i960
i965
SERVICE MANUAL
Revision 0

QY8-1392-000

Scope

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

Revision

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

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I.   MANUAL OUTLINE

This manual consists of the following three parts to provide information necessary to service the i860 and i865:

Part 1:   Maintenance
Information on maintenance and troubleshooting of the i860 and i865

Part 2:   Technical Reference
New technology and technical information such as FAQ's (Frequently Asked Questions) of the i860 and i865

Part 3:   Appendix
Block diagrams and pin layouts of the i860 and i865

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

II. TABLE OF CONTENTS

Part 1
MAINTENANCE

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 (EEPROM settings)	At logic board ass'y replacement	To initialize settings other than the following: - USB serial number - Destination setting - On-arrival cleaning flag - Waste ink counter - Media sensor correction value - CD-R correction value	None.	1 min.
Destination settings (EEPROM settings)	At logic board ass'y replacement	To set the destination.	None.	1 min.
Waste ink counter resetting	- At bottom case unit replacement - At ink absorber (QC1-2232 / 2233 / 2234 / 2235 / 2236) replacement	To reset the waste ink counter.	None.	1 min.
Media sensor correction[*1] (EEPROM settings)	- At logic board ass'y replacement - At sheet feeder unit replacement	To correct the media sensor.	Calibration media kit (QY9-0064)[*2]	2 min.
CD-R sensor / automatic print head alignment sensor correction (EEPROM settings)	- At logic board ass'y replacement - At carriage unit replacement	To correct the CD-R and automatic print head alignment sensor.	None. (Correction performed through service test print)	1 min.
Print head alignment	- At print head replacement - At logic board ass'y replacement	To ensure accurate dot placement.	Computer (settings via the printer driver)	3 min.
Paper feed motor position adjustment[*3]	At paper feed motor unit replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	2 min.
Grease application	- At carriage unit replacement - At paper guide flapper ass'y (QL2-0341) replacement - At lift cam base's (QL2-0340) gear replacement - At lift cam shaft unit (QM2-0593) replacement	- To maintain sliding properties of the carriage, carriage shaft, paper guide flapper, and lift cam shaft. - To protect the lift cam base gear. - To maintain sliding properties of the lift cam shaft.	- FLOIL KG-107A (QY9-0057) - MOLYKOTE PG641 (CK-0562) - EU-1 (QY9-0037)	2 min.

Note: DO NOT loosen the red screws on both sides of the main chassis, securing the carriage shaft positioning.

*1: Media sensor correction
   This operation adjusts the correction value of the media sensor, installed in the sheet feeder unit, to the EEPROM of the logic board ass'y. The adjustment is required when the sheet feeder unit or the logic board ass'y is replaced, and values are automatically determined via use of calibration media kit (QY9-0064).

*2: Calibration media kit
   The service tool for media sensor correction, consisting of 10 sheets of the reference plain paper, and 1

sheet of the reference white PET paper.
*3: Red screws of paper feed motor
The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

(2) Periodic maintenance

No periodic maintenance is necessary.

(3) Periodic replacement parts

There are no parts in this printer 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
Print head alignment	At print head replacement.	To ensure accurate dot placement.	Computer (Automatic settings via the printer driver)	5 min.
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Printer buttons - Computer (settings via the printer driver)	30 sec. to 1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	Computer (settings via the printer driver)	1 to 1.5 min.
Ink tank replacement	When an ink tank becomes empty. (No ink error)	-----	-----	2 min.
Paper feed roller cleaning	When paper does not feed properly.	To clean the paper feed rollers.	Printer buttons	2 min.
CD-R print position adjustment	At CD-R printing, when necessary	To correct CD-R print position	Computer (application software)	5 min.

1.3 Product Life

(1) Printer

The value from (i) to (iv), whatever comes first.
(i)   10,000 pages of color printing
          - Color: 7.5% duty per color pattern printing, A4
(ii)   1,200 disks of CD-R or DVD-R printing
          - On a basis of monthly print volume of approx. 20 disks
(iii) 5,000 pages of printing using the photo paper tray
          - On a basis of monthly print volume of approx. 83 pages
(iv)   5 years of use

(2) Print head

10,000 pages of color printing
       - Color: 7.5% duty per color pattern printing, A4

(3) Ink tank

BCI-6BK: 600 pages (1,500 character pattern in black printing, plain paper, standard mode)
                780 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)
BCI-6C: 880 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)
BCI-6M: 630 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)
BCI-6Y: 430 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)
BCI-6PC: 300 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)
BCI-6PM: 220 pages (ISO JIS-SCID No. 5 pattern, plain paper, standard mode)

(4) Auto duplex printing unit DPU-10 (option)

The value (i) or (ii), whichever comes first.
(i)   15,000 pages of printing
(ii)   5 years of use

(5) Paper feed cassette PFC-10 (option)

The value (i) or (ii), whichever comes first.
(i)   30,000 pages of printing
(ii)   5 years of use

1.4 Special Tools

Name	Tool No.	Purpose	Remarks
MOLYKOTE PG641	CK-0562-000	To be applied to the lift cam base gear and the sliding portion of the lift cam shaft	In common with conventional models
FLOIL KG-107A	QY9-0057-000	To be applied to the sliding portions of the carriage, carriage shaft, and the paper guide flapper	In common with conventional models
EU-1	QY9-0037-000	To be applied to the sliding portion of the carriage, and the grease pad on the carriage	In common with conventional models
Calibration media kit	QY9-0064-000	To correct the media sensor	New (in common with the i860/i865)

1.5 Serial Number Location

On the carriage flexible cable holder (visible when the access cover is open).

2. LIST OF ERROR DISPLAY / INDICATION

Errors are indicated by the LED, and warnings are displayed on the monitor of the computer connected to the printer.

2.1 Operator Call Errors (by LED Blinking in Orange)

LED blinking in orange	Error	Solution	Remarks
2 times	No paper. (ASF) [1000]	Set the paper in the ASF, and press the Resume/Cancel button.	
	No CD-R tray. [1001][*1]	Set the CD-R tray, and press the Resume/Cancel button.	
	No paper in the photo paper tray. [1004]	Set the paper in the photo paper tray, and press the Resume/Cancel button.	
	No paper in the paper feed cassette. [1003][*2]	Set the paper in the paper feed cassette, and press the Resume/Cancel button.	
3 times	Paper jam. [1300]	Remove the jammed paper, and press the Resume/Cancel button.	
	Paper jam in the auto duplex printing unit. [1304][*3]		
	Paper jam in the paper feed cassette. [1303][*2]		
4 times	No ink. [1601/1634/1635/1611/1612/1613]	Replace the empty ink tank(s), or press the Resume/Cancel button.	Pressing the Resume/Cancel button will exit the error without ink tank replacement, however, ink may run out during printing.
5 times	The print head is not installed [1401], or it is not properly installed (EEPROM data of the print head is faulty) [1403/1405].	Install the print head properly, and close the front cover. Or, with the print head installed, turn the printer off and on.	
6 times[*1]	No CD-R tray feeder (during CD-R printing). [1850/1855]	Set the CD-R tray and tray feeder properly, and press the Resume/Cancel button.	
	Presence of the CD-R tray feeder (during paper printing). [1851/1856]	Remove the CD-R tray feeder, and press the Resume/Cancel button.	
7 times[*1]	No CD-R or DVD-R. [1002]	After setting a CD-R or DVD-R in the tray, set the tray in the tray feeder, and press the Resume/Cancel button.	
8 times	Warning: The waste ink absorber becomes almost full (approx. 95% of the maximum capacity).	Pressing the Resume/Cancel button will exit the error, and enable printing. In repair servicing, replace the bottom case unit (QM2-0586), or 5-item set of the ink absorbers (QC1-2232/2233/2234/2235/2236).	The service call error, indicating the waste ink absorber is full, is likely to occur soon.
9 times	The connected digital camera or digital video camera does not support Camera Direct Printing. [2001]	After removing the cable between the camera and the printer, press the Resume/Cancel button, and re-connect the cable.	When connected to a Direct Print supported camera, the green LED blinks 2 times.

(Operator Call Errors - cont'd -)

LED blinking in orange	Error	Solution	Remarks
10 times[*3]	No auto duplex printing unit. [1860]	Set the auto duplex printing unit, and press the Resume/Cancel button.	
	Automatic duplex printing cannot be performed (paper size not supported). [1310]	Set an automatic duplex printing supported size of paper, and press the Resume/Cancel button.	
11 times	Failed in automatic print head alignment. [2500]	Press the Resume/Cancel button, and after confirming the following, perform print head alignment again: - Set an appropriate type and size of paper (plain paper, A4 or letter). - Check that the nozzle check pattern is properly printed (all ink ejected, no faint printing).	

*1: Only for the model supporting CD-R printing (i965).
*2: Only when the paper feed cassette PFC-10 (optional unit) is attached.
*3: Only when the auto duplex printing unit DPU-10 (optional unit) is attached.

