PRS-350

SERVICE MANUAL

Ver. 1.0 2010.08

US Model
Canadian Model
AEP Model
UK 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.

SPECIFICATIONS

Model name

PRS-350

Power source

Built-in rechargeable battery: 3.7 V DC, 940 mA
USB communication: Hi-Speed USB (USB 2.0 compliant)

Battery life (continuous playback)

Maximum Battery: Approx. 10,000 continuous page turns when reading only *1

*1 Measured using a text based content in ePub format and a fully charged battery, consecutive page-turns at approximately one second per page under the recommended operating temperature. Actual battery life may vary based on usage patterns and individual device.

User available capacity

Approx. 1.4 GB after initial setting
Depending on size of pre-loaded excerpts, available memory capacity may vary.

Operating/charging temperature

41°F to 95°F (5°C to 35°C)

Dimensions (w/h/d)

Approx. 104.3 × 145 × 8.5 mm (4 1/8 × 5 3/4 × 11/32 inches)

Mass

Approx. 155 g (5.47 oz.)

Display:

127.0 mm (5") diagonal electrophoretic display
600 × 800 pixel, 0.127 × 0.127 pixel/mm
16-level gray scale

Design and specifications are subject to change without notice.

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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

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SECTION 1
SERVICING NOTES

NOTE OF REPLACING BATTERY ASSY (BAT1)

Exchange it for an absolutely new part when you remove the BATTERY ASSY (BAT1) built into this set.

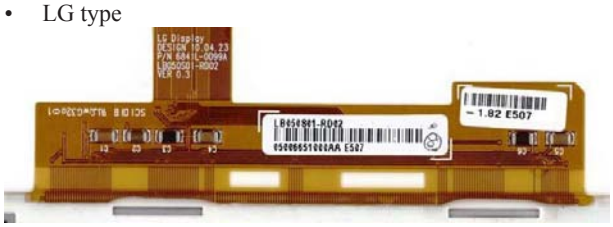
NOTE THE EACH BOARDS REPAIRING

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.

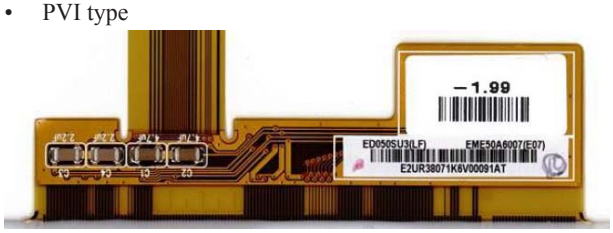
DISCRIMINATION OF THE INK INDICATOR 5inch ELEMENT

Two kinds of the INK INDICATOR 5inch ELEMENT is used in this set (LG type or PVI type).
Parts are different according to the difference of the INK INDICATOR 5inch ELEMENT.
Confirm the shape of the Flexible Printed Cable of the INK INDICATOR 5inch ELEMENT when the INK INDICATOR 5inch ELEMENT of PRS-350 that repairs distinguishes which type.

- LG type



- PVI type



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 5inch ELEMENT is included in CHASSIS ASSY.

- Write VCOM: Refer to "20. Write VCOM" on page 10.
- REWRITING THE LUT: Refer to this page.

REWRITING THE LUT

As for INK INDICATOR 5inch 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 (LG) (including INK INDICATOR 5inch ELEMENT) you need to rewrite the LUT.
However, rewriting is not required if the lot number is the same.

Note: LUT is written in IC2003 on the MAIN board.

Refer to the following for the "How to enter the test mode" and "How to change the LUT".

• How to enter the test mode

1. Connect the set to PC by the USB cable.
2. The file for the test mode is copied under the "READER" drive.

Note: Confirm the method of obtaining the file for test mode to each service headquarters.

3. Remove the set from PC. Then, the power supply automatically becomes on.
4. Confirm "Test Mode Avaliable" is displayed on the screen.

5. Press the key as following order.
   [🔍] → [🏠] → [🔍] → [🏠]
6. After a while, indicate the test mode menu, enter the test mode.

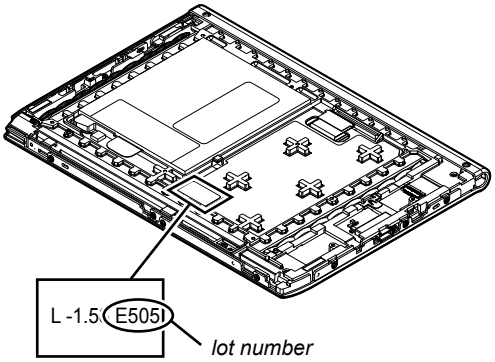
• Releasing the test mode

Slide the [POWER] key for 5 seconds or more to turn the power off. Then, delete the file copied in "How to enter the test mode" from the "READER" drive.

• How to change the LUT

1. Confirm the lot number of INK INDICATOR 5inch ELEMENT referring to the figure below.

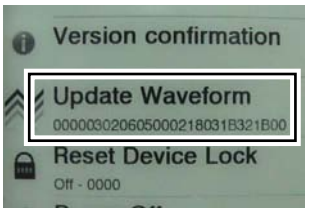
Note: Remove the MAIN board to confirm the lot number.



2. Confirm the version and the LUT file of LUT corresponding to the lot number to each service headquarters.
3. Make the following folder under the "READER" drive.

   /Sony Reader/software/data/

4. Copy the LUT file updated under the folder made in step 3, and change the file name to "lut.bin".
5. The current LUT version displayed at the lower side of "Update Waveform" on test mode menu 1
   (Example: "0000030206050002180 31B321B00" in the figure below).



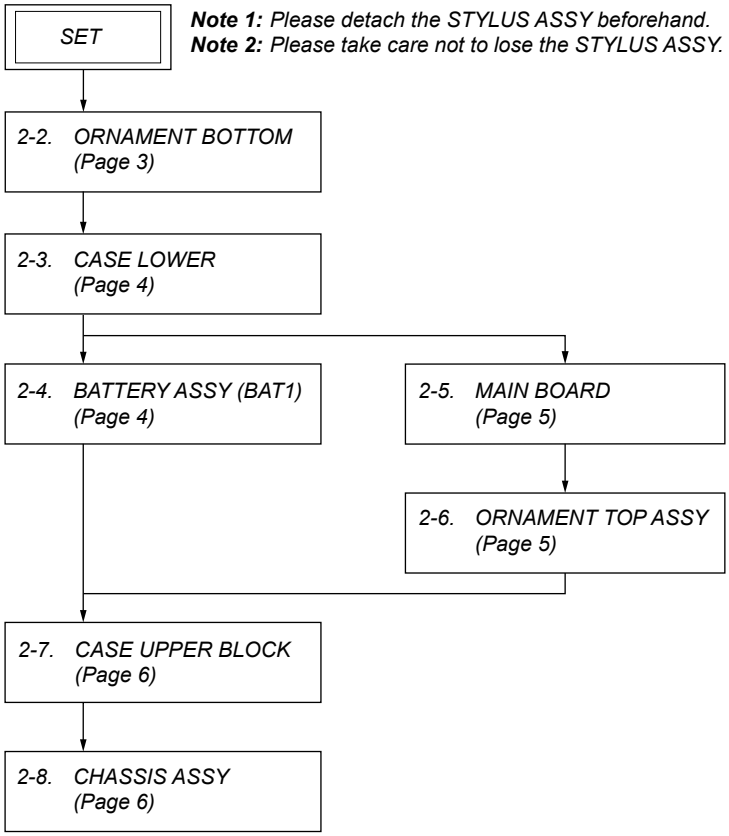
(Example of displaying current LUT version)

6. Touch the "Update Waveform" in the test mode menu page 1, it starts rewriting LUT version.
7. After about 10 seconds, screen changes into all white.
8. Press [RESET] key and reboot the set.
9. Enter the test mode again, and confirm LUT version has been updated.

