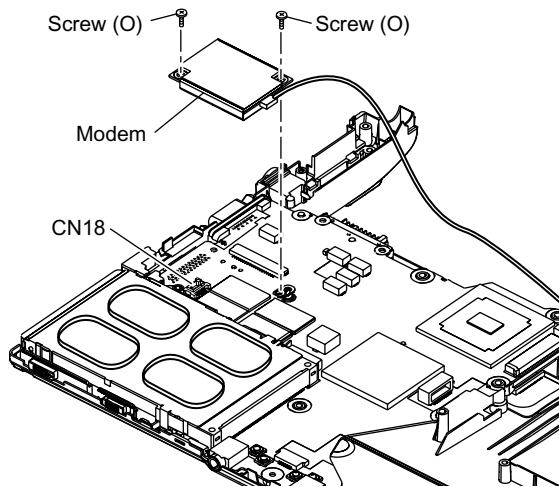
6.2.12. Removing the Card Bus Ejector

Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6.2.8. first.

1. Remove the 1 screw (P) from connection side of wireless LAN.

    Screw(P):DFHE5025XA(N1)

2. Turn to the card bus ejector side.

3. Remove the 2 hooks (C) from the connector (CN14).

6.2.13. Removing the LCD Unit

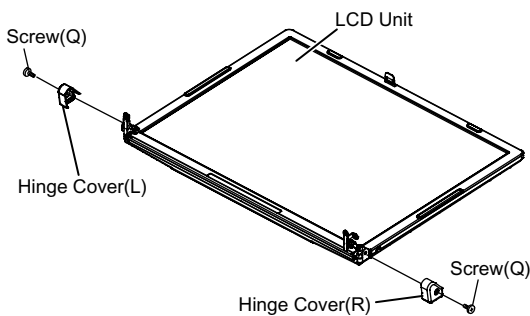**Preparation : perform the section 6.2.1. , 6.2.2. and 6.2.4. first.**

1. Remove the 2 screws (M).

   Screw(M):DXQT26+D5FNL(N14)

2. Remove the LCD cable from the connector (CN11) of the main board.

3. Remove the inverter cable from the connector (CN10)
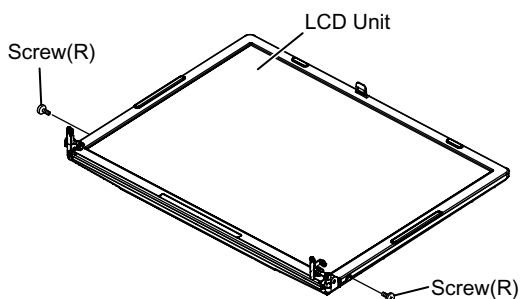
4. Remove the touch panel cable from connector (CN24).
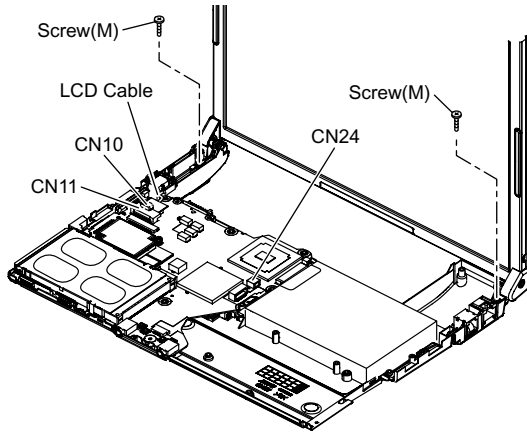
6.2.14. Removing the Hinge Cover

Preparation : perform the section 6.2.1. , 6.2.2. ,6.2.4 and 6.2.13. first.

1. Remove the 2 screws (Q) and then remove the hinge cover (L,R).

   Screw(Q):DRHM0076ZA(N3)
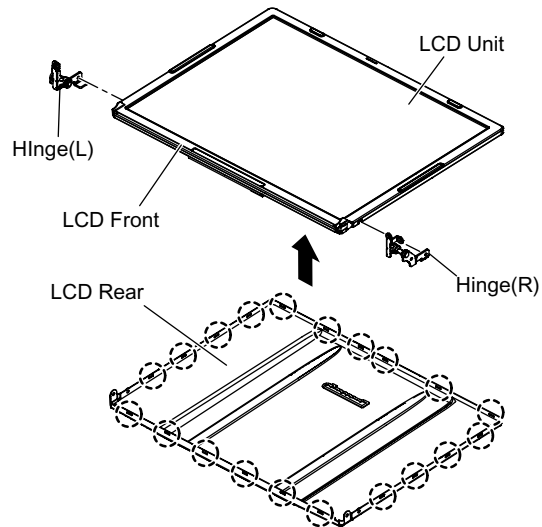

2. Remove the 2 screws (R).

   Screw (R):DRHM0076ZA(N3)

6.2.15. Removing the LCD Unit and the LCD Rear

Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6. 2. 13. to 6.2.14 first.

1. Separate the LCD front and the LCD rear.
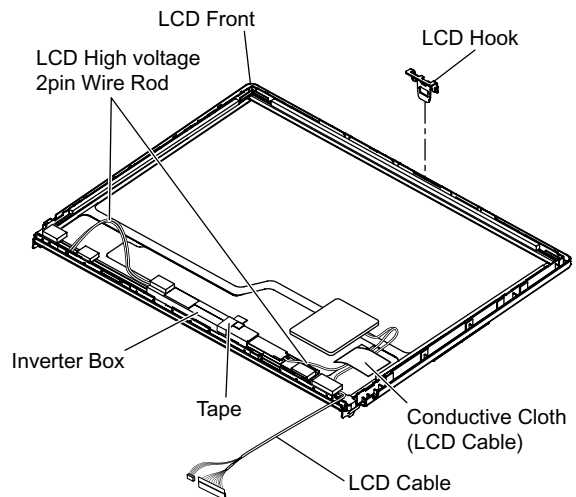
2. Remove the hinge (L).

   ⬡ Hook Position

6.2.16. Remove the Inverter

Preparation : perform the section 6.2.1. , 6.2.2. , 6.2.4. and 6.2.13 to 6. 2.15. first.

1. Remove the LCD cable from the inverter.

2. Peel off the conductive cloth(LCD cable) from the inverter.

3. Remove the inverter with inverter box.
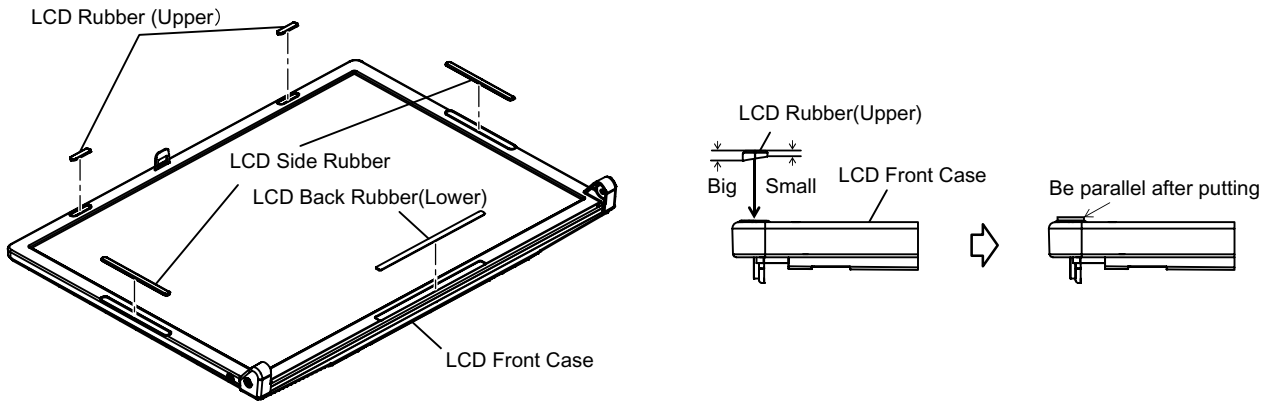

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6.3. Reassenbly instructions

6.3.1. Attention when CF-T4H series is repaired

・Please execute writing BIOS ID when you exchange the main board.

