Personal Computer

dynabook PORTEGE A30-E/TECRA A30-G,-J/ dynabook S Series

Maintenance Manual

Rev.00   First issue

Rev.01   Mar. 2020   ・Addition of information of TECRA A30-G model

                           ・Addition of note for LCD removal and for SSD installation (Chap.4)

Rev.02   Dec. 2020   ・Addition of information of TECRA A30-J model

Rev.03   Oct. 2022   ・Update information of 4.11 LTE MODULE

Rev.04   Aug. 2023   ・Update to Dynabook version

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Preface

This maintenance manual describes how to perform hardware service maintenance for the computer.

The procedures described in this manual are intended to help service technicians isolate faulty Field Replaceable Units (FRUs) and replace them in the field.

SAFETY PRECAUTIONS

Four types of messages are used in this manual to bring important information to your attention. Each of these messages will be italicized and identified as shown below.

DANGER: *"Danger" indicates the existence of a hazard that could result in death or serious bodily injury, if the safety instruction is not observed.*

WARNING: *"Warning" indicates the existence of a hazard that could result in bodily injury, if the safety instruction is not observed.*

CAUTION: *"Caution" indicates the existence of a hazard that could result in property damage, if the safety instruction is not observed.*

NOTE: *"Note" contains general information that relates to your safe maintenance service.*

Improper repair of the computer may result in safety hazards. We require service technicians and authorized dealers or service providers to ensure the following safety precautions are adhered to strictly.

❑ Be sure to fasten screws securely with the right screwdriver. If a screw is not fully fastened, it could come loose, creating a danger of a short circuit, which could cause overheating, smoke or fire.

❑ If you replace the battery pack, be sure to use only the same model battery or an equivalent battery recommended by us. Installation of the wrong battery can cause the battery to explode.

The manual is divided into the following parts:

Chapter 1   Hardware Overview describes the system unit and each FRU.

Chapter 2   Troubleshooting Procedures explains how to diagnose and resolve FRU problems.

Chapter 3   Test and Diagnostics describes how to perform test and diagnostic operations for maintenance service.

Chapter 4   Replacement Procedures describes the removal and replacement of the FRUs.

Appendices   The appendices describe the following:

- ❑ Handling the LCD module
- ❑ Board layout
- ❑ Pin assignments
- ❑ Keyboard Matrix
- ❑ Key layout
- ❑ Wiring diagrams
- ❑ BIOS rewrite procedures
- ❑ EC/KBC rewrite procedures
- ❑ Reliability

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Acronyms

On the first appearance and whenever necessary for clarification acronyms are enclosed in parentheses following their definition. For example:

Read Only Memory (ROM)

Keys

Keys are used in the text to describe many operations. The key top symbol as it appears on the keyboard is printed in **boldface** type.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus (+) sign. For example, **Ctrl + Pause (Break)** means you must hold down **Ctrl** and at the same time press **Pause (Break)**. If three keys are used, hold down the first two and at the same time press the third.

User input

Text that you are instructed to type in is shown in the boldface type below:

DISKCOPY A: B:

The display

Text generated by the computer that appears on its display is presented in the type face below:

```
Format complete
System transferred
```

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Chapter 1

Hardware Overview

Chapter 1　　Contents

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1.1   Features

This Personal Computer uses extensive Large Scale Integration (LSI), and Complementary Metal-Oxide Semiconductor (CMOS) technology extensively to provide compact size, minimum weight, low power usage and high reliability.

The following shows each unit position and system unit configuration of this model.

❑ Front view
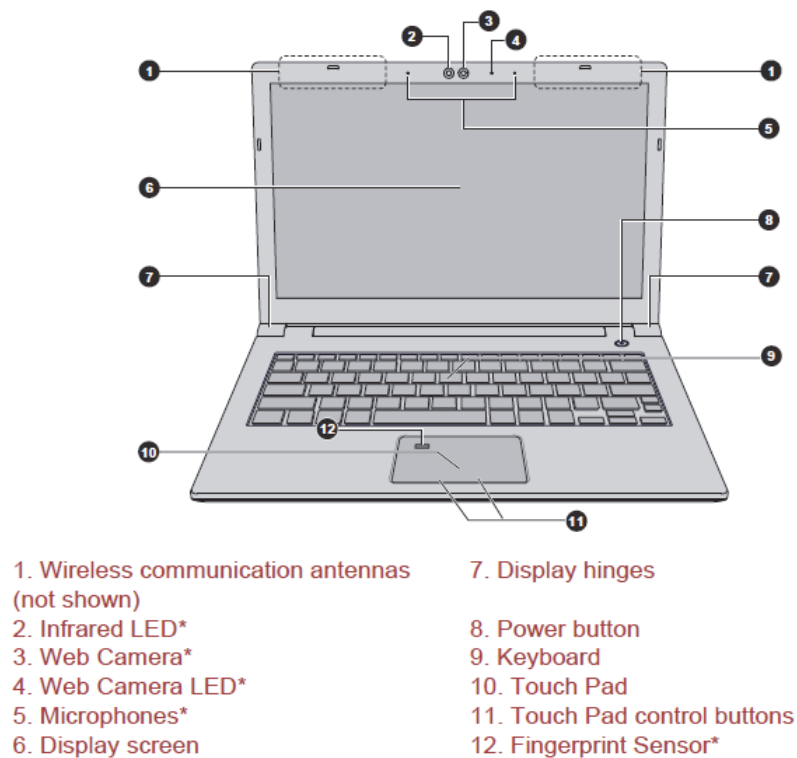
1. Wireless communication antennas (not shown)   7. Display hinges
2. Infrared LED*   8. Power button
3. Web Camera*   9. Keyboard
4. Web Camera LED*   10. Touch Pad
5. Microphones*   11. Touch Pad control buttons
6. Display screen   12. Fingerprint Sensor*

* Provided with some models.
Product appearance depends on the model you purchased.

Figure 1-1 Appearance and each unit position (1)

❑ Left side
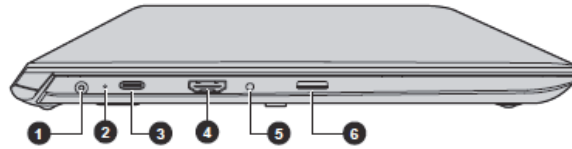
1. DC IN 19V jack
2. DC IN/Battery indicator
3. USB Type-C™ (USB 3.1 Gen1) port
4. HDMI™ out port
5. Headphone/Microphone jack
6. Memory media slot

Product appearance depends on the model you purchased.

❑ Right side
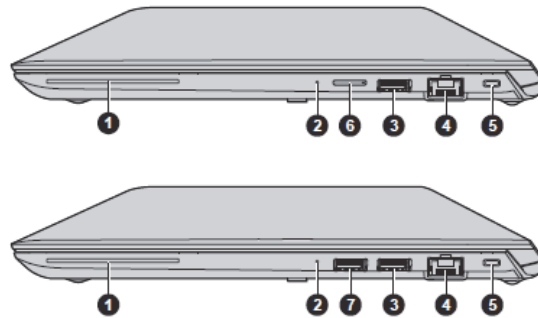
1. Smart Card slot*
2. Power indicator
3. Universal Serial Bus (USB 3.1 Gen1) port
4. LAN jack
5. Security lock slot
6. SIM card slot*
7. Universal Serial Bus (USB 3.1 Gen1) port*

* Provided with some models.
Product appearance depends on the model you purchased.

❑ Underside
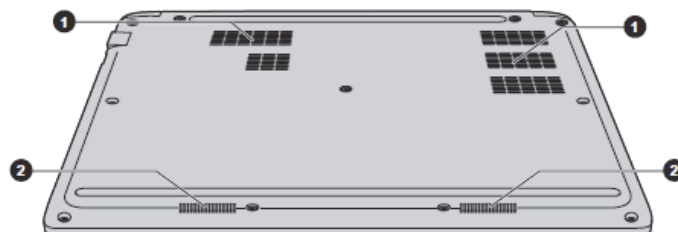
1. Cooling vents
2. Stereo speakers

Product appearance depends on the model you purchased.

Figure 1-1 Appearance and each unit position (2)

Figure 1-2 Board connection diagram

Figure 1-3 System block diagram
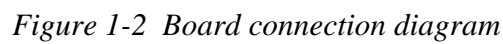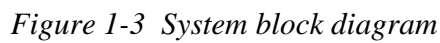
This computer incorporates the following features/major components. The configuration depends on the model. Refer to the Parts List for the configuration of each model and options.

❑ Microprocessor

This chip incorporates the CPU, chipset and graphics functions in it. The PC comes with one of the following CPU:

< PSZ1* model >

Core Frequency	L3 Cache Size	Turbo	Number of cores /threads
Kabylake-R U Core i7-8650U (1.90GHz) vPro	8MB	4.20GHz	4/8
Kabylake-R U Core i7-8550U (1.80GHz) non-vPro	8MB	4.00GHz	4/8
Kabylake-R U Core i5-8350U (1.70GHz) vPro	6MB	3.60GHz	4/8
Kabylake-R U Core i5-8250U (1.60GHz) non-vPro	6MB	3.40GHz	4/8
Kabylake-R U Core i3-8130U (2.20GHz) non-vPro	4MB	3.40GHz	2/4
Kabylake-R U Core i3-7020U (2.30GHz) non-vPro	3MB	-	2/4
Kabylake-R U Celeron 3867U (1.80GHz) non-vPro	2MB	-	2/2
Kabylake-U Core i3-7020U (2.30GHz) non-vPro	3MB	-	2/4

< PSZ2* model >

Core Frequency	L3 Cache Size	Turbo	Number of cores /threads
Cometlake U Core i7-10810U (1.10GHz) vPro 6+2	12MB	4.90GHz	6/12
Cometlake U Core i7-10610U (1.80GHz) vPro 4+2	8MB	4.90GHz	4/8
Cometlake U Core i7-10710U (1.10GHz) 6+2	12MB	4.70GHz	6/12
Cometlake U Core i7-10510U (1.80GHz) 4+2	8MB	4.90GHz	4/8
Cometlake U Core i5-10310U (1.70GHz) vPro 4+2	6MB	4.40GHz	4/8
Cometlake U Core i5-10210U (1.60GHz) 4+2	6MB	4.20GHz	4/8

Cometlake U Core i3-10110U 2F+2	2MB	-	2/2
Cometlake U Celeron 5205U 2F+1 (1.90GHz)	2MB	-	2/2

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Core Frequency	L3 Cache Size	Turbo	Number of cores /threads
Tigerlake Core i7-1185G7 vPro	TBD	TBD	TBD
Tigerlake Core i7-1165G7 Non-vPro	12MB	4.70GHz	4/8
Tigerlake Core i5-1145G7 vPro	TBD	TBD	TBD
Tigerlake Core i5-1135G7 Non-vPro	8MB	4.20GHz	4/8
Tigerlake Core i3-1115G4	6MB	4.10GHz	2/4
Tigerlake Celeron 6305 (1.80GHz)	4MB	-	2/2

❑ Memory

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The specification of each model is as below.

	PSZ1* model		PSZ2* model		PSZ3* model	
Type	**Memory size**	**Spec**	**Memory size**	**Spec**	**Memory size**	**Spec**
On-board	0/4/8GB	DDR4 2133/ DDR4 2400MHz	0/4/8GB	DDR4 2666MHz	0/4/8GB	DDR4 3200MHz
Memory slot	4/8/16GB		4/8/16GB		4/8/16/32GB	

❑ SSD

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The computer supports M.2 SSD of SATA I/F or PCIe I/F. One of the following is mounted depending on a model.

< PSZ1* and PSZ2* model >

- 128GB, 256GB (for SATA I/F)

- 128GB, 256GB, 512GB, 1TB (for PCIe I/F)

< PSZ3* model >

- 128GB, 256GB, 512GB (for PCIe I/F)

- 256GB, 512GB, 1TB SSD-OPAL2.0 (for PCIe I/F)

- 512GB, 1TB SSD-Optane32 (for PCIe I/F)

❑ Display

The computer has a 13.3-inch FHD, HD LCD or FHD in-cell touch (non-CSV).

❑ Keyboard

The B5-size keyboard is installed. Some models support the backlight functions.

❑ Touch Pad (Click pad)

A click pad supporting gesture control function is mounted in the palm rest.

The click pad with the finger print sensor is called "Secure pad". The finger print sensor can register the fingerprint data by touch.

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❑ Wireless LAN/Bluetooth

As a wireless module, Intel802.11ac/abgn supporting also bluetooth function is mounted (for PSZ1* and PSZ2* model). On PSZ3* model, Intel802.11ax+/ac/abgn module supporting Bluetooth function is mounted.

❑ 3G/LTE

On some models, one SIM card slot for 3G/LTE function is mounted.

❑ Web camera

The computer has one web camera with dual microphones on the display side. Some models have an IR camera as the face recognition sensor to support Face Recognition by Windows Hello.

❑ Sound system

The sound system is equipped with the following features:

- Stereo speakers : No-brand

- Built-in microphone : Dual microphone is supported

- Headphone/Microphone combo jack

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❑ Universal Serial Bus (USB) port

The computer has one type-C and one or two type-A USB ports. The type-C port complies to USB3.1 Gen1, PD, DP, USB3.0, USB2.0 and USB1.1. The type-A ports comply with USB3.0, USB2.0 and USB1.1. One port supports Sleep&Charge function or Power-off and Charge function.

❑   Sensors and others

- Finger print sensor: on SecurePad (BTO)

- IR Camera (Face Recognition Sensor) (BTO)

- GPS (for 3G/LTE models (BTO))

- EC/KBC: MEC1642

1.2 SSD

Solid State Drive (SSD) is a non-volatile semi-conductor memory device enabling reading and writing of the data in random access.

The specifications are listed in Table 1-1 and Table 1-2.

Table 1-1 M.2 SATA SSD specifications

< PSZ1* model >

Items		Specifications	
Maker		Samsung	
Part code		G8BC000BY120	G8BC000BY250
Capacity		128GB	256GB
Outline	Width (mm)	22.00±0.15	
	Height (mm)	2.38 (Max)	
	Length (mm)	80.0±0.15	
	Weight (g)	8.0g (Max)	
Data transfer speed		Maximum Data Read: 540MB/s Maximum Data Write: 500MB/s	Maximum Data Read: 540MB/s Maximum Data Write: 520MB/s

< PSZ2* model >

Items		Specifications	
Maker		Samsung	
Part code		G8BC000CK120	G8BC000CK250
Capacity		128GB	256GB
Outline	Width (mm)	22.00±0.15	
	Height (mm)	2.38 (Max)	
	Length (mm)	80.0±0.15	
	Weight (g)	8.0g (Max)	
Data transfer speed		Maximum Data Read: 540MB/s Maximum Data Write: 500MB/s	Maximum Data Read: 540MB/s Maximum Data Write: 520MB/s

< PSZ1*/PSZ2* model >

Items		Specifications	
Maker		Phison	
Part code		G8BC000C7120	G8BC000C7250
Capacity		128GB	256GB
Outline	Width (mm)	22.00±0.15	
	Height (mm)	2.38 (Max)	
	Length (mm)	80.0±0.15	
	Weight (g)	8.0g (Max)	
Data transfer speed		Maximum Data Read: 550MB/s	Maximum Data Read: 550MB/s
		Maximum Data Write: 450MB/s	Maximum Data Write: 490MB/s

< PSZ1*/PSZ2* model >

Items		Specifications	
Maker		Foxconn	
Part code		G8BC000CF120	G8BC000CF250
Capacity		128GB	256GB
Outline	Width (mm)	22.00±0.15	
	Height (mm)	2.38 (Max)	
	Length (mm)	80.0±0.15	
	Weight (g)	-	
Data transfer speed		Maximum Data Read: 550MB/s	Maximum Data Read: 550MB/s
		Maximum Data Write: 450MB/s	Maximum Data Write: 490MB/s

Table 1-2   M.2 PCIe SSD specifications

< PSZ1* model >

Items		Specifications		
Maker		Samsung		
Part code		G8BC000C0250	G8BC000C0510	G8BC000C01A0
Capacity		256GB	512GB	1TB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.38 (Max)		
	Length (mm)	80.0±0.15		
	Weight (g)	9.0g (Max)		
Maximum Data Read (MB/s)		3,000	3,000	3,200
Maximum Data Write (MB/s)		1,300	1,800	2,400

Items		Specifications		
Maker		Samsung		
Part code		G8BC000CG250	G8BC000CG510	G8BC000CG1A0
Capacity		256GB	512GB	1TB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.38 (Max)		
	Length (mm)	80.0±0.15		
	Weight (g)	9.0g (Max)		
Maximum Data Read (MB/s)		3,500	3,500	3,500
Maximum Data Write (MB/s)		2,200	2,900	3,000

Items		Specifications		
Maker		XIOXIA		
Part code		G8BC000CD120	G8BC000CD250	G8BC000CD510
Capacity		128GB	256GB	512GB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.23 (Max)		
	Length (mm)	80.0±0.15		
	Weight (g)	5.30g (Typ)		
Maximum Data Read (MB/s)		1,900	2,200	2,200
Maximum Data Write (MB/s)		800	1,400	1,400

Items		Specifications		
Maker		Samsung		
Part code		G8BC000CL120	G8BC000CL250	G8BC000CL510
Capacity		128GB	256GB	512GB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.38 (Max)		
	Length (mm)	80.0±0.15		
	Weight (g)	6.0g (Max)		
Maximum Data Read (MB/s)		2,000	2,050	2,200
Maximum Data Write (MB/s)		1,000	1,000	1,200

< PSZ2* model >

Items		Specifications	
Maker		Intel (Optane)	
Part code		G8BC000CB510	G8BC000CB1A0
Capacity		512GB	1TB
Outline	Width (mm)	TBD	
	Height (mm)	TBD	
	Length (mm)	TBD	
Maximum Data Read (MB/s)		TBD	
Maximum Data Write (MB/s)		TBD	

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< PSZ3* model >

Items		Specifications		
Maker		Phison		
Part code		G8BC000CJ120	G8BC000CJ250	G8BC000CJ510
Capacity		128GB	256GB	512GB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.15		
	Length (mm)	80.0±0.15		
Maximum Data Read (MB/s)		2,500		
Maximum Data Write (MB/s)		2,100		

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< PSZ3* model >

Items		Specifications		
Maker		Longsys		
Part code		G8BC000CN120	G8BC000CN250	G8BC000CN510
Capacity		128GB	256GB	512GB
Outline	Width (mm)	22.00±0.15		
	Height (mm)	2.25 (Max)		
	Length (mm)	80.0±0.15		
	Weight (g)	8 (Max)		
Maximum Data Read (MB/s)		1,800	2,000	2,000
Maximum Data Write (MB/s)		600	1,200	1,600

1.3   Keyboard

The keyboard is connected to the connector on the system board with the membrane and controlled by the keyboard controller.

The followings show a layout and specifications of keyboards. See Appendix E about the layout of the keyboards. As for the key matrix, see Appendix D.

Figure 1-4 UK keyboard layout

Table 1-3 Keyboard specifications

Item	Specifications	
Type	Tile keyboard for US	
Maker	Chicony	Darfon
Part code	G83C000KN5US	G83C000KS5US
Outline	278.0±0.2 (W) x 104.0±0.2 (L) x 3.75+0.35/-0.20(H)(mm)	TBD
Weight	Max. 92 (g)	TBD
Key Pitch	19.0 mm (major keys)	
keystroke	1.5±0.2 (mm)	
Number of keys	85	
Backlight	Yes	
AccuPoint	No	
Color	Black	

Item	Specifications	
Type	**Tile keyboard for UK**	
Maker	Chicony	Darfon
Part code	G83C000KN5EN	G83C000KS5EN
Outline	278.0±0.2 (W) x 104.0±0.2 (L) x 3.75+0.35/-0.20(H)(mm)	TBD
Weight	Max. 92 (g)	TBD
Key Pitch	19.0 mm (major keys)	
keystroke	1.5±0.2 (mm)	
Number of keys	86	
Backlight	Yes	
AccuPoint	No	
Color	Black	

Item	Specifications	
Type	**Tile keyboard for US**	
Maker	Chicony	Darfon
Part code	G83C000KP5US	G83C000KT5US
Outline	278.0±0.2 (W) x 104.0±0.2 (L) x 3.75+0.35/-0.20(H)(mm)	TBD
Weight	Max. 89 (g)	TBD
Key Pitch	19.0 mm (major keys)	
keystroke	1.5±0.2 (mm)	
Number of keys	86	
Backlight	No	
AccuPoint	No	
Color	Black	

Item	Specifications	
Type	**Tile keyboard for UK**	
Maker	Chicony	Darfon
Part code	G83C000KP5EN	G83C000KT5EN
Outline	278.0±0.2 (W) x 104.0±0.2 (L) x 3.75+0.35/-0.20(H)(mm)	TBD
Weight	Max. 89 (g)	TBD
Key Pitch	19.0 mm (major keys)	
keystroke	1.5±0.2 (mm)	
Number of keys	85	
Backlight	No	
AccuPoint	No	
Color	Black	

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< PSZ1*/ PSZ2* model >

Item	Specifications	
Type	**Tile keyboard for JP**	
Maker	Chicony	Darfon
Part code	G83C000KP5JP	G83C000KT5JP
Outline	278.0±0.2 (W) x 104.0±0.2 (L) x 3.75+0.35/-0.20(H)(mm)	TBD
Weight	Max. 89 (g)	TBD
Key Pitch	19.0 mm (major keys)	
keystroke	1.5±0.2 (mm)	
Number of keys	87	
Backlight	No	
AccuPoint	No	
Color	Black	

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Item	Specifications		
Type	**Tile keyboard for JP**		
Maker	Chicony		
Part code	G83C000KR5JP	G83C000KQ5JP	G83C000LV5JP (PSZ3* model)
Outline	TBD		
Weight	TBD		
Key Pitch	TBD		
keystroke	TBD		
Number of keys	87		
Backlight	No		
AccuPoint	No		
Color	Red	Blue	White

1.4 TFT Color Display

The TFT color display consists of 13.3-inch LCD module.

The LCD module used for the TFT color display uses a backlight as the light source and can display a maximum of 16.77 million colors with 1,920x1,080 (FHD) resolutions or a maximum of 2,600 hundred colors with 1,366x768 (HD) resolutions. Some models support the touch function with an in-cell touch LCD.

Following shows a view of the LCD module and lists the specifications.
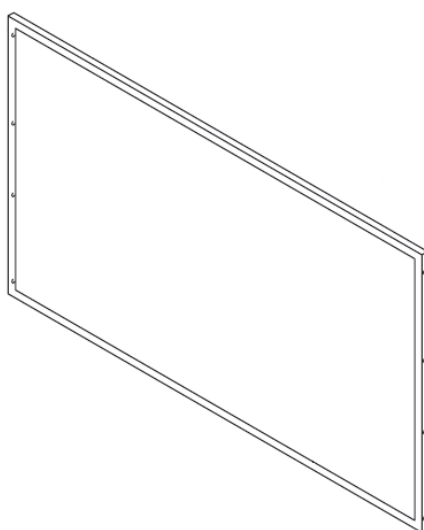
Figure 1-5 LCD module

Table 1-4 LCD module specifications

Item	Specifications	
Maker	Sharp	BOE
Part code	G33C0009Q110	G33C0009P210
Type	FHD	HD
Outline [mm] (Typ)	298.76±0.3(W) × 186.54 Max(H) × 2.05 Max(D)	300.26 +/-0.3(H) x 187.27+/-0.5(V) (W/PCB) x 3.0Max
Number of Dots (pixel)	1920(H) ×1080(V) (1 pixel = R+G+B dot)	1366(H) ×768(V)
Active display area [mm]	293.76(H) × 165.24(V)	293.8266(H) × 165.1968(V)
Dot pitch [mm]	0.153(H)×0.153(V)	0.2151(H)×0.2151(V)
Pixel configuration	R.G.B. Vertical Stripe	R.G.B. Vertical Stripe
Weight [g]	170 (max)	260 (max)

Item	Specifications	
Maker	LGD (PSZ1* model)	Sharp
Part code	G33C0009D210	G33C0009X110
Type	FHD in-cell touch	
Outline [mm] (Typ)	299.46±0.3(W) ± 191.75± 0.5(H) ± 2.35max. w/PCB(D)	TBD
Number of Dots (pixel)	1920(H) ×1080(V) ×RGB	TBD
Active display area [mm]	293.76(W) ± 165.24(H)	TBD
Dot pitch [mm]	0.153(H)×0.153(V)	TBD
Pixel configuration	R.G.B. Vertical Stripe	TBD
Weight [g]	170 (max)	TBD

1.5 Web camera

A web camera which offers video stream to preview/record motion image through USB 2.0 interface is mounted. On some models, an IR camera function for Face Recognition is integrated.

Table 1-5 Web camera module specifications

Item	Specifications
	Chicony
	G9BC0006B110
	HD
Size [mm] (Max)	50±0.3 × 6±0.2 × 2.9
Weight [g]	0.84±0.02
Output size (Max)	1,280 x 720
Focus Distance	50 cm

Item	Specifications
	Chicony
	G9BC00062110
	FHD
Size [mm] (Max)	50±0.3 × 6±0.2 × 2.7±0.15
Weight [g]	1.49± 0.09
Output size (Max)	1,920 x 1,080
Focus Distance	50 cm

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Item	Specifications	
	Chicony	
	G9BC0006A110 (PSZ1* model)	G9BC0006A210 (PSZ2*/PSZ3* model)
	HD + IR Camera	
Size [mm] (Max)	82±0.2 × 6±0.2 × 2.75±0.2	
Weight [g]	-	
Output size (Max)	1,280 x 720	
Focus Distance	50 cm	

1.6   Power Supply

The power supply supplies many different voltages to the system board and performs the following functions:

1. Judges that the DC power supply (AC adapter) is connected to the computer.

2. Detects DC output and circuit malfunctions.

3. Controls the battery icon, and DC IN icon.

4. Turns the battery charging system on and off and detects a fully charged battery.

5. Turns the power supply on and off.

6. Provides more accurate detection of a low battery.

7. Calculates the remaining battery capacity.

8. Controls the transmission of the status signal of the main battery.

1.7 Batteries

The computer has one battery as follows:

❑ Main battery pack (a part of the battery is used as RTC battery)

The battery specifications are listed in the following table.

Table 1-6 Battery specifications   Rev.02

Battery name	Part code	material	Output voltage	Capacity
Main battery	G71C000LM210	Lithium-Ion	7.7 V	2Cell, 21Wh
	G71C000LN210 (PSZ1* model)	Lithium-Ion	15.4 V	4Cell, 42Wh
	G71C000LN220 (PSZ2* model)	Lithium-Ion	15.4 V	4Cell, 42Wh
	G71C000LN410 (PSZ2*/PSZ3* model)	Lithium-Ion	15.4 V	4Cell, 42Wh
	G71C000LY110 (PSZ2*/PSZ3* model)	Lithium-Ion	15.4 V	4Cell, 42Wh

1.7.1 Main Battery

The main battery pack is the computer's main power source when the AC adaptor is not attached. The main battery maintains the state of the computer when the computer enters in sleep mode.

1.7.2 Battery Charging Control

Battery charging is controlled by a power supply microprocessor. The microprocessor controls whether the charge is on or off and detects a full charge when the AC adaptor and battery are attached to the computer.

❑ Battery Charge

When the AC adaptor is attached, the battery is charged. There are two types of charge depending on the power conditions: power on and power off. The following table lists the charging time required for charges.

Table 1-7 Time required for charges

Battery type	Power on (hours)	Power off (hours)
Battery pack (2Cell, 21Wh)	About 2.5	About 2.5 to 10.0
Battery pack (4Cell, 42Wh)	About 2.5	About 2.5 to 10.0

If any of the following occurs, the battery charge process stops.

1. The battery becomes fully charged.

2. The AC adaptor or battery is removed.

3. Output voltage from main battery or AC adapter is abnormal.

4. Charging current is abnormal.

❑ Data preservation time

When turning off the power in being charged fully, the preservation time is as follows.

Table 1-8 Data preservation time

Type of battery	Preservation time	
	Sleep	Shutdown/Hibernation
Main battery (2Cell, 21Wh)	About 2.5 days	About 40 days (PSZ1* model)
		About 35 days (PSZ2* model)
		About TBD days (PSZ3* model)
Main battery (4Cell, 42Wh)	About 5 days	About 40 days (PSZ1* model)
		About 35 days (PSZ2* model)
		About TBD days (PSZ3* model)

1.8 AC Adapter

The AC adapter is used to charge the battery. This model corresponds to USB-PD also.

The following table lists the AC adapter specifications.

Table 1-9 AC adapter specifications

Item	Specifications	
	Chicony	Liteon
	G71C000GZ610 (2-pin)	G71C000GX610 (2-pin)
Power	45W	
Input voltage	100V/240V	
Input frequency	50Hz to 60Hz	
Output voltage	19V±5%	19V±5%
Output current	2.37A (Peak 2.89A)	2.37A (Peak 2.89A)
Dimension (mm)	36(W) x 85(L) x 26.3(H) (Typ.)	36.5±1(W) x 87±1(L) x 25.4±1(H)
Cable length (mm)	1800±50	

Item	Specifications
	Chicony
	G71C000H0510 (3-pin)
Power	45W
Input voltage	100V/240V
Input frequency	50Hz to 60Hz
Output voltage	19V±5%
Output current	2.37A (Peak 2.89A)
Dimension (mm)	36(W) x 85(L) x 26.3(H) (Typ.)
Cable length (mm)	1800(±50)

< PSZ2*/PSZ3* model >

Item	Specifications	
	Chicony	Liteon
	G71C000GZ710/ G71C000GZ810 (2-pin)	G71C000GX710 (2-pin)
Power	45W	
Input voltage	100V/240V	
Input frequency	50Hz to 60Hz	
Output voltage	19V±5%	19V (Nominal)
Output current	2.37A (Peak 2.89A)	2.37A (Peak 2.89A)
Dimension (mm)	36(W) x 85(L) x 26.3(H) (Typ.)	36.5±1(W) x 87±1(L) x 25.4±1(H)
Cable length (mm)	1800±50	

Item	Specifications
	Chicony
	G71C000H0510 (PSZ2* model only) G71C000H0610 (3-pin)
Power	45W
Input voltage	100V/240V
Input frequency	50Hz to 60Hz
Output voltage	19V±5%
Output current	2.37A (Peak 2.89A)
Dimension (mm)	36(W) x 85(L) x 26.3(H) (Typ.)
Cable length (mm)	1800 ±50

< PSZ1* model >

Item	Specifications	
	Chicony	
	USB-PD	
	G71C000L1610 (2-pin)	G71C000L2510 (3-pin)
Power	45W	
Input voltage	100V/240V	
Input frequency	50Hz to 60Hz	
Output voltage	5～20 V (Normal)	
Output current	3A (Peak 3.5A) 2.25A (Peak 2.6A) (at 20V output)	
Dimension (mm)	63(W) x 63(L) x 28(H) (Typ.)	
Cable length (mm)	1800±50	

< PSZ2*/PSZ3* model >

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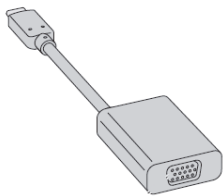| Item	Specifications	
	Chicony	
	USB-PD	
	G71C000LR210 (2-pin)	G71C000LS210 (3-pin)
Power	65W	
Input voltage	100V/240V	
Input frequency	50Hz to 60Hz	
Output voltage	5～20 V (Normal)	
Output current	3A (Peak 3.5A) 3.25A (Peak 3.75A) (at 20V output)	
Dimension (mm)	63(W) x 63(L) x 28(H) (Typ.)	
Cable length (mm)	1800±50	

1.9   USB Type-C Adapter

To expansion the PC functions, a USB Type-C adapter is prepared for this model.

The following table show the USB Type-C adapter specifications.

Table 1-10 USB Type-C adapter specifications

Rev.02

Item	Specifications
Maker	Goodway
Appearance	
Specifications	USB-C to VGA Adapter
Parts code	G83C000J6110 (PSZ1*/PSZ2* model) G83C000J6210 (PSZ1*/PSZ2* model) G83C000J6310
Functions	RGB/USB Type-C port (Power Delivery Charging)

Chapter 2

Troubleshooting Procedures

Chapter 2   Contents

Figures

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2.1 Troubleshooting

Chapter 2 describes how to determine which Field Replaceable Unit (FRU) in the computer is causing the computer to malfunction. (The "FRU" means the replaceable unit in the field.) The FRUs covered are:

1. Power supply

2. System Board

3. USB

4. M.2 SSD

5. Keyboard

6. Touch Pad (Click Pad)

7. Display (LCD)

8. Optical Disk Drive: Not used

9. LAN

10. Wireless LAN +Bluetooth

11. 3G/LTE: Not used

12. WiGig: Not used

13. Sound

14. Memory media (micro SD Card) slot

15. Fingerprint sensor

16. Web camera

17. HDMI port

18. USB Type-C adapter

The Test Program operations are described in Chapter 3. Detailed procedures for replacement are described in Chapter 4.

NOTE:

1.   Before exchanging a system board, write down the DMI information on TOP Menu. Register this DMI information after exchanging a system board by performing "DMI Entry utility" in the test program. For details, refer to "3.3 Entry of the DMI information".

2.   Also update with the latest EC/KBC by performing the test program or as described in Appendix H "EC/KBC Rewrite Procedures".

3.   After replacing the LCD, update with the latest EC/KBC as described in Appendix H "EC/KBC Rewrite Procedures" to set the SVP parameter.

There are following two types of connections in the figure of board and module connection in this chapter.

(1) Cable connection is described with lines in the figure.
(2) Pin connection is described with arrow in the figure.

< Sample figure of connection >
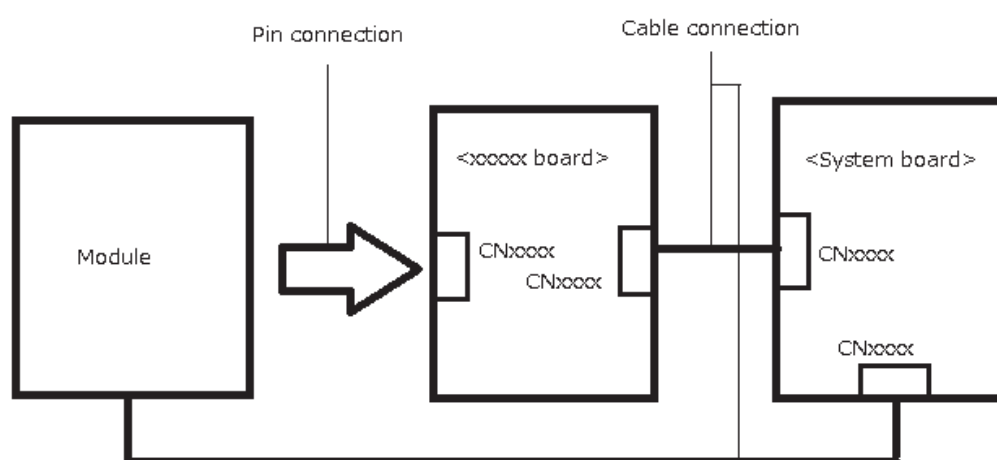
2.2   Troubleshooting Flowchart

Use the flowchart in Figure 2-1 as a guide for determining the troubleshooting procedures to execute. Before going through the flowchart steps, verify the following:

❑ Ask him or her to enter the password if a password is registered.

❑ Make sure that Windows is installed on the hard disk. Non-Windows operating systems can cause the computer to malfunction.

❑ Make sure all the optional equipment is removed from the computer.

START

Connect the AC adapter to the DC IN jack

Does DC IN/Battery icon glow? — No → Perform the Power Supply Troubleshooting Procedures in section 2.3.

Yes

Turn on the Power.

Does DC IN/Battery icon flash? — Yes → Perform the Power Supply Troubleshooting Procedures in section 2.3.

No

Is an error message displayed? — Yes → Perform the System Board Troubleshooting Procedures in section 2.4.

No

Is the startup logo displayed? — No → Perform the Display Troubleshooting Procedures in section 2.9.

Yes

If the "Password=" message appears, type the password.

Is Windows logo being loaded? — No → Perform the SSD Troubleshooting Procedures in section 2.6.

Yes

1

Figure 2-1 Troubleshooting flowchart (1/2)

Figure 2-1 Troubleshooting flowchart (2/2)

If the diagnostics program cannot detect an error, the problem may be intermittent. The Test program should be executed several times to isolate the problem. Check the Log Utilities function to confirm which diagnostic test detected an error(s), then perform the appropriate troubleshooting procedures as follows:

1. If an error is detected on the power supply, perform the power supply Troubleshooting Procedures in Section 2.3.

2. If an error is detected by error message or Memory test, perform the System Board Troubleshooting Procedures in Section 2.4.

3. If an error is detected on the USB, perform the USB Troubleshooting Procedures in Section 2.5.

4. If an error is detected on the HDD/ SSD test, perform the SSD Troubleshooting Procedures in Section 2.6.

5. If an error is detected on the Keyboard test, perform the Keyboard Troubleshooting Procedures in Section 2.7.

6. If an error is detected on the Touch Pad test, perform the Touch Pad Troubleshooting Procedures in Section 2.8.

7. If an error is detected on the LCD Panel test, perform the Display Troubleshooting Procedures in Section 2.9

8. If an error is detected on the Optical Disk Drive, perform the Optical Disk Drive Troubleshooting Procedures in Section 2.10. : Not used

9. If an error is detected on the functions related to LAN, perform the LAN Troubleshooting Procedures in Section 2.11.

10. If an error is detected on the functions related to Wireless LAN or Bluetooth, perform the Wireless LAN +Bluetooth Troubleshooting Procedures in Section 2.12.

11. If an error is detected on the 3G or LTE, perform the 3G/LTE Troubleshooting Procedures in Section 2.13.

12. If an error is detected on the WiGig, perform the WiGig Troubleshooting Procedures in Section 2.14. : Not used

13. If an error is detected on the Sound, perform the Sound Troubleshooting Procedures in Section 2.15.

14. If an error is detected on the Memory media (SD Card) Slot, perform the Memory media (SD Card) Slot Troubleshooting Procedures in Section 2.16.

15. If an error is detected on the Fingerprint sensor, perform the Fingerprint sensor Troubleshooting Procedures in Section 2.17.

16. If a malfunction is detected on the Web camera, perform the Web camera Troubleshooting Procedures in Section 2.18.

17. If a malfunction is detected on the HDMI port, perform the HDMI port Troubleshooting Procedures in Section 2.19.

18. If a malfunction is detected on the USB Type-C adapter, perform the USB Type-C adapter Troubleshooting Procedures in Section 2.20.

2.3   Power Supply Troubleshooting

The power supply controller controls many functions and components. To determine if the power supply is functioning properly, start with Procedure 1 and continue with the other Procedures as instructed. The procedures described in this section are:

Procedure 1:   Power Status Check

Procedure 2:   Error Code Check

Procedure 3:   Connection Check

Procedure 4:   Charging Check

Procedure 5:   Replacement Check

2.3.1 Procedure 1   Power Status Check

The following indicators indicate the PC and its power supply status:

❑ Power indicator

❑ DC IN/Battery indicator

Table 2-1   Power indicator

Power indicator	PC status
White	Indicates the computer is turned on.
Flashing Amber	Indicates that the computer is in Sleep Mode.
No light	Indicates that the computer is turned off or in Hibernation Mode.

The power supply controller displays the power supply status with the DC IN/Battery indicator as listed in the tables below.

Table 2-2   DC IN/Battery indicator

DC IN/Battery indicator	Power supply status
White	Indicates the AC adaptor is connected and the battery is fully charged.
Amber	Indicates the AC adaptor is connected and the battery is charging.
Flashing White	Indicates a problem with the computer.
Flashing Amber	Indicates the battery charge is low. The AC adaptor must be connected in order to recharge the battery.
No light	Indicates the AC adaptor is not connected In the case of other than the above, there might be a problem on the battery.

When the DC IN/Battery indicator is flashing white or turned off, perform the following procedure.

   1.   Remove the AC adapter to cut off the power.

   2.   Re-connect the AC adapter.

CAUTION:

·Use a supplied AC adapter, G71C000GX610 (2-pin), G71C000GZ610 (2-pin) or G71C000H0510 (3-pin), G71C000L1610 (2-pin, USB PD) or G71C000L2510 (3-pin, USB PD).

When the DC IN/Battery indicator is still flashing, go to Procedure 2.When the DC IN/Battery indicator is turned off, go to Procedure 3.

2.3.2 Procedure 2   Error Code Check

If the power supply microprocessor detects a malfunction, the DC IN /Battery indicator is flashing. The blink pattern indicates an error as shown below.

❑ Start   Off for 2 seconds

❑ Error code (8 bit)

   "1"   On for one second

   "0"   On for half second

   Interval between data bits   Off for half second

The error code begins with the least significant digit.

Example: Error code A2h (Error codes are given in hexadecimal format.)
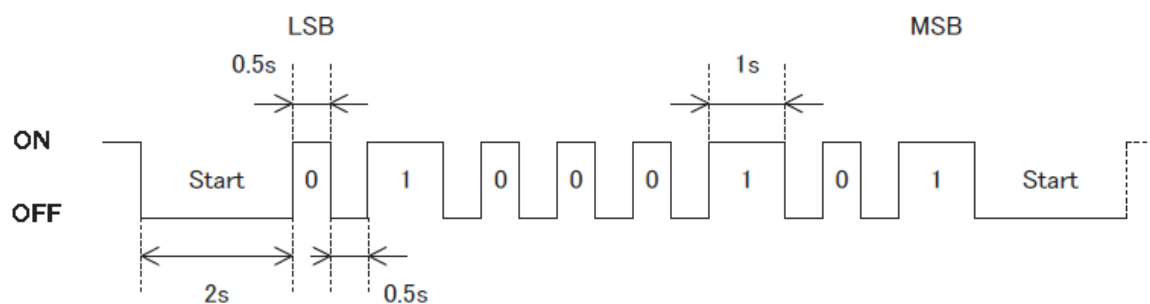
Check 1   Convert the flashing pattern of the DC IN /Battery indicator into the hexadecimal error code and compare it to the tables below to clarify the cause of error.

Table 2-3   Error code (1/2)

Abnormal content	Error code	Meaning
AC adapter 0 [A] correction value exception	10h	When an error is detected $\&$ 400mA $\leqq$ A/D Current value - Default value
AC adapter DC supply current rating over	11h	AC adapter connection $\&$ AC adapter current value> DC-In normal current upper limit
AC adapter DC supply current no load over	12h	AC adapter connection $\&$ All power off & stop charging & AC adapter current value> 0.5A
System input voltage abnormal Rating over	13h	System input voltage (PVT-EFV) > 24V
Dock AC adapter Rating over	14h	Dock AC adapter voltage value > DC-In normal current upper limit
E system power supply Abnormal output power-up	20h	On the power sequence, PCNFEV signal assert wait 1s time-out occurs
E system power supply Power On steady state Abnormal output	21h	Power On steady state PCNFEV signal de-asserted
E system power supply Power Off steady state Abnormal output (no output)	22h	Power off the steady state and EVON signal when asserted, PCNFEV signal de-asserted
E system power supply Power Off steady state Abnormal output (with output)	23h	Power off the steady state and EVON signal when de-asserted, PCNFEV signal asserted
B system power supply Abnormal output at power-up	30h	On the power sequence, PCNFBV signal assert wait 1s time-out occurs
B system power supply Power On steady state Abnormal output	31h	Power On steady state PCNFBV signal de-asserted
B system power supply Power Off steady state Abnormal output (no output)	32h	Power off the steady state and BVON signal when asserted, PCNFBV signal de-asserted
B system power supply Power Off steady state Abnormal output (with output)	33h	Power off the steady state and BVON signal when de-asserted, PCNFBV signal asserted

Table 2-3   Error code (2/2)

Abnormal content	Error code	Meaning
PPV system power supply Abnormal output power-up Abnormal output	40h	On the power sequence, PCNFPV signal assert wait 1s time-out occurs
PPV system power supply Power On steady state Abnormal output	41h	Power On steady state PCNFPV signal de-asserted
PPV system power supply Power Off steady state Abnormal output (with output)	43h	Power off the steady state and PCNFPV signal asserted
Other P system power supply Abnormal output power-up	50h	On the power sequence, OPGODD signal assert wait 1s time-out occurs
Other P system power supply Power On steady state Abnormal output	51h	Power On steady state OPGODD signal de-assert
Other P system power supply Power Off steady state Abnormal output (with output)	53h	Power off the steady state and OPGODD signal assert

2.3.3 Procedure 3   Connection Check

The wiring diagram related to the power supply is shown below:
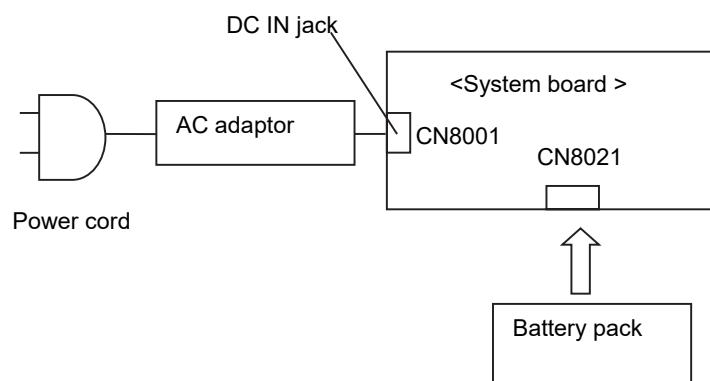
Check 1   Check if Power cord and AC adaptor are connected firmly each other and to the outlet and computer. If any connection is loose, connect it firmly and go to Procedure 1. Though these cables are connected firmly, the DC IN Battery/LED doesn't light, go to Procedure 4.

2.3.4 Procedure 4   Charging Check

Check if the battery pack is charged properly by performing the following procedures:

Check 1   The battery pack may be completely discharged. Wait a few minutes to charge the battery pack while connecting the AC adapter to the computer. If the battery pack is still not charged, go to Check 2.

Check 2   The battery's temperature is too high or low. Leave the battery for a while to adjust it in the right temperature. If the battery pack is still not charged, go to Procedure 5.

2.3.5 Procedure 5   Replacement Check

The power is supplied to the system board by the AC adapter or the battery pack. One of them may be damaged so perform the following Checks.

To disassemble the computer, follow the steps described in Chapter 4, *Replacement Procedures*.

Check 1   AC adapter may be faulty. Replace the AC adapter with a new one. If the problem still occurs, perform Check 2.

Check 2   Battery pack may be disconnected. Disassemble the computer and connect surely the battery pack to the system board. If the problem still occurs, perform Check 3.

Check 3   Battery pack may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4.

Check 4   System board may be faulty. Replace it with a new one.

2.4   System Board Troubleshooting

This section describes how to determine if the system board is malfunctioning or not. Start with Procedure 1 and continue with the other procedures as instructed. The procedures described in this section are:

Procedure 1:   Message Check

Procedure 2:   Diagnostic Test Program Execution Check

Procedure 3:   Replacement Check

2.4.1 Procedure 1   Message Check

When the power is turned on, the system performs the Initial Reliability Test (IRT) installed in the BIOS ROM. The IRT tests each IC on the system board and initializes it.

❑ If an error message is shown on the display, perform Check 1.

❑ If there is no error message, go to Procedure 2.

Check 1   If one of the following error messages is displayed on the screen, press a key or button specified by the message.

If you press the key or button, the SETUP screen will appear. Set the correct date and time. If the following error message appears often at power-on, replace the battery pack or RTC battery (if RTC battery is installed).

If any other error message other than below is displayed, perform Check 2.

```
(a)    **** Date and Time reset to default ****
       Press [F2] key to set Date and Time.
(b)    **** Date and Time reset to default ****
       Press Windows button to set the Date/Time in OS.
(c)    **** Date and Time reset to default ****
       Press ENTER to set Date and Time.
```

Check 2   If the following error message is displayed on the screen, perform Check 3. If any other error message is displayed, perform Procedure 3.

```
Insert system disk in drive.
Press any key when ready....
Please check if the Boot Mode is correct in the BIOS
settings.
The BIOS settings menu is launched by pressing the [F2]
key after you reboot.
```

Check 3   A device without any system information is installed and it may be designated as the boot device. Remove the device, press any key and reboot the computer. At the reboot, press **F2** to display the BIOS setup screen. Set the correct boot device and repeat Procedure 1. If any error occurs or any device is not installed, go to Procedure 2.

2.4.2 Procedure 2   Diagnostic Test Program Execution Check

Perform the test program for maintenance to determine the cause. Refer to Chapter 3, *Tests and Diagnostic,* for more information on how to perform the tests.

If any error is detected during the tests, go to Procedure 3.

2.4.3 Procedure3 Replacement Check

Perform the trouble shooting procedure for the device which doesn't pass the test program. Refer to 2.5 *USB Troubleshooting* or later for details.

If the system board is faulty and replacement is needed, disassemble the computer following the steps described in Chapter 4, *Replacement Procedures.* When replacing, please note the followings.

NOTE: *Before exchanging a system board, write down the DMI information on TOP Menu of the test program. After the exchange, register the DMI information to the new system board according to Chapter 3.*

At that time, update the BIOS and EC/KBC to the latest ones.

2.5 USB Troubleshooting

To check if the USB is malfunctioning or not, follow the troubleshooting procedures below as instructed.

> Procedure 1: Reading check of data
>
> Procedure 2: Replacement Check of USB unit
>
> Procedure 3: Connector Check and Replacement Check

2.5.1 Procedure 1 Reading check of data

NOTE: Be sure to check the USB unit condition with care for the followings.

> *1. USB unit is not loosening.*
>
> *2. USB unit is connected straight to the connector.*
>
> *3. USB unit is connected fully in the connector.*
>
> *4. USB unit or connector is not broken.*

Insert the USB unit to the computer and check if the data in the USB unit can be read. This check should be done on all the USB connectors.

If the data cannot be read, confirm that the USB unit is firmly connected to the connector. If the problem still occurs, go to Procedure 2.

2.5.2 Procedure 2 Replacement Check of USB unit

Check 1 USB unit may be faulty. Replace it with a new one. If the problem still occurs, go to Procedure 3.

2.5.3 Procedure 3   Connector Check and Replacement Check

USB connectors are mounted on USB board/LTE board or system board and both the boards are connected with a cable. The connection of the cable and boards may be loosening. Otherwise, they may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks.

If the error is detected on Type-A connector, go to Check 1. If the error is detected on Type-C connector, go to Check 4.
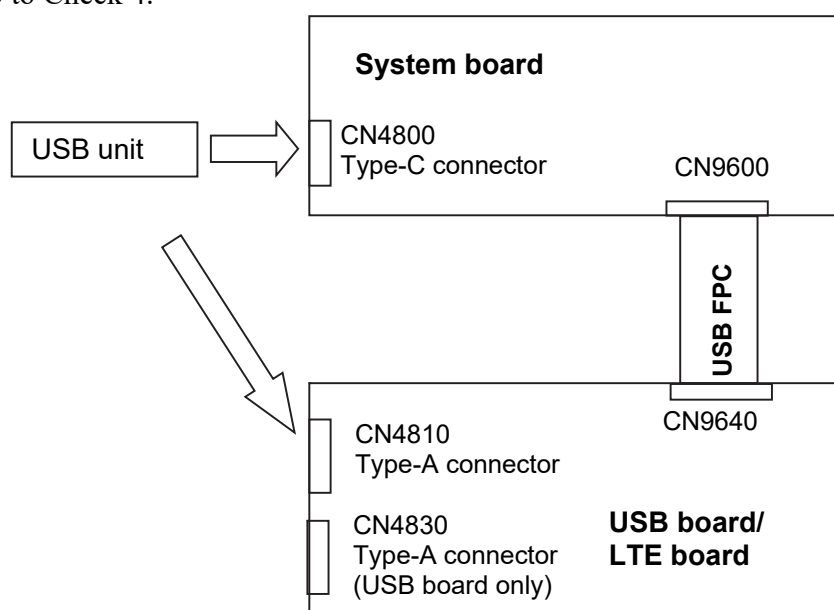
Check 1   Make sure the USB FPC is firmly connected to the boards. If the connection is loose, connect it firmly and repeat Procedure 1.
If the problem still occurs, go to Check 2

Check 2   USB FPC may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

Check 3   USB board/LTE board may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4.

Check 4   System board may be faulty. Replace it with a new one.

2.6   SSD Troubleshooting

To check if the M.2 SSD is malfunctioning or not, follow the troubleshooting procedures below as instructed.

> Procedure 1:   Diagnostic Test Program Execution Check
>
> Procedure 2:   Connection Check
>
> Procedure 3:   Replacement Check

CAUTION: *The contents of the hard disk/SSD will be erased when the test program for the hard disk/SSD is performed. Transfer the contents of the hard disk/SSD to other storage drive(s). For the backup, refer to the User's Manual.*

2.6.1 Procedure 1   Diagnostic Test Program Execution Check

The test program for HDD/SSD is stored in the Diagnostic Test Program. Perform all of the items in the HDD/SSD Test. Refer to Chapter 3, *Tests and Diagnostics,* for more information.

If any error is detected, go to Procedure 2.

2.6.2 Procedure 2   Connection Check

The M.2 SSD is connected to the system board. The connection between them may be loose. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* to check the connection.

Check 1   Make sure the M.2 SSD is connected firmly to the connector on the system board.
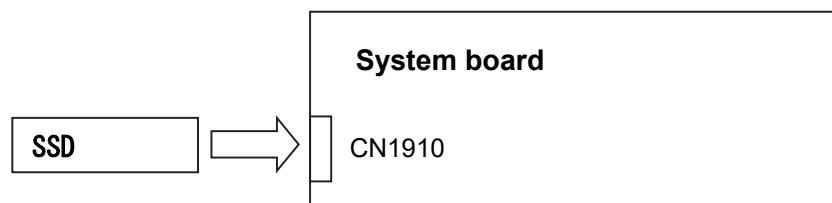
```
                                    ┌─────────────────────────┐
                                    │  System board           │
                                    │                         │
         ┌──────────┐     ┌──▷      │  CN1910                 │
         │  SSD     │     │         │                         │
         └──────────┘     └──       │                         │
                                    └─────────────────────────┘
```

If the connection is loose, reconnect it firmly and repeat Procedure 1. If there is still an error, go to Procedure 3.

2.6.3 Procedure 3   Replacement Check

Check 1   The M.2 SSD may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures* and check the operation. If the problem still exists, perform Check 2.

Check 2   System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.7 Keyboard Troubleshooting

To check if the computer's keyboard is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Diagnostic Test Program Execution Check and Check on Windows

Procedure 2: Connector Check and Replacement Check

2.7.1 Procedure 1   Diagnostic Test Program Execution Check and Check on Windows

Execute the Keyboard Test in the Diagnostic Program. Refer to Chapter 3, *Tests and Diagnostics*, for more information on how to perform the test program.

To check the keyboard backlit, press **Fn+Z** after starting Windows. By repeating the key operation twice, turn-on and –off of the keyboard illumination function can be checked.

If an error occurs, go to Procedure 2. If an error does not occur, keyboard is functioning properly.

2.7.2 Procedure 2   Connector Check and Replacement Check

The connection between the keyboard and system board may be loosening. Or the keyboard or system board may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   Make sure keyboard cable is firmly connected to the connectors on both the system board and keyboard.
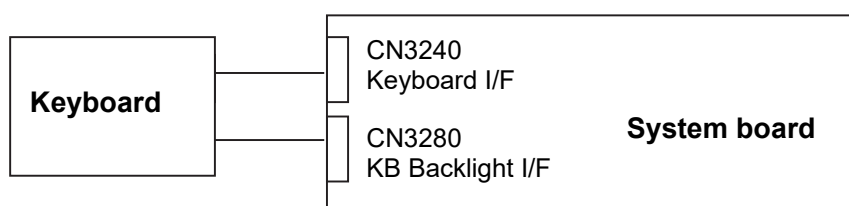
If any connection is loose, reconnect firmly and repeat Procedure 1. If the problem still occurs, go to Check 2.

Check 2   Keyboard may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 3.

Check 3   System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.8   Touch Pad (Click pad) Troubleshooting

To check if the computer's Touch Pad (or Click pad. Herein after referred to as Touch Pad) is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Diagnostic Test Program Execution Check

Procedure 2:   Connector Check

Procedure 3:   Replacement Check

2.8.1 Procedure 1   Diagnostic Test Program Execution Check

Execute the subtest for the touch pad in Keyboard test of the Diagnostic Program. Refer to Chapter 3, *Tests and Diagnostics*, for more information.

If an error occurs, go to Procedure 2. If an error does not occur, Touch Pad is functioning properly.

2.8.2 Procedure 2   Connector Check

The connection between the Touch Pad and the system board may be loose.

Check 1   Touch pad is connected to the system board as shown below. As any connection between the touch pad and the system board may be defective, disassemble the computer referring to the steps in Chapter 4, *Replacement Procedures* and reconnect each part firmly.

FP FFC (Only for Secure pad)
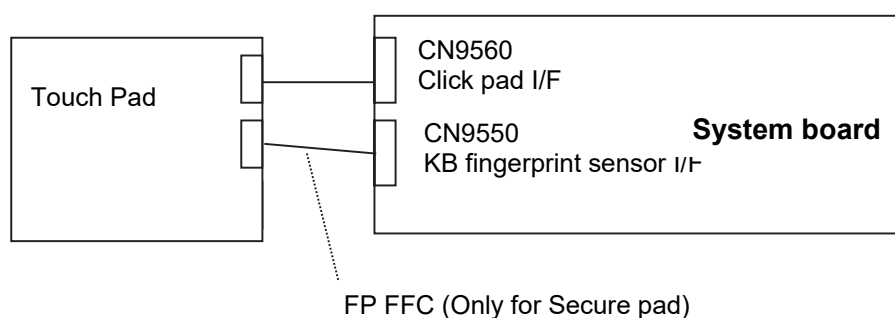
If the problem still occurs, go to Procedure 3.