SECTION 2
DISASSEMBLY

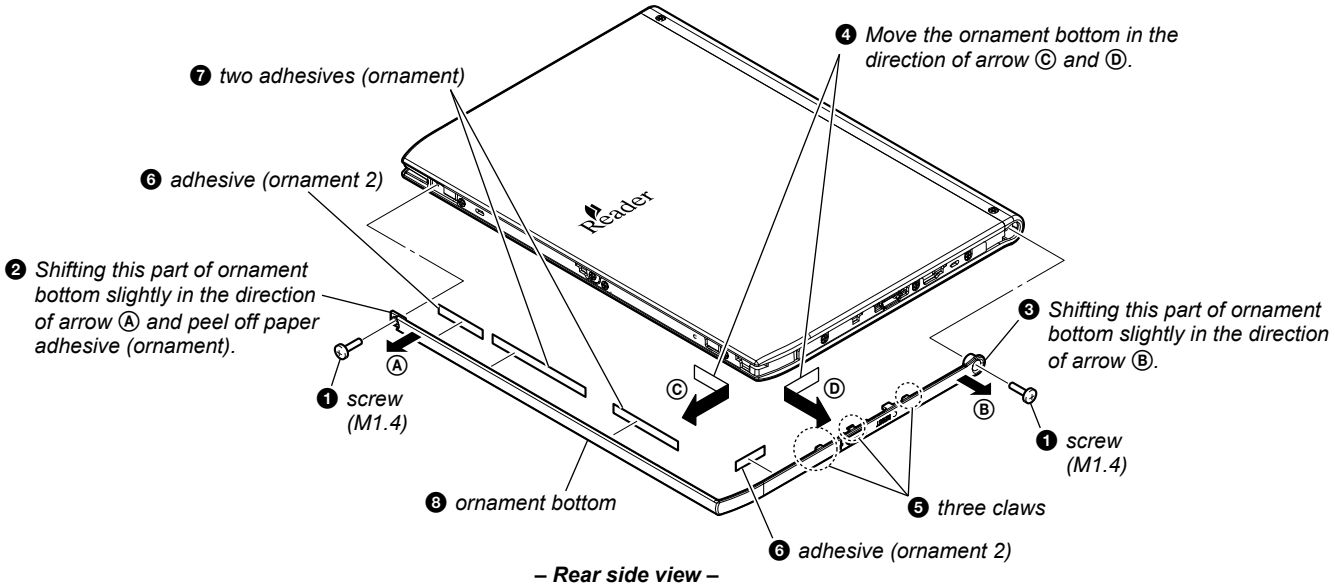
- This set can be disassembled in the order shown below.

2-1. DISASSEMBLY FLOW



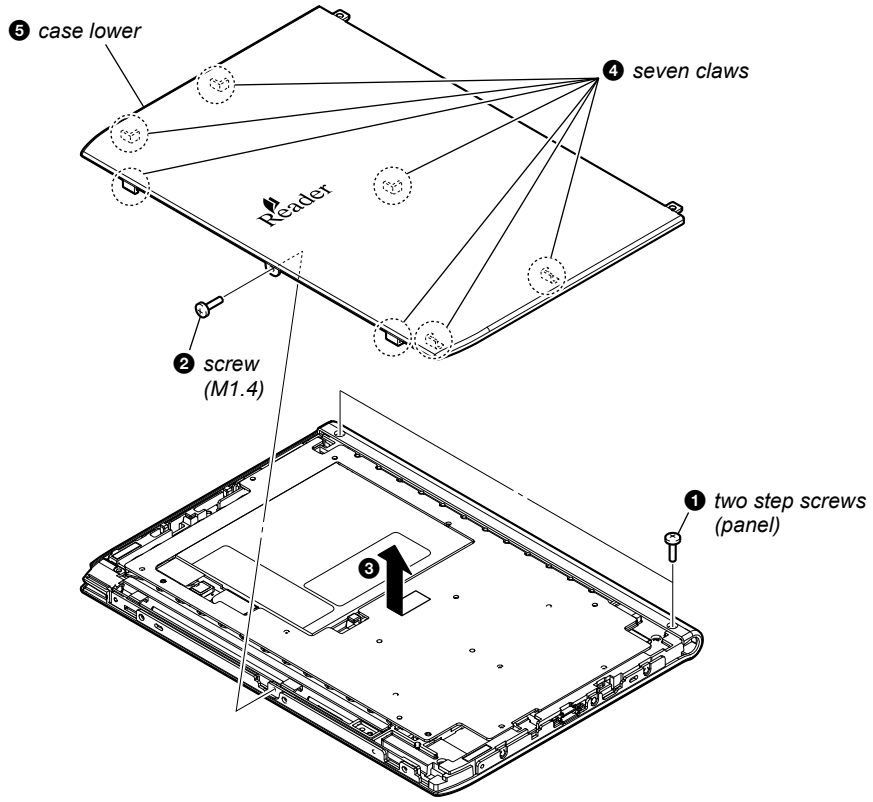
Note: Follow the disassembly procedure in the numerical order given.

