MG5100 series

SIMPLIFIED SERVICE MANUAL

(MG5120 / MG5140 / MG5150 / MG5170 / MG5180)

QY8-13CX-000

Rev.00

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1. LIST OF ERROR DISPLAY / TROUBLESHOOTING

1-1. Troubleshooting by Symptom

	Symptom	Solution
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	(1) Confirm cable connection. - DC harness ass'y - Power switch harness ass'y => No incomplete connection, cable breakage, or cable caught in units (2) Replace the following item(s): - Logic board ass'y - AC adapter - DC harness ass'y
	A strange noise occurs.	(1) Examine and remove any foreign material from the drive portions. (2) Replace the following item(s): - Purge drive system unit
	The LCD does not display properly. A portion of the LCD is not displayed. The display flickers.	(1) Confirm cable connection (LCD cable ass'y and panel cable ass'y): - LCD cable ass'y - Panel cable ass'y => No incomplete connection, cable breakage, or cable caught in units (2) Replace the following item(s): - LCD unit - LCD cable ass'y - Panel cable ass'y - Operation panel unit - Logic board ass'y
	Paper feed problems (multi-feeding, skewed feeding, no feeding).	(1) Examine and remove any foreign material from the following parts: - ASF unit - PE sensor - Paper guide unit - Pressure roller unit - Spur unit (2) Confirm the PF rear cover and the cassette conditions. (3) Confirm cable connection. - PE sensor cable - Paper feed motor harness ass'y => No incomplete connection, cable breakage, or cable caught in units (4) Replace the following item(s): - ASF unit (for paper feeding error from the rear tray) - Pick-up arm unit (for paper feeding error from the cassette) - PE sensor board ass'y - Pressure roller ass'y - Cassette unit - PE sensor cable

	Symptom	Solution
	Faulty scanning (no scanning, strange noise).	(1) Confirm cable connection: - Scanner motor relay harness ass'y - Scanner encoder relay harness ass'y - CIS FFC => No incomplete connection, cable breakage, or cable caught in units => Nothing strange under the platen glass (such as improper position of the FFC damper) (2) Replace the following item(s): - Scanner unit - Logic board ass'y
	Machine not recognized by a USB-connected computer.	(1) Confirm the USB cable connection. (2) Connect the machine to another computer via the USB cable, and check if the machine is recognized. (3) Replace the following item(s): - USB cable - Logic board ass'y
Unsatisfactory print quality	No printing, or no color ejected. Faint printing, or white lines on printouts. Uneven printing. Improper color hue.	See 2-5. Special Notes on Servicing, (1) For smeared printing, uneven printing, or non-ejection of ink. (1) Confirm the ink tank conditions: - Whether the ink tank is Canon-genuine one or not - Whether the ink tank is refilled one or not - No remainder of the outer film (the air-through must be opened) - Re-setting of an ink tank (2) Remove foreign material from the purge unit caps, if any. (3) Confirm the conditions of the carriage head contact pins (4) Perform cleaning or deep cleaning of the print head. (5) Perform print head alignment. (6) Replace the following item(s): - Print head*1, and ink tanks - Logic board ass'y - Purge drive system unit - Carriage unit
	Paper gets smeared.	(1) Clean the inside of the machine. (2) Perform bottom plate cleaning. (3) Perform paper feed roller cleaning. (4) Replace the following item(s): - Pressure roller ass'y (if smearing is heavy) - Print head*1 (when smearing is caused by the print head)
	The back side of paper gets smeared.	(1) Clean the inside of the machine. (2) Perform bottom plate cleaning. (3) Examine the platen ink absorber. (4) Examine the paper eject roller. (5) Replace the following item(s): - The part in the paper path causing the smearing

	Symptom	Solution
	Graphic or text is enlarged on printouts in the carriage movement direction.	(1) Confirm that the carriage slit film is free from smearing or scratches: - Cleaning of the timing slit strip film. (2) Replace the following item(s): - Timing slit strip film - Carriage unit - Logic board ass'y - Scanner unit (for copying)
	Graphic or text is enlarged on printouts in the paper feed direction.	(1) Confirm that the LF / EJ slit film is free from smearing or scratches: - Cleaning of the LF / EJ slit film. (2) Replace the following item(s): - Timing slit disk feed film - Timing slit disk eject film - Timing sensor unit - Platen unit - Logic board ass'y - Scanner unit (for copying)
Faulty scanning	No scanning.	(1) Replace the following item(s): - Scanner unit - Logic board ass'y
	Streaks or smears on the scanned image.	(1) Clean the platen glass and the document pressure sheet. (2) Confirm the position of the document pressure sheet. (3) Replace the following item(s): - Scanner unit - Document pressure sheet - Logic board ass'y

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

1-2. Operator Call Error (Alarm LED Lit In Orange) Troubleshooting

Errors and warnings are displayed by the following ways:

- Operator call errors are indicated by the Alarm LED lit in orange, and the error and its solution are displayed on the LCD in text and by icon.
- Messages during printing from a computer are displayed on the printer driver Status Monitor.
- Error codes (the latest 10 error codes at the maximum) are printed in the "operator call/service call error record" area in EEPROM information print.

Buttons valid when an operator call error occurs:

- ON button: To turn the machine off and on again.
- OK button: To clear and recover from an error. In some operator call errors, the error will automatically be cleared when the cause of the error is eliminated, and pressing the OK button may not be necessary.
- Stop button: To cancel the job at error occurrence, and to clear the error.

Error	Error code	U No.	Message on the LCD	Solution	Parts that are likely to be faulty
No paper in the rear tray.	[1000]	---	Rear tray. There is no paper. Load paper and press [OK].	Confirm that the rear tray is selected as the paper source. Set the paper in the rear tray, and press the OK button. If the error is not cleared, confirm that no foreign material is inside the paper feed slot.	- PE sensor board ass'y - ASF unit - Pressure roller ass'y
No paper in the cassette.	[1003]	---	Cassette. There is no paper. Load paper and press [OK].	Confirm that the cassette is selected as the paper source. Set the paper in the cassette, and press the OK button. Note that the cassette is for plain paper only.	- Pick-up arm unit - Pressure roller ass'y - Cassette unit
Paper jam.	[1300]	---	The paper is jammed. Clear the paper and press [OK].	Remove the jammed paper and press the OK button. For paper jam in the rear guide, confirm that the rear guide is not dislocated.	- Pick-up arm unit - ASF unit - Pressure roller ass'y - Cassette unit - Rear guide unit
Paper jam in the rear guide.	[1303]	---			
Paper jam in the under guide.	[1304]	---			
Ink may have run out.	[1600]	U041	The ink may have run out. Replacing the ink tank is recommended.	Replace the applicable ink tank, or press the Stop button to clear the error without ink tank replacement. When the error is cleared by pressing the Stop button, ink may run out during printing.	- Spur unit
Ink tank not installed.	[1660]	U043	The following ink tank cannot be recognized. (Applicable ink tank icon)	Install the applicable ink tank(s) properly, and confirm that the LED's of all the ink tanks light red.	- Ink tank - Carriage unit
Print head not installed, or not properly installed.	[1401]	U051	Print head is not installed. Install the print head.	Install the print head properly. If the error is not cleared, confirm that the print head contact pins of the carriage are not bent.	- Print head - Carriage unit
Faulty print head ID.		U052	The type of print head is incorrect. Install the correct print head.	Re-set the print head. If the error is not cleared, the print head may be defective. Replace the print head. If the error still occurs, confirm that the print head contact pins of the carriage are not bent.	- Print head - Carriage unit
Print head temperature sensor error.	[1403]				
Faulty EEPROM data of the print head.	[1405]				
Multiple ink tanks of the same color installed.	[1487]	U071	More than one ink tank of the following color is installed.	Replace the wrong ink tank(s) with the correct one(s).	- Ink tank
Ink tank in a wrong position.	[1680]	U072	Some ink tanks are not installed in place.	Install the ink tank(s) in the correct position.	- Ink tank

