

Service Manual

Service Manual (Simplified Manual) Distribution

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DETAILS

The simplified Service Manual has been distributed. Details are shown below.

Description	Part Number		Remarks
S200/S200SP Simplified Manual	QY8-1380-000		As product exchange servicing applies, only required data is included.

S200 / S200SP

Simplified Manual

QY8-1380-000

- 1 Product / Option / Consumable list**
- 2 Specifications**
- 3 Error code list**
- 4 Service mode**
(Test print, EEPROM reset, destination setting)
- 5 External view / Parts list**
- 6 H/W troubleshooting flowchart**
- 7 Special Service Information**
- Attach Service Test Print**

BPQA-21

Rev 01 2001.9/28

1. Product / Option / Consumable lists

1.1 Products

Product Name	Product Code	Sales Territory	Remarks
Canon Bubble Jet Printer S200	6862A001AA	USA W/O CD	
	6862A001AB	USA	
	6862A002AA	CAN W/O CD	
	6862A002AB	CAN W/O CD	
	6862A003AA	LAM LVT	
	6862A004AA	LAM HVT	
	6862A005AA	AR	
	6862A006AA	EUR	
	6862A007AA	DEU	
6862A008AA	FRN		
6862A009AA	GB		
Canon Bubble Jet Printer BJ S200	6862A010AA	JAPAN	
Canon Bubble Jet Printer S200SP	6862A011AA	ASIA HVT	
	6862A012AA	AUST	
	6862A013AA	CHN	
	6862A014AA	TWN	
	6862A015AA	HK	
6862A016AA	KRN		

1.2 Options

None

1.3 Consumables

Product Name	Product Code	Sales Territory	Remarks
Canon Ink Tank BCI-24 Black	6881A001AA	JPN	
	6881A002AA	EUR	
	6881A003AA	USA/CAN	
	6881A004AA	ASIA/AUST	
Canon Color BJ Cartridge BCI-24 Color	6882A001AA	JPN	
	6882A002AA	EUR	
	6882A003AA	USA/CAN	
	6882A004AA	ASIA/AUST	
Canon Ink Cartridge BCI-24 Black Twin Pack	6881A008AA	JPN	
	6881A009AA	EUR	
	6881A010AA	USA/CAN	
	6881A011AA	ASIA/AUST	
Canon Ink Cartridge BCI-24 Color Twin Pack	6882A008AA	JPN	
	6882A009AA	EUR	
	6882A010AA	USA/CAN	
	6882A011AA	ASIA/AUST	

2. Specifications

2.1 Specifications (Note) Differences from the base model BJC-2100/2100SP are in RED

		DeskTop serial color bubble jet printer
Paper feeding method		Auto Sheed Feeding
Resolution		Max. 2880 dpi equiv. X 720 dpi *JPN only: 1440 dpi X 720 dpi
Print Speed		
HQ	Color	1.6ppm (Color throughput pattern)
	Mono.	3.8ppm (Monochrome throughput pattern)
HS	Color	3ppm (Color throughput pattern)
	Mono.	5ppm (Monochrome throughput pattern)
Print Direction		Bidirectional / Unidirectional (Print direction changes automatically according to the print data/ print mode/ installed cartridge type.)
Print width		203.2mm (8inch)
Interface		USB (USB1.1) only
Print head		Exclusive color cartridge only (Service Part No. : QY6-0038-000)
Max. no. of printable sheets	CL	CL: Approx. 130 sheets / BK: Approx. 520 sheets (SCID NO.5 pattern, default print mode)
	BK	BK: Approx. 340 sheets (1500 character pattern, default print mode) (JEIDA std. J1 pattern, default print mode)
Stacking Capacity of sheet feeder		
	Plain paper	Max. 5mm stack (Approx. 50 sheets with 75g/m ²)
	LGL size	Max. 10 sheets
	Postcard (except pro-photo postcard)	Max. 20 sheets
	Envelopes	Max. 5 sheets
	Transparencies	Max. 20 sheets
	Back Print Film	-
	Glossy photo paper	Max. 1 sheet
	Glossy film (HG-201)	Max. 1 sheet
	Pro-photo paper	Max. 1 sheet
	Pro-photo postcard	Max. 10 sheets
	Fabric	-
	T-shirt transfer	Max. 1 sheet
	Banner paper	Max. 1 sheet
Detection functions		
	Paper out	Available
	Paper width	None
	Waste ink amount	Available
	Presence of BJ cartridge	Available
	Cartridge recognition	Available (Supported cartridge or non-supported cartridge)
	Remaining ink level	Available (Default: OFF, detection by dot counting)
Print head alignment function		Available Significant misalignment under bi-directional printing can be adjusted.
Noise	Fine	Approx. 43 dB (Sound pressure level ISO9296)
	HQ	Approx. 45 dB
	HS	Approx. 46 dB
Environmental requirements		
	During operation	Temp. 5 to 35 deg. C (41 to 95 deg. F) Humidity 10% to 90%RH (no condensation)
	Non operation	Temp. 0 to 40 deg. C (32 to 104 deg. F) Humidity 5% to 90%RH (no condensation)
Power supply		
	Input voltage/Frequency	AC100V/120V 50/60Hz (LV) AC220/240V 50Hz (HV)
	Power consumption	18W
	Stand-by status	2W
External dimension		
	W/O paper tray/support	390(W) X 189(D) X 162(H)
	W paper tray/support	390(W) X 479(D) X 248(H)
Weight		2.4kg (W/O BJ cartridge and option)
Applicable safety standards		
Printer Safety		FCC,IC,CE Mark,TWN-EMC,C-Tick,VCCI, Korean EMS, Gost-R, UL,CUL,CB Report,GS,CE Mark,FIMKO,DENTORI,AS,PSB,CCIB,KRN-DENTORI, CCEE, SASO, IRAM

