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BJC-6200

SERVICE MANUAL

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BJC-6200

SERVICE MANUAL

Canon

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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CANON INC.

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This manual has been produced on an Apple Power Macintosh 7300/180 personal computer and OKI MICROLINE 803 PSIIV laser beam printer; artworks of printing films were printed on Agfa SelectSet Avantra 25. All page layouts, logos, and parts-list data were saved with Canon Optical Disc Subsystem mo-5001S™ and Optical Disc Cartridge mo-502M™, and Interface Kit mo-IF2™ for Macintosh. All graphics were produced with MACROMEDIA FREEHAND™ 7.0J. All documents and all page layouts were created with QuarkXpress™ 3.3 Japanese version.

I. ABOUT THIS MANUAL

This manual consists of three parts containing information for servicing the product.

Part 1: Product Specifications

Product overview and specifications.

Product
Specifications

Part 2: Troubleshooting

A guide to troubleshooting the product and identifying the parts and units needing replacement. Troubleshooting is described according to problem descriptions as well as error indications by the status indicator.

Troubleshooting

Part 3: Appendix

Block diagrams, information on the hardware technologies, and pin configurations.

Appendix



REF.

Disassembly and reassembly procedures are not fully covered in this manual. Refer to the separate *Parts Catalog* instead.

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Part 1

PRODUCT SPECIFICATIONS

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1. PRODUCT OUTLINE

1.1 Product Outline

"Standard Color Printer for Personal Use"

- 1) Dual cartridge system for high-speed monochrome printing and high-speed color printing.
- 2) Printer cartridge incorporates ink drop modulation technology for high-quality 1440 × 720 dpi printing.
- 3) Separate ink cartridges and tanks for all colors to reduce running costs.
- 4) USB interface enables connection to Windows 98/2000, iMac, and Power Macintosh G3/G4 computers.
- 5) Optional drop-in scanner cartridge.
- 6) Photo cartridge enables six-color, density-matched photo-quality printing.
- 7) Black cartridge contains pigment-colored ink for truer black text printing.
- 8) Highly precision ink-low detection with an optical system and dot count.
- 9) Stabilized image printing with the easy to use automatic print position adjustment.

