

PRS-600

SERVICE MANUAL

Ver. 1.0 2009.07



*US Model
Canadian Model
UK Model
French Model
German Model
Netherlands Model*

Note:

Be sure to keep your PC used for service and checking of this unit always updated with the latest version of your anti-virus software. In case a virus affected unit was found during service, contact your Service Headquarters.

- SONY and the SONY logo are registered trademarks of Sony Corporation.
- BBeB, BBeB Book, and their logos are trademarks of Sony Corporation.
- "Memory Stick," "Memory Stick Duo," "Memory Stick PRO Duo," and their logos are trademarks of Sony Corporation.
- Bitstream is a registered trademark, and Dutch, Font Fusion, and Swiss are trademarks, of Bitstream Inc.
- Microsoft, Windows, Windows Vista and Windows Media are trademarks or registered trademarks of Microsoft Corporation in the United States and / or other countries.
- Macintosh and Mac OS are trademarks of Apple Inc., registered in the U.S. and other countries.
- Adobe, the Adobe logo, Reader and PDF are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- MPEG Layer-3 audio coding technology and patents licensed from Fraunhofer IIS and Thomson.
- This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<<http://www.openssl.org/>>) Copyright © 1998-2006 The OpenSSL Project. All rights reserved. This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com). For details on OpenSSL License, refer to "openssl.txt" on the Reader.

All other system names and product names appearing in this document are generally the registered trademarks or of their respective manufacturers. Further, the trademark trademarks™ and registered trademark® symbols are not indicated throughout this document.

Program ©2009 Sony Corporation
Documentation ©2009 Sony Corporation

SPECIFICATIONS

Power source

Built-in rechargeable battery: DC 3.7 V
AC adapter: DC 5.2 V
USB

Battery life (continuous playback)

Maximum Battery: Approx. 7,500 continuous page turns when reading only *

* Measured using a fully charged battery and counting consecutive BBeB Book and ePub format page-turns at approx 1 page per sec. Actual battery life may vary based on usage patterns and specific device.

User available capacity

Approx. 380MB
Available memory capacity of the Reader may vary.

Operating temperature

41 to 95 °F (5 to 35 °C)

Dimensions (w/h/d)

Approx. 4 7/8 × 6 7/8 × 12/32 inches (121 × 174.3 × 9.8 mm)

Mass

Approx. 10.1 oz (286 g)

Design and specifications are subject to change without notice.

FLEXIBLE CIRCUIT BOARD REPAIRING

- Keep the temperature of soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

DIGITAL BOOK READER

9-889-602-01
2009G05-1
© 2009.07

Sony Corporation
New Mobile Division
Published by Sony Techno Create Corporation

SONY®

SECTION 1 SERVICING NOTES

NOTE THE EACH BOARDS REPAIRING

The mount parts on each boards installed in this set cannot exchange with single. When the each boards are damaged, exchange the entire mounted board.

NOTE OF REPLACING THE COMPLETE MAIN BOARD OR CHASSIS_ASSY

Please do the following work when you exchange complete MAIN board or CHASSIS_ASSY.

Note: INK INDICATOR ELEMENT is included in CHASSIS_ASSY.

- VCOM VOLTAGE ADJUSTMENT: Refer to page 10.
- REWRITING THE LUT: Refer to this page.

REWRITING THE LUT

As for INK INDICATOR ELEMENT, the parameter that rewrites the screen of each lot number is different. This parameter is called LUT (Look Up Table).

When replacing the complete MAIN board or CHASSIS_ASSY (including INK INDICATOR ELEMENT) you need to rewrite the LUT.

However, rewriting is not required if the lot number is the same.

Note 1: Confirm the “LUT” version corresponding to the lot number of Ink Indicator Element and LUT file, and the test mode data to each service headquarters.

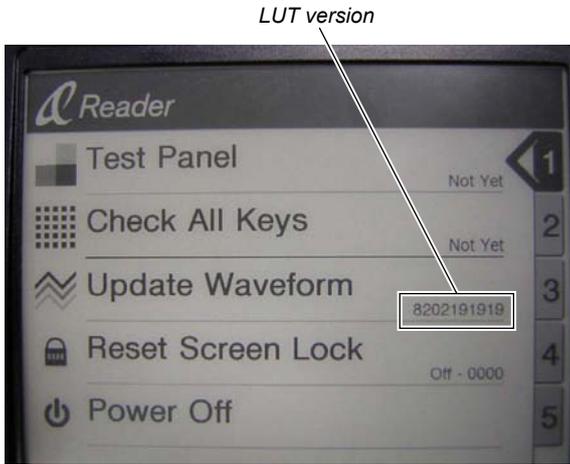
Note 2: LUT is written in IC705 of the MAIN board.

Refer to the following for the confirm method of the LUT version and the method of changing LUT.

• Confirm method of LUT version

Enters the test mode when SD memory card with test mode data is inserted in this set while pressing the [HOME] and [VOL +] buttons.

Check the current LUT version displayed at the right side of “8. Update Waveform” as in the screen below. The LUT version is “8202191919” in this example.

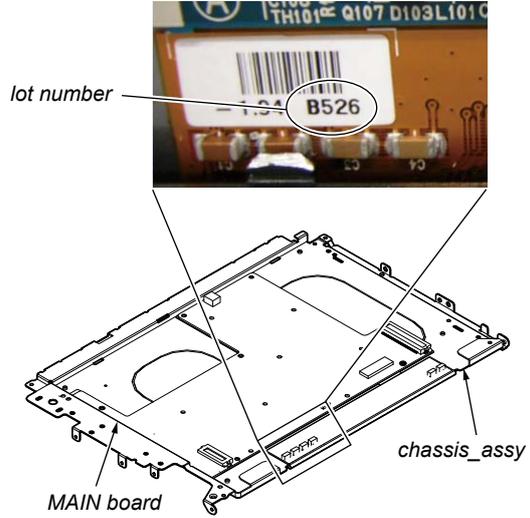


(Screen display)

• Lot number confirm method of Ink Indicator Element

The lot number is printed on the bar code label of the flexible flat cable of INK INDICATOR ELEMENT.

In the example of the figure below, the lot number is “B526”.



