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BJC-6000

SERVICE MANUAL

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BJC-6000

SERVICE MANUAL

Canon

Target Readers

This manual is published by Canon Inc. for qualified persons and contains the necessary technical information for technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, it may contain information that does not apply to your locality.

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CANON INC.

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This manual was produced on an Apple Macintosh™ Power Mac 9600/233 personal computer and Apple LaserWriter™ II NTX-J laser beam printer; final pages were printed on Varityper™ 5300 with 4000-J RIP. A Canon mo-5001S Magneto-Optical Storage Subsystem with mo-502M Magneto-Optical Storage Disk Cartridge and mo-IF2 interface kit were used for storing large volumes of page layout and graphic data for this manual.

All graphics were produced with MACROMEDIA FREEHAND™ 7.0J.

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

I. ABOUT THIS MANUAL

This manual is divided into five parts containing the information required for servicing the BJC-6000 printer.

Part 1: Safety and Precautions

This part contains information on how to service the unit safely. It is very important, and must be read.

Part 2: Product Specifications

This part outlines the product and its specifications.

Part 3: Operating Instructions

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

Part 4: Technical Reference

This part outlines the unit operation giving a technical.

Part 5: Maintenance

This part explains maintenance of the unit. It includes details of disassembly / assembly, adjustments required when assembling, troubleshooting procedures, and wiring / circuit diagrams, etc.



This manual does not contain complete information required for disassembling and assembling the BJC-6000 printer. Please also refer to the separate Parts Catalog.

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Part 1

SAFETY AND PRECAUTIONS

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1. SAFETY PRECAUTIONS

1.1 Moving Parts

Be careful not to get your fingers, hair, clothing, or accessories caught in the moving parts of the printer.

The moving parts are driven either by the carriage motor or paper feed motor. The carriage motor-related moving parts include the carriage, carriage belt, and carriage ribbon-cable. The paper feed motor-related moving parts include the paper feed gears, paper feed rollers, pinch rollers, eject roller gears, spurs, and pick-up rollers.

To prevent injuries, the printer will stop after moving the carriage to the cartridge replacement position if the cover is opened.

