

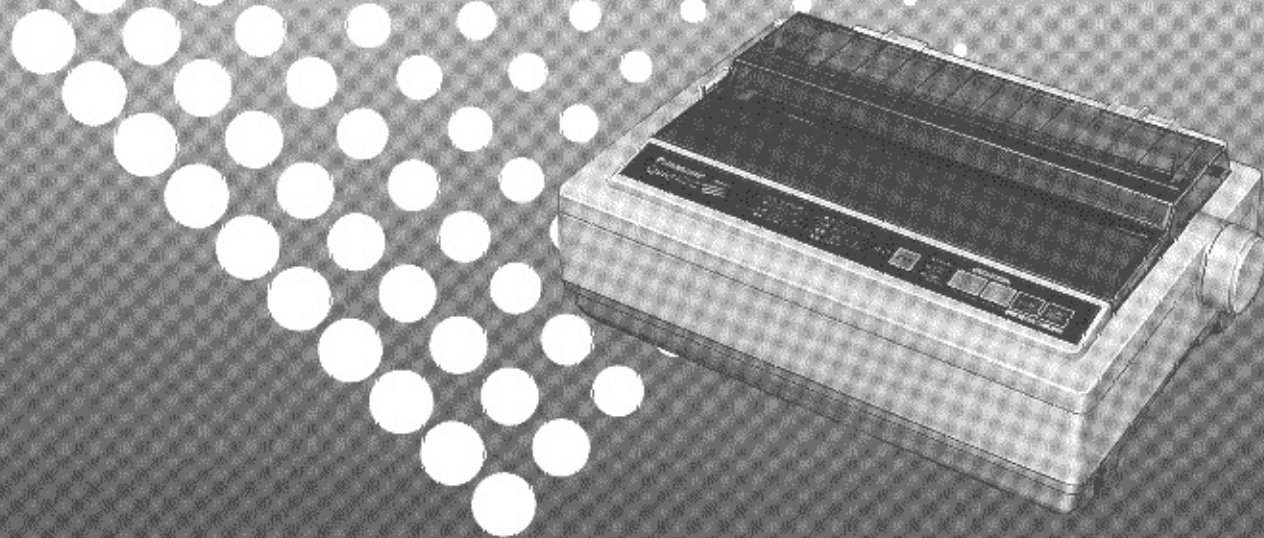
**Panasonic**

# Operating Instructions

Impact Dot Matrix Printer

**KX-P2130/KX-P2135**

*Quiet  Printing*



The photo is from KX-P2130

Before operating this unit, please read these instructions completely.

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Proprinter is a trademark of International Business Machines Corporation.  
Microsoft and Windows are trademarks of Microsoft Corporation.  
Epson is a trademark of Seiko Epson Corporation.

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## **FOR USER IN THE UNITED STATES ONLY**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

**FCC Warning:** To assure continued FCC emission limit compliance, the user must use only the recommended shield interfacing cable when connecting to a host computer. Also, any unauthorized changes or modifications to this equipment would void the users authority to operate this device.

## **WARNING**

- The power source voltage of this unit is listed on the nameplate. Plug the printer only into an outlet with the proper voltage.
- To prevent fire or shock hazard, do not expose this product to rain or any type of moisture.
- When you operate this equipment, the outlet should be near the equipment and should be easily accessible.

The serial number of the unit may be found on the label on the rear of the unit. For your convenience, note this number below, and retain this book, along with your proof of purchase, to serve as a permanent record of your purchase in the event of a theft, or for future reference.

MODEL NO. \_\_\_\_\_ NAME OF DEALER \_\_\_\_\_

SERIAL NO. \_\_\_\_\_ DATE OF PURCHASE \_\_\_\_\_

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Appendix

# Introduction

Congratulations on purchasing a Panasonic printer.

This printer is a versatile, high quality 24-pin dot matrix printer which is designed to meet the needs of your office. This printer has been factory set to operate with most of the popular software packages. Your application software should control the printer functions. In most cases, there will be no need to change the initial printer settings.

**Note:**

- The illustrations in this manual refer to the KX-P2135. If you are using the KX-P2130, you may see slight differences. However, the operation of both printers is the same.

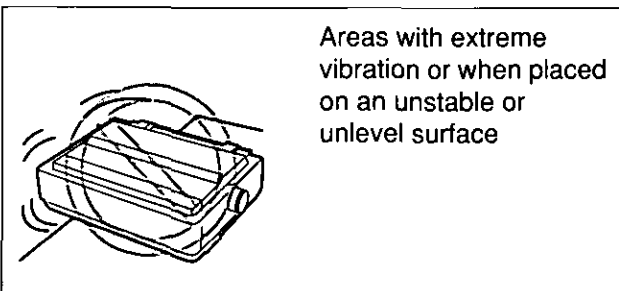
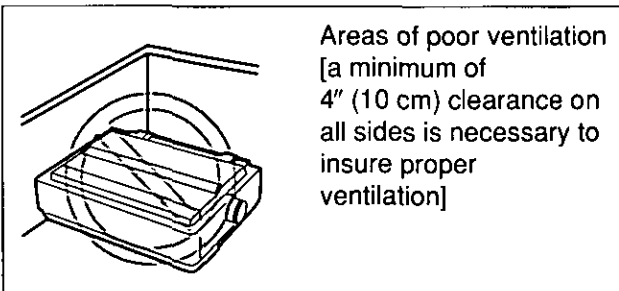
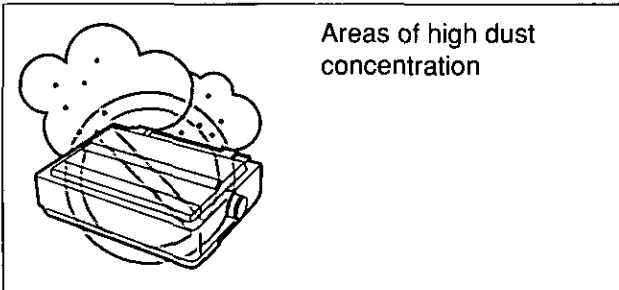
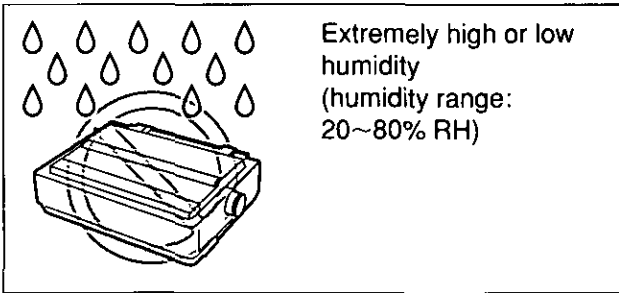
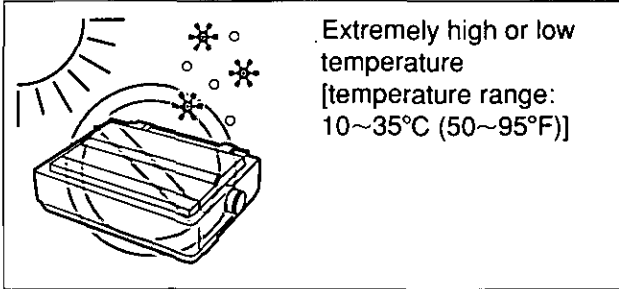
## Features

- Printer Emulation:** Epson LQ-860 and IBM Proprinter X24E
- Setup Disk:** Setup program, Command Reference program and a Printer Driver for Windows Ver. 3.1
- Cut Sheet Feeding:** Automatic feeding of single sheets  
[up to 20 sheets with the built-in sheet feeder, up to 50 sheets with the optional Auto Cut Sheet Feeder (KX-PT12)]
- Super Quiet Mode:** Reduces printing noise
- Color Printing:** Prints 7 colors with the color ribbon cassette  
[The Color Kit option (KX-PCK12) is required for color printing if you are using KX-P2130.]
- Fonts:** 3 Draft (Pica, Elite, Micron)  
7 LQ (Roman, Sans Serif, Courier, Prestige, Script, OCR-B, Bold PS)
- Printing Speed:** Draft—200 characters per second (12 cpi)  
LQ—67 characters per second (12 cpi)
- Paper Handling:** Friction and Tractor Push
- Tear Off:** Advances fanfold paper's perforation to tear position
- Paper Parking:** Allows single sheets/envelopes to be used without removing/wasting fanfold paper
- Buffer Chip Option:** A 32K chip option (KX-P44) is available to expand your unit's memory capacity from 14K to 46K.

# Cautions

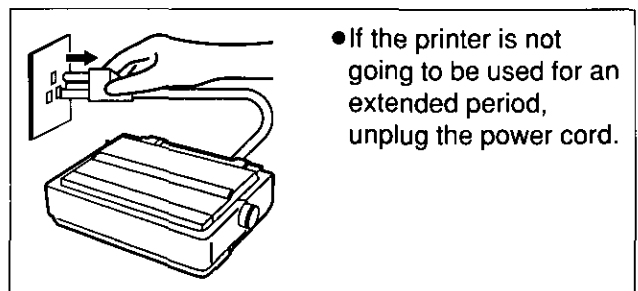
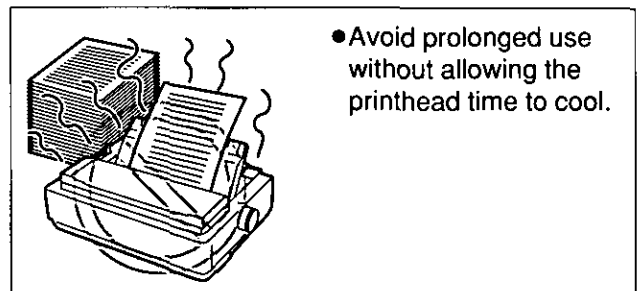
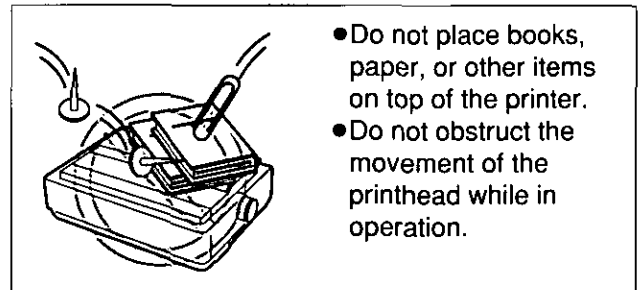
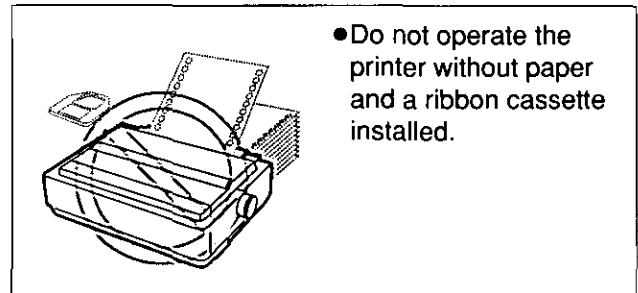
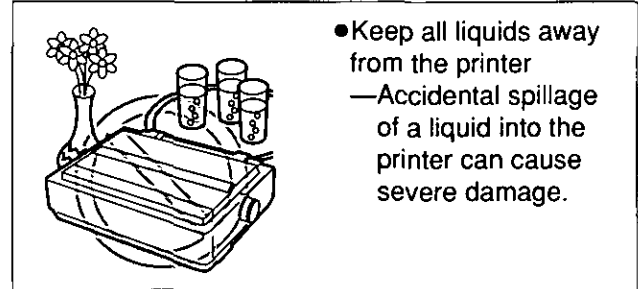
## Operating Environment

- Do not use the printer in the following conditions.



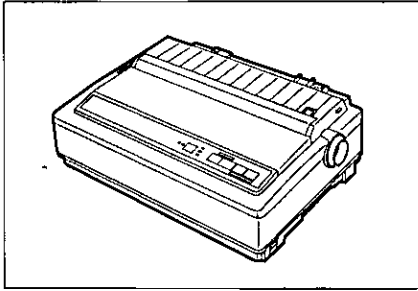
## Precautions

The following precautions are recommended to extend the life of the printer.

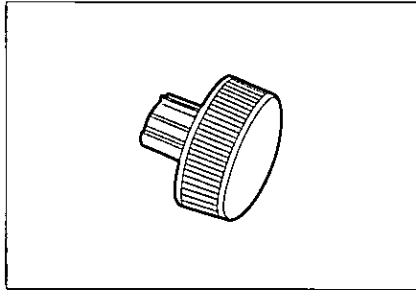


# Unpacking

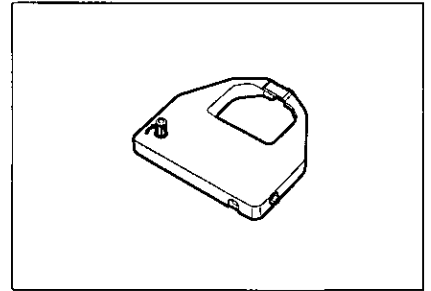
Having unpacked the printer, make sure none of the contents shown below are missing or damaged. Report damages or shortages to the store from which the unit was purchased.



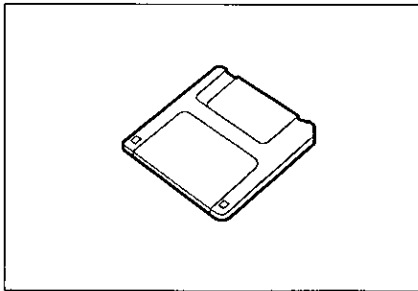
**Printer**



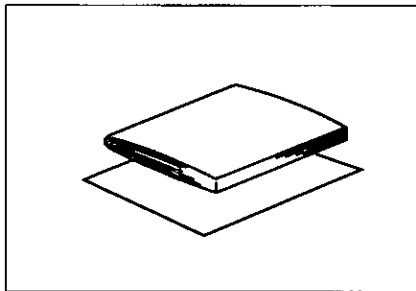
**Platen knob**



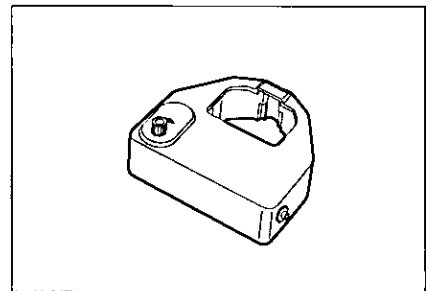
**Black ribbon cassette  
(KX-P160)**



**Setup disk  
(Includes Windows  
Ver. 3.1 driver)**



**Operating manual  
Quick start guide**



**Color ribbon cassette  
(KX-P165)  
[KX-P2135 only]**

**Note:**

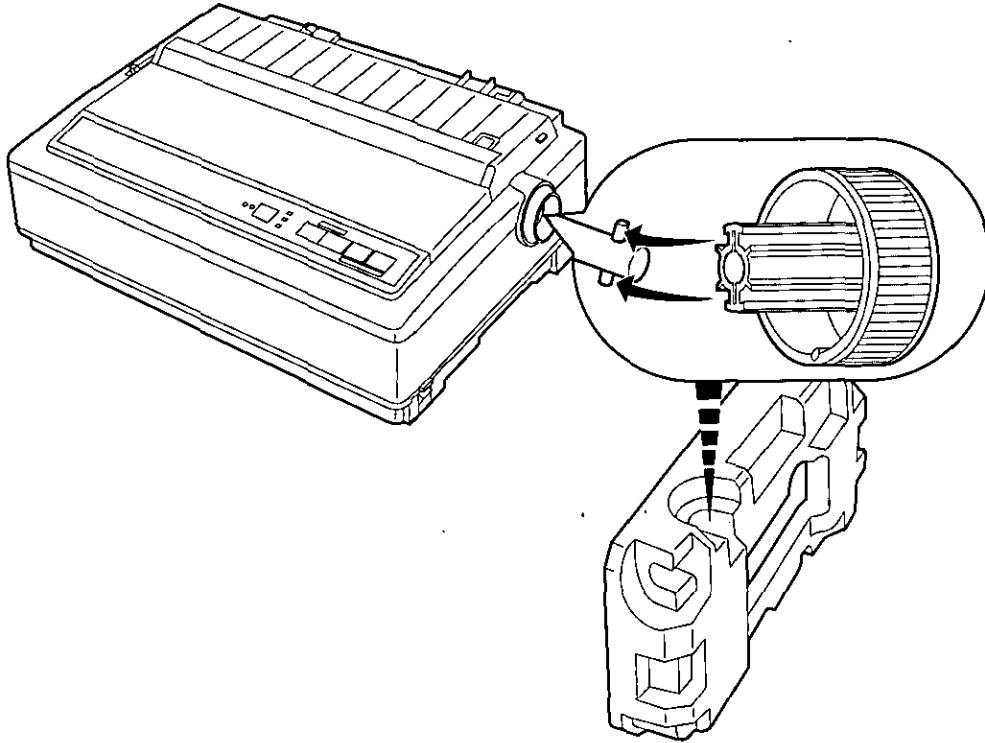
- It is recommended that you save the original carton and packing materials for proper shipping and transporting of the printer.

- The Setup Disk contains a Printer Driver for Windows Ver. 3.1 (☞ P. 29), a Setup program (☞ P. 31) and a Command Reference program (☞ P. 51).
- To use this Setup Disk, you need to have an IBM-PC or a compatible computer.

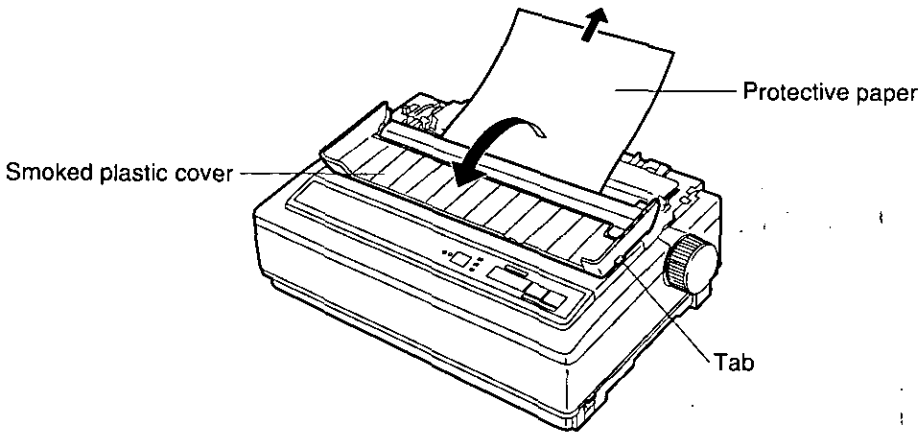


## Assembling the parts

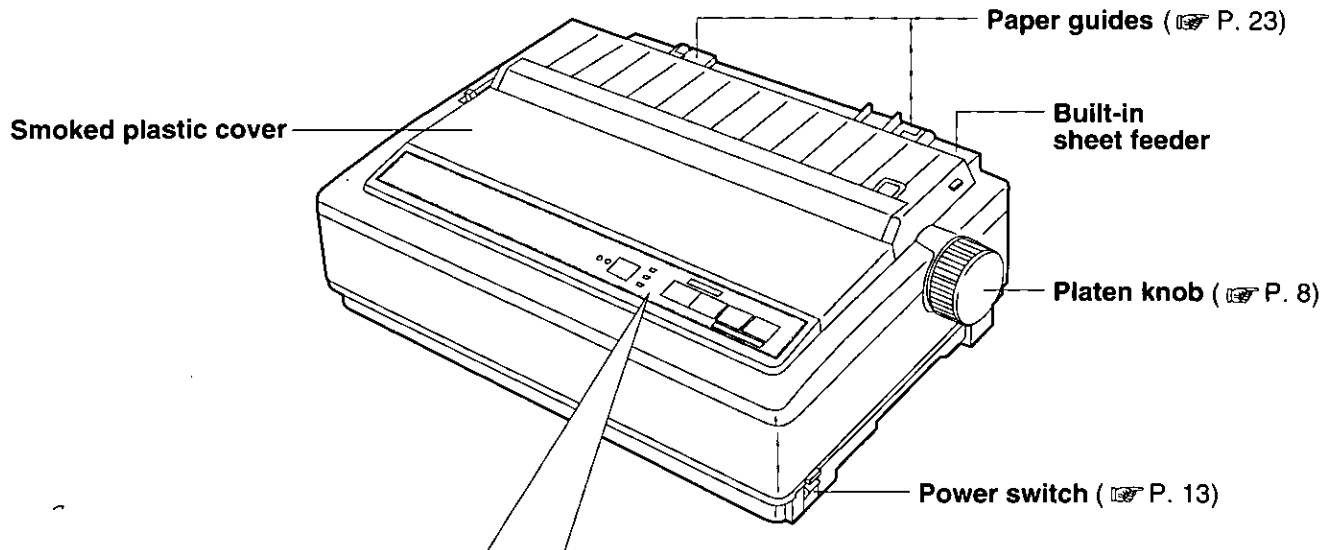
- 1 Insert the platen knob into the hole on the right side of the printer and rotate it slowly until it slips onto the shaft. Push the platen knob onto the platen shaft to secure.



- 2 Fold the smoked plastic cover, and remove the protective paper which includes unpacking instructions.

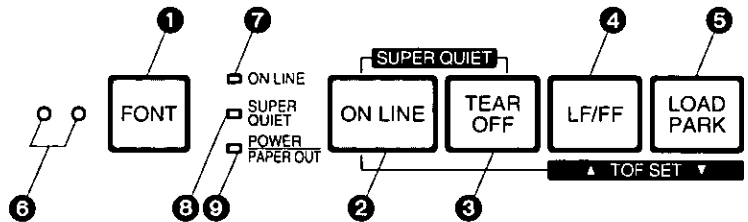


# Parts of the Printer



## Control Panel

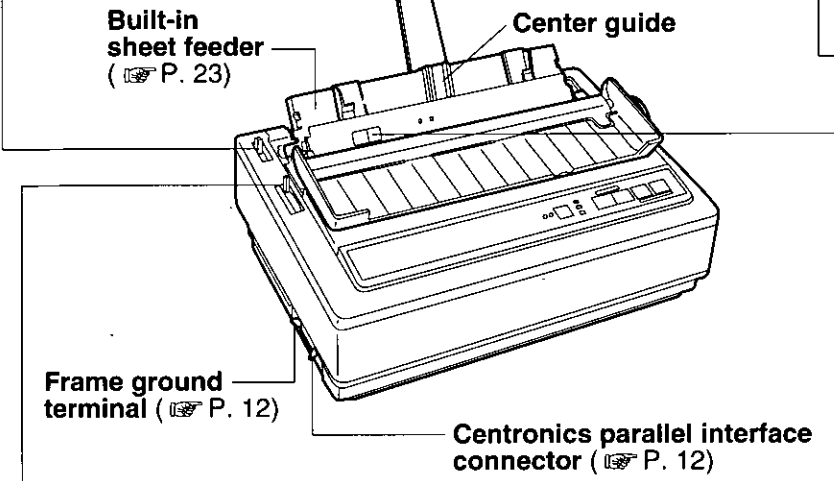
○ ○ PROGRAM	● ○ <i>Script</i>
● ○ Courier	○ ● Roman
○ ● Prestige	● ● Sans Serif
● ● Bold PS	● ● OCR-B



- 1 FONT switch**  
Pressing this switch selects the font style. (P. 41)
- 2 ON LINE switch**  
This switch opens and closes the communication line with the computer.
- 3 TEAR OFF switch**  
Pressing this switch advances or reverses the paper for tearing off. (P. 45)
- 4 LF/FF switch**  
Pressing this switch advances the paper one line at a time. Holding this switch advances the paper to the first print line of the next page. (P. 43)
- 5 LOAD/PARK switch**  
Pressing this switch loads or parks the paper. (P. 46)
- 6 FONT indicators**  
These indicators identify which Font has been selected. (P. 41)
- 7 ON LINE indicator**  
This indicator is lit when the printer is in the ON LINE mode, and is not lit when in the OFF LINE mode.
- 8 SUPER QUIET indicator**  
This indicator is lit when the printer is in the SUPER QUIET mode. (While pressing the ON LINE switch, press the **TEAR OFF** switch.) (P. 42)
- 9 POWER/PAPER OUT indicator**  
This indicator is lit when the power is on and paper is installed. It blinks when paper is not installed. (P. 47)

**Paper feed selector**  
 "□" (Friction) Single sheets and envelopes  
 "▢" (Tractor) Fanfold paper

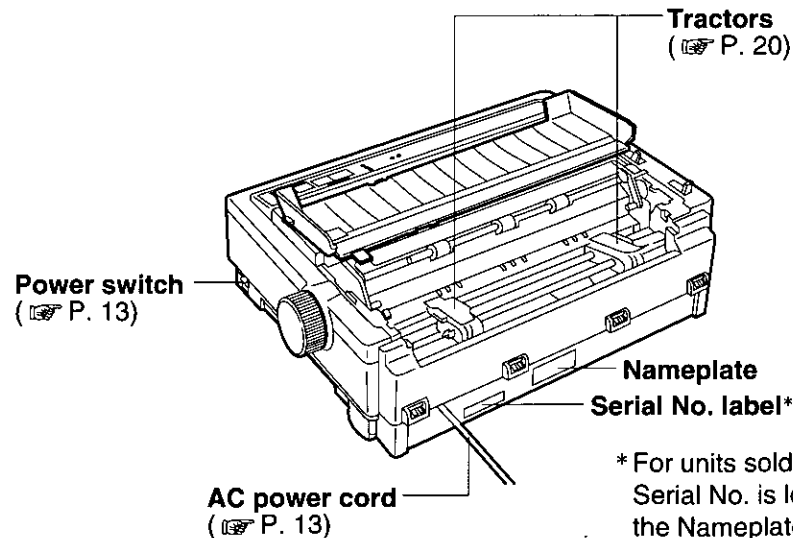
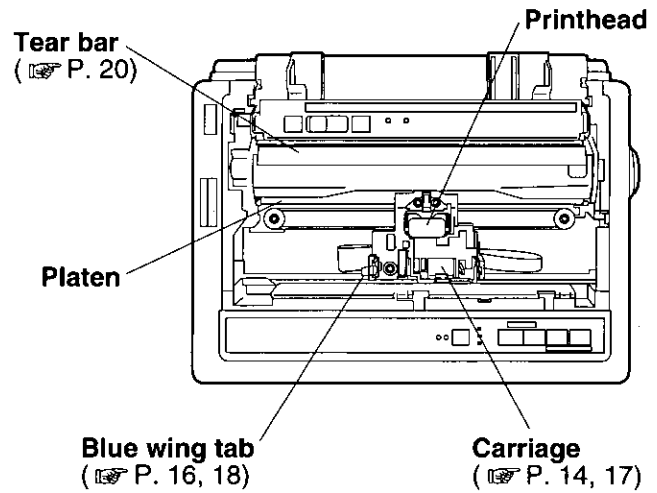
**Mode selector**  
 "▢" **MULTI SHEET**  
 Up to 20 single sheets  
 "□" **SINGLE SHEET**  
 A sheet of paper or an envelope



**Head gap lever**  
 Adjusts the gap between the platen and the printhead. The lever moves in increments of 0.0028 inch (0.07 cm).

Position	Use for
1 or 2	Thinner sheets
3, 4, 5 or 6	Thick sheets, multi-part forms or envelopes

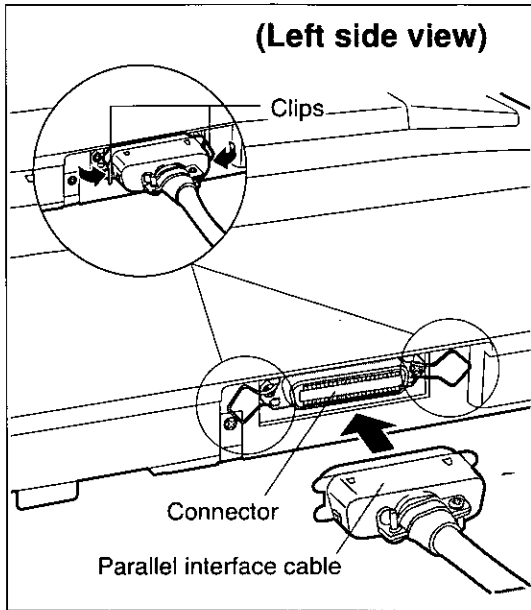
Head gap



\* For units sold in Canada, Serial No. is located on the Nameplate.

