

**IBM**

*Color Jetprinter 3852-2  
Hardware Reference  
Library*

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# Guide to Operations

1686213

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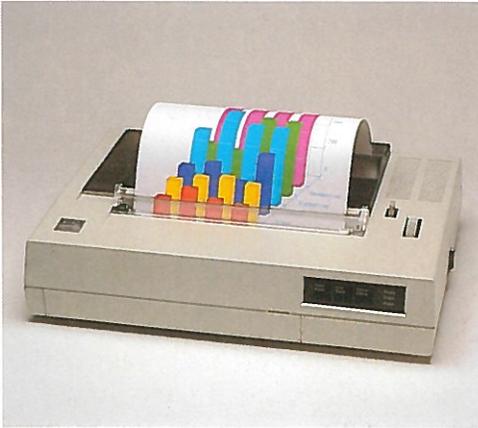
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**(Continued on back cover)**



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# Guide to Operations

## **First Edition (April 1985)**

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**Warning:** This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC rules.

***INSTRUCTIONS TO USER:*** This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions (operating instructions, reference manuals, and the service manual), may cause interference to radio or television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Ensure that card mounting screws, attachment connector screws, and ground wires are tightly secured.

- Ensure that card slot covers are in place when no card is installed.
- If peripherals not offered by IBM are used with this equipment, it is suggested that you use shielded, grounded cables with in-line filters, if necessary.

If necessary, consult your dealer service representative or an experienced radio/television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communication Commission helpful:

*How to Identify & Resolve Radio-TV Interference Problems*

This booklet is available from the U. S. Government Printing Office, Washington D. C., 20402, Stock Number 004-000-00345-4.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

**CAUTION**

**This product described herein is equipped with a grounded plug for the user's safety. It is to be used in conjunction with a properly grounded receptacle to avoid electrical shock.**

# Preface

This publication provides you with an introduction to the IBM Color Jetprinter. Included are instructions for setup, problem determination procedures (PDPs), control codes, character sets and specifications.

This publication is intended for anyone who will be setting up or using the IBM Color Jetprinter.

This manual has six sections including a set of appendixes:

“Section 1. Introduction” highlights some of the major functions of the printer.

“Section 2. Setup” contains instructions for unpacking and setting up your printer, and installing “screen copy” and print spooler programs, as well as running the printer Self Test.

“Section 3. Operation” introduces the user to the functions of the printer.

“Section 4. Problem Determination Procedures (PDPs)” assists you in correcting problems that may occur during setup and/or normal operations.

“Section 5. Printer Control Codes” explains the special control codes you can use to tell your printer how and what to print.

“Section 6. Appendixes” contains information on the character sets and specifications of your printer.

## Related Publications

If needed, additional technical information can be found in the *IBM Color Jetprinter Technical Reference Guide (Part No. 1686287 [Form No. S544-3120])* or the *IBM Color Jetprinter Hardware Maintenance and Service Manual (Part No. 1686275 [Form No. S544-3121])*.

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# Section 1. Introduction

This publication contains instructions to help you start using your new IBM Color Jetprinter. Your new color printer is a convenient workstation printer that is compact, quiet, reliable and easy to operate. A special text print resolution function, along with two character sets, gives you both near letter quality and draft printing options. The printer prints an eight inch writing line on 8-1/2 inch paper. It is capable of printing text, both normal and condensed, and graphics in seven colors on cut sheet paper, roll paper, continuous form pin feed paper, and transparencies.

The Color Jetprinter uses two ink cartridges, a completely sealed system to supply the ink, and a mechanism to cap the ink nozzles and prevent them from being clogged. These features provide the technical basis for the reliability of the printer.

The low cost IBM Color Jetprinter provides output in color. Software is supplied which allows the information displayed on a workstation with a color display to be printed in color.

To ensure the best results, read this manual carefully and keep it handy for future reference.

As you learn to use your printer, you will find ASCII code charts a valuable tool for accessing the many control, graphic, and special character set codes.

# For Assistance

If you have problems with the printer, refer to Section 4, “Problem Determination Procedures (PDPs)” on page 4-1 for assistance.

If you need additional help with setup or operation, contact your place of purchase.

## Safety Guidelines

- Keep hair and personal articles out of the printing area when the printer is on to prevent getting them caught in the machine. Be sure to comply with this warning and ask others to do so.
- The Color Jetprinter incorporates Class 1 construction as defined by the International Electrotechnical Commission Publication 380, “Safety of Electrically Energized Office Machines” (except in Japan), and other national standards.

Class 1 construction provides protection against electric shock through the use of protective grounding of accessible metal parts of the machine.

*The Color Jetprinter is equipped with a grounding type (3-wire) electrical cord (except in Japan) because protective grounding is necessary.*

The electrical plug is a UL and CSA required and approved electrical plug.

- For continued protection against electrical shock:
  1. Connect only to a properly grounded electrical outlet of the proper voltage.
  2. Refer servicing to trained professional service personnel.
  3. When servicing, use only identical replacement parts.
- This IBM printer is inspected and listed by recognized national testing laboratories, such as Underwriters Laboratories, Inc. (UL) in the U.S.A., Canadian Standards Association (CSA) in Canada and Technischer Uberwachungs-Verein (TUV) in West Germany. Listing of a product by a national testing laboratory indicates that the product is designed and manufactured in accordance with national requirements intended to minimize safety hazards. We believe IBM equipment meets a very high standard of safety in design and manufacture.



# Section 2. Setup

## Introduction

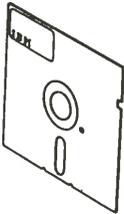
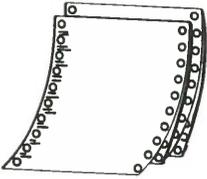
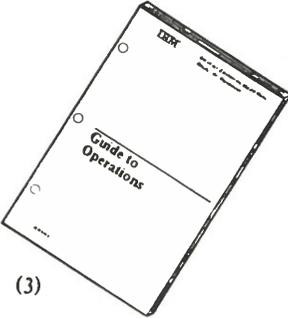
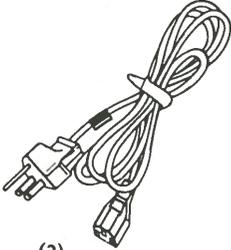
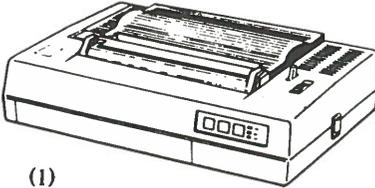
Follow the steps in this section to unpack, set up, and check out your new printer. Information on installing the diskette provided with your printer is included.

If you have any questions or need help during setup, call your place of purchase.

If your printer does not work properly after it is set up, refer to Section 4, "Problem Determination Procedures (PDPs)" on page 4-1 for more assistance.

# Components

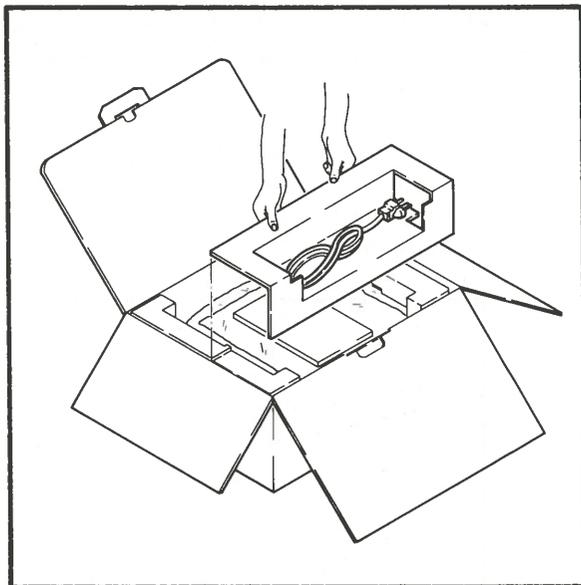
The following items are included with your printer. If any items are missing or damaged, notify your place of purchase.



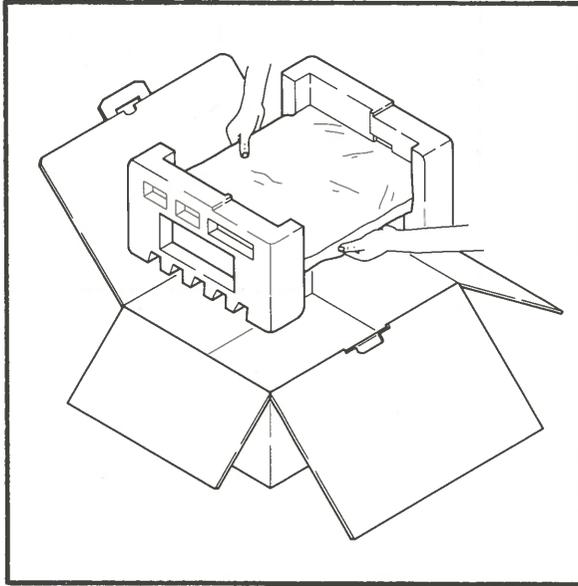
- 1. Color Printer
- 2. Power cord
- 3. Operation manual
- 4. Test papers

One black ink cartridge and one color ink cartridge are loaded in the printer.

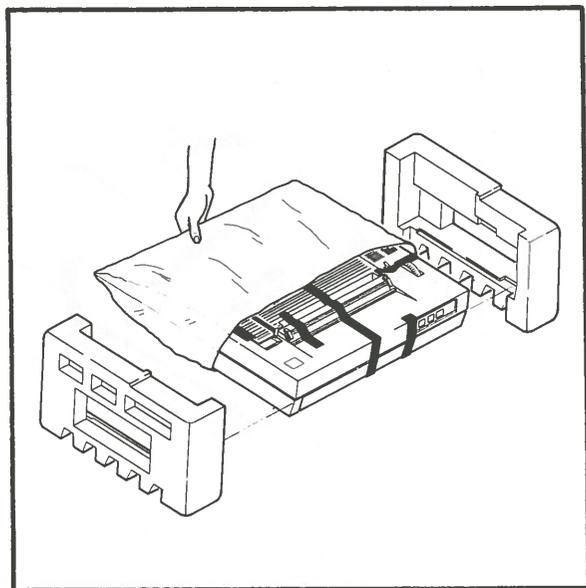
1. After opening the box, remove the power cord and the container holding it.



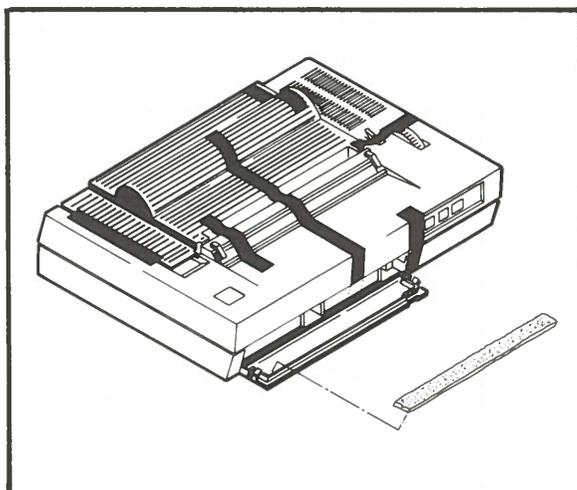
2. Remove the IBM supplied paper and the IBM diskette. This diskette contains a color graphics screen copy program and a color chart program that prints sample Color Jetprinter colors. Instructions for using these programs can be found in Appendix G, "Diskette Programs" on page G-1.
3. Lift the printer out of the box. You may need someone to hold the box while you lift the printer out because the printer is securely positioned in the box.



4. Remove the white foam pieces from each end of the printer and take the protective wrapping off the printer.



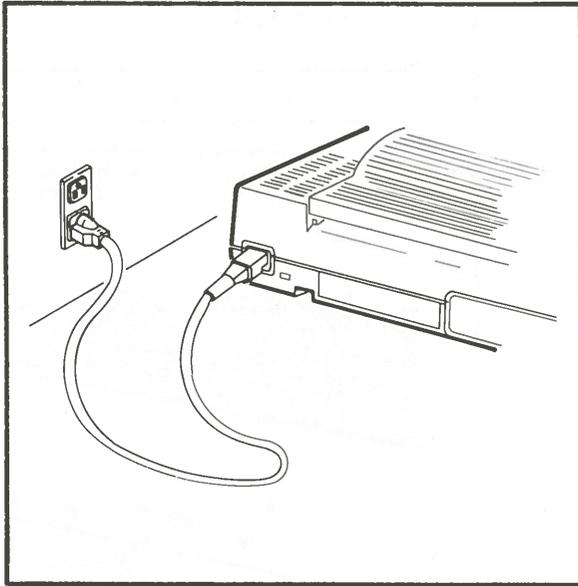
3. Secure the paper cover with tape. Replace the pad that prevents the ink cartridges from moving against the ink cartridge case cover. Secure the ink cartridge case cover with tape.



