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BJC-1000

SERVICE MANUAL

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BJC-1000

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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All documents and all page layouts were created with QuarkXPress™ 3.3J.

I. ABOUT THIS MANUAL

This manual is divided into five sections, and contains information required for servicing the unit.

Part 1: Safety and Precautions

This section tells you how to service the unit safely. It is very important, so please read it.

Part 2: Product Specifications

This section outlines the products specifications.

Part 3: Operating Instructions

This section explains how to operate the unit properly, and contains information required for installation and service.

Part 4: Technical Reference

This section outlines the way the unit operates so you can understand it technically.

Part 5: Maintenance

This section explains how to maintain the unit. Descriptions of assembly/disassembly, adjustment for assembly, troubleshooting procedures, and wiring/circuit diagrams are given.

Procedures for assembly/disassembly are not given in this manual.
See the illustrations in the separate *Parts Catalog*.

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Part 1

SAFETY AND PRECAUTIONS

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1. PERSONAL SAFETY PRECAUTIONS

1.1 Moving and Rotating Parts

Be careful not to let your hair, clothes, accessories, etc., become caught up in the moving and rotating parts of the printer. The moving and rotating parts, the carriage belt, idler roller, and carriage, are driven by the carriage motor, and the slow down gear, paper feed roller, pressure roller, eject roller, spurs, and pick-up roller, etc., are driven by the paper feed motor.

Be careful not to touch the spurs as they are sharply pointed.