・Parts (sheet and rubber) etc. related various the conductive cloth and heat spreader cannot be recycled. Use new parts.
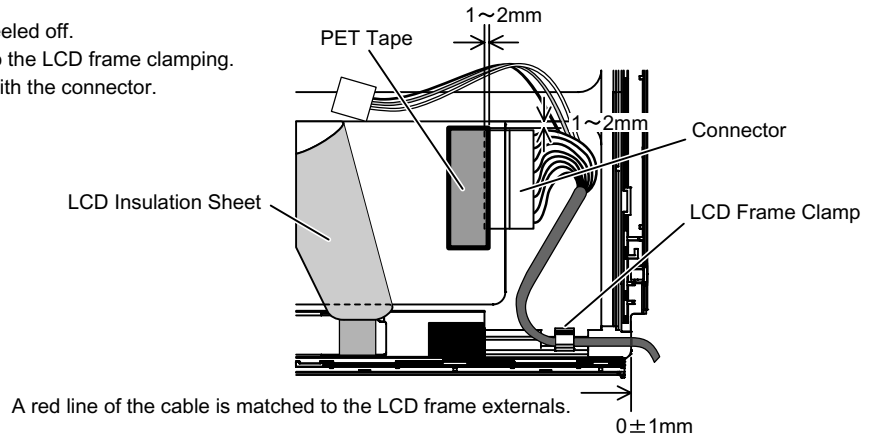
6.3.2. Assembly knowhow of part LCD

■LCD rubber, LCD side rubber and LCD backing rubber's putting

LCD Rubber (Upper）

LCD Side Rubber

LCD Back Rubber(Lower)

LCD Front Case

LCD Rubber(Upper)

Big Small

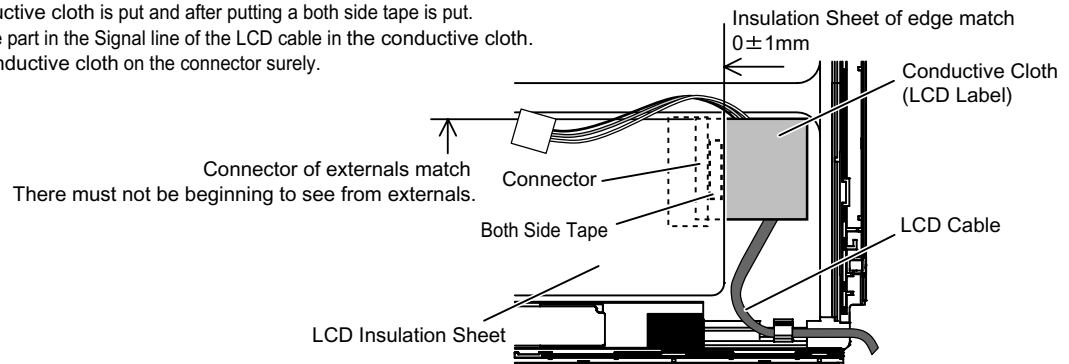LCD Front Case

Be parallel after putting

■LCD cable processing

●Clamping processing of LCD cable, LCD connector connection and putting of PET tape of cable

・The LCD insulation sheet is peeled off.
・The LCD cable is processed to the LCD frame clamping.
・The LCD cable is connected with the connector.
・The PET tape is put.

PET Tape

1～2mm

1～2mm

Connector

LCD Insulation Sheet

LCD Frame Clamp

A red line of the cable is matched to the LCD frame externals.

0±1mm

●Putting of the conductive cloth

・The conductive cloth is put and after putting a both side tape is put.
・Process the part in the Signal line of the LCD cable in the conductive cloth.
・Put the conductive cloth on the connector surely.

Insulation Sheet of edge match

0±1mm

Conductive Cloth
(LCD Label)

Connector of externals match
There must not be beginning to see from externals.

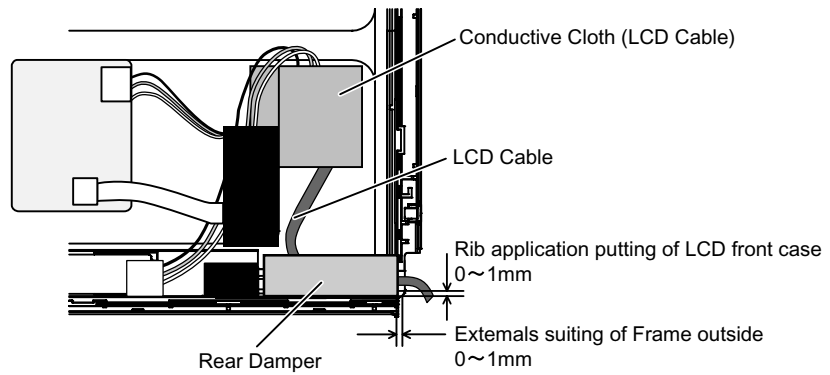Connector

Both Side Tape

LCD Cable

LCD Insulation Sheet

●Putting of PET Tape
・The cable must not run aground on the damper.
・Along the LCD module and put the LCD cable (Inverter part) with the PET tape.

PET Tape

Conductive Cloth (LCD Cable)

TS Board

LCD Cable
(Inverter part)

LCD Cable

Damper

Insulation Sheet of edge match

●Putting of rear damper

Conductive Cloth (LCD Cable)

LCD Cable

Rib application putting of LCD front case
0～1mm

Extemals suiting of Frame outside
0～1mm
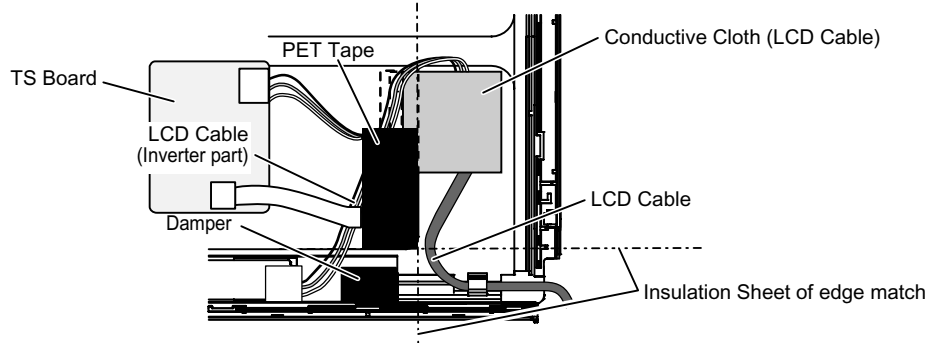
Rear Damper

●Putting of PET Tape

LVDS Cable of edge match

LCD Cable

LVDS Cable of edge match
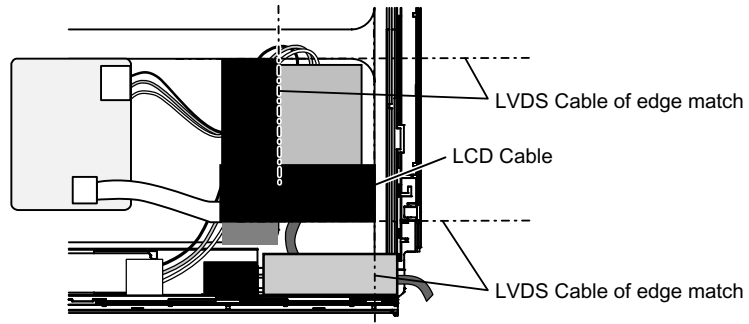
●Processing of inverter cable

0～1mm

PET Tape

The cable must not come in succession.

Inverter Cable
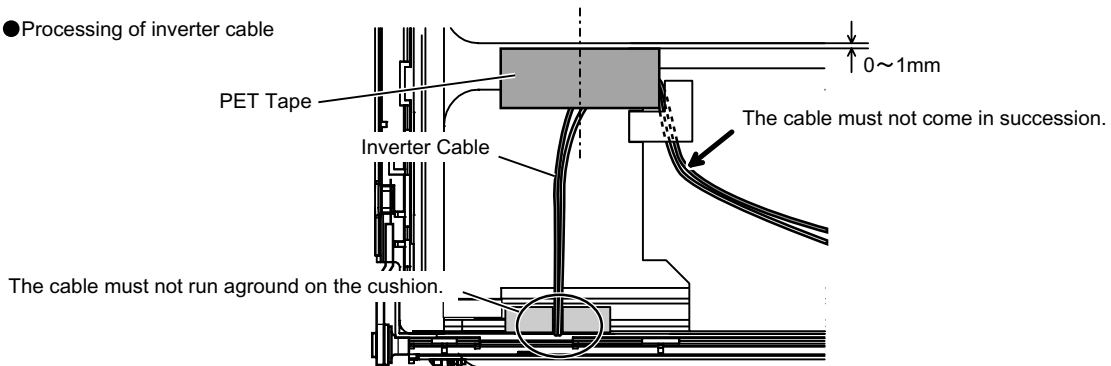
The cable must not run aground on the cushion.

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●Putting of gasket (LCD)

Put on hinge (R) surely.
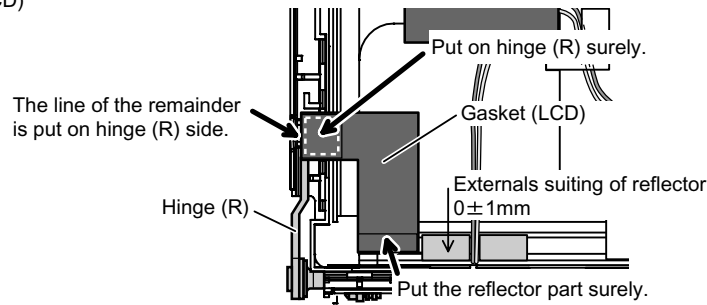
The line of the remainder
is put on hinge (R) side.

Gasket (LCD)

Externals suiting of reflector
0±1mm

Hinge (R)

Put the reflector part surely.