# Connecting to a Computer

1a

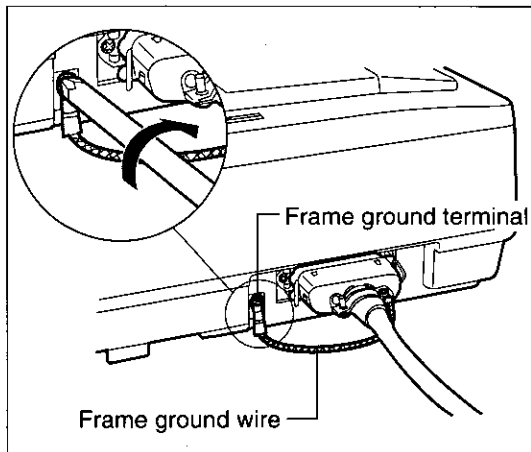


Attach the parallel interface cable from your computer and secure the printer clips.

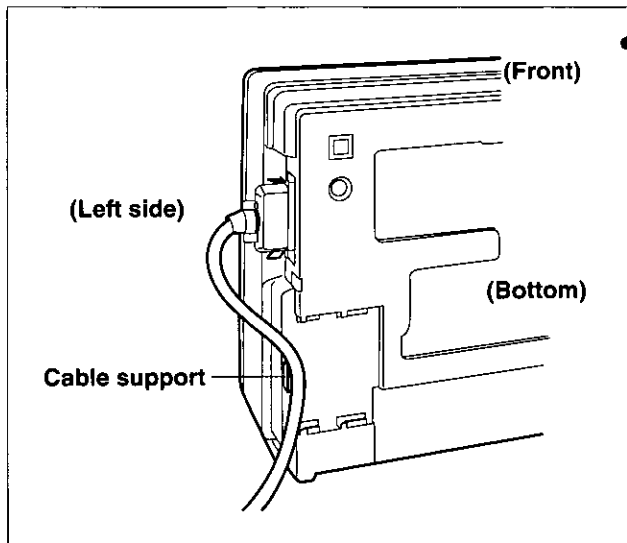
**Note:**

- If you do not have a parallel interface cable, you will need to purchase one from your local computer store or dealer.

1b

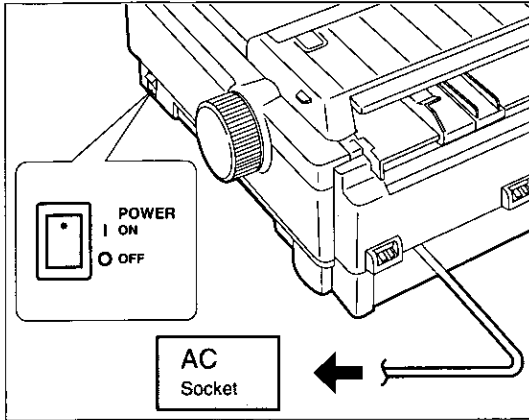


If the cable has a frame ground wire, connect it to the frame ground terminal.



- To prevent the cable from possibly disconnecting from the printer, route the cable through the cable support which is located on the bottom of the unit.

2



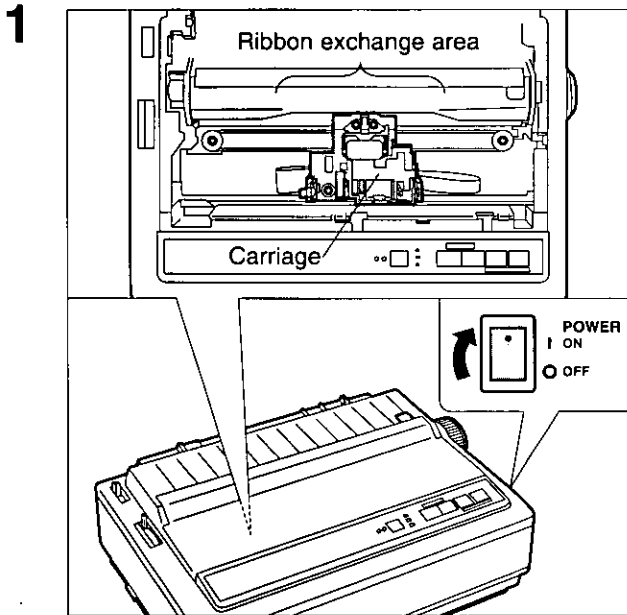
**Plug printer into a grounded 3 prong AC socket.**

When the power is supplied to the printer, the power indicator on the control panel will light.

# Ribbon Cassette

The KX-P2130 includes a Black Ribbon Cassette (KX-P160) and the KX-P2135 includes both a Black Ribbon Cassette and a Color Ribbon Cassette (KX-P165). Although the illustrations in this manual pertain to the KX-P2135, both types of ribbon cassettes (Black or Color) are installed using the same procedures.

## Installing the Ribbon Cassette

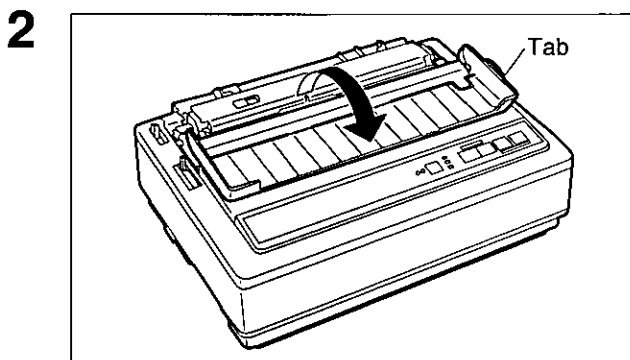


### Turn the power on.

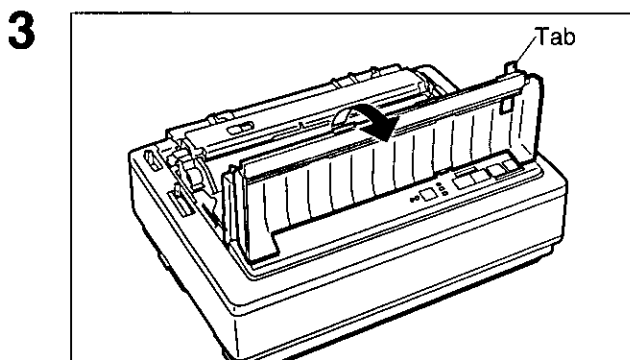
The carriage will automatically move to the ribbon exchange area.

**Note:**

- The ribbon cassette can only be installed in this area.



**Fold the smoked plastic cover forward using the tab on the right side.**

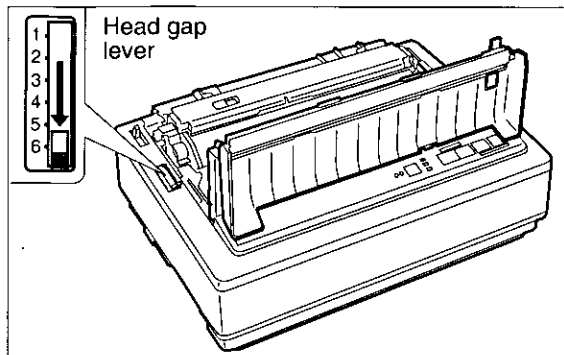


**Raise the smoked plastic cover using the tab.**

**Caution:**

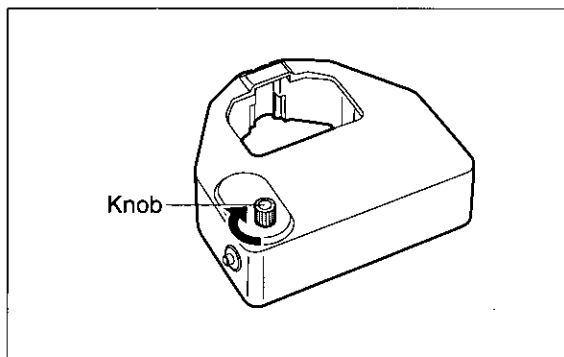
- The printhead may be hot, use caution when cover is open.

4



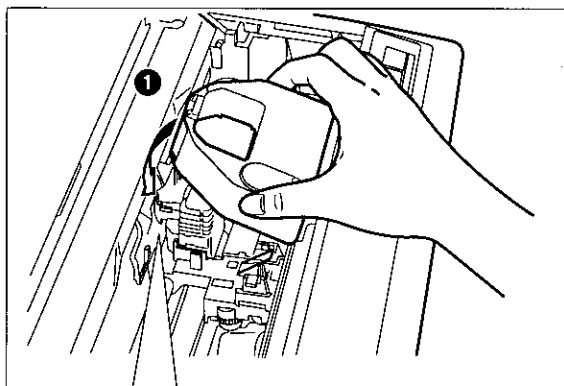
Move the head gap lever to position "6".

5

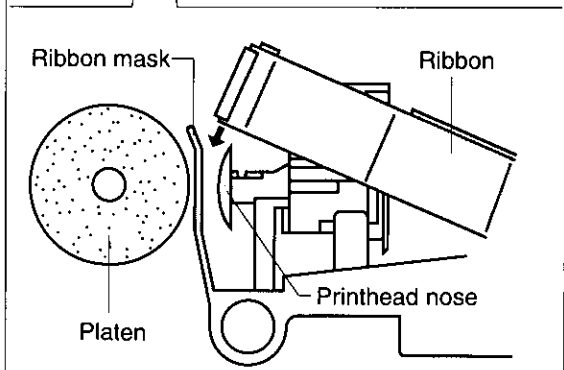


Rotate the knob on the ribbon cassette to remove any slack.

6



Slip the ribbon between the ribbon mask and the printhead nose.

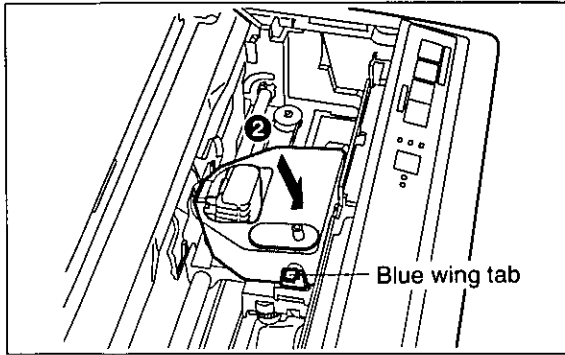


**Note:**

- Do not remove the ribbon mask.

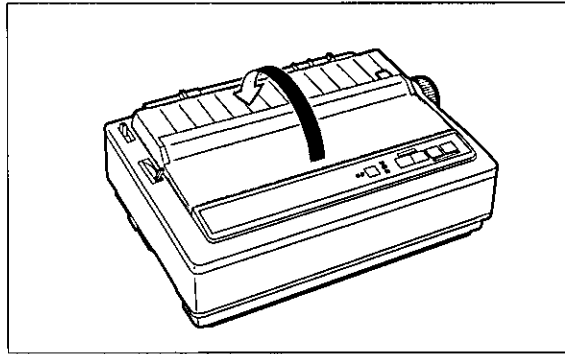
# Ribbon Cassette

7



Press down on rear of the cassette until the blue wing tab snaps into place.

8



Replace the smoked plastic cover.

9

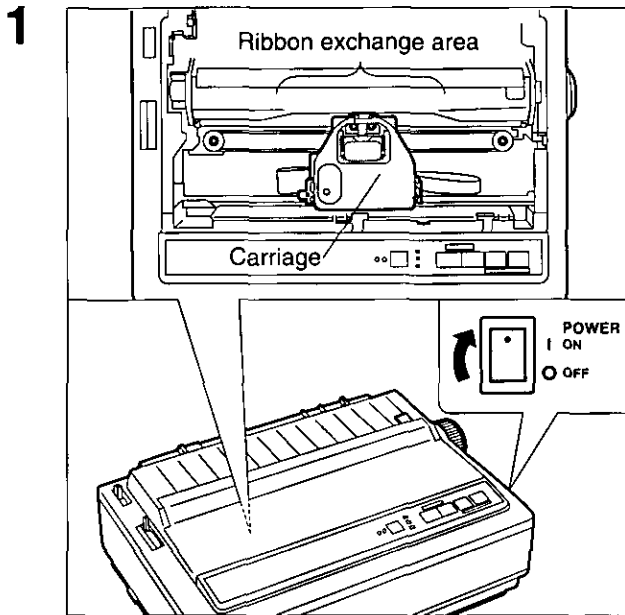
Head gap lever

Position	Use for
1 or 2	Thinner sheets
3, 4, 5 or 6	Thick sheets, multi-part forms or envelopes

Adjust the head gap lever for the thickness of paper you are using.



## Removing the Ribbon Cassette

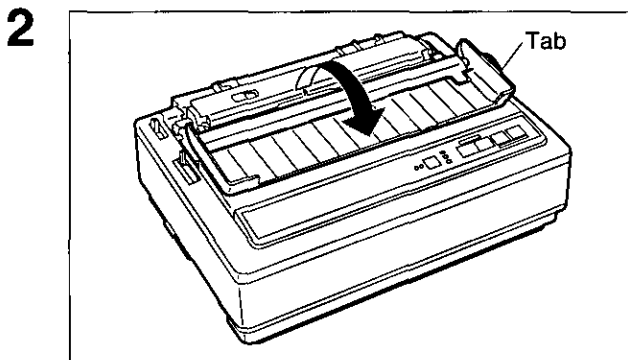


### Turn the power on.

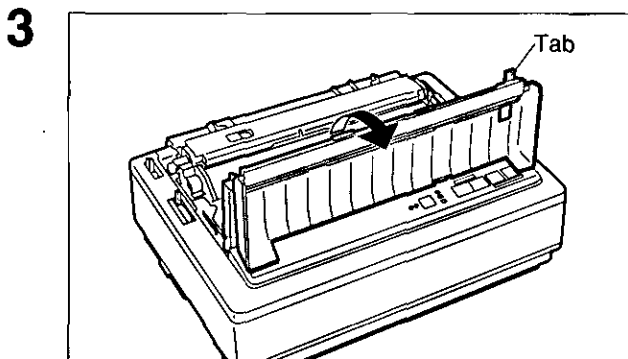
The carriage will automatically move to the ribbon exchange area.

**Note:**

- The ribbon cassette can only be removed in this area.



**Fold the smoked plastic cover forward by using the tab on the right side.**

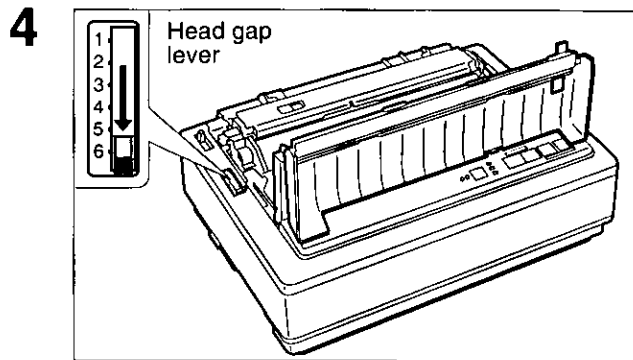


**Raise the smoked plastic cover by using the tab.**

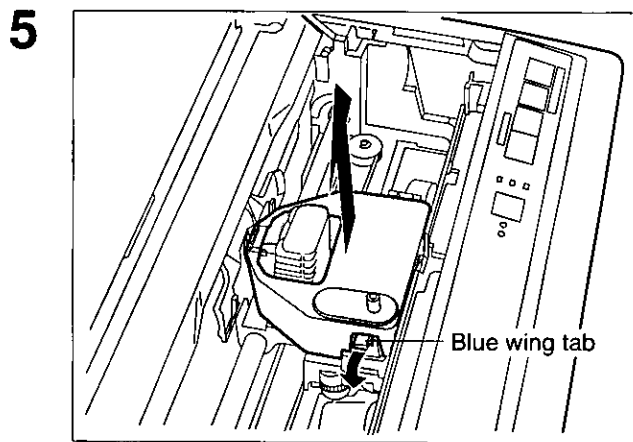
**Caution:**

- The printhead may be hot, use caution when cover is open.

# Ribbon Cassette



Move the head gap lever to position "6".



Spread the blue wing tab and lift up the cassette.

# Installing paper

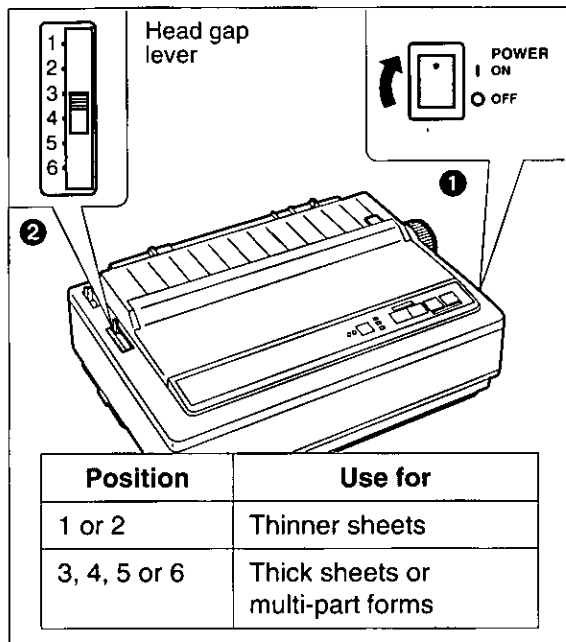
Your Panasonic printer offers two paper handling choices:

—Fanfold paper (Tractor Push mode)

—Single sheet(s) and envelope (Friction mode: A single sheet or up to 20 sheets with built-in sheet feeder.)

## Fanfold Paper (Tractor Push Mode)

1

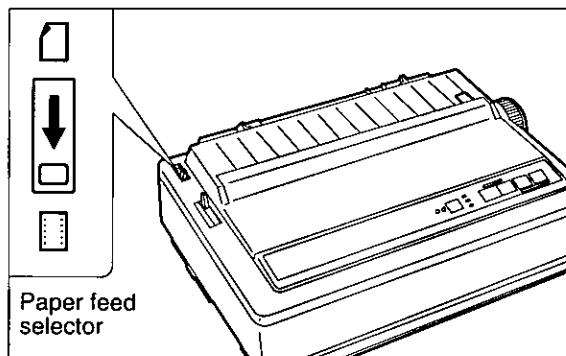


① Turn the power on.

The PAPER OUT indicator will flash indicating that paper is not installed in the printer.

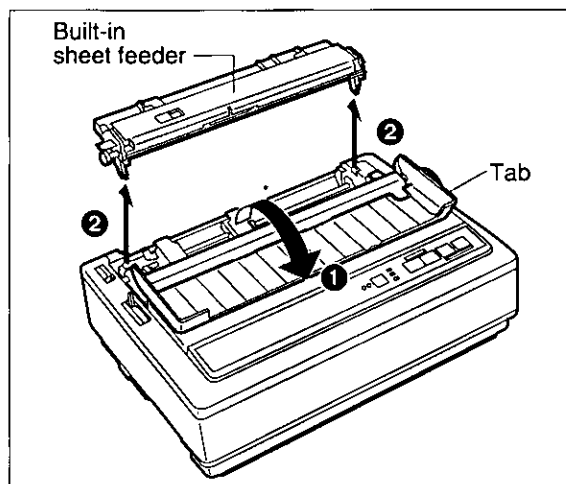
② Adjust the head gap lever for the thickness of paper you are using.

2



Set the paper feed selector to the “” position (Tractor Push mode).

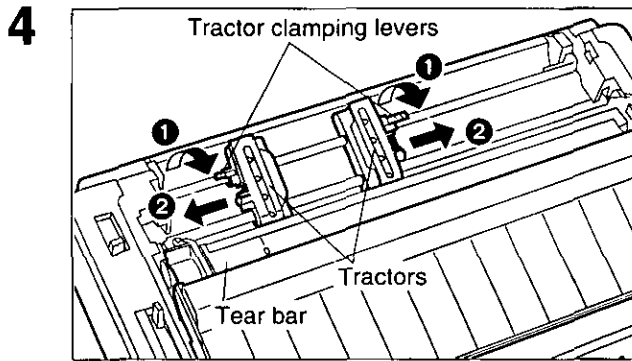
3



① Fold the smoked plastic cover forward by using the tab on the right side.

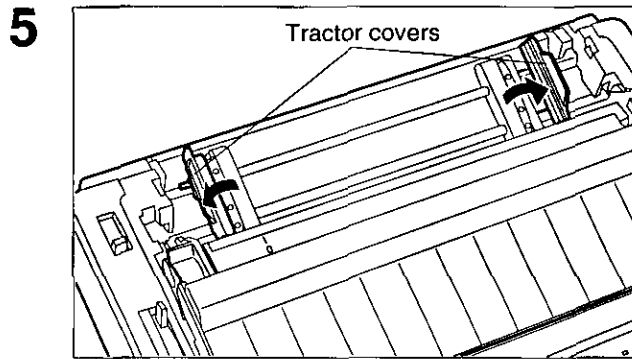
② Remove the built-in sheet feeder.

# Installing paper

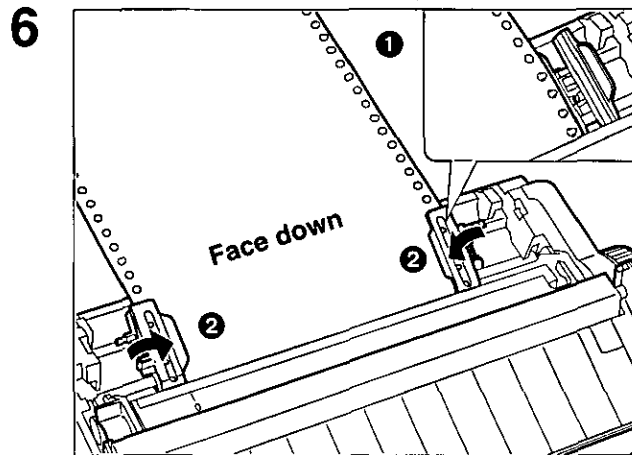


- 1 Unlock the tractors by pulling the tractor clamping levers forward.
- 2 Slide the tractors to accommodate the approximate width of the paper being used.

In most applications, you will find that the 0 indicator on the tear bar is a useful tool for predetermining your left most print position.

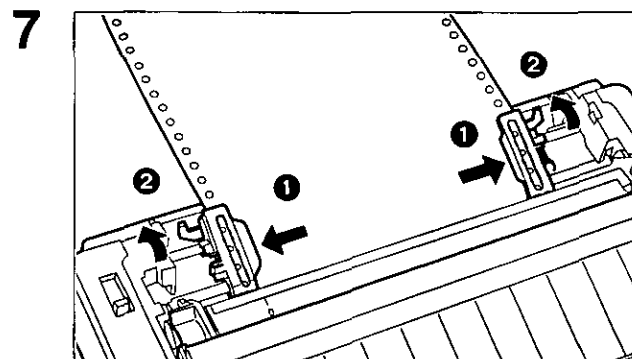


Open the tractor covers.



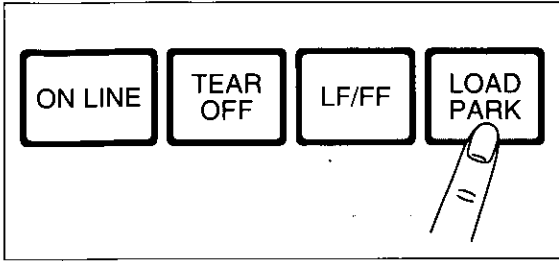
Load the fanfold paper from the rear of the printer with the side on which you wish to print facing down.

- 1 Align the paper sprocket holes with the tractor pins, making sure the paper is straight.
- 2 Close the tractor covers.



- 1 Adjust the tractors to remove any slack in the paper.
- 2 Lock the tractors by pushing the tractor clamping levers back.

8



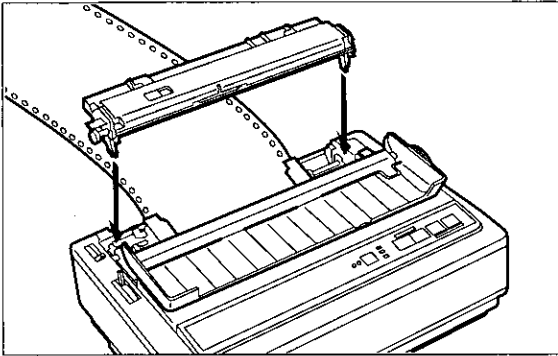
Press **LOAD/PARK**.

This will load the paper to the first print line.

**Note:**

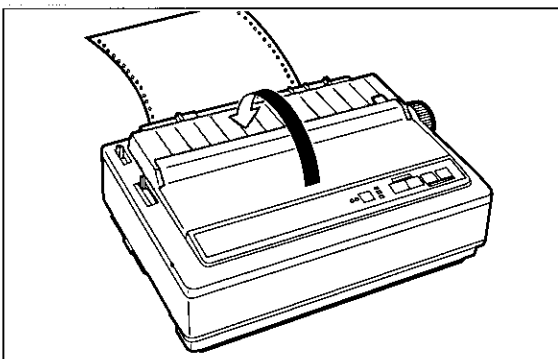
- Do not use **LF/FF** to load paper.

9



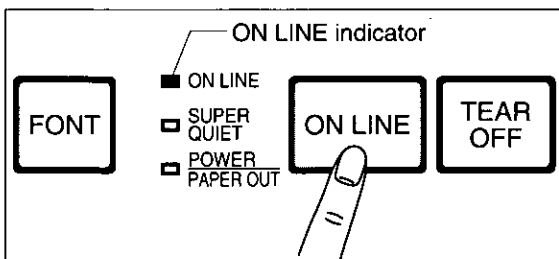
Replace the built-in sheet feeder.

10



Replace the smoked plastic cover.

11



If the **ON LINE** indicator is not lit, press **ON LINE** to get ready to print.

**Note:**

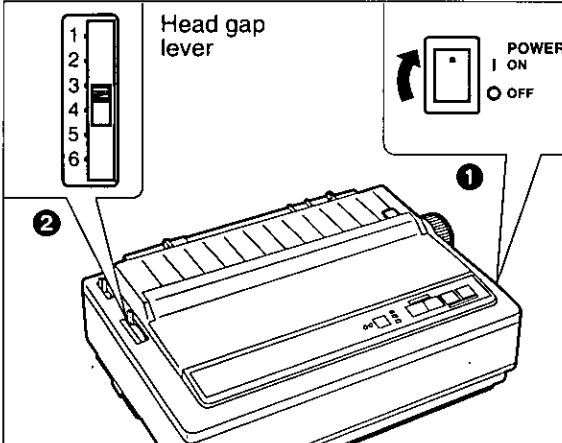
- If setting up the printer for the first time, proceed to Printer Driver Selection (P.28)

# Installing paper

## Single Sheets and Envelopes (Friction Mode)

In the Friction mode, there are 2 paper feed methods. You can print a sheet of paper or an envelope by selecting "□" (SINGLE SHEET) with the mode selector. When using 20 lbs paper, you can load up to 20 single sheets of paper into the printer at once by selecting "□" (MULTI SHEET) with the mode selector. The optional Auto Cut Sheet Feeder (KX-PT12) allows you to load up to 50 single sheets of paper.

