BJC-4000

USER MANUAL

Canon

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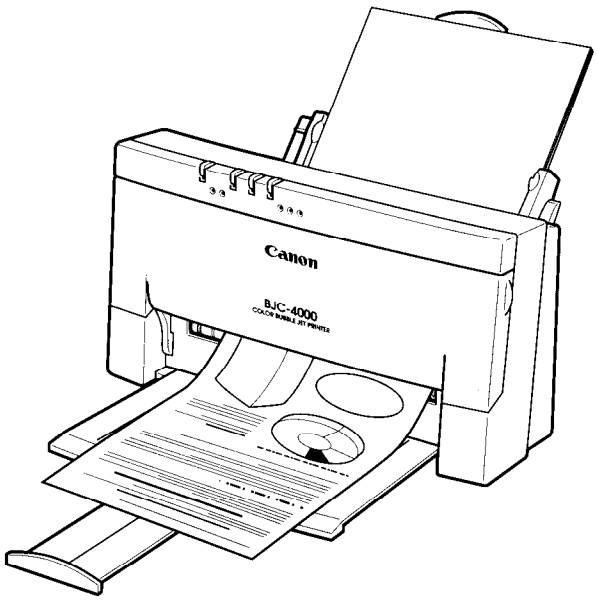
Chapter 1
Introduction

Congratulations on your purchase of the Canon Color Bubble Jet Printer BJC-4000. We appreciate your choosing this printer to meet your printing needs.

The BJC-4000 offers excellent print quality and fast print speed using both color and black inks. We are certain you will be satisfied with this advanced bubble jet technology.



This chapter introduces you to the features of your new printer, describes how to use the documentation that comes with the printer, lists the options and supplies you can purchase for the printer, and describes Canon's customer support procedures.

Features and Benefits

The Color Bubble Jet Printer BJC-4000 produces high-quality printing by incorporating many useful features.

Excellent Print Quality and Speed
The printer's high performance print head offers 720 by 360 dots per inch for high resolution text and graphics. Your printer offers both vibrant print quality and exceptional print speed (up to 5 pages per minute).

Impressive Color Output
The printer produces vibrant colors on a wide variety of media, including plain paper, specially treated paper, envelopes, and transparencies. It also has the ability to print on back print film, which can be shown on a lighted panel.

Versatile Graphics Print Functions
You can produce excellent graphics in both black ink and color.

Software Compatibility
Three resident printer control modes enable the printer to work with a wide variety of software applications:

- ❑ Canon Extended mode provides high quality printing and takes advantage of all the capabilities of the printer. This mode is used in the Canon Windows™ driver and it also works with a variety of MS-DOS® applications (for printing with black and color inks).
- ❑ Epson LQ mode emulates the Epson LQ-2550 printer (for printing with black and color inks).
- ❑ BJ mode emulates the IBM Proprinter X24E printer (for printing with black ink only).

Convenient Paper Handling
An automatic sheet feeder holds up to 100 sheets of plain paper, 40 sheets of transparency or back print film, or 15 envelopes.

High Quality Ink
The new BJ (bubble jet) cartridges, BC-20 Black and BC-21 Color, employ high quality ink in both black and colors.

Two Ink Cartridges
The printer comes with two ink cartridges to choose from: one for color printing and one for monochrome (black ink only) printing. With the color ink cartridge, you can produce brilliant color output. With the black ink cartridge, you can print your output twice as fast or at a higher resolution.

Automatic Capping System
To ensure trouble-free operation, the printer automatically moves the print head to the home position and caps the print head whenever the printer is inactive or turned off.

Simple Maintenance
The BC-20 Black BJ cartridge contains both the ink and the print head. When it runs out of ink, you simply replace it.

The BC-21 Color BJ cartridge has three parts: the color ink cartridge (cyan, yellow, magenta), the black ink cartridge, and the print head. You can replace the ink cartridges when they run out of ink. In case the print head is damaged, you can simply replace the entire cartridge.

You use the BJ cartridge container to store the extra BJ cartridge.

Compact Desktop Design
The printer is lightweight and occupies a minimum amount of desk space.

Quiet Printing
The non-impact printing method offers quiet operation.

Smoothing
This feature works when the BC-20 Black BJ cartridge is installed. It refines your printout by polishing away the jagged edges and ragged stair-stepping curves of characters and graphics, and enables the printer to print both text and graphics at horizontal 720 by vertical 360 dots per inch (dpi).

TrueType Fonts
The Canon TrueType™ Font Pack enhances your font capability and improves your print quality.

On-line Documentation
A detailed On-Line Guide makes learning about the printer easy and fast on your computer screen; it includes detailed instructions for setting up and using your printer as well as information about using color with your new printer.

Using Your Documentation

The following documentation is supplied with the BJC-4000 to help you efficiently use your new printer. Please read and use the manuals according to your requirements.

Quick Start Guide
This fold-out card summarizes the steps you follow to unpack and set up your printer. If you are familiar with computers and printers, you can follow the steps illustrated on this card to start printing in minutes.

User's Manual
This manual offers detailed information on how to set up and operate your printer. It includes initial setup procedures, printing operations, daily maintenance, troubleshooting, and specifications. Read this manual to set up your printer and master basic operations.

This manual describes how to install the Windows driver and the On-Line Guide supplied with the printer and how to use the versatile print options the driver supports. It also includes application notes and troubleshooting tips for using the printer in the Windows environment.

Also, refer to this manual when you have a problem or need to know the specifications of the printer.

On-Line Guide (on diskette)
This On-Line Guide makes learning about the printer easy and fast on your computer screen in the Windows environment. Once you are familiar with the printer, you'll find the On-Line Guide helpful for finding quick answers to any questions you may have about basic operational functions.

Contents of This Manual

This manual describes how to set up and operate your Canon printer in several easy to read chapters. To get the most out of your bubble jet printer, read this manual carefully before using the BJC-4000.

Chapter 1 Introduction
Introduces you to the features of the printer, describes the documentation that comes with the printer, lists the options and supplies you can purchase for the printer, and provides customer support information and phone numbers.

Chapter 2 Setting Up the Printer
Describes how to unpack and set up the printer, including how to install and store the BJ cartridge. It includes installing a printer driver for Windows and briefly describes how to manage your printer's features.

Chapter 3 Using the Printer
Describes how to perform various printing operations, such as printing documents, single sheets, and envelopes.

Chapter 4 Using the Printer With Your Software
Describes how to use the printer with your Windows applications and how to install printer drivers for MS-DOS.

Chapter 5 Printing in Color
Introduces you to using color and provides helpful hints on how to obtain optimum color printing. It includes application notes for using color in certain software packages.

Chapter 6 Using the Operator Panel
Explains how to control the printer from the operator panel, including how to select a print quality/speed mode and clean the print head.

Chapter 7 Maintaining the Printer
Describes routine cleaning of the printer, how to replace a BJ or ink cartridge, and how to transport the printer.

Chapter 8 Troubleshooting
Explains in detail what to do when problems occur with the printer. Refer to this section if you encounter a problem.

Chapter 9 Customizing the Printer
Describes the printer's DIP switches and explains how you can customize the factory default settings of the printer by changing these DIP switches.

Appendix A lists printer and paper specifications. **Appendix B** presents application notes for certain software packages. The manual concludes with a **Glossary** and an **Index**.

Conventions

This *User's Manual* uses the following conventions to alert you to information that will help you to operate the printer correctly and safely:

Note

Notes provide advice or suggestions regarding the use of the printer.

Caution

Cautions alert you to operations that could cause damage to your hardware or software, or cause injury to yourself.

Distinctive typefaces identify the printer buttons you press, the lights on the operator panel, and any commands you enter at your computer.

- The buttons you press appear in this typeface: **POWER**.
- The names of lights you see appear in this typeface: HQ.
- When you type something on your computer, it appears in this typeface: `DIR/P`.

Options and Supplies

Your BJC-4000 printer supports excellent and unique print media options that will allow you to produce dazzling, professional, and fun presentations. All of these print media are specially designed and manufactured to work with your color printer so you can produce the finest output possible.

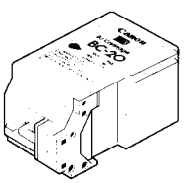
Canon has an extensive dealer network equipped to offer you supplies as you need them. To find a dealer near you, call the Canon referral service at **1-800-848-4123**.

If you want to purchase supplies directly from Canon, you may do so by calling Canon Accessories at **1-800-671-1090**. Supplies are offered at the manufacturers' suggested list price.

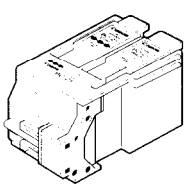
BJ Cartridges and Ink Cartridges

Canon offers the following BJ and ink cartridges. (Note that BJ cartridges contain the bubble jet print head and ink while ink cartridges contain ink only.)

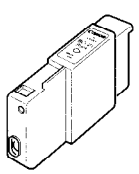
BC-20 Black BJ Cartridge
Incorporates a bubble jet print head and black ink. One BC-20 cartridge comes with the printer. Use this cartridge for your monochrome output.



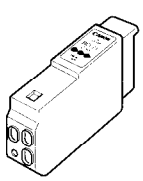
BC-21 Color BJ Cartridge
Incorporates a bubble jet print head and two replaceable ink cartridges: a black ink cartridge (BCI-21 Black) and a color ink cartridge (BCI-21 Color). One BC-21 cartridge comes with the printer. Use this cartridge when you plan to print in color.



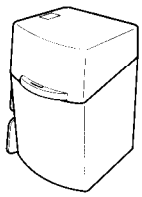
BCI-21 Black Ink Cartridge
Purchase this cartridge from a dealer as the black ink runs out of the BC-21 Color BJ cartridge.



BCI-21 Color Ink Cartridge
Purchase this cartridge from a dealer as the color (cyan, yellow, magenta) ink runs out of the BC-21 Color BJ cartridge.



SB-20 BJ Cartridge Container
Stores one BJ cartridge. One container comes with the printer. You can purchase an additional BJ cartridge container (if necessary) by calling Canon Accessories.



Print Media

Canon manufactures the following print media.

Canon Coated Paper LC-101
This coated paper is specially designed for your BJC-4000 printer, which will produce sharp and vivid color output on this high-grade matte paper. The coating used on this paper is a unique formula that ensures full compatibility with your Canon color inks. Use this paper for your printer output that requires crisp color rendering on a high-quality, non-glossy paper. Letter, legal, and A4 sizes are available.

Canon Glossy Paper GP-101
This glossy paper is also specially designed for the BJC-4000. The printer can produce sharp and vivid color output on this high-grade, shiny paper. This glossy (non-matte) paper is fully compatible with your Canon color inks. Use this paper for your printed output that requires crisp color renderings on a high-quality, glossy paper. Letter size only is available.

Canon Transparencies CF-102
These overhead clear transparencies (also called Over Head Projection or OHP film) are specially designed for your BJC-4000. Other overhead clear transparencies may cause problems in your Canon color printer by either not feeding correctly into the printer or by not allowing the inks to dry properly. Canon overhead clear transparencies are specially designed and manufactured to avoid these problems. Use these clear transparencies to produce crisp and professional overhead presentations. Letter size only is available.

Canon Back Print Film BF-102
This unique glossy paper allows you to print extremely high quality color outputs such as photographic images and graphics. Plus these outputs are capable of being viewed either by rear illumination, such as a light box, or as regular prints without the benefit of a light box. Back print film is a mylar-based translucent sheet. When viewed by a light box, back print film provides a sharp, bright, and vivid presentation of special items such as photographs, portraits, and graphics. It is also great for trade show displays and other special presentations when rear-illuminated. Letter size only is available.

Cloth
Canon plans to introduce a cloth medium. Check with your dealer for availability.

Related Publication

Programmer's Manual
The information in the *BJC-4000 Programmer's Manual* is intended for the software designer, the advanced programmer, and the operator who can use a programming language to send commands to the printer.

To obtain this manual, call the Canon help desk (see below).

Customer Support

Help desk
Canon provides customer support and service for all Canon printer products. If you have any questions regarding your new printer, call the Canon Computer Systems help desk at **1-800-423-2366**. Help is available Monday through Friday from 8 A.M. to 11 P.M. Eastern Standard Time (EST) and on Saturday from 11 A.M. to 6 P.M. EST. The help desk is closed on Sundays and holidays.

If you seem to have an operational problem, try to solve it by either referring to the information in Chapter 8, *Troubleshooting*, or using your On-Line Guide. If you cannot quickly resume normal operation, contact Canon's experienced support personnel at the help desk number above.

Fax number
You can also send comments, suggestions, and technical questions to Canon via facsimile. The number for this service is **1-714-438-3317**, which accesses a G3 fax machine. Be sure to state your question and provide a phone number or fax number for a response.

Fax retrieval system
Canon is proud to announce a 24-hour, toll-free fax retrieval system. You can use this service to get helpful documents faxed directly to your fax machine. These documents contain useful information to assist you in the operation of your Canon printer. To access this service, call **1-800-526-4345**.

Bulletin board services
Canon also provides a bulletin board service (BBS), which is useful for obtaining newly developed third-party drivers. Call **1-714-438-3325**. The protocol for the BBS is up to 14,400 bps, eight data bits, one stop bit, and no parity.

If you use CompuServe®, you can access the Canon Peripherals Forum. This allows you to talk with other users, send a message to Canon, or download printer drivers. Just type GO CANON at any CompuServe prompt.

Canada
Customer support for Canadian residents is available at **1-800-263-1121** from 9 A.M. to 7 P.M. EST (except holidays).

In other countries, please contact your Canon dealer.

Supplies
To order supplies, call Canon Accessories at **1-800-671-1090** from 9 A.M. to 7 P.M. EST.

Servicing the Printer

The Canon Color Bubble Jet BJC-4000 printer is designed with the latest technology to provide trouble-free operation. The warranty card that came with your printer describes Canon's limited two-year warranty for its Bubble Jet printers. Be sure to read the warranty information and save the card.

If you seem to have a problem, try to solve it by referring to the information in Chapter 8, *Troubleshooting*. If you cannot solve the problem, contact Canon's support personnel at the help desk.

If you feel your Color Bubble Jet BJC-4000 needs servicing, call the Canon referral service at **1-800-848-4123** to locate the Canon Authorized Service Facility (ASF) nearest you.

At the time of this manual's writing, Canon does not offer an extended warranty program beyond the two-year warranty; however, some authorized Canon dealers may offer such programs for a fee. If you are interested in an extended warranty, contact your Canon Authorized Service Facility to see if it offers such a service.

Chapter 2
Setting Up the Printer

This chapter describes how to unpack the printer and select a location for setting it up, examines the printer's components, and then explains how to assemble the printer. It also describes how to load a stack of paper and print a self test followed by installing a printer driver and managing your printer's features.

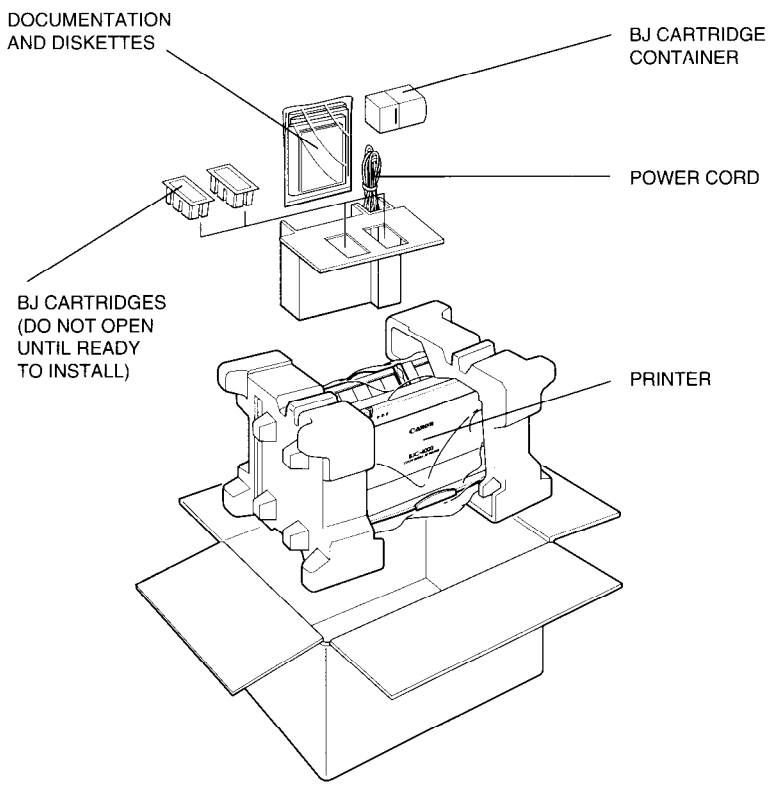
If you already set up your printer using the *Quick Start Guide*, you may want to look through this chapter to find any additional information it supplies.

Unpacking Your Printer

Follow these steps to unpack the printer:

1. **Carefully remove all items from the box.**

   ❑ It is best to have someone hold the box while you lift the printer and its protective packaging out of the carton.



2. **Check to see that you have the following items:**

   ❑ Hardware:

   BJC-4000 printer
   Power cord
   BC-20 Black BJ cartridge
   BC-21 Color BJ cartridge
   BJ cartridge container

   ❑ Documentation and Diskettes:

   User's Manual (this manual)
   Quick Start Guide
   Product Warranty Card
   Registration Card
   Windows Driver and On-Line Guide diskettes (two diskettes in envelope)
   TrueType Fonts diskette (in envelope)

If your printer was damaged in shipping, or if any items are missing, notify your dealer immediately.

Note

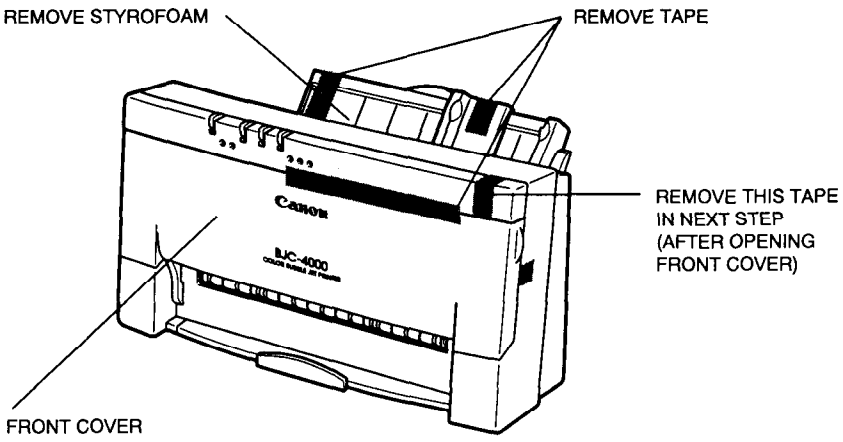
- ❑ In addition to the items shipped with your printer, you need a Centronics®-compatible parallel interface cable (no longer than six feet), which you can purchase from your dealer.
- ❑ Be sure to fill out your Registration card and send it to Canon Computer Systems, Inc. Also, save your sales receipt for proof of purchase.

Removing the Shipping Materials

As you unpack the printer, save the carton and packing materials in case you want to move or ship the printer in the future. Follow these steps:

1. **Remove the shipping tape from the outside of the printer.**

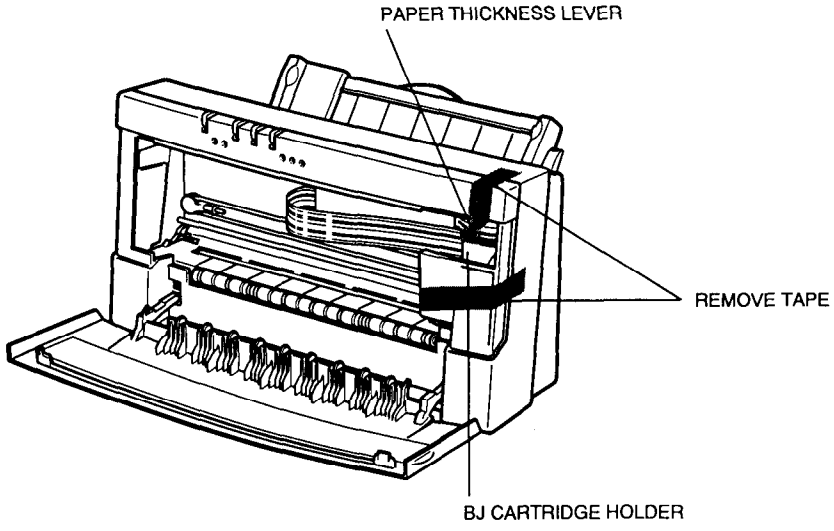
   ❑ Remove the styrofoam inside the sheet feeder.



2. **Remove the shipping tape inside the printer.**

   ❑ Open the front cover and remove the tape that protects the paper thickness lever and the BJ cartridge holder.

   ❑ Make sure the paper thickness lever is set to the center for color printing on normal paper.

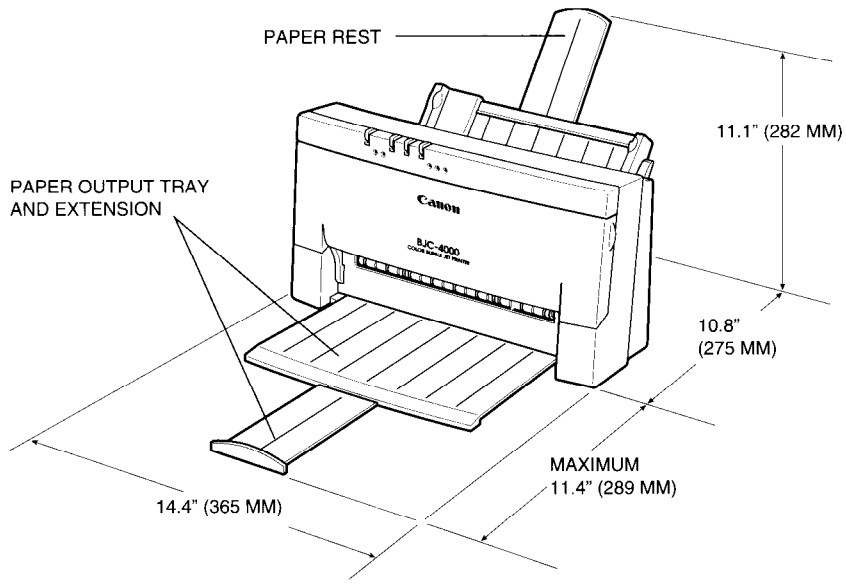


Selecting a Location for Your Printer

Before you set up your printer, choose the best location for it. Follow these guidelines:

- ❑ Choose a flat, sturdy surface with enough space for the paper to flow freely into and out of the printer. **Angled print stands may cause quality and reliability problems.**

- ❑ Fully extend the paper rest and paper output tray to ensure enough space is available for proper operation. The printer requires this much space:



- ❑ Place the printer where the temperature is stable and set for human comfort. Avoid areas of excessive heat or humidity as well as direct sunlight.

- ❑ Do not install the printer near devices that contain magnets or generate magnetic fields (such as loudspeakers or base units of cordless telephones). These devices can erase information on the printer's intelligent circuits.

- ❑ Do not subject the printer to strong physical shock or vibrations.

- ❑ Keep the printer clean. Dust accumulation may prevent the printer from functioning properly.

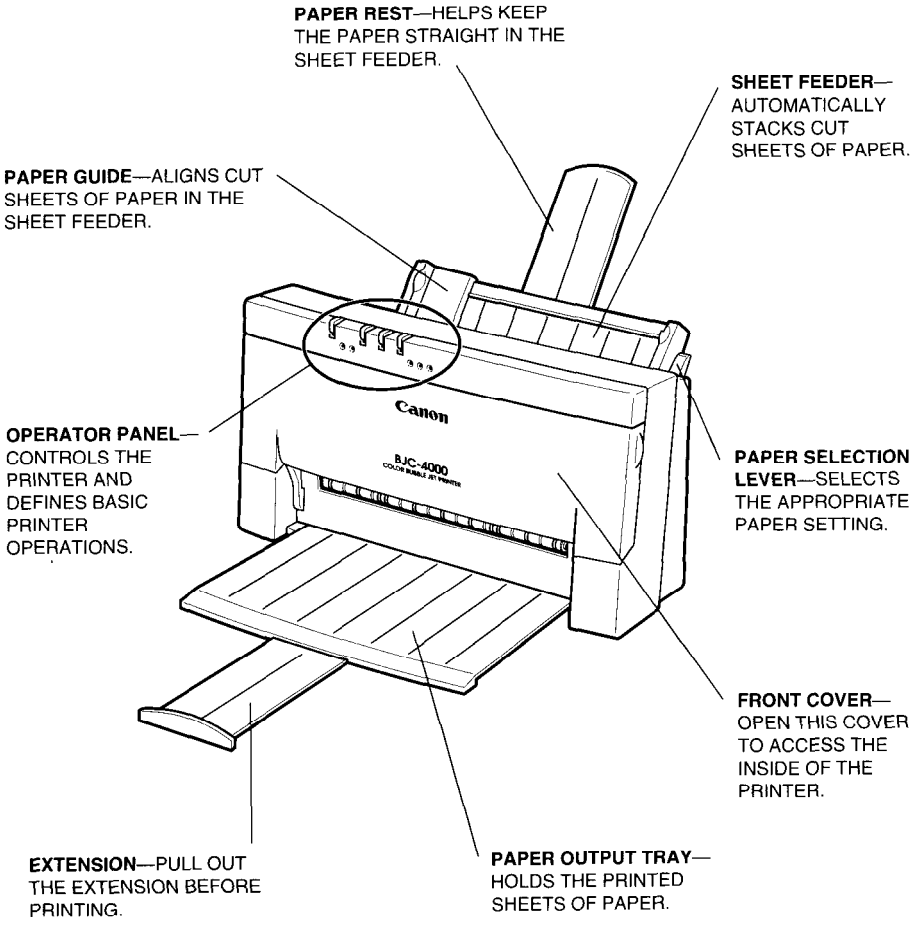
- ❑ To protect the printer from damage, hold both sides when you move it.

- ❑ While the Color Bubble Jet Printer BJC-4000 is small and compact, it is not designed for mobile printing.

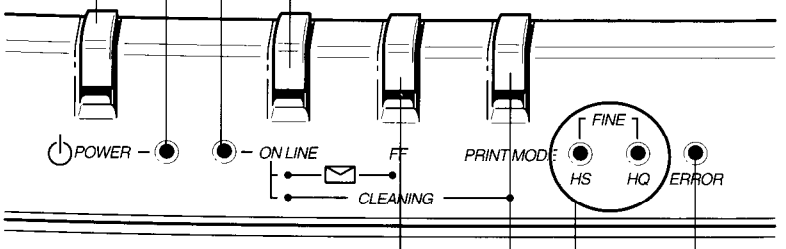
Examining the Printer

Before setting up the printer, it's a good idea to familiarize yourself with the printer parts and understand their functions.

From the Front



Operator Panel



POWER BUTTON—TURNS THE PRINTER'S POWER ON OR OFF.

POWER LIGHT—INDICATES THAT THE PRINTER IS ON.

ON LINE LIGHT—LIGHTS WHILE THE PRINTER IS ON-LINE, INDICATING THE PRINTER IS READY FOR PRINTING.

ON LINE BUTTON—TURNS THE PRINTER ON-LINE OR OFF-LINE.

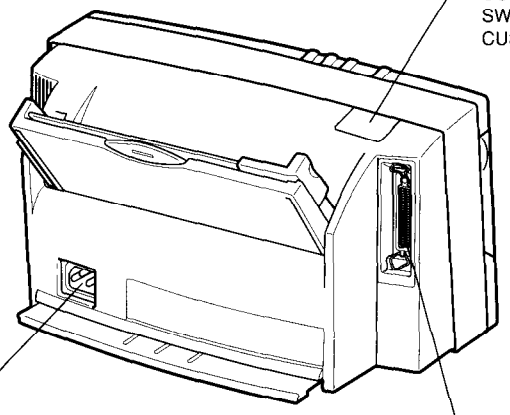
FF BUTTON—FEEDS PAPER INTO THE PRINTER OR EJECTS THE CURRENT PAGE.

PRINT MODE BUTTON—SELECTS A PRINT QUALITY AND SPEED.

PRINT MODE LIGHTS—INDICATE THE PRINT MODE: HS, HQ, OR FINE.

ERROR LIGHT—LIGHTS WHEN THE PRINTER IS OUT OF PAPER, PAPER IS JAMMED, OR ANY OTHER PROBLEM EXISTS.

From the Back



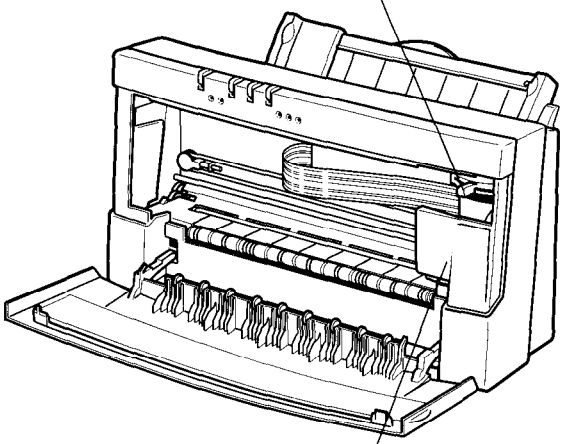
DIP SWITCH COVER—OPEN THIS COVER TO ACCESS THE DIP SWITCHES INSIDE (ONLY WHEN CUSTOMIZING THE PRINTER).

POWER RECEPTACLE—ATTACH THE AC POWER CORD HERE.

PARALLEL INTERFACE PORT—CONNECT THE PRINTER CABLE FOR YOUR COMPUTER HERE.

Inside the Printer

PAPER THICKNESS LEVER—ADJUSTS THE DISTANCE BETWEEN THE PRINT HEAD AND THE PAPER.



BJ CARTRIDGE PROTECTOR—COVERS THE BJ CARTRIDGE HOLDER (SHOWN HERE IN THE HOME POSITION).

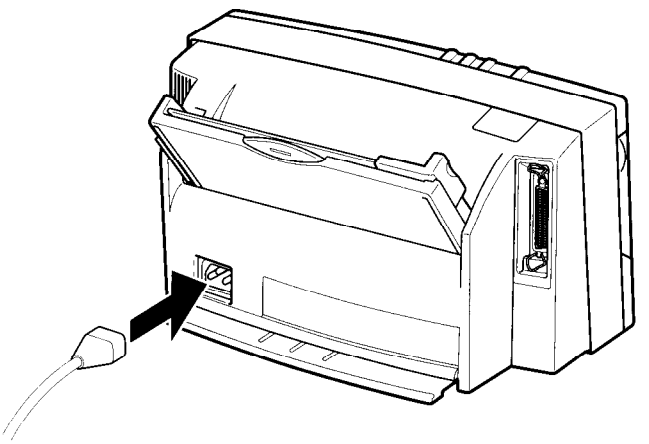
Attaching the Power Cord

Caution

- ❑ Use a power supply that is the appropriate voltage and frequency: AC120V, 60Hz 0.5A. This is standard for an electrical outlet in the United States or Canada.
- ❑ Use only the power cord that came with the printer. Using a longer cord or an extension cord may result in reduced voltage or malfunctions.
- ❑ If you smell a peculiar odor or see smoke, unplug the power cord immediately.
- ❑ Do not place anything in front of your wall outlet that may obstruct your access to it or put pressure on the power cord.
- ❑ When unplugging the power cord, always remove it by holding the plug and not the cord.

To attach the power cord, follow the steps below.

1. **Attach the power cord to the power receptacle on the back of the printer.**



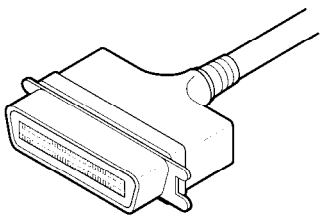
2. **Plug the power cord into a properly grounded AC outlet.**

Note

Always turn off the printer by pressing the **POWER** button. Do not unplug the printer when it is turned on. If you attach the printer to a power strip, only turn off the power strip when the printer's power is off.

Connecting Your Printer to the Computer

Your printer has an 8-bit parallel interface port, which allows you to use it with IBM PCs and compatible computers. You need to purchase a Centronics-compatible, parallel interface cable from your dealer. Ask your dealer for assistance if you need help selecting the right cable.



Note

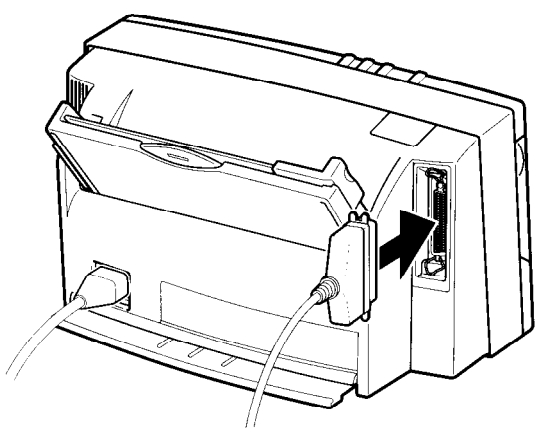
For reliable data communications between your computer and the printer, use a short cable, six feet or less in length.

To connect the printer to the host computer, follow the steps below:

1. **Make sure both the printer and the computer are turned off.**

2. **Connect the parallel cable.**

   - ❑ Align the cable connector with the printer's interface port so the shapes match.
   - ❑ Gently press the cable connector into the port.
   - ❑ Secure the cable connector by snapping the two wire clips (located on the printer) into the cable connector.



3. **Connect the other end of the interface cable to the parallel interface port on your computer.**

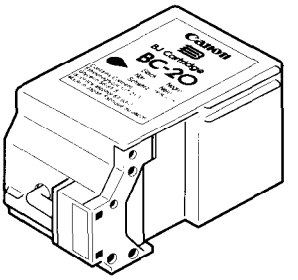
Installing a BJ Cartridge

Now you are ready to install the BJ cartridge. The BJ cartridges you can use with the printer are the BC-20 for black printing only or the BC-21 for both color and black printing. The printer comes with one of each BJ cartridge.

Open the BJ cartridge package only after determining which cartridge you plan to use first.

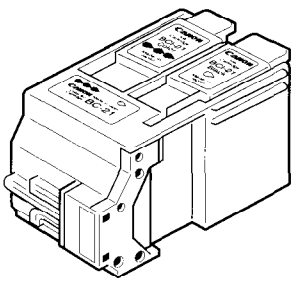
Choosing Which BJ Cartridge to Use

BC-20 Black BJ Cartridge
Use this cartridge for printing in black.



Use the BC-20 Black BJ cartridge for most of your printing needs and especially for draft and monochrome documents. With the BC-20 cartridge installed, your output prints twice as fast as when the color cartridge is installed and you can print documents with a higher resolution.

BC-21 Color BJ Cartridge
Use this cartridge for printing in color.



Use the BC-21 Color BJ cartridge whenever you want to produce brilliant color output.

Note

Canon makes numerous BJ cartridges; the BC-20 and BC-21 are designed specially for the Color Bubble Jet BJC-4000 printer and are the only ones you should use.

BJ Cartridge Guidelines

The most important thing you can do to extend the life of your BJC-4000 and to ensure optimum print quality is to take care of the BJ cartridges.

To avoid drying out the ink or clogging the print head, follow these precautions:

- ❑ When changing BJ cartridges, always store the BJ cartridge you are not using in the BJ cartridge container.
- ❑ Do not unpack a BJ cartridge until you are ready to use it.
- ❑ Use a BJ cartridge within one year after unpacking it to ensure optimum print quality.
- ❑ Install the BJ cartridge immediately after removing the print head cap and protection tape.
- ❑ Do not remove the BJ cartridge from the printer unless it is necessary to do so.
- ❑ Do not leave the BC-21 Color BJ cartridge installed in the printer with either of the ink cartridges missing.

To avoid spilling ink, follow these precautions:

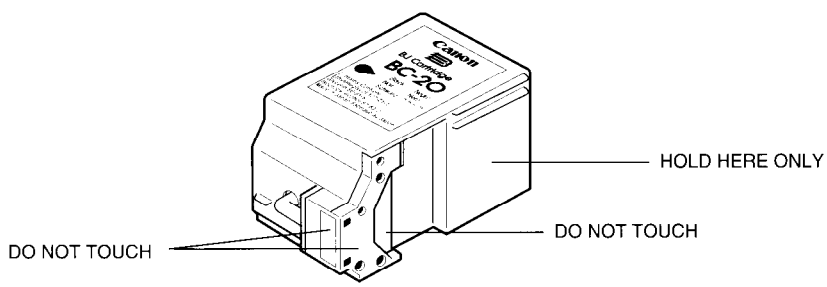
- ❑ Do not touch the print head on the cartridge or the edges around it.
- ❑ Do not attempt to disassemble or refill the cartridge.
- ❑ Do not vigorously shake the cartridge while handling it.

Note

If spilled, the ink is difficult to clean. Therefore, it's a good idea to keep the BJ cartridges out of children's reach.

Caution

Hold the BJ cartridge on the sides only. Do not touch the silver plate on the bottom of the BJ cartridge or the silver metal or circuit area on the side. The metal area may become hot during printing.



