BJC-8200

BJC-8200 *Photo*

SERVICE MANUAL

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Target Readers

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I. ABOUT THIS MANUAL

This manual is divided into five parts containing the information required for servicing the BJC-8200 printer.

Part 1: PRODUCT SPECIFICATIONS

This part outlines the product and its specifications.

Part 2: MAINTENANCE

This part explains maintenance of the unit. It includes precautions and details for disassembly and assembly, and adjustments required when assembling.

Part 3: OPERATION

This part explains how to operate the unit properly, and how to use the service mode.

Part 4: TROUBLESHOOTING

This part explains how to resolve problems of the unit, and contains information on how to locate and replace serviceable units and parts. It is divided into two sections: "Troubleshooting by Errors" and "Troubleshooting by Symptoms."

Part 5: REFERENCE

This part outlines the unit operation giving technical information on hardware, and contains block diagrams, pin assignments, and wiring/circuit diagrams.

This manual does not contain complete information required for disassembling and assembling the BJC-8200 printer. Please also refer to the separate Parts Catalog.

II. TABLE OF CONTENTS

III. ILLUSTRATION INDEX

IV. TABLE INDEX

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Part 1

PRODUCT SPECIFICATIONS

1. PRODUCT OUTLINE

1.1 Product Outline

This printer, with ultra small 4-pl ink droplets and new light-and-dark ink system, delivers graininess-free, photographic-quality, high-resolution images.
In addition, the support of a high-resolution scanner cartridge and adapter for direct connection to digital cameras, as optional equipment, and the USB interface as standard equipment, prove this printer a highly value-added product.
This printer is intended to increase the market share where photo-realistic output is demanded, targeting users who need excellent photographic quality printing.

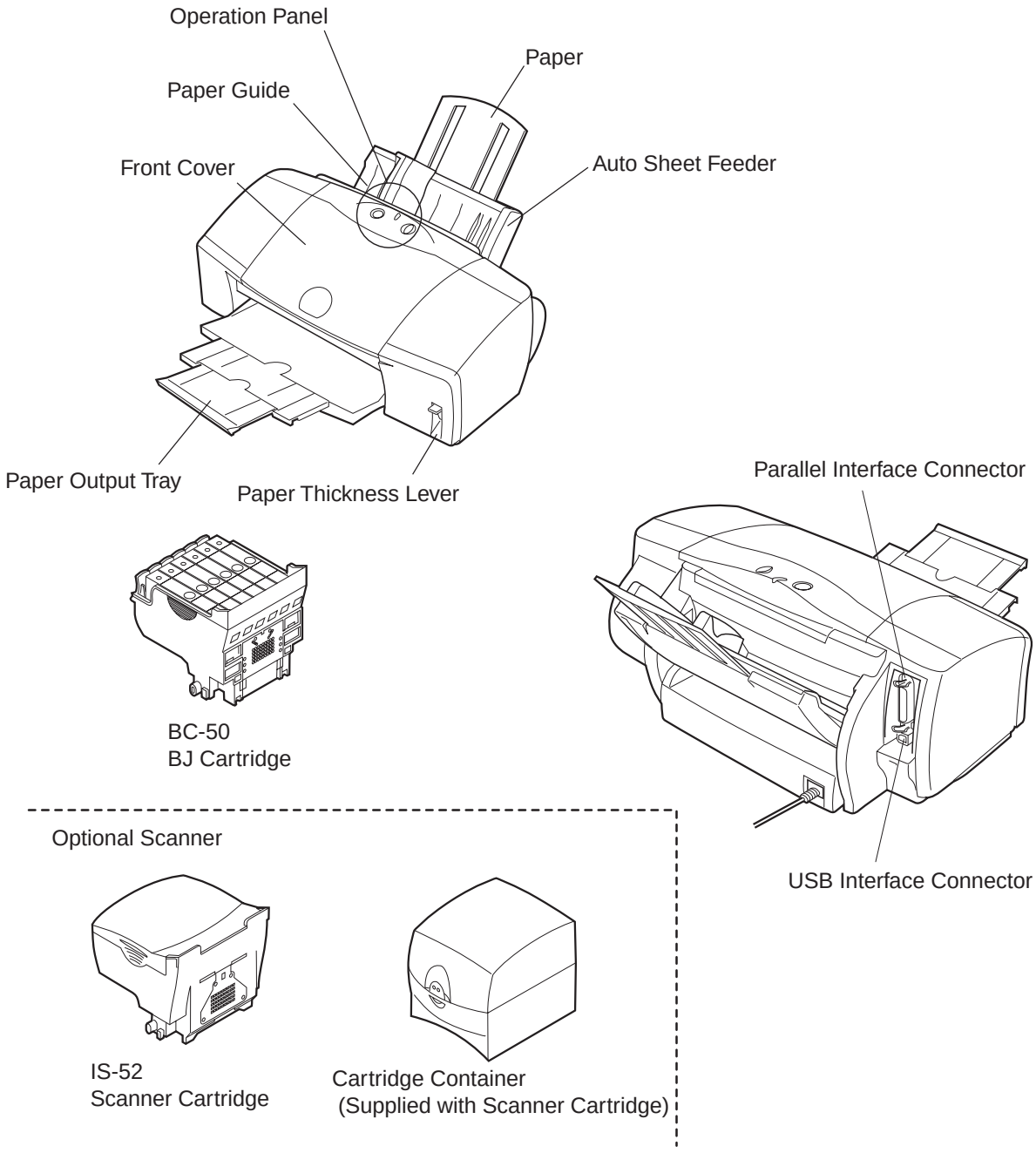

Figure 1-1 Printer Appearance

1.2 Features

1) Highest resolution photo imaging without any graininess. (4-pl ink droplets; new light-and-dark ink with light ink density of 1/6.)
2) Optionally available 600 dpi scanner cartridge.
3) Both IEEE1284-compatible, 8-bit parallel interface and USB interface, as standard equipment.
4) Individually replaceable ink tanks for each color for reduced running costs.
5) Ink-low detection using both optical and dot-counting systems and translucent ink tanks allow visual checking of the ink level.
6) A mechanism to allow manual correction of print position misalignment of each color, as well as in bi-directional printing.
7) A function to notify of the optimum head gap setting of the paper thickness lever.