2-2. ORNAMENT BOTTOM



– Rear side view –

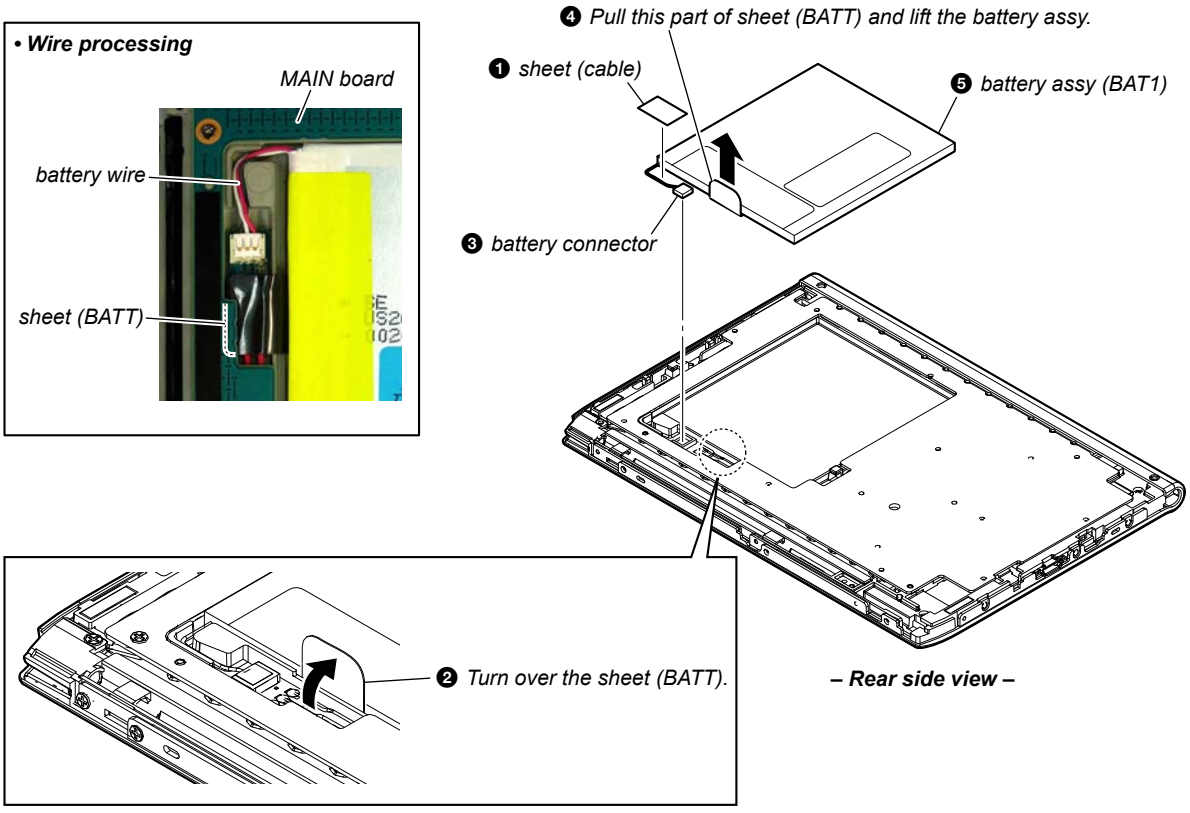
2-3. CASE LOWER



– Rear side view –

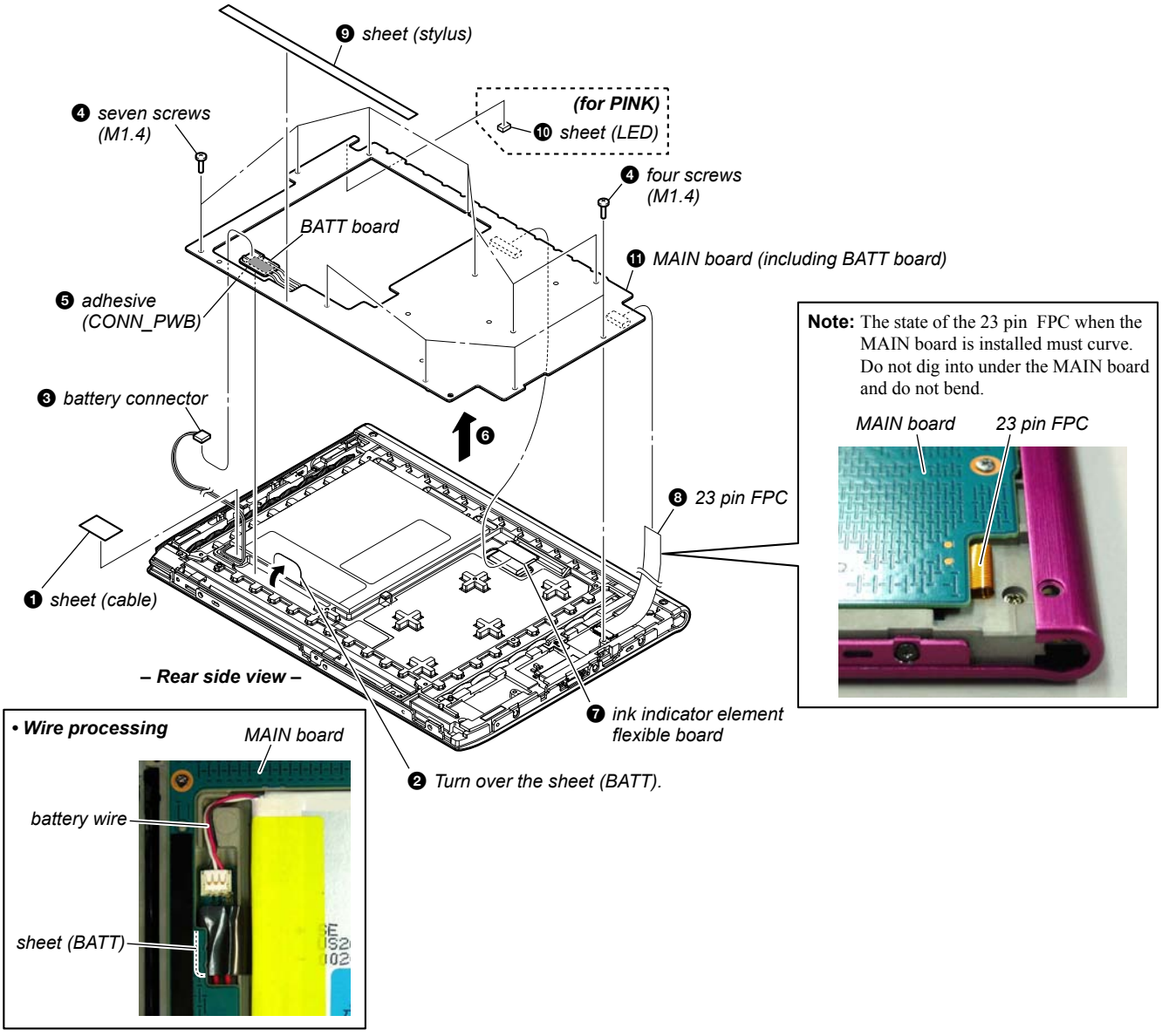
2-4. BATTERY ASSY (BAT1)

Note: Exchange it for an absolutely new part when you remove the BATTERY ASSY (BAT1) built into this set.

