PIXMA MX870

SERVICE MANUAL

Canon

TABLE OF CONTENTS

<TABLE OF CONTENTS>

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	Service Tool*1 Perform in the service mode.	1 min.
	Destination settings (EEPROM settings)	- At logic board replacement	To set destination.	Service Tool*1 Perform in the service mode.	1 min.
	Ink absorber counter resetting (EEPROM settings)	- At logic board replacement - At ink absorber replacement	To reset the ink absorber counter.	Service Tool*1 Perform in the service mode.	1 min.
	Ink absorber counter value setting (EEPROM settings)	- At logic board replacement	To set the ink amount data in the ink absorber to the ink absorber counter.	Service Tool*1 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.	Screwdriver, a pair of tweezers, etc.	15 min.
	Paper feed motor position adjustment	- At paper feed motor replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	5 min.
N	Automatic print head alignment	- At print head replacement - At logic board replacement - When print quality is not satisfying	To secure the dot placement accuracy.	None. Perform in the user mode.	6 min.
	Manual print head alignment	- At print head replacement - At logic board replacement - When print quality is not satisfying	To secure the dot placement accuracy.	None. Perform in the user mode.	10 min.
	Grease application	- At carriage unit replacement	To maintain sliding properties of the carriage rail.	FLOIL KG-107A	1 min.
	Ink system function check	- At logic board replacement - At spur unit replacement - At carriage unit replacement	To maintain detection functionality for presence of the ink tanks and each ink tank position.	Service Tool*1 Perform in the service mode.	1 min.
	LCD language settings	- At logic board replacement	To set the language to be displayed on the LCD.	None. Perform in the user mode.	1 min.
	Platen glass protection sheet (document pressure sheet) position	- At protection sheet replacement - At document bottom cover replacement - At scanner unit replacement	To maintain scanning accuracy, hold the sheet with the long side down, then fit its upper left corner to the platen glass reference mark (back	None.	1 min.

	adjustment		left).		
	LF / Eject correction	- At logic board replacement - At paper feed roller replacement	To correct line feeding (LF roller diameter).	Service Tool*1 Perform in the service mode.	5 min. (LF correction and Eject correction is performed at the same time.)
		- At logic board replacement - At platen unit replacement	To correct line feeding (eject roller diameter).	Service Tool*1 Perform in the service mode.	
	Carriage rail position adjustment	- At carriage unit replacement - At carriage unit removal	To set the carriage rail to the original position prior to removal or replacement of the carriage unit, put a mark on the main chassis before removal of the carriage unit.	None.	1 min.
	FAX user data settings	- At logic board replacement - At modular board replacement	To confirm the FAX user data settings.	None. Perform in the user mode.	2 min.

N: New adjustment item

*1: Install the Service Tool version 1.072 or later to a pre-registered computer.

- The screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.
- For print head alignment, perform manual print head alignment using plain paper.

(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.	- Machine buttons - Computer (MP driver)	6 min.
Manual print head alignment	- At print head replacement - When print quality is not satisfying (uneven printing, etc.)	To ensure accurate dot placement.	- Machine buttons - Computer (MP driver)	10 min.
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Machine buttons - Computer (MP driver)	1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	- Machine buttons - Computer (MP driver)	2 min.
Ink tank replacement	When an ink tank becomes empty. ("No ink error" displayed on the monitor or on the machine LCD, or short flashing of an ink tank LED)	To replace the empty ink tank.	---	1 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 of the selected paper source (rear tray or cassette).	- Machine buttons - Computer (MP driver)	2 min.
Bottom plate cleaning	When the back side of the paper is smeared.	To clean the platen ribs. (Feed the paper from the rear tray.)	- Machine buttons - Computer (MP driver)	1 min.
Scanning area cleaning	When the platen glass or document pressure sheet is dirty.	To clean the platen glass and pressure sheet.	Soft, dry, and clean lint-free cloth.	1 min.
Exterior cleaning	When necessary	To clean the machine exterior, or to wipe off dusts.	Soft, dry, and clean lint-free cloth.	1 min.

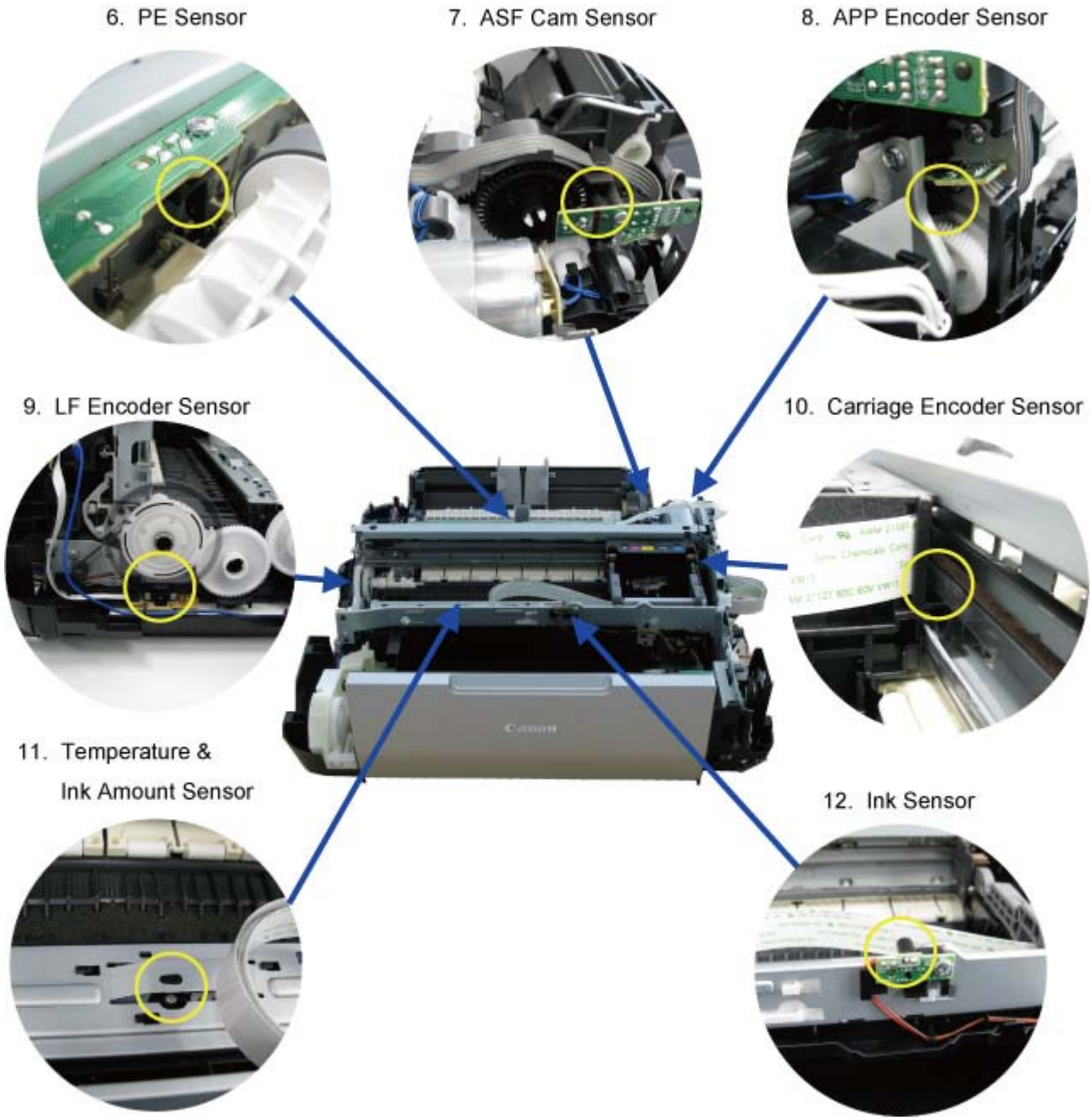
1-3. Special Tools

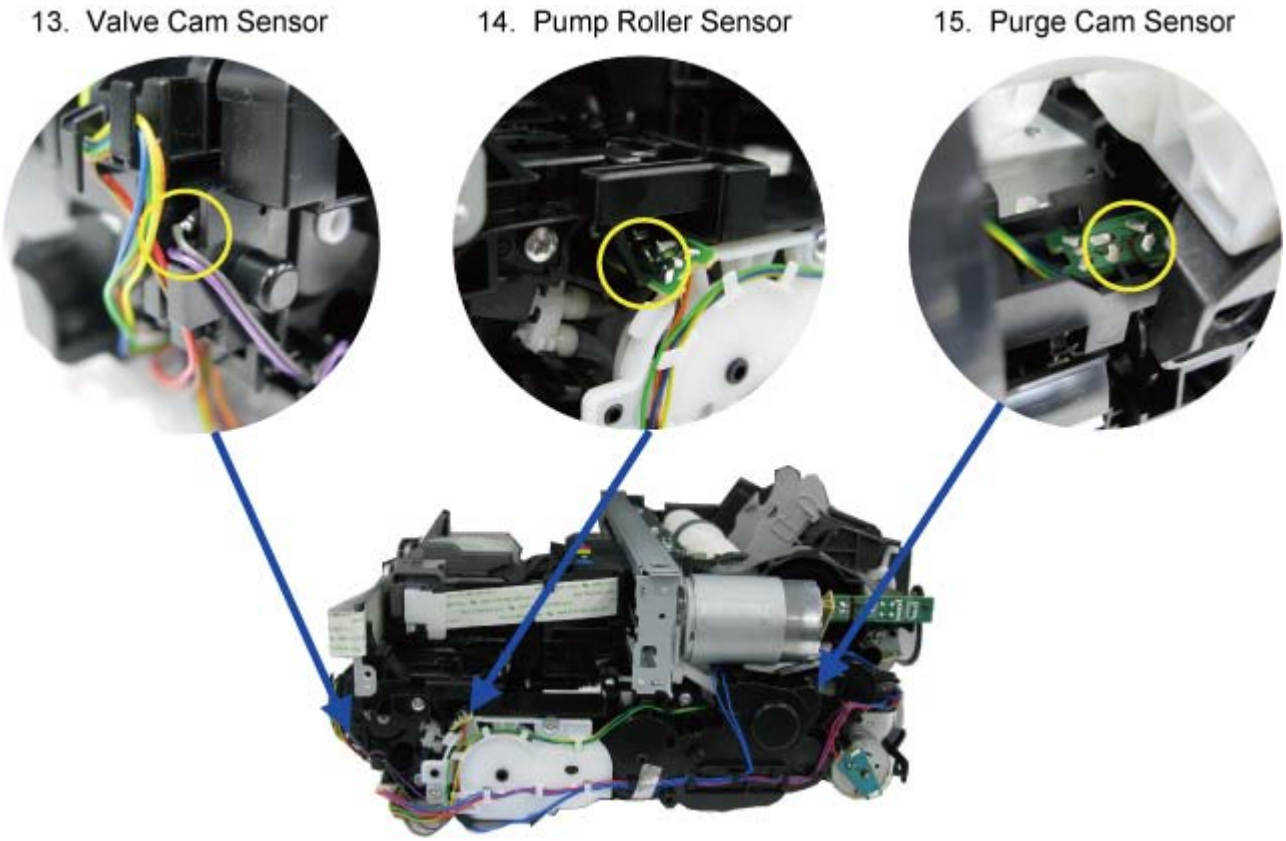
Name	Tool No.	Application	Remarks
FLOIL KG-107A	QY9-0057-000	To the carriage rail sliding portions.	In common with the MP610, etc.

1-4. Sensors

No.	Sensor	Function	Possible problems
1	DES sensor	Detects paper ejection from the ADF.	- Paper jam in the ADF
2	DS sensor	Detects paper feeding from the ADF.	- No paper in the ADF
3	ADF cover sensor	Detects opening and closing of the document feeder cover.	- Although the document feeder cover is closed, the machine indicates that the cover is open.
4	DF open sensor	Detects opening and closing of the ADF.	- The machine stays in the sleep mode even when the document feeder is opened.
5	Scanner open sensor	Detects opening and closing of the scanning unit (cover).	- The carriage does not move to the center even when the scanning unit (cover) is opened.
6	PE sensor	Detects the positions of the leading and trailing edges of paper.	- No paper - Paper jam
7	ASF cam sensor	Detects the position of the ASF cam (during paper feeding from the rear tray).	- ASF cam sensor error - Paper feed problem
8	APP encoder sensor	Detects the amount of rotation of the APP encoder. (Controls purging operation and paper feeding from the rear tray or from the cassette).	- APP sensor error - APP position error
9	LF encoder sensor	Detects the amount of rotation of the LF encoder.	- LF position error - Uneven printing
10	Carriage encoder sensor	Detects the position of the carriage.	- Carriage position error - Printing shifts from the correct position. - Uneven printing - Strange sound
11	Temperature & Ink amount sensor	Detects the temperature of the inside of the machine and the remaining ink amount.	- Internal temperature error - Low-ink or out-of-ink warning
12	Ink sensor	Detects the position of an ink tank.	- Wrong position of an ink tank - An error indicating that multiple ink tanks of the same color are installed - No recognition of an ink tank
13	Valve cam sensor	Detects the position of the purge valve cam. (Controls purging operation.)	- Valve cam sensor error
14	Pump roller sensor	Detects the position of the purge pump roller. (Controls purging operation.)	- Pump roller sensor error
15	Purge cam sensor	Detects the position of the purge main cam. (Controls purging operation.)	- Purge cam sensor error


1. DES Sensor
2. DS Sensor
3. ADF Cover
4. DF Open Sensor
5. Scanner Open Sensor
エラー


6. PE Sensor
7. ASF Cam Sensor
8. APP Encoder Sensor
9. LF Encoder Sensor
10. Carriage Encoder Sensor
11. Temperature &
Ink Amount Sensor
12. Ink Sensor



1-5. Serial Number Location

On the inner guide over the upper portion of the spur holder (visible when the scanning unit (cover) is opened)

When the machine power is OFF.

When the machine power is ON.

2. LIST OF ERROR DISPLAY / TROUBLESHOOTING

Errors and warnings are displayed by the following ways:

1. 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.
2. Messages during printing from a computer are displayed on the MP driver Status Monitor.
3. 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:

1. ON button: To turn the machine off and on again.
2. 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.
3. Stop button: To cancel the job at error occurrence, and to clear the error.

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

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.	- ASF unit - Pressure roller unit - Switch system unit - Paper feed motor
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.	- Pick-up arm unit - Pressure roller unit - Switch system unit - Paper feed motor
Paper jam.	[1300]	---	The paper is jammed. Clear the paper and press [OK].	Remove the jammed paper or foreign material causing a paper jam (paper remainings, clips, pens, etc.), and press the OK button.	- ASF unit - Pick-up arm unit - Cassette unit - Pressure roller unit
Paper jam in the rear guide.	[1303]	---			
Paper jam in the under guide.	[1304]	---			
Ink may have run out.	[1600]	U041	The following ink may have run out. Replacing the ink tank is recommended.	Replace the applicable ink tank, or press the OK button to clear the error without ink tank replacement. When the error is cleared by pressing the OK button, ink may run out during printing.	- Ink tank - Spur unit - Logic board
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 - Logic board
Print head not installed, or not properly installed.	[1401]	U051	Print head is not installed. Install the print head.	Install the print head properly.	- Print head - Carriage unit - Logic board
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.	- Print head - Logic board
Print head temperature sensor	[1403]				

error.					
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 - Logic board
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 - Logic board
Warning: The ink absorber becomes almost full.	[1700]	---	Contact the support center or service center for ink absorber replacement. Press [OK] to continue printing.	Replace the ink absorber, and reset its counter. [See 4-5. Special Notes on Servicing, (5) Ink absorber counter setting.] 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.	- Absorber kit
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.	- PictBridge board - Logic board
Automatic duplex printing cannot be performed.	[1310]	---	This paper is not compatible with duplex 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 feed roller unit - PE sensor board - Logic board
The remaining ink amount unknown (raw ink present).	[1683]	U130	(Applicable ink tank icon) The remaining level of the ink cannot be correctly detected.	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 (an ink tank that is sold in a different region from where the machine was purchased) is installed (the ink tank LED is turned off). Install the supported ink tanks.	- Ink tank - Logic board
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 - Logic board
No ink (no raw ink).	[1688]	U163	The ink has run out. Replace the	Replace the empty ink tank(s), and close the scanning unit (cover).	- Ink tank - Spur unit

			ink tank. (Applicable ink tank icon)	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.	- Logic board
Non-supported hub.	[2002]	---	An unsupported USB hub is connected. Remove the hub.	Remove the applicable USB hub from the PictBridge (USB) connector.	- PictBridge board - Logic board
Document cover not closed.	[2800]	---	The feeder cover is open. Close cover and press [OK].	Close the document cover, and press the OK button.	- DF unit - DF switch unit
Paper jam in the ADF.	[2801]	---	Document in ADF. Redo operation after checking document in ADF and pressing [OK].	Remove the paper from the ADF, and press the OK button.	- DF unit
No paper in the ADF.	[2802]	---	No document in ADF. Press [OK] and redo operation after setting document.	Press the OK button to clear the error.	- DF unit
Paper in the ADF is too long.	[2803]	---	Document size is too long. Redo operation after checking document on ADF and pressing [OK].	Remove the paper from the ADF, and press the OK button.	- DF unit
Duplex printing not available with the paper in the ADF.	[2804]	---	Document size not suitable for two-sided scanning. Press [OK] to cancel operation and discharge document.	Remove the paper from the ADF, and press the OK button.	- DF unit
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.	

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 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.

Cycles of blinking of Alarm and Power LEDs	Error	Error code	Conditions	Solution (Check points and replacement items)
2 times	Carriage error	[5100]	An error occurred in the carriage encoder signal.	(1) Smearing or scratches on the carriage slit film; clean the timing slit film. (2) Foreign material or paper debris that obstructs the carriage movement; remove foreign material. (3) Ink tank conditions; re-set the ink tanks. (4) Cable connection (5) Part replacement: - Timing slit disk film - Carriage unit - Logic board - Carriage motor
3 times	Line feed error	[6000]	An error occurred in the LF encoder signal.	(1) Opening and closing of the paper output tray; the tray must be opened properly. (2) Smearing or scratches on the LF / EJ slit film; clean the LF / EJ slit film. (3) Foreign material or paper debris in the LF drive; remove foreign material. (4) Cable connection (5) Part replacement: - LF / EJ slit film - LF / EJ timing sensor unit - Paper feed roller unit - Logic board - Paper feed motor
4 times	Purge cam sensor error	[5C00]	An error occurred in the purge unit.	(1) Foreign material or paper debris around the purge drive system unit; remove foreign material. (2) Cable connection (3) Part replacement: - Purge drive system unit - Logic board
5 times	ASF (cam) sensor error	[5700]	An error occurred in the ASF cam sensor.	(1) Cable connection (2) Part replacement: - ASF unit - PE sensor board unit - Logic board
6 times	Internal temperature error	[5400]	The internal temperature is not normal.	(1) Cable connection (2) Part replacement: - Spur unit - Logic board - Print head
7 times	Ink absorber	[5B00] [5B01]	The ink absorber is supposed to be full.	(1) Ink absorber condition (2) Part replacement:

	full		Message on the LCD: Ink absorber full. Service required. Error codes: 5B00: Main ink absorber is full (overseas). 5B01: Main ink absorber is full (Japan). (In EEPROM information print, "5B00" is printed instead of "5B01.")	- Ink absorber kit and double-sided adhesive tape (3) Ink absorber counter value in the EEPROM; reset the ink absorber counter.
8 times	Print head temperature rise error	[5200]	The print head temperature exceeded the specified value.	(1) Print head condition (2) Head contact pin condition of the carriage unit (3) Cable connection (4) Part replacement: - Print head - Logic board - Carriage unit
9 times	EEPROM error	[6800] [6801]	A problem occurred in reading from or writing to the EEPROM.	(1) Part replacement: - Logic board
10 times	VH monitor error	[B200]	The internal temperature exceeded the specified value.	(1) Head contact pin condition of the carriage unit (2) Cable connection (especially the carriage FFC) (3) Part replacement: - Print head and logic board (Replace them at the same time.) - Power supply unit - Carriage unit
11 times	Carriage lift mechanism error	[5110]	The carriage did not move up or down properly.	(1) Foreign material or paper debris that obstructs the carriage movement; remove foreign material. (2) Part replacement: - Switch system unit - Carriage unit
12 times	APP position error	[6A80]	An error occurred in the APP motor.	(1) Foreign material or paper debris around the purge drive system unit; remove foreign material, and confirm that the ink absorber right beneath the purge drive system unit stays in place and does not contact the unit. (2) Foreign material or paper debris around the ASF unit; remove foreign material. (3) Cable connection (4) Part replacement: - Purge drive system unit - Logic board
14 times	APP sensor error	[6A90]	An error occurred during paper feeding or purging.	
	Paper feed cam sensor error	[6B10]	An error occurred in the paper feed cam sensor during paper feeding from the cassette, or the paper absorbing a large amount of ink jammed in the PF rear guide.	(1) Jammed paper in the PF rear guide (when a large amount of ink was absorbed in the paper); remove the jammed paper and foreign material. (2) Foreign material or paper debris in the cassette or in the PF rear guide; remove foreign material. (3) Part replacement: - PF pick-up unit - Logic board
15 times	USB host Vbus overcurrent	[9000]	The USB host Vbus overloaded.	(1) Part replacement: - Logic board
16 times	Pump roller	[5C20]	The pump roller position cannot	(1) Cable connection

	sensor error		be detected.	(2) Part replacement: - Purge drive system unit
17 times	Paper eject encoder error	[6010]	An error occurred in the paper eject encoder signal.	(1) Smearing or scratches on the LF / EJ slit film; clean the LF / EJ slit film. (2) Foreign material or paper debris in the paper path; remove foreign material. (3) Cable connection (4) Part replacement: - LF / EJ slit film - LF / EJ timing sensor unit - Platen unit - Logic board - Paper feed motor
19 times	Ink tank position sensor error	[6502]	None of the ink tank position is detected.	(1) Ink tank position; confirm the ink tank position. (2) Re-set or replacement of ink tanks (3) Cable connection (4) Part replacement: - Spur unit - Logic board
20 times	Other errors	[6500]	An unidentified error or a network error occurred.	(1) Part replacement: - Logic board
21 times	Drive switch error	[C000]	Drive was not switched properly.	(1) Foreign material or paper debris in the drive switch area; remove foreign material. (2) Ink tank conditions; confirm that the ink tanks are seated properly, or re-set the ink tanks properly. (3) Part replacement: - Carriage unit - Purge drive system unit - ASF unit
22 times	Scanner error	[5011]	An error occurred in the scanner.	(1) Document pressure sheet conditions (1) Cable connection (2) Part replacement: - Document pressure sheet (sponge sheet) - Scanner unit - Logic board
	FB motor error	[5012]	An error occurred in the scanner FB motor.	(1) Cable connection (2) Part replacement: - Scanner unit
23 times	Valve cam sensor error	[6C10]	The valve cam sensor was faulty at power-on or when purging was attempted.	(1) Foreign material or paper debris around the purge drive system unit; remove foreign material. (2) Cable connection (3) Part replacement: - Purge drive system unit - Logic board

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 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 4-5. Special Notes on Servicing, (5) Ink absorber counter setting, for details.]