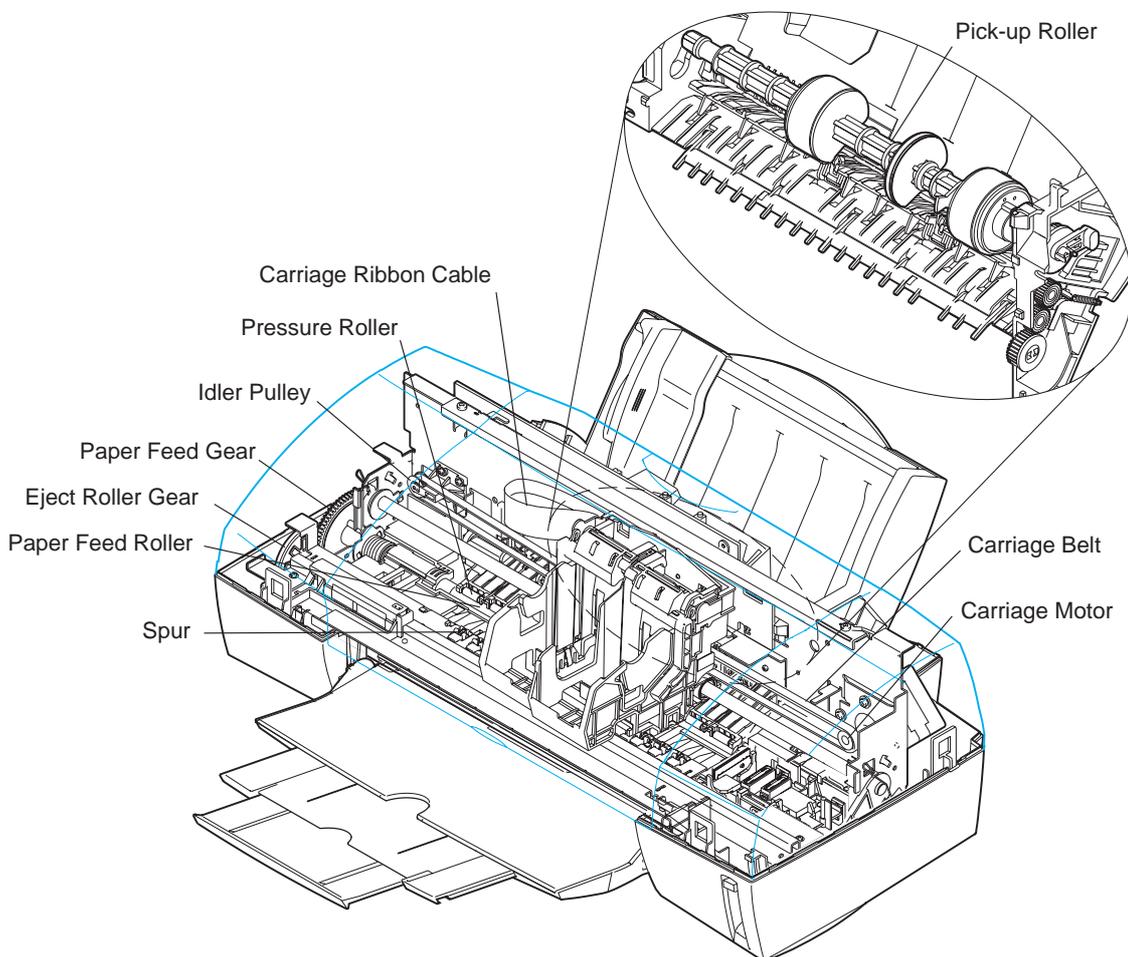


Figure 1-1 The Printer's Moving Parts

1.2 Ink Stains

1.2.1 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.



The ink is not harmful to the human body, but contains some organic solvents:

The black ink contains glycerin 56-81-5 and diethylene glycol 111-46-6.

The yellow ink contains glycerin 56-81-5 and isopropyl alcohol 67-63-0.

The cyan, magenta, photo-cyan, photo-magenta and photo-black ink contain glycerin 56-81-5, isopropyl alcohol 67-63-0, ethylene glycol 107-21-1, and diethylene glycol 111-46-6.

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 you have swallowed a large amount of ink, consult a doctor immediately.

The ink contains dyes. If clothing is stained with the ink, the ink may not be removed completely.

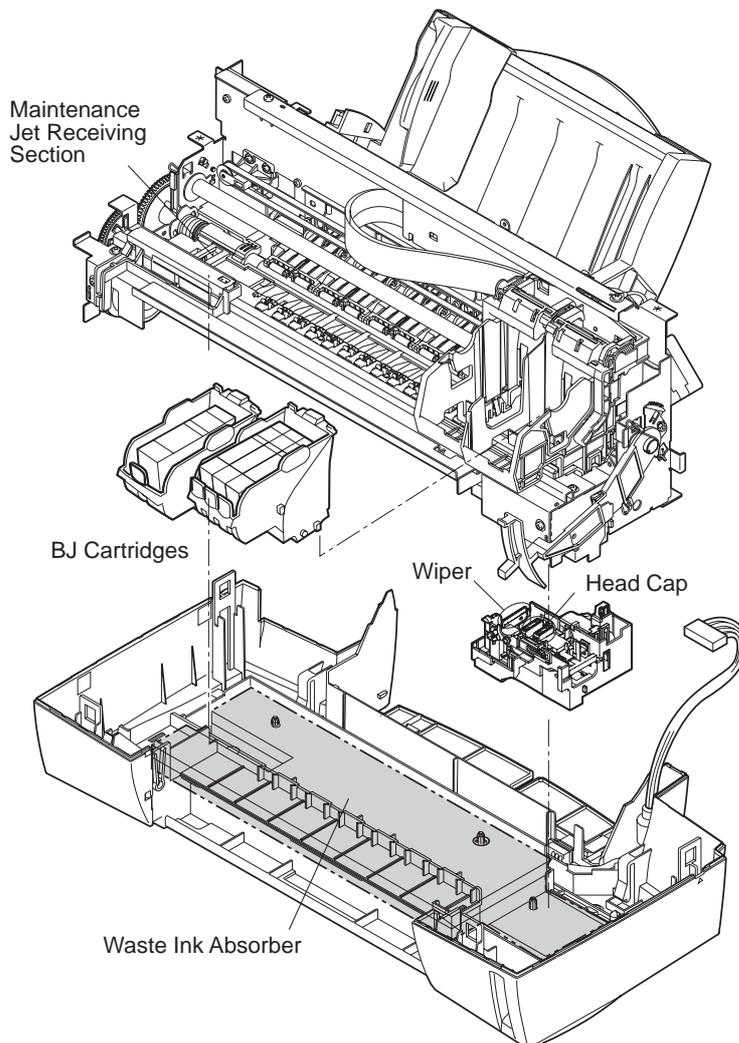


Figure 1-2 Ink Paths

1.2.2 Ink mist

The BJ cartridge ejects ink onto the paper during printing. After the printer is used for a long period or used heavily, part of the ink ejected from the nozzles, or ink mist bouncing back from the paper could accumulate and contaminate the platen, front cover, as well as the periphery of the purge unit. Carefully wipe off the ink mist with a dampened soft cloth so that hands or clothing will not be stained by contaminated parts during servicing.