2.2 Service Call Errors (by LED Blinking in Orange and Green Alternately, or Lit in Orange)

LED alternate blinking in orange and green	Error	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error [5100]	- Carriage unit (QM2-0729) - Timing slit strip film (QA4-1053) - Logic board ass'y (QM2-0786/QM2-0812)[*1] - Carriage motor (QK1-0175)
3 times	Paper feed error [6000]	- Timing sensor unit (QM2-0596) - Timing slit disk film (QC1-2511) - Feed roller ass'y (QF4-01735) - Platen unit (QM2-0310/QM2-0311) - Logic board ass'y (QM2-0786/QM2-0812)[*1] - Paper feed motor unit (QM2-0810)
4 times	Purge unit error [5C00]	- Purge unit (QM2-0730) - Logic board ass'y (QM2-0786/QM2-0812)[*1]
6 times	Internal temperature error [5400]	- Logic board ass'y (QM2-0786/QM2-0812)[*1]
7 times	Waste ink absorber full [5B00]	- Ink absorbers (QC1-2232/2233/2234/2235/2236) - Bottom case unit (QM2-0727)[*4]
8 times	Print head temperature rise error [5200]	- Print head (QY6-0043) - Logic board ass'y (QM2-0786/QM2-0812)[*1]
9 times	EEPROM error [6800]	- Logic board ass'y (QM2-0786/QM2-0812)[*1]
10 times[*2]	Carriage lift mechanism error [5110]	- Lift cam shaft unit (QM2-0593) - Photo interrupter (WG8-5571) - Sheet feeder unit (QM2-0589) - Logic board ass'y (QM2-0786/QM2-0812)[*1]
11 times[*3]	Paper feed cassette error [5900]	- Paper feed cassette PFC-10 (option) - Logic board ass'y (QM2-0786/QM2-0812)[*1] - Bottom case unit (QM2-0727)[*4]
12 times	Media sensor error [8000]	- Sheet feeder unit (QM2-0589)

LED alternate blinking in orange and green	Error	Solution (Replacement of listed parts, which are likely to be faulty)
13 times	USB Host VBUS overcurrent [9000]	- Logic board ass'y (QM2-0786/QM2-0812)[1]
15 times	Other hardware error [6500]	- Logic board ass'y (QM2-0786/QM2-0812)[1]
Continuous alternate blinking	Flash ROM error	- Logic board ass'y (QM2-0786/QM2-0812)[1]
Lights in orange	RAM error	- Logic board ass'y (QM2-0786/QM2-0812)[1]

*1: Before replacement of the logic board ass'y, check the waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit or the 5-item set of the ink absorbers when replacing the logic board ass'y. See Section 3.3. Adjustment / Settings, (6) Service mode, for details.
*2: Only for models supporting CD-R printing (i965).
*3: Only when the paper feed cassette PFC-10 (optional unit) is attached.
*4: Reset the waste ink counter when replacing the bottom case unit (QM2-0586). See Section 3.3. Adjustment / Settings, (6) Service mode, for details.

2.3 Warnings

(1) Printer (no LED indications)

Displayed warning	Remarks
Low ink of 6BK, 6C, 6M, 6Y, 6PC, or 6PM (at detection of no remaining of raw ink)	The status is displayed on the monitor of the computer connected to the printer.
Print head temperature rise warning	If the print head temperature is high when the front cover is opened, the warning is displayed[1]. When the print head temperature falls, the warning is released.
Protection of excess rise of the print head temperature	If the print head temperature exceeds the specified limit, a Wait is inserted during printing,
Presence of the CD-R tray feeder[2]	If the CD-R tray feeder is attached when the front cover is opened, the warning is displayed.[1] When the CD-R tray feeder is removed, and the front cover is closed, the warning is released.

*1: If the warning is displayed, the carriage does not move to the ink tank replacement position when the front cover is opened.
*2: Only for models supporting CD-R printing (i965).

2.4 Troubleshooting by Symptom

	Symptom	Solution	Remarks
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	Replace the - AC adapter, or - logic board ass'y[1].	
	The print head is not recognized. The print head does not move to the home position.	Remove and re-install the print head, or replace the - print head, or - logic board ass'y[1].	
	A strange noise occurs.	Remove foreign material, or attach a removed part if any.	
	Printing stops mid-way.	Replace the logic board ass'y[1].	

(Troubleshooting by Symptom - cont'd -)

		Symptom	Solution	Remarks
Paper feed problems		Multiple sheets feed.	Replace the - sheet feeder unit, - photo paper tray, or - paper feed cassette.	
		Paper does not feed.	Remove foreign material, or replace the - sheet feeder unit, - photo paper tray, or - paper feed cassette.	
		Paper feeds at an angle.	Remove foreign material, adjust the paper guide, or replace the - sheet feeder unit, - photo paper tray, or - paper feed cassette.	
Unsatisfactory print quality		No printing, or no color ejected.	Replace the - ink tank, - print head[*2], - logic board ass'y[*1], or - purge unit.	
		Printing is faint, or white lines appear on printouts even after print head cleaning. Line(s) not included in the print data appears on printouts.	Remove and re-install the print head, or replace the - ink tank, - print head[*2], - purge unit, or - logic board ass'y[*1].	
		Paper gets smeared.	Feed several sheets of paper, or clean the paper path with cotton swab or cloth.	
		A part of a line is missing on printouts.	Replace the - ink tank, or - print head[*2].	
		Color hue is incorrect.	Replace the - ink tank, or - print head[*2], or correct the media sensor.	
		Printing is incorrect.	Replace the logic board ass'y[*1].	
		No ejection of black ink.	Replace the - ink tank, or - print head[*2].	
		Graphic or text is enlarged on printouts.	When enlarged in the carriage movement direction, clean grease or oil off the timing slit strip film, or replace the - timing slit strip film, - carriage unit, or - logic board ass'y[*1]. When enlarged in the paper feed direction, clean grease or oil off the timing slit strip film, or replace the - timing slit disk film, - timing sensor unit, or - logic board ass'y[*1].	

*1: Before replacement of the logic board ass'y, check the waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit or the 5-item set of the ink absorbers when replacing the logic board ass'y. See Section 3.3. Adjustment / Settings, (6) Service mode, for details.

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

3. REPAIR

3.1 Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement[*1]	Adjustment / settings	Operation check
Logic board ass'y (QM2-0786/0812)	- 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 waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit or the ink absorbers when replacing the logic board ass'y. See 3.3. Adjustment / Settings, (6) Service mode, for details.	After replacement: 1. Initialize the EEPROM. 2. Reset the waste ink counter. 3. Set the destination in the EEPROM. 4. Correct the media sensor. 5. Correct the CD-R and automatic print head alignment sensor. For details of 1 to 5, see 3.3. Adjustment / Settings, (6) Service mode. 6. Perform the print head alignment in the user mode.	- EEPROM information print - Service test print - Printing via parallel or USB connection - Direct printing from a digital camera
Bottom case unit (QM2-0727) Ink absorber (QC1-2232/2233/ 2234/2235/2236)		After replacement: 1. Reset the waste ink counter. See 3.3. Adjustment / Settings, (6) Service mode.	- Service test print
Sheet feeder unit (QM2-0589)		After replacement: 1. Correct the media sensor. See 3.3. Adjustment / Settings, (6) Service mode.	- Service test print (Confirm media sensor correction.)
Carriage unit (QM2-0729)		At replacement: 1. Apply grease to the sliding portions. See 3.3. Adjustment / Settings, (3) Grease application. After replacement: 1. Correct the CD-R and automatic print head alignment sensor. See 3.3. Adjustment / Settings, (6) Service mode. 2. Perform the print head alignment in the user mode.	- Service test print (Confirm CD-R and automatic print head alignment sensor correction.)
Paper feed motor unit (QM2-0810)	- The red screws securing the paper feed motor are allowed to be loosened. (DO NOT loosen any other red screws.)	At replacement: 1. Adjust the paper feed motor. See 3.3. Adjustment / Settings, (1) Paper feed motor adjustment.	

Service part	Notes on replacement[1]	Adjustment / settings	Operation check
Lift cam shaft unit (QM2-0593)		At replacement: 1. Apply grease to the sliding portions. See 3.3. Adjustment / Settings, (3) Grease application. 2. Adjust the phase of the lift shaft gear (QC1-2297). See 3.3. Adjustment / Settings, (3) Grease application.	- Service test print
Timing slit strip film (QA4-1053) Timing slit disk film (QC1-2511)	- 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 the print head alignment in the user mode.	- Service test print
Print head (QY6-0043)		After replacement: 1. Perform the print head alignment in the user mode.	- Service test print

[1]: General notes:
- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly. See 3.2. Special Notes on Repair Servicing, (1) Flexible cable and harness wiring, connection, 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 printer to sit for approx. 1 minute (for capacitor discharging to protect the logic board ass'y from damages).
- Do not touch the timing slit strip film and timing slit disk film. No grease or abrasion is allowed.
- Protect the units from soiled with ink.
- Protect the housing from scratches.
- Exercise caution with the red screws, as follows:
    i. The red screws of paper feed motor may be loosened only at replacement of the paper feed motor unit (DO NOT loosen them in other cases).
    ii. DO NOT loosen the red screws on both sides of the main chassis, securing the carriage shaft positioning (they are not adjustable in servicing).