**1**



Head gap lever

POWER  
ON  
OFF

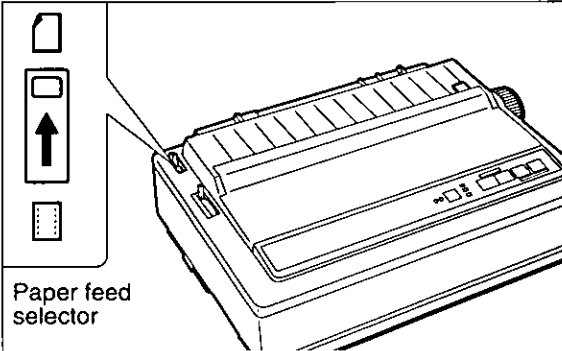
Position	Use for
1 or 2	Thinner sheets
3, 4, 5 or 6	Thick sheets or envelopes

**1 Turn the power on.**

The PAPER OUT indicator will flash indicating that no paper is installed in the printer.

**2 Adjust the head gap lever for the thickness of paper you are using.**

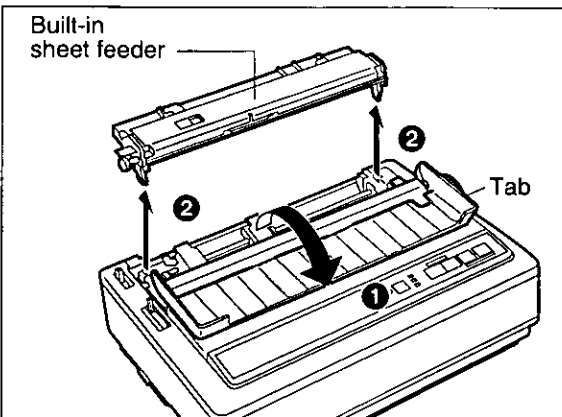
**2**



Paper feed selector

Set the paper feed selector to the "□" position (Friction mode).

**3**



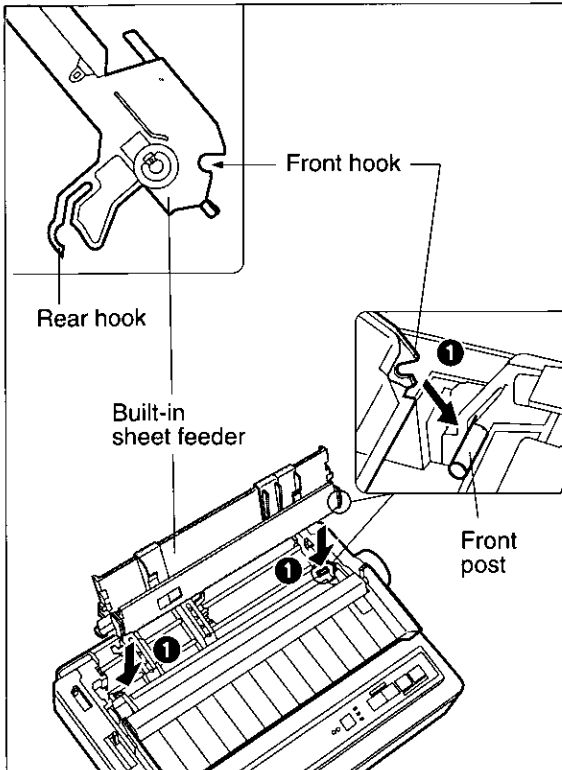
Built-in sheet feeder

Tab

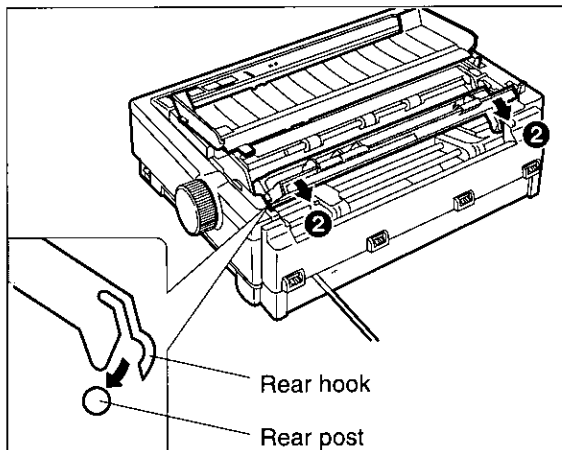
**1** Fold the smoked plastic cover forward by using the tab on the right side.

**2** Remove the built-in sheet feeder.

4

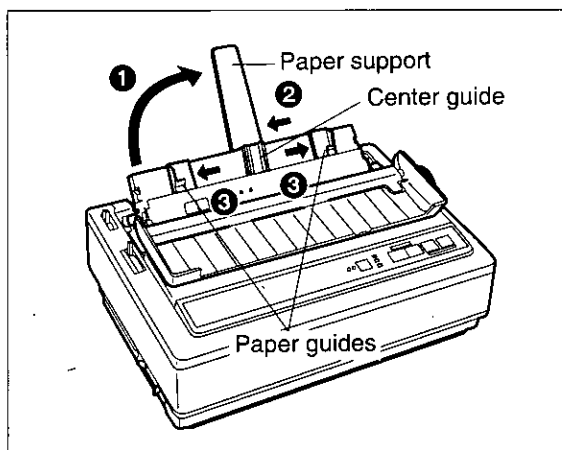


- 1 Hook the front hooks of the built-in sheet feeder onto the front posts of the printer.



- 2 After the front hooks are in place, gently push back on the built-in sheet feeder so the rear hooks snap onto the rear posts.

5



- 1 Rotate the paper support to upright position.
- 2 Slide the center guide to the center of the paper.

**Note:**


- To replace the paper support, the center guide must be slid to the right until it stops.

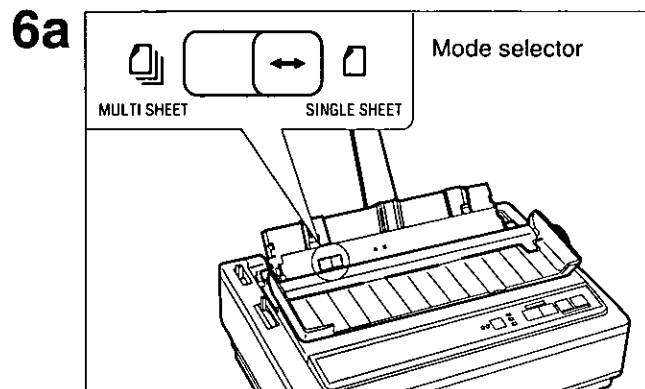
- 3 Separate the paper guides to the approximate width of your paper.


# Installing paper

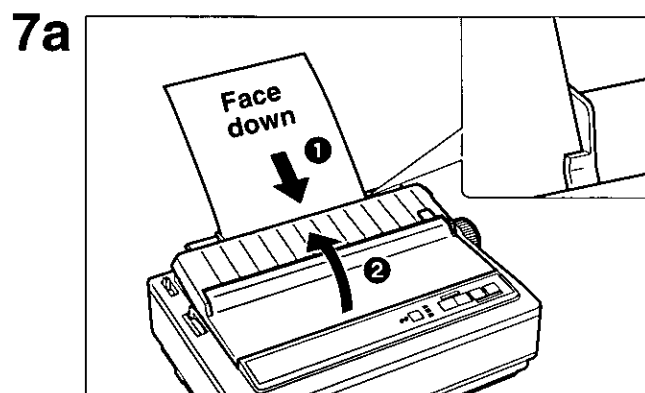
## Single Sheet Mode

When printing a single sheet of paper or envelope “”

[ To print multiple sheets (20 sheet maximum), refer to page 25.]



Set the mode selector on the built-in sheet feeder to the **SINGLE SHEET** () position.



1 Insert a single sheet of paper or an envelope through the paper guides until you feel resistance from the platen.


**Note:**

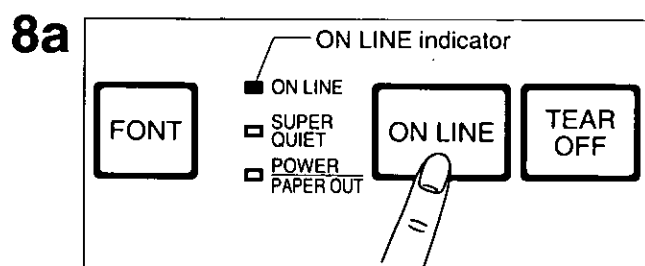
- The paper should be placed with the top of the paper down and the side to be printed on should be face down (as you would do when inserting paper into a typewriter).

The paper will automatically be loaded to the first print line.

2 Replace the smoked plastic cover.

**Note:**

- To disable Auto Loading, turn **AUTO LOADING** to **OFF** in the Install Menu on the Setup Disk. ( P. 33)
- If Auto Loading is disabled, press **LOAD/PARK** to automatically load paper to the first print line.



If the **ON LINE** indicator is not lit, press **ON LINE** to get ready to print.

**Note:**

- If setting up the printer for the first time, proceed to Printer Driver Selection. ( P. 28)



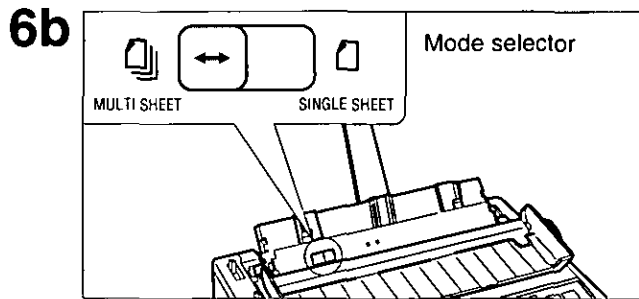
## Multi-Sheet Mode


When printing multiple single sheets (20 sheet maximum) “

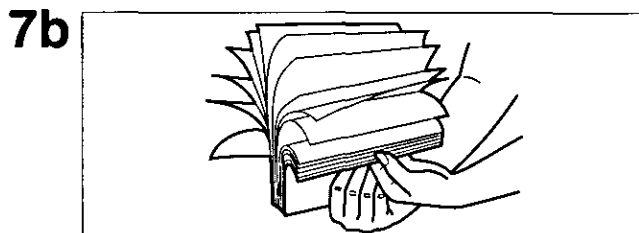
() To print a single sheet of paper or an envelope, please refer to page 24.)

### Note:

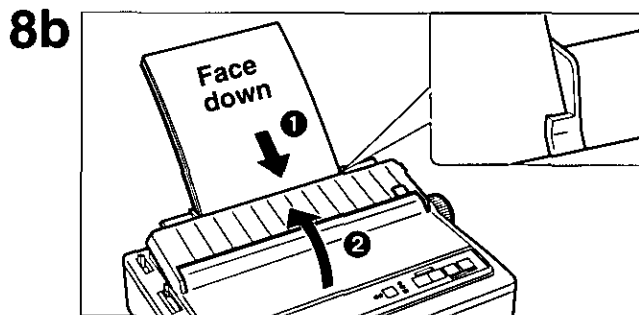
- The paper should be placed with the top of the paper down and the side to be printed on should be face down (as you would do when inserting paper into a typewriter).
- When using 20 lbs paper, up to 20 sheets may be put into the built-in sheet feeder.
- Do not load different types or thickness of paper in the built-in sheet feeder at one time since this may cause a paper jam.
- We cannot guarantee paper handling for all types of letterhead due to varying paper weights and construction. If you experience a problem, single sheet mode is recommended.



Set the mode selector on the built-in sheet feeder to the **MULTI SHEET** () position.

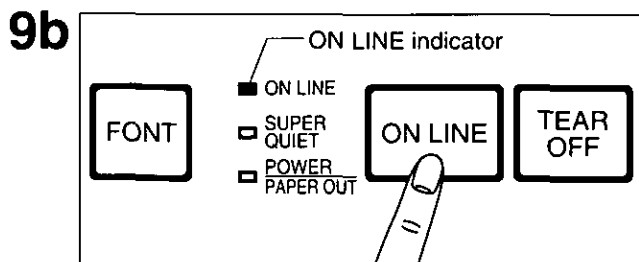


Fan the stack of paper.



① Insert the stack of paper into the paper guides.

② Replace the smoked plastic cover.



If the **ON LINE** indicator is not lit, press **ON LINE** to get ready to print.

The sheet feeder is now ready for operation. Upon receiving data from your computer, the printer will automatically load the paper and start printing.

### Note:

- If setting up the printer for the first time, proceed to Printer Driver Selection. ( P. 28)

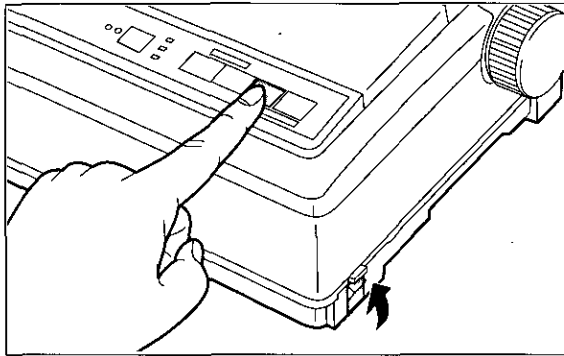
# Self Test

The printer has a self test feature which allows you to test the printer. When activated, this feature will print 5 lines of each resident font. When complete, it will return to the draft font and continue approximately 20 minutes. If the color ribbon cassette is installed in your printer, the test will be printed in color. [The KX-P2130 requires the Color Kit option (KX-PCK12) for color printing.]

## 1 Load fanfold paper or single sheet paper, then turn the power off.

(☞ P. 19~25)

## 2



While pressing **LF/FF**, turn the power on, then release.

Version

Draft

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a
```

Courier

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a
```