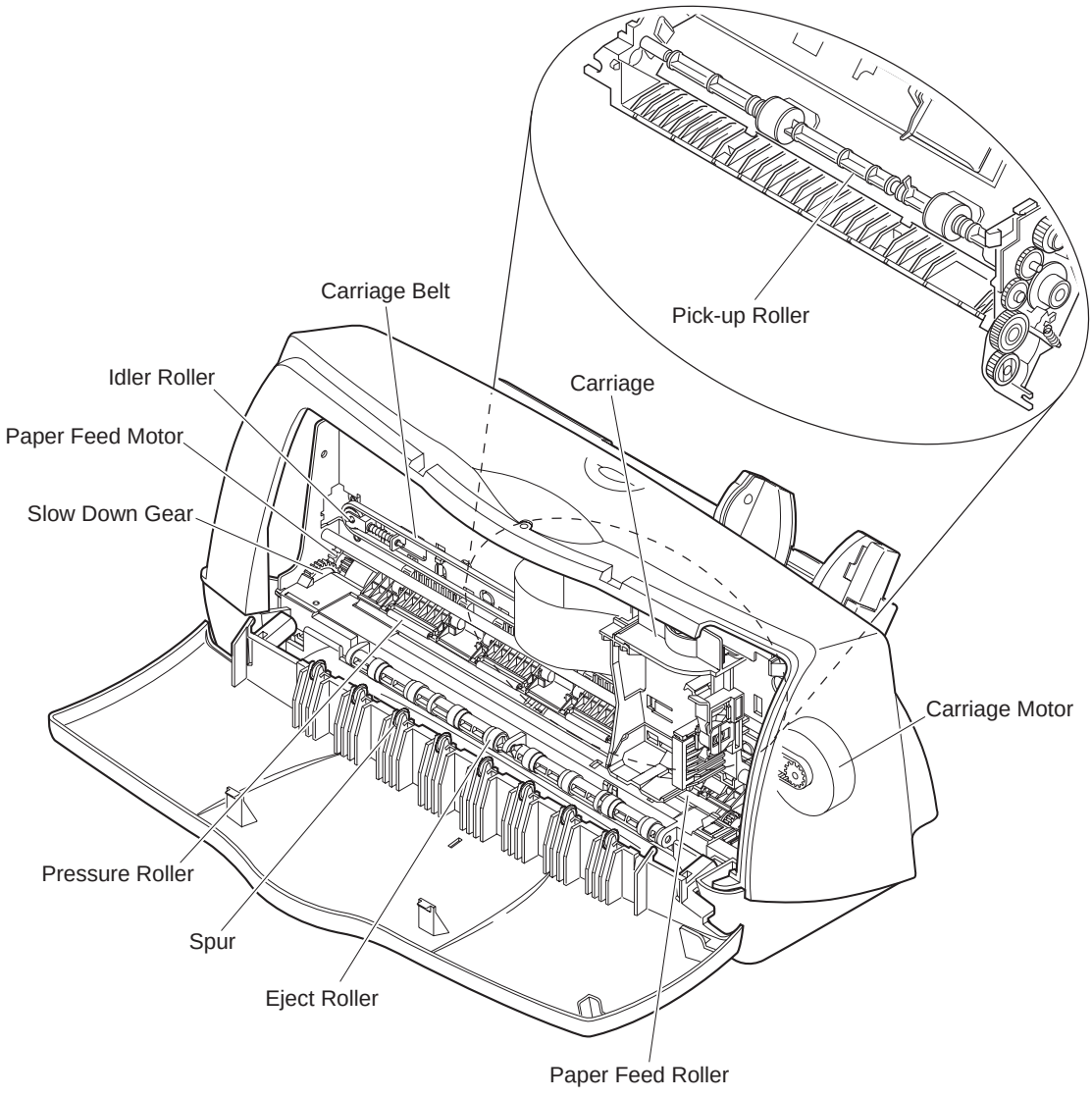

Figure 1-1 Moving and Rotating Parts

1.2 Ink Stains

1.2.1 Ink path

Be careful not to touch the ink path as it may stain the printer, your hands, or clothes during repair.
The ink path is the nozzle section of the BJ cartridge, head cap, head wiper, maintenance jet receiving section, and the waste ink absorbers.
For the color BJ cartridge, the ink inlets of the ink cartridge and the joint pipes of the print head body are also part of the ink path, so take the same care with them.

CAUTION

The ink is not a harmful substance to the human body, but it does contain organic solvents.

Black ink: isopropyl alcohol 67-63-0, glycerin 56-81-5
Color ink: isopropyl alcohol 67-63-0, glycerin 56-81-5

Take care not to get ink in the mouth or eyes. If ink does get into the eyes, wash it out with plenty of water and consult a doctor immediately. If, for some reason, a large amount of the ink is swallowed, consult a doctor immediately.
Please provide the doctor with the information printed on the BJ cartridge label. This ink contains dyes, and cannot be removed from clothing, etc.

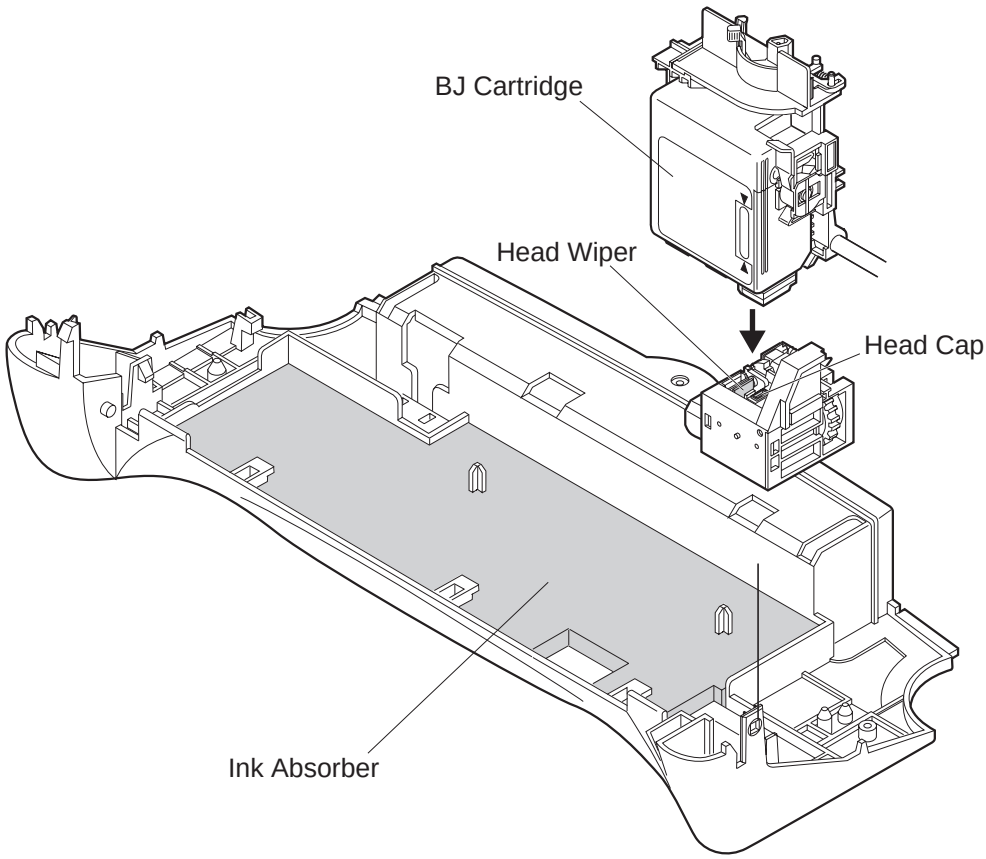

Figure 1-2 Ink Path

1.2.2 Ink mist

The BJ cartridge ejects ink onto the paper. However, after the printer has been used for a long period of time or under heavy duty use, a small amount of ink mist bouncing back off the paper during printing can dirty the inside of the front cover and platen area.

Wipe the dirty areas with a soft damp cloth as this ink can dirty the paper, or the hands or clothing of service personnel.