3.2 Special Notes on Repair Servicing

(1) Flexible cable and harness wiring, connection

Refer to the i960 / i965 Parts Catalog.
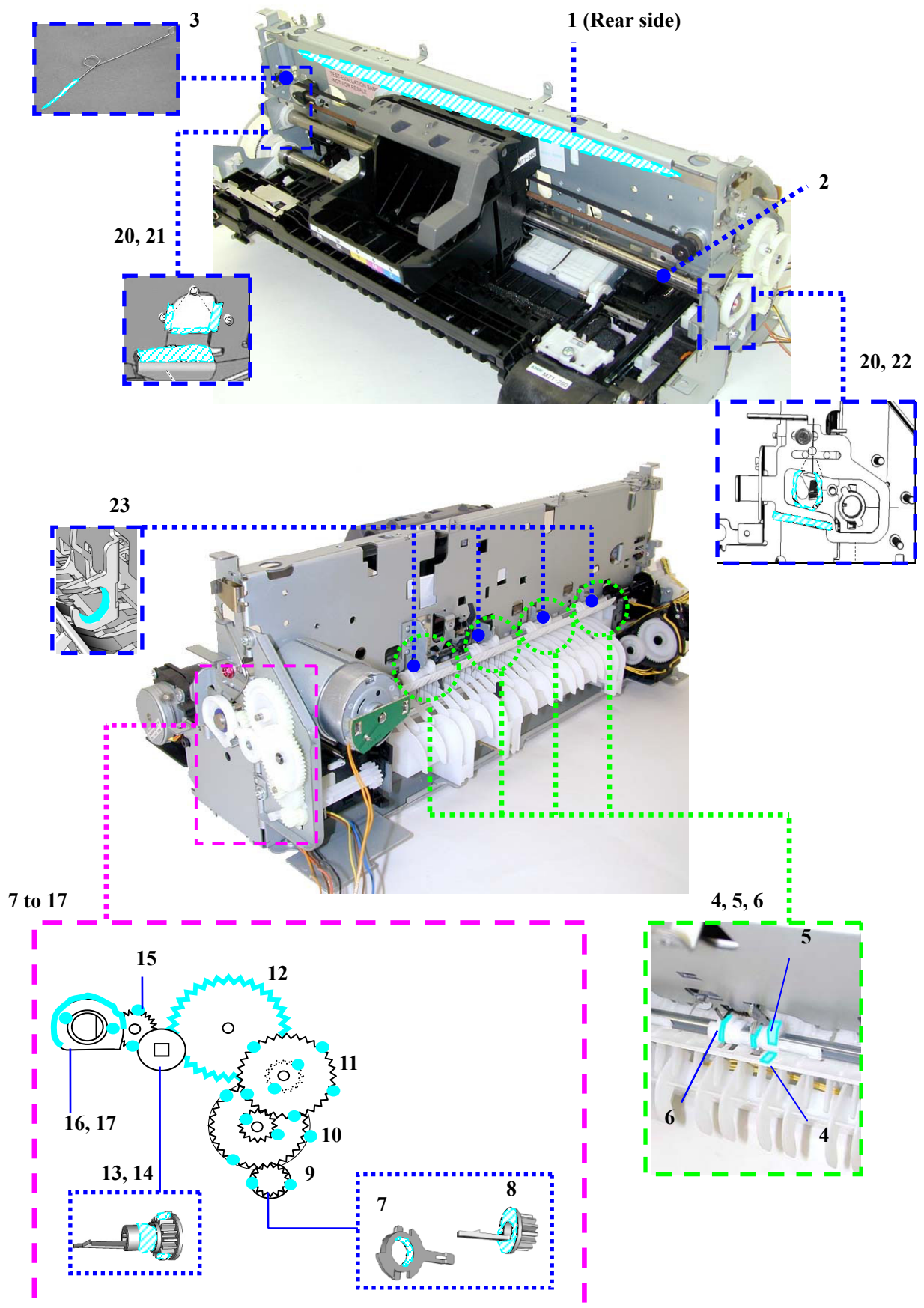

3.3 Adjustment / Settings

(1) Paper feed motor adjustment

Refer to the PIXUS 860i / /i860 / i865 Service Manual.
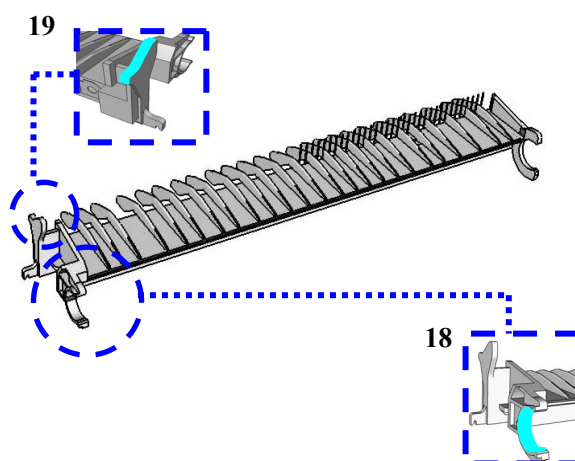
(2) Gear phase adjustment

Refer to the PIXUS 860i / /i860 / i865 Service Manual.

(3) Grease application

3

1 (Rear side)

2

20, 21

20, 22

23

7 to 17

4, 5, 6

15

12

5

11

16, 17

10

6

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13, 14

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8

Paper guide flapper ass'y

Part name		Where to apply grease / oil	Grease / oil name	Grease / oil amount
Carriage slide plate	1	Carriage unit sliding portion	FLOIL KG107	3 drops
Carriage shaft	2-1	Carriage unit sliding portion	EU1	50 to 110mg
Grease pad (QA4-0721) x 2	2-2	Carriage unit sliding portion	EU1	90 to 110mg
Shaft clip L / R	3	Carriage shaft sliding portion	FLOIL KG107	1 drop each
Pressure roller ass'y	4	Lift cam shaft unit sliding portion	MOLYKOTE PG641	1 drop
Lift cam shaft unit	5	Pressure roller ass'y sliding portion (4 locations of the cam)	MOLYKOTE PG641	1 drop x 4 locations
	6	Torsion spring (4 locations)	MOLYKOTE PG641	Thin film of oil x 4 locations
Bushing (on the lift input gear side)	7	Bushing inner surface	MOLYKOTE PG641	1 drop
Lift input gear	8	Bushing sliding portion	MOLYKOTE PG641	1 drop
	9	Gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 2 locations
Lift transmission gear (QC1-2294)	10	Larger gear tooth (3 locations), smaller gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 5 locations
Lift transmission gear (QC1-2295)	11	Larger gear tooth (5 locations), smaller gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 7 locations
Lift transmission gear (QC1-2296)	12	Gear tooth (all teeth)	MOLYKOTE PG641	2 drops
Lift shaft gear	13	Bushing sliding portion	MOLYKOTE PG641	1 drop
	14	Gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 2 locations
Carriage input gear	15	Gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 2 locations
Carriage shaft cam R	16	Cam sliding portion	FLOIL KG107	1 drop
	17	Gear tooth (2 locations)	MOLYKOTE PG641	1 drop x 2 locations
Paper guide flapper ass'y	18	Feed roller ass'y sliding portion	FLOIL KG107	2 drops
	19	Lift cam shaft unit sliding portion	MOLYKOTE PG641	1 drop
Chassis	20	Carriage shaft sliding portion (3 locations each, on the left and right sides)	FLOIL KG107	1 drop x 6 locations
	21	Carriage shaft cam L sliding portion	FLOIL KG107	2 drops
	22	Carriage shaft cam R sliding portion	FLOIL KG107	2 drops
	23	Lift cam shaft unit bushing (4 locations)	FLOIL KG107	1 drop x 4 locations

Note: 1 drop = 9 to 18 mg

(4) Waste ink counter setting

When the logic board ass'y is replaced, reset the waste ink counter. In addition, according to the waste ink amount, replace the waste ink absorber (the bottom case unit or the 5-item set of the ink absorbers). The standard amount for waste ink absorber replacement is given in the table below.

Waste ink amount[*1]	Bottom case unit or 5-item set of ink absorbers replacement
Less than 7%	Not required.
7% or more	Required.

*1: Check the waste ink amount by service test print or EEPROM information print. (See 3.3. Adjustment / Settings, (5) Service mode, for details.)

(5) User mode

Function	Procedures	Remarks
Print head manual cleaning	See "Standalone printer operation" below.	Also available from the printer driver's Maintenance tab.
Print head deep cleaning	Perform from the printer driver utility.	
Paper feed roller cleaning	See "Standalone printer operation" below.	
Nozzle check pattern printing	See "Standalone printer operation" below.	Also available from the printer driver's Maintenance tab.
Print head alignment	Perform from the printer driver utility.	In Custom Settings of the printer driver's Maintenance tab, manual print head alignment (by selecting the optimum values) as with the conventional models can be performed.
Print head replacement	The print head is replaceable at the same position as for ink tank replacement. (Open the front cover. When the carriage stops at the center, the print head can be replaced.)	

<Standalone printer operation>
1) Turn on the printer.
2) Press and hold the Resume/Cancel button until the LED blinks the specified number of times listed in the table below, and release it. The operation starts.