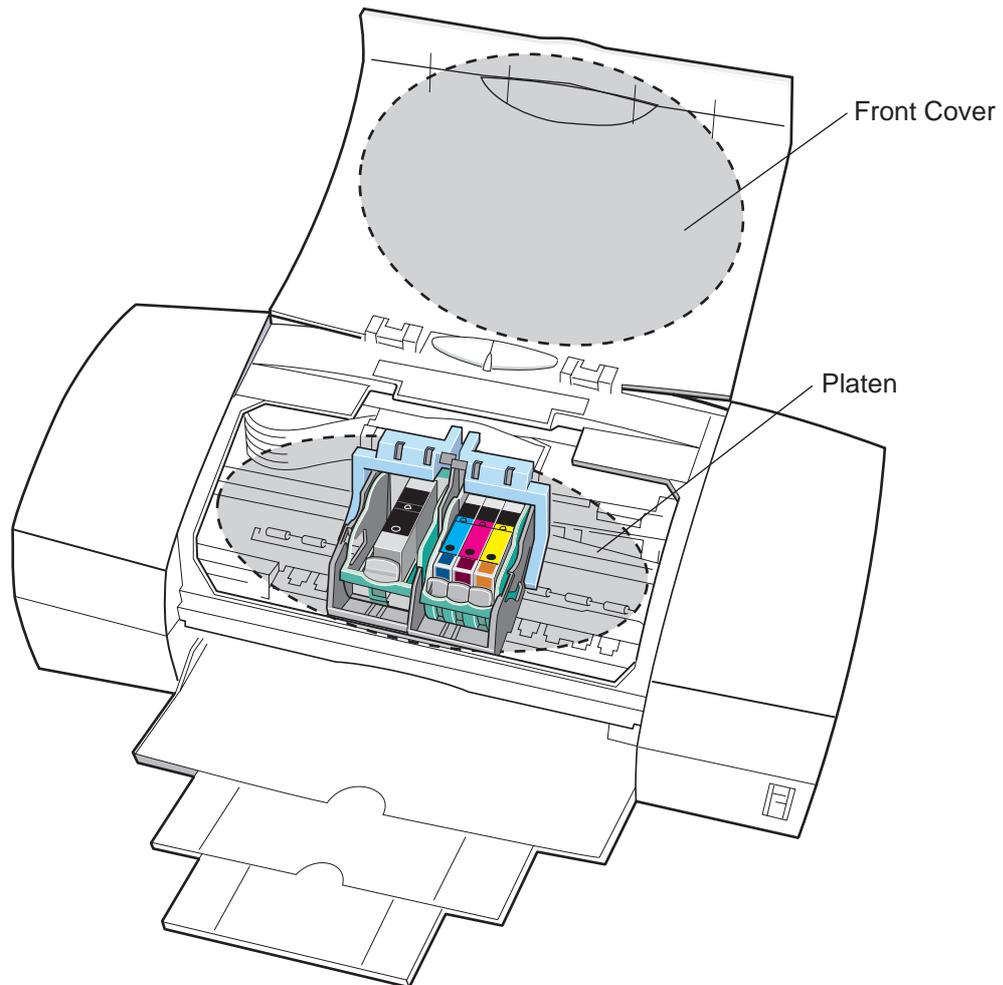


Figure 1-3 Ink Mist

1.3 Live Electrical Parts

When the printer is plugged into a wall outlet, the power supply unit of the printer is live, even if the power is switched off with the *POWER* button. Be careful not to get an electric shock or damage sensitive elements if you are checking a live printer with the cover removed.