Using Ink

Ink formulation is the most critical component of a Bubble Jet printer. The ink you use must meet these guidelines:

- It must be able to be heated and cooled over 6,000 times per second without clogging.
- It must dry very quickly without bleeding into other colors.
- It must work with different media and software, while providing correct color matching with the printer driver.
- It must be environmentally friendly.

Canon has more engineers dedicated to providing the best results for output on Bubble Jet printers than any other organization. Canon does not dissuade you from using ink made by third-party suppliers. However, we specifically design and warranty our products for our inks only.

Canon cannot guarantee the quality or performance of your printer when you are using inks from other suppliers. In addition, if a problem emerges as a result of using ink from a supplier other than Canon, your warranty will be invalid.

For optimum printing results, use only Canon BC-20 Black and BC-21 Color BJ cartridges.

When replacing ink cartridges in the BC-21 Color BJ cartridge, use only Canon BCI-21 Black and BCI-21 Color ink cartridges.

Installation

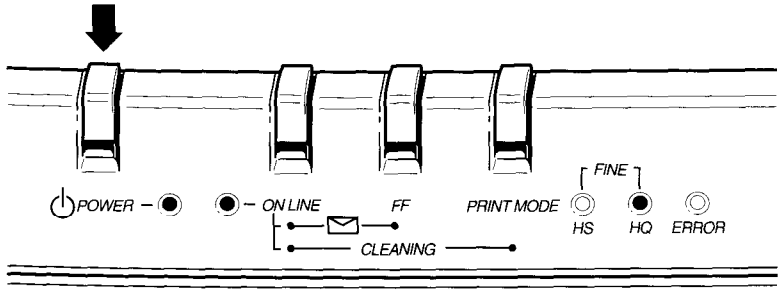
To install the BJ cartridge, follow the steps below. The following instructions show the BC-20 Black BJ cartridge being installed in the printer. You install the BC-21 Color BJ cartridge using the same steps.

1. **Make sure the parallel interface cable and the power cord are attached.**

2. **Press the POWER button.**

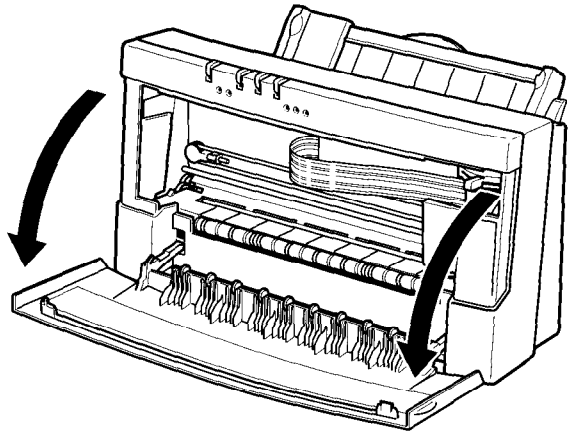
   ❑ The POWER, ON LINE, and HQ lights come on.

   ❑ When you turn on the printer for the first time, the BJ cartridge holder moves to the center of the printer so you can install the BJ cartridge. The ON LINE light blinks.

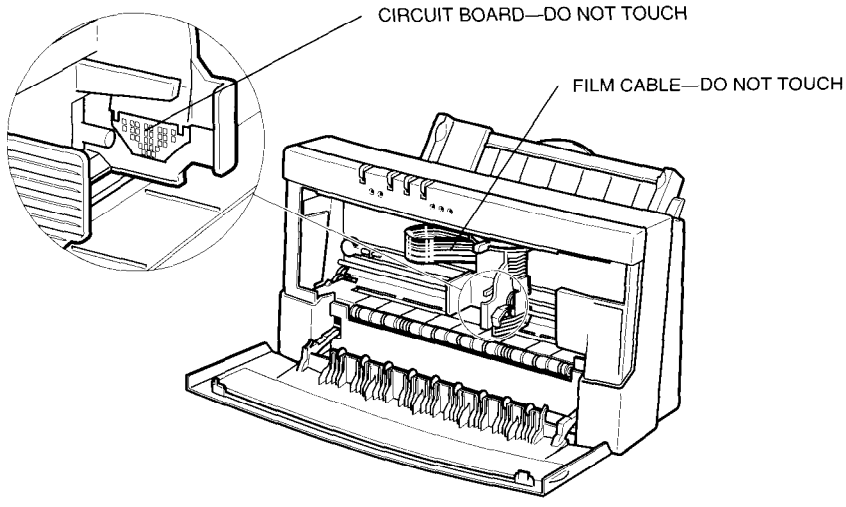


3. **Open the front cover.**

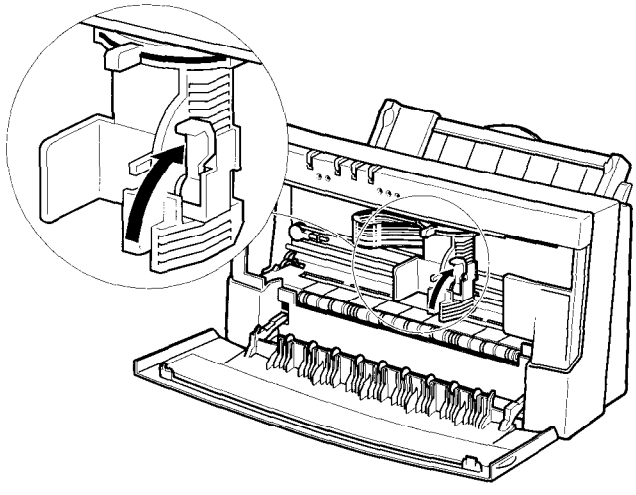
   ❑ Grasp the sides of the cover and pull it forward.



4. **When installing the cartridge, avoid touching the circuit board and the film cable.**



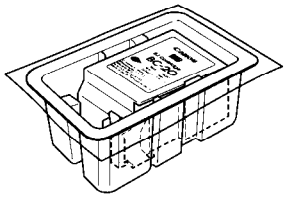
5. **Lift the green lock lever on the cartridge holder.**



6. **Only unwrap the BJ cartridge you plan to use.**

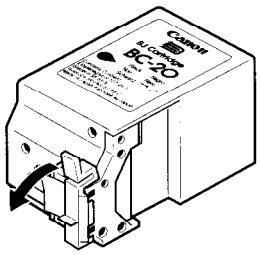
   ❑ If you unwrap both cartridges, install one in the printer and store the other one in the BJ cartridge container (see page 29 for details).

   ❑ Take the BJ cartridge you are installing in the printer out of its protective packaging. Peel off the protective foil.

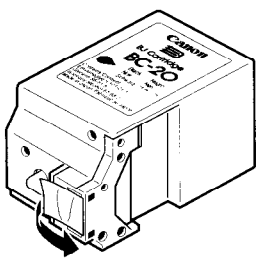


7. **Remove the protective material from the BJ cartridge.**

   ❑ Lift off the orange cap from the print head.

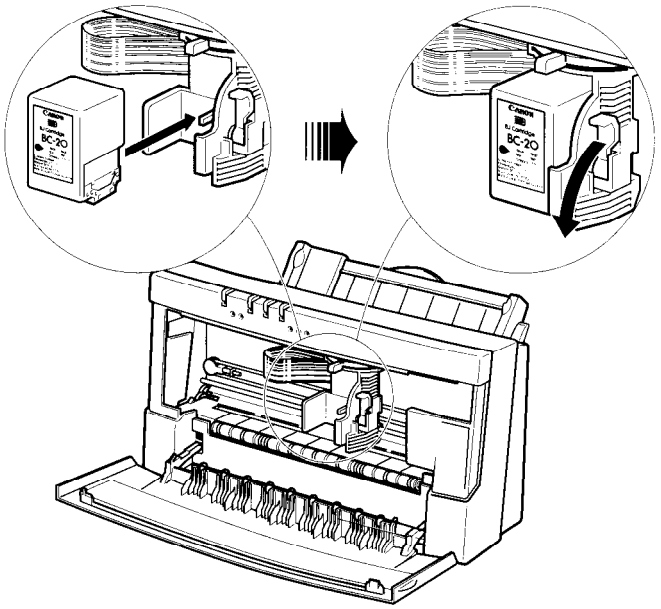


   ❑ Then remove the orange tape.



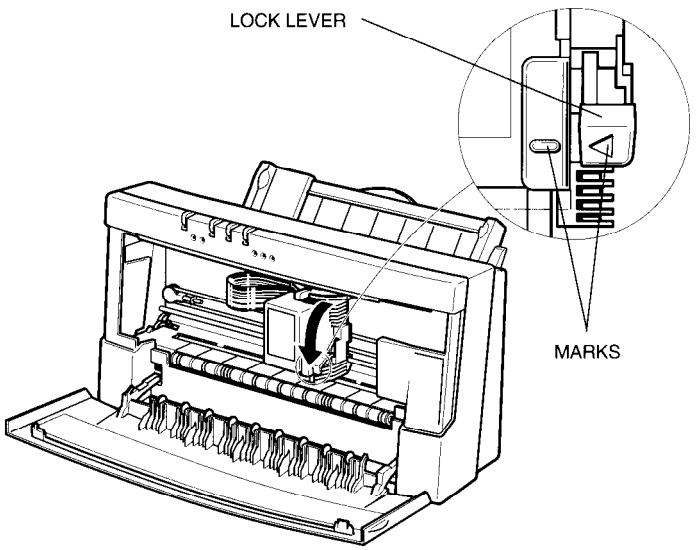
8. **Slide the BJ cartridge straight into the cartridge holder.**

   - ❑ Be careful not to touch the rollers with the print head.
   - ❑ Make sure the cartridge is pressed against the back of the holder.
   - ❑ Then press the lock lever down completely.



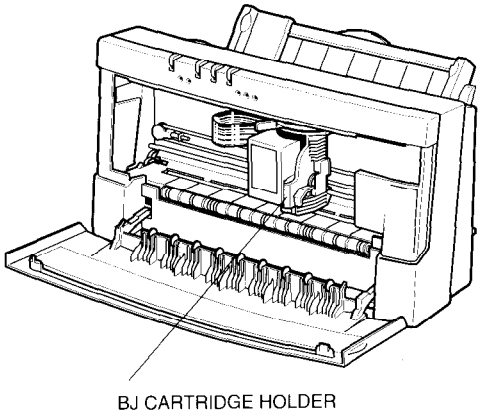
9. **Make sure the marks on the lever and the cartridge holder align.**

   - ❑ The BJ cartridge is now positioned and locked.



Caution

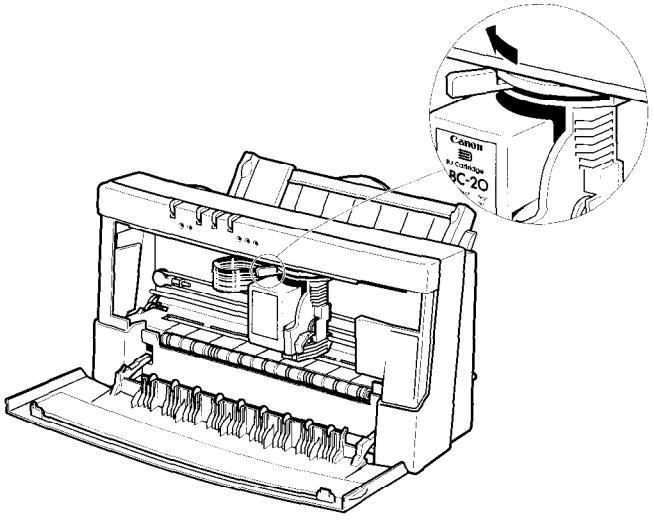
Do not move the mechanism that houses the BJ cartridge. Attempting to move the BJ cartridge holder will damage the printer.



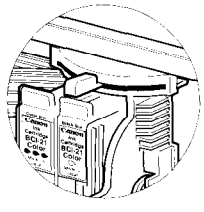
BJ CARTRIDGE HOLDER

10. Set the paper thickness lever.

❑ If you installed the BC-20 Black BJ cartridge, set the paper thickness lever to the left.

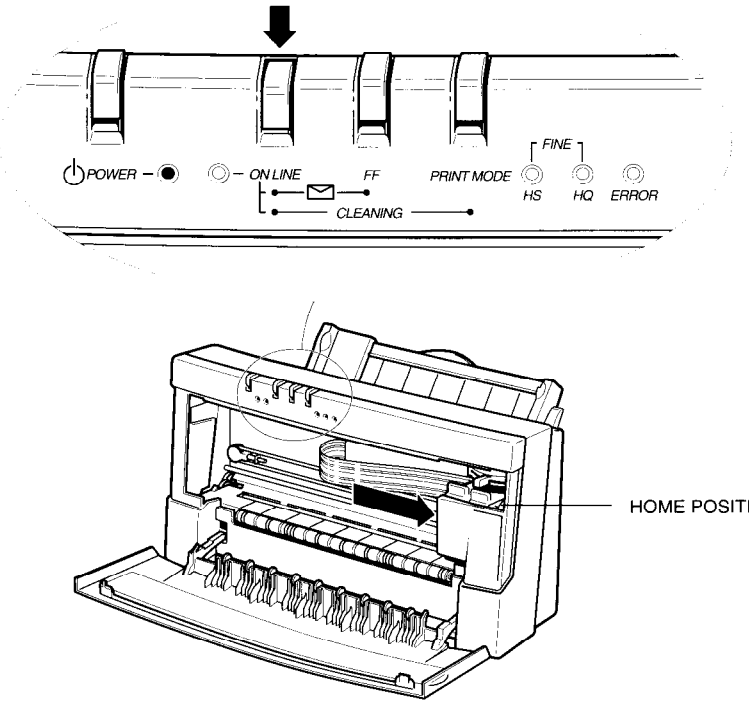


❑ If you installed the BC-21 Color BJ cartridge, set the paper thickness lever to the center.



11. **Press and hold the ON LINE button (also called the CARTRIDGE button) for a few seconds until you hear two beeps.**

    ❑ The cartridge holder moves to the right side of the printer. This is called the *home position*.



    ❑ If the BJ cartridge is not installed or the lock lever is not completely down, the printer beeps three times and the cartridge holder does not move.

12. **Close the front cover.**

13. **After the** ON LINE **light stops blinking, press ON LINE to set the printer on-line.**

Caution

Whenever you turn off the printer, the BJ cartridge moves to the home position on the right and caps itself. If you unplug the printer (or turn off a power strip to which the printer is attached) while it is printing, or if you manually move the ink cartridge from the home position, the BJ cartridge will not be capped and it may dry out.

Note

If you find print quality problems (such as white streaks, missing dots, or irregular dots) in your initial printout, perform print head cleaning. See *Cleaning the Print Head* on page 104 for instructions.

Storing a BJ Cartridge

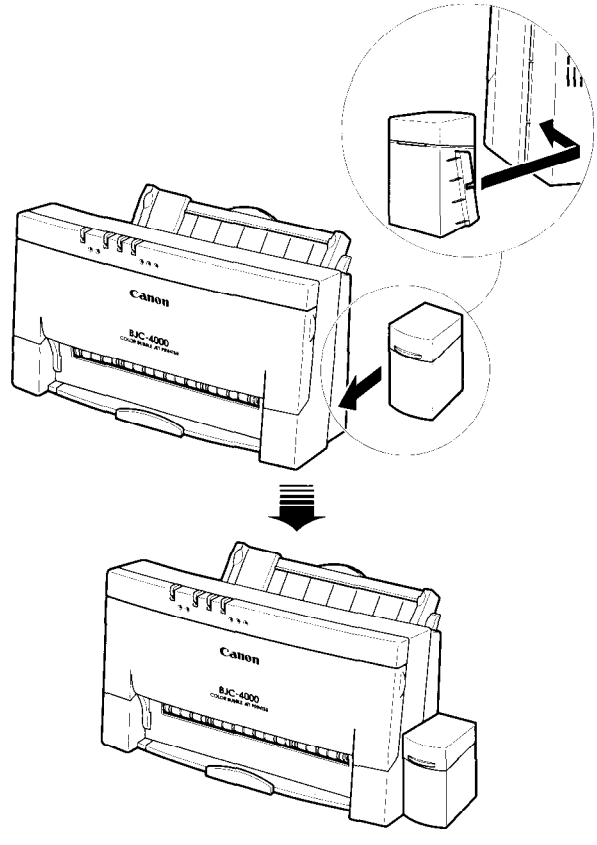
If you unwrap a BJ cartridge but do not install it in the printer, store it in the BJ cartridge container to prevent the print head from drying and clogging.

The print head of a BJ cartridge must never dry or clog. When installed in the printer, the print head is protected from drying. If you remove the BJ cartridge from the printer, the print head will be exposed to the air.

To prevent drying or clogging, store an unused BJ cartridge in the BJ cartridge container.

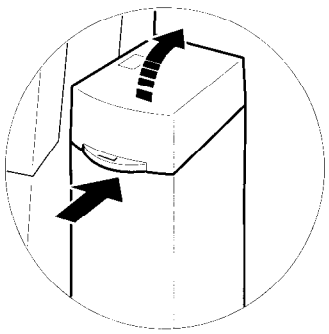
1. **Hook the container on the right side of the printer.**

   - ❑ Unpack the BJ cartridge container.
   - ❑ Attach the container near the bottom of the printer.
   - ❑ The tabs on the side of the container slide into the slats on the side of the printer.



2. **Open the BJ cartridge container.**

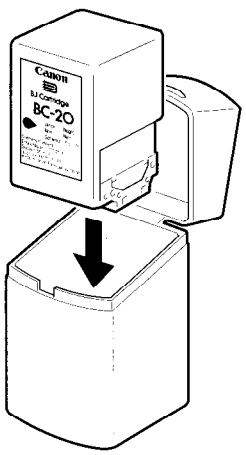
   - ❑ When opening or closing the BJ cartridge container, press in on the container right below the tab that locks the cover in place.
   - ❑ Do not pull on the container itself; simply press in to release the lock tab.



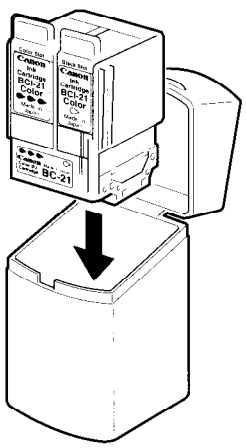
3. **Carefully set the cartridge in the container.**

   - ❑ You must insert the cartridge correctly or the container will not close.
   - ❑ The orange protective cap must be removed from the cartridge.

BC-20 BLACK BJ CARTRIDGE



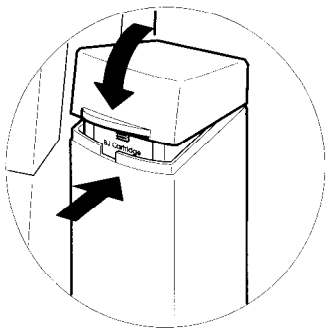
BC-21 COLOR BJ CARTRIDGE



4. **Close the container.**

   ❑ Press in on the container right below the tab.

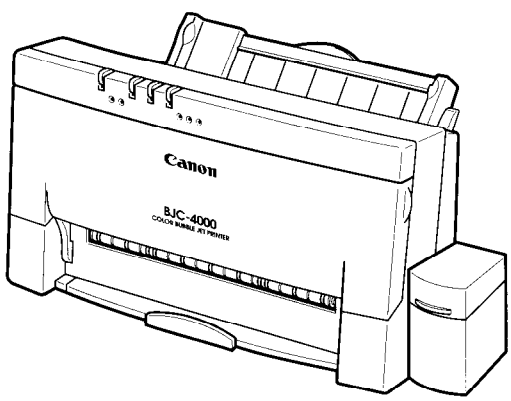
   ❑ Then press down to lock the cover in place.



Note

❑ Whenever you remove a BJ cartridge from the printer, store the cartridge in the container (unless you are disposing of it).

❑ Keep the BJ cartridge container attached to the printer to avoid misplacing it and to avoid unnecessary handling of the BJ cartridges.

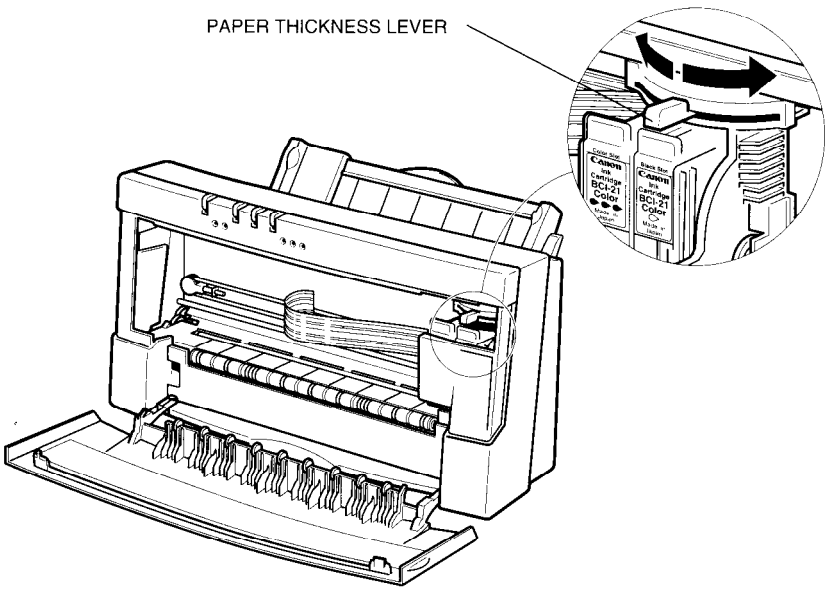


Before Loading Paper

To ensure trouble-free paper handling, you'll want to set the paper thickness lever and the paper selection lever before loading paper.

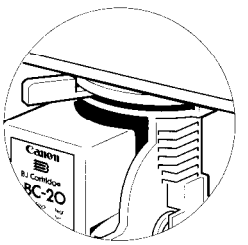
Setting the Paper Thickness Lever

You use the paper thickness lever to adjust the distance between the print head and the paper to accommodate different paper thicknesses. This distance is called the *print gap*.

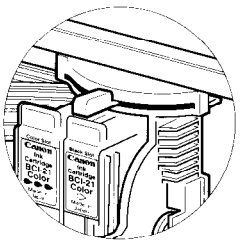


Set the lever according to the thickness of the paper you are using:

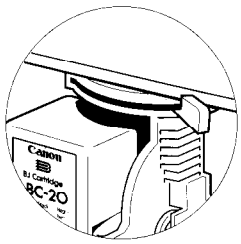
- **Left** is for printing on normal paper using the BC-20 Black BJ cartridge.



- **Center** is for printing on any type of paper using the BC-21 Color BJ cartridge, or printing on coated paper, glossy paper, transparency film, or back print film.



❑ **Right** is for printing on thick paper or envelopes.



Note

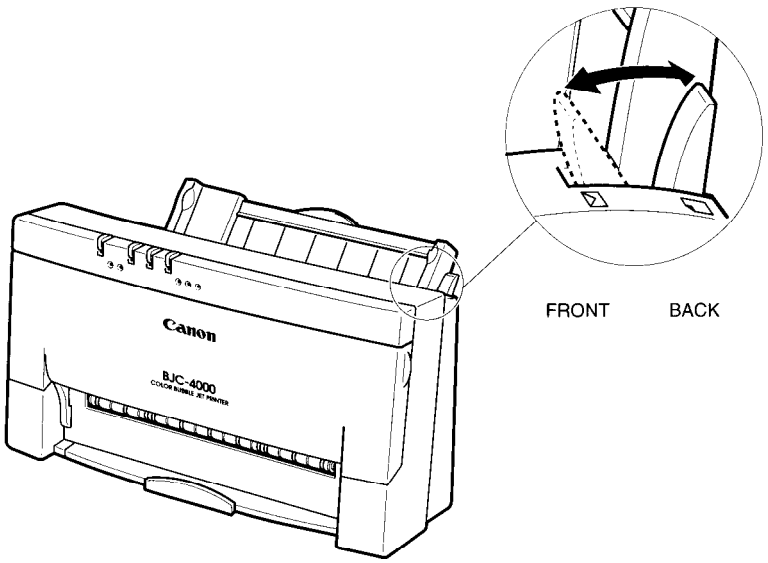
Always set this lever when you change BJ cartridges. You also need to set the lever before and after printing on thick paper or envelopes.

Setting the Paper Selection Lever

Set the paper selection lever to the proper position before loading paper. There are two positions according to paper type:

❑ The **back** position is for normal plain paper, coated paper, transparencies, or back print films.

❑ The **front** position is for envelopes, glossy paper, thick paper, and manual feed.

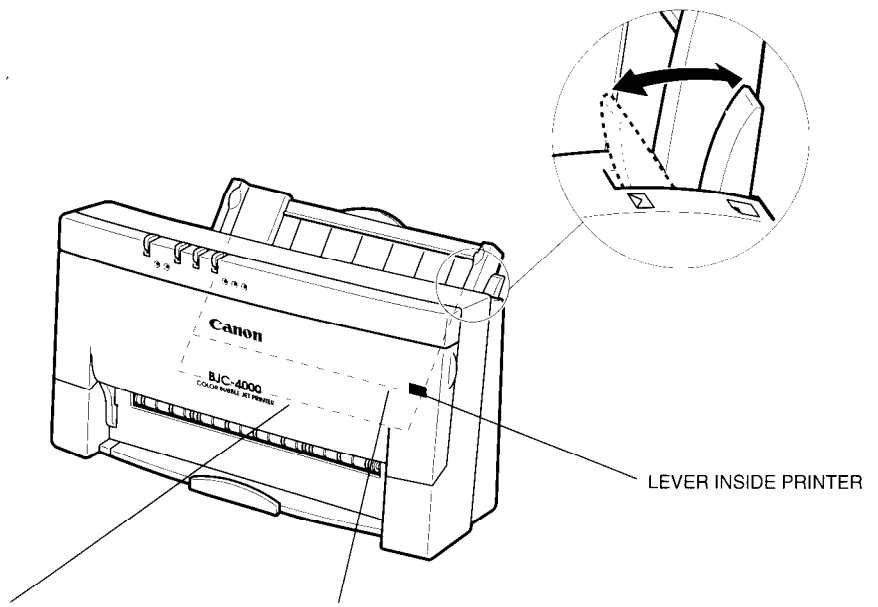


Note

- Do not move this lever after loading paper in the sheet feeder.
- This lever is different from the lever on a typewriter or dot matrix printer. You need not pull it forward to load paper. You set the paper selection lever to the front position only when loading envelopes or glossy paper, or when manually feeding paper. If it is set to the front position when you are automatically feeding stacks of normal paper, the printer may feed multiple sheets or jam.
- Be sure to remove any paper from the sheet feeder before setting the paper selection lever.

When the paper selection lever is in the back position, a lever inside the printer prevents the paper from advancing into the printer. When you move the paper selection lever to the front position, the lever inside the printer moves so that the single sheet being manually fed can advance into the printer.

Therefore, it is very important that the paper selection lever be in the correct position for how you plan to feed paper. Be sure to set the paper selection lever before loading paper and do not move the lever after loading paper.

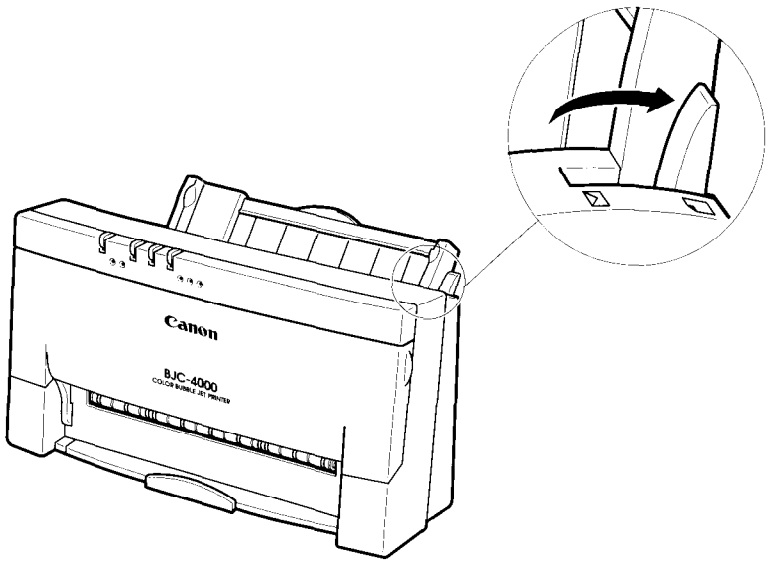


Loading a Stack of Paper

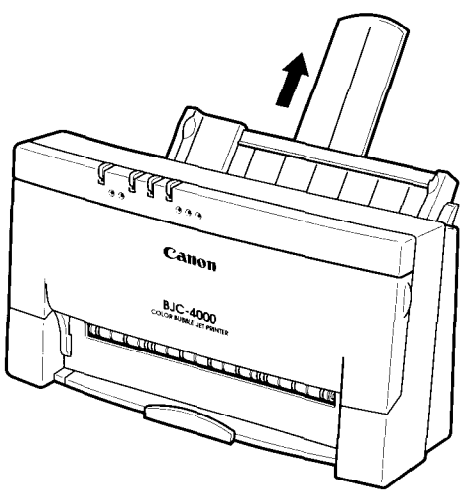
Now it's time to load a stack of paper and test your printer. For testing the printer, load a stack of plain paper. In the next chapter, you'll learn how to print on different types of print media.

You can stack about 100 sheets of plain paper in the sheet feeder.

1. **Make sure the paper selection lever is set to the back position.**



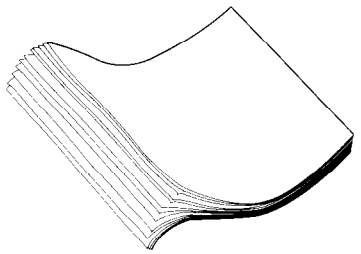
2. **Pull the paper rest up until it stops.**



3. **Fan the paper.**

   ❑ For best results, fan the paper before loading it.

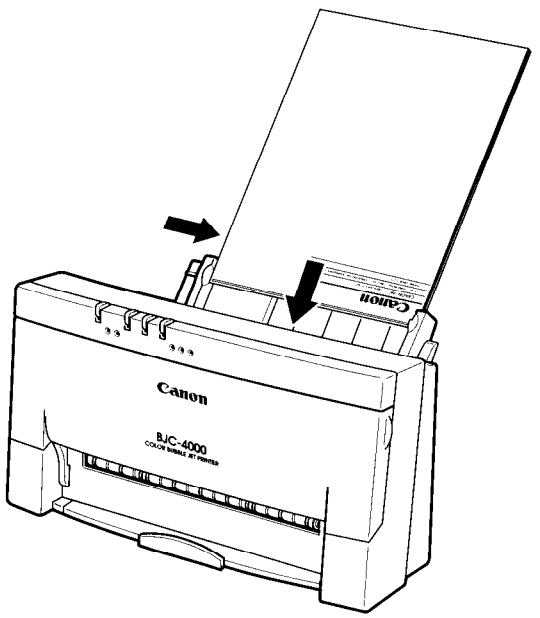
   ❑ Always fan a stack of paper along the edge that will feed into the printer first.



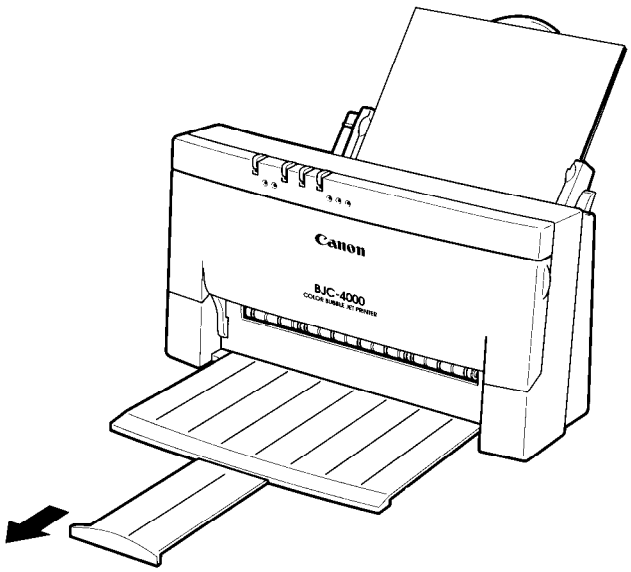
4. **Slide the stack of paper into the sheet feeder until it stops.**

   ❑ Align the edge of the paper with the right edge of the sheet feeder.

   ❑ Secure the stack with the paper guide.



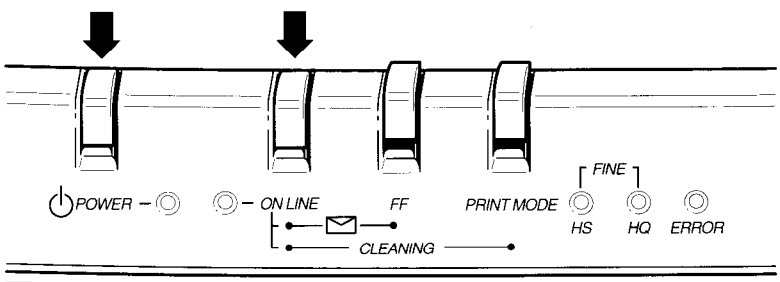
5. **Pull out the paper output tray and its extension.**



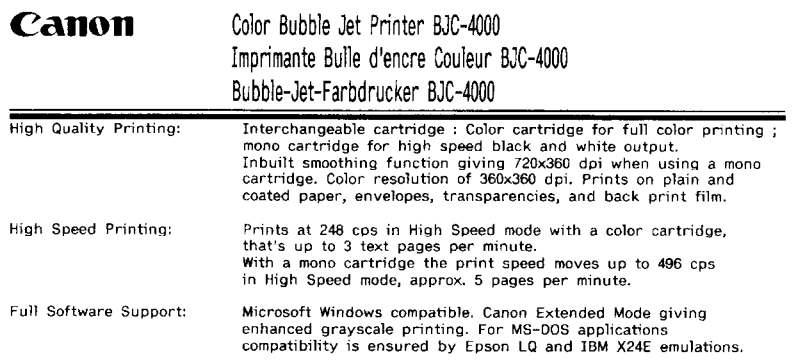
Printing a Self Test

To check that you have properly set up the printer, you can print one of the printer's self test. The self tests are described in detail in the next chapter. For now, print the Demo print:

1. Press the **POWER** button to turn off the printer.
2. Wait a few seconds.
3. While pressing and holding the **ON LINE** button, press the **POWER** button. Press both buttons until you hear the printer beep twice. (The two beeps are approximately three seconds apart.)



The printer starts to print the Demo. (The Demo print shows different colors when the BC-21 Color BJ cartridge is installed.)



Canon

Color Bubble Jet Printer BJC-4000
Imprimante Bulle d'encre Couleur BJC-4000
Bubble-Jet-Farbdrucker BJC-4000

High Quality Printing:	Interchangeable cartridge : Color cartridge for full color printing ; mono cartridge for high speed black and white output. Inbuilt smoothing function giving 720x360 dpi when using a mono cartridge. Color resolution of 360x360 dpi. Prints on plain and coated paper, envelopes, transparencies, and back print film.
High Speed Printing:	Prints at 248 cps in High Speed mode with a color cartridge, that's up to 3 text pages per minute. With a mono cartridge the print speed moves up to 496 cps in High Speed mode, approx. 5 pages per minute.
Full Software Support:	Microsoft Windows compatible. Canon Extended Mode giving enhanced grayscale printing. For MS-DOS applications compatibility is ensured by Epson LQ and IBM X24E emulations.

4. To stop printing the Demo print, press and hold the **ON LINE** button for one second. The printer stops printing, ejects the current sheet of paper, and goes back on-line.

Note

If there are missing lines in the printed text or if there is no ink on the paper, check that the BJ cartridge is installed correctly (as described previously in this chapter). You may also need to clean the print head; see *Cleaning the Print Head* in page 104 for instructions.

Installing a Printer Driver

Before you can print documents from your software applications, you must install the appropriate printer driver on your computer. The printer driver takes the information from your application program and translates it into a language the printer can understand.

If you are using Microsoft Windows 3.1 applications, install the Windows printer driver and On-Line Guide as described in the next section.

If you are using MS-DOS applications, you must install a printer driver for each MS-DOS software application that you intend to use with the printer. See Chapter 4, *Using the Printer With Your Software,* for details.

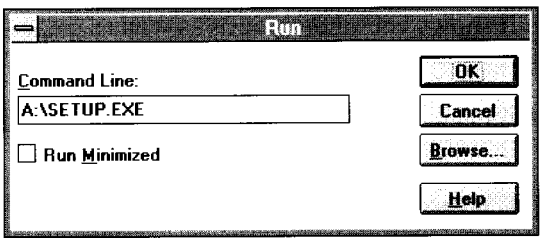
Installing the Windows Printer Driver and On-Line Guide

If you are using Windows 3.1, you now want to install the Windows printer driver for the BJC-4000 and the On-Line Guide.

The Windows Driver and On-Line Guide diskettes contain a setup program called SETUP.EXE. This program automatically installs both the Windows driver and the On-Line Guide. You can choose to install either the driver or the guide or both.