6. To attach the power cord:
  - a. Make sure the power switch on the right side of the printer is in the **Off** position.
  - b. Plug the smaller end of the cord into the back of the printer. Then plug the larger end into an electrical outlet.

**CAUTION**

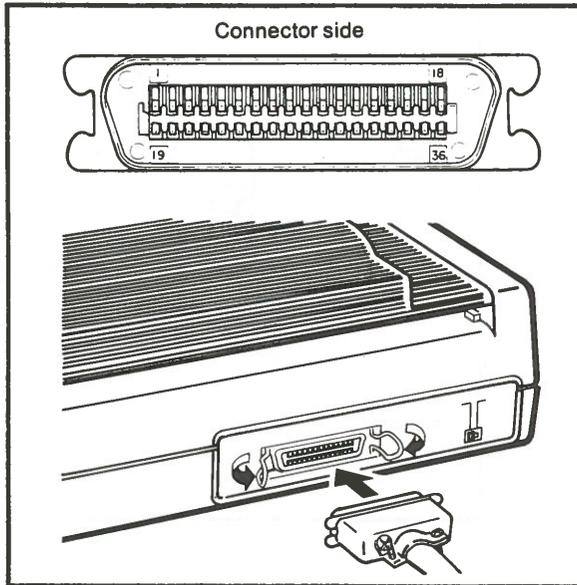
**For continued safety, only use the printer with a properly grounded receptacle.**



7. Attach the Parallel I/O printer cable (IBM Part Number 1525612) from your workstation to the Parallel I/O socket on the back of the printer. Use the shape of the plug to help you attach the cable properly.

Push the clips on the back of the printer into the notches on the plug to hold the plug in place.

**Note** The Parallel I/O printer cable is not provided with your printer. Follow the workstation instructions to attach the cable to your workstation.



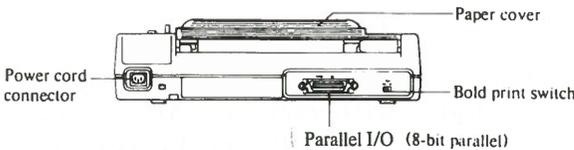
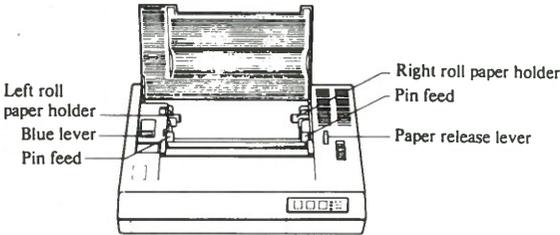
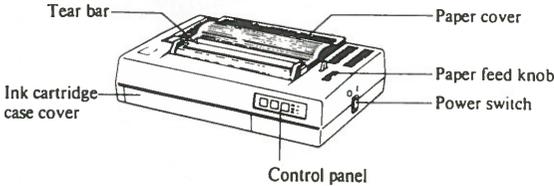
8. Insert the diskette supplied with your printer into your workstation and copy the programs contained onto your DOS diskette.

To copy these programs refer to your DOS publication for copying instructions.

More details on the contents and use of these programs can be found in Appendix G, "Diskette Programs" on page G-1.

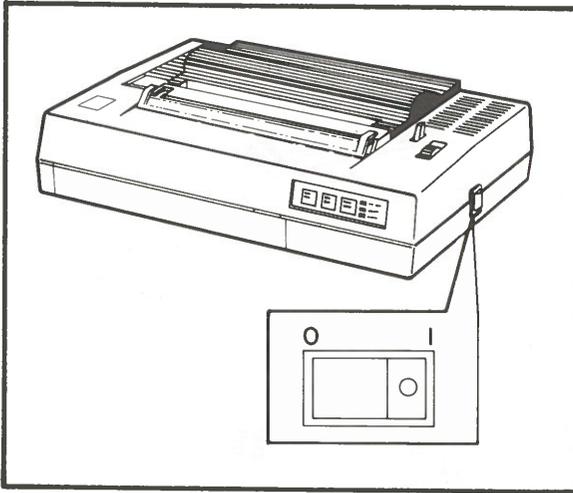


# Section 3. Operation



OPERATION

# Printer Power Switch



Press the side of the power switch marked with a circle to turn the power **On**. Press the other side to turn the power **Off**.

Every time you turn the power **On**, all the indicator lights will come on. After a few moments, only the **Ready** and **Power** indicator lights will remain on. The **Check** indicator light will remain on if there is no paper in the printer.

Refer to Section 4, "Problem Determination Procedures (PDPs)" on page 4-1 for assistance if necessary.

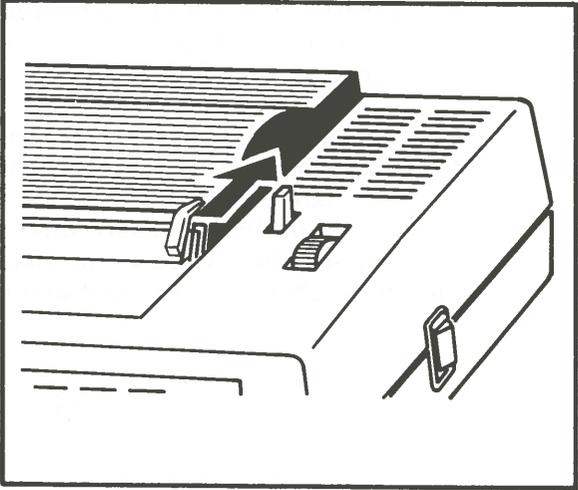
# Loading Paper

There are three kinds of paper you can use with your IBM Color Jetprinter: cut sheet paper, roll microperforated paper and continuous form pin feed microperforated paper. Transparencies can also be used with this printer.

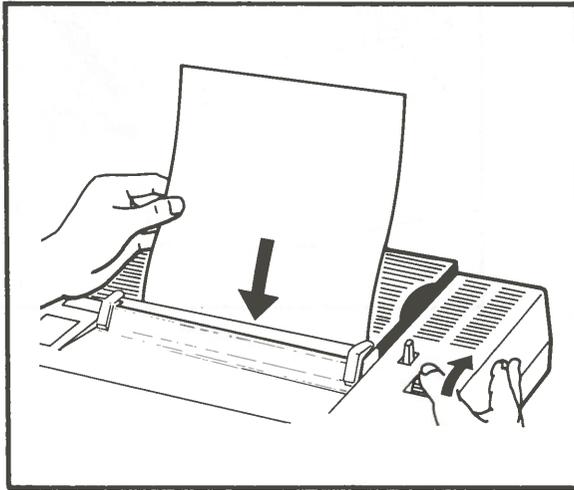
IBM paper is specially coated and finished on one side for optimum print quality. Although IBM recommends using the specially coated and finished paper, plain paper can also be used. If you use IBM supplies, follow the instructions provided with them for the best printing results.

# Loading Cut Sheet Paper

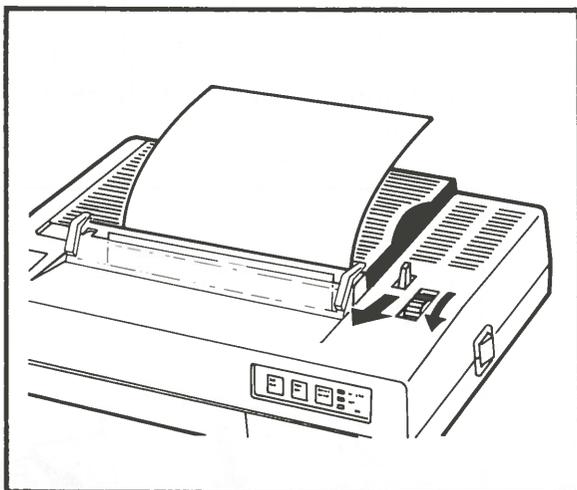
1. Close the paper cover, and push the paper release lever to the back position.



2. Insert the sheet into the paper passage of the paper cover. If you use IBM paper, be sure you follow the instructions provided with the IBM paper to determine the correct printing side of the paper. This will make sure you get the best printing results. Turn the paper feed knob until about half the paper is fed into the printer.

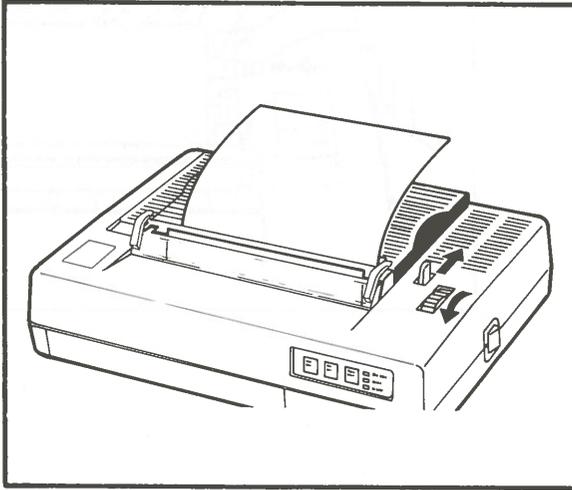


3. Pull the paper release lever to the forward position.



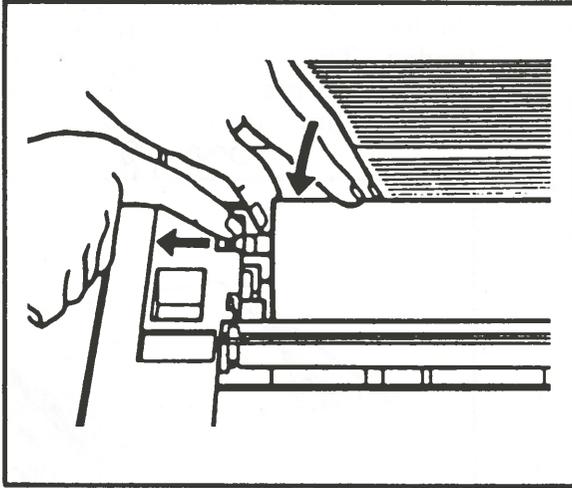
4. Match the edges of the paper to make sure that they are even. Push the paper release to the back position. Turn the paper feed knob counterclockwise until the paper is at the desired position.

**Note:** Be sure the paper release lever is in the back position after the paper has been loaded. The paper will not feed correctly during printing if the paper release lever is set to the forward position.

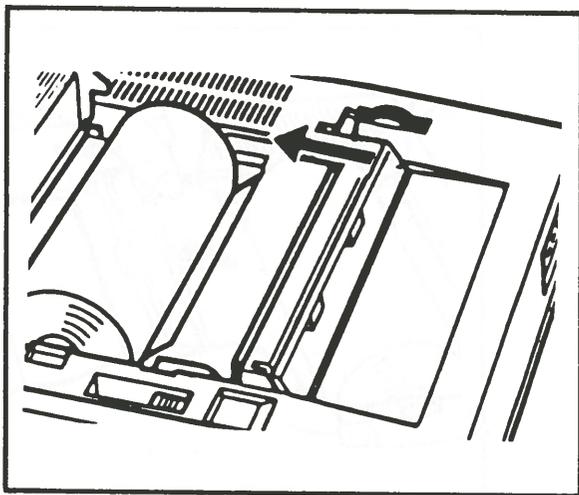


# Loading Roll Microperforated Paper

1. Open the paper cover and insert the roll by sliding the left roll paper holder open as shown.

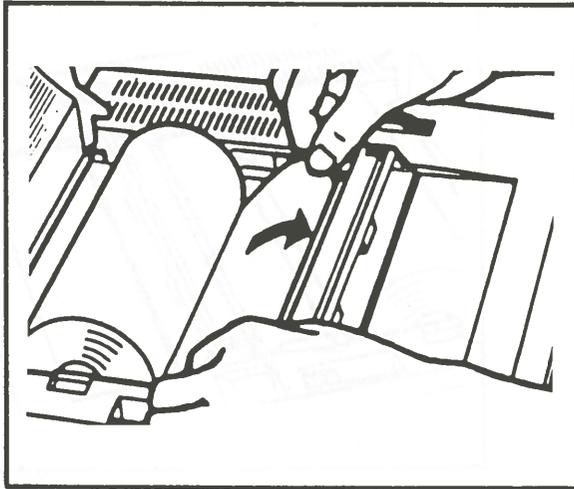


2. Push the paper release lever to the back position.



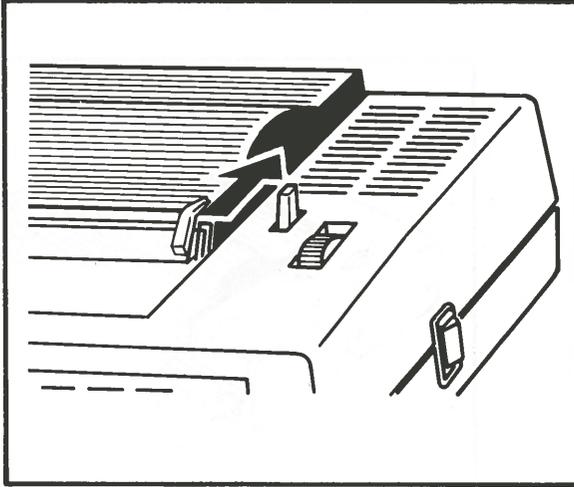
OPERATION

3. Insert the top of the paper into the paper passage. Turn the paper knob until the paper's edge is slightly over the tear bar.