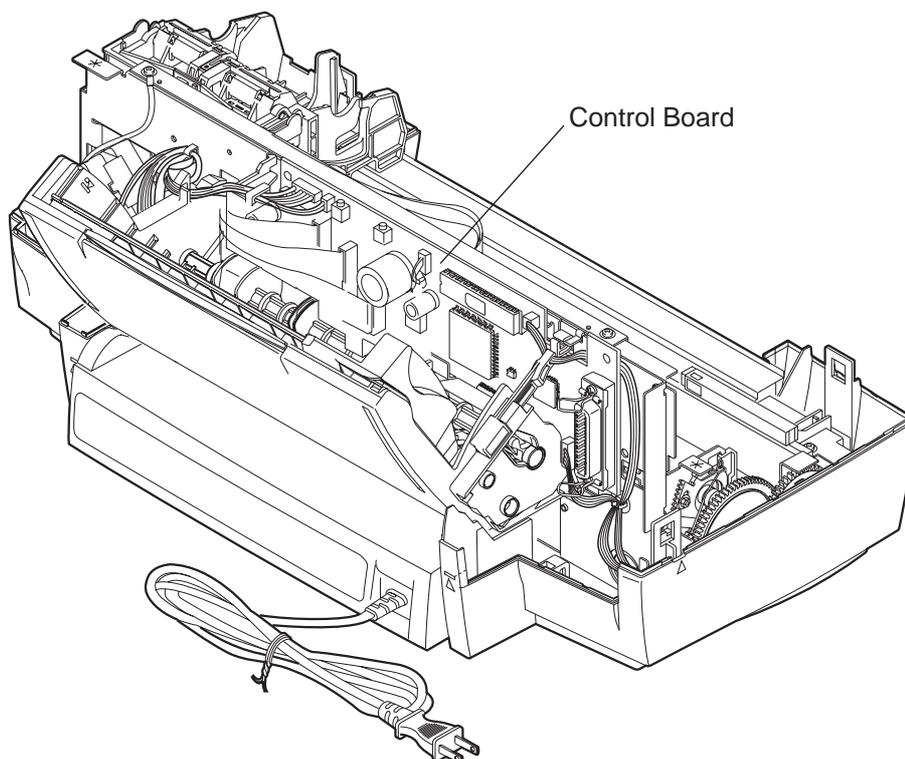


Figure 1-4 Live Electrical Parts

2. MACHINE PRECAUTIONS

2.1 BJ Cartridges

2.1.1 BJ cartridge handling

Do not unpack the BJ cartridge until you are ready to use it. Before installing the BJ cartridge in the printer, carefully remove the head cap which protects the nozzles, the protective tape, and the protective tank. To prevent the nozzles or other ink paths from clogging, never touch or wipe the nozzles or other ink outlets with your bare hands or tissue paper. After removing the head cap, the protective tape, and the protective tank from a BJ cartridge, promptly install the cartridge in the printer or store it in the cartridge container. Do not reuse head caps or protective tapes which have been removed. The BJ cartridge must be installed in the printer or stored in the cartridge container with its ink tanks installed. If the BJ cartridge is installed or stored with its ink tanks removed, the nozzles could clog due to foreign matter or dried ink. Do not attempt to disassemble or wash the BJ cartridge.



If a nozzle clogs, or ink fails to be fed normally, print quality degrades, and typically a fine horizontal blank line appears in printed images. If cleaning operations do not solve the problem, replace the BJ cartridge with a new one.

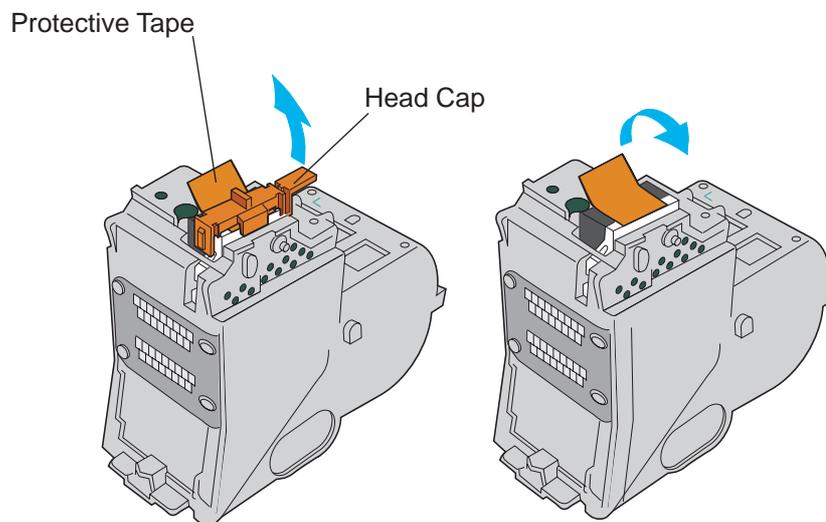


Figure 1-5 BJ Cartridges

2.1.2 Automatic capping

When the printer is turned off with the *POWER* button, it automatically caps the BJ cartridge's nozzles to protect them as well as to prevent ink leakage. If the AC cable is unplugged from a wall outlet before the printer is turned off with the *POWER* button, the nozzles will not be automatically capped. In this case, plug in the AC cable again, turn on the printer, and then turn it off with the *POWER* button. The nozzles will be automatically capped.



If the nozzles are not capped, ink may dry out and clog the nozzles or leak from the cartridge.

2.1.3 When not using the printer

The BJ cartridge may be either left installed in the printer or stored in the cartridge container. This also applies when carrying, transporting, or storing the printer.



If the BJ cartridge is left in open air, out of the printer or cartridge container, foreign matter or dried ink may clog the nozzles, resulting in poor print quality.

2.1.4 Ink's electroconductivity

The ink in the BJ cartridge conducts electricity. If ink is spilt in the printer's mechanical parts, use a dampened paper towel to wipe clean. If ink is spilt onto the printer's electrical components, use tissue paper to wipe clean. If ink gets under an IC chip on the control board and cannot be removed thoroughly, replace the control board with a new one.