Follow these steps:

1. Turn on your computer.
2. Make backup copies of the Windows Driver and On-Line Guide diskettes.
3. If you are not already in Windows, start Windows by typing `WIN` and pressing **Enter**. Make sure the Windows Control Panel is closed.
4. Insert the first diskette (Disk 1 of 2) of the Windows Driver and On-Line Guide into disk drive A (or your desired drive).
5. From the Program Manager, select the File menu and then choose the Run option.
6. In response to the Command Line prompt, enter the path name that identifies the SETUP.EXE file on the Windows Driver and On-Line Guide diskette and then click on OK. For example:



7. Now follow the instructions on the screen to install the Windows driver and/or the On-Line Guide.

The SETUP program installs the Windows driver in the Windows/System directory.

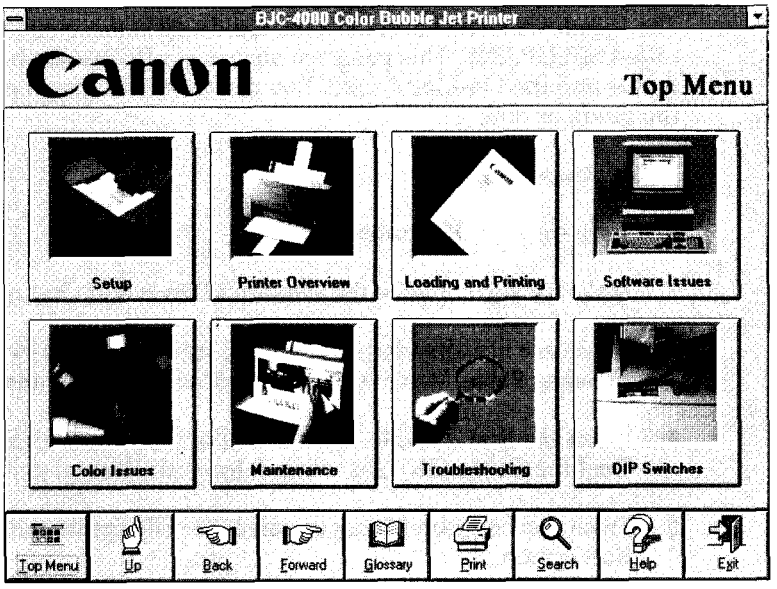
If you choose to install the On-Line Guide, the SETUP program creates an icon in the Program Manager. Whenever you need information about the BJC-4000, you can open the icon and look up the desired information.

Note

For faster printing operations in Windows, do not use the Windows Print Manager.

Using the On-Line Guide

When the SETUP program is complete, you can start the On-Line Guide and take a look at its features. Simply open the BJC-4000 icon in the Program Manager.



From now on, you can use the On-Line Guide for all your documentation needs. The On-Line Guide contains all the information included in this *User's Manual*. In addition:

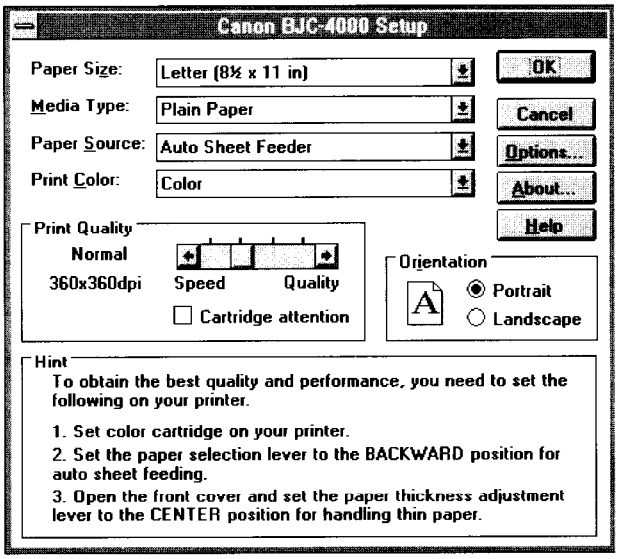
- ❑ It shows you photographs as well as color illustrations of all the topics it covers.
- ❑ It includes demonstrations and simulations of procedures you actually perform.
- ❑ It presents detailed information about printing in color.
- ❑ It includes technical information regarding printer command codes and ESCape sequences.

Using the On-Line Guide, you can easily search for the topic you are interested in and you can move forward and backward through the guide with a click of your mouse.

If, for some reason, your computer and/or On-Line Guide are not available, you can look up the information you need in this *User's Manual*.

Using the BJC-4000 Windows Driver

When you first install the Canon BJC-4000 Windows driver, it's a good idea to run the Setup program. You can select the printer settings that you will normally use. Later, from within each of your software applications, you can select printer settings that are unique to the current print job.



This screen shows the default settings for the BJC-4000. See Chapter 4, *Using the Printer With Your Software*, for details on selecting other printer settings for the BJC-4000 Windows printer driver.

Installing the Canon TrueType Fonts for Microsoft Windows 3.1

1. Make sure your computer is turned on.
2. Start Windows 3.1 by typing `WIN` and pressing **Enter** at the MS-DOS prompt.
3. Choose the Control Panel from the Main icon group window in the Program Manager.
4. Open the Fonts icon. The Fonts dialog box appears.
5. Choose the Add button to display the Add Fonts dialog box.
6. Insert the diskette containing the Canon TrueType Fonts into the diskette drive.

7. In the Drives scroll menu, select the appropriate drive where the diskette is located. The fonts appear in the List of Fonts box.

8. Select the fonts by clicking on the fonts you want to add. To select all the fonts, click the Select All button.

9. Click on OK. The Fonts dialog box reappears with the installed fonts listed in the Installed Fonts menu.

10. To ensure the fonts appear in your application, click the TrueType button. The TrueType dialog box appears.

11. Make sure an X appears in the Enable TrueType Fonts box. Click on OK to exit the TrueType dialog box.

12. Click on Close to exit the Fonts dialog box.

Your installation is now complete.

If you would like to remove the installed fonts, please refer to the instructions that came with your TrueType fonts.

Turning the Printer On and Off

To turn on the printer's power, follow the steps below.

1. **Make sure the parallel interface cable and the power cord are attached.**

2. **Press the POWER button.**

   - ❑ The POWER light will come on.
   - ❑ The ON LINE light will also come on, indicating that the printer is on-line and ready to receive data from your computer.
   - ❑ The HQ (or HS or FINE) light comes on, indicating what print mode is in effect.

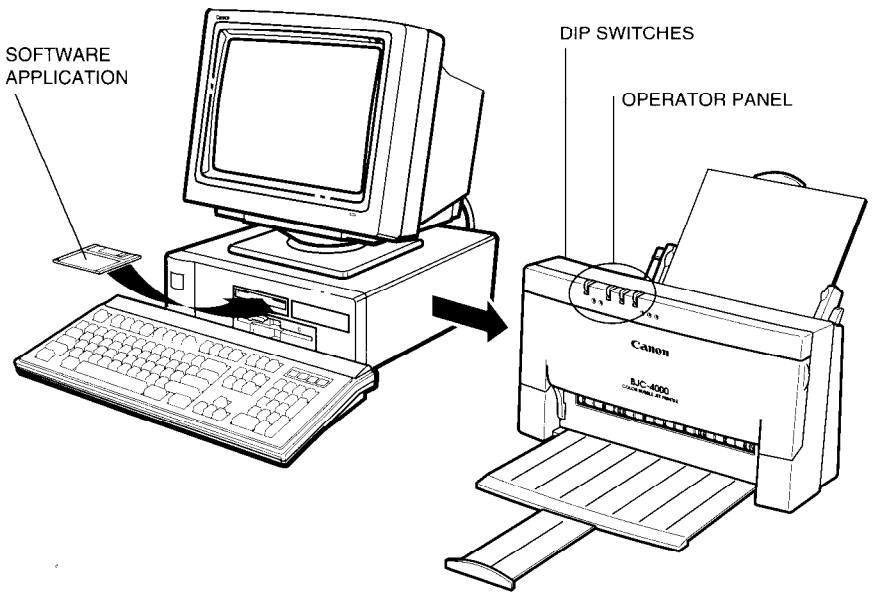
To turn off the power, press the **POWER** button again.

Note

- ❑ Do not unplug the power cord unnecessarily.
- ❑ Do not unplug the printer or turn off a power strip to which the printer is attached when the printer's power is turned on. This may prevent the print head unit from returning to the home position and being capped, which may cause the print head to dry out. This is critical. If left uncapped, the print head unit may clog, and you may have to purchase a replacement.

Managing Your Printer's Features

You select and control the printing features of the BJC-4000 printer with your software application, with the printer's operator panel, or with the printer's DIP switches. Each method allows you to select some or all of the printing features that control the appearance of your printed documents.



Software Applications

Your software applications, when used with the appropriate printer driver, can control all aspects of the printer's features. This is the easiest method for controlling the look of your printed documents, including typeface style and size and placement of text, graphics, and margins. Normally, settings made with your software applications override the settings made through the operator panel or the DIP switches.

See Chapter 4, *Using the Printer With Your Software*, for details on setting up your software applications for use with the BJC-4000.

Operator Panel Buttons

The buttons on the operator panel allow you to turn the printer on and off, set the printer on-line and off-line, pause a print operation, select basic printing modes, feed paper, clean the print head, start a printer self test, and turn on automatic line feeds.

See Chapter 6, *Using the Operator Panel*, for details.

DIP Switches

The printer's DIP switches allow you to set the default printer configuration settings, such as paper and envelope size, text lines per page, character sets, and so on. See Chapter 9, *Customizing the Printer*, for details.

Congratulations

You are now ready to start using your new printer. See Chapter 3, *Using the Printer*, for instructions on how to perform different printing operations.

Chapter 3
Using the Printer

This chapter describes how to use the printer for all your printing operations, such as printing documents, single sheets, special papers, and envelopes. It includes how to print the self tests as well as printing on legal-size paper and printing in landscape orientation. It also describes how to pause a print operation.

To ensure the best performance of your printer, you want to select the best paper and load it correctly. You can stack paper in the sheet feeder to load it automatically, or you can manually feed one sheet at a time. The path that the paper travels through the printer is the same for automatic and manual feeding.

Selecting Paper Types

One of the most important things you can do to assure the best possible performance of your bubble jet printer is to select the correct paper. Your printer produces letter quality print on most plain bond papers, including cotton bond and photocopying papers; it does not require special ink jet papers. However, the print quality varies with different paper types. Be sure to test a type of paper before you purchase a large quantity.

Plain Papers
The printer supports paper sizes of letter, legal, and A4 in portrait orientation. You can use regular copier paper, cotton bond papers, and typical letterhead. Always use paper without curls, folds, staples, or damaged edges.

Coated Papers
The printer can also print on coated paper. The Canon coated paper LC-101 is recommended for optimum color print quality. It is available in letter, legal, and A4 sizes.

Glossy Paper
The Canon glossy paper GP-101 is recommended for correct paper feeding and optimum print quality. It is available in letter size only.

Transparencies
The CF-102 transparency film from Canon is recommended. It is available in letter size.

Back Print Film

Canon Back Print Film BF-102 has been specially developed for color printing with the BJC-4000 and BJC-600 printers. The film is designed to deliver brilliant, high intensity color images suitable for business presentations, design work, or professional reports. Back print film is printed on the back side (the non-glossy side of the film) in mirror image and then viewed from the front or glossy side using a backlighting device. For more details, ask a Canon Authorized Dealer for information or refer to the manual supplied with the film.

Note

If you are printing in an application outside Windows, your software application or printer driver must support mirror image printing in order to use back print film.

When selecting or loading paper, please remember the following:

- ❑ Attempting to print on damp, curled, wrinkled, or torn paper can cause paper jams and poor print quality.
- ❑ Use cut-sheet paper only. You cannot use multipart paper.
- ❑ When using graph paper, the lines may not match because the 1/6-inch line spacing of the printer is slightly less than that of graph paper.
- ❑ If the print density of your page is very high, light paper stock may curl slightly due to the large amount of ink. If you need to print heavy graphics, try printing on a heavier stock.
- ❑ Do not use thicker paper than meets the specifications for this printer. Printing with a paper that is thick enough to come in contact with the print head nozzles may damage the BJ cartridge.

For complete paper specifications, see Appendix A, *Specifications*.

Printing Documents

When you want to print a multipage document, you will stack a sheet of paper in the sheet feeder. The printer will automatically feed each sheet when your software application tells it to start printing each page.

After you create a document in your software application, you tell the application that you want to print the document. How you actually print within a program is dependent on the application. For example:

- In Microsoft Word for Windows, you select the Print command from the File menu.
- In Microsoft Word for MS-DOS, you select the Print command from the Command menu.

See your application's documentation for details.

Specifying Print Options

For each print operation, you need to specify certain print functions in the printer driver. For example, you need to tell the driver what size and type of paper you are printing on and that the paper is being loaded automatically from the sheet feeder. Your default settings may match the current print operation. Or, if the print options for the current print operation are different from the default settings, you can change them from within your application.

For example:

- In Microsoft Word for Windows, you can select Print Setup from the File menu and then select Setup from the Printer Setup dialog box. Windows displays the Canon BJC-4000 Setup dialog box in which you can define all your printer settings. See Chapter 4, *Using the Printer With Your Software*, for complete details on the printer settings you select in the Windows printer driver.
- In Microsoft Word for MS-DOS, you can select Print from the Command menu, and then select Options from the Print menu. The Print Options menu then allows you to define your printer settings.

After making your print selections, you can prepare the printer for automatically feeding paper.

Automatically Feeding Paper

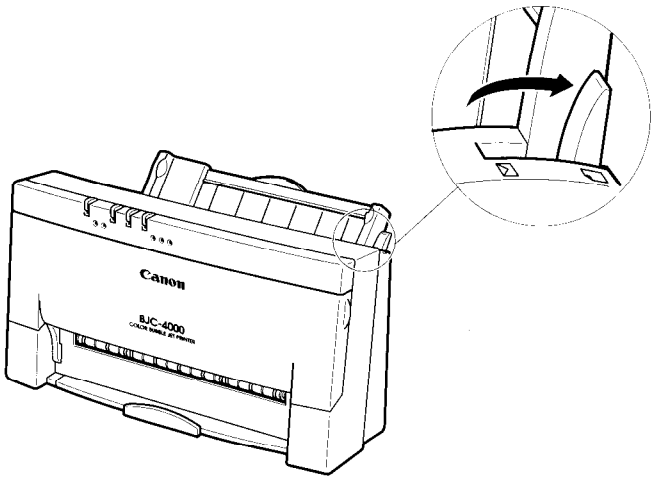
You can place approximately 100 sheets of plain paper (20 lb or 75 g/m^2) in the sheet feeder at a time.

To automatically feed paper, follow these steps:

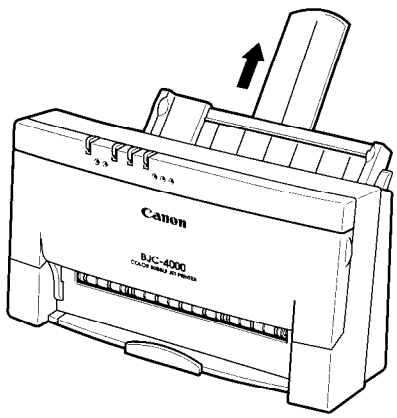
1. **Make sure the paper thickness lever is set to the correct position for the type of BJ cartridge you are using:**

   - ❑ Left for the BC-20 Black BJ cartridge
   - ❑ Center for the BC-21 Color BJ cartridge.

2. **Make sure the paper selection lever is set to the back position.**



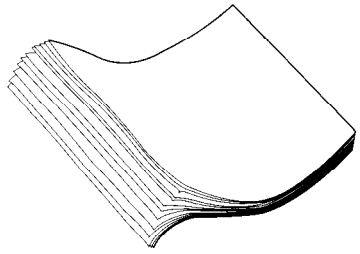
3. **Pull the paper rest up until it stops.**



4. **Fan the paper.**

   ❑ For best results, fan the paper before loading it.

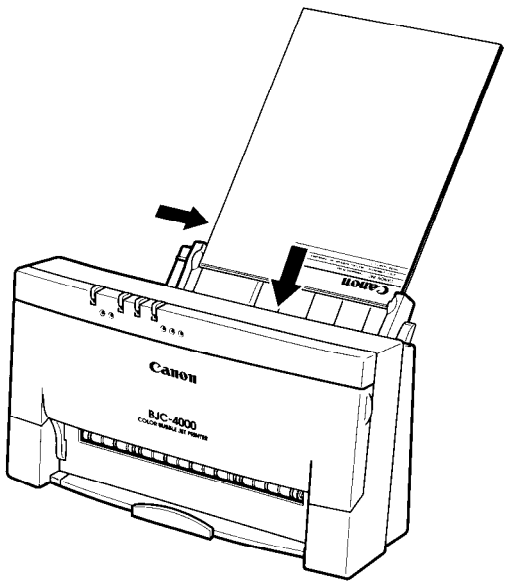
   ❑ Always fan a stack of paper along the edge that will feed into the printer first.



5. **Slide the stack of paper into the sheet feeder until it stops.**

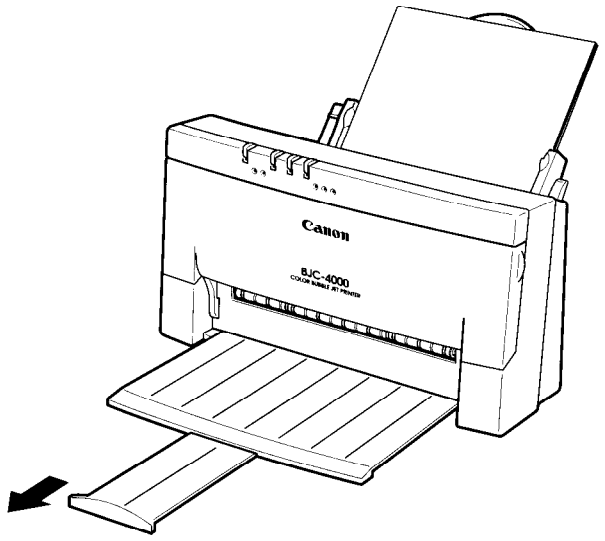
   ❑ Align the edge of the paper with the right edge of the sheet feeder.

   ❑ Secure the stack with the paper guide.



6. **Pull out the paper output tray and its extension.**

   ❑ For letter-size and A4-size paper, extend the paper output tray.



7. **Make sure that the printer is turned on and on-line and start your print operation.**

Auto Feed Guidelines

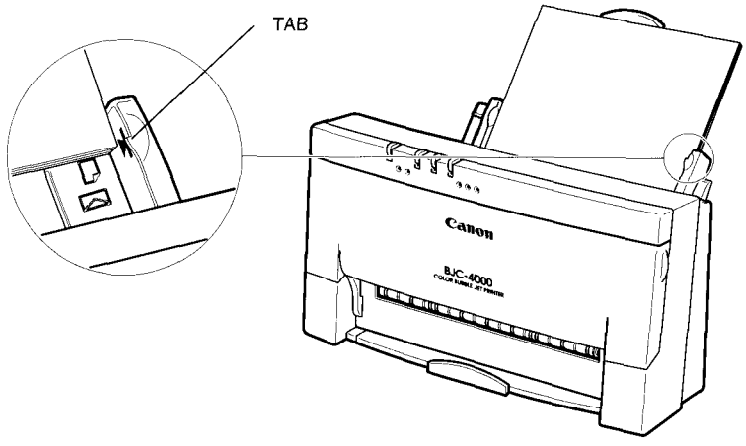
When automatically feeding stacks of paper, follow these guidelines:

- ❑ Do not open the front cover while printing. This may cause paper jams, smudges, or malfunctions.
- ❑ Do not leave paper stacked in the printer for long periods of time; longer sheets of paper may become bent or curled over time. This may cause the paper to misfeed or jam.
- ❑ If your printed page contains lots of graphics, the ink on the page may be damp due to the print density. Remove the page right away and allow the ink to dry.
- ❑ The capacity of the paper output tray is 20 sheets of paper. To reduce paper jams, remove paper from the output tray before the count reaches 20.
- ❑ If paper curls after printing, remove it immediately; otherwise, paper jams may occur.

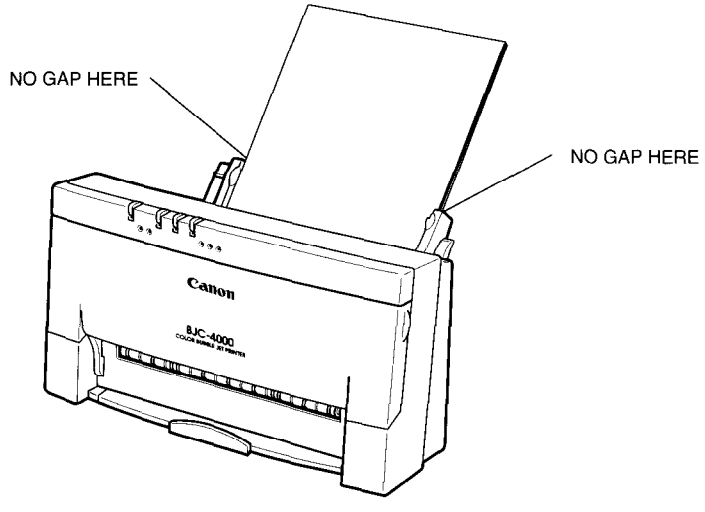
- ❑ The platen (a roller on the inside of the printer) may become inked if you print data beyond the width of the page. If this happens, clean the platen with a soft cloth. (For details on cleaning the platen, see page 108.)

- ❑ Depending on the density of your printed pages, the ink may need time to dry. Within two to three seconds, the ink becomes smudge-resistant. After drying for several minutes, the ink becomes water resistant.

- ❑ Do not try to load paper into the sheet feeder beyond the paper limit mark (▲) or the tab on the right side of the sheet feeder; stacking too much paper may cause paper feeding or printing problems.



- ❑ Make sure there are no gaps between the stack of paper and the paper guide nor the right edge of the sheet feeder.



Printing Single Sheets

When you want to print a single page or thick paper, you can manually feed single sheets of paper.

Specifying Manual Feed

In the Windows driver, you must select Manual Feed for the Paper Source.

If you are using an MS-DOS application, your driver should have a manual feed selection. For example, in Microsoft Word, the Print Options menu includes a Paper Feed option for which you select Continuous or Manual.

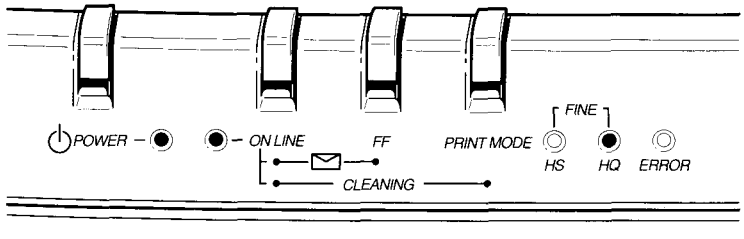
Manually Feeding Paper

You use the manual feed function when printing on heavier weight paper (24 lbs to 28 lbs or 91 g/m^2 to 105 g/m^2) or Canon's glossy paper GP-101.

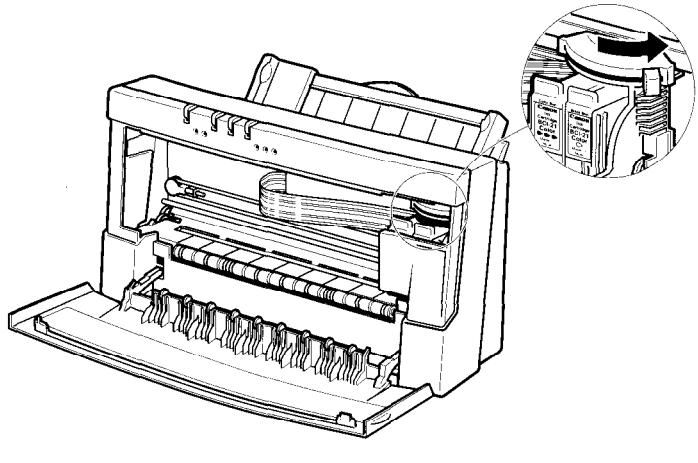
To manually feed a single sheet, follow these steps:

1. **Make sure the printer is on-line.**

   ❑ The ON LINE light is on.



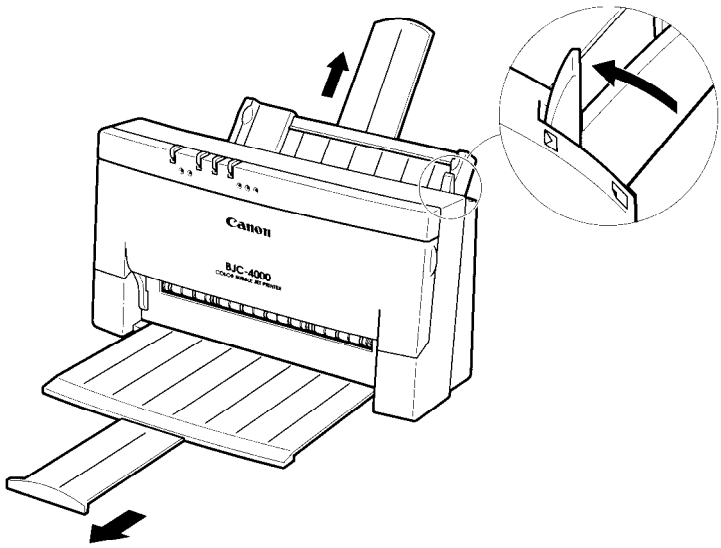
2. **If you are manually feeding thick paper, set the paper thickness lever to the right.**



3. **Set the paper selection lever to the front.**

   ❑ Pull the paper rest up until it stops.

   ❑ Pull out the paper output tray if necessary.



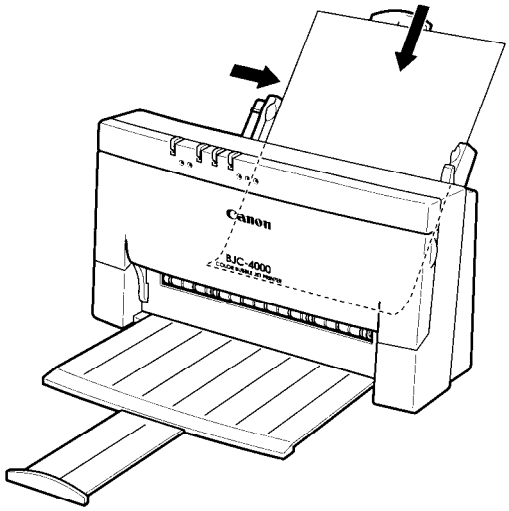
4. **Insert the single sheet.**

   ❑ Slide in the paper until it stops inside the sheet feeder and hold it for about two seconds.

   ❑ Align the sheet with the right edge of the sheet feeder.

   ❑ Adjust the paper guide to the sheet.

   ❑ The printer will automatically load the paper into position.



5. **Start your print operation.**

Note

- If you are using Windows, you must select Manual Feed in the BJC-4000 printer driver for the printer to accept manually fed paper.
- After printing on thick paper or envelopes, set the paper thickness lever (inside the printer) back to the left or center position before printing on normal paper.
- After manually feeding a sheet of paper or an envelope, set the paper selection lever to the back position.

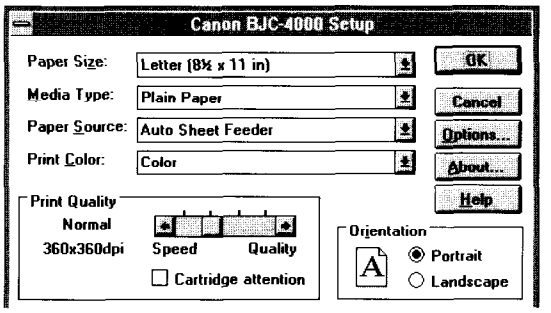
Printing on Special Papers

You can print on coated papers, glossy paper, transparencies, and back print film. These are special papers that you may want to use for certain presentations.

You can automatically feed stacks of coated paper, transparencies, and back print film. However, you must manually feed glossy paper one sheet at a time.

You can stack approximately 40 sheets of transparency film or back print film. However, these special media may not advance correctly under unusual environmental conditions (such as extreme temperatures). If you have trouble with special papers becoming skewed or feeding multiple sheets, do not stack them in the sheet feeder. Load them manually as described starting on page 52.

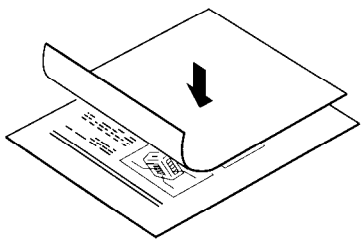
When you are ready to print on a special type of paper, make sure your document is ready within your software application and define any special print options you can from within your printer driver. For example, if you are using Windows, you can specify the Media Type, Paper Source, Print Color, and Print Quality from within the printer driver.



Once your software and driver are ready to print, you can set up the printer for auto feed (see page 48) or manual feed (see page 52).

Follow these guidelines when automatically feeding stacks of special paper:

- ❑ When automatically feeding transparencies or back print film, remove each sheet after it is delivered. Do not allow film sheets to stack up in the paper output tray.
- ❑ Let the printed sheets of film dry completely before storing them. The complete drying time required for Canon'stransparencies or back print film is approximately 15 minutes.
- ❑ When a sheet of film has dried completely, cover its printed side with a sheet of plain (not coated) paper before storing it; this is recommended even if you place the sheets of film in a clear file.



Printing on Envelopes

You can stack up to 15 envelopes in the sheet feeder or you can manually feed envelopes one at a time.

U.S. Commercial number 10 (COM10) envelopes and European DL envelopes are recommended. You may be able to stack envelopes of other sizes in the sheet feeder; however Canon cannot guarantee consistent performance on envelope sizes other than Commercial number 10 and DL.

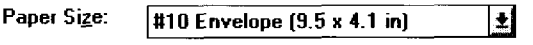
The following envelopes are not recommended because they may cause jams or smears, or may damage your printer:

- ❑ Envelopes with windows, holes, perforations, cutouts, and double flaps.
- ❑ Envelopes made with special coated paper or deeply embossed paper.
- ❑ Envelopes using peel-off sealing strips.
- ❑ Envelopes in which letters have been enclosed.

Preparing Your Software

How you create envelopes within your software application depends on the application. See your application's documentation for details.

If you are using the BJC-4000 Windows driver, change the Paper Size setting to Envelope.



Check your software to see if it prints envelopes in portrait or landscape orientation. It's a good idea to print on a sheet of paper before printing on an envelope to check the orientation.

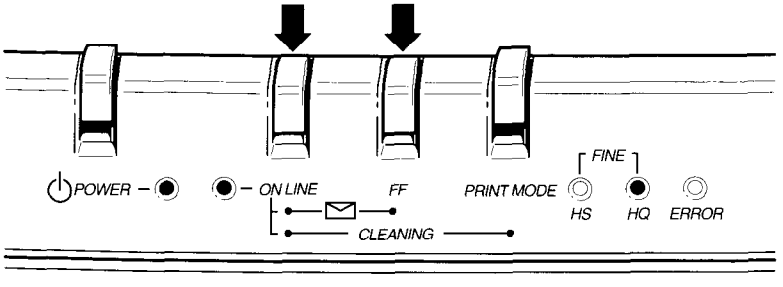
Note

Printing on envelopes in portrait orientation results in faster printing. However, several software packages, such as WordPerfect and Word for Windows, require landscape orientation. This requires adjustments in the software to correctly print on envelopes with this printer. See Appendix B, *Application Notes*, for details.

Turning On the Printer's Envelope Mode

If you are not using Windows and your software application does not have an envelope feature, you can turn on the printer's envelope mode using the operator panel. Follow these steps:

1. Make sure the printer is turned on and on-line.
2. Press and hold the **FF** button and then press the **ON LINE** button.
   - ❑ The printer beeps once and the light(s) for the currently selected print mode start to blink. This indicates the printer is in envelope mode.



3. Press **ON LINE** to set the printer on-line.

Note

Use the envelope mode only when you are loading envelopes; do not use this mode when loading regular or thick paper.

After printing on envelopes, be sure to disable the envelope mode. Follow the same steps used to enable it:

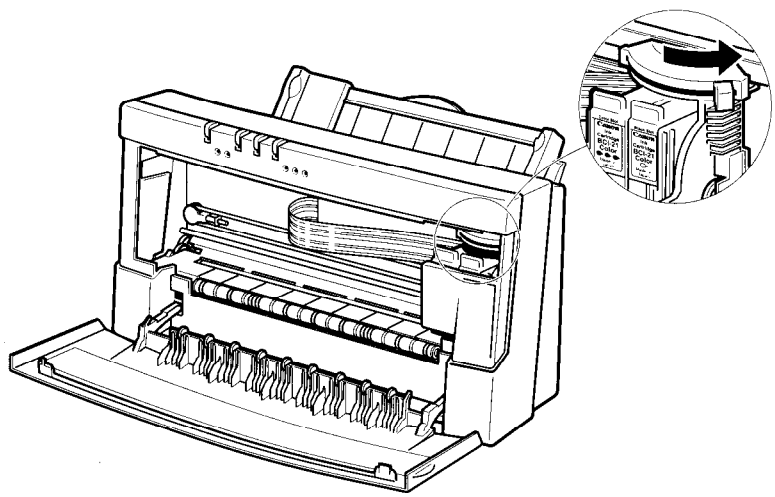
1. Press and hold the **FF** button while the printer is on-line.
2. Press the **ON LINE** button. The printer beeps once.
3. Press **ON LINE** to set the printer back on-line.

Turning off the printer also disables envelope mode. When loading plain paper or thick paper, disable this mode.

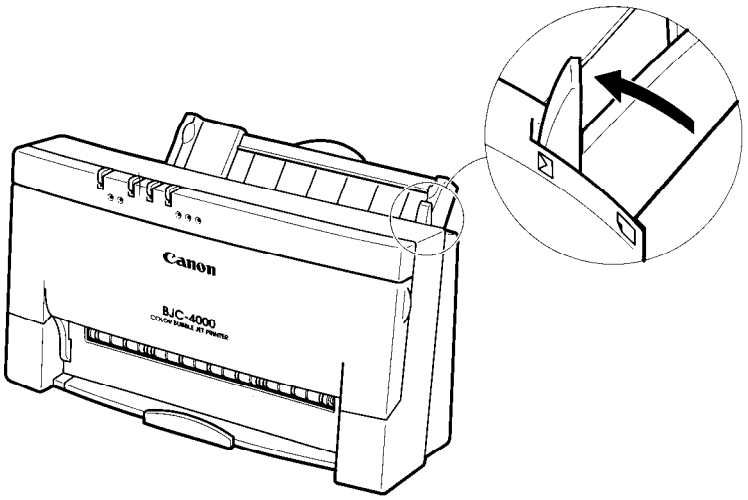
Preparing the Printer

When you are ready to print on envelopes, follow these steps to stack envelopes in the sheet feeder. (You can also manually feed envelopes one at a time.)

1. **Make sure that the paper thickness lever is set to the right (✉).**

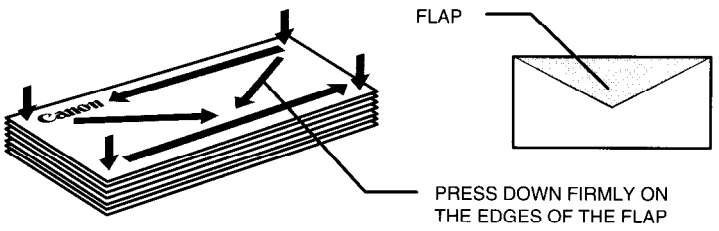


2. **Set the paper selection lever to the front.**



3. **Prepare the envelopes.**

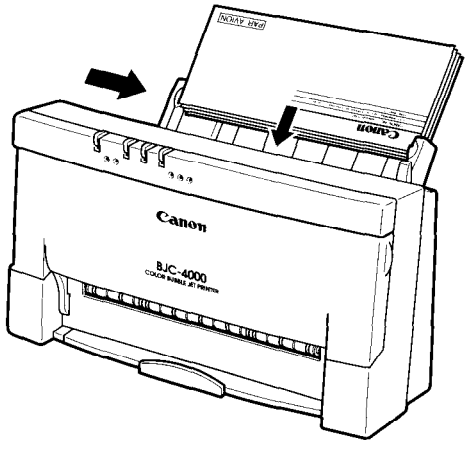
- ❑ Arrange the stack of envelopes on a firm surface and press down firmly on the edges to make the folds crisp.
- ❑ Press all the way around the envelopes to remove any curls and expel air from inside the envelopes.
- ❑ Also, press firmly on the area that corresponds to the edges of the flap.



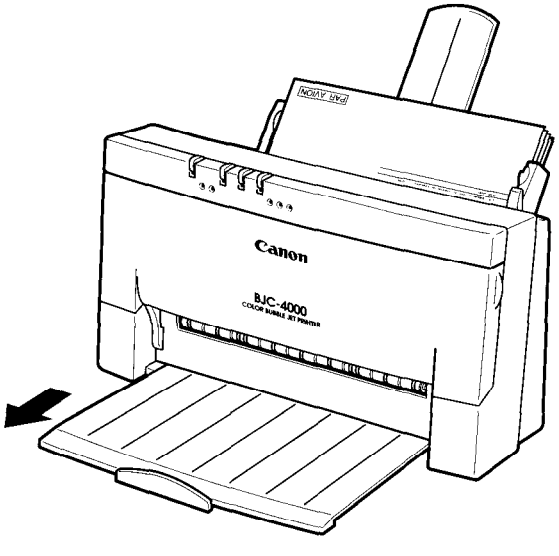
4. **Insert the envelopes.**

   ❑ Slide a stack of envelopes into the sheet feeder until it stops.