2.2 Product life

Whichever of the following comes first

- 3 years
- Color printing 3000 pages
- Black printing 4500 pages

2.3 Print head spec.

	Details
Type	4 color ink cartridge integrated type BJ cartridge (same type as the C-21e) (electrically incompatible with the BC-21e)
Print head	Bk/Col. 136 nozzles in a vertical line (same as the BC-21e) Bk (64 nozzles) + Y,M,C (24 nozzles each) Droplet: Bk 30ng / Col. 10ng (Nozzles are smaller than those of the BC-21e)
Ink color	Bk (new pigment) / Col.: Y,M,C (high brilliance ink)
Ink tank	BCI-24 Bk, BCI-24 Color (Same as the S300, BCI-24 Bk is structurally incompatible with the BC-21e)
Weight	Approx. 75g

3. Error Code List

Errors will be displayed on the connected computer monitor.

To display error codes, the BJ Status Monitor of the Windows host computer should be active.

Error Code	Error indication	Error condition
1000	Printer is out of paper.	Push RESET button to feed paper.
1200	Front cover is open.	Close front cover.
1300	Paper JAM occurs.	Remove jammed paper.
1400	BJ cartridge is not installed. ^{*1}	Install BJ cartridge and close front cover.
1501 ^{*2}	Bk ink low warning2 (low remaining ink)	Only status is indicated.
1510 ^{*2}	Col. ink low warning2 (low remaining ink)	Only status is indicated.
1541 ^{*2}	Bk ink low warning3 (ink level unclear)	Only status is indicated.
1542 ^{*2}	Col. ink low warning3 (ink level unclear)	Only status is indicated.
1561 ^{*2}	Bk ink low warning1 (approx. half level)	Only status is indicated.
1562 ^{*2}	Col. ink low warning1 (approx. half level)	Only status is indicated.
1700	Waste ink full warning (95% capacity)	Possible to recover error with RESET button.
1900	Head temperature warning ^{*3}	Possible to recover error by closing the front cover.
5000	Home position error	H/W fail Replace printer.
5100	Carriage control error	H/W fail Replace printer.
5200	Head temperature error	H/W fail Replace printer.
5400	Printer temperature error	H/W fail Replace printer.
5600	No cartridge while printing	H/W fail Replace printer.
5B00	Waste ink full	H/W fail Replace printer.
5C00	Purging operation error	H/W fail Replace printer.
6100	ROM error	H/W fail Replace printer.
6300	RAM error	H/W fail Replace printer.
6800	EEPROM error	H/W fail Replace printer.

*1: Also applies when an unsupported cartridge is installed.

*2: Only when the detection function is active.
(Status is not indicated when the detection function is OFF.)

*3: When this error occurs the carriage does not move to the head replacement position when the front cover is opened.

4. Service Mode

Function	Procedure	Remarks
Cleaning the BJ cartridge	Press and hold the RESET button for 2 seconds or more (while the AC cord is plugged in) #Can be performed from the printer driver utility.	Cleaning time :Approx.40seconds.
<For reference> Deep Cleaning	Select "Deep Cleaning" from the printer driver utility. (It is necessary to connect the printer to the PC.)	Cleaning time :Approx.60seconds.
Paper feeding without printing (For feeding cleaning sheet through the ASF.)	Click the RESET button three times.	Perform paper feeding from the ASF without printing.
Test print		
1) Nozzle pattern	Double click the RESET button. (while the AC cord is plugged in)	Print nozzle check pattern (Line misalignment check pattern)
<For reference> Print Head Alignment	[1] Select "Print Head Alignment" from the printer driver utility. [2] Select the optimal value using the printed head position adjustment pattern. (It is necessary to connect the printer to the PC.)	Significant misalignment can be adjusted.
2) Service test print Control ROM Version Pages Per Cartridge Waste ink Amount Destination setting	See *1 service test print	Print sample : See *3
EEPROM Reset (Reset waste ink amount)	See *2 EEPROM reset / Destination setting	
Destination setting (Japan/SP/Others)	See *2 EEPROM reset / Destination setting	

*1 Service test print

- 1 Without the cartridge installed and with the front cover closed, connect the AC cord while holding down the RESET button.
- 2 Release the RESET button, press it down again within 5 seconds and release it once more.
- 3 Open the front cover and install the print head (**QY6-0038-000**) and set A4-sized paper.
- 4 Press the RESET button 3 times in a row.
- 5 Close the front cover.
- 6 The printer starts service test printing.