Never plug in the printer if its' electric circuitry is in contact with spilt ink. Otherwise the electric circuitry could be damaged.

2.2 Ink Tanks

2.2.1 Unpacking the ink tank

Do not unpack the ink tank until you are ready to use it. When installing it in the BJ cartridge, unpack the ink tank, peel off the vinyl lamination, and remove the cap from the ink outlets.

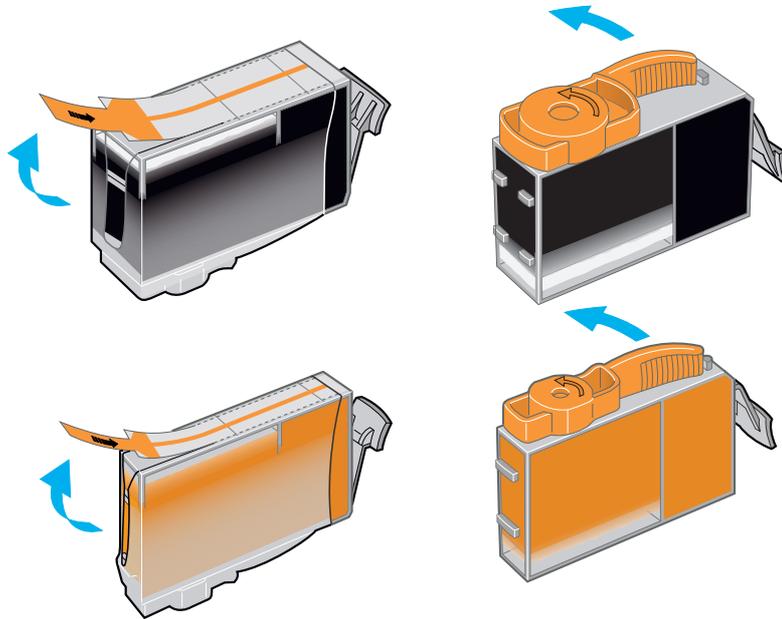


Figure 1-6 Unpacking the Ink Tank

2.2.2 Ink tank handling

If the joint of the BJ cartridge connecting to the ink tank supply piece is contaminated, suction of ink into the BJ cartridge could fail. Therefore, never touch the ink tank's ink supply piece. After removing the cap from the ink tank supply piece, promptly install the ink tank in the BJ cartridge to prevent the nozzles from clogging due to dried-ink. Do not remove the ink tank from the BJ cartridge unless you are replacing it.

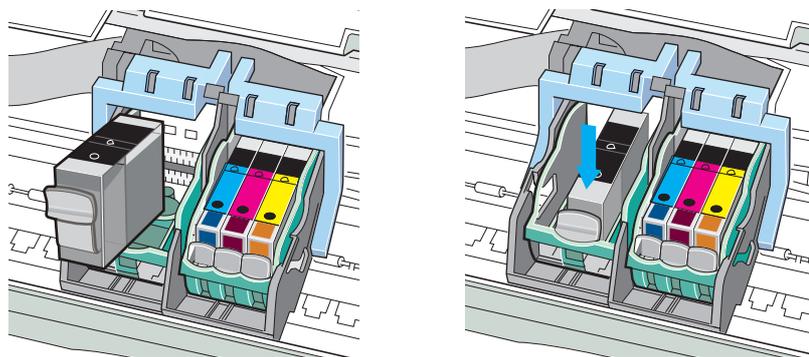


Figure 1-7 Installing the Ink Tank



If a nozzle clogs, or otherwise ink fails to be fed normally, print quality degrades, and typically a fine horizontal blank line appears in printed images. If cleaning operations do not solve the problem, replace the BJ cartridge with a new one.

2.3 Printer Handling

2.3.1 Spurs

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 surface contact 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.