   ❑ Align the edge of the paper guide with the left edge of the stack of envelopes.



5. **Pull out the paper output tray.**



6. **Make sure the printer is on-line and start your print operation.**

Printing the Self Tests

The printer self test function allows you to visually confirm default printing parameters such as typeface and print quality. It also acts as a diagnostics test to check printer operation. Before you execute a self test, make sure paper is properly loaded in the sheet feeder (see *Automatically Feeding Paper* starting on page 48). You can execute these printer self tests: the Ripple Pattern print, All Modes print, Demo print, and Nozzle Pattern print.

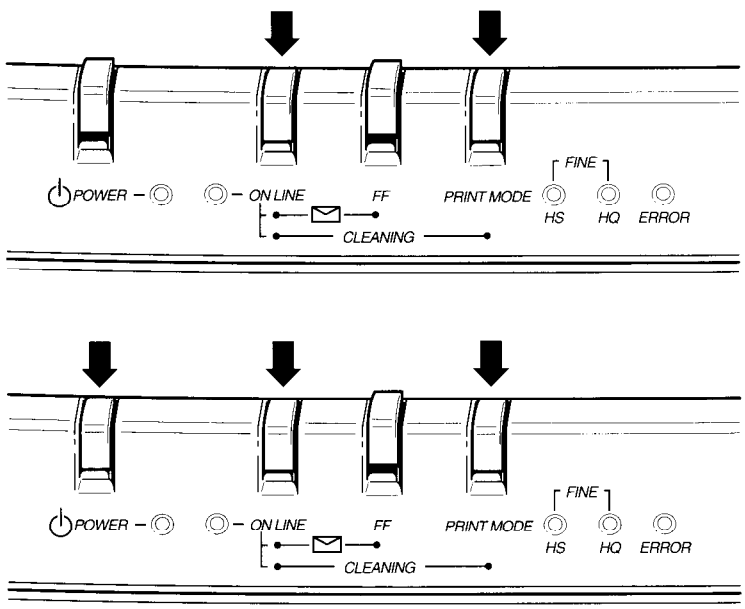
Ripple Pattern Print

You can print this self test in each printer control mode. All available characters are printed in a repeating pattern using the following typeface, print mode, and character pitch in each printer control mode:

- ❑ Courier HQ at 10 cpi in BJ mode
- ❑ Roman HQ at 10 cpi in Epson LQ mode

Starting

1. Make sure the printer's power is off and paper is loaded.
2. While pressing and holding down the **ON LINE** and **PRINT MODE** buttons, press the **POWER** button until the printer beeps once.



Stopping

To stop the Ripple Pattern test, press and hold down the **ON LINE** and **PRINT MODE** buttons for one second. The printer will stop printing, eject the paper, and go back on-line.

The printer prints one of the following Ripple Patterns:

- Epson LQ mode (DIP switch 11 set to ON)

```
LQ Mode  Ver X.XX
  CG Ver 1.10

DIP SW1-13 0000000000100

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopq
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789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåç
89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçê
9:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêë
:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëè
;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèï
<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïî
=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïîì
>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïîìä
?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïîìää
```

- BJ mode (DIP switch 11 set to OFF)

```
BJ Mode  Ver X.XX

CG Ver 1.10

DIP SW1-13 0000000000000

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopq
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqr
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56789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääà
6789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàå
789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåç
89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçê
9:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêë
:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëè
;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèï
<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïî
=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~Çüéääàåçêëèïîì
```

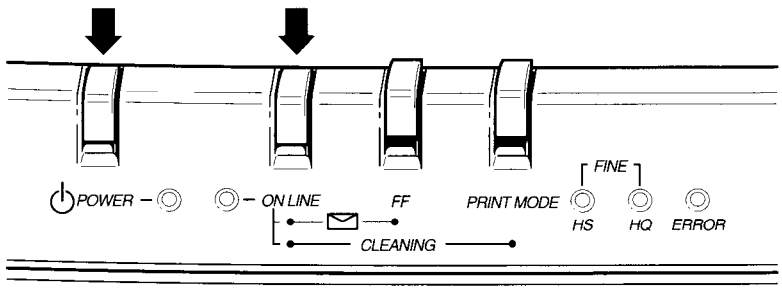
All Modes Print

You can print this self test in each printer control mode. All characters are printed out in the various print styles and pitches available.

Starting

1. Make sure the printer's power is off and paper is loaded.

2. While holding down the **ON LINE** button, press the **POWER** button until the printer beeps once.



Stopping

To stop the All Modes print test, press and hold down the **ON LINE** button for one second. The printer will stop printing, eject the paper, and go back on-line.

The printer prints one of the following All Modes print:

❑ Epson LQ mode (DIP switch 11 set to ON)

```
LQ Mode  Ver X.XX
  CG Ver 1.10
DIP SW1-13 0000000000100

Roman Font Select
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

Sans Serif (Gothic) Font Select
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

Courier Font Select
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

Prestige Font Select
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

Script Font Select
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

ORATOR FONT SELECT
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`ABCDEFGHIJKLMNO
PQRSTUVWXYZ{|}ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
 ┬┼┴├─┤╞╪╡└┌┴┬┤┘┌▀▄ ▀αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■
```

❑ BJ mode (DIP switch 11 set to OFF)

Demo Print

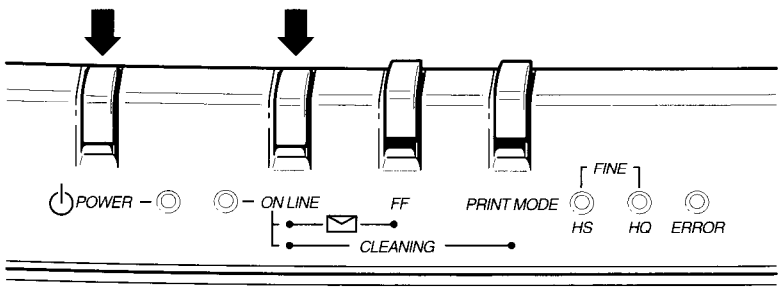
You can print this sample in each printer control mode. The Demo print describes a few of the printer's features in different languages and different colors (if the BC-21 Color BJ cartridge is installed).

Starting

To start the Demo print, follow these steps:

1. Make sure the printer's power is off and paper is loaded.

2. While pressing and holding the **ON LINE** button, press the **POWER** button. Press both buttons until you hear the printer beep twice. (The two beeps are approximately three seconds apart.)



Stopping

To stop printing the Demo print, press and hold the **ON LINE** button for one second. The printer stops printing, ejects the current sheet of paper, and goes back on-line.

The printer prints the following Demo:

Canon

Color Bubble Jet Printer BJC-4000
Imprimante Bulle d'encre Couleur BJC-4000
Bubble-Jet-Farbdrucker BJC-4000

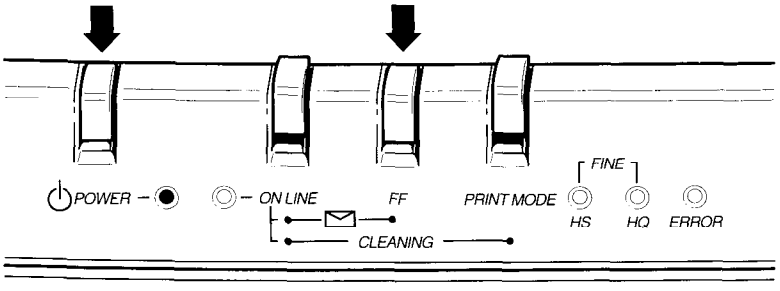
High Quality Printing:	Interchangeable cartridge : Color cartridge for full color printing ; mono cartridge for high speed black and white output. Inbuilt smoothing function giving 720x360 dpi when using a mono cartridge. Color resolution of 360x360 dpi. Prints on plain and coated paper, envelopes, transparencies, and back print film.
High Speed Printing:	Prints at 248 cps in High Speed mode with a color cartridge, that's up to 3 text pages per minute. With a mono cartridge the print speed moves up to 496 cps in High Speed mode, approx. 5 pages per minute.
Full Software Support:	Microsoft Windows compatible. Canon Extended Mode giving enhanced grayscale printing. For MS-DOS applications compatibility is ensured by Epson LQ and IBM X24E emulations.

Nozzle Pattern Print

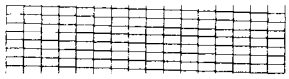
You can perform the Nozzle Pattern print whenever you want to verify that each print head nozzle is operating properly.

To start the Nozzle Pattern print, follow these steps:

1. Make sure the printer's power is off and paper is loaded.
2. While pressing and holding the **ON LINE** button, press the **POWER** button. Press both buttons until you hear the printer beep twice. (The two beeps are approximately three seconds apart.)



The printer starts to print the Nozzle Pattern. The following sample shows the Nozzle Pattern when the BC-20 Black BJ cartridge is installed.



When the BC-21 Color BJ cartridge is installed, the pattern includes all four colors: cyan, yellow, magenta, and black. In the color pattern, you'll notice that lines are missing between the colors. This is normal.

If you release the buttons before the second beep, the printer prints a pattern of the character H.

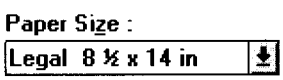
Printing on Legal-size Paper

You can print on legal-size paper by selecting a page size of 8 1/2 x 14 from within your software application or from the printer setup within the application.

For example, if you are using Word For Windows, version 2.0, follow these steps to select the paper size:

1. From the top menu bar, select Format and then Page Setup.
2. In the Page Setup dialog box, select the Size and Orientation attribute button.

3. Select the Paper Size menu bar to choose different options and select Legal (8 1/2 x 14 in).



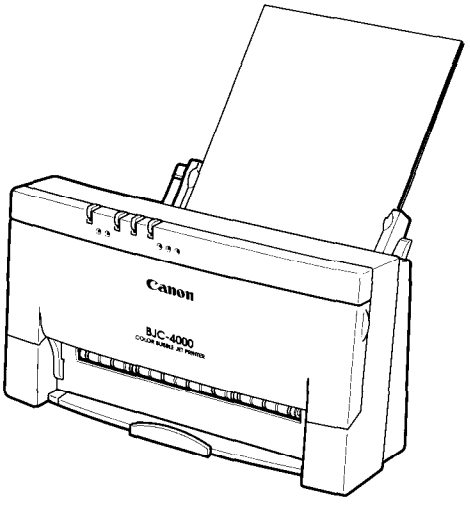
4. Select OK to verify the changes.

In some MS-DOS applications, you may need to specify the page length in lines per page. For letter-size paper, the page length is 64 lines, and for legal-size paper, the page length is 82 lines.

If you are using an application that does not include either a page setup or printer setup procedure, you may be able to use the ESCape sequence to specify your page length. Applications handle ESCape sequences differently, so refer to your applications software manual for instructions on sending commands.

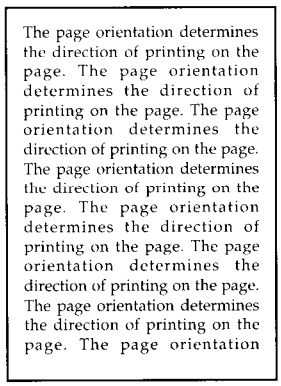
The ESCape sequence for page length is ESC C 0 *n*, where *n* is the page length in inches. For legal-size paper, the ESCape sequence is ESC C 0 14 (27 67 0 14, decimal, or 1B 43 00 0E, hexadecimal).

When printing on legal-size paper, you do not extend the paper output tray:

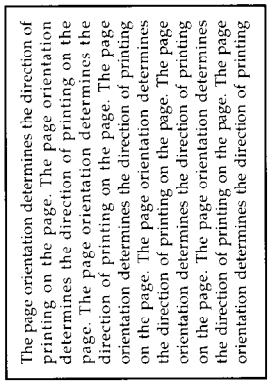


Printing in Landscape Orientation

The Color Bubble Jet Printer BJC-4000 does not have built-in landscape fonts. However, you can print in landscape orientation through the Windows environment.



PORTRAIT



LANDSCAPE

If you are not using Windows, you can consider many other software packages that offer landscape font capabilities, such as:

Quatro Pro 3.0
Lotus 2.4
Geoworks
WordPerfect 6.0 for MS-DOS

The following font packages work with the specified software applications. (All product names may be trademarks of their respective companies.)

- **WordPerfect 5.0 and 5.1**
  Bitstream Facelift for WordPerfect
  More Fonts
  Fonts On the Fly
  The Publishers Power Pack

- **Lotus 2.0, 2.1, and 2.2**
  Sideways

- **Microsoft Windows 3.1**
  Adobe Type Manager
  Bitstream Facelift for Windows
  The Publishers Power Pack
  TrueType Font Packs

Many other graphics software packages offer landscape printing. You may want to call your specific software manufacturer to see if they offer landscape printing capabilities.

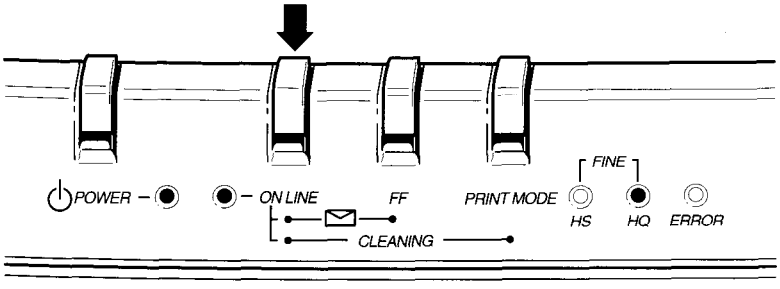
Pausing a Print Operation

When the ON LINE light is on, the printer is on-line and ready to receive data from your computer. At this time, you can send print data from your computer to the printer.

While you are printing a document, you may want to pause the printer. Follow these steps:

1. To pause printing while the printer is working, press the **ON LINE** button.

   ❑ The ON LINE light will go off; the printer will stop printing and go off-line.



2. To start printing again, press the **ON LINE** button.

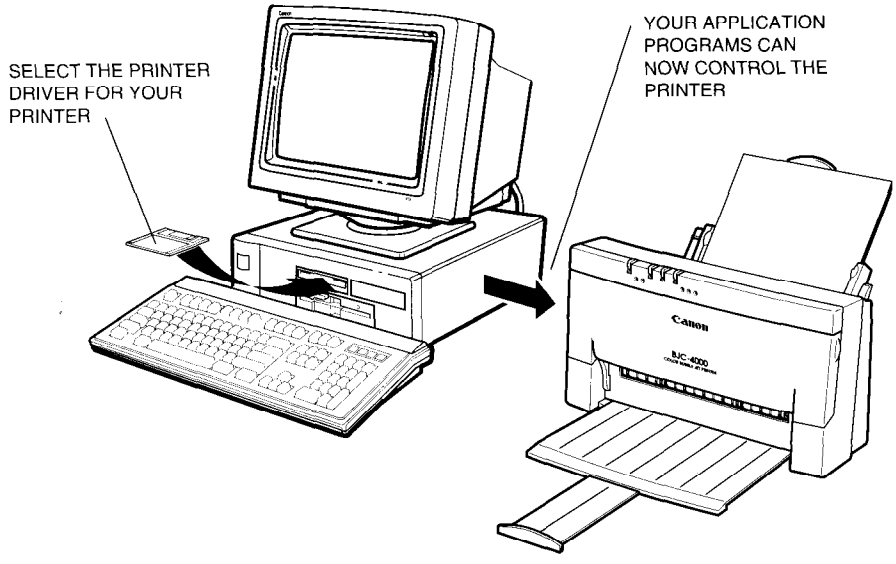
3. If data remains in the print buffer, the ON LINE light blinks.

   ❑ To print the data, press the **ON LINE** button to set the printer off-line and then press the **FF** button.

Chapter 4
Using the Printer With Your Software

Your printer will work with a wide variety of applications, such as spreadsheet, word processing, and graphics programs. This chapter describes how to set up your software applications for your printer.

Application programs include a group of programs, called printer drivers, that help the application communicate correctly with specific printers. Before using the printer with your application program, you need to tell the application what type of printer you are using by selecting the printer driver that corresponds to your printer.



Canon provides a BJC-4000 printer driver for Microsoft Windows. The easiest way to use your printer is to install the Windows driver and perform your print operations through the Windows environment.

If you are using Microsoft Windows, you have already installed the driver (as described in Chapter 2, *Setting up the Printer*). Also, in the last chapter, *Using the Printer*, you learned that there are certain print options you can select through your printer driver. The next section, *Printer Setup Within Windows*, describes in detail the options you can select within the printer driver.

If you are not using Windows, see the section *Setting Up MS-DOS Software Applications* (later in this chapter) for information on how to install another printer driver and select a printer control mode.

Printer Setup Within Windows

After you install the Canon BJC-4000 printer driver, you can run the Windows Setup program to change the printer settings.

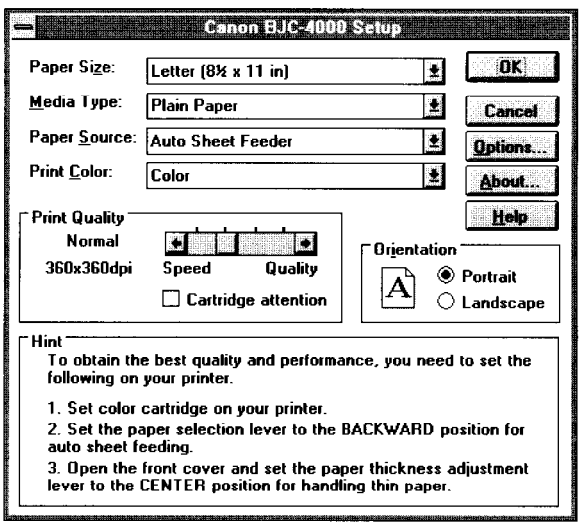
You can access the Setup program from the Printers dialog box that is in the Control Panel, or you can select the Print Setup option that is available from the File menu of most applications that run in Windows.

Note

If the Print Setup option does not appear in the File menu for your application, refer to the user's manual supplied with the application. It should provide information about changing the printer setup parameters.

To configure your BJC-4000 printer driver, follow these steps:

1. Start the application you want to use in the Windows environment.
2. Open the document you want to print.
3. Choose Print Setup from the File menu. The Select Printer dialog box appears.
4. Click once on the Canon BJC-4000 printer name to select it.
5. Click on the Setup button. Windows displays the Canon BJC-4000 Setup dialog box:



From this screen, you can select the Paper Size, Media Type, Paper Source, Print Color, Print Quality, and Orientation for your print job. You can use these options in any combination. See the next section for more detailed information about the options.

6. Once you select the options you want to use, click on the OK button to close the Canon BJC-4000 Setup dialog box, and then click on the OK button to close the Print Setup dialog box.

Selecting Printing Options

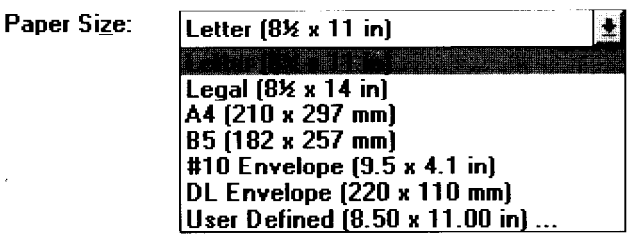
This section describes the printing options available to you through the BJC-4000 printer driver.

Note

If other options appear in the dialog box, they are provided by the application you are using. Refer to that application's documentation for more information.

Paper Size option

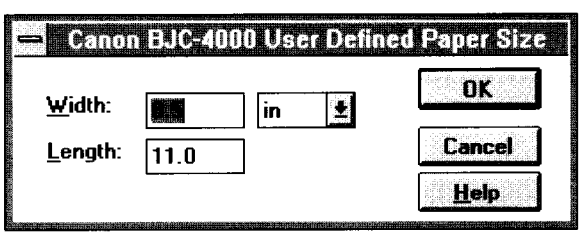
Click on the arrow next to the **Paper Size** setting to select one of the following paper sizes from the drop-down list:



Note

When printing on envelopes or thick paper, make sure the paper selection lever is set to the front position and the paper thickness lever (inside the printer) is set to the right.

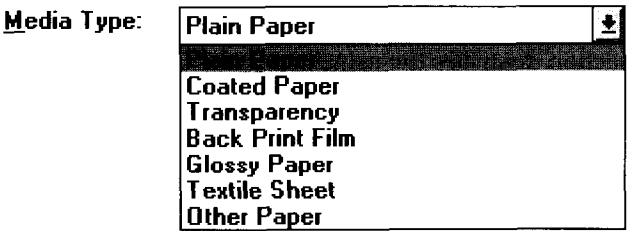
If you select User Defined Size, the Setup program displays the following dialog box:



First, select the unit of measure you are using (inches or millimeters), and then specify the width and length of your paper. The width can be from 4.10 to 8.50 inches (104.1 x 215.9 mm). The length can be from 4.10 to 14.00 inches (104.1 x 355.6 mm).

Media Type option

Click on the arrow next to the **Media Type** setting to select one of the following types of paper from the drop-down list:



When you select the Media Type, the Windows driver changes printer modes. You can experiment with different settings to see what type of results you can achieve on different types of media. You may find that you can produce higher quality printing on plain paper using a different mode, such as Coated Paper mode. Because each situation is different, Canon cannot guarantee better output for a particular medium other than the recommended choices.

Plain Paper
This mode is for printing on ordinary bond paper. This selection sets the color dots generated by the printer to yield the highest quality printed image for this type of paper with minimal bleeding of colors.

- When you select Plain Paper, the Paper Source defaults to Auto Sheet Feeder and the Print Quality defaults to Normal, 360 x 360 dpi.

- When you are printing on plain paper, set the paper thickness lever (inside the printer) to the left if you are using the BC-20 Black BJ cartridge or to the center for the BC-21 Color BJ cartridge.

Coated Paper
This mode is specially configured for printing with Canon Coated Paper LC-101. The LC-101 paper is designed to minimize the color spread of the individual color dots that make up the printed image and make colors more vivid. This paper produces the highest quality color printouts from the printer. Do not use coated paper when printing with the BC-20 Black BJ cartridge.

- When you select Coated Paper, the Paper Source defaults to Auto Sheet Feeder and the Print Quality defaults to Fine, 360 x 360 dpi.

- When you are printing on coated paper, set the paper thickness lever (inside the printer) to the center.

Transparency
This mode is for printing on transparency stock. Use Canon Transparencies CF-102 to achieve the highest possible color fidelity.

- ❑ When you select Transparency, the Paper Source defaults to Auto Sheet Feed and the Print Quality defaults to Fine, 360 x 360 dpi.
- ❑ When you are printing on transparencies, set the paper thickness lever (inside the printer) to the center for both the black and the color cartridges.
- ❑ When manually feeding paper, change the Paper Source to Manual Feed and make sure the paper selection lever is to the front position.

Back Print Film
This mode is specifically configured for printing on back print film, such as Canon's Back Print Film BF-102. This print medium is a mylar-based translucent sheet on which colors look good and appear very vivid when shown with a backlighting device. This setting causes the printer to print a mirror image on the back print film; when used with a backlighting device, the image is normal.

- ❑ When you select Back Print Film, the Paper Source defaults to Auto Sheet Feed and the Print Quality defaults to Fine, 360 x 360 dpi.
- ❑ When you are printing on back print film, set the paper thickness lever (inside the printer) to the center for both the black and the color cartridges.
- ❑ When manually feeding paper, change the Paper Source to Manual Feed and make sure the paper selection lever is to the front position.

Glossy Paper
This mode is for printing with Canon's Glossy Paper GP-101.

- ❑ When you select Glossy Paper, the Paper Source defaults to Auto Sheet Feed and the Print Quality defaults to Fine, 360 x 360 dpi.
- ❑ When you are printing on glossy paper, set the paper thickness lever (inside the printer) to the center for both the black and the color cartridges.
- ❑ When manually feeding paper, change the Paper Source to Manual Feed and make sure the paper selection lever is to the front position.

Textile Sheet
This mode is for printing with Canon's new cloth medium that will be introduced in the future.

- When you select Textile, the Paper Source defaults to Auto Sheet Feed and the Print Quality defaults to Fine, 360 x 360 dpi.
- When manually feeding paper, change the Paper Source to Manual Feed and make sure the paper selection lever is to the front position.

Other Paper is available for special media types other than those listed above.

- When you select Other, the Paper Source defaults to Manual Feed and the Print Quality defaults to Fine, 360 x 360 dpi.
- When manually feeding paper, make sure the paper selection lever is to the front position.

Paper Source option

Click on the arrow next to the **Paper Source** setting to select one of the following paper sources from the drop-down list:

Note

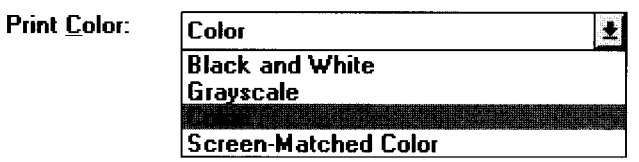
When using manual feed, it is a good idea to turn off the Print Manager in the Printers dialog box.

If you are feeding paper manually and using the spooler, the printer goes off-line before printing each page to allow you to insert paper.

When you select Manual Feed, be sure to set the paper selection lever on the printer to the front position.

Print Color option

Click on the arrow next to the **Print Color** setting to select one of the following options from the drop-down list:



Black and White
This option prints documents in black ink only. Use this setting when printing text files that have no color or grayscale images.

- When you select Black and White, the Print Quality defaults to Normal, 360 x 360 dpi. However, the Print Quality may change if you select a Media Type other than Plain Paper.

Grayscale
This option prints documents in black ink and produces graphic images in grayscale. This means full color images will be translated and printed in shades of gray. This setting results in a faster printing speed than the two color settings, and is useful for printing draft copies of color files.

- When you select Grayscale, the Print Quality defaults to Normal, 360 x 360 dpi. However, the Print Quality may change if you select a Media Type other than Plain Paper.

Color
This option prints documents in full color with up to 24 bits-per-pixel addressing capability. This setting does **not** activate the Screen-Matched Color feature of the BJC-4000 printer driver for Windows, which slightly improves the printing speed. Use this setting for printing color files that do not require the Screen-Matched Color feature, such as bar charts that contain simple colors.

- When you select Color, the Print Quality defaults to Normal, 360 x 360 dpi. However, the Print Quality may change if you select a Media Type other than Plain Paper.

Note

If you have selected Black and White, Grayscale, or Color for the Print Color option, you can adjust the intensity of the printed image. See the *Special Options* section for more information.

Screen-Matched Color
This option activates the color matching feature of the BJC-4000 printer driver for Windows. This feature ensures that the colors in the printout match the colors displayed on your monitor as closely as possible. Screen matching of colors may not always be exact because of the translations of RGB and CYMK values (see Chapter 5, *Printing in Color*, for details).

- Select this option only when you need to match the color on your monitor's screen. This print mode impacts your print speed.

- When you select Screen-Matched Color, the Print Quality defaults to High Quality, 360 x 360 dpi if the Paper Type is Plain Paper. For Screen-Matched Color on all other types of media, the Print Quality defaults to Fine, 360 x 360 dpi.

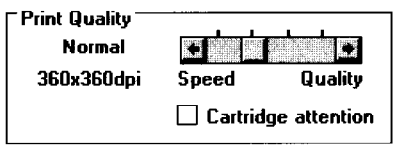
- To maximize color matching, you must have a high resolution monitor and a 24-bit color monitor display card.
- To optimize color matching, select these settings: Screen-Matched Color, High Quality, 360 x 360 dpi, and Halftone Pattern. Also, use and select Coated Paper.
- Matching the colors on a monitor screen to printed output is affected by paper type and light source. For example, when you select Screen-Matched Color, the driver assumes you are using Canon's coated paper and your light source is daylight. If you print on plain paper and view the output under an incandescent lamp, the colors will be different than on coated paper in daylight.

Note

To fully utilize the Screen-Matched Color feature, you need to specify your monitor type. See the *Special Options* section for more information.

Print Quality option

Click on the **Print Quality** bar to select your printing speed, quality, and resolution:



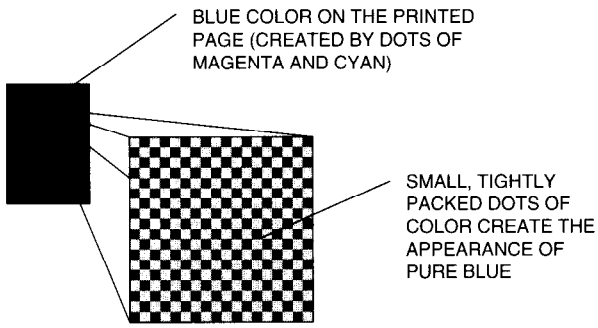
When you select a Print Color of Black and White or Grayscale, adjust the Print Quality setting to match your printing needs. There are four settings from left to right.

- High speed, 180 x 180 dpi—Use this mode for your fastest printing speed at a lower resolution.
- Normal, 360 x 360 dpi—Use this mode for high resolution text and documents with line art graphics. (This is the default.)
- High Quality, Smoothing, 720 x 360 dpi—Use this mode for your best quality text and simple graphics.
- Fine, 360 x 360 dpi—Use this mode for the best quality photographic images and normal high quality text.

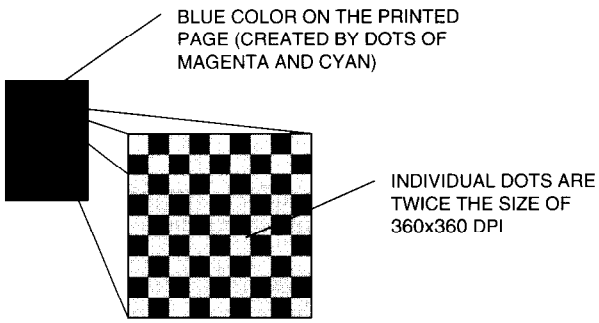
When you select a Print Color of Color or Screen-Matched Color, adjust the Print Quality setting to match your printing needs. There are four settings from left to right:

- High speed, 180 x 180 dpi—Use this mode for your fastest printing speed at a lower resolution.
- Normal, 360 x 360 dpi—Use this mode for high resolution color text and graphic documents. (This is the default for Color.)
- High Quality, 360 x 360 dpi—Use this mode for special non-bleeding of black and color text and graphics. (This is the default for Screen-Matched Color.)
- Fine, 360 x 360 dpi—Use this mode for the best quality text and graphics.

360 x 360 dots per inch (dpi)
This sets the printer to its highest resolution, which means that the printer prints combinations of ink dots at 360 dots per inch to create the highest quality image:



180 x 180 dpi
This sets the printer to a lower resolution. It prints combinations of ink dots at 180 dots per inch:



At the lower resolution, the computer can process your files much faster.

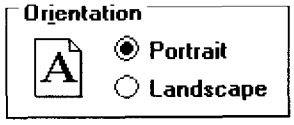
Cartridge attention
Click on the Cartridge attention box if you want the driver to alert you when the selected print mode does not match the installed BJ cartridge.

☒ **Cartridge attention**

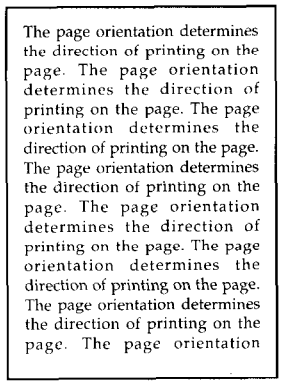
For example, if you select Color mode when the BC-20 Black BJ cartridge is installed, the driver will display a warning message.

Orientation option

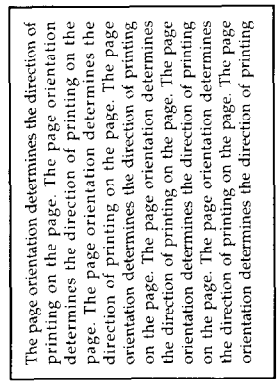
Click on the **Orientation** setting you want to use:



The page orientation determines the direction of printing on the page:



PORTRAIT



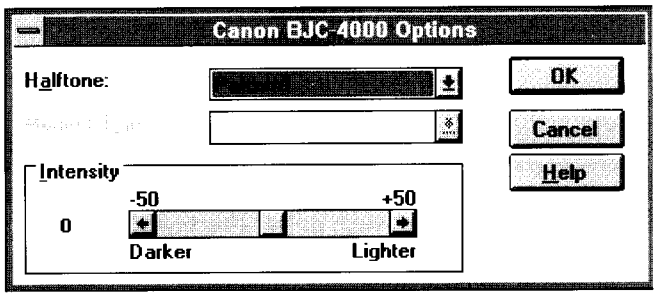
LANDSCAPE

Other selections

- Click on **Options** to access the special options provided by the BJC-4000 printer driver for Windows. These options are discussed in the next section.
- Click on **About** to display copyright information regarding the Windows driver and its version number.
- Click on **Help** to enter the Help program. This program provides information to help you specify your printer settings.

Special Options

The BJC-4000 printer driver for Windows provides several special options. From the Canon BJC-4000 Setup dialog box, click on the Options button.



These options allow you to select the halftone method you want to use to combine ink colors, identify the monitor you are using for the best color matching, and increase or decrease the intensity of the printed images.

Halftone

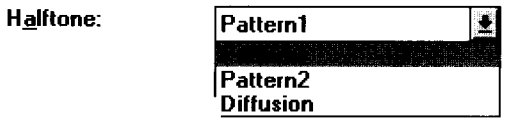
Your printer contains four colors of ink: cyan, yellow, magenta, and black. Your software creates intermediate colors by mixing combinations of these basic inks. For example, mixing yellow with cyan creates green, yellow with magenta produces red, and cyan plus magenta equals blue.

To print the entire spectrum of colors, the BJC-4000 printer driver for Windows applies special halftone methods. Using these methods, different colored dots of ink are placed closely together to create the illusion of other colors. Newspapers and magazines use this same technique.

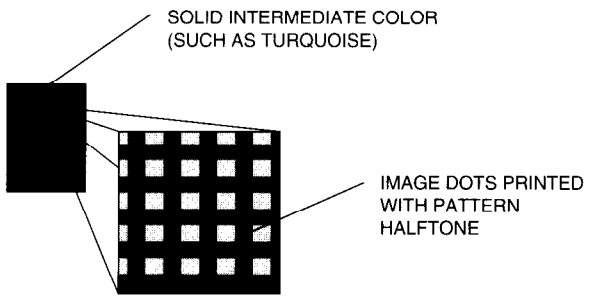
Note

The Halftone options have no effect when Print Color is set to Black and White.

When you click on the arrow next to the **Halftone** setting, you can select the following options:

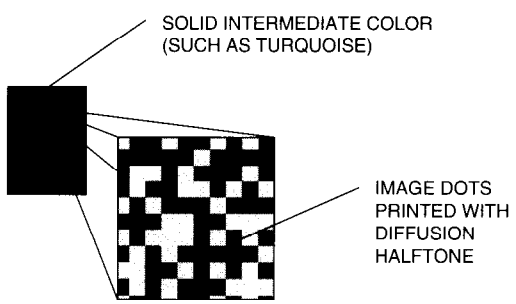


Pattern
This setting uniformly aligns individual dots of different colored inks to create the appearance of the intermediate colors. This method offers faster printing speed and is best suited for printing documents that contain large areas of solid color, such as bar charts and graphs.



Diffusion
This setting randomly places individual dots of different colored inks to create the appearance of intermediate colors. By randomly placing dots, the printer can achieve excellent colors and subtle color gradations. This method is best suited for printing documents that contain finely detailed graphics or photographic images.

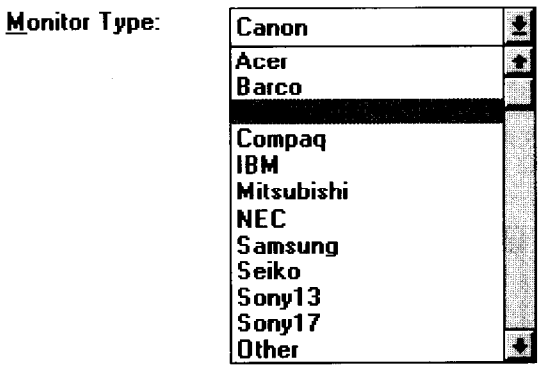
Using diffusion slows the application release time because a larger, more complex page is generated by the software. This type of page requires more time to calculate as well as send to the printer. However, what you lose in print speed may be gained in quality.



Monitor type

If you selected Screen-Matched Color for the Print Color option, you can specify your monitor type. Doing so allows you to fully utilize the color matching feature of the BJC-4000 printer driver. This ensures that the colors on the printout correspond to the color characteristics of your monitor as much as possible.

When you click on the arrow next to the **Monitor Type** setting, you can select one of these options from the drop-down list:

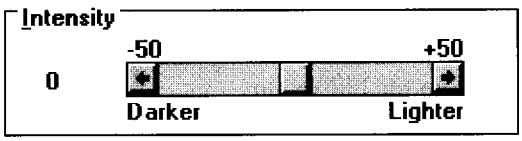


If your monitor is not listed, select Other or try different monitor selections until you find one that best reproduces the color on your screen.