Error	Error code	U No.	Message on the LCD	Solution	Parts that are likely to be faulty
Warning: The ink absorber becomes almost full.	[1700]	---	The ink absorber is almost full. Press [OK] to continue printing. Contact the service center for replacement.	Replace the ink absorber, and reset its counter. See 2-2. Adjustment and Settings in Service Mode for details. Pressing the OK button will exit the error, and enable printing without replacing the ink absorber. However, when the ink absorber becomes full, no further printing can be performed unless the applicable ink absorber is replaced.	
The connected digital camera or digital video camera does not support Camera Direct Printing.	[2001]	---	Incompatible device detected. Remove the device.	Remove the cable between the camera and the machine.	
Automatic duplex printing cannot be performed.	[1310]	---	This paper is not compatible with two-sided printing. Remove the paper and press [OK].	The paper length is not supported for duplex printing. Press the OK button to eject the paper being used at error occurrence. Data which was to be printed on the back side of paper at error occurrence is skipped (not printed).	- Duplex paper feed roller unit - PE sensor board ass'y
The remaining ink amount unknown (raw ink present).	[1683]	U130	(Applicable ink tank icon) The remaining level of the ink cannot be correctly detected. Replace the ink tank.	An ink tank which has once been empty is installed. Replace the applicable ink tank with a new one. Printing with a once-empty ink tank can damage the machine. To continue printing without replacing the ink tank(s), press the Stop button for 5 sec. or longer to disable the function to detect the remaining ink amount. After the operation, it is recorded in the machine EEPROM that the function to detect the remaining ink amount was disabled.	- Ink tank - Spur unit
Ink tank not recognized.	[1684]	U140	The following ink tank cannot be recognized. (Applicable ink tank icon)	A non-supported ink tank is installed (the ink tank LED is turned off). Install the supported ink tanks.	- Ink tank
Ink tank not recognized.	[1682]	U150	The following ink tank cannot be recognized. (Applicable ink tank icon)	A hardware error occurred in an ink tank (the ink tank LED is turned off). Replace the ink tank(s).	- Ink tank

Error	Error code	U No.	Message on the LCD	Solution	Parts that are likely to be faulty
No ink (no raw ink).	[1688]	U163	The ink has run out. Replace the ink tank. (Applicable ink tank icon)	Replace the empty ink tank(s), and close the scanning unit (cover). Printing with an empty ink tank can damage the machine. To continue printing without replacing the ink tank(s), press the Stop button for 5 sec. or longer to disable the function to detect the remaining ink amount. After the operation, it is recorded in the machine that the function to detect the remaining ink amount was disabled.	- Ink tank - Spur unit
Non-supported hub.	[2002]	---	An unsupported USB hub is connected. Remove the hub.	Remove the applicable USB hub from the PictBridge (USB) connector.	
Time-out for the scanner device.	[2700]	---	Timeout error has occurred. Press [OK].	The buffer became full in the middle of scanning operation, and 60 minutes have elapsed since then, making re-scanning unstable. Press the OK button to clear the error.	
Premium Contents print error.	[4100]	---	Cannot print the data.	Install the supported (Canon-genuine) ink tanks.	

1-3. Service Call Error (by Cyclic Blinking of Alarm and Power LEDs) Troubleshooting

Service call errors are indicated by the number of cycles the Alarm and Power LEDs blink, and the corresponding error code with the message, "Printer error has occurred. Turn off power then back on again. If problem persists, see the manual." is displayed on the LCD.

- Check each point in "Check points & Solution," and perform the solution if it applies.
- When no solution in "Check points & Solution" is effective, then replace the part listed under "Parts to be replaced" one by one from the one most likely to be faulty. The parts are listed in the order of likeliness to be faulty.

Cycles of blinking of Alarm and Power LEDs	Error	Error code	Check points & Solution	Parts that are likely to be faulty (in the order of likeliness to be faulty)
2 times	Carriage error	[5100]	(1) Smearing or scratches on the carriage slit film: -> Clean the film using lint-free paper. (2) Foreign material that obstructs the carriage movement: -> Remove foreign material. (3) Ink tank conditions: -> Re-set the ink tanks. (4) Cable connection (CR FFC J500, J501, J502, etc.): -> Re-connect the cables. (5) Scratches or damages to the carriage slit film: -> Replace the timing slit strip film. (6) Black debris around the carriage rail or pressure roller: -> Replace the carriage unit.	-Timing slit strip film -Carriage unit -Logic board ass'y -Carriage motor
3 times	Line feed error	[6000]	(1) Opening and closing of the paper output tray: -> Remove obstacles from around the paper output tray so that the tray opens and closes properly. (2) Smearing or scratches on the LF / EJ slit film: -> Clean the LF / EJ slit film using lint-free paper. (3) Foreign material in the LF drive: -> Remove foreign material. (4) Cable connection: -> Re-connect the cables. (5) LF lock arm spring: -> Attach the spring properly. If it is scratched or damaged, replace it.	-Timing slit disk feed film -Timing sensor unit -Paper feed roller unit -Logic board ass'y -Paper feed motor
4 times	Purge cam sensor error	[5C00]	(1) Foreign material around the purge drive system unit: -> Remove foreign material. (2) Cable connection: - Logic board J702 connector -> Re-connect the cable. (3) Strange sound at power-on: -> Replace the purge drive system unit.	-Purge drive system unit -Logic board ass'y
5 times	ASF (cam) sensor error	[5700]	(1) Cable connection: - PE sensor cable, etc. -> Re-connect the cable.	-ASF unit -PE sensor board ass'y -Logic board ass'y

Cycles of blinking of Alarm and Power LEDs	Error	Error code	Check points & Solution	Parts that are likely to be faulty (in the order of likeliness to be faulty)
6 times	Internal temperature error	[5400]	(1) Cable connection: - Between the spur unit and the logic board, J703 connector, etc. -> Re-connect the cable.	-Spur unit -Logic board ass'y -Print head
7 times	Ink absorber full	[5B00] [5B01]	(1) Ink absorber condition: -> Replace the ink absorber, and reset the ink absorber counter value in the EEPROM.	-Absorber kit
8 times	Print head temperature rise error	[5200]	(1) Print head condition (face surface and mold): -> If a burn mark or heat deformation is seen on the face surface or the mold, replace the print head. (2) Head contact pin condition of the carriage unit: -> If the pin is bent or deformed, replace the carriage unit. (3) Cable connection: - CR FFC (J500, J501, J502) -> Re-connect the cable. If any damage or breakage of the cable is found, replace the carriage unit.	-Print head -Carriage unit
9 times	EEPROM error	[6800] [6801]	(1) Part replacement: -> Replace the logic board ass'y.	-Logic board ass'y
10 times	VH monitor error	[B200]	(1) Print head condition (face surface and mold): -> If a burn mark or heat deformation is seen on the face surface or the mold, replace the print head and the logic board in set. (Be sure to replace them at the same time.) (2) Burn mark or heat deformation of the logic board: -> If a burn mark or heat deformation is seen on the logic board, replace the print head and the logic board in set. (Be sure to replace them at the same time.) (3) Head contact pin condition of the carriage unit: -> If the pin is bent or deformed, replace the carriage unit. (4) Cable connection: - CR FFC J502, J501, J500 -> Re-connect the cable. If any damage or breakage of the cable is found, replace the carriage unit.	-Print head and logic board ass'y (replace them at the same time) -AC adapter -Carriage unit

Cycles of blinking of Alarm and Power LEDs	Error	Error code	Check points & Solution	Parts that are likely to be faulty (in the order of likeliness to be faulty)
11 times	Carriage lift mechanism error	[5110]	(1) Foreign material that obstructs the carriage movement: -> Remove foreign material.	-Switch system unit -Carriage unit
12 times	APP position error	[6A80]	(1) Cap absorber and wiper blade of the purge drive system unit: -> If the cap absorber contacts the wiper blade, lower the cap absorber so that it will not contact the wiper blade. (2) Foreign material around the purge drive system unit: -> Remove foreign material. (3) Ink absorber right beneath the purge drive system unit: -> Confirm that the absorber stays in place and does not contact the unit. (4) Foreign material around the ASF unit: -> Remove foreign material. (5) Cable connection: - J702, PE sensor cable -> Re-connect the cables.	-Purge drive system unit -Logic board ass'y
	APP position error during initial purging	[6A81]		
14 times	APP sensor error	[6A90]		
	Paper feed cam sensor error	[6B10]	(1) Ink absorber counter value: -> If the value exceeds 60%, replace the ink absorber. Follow the "*Guideline for Preventive Replacement of the Ink Absorber.*" (2) Jammed paper in the under guide: -> Remove the jammed paper.	-Pick-up arm unit -Duplex paper feed roller unit
15 times	USB host Vbus overcurrent	[9000]	(1) Part replacement: -> Replace the logic board ass'y.	
16 times	Pump roller sensor error	[5C20]	(1) Cable connection: -> Re-connect the cable.	-Purge drive system unit
19 times	Ink tank position sensor error	[6502]	(1) Ink tank position: -> Confirm the ink tanks are installed in the correct slots. (2) Re-set or replacement of ink tanks: -> If the error persists, replace the ink tanks. (3) Cable connection: -> Re-connect the cable.	-Spur unit -Logic board ass'y
20 times	Other errors	[6500]	(1) Cable connection: -> Re-connect the cable.	-Logic board ass'y
21 times	Drive switch error	[C000]	(1) Foreign material in the drive switch area of the purge drive system unit: -> Remove foreign material. (2) Ink tank conditions: -> Confirm that the ink tanks are seated properly and they do not interfere with the carriage movement.	-Purge drive system unit -ASF unit -Carriage unit

Cycles of blinking of Alarm and Power LEDs	Error	Error code	Check points & Solution	Parts that are likely to be faulty (in the order of likeliness to be faulty)
22 times	Scanner error	[5011]	(1) Cable connection: - J900, J1002, J704 -> Re-connect the cables. (2) Damper condition inside the scanner: -> If the damper winds around the CIS, replace the scanner unit. (3) Scanner belt pulley: -> If the pulley is dislocated, replace the scanner unit. (4) Document pressure sheet conditions: -> Re-attach the document pressure sheet, or replace it.	-Scanner unit -Document pressure sheet -Logic board ass'y
	FB motor error	[5012]	(1) Cable connection: - J900, J1002, J704 -> Re-connect the cables.	-Scanner unit
23 times	Valve cam sensor error	[6C10]	(1) Foreign material around the purge drive system unit: -> Remove foreign material. (2) Cable connection: - J702 connector -> Re-connect the cable.	-Purge drive system unit -Logic board ass'y

Note: Before replacement of the logic board, check the ink absorber counter value, and register it to the replaced new logic board. (The value can be set in 10% increments.) For details, see 2-2. Adjustment and Settings in Service Mode, (5) Ink absorber counter setting.
In addition, according to the "*Guideline for Preventive Replacement of Ink Absorber*," replace the ink absorber. For details, see 2-5. Special Notes on Servicing, (6) Preventive replacement of ink absorber.