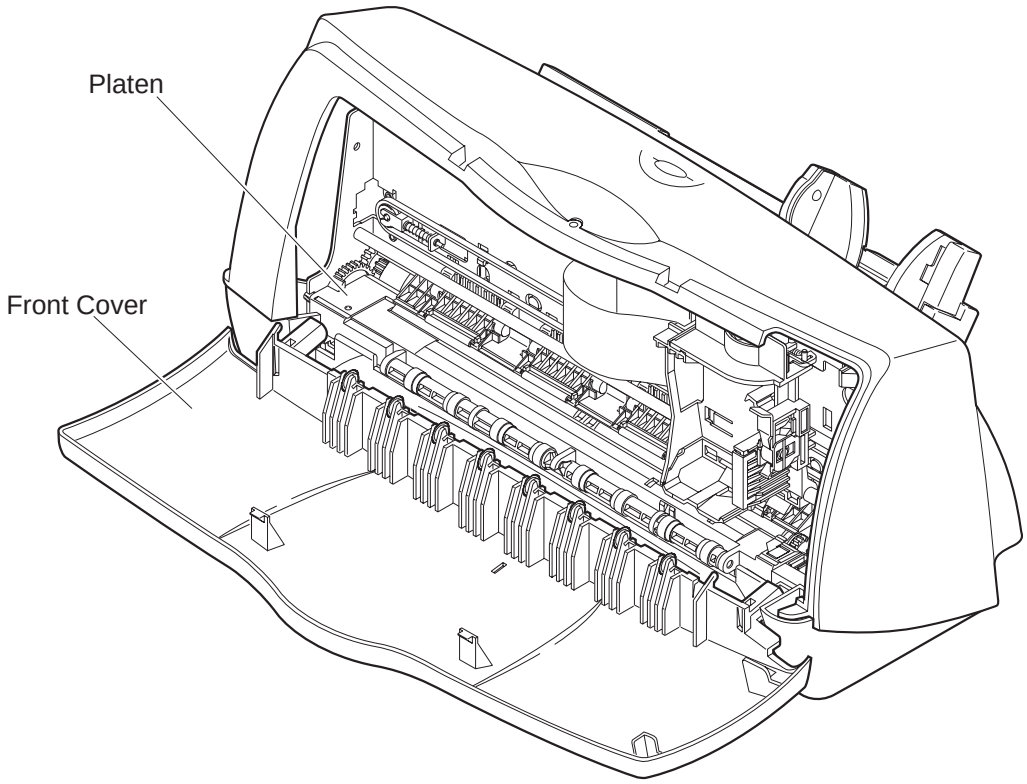

Figure 1-3 Ink Mist

2. MACHINE PRECAUTIONS

2.1 Precautions for Handling BJ Cartridges

2.1.1 Turning the printer ON/OFF

The printer will automatically cap the cartridge heads one minute after printing operations are completed, to prevent the ink from leaking or drying out.
When unplugging the power cord, wait at least one minute after completing an operation such as printing, feeding paper, cleaning the print head, etc.
If the power cord is accidentally unplugged before one minute has passed, replug the AC adapter and wait for more than one minute before unplugging the power cord.

CAUTION

If the nozzles are not capped, the ink may leak or dry out, causing the nozzles to clog.

2.1.2 When the printer is not in use

BJ cartridges should be stored either installed in the printer or in the BJ cartridge container.

CAUTION

If the BJ cartridge is removed from the printer or BJ Cartridge Container, the ink may leak or dry out, causing the nozzles to clog.

2.1.3 Transportation precautions

When transporting the printer, follow the procedure below.

1) Disconnect the interface cable and AC power cord as described above in *Part 3: 1.3 Setup Procedure (page 3-3)*.
2) Put the BJ cartridge in the BJ cartridge container.
3) Repack the printer in its original box and packing materials.

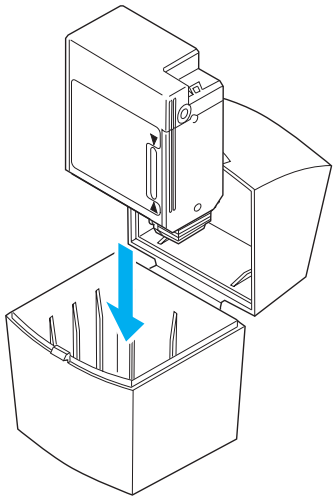

Figure 1-4 Storing the BJ Cartridge

NOTE

If you do not have the original packing materials, use an ample amount of shock-absorbing materials.

2.1.4 Ink electroconductivity

The ink in the BJ cartridge is electroconductive. If ink leaks into the printer's mechanical parts, use a damp paper towel, etc., to wipe clean. If it leaks into the printer's electrical components, use tissue paper, etc., to wipe clean completely. If ink gets into the IC chips on the PCB and it is difficult to clean, replace the PCB.