Intensity

If you selected Black and White, Grayscale, or Color for the Print Color option, you can adjust the **Intensity** of the printed image.

You can click on the arrows to make the image darker or brighter, or you can drag the slider box right or left along the bar.



Note

If you select Screen-Matched Color, the intensity is automatically adjusted to match the colors on your monitor.

Printing a Document

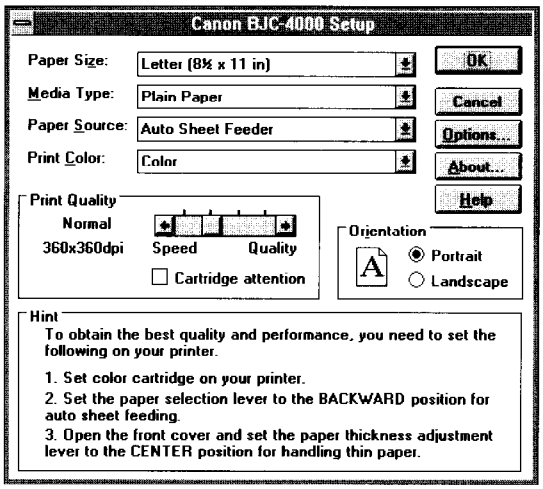
This procedure provides general steps for printing from the various applications you may run in the Windows environment. The exact steps for printing a document may vary depending on the application program you are using. Refer to your program's documentation for the exact printing procedure.

1. Start the program you used to create the document, and open the document you want to print.

2. Choose Printer Setup from the File menu.

3. Select the Canon BJC-4000 as your printer and select Setup.

4. Make any adjustments as appropriate for printing your document, and select OK.



5. Select OK to close the Printer Setup window.

6. Choose Print from the File menu.

7. After making any necessary changes to the printing parameters, select OK to start the print job.

Note

It's a good idea to turn off the Print Manager if you are feeding paper manually. To do so, clear the Use Print Manager check box in the Printers dialog box within the Control Panel.

☐ **Use Print Manager**

If you are feeding paper manually and using the spooler, the printer goes off-line before printing each page to allow you to insert paper.

Printing Speed Versus Color

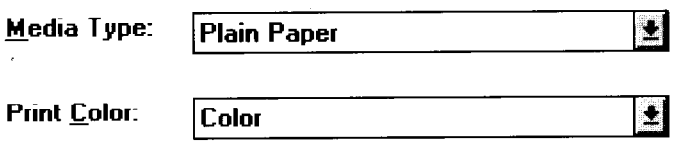
The BJC-4000 Windows printer driver can interpret and translate the full spectrum of colors, up to 16.7 million colors. When printing in color, there is a significant increase in the amount of information that the driver has to interpret and translate. When printing black ink only, the driver has only one color to interpret.

By decreasing the amount of colors that the printer driver has to interpret, you can significantly decrease the time needed to translate the information. This will speed up the overall printing process. The BJC-4000 Windows printer driver includes a printing mode that allows it to interpret and translate only 256 colors; this decreases the amount of time your computer needs to compute information and therefore increases your printing speed.

For quick color printing

In the BJC-4000 Windows printer driver, choose the following configurations in the Printer Setup box:

1. From your application or from the Printer Control Panel, select Setup.
2. In the Canon BJC-4000 Setup dialog box, choose Plain Paper under the Media Type box, and select Color under the Print Color box.



3. Select the Options button. The Printer Options dialog box will appear.
4. Choose Pattern under the Halftone box and then select OK.

5. Close the Printer Setup dialog box by selecting OK.

These selections allow the printer driver to interpret and translate 256 colors, which will increase your printing speed.

For quick monochrome printing

In the BJC-4000 Windows printer driver, choose the following configurations in the Printer Setup dialog box.

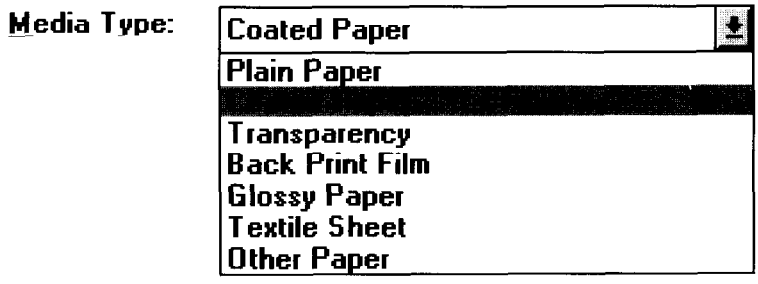
1. From your application or from the Printer Control Panel, select Setup.
2. In the Canon BJC-4000 Setup dialog box, choose Black and White under the Print Color box.

This selection allows your printer to print using black ink only.

For full spectrum printing

In the BJC-4000 Windows printer driver, choose the following configurations in the Printer Setup dialog box:

1. From your application or from the Printer Control Panel, select Setup.
2. In the Canon BJC-4000 Setup dialog box, choose any Media Type other than Plain Paper.



or

In the Canon BJC-4000 Setup dialog box, choose Screen-Matched Color.

These settings allow the printer driver to interpret and translate up to 16.7 million colors.

Other ways to improve print speed in Windows

To improve printing speed, you can try the following:

- ❑ Turn off the Print Manager in the Windows Control Panel. This may increase your printing speed by as much as 25%, depending on the computer you are using.

  ☐ **Use Print Manager**

- ❑ Under the 386 Enhanced icon in the Windows Control Panel, add or create a permanent swap file that is from 4 MB to 9 MB. See your Windows documentation for instructions.

- ❑ In the Printer Setup dialog box, choose Plain Paper and Color when printing color images. Screen-Matching Color mode takes longer to process in the computer.

- ❑ In the Options dialog box, choose Diffusion only when printing final output or photographic images. Choosing Pattern allows documents to print as much as 20% faster.

- ❑ Use only one software program at a time and unload any screen saving utilities or programs stored in Windows background; this frees up more memory for Windows processing.

- ❑ If you will be printing text in black ink only, choose Black and White rather than Grayscale.

- ❑ Print draft documents in Black and White rather than Color, or use high-speed mode when printing color.

- ❑ Limit the number of colors on each page; too many colors can make the image confusing and less effective as well as cause the print speed to slow down.

- ❑ Use primary colors when printing presentation graphics: black, cyan, yellow, magenta, blue, green, and red.

Setting Up MS-DOS Application Programs

If you are not using Windows, follow the guidelines in this section for setting up your MS-DOS applications for use with your printer. If you installed the Canon BJC-4000 printer driver for Windows (as described previously in this chapter) and will be printing only from the Windows environment, you can ignore this information.

Software applications are designed to work with specific hardware setups. Most application programs include an installation program or routine that you run to identify the type of hardware you are using, such as your computer and printer. When you tell your application program what printer you are using, it installs a program, called a printer driver, that supports your printer.

Selecting a Printer Driver

The installation programs for most applications offer a list of printer drivers from which to choose. If you find Canon BJC-4000 on the list, select it. This will give you the fullest range of features.

If you do not find your printer on the list, you can select a printer that will have nearly the same operating capabilities as the BJC-4000.

Note

Software developers continuously create printer drivers. If your application software does not list a Canon BJC-4000 driver, call your software program's technical support line and ask if a BJC-4000 driver is available. If they are unable to assist you, call the Canon help desk to see if a driver is available.

To use the printer in Epson LQ mode, select one of the following printers. They are listed in order of preference.

❑ **For color printing:**

Canon BJC-4000(LQ)
Canon BJC-600(LQ)
Canon BJC-800/820
Epson LQ-2550
Epson LQ-2500

❑ **For black printing:**

Canon BJC-4000(LQ)
Canon BJ-200e(LQ)
Canon BJ-200(LQ)
Canon BJ-230(LQ)
Canon BJ-20(LQ)
Canon BJ-10ex(LQ)
Epson LQ-510
Epson LQ-850
Epson LQ-500
Epson LQ-Printer

To use the printer in BJ mode, select one of the following printers. They are listed in order of preference.

Canon BJC-4000(X24E)
Canon BJ-200e(X24E)
Canon BJ-200(X24E)
Canon BJ-230(X24E)
Canon BJ-20/BJ-10e/BJ-10ex(X24E)
IBM Proprinter X24E/XL24E
IBM Proprinter X24/XL24
Canon BJ-130e
IBM Proprinter

After selecting a printer, you can use software commands for all the standard printer functions through the application programs. This includes bold or double-strike printing, underlining, superscripts, subscripts, margin control, line-spacing control, and graphics.

Selecting a Printer Control Mode

Your printer has three printer control modes:

- Epson LQ mode, which emulates the Epson LQ-2550 printer
- BJ mode, which emulates the IBM Proprinter X24E
- Canon Extended mode

You can select Epson LQ mode or BJ mode with the DIP switches. Epson LQ mode is the default.

The Canon Extended mode is different from the other two printer control modes. It is automatically selected through the printer driver when the printer is in either Epson LQ mode or BJ mode; therefore, no adjustment is necessary for the printer to select it.

The printer control mode you select depends on the printer driver you were able to select in your applications.

- **For color printing:**

  If you were able to select a Canon Color BJ printer or a Color Epson LQ printer through your application program, you will want to use the printer in Epson LQ mode.

  This mode gives you the color print capability and versatile text features.

- **For black printing:**

  If you will not be printing in color and you were able to select a Canon BJ printer or the IBM Proprinter X24E through your application program, you will want to use the printer in BJ mode.

  You can also select a printer control mode based on specific text features you want to use in your document.

The following table lists the typefaces and pitches that are available in Epson LQ mode and BJ mode.

	Printer control mode	
Typeface	**Epson LQ mode**	**BJ mode**
Prestige	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	12 cpi in HQ mode only
Courier	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	10 cpi, 12 cpi*, 17 cpi, PS**
Sans Serif	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	Not available
Draft (available in HS mode only)	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	Not available
Roman	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	Not available
Script	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	Not available
Orator	10 cpi, 12 cpi, 15 cpi, 17 cpi,20 cpi, PS	Not available
Orator-S	10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, PS	Not available

* In BJ mode, Courier at 12 cpi is available in HS mode only.
** In BJ mode, Proportional spacing is not available in HS mode.

The following table lists the print styles that are available in each printer control mode.

	Printer control mode	
Print style	**Epson LQ mode**	**BJ mode**
Italic	Yes	No
Emphasized	Yes (via ESC E sequence)	Yes (via ESC E sequence)
Double-high	Yes (via ESC w sequence)	Yes (via ESC [@ sequence)
Double-wide	Yes (via ESC W sequence)	Yes (via ESC W sequence)
Slashed zero	No	Yes (via ESC [K sequence)

To select the printer control mode, use DIP switches 11 and 12. Refer to Chapter 9, *Customizing Your Printer*, for information on DIP switches.

Software and Printer Compatibility

Your software sends information and instructions to the printer over the cable that connects the printer to the computer. In addition to data, the instructions may include special command sequences known as control codes and ESCape sequences. These command sequences tell the printer such things as how many lines to skip and where to start printing.

Some control codes are standard throughout the microcomputer industry and are recognized by all printers. Two examples of these are form feed (FF) and line feed (LF).

ESCape sequences are unique to each printer emulation. ESCape sequences begin with the ESCape character (ESC) followed by one or more other characters.

The ESCape character tells the printer not to print the next character(s), but to use the information to perform a printing control task, such as printing in bold or underlining.

Most software programs automatically send control codes and ESCape sequences to the printer. However, some applications may require you to supply the commands. How you enter the control codes and ESCape sequences depends on your software program. Your software program may require you to enter the codes and sequences in a specific format, such as decimal rather than hexadecimal. For example, you can use only decimal format with MultiMate Advantage II™, Professional Write™, and PFS:First Choice™.

Note

Software program printer drivers may override the printer control codes embedded in a document. This means the command will not take effect because of the way the application handled it.

To determine if an application is overriding your commands, print the document using a generic driver and see if the correct commands are reflected in the printed copy. If they are, the application printer driver is overriding the commands.

If you would like to receive a list of the control codes and ESCape sequences the printer recognizes, you can use Canon's toll-free fax retrieval system to request the *BJC-4000 Printer Command Summary*. See page 8 for details.

Chapter 5
Printing in Color

The Canon Bubble Jet Color BJC-4000 printer is a powerful color printer. If this is your first color printer, read this section for some tips on effectively using color.

By using color, you can enhance the visual impact of your documents and presentations. You can capture your readers' attention, hold their interest, and increase their understanding of your message. To do this, you don't have to be a professional artist, but you do need to spend a little time planning your layout and determining how to use color to highlight important information. Without planning, you could overuse color and actually detract from the visual impact.

In your planning process, you should consider the following:

- ❑ Know the print media you are using.
- ❑ Know the print mode you set in your application or your printer driver.
- ❑ Know the capabilities of your software application.
- ❑ Understand the limitations of your computer's monitor.
- ❑ Know the factors that affect the speed of color printing.
- ❑ Know the cost of color printing.

Selecting the Print Media

You need to determine how the printed material will be used when you plan its layout and when you select the print media.

Each project you work on will have unique requirements. The way you use color and select the print media is critical in achieving an impressive visual impact.

Print Media Guidelines

Follow these guidelines to select a print medium appropriate for the print job:

- ❑ Plain copier paper provides good results, and paper with cotton fiber is also suitable for color printing.
- ❑ For important presentations or documents that include intensive graphics and color, use Canon's coated paper, LC-101, or a similar product. On this type of paper, the printer will produce even more vivid colors. Also, you can use Canon's glossy paper, GP-101, to produce the best color print quality. When printing on coated or glossy paper, print on the whiter side only.
- ❑ For overhead presentations, use Canon's transparencies, CF-102, or an equivalent transparency film designed for ink jet printing. Normal copier transparencies cannot absorb the ink, and will run; do not use them.
- ❑ If backlighting is available for your presentation, you can use back print film. This print media is a mylar-based translucent sheet on which colors and photographic images appear very vivid when shown with a backlighting device. When using this film, print on the side of the sheet that is less smooth and less shiny.
- ❑ For envelopes, use Commercial number 10 (9 1/2 x 4 1/8 inches) or DL size (220 x 110 mm).

Understanding Your Application's Capabilities

Your monitor's ability to display colors is limited by the number of colors with which a particular software application can work. You cannot display or print a color that your software application cannot supply.

Your printer can print a wide range of different colors. Your software determines the number you can use. Software may support 16.7 million colors or may be limited, as follows:

- A limited number of colors, such as the basic eight—red, green, blue, cyan, yellow, magenta, black, and white.
- A limited number of colors plus shades of those colors—shades are created by adding white or using different color patterns.
- A limited number of colors plus custom colors—for example, mixing red and blue for purple.

Your software applications may offer a number of color control functions, such as dithering, intensity, and hue.

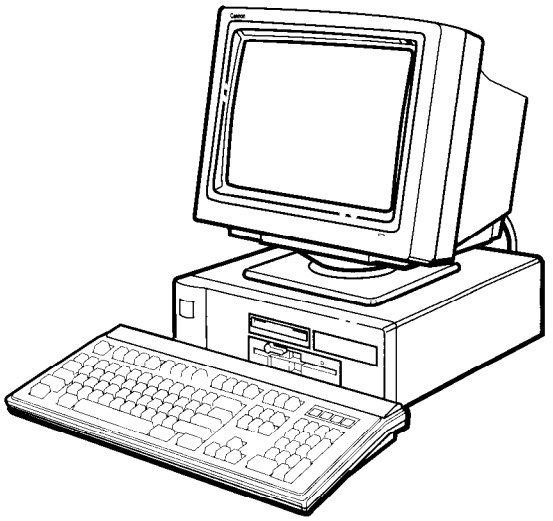
Dithering
Allows you to create a wide spectrum of colors. Dithering creates a pattern of various colors that appears to be a desired color; for example, red and white dither patterns appear pink from a distance. Many dithering methods are available; you need to check the application's documentation to find out which are available.

Intensity (Saturation)
Allows you to increase the depth of a color if the printout appears lighter or darker than the screen image. For example, to make a light blue darker, you could increase the intensity.

Hue
Allows you to change the gradation in the color spectrum and change the color results. For example, you could adjust the hue of red to make it more purple.

For details on your software application's capabilities, refer to the documentation that came with it.

Considering Your Computer's Monitor



Your ability to create colors is limited by how many colors you can work with on the monitor screen. Of course, if you are using a monochrome monitor, creating color printouts will be extremely difficult.

Monitors are classified by their resolution and the number of different colors they can display. At lower resolution, color monitors can display more colors.

Older CGA color monitors can produce only a small number of colors at a low resolution. Most newer color monitors can display many more at higher resolutions. For example, a VGA or XGA graphics system can display 256 or more different colors at higher resolutions.

The way monitors display colors and the way printers print color is very different. Monitors generate light while printed materials reflect light. Monitors combine three colors of light (red, green, and blue) at different intensities to produce the appearance of many different colors.

Printers combine three color values (cyan, yellow, and magenta) to produce different colors on your output. By overlaying dots of ink in a variety of combinations and varying the amount of each ink, your printer can produce virtually any color desired.

Because monitors and printers are so different, achieving an accurate match of some monitor colors is extremely difficult. Canon has optimized your printer to offer the best match between the most popular monitors. Yet, you may still find certain colors difficult to match exactly.

To maximize the the color matching capabilities of your printer, you must have a high resolution monitor with a 24-bit color monitor display card.

For details on your monitor's ability to display colors, refer to the documentation that came with it.

Color and Printing Speeds

Printing in color affects the speed with which the printer creates image. Several factors affect printing speed:

- ❑ Your choice of colors and the number of colors per page.
- ❑ The computer's processing speed.
- ❑ The amount of computer memory.
- ❑ Your software application.
- ❑ The complexity of the pages you are printing.
- ❑ The amount of the page covered by ink.
- ❑ The print options selected in the printer driver.
- ❑ The resolution at which you are printing.
- ❑ The print mode in which you are printing.
- ❑ Use of print spooling software.

Improving Printing Speed

To improve printing speed, you can try the following.

Windows enhancements

- ❑ Turn off the Print Manager in the Windows Control Panel. This may increase your printing speed by as much as 25%, depending on the computer you are using.
- ❑ Under the 386 Enhanced icon in the Windows Control Panel, add or create a permanent swap file that is from 4 MB to 9 MB. See your Windows documentation for instructions.
- ❑ In the Printer Setup dialog box, choose Plain Paper and Color when printing color images. Screen-Matched Color takes longer to process in the computer.
- ❑ In the Options dialog box, choose Diffusion only when printing final output or photographic images. Choosing Pattern allows documents to print as much as 20% faster.
- ❑ Use only one software program at a time and unload any screen saving utilities or programs stored in Windows background; this frees up more memory for Windows processing.

Other software enhancements

- ❑ If you will be printing text in black ink only, choose Black and White rather than Grayscale.
- ❑ Print draft documents in Black and White rather than Color, or use high speed when printing color.
- ❑ Limit the number of colors on each page; too many colors can make the image confusing and less effective as well as cause the print speed to slow down.
- ❑ Use primary colors when printing presentation graphics: black, cyan, yellow, magenta, blue, green, and red.

Hardware upgrades

- ❑ Increase the amount of memory in your computer.
- ❑ Upgrade the processor in your computer or add a math coprocessor.

Color and Cost

Printing in color costs more than printing in black only. To reduce the cost of color printing, follow these guidelines:

- ❑ Use black ink when printing drafts, or use a draft color mode.
- ❑ When printing spreadsheet-type graphs, choose colored hatch patterns instead of solid colors. Hatch patterns typically use less ink and look just as good as solid colors.
- ❑ Use lighter colors that use more white space; for example, use pink instead of red. Although white is a color, the printer does not produce white ink; it uses the color of the paper as white.
- ❑ Avoid using full color backgrounds. For color presentations that do contain a full color background, print the background for the final output only, not for drafts.
- ❑ Use the primary printing colors of the printer: black, cyan, magenta, and yellow. When printing complex colors like red or blue, the printer uses more than one primary color.
- ❑ Some applications allow you to print several pages of data on one page in a condensed size. If available, use this mode for viewing multiple pages quickly at a low cost.

Selecting Colors Through Your Software Applications

This section provides examples of selecting colors through software applications. For more information on how to add color to your documents, refer to your application's manual.

CorelDRAW

With CorelDRAW 3.0 or 4.0 and your Color Bubble Jet Printer BJC-4000, you can create stunning and colorful drawings that you can print or export to other Microsoft Windows applications. In CorelDRAW 3.0 or 4.0, make sure you are in preview mode by pressing **Shift + F9**.

Follow these steps to add color to objects in CorelDRAW:

1. From the tool box, select the printer tool.
2. With the pointer tool, select the object to which you want to add or change colors.
3. After selecting the object, click on the appropriate color in the color palette on the bottom of the screen. The selected object automatically changes to this color.

Microsoft Excel

With Microsoft Excel and the Color Bubble Jet Printer BJC-4000, you can create powerful and professional spreadsheet and graph information. In Microsoft Excel, you can add colors and patterns to text, the background of text cells, and graphs.

Microsoft Excel 5.0

Follow these steps to add color to text in Microsoft Excel 5.0:

1. Highlight the text cells to which you want to add color.
2. From the top menu bar, select Format and then Cells.
3. In the Cells dialog box, select the Font folder tab.
4. From the Font dialog box, select the Color drop-down list box.
5. In the Color box, select the color you want to use for your text.
6. Click OK to the Font dialog box to apply the color to your text.

Follow these steps to add colors to the background of a cell:

1. Highlight the cells to which you want to add color.
2. From the top menu bar, select Format and then Cells.
3. In the Cells dialog box, select the Patterns folder tab.
4. From the Patterns dialog box under Cell Shading, select the color you want to use for background. Excel shows you a sample of that color in the dialog box.
5. From the Pattern drop-down list box, you can select different hatch patterns for the spreadsheet background.
6. Click OK to apply the color and pattern to your chart.

Follow these steps to change the colors of your graphs:

1. Click in the box that contains the graph in your spreadsheet and then click on the graph.
2. Click on the portion of the graph where you want to add or change colors. For a pie chart, click on one of the pieces of the pie. For a bar chart, select the bar you want to change.
3. From the top menu bar, select Format and then select Selected Data Point.
4. Now select the Patterns folder tab.
5. In the Area section of the Patterns dialog box, you can change the color of the selected portion of the chart.
6. Click OK to apply the new color to your chart.

Microsoft Excel 4.0

Follow these steps to add color to text in Microsoft Excel 4.0:

1. Highlight the text cells to which you want to add colors.
2. From the top menu bar, select Format and then Font.
3. From the Font dialog box, select the Color drop-down list box.
4. In the Color box, select the color you want to use for your text.
5. Click OK to the Font dialog box to apply the color to your text.

Follow these steps to add colors to the background of a cell:

1. Highlight the cells to which you want to add color.
2. From the top menu bar, select Format and then select Patterns.
3. In the Pattern, Foreground, and Background boxes, select the shading pattern and the foreground and background colors you want to use.
4. Click OK to apply the color and pattern to your cell.

Follow these steps to change the colors of your graphs:

1. Click in the box that contains the graph in your spreadsheet.
2. Double-click on the portion of the graph where you want to add or change colors. For a pie chart, double-click on one of the pieces of the pie. For a bar chart, select the bar you want to change.
3. From the top menu bar, select Format and then select Patterns.
4. In the Area box, you can change the pattern and foreground and background colors of the chart.
5. Click OK to apply the pattern and colors to your chart.

Microsoft Word for Windows

With Microsoft Word for Windows and the BJC-4000, you can create interesting and professional documents and memos. In Microsoft Word for Windows, you can add colors to your text to emphasize and highlight important information.

Word for Windows 6.0

Follow these steps to add color to text in Microsoft Word for Windows 6.0:

1. Select and highlight the text to which you want to add color.
2. From the top menu, select Format and then select Font.
3. On the top of the Font dialog box, click on the Font folder tab.
4. Click on the Color menu bar.
5. Select the color you want applied to the highlighted text.
6. Click on OK to apply the color to your text.

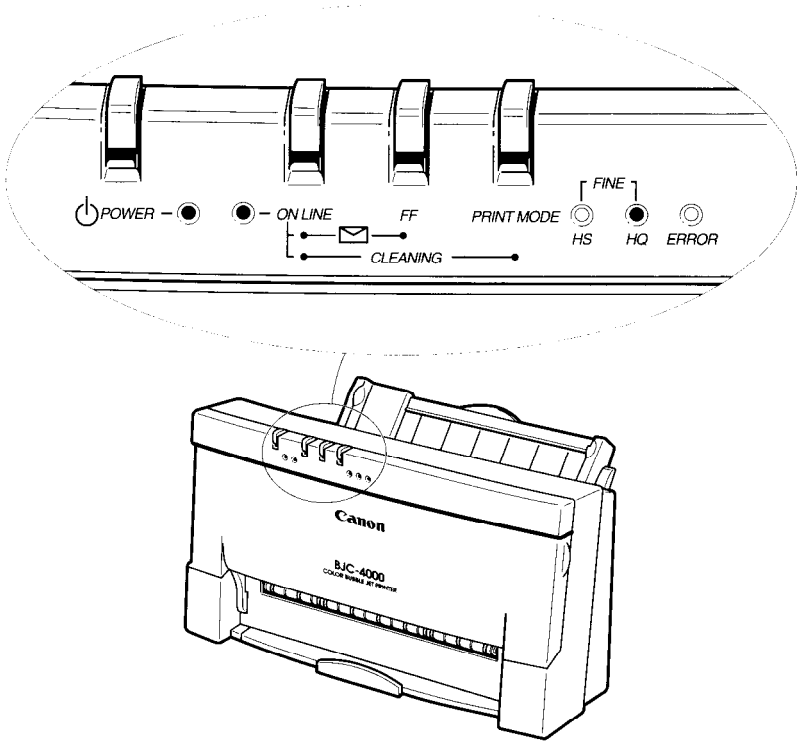
Word for Windows 2.0

Follow these steps to add color to text in Microsoft Word for Windows 2.0:

1. Select and highlight the text to which you want to add color.
2. From the top menu, select Format and then select Character.
3. From the Character dialog box, click on the arrow next to the Color option.
4. From the Color drop-down list box, select the color you want for the highlighted text.
5. Click on OK to apply the color to your text.

Chapter 6
Using the Operator Panel

This chapter provides information on using the operator panel located on the top of your printer. You can control basic printer operations and mechanics through the operator panel. The indicator lights reflect the current status and modes of the printer.



Most software applications, such as word processing, spreadsheet, and database programs, automatically handle the printer control operations. For example, your word processing program tells the printer what typeface to use, when to load a sheet of paper, or when to perform a line feed.

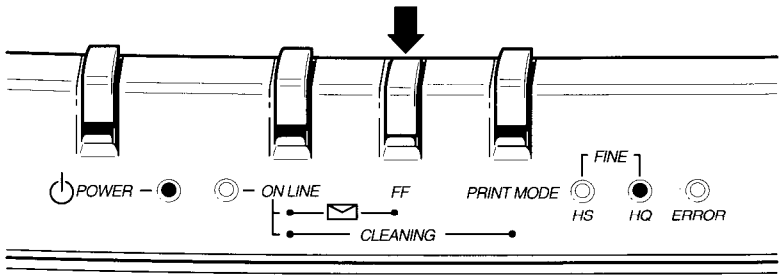
If, for some reason, your application program does not perform these basic functions, you can control them using the printer's operator panel. You can also select specific printer functions such as print mode selection and print head cleaning.

Any settings you make with your software application override settings made with the operator panel.

In addition to the operations described in this chapter, you use the operator panel to turn the printer on and off (as described on page 42) and to pause the printer (as described on page 68).

Feeding Paper

When the printer is off-line, you can use the **FF** (Form Feed) button to load a new sheet of paper or eject a sheet of paper in the printer.



Form Feeding

If you are loading the first sheet of paper to its top of form, follow these steps:

1. Make sure the printer is off-line.
2. Stack the paper properly in the sheet feeder.
3. Press the **FF** button to load the first sheet of paper to its top of form.

Note

If you are running an application program, you do not need to perform this step. The application will tell you when to load paper into the printer.

Ejecting Paper

When you want to eject a sheet of paper, follow these steps:

1. Make sure the printer is off-line.
2. Press and hold the **FF** button for one second.

   ❑ The printer will eject the current sheet of paper.

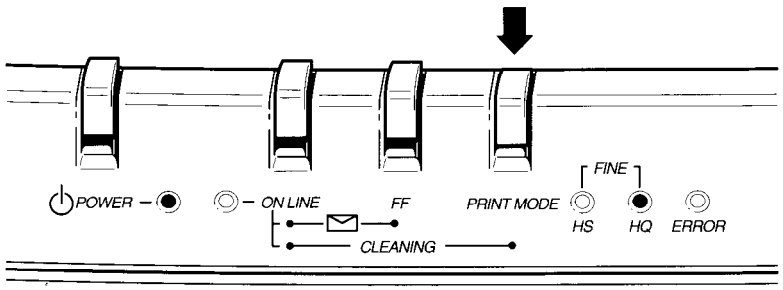
Selecting a Print Mode

Your printer incorporates several print modes that allow you to select print quality, density of ink, and paper type. The control panel enables you to select three of these print modes: HQ, FINE, and HS.

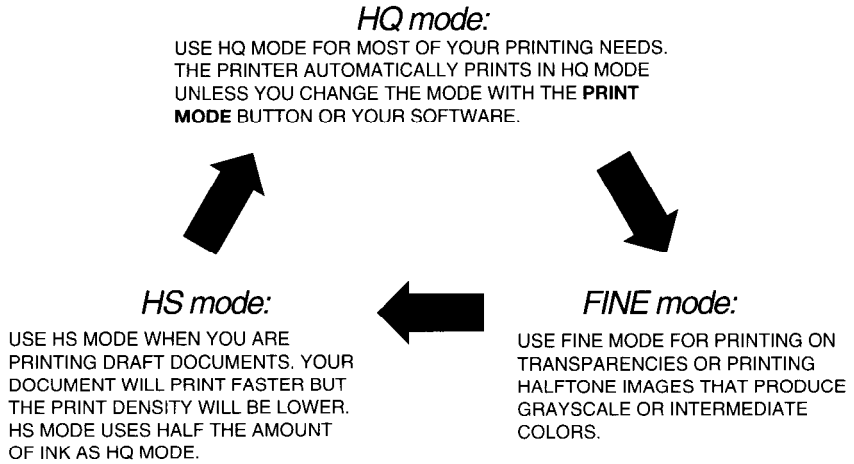
If you are using Windows, the BJC-4000 printer driver automatically adjusts the print mode. If you are not using Windows, you may need to set the print mode for your MS-DOS applications.

To select the print mode, follow these steps:

1. Make sure the printer is off-line.
2. Press the **PRINT MODE** button for the number of times required to select the desired print mode. The default mode is HQ mode.



Pressing the **PRINT MODE** button switches from one print mode to the next as follows:



The HS and HQ lights indicate which mode is selected. (When both the HS and HQ lights are on, the printer is in FINE mode.)

Note

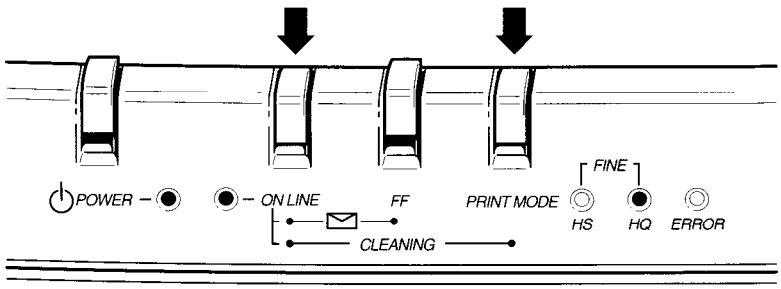
- ❑ The print mode may be overridden by your software.
- ❑ Select FINE mode (which reduces the print speed) only when you want excellent quality for printing graphics or printing on transparencies.

Cleaning the Print Head

Your printer is equipped with a print head cleaning function to ensure constant high quality printing.

To clean the print head, follow these steps:

1. Make sure the printer is turned on and on-line.
2. Press the **ON LINE** and **PRINT MODE** buttons at the same time until the beeper sounds.
   - ❑ The ON LINE light will blink for several seconds while the print head is being cleaned.



3. Press **ON LINE** to set the printer back on-line.

Note

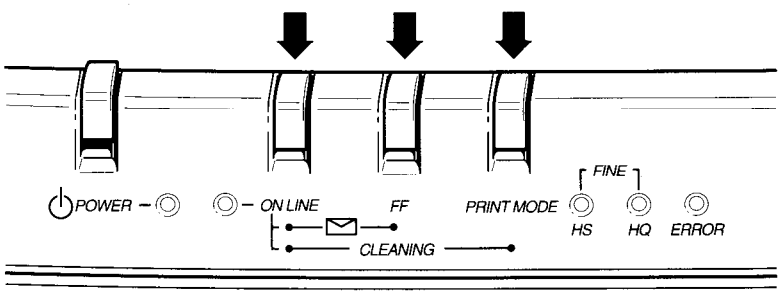
- ❑ Perform the head cleaning only when you encounter a print quality problem. Refer to *Print Quality Problems* in Chapter 8 for details. Unnecessary and repetitious head cleaning will waste ink.
- ❑ If you execute the head cleaning while paper is manually loaded, the printer will eject the paper and then perform the head cleaning.

Automatic Line Feed

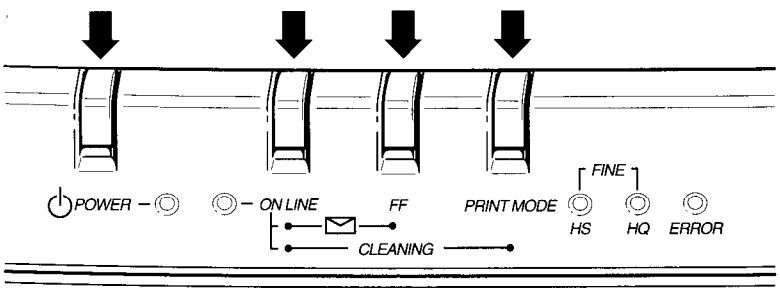
You can set the printer so it performs an automatic line feed after each carriage return (CR). You need to set this function only if you are using an application program that does not include a carriage return with a line feed. Follow these steps:

1. Make sure the printer's power is off.

2. Press and hold down the **ON LINE**, **FF**, and **PRINT MODE** buttons.



3. While holding down these buttons, press the **POWER** button until the beeper sounds once.



If you notice an extra blank line between each line printed, be sure to cancel this function.

To cancel the automatic line feed setting, turn off the printer.

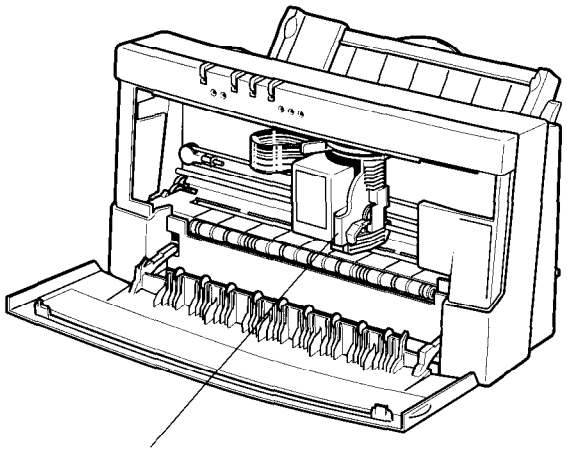
Chapter 7
Maintaining the Printer

This chapter covers the care and maintenance required for your Canon Color Bubble Jet BJC-4000 printer. This includes printer guidelines, cleaning the printer, cleaning the print head, BJ cartridge maintenance, replacing BJ and ink cartridges, and transporting the printer.

Printer Guidelines

Follow these guidelines to avoid damage to your printer and harm to you or others:

- ❑ Set the printer on a stable surface. Do not use an angled printer stand.
- ❑ Keep the front cover closed when printing.
- ❑ Do not set anything on top of the printer.
- ❑ Always use a three-wire, grounded power receptacle (electrical wall outlet with three holes) for your printer's power cord. Do not modify the cord to remove the ground pin.
- ❑ Make sure the power is off any time you connect or disconnect the power cord or interface cable.
- ❑ Do not move the mechanism that holds the BJ cartridge. Attempting to move the BJ cartridge holder may damage delicate mechanical parts.



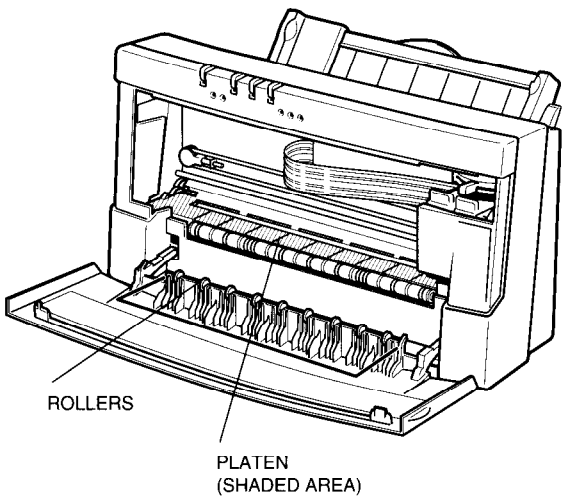
Cleaning the Printer

Your printer requires little routine maintenance. Perform the following maintenance, as necessary, to keep your printer in good operating condition.