2. REPAIR / ADJUSTMENT / SETTINGS

2-1. Major Replacement Parts and Adjustment

(1) Part Replacement Procedures

Service part	Recommended removal procedure*1 / Notes on replacement	Adjustment / settings / operation check
Logic board ass'y	(1) Operation panel cover (2) Side cover R (3) Logic board ass'y Note: - Before replacement, check the ink absorber counter value (by service test print or EEPROM information print). - 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.	**In the service mode:** 1. Set the ink absorber counter value. 2. Set the destination. 3. Print the integrated inspection pattern. 4. Perform LF / Eject correction (only when streaks or uneven printing occurs). See 2-2. Adjustment and Settings in Service Mode, for details. 5. Print the EEPROM information. **In the user mode:** 6. Set the language displayed on the LCD. 7. Purging after replacement of the print head is automatically performed. 8. Perform print head alignment. 9. Print via USB connection. 10. Copy. 11. Perform direct printing from a digital camera (PictBridge).
Absorber kit	(1) Operation panel cover (2) Side cover R (3) Operation panel unit (together with the LCD unit) (4) Operation rear top cover (5) Side cover L (6) Scanner stay (7) Scanner unit (together with the document cover unit) (8) Main case (9) Sub case unit and ASF cover unit (10) Printer unit from the bottom case	**In the service mode:** 1. Reset the ink absorber counter. 2. After the ink absorber counter is reset, the counter value is printed automatically. See 2-2. Adjustment and Settings in Service Mode, for details.
Carriage unit	(1) to (10) Same as for the absorber kit procedures. (11) Logic board ass'y (12) Right chassis (together with the card board ass'y and PictBridge board unit) (13) Timing slit strip film (14) Carriage rail (15) Carriage unit Note: - Keep the timing slit strip film (carriage encoder film) free from stain or damage. When returning the strip, make sure of its orientation (left and right, front and back).	1. Apply grease to the sliding portions of the carriage rail. See 2-4. Grease Application, for details. **In the service mode:** 2. Print the integrated inspection pattern. See 2-2. Adjustment and Settings in Service Mode, for details. **In the user mode:** 3. Perform print head alignment.

Service part	Recommended removal procedure[*1] / Notes on replacement	Adjustment / settings / operation check
Switch system unit Paper feed motor	(1) to (10) Same as for the absorber kit procedures. (11) PE sensor board ass'y (12) ASF unit (13) Logic board ass'y (14) Right chassis (15) Front chassis (16) Main chassis (together with the carriage unit and pressure roller ass'y) (17) Spur uni (18) Platen unit (19) Cassette feed roller unit (20) Duplex paper feed roller unit (21) Cassette feed guide (22) Paper guide unit (23) Paper feed roller unit (24) Switch system unit or paper feed motor Note: - The screws securing the paper feed motor are allowed to be loosened only for paper feed motor replacement. (DO NOT loosen them in any other cases.)	1. Adjust the paper feed motor. See 2-5. Special Notes on Servicing, (2) Paper feed motor adjustment, for details. **In the service mode:** 2. Print the integrated inspection pattern.
Platen unit	(1) to (10) Same as for the absorber kit procedures. (11) PE sensor board ass'y (12) ASF unit (13) Logic board ass'y (14) Right chassis (15) Front chassis (16) Main chassis (together with the carriage unit) (17) Spur unit (18) Platen unit	**In the service mode:** 1. Perform LF / Eject correction (only when uneven printing or streaks appear on printouts after replacement). See 2-2. Adjustment and Settings in Service Mode, for details. 2. Print the integrated inspection pattern.
Spur unit	(1) to (10) Same as for the absorber kit procedures. (11) PE sensor board ass'y (12) ASF unit (13) Logic board ass'y (14) Right chassis (15) Front chassis (16) Main chassis (together with the carriage unit) (17) Spur unit	**In the service mode:** 1. Print the integrated inspection pattern. 2. Perform LF / Eject correction (only when uneven printing or streaks appear on printouts after replacement). See 2-2. Adjustment and Settings in Service Mode, for details.

Service part	Recommended removal procedure[*1] / Notes on replacement	Adjustment / settings / operation check
Purge drive system unit	(1) to (10) Same as for the absorber kit procedures. (11) PE sensor board ass'y (12) ASF unit (13) Logic board ass'y (14) Right chassis (15) Front chassis (16) Main chassis (together with the carriage unit and pressure roller ass'y) (17) Spur unit (18) Platen unit (19) Cassette feed roller unit (20) Duplex paper feed roller unit (21) Cassette feed guide (22) Paper guide unit (23) Paper feed roller unit (24) Purge drive system unit	**In the service mode:** 1. Print the integrated inspection pattern.
Pulley holder unit	(1) to (10) Same as for the absorber kit procedures. (11) PE sensor board ass'y (12) ASF unit (13) Logic board ass'y (14) Right chassis (15) Front chassis (16) Main chassis (together with the carriage unit) (17) Pulley holder unit	1. Apply grease to the idler pulley parallel pin (since the grease is not applied to the service part). See 2-4. Grease Application, for details. **In the service mode:** 2. Print the integrated inspection pattern.
APP code wheel gear	(1) to (11) Same as for the absorber kit procedures. (12) Purge motor unit (13) APP code wheel gear	1. Apply grease to the APP code wheel gear shaft (since the grease is not applied to the service part). See 2-4. Grease Application, for details. **In the service mode:** 2. Print the integrated inspection pattern.
Document pressure sheet Scanner unit	(1) Document cover unit (2) Operation panel cover (3) Side cover R (4) Logic board ass'y (5) Operation panel unit (together with the LCD unit) (6) Operation rear top cover (7) Side cover L (8) Scanner stay (9) Scanner unit	1. Confirm the document pressure plate sheet position. See 2-5. Special Notes on Servicing, (4) Document pressure sheet replacement, for details.] **In the service mode:** 2. Print the integrated inspection pattern.

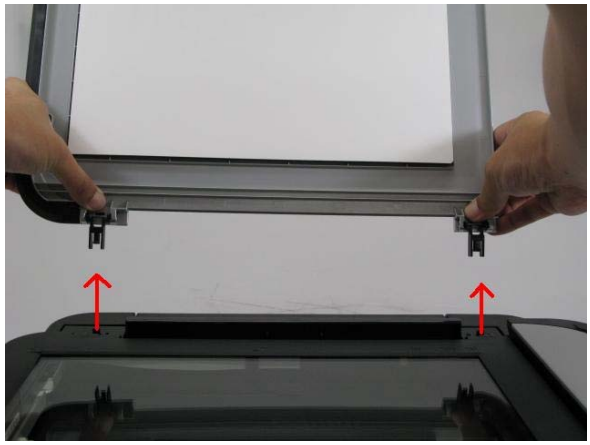
Service part	Recommended removal procedure*1 / Notes on replacement	Adjustment / settings / operation check
LCD unit	(1) Operation panel cover (2) Side cover R (3) Operation panel unit (together with the LCD unit) (4) LCD unit Note: - Be cautious not to scratch or damage the LCD cable. - To protect the external housing of the machine from scratches, spread a soft cloth and disassemble / reassemble the machine on it.	**In the service mode:** 1. Perform button and LCD test. See 2-2. Adjustment and Settings in Service Mode, for details. 2. Print the integrated inspection pattern.
Timing slit strip film	(1) to (10) Same as for the absorber kit procedures. (11) Logic board ass'y (12) Right chassis (together with the card board ass'y and PictBridge board unit) (13) Timing slit strip film Note: - 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.	**In the user mode:** 1. Perform print head alignment. **In the service mode:** 2. Print the nozzle check pattern. 3. Perform LF / Eject correction (only when uneven printing or streaks appear on printouts after replacement). See 2-2. Adjustment and Settings in Service Mode, for details.
Timing slit disk feed film	(1) to (11) Same as for the absorber kit procedures. (12) Timing slit disk feed film Note: - 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.	
Print head	(1) Print head	**In the user mode:** 1. Purging after replacement of the print head is automatically performed. 2. Perform print head alignment. **In the service mode:** 3. Print the integrated inspection pattern.