2-3. FAX Errors

For errors other than those listed below, please refer to the "*G3 / G4 Facsimile Error Code List (Rev. 2.*" (HY8-22A6-020 in English).

(1) User error codes

Error code	TX / RX	Meaning	Solution (Parts that are likely to be faulty)
#001	TX	Document jam	- DF unit
#003	TX / RX	Document is too long, or page time-over	- DF unit
#005	TX / RX	Initial identification (T0 / T1) time-over	- Check the telephone line type settings (rotary pulse / touch tone).
#009	RX	Recording paper jam, or no recording paper	- ASF unit - Pick-up arm unit - Cassette unit - Pressure roller unit
#012	TX	No recording paper at the receiving machine	
#017	TX	Redial time-over, but no DT detected	
#018	TX	Auto dialing transmission error, or redial time-over	- Check the telephone line type settings (rotary pulse / touch tone).
#022	TX	Call failed (no dial registration)	- Register a dial number.
#037	RX	Memory overflow at reception of an image	- Delete unnecessary image data from the memory.
#085	TX	No color fax function supported in the receiving machine	- Send a fax in the B&W mode.
#099	TX / RX	Transmission terminated mid-way by pressing the Stop/Reset button	
#995	TX / RX	During TX (sending): Memory transmission reservation cancelled During RX (receiving): Image data received in the memory cleared	

(2) Service error codes

Error code	TX / RX	Meaning	Solution (Parts that are likely to be faulty)
##100	TX	Re-transmission of the procedure signal has been attempted the specified number of times, but failed.	- Try a higher transmission level.
##101	TX / RX	Sender's modem speed does not match the receiving machine.	
##102	TX	Fallback is not available.	- Try a higher transmission level.
##103	RX	EOL has not been detected for 5 seconds (or 15 seconds in CBT).	- Increase the transmission level of the sending machine.
##104	TX	RTN or PIN has been received.	- Try a higher transmission level.
##106	RX	The procedure signal has been expected for 6 seconds, but not received.	- Increase the transmission level of the sending machine.
##107	RX	Fallback is not available at the sending machine.	- Increase the transmission level of the sending machine.
##109	TX	After DCS transmission, a signal other than DIS, DTC, FTT, CFR, or CRP has been received, and re-transmission of the procedure signal has been attempted the specified number of times but failed.	

##111	TX / RX	Memory error	- Eliminate all the data, and register them again.
##114	RX	RTN has been received.	- Increase the transmission level of the sending machine.
##200	RX	A carrier has not been detected for 5 seconds during image reception.	- Increase the transmission level of the sending machine.
##201	TX / RX	DCN has been received in a method other than the binary procedure.	- Set the other machine ready for reception.
##204	TX	DTC has been received even when there is no sending data.	
##220	TX / RX	System error (main program hang-up)	- Turn the machine off, and turn it on again - Modular board - Logic board
##224	TX / RX	An error has occurred in the procedure signal in G3 transmission.	
##226	TX / RX	The stack pointer has shifted from the RAM area.	- Turn the machine off, and turn it on again.
##229	RX	The recording area has been locked for 1 minute.	- After the area is unlocked, print the recorded image.
##232	TX	The encoder control unit has malfunctioned.	- Modular board - Logic board
##237	RX	The decoder control unit has malfunctioned.	- Modular board - Logic board
##238	RX	The print control unit has malfunctioned.	- Modular board - Logic board
##261	TX / RX	A system error has occurred between the modem and the system control board.	- Modular board - Logic board
##280	TX	Re-transmission of the procedure signal has been attempted the specified number of times, but failed.	- Try a higher transmission level.
##281	TX	Re-transmission of the procedure signal has been attempted the specified number of times, but failed.	- Try a higher transmission level.
##282	TX	Re-transmission of the procedure signal has been attempted the specified number of times, but failed.	- Try a higher transmission level.
##283	TX	Re-transmission of the procedure signal has been attempted the specified number of times, but failed.	- Try a higher transmission level.
##284	TX	After TCF transmission, DCN has been received.	- Set the receiving machine ready for reception.
##285	TX	After EOP transmission, DCN has been received.	- Re-send the fax.
##286	TX	After EOM transmission, DCN has been received.	- Re-send the fax.
##287	TX	After MPS transmission, DCN has been received.	- Re-send the fax.
##288	TX	After EOP transmission, a signal other than PIN, PIP, MCF, RTP, RTN has been received.	
##289	TX	After EOM transmission, a signal other than PIN, PIP, MCF, RTP, RTN has been received.	
##290	TX	After MPS transmission, a signal other than PIN, PIP, MCF, RTP, RTN has been received.	
##670	TX	In V.8 late start, the DIS V.8 ability from the receiving machine was detected, and CI was sent in response; however, the procedure failed, causing T1 time-over.	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending

			machine.
##671	RX	In V.8 call reception, the procedure fails to proceed to phase 2 after CM detection, causing T1 time-over.	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending machine.
##672	TX	In V.34 transmission, the procedure fails to proceed from phase 2 to phase 3 or later, causing T1 time-over	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending machine.
##673	RX	In V.34 reception, the procedure fails to proceed from phase 2 to phase 3 or later, causing T1 time-over	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending machine.
##674	TX	In V.34 transmission, the procedure fails to proceed from phase 3 or 4 to the control channel or later, causing T1 time-over	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending machine.
##675	RX	In V.34 reception, the procedure fails to proceed from phase 3 or 4 to the control channel or further, causing T1 time-over	- In bit 0 of the service data #1 SSSW SW28, prohibit the V.8 / V.34 procedure of the sending machine.
##750	TX	After transmitting PPS-NULL in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##752	TX	After transmitting PPS-NULL in ECM transmission, DCN has been received.	- Try a higher transmission level.
##753	TX	After transmitting PPS-NULL in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##754	TX	After transmitting PPS-NULL in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##755	TX	After transmitting PPS-MPS in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##757	TX	After transmitting PPS-MPS in ECM transmission, DCN has been received.	- Try a higher transmission level.
##758	TX	After transmitting PPS-MPS in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##759	TX	After transmitting PPS-MPS in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##760	TX	After transmitting PPS-EOM in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##762	TX	After transmitting PPS-EOM in ECM transmission, DCN has been received.	- Try a higher transmission level.

##763	TX	After transmitting PPS-EOM in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##764	TX	After transmitting PPS-EOM in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level. - Increase the transmission level of the receiving machine.
##765	TX	After transmitting PPS-EOP in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level. - Increase the transmission level of the receiving machine.
##767	TX	After transmitting PPS-EOP in ECM transmission, DCN has been received.	- Try a higher transmission level.
##768	TX	After transmitting PPS-EOP in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##769	TX	After transmitting PPS-EOP in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level. - Increase the transmission level of the receiving machine.
##770	TX	After transmitting EOR-NULL in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level. - Increase the transmission level of the receiving machine.
##772	TX	After transmitting EOR-NULL in ECM transmission, DCN has been received.	- Try a higher transmission level.
##773	TX	After transmitting EOR-NULL in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##774	TX	After transmitting EOR-NULL in ECM transmission, ERR has been received.	- Try a higher transmission level.
##775	TX	After transmitting EOR-MPS in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level.
##777	TX	After transmitting EOR-MPS in ECM transmission, DCN has been received.	- Try a higher transmission level.
##778	TX	After transmitting EOR-MPS in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##779	TX	After transmitting EOR-MPS in ECM transmission, ERR has been received.	- Try a higher transmission level.
##780	TX	After transmitting EOR-EOM in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Increase the transmission level of the receiving machine.
##782	TX	After transmitting EOR-EOM in ECM transmission, DCN has been received.	- Increase the transmission level of the receiving machine.
##783	TX	After transmitting EOR-EOM in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.)	- Increase the period of time of the T5 time-over.

		has occurred.	
##784	TX	After transmitting EOR-EOM in ECM transmission, ERR has been received.	- Try a higher transmission level.
##785	TX	After transmitting EOR-EOP in ECM transmission, no significant signal has been received, and re-transmission of the procedure signal has been attempted the number of specified times but failed.	- Try a higher transmission level. - Increase the transmission level of the receiving machine.
##787	TX	After transmitting EOR-EOP in ECM transmission, DCN has been received.	- Try a higher transmission level.
##788	TX	After transmitting EOR-EOP in ECM transmission, re-transmission of the procedure signal has been attempted the number of specified times but failed, or T5 time-over (60 sec.) has occurred.	- Increase the period of time of the T5 time-over.
##789	TX	After transmitting EOR-EOP in ECM transmission, ERR has been received.	- Try a higher transmission level.
##790	RX	After receiving EOR-EOP in ECM reception, ERR has been transmitted.	- Increase the transmission level of the sending machine.
##791	TX / RX	During the ECM mode procedure, a signal other than a significant one has been received.	
##792	RX	In ECM reception, PPS-NULL between partial pages has not been detected.	- Increase the transmission level of the sending machine.
##793	RX	During high-speed signal reception in ECM, no effective frame has been detected, and a time-over has occurred.	- Try a higher transmission level. - Increase the transmission level of the sending machine.

2-4. Troubleshooting by Symptom

	Symptom	Solution
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	(1) Confirm harness and connector conditions. (2) Replace the following item(s): - Logic board - Power supply unit - Panel board
	A strange noise occurs.	(1) Examine and remove any foreign material or paper debris. (2) Replace the following item(s): - The part generating the strange noise - Logic board
	The LCD does not display properly. A portion of the LCD is not displayed. The display flickers.	(1) Confirm cable connection (LCD FFC and panel harness): - Harness and connector conditions - No cable breakage, etc. (2) Replace the following item(s): - LCD FFC - LCD viewer unit - Panel board - Logic board
	Paper feed problems (multi-feeding, skewed feeding, no feeding).	(1) Examine and remove any foreign material or paper debris. (2) Confirm that the paper guides are set properly. (3) Confirm the PF rear cover and the cassette conditions. (4) Confirm cable connection. (5) Replace the following item(s): - ASF unit (for paper feeding error from the rear tray) - PF pick-up unit (for paper feeding error from the cassette) - DF unit (for document scanning error) - PE sensor board - Pressure roller unit - Cassette unit
	Faulty scanning (no scanning, strange noise).	(1) Confirm cable connection (scanner motor cable and CIS FFC): - Harness and connector conditions - No cable breakage, etc. (2) Replace the following item(s): - Scanner unit - Logic board
Unsatisfactory print quality	No printing, or no color ejected. Faint printing, or white lines on printouts. Uneven printing. Improper color hue.	(1) Confirm the ink tank conditions: - Confirmation of the air-through of an ink tank - Re-setting of an ink tank - Whether the ink tank is Canon-genuine one or not - Whether the ink tank is refilled one or not (2) Remove foreign material from the purge unit caps, if any. (3) Perform cleaning or deep cleaning of the print head. (4) Perform print head alignment. (5) Replace the following item(s): - Print head[*1], and ink tanks

		- Logic board - Purge drive system 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 unit (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
	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 film. (2) Replace the following item(s): - Timing slit film - Carriage unit - Logic board - 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): - LF / EJ slit film - LF / EJ timing sensor unit - Platen unit - Logic board - Scanner unit (for copying)
Faulty scanning	No scanning.	(1) Replace the following item(s): - Scanner unit - Logic board
	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
Network connection problem	No printing.	(1) Examine if printing is performed properly via USB connection. (2) Confirm the network settings. (3) Replace the following item(s): - Logic board (for wired / wireless LAN) - WLAN board (for wireless LAN)
FAX problem	No FAX sending or reception.	(1) Confirm the FAX settings. (2) Replace the following item(s): - Modular board - Logic board

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

3. REPAIR

3-1. Major Replacement Parts (and Notes on Disassembling / Reassembling)

Service part	Est. time required (min.)	Recommended removal procedure*1 / Notes on replacement*2	Adjustment / settings	Operation check
Logic board ass'y	15	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Logic board ass'y - 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).	**After replacement:** 1. Initialize the EEPROM. 2. Set the ink absorber counter value. 3. Set the destination in the EEPROM. 4. Correct the automatic print head alignment sensor. 5. Check the ink system function. 6. Perform LF / Eject correction (only when streaks or uneven printing occurs). 7. Perform button and LCD test. Perform 1 to 7 in the service mode. [See 4-2. Service Mode, for details.] 8. Perform print head alignment in the user mode. 9. Set the language displayed on the LCD in the user mode.	- EEPROM information print - Service test print - Printing via USB connection - Copying - Direct printing from a digital camera (PictBridge)
Absorber kit	15	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Print unit (8) Ink absorber - See 3-2. Part Replacement Procedures, (3) Printer unit removal & Ink absorber replacement, for details.	**After replacement:** 1. Reset the ink absorber counter. [See 4-2. Service Mode, for details.]	- Ink absorber counter value print (After the ink absorber counter is reset, the counter value is printed automatically
Carriage unit	20	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Timing slit strap (8) Carriage rail (9) Carriage unit - Before removal of the carriage rail, put a mark of the carriage rail position. - Keep the timing slit strap (carriage encoder film) free from stain or damage. When returning the strap, make sure of its orientation (left and right, front and back). - See 3-2. Part Replacement Procedures, (7) Carriage unit removal, for details.	**At replacement:** 1. Apply grease to the sliding portions of the carriage rail. [See 4-4. Grease Application, for details.] 2. Check the ink system function. [See 4-2. Service Mode, for details.] 3. Perform print head alignment in the user mode.	- Service test print (Confirm ink system function.)
Switch system unit	30	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit	**At replacement:** 1. Adjust the paper feed motor. [See 4-5. Special Notes on Servicing,	- EEPROM information print

Paper feed motor		(4) Scanner unit (5) Main case (6) Rear cover (7) Print unit (8) See 3-2. Part Replacement Procedures. - 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.) - See 3-2. Part Replacement Procedures, (9) Purge drive system unit (right plate) and switch system unit (left plate) removal, for details. - See 3-2. Part Replacement Procedures, (10) Engine unit reassembly, for details.	(2) Paper feed motor adjustment, for details.]	- Service test print
Platen unit	30	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Print unit (8) See 3-2. Part Replacement Procedures, from this step.	**After replacement:** 1. Perform LF / Eject correction in the service mode (only when uneven printing or streaks appear on printouts after replacement). [See 4-2. Service Mode, for details.]	- EEPROM information print - Service test print
Spur unit	30	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Print unit (8) See 3-2. Part Replacement Procedures. - DO NOT contact the spur edges.	**After replacement:** 1. Check the ink system function. 2. Perform LF / Eject correction in the service mode (only when uneven printing or streaks appear on printouts after replacement). [See 4-2. Service Mode, for details.]	- EEPROM information print - Service test print
Purge drive system unit	30	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) Rear cover (7) Print unit (8) See 3-2. Part Replacement Procedures. - See 3-2. Part Replacement Procedures, (9) Purge drive system unit (right plate) and switch system unit (left plate) removal, for details. - See 3-2. Part Replacement Procedures, (10) Engine unit reassembly, for details.	**After replacement:** 1. Confirm the purging operation and the machine operation. [See 4-6. Verification After Repair for details.]	- Service test print
Carriage rail and main chassis	30	See 3-2. Part Replacement Procedures, and Parts Catalog.	**At replacement:** 1. Apply grease to the sliding portions. [See 4-4. Grease Application, for details.]	- Service test print
Idler pulley parallel pin	30			
APP code	30			

wheel gear shaft				
Document pressure sheet Document bottom cover Scanner unit	10	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit	**At replacement:** 1. Confirm the document pressure plate sheet position. [See 4-5. Special Notes on Servicing, (4) Document pressure sheet replacement, for details.]	- Service test print
LCD ass'y	10	(1) Panel cover (2) Operation panel (3) LCD ass'y - Be cautious not to scratch or damage the LCD cable.	**At replacement:** 1. Perform button and LCD test. [See 4-2. Service Mode, for details.]	- Service test print
Timing slit strip film Timing slit disk feed film	15 15	See 3-2. Part Replacement Procedures, and Parts Catalog. - 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.	**After replacement:** 1. Perform print head alignment in the user mode. 2. Perform LF / Eject correction in the service mode (only when uneven printing or streaks appear on printouts after replacement). [See 4-2. Service Mode, for details.]	- EEPROM information print - Service test print
Print head	1		**After replacement:** 1. Perform print head alignment in the user mode.	- Service test print
Wireless LAN board ass'y	15	(1) Cassette unit (2) Left and right side covers (3) Document pressure plate unit (4) Scanner unit (5) Main case (6) WLAN board	**After replacement:** 1. Reset the LAN settings in the user mode. 2. In the service mode, confirm that the WLAN MAC address is properly updated. [See 4-2. Service Mode, for details.]	- EEPROM information print - Service test print

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

*2: General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly. See 3-2. Part Replacement Procedures or the Parts Catalog for details.
- 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 machine 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, timing slit disk feed film, and timing slit disk eject film. 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 screws of the paper feed motor may be loosened only at replacement of the paper feed motor unit (DO NOT loosen them in other cases).

  ii. Before loosening the 3 screws that fix the carriage rail to the main chassis, mark the screw positions so that the carriage rail will be re-attached to the main chassis in its original position. [See 3-2. Part Replacement Procedures, (7) Carriage unit removal, for details.]

3-2. Part Replacement Procedures

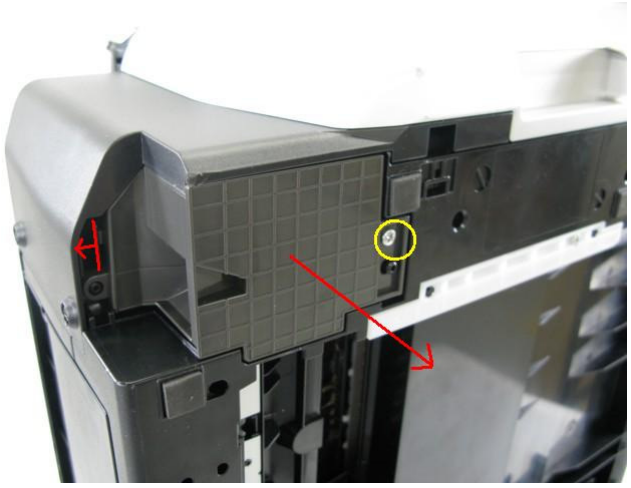
Be sure to protect the machine from static electricity in repair servicing, especially for the LCD, operation panel board, scanner unit, logic board, card board, WLAN board, modular board, and PE sensor board.

Some of the photos below are for the MX860, since its structure is similar to that of the MX870.

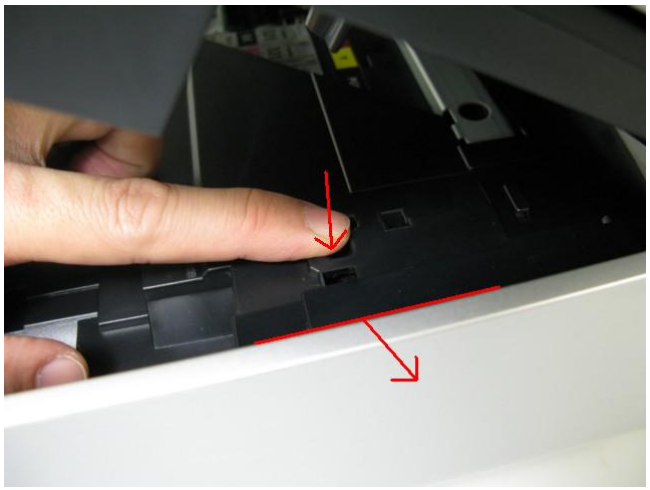
(1) External housing, scanner unit, and document cover removal

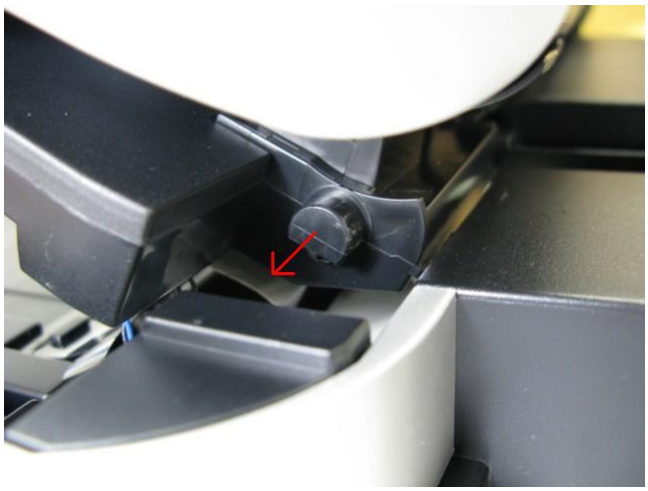
1) Remove the cassette and the rear guide unit. (no screws)

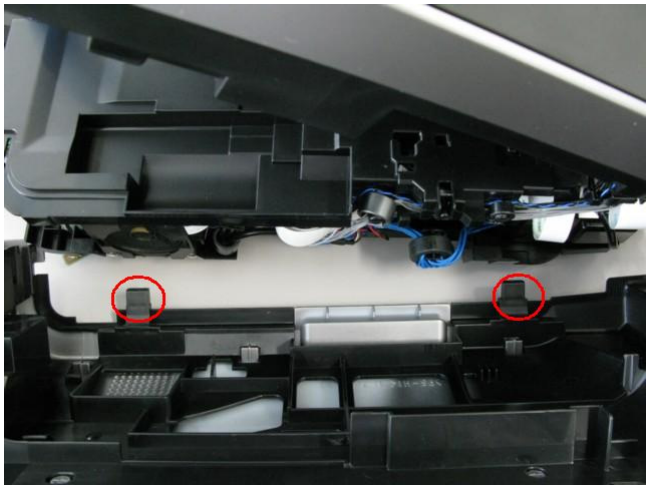
2) Remove the AC adapter. (1 screw)
<Pull out the AC adapter from the bottom of the bottom case.>
<The core fits to the AC adapter rib.>
See "4-5. Special Notes on Servicing, (7) Power supply unit and modular board replacement."