*2 EEPROM reset / Destination setting

- 1 Without the cartridge installed and with the front cover closed, connect the AC cord while holding down the RESET button.
- 2 Release the RESET button, press it down again within 5 seconds and release it.
- 3 Hold down the RESET button for 2 seconds or more and release it once more.
- 4 **< EEPROM Reset >**
Hold down the RESET button for 2 secs or more and release it.

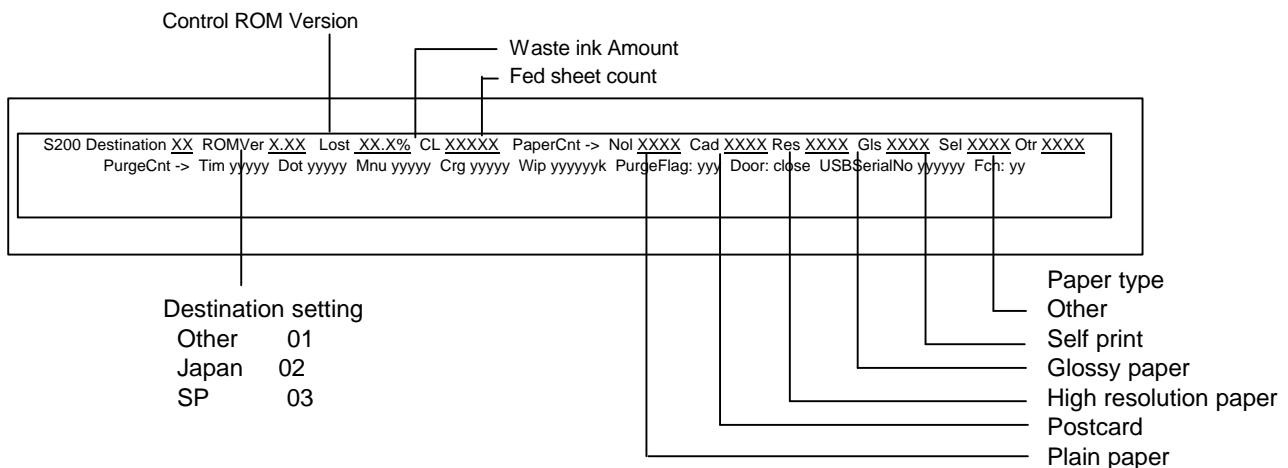
< Destination setting >

- Japan Press the RESET button once.
- Others Press the RESET button twice
- SP Press the RESET button 3 times

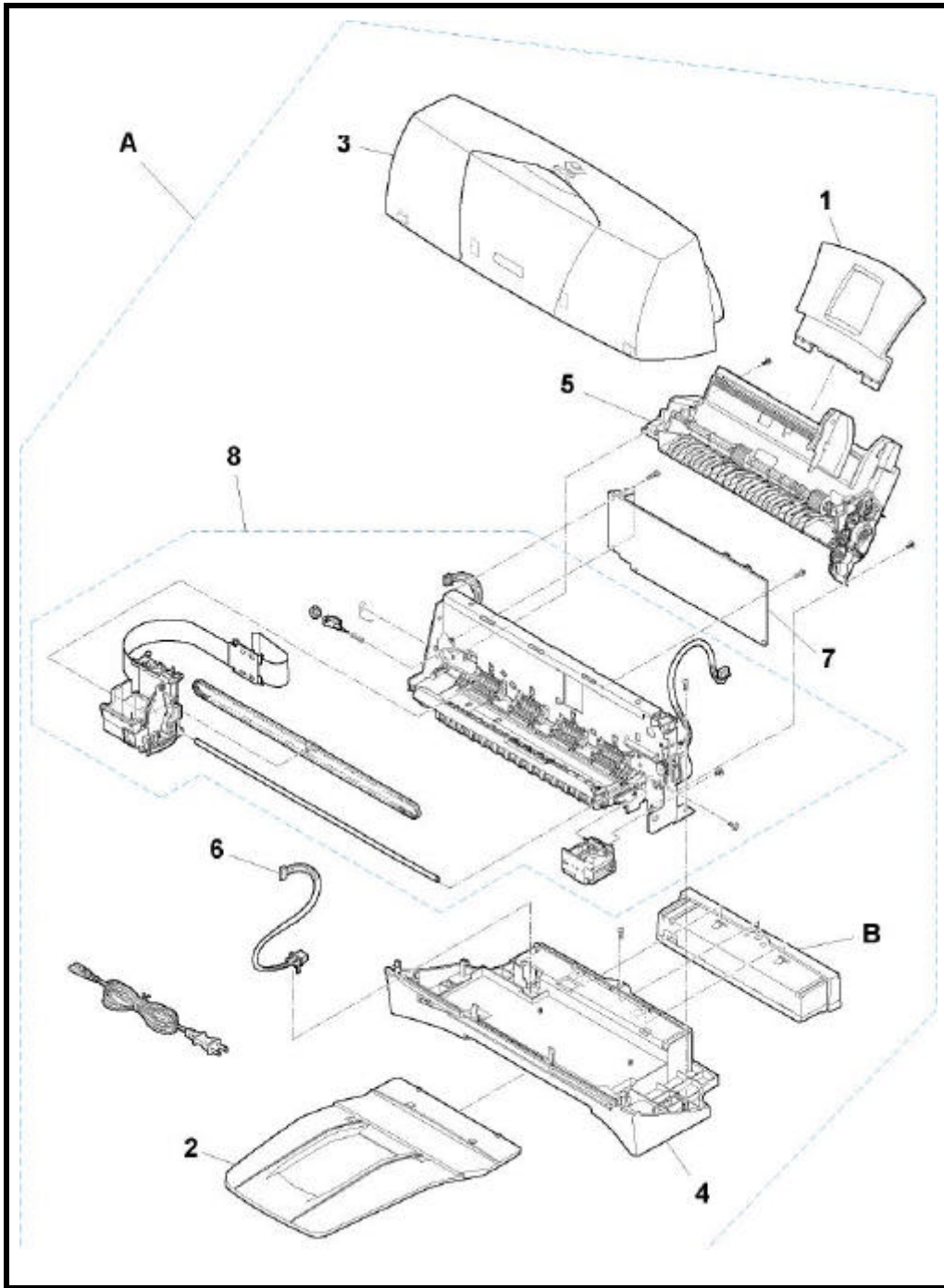
After the button is pressed, the carriage will move the same number of times as the RESET button was pressed.