Product Specifications

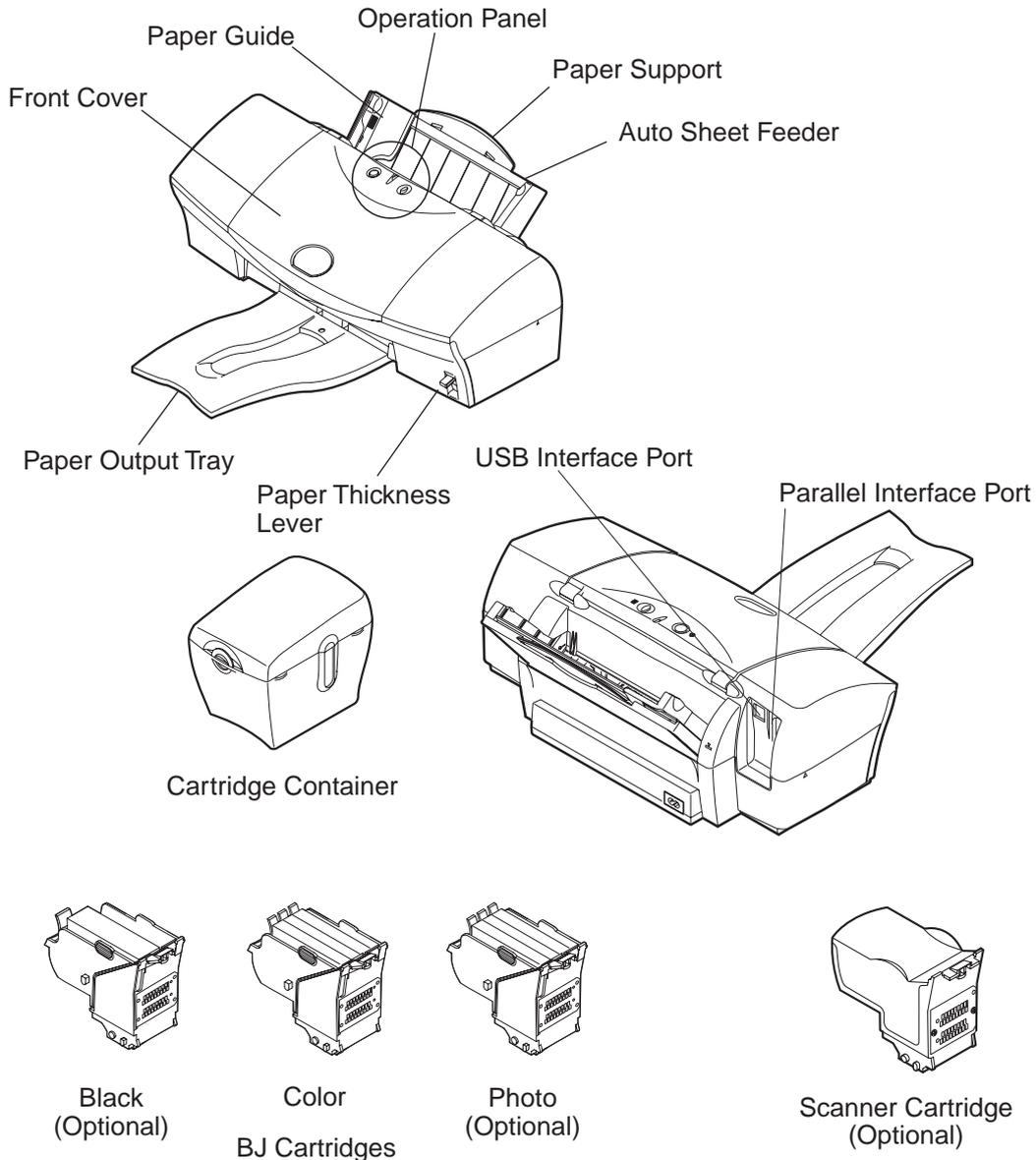


Figure 1-1 Printer Appearance

2. SPECIFICATIONS

2.1 Printer Specifications

2.1.1 Printer specifications

Type	Desktop serial printer			
Paper Feed System	Automatic feed only (No manual feed)			
Resolution	1440 × 720 dpi (Max. resolution)			
Throughput (Reference only)		High-speed	Standard	High-quality
	BC-30 + BC-31 Cartridge			
	Black Text (PC Magazine)	9.6 ppm	7.7 ppm	1.7 ppm
	New monochrome pattern (J)	10 ppm *	8.3 ppm *	2.0 ppm
	New color pattern (J)	7 ppm *	3.7 ppm *	1.2 ppm
	BC-32 Photo + BC-31 Cartridge			
	Full Address Printing	-	-	0.14 ppm *
	* Catalog specification.			
Printing Direction	HS mode (180 × 180 dpi):	Bidirectional		
	HQ mode (360 × 360 dpi, 720 × 720 dpi):	Unidirectional/Bidirectional		
	Fine mode (360 × 360 dpi, 720 × 720 dpi, 1440 × 1440 dpi):	Bidirectional		
Max. Printing Width	203 mm			
Interface	USB, IEEE 1284-standard, 8-bit parallel (Compatible/Nibble/ECP)			
ASF Capacity	Plain paper:	Max. 10 mm (Approx. 100 sheets with 64 g/m ²)		
	BJ Printer paper:	Max. 10 mm (Approx. 80 sheets of high-quality paper)		
Sensors	• Front cover-open sensor	• Printing position sensor		
	• BJ cartridge sensor	• Paper sensor		
	• BJ cartridge ID sensor	• Waste-ink capacity sensor		
	• No-ink sensor	• Paper width sensor: None		
	• Internal temperature sensor			
Operating Noise	Approx. 45 dB (A) Sound pressure level conforms to ISO 9296.			
Ambient Conditions	During operation:	Temperature 5°C-35°C (41°F-95°F)		
		Humidity 10%-90% RH (No condensation)		
	During non-operation:	Temperature 0°C-35°C (32°F-95°F)		
		Humidity 5%-95% RH (No condensation)		
Power Source	Power voltage/frequency	Power consumption	During standby	
	100-120 VAC 50/60 Hz	Approx. 30 W	3.5 W	
	220-240 VAC 50/60 Hz	Approx. 30 W	3.5 W	
External Dimensions	Approx. 455 mm (W) × 312 mm (D) × 173 mm (H) (With retracted paper support and no output tray.)			
Required Space	Approx. 455 mm (W) × 562 mm (D) × 248 mm (H) (With output tray and retracted paper support.)			
Weight	Approx. 4.1 kg			
Standard Conformance	Radio-wave interference: FCC, IC, CE Mark, Taiwan EMC, C-Tick, VCCI			
	Electrical safety: UL, C-UL, CB Report, GS, CE Mark, FIMKO, SEMCO, IEC, AS, CCIB, SISIR, Korean Electric Commerce, NEMKO			
	Environmental: Energy Star, Blue Angel			

2.1.2 Printer service life

The printer's service life extends until any of the following conditions is attained:

- (1) A total of 20,000 sheets are printed with 1,500 character standard in black ink.
- (2) A total of 6,000 sheets are printed at 7.5% duty per color.
- (3) Five years of operation elapses.

2.2 Paper Specifications

2.2.1 Paper sizes and weights

(1) Paper sizes

A4, B5, A5, A5 landscape, letter, legal, envelope (C4 and C6), postcard

(2) Weight

64 g - 105 g/m² for auto feeding

2.2.2 Paper types and handling

Type		Size	ASF Capacity	Paper Thickness Lever Position
Plain paper	-	A4/B5/LTR/LGL/ A5 (Portrait/ Landscape)	Approx. 10 mm or less (Approx. 100 sheets of 64 g weight)	Up
Plain paper for Color BJ	LC-301*	A4/LTR	Approx. 10 mm or less	Up
High-quality paper	HR-101*	A4/LTR	Approx. 10 mm or less	Up
Photo glossy paper	GP-301*	A4/LTR	Less than 10 sheets	Up
Glossy film	HG-201*	A4/LTR	1 sheet	Up
Transparency film	CF-102*	A4/LTR	Less than 30 sheets	Up
Back print film	BF-102*	A4/LTR	Less than 10 sheets	Up
Banner	BP-101*	A4/LTR	1 sheet	Down
T-shirt transfer	TR-201*	A4/LTR	1 sheet	Down
Photo glossy card	FM-101*	120 mm × 216 mm	1 sheet	Up
Postcard		100 mm × 148 mm	Less than 40 sheets	Up
Envelope	COM #10	241 mm × 105 mm	Less than 10 sheets	Down
	DL-size	220 mm × 110 mm	Less than 10 sheets	Down

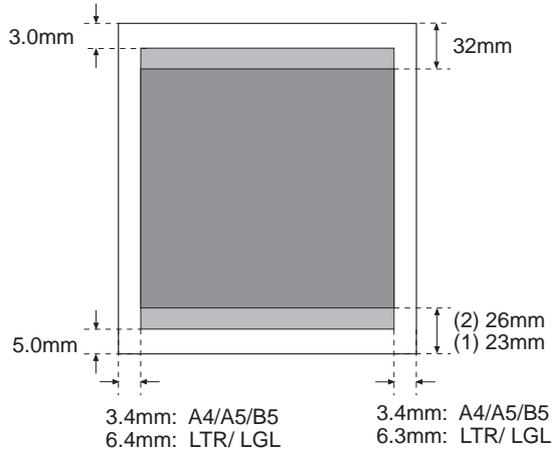
* Paper dedicated to BJ printers.



If the Paper Thickness Lever is not properly set, problems with paper feeding or printing may occur.