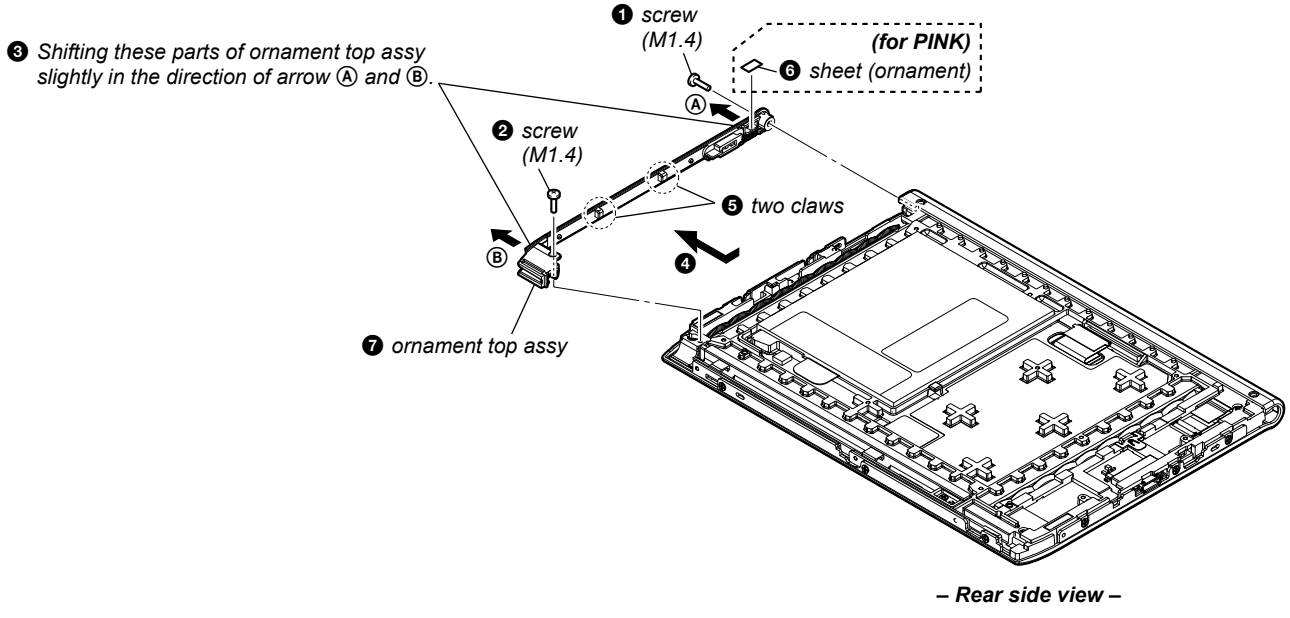


– Rear side view –

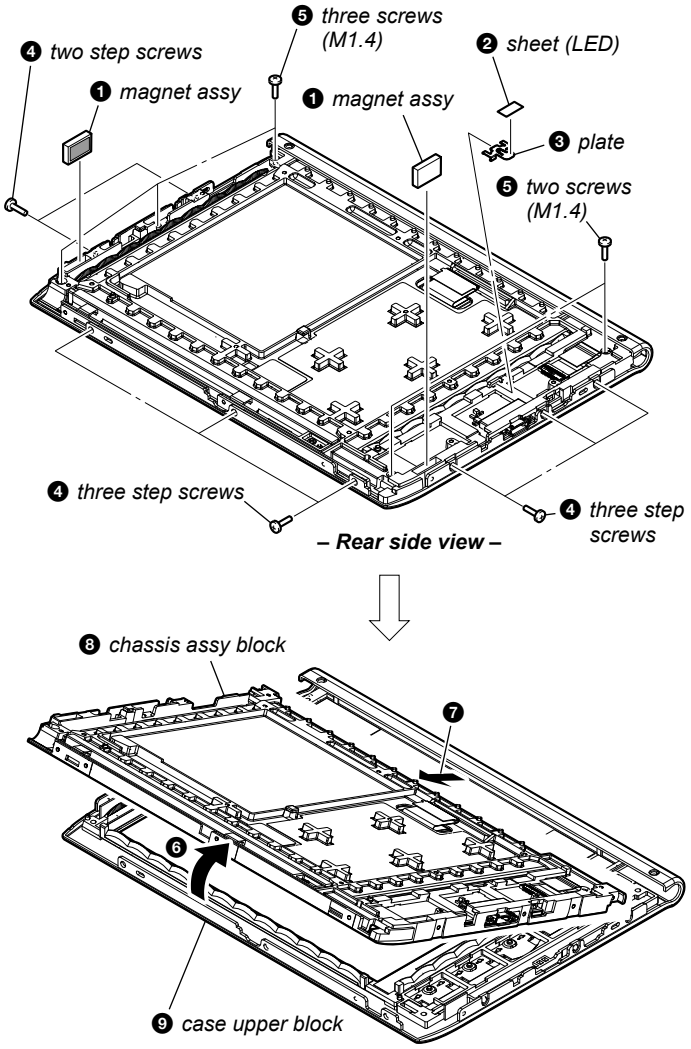
2-5. MAIN BOARD



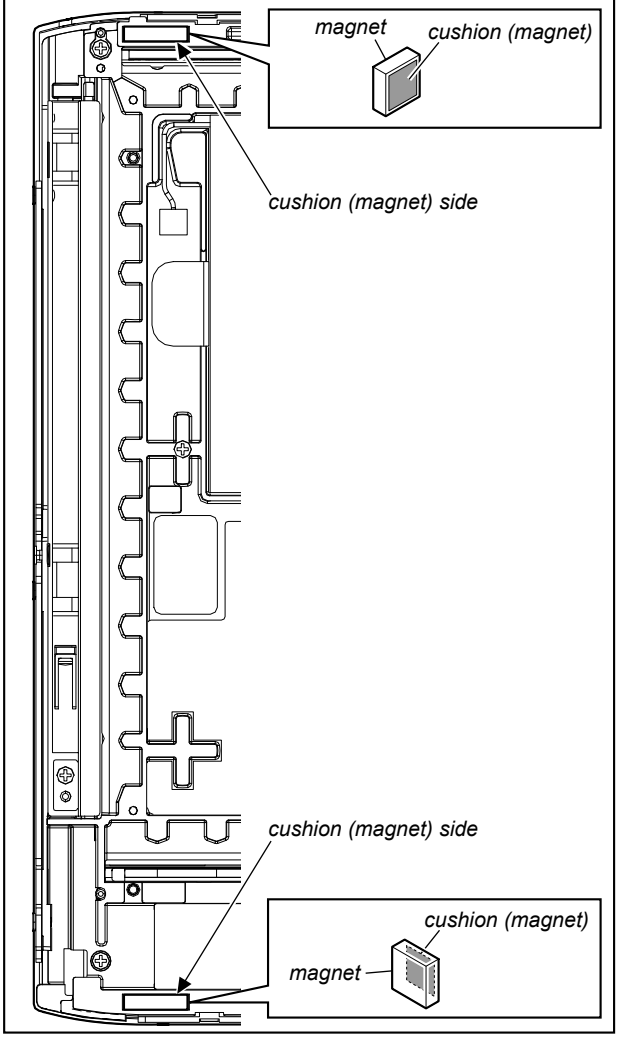
2-6. ORNAMENT TOP ASSY



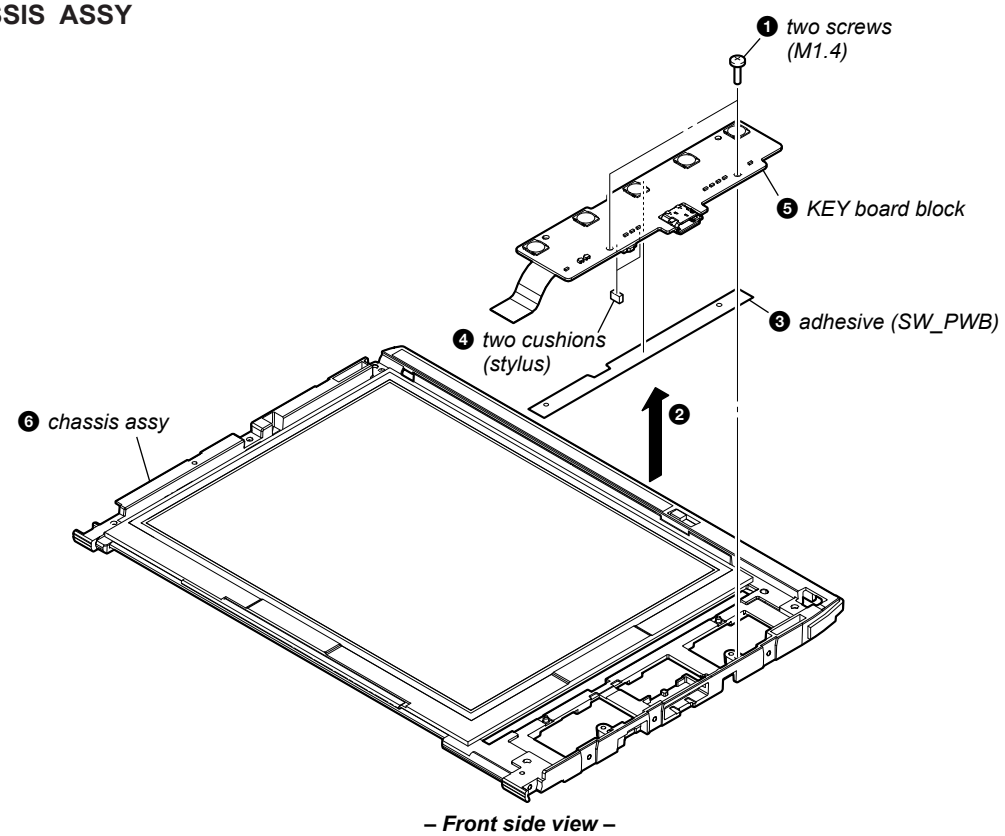
2-7. CASE UPPER BLOCK



Note: When installing the magnet assy, note the position of cushion (magnet) of the magnet assy.