*1: To reassemble the unit after replacement, follow the procedures in the reverse order.

(2) How to remove external housing

1) Remove the cassette.

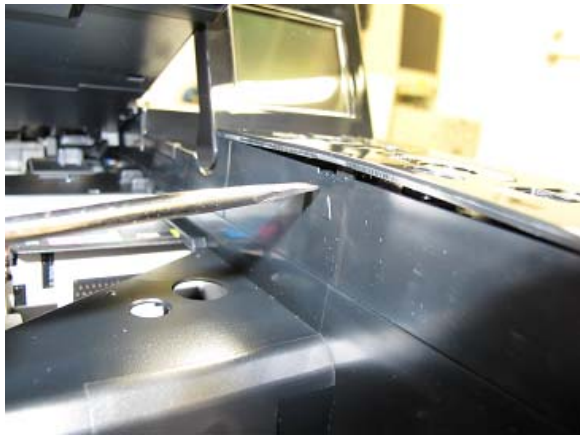
2) Remove the document cover unit.



Pull the unit upward.

3) Remove the operation panel cover.

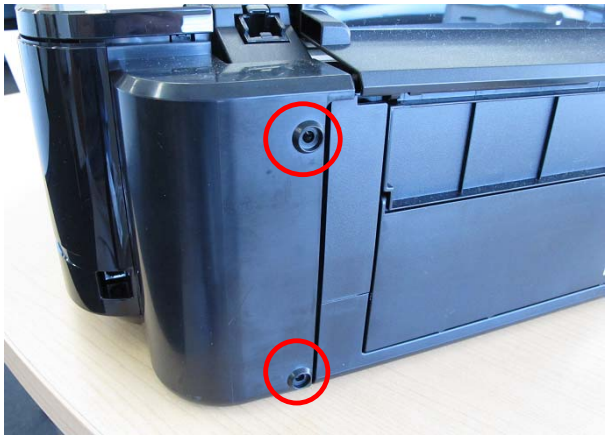
Open the scanner unit.



Push the inner wall at ▲ to release the claw.

Release all the other claws, and lift the operation panel cover.

4) Remove the side cover R.



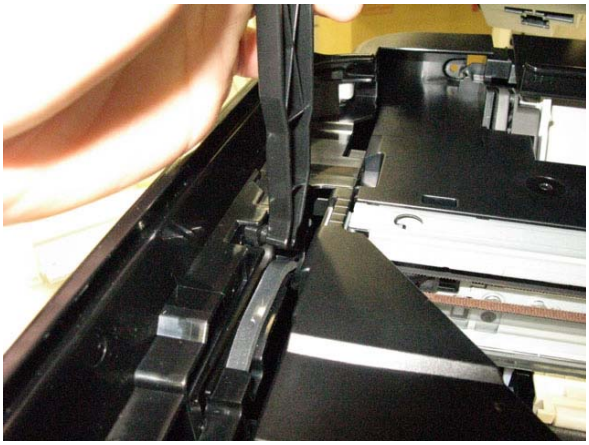
Remove 2 screws from the rear side.

At ▼, pull the side cover in the red-arrow direction to release the claw, and remove the cover.

5) Remove the side cover L.

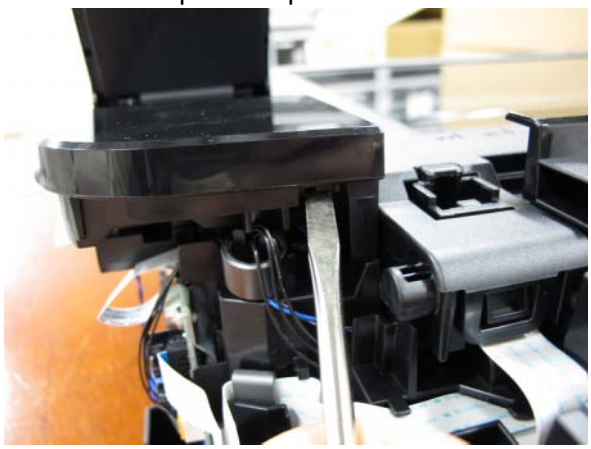
Remove 2 screws from the rear side.

Pass the flat-blade screwdriver through the hole to press and release the claw.



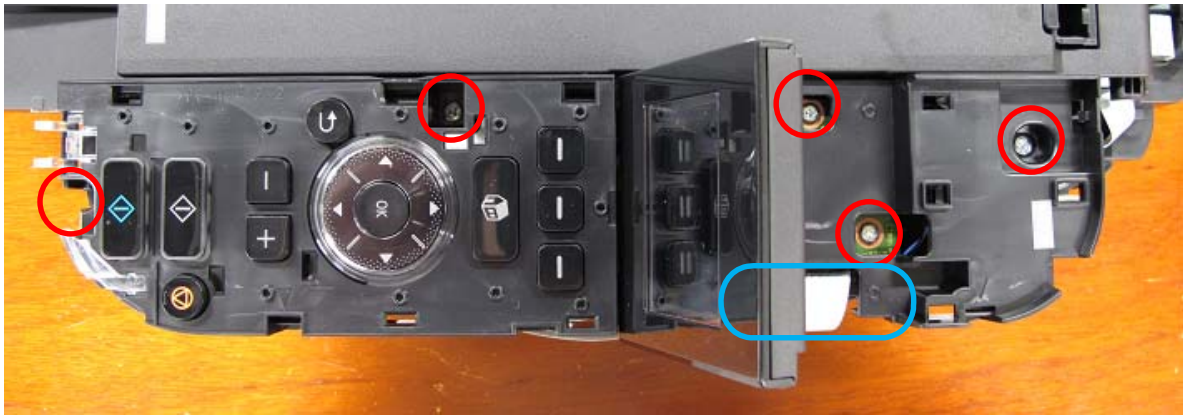
Disengage the scanner stay.

6) Remove the operation panel unit.



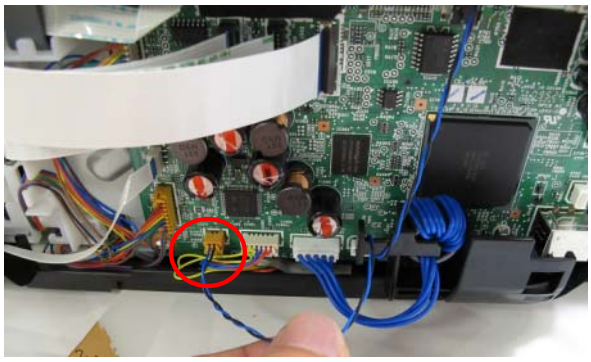
Release the claw on the back side of the operation rear top cover.

Lift the cover to remove it from the unit.

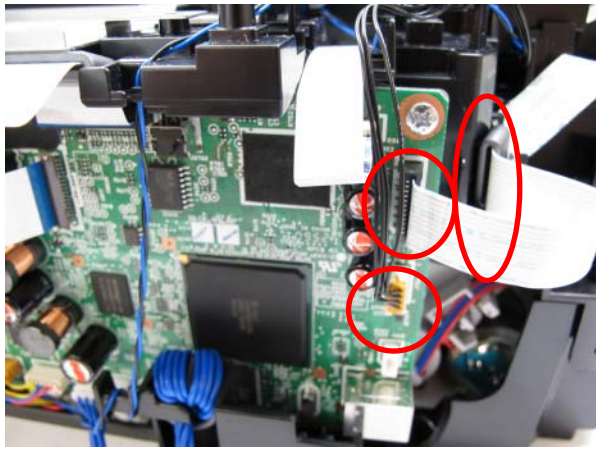


Remove 5 screws and the panel cable.

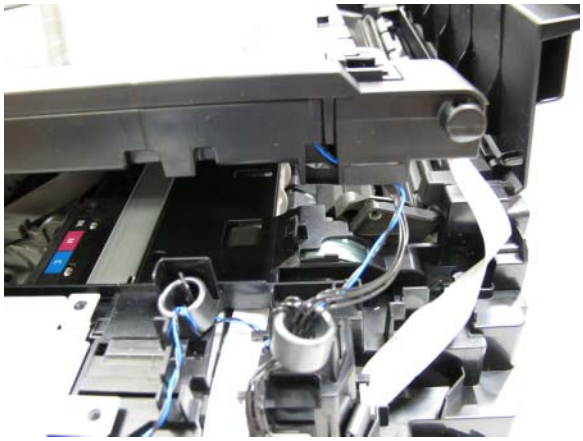
7) Remove the scanner unit.