Prestige

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`a
```

## 3 If the printer is functioning properly, you may turn the power off during the self test, or you may run the entire test.

(Approximately 20 minutes.)

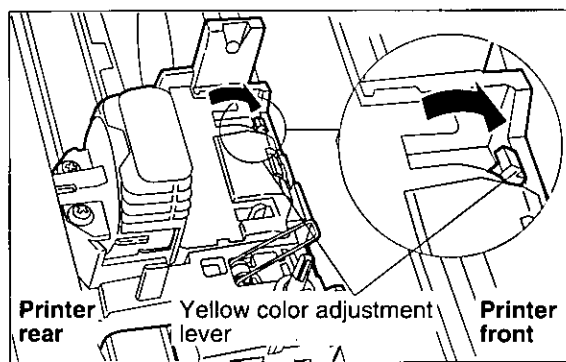
## Color Adjustment

If your printer starts printing characters in 2 different colors at the same time (bleeding), turn the power switch off and perform the following.

The KX-P2130 must have the Color Kit option (KX-PCK12) installed for color printing.

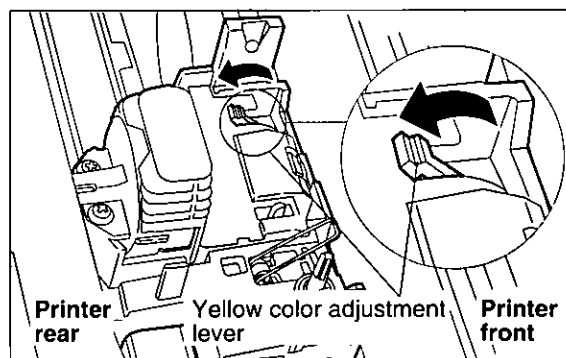
- 1 Remove the color ribbon cassette from the carriage. (☞ P. 17)

- 2 If the undesired color appears at the upper portion of characters.



Move the yellow color adjustment lever toward the front of the printer.

- If the undesired color appears at the lower portion of characters.



Move the yellow color adjustment lever toward the rear of the printer.

- 3 Reinstall the color ribbon cassette. (☞ P. 14)

- 4 Perform the self test again. (☞ P. 26)

# Printer Driver Selection

The printer driver allows your application software to properly control your printer's features. The printer driver is contained in your application software.

Selecting a printer driver is the final step before printing and is performed in your application software program. The steps will vary, depending on the software program. Consult your software package for proper procedures. The Panasonic KX-P2130/KX-P2135 will be your first choice. However, if neither of these models are listed in your software, you must select an alternative from the following table.

**Note:** If using Microsoft Windows Version 3.1, you will need to install a Windows printer driver. This driver is located on the Setup Disk supplied with your printer. Proceed to Installing a Printer Driver section on page 29 for the installation procedure.

## Printer Driver Selections (in order of priority)

Printer Selections	Color Printer Selections* <sup>2</sup>
Panasonic KX-P2130/KX-P2135	Panasonic KX-P2130/KX-P2135
Panasonic KX-P2123	Panasonic KX-P2123
Panasonic KX-P2124	Panasonic KX-P2124
Panasonic KX-P2023	Epson LQ-860
Panasonic KX-P1124i	Epson LQ-2500/2550
Epson LQ-860	
Epson LQ series	
IBM Proprinter X24E* <sup>1</sup>	

\*<sup>1</sup> If selecting the IBM Proprinter X24E in your software, printer emulation must also be changed in the Initial Setup items. (☞ P. 31~40, 48~50)

\*<sup>2</sup> If your printer is the KX-P2130, the Color Kit option (KX-PCK12) must be installed.

# Installing a Printer Driver (Windows Ver. 3.1)

The following steps are only necessary if using Microsoft Windows Version 3.1. The Setup Disk packaged with your printer contains a Panasonic KX-P2130/KX-P2135 Printer Driver for Windows Version 3.1. To install this printer driver, you must begin at the Program Manager screen in your Windows program. Follow the steps below for the proper installation procedure.

**Note:**

- Use the DISKCOPY command of the operating system to make a back-up copy. Refer to your DOS manual for further information.

**1** In "Main Group", select "Control Panel".

**2** In "Control Panel", select "Printers".

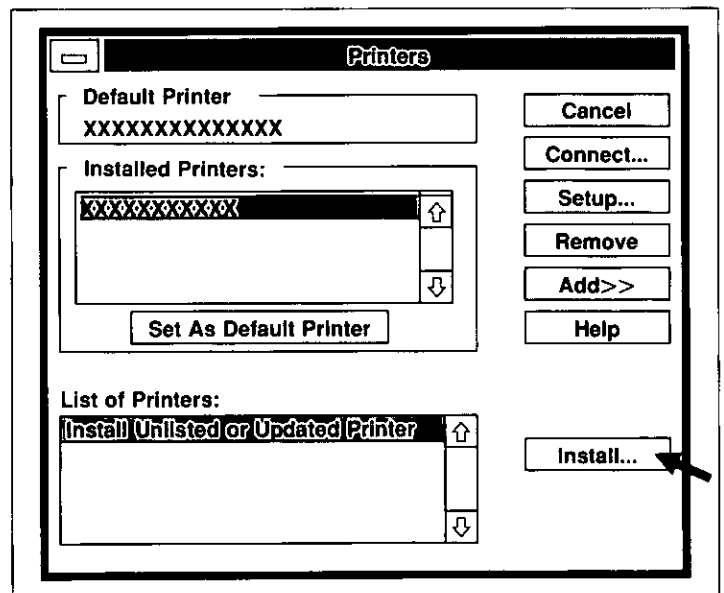
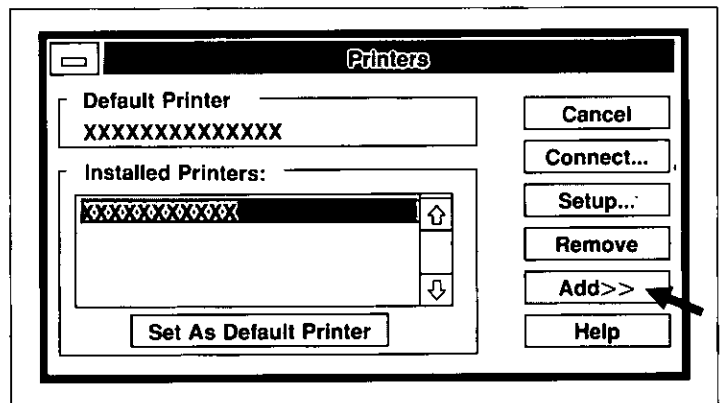
If you have installed a printer driver, the dialog box expands to display a list of printers available in the Windows Ver. 3.1 package, and **Add>>** is unavailable. In "Installed Printers", select the printer you want. Go to step 9.

**3** Click **Add>>**.

The dialog box expands to display the List of Printers.

**4** In "List of Printers", select "Install Unlisted or Updated Printer".

**5** Click **Install...**.



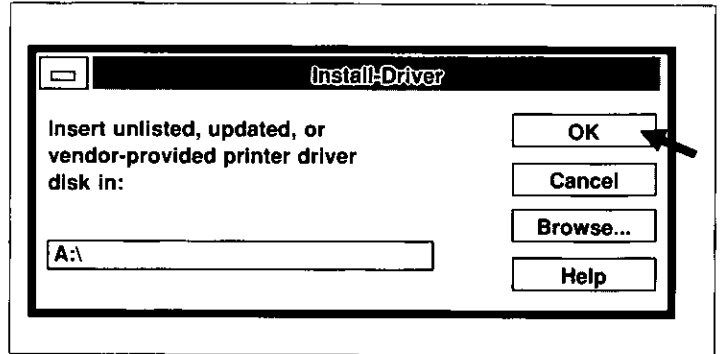
# Installing a Printer Driver (Windows Ver. 3.1)

## 6 Insert the Setup Disk into drive A.

If reading the printer driver disk from drive B, type B:\

## 7 Click **OK**.

The printer driver KX-P2130/KX-P2135 is shown in the dialog box.

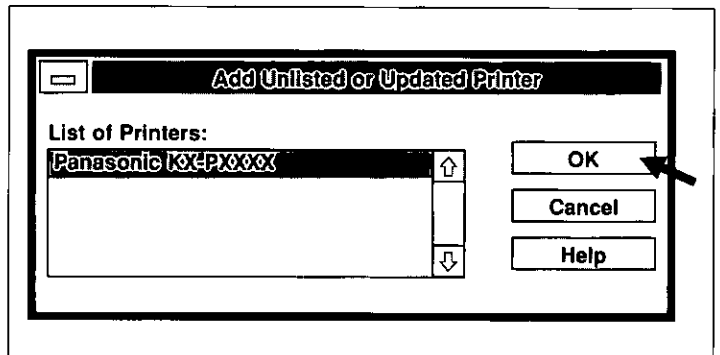


## 8 Click **OK**.

## 9 Click **Set As Default Printer**.

## 10 Click **Close**.

## 11 Exit the "Control Panel".



### Note:

•When installing the KX-P2130/KX-P2135 Windows Printer Driver, color is automatically turned on in Windows. If you turn color off in Windows, your printer will not print in color. To turn color back on, follow the procedure below.

1. In "Main Group", select "Control Panel".
2. In "Control Panel", select "Printers".
3. Click **Setup...**.
4. Click **Options...**.
5. Click **Color**.  
An **X** will appear in the box when color is turned on.
6. Click **OK**.
7. Click **OK**.
8. Click **Close**.
9. Exit "Control Panel".

# Using the Setup Disk

This printer allows you to select 38 initial setup items shown in the table below. You can select all these items by using the Setup Disk.

Menu	Item	Setting			Description
PRINT STYLE	FONT	DRAFT* ROMAN SANS SERIF COURIER	PRESTIGE SCRIPT OCR-B BOLD PS		Selects Draft or LQ (Letter Quality) font.
	PITCH	10 CPI* 12 CPI 15 CPI 17 CPI 20 CPI	PROPORTIONAL 5 CPI 6 CPI 7.5 CPI 8.5 CPI		Selects the desired characters per inch (cpi) or Proportional Spacing.
EMULATION	EMULATION	ESPON* IBM			Sets the emulation mode to Epson LQ-860 or IBM Proprinter X24E.
PAGE FORMAT	LINE/INCH	1 LPI 1.5 LPI 2 LPI 2.5 LPI 3 LPI	4 LPI 4.5 LPI 5 LPI 6 LPI* 7.5 LPI	8 LPI 9 LPI 10 LPI 12 LPI	Selects the desired lines per inch (lpi).
	PAGE LENGTH	14 inch 12 inch 11 $\frac{2}{3}$ inch 11 inch*	8.5 inch 8 inch 5.5 inch FREE		When you select "FREE", the number increases or decreases by $\frac{1}{2}$ " (about 0.35 mm) from 0.5" to 15.0" (about 12.70 mm to 381.00 mm).
	TOP MARGIN	0.00"* to 2.50" (0.00 cm to 6.35 cm)			The number increases or decreases by $\frac{1}{2}$ " (about 0.35 mm).
	BOTTOM MARGIN	0.00"* to 5.00" (0.00 cm to 12.70 cm)			The number increases or decreases by $\frac{1}{2}$ " (about 0.35 mm).
	LEFT MARGIN	0* to 78 column (10 CPI)			The value number depends on the CPI selected.
	RIGHT MARGIN	2 to 80* column (10 CPI)			The value number depends on the CPI selected.
	CTR PRINTHEAD (Centering printhead)	10 to 45 (40*) column (10 CPI)			The number increases or decreases by 1.
PRINT MODE	GRAPHIC DIRECTION	BI DIRECTION UNI DIRECTION*			Graphics are printed left-to-right only (UNI DIRECTION) or in both directions (BI DIRECTION).
	TEXT DIRECTION	BI DIRECTION* UNI DIRECTION			Text is printed left-to-right only (UNI DIRECTION) or in both directions (BI DIRECTION).

\*denotes setting when shipped from factory.

# Using the Setup Disk

Menu	Item	Setting	Description
TEXT ENHANCEMENT	BOLD	OFF* ON	Activates bold printing (ON), deactivates bold printing (OFF).
	DOUBLE HIGH	OFF* ON	Activates double high printing (ON), deactivates double high printing (OFF).
	DOUBLE STRIKE	OFF* ON	Activates double strike printing (ON), deactivates double strike printing (OFF).
	DOUBLE WIDE	OFF* ON	Activates double wide printing (ON), deactivates double wide printing (OFF).
	ITALICS	OFF* ON	Activates italic printing (ON), deactivates italic printing (OFF).
	OUTLINE	OFF* ON	Activates outline printing (ON), deactivates outline printing (OFF).
	SHADOW	OFF* ON	Activates shadow printing (ON), deactivates shadow printing (OFF).
	ZERO FONT	NORMAL* POINT SLASH	Selects zero character NORMAL (0), POINT (θ) or SLASH (Ø).
CHARACTER SET	COUNTRY	U.S.A.*      JAPAN FRANCE      NORWAY GERMANY      DENMARK 2 U.K. (England)      SPAIN 2 DENMARK 1      L. AMERICA SWEDEN      (Latin America) ITALY      KOREA SPAIN1      LEGAL	Selects one of 15 language or legal character sets.
	CHARACTER SET	ITALIC* GRAPHIC 1 GRAPHIC 2	Selects the italics or graphics/character sets 1 or 2. ("ITALIC" is available only in the Epson mode.)
	CODE PAGE	U.S.A.*      NORWAY MULTILINGUAL      TURKEY PORTUGAL      BRASCI CANADA FRENCH      ABICOMP	Selects one of 8 code pages.
INSTALL	AGM/IBM (Alternate Graphics Mode)	OFF* ON	Sets Alternate Graphics mode to on or off in the IBM mode. (This setting is effective only in the IBM mode.)
	AUTO CR/IBM	OFF* ON	Activates (ON) or deactivates (OFF) Automatic CR on LF, VT, ESC+"J". (This setting is effective only in the IBM mode.)

\*denotes setting when shipped from factory.



Menu	Item	Setting	Description
INSTALL	AUTO LF	OFF* ON	Activates (ON) or deactivates (OFF) Automatic LF after CR.
	AUTO LOADING	OFF ON*	Setting to ON automatically loads a single sheet or envelope to the first print line. [This setting is inoperative when using the built-in sheet feeder or the optional Auto Cut Sheet Feeder (KX-PT12).]
	PAPER OUT DETECT	OFF ON*	Paper Out Detector is active (ON) or ignored (OFF).
	SUPER QUIET MODE	OFF* ON	Reduces (ON) or doesn't reduce (OFF) the printing noise.
	TEAR OFF	MANUAL* AUTO	When set to MANUAL, the paper's perforation doesn't advance to the tear off position unless you press the <b>TEAR OFF</b> switch. Setting to AUTO advances the paper's perforation to the tear off position automatically.
	CSF MODE	OFF* ON	[This setting is operational when using the optional Auto Cut Sheet Feeder (KX-PT12).]
	DOWNLOAD	OFF* ON	Setting to ON allows you to download special characters and setting to OFF allows you to send more data to your printer's buffer, thereby freeing up your computer. [32K Buffer Chip option (KX-P44) must be installed.]
	COLOR	BLACK* RED (MAGENTA) BLUE (CYAN) VIOLET YELLOW ORANGE GREEN	[This setting is operational when using KX-P2135 or KX-P2130 with the Color Kit option (KX-PCK12) installed.]
	AUTO ON LINE	OFF ON*	Setting to ON enables the printer to automatically enter ON LINE mode after installing paper.
	DATA LENGTH	8 BITS* 7 BITS	Selects Data Length 8 Bits or 7 Bits.
T.O.F. SETTING (Top of Form Setting)	TRACTOR	0.00" to 5.00" (60/180") (0.00 cm to 12.70 cm)	The number increases or decreases by 1/180" (about 0.14 mm).
	FRICITION	0.00" to 5.00" (60/180") (0.00 cm to 12.70 cm)	The number increases or decreases by 1/180" (about 0.14 mm).
	CUT SHEET FEEDER	0.00" to 5.00" (60/180") (0.00 cm to 12.70 cm)	The number increases or decreases by 1/180" (about 0.14 mm). [This setting is operational when using the built-in sheet feeder or the optional Auto Cut Sheet Feeder (KX-PT12).]

\*denotes setting when shipped from factory.

# Using the Setup Disk

This Setup Disk can only be used in an IBM-PC or a compatible computer with a 3.5" floppy disk drive.

Before using the Setup Disk, it is recommended that you make a back-up copy and store the original in a safe place.

This printer has been factory set to operate with most of the popular software packages. In most cases there will be no need to change the initial setup items. Refer to pages 31~33 to verify that the factory settings meet your requirements. If no changes are required, you should be ready to print.

## Note:

- Use the DISKCOPY command of the operating system to make a back-up copy. Refer to your DOS manual for further information.
- You may find it convenient to install the Setup Disk programs directly onto your C Drive, rather than reading them from the Setup Disk each time a change is necessary. Either method is acceptable.

To perform an automatic installation of the Setup Disk files onto your C Drive, follow the steps below:

1. Insert the Setup Disk into drive A or B.
2. Type **A:** (or **B:**) and press **Enter**.
3. Type **INSTALL** and press **Enter**.

This procedure automatically creates a directory called **2130&35** and copies all of the programs from your Setup Disk onto your C Drive.

To recall the programs from your C Drive.

<For DOS>

At your C:\> prompt, type **CD 2130&35** and press **Enter**.

Type **SETUP** and press **Enter**.

<For WINDOWS>

Select **Run** from the File menu.

Type **C:\2130&35\SETUP** and click **OK** (or press **Enter**).

- Be sure to type **SETUP** as one word. If not, you will receive a Syntax error message.

## Running the Initial Setup Program

- 1 Insert your Setup Disk into either drive A or B.

<For DOS>

- 2 Type **A:** (or **B:**) and press **Enter**.

- 3 Type **SETUP**.

- 4 Press **Enter**.

<For WINDOWS>

- 2 Select **Run** from the File menu.

- 3 Type **A:\SETUP** (or **B:\SETUP**).

- 4 Click **OK** (or press **Enter**).

- 5** The first screen is an introduction to the operation of the Setup Disk. Please read it through and press any key to continue.  
(If your display is monochrome, press "M" key.)

- 6** The <Menu> window will be highlighted.

**Note:**

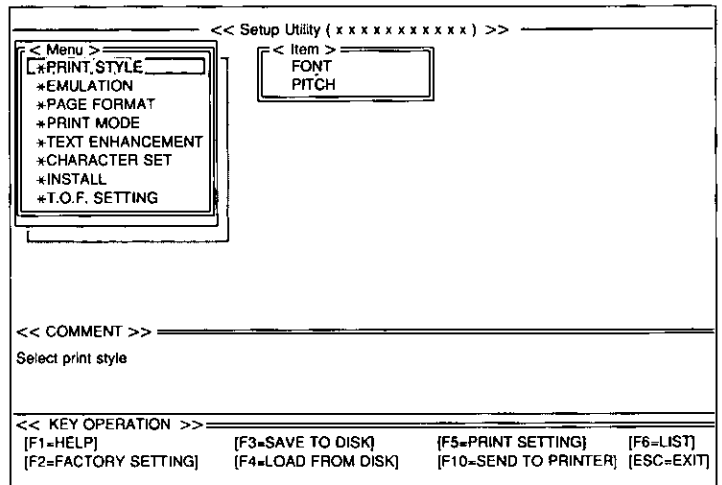
- You can proceed through the Setup Disk using a computer mouse or your arrow keys.
- **[ESC]** and **[E]** exits you to DOS when you are at the <Menu> window.

Using the keyboard:

- **[↓]** / **[↑]** to move within the current window.
- **[→]** to advance to <Item> and <Setting> windows.
- **[Enter]** to make selection in <Setting> window.
- **[←]** to return to the previous window.

Using the mouse:

- Highlight the selection and click the left mouse button.
- To move to the previous screen, move the cursor on the previous screen and click the left mouse button.



## Print Settings

Before you change any selections on the Setup Disk, you can verify the settings by getting a print-out.

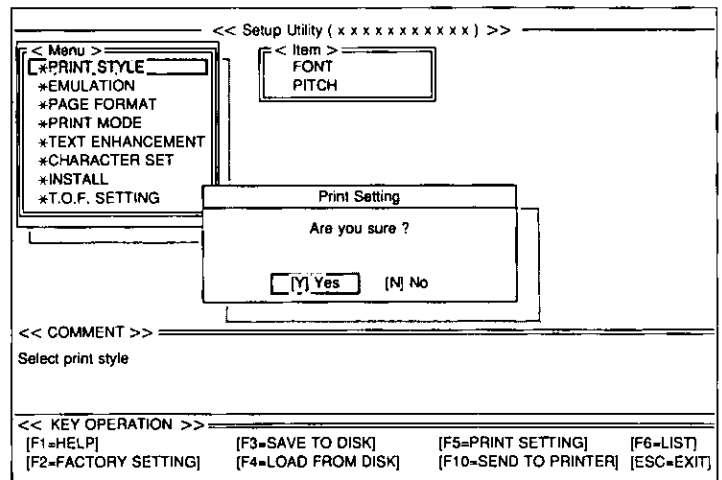
- 1** Press **[F5]**.

A Print Setting window will be displayed.

- 2** Press **[Y]** or **[N]**, or highlight the appropriate command and press **[Enter]**.

"Y": Current print settings will be printed.

"N": The print settings won't be printed and the display will return to the Main screen.



# Using the Setup Disk

## Display Setting List

Before you change any selections on the Setup Disk, you can view the current setting list on the display.

### 1 Press **F6**.

The setting list will be displayed.

### 2 Press any key to return to the Main screen.

<< Item >>	<< Setting >>	<< Item >>	<< Setting >>
FONT	: DRAFT	ZERO FONT	: NORMAL
PITCH	: 10 CPI	COUNTRY	: U.S.A.
EMULATION	: EPSON	CHARACTER SET	: ITALIC
LINE/INCH	: 6 LPI	CODE PAGE	: U.S.A.
PAGE LENGTH	: 11 inch	AGM/IBM	: OFF
TOP MARGIN	: 0.0 inch	AUTO CR/IBM	: OFF
BOTTOM MARGIN	: 0.0 inch	AUTO LF	: OFF
LEFT MARGIN	: 0 column	AUTO LOADING	: ON
RIGHT MARGIN	: 80 column	PAPER OUT DETECT	: ON
CTR PRINTHEAD	: 40 column	SUPER QUIET MODE	: OFF
GRAPHIC DIRECTION	: UNI DIRECTION	TEAR OFF	: MANUAL
TEXT DIRECTION	: BI DIRECTION	CSF-MODE	: OFF
BOLD	: OFF	DOWNLOAD	: OFF
DOUBLE HIGH	: OFF	COLOR	: BLACK
DOUBLE STRIKE	: OFF	AUTO ON LINE	: ON
DOUBLE WIDE	: OFF	DATA LENGTH	: 8 BITS
ITALICS	: OFF	TRACTOR	: 0.33 inch
OUTLINE	: OFF	FRICTION	: 0.33 inch
SHADOW	: OFF	CUT SHEET FEEDER	: 0.33 inch

Exit : Press any key .

## Setting Selections on Setup Disk

### 1 In the <Menu> window, press **↑** or **↓**.

Select the desired menu (ex; PRINT STYLE).

### 2 Press **→**.

<Item> window will be highlighted.

### 3 Press **↑** or **↓**.

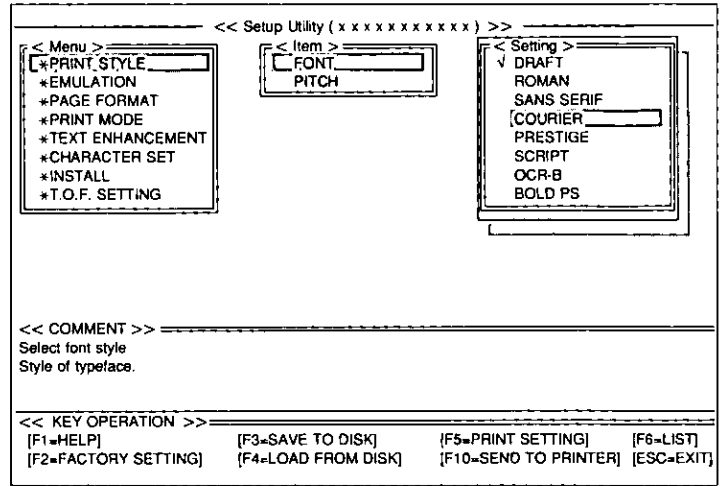
Highlight the desired item (ex; FONT).

<< Setup Utility ( x x x x x x x x x x ) >>		
< Menu >	< Item >	< Setting >
*PRINT_STYLE	FONT	√ DRAFT
*EMULATION	PITCH	ROMAN
*PAGE FORMAT		SANS SERIF
*PRINT MODE		COURIER
*TEXT ENHANCEMENT		PRESTIGE
*CHARACTER SET		SCRIPT
*INSTALL		OCR-B
*T.O.F. SETTING		BOLD PS
<< COMMENT >>		
Select font style		
Style of typeface.		
<< KEY OPERATION >>		
[F1=HELP]	[F3=SAVE TO DISK]	[F5=PRINT SETTING]
[F2=FACTORY SETTING]	[F4=LOAD FROM DISK]	[F6=LIST] [ESC=EXIT]

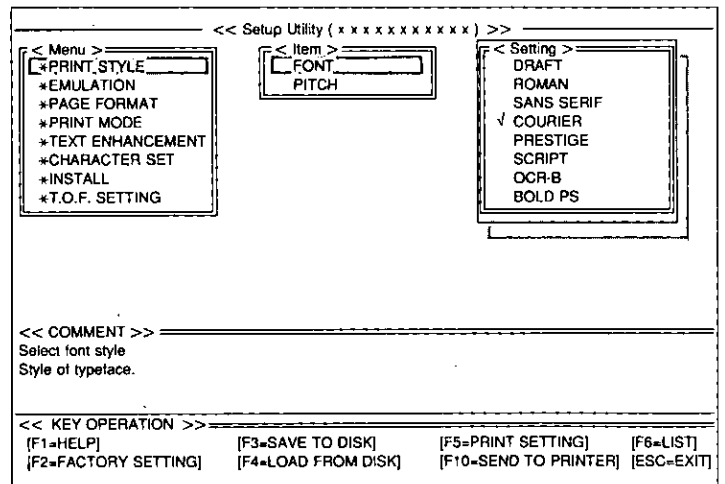
**4** Press **→**.  
 <Setting> window will be highlighted.

**5** Press **↑** or **↓**.  
 Highlight the desired setting (ex; COURIER).

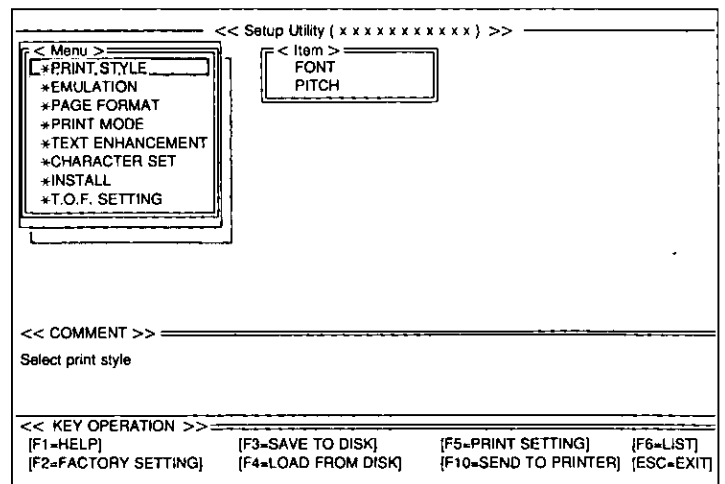
**6** Press **Enter**.  
 The desired item has been set.  
 A ✓ will appear next to the new setting.



**7** Press **←**.  
 <Item> window will be highlighted.  