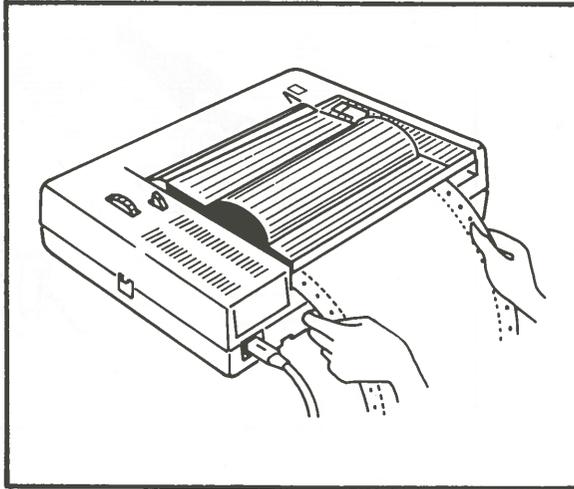
4. Close the paper cover.

**Note:** Be sure the paper release lever is in the back position after the paper has been loaded. The paper will not feed correctly during printing if the paper release lever is set to the forward position.

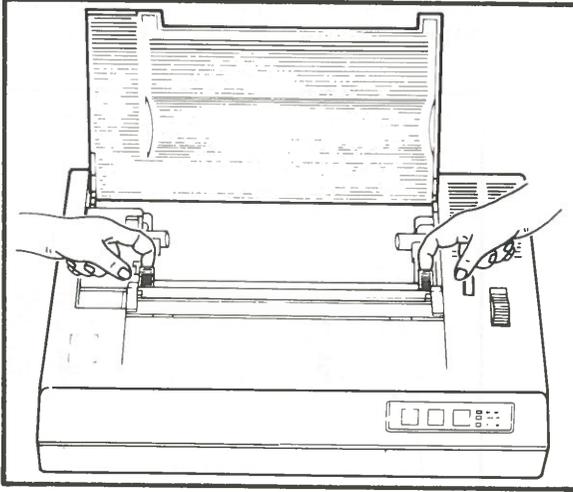


# Loading Continuous Form Pin Feed Microperforated Paper

1. Insert the paper from the back of the printer through the opening below the paper cover. If you use IBM paper, be sure the IBM logo on the pin feed strip of the paper is face down to ensure printing on the correct side.



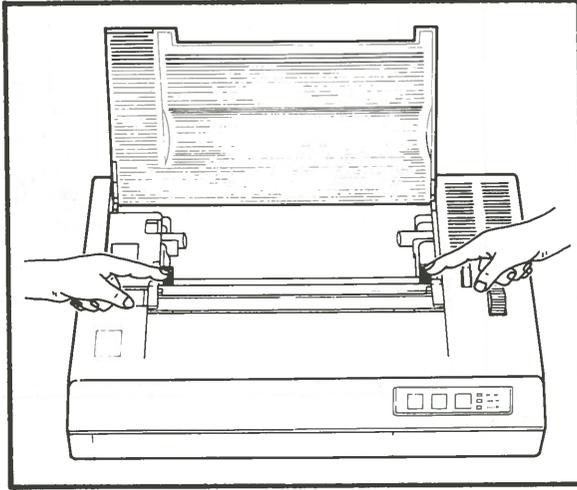
2. Open the paper cover. Pivot both of the pin feed covers (right and left) open. Set the paper parallel to the platen. Position the paper so that the pins on the sprocket go through the holes in the paper.



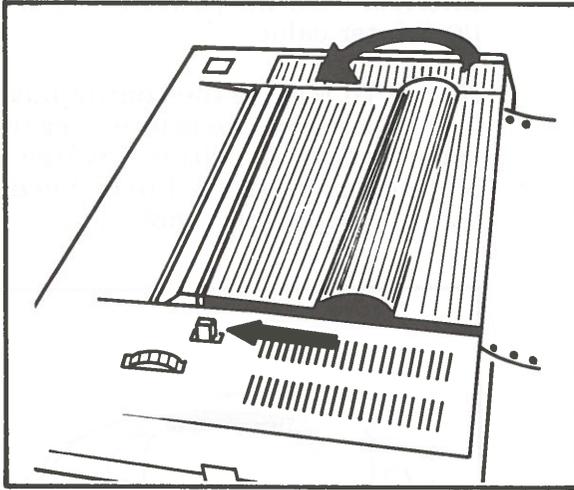
OPERATION

3. Close the pin feed covers. Insert the top of the paper into the paper passage. Turn the paper knob until the paper's edge is slightly over the tear bar.

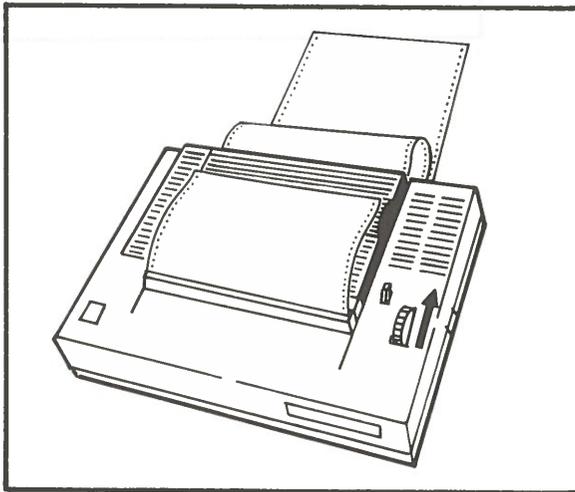
If you use IBM paper, the IBM logo on the pin feed strip will appear on the left side of the paper, as you look at the printer.



4. Close the paper cover. Be sure the paper release lever is in the forward position.

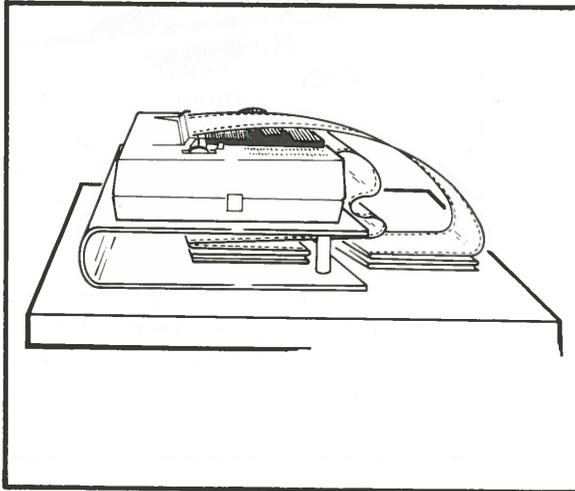


5. Feed the paper to the starting print position by turning the paper feed knob. Match the edges of the paper to make sure that they are even. If not even, reload the paper.



6. Set the continuous form paper so the feeding side is parallel to the printer. Make sure the continuous form pin feed paper will not interfere with the power cable or the Parallel I/O printer cable.

**Note:** To remove the continuous form pin feed paper from the printer, separate the paper at the perforation. Switch the printer off-line and press the **Form Feed** switch or turn the paper feed knob.



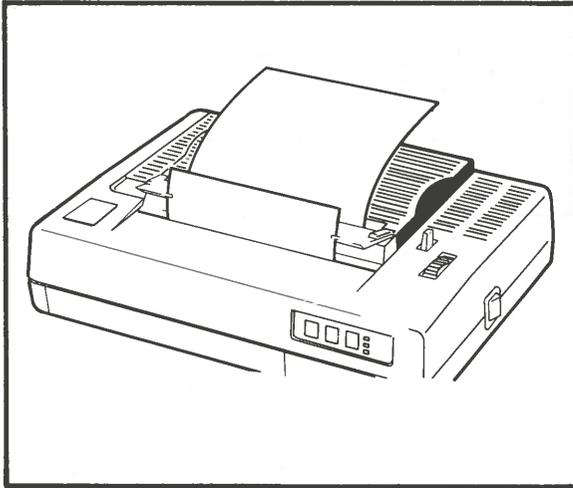
# Using Transparencies

When printing on transparencies, raise the tear bar before inserting the transparency.

IBM transparencies provide optimum print quality. If you use IBM transparencies, follow the instructions on the IBM transparency box.

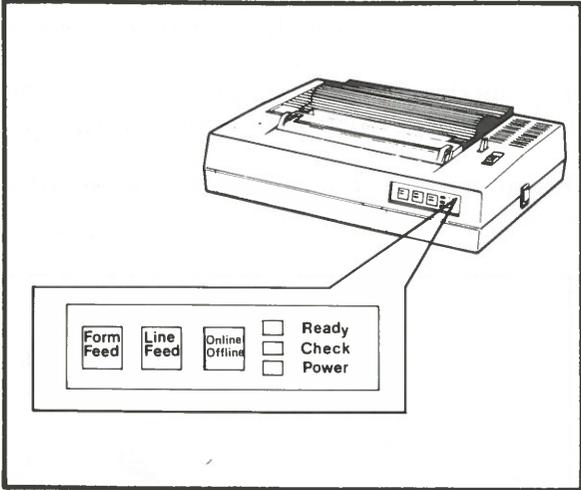
For maximum color density, print in the Bold mode when printing on transparencies.

Be sure to let the foils set for about five minutes before you stack them.



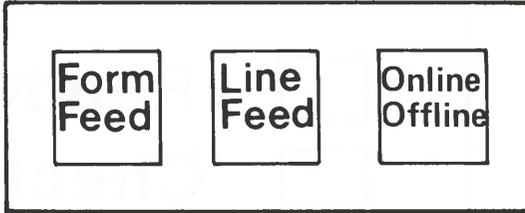
# Printer Control Panel

Your Color Jetprinter has three control switches and three operation lights.



# Printer Control Switches

The three control switches are the **Form Feed** switch, the **Line Feed** switch, and the **Online/Offline** switch.

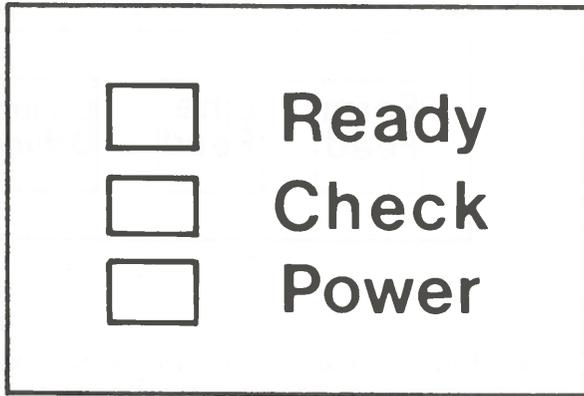


- **Form Feed** switch: Press this switch to feed paper to the next logical page.
- **Line Feed** switch: Press this switch once to feed the paper up one line. Hold it down to feed the paper continuously.
- **Online/Offline** switch: This switches the printer on-line or off-line. When the printer is on-line, the **Ready** indicator light will be on, and data can be received and printed on your printer. When off-line, no data are received and you cannot print from the workstation.

Do not press these switches while the printer is printing. Both the **Form Feed** and **Line Feed** switches are operational only when the printer is off-line. The printer is automatically set on-line when the power is turned on and the printer is connected to the workstation.

# Printer Indicator Lights

There are three indicator lights. These lights are the **Ready** indicator light, the **Check** indicator light, and the **Power** indicator light.