●Putting of LCD damper(C)

LCD Damper(C)

Plinth externals match
0±1mm

Rib application putting of LCD front case
0～1mm

Rib edge match of LCD front case
0±1mm

Rib application putting of LCD front case
0～1mm
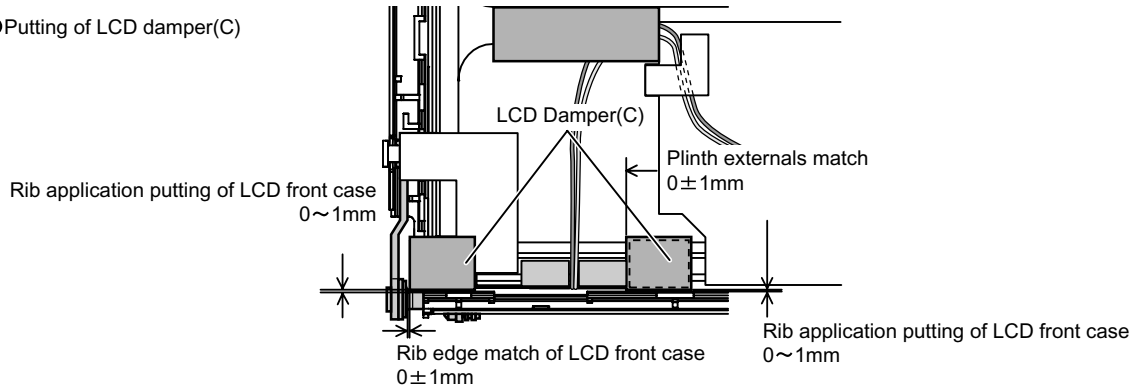
●Putting of LCD Hook Cushion

Specificatione affixation of LCD Hook Cushion

Level difference is united
with corner
0～0.5mm

unites with outside
0～0.5mm

K502

K70

Level difference is united
with corner
0～0.5mm

unites with outside
0～0.5mm

pressure is applied to
double-sided tape portion

Hook is attached
to the left
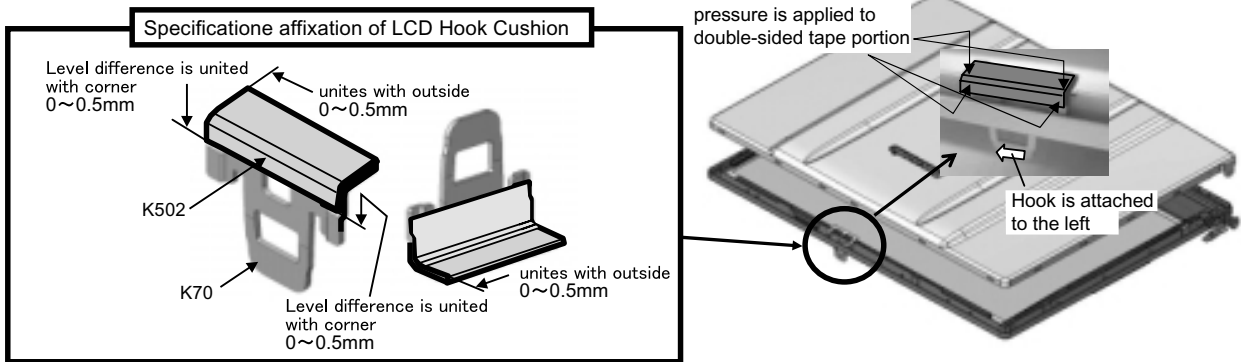
●Drawing out specification of LCD cable

LCD Cable (Touch Panel)

LCD Cable (Inverter)
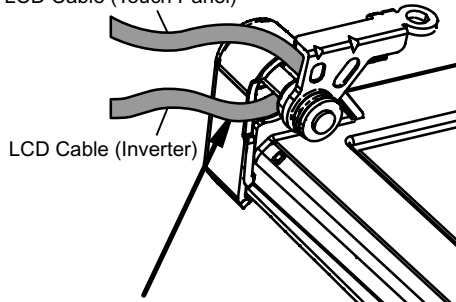
The cable is processed under the shaft .

Note:It is confirmed that the cable does not narrow
between cabinets.

●Putting of conductive cloth of LCD cable

70±3mm

Conductive cloth is wrapped
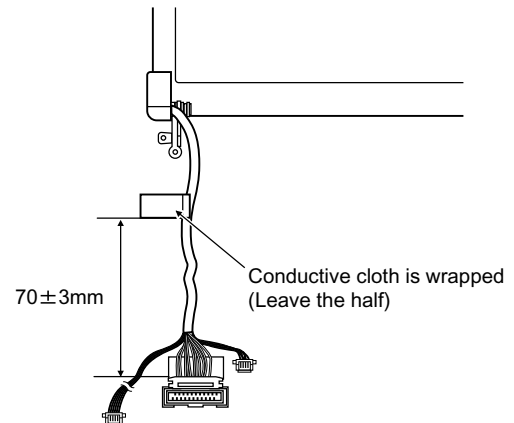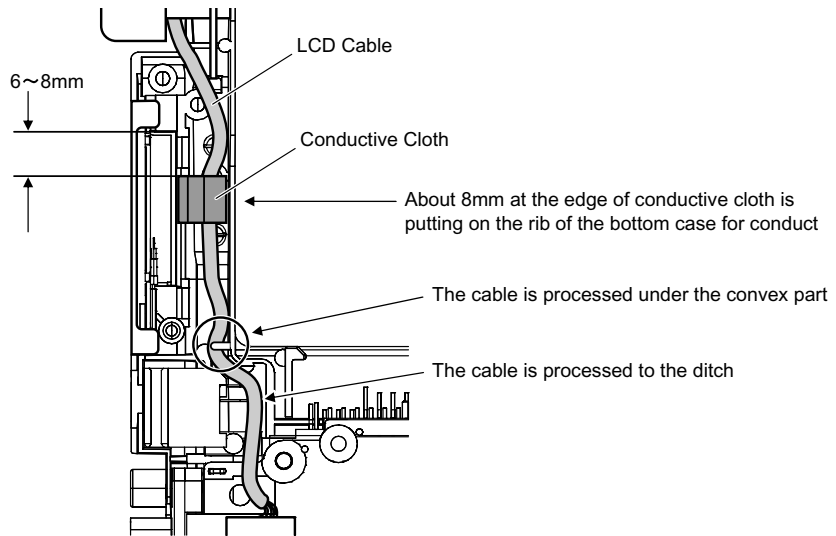(Leave the half)

37

● LCD cable processing

6～8mm

LCD Cable

Conductive Cloth

About 8mm at the edge of conductive cloth is
putting on the rib of the bottom case for conduct

The cable is processed under the convex part

The cable is processed to the ditch

6.3.3. Installation and Line processing of Speaker

■ Putting of speaker fixation ring

Speaker Fixation Ring

▪ Put according to 4 ribs.

■ Processing of speaker cable

Solder

Match case ○ sign to the center in the terminal of the speaker.

2～2.5mm（From the rib to the terminal）

Black line

Red line

Speaker Cable

The double coating part of
the cable according to the ditch of the case

PET Tape

0～2mm

The cable is not loosening between the rib and the pin.

■ Putting of speaker box

Touch the boss

Putting of speaker box

Touch the Case's wall
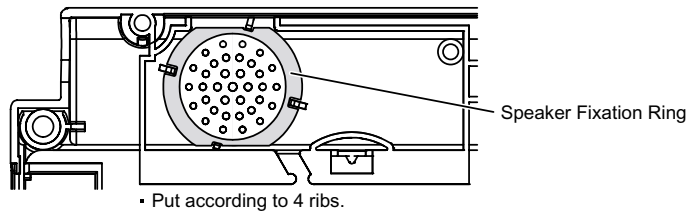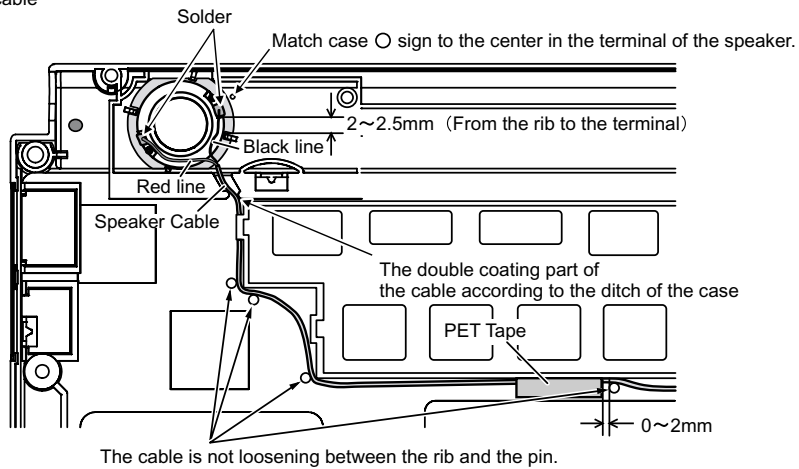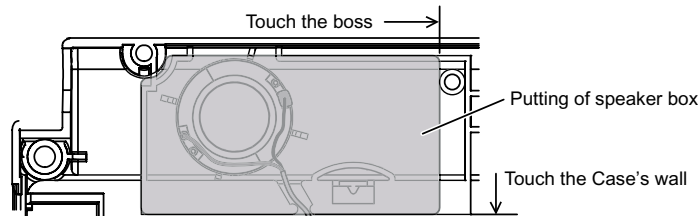
6.3.4. Assembly of Touch Pad