*3 Print sample of 'Service test print'

You can check the EEPROM settings with a 'Service test print'. (See the first part of the 'Service test print'.)



5. External View / Parts List



Parts List

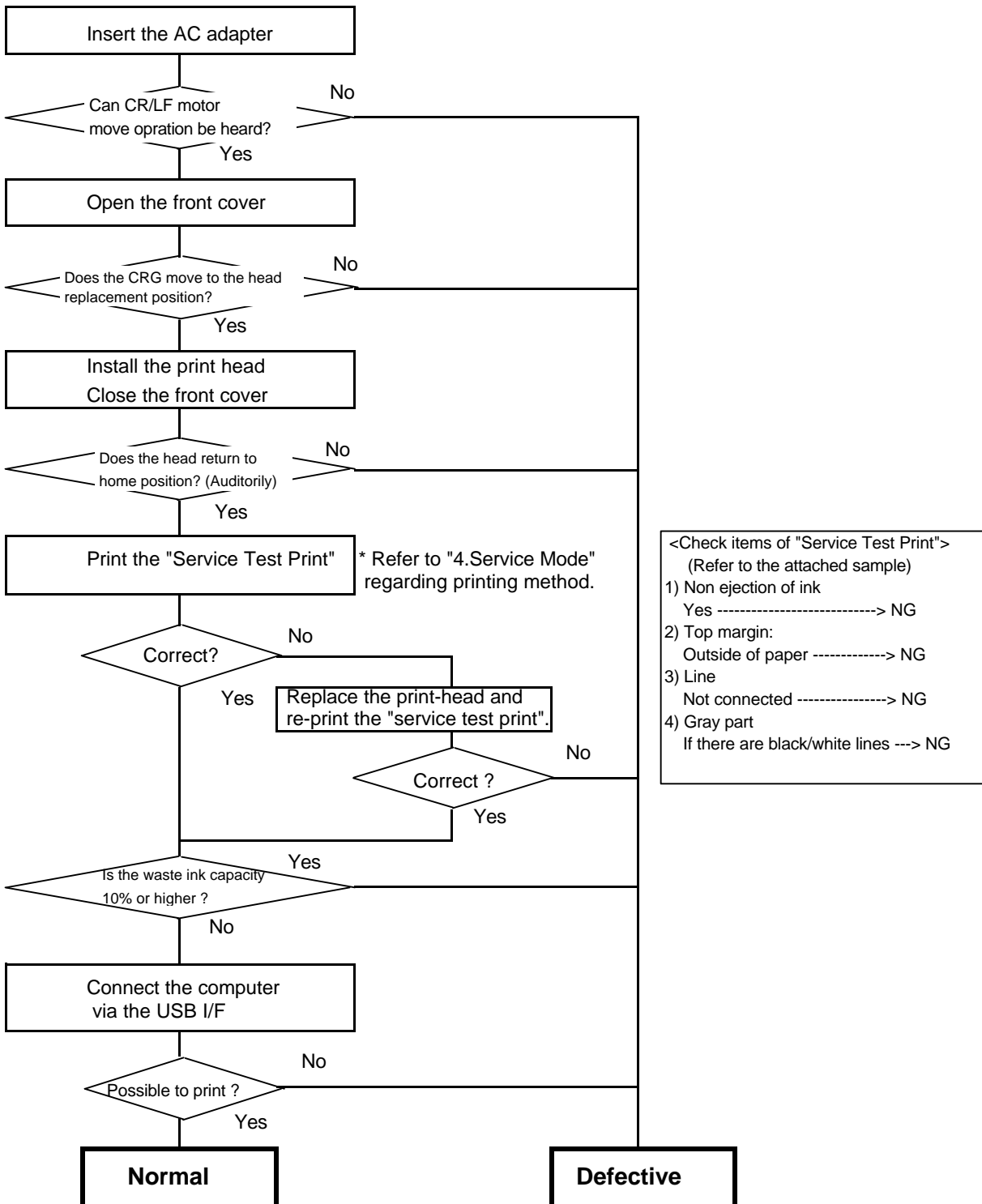
Key	Part Number	Rank	Q'ty	Description	Remarks
A	0000U019	N	1	WHOLE UNIT, W/O POWER SUPPLY UNIT	
B	QH3-3443-000		1	AC Adapter 100/120V 50/60HZ	LV(USA,CANADA,JAPAN)
	QH3-3446-000		1	AC Adapter 220/240V 50/60HZ	HV(Europe)
	QH3-3449-000		1	AC Adapter 220/240V, CHN/ASIA/AUS	HV(CHN,ASIA,AUS)
	QH3-3451-000		1	AC Adapter 100/120V,TWN	LV(TWN)
	QH3-3452-000		1	AC Adapter 220/240V, KRN	HV(KRN)
	QY6-0038-000	K	1	PRINT HEAD, WITH INK TANKS	