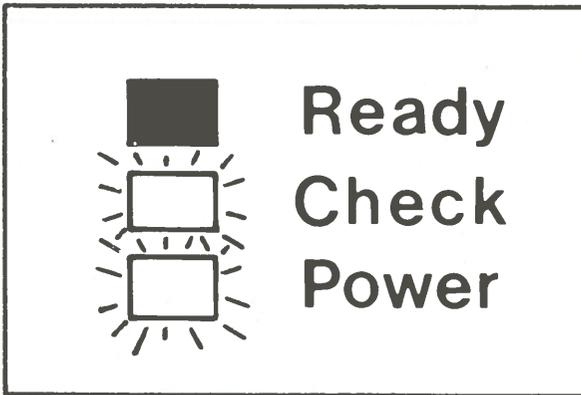
1. **Ready** indicator light: This light is on when the printer is on-line (interacting directly with a workstation), and goes out when the printer is off-line (operating independently of a workstation).
2. **Check** indicator light: This light blinks about ten seconds after ink supply pumping has been performed. Also, it lights when a no-paper error has occurred, when the carriage is locked, when the carriage is stopped due to a paper jam, or when a hardware error in memory occurs.
3. **Power** indicator light: This light is on when the power is turned **On**.

# Unlocking the Carriage

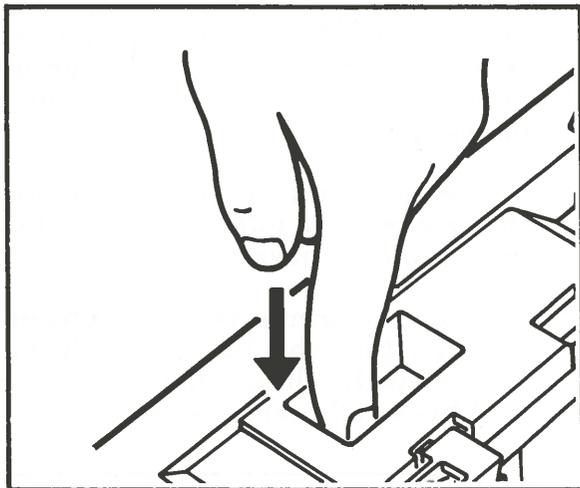
The blue lever on the top left side of the printer unlocks the printer carriage. The printer is shipped to you with the carriage locked. This is done to protect it from mechanical shocks and vibrations when the printer is being transported. At the same time, this lever caps the nozzles to prevent the ink from leaking out or drying out. (For more information on what an ink-jet printer is, see Appendix F, "What is an Ink-jet Printer?" on page F-1.)

You must unlock the carriage before you can use the printer. The following steps allow you to unlock the carriage:

1. Turn the printer **On**. The **Power** and **Check** indicator lights light when the power is turned **On**. If no paper is in the printer, the **Check** light remains on.

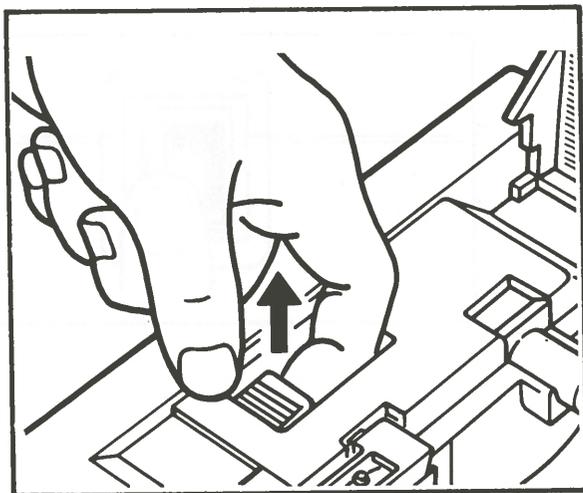


2. Open the paper cover. Press the blue lever all the way down to the bottom position and hold it there for one second. Release the blue lever and the **Check** indicator will blink for about ten seconds if paper is in the printer. (You can't push the blue lever past about halfway if there is no black ink cartridge in the printer.)



3. When the **Check** indicator light stops blinking, lift the blue lever up to the top position. Do not lift the blue lever until the **Check** indicator light stops blinking. This unlocks the carriage and automatically activates the ink supply mechanism and uncaps the nozzles.

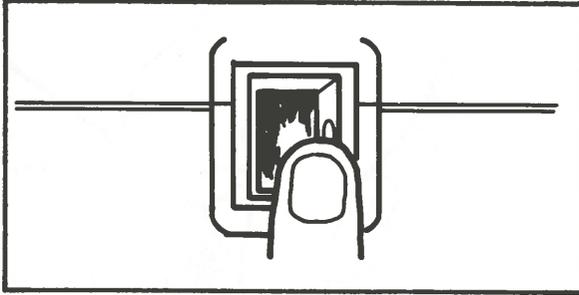
After unlocking the carriage, you should perform print verification to make sure the ink-jet printing system is working properly. See "Print Verification" on page 3-27 for the proper procedure.



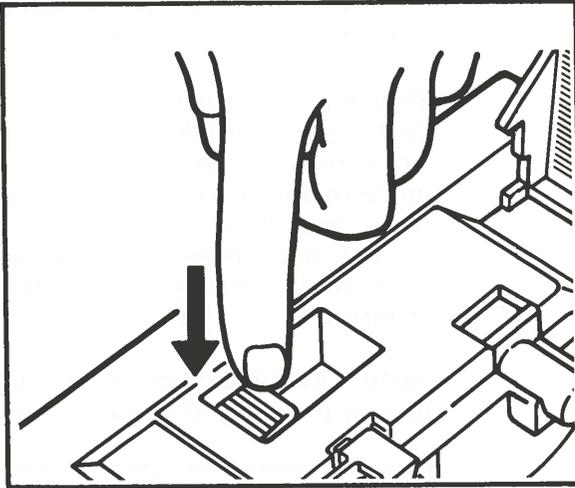
# Locking the Carriage

The blue lever on the top left side of the printer locks the carriage. Locking the carriage protects the ink-jet system from mechanical shock and vibration that may occur during transportation of your printer. It also automatically executes the capping of the ink nozzles. The carriage cannot be properly locked if power is **Off**. The following steps allow you to lock the carriage:

1. Turn the power **On**.



2. Open the paper cover. Press the blue lever down to the middle position. The carriage is locked when the blue lever stays at the middle position.



OPERATION

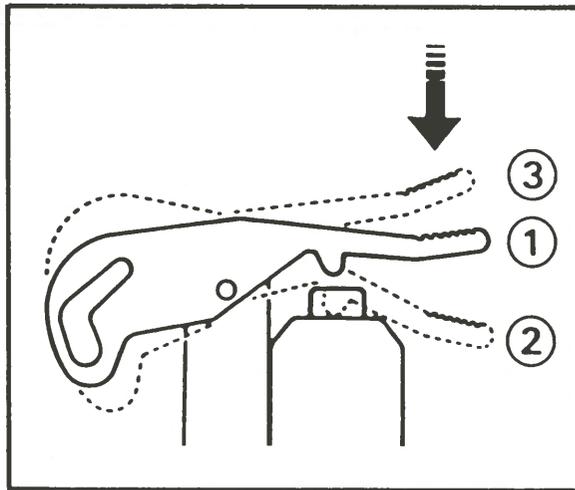
The blue lever can be in three positions.

Position 1. The carriage is locked and the nozzles are capped.

Position 2. Ink supply pumping can be performed.

Position 3 (Normal position). The carriage is unlocked and the nozzles are uncapped. A mechanical latching mechanism prevents you from moving the lever from Position 1 directly to Position 3. You must press the blue lever down to Position 2 before you can lift it up to Position 3.

**Note:** Remember the carriage cannot be locked properly if the power is off.



# Print Verification

After unlocking the carriage, you should perform print verification to make sure the ink-jet printing system is working correctly. You normally have to do this when you set up your printer. You will also want to verify printing if you replace ink cartridges or move the machine.

You can only do print verification after unlocking the carriage or after ink supply pumping. Make sure the blue lever is in the “normal” position. Remember Position 3 is the normal position.

Follow these instructions.

1. Press the **Line Feed** switch, and the printer will start printing the verification pattern shown below.

## Print Verification Pattern

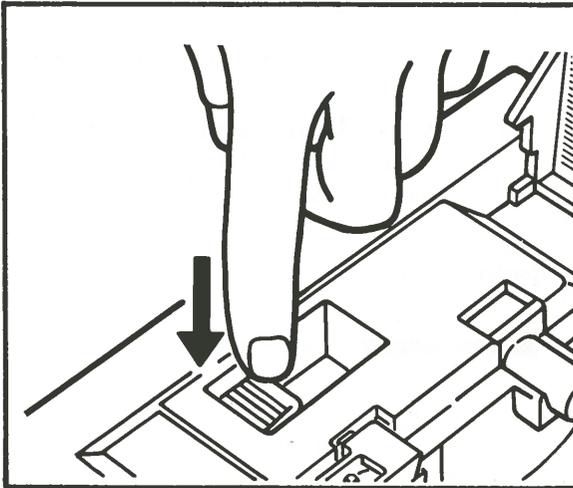


2. If the print verification pattern is not printed correctly, repeat the procedure explained in “Ink Supply Pumping” on page 3-30.

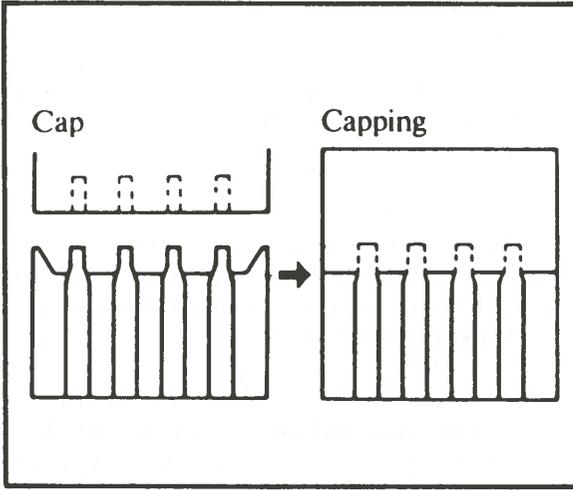
# Ink Capping Mechanism

When you are not printing, you can cap the ink nozzles to make sure the ink in the nozzles will not dry out. Capping also prevents dust from accumulating in the nozzles.

To cap the nozzles, turn the printer **Off**. Then turn it **On**. A beep will indicate the carriage is in the home position (extreme left). Then press the blue lever down to Position 1. Remember the blue lever is under the paper cover.



This action will lock the carriage and put a “cap” on each nozzle.



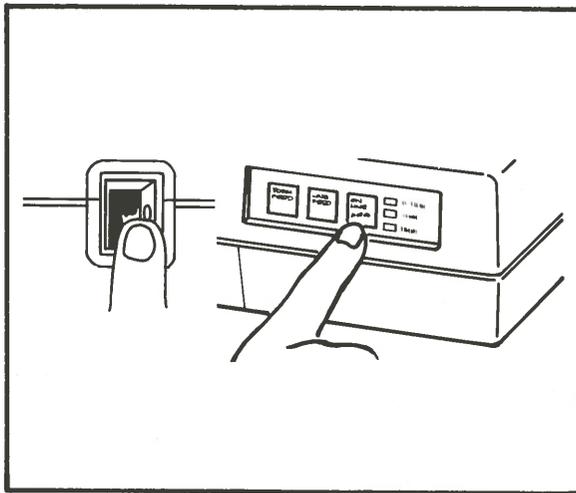
Capping is necessary only when the printer will not be used for over a week, or when the printer is being transported. You do not have to cap the ink nozzles after each time you use the printer.

# Ink Supply Pumping

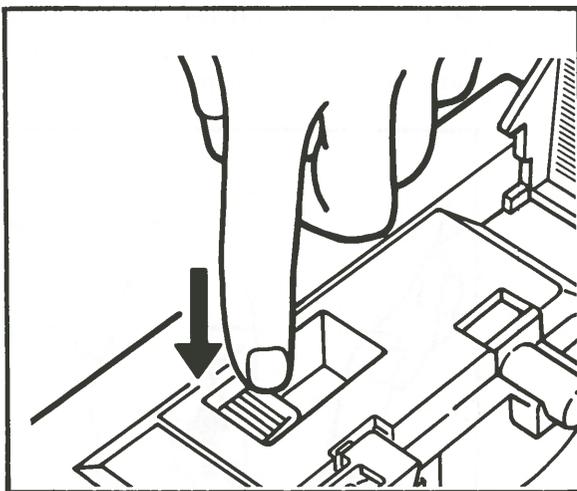
The printer has a specially designed ink supply mechanism and ink nozzles that allow it to print in colors.

There will be times when you will want to change the ink cartridges or remove “bubbles” in the nozzles. To obtain clear color printing, you will need to perform the following ink supply pumping procedure.