2.2.3 Printable area

A4/A5/B5/Letter (LTR)/Legal (LGL)/



Envelope

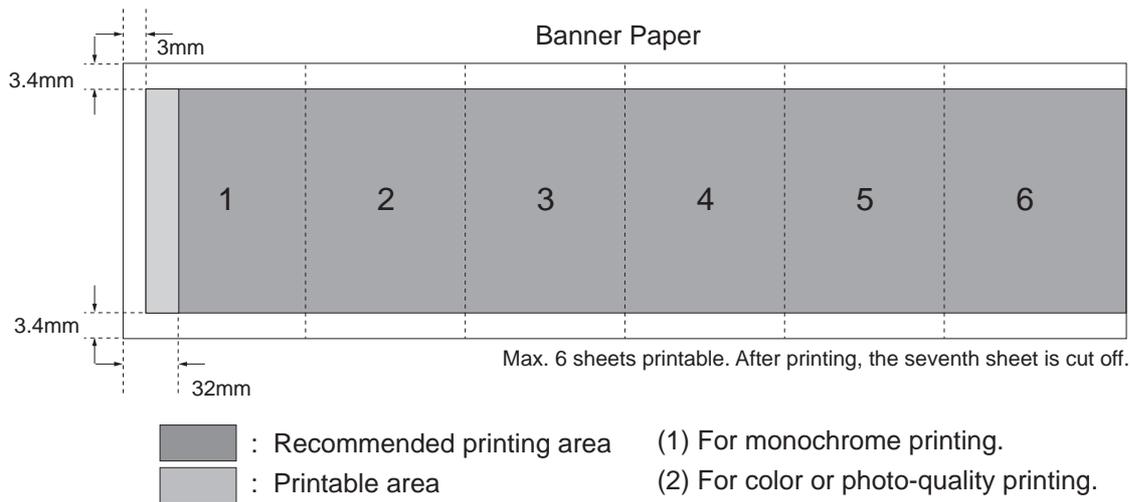
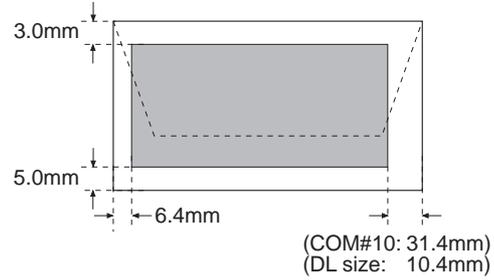


Figure 1-2 Printable Area

2.3 BJ Cartridge Specifications

	Black BJ Cartridge BC-30	Color BJ Cartridge BC-31	Photo BJ Cartridge BC-32 Photo
Construction	Detachable ink tank	Detachable ink tank	Detachable ink tank
Head	160 nozzles (Vertical array) Bk (160 nozzles × 1)	144 nozzles (Vertical array) C, M, Y (48 nozzles × 3)	144 nozzles (Vertical array) Bk, C, M (48 nozzles × 3)
Ink colors	Pigment black	Dye C, M, Y	Dye PBk, PC, PM
Tank	BCI-3BK	BCI-3C, BCI-3M, BCI-3Y	BCI-3BK Photo, BCI-3PC Photo, BCI-3PM Photo
Weight	60 g (w/o ink tank)	60 g (w/o ink tank)	60 g (w/o ink tank)
Service Life	Approx. 5000 sheets	Approx. 3000 sheets	Approx. 3000 sheets
Printable Sheets	Approx. 500 sheets/tank (1,500 black characters/page)	Approx. 280* sheets/tank (7.5% printing per color)	Approx. 280* sheets/tank (7.5% printing per color)

* Based on the printable area of A4 paper.

2.4 Optional Scanner Cartridge Specifications

Designation	IS-32
Type	Cartridge replacement type color scanner
Resolution (dpi)	90 × 90, 180 × 180, 200 × 180, 300 × 360, 360 × 360, 720 × 720
Imaging Sensor	256-pixel, linear (single line) CCD
Light Source	RGB (Red, Green, Blue)
Scanning System/Direction	RGB-switching progressive scanning
Document Feeding	Document inserted in scanning holder and fed via the ASF
Interface	ECP/Nibble
External Dimensions	Approx. 41 mm (W) × 90 mm (D) × 77 mm (H)
Weight	Approx. 100 g
Other Specifications	Printer setting for scanning: Paper thickness lever must be up. Paper sizes for scanning: A4/LTR size or smaller (with BJ F620) Paper thickness for scanning: 0.25 mm or less
Scanning Time (reference)*	Approx. 3 min. 14 sec. (DTP color mode: A4, 180 dpi) Approx. 6 min. 15 sec. (Photo mode: A4, 360 dpi)

* Measurement Conditions

- Computer: Dell XPS T550 (Pentium III 550 MHz, 256MB RAM)
- Interface: Parallel interface, ECP mode
- Scanning paper size: A4
- The scanning time spans from the start of the carriage scanning operation to the output of the document.

2.4.1 Scannable area

When scanning a document, be sure to use the scanning holder to prevent paper jamming. Align the document with the scanning baseline when placing it in the scanning holder.

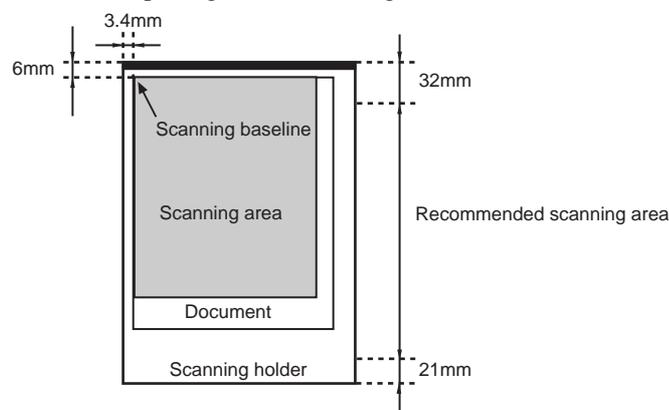


Figure 1-3 Scannable Area

The document sizes and scanning area are listed below.