• How to change the LUT:

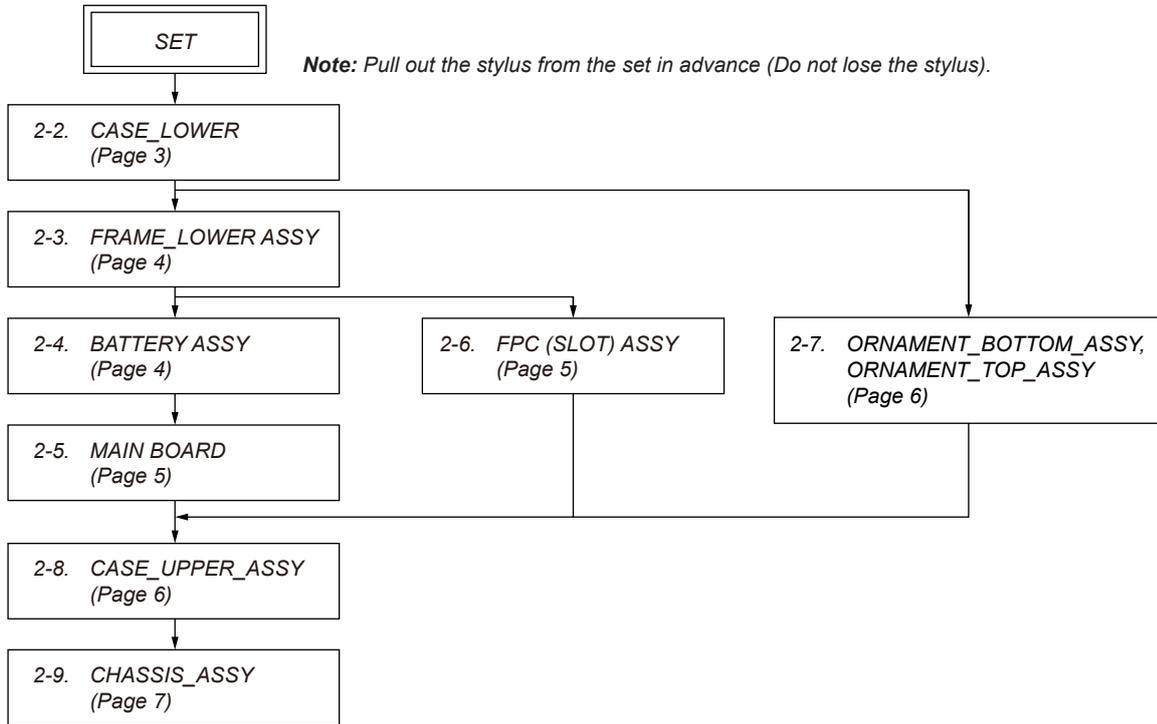
Copy the LUT file you want to update to the folder under “/Sony Reader/software/data/” in the SD memory card exclusive for the test mode, and then change the name to “lut.bin”. Execute test mode “8. Update Waveform”. The LUT will be updated in about 10 seconds, and the screen changes into all white. Press the [RESET] button and reboot the set. Enter the test mode again, and confirm LUT version has been updated.

Note 3: To create the SD memory card exclusive for the test mode, refer to TEST MODE (Page 8).

SECTION 2 DISASSEMBLY

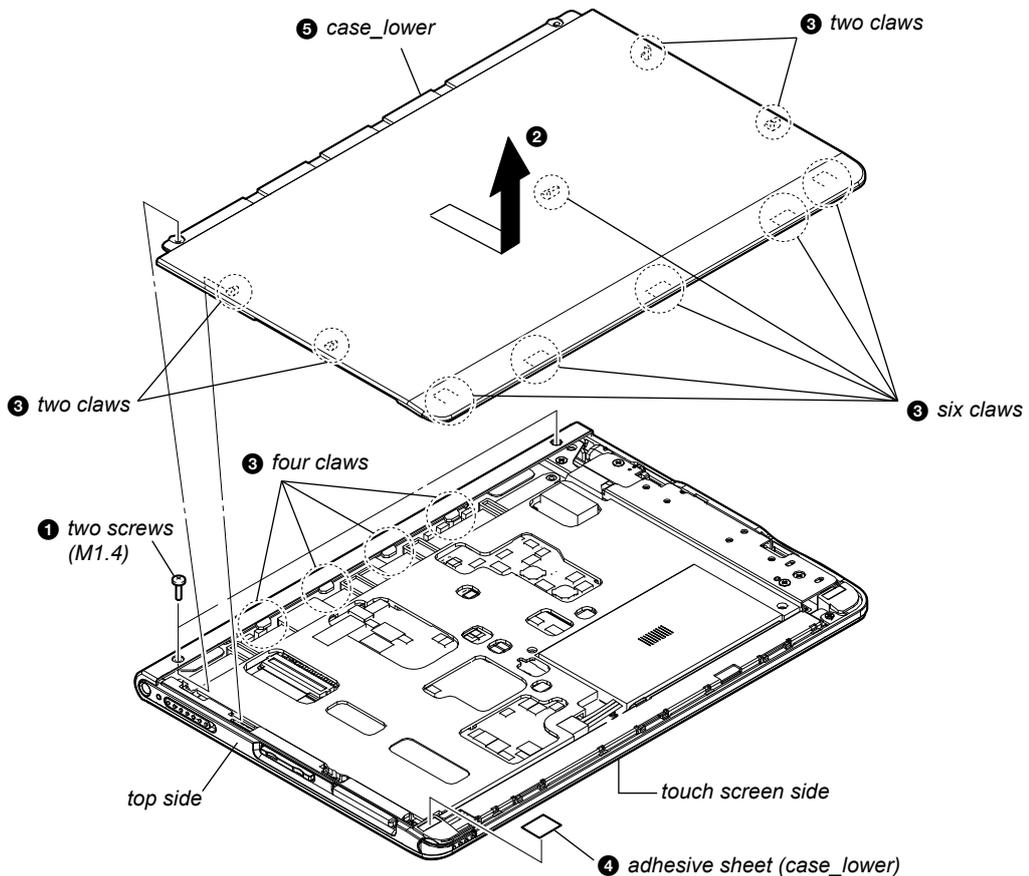
- This set can be disassembled in the order shown below.

2-1. DISASSEMBLY FLOW

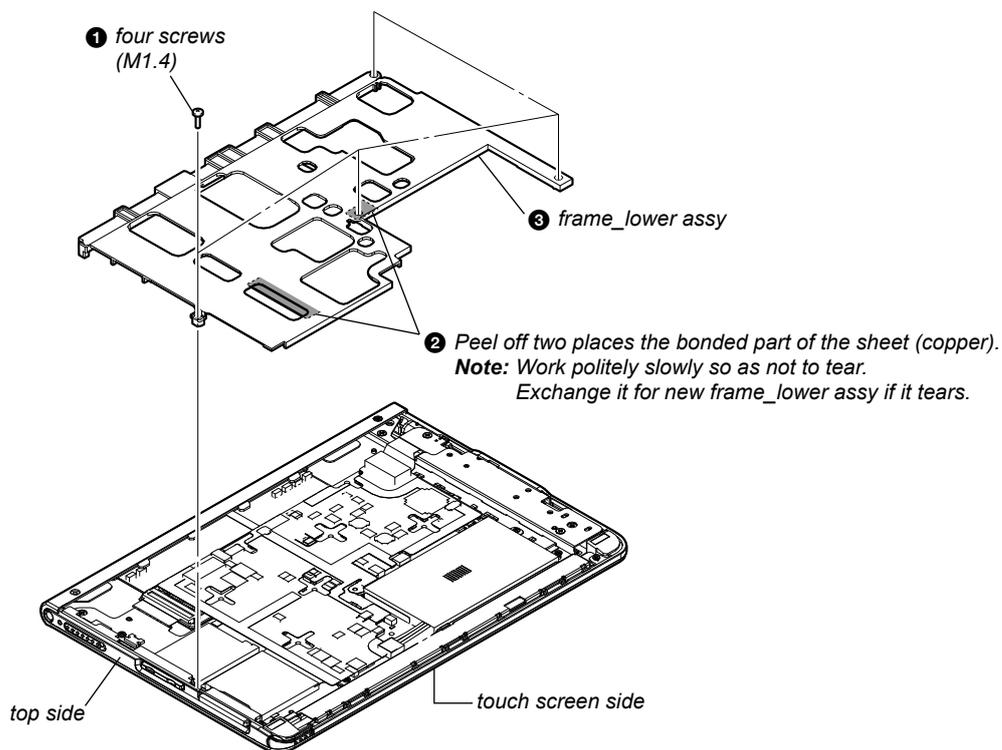


Note: Follow the disassembly procedure in the numerical order given.