2.8.3 Procedure 3   Replacement Check

> *NOTE:*   *Exchange the system board first as the Touch pad is installed with double-sided tape and it is impossible to reuse.*

Check 1   System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 2.

Check 2   Touch Pad or the cable(s) may be faulty. Replace them with new ones one by one following the steps in Chapter 4, *Replacement Procedures*.

2.9   Display (LCD) Troubleshooting

This section describes how to determine if the computer's display is functioning properly.

To check the touch function, start with Procedure 1. To check the display function, start with Procedure 2.

Procedure 1:   Diagnostic Test Program Execution Check

Procedure 2:   Connector Check and Replacement Check

2.9.1 Procedure 1   Diagnostic Test Program Execution Check

Execute the LCD panel test in the Diagnostic Program. Refer to Chapter 3, *Tests and Diagnostics*, for more information on how to perform the test program.

If any error occurs during the test program, go to Procedure 3. If not, both the LCD should work properly.

2.9.2 Procedure 3   Connector Check and Replacement Check

The connection between the display (LCD) and system board may be loosening or either may be defective. Disassemble the computer referring to the steps in Chapter 4, *Replacement Procedures* and check the followings.

Check 1   Make sure the cable (LCD HARNESS) is securely connected to the connectors on the display and the system board.

LCD HARNESS

```
                                  LCD HARNESS
                                      |
  +-----------------+         +-------------------------------+
  |                 |         |                               |
  |  LCD          [ ]---------[ ] CN5390                       |
  |                 |         |                               |
  +-----------------+         |          System board         |
                              +-------------------------------+
```

If the connection is loose, reconnect it firmly. If there is still an error, go to Check 2.

Check 2   The cable may be damaged. Replace it with a new one and go to Procedure 2 to test the display again. If the problem still exists, perform Check 3.

Check 3   The display may be damaged. Replace it with a new one and go to Procedure 2 to test the display again. If the problem still exists, perform Check 4

Check 4   The display controller on the system board may be damaged. Replace the system board with a new one.

2.10 Optical Disk Drive Troubleshooting: Not used

To check if optical disk drive is malfunctioning or not, follow the troubleshooting procedures below as instructed.

> Procedure 1:   Diagnostic Test Program Execution Check
>
> Procedure 2:   Connector Check and Replacement Check

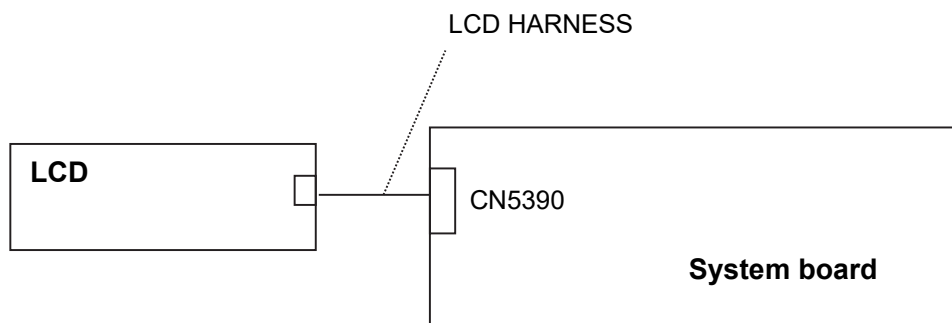### 2.10.1 Procedure 1   Diagnostic Test Program Execution Check

As for the CD-ROM-type test program, the test to check the Optical Disk Drive function is prepared. Execute that test program. Refer to Chapter 3, *Tests and Diagnostics*, for more information on how to perform the test program.

As for the USB memory-type test program, the test to check the Optical Disk Drive function is not prepared. So check if the Optical Disk Drive is working properly by using the function of Windows.

If any error is detected, go to Procedure 2.

2.10.2 Procedure 2   Connector Check and Replacement Check

The SATA ODD may be disconnected, or the SATA ODD or system board may be damaged. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

Check 1   Make sure the SATA ODD is firmly connected to the connector on the system board.

                 If any of the connections are loose, reconnect firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2   The SATA ODD or FPC (FASROD0*) may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 3.

Check 3   System board may be faulty. Replace it with new one following the instructions in Chapter 4, *Replacement Procedure*.

2.11 LAN Troubleshooting

To check if the computer's LAN is malfunctioning or not, follow the troubleshooting procedures below as instructed.

    Procedure 1:   Check on Windows

    Procedure 2:   Connector Check and Replacement Check

2.11.1 Procedure 1 Check on Windows

To check if the LAN function is working properly, use a function on Windows.

If any error is found, go to Procedure 2.

2.11.2 Procedure 2 Connector Check and Replacement Check

LAN cable is connected to USB board/LTE board. If LAN malfunctions, the connection of the cable and boards may be defective. Otherwise, they may be faulty.
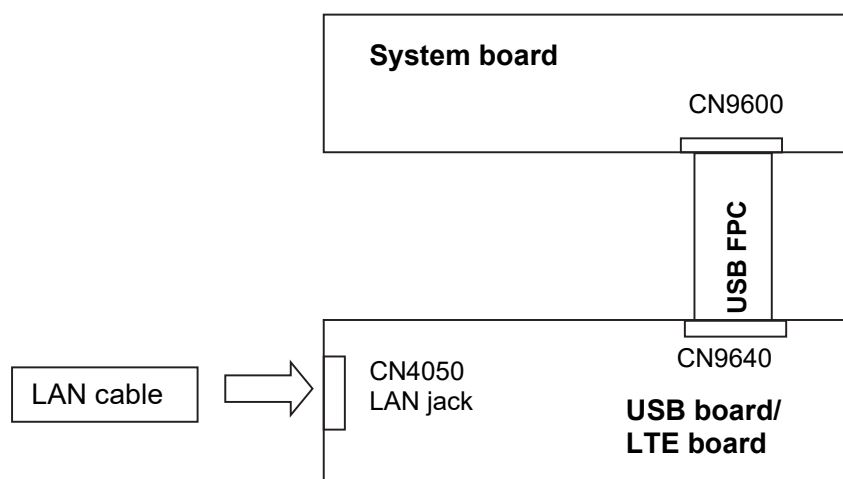
Check 1   Make sure LAN cable is firmly connected to the LAN jack on the USB board/LTE board. If the problem still occurs, perform Check 2.

Check 2   LAN cable may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

Check 3   Make sure the USB FPC is firmly connected to the boards following the instruction in Chapter 4, *Replacement Procedure*. If the connection is loose, connect it firmly. If the problem still occurs, go to Check 4

Check 4   USB FPC may be faulty. Replace it with a new one. If the problem still occurs, perform Check 5.

Check 5   USB board/LTE board may be faulty. Replace it with a new one. If the problem still occurs, perform Check 6.

Check 6   USB board/LTE board or USB FPC may be faulty. Replace it with a new one. If the problem still occurs, perform Check 7.

Check 7   System board may be faulty. Replace it with a new one following the instruction in Chapter 4, *Replacement Procedure*.

2.12 Wireless LAN +Bluetooth Troubleshooting

To check if the computer's wireless LAN +Bluetooth module is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Module/Antennas' Check

Procedure 2:   Connection Check

Procedure 3:   Replacement Check

2.12.1 Procedure 1   Module/Antennas' Check

Check 1   Since the test program for the Wireless LAN and Bluetooth is not prepared in the test program, check if the module and antenna of Wireless LAN/Bluetooth are recognized on Windows OS. Refer to Chapter 3 for more information about that.

If there is no problem, Wireless LAN/Bluetooth function should work properly. If there is any error, perform Procedure 2.

2.12.2 Procedure 2   Connection Check

The wireless LAN/Bluetooth module's wiring diagram is shown below:
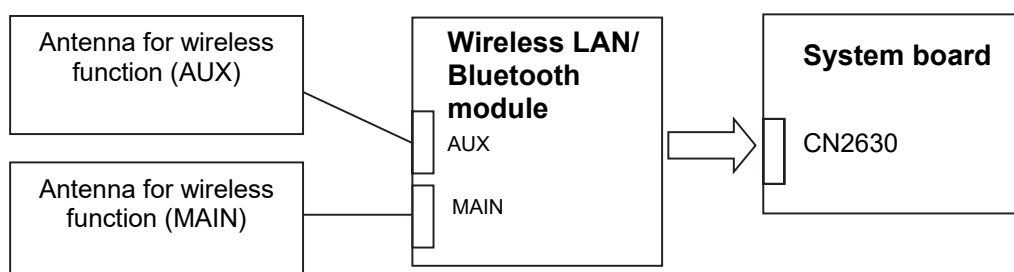
Any of the connections may be defective. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   Make sure Wireless LAN/Bluetooth Combo module is firmly connected to the connector on the system board. If the connection is loose, connect it firmly and perform Procedure 1. If the problem still occurs, perform Check 2.

Check 2   Make sure that the antenna cables for wireless function (MAIN, AUX) are firmly connected to the connectors on the module. If the cables are not connected properly, connect them firmly to the correct position and perform Procedure 1. If the problem still occurs, go to the procedure 3.

2.12.3 Procedure 3   Replacement Check

Wireless LAN/Bluetooth module, antenna for wireless function or system board may be faulty. Refer to Chapter 4, *Replacement Procedures,* for instructions on how to disassemble the computer and then perform the following checks:

Check 1   Wireless LAN/Bluetooth Combo module may be faulty. Replace it with a new one. If the problem still occurs, perform Check 2.

Check 2   The antennas for wireless function may be faulty. Replace them with new ones. If the problem still occurs, perform Check 3.

Check 3   System board may be faulty. Replace it with a new one.

2.13 3G/LTE Troubleshooting

This section describes how to determine if the computer's 3G/LTE is functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

> Procedure 1:   Module Installation Check
>
> Procedure 2:   Antenna/Connector Check
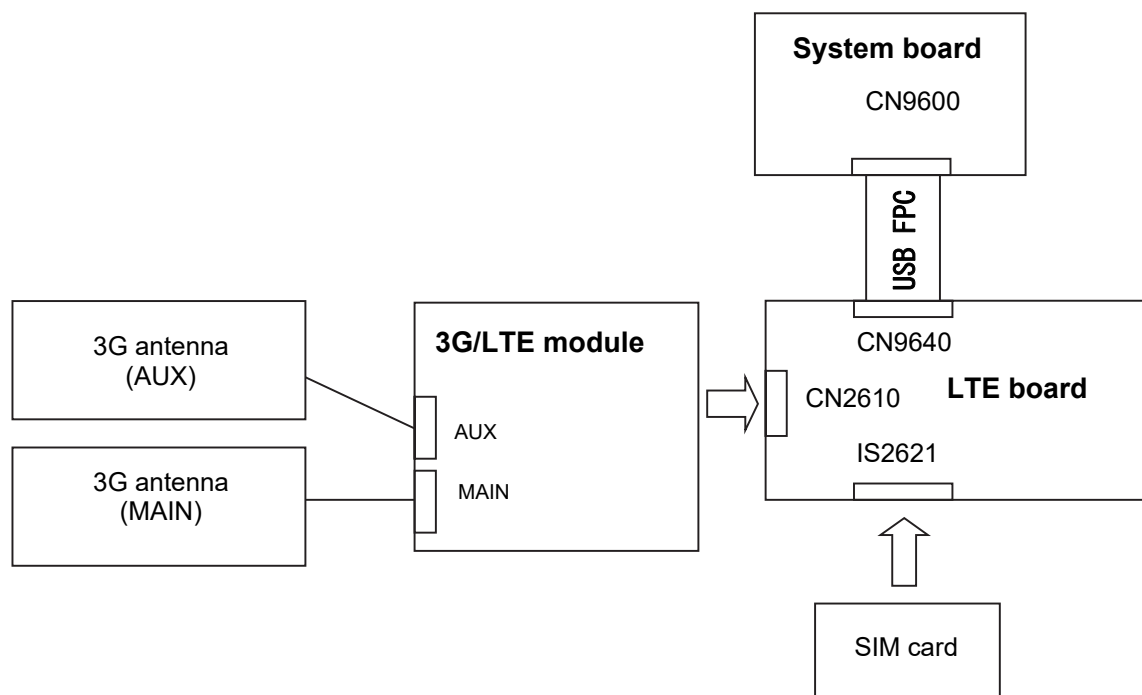>
> Procedure 3:   Replacement Check

2.13.1 Procedure 1   Module Installation Check

Check 1   This procedure checks if the 3G/LTE module can be found on the Windows application. Refer to Chapter 3 for more information about that.

If any problem is found on that check, perform Procedure 2.

2.13.2 Procedure 2   Antenna/Connector Check

The 3G/LTE module, antennas and SIM card wiring diagram is shown below:

```
                                          ┌─────────────────────┐
                                          │   System board      │
                                          │                     │
                                          │     CN9600          │
                                          └──────────┬──────────┘
                                                     │
                                                   USB FPC
                                                     │
  ┌──────────────────┐   ┌─────────────────┐   ┌────┴────────────────┐
  │  3G antenna      │   │  3G/LTE module  │   │    CN9640           │
  │    (AUX)         │   │                 │   │                     │
  │                  │   │      AUX        │⇒  │  CN2610   LTE board  │
  └──────────────────┘   │                 │   │                     │
  ┌──────────────────┐   │     MAIN        │   │    IS2621           │
  │  3G antenna      │   │                 │   └──────────┬──────────┘
  │    (MAIN)        │   └─────────────────┘              │
  └──────────────────┘                          ┌─────────┴─────────┐
                                                │    SIM card       │
                                                └───────────────────┘
```

Any of the connections may be defective. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   SIM card may not be firmly inserted. Remove it once and re-insert it surely. Then perform Procedure 1 again. If the problem still exists, perform Check 2.

Check 2   The connection between 3G/LTE module and LTE board may be loose. Connect 3G/LTE module surely to the LTE board. Then perform Procedure 1 again. If the problem still exists, perform Check 3.

Check 3   The connection of LTE antenna cables (MAIN, AUX) may be loose or connected connector is wrong. Connect LTE antenna cables correctly to the 3G/LTE module. Then perform Procedure 1 again. If the problem still exists, perform Check 4.

Check 4   The LTE board is connected to the system board with USB FPC. The connection between them may be loose. Connect each board and the cable firmly, and perform Procedure 1 again. If the problem still exists, go to procedure 3.

2.13.3 Procedure 3   Replacement Check

The SIM card or SIM tray may be defective or damaged. Replace it new one.

If the problem still exists, 3G/LTE module, antenna, LTE board, USB FPC, or system board may be faulty. Refer to Chapter 4, *Replacement Procedures,* for instructions on how to disassemble the computer and then perform the following checks:

Check 1   3G/LTE module may be defective or damaged. Replace it with a new one and perform Procedure 1 again. If the problem still exists, perform Check 2.

Check 2   LTE board may be defective or damaged. Replace it with a new one and perform Procedure 1 again. If the problem still exists, perform Check 3.

Check 3   USB FPC may be defective or damaged. Replace it with a new one and perform Procedure 1 again. If the problem still exists, perform Check 4 5.

Check 5   Antennas may be defective or damaged. Replace them with new ones and perform Procedure 1 again. If the problem still exists, perform Check 6.

Check 6   System board may be defective or damaged. Replace it with a new one.

2.14 WiGig Troubleshooting: Not used

To check if the computer's WiGig function is malfunctioning or not, follow the troubleshooting procedures below as instructed.

> Procedure 1:   Module Installation Check
>
> Procedure 2:   Antennas/Connectors Check
>
> Procedure 3:   Replacement Check

> *NOTE:*   *Since the Wireless LAN function is also installed in the WiGig module, the MAC address should be changed if this module is replaced to new one. It is recommended to inform this information to the user if the replacement is needed.*

2.14.1 Procedure 1   Module Installation Check

Check 1   This procedure checks if the WiGig module can be found on the Windows application. Refer to Chapter 3 for more information about that.

If the computer has no problem on that check, WiGig function works correctly. If any problem is found on that check, perform Procedure 2.

2.14.2 Procedure 2   Antennas/Connectors Check

The WiGig module and antennas' wiring diagram is shown below:
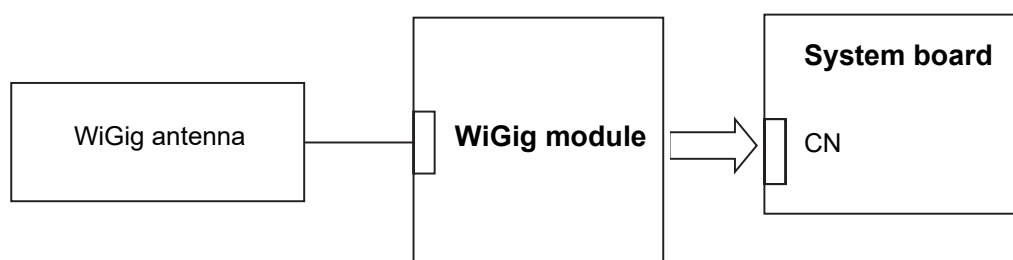
Any of the connections may be defective. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   Make sure that WiGig module is firmly connected to the connector on the system board. If the connection is loose, connect it firmly and perform Procedure 1. If the problem still occurs, perform Check 2.

Check 2   Make sure that WiGig antenna cable is firmly connected to the correct connector on the WiGig module. If the cable is not connected properly, or connected to another connector, connect it to the correct connector firmly and perform Procedure 1. If the problem still occurs, go to the procedure 3.

2.14.3 Procedure 3   Replacement Check

WiGig module, WiGig antenna or system board may be faulty. Refer to Chapter 4, *Replacement Procedures,* for instructions on how to disassemble the computer and then perform the following checks:

Check 1   WiGig module may be faulty. Replace it with a new one. If the problem still occurs, perform Check 2.

Check 2   WiGig antenna may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

Check 3   The system board may be faulty. Replace it with a new one.

2.15 Sound Troubleshooting

To check if the sound function is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Check on Windows

Procedure 2:   Connector Check

Procedure 3:   Replacement Check
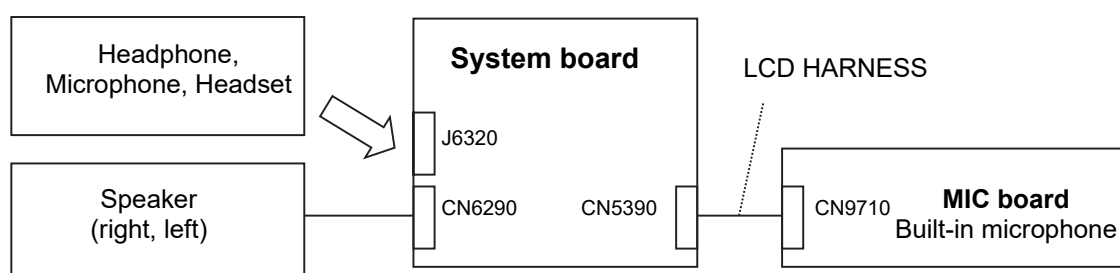
2.15.1 Procedure 1   Check on Windows

To check if the sound function is working properly, play a music file on Windows and check functions related to sound.

If any error is found, go to Procedure 2.

2.15.2 Procedure 2   Connector Check

The connection of sound system is shown in the following figure.

As the connection may be defective, disassemble the computer and check each connection first.

❑ If headphone, microphone or headset does not work properly, reconnect it surely. If there is still problem, perform Check 1 of Procedure 3.

❑ If speaker (right or left) does not work properly, perform Check 2 of Procedure 3.

❑ If built-in microphone (Web camera) does not work properly, perform Check 3 of Procedure 3.

2.15.3 Procedure 3   Replacement Check

Check 1   Headphone, microphone or headset may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4.

Check 2   Speaker (Right, Left) may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 4.

Check 3   The built-in microphone (on MIC board) or LCD HARNESS may be faulty. Replace them with new ones in order following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 4.

Check 4   System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures.*

2.16 Memory media (SD Card) Slot Troubleshooting

This section describes how to determine if the computer's Memory media (SD Card) functions are functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

Procedure 1:   Check on Windows OS

Procedure 2:   Connector Check and Replacement Check

2.16.1 Procedure 1 Check on Windows OS

Insert a micro SD Card into the slot. Check if the Windows recognizes automatically the micro SD Card and the data in the micro SD Card can be read.

If the card is not recognized or data are not read, go to Procedure 2.

2.16.2 Procedure 2 Connector Check and Replacement Check

The Memory media (micro SD Card) connection is shown in the following figure.
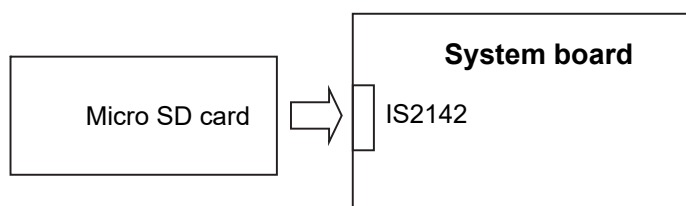
Check 1   Memory media (micro SD Card) may be disconnected. Make sure the Memory media is firmly inserted to the SD card slot. If not, insert it firmly. If the Memory media is still not functioning properly, perform Check 2.

Check 2   Memory media (micro SD Card) may be faulty. Replace it with a new one. If the problem continues, perform Check 3.

Check 3   System board may be faulty. Replace it with a new one following the step in Chapter 4 *Replacement Procedures*.

2.17 Fingerprint sensor Troubleshooting

CAUTION: *To delete the account for confirming the fingerprint operation, it is necessary to log on the account for the management authority. If the sign-in password has been set, ask the password to the user beforehand.*

To check if the Fingerprint sensor works correctly or not, follow the troubleshooting procedures below as instructed.

When failed in Procedure 1 to Procedure 3, execute Procedure 4.

NOTE: *When you register your fingerprint data for operation check, clear the data after the check. To clear it, refer to the User's manual.*
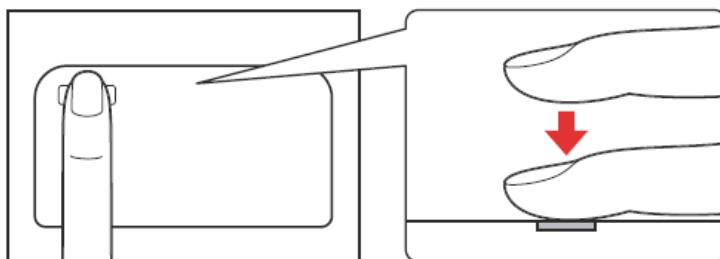
> Procedure 1: Setting Windows sign-in password
>
> Procedure 2: Registration of PIN and fingerprint
>
> Procedure 3: Authentication of fingerprint
>
> Procedure 4: Connector Check and Replacement Check

NOTE: *Scan your finger as shown below.*
Straight your finger and touch the center of the fingerprint sensor lightly and lift your finger.

2.17.1 Procedure 1 Setting Windows sign-in password

To use the fingerprint functions, registration of your fingers on "Windows Hello" after setting the Windows sign-in password and PIN.

2.17.2 Procedure 2 Registration of Pin and fingerprint

As for the registration of the fingerprint information, refer to the User's manual.

2.17.3 Procedure 3 Authentication of fingerprint

1. Turn on the computer.

2. Touch your registered finger on the fingerprint sensor and lift it.
   When your fingerprint is authenticated, you can sign-in Windows.

If you fail this authentication continually five times, you can not use the fingerprint authentication. In that case, type the password to sign in to Windows. If you want to type the password on the finger print authentication screen, press **BACKSPACE**.

2.17.4 Procedure 4   Connector Check and Replacement Check

The fingerprint sensor is installed in the Secure Pad (Touch pad) and touch pad is connected as follows.
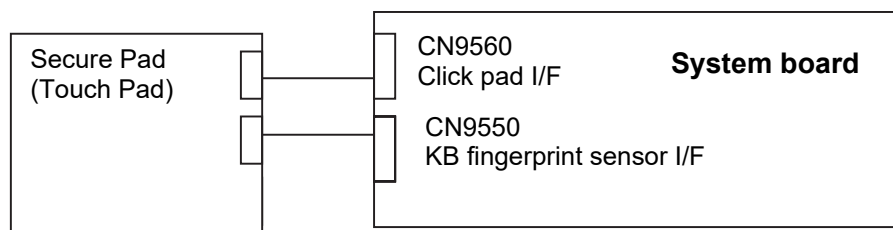
```
┌─────────────┐        ┌──────────────────────────────────────┐
│             │      ┌┤ CN9560                                │
│ Secure Pad  │┌─┐   └┤ Click pad I/F      System board       │
│ (Touch Pad) ││ ├────┤                                       │
│             │└─┘  ┌─┤ CN9550                                 │
│             │┌─┐  │ │ KB fingerprint sensor I/F             │
│             ││ ├──┘ │                                       │
│             │└─┘    │                                       │
└─────────────┘        └──────────────────────────────────────┘
```

Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   The connection between Secure Pad and System board may be loose. Make sure the cables are firmly connected to both the Secure pad and system board. If the problem still occurs, go to Check 2.

Check 2   The cables may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

Check 3   The system board may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4.

> *NOTE:*   *Exchange the system board first as the Secure pad is stuck with double-sided tape and it is impossible to reuse.*

Check 4   The Secure pad may be faulty. Replace it with a new one.

2.18 Web camera Troubleshooting

To check if the computer's web camera is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Check on Windows OS

Procedure 2:   Connector Check and Replacement Check
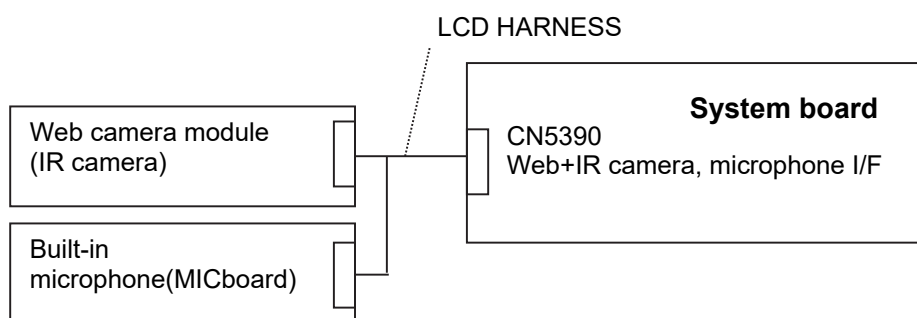
2.18.1 Procedure 1   Check on Windows OS

Use the application software which is originally installed in the computer to check if the web camera can record/replay still images and moving images (including sound) without problems.

If any troubles occur on recording/replaying of still or moving images, perform Procedure 2.

2.18.2 Procedure 2   Connector Check and Replacement Check

The connection among the web camera, MIC board (built-in microphone) and the system board may be defective. Otherwise, they may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks.

Check 1   Make sure LCD HARNESS is firmly connected to the system board, Web camera module and the MIC board. Then perform Procedure 1 again. If the problem still occurs, perform Check 2.

LCD HARNESS

```
                                          ┌──────────────────────────────────┐
                                          │            System board          │
┌──────────────────────────┐             │  CN5390                           │
│ Web camera module        │──────┐──────│  Web+IR camera, microphone I/F    │
│ (IR camera)              │      │      │                                   │
└──────────────────────────┘      │      └──────────────────────────────────┘
┌──────────────────────────┐      │
│ Built-in                 │──────┘
│ microphone(MICboard)     │
└──────────────────────────┘
```

Check 2   Web camera module, MIC board or LCD HARNESS may be faulty. Referring to error condition, replace them with new ones and perform Procedure 1 again. If the problem still occurs, perform Check 3

Check 3   System board may be faulty. Replace it with a new one.

2.19 HDMI port Troubleshooting

To check if the computer's HDMI port is malfunctioning or not, follow the troubleshooting procedures below as instructed.

      Procedure 1:   Check on HDMI TV

      Procedure 2:   Connector Check and Replacement Check

2.19.1 Procedure 1 Check on HDMI TV

Connect a HDMI-compatible TV to the HDMI output port. If the HDMI port works, a desktop screen of Windows will appear on the TV display. Also the sound made on Windows will be output via the TV.

Connecting to the computer

1. Plug one end of the HDMI cable into the HDMI out port of the HDMI TV.

2. Turn on the power of the TV.

3. Plug the other end of the HDMI cable into the HDMI port on the PC.

Switching the sound output from computer's speakers to TV

If the sound will not be output from the connected TV automatically, the following setting change is needed.

1. Click [Start] button.

2. Click [Windows system tool] -> [Control panel].

3. Click [Hardware and Sound] -> [Sound].
    [Sound] screen will appear.

4. On [Replay] tab, select the item with TV icon and click [Set as default] button.

5. Click [OK] button.

## Switching the image output from computer's screen to TV

When you press **F5**, the screen for selecting the device to show image will appear.

Select [Second screen only]. Then check if the desktop image is shown on the TV.

If any problem occurs on sound and image output, perform Procedure 2.

2.19.2 Procedure 2 Connector Check and Replacement Check

The connection between the TV and the system board may be defective. Otherwise, they may be faulty. Perform the following checks.

HDMI cable

System board

TV

CN5690
HDMI port
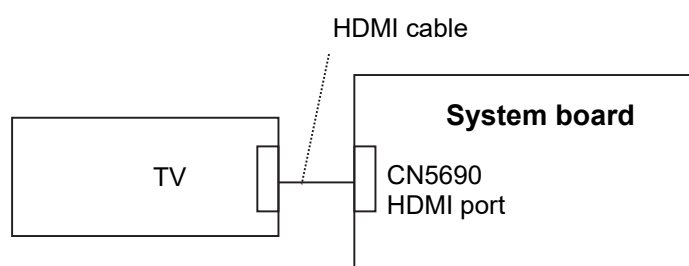
Check 1   Make sure the TV is connected surely to HDMI port with the HDMI cable. If the connection is loose, reconnect it firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2   Check the setup condition of TV and returns to Procedure 1.
As for the setting of the TV, refer to the instructions manual for the TV. If the problem still exists, perform Check 3.

Check 3   HDMI cable may be damaged. Replace it with a new one and repeat Procedure 1. If the problem still exists, perform Check 4.

Check 4   The TV may be damaged. Replace it with a new one and repeat Procedure 1. If the problem still exists, perform Check 5.

Check 5   The system board may be damaged. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and replace it with a new one.

2.20 USB Type-C adapter Troubleshooting

On some models, the USB Type-C adapter (USB-C to VGA Adapter) is bundled.

To check if each function of USB Type-C adapter work properly or not, follow the steps below.

2.20.1 RGB port

To check if RGB port is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Check on the external display

Procedure 2:   Connector Check and Replacement Check

Procedure 1 Check on the external display

Connect an external display to the RGB port on the USB Type-C adapter. If the RGB port works, a desktop screen of Windows will appear on the external display.

Connecting to the computer

1. Connect the USB Type-C adapter to the USB type-C connector on the computer.

2. Plug one end of the cable into the RGB port of the external display.

3. Turn on the power of the external display.

4. Plug the other end of the cable into the RGB port on the USB Type-C adapter.

Switching the image output from computer's screen to the external display

When you press **F5**, the screen for selecting the device to show image will appear.

Select [Second screen only]. Then check if the desktop image is shown on the TV.

If any problem occurs on sound and image output, perform Procedure 2.

Procedure 2 Connector Check and Replacement Check

Check 1   Make sure the external display is firmly connected to RGB port with the cable. If the connection is loose, reconnect it firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2   Check the setup condition of the external display and returns to Procedure 1. As for the setting of the external display, refer to the instructions manual for the TV. If the problem still exists, perform Check 3.

Check 3   Connect the USB Type-C adapter to another USB connector on the PC and returns to Procedure 1. If the problem still exists, perform Check 4.

Check 4   The external display may be damaged. Replace it with a new one and repeat Procedure 1. If the problem still exists, perform Check 5.

Check 5   USB Type-C adapter may be damaged. Replace it with a new one. If the problem still exists, check the PC condition.

2.20.2 USB Type-C port (power delivery charging)

To check if the USB Type-C port is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1:   Connection Check

Procedure 2:   Replacement Check

Procedure 1 Connection Check

Check if the USB Type-C port charges the power with an AC adapter (USB-PD type). How to connect the AC adapter and the USB Type-C adapter is as follows.

1. Connect the power cord to the AC adapter (USB-PD type). Then connect it to the USB Type-C connector (power delivery charging) on the USB type-C adapter.

2. Plug the power cord into a live wall outlet.

3. Connect the USB Type-C adapter to the USB Type-C connector on the PC.

4. Make sure that the DC IN/battery LED glows.

If the DC IN/battery LED glows, power delivery function is working.

If the DC IN/battery LED doesn't glow, make sure that the power cord, USB Type-C adapter and PC are connected firmly each other. If connection is loose, reconnect it firmly and return to Procedure 1. If the problem still occurs, perform Procedure 2.

Procedure 2 Replacement Check

Check 1   The power cord or the AC adapter may be faulty. Replace them with new ones. If the problem still occurs, perform Check 2.

Check 2   USB Type-C adapter may be faulty. Replace it with a new one. If the problem still exists, check the PC condition.

Chapter 3

Tests and Diagnostics

Chapter 3   Contents

3.1 Test program for maintenance

The test program for maintenance consists of the following items;

- Check and update of ME FW information

- Check of hardware information

- Check and update of BIOS information

- Check and update of EC/KBC information

- Diagnostic test programs

In addition, the tool for setting to "Battery Off mode" state might be released separately.

3.1.1 Check and update of ME FW information

The ME FW version is checked and if the update is needed, the message is displayed.

3.1.2 Check of hardware information

The information about hardware, such as HDD/SSD, memory and DMI, is displayed.

If no DMI information is registered, the message to request the DMI information registration is displayed.

3.1.3 Check and update of BIOS information

The BIOS version is checked and if it is not the latest one, the message to confirm if update is needed or not.

3.1.4 Check and update of EC/KBC information

The EC/KBC version is checked and if it is not the latest one, the message to confirm if update is needed or not.

3.1.5 Diagnostic test programs

There are programs to write the HW information and to check the function of HW components in the diagnostic test.

You will need the following equipment to perform some of the diagnostic test programs.

❑ The diagnostic program for maintenance (USB Memory),
❑ A Headphones and microphone (Sound test)

3.1.6 Setting of Battery Off mode

Before returning to user, set the "Battery Off mode" to the PC.

Check the [Advanced] – [System Configuration] in the BIOS setup screen. When [Battery disconnect] item is prepared, connect the AC adapter and execute it to set the "Battery Off mode" state. If the item is not shown, you will need the following equipment for it.

❑ The Battery Off mode setting tool for maintenance (USB Memory),

3.2   How to execute the test program

To start the test program for the maintenance, follow these steps below:

Step 1: Insert the USB memory which includes the test program into the USB connector.

Step 2: Turn on the computer while pressing **F12** of the keyboard.

Step 3: Chose USB device on the selection screen, and press **Enter** of the keyboard.
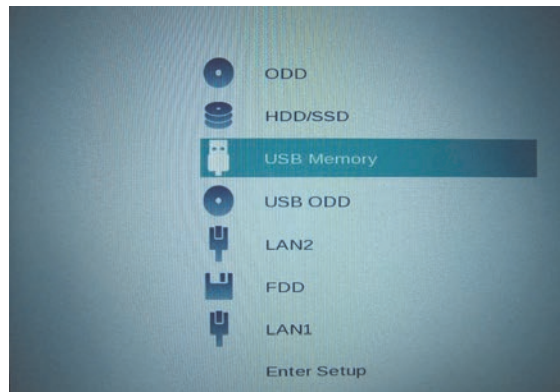
Step 4: Then this program executes the followings automatically.

NOTE: *If the test program doesn't start, set Secure Boot to "Disabled" in Setup program. As for Setup program, refer to 3.16 SETUP.*

Procedure 1:   Check and update of ME FW information

The ME FW version is checked and if the update is needed, the following message is displayed.

```
Do you want to update ME-FW(AMT)?(Y)? or

Do you want to update ME-FW(NonAMT)?(Y)?
```

When the message above is displayed, press **Y**. The ME FW will be updated and the computer will restart. Then repeat from Step 2.

Procedure 2:   Check of hardware information

The program checks and displays the hardware information such as HDD and SSD of the computer.

When a system board is exchanged and DMI information is not written in, the DMI information can be registered with this program.

Refer to 3.3 Entry of the DMI information for details.

Procedure 3: Check and update of BIOS information

The BIOS version is checked and if it is not the latest one, the message to confirm if update is needed or not. The current version is displayed at upper part of the display.
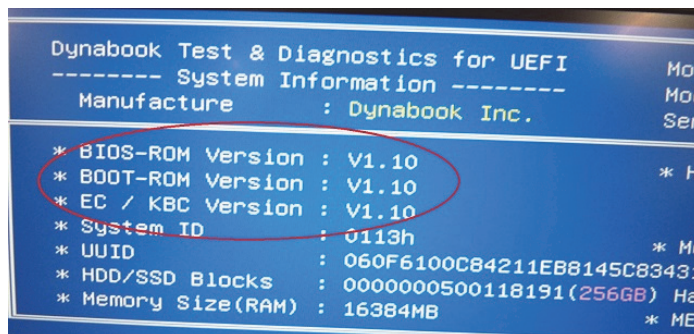

```
Does it update BIOS (Vx.xx->Vx.xx)? (Y or N), or press [Enter]
(Selection=Y)?
```

When the message above appears, pressing **ENTER** will start BIOS update. Then, since the computer reboots automatically, repeat from Step 2.

If BIOS update is not needed, press **N**.

Procedure 4: Check and update of EC/KBC information

The EC/KBC version is checked and if it is not the latest one, the message to confirm if update is needed or not. The current version is displayed at upper part of the display.

```
Does it update EC/KBC (Vx.xx->Vx.xx)? (Y or N), or press [Enter]
(Selection=Y)?
```

When the message above appears, pressing **ENTER** will start EC/KBC update. Then, since the computer reboots automatically, repeat from Step 2.

If the update is not needed, press **N**.

> *NOTE:* 1. *Connect the AC adapter to the computer when you update the BIOS, EC/KBC or ME FW.*
>
> 2. *Do not turn off the power while you are updating the BIOS or EC/KBC. If the update fails, it might be impossible to start up the computer.*
>
> 3. *If the update rewrite fails, when you next turn on the power, the power LED may flash or a message may be displayed. In that case, turn on the power again and perform Procedure 3 or 4.*

The following message will appear. If the PCB exchange or MDI information rewrite has been done, press **Y**. Otherwise, press **N**.

```
Change  PCB ? or After Update DMI ? (y/n)
```

After that, the following test program menu (Top Menu) is displayed. (The menu below shows an example of screen.)
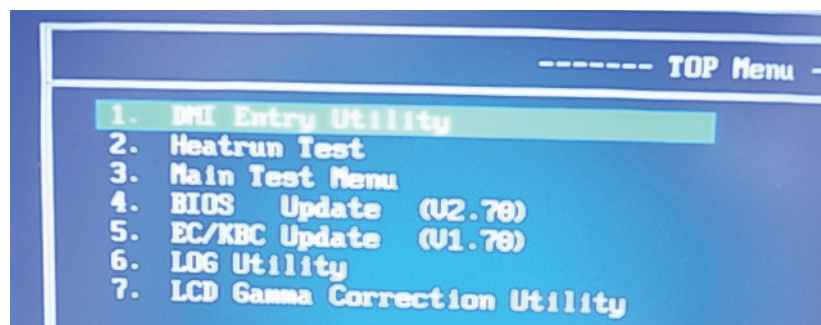

```
Select Menu ( [Num] or [↑][↓] ---> [Enter]
```

To start the DMI Entry Utility, press **1** and **Enter**.
To start the Heatrun Test, press **2** and **Enter**.
To start the Main Test Menu, press **3** and **Enter**.
To start the LCD Gamma Correction Utility, press **7** and **Enter**.

> *NOTE:* *Before starting the diagnostics, be sure to that all the cables are connected firmly.*

3.3 Entry of the DMI information

To execute the DMI Entry Utility, select **1** from the test program menu (Top Menu), press **Enter**.

> *NOTE*: *Before replacing the system board, make a note of DMI information of the current PCB. The information can be confirmed by the "System Information" screen displayed after start of test program or with "DMI Entry utility".*
>
> *After replacing the system board, execute "DMI Entry utility" to register the DMI information to the new system board.*

The following message will appear. Press **Y**.

```
**** Warning : Update DMI really? (y/n) ***
```

The PC will restart. Press **F12** and select the USB memory as the boot device. Then the following screen will appear.

Input the information one by one. (If you have not replaced the system board, the DMI information should not be changed.)

・Model Name　(e.g. PORTEGE Z830)
・Version Number　(e.g. XF82BFGCTL7AA21)
・Serial number　(e.g. 7G121732H)
・Model Number　(e.g. PRT10N-AAAA2)
・PCN/BND Number　(e.g. PCN3384T0Z01FA1F/XXX)

The meaning of buttons at the bottom is as follows;

・Load DMI : reads out the current DMI information and display it.
・Write DMI : writes the DMI information input to this screen when pressed.
・Cancel : ends this program.

When Cancel button is pressed, the PC will restart. Press **F12** and select the USB memory as the boot device. Then this program will return to the test program screen.

3.4 Heatrun Test

The Heatrun test is an automatic test program that executes the following tests successively.

1. Main Memory test
2. Sequential Read Test
3. V-RAM Memory test

To execute this test, select **2** from the test program menu (Top Menu), and press **Enter**.
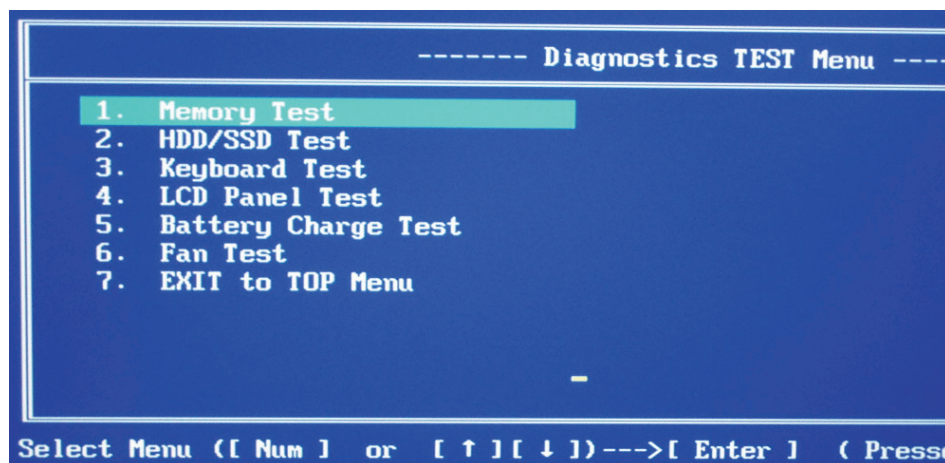
Explanation of each test;

1. Main Memory test
   Refer to Subtest 1 of 3.6 Memory Test
2. Sequential Read Test
   Refer to Subtest 1 of 3.7 Hard disk/SSD Test
3. V-RAM Memory test
   Refer to Subtest 2 of 3.6 Memory Test

To terminate the program, press **SHIFT + Q.**

3.5   Main Test Menu

To display the Main Test Menu, select **3** from the test program menu (Top Menu) and press **Enter**. (The menu below shows an example of screen.)

```
                      ------- Diagnostics TEST Menu ---
    1.  Memory Test
    2.  HDD/SSD Test
    3.  Keyboard Test
    4.  LCD Panel Test
    5.  Battery Charge Test
    6.  Fan Test
    7.  EXIT to TOP Menu


                                   -

Select Menu ([ Num ]   or   [ ↑ ][ ↓ ])--->[ Enter ]   ( Presse
```

Note: *If you want to stop the test program under running temporarily, press* **SHIFT + Q***.*

   After the stop, pressing **C** *continues the test and pressing* **E** *ends the test.*

To return to the Top menu, move the cursor to `EXIT to TOP Menu` on the screen above and press **ENTER**.

Others are the diagnostic tests. Move the cursor on the test item you want to execute and press **ENTER**.

The following table shows the subtests names of each test.

Table 3-1 Subtest names (1/2)

TEST No	TEST NAME	SUBTEST No	SUBTEST NAME
1	MEMORY	1	Main Memory Test
		2	V-RAM Memory Test

Table 3-1 Subtest names (2/2)

TEST No	TEST NAME	SUBTEST No	SUBTEST NAME
2	HDD/SSD Test	1	Sequential Read Test
		2	Partial Read Test
		3	Address Jump Test
		4	Address Uniqueness Test
		5	Specify Address Test
3	Keyboard Test	1	Key-Code Test
		2	Touch Pad Test
4	LCD Panel Test	1	LCD Panel Test
		2	All dot on/off Test
		3	H - pattern Test
		4	LCD brightness Test
5	Battery Charge Test	-	
6	Fan Test	-	
7	EXIT to TOP Menu		

After a subtest is selected, the following message may appear.


```
1. Go to Test
2. Test  Loop : YES
3. Error Stop : YES
```

The meaning of each item is as follows;

Test Loop

Select No: After testing, the program returns to the screen to select Error Stop and Test Loop item selection.

Select Yes: After testing, the pass count is increased by one, and the test is performed again from the test top. Repeat the test until **SHIFT + Q** is entered.

The setting of Yes/No can be changed by pressing **ENTER**.

Error Stop

Select Yes: if any error occurs during the test, the test is suspended and key input is required.

Enter **C** ……Restarts the test execution

Enter **E**…….Ends the test. The program returns to the screen to select Error Stop and Test Loop item selection.

Select No: though any error occurs during the test, the test is continued.

The setting of Yes/No can be changed by pressing **ENTER**.

Go to Test

The subtest is started in the conditions selected above by entering **ENTER**.

For more information about the tests in the Main Test Menu and other tests, refer to Section 3.6 or later.

3.6 Memory Test

To execute the Memory Test, select **1** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.)

Subtest 1   [Main Memory Test]

This test writes/reads the test data to/from the main memory, and compares them.
The test procedure is as follows;
(1) This test gets the memory map table.
(2) It seeks empty area more than 1MB.
(3) To the whole empty area, it writes the test data and reads out them to compare the test data and read data.
(4) Up to the maximum address of the mounted memory, it repeats to seek the empty area, to write the test data, to read out the data and to compare the test data and read data.
(5) It repeats the process from (1) to (4) above with the 4 test data.

The test patterns are 4-byte data; 00000000h, 55555555h, AAAAAAAAh and FFFFFFFFh. If empty area less than 3-byte length is found, the test data is not written.

If the empty memory is 64MB or less, this test is not executed. In the case that this test is never executed because of the memory size shortage, this test displays the message "Data Not Found "and writes the information to the text file (errorlog.txt) as an error log.

If the test data and read data is not the same at comparing, this test displays the message "Data Compare error "and writes the information to the text file (errorlog.txt) as an error log.

Subtest 2 [V-RAM Memory Test]

This test sets the display mode to the maximum resolution.
Then it writes/reads the test data to/from the VRAM area, and compares them.
This test checks the VRAM area in order with the following 4 test data:
FFFFFFFFh, AAAAAAAAh, 55555555h, 00000000h.
If the test data and read data is not the same, this test displays a message of the data comparing error and writes the information to the text file (errorlog.txt) as an error log.

As for the details of the error log, refer to 3.12 Log utility.

3.7 Hard disk/SSD Test

To execute the Hard disk Test, select **2** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.

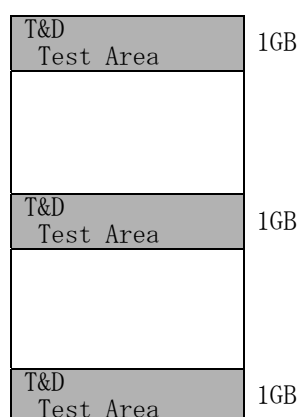### Subtest1 [Sequential Read Test]

This test reads out the whole data from the address of LBA 0 to the last. The data is read by 64-LBA unit.
If any errors occur, this test displays the message "HDD Read error "and writes the information to the text file (errorlog.txt) as an error log.

Subtest 2 [Partial Read Test]

This test reads the data from the top and middle of the HDD area by 1GB. It reads also from 1GB area before of the last address to the last.
If any errors occur, this test displays the message "HDD Read error "and writes the information to the text file (errorlog.txt) as an error log.

```
┌────────────────┐
│ T&D            │  1GB
│   Test Area    │
├────────────────┤
│                │
│                │
│                │
├────────────────┤
│ T&D            │  1GB
│   Test Area    │
├────────────────┤
│                │
│                │
├────────────────┤
│ T&D            │  1GB
│   Test Area    │
└────────────────┘
```

Subtest 3 [Address Jump Test]

This test writes the test data (AAAAAAAAh) to
1. LBA 63 (by 512-byte)
2. LBA 22 (=63 - 41) (by 512-byte)
3. LBA 86 (=22 + 64) (by 512-byte)
4. LBA 45 (=86 - 41) (by 512-byte)

At Step 1, this test starts from the LBA 63 and writes the test data by 512-byte.

At Step 2, it writes the 512-byte data to the LBA decreased by 41 LBAs from the LBA designated at the previous step.
At Step 3, it writes the 512-byte data to the LBA increased by 64 LBAs from the LBA designated at the previous step.
At Step 4, it writes the 512-byte data to the LBA decreased by 41 LBAs from the LBA designated at the previous step.
By repeating the decrease and increase of the LBA's address, this test continues to write the test data up to the last address. After that, it reads out the data from the same LBAs to compare.

If there are no 64 LBAs at last, this test is not executed for the last address.
If any errors occur, this test displays the message "HDD Write error "and writes the information to the text file (errorlog.txt) as an error log.

Subtest 4 [Address Uniqueness Test]

This test writes the number of passes (UNIT32) (default is 0) per LBA and the LBA number (UNIT32). To the rest of a LBA (calculated as "LBA size - (UNIT32)*2"), it writes "0".

This test writes the test data up to the last address. Then it reads out the data to compare. The number of passes will be 0 (default value) unless comparing of the whole data is completed. At the beginning of the test in the second round, the number would become 1 (when Test Loop Yes is selected. When Test Loop No is selected, the number will not be changed. In that case, the number remains 0 at the end of the test.) If the test data and read data is not the same, this test displays a message of "Data Compare error" and writes the information to the text file (errorlog.txt) as an error log.

(1 LBA (512-byte))

Number of Passes (UINT32)	LBA No. (UINT32)	0 0 0 0 0 0 · · · · · · · · · · · · ·

Subtest 5 [Specify Address Test]

First, specifying of the address of the start LBA, the data length and test data for writing (Dword) is needed for this test. Then this test writes the specified test data to the specified address and read them to compare.
If any errors occur at comparing, this test displays the message "Compare error" and writes the information to the text file (errorlog.txt) as an error log.

As for the details of the error log, refer to 3.12 Log utility.

3.8 Keyboard Test

To execute the Keyboard Test, select **3** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.

Subtest 1 [Key-Code Test]

This test displays the key code and scan code of a pressed key. To back to the Keyboard test menu screen, press **Del + Enter**.

(Displayed information)

```
( Presses Key  Code : xx )
( Presses Scan Code : xx )
```

Subtest 2 [Touch Pad Test]

This test gets the information of moving amount of the touch pad, both for direction X and Y, and pressing (ON)/releasing (OFF) information of the button A (left click button) and B (right click button), and displays the information in real time. To back to the Keyboard test menu screen, press the button A and B.

(Displayed information)
```
 [X: xxxx] [Y: xxxx] [Button  A : x] [Button B : x]
```
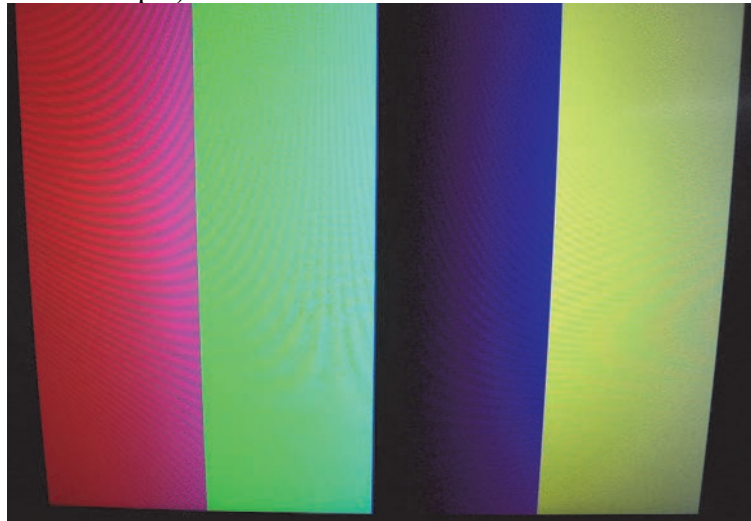
3.9   LCD Panel Test

To execute the LCD Panel Test, select **4** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. Move the highlight bar to the subtest you want to execute and press **Enter**.

Subtest 1 [LCD Panel Test]

This test displays the following 4 colors, Red, Green, Blue and Yellow, from the left side of the display to right side, from the black to the maximum brightness. To back to the LCD Panel test menu screen, press **ENTER**.

(Screen sample)

Subtest 2 [All dot on/off Test]

This test displays the white screen for 5 sec. and then the black screen for 5 sec. After that, this test backs to the LCD Panel test menu screen automatically.

Subtest 3 [H - pattern display]

This test displays the letter "H" on the whole screen. To back to the LCD Panel test menu screen, press **ENTER**.

Subtest 4 [LCD Brightness Test]

This test displays the white screen and changes the LCD brightness to the maximum, middle and low setting in order with 5-sec intervals. After that this test backs to the LCD Panel test menu screen automatically.
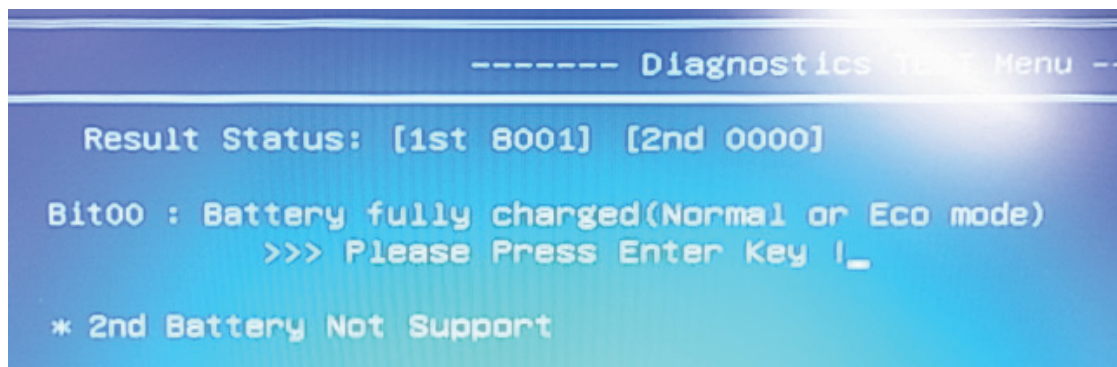
3.10 Battery Charge Test

To execute the Battery Charge Test, select **5** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen.

When this test program is selected, the following message appears.
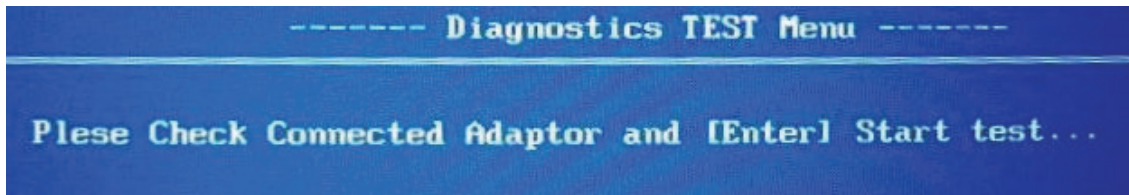
The test starts by pressing **ENTER**. The test gets the charging status of the mounted battery pack and displays the message.

To back to the main menu screen, press **ENTER**.

3.11   FAN Test

To execute the FAN Test, select **6** from the test program menu (Top Menu), press **Enter** and follow the directions on the screen.

This test checks if FAN works properly.

```
FAN Low-speed ... Target Low: XXXX Rpm Result Low: XXXX Rpm OK/NG

FAN High-speed... Target High: XXXX Rpm Result High: XXXX Rpm OK/NG
```

OK appears in the display if the test ends without an error.

NG appears in the display if an error is found during the test.

To back to the main menu screen, press **ENTER**.

3.12 Log Utility

This function logs error information generated during the tests and stores the results in USB memory.
(file name: errorlog.txt)

To execute the Log Utility, select LOG Utility from the test program menu (Top Menu), and press **Enter**. The following screen will appear.

Display examples

```
T-Name  Pass      Sts    Address        Write     Read
HDD_001_12345678_1234_1234567812345678_00000000_55555555
RAM_001_12345678_1234_1000007812345678_00000000_55555555
```

・T-NAME..... Test name

(Test name example)
       RAM_01.....Main Memory Test
       HDD_01.....Sequential Read Test
       HDD_02.....Partial Read Test
       HDD_03.....Address Jump Test
       HDD_04.....Address uniqueness Test
       HDD_05.....Specify Address Test
       BAT_01.....Battery Charge Test

・Pass..... Pass count which the error occurred
・Sts..... . Status
  (Value)
  00FF..... Data compare error (Memory Test/HDD Test)
  00E0.....Data Not Found(Memory Test)
  0002..... Protocol error (Memory Test/HDD Test)

・Address… Address（Memory Test/HDD Test…LBA No.）
・Write..... ... Write value（Memory Test/HDD Test）
・Read.... ...... Read value（Memory Test/HDD Test/ Battery Charge Test）

To clear the log information, press **C**. To back to the main menu screen, press **ENTER**.

