iP100
Service Manual

Revision 0

QY8-13BT-000

Scope

This manual has been issued by Canon Inc., to provide the service technicians of this product with the information necessary for qualified persons to learn technical theory, installation, maintenance, and repair of products. The manual covers information applicable in all regions where the product is sold. For this reason, it may contain information that is not applicable to your region.

This manual does not provide sufficient information for disassembly and reassembly procedures.
Refer to the graphics in the separate Parts Catalog.

Revision

This manual could include technical inaccuracies or typographical errors due to improvements or changes made to the product. When changes are made to the contents of the manual, Canon will release technical information when necessary. When substantial changes are made to the contents of the manual, Canon will issue a revised edition.

The following do not apply if they do not conform to the laws and regulations of the region where the manual or product is used:

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1. MAINTENANCE

1-1. Adjustment, Periodic Maintenance, Periodic Replacement Parts, and Replacement Consumables by Service Engineer

(1) Adjustment

Adjustment	Timing	Purpose	Tool	Approx. time
EEPROM initialization	- At logic board replacement	To initialize settings	None. Perform in the service mode.	1 min.
Destination settings (EEPROM settings)	- At logic board replacement	To set destination.	None. Perform in the service mode.	1 min.
Ink absorber replacement	- When the ink absorber becomes full	To replace the ink absorber with a new one.	None.	13 min.
Ink absorber counter resetting (EEPROM settings)	- At logic board replacement - At ink absorber replacement	To reset the ink absorber counter.	None. Perform in the service mode.	1 min.
Print head alignment	- At logic board replacement - At carriage unit replacement - At print unit replacement - At print head replacement - When print quality is not satisfying	To secure the dot placement accuracy.	Auto.: MP101 (A4, 1 sheet) Manual: Plain paper (A4, 3 sheets)	4 min.
LF / Eject correction	- At logic board replacement - At print unit replacement - At print head replacement	To correct line feeding / paper feeding.	None. Perform in the service mode.	3 min.
Grease application	- At carriage unit replacement	- To the carriage shaft sliding portion - To the carriage oil pad - To the carriage slider sliding portion	- EU-1 - FLOIL KG-107A	1 min.
Ink system function check	- At logic board replacement - At print unit replacement - At carriage unit replacement	To maintain detection functionality for presence of the ink tanks and each ink tank position.	None. Perform in the service mode.	2 min.

⚠ **CAUTION**
- DO NOT loosen the red screws at both ends of the carriage shaft, securing the print head position, as they are not re-adjustable.
- The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

(2) Periodic maintenance

No periodic maintenance is necessary.

(3) Periodic replacement parts

There are no parts in this machine that require periodic replacement by a service engineer.

(4) Replacement consumables

There are no consumables that require replacement by a service engineer.

1-2. Customer Maintenance

Adjustment	Timing	Purpose	Tool	Approx. time

Automatic print head alignment	- At print head replacement
	- When print quality is not satisfying (uneven printing, etc.)
		To ensure accurate dot placement.	Auto.:
			  MP101
			  (A4, 1 sheet)
			Manual:
			  Plain paper
			  (A4, 3 sheets)
			- Computer (MP driver)
				4 min.

Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Computer (MP driver)	2 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	- Computer (MP driver)	2 min.
Ink tank replacement	When an ink tank becomes empty. ("No ink error" displayed on the PC, or short flashing of the ink tank LED)	---	---	2 min.
Paper feed roller cleaning	- When paper does not feed properly. - When the front side of the paper is smeared.	To clean the paper feed rollers.	- Computer (MP driver)	1min.
Bottom plate cleaning	When the back side of the paper is smeared.	To clean the platen ribs.	- Plain paper - Computer (MP driver)	1 min.

1-3. Special Tools

Name	Tool No.	Price (JPY)	Application	Remarks
FLOIL KG-107A	QY9-0057-000	225	To the carriage shaft sliding portion	In common with the other models.
Oil EU-1	QY9-0037-000	3,080	To the carriage shaft sliding portion To the carriage oil pad	In common with the other models.

1-4. Serial Number Location

On the back side of the printer

<1. MAINTENANCE>

2. LIST OF ERROR DISPLAY / INDICATION

Errors and warnings are displayed by the following ways:

1. Operator call errors are indicated by the Alarm LED blinks in orange, and messages are displayed on the MP driver Status Monitor.
2. Error codes are printed in the "operator call/service call error record" area in EEPROM information print

Buttons valid when an operator call error occurs:

1. Power button: To turn the machine off and on again.
2. Resume/Cancel button: To cancel the job at error occurrence, and to clear the error.

2-1. Operator Call Errors (by Alarm LED blinks in Orange)

Blinking of Alarm LED	Error	Solution	Reference
2 times	No paper in the rear tray. [1000]	Set the paper in the rear tray, and press the Resume/Cancel button.	
3 times	Paper jam. [1300]	Remove the jammed paper, and press the Resume/Cancel button.	
4 times	Ink may have run out. [1600]	Replace the applicable ink tank and close the print head cover, or press the Resume/Cancel button to clear the error without ink tank replacement. When the error is cleared by pressing the Resume/Cancel button, ink may run out during printing.	
	Ink tank not installed. [1660]	Install the applicable ink tank(s) properly, and confirm that the LED's of all the ink tanks light in red.	
5 times	Print head not installed, or not properly installed./Print head ID error. [1401] Print head temperature sensor error. [1403]	Install the print head properly.	
8 times	Warning: The ink absorber becomes almost full. [1700/1701]	Press the Resume/Cancel button.	The error showing that the ink absorber becomes full (service call error) may occurs soon.
9 times	The connected digital camera or digital video camera does not support Camera Direct Printing. [2001]	Remove the cable between the camera and the printer.	
11 times	Failed in automatic print head alignment. [2500]	Press the Resume/Cancel button to clear the error. - The Alarm LED starts blinking after the paper is ejected. - Once the error occurs, the print head alignment values are not written. - To perform automatic print head alignment, start from the first step.	The error occurs when: - The automatic print head alignment is not correctly performed due to ink out or non-ejection of ink. - The AD value of the sensor is not correct. - The size of the paper used for alignment is not proper.
12 times	Low battery. [1810]	Connect the universal AC adapter to the printer to charge	

		the battery.	
15 times	Ink tank hardware error. [1410, 1411]	A hardware error occurred in an ink tank (the ink tank LED is turned off). Replace the ink tank(s). 1410:Color, 1411: Black	
17 times	No ink (no raw ink in a new ink tank). [1688]	Replace the empty ink tank(s), and close the print head cover. Printing with an empty ink tank can damage the printer. To continue printing without replacing the ink tank(s), press the Resume/Cancel button for 5 sec. or longer to disable the function to detect the remaining ink amount. After the operation, it is recorded in the printer that the function to detect the remaining ink amount was disabled.	
18 times	No ink (no raw ink in a used ink tank). [1689]	Replace the empty ink tank(s), and close the print head cover. Printing with an empty ink tank can damage the printer. To continue printing without replacing the ink tank(s), press the Resume/Cancel button for 5 sec. or longer to disable the function to detect the remaining ink amount. After the operation, it is recorded in the printer that the function to detect the remaining ink amount was disabled.	
19 times	Non-supported hub [2002]	Remove the USB hub from the printer. The error occurs when a USB hub is connected to the USB host (camera direct) interface.	

2-2. Service Call Errors (by Cyclic Blinking of Alarm and Power LEDs)

Service call errors are indicated by the number of cycles the Alarm and Power LEDs blink, and messages are displayed on the MP driver Status Monitor.

Cycles of blinking of Alarm and Power LEDs	Error	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error [5100]	- Carriage unit (QM2-3955) - Print unit (QM2-3973) - Timing slit strip film (QC2-0134) - Logic board ass'y (QM3-0080)[*1]
3 times	Line feed error [6000]	- Print unit (QM2-3973) - Logic board ass'y (QM3-0080)[*1]
4 times	Purge cam sensor error [5C00]	- Purge unit (QM3-1139) - Print unit (QM2-3973) - Logic board ass'y (QM3-0080)[*1]
5 times	ASF (cam) sensor error [5700]	- Sheet feed unit (QM2-3972) - Print unit (QM2-3973) - Logic board ass'y (QM3-0080)[*1]
6 times	Internal temperature error [5400]	- Logic board ass'y (QM3-0080)[*1]
7 times	Ink absorber full [5B00, 5B01]	- Ink absorber kit (QY5-0211)
8 times	Print head temperature rise error [5200]	- Print head (QY6-0068) - Logic board ass'y (QM3-0080)[*1]
9 times	EEPROM / NVRAM error [6800] NVRAM time out error [6801]	- Logic board ass'y (QM3-0080)[*1]
10 times	VH monitor error [B200]	- Print head (QY6-0068) - Carriage unit (QM2-3955) - Logic board ass'y (QM3-0080)[*1]
12 times	AP position error [6A00]	- Sheet feed unit (QM2-3972) - Logic board ass'y (QM3-0080)[*1] - Purge unit (QM3-1139)
15 times	USB Host VBUS overcurrent [9000]	- Logic board ass'y (QM3-0080)[*1]
16 times	Battery error [A100]	- Portable Kit LK-62 - Battery board ass'y (QM3-4055) - Logic board ass'y (QM3-0080)[*1]
17 times	Battery communication error [A000]	- Portable Kit LK-62 - Battery board ass'y (QM3-4055) - Logic board ass'y (QM3-0080)[*1]
Power LED turned off, and Alarm LED lit	ROM / RAM error	- Logic board ass'y (QM3-0080)[*1]

*1: Before replacement of the logic board ass'y, check the ink absorber counter value (by service test print or EEPROM information print). If the counter value is 7% or more, also replace the ink absorber kit (QY5-0211) when replacing the logic board ass'y. If the counter value is less than 7%, register the current ink absorber counter value to the replaced new logic board instead.