■Putting of PAD cover tape

1mm～2mm

PAD cover

PAD cover tape

0.5mm～1mm

■Insertion of PAD FFC

PAD FFC

PAD FFC is inserted in the connector. (Direction where the reinforcement version is seen)
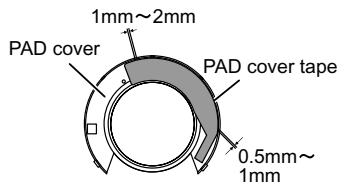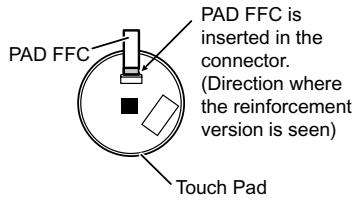
Touch Pad

■Installation of Pad button

Puted in the gasket ditch

Inserted in the positioning pin

Pad button
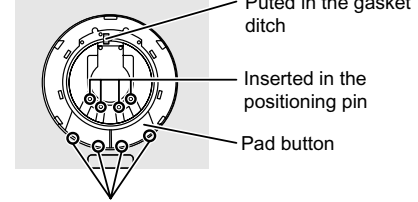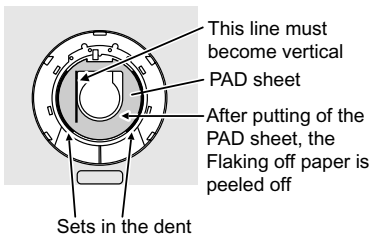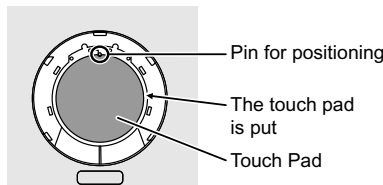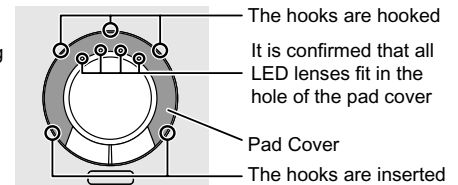
Latch is inserted in the top case(4 places)

■Putting of PAD sheet

This line must become vertical

PAD sheet

After putting of the PAD sheet, the Flaking off paper is peeled off

Sets in the dent

■Putting of Touch Pad

Pin for positioning

The touch pad is put

Touch Pad

■Putting of pad cover

The hooks are hooked

It is confirmed that all LED lenses fit in the hole of the pad cover

Pad Cover

The hooks are inserted

6.3.5. Processing of DC-IN Cable and Coaxial Cable

Coaxial cable

The cable is processed with the boss between ribs

The cable is processed to the ditch of the bottom case

Confirm the terminal is vertical
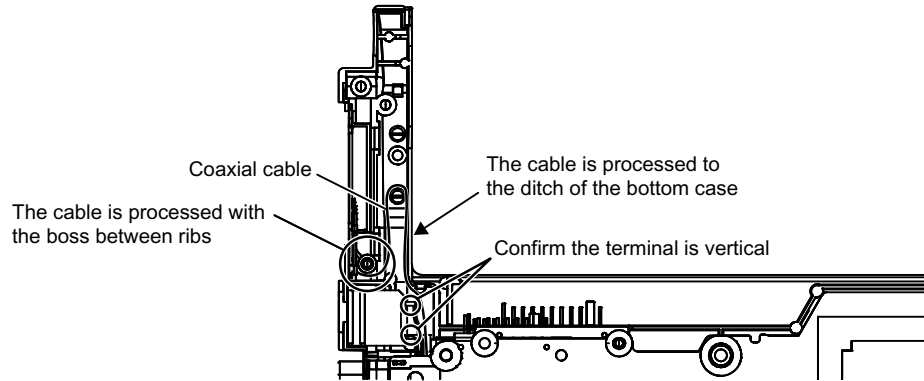
6.3.6. Obtaining of Side Cover (L)

The upper part is shut with lower hooks put on the bottom case.

Side Cover(L)

DC Jack Holder

the under hooks is hooked the bottom case

the under hooks is hooked the bottom case
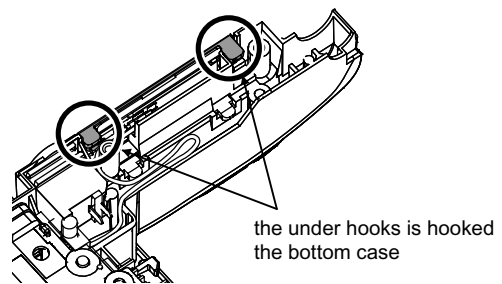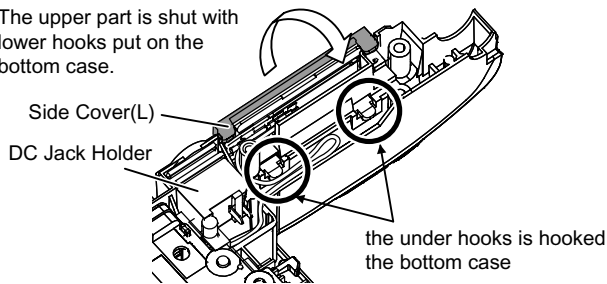
6.3.7. Processing of MODEM Cable and LAN Cable

Insert LAN cable previously

LAN Cable

The cable is processed with the boss between ribs

MODEM Cable

PET Tape

<Standard>
The cable must enter in the set of 3-5mm

Give slack to the drawing out part

The state that the tension hangs is NG

USB Sheet

The USB sheet is put and the cable is held
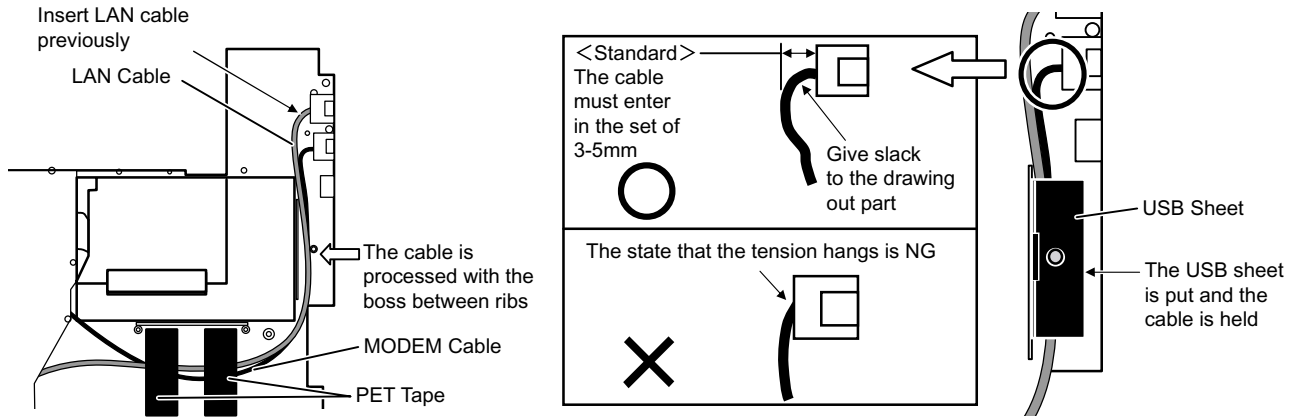
6.3.8. Processing of USB Cable

HDD Unit

USB Board

PET Tape

Do not run aground in the boss

- Process the line to 3 cables in parallel based on the difference of the concave part of the bottom case
- Order is USB, modem, and LAN cable from this side

Boss

- The Cable must not enter under the HDD unit
- Do not run aground in the boss

PET Tape

0~2mm   0~2mm
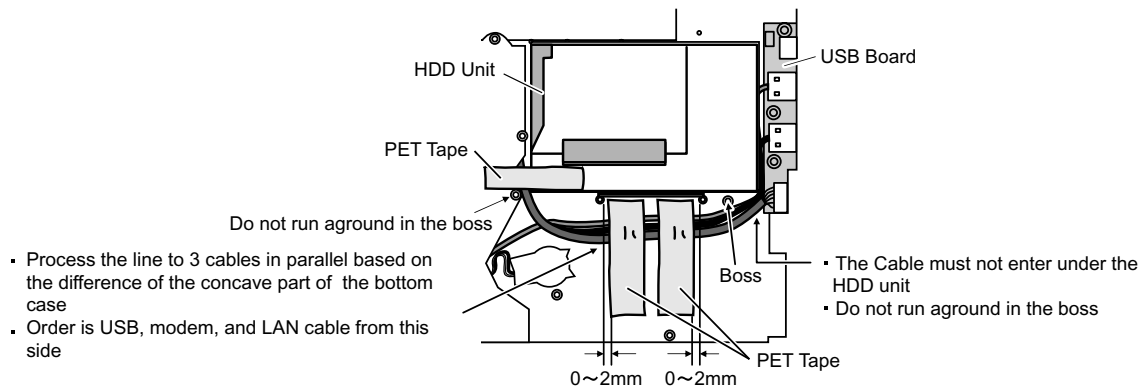
6.3.9. Screw tightening procedure of Each Unit

When serving, the screw tightening is executed according to the undermentioned procedure.