3.13 LCD Gamma correction

To execute the LCD Gamma Correction Utility, select **7** from the test program menu (Top Menu), press **Enter** and follow the directions on the screen.

NOTE: After replacing the system board, be sure to execute this program.

The following message will appear. Press **Y**.

```
      * Restart system and Start utility *

      *        Are you sure? (y/n)        *
```

The PC will restart. Press **F12** and select the USB memory as the boot device. Then the following screen will appear and the correction is done automatically.
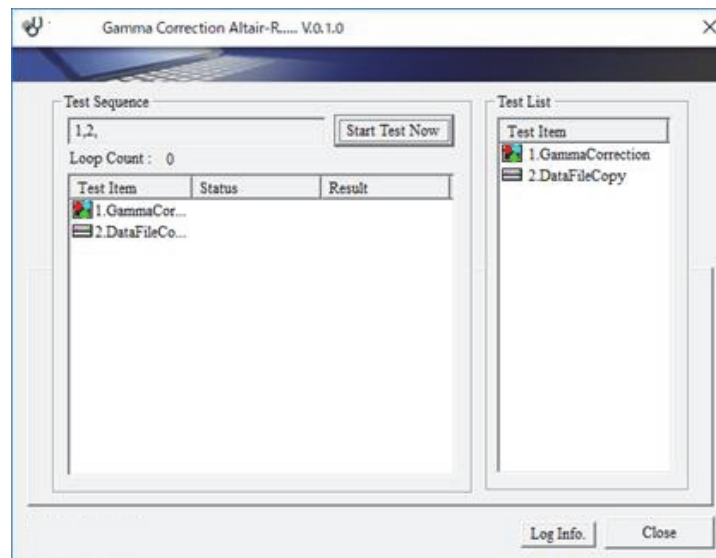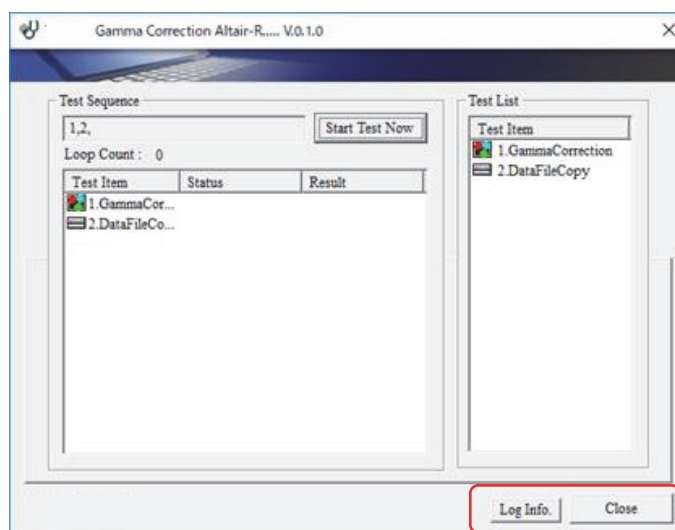

If this program ends successfully, "PASS" is displayed.

If any errors occurred, "FAIL" will be displayed.

Select "Close" button at the lower left to back to the start screen.

Any errors occurred during this program will be registered in the log. To check the content, select "LogInfo." button. As for the details of the log, refer to "3.13.1 Log" section.
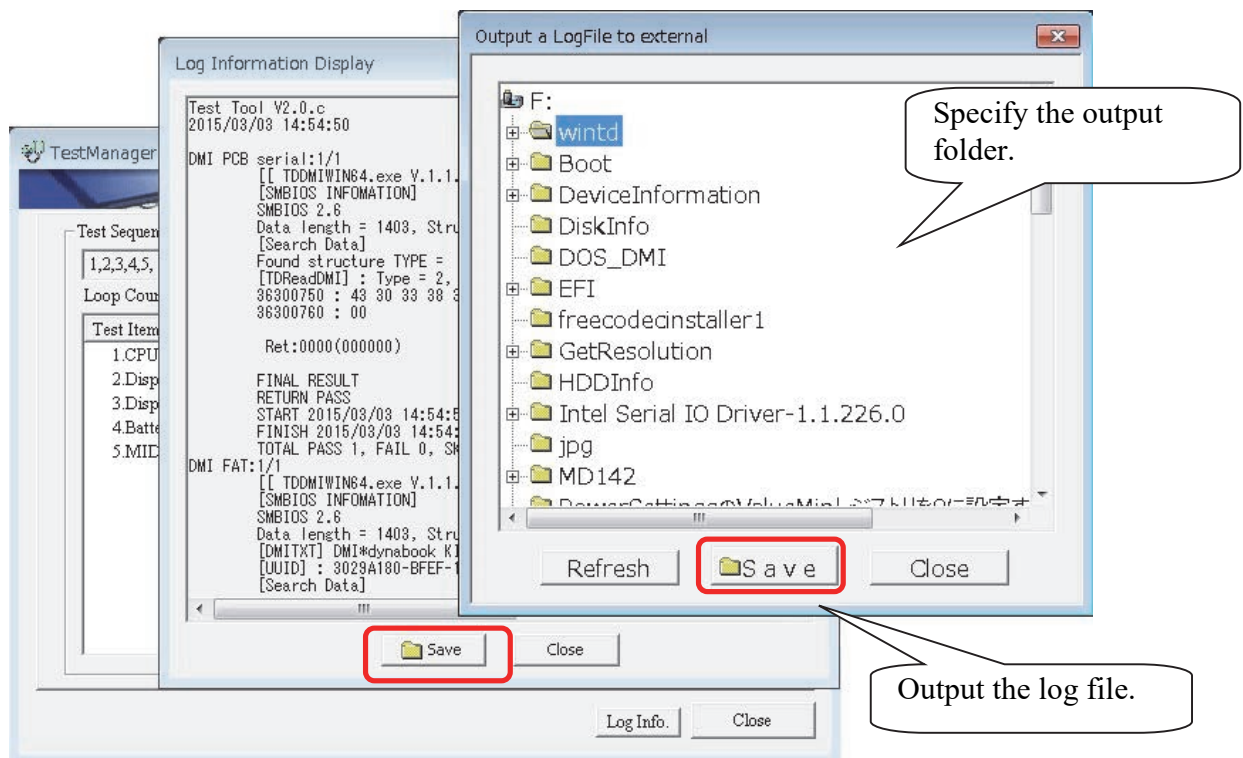
When "Close" button is selected, the PC will restart. Press **F12** and select the USB memory as the boot device. Then this program will return to the original test program screen.

3.13.1   Log

< To check the log contents without save >

Touch "Log Info." to display the "Log Information Display".
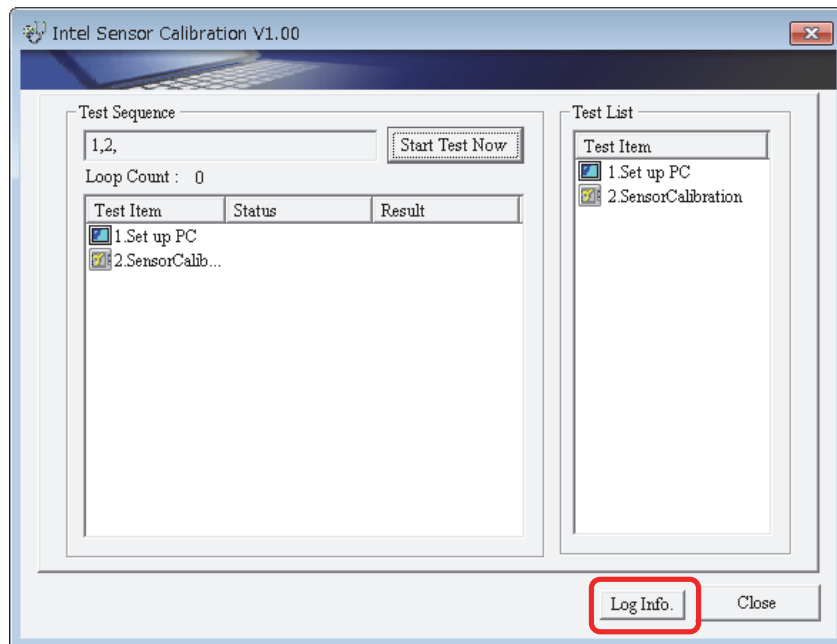
< To save the log contents in an external memory device >

The log contents can't be saved in the internal disk to keep the user files.

1. Touch "Log Info." to display the "Log Information Display".

2. Touch "Save" on "Log Information Display" to display "Output a LogFile to external".

3. Select a folder to save the information file and touch "Save".

The log file named "wintndx.log" or "wintndx64.log" will be output to (saved in) the specified folder.

3.14 Wireless Module Test

Since there is no test program to check the wireless function, check if the wireless module and antenna are working without problem on Windows.

3.14.1 Check of the wireless module

Turn on the wireless communication function and check the module name via the application, PC system information. On this model, a combo module which has both wireless LAN and Bluetooth function is mounted.

<How to display PC system information screen>

1. Click Start button.

2. Click [dynabook サービスステーション(dynabook service station)] -> [システム情報(System information)].
   Check the content of "ネットワーク(Netwrok)".

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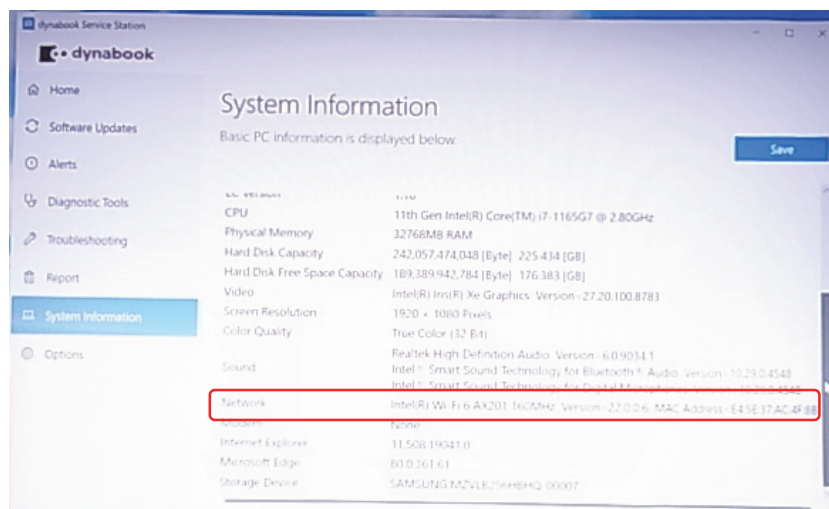
If any wireless module name (such as "Wireless**") appears on the screen, it means the wireless module has been recognized.

3.14.2 Check of the antenna connection

Confirm that the icon for wireless LAN appears at the lower right of the screen under the circumstances the wireless communication function is available.

Click the icon. If the computer can find any AP (Access Point), the network names like below will appear. It shows the antenna cables are surely connected to the wireless module.

If the antenna cables are not connected to the wireless module or no available AP is found, the following icon will appear.

Rev.02

 or

In the case of no-antenna connection

If AP should be ready but no AP point appears, any problem might occur on the wireless module or on the antenna connection.

3.15 Sound Test

Since there is no sound test in the test program for maintenance, check the functions related to sound on Windows with music data, etc.

3.16 SETUP

3.16.1 Function Description

This program displays the current system setup information as listed below:

< PSZ1* model >

Main menu

```
System Time
System Date
CPU Type
CPU Speed
HDD/SSD
Total Memory Size
System BIOS Version
EC Version
AMT Setup Prompt (*2)
Language
```

Security menu

```
BIOS Password
-User
-Supervisor
HDD/SSD Password
-Mode
Secure Erase(*1)(*2)
Secure Boot
Clear Secure Boot keys (*1)
Clear System data (*2)
Clear Fingerprint data (*2)
Clear TPM Owner (*2)
Hide TPM (*2)
BIOS Access Rights (*1)
Boot Menu (*1)
USB Provisioning of AMT (*1) (*2)
Device Access Control/Device Boot Control (*1)

*1 : This item is shown only when a supervisor password is set.
*2 : This item is shown only on some models.
```

Power Management menu

```
Wake-up on LAN
Wake-up on LAN on Battery
Wake on Keyboard
Critical Battery Wake-up
Panel Open - Power On
Power on by AC
Dynamic CPU Frequency Mode
Core Multi-Processing
Intel Turbo Boost Technology (*2)
Intel Display Power Management (*2)
SATA interface setting
Keyboard Backlight Control Mode (*2)
Backlight Lighting Time (*2)
BIOS Power Management
- Battery Save Mode
```

Advanced menu

```
Virtualization Technology
Trusted Execution Technology (*2)
SW Guard Extensions (SGX)
Select Owner EPOCH input type
Beep Sound
Sleep and charge
System ON CDP Charge Mode
USB Power in Off State
USB Legacy Emulation
Change Boot Order
System Configuration
- Built-in LAN
- Wireless LAN (*2)
- Auto Wireless LAN RF Switching(*2)
- Wireless WAN (*2)
- Bluetooth (*2)
- Web Camera (*2)
- SD Host Controller
- Fingerprint Sensor (*2)
- Microphone (*2)
- Memory Performance Mode
- LAN Boot Selection
- MAC Address Pass Through
- Power On Display
- Boot Up NumLock Status
- Large aperture graphics adapters
Diagnostic
- HDD/SSD Test
- Memory Test
- Exit
```

Exit menu

```
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Save Changes and Power off
```

< PSZ2* model >

Main menu

```
System Time
System Date
CPU Type
CPU Speed
HDD/SSD
Total Memory Size
System BIOS Version
EC Version
AMT Setup Prompt (*2)
Language
```

Security menu

```
BIOS Password
-User
-Supervisor
BIOS Access Rights (*1)
HDD/SSD Password (*2)
-User
-Master
Bypass Mode at Restart (*2)(*3)
Secure Erase(*1)(*2)
Secure Boot
Clear Secure Boot keys (*1)
Clear Fingerprint data (*1) (*2)
TPM
-Clear TPM Owner
USB provisioning of AMT (*2)
Device Access Control (*1)
Device Boot Control (*1)

*1 : This item is shown only when a supervisor password is set.
*2 : This item is shown only on some models.
*3 : This item is shown only when both the User and Master HDD Password.
```

Power Management menu

```
Wake-up on LAN
Wake-up on LAN on Battery
Wake on Keyboard
Critical Battery Wake-up
Panel Open - Power On
Power on by AC
Intel Turbo Boost Technology (*2)
Intel Display Power Management (*2)
SATA interface setting
Keyboard Backlight Control Mode (*2)
Backlight Lighting Time (*2)
```

Advanced menu

```
Virtualization Technology
Trusted Execution Technology (*2)
SW Guard Extensions (SGX)
Select Owner EPOCH input type
Sleep and charge
System ON CDP Charge Mode
USB Power in Off State
USB Legacy Emulation
System Configuration
- Built-in LAN
- Wireless LAN (*2)
- Auto Wireless LAN RF Switching(*2)
- Wireless WAN (*2)
- Bluetooth (*2)
- Web Camera (*2)
- SD Host Controller
- Fingerprint Sensor (*2)
- Microphone (*2)
- LAN Boot Selection
- MAC Address Pass Through
- Power On Display
- Wait for monitor detection
- Boot Up NumLock Status
- Large aperture graphics adapters
- eco Charge Mode
- Battery Disconnect
- Absolute Persistence Configuration
Diagnostic
- Start HDD/SSD Test
- HDD/SSD Test Mode
- Start Memory Test
```

Boot menu

```
Priority
-  Boot Option #1
-  Boot Option #2
-  Boot Option #3
-  Boot Option #4
Priority for devices
```

Exit menu

```
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Save Changes and Power Off
```

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< PSZ3* model >

Main menu

```
System Time
System Date
CPU Type
CPU Speed
HDD/SSD
Total Memory Size
System BIOS Version
EC Version
PDC Version
Language
```

Security menu

```
BIOS Password
-User
-Supervisor
BIOS Access Rights (*1)
HDD/SSD Password (*2)
-User
-Master
Bypass Mode at Restart (*2) (*3)
Secure Erase (*1) (*2)
Secure Boot
-3rd party CA (*1)
-Clear Secure Boot keys (*1)
-Clear System data (*1)
Clear Fingerprint data (*1) (*2)
Disable Block Sid
TPM
-Clear TPM Owner
Device Access Control (*1)
Device Boot Control (*1)
```

```
*1: This item is shown only when a supervisor password is set.
*2: This item is shown only on some models.
*3: This item is shown only when both the User and Master HDD Password.
```

Rev.02

Power Management menu

```
Wake-up on LAN
Wake-up on LAN on Battery
Panel Open - Power On
Power on by AC
Intel Turbo Boost Technology (*2)
Intel Display Power Management (*2)
Keyboard Backlight Control Mode (*2)
Backlight Lighting Time (*2)
```

Advanced menu

```
Virtualization Technology
Power off and Charge Mode
System ON CDP Charge Mode
USB Power in Off State
USB Legacy Emulation
System Configuration
- Built-in LAN
- Wireless LAN (*2)
- Auto Wireless LAN RF Switching (*2)
- Wireless WAN (*2)
- Bluetooth (*2)
- Web Camera (*2)
- SD Host Controller
- Fingerprint Sensor (*2)
- Microphone (*2)
- LAN Boot Selection
- MAC Address Pass Through
- Power On Display
- Wait for monitor detection
- Boot Up NumLock Status
- ACPI Secure Devices Table
- Large aperture graphics adapters
- eco Charge Mode
- Battery Disconnect
- Absolute Persistence Configuration
Diagnostic
- Start HDD/SSD Test
- HDD/SSD Test Mode
- Start Memory Test
```

Boot menu

```
Priority
-   Boot Option #1
-   Boot Option #2
-   Boot Option #3
-   Boot Option #4
Priority for devices
-   Add New Boot Option
```

Exit menu

```
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Save Changes and Power Off
```

3.16.2   Accessing the SETUP Program

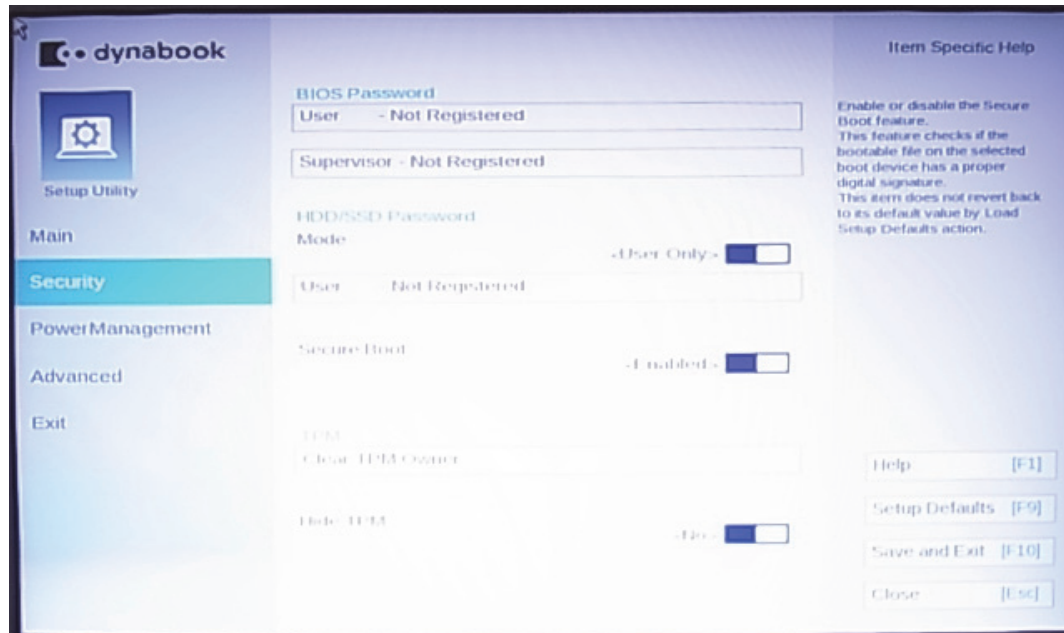Turn on the power SW.
then press **F2** of the keyboard. The following display appears.

< PSZ1* model >

Main menu screen

Security menu screen

Power Management menu screen

Advanced menu screen
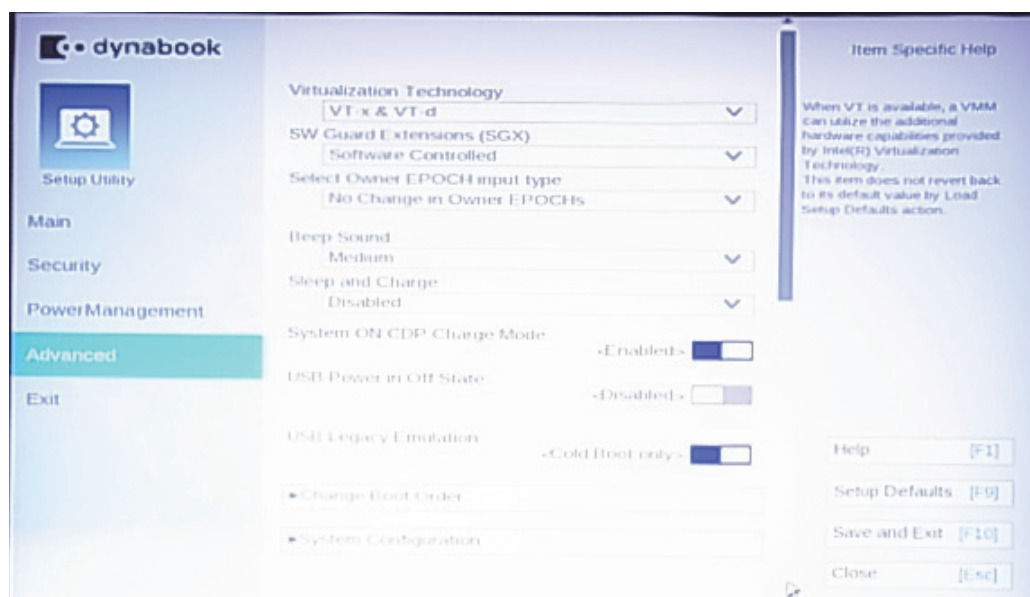
Exit menu screen
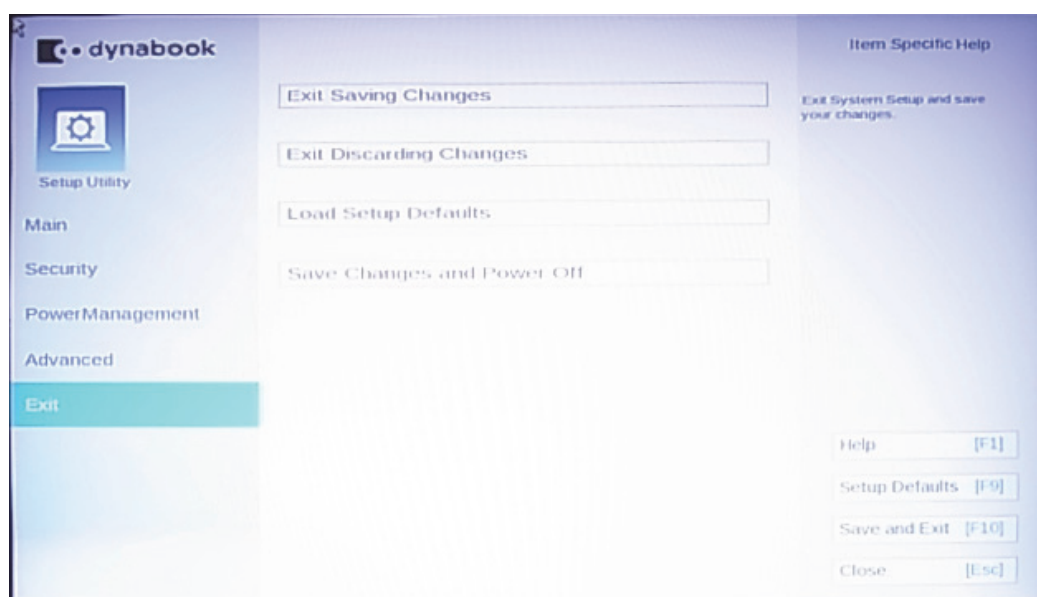
< PSZ2* model >

Main menu screen

Security menu screen
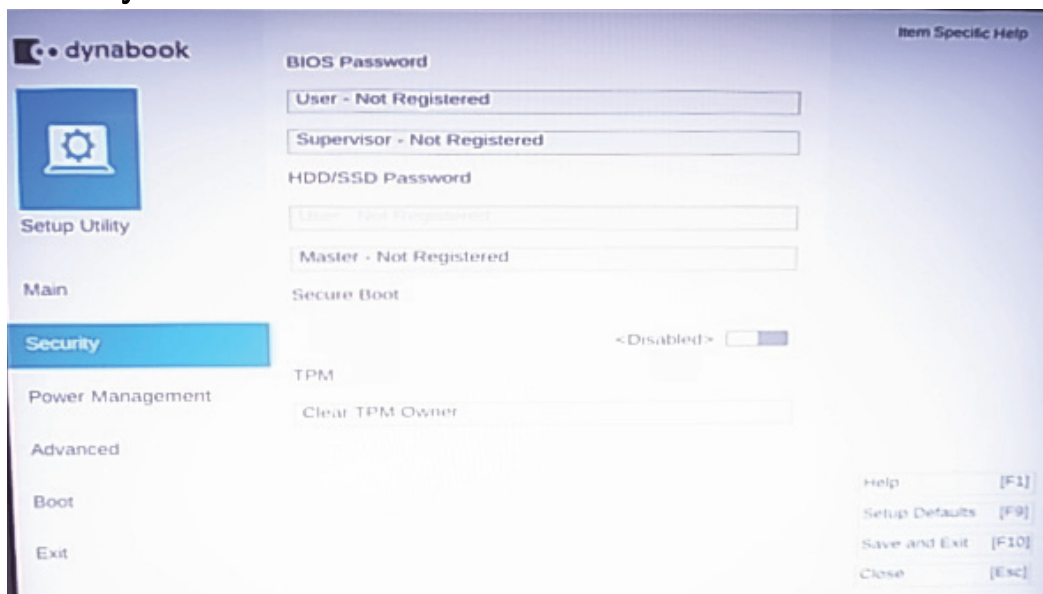
Power Management menu screen
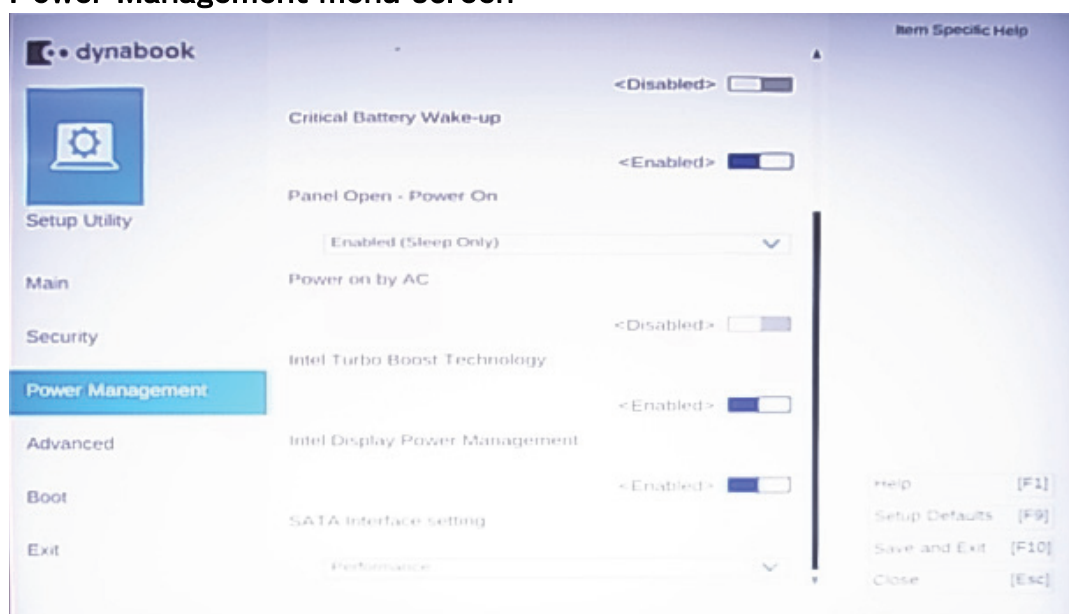
Advanced menu screen
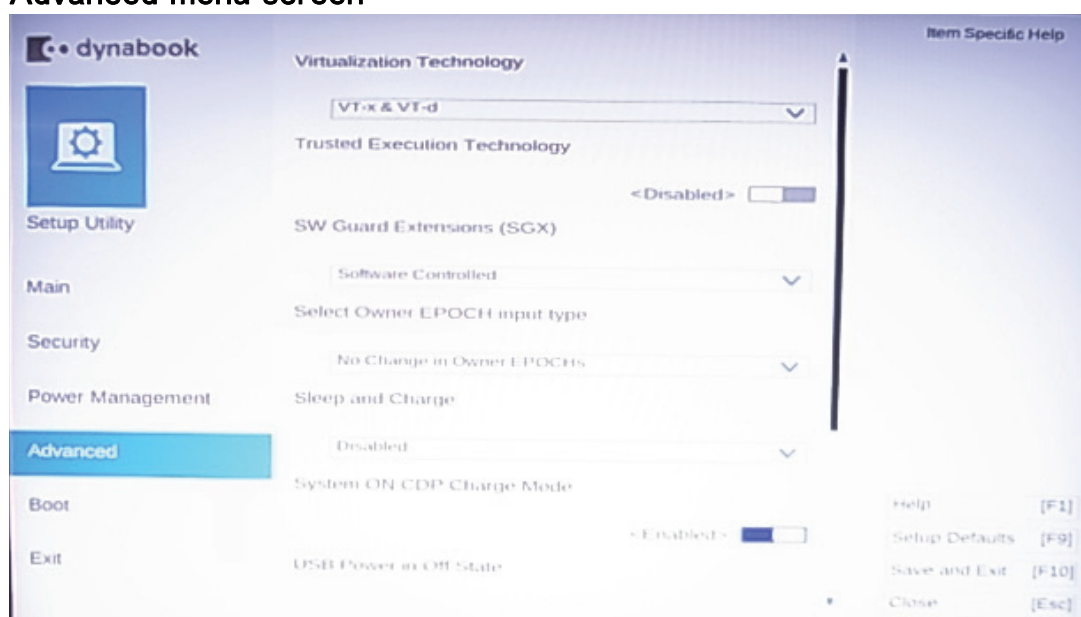
Boot menu screen
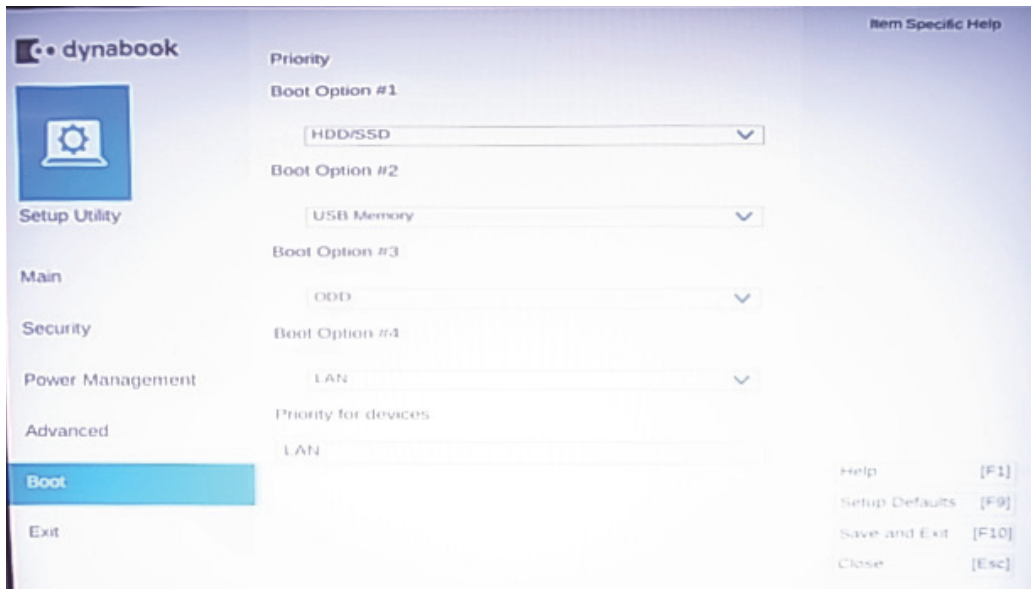
Exit menu screen

< PSZ3* model >   Rev.02

Main menu screen

Security menu screen

Rev.02
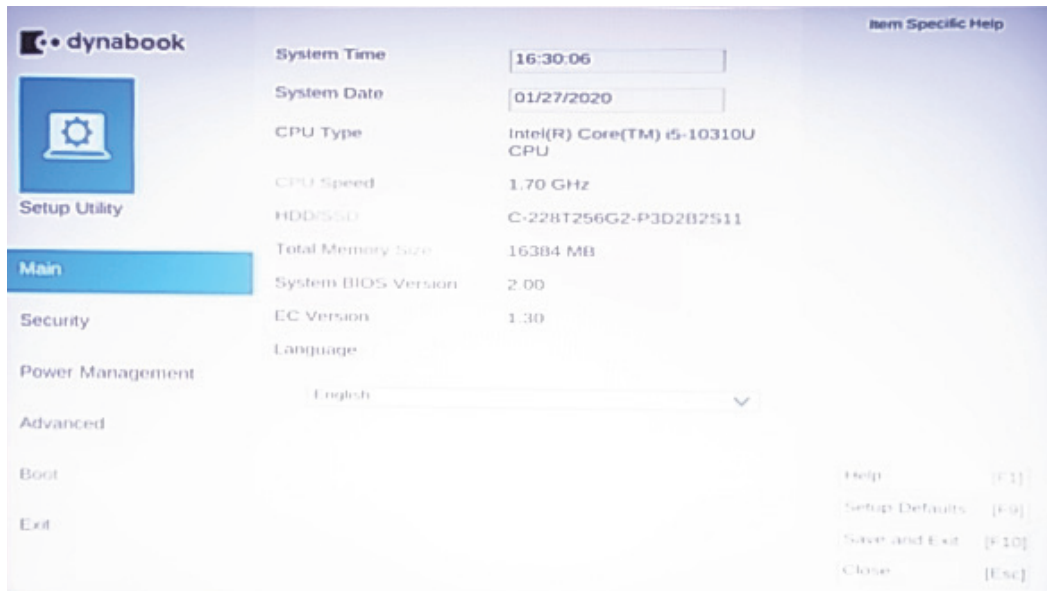
Power Management menu screen

Advanced menu screen

Rev.02
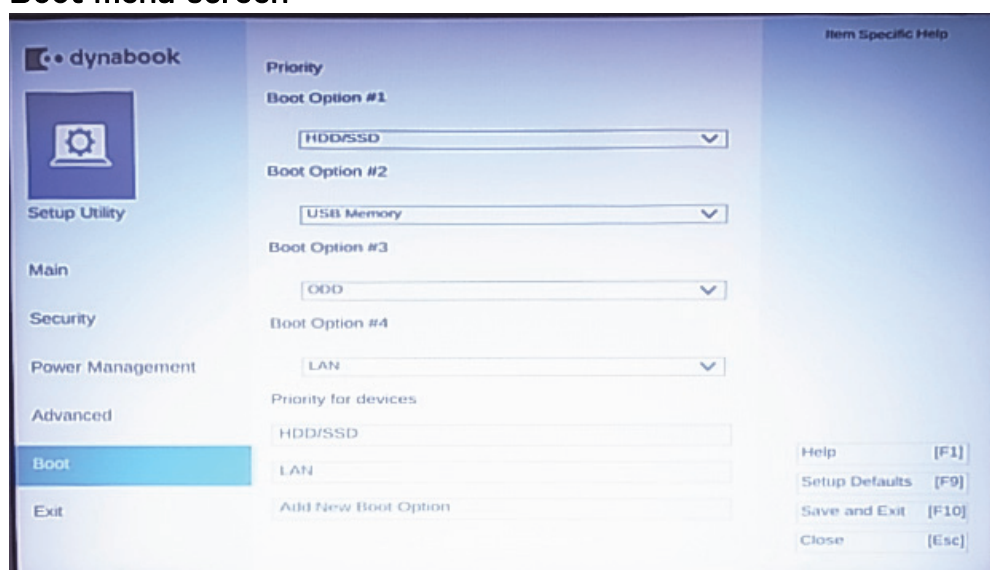
Boot menu screen

Exit menu screen
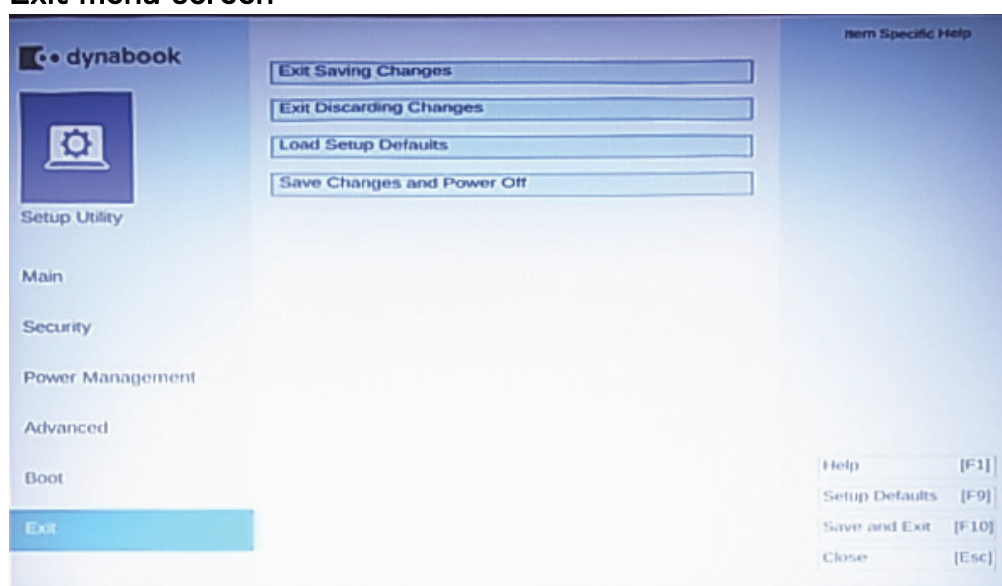
Moving Within the SETUP Menu and Changing Values

1. Press ← and → to move between the two columns. Press ↑ and ↓ to move between items in a column.

2. Press either the **Enter** to change the value.

Accepting Changes and Exiting the SETUP Window

1. Press **F10** to accept the changes you made.

2. To make other changes, press **N**. Repeat the steps above.

3. To accept the changes, press **Y**.

*NOTE: You can press **Esc** to quit at any time without saving changes. SETUP asks you to confirm that you do not want to save your changes. When SETUP is displayed at the next time, the current configuration appears.*

The Factory Preset Configuration

When you access SETUP, the current configuration is displayed.

1. To show the factory preset configuration, press **F9**.

2. To accept the default settings, press **Y**.

How to change setup Options

Since a help is displayed on the right-hand side of each menu screen, refer it before change.

3.17 Battery Off mode setting tool

3.17.1 Outline

"Battery Off mode" state should be set before returning the PC to the user. Check the [Advanced] – [System Configuration] in the BIOS setup screen to set the "Battery Off mode" state. When [Battery disconnect] item is shown, connect the AC adapter and execute it.

If the item is not shown, you will need this tool.

> *NOTE:* *Before implementing this tool, be sure to the version of EFI Shell is V2.1 or later.*

3.17.2 Preparation

Download the tool to a USB memory.

Step 1: To get the EFI Shell start program (Shell.efi), click "Download" on the URL below.

https://github.com/tianocore/edk2/blob/master/ShellBinPkg/UefiShell/X64/Shell.efi

Step 2: Format a USB memory in FAT32.

Step 3: Create "efi\boot\" folder on the root folder of the USB memory.

Step 4: Change the name of the downloaded Shell.efi file to "BOOTx64.efi".

Step 5: Copy the "BOOTx64.efi" file to the "efi\boot\" folder on the USB memory.

Step 6: Download and unzip the SetBatOffMode_R***.zip, registered as 360082949 to the system, and copy to the root folder on the USB memory.

3.17.3 Start and procedure

> *NOTE: If the test program doesn't start, set Secure Boot to "Disabled" in Setup program. As for Setup program, refer to 3.18 SETUP.*

Step 1: Insert the USB memory created in the preparation step into the USB connector.

Step 2: Turn on the computer while pressing **F12** to display the screen to select a boot device.

Step 3: Choose USB device on the selection screen, and press **Enter**. The following message will appear.

```
Battery Off Mode Setting tool
                    Vx.xx
Select test Menu
   [1] Set – Battery Off Mode

    [0] Exit
=====================================
Input key of 1 or 0.
```

Step 4: When you press **1**, the Battery Off mode should be set and display the result.

When the result shows "OK", the Battery Off mode should be set surely. Press any key to turn off the PC.

When the result shows "NG", check the message.

Message	Meaning
ERROR : Could not execute this tool because it is not a Support model	The Battery Off mode program doesn't support this PC. The Program ends automatically.
Error Code : (0x8300)	The written data is incorrect.
Get Status : Disabled (0x0000)	The setting was done but it but it has not affected.
Get Status : Error (0x****)	Any other error occurs. When any key is pressed, the program returns to Step 3. Retry to do this program several times. If NG continues, end the program in Step 3 by pressing 0 key and check the PC condition.

NOTE: *When turning on the power just after setting this mode, it will take 13 to 14 sec until the logo display. Do not press the power button again before logo display.*

Chapter 4
Replacement Procedures

Chapter 4   Contents

Figures

4.1 Overview

This chapter describes the procedure for removing and replacing the field replaceable units (FRUs) in the PC. It may not be necessary to remove all the FRUs in order to replace one. The chart below provides a guide as to which other FRUs must be removed before a particular FRU can be removed. The numbers in the chart indicate the relevant section numbers in this manual.

In all cases when removing an FRU, shut down the computer and the BATTERY PACK (Micro SD card, SIM card, Smart card and BASE ASSY) must be removed. When repairing an FRU that is the potential cause of a computer fault, use the chart to determine the order in which FRUs need to be removed.
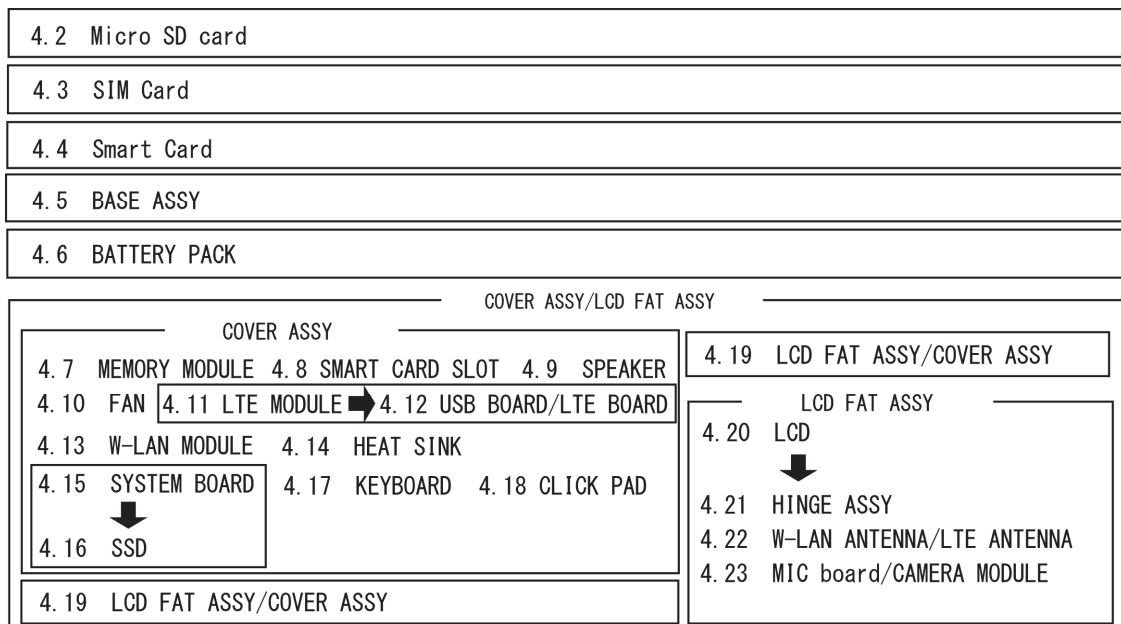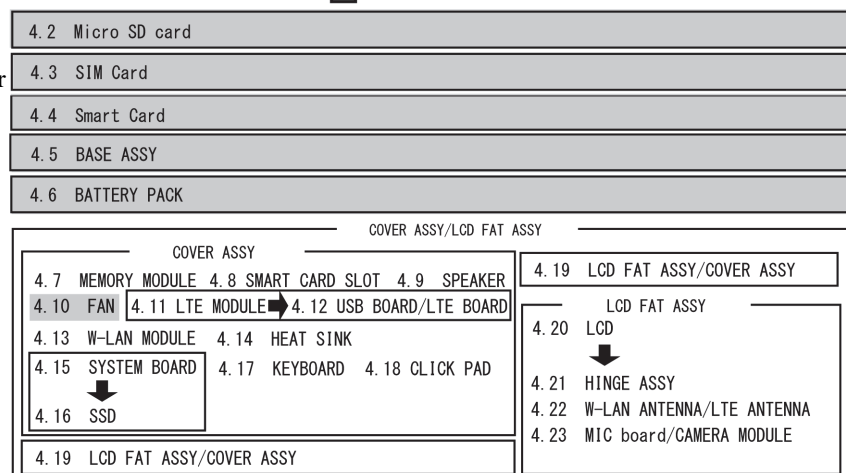
```
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.2  Micro SD card                                                        │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.3  SIM Card                                                             │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.4  Smart Card                                                           │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.5  BASE ASSY                                                            │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.6  BATTERY PACK                                                         │
└─────────────────────────────────────────────────────────────────────────┘
```

COVER ASSY/LCD FAT ASSY

```
┌─────────────────────────────────────────┐   ┌─────────────────────────────┐
│           COVER ASSY                     │   │ 4.19  LCD FAT ASSY/COVER ASSY│
│ 4.7  MEMORY MODULE 4.8 SMART CARD SLOT   │   └─────────────────────────────┘
│      4.9  SPEAKER                        │       ┌─────────────────────────┐
│ 4.10  FAN │4.11 LTE MODULE ➡ 4.12 USB    │       │     LCD FAT ASSY         │
│            BOARD/LTE BOARD│               │       │ 4.20  LCD                │
│ 4.13  W-LAN MODULE   4.14  HEAT SINK      │       │        ⬇                 │
│ ┌4.15  SYSTEM BOARD┐  4.17 KEYBOARD       │       │ 4.21  HINGE ASSY         │
│ │        ⬇         │  4.18 CLICK PAD      │       │ 4.22  W-LAN ANTENNA/LTE  │
│ │4.16  SSD         │                      │       │        ANTENNA           │
│ └─────────────────┘                       │       │ 4.23  MIC board/CAMERA   │
│                                           │       │        MODULE            │
│ 4.19  LCD FAT ASSY/COVER ASSY             │       └─────────────────────────┘
└─────────────────────────────────────────┘
```

⬆

Chart Notation

The chart shows the case for the following example:

• Removing the FAN

All FRUs down to the "4.2 Micro SD card" to "4.6 BATTERY PACK" above the 4.10 FAN must be removed.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.2  Micro SD card                                                        │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.3  SIM Card                                                             │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.4  Smart Card                                                           │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.5  BASE ASSY                                                            │
└─────────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────────┐
│ 4.6  BATTERY PACK                                                         │
└─────────────────────────────────────────────────────────────────────────┘
```

COVER ASSY/LCD FAT ASSY