1. Turn the power **On**. Press the **Online/Offline** switch to set the printer off-line. Both the **Power** indicator light and the **Check** indicator light will light. The **Check** indicator light will remain on if no paper is in the printer.

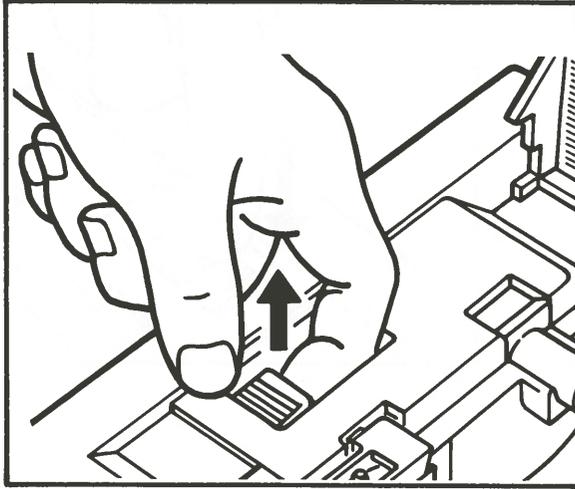


2. Open the paper cover. Press the blue lever all the way down and hold it there for one second. Release the blue lever and the **Check** indicator will blink for about ten seconds.

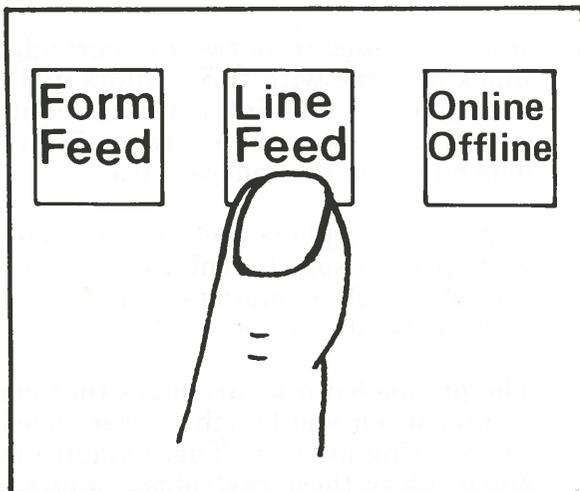


OPERATION

3. When the **Check** indicator light stops blinking, lift the blue lever up to the top position. Do not lift the blue lever until the **Check** indicator light stops blinking. This pumping operation removes ink from the tips of the nozzles and refills the nozzles with new ink. Most printing problems can be solved using this operation.



4. Press the **Line Feed** switch to perform the print verification again.



If printing problems persist, repeat the pumping operation several times.

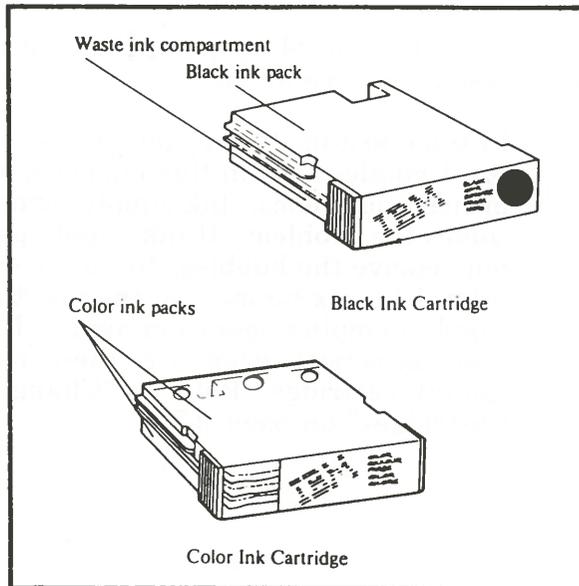
In some instances, air bubbles may develop in the print nozzles. When this happens, you encounter printing problems. Ink supply pumping normally solves the problem. If ink supply pumping does not remove the bubbles, do not operate the printer for six hours, and then perform the ink supply pumping operation again. If a printing problem persists even after these actions, check the ink cartridge. Refer to "Changing Ink Cartridges" on page 3-34.

# Changing Ink Cartridges

Ink is supplied from two ink cartridges, one black and one with three colors (yellow, magenta and cyan). A new ink cartridge contains enough ink to print more than three million characters, depending on the font you use.

You should replace the ink cartridges when you can't print a specific color or, if after performing the ink supply pumping operation, you still can't print a specific color.

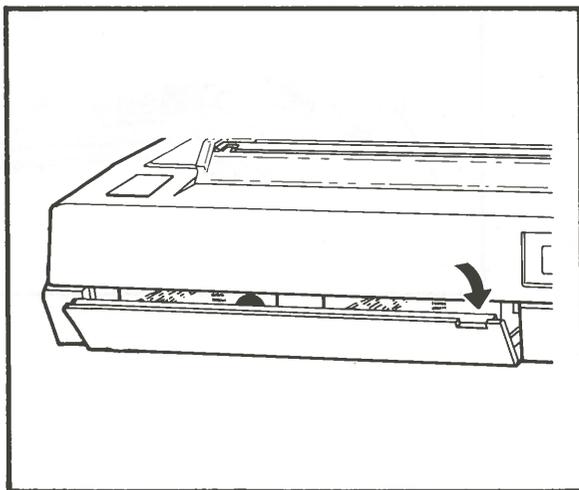
The pre-loaded ink cartridges that came in the printer when you bought it were used to check the printing quality. There might not be as much ink in these cartridges as in a brand new cartridge.



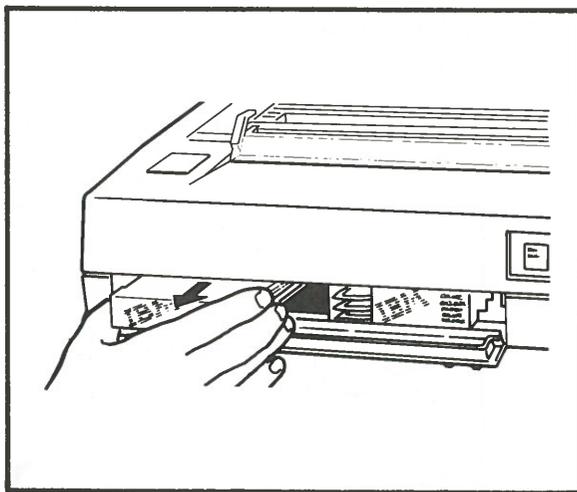
# Checking Ink Levels

To check ink levels in the ink cartridges, use the following steps:

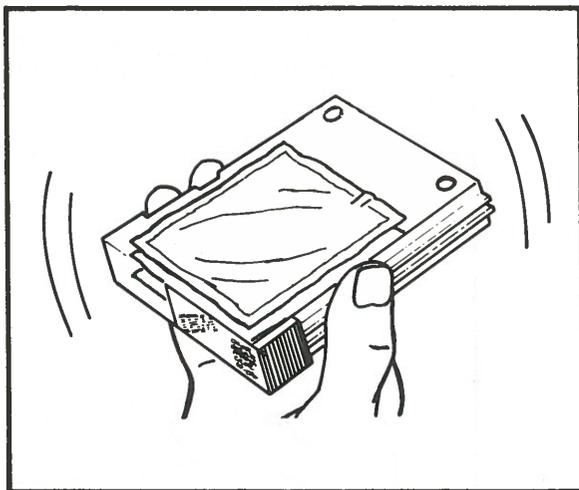
1. Turn the power **Off**. Open the ink cartridge case cover by using a flat object like a coin.



2. Hold the cartridge by the sides and pull it straight out of the printer.



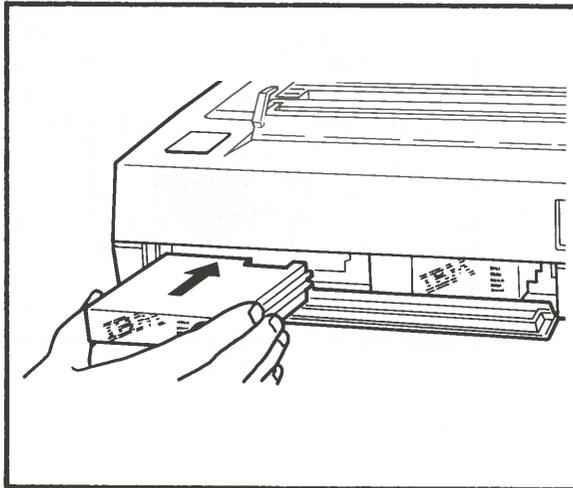
3. Turn the ink cartridge upside down and shake the cartridge gently from side to side. The black ink cartridge is empty if the sack inside does not jiggle. (The color ink cartridge has three sacks.)



# Loading Ink Cartridges

When you need to replace an ink cartridge, follow these instructions.

1. Open the ink cartridge case cover. Take out the old cartridge. Insert the new cartridge firmly into the printer.



2. Close the ink cartridge case cover. Turn the power **On**, and perform the pumping operation explained earlier in this section. After that, perform the print verification operation, and you are ready to start color printing again.

Optimum results can be obtained using IBM-supplied ink cartridges.

Never attempt to refill the ink cartridges.

Do not transport, store, or attempt to operate the printer without ink cartridges inserted. This could lead to a malfunction or to ink leakage.

If you run out of ink and you have no replacement cartridge, leave the empty ink cartridge in the printer until you can replace it with a new one.

Do not attempt to interchange the black and color cartridges. This will damage the printer.

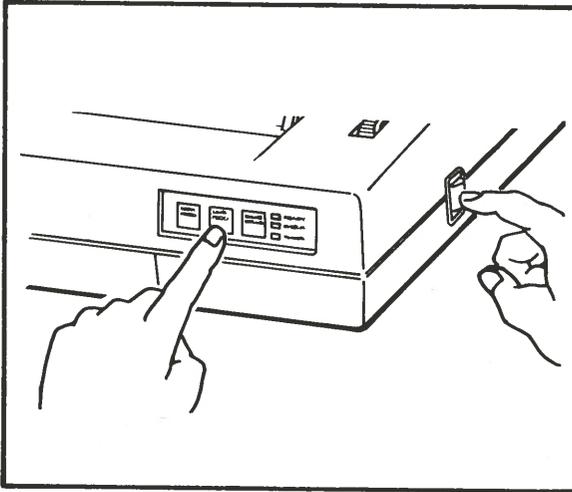
# Printer Self Test

The printer Self Test is a built-in function that checks the following items:

- Carriage movement
- Paper feed
- Print quality

To perform the Self Test:

1. Be sure to use the IBM supplied paper for the printer Self Test the first time. Paper must be in the machine.
2. Turn the power **On** while pressing the **Line Feed** switch. You will hear a beep when the power is turned on.

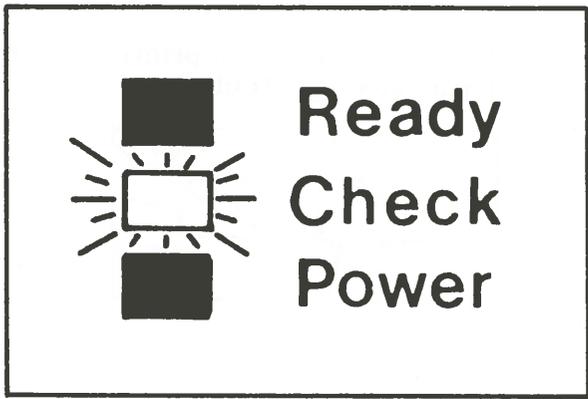


3. The printer will start printing continuously. A sample of the Self Test printing follows this procedure.
4. To terminate the Self Test, you must turn the printer **Off**.



# No Paper Error Function

When paper is not loaded into the printer, or the printer has run out of paper, printing stops approximately 1/2 inch from the bottom edge of the paper, and the **Check** indicator light comes on.



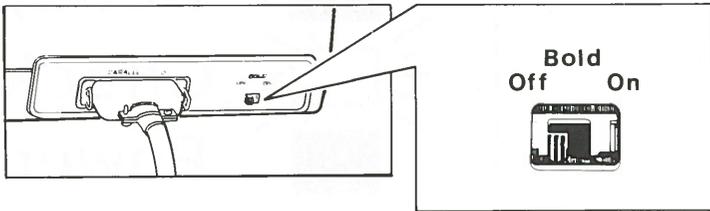
OPERATION

After loading paper, press the **Online/Offline** switch to resume printing.