1. Screw tightening of top case

   1-1. DXQT2+E6FNL(K:N12) is tightened. No.1 to No.3

   1-2. DXQT26+D8FCL(L:N15) is tightened. No.4 ,No.5

   1-3. DXHM0056ZA(J:N6) is tightened. No.6

⑤Screw(L)
③Screw(K)
⑥Screw(J)
④Screw(J)
①Screw(K)
②Screw(K)

2. Attachment preparation of Key Board

2-1. Putting of Heat Sheet KB Large

Inclination is set
to 0.5mm or less.

Touch the KB hole

Inclination is set
to 0.5mm or less.

Heat Sheet KB Large

Touch the KB hole

2-2. Putting of tape

0±0.5mm

Heat Sheet KB Large

0.5〜1.5mm   0〜1mm

8±1mm

0±1mm

0.5〜1.5mm

Tape(KBD)

Tape(KBD)

KeyBoard exterior and FPC are parallel.
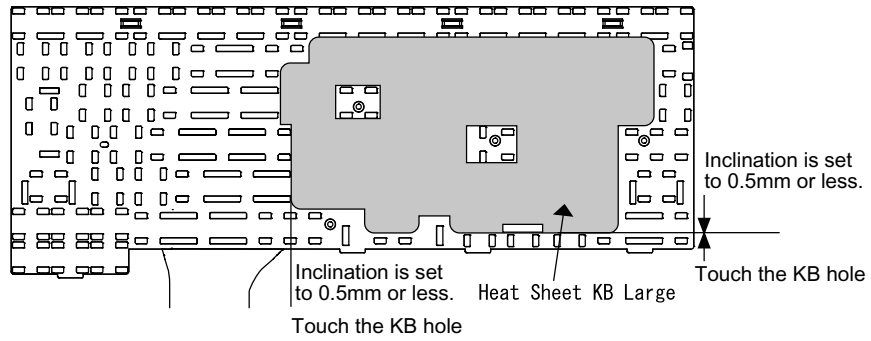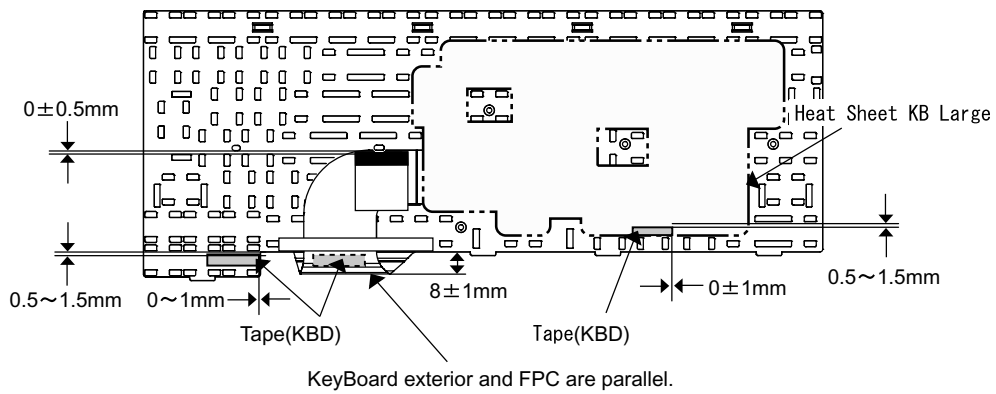
3. Screw tightening of bottom case (1)

The keyboard is inserted, and after the keyboard hooks are inserted in order of a and b while holding the keyboard, the screw tightening is done in the following order.

Note: The sheet metal must not run aground on the rib (Refer to the figure below).

2-1. DXHM0039ZA(D:N5) is tightened. No.1 to No.7
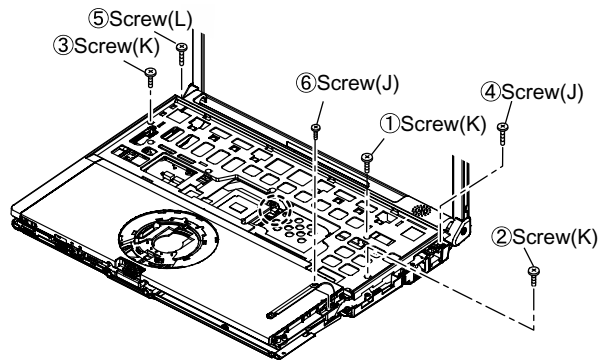
2-2. DXHM0057ZA(G:N7) is tightened. No.8 to No.12

⑧Screw(G)   ②Screw(D)   Keyboard Hook b

⑥Screw(D)   ⑦Screw(D)

④Screw(D)   ⑤Screw(D)

①Screw(D)

③Screw(D)   Keyboard Hook a

⑨Screw(G)

Keyboard Hook   OK   Top Case Rib

Top Case

⑩Screw(G)   NG

⑪Screw(G)   ⑫Screw(G)

Assembly reference chart
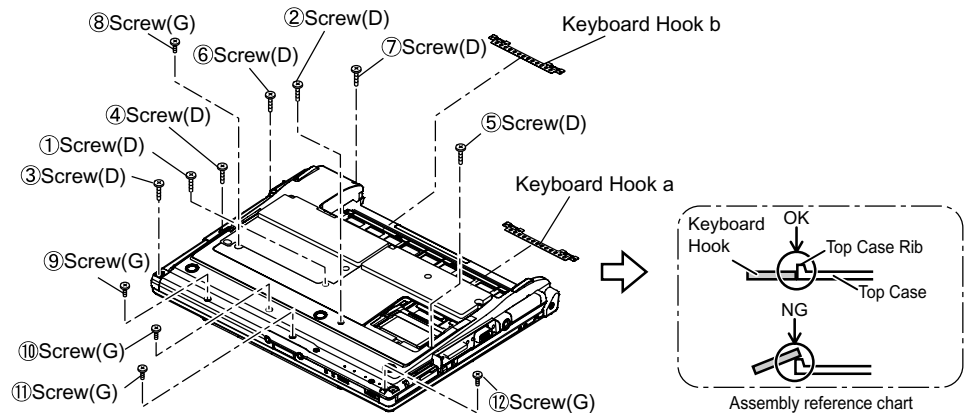
4. Screw tightening of bottom case (2)

The keyboard is inserted, and after tightening of the screw, the keyboard hooks are inserted in order of the following.

3-1. DXQT2+E12FNL(B:N11) is tightened. No.1 to No.4

3-2. DXQT2+D4FNL(F:N9) is tightened. No.5

3-3. DXQT2+E10FNL(E:N10) is tightened. No.6

3-4. DFHE5035ZA(H:N2) is tightened. No.7

3-5. DFHE5025XA(C:N501) is tightened. No.8

3-5. KIYE50000022(I:N500) is tightened. No.9
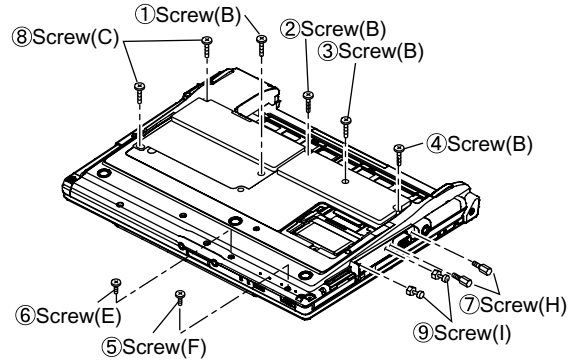
6.3.10.   Affixation of Win Logo Label (XP), CENTRINO Label and Energy Star Label

In the inclination at the time of putting the win logo label, the CENTRINO label and energy star label the both ends difference is within 0.2mm

<Attention>
Confirm whether the paste of the label has overflowed after the win logo label and putting of the CENTRINO label and energy star label.