```
┌─────────────────────────────────────────┐   ┌─────────────────────────────┐
│           COVER ASSY                     │   │ 4.19  LCD FAT ASSY/COVER ASSY│
│ 4.7  MEMORY MODULE 4.8 SMART CARD SLOT   │   └─────────────────────────────┘
│      4.9  SPEAKER                        │       ┌─────────────────────────┐
│ │4.10  FAN│ 4.11 LTE MODULE➡4.12 USB      │       │     LCD FAT ASSY         │
│           BOARD/LTE BOARD│                │       │ 4.20  LCD                │
│ 4.13  W-LAN MODULE   4.14  HEAT SINK      │       │        ⬇                 │
│ ┌4.15  SYSTEM BOARD┐  4.17 KEYBOARD       │       │ 4.21  HINGE ASSY         │
│ │        ⬇         │  4.18 CLICK PAD      │       │ 4.22  W-LAN ANTENNA/LTE  │
│ │4.16  SSD         │                      │       │        ANTENNA           │
│ └─────────────────┘                       │       │ 4.23  MIC board/CAMERA   │
│                                           │       │        MODULE            │
│ 4.19  LCD FAT ASSY/COVER ASSY             │       └─────────────────────────┘
└─────────────────────────────────────────┘
```

Please prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
BASE ASSY	40	BASE ASSY	1
	36	EMI GASKET (P10) (Non LTE model)	1
		SQUARE CUSHION (291) (2cell Battery model)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
SMART CARD SLOT		SMART CARD SLOT	1
	66	AL TAPE (171)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
SPEAKER	17	SPEAKER	1
		D STICK TAPE (211)	1
		D STICK TAPE (221)	1

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ITEM	Parts List ITEM No	PART NAME	Quantity
SYSTEM BOARD (MOTHER BOARD ASSY)	01	MOTHER BOARD ASSY	1
	65	SQUARE CUSHION (241)	1
		RUBBER SQUARE (t1.6x3x3(TAPE t0.1): black) (PSZ3* model)	4

< PSZ2* model only >

ITEM	Parts List ITEM No	PART NAME	Quantity
SSD (in case of "PHISON" is printed on SSD)		SSD	1
		SQUARE CUSHION (311)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
CLICK PAD	19, 19-A	CLICK PAD	1
	64	AL TAPE (181)	1
	60A	D TAPE PAD	1

ITEM	Parts List ITEM No	PART NAME	Quantity
COVER ASSY	60	COVER ASSY	1
	66	AL TAPE (171) (Smart card model)	1
	64	AL TAPE (181)	1
	19, 19-A	CLICK PAD	1
		EMI GASKET (Z10)	1
		INSU SQUARE (191) (KB Non Backlight model)	1
	92	PRODUCT BADGE	1

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD MASK ASSY	51	LCD MASK ASSY	1
	53	AL TAPE MASK	1
	59	CAMERA PANEL (Camera model)	1
		FA PANEL (Non camera model)	1
		AL TAPE (191) (FHD model)	2
		SQUARE CUSHION (281) (HD model)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (FHD model)		LCD	1
		AL TAPE (131)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (HD model)	03	LCD	1
		AL TAPE (131) (LTE model)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (Incel model)		LCD	1
		AL TAPE (131) (LTE model)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD HARNESS	21	LCD HARNESS	1
	39	INSU BH L	1

ITEM	Parts List ITEM No	PART NAME	Quantity
W-LAN/LTE MAIN ANTENNA	22	W-LAN/LTE MAIN ANTENNA	1
	38	INSU BH R	1

ITEM	Parts List ITEM No	PART NAME	Quantity
W-LAN/LTE AUX ANTENNA	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD COVER ASSY (HD model)	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
	42	SQUARE CUSHION (131)	5
	41	SQUARE CUSHION (211)	4
	48	LCD PROTECT (611)	2
	47	D TAPE HD	2
		LCD PROTECT (181)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD COVER ASSY (FHD model)	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
		SQUARE CUSHION (181)	5
	48	LCD PROTECT (611)	2
	44	SPACER FHD	1
		SQUARE CUSHION (251)	4
		LCD PROTECT (161)	2
	52	EMI GASKET (T10)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD COVER ASSY (Incell model)	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
		SQUARE CUSHION (231)	12
		LCD PROTECT ICT	2
		SQUARE CUSHION (261)	4
		LCD PROTECT (171)	2
		D TAPE ICT	2
		INSU ANT HOLD (LTE model)	4

ITEM	Parts List ITEM No	PART NAME	Quantity
CAMERA MODULE	13	CAMERA MODULE	1
	66	AL TAPE (171)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
MIC BOARD	56	MIC BOARD	1
	66	AL TAPE (171) (Camera model)	1

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Parts which must not be reused are EMI GASKET (P10), SQUARE CUSHION (291), AL TAPE (171), D STICK TAPE (211), D STICK TAPE (221), SQUARE CUSHION (241), AL TAPE (181), D TAPE PAD, CLICK PAD, EMI GASKET (Z10), INSU SQUARE (191), PRODUCT BADGE, AL TAPE MASK, CAMERA PANEL, FA PANEL, AL TAPE (191), SQUARE CUSHION (281), AL TAPE (131), LCD HARNESS, INSU BH L, INSU BH R, W-LAN/LTE MAIN ANTENNA, W-LAN/LTE AUX ANTENNA, EMI GASKET (T10), SQUARE CUSHION (131), SQUARE CUSHION (211), LCD PROTECT (611), D TAPE HD, LCD PROTECT (181), SQUARE CUSHION (181), SPACER FHD, SQUARE CUSHION (251), LCD PROTECT (161), SQUARE CUSHION (231), LCD PROTECT ICT, SQUARE CUSHION (261), SQUARE CUSHION (311), LCD PROTECT (171), D TAPE ICT, INSU ANT HOLD and RUBBER SQUARE.

The main parts in this manual are indicated in the part list by the following names.

Parts List ITEM No	Manual NAME	PART NAME
01	SYSTEM BOARD	MOTHER BOARD ASSY
S01	M2.5×2.5C S-THIN HEAD	SCREW M2.5X2.5 FLAT HEAD
S02	M2.5×4B FLAT HEAD	SCREW M2.5X4 FLAT HEAD
S03	M2.5×6B FLAT HEAD	SCREW M2.5X6 FLAT HEAD
S04	M2×2.3C S-THIN HEAD	SCREW M2X2.3 FLAT HEAD
S05	M2×3B S-THIN HEAD	TSCREW M2X3 3CR

Safety Precautions

Please read the following safety instructions before disassembling the computer and always follow the instructions while working on the computer.

DANGER: 1) *Always use the genuine battery that is authorized by our company or compatible with the unit. Since other BATTERY PACKs have different specifications, they may be incompatible with the unit, and may burst or explode.*
Never heat or disassemble the BATTERY PACK, as that could cause leakage of alkaline solution. Never throw the BATTERY PACK into a fire, as that could cause the BATTERY PACK to explode.

2) *The power supply and other components carry high voltages. If you need to turn on the power of a partially disassembled computer to check its operation, be very careful not to touch connectors or components, in order to avoid the risk of electric shock.*
Also, do not disassemble individual components in first-level maintenance.

WARNING: 1) *Turn off the power and disconnect the AC adaptor from the power source, to avoid exposure to electric shock.*

2) *Batteries in the computer retain an electrical charge, so there is danger of electrical shock even when the computer is disconnected from an AC power source. Remove any metal jewelry or accessories such as necklaces, bracelets or rings, in order to reduce the risk of electric shock. Never work with wet or damp hands.*

3) *Be careful of edges and corners as these may cut.*

CAUTION: 1) *When you change a component, be sure the replacement component meets the required specifications. Never use foreign parts, to avoid any risk of damage to the computer.*

2) *To avoid any risk of short-circuit, fire or other internal damage, never allow any metal objects such as screws or paper clips to fall into the unit. Be sure to replace screws with the same size as those removed. Make sure all screws are securely fastened. Loose screws can cause short circuits, resulting in heat, smoke or fire.*

3) *Before lifting out an FRU or other component, make sure all cables to the component have been disconnected, in order to reduce the risk of accidental electric shock.*

4) *If you use AC power, be sure to use the cable that came with the computer or one recommended by our company.*

5) *Make sure that all replacement components meet the specifications for the computer and that all cables and connectors are securely fastened, in order to avoid the risk of electric shock.*

6) *Some parts inside the computer, such as the CPU and cooling module, become very hot during operation. Conduct repair work after they have cooled. Be careful around the CPU and cooling module to avoid burns.*

Before You Begin

Take note of the following points before starting work. Always remove the AC adapter and BATTERY PACK before commencing any of the procedures. The procedure for removing the BATTERY PACK is described in section "4.6. BATTERY PACK".

1. Do not disassemble the computer unless it is operating abnormally.

2. Use the designated tools.

3. Ensure that the environment for working on and storing parts does not contain any of the following.

    *   Dust or dirt

    *   Static electricity

    *   Extremely hot, cold, or humid conditions

4. Perform the diagnostic tests described in Chapter 2 to determine which FRU is the cause of the fault.

5. Do not perform any unnecessary work. Always work in accordance with the disassembly and re-assembly procedures in this manual.

6. Keep parts removed from the computer in a safe place away from the computer where they will not be damaged or interfere with your work.

7. Disassembling requires the removal of a large number of screws. Keep removed screws in a safe place such that you can determine which screws belong to which part.

8. When re-assembling, ensure that you use the correct screws and fit parts in the correct position. Screw sizes are noted in the text and figures.

9. As all parts have sharp edges and corners, take care not to cut yourself.

10. When disassembling, ensure that not to put the excessive power to avoid breaking the parts and latches.

11. Be careful that not to break the computer casing and harnesses by the removed parts.

12. After replacing an FRU, check that the computer and replaced part operate correctly.

Disassembly Procedures

Four main types of cable connector are used.

- Pressure plate connector
- Spring connector
- Back flip connector
- Normal pin connector

For pressure plate connectors, slide the pressure plate holding tags on both sides of the plastic pressure plate on the connector and pull the cable out from the connector. When reconnecting the cable to the pressure plate connector, slide the pressure plate holding tags on both sides of the plastic pressure plate on the connector and insert the cable into the connector. Push both tags of the pressure plate such that the cable is fixed in the correct position. Pull the cable to ensure that it is securely connected.

For spring connectors, lift up the stopper frees the cable and allow it to be pulled out. To reconnect, hold the stopper in the up position and insert the cable, then lower the stopper to secure the cable. Pull the cable to ensure that it is securely connected.

For back flip connectors, lift up the flip plate frees the cable and allow it to be pulled out. To reconnect, hold the flip plate in the up position and insert the cable, then lower the flip plate to secure the cable. Pull the cable to ensure that it is securely connected.

Normal pin connectors are used for all other cables. Simply pull out or push in these connectors to disconnect or reconnect.

Pressure plate connector   Spring connector   Back flip connector
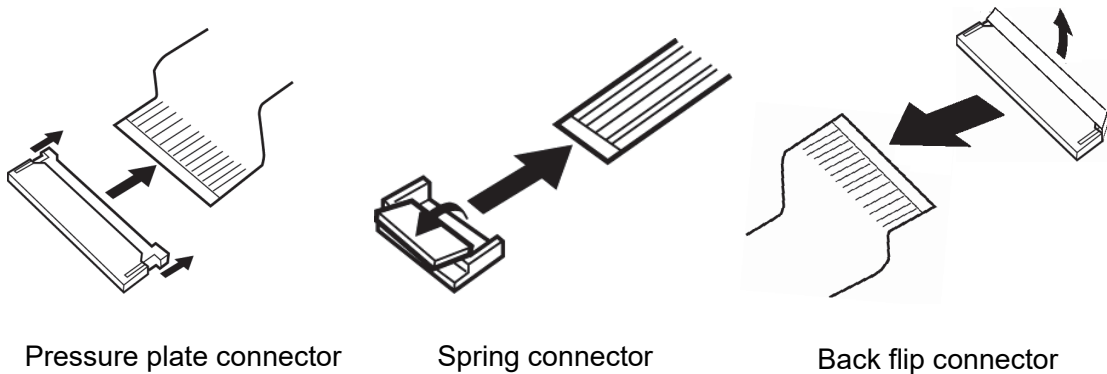
Assembly Procedures

After the computer has been disassembled and the part that caused the fault has been repaired or replaced, the computer must be reassembled.

Take note of the following general points when assembling the computer.

- Take your time and follow the instructions carefully. Hurrying the assembly work will only introduce new problems.

- Check that all cables and connectors are securely connected.

- Before fastening FRUs or other parts in place, ensure that no cables are caught on screws or the FRU.

- Check that all latches are securely closed.

- When re-assembling, ensure that not to put the excessive power to avoid breaking the pins and latches.

- Ensure that you have installed all FRUs correctly and do not have any screws left over. Using an incorrect screw may damage the thread or screw head and result in the FRU not being securely fastened in place.

- When re-assembling, ensure that not to break the computer casing and harnesses by the tools and equipment.

- When checking the computer moved correctly, do not put the excessive power on the hinges and computer itself.

After installing FRUs, check that the computer operates correctly.

Tools and Equipment

The use of Electrostatic Discharge (ESD) equipment is very important for your safety and the safety of those around you. Proper use of these devices will increase the success rate of your repairs and lower the cost for damaged or destroyed parts. The following equipment is necessary to disassemble and reassemble the computer:

- One Philips screwdriver with type 0 bit (for S-THIN HEAD screws)

- One Philips screwdriver with type 1 bit (for screws other than above)

- Tweezers (for lifting screws)

- ESD mats (lay on work table or floor)

- An ESD wrist strap and heel grounder

- Anti-static carpet or flooring

- Air-ionizers in highly static sensitive areas

- Antenna coaxial cable disconnector

Screw Tightening Torque

When you fasten screws, be sure to follow the torque list below.

CAUTION: Overtightening can damage components and screws; undertightening can result in electrical shorts or other damage if screws or components come loose.

NOTE: Our company recommends that you use an electric screwdriver for quick and easy operations.

- M2 (2mm)   0.167 N·m (1.7 kgf·cm)

- M2.5 (2.5mm)   0.294 N·m (3.0 kgf·cm)

NOTE: To prevent damage to THIN HEAD screws, use type 0 bit philips screwdriver. Press along the axis of the screwdriver while turning the screw. This is because the contact area between the screw and driver is less than for a pan head screw (standard pan-shaped screw head).
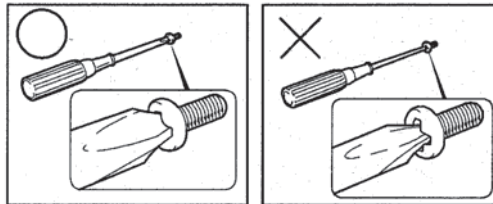
Grip Color

Some screws have a colored grip area.

[Nylok screw]

- Grip color : Blue (The four screws fixing the LCD COVER and HINGE L/R ASSY (M2.5×2.5C S-THIN HEAD) are Yellow)

Grip area

Screw Notation

To make maintenance of the computer easier, markings of the kinds of the screws including the types and lengths of the screws are indicated on the computer body.

Format:

Screw type + Screw length (mm)

Screw shape

    B: Bind screw
    F: Flat head screw
    S: Super thin head screw
    T: Tapping screw
    U: Other screws (Unique screws: pan head, stud, etc.)

    Example: B6 ... 6mm BIND screw

Screw color/material

    B: Black/Nickel
    C: Silver/Non-Hexavalent Chromate
    U: Other screws (Unique screws: such as stud, etc.)

4.2 Micro SD Card

Removing the Micro SD Card

To remove the Micro SD Card, follow the steps below and refer to Figure 4-1.

> *CAUTION:* *Before you remove the Micro SD card, refer to the card's documentation and to your operating system documentation for proper procedures and precautions.*

1. Push the **Micro SD card**. It will pop out partly, so pull out the card.
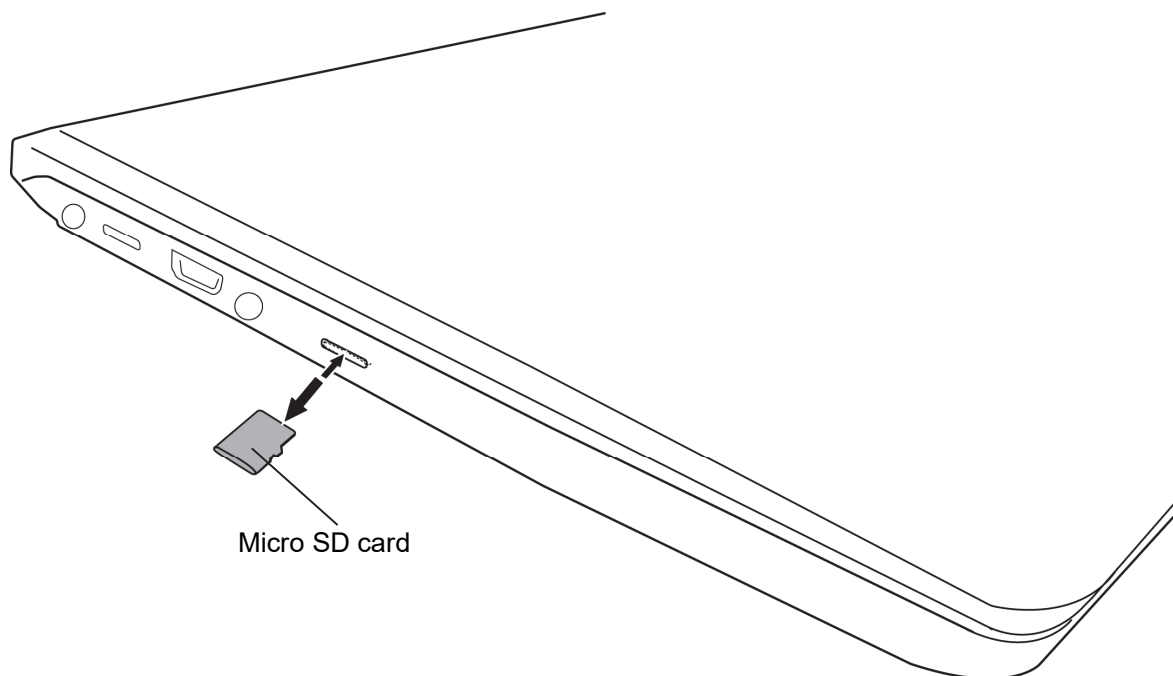
Micro SD card

Figure 4-1   Removing the Micro SD card

Installing the Micro SD Card

To install the Micro SD Card, follow the steps below and refer to Figure 4-1.

1. Insert the **Micro SD card** into the slot and push it carefully to ensure a firm connection.

4.3   SIM Card

Removing the SIM Card

To remove the SIM Card, follow the steps below and refer to Figure 4-2.

CAUTION: *Before you remove the SIM card, refer to the card's documentation and to your operating system documentation for proper procedures and precautions.*

1. Insert a **slender object** (about 0.8mm) such as a straightened paper clip into the eject hole and pull the **SIM card tray**.

2. Remove the **SIM card** from the SIM card tray.
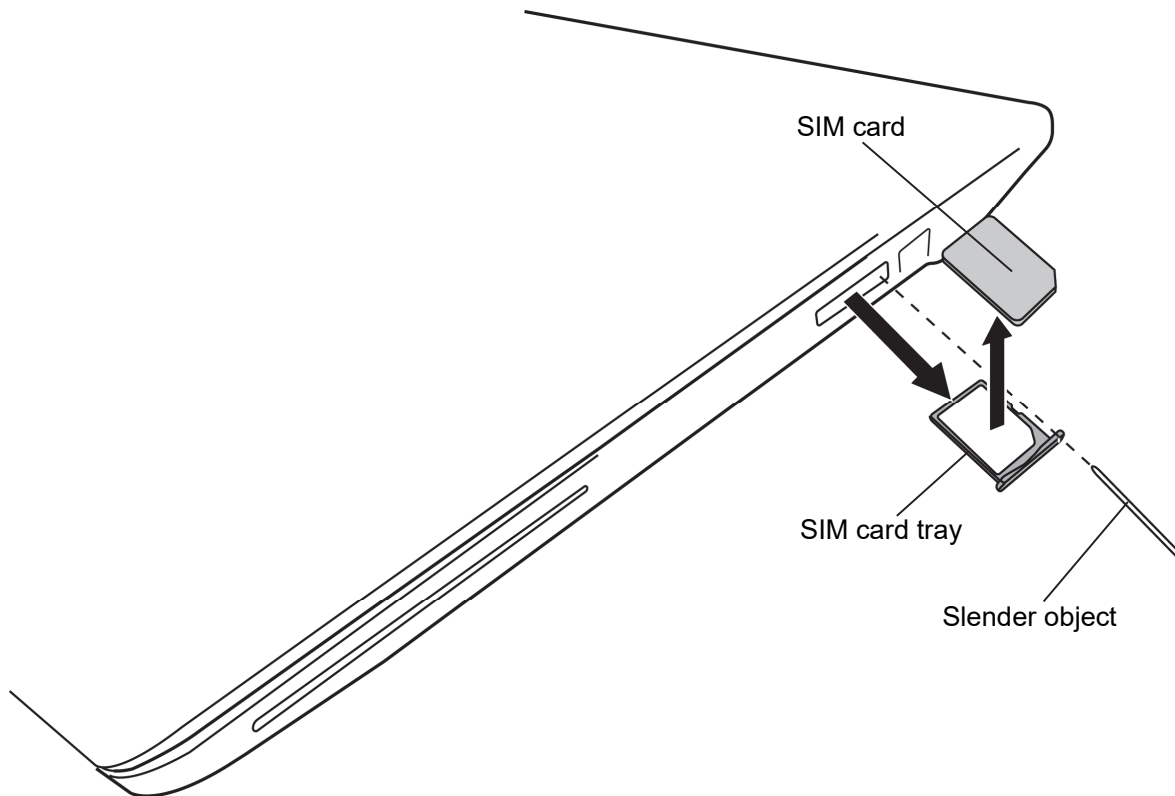
Figure 4-2   Removing the SIM card

Installing the SIM Card

To install the SIM Card, follow the steps below and refer to Figure 4-2.

1. Set the **SIM card** on the SIM card tray.

2. Set the **SIM card tray** (with the SIM card) into the SIM card slot.

4.4   Smart Card

Removing the Smart Card

To remove the Smart Card, follow the steps below and refer to Figure 4-3.

> *CAUTION:* *Before you remove the Smart card, refer to the card's documentation and to your operating system documentation for proper procedures and precautions.*

1. Pull out the **Smart card** from the smart card slot.
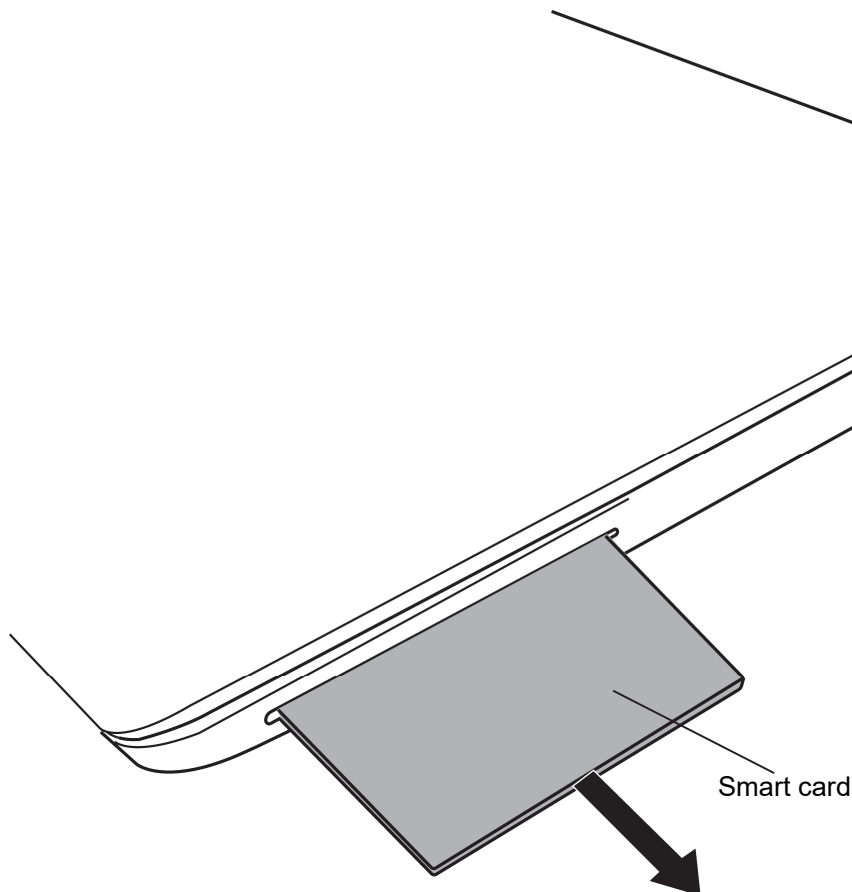
Smart card