# Bold Print Function

Set the **Bold** switch on the rear panel of the printer to **On** to print on transparencies or to print bold characters and graphics on paper. The Bold print switch should be set to **Off** for normal printing. The **Bold** switch set to **On** overrides the software double strike (bold) control.

Use bold print when printing on transparencies for a better printout.



# Print Modes

Your Color Jetprinter can print in a number of different Text modes.

You can select any of the combinations listed below and can change print modes anywhere within a line.

## **Near Letter Quality Print Modes (100 H x 96 V)**

Normal (10 characters per inch)

Double wide

Condensed

Double wide Condensed

Subscript

Superscript

## **Draft Quality Print Modes (100 H x 72 V)**

Normal (10 characters per inch)

Double wide

Condensed

Double wide Condensed

# Text Mode

The Color Jetprinter is automatically set to this mode when the power is turned **On**. Color can be set for each character. Normal and condensed characters can be printed mixed on the same line. Both normal and condensed characters can be printed double wide.

NORMAL      DOUBLE - WIDE

CONDENSED      DOUBLE-WIDE

# Raster Image Mode (Dual Color)

In this mode, one color can be specified for the raster image dots. Each raster image datum is created by using a set of eight vertical dots. The printer is set to this mode when the control ESC K or CRI (dual color) is entered. Up to 800 raster image data can be printed on one line. Bit image data can be mixed with text data on the same print line.



COLOR PRINTER 

COLOR PRINTER 

COLOR PRINTER 

## Raster Image Mode (Multicolor)

In this mode, up to 800 dots can be printed per line and a color can be set for each dot. The CRI multicolor control code supports this mode.



# Color Printing

This printer can print in seven colors: four fundamental (yellow, magenta, cyan and black) and three composite (red, green and blue). Printing can also be inhibited; therefore the “color” in that area remains the color of the media (normally white).

Remember the colors you see on these pages and the colors you see on your workstation display screen may not be the exact same colors that the IBM Color Jetprinter prints. Software interprets the colors on your display screen and matches them as closely as possible through the software. If you experience difficulty in color compatibility between software and this printer, consult your place of purchase.

### Fundamental colors

1. Yellow



2. Magenta



3. Cyan



4. Black



### Composite colors

5. Red



6. Green



7. Blue



# Section 4. Problem Determination Procedures (PDPs)

Use these problem determination procedures before having your printer serviced. If you need to have your printer serviced, be sure to send along comments about the problem to speed the repair process.

You may be able to correct the problem without help from a service representative and avoid unnecessary downtime and service costs. By following the step-by-step procedures and answering yes or no to the questions asked, you will be able to determine what to do to make your printer operational again.

Follow the steps in order. If you change anything on the printer, try to print again before going to the next step. If you have followed the steps and none of them solve the problem, your printer requires service.

Disconnect the Parallel I/O printer cable from the printer before you begin these procedures.

When requested by these procedures to try to print again, use the Printer Self Test process described in “Printer Self Test” on page 3-40.

1. Is the **Power** indicator light **On**?

**NO** -- Continue with this step.

**YES** -- Go to Step 3 on page 4-3.

Make sure your printer power cord is properly connected.

- a. Make sure any other equipment plugged into the same wall outlet will operate.
  - b. Make sure the printer power cord is plugged into the back of the printer.
  - c. Make sure the printer is completely plugged into a wall socket.
  - d. Make sure the wall outlet does not turn off with the room lights.
  - e. Plug the printer into a different wall outlet.
  - f. Exchange the power cord with your workstation power cord.
2. Make sure the printer is turned **On**. Did you find any problem while following the preceding steps?

**NO** -- Have your printer serviced.

**YES** -- Correct the problem and try to print again.

3. Is the **Check** indicator light **On**?

**NO** -- Go to Step 4.

**YES** -- Continue with this step.

Is the carriage unlocked? Refer to “Unlocking the Carriage” on page 3-21 to determine if the carriage is locked or unlocked.

**NO** -- Unlock the carriage following the procedure “Unlocking the Carriage” on page 3-21 and try to print again.

**YES** -- Continue with this step.

Is paper properly loaded? Refer to “Loading Paper” on page 3-3 for loading paper procedures.

**NO** -- Load paper and try to print again.

**YES** -- Have your printer serviced.

4. Is the **Ready** indicator light **On**?

**NO** -- Press the **Online/Offline** switch.

If the **Online/Offline** switch activates the **Ready** light, try to print the Self Test. If this still doesn't correct the problem, go to Step 5 on page 4-4. If pressing the **Online/Offline** switch does not activate the **Ready** light, and the printer doesn't print, have the printer serviced.

**YES** -- Go to Step 5 on page 4-4.

5. Did you perform ink supply pumping when you turned the printer **On**?

**NO** -- Continue with this step.

Perform the ink supply pumping and print verification. Perform the ink pumping operation using the procedure explained in "Ink Supply Pumping" on page 3-30. Remember you will need to do the print verification operation after you have completed the pumping operation. That procedure is explained in "Print Verification" on page 3-27. Try to print the Self Test again. If this doesn't correct the problem, go to Step 6.

**YES**-- Go to Step 6.

6. Did you perform the ink supply pumping a number of times (three to six times)?

**NO** -- Continue with this step.

Repeat the ink supply pumping operation several times. Perform the ink pumping operation using the procedure explained in "Ink Supply Pumping" on page 3-30. Remember you will need to do the print verification operation after you have completed the pumping operation. That procedure is explained in "Print Verification" on page 3-27. Try to print the Self Test again. If this still doesn't correct the problem go to Step 7 on page 4-5.

**YES** -- Go to Step 7 on page 4-5.

7. Is there ink in the cartridge?

**NO** -- Continue with this step.

Change the ink cartridge. To change the ink cartridge, use the procedure explained in "Loading Ink Cartridges" on page 3-38.

After you have changed the cartridge, you will need to do the ink pumping operation as explained in "Ink Supply Pumping" on page 3-30. Then you will need to verify the print operation by using the procedure explained in "Print Verification" on page 3-27. Try the Self Test again. If the printer will still not print after these operations, go to Step 8.

**YES** -- Go to Step 8.

8. Did you perform the ink supply pumping operation again after waiting six hours?

**NO** -- Continue with this step.

Wait six hours and try the ink supply pumping operation as explained in "Ink Supply Pumping" on page 3-30. If the printer still does not print, have it serviced.

**YES** -- Have the printer serviced.

## Other Mechanical Error Conditions

The **Check** indicator light on the operator panel is activated when the print head cannot move. For example, because of a paper jam or a memory error.

# Section 5. Printer Control Codes

The printer is controlled by special coded characters sent from your workstation to tell the printer how and what to print.

On the following pages you will find ASCII control code charts for printer characters, controls, and graphics.

The printer codes are listed in alphabetical order to help you find them more easily. Control values are listed in hexadecimal; parameter values are shown in decimal.

## ***Code***      ***Printer Function***

**BS**            Format: X'08'  
Moves the print position one current character width to the left.

**BUS**          Format: X'1B5B42' + X'0200' +  
BYPASS + COLOR  
Begins color underscoring. For continuous underscore, use the BYPASS value of 0, to bypass white space use BYPASS value of 1. COLOR defines the color to be used for the underscore. Use the appropriate code:

0 Black	1 Blue	2 Red
3 Magenta	4 Green	5 Cyan
6 Yellow	7 Neutral	

Use the SIC or EUS control code to stop color underscoring.

- CAN**      Format: X'18'  
Clears the printer memory of all data waiting to be printed following the last received line ending character.
- CR**        Format: X'0D'  
Returns the print position to the left margin on the same line. A **Line Feed** is executed if automatic line feed is on.
- CRI**        Format: X'1B5B4F' + LCNT + HCNT + FLAGS + HR + VR + DATA  
Sets resolution for raster image print. LCNT values specify the low count of the total number of data bytes and the five parameter bytes which follow the LCNT and HCNT parameters. HCNT values specify the high count of the total number of data bytes and the five parameter bytes which follow the LCNT and HCNT parameters. FLAGS values of X'801F00' for multicolor image mode (the default) or X'100300' for dual color image mode can be used. HR and VR values are dots per inch resolution horizontally and vertically. This printer supports 100 horizontally and 96 or 72 vertically.

**Note:** The interpretation of the DATA parameter in the CRI control code depends upon the format established by the FLAG bytes. For multicolor image, DATA represents the information to print one horizontal scan line. Each scan line consists of three data blocks and each data block describes the three colors to be printed across the complete scan line. The first "n" bytes of DATA address "n x 8" print dots across the scan line with a one bit meaning to print the color red, and a zero bit meaning not to print red. The next "n" bytes of DATA address the same "n x 8"

print dots but specifies the presence or absence of the color green. The last “n” bytes of DATA address the “n x 8” print dots and specify the presence or absence of the color blue.

The left-most bit of a DATA byte represents the left-most of eight sequential print dots along the scan line. The presence of all three colors for a print dot results in a neutral color while the absence of all three colors for a print dot results in the color black.

Red	Green	Blue	Color Printed
0	0	0	Black
0	0	1	Blue
0	1	0	Green
0	1	1	Cyan
1	0	0	Red
1	0	1	Magenta
1	1	0	Yellow
1	1	1	Neutral

The number of print dots addressed by the CRI control code is equal to  $((CNT-5)/3)$ . Any remainder results in those bytes being ignored at the end of the DATA information field. Note that print dots addressed by the CRI control code must in multiples of eight and each color block starts on a byte boundary. The control codes SFC, SBC and SPS do not affect the color selected in this DATA format.

When printing a line with a multicolor CRI control, text, ESC K or dual color CRI raster image data cannot be mixed on that same print line. Multicolor CRI printing must start at the left end of the presentation surface. The final or only

multicolor CRI control must end with a CR control.

For dual color image data, each byte of DATA describes the **On/Off** condition of one of the eight vertical dot positions. The most significant bit of each byte is the topmost dot. A one bit is printed in the foreground color and a zero bit is printed in the background color. When the end of a print line is reached before the image data is exhausted, the remaining image data is discarded.

**Bit Number      Dot Position**

7	Most significant bit (Topmost Dot)
6	
5	
4	
3	
2	
1	
0	Least significant bit (Bottommost Dot)

Text (Draft font only) and ESC K image data can be mixed on the same print line with dual color CRI raster data.

- DC1      Format: X'11'  
Selects (activates) the printer to accept data.
  
- DC2      Format: X'12'  
Begins 10 characters per inch (cpi) printing.
  
- DC3      Format: X'13'  
Deselects (deactivates) the printer so as to not receive data.

DC4      Format: X'14'  
Ends double wide printing begun by the  
SO control.

DSV      Format: X' 1B5B55' + X'0100' + SKIP  
Moves vertical presentation down the  
page in number of dots. SKIP indicates  
how far down the presentation is to be  
moved. Values you can use are:

0-255    Multicolor CRI print line

8-255    Draft quality text, ESC K  
print line, CRI dual color  
print line

12-255   Text quality print line

ESC B    Format: X'1B42' + tab1 + tab2 .... +  
tabn + NUL  
Sets the vertical tab-stop positions. A  
maximum of 16 can be set in ascending  
order. When used, the current tab  
settings are replaced by those you  
specify. 1, 2 and *n* in the Format above  
indicate tab positions. The first print  
line position is 1, the second is 2, etc.  
Values out of sequence are ignored.  
You can specify from 1 to 255. To end  
tab setting, use the NUL control. When  
you turn the printer **On**, vertical  
tabulation is equal to line feed.

ESC C    Format: X'1B43' + LINES + INCHES  
Sets the length of a page. Use LINES  
values to specify the number of lines  
you want. You can use from 0 to 127.  
If you specify 0, values for INCHES must  
be included. Use INCHES values to  
specify the length of a page in inches.  
You can use from 1 to 22.

- ESC D**    Format: X'1B44' + tab1 + tab2 .... + tab $n$  + NUL  
Sets the horizontal tab-stop positions. A maximum of 32 tab stops can be specified. When used, the current tab settings are replaced by those you specify. 1, 2 and  $n$  in the Format above indicate tab positions. The leftmost print position is 1, the second is 2, etc. Values out of sequence are ignored. You can specify from 1 to 255. To end tab setting, use the NUL control. When the printer is turned **On**, tabs are set every 8 columns, beginning with column 9.
- ESC G**    Format: X'1B47'  
Begins double striking characters (Bold).
- ESC H**    Format: X'1B48'  
Ends double striking characters (Bold).
- ESC I**    Format: X'1B49' + FONT  
Selects font quality. FONT values are 1 for Draft; 2 for Text quality. Draft quality prints 9 x 8 dot matrix; Text quality prints 9 x 11 dot matrix. The default is Draft.
- ESC K**    Format: X'1B4B' + LCNT + HCNT + DATA  
Sets bit image raster mode. LCNT values specify the low count of the total number of data bytes. HCNT values specify the high count of the total number of data bytes. Refer to the description of the CRI control for DATA value information. Use only the dual color explanation.