 To make additional changes in the <Item> window, repeat steps 3 to 6.



**8** Press **←**.  
 <Menu> window will be highlighted.  
 To make additional changes in the <Menu> window, repeat steps 1 to 6.



**9** When all changes have been made, you may perform any one of the following operations:

- Save to Disk—**F3** (P. 38)
- Print Settings—**F5** (P. 35)
- Display Settings—**F6** (P. 36)
- Send to Printer—**F10** (P. 39)

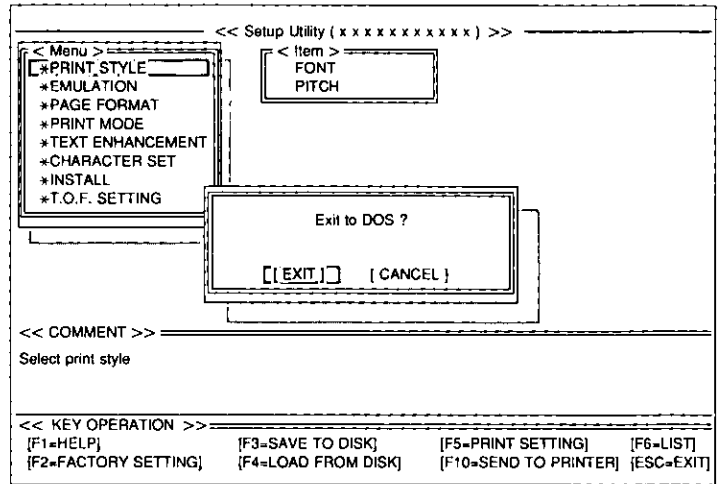
# Using the Setup Disk

**10** After performing one of the previous operations, and with the <Menu> window highlighted, press **ESC**.

**11** Press **E** or **C**.

"E": You have exited the Setup program.

"C": The display will return to the <Menu> window.



## Save to Disk

**1** Press **F3**.

A Save to Disk window will be displayed.

**2** To change Drive, press **TAB** three times and select the appropriate drive by using **↑** or **↓**. To change Directory, press **TAB** four times and select the new directory by using **↑** or **↓**, then press **Enter**.

If you do not change the Drive or Directory, proceed to Step 3.

**3** Press **TAB** repeatedly to move the cursor to the Filename position.

Delete \* and enter a file name (up to 8 characters) and press **Enter**.

All the settings will be saved on the disk and the display will return to the Main screen.

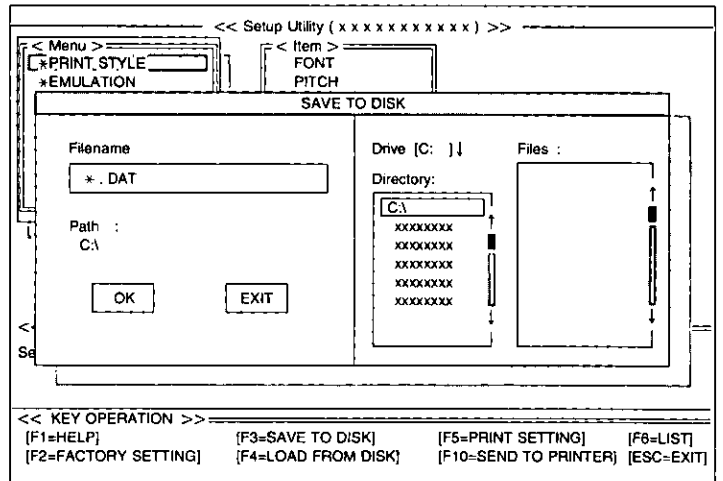
**Note:**

- **SHIFT+TAB** performs a reverse tab function and moves the cursor to the previous selection.

If you want to save the setting(s) as a file name previously saved, after entering the same file name, press **Enter** then press **Y**.

"Y": The current settings will be written over the old settings.

"N": The display will return to a <Save to Disk> window.



## Load from Disk

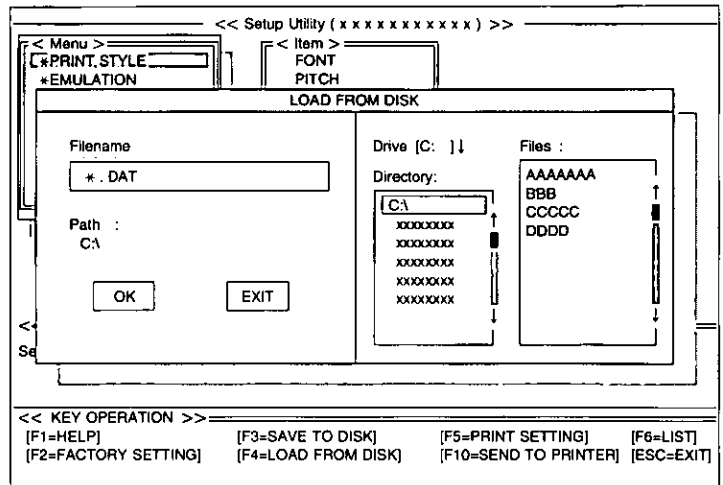
- 1 Press **F4**.  
A Load from Disk window will be displayed.
- 2 To change Drive, press **TAB** three times and select the appropriate drive by using **↑** or **↓**.  
To change Directory, press **TAB** four times and select the new directory by using **↑** or **↓**, then press **Enter**.

If you do not change the Drive or Directory, proceed to Step 3.

- 3 Press **TAB** five times to move cursor to Files.
- 4 Use **↓** or **↑** to highlight your desired file name.
- 5 Press **Enter**.

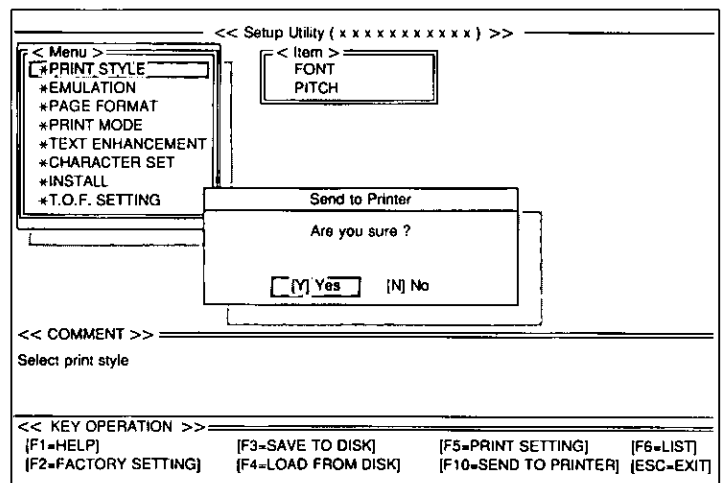
All the settings in the file will be loaded to your screen.

To transfer these settings to your printer, you must perform the Send to Printer operation below.



## Send to Printer

- 1 Press **F10**.  
A Send to Printer window will be displayed.
- 2 Press **Y** or **N**.  
"Y": All the settings will be sent to the printer.  
"N": The display will return to the Main screen.



## Resetting to Factory Setting

1 Press **F2**.

2 Press **Y** or **N**.

"Y": All the screen settings will be reset to the Factory setting.

"N": The display will return to the Main screen.

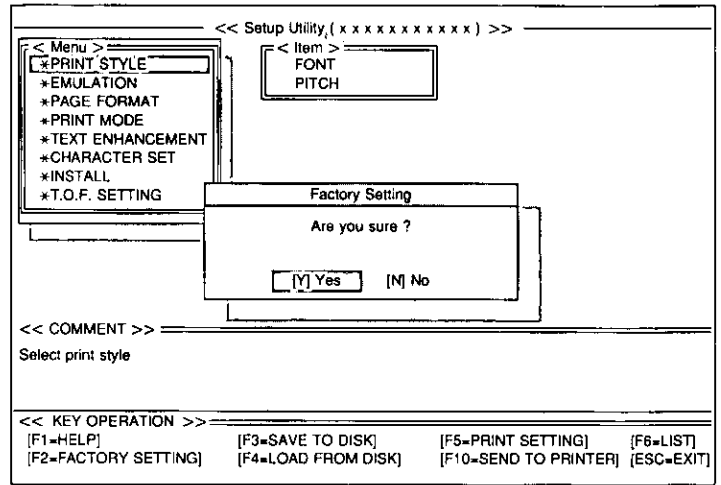
3 If **Y** was selected, you may perform one of the following operations:

Save to Disk—**F3** (P. 38)

Print Settings—**F5** (P. 35)

Display Settings—**F6** (P. 36)

Send to Printer—**F10** (P. 39)



## Help

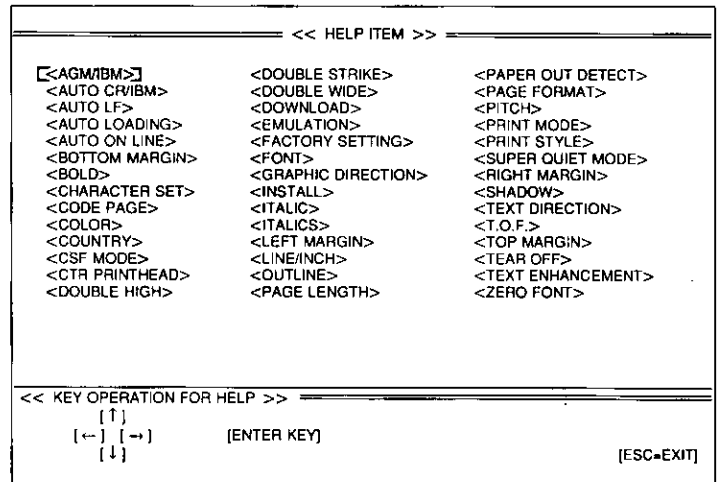
If you cannot remember what a particular function does, a HELP program will display explanations of the functions.

1 Press **F1**.

A Help Item screen will be displayed.

2 Press **←** / **→** / **↑** / **↓**.

Highlight your desired item.  
(ex; AGM/IBM)



3 Press **Enter**.

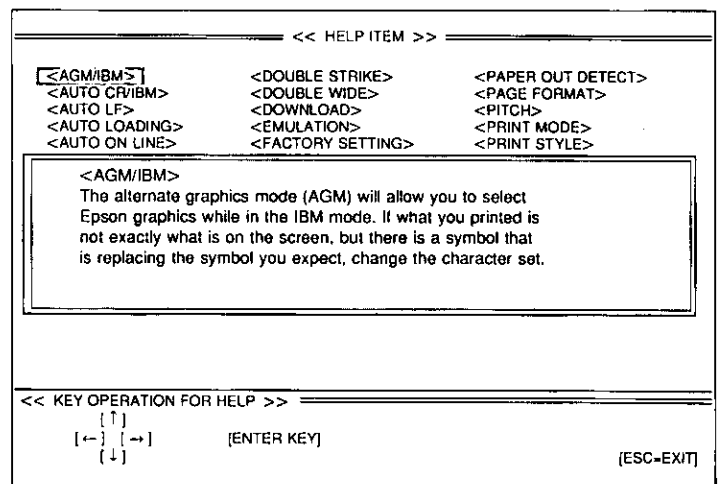
A definition will be displayed.

4 Press **ESC**.

The Help Item screen will be displayed.

5 Press **ESC**.

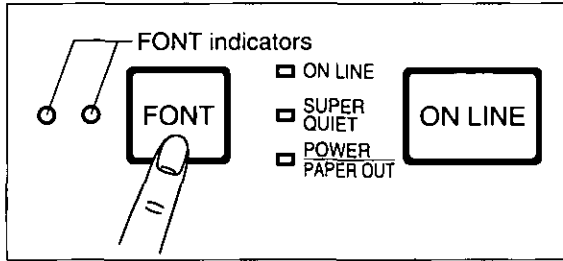
The display will return to the Main screen.





# Using the Control Panel

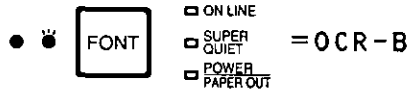
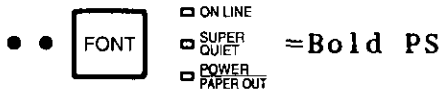
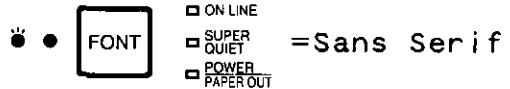
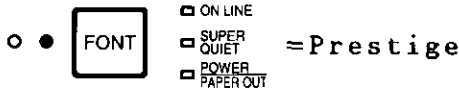
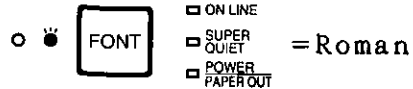
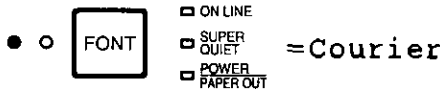
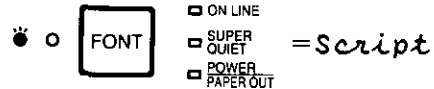
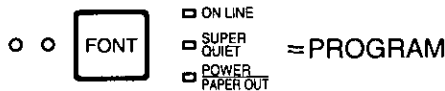
## Selecting a Character Font



● Press and release **FONT**.

This printer contains resident fonts which are accessible through the Control Panel. You can select any one of the character fonts by pressing the FONT switch on the Control Panel. The combination of FONT indicators indicates the current character font selected, as shown below.

### EXAMPLES



● =light is lit

○ =light is out

● =light is blinking

### Note:

- When the power is turned off, font will reset to default setting. If you want to save a font selection as your default, you may do so by using the Setup Disk. (P. 31)
- When both FONT indicators are off, the font commands from your software program will control your printer.

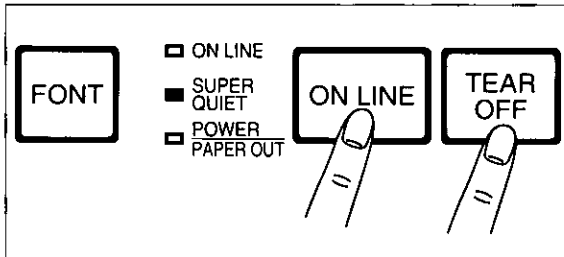
## Super Quiet Mode

The Super Quiet mode is a useful feature for further reducing print noise. Your printer has the capability of saving this feature by using the Setup Disk. (P. 31~40)

**Note:**

- When enabled, this feature will decrease your print speed.

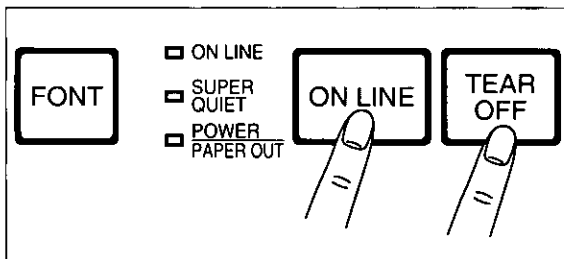
### Turning on the Super Quiet mode:



While pressing **ON LINE**,  
press **TEAR OFF**.

The SUPER QUIET indicator is on.

### Turning off the Super Quiet mode:



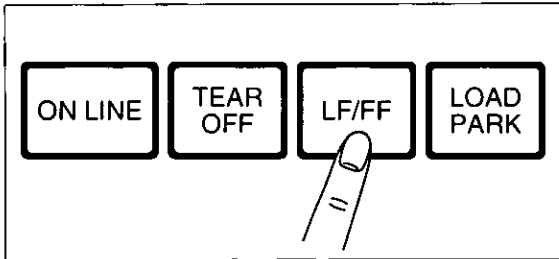
While pressing **ON LINE**,  
press **TEAR OFF**.

The SUPER QUIET indicator is off.

## Line Feed/Form Feed **LF/FF**

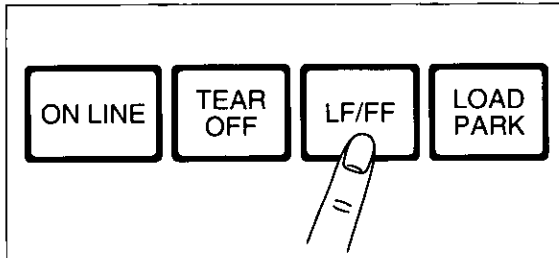
You can adjust the paper position by using the front panel switches when the printer is in the OFF LINE mode or when the printer is not printing in the ON LINE mode.

### Line Feed



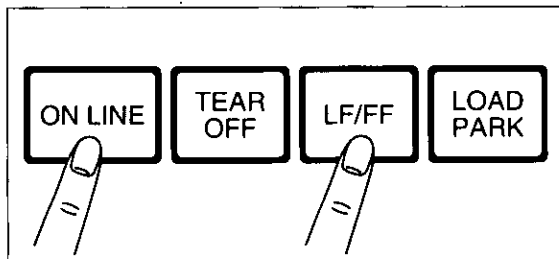
With paper installed, pressing **LF/FF** once advances the paper one line.

### Form Feed



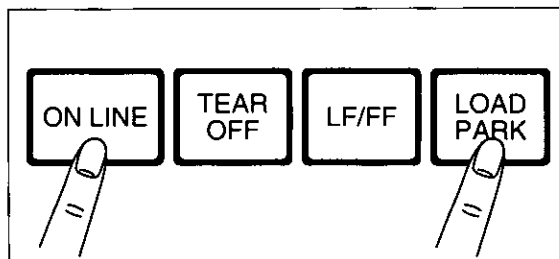
With paper installed, holding **LF/FF** moves the printhead to the center and advances the paper to the top of the next page.

### Micro Line Feed



With paper installed, while pressing **ON LINE**, press **LF/FF** once to advance the paper one micro line ( $1/180''$ ). Holding the switches will advance the paper continuously until you release the switches. Using the Micro Line Feed within 5" from the top of your paper automatically stores the position as Top of Form position.

### Reverse Micro Line Feed



With paper installed, while pressing **ON LINE**, press **LOAD/PARK** once to reverse the paper one micro line ( $1/180''$ ). Holding the switches will reverse the paper continuously until you release the switches. Using the Reverse Micro Line Feed within 5" from the top of your paper automatically stores the position as Top of Form position.

#### Note:

- When pressing **LF/FF**, the amount of paper which is fed is determined by the current setting for lines per inch as specified by the Setup Disk, control panel (Initial Setup Mode) or your application software.

## Top of Form Function (TOF SET)

This printer has a Top of Form (TOF) function which stores the first print line position and loads the paper to the designated position automatically. The first print line position will be stored even after the power is turned off. Additionally, the printer can store 3 different Top of Form positions depending on the paper feed method [fanfold paper-push (☐), single sheet (☐) and multiple single sheets (☐)] using the built-in sheet feeder or the optional Auto Cut Sheet Feeder (KX-PT12)].

You can adjust the Top of Form position by using the Setup Disk (☞ P. 31~40), or using Micro Line Feed or Reverse Micro Line Feed within 5" from the top of your paper.

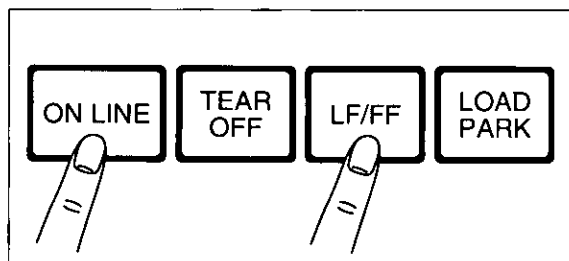
### Note:

- Do not rotate the platen knob, otherwise the printer will not be able to count the number of lines.
- When setting TOF for fanfold paper, all adjustments must be made on the first sheet. If you wish to change the setting after advancing additional sheets you must first park then reload the paper.

**1** If necessary, redefine the page length of the paper you are using through the Setup Disk (☞ P. 31~40), control panel (☞ P. 48~49) or your application software (☞ P. 51~53).

A page is defined by setting the page length through the Initial Setup mode or the Software command.

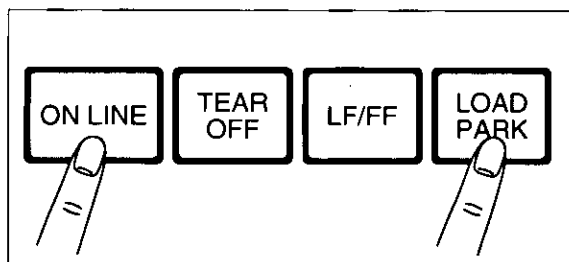
**2** Micro Line Feed



While pressing **ON LINE**, press **LF/FF**.

This advances the paper one micro line (1/180"). Holding the switches will advance the paper continuously until you release the switches.

Reverse Micro Line Feed



While pressing **ON LINE**, press **LOAD/PARK**.

This reverses the paper one micro line (1/180"). Holding the switches will reverse the paper continuously until you release the switches. The printer cannot reverse the paper past the printable area.

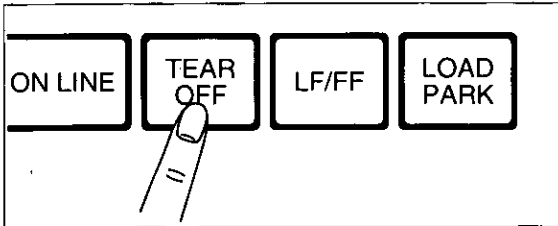
**3** At your desired position, release the switches.

The paper position will be stored automatically as the new Top of Form position.

## Tear Off **TEAR OFF**

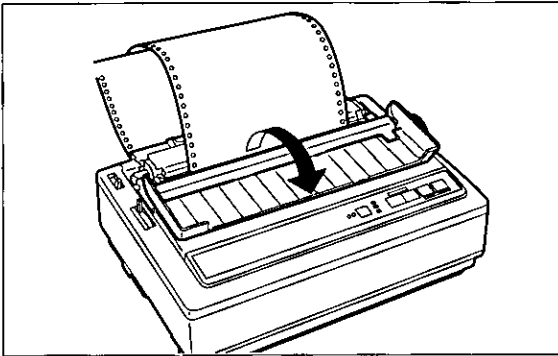
With fanfold paper installed, this function allows you to advance your paper to the tear position. After tearing off the page you can return your paper to the first print line by pressing **TEAR OFF** again. If **TEAR OFF** is not pressed a second time, the printer will automatically reverse to the first print line upon receiving data from the computer.

1



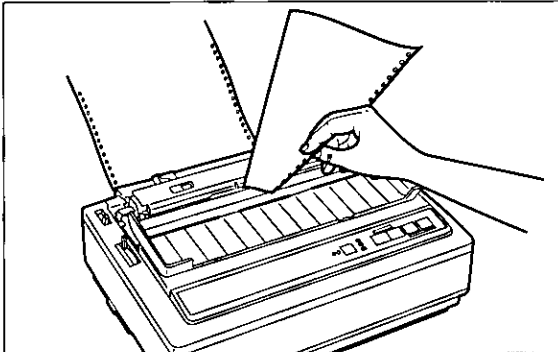
Press **TEAR OFF** to advance the paper to the tear bar.

2



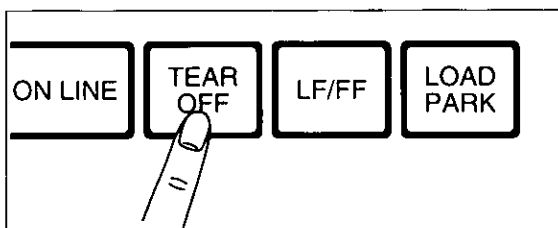
Fold the rear part of the smoked plastic cover forward.

3



Tear off the page.

4



Press **TEAR OFF** to reverse the paper back to the first print line.

5

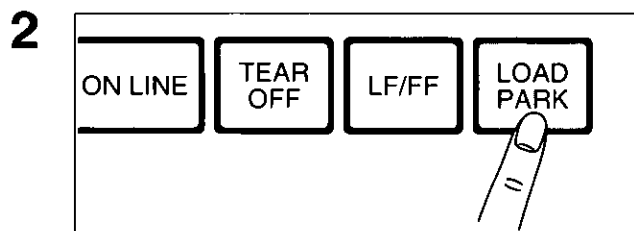
Replace the smoked plastic cover.

# Using the Control Panel

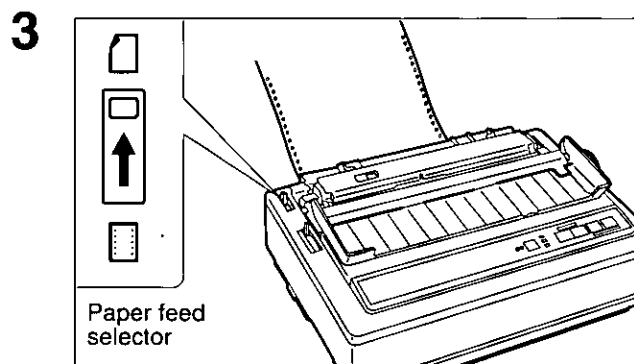
## Paper Parking **LOAD/PARK**

This function moves the fanfold paper to the park position, enabling you to use single sheets or envelopes without removing or wasting your fanfold paper.

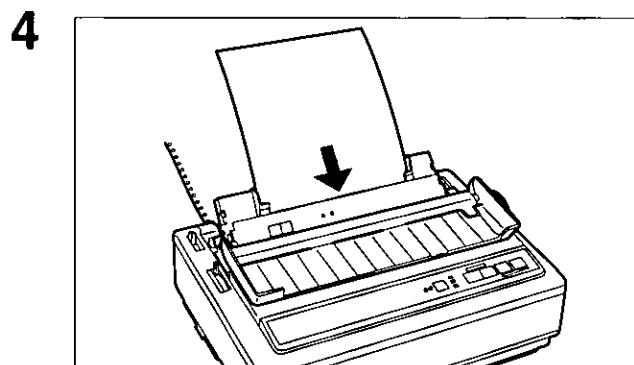
**1** Tear off the printed page(s) of the fanfold paper being used.



Press **LOAD/PARK** to reverse the fanfold paper to the park position.

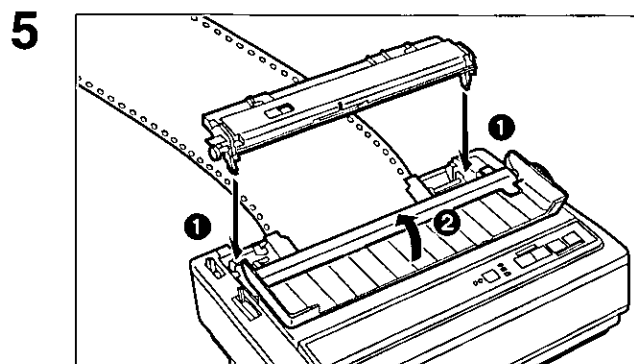


Move the paper feed selector to “□” (Friction mode).

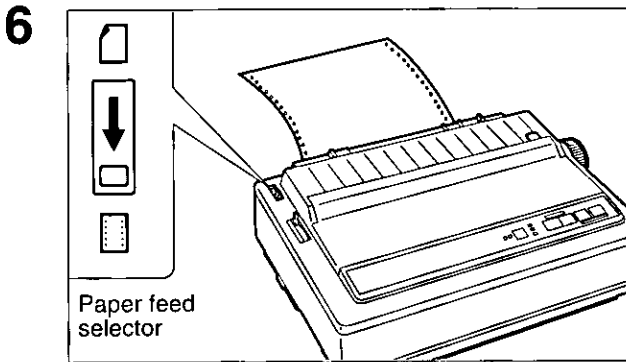



Load single sheets or envelopes.  
(**P. 22** “Single Sheets and Envelopes”)

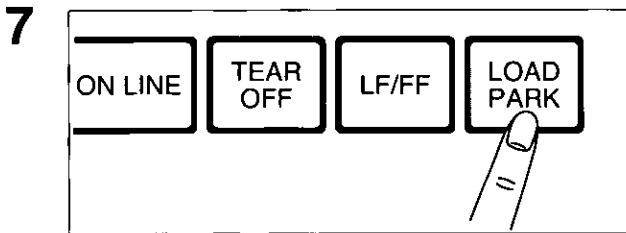
When you are finished printing, remove the sheet (or envelope) from the printer.



- 1** Replace the built-in sheet feeder for fanfold paper.
- 2** Replace the smoked plastic cover.



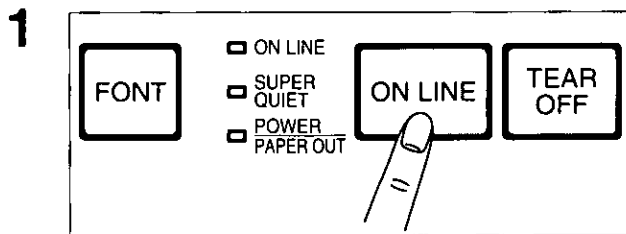
Move the paper feed selector to “” (Tractor Push mode).



Press **LOAD/PARK** to reload the fanfold paper to the first print line.

## Paper Out Detector

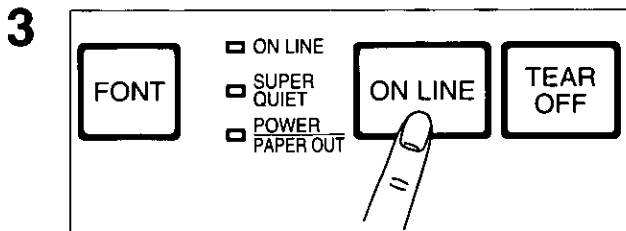
Your printer has a paper out detector. When an out of paper condition occurs, printing stops, the printer goes to the OFF LINE mode, and the PAPER OUT indicator starts blinking. To continue printing to the end of the current page, follow the steps below.



Press **ON LINE** repeatedly until the page is completed.

2

Install the new paper. (☞ P.19~25)



If the **ON LINE** indicator is not lit, press **ON LINE**.

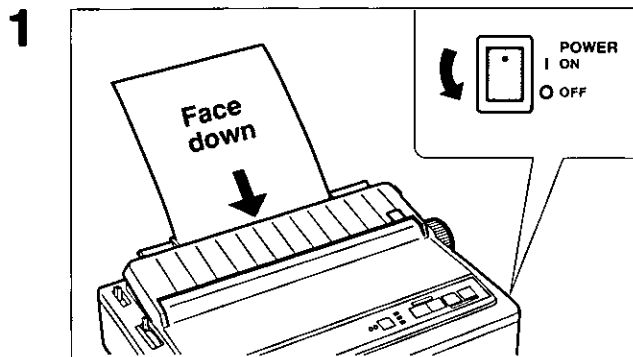
### Note:

- When the PAPER OUT DETECT is set to ON, printing stops at 0.5" from the bottom of the paper.
- The paper out detector can be disabled through the Setup Disk. (☞ P. 33)

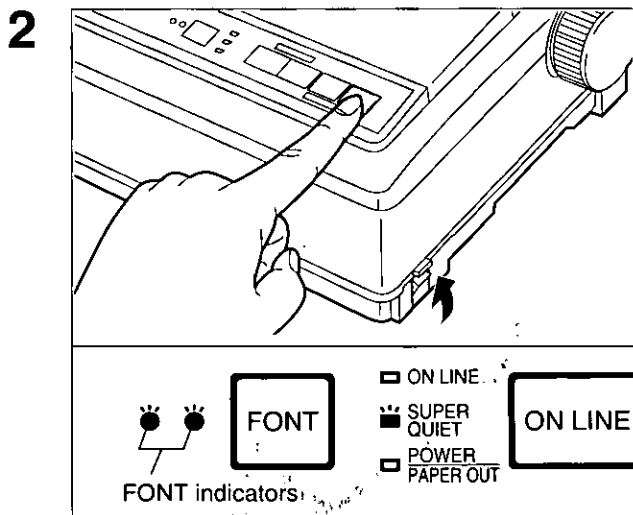
# Using the Control Panel

## Initial Setup Mode

The following features (items) can be set in the Initial Setup mode through the Control Panel; Emulation, Auto Line Feed, Graphic Direction, Page Length and the optional Auto Cut Sheet Feeder (KX-PT12), if installed. These features can also be set using the Setup Disk (P. 31).

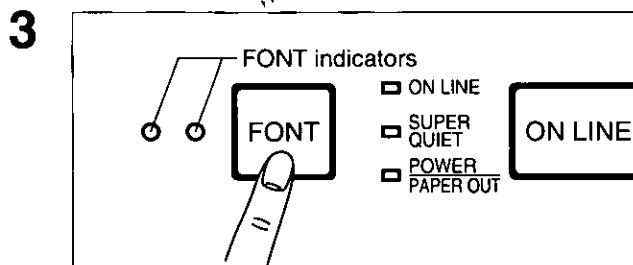


Load a sheet of paper (P. 19~25), and turn the power off.



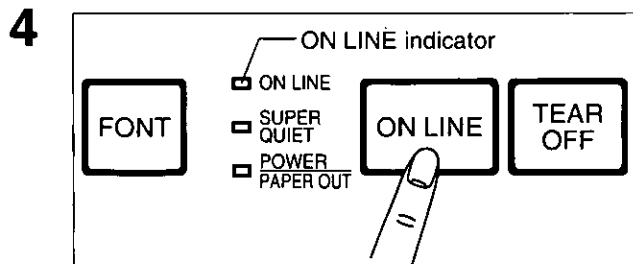
► To enter the Initial Setup mode  
While pressing **LOAD/PARK**, turn the power on.

Both FONT indicators and the Super Quiet indicator will be blinking.  
The current settings will be printed automatically.



► Selecting the Item  
Press and release **FONT**.

Each time you press **FONT**, you will advance to the next item. Select the desired item according to the status of the FONT indicators (on, off, blinking). (P. 49)



► Setting the Item's status  
Press and release **ON LINE**.

The item's status will change each time you press **ON LINE**.  
To change the item's status, press **ON LINE**. (P. 49)

To change additional settings, repeat steps 3 and 4.



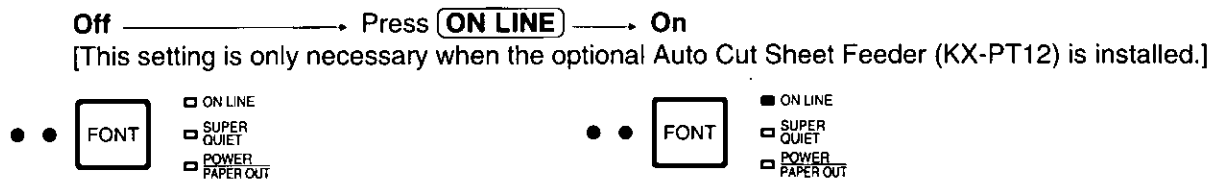
Emulation: Press **FONT** once.



Auto Line Feed: Press **FONT** twice.



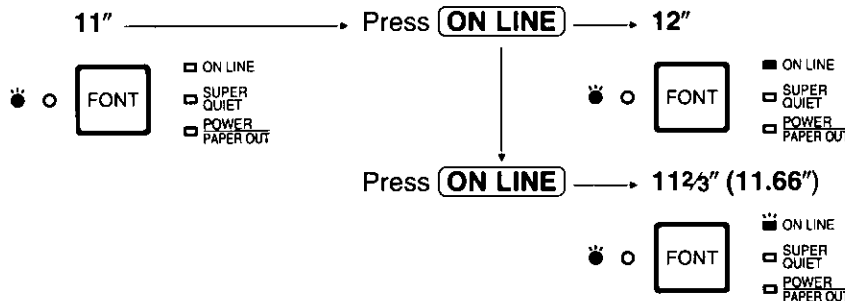
Auto Cut Sheet Feeder: Press **FONT** 3 times.



Graphic Direction: Press **FONT** 4 times.



Page Length: Press **FONT** 5 times.



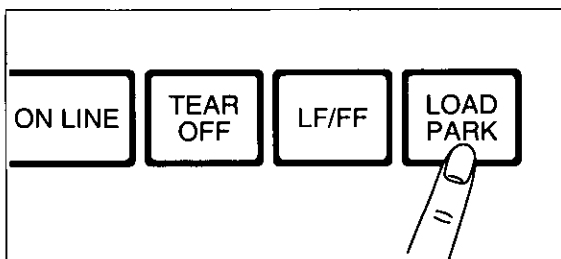
FONT indicators condition:

- = light is lit
- = light is out
- (with diagonal line) = light is blinking

ON LINE indicators condition:

- = light is lit
- = light is out
- (with diagonal line) = light is blinking

5



▶ **Exiting Initial Setup mode**  
 Press **LOAD/PARK**.

FONT indicators will go off and the current conditions will print.

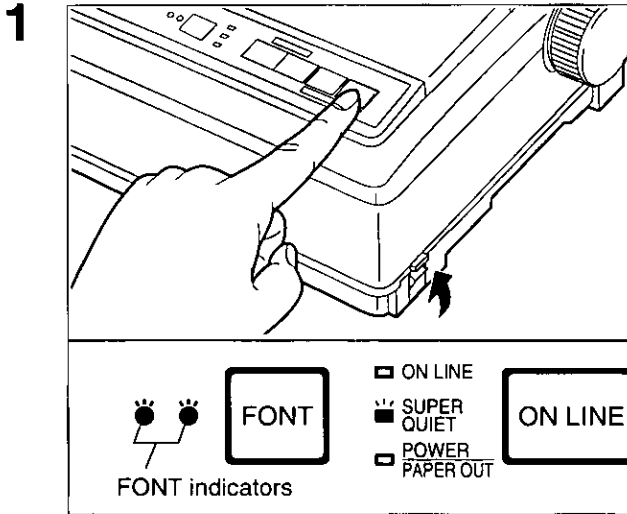
# Using the Control Panel

## Returning All Current Settings to the Factory Settings

This procedure will reset ALL settings to the original factory settings. This includes those setting made through the Setup Disk.

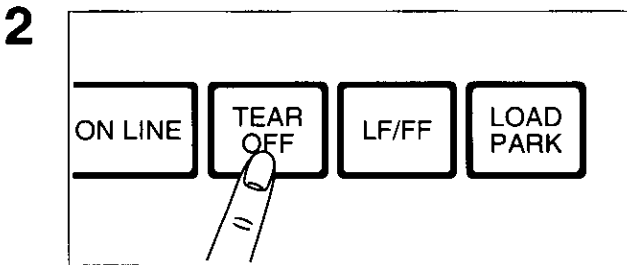
Follow the instructions below:

If paper is loaded, you will automatically get a printout of the current settings.



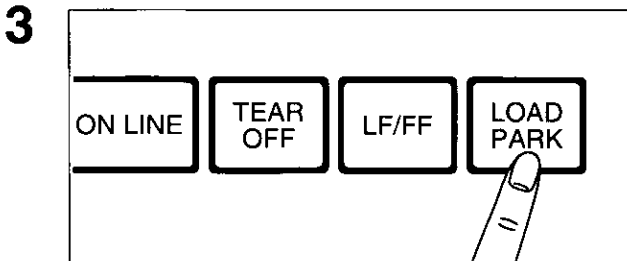
► To enter the Initial Setup mode  
While pressing **LOAD/PARK**, turn the power on, then release.

Make sure that FONT indicators and the Super Quiet indicator are blinking.



Press **TEAR OFF**.

All current settings will be reset to the Factory settings.



► To exit the Initial Setup mode  
Press **LOAD/PARK**.

A printout will verify the current setting.  
If paper is installed, the current settings will be printed.

# Command Reference Program

## (Using the Setup Disk)

The Command Reference program allows you to access a detailed explanation of each software command on the screen. Each displayed explanation can be printed out if required.

Before using the Setup Disk, it is recommended that you make a back-up copy and store the original in a safe place.

**Note:**

- Use the DISKCOPY command of the operating system to make a back-up copy. Refer to your DOS manual for further information.
- You may find it convenient to install the Setup Disk programs directly onto your C Drive, rather than reading them from the Setup Disk each time a change is necessary. Either method is acceptable.

To perform an automatic installation of the Setup Disk files onto your C Drive, refer to page 34.

### 1 Insert your Setup Disk into either drive A or B.

<For DOS>

<For WINDOWS>

### 2 Type A: (or B:) and press **Enter**.

### 2 Select **Run** from the File menu.

### 3 Type CMDREF.

### 3 Type A:\CMDREF ( or B:\CMDREF).

### 4 Press **Enter**.

### 4 Click **OK** (or press **Enter**).

### 5 The first screen is an introduction to the operation of the Setup Disk. Please read through it and press any key to continue. (If your display is monochrome, press "M" key.)

Screen 1