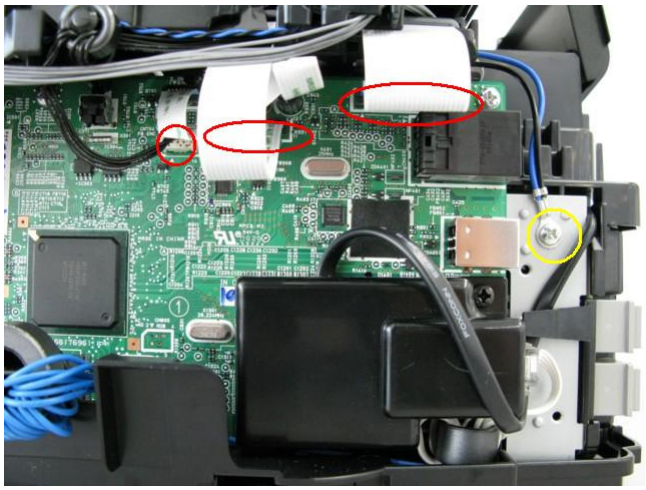

3) Remove the side cover R. (2 screws)
<The scanner unit hinges are fitted in the right and left side covers.>





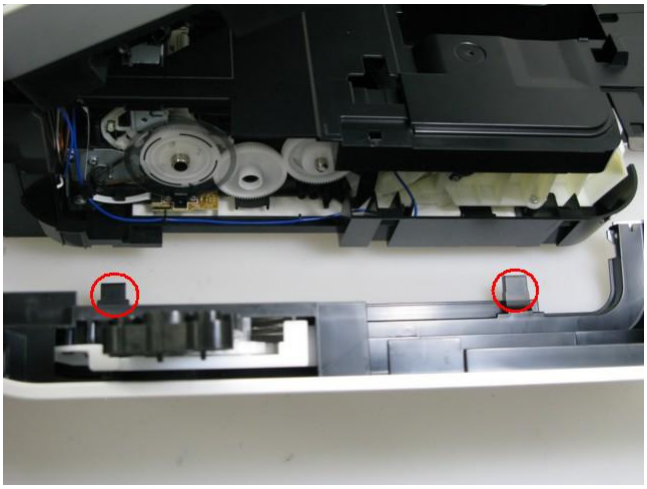
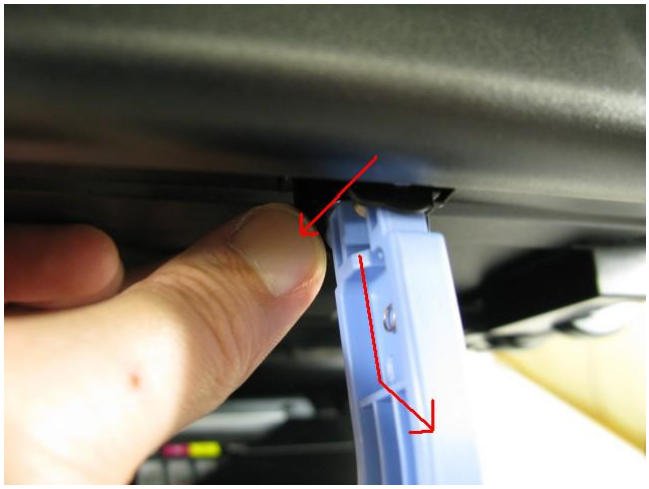
4) Remove the scanner cable, LCD cable, document feeder harness, panel ground harness, and core. (1 screw)
<The core fits to the main case rib.>



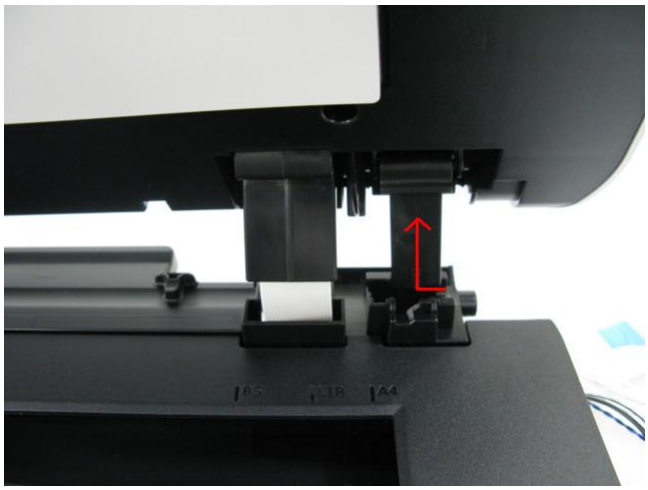
5) Remove the side cover L, disengage the scanner support, then separate the scanner from the printer. (4 screws)



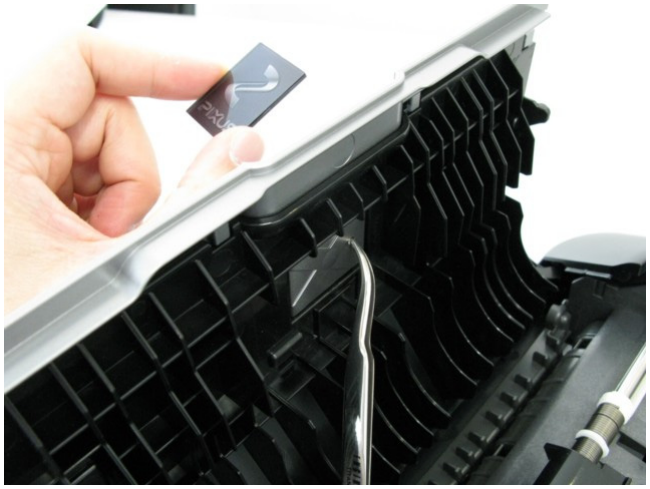


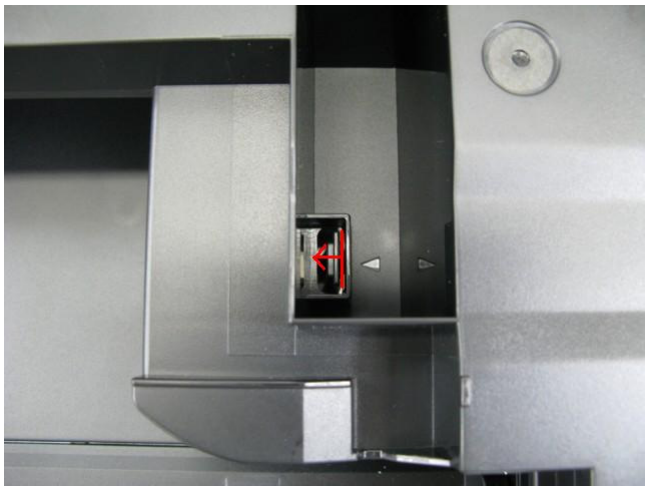
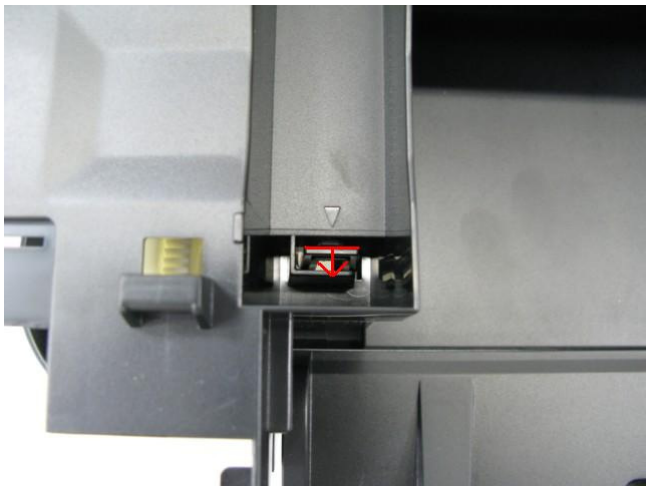

6) Separate the scanner from the document feeder. (no screws)

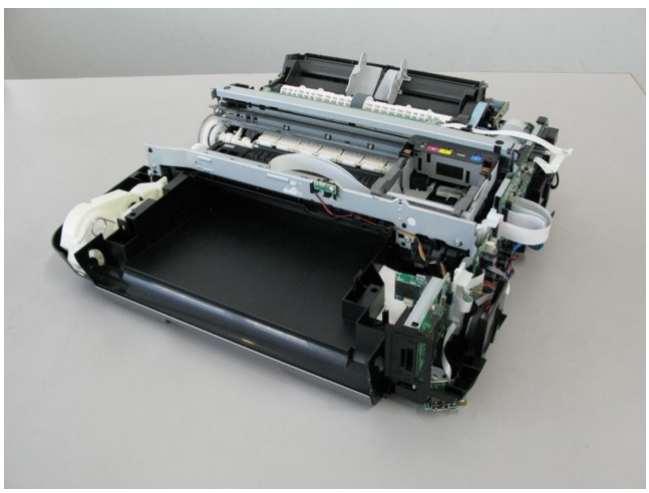
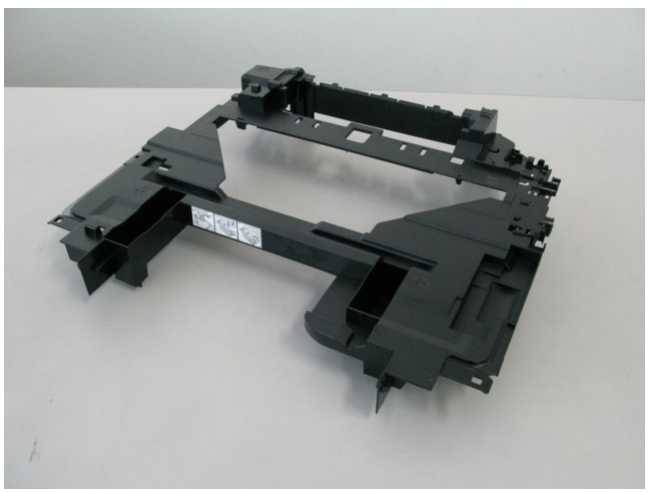

7) Remove the emblem.
<Using a pair of tweezers, etc., push the emblem on the document feed cover side. The double-sided adhesive tape on the back of the emblem will remove, making the emblem free.>



8) Remove the main case. (no screws)

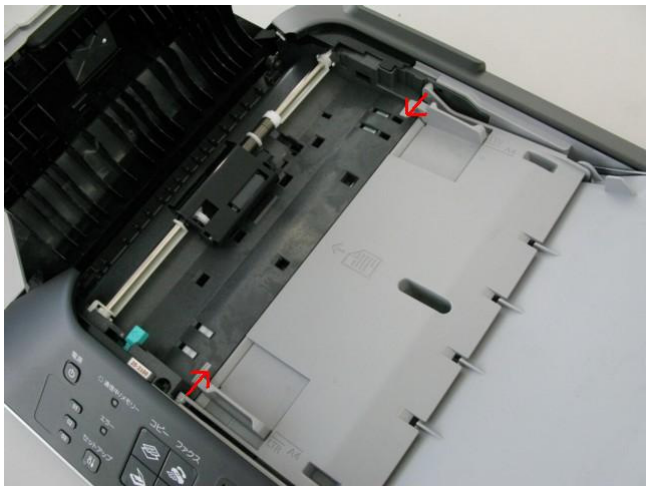




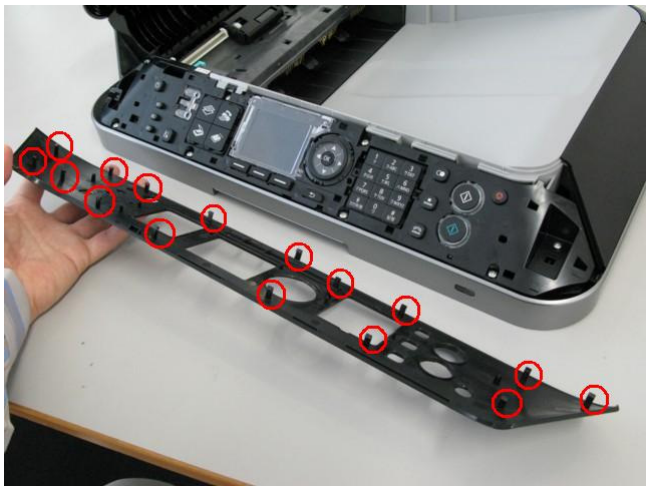


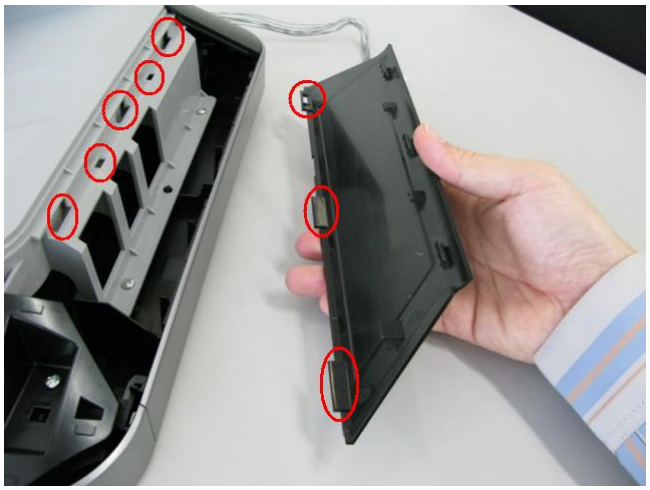



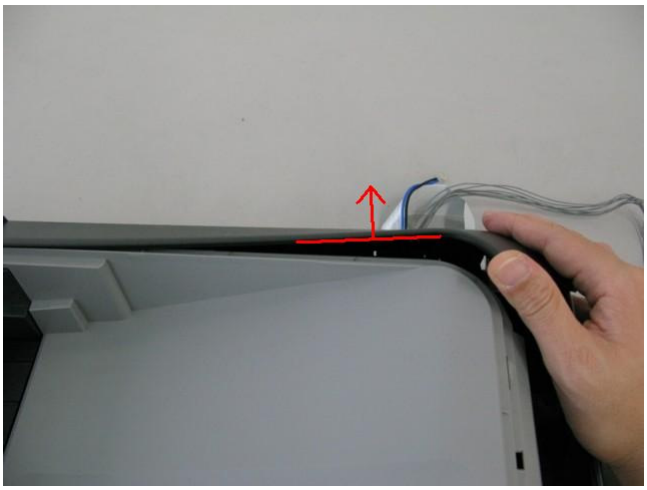
(2) Operation panel and document feed unit removal

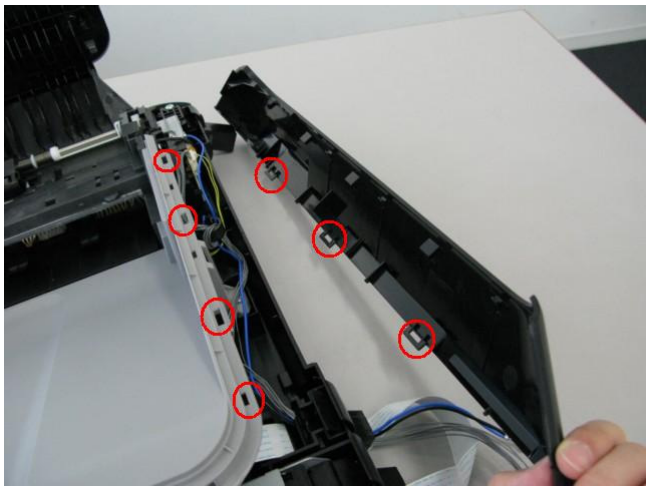
1) Remove the feed tray, panel cover, right cover, and rear cover. (no screws)
<Be cautious not to damage the tabs and hooks.>





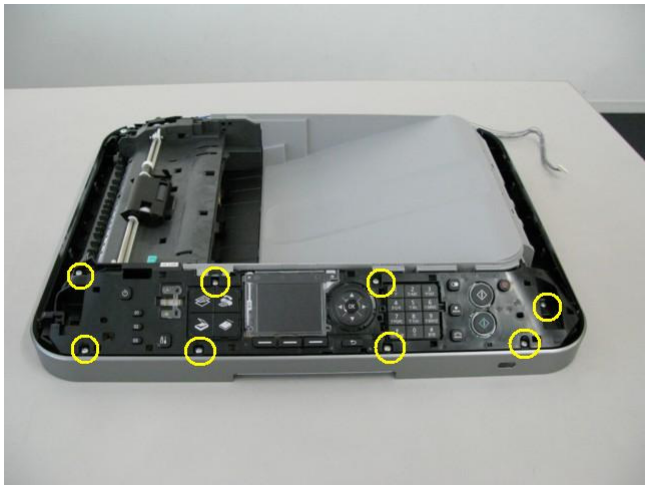


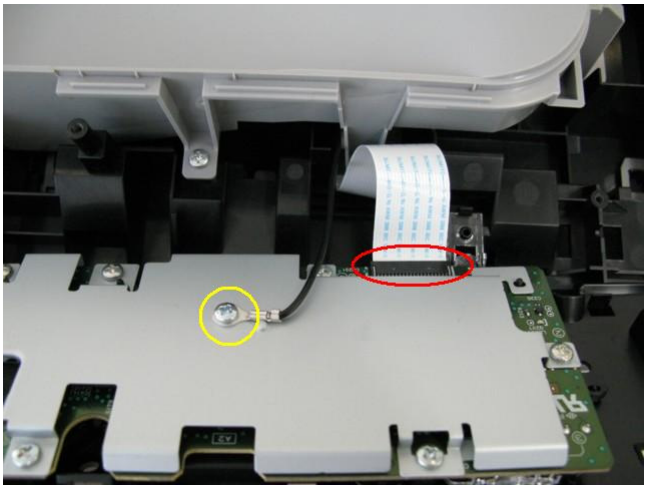


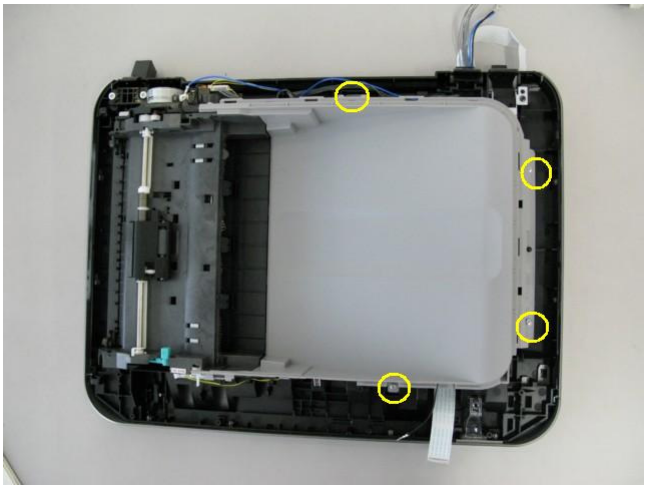


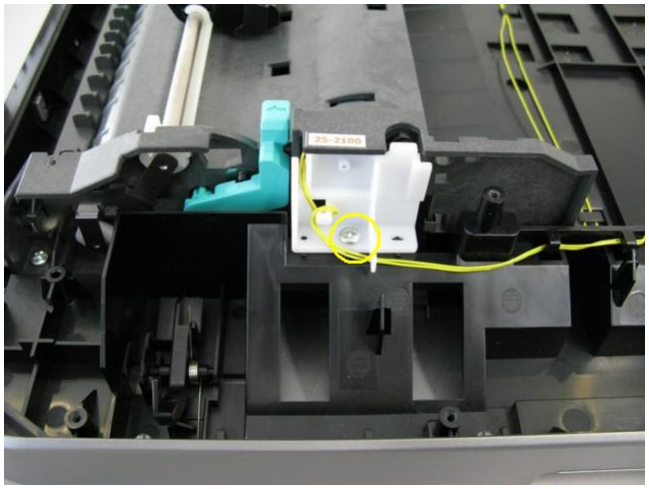
2) Remove the document feed cover.