[See 3-3. Adjustment / Settings, (5) Service mode, for details.]

2-3. Warnings

Warning	Note
Low ink	Status indication only.
Print head temperature rise	The print head temperature is high[*1] when the access cover is opened. When the print head temperature falls, the error is automatically cleared.
Protection of excess rise of the print head temperature	If the print head temperature exceeds the specified limit, an intermission is inserted during printing.

*1: Printer status: the carriage does not move to the ink tank replacement position after the access cover is opened.

2-4. Troubleshooting by Symptom

	Symptom	Solution

Faulty operation	The power does not turn on.
	The power turns off immediately after power-on.
		- Confirm the connection of the power cord
		- Confirm the connection of the portable kit and the battery charge amount
		- Replace the
		  - AC adaptor
		  - logic board ass'y
		  - Portable Kit LK-62

	A strange noise occurs.	- Remove foreign material. - Attach a removed part if any. - Check the operation of the moving parts (such as purge unit, carriage unit, and paper feeding mechanism) - Replace a faulty part, if any.
	Paper feed problems (multi-feeding, skewed feeding, no feeding).	- Examine the inside to confirm that no parts are damaged, and the rollers are clean. - Remove foreign material. - Adjust the paper guide properly. - Set the paper properly. - Confirm the connection of each harness to the logic board. - Replace the sheet feed unit. - Replace the logic board ass'y[*1].

	Carriage movement problems (contact to other parts, strange noise).	- Confirm that the print head lock lever is set properly.
		- Confirm that the carriage timing slit strip film is free from damage or grease.
		- Clean the carriage timing slit strip film (with ethanol and lint-free paper).
		- Remove foreign material.
		- Replace the
		  - carriage timing slit strip film, or
		  - carriage unit.

Unsatisfactory print quality	No printing, or no color ejected.	- Confirm that the ink tanks are installed properly.
		- Confirm that the purge unit tube is not crushed.
		- Perform print head maintenance.
		- Replace the
		  - ink tank,
		  - print head[*2].
		- Remove foreign material from the purge unit caps, if any.
		- Replace the
		  - purge unit, or
		  - logic board ass'y.

	Printing is faint, or white lines appear on printouts even after print head	- Remove and re-install the print head. - Confirm that the ink tanks are installed properly.

	cleaning.
	Line(s) not included in the print data appears on printouts.
		- Perform print head maintenance.
		- Replace the
		  - ink tank, or
		  - print head[*2].
		- Replace the
		  - purge unit, or
		  - logic board ass'y [*1].

	Paper gets smeared.	- Feed several sheets of paper. - Perform bottom plate cleaning. - Clean the paper path with a cotton swab or cloth. - Clean the ASF paper feed rollers.

	A part of a line is missing on printouts.	- Replace the
		  - ink tank, or
		  - print head[*2].

	Color hue is incorrect.	- Confirm that the ink tanks are installed properly.
		- Perform print head maintenance[*3].
		- Replace the
		  - ink tank, or
		  - print head[*2]
		- Perform print head alignment.

	Printing is incorrect.	Replace the logic board ass'y [*1].

	No ejection of black ink.	- Confirm that the ink tanks are installed properly.
		- Confirm that the purge unit tube is not crushed.
		- Perform print head maintenance.
		- Replace the
		  - ink tank, or
		  - print head[*2].
		- Remove foreign material from the purge unit caps, if any.
		- Replace the purge unit.

	Graphic or text is enlarged on printouts.	**When enlarged in the carriage movement direction:**
		- Clean grease or oil off the timing slit strip film.
		- Replace the
		  - timing slit strip film,
		  - carriage unit,
		  - logic board, assy [*1]
		
		When enlarged in the paper feed direction:
		- Clean grease or oil off the timing slit disk.
		- Replace the logic board ass'y [*1]

*1: Before replacement of the logic board ass'y, check the ink absorber counter value (by service test print or EEPROM information print). If the counter value is 7% or more, also replace the ink absorber kit (QY5-0211) when replacing the logic board ass'y.

[See 3-3. Adjustment / Settings, (5) Service mode, for details.]

*2: Replace the print head only after the print head deep cleaning is performed 2 times, and when the problem persists.

*3: Use a sheet of Matte Photo Paper (MP-101) for automatic print head alignment, and three sheets of Plain Paper for manual print head alignment.

3. REPAIR

3-1. Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement[*1]	Adjustment / settings	Operation check
Print unit QM2-3973	- Before replacement of the print unit, perform EEPROM information print to check the ink absorber counter value. After replacement of the print unit, register the current ink absorber counter value. [See 3-3. Adjustment / Settings, (5) Service mode, for details.]	After replacement: 1. Perform print head alignment[*1] in the user mode. 2. Check the ink system function. 3. Perform LF / Eject correction [See 3-3. Adjustment / Settings, (5) Service mode, for details of 2 and 3.]	- EEPROM information print - Service test print - Printing via USB connection - Direct printing from a digital camera
Logic board ass'y QM3-0080	- Before removal of the logic board ass'y, remove the power cord, and allow for approx. 1 minute (for discharge of capacitor's accumulated charges), to prevent damages to the logic board ass'y. - Before replacement, check the ink absorber counter value (by service test print or EEPROM information print). If the counter value is 7% or more, replacing the ink absorber kit is necessary. [See 3-3. Adjustment / Settings, (5) Service mode for details.]	After replacement: 1. Initialize the EEPROM. 2. Set the ink absorber counter value. 3. Set the destination in the EEPROM. 4. Check the ink system function. 5. Perform LF / Eject correction in the service mode.. [See 3-3. Adjustment / Settings, (5) Service mode, for details of 1 to 5.] 6. Perform print head alignment in the user mode[*1].	- EEPROM information print - Service test print - Printing via USB connection - Direct printing from a digital camera
Absorber kit QY5-0211		After replacement: 1. Reset the ink absorber counter. [See 3-3. Adjustment / Settings, (5) Service mode, for details.]	- Service test print - EEPROM information print
Carriage unit QM2-3955	Do not buckle the carriage flexible cable.	At replacement: 1. Apply grease to the sliding portions. 2. Check the ink ejection system function. 3. Perform LF / Eject correction in the service mode. [See 3-3. Adjustment / Settings, (5) Service mode, for details of 1 to 3.] 4. Perform print head alignment[*1] in the user mode.	- Service test print (Confirm the check result of the ink ejection system function.)
Timing slit strip film QC2-0134	- Upon contact with the film, wipe the film with ethanol. - Confirm no grease is on the film. (Wipe off any grease thoroughly with ethanol.) - Do not bend the film	At replacement: 1. Perform print head alignment in the user mode[*1].	- Service test print
Sheet feed unit QM2-3972	- Screw it while pushing it into the purge unit. [See 3-2. Special Notes on Repair Servicing, (3) Notes on attachment of the sheet feeder unit, for details]		- Printing via USB connection
Purge unit QM3-1139	- Attach the ASF unit to the purge unit while pushing the ASF unit into the purge unit. [See 3-2. Special Notes on Repair		- Printing via USB connection

Main case unit QM2-3960	- Since there is a possibility that the cover open switch gets damaged, install it when the access cover is closed.		
Print head QY6-0068	- After replacement of the print head, click the left print head lock lever into place first, then the right.	**After replacement:** 1. Perform print head alignment in the user mode[*1].	- Service test print

*1: Use a sheet of A4-sized Matte Photo Paper (MP-101) for automatic print head alignment, and three sheets of A4-sized Plain Paper for manual print head alignment.

General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly.

   See 3-2. Special Notes on Repair Servicing, (6) Wiring of the flexible cable and harnesses and Connection of the connecter.

- Do not drop the ferrite core, which may cause damage.

- Protect electrical parts from damage due to static electricity.

- Before removing a unit, after removing the power cord, allow the printer to sit for approx. 1 minute (for capacitor discharging to protect the logic board ass'y from damages).

- Do not touch the timing slit strip film and timing slit disk. No grease or abrasion is allowed.

- Protect the units from soiled with ink.

- Protect the housing from scratches.

- Exercise caution with the screws, as follows:

   i. The two screws for the paper feed motor attachment may be loosened only when replacing the sheet feed unit or purge unit (DO NOT loosen them in other cases).

   ii. DO NOT loosen the two red screws on the carriage guide rail / carriage adjust plate, securing the carriage shaft positioning (they are not adjustable in servicing)

<For Germany>

   A lithium battery is installed in the iP100. Please be cautious of the following:

   - At repair:
      Risk of explosion if battery is replaced by an incorrect type.
      Explosionsrisiko, falls Batterie nicht mit vorgeschriebenem Baterrietypus ersetzt wird.

   - At disposal:
      Dispose of used batteries according to the local regulations.
      Batterienentsorgung gemaess lokalen Vorschriften.

   When the Service Manual issued by CINC is localized, be sure to include the above cautions (at repair and disposal) in German.
   See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/ for detail.

<For California, U.S.A.>

   Included battery contains Perchlorate Material-special handling may apply.
   See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/ for detail.