Caution

- ❑ Make sure the printer is turned off before cleaning it. It is a good idea to unplug it also.
- ❑ Do not clean the exterior of the printer with volatile liquids such as thinners, benzine, or any spray-type or chemical cleaners; doing so will damage the surface of the printer.
- ❑ When cleaning the printer, avoid the area near the print head on the BJ cartridge. Do not touch the print head. Ink may leak out and cause stains.

Clean the printer regularly to avoid printing problems. Remove any ink mist or paper debris from the interior of the printer using a soft cloth moistened with water. Clean especially well around the platen area. If the rollers become dirty, you can clean them using a small soft brush.



Clean the exterior of the printer with a soft cloth moistened with water. Clean away smudges and dust.

Note

Do not use paper products (such as paper towels or tissues) to clean the inside of the printer.

BJ Cartridge Maintenance

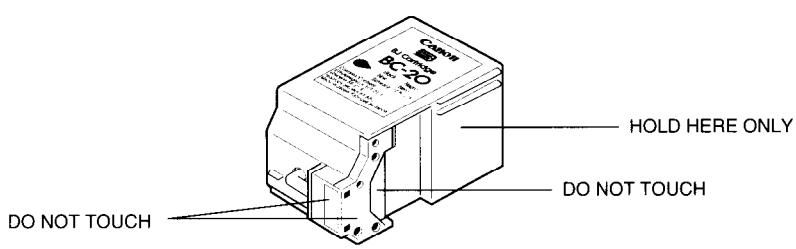
The most important thing you can do to extend the life of your BJC-4000 and to ensure optimum print quality is take care of the BJ cartridges.

To ensure excellent print quality, follow these guidelines for maintaining the BJ cartridges:

- ❑ If you are using both the BC-20 and BC-21 BJ cartridges, make sure you store the cartridge not being used in the BJ cartridge container.
- ❑ Store BJ cartridges at room temperature.
- ❑ Keep BJ cartridges in their sealed containers until you are ready to use them.
- ❑ Install the BJ cartridge in the printer immediately after opening the sealed container.
- ❑ Keep the BJ cartridge in its home position (right side of the printer) when you are not using the printer. Leaving it out of its home position will cause the print head to dry out.
- ❑ Perform the print head cleaning when your print quality is not satisfactory. (See page 104 for instructions.)
- ❑ Replace an ink cartridge or a BJ cartridge when the print quality does not improve after five consecutive print head cleanings.
- ❑ Do not remove the ink cartridges from the BC-21 Color BJ cartridge unnecessarily. This may cause the ink to clog.
- ❑ Make sure both ink cartridges are installed in the BC-21 Color BJ cartridge. Attempting to use the BC-21 Color BJ cartridge with one ink cartridge only may cause ink clogging.
- ❑ If spilled, the ink is difficult to remove. Therefore, it's a good idea to keep the BJ and ink cartridges out of the reach of children.
- ❑ Do not touch the print head area on the BJ cartridge. Ink may leak out and cause stains.

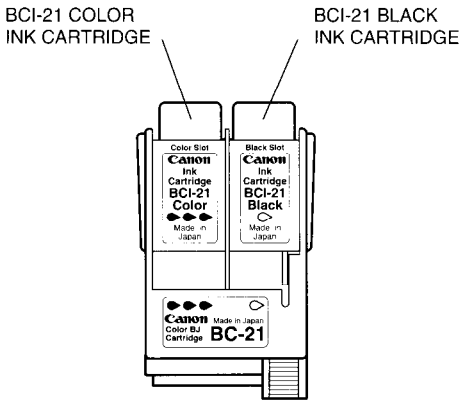
Caution

Hold the BJ cartridge on the sides only. Do not touch the silver plate on the bottom of the BJ cartridge or the silver metal or circuit area on the side. The metal area may become hot during printing.

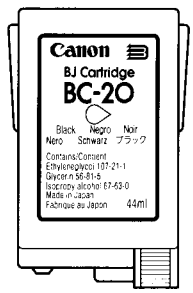


Replacing the BJ and Ink Cartridges

You can use either the BC-20 or BC-21 BJ cartridge with the printer. The BC-20 Black BJ cartridge contains black ink only; the BC-21 Color BJ cartridge contains both color (cyan, magenta, yellow) and black ink. Use the BJ-20 Black BJ cartridge when you will be printing with black ink only.



BC-21 COLOR BJ CARTRIDGE



BC-21 BLACK BJ CARTRIDGE

The actual amount of ink that you use will vary depending on the print density of a page. If the majority of your output is graphics, you may need to change cartridges more often than when you are printing text only.

You may need to replace the BJ cartridge when any of the following conditions exist:

- ❑ You have been using the cartridge for over one year.
- ❑ Your printed output is not crisp and clear, and there are gaps in the characters (missing dots) even after you have cleaned the print head at least five times.

If you are using the BC-21 Color BJ cartridge and your output is blank, one of the ink cartridges is probably out of ink. See the instructions starting on page 120 for replacing an ink cartridge.

Caution

Canon makes numerous ink cartridges; the BC-20 Black and BC-21 Color BJ cartridges are designed specifically for the BJC-4000 printer and are the only ones you should use. The BCI-21 Black and BCI-21 Color ink cartridges are designed specifically for the BC-21 Color BJ cartridge and are the only ones you should use in this cartridge.

To avoid spilling ink, follow these precautions:

- ❑ Do not attempt to disassemble or refill a BJ or an ink cartridge.
- ❑ Do not vigorously shake a BJ or an ink cartridge while handling it.
- ❑ Do not insert anything into the opening on a BJ or an ink cartridge.
- ❑ Do not unpack a BJ or an ink cartridge until you are ready to install it.
- ❑ Do not remove a BJ or an ink cartridge unless you need to replace it.

Replacing the BJ Cartridge

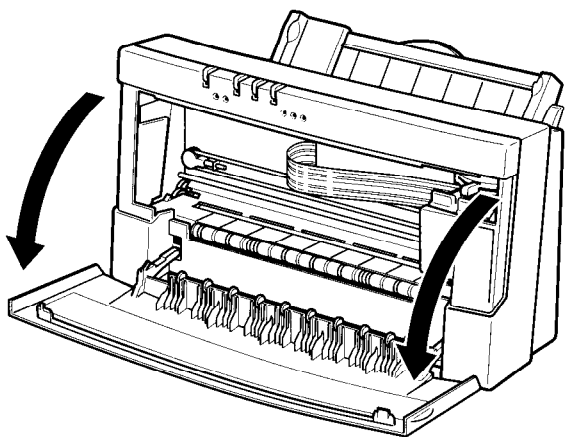
The following procedure describes how to replace either the BC-20 Black BJ cartridge or the BC-21 Color BJ cartridge. Follow the instructions in this section to replace an old BJ cartridge or to change cartridges when you want to switch from high-speed monochrome printing to color printing (or vice versa).

You only need to replace the BC-21 Color BJ cartridge when the print head is damaged (or after printing approximately 2,000 pages). If one of the ink cartridges (either color or black) in your BC-21 Color BJ cartridge is out of ink, see the next section for instructions on how to replace an ink cartridge.

To replace a BJ cartridge, follow these steps:

1. **Make sure the printer's power is on.**
2. **Open the front cover.**

   - ❑ Grasp both sides of the cover and pull it toward you.

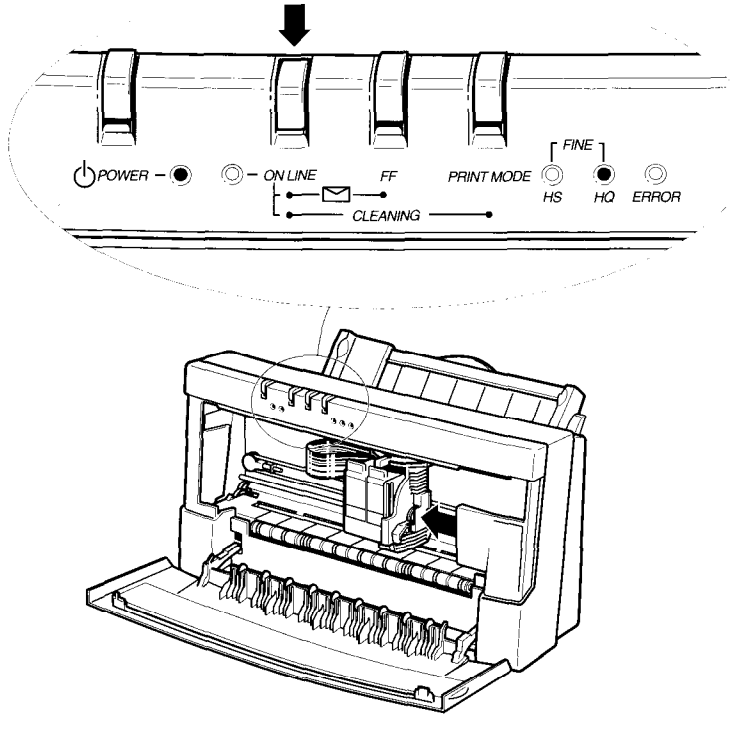


Note

Do not attempt to move the cartridge holder manually. This may damage the printer.

3. **Press the ON LINE button (also called the CARTRIDGE button) for a few seconds until the printer beeps once.**

   ❑ The ON LINE light blinks while the cartridge holder moves to the center of the printer.

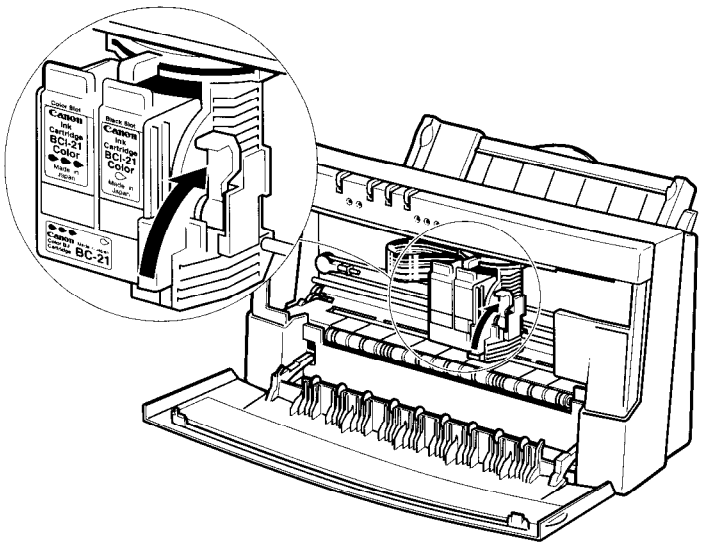


Caution

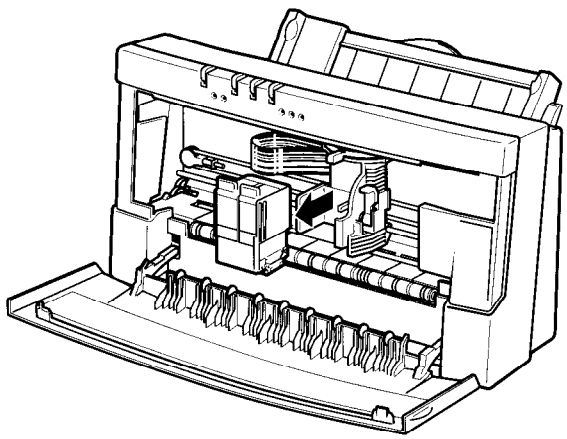
❑ If the cartridge holder does not move and the printer beeps several times, turn off the printer and let it cool for several minutes. (The printer has an automatic protection mode that prevents it from overheating.) After allowing it to cool, turn on the printer and press **ON LINE** to move the cartridge holder.

❑ Do not touch the silver metal plate on the BJ cartridge (near the print head). This plate may become very hot during printing.

4. **Lift the green lock lever on the cartridge holder.**

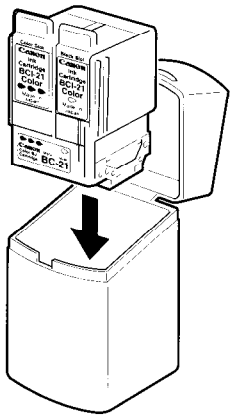


5. **Slide the BJ cartridge out of the holder.**



6. **Store or dispose of the BJ cartridge.**

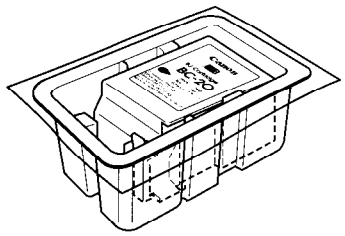
   ❑ If you are switching cartridges, you must store the cartridge you are removing in the BJ cartridge container.



   ❑ If you are replacing an old BJ cartridge, dispose of the old cartridge properly.

7. **Take the new BJ cartridge out of its protective packaging.**

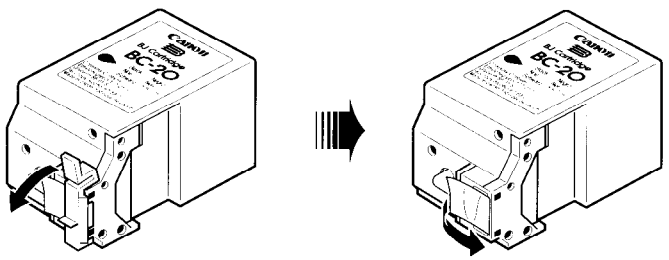
   ❑ Peel off the protective foil.



8. **Remove the protective material from the BJ cartridge.**

   ❑ Lift off the orange cap from the print head.

   ❑ Then remove the orange tape.

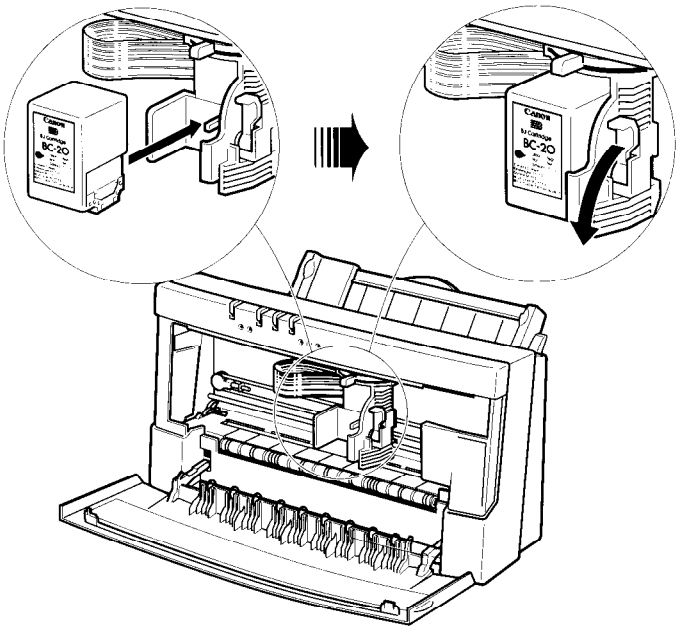


9. **Slide the BJ cartridge straight into the cartridge holder.**

   ❑ Be careful not to touch the rollers with the print head.

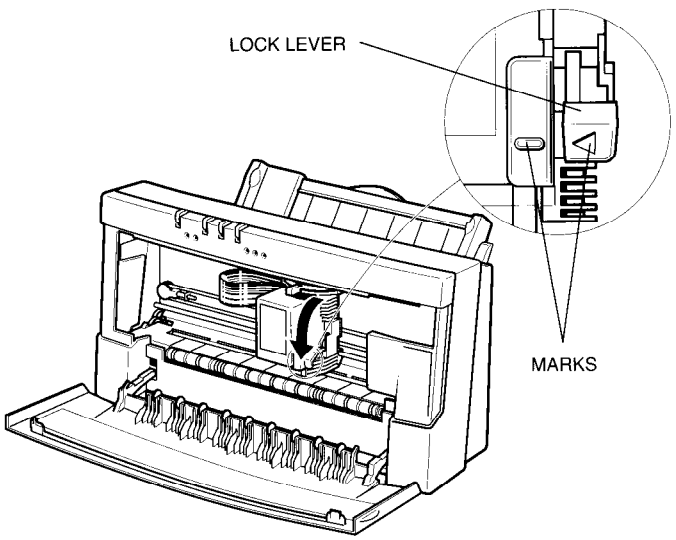
   ❑ Make sure the cartridge is pressed against the back of the holder.

   ❑ Then press the lock lever down completely.



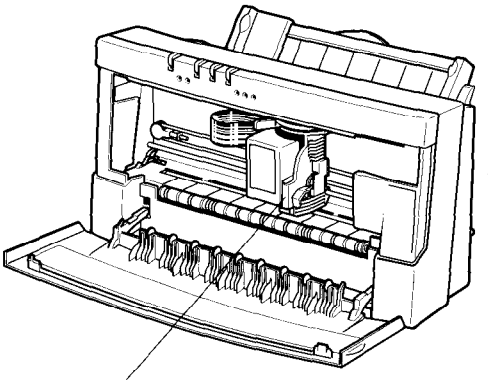
10. **Make sure the marks on the lever and the cartridge holder align.**

    ❑ The BJ cartridge is now positioned and locked.



Caution

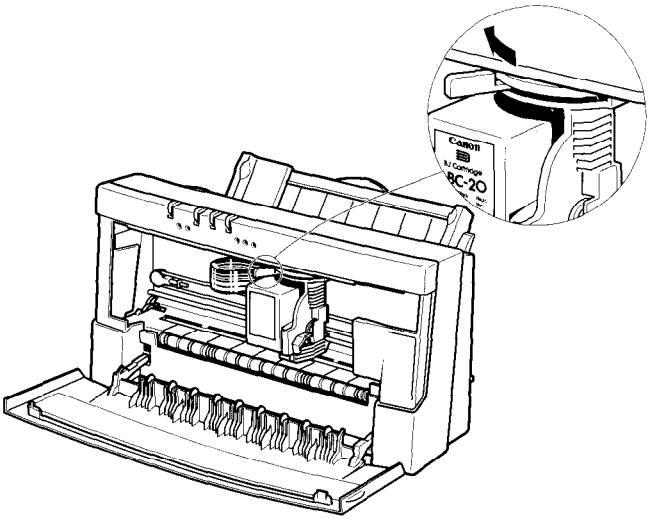
Do not move the mechanism that houses the BJ cartridge. Attempting to move the BJ cartridge holder will damage the printer.



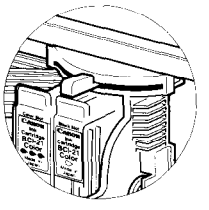
BJ CARTRIDGE HOLDER

11. Set the paper thickness lever.

❑ If you installed the BC-20 Black BJ cartridge, set the paper thickness lever to the left.

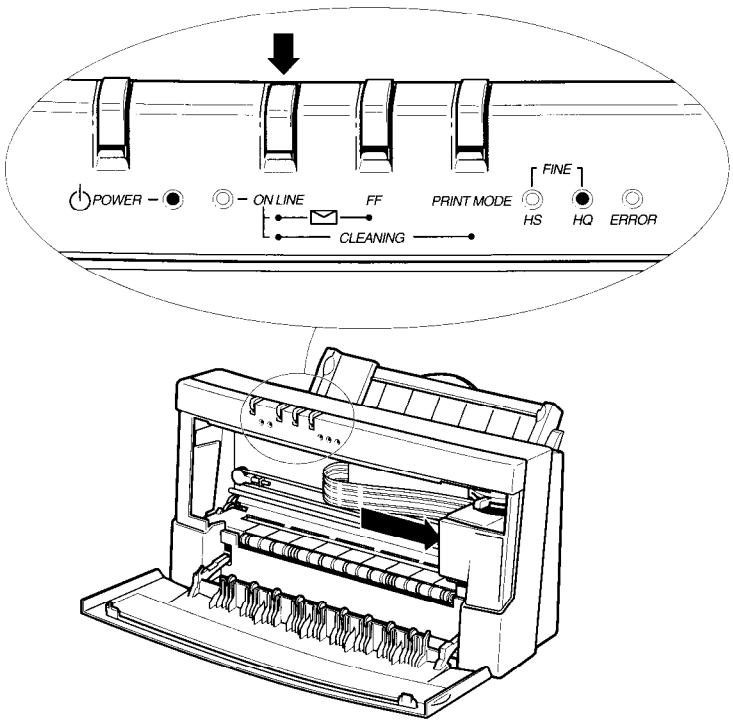


❑ If you installed the BC-21 Color BJ cartridge, set the paper thickness lever to the center.



12. **Press and hold the ON LINE button (CARTRIDGE button) until you hear two beeps.**

    ❑ The cartridge holder moves to the home position on the right side of the printer.



13. **Close the front cover.**

14. **After the** ON LINE **light stops blinking, press ON LINE to set the printer back on-line.**

Whenever you turn off the printer, the BJ cartridge moves to the home position on the right and caps itself. If you unplug the printer while it is printing (or if you turn off a power strip to which the printer is connected), or if you move the ink cartridge from the home position, the cartridge will not be capped and it may dry out.

Replacing an Ink Cartridge in the BC-21 Color BJ Cartridge

If you perform a print operation correctly but the output is blank, an ink cartridge may be out of ink. Perform the print head cleaning at least five times. If the output is still blank, replace the ink empty cartridge in the BC-21 Color BJ cartridge.

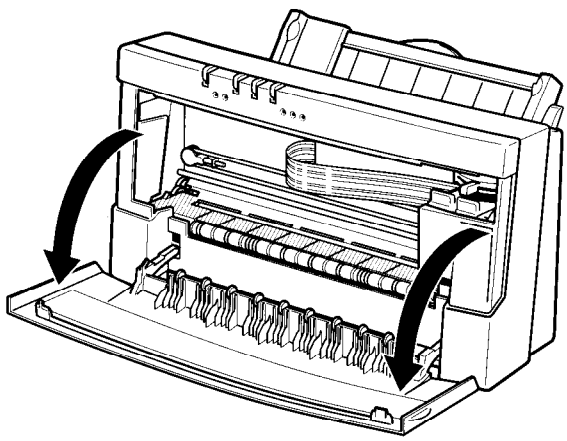
You only replace an ink cartridge when the BC-21 Color BJ cartridge is installed in the printer. Do not remove the BJ cartridge before replacing the ink cartridge.

To install a new ink cartridge, follow these steps:

1. **Make sure the printer's power is on.**

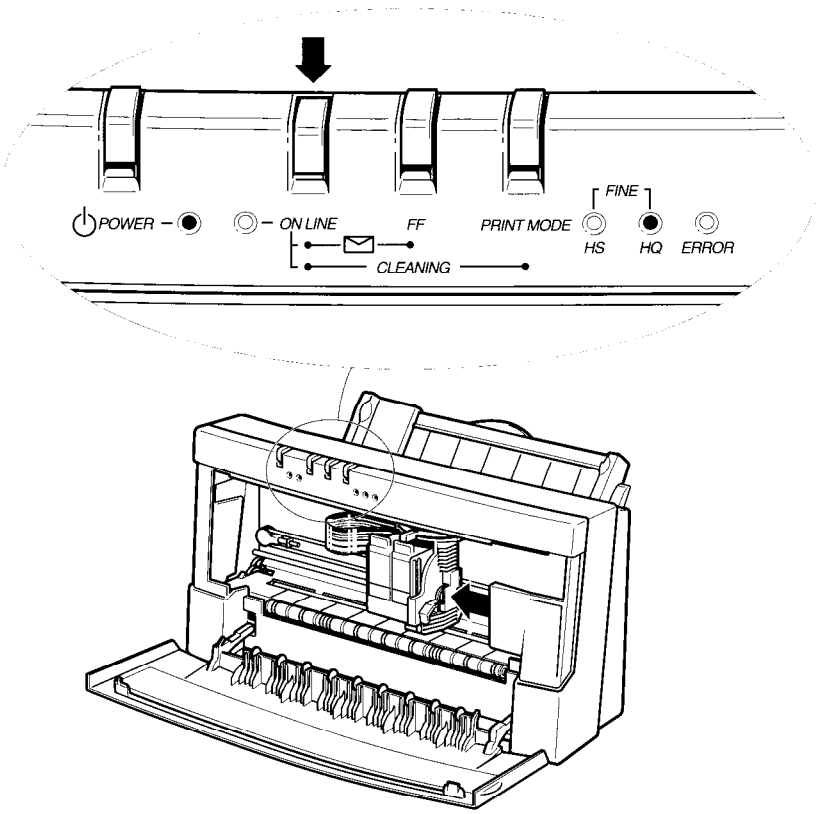
2. **Open the front cover.**

   ❑ Grasp both sides of the cover and pull it forward.



3. **Press the ON LINE button (also called the CARTRIDGE button) for a few seconds until the printer beeps once.**

   ❑ The ON LINE light blinks while the cartridge holder moves to the center of the printer.

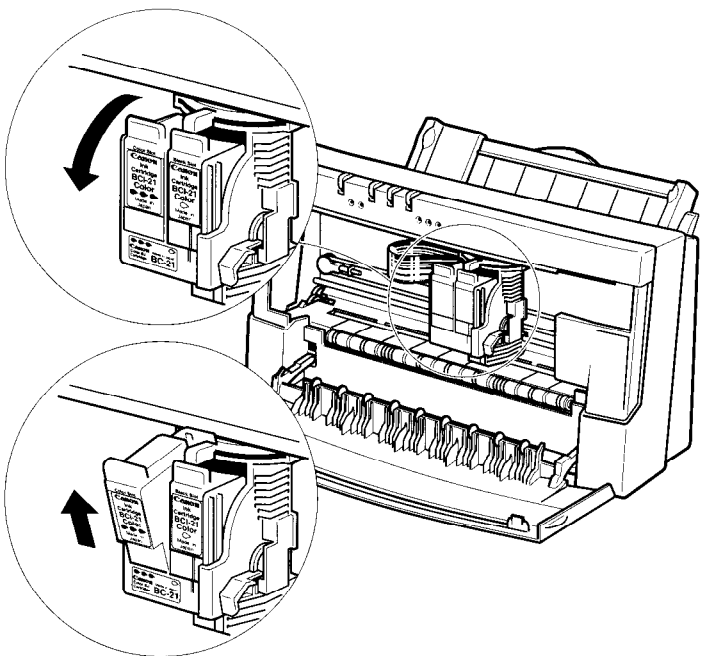


Caution

If the cartridge holder does not move and the printer beeps several times, turn off the printer and let it cool for several minutes. (The printer has an automatic protection mode that prevents it from overheating.) After allowing it to cool, turn on the printer and press **ON LINE** to move the cartridge holder.

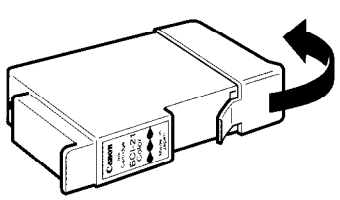
4. **Remove the empty ink cartridge.**

   - ❑ The color ink cartridge is on the left; the black ink cartridge is on the right.
   - ❑ Grasp the tab on the top of the cartridge and pull forward to release the ink cartridge.
   - ❑ Then lift the ink cartridge up and out of the BJ cartridge unit.
   - ❑ Dispose of the ink cartridge properly. You may want to place it in a plastic bag to keep from spilling any residual ink.

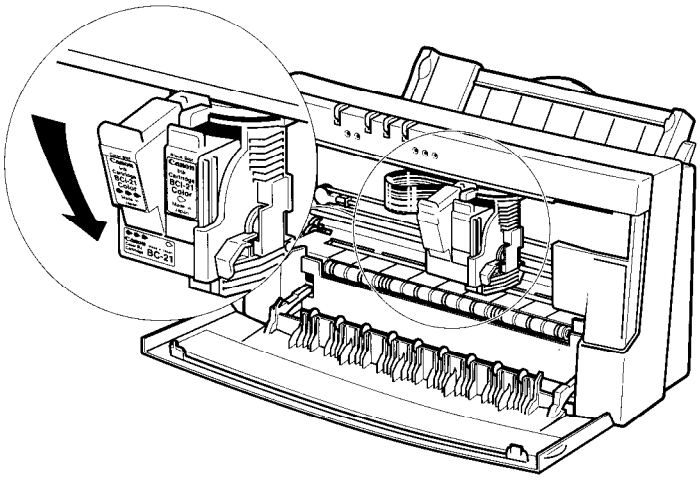


5. **Take the new ink cartridge out of its bag.**

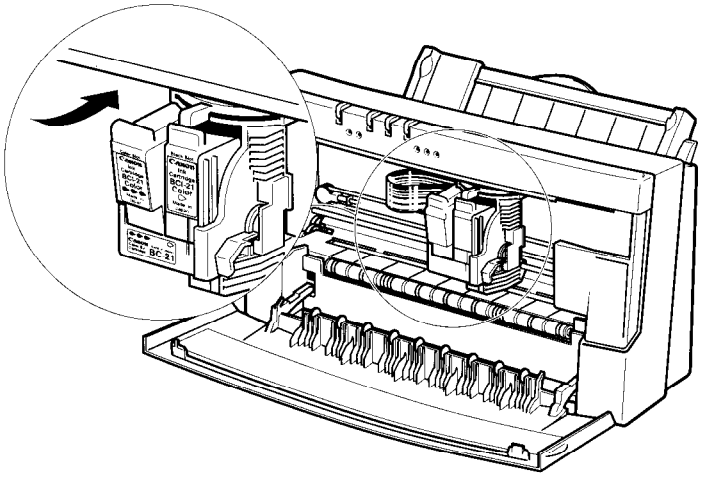
   - ❑ Then remove the orange protection cap.



6. **Slide the new ink cartridge into the empty slot on the BJ cartridge.**

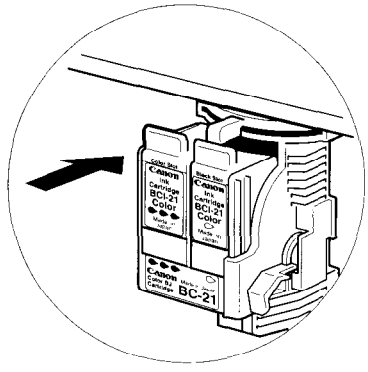


7. **Press firmly on the tab on the top of the ink cartridge until the cartridge snaps into place.**



8. **Make sure each cartridge is correctly seated in its respective slot.**

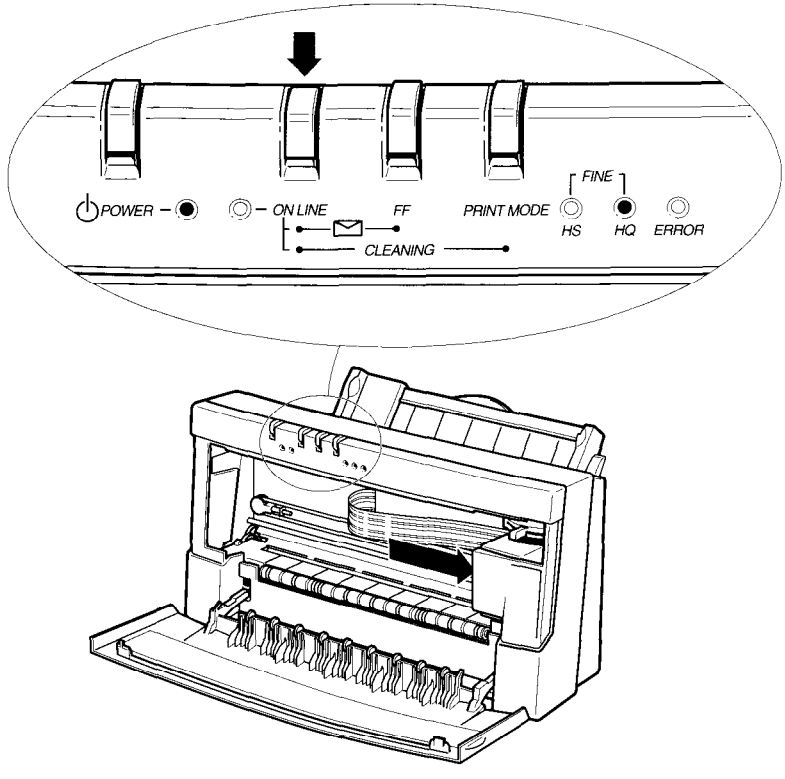
   ❑ If you are replacing both cartridges, repeat steps 4 through 7 for the other ink cartridge.



9. **Press and hold the ON LINE button (CARTRIDGE button) until you hear two beeps.**

   ❑ The cartridge holder moves to the home position on the right of the printer.

   ❑ The printer automatically cleans the print head unit.



10. **Close the printer's front cover.**

11. **After the ON LINE light stops blinking, press ON LINE to set the printer back on-line.**

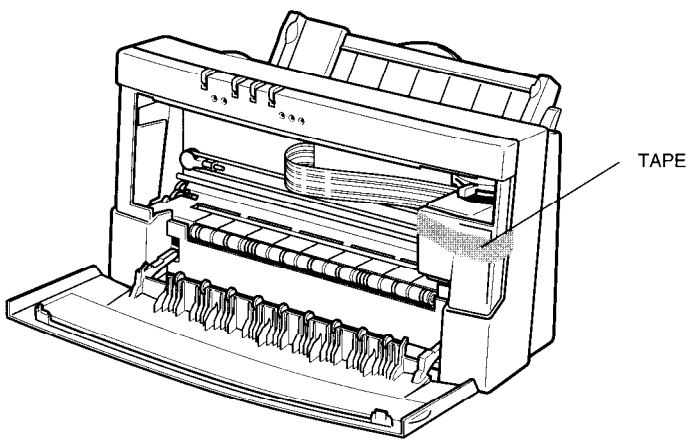
Transporting the Printer

Note

While the Color Bubble Jet Printer BJC-4000 is small and compact, it is not a portable printer and you need to take care when transporting it. The printer's components, such as the sheet feeder, may become damaged if subjected to severe vibration during transportation. Also, your print head may dry out during travel (and become unusable) if it is not capped and taped correctly.

If you plan to move the printer from one location to another, or if you want to store it, follow the steps below.

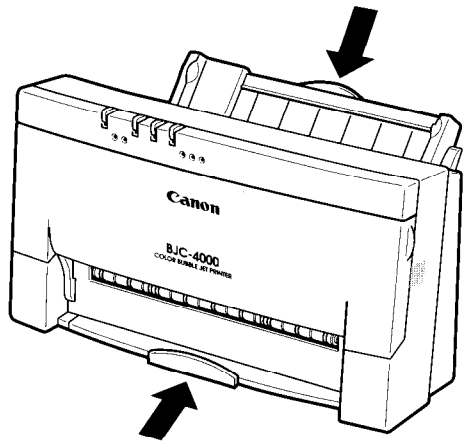
1. Turn off the printer's power. This secures the print head in the home position.
2. Remove any paper from the sheet feeder.
3. Detach the interface cable and the AC power cord.
4. Open the front cover.
5. Tape the BJ cartridge to the side of the printer.



6. Close the front cover.

7. Remove the BJ cartridge container from the side of the printer and store it in a safe place.

8. Return the paper rest and paper output tray to their original positions.



9. Repack the printer in its original packing materials.

Note

Do not remove the BJ cartridge from the printer or ship a BJ cartridge or an ink cartridge from which you have removed the protective cap. An opened BJ or ink cartridge that is not installed in the printer may leak, and the print head may dry out. Also, if you do not tape the BJ cartridge to the side of the printer, ink may spill into the printer.

Chapter 8
Troubleshooting

This chapter contains information to help you solve printer problems. A problem may have one or a combination of causes, including a malfunction in your computer, software, the printer cable, or the printer. Many printing problems are related to how your software interacts with the printer.

If you can print a self test but the printer does not print or your printed output is not what you expect, the problem is with your computer, software, or cables. Check these items for a problem.

If your printer is not operating properly, try the suggestions in this chapter. Try the solutions in the order listed. The following list shows the problems covered here.

Check List

Problem	See page
Operational Problems	127
The printer does not print or the indicator lights do not come on	127
Indicators light, but printer does not print	128
ERROR light is on; printer beeps	129
Overall printing is slow	130
Paper Loading Problems	131
Paper does not load into the printer	131
Multiple sheets feed into the printer	131
Paper is loaded skewed (Printing is skewed)	131
Envelopes do not load	132
Paper does not eject after printing	132
Paper jams occur	133
Print Quality Problems	134
Graphics print quality problems	135
Character print quality problems	135

Problem	See page
Color Printing Problems	136
Printer prints only in black	136
Colors are broken or uneven	136
Colors are missing	136
Colors print incorrectly	137
Printing is slow in color mode	137
Blue looks like purple	137
Your printed images are missing some detail	137
Windows Problems	138
Printer does not print or prints garbage	138
Cannot print from file menu	139
Output is not as expected	139
Fonts do not print as smoothly rounded characters	139
Cannot print file sent from remote computer	139
Color matching feature does not work	140
Colors do not print in WordPerfect 5.2 for Windows	140
Large gaps appear between text or graphics	140
Control array error occurs when loading or using the On-Line Guide	140
Extra characters appear on the page	141
In WordPerfect, the BOX prints but the text does not	142
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If you have a problem with your printer and you cannot resolve it by referring to the information in this chapter, contact the Canon help desk at **1-800-423-2366** (U.S.A.) or **1-800-236-1121** (Canada). The staff at the help desk is trained in the technical support of Canon's products and should be able to help you with your problem. If your printer requires service, the staff at the help desk can provide you with the telephone number of your local Canon Authorized Service Facility (ASF).