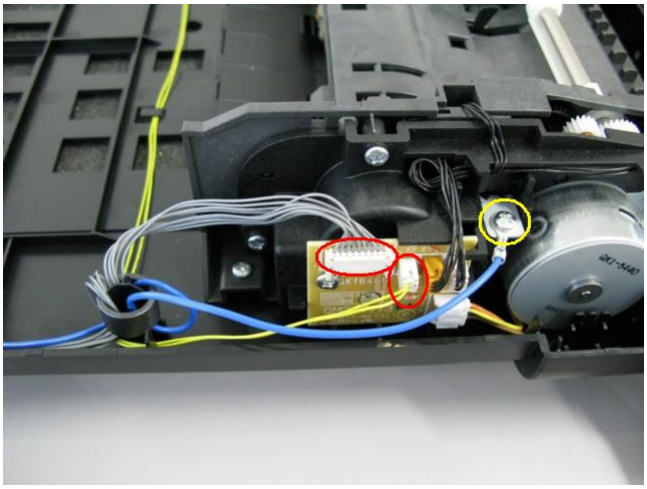
3) Remove the operation panel, eject tray, document feed switch, and document feed unit. (19 screws)
<The core fits to the document feed base rib.>

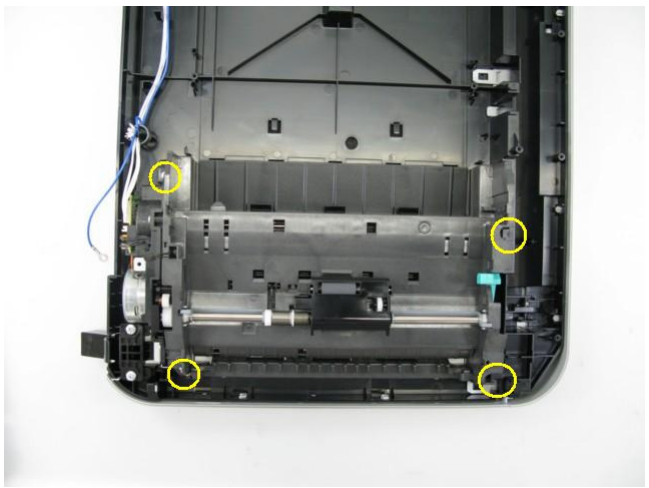


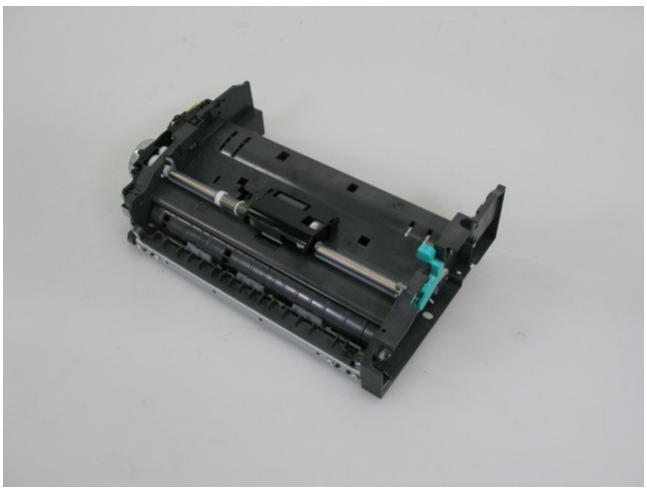




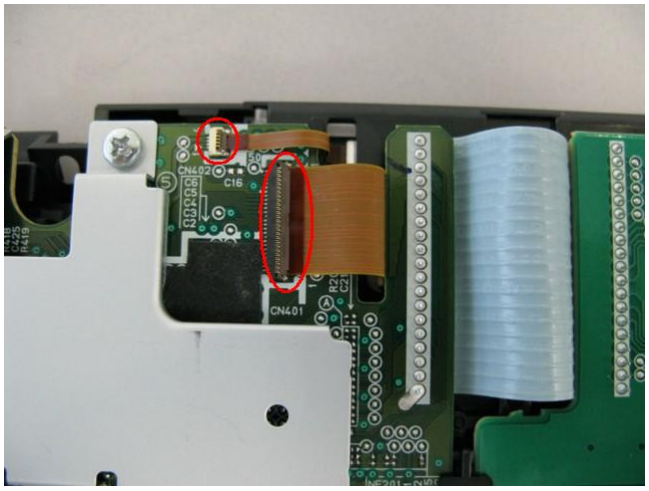
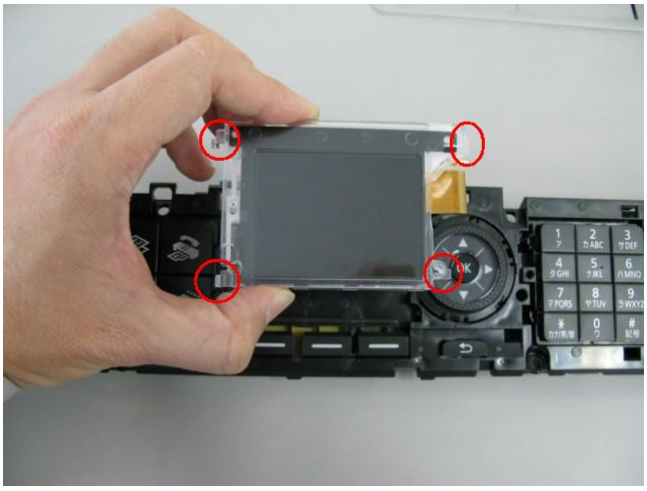
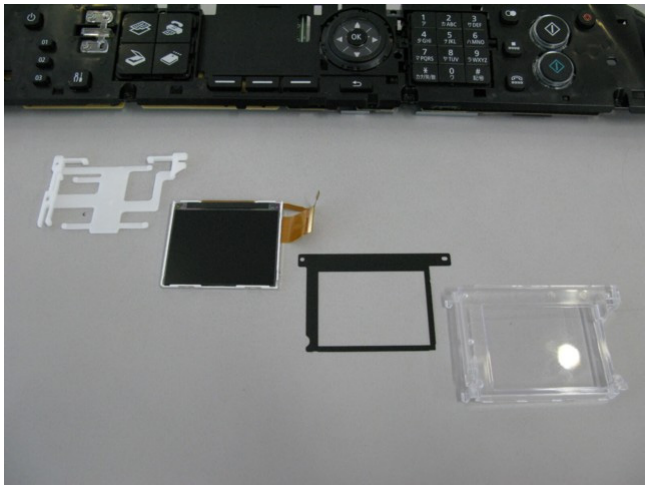

25-2106



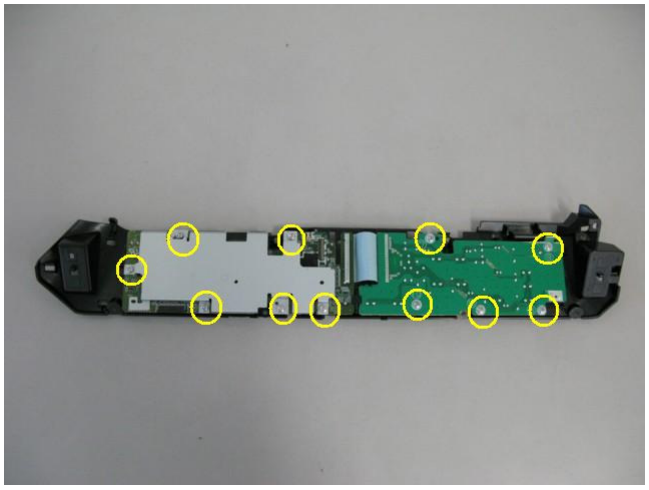
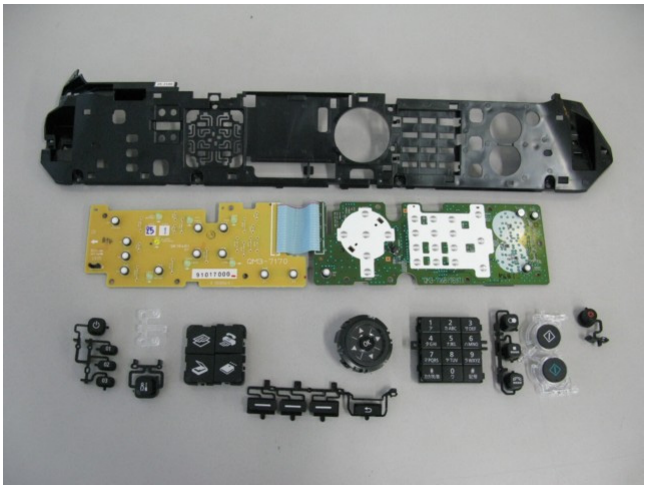




4) Remove the LCD ass'y. (no screws)

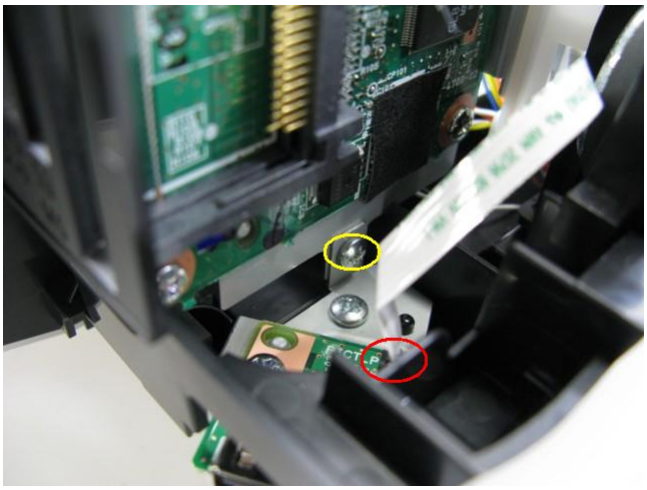




5) Remove the panel board (11 screws).

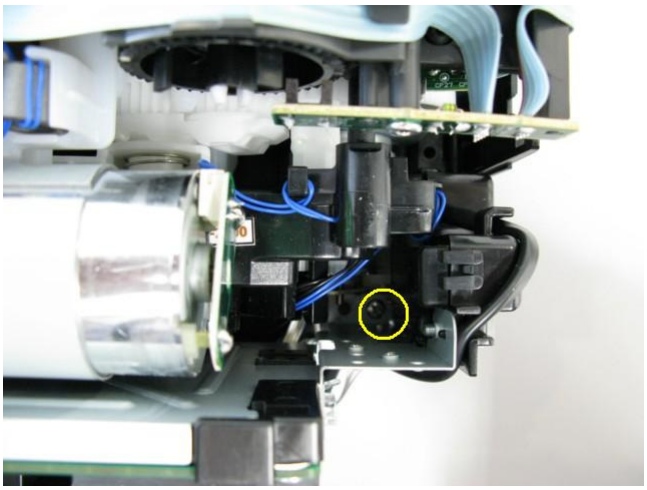



(3) Printer unit removal, and ink absorber replacement

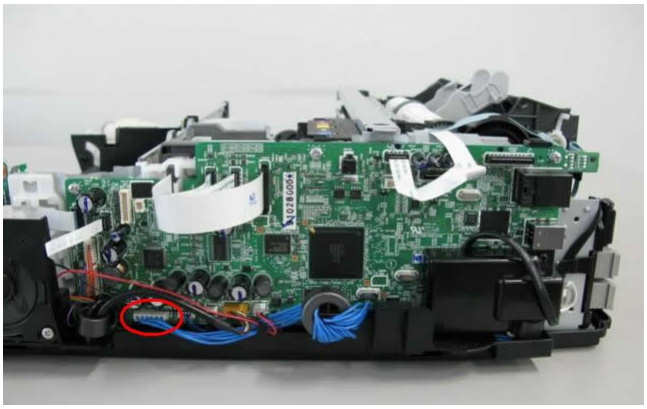
1) Separate the PictBridge chassis from the main PCB chassis. (1 screw)

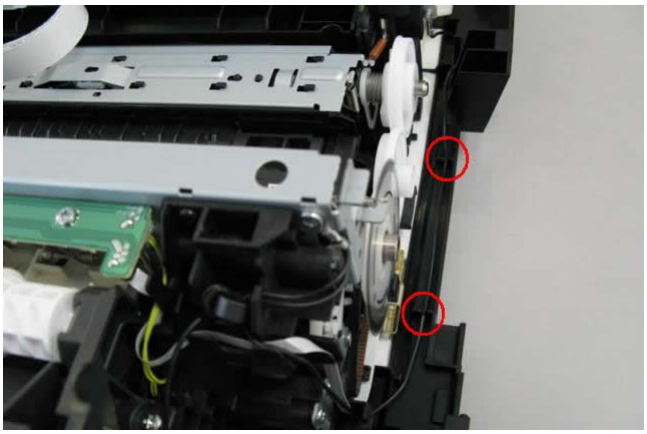


2) Separate the main PCB chassis from the bottom case. (1 screw)

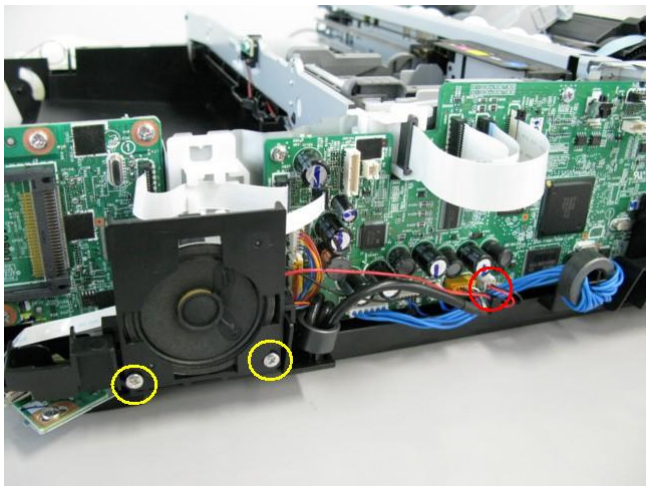


3) Separate the PCI DC and GND harnesses from the printer unit. (1 screw)
<The GND harness fits to the bottom case rib.>
See "4-5. Special Notes on Servicing, (7) Power supply unit and modular board replacement."

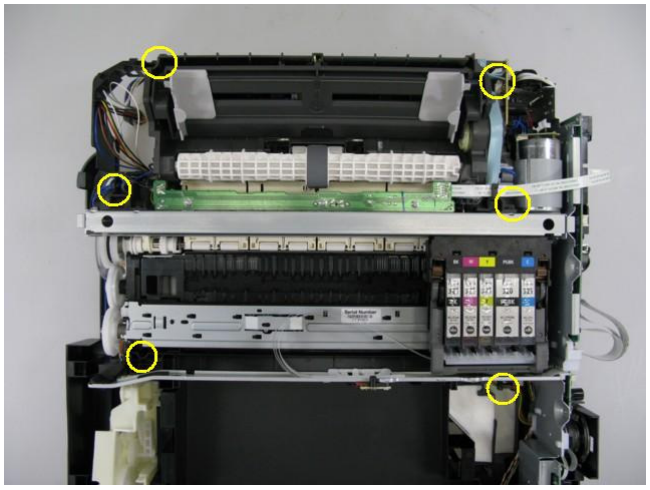


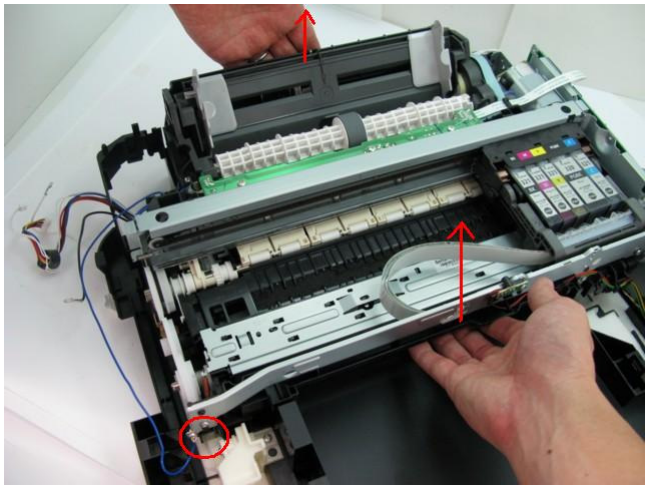


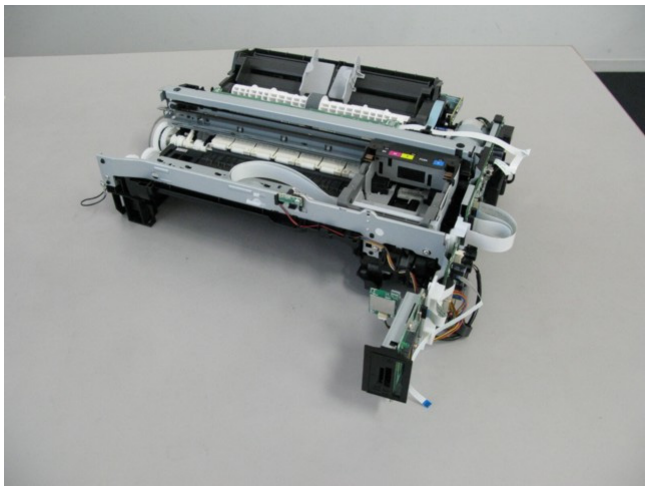
4) Remove the speaker. (2 screws)

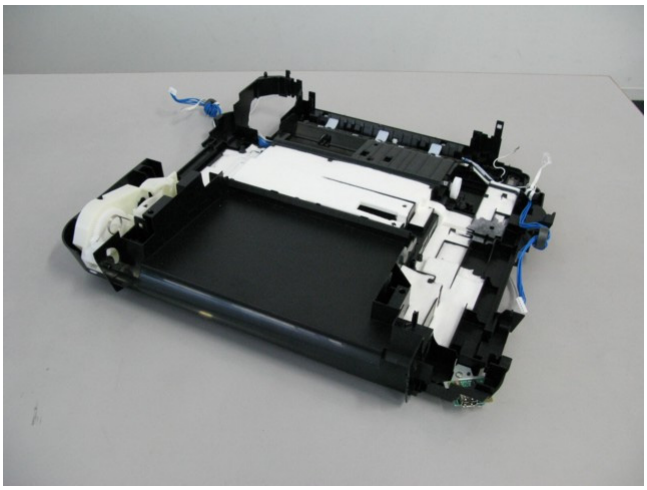


5) Remove the printer unit. (6 screws)
<While being cautious not to damage the arm that connects to the front door, lift the printer unit.>









When the paper separation slope is removed as well as the printer unit from the bottom case, ink absorbers can be replaced. Some of the ink absorbers are under the paper separation slope.

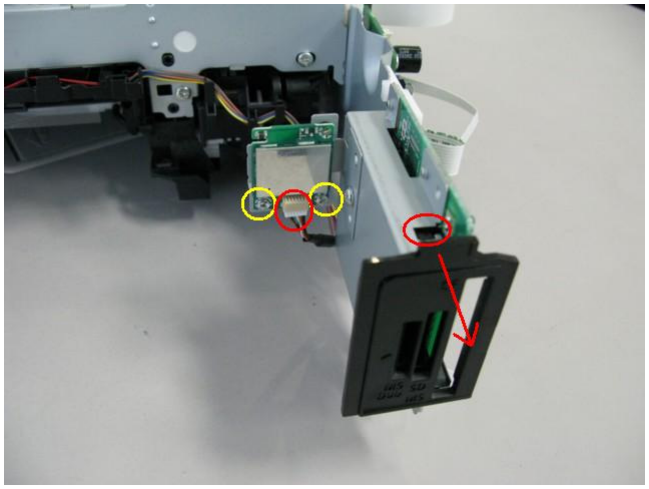
Note

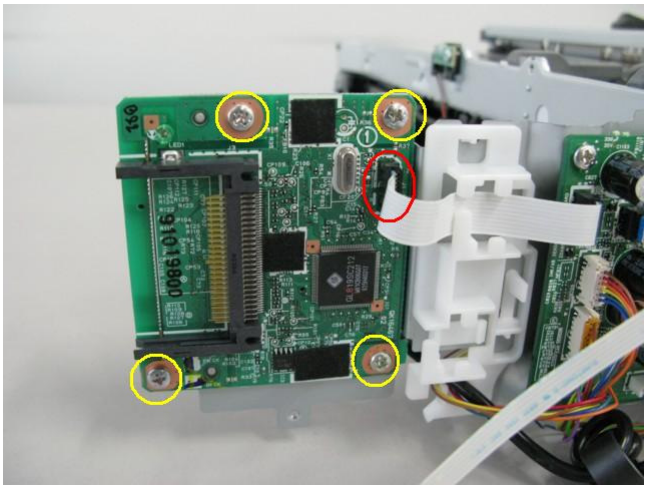
When the ink absorbers are replaced, confirm that the replaced new absorbers fit in place securely, and they do not lift.

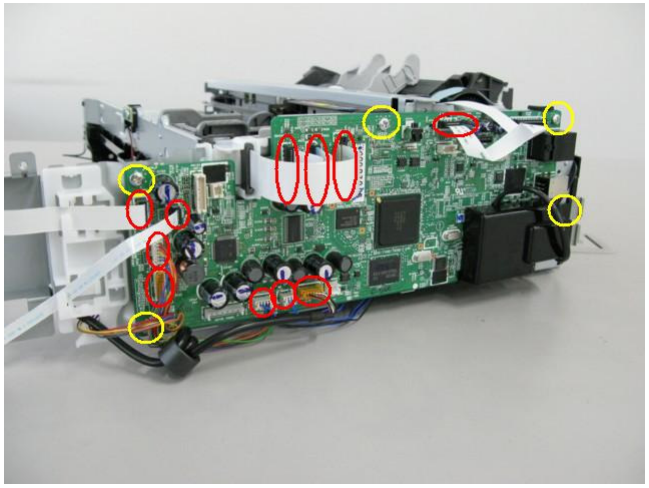
After replacement of the ink absorbers, reset the ink absorber counter value to zero in the service mode. [See 4-2. Service Mode, for details.]