Document	Size (W × H) mm	Scannable Area* (W × H) mm
Postcard	100.0 × 148.0	93.2 × 138.0
A5	148.0 × 210.0	141.2 × 200.0
B5	182.0 × 257.0	175.2 × 247.0
A4**	210.0 × 297.0	203.2 × 287.0
Letter**	215.9 × 279.4 (8.5 × 11.0 in.)	208.2 × 269.4

* The actual scannable area may vary slightly depending on the monitor's display resolution and the scanner's scanning resolution.

** If the B5 Scanning Holder (provided with Scanner Cartridge IS-32) is used to scan a large-size document, the optional A4/LTR Scanning Holder (SH-101) will be required.

2.5 Printer and Scanner Drivers

The drivers and interface ports that can be used with the printer are listed below.

	Printer Driver		Scanner Driver	
	Parallel I/F	USB I/F	Parallel I/F	USB I/F
Windows 95/98	○	△*	○***	△*
Windows NT4.0	○	✕	○***	✕
Windows 2000	○	○*	○***	○*
Macintosh	---	○**	---	○**

- : Compatible. △: Conditionally compatible. ✕: Incompatible.
 * For USB, compatibility is assured only with personal computers with Windows 98/2000 preinstalled.
 ** Compatible with iMac and Power Macintosh G3. iMac running on Mac OS 8.1 requires iMac updater 1.0.
 *** Common driver for Windows 95/98/NT 4.0/2000. Operates in Nibble or ECP mode.

1) Window Drivers

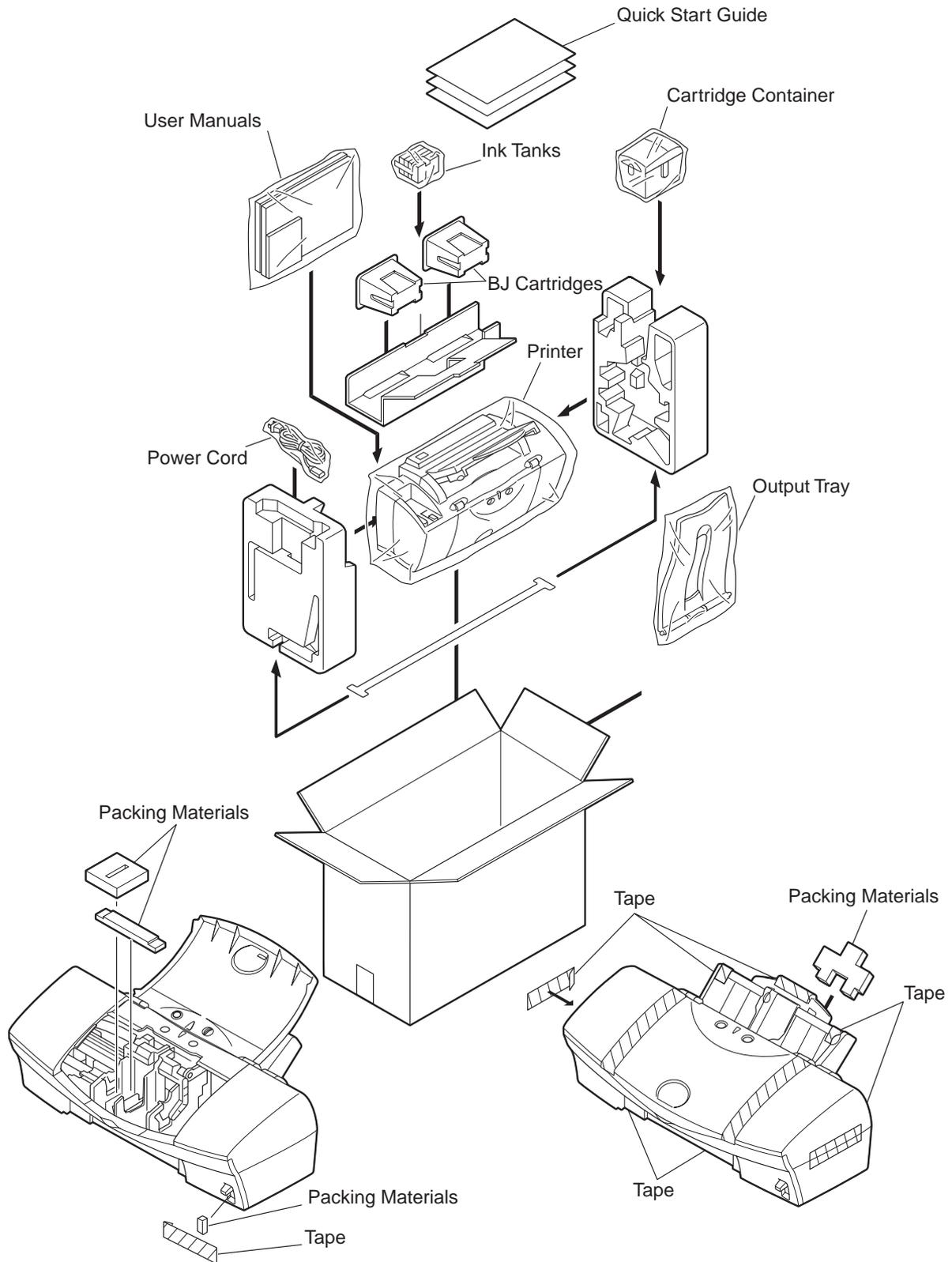
- Win 95/98 BJ raster printer driver (IEEE 1284, 8-bit parallel and USB supported)
- Win NT 4.0 BJ raster printer driver
- Win 2000 BJ raster printer driver
- Windows 95/98/NT 4.0/2000 scanner driver IS Scan

2) Macintosh Drivers

- Mac BJ printer driver (USB)
- Mac scanner driver IS Scan (USB)

3. PACKING CONFIGURATION

After opening the package, make sure all the items below have been included.