If ink has leaked inside the printer, do not plug in the power cord. It may damage the circuitry.

2.2 Printer Handling

2.2.1 Spur deformation prevention

Do not deform the spurs. If spurs are deformed, their contact area with the printed paper increases, causing more ink to adhere. This can lead to the paper becoming stained with ink. (A dotted line may appear where the spurs have contacted the paper.)

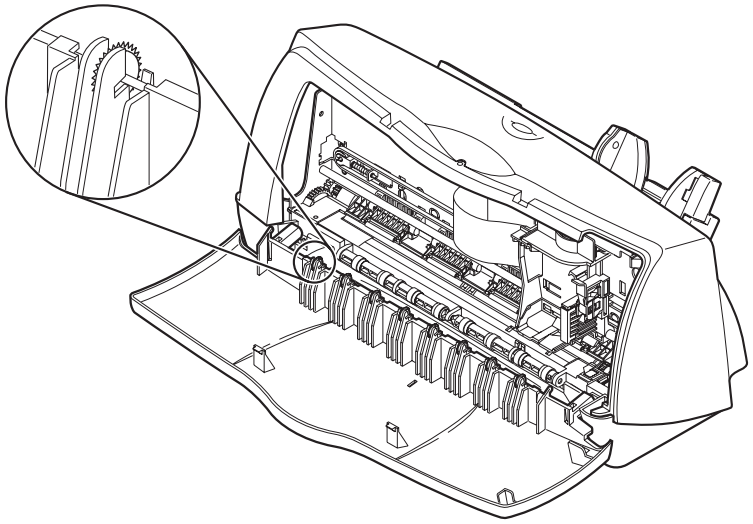

Figure 1-5 Spurs

2.2.2 Precautions to prevent damage from static electricity

The electrostatic charge accumulated on clothing can damage electric elements and their characteristics. Do not touch the contact points of the carriage ribbon cable and BJ cartridge.

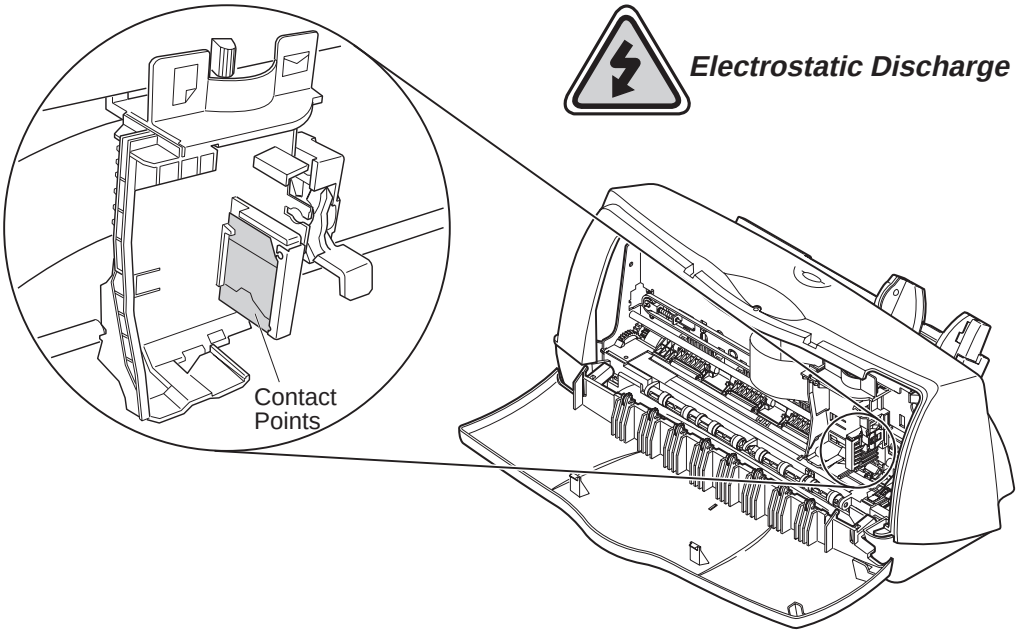

Figure 1-6 Contact Section of the Carriage Ribbon Cable

2.2.3 Ink leakage precautions

Do not carry, pack or store the printer without a BJ cartridge installed. The ink within the purge unit may flow back and contaminate the inside of the printer. When packing up the printer, make sure the carriage is in the capping position (the right end of the platen).