2-8. CHASSIS ASSY



SECTION 3
TEST MODE

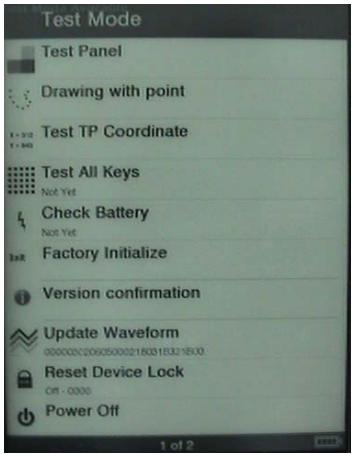
HOW TO ENTER THE TEST MODE

1. Connect the set to PC by the USB cable.
2. The file for the test mode is copied under the "READER" drive.

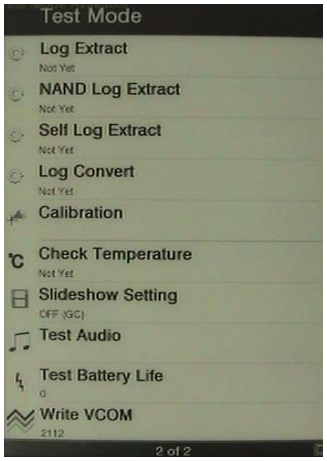
Note: Confirm the method of obtaining the file for test mode to each service headquarters.

3. Remove the set from PC. Then, the power supply automatically becomes on.
4. Confirm "Test Mode Avaliable" is displayed on the screen.

5. Press the key as following order.
   [🔍] → [⌂] → [🔍] → [⌂]
6. After a while, indicate the test mode menu, enter the test mode.
7. Press the [<]/[>] keys, change the test mode menu page 1/page 2.



(Test mode menu page 1)



(Test mode menu page 2)

RELEASING THE TEST MODE

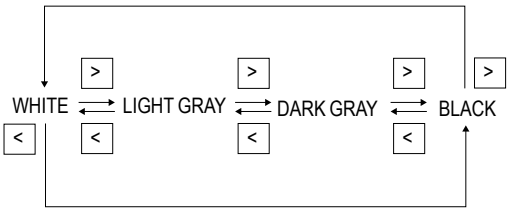
Slide the [POWER] key for 5 seconds or more to turn the power off. Then, delete the file copied in "HOW TO ENTER THE TEST MODE" from the "READER" drive.

OPERATION OF THE TEST MODE

1. Test Panel

Procedure:

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 [<]/[>] keys, change the image files.
3. Press the [🔍] key, 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 [<]/[>] keys, 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.

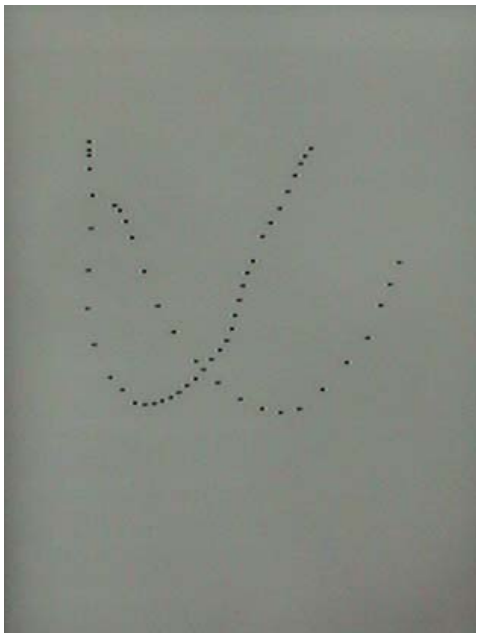
Releasing method:

Press the [⌂] key, return to the test mode menu 1.

2. Drawing with point

Procedure:

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)

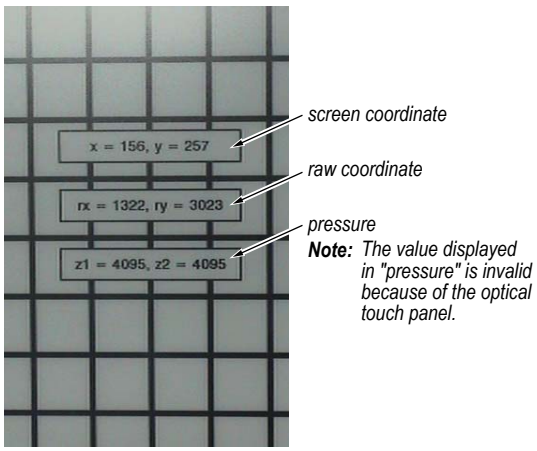
Releasing method:

Press the [⌂] key, return to the test mode menu 1.

3. Test TP Coordinate

Procedure:

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)

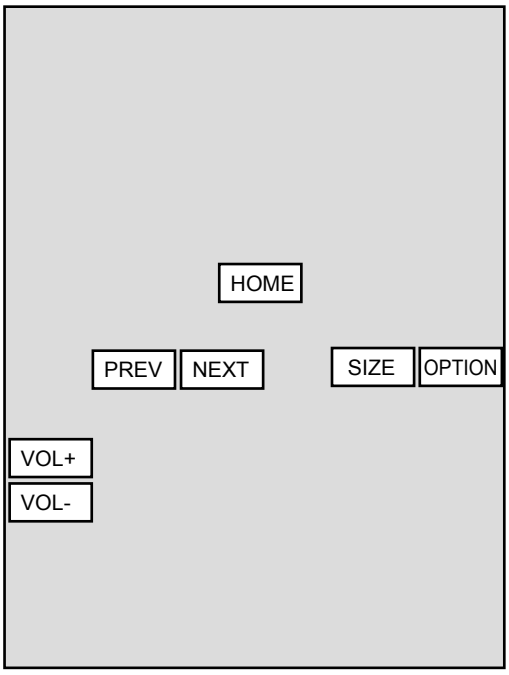
Releasing method:

Press the [⌂] key, return to the test mode menu 1.

4. Test All Keys

Procedure:

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



(Screen display)

2. Each keys are pressed, the display changed from white into the black.

Note: This set doesn’t respond to the [VOL –]/[VOL +] keys. Release this mode after having finished pressing other keys.

Releasing method:

Press the [OPTION] key for 3 seconds or more, return to the test mode menu 1.

5. Check battery

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

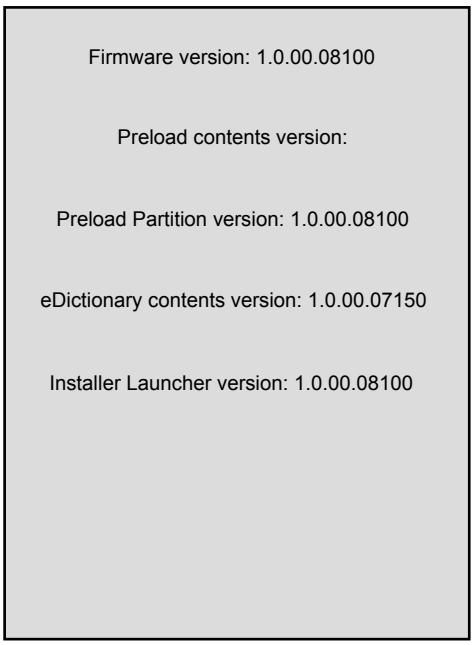
Touch the “Factory Initialize” in the test mode menu page 1.
Clean up all the evidence and reset all settings, then shutdown.

7. Version confirmation

Procedure:

1. Touch the “Version confirmation” in the test mode menu page 1.
2. Each version of this set are displayed.

Note: “Preload contents version” is not displayed.



(Screen display)

Releasing method:

Press the [⌂] key, return to the test mode menu 1.