Note: BJC-2000/2000SP parts can be used for the S200/S200SP power supply cable. See below for screws.

Part Number	Q'ty	Description	Remarks
XB1-2300-607	3	SCREW, BH3X6 (S)	For LOGIC BOARD ASS'Y
XB6-7300-607	2	SCREW, TP, M3X6	For ASF UNIT
XB4-7300-807	1	SCREW, TAP TIGHT, BINDING HEAD	For PRINT UNIT/BOTTOM COVER
XB4-7301-007	1	SCREW, TAP TIGHT BH3X10	For POWER SUPPLY/BOTTOM COVER

6. H/W Troubleshooting Flowchart

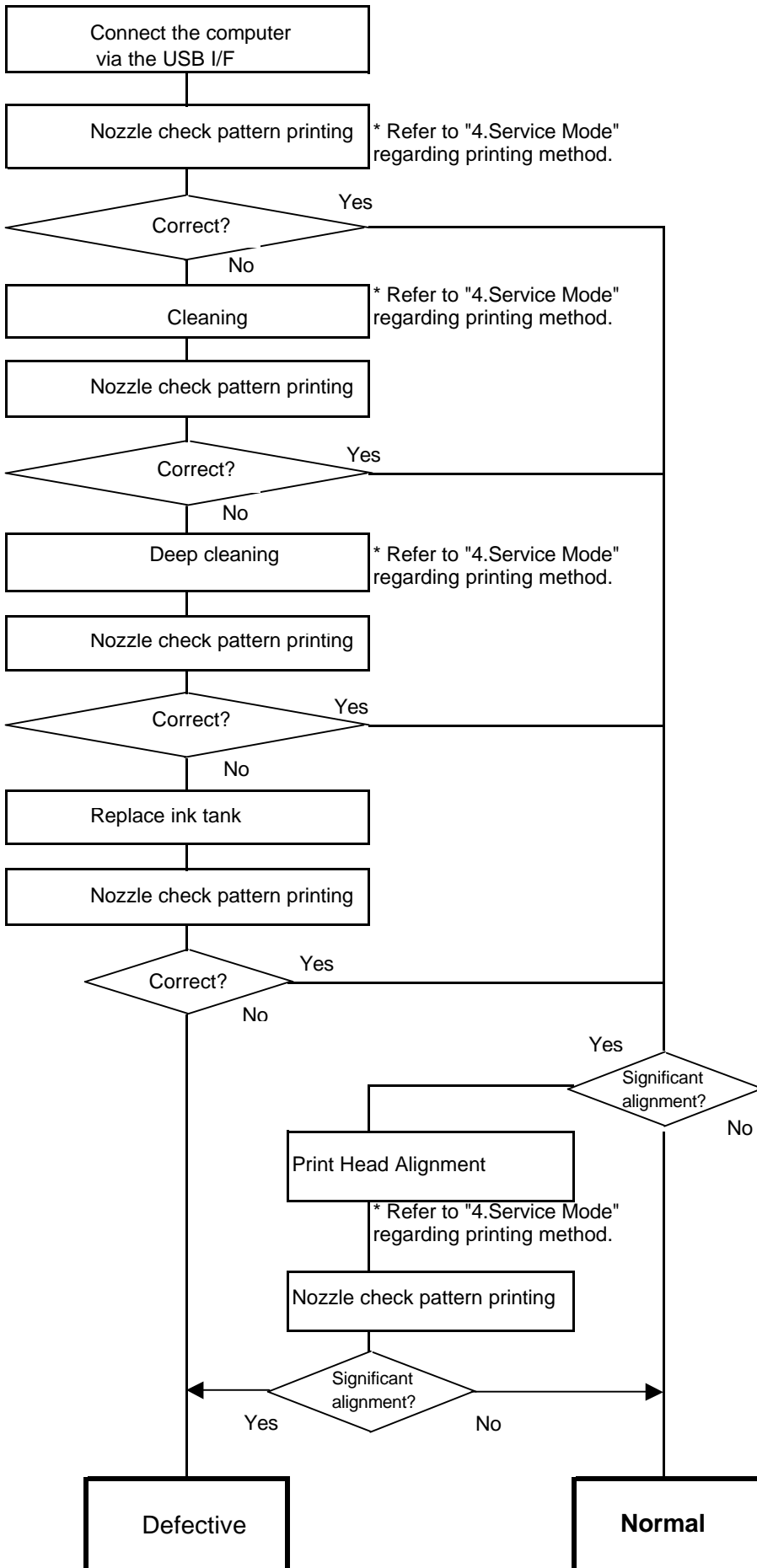
6.1 Printer main unit troubleshooting flowchart (Confirmation of the printer when refurbishing)