3-2. Special Notes on Repair Servicing

(1) Setting of the absolute time at removal of the coin cell unit or coin battery

The real time clock (RTC) that keeps the absolute time is installed in the coin battery.
Every time the coin cell unit or coin battery is
When they are removed, set the absolute time by following the procedure below.

<Absolute time setting procedure>

1) Enter the absolute time to the RTC:
   After connecting the printer to a computer, perform printing using the driver utility.

2) Enter the latest Cleaning time to EEPROM:
   Perform the print head cleaning.
   If the absolute time is not set, long timer cleaning (more than 2 min., purging a large amount of ink) is automatically
   performed at initial printing.

(2) Notes on attachment of the main case unit

1) Attach the main case unit (QM2-3960) to the printer with the access cover (QC2-0155) closed.
   If it is attached with the access cover opened, the cover switch on the back side of the main case unit may touch the print head
   cover sensor and the sensor will be damaged.

<The status of the access cover at the attachment of the main case unit>

Access cover
Attach the unit with
the access cover closed.

<The position of the cover switch located on the back side of the main case unit>

Cover switch
(When the access cover is closed.)

Print head cover sensor
(Easily broken.)
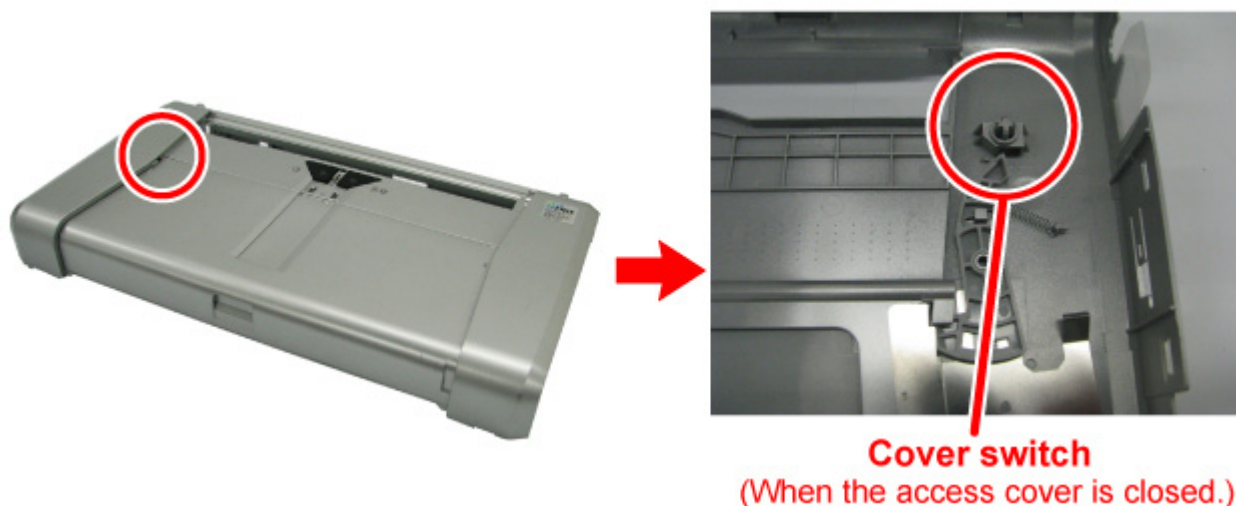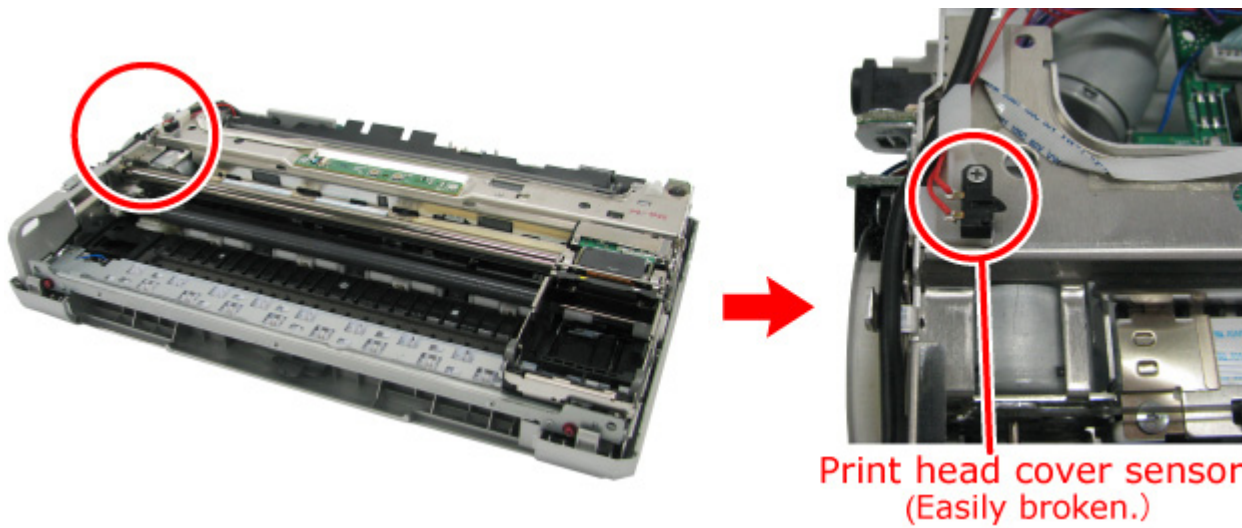
2) Be cautious not to crush the tube at replacement of the main case unit (QM2-3960).
   If the tube is not located properly when the main case unit is attached to the printer, it may be crushed and cause purging failure.

**<The point to be cautioned>**

Be cautious not to crush the tube.
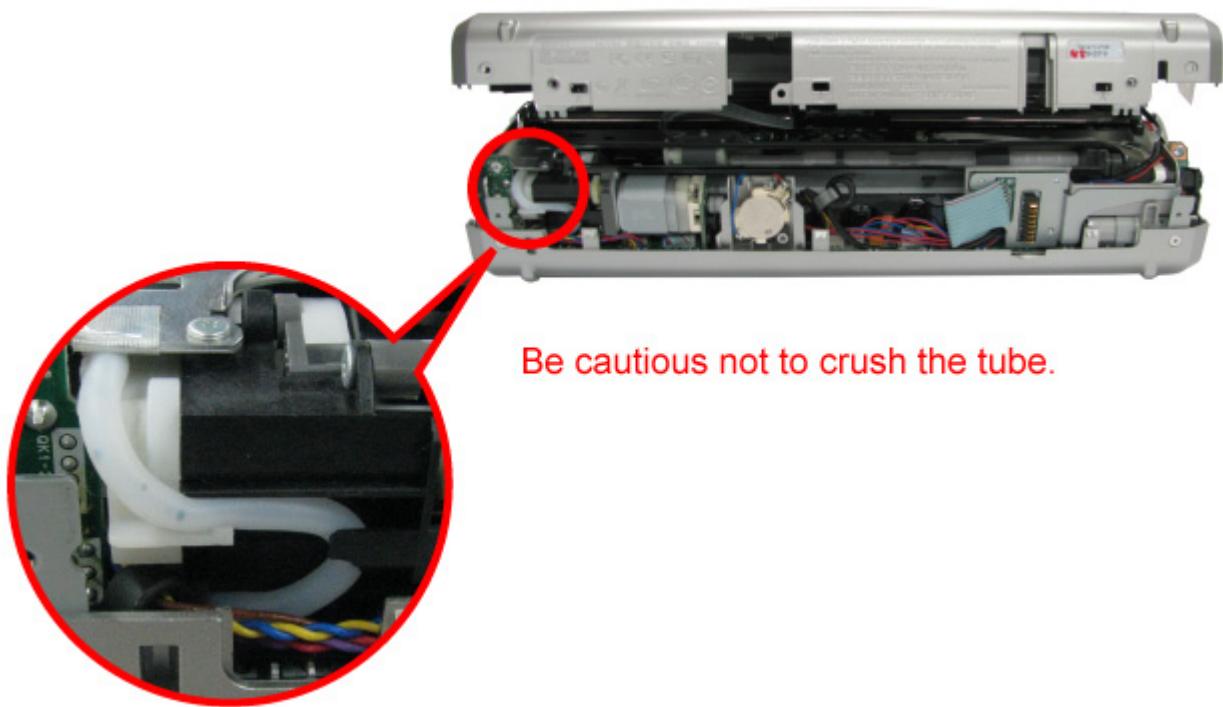
(3) Notes on attachment of the sheet feed unit

Screw the sheet feed unit (QM2-3972) while pushing it into the purge unit as below.

* If you screw the sheet feed unit without pushing it into the purge unit, the gears may not be engaged correctly and the cap may move fast triggering coming off of the cap absorber and a strange noise.

<How to attach the sheet feed unit>

Tighten the screws while pulling the sheet feed unit (on the right side of the printer) to the front.
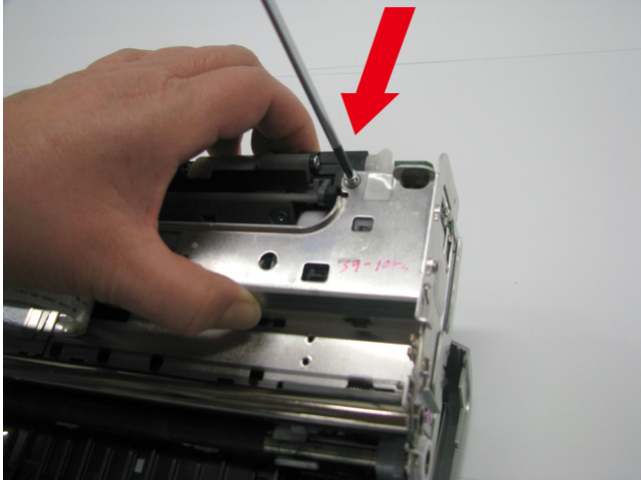
(4) Notes on attachment of the purge unit

1) Be cautious not to buckle the tube at replacement of the purge unit (QM3-1139).