Figure 4-3   Removing the Smart card

Installing the Smart Card

To install the Smart Card, follow the steps below and refer to Figure 4-3.

1. Insert the **Smart card** into the smart card slot and push it carefully to ensure a firm connection.

4.5   BASE ASSY

Removing the BASE ASSY

To remove the BASE ASSY, follow the steps below and refer to Figure 4-4.

1. Click "Start" – "Power" and then click "Shut down" while holding down the SHIFT key to turn off the power of the computer.

2. Disconnect the AC adapter and other external devices from the computer.

3. Turn over the computer.

4. Remove the following **screws** securing the BASE ASSY.

    *   M2.5×4B   FLAT HEAD screw   ×4 (Described as "4" in the Figure 4-4)

    *   M2.5×6B   FLAT HEAD screw   ×7 (Described as "6" in the Figure 4-4)

5. Remove the **BASE ASSY** while releasing the latches.
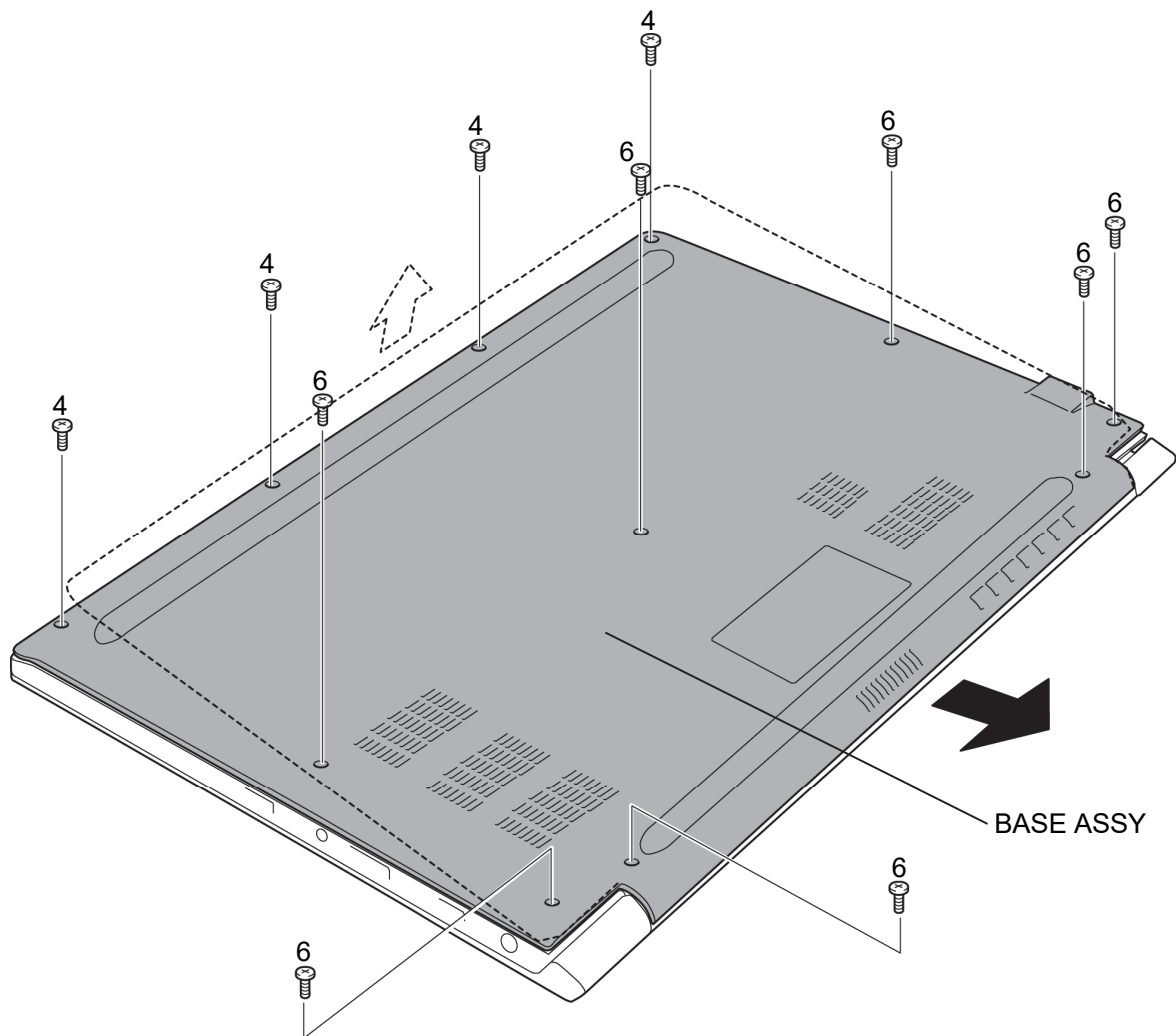
Figure 4-4   Removing the BASE ASSY

Installing the BASE ASSY

To install the BASE ASSY, follow the steps below and refer to Figure 4-4.

NOTE: *When replacing the BASE ASSY (non LTE model) with a new one, stick a new EMI GASKET to the BASE ASSY in place.*
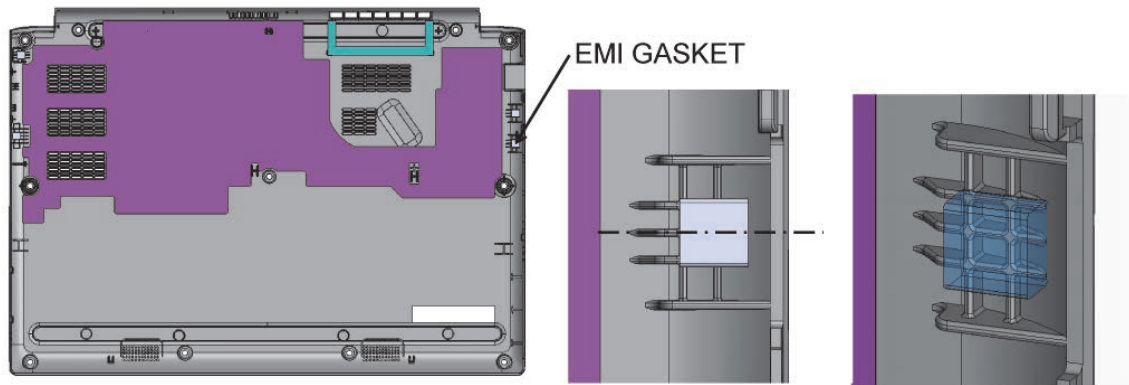
NOTE: *When replacing the BASE ASSY (2cell Battery model) with a new one, stick a new SQUARE CUSION (291) to the BASE ASSY in place.*
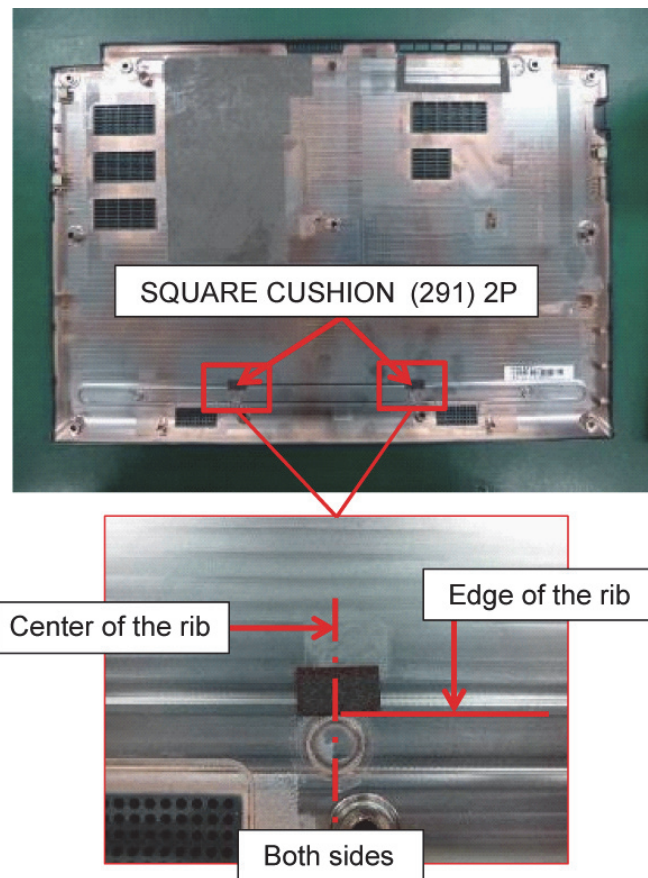
1. Set the **BASE ASSY** to the COVER ASSY and secure it with the following **screws**.

- M2.5×4B   FLAT HEAD screw   ×4 (Described as "4" in the Figure 4-4)

- M2.5×6B   FLAT HEAD screw   ×7 (Described as "6" in the Figure 4-4)

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
BASE ASSY	40	BASE ASSY	1
	36	EMI GASKET (P10) (Non LTE model)	1
		SQUARE CUSHION (291) (2cell Battery model)	2

4.6   BATTERY PACK

Removing the BATTERY PACK

To remove the BATTERY PACK, follow the steps below and refer to Figure 4-5 and 4-6.

CAUTION: *When handling the BATTERY PACK, be careful not to short circuit the*
terminals. Also do not drop, hit, apply impact, scratch, break, twist or bend
the BATTERY PACK.

---

1. Peel off the **INSU SQUARE**.

2. Disconnect the **BATTERY HARNESS** from the connector **CN8021** on the SYSTEM BOARD.

3. Remove the following **screws** (4cell model) and the **BATTERY PACK**.

    *   M2.5×4B   FLAT HEAD screw   ×2

CAUTION: *The used battery must be disposed according to the laws and ordinances of*
your local authority.

BATTERY PACK

INSU SQUARE

M2.5x4B FLAT HEAD

M2.5x4B FLAT HEAD

BATTERY HARNESS

CN8021
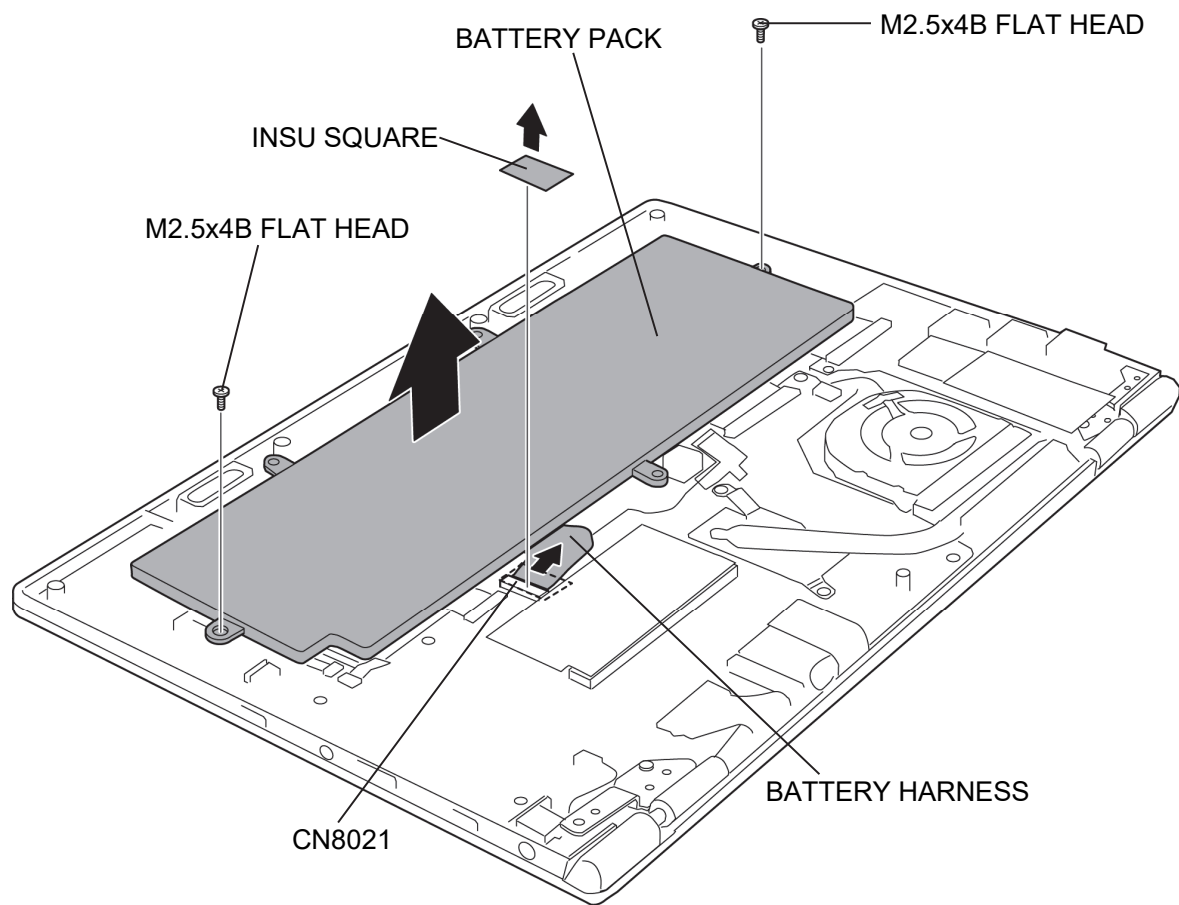
Figure 4-5   Removing the BATTERY PACK (4cell)

INSU SQUARE

BATTERY PACK

BATTERY HARNESS

CN8021
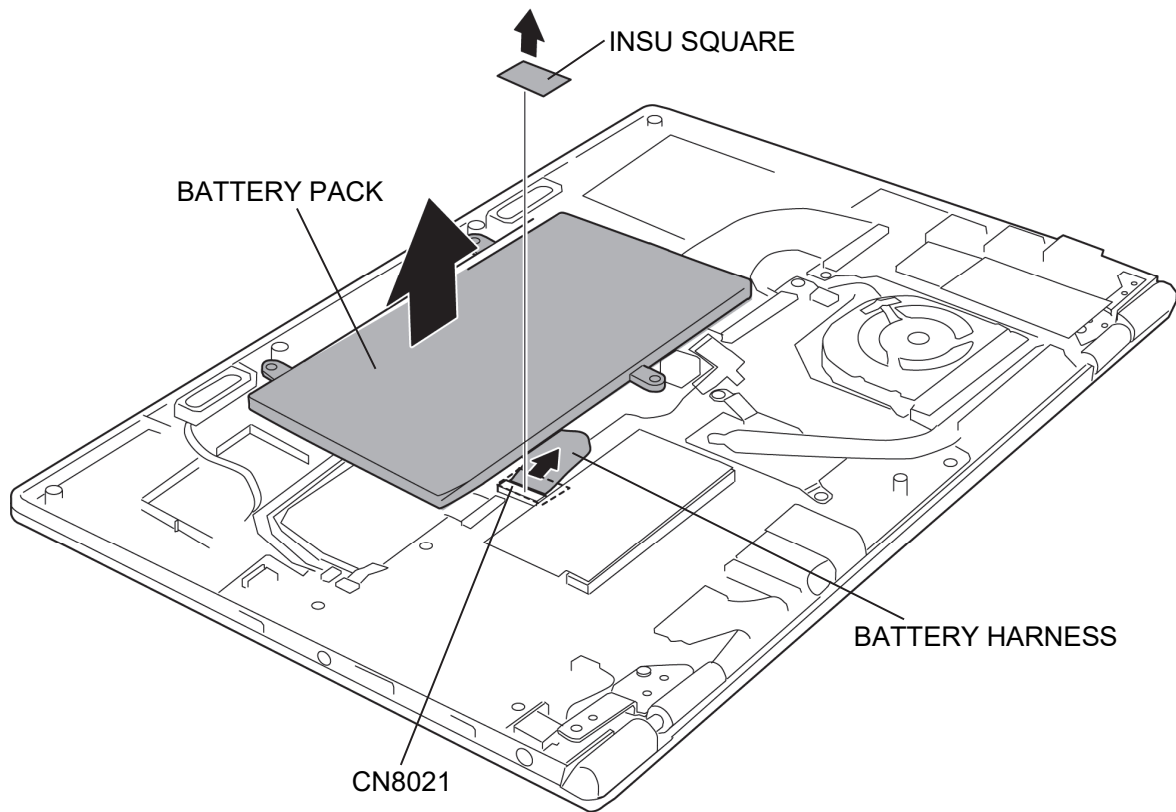
Figure 4-6   Removing the BATTERY PACK (2cell)

Installing the BATTERY PACK

To install the BATTERY PACK, follow the steps below and refer to Figure 4-5 and 4-6.

CAUTION: *The BATTERY PACK is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. For environmental reasons, collect the spent BATTERY PACKs. Use only batteries recommended by our company for replacements.*

---

1. Set the **BATTERY PACK** to the COVER ASSY and secure it with the following **screws**. (4cell model)

   - M2.5×4B   FLAT HEAD screw   ×2

2. Set the **BATTERY PACK** to the COVER ASSY. (2cell model)

3. Connect the **BATTERY HARNESS** to the connector **CN8021** on the SYSTEM BOARD.

4. Stick the **INSU SQUARE** in place.

4.7 MEMORY MODULE

Removing the MEMORY MODULE

To remove the MEMORY MODULE, remove the BATTERY PACK. Then follow the steps below and refer to Figure 4-7.

CAUTION: *When removing the MEMORY MODULE, make sure the computer is powered off. Removing a MEMORY MODULE with the power on might damage the module or the computer itself.*

Do not touch the connectors on the MEMORY MODULE or on the computer. Dust and stains on the connectors may cause memory access problems.

Never press hard or bend the MEMORY MODULE.

---

1. Open the left and right **latches** outside and remove the **MEMORY MODULE**.
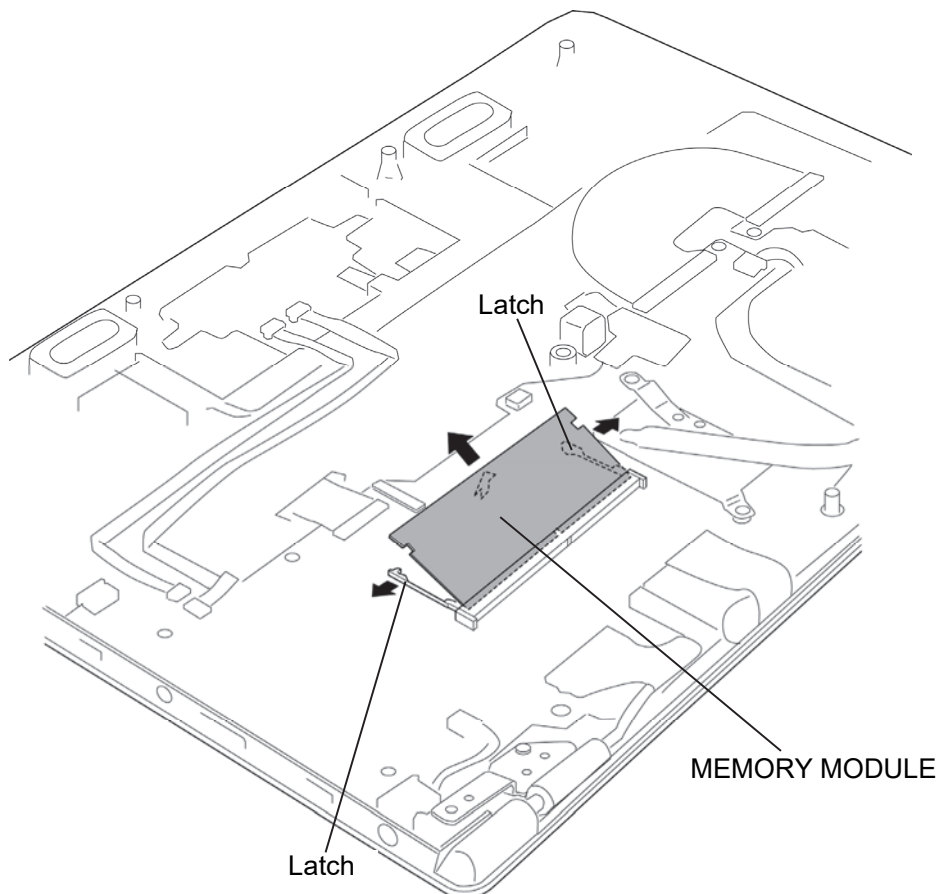
Figure 4-7   Removing the MEMORY MODULE

Installing the MEMORY MODULE

To install the MEMORY MODULE, remove the BATTERY PACK. Then follow the steps below and refer to Figure 4-7.

CAUTION: *When installing the MEMORY MODULE, make sure the computer is powered off. Inserting a MEMORY MODULE with the power on might damage the module or the computer itself.*

                    Never press hard or bend a MEMORY MODULE.

---

1. Insert the **MEMORY MODULE** into the connector slantwise and press it down to connect firmly.

CAUTION: *After installing the MEMORY MODULE, make sure that the MEMORY MODULE is secured with the left and right latches.*

---

2. When the power of the computer is turned on, the computer checks automatically the memory size. Confirm that the new memory is detected correctly.

3. If the memory is not detected, check if it is connected correctly.

4.8   SMART CARD SLOT

Removing the SMART CARD SLOT

To remove the SMART CARD SLOT, follow the steps below and refer to Figure 4-8.

1. Peel off the **AL TAPE**.

> *NOTE: Do not reuse the removed AL TAPE. Be sure to use a new one.*

2. Turn up the **INSU CUSHION SC**.

3. Disconnect the **SC FFC** from the connectors on the SMART CARD SLOT and **CN2100** on the SYSTEM BOARD.

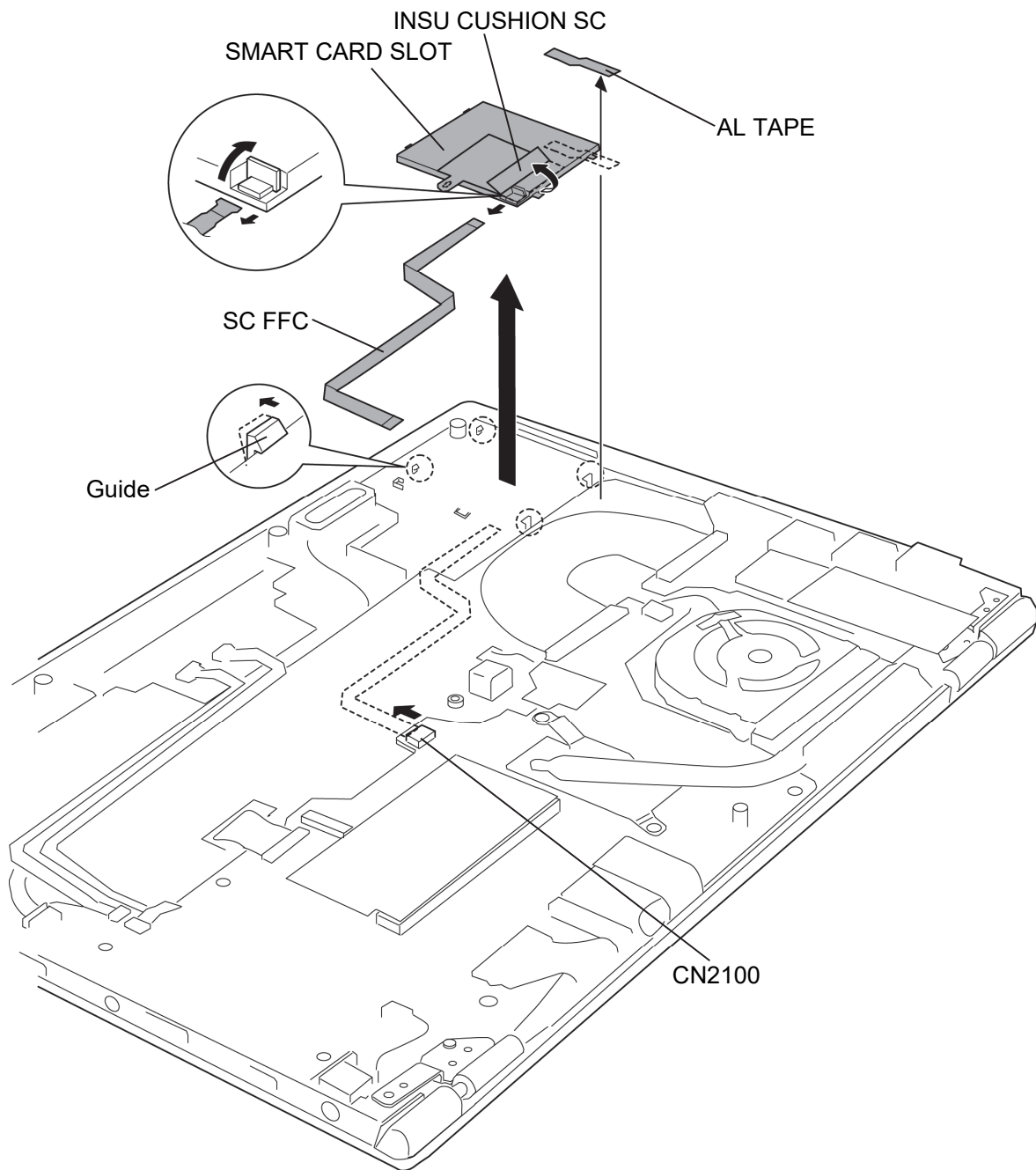4. Remove the **SMART CARD SLOT** in the arrow pointing from the **guides** of the COVER ASSY.

Figure 4-8 Removing the smart card slot

Installing the SMART CARD SLOT

To install the SMART CARD SLOT, follow the steps below and refer to Figure 4-8.

1. Set the SMART CARD SLOT to the **guides** of the COVER ASSY.

2. Connect the **SC FFC** to the connectors on the SMART CARD SLOT and **CN2100** on the SYSTEM BOARD.

3. Close the **INSU CUSHION SC** in place.

4. Stick a new **AL TAPE** in place.

> *NOTE:*   *When replacing the SMART CARD SLOT with a new one, stick the INSU CUSHION SC and AL TAPE (171) on the SMART CARD SLOT in place.*
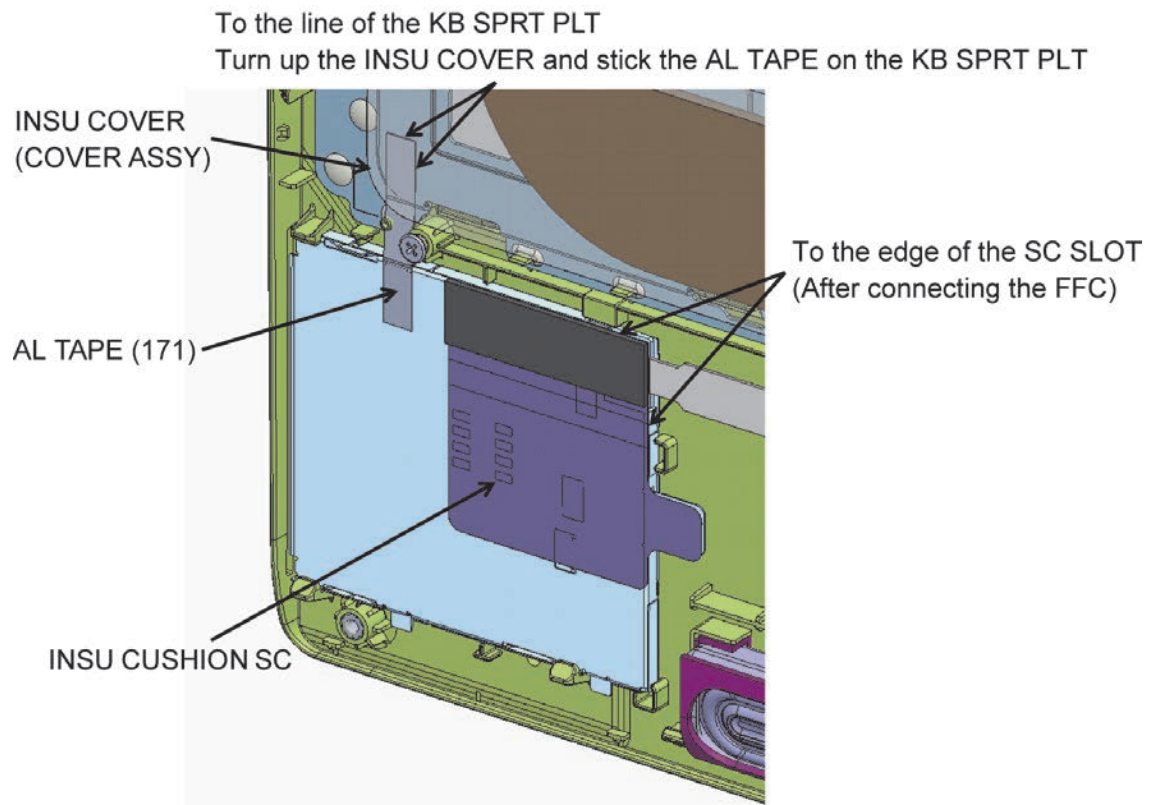
Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
SMART CARD SLOT		SMART CARD SLOT	1
	66	AL TAPE (171)	1

4.9 SPEAKER

Removing the SPEAKER

To remove the SPEAKER, follow the steps below and refer to Figure 4-9 and 4-10.

1. Disconnect the **FP FFC** (finger print sensor model) and **CPAD FFC** from the connectors on the CLICK PAD.

2. Disconnect the **FP FFC** (finger print sensor model) and **CPAD FFC** from the connectors **CN9550** and **CN9560** on the SYSTEM BOARD.
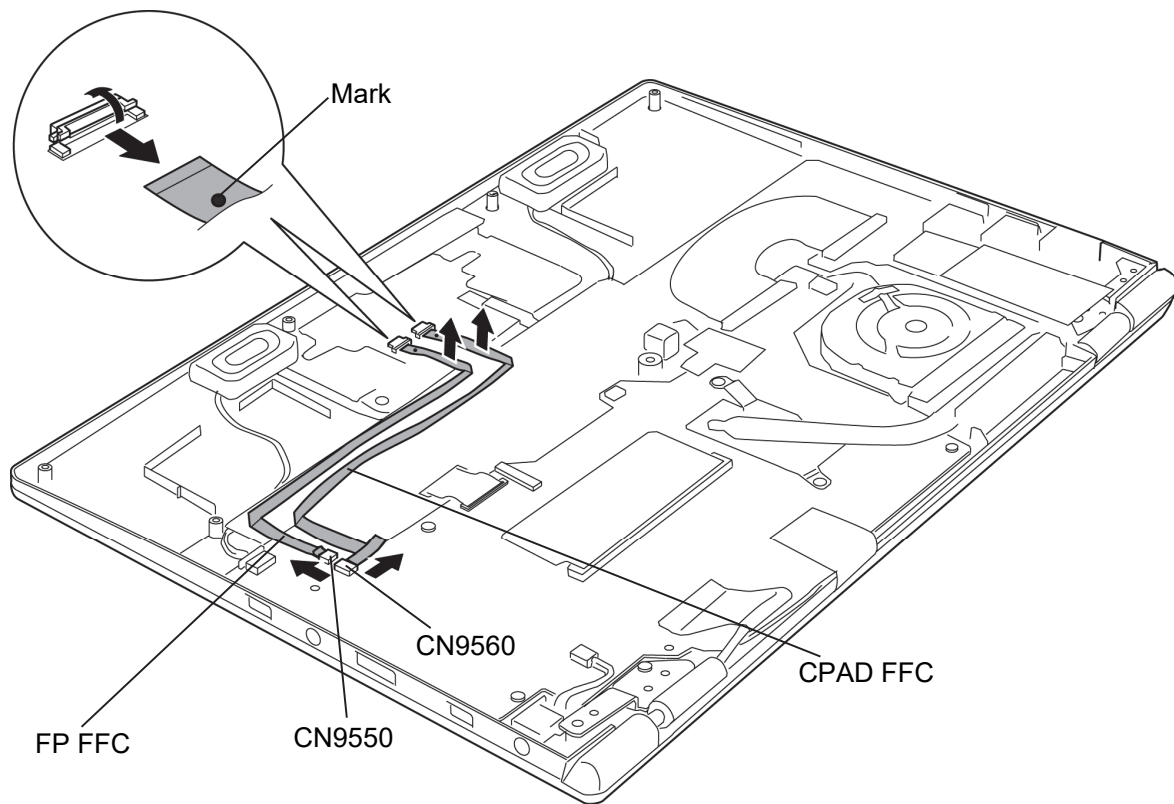

Figure 4-9   Removing the SPEAKER (1)

3. Disconnect the **SPEAKER HARNESS** from the connector **CN6290** on the SYSTEM BOARD.

4. Open the **INSU**.

5. Remove the **SPEAKER** (left and right) from the slots of the COVER ASSY.
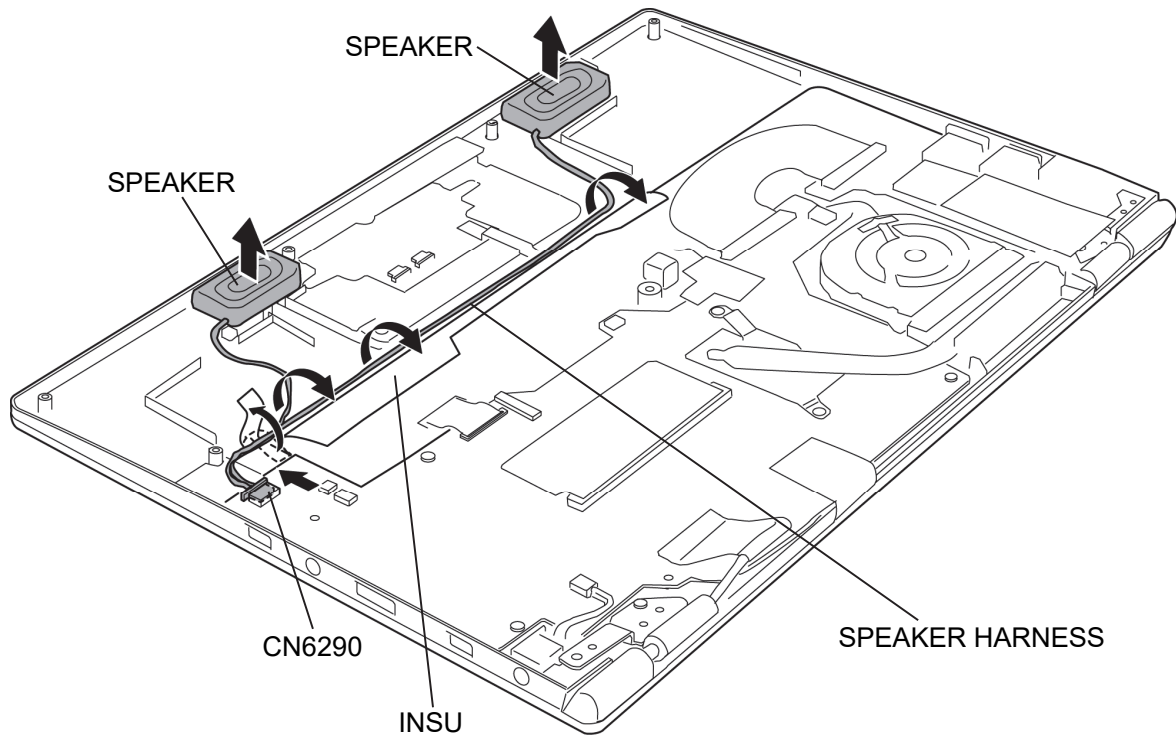
Figure 4-10   Removing the SPEAKER (2)

Installing the SPEAKER

To install the SPEAKER, follow the steps below and refer to 4-9 to 4-10.

NOTE: *When replacing the SPEAKER (opening the INSU) with a new one, replace the D STICK TAPEs on the COVER ASSY with new ones in place.*

D STICK TAPE

D STICK TAPE

D STICK TAPE

Edge of the tip of the plate
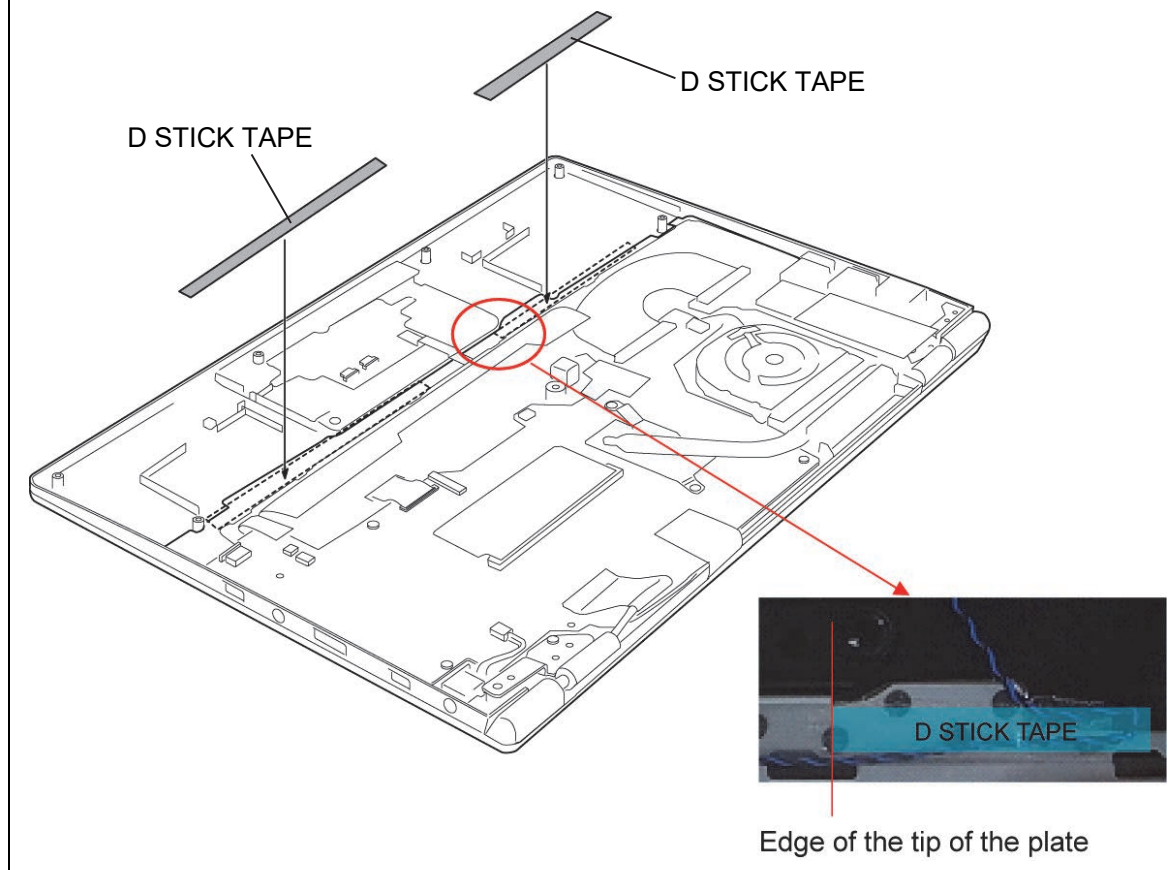
1. Set the **SPEAKER** (left and right) to the slots of the COVER ASSY.

2. Arrange the **SPEAKER HARNESS** in place and close the **INSU**.

3. Connect the **SPEAKER HARNESS** to the connector **CN6290** on the SYSTEM BOARD.

4. Connect the **FP FFC** (finger print sensor model) and **CPAD FFC** to the connectors **CN9550** and **CN9560** on the SYSTEM BOARD.

5. Connect the mark side of the **FP FFC** (finger print sensor model) and **CPAD FFC** to the connectors on the CLICK PAD.

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
SPEAKER	17	SPEAKER	1
		D STICK TAPE (211)	1
		D STICK TAPE (221)	1

4.10 FAN

Removing the FAN

To remove the FAN, follow the steps below and refer to Figure 4-11.

1. Disconnect the **FAN HARNESS** from the connector **CN3380** on the SYSTEM BOARD.

2. Remove the following **screws** and the **FAN**.

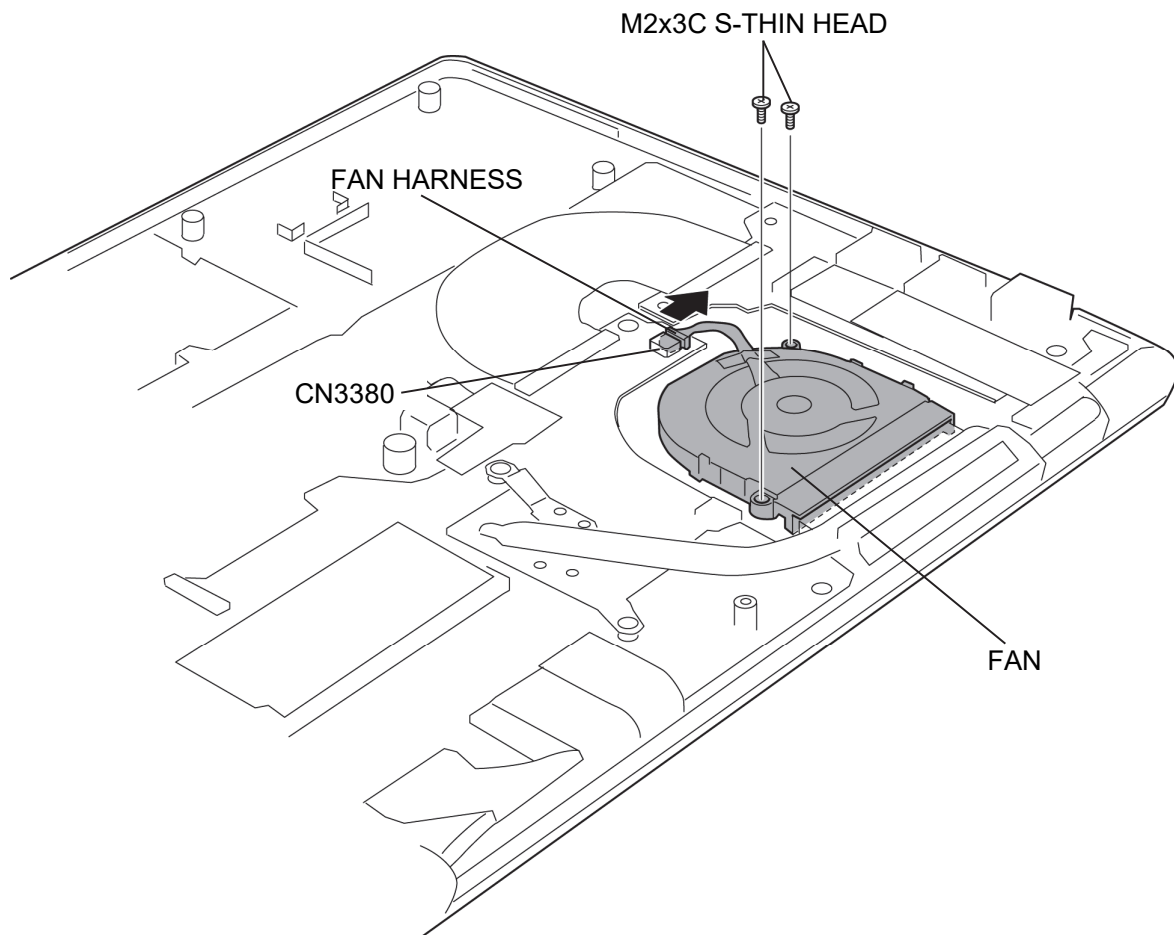   M2×3C   S-THIN HEAD screw   ×2

NOTE: *Do not touch the center portion of the FAN.*

Figure 4-11   Removing the FAN

Installing the FAN

To install the FAN, follow the steps below and refer to Figure 4-11.

1. Set the **FAN** to the COVER ASSY and secure it with the following **screws**.

   - M2×3C   S-THIN HEAD screw   ×2

2. Connect the **FAN HARNESS** to the connector **CN3380** on the SYSTEM BOARD.

4.11 LTE MODULE

Removing the LTE MODULE   Rev.03

To remove the LTE MODULE, follow the steps below and refer to Figure 4-12.

1. Peel off the **INSU LTE HNS HOLD**.

2. Disconnect the **ANTENNA CABLEs** from the connectors on the LTE MODULE.

3. Remove the following **screw** and disconnect the **LTE MODULE** from the connector
    CN2610 on the LTE BOARD.

    - M2×2.3C   S-THIN HEAD screw   ×1
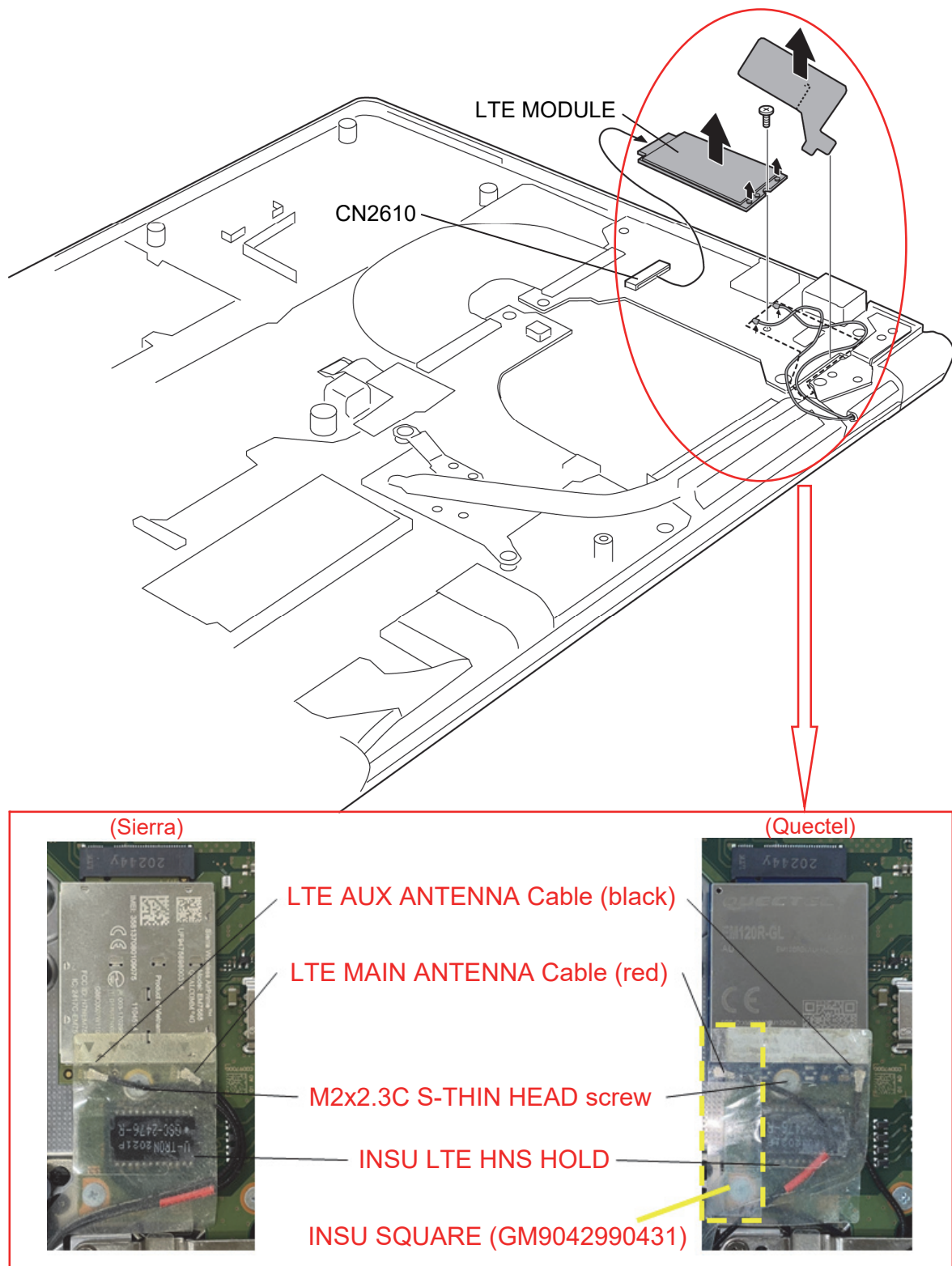
Figure 4-12   Removing the LTE MODULE

Installing the LTE MODULE

Rev.03

To install the LTE MODULE, follow the steps below and refer to Figure 4-12.

> *NOTE*: *The LTE MODULE for PSZ3* is different from the one for PSZ1* and PSZ2*.*
> *Prepare a correct LTE MODULE when changing to the new one.*

1. Connect the **LTE MODULE** to the connector **CN2610** on the LTE BOARD and secure it with the following **screw**.

   - M2×2.3C   S-THIN HEAD screw   ×1

2. Connect the **LTE ANTENNA CABLEs** to the connectors on the LTE MODULE.

3. Stick the **INSU LTE HNS HOLD** in place.
   Stick the **INSU SQUARE** (GM9042990431). (Quectel only)

4.12 USB BOARD/LTE BOARD

Removing the USB BOARD/LTE BOARD

To remove the USB BOARD/LTE BOARD, follow the steps below and refer to Figure 4-13 to 4-15.

1. Disconnect the **USB FPC** from the connector **CN9600** on the SYSTEM BOARD and **CN9640** on the USB BOARD/LTE BOARD.
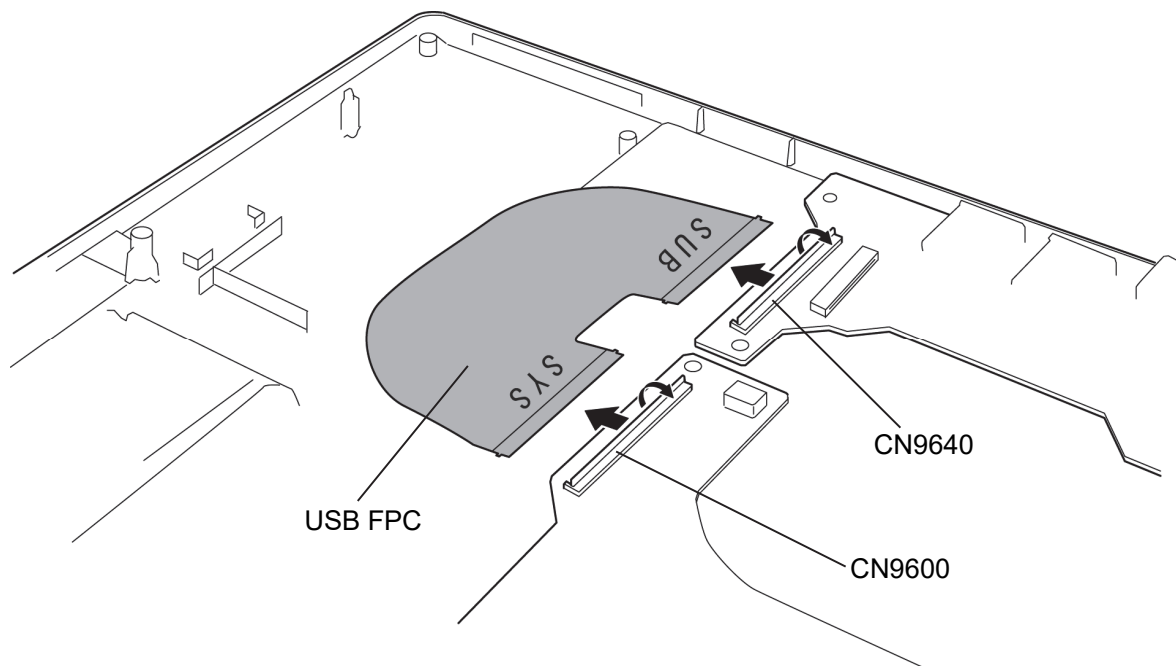

Figure 4-13   Removing the USB BOARD/LTE BOARD (1)

2. Remove the following **screws** and the **USB BOARD/LTE BOARD**.
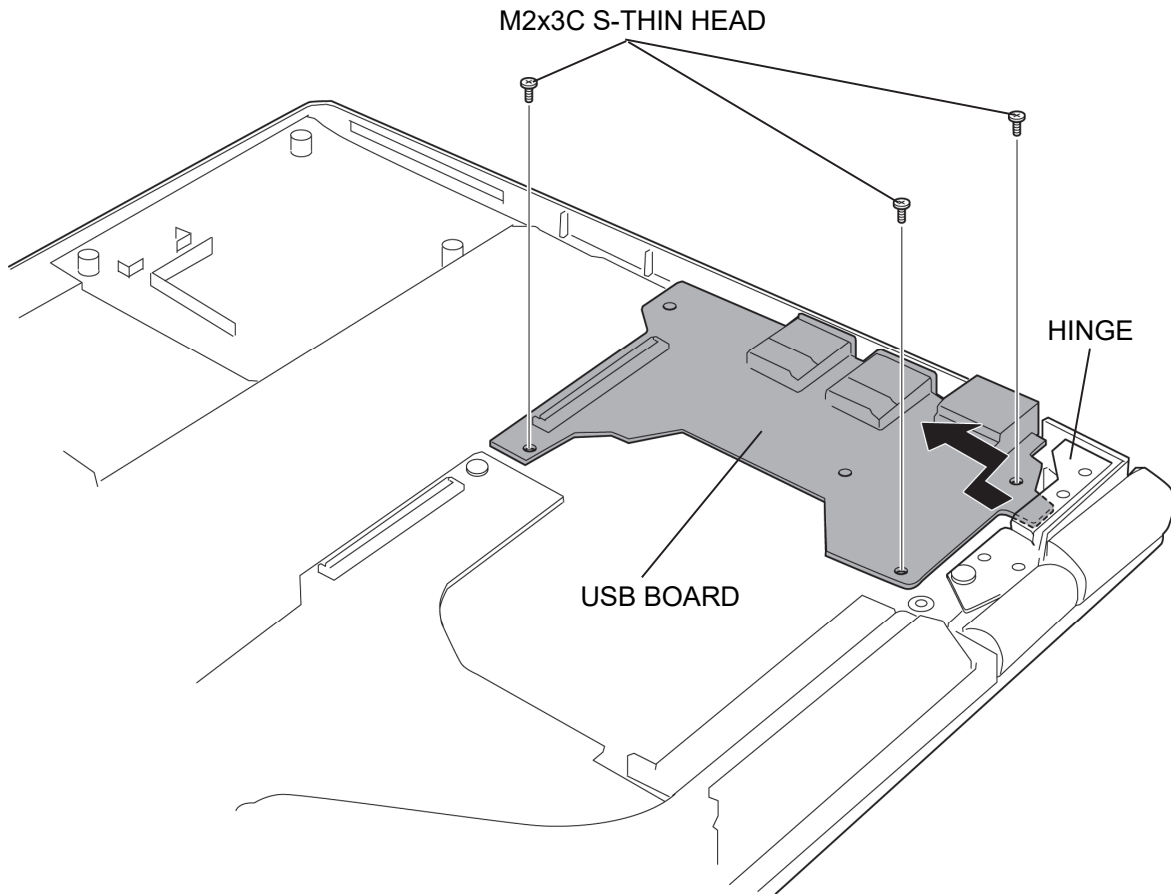
- M2×3C   S-THIN HEAD screw   ×3

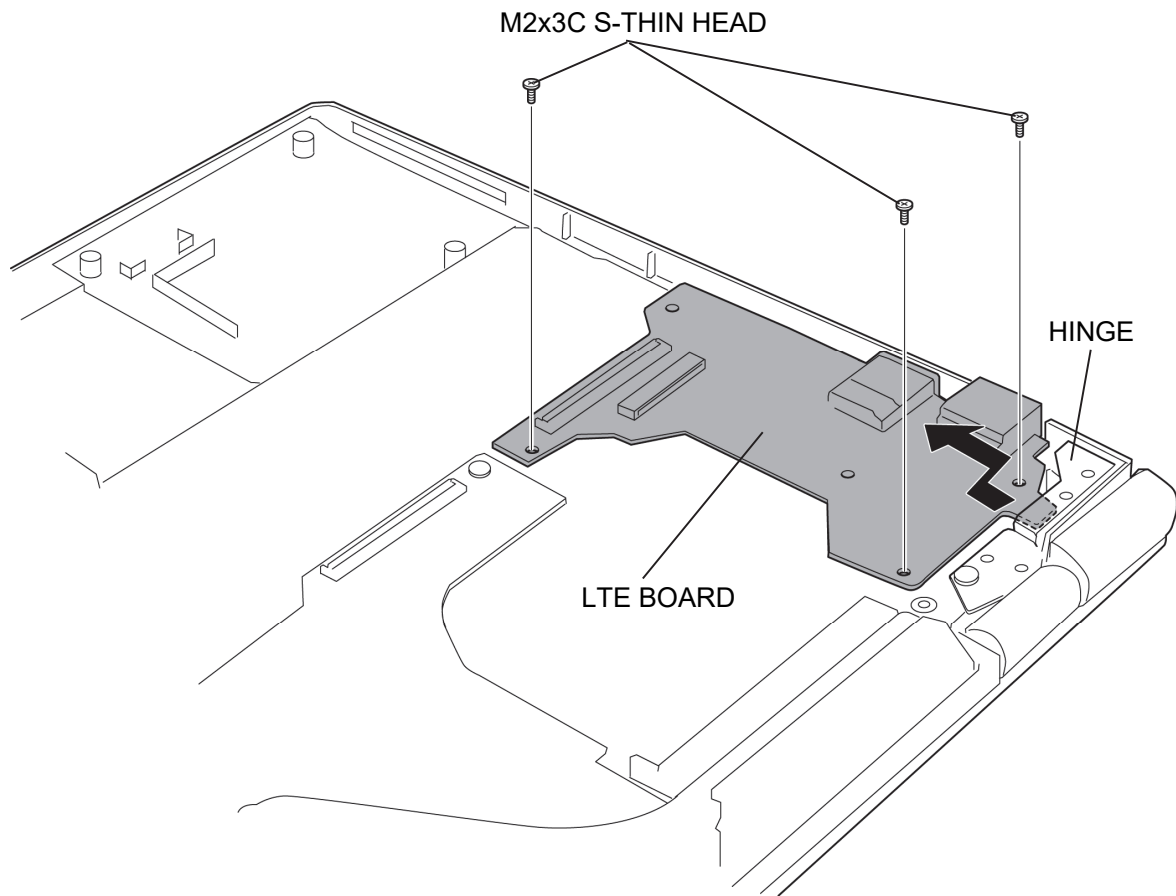*Figure 4-14   Removing the USB BOARD/LTE BOARD (2)*

M2x3C S-THIN HEAD

HINGE

LTE BOARD

Figure 4-15   Removing the USB BOARD/LTE BOARD (3)

Installing the USB BOARD/LTE BOARD

To install the USB BOARD, follow the steps below and refer to Figure 4-13 to 4-15.

1. Set the **USB BOARD/LTE BOARD** to the COVER ASSY (insert the tip of the USB BOARD under the **HINGE**) and secure it with the following **screws**.

    *   M2×3C   S-THIN HEAD screw   ×3

2. Connect the **USB FPC** to the connector **CN9600** on the SYSTEM BOARD and **CN9640** on the USB BOARD/LTE BOARD.

4.13 W-LAN MODULE

Removing the W-LAN MODULE

To remove the W-LAN MODULE, follow the steps below and refer to Figure 4-16.

1. Open the **INSU**.

2. Disconnect the **W-LAN ANTENNA CABLEs** from the connectors on the W-LAN MODULE. (MAIN cable (with the white tube) from "▲**MAIN 2**" and AUX cable from "△**AUX 1**")

3. Remove the following **screw** and disconnect the **W-LAN MODULE** from the connector **CN2630** on the SYSTEM BOARD.
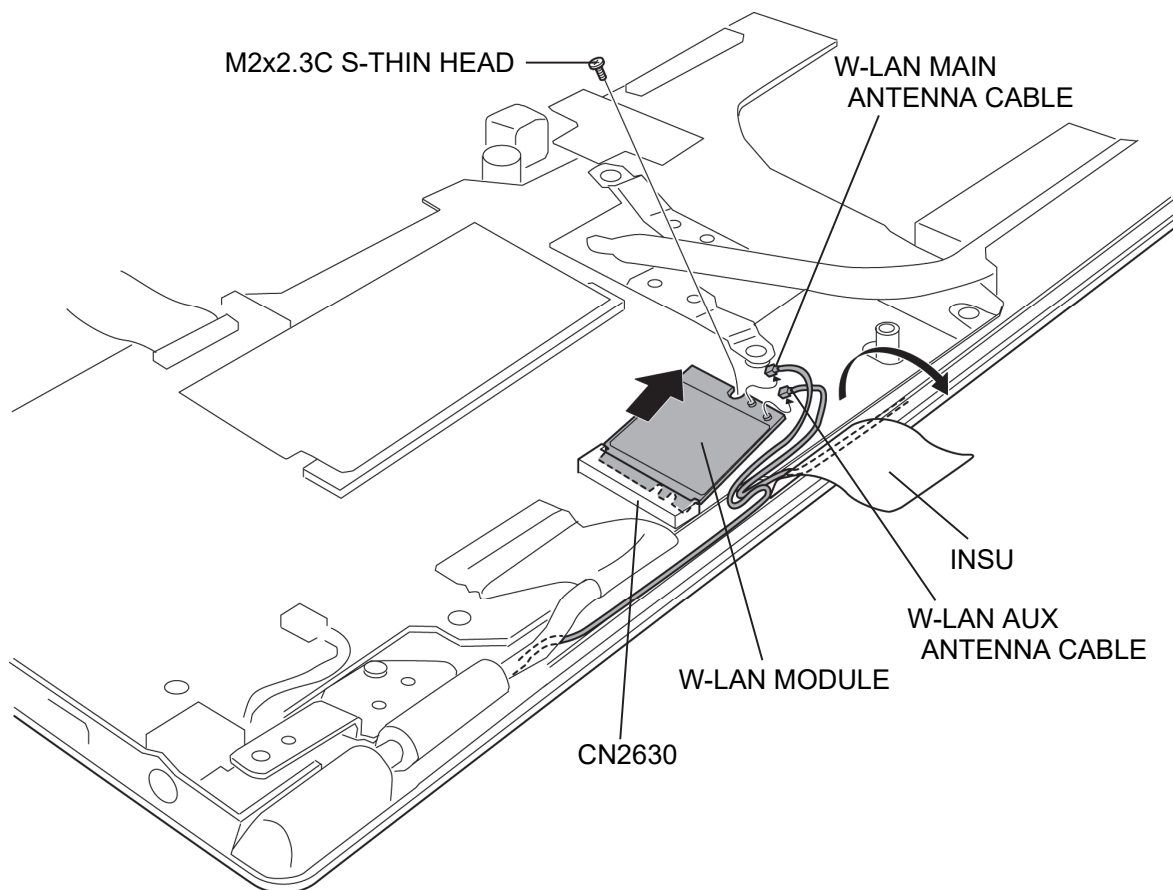
   - M2×2.3C   S-THIN HEAD screw   ×1

Figure 4-16   Removing the W-LAN MODULE

Installing the W-LAN MODULE

To install the W-LAN MODULE, follow the steps below and refer to Figure 4-16.

1. Connect the **W-LAN MODULE** to the connector **CN2630** on the SYSTEM BOARD and secure it with the following **screw**.

   - M2×2.3C   S-THIN HEAD screw   ×1

2. Connect the **W-LAN ANTENNA CABLEs** to the connectors on the W-LAN MODULE. (MAIN cable (with the white tube) to "▲**MAIN 2**" and AUX cable to "△**AUX 1**")

3. Close the **INSU**.

4.14 HEAT SINK

Removing the HEAT SINK

To remove the HEAT SINK, follow the steps below and refer to Figure 4-17.

1. Remove the following **screws** and the **HEAT SINK**.
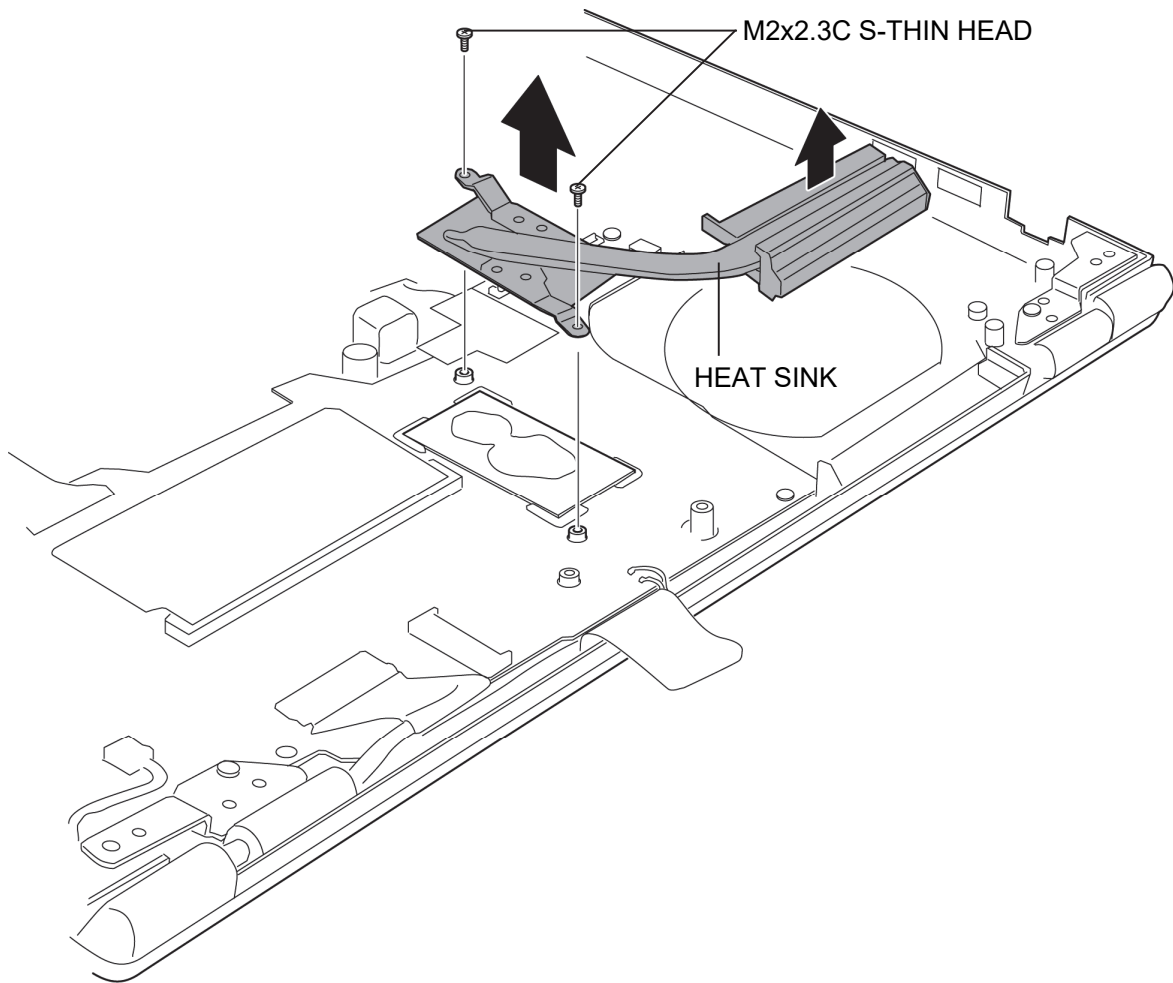
   - M2×2.3C   S-THIN HEAD screw   ×2

Figure 4-17   Removing the HEAT SINK

Installing the HEAT SINK

To install the HEAT SINK, follow the steps below and refer to Figure 4-17.   Rev.02

> *NOTE*: *The type of HEAT SINK depends on a model (PSZ1*, PSZ2* or PSZ3). Prepare a correct HEAT SINK when changing to the new one.*

1. When silicon grease is already applied to the CPU or HEAT SINK, wipe them off with a cloth in advance.

2. Apply new **silicon grease** (Shin-Etsu Chemical Co. X-23-7921-5) on the CPU using a special syringe.

> *NOTE*: *Apply new silicon grease as shown in the figure below.*
>
>
>
> Silicon grease
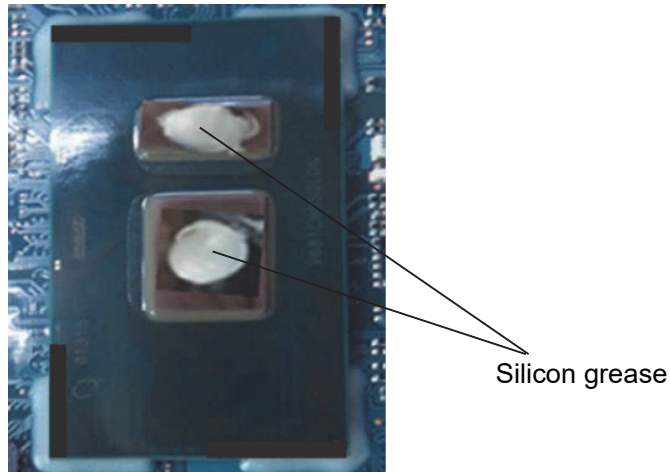
3. Set the **HEAT SINK** in place and secure it with the following **screws**.

   • M2×2.3C   S-THIN HEAD screw   ×2

4.15 SYSTEM BOARD

CAUTION: 1. *If replacing with a new SYSTEM BOARD, update the DMI information as described in Chapter 3 "Test Program". Also update with the latest BIOS and EC/KBC as described in Appendix G and in Appendix H.*

2. *When replacing the SYSTEM BOARD with a new one, the ProductKey (MBR-DPK) must be written on the SYSTEM BOARD.*

3. *When removing/installing the SYSTEM BOARD, handle with both hands and do not handle with the handling prohibition area (refer to the figure below).*
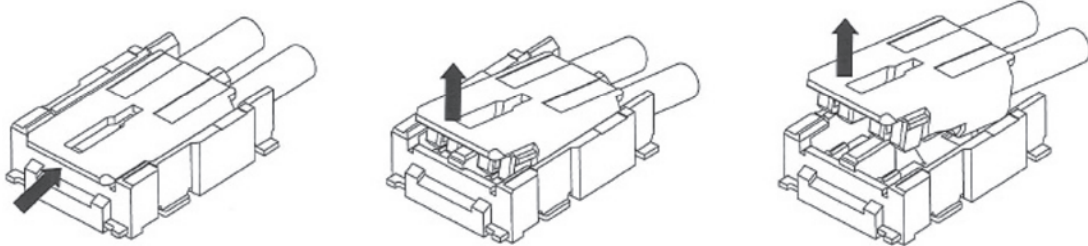
Handling prohibition area
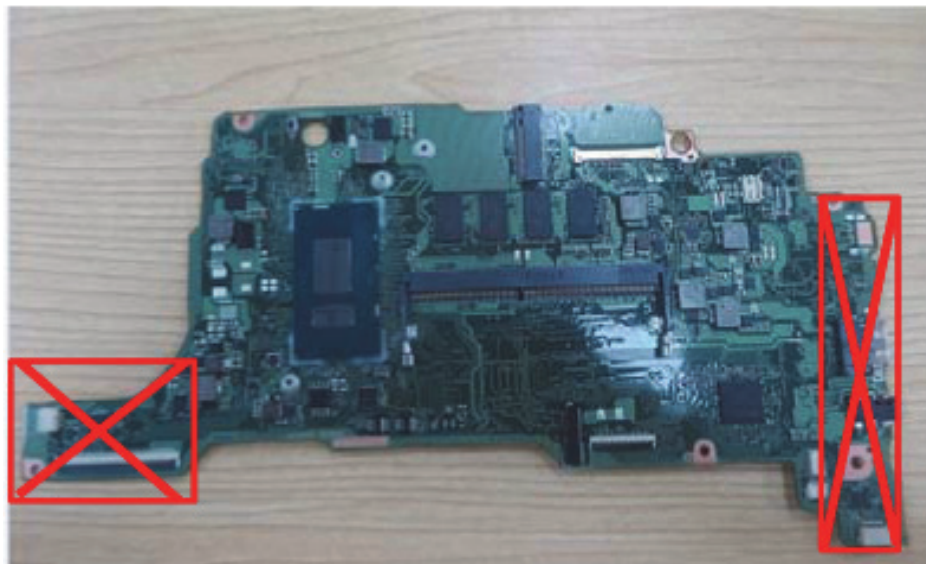
Removing the SYSTEM BOARD

To remove the SYSTEM BOARD, follow the steps below and refer to Figure 4-18 and 4-19.

1. Disconnect the **DC-IN HARNESS** from the connector **CN8001** on the SYSTEM BOARD and remove it from the slot of the COVER ASSY.

NOTE: Disconnect the DC-IN HARNESS as shown in the figure below.

①Put a nail or finger to the projection.   ②Release the first lock.   ③Release the second lock.

2. Disconnect the **KB MEMBRANE** from the connector **CN3240** on the SYSTEM BOARD.

3. Turn up the **INSU PCB GASKET** and disconnect the **KB BL FPC** from the connector **CN3280** on the SYSTEM BOARD. (back light KB model)

4. Release the **lock bar** and disconnect the **LCD HARNESS** from the connector **CN5390** on the SYSTEM BOARD.
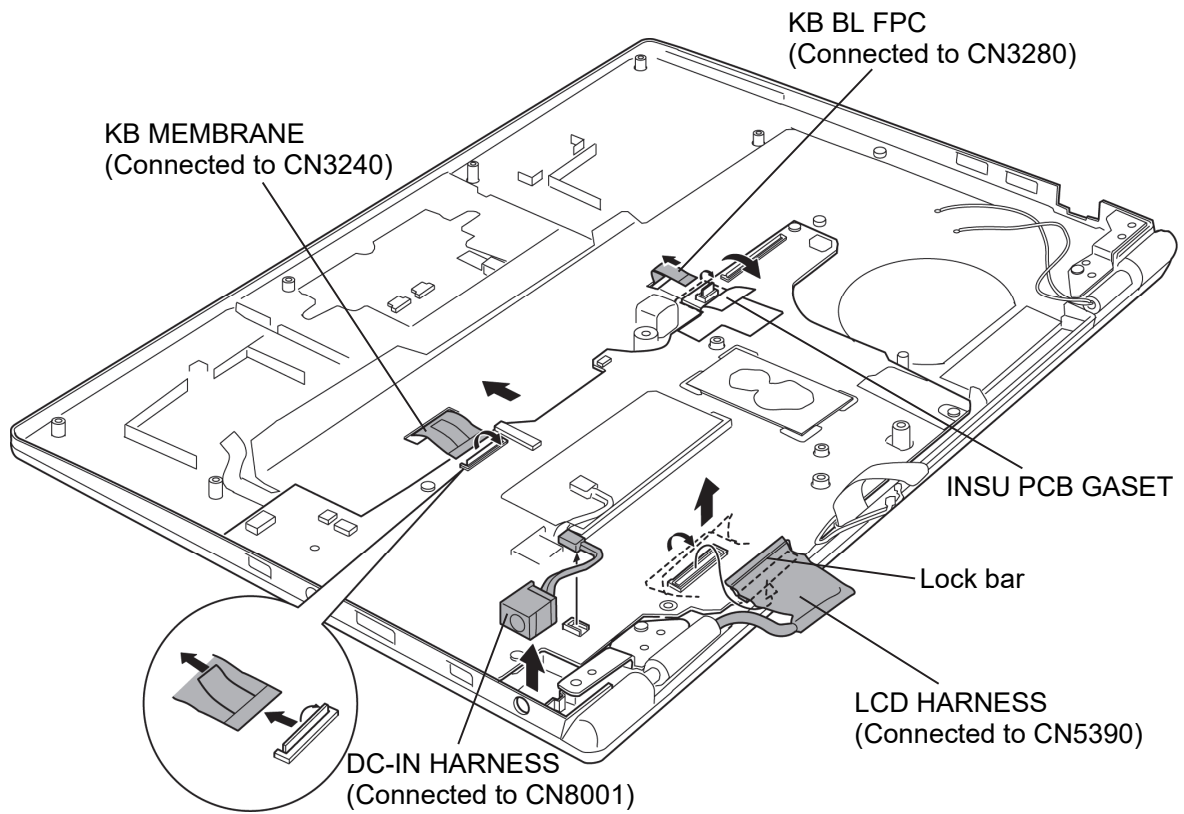
KB BL FPC
(Connected to CN3280)

KB MEMBRANE
(Connected to CN3240)

INSU PCB GASET

Lock bar

LCD HARNESS
(Connected to CN5390)

DC-IN HARNESS
(Connected to CN8001)

Figure 4-18   Removing the SYSTEM BOARD (1)

5. Remove the following **screws** and the **SYSTEM BOARD**.

- M2×3C   S-THIN HEAD screw   ×4

M2x3C S-THIN HEAD   M2x3C S-THIN HEAD
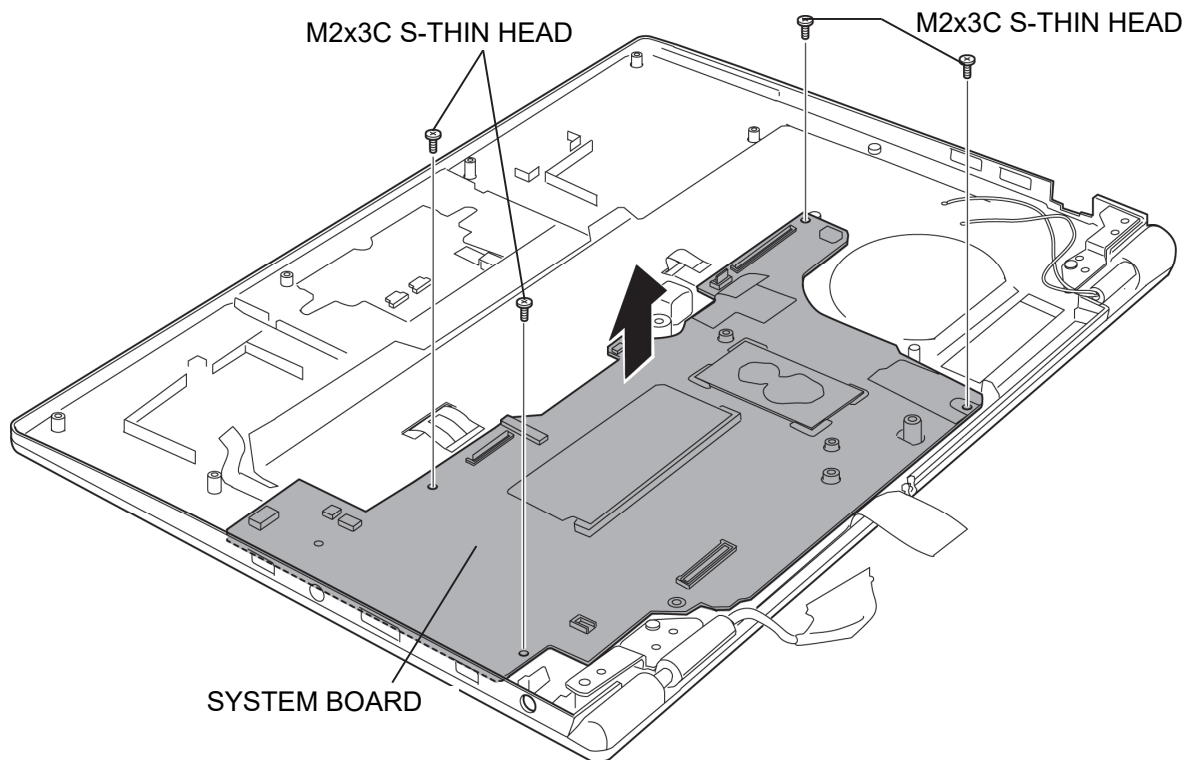
SYSTEM BOARD

Figure 4-19   Removing the SYSTEM BOARD (2)
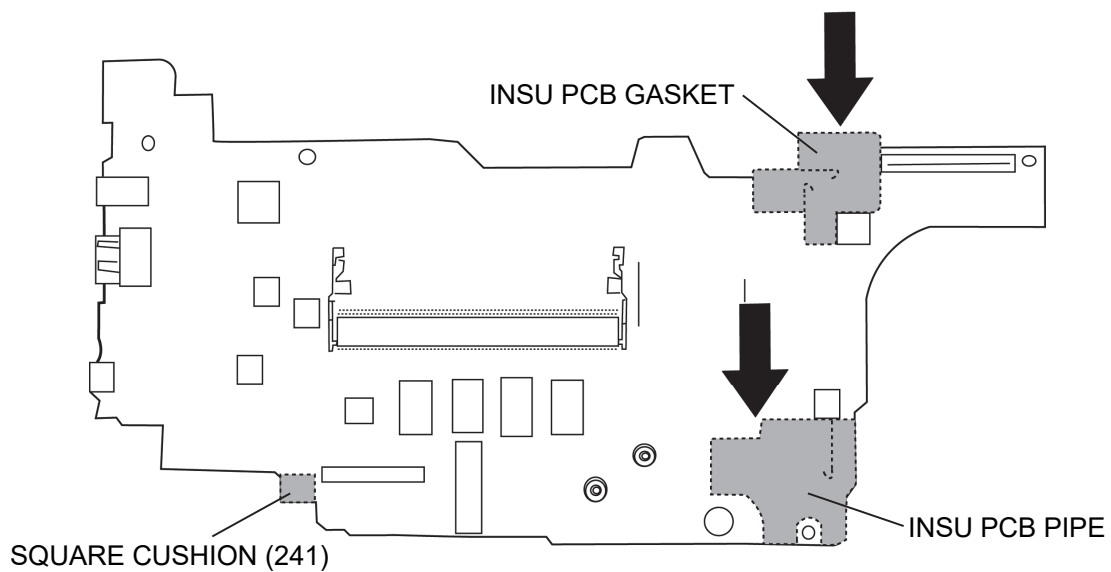
Installing the SYSTEM BOARD

To install the SYSTEM BOARD, follow the steps below and refer to Figure 4-18 and 4-19.
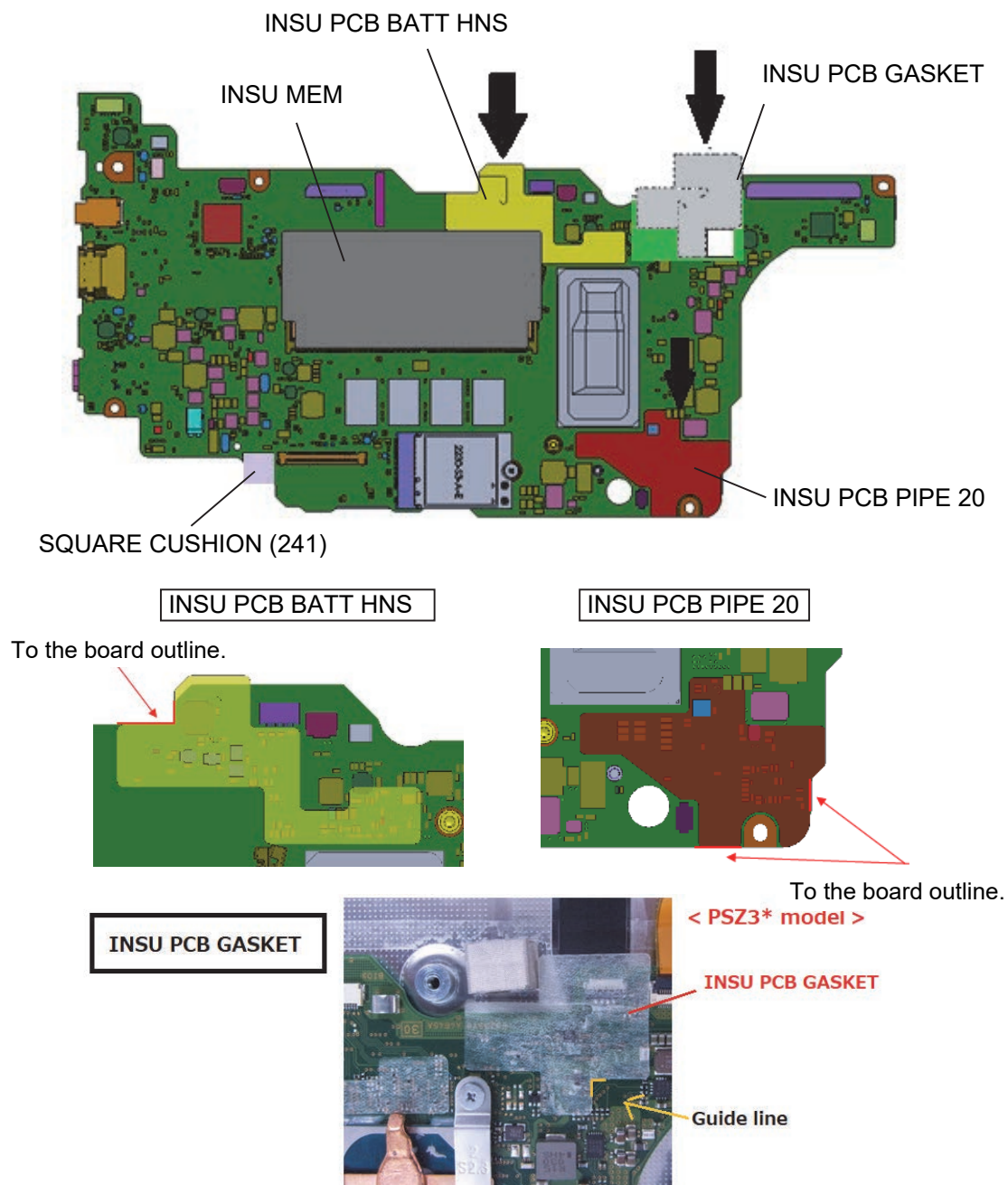
NOTE:

< PSZ1 model >*

> *When replacing the SYSTEM BOARD with a new one, stick the INSU PCB GASKET (if stuck on the original board), INSU PCB PIPE, SQUARE CUSHION (241) (un-reusable) and INSU SSD to the SYSTEM BOARD in place for PSZ1* model.*
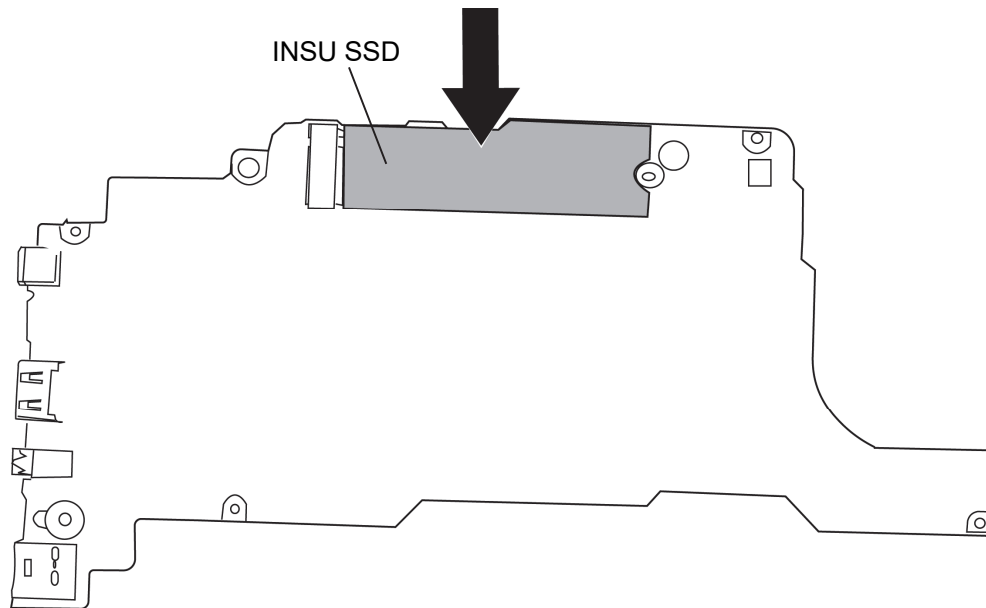
Rev.02

< *PSZ2*/PSZ3* model* >

Stick INSU MEM (MEMORY connector installed model), INSU PCB BATT HNS, INSU PCB GASKET (if stuck on the original board), INSU PCB PIPE 20, SQUARE CUSHION (241) (un-reusable) and INSU SSD to the SYSTEM BOARD in place for PSZ2* and PSZ3* model.

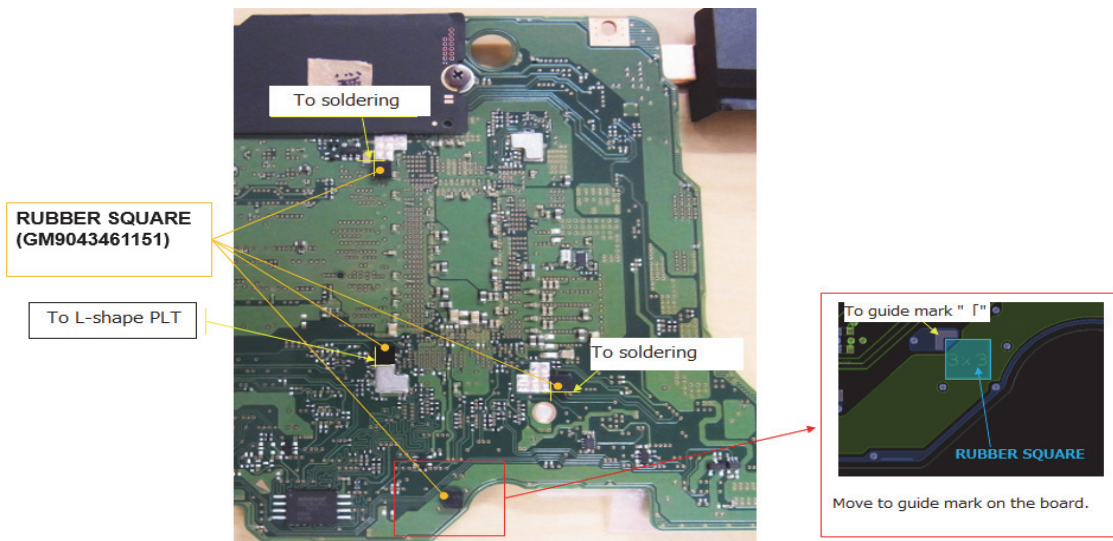*As for PSZ3*, move INSU PCB GASKET to the guide line when sticking, and stick RUBBER SQUARE (un-reusable) in place.*

INSU PCB BATT HNS

INSU PCB GASKET

INSU MEM

INSU PCB PIPE 20

SQUARE CUSHION (241)

| INSU PCB BATT HNS | INSU PCB PIPE 20 |

To the board outline.

To the board outline.

< PSZ3* model >

| INSU PCB GASKET |

INSU PCB GASKET

Guide line

Rev.02

< *PSZ1*/PSZ2*/PSZ3* model* >

INSU SSD

< *PSZ3* model* >

To soldering

RUBBER SQUARE
(GM9043461151)

To L-shape PLT

To soldering

To guide mark " 「"

RUBBER SQUARE

Move to guide mark on the board.

1. Set the **SYSTEM BOARD** to the COVER ASSY in place and secure it with the following **screws**.

   - M2×3C   S-THIN HEAD screw   ×4

2. Connect the **DC-IN HARNESS** to the connector CN8001 on the SYSTEM BOARD.