2. SPECIFICATIONS

2.1 Main Unit Specifications

2.1.1 Main unit specifications

Type	Desktop serial printer			
Paper feeding method	Automatic and manual feeding			
Resolution	1200dpi x 1200dpi (maximum resolution)			
Throughput (Reference values) ppm		Draft	Standard	High
	Bk (PC Magazine)	3.15	2.24	0.37
	Color (A4 Full Page)	2.0	1.4	0.26
	Color (New Pattern)	2.0	1.4	0.26
Printing direction	1-pass/bidirectional 2-pass/unidirectional 4-pass/bidirectional 4-pass/unidirectional 8-pass/bidirectional Automatically switched over by driver, corresponding to selected media and print quality.			
Printing width	203.2 mm			
Line feed speed	161ms/line (for 256/1200-inch feed)			
Interface	IEEE 1284-compatible 8-bit parallel interface (Compatible/nibble/ECP) USB (without hub function)			
ASF capacity	Up to 10 mm (Approx. 100 sheets of 75 g/m^2 paper)			
Detection functions	Cover open	Yes		
	BJ cartridge installed	Yes		
	Scanner cartridge installed	Yes		
	Cartridge correctly installed	Yes		
	Ink-out	Yes		
	Paper-detection	Yes		
	Waste ink full	Yes		
	Paper width detection	No		
Acoustic noise during operation	Approx. 37 dB(A) (For 8-pass printing with a sheet feeder full of paper) (Sound pressure level: compliant with ISO9296)			
Environmental conditions	Operation	Temperature:	5 to 35°C	
		Humidity:	10-90% RH (No condensation)	
	Standby	Storage:	0-35°C	
		Humidity:	10-90% RH (No condensation)	
Power supply	Voltage/frequency	Power consumption	At standby	
	AC100-120V 50/60Hz	23W (max.)	8W	
	AC200-240V 50/60Hz	23W (max.)	8W	
External dimension	450 mm (W) x 327 mm (D) x 204 mm (H)			
Weight	Approx. 5.9 Kg (Excluding BJ cartridge)			
Certification	Electromagnetic radiance: VCCI, FCC, IC, CE Mark, EMC (Taiwan), C-tick Electrical safety: Electrical Safety Regulations, UL, C-UL, CB Report, CE Mark, FIMCO, GS, GCIB, SISIR, AS, Electrical Safety Regulations of Korea Environmental regulations: Blue Angel, Energy Star			
Optional parts	Scanner cartridge (*See Page 1-7*)			

2.1.2 Product life

Product life is either of the following periods, whichever is shortest.

(1) From the start of use until 15,000 sheets has been fed.

(2) From the start of use until 5 years lapses.

2.2 Paper Specifications

2.2.1 Paper sizes

Canon recommends the following papers:

Paper type		Size	Stacked in the ASF	Paper thickness lever position
Plain paper	Measurement: 64-90 g/m²	A4/B5/A5/ LTR/LGL	10 mm or less (Approx. 100 sheets of 75-g/m² paper)	Up
Color BJ paper	LC-301	A4/B5	75 sheets	Up
High-resolution paper	HR-101	A4/B5/LTR	80 sheets	Up
Glossy photo paper	GP-301	A4/LTR	10 sheets*	Up
Glossy photo film	HG-201	A4/LTR	1 sheet	Up
OHP film	CF-102	A4/LTR	10 sheets**	Up
BJ cloth	FS-101	(L)356 x (W)251 mm	1 sheet	Down
Banner paper	BP-101	A4/LTR	1 sheet	Down
T-shirt transfer	TR-201	A4/LTR	1 sheet	Up
Glossy photo card	FM-101	(L)216 x (W)119 mm	1 sheet***	Up
Envelope	COM#10	(L)105 x (W)241 mm	10 sheets or less	Down
	DL	(L)110 x (W)220 mm	10 sheets or less	Down
Photo paper pro	PR-101	A4/LTR	1 sheet*	Up
Thick paper	Measurement: 91-500 g/m²	A4/LTR	Manual feed only	Down

* Always use GP-301/PR-101 with the cleaning plate underneath it.

** Always use OHP film with a sheet of plain paper beneath it.

*** Always use glossy photo paper with the associated auxiliary sheet beneath it.

2.2.2 Paper measurement

Automatically-fed paper	64-90 g/m²
Manually-fed paper	64-500 g/m² (up to 0.6 mm)

2.2.3 Printable area

Refer to *Figure 1-2 Printable Area*.

2.3 BJ Cartridge

Construction	6 color integrated head, with separately-replaceble ink tanks for each color
Print head	256 x 6 nozzles (Placed in line for each color)
Ink color	BK, C, M, Y, Photo-C, Photo-M
Ink tank	6 separate tanks (One tank for each color)
Weight	Approx. 80 g (excluding ink tanks)
Cartridge life	5000 sheets (7.5%-duty print pattern) or 2 years in box/1 year out of box.
Print capacity	Approx. 240 sheets/tank (7.5%-duty print pattern)

Note) The BJ head, available as a consumable part, does not include ink tanks.