* If the tube is buckled when the purge unit is attached to the printer, it may cause purging failure.
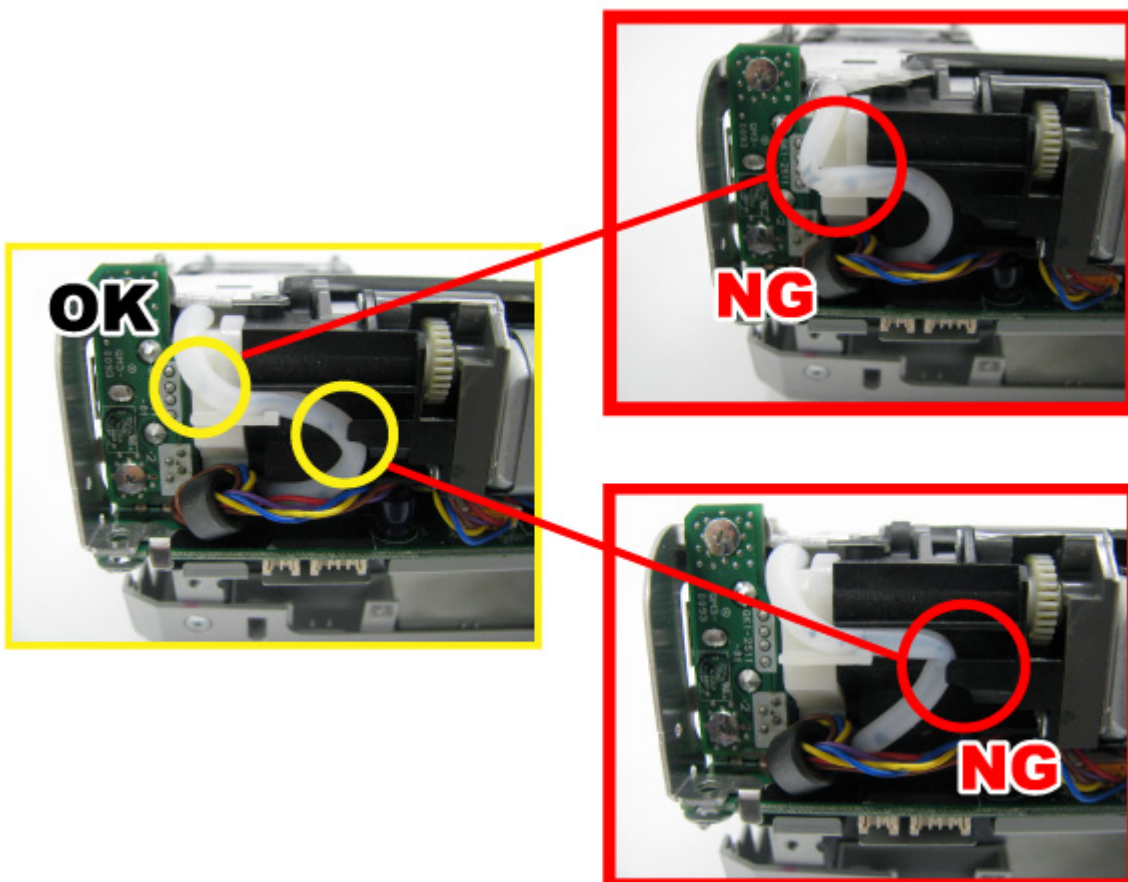
2) At replacement of the purge unit (QM3-1139), confirm that the tube and the tube joint are properly fixed.
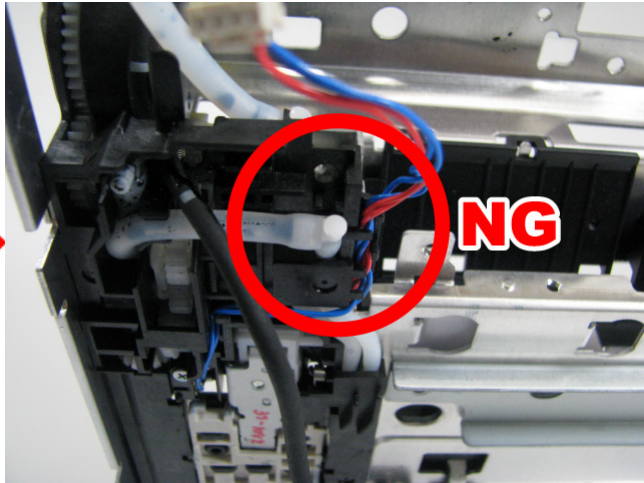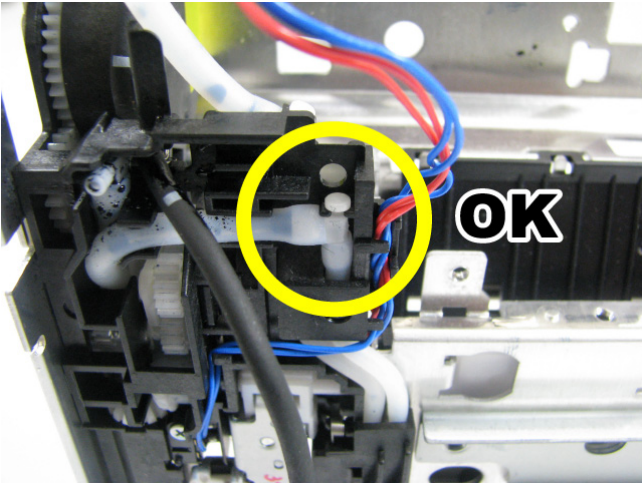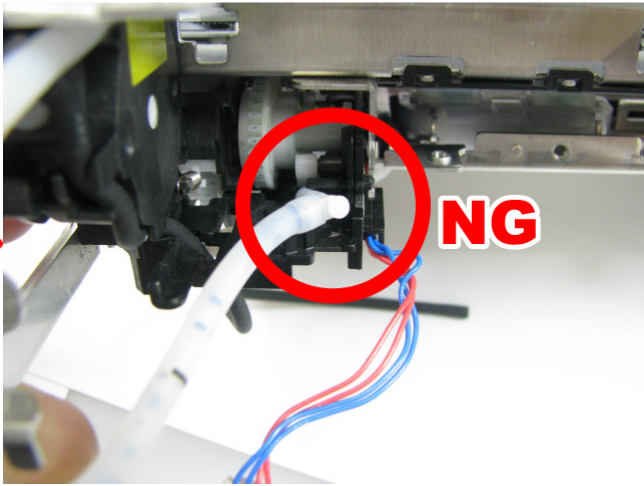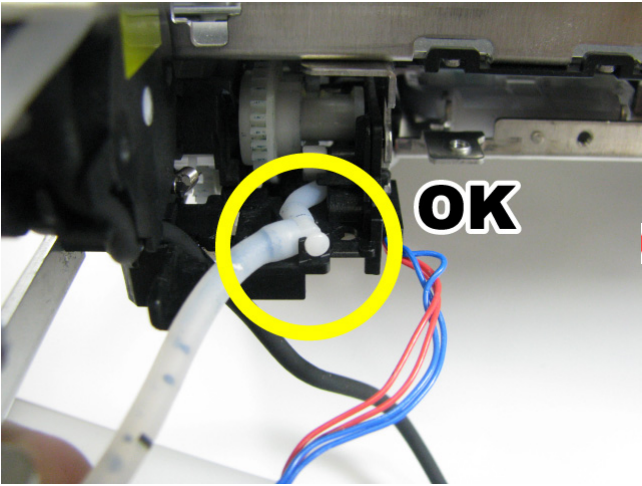
3) Attachment of the carriage lock spring.
　　Do not forget to attach the carriage lock spring (QC2-0260) at the replacement of the purge unit (QM3-1139).

<How to attach the spring>

Hook one of the two arms of the carriage lock spring on the purge unit first.
Then, from the bottom of the printer, while holding the carriage lock, hook the other arm of the spring on the carriage lock.