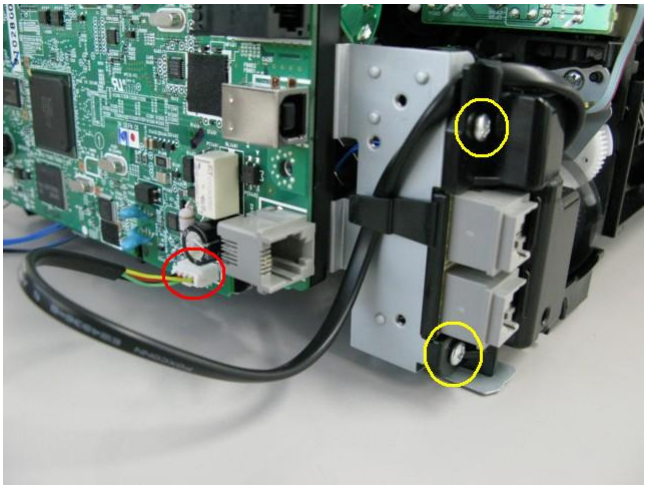
(4) Board removal

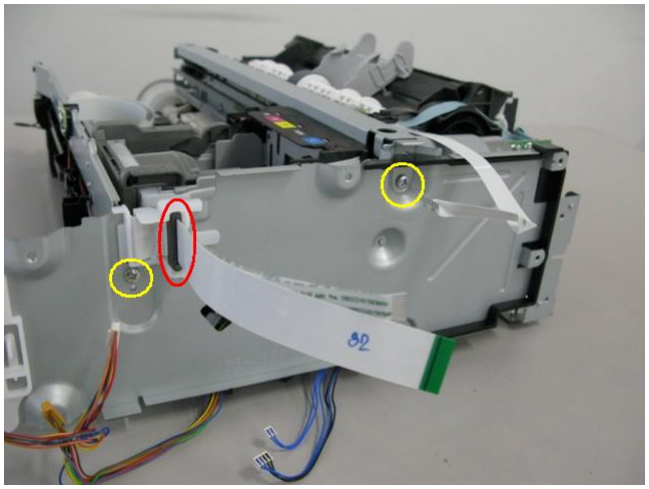
1) Remove the WLAN board, card board, main PCB, modular board, and main PCB chassis. (15 screws)
<The core fits to the rib of the harness guide.>



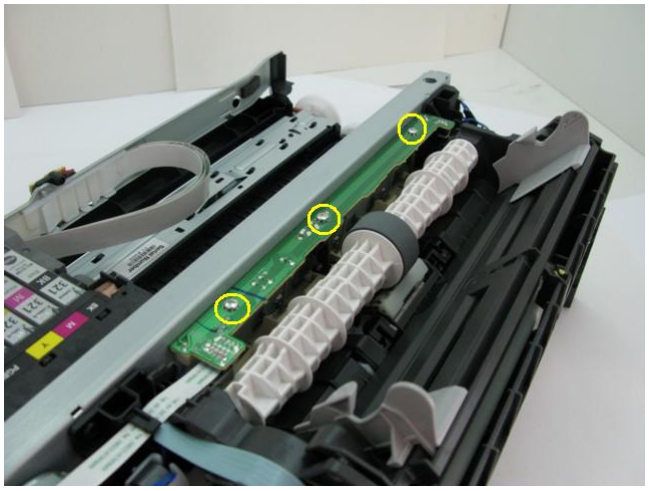


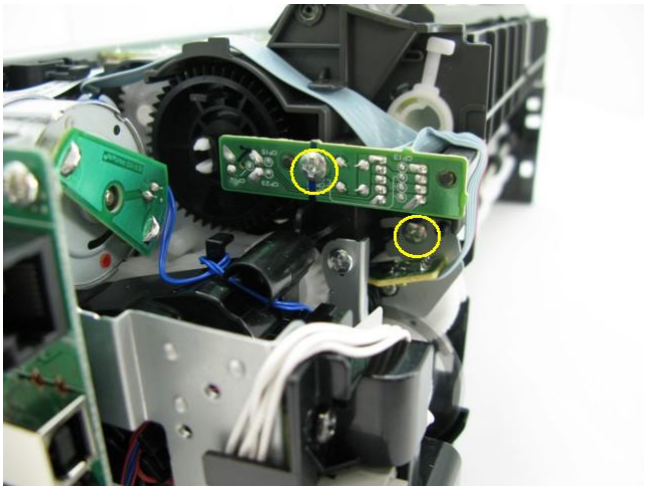


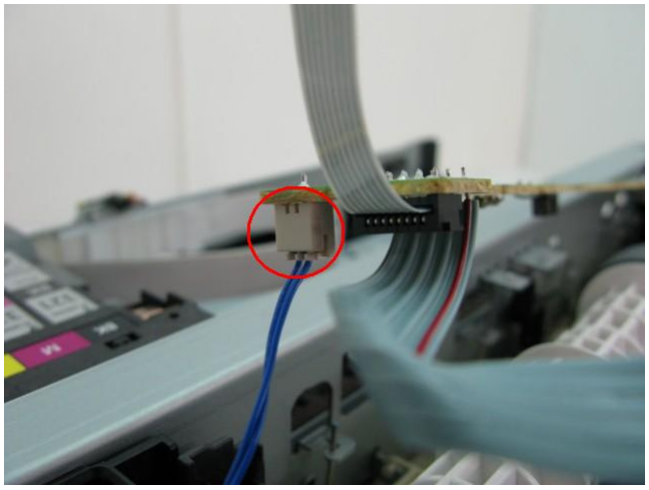


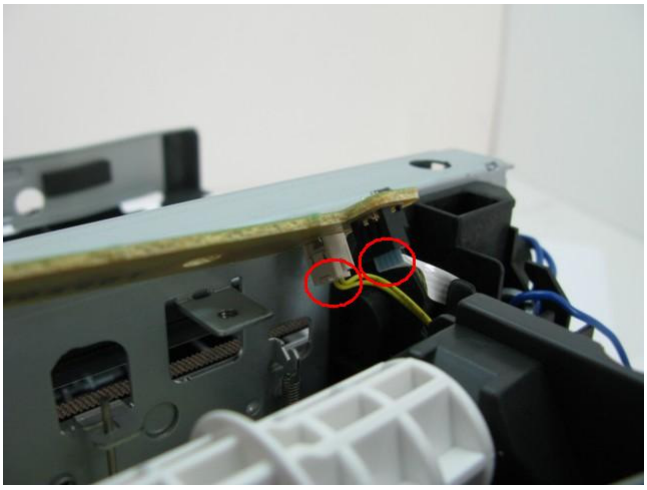


2) Remove the PE sensor board. (5 screws)



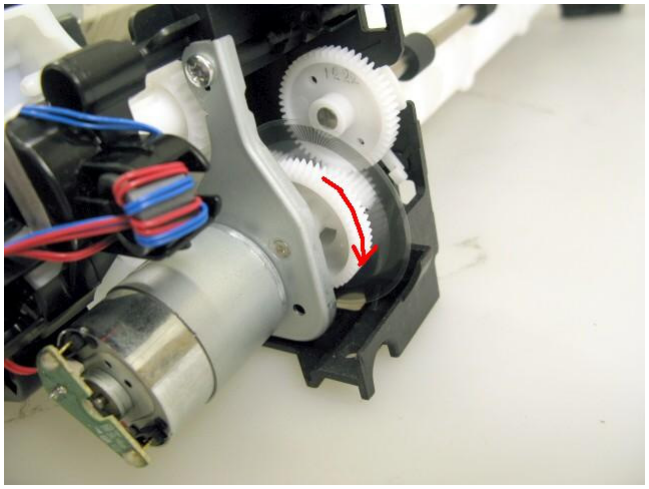


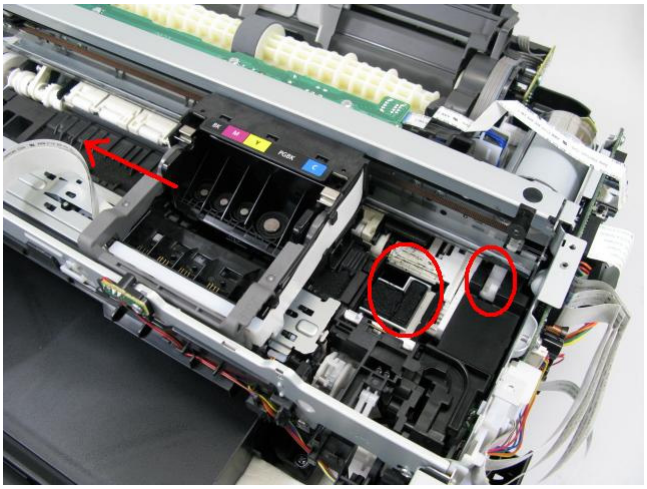




(5) Carriage unlocking

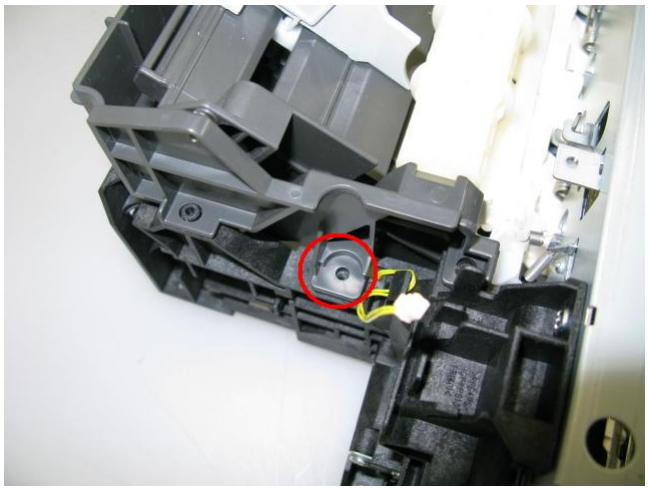
1) Rotate the drive unit gear toward the back of the machine to unlock the carriage.
   Slide the carriage to the left (the opposite of the home position).

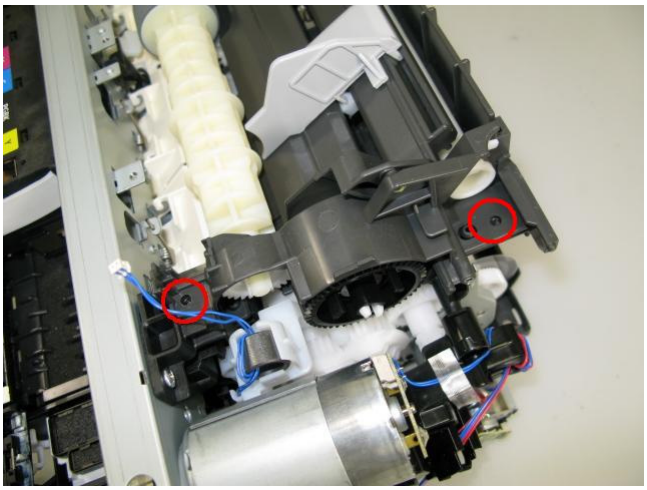


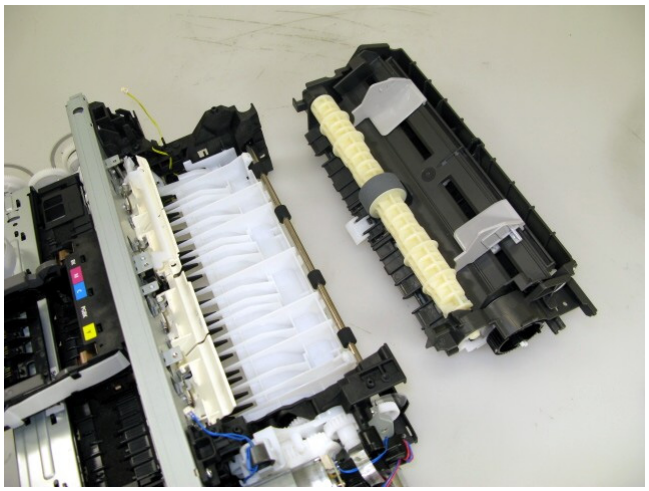


(6) ASF unit removal

1) Remove 1 screw from the left plate, and 2 screws from the right plate.

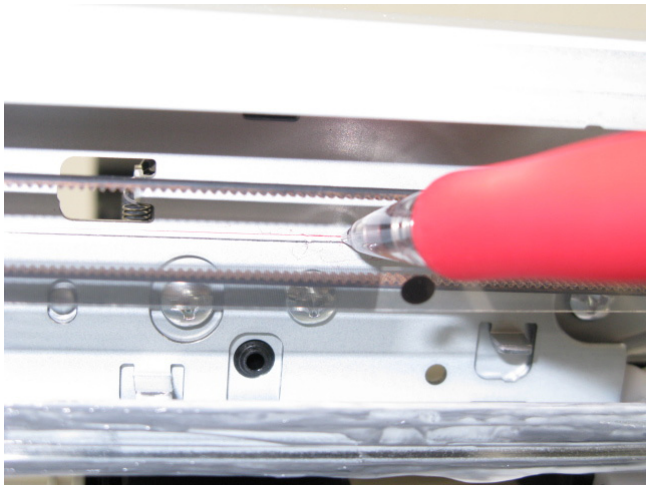




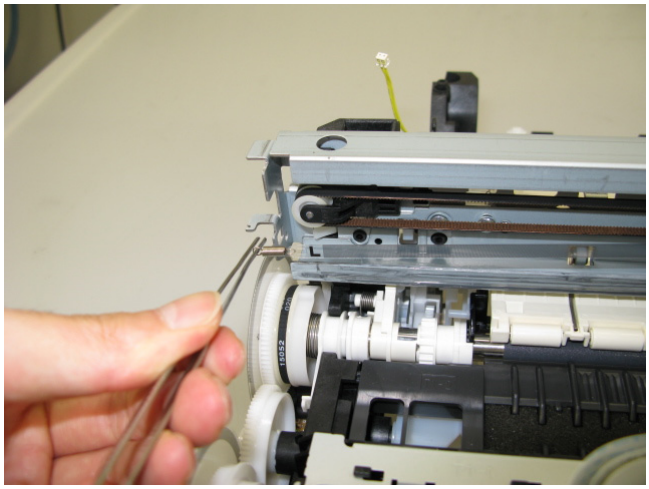
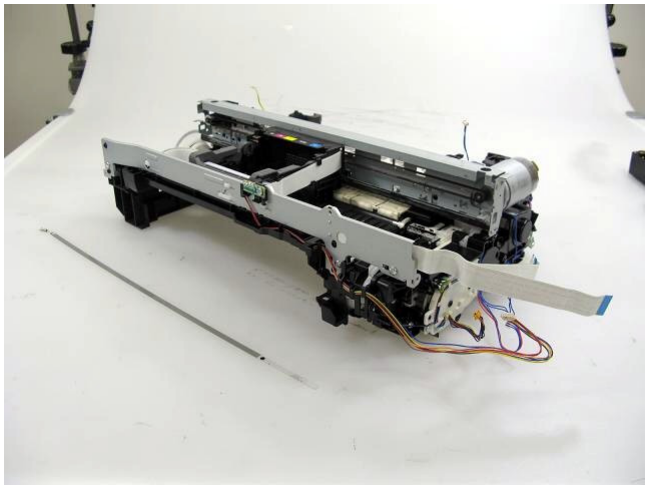


(7) Carriage unit removal

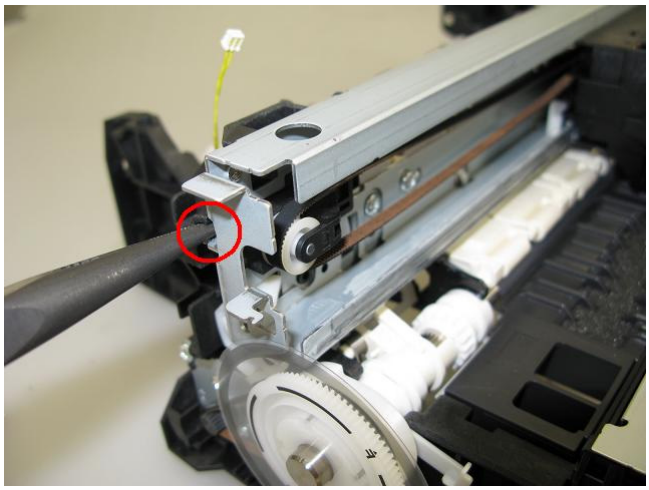
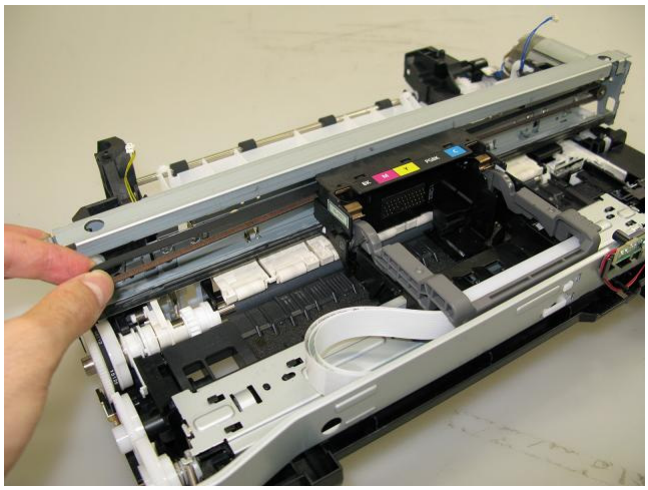
1) On the main chassis, mark the positions of the screws that fix the carriage rail to the main chassis (3 points for each screw: the left, right, and center).



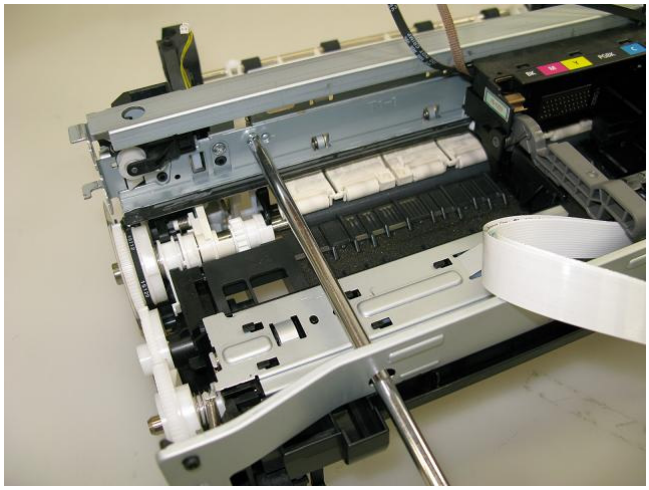

2) Remove the timing slit film. Be cautious to keep it free from any grease or damage.

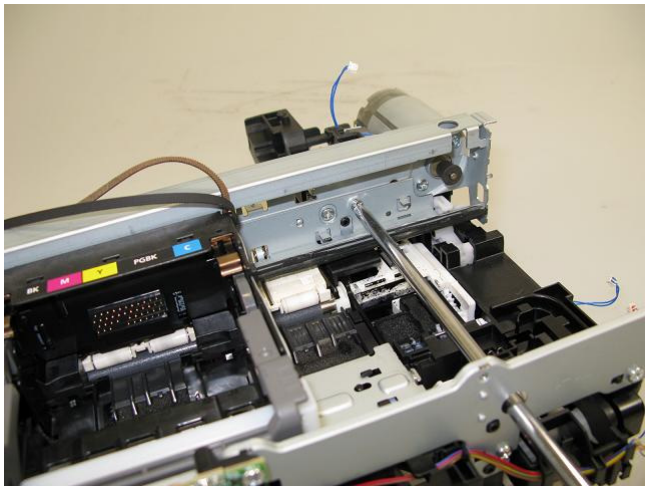



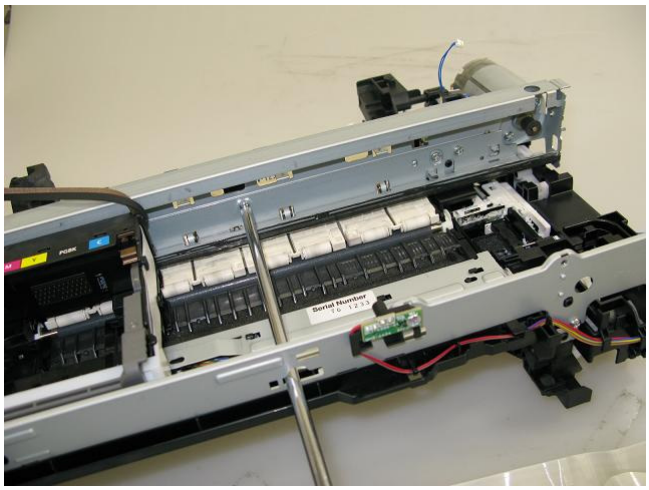
3) Using a pair of pliers, etc., release the left end of the pulley holder spring, then remove the carriage belt. Be cautious to keep it free from any grease.

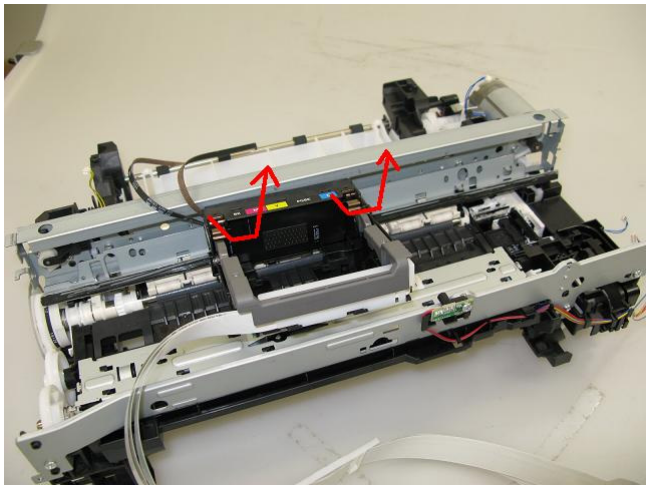
4) Remove 3 screws that fix the carriage rail to the main chassis. Before removing the center screw, remove the carriage cable holder from the front chassis. After the 3 screws are removed, slowly put down the carriage rail.

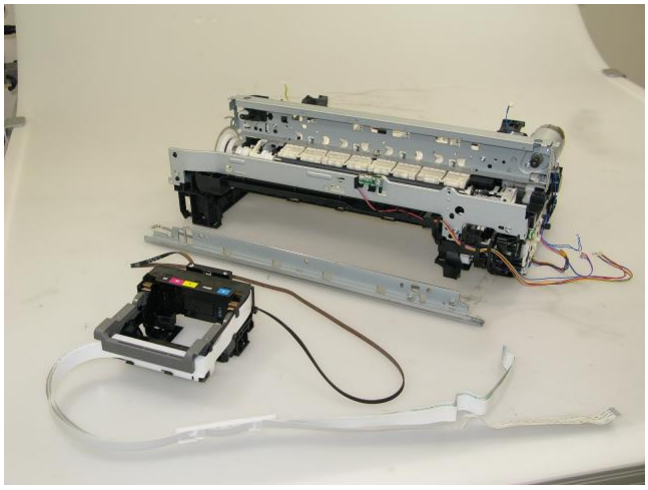






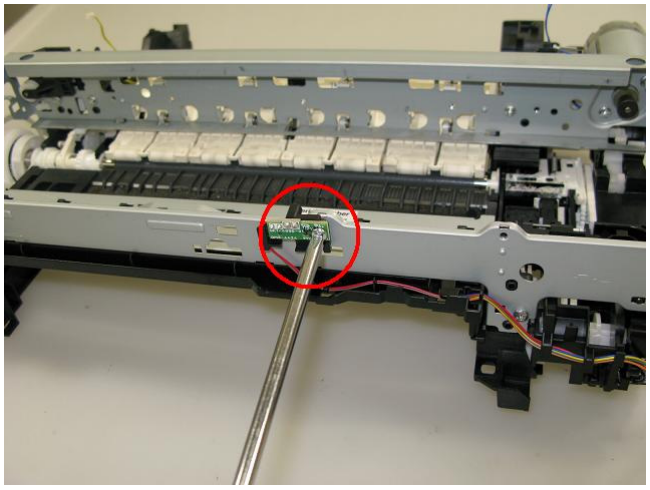
5) Remove the carriage unit. Be cautious that the grease will not attach to any parts.