NOTE: *Connect the DC-IN harness as shown in the figure below.*

①Place the socket to the dent of the header. ②Push the harness side of the socket slightly. ③Insert the arrow portion of the socket.
Do not rise the harness side of the socket.

---
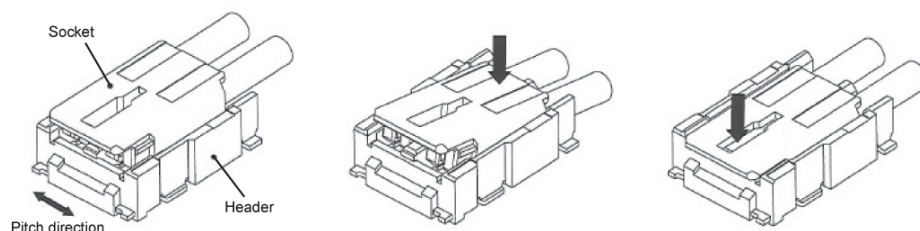
3. Set the **DC-IN HARNESS** to the slot of the COVER ASSY.

4. Connect the **KB MEMBRANE** to the connector **CN3240** on the SYSTEM BOARD.

5. Turn up the **INSU PCB GASKET** and connect the **KB BL FPC** to the connector **CN3280** on the SYSTEM BOARD. (back light KB model)

6. Close the **INSU PCB GASKET**.

7. Connect the **LCD HARNESS** to the connector **CN5390** on the SYSTEM BOARD and fix it with the **lock bar**.

Prepare required parts in advance, when replacing the following items.

Rev.02

ITEM	Parts List ITEM No	PART NAME	Quantity
SYSTEM BOARD (MOTHER BOARD ASSY)	01	MOTHER BOARD ASSY	1
	65	SQUARE CUSHION (241)	1
		RUBBER SQUARE (t1.6x3x3(TAPE t0.1): black) (PSZ3* model)	4

4.16 SSD

CAUTION: *Take care not to press on the top or bottom of the SSD. Pressure may cause data loss or damage to the device.*

Removing the SSD

To remove the SSD, follow the steps below and refer to Figure 4-20.

1. Remove the following **screw** and disconnect the **SSD** from the connector **CN1910** on the SYSTEM BOARD.

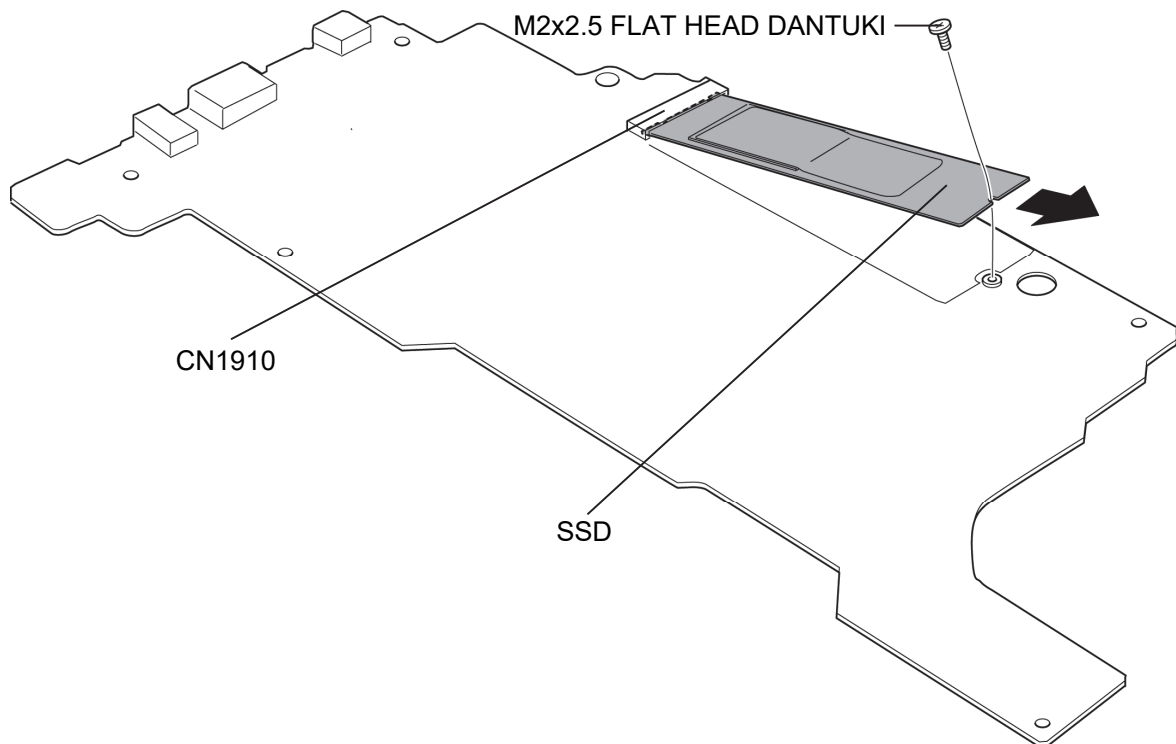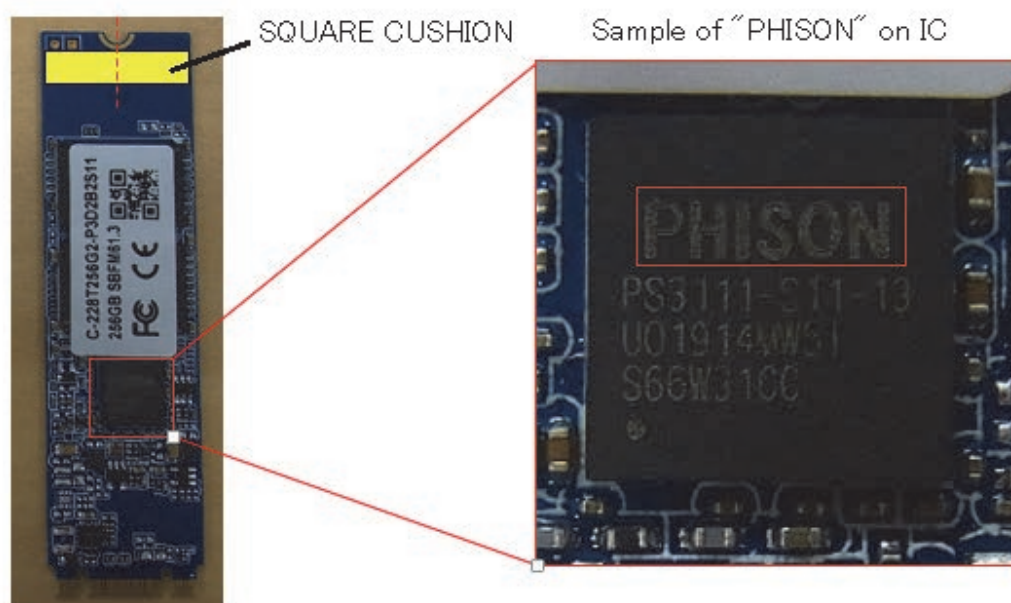   • M2×2.5   FLAT HEAD DANTUKI screw   ×1

Figure 4-20   Removing the SSD

Installing the SSD

To install the SSD, follow the steps below and refer to Figure 4-20.

NOTE: (PSZ2* model) When replacing the SSD to new one and "PHISON" is printed on its IC, stick the sponge to the SSD in place.

Align the center of screw and SQUARE CUSHION

SQUARE CUSHION

Sample of "PHISON" on IC

1. Insert the **SSD** to the connector **CN1910** on the SYSTEM BOARD.

2. Secure the SSD with the following **screw**.

   • M2×2.5   FLAT HEAD DANTUKI screw   ×1

Prepare required parts in advance, when replacing the following items.

< PSZ2* model only >

ITEM	Parts List ITEM No	PART NAME	Quantity
SSD (in case of "PHISON" is printed on SSD)		SSD	1
		SQUARE CUSHION (311)	1

4.17 KEYBOARD

Removing the KEYBOARD

To remove the KEYBOARD, follow the steps below and refer to Figure 4-21 and 4-22.

1. Turn the **LCD FAT ASSY** in the direction on the figure below.

LCD FAT ASSY
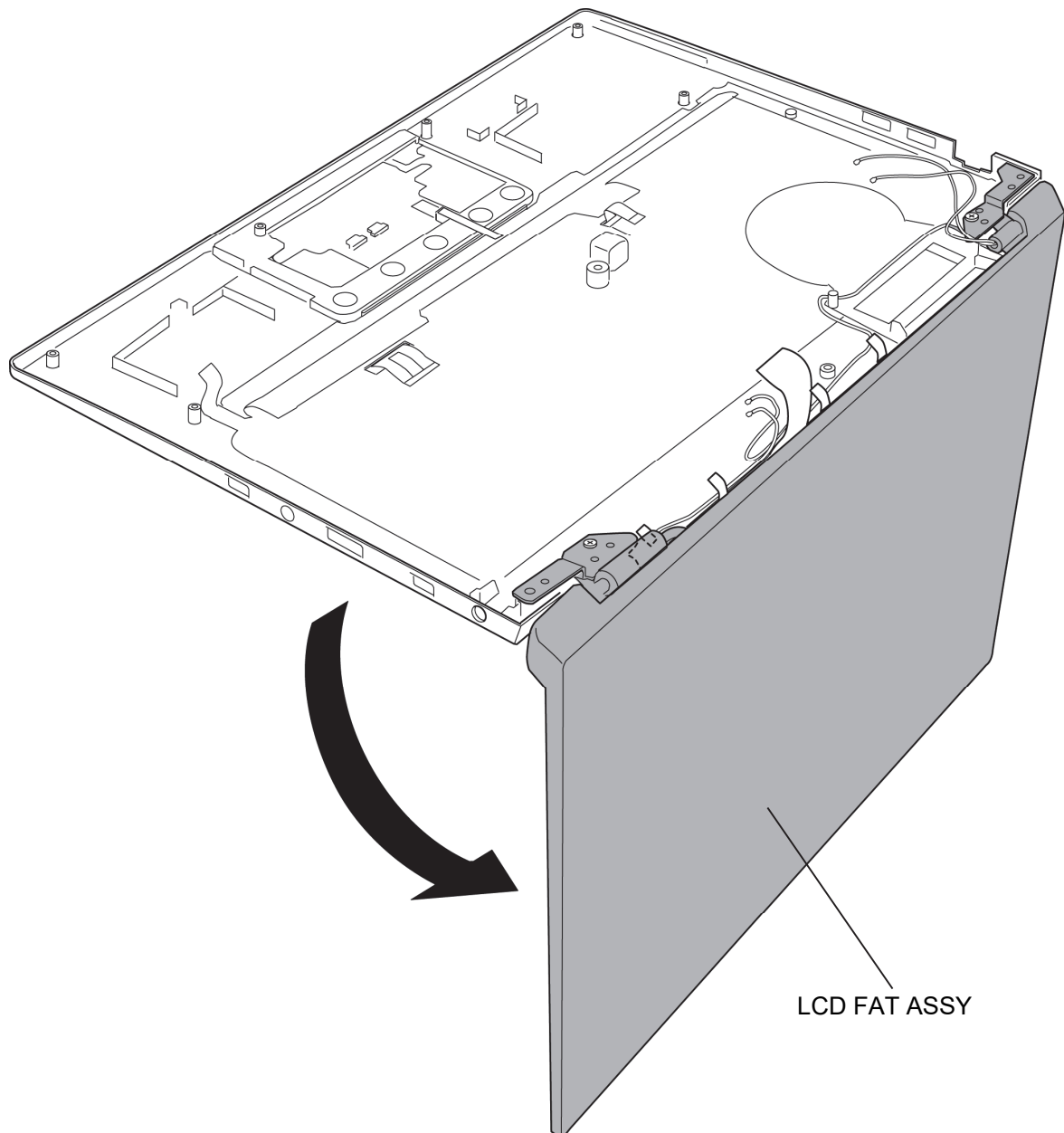
Figure 4-21   Removing the KEYBOARD (1)

2. Remove the following **screw** securing the KEYBOARD.

   • M2×3C   S-THIN HEAD screw   ×1

3. Releasing the **latches** and turn over the computer to remove the **KEYBOARD** while peeling the **D-STICK TAPE** portion carefully.
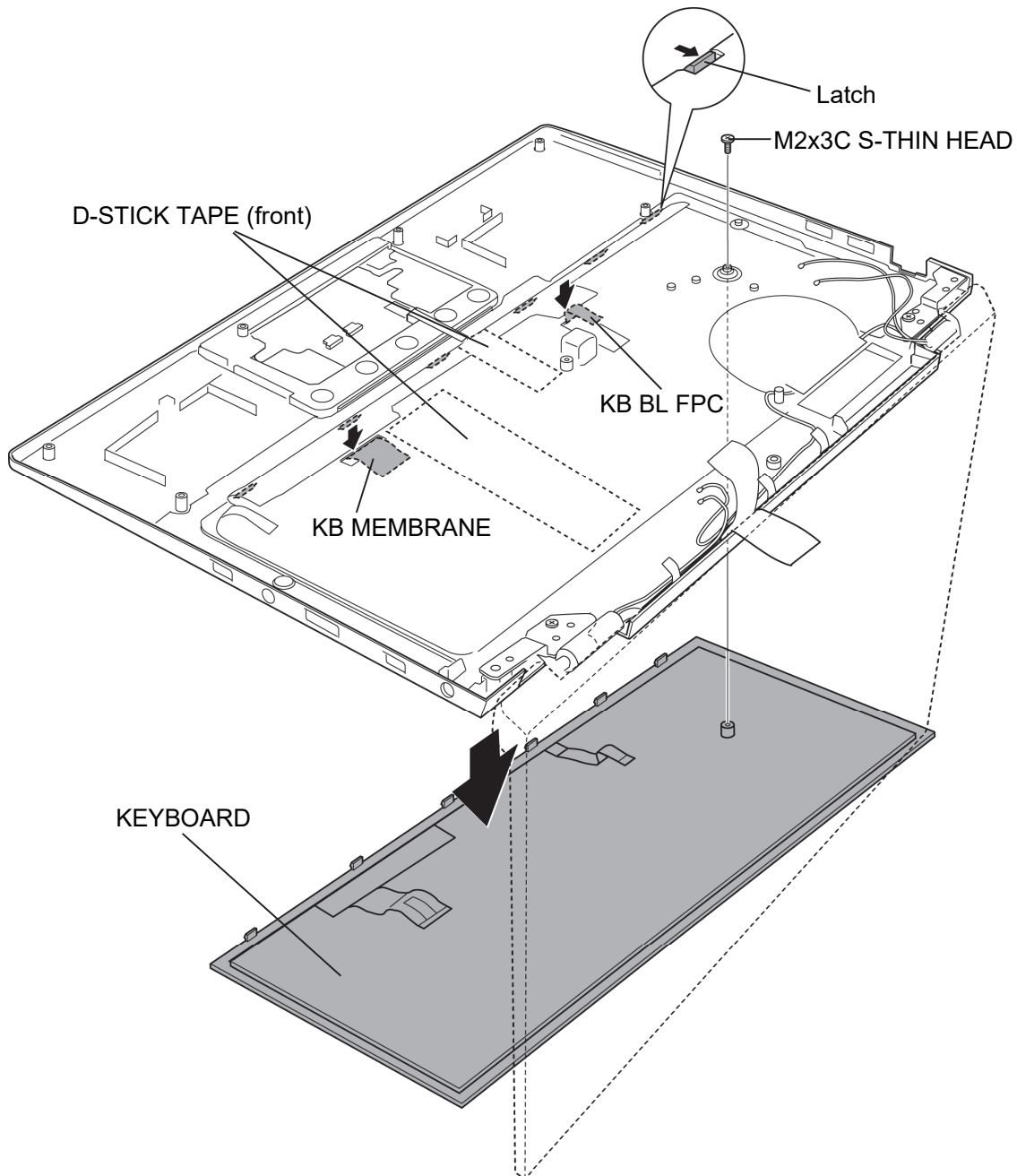
Figure 4-22   Removing the KEYBOARD (2)

NOTE: *Remove the KEYBOARD as shown in the figure below.*

Release three KB latches

KB Latch
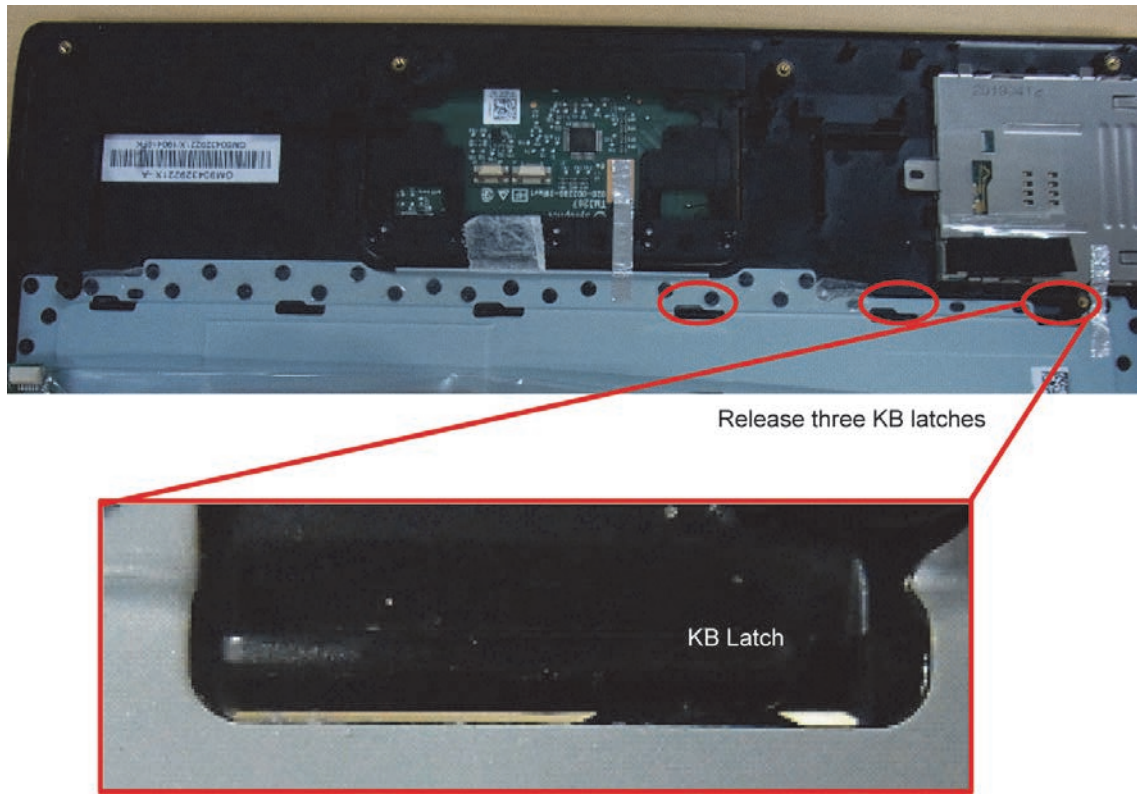
If the three latches are released, a gap is made.

Pick the Keyboard up 20mm from the left edge of the CLICK PAD,

then peel the KEYBOARD from the D-STICK TAPE portion (2pic) of the COVER ASSY carefully.

Take care not to break the KB MEMBRANE.

Installing the KEYBOARD

To install the KEYBOARD, follow the steps below and refer to Figure 4-21 and 4-22.

NOTE: *When replacing the COVER ASSY with a new one, stick a new INSU SQUARE (191) (KB non backlight model) on the COVER ASSY in place.*
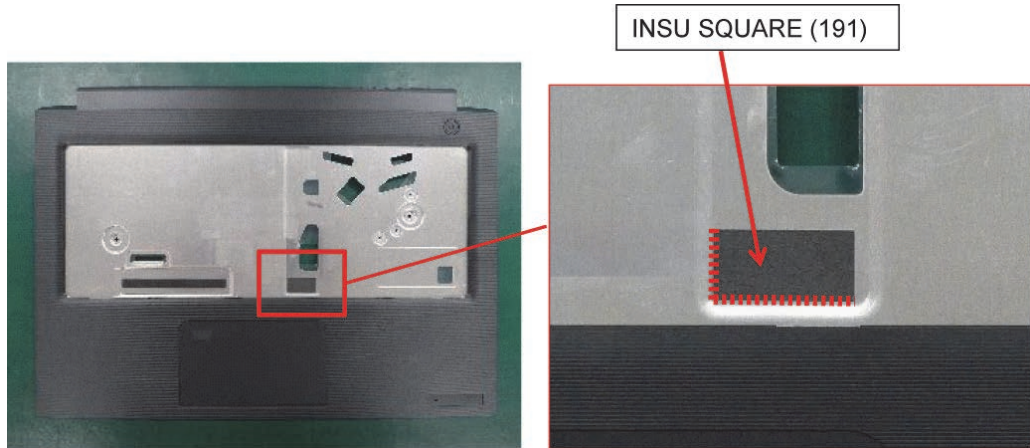
NOTE: *Set the KEYBOARD as shown in the figure below.*

Front
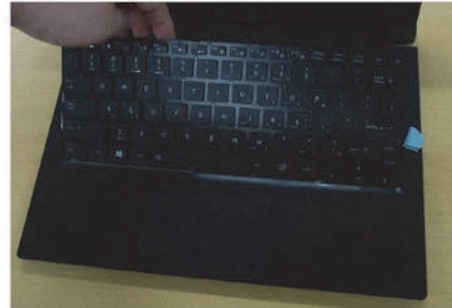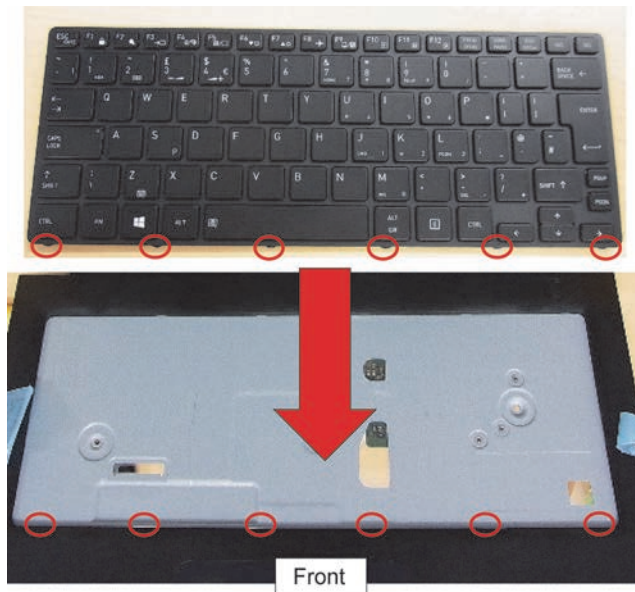
Engage the latches of the lower side of the KB
to the holes of the COVER ASSY.
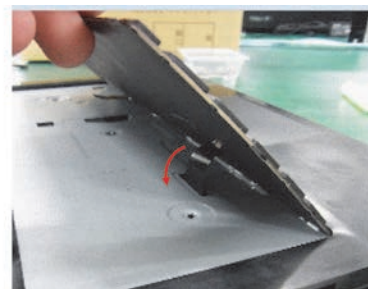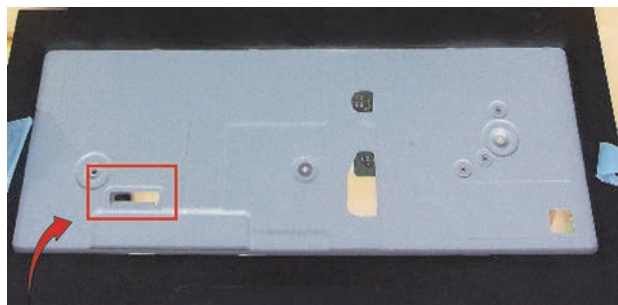
KB Membrane

After engaging the latches, pass the KB MEMBRANE
through the hole of the KB SUPPORT PLATE.

D-STICK TAPE

Front

After passing the KB membrane through the hole of the KB SUPPORT PLATE, engage the latches of the KB to the COVER ASSY while sticking it to the D-STICK TAPE (reusable) portion of the COVER ASSY.

Pull up the KB BL FPC through the hole to connect it to the connector.

When connecting the KB BL FPC, do not put it on the metal portion of the connector.

When connecting the KB MEMBRANE, do not put it on the metal portion of the connector.

1. Place the KEYBOARD to the COVER ASSY while passing the **KB MEMBRANE** and **KB BL FPC** through the holes of the COVER ASSY.

2. Stick the KEYBOARD to the **D-STICK TAPE** portion of the COVER ASSY.

3. Set the **KEYBOARD** to the COVER ASSY while securing the **latches**.

4. Turn over the computer.

5. Secure the KEYBOARD with the following **screw**.

   - M2×3C   S-THIN HEAD screw   ×1

4.18 CLICK PAD

Removing the CLICK PAD

To remove the CLICK PAD, follow the steps below and refer to Figure 4-23.

1. Peel off the **AL TAPE**.

2. Peel off the **CLICK PAD** from the COVER ASSY.

NOTE: *Do not reuse the removed AL TAPE and CLICK PAD. Be sure to use new ones.*
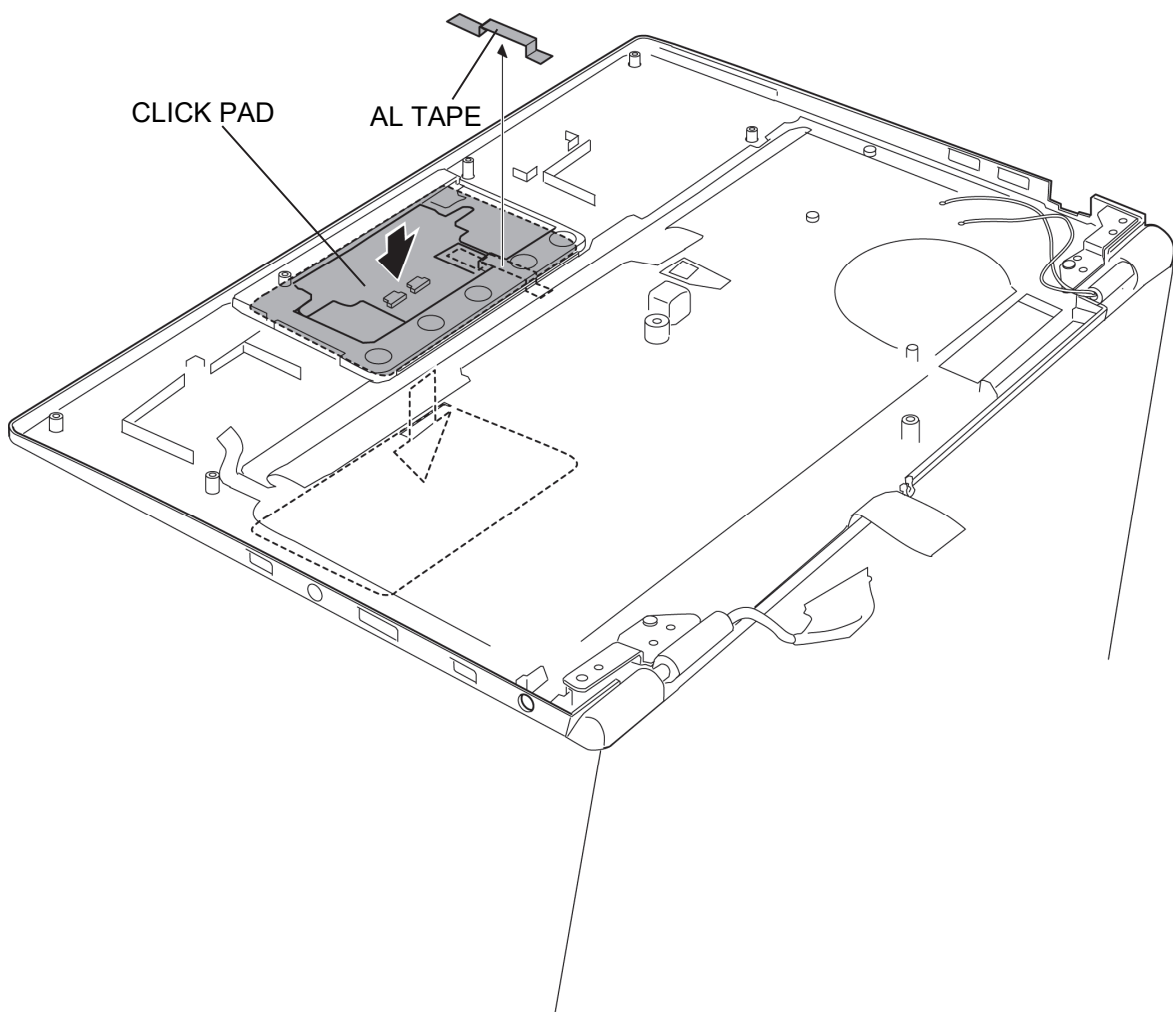
CLICK PAD   AL TAPE

Figure 4-23   Removing the CLICK PAD

Installing the CLICK PAD

To install the CLICK PAD, follow the steps below and refer to Figure 4-23.

1. Stick a new **CLICK PAD** to the COVER ASSY.

2. Turn over the COVER ASSY and stick a new **AL TAPE** in place.

NOTE: *When replacing the CLICK PAD with a new one, replace the D TAPE PAD on the COVER ASSY with a new one in place.*
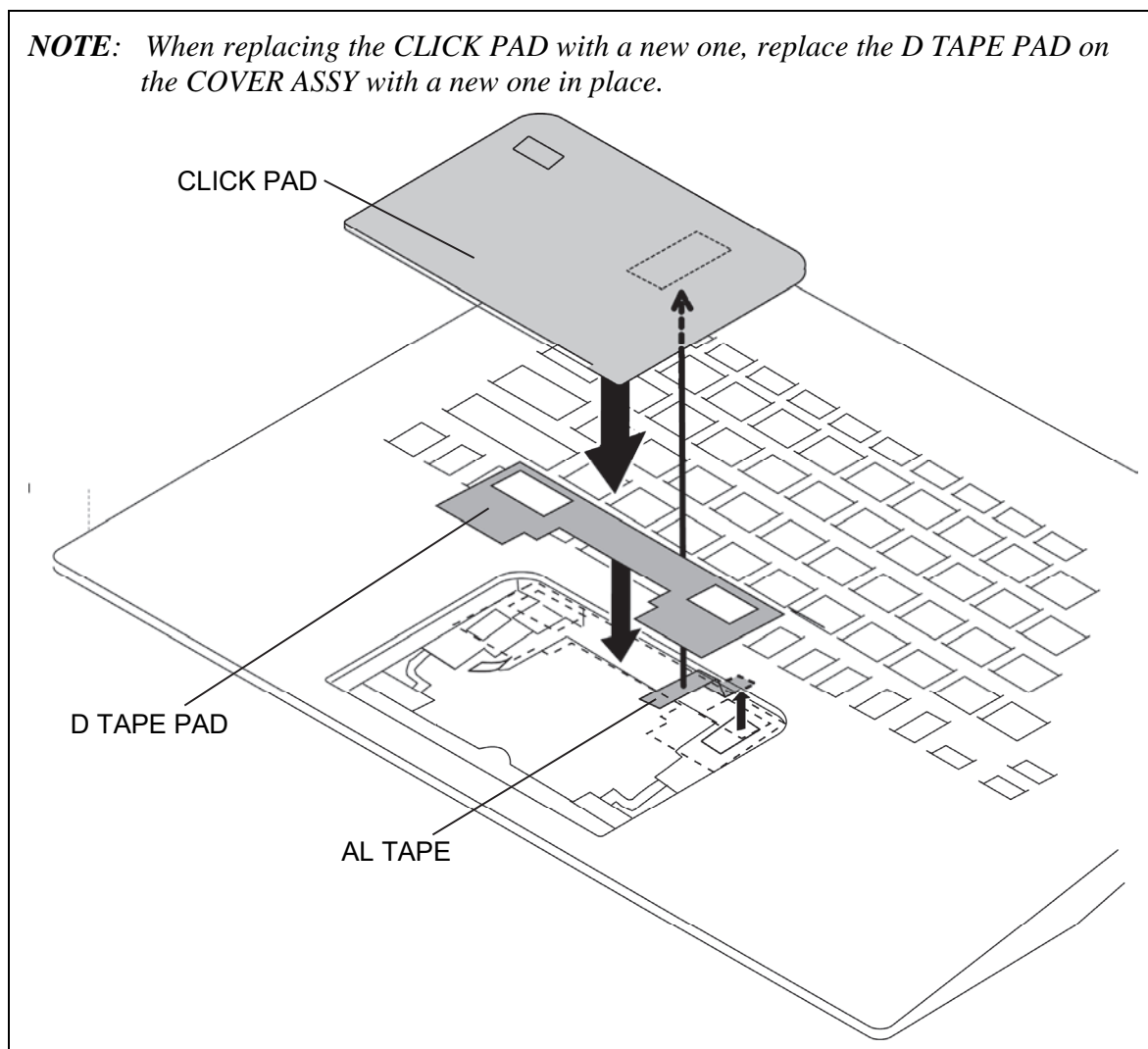
CLICK PAD

D TAPE PAD

AL TAPE

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
CLICK PAD	19, 19-A	CLICK PAD	1
	64	AL TAPE (181)	1
	60A	D TAPE PAD	1

4.19 LCD FAT ASSY/COVER ASSY

Removing the LCD FAT ASSY/COVER ASSY

To remove the LCD FAT ASSY/COVER ASSY, follow the steps below and refer to Figure 4-24.

1. Turn up the **INSU**.

2. Release the **ANTENNA CABLEs**.

3. Remove the following **screws** and separate the **LCD FAT ASSY** and **COVER ASSY**.

    -   M2.5×4B   FLAT HEAD screw   ×2

M2.5x4B FLAT HEAD

M2.5x4B FLAT HEAD

INSU

COVER ASSY

LCD FAT ASSY

ANTENNA CABLE
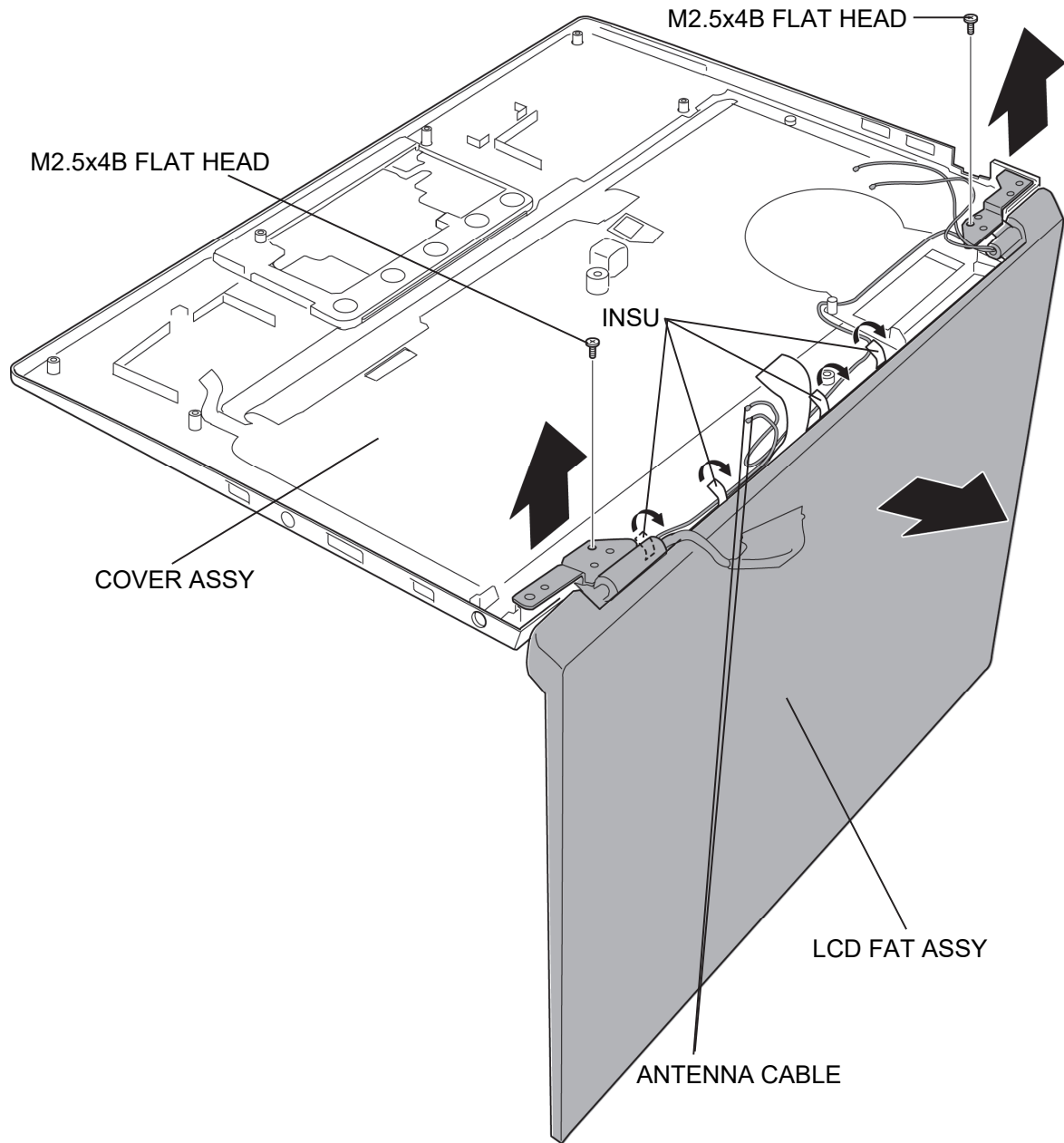
Figure 4-24   Removing the LCD FAT ASSY/COVER ASSY

Installing the LCD FAT ASSY/COVER ASSY

To install the LCD FAT ASSY/COVER ASSY, follow the steps below and refer to Figure 4-24.

NOTE: *When replacing the COVER ASSY with a new one, stick new EMI GASKET (Z10) (if stuck on the original COVER ASSY) and PRODUCT BADGE on the COVER ASSY in place.*
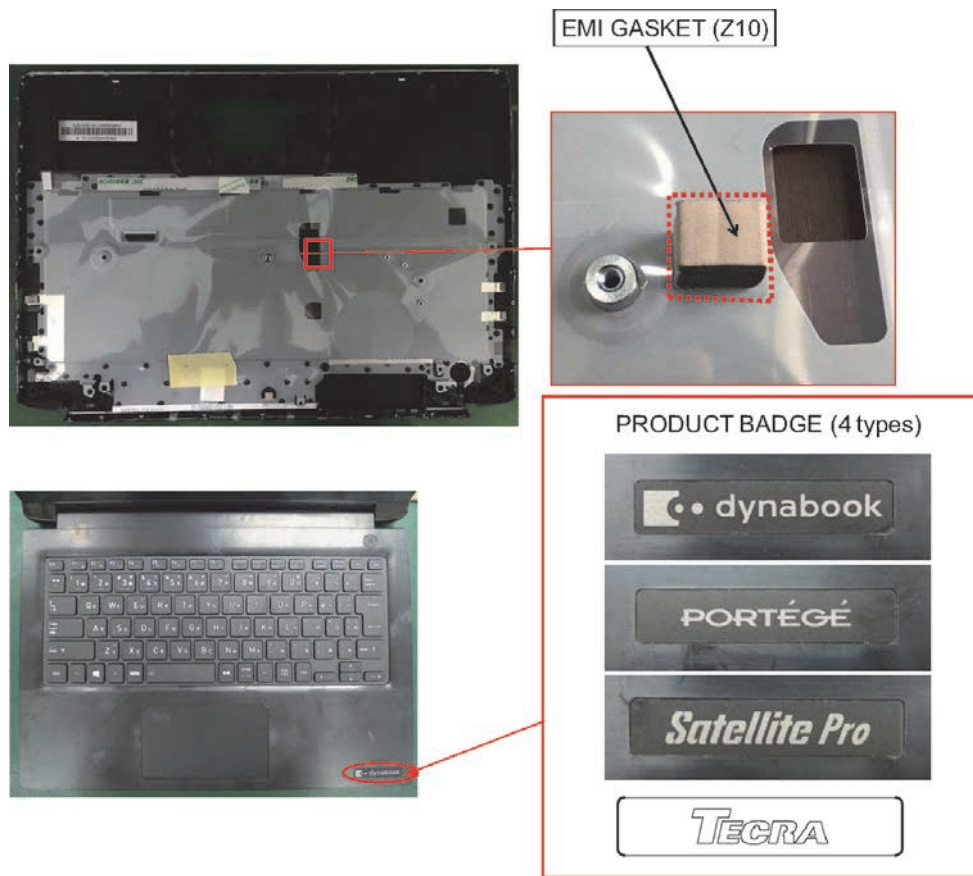
1.   Arrange the **ANTENNA CABLEs** in place and fix them with the INSU.

NOTE: *Arrange the ANTENNA CABLEs as shown in the figure below.*
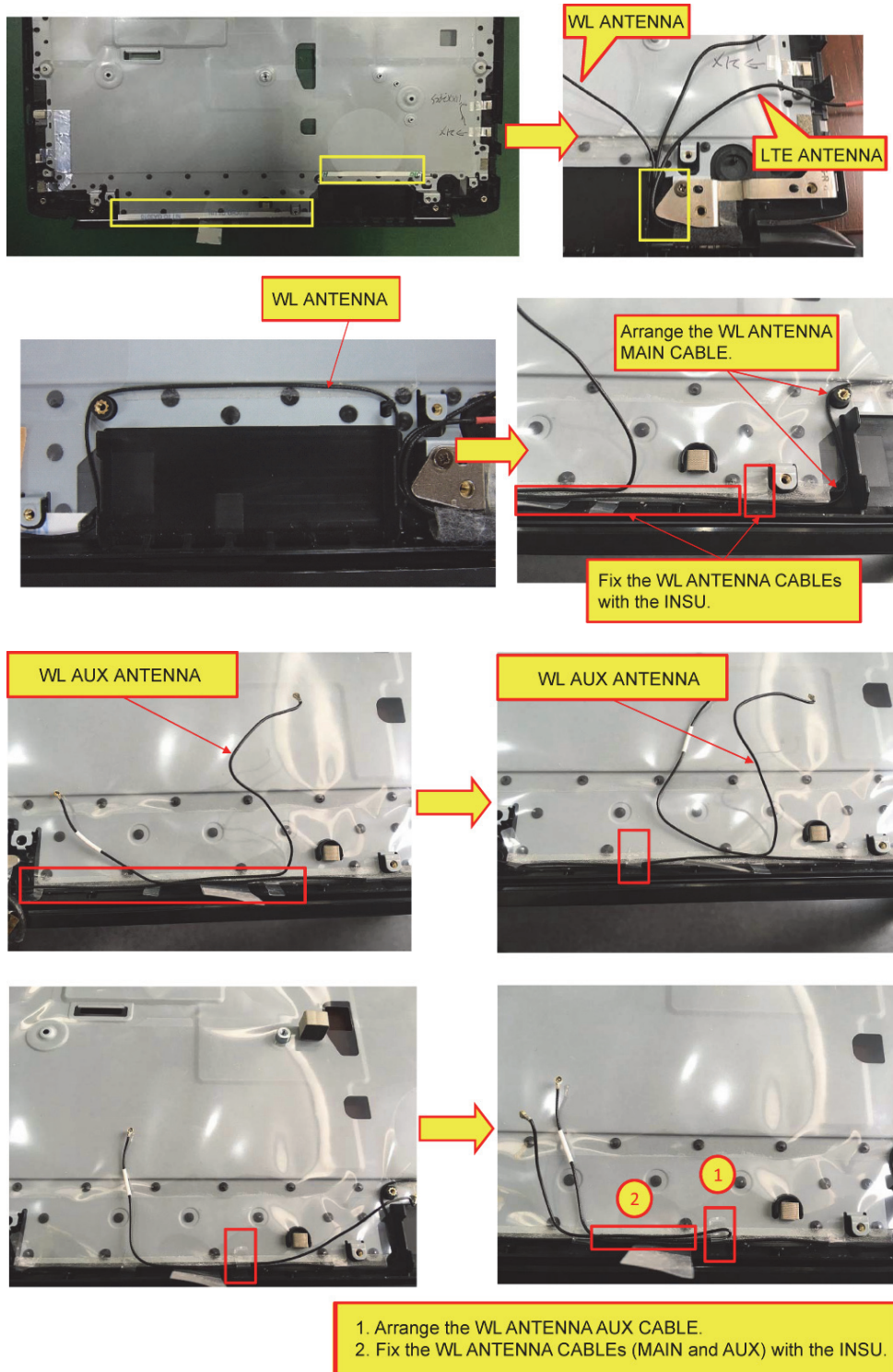
2. Set the **LCD FAT ASSY** to the **COVER ASSY** and secure it with the following **screws**.

   - M2.5×4B   FLAT HEAD screw   ×2

Prepare the required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
COVER ASSY	60	COVER ASSY	1
	66	AL TAPE (171) (Smart card model)	1
	64	AL TAPE (181)	1
	19, 19-A	CLICK PAD	1
		EMI GASKET (Z10) (if stuck on the original COVER ASSY)	1
		INSU SQUARE (191) (KB Non Backlight model)	1
	92	PRODUCT BADGE	1

4.20 LCD

Removing the LCD

To remove the LCD, follow the steps below and refer to Figure 4-25 to 4-27.

1. Release the **latches** and remove the **HINGE CAP L/R ASSY** from the LCD COVER ASSY.

NOTE: *When handling the HINGE CAP L/R ASSY, be careful not to damage or scratch them.*

HINGE CAP R ASSY

HINGE CAP L ASSY
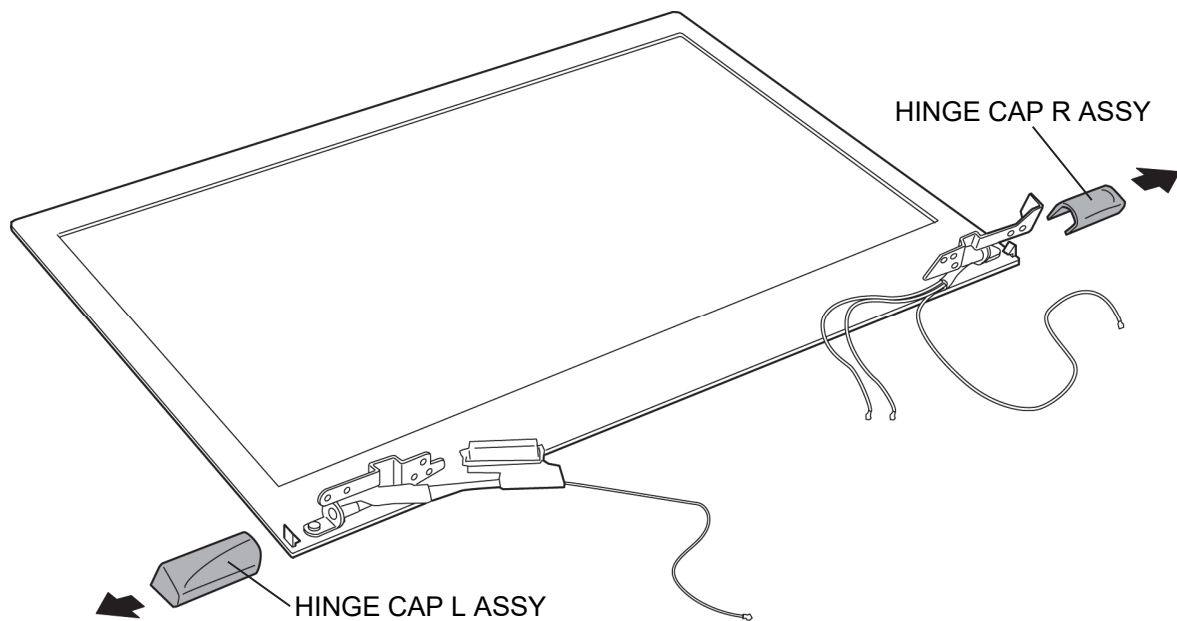
Figure 4-25   Removing the LCD (1)

2. Release the latches and remove the **LCD MASK ASSY** from the LCD COVER ASSY.

LCD MASK ASSY
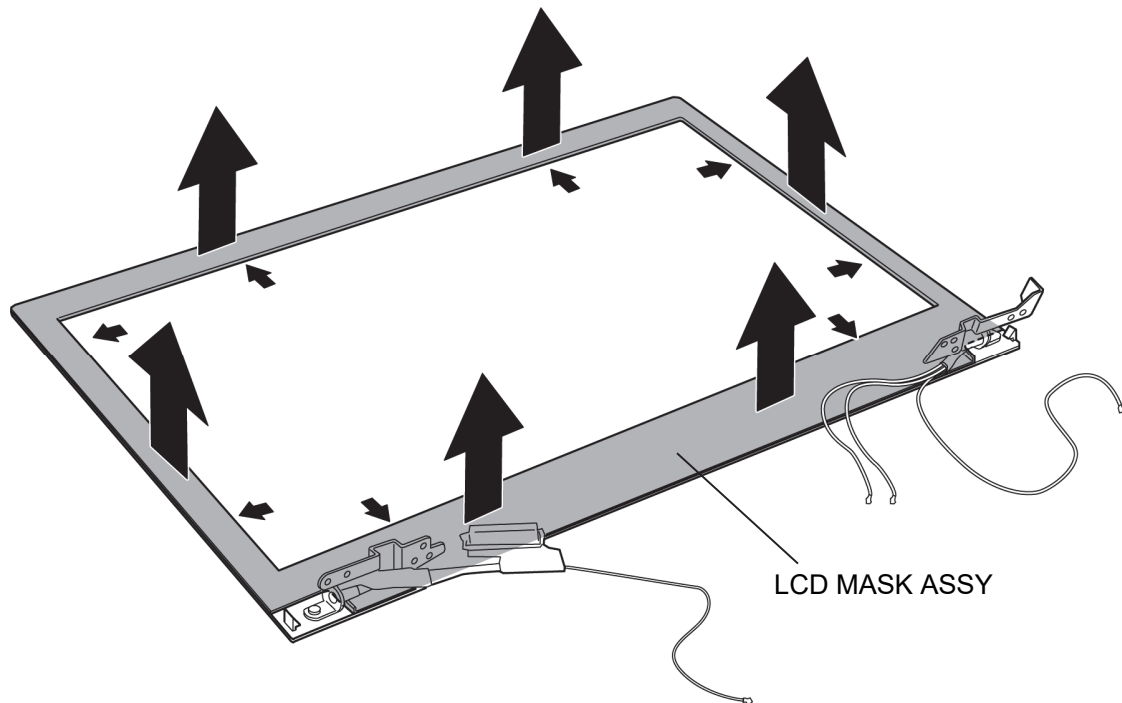
Figure 4-26   Removing the LCD (2)

3. Turn up the **LCD UNIT** in the direction of the arrow.

NOTE: *The LCD UNIT is stuck with D TAPE ICTs or D TAPE HDs at the both sides of the lower part depending on the model (LCD panel). When turning up the LCD UNIT to separate it from the COVER ASSY, be careful not to break the LCD UNIT.*

< Incell model >
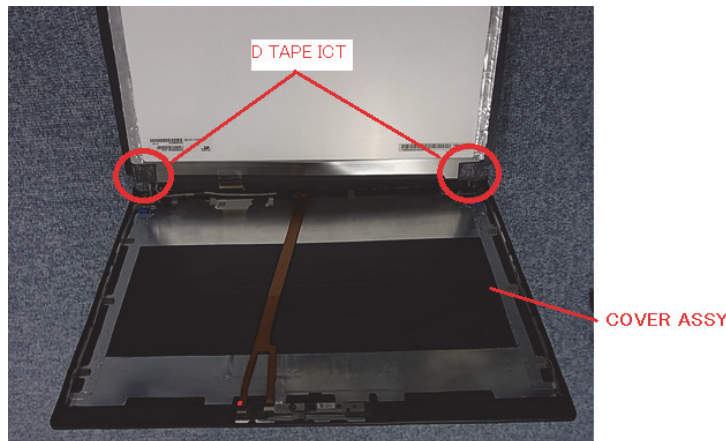
< HD model >

4. Turn up the **pull tape** and release the **lock bar** to disconnect the **LCD HARNESS** from the connector on the LCD UNIT.

LCD UNIT

LCD HARNESS

LCD COVER ASSY

Connector

Lock bar

Pull tape
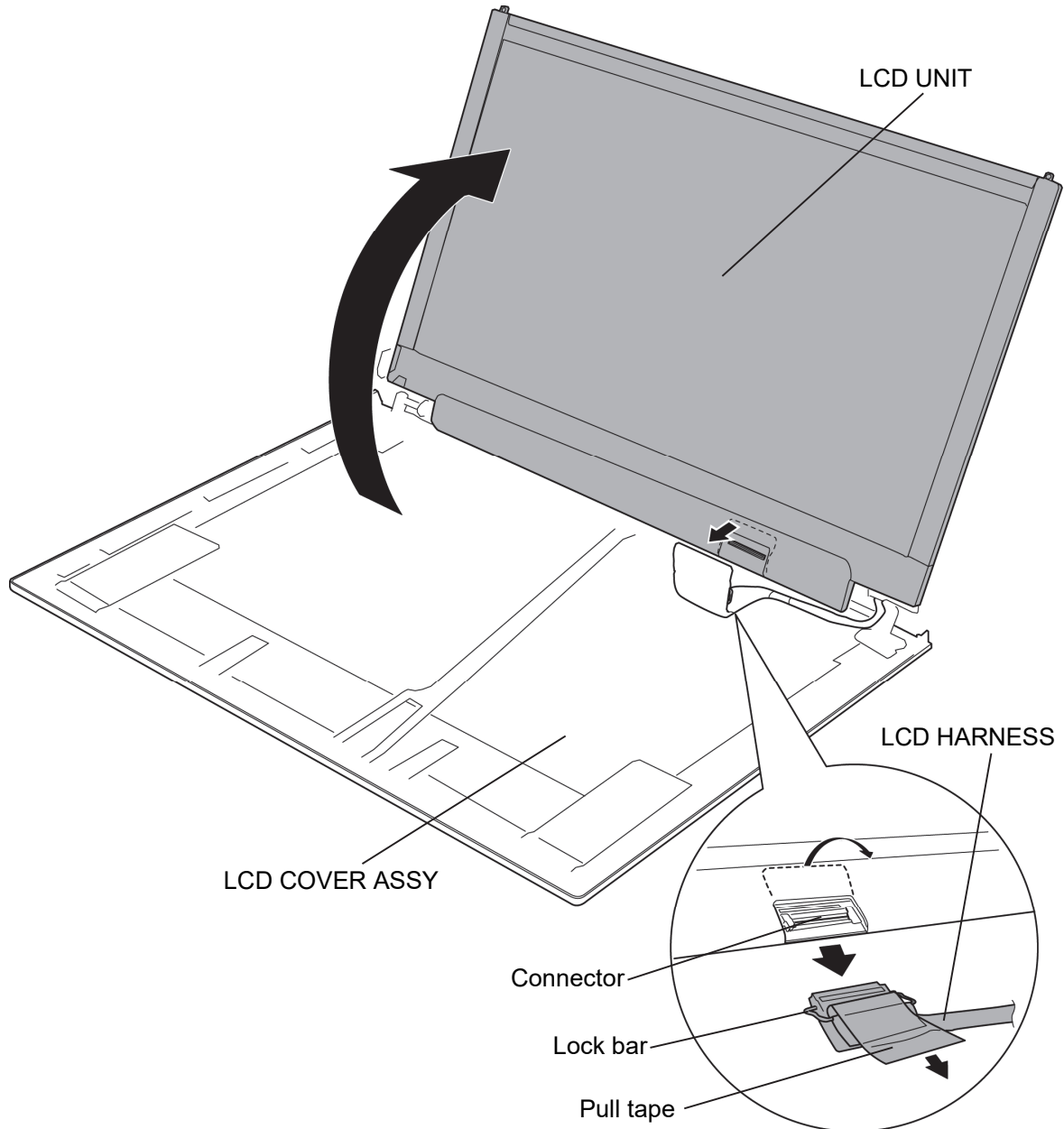
Figure 4-27   Removing the LCD (3)

Installing the LCD

To install the LCD, follow the steps below and refer to Figure 4-25 to 4-27.

NOTE: *When replacing the LCD (HD with LTE model, FHD model or Incell with LTE model) with a new one, stick new AL TAPEs (131) to the LCD in place.*

AL TAPE (131)
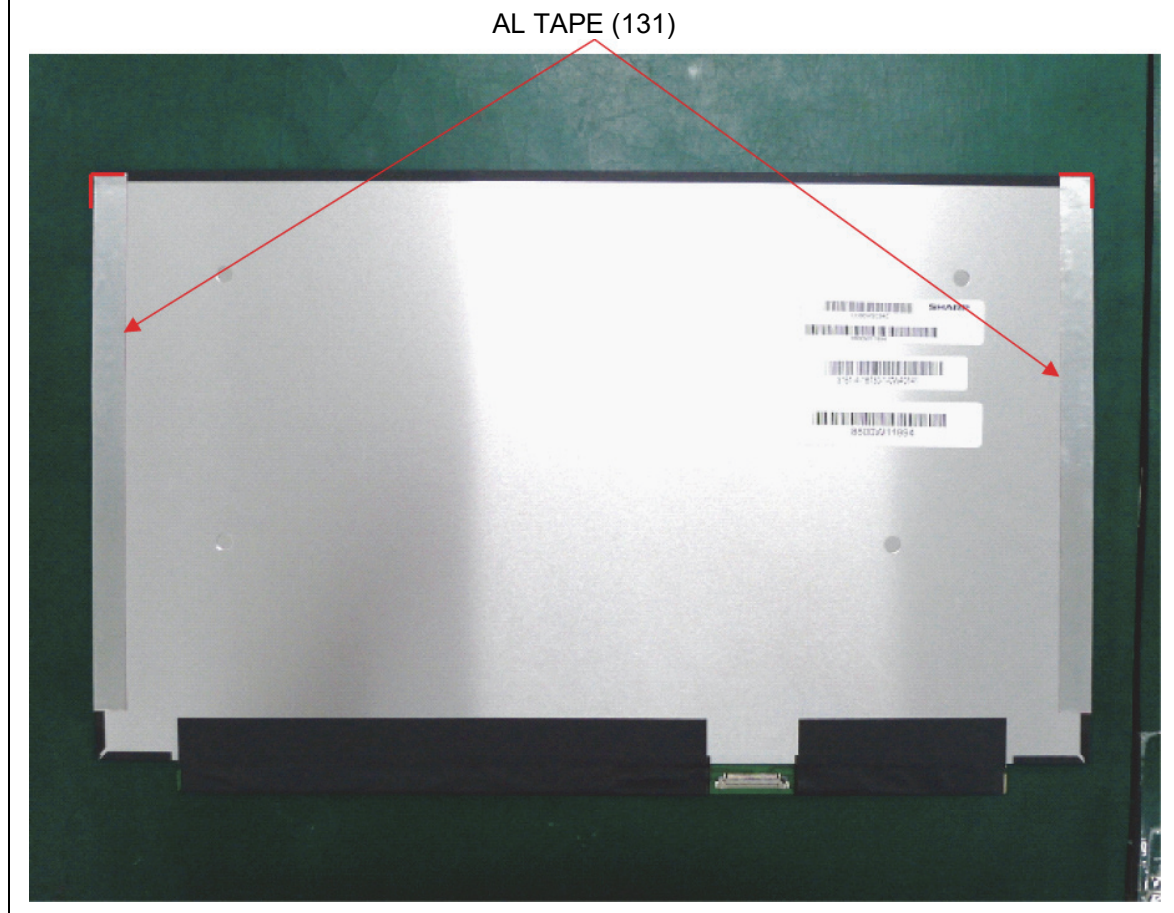
1. Connect the **LCD HARNESS** to the connector on the LCD UNIT.

NOTE: *In case of Incell model, the LCD HARNESS depends on the vendor of LCD. Be sure to confirm the vendor of new LCD when replacing, and prepare an appropriate LCD HARNESS.*

2. Lay down the **lock bar** to engage and close the **pull tape**.

3. Place the **LDC UNIT** on the LCD COVER ASSY in place.

4. Set the **LCD MASK ASSY** to the LCD COVER ASSY while engaging the latches.

NOTE: *When replacing the LCD MASK with a new one, stick new AL TAPE MASK, AL TAPE (191) (FHD model), SQUARE CUSHION (281) (HD model), CAMERA PANEL (camera model) and FA PANEL (non camera model) to the LCD MASK in place.*

   When sticking new parts, do not scratch or get dirty the lens of the LCD MASK.

AL TAPE MASK

Do not put the AL TAPE MASK on the holes fo the LCD MASK

To the holes of the LCD MASK

AL TAPE (191)

To the edge

Do not put the AL TAPE over the edge.

SQUARE CUSHION (281)

To the edge of the
⌓ portion

1.0+0/-1.0mm from the edge of the LCD MASK

Do not put the SQUARE CUSHION over the edge.

CAMERA Model

Non-CAMERA Model

CAMERA PANEL

FA PANEL
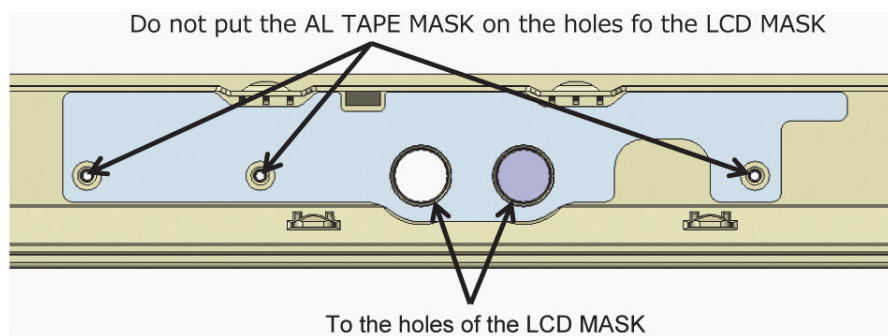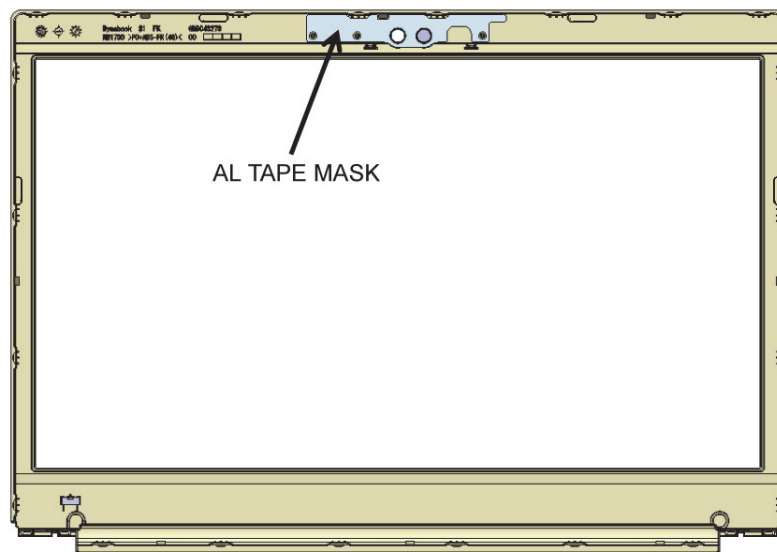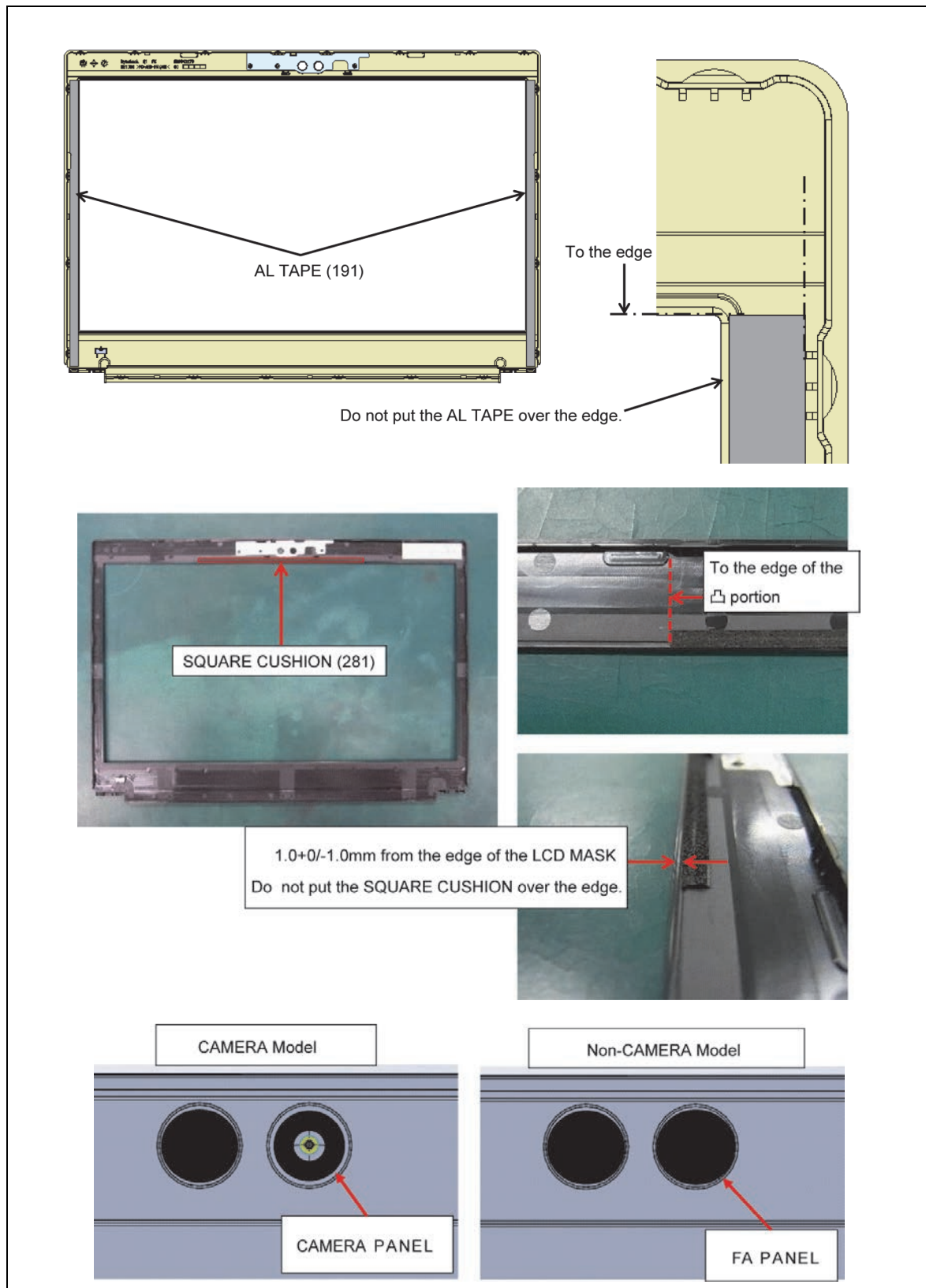
5. Set the **HINGE CAP L/R ASSY** to the LCD COVER ASSY while engaging the
    latches.

NOTE: *Set the HINGE CAP L/R ASSY in the correct position.*

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD MASK ASSY	51	LCD MASK ASSY	1
	53	AL TAPE MASK	1
	59	CAMERA PANEL (Camera model)	1
		FA PANEL (Non camera model)	1
		AL TAPE (191) (FHD model)	2
		SQUARE CUSHION (281) (HD model)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (FHD model)		LCD	1
		AL TAPE (131)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (HD model)	03	LCD	1
		AL TAPE (131) (LTE model)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD (Incel model)		LCD	1
		AL TAPE (131) (LTE model)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD HARNESS	21	LCD HARNESS	1
	39	INSU BH L	1

4.21 HINGE ASSY

Removing the HINGE ASSY

To remove the HINGE ASSY, follow the steps below and refer to Figure 4-28 and 4-29.

1. Peel off the **INSU BH R** from the HINGE R ASSY.

2. Open the **INSU BH R** to release the **ANTENNA CABLEs**.

NOTE: Do not reuse the opened INSU BH R. Be sure to use a new one.

---

3. Remove the following **screws** and the **HINGE R ASSY** from the LCD COVER ASSY.

   - M2.5×2.5C   S-THIN HEAD screw   ×2
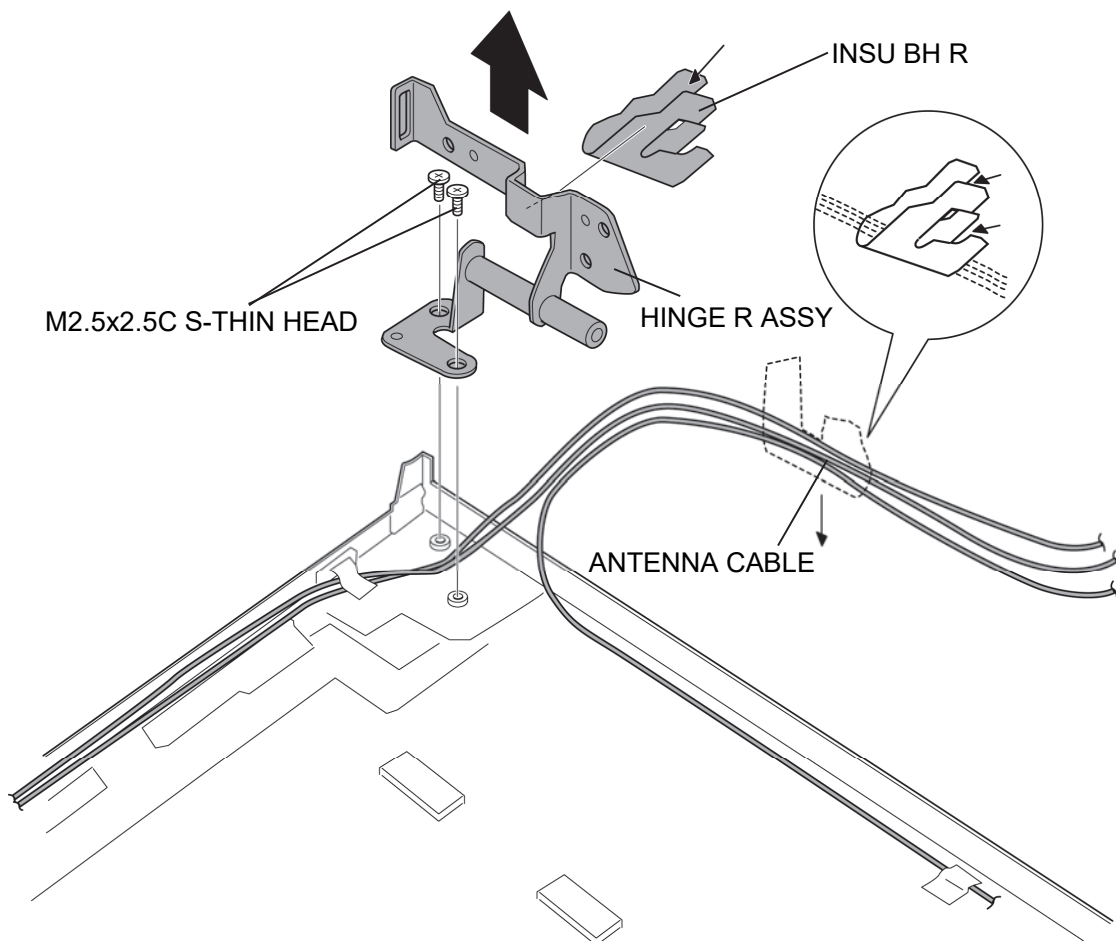
Figure 4-28   Removing the HINGE ASSY (1)

4. Peel off the **INSU BH L** from the HINGE L ASSY.

5. Open the **INSU BH L** to release the **ANTENNA CABLE** and **LCD HARNESS**.

NOTE: *Do not reuse the opened INSU BH L. Be sure to use a new one.*

---

6. Remove the following **screws** and the **HINGE L ASSY** from the LCD COVER ASSY.

- M2.5×2.5C   S-THIN HEAD screw   ×2
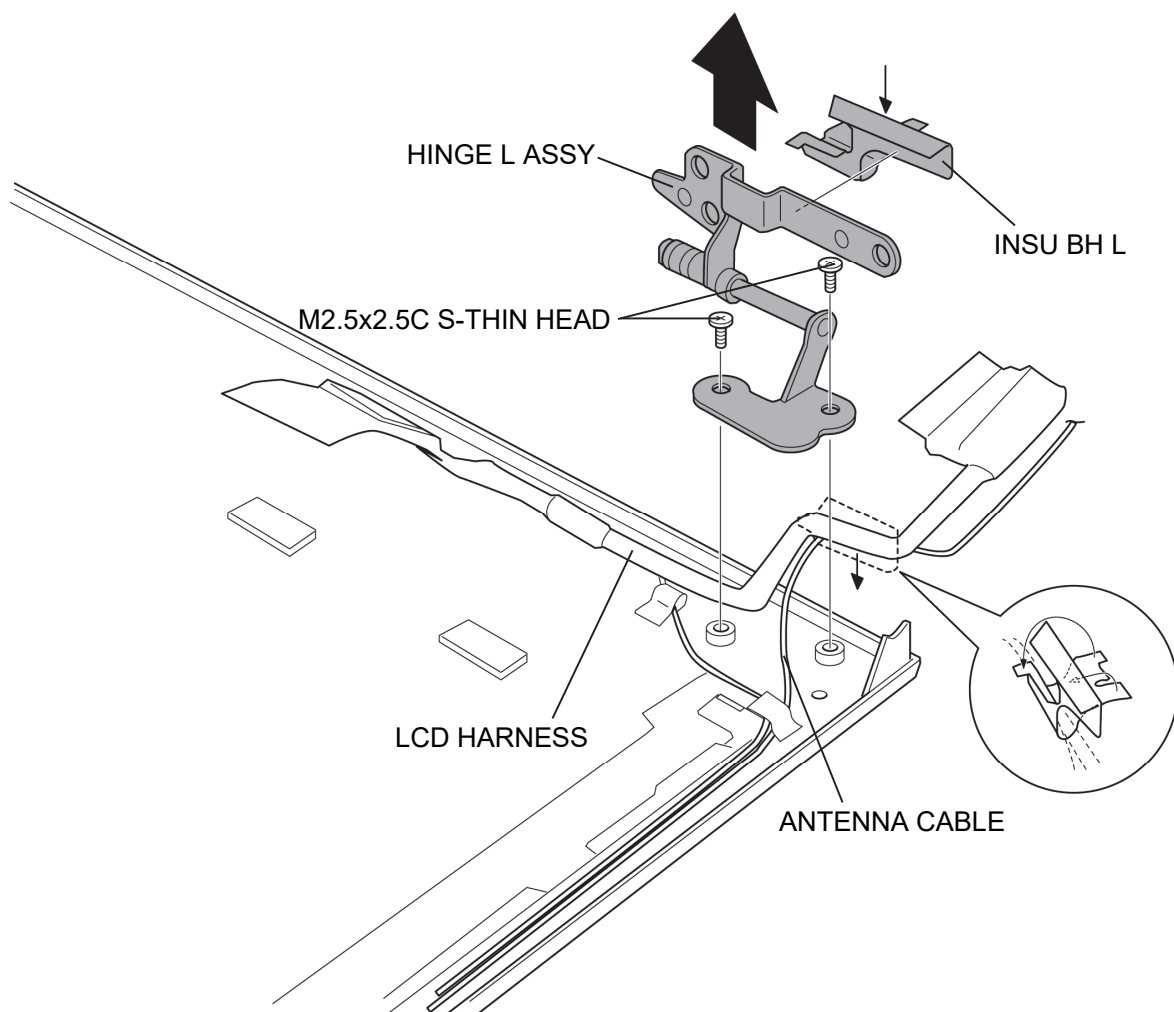
Figure 4-29   Removing the HINGE ASSY (2)

Installing the HINGE ASSY

To install the HINGE ASSY, follow the steps below and refer to Figure 4-28 and 4-29.

1. Set the **HINGE L ASSY** to the LCD COVER ASSY and secure it with the following **screws**.

    *   M2.5×2.5C   S-THIN HEAD screw   ×2

2. Wrap the **ANTENNA CABLE** and **LCD HARNESS** with a new **INSU BH L**.

3. Stick the **INSU BH L** to the HINGE L ASSY.

> *NOTE:*   *Stick the INSU BH L to the HINGE L ASSY as shown in the figure below.*
>
>
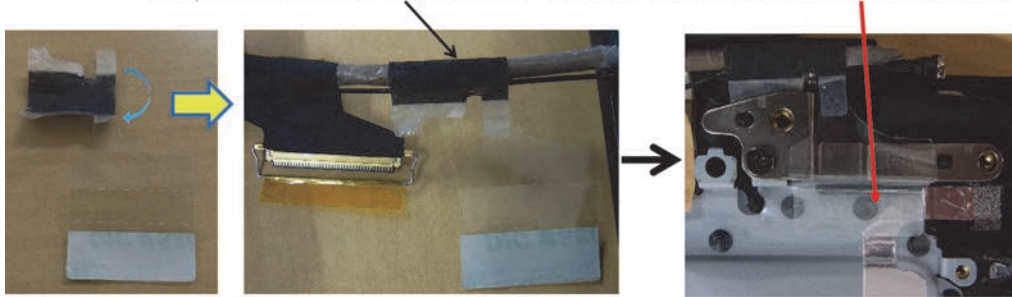
4. Set the **HINGE R ASSY** to the LCD COVER ASSY and secure it with the following **screws**.

    *   M2.5×2.5C   S-THIN HEAD screw   ×2

5. Wrap the **ANTENNA CABLEs** with a new **INSU BH R**.

6. Stick the **INSU BH R** to the HINGE L ASSY.

> *NOTE:*   *Stick the INSU BH R to the HINGE R ASSY as shown in the figure below.*
>
>
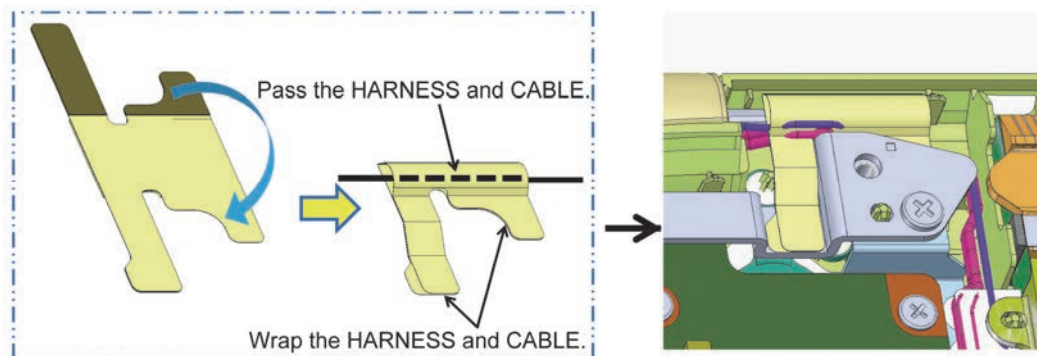
4.22 W-LAN ANTENNA/LTE ANTENNA

Removing the W-LAN ANTENNA/LTE ANTENNA

To remove the W-LAN ANTENNA/LTE ANTENNA, follow the steps below and refer to Figure 4-30 and 4-31.

1. Open the **INSU ANT HOLD** (LTE model) and release the **W-LAN/LTE ANTENNA CABLE**.
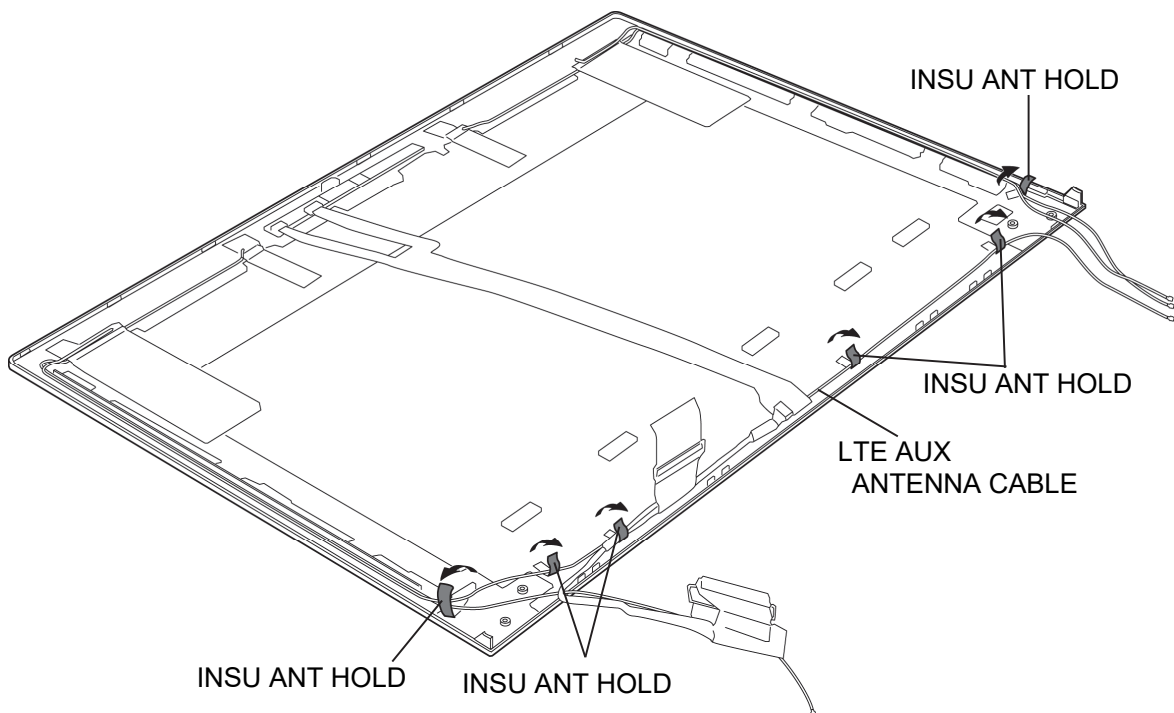
Figure 4-30   Removing the W-LAN ANTENNA/LTE ANTENNA (1)

2. Peel off the **LTE ANTENNA MAIN**, **W-LAN ANTENNA MAIN**, **LTE ANTENNA AUX** and **W-LAN ANTENNA AUX** from the LCD COVER ASSY.

3. Release the **LTE ANTENNA CABLEs** and **W-LAN ANTENNA CABLEs** from the guides of the LCD COVER ASSY.

NOTE: *Do not reuse the removed LTE ANTENNA MAIN, W-LAN ANTENNA MAIN, LTE ANTENNA AUX and W-LAN ANTENNA AUX, be sure to use new ones.*

W-LAN ANTENNA MAIN

W-LAN ANTENNA AUX

LTE ANTENNA/W-LAN ANTENNA MAIN CABLE

LTE ANTENNA MAIN

LTE ANTENNA AUX

LTE ANTENNA/W-LAN ANTENNA AUX CABLE
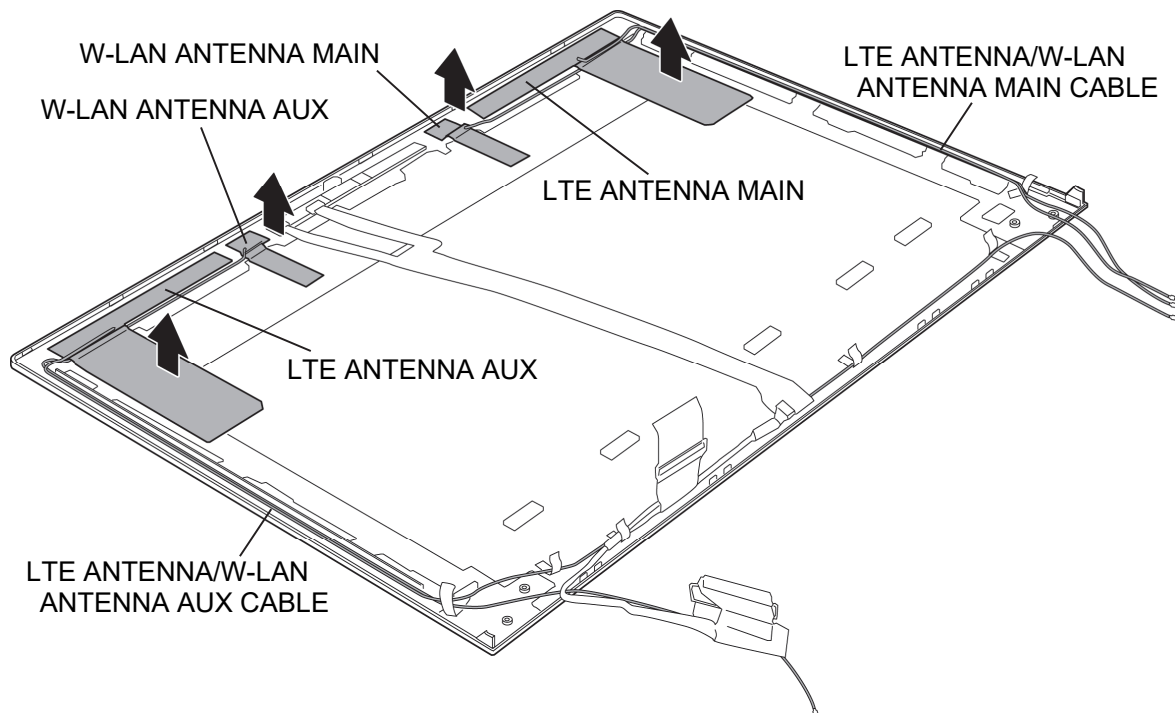
Figure 4-31   Removing the W-LAN ANTENNA/LTE ANTENNA (2)

Installing the W-LAN ANTENNA/LTE ANTENNA

To install the W-LAN ANTENNA/LTE ANTENNA, follow the steps below and refer to
Figure 4-30 and 4-31.

1. Stick a new **W-LAN ANTENNA MAIN** and **LTE ANTENNA MAIN** to the LCD
    COVER ASSY in place.

NOTE: *Stick the W-LAN ANTENNA MAIN and LTE ANTENNA MAIN to the LCD*
          COVER ASSY as shown in the figure below.
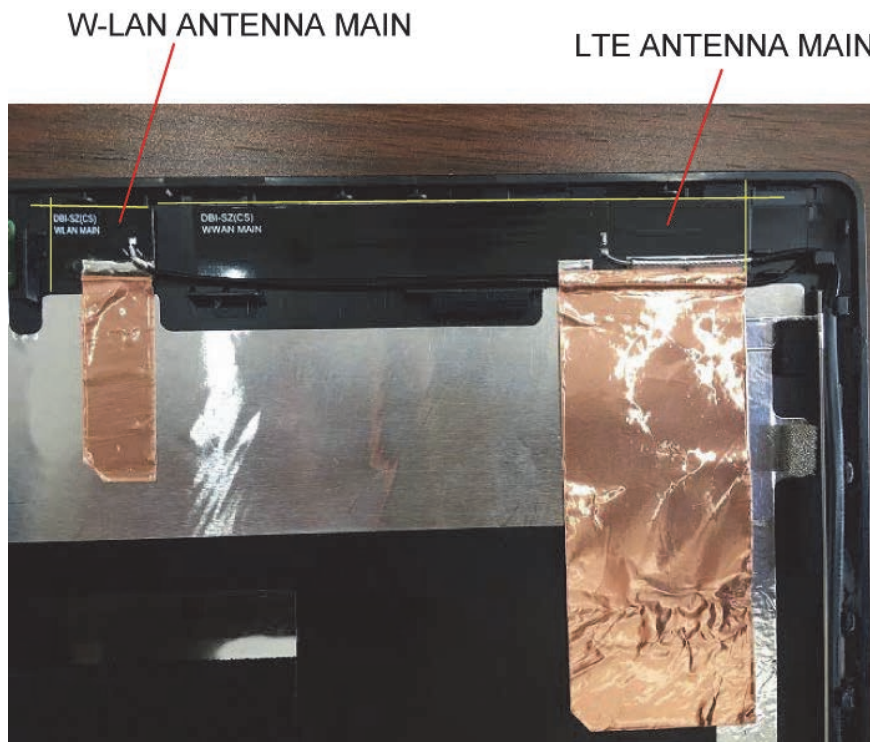
2. Arrange the **W-LAN ANTENNA/LTE ANTENNA MAIN CABLE** to the guides of the LCD COVER ASSY.

NOTE: *Arrange the W-LAN ANTENNA MAIN CABLE to the LCD COVER ASSY as shown in the figure below.*
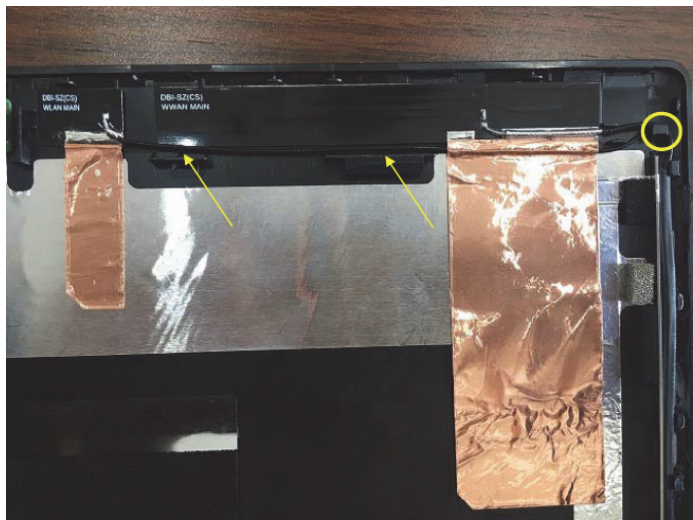
Arrange the non tube portion of the antenna cables under the guides. (Models that the tubes are divided)

---

3. Stick a new **W-LAN ANTENNA AUX** and **LTE ANTENNA AUX** to the LCD
    COVER ASSY in place.

NOTE: *Stick the W-LAN ANTENNA AUX and LTE ANTENNA AUX to the LCD COVER*
            ASSY as shown in the figure below.

---
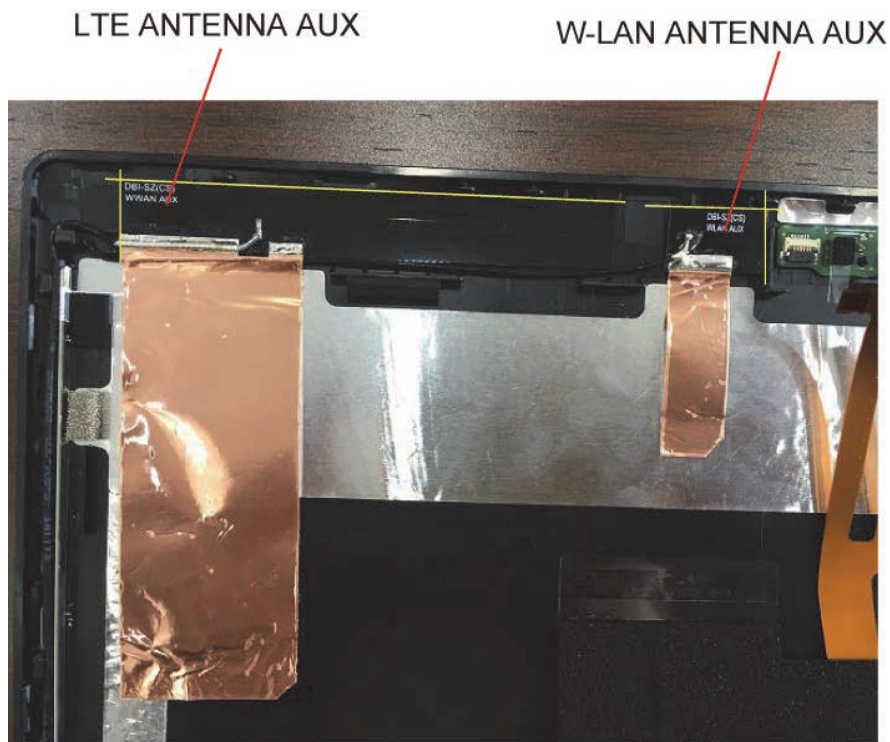
4. Arrange the **W-LAN ANTENNA/LTE ANTENNA AUX CABLE** to the guides of the LCD COVER ASSY.

NOTE: *Arrange the W-LAN ANTENNA/LTE ANTENNA AUX CABLE to the LCD COVER ASSY as shown in the figure below.*
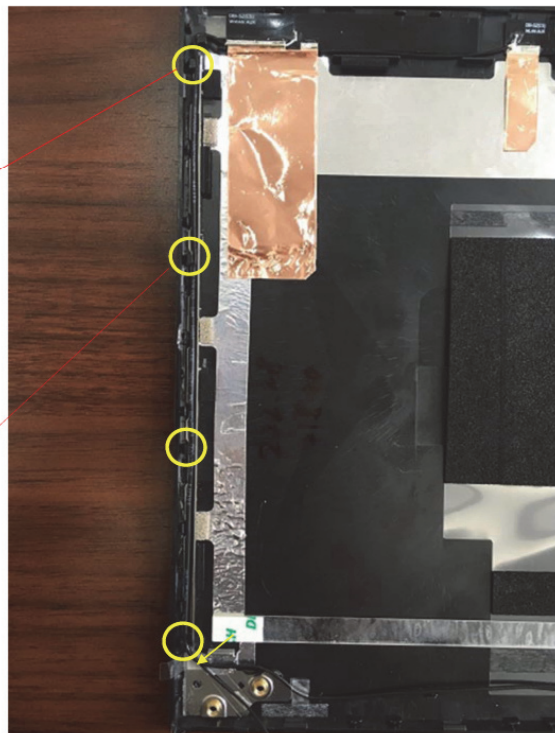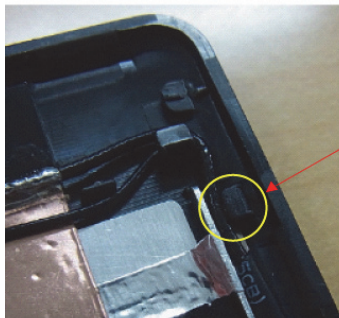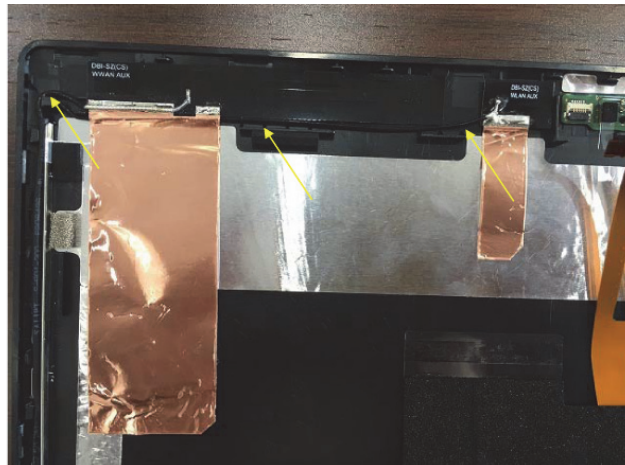
Arrange the non tube portion of the antenna cables under the guides. (Models that the tubes are divided)

---

5. Arrange the **W-LAN/LTE ANTENNA CABLE** to the guides of the LCD COVER ASSY and fix it with the **INSU ANT HOLD** (LTE model).

NOTE: *Arrange the W-LAN/LTE ANTENNA CABLE to the LCD COVER ASSY as shown in the figure below.*

W-LAN ANTENNA AUX CABLE   LTE ANTENNA AUX CABLE

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
W-LAN/LTE MAIN ANTENNA	22	W-LAN/LTE MAIN ANTENNA	1
	38	INSU BH R	1

ITEM	Parts List ITEM No	PART NAME	Quantity
W-LAN/LTE AUX ANTENNA	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1

4.23 MIC BOARD/CAMERA MODULE

Removing the MIC BOARD/CAMERA MODULE

To remove the MIC BOARD/CAMERA MODULE, follow the steps below and refer to Figure 4-32and 4-33.

1. Peel off the **SPACER FHD** and **INSU LCD COV FHD** from the LCD COVER ASSY. (FHD model)

NOTE: *Do not reuse the removed SPACER FHD. Be sure to use a new one.*

2. Disconnect the **LCD HARNESS** (FPC portion) from the connectors **CN9710** on the MIC BOARD and on the CAMERA MODULE.

3. Peel off the **LCD HARNESS** (FPC portion) from the LCD COVER ASSY.

NOTE: *Do not reuse the removed LCD HARNESS. Be sure to use a new one.*

CN9710

INSU LCD COV FHD

Connector

SPACER FHD

LCD HARNESS

D STICK TAPE
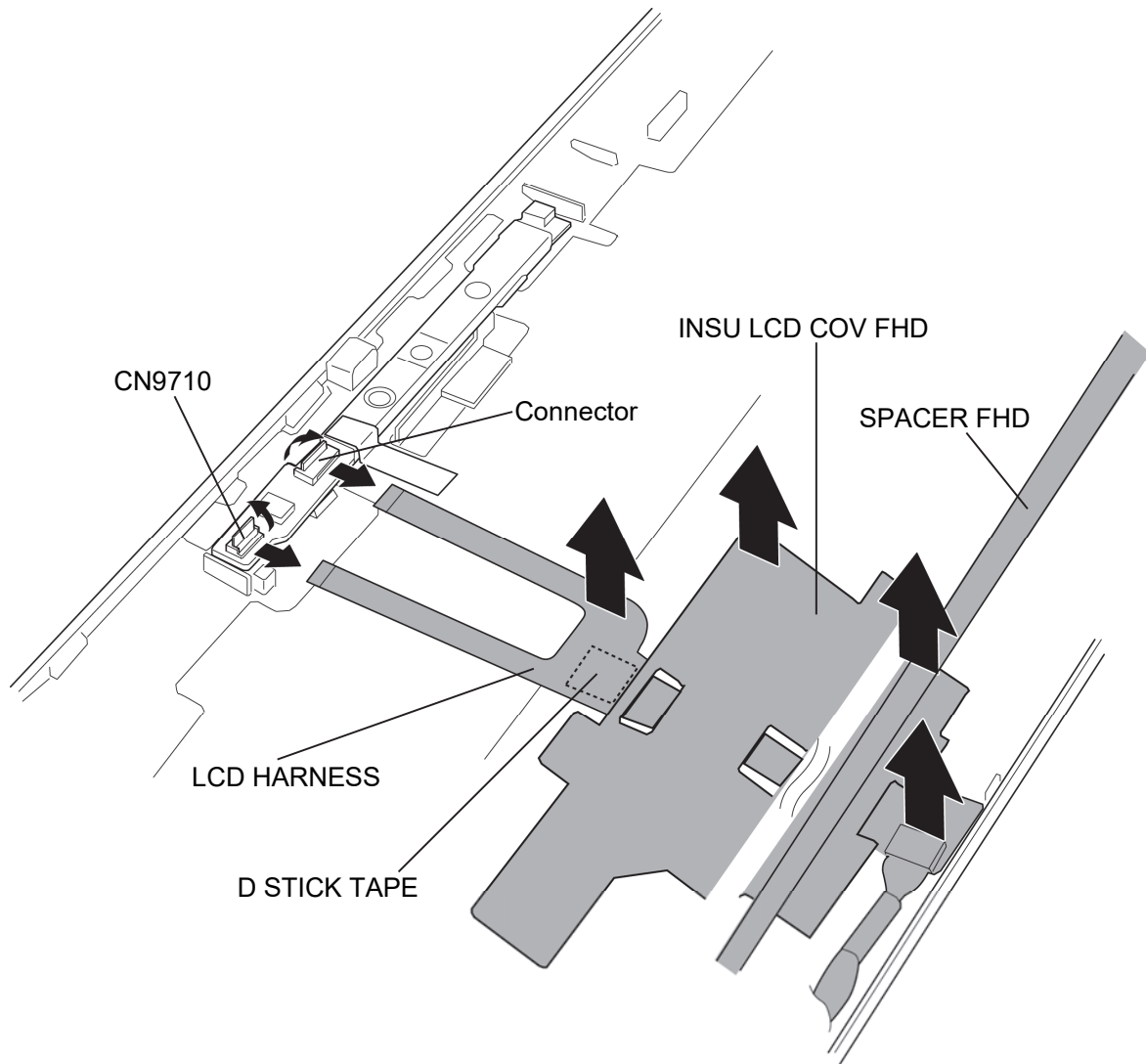
Figure 4-32   Removing the MIC BOARD/CAMERA MODULE (1)