Product Specifications

Figure 1-4 Packing Configuration

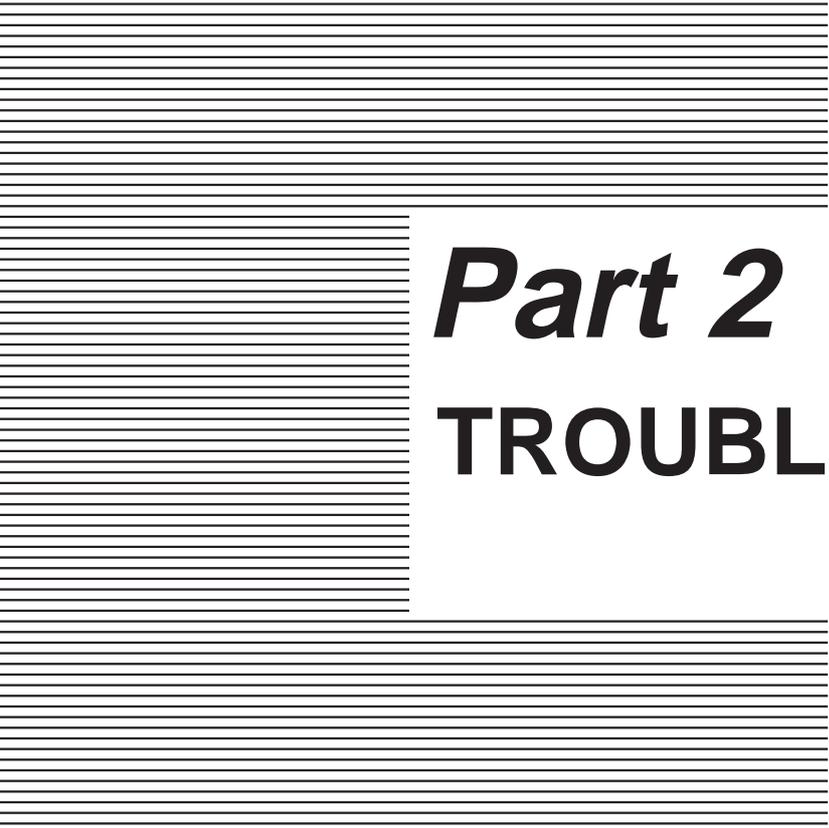
4. PARTS CODE LIST

A list of printer parts, consumables, and optional equipment are listed below.

Table 1-1 PARTS CODE LIST

Item		Designation	Product Code
Printer	-	BJC-6200	Q30-3310 Q30-3312
BJ cartridge	Black	BC-30	F45-1471
	Color	BC-31	F45-1481
	Photo	BC-32 Photo	F45-1501
Ink cartridge	Black	BCI-1BK	F47-2171
	Cyan	BCI-3C	F47-2181
	Magenta	BCI-3M	F47-2191
	Yellow	BCI-3Y	F47-2201
	Photo black	BCI-3PBK Photo	F47-2231
	Photo cyan	BCI-3PC Photo	F47-2211
	Photo magenta	BCI-3PM Photo	F47-2221
Cartridge storage box	-	SB-30	Q70-4040
Scanner cartridge	-	IS-32	Q70-4070
A4/LTR scanning holder	Scanning holder Standard white sheet	SH-101	Q70-3640

* Items included with BJC-6200: BC-30, BC-31, BCI-3BK, BCI-3C, BCI-3M, BCI-3Y, SB-30.



Part 2

TROUBLESHOOTING

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1. PRINTER OPERATION

The printer's operation status is indicated by the status indicator, and the printer can be controlled from the computer or with the printer itself.

1.1 Status Indicator

The printer's operation status is indicated by the indicator. When an error occurs, the nature of the error can be known by the number of times the indicator blinks in orange and/or green.

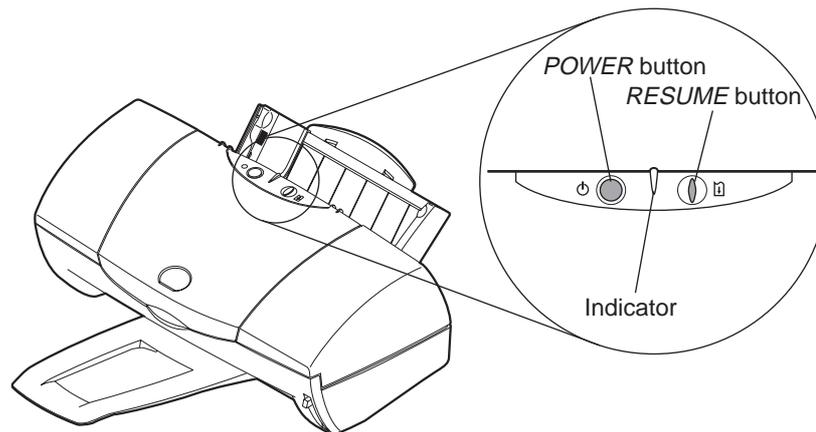


Figure 2-1 Operation Panel

1.1.1 Status display via the indicator

The operation status indicated by the indicator is as follows.