<Carriage lock spring attached to the purge unit.>　　　　<Carriage lock.>

<From the back side of the purge unit, hook the other　　<The other arm of the spring is hooked on the lock.>
arm of the carriage lock spring on the carriage lock.>
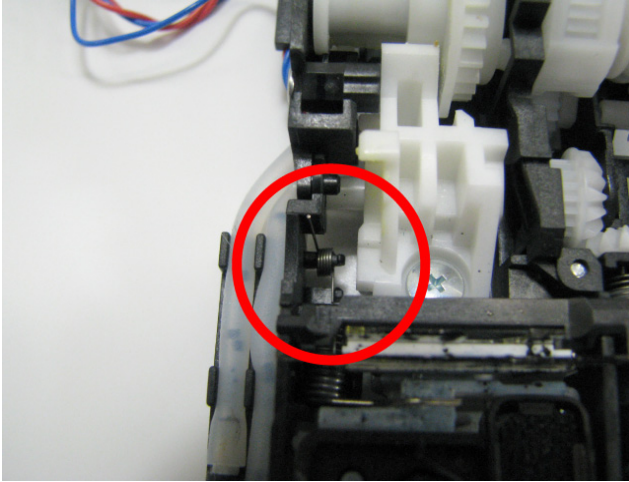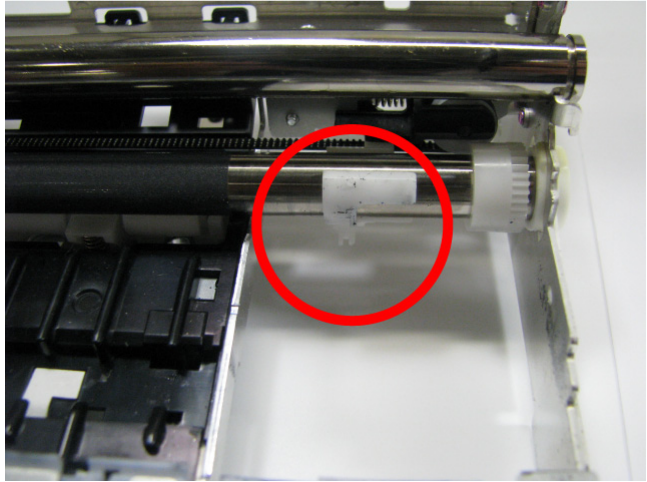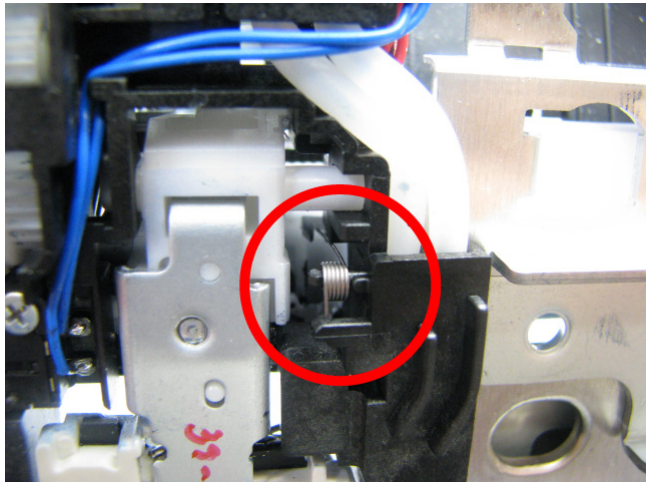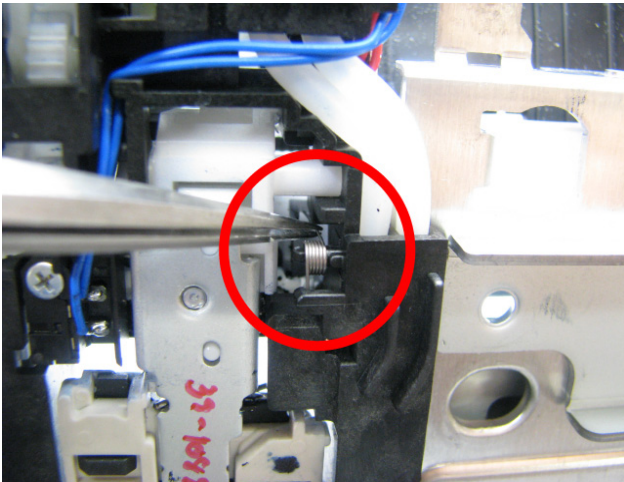
(5) Notes on attachment of the print unit

At attachment of the print unit (QM2-3973), be cautions not to bend the bridge sheet attached to the bottom of the platen unit.

* If the bridge sheet is bent when the print unit is installed in the printer, the bent part may prevent the ink in the rimless ink absorber from going out into the main ink absorber, and the ink is spilled out of the rimless ink absorber.
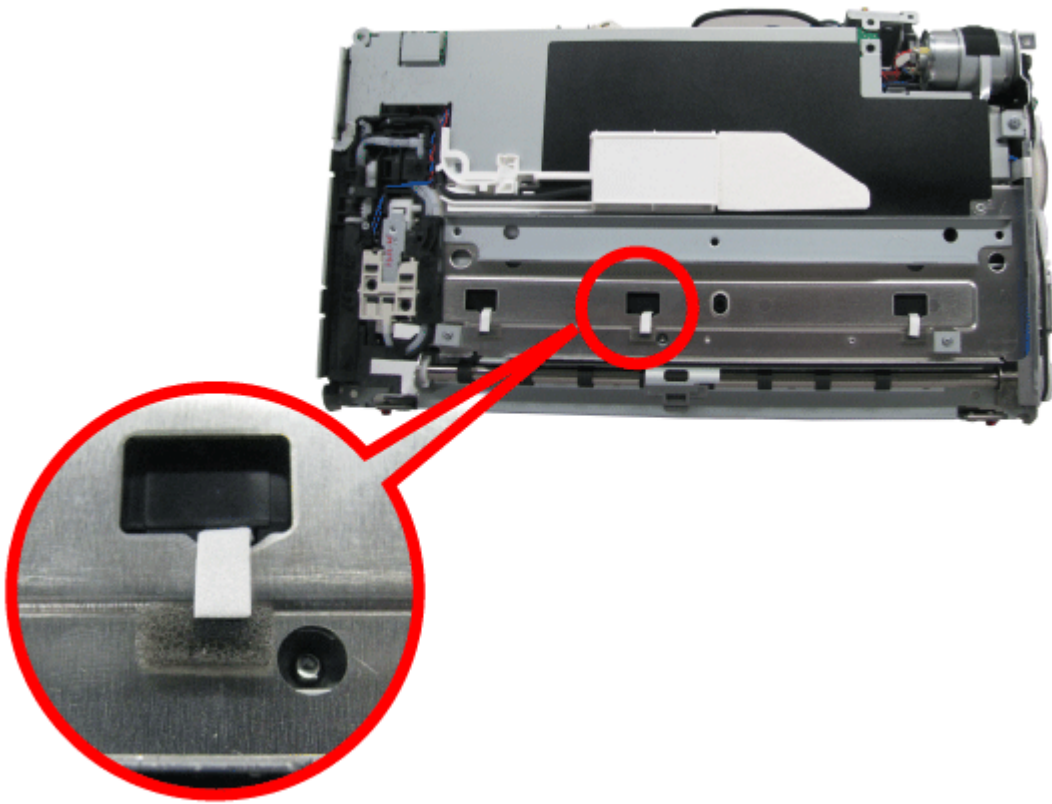
<Bridge sheet position>

(6) Wiring of the flexible cable and harnesses and Connection of the connecter

<Carriage flexible cable>
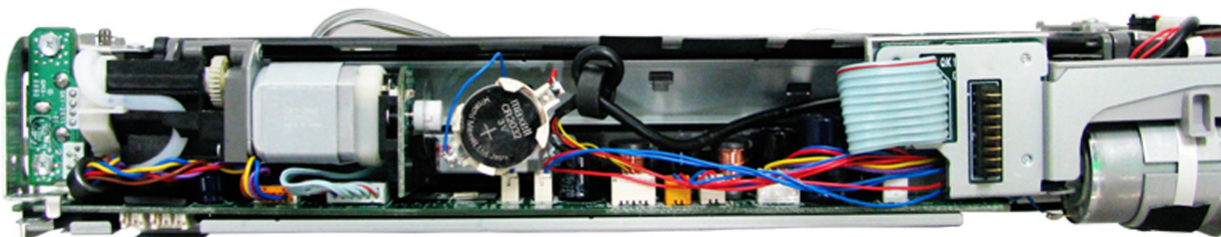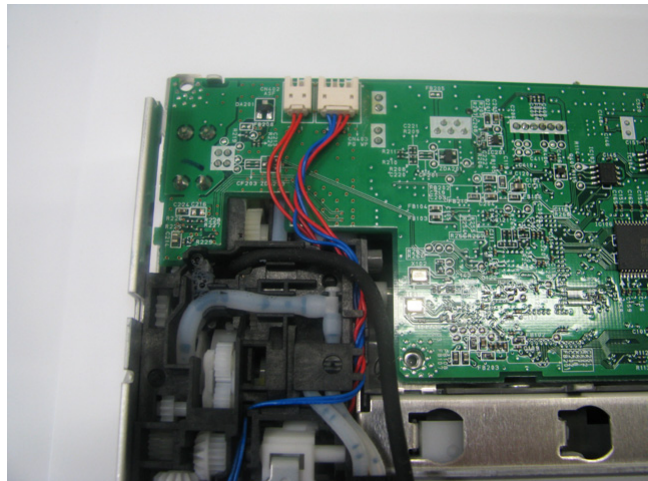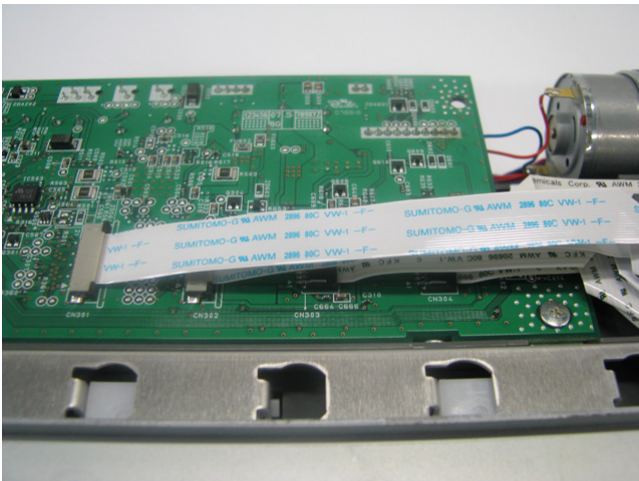
3-3. Adjustment / Settings

(1) Paper feed motor adjustment

1) When attaching the motor, fasten the screws so that the belt is properly stretched (in the direction indicated by the red arrow in the photo below).

2) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of the belt or gear, or out-of-phase motor, etc.) occurs.
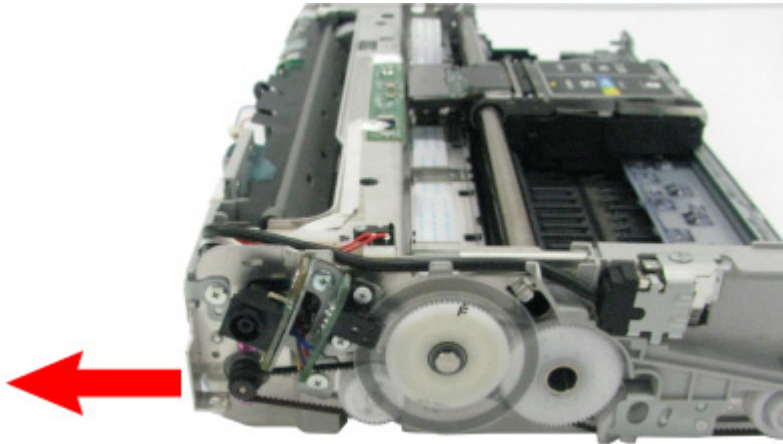
> ⚠ **CAUTION**
>
> - The screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit. DO NOT loosen them in other cases.

(2) Grease application

No	Part name	Drawing No.	Where to apply grease / oil	Grease / oil	Grease / oil amount (mg)	Number of drops	Locations
1	CR shaft	(1)	Entire surface where the carriage unit slides	EU-1	100 10		
2	Guide rail	(2)	Carriage rail slider sliding portion	Floil KG107A	9 to 18	1	4
3	CR oil pad	(3)	Moisten the entire pad with the grease	EU-1	81 5		2
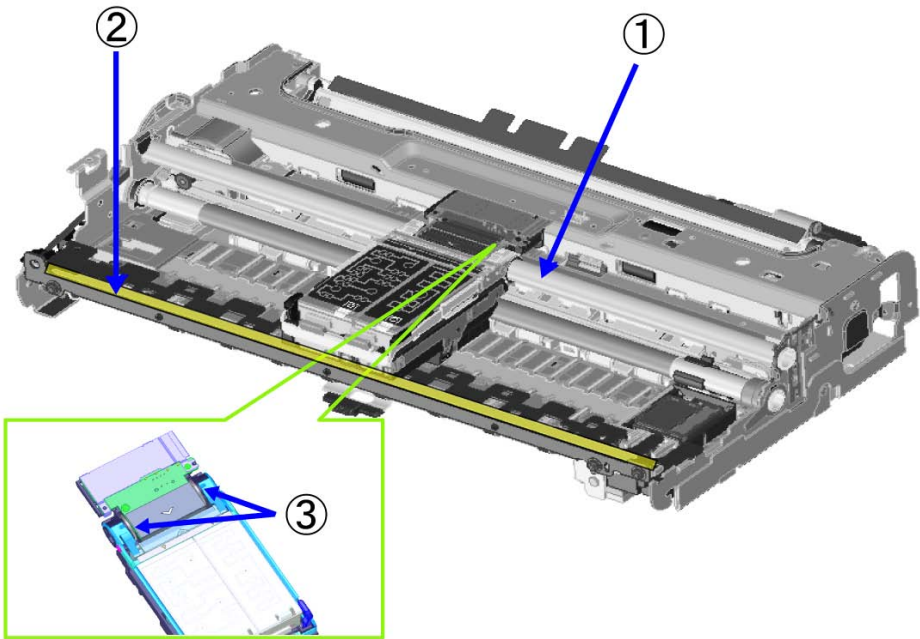
(3) Ink absorber counter setting

At replacement of the logic board, reset the ink absorber counter value.

According to the reading of the ink absorber counter value, replace the ink absorber (ink absorber kit). Refer to the following list when replacing the ink absorber kit.

Ink absorber counter value*1	Replacement of ink absorber kit
Less than 7%	Not necessary
7% and above	Necessary

*1: Confirm the ink absorber counter value on the service test print or EEPR OM information print.
See 3-3. Adjustment / Settings, (5) Service mode for details.

(4) User mode

Function	Procedures	Remarks

Print head manual cleaning	- Cleaning both Black and Color simultaneously:
	  See <Operation using the printer alone> below.
	- Cleaning Black and Color separately, or both
	  Black and Color:
	   Perform from the printer driver Maintenance tab.	

Print head deep cleaning	Cleaning Black and Color separately, or both Black and Color simultaneously: Perform from the printer driver Maintenance tab.	
Paper feed roller cleaning	See <Operation using the printer alone> below or, Perform from the printer driver Maintenance tab.	
Nozzle check pattern printing	See <Operation using the printer alone> below or, Perform from the printer driver Maintenance tab.	
Print head alignment	See <Operation using the printer alone> below or, Perform from the printer driver Maintenance tab.	Automatic and manual print head alignment available via the printer operation panel or the printer driver Maintenance tab.
Bottom plate cleaning	See <Operation using the printer alone> below or, Perform from the printer driver Maintenance tab.	Cleans the platen ribs when the back side of paper gets smeared.
Print head replacement	The print head is replaceable at the same position as the one for ink tank replacement. (Open the printer cover. When the carriage stops at the center, the print head can be replaced.)	

<Operation using the printer alone>

1) In the user mode, press the Resume/Cancel button.

2) Release the Resume/Cancel button after the Power LED (green) blinks the specified number of time(s) to start the operation listed in the table below.

LED blinking	Operation	Remarks
1 time	Print head manual cleaning	
2 times	Nozzle check pattern print	Set one sheet of Plain Paper (A4 or Letter) in the rear tray.
3 times	Paper feed roller cleaning	
4 times	Automatic print head alignment	Set one sheet of Matte Photo Paper, MP-101 (A4 or Letter) in the rear tray.
5 times	Bottom plate cleaning	Fold one sheet of plain paper (A4 or Letter) in half, then open it. Set the paper in the rear tray with its opened surface facing up.
6 times	None	
7 times	Head-to-paper distance setting	
8 times or more	None	

(5) Service mode

Function	Procedures	Remarks
Service test print - Model name - ROM version - USB serial number - Ink absorber counter value - LF / EJECT correction value	See the <Service mode operation procedures> below.	Load a sheet of plain paper (A4 or Letter) in the rear tray. Print sample: See 3-4. Verification Items (1), Service test print, "Service test print sample."
EPROM initialization	See the <Service mode operation procedures> below.	The following items are NOT initialized, and the shipment arrival flag is not on: - USB serial number - Destination setting - Ink absorber counter resetting - LF / EJECT correction value.
Ink absorber counter resetting	See the <Service mode operation procedures> below.	When the ink absorber counter is 7% or over, replace the ink absorber kit.
LF / Eject correction	See the <Service mode operation procedures> below.	
Destination settings	See the <Service mode operation procedures> below.	

- Press the Power button to finish the service mode, then the paper lifting plate of the sheet feed unit is lowered.

<Service mode operation procedures>

1) With the printer power turned off, while pressing the Resume/Cancel button, press and hold the Power button. (DO NOT release the buttons). The Power LED lights in green to indicate that a function is selectable.

2) While holding the Power button, release the Resume/Cancel button. (DO NOT release the Power button.)

3) While holding the Power button, press the Resume/Cancel button 2 times, and then release both the Power and Resume/Cancel buttons. (Each time the Power button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

4) When the Power LED lights in green[*1], press the Resume/Cancel button the specified number of time(s) according to the function listed in the table below, then press the Power button. (Each time the Resume/Cancel button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

Time(s)	LED indication	Function	Remarks
0 times	Green (Power)	Power off	When the print head is not installed, the carriage returns and locks in the home position capped.
1 time	Orange (Alarm)	Service test print	See 3-4. Verification Items (1), Service test print.
2 times	Green (Power)	EEPROM information print	
3 times	Orange (Alarm)	EEPROM initialization	
4 times	Green (Power)	Ink absorber counter resetting	Set a sheet of A4 or Letter sized plain paper in the rear tray, and reset the ink absorber counter. After the ink absorber counter is reset, the counter value is printed automatically. See <Ink absorber counter resetting> below and the print sample in 3-4. Verification Items (2), Ink absorber counter value print.
5 times	Orange (Alarm)	Destination settings	Press the Stop/Reset button the specified number of time(s) according to the destination.

6 times	Green (Power)	Print head deep cleaning	Cleaning of both Black and Color
7 to 9 times	Orange (Alarm) at odd numbers, Green (Power) at even numbers		Not used in servicing.
10 times	Green (Power)	LF / Eject correction	
11 to 12 times	Orange (Alarm) at odd numbers, Green (Power) at even numbers		Not used in servicing.
13 times	Orange (Alarm)	Ink absorber counter setting	
14 times or more *2	Green (Power)	Return to the menu selection	

*1: If the LED does not light in green (the printer does not enter the service mode), disconnect the power cord and plug it again. Then start from step 1) to start the printer in the service mode again. If the automatic power-on function is enabled in the printer, the printer enters the service mode for the first time, but it will never enter the service mode if the printer is turned off by the Power button. This is because the printer remains to be turned on internally if the power is turned off by the Power button. To prevent this, disconnection of the power cord is required before starting the printer in the service mode.