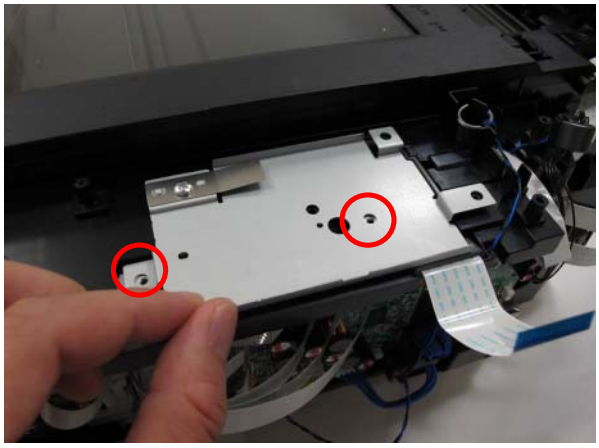
Disconnect the red-circled harness connector.



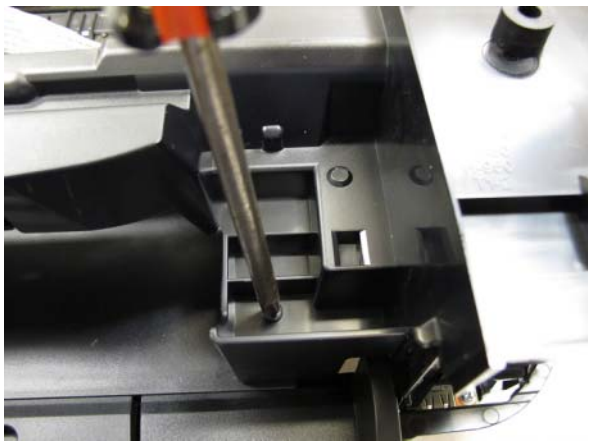
Disconnect the FFC and the harness, and remove the core (red-circled).



8) Remove the main case.

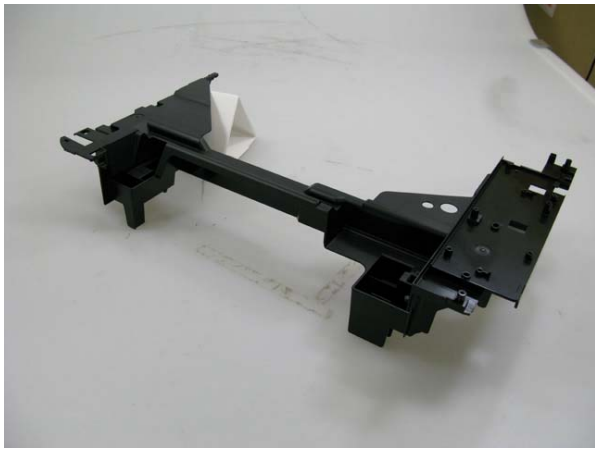


Remove 2 screws.

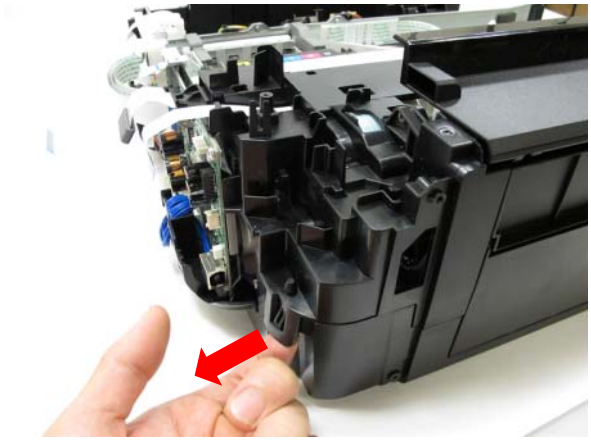


Remove one screw on the right side of the main case.

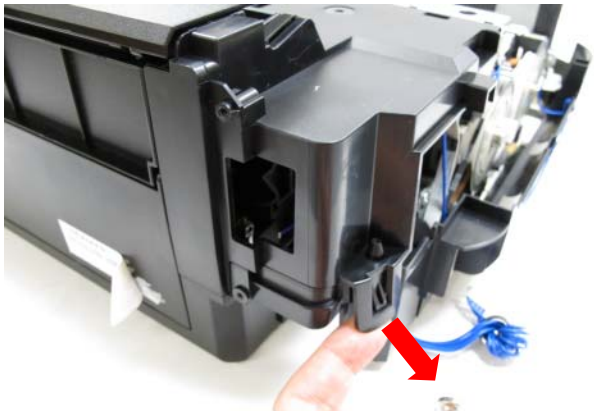
Remove one screw on the left side of the main case.



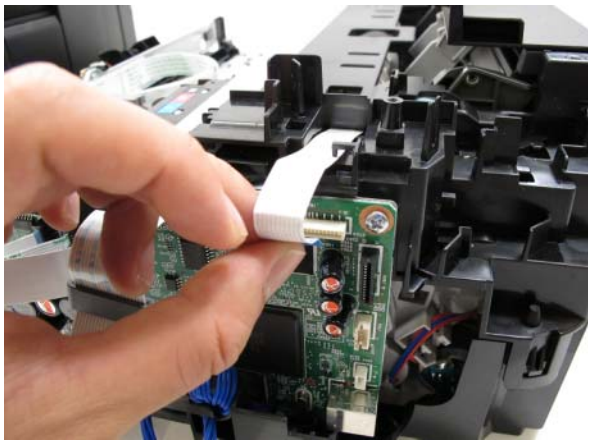
9) Remove the sub case unit and the ASF cover unit.

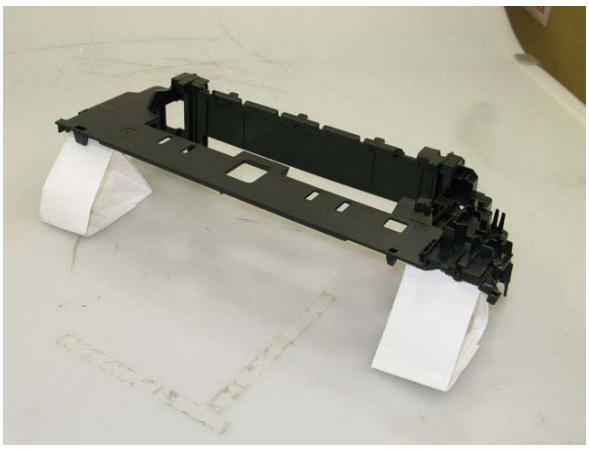


Release the claw on the back right.



Release the claw on the back left.





Disconnect the PE sensor cable.

2-2. Adjustment and Settings in Service Mode

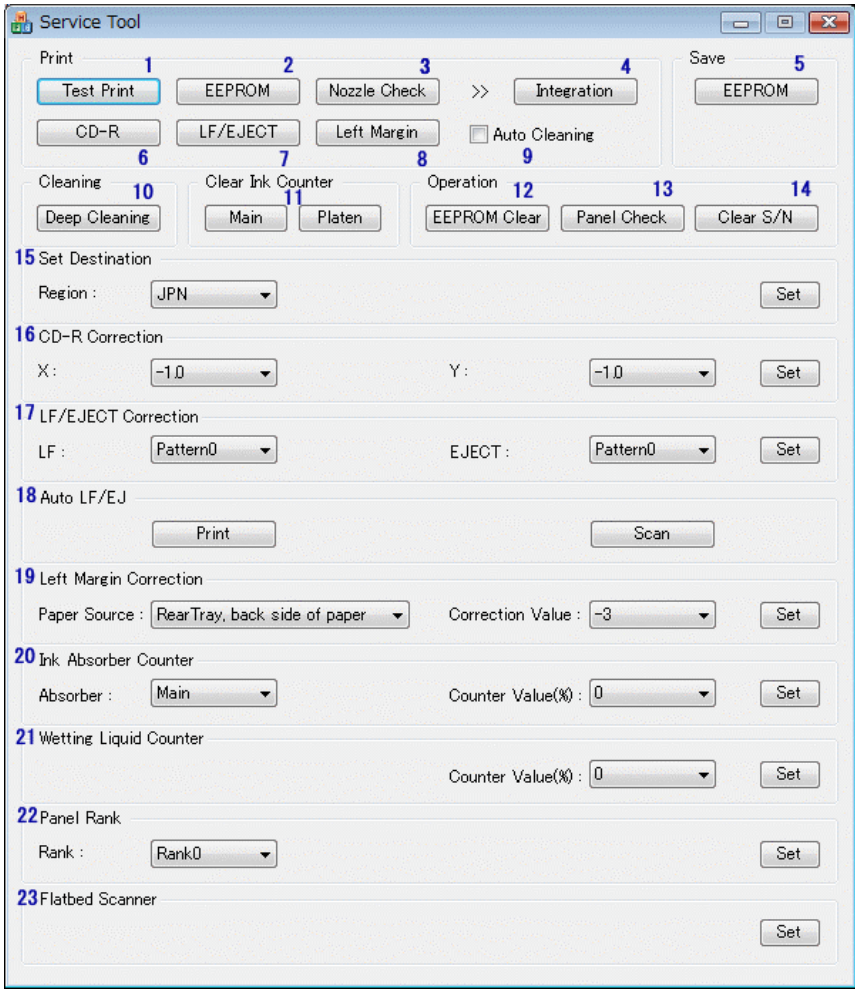
(1) Service mode operation procedures

Use the Service Tool on the connected computer.