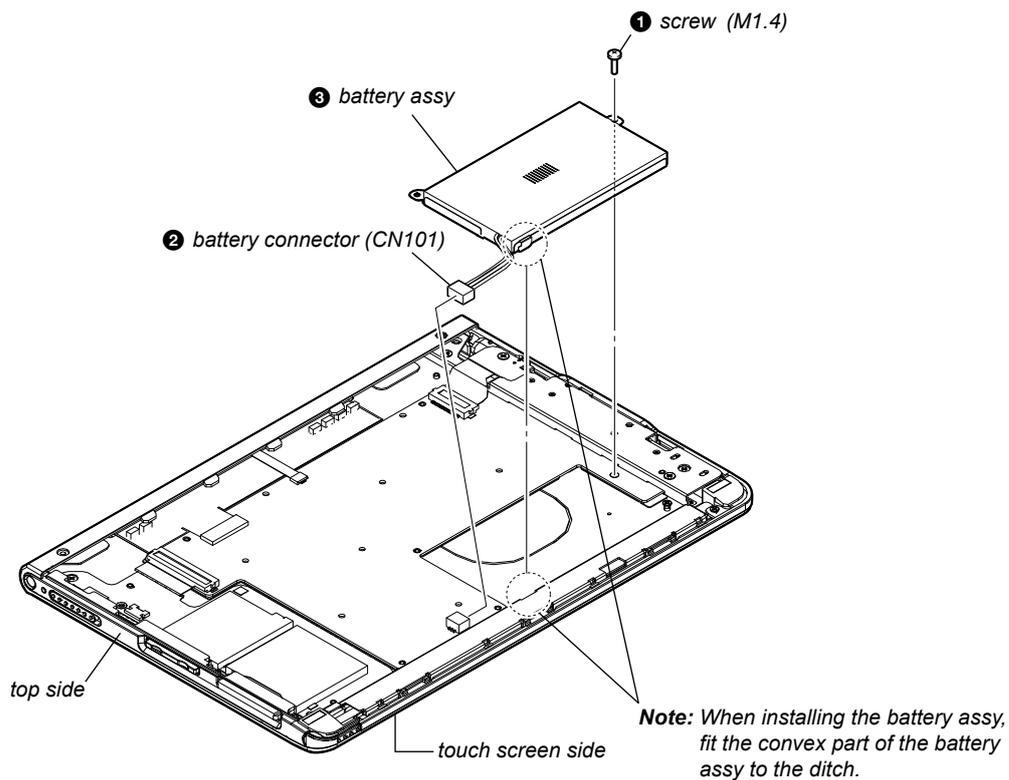
2-2. CASE_LOWER



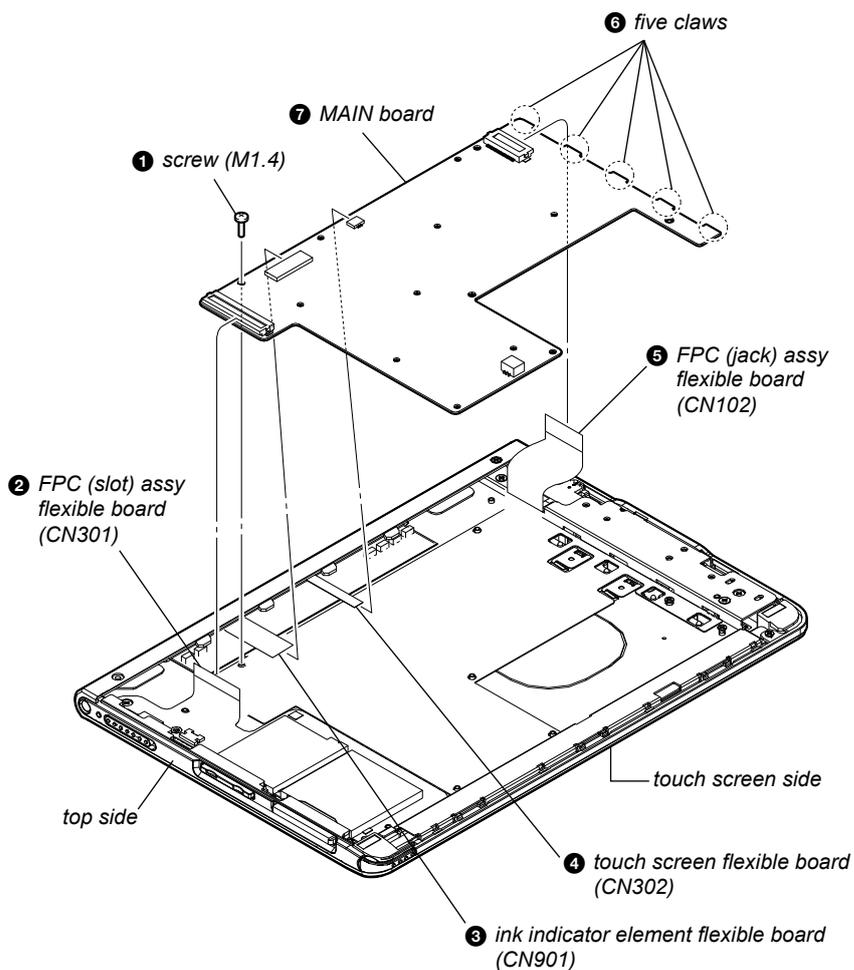
2-3. FRAME_LOWER ASSY



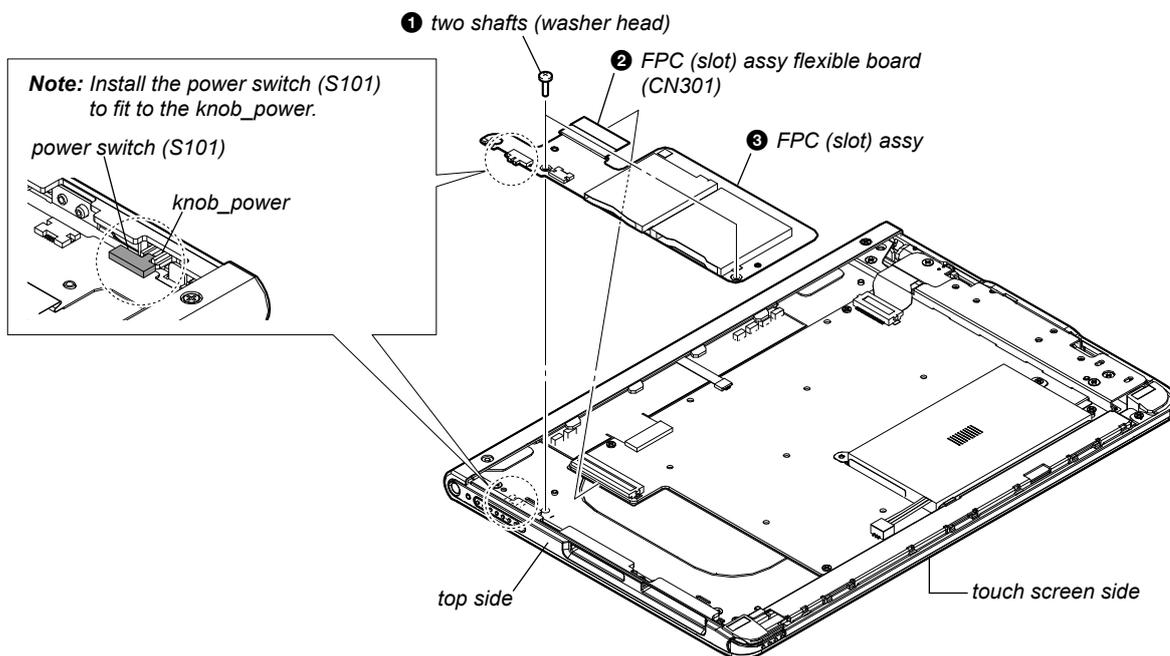
2-4. BATTERY ASSY



2-5. MAIN BOARD

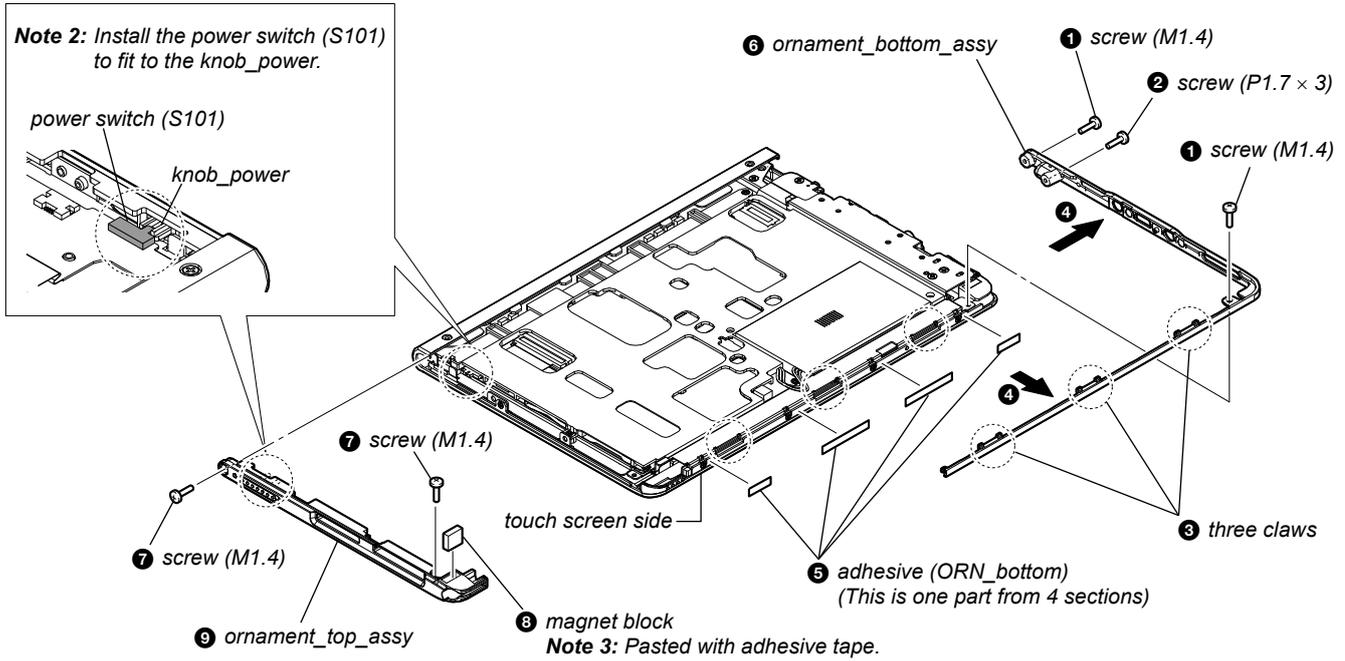


2-6. FPC (SLOT) ASSY

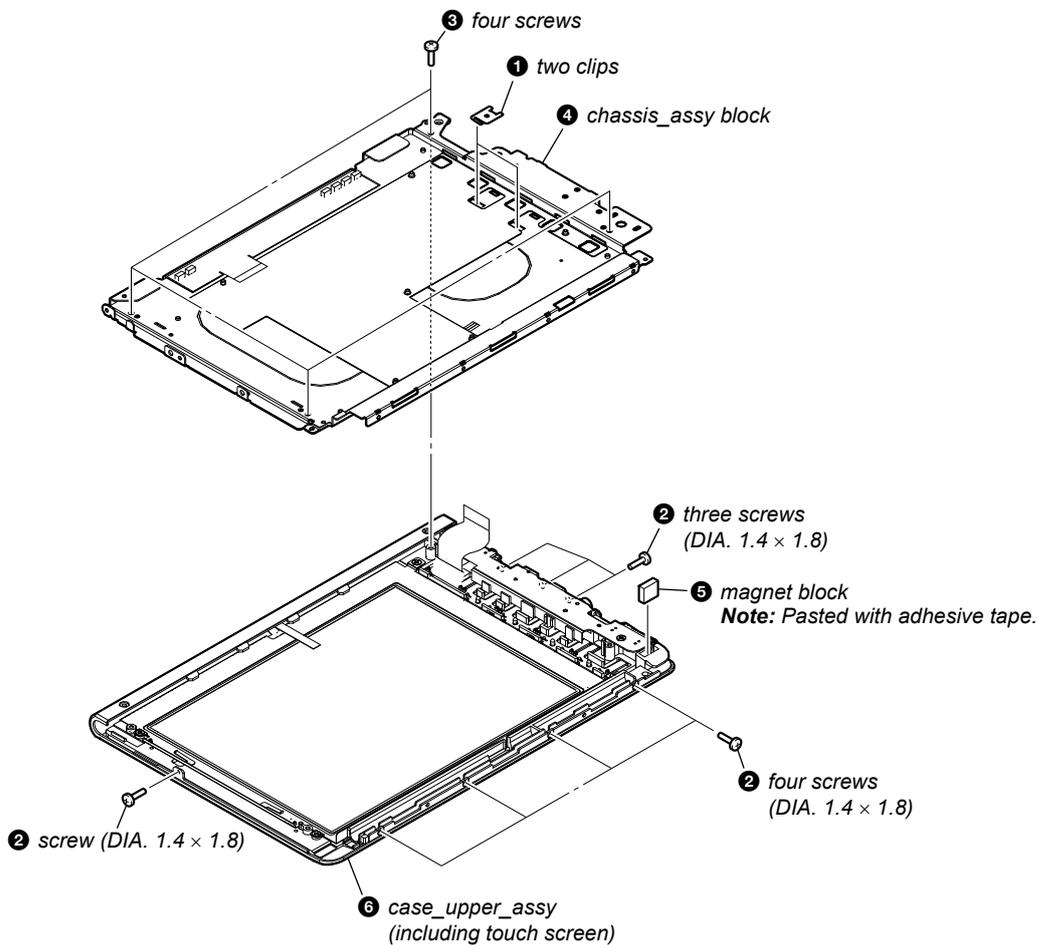


2-7. ORNAMENT_BOTTOM_ASSY, ORNAMENT_TOP_ASSY

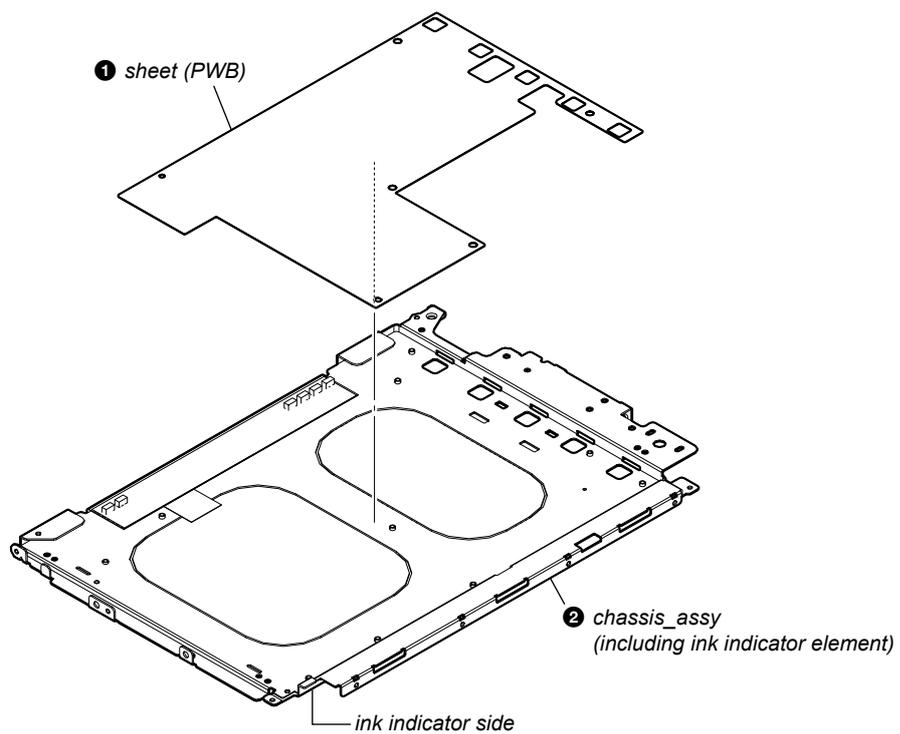
Note 1: Ornament top assy can be disassembled only by working step 7 to 9.



2-8. CASE_UPPER_ASSY



2-9. CHASSIS_ASSY



SECTION 3 TEST MODE

HOW TO MAKE THE SD MEMORY CARD FOR TEST MODE USE ONLY

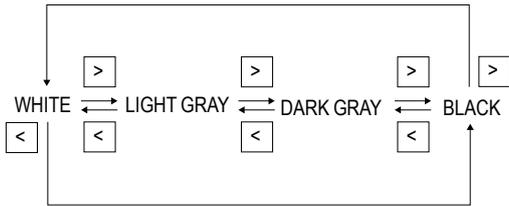
1. Ready for the SD memory card.
2. Make the new directly as “/Sony Reader/software” on the SD memory card.
3. Make the new file as “/Sony Reader/software/Autorun.xml” on the SD memory card.
4. Confirm the method of obtaining the program data for test mode to each service headquarters.

HOW TO ENTER THE TEST MODE