LED blinking	Operation	Remarks
1 time	Print head manual cleaning	
2 times	Nozzle check pattern printing	Set a sheet of plain paper (A4 or letter) in the ASF.
3 times	Paper feed roller cleaning	
4 times	Automatic print head alignment (only for Bk, C and PC inks)	Set a sheet of plain paper (A4 or letter) in the ASF.
5 times or more	Unspecified	

(6) Service mode

Function	Procedures	Remarks
Service test print - Destination - ROM version - Waste ink amount - Number of pages printed - CD-R / automatic print head alignment sensor correction	See "Service mode operation procedures" below.	Set a sheet of A4- , letter-, or larger-sized paper. For print sample, see 3.4. Verification Items, (1) Service test print, <Service test print sample>.
EEPROM initialization	See "Service mode operation procedures" below.	The following items are NOT initialized: - USB serial number - Destination settings - Cleaning on arrival flag - Waste ink counter - Media sensor correction value - CD-R correction value
Waste ink counter reset	See "Service mode operation procedures" below.	If the waste ink amount is 7% or more, replace the bottom case unit, or the ink absorbers.
Destination settings	See "Service mode operation procedures" below.	Overseas: - CD-R printing not supported (A4): i960 - CD-R printing not supported (LTR): i960 (LTR) - CD-R printing supported (A4): i965 - CD-R printing supported (LTR): i965 (LTR)

Note: At the end of the service mode, press the Power button. To protect the media sensor from being dislocated during transportation, the paper lifting plate of the sheet feeder unit will be raised.

<Service mode operation procedures>
1) With the printer power turned off, while pressing the Resume/Cancel button, press and hold the Power button. (Do not release the buttons. The LED lights in green to indicate that a function is selectable.)
2) While holding the Power button, release the Resume/Cancel button. (Do not release the Power button.)
3) While holding the Power button, press the Resume/Cancel button 2 times, and then release the Power and Resume/Cancel buttons. (Each time the Resume/Cancel button is pressed, the LED lights alternately in orange and green, starting with orange.)
4) When the LED lights in green, press the Resume/Cancel button the specified number of time(s) according to the function listed in the table below. (Each time the Resume/Cancel button is pressed, the LED lights alternately in either orange or green, starting with orange.)

Time(s)	LED	Function	Remarks
0 times	Green	Power off	When the print head is not installed, the carriage returns and locks in the home position.
1 time	Orange	Service test print	See 3.4. Verification Items, (1) Service test print.
2 times	Green	EEPROM information print	See 3.4. Verification Items, (2) EEPROM information print.
3 times	Orange	EEPROM initialization	
4 times	Green	Waste ink counter resetting	
5 times	Orange	Destination settings	Proceed to the step 5), and follow the Destination settings procedures.
6 times	Green	Print head deep cleaning	
7 times	Orange	Media sensor correction	Proceed to the step 5), and follow the Media sensor correction procedures.
8 times	Green	CD-R test print	Not used in servicing
9 times	Orange	CD-R print position correction (horizontal)	Not used in servicing
10 times	Green	CD-R print position correction (vertical)	Not used in servicing
11 times or more		Return to the menu selection	

5) After the function (menu) is selected, press the Power button. The LED lights in green, and the selected function is performed. (When the operation completes, the printer returns to the menu selection mode automatically.)

<Destination settings procedures>
In the destination settings mode, press the Resume/Cancel button the specified number of time(s) according to the destination listed in the table below, and press the Power button.

Time(s)	LED	Destination
1 time	Orange	Destination setting remains unchanged.
2 times	Green	Overseas, non-support of CD-R printing (A4): i960
3 times	Orange	Overseas, non-support of CD-R printing (LTR): i960 (LTR)
4 times	Green	Overseas, support of CD-R printing (A4): i965
5 times	Orange	Overseas, support of CD-R printing (LTR): i965 (LTR)
6 times or more		Return to the menu selection

Note: After setting the destination, confirm the model name in service test print or EEPROM information print. (See 3.4. Verification Items, (1) Service test print, or (2) EEPROM information print.)

<Media sensor correction procedures>
In the media sensor correction mode, using the reference white PET paper and reference plain paper of the calibration media kit (QY9-0064), press the Resume/Cancel button the specified number of times in the table below, and press the Power button. The media sensor correction operation must be performed once each with the reference white PET paper and the reference plain paper.

Time(s) of Resume/Cancel button	LED	Operation
1 time	Orange	Not used in servicing (In this mode, the set reference paper will be fed, and may be damaged. Please be careful not to select this mode.)
2 times	Green	Reference white PET paper correction value operation[*1]
3 times	Orange	Reference plain paper correction value operation[*2]
4 times or more		Return to the menu selection

Note: - After each correction value operation, the mode returns to the service mode menu selection. After finishing either of the correction value operations, re-select the media sensor correction mode to perform the other correction value operation.
- After performing the media sensor correction, confirm the values of the media sensor in service test print or EEPROM information print. (See 3.4. Verification Items, (1) Service test print, or (2) EEPROM information print.)

*1: Reference white PET paper correction value operation
Set the A5-sized reference white PET paper (packed in the calibration media kit) in the sheet feeder in the landscape orientation. Then, press the Resume/Cancel button 2 times, and the Power button.
Note: There is no printing on the reference white PET paper. It can be placed with either side facing up, and with either edge at top.

*2: Reference plain paper correction value operation
After setting a sheet of the A5-sized reference plain paper (packed in the calibration media kit) in the sheet feeder, press the Resume/Cancel button 3 times, and the Power button.

The reference plain paper should be placed in the sheet feeder with the print side facing up, with the + marks printed area at top, so that it will feed in the direction indicated by the blue arrow in the figure.
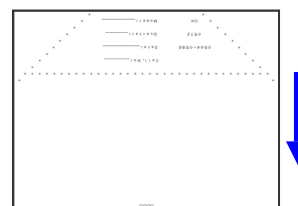
(7) Flash ROM upgrade

Refer to the PIXUS 860i / /i860 / i865 Service Manual.

3.4 Verification Items

(1) Service test print

<EEPROM information contents>
On the service test print (sample on the following page), confirm the EEPROM information as shown below. (The information is given in the upper portion of the printout.)

Destination (model name)

ROM Version

Ink absorber waste ink amount (%)

Number of times the print head is installed

Initial print date after installation
(Default: 1970/01/01)

Number of times of power-on
S: Soft-power-on
H: Hard-power-on

```
xxxx        Vxxx        D=xxx.xx   CH=xxxxx      ST=xxxx/xx/xx     PWC (S=xxxxx  H=xxxxx)

ERDAY=xxxx/xx/xx   OER0=xxxxxx   OER1=xxxxxx   SER0=xxxxxx   SER1=xxxxxx
```

Error record
ERDAY: Latest non-error day
OER0:   Second operator call error from the last
OER1:   Latest operator call error
SER0:   Second service call error from the last
SER1:   Latest service call error

<Print check items>
On the service test print (sample on the following page), confirm the following items:
- Check 1, nozzle check pattern: Ink shall be ejected from all nozzles.
- Check 2, top of form accuracy: The line shall be within the paper.
- Check 3, vertical straight lines: The line shall not broken.
- Check 4, halftone: There shall be no remarkable streaks or unevenness.
- Check 5, CD-R / automatic print head alignment sensor correction:
      The results shall be OK.
- Check 6, media sensor correction: Nothing shall be printed to indicate that the correction has been implemented.
      (If not implemented, "MEDIA SENSOR = NO CALIBRATE" is printed.)

<Service test print sample>

Check 2:
Top of form accuracy

i960(LTR) V1.04 D=008.00 CH=00000 ST=2003/09/30 PWC(S=00003 H=00000)
ERDAY=2003/10/03 OER0=00000 OER1=00000 SER0=00000 SER1=00000

Check 3:
Straight lines

Check 1:
Nozzle check pattern

Check 4:
Halftone

Check 5:
CD-R / automatic print head alignment sensor correction

i960(LTR)

CDR SENSOR=OK

Check 6:
Media sensor correction (implemented or not)
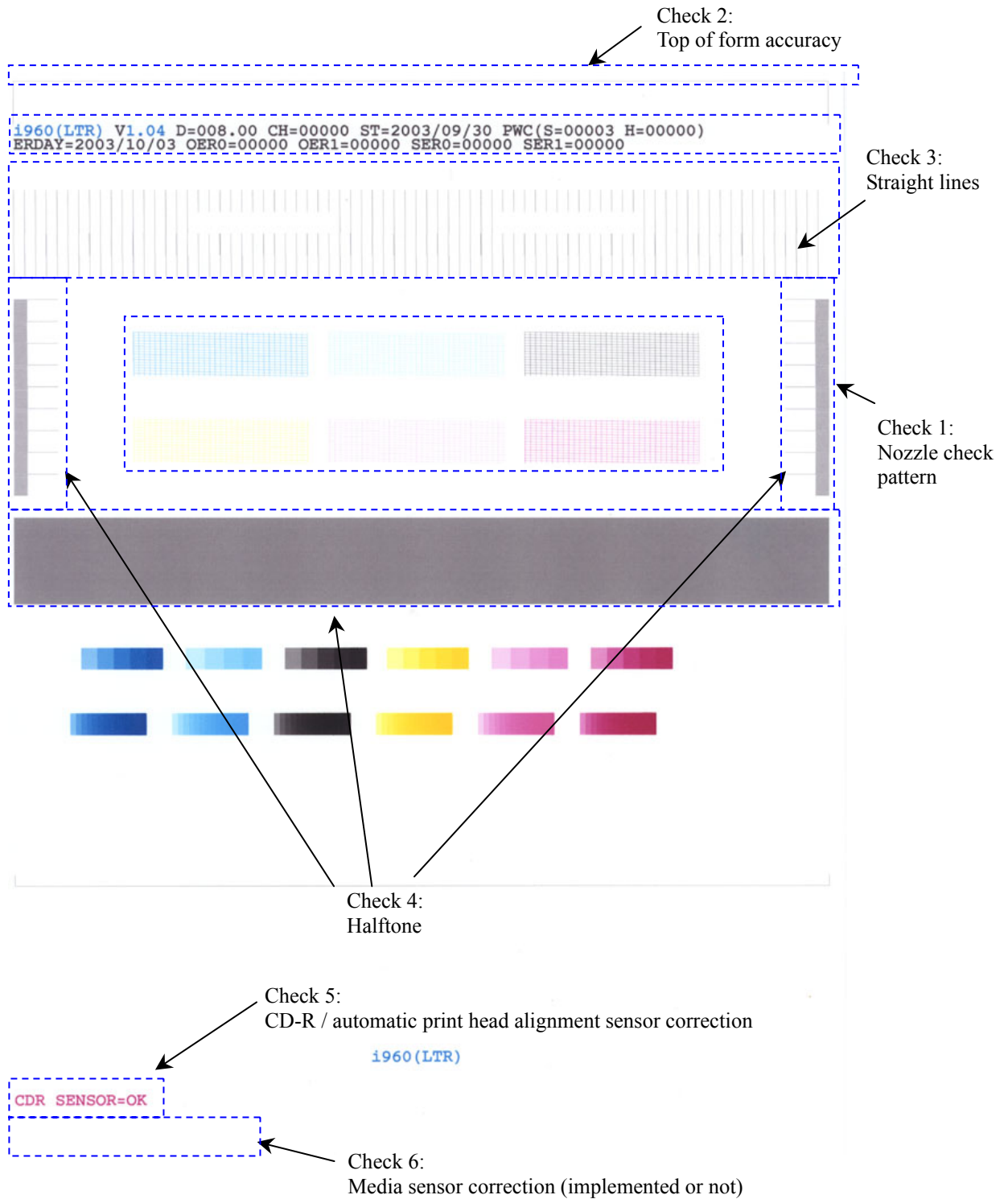
(2) EEPROM information print