*2: If the Resume/Cancel button is pressed 15 or more times, the Alarm LED (orange) or Power LED (green) lights steadily without any changes.

<Destination settings>

In the destination settings mode, press the Resume /Cancel button the specified number of time(s) according to the destination listed in the table below, and press the ON/OFF button.

Time(s)	LED indication	Destination
0 times	Green (Power)	No change of the destination
1 time	Orange (Alarm)	Japan
2 times	Green (Power)	Korea
3 times	Orange (Alarm)	US
4 times	Green (Power)	Europe
5 times	Orange (Alarm)	Australia
6 times	Green (Power)	Asia
7 times	Orange (Alarm)	China
8 times	Green (Power)	Taiwan
9 times	Orange (Alarm)	Latin America
10 times	Green (Power)	Brazil
11 times	Orange (Alarm)	Canada
12 times or more	Green (Power)	Return to the destination selection

* After setting the destination, confirm the model name and destination in service test print or EEPROM information print.
   See 3-4. Verification Items (1), Service test print.

\<Ink absorber counter resetting\>

Reset the ink absorber counter (to 0%) when the ink absorber is replaced, or when necessary after the logic board is replaced.

1) In the service mode, press the Resume/Cancel button 4 times, then press the Power button. The ink absorber counter value of the EEPROM is reset to 0%.

2) The flag for resetting of the ink absorber counter is set to ON, and the ink absorber counter value is automatically printed.

\<Ink absorber counter setting\>

Set the ink absorber counter value to a new EEPROM after the logic board is replaced in servicing.

1) Before replacement of the logic board, check the ink absorber counter value in EEPROM information print.

2) In the service mode, press the Resume /Cancel button 13 times, then press the Power button to enter the ink absorber counter setting mode.

3) In the ink absorber counter setting mode, press the Power button again to enter the main ink absorber counter setting mode. (Since the procedure for setting the ink absorber counter is common among all the models, this step is necessary to set the counter value for the main ink absorber.)

4) The ink absorber counter value can be set in 10% increments by pressing the Resume/Cancel button. Press the Resume/Cancel button the appropriate number of time(s) to select the value which is closest to the actual ink absorber counter value.

Time(s)	Ink absorber counter value to be set (%)
0 times	0%
1 time	10%
2 times	20%
3 times	30%
4 times	40%
5 times	50%
6 times	60%
7 times	70%
8 times	80%
9 times	90%
10 times or more	Not valid. Press the Power button to return to the ink absorber counter setting mode.

5) Press the Power button to set the selected value to the EEPROM. Print EEPROM information to confirm that the value is properly set to the EEPROM.

\<LF / Eject correction\>

Purpose: After replacement of the Logic board ass'y, print unit, or carriage unit in repair servicing or in refurbishment operation, perform the same adjustment as that of the production site.

At the production site, a highly accurate correction method (E-MIP), in which the scanner automatically determine the print pattern, is used. However, in the service mode, only the LF / Eject correction which was used in the 2006 models is performed.

Details: Print the LF / Eject correction pattern on three sheets of paper. Select the Pattern No. (0 to 2 for LF correction and A to C for the Eject correction, respectively) in which streaks or lines are the least noticeable, press the Resume/Cancel button the same number of time(s) as the selected Pattern No., then press the Power button.

1) In the LF / Eject correction mode, press the Resume/Cancel button the specified number of time(s) according to the paper to be used in LF / Eject correction listed in the table below, then press the Power button.

Time(s) (L)	Paper
5 time	GP-501 (A4)
6 times	GP-501 (LTR)

Note: - Each time the Resume/Cancel button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green.

- If the Resume/Cancel button is NOT pressed, and only the Power button is pressed, the machine remains in the LF / Eject correction mode.

- If the Resume/Cancel button is pressed 7 times or more, then the Power button is pressed, the machine returns to the service mode menu selection.

2) The LF / Eject correction pattern is printed. (LF correction values from 0 to 2 in the upper half, Eject correction values from A to C in the lower half) (Click on the image to enlarge it.)
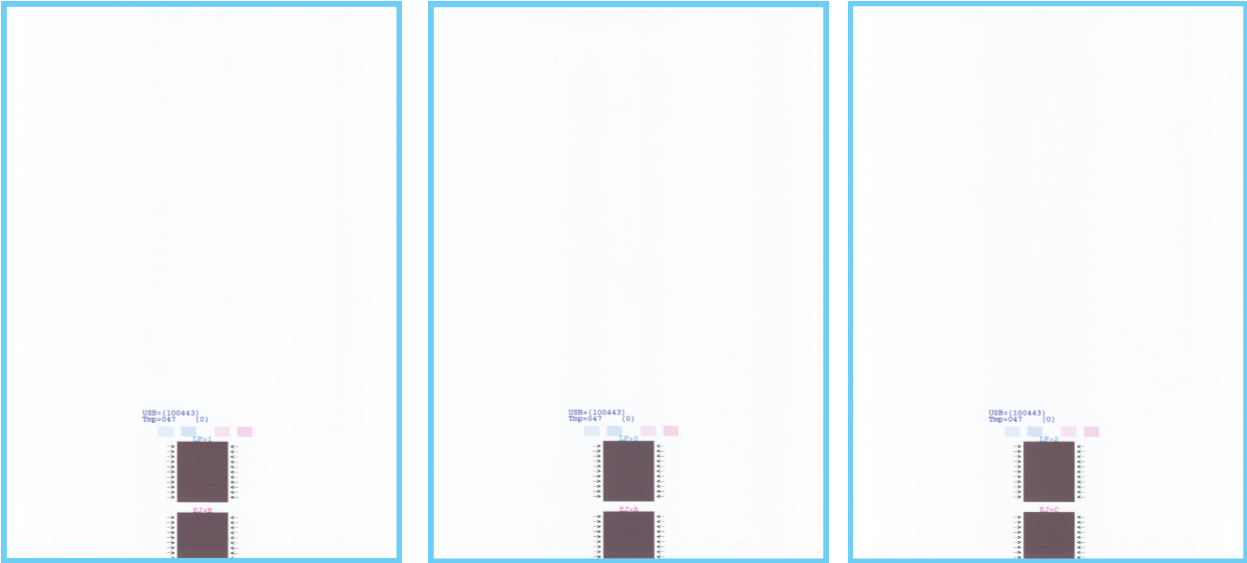
3) Out of the three patterns printed, select the Pattern No. in which streaks or lines are the least noticeable for LF correction and Eject correction respectively.

<How to determine the selection>

a. Select the pattern with no streaks or lines.
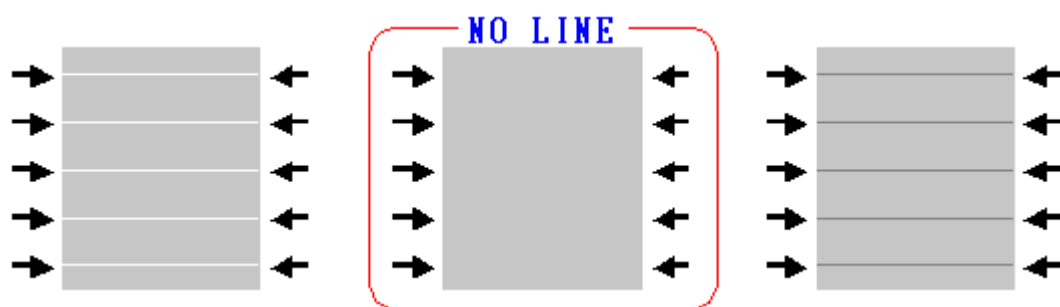
b. If streaks or lines appear on all the patterns, select the pattern with thinnest streaks or lines.
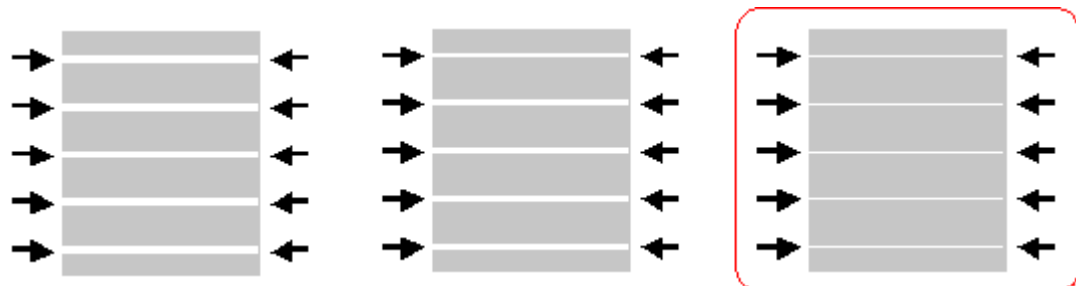
c. If the width of the streaks or lines is almost the same, select the pattern with the black streaks or lines.
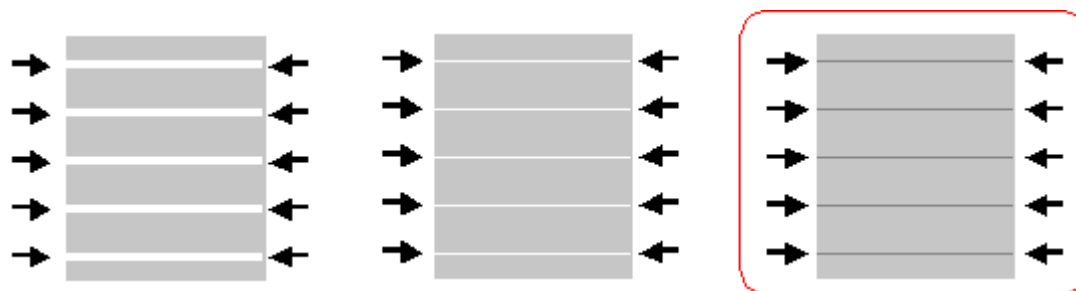
3-1) LF correction value

Selected pattern number	Number of times the Stop/Reset button is pressed
1	1 time
0	0 times
2	2 times

Note: - Each time the Resume/Cancel button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green.