1. Insert the SD memory card with the test mode data is inserted while pressing the [HOME] and [VOL +] buttons.
2. After a while, indicate the test mode menu, enter the test mode.
3. Press the [<|/>] buttons, change the test mode menu page 1/page 2.

1. Test Panel

1. Touch the “Test Panel” in the test mode menu page 1. The screen is changed into the image files. (all image files of in the directly as “/Sony Reader/software/images”)
2. Press the [<|/>] buttons, change the image files.
3. Press the [size] button, image file display size change to 600×800 or 500×700.
4. If there are no image files, screen is filled with grayscale color. Press the [<|/>] buttons, change the grayscale color.

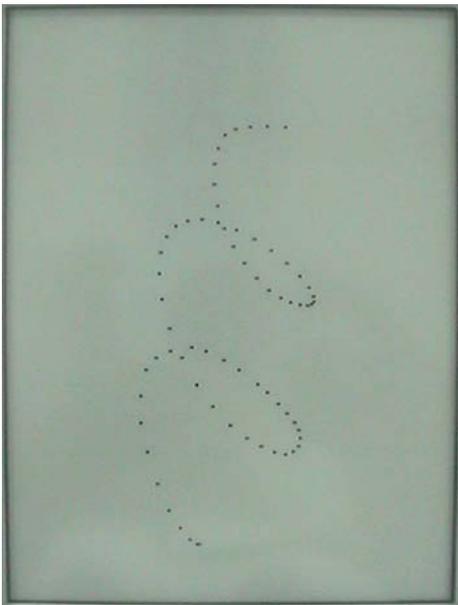


When the setting of “17. Slideshow Setting” is turning on, the image files (or grayscale color) are changes by the automatic operation.

5. Press the [HOME] button, return to the test mode menu.

2. Drawing with point

1. Touch the “Drawing with point” in the test mode menu page 1. The screen is changed into the drawing check.