<Note for normal printer refurbishment>

At the final step of refurbishment, be sure to initialize EEPROM in accordance with 4. Service Mode <EEPROM RESET>. The purge reminder mark is set by initializing the EEPROM. Unplug the power cord immediately, and do not print afterwards.

6.2 Print head troubleshooting flowchart



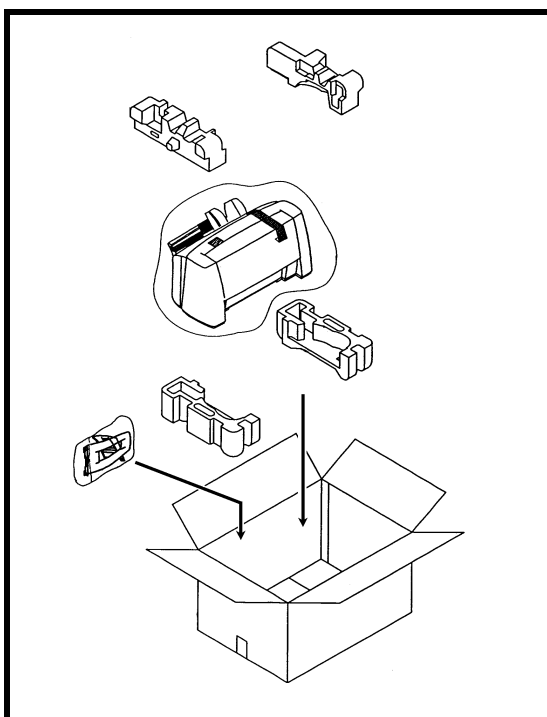
7. Service Information

7.1 Whole unit replacement

When the unit is exchanged as a Whole Unit (WHOLE UNIT, W/O POWER SUPPLY UNIT : 0000U019), in accordance with the following procedures:

- 1 Remove the AC adapter from the printer returned by the user.
- 2 Install the removed AC adapter in the whole unit.
- 3 Affix the product name label. (The label has been packaged with whole unit)
- 4 Perform destination setting. (See "4. Service Mode" for details)
- 5 Align the print head position if the print head is installed. (See following "7.2 Print head replacement.")

< Composition of WHOLE UNIT, W/O POWER SUPPLY UNIT >



Enclosed items
Printer unit (No product name label / No AC adapter)
Paper pick-up tray
Paper output tray
Product name labels
Packing material

7.2 Print head replacement

When replacing the print head (PRINT HEAD, WITH INK TANKS: QY6-0038-000), conduct the following steps:

<Replacement by a service person>

Align the head position after the print head is replaced. (See "4. Service Mode" for print head alignment procedures.)

<Replacement by user>

As misalignment is sometimes significant due to previous print head alignment after print head replacement, advise users to align print head, if necessary. (Possible to check alignment by nozzle check pattern. See "4. Service Mode" for procedures.)