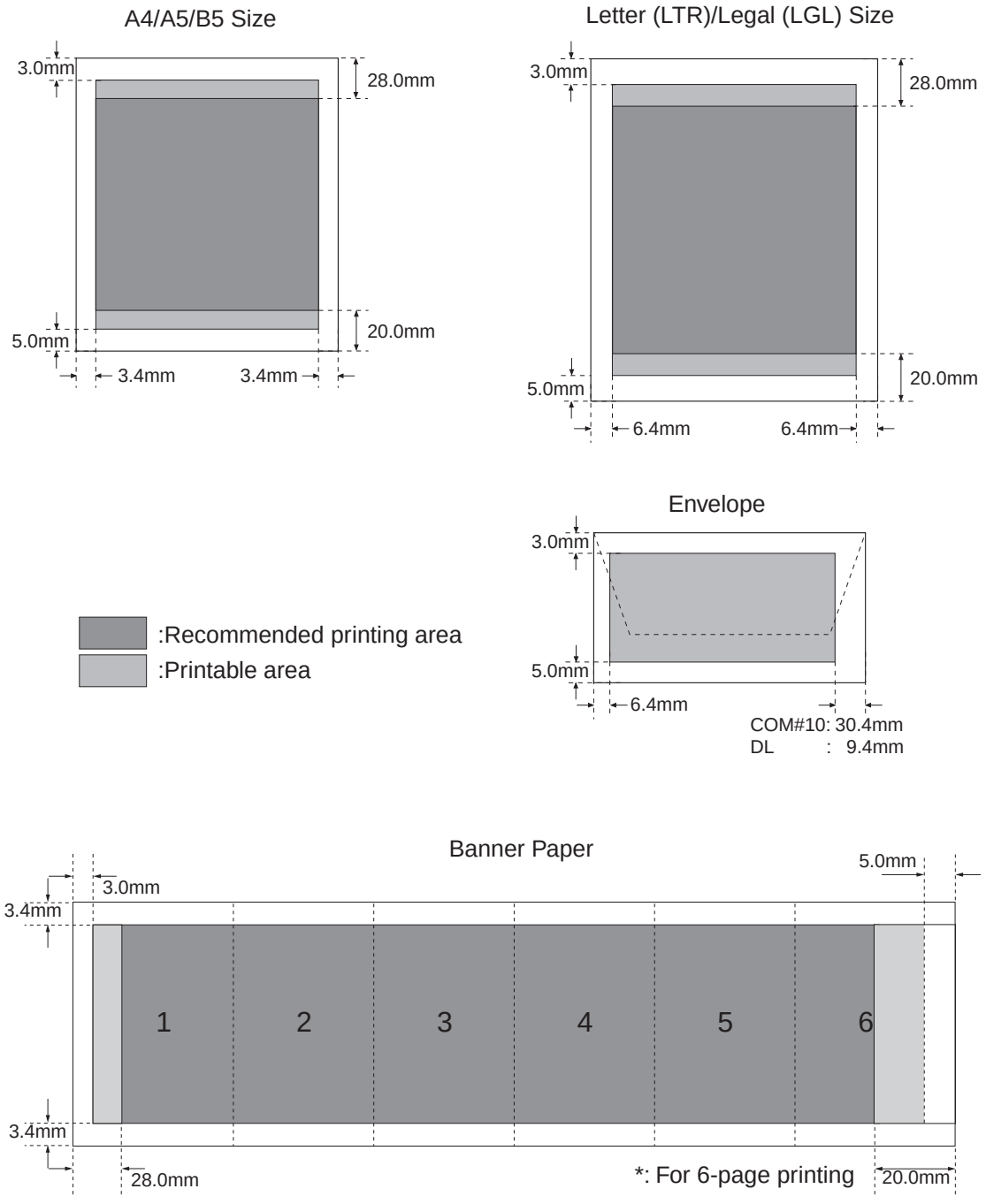

Figure 1-2 Printable Area

2.4 Interface Specifications

2.4.1 Parallel interface

1) Interface type
IEEE 1284 compatible parallel interface
2) Data transfer:
8-bit parallel transfer method (Compatible/nibble/ECP mode supported)
3) Signal voltage levels

Input:	"Low" level: 0.0V to +0.8V
	"High" level: +2.4V to +5.0V
Output:	"Low" level: 0.0V to +0.8V
	"High" level: +2.4V to +5.25V

4) Input/Output
Each signal pulled up with +5V
5) Interface cable
Twisted-pair double shielded cable
Material: AWG No. 28 or higher (AWG: American Wire Gauge)
Length: Up to 2.0 m.
6) Interface connector:

Printer-side	Amphenol 57-40360 (or equivalent)
Cable-side	Amphenol 57-30360 (or equivalent)

7) Input/Output signal and pin arrangements
Refer to *Part 5: 2. CONNECTOR POSITIONS AND PIN ASSIGNMENT* (Page 5-6) for details.

2.4.2 Serial (USB) interface

1) Interface type
USB Interface (Universal Serial Bus; USB Specification Release 1.0)
2) Data transfer:
Control transfer method
Bulk transfer method
3) Signal voltage level
Input:

Input difference sensitivity:	+0.2V (Max)
Common-mode difference:	+0.8V to +2.5V

Output:

Static output high:	+2.8V to +3.6V
Static output low:	0.0V to +0.3V

4) Input/Output
Each signal pulled up with 3.3V
5) Interface cable

Cable	Twisted pair shielded cable, up to 2.0 m
	Full-speed mode must be supported.
Material:	AWG No. 28 or higher (AWG: American Wire Gauge)

6) Interface connector

Printer-side	USB standard, Series B receptacle
Cable-side	USB standard, Series B plug

7) Input/Output signal and pin arrangements
Refer to *Part 5:2. CONNECTOR POSITIONS AND PIN ASSIGNMENT* (Page 5-6) for details.

2.5 Printer Driver

The drivers that can be used for this printer:

1) For Windows:
   Raster driver (For Win3.1/95/98)
   Raster driver (For Win NT4.0/(5.0))
2) For Macintosh:
   Macintosh driver for USB I/F
   Serial I/F drivers are not available.