<How to read EEPROM information print>

Print sample:
```
i960(LTR) V1.04 CN(USB1=1 USB2=0) USB=(BCDEFG) D=004.50% ST=2001/09/27
SV(5100/5300) OP(1000/1100) LPD=2002/06/11 LPT=2002/06/11-10:25
PC(M=000 R=004 5D=004 20D=004 CO=004   D=000 C=000) CH=00050 CT(C=020 PC=012
BK=060 Y=003 PM=013 M=045) PWC(S=00015 H=010 AP=000) WP=00022 CDIN=00032
LSD=00021 PAGE(All=00856 PP=01223 HR=00150 PR=00061 SP=00032 MP=00042
PC=00189 OTHER=00020) EDGE(ALL=00000 L=00000) L=00064 2L=00030 CDR=00020
CDPAGE(A4=00020 L=00030 PC=00001 OTHER=00003) BSP=00032 UCP=00125
MSPAGE(G1=00022 G2=00051 G3=00032 G4=00026)
UR(Ce=+00 Co=+00 PCe=+00 PCo=+00 BKe=+00 BKo=+00 Ye=+00 Yo=+00 PMe=+00 PMo=+00
Me=+00 Mo=+00) REG(MN=0 AT=0 MG=0) APON=0 APOFF=002
DIRREG(C=00 PC=00 BK=00 Y=00 PM=00 M=00)
DC(C=000 PC=000 BK=001 Y=005 PM=003 M=001)
CDR=(-00000,-00000) CDRS=(000) MSWS=(1 334 329) MSPP=(1 653 320) MeSNS=1
IC(C=1 PC=0 BK=1 Y=1 PM=1 M=1) PD=0 FF(3F 2F 3F) FCT_DIR(+1)

HDEEPROM
V0001
SN=00000000 LN(0000000000) ID=00
CLR(C-PC=+000 C-K=+000 C-Y=+000 C-PM=+000 C-M=+000) DIR=+000
EOR(C=+00 PC=+00 Bk=+00 Y=+00 PM=+00 M=+00)
NG(C=0000 PC=0000 Bk=0000 Y=0000 PM=0000 M=0000)
DS(C=+00 PC=+00 Bk=+00 Y=+00 PM=+00 M=+00)
PTH(C=000 PC=000 Bk=000 Y=000 PM=000 M=000)
```

Printed items:
  1. Model name   2. ROM version   3. Connected I/F (USB/1284)   4. USB No.   5. Waste ink amount   6. Installation date
  7. Operator call/service call error record (last record, second from the last record)   8. Last printing date   9.Last purging time
  10. Purging count (manual/deep/5-day timer/dot count/head replacement/tank replacement)
  11. Print head installation and removal count   12. Ink tank installation and removal count (C/PC/BK/Y/PM/M)
  13. Power-on count (hard/soft)   14. Wiping count   15. Camera direct print port connection and removal count
  16. No. of the largest printing intermission days
  17. Number of print pages (total/plain paper/high resolution paper/Photo Paper Pro/Photo Paper Plus Glossy/Matte Photo
  Paper/Card/Other), number of borderless print pages (total, L), number of 2L print pages, number of CD-Rs printed, number of Camera
  Direct Print pages (A4 = Letter, L = 4 x 6, card, other), auto duplex printing unit print pages, paper feed cassette print pages, number of
  print pages using media sensor
  18. User print head alignment values   19. Print head alignment implementation (manual/auto/simple)
  20. Bidirectional registration
  21. Dot count
  22. CD-R print position adjustment   23. CD-R sensor correction value   24. Media sensor correction white reference paper
  (implemented/reflection/reflection light/diffusion light), plain paper (implemented/reflection light/diffusion light)
  25. Media sensor enabled/disabled
  26. Raw ink presence   27. No. of page delay   28. Line inspection information   29. Registration alignment value at factory shipment

  HDEEPROM
  30. Version
  31. Serial number   32. Lot number   33. Print head ID
  34. Print head alignment value among colors
  35. Print head alignment value
  36. Number of unusable nozzles
  37. Dot size
  38. PTH

4. PRINTER TRANSPORTATION METHOD
Refer to the PIXUS 860i / /i860 / i865 Service Manual.

Part 2
TECHNICAL REFERENCE

1. NEW TECHNOLOGIES

Refer to the PIXUS 860i / /i860 / i865 Service Manual.

2. CLEANING MODE AND AMOUNT OF INK PURGED

To prevent printing problems due to bubbles, dust, or ink clogging, print head cleaning is performed before the start of printing, except in the following cases:

- Cleaning on arrival: Performed when the print head cover is closed.
- Cleaning by dot count: Performed after ejection of paper (or after printing on the back side of paper when auto duplex printing is performed).
- Manual cleaning / deep cleaning: Performed manually.

\<Cleaning mode list\>

Condition	Details	Amount of ink used (g)	Est. required time (sec.)
On arrival of the printer (all colors)	First cleaning after shipment.	2.90	60
Dot count cleaning (all colors)	When the specified number of dots are printed after the previous cleaning.	0.95	30
Timer cleaning - 1 (all colors)	If 120 to 480 hours have elapsed since the previous cleaning till the start of the next printing.		
Timer cleaning - 2 (all colors)	If 480 hours or more have elapsed since the previous cleaning till the start of the next printing.	1.45	30
If the print head has not been capped before power-on (all colors)		2.35	55
At ink tank replacement (all colors)		1.45	30
At print head replacement (all colors)	When the print head is removed and installed.	2.35	55
Manual cleaning (all colors)	- Via the operation panel - Via the printer driver	1.45	30
Deep cleaning (all colors)	- Via the printer driver	2.90	60

3. PRINT MODE

3.1 Resolution

(1) Standard color printing

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Plain paper Envelop	Print quality	Custom Fast	Draft	Standard		Custom Fine
	Resolution HxV (dpi)	600×1200	600×1200	2400×1200		2400×2400
	Print control Ink	1 pass, bidirectional 4 colors	1 pass, bidirectional 4 colors	2 passes, bi/unidirectional 4 colors		8 passes, bidirectional 6 colors
Photo Paper Pro	Print quality				High	Custom Fine
	Resolution HxV (dpi)				2400×1200	4800×2400
	Print control Ink				4 passes, bidirectional 6 colors	8 passes, bidirectional 6 colors
Photo Paper Plus Glossy	Print quality					High
	Resolution HxV (dpi)					4800×2400
	Print control Ink					8 passes, bidirectional 6 colors
Matte Photo Paper	Print quality			Standard		Custom Fine
	Resolution HxV (dpi)			2400×1200		2400×2400
	Print control Ink			4 passes, unidirectional 6 colors		8 passes, bidirectional 6 colors
Glossy Paper	Print quality			Draft		High
	Resolution HxV (dpi)			2400×1200		4800×2400
	Print control Ink			4 passes, bidirectional 6 colors		8 passes, bidirectional 6 colors
High Resolution Paper	Print quality			Custom Fast	Standard	High
	Resolution HxV (dpi)			2400×1200	2400×1200	2400×2400
	Print control Ink			4 passes, bidirectional 6 colors	4passes, unidirectional 6 colors	8 passes, bidirectional 6 colors
T-Shirt Transfers	Print quality			Standard		
	Resolution HxV (dpi)			2400×1200		
	Print control Ink			8 passes, bidirectional 4 colors		
Transparencies	Print quality		Draft	Standard		
	Resolution HxV (dpi)		2400×1200	2400×1200		
	Print control Ink		4 passes, bidirectional 4 colors	8 passes, bidirectional 4 colors		
CD-R (suggested) CD-R (not suggested)	Print quality		Draft	Standard		
	Resolution HxV (dpi)		2400×1200	2400×1200		
	Print control Ink		4 passes, bidirectional 6 colors	8 passes, bidirectional 6 colors		

Blue characters: Default setting
Yellow frames: Selectable even if the custom setting is not selected from driver UI.
Ink: 6 colors (BCI-6BK/Y/M/C/PM/PC)
             4 colors (BCI-6BK/Y/M/C)

(2) Standard gray scale printing (Paper type(s) different from those for color printing is only listed.)