2. The scanned coordinate is displayed while dragging.

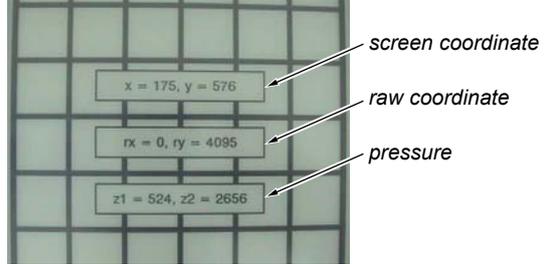


(Screen display)

3. Press the [HOME] button, return to the test mode menu.

3. Test TP Coordinate

1. Touch the “Test TP Coordinate” in the test mode menu page 1. The screen is changed into the touch panel coordinate.
2. The scanned coordinate is displayed pen down and pen up. The grid is drawn every 100 pixels. All the touch panel data is recorded in the log file. (pen down, pen move, pen up, pressure)



(Screen display)

3. Press the [HOME] button, return to the test mode menu.

4. Test All Keys

1. Touch the “Test All Keys” in the test mode menu page 2. The screen is changed into the all keys state.



(Screen display)

2. Each buttons are pressed, the display changed from white into the black.
3. It returns to the test mode menu when all buttons are pressed.
4. After the end of test, display of the right side of “Test All Keys” on test mode menu is changed from “Not Yet” into the “Done”.