2.6 Scanner Cartridge IS-52 (Optional)

Type	Cartridge replacement type color scanner
Light source	3 LED's for RGB
Resolution	600x600, 300x300, 200x200, 150x150, and 75x75 dpi
Paper width	208.2mm
Scannable band width	Up to 10.8mm
Paper thickness	Up to 0.25mm
Operation environment	OS: Win98/95/NT4.0, Mac OS 8.1 or later I/F: Parallel (IEEE1284-compliant)/USB Memory: 8MB (16MB or more recommended.) Unused Disk space: (50MB at least)
Life span	1200 sheets (A4 paper)

3. NAMES OF PARTS AND THEIR FUNCTIONS

3.1 Names of Parts and Their Functions

The following shows the names of the printer parts and their major functions:

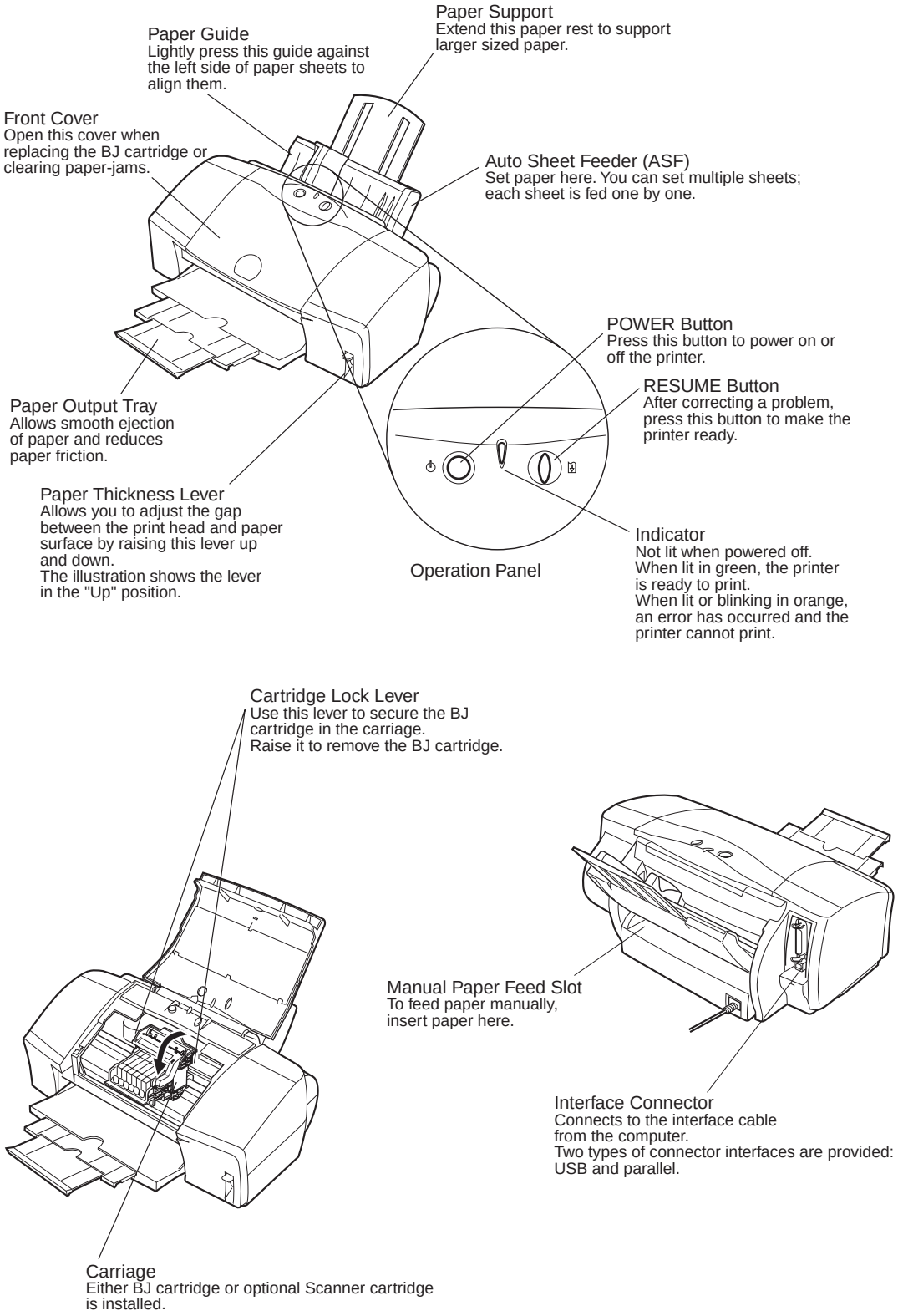

Figure 1-3 Names of Parts and Their Functions

Part 2

MAINTENANCE

1. PERIODICAL REPLACEMENT/MAINTENANCE

1.1 Parts for Periodic Replacement

Level	Parts for periodical replacement
User	None
Service personnel	None

Level	Consumable
User	BJ cartridge (Ink tanks not included) Ink tank (Black) Ink tank (Cyan) Ink tank (Magenta) Ink tank (Yellow) Ink tank (Photo cyan) Ink tank (Photo magenta)
Service personnel	None

1.2 List of Periodic Maintenance

Level	Location
User	None
Service personnel	None

2. DISASSEMBLY AND REASSEMBLY

2.1 List of Tools

The following are the tools necessary for disassembly and reassembly:

Ordinary tools	Note
Philips screwdriver	For removing and replacing screws
Blade screwdriver	For removing plastic parts
Long-nose pliers	For removing and replacing springs
Tweezers	For removing and installing flexible cables
Flat brush	For applying grease (one per grease type)
Multimeter	For troubleshooting

Special tools (part No.)	Note
Grease MOLYKOTE PG-641 (CK-0562-000)	To be applied to specified locations (*See Page 2-8*)
Grease EU-1 (QY9-0037-000)	To be applied to the portion of the guide shaft which the carriage slides over.

2.2 Operation Precautions

2.2.1 Ink paths

Be careful not to touch the ink paths. Ink on hands could stain the printer, work table, or clothes. The ink paths include the BJ cartridge ink tank outlet, the BJ cartridge ink filters and nozzles, the maintenance jet receiving section, the head caps, the wipers, and the waste ink absorber.