Win Logo Label(XP)

2～5mm

CENTRINO Label

2～5mm

Energy Star Label

Top Case

5～7mm   2～5mm
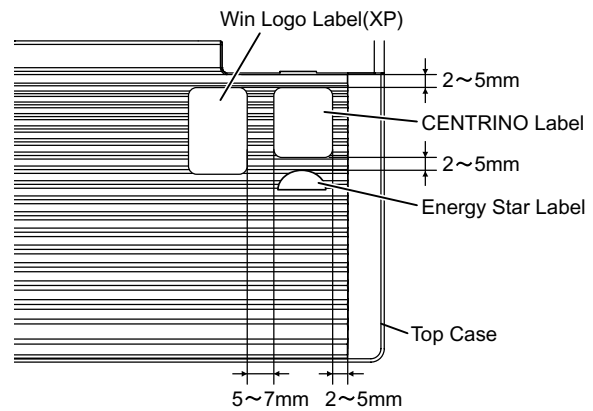
7. Explanation of Harddware

7.1. System Block Diagram

T4
Block Diagram

DothanULV
1.2GHz(/600MHz)
Core 0.940V(/0.812V)
FSB 1.05V

L2 Cache=2MB

CK410M

FSB 400MHz

VGA Port
(for CRT)

Micro-DIMM socket
172pin (Max.1GB)

M-BUS
400MHz

North Bridge
Alviso-GMS
1.25V

LCD
12.1"
XGA

Main Memory
(DDR2-SDRAM CSP)
512MB (32Mx16 x 8pcs)

DMI

Touch
Screen
(Config)

South Bridge
ICH6-M
1.5V

USB1.1

Touch Screen
Controller
(Config)

HDD
2.5"

PATA

USB2.0

USB2.0
x2

Port
Replicator
(Config)

USB2.0

VGA

USB2.0x4

BIOS FLASH
1MB
SST49LF008

Port   Replicator
Connector (Config)

HUB
uPD720114

TPM

RJ45
(LAN)

DC-IN

Main
Battery
Li-Ion

EC, KBC
M306KA

Ethernet
Controller
RTL8101L

RJ45
(LAN)

Touch
PAD

Internal
KB

LPC-BUS
3.3V

CB+SD
Controller
R5C811

SD Card

PCMCIA
Type-II

Mini-
PCI
Type3

WLAN
Module

Mic-JACK

AC97
Codec
STAC9751

PCI-BUS
3.3V

HP-JACK

MDC
1.5

MDC
Modem
Module

RJ11
(Modem)

Speaker
(Mono)

AC-LINK
3.3V

43

DCIN&BATT

8. Extended View

8.1.Display Section
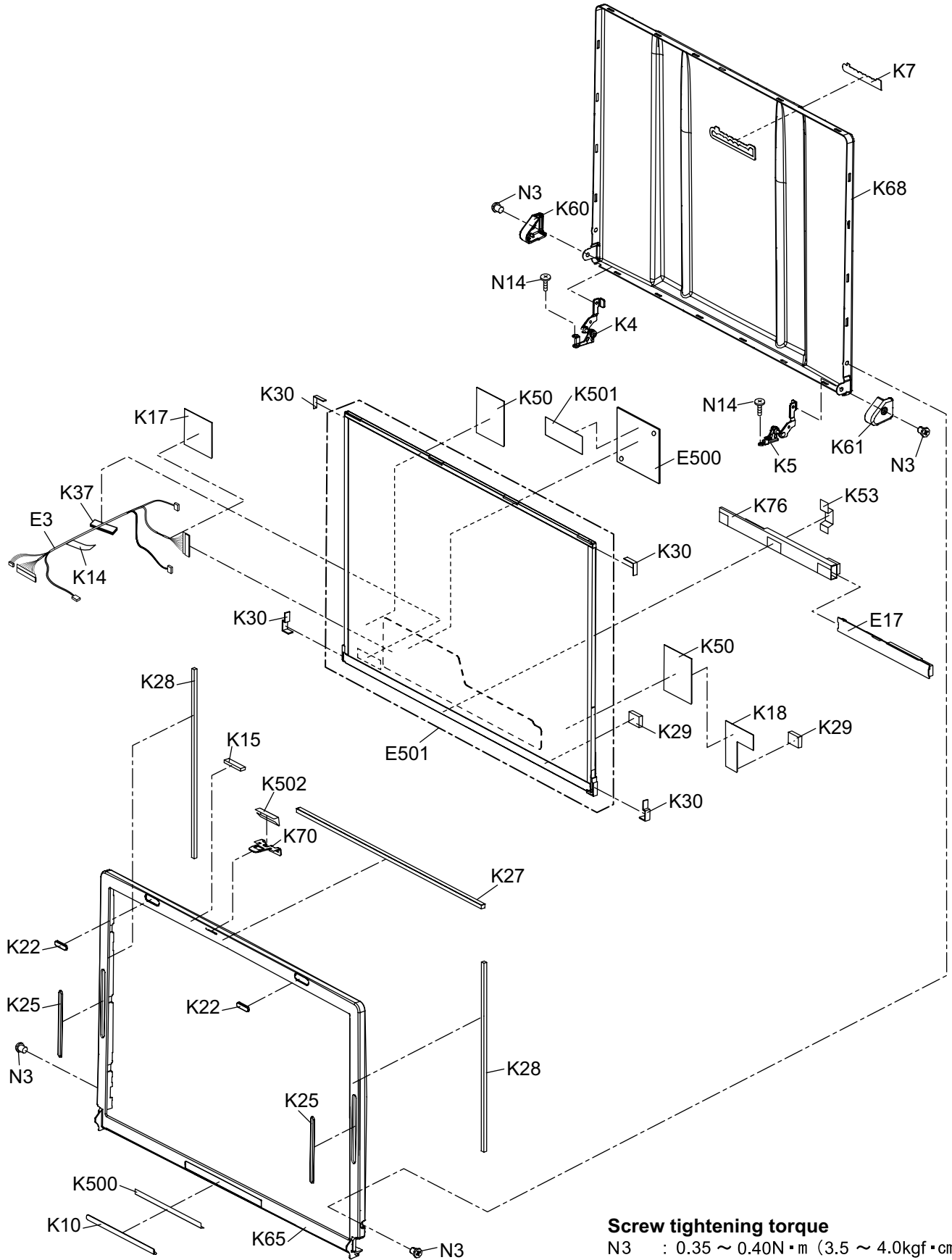
Screw tightening torque