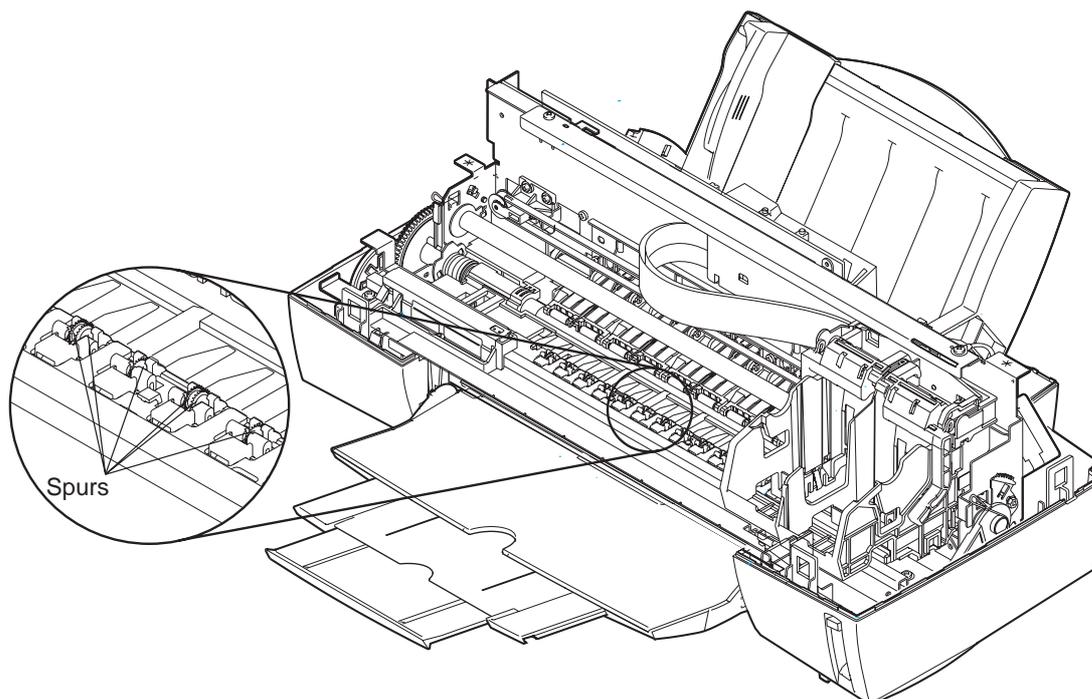


Figure 1-8 Spurs

2.3.2 Damage due to static electricity

Static electricity may be generated by your clothes rubbing against each other and may accumulate in your body. If you touch electrical elements, the discharge of static electricity could damage them or change their electrical characteristics. For this reason, never touch the sensor contacts or the printer's BJ cartridge contacts.

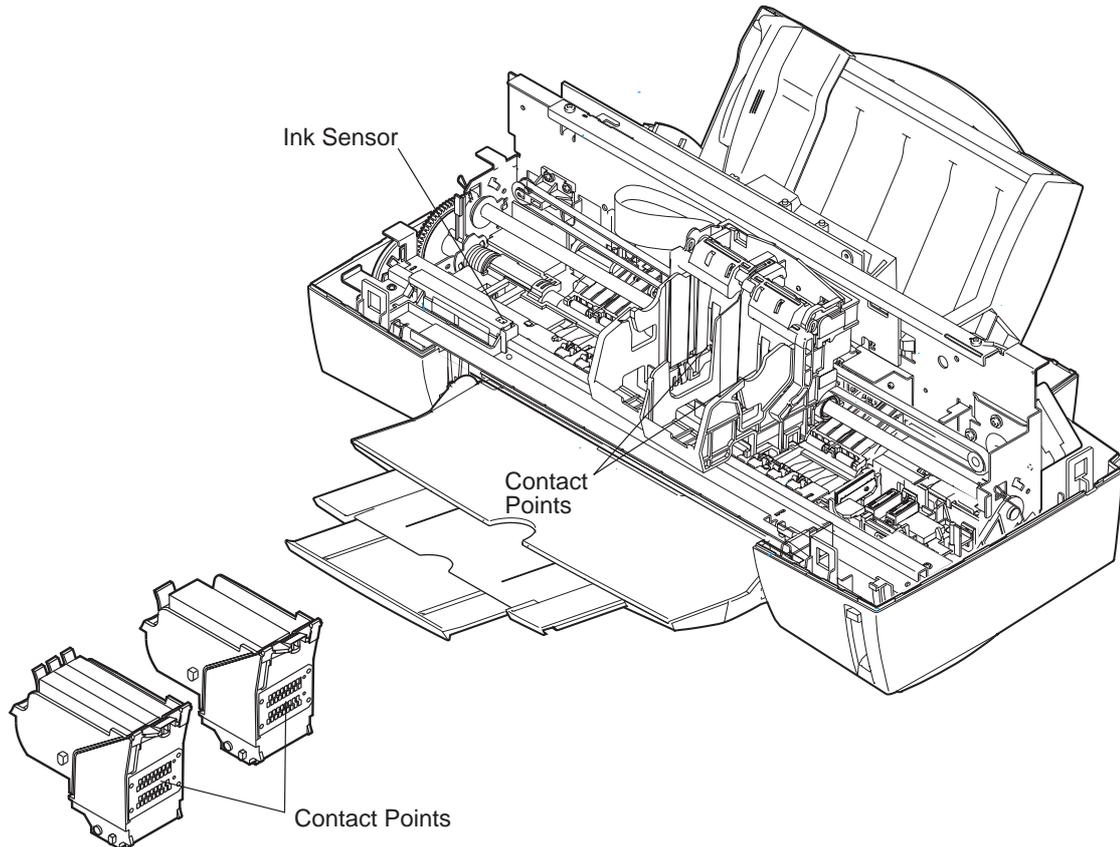


Figure 1-9 Damage Due to Static Electricity

2.3.3 Ink leakage prevention

When you turn off the printer using the *POWER* button, the printer moves the carriage to the capping position, caps the nozzles, and locks the carriage in position with the lock arm. If electric power is not available to the printer, during transportation for example, this automatic capping and locking is not available. In this case, manually move the carriage to the capping position and secure it with tape to ready the printer for transportation.