- ESC N    Format: X'1B4E' + LINES  
Activates the skip perforation function. LINES value indicates the number of lines to be skipped at the end of a page. You can specify from 1 to 127 (or the page length).
- ESC O    Format: X'1B4F'  
Terminates the skip perforation function (ESC N).
- ESC Q    Format: X'1B51' + CODE  
Queries a parallel attached printer for identification. If the device queried is equal to the CODE value, this printer deactivates the select line. For any other values, this printer remains selected. To reselect this printer again, use the DC1 control code.
- ESC S    Format: X'1B53' + STATE  
Begins superscript/subscript printing. Use STATE values of 0 for superscript; 1 for subscript. ESC T control ends either superscript or subscript printing. This control code is ignored in the Draft quality print mode.
- ESC T    Format: X'1B54'  
Ends superscript/subscript printing begun by the ESC S control.

- ESC W    Format: X'1B57' + TOGGLE  
Begins or ends continuous double wide printing. Use TOGGLE value of 1 to begin printing; 0 to end.
- ESC 0    Format: X'1B30'  
Sets line spacing to 1/8 inch (8 lines per inch).
- ESC 2    Format: X'1B32'  
Sets line spacing to 1/6 inch (6 lines per inch).
- ESC 5    Format: X'1B35' + MODE  
Sets automatic line feed on CR. Use MODE value of 1 to turn automatic line feed **On**; use 0 to turn it **Off**. The printer will line-feed each time a code that indicates the end of a line, such as CR, is received.
- ESC 6    Format: X'1B36'  
Selects character set 2.
- ESC 7    Format: X'1B37'  
Selects character set 1.
- ESC—    Format: X'1B2Dnn'  
nn value of 1 turns on underscore; value of 0 turns off underscore.
- EUS      Format: X'1B5B450000'  
Terminates either ESC— or BUS underscoring.
- FF        Format: X'0C'  
Advances the paper to the top of the next form (page). CR is implied.
- HT        Format: X'09'  
Moves the print head to the next horizontal tab stop. Tab stops are set with the ESC D control. When the printer is turned on, tabs are set every

eight columns, beginning with column nine.

- LF**      Format: X'0A'  
Advances paper one line space (8 or 6 lines per inch)
- NUL**     Format: X'00'  
Terminates horizontal or vertical tabs.
- SBC**     Format: X'1B5B4E' + X'0100' +  
COLOR  
Sets background color for Text, ESC K or CRI dual color printing. COLOR values available are:
- |           |           |        |
|-----------|-----------|--------|
| 0 Black   | 1 Blue    | 2 Red  |
| 3 Magenta | 4 Green   | 5 Cyan |
| 6 Yellow  | 7 Neutral |        |
- SFC**     Format: X'1B5B4D' + X'0100' +  
COLOR  
Sets foreground color for Text, ESC K or CRI dual color printing. COLOR values available are:
- |           |           |        |
|-----------|-----------|--------|
| 0 Black   | 1 Blue    | 2 Red  |
| 3 Magenta | 4 Green   | 5 Cyan |
| 6 Yellow  | 7 Neutral |        |
- SI**       Format: X'0F'  
Starts condensed print mode.  
Character spacing in condensed printing is 17.1 characters per inch.
- SIC**     Format: X'1B5B4B' + X'0100' + IS  
Sets printer to initialized values shown in Appendix D, "Initialized State of the Printer" on page D-1. The only SIC value available is 0, indicating printer power **On**, reset.

**SO**            Format: X'0E'  
Begins double wide printing for the remainder of the print line. Double wide printing prints characters twice as large as the current character spacing.

**SP**            Format: X'20'  
Advances the print position one character width to the right.

**SPR**          Format: X'1B5B30' + X'0100' +  
RESOLUTION  
Sets print resolution for Draft quality font and ESC K image data. RESOLUTION value can be 1 for the lowest resolution (100 H x 72 V); use 3 for the highest resolution (100 H x 96 V).

**SPS**          Format: X'1B5B4C' + X'0200' +  
SURFACE + COLOR  
Sets presentation surface color. SURFACE value of 0 is the only value available. COLOR values available are:

0 Black	1 Blue	2 Red
3 Magenta	4 Green	5 Cyan
6 Yellow	7 Neutral	

**SWP**          Format: X'1B5B5D' + X'0100' +  
TOGGLE  
Swaps foreground and background color printing. TOGGLE values are 0 for normal printing and 1 for reversing background and foreground colors.

**VT**            Format: X'0B'  
Moves paper to the next vertical tab-stop position.

# Appendix A. Character Sets

The IBM Color Jetprinter supports two character sets. Character set 1 is a Personal Computer character set that is designed to the requirements of display terminals. Unused graphic code points result in a space on the printer.

Character set 2 is identical in both graphic symbol content and code point to graphic association with Character Set 2 for the Personal Computer graphics printer.

Character Set 2 is the default character set for this printer.

A code table for both character sets follow.

# Character Set 1 (1 of 2)

	0	1	2	3	4	5	6	7
0	NUL		BLANK (SPACE)	0	@	P	`	p
1		DC1	!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3		DC3	#	3	C	S	c	s
4		DC4	\$	4	D	T	d	t
5		§	%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT		)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	}
C	FF		,	<	L	\	l	
D	CR		-	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	

# Character Set 1 (2 of 2)

	8	9	A	B	C	D	E	F
0	Ç	É	á	´	└	—		=
1	ü	æ	í	¨	f	—	β	ý
2	é	Æ	ó	∴	<<	—	∨	Ý
3	â	ô	ú		>>	À	Â	Á
4	ä	ö	ñ	œ	—	È	Ê	Ë
5	à	ò	Ñ	ï	Œ	ì	î	í
6	å	û	ä	ã	Ã	ä	μ	°
7	ç	ù	ó	ij	Õ	Ò	Ô	Ú
8	ê	ÿ	ı	ÿ	└	Ù	Û	°
9	ë	Ö	└	¾	└	└	▣	•
A	è	Ü	└		└	└	▣	³
B	ï	ç	Þ	└	½	;		∏
C	î	£	Ð	└	¼	*	B	▣
D	ì	¥	ı	└	—	φ	Ø	²
E	Ä	Ŕ	ṑ	đ	±	└	Ó	■
F	Å	□	®	└	õ		∩	BLANK

# Character Set 2 (1 of 2)

	0	1	2	3	4	5	6	7
0	NUL		BLANK (SPACE)	0	@	P	·	p
1		DC1	!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3	♥	DC3	#	3	C	S	c	s
4	♦	DC4	\$	4	D	T	d	t
5	♣	§	%	5	E	U	e	u
6	♠		&	6	F	V	f	v
7			'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT		)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	
D	CR		-	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	





# Appendix B. Printer Specifications

Printing Technology	Drop-on-demand ink-jet printing
Print Head	Piezo electric tubes
Nozzle	Four horizontally arranged nozzles
Printing Speed for Normal Text Characters	20 characters per second
Printing Speed for Normal Draft Characters	30 characters per second
Printing Speed for Text Condensed Characters	33 characters per second
Printing Speed for Draft Condensed Characters	50 characters per second
Printing Direction	Bi-directional printing with logic seeking
Printing Color -- Seven Colors	Yellow, magenta, cyan, black, green, red and blue
Normal Text Printing Character Composition with Descenders	9 by 11 dot matrix
Normal Draft Printing Character Composition with Descenders	9 by 8 dot matrix
Condensed Text Printing Character Composition with Descenders	5 by 11 dot matrix
Condensed Draft Printing Character Composition with Descenders	5 by 8 dot matrix
Double Wide Text Printing Character Composition with Descenders	18 by 11 dot matrix
Double Wide Draft Printing Character Composition with Descenders	18 by 8 dot matrix

Figure B-1 (Part 1 of 3). Printer Specifications

Character Set	Two character sets are available. The standard Personal Computer graphics character set number 2 and the IBM 3270 Display character set number 1
Maximum Normal Characters per Line	80 characters per line
Maximum Double Wide Characters per Line	40 characters per line
Maximum Condensed Characters per Line	132 characters per line
Maximum Double Wide Condensed Characters per Line	66 characters per line
Dual Color Image Printing Data	Vertical 8 dot information; 100 H x 96 V or 100 H x 72 V
Dual Color Image Printing Resolution	800 horizontal dots per line maximum
Multicolor Image Printing Data	Horizontal 8 dot information; 100 H x 96 V or 100 H x 72 V
Multicolor Image Printing Resolution	800 horizontal dots per line maximum
Printing Pitch Vertical	4.23 mm (1/6") and 3.22 mm (Approx. 1/8")
Printing Pitch Horizontal Normal	2.54 mm (1/10")
Printing Pitch Horizontal Condensed	1.54 mm (Approx. 6/100")
Print Buffer Character Printing	1 line (40 to 132 characters)
Print Buffer Image Printing	800 byte (Dual color)
Interface	8-bit Personal Computer parallel interface
Roll Paper	Width 216 mm (8-1/2") Maximum diameter 70 mm (2-3/4") Thickness 0.093 mm $\pm$ 0.005 mm
Single Sheet Paper	Width 216 mm (8-1/2") Length 279 mm (11") Thickness 0.093 mm $\pm$ 0.005 mm
Continuous Form Pin Feed (including perforations)	Width 241 mm (9-1/2") Length 279 mm (11") Thickness 0.093 mm $\pm$ 0.05 mm
Transparencies	Letter size single sheet
Type Ink Cartridge	Dual cartridge ink supply--tricolor ink cartridge and black ink cartridge
Ink Amount per Cartridge	Three to three and a half million characters for color; about three million for black

**Figure B-1 (Part 2 of 3). Printer Specifications**

Operating Temperatures	15.6° C to 32.2° C (60° F to 90° F)
Shipment Temperatures	-40° C to +60° C (40° F to 140° F)
Humidity	8% to 80% non-condensing
Power Source	100 V ±10%                      50/60 Hz    25 Watts 120 V ±10%                      60 Hz     .3 Amps 220/230/240 V ±10%            50 Hz    25 Watts
One Meter Sound Pressure Level	Less than 50 dB
Noise Power Emission Level	Approx. 5.8 bels
Acoustical Data	No impulsive noise or prominent tone
Size	400 mm (W) x 295 mm (L) x 114 mm (H) (15-3/4" x 11-5/8" x 4-1/2")
Weight	5.6 kg (12.3 lbs.)

**Figure B-1 (Part 3 of 3). Printer Specifications**



# Appendix C. Supplies

The IBM Color Jetprinter incorporates ink jet technology into an advanced printing and graphics system. You can be sure of optimum system compatibility and performance with the IBM supplies specifically designed for this system. IBM ink cartridges, paper and transparency sheets were developed, along with the Color Jetprinter, to provide consistent, high quality hard copies.

IBM ink has been formulated to prevent clogging of the nozzle while providing quick saturation and uniform coverage. These attributes help provide sharp-edged characters and are important contributors to the overall print quality of the system. Because the ink is smudge resistant, documents retain their just-printed appearance.

IBM Color Jetprinter paper is specially coated and finished to provide saturation and absorption characteristics that are compatible with total system performance. The paper is tested to ensure uniform thickness, optimum tear strength, surface smoothness and moisture content. Choose from three convenient types:

- Continuous form pin feed microperforated paper for continuous output that can be separated at the perforation into sheets or fan folded. Carrier strips keep paper aligned in your IBM Color Jetprinter.
- Cut sheet paper for formal reports and documents.

- Roll microperforated paper for continuous data that can be separated at the perforation into 8-1/2" x 11" sheets.
- IBM transparency sheets with fast ink drying time. These sheets are ideal for overhead projection. You can use your IBM Color Jetprinter to directly produce transparencies.

## IBM Color Jetprinter Supplies

Reorder No.	Item
6293886	Black ink cartridge, one per package
6293888	Color ink cartridge, one per package
6293884	Roll Microperforated Paper, 8-1/2" x 125', four rolls per carton
1669310	Continuous Form Pin Feed (microperforated) Paper, 8-1/2" x 11", 250 sheets per package, 9-1/2" overall width
1669311	A-4 Paper, 8.27" x 11" (microperforated), 250 sheets per package, 9-1/2" overall width (This paper is not available in the U.S.)
6293935	Cut Sheet Paper, 8-1/2" x 11", 250 sheets per package
6293933	Transparency Sheets, 8-1/2" x 11", 50 sheets per box

**Figure C-1. Supplies**

# To Order IBM Supplies

IBM supplies are available from several sources:

- Authorized IBM Dealers
- IBM Product Centers
- IBM Supplies Marketing Representatives

When ordering, please specify quantities desired and IBM reorder numbers.