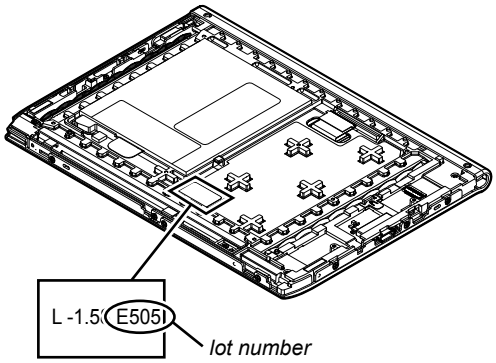
8. Update Waveform

In this mode, it is possible to confirm the variation of LUT and rewrite.
As for INK INDICATOR 5inch 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 5inch ELEMENT) you need to rewrite the LUT.
However, rewriting is not required if the lot number is the same.
Note: LUT is written in IC2003 on the MAIN board.

Procedure:

1. Confirm the lot number of INK INDICATOR 5inch ELEMENT referring to the figure below.

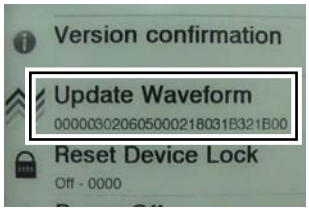
Note: Remove the MAIN board to confirm the lot number.



2. Confirm the version and the LUT file of LUT corresponding to the lot number to each service headquarters.
3. Make the following folder under the “READER” drive.

   /Sony Reader/software/data/

4. Copy the LUT file updated under the folder made in step 3, and change the file name to “lut.bin”.
5. The current LUT version displayed at the lower side of “Update Waveform” on test mode menu 1
   (Example: “000003020605000218031B321B00” in the figure below).



(Example of displaying current LUT version)

6. Touch the “Update Waveform” in the test mode menu page 1, it starts rewriting LUT version.
7. After about 10 seconds, screen changes into all white.
8. Press [RESET] key and reboot the set.
9. 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

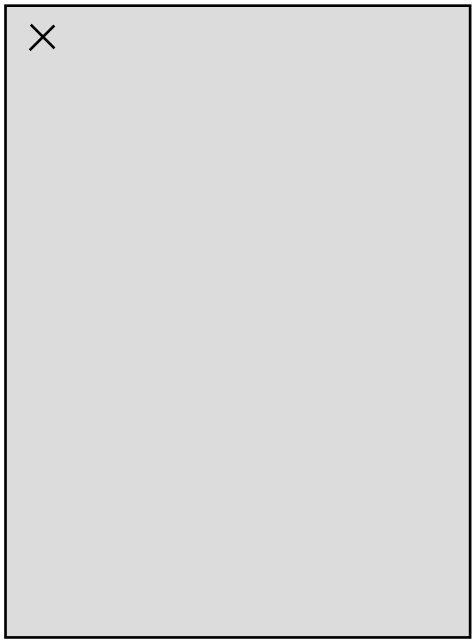
It is the tool for the developer.
This mode is not used in servicing.

15. Calibration

Note: When CHASSIS ASSY (LG) is exchanged, it is necessary to execute this mode.

Procedure:

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. It return to the test mode menu 2 when the calibration ends.

Releasing method:
Press the [⌂] key, return to the test mode menu 2.

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

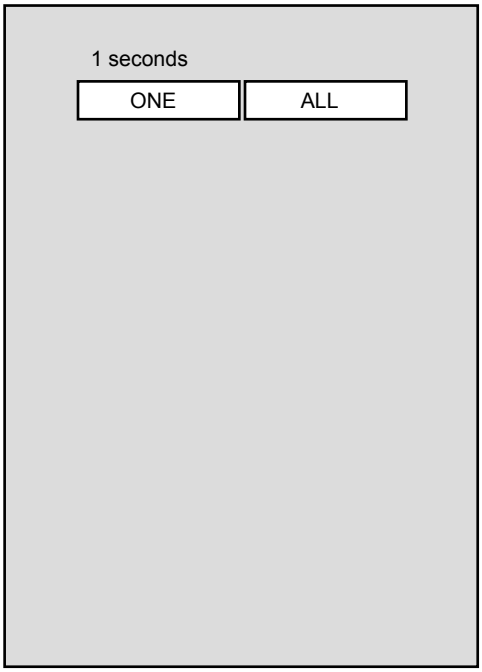
Touch the “Slideshow Setting” in the test mode menu page 2, slideshow on/off changes whenever it touch the “Slideshow Setting”.
The setting is on, next image is shown every 3 seconds.

18. Test Audio
Not used in PRS-350.

19. Test Battery Life
Procedure:
1. Make the following folder under the “READER” drive.

   /Sony Reader/software/books/

2. Copy the book contents file supported in this set (ePub, PDF, text, RTF, BBeB) under the folder made in step 1.
3. Touch the “Test battery Life” in the test mode menu page 2.



(Screen display)

4. Touch the “ONE” or “ALL”, and the page is turned until the battery runs down.

Note: The battery have run out if this mode is executed. Release this mode by pressing the [⌂] key when you want to stop it on the way.

ONE: Page of one book in the copied books is turned.
ALL: Page of all book in the copied books is turned.

5. Whenever 100 pages are turned, the result is maintained in the following file.

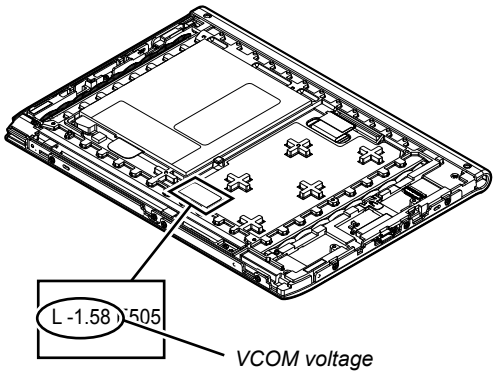
   /Sony Reader/software/books/counter

Releasing method:
Press the [⌂] key, return to the test mode menu 2.

20. Write VCOM
In this mode, the VCOM voltage can be rewritten.
The VCOM voltage for INK INDICATOR 5inch ELEMENT varies for each INK INDICATOR 5inch ELEMENT.
When replacing the complete MAIN board or CHASSIS ASSY (LG) (including INK INDICATOR 5inch ELEMENT) you need to rewrite the VCOM voltage.

Procedure:
1. Confirm the VCOM voltage for INK INDICATOR 5inch ELEMENT referring to the figure below.

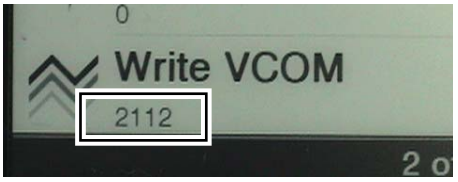
Note: Remove the MAIN board to confirm the VCOM voltage.



2. Make the text file, and write the VCOM voltage confirmed in step 1. The VCOM voltage is described by the unit of mV that omits minus (Write “1580” when it is printed on the label as “–1.58”). Then, change the file name to “Vcom.dt”.
3. Make the following folder under the “READER” drive.

   /Sony Reader/software/data/

4. Copy the file made in step 2 under the folder made in step 3.
5. The current VCOM voltage displayed at the lower side of “Write VCOM” on test mode menu 2 (Example: “–2.112 V” in the figure below).