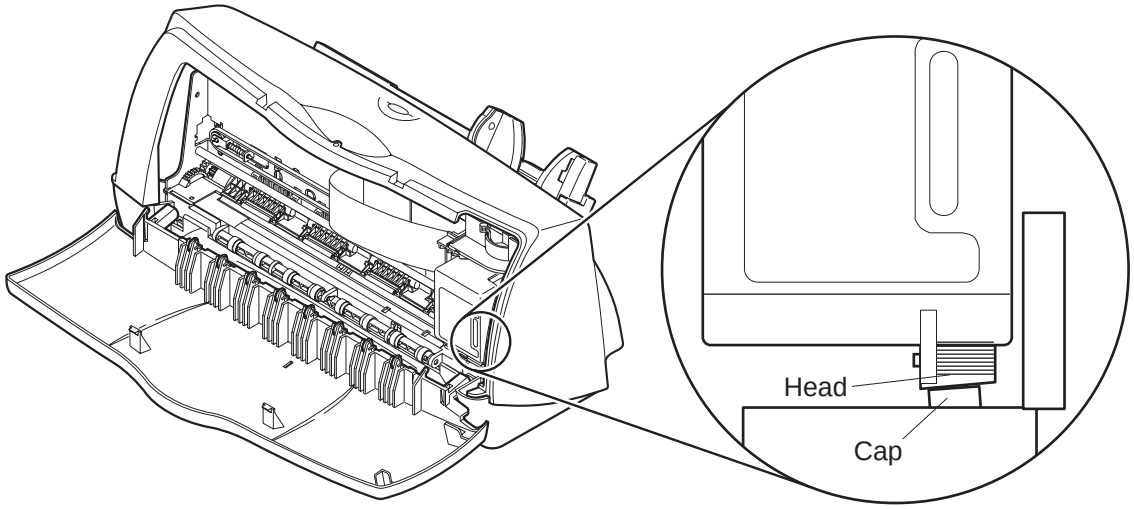

Figure 1-7 Capping Position

3. PRECAUTIONS FOR SERVICE

3.1 EEPROM Data Precautions

The printer keeps track of various settings, the total waste ink amount, and the total sheets printed with the black, color and photo BJ cartridges. This data is stored in the EEPROM on the logic board. Note the following precautions during servicing:

1) Before servicing

Check the EEPROM data with a test print. The total sheets printed can give you an idea of how much the printer has been used.

2) During logic board (EEPROM) replacement

Always visually check the waste ink amount absorbed by the waste ink absorbers and replace them when necessary as explained in *Part 5: 3.3 Logic Board and Bottom Cover Replacement Cautions (page 5-4).*

If the waste ink absorbers are not visually checked regularly, they may reach or exceed their full capacity before "waste ink full" is detected. The waste ink may therefore start leaking.

The memory data for the replacement logic board (EEPROM) is not defined. Therefore, after replacing the logic board (and EEPROM), reset the total waste ink amount to zero by clearing the data.

3) After bottom cover unit replacement

After replacing the bottom cover unit, reset the total waste ink amount to zero by clearing the EEPROM data.

After the EEPROM is reset, the data it contained cannot be printed out with a test printout. If you want to check the stored data, be sure to execute test printout before resetting the EEPROM.
When the stored data is reset, the various settings, the total count of printed sheets, and the total waste ink amount will all be reset. The total sheets printed and waste ink amount cannot be input using the operation panel.

Immediately after the printer is turned on, it keeps track of the estimated waste ink amount based on the usage conditions. To prevent ink leakage when the waste ink amount exceeds the waste ink absorption capacity, the printer stops printing and indicates an error when the waste ink absorption capacity is close to being full.
For details on checking the EEPROM data with a test printout and for clearing the data, see *Part 3: 2.4 EEPROM Reset (page 3-13)*.
If the printer stops operating in the case of a waste ink full error, follow the countermeasures described in *Part 5: 4.1 Troubleshooting (page 5-5)*.

3.2 Static Electricity Precautions

The electrostatic charge accumulated in clothing can damage electric elements and their characteristics. In order to prevent static electricity, touch a metallic part that is grounded to release the static electricity before disassembling the printer for servicing. Before discharging static electricity, do not touch electrical sections such as the logic board and contact points of the carriage ribbon cable (see *Figure 1-6*) when the carriage ribbon cable is connected to the logic board.