5. Check battery

1. Touch the “Check battery” in the test mode menu page 1. Display of the right side of “Check battery” on test mode menu changes into the display of the battery level.

6. Factory Initialize

1. Touch the “Factory Initialize” in the test mode menu page 1. Clean up all the evidence and reset all settings, then shutdown.

7. Version confirmation

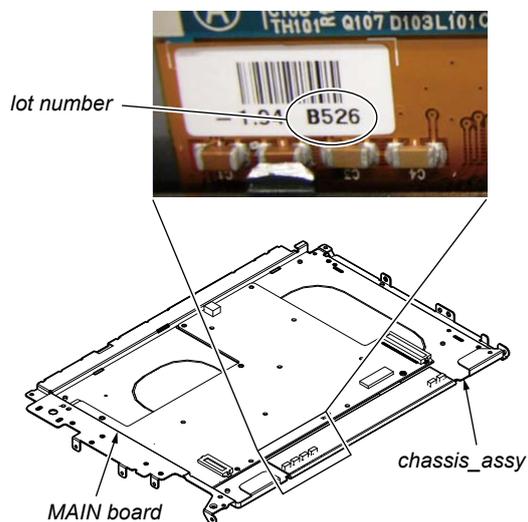
1. Touch the “Version confirmation” in the test mode menu page 1.
2. Each version of this set are displayed.
3. Press the [HOME] button, return to the test mode menu.

8. Update Waveform

In this mode, it is possible to confirm the variation of LUT (Look Up Table) and rewrite.

When replacing the complete MAIN board or CHASSIS_ASSY (including INK INDICATOR ELEMENT) you need to rewrite the LUT.

However, rewriting is not required if the lot number is the same. The lot number is printed on the bar code label of the flexible flat cable of INK INDICATOR ELEMENT.



1. The current LUT version displayed at the right side of “Update Waveform” on test mode menu.
2. Touch the “Update Waveform” in the test mode menu page 1, it starts rewriting LUT version.

Note: It is necessary to match the LUT version to the version in the lot number of the chassis assy. Refer to each service headquarters about details.

3. After about 10 seconds, screen changes into all white.
4. Press [RESET] button and reboot the set.
5. Enter the test mode again, and confirm LUT version has been updated.

9. Reset Device Lock

The current state of device lock and the password are displayed on the right side of “Reset Device Lock” of test mode menu page 1. Touch the “Reset Device Lock” to reset the device lock.

10. Power Off

Touch the “Power Off” in the test mode menu page 1. After a while, the screen display is changed white, so power is turned off.

11. Log Extract

Touch the “Log Extract” in the test mode menu page 2. The device saves the log files of using right now.

12. NAND Log Extract

Touch the “NAND Log Extract” in the test mode menu page 2. The device saves the log files of using last time before rebooted or shutdown.

13. Self Log Extract

It is the tool for the developer. This mode is not used in servicing.

14. Log Convert

It is the tool for the developer. This mode is not used in servicing.

15. Calibration

Note: When window assy is exchanged, it is necessary to execute this mode.

1. Touch the “Calibration” in the test mode menu page 2. The screen is changed into the touch panel calibration.



(Screen display)

2. Touch the top left point and the bottom right point to calibration. Then, touch the right upper, left bottom, and center point to confirm the result of calibration. Press the [HOME] button, calibration is canceled and return to the test mode menu.
3. It return to the test mode menu when the calibration ends.

16. Check Temperature

Touch the “Check Temperature” in the test mode menu page 2. Display of the right side of “Check Temperature” on test mode menu changes into the display of the temperature.

17. Slideshow Setting

Touch the “Slideshow Setting” in the test mode menu page 2, slide-show on/off changes whenever it touch the “Slideshow Setting”. The setting is on, next image is shown every 3 seconds.

18. Test Audio

1. Touch the “Test Audio” in the test mode menu page 2. The screen is changed into the audio check. (all audio files of in the directly as “/Sony Reader/software/audio”)
2. Press the [←]/[→] buttons, change the audio files.
3. Press the [HOME] button, music play or pause.
4. Press the [VOL -]/[VOL +] buttons, volume level up or down.
5. Press the [HOME] button, return to the test mode menu. Even if you return to test mode menu, music is still playing. You can “Test Audio” and other things at the same time.

SECTION 4 ELECTRICAL ADJUSTMENT

VCOM VOLTAGE ADJUSTMENT

VCOM voltage for the Ink Indicator Element varies for each Ink Indicator Element. VCOM adjustment is required when replacing MAIN board or CHASSIS_ASSY.

Note: Ink Indicator Element is included in CHASSIS_ASSY.

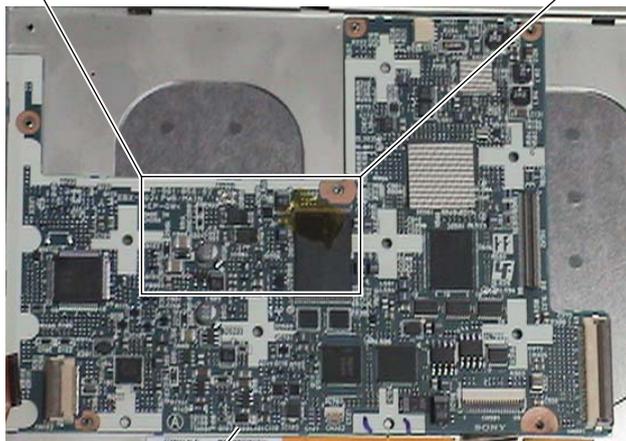
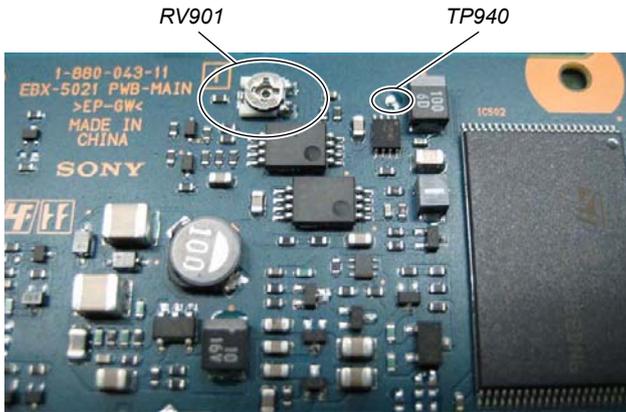
Voltage is generated only when the screen is changed, so the adjustment needs to be performed while changing the screen. Use the slideshow function to change the screen sequentially.