```
<< Panasonic KX-PXXXX command reference utility (xxxxxxxxxx) >>
-- SELECT EMULATION --
-----
[EPSON]
[IBM]

-----

[↑]/[↓]      : Select emulation
[Enter]      : Set emulation
[E]          : Exit to DOS
```

Screen 1 will be displayed.

### 6 Press **↑** or **↓**.

Select an emulation.

**Note:**

- You can proceed through the Command Reference program using a computer mouse or your keyboard. Highlight the desired item and click the left mouse button, or follow the directions on your screen for keyboard operation.
- There is a list of proportional spacing tables after the software commands list. If you want to see a proportional spacing table, select your desired table and press **Enter**.

# Command Reference Program (Using the Setup Disk)

## 7 Press **Enter**.

The emulation will be set and screen 2 will be displayed.

### Screen 2

```

<< Panasonic KX-PXXXX command reference utility (xxxxxxxxxxx) >>
-- SELECT COMMAND -- (EPSON)
=====
FONT SELECTION
ESC+'x'+n Selects print quality
ESC+'k'+n Selects print font style
ESC+'S'+1 Selects subscript printing
ESC+'S'+0 Selects superscript printing
ESC+'T' Releases sub/superscript printing

CHARACTER PITCH SELECTION
ESC+'P' Sets pica pitch (10 cpi) printing
ESC+'M' Sets elite pitch (12 cpi) printing
ESC+'g' Sets micron (15 cpi) printing
SI or ESC+SI Sets compressed (17 cpi) printing
DC2 Releases compressed printing
ESC+'p'+n Sets/Release proportional spacing
ESC+'l'+n Sets certain pitches based upon value of n
=====
[↑]/[↓] : Select command
[Pg.Up]/[Pg.Dn] : Go to previous/next category
[Enter] : View command description
[Esc] : SELECT EMULATION mode
[E] : Exit to DOS [P] : Print Command List
    
```

[↑]/[↓]	Moves the cursor one line up/down
[Pg.Up] / [Pg.Dn]	Moves the cursor to the first command of the previous/next item
[Enter]	Displays the explanation of the command
[Esc]	Returns to screen 1
[E]	Exits to DOS
[P]	Prints Command List

If you want to print the command list with parameters, press **P** and press **Y**.

“Y”: The command list with parameters will be printed.

“N”: The display will return to screen 2.

### Screen 3

```

<< Panasonic KX-PXXXX command reference utility (xxxxxxxxxxx) >>
-- SELECT COMMAND -- (EPSON)
=====
FONT SELECTION
ESC+'x'+n Selects print quality
ESC+'k'+n Selects print font style
ESC+'S'+1 Selects subscript printing
ESC+'S'+0 Selects superscript printing
ESC+'T' Releases sub/superscript printing

CHARACTER PITCH SELECTION
ESC+'P' Sets pica pitch (10 cpi) printing
ESC+'M' Sets elite pitch (12 cpi) printing
ESC+'g' Sets micron (15 cpi) printing
SI or ESC+SI Sets compressed (17 cpi) printing
DC2 Releases compressed printing
ESC+'p'+n Sets/Release proportional spacing
ESC+'l'+n Sets certain pitches based upon value of n
=====
Print command list? (Y/N)
Yes No
    
```

## 8 Press **Pg.Up** / **Pg.Dn** or **↑** / **↓**.

Select a command.

# Command Reference Program (Using the Setup Disk)

## 9 Press **Enter**.

The screen 4 will show the detailed explanation of the command.

If you want to exit the Command Reference program, go to step 10.

### Screen 4

```

<< Panasonic KX-PXXXX command reference utility (xxxxxxxxxx) >>
[ESC+'x'+n] Selects print quality [EPSON]
-----
<PRINT QUALITY>
Selects print quality.