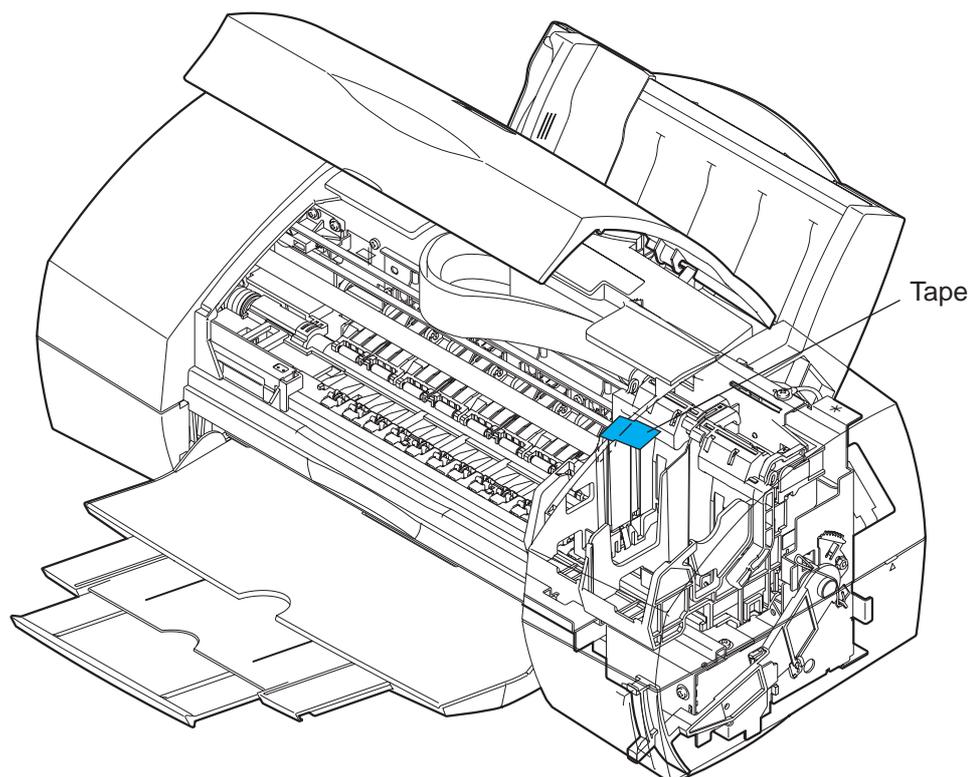


Figure 1-10 Capping Position

3. NOTES ON SERVICING

3.1 EEPROM Data

The printer keeps track of the total sheets printed by each BJ cartridge configuration (Black/Color and Photo/Color) and the total waste ink amount and stores that information in the EEPROM (IC 602) on the logic board. Observe the following precautions during servicing:

1) Before servicing

You can check the EEPROM data with a test print. The total sheets printed by each configuration can provide important information on how much the printer has been used.

2) If the control board (EEPROM) is replaced (or if stored data is cleared by mistake)

Check the waste ink absorber, and replace it with a new one if necessary. If you fail to replace the waste ink absorber in time, the waste ink full alarm might not be issued in time and waste ink could leak (depending on the current ink absorbing capacity of the waste ink absorber). When replacing the logic board (EEPROM) with a new one, be sure to clear the data on the new EEPROM, because the data is not defined.

3) After the waste ink absorber is replaced

After replacing the waste ink absorber, as prompted by the waste ink full alarm, clear the data on the EEPROM.



Once cleared, the EEPROM data cannot be restored (cannot be checked with a test print). Always check the EEPROM data with a test print before clearing it. The data includes information on the user settings, the total sheets of printed paper and the total amount of waste ink absorbed. Note that you cannot edit the data from the operator panel.



The printer calculates the total amount of waste ink absorbed based on the estimated usage of the printer. To prevent the capacity of the waste ink absorber from being exceeded, the waste ink full alarm is issued when the waste ink absorber gets full, suspending the operation of the printer. Refer to *Part 3: 3.6.4 Resetting EEPROM* (Page 3-21) for the procedures for checking the EEPROM data with a test print or for clearing the data. Refer to *Part 5: 6. TROUBLESHOOTING* (Page 5-13) for the troubleshooting procedures to be followed when the waste ink full alarm is issued.