Procedure:

1. Refer to test mode “17. Slideshow Setting”. The setting is “ON”.
2. Refer to test mode “1. Test Panel”. Enter the “Test Panel”, check that the slideshow start.
3. Observe the TP940 on an oscilloscope (refer to Fig. 2), and use RV901 to adjust the voltage that is generated when the screen is changed so that it satisfies the standard.

Standard: Written on the flexible card wire of the display panel with a marker. (-1 V to -2.5 V) (refer to Fig. 1)
(In case of Fig. 1: The value of VCOM is -1.94 V.)

Adjustment Location:



MAIN board

Fig. 1:

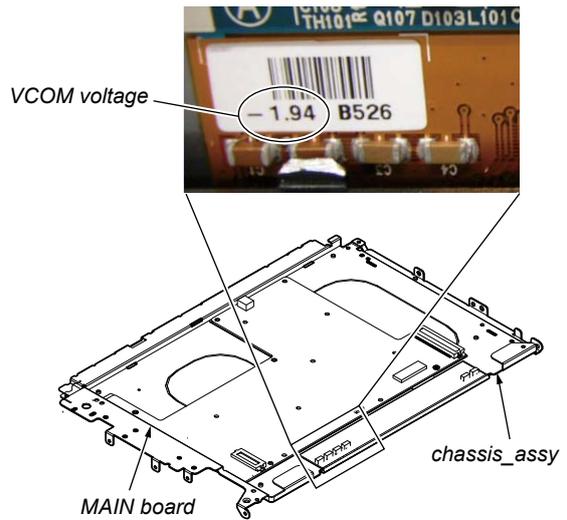
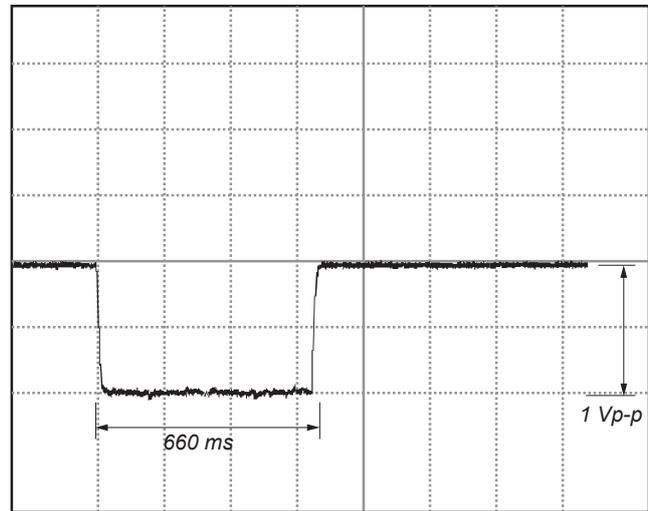


Fig. 2:



500 mV/DIV, 200 ms/DIV

SECTION 5 EXPLODED VIEWS

Note:

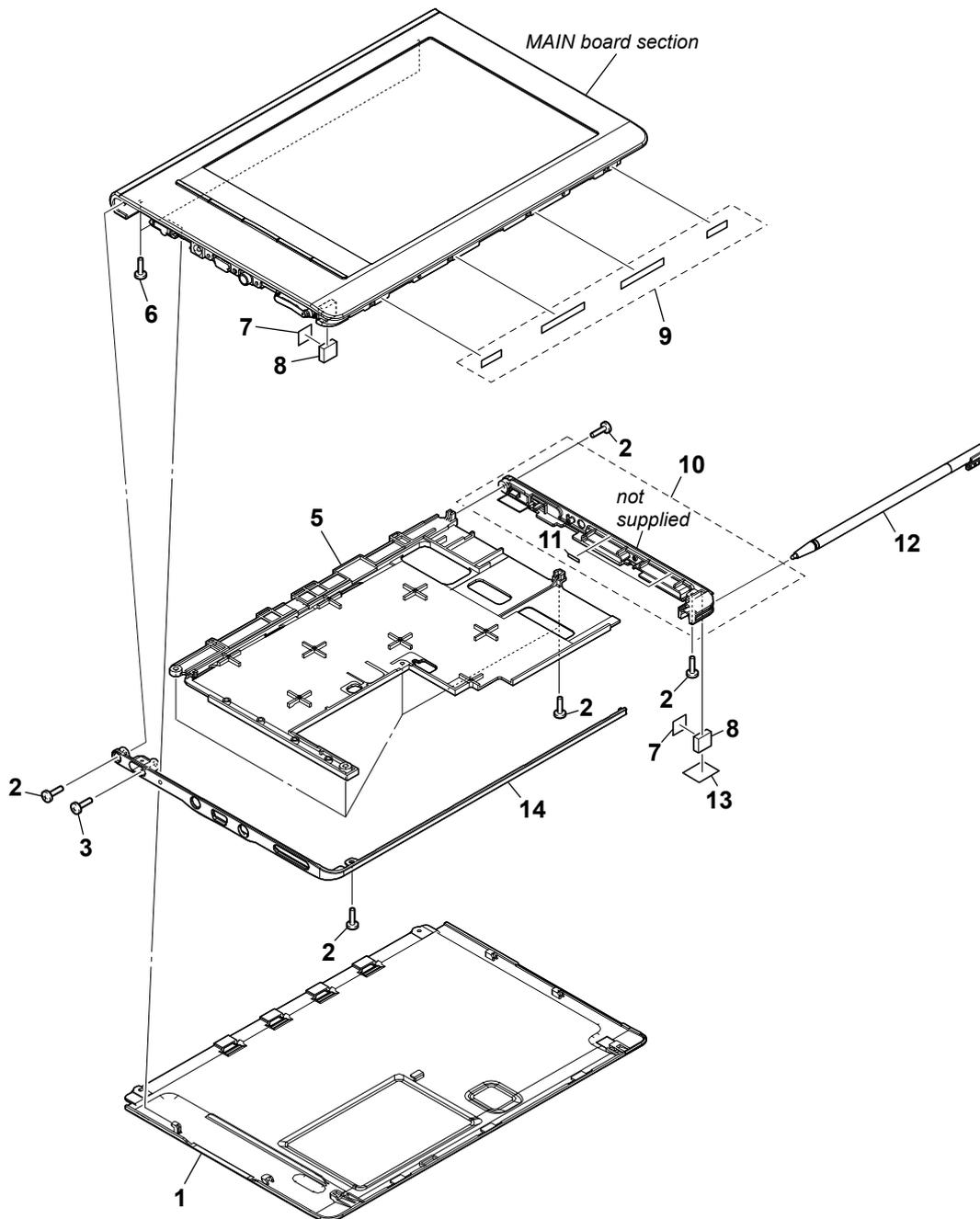
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Color Indication of Appearance Parts Example:
KNOB, BALANCE (WHITE) . . . (RED)