(Example of displaying current VCOM voltage)

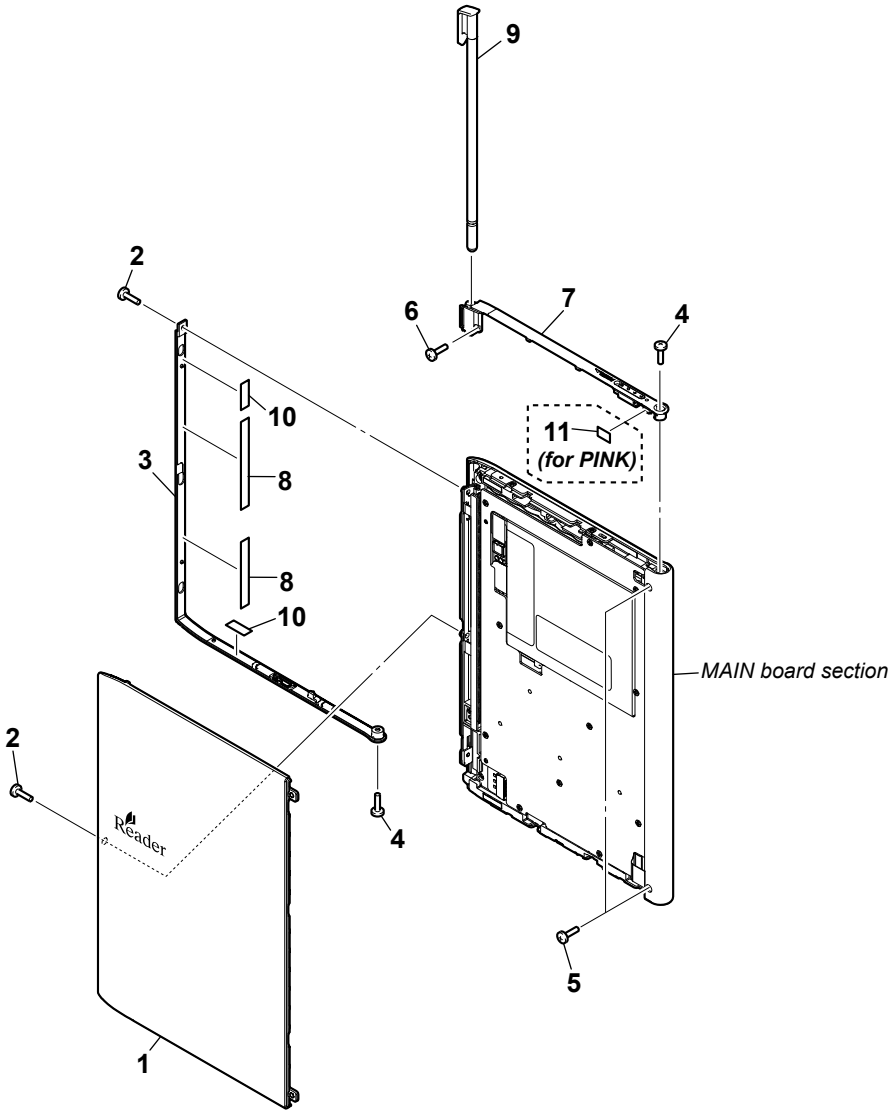
6. Touch the “Write VCOM” in the test mode menu page 2, it starts rewriting the VCOM voltage.
7. Confirm the VCOM voltage has been updated.

SECTION 4
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
  CND : Canadian model

4-1. CASE AND ORNAMENT SECTION

Note: This illustration is view from the case lower side.

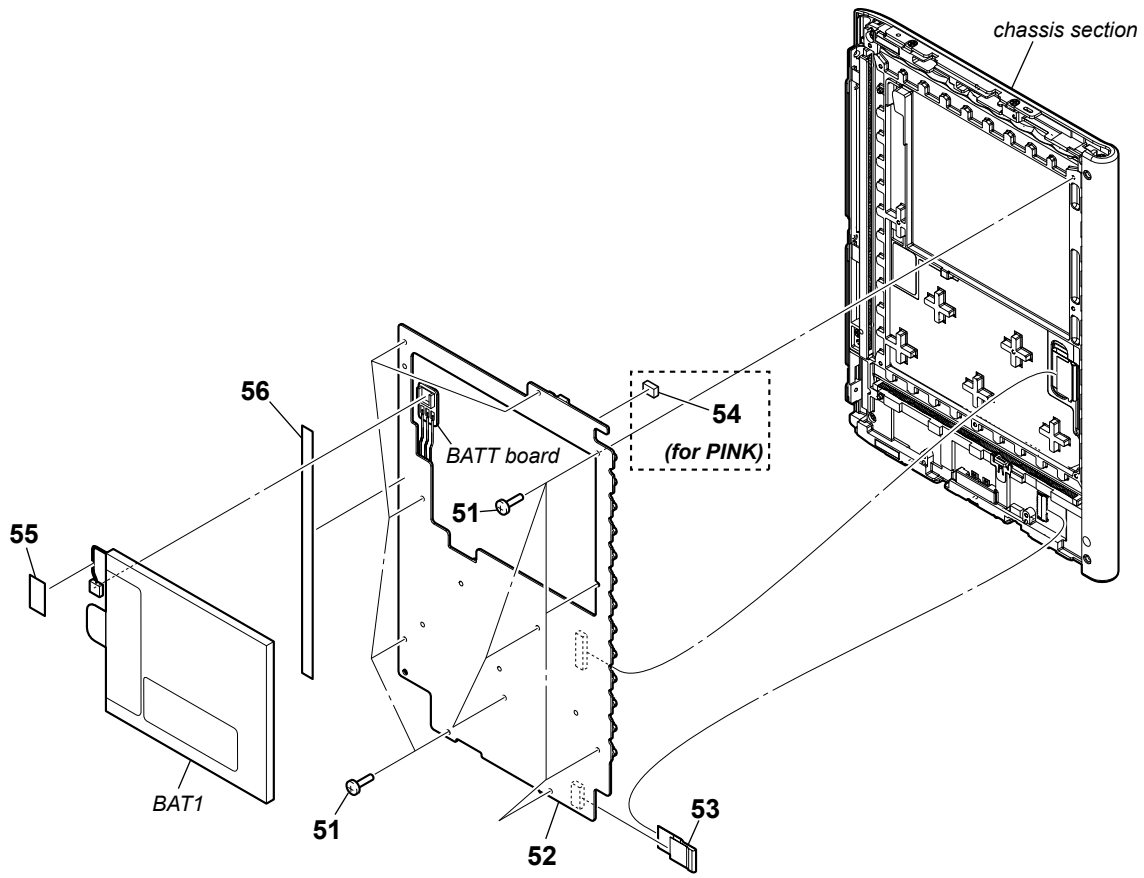


Ref. No.	Part No.	Description	Remark
1	4-194-493-01	CASE LOWER (SILVER)	
1	4-194-493-11	CASE LOWER (PINK)	
1	4-194-493-21	CASE LOWER (BLUE) (AEP, UK)	
2	4-264-830-11	SCREW (M1.4)	
3	4-194-495-01	ORNAMENT BOTTOM (SILVER)	
3	4-194-495-11	ORNAMENT BOTTOM (PINK)	
3	4-194-495-21	ORNAMENT BOTTOM (BLUE) (AEP, UK)	
4	4-264-830-41	SCREW (M1.4) (for PINK/BLUE)	
4	4-264-830-51	SCREW (M1.4) (for SILVER)	
5	4-198-988-01	SCREW (PANEL), STEP (for PINK/BLUE)	
5	4-198-988-11	SCREW (PANEL), STEP (for SILVER)	

Ref. No.	Part No.	Description	Remark
6	4-264-830-31	SCREW (M1.4)	
7	X-2549-077-1	ORNAMENT TOP ASSY (S) (SILVER)	
7	X-2549-081-1	ORNAMENT TOP ASSY (P) (PINK)	
7	X-2549-082-1	ORNAMENT TOP ASSY (N) (BLUE) (AEP, UK)	
8	4-258-178-01	ADHESIVE (ORNAMENT)	
9	A-1786-740-A	STYLUS ASSY (SILVER)	
9	A-1799-066-A	STYLUS ASSY (P) (PINK)	
9	A-1799-099-A	STYLUS ASSY (L) (BLUE) (AEP, UK)	
10	4-263-031-01	ADHESIVE (ORNAMENT 2)	
11	4-263-320-01	SHEET (ORNAMENT) (for PINK)	

4-2. MAIN BOARD SECTION

Note 1: This illustration is view from the MAIN board.