CAUTION

The ink is not harmful to the human body, but contains some organic solvents.
Black, cyan, magenta, photo cyan, and photo magenta ink contain glycerin 56-81-5, isopropyl alcohol 67-63-0, ethylene glycol 107-21-1, and di-ethylene glycol 111-46-6 respectively. Yellow ink contains glycerin 56-81-5 and isopropyl alcohol 67-63-0.
Be careful not to get the ink into your mouth or eyes. If the ink gets into your eyes, wash with plenty of water and consult a doctor. In case a large amount of ink has been swallowed, consult a doctor immediately. The ink contains dyes. If clothing is stained with the ink, the ink may not be removed completely.

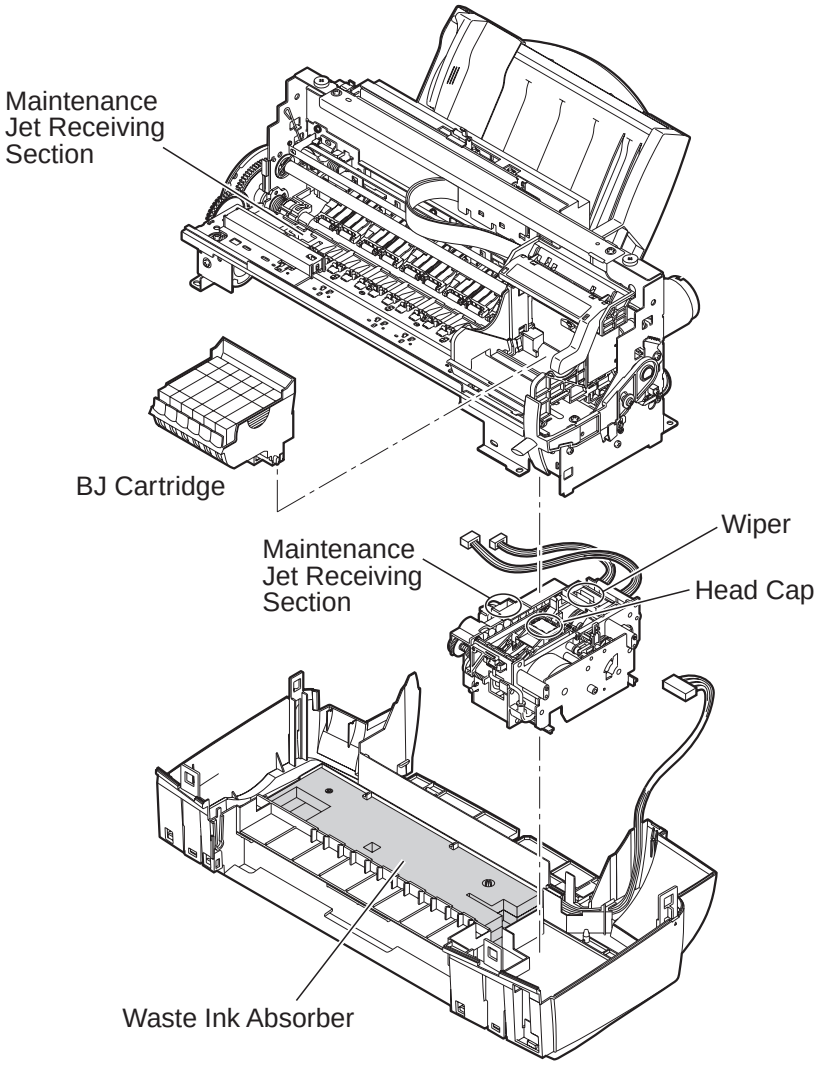

Figure 2-1 Ink Paths

2.2.2 Ink mist

The BJ cartridge ejects ink onto the paper during printing. After the printer is used for a long period or used heavily, the ink mist bouncing back from the paper could accumulate and soil the front cover, platen, and the area around the operation panel, purge unit, and paper output tray.
Carefully wipe off the ink mist with a soft dampened cloth so that hands or clothing will not be stained by soiled parts during servicing.
Also, be careful not to smudge the pick roller when removing the upper cover.