Name:  ESC    x    n
Dec.:  27    120  n
Hex.:  1B    78   n

Comments:
*The following values of n can be used:
n=0: Draft font
n=1: LQ font

-----END-----

[↑]/[↓] : Text scroll-down/up
[Pg.Up]/[Pg.Down] : Go to previous/next command
[Esc] : SELECT COMMAND mode
[Enter] : Print current command description
[E] : Exit to DOS
    
```

[↑]/[↓]	Scrolls the text one line down/up
[Pg.Up] / [Pg.Dn]	Displays the explanation of previous/next command
[Enter]	Prints the detailed explanation of the command
[Esc]	Returns to screen 2
[E]	Exits to DOS

If you want to print this explanation, press **Enter** again and press **Y**.

"Y": The explanation will be printed.

"N": The display will return to screen 3.

### Screen 5

```

<< Panasonic KX-PXXXX command reference utility (xxxxxxxxxx) >>
[ESC+'x'+n] Selects print quality [EPSON]
-----
<PRINT QUALITY>
Selects print quality.

Name:  ESC    x    n
Dec.:  27    120  n
Hex.:  1B    78   n

Comments:
*The following values of n can be used:
n=0: Draft font
n=1: LQ font

-----END-----

Print current command description? (Y / N)
Yes      No
    
```

## 10 Press **E**.

You have exited the Command Reference program.

# Periodic Maintenance

The printer does not require any routine maintenance. However, reasonable care of the printer will extend its life. The following periodic measures are recommended:

- Cleaning the unit is the most important action the user can perform. The frequency of cleaning is dependent upon the environment.

—Turn the power OFF.

**Caution:**

- The printhead may be hot, use caution when cover is open.

—Clean the case and covers with a soft cloth. Use any mild commercial cleaner on the cloth, do not spray directly on to the printer.

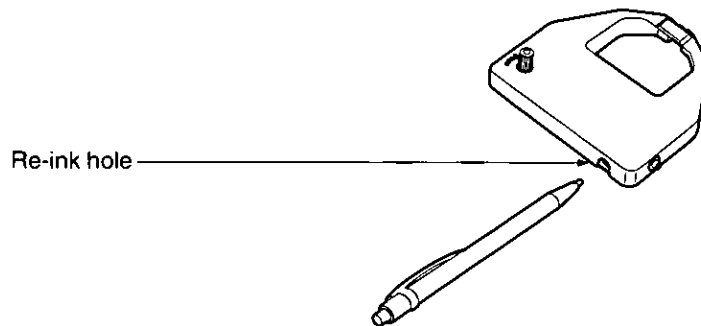
—Remove the built-in sheet feeder and the smoked plastic cover. Vacuum or dust the inside area of the unit. Be very careful not to damage the printhead ribbon cable or the carriage drive belt.

—The platen should be cleaned with denatured alcohol only.

—The carriage guide bar can be lubricated with a very light oil. Contact your Authorized Panasonic Service Center for advice on lubrication.

## Ribbon Cassette

A black ribbon permits the printing of approximately 3 million total draft characters. When the printing starts to fade, gently push the counter spring in the ribbon cassette hole with the tip of a ballpoint pen or other object. Once the ribbon cassette is mounted onto the carriage and printing is performed for a short time, the characters will become darker.



**Note:**

- Do not re-ink the ribbon until printing starts to fade. If the ribbon has too much ink, the characters may smear when printed.
- If the ribbon begins to catch, snag, or tear from the printhead, your printer requires servicing.
- The re-inking feature applies to the black ribbon cassette only and not to the color ribbon.

## Self Test

After re-inking the ribbon, you may want to perform steps 1~3 of "Self Test" to make sure that the characters are not smearing. (☞ P. 26)

# Troubleshooting

Most problems associated with the printer can be traced to improper setup, installation, or cabling. The following table will assist you in identifying and correcting some of the more common problems. If you need additional help, contact the store from which the unit was purchased or the Panasonic technical support number found on the inside back cover of this manual.

Symptom	Possible Cause	Probable Solution
Ink smears	Head gap lever is not in proper position	Move the lever toward the front of the printer until ink doesn't smear (☞ P. 11)
Printout is faint	Head gap lever is not in proper position	Adjust the lever to the proper position (☞ P. 11)
Printhead moves but does not print	Ribbon is not installed correctly	Re-insert ribbon (☞ P. 14~16)
	Head gap lever is not in proper position	Adjust the lever to the proper position (☞ P. 11)
Paper out detector inoperative	Paper out detector is OFF	Set PAPER OUT DETECT to ON (☞ P. 33, 34~40)
Printer does not power up	No AC power	Check power cord (☞ P. 13)
Power is on but printer does not print	Printer is not ON LINE	Press ON LINE switch
	Interface cable is not properly connected	Secure connection (☞ P. 12)
	Out of paper	Install new paper (☞ P. 19~25, 47)
	Printhead has become overheated	Allow the printhead some time to cool down The printer will automatically resume printing
Carriage stops moving, all indicators start blinking	Path of printhead is blocked	Clear the path, turn the power off, then back on to resume printing
Paper wrinkles when using tractor feed	No reverse tension on paper	Set paper supply lower than printer
Printer can't load single sheet in Friction mode	CSF MODE is ON	Set CSF MODE to OFF when not using Auto Cut Sheet Feeder option (KX-PT12) (☞ P. 33, 34~40, 48~49)
Auto Cut Sheet Feeder option (KX-PT12) is installed but does not work	CSF MODE is OFF	Set CSF MODE to ON (☞ P. 33, 34~40, 48~49)
Unexpected characters appear in printing	EMULATION is set incorrectly	Check printer driver of your software package and set EMULATION accordingly (☞ P. 31, 34~40, 48~49)
32K Buffer Chip option (KX-P44) is installed but cannot download	DOWNLOAD is OFF	Set DOWNLOAD to ON (☞ P. 33, 34~40)
Printout is double-spaced	AUTO LF is ON	Set AUTO LF to OFF (☞ P. 33, 34~40, 48~49)
Keeps printing on the same line	Computer is not sending a LF command	Set AUTO LF to ON (☞ P. 33, 34~40, 48~49)
Wrong character set prints	Wrong character set is selected	Set the character set as required (☞ P. 32, 34~40)

(Continued)

# Troubleshooting

Symptom	Possible Cause	Probable Solution
Cannot print ASCII characters with code above 127	Data length is set incorrectly	Set data length as required (☞ P. 33, 34~40)
Fanfold paper is jamming	Paper is not installed correctly in tractors	Set paper feed selector to "□" position to easily remove jammed paper Reinstall paper correctly into the tractors (☞ P. 22~25)
Labels or paper is jamming	Label or paper is stuck on or under the platen	Remove the platen, clear the debris and clean the platen (☞ P. 57)
Paper jams when using the built-in sheet feeder	Due to varying paper weights, construction and environmental conditions paper handling through the built-in sheet feeder at maximum capacity cannot be guaranteed	Use less than the maximum capacity in the built-in sheet feeder
*Printer does not print in color	Color Kit option (KX-PCK12) is not installed (KX-P2130 only)	Install the Color Kit option (KX-PCK12)
	Incorrect emulation is set	Select proper printer driver in your software (☞ P. 28~30)
	The motor unit cable is improperly installed to the color connector	Reinstall the motor unit cable in the color connector (☞ Color Kit Installation Manual)
*The bottom of the characters are a different color from the top	Yellow color adjustment lever is not in proper position	Move the yellow color adjustment lever toward the rear of the printer (☞ P. 27)
*The top of the characters are a different color from the bottom	Yellow color adjustment lever is not in proper position	Move the yellow color adjustment lever toward the front of the printer (☞ P. 27)
*Printer prints color during the self test but not from your application software	The proper printer driver selection is not set in the application software	Select the proper printer driver selection for your printer model (☞ P. 28~30)
	The color setting is off in the printer driver	Turn the color setting to on in the printer driver (☞ P. 30)
*Printer will only print one color at a time	Multi-color printing can only be performed from computer software, it can not be controlled by the Setup Disk	Use computer software that has the proper color printer selection (☞ P. 28~30)

\* These symptoms apply to the KX-P2135 or the KX-P2130 with the Color Kit option (KX-PCK12).



## Platen Removal

This procedure is to allow easy access for removing jammed labels or paper.

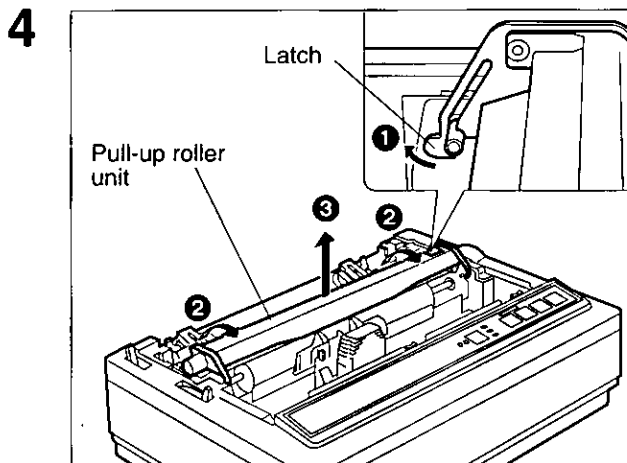
- 1 Turn the power switch off. Move the paper feed selector to the "□" position (Friction mode).

**Caution:**

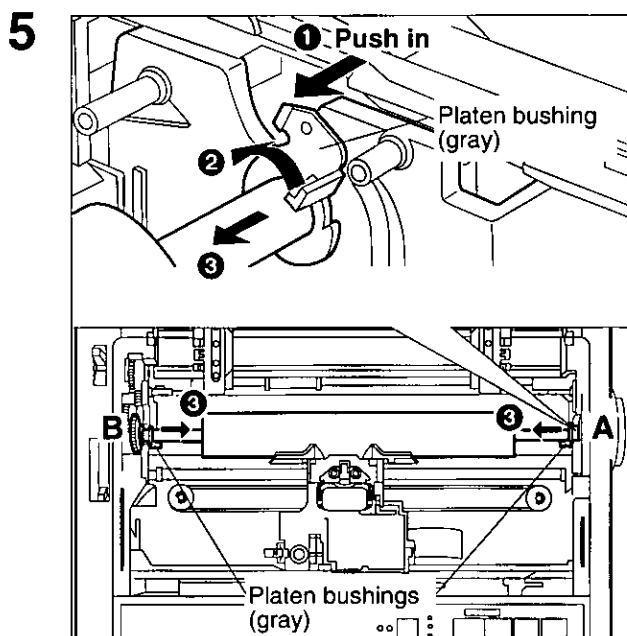
- If the printer has been operating, the printhead may be hot. Use caution or allow unit to cool before attempting removal of the platen.

- 2 Fold the smoked plastic cover forward and remove by pulling straight up.

- 3 Remove the built-in sheet feeder. Remove the platen knob by pulling straight off.



- 1 Release the latches on the pull-up roller unit.
- 2 Rotate the pull-up roller unit towards the front of the printer.
- 3 Remove the pull-up roller unit by pulling straight up.

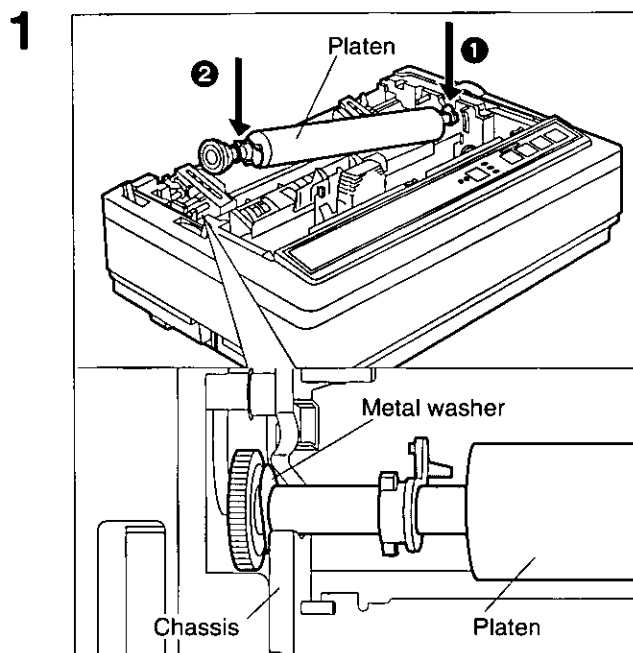


To release the platen bushings.

- A**
- 1 Push the right platen bushing (gray) in and
  - 2 Rotate the platen bushing towards the rear of the printer.
  - 3 Slide the platen bushing inward along the platen shaft.
- B**
- 1 Push the left platen bushing (gray) in and
  - 2 Rotate the platen bushing towards the rear of the printer.
  - 3 Slide the platen bushing inward along the platen shaft.

- 6 Remove the platen by lifting from the left side.

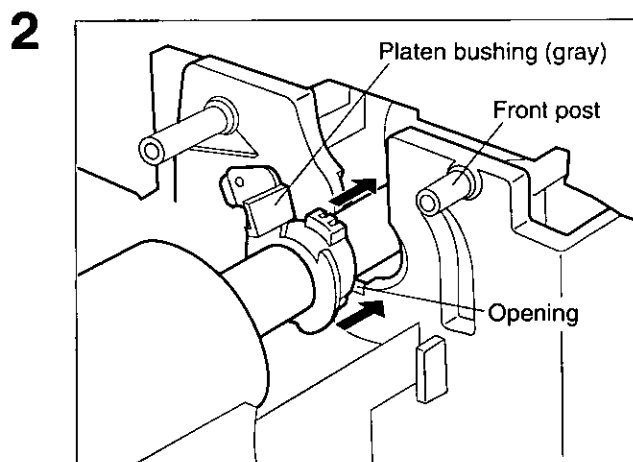
## Platen Installation



Lower the platen into the openings of the chassis (right side first).

**Note:**

- Make sure the metal washer on the left side of the platen is on the outside of the chassis.



**A** Align the right platen bushing with the opening in the chassis and slide the bushing into the opening.

**B** Align the left platen bushing with the opening in the chassis and slide the bushing into the opening.

**3** Rotate the platen bushings towards the front of the printer until they latch into place.

**4** Reinstall the pull-up roller unit by hooking onto the front posts and rotating back until it snaps into place.

**5** Reinstall the built-in sheet feeder, smoked plastic cover and platen knob.

# Initialization and Hex Dump

## Initialization

The printer is initialized under the following conditions:

- the AC power is turned on
- the  $\overline{\text{PRIME}}$  signal is received
- the RESET PRINTER command is received
- the clear buffer function is used

When the printer is initialized, the following conditions are set:

- the print buffer is cleared
- the receive buffer is cleared (not cleared by RESET PRINTER command)
- the download character buffer is cleared (not cleared by  $\overline{\text{PRIME}}$  signal in IBM Proprinter X24E mode or by RESET PRINTER command)
- horizontal tabs are set every 8 columns
- vertical tab settings are cleared
- all modes set by control and escape commands will be cleared
- present form position is designated as top of form
- the Self Test mode is cleared
- the Control Panel settings are read and set
- Control Panel settings are not changed by  $\overline{\text{PRIME}}$  signal or RESET PRINTER command\*
- the printhead goes to the home position

\*Some software packages send  $\overline{\text{PRIME}}$  signal at the beginning of their programs. Print modes set by the Control Panel will not change.

## User Clear Function

This function initializes the printer from the Control Panel. This feature is very useful when you want to clear the receive buffer (information recently sent from the computer and is currently printing) without changing the Control Panel settings.

- 1** Press **ON LINE** to stop the printing and enter the OFF LINE mode.
- 2** While pressing **FONT**, press **ON LINE** to clear the data in the receive buffer.
- 3** Press **ON LINE** to re-enter the ON LINE mode.

## Hex Dump

In this mode, all data received from the computer is printed in hex code instead of the normal ASCII characters. Function codes for the printer (CR, LF, HT, etc.) are not executed. This mode is very useful to debug programs.

### To enter the Hex Dump mode:

While pressing **FONT**, turn the power on.

### To release the Hex Dump mode:

Turn the power off, then back on.

# Printer Specifications

<b>Power requirements:</b>	Refer to the nameplate located on the rear of the printer.																														
<b>Frequency:</b>																															
<b>Current:</b>																															
<b>Interface:</b>	Centronics parallel																														
<b>Print fonts:</b>	3 Draft (Pica, Elite, Micron) 7 Letter Quality (Roman, Sans Serif, Courier, Prestige, Script, OCR-B, Bold PS)																														
<b>Software emulation:</b>	Epson LQ-860 IBM Proprinter X24E																														
<b>Buffer:</b>	14K (standard), additional 32K (optional KX-P44)																														
<b>Character sets:</b>	96 ASCII characters, 96 Italic ASCII characters, 33 International characters—14 countries & LEGAL Set 158 IBM-PC special characters, 38 Multilingual characters																														
<b>Dot configuration:</b>	<table border="0"> <tr> <td colspan="4">1/127 inch (0.2 mm) dot diameter</td> </tr> <tr> <td><b>Matrix</b></td> <td>(Hor. x Ver.)</td> <td><b>Draft</b></td> <td><b>LQ</b></td> </tr> <tr> <td></td> <td></td> <td>9x24</td> <td>30x24</td> </tr> <tr> <td><b>Dot pitch</b></td> <td>(Hor.)</td> <td>1/120"</td> <td>1/360"</td> </tr> <tr> <td></td> <td></td> <td>(0.21 mm)</td> <td>(0.07 mm)</td> </tr> <tr> <td></td> <td>(Ver.)</td> <td>1/180"</td> <td>1/180"</td> </tr> <tr> <td></td> <td></td> <td>(0.14 mm)</td> <td>(0.14 mm)</td> </tr> </table>			1/127 inch (0.2 mm) dot diameter				<b>Matrix</b>	(Hor. x Ver.)	<b>Draft</b>	<b>LQ</b>			9x24	30x24	<b>Dot pitch</b>	(Hor.)	1/120"	1/360"			(0.21 mm)	(0.07 mm)		(Ver.)	1/180"	1/180"			(0.14 mm)	(0.14 mm)
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		(0.14 mm)	(0.14 mm)																												
<b>Maximum number of characters per line (cpl):</b>	<table border="0"> <tr> <td>Pica [10 cpi (character per inch)]</td> <td>80 cpl</td> </tr> <tr> <td>Elite (12 cpi)</td> <td>96 cpl</td> </tr> <tr> <td>Micron (15 cpi)</td> <td>120 cpl</td> </tr> <tr> <td>Compressed (17 cpi)</td> <td>137 cpl</td> </tr> <tr> <td>Elite compressed (20 cpi)</td> <td>160 cpl</td> </tr> <tr> <td>Pica elongated (5 cpi)</td> <td>40 cpl</td> </tr> <tr> <td>Elite elongated (6 cpi)</td> <td>48 cpl</td> </tr> <tr> <td>Micron elongated (7.5 cpi)</td> <td>60 cpl</td> </tr> <tr> <td>Compressed elongated (8.5 cpi)</td> <td>68 cpl</td> </tr> <tr> <td>Elite compressed elongated (10 cpi)</td> <td>80 cpl</td> </tr> </table>			Pica [10 cpi (character per inch)]	80 cpl	Elite (12 cpi)	96 cpl	Micron (15 cpi)	120 cpl	Compressed (17 cpi)	137 cpl	Elite compressed (20 cpi)	160 cpl	Pica elongated (5 cpi)	40 cpl	Elite elongated (6 cpi)	48 cpl	Micron elongated (7.5 cpi)	60 cpl	Compressed elongated (8.5 cpi)	68 cpl	Elite compressed elongated (10 cpi)	80 cpl								
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Compressed elongated (8.5 cpi)	68 cpl																														
Elite compressed elongated (10 cpi)	80 cpl																														
<b>Printing speed [characters per second (cps)]:</b>	<table border="0"> <tr> <td></td> <td><b>Micron</b></td> <td><b>Elite</b></td> <td><b>Pica</b></td> </tr> <tr> <td><b>Draft</b></td> <td>250 cps</td> <td>200 cps</td> <td>167 cps</td> </tr> <tr> <td><b>Letter Quality</b></td> <td>83 cps</td> <td>67 cps</td> <td>56 cps</td> </tr> </table>				<b>Micron</b>	<b>Elite</b>	<b>Pica</b>	<b>Draft</b>	250 cps	200 cps	167 cps	<b>Letter Quality</b>	83 cps	67 cps	56 cps																
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<b>Draft</b>	250 cps	200 cps	167 cps																												
<b>Letter Quality</b>	83 cps	67 cps	56 cps																												
<b>Printing direction:</b>	Bi-directional character & graphics Uni-directional character & graphics: Color printing																														
<b>Line feed time:</b>	Approx. 90 msec [with 1/6 inch (4.2 mm) line feeding]																														
<b>Paper feed:</b>	Tractor Push feed (with fanfold paper) Friction feed (with single sheets or envelopes)																														
<b>Noise level:</b>	Less than 46.5 dB(A) in Normal Mode Less than 43.5 dB(A) in Super Quiet Mode																														

(Continued)

# Printer Specifications

<b>Operating environment:</b>	Temperature: 10°C–35°C {50°F–95°F} Humidity: 20–80% RH (Please allow the printer to stabilize at room temperature within the operating temperature range before operation)
<b>Power consumption:</b>	Max—160 W Stand by—5 W Self Test—45 W
<b>Storage environment:</b>	Temperature: –20°C–60°C {–4°F–140°F} Humidity: 10–90% RH
<b>Head service life:</b>	Black ribbon: Approx. 200 million strokes in DRAFT mode Color ribbon: Approx. 100 million strokes in DRAFT mode
<b>Ribbon:</b>	Cassette seamless fabric ribbon Black ribbon cassette KX-P160: Life expectancy (in DRAFT mode) (rolling ASCII) Approx. 3 million characters Color ribbon cassette KX-P165: Life expectancy (in DRAFT mode) (rolling ASCII) Black: Approx. 0.7 million characters Red (Magenta)/ Blue (Cyan): Approx. 0.7 million characters Yellow: Approx. 0.4 million characters
<b>Detectors:</b>	Paper out detector Overheat detector Overload detector
<b>Dimensions:</b>	434 (W)×314 (D)×147 (H) mm {17.1"×12.4"×5.8"}
<b>Mass (Weight):</b>	Approx. 5 kg {11 lbs}

# Paper Specifications

Paper which may be used with this unit must be within the specifications provided below.

## Fanfold Paper

**Width:** 4~10 inches (102~254 mm)

**Quality and number of sheets:**

Type of paper	Sheets	Weight	
		lbs	g/m <sup>2</sup>
Fine-quality paper	1	16~24	60~90
Non-carbon	2~4	11~14 (17*)	41~53 (64*)
Multi-layered with carbon	2	11~14 (17*)	41~53 (64*)

(\*only for the last sheet)

**Note:**

- In multi-layered paper with carbon, the carbon is equivalent to a sheet of paper.
- "Weight in pounds" represents the weight of 500 [17×22 inches (432×559 mm)] sheets.
- The printer will handle multipart forms up to 0.013 inch (0.32 mm) thick. Up to 4 copies of 14 lb. chemical release paper can be used.

## Single Sheet

**SINGLE SHEET mode**

**Width:** 4~11.7 inches (102~297 mm)

**Height:** 5~14.3 inches (127~363 mm)

**Weight in pounds (g/m<sup>2</sup>):** 14~24 lbs (53~90 g/m<sup>2</sup>)

**MULTI SHEET mode**

**Width:** 4~11.7 inches (102~297 mm)

**Height:** 5~11.7 inches (127~297 mm)

**Weight in pounds (g/m<sup>2</sup>):** 17~24 lbs (64~90 g/m<sup>2</sup>)

**Note:**

- Paper should be within operating temperature and humidity ranges at least 24 hours prior to use.
- Due to letter head varying in paper weight and construction, we cannot guarantee print quality and paper handling for all types.

## Envelope

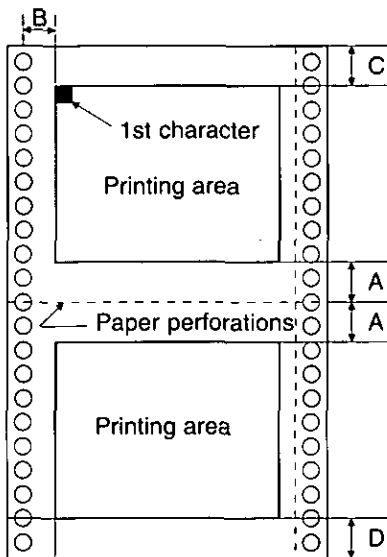
#6 and #10 size envelopes are recommended. Since envelopes vary in size, paper weight and construction, we cannot guarantee print quality and paper handling for all types of envelopes.

**Note:**

- To optimize print quality, printing should not occur in areas where the edges overlap.

## Printing Area

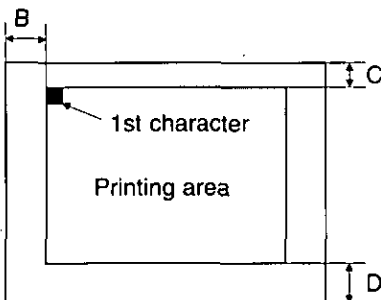
### Fanfold paper



	Fanfold paper
<b>A</b>	1" (25.4 mm)
<b>B</b>	0.7" (17.8 mm)
<b>C</b>	0.33" (8.38 mm)
<b>D</b>	1" (25.4 mm)

- A:** Value A indicates the area near the paper perforations where the quality may not be optimum.
- B:** Value B indicates the minimum distance between the sprockets and first printable character. (When the left tractor is set on the left end and the margin is set to 0.)
- C:** Value C indicates the area from the top edge of the paper to the top of the first printed character.
- D:** Value D indicates the position where paper out is detected and printing may not be optimum.

### Single sheet and Envelope



	Single sheet and Envelope
<b>B</b>	1.5" (38 mm)
<b>C</b>	0.33" (8.38 mm)
<b>D</b>	1" (25.4 mm)

- B:** Value B indicates the minimum distance between the edge of the paper and the first printable character. (When the left paper guide is set to the left end and the margin is set to 0.)
- C:** Value C indicates the area from the top edge of the paper to the top of the first printed character.
- D:** Value D indicates the position where paper out is detected and printing may not be optimum. (When printing on envelopes, do not print on area where edges overlap. Print quality may not be optimum.)

# Interfacing

## Parallel Interfacing

A method of transferring data from a computer to a printer through a parallel interface based on the Centronics Standard.

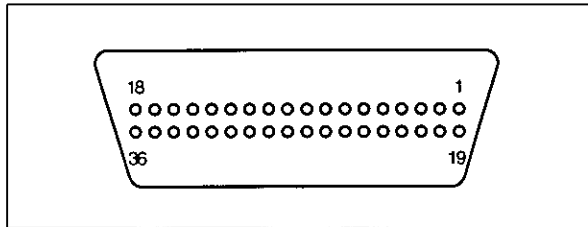
### Specifications:

- data transfer speed: 1000 cps minimum
- synchronization: external STROBE pulse
- logic levels: TTL (Transistor-Transistor-Logic) levels
- handshaking: BUSY and  $\overline{\text{ACK}}$  signals
- connector type: 57-30360 (AMPHENOL) or equivalent
- cable: use a shielded cable (6'5" / 1.95 meters) or less in length.

When the printer is processing data, the BUSY signal is high. The printer will not accept new data from the computer. After the processing is completed, the BUSY signal goes low. (The BUSY signal is also high when the printer is OFF LINE). When the busy signal occurs, the  $\overline{\text{ACK}}$  signal goes low indicating to the computer that the data has been processed and the printer is ready to accept more data. This handshaking routine occurs each time a character is sent to the printer.

	BUSY	SLCT	PO	$\overline{\text{ERROR}}$
ON LINE	LOW	HIGH	LOW	HIGH
OFF LINE	HIGH	LOW	LOW	LOW
PAPER OUT	HIGH	LOW	HIGH	LOW

Printer Status signals



Parallel Interface Connector (Printer side)

Signal pin	Return side pin	Signal	Direction
1	19	STB	Input
2	20	DATA 1	
3	21	DATA 2	
4	22	DATA 3	
5	23	DATA 4	
6	24	DATA 5	
7	25	DATA 6	
8	26	DATA 7	
9	27	DATA 8	
10	28	$\overline{\text{ACK}}$	Output
11	29	BUSY	
12		PO	

Signal pin	Return side pin	Signal	Direction
13		SLCT	Output
14		$\overline{\text{AUTO FEED XT}}$	Input
15			
16		SG	
17		FG	
18		+5V	Output
31	30	$\overline{\text{PRIME}}$	Input
32		$\overline{\text{ERROR}}$	Output
33		SG	
34			
35			
36		$\overline{\text{SLCT IN}}$	Input

Pin Configuration (Parallel)



## Connector pin signals

### $\overline{\text{STB}}$ ...STROBE

- This is a synchronizing input signal to read data into the printer.
- This signal is normally high. Data is read in when it is low.

### DATA 1–DATA 8

- These are the input signals which carry the 8 data bits of information.
- The signal is read in synchronization with the STROBE pulse. A high level indicates a logical “1”.

### $\overline{\text{ACK}}$ ...ACKNOWLEDGE

- This is an output signal to the computer indicating that the printer is ready to receive the next data. When the condition becomes true, the signal goes low.
- The  $\overline{\text{ACK}}$  signal is automatically sent whenever the printer is switched ON LINE and the BUSY signal drops from high to low.

### BUSY

- This output signal indicates the status of the printer cannot receive data.
- The signal is high under the following conditions:
  1. receive buffer full
  2. printer is processing data
  3. printer is OFF LINE
  4. printer is in an error condition

### PO...PAPER OUT

- This output signal indicates the absence of paper and goes high during a “Paper Out” condition.

### SLCT...SELECT

- This output signal is high in the ON LINE state and low when OFF LINE.
- The printer enters the ON LINE state:
  1. when the printer is turned on
  2. when  $\overline{\text{PRIME}}$  is received
  3. when the RESET command is received
  4. when the ON LINE switch is pressed
- The printer enters the OFF LINE state:
  1. when the printer is out of paper
  2. when the printer is switched OFF LINE

### $\overline{\text{AUTO FEED XT}}$ ( $\overline{\text{AFXT}}$ )

- While this input signal is low, one line feed (LF) command will be added to each carriage return (CR).
- Auto LF setting in the Function mode can alter the response by the printer to an  $\overline{\text{AFXT}}$  signal. If auto LF is ON, the printer will perform a CR+LF regardless of the level of the  $\overline{\text{AFXT}}$  signal. When auto LF is OFF, this automatic action is disabled.

# Interfacing

## SG...SIGNAL GROUND

- The twisted pair return wires (pins 19–30) are connected to signal ground.

## FG...FRAME GROUND

- Frame ground is the same as chassis ground.

## +5 V

- This is for evaluation only. It should not be used to supply power for external equipment.

## PRIME

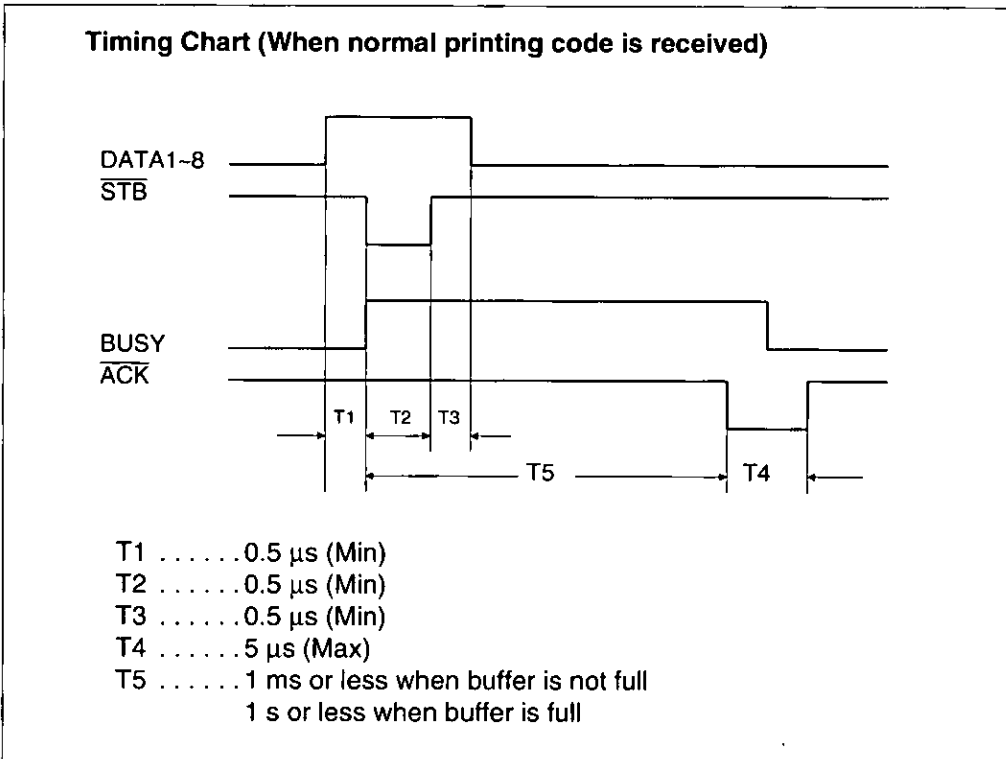
- This input signal is normally high and goes low to reset the printer. It can be received anytime during printer operation.

## ERROR

- This output signal is normally high, and goes low when an error occurs. An error condition can be caused by:
  1. a "Paper Out" condition
  2. the printer is OFF LINE
  3. an overload condition exists

## SLCT IN

- This input signal is normally low, and goes high when you use the attached Setup program.



Timing Diagram

# Character Set Tables

## Epson Italic Character Set (USA) PC437

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240		
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
0	0	NUL									SP	0	1	2	3	4		
1	1		DC1	!	1	A	Q	a	q		DC1	/	I	A	Q	a	q	
2	2		DC2	"	2	B	R	b	r		DC2	"	2	B	R	b	r	
3	3		DC3	#	3	C	S	c	s		DC3	#	3	C	S	c	s	
4	4		DC4	\$	4	D	T	d	t		DC4	\$	4	D	T	d	t	
5	5			%	5	E	U	e	u			%	5	E	U	e	u	
6	6			&	6	F	V	f	v			&	6	F	V	f	v	
7	7			'	7	G	W	g	w			'	7	G	W	g	w	
8	8	BS	CAN	(	8	H	X	h	x	BS	CAN	(	8	H	X	h	x	
9	9	HT	EM	)	9	I	Y	i	y	HT	EM	)	9	I	Y	i	y	
10	A	LF		*	:	J	Z	j	z	LF		*	:	J	Z	j	z	
11	B	VT	ESC	+	;	K	[	k	[	VT	ESC	+	;	K	[	k	[	
12	C	FF		,	<	L	\	l	\	FF		,	<	L	\	l	\	
13	D	CR		-	=	M	]	m	]	CR		-	=	M	]	m	]	
14	E	SO		.	>	N	^	n	^	SO		.	>	N	^	n	^	
15	F	SI		/	?	O	_	o	_	DEL	SI		/	?	O	_	o	NUL

## Epson Graphic Character Set 2 (USA)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	NUL									SP	0	1	2	3	4	
1	1		DC1	!	1	A	Q	a	q	ü	ä	ï	ï	±	±	±	
2	2		DC2	"	2	B	R	b	r	é	ë	ö	ö	±	±	±	
3	3		DC3	#	3	C	S	c	s	ä	ö	ü	ü	±	±	±	
4	4		DC4	\$	4	D	T	d	t	ä	ö	ü	ü	±	±	±	
5	5			%	5	E	U	e	u	ä	ö	ü	ü	±	±	±	
6	6			&	6	F	V	f	v	ä	ö	ü	ü	±	±	±	
7	7			'	7	G	W	g	w	ä	ö	ü	ü	±	±	±	
8	8	BS	CAN	(	8	H	X	h	x	ä	ö	ü	ü	±	±	±	
9	9	HT	EM	)	9	I	Y	i	y	ä	ö	ü	ü	±	±	±	
10	A	LF		*	:	J	Z	j	z	ä	ö	ü	ü	±	±	±	
11	B	VT	ESC	+	;	K	[	k	[	ä	ö	ü	ü	±	±	±	
12	C	FF		,	<	L	\	l	\	ä	ö	ü	ü	±	±	±	
13	D	CR		-	=	M	]	m	]	ä	ö	ü	ü	±	±	±	
14	E	SO		.	>	N	^	n	^	ä	ö	ü	ü	±	±	±	
15	F	SI		/	?	O	_	o	_	DEL	A	f	>	±	±	±	SP

**Note:**

•Set 1 is the same one which 80H-9FH is switched to 00H-1FH and 95H is switched to NUL.

## Epson Character Set 2 (Multilingual) PC850

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	NUL									SP	0	1	2	3	4	
1	1		DC1	!	1	A	Q	a	q	ü	ä	ï	ï	±	±	±	
2	2		DC2	"	2	B	R	b	r	é	ë	ö	ö	±	±	±	
3	3		DC3	#	3	C	S	c	s	ä	ö	ü	ü	±	±	±	
4	4		DC4	\$	4	D	T	d	t	ä	ö	ü	ü	±	±	±	
5	5			%	5	E	U	e	u	ä	ö	ü	ü	±	±	±	
6	6			&	6	F	V	f	v	ä	ö	ü	ü	±	±	±	
7	7			'	7	G	W	g	w	ä	ö	ü	ü	±	±	±	
8	8	BS	CAN	(	8	H	X	h	x	ä	ö	ü	ü	±	±	±	
9	9	HT	EM	)	9	I	Y	i	y	ä	ö	ü	ü	±	±	±	
10	A	LF		*	:	J	Z	j	z	ä	ö	ü	ü	±	±	±	
11	B	VT	ESC	+	;	K	[	k	[	ä	ö	ü	ü	±	±	±	
12	C	FF		,	<	L	\	l	\	ä	ö	ü	ü	±	±	±	
13	D	CR		-	=	M	]	m	]	ä	ö	ü	ü	±	±	±	
14	E	SO		.	>	N	^	n	^	ä	ö	ü	ü	±	±	±	
15	F	SI		/	?	O	_	o	_	DEL	A	f	>	±	±	±	SP

## Epson Character Set 2 (Portugal) PC850

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	NUL									SP	0	1	2	3	4	
1	1		DC1	!	1	A	Q	a	q	ü	ä	ï	ï	±	±	±	
2	2		DC2	"	2	B	R	b	r	é	ë	ö	ö	±	±	±	
3	3		DC3	#	3	C	S	c	s	ä	ö	ü	ü	±	±	±	
4	4		DC4	\$	4	D	T	d	t	ä	ö	ü	ü	±	±	±	
5	5			%	5	E	U	e	u	ä	ö	ü	ü	±	±	±	
6	6			&	6	F	V	f	v	ä	ö	ü	ü	±	±	±	
7	7			'	7	G	W	g	w	ä	ö	ü	ü	±	±	±	
8	8	BS	CAN	(	8	H	X	h	x	ä	ö	ü	ü	±	±	±	
9	9	HT	EM	)	9	I	Y	i	y	ä	ö	ü	ü	±	±	±	
10	A	LF		*	:	J	Z	j	z	ä	ö	ü	ü	±	±	±	
11	B	VT	ESC	+	;	K	[	k	[	ä	ö	ü	ü	±	±	±	
12	C	FF		,	<	L	\	l	\	ä	ö	ü	ü	±	±	±	
13	D	CR		-	=	M	]	m	]	ä	ö	ü	ü	±	±	±	
14	E	SO		.	>	N	^	n	^	ä	ö	ü	ü	±	±	±	
15	F	SI		/	?	O	_	o	_	DEL	A	ö	>	±	±	±	SP

**Note:**

•Set 1 is the same one which 80H-9FH is switched to 00H-1FH and 95H is switched to NUL.