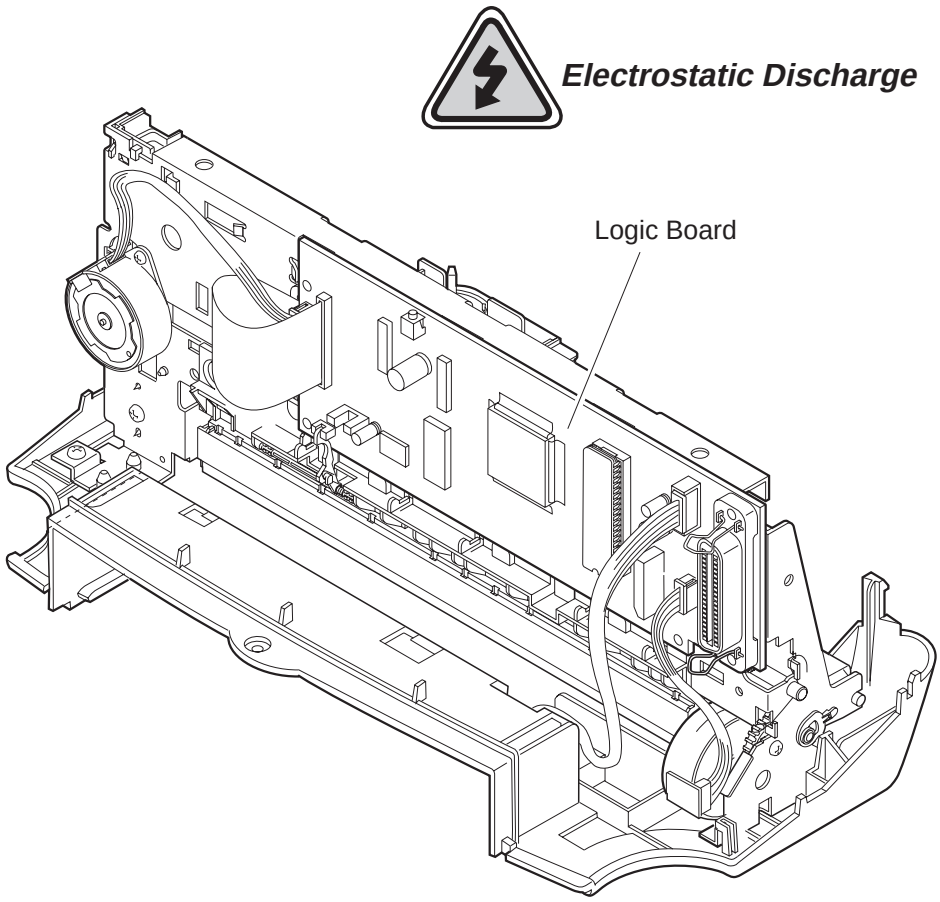

Figure 1-8 Printer Electrical System

3.3 Disassembly and Reassembly Precautions

The printer is comprised of a large number of plastic parts. When disassembling the printer, take care not to break or bend plastic hooks.

CAUTION

Some plastic parts contain glass fibers for extra rigidity and precision, but since their viscosity is low, plastic hooks can break easily when excessive force is used. Use a precision screwdriver, and do not pull plastic hooks with excessive force when unhooking them.

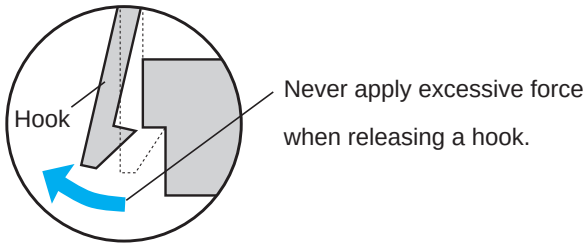

Figure 1-9 How to Release Plastic Hooks

3.4 Built-in Self-diagnostic Functions

The printer has built-in self-diagnostic functions to detect hardware defects. The results of self-diagnosis are indicated on the host computer's screen as an error. (The host computer should be set in nibble mode, and use the BJ status monitor under Windows 95/98.) For details, refer to *Part 3: 2.1 Error Indications (Page 3-10)*.

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Part 2

PRODUCT SPECIFICATIONS

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1. PRODUCT OUTLINE

1.1 Product Outline

This printer enjoys the realization of photo-like high image quality printing.
The printer uses three types of BJ cartridges: the color BJ cartridge, the photo BJ cartridge and the black BJ cartridge. The printer is capable of high-speed, high-quality 360 dpi × 360 dpi (H × V) printing. Also, with the black BJ cartridge, smoothing can be used to obtain a resolution of 720 dpi × 360 dpi (H × V).
This new compact printer is light in weight and very economically priced.