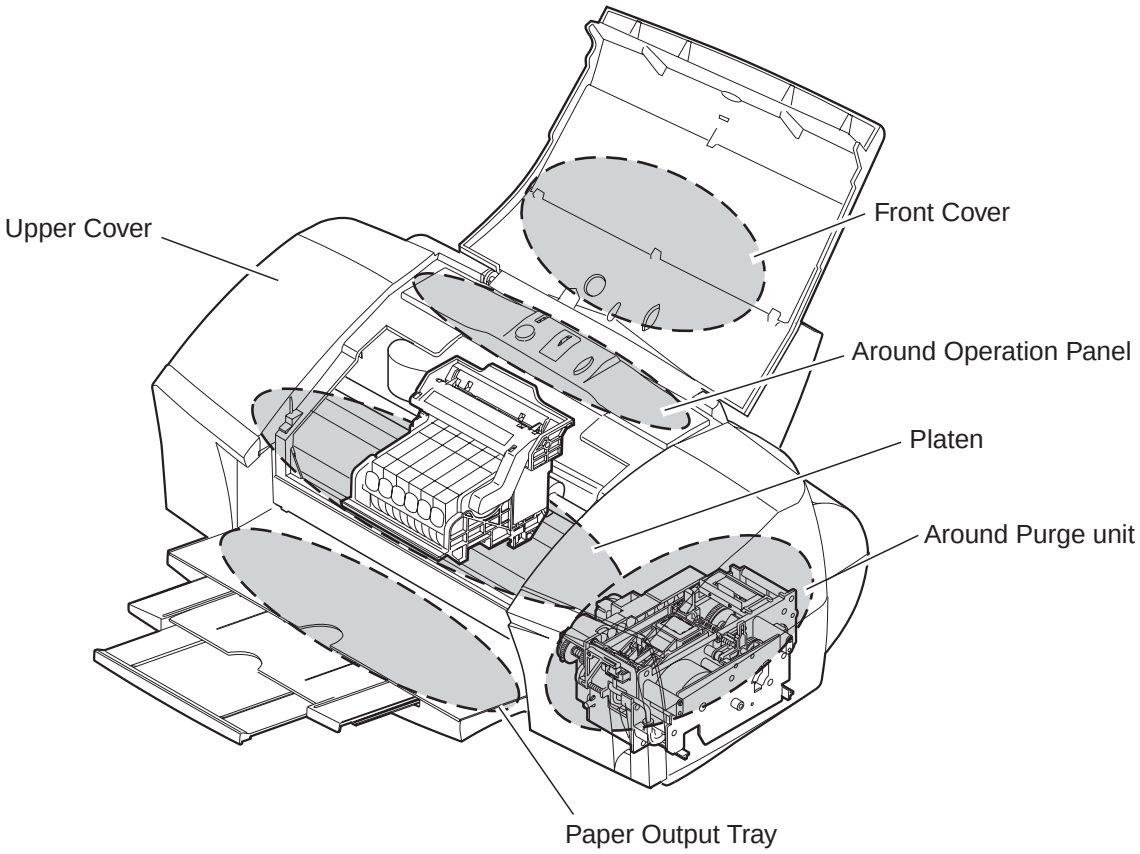

Figure 2-2 Ink Mist

2.2.3 Precautions for damage due to static electricity

Static electricity can be generated by clothing rubbing against each other and may accumulate in the body. If you touch electrical elements, the discharge of static electricity could damage them, or change their electrical characteristics. For this reason, avoid touching the ink sensor contacts or the printer's BJ cartridge contacts.

2.2.4 Precautions for transporting the printer

When turned off by the *POWER* button, the BJ cartridge is capped and the carriage is locked in place at the capping position by the lock arm. When the printer cannot be powered off by the *POWER* button for transportation, etc., move the carriage to the capping position by hand and secure it with tape before transporting the printer. Remove the ink tanks and keep them in a vinyl bag while the printer is being transported.

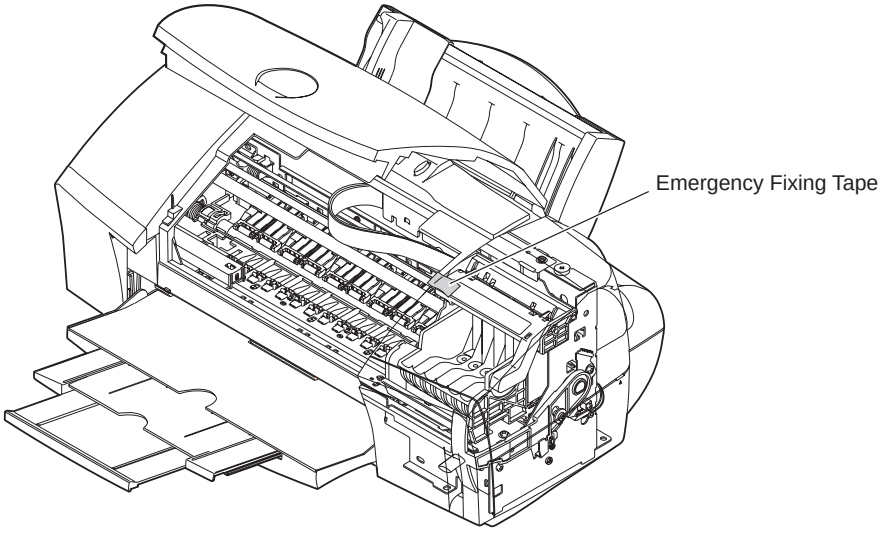

Figure 2-3 Capping Position

2.2.5 Precautions on spur tip deformation

Take care not to bend the tips of the spurs. The tips of the spurs make contact with printed paper and are contaminated with ink, but due to their small surface contact area, the tips, cleaned by the spur cleaners, will not stain the printed paper. However, if the tips are bent and their contact surface area increases, they collect more ink and are not easily cleaned by the spur cleaners, and thereby stain the printed paper by making dotted lines on it.

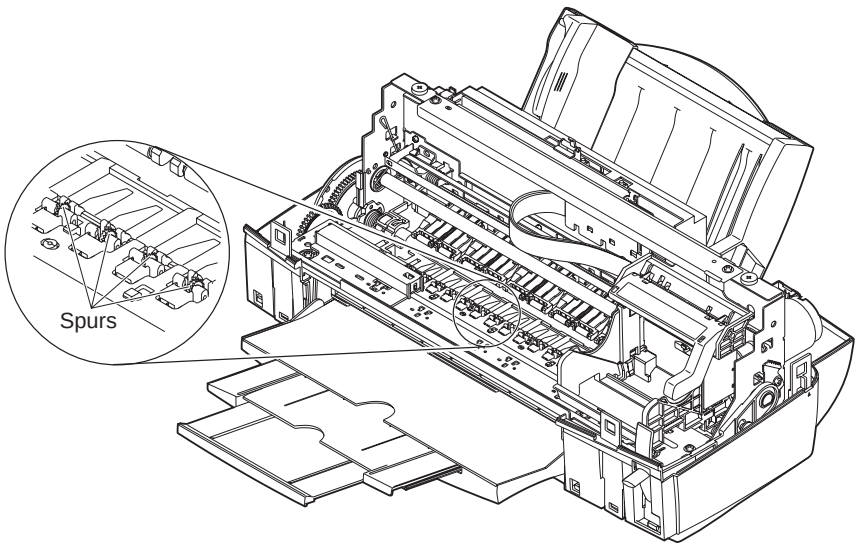

Figure 2-4 Spur Unit

2.3 Precautions for Disassembling and Reassembling the Printer

Note the following when disassembling or reassembling the printer. When disassembling or reassembling the printer, refer to the parts catalog. The numbers in the parts catalog illustrations indicate the disassembly sequence.

2.3.1 Unlocking the carriage

When the printer is shipped from the factory (or when the cartridge is installed and the power has been turned off normally), the carriage is locked in the capping position to secure the cartridge during transportation.