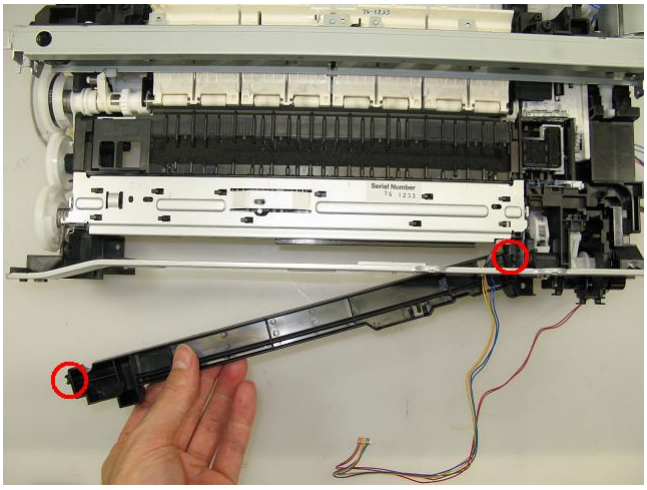




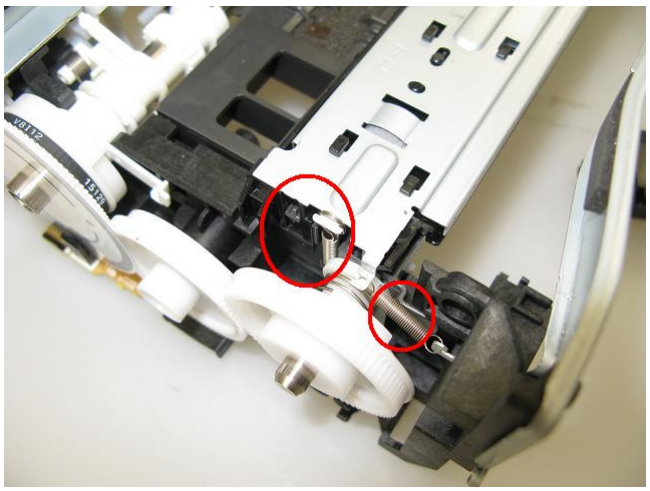
(8) Spur unit and platen unit removal

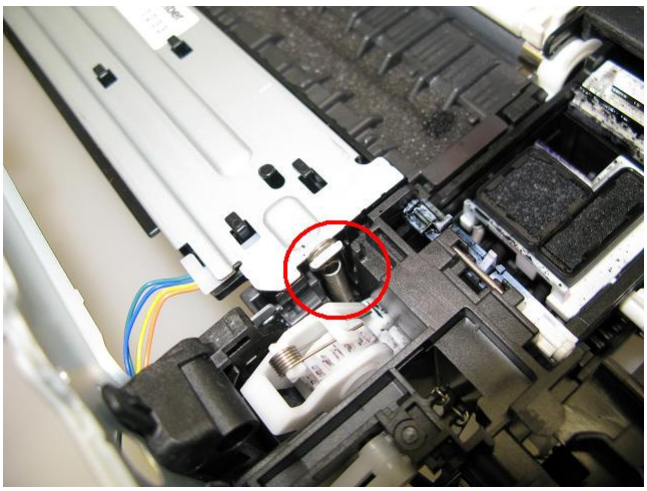
1) Remove the ink sensor and the middle front cover from the front chassis (1 screw each).

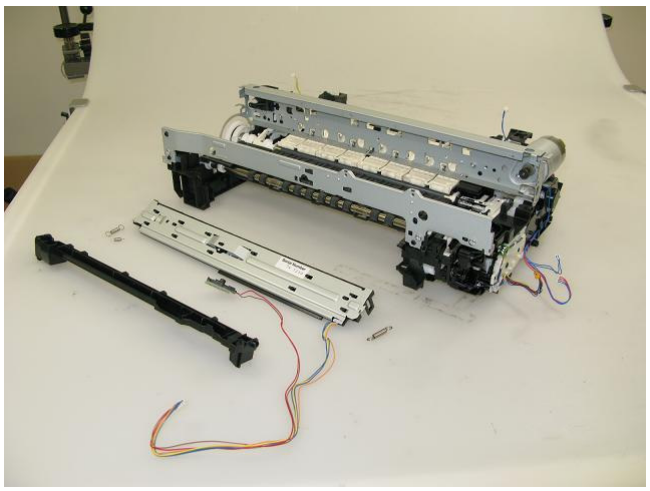




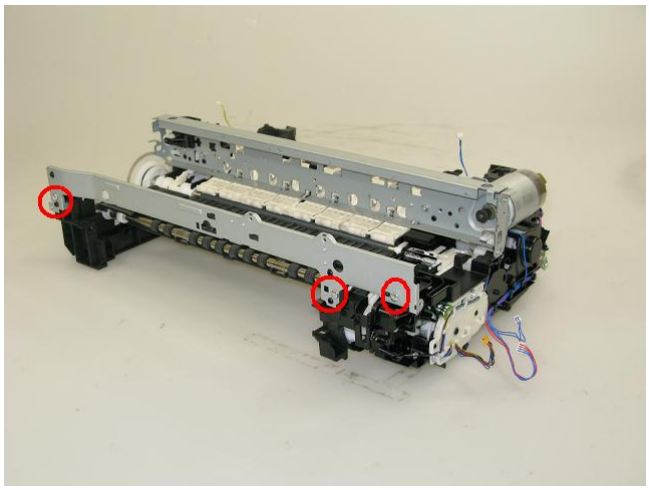
2) From the left and right sides of the spur unit, release the springs (2 on the left side, 1 on the right side). Then, slowly pull the spur unit upward to remove it from the platen unit.



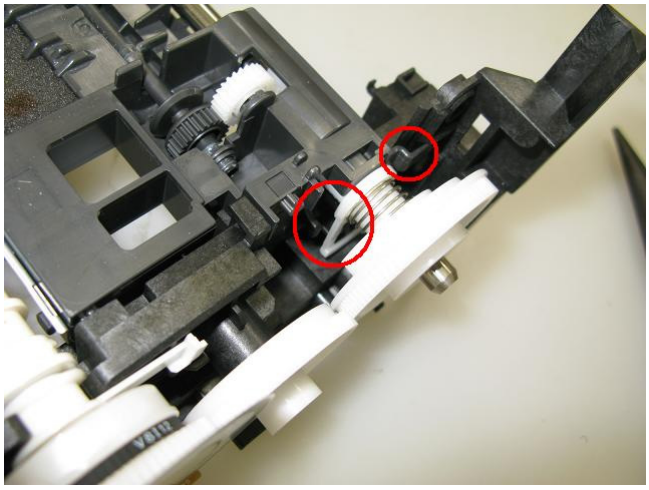


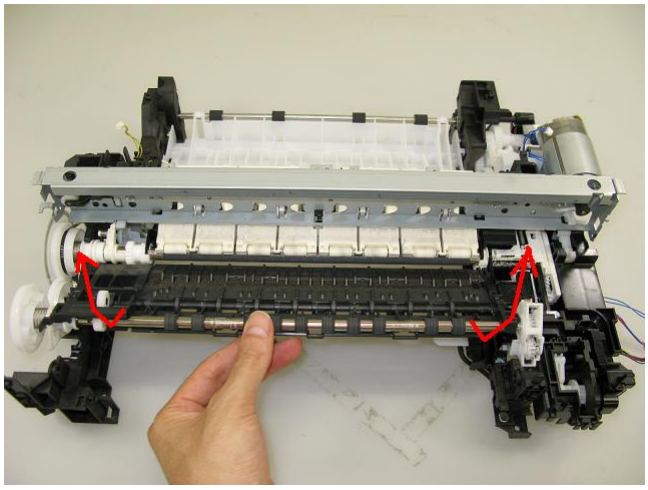


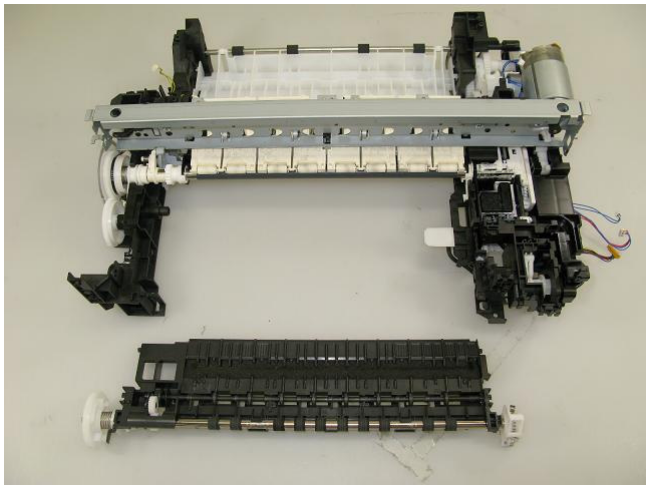
3) Remove the front chassis (3 screws).



4) Unlock the paper eject roller gear. While raising the front of the platen unit, remove the platen unit from the printer unit.

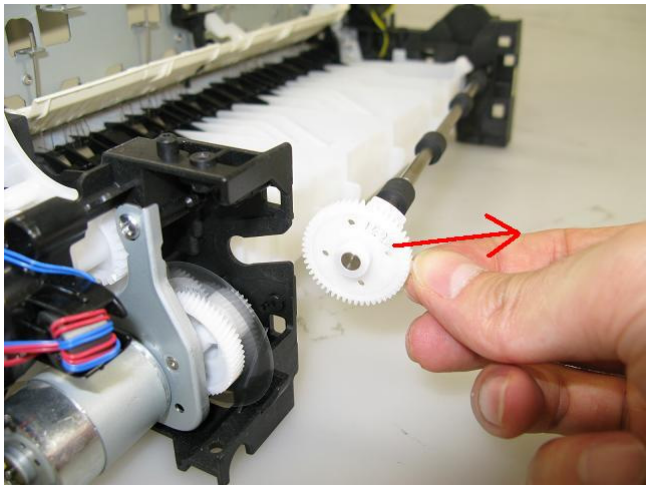


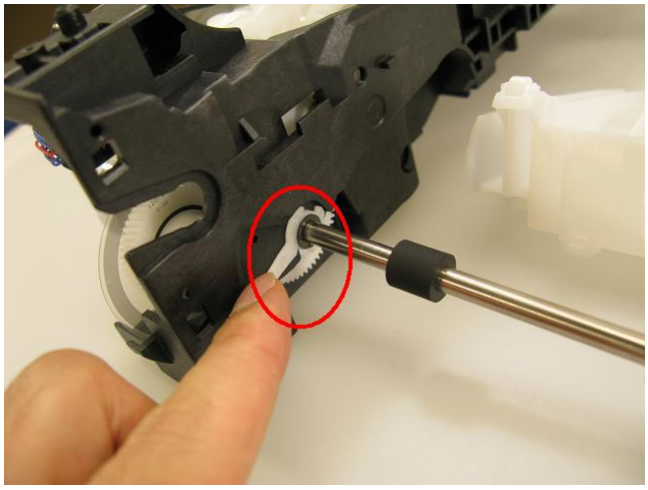


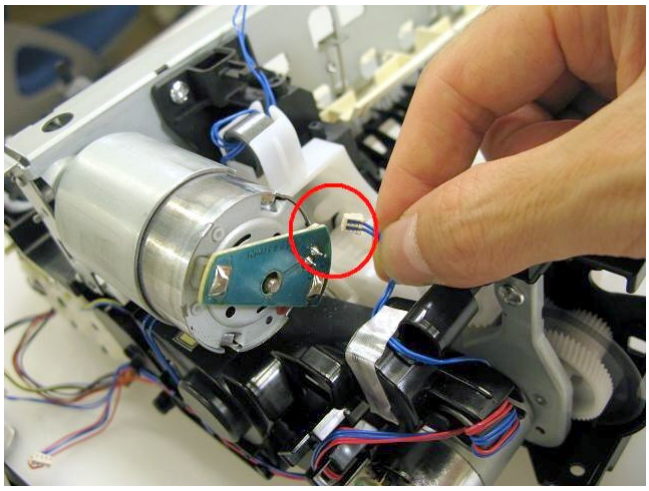


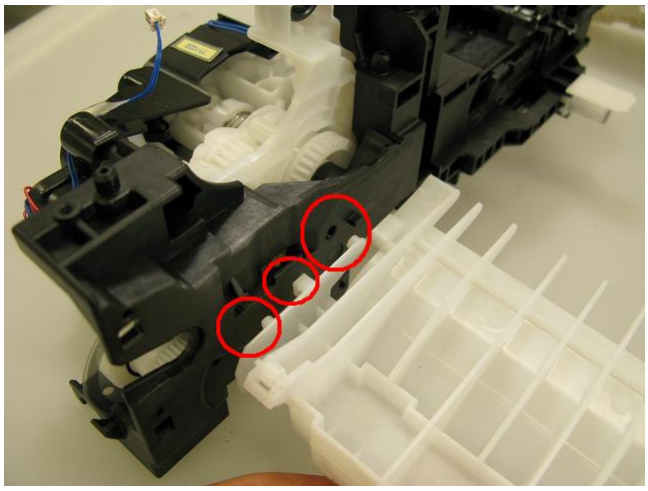
(9) Purge drive system unit (right plate) and switch system unit (left plate) removal

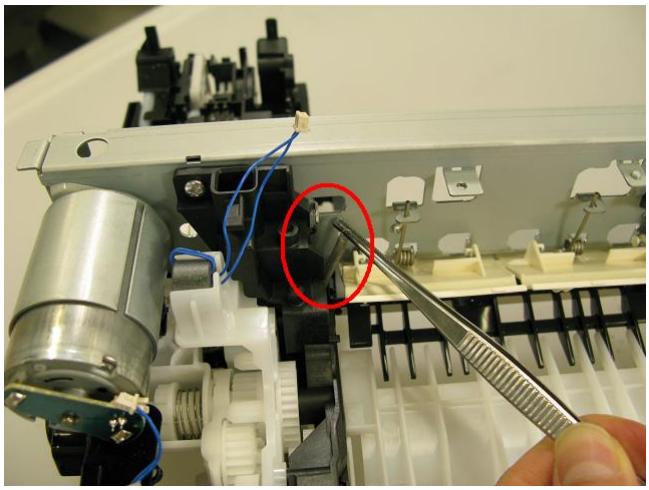
1) Release the springs of the carriage motor cable, duplex printing paper feed roller, cassette feed roller, cassette feed guide, and paper guide unit (both sides). (See the Parts Catalog for details.)





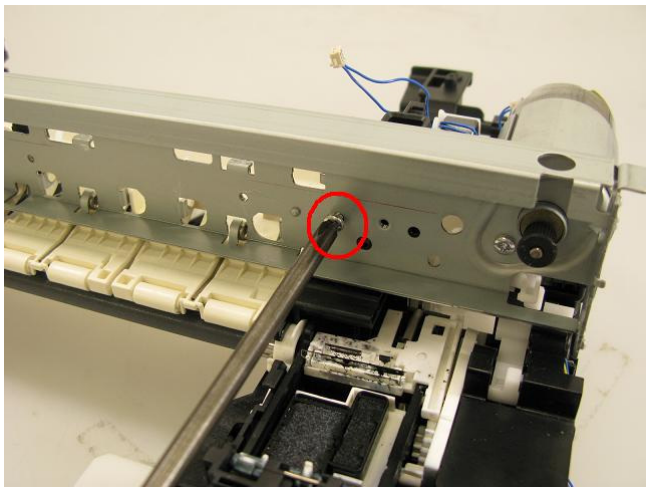
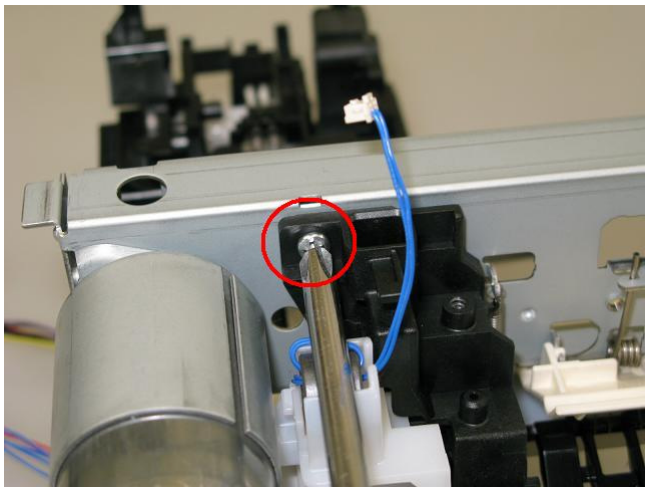
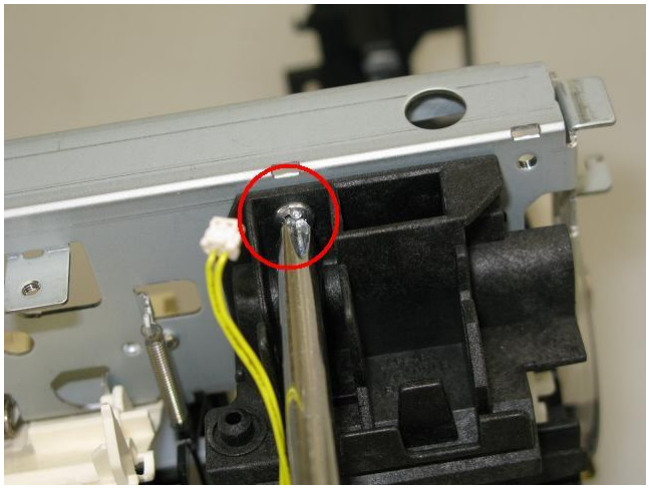
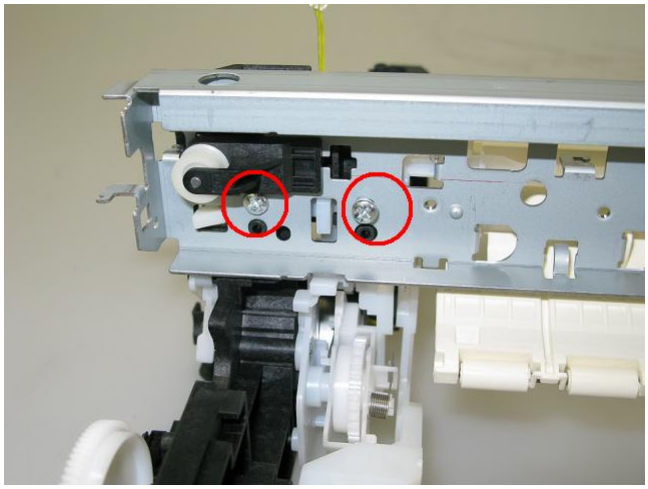




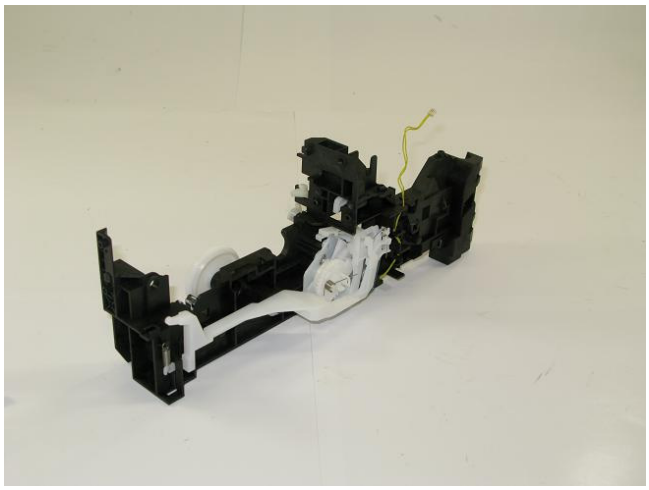
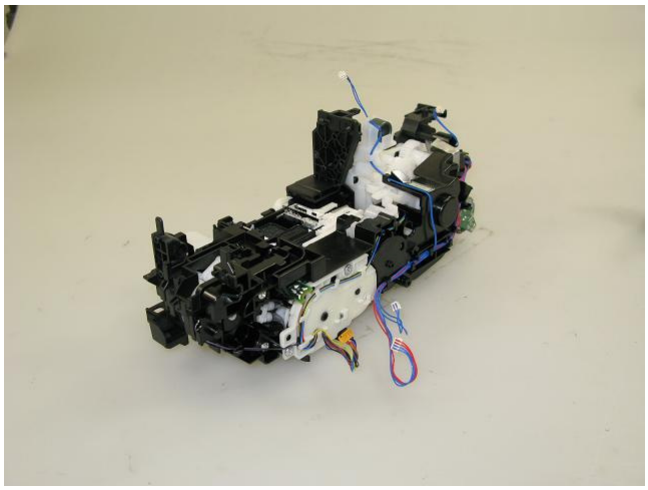


2) Remove the pressure roller springs (both the left and the right ones).

3) Remove the screws that fix the units to the main chassis (2 on the right, 3 on the left).

4) Separate the main chassis from the switch system unit and the purge drive system unit.

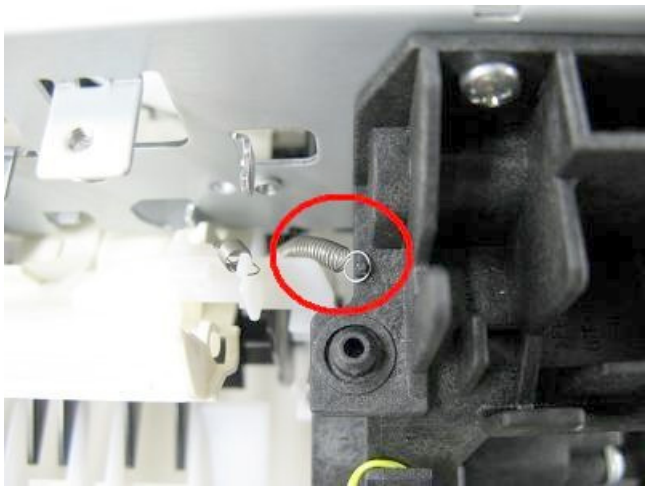



(10) Engine unit reassembly

After repair, reassemble each unit of the printer engine on the bottom case in the procedures listed below.

Depending on the replaced unit, some steps can be omitted. For specific part names and locations, refer to the Parts Catalog.

1) Install the switch system unit in the bottom case, and fasten the screws.
2) Attach the duplex print paper feed roller unit to the purge drive system unit, and fix them to the bottom case with the screws.
3) Attach the cassette feed guide.
4) Install the cassette feed roller unit.
5) Install the paper feed roller (LF roller) unit and attach the paper feed belt.
6) Attach the paper guide unit to the paper feed roller (LF roller), and attach the springs to each side of the guide unit. (Hook the other end of each spring on the protrusion of the right and left plates respectively.)
7) Install the platen unit and the spur unit.
8) Connect the springs on each side of the spur holder to the switch system unit and the purge drive system unit respectively.
9) Fix the pressure roller unit to the main chassis (screw it to the right and left plates).
10) Attach the carriage unit and the carriage rail to align with the marks on the main chassis.
11) Hook the torsion springs of the pressure roller unit to the main chassis, then the springs kept at the right and left plates in step 6) to the main chassis.



12) While being cautious not to damage the carriage FFC, install the front chassis and the ground chassis.
13) Attach the ink sensor board to the front chassis.
14) Install the ASF unit and attach the PE sensor board.
15) Install the main PCB chassis.
16) Arrange each harness.
17) Attach the carriage encoder.
18) Install the logic board.