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Plain paper	Print quality	Custom Fast	Draft	Standard		Custom Fine
	Resolution HxV (dpi)	600×1200	600×1200	2400×1200		2400×2400
	Print control	1 pass, bidirectional	1 pass, bidirectional	2 passes, bi/unidirectional		8 passes, bidirectional
	Ink	1 colors	1 colors	4 colors		6 colors

(3) Borderless printing

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Plain paper	Print quality			Standard		
	Resolution HxV (dpi)			2400×1200		
	Print control			2 passes, bi/unidirectional		
	Ink			4 colors		
Photo Paper Pro	Print quality				High	Custom Fine
	Resolution HxV (dpi)				2400×1200	4800×2400
	Print control				4 passes, bidirectional	8 passes, bidirectional
	Ink				6 colors	6 colors
Photo Paper Plus Glossy	Print quality					High
	Resolution HxV (dpi)					4800×2400
	Print control					8 passes, bidirectional
	Ink					6 colors
Matte Photo Paper	Print quality			Standard		High
	Resolution HxV (dpi)			2400×1200		2400×2400
	Print control			4 passes, unidirectional		8 passes, bidirectional
	Ink			6 colors		6 colors
Glossy Paper	Print quality			Draft		High
	Resolution HxV (dpi)			2400×1200		4800×2400
	Print control			4 passes, bidirectional		8 passes, bidirectional
	Ink			6 colors		6 colors

(4) Duplex printing

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Plain paper	Print quality	Custom Fast	Draft	Standard		Custom Fine
	Resolution HxV (dpi)	600×1200	600×1200	2400×1200		2400×2400
	Print control	1 pass, bidirectional	1 pass, bidirectional	2 passes, bi/unidirectional		8 passes, bidirectional
	Ink	4 colors	4 colors	4 colors		4 colors

Blue characters: Default setting
Yellow frames: Selectable even if the custom setting is not selected from driver UI.
Ink: 6 colors (BCI-6BK/Y/M/C/PM/PC)
    4 colors (BCI-6BK/Y/M/C)

(5) Camera Direct Printing

PictBridge supporting mode

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Photo Paper Pro (Fast Photo)	Print quality Resolution HxV (dpi) Print control Ink					High 4800×2400 8 passes, bidirectional 6 colors
Photo Paper Plus Glossy (Photo)	Print quality Resolution HxV (dpi) Print control Ink					High 4800×2400 8 passes, bidirectional 6 colors

Bubble Jet Direct supporting mode

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Photo Paper Pro (Card #1, #2, #3, #4, A4, LTR)	Print quality Resolution HxV (dpi) Print control Ink					High 4800×2400 8 passes, bidirectional 6 colors
Photo Paper Plus Glossy (A4, LTR)	Print quality Resolution HxV (dpi) Print control Ink					High 4800×2400 8 passes, bidirectional 6 colors

Ink: 6 colors (BCI-6BK/Y/M/C/PM/PC)

3.2   Resolution

(1)   Color printing

All mode: 6BK+Y/M/C

(2)   Gray scale printing (Paper type(s) different from those for color printing is only listed.)

Paper type	Custom setting value in driver UI	High speed 5	<- 4	3	-> 2	High quality 1
Plain paper	Print quality	Custom Fast	Draft	Standard		Custom Fine
	Standard	6BK	6BK	6BK+YMC		6BK+YMC
	Duplex printing	6BK	6BK	6BK+YMC		6BK+YMC
	Borderless printing			6BK+YMC		

Blue characters: Default setting
Yellow frames: Selectable even if the custom setting is not selected from driver UI.

3. FAQ (Specific Problems and Solutions)

No.	Occurrence level*	Function	Symptom	Condition	Cause	Solution	Possible call or complaint
1	B	Paper feeding	No paper feeding (using the ASF or paper feed cassette)	- Plain paper (A4-/LTR-/LGL-sized heavy paper, such as Brilliant White Paper) - When many sheets are set.	The paper is not fed due to its rigidity.	- Reduce the number of sheets to set in the sheet feeder, to below half the reference mark.	-Paper does not feed. -No paper error (operator call error) -The printer does not respond.
				- Paper which is likely to produce paper powder (using the paper feed cassette)	Paper powder attaches the paper feed roller, causing reduced paper feed capability.	- Wipe off paper powder from the paper feed roller. (Wipe the paper feed roller with tissue paper dampened with water, and dry the roller sufficiently.	
2	B	Print results	Contact of the paper's trailing edge to the print head	- Plain paper - Paper conditions (curled)	If paper is curled (with the edges upward), the trailing edge will contact the print head.	- Straighten the paper. - Increase the space between the paper and the print head (to prevent the paper edge from contacting the print head).	-Printout is smeared. -Lines or streaks appear on printouts.
3	B	Print results	Contact of the paper to the print head (when using the auto duplex printing unit)	- Plain paper - Duplex printing (using the auto duplex printing unit) - Printing of a heavy-duty pattern	Immediately after printing, paper ripples form, contacting the print head.	- Increase the space between the paper and the print head (to prevent the paper from contacting the print head.) - Reduce the print density.	-Printout is smeared. -Lines or streaks appear on printouts.
4	C	Print results	Black streaks at the leading edge of backside (using the auto duplex printing unit)	- Printing to the backside of plain paper	Within specifications (When the backside of the paper is fed, the paper feed amount is slightly small for mechanical reasons.)	- Set the print quality to Quality 1 (Fine).	-Streaks (horizontal lines) appear on printouts.
5	C	Print results	Uneven print density	- Plain paper - Print patter containing high print duty portions (graphics, photos, etc.)	When the print duty reaches the specified value within one page, the print mode switches from bi-directional to unidirectional. (Uneven print density occurs depending on the switching timing.)	- Set the print quality to Quality 1 (Fine).	-Print density is uneven.

* Occurrence level:
    A: The symptom is likely to occur frequently. (Caution required)
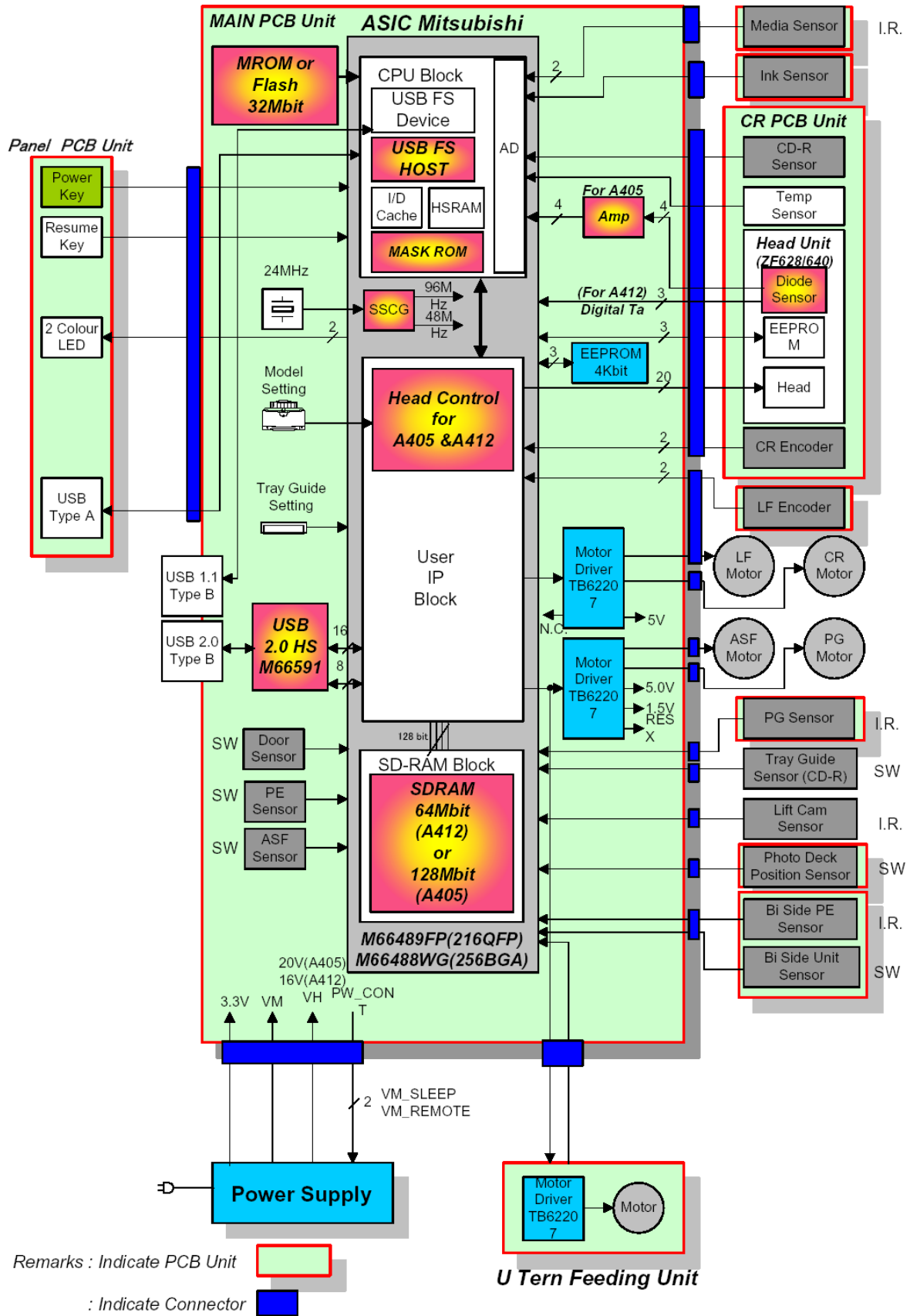   B: The symptom may occur under certain conditions, but likeliness is assumed very low in practical usage.
    C: The symptom is unlikely to be recognized by the user, and no practical issues are assumed.