N3 : 0.35 ～ 0.40N・m（3.5 ～ 4.0kgf・cm）
N14 : 0.45 ～ 0.55N・m（4.5 ～ 5.5kgf・cm）

LCD Unit Ass'y / Pen Holder Section

K507

K503

K505 K506

K504

K501

E501

E501-1

E501-1-1

E501-1-4

E501-1-1

E501-1-2

E501-1-4

E501-1-3

E501-1-2

E501-1-6

E501-1-5

E501-2

8.2. Cabinet Section

K73
K51
K40
E18
K8
K509
K41
E2
E19
K40
K42
K517
K39
K1
K81
K88
K508
N15
K89
N12
K16
K47
K72
K54
N12
N12
K72
K41
K41
N15
K31
K69
K48
K6
E12
N6
K13
K90
E15
K64
K49
K36
E7
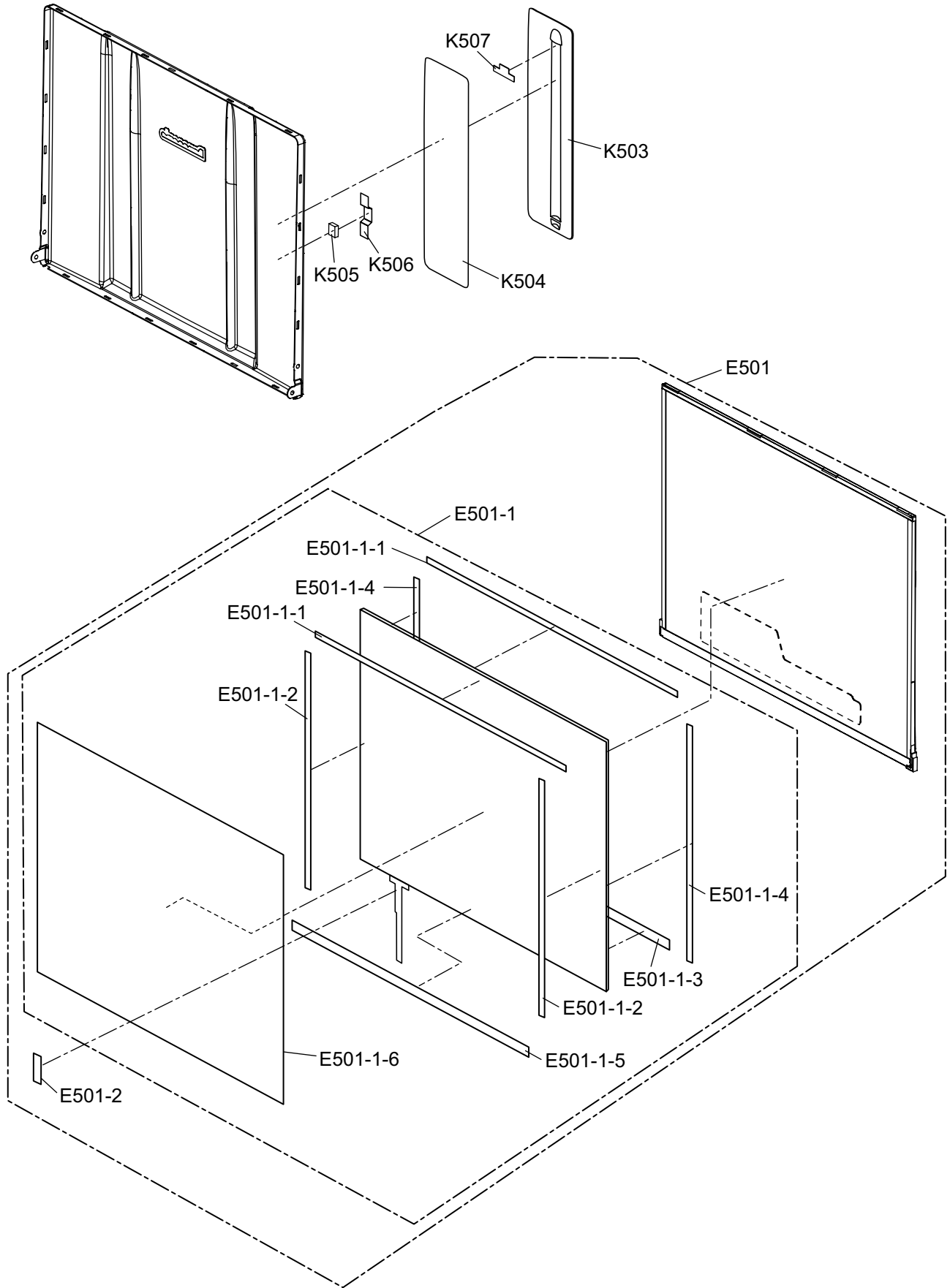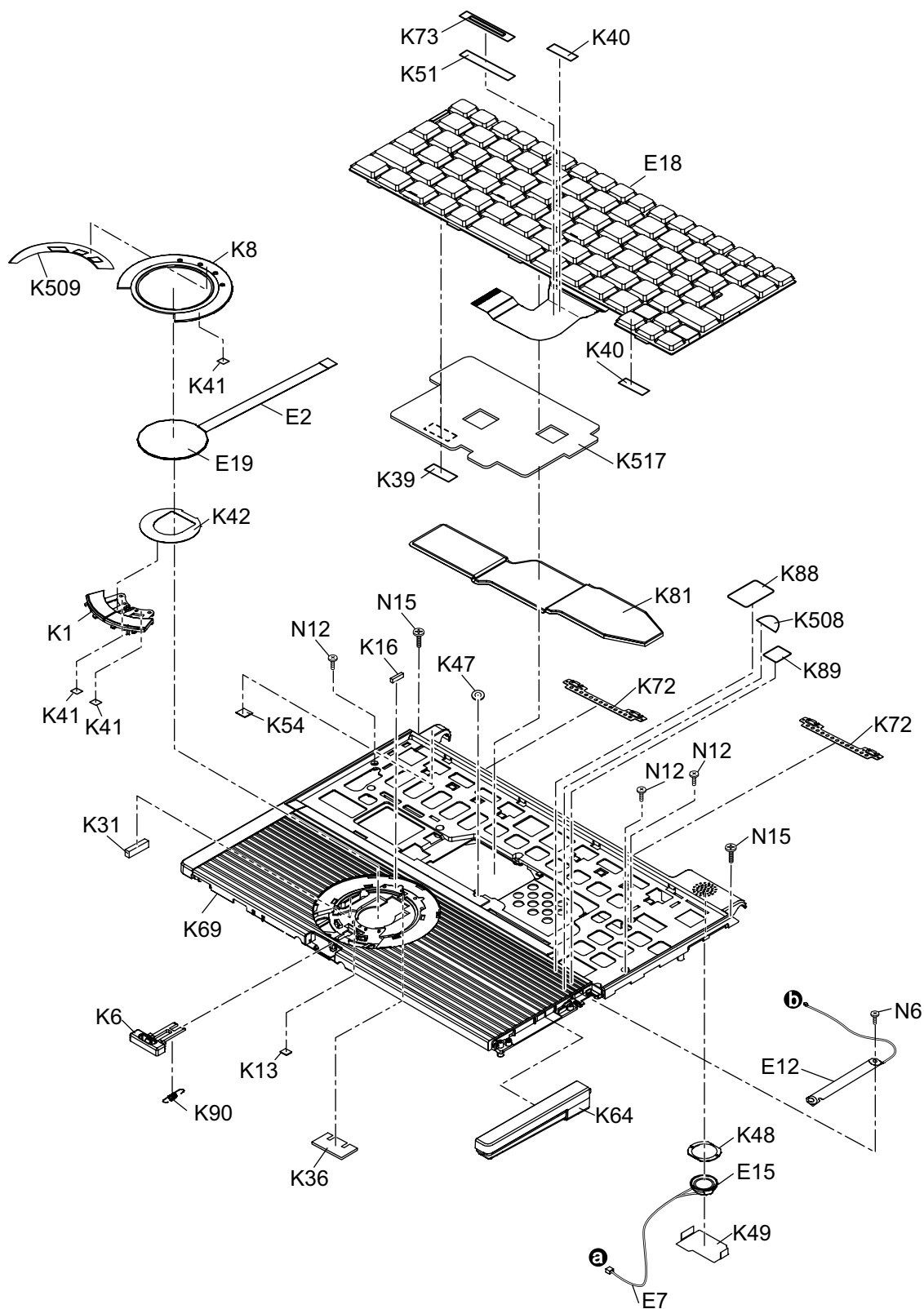
Screw tightening torque
N6   : 0.10 ～ 0.12N・m （1.0 ～ 1.2kgf・cm）
N12 : 0.18 ～ 0.22N・m （1.8 ～ 2.2kgf・cm）
N15 : 0.45 ～ 0.55N・m （4.5 ～ 5.5kgf・cm）

8.3. Bottom Section

Screw tightening torque

N5,N7 : 0.10 ～ 0.12N・m （1.0 ～ 1.2kgf・cm）
N9,N10,N11 : 0.18 ～ 0.20N・m （1.8 ～ 2.0kgf・cm）
N500,N501
N4,N8,N13,N16 : 0.18 ～ 0.22N・m （1.8 ～ 2.2kgf・cm）
N2,N15 : 0.45 ～ 0.55N・m （4.5 ～ 5.5kgf・cm）

9 Replacement Parts List

Note:	Important Safety Notice
	Components identified by ⚠ mark have special characteristics important for safety.
	When replacing any of these components, use only manufacturer's specified parts.

CF-T4HWETZBM

REF.NO. and AREA		PART NO.	DESCRIPTION		Q'TY
Main Block Unit					
CN12		K1FB315BA003	VGA CONNECTOR		1
CN13		K1NA09E00076	CONNECTOR		1
CN14		K1NA68E00096	CONNECTOR		1
CN22		K1FY150BA007	IO CONNECTOR		1
CN24		K1KA04BA0014	CONNECTOR		1
CN601		K1KA10B00233	CONNECTOR		1
CN1052		K1FB104B0055	USB CONNECTOR		1
CN1053		K1FB104B0055	USB CONNECTOR		1
JK1		K2HC103B0205	HEADPHONE JACK		1
JK2		K2HC103B0205	MICROPHONE JACK		1
SW6		ESD165225	POWER SW		1
SW7		K0D112B00071	W-LAN SW		1
SW951		K0D113B00081	SLIDE SW		1
E1	⚠	CR2032/S5Y	LITHIUM BATTERY		1
E2		DFJK12U112BB	PAD FFC		1
E3		DFJS963ZA	TP CABLE		1
E4		DFJS958ZB	LAN CABLE		1
E5		DFJS980ZA	MAIN-SUB CABLE		1
E6		DFJS961ZB	DC-IN CABLE		1
E7		DFJS962ZA	SP CABLE		1
E8		DFJS973ZA	MODEM CABLE		1
E9		DL3UP1436ABA	PCB, MAIN	RTL	1
E10		DL3UP1443AAA	FPC UNIT, HDD		1
E11		N1ZYYY000002	ANTENNA PCB-L ASS'Y		1
E12		N1ZYYY000003	ANTENNA PCB-R ASS'Y		1
E13		DL3UP1477AAA	PCB, 2-PORT USB	RTL	1
E14		K1YYZZ000060	CONNECTOR		1
E15		L0AA01A00018	SPEAKER		1
E17	⚠	N0GB1J000012	INVERTER		1
E18		N2AZZJ000038	KEY BOARD US		1
E19		N2EAYYY00006	TOUCH PAD		1
E20		N3CAYYY00006	HDD		1
E21		N5HAZ0000012	MODEM		1
E22		N5HZC0000014	WIRELESS LAN MODULE		1
E500		DL3UP1498LAA	PCB, TS	RTL	1
E501		DFWV08A0083	LCD UNIT ASS'Y		1
E501-1		DFWV84A0266	TOUCH SCREEN PANEL KIT		1
E501-1-1		DFHG1824ZA	FRONT TP CUSHION A		2
E501-1-2		DFHG1825YA	FRONT TP CUSHION B		2
E501-1-3		DFHG1826ZA	FRONT TP CUSHION C		1
E501-1-4		DFHG1837ZA	FRONT TP CUSHION D		2
E501-1-5		DFHG1849ZB	FRONT TP CUSHION E		1
E501-1-6		DFHR9063ZA	PROTECTIVE FILM		1
E501-2		DFHR3630ZA	TS FPC SPACER		1
Accessories					
A1	⚠	CF-AA1623AM6	AC ADAPTOR		1
A2	⚠	K2CG3DR00003	AC CABLE		1
A3	⚠	CGR-B/979A	LITHIUM ION BATTERY PACK		1
A4	⚠	DFQX5573ZA	MANUAL		1
A500		DFJS954ZA	MODEM CABLE		1
A501		DFHR9081XA	PEN		1