4. ADJUSTMENT / SETTINGS

4-1. User Mode

Function	Procedures	Remarks
Nozzle check pattern printing	Perform via the machine operation panel, or from the MP driver Maintenance tab.	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. - Cleaning Black or Color separately, or both Black and Color: Perform from the MP 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 MP driver Maintenance tab.	If print head manual 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 MP driver Maintenance tab.	Set a sheet of plain paper (A4 or Letter) in the cassette, or the rear tray if selected. Then, scan the printed pattern. If the automatic print head alignment is not effective, perform manual print head alignment.
Manual print head alignment	Perform via the machine operation panel, or from the MP 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 MP driver Maintenance tab.	Confirmation of the current print head alignment values.
Paper feed roller cleaning	Perform via the machine operation panel, or from the MP 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 MP 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)

4-2. 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, and then release both the ON and Stop buttons. (Each time the Stop button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

- Without the scanner (connect the operation panel unit);

While holding the ON button, press the Stop button 6 times, and then release both the ON and Stop buttons. (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.

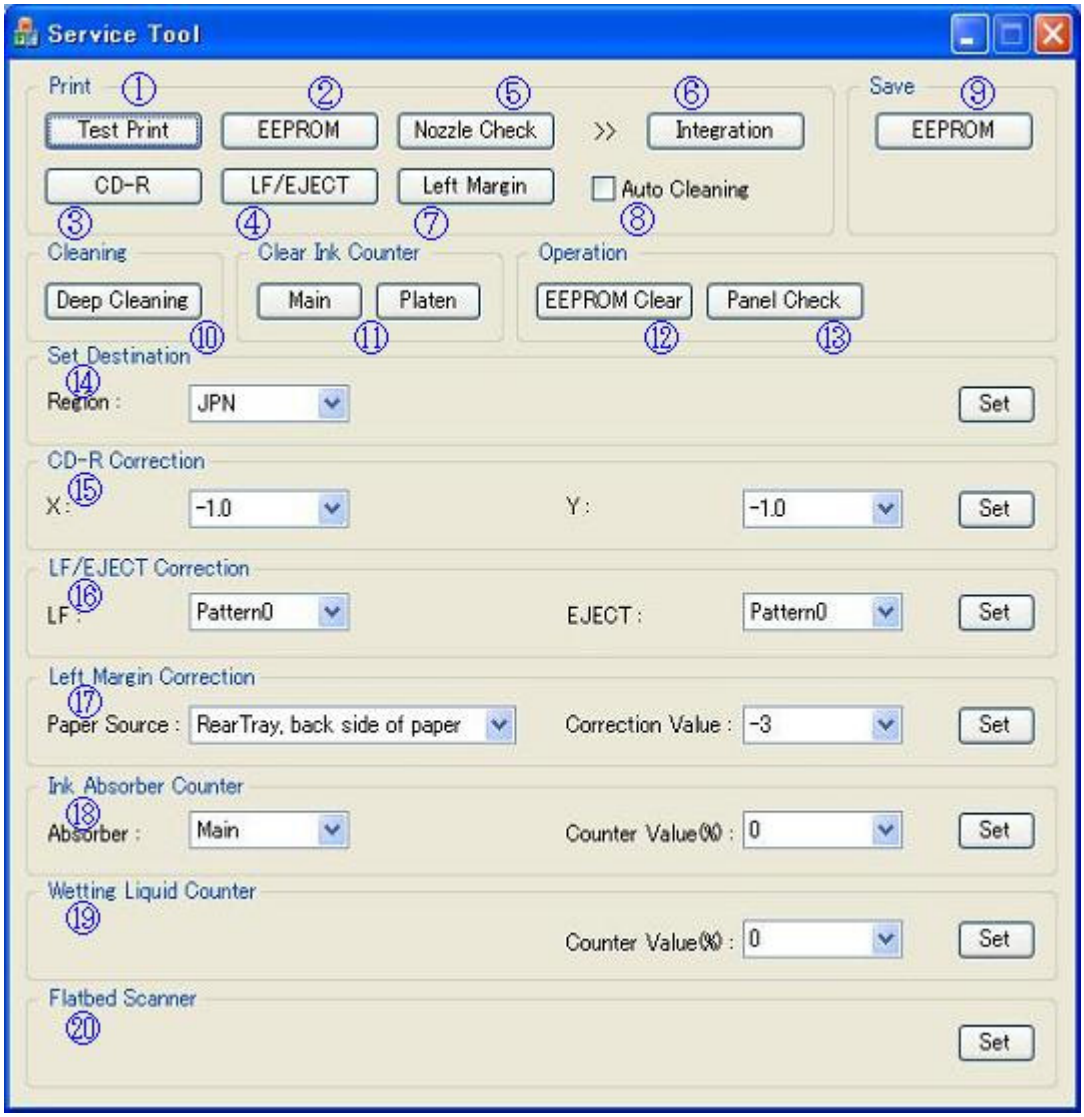
i. When a button is clicked in the Service Tool dialog box, that function is performed. During operation of the selected function, all the Service Tool buttons are dimmed and inactive.

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 1.072



No.	Name	Function	Remarks
(1)	Test Print	Service test print	Paper will feed from the rear tray. Service test print: - Model name - ROM version - Ink absorber counter value (ink amount in the ink absorber) - USB serial number - Destination - EEPROM information - Process inspection information - Barcode (model name + destination) - 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

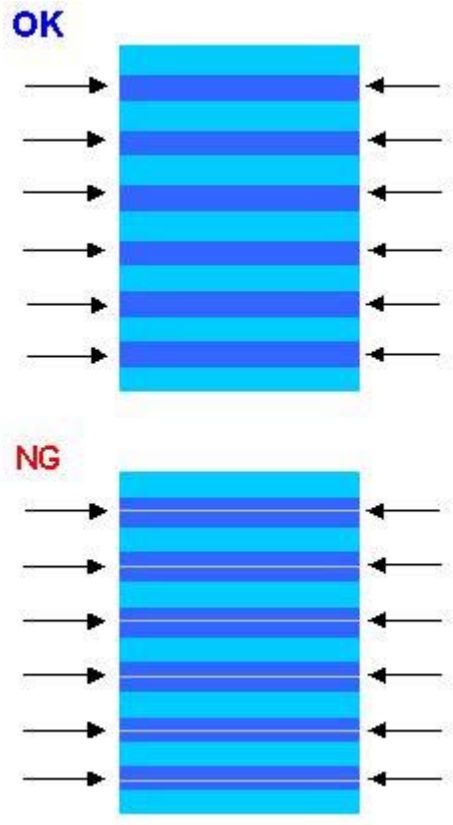
			- Error information, etc.
(3)	n/a		Not used.
(4)	LF / Eject	LF / Eject correction pattern print	Perform LF / Eject correction only when streaks or uneven printing occurs after the repair. See "LF / Eject Correction" below.
(5)	Nozzle Check	Nozzle check pattern print	The dialog box opens to select the paper source. Select **Rear tray** or **Cassette**, and click **OK**.
(6)	Integration	Unified inspection pattern print	The dialog box opens to select the paper source. Select **Rear tray** or **Cassette**, and click **OK**. The unified inspection pattern (for reduction of time required for the inspection) is printed.
(7)	Left Margin	Left margin pattern print	Not used.
(8)	Auto Cleaning	Enabling / disabling of automatic print head cleaning	Automatic print head cleaning prior to printing. Select this option to enable the cleaning.
(9)	EEPROM	EEPROM information saving	When no printing can be performed due to a problem, the EEPROM information is displayed on the computer or is saved to the computer as a text file.
(10)	Deep Cleaning	Print head deep cleaning	Cleaning of both Black and Color at the same time
(11)	Main	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	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 - Record of repair at the production site - 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 "Button and LCD Test" below.
(14)	Set Destination	Destination settings	Select the destination, and click **Set**. ASA, AUS, BRA, CHN, CND, EUR, JPN, KOR, LTN, TWN, USA
(15)	n/a		Not used.
(16)	LF / EJECT Correction	LF / Eject correction value setting	See "LF / Eject Correction" below.
(17)	Left Margin Correction	Left margin correction value setting	Not used.
(18)	Ink Absorber Counter	Ink absorber counter setting	See "Ink Absorber Counter Setting" below.
(19)	Wetting Liquid Counter	Wetting liquid counter setting	Not used.
(20)	Flatbed Scanner	Individual scanner adjustment	Not used.

(3) LF / Eject correction

After replacement of the feed roller, platen unit, LF / Eject encoder, 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 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 ("Service Mode Idle" is displayed on the LCD).
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) Select and set the correction values.
   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 unit.

1) Check to see if the LCD turns off properly

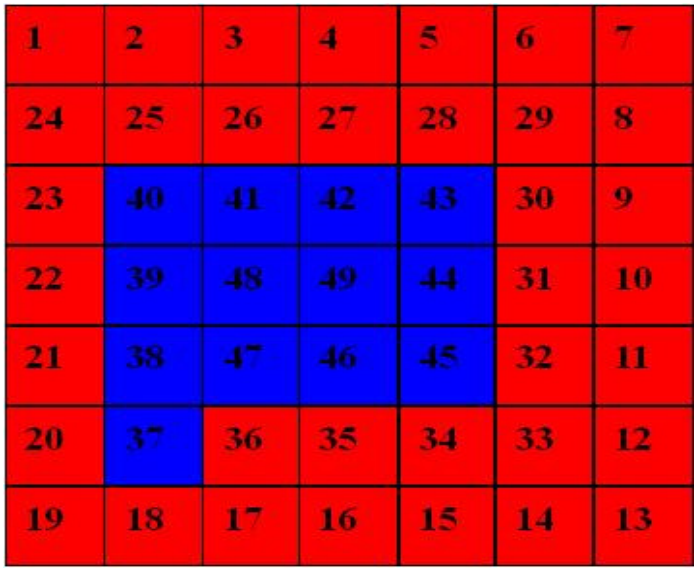
1-1) Click **Panel Check** of the Service Tool on the connected computer. All the LED's on the machine turn on and the LCD turns blue, waiting for a button to be pressed.

1-2) Press the OK button several times, and confirm that the LED turns off in the following order each time the OK button is pressed:
In Use/Memory -> Copy -> Fax -> Black -> Color -> Wi-Fi -> Card -> Scan -> Setup -> Alarm

2) Button check

2-1) Press each button of the operation panel, to see if every button functions properly.

2-2) The LCD is divided into 40 segments, representing each button. The color of a segment corresponding to the pressed button changes to red.

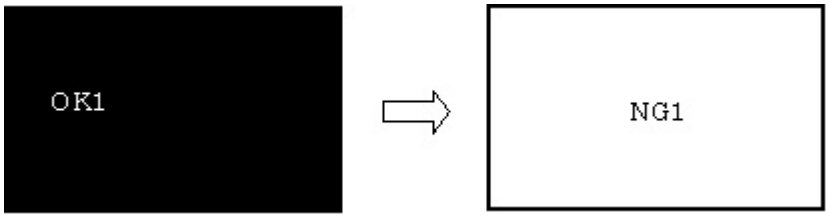


1. ON button
2. Stop button
3. Copy button
4. Fax button
5. Scan button
6. Card button
7. Setup button
8. Black button
9. Color button
10. Left cursor button
11. Right cursor button
12. Up cursor button
13. Down cursor button
14. OK button
15. Back button
16. Redial/Pause button
17. Coded Dial button
18. Hook button
19. Left function button
20. Center function button
21. Right function button
22. 1
23. 2
24. 3
25. 4
26. 5
27. 6
28. 7
29. 8
30. 9
31. 0
32. *
33. #
34. 01
35. 02
36. 03
37. DF open sensor §

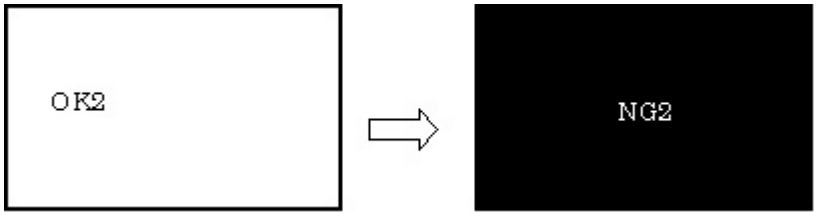
§ Open and close the document cover to check the DF open sensor.

3) Transparent pattern display check

3-1) Press the OK button. "OK1" in white is displayed on the black background. If the result is not good, "NG1" in black is displayed on the white background (transparent color) immediately after "OK1."



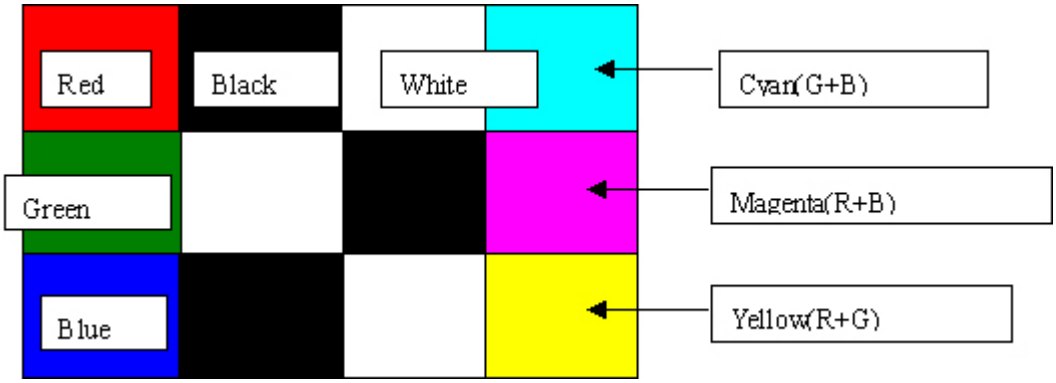
3-2) Press the OK button. "OK2" in black is displayed on the white background. If the result is not good, "NG2" in white is displayed on the black background (transparent color) immediately after "OK2."



3-3) Press the OK button. The machine returns to be ready for selection of another function.

4) Color pattern check

4-1) The color pattern is displayed on the LCD to see if the display is correct.



4-2) Press the ON button. The machine returns to be ready for selection of another function.

(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.

4-3. PTT Parameter Mode

Enter the PTT parameter mode in the user mode as below. (The PTT parameter mode cannot be entered in the service mode.)

1) In the user mode, press the SCAN button to enter the scan mode.

2-a) Press **#, 9, 7, 6, 9, #** to enter the PTT parameter mode.

2-b) Press **#, 9, 7, 6, 8, #** to print the PTT parameter setting value.

How to finalize the data: Press the OK button to finalize the data, then press the Stop button to save the data.

How to exit the PTT parameter mode: Press the ON button to write the saved data to the EEPROM and turn off the machine.

<PTT parameter mode operation procedures>

1. In the user mode, press the SCAN button to enter the scan mode and press **#, 9, 7, 6, 9, #**.
2. The following message is displayed on the LCD.

PTT PRAMETER #1 BIT SWITCH

   BIT SWITCH menu

3. Each time the right or left cursor button is pressed, the menu is changed.

PTT PRAMETER #2 NUMERIC PARAM.

   NUMERIC PARAM. menu

PTT PRAMETER #3 FAX TYPE

   Note: Not used in servicing.

PTT PRAMETER #4 NCU

   Note: Not used in servicing.

PTT PRAMETER #5 PTT SPECIAL

   Note: Not used in servicing.

PTT PRAMETER #6 FAX TEST

   Note: Not used in servicing.

4. Press the OK button when “#BIT SWITCH” or “#2 NUMERIC PARAM.” is displayed to enter either of those modes.

<#1 BIT SWITCH>

1. In the #1 BIT SWITCH menu, the following screen is displayed:

   ```
   PTT PRAMETER
   #1 BIT SWITCH
   SW#01  00000000
   ```

2. Each time the up or down cursor button (or the OK button) is pressed, the SW# changes from 01 to 20.
   Be cautious not to select the SW numbers which are not used in servicing.

   The SW numbers used in servicing: SW# 01, 02, 03, 04, 05, 06, 07, 10, 11, 13
   The SW numbers not used in servicing (as of December 2007): SW# 08, 09, 12, 14 to 20

3. Each SW# has 8-bit information. Using the left or right cursor buttons, move the cursor to the bit to be changed, and enter the setting value (1 or 0).

   Bit7 -> 00000000 <- bit0

4. Press the OK button to finalize the setting value. For the definition and description of each bit of each SW#, refer to the " *G3 Facsimile Service Data Service Handbook*."

   English: QY8-13BC-010
   Japanese: QY8-12B6-020

5. Press the Stop button to save the setting value.
6. Press the ON button.

<#2 NUMERIC PARAM.>

1. In the #2 NUMERIC PARAM. menu, the following screen is displayed:

   ```
   PTT PRAMETER
   #2 NUMERIC PARAM

   01:  00000
   ```

2. Each time the up or down cursor button (or the OK button) is pressed, the SW# changes from 01 to 60.
   Be cautious not to select the SW numbers which are not used in servicing.

   The SW numbers used in servicing: SW# 01, 02, 04 to 09, 16 to 24, 26, 27, 30, 31, 41, 42
   The SW numbers not used in servicing (as of December 2007): SW# 03, 10 to 15, 25, 28, 29, 32 to 40, 43 to 60

3. Enter a desired setting value, using the right or left cursor button or numeric buttons.
   (Specifiable values vary depending on the item.)

4. Press the OK button to finalize the selected setting value. For the definition and description of each bit of the SW#, refer to the " *G3 Facsimile Service Data Service Handbook*."

   English: QY8-13BC-010
   Japanese: QY8-12B6-020

5. Press the Stop button to save the setting value.
6. Press the ON button.

<Confirmation of the setting values>

Print and confirm the PTT parameter setting values in the following procedures:

1) In the user mode, press the SCAN button, then press **#, 9, 7, 6, 8, #**.
2) The PTT parameter mode values are printed.

   For the definition and description of each bit of the SW#, refer to the "G3 Facsimile Service Data Service Handbook."

   English: QY8-13BC-010

PTT parameter print sample for the MX870 Japan model:

2010 01/15 16:03 FAX 001

1.000
PRAM 14.1

****
*** PTT PARAMETER ***
****

#1 BIT SW

SW01 --- 00000000	SW06 --- 00000000	SW11 --- 10000011	SW16 --- 00000100
SW02 --- 00000000	SW07 --- 00000000	SW12 --- 00000000	SW17 --- 00000000
SW03 --- 00000000	SW08 --- 00000000	SW13 --- 00000000	SW18 --- 00000000
SW04 --- 00000100	SW09 --- 00000000	SW14 --- 00110000	SW19 --- 00000000
SW05 --- 00101010	SW10 --- 00000000	SW15 --- 00000001	SW20 --- 00000000

#2 NUMERIC PARAM.

01:	0	13:	150	25:	58	37:	1	49:	5632
02:	10	14:	100	26:	60	38:	45	50:	4480
03:	10	15:	4	27:	5	39:	60	51:	1
04:	10	16:	100	28:	8	40:	30	52:	0
05:	15	17:	0	29:	6	41:	120	53:	0
06:	12	18:	200	30:	0	42:	350	54:	0
07:	5500	19:	100	31:	0	43:	0	55:	0
08:	3500	20:	0	32:	10	44:	0	56:	0
09:	1300	21:	200	33:	25	45:	1	57:	0
10:	600	22:	4	34:	2	46:	1000	58:	0
11:	60	23:	44	35:	2	47:	18	59:	0
12:	100	24:	10	36:	10	48:	7	60:	0

#3 FAX TYPE ---- JAPAN

#4 NCU

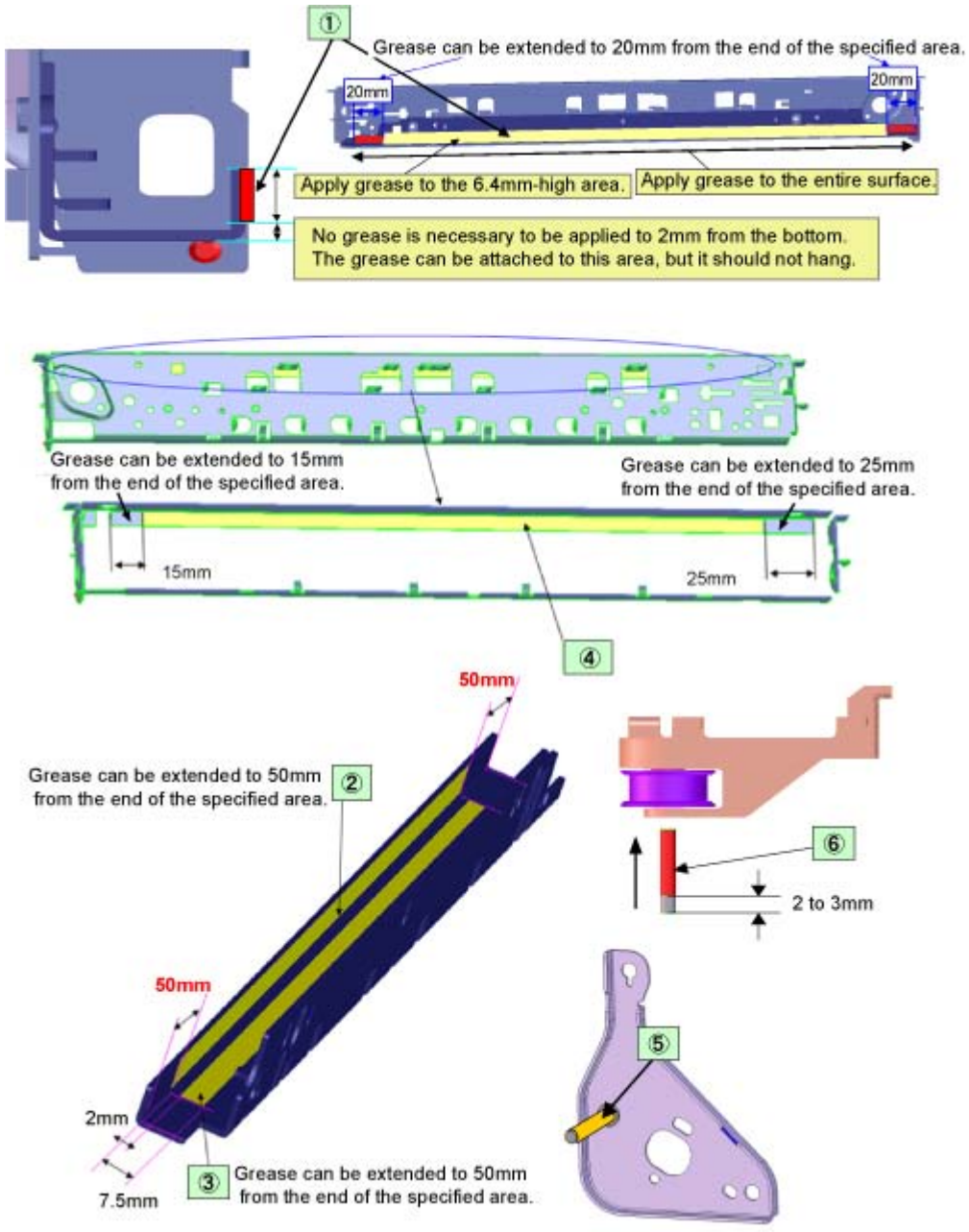
1. TONE/PULSE		2. DIAL TONE 1		3. DIAL TONE 2		4. BUSY TONE	
				---	01000000	---	10000000
01: ---	34	01: ---	10	01: ---	350	01: ---	0
02: ---	650	02: ---	80	02: ---	130	02: ---	35
03: ---	90	03: ---	14	03: ---	10	03: ---	80
04: ---	180	04: ---	130	04: ---	0	04: ---	35
05: ---	8	05: ---	12	05: ---	0	05: ---	80
06: ---	10	06: ---	7	06: ---	5	06: ---	1
		07: ---	130	07: ---	3	07: ---	3
		08: ---	4	08: ---	0	08: ---	3

5. REORDER TONE		6. AUTO RX		7. CNG DETECT	
---	10000000				
01: ---	0	01: ---	15	01: ---	40
02: ---	35	02: ---	60	02: ---	60
03: ---	70	03: ---	65	03: ---	80
04: ---	35	04: ---	120	04: ---	40
05: ---	65	05: ---	1100	05: ---	64
06: ---	1	06: ---	0	06: ---	5
07: ---	6	07: ---	2	07: ---	2
08: ---	3	08: ---	13	08: ---	70
		09: ---	84		

4-4. Grease Application

No	Part name	Where to apply grease / oil	Drawing No.	Grease	Grease amount (mg)	Number of drops x Location
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
6	Parallel pin	The pin surface which contacts the idler pulley hole	(6)	Floil KG107A	9 to 18	1 x 1

1 drop = 9 to 18 mg



4-5. Special Notes on Servicing

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

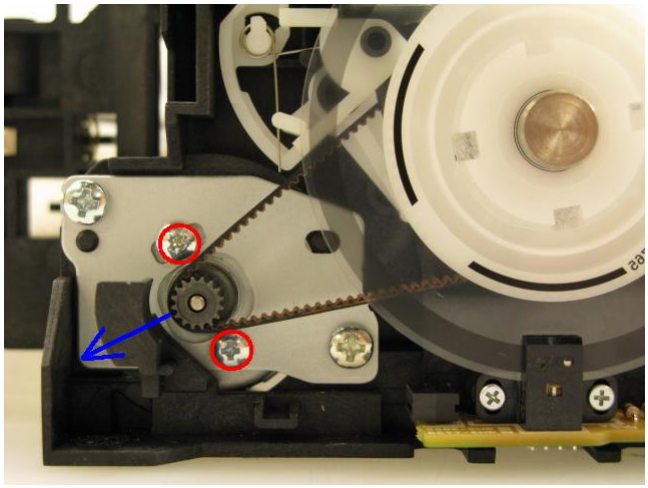
When smeared printing, uneven printing, or non-ejection of ink occurs, print the nozzle check pattern to determine whether the print head is faulty or not.