7.3 Product technical information

(1) Problems when evaluating

	Function	Paper type	Result	Conditions	Countermeasure	Cause	Estimated call and claim						
1	Paper feeding performance	Paper pick-up problem	KH-201 (Glossy side)	Last two sheets fed overlapped	Low temperature / low humidity	Set only one sheet of paper at a time for printing	As the friction between stacked paper is great, last two sheets fed overlapped. *Friction rates differ by media lot	*Paper out error *Two sheets of paper (postcards) are fed at *Non ejection of ink *Cannot print					
2				PH-101 (address side)	Overlapped paper feeding	When printing address side after printing whole glossy side with high duty pattern at low temperature and low humidity	1) Dry the glossy side of paper adequately after printing 2) Flatten the curled paper	As the friction between stacked paper is great, last two sheets fed overlapped. *Friction rates differ by media lot	*Paper out error *Two sheets of paper (postcards) are fed at *Non ejection of ink *Cannot print				
3					Last sheet is not picked up		If the last sheet is not picked up, set the enclosed thick paper underneath when printing only one sheet of paper	As the friction between the stacked paper and ASF becomes significant, the paper feed roller cannot pick up stacked paper.	*Paper (postcard) is not picked up *Paper out error *Cannot print				
4					Failure to feed/print last sheet	When stacking multiple sheets of paper at low temperature and low humidity	1) Flatten the curled paper 2) Set one sheet of paper at a time for printing	The last paper is picked up and fed too far, then ejected without being printed	*Paper out error *Non ejection of ink (Paper is ejected without being printed) *Cannot print				
5	Paper delivery problem	All Japanese postcards	Postcard ejection failure	When printing max. printable area and more than 3 sheets are left on the Paper Output Tray at low temperature and low humidity	Remove a postcard from the Paper Output Tray after printing, or perform printing without Paper Output Tray.	As the postcard being fed contacts those on the Paper Output Tray, the final section of the postcard cannot be fed and printed completely. This unfed paper may cause print failure at the top of the next sheet.	*Cannot print the lower part of paper *Lines/uneven print density at the rear edge of paper *Print data at the top of paper is missing *Poor print quality						
6	Image quality	All paper types	Uneven horizontal image on final section of paper	When printing max. printable area	Recommend printing within "print-assured area"	The final section of the sheet is not held by the Pinch Roller, and printing in this area of loose paper can result in uneven density. The occurrence rate is the same as the current competitive printer (Z33).	*Cannot print the lower part of paper *Lines/uneven print density at the final section of paper *Poor print quality						
7							Uneven print density at insertion point to spurs	HR-101/GP-301/ KH-201/PR-101/ PH-101	Uneven horizontal image at the top of paper	When printing max. printable area at low temperature and low humidity	Recommend printing within "print-assured area"	When the top of the paper contacts the spurs, a loop of paper can occur. When ink is ejected, misalignment due to this causes uneven density. Insignificant except for specific pattern (high duty half tone).	*Lines/uneven print density at the top of paper *Poor print quality
8							Uneven print density due to paper cockling	HR-101	Uneven horizontal image at the top of paper	When printing max. printable area at low temperature and low humidity	Recommend printing within "print-assured area"	As the paper surface is not flat at excessive ink ejection, uneven density occurs. Insignificant except for specific pattern (high duty half tone).	*Line/uneven print density at the top of paper *Poor print quality
9	Print head contacts paper	Plain paper	Smearred paper surface	Remarkable only when printing high duty solid pattern (Bk solid, secondary CI solid, Bk and process Bk solid)	Adjust paper thickness lever to thick paper position	As the paper surface is not flat at excessive ink ejection, uneven density occurs. Insignificant except for specific pattern (high duty half tone).	*The printed side of paper is smeared. *Poor print quality						

Note: Due to very specific occurrence conditions, the phenomenon above occur only rarely. The above 8 items (1 to 8) occur at the same level as the current BJC-2100/S100.

(2) New Functions

1. Remaining ink level detection function

This printer has a function to detect the remaining ink level. (Default setting: OFF)

Detection method: Dot counting (counted for each Bk/CI ink tank)

CI tank: The remaining ink level is detected by total counted dot values of 3 color ink tanks

Display method: Displayed on the Status Monitor (displayed at 3 levels shown below for each Bk/CI ink tank)

Level 1: Half level of remaining ink level (approx. 40%)

Level 2: "!" mark is indicated. (Approx. 20% of remaining ink level)

Level 3: "?" mark is indicated. (Remaining ink level is unclear)

* Remaining ink detection function displays the status only, and does not cause errors.

Accuracy: The margin of error of detection accuracy is plus or minus 10% in normal printing

*The margin of error is likely to be large in the following specific print patterns:

When printing continuously using an only single-color ink tank

As the remaining ink level is calculated by total counted dot values of 3 color ink tanks, if either C/M/Y ink is heavily consumed, the margin of error increases.

When performing continuous Bk solid printing, the margin of error for remaining ink is large.

With continuous printing ink flow from the tank to the ink chamber can be interrupted, after which ink remains unused in the tank and will not flow again.

Procedures for displ: Perform the following operations from the printer driver utility:

1) Set the indication of the remaining ink level in "Low Ink Warning Setting."

2) Reset the ink counter in "Ink Counter Reset."

* Be sure to reset the ink counter from the printer driver utility after replacing ink tanks.

<Expected trouble with this function>

1) Due to user error, the actual remaining ink level does not accord with the indicated remaining ink level, resulting in "ink out," etc.

User error: Forgetting to reset ink counter / ink counter reset apart from when replacing ink tanks

2) Due to the specific print pattern, the actual remaining ink level does not accord with the indicated remaining ink level, resulting in "ink out."