A502	DFME0148ZA	TETHER T4	1
A503	DFHS9017ZA	CLOTH ASS'Y	1

Packing Material			
P1	DFPE0806ZB	HOLDER	1
P2	DFPE0812ZB	PAD W	1
P4	DFPK1037YA	ACCESSORIES BOX	1
P5	DFPK1194YA	PACKING CASE	1
P6	DFPN0832ZA	CUSHION T	2
P7	DFPN0833ZA	CUSHION B	2
Mechanical Parts			
K1	DFBC0315ZE-0	PAD BUTTON	1
K2	DFBD0180ZB-0	POWER KNOB	1
K3	DFBD0182ZA-0	LAN SW KNOB	1
K4	DFBH3041ZA	HINGE-L TP	1
K5	DFBH3042ZA	HINGE-R TP	1
K6	DFBS0068ZC-0	LCD KNOB	1
K7	DFGB0089VB-0	PANASONIC LABEL	1
K8	DFGE0108ZC-0	PAD COVER	1
K10	DFHG1811ZA	LCD BATT RUBBER TP	1
K12	DFGX0428ZA-0	BATT SHEET(T4)	2
K13	DFHE0215ZA	SHEET	1
K14	DFHE0436ZA	CLOTH LCD CABLE 1	1
K15	DFHE0843ZA	LCD MAGNET	1
K16	DFHE0844ZA	GASKET PAD	1
K17	DFHE0943ZA	GASKET CLOTH (LCD CABLE)	1
K18	DFHE0945ZA	GASKET CLOTH (LCD)	1
K19	DFHE0953ZA	SHEET	1
K22	DFHG1546ZB-0	LCD RUBBER	2
K24	DFHG1744ZA	M-PCI CUSHION	1
K25	DFHG1766ZA-0	LCD SIDE RUBBER	2
K26	DFHG1767ZA-0	DC JACK HOLDER	1
K27	DFHG1771ZA	LCD DAMPER A	1
K28	DFHG1821ZA	LCD DAMPER B TP	2
K29	DFHG1773ZA	LCD DAMPER C	2
K30	DFHG1822ZA	LCD SIDE DAMPER TP	4
K31	DFHG1778ZA	PCMCIA STOPPER CUSHION	1
K33	DFHG1809YA	HDD CASE ASS'Y T4 USA	1
K35	DFHG1786ZA	CPU CUSHION	1
K36	DFHG1787ZA	MINI-PCI CUSHION	1
K37	DFHG1797ZA	REAR DAMPER	1
K39	DFHP7098ZA	KB TAPE	1
K40	DFHP7106YA	BOTH SIDES TAPE	2
K41	DFHP7140ZA	TAPE, CPU	3
K42	DFHP7221YA	PAD SHEET	1
K47	DFHR3416ZA	SPACER CU	1
K48	DFHR3A37ZA	SPEAKER RING	1
K49	DFHR3A39ZA	SPEAKER BOX	1
K50	DFHR3A78ZA	LCD INSULATOR	2
K51	DFHR3A88ZA	KB PLATE SHEET	1
K52	DFHR3C25ZA	USB SHEET US	1
K53	DFHR3A95ZA	INVERTER TAPE	1
K54	DFHR3B19ZA	HINGE BACKUP SHEET T4	1
K55	DFHR3B22ZA	BOTTOM BACKUP SHEET	2
K59	DFKE0772ZA-0	ANTENNA COVER-L	1
K60	DFKE0776ZA-0	HINGE COVER-L TP	1
K61	DFKE0777ZA-0	HINGE COVER-R TP	1
K62	DFKE0778ZA-0	DIMM COVER (LIGHT)	1
K64	DFKE0783ZA-0	SIDE COVER-R	1

K65		DFKF0257ZA-0	LCD FRONT TP	1
K66		DFKF8166ZA-0	BOTTOM CASE USA ASS'Y	1
K66-1		DFHG371ZA-1	FOOT RUBBER	3
K68		DFKM0482ZA-0	LCD REAR (SANKI)	1
K69		DFKM8172XA-0	TOP CASE ASS'Y	1
K70		DFMD1196ZA	LCD HOOK TP	1
K71		DFMD3121ZA	MDC PLATE	1
K72		DFMD4057ZA	KB HOOK F999	2
K73		DFMD7A52ZA	KB PLATE	1
K75		DFMX0635ZB	TAPE	1
K76		DFMX1155ZA	INVERTER BOX	1
K77		DFMX1156ZA	MAIN PW SHEET1	1
K78		DFMX1160ZA	PCMCIA-MAIN SHEET	1
K79		DFMX1184ZA	SW CABLE SHEET	1
K80		DFMY0399ZA	MCH RUBBER	1
K81		DFMY3191YA	HEAT SPREADER TOP	1
K82		DFMY3192ZA	HEAT SPREADER BOTTOM	1
K83		DFMY3206ZA	MEMORY SHEET TOP	1
K84		DFMY3207ZA	MEMORY SHEET BOTTOM	1
K85		DFMY3208ZA	W-LAN SHEET	1
K86		DFQT6299YA	DIMM COVER SHEET	1
K88		DFQT9974ZA	WINDOWS XP LABEL (FOR NOTE)	1
K89		DFQT9948ZA	CENTRINO LABEL	1
K90		DFUD0040ZA	LATCH SPRING	1
K500		DFHR3C02ZA	BATT RUBBER TAPE	1
K501		DFHR3C01ZA	TAPE TP	1
K502		DFHG1836ZA	LCD HOOK CUSHION TP	1
K503		DFHG1810ZA-0	PEN HOLDER	1
K504		DFHP7223ZA	PEN HOLDER TAPE	1
K505		DFHG1848ZA	PEN FIX CUSHION	1
K506		DFHR3C48ZA	PEN FIX SHEET	1
K507		DFHR3C44ZA	HOLDER BOTTOM SHEET	1
K508		DFQT9675ZA	ENERGY STAR LABEL	1
K509		DFHP7220ZB	PAD COVER TAPE	1
K510		DFHR3B98ZA	HDD FPC SHEET	1
K511		DFHR3C33YA	LCD CABLE FIX SHEET	1
K512		DFKE0781ZA-0	RJ DUST COVER	1
K513		DFHP7228ZA	RJ DUST COVER FIX TAPE	1
K514		DFHR3C13ZA	RJ CABLE SHEET	1
K515		DFHR3C34ZA	TP CABLE FIX SHEET	1
K516		DFHG1847ZA	TP CABLE FIX CUSHION	1
K517		DFMY0421ZA	HEAT SHEET KB LARGE	1
K518	⚠	DFGT1032ZA	BOTTOM SHEET USA	1
K519	⚠	DFGT1075ZA	BOTTOM SHEET USA 2	1
K520		DFGX0430ZA-0	BOTTOM HEAT SHEET	1
K521		DFGX0444ZA-0	HDD COVER HEAT SHEET	1
K522		DFKE0782ZA-0	HDD COVER	1
K523		DFKH1016ZA-0	HANDY STRAP	1
K524		DFMD1191YA	HANDY STRAP ANGLE	2
K530		DFHE0603ZA	LCD CONNECTOR SHEET	1
N1		DFHE5025XA	SCREW	1
N2		DFHE5035ZB	SCREW	2
N3		DRHM0076ZA	SCREW	4
N4		DRQT2+G6FKL	SCREW	1
N5		DXHM0039ZA	SCREW	7
N6		DXHM0056ZA	SCREW	1
N7		DXHM0057ZA	SCREW	5
N8		DXQT2+D25FNL	SCREW	3
N9		DXQT2+D4FNL	SCREW	1
N10		DXQT2+E10FNL	SCREW	1

N11	DXQT2+E12FNL	SCREW	4
N12	DXQT2+E6FNL	SCREW	3
N13	DXQT2+E6FNL	SCREW	2
N14	DXQT26+D5FNL	SCREW	2
N15	DXQT26+D8FCL	SCREW	6
N16	XSB2+4FNL	SCREW	1
N500	K1YE50000022	SCREW, I/O PIN	2
N501	DFHE5025XA	SCREW	2