Indicator	Operation Status
Green light	Power ON
Green blinking	Power ON operation in progress, power OFF operation in progress, reset operation in progress, cleaning in progress, test printing, front cover open, printing in progress.
OFF	Power OFF

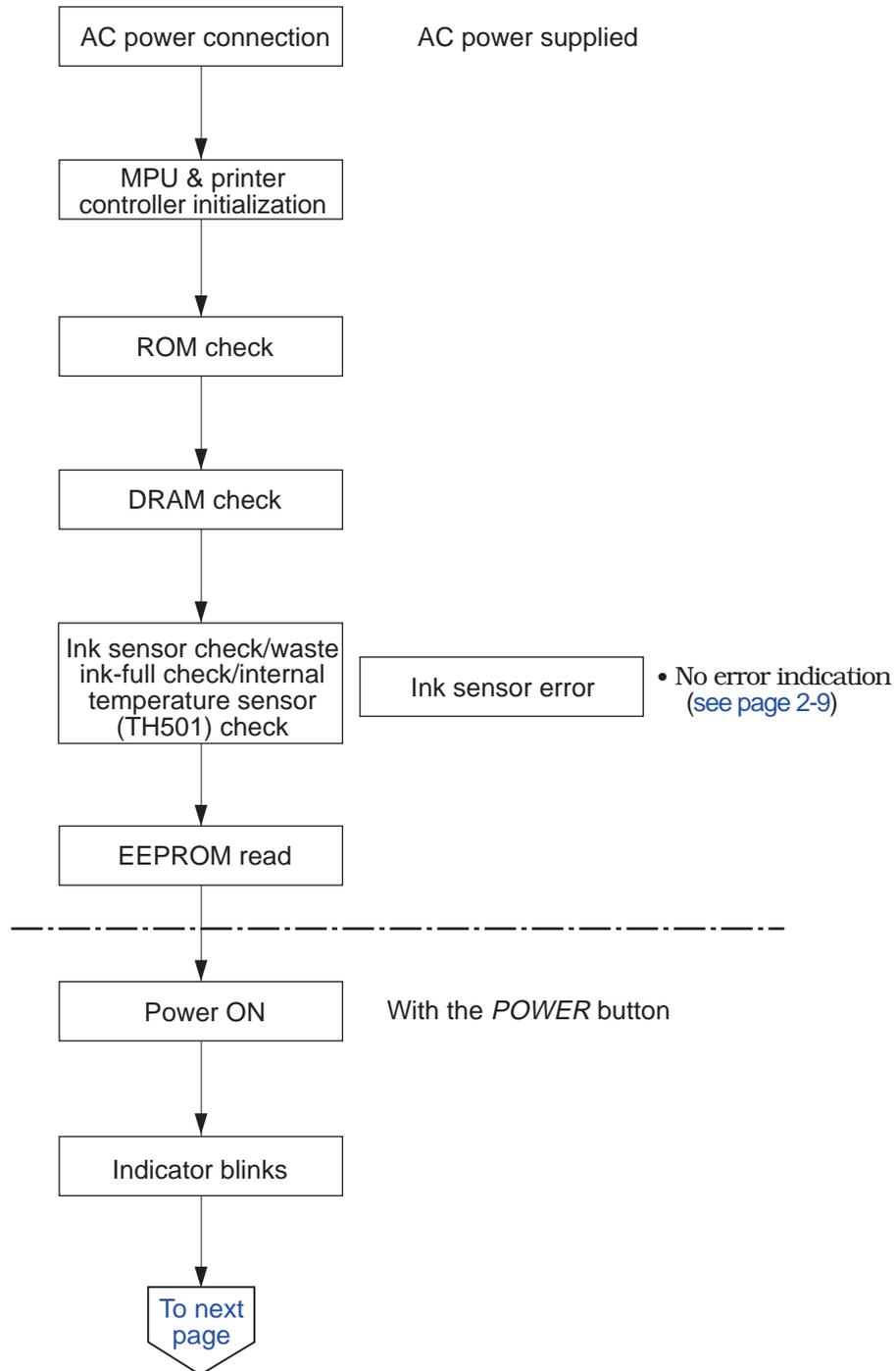
2. SERVICING

2.1 Before Troubleshooting

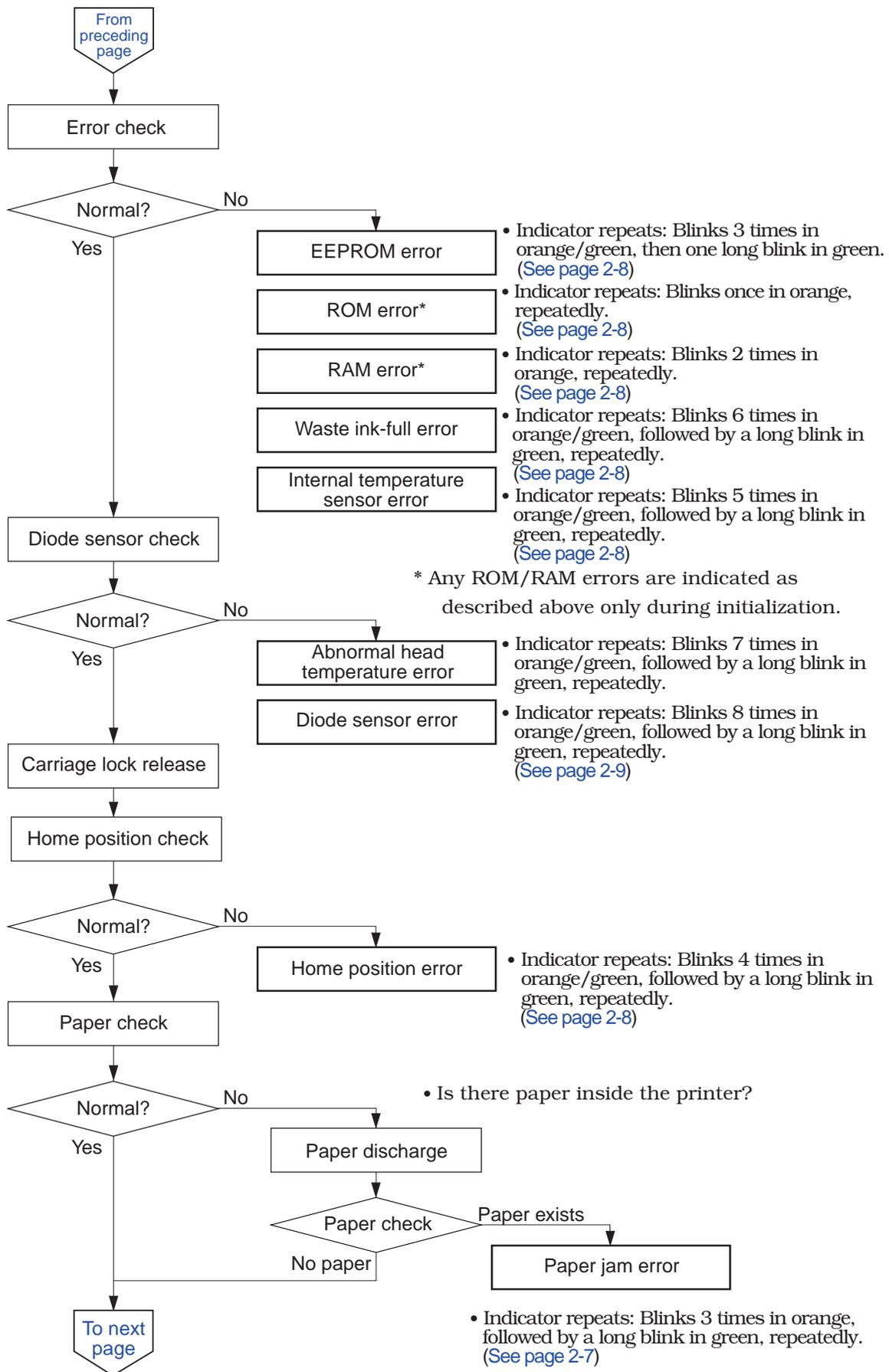
Before troubleshooting the printer, check the following and see if any of the applicable problems can be fixed.