1) Start the machine in the service mode.
   i. With the machine power turned off, while pressing the Stop button, press and hold the ON button. (DO NOT release the buttons.)
   ii. When the Power LED lights in green, while holding the ON button, release the Stop button. (DO NOT release the ON button.)
   iii. While holding the ON button, press the Stop button 5 times[*1], and release the ON button. (Each time the Stop button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green.)
   iv. When the Power LED lights in green, the machine is ready for the service mode operation (nothing is displayed on the LCD).
2) Start the Service Tool on the connected computer.
   i. When a button is clicked in the Service Tool dialog box, that function is performed. During operation of the selected function, all the Service Tool buttons are dimmed and inactive.
   ii. When the operation is completed, "A function was finished." is displayed, and another function can be selected.
   iii. If a non-supported function is selected, "Error!" is displayed. Click **OK** in the error message dialog box to exit the error.

(2) Service Tool functions

Service Tool screen: Version 1.081



No.	Name	Function	Remarks
1	Test Print	Service test print	Paper will feed from the rear tray (2 sheets). Service test print: - Model name - ROM version - USB serial number - Process inspection information - Barcode (model name + destination + machine serial number) - Ink system function check result
2	EEPROM	EEPROM information print	The dialog box opens to select the paper source. Select **Rear tray** or **Cassette**, and click **OK**. EEPROM information print: - Model name - ROM version - Ink absorber counter value (ink amount in the ink absorber) - Print information - Error information, etc.

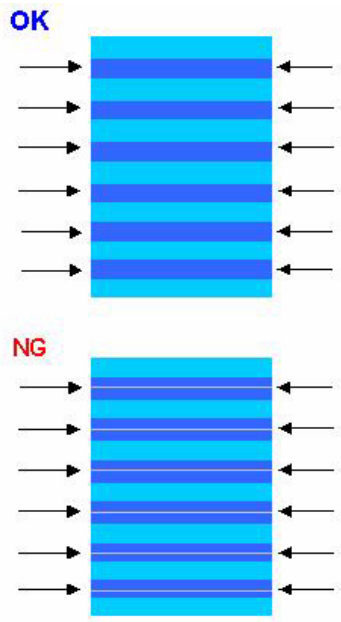
No.	Name	Function	Remarks
3	Nozzle Check	Nozzle check pattern print	The dialog box opens to select the paper source. Select **Rear tray** or **Cassette**, and click **OK**. The same pattern as the one in the user mode is printed.
4	Integration	Integrated inspection pattern print (Nos. 1 to 3 are successively printed.)	Paper will feed from the rear tray (if the cassette is selected, the error is displayed). Multiple inspection items are printed just in one page, it is recommended to use this function for the standard inspection. Printed items: - Model name - ROM version - USB serial number - Nozzle check pattern (same as the one in the user mode) - Process inspection information - Barcode (machine serial number) - Ink system function check result
5	EEPROM	EEPROM information saving	The EEPROM information is displayed on the computer or is saved to the computer as a text file. This function is not available in most cases of errors.
6	CD-R	CD-R check pattern print	Not used.
7	LF / EJECT	LF / Eject correction pattern print	Perform LF / Eject correction only when streaks or uneven printing occurs after the repair. See "(3) LF / Eject correction" below.
8	Left Margin	Left margin pattern print	Not used.
9	Auto Cleaning	Enabling / disabling of automatic print head cleaning	Automatic print head cleaning prior to printing (after replacement of an ink tank or the print head). Select this option to enable the cleaning.
10	Deep Cleaning	Print head deep cleaning	Cleaning of both Black and Color at the same time
11	Main (Clear Ink Counter)	Main ink absorber counter resetting	Set a sheet of A4 or Letter sized plain paper. After the ink absorber counter is reset, the counter value is printed automatically.
	Platen (Clear Ink Counter)	Platen ink absorber counter resetting	Not used.
12	EEPROM Clear	EEPROM initialization	The following items are NOT initialized, and the shipment arrival flag is not on: - USB serial number - Destination settings - Record of ink absorber counter resetting and setting - LF / Eject correction values - Left margin correction value - Production site E-MIP correction value and enabling of it - Endurance correction value and enabling of it - Record of disabling the function to detect the remaining ink amount - Ink absorber counter value (ink amount in the ink absorber)
13	Panel Check	Button and LCD test	See "(4) Button and LCD test" below.

No.	Name	Function	Remarks
14	Clear S/N	Serial number resetting (to zero)	The machine serial number in the EEPROM is reset to "000000000." Not used in regular repair.
15	Set Destination	Destination settings	Select the destination, and click **Set**. ASA, AUS, BRA, CHN, CND, EMB, EUR, JPN, KOR, LTN, TWN, USA
16	CD-R Correction	Disc label print position correction (X and Y direction)	Not used.
17	LF / EJECT Correction	LF / Eject correction value setting	Set the correction value based on the printed pattern (7. LF / EJECT correction pattern print). See "(3) LF / Eject correction" below.
18	Auto LF / EJ	Automatic LF / Eject correction	Note used.
19	Left Margin Correction	Left margin correction value setting	Not used.
20	Ink Absorber Counter	Ink absorber counter setting	See "(5) Ink absorber counter setting" below.
21	Wetting Liquid Counter	Wetting liquid counter setting	Not used.
22	Panel Rank	Capacitive sensor sensitivity setting	Not used.
23	Flatbed Scanner	Individual scanner adjustment	Not used.

(3) LF / Eject correction

After replacement of the feed roller, platen unit, LF / Eject encoder, carriage encoder film, or logic board in repair servicing or in refurbishment operation, perform the adjustment to maintain the optimal print image quality.
If the print quality is considered unaffected by replacement of those parts, it is not necessary to perform LF / Eject correction.

1) Print the LF / Eject correction pattern.
   Click **LF/EJECT** of the Service Tool on the connected computer, select the paper source and the paper type, and print the pattern. 5 sheets of A4 paper will be used for the pattern printing.
   - Paper source: Select either **Rear tray** or **Cassette**.
   - Media type: Select one from **HR-101**, **GF-500/Office Planner**, **HP Bright White**, and **Canon Extra/STEINBEIS**.
2) When printing is finished, the machine returns to be ready for selection of another function ("A function was finished" is displayed on the screen).
3) In the printout, determine the Pattern No. in which streaks or lines are the least noticeable for the LF check pattern and the Eject check pattern respectively. (LF Pattern No. 0 to 4, Eject Pattern No. 0 to 4)



4) In the **LF/EJECT Correction** section of the Service Tool, select the Pattern No. (from 0 to 4) determined in step 3) for **LF** and **EJECT** respectively, and click **Set**.
5) The selected LF and Eject correction values are written to the EEPROM, making the E-MIP correction value (which was set at shipment from the production site) invalid.

Note: At the production site, the E-MIP correction, which is equivalent to the LF / Eject correction, is performed using the special tool, and the E-MIP correction value is written to the EEPROM as the valid data.
When LF / Eject correction is performed, the LF / Eject correction values become valid instead of the E-MIP correction value (thus, in the initial EEPROM information print, "LF = *" and "EJ = *" are printed, but the selected values are printed after the LF / Eject correction).

(4) Button and LCD test

Confirm the operation after replacement of the panel board or LCD.

1) Check to see if the LED turns off properly
1-1) Click **Panel Check** of the Service Tool. All the LED's on the machine turn on and the LCD turns blue, waiting for a button to be pressed.
1-2) Press each button of the operation panel, to see if every button functions properly.
1-3) The LCD is divided into 24 segments, representing each button. The color of a segment corresponding to the pressed button changes to red. If 2 or more buttons are pressed at the same time, only one of them is considered to be pressed, and the other buttons are ignored.