When the printer is powered on properly, the carriage is unlocked automatically. If the printer cannot be powered on normally, it will be necessary to manually unlock the carriage. This can be done by turning the gear of the purge unit in the direction of the arrow by finger, as shown in *Figure 2-5 Unlocking the Carriage*.

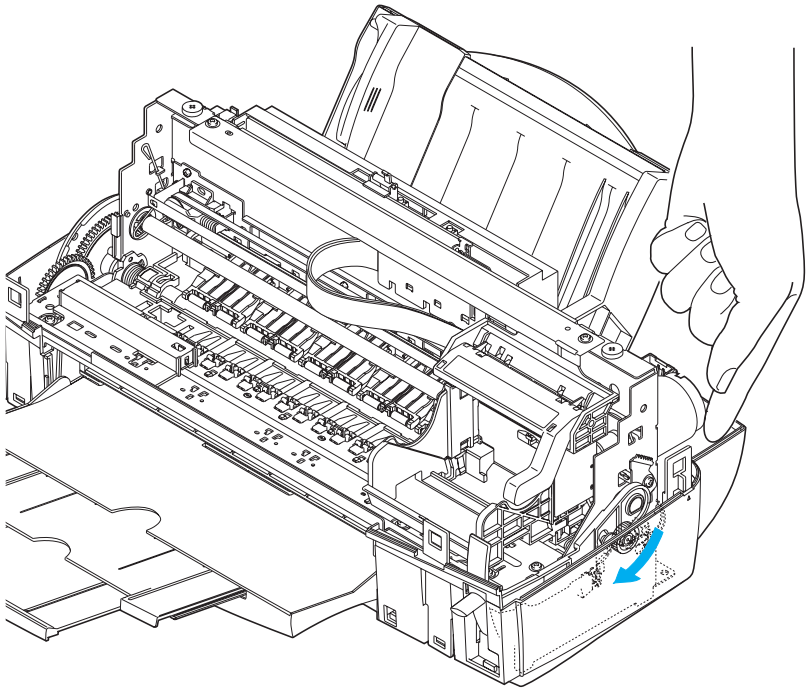

Figure 2-5 Unlocking the Carriage

2.3.2 Removing/installing self tap screws

The printer unit is secured to the lower case with tap screws. Once the tap screws have been removed, pieces of the molding remain attached to the screw threads. Reinstalling the tap screws in this condition can damage the screw threads. To prevent this, when reinstalling screws, remove the remains in advance or, where possible, use new screws. Also, blow away any remains on the mold before reinstalling the tap screws.

2.3.3 Adjustable bushings supporting the carriage shaft

The adjustable bushings supporting the carriage shaft are adjusted and secured to the printer frame so that the ideal gap, or head gap, between the BJ cartridge nozzle and platen is maintained for best print quality.

The fixing screws are painted red to protect against careless removal. Do not loosen the fixing screws.

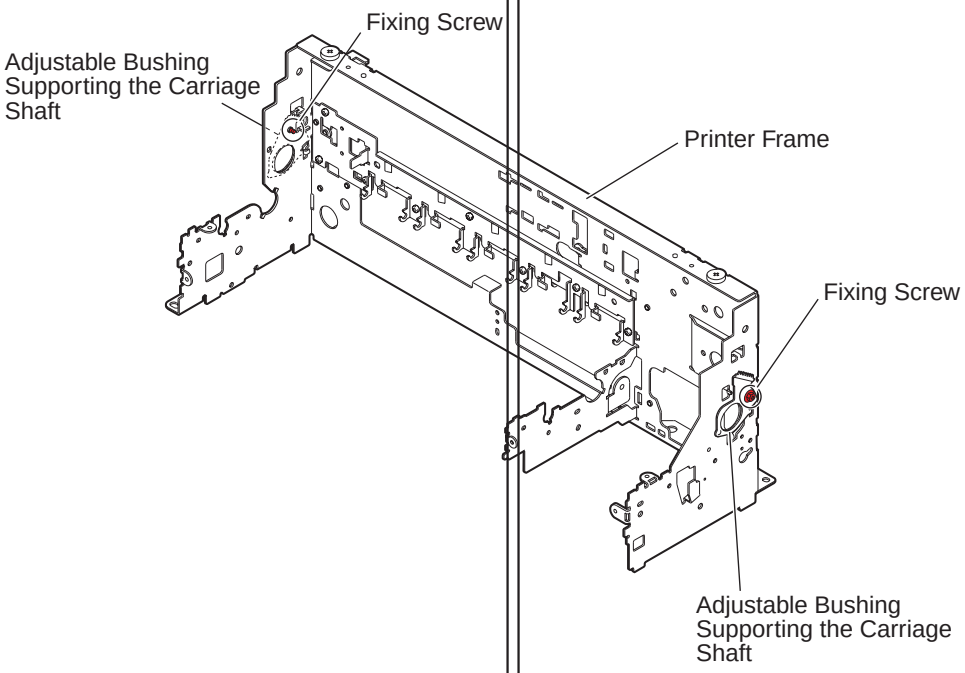

Figure 2-6 Adjustable Bushings Supporting the Carriage Shaft

2.3.4 Feed gear

Be careful not to touch the gears in the paper feed unit, especially the feed roller gear, during disassembling or reassembly. Although covered, even slight damage to it could affect paper feeding when printing at high resolution.