Part 3
APPENDIX

1. BLOCK DIAGRAM

2. CONNECTOR LOCATION AND PIN LAYOUT

2.1 Logic Board Ass'y
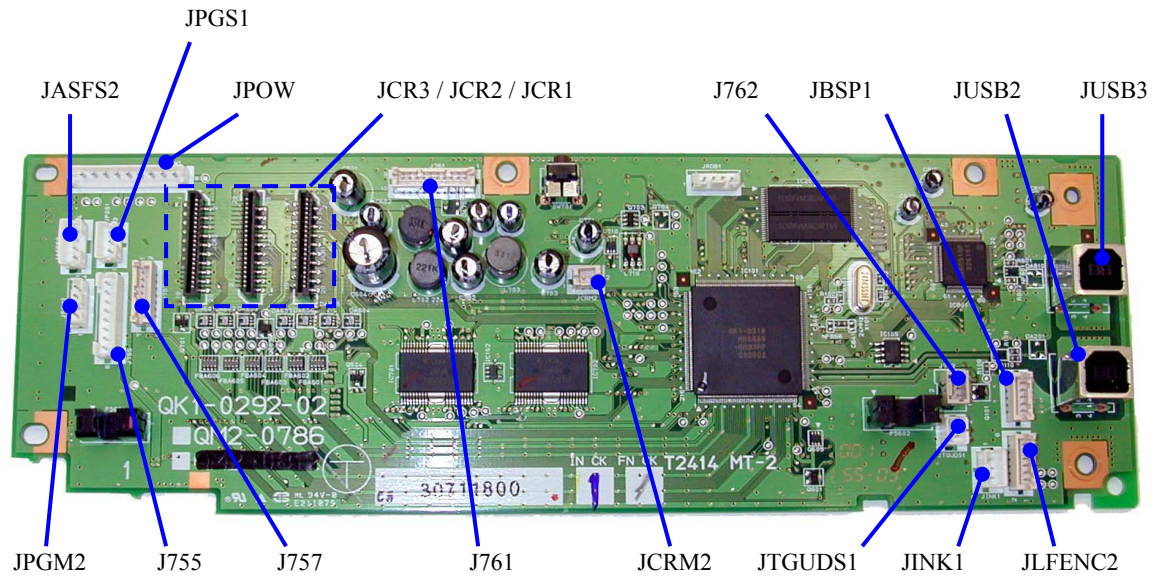
JCR1 (Print head 1/3 [Carriage Unit])

No.	Signal name	Function	Input/Output
1	CDR_PWM	CDR sensor PWM signal	Out
2	CRENCA	CR encoder phase A	In
3	EVDD	Sensor power supply 5V	Out
4	CRENCB	CR encoder phase B	In
5	GND	GND	-
6	CDR_WID_SNS	CDR sensor signal	Out
7	GND	GND	-
8	HCLK	Head data transmission clock signal	Out
9	GND	GND	-
10	DATAK	Data BK	Out
11	DHE	Head enable dummy nozzle	Out
12	HEEP_SK	Head EEPROM serial clock signal	Out
13	BG	Transmission clock clutch signal	Out
14	DATALC	Data LC	Out
15	HEEP_CS	Head EEPROM chip select signal	Out
16	TSOCLC	Status output C, LC	Out
17	HECX	Head enable C	Out
18	DATAC	Data C	Out
19	HELCX	Head enable LC	Out
20	HEKX	Head enable BK	Out

JCR2 (Print head 2/3 [Carriage Unit])

No.	Signal name	Function	Input/Output
1 to 6	GND	GND	-
7	DATALM	Data LM	Out
8	TSOKY	Status output BK, Y	Out
9	DATAY	Data Y	Out
10	HDSEN	Head presence detection signal	In
11	HEEP_WD	Head EEPROM data signal	Out
12 to 14	HVDD	Head logic drive power 3.3V	Out
15 to 20	VH	Head drive power 16V	Out

3 - 2

JCR3 (Print head 3/3 [Carriage Unit])

No.	Signal name	Function	Input/Output
1 to 8	VH	Head drive power 16V	Out
9	HEYX	Head enable Y	Out
10	HELMX	Head enable LM	Out
11	HEMX	Head enable M	Out
12	DATAM	Data M	Out
13	TSOLMM	Status output LM, M	Out
14 to 20	GND	GND	-

JPOW1 (AC Adapter)

No.	Signal name	Function	Input/Output
1, 2	VH	Head power supply	In
3	GND	GND	-
4	VM	Motor power supply	In
5, 6	GND	GND	-
7	VHENB	VH control signal	Out
8	PW_CONT	VM control signal	Out
9	+3.3V	Logic power supply 3.3V	In

J761 (Operation Panel Ass'y)

No.	Signal name	Function	Input/Output
1	GND	DSC-DIRECT GND	-
2	D+	DSC-DIRECT USB: D+ signal	Bus
3	D-	DSC-DIRECT USB: D- signal	Bus
4	PWR	DSC-DIRECT VBUS power	Out
5	LED_POW	Operation panel Power LED drive signal	Out
6	LED_RES	Operation panel Resume LED drive signal	Out
7	RESUME_SW	Operation panel Resume SW	In
8	POW_SW	Operation panel Power SW	In
9	GND	Operation panel GND	-
10	+3.3V	Operation panel power supply +3.3V	Out

JUSB2 (USB I/F)

No.	Signal name	Function	Input/Output
1	PWR	USB: VBUS power supply	Out
2	D-	USB: D- signal	Bus
3	D+	USB: D+ signal	Bus
4	GND	USB: GND	-
5 to 9	GND	GND	-

JUSB3 (USB I/F)

No.	Signal name	Function	Input/Output
1	PWR	USB: VBUS power supply	Out
2	D-	USB: D- signal	Bus
3	D+	USB: D+ signal	Bus
4	GND	USB: GND	-
5 to 9	GND	GND	-

J762 (Lift Cam Sensor [Photo Interrupter])

No.	Signal name	Function	Input/Output
1	VSEN_5V	Sensor power supply 5V	Out
2	GND	GND	-
3	SNS_LIFT_UP	CD-R Lift-up sensor signal	In

JBSP1 (Automatic Duplex Printing Unit <Option>)

No.	Signal name	Function	Input/Output
1	VSEN_5V	Sensor power supply 5V	Out
2	GND	GND	-
3	SNS_BS_PE	Automatic duplex printing unit paper presence sensor signal	In
4	GND	GND	-
5	SNS_BS_UNIT	Automatic duplex printing unit presence sensor signal	In

JINK1 (Ink Sensor [Platen Unit])

No.	Signal name	Function	Input/Output
1	INK_PWM	Ink PWM signal	Out
2	GND	GND	-
3	AD_INK	Ink sensor signal	In

J757 (Media Sensor [Sheet Feeder Unit])

No.	Signal name	Function	Input/Output
1	-	-	-
2	MS_PWM	Media sensor PWM signal	Out
3	GND	GND	-
4	SNS_MEDIA1	Media sensor 1 signal	In
5	SNS_MEDIA2	Media sensor 2 signal	In
6	GND	GND	-
7	SNS_PHTDK_UD	Photo paper cassette sensor signal	In

JLFENC2 (Paper Feed Motor & Timing Sensor Unit)

No.	Signal name	Function	Input/Output
1	LF_L	LF motor +	Out
2	LF_LN	LF motor -	Out
3	GND	GND	-
4	LF_ENCA	LF encoder phase A	In
5	EVDD	LF encoder drive power supply	Out
6	LF_ENCB	LFencoder phase A	In

JCRM2 (Carriage Motor)

No.	Signal name	Function	Input/Output
1	CR_L	CR motor +	Out
2	CR_LN	CR motor -	Out

JPGM2 (Purge Motor [Purge Unit])

No.	Signal name	Function	Input/Output
1	PGA	PG motor phase A+	Out
2	PGB	PG motor phase B+	Out
3	PGA-	PG motor phase A-	Out
4	PGB-	PG motor phase B-	Out

JASFS2 (ASF Motor [Sheet Feeder Unit])

No.	Signal name	Function	Input/Output
1	ASFA	ASF motor phase A+	Out
2	ASFB	ASF motor phase B+	Out
3	ASFA-	ASF motor phase A-	Out
4	ASFB-	ASF motor phase B-	Out