< Procedures >

1) Print the nozzle check pattern (in the user mode or in the service mode).
2) If there is a missing portion in the printed pattern, perform the print head cleaning (2 times at the maximum), and print the nozzle check pattern again.
3) If the problem persists even after the print head cleaning is performed 2 times, perform the print head deep cleaning, then print the nozzle check pattern again.
4) If the problem is still not resolved, i) turn off the machine and leave it for 24 hours or longer, ii) perform the print head cleaning, and iii) print the nozzle check pattern again.
5) If the problem still persists after steps 1) to 4), the print head may be faulty. Replace the print head.

(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.

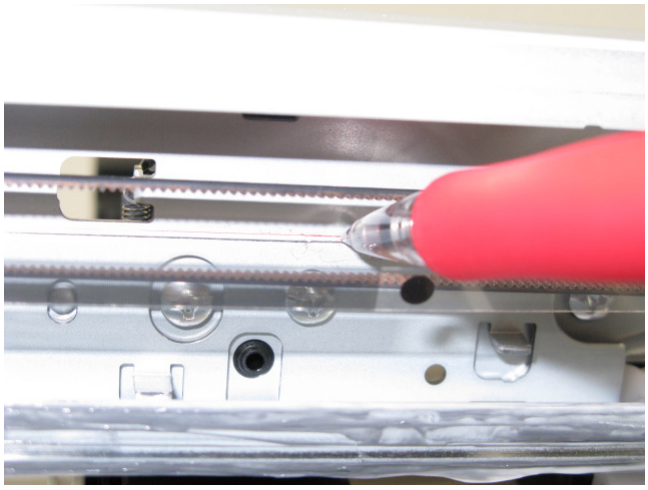


CAUTION

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

To replace the carriage, the carriage rail must be removed from the main chassis (by removing the screws).
Before removing the screws, 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 frame.
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 ink absorber counter value, replace the ink absorber (ink absorber kit). When the ink absorber is replaced, reset the applicable ink absorber counter (to 0%).

- How to check the ink absorber value and the way to set the ink absorber counter:

See 4-2. Service Mode, (5) Ink absorber counter setting.

(6) Ink absorber life estimation

For your reference in servicing, the estimated number of months until the ink absorber will become full is given in EEPROM information print.

Sample: DF = 00049 (It indicates that there will be 49 months before the ink absorber becomes full.)

```
MX870   SN=25---1260 JPN V1.010 ST=2009/12/28-11:07 LPT=2010/01/16-13:10
D=002.0
DF=00049
ER(ER0=1000 ER1=1600 ER2=1003 ER3=0000 ER4=0000
   ER5=0000 ER6=0000 ER7=0000 ER8=0000 ER9=0000)
PC(M=000 R=000 T=002 D=000 C=001 I=005)
LG=01 Japanese
TPAGE(TTL=00194 COPY=00001)
```

Note 1: In the following cases, estimatino of the ink absorber life will not be properly given:

- The printer is not connected to a computer.
- The time is not properly set in the computer.
- The ink absorber counter has been reset (to zero) before.

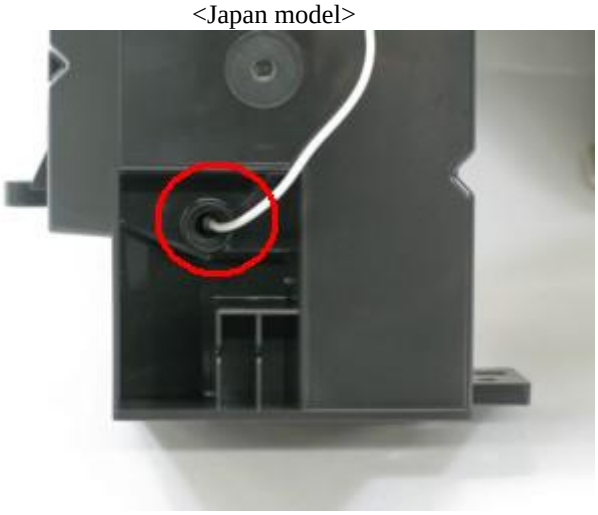
Reason: The ink absorber life is calculated using data of the printer installation date and the current ink counter value. Data of the printer installation date is updated when the printer is connected to a computer.

Note 2: The ink absorber life is calculated based on the user's usage (frequency of printing, printed items, etc.) before EEPROM information print (i.e. before repair servicing). It will vary according to the user's usage after EEPROM information print (i.e. after repair servicing).

(7) Power supply unit and modular board replacement

1) The ground wiring to the AC adapter differs between the Japan model and the other models.

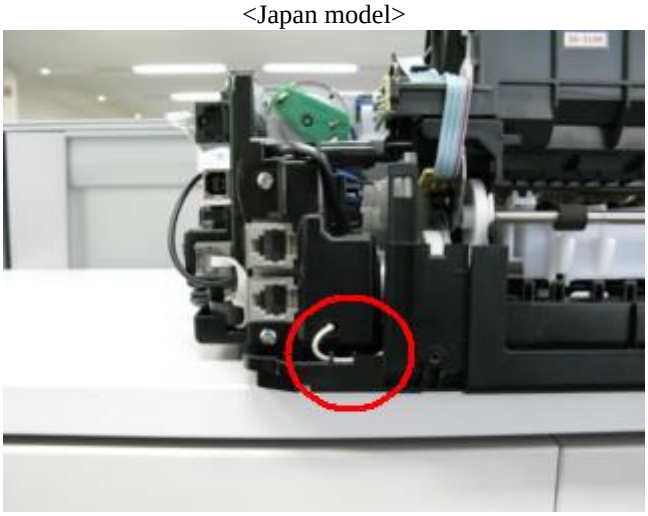
<Japan model>



<Other models>

2) The ground wiring to the modular board differs between the Japan model and the other models.

<Japan model>



<Other models>

(8) Rating label on the bottom case (except China*)

When the bottom case is replaced, be sure to remove the rating label from the original bottom case and attach it to the replaced new one. The rating label is given to each printer unit respectively, thus the label of one unit is valid only for that unit. For this reason, the label is not available as a service part.

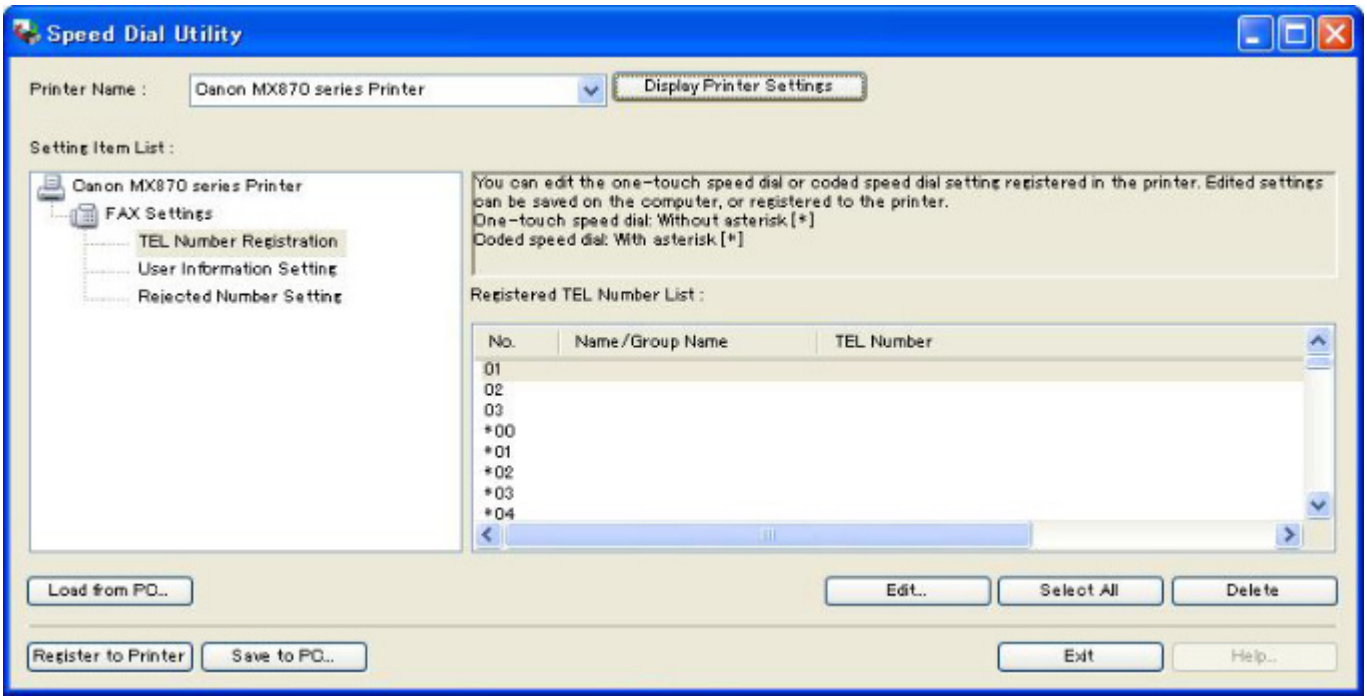
* Note that there is no shipment of the bottom case to China.

(9) PTT label on the bottom case (for New Zealand only)

When the bottom case is replaced, be sure to attach the PTT label from the original bottom case to the replaced new one.
The PTT label is given to each printer unit respectively, thus the label of one unit is valid only for that unit. For this reason, the label is not available as a service part.

(10) Speed Dial Utility

Speed Dial Utility allows users to back up or edit the registered user data (coded speed dials, group dials, etc.) on a computer. Since those user data is considered as private information and requires a careful handling, we ask users to use this utility.



<4-4. Grease Application & 4-5. Special Notes on Servicing>

4-6. Verification After Repair

(1) Standard inspection flow

In each step below, confirm that printing is performed properly and the machine operates properly without any strange noise.

EEPROM information print

<Check point>
- The information must be printed properly.

<Additional verification to be made> See 3-1. Major Replacement Parts.
- At logic board replacement
- At ink absorber replacement
- At platen unit or spur unit replacement
- At operation panel or LCD replacement
- At wireless LAN board replacement

Nozzle check pattern print

<Check point>
- The pattern must be printed properly. (The pattern can be printed in the user mode or in the service mode.)

Copy function

<Check point>
<Additional verification to be made> See 3-1. Major Replacement Parts.
- At document pressure sheet or scanner unit replacement

Communication with a connected computer

<Check point>
- Via USB connection to the computer, printing from the computer must be performed properly (paper feeding from the rear tray and from the cassette respectively).

<Additional verification to be made>
- For repair of a specific problem, confirm the applicable specific function in the user mode.
PictBridge, IrDA communication, wired / wireless LAN, Bluetooth communication, Scan-to-Memory function, Card Direct printing

PictBridge, IrDA | LAN / WLAN | Bluetooth | Scan-to-Memory | Card Direct

Power-off in the service mode

<Check point>
- The paper lifting plate must be in the raised position.

External and internal appearance

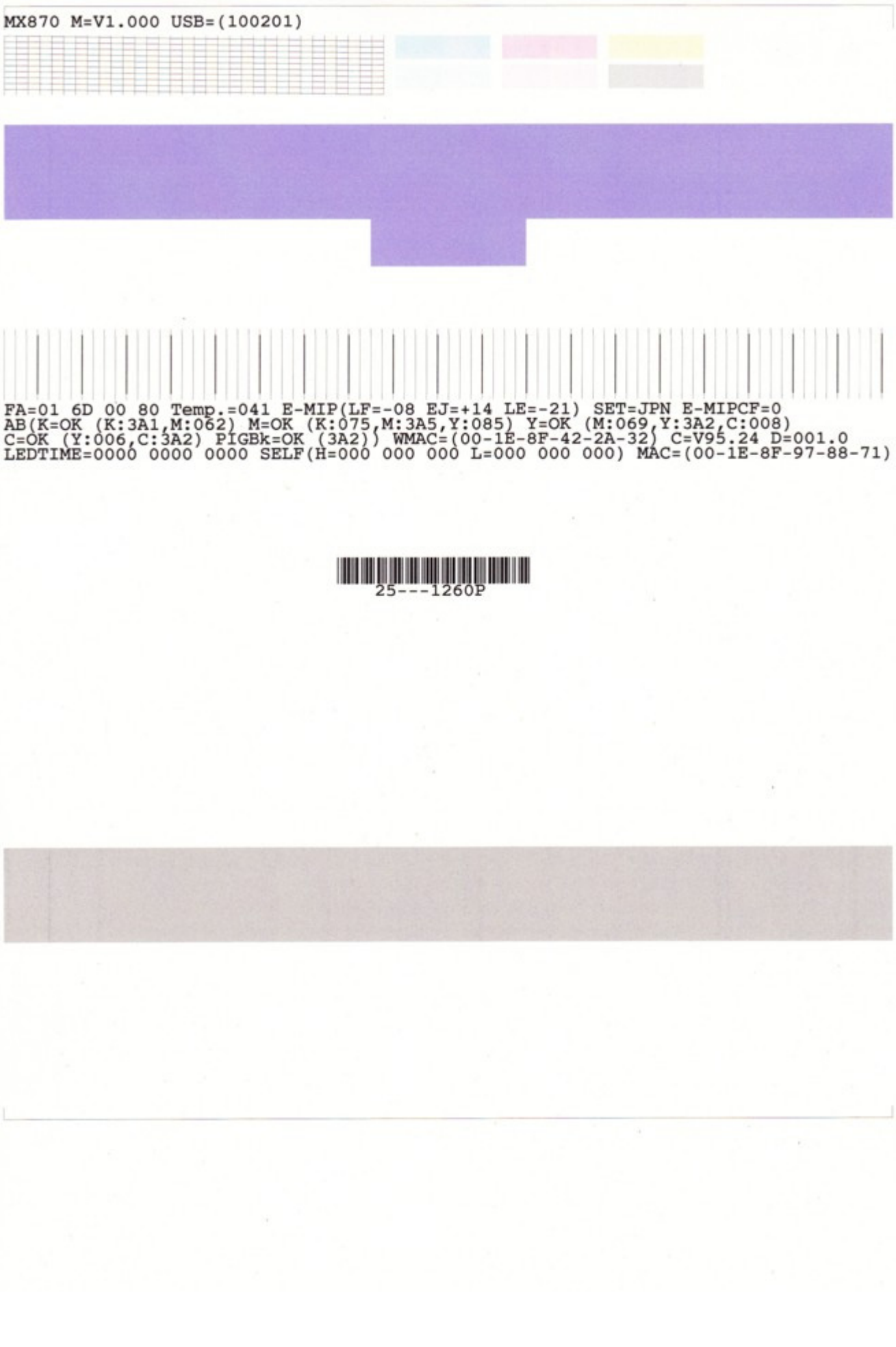
<Check point>
- No grease, oil, or smearing on the timing slit strip film.
- No lifting of the platen ink absorber.
- No foreign material or dislocation of any part inside the printer.
- No damage or scratches that will affect the functionality.

Packaging

<Check point> See 5. MACHINE TRANSPORTATION.
- The carriage must be locked in the home position.

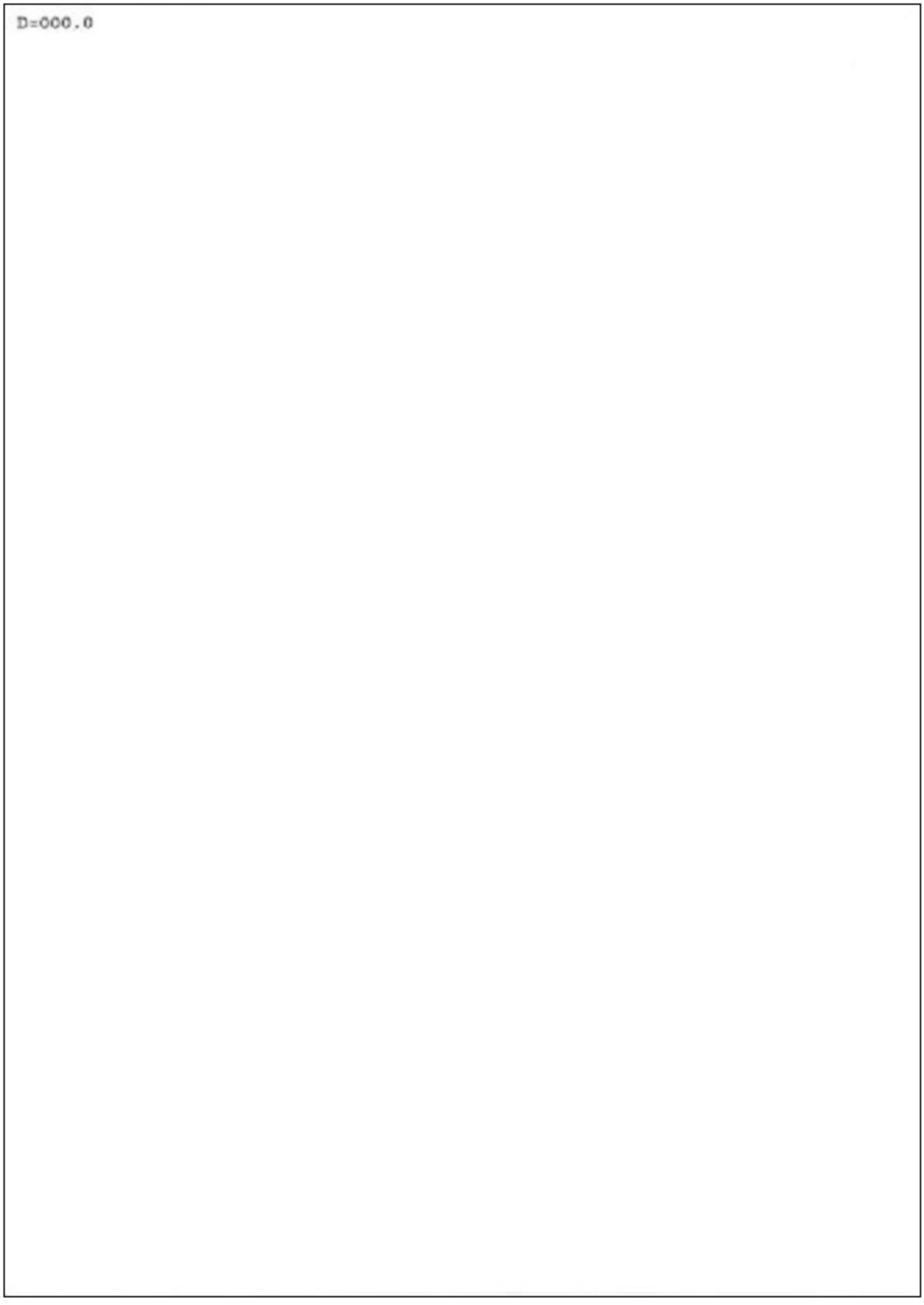
(2) Service test print

<Service test print sample (unified inspection pattern print)>



(3) Ink absorber counter value print

<Print sample>



5. MACHINE TRANSPORTATION

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

1) In the service mode, press the ON button to finish the mode, and confirm that the paper lifting plate of the rear tray is raised.
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.

(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. Make sure that the carriage is locked in place at power-off.

- If the print head must be removed from the machine 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).

<5. MACHINE TRANSPORTATION>