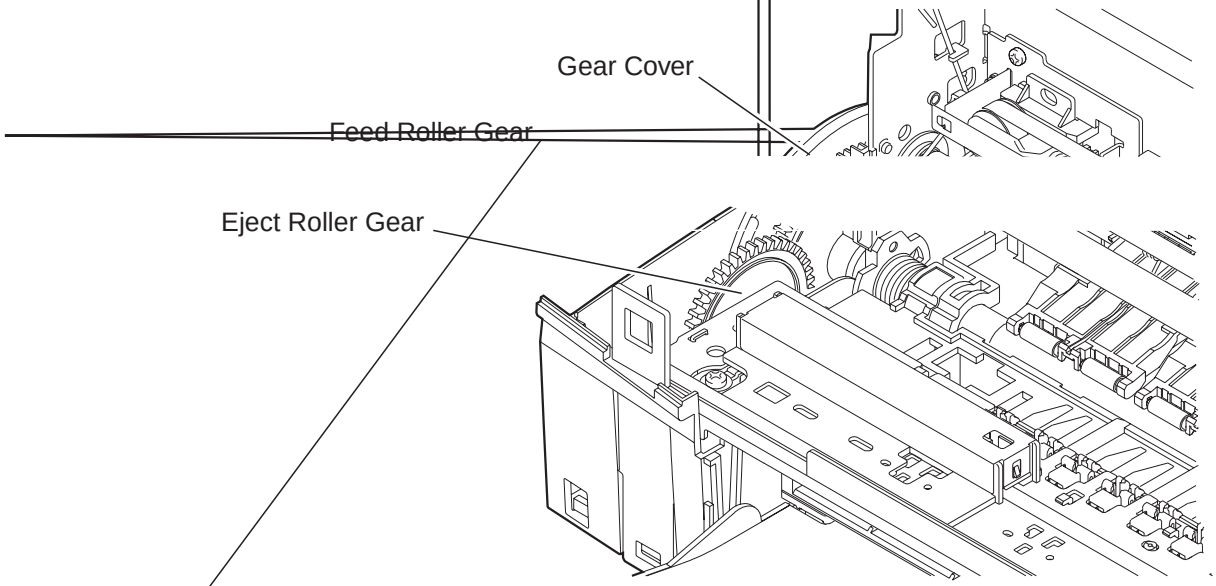

Figure 2-7 Precautions on Feed Gears

2.4 Grease Application

Apply greases at the points shown below.

Apply a thin film of grease using the flat brush. For the grease (EU-1) for the grease pad, do not use a brush but apply directly. For printer disassembly and reassembly procedures, refer to the parts catalog.

CAUTION

When applying greases, be careful to not get any on the wiper, cap, or encoder film. If grease is applied to them, wipe them clean immediately.

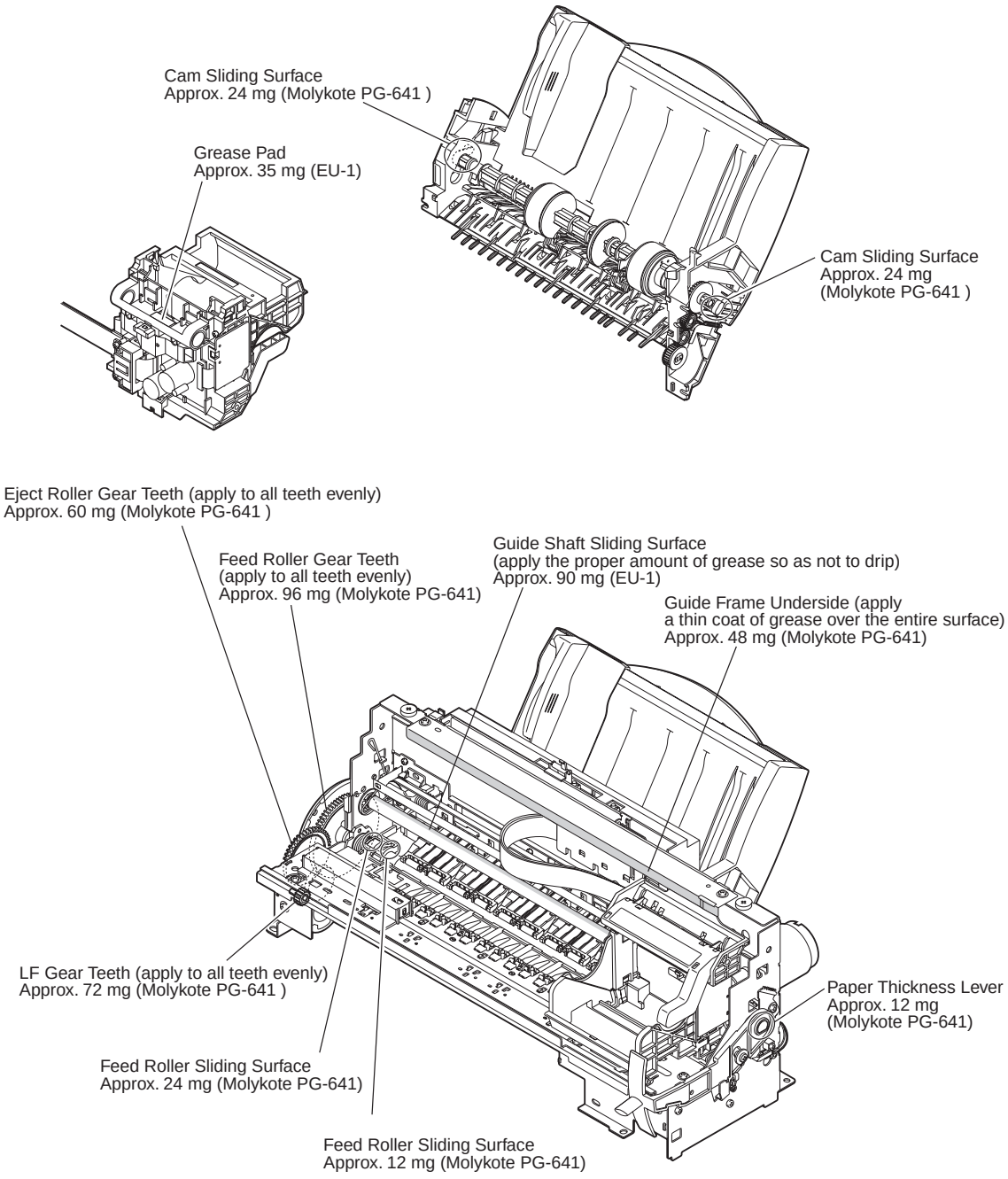

Figure 2-8 Grease Points