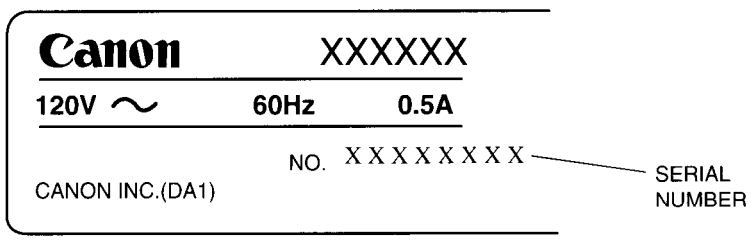
Note

Attempting to repair the printer yourself may void the warranty.

Before contacting your Canon authorized service representative, make sure you have the following information:

- ❑ Product name
- ❑ Serial number
- ❑ Place of purchase
- ❑ Nature of problem
- ❑ Steps you have taken to solve the problem and the results

The serial number is located on the label on the back of the printer:



Operational Problems

The printer does not print or the indicator lights do not come on

If the printer is turned on and nothing happens (none of the lights come on), turn off the printer and follow these steps.

1. Make sure that the power cord is plugged securely into the power receptacle on the back of the printer.
2. Make sure the power cord is plugged into the outlet. If the power cord is connected to a power strip, make sure the power strip is connected to the outlet and turned on.
3. Turn on the printer. If the printer is connected properly, the POWER, ON LINE, and HQ lights will come on, and the print head will move in and out of the home position. If nothing happens, call the Canon help desk for assistance.

Indicators light, but printer does not print

1. Make sure the printer is on-line (the ON LINE light is on). If the ON LINE light is off, press the **ON LINE** button to set the printer on-line. Then try printing a self test (see page 60).

2. Check the interface cable connections. Make sure you are using the correct interface cable. Check to see that the cable is connected to the correct port on your computer. Make sure the connections are secure.

3. Make sure the computer is set up correctly for your printer.

4. Make sure paper is loaded properly in the sheet feeder. Refer to Chapter 3, *Using the Printer.*

5. Try printing a test print to ensure ink is printing on the paper. See *Printing the Self Tests* in Chapter 3.

6. Check the BJ cartridge:

   - ❑ Make sure the protection tape and cap are removed from the print head of the BJ cartridge.
   - ❑ Make sure the BJ cartridge is installed properly.
   - ❑ Try replacing the BJ cartridge.

Refer to *Installing the BJ Cartridge* in Chapter 2.

ERROR light is on; printer beeps

When the ERROR light comes on and the printer beeps, check for the most probable cause as listed below.

	Indicator lights				
Problem	ON LINE	HS	HQ	ERROR	**Printer beeps**
Paper misfeed or paper out				ON	3 times
Paper jam				ON	4 times
Controller error	Blinks	Blinks*	Blinks*	ON	3 or more times

* The HS and HQ lights may or may not blink for different types of controller errors.

If the ERROR light comes on and the printer beeps, check for a paper misfeed or a paper jam:

1. Check the sheet feeder. If the paper has misfed or the printer is out of paper, reload paper into the sheet feeder as described in Chapter 3, *Using the Printer*.

2. Check the printer for a paper jam. If a paper jam occurs, clear it as described later in this chapter; see the *Paper Jams Occur* section on page 133.

If the ERROR light comes on and the ON LINE, HS, and HQ lights are blinking, a controller error may have occurred. Follow these steps to solve the problem:

1. Press the **POWER** button to turn off the printer.

2. Wait 15 seconds, and press the **POWER** button again to turn on the printer. If the problem has been cleared, the ON LINE indicator will blink for several seconds and then come on steadily, and the BJ cartridge will move to the home position. If the problem continues, call the Canon help desk.

3. If you have been printing extensively for awhile, the printer may need to cool. Wait several minutes and then turn the printer back on. If the problem continues, call the Canon help desk.

Overall printing is slow

When printing from MS-DOS applications

If your printer seems extremely slow when printing, follow these steps to improve the printing speed.

1. Check DIP switch 13; make sure it is OFF to disable the smoothing mode.

2. Maximize the input buffer size by setting DIP switch 10 to OFF.

3. Try using HS mode via the operator panel.

4. If you have been printing for awhile, the print head may have become too hot. In this case, the printer automatically goes into protection mode and slows down in order to cool the print head. You can stop your print operation and wait several minutes to allow the printer to cool. Then start your print operation again.

See Chapter 6, *Using the Operator Panel,* for information on HS mode, and Chapter 9, *Customizing the Printer,* for information on DIP switches.

When printing from Windows applications

If your printer seems extremely slow when printing from Windows, follow these steps:

1. If you are using Windows, make sure the Print Manager is turned off.

   ☐ **Use Print Manager**

2. In the Windows driver or your software application, set all print options to their defaults, such as: Plain Paper, Color or Black and White mode, Normal quality, Pattern Halftone.

See *Improving Print Speed* in Chapter 5 for complete details.

Paper Loading Problems

Paper does not load into the printer

1. Make sure the paper selection lever is set to the correct position.
   - ❑ For plain paper, set it to the back.
   - ❑ For envelopes or thick paper, set it to the front.
   - ❑ For manual loading, set it to the front.
2. When manually feeding paper, make sure the printer is on-line. Then insert the single sheet of paper all the way into the sheet feeder and hold it for one second. If the paper is not inserted far enough, the printer cannot load it.

See Chapter 3, *Using the Printer*, for details on loading paper.

Multiple sheets feed into the printer

1. Make sure the paper is not sticking together. Fan the paper before placing it in the sheet feeder. Always fan a stack of paper along the edge that will feed into the printer first.
2. Check that the paper rest is extended and the paper selection lever is in the back position for automatic loading of paper.
3. Make sure the sheet feeder does not contain too much paper. Remove a few sheets of paper from the sheet feeder.
4. If different paper types are loaded in the sheet feeder, load just one paper type.

See Chapter 3, *Using the Printer*, for complete details on selecting and loading paper.

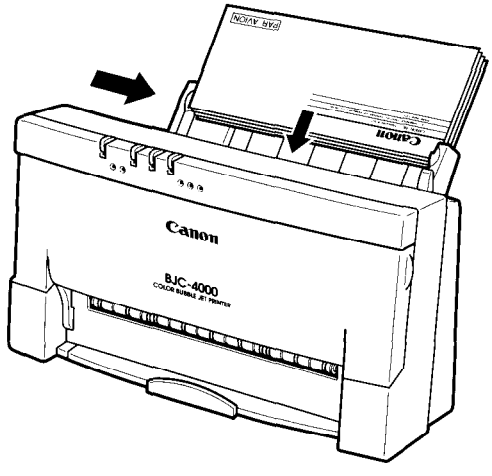
Paper is loaded skewed (Printing is skewed)

Make sure the paper is loaded properly in the sheet feeder: the right side of the paper is aligned against the right side of the sheet feeder and the paper guide rests against the left side of the paper stack as described in Chapter 3, *Using the Printer*.

Envelopes do not load

1. Make sure that the paper selection lever is set to the front.

2. Make sure the envelope is loaded properly: the top of the envelope goes in first, the flap faces the sheet feeder, the right side of the envelope is aligned against the right side of the sheet feeder, and the paper guide is aligned against the left side of the paper.



3. For manual loading, be sure to insert the envelope until it stops in the interior of the sheet feeder.

4. Make sure you have set up envelope mode in your printer driver or your software application.

5. If necessary, enable envelope mode using the printer's operator panel.

See Chapter 3, *Using the Printer*, for details on loading envelopes.

Paper does not eject after printing

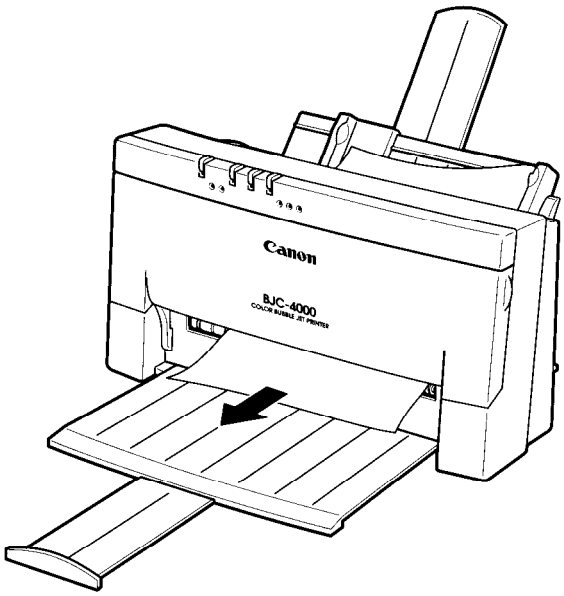
When the printer does not eject the paper after printing, press the **ON LINE** button to set the printer off-line, then press and hold the **FF** button for one second to eject the paper.

Paper jams occur

When a paper jam occurs, the ERROR light comes on and the printer goes off-line. Clear the paper jam as follows:

1. Press the **POWER** button to turn off the printer.

2. Gently pull the paper out with one hand while holding down the printer with the other hand.



3. If the paper tears off inside the printer, open the front cover and remove the paper left inside the printer.

4. Press the **POWER** button to turn the printer back on. The POWER, ON LINE, HQ (or HS) lights come on and the print head will move to the home position. The printer is now ready for printing.

Note

If you are printing high density graphics when a paper jam occurs, feed at least two sheets of paper through the printer to clean the rollers.

Print Quality Problems

If the printout is unsatisfactory, consider the following suggestions:

- ❑ Most paper has a right side and a wrong side. If the print quality is poor, try turning the paper over and printing on the other side.

- ❑ If characters and images are blurred, check that you are using the correct kind of paper and printing in the correct printing area. (See Chapter 3, *Using the Printer*, for details.)

- ❑ If ink gets on the printer's platen, the reverse side of the printed page will have smudges. In this case, clean the platen by feeding a few sheets of paper through the printer. (Use the **FF** button to manually feed a few sheets.)

- ❑ If white streaks or missing dots appear on printed pages, perform the print head cleaning operation. See page 104 for instructions.

  If the quality is not crisp and clear after cleaning the print head, repeat the head cleaning procedure again. If output still is not satisfactory after cleaning the print head five consecutive times, replace the BJ cartridge.

- ❑ If the following print quality problems occur in the entire printing area, check for the most probable cause and remedy as listed below.

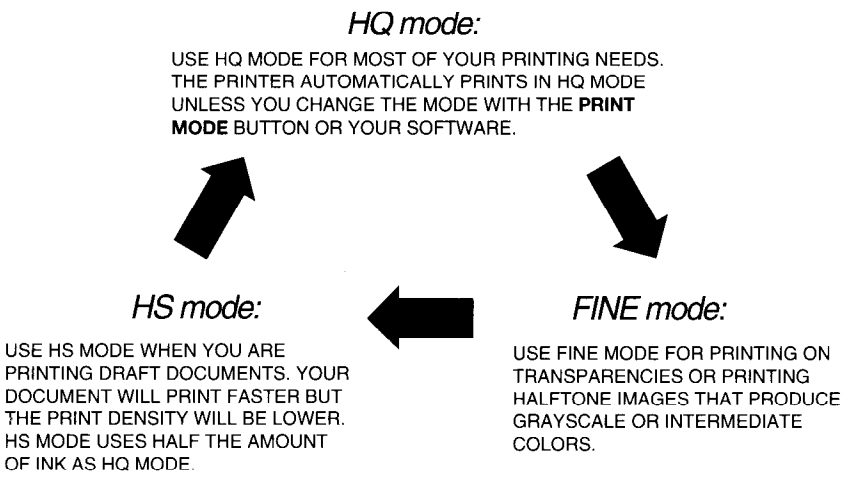
Print Results	Most Probable Cause	Remedy
Smudged	Paper type	Try a different type
Blurred	Paper type	Try a different type
Faded	Print head is clogged or out of ink	Perform the head cleaning or replace the ink cartridge
White Streaks	Print head is clogged	Perform the head cleaning
Dots Missing	Print head is clogged	Perform the head cleaning
Irregular Dots	Print head is clogged	Perform the head cleaning

See Chapter 3, *Using the Printer*, for details on selecting paper types.

Graphics print quality problems

If you are not satisfied with the printout of graphics from your MS-DOS application, consider the following tips:

- ❑ If you get faint printouts using HS mode, try using HQ mode or FINE mode.
- ❑ If your printouts have ink-stained areas between black and color inks, try using FINE mode or try a different type of paper.
- ❑ If you print photographic images, try using FINE mode.



See Chapter 6, *Using the Operator Panel*, for information on selecting the print modes.

Character print quality problems

If you are not satisfied with the printout of characters, consider the following tips:

- ❑ If you get faint printouts using HS mode, try using HQ mode.
- ❑ If printing takes too much time using FINE mode, try using HQ mode.
- ❑ For high quality text when printing with the black cartridge, you can set smoothing mode using DIP switch 12. (See Chapter 9 for details.)

See Chapter 6, *Using the Operator Panel*, for information on selecting the print modes.

Color Printing Problems

This section contains problems and solutions related to color printing.

Printer prints only in black

If you are printing from an application that supports color printing but your output is black only, follow these steps:

1. Check to ensure that the BC-21 Color BJ cartridge is installed.
2. Verify that you selected colors through your application.
3. Verify that you selected the BJC-4000 printer driver or the LQ-2550 printer driver.
4. Check that you selected Color or Screen-Matched Color when you set up the Windows printer driver.
5. Print the Demo test print to make sure the color cartridge is firing correctly. (See page 63.)
6. Clean the print head as described on page 104.

Colors are broken or uneven

If the colors on the current line are broken, uneven, or different than on previous lines, follow these steps:

1. Make sure you did not set the printer off-line during the print job.
2. The print mode may be inappropriate. If you are printing high density graphics on plain paper, set the print mode to Coated Paper in the Windows driver. If you are using MS-DOS, try FINE mode.
3. If you are generating a thin line with a nonprimary color, your software may tell the printer to place a color every other dot (white is in-between). To correct this, choose cyan, yellow, or magenta instead.

Colors are missing

If your printed output appears to be missing bands of colors, follow these steps:

1. Print the Demo test print to make sure the color cartridge is firing correctly. (See page 63.)
2. Clean the print head as described on page 104.

Colors print incorrectly

If the colors in your printout do not match the colors on your screen, follow these steps:

1. Verify that you selected the BJC-4000 printer driver.
2. Check that you selected Screen-Matched Color when you set up the Windows printer driver.
3. Make sure you selected the correct monitor when you set up the printer driver. If the name of your monitor does not appear within the options section of your printer driver, select Other.

Note

Some colors are impossible to match exactly due to scientific reasons. However, the printer tries to come as close as possible.

Printing is slow in color mode

If your printer seems extremely slow when printing in color, follow these steps to improve the printing speed:

1. If you are using Windows, turn off the Print Manager.

2. In the Windows driver, choose Plain Paper, Color mode, and Pattern for Halftone.

See *Improving Print Speed* in Chapter 5 for complete details.

Blue looks like purple

Blue prints out as purple because of the difference in color technology used by the screen and printer; the screen uses RGB color and the BJC-4000 uses CYMK color. Due to the technology differences when cyan and magenta are mixed together, blue prints dark blue or purple compared to the screen.

Within the Windows printer driver, selecting Screen-Matched Color will result in a lighter blue. If you are not using Screen-Matched Color, decreasing the amount of magenta by 30% produces a royal blue.

If you are just looking for a nice blue color, try cyan. It prints beautifully and fast and is available in almost all applications that support color.

Your printed images are missing some detail

Check to see if your Windows printer driver is set to Plain Paper, Color mode, and Pattern. If so, change the Media Type setting from Plain Paper to Coated Paper.

Windows Problems

This section contains problems and solutions related to using your printer with Windows applications.

Printer does not print or prints garbage

1. Check that the cable and power cord connections are secure.
2. Turn on the printer.
3. Make sure the printer driver is properly installed and set up. See Chapter 5, *Using the Printer With Your Software*, for details.

If you see the message `Stalled print jobs in Printer Manager`, follow these steps:

1. Minimize your application.
2. Double-click on Print Manager.
3. Select each print job and click on delete under the BJC-4000. If no print jobs are present, go to the next procedure.
4. Try your print operation again.

If you see the message `Remove Fast Printing Direct to Port`, follow these steps:

1. Select the Main group from the Program Manager.
2. Double-click on the Control Panel.
3. Double-click on the Printers icon.
4. Select the BJC-4000.
5. Click on Connect.
6. Click on the box next to Fast Printing Direct to Port to remove the X.
7. Click on OK.
8. Click on Close.
9. Close the Control Panel.
10. Try your print operation again.

Turn off Print Manager:

1. Select the Main group from the Program Manager.
2. Double-click on the Control Panel.
3. Double-click on the Printers icon.
4. Remove the X on Use Print Manager.

5. Click OK.

Cannot print from file menu

Check that the printer is correctly connected to the computer and that it is turned on. If the problem still exists, follow these steps:

1. Open the Printers icon, which is located in the Control Panel.
2. Select the Canon BJC-4000 printer as the default printer by double-clicking on its name.
3. If the Canon BJC-4000 does not appear as the default printer, click on the Configure button.
4. Make sure the correct port is selected and choose OK.
5. Double-click on the Canon BJC-4000 name again.

Output is not as expected

Make sure you have selected the Canon BJC-4000 setting in the Printers dialog box or from the printer setting for your particular application.

Fonts do not print as smoothly rounded characters

Make sure you installed an outline font manager, such as Adobe Type Manager or Bitstream Facelift, or that you are choosing a TrueType font. Bitmapped fonts designed for dot matrix printers do not print smoothly rounded characters when used with high resolution printers like the BJC-4000.

Certain MS fonts, such as MS Serif, will print jagged. Choose another font.

Cannot print file sent from remote computer

Check that all software is correctly configured for the network environment. For example, with a Novell network, you must include the Capture statement. Refer to the user's manuals supplied with your networking software for more information.

Color matching feature does not work

If the color matching feature does not work, you'll see this message displayed on your computer:

```
Color Matching failed to initialize
```

Make sure the BJC-4000 printer driver is properly installed and set up. See Chapter 4, *Using the Printer With Your Software*, for details.

Note

You can continue printing without the color matching feature by choosing the Continue button in the message window.

Colors do not print in WordPerfect 5.2 for Windows

If you are using WordPerfect 5.2 for Windows and your documents are printing in black ink only, follow these steps:

1. Make sure the printer driver is properly installed and set up. See Chapter 4, *Using the Printer With Your Software*, for details.
2. From the top menu bar, select the FILE menu. Highlight PREFERENCES and then highlight PRINT.
3. In the Preferences dialog box, make sure Fast Graphics Printing is not selected (remove the X from this box) and then click on OK.

Large gaps appear between text or graphics

1. Choose the Control Panel icon from the Main group window in the Program Manager and open the Windows Setup icon.
2. Check that the video driver is VGA. If the display driver is anything other than VGA, call the display manufacturer and request an updated display driver. In the meantime, install the standard VGA driver that came with Windows 3.1.
3. Make sure automatic line feed is disabled. Turn the printer off and back on to disable this function. (See page 105 for details.)

Control array error occurs when loading or using the On-Line Guide

If a control array error occurs, follow these steps:

1. Make sure you have enough processing memory in Windows.
2. If you are using a sound card or CD-ROM, disable their drivers in Windows.
3. Try using the Standard VGA driver from Microsoft Windows.

Extra characters appear on the page

If your page is printed correctly except that a few extra characters appear on the page, try disabling the Print Manager as follows:

1. Minimize all the current Windows applications.
2. Click on Print Manager; a dialog box appears.
3. Select END TASK.
4. Double-click on Program Manager.
5. Select WINDOW.
6. Select MAIN.
7. Double-click on Control Panel.
8. Double-click on Printers.
9. Remove the X from the Use Print Manager box and try to print again.

If the image prints correctly with the Print Manager disabled, but you want to use the Print Manager to print in Windows, try the following:

1. Minimize all the current Windows applications.
2. Click on Print Manager; a dialog box appears.
3. Select END TASK.
4. Double-click on Program Manager.
5. Select WINDOW.
6. Select MAIN.
7. Double-click on Control Panel.
8. Double-click on Printers.
9. Place an X in the box next to Print Manager.
10. Select the Canon BJC-4000.
11. Select CONNECT.
12. Change the value in Device Time-outs from 15 to 30 seconds.
13. Change the value in Transmission Retry from 45 to 90 seconds.

If the page still does not print correctly, verify that you have a valid SET TEMP statement in your AUTOEXEC.BAT file and that the specified drive has between 5 MB and 10 MB available.

To verify a proper SET TEMP statement, follow these steps:

1. Exit Windows and go to the MS-DOS prompt.
2. Type `SET` at the MS-DOS prompt. A list of statements should appear; look for the statement that says `SET TEMP = C:\WINDOWS`.
3. If the statement exists, verify that the directory exists by typing in the drive and directory location with the DIR command. For example:

   ```
   DIR C:\WINDOWS
   ```

4. If the `FILE NOT FOUND` message appears, then one of the following has occurred:

   - ❑ The path was typed in incorrectly; simply type the path correctly.
   - ❑ The directory does not exist; edit the AUTOEXEC.BAT file and change the directory to a valid directory; for example:

     ```
     SET TEMP = C:\DOS
     ```

In WordPerfect, the BOX prints but the text does not

If you are in WordPerfect 5.1 for Windows and the BOX prints but your text does not print, follow these steps:

1. Select File.
2. Select Preferences.
3. Uncheck the Fast Graphic Printing option for the Windows Printer Driver.

If you are in WordPerfect 5.2 for Windows, and the BOX prints but your text does not print, follow these steps:

1. Select File.
2. Select Preferences.
3. Check the Fast Graphic Printing option for the Windows Printer Driver.

Other Printing Problems

Printout is wrong

If your printout does not appear as you expect, check that the printer control mode matches the printer driver selected.

You select the printer control mode with DIP switch 11. See Chapter 9, *Customizing the Printer*, for details.

Printed characters do not match characters on the screen

Many graphics characters and special symbols are produced by different ASCII codes according to the type of computer and printer being used.

To receive a printout of the character sets supported by the printer, call the Canon fax retrieval system (see page 8) and request the *BJC-4000 Printer Command Summary*.

Set the correct character table and printer control mode using the printer's DIP switches. See Chapter 9, *Customizing the Printer*, for details.

Printer is printing beyond the edge of the page

1. Make sure paper is aligned correctly.
2. Check the software setting for the right margin.
3. Check the setting of DIP switch 1 (Horizontal print position):
   - ❑ For letter-size paper, set it to OFF.
   - ❑ For envelopes, set it to OFF.
   - ❑ For A4-size paper, set it to ON.

See Chapter 9, *Customizing the Printer*, for details on the DIP switches.

Printer prints incorrect number of lines on a page

1. Check the setting of DIP switch 3 (Page length):
   - ❑ For letter-size paper, set it to OFF.
   - ❑ For envelopes, set it to OFF.
   - ❑ For A4-size paper, set it to ON.
2. Check the software settings for top margin and page length.
3. Make sure paper is loaded correctly.

4. If you need to print 66 lines per page, try setting DIP switch 2 to ON.

See Chapter 9, *Customizing the Printer*, for details on the DIP switches.

Printout does not match paper size

1. Make sure the paper size you select within your printer driver matches the paper loaded in the printer.

2. Make sure the width of the paper on which you are printing matches the width defined by your software so there is always paper between the print head and the platen. The print head may be damaged if it prints directly on the platen.

If the print head does print on the platen, feed a few sheets of paper through the printer to clean the ink off the platen. Use the **FF** button to feed the paper.

Printer is not using the font you selected with DIP switches

Your software is overriding the DIP switch settings.

Change the initialization string that your software sends to the printer. You may need to do this using a menu or screen provided by your application software. See your application's documentation for information about how your software works with your printer.

Computer indicates a device time-out

A device time-out occurs when your computer sends data to the printer but the printer does not respond. The printer may be off, off-line, or not connected to the computer.

If your computer indicates a device time-out, follow these steps:

1. Make sure the printer is turned on and on-line.

2. Check that the printer's interface cable is securely attached to both the printer and the computer.

3. Make sure paper is properly loaded in the sheet feeder.

4. Try the print operation again.

If you want your computer to continuously retry sending data to the printer's parallel port, add the following statement to your AUTOEXEC.BAT file:

```
MODE LPT1,,P
```

Chapter 9
Customizing the Printer

This chapter describes the factory default settings of the printer and the steps you follow to customize these settings for your particular printing needs.

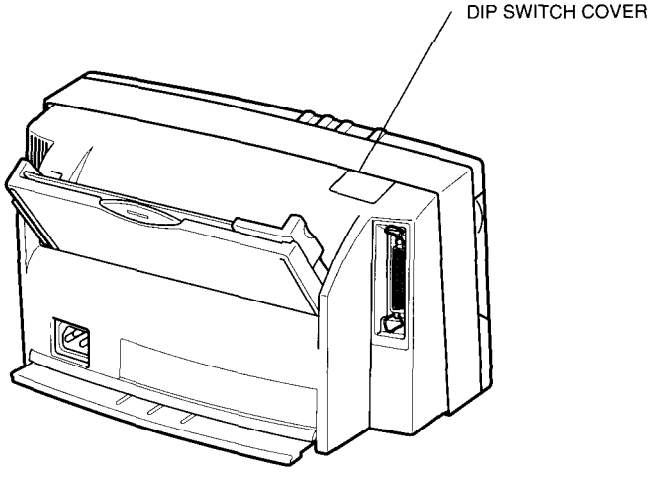
You will find that the factory default settings provide features to meet most of your printing needs. With these settings, your printer emulates any Canon BJ Color printer and the Epson LQ printers. This means you can use the printer with any software application that supports these printers.

Make sure the printer's settings match the requirements of your software application. If you have a unique printing requirement, you can customize the printer by changing the DIP switch settings as described in this chapter.

If you want to print high resolution graphics in black ink only through an MS-DOS application, or your software application is designed to print only on an IBM Proprinter, you can use the DIP switches to change the printer control mode to BJ mode.

You can also enable automatic emulation switching, which allows the printer to switch between Epson LQ mode and BJ mode.

The DIP switches are located under the DIP switch cover:



Factory Default Settings

The following table shows the factory default settings of the printer:

Function	Setting
Printer control mode	Epson LQ mode
Character pitch	10 characters per inch (cpi)
Line spacing	6 lines per inch (lpi)
Print quality	High quality (HQ mode)
Vertical tab stops	No vertical tab set
Horizontal tab stops	Column 9 (then every 8th column)
Vertical margins	Top margin = 0.33 in (8.5 mm) Bottom margin = 0.30 in (7.6 mm)
Horizontal margins	Left margin = 0 Right margin = 8 in (203.2 mm)
Horizontal print position	Letter
Print direction	Bidirectional
Font typeface	Roman
Character set	Epson Italics character set
International character set	USA
Buffer	Input: 32 KB Download: 40 KB
Automatic emulation switching	Disabled
Text scale mode	Disabled
Envelope mode	Disabled
Smoothing mode	Disabled

Note

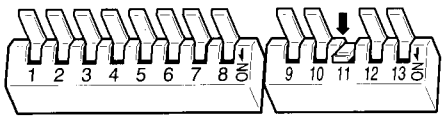
The default printer control mode is Epson LQ mode. If you change this to BJ mode, the default settings also change.

DIP Switch Settings

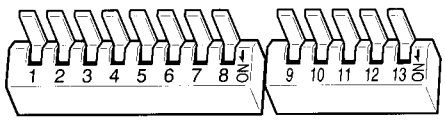
The DIP switch settings control various printer functions, such as the page length and character set you want to use. The printer functions defined by the DIP switches are determined by the printer control mode. The printer has three control modes:

- Epson LQ mode, which emulates the Epson LQ printers
- BJ mode, which emulates the IBM Proprinter X24E
- Canon Extended mode, which is used in the Canon Windows driver and with some MS-DOS applications

DIP switch 11 selects the printer control mode. When DIP switch 11 is ON, the printer is in Epson LQ mode (this is the default). When DIP switch is OFF, the printer is in BJ mode.



ON (DOWN): EPSON LQ MODE



OFF (UP): BJ MODE

Note

In Canon Extended mode, the printer overrides the DIP switch settings. Thus, when you are printing through the Windows environment, you can ignore the information regarding DIP switches and default settings.

Epson LQ Mode

When the printer is in Epson LQ mode (DIP switch 11 is ON), you can set the DIP switches to control the following functions:

DIP switch	Function	OFF	ON
1	Horizontal print position	Letter size or envelope	A4 size
2	Text scale mode	Disabled	Enabled
3	Not used		
4	Character set	Italics	Graphics
5, 6, 7	International character set	See following descriptions	
8, 9, 10	Typeface	See following descriptions	
11	Printer control mode	BJ mode	Epson LQ mode
12	Automatic emulation switching mode	Disabled	Enabled
13	Smoothing	Disabled	Enabled

DIP switch 1
This switch changes the horizontal print position according to paper size. If you are using letter-size paper or envelopes, set this switch OFF; the left margin will be 0.25 inch (6.4 mm). If you are using A4-size paper, set this switch ON; the left margin will be 0.13 inch (3.4 mm).

DIP switch 2
This setting determines how many lines fit onto a page by adjusting the line spacing. If you are using a software application that assumes 66 lines will fit on each page, set this switch to ON. The printer will reduce the line spacing by a factor of 14/15, which is from 62 lines per page to 66 lines per page if line spacing is set to 6 lines per inch (lpi).

DIP switch 3
This DIP switch is ignored.

DIP switch 4
When this switch is OFF, the printer uses the Epson Italics character set, which includes italic characters. When this switch is ON, the printer uses the Epson Graphics character set, which is the same as the MS-DOS code page 437 (this character set includes symbols, lines, corners, and European characters).

To see samples of the character sets available in Epson LQ mode, use Canon's toll-free fax retrieval system to request the *BJC-4000 Printer Command Summary*.

DIP switches 5, 6, 7
These switches allow you to select one of eight international character sets. These character sets provide you with the characters and symbols used in other languages.

	DIP switches		
Character set	**5**	**6**	**7**
USA	OFF	OFF	OFF
United Kingdom	OFF	OFF	ON
Germany	OFF	ON	OFF
France	OFF	ON	ON
Denmark	ON	OFF	OFF
Sweden	ON	OFF	ON
Italy	ON	ON	OFF
Spain	ON	ON	ON

DIP switches 8, 9, 10
These switches allow you to select one of eight font typefaces.

	DIP switches		
Character set	**8**	**9**	**10**
Roman	OFF	OFF	OFF
Sans serif	OFF	OFF	ON
Draft	OFF	ON	OFF
Courier	OFF	ON	ON
Prestige	ON	OFF	OFF
Script	ON	OFF	ON
Orator	ON	ON	OFF
Orator-S	ON	ON	ON

DIP switch 11
When this switch is ON, the printer is in Epson LQ mode. When this switch is OFF, the printer is in BJ mode.

DIP switch 12
Set this switch ON to enable automatic emulation switching mode. In this mode, the printer detects whether the codes being sent are Epson LQ mode or BJ mode. It then selects the printer control mode to match the printer driver selected in the MS-DOS application.

When DIP switch 12 is OFF, the printer control mode is set by DIP switch 11 (ON selects Epson LQ mode, OFF selects BJ mode).

Automatic emulation mode is applicable for MS-DOS applications only. When you are using Windows, the BJC-4000 printer driver for Windows selects the appropriate control mode regardless of the settings of DIP switches 11 and 12.

Setting DIP switch 12 ON reduces the input buffer by 31 KB.

When using Windows, set DIP switches 10, 11, and 12 OFF to maximize the size of your input buffer (64 KB).

Note

- If the printer does not seem to be switching between Epson LQ mode and BJ mode, disable this function and set DIP switch 11 to match your application's printer driver.
- If you are using a printer switching device, you must allow at least ten seconds for the printer to recognize an emulation change. If your printer switching device switches data in less than ten seconds, automatic emulation switching will not function properly.

DIP switch 13
Set this switch ON to enable the smoothing mode, which is used with the BC-20 Black BJ cartridge only. When smoothing is enabled, the printer refines your printout by polishing away the jagged edges and ragged stair-stepping curves of characters and graphics. This results in sharp and crisp printout at 720 (horizontal) by 360 (vertical) dots per inch.

Note

When to set DIP switch 13 ON
Enable smoothing when printing from MS-DOS applications with the BC-20 Black BJ cartridge using the printer's internal fonts. Smoothing is especially effective for printing double height, double width, italic characters, and combinations of these characters.

BJ Mode

When the printer is in BJ mode (DIP switch 11 is OFF), you can set the DIP switches to control the following functions:

DIP switch	Function	OFF	ON
1	Horizontal print position	Letter size or envelope	A4 size
2	Text scale mode	Disabled	Enabled
3	Page length	11 inches	12 inches
4	Character set	Set 1	Set 2
5, 6, 7	Code page	See following descriptions	
8	Automatic carriage return (CR)	Normal line feed (LF)	LF with CR
9	Alternate Graphics Mode (AGM)	Disabled	Enabled
10	Buffer size	Input: 64 KB Download: 0 KB	Input: 32 KB Download: 40 KB
11	Printer control mode	BJ mode	Epson LQ mode
12	Automatic emulation switching mode	Disabled	Enabled
13	Smoothing	Disabled	Enabled

DIP switch 1
Use this switch to change the horizontal print position according to the size of your paper. If you are using letter-size paper or envelopes, set this switch OFF; the left margin will be 0.25 inch (6.4 mm). If you are using A4-size paper, set this switch ON; the left margin will be 0.13 inch (3.4 mm).

DIP switch 2
This setting determines how many lines fit onto a page by adjusting the line spacing. If you are using a software application that assumes 66 lines will fit on each page, set this switch to ON. The printer will reduce the line spacing by a factor of 14/15, which is from 62 lines per page to 66 lines per page if line spacing is set to 6 lines per inch (lpi).

DIP switch 3
If you are using letter-size paper, set this switch OFF; this sets the page length to 11 inches. If you are using A4-size paper, set this switch ON; this sets the page length to 12 inches.

DIP switch 4
When this switch is OFF, the printer uses Character Set 1. When this switch is ON, the printer uses Character Set 2.

DIP switches 5, 6, 7
These switches allow you to select the following code page tables.

	DIP switches		
Character set	**5**	**6**	**7**
437 (USA)	OFF	OFF	OFF
850 (Multilingual)	OFF	OFF	ON
850 (Multilingual)	OFF	ON	OFF
850 (Multilingual)	ON	OFF	ON
850 (Multilingual)	ON	ON	OFF
860 (Portuguese)	ON	ON	ON
863 (French Canadian)	OFF	ON	ON
865 (Norwegian)	ON	OFF	OFF

To see samples of the character sets available with each code page table, use Canon's toll-free fax retrieval system to request the *BJC-4000 Printer Command Summary.*

DIP switch 8
When this switch is OFF, the printer performs a normal line feed. Set this to ON if you want the printer to perform a carriage return after each line feed.

DIP switch 9
Set this switch ON to enable Alternate Graphics Mode (AGM). In this mode, the printer accepts high-resolution, 24-dot, all-points-addressable (APA) graphics commands similar to those used with conventional 24-pin printers.

DIP switch 10
When this switch is OFF, the printer allocates the entire buffer space (64 KB) to the input buffer. When you are using downloaded fonts, change this switch to ON; the printer will allocate 40 KB of buffer space for downloaded fonts.

DIP switch 11
When this switch is OFF, the printer is in BJ mode. When this switch is ON, the printer is in Epson LQ mode.

DIP switch 12
This switch enables or disables automatic emulation switching mode. (See page 149 for a description.)

DIP switch 13
This switch enables or disables smoothing mode. (See page 150 for a description.)

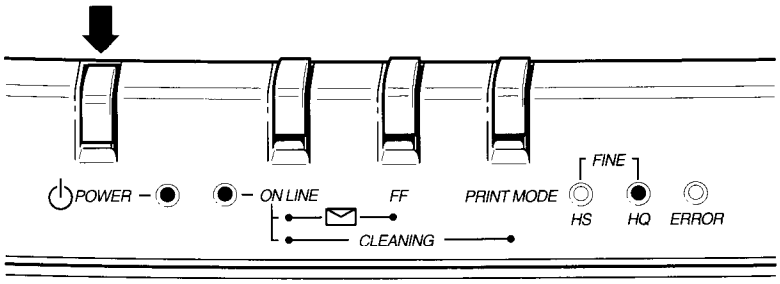
Changing a DIP Switch Setting

The DIP switches are located on the left side of the printer behind the operator panel under a small cover (see page 145).