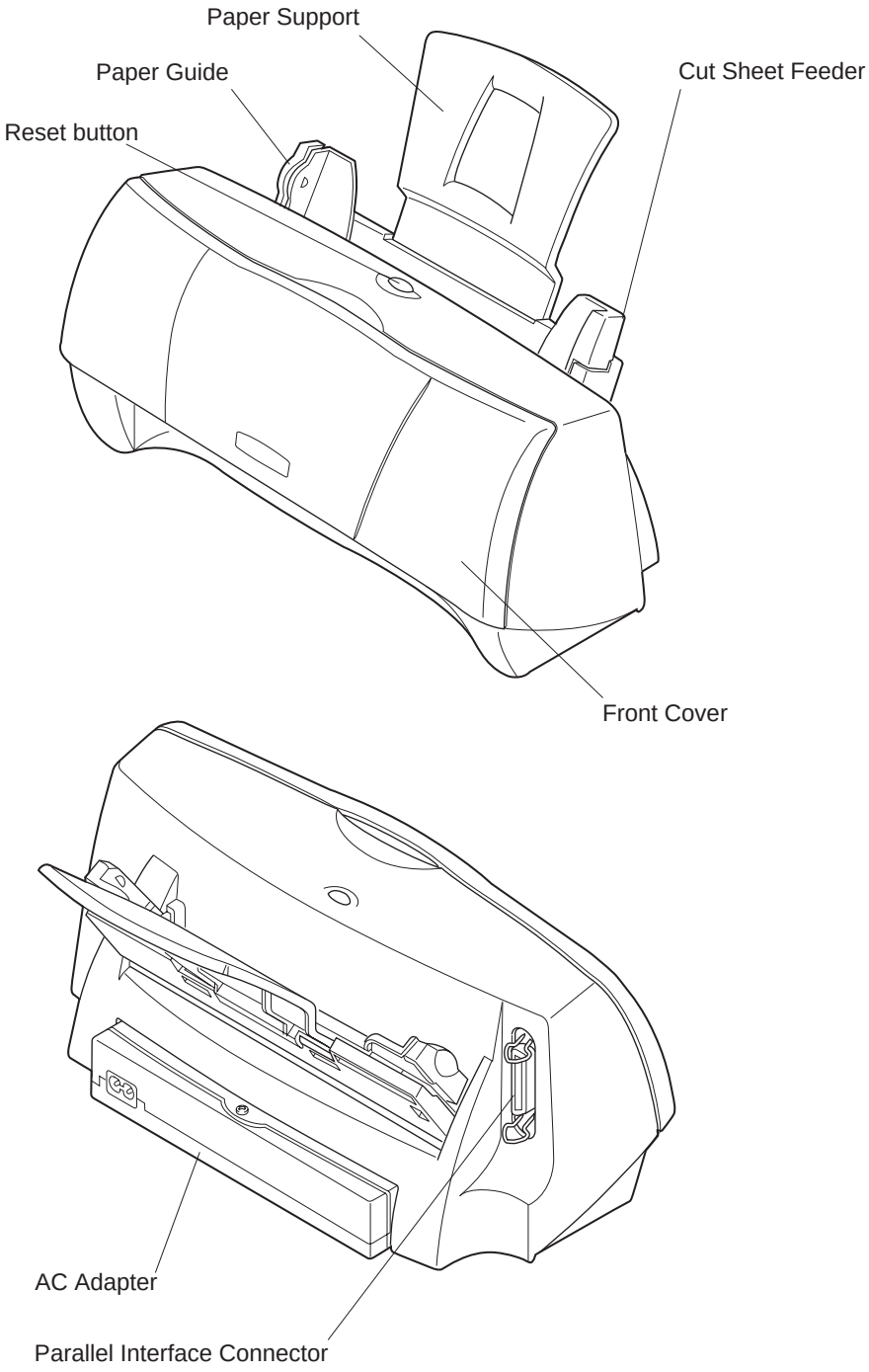

Figure 2-1 Printer Appearance

1.2 Features

1. Compact (desk-top size)
   External dimensions: 360 mm (W) × 174 mm (D) × 160 mm (H)
   Weight: Approx. 2.2 kg (4.9 lbs) (excluding BJ cartridge and options)

2. Only *RESUME* button on the operation panel (No LED and buzzer)
   Errors will be displayed on the host computer monitor. (The host computer should be set to Nibble mode and use the BJ status monitor with Windows95/98.)

3. New AC adapter

4. High quality printing of 720 × 360 dpi
   (Smoothing: With black BJ cartridge BC-02 and exclusive printer driver)

5. Windows exclusive printer (used with the Canon original printer driver)

6. Photo printing capability

7. Banner printing capability

8. New image processing technology “Image Optimizer” supported by the driver.
   (Image optimizer: a function to reduce “jaggies” which occur when enlarging low resolution images.)

9. Improved printer driver color matching processing

10. Device ID and status response function compatible with Windows95/98 Plug & Play
    (Responds to the device ID/status of nibble mode)

11. New leverless sheet feeder

12. New carriage

1.3 BJ Cartridge

1.3.1 Color and Photo BJ cartridges

The color and photo BJ cartridges each contain 3 ink colors; yellow, magenta and cyan. With these 3 colors, composite black can be produced.
The first 16 nozzles are for yellow, the following 8 nozzles are unused, the second 16 nozzles are for magenta, then 8 nozzles unused, and the third 16 nozzles are for cyan. They are lined vertically.
When using the color or photo BJ cartridge, 360 (H) × 360 (V) dpi printing is possible.
Photo-like printing can be realized by using the photo BJ cartridge.
Use the high resolution paper HR-101 when printing with photo BJ cartridge.
Since the three color inks in the color and photo BJ cartridge are integrated, when one color ink runs out, the BJ cartridge must be replaced. Also, when more than 6 months have passed after the cartridge is unpacked, or if the printing quality is not improved even after cleaning the head over five times, replace the BJ cartridge.