JPGS1 (Purge Sensor [Purge Unit])

No.	Signal name	Function	Input/Output
1	VSEN_5V	Sensor power supply 5V	Out
2	GND	GND	-
3	SNS_PG	Purge sensor signal	In

JTGUDS1 (CD-R Tray Guide SW [Platen Unit]) *1

No.	Signal name	Function	Input/Output
1	GND	GND	-
2	CDR_TRY_SW	CD-R tray guide sensor signal	In

*1:   CD-R printing supporting model (i965 only)

J755（(Paper Feed Cassette <Option>)

No.	Signal name	Function	Input/Output
1	GND	Paper feed cassette GND	-
2	+27V_AP	Paper feed cassette motor drive power supply +27_AP	Out
3	VM_CONT	Paper feed cassette motor drive power supply control signal	Out
4	SNS_U_TURN_UNIT	Paper feed cassette sensor signal	In
5	STROBE	Paper feed cassette strobe signal	Out
6	CLK	Paper feed cassette data transmission clock signal	Out
7	DATA	Paper feed cassette data signal	Out
8	SLEEP	Paper feed cassette sleep signal	Out

2-2. Carriage board (print head connection terminals)

No.41

No.50

No.1

No.10
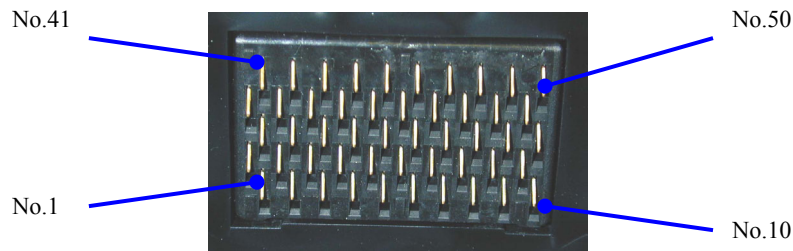
No.	Signal name	Function	Input/Output
1, 2	GND_H	Head GND	-
3	DATAC	Head data C	Out
4	DATALC	Head data LC	Out
5	DATAK	Head data BK	Out
6	DATAY	Head data Y	Out
7	DATALM	Head data LM	Out
8 to 13	GND_H	Head GND	-
14	TSOCLC	Status output C, LC	Out
15	BG	Transmission clock clutch signal	Out
16	HDSEN	Head presence detection signal	In
17	HCLK	Head transmission clock	Out
18	DATAM	Head data M	Out
19,20	GND_H	Head GND	-
21	HEKX	Head enable BK	Out
22	HELCX	Head enable LC	Out
23	HECX	Head enable C	Out
24	VDD	Head logic drive power supply 3.3V	Out
25	VSS	Logic GND	-
26	VSS-A	Logic GND	-
27	VDD-A	Head logic drive power supply 3.3V	Out
28	HEMX	Head enable M	Out
29	HELMX	Head enable LM	Out
30	HEYX	Head enable Y	Out
31 to 33	VH	Head drive power 16V	Out
34	VDD	Head logic drive power supply 3.3V	Out
35	DHE	Head enable dummy nozzle	Out
36	VSS	Logic GND	-
37	TSOCLC	Status output C, LC	Out
38	TSOLMM	Status output LM, M	Out
39 to 42	VH	Head drive power 16V	Out
43	E_CS	Head EEPROM chip select signal	Out
44	E_SK	Head EEPROM serial clock signal	Out
45	E_DI	Head EEPROM data signal	In
46	EEPROM_DO	Head EEPROM data signal	Out
47	VHT	Head drive power 16V (short-circuiting with VH on the logic board)	Out
48 to 50	VH	Head drive power 16V	Out

i960 / i965 Specifications
\<Printer\>

Type	Desktop serial color bubble jet printer
Paper feeding method	Auto sheet feed (ASF, photo paper tray, auto duplex printing unit[*1], paper feed cassette[*1]) Front loading (CD-R printing only)[*2]
Resolution	4,800 x 2,400dpi (Max.)
Throughput	Draft Standard Black (New Black) 9.53 ppm 4.03 ppm Color (New Color) 9.24 ppm 3.62 ppm Photo (SCID N5 8"x10") - 0.99 ppm (using A4 size of PR-101)
Printing direction	Bidirectional/uni-directional
Print width	Max. 203.2mm (in borderless printing, 220.9mm)
Interface	USB 2.0 high speed USB 2.0 full speed
ASF stacking capacity	Max. 13mm (Approx. 150 sheets of 65g/m^2 paper)
Paper weight	64 to 105g/m^2
Detection functions	- Cover open - Presence of print head - Remaining ink amount (optical / dot count) - Printing position - Paper out - Paper end sensor - Waste ink amount - Internal temperature - Pick-up roller - Paper feed roller position - Carriage position - Head-to-paper distance - Paper type - Supported camera direct printing device - Presence of CD-R tray feeder - Presence of CD-R - Presence of auto duplex printing unit - Supported paper size for duplex printing
Noise during printing (Highest print quality)	Approx. 39 dB (without optional devices, Photo Paper Pro / fine mode)

Environmental requirements	During operation Temperature 5 to 35C (41 to 95F)
	                        Humidity 10 to 90%RH (no condensation)
	Non operation Temperature 0 to 40C (32 to 104F)
	                        Humidity 5 to 95%RH (no condensation)

Power supply	Input voltage Frequency Power consumption Standby Power-off AC 100 to 120V 50/60Hz Approx. 24W Approx. 2W Approx. 1W AC 220 to 240V 50/60Hz Approx. 24W Approx. 2W Approx. 1W

External dimensions	Printer alone:
	  With the paper rest and output tray retracted: Approx. 420 (W) x 311 (D) x 185 (H)mm
	  With the paper rest and output tray pulled out: Approx. 420 (W) x 571 (D) x 316 (H)mm
	Printer with the optional units (auto duplex printing unit / paper feed cassette) installed:
	  With the paper rest and output tray retracted: Approx. 455 (W) x 456 (D) x 246.5 (H)mm
	  With the paper rest and output tray pulled out: Approx. 455 (W) x 571 (D) x 377.5 (H)mm

Weight	Approx. 5.8kg, not including print head and optional units

Related standards (Printer, Adapter)	Electromagnetic radiance:
	    VCCI, FCC, IC, C-tick, Taiwan EMC, Korea EMC, CCIB, CCEE
	Electrical safety:
	    Electrical Appliance and Material Control Law (DENTORI), UL, C-UL, CB Report, GS,
	    CE Mark, FIMKO, CCIB (EMC), AS, CCEE, PSB, Electrical Safety Regulations of
	    Korea, SASO
	Environmental regulations:
	    Energy Star, Blue Angel, Environment label

Serial number location	On the left side of the chassis (on the left side of the carriage ribbon cable visible when the access cover is open).
Remaining ink amount detection	Available (automatic detection by optical method and dot count, enabled at default)
Paper type detection	Available (automatic detection of paper type (plain paper), only with default driver settings, enabled at default)
Print head alignment	Available (simple alignment via driver utilities, or automatic alignment with the Resume button in Camera Direct Printing)

*1:   Optional device
*2:   Only for CD-R printing supported models (i965)

<Print head>

Type	Single head with 6 removable ink tanks (each color)
Print head	Color: 512 nozzles in 2 vertical lines per color x 6 (1,200dpi), 2pl with each nozzle
Ink color	Dye-based black, cyan, magenta, yellow, photo cyan, photo magenta
Ink tank	BCI-6BK/C/M/Y/PC/PM (dye-based)
Weight (Net)	Print head, approx. 70g (not including ink tanks, protective materials, and packings)
Supply method	As a service part (not including ink tanks)
Part number	QY6-0043-000

<Auto duplex printing unit (option)>

Printable area	Area excluding 5mm from the leading edge, 7mm from the trailing edge, and 3.4mm from the left and right edges. (Borderless printing is not supported.)		
Paper type	Plain paper (64 to 105g/m^2)		
Paper size	A4, LTR, B5		
Detection functions	- Presence of auto duplex printing unit - Supported paper size for duplex printing		
Environmental requirements	During operation	Temperature	5 to 35C (41 to 95F)
		Humidity	10 to 90%RH (no condensation)
	Non operation	Temperature	0 to 40C (32 to 104F)
		Humidity	5 to 95%RH (no condensation)
External dimensions	Approx. 324 (W) x 147 (D) x 110 (H)mm		
Weight	Approx. 0.82kg		
Lot number location	On the bottom surface closer to the side attached to the printer (visible when the unit is removed from the printer).		

<Paper feed cassette (option)>

Paper type	Plain paper (64 to 105g/m^2)		
Paper size	A4, LTR, B5		
Stacking capacity	Max. 22 mm of plain paper (approx. 250 sheets of 65g/m^2 paper)		
Detection functions	- Presence of paper feed cassette - Presence of paper		
Environmental requirements	During operation	Temperature	5 to 35C (41 to 95F)
		Humidity	10 to 90%RH (no condensation)
	Non operation	Temperature	0 to 40C (32 to 104F)
		Humidity	5 to 95%RH (no condensation)
External dimensions	Approx. 417.5 (W) x 456 (D) x 76.5 (H)mm		
Weight	Approx. 2.9kg		
Related standards	Electromagnetic radiance: C-Tick, CE Mark		
Serial number location	On the bottom surface		
Paper type detection	Not available		