# Character Set Tables

**Epson Character Set 2 (Canada-French)**  
PC863

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	'	p	Ç	È	Ì	Ë	À	Å	Æ
1	1		DC1	!	1	À	Q	a	q	ù	è	'	Ë	±	Û	±
2	2		DC2	"	2	B	R	b	r	é	É	ó	Ë	Û	Û	±
3	3		DC3	#	3	C	S	c	s	â	â	ú		†	â	±
4	4		DC4	\$	4	D	T	d	t	ä	ä	ï	-	â	±	±
5	5		\$	%	5	E	U	e	u	å	å	ï	†	Û	±	±
6	6		\$	&	6	F	V	f	v	ö	ö	ï	†	Û	±	±
7	7		'	7	G	W	g	w	ç	ç	û	'	†	Û	±	±
8	8	BS	CAN	(	8	H	X	h	x	ê	ê	ï	†	Û	±	±
9	9	HT	EM	)	9	I	Y	i	y	ë	ë	ï	†	Û	±	±
10	A	LF		*	:	J	Z	j	z	ø	ø	ï	†	Û	±	±
11	B	VT	ESC	+	:	K	[	k	{	ï	ï	†	†	Û	±	±
12	C	FF		,	<	L	\	l		ï	ï	†	†	Û	±	±
13	D	CR		-	=	M	]	m	}	ï	ï	†	†	Û	±	±
14	E	SO		.	>	N	^	n	~	ï	ï	†	†	Û	±	±
15	F	SI		/	?	O	_	o	DEL	ï	ï	†	†	Û	±	±

**Epson Character Set 2 (Norway)**  
PC865

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	'	p	Ç	È	Ì	Ë	À	Å	Æ
1	1		DC1	!	1	À	Q	a	q	ù	è	'	Ë	±	Û	±
2	2		DC2	"	2	B	R	b	r	é	É	ó	Ë	Û	Û	±
3	3		DC3	#	3	C	S	c	s	â	â	ú		†	â	±
4	4		DC4	\$	4	D	T	d	t	ä	ä	ï	-	â	±	±
5	5		\$	%	5	E	U	e	u	å	å	ï	†	Û	±	±
6	6		\$	&	6	F	V	f	v	ö	ö	ï	†	Û	±	±
7	7		'	7	G	W	g	w	ç	ç	û	'	†	Û	±	±
8	8	BS	CAN	(	8	H	X	h	x	ê	ê	ï	†	Û	±	±
9	9	HT	EM	)	9	I	Y	i	y	ë	ë	ï	†	Û	±	±
10	A	LF		*	:	J	Z	j	z	ø	ø	ï	†	Û	±	±
11	B	VT	ESC	+	:	K	[	k	{	ï	ï	†	†	Û	±	±
12	C	FF		,	<	L	\	l		ï	ï	†	†	Û	±	±
13	D	CR		-	=	M	]	m	}	ï	ï	†	†	Û	±	±
14	E	SO		.	>	N	^	n	~	ï	ï	†	†	Û	±	±
15	F	SI		/	?	O	_	o	DEL	ï	ï	†	†	Û	±	±

**Note:**

•Set 1 is the same one which 80H-9FH is switched to 00H-1FH and 95H is switched to NUL.

**Epson Character Set 2 (Turkey)**  
PC853

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	'	p	Ç	È	Ì	Ë	À	Å	Æ
1	1		DC1	!	1	À	Q	a	q	ù	è	'	Ë	±	Û	±
2	2		DC2	"	2	B	R	b	r	é	É	ó	Ë	Û	Û	±
3	3		DC3	#	3	C	S	c	s	â	â	ú		†	â	±
4	4		DC4	\$	4	D	T	d	t	ä	ä	ï	-	â	±	±
5	5		\$	%	5	E	U	e	u	å	å	ï	†	Û	±	±
6	6		\$	&	6	F	V	f	v	ö	ö	ï	†	Û	±	±
7	7		'	7	G	W	g	w	ç	ç	û	'	†	Û	±	±
8	8	BS	CAN	(	8	H	X	h	x	ê	ê	ï	†	Û	±	±
9	9	HT	EM	)	9	I	Y	i	y	ë	ë	ï	†	Û	±	±
10	A	LF		*	:	J	Z	j	z	ø	ø	ï	†	Û	±	±
11	B	VT	ESC	+	:	K	[	k	{	ï	ï	†	†	Û	±	±
12	C	FF		,	<	L	\	l		ï	ï	†	†	Û	±	±
13	D	CR		-	=	M	]	m	}	ï	ï	†	†	Û	±	±
14	E	SO		.	>	N	^	n	~	ï	ï	†	†	Û	±	±
15	F	SI		/	?	O	_	o	DEL	ï	ï	†	†	Û	±	±

**Epson Character Set (BRASCII)**

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	'	p	NUL		SP	'	À	Å	Æ
1	1		DC1	!	1	À	Q	a	q		DC1	!	±	À	Å	Æ
2	2		DC2	"	2	B	R	b	r		DC2	"	±	À	Å	Æ
3	3		DC3	#	3	C	S	c	s		DC3	#	±	À	Å	Æ
4	4		DC4	\$	4	D	T	d	t		DC4	\$	±	À	Å	Æ
5	5		\$	%	5	E	U	e	u			W	µ	À	Å	Æ
6	6		\$	&	6	F	V	f	v			l	¶	À	Å	Æ
7	7		'	7	G	W	g	w				\$	-	Ç	Q	ç
8	8	BS	CAN	(	8	H	X	h	x	BS	CAN	'		È	É	Ê
9	9	HT	EM	)	9	I	Y	i	y	HT	EM	0		È	É	Ê
10	A	LF		*	:	J	Z	j	z	LF		À	Q	È	É	Ê
11	B	VT	ESC	+	:	K	[	k	{	VT	ESC	<	>	È	É	Ê
12	C	FF		,	<	L	\	l		FF		ï	ï	Û	±	±
13	D	CR		-	=	M	]	m	}	CR		ï	ï	Û	±	±
14	E	SO		.	>	N	^	n	~	SO		ï	ï	Û	±	±
15	F	SI		/	?	O	_	o	DEL	SI		ï	ï	Û	±	±

**Note:**

•Set 1 is the same one which 80H-9FH is switched to 00H-1FH and 95H is switched to NUL.

## Epson Character Set (Abicomp)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	e	P	´	p	NUL		SP	o	i	o	SP SP
1	1		DC1		1	A	Q	a	q		DC1	A	O	a	o	SP SP
2	2		DC2	"	2	B	R	b	r		DC2	A	O	4	o	SP SP
3	3		DC3	#	3	C	S	c	s		DC3	A	O	A	o	SP SP
4	4		DC4	\$	4	D	T	d	t		DC4	A	O	A	o	SP SP
5	5			%	5	E	U	e	u			A	O	a	o	SP SP
6	6			&	6	F	V	f	v			C	O	c	u	SP SP
7	7			'	7	G	W	g	w			E	O	e	u	SP SP
8	8	BS	CAN	(	8	H	X	h	x	BS	CAN	E	O	e	u	SP SP
9	9	HT	EM	)	9	I	Y	i	y	HT	EM	E	O	e	u	SP SP
10	A	LF		*	:	J	Z	j	z	LF		E	Y	e	y	SP SP
11	B	VT	ESC	+	;	K	[	k	{	VT	ESC	i	"	l	o	SP SP
12	C	FF		,	<	L	\	l	!	FF		i	E	i	a	SP SP
13	D	CR		-	=	M	]	m	}	CR		i	"	i	o	SP SP
14	E	SO		.	>	N	^	n	~	SO		Y	S	i	z	SP SP
15	F	SI		/	?	O	_	o	DEL	SI		R	"	o	z	SP DEL

# Character Set Tables

## IBM Character Set 2 (USA)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	8	P	'	p	Q	E	A	U	L	a	#
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	ñ	±	Y	B
2	2		DC2	"	2	B	R	b	r	é	æ	ó	ñ	±	Y	Γ
3	3	¶		#	3	C	S	c	s	á	ó	ú		†	é	x
4	4	⊕	DC4	\$	4	D	T	d	t	ä	ö	ñ	†	-	é	f
5	5	⊕	\$	%	5	E	U	e	u	á	ó	R	†	†	o	J
6	6	⊕		&	6	F	V	f	v	á	ó	B	†	†	u	+
7	7	⊕		'	7	G	W	g	w	c	ú	Q	†	†	†	*
8	8	BS	CAN	(	8	H	X	h	x	é	ý	¿	†	†	†	*
9	9	HT		)	9	I	Y	i	y	é	ó	-	†	†	†	*
10	A	LP		*	:	J	Z	j	z	é	ó	-	†	†	†	*
11	B	VT	ESC	+	:	K	[	k	{	í	é	†	†	†	†	/
12	C	PF		,	<	L	\	l		í	é	†	†	†	†	*
13	D	CR		-	=	M	]	m	}	í	é	†	†	†	†	*
14	E	SO		.	>	N	^	n	~	á	ñ	<	†	†	†	*
15	F	SI		/	?	O	_	o	ó	á	f	>	†	†	†	SP

**Note:**

- Set 1 is the same one which 03H-06H and 15H is switched to NUL, and 80H-9FH is switched to 00H-1FH.

## IBM All Character Chart (USA)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	⊕	⊕	SP	0	8	P	'	p	Q	E	A	U	L	a	#
1	1	⊕	⊕	!	1	A	Q	a	q	ü	æ	í	ñ	±	Y	B
2	2	⊕	⊕	"	2	B	R	b	r	é	æ	ó	ñ	±	Y	Γ
3	3	¶	¶	#	3	C	S	c	s	á	ó	ú		†	é	x
4	4	⊕	⊕	\$	4	D	T	d	t	ä	ö	ñ	†	-	é	f
5	5	⊕	⊕	%	5	E	U	e	u	á	ó	R	†	†	o	J
6	6	⊕	⊕	&	6	F	V	f	v	á	ó	B	†	†	u	+
7	7	⊕	⊕	'	7	G	W	g	w	c	ú	Q	†	†	†	*
8	8	⊕	⊕	(	8	H	X	h	x	é	ý	¿	†	†	†	*
9	9	⊕	⊕	)	9	I	Y	i	y	é	ó	-	†	†	†	*
10	A	⊕	⊕	*	:	J	Z	j	z	é	ó	-	†	†	†	*
11	B	⊕	⊕	+	:	K	[	k	{	í	é	†	†	†	†	/
12	C	⊕	⊕	,	<	L	\	l		í	é	†	†	†	†	*
13	D	⊕	⊕	-	=	M	]	m	}	í	é	†	†	†	†	*
14	E	⊕	⊕	.	>	N	^	n	~	á	ñ	<	†	†	†	*
15	F	⊕	⊕	/	?	O	_	o	ó	á	f	>	†	†	†	SP

## IBM Character Set 2 (Multilingual)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	8	P	'	p	Q	E	A	U	L	ó	ó
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	ñ	±	D	B
2	2		DC2	"	2	B	R	b	r	é	æ	ó	ñ	±	E	ó
3	3	¶		#	3	C	S	c	s	á	ó	ú		†	E	ó
4	4	⊕	DC4	\$	4	D	T	d	t	ä	ö	ñ	†	-	E	ó
5	5	⊕	\$	%	5	E	U	e	u	á	ó	R	†	†	ó	ó
6	6	⊕		&	6	F	V	f	v	á	ó	B	†	†	í	u
7	7	⊕		'	7	G	W	g	w	c	ú	Q	†	†	í	b
8	8	BS	CAN	(	8	H	X	h	x	é	ý	¿	†	†	†	*
9	9	HT		)	9	I	Y	i	y	é	ó	-	†	†	†	*
10	A	LP		*	:	J	Z	j	z	é	ó	-	†	†	†	*
11	B	VT	ESC	+	:	K	[	k	{	í	é	†	†	†	†	/
12	C	PF		,	<	L	\	l		í	é	†	†	†	†	*
13	D	CR		-	=	M	]	m	}	í	é	†	†	†	†	*
14	E	SO		.	>	N	^	n	~	á	ñ	<	†	†	†	*
15	F	SI		/	?	O	_	o	ó	á	f	>	†	†	†	SP

**Note:**

- Set 1 is the same one which 03H-06H and 15H is switched to NUL, and 80H-9FH is switched to 00H-1FH.

## IBM All Character Chart (Multilingual)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	⊕	⊕	SP	0	8	P	'	p	Q	E	A	U	L	ó	ó
1	1	⊕	⊕	!	1	A	Q	a	q	ü	æ	í	ñ	±	D	B
2	2	⊕	⊕	"	2	B	R	b	r	é	æ	ó	ñ	±	E	ó
3	3	¶	¶	#	3	C	S	c	s	á	ó	ú		†	E	ó
4	4	⊕	⊕	\$	4	D	T	d	t	ä	ö	ñ	†	-	E	ó
5	5	⊕	⊕	%	5	E	U	e	u	á	ó	R	†	†	ó	ó
6	6	⊕	⊕	&	6	F	V	f	v	á	ó	B	†	†	í	u
7	7	⊕	⊕	'	7	G	W	g	w	c	ú	Q	†	†	í	b
8	8	⊕	⊕	(	8	H	X	h	x	é	ý	¿	†	†	†	*
9	9	⊕	⊕	)	9	I	Y	i	y	é	ó	-	†	†	†	*
10	A	⊕	⊕	*	:	J	Z	j	z	é	ó	-	†	†	†	*
11	B	⊕	⊕	+	:	K	[	k	{	í	é	†	†	†	†	/
12	C	⊕	⊕	,	<	L	\	l		í	é	†	†	†	†	*
13	D	⊕	⊕	-	=	M	]	m	}	í	é	†	†	†	†	*
14	E	⊕	⊕	.	>	N	^	n	~	á	ñ	<	†	†	†	*
15	F	⊕	⊕	/	?	O	_	o	ó	á	f	>	†	†	†	SP

Appendix

## IBM Character Set 2 (Portugal)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	1	P	·	p	ç	ê	ã	ç	l	ã	ã
1	1		DC1	!	1	A	Q	a	q	ü	À	Í	Ë	Ä	Ï	±
2	2		DC2	"	2	B	R	b	r	é	Ê	Ó	Ë	Ï	Ï	±
3	3	v		#	3	C	S	c	s	â	ô	ú		†	×	±
4	4	+	DC4	\$	4	D	T	d	t	ê	õ	ñ	†	-	¸	±
5	5	+	\$	%	5	E	U	e	u	á	ò	ñ	†	†	¸	±
6	6	+		&	6	F	V	f	v	À	Ò	ã	†	†	¸	±
7	7			'	7	G	W	g	w	ç	ù	ó	†	†	¸	±
8	8	BB	CAN	(	8	H	X	h	x	ê	í	¿	†	†	¸	±
9	9	HT		)	9	I	Y	i	y	ê	ó	ó	†	†	¸	±
10	A	LF		*	:	J	Z	j	z	ê	ó	ó	†	†	¸	±
11	B	VT	ESC	+	:	K	[	k	{	í	ç	¿	†	†	¸	±
12	C	FP		,	<	L	\	l		í	ê	¿	†	†	¸	±
13	D	CR		-	=	M	]	m	}	í	ó	¿	†	†	¸	±
14	E	SO		.	>	N	^	n	~	À	h	<	†	†	¸	±
15	F	SI		/	?	O	_	o	¸	À	ó	>	†	†	¸	±

**Note:**

- Set 1 is the same one which 03<sub>H</sub>–06<sub>H</sub> and 15<sub>H</sub> is switched to NUL, and 80<sub>H</sub>–9F<sub>H</sub> is switched to 00<sub>H</sub>–1F<sub>H</sub>.

## IBM All Character (Portugal)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240		
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
0	0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
1	1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
2	2	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
3	3	v	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
4	4	+	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
5	5	+	\$	%	5	E	U	e	u	á	ò	ñ	†	†	¸	±	±	
6	6	+		&	6	F	V	f	v	À	Ò	ã	†	†	¸	±	±	
7	7			'	7	G	W	g	w	ç	ù	ó	†	†	¸	±	±	
8	8	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
9	9	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
10	A	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
11	B	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
12	C	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
13	D	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
14	E	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
15	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	

## IBM Character Set 2 (Canada-French)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	1	P	·	p	ç	ê	ã	ç	l	ã	ã
1	1		DC1	!	1	A	Q	a	q	ü	È	·	Ë	Ä	Ï	±
2	2		DC2	"	2	B	R	b	r	é	Ê	Ó	Ë	Ï	Ï	±
3	3	v		#	3	C	S	c	s	â	ô	ú		†	×	±
4	4	+	DC4	\$	4	D	T	d	t	ê	õ	ñ	†	-	¸	±
5	5	+	\$	%	5	E	U	e	u	á	ò	ñ	†	†	¸	±
6	6	+		&	6	F	V	f	v	À	Ò	ã	†	†	¸	±
7	7			'	7	G	W	g	w	ç	ù	ó	†	†	¸	±
8	8	BB	CAN	(	8	H	X	h	x	ê	í	¿	†	†	¸	±
9	9	HT		)	9	I	Y	i	y	ê	ó	ó	†	†	¸	±
10	A	LF		*	:	J	Z	j	z	ê	ó	ó	†	†	¸	±
11	B	VT	ESC	+	:	K	[	k	{	í	ç	¿	†	†	¸	±
12	C	FP		,	<	L	\	l		í	ê	¿	†	†	¸	±
13	D	CR		-	=	M	]	m	}	í	ó	¿	†	†	¸	±
14	E	SO		.	>	N	^	n	~	À	h	<	†	†	¸	±
15	F	SI		/	?	O	_	o	¸	À	ó	>	†	†	¸	±

**Note:**

- Set 1 is the same one which 03<sub>H</sub>–06<sub>H</sub> and 15<sub>H</sub> is switched to NUL, and 80<sub>H</sub>–9F<sub>H</sub> is switched to 00<sub>H</sub>–1F<sub>H</sub>.

## IBM All Character (Canada-French)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240		
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
0	0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
1	1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
2	2	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
3	3	v	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
4	4	+	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
5	5	+	\$	%	5	E	U	e	u	á	ò	ñ	†	†	¸	±	±	
6	6	+		&	6	F	V	f	v	À	Ò	ã	†	†	¸	±	±	
7	7			'	7	G	W	g	w	ç	ù	ó	†	†	¸	±	±	
8	8	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
9	9	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
10	A	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
11	B	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
12	C	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
13	D	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
14	E	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
15	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	

# Character Set Tables

## IBM Character Set 2 (Norway)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	ø	P	·	p	ç	æ	å	ä	å	ä	å	æ
1	1		DC1	!	1	A	Q	a	q	ü	æ	å	ä	å	ä	å	æ
2	2		DC2	"	2	B	R	b	r	é	æ	ó	æ	å	ä	å	æ
3	3			§	3	C	S	c	s	ä	ó	ü		†	å	x	æ
4	4		DC4	\$	4	D	T	d	t	ä	ó	ü		†	å	x	æ
5	5			§	5	E	U	e	u	ä	ó	ü		†	å	x	æ
6	6			§	6	F	V	f	v	ä	ó	ü		†	å	x	æ
7	7				7	G	W	g	w	c	ü	g	†	†	†	†	†
8	8	BS	CAN	(	8	H	X	h	x	æ	y	z	†	†	†	†	†
9	9	HT		)	9	I	Y	i	y	æ	ó	ü	†	†	†	†	†
10	A	LF		*	:	J	Z	j	z	æ	ó	ü	†	†	†	†	†
11	B	VT	ESC	+	:	K	[	k	{	i	æ	†	†	†	†	†	†
12	C	FF		,	<	L	\	l	:	i	æ	†	†	†	†	†	†
13	D	CR		-	=	M	]	m	}	i	æ	†	†	†	†	†	†
14	E	SO		.	>	N	^	n	~	æ	ó	ü	†	†	†	†	†
15	F	SI		/	?	O	_	o		æ	ó	ü	†	†	†	†	†

## IBM All Character (Norway)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	ø	·	SP	0	ø	P	·	p	ç	æ	å	ä	å	ä	å	æ
1	1	ø	·	!	1	A	Q	a	q	ü	æ	å	ä	å	ä	å	æ
2	2	ø	·	"	2	B	R	b	r	é	æ	ó	æ	å	ä	å	æ
3	3	ø	·	§	3	C	S	c	s	ä	ó	ü		†	å	x	æ
4	4	ø	·	§	4	D	T	d	t	ä	ó	ü		†	å	x	æ
5	5	ø	·	§	5	E	U	e	u	ä	ó	ü		†	å	x	æ
6	6	ø	·	§	6	F	V	f	v	ä	ó	ü		†	å	x	æ
7	7	ø	·		7	G	W	g	w	c	ü	g	†	†	†	†	†
8	8	ø	·	(	8	H	X	h	x	æ	y	z	†	†	†	†	†
9	9	ø	·	)	9	I	Y	i	y	æ	ó	ü	†	†	†	†	†
10	A	ø	·	*	:	J	Z	j	z	æ	ó	ü	†	†	†	†	†
11	B	ø	·	+	:	K	[	k	{	i	æ	†	†	†	†	†	†
12	C	ø	·	,	<	L	\	l	:	i	æ	†	†	†	†	†	†
13	D	ø	·	-	=	M	]	m	}	i	æ	†	†	†	†	†	†
14	E	ø	·	.	>	N	^	n	~	æ	ó	ü	†	†	†	†	†
15	F	ø	·	/	?	O	_	o		æ	ó	ü	†	†	†	†	†

### Note:

- Set 1 is the same one which 03<sub>H</sub>–06<sub>H</sub> and 15<sub>H</sub> is switched to NUL, and 80<sub>H</sub>–9F<sub>H</sub> is switched to 00<sub>H</sub>–1F<sub>H</sub>.

## IBM Character Set 2 (Turkey)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	ø	P	·	p	ç	æ	å	ä	å	ä	å	æ
1	1		DC1	!	1	A	Q	a	q	ü	æ	å	ä	å	ä	å	æ
2	2		DC2	"	2	B	R	b	r	é	æ	ó	æ	å	ä	å	æ
3	3			§	3	C	S	c	s	ä	ó	ü		†	å	x	æ
4	4		DC4	\$	4	D	T	d	t	ä	ó	ü		†	å	x	æ
5	5			§	5	E	U	e	u	ä	ó	ü		†	å	x	æ
6	6			§	6	F	V	f	v	ä	ó	ü		†	å	x	æ
7	7				7	G	W	g	w	c	ü	g	†	†	†	†	†
8	8	BS	CAN	(	8	H	X	h	x	æ	y	z	†	†	†	†	†
9	9	HT		)	9	I	Y	i	y	æ	ó	ü	†	†	†	†	†
10	A	LF		*	:	J	Z	j	z	æ	ó	ü	†	†	†	†	†
11	B	VT	ESC	+	:	K	[	k	{	i	æ	†	†	†	†	†	†
12	C	FF		,	<	L	\	l	:	i	æ	†	†	†	†	†	†
13	D	CR		-	=	M	]	m	}	i	æ	†	†	†	†	†	†
14	E	SO		.	>	N	^	n	~	æ	ó	ü	†	†	†	†	†
15	F	SI		/	?	O	_	o		æ	ó	ü	†	†	†	†	†

## IBM All Character Set (Turkey)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	ø	·	SP	0	ø	P	·	p	ç	æ	å	ä	å	ä	å	æ
1	1	ø	·	!	1	A	Q	a	q	ü	æ	å	ä	å	ä	å	æ
2	2	ø	·	"	2	B	R	b	r	é	æ	ó	æ	å	ä	å	æ
3	3	ø	·	§	3	C	S	c	s	ä	ó	ü		†	å	x	æ
4	4	ø	·	§	4	D	T	d	t	ä	ó	ü		†	å	x	æ
5	5	ø	·	§	5	E	U	e	u	ä	ó	ü		†	å	x	æ
6	6	ø	·	§	6	F	V	f	v	ä	ó	ü		†	å	x	æ
7	7	ø	·		7	G	W	g	w	c	ü	g	†	†	†	†	†
8	8	ø	·	(	8	H	X	h	x	æ	y	z	†	†	†	†	†
9	9	ø	·	)	9	I	Y	i	y	æ	ó	ü	†	†	†	†	†
10	A	ø	·	*	:	J	Z	j	z	æ	ó	ü	†	†	†	†	†
11	B	ø	·	+	:	K	[	k	{	i	æ	†	†	†	†	†	†
12	C	ø	·	,	<	L	\	l	:	i	æ	†	†	†	†	†	†
13	D	ø	·	-	=	M	]	m	}	i	æ	†	†	†	†	†	†
14	E	ø	·	.	>	N	^	n	~	æ	ó	ü	†	†	†	†	†
15	F	ø	·	/	?	O	_	o		æ	ó	ü	†	†	†	†	†

### Note:

- Set 1 is the same one which 03<sub>H</sub>–06<sub>H</sub> and 15<sub>H</sub> is switched to NUL, and 80<sub>H</sub>–9F<sub>H</sub> is switched to 00<sub>H</sub>–1F<sub>H</sub>.



## IBM Character Set (BRASCI)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	NUL		SP	0	@	P	`	p	NUL		SP	0	A	D	à	ò
1	1		DC1	!	1	A	Q	a	q		DC1	;	z	A	R	á	ñ
2	2		DC2	"	2	B	R	b	r		DC2	¸	¸	A	O	â	ó
3	3			#	3	C	S	c	s			É	¸	A	O	ã	ô
4	4		DC4	\$	4	D	T	d	t		DC4	¸	¸	A	O	ä	ö
5	5			%	5	E	U	e	u			¸	¸	A	O	å	õ
6	6			&	6	F	V	f	v			¸	¸	A	O	æ	ö
7	7			'	7	G	W	g	w			¸	¸	C	Q	ç	œ
8	8	BS	CAN	(	8	H	X	h	x	BS	CAN	¸	¸	¸	¸	¸	¸
9	9	HT	)	9	I	Y	i	y	HT			¸	¸	¸	¸	¸	¸
10	A	LF	*	:	J	Z	j	z	LF			¸	¸	¸	¸	¸	¸
11	B	VT	ESC	+	;	K	[	k	{	VT	ESC	<	>	¸	¸	¸	¸
12	C	FF	,	<	L	\	l	;	FF			¸	¸	¸	¸	¸	¸
13	D	CR	-	=	M	]	m	}	CR			¸	¸	¸	¸	¸	¸
14	E	SO	.	>	N	^	n	~	SO			¸	¸	¸	¸	¸	¸
15	F	SI	/	?	O	_	o		SI			¸	¸	¸	¸	¸	¸

## IBM All Character Set (BRASCI)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	>	SP	0	@	P	`	p	SP	SP	SP	0	A	D	à	ò
1	1	0	<	!	1	A	Q	a	q	SP	SP	;	z	A	R	á	ñ
2	2	0	!	"	2	B	R	b	r	SP	SP	¸	¸	A	O	â	ó
3	3	0	!	#	3	C	S	c	s	SP	SP	É	¸	A	O	ã	ô
4	4	0	!	\$	4	D	T	d	t	SP	SP	¸	¸	A	O	ä	ö
5	5	0	!	%	5	E	U	e	u	SP	SP	¸	¸	A	O	å	õ
6	6	0	!	&	6	F	V	f	v	SP	SP	¸	¸	A	O	æ	ö
7	7	0	!	'	7	G	W	g	w	SP	SP	¸	¸	C	Q	ç	œ
8	8	0	!	(	8	H	X	h	x	SP	SP	¸	¸	¸	¸	¸	¸
9	9	0	!	)	9	I	Y	i	y	SP	SP	¸	¸	¸	¸	¸	¸
10	A	0	!	*	:	J	Z	j	z	SP	SP	¸	¸	¸	¸	¸	¸
11	B	0	!	+	;	K	[	k	{	SP	SP	<	>	¸	¸	¸	¸
12	C	0	!	,	<	L	\	l	;	SP	SP	¸	¸	¸	¸	¸	¸
13	D	0	!	-	=	M	]	m	}	SP	SP	¸	¸	¸	¸	¸	¸
14	E	0	!	.	>	N	^	n	~	SP	SP	¸	¸	¸	¸	¸	¸
15	F	0	!	/	?	O	_	o		SP	SP	¸	¸	¸	¸	¸	¸

## IBM Character Set (Abicomp)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	NUL		SP	0	@	P	`	p	NUL		SP	0	;	ò	SP	SP
1	1		DC1	!	1	A	Q	a	q		DC1	A	ó	á	ó	SP	SP
2	2		DC2	"	2	B	R	b	r		DC2	A	ó	á	ó	SP	SP
3	3			#	3	C	S	c	s			A	ó	á	ó	SP	SP
4	4		DC4	\$	4	D	T	d	t		DC4	A	ó	á	ó	SP	SP
5	5			%	5	E	U	e	u			A	ó	á	ó	SP	SP
6	6			&	6	F	V	f	v			C	ó	ç	ó	SP	SP
7	7			'	7	G	W	g	w			¸	ó	¸	ó	SP	SP
8	8	BS	CAN	(	8	H	X	h	x	BS	CAN	¸	ó	¸	ó	SP	SP
9	9	HT	)	9	I	Y	i	y	HT			¸	ó	¸	ó	SP	SP
10	A	LF	*	:	J	Z	j	z	LF			¸	ó	¸	ó	SP	SP
11	B	VT	ESC	+	;	K	[	k	{	VT	ESC	¸	ó	¸	ó	SP	SP
12	C	FF	,	<	L	\	l	;	FF			¸	ó	¸	ó	SP	SP
13	D	CR	-	=	M	]	m	}	CR			¸	ó	¸	ó	SP	SP
14	E	SO	.	>	N	^	n	~	SO			¸	ó	¸	ó	SP	SP
15	F	SI	/	?	O	_	o		SI			¸	ó	¸	ó	SP	DEL

## IBM All Character Set (Abicomp)

Dec.	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	>	SP	0	@	P	`	p	SP	SP	SP	0	;	ò	SP	SP
1	1	0	<	!	1	A	Q	a	q	SP	SP	A	ó	á	ó	SP	SP
2	2	0	!	"	2	B	R	b	r	SP	SP	A	ó	á	ó	SP	SP
3	3	0	!	#	3	C	S	c	s	SP	SP	A	ó	á	ó	SP	SP
4	4	0	!	\$	4	D	T	d	t	SP	SP	A	ó	á	ó	SP	SP
5	5	0	!	%	5	E	U	e	u	SP	SP	A	ó	á	ó	SP	SP
6	6	0	!	&	6	F	V	f	v	SP	SP	C	ó	ç	ó	SP	SP
7	7	0	!	'	7	G	W	g	w	SP	SP	¸	ó	¸	ó	SP	SP
8	8	0	!	(	8	H	X	h	x	SP	SP	¸	ó	¸	ó	SP	SP
9	9	0	!	)	9	I	Y	i	y	SP	SP	¸	ó	¸	ó	SP	SP
10	A	0	!	*	:	J	Z	j	z	SP	SP	¸	ó	¸	ó	SP	SP
11	B	0	!	+	;	K	[	k	{	SP	SP	¸	ó	¸	ó	SP	SP
12	C	0	!	,	<	L	\	l	;	SP	SP	¸	ó	¸	ó	SP	SP
13	D	0	!	-	=	M	]	m	}	SP	SP	¸	ó	¸	ó	SP	SP
14	E	0	!	.	>	N	^	n	~	SP	SP	¸	ó	¸	ó	SP	SP
15	F	0	!	/	?	O	_	o		SP	SP	¸	ó	¸	ó	SP	SP

# Character Set Tables

## International Character Set

	n	35d 23H	36d 24H	64d 40H	91d 5BH	92d 5CH	93d 5DH	94d 5EH	96d 60H	123d 7BH	124d 7CH	125d 7DH	126d 7EH	155d 9BH	157d 9DH
USA	0	#	\$	@	[	\	]	^	`	{		}	~	ç	¥
FRANCE	1	#	\$	à	´	ç	§	^	`	é	ù	è	¨	ç	¥
GERMANY	2	#	\$	§	À	Ö	Ü	^	`	ä	ö	ü	ß	ç	¥
ENGLAND	3	£	\$	@	[	\	]	^	`	{		}	~	ç	¥
DENMARK1	4	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	¨	ø	Ø
SWEDEN	5	#	¤	É	À	Ö	Å	Ü	é	ä	ö	å	ü	ç	¥
ITALY	6	#	\$	@	´	\	é	^	`	à	ò	è	ì	ç	¥
SPAIN1	7	¤	\$	@	;	Ñ	¿	^	`	ñ	}]	¨	ç	¥	
JAPAN	8	#	\$	@	[	¥	]	^	`	{		}	¨	ç	¥
NORWAY	9	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	ø	Ø
DENMARK2	10	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	ø	Ø
SPAIN2	11	#	\$	á	;	Ñ	¿	é	`	í	ñ	ó	ú	ç	¥
LATIN AMERICA	12	#	\$	á	;	Ñ	¿	é	ü	í	ñ	ó	ú	ç	¥
KOREA	13	#	\$	@	[	₩	]	^	`	{		}	¨	ç	¥
LEGAL	64	#	\$	§	´	ˆ	˜	˘	˙	˚	˛	˜	˘	˙	˚

\*1

\*2

**Note:**

- \*1 These characters can be changed only in the Epson LQ-860 mode. In the IBM Proprinter X24E mode, International Character Set is set to USA and it can not be changed.
- \*2 These characters are effective in both Graphic Character Set 2 of the Epson LQ-860 and IBM Proprinter X24E modes.

# Glossary

## A

**AGM (Alternate Graphics Mode):**

AGM will allow you to select Epson graphics while in the IBM mode.

**ASCII:**

"ASCII" is an acronym for "American Standard Code for Information Interchange". In ASCII, each character has a unique code.

## B

**BASIC:**

BASIC is a commonly used microcomputer programming language.

**Baud (baud rate):**

Baud is a unit of data transmission speed between computer devices. Can be but not necessarily equal to bits per second.

**Bidirectional printing:**

Processing speed is increased by bidirectional printing. That is, the printer prints right-to-left as well as in the normal left-to-right manner.

**Binary:**

Binary is a numbering system using the two digits of zero (0) and one (1).

**Bit:**

Bit is an abbreviation for "binary digit (0~1)", and is the smallest unit of information used by a printer or computer.

**Bit-image graphics:**

Graphics which are created through a series of dots printed in vertical columns.

**Buffer:**

Buffer is an area of memory which stores data temporarily.

**Byte:**

Byte is the unit of information used by a printer or computer. One byte is equivalent to eight (8) bits.

## C

**Character set:**

Character set is the set of characters, numbers, and symbols available for printing.

**Code page:**

The computer system stores characters and numbers as a numerical data. The code page is a table which is used to change them into the numerical data.

**Control codes:**

Control codes are commands from the computer to the printer that are non-printable characters. They are used to control printer functions.

**cpi:**

"cpi" is an abbreviation for "characters per inch", and means the maximum number of characters printed in one horizontal inch.

**cpl:**

"cpl" is an abbreviation for "characters per line", and means the maximum number of characters printed on one line.

**cps:** "cps" is an abbreviation for "characters per second", and means the number of characters printed in one second.

**CR (Carriage Return):** "CR" is a control code that returns the printhead to the left margin.

## D

**Decimal (Dec.):** Decimal is a numbering system composed of 10 digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

**Default:** Default has two meanings: one indicates the previously set conditions or settings executed when the power is turned on, reset or initialized; and the other indicates the original settings when shipped from the factory (Factory settings).

**Dot matrix printer:** An impact printer whereby wires (pins) strike the ribbon and subsequently a dot prints on the paper. The software in the printer supplies the commands which determine which pins are activated to form the appropriate character(s).

**Dots per inch (DPI):** A measure of resolution used for monitors and printers.

**Double strike printing:** Double printing is a print quality enhancing mode which uses a double strike with two passes of the printhead.

**Double high printing:** Double high printing makes the height of a character twice that of a normal one.

**Double wide printing:** Double wide printing makes the width of a character twice that of a normal one.

**Download character:** Download character is a character which the user can design.

**Draft:** Draft is one of three print qualities available on this printer. Draft mode uses a minimum number of dots per character to maximize printing speed.

## E

**Emphasized printing:** Emphasized printing is a print quality enhancing mode done in one pass of the printhead at half speed, allowing horizontally adjacent dots to be printed producing a darker character.

**Emulation:** Emulation means to operate like another printer. This printer can emulate the Epson LQ-860 or the IBM Proprinter X24E.

**Escape (ESC) sequence:** "ESC" is a control code that begins most printer commands. The characters which follow the "ESC" are interpreted as command, rather than characters to print.

## F

**Fanfold paper:** Fanfold paper has regularly spaced sprocket holes on the left and right sides and pages are separated by a perforation between each sheet. May also be known as computer paper or tractor paper.

**FF (Form feed):** "FF" is a control code that advances the paper one page.

**Fixed pitch printing:** A type of printing whereby each character is the same width and prints as equal intervals.

**Font:** All characters of a typeface having the same size, weight, style character table, typeface and rotation. Changing an attribute selects a new font.

## G

**Graphics:** Groups of dots or characters that are used to create images, as opposed to text and numbers.

**Graphics mode:** A special mode of print in which only raster graphics printing is possible.

## H

**Hexadecimal:** Hexadecimal is a numbering system using the 16 digits, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E and F.

## I

**Initialization:** Initialization means to reset the printer to the initial start up condition.

**Interface:** Interface is the connection between the two separate systems, such as the computer and the printer. A parallel interface transfers data one character or code at a time, and a serial interface transfers data one bit at a time.

**International character set:** A set of characters defined by each country.

**I/O:** "I/O" is the symbolic notation for "Input/Output".

**Italics:** A font style in which the character slants to the right. Used for emphasis, this is sometimes called oblique.

## J

**Justification:** The alignment of multiple lines of text along the left margin, right margin or both margins. When both margins are justified, the term is full justification.

## L

**Letter Quality (LQ):** LQ is one of three print qualities available on this printer. LQ mode increases the number of dots per character to improve the print quality but decrease the printing speed.

**LF (Line Feed):** "LF" is a control code that advances the paper one line.

**Line spacing:** The space between lines of type. Also called leading.

**LSB:** "LSB" is an acronym for "Least Significant Bit", and means the rightmost position in a binary number.

## M

**Margin:** The area between the edge of the paper and the first or last print position; left, right, top or bottom margin.

**MSB:** "MSB" is an acronym for "Most Significant Bit", and means the leftmost position in a binary number.

## O

**OFF LINE:** OFF LINE is the condition in which the printer can not communicate with the computer.

**ON LINE:** ON LINE is the condition in which the printer can communicate with the computer.

**Overline printing:** Overline printing produces a continuous line above the characters, using the first pin of the printhead.

## P

- Parallel interface:** Transmitting data one byte at a time from computer to printer.
- Perforation:** Perforation indicates the tear position on the fanfold paper.  
(☞ P. 60)
- Pitch:** Pitch is the number of characters which will print in one inch. Pitch is equivalent to characters per inch (cpi).
- Platen:** Platen is the rubber roller which is a backing for the paper when printing.
- Printable area:** The area of a page where the print quality is assured.
- Printer drivers:** Most of today's off the shelf software programs use printer drivers to control printer functions. These drivers contain the software codes your software program uses to access printer features. With the printer driver installed, you will seldom need to know any of the printer commands.
- Printing area:** The area of the page within the margins, where printing actually occurs. The printing area is equal to or less than the printable area.
- Proportional spacing (PS):** Proportional spacing is a printing method of adjusting the character space in which a character is printed. A "w" will take up more space than an "i".

## R

- RAM:** RAM is an acronym for "Random Access Memory". It is the part of the printer's memory in which data is stored, control codes or download characters are to be printed. RAM is cleared when the printer is turned off.
- Reset:** Returning to the printer's original settings.
- ROM:** ROM is an acronym for "Read Only Memory". It is the part of the printer's memory in which predefined characters and operating information for the printer are stored. ROM is not cleared when the printer is turned off.

## S

**Self test:** Self test is a method for testing the operation of the printer.  
(☞ P. 26)

**String concatenation:** This is the joining of two or more bytes of data into a single command.

**Style:** A font attribute which changes the appearance by printing the character on a slant. (Italic)

**Super Quiet mode:** SUPER QUIET mode is a helpful feature of this printer which reduces printing noise.

## T

**Top of Form:** Top of Form is the first line position on the paper. This printer has the "Top of Form function" a helpful feature which loads the paper automatically to the designated position.

**Typeface:** All characters of a single, unified design at any size and rotation. Example: Roman, Prestige, etc.

## U

**Unidirectional printing:** The printer prints left-to-right only. Printing speed is slow compared with bidirectional printing. This print method permits better vertical alignment.

**User-defined characters:** Also called download characters, these are custom characters defined within RAM.

## W

**Weight:** A font attribute that determines the thickness of the lines creating the character. (Bold)

**Windows:** An operating environment which lies between the operating system (DOS) and an application, that controls the system devices.



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# Options and Supplies

- KX-PT12**    **Auto Cut Sheet Feeder (Single Bin)**  
This option allows you to automatically load 50 cut sheets (20 lbs) of paper into the printer.
- KX-P44**    **32K Buffer Chip**
- KX-P160**    **Ribbon Cassette (Black)**
- KX-P165**    **Ribbon Cassette (4 Colors)**
- KX-PCK12**    **Color Kit [KX-P165 (Color ribbon), Gear Unit, Motor Unit]**  
This option is for KX-P2130 only.

## **FOR USERS IN CONTINENTAL UNITED STATES ONLY**

### **TECHNICAL SUPPORT CALLS**

If you have read this manual and tried the troubleshooting procedures and you are still having difficulty, please contact the store from which the unit was purchased.

You may also call the technical support telephone number which is operational during east coast business hours (9:00 AM to 7:00 PM).

For technical support or to order options and supplies, please call 1-800-222-0584

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