↑ Parts Color ↑ Cabinet's Color

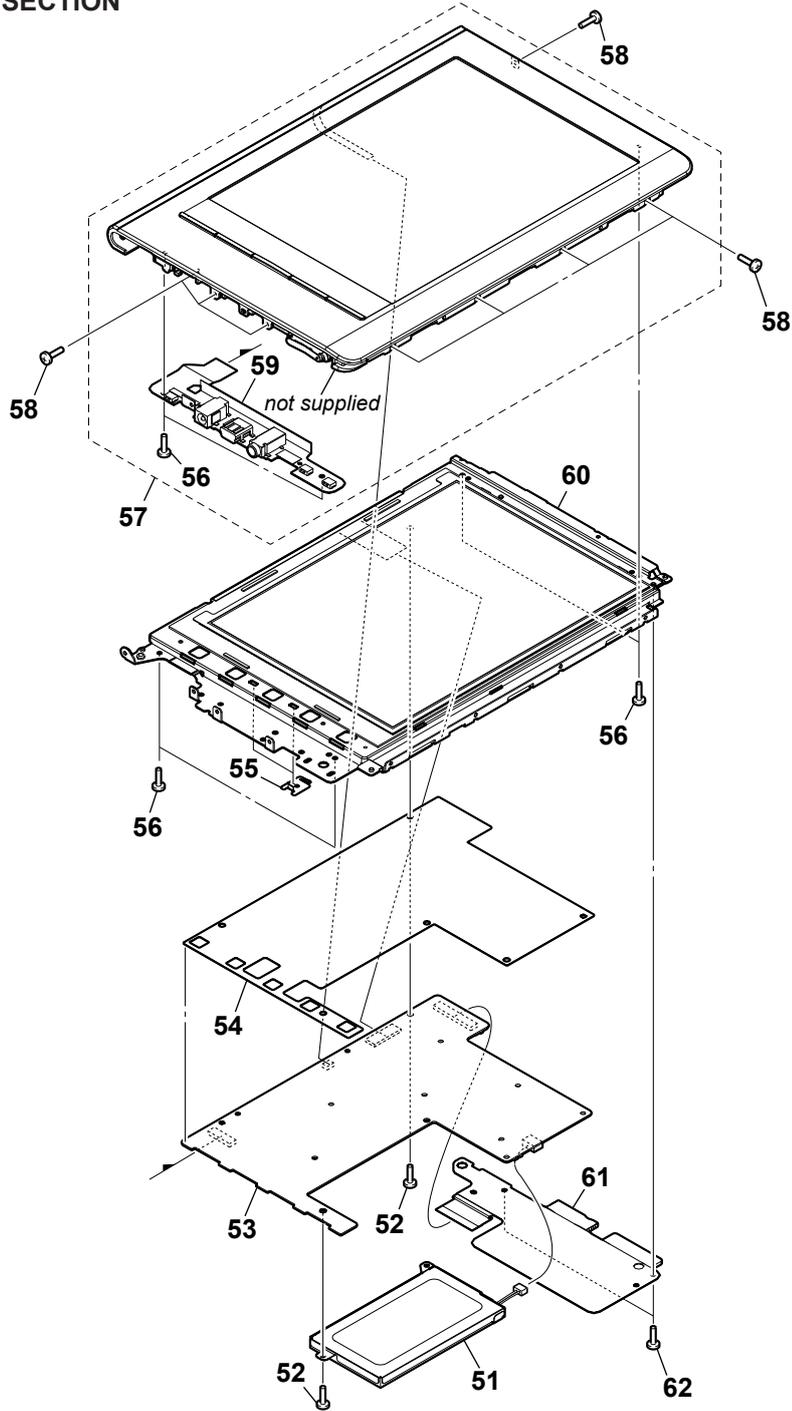
- Abbreviation
CEW : UK, French, German and Netherlands models

5-1. OVERALL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-146-520-01	CASE_LOWER (BLACK)		8	4-156-913-01	MAGNET	
1	4-146-520-11	CASE_LOWER (SILVER)		9	4-158-951-02	ADHESIVE (ORN_BOTTOM) (4 pieces, 1 set)	
1	4-146-520-21	CASE_LOWER (RED)		10	A-1732-036-A	ORNAMENT_TOP_ASSY	
2	3-286-016-02	SCREW M1.4		11	4-160-370-02	SHEET (ORNAMENT_TOP), ADHESIVE	
3	3-251-483-01	SCREW +P 1.7X3 NON-SLIT TYPE 2		12	A-1732-038-A	STYLUS_ASSY	
5	A-1744-755-A	FRAME_LOWER ASSY		13	4-160-369-01	SHEET (CASE_LOWER), ADHESIVE	
6	3-225-873-29	SCREW (M1.4) (for SILVER)		14	A-1732-037-A	ORNAMENT_BOTTOM_ASSY	
6	3-286-016-02	SCREW M1.4 (for BLACK, RED)					
7	4-158-952-01	CUSHION (MAGNET)					

5-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	A-1732-035-A	BATTERY ASSY		55	4-153-318-01	CLIP	
52	3-234-449-07	SCREW (M1.4)		56	3-254-003-01	SCREW	
53	X-2515-126-1	MAIN BOARD, COMPLETE (for SERVICE)		57	A-1732-029-A	CASE_UPPER_ASSY (Including Touch screen)	(SILVER)
53	X-2515-127-1	MAIN BOARD, COMPLETE (for SERVICE)	(for SILVER) (US, CND)	57	A-1735-520-A	CASE_UPPER_ASSY (Including Touch screen)	(BLACK)
53	X-2515-128-1	MAIN BOARD, COMPLETE (for SERVICE)	(for BLACK) (US, CND)	57	A-1735-536-A	CASE_UPPER_ASSY (Including Touch screen)	(RED)
53	X-2515-129-1	MAIN BOARD, COMPLETE (for SERVICE)	(for RED) (US, CND)	58	3-269-531-11	SCREW (DIA. 1.4X1.8)	
53	X-2515-130-1	MAIN BOARD, COMPLETE (for SERVICE)	(for SILVER) (CEW)	59	A-1733-668-A	FPC (JACK) ASSY	
53	X-2515-131-1	MAIN BOARD, COMPLETE (for SERVICE)	(for BLACK) (CEW)	60	A-1733-829-A	CHASSIS_ASSY (LG)	
54	4-149-480-01	SHEET (PWB)		61	A-1733-672-A	FPC (SLOT) ASSY	(Including Ink indicator element)
				62	4-163-115-01	SHAFT (WASHER HEAD)	

SECTION 6 ACCESSORIES

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	1-829-882-12	CORD, CONNECTION (USB) (USB cable)	
	3-273-916-01	CARD (SD), DUMMY (Memory slot protective insert for SD Memory card)	
	3-273-917-01	CARD (MS DUO), DUMMY (Memory slot protective insert for Memory Stick Duo)	
	4-153-319-01	POUCH, CARRYING	
	4-153-620-11	GUIDE, QUICK START (ENGLISH, FRENCH)	
	4-153-620-31	GUIDE, QUICK START (GERMAN, DUTCH) (CEW)	

- Abbreviation

CEW : UK, French, German and
Netherlands models