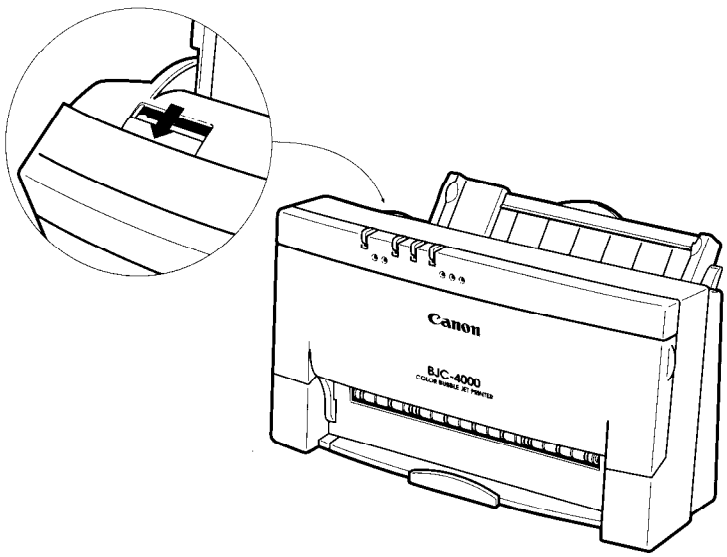
A DIP switch is OFF when it is up, and ON when it is down. To change a DIP switch setting, follow these steps:

1. **Make sure the printer is turned off.**

   - ❑ The POWER light should be off.
   - ❑ If the power is on now, press the **POWER** button to turn off the printer.

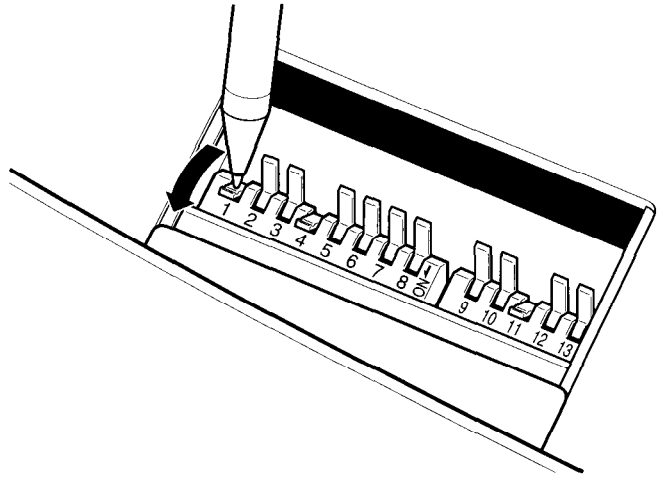


2. **Slide open the DIP switch cover on the top of the printer.**



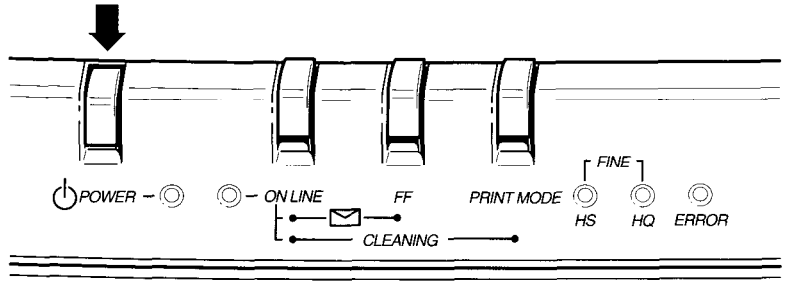
3. **Set the DIP switches.**

   - ❑ To set a DIP switch ON, gently press the DIP switch down with a pointed (but not sharp) object such as a ballpoint pen.
   - ❑ To set the switch OFF, restore it to the up position.



4. **Close the DIP switch cover.**

5. **Press the POWER button to turn on the printer.**



The new DIP switch settings take effect when you turn on the printer.

If you turn off or reset the printer, or if the printer receives the Set Initial Conditions command from a software program, the printer resets its functions to the settings defined by the DIP switches.

Appendix A
Specifications

This appendix lists the specifications of your printer.

Printing Method
Bubble jet ink on-demand

Paper Handling
Automatic feed
Manual feed

Sheet Feeder Capacity
Maximum thickness of stacked paper: 0.39 in (10 mm)

Plain paper	Approximately 100 sheets (20 lbs or 75 g/m^2)
Transparencies	40 sheets
Back Print Film	40 sheets
Envelopes	15 envelopes (U.S. Commercial number 10 or European DL)

Paper Size
Letter (8.5 in × 11 in)
Legal (8.5 in × 14 in)
A4 (210 mm × 297 mm)
U.S. Commercial number 10 envelope (9.5 in × 4.1 in)
European DL envelope (220 mm × 110 mm)

Paper Type
Plain paper
Coated paper (Canon coated paper LF-101)
Glossy paper (Canon glossy paper GP-101)
OHP film (Canon transparency film CF-102)
BPF film (Canon Back Print Film BF-102)
Envelope (Commercial number 10 or European DL)

Paper Weight
17 to 24 lb (64 to 90 g/m^2) with automatic feed
17 to 28 lb (64 to 105 g/m^2) with manual feed

Print Speed
BC-21 Color BJ cartridge; black ink only

HQ mode	346 cps at 10 cpi
HS mode	496 cps at 10 cpi

BC-21 Color BJ cartridge; color ink
Approximately 0.3 to 0.8 ppm (Print speed depends on content of print data)
BC-20 Black BJ cartrige; black ink only

HQ mode	173 cps at 10 cpi
HS mode	248 cps at 10 cpi

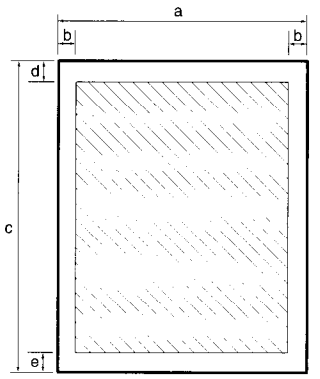
Print Width
Maximum 8 inches

Line Feed Speed
Approximately 50 ms per line at 1/6-inch line

Printing Direction

Monochrome	Bidirectional in text (both MS-DOS and Windows) Unidirectional in Block Graphic Character Unidirectional in image
Color	Unidirectional

Printing Area—Papers
The shaded portion in the following figure shows the printing area for papers.



Recommended Printing Area:

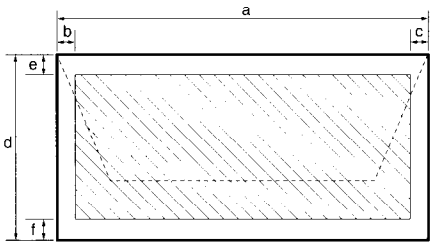
Letter size		Legal size		A4 size	
a	8.5 in	a	8.5 in	a	210 mm
b	0.25 in	b	0.25 in	b	3.4 mm
c	11.0 in	c	14.0 in	c	297 mm
d	0.83 in	d	0.83 in	d	21 mm
e	0.81 in	e	0.81 in	e	20.5 mm

Possible Printing Area:

Letter size		Legal size		A4 size	
a	8.5 in	a	8.5 in	a	210 mm
b	0.25 in	b	0.25 in	b	3.4 mm
c	11.0 in	c	14.0 in	c	297 mm
d	0.12 in	d	0.12 in	d	3 mm
e	0.3 in	e	0.3 in	e	7.6 mm

Printing Area—Envelopes

The shaded portion in the following figure shows the printing area for an envelope.



Recommended Printing Area:

U.S. Commercial number 10		European DL	
a	9.5 in	a	220 mm
b	0.25 in	b	6.4 mm
c	1.2 in	c	10.4 mm
d	4.1 in	d	110 mm
e	0.83 in	e	21 mm
f	0.81 in	f	20.5 mm

Possible Printing Area:

U.S. Commercial number 10		European DL	
a	9.5 in	a	220 mm
b	0.25 in	b	6.4 mm
c	1.2 in	c	10.4 mm
d	4.1 in	d	110 mm
e	0.12 in	e	3 mm
f	0.3 in	f	7.6 mm

Resident Printer Control Modes

Epson LQ mode	Epson LQ-2550 emulation
BJ mode	IBM Proprinter X24E emulation
Canon Extended Mode	

Line Feed Pitch

Epson LQ mode	1/6", 1/8", *n*/180", and *n*/360" (*n*: programmable)
BJ mode	1/6", 1/8", *n*/60", *n*/72", *n*/180", *n*/216", and *n*/360"

Printing Characters

Typeface	*Epson LQ mode*—Roman, Sans Serif, Courier, Prestige, Script, Orator, Orator-S, and Draft *BJ mode*—Prestige and Courier
Pitch	*Epson LQ mode*—10, 12, 15, 17, 20 cpi, and PS *BJ mode*—10, 12, 17 cpi, and PS
Cell Composition	36 (h) × 48 (v) dot matrix in HQ mode 18 out of 36 (h) × 48 (v) dot matrix in HS mode
Character Set	*Epson LQ mode*—Italic character set and Graphics character set *BJ mode*—IBM Character Sets 1 and 2 and All Characters Chart (Code Pages 437, 850, 860, 863, and 865)

Maximum Number of Characters per Line

Epson LQ mode:

Mode	Pitch	Characters per line
10 cpi	10 cpi	80 cpl
10 cpi doublewide	5 cpi	40 cpl
10 cpi condensed	17 cpi	136 cpl
10 cpi condensed-doublewide	8.5 cpi	68 cpl
12 cpi	12 cpi	96 cpl
12 cpi doublewide	6 cpi	48 cpl
12 cpi condensed	20 cpi	160 cpl
12 cpi condensed-doublewide	10 cpi	80 cpl
15 cpi	15 cpi	120 cpl
15 cpi doublewide	7.5 cpi	60 cpl
Proportional spacing	PS	Varies

BJ mode:

Mode	Pitch	Characters per line
10 cpi	10 cpi	80 cpl
10 cpi doublewide	5 cpi	40 cpl
10 cpi condensed	17 cpi	136 cpl
10 cpi condensed-doublewide	8.5 cpi	68 cpl
12 cpi	12 cpi	96 cpl
12 cpi doublewide	6 cpi	48 cpl
Proportional spacing	PS	Varies

Graphic Image Print

Data Format: Vertical 8, 24, and/or 48-dot format

Resolution: Horizontal 60, 120, 180, 240, 360, 720 dpi (in smoothing mode only)

Buffer

Epson LQ mode:

Input buffer: 32 KB
Download buffer: 40 KB

BJ mode:

Input buffer: 64 KB (or 31 KB)
Download buffer: 0 KB (or 41 KB)

Automatic Emulation Mode:

Input buffer: 31 KB
Download buffer: 41 KB (BJ mode, DIP switch 10 ON)
40 KB (Epson LQ mode)
0 KB (BJ mode, DIP switch 10 OFF)

Interface

8-bit parallel

BC-20 Black BJ Cartridge

Print head: 128 nozzles
Ink color: Black
Contents: Isopropyl alcohol 67-63-0
Glycerine 56-81-5
Ethylene glycol 107-21-1

BC-21 Color BJ Cartridge

Print head: 64 nozzles for black
24 nozzles for each color (cyan, magenta, yellow)
Ink Cartridges: BCI-21 Color (cyan, yellow, magenta)
BCI-21 Black
Ink color: Black, cyan, yellow, magenta
Contents/Black: Isopropyl alcohol 67-63-0
Glycerine 56-81-5
Ethylene glycol 107-21-1
Contents/Color: Glycerine 56-81-5

Acoustic Noise Level Per ISO 9296
Approx. 45 dB(A)

Operating Environment

Temperature	41° F to 95° F (5° C to 35° C)
Humidity	10% to 90% RH (no condensation)

Storing Environment

Temperature	32° F to 95° F (0° C to 35° C)
Humidity	5% to 95% RH (no condensation)

Power Source

USA/Canada	AC 120 V 60 Hz

Power Consumption
10.8 watts maximum nonprinting
45 watts maximum printing

Dimensions
13.7 in (365 mm) W × 8.1 in (206 mm) D × 7.3 in (186 mm) H

Weight
Approx. 7.9 lb (3.6 kg)

Appendix B
Application Notes

This appendix contains information on using specific software applications with your Canon Color Bubble Jet Printer BJC-4000. Many popular applications are covered here. Although the software versions described may not be the latest, or may not be the version you have, the solutions presented may apply to other versions.

The information presented here represents Canon's answers to some frequently asked questions about using software packages with our printers. The information is presented in alphabetical order by software application.

Printing Envelopes in Microsoft Windows

AmiPro 3.0

To print envelopes in AmiPro 3.0, follow these steps:

1. From within AmiPro, select the Print envelope icon.
2. Select the number 10 envelope.
3. Click on OPTIONS.
4. Click on ADJUST.
5. Modify the margins as follows: Right 0.70 and Down 0.35.
6. Click on OK to leave The Print Envelope Adjustments window.
7. Click on OK to leave The Print Envelope Options window.
8. Click on OK to print the envelope.

Microsoft Publisher

Method 1

To print envelopes in Microsoft Publisher, follow these steps:

1. Start Microsoft Publisher.
2. Select and run the Envelope Page Wizard design assistant.
3. From the Envelope Page Wizard, select the options you want.
4. After the envelope has been created, delete the text box that says TIPS FOR PRINTING YOUR ENVELOPE.
5. From the Edit menu, select All.
6. Click the group button to group the objects.
7. From the Edit menu, choose Copy objects.
8. From the File menu, choose New.
9. In the dialog box, select Start from scratch and Full page.
10. When prompted to save your changes, choose NO.
11. In the new document, from the Edit menu choose Paste objects.
12. Drag the group to a position 0.5 inch from the top of the page.
13. On the printer, move the paper selection lever to the envelope position; this is the front position.
14. On the printer, set the paper thickness lever to the envelope position; this is the right position.
15. Place the envelope in the sheet feeder (face up and top down).
16. Make sure the printer is on-line.
17. In Publisher, from the File Menu choose Page setup.
18. Under Orientation, select Portrait.
19. Under Paper, select Letter 8 1/2 x 11.
20. From the File menu, choose Print.
21. Click OK.

Method 2

To print envelopes in Microsoft Publisher, follow these steps:

1. Start the Windows Control Panel.
2. Double-click the printers icon.
3. Select the Canon Color Bubble Jet Printer BJC-4000.
4. Set up the following options on the printer: Portrait, Envelope, and Manual feed.
5. Choose OK.
6. Choose Set as default printer.
7. Choose Close.
8. Start Microsoft Publisher.
9. Select and run the Envelope Page Wizard design assistant.
10. From the Envelope Page Wizard, select the options you want.
11. **IMPORTANT**: Do not, at any time, choose Print setup from the File menu or from the Page setup. If you do, the printer driver resets Orientation to Landscape and will not allow you to change it back. If this happens, you must run the Page Wizard again.
12. On the printer, set the paper selection lever to the envelope position; this is the front position.
13. On the printer, set the paper thickness lever to the envelope position; this is the right position.
14. Place the envelope in the sheet feeder (face up and top down).
15. Make sure the printer is on-line.
16. From the File menu, choose Print.
17. Click OK.

Microsoft Word for Windows

Microsoft Word 6.0 for Windows

To print on envelopes in Microsoft Word 6.0 for Windows, follow these steps:

1. Select Tools.
2. Select Envelopes and Labels.
3. Click on the Feed button.
4. In the feed method, select the first envelope from the left.
5. Click on the OK button.
6. Click on Print.

Microsoft Word 2.0 for Windows

If you are using Microsoft Word for Windows, version 2.0, and the Envelope Macro button in the button bar does not work, follow these steps to print envelopes correctly. First create the SetPrinterHeuristic dialog box:

1. Start Word for Windows 2.0 (if necessary).
2. From the top menu bar, choose File and then Open.
3. In the Open File dialog box, select Newmacro.doc (in the WINWORD directory) and choose OK.
4. When the Macro Name dialog box appears, select SetPrinterHeuristic and choose Install... .
5. In the Install SetPrinterHeuristic to dialog box, select Normal from the Template list and then select Tools from the Menu list to place this option in the Tools menu.
6. Choose OK.
7. In the top menu bar, choose File and then Close.

The SetPrinterHeuristic menu choice now appears each time you select Tools from the top menu bar when you are using a normal template. To verify this, open a new document and select Tools from the menu bar. The SetPrinterHeuristic choice appears as the last selection of the Tools menu.

To print on envelopes, follow these steps:

1. Type your destination address within your document and then highlight it.

2. In the top menu bar, select Tools and then select SetPrinterHeuristic.

3. In the Envelope orientation box, select the Force Portrait button.

4. If you are printing multiple envelopes, check on the Avoid Using Device Capabilities for Paper Sizes box. An X appears in the box. Now choose OK.

   The Avoid Using Device Capabilities for Paper Sizes box affects all documents output to the printer. If you are not printing multiple envelopes, make sure this option is unchecked.

5. Make sure the printer is ready for printing envelopes.

6. From the button bar, choose the Envelope Macro button. The address appears in the Destination Address box.

7. Choose the Print button.

WordPerfect

WordPerfect 6.0

If you are using WordPerfect, version 6.0, you need to define your envelope size using the Envelope Macro Button. Follow these steps:

1. Click on the Envelope Macro.

2. Select Create New Definition.

3. Specify a Paper Name that you will recognize later; for example, BJENV.

4. For Paper Type, select Envelope.

5. For Paper Size, select #10 Env(9.5"X4.1"). The Paper Size displays as 4.12" by 9.5".

6. For Paper Location, select Autosheet Feeder.

7. For Orientation, disable Rotated Fonts and enable Wide Form.

8. Click on OK to close the Create New Definition box.

9. Enter the Sender and Addressee information and then click the Print button.

10. WordPerfect displays the message: Preparing Document for Printing.

11. WordPerfect displays a warning; ignore this warning.

WordPerfect will now print your envelope.

You need not change the Page Layout or any other settings to accommodate envelopes.

WordPerfect 5.2

If you are using WordPerfect, version 5.2, follow these steps to print envelopes.

First time printing envelopes

If you are printing envelopes for the first time, follow these steps:

1. Choose the Envelope Macro from the Main Screen. If the macro is not displayed, go to View and then to the Button Bar Setup. Select FEATURES.WWB and follow the steps for displaying the macro.

2. The first time you choose the Envelope Macro using either the WordPerfect driver or the Windows driver, a prompt tells you that this paper size does not exist and asks if you want to add it.

3. Choose Add.

4. Select Portrait orientation and Continuous paper feed. You see the Envelope Editor screen.

5. Fill in the appropriate mailing address.

6. Make sure the box for Print Envelopes is checked and the Select Envelope Size is 9.5 x 4.12 inches.

7. You can also include a Return Address, change the margin settings, and/or change the font with which the envelope is printed. For Windows, the default font is a Windows font. You may want to select a TrueType font or another printer font.

8. After selecting all your options, choose OK.

9. If you are using the Windows driver, you see this message:

   Windows printer driver did not accept the requested paper size. Document will print on paper size the printer did select.

   Choose OK to print the envelope.

   If you are using the WordPerfect driver, no message appears and the printer prints the envelope.

Printing envelopes other than the first time

1. Choose the Envelope Macro from the Main Screen.
2. If you have already set up the envelope size, go to Layout and choose Page.
3. Choose Paper Size. Make sure the size is 9.5 x 4.12 inches and the diagram shows the paper in wide format. If not, choose Edit and make the corrections.
4. Next, you see the Envelope Editor screen. Fill in the appropriate mailing address.
5. Make sure the box for Print Envelopes is checked and the Select Envelope Size is 9.5 x 4.12 inches.
6. You can also include a Return Address, change the margin settings, and/or change the font with which the envelope is printed. For Windows, the default font is a Windows font. You may want to select a TrueType font or another printer font.
7. After selecting all your options, choose OK.
8. If you are using the Windows driver, you see this message:

   Windows printer driver did not accept the requested paper size. Document will print on paper size the printer did select.

   Choose OK to print the envelope.

   If you are using the WordPerfect driver, no message appears and the printer prints the envelope.

Works 3.0 for Windows

To print envelopes in Works 3.0 for Windows, follow these steps:

1. Create your envelope.
2. Go to Page Setup.
3. Click on Source, Size, and Orientation.
4. Click on Reset.
5. Change the Paper Source to Auto Sheet Feeder.
6. Change the Paper Size to #10 Envelope (9.5 x 4.1).
7. Change the Orientation to Portrait.
8. Click on OK.

A

Additive colors
The three primary colors (red, green, and blue); when combined through an additive process at varying intensities, give a wide spectrum of colors.

AC
Alternating current. The type of electrical current available from a wall outlet.

AGM
Alternate Graphics Mode. Available in BJ mode for IBM Proprinter X24E emulation.

All Modes test
One of the test prints produced by the printer. In this test, all characters available in each of the different print pitch and style modes are printed out.

Application program
Software prepared for a specific function or set of functions. Examples of applications are word processing, graphics preparation, and spread-sheet programs. Developers who prepare application programs include drivers that support different types of printers.

ASCII
Acronym for American Standard Code for Information Interchange. A set of definitions for the bit composition of characters and symbols. ASCII defines 128 symbols using 7 binary bits and 1 parity bit.

Automatic feed
Refers to one way in which paper can be fed into the printer when the built-in sheet feeder is used.

B

Bidirectional printing
The ability of a printer to print both left to right and right to left.

Binary
A numbering system consisting of two digits (0 and 1).

Bit
Shortened form of binary digit. The elemental unit of digital information; written as either 1 or 0.

BJ mode
The printer control mode in which the printer emulates the IBM Proprinter X24E.

BJ cartridge
The special type of ink cartridge used on the Canon Bubble Jet printers. The BJ cartridge for this printer contains the print head and ink cartridges. The BC-21 Color BJ cartridge contains two ink cartridges: one tri-color and one black. The BC-20 Black BJ cartridge contains one ink cartridge only: black.

BJ cartridge container
A box for storing a BJ cartridge. A BJ cartridge removed from the printer must be stored inside this BJ cartridge container to prevent the print head of the cartridge from drying and clogging.

Bold
A characteristic of a printed character that indicates wider, darker representation. Also referred to as emphasized or double-strike printing.

Bubble Jet printer
An ink-jet type printer that heats the ink to a boiling point in a nozzle to form a bubble. When the bubble expands, there is no room left in the nozzle for the ink and the ink is projected onto paper.

Buffer
A temporary storage area in the computer's or printer's memory where data for input or output is held until it can be processed.

Byte
A unit of eight bits. A byte is approximately equivalent to a character.

C

Canon extended mode
Canon's unique printer language used by the software to best access the printer's complete set of features.

Carriage
The mechanism that moves the print head and BJ cartridge across the printer to various points on the platen/paper.

Centronics
An interface standard for parallel data transmission. The interface on this printer is a Centronics-type parallel interface.

Character set
A complete collection of the characters and symbols that constitute all the elements of a language or discipline (mathematics, for example), including punctuation and numbers, with a one-to-one correspondence to the ASCII codes 00-7F (hexadecimal). The printer uses these characters to determine its printing and nonprinting activities after it receives data from the host computer.

Code page
A set of 256 graphic designs (characters) associated with unique code values from 0 through 255. Code Page 437 is USA and Code Page 850 is Multilingual.

Command
An instruction that tells the printer to perform a certain function. Commands are sent from the host computer to the printer via the interface cable when the printer is on-line.

Commercial number 10 (COM10)
A common letter-size of business envelope (9 1/2 x 4 1/8 inches) in the United States.

Composite black
The black color formed by mixing cyan, yellow, and magenta ink so that they appear almost black on a printout.

Condensed
A text print mode that produces a reduced character size (approximately 60% of the width of the original pitch). The printer can produce condensed text (17 cpi) for 10 cpi and condensed text (20 cpi) for 12 cpi.

Control code
Special data that invokes nonprinting functions of the printer, such as line feed or carriage return. In the ASCII chart, control codes are represented by decimal numbers 0-31, 127, 128, 159, and 255.

Courier
One of the fonts resident in this printer. Courier, available in BJ-10 mode, can be printed either fixed-space or proportionally-spaced.

cpi
Characters per inch. A unit of measurement relevant to a fixed-space font. Because all characters have the same width, you can calculate the number of characters printed per inch.

cpl
Characters per line. A unit of measurement that indicates the number of characters printed per line.

cps
Characters per second. A unit of measurement that indicates the printer's speed.

Cut sheet paper
A paper type where each sheet is separate from other sheets. This printer handles cut sheet paper only.

CYMK
Acronym for cyan, yellow, magenta, and black; the four colors used in the standard color model of the printing industry. Refers to a method of specifying color using CYMK color values. (K is used for black because B is used to represent blue in RGB.)

D

Data
Information entered into or used by a computer.

dB(A)
Stands for decibel level (a decibel being a unit of measurement for the intensity of the sound coming from the printer), adjusted for background noise.

Default setting
A printer setting incorporated at the factory and permanently registered in the printer's ROM. A value, action, or setting that the printer assumes unless you provide instruction to the contrary. For example, the default printer control mode on this printer is Epson LQ mode.

DIP
Stands for dual in-line package.

DIP switches
A row of switches for controlling the behavior of this printer, such as print style and national character set. The DIP switches toggle between two positions and control printer functions. The printer's power should be off when changing DIP switch settings.

Disk Operating System (DOS)
A computer operating system that uses disks for storage of programs and data.

Dithering
A method by which color dots are combined on a page to produce a wide spectrum of colors.

Dot matrix
A pattern of dots arranged in a matrix, used for creating alphanumerics, punctuation, and special characters. A matrix is described by the number of rows and columns it has, for example, 9 x 12 (108 cells).

Dot matrix printer
A non-letter-quality impact printer in which all characters are formed by a series of dots.

Double-high characters
Characters that are twice as tall as the default characters.

Double-strike
One way your printer produces bold characters. Using this method, dots are placed slightly above the dots previously printed to form a character, giving the character a thicker apperance. To use the double-strike feature, your application package must support it.

Double-wide characters
Characters that are twice as wide as the default characters. This results in half as many characters per inch.

Download buffer
An area of the printer's memory that holds downloaded font information.

Downloading
Downloading refers to the process of transferring fonts stored on diskettes from the computer to the printer's memory. These transferred fonts can be stored in the printer until it is turned off.

dpi
Dots per inch. A unit of measurement for indicating a printer's resolution. Your printer can produce a resolution up to 720 dpi, depending on the printer control mode and the application you are using.

E

Embedded printer commands
Printer commands typed directly into a software file to instruct the printer to change its printing characteristics, such as to change fonts or to underline text.

Emphasized mode
One way your printer produces bold characters. Using this method, dots are placed slightly to the left of the dots previously printed to form a character, giving the character a thicker appearance.

Epson LQ mode
The printer control mode in which the printer emulates the Epson LQ-2550 printer. Color printing is avaliable in this mode.

ESCape character
A nonprinting character used to signal the printer that the following data is an ESCape sequence.

ESCape sequences
Commands beginning with the ESCape character, which are used to control the printer. The unprintable ESCape character is followed by a unique series of letters and numbers that provide instructions to the printer.

F

Factory default
The settings that are selected on the printer at the factory. These settings are used unless you override them by sending ESCape sequences. Default settings are determined by the DIP switch settings.

FINE mode
One of the three print modes. Use this mode when printing on transparencies or printing halftone image that produces grayscale or intermediate colors.

Fixed pitch spacing
Equal spacing for each character of the same typeface. In printing a fixed pitch font, each character, whether narrow or wide, takes up the same amount of space.

Fixed space font
A font in which all characters take up the same amount of space. An *i* takes as much space as a *w*.

Font
A complete set of characters of the same size and style; a particular implementation of a typeface. For example, 12-point, Courier bold.

Font characteristics
Font characteristics determine the appearance of a printed font. These characteristics include orientation, character height, style, stroke weight, and typeface.

Font downloader
An application that allows you to download fonts and perform other printer functions.

Form feed
A printer function that automatically ejects the current page and advances the printer to the top of the next page.

G

Graphic
A written, printed, or electronically displayed symbol or drawing. Also, characters or text that have been generated by a computer graphics application program.

Grayscale
Representing color in black and white as a result of different intensities of color. Different colors and intensities of colors appear as different shades of gray.

H

Halftone
Using this method, the printer produces shades of gray or of colors by mapping dots to be printed. For color printing, different colored dots of ink are placed closely together to create illusions of other colors.

Handshake
A method of communication between a computer and printer. A handshake ensures correct and complete data transfer.

Hexadecimal
Numbers represented to the base 16 (using digits 0 through 9 and A, B, C, D, E, F). Frequently used in programming and referred to as hex.

Hexadecimal dump mode
Mode used to print out data or commands sent from the host computer to the printer; information that is useful for debugging programs.

High quality (HQ) mode
One of the print quality modes available on this printer. Use this mode for most printing needs.

High speed (HS) mode
One of the print quality modes available on this printer. Use this mode for printing draft text. This mode doubles ink life.

Host computer
The computer that is connected to a printer and can be used to drive the printer when the printer is set on-line.

Hue
A color in the color spectrum. Examples are red, green, and violet.

I

Impact printer
A dot matrix printer that prints by a series of small pins, one for each dot in the matrix, striking through an inked ribbon.

Ink cartridge
The special type of ink cartridge used on Canon Bubble Jet printers. For this printer, the BC-21 Color BJ cartridge contains two ink cartridges: one color (which includes cyan, yellow, magenta) and one black.

Ink jet printer
A nonimpact printer that ejects ink onto paper to form characters. This printer is a special type of ink jet printer called a Bubble Jet printer.

Input buffer
An area of the printer's memory containing the files that have been sent to the printer.

Intensity
The amount of color. More intense or more saturated colors are more pure. Less intense or less saturated colors are less vivid.

Interface
The connection between two devices that makes it possible for them to communicate with each other. This printer features a parallel interface, which makes it compatible with IBM and similar personal computers.

Interface cable
The cable used to create the interface between a printer and a computer.

Interface port
The printer comes with one Centronics, 8-bit, parallel interface port, located on the back of the printer. You attach the cable that connects your computer and printer to this port.

Internal fonts
Internal fonts are fonts resident in the printer when it is shipped.

Italic
A font style distinguished by slanted characters (the upright strokes of the characters are at an angle to the vertical axis).

K

Kilobyte (KB)
A unit of measurement, representing the binary number 1024, used to describe printer or computer memory size in thousand-byte units.

L

Landscape orientation
Refers to printing across the length of the page (as opposed to portrait orientation printing across the width of the page). The term landscape is derived from pictures of the landscape, which are usually horizontal in format.

Line weight
The thickness of lines used in a graphic image or the stroke weight of text characters.

lpi
Lines per inch. The measurement used in describing the number of lines that will print within one vertical inch. Most printing is done in 6 or 8 lpi.

M

Manual feed
A method of feeding paper to the printer one sheet at a time.

Multilingual
Refers to Code Page 850 that contains the special character sets used for foreign languages.

N

Noise level
See dB(A).

Non-bleed
A special mode in color print quality selection whereby the printer changes from true black to composite black when directly adjacent to an area of color.

Nonimpact printer
Printers, such as Bubble Jet, ink jet, thermal, and laser models, that form characters by means other than striking the character against the paper. These printers run more quietly than dot matrix and formed-character printers. Your printer is a nonimpact printer.

O

Off-line
The printer's communication status in which you cannot transfer data from your computer to the printer. In this mode, you control the printer from the control panel.

On-line
The printer's communication status in which it is being controlled by your computer and is ready to receive data.

Operator panel
On this printer, the panel containing the buttons used to control the printer and the various indicator lights. You use this panel to turn the power on or off, set the printer on-line or off-line, select a print mode, eject a sheet of paper, clean the print head, and print the test patterns.

Overscore
A line printed over a character. *See also* Underscore.

Overstrike
On dot matrix and ink jet printers, refers to placing a character twice in the same place on a page.

P

Page orientation
Refers to the direction of print on the page. Printing across the width of a page is called portrait orientation. Printing across the length of a page is called landscape orientation.

Paper feed
Refer to guiding a sheet of paper into the printer's paper path.

Paper jam
A problem where paper is caught along the paper path. You must remove jammed paper before you can continue printing.

Paper thickness lever
The white lever located inside the printer, which you adjust as necessary to accommodate different paper thicknesses and graphics densities. The lever has two settings: left is for normal thickness paper, right is for thick paper and envelopes.

Parallel interface
An interface that transmits multiple bits simultaneously (usually in one-byte segments). Your printer has a built-in, Centronics-type parallel interface. *See also* Interface port.

Pitch
Refers to the number of characters per inch that can be composed using a fixed space font.

Platen
Printer component that holds the paper in position during ink transfer.

Point size
Character height is defined in points; one point is 1/72 inch. For instance, this text is printed using a 10-point font.

Portrait orientation
Refers to printing across the width of the page (letter style). This is the opposite of landscape orientation, which is printing across the length of the page.

Prestige
One of the fonts resident in this printer. This font, which you can access in either BJ mode or Epson LQ mode, can be printed in fixed pitch or proportionally spaced.

Print head
The printing mechanism that contains print nozzles and ejects the ink for printing.

Print head capping
An automatic protection function that prevents the print head unit and ink cartridges from drying out or becoming clogged with dust.

Print mode
A printer state during the printing operation. You can set the following modes: high quality (HQ), high speed (HS), and fine (FINE).

Printer command
Also called ESCape sequences. *See* ESCape sequences.

Printer control mode
This printer has three control modes: Canon extended mode, Epson LQ mode, and BJ mode. The printer control mode determines the features the printer supports.

Printer driver
Software that sends printing instructions to a printer. The printer driver keeps track of the attributes of a printer and the codes the program must send to access those attributes.

Printer self test
Tests run to confirm print setting values. Also used as a test pattern to check and adjust print density and check mechanical functions of the printer such as paper feed. This printer has four different types of self tests: Ripple Pattern, All Modes, Demo, and Nozzle Pattern prints.

Printing area
The area of a sheet of paper on which a printer can reproduce text or graphics (the printing area is smaller than the paper). On this printer, the printing area varies depending on the type of paper being used.

Proportionally spaced font (PS font)
A font in which each character is given an amount of space proportional to its size—less for an *i* and more for a *w*.

Proportional spacing
The spacing of characters according to the width of each character. This variable spacing between each character closes up awkward space and makes text easier to read.

PS
Stands for proportionally spaced.

R

RAM
Random Access Memory. Printer memory that is used for temporary storage of information you want to print and downloaded fonts.

Reset
A way to clear printer errors; turn the printer's power off and then back on again.

Resident font
A font that is built into the printer, as opposed to one that must be downloaded from your computer. Resident fonts are stored in ROM. The fonts available depend on the printer control mode you are using: Epson LQ mode or BJ mode.

Resolution
The density of dots for any given output device. Expressed in terms of dots per inch (dpi). Low resolution causes font characters and graphics to have a jagged appearance. Higher resolution means smoother curves and angles as well as a better match to traditional typeface designs. Resolution values are represented by horizontal data and vertical data, for example, 360 x 360 dpi. This printer can produce output with resolutions up to 720 x 360 dpi.

RGB
An acryonym for Red, Green, and Blue; the three primary colors used in the additive process to form a wide spectrum of colors.

Ripple Pattern print
One of the test prints produced by this printer. In this test, all characters are printed in the default font and pitch (as determined by the printer control mode that has been selected) in a repeating pattern.

ROM
Read Only Memory. You cannot modify this printer memory. When the printer is turned off, ROM memory remains intact. In this printer, the default settings and the resident fonts are stored in ROM.

Roman
A font based on the characters used by the Romans, with serifs and long strokes. By extension, an upright (nonitalic) font.

S

Sans Serif font
A font in which the characters do not have serifs as embellishments. The Sans Serif font is available in Epson LQ mode only. It can be printed either in fixed pitch or proportionally spaced.

Saturation
The vividness or amount of a color. *See* Intensity.

Serif
Short lines crossing and embellishing the ends of a letter's main strokes.

Serif font
A font in which the letters have serifs as embellishments. Courier and Prestige are serif fonts.

Shielded
A type of cable that contains a metallic sheath over the conductor material to provide electronic protection to the communicating devices while data is being sent between them.

Subscript
One or more characters printed one-half line below the normal printing line. *See also* Superscript.

Subtractive colors
The three primary colors (cyan, yellow, and magenta); when combined through a subtractive process give a spectrum of colors.

Superscript
One or more characters printed one-half line above the normal printing line. *See also* Subscript.

T

Text scale mode
The mode that reduces the line spacing by a factor of 14/15 (from 62 lines per page to 66 lines per page if line spacing is set to 6 lines per inch). This provides compatibility with software that assumes 66 lines will fit on each page.

Top of form (TOF)
The printing position at the start of a new page.

True black
Contrary to *composite black*, true black color on a printout is obtained with the use of black ink.

TrueType font
The scalable font technology built into Microsoft Windows 3.1. It offers you the same font images both on computer displays and printer outputs.

Typeface
The printed design of characters. For instance, Courier, Script, and Roman typefaces all print characters of different designs.

Typestyle
Refers to how the typeface appears: slanted (italic) or upright.

U

Underscore
A line printed under a character. *See also* Overscore.

Unidirectional printing
Printing in one direction only, left to right. *See also* Bidirectional printing.

W

Weight
When used to describe a font, refers to the thickness of a font: light, medium, or bold.

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