# Appendix D. Initialized State of the Printer

ITEM	CONDITION
Auto Line Feed	Off
Auto Underscore Modes	Off
Character Pitch	10 characters per inch (cpi)
Character Set	Character Set 2
Condensed Print	Off
Double Strike Mode	Off
Double Width Print	Off
Double Wide Print Continuous Mode	Off
Font Quality	Draft
Horizontal Tab Stops	Every eight columns, starting in column nine
Interface	Selected, not busy
Line Spacing	Six lines per inch
Paper Length	11 inches per page
Presentation Surface Color	Neutral
Print Resolution	100 H x 72 V
Swap Foreground and Background Color	Off (normal print)
Set Background Color	Neutral (no print)
Set Foreground Color	Black
Set Top of Form	Current vertical position
Skip Perforation	Off
Vertical Tab Stops	Vertical tabulation is equal to line feed

**Note:** For power on reset sequence, or if a SIC control code is received, the conditions above are set and a **Line Feed** is executed.

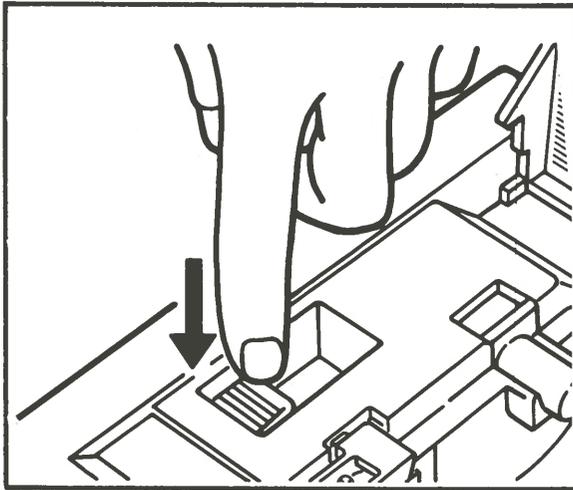


# Appendix E. Transporting and Storing the Printer

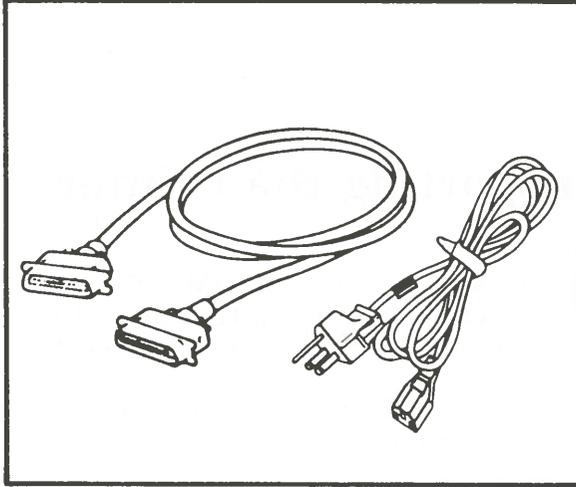
## Transporting the Printer

Be sure to pack the IBM Color Jetprinter as described below before transporting to protect the precision ink-jet printing system.

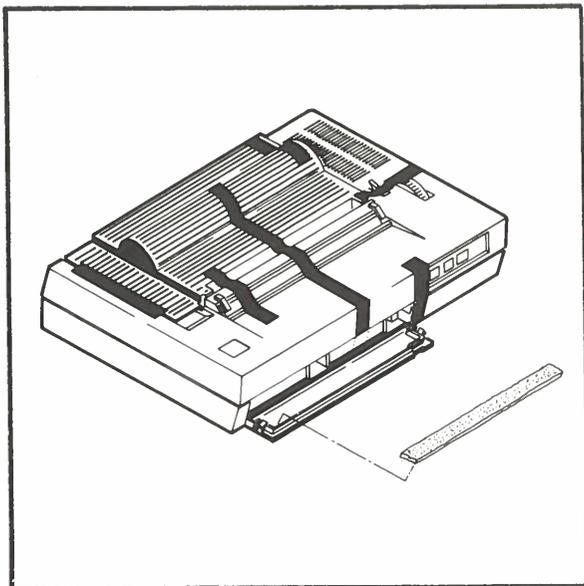
1. Turn the power switch **On** and lock the carriage.



2. Turn the power **Off**. Remove all paper from the printer. Remove the power cord and the Parallel I/O printer cable. If packing the printer for service, retain the power cord and printer cable.

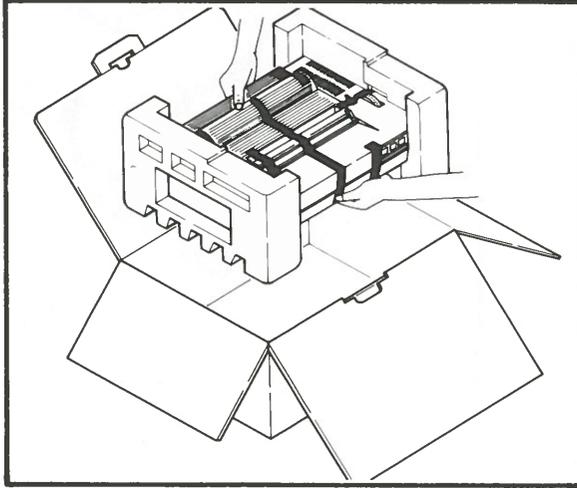


5. Remove the tape fastened to the printer for shipping. Be sure you remove the protective foam inside the ink cartridge case cover.



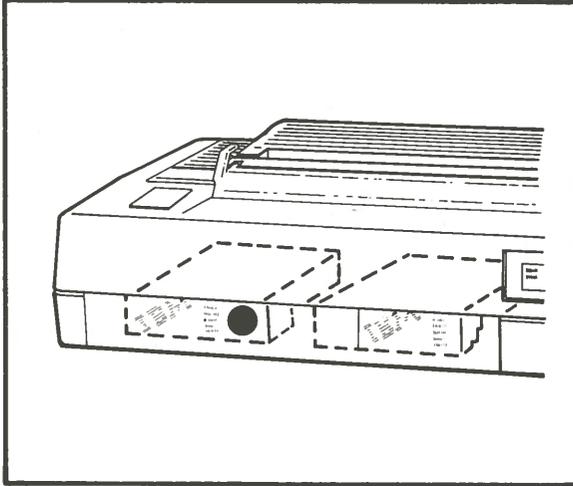
4. Place the printer in its original packing box using the foam pieces shipped with your printer or other shock absorbing packing material.

**Note:** Do not remove the ink cartridges when moving the printer.



# Storing the Printer

1. Do not remove the ink cartridges when storing the printer.



2. Be sure to maintain the printer within the proper ranges of temperature and humidity during storage. Proper operating temperatures range from 15.6°C (60°F) to 32.2°C (90°F). Humidity should range between 8% and 80% (non-condensing).
3. Clean the printer with a soft, dry cloth before storage. Cleaning the printer body with water or volatile liquids like thinner or benzene will damage the cover.

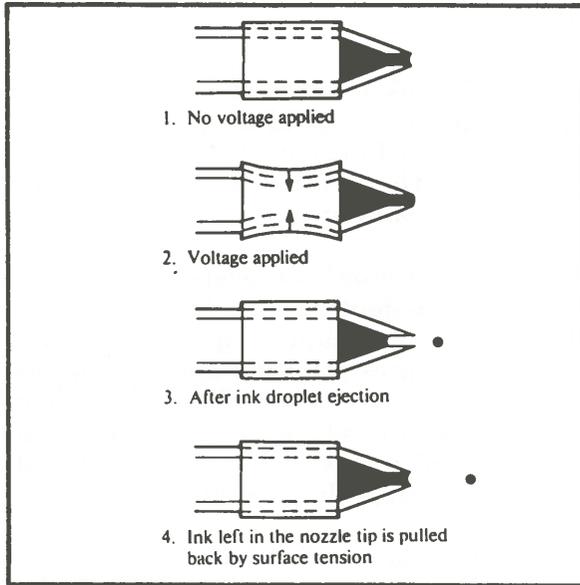


# Appendix F. What is an Ink-jet Printer?

An ink-jet printer is a printer that uses ink jet nozzles to produce the data characters you see printed on your printer. The nozzles are positioned linearly in the horizontal direction on the carriage.

Each nozzle consists of a glass tube with a piezoelectric transducer wound around the tube. When voltage is applied to the transducer, it squeezes the tube and an ink droplet is ejected from the orifice of the glass tube by the resulting pressure wave. The nozzle of each orifice is only 0.065 mm wide, so be careful of dust and paper particles that could enter and clog the nozzle.

One pulse of voltage causes one droplet of ink to be ejected and absorbed onto the paper to print one dot. The picture on the following page illustrates the ink jet process. Ink-jet printers that print by jetting the necessary times according to the pulses received are called “drop on demand” printers.



# Appendix G. Diskette Programs

The IBM diskette you received with your Color Jetprinter contains programs to help you with printing on your new printer. These programs are:

- Screen Copy programs, which are programs that help you print on your printer what you see on your display.
- A Color Chart program, which prints sample colors printed by your Color Jetprinter for graphics and text print modes.

## Screen Copy Program

The Screen Copy program prints what you see on your display on your Color Jetprinter. The IBM supplied diskette contains three programs that can be used to print what you see on your display. You will only use one of these programs, depending on what kind of a workstation you have and what kind of a color graphics adapter card is in your workstation. The kinds of workstations possible are:

- The IBM PCjr
- Some other IBM Personal Computer based workstation.

The kinds of adapter cards possible are:

- A color graphics adapter card
- A monochrome adapter card
- An enhanced graphics adapter card

You may have a PCjr that has its own display or an IBM Personal Computer color display (or some other color display compatible with the IBM color display). Depending on your situation, the following will direct you to the correct program for you to use when you want to use the Screen Copy program. If you don't know what kind of workstation you have, or don't know what kind of adapter card you have, contact your place of purchase.

- You have a PCjr that has its own display or an IBM Personal Computer color display.

If this is your situation, you will want to use the program PRT3852B.COM, adding it to your DOS diskette.

- You have a color graphics adapter card or a monochrome adapter card, and your workstation is *not* an IBM PCjr.

If this is your situation, you will want to use the program PRT3852A.COM, adding it to your DOS diskette.

- You have an enhanced graphics adapter card, and your workstation is *not* an IBM PCjr.

If this is your situation, you will want to use the program PRT3852C.COM, adding it to your DOS diskette.

The Color Chart program illustrates the colors your printer can print.

Each of these programs is specially designed and will only work with the equipment indicated. If you do not know what hardware you have, consult your place of purchase.

## How to Install the Screen Copy Program

To install the Screen Copy program, insert your DOS diskette into your A disk drive. (The A drive is usually the one on the left or the top.) Close the door to the disk drive. (Turn the diskette slot handle to the vertical (closed) position for the IBM Portable Personal Computer or the PCjr.)

Turn your workstation **On**.

When the DOS prompt appears, remove your DOS diskette, and insert the IBM supplied diskette. Close the door or set the diskette slot handle as above.

Copy the appropriate program (PRT3852A.COM, PRT3852B.COM, or PRT3852C.COM) to your system diskette. Your DOS book will explain how to do this. For example, after the DOS prompt enter

```
copy a:PRT3852A.COM b:
```

to use the Screen Copy program if you have a color graphics adapter or a monochrome adapter.

Remember you will have to enter the complete name to copy the program. The message

1 file copied

will appear on your display if you have successfully copied the file.

## How to Use the Screen Copy Program

When your DOS system is operational, you can either type in the name (PRT3852A in the preceding example because you had either a color graphics adapter card or a monochrome adapter card) you selected based on your own situation each time you bring up DOS; or, you can include the program name in your Autoexec to automatically invoke it each time you bring up DOS. Your DOS book will explain how to invoke a program using an AUTOEXEC.BAT.

When what you see on the display is what you want to print on your printer, do the following:

- Hold the shift key down
- Press the PRTSC or PRINT key

This will print the display screen on your printer.

**Note:** Printing a graphics display will take longer than printing a text display.

# Color Chart Program

The Color Chart program prints sample colors printed by your Color Jetprinter for graphics and text print modes.

When your DOS system is operational, insert the IBM supplied diskette and enter

COLCHART

and press the enter key.

**Note:** Your Color Jetprinter should be on-line and ready when you enter the above command.



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