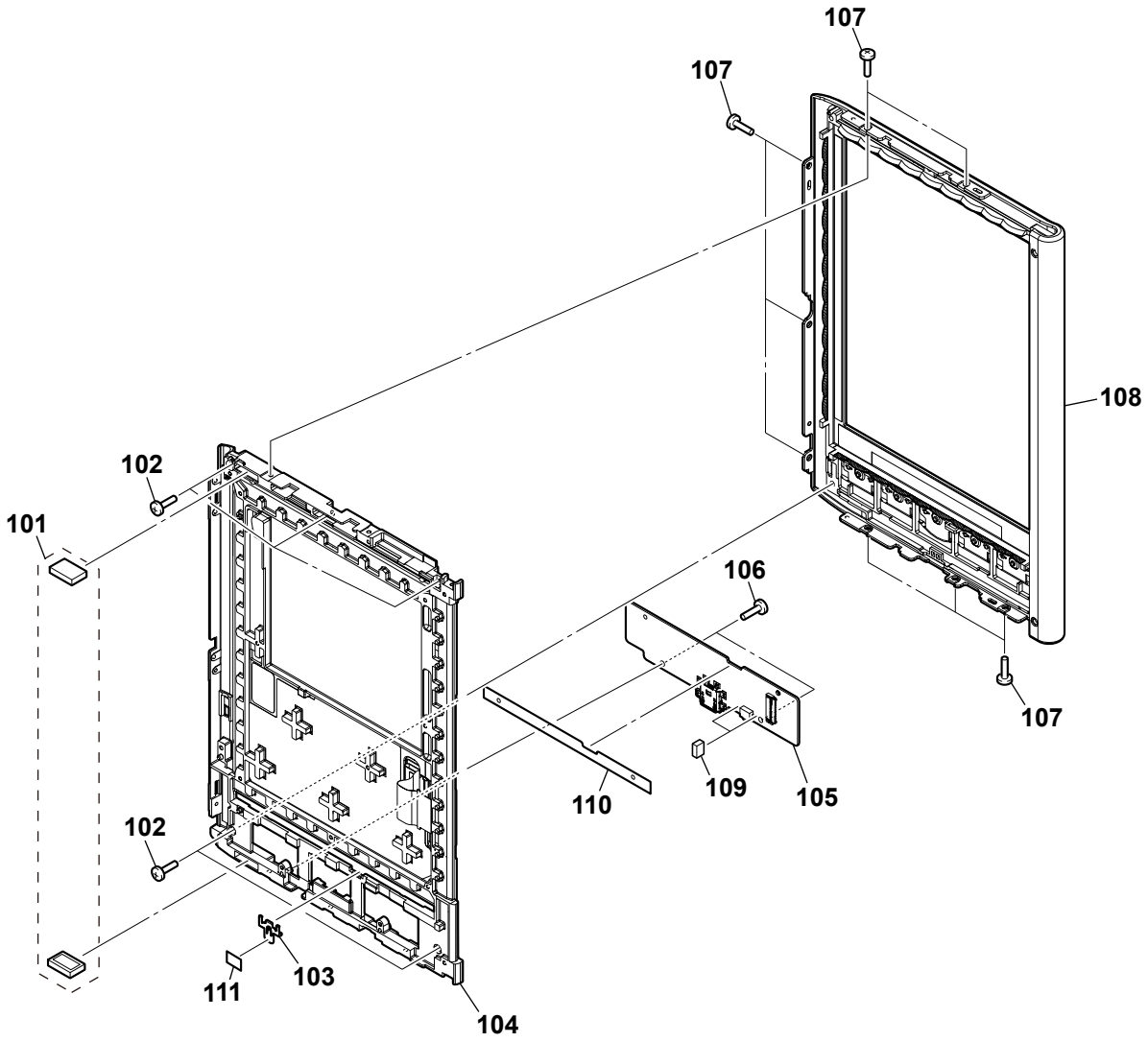


Note 2: Exchange it for an absolutely new part when you remove the BATTERY ASSY (BAT1) built into this set.

Ref. No.	Part No.	Description	Remark
51	4-264-830-31	SCREW (M1.4)	
52	X-2549-893-1	MAIN BOARD, COMPLETE (Including BATT board) (for SERVICE) (US, CND)	
52	X-2549-894-1	MAIN BOARD, COMPLETE (Including BATT board) (for SERVICE) (AEP, UK)	
53	1-882-536-11	23PIN BOARD	
54	4-198-349-01	SHEET (LED) (for PINK)	
55	4-265-772-01	SHEET (CABLE)	
56	4-259-734-01	SHEET (STYLUS)	
BAT1	A-1786-739-A	BATTERY ASSY	

4-3. CHASSIS SECTION

Note 1: This illustration is view from chassis side.



Note 2: Refer to "DISCRIMINATION OF THE INK INDICATOR 5inch ELEMENT" on page 2 when you exchange Ref. No. 104 or Ref. No. 108.

Ref. No.	Part No.	Description	Remark
101	A-1794-477-A	MAGNET ASSY	
102	4-264-830-41	SCREW (M1.4)	
103	4-195-096-01	PLATE	
104	A-1786-737-A	CHASSIS ASSY (PVI) (Including INK INDICATOR 5inch ELEMENT) (PVI type)	
104	A-1786-738-A	CHASSIS ASSY (LG) (Including INK INDICATOR 5inch ELEMENT) (LG type)	
105	A-1786-995-A	KEY BOARD, COMPLETE	
106	4-264-830-31	SCREW (M1.4)	
107	4-195-337-01	STEP SCREW	
108	X-2580-012-1	CASE_UPPER_SERVICE_ASSY (S-LG) (SILVER) (LG type)	
108	X-2580-013-1	CASE_UPPER_SERVICE_ASSY (S-PVI) (SILVER) (PVI type)	
108	X-2580-014-1	CASE_UPPER_SERVICE_ASSY (P-LG) (PINK) (LG type)	
108	X-2580-015-1	CASE_UPPER_SERVICE_ASSY (P-PVI) (PINK) (PVI type)	
108	X-2580-016-1	CASE_UPPER_SERVICE_ASSY (P-LG) (BLUE) (LG type) (AEP, UK)	
108	X-2580-017-1	CASE_UPPER_SERVICE_ASSY (P-PVI) (BLUE) (PVI type) (AEP, UK)	
109	4-198-355-01	CUSHION (STYLUS)	
110	4-261-940-01	ADHESIVE (SW_PWB)	
111	4-198-349-01	SHEET (LED)	

SECTION 5
ACCESSORIES

Ref. No.	Part No.	Description	Remark
	1-838-503-21	CABLE, USB (MICRO B) (USB cable)	
	4-257-508-11	QUICK START GUIDE (PAPER) (ENGLISH, FRENCH)	
	4-257-508-21	QUICK START GUIDE (PAPER) (GERMAN, DUTCH)	(AEP, UK)
	4-257-508-31	QUICK START GUIDE (PAPER) (SPANISH, ITALIAN)	(AEP, UK)

MEMO

REVISION HISTORY

Checking the version allows you to jump to the revised page.
Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2010.08	New