3.2 Static Electricity

Static electricity may be generated by your clothes rubbing against each other and may accumulate in your body. If you touch electrical elements, the discharge of the static electricity could damage them or change their electrical characteristics. To prevent damage due to such electrostatic discharge, ground yourself by touching a metal fitting which is grounded before disassembling or otherwise servicing the printer.

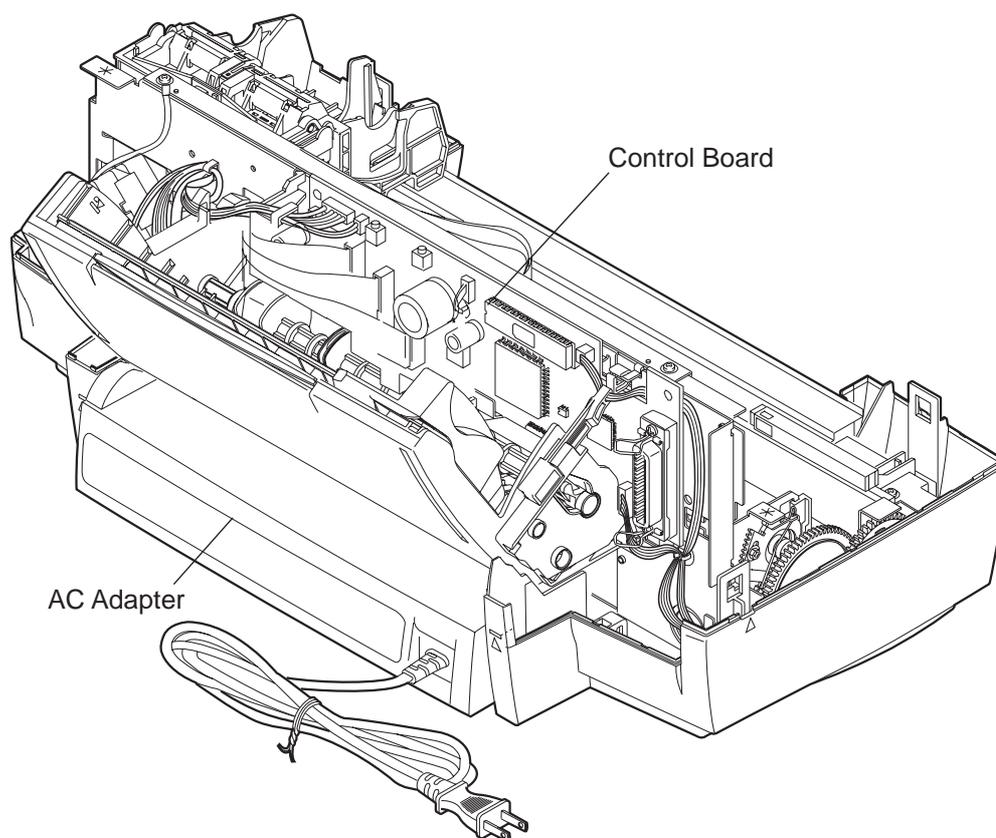


Figure 1-11 Control Board and Other Electrical Components

3.3 Disassembly and Reassembly

Disassembly and reassembly must be done according to the relevant parts catalog, which illustrates the step-by-step procedures to be followed. Additional notes are provided in *Part5: 4. DISASSEMBLY AND REASSEMBLY* (Page 5-4).

The printer uses many plastic parts. Do not apply excessive force to them. In particular, take care not to break or deform plastic hooks during disassembly.

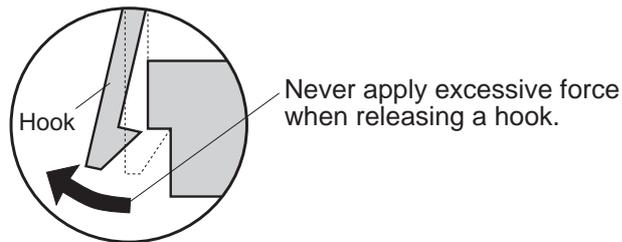


Figure 1-12 How to Disengage a Plastic Hook



Some plastic parts contain glass fibers to conform to tight dimensional tolerances. Plastic hooks are among such parts, lacking flexibility, and are easily broken. Do not forcibly disengage them using a screwdriver.

3.4 Self Diagnosis

The printer has self-diagnosis features to detect hardware defects. The results of the diagnosis are indicated by the *indicator* and *power lamp (flashing)* on the operator panel as well as by the buzzer. For details, refer to *Part 3: 3.1 Error Indications* (Page 3-12).

Part 2

PRODUCT SPECIFICATIONS

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