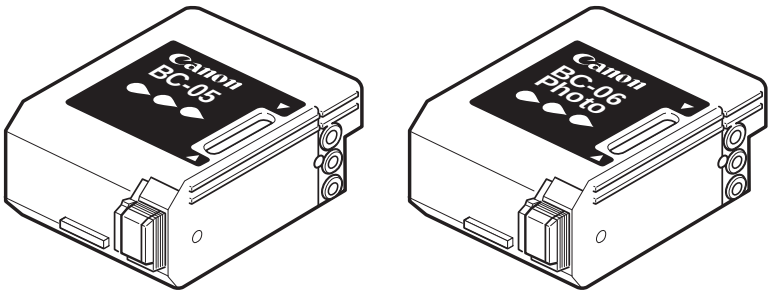

Figure 2-2 Color and Photo BJ Cartridges

1.3.2 Black BJ cartridge

The black BJ cartridge holds black ink only. The print head has 64 nozzles, all of which are used for black printing.
When using the black BJ cartridge in the smoothing mode, 720 (H) × 360 (V) dpi printing is possible.
When the ink runs out, or more than 6 months have passed after the cartridge is unpacked, or if the printing quality is not improved even after cleaning the head over five times, replace the black BJ cartridge.

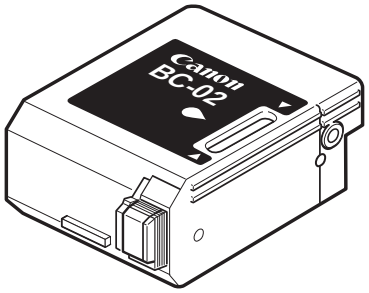

Figure 2-3 Black BJ Cartridge

Product: 1998 Canon BJC-1000 Printer Service Repair Workshop Manual
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1.4 BJ Cartridge Container

The cartridge container is used for storing a BJ cartridge which is not being used. When storing a BJ cartridge in this container, be sure to close the cover completely. Store a BJ cartridge, which are not installed in the printer.

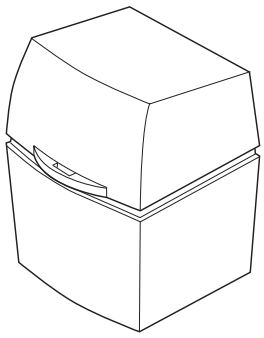
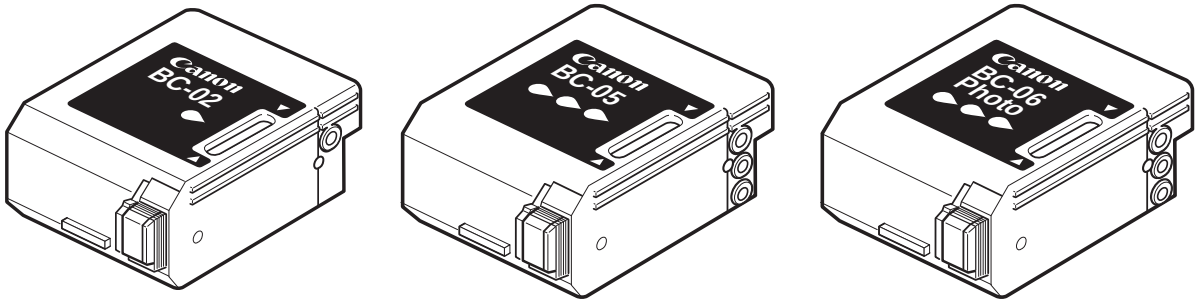


Figure 2-4 BJ Cartridge Container

1.5 Consumables

1.5.1 BJ cartridges (Black, Color, and Photo)



Black BJ Cartridge Color BJ Cartridge Photo BJ Cartridge

Figure 2-5 Consumables

The numbers of sheets that can be printed with the color and black cartridges are :

Black BJ cartridge (BC-02)
About 450 sheets : (HQ mode, 1500 character pattern, continuous printing)

Color BJ cartridge (BC-05)
About 80 sheets: (HQ mode, 7.5% duty per color pattern*, continuous printing)
About 100 sheets: (HQ mode, 7.5% duty per color pattern*, intermittent printing)

Photo BJ cartridge (BC-06 photo)
About 45 sheets: (HQ mode, 7.5% duty per color pattern*, continuous printing)

* Color print pattern for C/M/Y/Bk

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