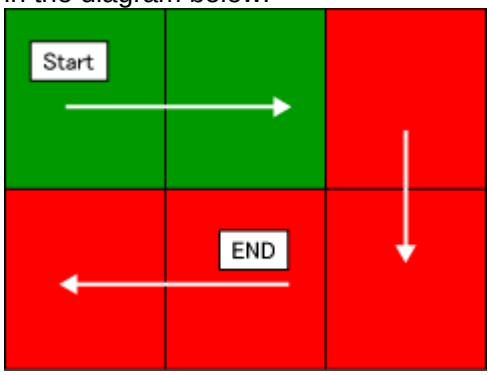
1	2	3	4	5	6
16	17	18	19	20	7
15	24	23	22	21	8
14	13	12	11	10	9

No.	
1:	ON button
2:	Back button
3:	OK button
4:	up cursor button
5:	down cursor button
6:	left cursor button
7:	right cursor button
8:	Black button

No.	
9:	Color button
10:	Stop button
11:	HOME button
12:	left function button
13:	center function button
14:	right function button
15:	+
16:	-

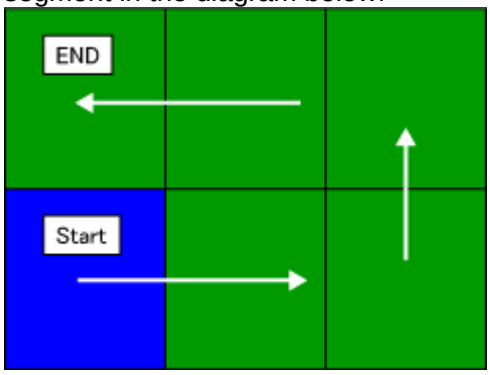
2) Rotate the Scroll Wheel clockwise and counterclockwise 1 round (6 steps) each, as follows:
2-1) Rotate the Scroll Wheel clockwise step by step. The LCD is divided into 6 segments, representing each step. The color of a segment corresponding to the step changes from red

to green.
If the wheel is rotated counterclockwise before clockwise round completes, the color of segment(s) corresponding to the number of steps the wheel is rotated counterclockwise returns to red.
If the wheel keeps rotated clockwise over 1 round (6 steps), the color of segment(s) corresponding to the extra number of steps returns to red, starting with the "Start" segment in the diagram below.

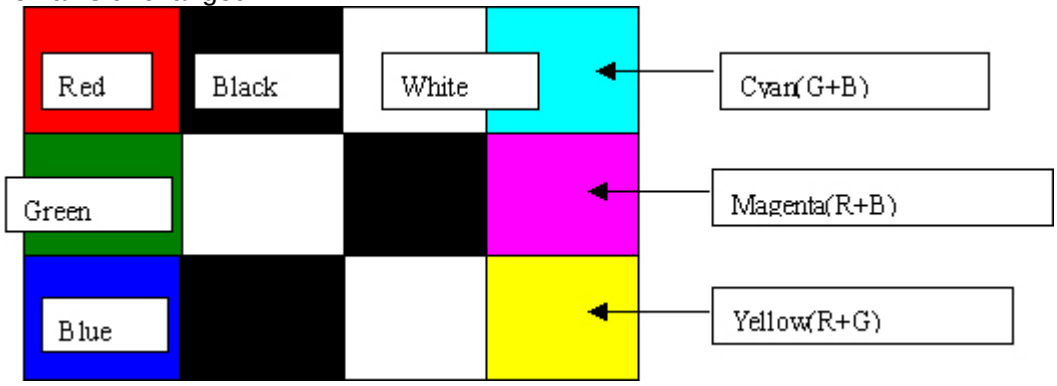


2-2) When the Scroll Wheel is rotated clockwise 1 round (6 steps), press the OK button.

2-3) Rotate the Scroll Wheel counterclockwise step by step. The LCD is divided into 6 segments, representing each step. The color of a segment corresponding to the step changes from green to blue.
If the wheel is rotated clockwise before counterclockwise round completes, the color of segment(s) corresponding to the number of steps the wheel is rotated clockwise returns to green.
If the wheel keeps rotated counterclockwise over 1 round (6 steps), the color of segment(s) corresponding to the extra number of steps returns to green, starting with the "Start" segment in the diagram below.



2-4) When the Scroll Wheel is rotated counterclockwise 1 round (6 steps, and all the segments are in blue), press the OK button. The color pattern is displayed on the LCD.
If there is any segment that is not in blue when the OK button is pressed, the display remains unchanged.



2-5) Press the ON button to turn off the machine.

(5) 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) After replacement of the logic board, the ink absorber counter value should be set in the service mode using the Service Tool.
   In the **Ink Absorber Counter** section of the Service Tool, select **Main** from the **Absorber** pull-down menu.
   From the **Counter Value(%)** pull-down menu, select the value (in 10% increments) which is the closest to the actual counter value confirmed before replacement of the logic board, and click **Set**.
3) Print EEPROM information to confirm that the value is properly set to the EEPROM.

2-3. Adjustment and Maintenance in User Mode

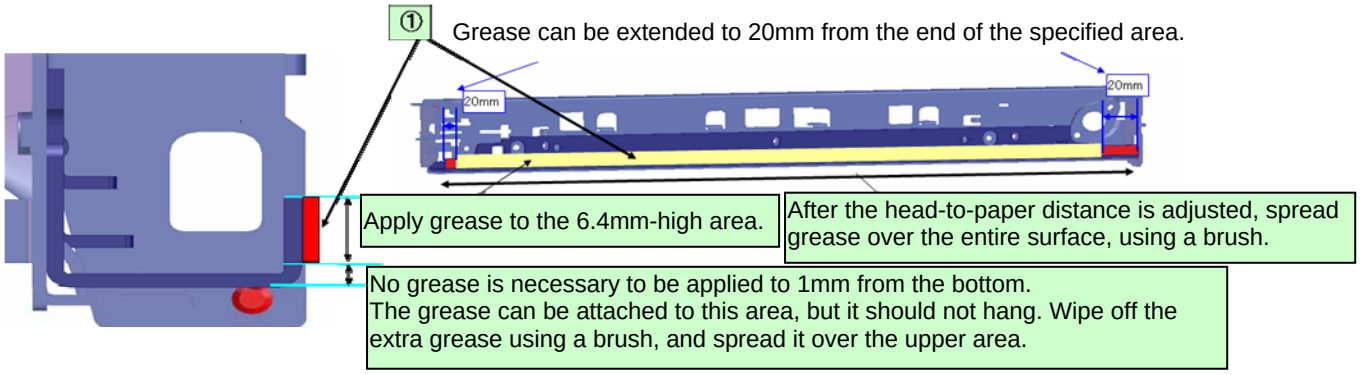
Function	Procedures	Remarks
Nozzle check pattern printing	Perform from the printer driver Maintenance tab or via the machine operation panel.	Set a sheet of plain paper (A4 or Letter) in the cassette, or the rear tray if selected.
Print head manual cleaning	- Cleaning both Black and Color: Perform via the machine operation panel, or from the printer driver Maintenance tab. - Cleaning Black or Color separately: Perform from the printer driver Maintenance tab.	Unclogging of the print head nozzles, and maintenance to keep the print head conditions good. If there is a missing portion or white streaks in the nozzle check pattern printout, perform this cleaning.
Print head deep cleaning	Perform via the machine operation panel, or from the printer driver Maintenance tab.	If print head cleaning is not effective, perform this cleaning. Since the deep cleaning consumes more ink than regular cleaning, it is recommended to perform deep cleaning only when necessary.
Automatic print head alignment	Perform via the machine operation panel, or from the printer driver Maintenance tab.	Set a sheet of plain paper in the cassette. If the automatic print head alignment is not effective, perform manual print head alignment.
Manual print head alignment	Perform from the printer driver Maintenance tab.	Set 3 sheets of plain paper (A4 or Letter) in the cassette, or the rear tray if selected.
Print head alignment value printing	Perform via the machine operation panel, or from the printer driver Maintenance tab.	Confirmation of the current print head alignment values.
Paper feed roller cleaning	Perform via the machine operation panel, or from the printer driver Maintenance tab.	The paper feed rollers of the selected paper source (the rear tray or the cassette) rotate while being pushed to the paper lifting plate. Since the rollers will wear out in this cleaning, it is recommended that you perform this only when necessary.
Bottom plate cleaning	Perform via the machine operation panel, or from the printer driver Maintenance tab.	Cleaning of the platen ribs when the back side of paper gets smeared. Fold a sheet of plain paper (A4 or Letter) in half crosswise, then unfold and set it in the rear tray with the folded ridge facing down. (No paper feeding from the cassette)