4. Peel off the **AL TAPE**.

5. Peel off the **CAMERA MODULE** and **MIC BOARD** from the LCD COVER ASSY.

NOTE: *Do not reuse the removed AL TAPE (171). Be sure to use a new one.*
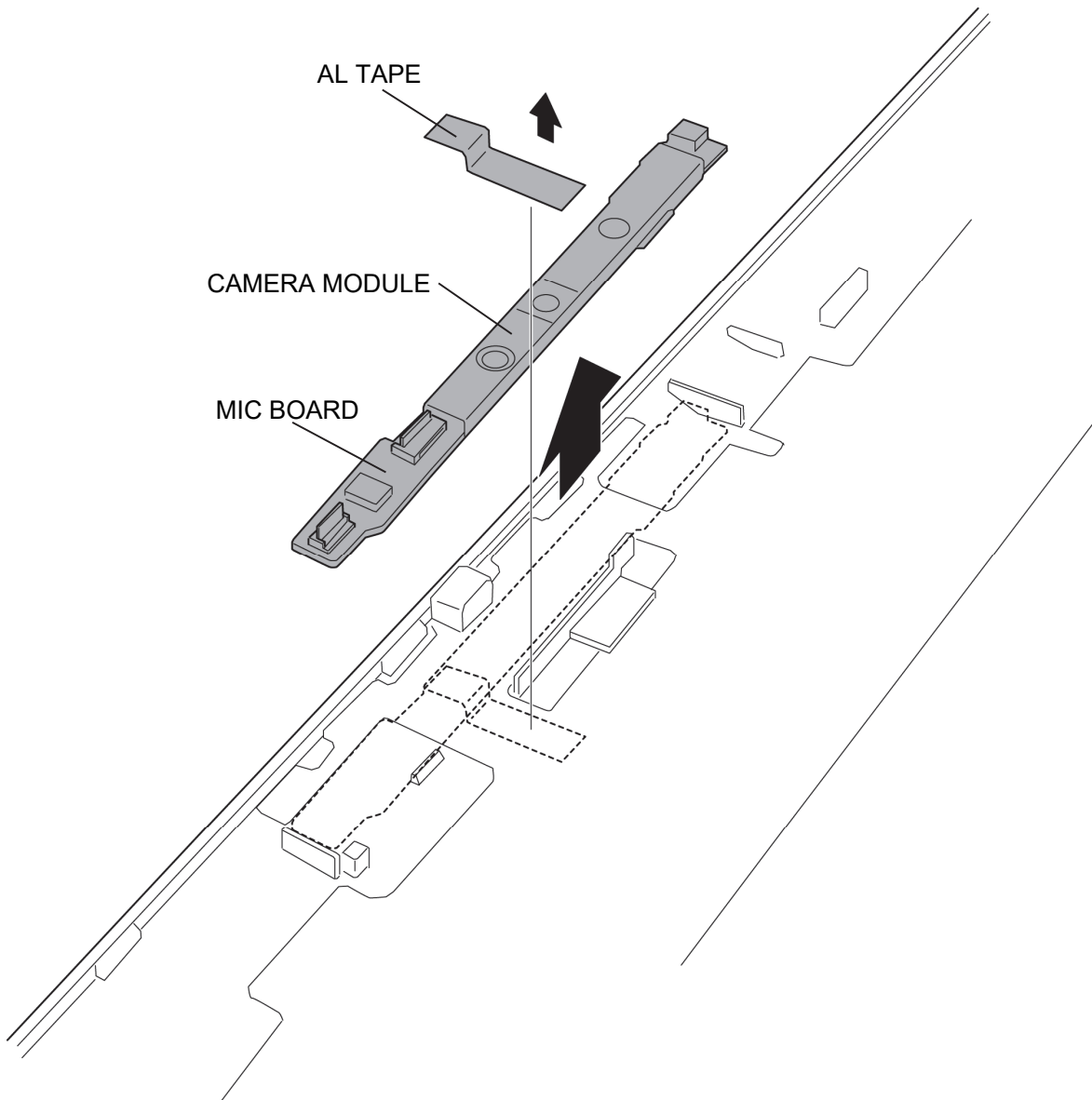
Figure 4-33   Removing the MIC BOARD/CAMERA MODULE (2)

Installing the MIC BOARD/CAMERA MODULE

To install the MIC BOARD/CAMERA MODULE, follow the steps below and refer to Figure 4-32 and 4-33.

1. Stick the **MIC BOARD** to the LCD COVER ASSY in place.

NOTE: *When replacing the MIC BOARD with a new one, stick the CUSHION MICs to the MIC BOARD in place.*

CUSHION MIC
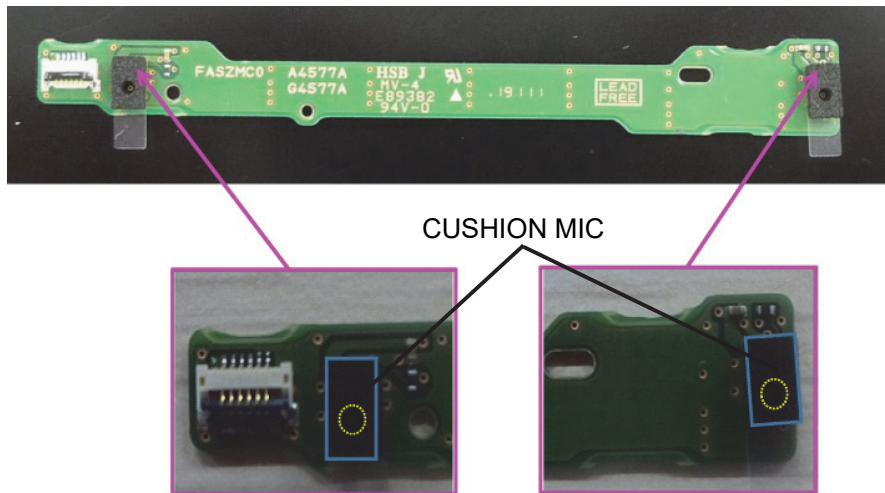
2. Stick the **CAMERA MODULE** to the LCD COVER ASSY in place.

3. Stick a new **AL TAPE** to the LCD COVER ASSY in place.

4. Connect a new **LCD HARNESS** (FPC portion) to the connectors **CN9710** on the MIC BOARD and on the CAMERA MODULE.

5. Stick the **LCD HARNESS** (FPC portion) to the LCD COVER ASSY.

6. Stick the **INSU LCD COV FHD** to the LCD COVER ASSY in place. (FHD model)

7. Stick a new **SPACER FHD** to the LCD COVER ASSY in place. (FHD model)

NOTE: *When replacing the LCD COVER ASSY (camera model) with a new one, stick*
          new EMI GASKET (T10) and AL TAPE (171) to the LCD COVER ASSY in
          place.
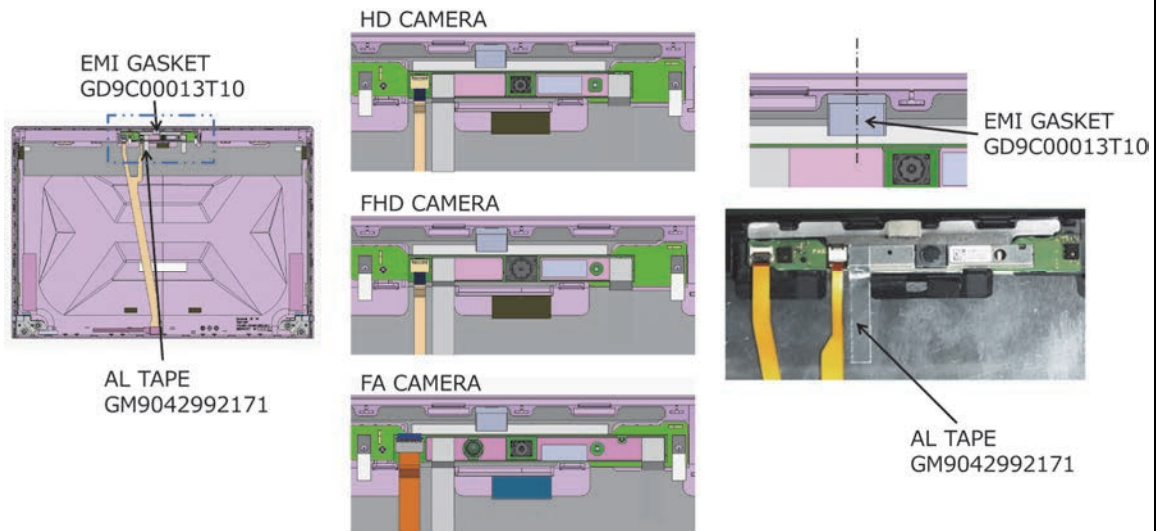
NOTE: *When replacing the LCD COVER ASSY (HD model) with a new one, stick new SQUARE CUSHION (211), SQUARE CUSHION (131), D TAPE HD, LCD PROTECT (611) and LCD PROTECT (181) to the LCD COVER ASSY in place.*

LCD HD UNIT (LTE)

SQUARE CUSHION
GM9042991211

SQUARE CUSHION
GM9042991131

SQUARE CUSHION
GM9042991211

SQUARE CUSHION
GM9042991131

SQUARE CUSHION
GM9042991131

SQUARE CUSHION
GM9042991211

LCD PROTECT
GM9042991181

SQUARE CUSHION
GM9042991211

D TAPE HD
GM9043111111

LCD PROTECT
GM9030874611

LCD PROTECT
GM9042991181

D TAPE HD
GM9043111111

LCD PROTECT
GM9030874611

SQUARE CUSHION
GM9042991131

LCD HD UNIT (Non LTE)

SQUARE CUSHION
GM9042991211

SQUARE CUSHION
GM9042991131

SQUARE CUSHION
GM9042991211

SQUARE CUSHION
GM9042991131

SQUARE CUSHION
GM9042991131

LCD PROTECT
GM9042991181

SQUARE CUSHION
GM9042991211

D TAPE HD
GM9043111111

D TAPE HD
GM9043111111

SQUARE CUSHION
GM9042991211

LCD PROTECT
GM9042991181

LCD PROTECT
GM9030874611

SQUARE CUSHION
GM9042991131

LCD PROTECT
GM9030874611

SQUARE CUSHION (131) (5pic)

Edge of the AL TAPE

Edge of the rib

To the rib

(40) (40)

(26.6)

Edge of the HINGE SPRT PLT
※Both sides

SQUARE CUSHION (211) (4pic)

A-A cross section
(Left side 2pic)

Edge of the HINGE SPRT PLT

To the HINGE SPRT PLT

A A

Both sides

To the center of the rib

B-B cross section
(Both sides)

To the rib

Edge of the rib

B

B

LCD PROTECT (181) (2pic)

To the T rib

A   *A*

A-A cross section
(Right side 2pic)

Edge of the
HINGE SPRT PLT

To the HINGE SPRT PLT   To the T rib

LCD PROTECT (611) (2pic)

C-C Cross section
(Both sides)

Both sides

← *C*

← *C*

Edge of the
HINGE SPRT PLT
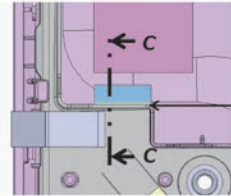
Edge of the
HINGE SPRT PLT

Edge of the
HINGE SPRT PLT

To the
HINGE SPRT PLT

(LTE model only)

D TAPE HD (2pic)

Both sides

Both sides
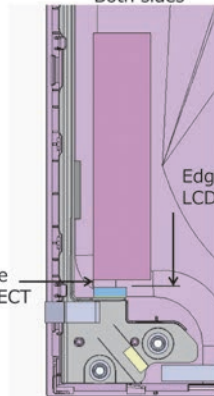
D TAPE HD

Gasket

Edge of the
LCD PROTECT

Edge of the
LCD PROTECT

Be careful not to overlap the D TAPE HD and Gasket.

NOTE: *When replacing the LCD COVER ASSY (FHD model) with a new one, stick new SQUARE CUSHION (181), SQUARE CUSHION (251), LCD PROTECT (161), EMI GASKET (T10), LCD PROTECT (611), INSU LCD COV FHD (can be reused) and SPACER FHD to the LCD COVER ASSY in place.*

SQUARE CUSHION (181) (5pic)

To the edge of the AL TAPE

To the edge of the rib

To the rib

To the rib

To the edge of the HINGE SPRT PLT

To the edge of the HINGE SPRT PLT

※Both side

※Both side

LCD PROTECT (611) (2pic)

Both sides

C-C cross section
(Both sides)

To the edge of the HINGE SPRT PLT

To the edge of the HINGE SPRT PLT

To the HINGE SPRT PLT

INSU LCD COV FHD

Stick the INSU HNS HLD LTE after sticking the CAMERA FPC

To the edge of the rib

To the edge of the rib or the FPC

SPACER FHD

Stick the SPACER FHD after sticking the INSU HNS HLD LTE

Stick the SPACER FHD after sticking the AL TAPE LCD L

Stick the SPACER FHD after sticking the AL TAPE LCD R

To the edge of the LCD PROTECT

To the edge of the AL TAPE LCD L

SQUARE CUSHION (251) (4pic)

Left side

A-A cross section
(Left side 2pic)

To the T rib

B-B cross section
(Both sides)

To the edge of the
HINGE SPRT PLT

A   A

Both sides

To the rib of the
LCD COVER

To the HINGE SPRT PLT

Left side

To the T rib

B

B

リブ端面合わせ

To the center of the rib

LCD PROTECT (161) (2pic)

EMI GASKET (T10) (2pic)

(Both sides)

To the T rib

A   A

A-A cross section
(Right side 2pic)

Edge of the
HINGE SPRT PLT

Edge of the
INSU ANT HOLD

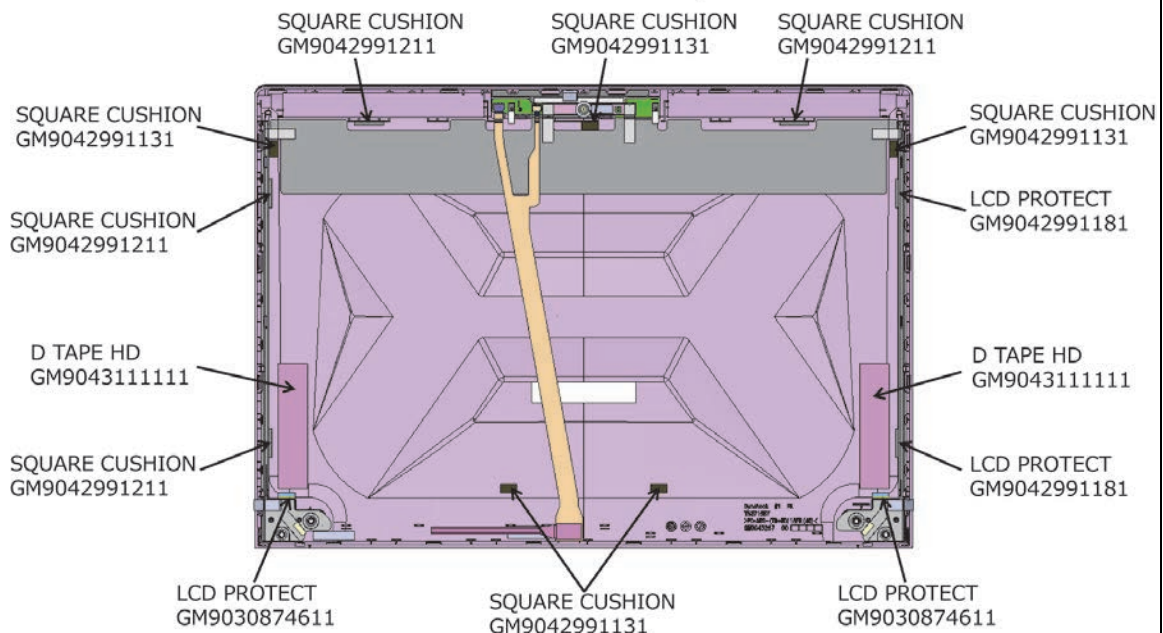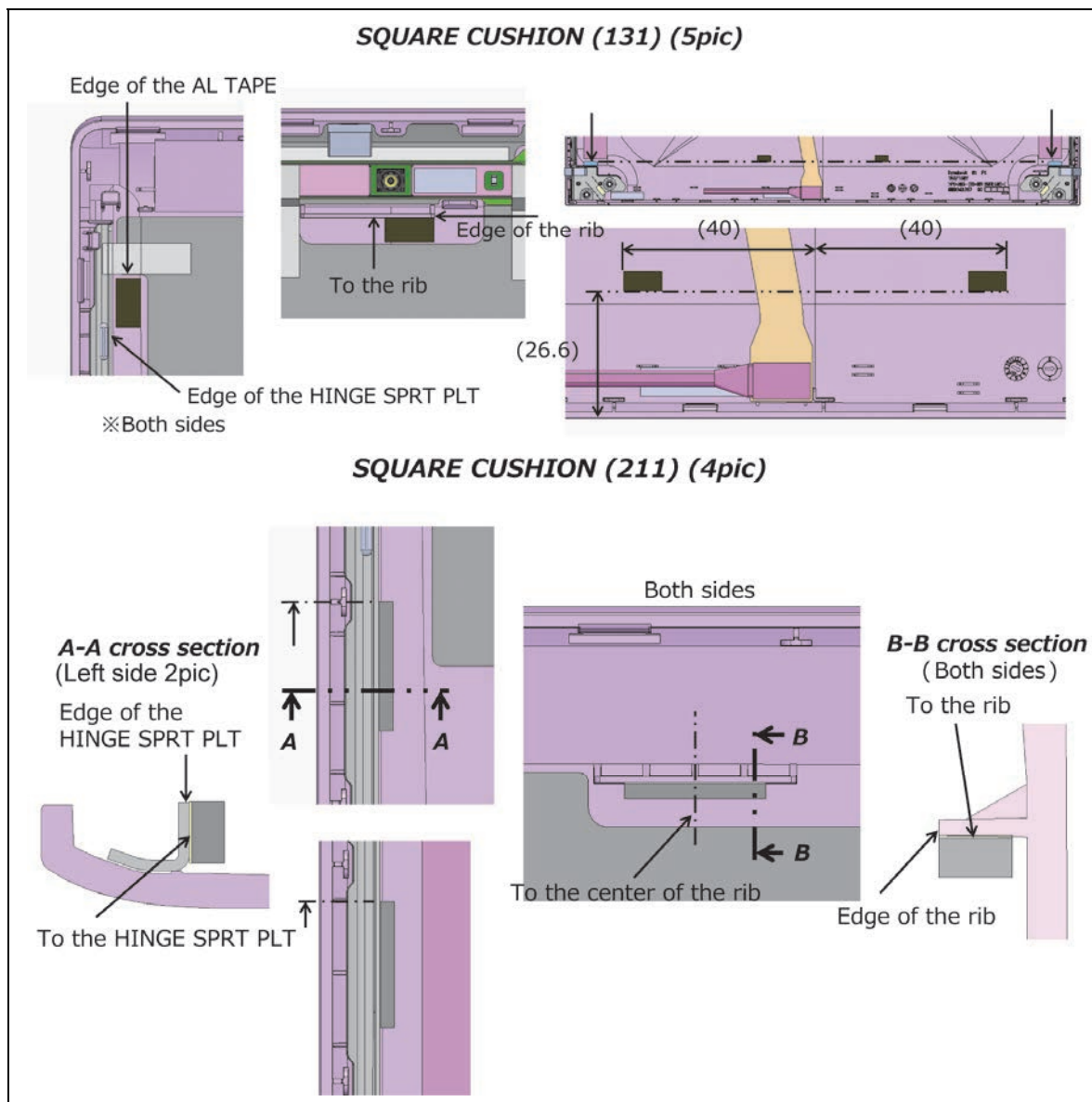To the rend

To the HINGE SPRT PLT

To the T rib

To the T rib

NOTE: *When replacing the LCD COVER ASSY (Incell model) with a new one, stick the SQUARE CUSHION (231), SQUARE CUSHION (261), LCD PROTECT (171), LCD PROTECT ICT, D TAPE ICT and INSU ANT HOLD (LTE model) to the LCD COVER ASSY in place.*

LCD Incell UNIT (LTE)

LCD Incell UNIT (Non LTE)

SQUARE CUSHION (261) (4pic)

B-B cross section
(Both sides)

Both sides

To the rib of the
LCD COVER

A-A cross section
(Left side 2pic)

To the edge of the
HINGE SPRT PLT

A   A

To the T rib

B

To the rib

B

To the HINGE SPRT PLT

To the center of the rib

To the edge of
the rib

Stick the SQUARE CUSHION (261)
before sticking the SQUARE CUSHION (231)

LCD PROTECT (171) (2pic)

LCD PROTECT ICT (2pic)

Both sides

A-A cross section
(Right side 2pic)

To the edge of the
HINGE SPRT PLT

A   A

To the T rib

D

To the edge of the
HINGE SPRT PLT

右側

D

To the HINGE SPRT PLT

To the rib

D-D cross section
(Both sides)

Stick the LCD PROTECT (171)
before sticking the
SQUARE CUSHION (231)

To the edge of the
HINGE SPRT PLT

SQUARE CUSHION (231) (12 pic)

Both sides
To the edge of the AL TAPE

To the rib

To the rib

Both sides
To the rib

To the edge of the
HINGE SPRT PLT

To the edge of the
HINGE SPRT PLT

Both sides
To the edge of the
GUM CUSHION

111   98

63.5   59.5

9

35

Stick the SQUARE CUSHION
after sticking the CAMERA FPC

To the edge of the
HINGE SPRT PLT

D TAPE ICT (2pic)

(Both sides)

To the edge of the
SQUARE CUSHION

To the edge of the
LCD PROTECT ICT

When setting the LCD unit to the
LCD COVER ASSY, peel off the
separator to fix them.

D TAPE ICT(GM9043460111)
(Both sides)

Prepare required parts in advance, when replacing the following items.

ITEM	Parts List ITEM No	PART NAME	Quantity
	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
LCD COVER ASSY (HD model)	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
	42	SQUARE CUSHION (131)	5
	41	SQUARE CUSHION (211)	4
	48	LCD PROTECT (611)	2
	47	D TAPE HD	2
		LCD PROTECT (181)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD COVER ASSY (FHD model)	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
		SQUARE CUSHION (181)	5
	48	LCD PROTECT (611)	2
	44	SPACER FHD	1
		SQUARE CUSHION (251)	4
		LCD PROTECT (161)	2
	52	EMI GASKET (T10)	2

ITEM	Parts List ITEM No	PART NAME	Quantity
LCD COVER ASSY (Incell model)	50	LCD COVER ASSY	1
	21	LCD HARNESS	1
	22	W-LAN/LTE MAIN ANTENNA	1
	23	W-LAN/LTE AUX ANTENNA	1
	39	INSU BH L	1
	38	INSU BH R	1
	66	AL TAPE (171) (Camera model)	1
	52	EMI GASKET (T10) (Camera model)	1
		SQUARE CUSHION (231)	12
		LCD PROTECT ICT	2
		SQUARE CUSHION (261)	4
		LCD PROTECT (171)	2
		D TAPE ICT	2
		INSU ANT HOLD (LTE model)	4

ITEM	Parts List ITEM No	PART NAME	Quantity
CAMERA MODULE	13	CAMERA MODULE	1
	66	AL TAPE (171)	1

ITEM	Parts List ITEM No	PART NAME	Quantity
MIC BOARD	56	MIC BOARD	1
	66	AL TAPE (171) (Camera model)	1

Appendices

Appendix   Contents

Appendix A   Handling the LCD Module

Precautions for handling the LCD module

The LCD module can be easily damaged during assembly or disassembly. Observe the following precautions when handling the LCD module:

1. When installing the LCD module in the LCD cover, be sure to seat it so that it is properly aligned and maximum visibility of the display is maintained.
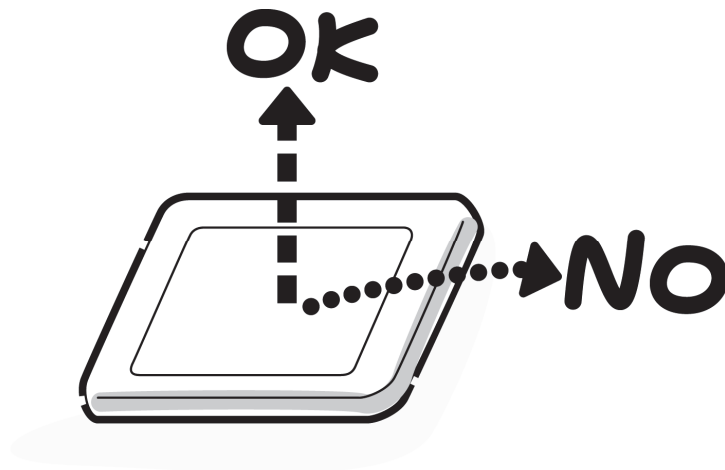
2. Be careful to align the holes at the four corners of the LCD module with the corresponding holes in the LCD cover before securing the module with screws. Do not force the module into place, because stress can affect its performance.

    Also, the panel's polarized surface is easily scarred, so be careful when handling it.

3. If the panel's surface gets dirty, wipe it with cotton or a soft cloth. If it is still dirty, try breathing on the surface to create a light condensate and wipe it again.

    If the surface is very dirty, we recommend a CRT cleaning agent. Apply the agent to a cloth and then wipe the panel's surface. Do not apply cleanser directly to the panel.

4. If water or other liquid is left on the panel's surface for a long period, it can change the screen's tint or stain it. Be sure to quickly wipe off any liquid.

5. Glass is used in the panel, so be careful not to drop it or let it strike a hard object, which could cause breakage or cracks.
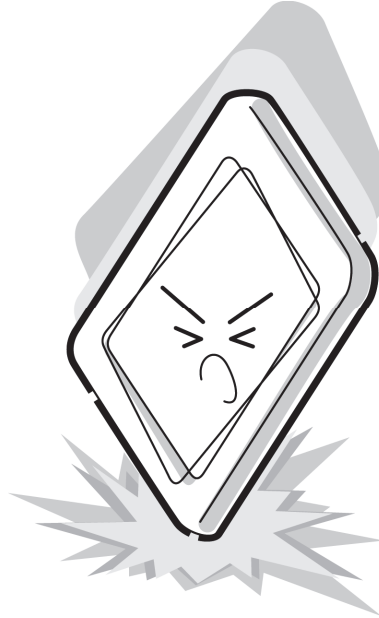
6. CMOS-LSI circuits are used in the module, so guard against damage from electrostatic discharge. Be sure to wear a wrist or ankle ground when handling the module.
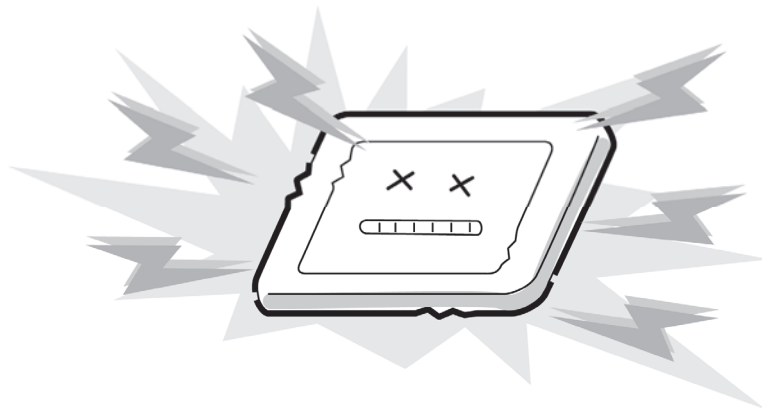
7. Do not expose the module to direct sunlight or strong ultraviolet rays for long periods.

8. Do not store the module at temperatures below specifications. Cold can cause the liquid crystals to freeze, lose their elasticity or otherwise suffer damage.

9. Do not disassemble the LCD module. Disassembly can cause malfunctions.
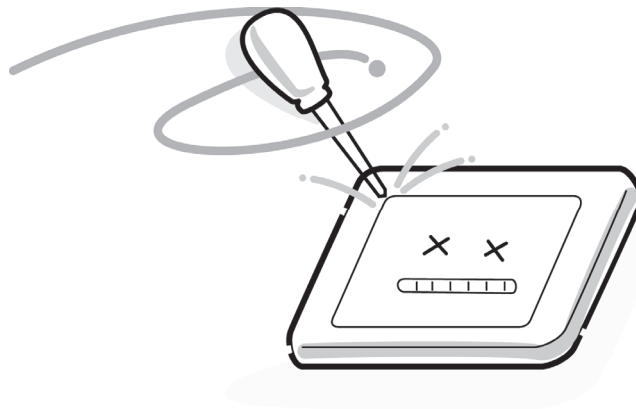
10. If you transport the module, do not use packing material that contains epoxy resin (amine) or silicon glue (alcohol or oxide). These materials can release gas that can damage the panel's polarization.
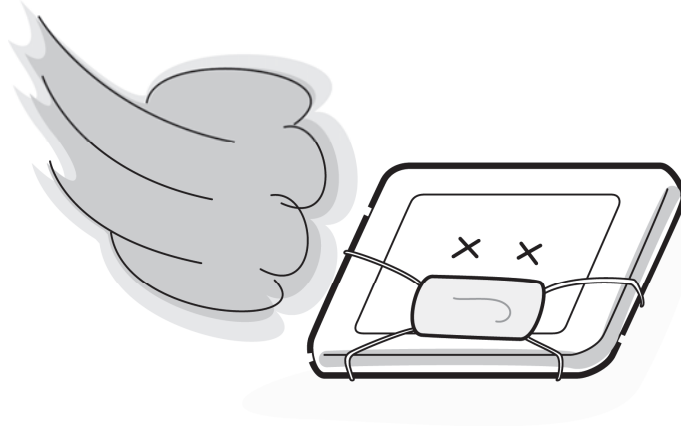
Appendix B   PCB Layout

B.1   System board (FASZSY*) Front View

IS2142
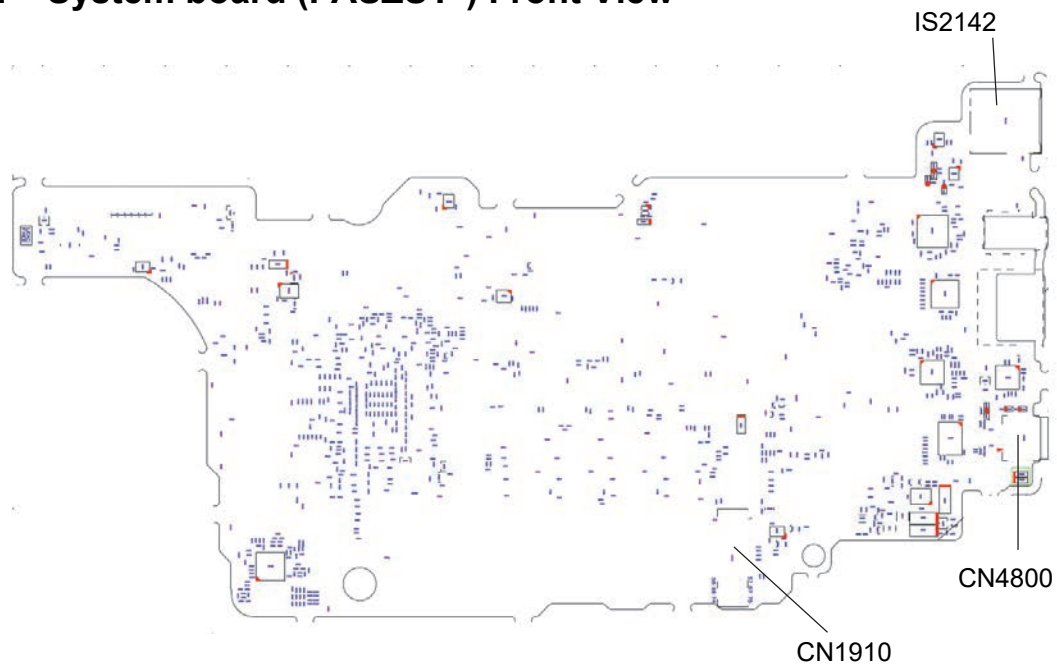
CN4800

CN1910

Figure B-1 System board (FASZSY) layout (Front)*

Table B-1 System board (FASZSY) connectors and ICs (Front)*

No.	Name
CN1910	M.2 SSD I/F connector
CN4800	USB Type-C I/F connector
IS2142	Micro SD card I/F connector

B.2   System board (FASZSY*) Back View

CN6290
CN9550
CN9560
CN3240
CN8021
CN1410
CN2100
CN9600
CN3280
J6320
CN5690
CN3380
IC1050
CN8001
CN5390
IC1440~IC1410
CN2630
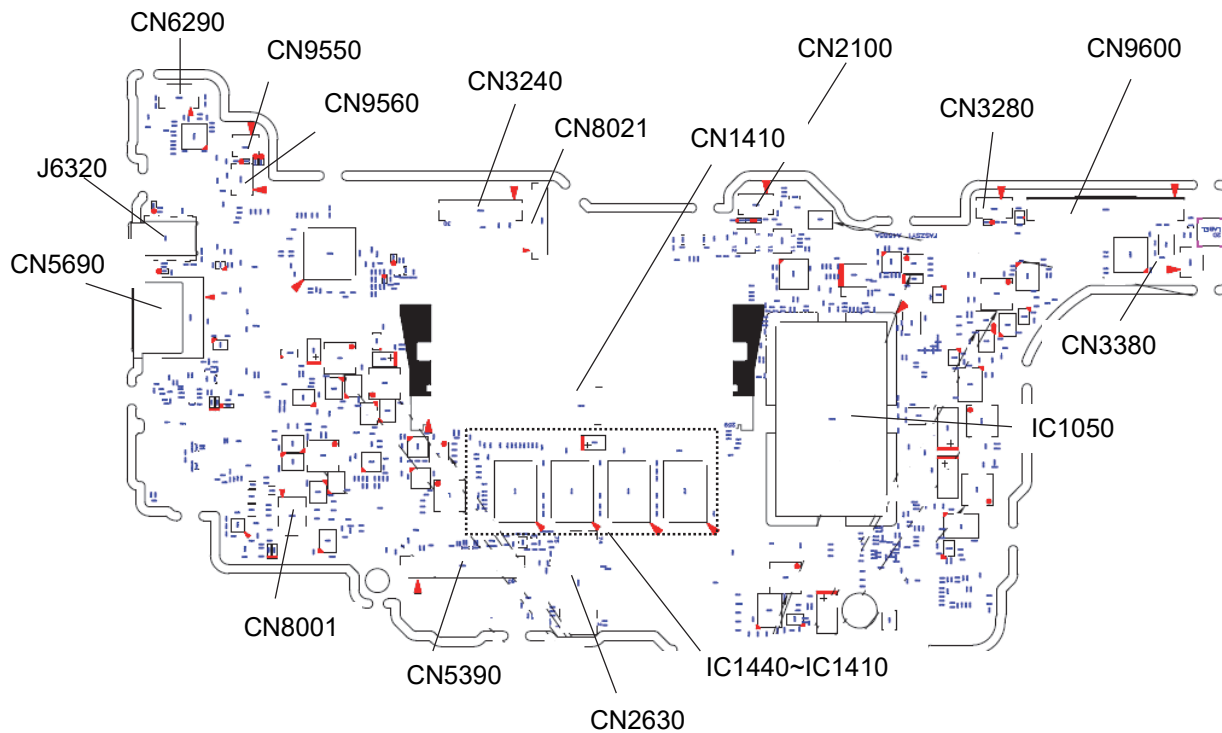
Figure B-2 System board (FASZSY) layout (Back)*

Table B-2   System board (FASZSY*) connectors and ICs (Back)

No.	Name
CN6290	Speaker I/F connector
CN9550	Fingerprint sensor I/F connector
CN9560	Click pad (Touch pad) I/F connector
CN3240	Keyboard I/F connector
CN8021	Battery connector
CN1410	DDR4 SD-DIMM B
IC1410	DDR4 SDRAM 1
IC1420	DDR4 SDRAM 2
IC1430	DDR4 SDRAM 3
IC1440	DDR4 SDRAM 4
CN2100	Smart Card I/F connector
CN3280	Keyboard Backlight I/F connector
CN9600	USB FPC I/F connector
CN3380	FAN I/F connector
IC1050	CPU
CN2630	M.2 W-LAN NGFF I/F connector
CN5390	LCD, Camera, MIC I/F connector
CN8001	DC-IN I/F connector
J6320	Headphone/Microphone combo jack
CN5690	HDMI I/F connector

B.3   USB board (FASZCN*/FASZLT*) View

IS2621

IC3280   S3270

(Front)

CN9640   CN2610

CN4830

CN4810   CN4810

CN4050   CN4050

(Back (FASZCN))*   *(Back (FASZLT*))*
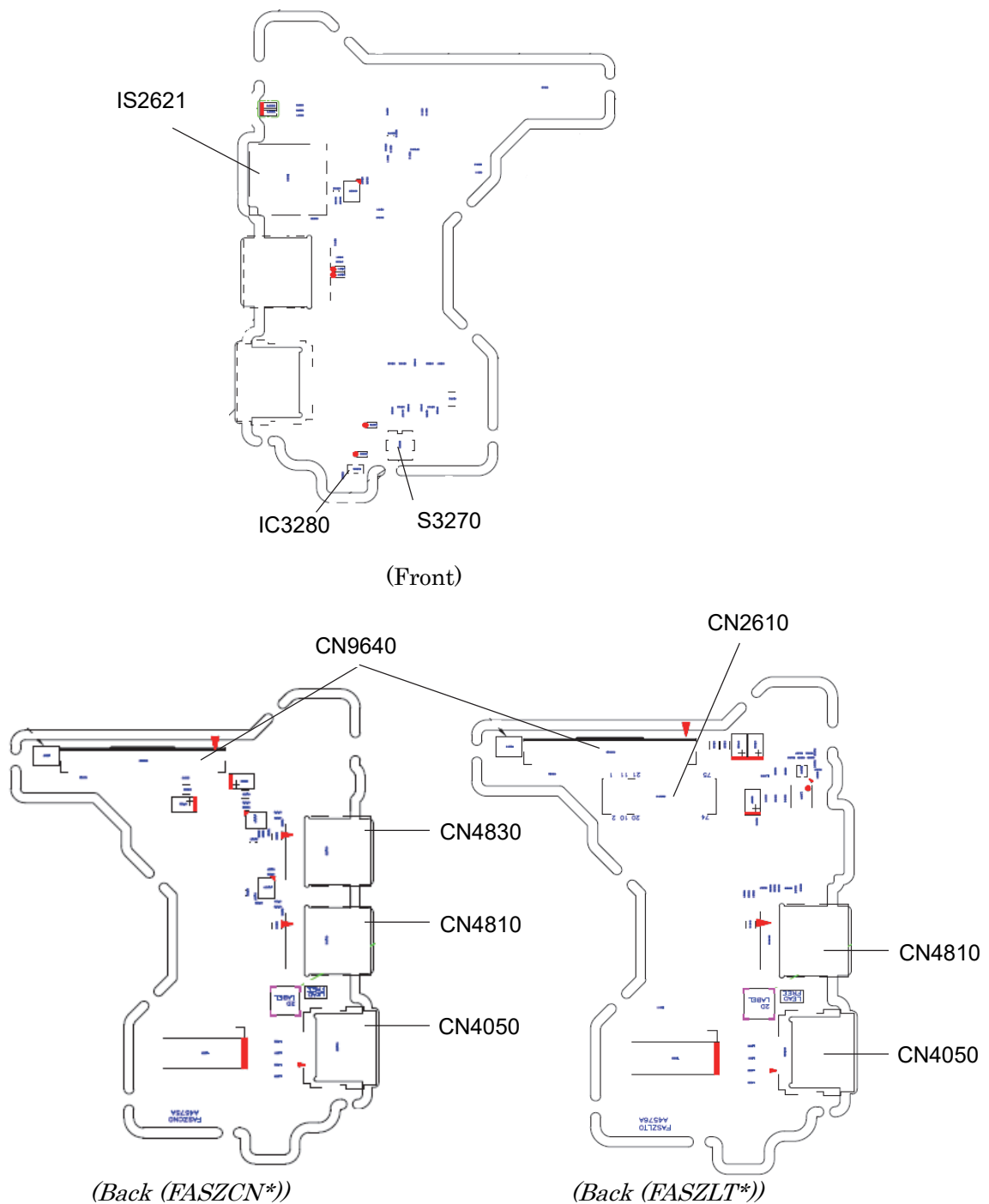
Figure B-3   USB board (FASZCN/FASZLT*) layout*

Table B-3 USB board (FASZCN*/FASZLT*) connectors and ICs

No.	Name
IS2621	Nano SIM slot
IC3280	Lid sensor
S3270	Power switch
CN9640	USB FPC I/F connector
CN2610	LTE I/F connector
CN4830	USB 3.0 Type-A I/F connector
CN4810	USB 3.0 Type-A (S&C) I/F connector
CN4050	LAN I/F connector

B.4   MIC board (FASZMC*) View

CN9710

(Front)

(Back)
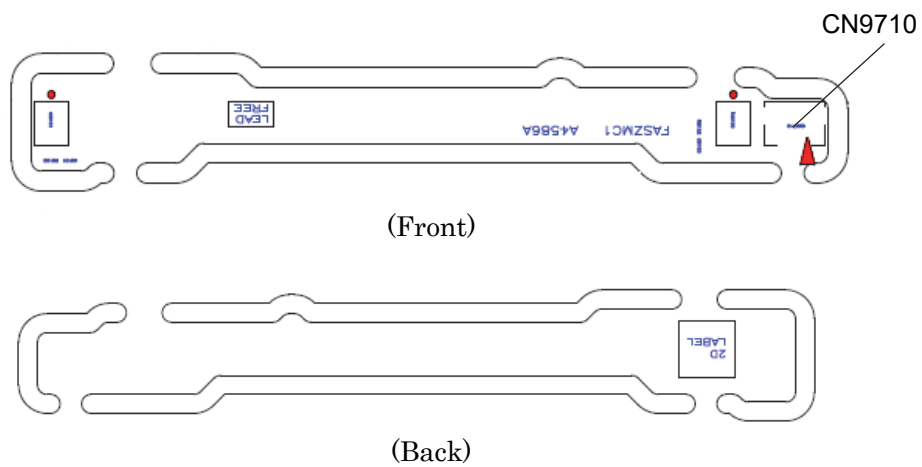
Figure B-4   MIC board (FASZMC) layout*

Table B-4 MIC board (FASZMC) connectors*

No.	Name
CN9710	System board I/F connector

Appendix C   Pin Assignments

Table

System board (FASZSY*)

C.1   CN1910   M.2 SSD I/F connector (75-pin)

Table C-1 M.2 SSD I/F connector (75-pin)(1/2)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	P3V
3	GND	4	P3V
5	ZERSS3-E1N	6	NC
7	ZERSS3-E1P	8	NC
9	GND	10	NC
11	ZETSS3-E1N	12	P3V
13	ZETSS3-E1P	14	P3V
15	GND	16	P3V
17	ZERSS2-E1N	18	P3V
19	ZERSS2-E1P	20	NC
21	GND	22	NC
23	ZETSS2-E1N	24	NC
25	ZETSS2-E1P	26	NC
27	GND	28	NC
29	ZERSS1-E1N	30	NC
31	ZERSS1-E1P	32	NC
33	GND	34	NC
35	ZETSS1-E1N	36	NC
37	ZETSS1-E1P	38	DVSLP1-E3P
39	GND	40	NC
41	ZERSS0-E1P	42	NC
43	ZERSS0-E1N	44	NC
45	GND	46	NC
47	ZETSS0-E1N	48	NC
49	ZETSS0-E1P	50	PLTRS1-E3N
51	GND	52	SSDXRQ-P3N
53	XSSDPCI-E0N	54	NC
55	XSSDPCI-E0P	56	NC
57	GND	58	NC
59	-	60	-
61	-	62	-
63	-	64	-
65	-	66	-

Table C-1 M.2 SSD I/F connector (75-pin)(2/2)

Pin No.	Signal name	Pin No.	Signal name
67	NC	68	NC
69	SSDMDL-P3P	70	P3V
71	GND	72	P3V
73	GND	74	P3V
75	GND		
1T	GND	2T	GND

C.2   CN2630 M.2 W-LAN NGFF I/F connector (75-pin)

Table C-2 M.2 W-LAN NGFF I/Fconnector (75-pin) (1/2)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	WLAN-E3V
3	ZUSBBT-E3P	4	WLAN-E3V
5	ZUSBBT-E3N	6	NC
7	GND	8	-
9	-	10	-
11	-	12	-
13	-	14	-
15	-	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	ZETWL-E1P	36	GND
37	ZETWL-E1N	38	(CLRST1-E3N)
39	GND	40	(CLDAT1-E1P)
41	ZERWL-E1P	42	(XCLCK1-E1P)
43	ZERWL-E1N	44	NC
45	GND	46	NC
47	XPEWL-E0P	48	NC
49	XPEWL-E0N	50	XSUSCK-E3P
51	GND	52	PLTRS1-E3N
53	WLXRQ-P3N	54	BTRFON-S3P
55	PEWAKE-E3N	56	WLRFON-S3P
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC

Table C-2 M.2 W-LAN NGFF I/Fconnector (75-pin) (2/2)

Pin No.	Signal name	Pin No.	Signal name
65	NC	66	NC
67	NC	68	NC
69	WLDET-P3N	70	NC
71	NC	72	WLAN-E3V
73	NC	74	WLAN-E3V
75	GND		
1T	GND	2T	GND

C.3 CN3240 Keyboard I/F connector (30-pin)

Table C-3 Keyboard I/F connector (30-pin)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	NC
3	CAPLED-P5N	4	P5V
5	NC	6	KBRT06-S3N
7	KBRT02-S3N	8	KBRT03-S3N
9	KBRT05-S3N	10	KBRT01-S3N
11	KBRT04-S3N	12	KBRT07-S3N
13	KBRT00-S3N	14	NC
15	KBSC00-S3N	16	KBSC09-S3N
17	KBSC03-S3N	18	KBSC02-S3N
19	KBSC05-S3N	20	KBSC04-S3N
21	KBSC06-S3N	22	KBSC08-S3N
23	KBSC10-S3N	24	KBSC01-S3N
25	KBSC11-S3N	26	KBSC07-S3N
27	KBSC15-S3N	28	KBSC12-S3N
29	KBSC13-S3N	30	KBSC14-S3N
1T	GND	2T	GND

C.4 CN3380 FAN I/F connector (4-pin)

Table C-4 FAN I/F connector (4-pin)

Pin No.	Signal name	Pin No.	Signal name
1	P5V	2	FANG0-P3P
3	GND	4	IC3380-4
1T	GND	2T	GND

C.5 CN4800 USB Type-C I/F connector (24-pin)

Table C-5 USB Type-C I/F connector (24-pin)

Pin No.	Signal name	Pin No.	Signal name
A1	GND	B1	GND
A2	ZP1P1T-E0P	B2	ZP1P2T-E0P
A3	ZP1P1T-E0N	B3	ZP1P2T-E0N
A4	PDVBUS1	B4	PDVBUS1
A5	PD1CC1-SXP	B5	PD1CC2-SXP
A6	ZUSBE3-E3P	B6	ZUSBE3-E3P
A7	ZUSBE3-E3N	B7	ZUSBE3-E3N
A8	V1SBU1-EXP	B8	V1SBU2-EXP
A9	PDVBUS1	B9	PDVBUS1
A10	ZP1P2R-E0N	B10	ZP1P1R-E0N
A11	ZP1P2R-E0P	B11	ZP1P1R-E0P
A12	GND	B12	GND
1T	GND	3T	GND
2T	GND	4T	GND

C.6 CN5690 HDMI I/F connector (19-pin)

Table C-6 HDMI I/Fconnector (19-pin)

Pin No.	Signal name	Pin No.	Signal name
1	ZMHDT2-P3P	2	GND
3	ZMHDT2-P3N	4	ZMHDT1-P3P
5	GND	6	ZMHDT1-P3N
7	ZMHDT0-P3P	8	GND
9	ZMHDT0-P3N	10	XMHDCK-P3P
11	GND	12	XMHDCK-P3N
13	NC	14	NC
15	MHDSCL-P5P	16	MHDSDA-P5P
17	GND	18	IC5690-1
19	MHDHPD-S5P		
1T	GND	2T	GND
3T	GND	4T	GND

C.7   **CN5390   LCD, Camera, MIC I/F connector (40-pin)**

Table C-7 LCD, Camera, MIC I/F connector (40-pin)

Pin No.	Signal name	Pin No.	Signal name
1	IC5390-4	2	P3V
3	GND	4	ZUSBIT-E3P
5	ZUSBIT-E3N	6	TPNLDT-P3N
7	PVT-EFV	8	PVT-EFV
9	BKLPWM-P3P	10	BLEN-E3P
11	GND	12	GND
13	EDPHPD-P3P	14	GND
15	GND	16	NC
17	PNL-P3V	18	PNL-P3V
19	ZEDPAU-P1N	20	ZEDPAU-P1P
21	GND	22	ZEDPA0-P1P
23	ZEDPA0-P1N	24	GND
25	ZEDPA1-P1P	26	ZEDPA1-P1N
27	GND	28	MICDET-P3N
29	CAMDET-P3N	30	GND
31	GND	32	GND
33	ZUSBWC-E3P	34	ZUSBWC-E3N
35	GND	36	XDMCLK-P3P
37	DMICIN-P3P	38	P3V
39	P3V	40	P3V
1T	GND	2T	GND
3T	GND	4T	GND

C.8 CN8021 Battery connector (17-pin)

Table C-8 Battery connector (17-pin)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	GND
3	GND	4	gND
5	GND	6	GND
7	ESCL-S3P	8	ESDA-S3P
9	BDET-S3N	10	GND
11	IC8020-4	12	PVT-EFV
13	PVT-EFV	14	PVT-EFV