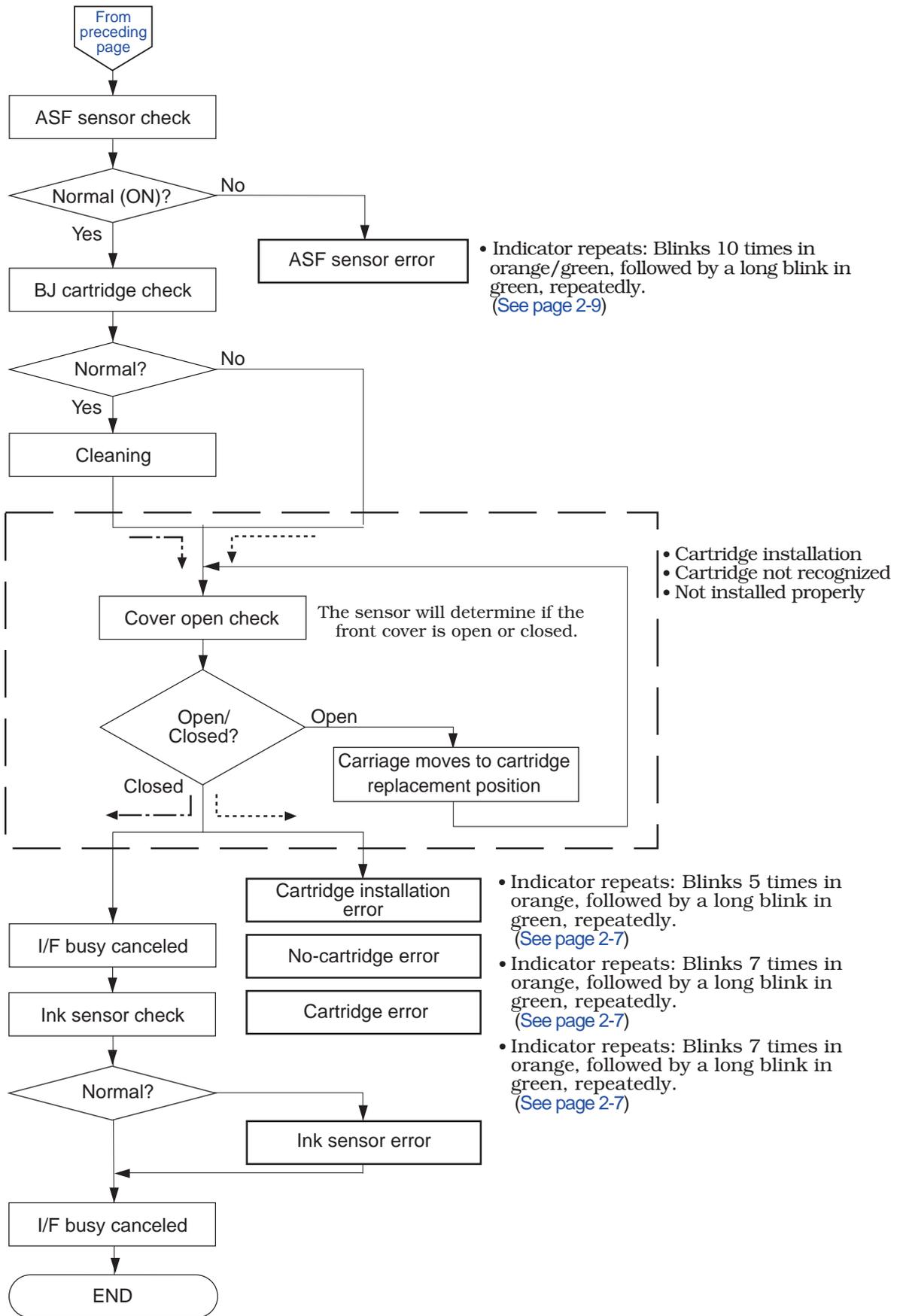
Problem	Probable Cause	Solution
The printer does not operate at all	The power outlet is not supplying the required voltage.	Connect the AC cord to a power outlet that supplies the required voltage.
	The power cord is not properly connected to the printer or power outlet.	Check that the power cord is connected properly.
	The power switch is not ON.	Turn on the power switch.
Paper feeding does not work	The recommended paper is not being used.	Use the recommended paper.
	There is foreign matter in the paper feed section (sheet feeder, pinch roller, LF roller, platen, spurs).	Remove the foreign matter.
	The paper thickness lever is not set properly.	Set the lever to the proper setting.
No printing	The print head needs cleaning.	Conduct cleaning.
	The ink cartridge is empty.	Replace the ink cartridge.
	The BJ cartridge has not been used for a prolonged period.	Conduct cleaning. If the problem still persists, replace the BJ cartridge.
	The recommended paper is not being used.	Use the recommended paper.
	The print head is installed in the wrong position.	Install the print head properly.
	The orange tape is still affixed to the print head.	Remove the orange tape.
Stripes appear in the printing	The print head position adjustment has not been done.	Execute the print head position adjustment. See page 2-19.