Specific print pattern: Continuous printing using single-color ink tank only / continuous Bk solid printing, etc.

2. Print control change according to temperature/paper type

As this printer performs the most suitable printing for the temperature environment and print mode (print paper), the control of pre-printing ink ejection varies.

"Low temperature below 15 degrees" or "other":

To obtain steady print quality, the pre-printing ink ejection is controlled at every line.

Print mode	Under approx. 15°C	Over approx. 15°C
Plain paper	Every line	Dot count
Other	Every line	Every line

<Expected trouble with this function>

1) When selecting plain paper print mode:

Print speed is reduced to approx. one-third of normal in a low temperature environment (under approx. 15 degrees)

2) When selecting plain paper print mode:

The max. number of sheets printable decreases (the amount of ink consumed increases a little) in a low temperature environment (under approx. 15 degrees).

3. Deep cleaning

This printer has a deep cleaning function.

Deep cleaning: This is a deep cleaning function in order to resolve print failure due to ink clogging the print head
(The black ink is pigment-based, and clogs easier than the current dye-based ink.)

*Perform from the printer driver utility. The amount of purged ink is approx. three times that of normal cleaning.

<Expected trouble with this function>

- 1) Excessive ink consumption when conducting deep cleaning repeatedly.

4. Elimination of recovery function at paper pick-up

(All types of pro-photo paper: PR-101/PC-101/PH-101)

The recovery function at paper pick-up is eliminated when the pro-photo paper print mode is selected.

Recovery function at paper pick-up:

The function to correct print position when paper is fed to far at paper pick-up

*As Pro-photo paper is slippery and the print position misaligns easily, the recovery function was eliminated.

If the paper is fed to far, the paper will be ejected without being printed.

5. Bidirectional registration adjustment function

This printer has a bidirectional registration adjustment function (print head alignment).

Bidirectional registration adjustment function:

The function to correct horizontal misalignment in bidirectional printing

Print head alignment pattern: Patterns "A" to "D" for bidirectional correction

(A: HS mode Bk, B: HS mode CI, C: HQ mode Bk, D: HQ mode CI)

See "4. Service mode" for adjustment procedures/horizontal misalignment confirmation method.

<Expected trouble with this function>

- 1) Horizontal misalignment may be significant if setting prior to print head alignment remain after print head replacement without re-adjustment.

<For reference>

Unidirectional/bidirectional print mode (driver default: bold italic)

Print mode (paper)	Print data	Speedy	Standard	Fine
Plain paper	Bk ^{*1}	Bidirectional (HS)	Bidirectional (HQ)	Unidirectional
	CI	Bidirectional (HS)	Bidirectional (HQ) ^{*2}	Unidirectional
High resolution paper (HR-101)	Bk ^{*1}	-	Bidirectional (HQ)	Unidirectional
	CI	-	Unidirectional	Unidirectional
Postcard/ Inkjet postcard	Bk ^{*1}	-	Bidirectional (HQ)	Unidirectional
	CI	-	Unidirectional	Unidirectional
Transparent film (CF-102)	Bk/CI	-	Unidirectional	Unidirectional
T-shirt transfer (TR-201)	Bk/CI	-	-	Unidirectional
Special paper apart from the above	Bk/CI	-	Unidirectional	Unidirectional

^{*1} : when gray scale is selected

^{*2} : when Bk/CI data is mixed

Bk unidirectional / CI bidirectional

: Bk data only

Bk bidirectional

Attached Sample (Service Test Print)

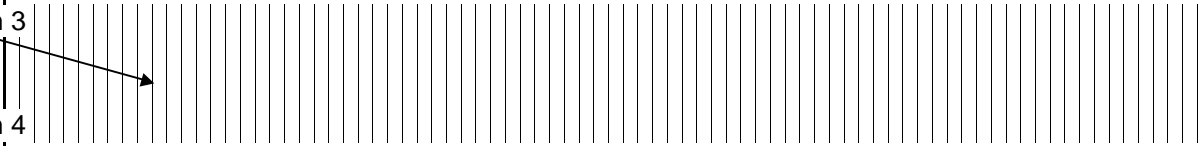
Check item 1 (Non ejection of ink): Total area of the sample below

Check item 2 (Top margin)

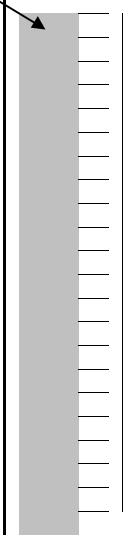
Print EEPROM Information
-->See "4. Service Mode" for details.



Check item 3
(Line)

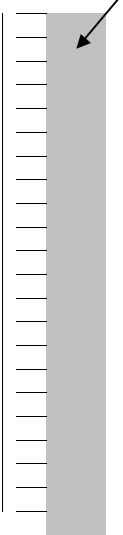


Check item 4
(Gray part)



Head check pattern

**EEPROM Information
(HEX Indication)**



Check item 4
(Gray part)