15	PVT-EFV	16	PVT-EFV
17	PVT-EFV		
1T	GND	2T	GND

C.9 CN9560 Click pad I/F connector (8-pin)

Table C-9 Click pad I/F connector (8-pin)

Pin No.	Signal name	Pin No.	Signal name
1	SMBCLK--P3P	2	GND
3	SMBDAT-P3P	4	IC9560-4
5	GND	6	IPDDAT-P3P
7	GND	8	IPDCLK-P3P
1T	GND	2T	GND

C.10 CN9550 Fingerprint sensor I/F connector (6-pin)

Table C-10 Fingerprint sensor I/F connector (6-pin)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	GND
3	ZUSBFS-E3P	4	ZUSBFS-E3N
5	FSDET-E3P	6	FS-E3V
1T	GND	2T	GND

C.11   CN6290   Speaker I/F connector (6-pin)

Table C-11 Speaker I/F connector (6-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	SPOTL-PXN	2	SPOTL-PXP
3	SPKID-P3P	4	GND
5	SPOTR-PXP	6	SPOTR-PXN
1T	GND	2T	GND

C.12   J6320   Headphone/Microphone combo jack (6-pin)

Table C-12 Headphone/Microphone combo jack (6-pin)

Pin No.	Signal name	Pin No.	Signal name
1	SLEEVE-PXP	2	RING2-PXP
3	HEADR-PXP	4	HEADL-PXP
5	A-GND	6	DETECT-P3N

C.13   CN8001   DC-IN I/F connector (2-pin)

Table C-13 DC-IN I/F connector (2-pin)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	PDVBUS
1T	GND	2T	GND

C.14   CN9600   USB FPC I/F connector (76-pin)

Table C-14 USB FPC I/F connector (76-pin) (1/2)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	GND
3	NC	4	MODSEL-P3P
5	3GDET-P3N	6	PWLEWH-M5N
7	M5V	8	PWLEOR-M5N
9	S3V	10	PNLOFF-S3N
11	PWRSW-S3N	12	GND
13	GND	14	ZMDI0P-EYP
15	ZMDI0N-EYN	16	GND
17	GND	18	ZMDI1P-EYP
19	ZMDI1N-EYN	20	GND
21	GND	22	ZMDI2P-EYP
23	ZMDI2N-EYN	24	GND
25	GND	26	ZMDI3P-EYP
27	ZMDI3N-EYN	28	GND
29	GND	30	ZUSBE1-E3N
31	ZUSBE1-E3P	32	GND
33	GND	34	ZU3P1R-E1N
35	ZU3P1R-E1P	36	GND
37	GND	38	ZU3P1T-E1N
39	ZU3P1T-E1P	40	GND
41	GND	42	ZUSBP2-E3N
43	ZUSBP2-E3P	44	GND
45	GND	46	ZU3P2R-E1N
47	ZU3P2R-E1P	48	GND
49	GND	50	ZU3P2T-E1N
51	ZU3P2T-E1P	52	GND
53	USCON0-S3N	54	USBOC0-E3N
55	USBON1-S3N	56	NC
57	USBOC1-E3N	58	3GRFON-S3P
59	MODSEL1-P3P	60	3GON-E1P

Table C-14 USB FPC I/Fconnector (76-pin) (2/2)

Pin No.	Signal name	Pin No.	Signal name
61	E5V	62	E5V
63	E5V	64	E5V
65	E5V	66	E5V
67	E5V	68	E5V
69	E5V	70	E5V
71	E5V	72	E5V
73	E5V	74	E5V
75	E5V	76	E5V
1T	GND	2T	GND

C.15   IS2142   SD card I/F connector (12-pin)

Table C-15 SD card I/F connector (12-pin)

Pin No.	Signal name	Pin No.	Signal name
1	SDAT2-P3P	2	SDAT3-P3P
3	SDCMD-P3P	4	FMC-P3V
5	SDCLK-P3P	6	GND
7	SDAT0-P3P	8	SDAT1-P3P
9	GND	10	GND
11	SDCD-P3N	12	GND
1T	GND	2T	GND
3T	GND	4T	GND
5T	GND		

C.16   CN3280   KB backlight I/F connector (4-pin)

Table C-16 KB backlight I/F connector (4-pin)

Pin No.	Signal name	Pin No.	Signal name
1	IC3280-4	2	GND
3	KBBLDT-P3N	4	GND
1T	GND	2T	GND

C.17   CN2100   Smart Card I/F connector (10-pin)

Table C-17 Smart Card I/F connector (10-pin)

Pin No.	Signal name	Pin No.	Signal name
1	SMCD-P5V	2	NC
3	NC	4	NC
5	GND	6	ZUSBSC-E3N
7	USBSC-E3P	8	GND
9	SCRMDL-P3N	10	GND
1T	GND	2T	GND

C.18　　CN1410　　Memory connector (260-pin)

Table C-18 Memory connector (260-pin) (1/4)

Pin No.	Signal Name	Pin No.	Signal Name
1	GND	2	GND
3	BDQ58-B1P	4	BDQ63-B1P
5	GND	6	GND
7	BDQ59-B1P	8	BDQ62-B1P
9	GND	10	GND
11	BDQS7-B1N	12	1R2-B1V
13	BDQS7-B1P	14	GND
15	GND	16	BDQ56-B1P
17	BDQ61-B1P	18	GND
19	GND	20	BDQ57-B1P
21	BDQ60-B1P	22	GND
23	GND	24	BDQ33-B1P
25	BDQ36-B1P	26	GND
27	GND	28	BDQ35-B1P
29	BDQ37-B1P	30	GND
31	GND	32	BDQS4-B1N
33	1R2-B1V	34	BDQS4-B1P
35	GND	36	GND
37	BDQ32-B1P	38	BDQ39-B1P
39	GND	40	GND
41	BDQ34-B1P	42	BDQ38-B1P
43	GND	44	GND
45	BDQ09-B1P	46	BDQ10-B1P
47	GND	48	GND
49	BDQ08-B1P	50	BDQ13-B1P

Table C-18 Memory connector (260-pin) (2/4)

Pin No.	Signal Name	Pin No.	Signal Name
51	GND	52	GND
53	BDQS1-B1N	54	1R2-B1V
55	BDQS1-B1P	56	GND
57	GND	58	BDQ14-B1P
59	BDQ11-B1P	60	GND
61	GND	62	BDQ15-B1P
63	BDQ12-B1P	64	GND
65	GND	66	BDQ31-B1P
67	BDQ25-B1P	68	GND
69	GND	70	BDQ26-B1P
71	BDQ24-B1P	72	GND
73	GND	74	BDQS3-B1N
75	1R2-B1V	76	BDQS3-B1P
77	GND	78	GND
79	BDQ28-B1P	80	BDQ27-B1P
81	GND	82	GND
83	BDQ29-B1P	84	BDQ30-B1P
85	GND	86	GND
87	NC	88	NC
89	GND	90	GND
91	NC	92	NC
93	GND	94	GND
95	1R2-B1V	96	1R2-B1V
97	1R2-B1V	98	GND
99	GND	100	NC
101	NC	102	GND
103	GND	104	NC
105	NC	106	GND
107	GND	108	MSMRST-B1N
109	BCKE0-B1P	110	BCKE1-B1P
111	1R2-B1V	112	1R2-B1V
113	BBG1-B1P	114	BACT-B1N
115	BBG0-B1P	116	BALERT-B1N
117	1R2-B1V	118	1R2-B1V
119	BMA12-B1P	120	BMA11-B1P

Table C-18 Memory connector (260-pin) (3/4)

Pin No.	Signal Name	Pin No.	Signal Name
121	BMA09-B1P	122	BMA07-B1P
123	1R2-B1V	124	1R2-B1V
125	BMA08-B1P	126	BMA05-B1P
127	BMA06-B1P	128	BMA04-B1P
129	1R2-B1V	130	1R2-B1V
131	BMA03-B1P	132	BMA02-B1P
133	BMA01-B1P	134	P3V
135	1R2-B1V	136	1R2-B1V
137	XBCK0-B1P	138	XBCK1-B1P
139	XBCK0-B1N	140	XBCK1-B1N
141	1R2-B1V	142	1R2-B1V
143	BPAR-B1P	144	BMA00-B1P
145	BBA1-B1P	146	BMA10-B1P
147	1R2-B1V	148	1R2-B1V
149	BCS0-B1N	150	BBA0-B1P
151	BMA14-B1P	152	BMA16-B1P
153	1R2-B1V	154	1R2-B1V
155	BODT0-B1P	156	BMA15-B1P
157	BCS1-B1N	158	BMA13-B1P
159	1R2-B1V	160	1R2-B1V
161	BODT1-B1P	162	NC
163	1R2-B1V	164	BVREFCA-B0V
165	NC	166	GND
167	GND	168	GND
169	BDQ50-B1P	170	BDQ55-B1P
171	GND	172	GND
173	BDQ51-B1P	174	BDQ54-B1P
175	GND	176	GND
177	BDQS6-B1N	178	1R2-B1V
179	BDQS6-B1P	180	GND
181	GND	182	BDQ48-B1P
183	BDQ52-B1P	184	GND
185	GND	186	BDQ49-B1P
187	BDQ53-B1P	188	GND
189	GND	190	BDQ47-B1P

Table C-18 Memory connector (260-pin) (4/4)

Pin No.	Signal Name	Pin No.	Signal Name
191	BDQ40-B1P	192	GND
193	GND	194	BDQ42-B1P
195	BDQ41-B1P	196	GND
197	GND	198	BDQS5-B1N
199	1R2-B1V	200	BDQS5-B1P
201	GND	202	GND
203	BDQ44-B1P	204	BDQ46-B1P
205	GND	206	GND
207	BDQ45-B1P	208	BDQ43-B1P
209	GND	210	GND
211	BDQ01-B1P	212	BDQ00-B1P
213	GND	214	GND
215	BDQ02-B1P	216	BDQ05-B1P
217	GND	218	GND
219	BDQS0-B1N	220	1R2-B1V
221	BDQS0-B1P	222	GND
223	GND	224	BDQ04-B1P
225	BDQ06-B1P	226	GND
227	GND	228	BDQ07-B1P
229	BDQ03-B1P	230	GND
231	GND	232	BDQ23-B1P
233	BDQ21-B1P	234	GND
235	GND	236	BDQ22-B1P
237	BDQ20-B1P	238	GND
239	GND	240	BDQS2-B1N
241	1R2-B1V	242	BDQS2-B1P
243	GND	244	GND
245	BDQ16-B1P	246	BDQ18-B1P
247	GND	248	GND
249	BDQ17-B1P	250	BDQ19-B1P
251	GND	252	GND
253	SMBCLK-P3P	254	SMBDAT-P3P
255	P3V	256	GND
257	2R5-B2V	258	0R6-P0V
259	2R5-B2V	260	P3V
1T	GND	2T	GND

USB board/LTE board (FASZCN*/FASZLT*)

C.19   CN4050 LAN I/F connector (8-pin)

Table C-19 LAN I/F connector (8-pin)

Pin No.	Signal name	Pin No.	Signal name
1	ZMDI0P-EYP	2	ZMDI0N-EYN
3	ZMDI1P-EYP	4	ZMDI2P-EYP
5	ZMDI2N-EYN	6	ZMDI1N-EYN
7	ZMDI3P-EYP	8	ZMDI3N-EYN
1T	GND	2T	GND

C.20   CN4810 USB 3.0 Type-A (S&C) I/F connector (9-pin)

Table C-20 USB 3.0 Type-A (S&C) I/F connector (9-pin)

Pin No.	Signal name	Pin No.	Signal name
1	US3PS0-E5V	2	ZUSBE1-E3N
3	ZUSBE1-E3P	4	US3PS0-E5V
5	ZU3P1R-E1N	6	ZU3P1R-E1P
7	US3PS0-E5V	8	ZU3P1T-E1N
9	ZU3P1T-E1P		
1T	GND	2T	GND
3T	GND	4T	GND

C.21   CN4830 USB 3.0 Type-A I/F connector (9-pin)

Table C-21 USB 3.0 Type-A I/F connector (9-pin)

Pin No.	Signal name	Pin No.	Signal name
1	US3PS1-E5V	2	ZUSBP2-E3N
3	ZUSBP2-E3P	4	US3PS1-E5V
5	ZU3P2R-E1N	6	ZU3P2R-E1P
7	US3PS1-E5V	8	ZU3P2T-E1N
9	ZU3P2T-E1P		
1T	GND	2T	GND
3T	GND	4T	GND

C.22   S3270 Power switch (4-pin)

Table C-22 Power switch (4-pin)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	PWRSW-S3N
3	GND	4	PWRSW-S3N

C.23   IS2621   SIM card I/F connector (10-pin)

Table C-23 SIM card I/F connector (10-pin)

Pin No.	Signal name	Pin No.	Signal name
1	IMPWR-E3V	2	UIMRST-E3P
3	UIMCLK-E3P	4	NC
5	GND	6	NC
7	UIMDAT-E3P	8	NC
9	GND	10	UIMDET-E3N
1T	GND	2T	GND
3T	GND	4T	GND
5T	GND	6T	GND
7T	GND		

C.24   CN2610   M.2 3G I/F connector (75-pin)

Table C-24 M.2 3G I/F connector (75-pin) (1/2)

Pin No.	Signal Name	Pin No.	Signal Name
1	NC	2	3G-E3V
3	GND	4	3G-E3V
5	GND	6	3GON-E1P
7	ZUSB3G-E3P	8	3GRFON-S3P
9	ZUSB3G-E3N	10	NC
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	3GSAR-E1N	26	NC
27	GND	28	NC
29	ZU33GR-E1N	30	UIMRST-E3P
31	ZU33GR-E1P	32	UIMCLK-E3P
33	GND	34	UIMDAT-E3P
35	ZU33GT-E1N	36	UIMPWR-E3V
37	ZU33GT-E1P	38	NC
39	GND	40	NC
41	NC	42	NC
43	NC	44	NC
45	GND	46	NC
47	NC	48	NC
49	NC	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	3GDET-P3N	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	UIMDET-E3N
67	NC	68	NC
69	NC	70	3G-E3V

Table C-24 M.2 3G I/F connector (75-pin) (2/2)

Pin No.	Signal Name	Pin No.	Signal Name
71	GND	72	3G-E3V
73	GND	74	3G-E3V
75	NC		
1T	GND	2T	GND

C.25 CN9640   USB FPC I/F connector (76-pin)

Table C-25 USB FPC I/F connector (76-pin) (1/2)

Pin No.	Signal name	Pin No.	Signal name
1	E5V	2	E5V
3	E5V	4	E5V
5	E5V	6	E5V
7	E5V	8	E5V
9	E5V	10	E5V
11	E5V	12	E5V
13	E5V	14	E5V
15	E5V	16	E5V
17	3GON-E1P(NC)	18	GND
19	3GRFON-S3P(NC)	20	NC(USBOC1-E3N)
21	NC	22	NC(USBON1-S3N)
23	USBOC0-E3N	24	USCON0-S3N
25	GND	26	ZU33GT-E1P(ZU3P2T-E1P)
27	ZU33GT-E1N(ZU3P2T-E1N)	28	GND
29	GND	30	ZU33GR-E1P(ZU3P2R-E1P)
31	ZU33GR-E1N(ZU3P2R-E1N)	32	GND
33	GND	34	ZUSB3G-E3P(ZUSBP2-E3P)
35	ZUSB3G-E3N(ZUSBP2-E3N)	36	GND
37	GND	38	ZU3P1T-E1P
39	ZU3P1T-E1N	40	GND
41	GND	42	ZU3P1R-E1P
43	ZU3P1R-E1N	44	GND
45	GND	46	ZUSBE1-E3P
47	ZUSBE1-E3N	48	GND
49	GND	50	ZMDI3N-EYN
51	ZMDI3P-EYP	52	GND
53	GND	54	ZMDI2N-EYN
55	ZMDI2P-EYP	56	GND
57	GND	58	ZMDI1N-EYN
59	ZMDI1P-EYP	60	GND

* ( ) shows the name on FASZCN* board.

Table C-25 USB FPC I/Fconnector (76-pin) (2/2)

Pin No.	Signal name	Pin No.	Signal name
61	GND	62	ZMDI0N-EYN
63	ZMDI0P-EYP	64	GND
65	GND	66	PWRSW-S3N
67	PNLOFF-S3N	68	S3V
69	PWLEOR-M5N	70	M5V
71	PWLEWH-M5N(NC)	72	3GDET-P3N(NC)
73	NC	74	3GSAR-E1N(NC)
75	GND	76	GND
1T	GND	2T	GND

MIC board (FASZMC*)

C.26   CN9710   System board I/F connector (6-pin)

Table C-26 System board I/F connector (6-pin)

Pin No.	Signal name	Pin No.	Signal name
1	P3V	2	NC
3	DMICIN-P3P	4	XDMCLK-P3P
5	GND	6	GND
1T	GND	2T	GND

USB FPC (FASZYN*)

C.27   CN9611   System board I/F connector (76-pin)

Table C-27 System board I/F connector (76-pin) (1/2)

Pin No.	Signal name	Pin No.	Signal name
1	GND	2	GND
3	3GSAR-E1N	4	3GDET-P3N
5	3GMDL-P3N	6	PWLEWH-M5N
7	M5V	8	PWLEOR-M5N
9	S3V	10	PNLOFF-S3N
11	PWRSW-S3N	12	GND
13	GND	14	ZMDI0P-EYP
15	ZMDI0N-EYN	16	GND
17	GND	18	ZMDI1P-EYP
19	ZMDI1N-EYN	20	GND
21	GND	22	ZMDI2P-EYP
23	ZMDI2N-EYN	24	GND
25	GND	26	ZMDI3P-EYP
27	ZMDI3N-EYN	28	GND
29	GND	30	ZUSBE1-E3N
31	ZUSBE1-E3P	32	GND
33	GND	34	ZU3P1R-E1N
35	ZU3P1R-E1P	36	GND
37	GND	38	ZU3P1T-E1N
39	ZU3P1T-E1P	40	GND
41	GND	42	ZUSBP2-E3N
43	ZUSBP2-E3P	44	GND
45	GND	46	ZU3P2R-E1N
47	ZU3P2R-E1P	48	GND
49	GND	50	ZU3P2T-E1N
51	ZU3P2T-E1P	52	GND
53	USCON0-S3N	54	USBOC0-E3N
55	USBON1-S3N	56	E3V
57	USBOC1-E3N	58	3GRFON-S3P
59	3GON-E1P	60	U3REN1-E3N

Table C-27 System board I/Fconnector (76-pin) (2/2)

Pin No.	Signal name	Pin No.	Signal name
61	E5V	62	E5V
63	E5V	64	E5V
65	E5V	66	E5V
67	E5V	68	E5V
69	E5V	70	E5V
71	E5V	72	E5V
73	E5V	74	E5V
75	E5V	76	E5V

C.28   CN9612   USB board I/F connector (76-pin)

Table C-28 USB board I/F connector (76-pin) (1/2)

Pin No.	Signal name	Pin No.	Signal name
1	E5V	2	E5V
3	E5V	4	E5V
5	E5V	6	E5V
7	E5V	8	E5V
9	E5V	10	E5V
11	E5V	12	E5V
13	E5V	14	E5V
15	E5V	16	E5V
17	U3REN1-E3N	18	3GON-E1P
19	3GRFON-S3P	20	USBOC1-E3N
21	E3V	22	USBON1-S3N
23	USBOC0-E3N	24	USCON0-S3N
25	GND	26	ZU3P2T-E1P
27	ZU3P2T-E1N	28	GND
29	GND	30	ZU3P2R-E1P
31	ZU3P2R-E1N	32	GND
33	GND	34	ZUSBP2-E3P
35	ZUSBP2-E3N	36	GND
37	GND	38	ZU3P1T-E1P
39	ZU3P1T-E1N	40	GND
41	GND	42	ZU3P1R-E1P
43	ZU3P1R-E1N	44	GND
45	GND	46	ZUSBE1-E3P
47	ZUSBE1-E3N	48	GND
49	GND	50	ZMDI3N-EYN
51	ZMDI3P-EYP	52	GND
53	GND	54	ZMDI2N-EYN
55	ZMDI2P-EYP	56	GND
57	GND	58	ZMDI1N-EYN
59	ZMDI1P-EYP	60	GND

Table C-28 USB board I/F connector (76-pin) (2/2)

Pin No.	Signal name	Pin No.	Signal name
61	GND	62	ZMDI0N-EYN
63	ZMDI0P-EYP	64	GND
65	GND	66	PWRSW-S3N
67	PNLOFF-S3N	68	S3V
69	PWLEOR-M5N	70	M5V
71	PWLEWH-M5N	72	3GMDL-P3N
73	3GDET-P3N	74	3GSAR-E1N
75	GND	76	GND
1T	GND	2T	GND

Appendix D   Keyboard Matrix

D.1   Keyboard for UK

Figure D-1 UK Keyboard
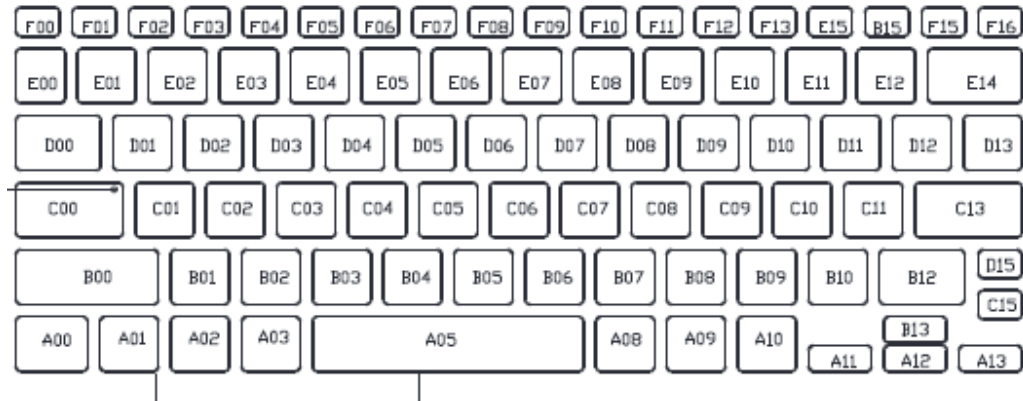
	22	25	19	20	21	23	24	18
3	A01 (FN)			A02 (Win)				
2		B00 (L-Shift)						B12 (R-Shift)
1			A00 (L-Ctrl)				A10 (R-Ctrl)	
				A03 (L-Alt)		A08 (R-Alt)		
5/4	B01 (Z)	C01 (A)	C00 (CapsLk)	D01 (Q)	D00 (Tab)	E01 (1)	F01 (F1)	F00 (Esc)
6	B00' (\)	E00 (`)	B02 (X)	C02 (S)	D02 (W)	E02 (2)	F03 (F3)	F02 (F2)
8	F13		B03 (C)	C03 (D)	F05 (F5)	D03 (E)	E03 (3)	F04 (F4)
	F14		B04 (V)		C04 (F)	F06 (F6)	D04 (R)	E04 (4)
9		B05 (B)		C05 (G)	F08 (F8)	D05 (T)	E05 (5)	F07 (F7)
11/12	A11 (←)	B06 (N)			C06 (H)	F09 (F9)	D06 (Y)	E06 (6)
13	B13 (↑)		B07 (M)	C07 (J)		D07 (U)	E07 (7)	F10 (F10)
14	A12 (↓)		F15	B08 (,)	C08 (K)	D08 (I)	E08 (8)	F11 (F11)
15	A13 (→)		F16	B09 (,)	C09 (L)	D09 (Ö)	E09 (9)	F12 (F12)
10	B10 (/)			C10 (↓)	D11 ([)	D10 (P)	E11 (-)	E10 (0 zero)	A05 (Space)
7		C13 (Enter)	C11 (')	D12 (])	E14 (Backspace)		E12 (=)	
16	A09 (APP)	C12 (#)	B15	C15	D15	E15		

D.2   Keyboard for US

Figure D-2 US Keyboard

D.3   Keyboard for JP

Figure D-3 JP Keyboard

Appendix E   Key Layout

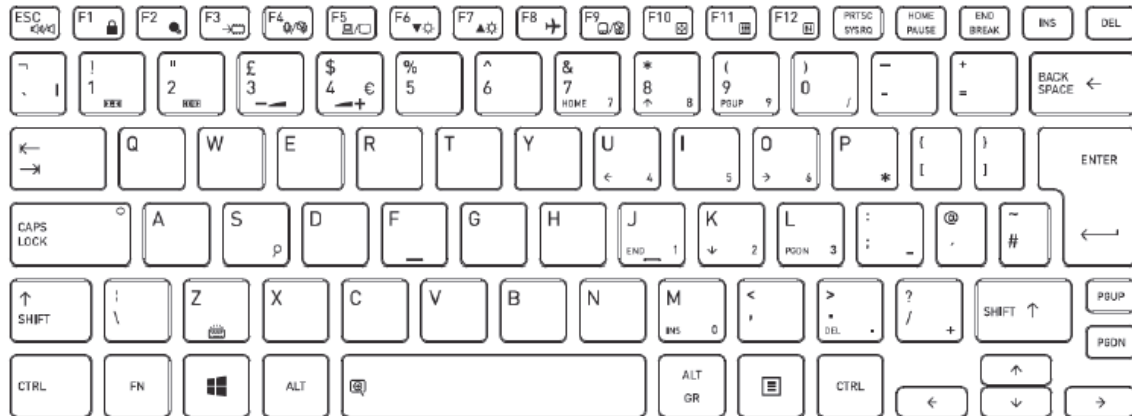## E.1   Keyboard for UK

Figure E-1 UK Keyboard

E.2   Keyboard for US

Figure E-2 US Keyboard

E.3   Keyboard for JP

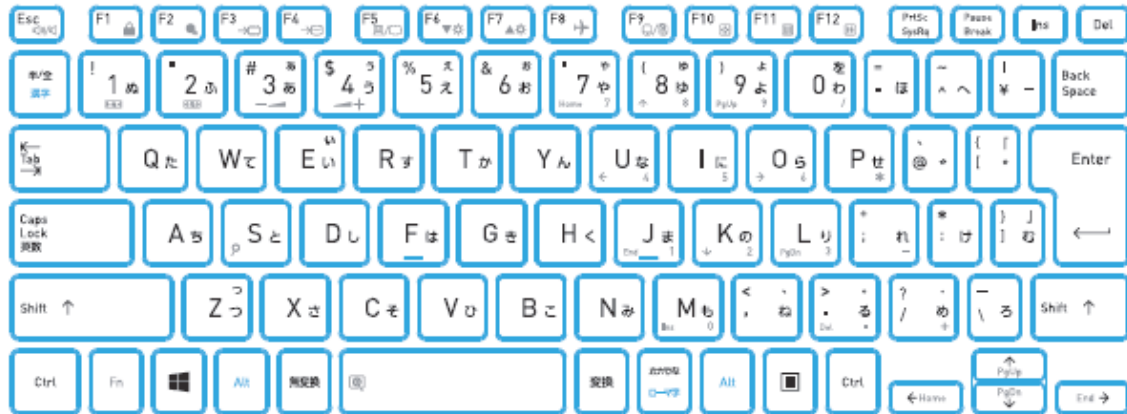*Figure E-3 JP Keyboard*

Appendix F   Wiring diagrams (Not used)

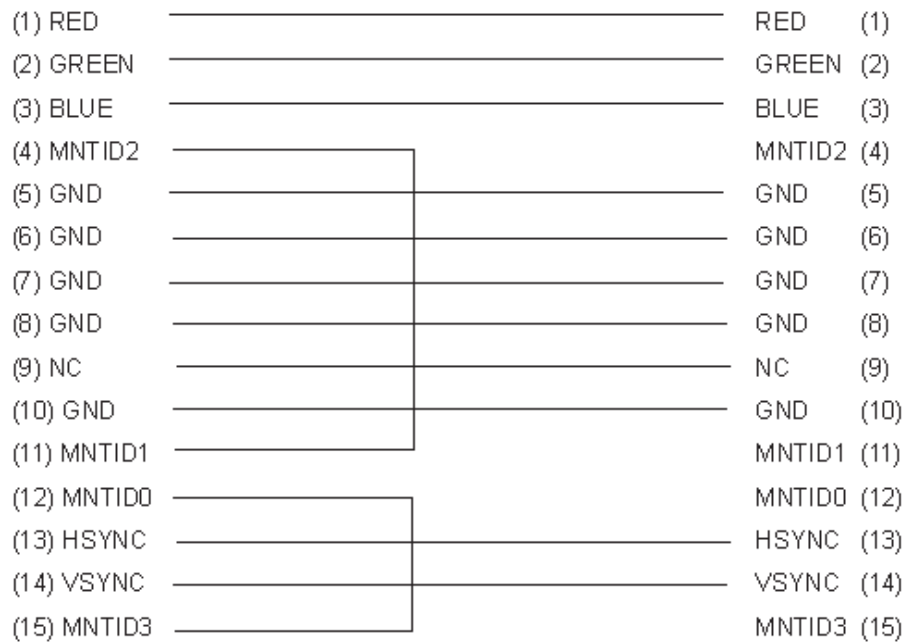## F.1   RGB Monitor Loopback Connector

Figure F-1 RGB Monitor Loopback Connector

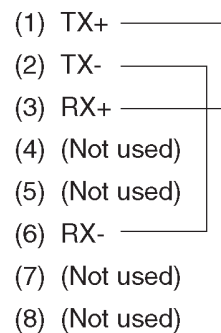## F.2   LAN Loopback Connector

Figure F-2 LAN Loopback Connector

Appendix G   BIOS Rewrite Procedures

This Appendix explains how to rewrite the system BIOS program when you update the system BIOS.

Tools

To rewrite the BIOS, you need the following tool:

❑ BIOS/EC/KBC rewriting disk

Rewriting the BIOS

1. Turn off the power to the computer (Shut down the computer while holding **SHIFT** key).

2. Remove the external cables and cards.

3. Set the USB Flash Memory containing BIOS rewriting data.

4. Turn on the power while holding down the tilde character key.
   If the Japanese keyboard is installed, hold down [半/全] key instead of tilde key.

For example

  (US Keyboard)

   (UK Keyboard)
(Keep holding down the key.)

5. The BIOS rewriting starts. (No message will appear.)

6. When the process is completed, it the system automatically reboots.

NOTE: 1. *Connect the AC adapter and the charged battery to the computer when you rewrite the BIOS.*

2. *Do not turn off the power while you are rewriting the BIOS.*
    If the rewrite fails, it might be impossible to start up the computer.

3. *If you fail to rewrite BIOS, then when you next turn on the power, the power icon may flash in orange or an error message may be displayed. In this case, repeat the rewriting procedure.*

Appendix H   EC/KBC Rewrite Procedures

This Appendix explains how to rewrite the EC/KBC system program when you update the EC/KBC system.

< PSZ1* model >

Tools

To rewrite the EC/KBC, you need the following tool:

❑ USB Flash Memory containing EC/KBC rewriting data

Rewriting the EC/KBC

> *NOTE:* 1. *Rewrite the EC/KBC only when instructed by a diagnostic disk release notice.*
>
> 2. *Connect the AC adaptor to the computer when you rewrite the EC/KBC.*
>
> 3. *Do not turn off the power while you are rewriting the EC/KBC. If the rewrite fails, it might be impossible to start up the computer.*
>
> 4. *If you fail to rewrite EC/KBC, then when you next turn on the power, a message may be displayed that the contents of the EC/KBC have been erased. In this case, repeat the rewriting procedure.*
>
> 5. *Normally it takes about 30 seconds to rewrite the EC/KBC. It may take 3 minutes (maximum), depending on the conditions of the computer or ICs. The computer is not hung up. Allow sufficient time. Never reboot or turn off the power to the computer before the rewriting is completed.*

1. Turn off the power to the computer (Shut down the computer while holding **SHIFT** key).

2. Remove the external cables and cards.

3. Set the USB Flash Memory containing EC/KBC rewriting data.

4. Turn on the power while holding down the Tab key. The EC/KBC rewriting starts.

5. When the EC/KBC rewrite is completed, the system will restart automatically.

Rev.02

< PSZ2*/PSZ3* model >

The EC/KBC solely can't be updated. It is updated at the BIOS update simultaneously.
As for the BIOS update, refer to Appendix G.

Appendix I   Reliability

The following tables show MTBF (Mean Time between Failures) in maximum configuration.

Table I-1 MTBF

< PSZ1* model >

Time (hours)
8,638.87h

< PSZ2* model >

Time (hours)
8,549.46h

Rev.02

< PSZ3* model >

Time (hours)
7,223.30h