2.2 Detectable Problems from System Start to Exit



Troubleshooting





2.3 Troubleshooting Problems

Problem	Probable Cause / Check Items	Solution
Power does not come on	AC adapter, control board, DC cable.	Replace faulty part.
No printing	BJ cartridge, purge unit, ink tank, or orange cap/tape still affixed to print head.	Replace faulty part.
White stripes or smearing appear	BJ cartridge, faulty BJ cartridge contacts, cartridge ribbon cable, purge unit, control board, ink tank.	Replace faulty part.
Soiled paper	Ink mist, etc., at the platen's paper guide plate is soiling the paper.	Use a soft cloth dampened with water to clean.
	Check for any ink adhering to the paper transport parts. (The paper is already soiled when it reaches the platen.)	Disassemble the paper transport parts and use a soft cloth dampened with water to clean. Pass several sheets through.
Spur tracks appear	Deformed spur tips.	Replace the spur unit.
Broken vertical lines	Paper thickness lever not properly set.	Set it to the proper position.
	The nozzle check pattern's printout is misaligned.	Readjust the printing position.
	Guide shaft not greased properly.	Apply proper amount of grease on the stipulated parts.
	Faulty carriage motor.	Replace carriage motor.
Error does not occur at ink-out	Ink sensor, control board	Replace faulty part.
Abnormal noise	LF motor 2-step gear, purge unit, sheet feeder unit, orange cap still attached to the print head.	Replace faulty part.

2.4 Troubleshooting With Error Indications

1) Error indication when a user-recoverable error occurs

The indicator indicates an error by blinking in orange for a certain number of times.

After it blinks in orange to indicate the error, it blinks once, long, in green.

This indication is repeated.

2) Error indication when an error un-recoverable by the user occurs

The indicator indicates an error by blinking alternately in orange and green for a certain number of times.

After it blinks in orange and green to indicate the error, it blinks once, long, in green. This indication is repeated.

* The error code is displayed by the computer. With the iMac and Power Macintosh G3, a "D" or "M" is appended to the beginning of the error code.

** The waste-ink warning can be canceled by pressing the *RESUME* button.

*** Error information for internal errors is not displayed nor indicated.

You can check it by printing the EEPROM information. See 7.3 *Printing the EEPROM Information on page 2-30*.

**** If a ROM or RAM error occurs, the error indication might not be correct.

Table 2-1 ERROR INDICATIONS

<i>Indicator Blinking</i>	<i>Error Description Code*</i>	<i>Probable Cause and Suspected Parts</i>
<i>User-Recoverable Errors</i>		
2 times in orange ¹	--- Paper feed error	Cause: Paper feed does not work even when the paper feed operation is attempted. Suspect: Paper feed section, sheet feeder unit, paper-end sensor, control board
3 times in orange ¹	--- Paper jam error	Cause: The paper is not ejected, even when the paper ejection operation is attempted for 23 inches. Suspect: Paper feed section, paper-end sensor, control board
4 times in orange ¹	--- Out of ink error	Cause: No ink in the respective ink tank (ink compartment and sponge). Suspect: Ink tank
5 times in orange ¹	--- Cartridge installation error	Cause: The wrong cartridge (BJ cartridge or scanner cartridge) is installed in the carriage for printing or scanning. Suspect: BJ cartridge, scanner cartridge
6 times in orange ¹	--- No-cartridge error	Cause: No cartridge has been installed. Suspect:
7 times in orange ¹	--- Cartridge error	Cause: The cartridge installed is defective. Suspect: BJ cartridge

¹ User-recoverable errors are indicated by the specified number of blinks in orange, followed by a long blink in green, repeated.

8 times in orange	---	Waste-ink warning**	Cause: The total waste-ink count recorded in the EEPROM exceeds 95% of the stipulated amount indicating waste-ink full. Suspect: Waste-ink absorber, control board
9 times in orange	---	Auto Print Position Adjustment	Cause: Auto head position adjustment problem occurred. Suspect: BJ cartridge, ink tank, printing position sensor, control board carriage ribbon cable

¹ User-recoverable errors are indicated by the specified number of blinks in orange, followed by a long blink in green, repeated.

Non User-Recoverable Errors

1 time in orange/green	---	ROM error*****	Cause: ROM check failed during initialization. Suspect: ROM, control board
2 times in orange/green	---	RAM error*****	Cause: RAM check failed during initialization. Suspect: DRAM, MPU & print controller, control board
3 times in orange/green	6800	EEPROM error	Cause: EEPROM cannot be written to properly. Suspect: EEPROM, MPU & print controller, control board
4 times in orange/green	5100	Home position error	Cause: The carriage's home position cannot be detected because the home position sensor is faulty (disconnected, etc.). Suspect: Home position sensor, purge unit, carriage motor, paper feed motor, control board, carriage ribbon cable, carriage board, DC cable
5 times in orange/green	5400	Internal temperature sensor error	Cause: The temperature sensor (TH501) on the control board is faulty (disconnected, etc.). Suspect: Thermistor, control board
6 times in orange/green	5B00	Waste ink-full error	Cause: The waste-ink absorber reached 100% of the waste-ink capacity. Suspect: Waste-ink absorber, control board Solution: Reset the EEPROM, replace waste-ink absorber, replace control board
7 times in orange/green	5200	Abnormal print head temperature error	Cause: The print head's temperature is abnormally high. Suspect: BJ cartridge, control board, no ink in ink tank

Non User-Recoverable Errors are indicated by the specified number of blinks in orange and green, followed by a long blink in green, repeated.