- If the Resume/Cancel button is pressed 3 times or more, then the power button is pressed, the printer returns to the service mode menu selection.

3-2) Eject correction value

Selected pattern number	Number of times the Stop/Reset button is pressed
B	1 time
A	0 times
C	2 times

Note: - Each time the Resume/Cancel button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green.

- If the Resume/Cancel button is pressed 3 times or more, then the power button is pressed, the printer returns to the service mode menu selection.

The selected LF correction value or Eject correction value is written to the EEPROM, and the flag for the E-MIP correction value becomes OFF, enabling the LF / Eject correction values written to the EEPROM. Then, the flag for the fixed value of the endurance correction becomes ON, and the machine returns to the service mode menu selection.

< LF / Eject correction flow chart > **Resume Key = Stop/Reset Key*

```
        ┌─────────────┐
        │    START    │
        └──────┬──────┘
               │
        ┌──────▼──────────┐        Press the
        │ Paper selection │─────── Resume/Cancel button
        └──────┬──────────┘        "M" times, then press the
               │                   Power button to fix the
     Yes   ┌───▼───┐               selection.
   ┌───────│ L = 0 │
   │       └───┬───┘
   │        No │
   │     Yes┌──▼──┐    ┌──────────────┐
   │   ┌────│ L=5 │───►│  GP-501 A4   │──────┐
   │   │    └──┬──┘    └──────────────┘      │
   │   │    No │                             │
   │   │  Yes┌─▼──┐    ┌──────────────┐      │
   │   │ ┌───│L=6 │───►│  GP-501 LTR  │──────┤
   │   │ │   └─┬──┘    └──────────────┘      │
   │   │ │     │ No(L>=7)                    │
```

Key entry (number of times the button is pressed):

0 times:
  The previous entry was wrong.
  Return to the previous step.
Specified number:
  Set the specified value.
Over the specified number:
  Exit the LF / Eject correction mode.

```
        ┌──────────────────────┐      1 sheet of paper is printed.
        │ LF / Eject correction │───── - LF correction pattern on the upper
        │  pattern printing     │      - Eject correction pattern on the
        └──────────┬───────────┘       lower
                   │
        ┌──────────▼──────────┐        Press the Resume/Cancel
        │  Selection of the LF │─────── button "M" times, then
        │  correction value    │        press the Power button to
        └──────────┬──────────┘         fix the selection.
                   │
              ┌────▼─────┐   Yes*       * Select the Pattern No. in which
              │ 0=<M=<2  │──────────    streaks or lines are the least
              └────┬─────┘              noticeable.
            No(M>=3)│
```

No writing of the LF correction value to the EEPROM.

```
        ┌──────────────────┐
        │ Retention of the LF │
        │ correction value   │
        └──────────┬─────────┘
                   │
        ┌──────────▼──────────┐        Press the Resume/Cancel
        │ Selection of the Eject │───── button "M" times, then
        │ correction value      │        press the Power button to
        └──────────┬──────────┘         fix the selection.
                   │
              ┌────▼─────┐   Yes*       * Select the Pattern No. in which
              │ 0=<N=<2  │──────────    streaks or lines are the least
              └────┬─────┘              noticeable.
            No(N>=3)│
```

No writing of the LF correction value to the EEPROM

No writing of the Eject correction value to the EEPROM

Writing of the Eject correction value to the EEPROM

Writing of the LF correction value to the EEPROM

```
┌───────────────────────┐   ┌─────────────────┐   ┌──────────────────────────┐
│ Enabling the fixed value of │◄──│ Disabling of the E-MIP │◄──│ Writing of the LF correction value │
│ the endurance correction │   │ correction value  │   │ to the EEPROM            │
└───────────┬───────────┘   └─────────────────┘   └──────────────────────────┘
            │
     ┌──────▼──────┐
     │    END      │  Return to the service mode menu selection.
     └─────────────┘
```

3-4. Verification Items (1)

Service test print

<Service test print sample>

3-4. Verification Items (2)

Ink absorber counter value print

<Print sample>

```
D=000.0
```
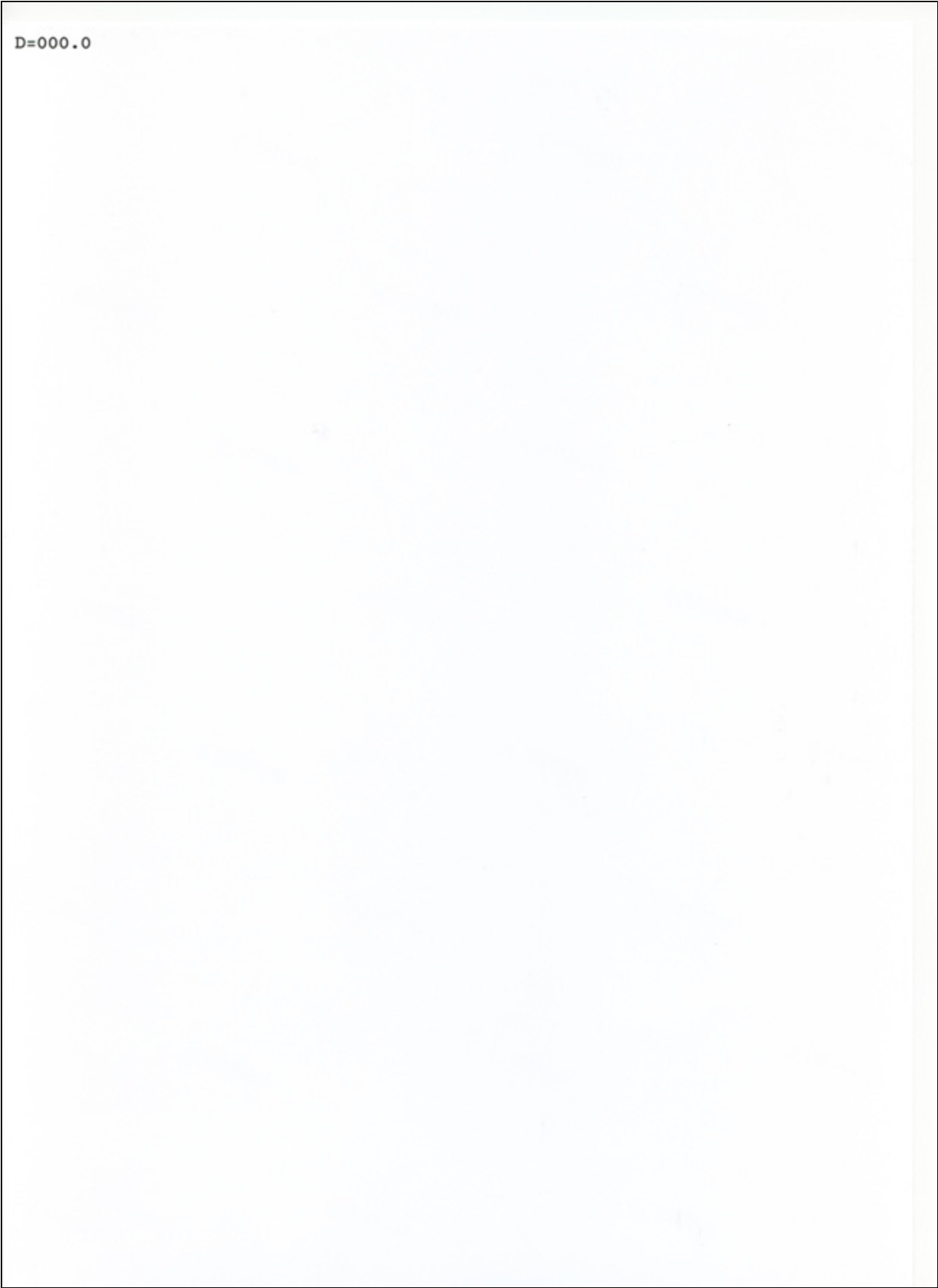
4. MACHINE TRANSPORTATION

This section describes the procedures for transporting the printer for returning after repair, etc.

1) Press the Power button to finish the service mode, and confirm that the paper lifting plate of the sheet feed unit is lowered.

2) Keep the print head and ink tanks installed in the carriage.

　See Caution 1 below.

3) Turn off the machine to securely lock the carriage in the home position. (When the machine is turned off, the carriage is automatically locked in place.)

　See Caution 2 below.

CAUTION

(1) If the print head is removed from the machine and left alone by itself, ink (the pigment-based black ink in particular) is likely to dry. For this reason, keep the print head installed in the machine even during transportation.

(2) Securely lock the carriage in the home position, to prevent the carriage from moving and applying stress to the carriage flexible cable, or causing ink leakage, during transportation.

Memo

If the print head must be removed from the printer and transported alone, attach the protective cap (used when the packing was opened) to the print head (to protect the print head face from damage due to shocks).