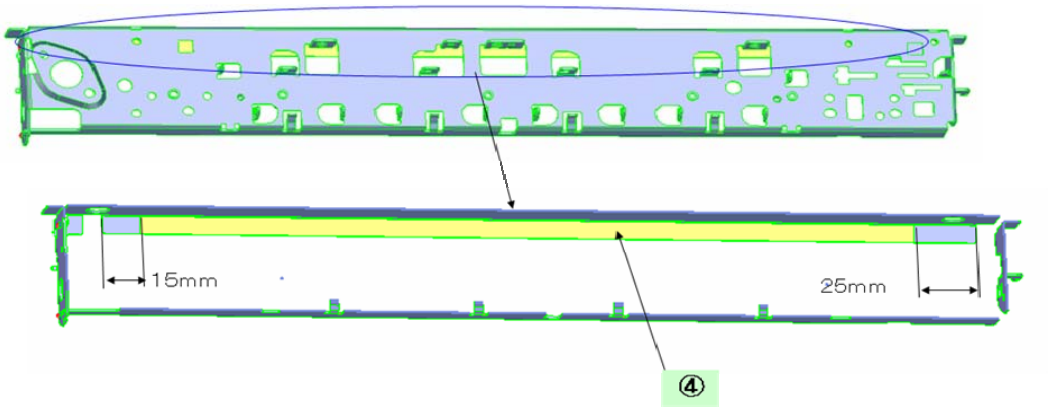
2-4. Grease Application

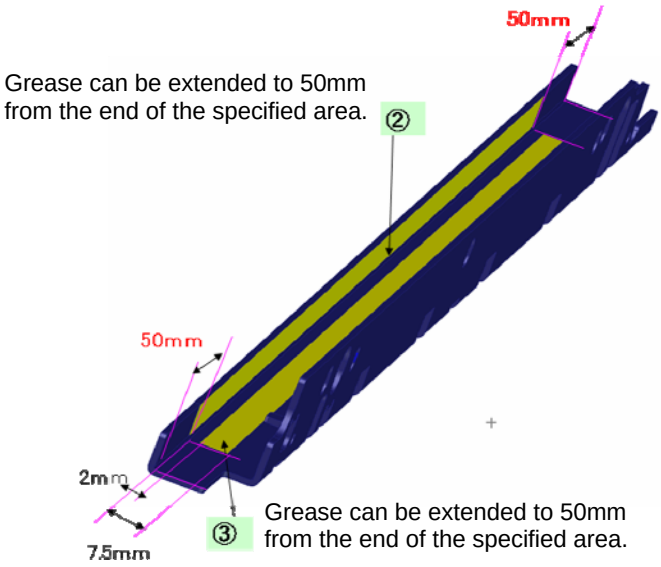
No.	Part name	Where to apply grease / oil	*1	Grease	Grease amount (mg)	*2
1	Carriage rail	The surface where the carriage unit slides	(1)	Floil KG107A	230 to 290	---
2	Carriage rail	The surface where the carriage unit slides	(2)	Floil KG107A	180 to 220	---
3	Carriage rail	The surface where the carriage unit slides	(3)	Floil KG107A	180 to 220	---
4	Main chassis	The surface where the carriage unit slides	(4)	Floil KG107A	230 to 290	---
5	APP code wheel gear shaft	APP code wheel gear sliding portion (the entire surface)	(5)	Floil KG107A	9 to 18	1 x 1

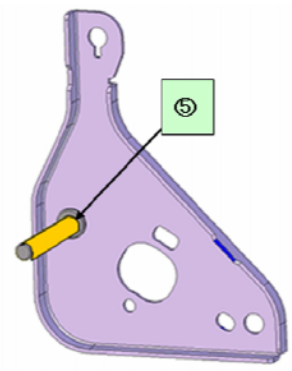
*1: Drawing No.

*2: Number of drops (1 drop = 9 to 18 mg) x locations









2-5. Special Notes on Servicing

(1) For smeared printing, uneven printing, or non-ejection of ink

When smeared printing, uneven printing, or non-ejection of ink occurs, print the nozzle check pattern to determine whether the print head is faulty or not.

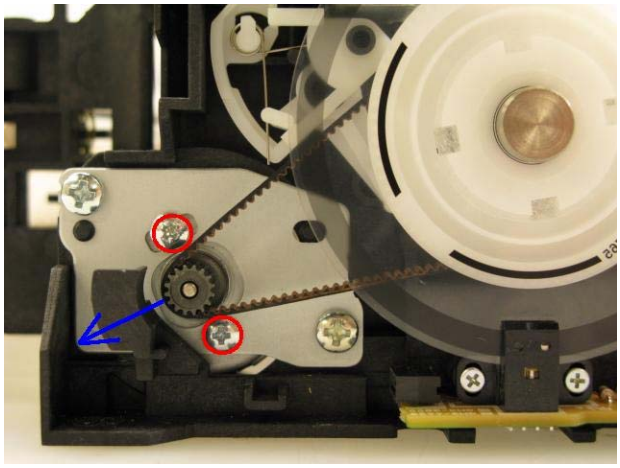
< Procedures >

1) Examine the ink tank conditions.
   - Is the outer film completely removed to open the air-through?
   - Re-install the ink tanks.
   - Is the ink tank Canon-genuine or not?
   - Is the ink tank refilled one or not?
2) Remove and clean any foreign material from the caps of the purge unit.
3) Perform print head cleaning or deep cleaning.
4) Perform print head alignment.
5) Print the nozzle check pattern.
6) If the nozzle check pattern is not printed properly, the print head may be faulty.
   Perform troubleshooting while referring to the Print Head Workshop Manual or the Print Head Service Manual, 1-4. Troubleshooting.

Manual name	No.	Form	Price
Print Head Workshop Manual	QY8-9120-D0C	CD-ROM	¥50,000
Print Head Service Manual	QY8-9121-D0C	CD-ROM	¥30,000

(2) Paper feed motor adjustment

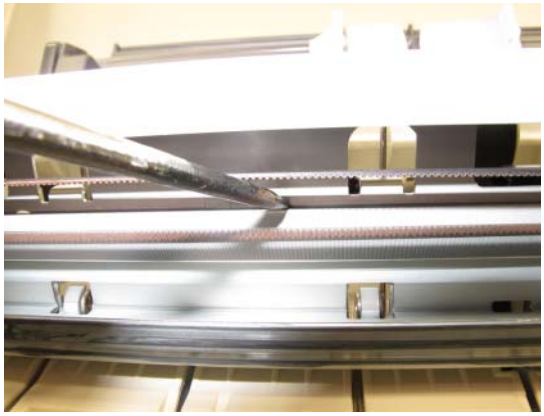
1) When attaching the motor, fasten the screws so that the belt is properly stretched (in the direction indicated by the blue arrow in the photo below).
2) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of 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.

(3) Carriage unit replacement

In the MG5100 series, the carriage rail needs to be removed from the main chassis.
Before removing the screws from the carriage rail, put a mark on the main chassis to indicate the carriage rail position.
After replacing the carriage, return the carriage rail to the original position while aligning the rail to the mark on the chassis.



(4) Document pressure sheet (sponge sheet) replacement

1) Peel off the cover sheet from the double-sided adhesive tape on the back of the document pressure sheet.
   With the long-side down, position the upper-left corner of the document pressure sheet at the scanning reference point on the platen glass (back left where the red lines cross in the photo above).
2) Slowly close the document pressure plate while maintaining the hinge position. The document pressure sheet will attach to the plate.
3) Open the plate to confirm the following:
   - No extension of the sponge edges over the mold part of the upper scanner cover.
   - No gap between the platen glass reference edges and the corresponding sponge edges.
   - No shades or streaks in monochrome test printing without a document on the platen glass.

(5) Ink absorber counter setting

Before replacement of the logic board, check the ink absorber counter value, and register it to the replaced new logic board. (The value can be set in 10% increments.)
In addition, according to the "*Guideline for Preventive Replacement of Ink Absorber*," replace the ink absorber. When the ink absorber is replaced, reset the applicable ink absorber counter (to 0%).
See 2-2. Adjustment and Settings in Service Mode, for details.

(6) Preventive replacement of ink absorber

Replace the ink absorber in accordance with the "*Guideline for Preventive Replacement of Ink Absorber*" even when the ink absorber is not full. (Related Service Information #Q-12E/J-0188)

< Guideline for Preventive Replacement of Ink Absorber >

Replace the ink absorber when it falls in either Criteria 1 or Criteria 2.

Criteria	Purpose	How to know the criteria values
Criteria 1: The ink absorber life* is 2 years or less.	To avoid re-repair for ink absorber replacement in a short period of time after repair for other reasons.	For 2009 2H or earlier products: EEPROM information print and the quick reference table (refer to Service Information #Q-12E/J-0188 for details). For 2010 1H and later products: EEPROM information print
Criteria 2: The ink absorber counter value is 80% or more.	To prevent ink leakage during return of the repaired printer to users.	EEPROM information print

* The estimated number of months until the ink absorber will become full

< How to judge >

Print the EEPROM information, and check the "D" (ink absorber counter) and "DF" (ink absorber life) values.

Step 1: Is "D" 80% or more?

- Yes (80% or more) -> Replace the ink absorber.
- No (less than 80%) -> Proceed to Step 2.

Step 2: Is "DF" 24 or more?

- No (less than 24 months) -> Replace the ink absorber.
- Yes (24 months or more) -> No need to replace the ink absorber.

Note: If the "ST" (installation date) value is 2010/06/30 or earlier, the "DF" (ink absorber life) value is incorrect. Skip Step 2.
The ink absorber life is an estimated value calculated based on the user's machine usage.

< How to read the EEPROM information print >